Albert Bridge House, Manchester

Environmental Statement Volume 1: Primary Report and Supporting Graphics

December 2022

Turley

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1. Introduction

Overview

1.1 This Environmental Statement (ES) is part of a suite of documents that support a detailed planning application (the 'Application') submitted by Oval Real Estate Ltd (the 'Applicant'). The proposals are for a mixed-use development (the 'Proposed Scheme') on land at and around Albert Bridge House in Manchester City Centre.

1.2 The Proposed Scheme is described as:

'Demolition of the existing building complex and the construction of a mixed use development comprising two separate components in the form of an office building of up to 19 storeys with ground floor commercial, leisure, food and drink uses (All Use Class E) and/ or drinking establishment Sui Generis, and, a residential building up to 45 storeys (Use Class C3) with additional roof top plant, basement car parking, cycle parking, landscaping and public realm, servicing and access arrangements, highway alterations and other associated works'.

1.3 Further details of the Proposed Scheme are set out within **Chapter 4: Development Specification** and accompanying plans (which are listed below).

1.4 The maximum Environmental Impact Assessment (EIA) Study Area boundary for the purposes of this ES is defined on **Figure 1.1** and is referred to as the 'Site'. This includes all temporary and permanent works required as part of the Proposed Scheme and therefore includes additional areas in comparison to the Application boundary[a]. The Site covers approximately 1.4 hectares (ha) and lies within Manchester City Council's (MCC) administrative area. Further details on the Site are provided in **Chapter 3: Site Context**.

1.5 Turley were commissioned by the Applicant to undertake the EIA and prepare this ES, with support from a competent project team (as set out in **Table 1.2**).

1.6 This ES is a material consideration in the determination of the Application[b] by MCC as the local planning authority. The ES reports the outputs of the EIA process undertaken in accordance with The Town and Country Planning (EIA) Regulations 2017 (as amended)[1] (the 'EIA Regulations').

1.7 The remainder of this Chapter is structured as follows:

- Definition and aims of EIA;
- Legal framework for EIA;

[a] Including a section of the River Irwell, open space around Trinity Bridge and part of the A34 Bridge Street.
[b] As set out in the Town and Country Planning Act 1990.

- The project team and their roles;
- Planning context;
- Application documents and plans;
- Structure of the ES; and
- Availability of the ES.

Definition and Aims of EIA

1.8 EIA is defined by Regulation 4, Paragraph 1 of the EIA Regulations as *'a process consisting of:*

(a) the preparation of an environmental statement;

(b) any consultation, publication and notification required by, or by virtue of, these Regulations of any enactment in respect of EIA development; and

(c) the steps required under Regulation 26'[c]*.*

1.9 Under Regulation 4, Paragraph 2 of the EIA Regulations an EIA must '*identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the proposed development on the following factors -*

(a) population and human health;

(b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC(1) and Directive 2009/147/EC(2);

(c) land, soil, water, air and climate;

(d) material assets, cultural heritage and the landscape; and

(e) the interaction between the factors referred to in sub-paragraphs (a) to (d)'.

1.10 The aim of EIA, as defined by the online Planning Practice Guidance (PPG)[2], is '*…to protect the environment by ensuring that a local planning authority when deciding whether to grant planning permission for a project, which is likely to have significant effects on the environment, does so in the full knowledge of the likely significant effects, and takes this into account in the decision making process. The regulations set out a procedure for identifying those projects which should be subject to an Environmental Impact Assessment, and for assessing, consulting and coming to a decision on those projects which are likely to have significant environmental effects*'.

[c] Which sets out the legal considerations for whether planning permission or subsequent consent should be granted.

Legal Framework for EIA

Overview of the EIA Process

1.11 The EIA Regulations require that prior to consent being granted, for certain types of development, an EIA must be undertaken. The EIA Regulations set out the types of developments which must always be subject to an EIA (referred to as 'Schedule 1 development') and other development which may require an EIA, if they are likely to give rise to significant environmental effects (referred to as 'Schedule 2 development'). The EIA process for the Application is summarised below.

EIA Screening

1.12 The Proposed Scheme does not fall within the description of any project listed within Schedule 1 of the EIA Regulations.

1.13 The Site is not located within a 'Sensitive Area'[d], within the meaning of the EIA Regulations. The thresholds as set out within Schedule 2 should therefore be considered.

1.14 The Proposed Scheme falls under Schedule 2, Paragraph 10 (b) '*Infrastructure projects - Urban development projects*' and exceeds one of the respective thresholds / criteria[e]. Therefore, the Proposed Scheme is 'Schedule 2 development'.

1.15 Exceedances of the thresholds / criteria do not determine the requirement for EIA but requires a subsequent stage to determine '*whether the development is likely to have significant effects on the environment by virtue of factors such as its nature, size or location*', normally presented within an EIA Screening Report and submitted to the local planning (or other determining) authority to inform their Screening Opinion.

1.16 Given the characteristics of the Proposed Scheme, receiving environment (including the Site and surrounding area) and likely significant effects, the Applicant elected to undertake an EIA.

EIA Scoping

1.17 In accordance with Regulation 15, Paragraph 1 of the EIA Regulations, a formal request for a Scoping Opinion supported by an EIA Scoping Report (**Appendix 2.1**) was submitted to MCC on 27th September 2022. A Scoping Opinion (**Appendix 2.2**) was received from MCC on 7th November 2022.

1.18 Further details of the scoping process are provided in **Chapter 2: Approach to EIA**.

ES

1.19 The findings of the EIA are presented in this ES, which has been prepared in accordance with Regulation 18, Paragraph 3 – 5 and Schedule 4 of the EIA Regulations, as well as PPG. An overview of the EIA procedures and methodology adopted throughout this ES

[d] i.e. Sites of Special Scientific Interest, European sites, National Parks, the Broads and Areas of Outstanding Natural Beauty, World Heritage Sites and Scheduled Monuments.
[e] As the Proposed Scheme includes more than 150 dwellings.

is provided in **Chapter 2: Approach to EIA**. The specific methodology adopted for each environmental topic is detailed within the respective **Technical Chapters 6 – 11**.

1.20 **Table 1.1** provides a breakdown of the information required to be included within an ES (as defined by Regulation 18, Paragraph 3 – 5 and Schedule 4 of the EIA Regulations) and where this information is located within this ES (including in other Volumes – see below).

Table 1.1: Required information as specified by the EIA Regulations and location within the ES

Regulation 18	Schedule 4	Location within this ES
(3) an environmental statement is a statement which includes at least - *(a) a description of the proposed development comprising information on the site, design, size and other relevant features of the development.*	*(1) a description of the development including in particular:* *(a) a description of the location of the development;* *(b) a description of the physical characteristics of the whole development, including, were relevant, requisite demolition works, and the land use requirements during the construction and operational stages;* *(c) a description of the main characteristics of the operational phase of the development (in particular any production processes), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used; and* *(d) an estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation) and quantities and types of waste produced during the construction and operation phases.*	**Chapter 3: Site Context**, **Chapter 4: Development Specification** and **Technical Chapters 6 – 11**, where applicable.
(3) (b) a description of the likely significant effects of the proposed development on the environment.	*(5) a description of the likely significant effects of the development on the environment resulting from, inter alia:* *(a) the construction and existence of the development, including, where relevant, demolition works;* *(b) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;* *(c) the emissions of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances and the disposal and recovery of*	**Technical Chapters 6 – 11**, where applicable and **Chapter 12: Assessment of Cumulative Effects**.

Regulation 18	Schedule 4	Location within this ES
	waste; *(d) the risk to human health, cultural heritage or the environment (for example due to accidents or disasters);* *(e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;* *(f) the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change;* *(g) the technologies and the substances used.* *The description of the likely significant effects on the factors specified in regulation 4(2) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development. This description should take into account the environmental protection objectives established at Union or Member State level which are relevant to the project, including in particular those established under Council Directive 92/43/EEC[3] and Directive 2009/147/EC[4].*	
(3) (c) a description of any features of the proposed development, or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment.	*(7) a description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational stages.*	**Chapter 4: Development Specification**, **Technical Chapters 6 – 11**, where applicable, **Chapter 12: Assessment of Cumulative Effects** and **Chapter 13: Summary**.

Regulation 18	Schedule 4	Location within this ES
(3) (d) a description of the reasonable alternatives studied by the developer, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment.	*(2) a description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.*	**Chapter 5: Consideration of Alternatives**.
(3) (e) a non-technical summary of the information referred to in sub-paragraph (a) to (d)	*(9) a non-technical summary of the information provided under paragraphs 1 to 8.*	**Volume 3: Non-Technical Summary**.
(4) an environmental statement must - *(a) where a scoping opinion or direction has been issued in accordance with regulation 15 or 16, be based on the most recent scoping opinion or direction issued (so far as the proposed development remains materially the same as the proposed development which was subject to that opinion or direction);* *(b) include the information reasonably required for reaching a reasoned conclusion of the significant effects of the*	-	**Chapter 2: Approach to EIA** and **Technical Chapters 6 – 11**, where applicable.

Regulation 18	Schedule 4	Location within this ES
development on the environment, taking into account current knowledge and methods of assessment; *(c) be prepared, taking into account the results of any relevant UK environmental assessment, which are reasonably available to the person preparing the environmental statement, with a view to avoiding duplication of assessment.*		
(5) in order to ensure the completeness and quality of the environmental statement - *(a) the developer must ensure that the environmental statement is prepared by competent experts;* *(5) (b) the environmental statement must be accompanied by a statement from the developer outlining the relevant expertise or qualifications of such experts.*		**Chapter 1: Introduction** and the Statement of Technical Competence (**Appendix 1.1**).
-	*(3) a description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and*	**Chapter 3: Site Context** and **Technical Chapters 6 – 11**.

Regulation 18	Schedule 4	Location within this ES
	scientific knowledge.	
-	*(4) a description of the factors specified in regulation 4(2) likely to be significantly affected by the development: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape.*	**Technical Chapters 6 – 11**.
-	*(6) a description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the new required information and the main uncertainties involved.*	**Technical Chapters 6 – 11**.
-	*(8) a description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned. Relevant information available and obtained through risk assessments pursuant to EU legislation such as Directive 2012/18/EU of the European Parliament and of the Council[5] or Council Directive 2009/71/Euratom or UK environmental assessments may be used for this purpose provided that the requirements of this Directive[6] are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and the details of preparedness for and proposed response to such emergencies.*	EIA Scoping Report (**Appendix 2.1**) and, where relevant, **Chapter 4: Development Specification**, **Technical Chapters 6 – 11**, **Chapter 13: Summary** and **Volume 4: Environmental Management Plan**.

Regulation 18	Schedule 4	Location within this ES
	(10) a reference list detailing the sources used for the descriptions and assessment included in the environmental statement	**Chapters 1 – 12**, provided as endnotes within each Chapter.

The Project Team and Their Roles

1.21 Regulation 18, Paragraph 5 (a) of the EIA Regulations requires an EIA to be prepared by competent experts.

1.22 Turley is responsible for the co-ordination and leadership of the EIA process as well as the compilation and procedural review of the constituent parts of the ES (**Table 1.2**). The Institute of Environmental Management and Assessment (IEMA) has awarded Turley the EIA Quality Mark in recognition of our technical quality and commitment to improvement in practice.

1.23 All technical assessments presented in **Technical Chapters 6 – 11** have been undertaken by a suitably qualified project team (**Table 1.2**), inclusive of a thorough technical review to assure technical credibility, followed by a subsequent procedural review by the EIA co-ordination team at Turley.

1.24 A statement outlining the relevant expertise / qualifications of the project team is provided in the Statement of Technical Competence (**Appendix 1.1**).

Table 1.2: Project team and their roles

Team member	Role
Oval Real Estate Ltd.	Applicant
Studio Egret West	Architects
Deloitte Real Estate	Planning advisors
Turley	Lead EIA consultant
Hoare Lea	Technical consultants for noise and vibration and climate change
Urban Green	Technical consultants for townscape and visual
Avison Young	Technical consultants for daylight, sunlight and overshadowing
AKT II	Technical consultants for wind microclimate
Ekosgen	Technical consultants for socio-economics and human health

Planning Context

1.25 The EIA Regulations do not require an ES to assess compliance with planning policy or guidance with respect to the Proposed Scheme. The **Planning and Tall Building Statement**, which accompanies the Application, examines the merits of the Proposed Scheme against relevant national and local planning policy and gives consideration to key policy documents, including the St. Mary's Parsonage Strategic Regeneration Framework[7]. However, where planning policy has informed assessments (i.e. the level of effect or assessment methodology), this has been clearly referenced within **Technical Chapters 6 – 11**.

Application Documents and Plans

1.26 As stated above, the ES is one of the documents submitted in support of the Application.

1.27 The following existing building plans have been included alongside **Chapter 3: Site Context**:

- **Figure 3.1: Existing Ground Floor Plan** (0412-SEW-ZZ-ZZ-DR-A-PL0100);
- **Figure 3.2: Existing Roof Plan** (0412-SEW-ZZ-ZZ-DR-A-PL0102);
- **Figure 3.3: Existing Sections – Block 3 & 6** (0412-SEW-ZZ-ZZ-DR-A-PL0200);
- **Figure 3.4: Existing Sections – Block 18** (0412-SEW-ZZ-ZZ-DR-A-PL0201);
- **Figure 3.5: Existing Block 3 Elevations** (0412-SEW-ZZ-ZZ-DR-A-PL0300);
- **Figure 3.6: Existing Block 6 Elevations** (0412-SEW-ZZ-ZZ-DR-A-PL0301); and
- **Figure 3.7: Existing Block 18 Elevations** (0412-SEW-ZZ-ZZ-DR-A-PL0302).

1.28 The technical assessments within the ES have been based on **Figure 1.1** and the following plans:

- **Figure 4.1: Demolition Plan** (0412-SEW-ZZ-ZZ-DR-A-PL0001);
- **Figure 4.2: GA Plan – Sitewide Basement** (0412-SEW-ZZ-B2-DR-A-PL0999);
- **Figure 4.3: GA Plan – Level 00** (0412-SEW-ZZ-00-DR-A-PL1000);
- **Figure 4.4: GA Plan – Level 01** (0412-SEW-ZZ-01-DR-A-PL1001);
- **Figure 4.5: GA Plan – Level 02** (0412-SEW-ZZ-02-DR-A-PL1002);
- **Figure 4.6: GA Plan – Level 12** (0412-SEW-ZZ-12-DR-A-PL1012);
- **Figure 4.7: GA Plan – Level Roof** (0412-SEW-ZZ-RF-DR-A-PL1020);
- **Figure 4.8: Building A – Level 00** (0412-SEW-AA-00-DR-A-PL1100);
- **Figure 4.9: Building A – Level 01** (0412-SEW-AA-01-DR-A-PL1101);
- **Figure 4.10: Building A – Levels 02 – 09 Typical M4(3)** (0412-SEW-AA-05-DR-A-PL1105);
- **Figure 4.11: Building A – Level 10 Set Back A Lower** (0412-SEW-AA-10-DR-A-PL1110);
- **Figure 4.12: Building A – Level 11 Set Back A Upper** (0412-SEW-AA-11-DR-A-PL1111);

- **Figure 4.13: Building A – Levels 12 – 13 Typical with 2xM4(3)** (0412-SEW-AA-12-DR-A-PL1112);
- **Figure 4.14: Building A – Levels 14 – 21, 24 – 33 Typical M4(2)** (0412-SEW-AA-14-DR-A-PL1114);
- **Figure 4.15: Building A – Level 22 Set Back B Lower** (0412-SEW-AA-22-DR-A-PL1122);
- **Figure 4.16: Building A – Level 23 Set Back B Upper** (0412-SEW-AA-23-DR-A-PL1123);
- **Figure 4.17: Building A – Level 34 Set Back C Lower** (0412-SEW-AA-34-DR-A-PL1134);
- **Figure 4.18: Building A – Level 35 Set Back C Upper** (0412-SEW-AA-35-DR-A-PL1135);
- **Figure 4.19: Building A – Levels 36 – 39 Upper Typical** (0412-SEW-AA-36-DR-A-PL1136);
- **Figure 4.20: Building A – Level 40 Beacon Typical** (0412-SEW-AA-40-DR-A-PL1140);
- **Figure 4.21: Building A – Roof Plan** (0412-SEW-AA-45-DR-A-PL1145);
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- **Figure 4.47: Building B – East Elevation** (0412-SEW-BB-ZZ-DR-A-PL1323);
- **Figure 4.48: Short Section 1 – Building A** (0412-SEW-AA-ZZ-DR-A-PL1210);
- **Figure 4.49: Short Section 2 – Building A** (0412-SEW-AA-ZZ-DR-A-PL1211);
- **Figure 4.50: Long Section – Building A** (0412-SEW-AA-ZZ-DR-A-PL1212);
- **Figure 4.51: Long Section – Building B** (0412-SEW-BB-ZZ-DR-A-PL1213);
- **Figure 4.52: Short Section – Building B** (0412-SEW-BB-ZZ-DR-A-PL1214);
- **Figure 4.53: Landscape General Arrangement** (0412-SEW-ZZ-ZZ-DR-L-PL0100);
- **Figure 4.54: Landscape Planting Plan** (0412-SEW-ZZ-ZZ-DR-L-PL0101);
- **Figure 4.55: Landscape Boundary Treatments Plan** (0412-SEW-ZZ-ZZ-DR-L-PL0102);
- **Figure 4.56: Landscape General Arrangement – Roof Level** (0412-SEW-ZZ-ZZ-DR-L-PL0200); and
- **Figure 4.57: Landscape Planting Plan – Roof Level** (0412-SEW-ZZ-ZZ-DR-L-PL0201).

1.29 The plans listed above are provided alongside the **Chapter 4: Development Specification**. These should also be read in conjunction with the **Accommodation Schedule** submitted alongside the Application.

1.30 There are a number of other documents / plans which provide a greater level of detail on how the Proposed Scheme is likely to come forward, how the Proposed Scheme complies with policy or provide assessments for environmental topics for which no likely significant environmental effects are considered to arise. Where information from these documents has informed the description of the Proposed Scheme upon which the ES is based, this is clearly stated within **Chapter 4: Development Specification**. However, they do not inform the assessment of likely significant effects and are not connected to the ES.

1.31 These documents and plans are therefore submitted as stand-alone Application documents or plans and are as follows.

- **Design and Access Statement (including Landscaping)**;
- **Accommodation Schedule**;
- **Planning and Tall Building Statement**;
- **Statement of Consultation**;
- **Archaeology Desk-Based Assessment**;
- **Air Quality Assessment**;
- **Biodiversity Net Gain Assessment and Biodiversity Enhancement Management Plan**;
- **Broadband Assessment**;
- **Crime Impact Statement**;
- **Drainage Strategy Report**;
- **Preliminary Ecological Appraisal**;
- **Energy Strategy**;
- **Environmental Noise Survey**;
- **Environmental Standards Statement**;
- **BREEAM New Construction 2018 Pre-Assessment Report** (appended to ESS);
- **Fire Engineering Brief**;
- **Flood Risk Assessment**;

- **Green and Blue Infrastructure Statement** (appended to Design and Access Statement);
- **Heritage Statement**;
- **Local Labour Agreement**;
- **Phase 1 Desk Study Report**;
- **Residential and Operational Management Strategy**;
- **Technical Aerodrome Safety Assessment**;
- **Tree Report**;
- **TV Reception Survey**;
- **Interim Travel Plan**;
- **Transport Statement**;
- **Ventilation Strategy;**
- **Viability Assessment**; and
- **Waste Management Strategy**;

Structure of the ES

1.32 The ES is provided in four volumes:

- **Volume 1: Primary Report and Supporting Graphics**;
- **Volume 2: Technical Appendices to Primary Report**;
- **Volume 3: Non-Technical Summary**; and
- **Volume 4: Environmental Management Plan**.

1.33 **Volume 1: Primary Report and Supporting Graphics** provides the main text of the ES which is divided into Chapters that are supported by a series of figures and technical appendices as appropriate (see **Volume 2: Technical Appendices to Primary Report**).

1.34 The structure of **Volume 1: Primary Report and Supporting Graphics** is outlined in **Table 1.3**.

Table 1.3: Structure of the ES

Chapter no.	Chapter title	Description of content
1	**Introduction**	Introduction to the ES, including definitions and aims

Chapter no.	Chapter title	Description of content
		of EIA, legal framework and requirements of EIA and the structure of the ES.
2	**Approach to EIA**	Outlines adoption and application of best practice within the EIA process, scope of the EIA, stakeholder engagement and approach to the assessment of likely significant effects.
3	**Site Context**	Overview of the location of the Site and the sensitive receptors identified in **Technical Chapters 6 – 11**.
4	**Development Specification**	Comprehensive description of all elements of the Proposed Scheme including its physical characteristics across the construction and operational stages. It is this description that has informed the technical assessments reported in this ES. This description is also inclusive of the committed primary and tertiary mitigation considered in **Technical Chapters 6 – 11**.
5	**Consideration of Alternatives**	Outline of the main alternatives considered by the Applicant.
6	**Noise and Vibration**	Presentation of the assessment of likely significant effects arising from the Proposed Scheme and secondary mitigation considered suitable to avoid, offset, or reduce anticipated adverse effects or improve beneficial effects.
7	**Townscape and Visual**	
8	**Daylight, Sunlight and Overshadowing**	
9	**Wind Microclimate**	
10	**Socio-economics and Human Health**	
11	**Climate Change**	
12	**Assessment of Cumulative Effects**	Provides a single and comprehensive assessment of cumulative effects, including effect interactions and in-combination effects.
13	**Summary**	Summarises the outputs of the technical assessments presented within the ES.

1.35 As noted above **Volume 2: Technical Appendices to Primary Report** encompasses a range of technical reports which have informed the technical assessments presented in **Volume 1: Primary Report and Supporting Graphics**. The contents of **Volume 2: Technical Appendices to Primary Report** are provided within the Volume contents page.

1.36 **Volume 3: Non-Technical Summary** provides a summary of the ES in a non-technical language to aid communication and understanding of the Proposed Scheme and the EIA process undertaken.

1.37 **Volume 4: Environmental Management Plan** acts as the checklist for all mitigation which is required to be implemented, which can be updated throughout subsequent stages of the project.

Availability of the ES

1.38 The Application has been submitted to MCC. The ES alongside all Application documents and plans are available on the MCC website for viewing and downloading at the following link:

https://pa.manchester.gov.uk/online-applications/

1.39 Copies of the ES can be requested from Turley for a fee of £15 (digital file), via the following contact details:

Turley
1 New York Street,
Manchester, M1 4HD
Tel: 0161 233 7676

1.40 During the determination of the Application, members of the public may comment on the application via MCC, either in writing or through the MCC planning portal website. Comments can be sent via the following contact details:

MCC
Town Hall Extension
Albert Square
Manchester
M2 5DB
Tel: 0161 234 4490
Email: building.control@manchester.gov.uk

References

[1] The Town and Country Planning (Environmental Impact Assessment) Regulations 2017, Statutory Instrument 2017 No.571 (as amended by Statutory Instrument 2018 No. 695).
[2] Ministry of Housing, Communities & Local Government, Planning Practice Guidance [Online], available at: https://www.gov.uk/government/collections/planning-practice-guidance.
[3] The Council of the European Communities, Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.
[4] The European Parliament and the Council of the European Union, Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds.
[5] The European Parliament and the Council of the European Union, Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC Text with EEA relevance.
[6] The Council of the European Union, COUNCIL DIRECTIVE 2009/71/EURATOM of 25 June 2009 establishing a Community framework for the nuclear safety of nuclear installations.
[7] KPF (2020) St. Mary's Parsonage Strategic Regeneration Framework.



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Site Boundary

CLIENT:
Oval Real Estate Ltd.

PROJECT:
Albert Bridge House

DRAWING:
Site Boundary

PROJECT NUMBER:
OVAZ3000

DRAWING NUMBER:
GIS_001

CHECKED BY:
ET

REVISION:
2.0

STATUS:
Final

DATE:
September 2022

SCALE:
1:1 @ A3

Turley
EIA

2. Approach to EIA

Introduction

2.1 This Chapter sets out the approach and methodology that has been undertaken to complete the assessment of the likely significant environmental effects of the Proposed Scheme as described in **Chapter 4: Development Specification** and supporting plans.

2.2 This Chapter sets out the following:

- Adoption and application of best practice within the EIA process;
- Scope of the EIA, including a summary of the EIA Scoping process and the environmental topics 'scoped in' and 'scoped out' of the EIA and ES;
- Stakeholder engagement, summarising the level of engagement with statutory and non-statutory consultees and other forms of engagement; and
- Approach to the assessment of likely significant effects, specifically covering: approach to boundaries; establishing baseline conditions; consideration of the future baseline; identification of sensitive receptors; information to inform assessment; assessment scenarios; implementation of mitigation and monitoring; determining the level of effect and significance; as well as limitations and assumptions.

Adoption of Best Practice

2.3 As confirmed within **Chapter 1: Introduction**, this ES meets the requirements set out in Regulation 18, Paragraphs 3 – 4 and Schedule 4 of the EIA Regulations. In addition, the EIA (and therefore the ES) has been undertaken with due consideration of the following guidance documents:

- PPG[1];
- IEMA, EIA Guide to Shaping Quality Development[2]; and
- IEMA, EIA Guide to Delivery Quality Development[3].

Scope of the EIA

EIA Scoping Process

2.4 As set out in **Chapter 1: Introduction**, in accordance with Regulation 15, Paragraph 1 of the EIA Regulations, a request for a Scoping Opinion supported by an EIA Scoping Report (**Appendix 2.1**) was submitted to MCC on 27th September 2022. MCC provided a Scoping Opinion on 7th November 2022 (**Appendix 2.2**), supported by technical responses from consultees (both statutory and non-statutory) and other interested parties.

Table 2.1: Summary of the scoping opinion[a]

Title of section	Scoping Opinion comments	How / where the comment has been addressed
Assessment of the Scoping Report		
Introduction	I can confirm that the approach outlined within the Scoping Report is considered to be generally acceptable, appropriate and proportionate. This is also reflected in the nature of the consultation responses. You should note the specific points I have made below within the specific discipline areas which reflect the comments of the consultees and those of the City Council, as Local Planning Authority. These matters should also be included and addressed within the relevant chapters of the ES.	This table sets out how / where the comments have been addressed.
Discussion of alternatives	Paragraph (3)(d) of Regulation 18, and Paragraph 2 of Schedule 4 of the EIA Regulations, require that environmental statements include discussion description of the reasonable alternatives to the Proposed Development and an indication of the main reasons for the option chosen, that have been considered by the applicant. I note within section 3 of your Scoping Request that you intend to provide a discussion on alternatives within the ES. This will focus on alternatives considered and project design evolution.	Refer to **Chapter 5: Consideration of Alternatives**.
Presentation and content of the Environmental Statement	The purpose of an ES is to enable significant environmental impacts of a proposed development to be fully considered before an application for planning consent is determined. The ES provides environmental information to aid the decision-making process. The ES should be laid out clearly, with minimum use of technical terms (where appropriate) and should provide an objective and realistic description of the likely significant impacts of the proposed development. The information should be presented so as to be comprehensible to the specialist and non-	The technical assessments are reported in **Technical Chapters 6 – 11**. Supporting technical information is provided in **Volume 2:**

[a] Note that this summarises from 'Assessment of the Scoping Report' (pg 5) to 'Environmental Statement Chapters – Specific Comments on the Technical Contents' (pg 15) in **Appendix 2.2** where the main commentary is provided.

Title of section	Scoping Opinion comments	How / where the comment has been addressed
	specialist alike. The ES should be concise with supporting technical information placed in appendices.	**Technical Appendices to the Primary Report.** A summary of the outputs of the EIA process and Volume 1 is provided in **Volume 3: Non-Technical Summary**.
Mitigation	Paragraph 7 of Schedule 4 of the EIA Regulations states that mitigation measures may fall into a range of categories namely: • Avoidance of impacts; • Reduction in the magnitude of impacts; or • Compensation for losses incurred through unavoidable impacts. These should be identified as such in the technical chapters of the ES. Mitigation measures should not be developed in isolation, as they may relate to more than one aspect of the environment (e.g. mitigation to address issues of landscaping, surface water management, air quality and biodiversity). The ES should set out the mitigation measures required to prevent, reduce and where possible offset any significant adverse effects. The ES should also identify any residual effects that could be expected to persist even with mitigation in place. The anticipated effectiveness of any mitigation measures proposed should be addressed within the ES. Only mitigation measures that can be shown to be deliverable (i.e. technically and financially viable), and for which the applicant can deliver and implement as part of any planning permission granted, should be taken into account as part of the assessment.	Where relevant mitigation has been identified / developed for the Proposed Scheme in line with IEMA guidance (see 'Implementation of Mitigation and Monitoring' section below). For each likely significant effect, the residual effect (with the application of secondary mitigation or enhancement measures or without) is reported in **Technical Chapters 6 –**

Title of section	Scoping Opinion comments	How / where the comment has been addressed
	It is further recommended that a section is included in the ES in which the mitigation measures proposed across all the technical chapters are collated and presented as an integrated package. It is considered best practice to outline in the ES, the structure of the environmental management and monitoring plan.	**11**. All mitigation identified in the EIA process is presented in **Volume 4: Environmental Management Plan**.
Cumulative effects	The committed developments summarised in Section 12 appears to be acceptable.	Further details are provided in **Chapter 12: Assessment of Cumulative Effects.**
Cross references and summarising of the findings	All specialist chapters should be cross-referenced to other relevant disciplines (for example traffic impacts on air quality). Consideration of the potential for interactions between the different aspects of the environment is essential to the production of a robust assessment. The ES should not be a collection of separate specialist chapters, but a comprehensive assessment of the environmental impacts of the proposed components of the wider scheme and should account for how the identified impacts could be mitigated or avoided, or how suitable compensation could be provided to offset those effects. In accordance with the requirements of paragraph 6 of Schedule 4 of the EIA Regulations, each technical chapter should include a description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment, including details of any difficulties (e.g. technical deficiencies, lack of know-how, etc.) encountered by the applicant during the preparation of the ES and the main uncertainties involved.	Where appropriate, cross-references are included between the Technical Chapters. **Table 1.1** in **Chapter 1: Introduction** sets out how the regulatory requirements have been met in the ES.
Environmental Matters to be Scoped Out of the ES		
Air quality	The Scoping Report provides a detailed account of the approach to the Air Quality Assessment. I	Refer to the **Air**

Title of section	Scoping Opinion comments	How / where the comment has been addressed
	can confirm that Air Quality can be scoped out of the ES provided that the planning application supported by an appropriate report. The following details must be covered appropriately within the document including mitigation. The assessment will need to include exposure assessment for the receptors being introduced to the area and include assessment of pollutants NO2, PM10 and PM2.5. Construction dust assessment and mitigation measures will need to be included, recommendations with regard to EV charge points in line with MCC guidance for developers documents and comment with regard to how the development will comply with the IAQ best practice guidelines. Details of any clean air filters will need to be recommended including specification, location and maintenance requirements.	**Quality Assessment**.
Archaeology	The Scoping Report concludes that although there is evidence of several possible archaeological sites, including post medieval gardens, various late 18th and 19th Century commercial and domestic buildings (Albert Mill), a landing stage, elements of Manchester Gas Works and a police station this would be of local significance only. Accordingly, Archaeology can be scope out of the ES on the basis that a detailed archaeological desk-based assessment is submitted with the planning application.	Refer to the **Archaeology Desk-Based Assessment**.
Biodiversity	The impact on biodiversity is considered to be of no more than local significance. The protected species interest in the development Site is low with the main impacts being the loss of vegetation and habitats. I accept that an biodiversity assessment is capable of being scoped out of the ES and can instead form part of the supporting documents to the planning application and should include measure to improve the nature conservation value of the this urban area including biodiversity net gain.	Refer to the **Preliminary Ecological Assessment**.
Built heritage	The impact on built heritage is considered to be of no more than local significance. Whilst it is noted that Albert Bridge House is a known building it is not listed and is considered to be a non-designated heritage assets only. Other heritage assets would be considered in key views	Refer to the **Heritage Statement**.

Title of section	Scoping Opinion comments	How / where the comment has been addressed
	identified in the townscape study. I accept that a built heritage is capable of being scoped out of the ES and can instead form part of the supporting documents to the planning application and should include measure to improve the nature conservation value of the this urban area including biodiversity net gain.	
Ground conditions and contamination	The Scoping Report concludes that although there is evidence of previous contamination, there is nothing unusual or complex about the ground conditions at the proposed development Site. As a result, there will be no significant effects which would required consideration by an EIA. I confirm that ground conditions can be scoped out of the ES provided the planning application is supported by an appropriate report which supports these conclusions. You will note the specific comments of the Environment Agency with regards to any standalone report produced which must cover the following areas: The proposed development is situated in proximity/adjacent to the River Irk, a sensitive receptor and Water Framework Directive (WFD) resource. The Site is also situated above Principal Aquifer (Chester Sandstone Formation). Manging risk to controlled water resources can be difficult to achieve whereby potential for interaction with sensitive controlled water resources is significant. The proposed development Site is known to be the former location of a gas works (Manchester Gasworks Reserve Station No.1). Such works/sites are known to, traditionally, have associated with them a 'high risk' of adverse historic contamination being present. The development Site is also noted to be situated adjacent to other areas known to be subject to historic industrial land uses which could also adversely impacted upon the development Site. In association with the above, it is noted from section 4.15 of the scoping report the following statement '*in conjunction with/and our following ground investigation work(s) and remedial activities, foundations and the top layer of hard standing will be stripped and removed*'. It is recommended that the undertaking of such works is limited prior to effective characterisation of underlying Site conditions being achieved and a suitable remedial strategy being development.	Refer to the **Phase 1 Desk Study Report**.

Title of section	Scoping Opinion comments	How / where the comment has been addressed
	Removal of foundations and existing impermeable hard standing with prior understanding of conditions could (unless appropriately controlled) result in the mobilisation of any adverse contamination present, creating challenge for any subsequent remedial efforts on-site and or potential for a pollution incident.	
Obtrusive lighting	The Scoping Report concludes that there would be no adverse impacts from lighting in this urban environment. I can confirm that Obtrusive Lighting can be scoped out of the ES provided the planning application is supported by an appropriate report which supports these conclusions.	A lighting design is provided within the **Design and Access Statement (including Landscaping)**.
Risk of major accidents and / or disasters	The Scoping Report concludes that the likelihood of major accidents and disaster is low. I confirm that Risk of major accidents and/or disasters and does not require consideration by an EIA.	Noted.
Transport and accessibility	The Scoping Report provides a detailed account of the approach to the transport assessment, travel planning and car parking. I can confirm that Transport can be scoped out of the ES provided that the planning application supported by appropriate reports. The following details must be covered appropriately within the document including mitigation. Vehicle access to the basement car parking area (for the use of residents, visitors and employees) will be off Bridge Street. It is requested that the car parking spaces for each use class is detailed and justification is provided. Regarding the dimension of these spaces, these should all accord with MCC's standard minimum requirement. It is recommended that standard parking bay dimensions be a minimum of 2.4m x 4.8m and disabled parking bay dimensions a minimum of 3.6m x 6.0m. This should also include a 6-metre aisle width to allow vehicles to safely manoeuvre within the car park with formal demarcation of all spaces.	Refer to the **Transport Statement** and **Interim Travel Plan**.

Title of section	Scoping Opinion comments	How / where the comment has been addressed
	It is requested the swept path drawings are submitted to demonstrate that a large car and service vehicle can access, manoeuvre and egress the Site safely. It is also requested that details on the access arrangements is provided, and a waiting area is installed to ensure that waiting vehicles are not parked on Bridge Street. It is requested that the development installs a Car Club Bay. It is requested that the Transport Assessment provide details of the proposed level of EV Charge to be provided for each use class and justification should be provided. MCC Core Standards states that the following EV Charge Point standards: 20% of parking associated with the residential dwelling should be EV charge. 1 space per 1000m2 of commercial space should be provided for the commercial aspects of the Site. Both use classes will require EV Charge of 7kW. It should also be ensured that ducting infrastructure is installed to allow future EVC installation. There should also be a commitment to monitoring usage within the Travel Plan and increasing the provision when necessary. Up to 600 cycle parking spaces are proposed onsite. The cycle parking should be safe and secure. It is requested that the applicant review MCC Core Strategy Parking Standards and that the cycle parking spaces for each use is detailed, and justification is provided. Details of cycle parking facilities for the proposed development (e.g. number of spaces, location and type) should be provided and shown on plan. A comprehensive review of the cycling infrastructure in the vicinity of the proposed development should also be undertaken. This should include an assessment of the connectivity of the Site with existing cycle routes. The quality and condition of existing infrastructure, cyclist safety and security should also be considered.	

Title of section	Scoping Opinion comments	How / where the comment has been addressed
	The catchment area for cycling, walking and public transport should be captured in maps. The quality of the routes for pedestrians and cyclists should be described and this should include a description of any signing for cycle routes as appropriate. Vehicle access to the basement car park will be in place off Bridge Street. Pedestrian access will be in place from Bridge Street and St. Mary's parsonage. Clear details of proposed vehicular access arrangements including general servicing arrangements. An engineering drawing should be supplied showing the changes to the road network to fully understand the impact of the proposed development. It should be ensured that the proposed access meets design standards and can accommodate HGV movements where necessary. Dropped kerbs and tactile paving should also be installed at the crossing point. It is requested that the Transport Assessment demonstrate that the appropriate stopping sight distance can be achieved from the access point/s. Appropriate mitigation should be identified to accommodate any increased pedestrian and cyclist movements. Any appropriate mitigation should be identified in conjunction with TfGM UTC and MCC Highways. The TA should consider the impact of the development on the existing public transport networks in terms of extension of bus services, additional person trips. Mitigation measures should be considered where appropriate. A review of Traffic Regulation Orders on the surrounding streets in the vicinity of the development is required to determine if any changes are required to ensure potential overflow car parking from the development does not impact highway operation/safety. Waste Management details should be provided for the development Site within the submitted Transport Assessment. The information should include the number of collections and location of collection points. Swept path analysis should be provided of a 11.5m refuse vehicles within the development Site.	

Title of section	Scoping Opinion comments	How / where the comment has been addressed
	The swept path should demonstrate that the refuse vehicle can enter and exit in forward gear and manoeuvre around the Site safely. If the development Site proposes private waste collection then it is requested that details of this are provided. It is requested that servicing is undertaken outside of the network AM and PM peak periods. It is also requested that a Service Management Strategy is in place. Swept path analysis should be provided for the largest expected service/delivery vehicle within the development boundary. The number of deliveries and location of the delivery points should also be provided. It is requested that a service management strategy is submitted as part of the planning application. The existing lay-by on Bridge Street should be retained for drop-off and waste collection. The loading bay should be increased in length to 15m so it could be used on a limited basis by the adjacent Reedham House development. It has been made clear that a management plan would be key in managing the lay by and waste/service arrangements. Consideration should be given to rebalancing Bridge Street outside of the development. TfGM have previously raised the possibility of removing an eastbound land along the Bridge Street frontage and reconfiguring the signalised junction so that the staggered crossing was removed. All public realm designs and materials are agreed with MCC's Capital Programmes and Property team prior to site works beginning. The MCC Flood Risk Management and Street Lighting teams will need to be consulted to discuss lighting and drainage associated with the Site public realm. Typically, we require £38.72 for every year of life for the tree. We normally charge £3,500 per tree in total which would put the average life of a tree at 90 years. That's normally done due to the ambiguity regarding the lifespan of a tree, mainly associated with the maintenance. Commuted sums are required for any non-standard materials (and street trees) used on the	

Title of section	Scoping Opinion comments	How / where the comment has been addressed
	adopted highway. It is proposed that the public realm will provide biodiversity and areas of green space. The River Walk along the northern boundary of the Site will provide connectivity to Trinity Street. Albert Bridge Square will wraparound Building A and Trinity Square connection will be in place and wrap around building B. It is expected that all modifications / improvements to the public highway are achieved with a maximum carbon footprint of 40%. Materials used during this process must also be a minimum of 40% recycled and fully recyclable. Developers will be expected to demonstrate that these standards can be met prior to planning conditions being discharged. The developer is to agree the above with MCC's Statutory Approvals and Network Resilience Teams post planning approval and prior to construction taking place. For any projects that require a S278 and/or S38 highway agreement a Stage 1 Road Safety Audit (RSA 1) is requested to inform the preliminary design at the pre-planning stage - prior to planning approval being granted. This ensures that any underlying highway safety issues have been identified and mitigation is proposed accordingly. The scope and study area of the RSA1 will be agreed on a site-by-site basis however, as a minimum, it is expected to include the following: • 5 years if accidents history; • Audit of key pedestrian routes (crossing points, footway widths, conditions etc.); • Audit of key cycling routes (ASLs, cycle lanes etc.); and • Highway layout including, but not limited to (visibility assessments, speed limited, TROs, traffic calming etc.). A copy of the report (with Designers Response) is to be made available to the Statutory Approvals Team upon request. GMP will be consulted and it is envisaged that they will comment in relation to proposals from a	

Title of section	Scoping Opinion comments	How / where the comment has been addressed
	hostile vehicle mitigation perspective. The EIA scoping note confirms that the anticipated HVGV flows associated with construction will be controlled through the implementation of a Construction Environmental Management Plan. The CEMP should detail any impacts on the highway e.g. the phasing and quantification / classification of vehicular activity associated with planned construction, evidence (including appropriate swept-path assessment) of satisfactory routing both within the Site and on the adjacent highway, site hours, details of contractor parking, wheel wash facilities etc. Dilapidation surveys are requested, this should include photographs and commentary on the condition of carriageway/footways on construction vehicle routes surrounding the Site. Dilapidation surveys are requested, this should include photographs and commentary on the condition of carriageway / footways on construction vehicle routes surrounding the Site. This is to protect MCC and the contractors to verify (prior to construction) the condition of the carriageway. The applicant is advised that any requirements for licensing, hoarding / scaffolding and any associated temporary traffic management arrangements will need discussion and agreement with MCC Highways Applications and Network Resilience teams via Contact Manchester (Tel. 0161 2345004) Email: highwaylicences@manchester.gov.uk. Should there be any basement excavations proposed adjacent to the highway structural drawings and calculations for the temporary and permanent support works must be submitted for checking (for a fee) to MCC Bridges/Structures Section. The applicant is advised to contact highways.structures@manchester.gov.uk. The document should also consider contractor parking and ongoing construction works in the locality. It is recommended that the above is conditioned and attached to any planning permission that may be granted. A Framework Travel Plan will be implemented, with measures to encourage the use of active	

Title of section	Scoping Opinion comments	How / where the comment has been addressed
	travel and public transport, and discourage car travel, particularly single-occupancy trips. Following occupation of the Site an initial survey will be undertaken to understand travel choices, after which modal shift targets will be established. The submission of a Travel Plan will be required with the submission, the implementation of which will be attached to any future approval at the Site.	
Waste and resources	The Scoping Report concludes that there would be no adverse impacts from waste. I confirm that waste and resources can be scoped out of the ES provided the planning application is supported by an appropriate report which supports these conclusions.	Refer to the **Waste Management Strategy**.
Water environment	The following details must be covered appropriately within the document including mitigation for water environment not to be included in the EIA: The Proposed Development Site is situated partially within Flood Zone 2 and 3 in proximity of the River Irwell. As detailed under the association Planning Practice (PPG) development in areas is considered to be at greater risk of flooding. Whilst section 4.38 confirms that the development which could adversely impact upon the function flood plain of the River Irk will be avoided. However, we consider factoring spatial limitations of the development (densely populated urban environment) that challenge may still existing to sufficiently addressing flood risk more widely. We consider challenge may exist to ensuring that no adverse increase in flood risk will occur elsewhere (off-site) in accordance with paragraph 167 of the National Planning Policy Framework. We note that no reference is currently made as to how the standalone FRA will factor the impact of climate change. The assessment, mitigation measures and retention of flood plain storage must be based on a minimum of the design event 1% AEP including appropriate allowance for climate change as set out in the latest NPPF PPG guidance. We also note that under section 5.2.16 that it is stated that consideration will be given to	Refer to the **Flood Risk Assessment** and **Drainage Strategy Report**.

Title of section	Scoping Opinion comments	How / where the comment has been addressed
	discharging surface water at an unrestricted rate to the River Irk – we would question how this aligns to relevant PPG for the management of water. Once further details of development quantum are known, that early and advance consideration is given as to how the matter of flood risk can be appropriately managed as part of the proposed development and whether it's sighting is appropriate (Sequential Test, paragraph 162). Noting wider environmental topics subject to EIA, consideration to be given as to whether potential exists for integration of nature-based solutions rather than the current indicated intention to 'hard-engineered' solutions which do not offer multi-functional benefits e.g. carbon sequestration, increased biodiversity. As this is a major development, it should be screened by our asset register and you should contact floodriskmanagement@manchester.gov.uk. Surface water management needs to follow the drainage hierarchy: • Infiltration into ground; • Connection to the watercourse; • Connection to surface water sewer and as a last resorts; • Connection to the combined sewer. SuDS should be designed to control surface water as close to its source as possible. Well-designed sustainable drainage systems also provide opportunities to: • Reduce the causes and impacts of flooding; • Remove pollutants from urban run-off at source; • Combine water management with green space with benefits for amenity recreation and wildlife. The Council is encouraging use of green roofs, green walls, tree planting and other forms of green infrastructure to allow for the adaptation to climate change in heavily urbanised area. New Green	

Title of section	Scoping Opinion comments	How / where the comment has been addressed
	infrastructure provision should be an exemplar of best practice and innovation in terms of both its design and management. The use of SuDS should also help achieve the sustainability objectives of the PPF. Surface water should be managed to ensure there is no increased surface water from the proposed development and runoff from extreme events should be retained within the Site such that the adjacent third-party land is not affected. Hydraulic calculations and drawings to support the design need to be provided along with proposed standards of operation and maintenance.	
Summary	I agree that some of the matters you have identified to be scoped out of the ES are appropriate. The planning application must be supported by appropriate documentation, including any mitigation, to minimise any effects as a result of the Proposed Development from the matters capable of being scoped out. The City Council reserves the right to re-consider the position following a more detailed consideration of the reports which will accompany the planning application.	Noted. Cross-references to the relevant reports submitted with the Applications are provided above.
ENVIRONMENTAL STATEMENT CHAPTERS – SPECIFIC COMMENTS ON THE TECHNICAL CONTENTS		
Introduction	The ES should be proportionate in its consideration of the aspects of the environment listed under Paragraph 2 of Regulation 4 of the EIA Regulations. Those aspects of the environment that are subject to the most significant impacts from the Proposed Development should be the primary focus of the ES. Your Scoping Report advises that the ES will cover the following topic areas. – Noise and Vibration; – Townscape and Visual; – Daylight, sunlight, overshadowing and solar glare;	Noted.

Title of section	Scoping Opinion comments	How / where the comment has been addressed
	– Wind microclimate; – Socio economic and Human Health; and – Climate Change. As highlighted above, you should also include Human Health within relevant chapters within the ES.	
General comments	For planning purposes, the development Site is located in Manchester City Centre adjacent to significant regeneration areas. The significance of the Site should be reflected throughout the ES. The Environmental Chapters must therefore consider the impacts of the Proposed Development on this context in order to determine any wider significant environmental impacts.	Noted. The significance of the Site is considered throughout the ES.
Noise and vibration	The comments within your Scoping Report are noted and are broadly acceptable in terms of their consideration in the ES. The City Council, as Local Planning Authority, recommends that the ES must take account of the following additional matters with reference to impacts on Noise and Vibration. (a) It has been confirmed that plant and mechanical equipment will be selected to not exceed 5dBbelow the LA90. Under the assessment, receptors will need to include existing commercial, office and residential receptors, committed development receptors and the proposed occupiers of the building. Emergency generators and sub stations will also require assessment. (b) Noise breakout from the proposed commercial units has been considered. The assessment will need to reflect the criteria in MCC guidance for development document. It has been stated that the landlord will specify tenant controls in the lease agreement. The details of the noise limits at the receptors, internal noise limits and mitigation measures will need to be recommended before occupation and validation will be required	Refer to **Chapter 6: Noise and Vibration** which sets out how these comments have been addressed.

Title of section	Scoping Opinion comments	How / where the comment has been addressed
	to confirm compliance. Receptors will need to include existing commercial and residential properties and the occupiers of the proposed Site. Acknowledgement that there will be consideration to restrictions in the low frequency 63Hz and 125Hz frequency bands has been included. These restrictions will need to reflect our criteria. (c) There will be a requirement for the noise assessment to include residential property insulation assessment and recommendations in order to comply with MCC criteria. Assessment shall consider sources of noise from surrounding roads, plant /equipment, nearby entertainment venues and noise from the proposed ground floor commercial units. There may be other sources of noise which will need to be included. Details of the ventilation will need to be provided and assessment to confirm when in full operation the equipment will not exceed the internal noise criteria. Assessment of any façade penetrations for building services such as ventilation will be required and any necessary acoustic insulation of these areas. This Site will also require an AVO overheating assessment. (d) Section 6.23 refers to delivery times to commercial premises of 07:00 to 2300. Restrictions for hours for collections, deliveries and servicing and the hours would be 07:30 to 20:00 Mon to Sat and 10:00 to 18:00 on Sunday and Bank Holidays. (e) In external areas there would be no approval of speakers or music of any kind in these areas. (f) Brief details of the baseline assessment have been included within the scoping report but full details would be required.	
Townscape and visual impact	The comments within your Scoping Report are noted and are acceptable in terms of their consideration in the ES.	The assessment is reported in **Chapter 7: Townscape and Visual**.
Daylight,	The comments within your Scoping Report are noted and are acceptable in terms of their	The assessment is

Title of section	Scoping Opinion comments	How / where the comment has been addressed
sunlight, overshadowing and solar glare	consideration in the ES.	reported in **Chapter 8: Daylight, Sunlight and Overshadowing**. Note that solar glare has been 'scoped out' following further iterative analysis. Further details are provided in **Chapter 8: Daylight, Sunlight and Overshadowing**.
Wind microclimate	The comments within your Scoping Report are noted and are acceptable in terms of their consideration in the ES.	The assessment is reported in **Chapter 9: Wind Microclimate**.
Socio-economics and human health	The comments within your Scoping Report are noted and are acceptable in terms of their consideration in the ES.	The assessment is reported in **Chapter 10: Socio-economics and Human Health**.
Climate change	The comments within your Scoping Report are noted and are acceptable in terms of their consideration in the ES.	The assessment is reported in **Chapter 11: Climate Change**.

Environmental Topics 'Scoped In'

2.5 The following environmental topics and their associated likely significant environmental effects have been taken forward and assessed within the EIA and are reported in the ES (i.e. 'scoped in'):

- Noise and vibration (**Chapter 6**);
- Townscape and visual (**Chapter 7**);
- Daylight, sunlight and overshadowing (**Chapter 8**);
- Wind microclimate (**Chapter 9**);
- Socio-economics and human health (**Chapter 10**); and
- Climate change (**Chapter 11**).

2.6 The likely significant environmental effects considered within each environmental topic are detailed within **Technical Chapters 6 – 11**.

Environmental Topics 'Scoped Out'

2.7 As part of the EIA process, there are several environmental topics and their associated environmental effects which are not considered to be significant and therefore 'scoped out' of the EIA. These are as follows:

- Air quality;
- Archaeology;
- Biodiversity;
- Built heritage;
- Ground conditions and contamination;
- Obtrusive lighting;
- Risk of major accidents and / or disasters;
- Transport and accessibility;
- Waste and resources; and
- Water environment.

2.8 The evidence base to support 'scoping out' these environmental topics is presented in the EIA Scoping Report (**Appendix 2.1**).

Reporting Significant Effects and Iterative Scoping

2.9 The approach to reporting effects within **Volume 1: Primary Report and Supporting Graphics** of the ES is to report only the effects which are 'Significant'.

2.10 Whilst the EIA Scoping Report sought to establish the overall framework for the ES in relation to the environmental topics and likely significant effects, the Proposed Scheme and the strategies that underpin it have been refined or informed by further technical studies, modelling and analysis works and engagement with consultees.

2.11 As a result, whilst the ES is based on the Scoping Opinion, where the scope of the assessment proposed within the EIA Scoping Report has altered or amended (to focus on likely significant effects), this has been clearly identified within the 'Scope of Assessment' section of **Technical Chapters 6 – 11**[b]. This is considered to be in accordance with paragraph 038 of PPG which states that: *'…where it becomes evident during the assessment process…that a particular environmental factor is absent or unlikely to be significantly affected by a proposed development, there should be no need for further assessment of that factor even if it was identified in the scoping process…'*.

2.12 Where appropriate, **Volume 2: Technical Appendices to Primary Report** provides the further detail of environmental topics and effects which are not considered to be significant.

Stakeholder Engagement

2.13 In addition to the consultation undertaken to inform MCC's Scoping Opinion (**Appendix 2.2**), the project team have undertaken technical consultation with relevant consultees to inform the scope, assessment methodology / approach and in some instances the outputs of baseline studies / surveys. The specifics of technical consultation are reported within **Technical Chapters 6 – 11**.

2.14 A pre-application programme of stakeholder engagement has been undertaken, including with officers at MCC. This engagement has enabled the project team to build an understanding of the local context and raised awareness of the Proposed Scheme.

2.15 Public consultation has also been undertaken. A range of communication methods have been used, including press releases, the creation of a project specific website and a drop-in event on 27th September 2022. Further information on stakeholder engagement is provided within the **Statement of Consultation**.

2.16 Key points raised in relation to environmental issues are summarised as follows:

- Design considerations, including retention / refurbishment of Albert Bridge House – see **Chapter 5: Consideration of Alternatives**;
- Daylight, sunlight and overshadowing impacts – see **Chapter 8: Daylight, Sunlight and Overshadowing**;

[b] For example, no significant effects have been identified in respect to solar glare. Further details are provided in **Chapter 8: Daylight, Sunlight and Overshadowing**.

- Changes in views from surrounding properties – see **Chapter 7: Townscape and Visual**;

- Pollution – see **Chapter 4: Development Specification**; and

- Co-ordination of construction logistics with other nearby Approved Projects – see **Chapter 4: Development Specification** and **Volume 4: Environmental Management Plan**.

Approach to Assessment of Likely Significant Environmental Effects

2.17 This section outlines the approach to the assessment of likely significant environment effects adopted, as reported within this ES.

2.18 The exact methodology for the assessment of likely significant effects of the Proposed Scheme during the construction and operational stages is varied across each of the environmental topics considered within the EIA, largely due to technical specific guidance and best practice. Therefore, each of the **Technical Chapters 6 – 11** specifically sets out the relevant technical assessment methodologies.

Approach to Boundaries

2.19 The maximum EIA Study Area boundary for the purposes of this ES is defined on **Figure 1.1** and is referred to as the 'Site'. This includes all temporary and permanent works required as part of the Proposed Scheme (inclusive of temporary construction platforms and oversailing from plant at height) and therefore includes additional areas in comparison to the Application boundary[c].

2.20 The boundary upon which baseline data has been collected (i.e. study area) varies between the environmental topics and therefore is reported within **Technical Chapters 6 – 11**. However, all study areas include the Site, as defined on **Figure 1.1**.

Establishing Baseline Conditions

2.21 Schedule 4, Paragraph 3 of the EIA Regulations, states that an ES should include '*a description of the relevant aspects of the current state of the environment (baseline scenario)*'.

2.22 Likely significant effects as a result of the Proposed Scheme have been described in the ES in relation to the deviation from the baseline environment. Therefore, it has been necessary to establish the existing baseline environmental condition of the Site and technical study areas.

2.23 The baseline environment comprises the prevailing existing environmental characteristics and conditions of the Site and relevant technical study areas, based upon:

- Site visits and surveys;

[c] Including a section of the River Irwell, open space around Trinity Bridge and part of Bridge Street.

- Desk-based studies;
- Review of existing site-specific information or public literature;
- Modelling;
- Review of relevant national and local planning policies; and
- Consultation with the relevant statutory consultees through the EIA process.

2.24 The baseline conditions for the purpose of the ES will vary dependent on the timing of the survey or the date when data sources will have been accessed. All baseline conditions are based upon data accessed or surveys in 2022.

2.25 During the collection of baseline data, the baseline conditions within the Site have remained unchanged. Whilst construction activities are underway in the surrounding area, such works are not considered to have significantly altered the prevailing environmental conditions across and in the vicinity of the Site.

2.26 Some data obtained from third parties is older, including baseline data utilised to inform **Chapter 10: Socio-economics and Human Health**, which includes data from the Office for National Statistics prepared in 2019 and 2020.

2.27 Throughout the EIA, the origin of all third-party data, the dates of surveys and the dates when data sources have been accessed are clearly outlined within the relevant **Technical Chapters 6 – 11**, alongside any limitations or assumptions. For clarity, the dates of baseline data collection activities for **Technical Chapter 6 – 11** are summarised in **Table 2.2.**

Table 2.2: Summary of baseline data collection activities within Technical Chapters 6 – 11

Chapter	Data collection type	Date
Chapter 6: Noise and Vibration	Noise measurement survey	March 2022
	Vibration perception survey	March 2022
	Review of MCC's Planning & Noise Technical Guidance 2022	July 2022
	Entertainment noise measurement survey	July 2022
Chapter 7: Townscape and Visual	Desk based study	August 2022
	Site survey	May 2022
	Field survey	May – August 2022
	Photomontages	September 2022
	Site visit	February 2022
	AccuCities 3D model	February 2022

Chapter	Data collection type	Date
Chapter 8: Daylight, Sunlight and Overshadowing	Desk study	February 2022
	Initial daylight and sunlight façade assessments	April 2022
Chapter 9: Wind Microclimate	Wind microclimate testing	April – October 2022
Chapter 10: Socio-economics and Human Health	Baseline desk-based assessment	September 2022
Chapter 11: Climate Change	Energy consumption analysis for existing building	August 2022
	Calculation of existing emissions from Albert Bridge House	August 2022
	National scale CO_2 emissions data research (UK)	August 2022
	Regional scale CO_2 emissions data research (North West)	August 2022
	Local scale CO_2 emissions data research (Manchester)	August 2022

Consideration of the Future Baseline

2.28 Schedule 4, Paragraph 3 of the EIA Regulations states that an ES should include:

'…an outline of the likely evolution thereof (without implementation of the development) as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of availability of environmental information and scientific knowledge'.

2.29 As required under the EIA Regulations, the ES reports the future baseline scenario under a 'do nothing' scenario, which is further discussed in **Chapter 5: Consideration of Alternatives**. The discussion is associated with how the Site and study area may change assuming the Site was not developed further.

2.30 The future baseline scenario is also discussed within each of the **Technical Chapters 6 – 11**.

2.31 The assessments presented in the ES are based on the deviation from the existing baseline scenario; see 'Assessment Scenarios' below for further information.

2.32 In the assessment of daylight, sunlight and overshadowing cumulative effects, a 'future baseline' (assuming the existing baseline conditions and Approved Projects are implemented) has been considered. Further details are in **Chapter 12: Assessment of Cumulative Effects**.

Identification of Sensitive Receptors

2.33 Schedule 4, Paragraph 4 of the EIA Regulations states that an ES should include:

> *'a description of the factors specified in Regulation 4(2) likely to be significantly affected by the development: population, human health, biodiversity (for example fauna and flora); land (for example land-take), soil, (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaption), material assets, cultural heritage, including architectural and archaeological aspects, and landscape'.*

2.34 Consistent with the EIA Regulations, the identification of the aspects of the environment likely to be significantly affected by the Proposed Scheme has been identified. Where necessary, consideration has been given to future sensitive receptors of the Proposed Scheme and the Approved Projects nearby (i.e. Alberton House[d]), specifically within **Chapter 6: Noise and Vibration**.

2.35 These are set out within **Technical Chapters 6 – 11** and summarised in **Table 3.1** in **Chapter 3: Site Context**.

Information to Inform Assessment

2.36 As set out in **Chapter 1: Introduction**, the Application is detailed in nature.

2.37 The Application is required to provide sufficient information about the design, size and scale of the Proposed Scheme, such that MCC can reasonably be satisfied that they have sufficient information to decide that they have full knowledge of the likely significant environmental effects of the Proposed Scheme.

2.38 The assessments are based on the plans listed in **Chapter 1: Introduction** and description in **Chapter 4: Development Specification** (to be read alongside the plans). This is considered to provide the level of information required to inform a robust assessment of likely significant environmental effects.

2.39 The quantum of development, set out in detail in **Chapter 4: Development Specification**, has been a key aspect used to assess likely significant environmental effects for the following environmental topics:

- **Chapter 10: Socio-economics and Human Health**; and
- **Chapter 11: Climate Change**.

2.40 The scale and location of development as described in **Chapter 4: Development Specification** are the key aspects used to assess likely significant environmental effects for the following environmental topics:

- **Chapter 6: Noise and Vibration**;

[d] Further details of this Approved Project are provided in **Chapter 12: Assessment of Cumulative Effects**.

- **Chapter 7: Townscape and Visual**;
- **Chapter 8: Daylight, Sunlight and Overshadowing**; and
- **Chapter 9: Wind Microclimate.**

2.41 The building footprints are also key aspects that have been used to assess likely significant environmental effects based on **Figures 4.3 – 4.7**. The assessments within **Chapter 7: Townscape and Visual**, **Chapter 8: Sunlight, Daylight and Overshadowing** and **Chapter 9: Wind Microclimate** have been informed by the corresponding 3D Model.

Assessment Scenarios

2.42 In accordance with the EIA Regulations, the likely significant effects associated with both the construction (which includes site preparation, demolition, earthworks and construction works) and operational stages of the Proposed Scheme have been identified and assessed.

2.43 As set out in **Chapter 4: Development Specification**, construction is anticipated to be completed over approximately 3.5 years, commencing in 2023 with completion and full occupation expected in 2026.

2.44 The following key scenarios have been assessed within the EIA and reported in the ES are as follows:

- **Peak construction**: This varies across the environmental topics and has not been attributed to a specific year, rather it has been determined at what point the worst-case effect could occur. Further details are provided in **Technical Chapters 6 – 11**; and
- **Full Operation**: 2026, when the Proposed Scheme is anticipated to be occupied and operational.

2.45 The above scenarios have been considered for the assessments in **Technical Chapters 6 – 11**. Where relevant, additional assessment scenarios have been considered (i.e. cumulatively) and further details are provided in **Chapter 12: Assessment of Cumulative Effects**.

Implementation of Mitigation and Monitoring

2.46 Schedule 4, Paragraph 7 of the EIA Regulations states that an ES should include:

'a description of the measures to avoid, prevent, reduce, or if possible offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover construction and operational phases'.

2.47 Regulation 26 states that when determining an application consideration should be given to '*whether it is appropriate to impose monitoring measures'* including the aspects to be monitored and the duration of the monitoring.

2.48 In accordance with IEMA Guidance (outlined above) and the EIA Scoping Report (**Appendix 2.1**), three types of mitigation have been identified and used within the ES, comprising:

- **Primary** – modifications to the location or design of the Proposed Scheme made during the pre-application stage that are in 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 legislative requirements, or actions that are considered to be standard practices used to manage commonly occurring environmental effects.

2.49 The design process has been informed by extensive studies / surveys / modelling so that potential effects are well understood and primary mitigation has been identified and developed. The Proposed Scheme has evolved to take account of the environmental constraints and opportunities. Such evolution, as defined above, constitutes primary mitigation and therefore for the purpose of the EIA such measures are considered as part of the Proposed Scheme and therefore set out in **Chapter 4: Development Specification**.

2.50 Those measures considered to constitute tertiary mitigation are integral to the Proposed Scheme and are set out in **Chapter 4: Development Specification.**

2.51 **Technical Chapters 6 – 11** have considered and defined relevant primary and tertiary mitigation for both the construction and operational stages prior to undertaking their assessment of likely significant effects. Following the conclusion of effects based on the Proposed Scheme (inclusive of primary and tertiary mitigation) any further mitigation or enhancement measures or monitoring arrangements have been identified under 'Secondary Mitigation or Enhancement' sections for each likely significant effect in **Technical Chapters 6 – 11**.

2.52 The application of secondary and tertiary mitigation is only considered appropriate if there is a high level of confidence in the mechanism for implementation (by the Applicant or third party).

2.53 The primary, tertiary and secondary mitigation measures identified through the EIA process (including that set out in the EIA Scoping Report (**Appendix 2.1**) and **Technical Chapters 6 – 11**) are set out in **Volume 4: Environmental Management Plan**.

2.54 Where off-Site improvement works for utilities have been identified, these are considered within **Chapter 12: Assessment of Cumulative Effects**.

Determining Level of Effect and Significance

2.55 A four-step approach has been adopted to define effects as outlined below.

2.56 The method for assessing the level of effect has varied between environmental topics but in principle has been based on:

- The environmental sensitivity (or value / importance etc., as appropriate to the environmental topic) of a receptor or receiving environment to change, including aspects such as adaptability, tolerance or recoverability; and
- The magnitude of change (or impact) from the baseline conditions, including aspects such as probability / likelihood of occurrence, geographical extent, complexity, duration, frequency and reversibility (i.e. temporary and permanent). In addition, for some aspects the magnitude of change (or impact) corresponds to a relative increase to a prescribed threshold / criterion.

2.57 Sensitivity (or value / importance etc.) has been assessed on a scale of high, medium, low and negligible and magnitude of change (or impact) on a scale of large, medium, small and negligible. Where deviations from these scales is required to meet specific technical guidance this is outlined, where relevant, in **Technical Chapters 6 – 11**.

2.58 Other factors such as feedback from stakeholders, relevant legislation, international / national / regional / local standards and guidance and the inter-relationship between effects (both cumulatively and in terms of potential effect interactions) have also been considered, where appropriate.

2.59 The assignment of the level of effect has been based on professional judgement and the matrix below (**Table 2.3**) is intended to be a tool to assist with the process. Whilst the matrix provides ranges, this is to guide the competent expert and a definitive level of effect has been provided, where possible.

Table 2.3: Matrix to support determining the level of effect

		Sensitivity (or value / importance etc.)			
		High	Medium	Low	Negligible
Magnitude of change (or impact)	Large	Major	Moderate to Major	Minor to Moderate	Negligible
	Medium	Moderate to Major	Moderate	Minor	Negligible
	Small	Minor to Moderate	Minor	Negligible to Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

2.60 The following terms have been used to define the level of the effects identified and these can be 'beneficial' or 'adverse':

- **Major effect** – where the Proposed Scheme is likely to cause a considerable change from the baseline conditions and the receptor has limited adaptability, tolerance or recoverability or is of the highest sensitivity;

- **Moderate effect** – where the Proposed Scheme is likely to cause either a considerable change from the baseline conditions at a receptor which has a degree of adaptability, tolerance or recoverability or a less than considerable change at a receptor that has limited adaptability, tolerance or recoverability;

- **Minor effect** – where the Proposed Scheme is likely to cause a small, but noticeable change from the baseline conditions on a receptor which has limited adaptability, tolerance or recoverability or is of the highest sensitivity or a considerable change from the baseline conditions at a receptor which can adapt, is tolerant of the change and / or can recover from the change; and

- **Negligible** – where the Proposed Scheme is unlikely to cause a noticeable change at a receptor, despite its level of sensitivity or there is a considerable change at a receptor which is not considered sensitive to a change.

2.61 For some specific environmental topics / likely significant effects, technical guidance and / or the nature of the effect requires that differing criteria or scales for determining level of effect are to be used. However, there has been consistency of terminology and conclusions to tie in with the above matrix. This ensures that the conclusions of the different effects can be compared during the decision-making process and robustly considered within the assessment of cumulative effects. The assessment methodology adopted is set out in **Technical Chapters 6 – 11**.

2.62 A conclusion has then been provided as to whether the effect is '**Significant**' or '**Not Significant**' based on professional judgement. As such, significance has only been concluded for residual effects (i.e. following the application of secondary mitigation or enhancement measures).

2.63 Effects have also been described in line with the requirements of the EIA Regulations (i.e. as direct or indirect, short / medium / long-term and temporary or permanent).

2.64 **Technical Chapters 6 – 11** include a summary of effects table, which outlines the likely significant effects assessed and associated sensitive receptors, residual effects and whether the effect is '**Significant**' or '**Not Significant**'.

Limitations and Assumptions

2.65 Schedule 4, Paragraph 6 of the EIA Regulations state that an ES should include:

'...details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the require information and the main uncertainties involved'.

2.66 Where **Technical Chapters 6 – 11** experience limitations or are based on assumptions these have been clearly identified within the relevant Chapter.

References

[1] Ministry of Housing, Communities and Local Government [Online] PPG Available at: https://www.gov.uk/government/collections/planning-practice-guidance.
[2] IEMA (2015) EIA Guide to: Shaping Quality Development.
[3] IEMA (2016) EIA Guide to: Delivering Quality Development.

3. Site Context

Introduction

3.1 This Chapter provides a high-level overview of the existing Site characteristics and the surrounding area and identifies the sensitive receptors considered in the EIA. A high-level description of the Site has been provided in this Chapter to avoid the need for repetition within **Technical Chapters 6 – 11**.

3.2 As noted in **Chapter 1: Introduction**, the 'Site' for the purposes of the EIA is larger than the Application boundary to capture all temporary and permanent works required for the Proposed Scheme.

3.3 The relevant detailed baseline characteristics of the Site and the surrounding area in relation to the environmental topics 'scoped into' the EIA are considered within the relevant Chapter (i.e. **Technical Chapters 6 – 11**). A summary of the sensitive receptors included in **Technical Chapters 6 – 11** is provided in **Table 3.1**.

3.4 The baseline characteristics for the environmental topics 'scoped out' of the EIA and which are not reported in the ES are provided in the EIA Scoping Report (**Appendix 2.1**).

Location and Setting

3.5 The Site (**Figure 1.1**) is approximately 1.4 ha and located in the administrative area of MCC.

3.6 The Site encompasses Albert Bridge House, which comprises three interconnected blocks of three, six, and 18 storeys in height as well as associated plant and substation. There is also a basement level underneath the three blocks. The total existing Gross Internal Area (GIA) floorspace is 19,432sqm. Albert Bridge House was until recently occupied by HM Revenues and Customs (and is now vacated).

3.7 The floor plans, sections and elevations of the existing buildings on-Site are shown in:

- **Figure 3.1: Existing Ground Floor Plan**;
- **Figure 3.2: Existing Roof Plan**;
- **Figure 3.3: Existing Sections – Block 3 & 6**;
- **Figure 3.4: Existing Sections – Block 18**;
- **Figure 3.5: Existing Block 3 Elevations**;
- **Figure 3.6: Existing Block 6 Elevations**; and
- **Figure 3.7: Existing Block 18 Elevations**.

3.8 There are two car parks within the Site, with a total of 137 car parking spaces. There is also a small area of public open space in the northern part of the Site; Albert Bridge Gardens.

3.9 In addition, the Site incorporates sections of Bridge Street, the Trinity Bridge public open space[1] and the River Irwell.

3.10 The Site is bound by:

- The River Irwell immediately to the north;
- St. Mary's Parsonage, Alberton House and Trinity Bridge to the east;
- Bridge Street and commercial premises to the south; and
- Bridge Street and commercial premises / Manchester Civic Justice Centre to the west.

3.11 Existing surrounding land uses are predominantly commercial and residential, with civic uses, areas of vacant land, green space / public open space and transport infrastructure interspersed.

Identification of Sensitive Receptors

3.12 **Table 3.1** summarises the sensitive receptors at which likely significant effects may occur and their relationship to the aspects of the environment outlined in Regulation 4, Paragraph 2 and Schedule 4 of the EIA Regulations. These are assessed within **Technical Chapters 6 – 11** and **Chapter 12: Assessment of Cumulative Effects**, where appropriate, and further detail on the receptors is provided within these Chapters.

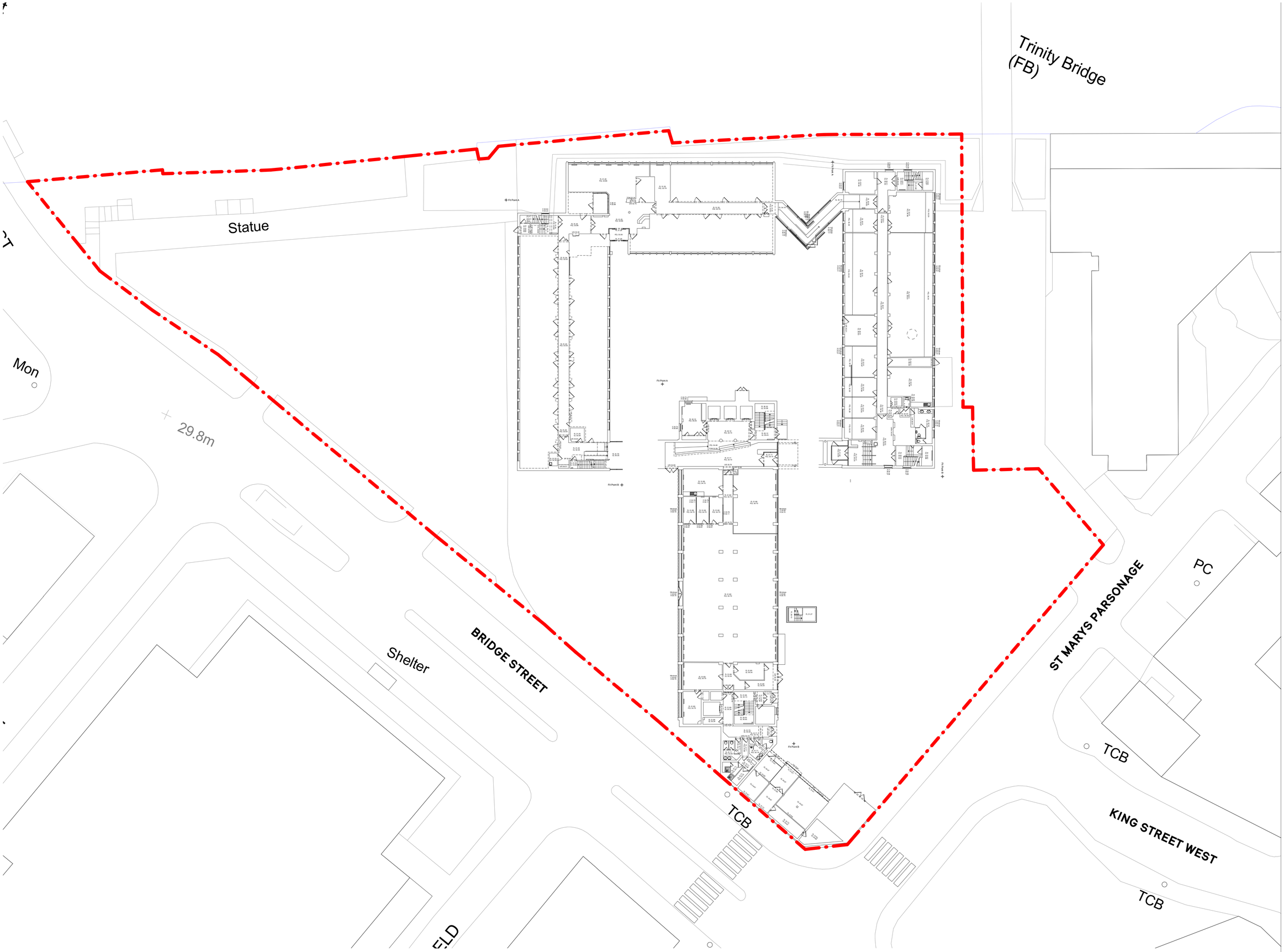
Table 3.1: Identified sensitive receptors

Chapter	Sensitive receptors	Regulation 4 (2) and Schedule 4 'factor'
Chapter 6: Noise and Vibration	• Nearest existing off-Site residents; • Nearest existing commercial receptors; • Existing late night entertainment premises (including music venues); and • Future on-Site residents.	Population and human health
Chapter 7: Townscape and Visual	• Existing open space within the Site; • Existing townscape character within and in close proximity to the Site – Retail Core; • Existing building height within the Site (contributing to the townscape character);	Landscape*and population and human health

[1] i.e., the area between Albert Bridge House and Alberton House.

Chapter	Sensitive receptors	Regulation 4 (2) and Schedule 4 'factor'
	• Residents of dwellings including those adjacent to Clermont-Ferrand Square and on Bridge Street, St. Mary's Parsonage, Left Bank, Albert Bridge / New Bailey Street and King Street West; and • Users of local areas of open space including those using Clermont-Ferrand Square, Motor Square and Parsonage Gardens.	
Chapter 8: Daylight, Sunlight and Overshadowing	• The Century Buildings, 2 – 18 Left Bank Apartments, 29 New Bailey Street, 32 Quay Street, The Bridge, 40 Dearmans Place; and • Public amenity space at 32 Quay Street and Clermont-Ferrand Square, Motor Square and The River Irwell.	Population and human health
Chapter 9: Wind Microclimate	• Users of thoroughfares, entrances, waiting areas (bus stops) and recreational spaces within and around the Site, where the impact of wind gusts have the potential for the greatest impact on where pedestrian activities are most sensitive to wind and require the most benign conditions (including future residents and Site users, pedestrians and cyclists).	Population and human health
Chapter 10: Socio-economics and Human Health	• Individuals seeking construction employment (including within the construction sector and wider sectors) and the local economy (through GVA); • Individuals seeking housing; • Healthcare facilities and their patients; and • Open space and recreational facilities and their users.	Population and human health
Chapter 11: Climate Change	• The atmosphere.	Climate

** taken to include townscape character and visual amenity*



General Notes

No implied licence exists. This drawing should not be used to calculate areas for the purposes of valuation.
Do not scale this drawing for construction purposes. All dimensions to be checked on site by the contractor and such dimensions to be their responsibility.
All work must comply with relevant British Standards and Building Regulations requirements. Drawing errors and omissions to be reported to the architect.

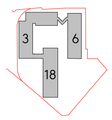
Notes

Information issued by MK Surveys on 08/10/20.

Application boundary

0 10m
@ 1:250

Key Plan



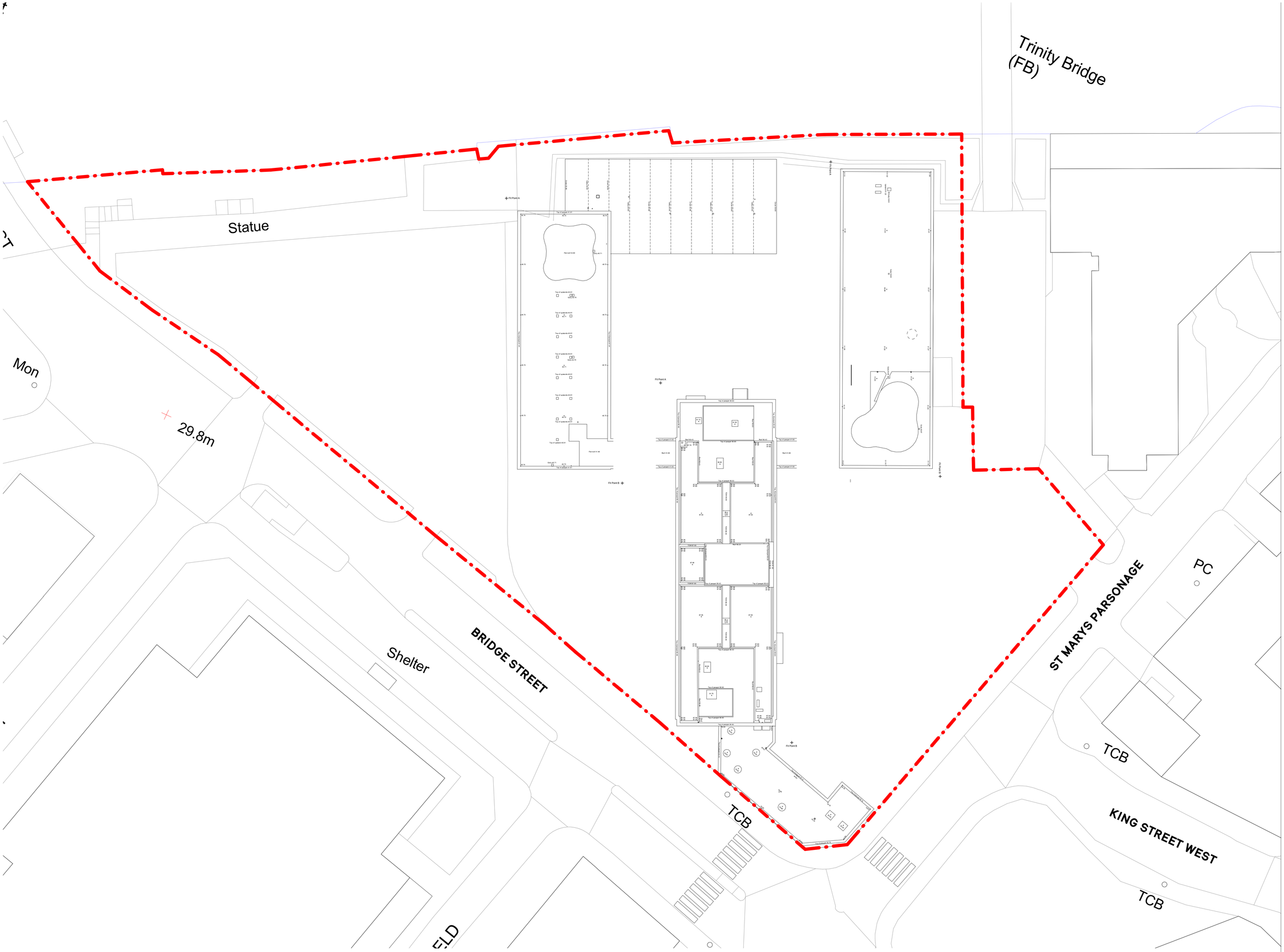
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PLANNING

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Drawing Title	Existing Ground Floor Plan
Client	Oval Real Estate
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Date	29/11/22
Drawn by	EW
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

Drawing Number	Rev
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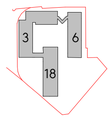
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Application boundary

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Key Plan



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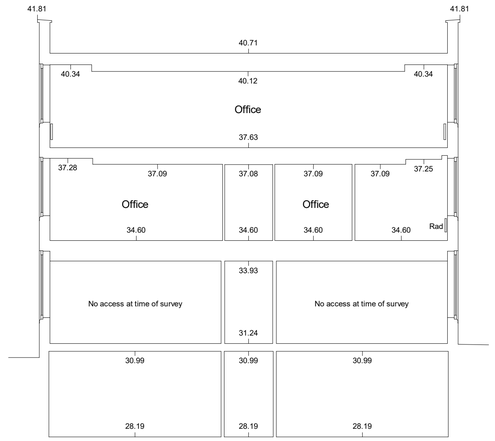
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Checked by	SEW

Rev	Date	Reason	Chk
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Drawing Number	Rev
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Section E-E



Section F-F

Datum Line 25.00m

Existing Block 3 Section

1 : 100

Section C-C

Section D-D

Datum Line 25.00m

Existing Block 6 Sections

1 : 100

General Notes

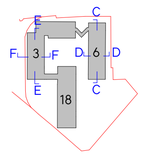
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Key Plan



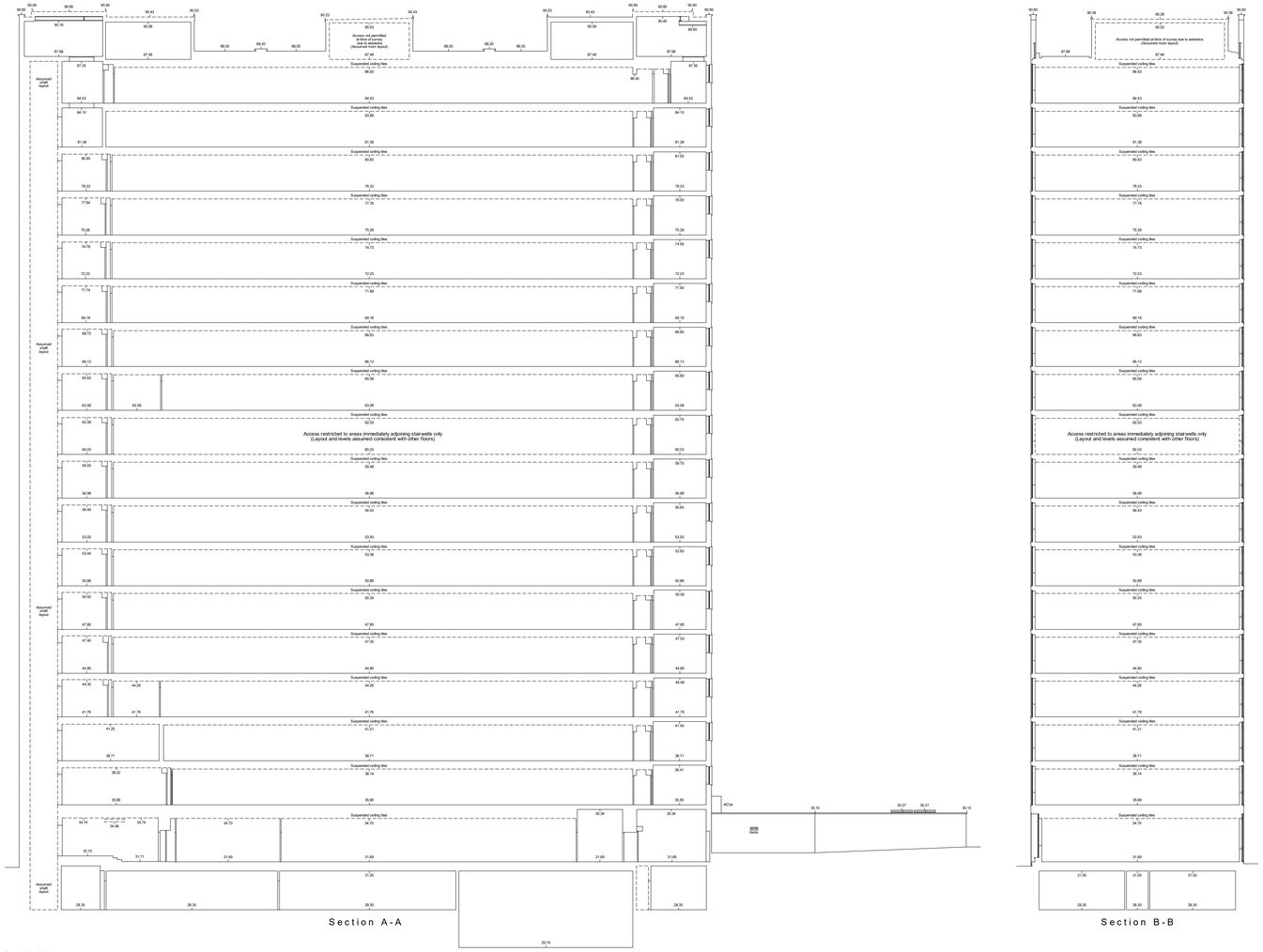
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PLANNING

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Client	Oval Real Estate
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Date	29/11/22
Drawn by	EW
Checked by	SEW

Rev	Date	Reason	Chk
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Drawing Number	Rev
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Existing Block 18 Sections

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General Notes

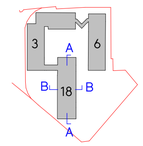
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Notes

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Key Plan



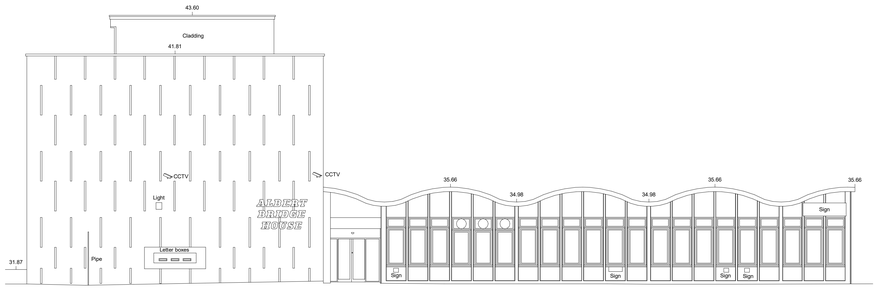
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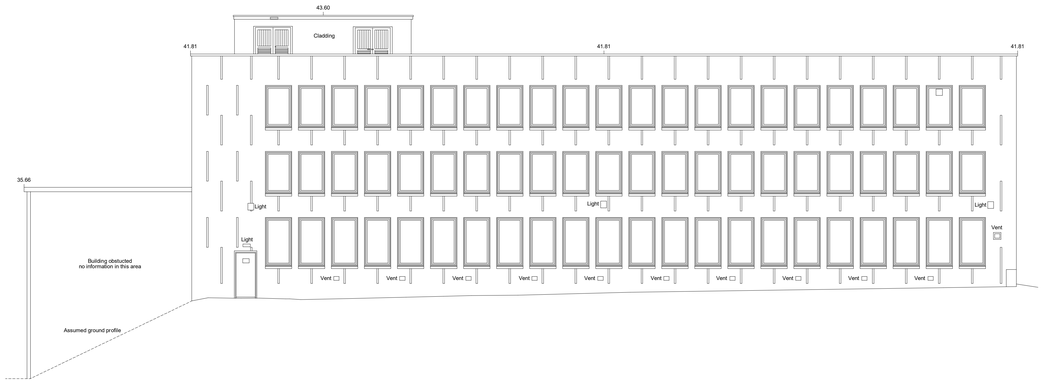
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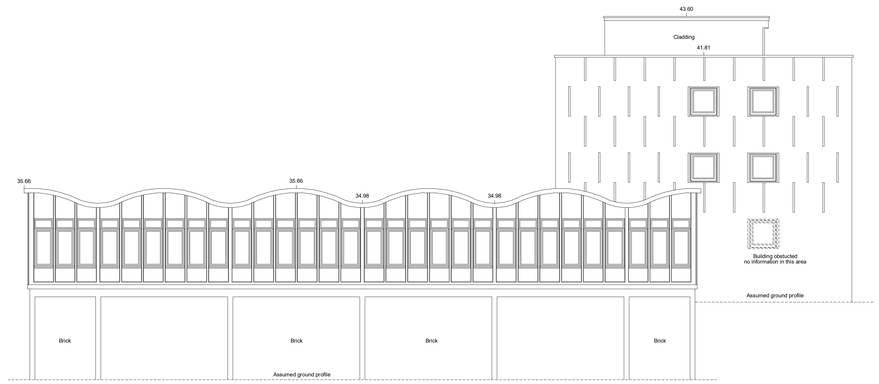


Elevation 9

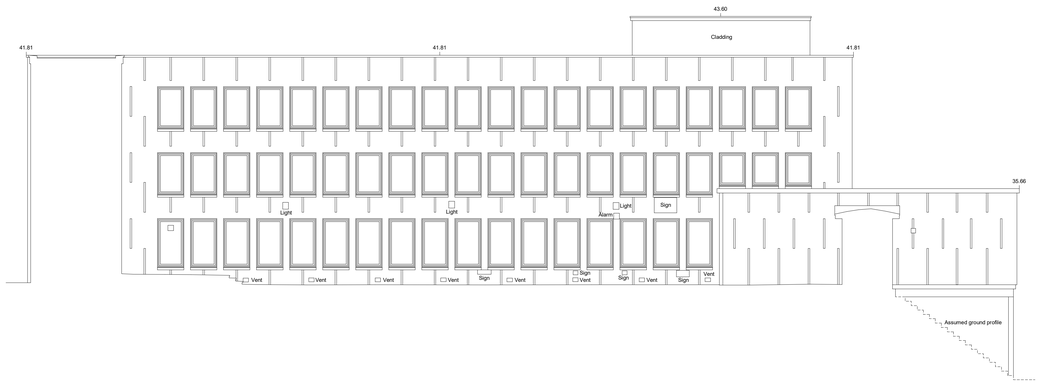


Elevation 10

Datum Line 25.00m



Elevation 11



Elevation 12

Datum Line 25.00m

Existing Block 3 Elevations

1 : 100

General Notes

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Key Plan

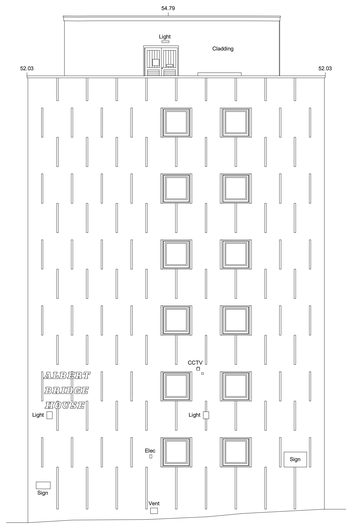
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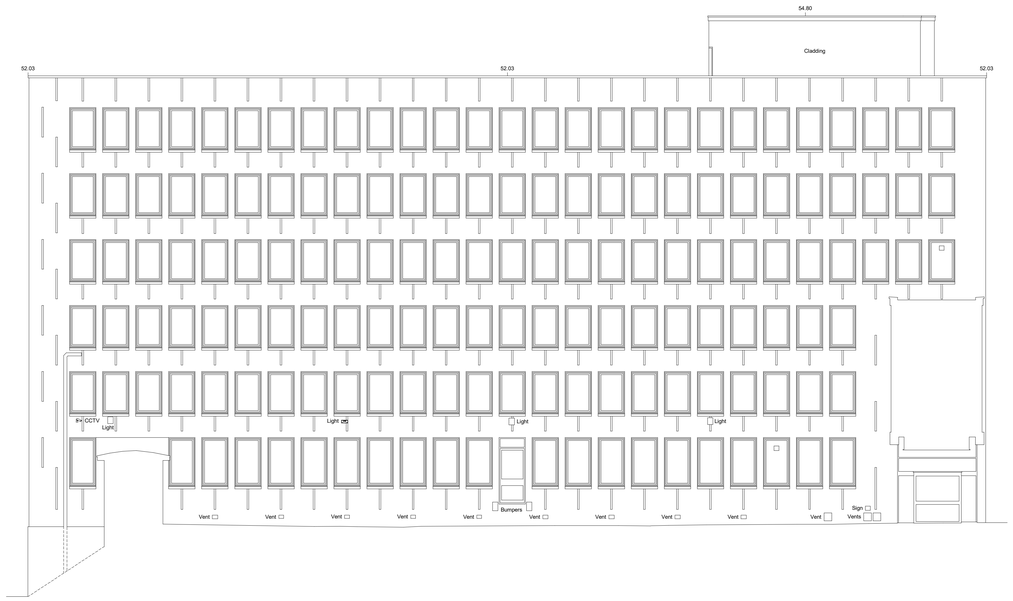
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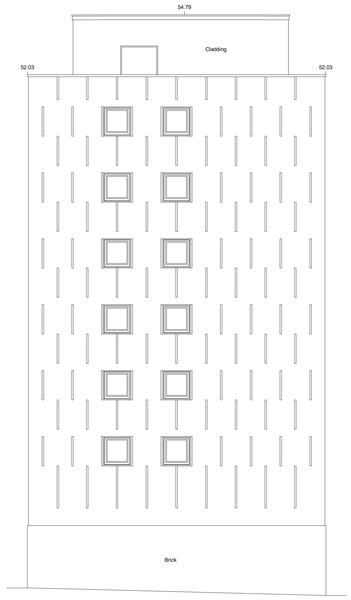


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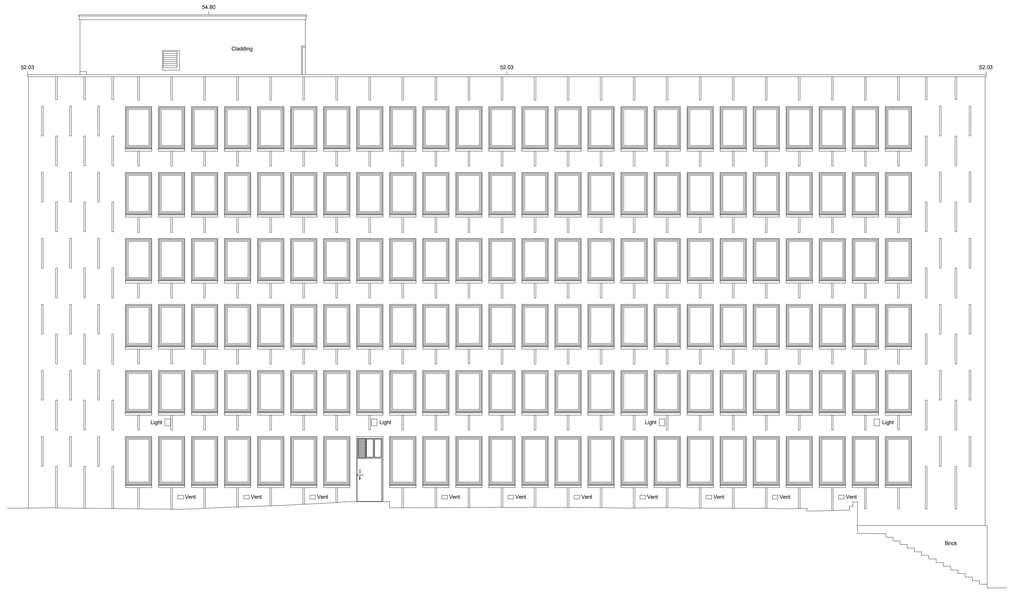


Elevation 6

Datum Line 25.00m



Elevation 7



Elevation 8

Existing Block 6 Elevations

1 : 100

General Notes

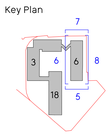
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Key Plan



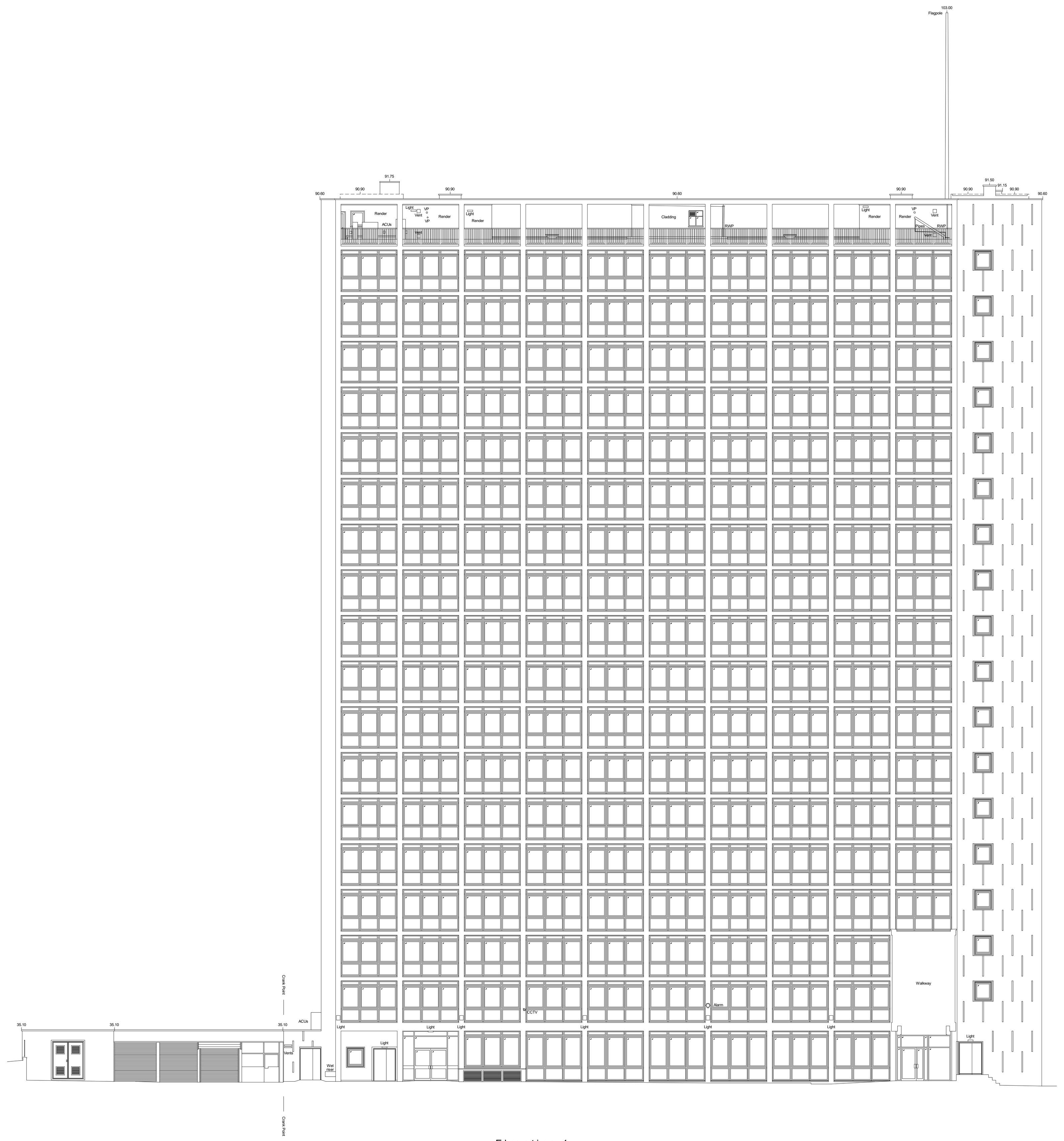
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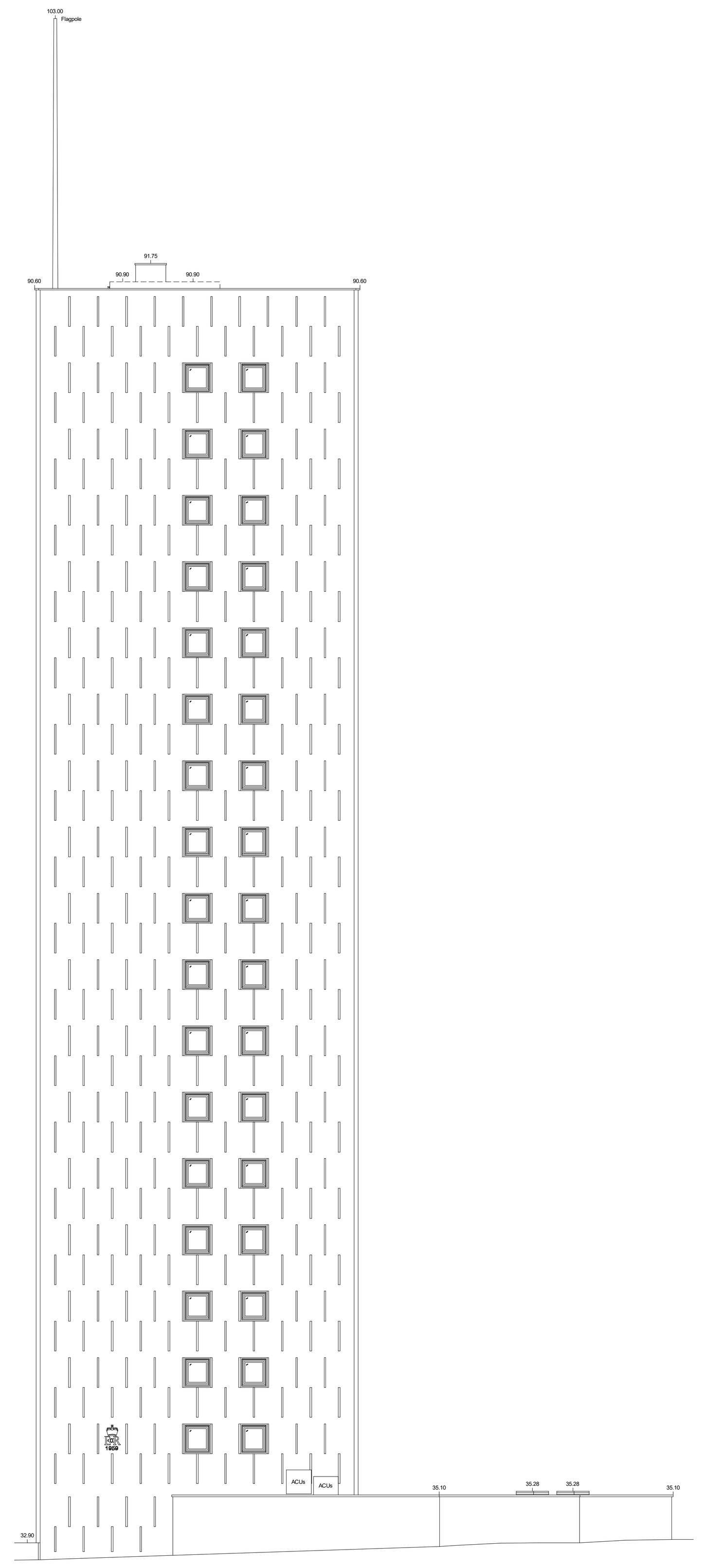
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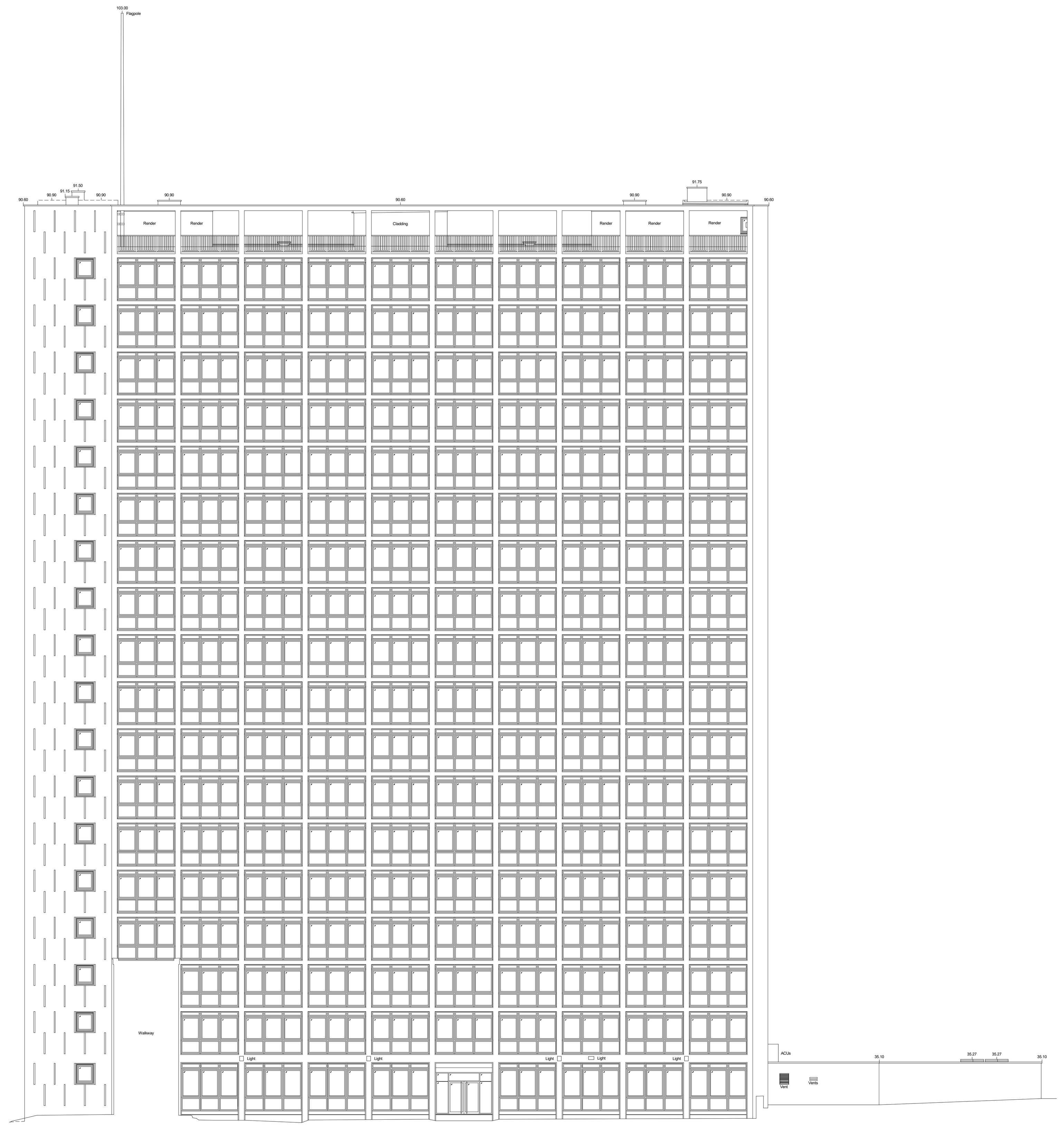


Elevation 1

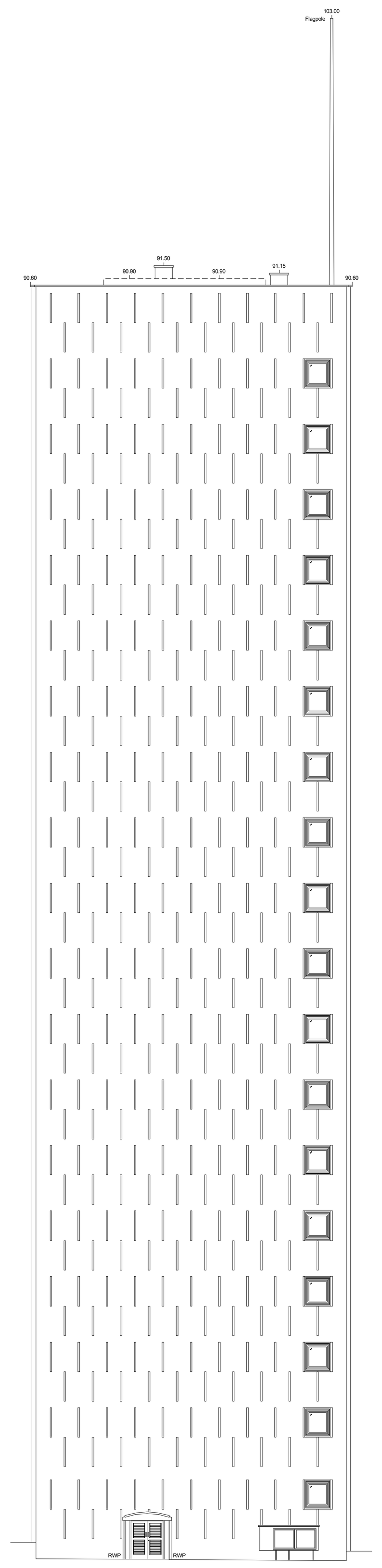


Elevation 2

Datum Line 25.00m



Elevation 3



Elevation 4

Datum Line 25.00m

Existing Block 18 Elevations

1 : 200

General Notes

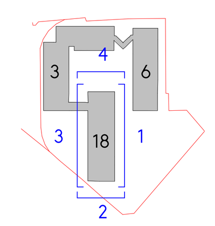
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0 10m
@ 1:200

Key Plan



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Project No.	0412
Project Name	Albert Bridge House
Drawing Title	Existing Block 18 Elevations
Client	Oval Real Estate
Scale @A0	1 : 200
Date	29/11/22
Drawn by	EW
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

Drawing Number	Rev
0412-SEW-ZZ-ZZ-DR-A-PL0302	0

4. Development Specification

Introduction

4.1 This Chapter provides a description of the Proposed Scheme, including a description of the demolition of Albert Bridge House and how the Proposed Scheme will be constructed[a] and its timescales. This description, together with the following spatial plans listed below, form the basis of the technical assessments presented in **Technical Chapters 6 - 11**:

- **Figure 1.1: Site Location Plan**;
- **Figure 4.1: Demolition Plan**;
- **Figure 4.2: GA Plan – Sitewide Basement**;
- **Figure 4.3: GA Plan – Level 00**;
- **Figure 4.4: GA Plan – Level 01**;
- **Figure 4.5: GA Plan – Level 02**;
- **Figure 4.6: GA Plan – Level 12**;
- **Figure 4.7: GA Plan – Level Roof**;
- **Figure 4.8: Building A – Level 00**;
- **Figure 4.9: Building A – Level 01**;
- **Figure 4.10: Building A – Levels 02 – 09 Typical M4(3)**;
- **Figure 4.11: Building A – Level 10 Set Back A Lower**;
- **Figure 4.12: Building A – Level 11 Set Back A Upper**;
- **Figure 4.13: Building A – Levels 12 – 13 Typical with 2xM4(3)**;
- **Figure 4.14: Building A – Levels 14 – 21, 24 – 33 Typical M4(2)**;
- **Figure 4.15: Building A – Level 22 Set Back B Lower**;
- **Figure 4.16: Building A – Level 23 Set Back B Upper**;
- **Figure 4.17: Building A – Level 34 Set Back C Lower**;
- **Figure 4.18: Building A – Level 35 Set Back C Upper**;

[a] As outlined in **Chapter 2: Approach to EIA**, the 'construction stage' includes site preparation, demolition, earthworks and construction works.

- **Figure 4.19: Building A – Levels 36 – 39 Upper Typical**;
- **Figure 4.20: Building A – Level 40 Beacon Typical**;
- **Figure 4.21: Building A – Roof Plan**;
- **Figure 4.22: Building B – Level 00**;
- **Figure 4.23: Building B – Level 01**;
- **Figure 4.24: Building B – Level 02**;
- **Figure 4.25: Building B – Level 03**;
- **Figure 4.26: Building B – Level 04**;
- **Figure 4.27: Building B – Level 05**;
- **Figure 4.28: Building B – Level 06**;
- **Figure 4.29: Building B – Level 07**;
- **Figure 4.30: Building B – Level 08**;
- **Figure 4.31: Building B – Level 09**;
- **Figure 4.32: Building B – Level 10**;
- **Figure 4.33: Building B – Level 11**;
- **Figure 4.34: Building B – Level 12**;
- **Figure 4.35: Building B – Level 13**;
- **Figure 4.36: Building B – Level 14**;
- **Figure 4.37: Building B – Level 15**;
- **Figure 4.38: Building B – Level 16**;
- **Figure 4.39: Building B – Level 17**;
- **Figure 4.40: Building B – Level 18**;
- **Figure 4.41: Building B – Level 19**;
- **Figure 4.42: Elevations Building A – North & East**;
- **Figure 4.43: Elevations Building A – South & West**;
- **Figure 4.44: Building B – South Elevation**;

- **Figure 4.45: Building B – West Elevation**;
- **Figure 4.46: Building B – North Elevation**;
- **Figure 4.47: Building B – East Elevation**;
- **Figure 4.48: Short Section 1 – Building A**;
- **Figure 4.49: Short Section 2 – Building A**;
- **Figure 4.50: Long Section – Building A**;
- **Figure 4.51: Long Section – Building B**;
- **Figure 4.52: Short Section – Building B**;
- **Figure 4.53: Landscape General Arrangement**;
- **Figure 4.54: Landscape Planting Plan**;
- **Figure 4.55: Landscape Boundary Treatments Plan**;
- **Figure 4.56: Landscape General Arrangement – Roof Level**; and
- **Figure 4.57: Landscape Planting Plan – Roof Level**.

4.2 The Proposed Scheme is described as follows for planning purposes:

'*Demolition of the existing building complex and the construction of a mixed use development comprising two separate components in the form of an office building of up to 19 storeys with ground floor commercial, leisure, food and drink uses (All Use Class E) and/ or drinking establishment Sui Generis, and, a residential building up to 45 storeys (Use Class C3) with additional roof top plant, basement car parking, cycle parking, landscaping and public realm, servicing and access arrangements, highway alterations and other associated works'*.

4.3 All temporary and permanent works associated with the Proposed Scheme will take place within the Site boundary, as defined on **Figure 1.1**. This plan outlines the boundary upon which all technical assessments, as presented in **Technical Chapters 6 – 11**, are based on. As noted in **Chapter 1: Introduction**, the boundary in **Figure 1.1** is larger than the Application boundary to incorporate areas for temporary works (i.e. temporary construction platforms oversailing the River Irwell) and permanent works (e.g. oversailing plant at height).

The Completed Proposed Scheme

4.4 This section describes the completed Proposed Scheme and includes the following:

- General site arrangement;
- Building heights;

- Land uses and quantum;
- Public realm and amenity areas;
- Access, circulation and parking;
- Basement; and
- Building materials and façade treatments.

4.5 In addition, strategies are provided relating to: flooding; surface water drainage; foul water drainage; acoustic design; ventilation; lighting design; utilities; waste; energy; security and community safety; and fire. Descriptions of operational traffic movements, employment and hours as well as climate change resilience measures are also provided.

General Site Arrangement

4.5 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.

4.6 The locations of Building A and Building B within the Site are shown on **Figures 4.3 – 4.7**.

4.7 These buildings will be surrounded by public realm and amenity areas, with hard and soft landscaping, defined further under 'Public Realm and Amenity Areas' below. At Level 00, the footprint of Building B is spilt into two parts with a passageway / circulation space situated underneath the proposed building[b].

4.8 An access ramp is proposed off a new junction with Bridge Street, adjacent to Building A. In the western part of the Site a new proposed layby on Bridge Street is proposed. A further layby is proposed on St. Mary's Parsonage in the eastern part of the Site. The existing footways along Bridge Street and St. Mary's Parsonage will be rerouted further into the Site to accommodate these laybys. Further details are provided under 'Access, Circulation and Parking' below.

Building Heights

4.9 The building heights as defined on **Figures 4.48 – 4.52** are outlined in **Table 4.1**.

Table 4.1: Building heights

Component	Approximate storeys / m Above Ordnance Datum (AOD))	Proposed ground level (m AOD)
Building A	Part 45 storeys plus roof top plant / 177.56	31.0 (at Level 00)

[b] The two parts connect from Level 02.

Component	Approximate storeys / m Above Ordnance Datum (AOD))	Proposed ground level (m AOD)
	Part 40 storeys plus rooftop plant / 160.61 Part 34 storeys / 139.36	
Building B	19 storeys plus rooftop plant / 114.6	32.25 (at Level 00)

Land Uses and Quantum

4.10 The land uses and quantum are presented in **Table 4.2**.

Table 4.2: Anticipated land use classes and quantum

Land use class	Component	Maximum quantum[c, d]	Notes
E (a, b, c) Retail / Restaurant / Café	Building A	162sqm Gross External Area (GEA)	Located at Level 00
	Building B	2,407sqm GEA	Located at Levels 00 and 01
E (g) Office	Building B	50,850sqm GEA	Includes entrances and commercial lobby at Level 01 with mail room and Back of House / waste storage space. Office uses located at Levels 02 – 18
C3 Dwellinghouses Residential	Building A	41,036 sqm GEA[e]) / 367 homes	Includes entrances, residential lobby, parcel storage and waste storage at Level 00. Cycle storage / cycle workshop area at Level 01. Homes located at Levels 02 – 34 / 39 / 44

4.11 There a mixture of 1-bed, 2-bed and 3-bed Build to Rent homes within Building A.

4.12 The general arrangements of Levels 00, 01, 02, 12 and Roof Level are defined on **Figures 4.3 – 4.7**.

[c] Gross External Area (GEA) figures are provided in this table. The Gross Internal Area (GIA) and Net Internal Area (NIA) figures are provided in the **Accommodation Schedule** submitted alongside the Application.
[d] Excludes basement.
[e] Includes 947 sqm (GEA) communal amenity and private amenity (winter gardens).

Public Realm and Amenity Areas

4.13 Landscaping and public realm will include shrub 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. This will also provide a greater level of suitable nesting habitat than is to be lost to facilitate the Proposed Scheme.

Ground level

4.14 Given the general urban nature of the Site and surrounding area and that the public realm area interacts with existing pedestrian routes at the western, southern and eastern extents of the Site, the proposed public realm will largely comprise areas of hardstanding. The use of hardstanding will provide safe pedestrian access to the Proposed Scheme, as well as through and around it. In addition, this will provide access for maintenance / emergency vehicles to reach the centre of the Site.

4.15 Soft landscaping will also be provided, which will provide natural cooling to the Proposed Scheme and include climate tolerant species in line with the England Biodiversity Strategy[1] and Natural England's Climate Change Adaptation Manual[2]. Street furniture will also be included, such as bins and wayfinding elements.

4.16 In the space between Building A and Building B, the public realm will incorporate new tree planting and spaces allowing circulation and informal gatherings (see **Figure 4.53**). The following three additional key external public realm and amenity areas at Level 00 are proposed.

Albert Bridge Square

4.17 Albert Bridge Square is located within the western half of the Site, fronting on Bridge Street and has been designed to be a multifunctional space. The square incorporates the existing mature trees that are subject to Tree Preservation Orders (TPOs) and includes further low-level and tree planting, building on the existing character of the trees on-Site and providing a woodland character. A combination of hard materials will be provided to define circulation areas and routes through the landscaped areas.

The River Walk

4.18 The River Walk is situated across the northern boundary of the Site providing connectivity between Bridge Street and Trinity Bridge. Existing riverbank habitats will be retained (where possible) and supplemented by further wildflower meadow and tree planting. The River Walk will be on raised walkways, extending out in locations over planted areas to create viewing platforms over the River Irwell.

Motor Square Connection

4.19 The Motor Square Connection is situated in the eastern half of the Site. This has been designed to allow for unobstructed access to Building B and Motor Square. New formal tree planting and other landscaping will be provided to create a woodland character to this area.

Upper levels

Building A

4.20 Winter gardens and private / communal residential amenity spaces will be included within Building A.

4.21 Winter gardens are designed as an integral feature to all of the residential apartments on Levels 02 – 44.

4.22 Private external amenity areas are provided to the duplex apartments occupying Levels 10 – 11, 22 – 23 and 34 – 35 (see **Figures 4.11**, **4.12**, **4.15**, **4.16**, **4.17** and **4.18**). Double height communal amenity areas (with external areas as well as internal spaces) for future residents are also provided at Levels 10, 22 and 34 (see **Figures 4.11**, **4.12**, **4.15**, **4.16**, **4.17** and **4.18**). The internal areas are intended to be multifunctional, including exercise / socialising space. The private and communal terraces will be separated by dividing screens to provide privacy and clearly designate the amenity for each home.

Building B

4.23 Office winter gardens and roof terrace amenity areas will be included within Building B.

4.24 The office winter gardens are located at Levels 03, 04, 05, 06 and 09 (see **Figures 4.25 – 4.28** and **4.31**).

4.25 The roof terraces are located at Levels 03 and 05 – 16 (see **Figures 4.25** and **4.27 – 4.38**) and will be accessible for future users of Building B. These will be composed of a simple design which seeks to maximise useability and include alpine-inspired landscaping / planting. A combination of materials will be used for the terraces that will tie in with the façade treatment.

4.26 There will also be non-accessible green roof terraces at Levels 07, 09, 11 – 15 (see **Figures 4.29, 4.31** and **4.33 – 4.37**), allowing for the provision of biodiverse roof systems. Photovoltaic panel arrays will also be provided on the upper levels.

Access, Circulation and Parking

Vehicular access and circulation

4.27 Vehicular access to the Site will be provided via a new junction off Bridge Street, as defined on **Figure 4.3**. This will provide access to the basement level for car parking and maintenance via a ramp adjacent to Building A (see **Figure 4.2**). The car flow will be managed with a traffic light system, rising bollards at the entry point from Bridge Street and a waiting area, to allow cars to exit the basement whilst avoiding tailbacks onto the local road network. A second waiting area sits at the bottom of the ramp to enable priority for those coming into the basement. As noted under 'Basement' below, this is subdivided to serve Building A and Building B separately.

4.28 The new layby on Bridge Street, adjacent to Building A, as defined on **Figure 4.3**, will be used for drop-off / pick up, deliveries, fire tender and waste vehicle parking. A second layby will be provided on St. Mary's Parsonage, as shown on **Figure 4.3**, for servicing and waste collection for Building B.

4.29 As noted above, the hardstanding within at ground level also provides maintenance / emergency service vehicle access to the centre of the Site.

4.30 All highways works will be designed in accordance with relevant guidance and standards, such as MCC's Design for Access 2[3].

Pedestrian and cyclist access and circulation

4.31 Pedestrian and cycle access into / out of the Site will be available at level from footways along Bridge Street and St. Mary's Parsonage and the public amenity area adjacent to Trinity Bridge[f]. A pedestrian crossing on Bridge Street will be relocated to facilitate access into the Site for maintenance / emergency vehicles.

4.32 Permeable lines of movement along key desire lines from existing / proposed pedestrian crossings on Bridge Street and St. Mary's Parsonage are provided within the Proposed Scheme.

4.33 As noted under 'Public Realm and Amenity Areas', there will be circulation areas and routes through the Site with wayfinding features. Stairs / ramps will be provided where there are level changes across the Site. All areas account for MCC's Design for Access 2 guidance. The areas of public realm will increase the permeability of the Site and unlock new, traffic-free routes for pedestrians and cyclists.

4.34 The existing footways along Bridge Street and St. Mary's Parsonage will be rerouted and widened, where required.

Parking

4.35 Within the basement:

- For Building A, eight car parking spaces will be provided, all of which are accessible spaces; and
- For Building B, 16 car parking spaces will be provided in total, comprising eight accessible spaces and eight for private car sharing schemes, alongside a loading area.

4.36 Therefore, in total 24 car parking spaces will be provided as part of the Proposed Scheme.

4.37 Within Building A, Level 01 will contain cycle parking / storage facilities for future residents, with access provided from ground level via a shallow rise access stair and accessible lifts. For Building B, cycle parking / storage will be provided at basement level, with access provided from ground level via a shallow rise access stair and accessible lift. Approximately 695 cycle spaces will be provided across Building A and Building B. 50 cycle spaces will be provided externally.

Public transport provision

4.38 Given its urban location, the Site is highly accessible by public transport and wider pedestrian / cycle access to Manchester City Centre. There are several bus and Tramlink stops close to the Site and Salford Central Railway Station is approximately 170m north-west of the Site. Therefore, there will be no new provision for public transport as part of the Proposed Scheme.

[f] The existing public realm area situated between Alberton House and Albert Bridge House.

Basement

4.39 The Proposed Scheme includes a single basement level, subdivided between the residential area (for Building A) and commercial area (for Building B), as defined on **Figure 4.2**.

4.40 The basement includes the cores of Building A and Building B as well as the space between the buildings, extending to 5,207sqm.

4.41 As defined on **Figure 4.2**, the basement includes:

- Operational plant (including cold water storage, extracts and pumps);
- Substations;
- Emergency generators;
- Utilities intakes;
- Welfare / showing / changing facilities; and
- Car parking and cycle parking spaces (see 'Access, Circulation and Parking').

4.42 The floor level of the basement is approximately 25.19m AOD (for the residential area) and 25.2m AOD (for the commercial area), this is lower than the existing basement floor level (which is at 28.35m AOD / 25.74m AOD).

Building Materials and Façade Treatment

4.43 The Proposed Scheme will be constructed using concrete to create the superstructure and provide the necessary structural stability for Building A and Building B. A range of other materials will also be used, including glass, timber and plastic.

4.44 As shown in **Figures 4.42 – 4.47**, the external façade treatments are as follows:

- Building A elevations include polished and ribbed concrete, GRC banding, anodised aluminium corrugated and perforated rainscreen panels with predominantly rusty tones as well as pink, sliver and green tones and glazing; and
- 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).

Flooding Strategy

4.45 As set out in the **Flood Risk Assessment**, northern parts of the Site are categorised as high flood risk areas – including flood zones 3a and 3b (functional floodplain).

4.46 Within the area classified as flood zone 3a, there is amenity space and part of Building B. As, offices and retail spaces are considered to be 'Less vulnerable' within the PPG[4] and therefore are appropriately located.

4.47 Within the area categorised as flood zone 3b, the ground levels will not change to ensure that the existing flood storage volume is not reduced. The River Walk is proposed in this area, which is considered to be 'water compatible' development within the PPG and therefore is appropriately located.

4.48 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 also be incorporated within the Proposed Scheme

Surface Water Drainage Strategy

4.49 The key design principles of the surface water drainage strategy set out in the **Flood Risk Assessment** and **Drainage Strategy Report** are set out below.

4.50 The surface water drainage strategy is anticipated to include a mixture of features (including the use of rainwater harvesting, green / blue roof systems, permavoid system, rain gardens and swales) with the attenuation of run-off through below-ground 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-yearstorm including a 40% allowance for future climate change).

4.51 The system is anticipated to discharge into the United Utilities combined network using existing and / or new connections (via a pumping system). The discharge flow rate will be controlled at the greenfield run-off rate of 5.30 litres / second. 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.

4.52 In either option, the proposed areas of soft landscaping along the riverbank are not proposed to be attenuated as the existing riverbank area discharges into the River Irwell without restriction.

4.53 Appropriate water treatment will be inherent in the drainage design through the incorporation of SuDS features and pollution prevention 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[5] (albeit this has been withdrawn).

4.54 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.

Foul Water Drainage Strategy

4.55 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[6].

Acoustic Design Strategy

4.56 The following acoustic measures have been committed to as part of the Proposed Scheme:

- 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 British Standard (BS) 4142[7] and Planning NTG[8] at nearest façades or open spaces;

- 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;

- Façade design will include sound insulation specification to achieve the internal noise criteria of BS 8233[9] and PNTG as may be appropriate in habitable rooms;

- The guidance of ADE[10] for internal sound insulation will be enhanced to a minimum of 60dB DnT,w between non-domestic uses and new homes;

- 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;

- 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 – 07:00 hours unless otherwise agreed by MCC;

- 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 – 07:00 hours would apply;

- Internal vibration transfer between different building uses or from building services plant will be designed in accordance with British Standard 6472 Guide to evaluation of human exposure to vibration in buildings [11] and PNTG;

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

- The design of Building A is for mechanical ventilation to achieve Approved Document F (ADF)[12] and Approved Document O (ADO)[13] requirements and the attenuation of the ducted air intakes and exhausts by design will not degrade the façade performance; and

- The internal sound insulation separations between new homes within the Proposed Scheme will comply with the guidance of Approved Document E (ADE)[14].

Ventilation Strategy

4.57 A **Ventilation Statement** will be submitted alongside the Application. The strategy is summarised as follows:

- For the homes within Building A, a mechanical supply and extract ventilation strategy will be used. Short periods of purge ventilation (opening a door or window) are accounted for; and

- For the office space within Building B, a displacement ventilation system will operate alongside a mixed-mode strategy when external conditions permit the openings within the façade to be operated.

4.58 Other areas within Building A and Building B (e.g. bin stores, car park) will be mechanically or naturally ventilated, as appropriate.

Lighting Design Strategy

4.59 Given the general urban nature of the Site and surrounding area, 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.

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

4.61 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.

4.62 Lighting will be designed and installed in line with relevant standards and guidance, including:

- Institute of Lighting Professionals (ILP) Guidance Notes for the Reduction of Obtrusive Light GN01:2020[15];

- British Standard 5489-1:2020 Code of Practice for the design of road lighting – Part 1: Lighting of roads and public amenity areas[16];

- Commission Internationale l'Eclairage (CIE) 126: Guidelines for Minimising Sky Glow[17]);

- Chartered Institute of Building Services Engineers (CIBSE) LG06/16 Lighting Guide 06: The Exterior Environment[18];
- ILP PLG05: The Brightness of Illuminated Advertisements[19]; and
- ILP PLG08: Guidance on the Application of Adaptive Lighting within the Public Realm[20].

4.63 The detailed lighting scheme will consider the surrounding sensitives, including existing properties and sensitive ecological areas and is based on the use of low light pollution installations. Where appropriate, lighting installations will be designed in accordance with the guidance from the Bat Conservation Trust[21]. This will include integrated fittings to contain light spill, use of hard landscaping features to block light and create dark corridors in retained and adjacent habitats of value to bats, particularly along the northern boundary of the Site (i.e. The River Walk).

4.64 In addition, high-intensity obstruction lights will be included at roof level in line with relevant legislation and guidance[22].

Utilities Strategy

4.65 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

4.66 Waste streams generated during operation are assumed to include the following:

- Residential, consisting of domestic refuse, mixed recyclables, paper, cardboard and food; and
- Commercial, comprising mixed recyclables, paper, cardboard, food and lighting units (excluding including hazardous waste).

4.67 The estimated weekly waste arisings for the above uses are set out in **Table 4.3** based on British Standard 5906: 2005[23].

Table 4.3: Estimated weekly waste arisings

Use class	Relevant category	Equation for weekly waste arisings (litres (L))[g]	Litres
E (a, b, c)	Office	Volume arising per employee (50 L) x number of employees)	6,700
E (g)		Volume arising per employee (50 L) x number of employees)	149,150

[g] The number of employees is provided within **Chapter 10: Socio-economics and Human Health**.

Use class	Relevant category	Equation for weekly waste arisings (litres (L))[g]	Litres
C3	Domestic	Number of dwellings x {(volume arising per bedroom [70 L] x average number of bedrooms[h]) + 30}	88,080
Total			243,930

4.68 Operational waste will be managed in accordance with MCC established policy and existing arrangements. 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.

4.69 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.

4.70 In addition, there is likely to be green waste generated by grounds maintenance across the public realm and amenity areas and waste from the drainage maintenance regime. These arisings will be stored, handled and disposed of in line with relevant guidance and standards.

Energy Strategy

4.71 An **Energy Strategy** has been submitted alongside the Application. The energy strategy incorporates the following principles:

- Adoption of an all-electric strategy;
- Use of Air Source Heat Pumps (ASHPs); and
- Installation of photovoltaic panel arrays on upper levels.

4.72 Emergency generators are provided for Building A and Building B. These will be used for back-up / testing purposes only. The energy plant will be located and operated in line with best practice.

4.73 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

4.74 It is assumed that the Proposed Scheme will incorporate the 'Secured by Design' principles and measures to enhance community safety (such as the provision of appropriate lighting, as outlined under 'Lighting Design Strategy').

[h] A worst-case of 3-bedrooms has been utilised in the calculations.

Fire Strategy

4.75 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.

Operational Traffic Movements

4.76 The operational traffic flows are anticipated to be minimal (i.e. < 100 Light Duty Vehicles and / or 25 Heavy Duty Vehicles).

Operational Employment

4.77 Once completed, the Proposed Scheme is predicted to generate 3,117 Full-Time Equivalent (FTE) jobs.

Operational Hours

4.78 The Proposed Scheme seeks flexible operating hours for the different uses proposed. The operating hours for the proposed land uses are outlined in **Table 4.4**.

Table 4.4: Use classes and operating hours

Use class	Operating hours
E (a, b, c)	07:00 – 24:00 daily
E (g)	24 hours / 7 days a week
C3	24 hours / 7 days a week

Climate Change Resilience Measures

4.79 There has been consideration of the evolving climate throughout the design of the Proposed Scheme. The evolving climate can include an increase in mean summer and winter temperatures, increase in annual precipitation, decrease in mean summer precipitation and extreme weather events.

4.80 The following key climate resilience measures are considered to be integral to the Proposed Scheme:

- The ground levels within the area classified as flood zone 3b (functional floodplain) will not be remodelled to ensure that there is no reduction in flood capacity and uses are located appropriately in terms of flood risk (see 'Flooding Strategy');
- A suitable allowance for increased rainfall associated with climate change has been incorporated within the design of the surface water drainage strategy (see 'Surface Water Drainage Strategy');
- Green infrastructure and landscaping (see 'Public Realm and Amenity Areas') will provide natural cooling to the Proposed Scheme and include climate tolerant species. This will enhance the resilience of biodiversity to future climatic changes; and

- Compliance with the UK Government's Future Building Standard consultation[24] 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. Appropriate measures will be implemented to ensure suitable internal summertime conditions for occupants (e.g. using an appropriate glazing specification and passive cooling conditions) based on an overheating assessment using recognised methodologies (such as CIBSE TM52:2013[25] and TM59:2017[26]).

Construction Stage

Overview

4.81 This section provides an indicative methodology for the construction stage, based on a series of best available assumptions in line with similar schemes, to provide a basis for the technical assessments of the likely significant effects during this stage in **Technical Chapters 6 – 11**. This approach has been taken as the detailed construction methodology is not known at this stage.

4.82 A commitment has been made to several environmental mitigation measures to be delivered via a Construction Environmental Management Plan (CEMP), covering all aspects of the construction stage. These measures are set out in **Table 4.6** and are considered to be integral to the Proposed Scheme. These measures are also set out in **Volume 4: Environmental Management Plan**.

4.83 The Construction (Design and Management) Regulations 2015[27] will apply and all appropriate controls and systems will be in place to comply with these Regulations and associated guidance. Each sub-stage of the project will be pre-risk assessed and appropriate controls applied.

4.84 A Construction Management Plan will be prepared before the construction stage commences, which will take account of all known risks, which have been identified at pre-construction stage by the Principal Designer / Construction (Design and Management) Consultant, the design team and also through ground investigations. The Construction Management Plan will describe arrangements and procedures for managing key risk areas in more detail and also the resource / personnel, which will ensure the health and safety of all those working on or affected by the works.

Overview of Construction Activities

4.85 Albert Bridge House has recently been vacated.

4.86 The activities during the construction stage are anticipated to comprise the following:

- Site securement;
- Enabling works, including set up of temporary site accommodation / construction compounds, site clearance (including vegetation / tree removal) and the implementation of protective measures around features to be retained (such as the trees subject to TPOs);

- Site preparation and appropriate surveys (including ground investigations and any remedial works, as required);
- Utility isolation / capping and diversions;
- Demolition of Albert Bridge House and associated structures on-Site, with breaking out of foundations / hardstanding and below-ground services / structures (where applicable);
- Excavation works (to expand the existing basement) and earthworks, including formation of drainage features and reprofiling / remodelling of ground levels;
- Installation of utilities;
- Foundation preparation and installation;
- Construction of infrastructure, including vehicular access;
- Construction of building envelopes, including construction of superstructure, installation of cladding and facades;
- Internal fit-out and external finishing; and
- Implementation of public realm and amenity areas, including lighting and hard and soft landscaping.

4.87 Where appropriate, these activities are discussed in further detail below. Where assumptions have been made these have been clearly stated.

Site Securement

4.88 The Site will be secured from the outset. Site securement will be achieved through a combination of secure fencing or hoarding, depending on the exact requirements and proximity to specific works.

4.89 Temporary secure access gates will be provided to manage the movement of vehicles, plant, equipment and personnel required for construction. Public access will be restricted when construction activities are occurring.

4.90 Where required, appropriate additional fencing / exclusion zones will be identified and implemented by the appointed contractor.

Traffic Routes, Access and Volumes

4.91 Initially it is anticipated that the existing car park access off Bridge Street will be used for access / egress. However, further temporary accesses off Bridge Street / St. Mary's Parsonage will be established as required throughout the works.

4.92 It has been assumed that construction traffic will travel to / from the Site via Bridge Street onto Chapel Road and the A6 or the Inner Ring Road (A6042).

4.93 The number of vehicles (including private car trips from the workforce and Heavy Good Vehicle (HGV) movements) will depend on the size and number of the vehicles

operated by the appointed contractor. Specialised vehicles such as low-loaders will be used to deliver plant and other machinery. For the purposes of the ES, the maximum number of movements is assumed to be circa 583 two-way movements across the construction stage (specifically, during the demolition works), equating to less than 100 vehicle movements and 25 HGV movements per day.

4.94 Where construction workers / contractors require specific plant to undertake works this is assumed to be delivered at the Site, with vehicles leaving the shortly after.

4.95 Site personnel will be encouraged to utilise public transport to travel to / from the Site. During demolition, it is assumed that there will be a limited requirement for parking and this will be able to be accommodated within the Site, where necessary. Following demolition and site clearance it is assumed that further temporary car parking will be provided within the Site, subject to the works being undertaken at that time.

4.96 No off-Site parking along the roads around the Site will be permitted unless otherwise agreed. Personnel will be requested to use formal car parks if no parking is available within the Site.

4.97 Where possible, hoarding during the construction stage will not entirely cover the pedestrian footways. However, if this is necessary then alternative safe walking routes will be provided. Clear advertising will also be provided for any routes that are closed and signposting will be provided for suitable alternative routes.

Traffic Management

4.98 As part of the CEMP, a detailed traffic plan will be prepared. This will be managed and updated as required by the appointed contractor. Further details are provided under 'Environmental Management Commitments and Practices'.

Highways and Pedestrian Diversions

4.99 The Proposed Scheme will not require the permanent stopping up of any roads.

4.100 To facilitate the construction of the proposed access and laybys on Bridge Street and St. Mary's Parsonage, the existing footways will need to be closed. This will be achieved through the use of a segregated pedestrian route, secured from traffic through the use of appropriate barriers. Where required, signposting for alternative provision (i.e. on the opposite side of Bridge Street) will be provided.

Site Accommodation / Compounds Location

4.101 Site accommodation / compounds will be required for the appointed contractor and subcontractors. These will include welfare facilities and other temporary infrastructure areas (i.e. material laydown / storage etc.) and it is assumed that they will be within the Site.

Temporary Construction Platforms

4.102 During the works, there may be a requirement for temporary platforms to be established that oversail the River Irwell. These would be used for construction stage plant to reach upper levels of the existing / proposed buildings. No supports will be located within the River Irwell.

Demolition

4.103 The buildings proposed for demolition are shown on **Figure 4.1**.

4.104 The demolition of Albert Bridge House will initially comprise an internal 'soft-strip' exercise, with all waste arisings removed from the buildings and segregated into allocated skips for appropriate processing / recycling / disposal.

4.105 Mechanical demolition using conventional demolition excavators and attachments will be used to carry out the demolition of the low-level structures on-Site, where it is safe to do so. 'Top down' floor by floor methods will be adopted to demolish the taller existing blocks on-Site.

4.106 In addition to the above, where present, below ground structures and obstructions such as drains, hardstanding, relic foundations, service ducts and pipelines will be removed to facilitate the construction of the Proposed Scheme.

Vegetation Retention / Removal

4.107 The existing trees subject to TPOs will be protected, including their Root Protection Zones (RPZs). Vegetation along the riverbank will also be retained, where appropriate.

4.108 All other vegetation within the Site will be removed.

4.109 The 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[28].

Ground Investigations and Remedial Works

4.110 Due to historic land uses, contamination associated with heavy metals and hydrocarbons may be present and the presence of asbestos has been confirmed. There is also considered to be an elevated risk of Unexploded Ordnance (UXO) being present.

4.111 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[29] and Control of Asbestos Regulations 2012[30]. Asbestos removal will be undertaken at the outset of the enabling works under an Asbestos Management Plan, developed as part of the CEMP.

4.112 Ground investigations will be undertaken to determine the extent of any contamination and confirm the underlying ground conditions. These investigations will be undertaken in line with relevant guidance, including British Standard 5930:2015 Code of Practice for Site Investigations[31] and British Standard 10175:2011+A1:2013 Investigation of Potentially Contaminated Sites - Code of Practice[32].

4.113 In preparation for these works, a detailed UXO risk assessment will be undertaken. Appropriate measures will be implemented during the works, such as supervision by a UXO specialist.

4.114 The ground investigations will establish the requirement for any remedial works prior to the commencement of the main construction activities. Where contamination is

identified, a 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. Any necessary remediation work will be undertaken during the enabling works prior to the commencement of the main construction works. 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. Clean cover layers will be validated for chemical quality prior to re-use / use on-Site.

4.115 A verification report will be prepared thereafter to ensure that the proposed remedial works have been completed and this will be submitted to MCC. This will ensure that the Site is not classified as 'contaminated land' under Part 2a of the Environmental Protection Act[33].

4.116 If further unexpected contamination is encountered during construction works following remediation, appropriate measures will be implemented as part of the CEMP to deal with such circumstances.

4.117 The results of the ground investigations will also be used to identify the requirement for any construction specific method statements (e.g. dewatering).

4.118 All new buildings will be designed in line with CIRIA's Assessing risks posed by hazardous ground gases to buildings[34].

Earthworks

4.119 In conjunction with and / or following ground investigations and remedial activities, the existing ground (i.e. hardstanding), floor slabs, foundations and hardstanding will be stripped and removed from Site. Where appropriate, such works will be supervised by an UXO specialist.

4.120 All areas of the Site will be subject to clearance works, with the exception of the retained trees and their RPZs, areas along the riverbank, Bridge Street and St. Mary's Parsonage.

4.121 Excavation works will be undertaken to expand the existing basement. Earthworks will also be undertaken to establish the required levels for the surface water drainage system, landscaping and development platforms. The section of the riverbank closest to Bridge Street will also be remodelled. The Proposed Scheme will not change the ground levels within the area classified as flood zone 3b. Further information is provided under 'Levels' below.

4.122 The presence of unstable and compressible ground may be identified during the ground investigations and enabling works prior to the commencement of the main construction activities. The results of the ground investigations will be used to design appropriate remedial measures to address any 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.

4.123 All earthworks will be undertaken in accordance with relevant industry guidance including CIRIA C572: Treated ground engineering properties and performance[35], FB75: Building on Fill - Geotechnical Aspects[36] and British Standard 6031:2009: Code of Practice for Earthworks[37]. In addition, all proposed buildings and their foundations will be designed in accordance with Building Regulations Approved Document A - Structures[38], which covers building structure, their loading, potential ground movement and the possibility of disproportionate collapse.

4.124 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[39].

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

Levels

4.126 Given the earthwork activities outlined above, there will be areas where levels will reduce (areas of cut) and areas where level will increase (areas of fill).

4.127 The existing levels range between 30.2m to 30.8m AOD across most of the Site, with the exception of lower levels adjacent to the River Irwell (at approximately 21m AOD).

4.128 As noted in **Table 4.1**, the finished floor level at Level 00 is 31.0m AOD for Building A and 32.25m AOD for Building B. The surrounding levels within the public realm and amenity areas will correspond to these levels.

4.129 The floor level of the existing basement is at 28.35m AOD / 25.74m AOD. The floor level of the proposed basement for the residential area is 25.19m AOD and for the commercial area is 25.25m AOD.

4.130 The bottom of the below-ground attenuation tanks for the surface water drainage strategy (located to the south of Building B) are to be situated at 29.41m AOD.

4.131 As such, there is anticipated to be a deviation from existing ground levels of approximately +/- 1.5 across the Site, except for within the basement, where a greater deviation of up to -3m is anticipated.

4.132 Given the above, overall it is anticipated that during construction there will be a net removal of excavated material off-Site.

4.133 If any material is to be brought onto Site this will be checked / validated for chemical quality prior to use.

Basement Works

4.134 As noted above, the existing basement under Albert Bridge House will be cleared out and expanded as part of the construction works.

4.135 The expanded basement will be designed and constructed in accordance with relevant guidance and standards, including Groundwater control - design and practice[16].

Temporary Drainage

4.136 Surface water run-off during construction will be managed on-Site. This will principally be through the re-use of existing drains (whilst still in place) as well as a temporary drainage strategy during the works.

4.137 The temporary drainage solution during construction will include measures to remove silt, sediment and debris. Where components of the permanent drainage strategy are used during construction, all silt and debris build-up will be removed and the permanent components fully reinstated on completion of construction.

4.138 All temporary drainage will be installed and maintained in accordance with British Standard 8582:2013 - Code of practice for surface water management for development sites[40] and Control of water pollution from construction sites. Guidance for consultants and contractors[41].

4.139 Protective measures will be installed on the boundary with the River Irwell and across the Site to ensure there are no direct or indirect impacts to surface or ground water quality. This will include specific working methods / practices and monitoring requirements to minimise the risk of detrimental effects on water quality (e.g. sediment traps, inclusion of treatment facilities etc). These measures will be incorporated into the CEMP.

Utility Works / Diversions

4.140 All existing on-Site utilities and services will be identified and where required disconnected, capped and / or diverted.

4.141 The existing substation on-Site will be decommissioned and a new substation(s) established. This may include interim substation(s).

4.142 All such works will be undertaken in accordance with the requirements of the statutory network operators and aligned with the construction of the Proposed Scheme.

4.143 The existing combined sewers within Bridge Street will be diverted to facilitate the Proposed Scheme. There are two combined water overflows that cross the Site, which discharge from the combined water sewer into the River Irwell in extreme rainfall or emergency surcharge events. These will be retained within the Proposed Scheme.

Foundations

4.144 The foundation solution is not yet known but is assumed to include piled and non-piled foundations.

4.145 Piling 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[42]. This will be led by the appointed contractor(s). Where required a piling risk assessment will be completed to understand the risk of piling activities associated with impacted soils and receptors.

Cranes

4.146 The use of tower cranes is anticipated during construction.

Waste Generation and Management

4.147 Demolition material will be exported off-Site. Likely types of demolition waste arisings associated with Albert Bridge House are as follows:

- Mixture of concrete, brick and tiles (including ACM);
- Timber;
- Mixed soft strip;
- Fluorescent tubes / mercury containing waste;
- Metals; and
- Gypsum.

4.148 The total volume of the material anticipated to be generated from demolition is estimated to be 5,830 m^3.

4.149 Waste generated by the Proposed Scheme during construction is assumed to include bricks, glass, gypsum, aggregate, concrete, wood and plastic. An estimate of construction waste arisings based on BREEAM UK New Construction Non-domestic Buildings (All UK)[43] and Home Quality Mark ONE Technical Manual[44] is presented in **Table 4.5**.

Table 4.5: Construction waste calculations

Use	BRE benchmark use	Proposed GIA sqm	Tonnes / 100sqm GIA	Tonnes
E (a, b, c)	Commercial	2,340	13	304
E (g)		43,457		5,649
C3	Residential	37,814[i]	10	3,781
Ancillary space (basement)	Commercial (as worst-case of uses proposed)	4,750	13	618
Total				10,352

Notes:
All figures rounded.

4.150 All waste arisings will be segregated into allocated skips for appropriate processing / recycling / disposal and to maximise material recycling. Hard-core materials will be processed and crushed on-Site within designated zones for re-use or removal, as required. A Waste Management Plan (including material management) will be prepared as part of the CEMP to maximise the re-use of materials and material handling process.

[i] Includes internal atrium area only at the ground floor.

4.151 Surplus material exported off-Site will be subject to chemical analysis (including Waste Acceptance Criteria testing[45]) and removed, handled and disposed in line with appropriate guidance and legislation. All stages will be fully documented as required by legislation. Any hazardous materials (including asbestos) will be removed, handled and disposed of in line with appropriate guidance and legislation[46, 47, 48].

Construction Employment

4.152 The construction stage is estimated to generate circa 280 full-time equivalent (FTE) jobs on and off-Site.

Site Working Hours and Days

4.153 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.

Phasing and Programme

4.154 It is anticipated that Building A and Building B will be built concurrently.

4.155 The demolition of Albert Bridge House will commence in 2023. Construction works are anticipated to take 3.5 years, with the Proposed Scheme completed during 2026.

Environmental Management Commitments and Practices

4.156 A series of environmental mitigation commitments and practices are set out in **Table 4.6** which are considered as part of the Proposed Scheme and set out within **Volume 4: Environmental Management Plan**.

4.157 It is these measures that will be outlined within a CEMP prepared by the appointed contractor and submitted to MCC for approval prior to the commencement of works. This does reproduce some of the key measures outlined in the sections above as it is intended to provide a consolidated summary.

Table 4.6: Construction environmental management commitments

Construction environmental management commitments
General
The CEMP will include reference to 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) which 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). All public access will be restricted to each phase when activities are occurring to ensure members of the public are safeguarded in the wider areas.

Construction environmental management commitments
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
Implementation of a Dust Management Plan in line with Institute of Air Quality Management (IAQM) Guidance[49]. This would include the following measures: <u>Communications</u> • 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. <u>Dust control measures</u> • Measures to control emissions, approved by MCC. The DMP may include monitoring of dust deposition, dust flux, real-time PM_{10} continuous monitoring and / or visual inspections. <u>Site management</u> • 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

Construction environmental management commitments

- 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 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 PM_{10} 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 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);

Construction environmental management commitments

- 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 scrabbling (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 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;

Construction environmental management commitments
• 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 • 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[50] 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[j] and Control of Asbestos Regulations 2012[k]. Asbestos removal will be undertaken at the outset of the enabling works under an Asbestos Management Plan.
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[51]. monitoring equipment, safe-entry procedures and use of

[j] The Hazardous Waste (England and Wales) Regulations 2005 No. 894.
[k] Control of Asbestos Regulations 2012 No. 632.

Construction environmental management commitments
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[52]), 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
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 resource management

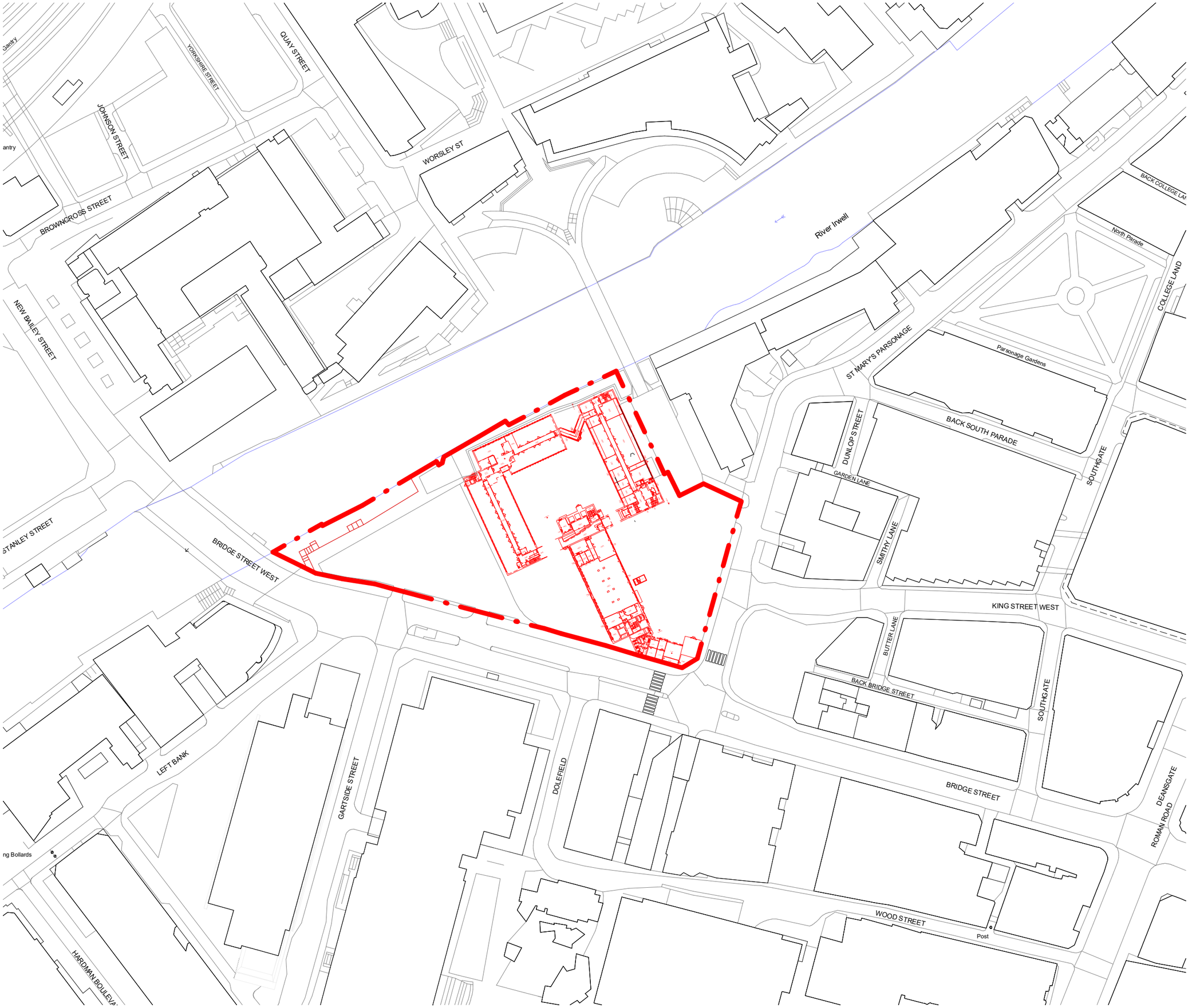
Construction environmental management commitments
A proportion of the demolition waste arisings will be able to be re-used either in their current form or through reprocessing on-Site (i.e. crushed hard-core as fill within designated areas). All demolition waste will be sorted and segregated on-Site 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[53] and the Environmental Protection (Duty of Care) Regulations 1991[54], 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 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) 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 – Code of practice for surface water management for development sites[55]) will be implemented.
Guidance will be adhered to, such as CIRIA's Control of Water Pollution from Construction Sites[56] and Guidelines for Pollution Prevention (GPP) 2: above ground oil storage tanks[57] and GPP 5: Works and maintenance in or near water[58] (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 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.

Construction environmental management commitments
Abstraction and discharge licences will be sought from the Environment Agency under the terms of The Water Abstraction and Impounding (Exemptions) Regulations[81].
Adherence to CIRIA's Groundwater control – design and practice[59].
Noise and vibration
Best Practical Means (BPM) will be adopted, as defined in the Control of Pollution Act (CoPA), 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.
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
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.

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General Notes

No implied licence exists. This drawing should not be used to calculate areas for the purposes of valuation.
Do not scale this drawing for construction purposes. All dimensions to be checked on site by the contractor and such dimensions to be their responsibility.
All work must comply with relevant British Standards and Building Regulations
requirements. Drawing errors and omissions to be reported to the architect.

Notes

Information issued by MK Surveys on 08/10/20.

0 50m
@ 1:1250

Key Plan

Albert Bridge House Planning Application Boundary

Demolition

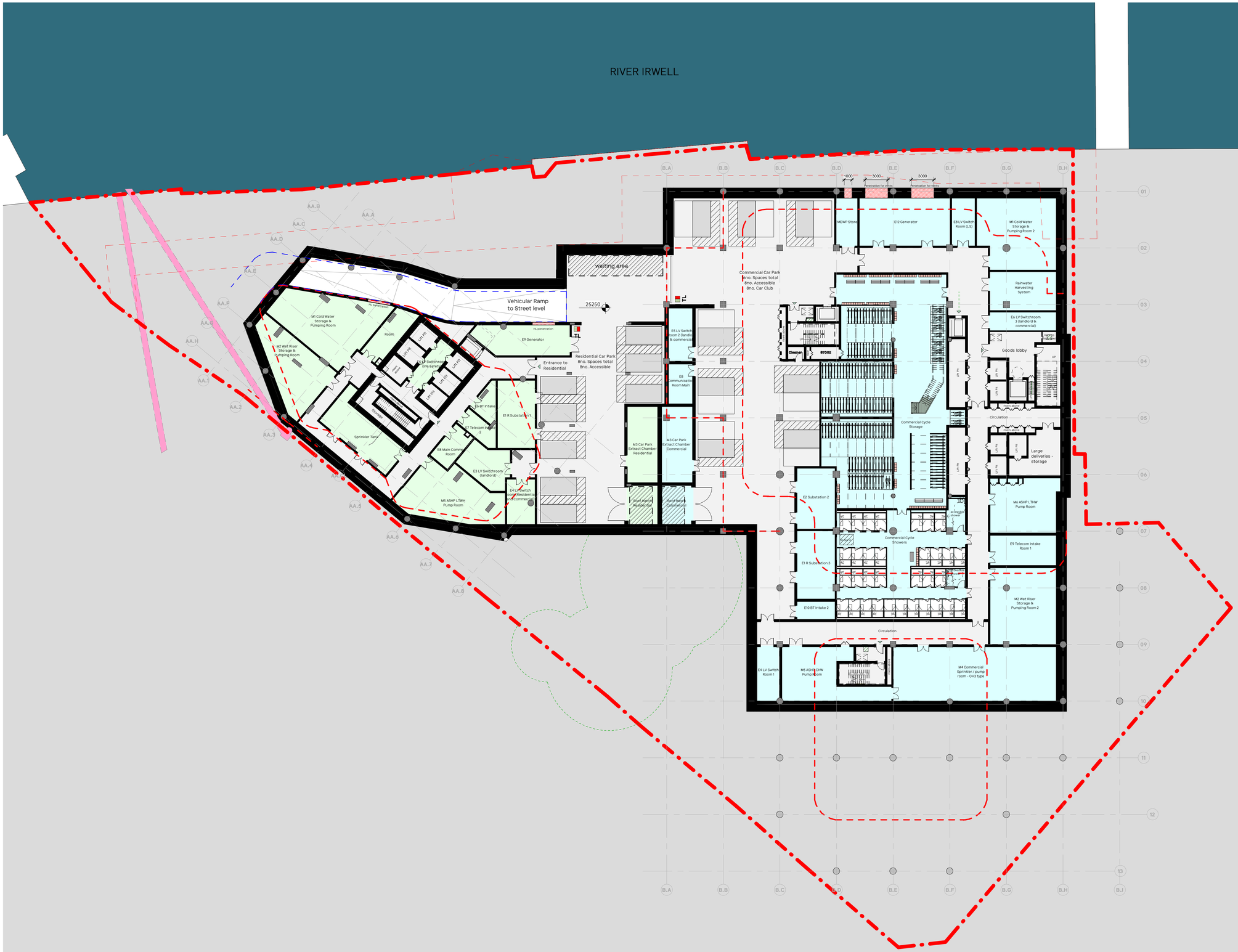
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PLANNING

Project No.	0412
Project Name	Albert Bridge House
Drawing Title	Demolition Plan
Client	Oval Real Estate
Scale @A3	1 : 1250
Date	29/11/22
Drawn by	EW
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

Drawing Number	Rev.
0412-SEW-ZZ-ZZ-DR-A-PL0001	0



General Notes

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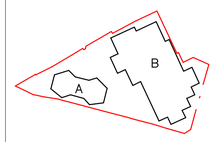
Notes

Key

- Application Site Red Line Boundary
- Building footprint above
- Residential Plant
- Office Plant
- Sewer
- TPO Root Protection Zone

0 10m
@ 1:250

Key Plan



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PLANNING

Project No.	0412
Project Name	Albert Bridge House
Drawing Title	GA Plan - Sitewide Basement
Client	Oval Real Estate
Scale	1 : 250
Date	08/12/22
Drawn by	EB
Checked by	SEW

Rev	Date	Reason	Chk
0	08/12/22	Issue for Planning	

Drawing Number	Rev
0412-SEW-ZZ-B2-DR-A-PL0999	0

RIVER IRWELL

TRINITY BRIDGE

THE ALBERTON

GARTSIDE STREET

BRIDGE STREET

DOLEFIELD

MOTOR SQUARE

ST MARY'S PARSONAGE

KING STREET W

REEDHAM HOUSE

Residential Waste

Lobby

F&B

Servicing Lay-by

Restaurant

Cyclist Cafe & Bike workshop

Retail/ Lobby

Mail Room

Staff Room

Atrium above

F&B

Commercial Lobby

Commercial Waste

Entance Lobby

Flexible Use Exhibition Space

Access Hatch

F&B

Store

Store

Combined BOH

Retail

Retail

E3 ENWL Network Outdoor Substation

+ 31000 AOD

+ 30250 AOD

+ 32250 AOD

+ 31400 AOD

32250

32500

33000

32850

General Notes

No implied licence exists. This drawing should not be used to calculate areas for the purposes of valuation.
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Notes

Site Boundaries

Application Site Red Line Boundary

Use Classes

- E (a, b, c) Retail/ Restaurant/ Cafe
- E (g) Office
- C3 Residential
- Suis Generis

Residential Units

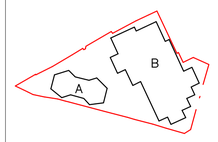
- 1B2P
- 2B3P
- 2B4P
- 3B4P
- 3B6P

Refer to Landscape GA drawings for hard landscape:
0412-SEW-ZZ-ZZ-DR-L-PL0100

For soft landscape:
0412-SEW-ZZ-ZZ-DR-L-PL0101

0 @ 1:250 10m

Key Plan



Studio Egret West
3 Brewhouse Yard
London, EC1V 4JQ
hello@egretwest.com
+44 (0) 20 7549 1730

PLANNING

Project No.	0412
Project Name	Albert Bridge House
Drawing Title	GA Plan - Level 00
Client	Oval Real Estate
Scale	1 : 250
Date	08/12/22
Drawn by	DB
Checked by	SEW

Rev	Date	Reason	Chk
0	08/12/22	Issue for Planning	

Drawing Number	Rev
0412-SEW-ZZ-00-DR-A-PL1000	0



General Notes

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Notes

Site Boundaries

- Application Site Red Line Boundary

Use Classes

- E (a, b, c) Retail/ Restaurant/ Cafe
- E (g) Office
- C3 Residential
- Suis Generis

Residential Units

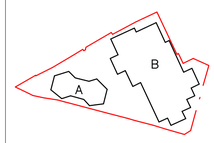
- 1B2P
- 2B3P
- 2B4P
- 3B4P
- 3B6P

Refer to Landscape GA drawings for hard landscape:
0412-SEW-ZZ-ZZ-DR-L-PL0100

For soft landscape:
0412-SEW-ZZ-ZZ-DR-L-PL0101

0 10m
@ 1:250

Key Plan



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3 Brewhouse Yard
London, EC1V 4JQ
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PLANNING

Project No.	0412
Project Name	Albert Bridge House
Drawing Title	GA Plan - Level 01
Client	Oval Real Estate
Scale	1 : 250
Date	29/11/22
Drawn by	AG
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

Drawing Number	Rev
0412-SEW-ZZ-01-DR-A-PL1001	0

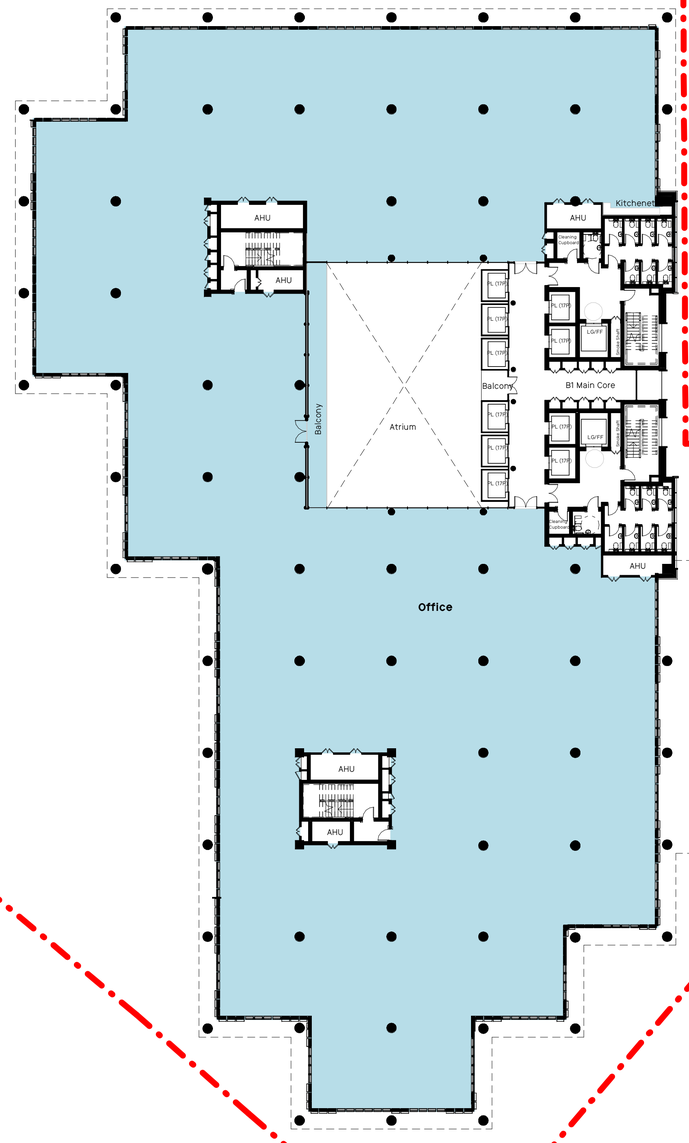
RIVER IRWELL

TRINITY BRIDGE

THE ALBERTON

REEDHAM HOUSE





General Notes

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Notes

Site Boundaries

- Application Site Red Line Boundary

Use Classes

- E (a, b, c) Retail/ Restaurant/ Cafe
- E (g) Office
- C3 Residential
- Suis Generis

Residential Units

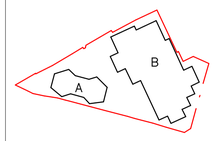
- 1B2P
- 2B3P
- 2B4P
- 3B4P
- 3B6P

Refer to Landscape GA drawings for hard landscape:
0412-SEW-ZZ-ZZ-DR-L-PL0100

For soft landscape:
0412-SEW-ZZ-ZZ-DR-L-PL0101

0 10m
@ 1:250

Key Plan



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PLANNING

Project No.	0412
Project Name	Albert Bridge House
Drawing Title	GA Plan - Level 02
Client	Oval Real Estate
Scale	1 : 250
Date	29/11/22
Drawn by	AG
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

Drawing Number	Rev
0412-SEW-ZZ-02-DR-A-PL1002	0

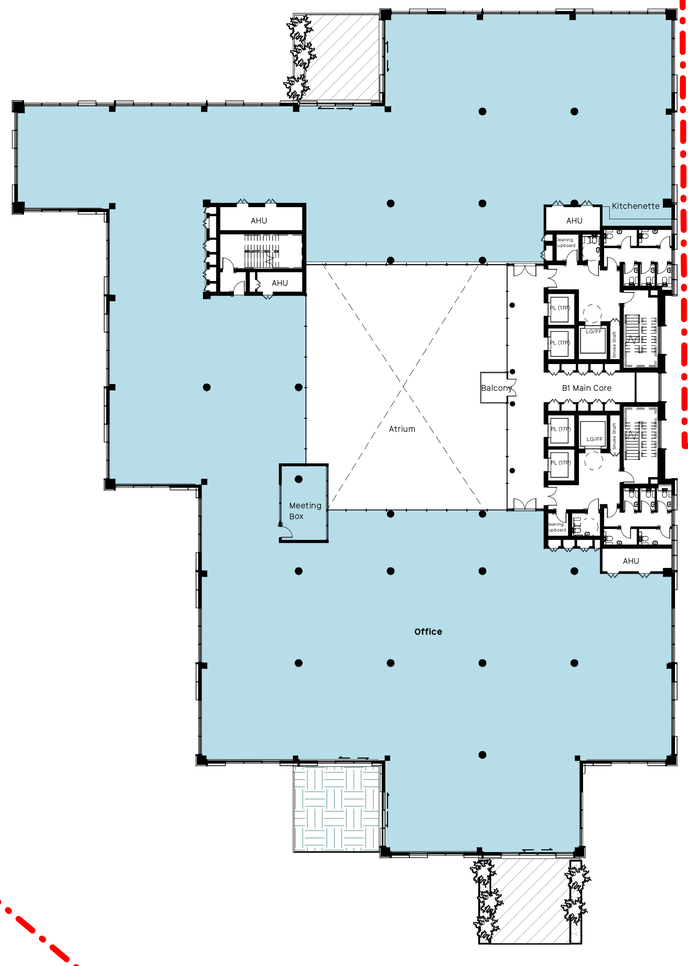
RIVER IRWELL

TRINITY BRIDGE

THE ALBERTON

REEDHAM HOUSE





General Notes

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Notes

Site Boundaries

- Application Boundary

Use Classes

- E (a, b, c) Retail/ Restaurant/ Cafe
- E (g) Office
- C3 Residential
- Suis Generis

Residential Units

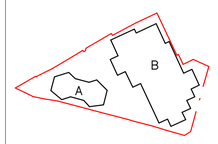
- 1B2P
- 2B3P
- 2B4P
- 3B4P
- 3B6P

Commercial Terraces

- Accessible Amenity Terrace
- Green Roof Terrace - Maintenance access only
- Photovoltaic Panels
- Planter
- Integrated photovoltaic cells

@ 1:250

Key Plan



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3 Brewhouse Yard
London, EC1V 4JQ
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+44 (0) 20 7549 1730

PLANNING

Project No.	0412
Project Name	Albert Bridge House
Drawing Title	GA Plan - Level 12
Client	Oval Real Estate
Scale	1 : 250
Date	29/11/22
Drawn by	Author
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

Drawing Number	Rev
0412-SEW-ZZ-12-DR-A-PL1012	0

RIVER IRWELL

THE ALBERTON

REEDHAM HOUSE

Air Source Pump

Air Source Pump

1650

4200

2350

General Notes

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Notes

Site Boundaries

- Application Boundary

Use Classes

- E (a, b, c) Retail/ Restaurant/ Cafe
- E (g) Office
- C3 Residential
- Suis Generis

Residential Units

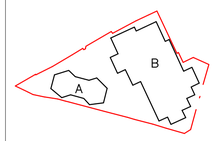
- 1B2P
- 2B3P
- 2B4P
- 3B4P
- 3B6P

Commercial Terraces

- Accessible Amenity Terrace
- Green Roof Terrace - Maintenance access only
- Photovoltaic Panels
- Planter
- Integrated photovoltaic cells

0 10m
@ 1:250

Key Plan



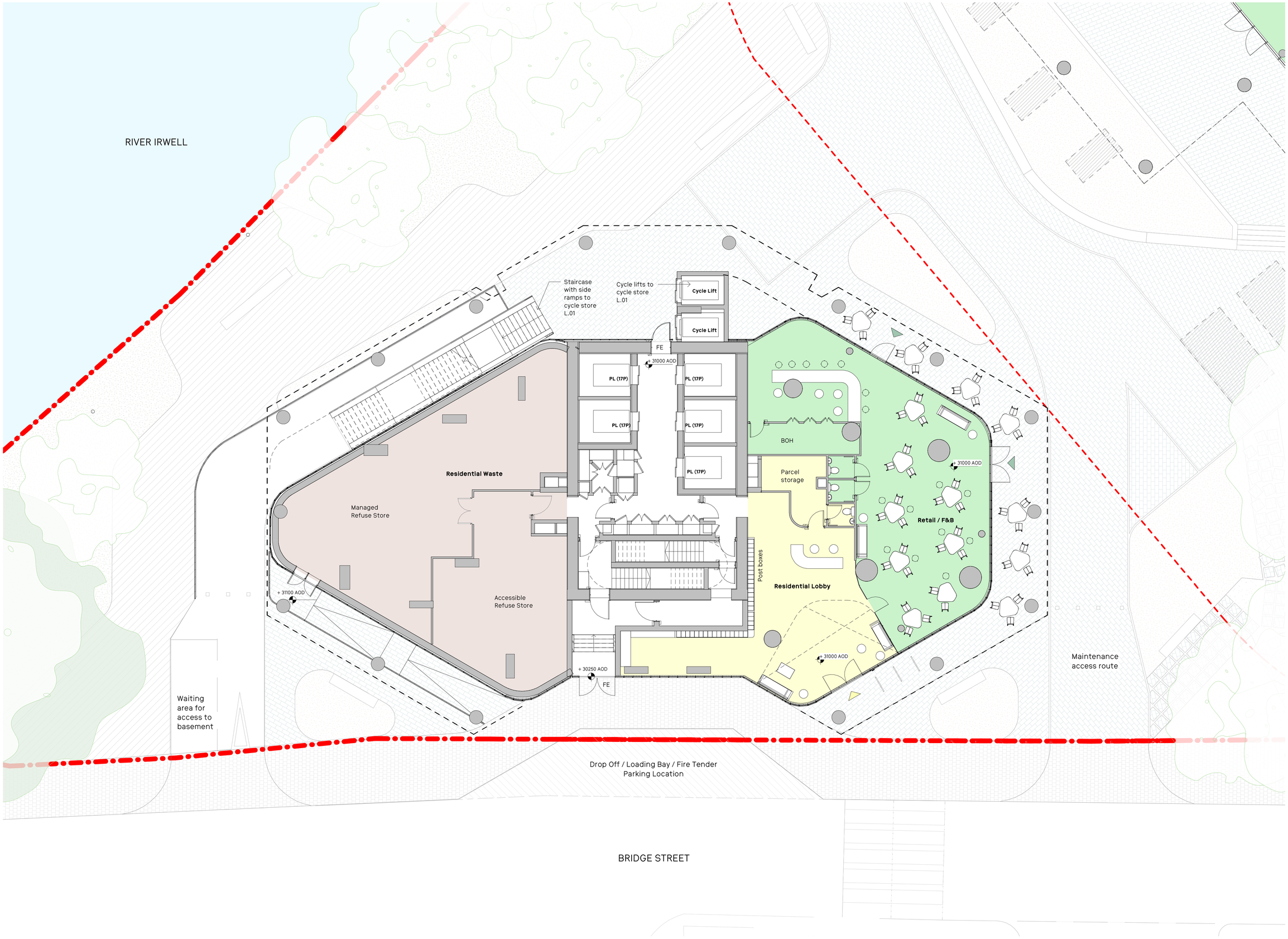
Studio Egret West
3 Brewhouse Yard
London, EC1V 4JQ
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PLANNING

Project No.	0412
Project Name	Albert Bridge House
Drawing Title	GA Plan - Level Roof
Client	Oval Real Estate
Scale	1 : 250
Date	08/12/22
Drawn by	AG
Checked by	SEW

Rev	Date	Reason	Chk
0	08/12/22	Issue for Planning	

Drawing Number	Rev
0412-SEW-ZZ-RF-DR-A-PL1020	0



General Notes

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Notes

Site Boundaries

Application Boundary

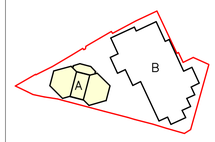
Use Classes

- E (a, b, c) Retail/ Restaurant/ Cafe
- E (g) Office
- C3 Residential
- Suis Generis

For Landscape detail refer to drawing:
0412-SEW-ZZ-ZZ-DR-L-PL0100

@ 1:100 — 0 — 5m

Key Plan



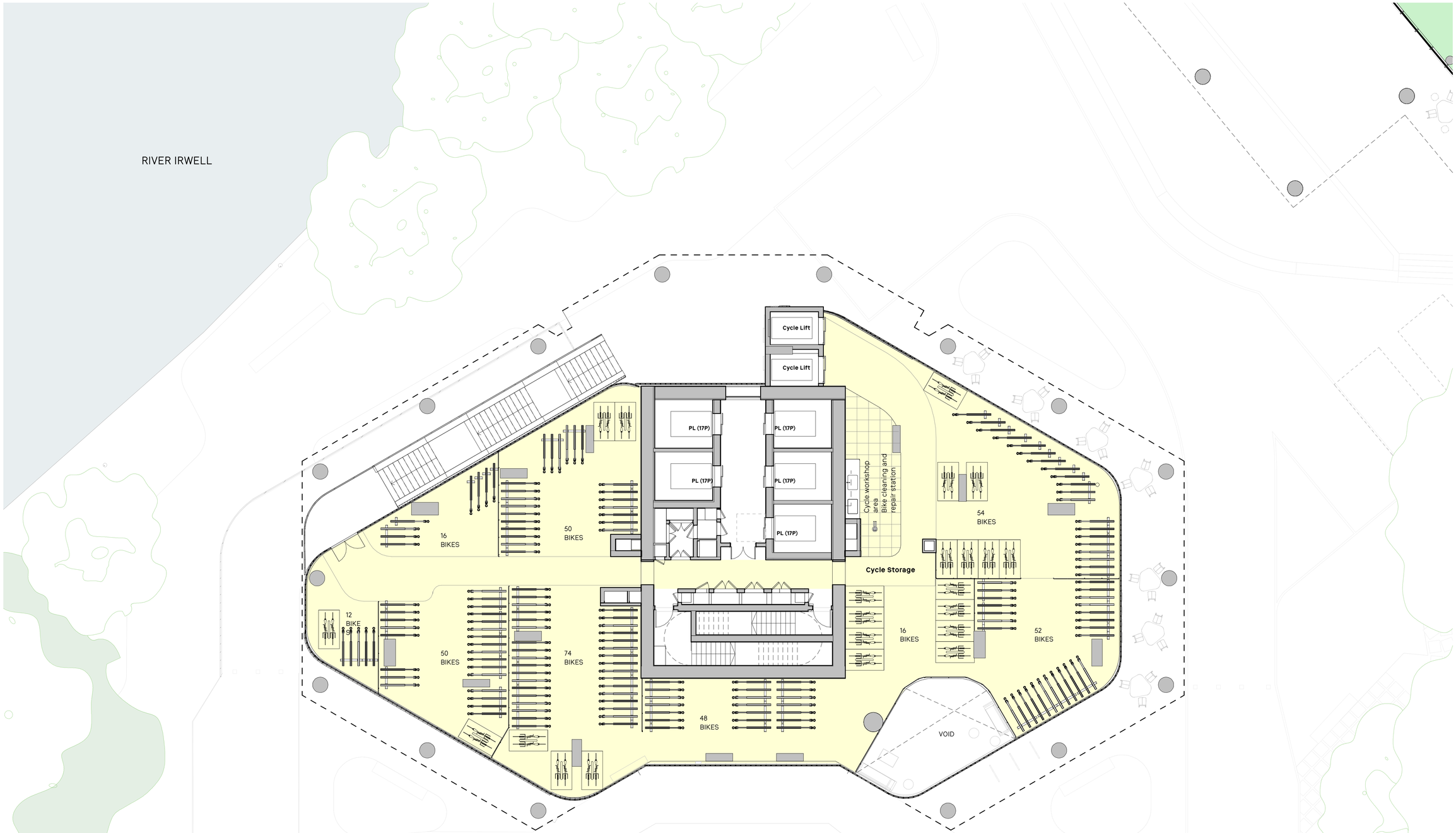
Studio Egret West
3 Brewhouse Yard
London, EC1V 4JQ
hello@egretwest.com
+44 (0) 20 7549 1730

PLANNING

Project No.	0412
Project Name	Albert Bridge House
Drawing Title	Building A - Level 00
Client	Oval Real Estate
Scale	1 : 100
Date	29/11/22
Drawn by	AG
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

Drawing Number	Rev
0412-SEW-AA-00-DR-A-PL1100	0



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Notes

Use Classes

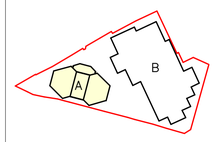
- E (a, b, c) Retail/ Restaurant/ Cafe
- E (g) Office
- C3 Residential
- Suis Generis

Residential Units

- 1B1P
- 1B2P
- 2B3P
- 2B4P
- 3B5P
- 3B5P
- 3B6P

0 5m
@ 1:100

Key Plan



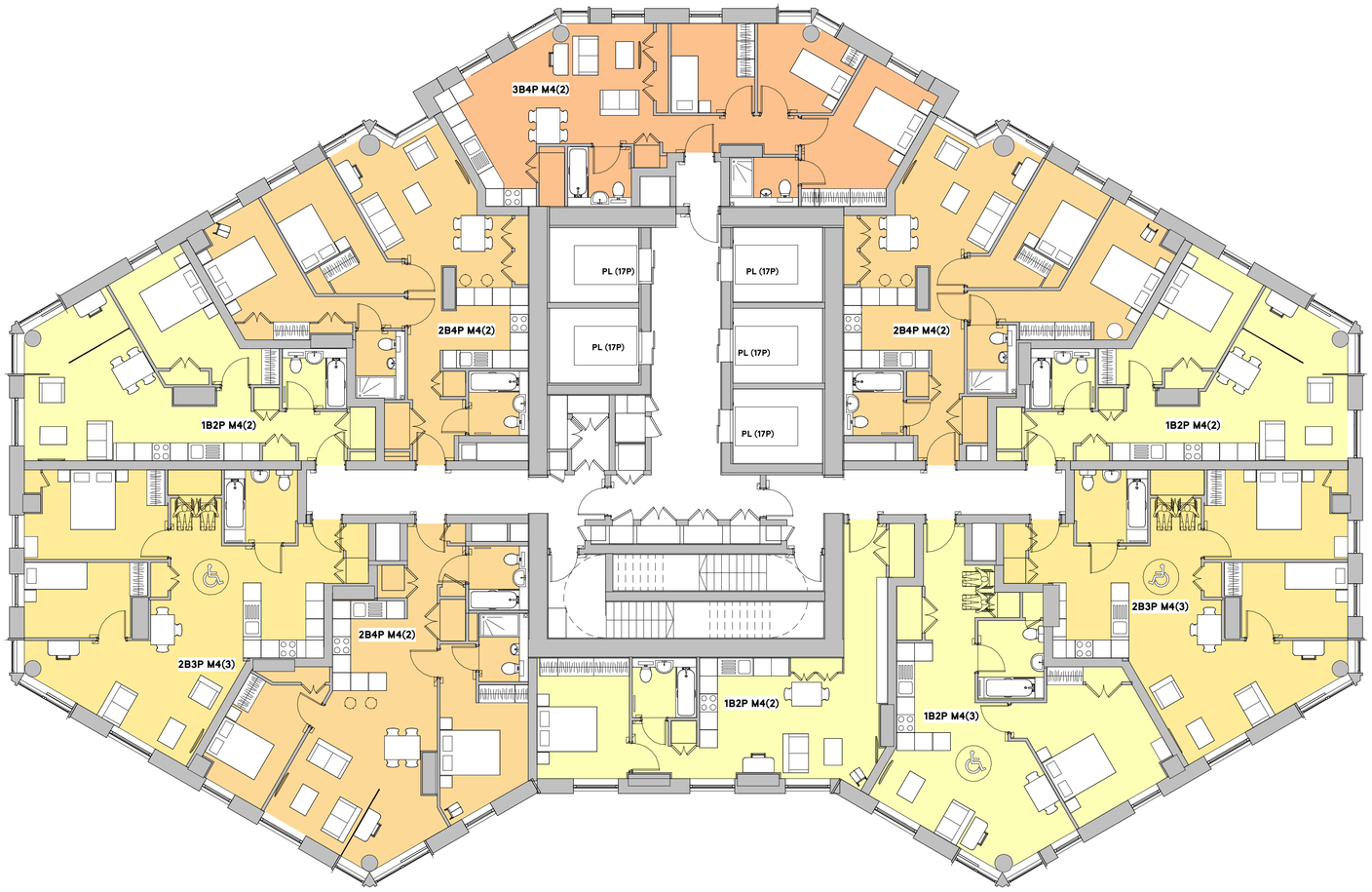
Studio Egret West
3 Brewhouse Yard
London, EC1V 4JQ
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+44 (0) 20 7549 1730

PLANNING

Project No.	0412
Project Name	Albert Bridge House
Drawing Title	Building A - Level 01
Client	Oval Real Estate
Scale	1 : 100
Date	29/11/22
Drawn by	AG
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

Drawing Number	Rev
0412-SEW-AA-01-DR-A-PL1101	0



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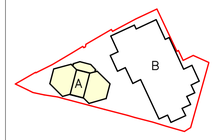
Notes

Residential Units

- 1B2P
- 2B3P
- 2B4P
- 3B4P
- 3B5P
- 3B6P

0 5m
@ 1:100

Key Plan



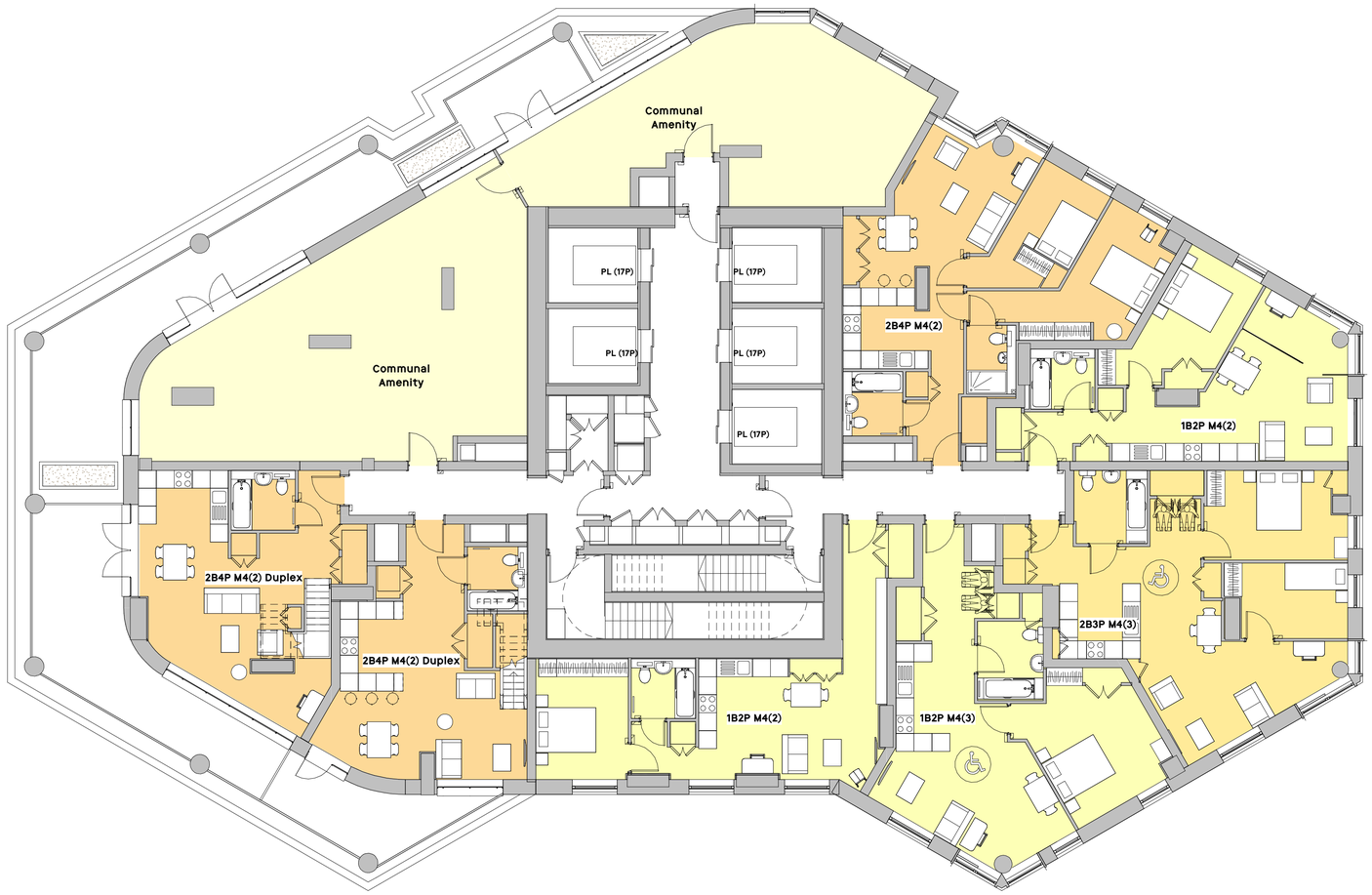
Studio Egret West
3 Brewhouse Yard
London, EC1V 4JQ
hello@egretwest.com
+44 (0) 20 7549 1730

PLANNING

Project No.	0412
Project Name	Albert Bridge House
Drawing Title	Building A - Levels 02-09 Typical M4(3)
Client	Oval Real Estate
Scale	1 : 100
Date	29/11/22
Drawn by	AG
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

Drawing Number	Rev
0412-SEW-AA-05-DR-A-PL1105	0



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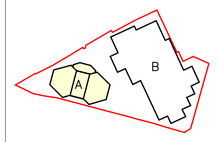
Notes

Residential Units

- 1B2P
- 2B3P
- 2B4P
- 3B4P
- 3B5P
- 3B6P

0 5m
@ 1:100

Key Plan



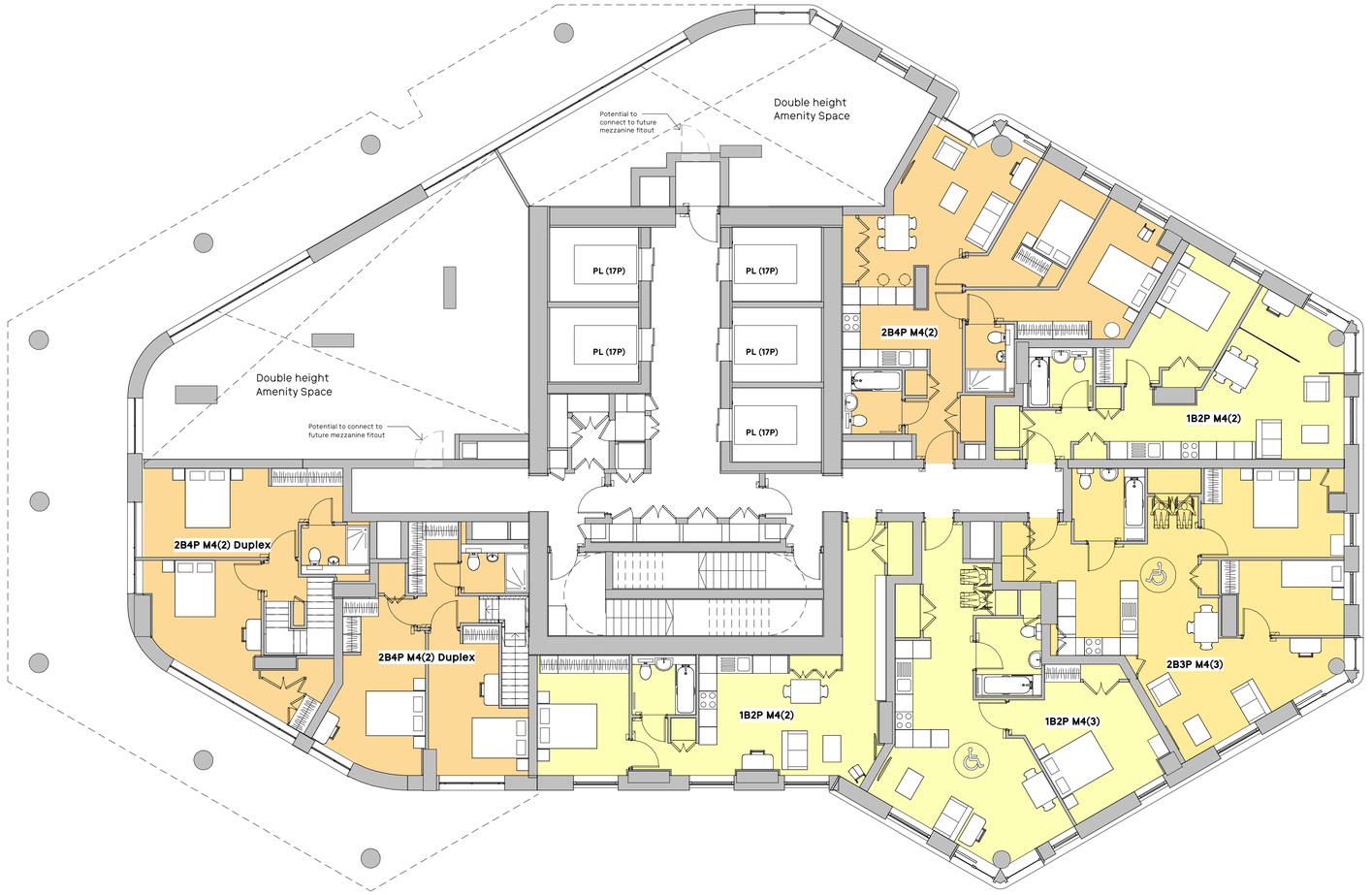
Studio Egret West
3 Brewhouse Yard
London, EC1V 4JQ
hello@egretwest.com
+44 (0) 20 7549 1730

PLANNING

Project No.	0412
Project Name	Albert Bridge House
Drawing Title	Building A - Level 10 Set Back A Lower
Client	Oval Real Estate
Scale	1 : 100
Date	29/11/22
Drawn by	AG
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

Drawing Number	Rev
0412-SEW-AA-10-DR-A-PL1110	0



General Notes

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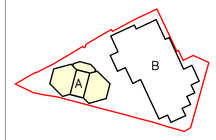
Notes

Residential Units

- 1B2P
- 2B3P
- 2B4P
- 3B4P
- 3B5P
- 3B6P

0 5m
@ 1:100

Key Plan



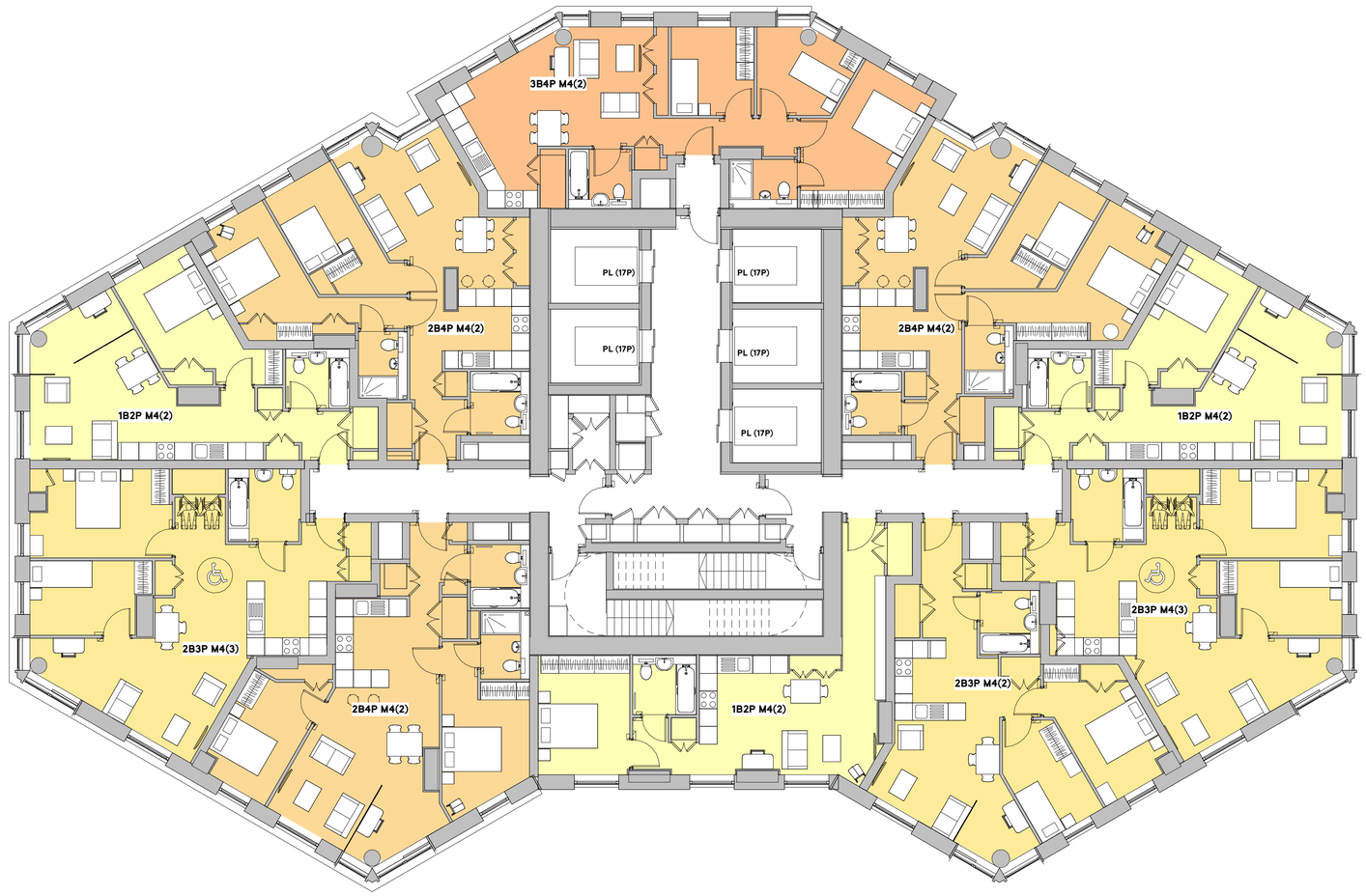
Studio Egret West
3 Brewhouse Yard
London, EC1V 4JQ
hello@egretwest.com
+44 (0) 20 7549 1730

PLANNING

Project No.	0412
Project Name	Albert Bridge House
Drawing Title	Building A - Level 11 Set Back A Upper
Client	Oval Real Estate
Scale	1 : 100
Date	29/11/22
Drawn by	AG
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

Drawing Number	Rev
0412-SEW-AA-11-DR-A-PL1111	0



General Notes

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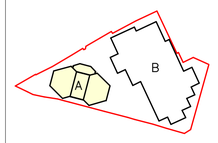
Notes

Residential Units

- 1B2P
- 2B3P
- 2B4P
- 3B4P
- 3B5P
- 3B6P

0 5m
@ 1:100

Key Plan



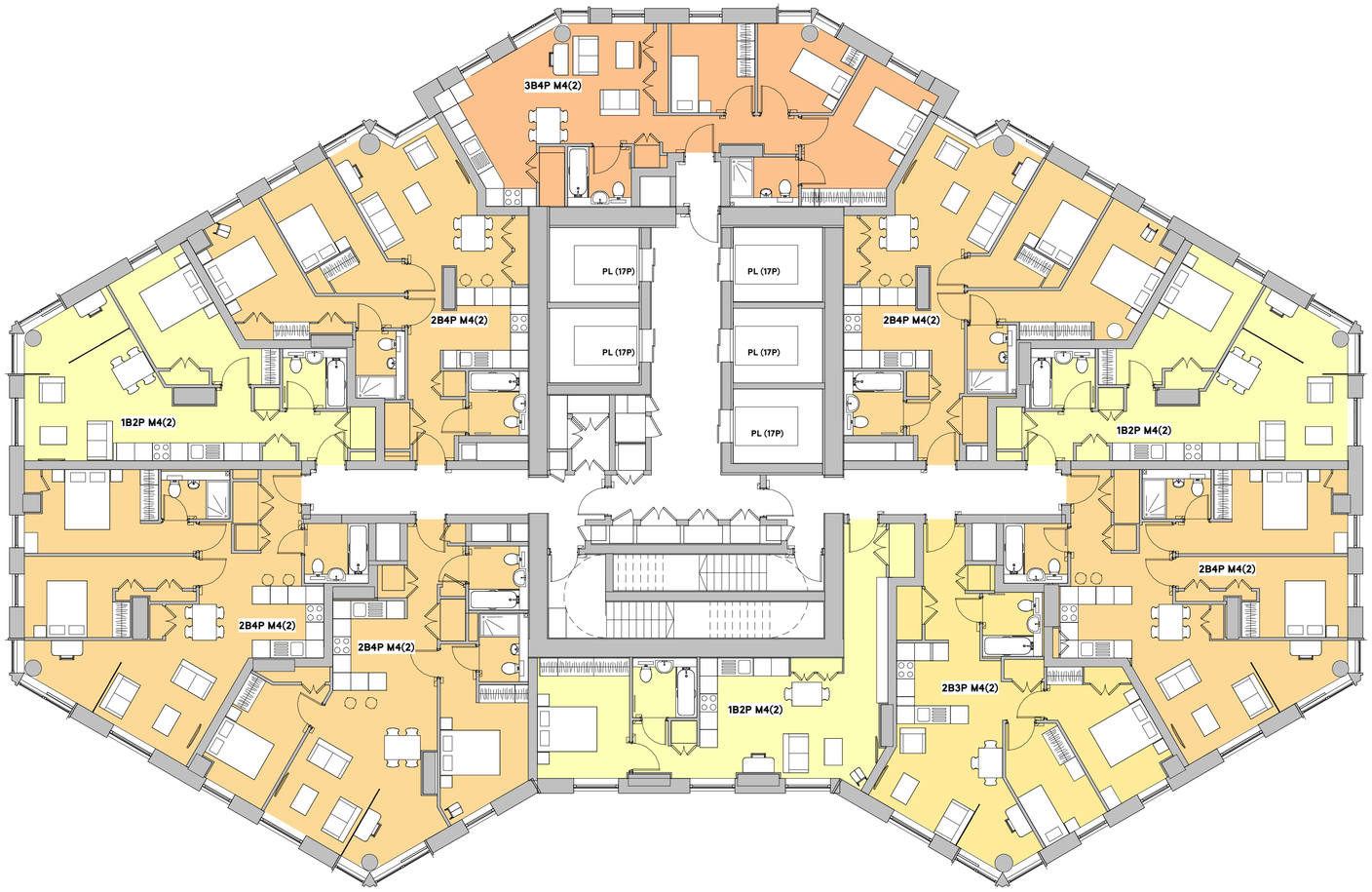
Studio Egret West
3 Brewhouse Yard
London, EC1V 4JQ
hello@egretwest.com
+44 (0) 20 7549 1730

PLANNING

Project No.	0412
Project Name	Albert Bridge House
Drawing Title	Building A - Levels 12-13 Typical with 2xM4(3)
Client	Oval Real Estate
Scale	1 : 100
Date	29/11/22
Drawn by	AG
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

Drawing Number	Rev
0412-SEW-AA-12-DR-A-PL1112	0



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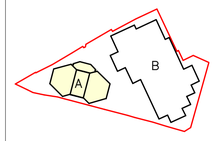
Notes

Residential Units

- 1B2P
- 2B3P
- 2B4P
- 3B4P
- 3B5P
- 3B6P

0 5m
@ 1:100

Key Plan



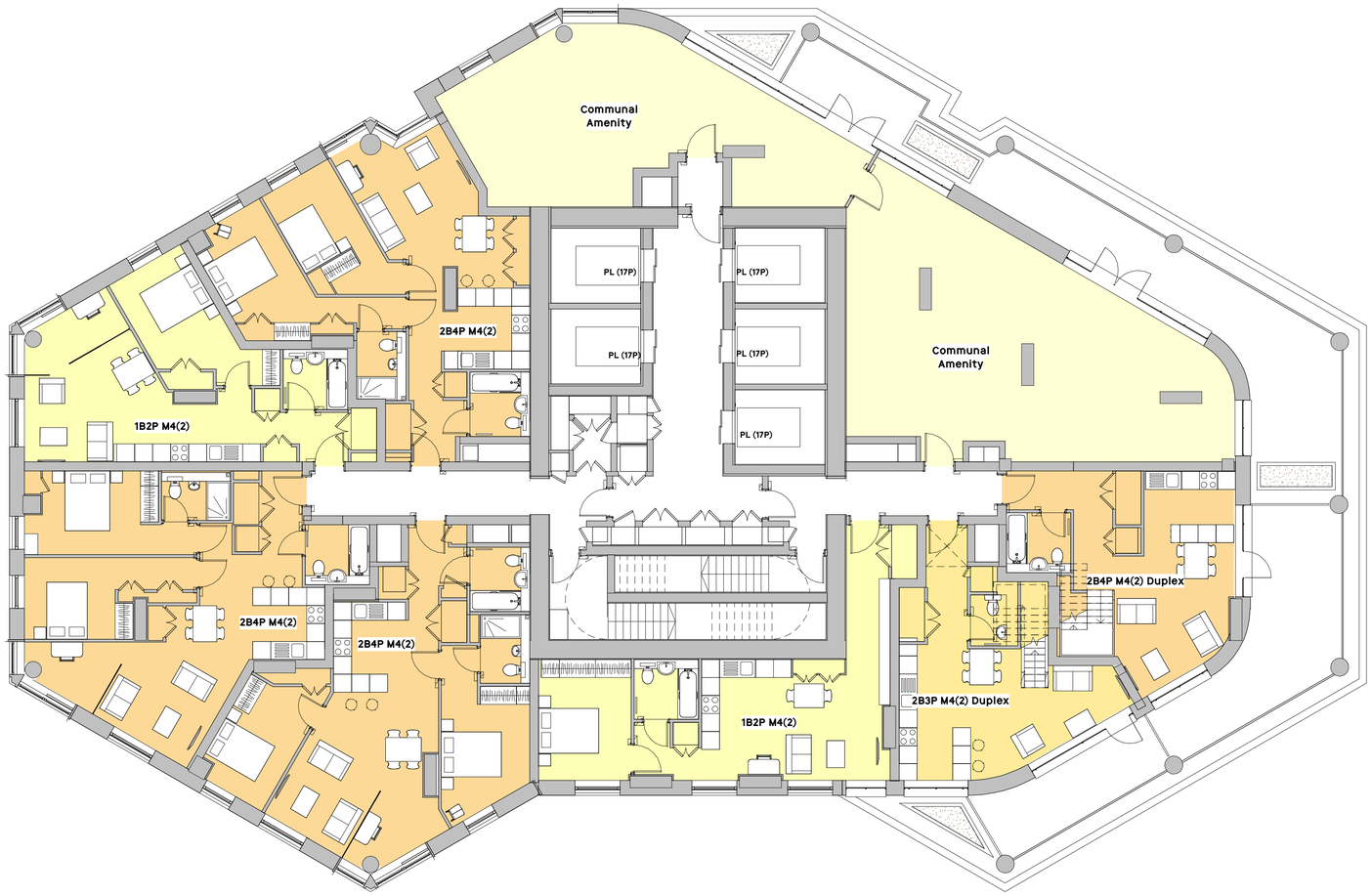
Studio Egret West
3 Brewhouse Yard
London, EC1V 4JQ
hello@egretwest.com
+44 (0) 20 7549 1730

PLANNING

Project No.	0412
Project Name	Albert Bridge House
Drawing Title	Building A - Levels 14-21,24-33 Typical M4(2)
Client	Oval Real Estate
Scale	1 : 100
Date	29/11/22
Drawn by	AG
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

Drawing Number	Rev
0412-SEW-AA-14-DR-A-PL1114	0



General Notes

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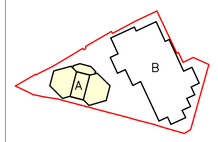
Notes

Residential Units

- 1B2P
- 2B3P
- 2B4P
- 3B4P
- 3B5P
- 3B6P

0 5m
@ 1:100

Key Plan



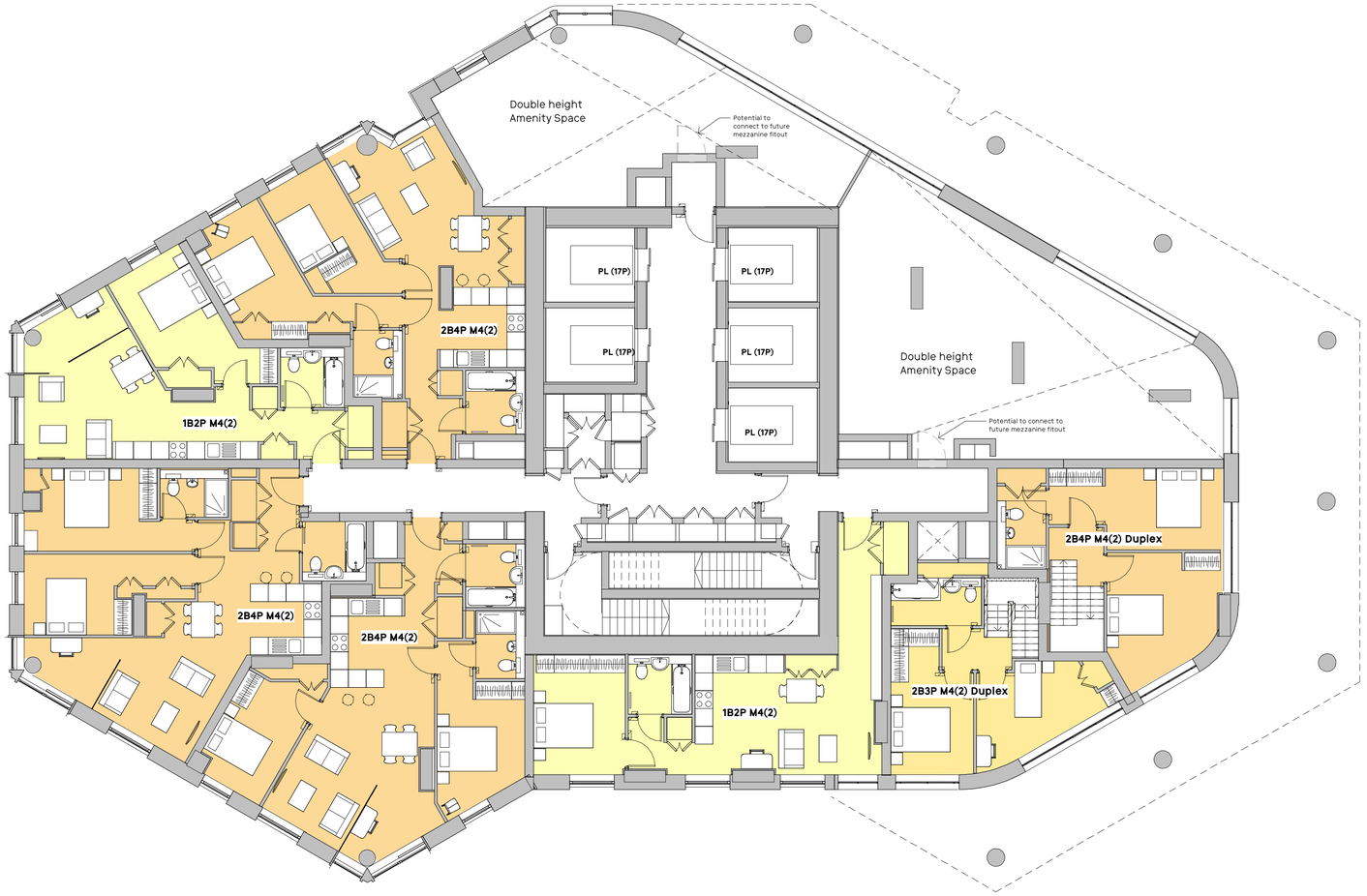
Studio Egret West
3 Brewhouse Yard
London, EC1V 4JQ
hello@egretwest.com
+44 (0) 20 7549 1730

PLANNING

Project No.	0412
Project Name	
Albert Bridge House	
Drawing Title	
Building A - Level 22 Set Back B Lower	
Client	Oval Real Estate
Scale	1 : 100
Date	29/11/22
Drawn by	AG
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

Drawing Number	Rev
0412-SEW-AA-22-DR-A-PL1122	0



General Notes

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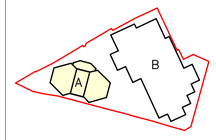
Notes

Residential Units

- 1B2P
- 2B3P
- 2B4P
- 3B4P
- 3B5P
- 3B6P

0 5m
@ 1:100

Key Plan



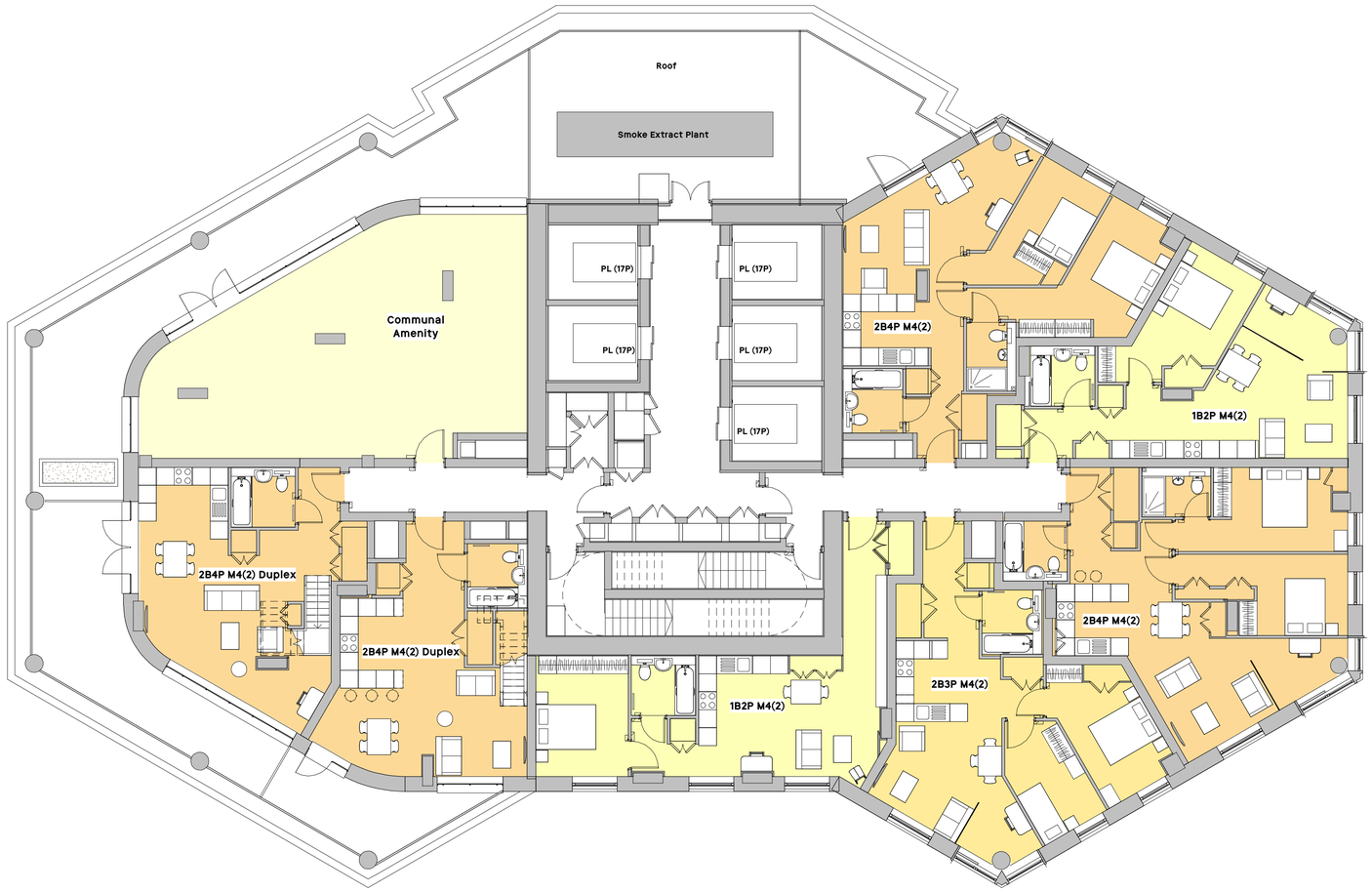
Studio Egret West
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+44 (0) 20 7549 1730

PLANNING

Project No.	0412
Project Name	Albert Bridge House
Drawing Title	Building A - Level 23 Set Back B Upper
Client	Oval Real Estate
Scale	1 : 100
Date	29/11/22
Drawn by	AG
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

Drawing Number	Rev
0412-SEW-AA-23-DR-A-PL1123	0



General Notes

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Do not scale this drawing for construction purposes. All dimensions to be checked on site by the contractor and such dimensions to be their responsibility.
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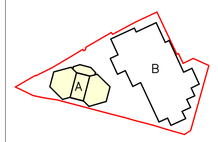
Notes

Residential Units

- 1B2P
- 2B3P
- 2B4P
- 3B4P
- 3B5P
- 3B6P

0 5m
@ 1:100

Key Plan



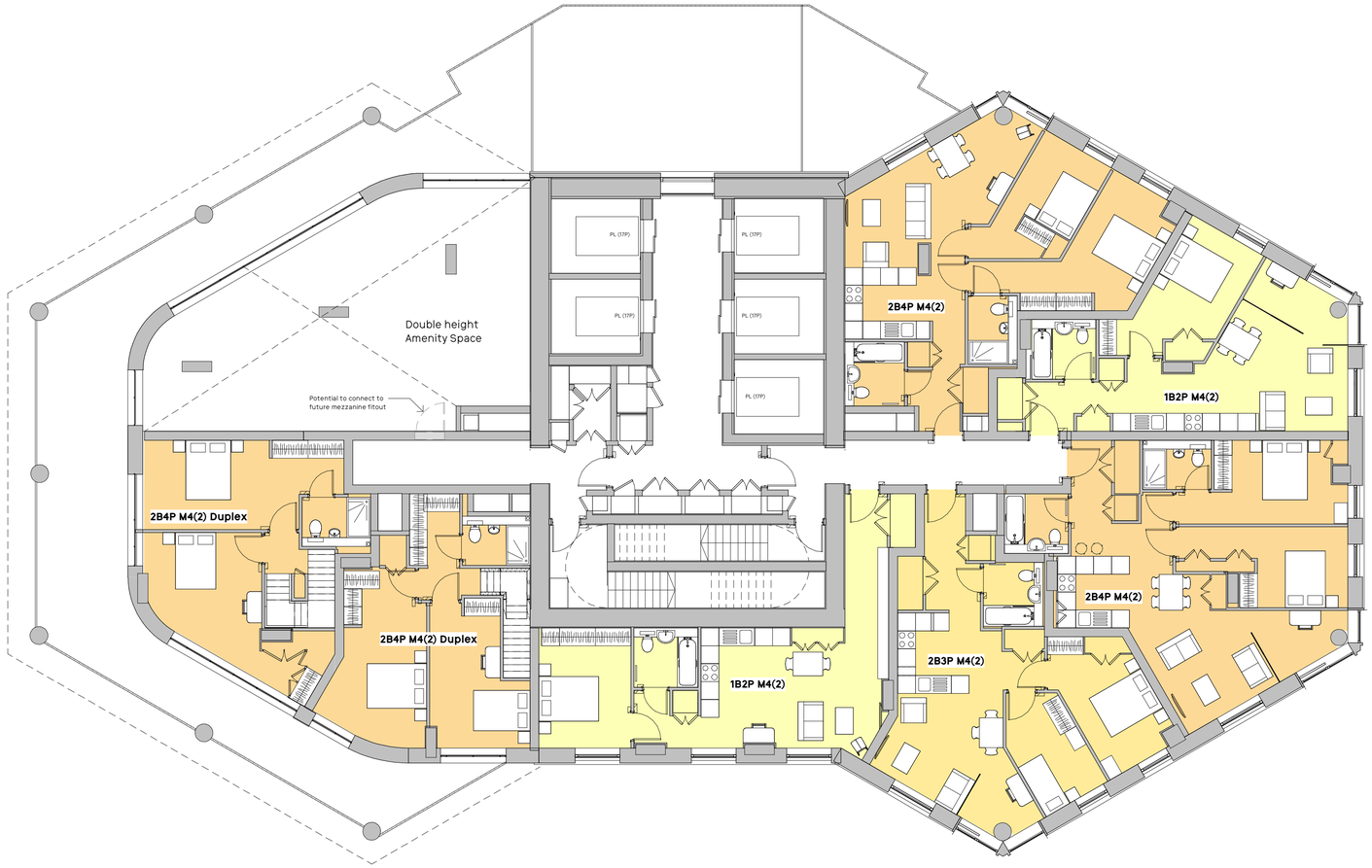
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PLANNING

Project No.	0412
Project Name	
Albert Bridge House	
Drawing Title	
Building A - Level 34 Set Back C Lower	
Client	Oval Real Estate
Scale	1 : 100
Date	29/11/22
Drawn by	AG
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

Drawing Number	Rev
0412-SEW-AA-34-DR-A-PL1134	0



General Notes

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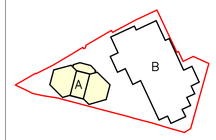
Notes

Residential Units

- 1B2P
- 2B3P
- 2B4P
- 3B4P
- 3B5P
- 3B6P

0 5m
@ 1:100

Key Plan



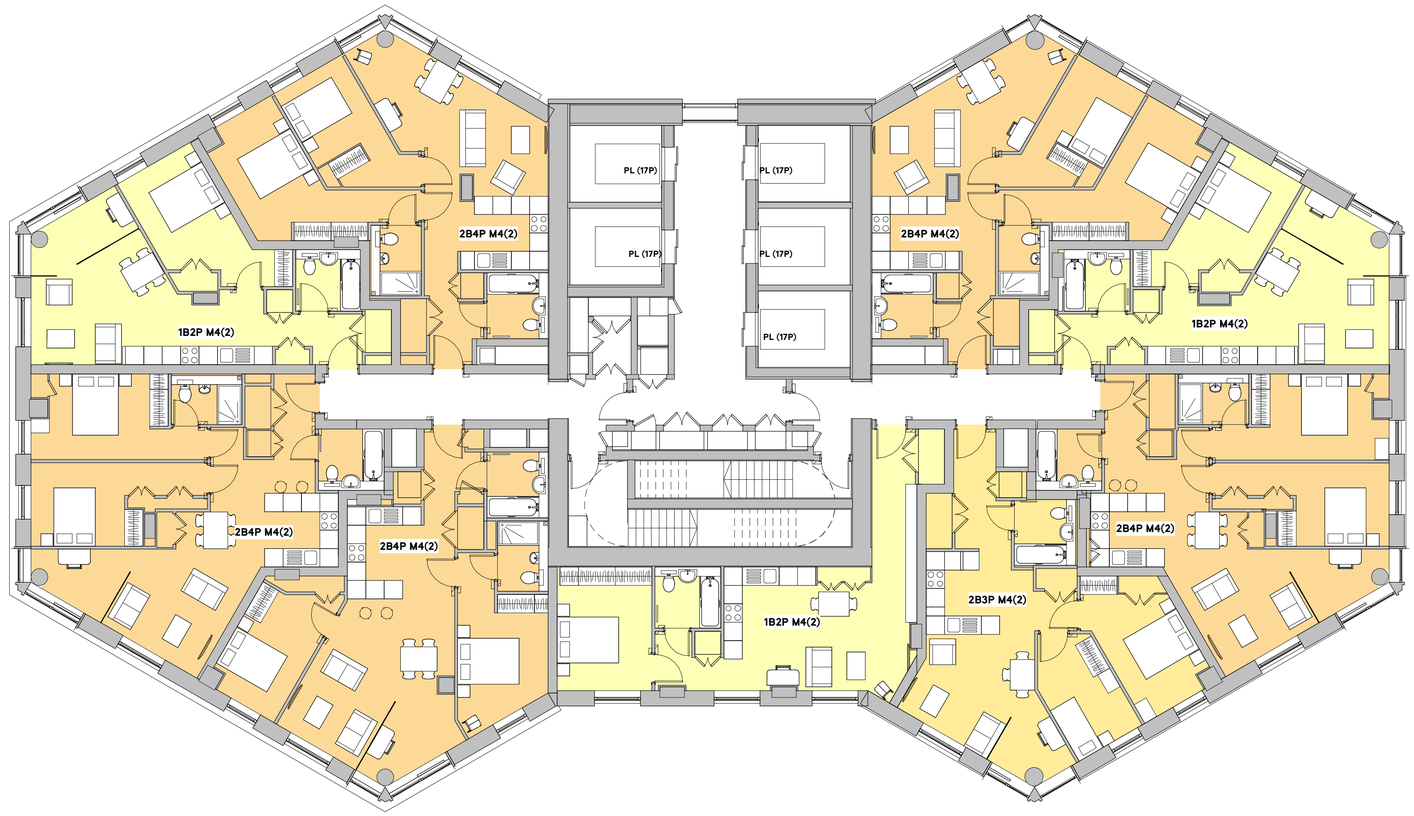
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PLANNING

Project No.	0412
Project Name	
Albert Bridge House	
Drawing Title	
Building A - Level 35 Set Back C Upper	
Client	Oval Real Estate
Scale	1 : 100
Date	29/11/22
Drawn by	AG
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

Drawing Number	Rev
0412-SEW-AA-35-DR-A-PL1135	0



General Notes

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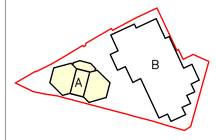
Notes

Residential Units

- 1B2P
- 2B3P
- 2B4P
- 3B4P
- 3B5P
- 3B6P

0
@ 1:100
5m

Key Plan



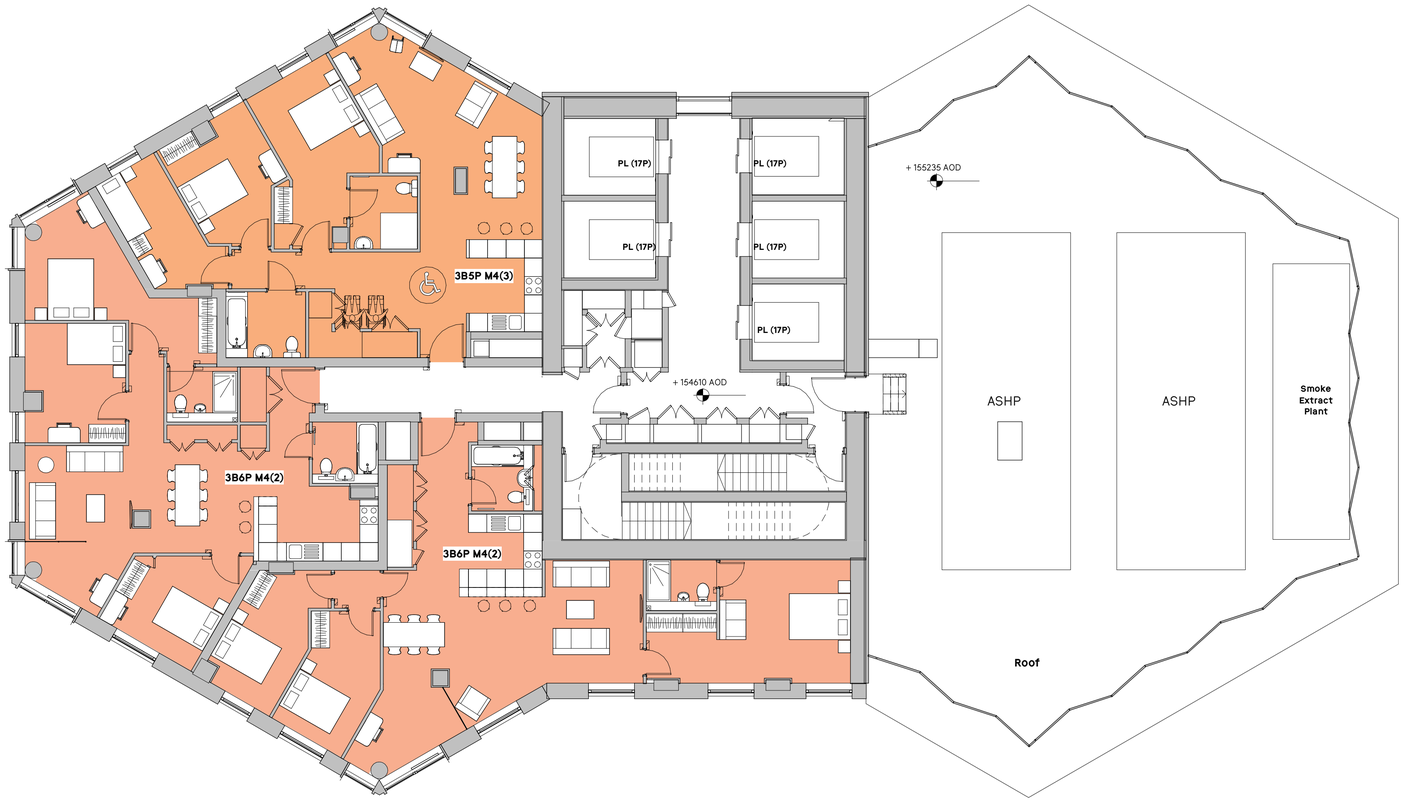
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PLANNING

Project No.	0412
Project Name	Albert Bridge House
Drawing Title	Building A - Levels 36-39 Upper Typical
Client	Oval Real Estate
Scale	1 : 100
Date	29/11/22
Drawn by	AG
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

Drawing Number	Rev
0412-SEW-AA-36-DR-A-PL1136	0



General Notes

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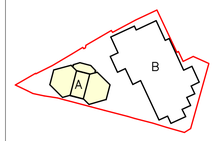
Notes

Residential Units

- 1B2P
- 2B3P
- 2B4P
- 3B4P
- 3B5P
- 3B6P

0 5m
@ 1:100

Key Plan



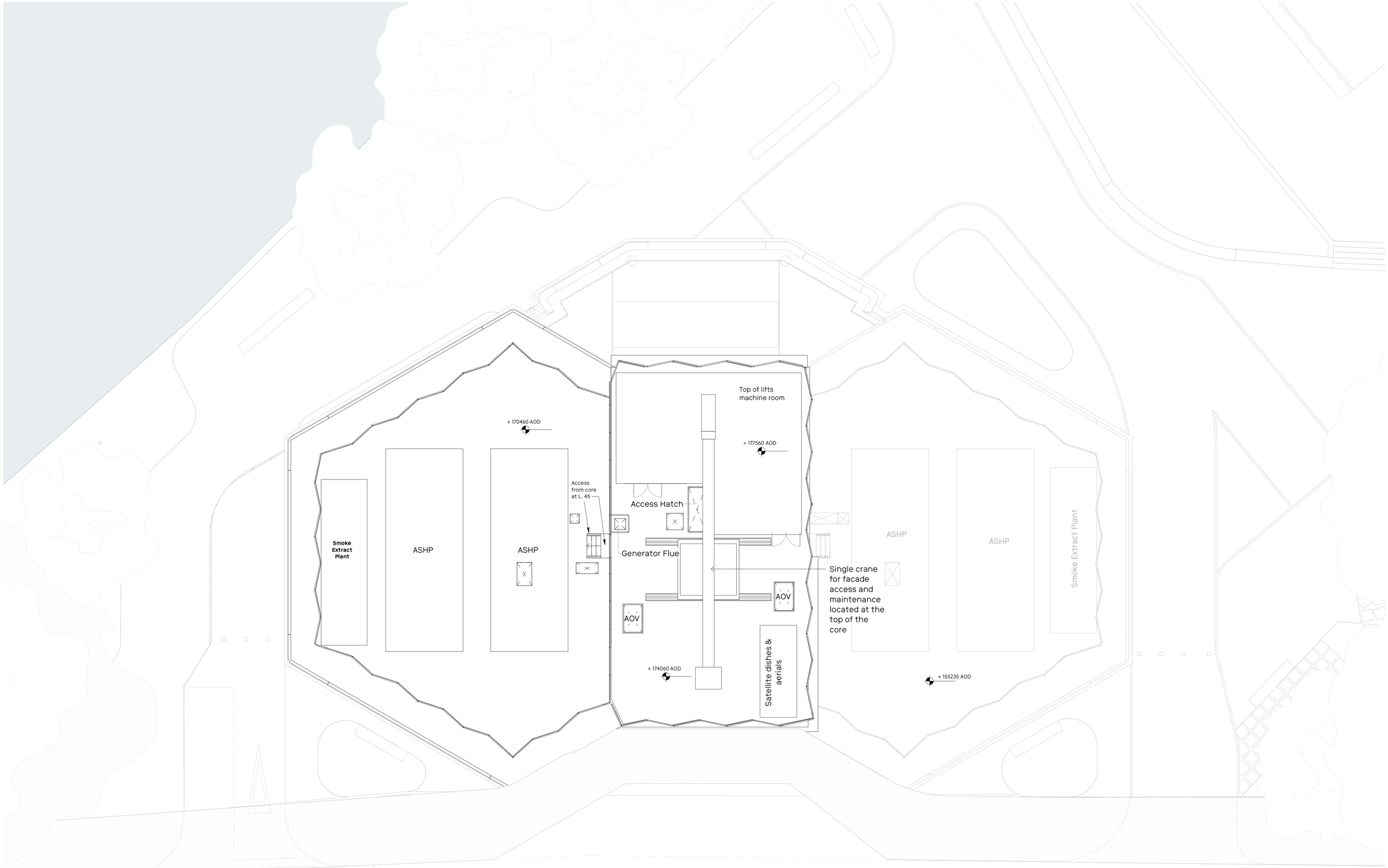
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PLANNING

Project No.	0412
Project Name	
Albert Bridge House	
Drawing Title	
Building A - Level 40 Beacon Typical	
Client	Oval Real Estate
Scale	1 : 100
Date	29/11/22
Drawn by	AG
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

Drawing Number	Rev
0412-SEW-AA-40-DR-A-PL1140	0



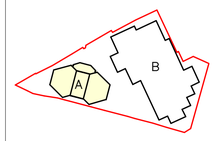
General Notes

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Notes

0 5m
@ 1:100

Key Plan



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PLANNING

Project No.	0412
Project Name	
Albert Bridge House	
Drawing Title	
Building A - Roof Plan	
Client	Oval Real Estate
Scale	1 : 100
Date	08/12/22
Drawn by	AG
Checked by	SEW

Rev	Date	Reason	Chk
0	08/12/22	Issue for Planning	

Drawing Number	Rev
0412-SEW-AA-45-DR-A-PL1145	0



General Notes

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Notes

Use Classes

- E (g) Office
- E (a, b, c) Retail/ Restaurant/ Cafe
- Substation

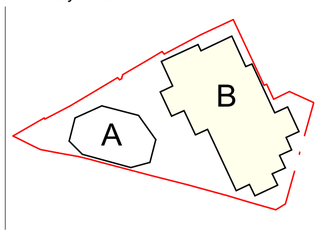
Key

- Emerging Context
- Application Boundary

Refer to Landscape GA drawings for hard landscape:
0412-SEW-ZZ-ZZ-DR-L-PL0100

For soft landscape:
0412-SEW-ZZ-ZZ-DR-L-PL0101

Key Plan



0 10m
@ 1:200

PLANNING

Project No.	0412
Project Name	Albert Bridge House

Drawing Title

Building B - Level 00

Client	Oval Real Estate
Scale @A1	1 : 200
Date	08/12/22
Drawn by	DB
Checked by	SEW

Rev	Date	Reason	Chk
0	08/12/22	Issue for Planning	

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Drawing Number	Rev
0412-SEW-BB-00-DR-A-PL1160	0



General Notes

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Notes

Use Classes

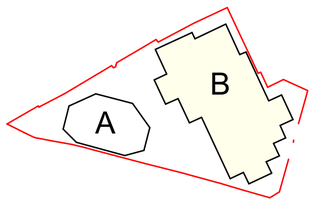
E (g) Office

E (a, b, c) Retail/ Restaurant/ Cafe

Refer to Landscape GA drawings for hard landscape:
0412-SEW-ZZ-ZZ-DR-L-PL0100

For soft landscape:
0412-SEW-ZZ-ZZ-DR-L-PL0101

Key Plan



0 10m
@ 1:200

PLANNING

Project No.	0412
Project Name	Albert Bridge House

Drawing Title

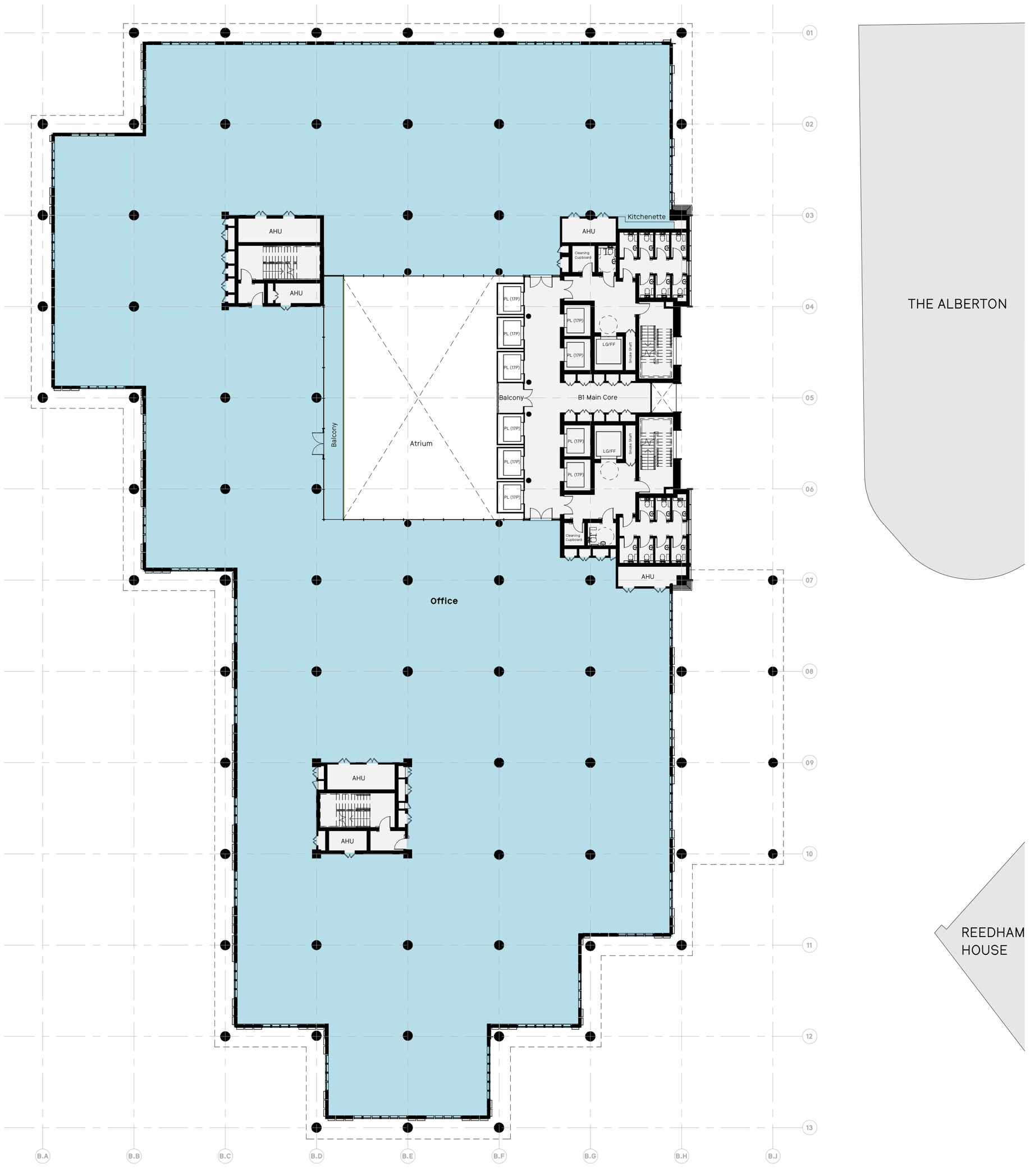
Building B - Level 01

Client	Oval Real Estate
Scale @A1	1 : 200
Date	29/11/22
Drawn by	DB
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

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Drawing Number	Rev
0412-SEW-BB-01-DR-A-PL1161	0



General Notes

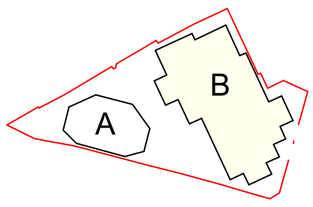
No implied licence exists. This drawing should not be used to calculate areas for the purposes of valuation.
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Notes

Use Classes

- **E (g) Office**
- **E (a, b, c) Retail/ Restaurant/ Cafe**

Key Plan



0 10m
@ 1:200

PLANNING

Project No.	0412
Project Name	Albert Bridge House

Drawing Title

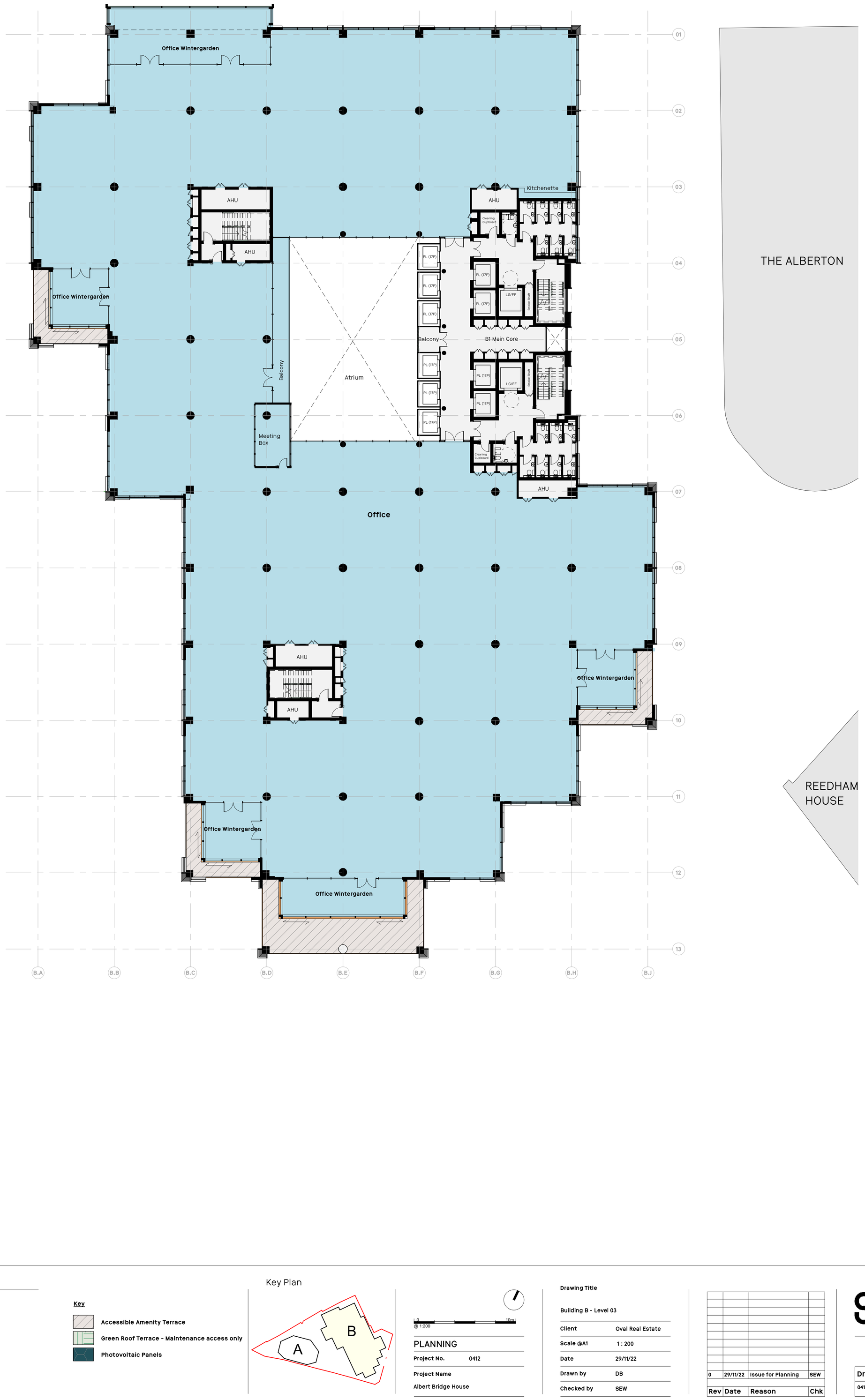
Building B - Level 02

Client	Oval Real Estate
Scale @A1	1 : 200
Date	29/11/22
Drawn by	DB
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

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Drawing Number	Rev
0412-SEW-BB-02-DR-A-PL1162	0



General Notes

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Notes

Use Classes

E (g) Office

Key

Accessible Amenity Terrace

Green Roof Terrace - Maintenance access only

Photovoltaic Panels

Key Plan

0 10m
@ 1:200

PLANNING

Project No.	0412
Project Name	Albert Bridge House

Drawing Title

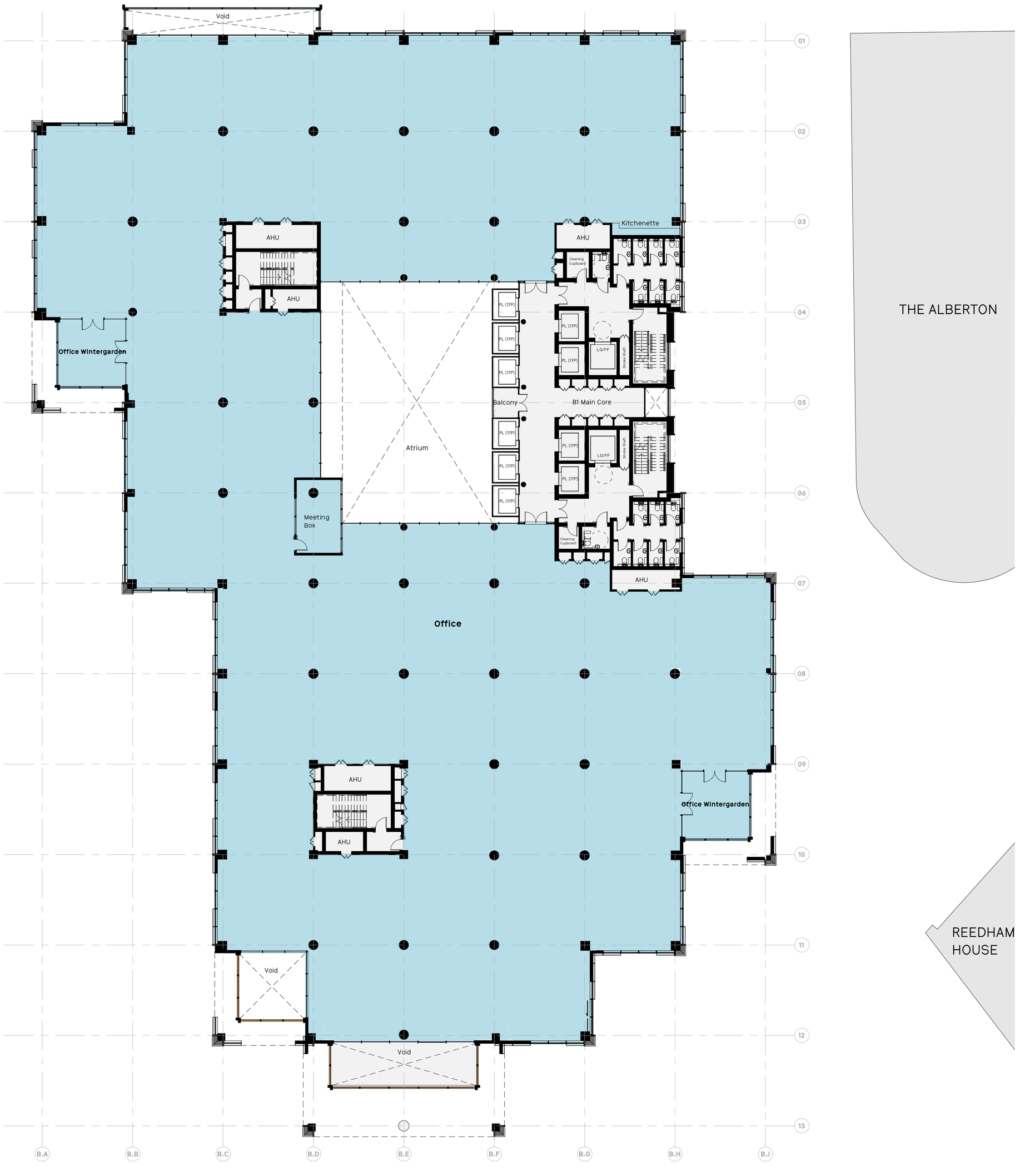
Building B - Level 03

Client	Oval Real Estate
Scale @A1	1 : 200
Date	29/11/22
Drawn by	DB
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

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Drawing Number	Rev
0412-SEW-BB-03-DR-A-PL1163	0



General Notes

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Notes

Use Classes

E (g) Office

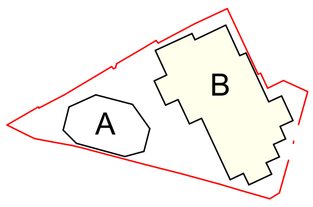
Key

Accessible Amenity Terrace

Green Roof Terrace - Maintenance access only

Photovoltaic Panels

Key Plan



0 10m
@ 1:200

PLANNING

Project No.	0412
Project Name	Albert Bridge House

Drawing Title

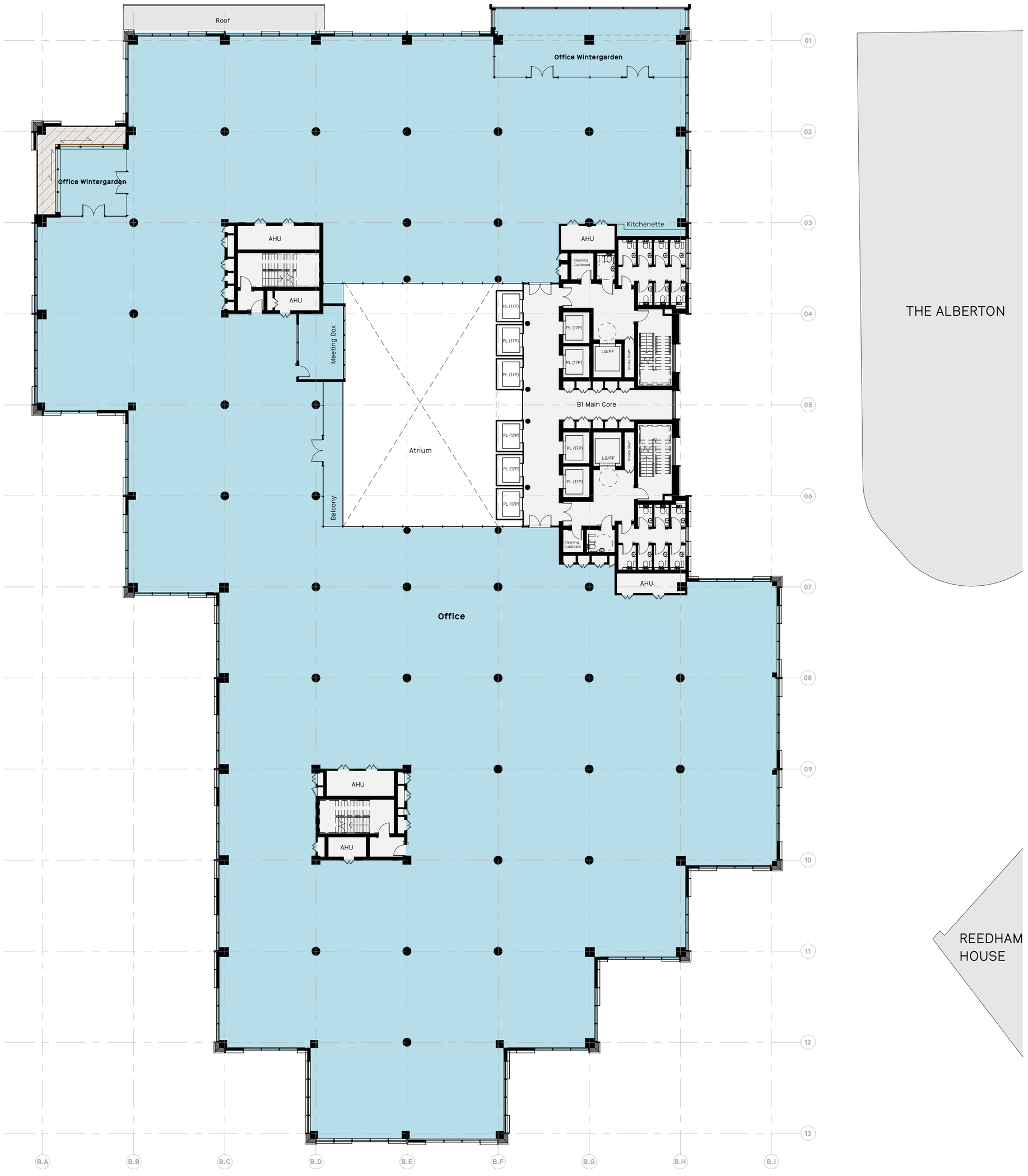
Building B - Level 04

Client	Oval Real Estate
Scale @A1	1 : 200
Date	29/11/22
Drawn by	DB
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

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Drawing Number	Rev
0412-SEW-BB-04-DR-A-PL1164	0



General Notes

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Notes

Use Classes

E (g) Office

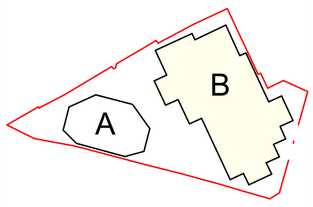
Key

Accessible Amenity Terrace

Green Roof Terrace - Maintenance access only

Photovoltaic Panels

Key Plan



0 10m
@ 1:200

PLANNING

Project No.	0412
Project Name	Albert Bridge House

Drawing Title

Building B - Level 05

Client	Oval Real Estate
Scale @A1	1 : 200
Date	29/11/22
Drawn by	DB
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

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Drawing Number	Rev
0412-SEW-BB-05-DR-A-PL1165	0



General Notes

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Notes

Use Classes

E (g) Office

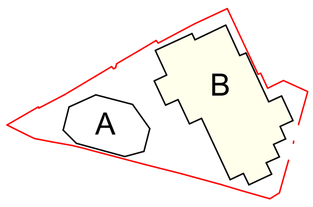
Key

Accessible Amenity Terrace

Green Roof Terrace - Maintenance access only

Photovoltaic Panels

Key Plan



0 10m
@ 1:200

PLANNING

Project No.	0412
Project Name	Albert Bridge House

Drawing Title

Building B - Level 06

Client	Oval Real Estate
Scale @A1	1 : 200
Date	29/11/22
Drawn by	DB
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

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Drawing Number	Rev
0412-SEW-BB-06-DR-A-PL1166	0



General Notes

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Notes

Use Classes

E (g) Office

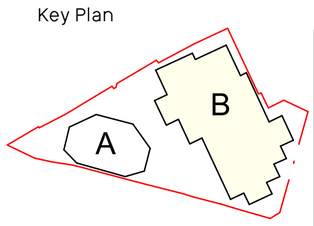
Key

Accessible Amenity Terrace

Green Roof Terrace - Maintenance access only

Photovoltaic Panels

Key Plan



0 10m
@ 1:200

PLANNING

Project No.	0412
Project Name	Albert Bridge House

Drawing Title

Building B - Level 07

Client	Oval Real Estate
Scale @A1	1 : 200
Date	29/11/22
Drawn by	DB
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

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Drawing Number	Rev
0412-SEW-BB-07-DR-A-PL1167	0



General Notes

No implied licence exists. This drawing should not be used to calculate areas for the purposes of valuation.
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Notes

Use Classes

E (g) Office

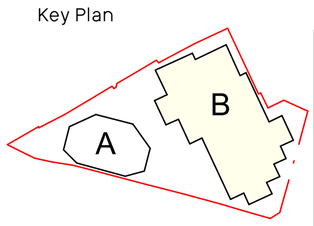
Key

Accessible Amenity Terrace

Green Roof Terrace - Maintenance access only

Photovoltaic Panels

Key Plan



0 10m
@ 1:200

PLANNING

Project No.	0412
Project Name	Albert Bridge House

Drawing Title

Building B - Level 08

Client	Oval Real Estate
Scale @A1	1 : 200
Date	29/11/22
Drawn by	DB
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

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Drawing Number	Rev
0412-SEW-BB-08-DR-A-PL1168	0



General Notes

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Notes

Use Classes

E (g) Office

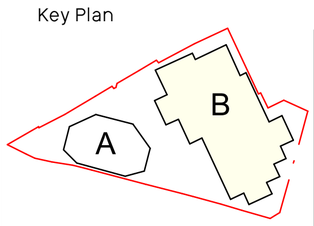
Key

Accessible Amenity Terrace

Green Roof Terrace - Maintenance access only

Photovoltaic Panels

Key Plan



0 10m
@ 1:200

PLANNING

Project No.	0412
Project Name	Albert Bridge House

Drawing Title

Building B - Level 09

Client	Oval Real Estate
Scale @A1	1 : 200
Date	29/11/22
Drawn by	DB
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

Studio Egret West
3 Brewhouse Yard
London, EC1V 4JQ
hello@egretwest.com
+44 (0) 20 7549 1730

Drawing Number	Rev
0412-SEW-BB-09-DR-A-PL1169	0



General Notes

No implied licence exists. This drawing should not be used to calculate areas for the purposes of valuation.
Do not scale this drawing for construction purposes. All dimensions to be checked on site by the contractor and such dimensions to be their responsibility.
All work must comply with relevant British Standards and Building Regulations requirements. Drawing errors and omissions to be reported to the architect.

Notes

Use Classes

E (g) Office

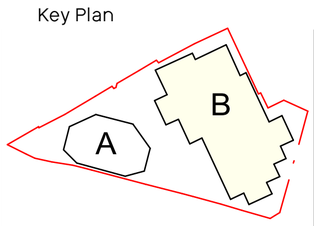
Key

Accessible Amenity Terrace

Green Roof Terrace - Maintenance access only

Photovoltaic Panels

Key Plan



0 10m
@ 1:200

PLANNING

Project No.	0412
Project Name	Albert Bridge House

Drawing Title

Building B - Level 10

Client	Oval Real Estate
Scale @A1	1 : 200
Date	08/12/22
Drawn by	DB
Checked by	SEW

Rev	Date	Reason	Chk
0	08/12/22	Issue for Planning	

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3 Brewhouse Yard
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+44 (0) 20 7549 1730

Drawing Number	Rev
0412-SEW-BB-10-DR-A-PL1170	0



General Notes

No implied licence exists. This drawing should not be used to calculate areas for the purposes of valuation.
Do not scale this drawing for construction purposes. All dimensions to be checked on site by the contractor and such dimensions to be their responsibility.
All work must comply with relevant British Standards and Building Regulations requirements. Drawing errors and omissions to be reported to the architect.

Notes

Use Classes

E (g) Office

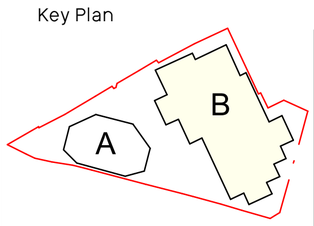
Key

Accessible Amenity Terrace

Green Roof Terrace - Maintenance access only

Photovoltaic Panels

Key Plan



0 10m
@ 1:200

PLANNING

Project No.	0412
Project Name	Albert Bridge House

Drawing Title

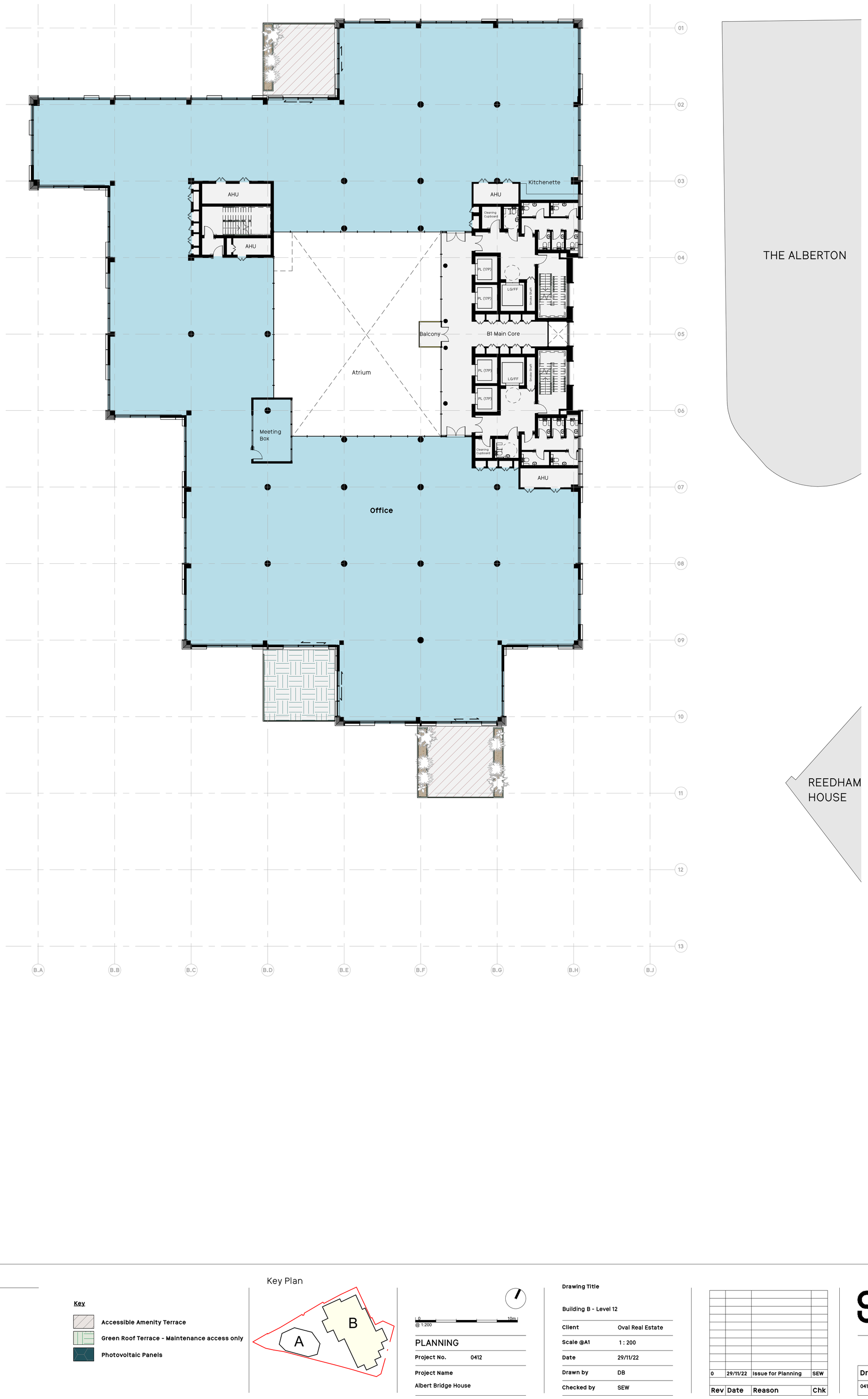
Building B - Level 11

Client	Oval Real Estate
Scale @A1	1 : 200
Date	29/11/22
Drawn by	DB
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

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3 Brewhouse Yard
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Drawing Number	Rev
0412-SEW-BB-11-DR-A-PL1171	0



General Notes

No implied licence exists. This drawing should not be used to calculate areas for the purposes of valuation.
Do not scale this drawing for construction purposes. All dimensions to be checked on site by the contractor and such dimensions to be their responsibility.
All work must comply with relevant British Standards and Building Regulations requirements. Drawing errors and omissions to be reported to the architect.

Notes

Use Classes

E (g) Office

Key

Accessible Amenity Terrace

Green Roof Terrace - Maintenance access only

Photovoltaic Panels

Key Plan

0 10m
@ 1:200

PLANNING

Project No.	0412
Project Name	Albert Bridge House

Drawing Title

Building B - Level 12

Client	Oval Real Estate
Scale @A1	1 : 200
Date	29/11/22
Drawn by	DB
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

Studio Egret West
3 Brewhouse Yard
London, EC1V 4JQ
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+44 (0) 20 7549 1730

Drawing Number	Rev
0412-SEW-BB-12-DR-A-PL1172	0



General Notes

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Do not scale this drawing for construction purposes. All dimensions to be checked on site by the contractor and such dimensions to be their responsibility.
All work must comply with relevant British Standards and Building Regulations requirements. Drawing errors and omissions to be reported to the architect.

Notes

Use Classes

E (g) Office

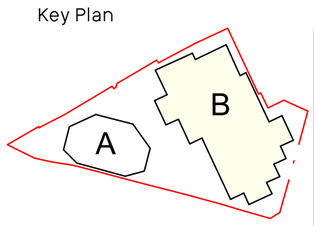
Key

Accessible Amenity Terrace

Green Roof Terrace - Maintenance access only

Photovoltaic Panels

Key Plan



0 10m
@ 1:200

PLANNING

Project No.	0412
Project Name	Albert Bridge House

Drawing Title

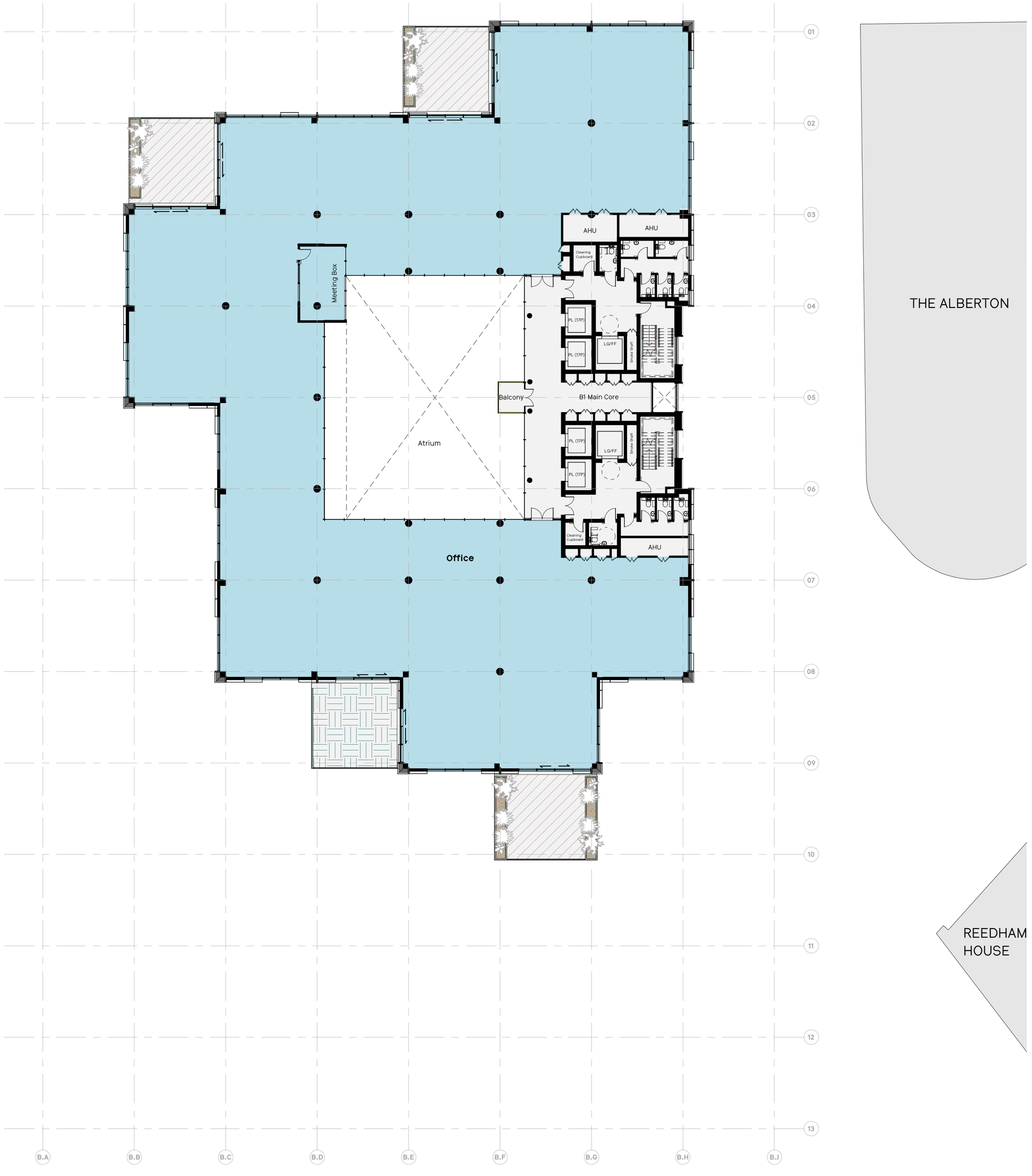
Building B - Level 13

Client	Oval Real Estate
Scale @A1	1 : 200
Date	29/11/22
Drawn by	DB
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

Studio Egret West
3 Brewhouse Yard
London, EC1V 4JQ
hello@egretwest.com
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Drawing Number	Rev
0412-SEW-BB-13-DR-A-PL1173	0



General Notes

No implied licence exists. This drawing should not be used to calculate areas for the purposes of valuation.
Do not scale this drawing for construction purposes. All dimensions to be checked on site by the contractor and such dimensions to be their responsibility.
All work must comply with relevant British Standards and Building Regulations requirements. Drawing errors and omissions to be reported to the architect.

Notes

Use Classes

E (g) Office

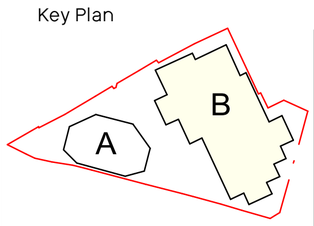
Key

Accessible Amenity Terrace

Green Roof Terrace - Maintenance access only

Photovoltaic Panels

Key Plan



0 10m
@ 1:200

PLANNING

Project No.	0412
Project Name	Albert Bridge House

Drawing Title

Building B - Level 14

Client	Oval Real Estate
Scale @A1	1 : 200
Date	08/12/22
Drawn by	DB
Checked by	SEW

Rev	Date	Reason	Chk
0	08/12/22	Issue for Planning	

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Drawing Number	Rev
0412-SEW-BB-14-DR-A-PL1174	0



General Notes

No implied licence exists. This drawing should not be used to calculate areas for the purposes of valuation.
Do not scale this drawing for construction purposes. All dimensions to be checked on site by the contractor and such dimensions to be their responsibility.
All work must comply with relevant British Standards and Building Regulations requirements. Drawing errors and omissions to be reported to the architect.

Notes

Use Classes

E (g) Office

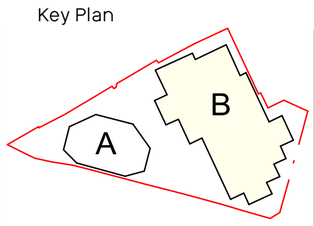
Key

Accessible Amenity Terrace

Green Roof Terrace - Maintenance access only

Photovoltaic Panels

Key Plan



0 10m
@ 1:200

PLANNING

Project No.	0412
Project Name	Albert Bridge House

Drawing Title

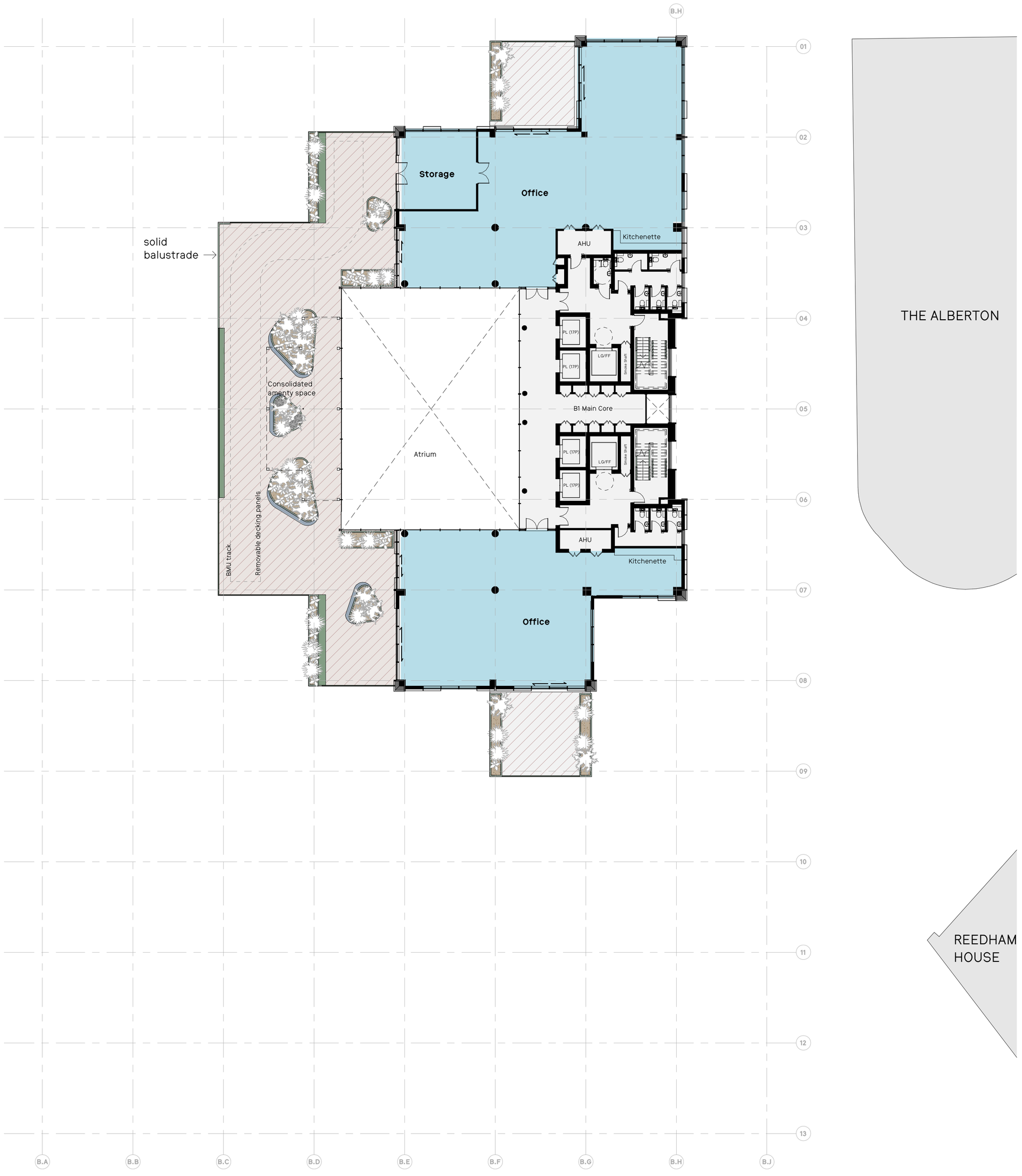
Building B - Level 15

Client	Oval Real Estate
Scale @A1	1 : 200
Date	08/12/22
Drawn by	DB
Checked by	SEW

Rev	Date	Reason	Chk
0	08/12/22	Issue for Planning	

Studio Egret West
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Drawing Number	Rev
0412-SEW-BB-15-DR-A-PL1175	0



General Notes

No implied licence exists. This drawing should not be used to calculate areas for the purposes of valuation.
Do not scale this drawing for construction purposes. All dimensions to be checked on site by the contractor and such dimensions to be their responsibility.
All work must comply with relevant British Standards and Building Regulations requirements. Drawing errors and omissions to be reported to the architect.

Notes

Use Classes

E (g) Office

Key

- Accessible Amenity Terrace
- Green Roof Terrace - Maintenance access only
- Photovoltaic Panels
- Integrated photovoltaic cells

Key Plan

0 10m
@ 1:200

PLANNING

Project No. 0412

Project Name

Albert Bridge House

Drawing Title

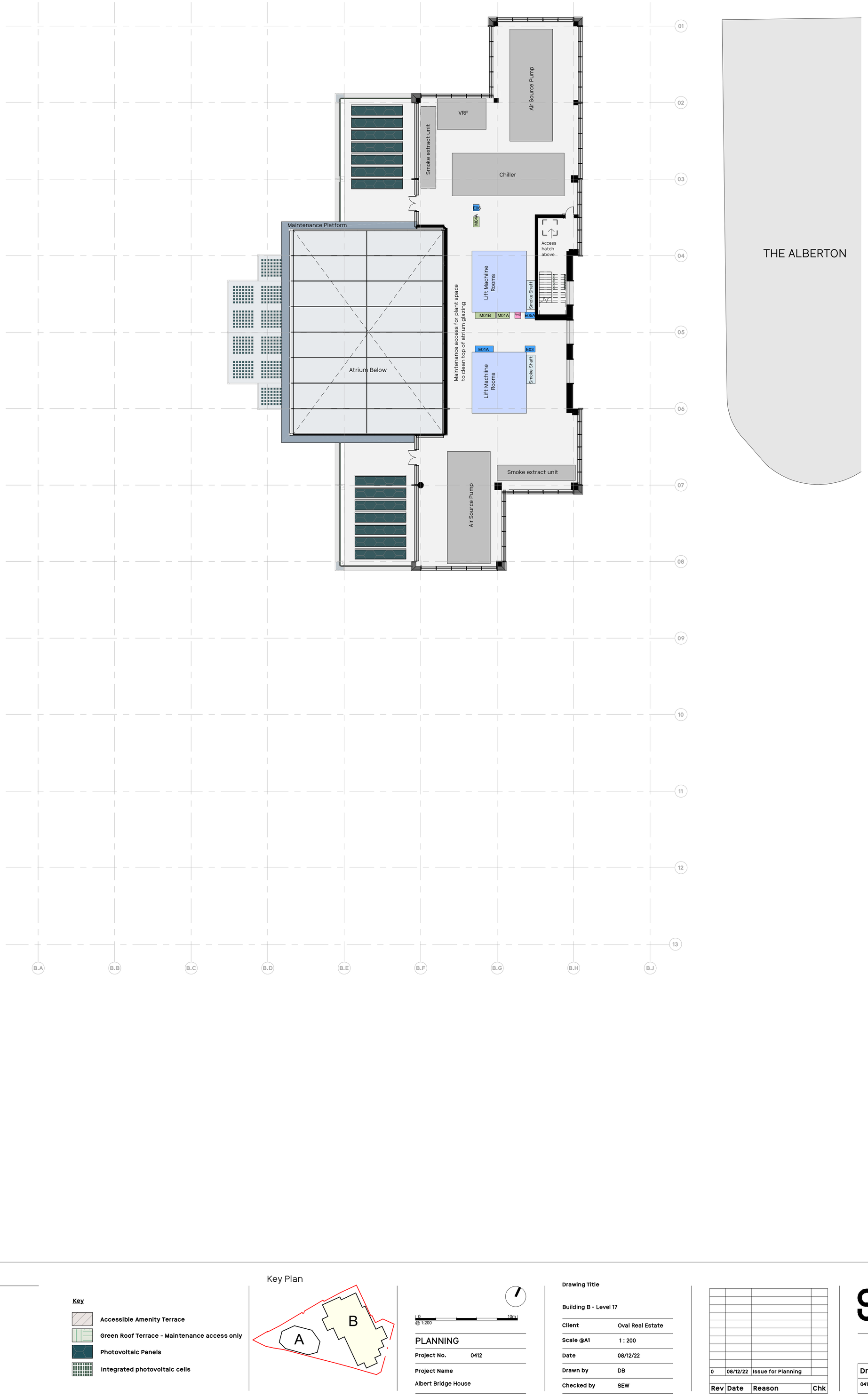
Building B - Level 16

Client	Oval Real Estate
Scale @A1	1 : 200
Date	29/11/22
Drawn by	DB
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

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3 Brewhouse Yard
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Drawing Number	Rev
0412-SEW-BB-16-DR-A-PL1176	0



General Notes

No implied licence exists. This drawing should not be used to calculate areas for the purposes of valuation.
Do not scale this drawing for construction purposes. All dimensions to be checked on site by the contractor and such dimensions to be their responsibility.
All work must comply with relevant British Standards and Building Regulations requirements. Drawing errors and omissions to be reported to the architect.

Notes

Use Classes

E (g) Office

Key

- Accessible Amenity Terrace
- Green Roof Terrace - Maintenance access only
- Photovoltaic Panels
- Integrated photovoltaic cells

Key Plan

0 10m
@ 1:200

PLANNING

Project No.	0412
Project Name	Albert Bridge House

Drawing Title

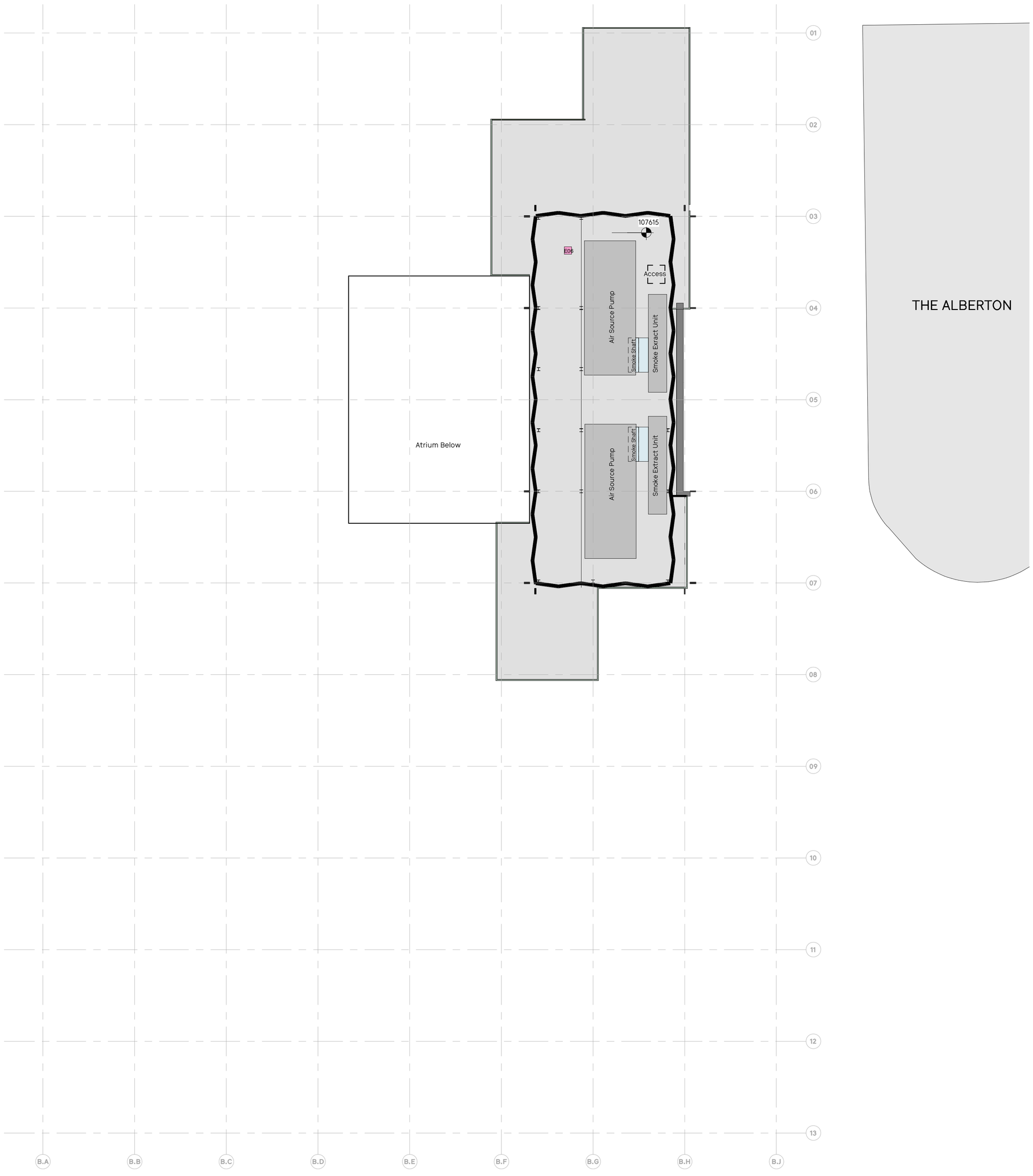
Building B - Level 17

Client	Oval Real Estate
Scale @A1	1 : 200
Date	08/12/22
Drawn by	DB
Checked by	SEW

Rev	Date	Reason	Chk
0	08/12/22	Issue for Planning	

Studio Egret West
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Drawing Number	Rev
0412-SEW-BB-17-DR-A-PL1177	0



General Notes

No implied licence exists. This drawing should not be used to calculate areas for the purposes of valuation.
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All work must comply with relevant British Standards and Building Regulations requirements. Drawing errors and omissions to be reported to the architect.

Notes

Use Classes

E (g) Office

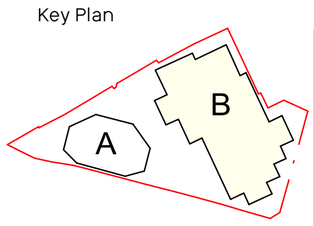
Key

Accessible Amenity Terrace

Green Roof Terrace - Maintenance access only

Photovoltaic Panels

Key Plan



0 10m
@ 1:200

PLANNING

Project No.	0412
Project Name	Albert Bridge House

Drawing Title

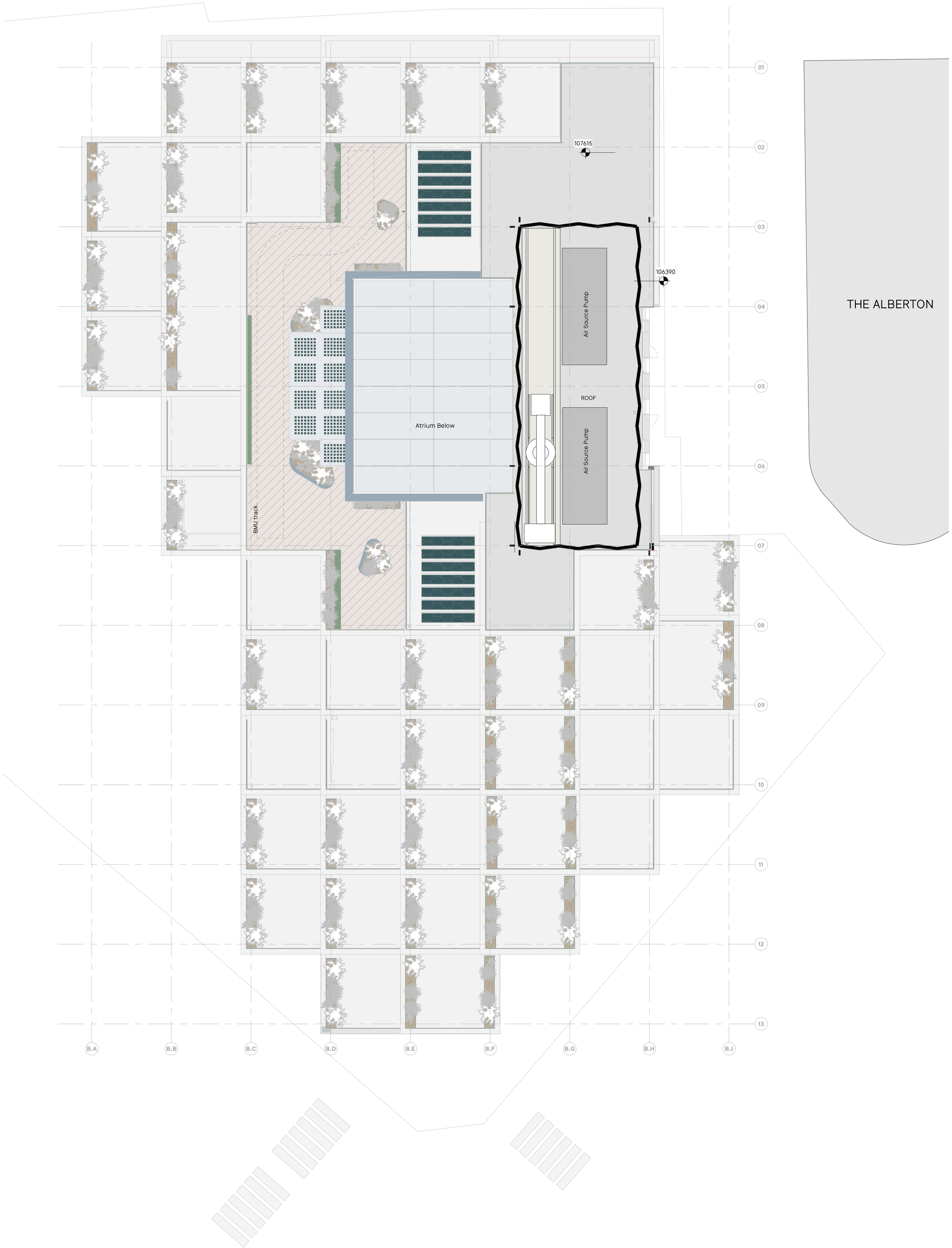
Building B - Level 18

Client	Oval Real Estate
Scale @A1	1 : 200
Date	08/12/22
Drawn by	DB
Checked by	SEW

Rev	Date	Reason	Chk
0	08/12/22	Issue for Planning	

Studio Egret West
3 Brewhouse Yard
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hello@egretwest.com
+44 (0) 20 7549 1730

Drawing Number	Rev
0412-SEW-BB-18-DR-A-PL1178	0



General Notes

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Notes

Use Classes

E (g) Office

Key

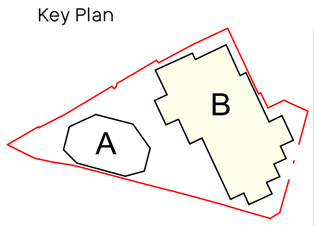
Accessible Amenity Terrace

Green Roof Terrace - Maintenance access only

Photovoltaic Panels

Integrated photovoltaic cells

Key Plan



0 10m
@ 1:200

PLANNING

Project No. 0412

Project Name

Albert Bridge House

Drawing Title

Building B - Level 19

Client	Oval Real Estate
Scale @A1	1 : 200
Date	08/12/22
Drawn by	DB
Checked by	SEW

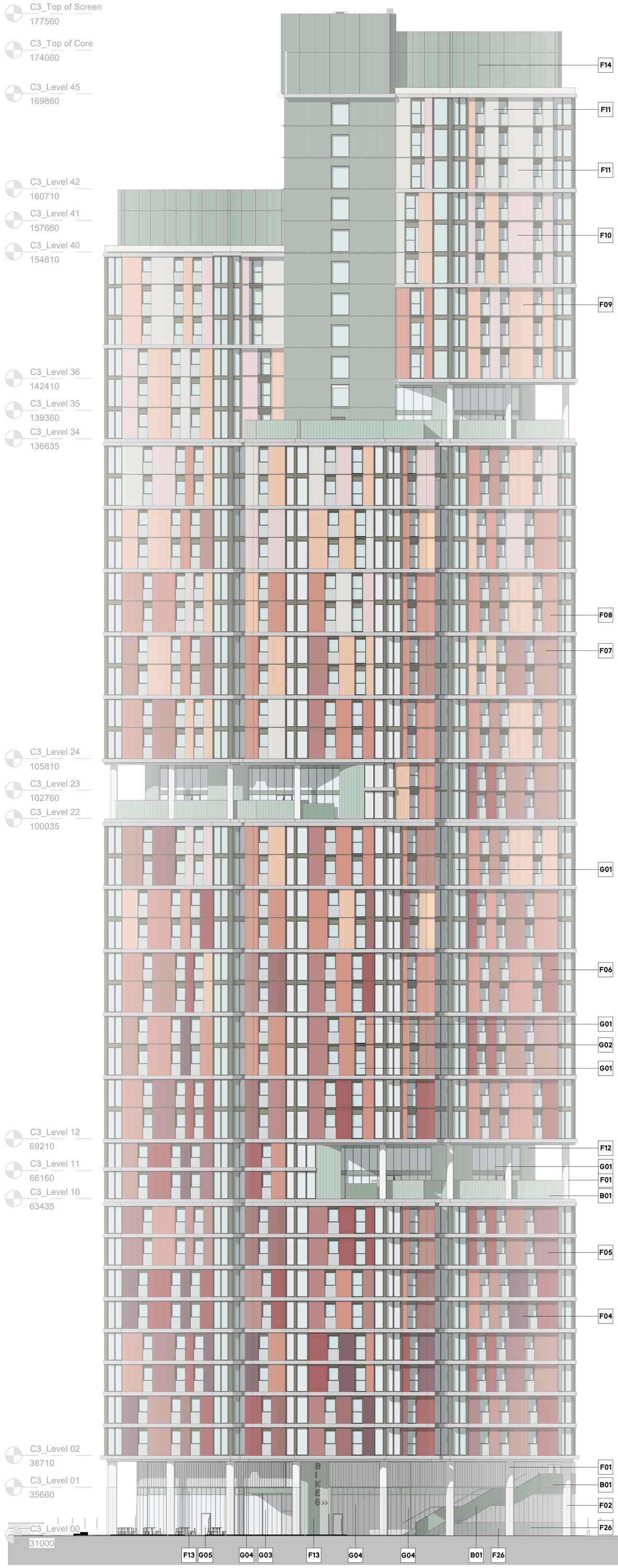
Rev	Date	Reason	Chk
0	08/12/22	Issue for Planning	

Studio Egret West
3 Brewhouse Yard
London, EC1V 4JQ
hello@egretwest.com
+44 (0) 20 7549 1730

Drawing Number	Rev
0412-SEW-BB-19-DR-A-PL1179	0



South East Elevation



North East Elevation

General Notes

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Notes

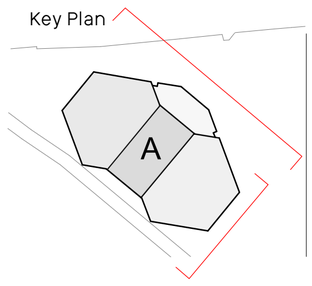
Material Key

F01. Polished Concrete Finish
F02. Vertical Ribbed Concrete Finish
F03. Precast Banding with rounded corners - Light Grey
F04. Anodised Aluminium Corrugated Rainscreen Panel - Tone 01
F05. Anodised Aluminium Corrugated Rainscreen Panel - Tone 02
F06. Anodised Aluminium Corrugated Rainscreen Panel - Tone 03
F07. Anodised Aluminium Corrugated Rainscreen Panel - Tone 04
F08. Anodised Aluminium Corrugated Rainscreen Panel - Tone 05
F09. Anodised Aluminium Corrugated Rainscreen Panel - Tone 06
F10. Anodised Aluminium Corrugated Rainscreen Panel - Tone 07
F11. Anodised Aluminium Corrugated Rainscreen Panel - Tone 08
F12. Anodised Aluminium Corrugated Rainscreen Panel - Tone 09 Green
F13. Anodised Aluminium Corrugated Rainscreen Panel - Tone 10 Dark Green
F14. Anodised Aluminium Perforated Corrugated Panel - Tone 10 Dark Green
F15. Anodised Aluminium Corrugated Panel, Set Back - Tone 11 Grey
F26. Louvred Facade - Tone 10 Dark Green

G01. Glazing, Clear
G02. Aluminium Window Frame - Tone 01 Grey
G03. Channel Glass - Clear
G04. Channel Glass - Frosted
G05. Glazed Door in Aluminium Frame - Tone 01 Grey
G06. Louvered doors - Tone 10 Dark Green
B01. Aluminium Solid Corrugated Balustrade

M02. Residential Entrance signage
M03. Retail Entrance signage .

Key Plan



0 10m
@ 1:200

PLANNING

Project No. 0412

Project Name
Albert Bridge House

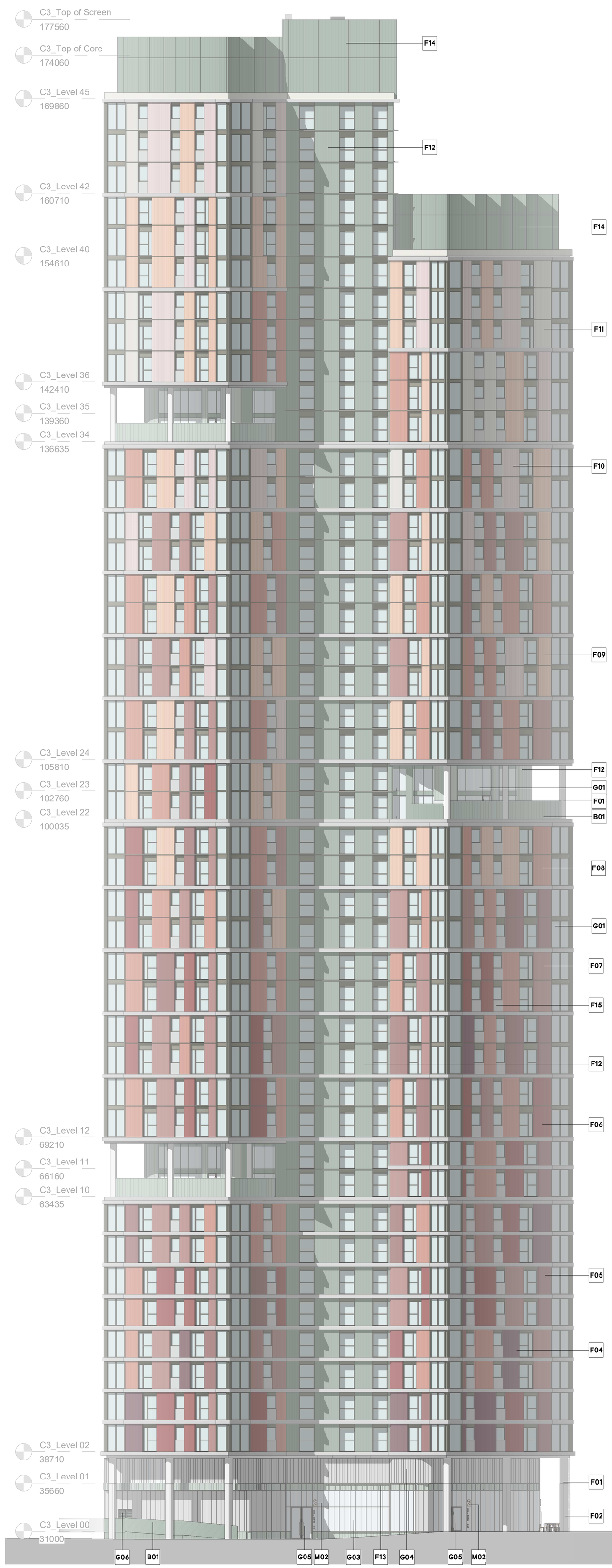
Drawing Title
Elevations Building A - North & East

Client	Oval Real Estate
Scale @A1	1 : 200
Date	29/11/22
Drawn by	AG
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

Studio Egret West
3 Brewhouse Yard
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hello@egretwest.com
+44 (0) 20 7549 1730

Drawing Number	Rev
0412-SEW-AA-ZZ-DR-A-PL1310	0



South West Elevation



North West Elevation

General Notes

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Do not scale this drawing for construction purposes. All dimensions to be checked on site by the contractor and such dimensions to be their responsibility.
All work must comply with relevant British Standards and Building Regulations requirements. Drawing errors and omissions to be reported to the architect.

Notes

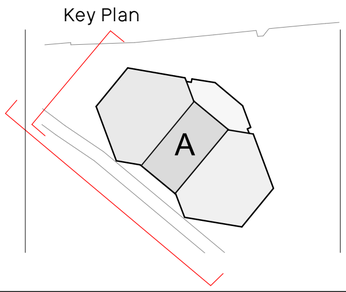
Material Key

F01. Polished Concrete Finish
F02. Vertical Ribbed Concrete Finish
F03. Precast Banding with rounded corners - Light Grey
F04. Anodised Aluminium Corrugated Rainscreen Panel - Tone 01
F05. Anodised Aluminium Corrugated Rainscreen Panel - Tone 02
F06. Anodised Aluminium Corrugated Rainscreen Panel - Tone 03
F07. Anodised Aluminium Corrugated Rainscreen Panel - Tone 04
F08. Anodised Aluminium Corrugated Rainscreen Panel - Tone 05
F09. Anodised Aluminium Corrugated Rainscreen Panel - Tone 06
F10. Anodised Aluminium Corrugated Rainscreen Panel - Tone 07
F11. Anodised Aluminium Corrugated Rainscreen Panel - Tone 08
F12. Anodised Aluminium Corrugated Rainscreen Panel - Tone 09 Green
F13. Anodised Aluminium Corrugated Rainscreen Panel - Tone 10 Dark Green
F14. Anodised Aluminium Perforated Corrugated Panel - Tone 10 Dark Green
F15. Anodised Aluminium Corrugated Panel, Set Back - Tone 11 Grey
F26. Louvred Facade - Tone 10 Dark Green

G01. Glazing, Clear
G02. Aluminium Window Frame - Tone 01 Grey
G03. Channel Glass - Clear
G04. Channel Glass - Frosted
G05. Glazed Door in Aluminium Frame - Tone 01 Grey
G06. Louvered doors - Tone 10 Dark Green
B01. Aluminium Solid Corrugated Balustrade

M02. Residential Entrance signage
M03. Retail Entrance signage .

Key Plan



0 10m
@ 1:200

PLANNING

Project No.	0412
Project Name	Albert Bridge House

Drawing Title

Elevations Building A - South & West

Client	Oval Real Estate
Scale @A1	1 : 200
Date	29/11/22
Drawn by	AG
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

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3 Brewhouse Yard
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Drawing Number	Rev
0412-SEW-AA-ZZ-DR-A-PL1311	0



General Notes

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Notes

Key

- **Solid panel, screened**
- **Glazing, screened**
- **Glazing**
- **Spandrel panel**

Material Key

F01. Polished Concrete
F02. Ribbed Concrete
F12. Anodised Aluminium Corrugated Rainscreen Panel - Tone 09 Green
F14. Anodised Aluminium Perforated Corrugated Rainscreen Panel - Tone 10 Dark Green
F16. Anodised aluminium screen, backfixed infront of insulated solid panel, perforated and corrugated - Tone 12 Green
F17. Anodised Aluminium Corrugated Rainscreen Panel - Tone 13 Dark Green
F18. Anodised aluminium screen, backfixed infront of glazed panel, perforated and corrugated - Tone 12 Green
F19. Backpainted Glass - Green (North and East elevation)
F20. Manual Opening Glazed Window system
F21. Air Intake for Vent System
F22. Ventilation Extract Louvre - size & location to be confirmed by HL
F23. Anodised Aluminium Rainscreen Panel - Tone 14 Orange
F24. Perforated, corrugated, anodised aluminium screen, backfixed. Tone 12 Green
F25. Anodised Aluminium Rainscreen Panel - Tone 13 Dark Green

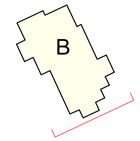
G01. Full height clear glazing
G05. Glazed Door in PPC Aluminium Frame - Tone 01 Grey
G06. Aluminium Louvered doors - Tone 02 Teal Green
G07. Aluminium Window Frame - Tone 02 Light Grey
G08. Aluminium Window Frame - Tone 13 Orange
G09. PVs integrated into full height glazing
G10. Revolving Doors.
G11. Aluminium Bay Frame - Tone 02 Light , Grey
G12. Aluminium Window Frame - Tone 11 Dark Green
G13. Glazed Door in PPC Aluminium Frame - Tone 13 Orange
G14. PVs integrated into backpainted spandrel glass (South and West elevation) - Tone 12 Green
G15. Clear glazing spandrel panel.
G16. Bi-Folding Doors.

B02. Aluminium Solid Corrugated Balustrade - Tone 11 Dark Green
B03. Aluminium Railing - Tone 11 Dark Green
B04. Aluminium Railing - Tone 13 Orange

M04. Commercial Entrances Signage
M05. Concrete finish soffit
M06. RC Waffle Slab (behind) to St Eng. design and spec.

0 10m
@ 1:200

Key Plan



Studio Egret West
3 Brewhouse Yard
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PLANNING

Project No.	0412
Project Name	
Albert Bridge House	
Drawing Title	
Building B - South Elevation	
Client	Oval Real Estate
Scale	1 : 200
Date	08/12/22
Drawn by	DB
Checked by	SEW

Rev	Date	Reason	Chk
0	08/12/22	Issue for Planning	

Drawing Number	Rev
0412-SEW-BB-ZZ-DR-A-PL1320	0



General Notes

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Notes

Key

- **Solid panel, screened**
- **Glazing, screened**
- **Glazing**
- **Spandrel panel**

Material Key

F01. Polished Concrete
F02. Ribbed Concrete
F12. Anodised Aluminium Corrugated Rainscreen Panel - Tone 09 Green
F14. Anodised Aluminium Perforated Corrugated Rainscreen Panel - Tone 10 Dark Green
F16. Anodised aluminium screen, backfixed infront of insulated solid panel, perforated and corrugated - Tone 12 Green
F17. Anodised Aluminium Corrugated Rainscreen Panel - Tone 13 Dark Green
F18. Anodised aluminium screen, backfixed infront of glazed panel, perforated and corrugated - Tone 12 Green
F19. Backpainted Glass - Green (North and East elevation)
F20. Manual Opening Glazed Window system
F21. Air Intake for Vent System
F22. Ventilation Extract Louvre - size & location to be confirmed by HL
F23. Anodised Aluminium Rainscreen Panel - Tone 14 Orange
F24. Perforated, corrugated, anodised aluminium screen, backfixed. Tone 12 Green
F25. Anodised Aluminium Rainscreen Panel - Tone 13 Dark Green

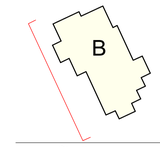
G01. Full height clear glazing
G05. Glazed Door in PPC Aluminium Frame - Tone 01 Grey
G06. Aluminium Louvered doors - Tone 02 Teal Green
G07. Aluminium Window Frame - Tone 02 Light Grey
G08. Aluminium Window Frame - Tone 13 Orange
G09. PVs integrated into full height glazing
G10. Revolving Doors.
G11. Aluminium Bay Frame - Tone 02 Light , Grey
G12. Aluminium Window Frame - Tone 11 Dark Green
G13. Glazed Door in PPC Aluminium Frame - Tone 13 Orange
G14. PVs integrated into backpainted spandrel glass (South and West elevation) - Tone 12 Green
G15. Clear glazing spandrel panel.
G16. Bi-Folding Doors.

B02. Aluminium Solid Corrugated Balustrade - Tone 11 Dark Green
B03. Aluminium Railing - Tone 11 Dark Green
B04. Aluminium Railing - Tone 13 Orange

M04. Commercial Entrances Signage
M05. Concrete finish soffit
M06. RC Waffle Slab (behind) to St Eng. design and spec.

0 10m
@ 1:200

Key Plan



Studio Egret West
3 Brewhouse Yard
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PLANNING

Project No.	0412
Project Name	Albert Bridge House
Drawing Title	Building B - West Elevation
Client	Oval Real Estate
Scale	1 : 200
Date	08/12/22
Drawn by	DB
Checked by	SEW

Rev	Date	Reason	Chk
0	08/12/22	Issue for Planning	

Drawing Number	Rev
0412-SEW-BB-ZZ-DR-A-PL1321	0



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Notes

Key

Solid panel, screened

Glazing, screened

Glazing

Spandrel panel

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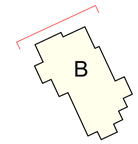
G01. Full height clear glazing
G05. Glazed Door in PPC Aluminium Frame - Tone 01 Grey
G06. Aluminium Louvered doors - Tone 02 Teal Green
G07. Aluminium Window Frame - Tone 02 Light Grey
G08. Aluminium Window Frame - Tone 13 Orange
G09. PVs integrated into full height glazing
G10. Revolving Doors.
G11. Aluminium Bay Frame - Tone 02 Light , Grey
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G13. Glazed Door in PPC Aluminium Frame - Tone 13 Orange
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G15. Clear glazing spandrel panel.
G16. Bi-Folding Doors.

B02. Aluminium Solid Corrugated Balustrade - Tone 11 Dark Green
B03. Aluminium Railing - Tone 11 Dark Green
B04. Aluminium Railing - Tone 13 Orange

M04. Commercial Entrances Signage
M05. Concrete finish soffit
M06. RC Waffle Slab (behind) to St Eng. design and spec.

0 10m
@ 1:200

Key Plan



Studio Egret West
3 Brewhouse Yard
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PLANNING

Project No.	0412
Project Name	Albert Bridge House
Drawing Title	Building B - North Elevation
Client	Oval Real Estate
Scale	1 : 200
Date	08/12/22
Drawn by	DB
Checked by	SEW

Rev	Date	Reason	Chk
0	08/12/22	Issue for Planning	

Drawing Number	Rev
0412-SEW-BB-ZZ-DR-A-PL1322	0



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Notes

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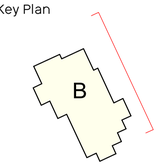
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M04. Commercial Entrances Signage
M05. Concrete finish soffit
M06. RC Waffle Slab (behind) to St Eng. design and spec.

1:0 10m
@ 1:200

Key Plan



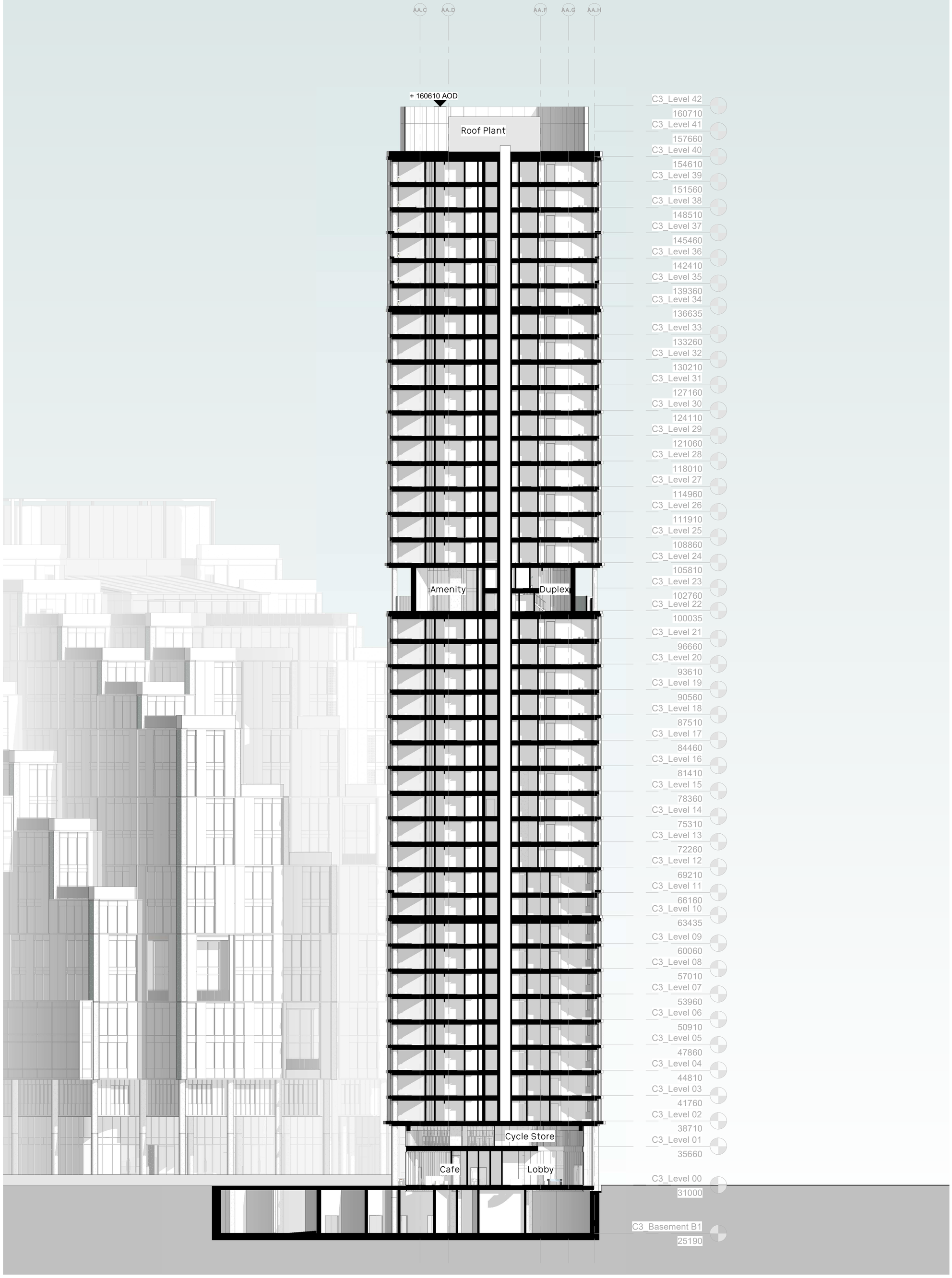
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PLANNING

Project No.	0412
Project Name	
Albert Bridge House	
Drawing Title	
Building B - East Elevation	
Client	Oval Real Estate
Scale	1 : 200
Date	08/12/22
Drawn by	DB
Checked by	SEW

Rev	Date	Reason	Chk
0	08/12/22	Issue for Planning	

Drawing Number	Rev
0412-SEW-BB-ZZ-DR-A-PL1323	0

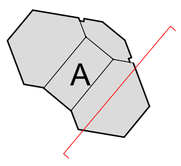


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Notes

Key Plan



0 10m
@ 1:250

PLANNING

Project No.	0412
Project Name	
Albert Bridge House	

Drawing Title

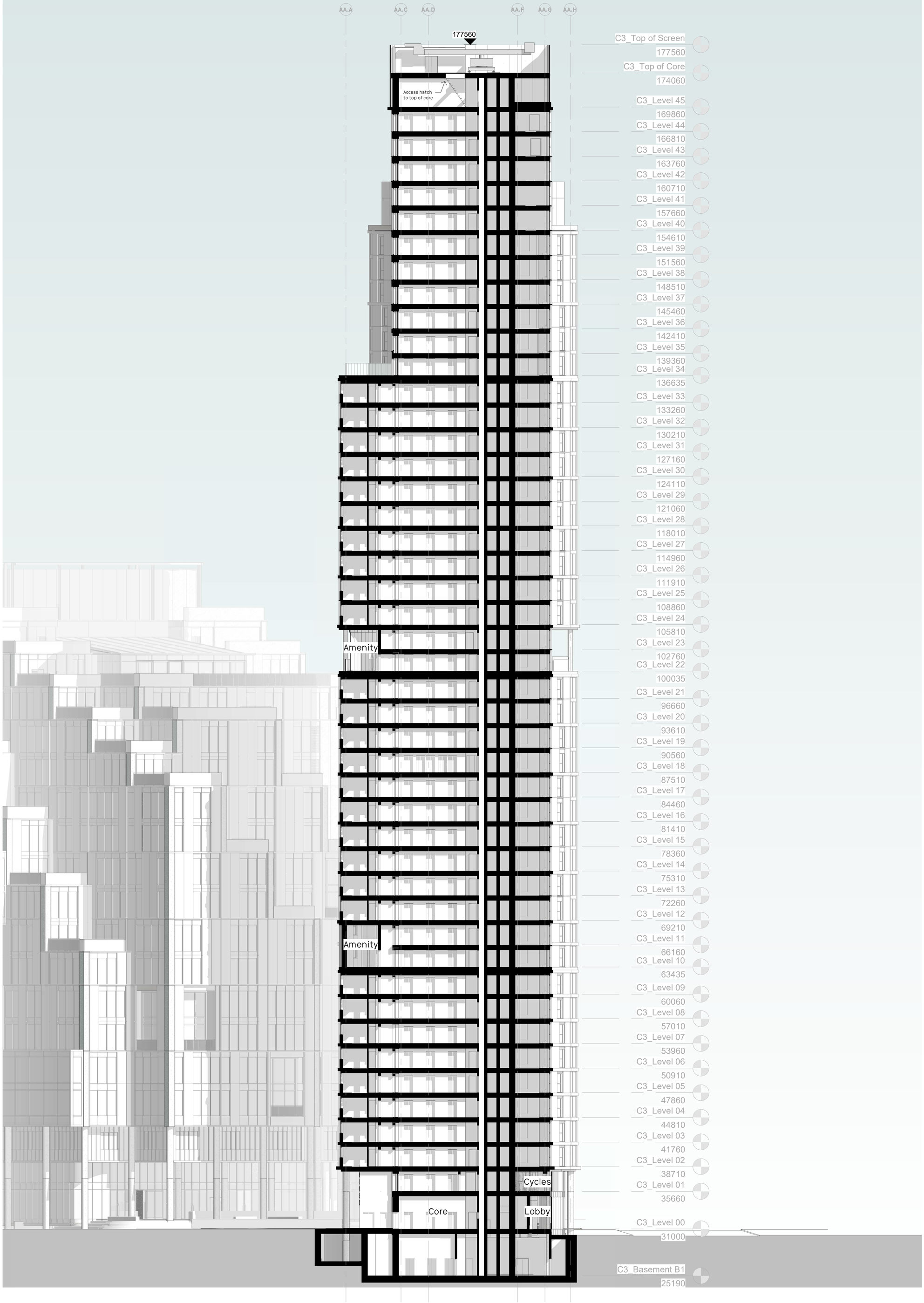
Short Section 1 - Building A

Client	Oval Real Estate
Scale @A1	1 : 250
Date	29/11/22
Drawn by	EB
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

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Drawing Number	Rev
0412-SEW-AA-ZZ-DR-A-PL1210	0

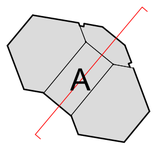


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Notes

Key Plan



0 10m
@ 1:250

PLANNING

Project No.	0412
Project Name	Albert Bridge House

Drawing Title

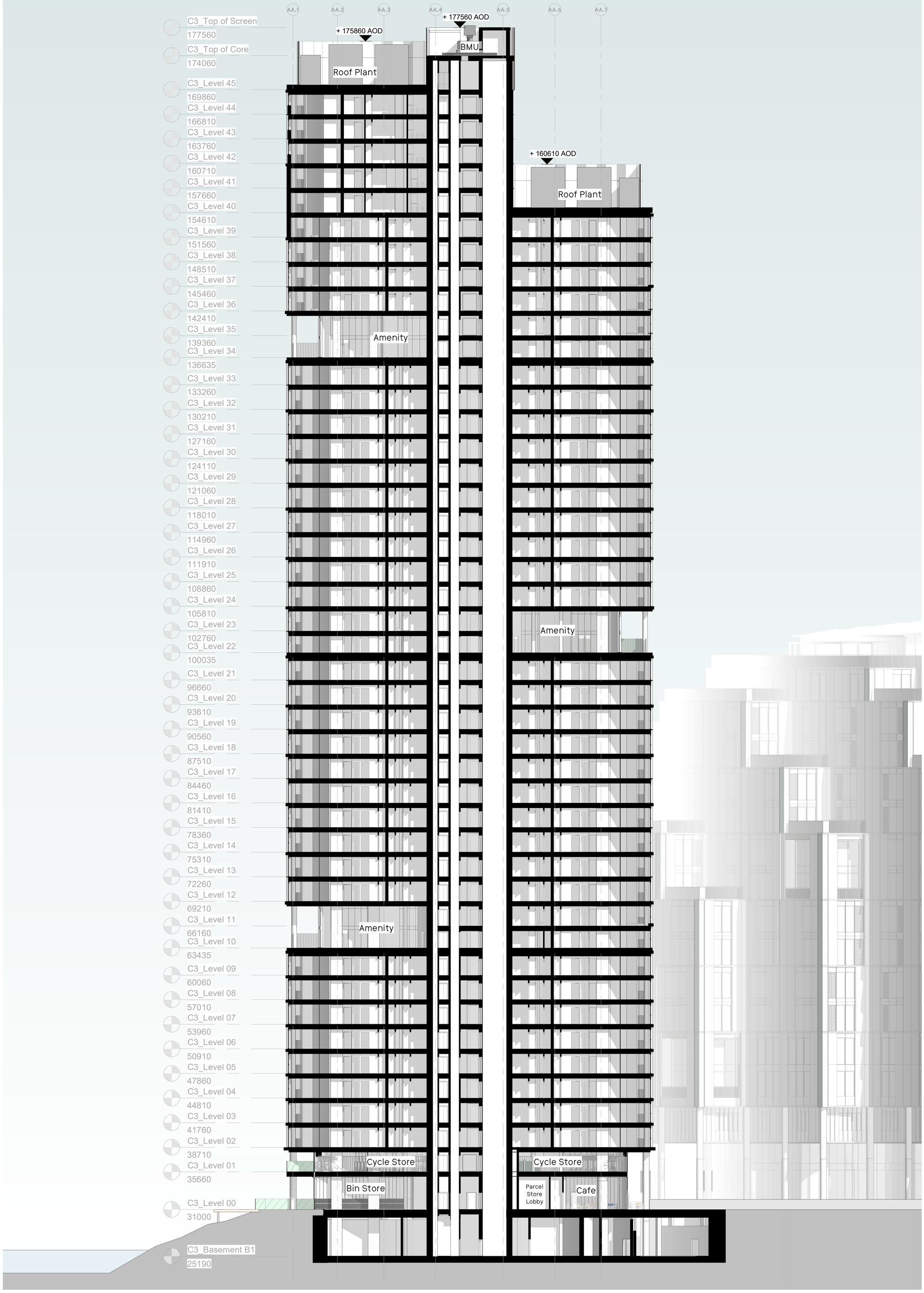
Short Section 2 - Building A

Client	Oval Real Estate
Scale @A1	1 : 250
Date	29/11/22
Drawn by	EB
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

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Drawing Number	Rev
0412-SEW-AA-ZZ-DR-A-PL1211	0

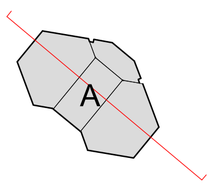


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Notes

Key Plan



0 10m
@ 1:250

PLANNING

Project No.	0412
Project Name	Albert Bridge House

Drawing Title

Long Section - Building A

Client	Oval Real Estate
Scale @A1	1 : 250
Date	29/11/22
Drawn by	EB
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

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Drawing Number	Rev
0412-SEW-AA-ZZ-DR-A-PL1212	0



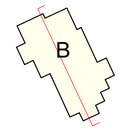
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Notes

0 10m
@ 1:200

Key Plan



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PLANNING

Project No.	0412
Project Name	Albert Bridge House
Drawing Title	Long Section - Building B
Client	Oval Real Estate
Scale	1 : 200
Date	29/11/22
Drawn by	LL
Checked by	SEW

Rev	Date	Reason	Chk
0	29/11/22	Issue for Planning	SEW

Drawing Number	Rev
0412-SEW-BB-ZZ-DR-A-PL1213	0

General Notes

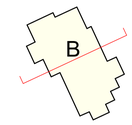
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Notes



@ 1:200

Key Plan



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PLANNING

Project No.	0412
Project Name	Albert Bridge House
Drawing Title	Short Section - Building B
Client	Oval Real Estate
Scale	1 : 200
Date	08/12/22
Drawn by	LL
Checked by	SEW

Rev	Date	Reason	Chk
0	08/12/22	Issue for Planning	

Drawing Number	Rev
0412-SEW-BB-ZZ-DR-A-PL1214	0

RIVER IRWELL

TRINITY BRIDGE

THE ALBERTON

GARTSIDE STREET

BRIDGE STREET

DOLEFIELD

MOTOR SQUARE

KING STREET W

ST MARY'S PARSONAGE

REEDHAM HOUSE

Servicing Lay-by

Servicing Lay-by

FFL + 30.000
Residential Waste

Lobby
FFL + 31.000

F&B

Restaurant

Cyclist Cafe & Bike workshop

FFL + 32.250

Retail/ Lobby

Mail Room

Staff Room

Atrium above

F&B

Commercial Lobby

Commercial Waste

Entance Lobby

Flexible Use Exhibition Space

Store

Store

FFL + 32.000

Combined BOH

Retail

FFL + 32.250

Retail

FFL + 33.000

E3 ENWL Network Outdoor Substation

+31.180
+30.380
+31.290
+31.350
+31.700
+30.500
+30.840
+31.290
+31.350
+32.250
+30.900
+31.350
+32.250
+30.940
+31.220
+32.150
+30.940
+31.250
+31.450
+32.050
+31.200
+31.400
+31.390
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(+29.87)
(+29.68)
(+29.33)

1:60
1:20
1:55
1:60

F01 P04 F05 F03 P01 F02 P02 P03 F04

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Notes

Key

Planning Application Boundary

Building Entrance

Hard Landscape

P01 Paving Type 01
Description: Natural Stone Pavers
Dimension: Varies

P02 Paving Type 02
Description: Self Binding Gravel
Colour: Buff

P03 Paving Type 03
Description: Reclaimed Portland Stone Paving
Dimension: 600mm x 600mm

P04 Paving Type 04
Description: Antislip Timber Decking

Features

F01 Furniture Type 01
Description: Timber bench
Dimensions: 2000 x 620 x 450

F02 Furniture Type 02
Description: Short stay cycle parking stands
Dimensions: 750x750mm
Finish: Powder coated steel

F03 Furniture Type 03
Description: Remote Controlled Security Bollard
Dimensions: 900mmx76mm diameter
Finish: Hot-dip galvanised steel

F04 Ventilation
Description: Louvred opening for basement ventilation. Upward facing vents within planting bed. Side facing vents integrated to planting bed retaining wall. Make allowance for 10m2 free air for ventilation. Ensure openings prevent rain ingress.

F05 Proposed Steps
Description: Natural stone paved steps. Typical 150mm riser, 280mm tread with contrasting nosing & tactile to top and bottom of step. 1000mm high handrail with underlighting. 1000-1800mm clearance between handrails. To be designed in accordance with DFA2

Use Classes

- E (a, b, c) Retail/ Restaurant/ Cafe
- E (g) Office
- C3 Residential
- Suis Generis

Notes

(+30.00) Existing spot height
+30.00 Proposed spot height

0 10m
@ 1:250

Key Plan

3 Brewhouse Yard
London, EC1V 4JQ
hello@egretwest.com
+44 (0) 20 7549 1730

PLANNING

Project No.	0412
Project Name	Albert Bridge House
Drawing Title	Landscape General Arrangement
Client	Oval Real Estate
Scale	1 : 250
Date	29/11/22
Drawn by	SH
Checked by	SEW

Rev	Date	Reason	Chk
00	29/11/22	Issue for Planning	SEW

Drawing Number	Rev
0412-SEW-ZZ-ZZ-DR-L-PL0100	00

RIVER IRWELL

TRINITY BRIDGE

THE ALBERTON

GARTSIDE STREET

BRIDGE STREET

DOLEFIELD

MOTOR SQUARE

KING STREET W

ST MARY'S PARSONAGE

REEDHAM HOUSE

Servicing Lay-by

Residential Waste

Lobby

F&B

Restaurant

Cyclist Cafe & Bike workshop

Retail/ Lobby

Mail Room

Staff Room

Atrium above

F&B

Commercial Lobby

Commercial Waste

Entance Lobby

Flexible Use Exhibition Space

F&B

Store

Store

Combined BOH

Retail

Retail

E3 ENWL Network Outdoor Substation

S01

S02

S03

Pt

Ag

Bp

Sa

Tc

Pa

Ap

PL (13P)

LG/P

Store (4P)

Store (4P)

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Notes

Key

Detailed Planning Application Boundary

Building Entrance

Softscape

Existing tree removed
Existing tree removed and recycled.

Proposed Tree
Height: varies from 3500/ 5000/ 7500mm
Profile: varies from 2m clear stem to multistem
Soil Depth: 1000mm Minimum
Species mix: refer to planting schedule 0412-SEW-ZZ-ZZ-SH-L-001001
Features: Allow for aeration/ irrigation pipe, underground guying, connected tree pits, tree root barriers.

Existing Tree Retained

Existing Tree - Tree Preservation Order

S01 Planting Mix 1
Description: Woodland Character 1 - Sunny aspect woodland planting
Species mix: refer to planting schedule 0412-SEW-ZZ-ZZ-SH-L-001001
Size: typically for groundcover, herbaceous perennials & grasses @ 9cm container grown pots. Specimen species @ 2l container grown pots
Density: 9/m2

S02 Planting Mix 2
Description: Woodland Character 2 - Shaded woodland planting
Species mix: refer to planting schedule 0412-SEW-ZZ-ZZ-SH-L-001001
Size: typically for groundcover, herbaceous perennials & grasses @ 9cm container grown pots. Specimen species @ 2l container grown pots
Density: 9/m2

S03 Planting Mix 3
Description: Wildflower Meadow - Ecologically rich, shaded wildflower embankment to the River walk
Species mix: refer to planting schedule 0412-SEW-ZZ-ZZ-SH-L-001001
Product: Pre-grown as wildflower turf

0 10m
@ 1:250

Key Plan

3 Brewhouse Yard
London, EC1V 4JQ
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PLANNING

Project No.	0412
Project Name	Albert Bridge House
Drawing Title	Landscape Planting Plan
Client	Oval Real Estate
Scale	1 : 250
Date	29/11/2022
Drawn by	SH
Checked by	SEW

Rev	Date	Reason	Chk
00	29/11/22	Issue for Planning	SEW

Drawing Number	Rev
0412-SEW-ZZ-ZZ-DR-L-PL0101	00

RIVER IRWELL

TRINITY BRIDGE

THE ALBERTON

Residential Waste

Lobby

F&B

Servicing Lay-by

Restaurant

Cyclist Cafe &
Bike workshop

Retail/ Lobby

Mail Room

Staff Room

Atrium above

F&B

Commercial Lobby

Commercial Waste

Entance Lobby

Flexible Use
Exhibition Space

F&B

Store

Store

Combined
BOH

Retail

Retail

E3 ENWL
Network
Outdoor
Substation

Servicing Lay-by

GARTSIDE STREET

BRIDGE STREET

DOLEFIELD

ST MARY'S PARSONAGE

KING STREET W

MOTOR SQUARE

REEDHAM
HOUSE

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Notes

Key

Detailed Planning Application Boundary

Building Entrance

Boundaries

Boundary Type 1
Description: Steel frame balustrade with structural wire mesh as infill
Height: 1100mm

Boundary Type 2
Description: Steel handrail to steps
Height: 1000mm
Step widths between handrails: 1800mm max

Boundary Type 3
Description: Retaining wall/ seating edge
Height: varied height 1000-500mm

Note: Allow for ventilation integrated to planting bed retaining wall. To be detailed at detail design stage

0 5m 10m
@ 1:250

Key Plan

3 Brewhouse Yard
London, EC1V 4JQ
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PLANNING

Project No.	0412
Project Name	Albert Bridge House
Drawing Title	Landscape Boundary Treatments Plan
Client	Oval Real Estate
Scale	1 : 250
Date	29/11/22
Drawn by	SH
Checked by	SEW

Rev	Date	Reason	Chk
00	29/11/22	Issue for Planning	SEW

Drawing Number	Rev
0412-SEW-ZZ-ZZ-DR-L-PL0102	00



General Notes

No implied licence exists. This drawing should not be used to calculate areas for the purposes of valuation.
Do not scale this drawing for construction purposes. All dimensions to be checked on site by the contractor and such dimensions to be their responsibility.
All work must comply with relevant British Standards and Building Regulations requirements. Drawing errors and omissions to be reported to the architect.

Notes

Key

Detailed Planning Application Boundary

Building Entrance

Hard Landscape

P05 Paving Type 05
Description: Antislip Timber Decking

Softscape

Proposed Tree
Height: 3000mm
Fixings: Ungerground guyed
Soil Depth: 1000mm Minimum

Roof Planting Mix
Description: Alpine Roof Mix

Green Roof Meadow Turf

Furniture and Fittings

F06 Furniture Type 06
Description:Steel balustrading
Dimension: Varies
Finish: Powder coated steel

F07 Furniture Type 07
Description: Raised steel planters
Dimensions: Varies
Finish: Powder coated steel

F08 Furniture Type 08
Description: Raised timber table
Dimensions: Varies
Finish: Natural timber

F09 Furniture Type 09
Description: Timber bench
Dimensions: Varies
Finish: Natural timber

0 10m
@ 1:250

Key Plan

3 Brewhouse Yard
London, EC1V 4JQ
hello@egretwest.com
+44 (0) 20 7549 1730

PLANNING	
Project No.	0412
Project Name	
Albert Bridge House	
Drawing Title	
Landscape General Arrangement - Roof Level	
Client	Oval Real Estate
Scale	1 : 250
Date	29/11/22
Drawn by	SH
Checked by	SEW

00	29/11/22	Issue for Planning	SEW

Rev	Date	Reason	Chk

Drawing Number	Rev
0412-SEW-ZZ-ZZ-DR-L-PL0200	00



General Notes

No implied licence exists. This drawing should not be used to calculate areas for the purposes of valuation.
Do not scale this drawing for construction purposes. All dimensions to be checked on site by the contractor and such dimensions to be their responsibility.
All work must comply with relevant British Standards and Building Regulations requirements. Drawing errors and omissions to be reported to the architect.

Notes

Key

- Detailed Planning Application Boundary
- Building Entrance

Softscape

- Multi Stem Tree
  Height: 3000mm
  Fixings: Ungerground guyed
  Soil Depth: 1000mm Minimum
- Roof Planting Mix
  Description: Alpine Roof Mix - sunny aspect, wind tolerant roof terrace mix, comprising ferns, grasses and evergreen shrubs.
  Species mix: refer to planting strategy in DAS
  Size: typically for groundcover, herbaceous perennials & grasses @ 9cm container grown pots. Specimen species @ 2l container grown pots
  Density: 9/m2
- Green Roof Meadow Turf

0 5m 10m
@ 1:250

Key Plan

3 Brewhouse Yard
London, EC1V 4JQ
hello@egretwest.com
+44 (0) 20 7549 1730

PLANNING	
Project No.	0412
Project Name	Albert Bridge House
Drawing Title	Landscape Planting Plan - Roof Level
Client	Oval Real Estate
Scale	1 : 250
Date	29/11/22
Drawn by	SH
Checked by	SEW

Rev	Date	Reason	Chk
00	29/11/22	Issue for Planning	SEW

Drawing Number	Rev
0412-SEW-ZZ-ZZ-DR-L-PL0201	00

5. Consideration of Alternatives

Introduction

5.1 This Chapter reports the 'reasonable alternatives' considered in respect to the Proposed Scheme.

5.2 Schedule 4, Paragraph 2 of the EIA Regulations[1] states that an ES should include:

'a description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects'.

5.3 The PPG[2] also indicates that where *'…alternative approaches to development have been considered, the Environmental Statement should include a description of the reasonable alternatives studied which are relevant to the proposed development and its specific characteristics and provide an indication of the main reasons for the choice made, including a comparison of the environmental effects*..'.

Approach to Consideration of Alternatives

5.4 The EIA Regulations and the online PPG do not identify a specific methodology for the assessment of alternatives or criteria to be used to inform the assessment of 'reasonable alternatives'. The methodology adopted is based on professional experience of similar projects and an understanding of the Proposed Scheme and its characteristics, as well as focus on the delivery of a proportionate assessment, in line with PPG.

5.5 The consideration of alternatives has followed a two-step approach, set out as follows:

- **Step 1**: Consideration of 'factors' that constitute alternatives and justification / discussion for the inclusion / exclusion from further assessment; and
- **Step 2**: Assessment of the 'factors' brought forward from Step 1 and, where applicable, comparison of environmental effects.

Step 1: Consideration of 'Factors'

5.6 **Table 5.1** reports Step 1.

Table 5.1: Step 1: Consideration of 'factors'

Alternative 'factors'	Considered at Step 2	Justification / discussion
Alternative sites (location)	×	Alternative sites have not been considered as they are outside of the Applicant's control.

Alternative 'factors'	Considered at Step 2	Justification / discussion
		Whilst the Application for the Proposed Scheme is standalone to any other planning application, the Site sits within the St. Mary's Parsonage Strategic Regeneration Framework area[3], which is noted to have '*easy access of a full range of retail choices, employment opportunities, leisure destinations and transport connections'* and *'benefits from a range of unique assets, including its adjacency to the River Irwell, its heritage assets and character with Parsonage Gardens'*. The vision is to establish the area as a '*clearly definable and cohesive part of the City Centre, recognised by its distinctive character and sense of place'*. The Site is situated within Zone 2: Albert Bridge area, which provides a '*key opportunity for an important landmark development that identifies the key connections with Salford to the west, Spinningfields commercial quarter to the south and the St. Mary's Parsonage SRF and Ramada SRF areas to the north*'. Given the above, alternative sites were not considered by the Applicant and will not be taken forward to Step 2.
Alternative technologies	✗	Whilst alternative technologies are available in terms of the demolition works and construction of the Proposed Scheme these are largely dictated by 'build-ability' and cost exercises rather than environmental-focused considerations. The Proposed Scheme is a mixed-use commercial and residential project. Given these uses, alternative 'technologies' are not considered to be applicable as they would be for other types of development (i.e. industrial processes or energy generation). Specific energy strategy technologies have been considered as part of the overarching **Environmental Standards Statement** for the Proposed Scheme, but again this is driven more by requirements of planning policy and other regulatory compliance (i.e. Building Regulations) than environmental considerations. Therefore, alternative technologies were not considered to be applicable and will not be taken forward to Step 2.
Alternative development designs (including size and scale)	✓	The design of the Proposed Scheme has evolved in response to stakeholder engagement, market demand / feedback, technical studies and environmental constraints and opportunities (where present in an urban context). Therefore a design process has been undertaken where 'alternatives' have been considered and disregarded. Therefore, alternative development designs are considered to be applicable and will be taken forward to Step 2.

Alternative 'factors'	Considered at Step 2	Justification / discussion
'Do nothing' scenario	×	The EIA (as reported within this ES) has assessed the likely significant effects largely based on a deviation from the baseline environment, which is in essence the current scenario. **Technical Chapters 6 –11** have also stated a 'future baseline' in the absence of the Proposed Scheme coming forward (i.e. a 'do nothing' scenario) (albeit this has not informed the assessment of likely significant effects[a]). Broadly, the 'do nothing' scenario hypothesises that the likely significant effects identified and reported in this ES would not occur (i.e. no adverse or beneficial effects). However, the Site and surrounding area will continue to change regardless of the Proposed Scheme due to the following: • Deterioration of the vacant on-site buildings; • Projected growth in population and economy; and • Wider development / regeneration of the City Centre. In addition, given the desire for MCC to target growth and redevelopment of the area, is considered likely that if the Proposed Scheme was not to come forward another form of proposed re-development would likely be proposed, the environmental effects of which are unknown at this time as they would be based on the nature of any other proposal(s). Therefore, the 'do nothing' scenario was not considered to be applicable and will not be taken forward to Step 2.

Step 2: Assessment of 'Factors'

Alternative Development Designs

5.7 As identified above, alternative development designs are the only 'factor' considered relevant for assessment in terms of alternatives.

5.8 The design of the Proposed Scheme has been informed by the following overarching key principles:

- Recognising suitability of the Site for large commercial floorplates to attract larger-scale occupiers;
- Delivering public space, both at ground level and at height, and improvements to permeability and connectivity across the Site;

[a] Except for daylight, sunlight and overshadowing, where a 'future baseline' scenario is considered as part of the assessment of cumulative effects reported in **Chapter 12: Assessment of Cumulative Effects** to determine the contribution of the Proposed Scheme to overall cumulative in-combination effects.

- Respecting constraints and boundaries, including retention of trees subject to Tree Preservation Orders (TPOs);
- Providing a mix of uses to aid viability and vibrancy of place;
- Addressing the historic urban grain;
- Responding to the neighbouring Parsonage Gardens Conservation Area;
- Increasing height at the western edge of the Site, where a tall building can act as a landmark and contribute to legibility; and
- Location of existing residents and businesses.

5.9 Specific aspects considered through the design process are as follows:

- Retention / demolition of Albert Bridge House;
- Connectivity and public realm;
- Land use;
- Layout and arrangement; and
- Building heights and massing.

5.10 These are considered in further detail in turn below.

Retention / demolition of Albert Bridge House

5.11 The retention and refurbishment of Albert Bridge House was considered early in the design process.

5.12 In 2019, Historic England determined that the criteria for not listing was not met, stating that the design of Albert Bridge House is typical of a building of that age, lacking sophistication of layout and planning, innovative technology or quality artwork. Further details are provided within Appendix 5 of the EIA Scoping Report (**Appendix 2.1**).

5.13 The existing 18-storey tower is planned out on a 7.5m structural grid with 2.7m clear height on a typical floor. These characteristics are not seen as suitable for modern high quality working spaces and are deemed to be below British Council of Offices (BCO) guidance / standards[4]. In addition, layout and efficiency of the existing floorplates would not meet market demand / requirements.

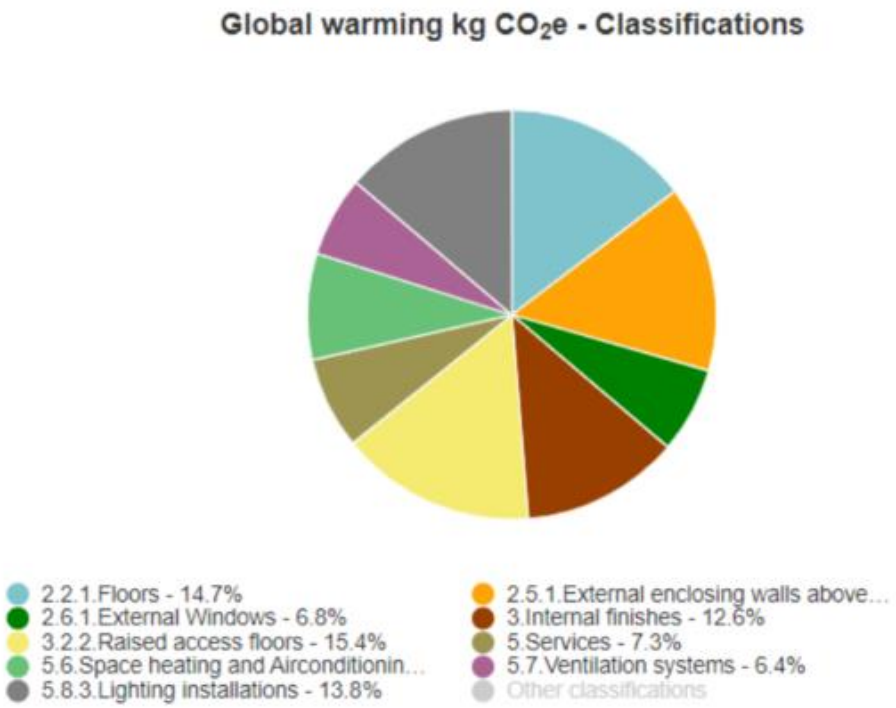
5.14 It is recognised that there is 'embedded' carbon involved in demolition and redevelopment.

5.15 To approximately quantify the embodied carbon 'lost' due to demolishing the existing building rather than re-using / refurbishing, the existing Albert Bridge House floor area (19,432 m^2 Gross Internal Area) can be multiplied by the Royal Institution of Chartered Surveyors (RICS) high rise office carbon factor[5], giving approximately 28,468 tCO_2e. This

is equivalent to circa 23% of the A1 – A3 embodied carbon of the whole Proposed Scheme (see **Chapter 11: Climate Change**).

5.16 Initial estimates of the Proposed Scheme's embodied carbon breakdown by building element (calculated using OneClick LCA Carbon designer, more detail is provided in the **Environmental Standards Statement**) is shown in **Graphic 1**. This highlights the contribution to the overall embodied carbon of components that would be unlikely to be re-used even if the existing building was refurbished, for example the finishes, services and systems, lighting, and potentially external windows.

Graphic 1: Embodied carbon breakdown estimates by component for the proposed new build option



5.17 Furthermore, it is not accurate to assume that the existing building structure of Albert Bridge House could be retained exactly in its current state; it is likely to require some element of refurbishment, reinforcement and extension along with refurbished or replaced cladding / façade elements. As such, the approximate quantification of carbon that is saved or 'locked in' to the existing structure is likely over-estimated.

5.18 In contrast to a retrofit proposal, the new build option is also expected to achieve better performance during operation, through enhanced insulation and air tightness targets that might not be technically feasible to achieve through retrofit.

Connectivity and public realm

5.19 Most of the existing public realm within the Site is taken up by a publicly accessible pay-and-display car park, Manchester Bridge Car Park. A small area of public realm, Albert Bridge Gardens, lies along the northern edge of the Site and is set down at a lower level along the River Irwell, which does not allow for passive surveillance and encourages antisocial behaviour.

5.20 The Site is adjacent / near to several key strategic routes (e.g. consisting of Bridge Street, Deansgate and Blackfriars Street) which provide a good level of pedestrian infrastructure and pedestrian crossings at key junctions. However, within the Site, Albert Bridge House has a poor configuration at ground level, with the current building forming a physical barrier within the St. Mary's Parsonage area. In addition, at ground level severance and separation is experienced between Albert Bridge House and St. Mary's Parsonage due to level differences.

5.21 The pedestrian Trinity Bridge across the River Irwell also provides connections between Salford and Manchester, although its visible presence and associated wayfinding is currently limited.

5.22 The Proposed Scheme will incorporate generous hard and soft landscaping. It will also include extensive public realm at ground level that will improve permeability for pedestrians and improve accessibility to surrounding open and amenity spaces for the public. The Proposed Scheme will deliver remodelling and regrading to integrate the new public realm across the Site with its surrounds. Ground floor active frontages within Building A and Building B will animate the public realm.

5.23 Additionally, the Proposed Scheme incorporates communal amenity areas and winter gardens within Building A. Office winter gardens and accessible amenity terraces will also be provided within Building B.

Land use

5.24 As noted above, the Site lies within the St. Mary's Parsonage Strategic Regeneration Framework area. Other commercial redevelopments are proposed in the area, for instance at Alberton House and Kendals and Fraser, given it lies adjacent to Spinningfields and represents an opportunity to expand the commercial offer to deliver added value economic growth and enhanced productivity.

5.25 The Proposed Scheme includes large office floorplates to provide new space for the market. In addition, the location of the Site provides an opportunity to add complimentary uses (i.e. retail /café / restaurant / bar uses) to the wider commercially focused Strategic Regeneration Framework area, creating more diversity in uses across the area and wider City Centre.

5.26 Such uses coupled with new homes aim to provide an appropriate balance between job creation and housing within the City Centre. The Proposed Scheme will provide a boost to the supply of housing to meet Manchester's visions for sustainable growth, whilst providing high quality accommodation. The Proposed Scheme is equivalent to 1% of the 10-year housing target within MCC (see **Chapter 10: Socio-economics and Human Health**).

5.27 Such a mix of uses supports a more 'sustainably' focused environ, offering an opportunity for residents to live close to their work, as well as the wider retail and commercial aspects of the City Centre. This combination also adds a level of vibrancy to the immediate area, which would otherwise be limited if only office focused (i.e. active during working hours).

5.28 Generally, size / quantum of land uses has largely been driven by design and arrangement of Building A and Building B. The quantum of commercial floorspace was initially higher but was reduced during the design process due to market feedback, with a commensurate increase in residential space.

5.29 The mix of residential units has also evolved through the design process to respond to the market and housing requirements, with a higher proportion of 3-bed units proposed as part of the Proposed Scheme.

5.30 In addition, the commercial and amenity uses located at Levels 00 and 01 move residents upwards to Level 02, further away from potential noise and air quality impacts associated with the adjacent road network.

Layout and arrangement

5.31 The layout and arrangement of the Proposed Scheme have been considered through the design process as the Site is in a prominent setting.

5.32 Given the relatively small Site area, there are limitations on potential alternative layouts, in part driven by the existing road network around the Site, including Bridge Street and St. Mary's Parsonage, and the River Irwell.

5.33 The key aspects considered including maximising views and access to the River Irwell frontage, creation of open space / public realm along the southern boundary facing onto a key strategic route into the City Centre core and the preservation of trees subject to TPOs.

5.34 Given the need for access and servicing, a site-wide basement was introduced to ensure that the public realm is maximised.

Building heights and massing

5.35 As noted above, Albert Bridge House is a visually prominent building at the gateway between Manchester and Salford. Given this, building heights and the massing have been carefully considered through the design process.

5.36 The tallest component of the Proposed Scheme is within Building A (up to 45 storeys) which sits in the western part of the Site, close to Bridge Street. This broadly aligns with the identified location for a tall / landmark element in the St. Mary's Parsonage Strategic Regeneration Framework.

5.37 The location of the taller elements has remained unchanged through the design development, albeit the maximum heights of Building B has reduced and the height of Building A has increased due to market demand / feedback.

5.38 Along the River Irwell a mixture of building heights can be observed, creating a context of variation and visual interest. The building heights vary along the river-facing northern elevations to contribute to the existing height variations.

5.39 The massing strategy has evolved naturally during the design development process, responding to the heights and feedback from the market. The strategy also responds to the more sensitive heritage context to the east of the Site (where the Parsonage

Gardens Conservation Area) by descending towards the east / south, blending in with the local context and existing / emerging building heights.

References

[1] The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended) SI 2017/517. Available at: http://www.legislation.gov.uk/uksi/2017/571 /contents/made [Accessed: 01/09/2021]
[2] Ministry of Housing, Communities and Local Government (Online Resource). Planning Practice Guidance Environmental Impact Assessment Paragraph: 035 Reference ID: 4-035-20170728. Available at: https://www.gov.uk/guidance/environmental-impact-assessment#Preparing-an-Environmental-Statement1 [Accessed: 01/09/2021]
[3] KPF (2020) St. Mary's Parsonage Strategic Regeneration Framework.
[4] https://www.bco.org.uk/Research/Publications/BCOGuideToSpec2019.aspx
[5] Royal Institute of Chartered Surveyors (RICS) (2014) Methodology to calculate embodied carbon, 1st Edition. Available at https://bit.ly/2HAIFd7 [Date accessed: August 2022].

6. Noise and Vibration

Introduction

6.1 This Chapter reports the outcome of the assessment of likely significant environmental effects arising from the Proposed Scheme in relation to noise and vibration.

6.2 The Chapter describes the consultation that has been undertaken during the EIA, the scope of the assessment and assessment methodology, and a summary of the baseline information that has informed the assessment.

6.3 In line with **Chapter 2: Approach to EIA**, the assessment reports on the likely significant environmental effects, the further mitigation measures required to prevent, reduce or offset any significant adverse effects, or further enhance beneficial effects. The conclusions are provided both in terms of the residual effects and whether these are considered to be significant. The assessment of effects takes into consideration both primary and tertiary mitigation (see **Chapter 2: Approach to EIA** for further details) and is informed by the EIA Scoping process (**Appendices 2.1** and **2.2**) and iterative scoping process where applicable.

6.4 This Chapter, and its associated **Figures 6.1 – 6.5** and **Appendices 6.1 – 6.5**, is intended to be read as part of the wider ES with particular reference to the introductory Chapters of this ES (**Chapters 1 – 5**).

6.5 In addition, this Chapter should be read in conjunction with **Chapter 12: Assessment of Cumulative Effects**.

Summary of Consultation

6.6 **Table 6.1** provides an overview of the consultation that has been undertaken to inform the Proposed Scheme and EIA, including the consideration of likely significant effects and the methodology for assessment.

Table 6.1: Summary of consultation

Body / organisation	Contact	Date and form of consultation	Summary of consultation and outcomes
MCC	Environmental Protection Officers	Email, issued 19th April 2022. Response received from MCC by email 20th April 2022 and 27th April 2022.	There is a requirement for additional reporting describing the detailed scheme of sound insulation and noise control. This is provided in the separate **Environmental Noise Survey** supporting the Application. There is a requirement for an assessment of operational commercial noise breakout

Body / organisation	Contact	Date and form of consultation	Summary of consultation and outcomes
			with recommendations for building elements and flanking sound control. This is provided in the separate **Environmental Noise Survey** supporting the Application. There is a local history of noise complaints: • North of the River Irwell (complaints from building services plant); and • St. Mary's Parsonage (complaints from music noise). Confirmation of Planning and Noise Technical Guidance June 2022 (PNTG)[1] as being the latest version. The assessment has been undertaken in accordance with this. Local information regarding noise and vibration for awareness – road traffic, local bars and nightclubs and building services plant, all of which will require an environmental noise survey. This has been completed and is reported below in this Chapter.
MCC	Planning Department	Scoping Opinion (**Appendix 2.2**) received on 7th November 2022.	An assessment is required of plant and mechanical equipment inclusive of emergency generators and sub-stations at existing commercial, office and residential receptors, committed development receptors and future on-Site residents. This is provided in the separate **Environmental Noise Survey**.

Body / organisation	Contact	Date and form of consultation	Summary of consultation and outcomes
			An assessment is required of noise breakout from future commercial units at existing commercial and residential properties and future on-Site residents. The assessment will need to reflect the guidance of PNTG. This is provided in the separate **Environmental Noise Survey**. An assessment is required of the necessary sound insulation for the Proposed Scheme to manage external noise sources and internal sources of noise or noise transfer to reflect the guidance of PNTG. This is provided in the separate **Environmental Noise Survey**, with the external noise assessment reported in this Chapter. An Acoustics Ventilation and Overheating 2020[2] (AVO) assessment is required for the Proposed Scheme. An AVO 'Level 1 Site Risk Assessment' is provided in this Chapter. Full details of the baseline assessment are required. This is provided in this Chapter and in the separate **Environmental Noise Survey**.

Scope of the Assessment

6.7 An EIA Scoping Report was submitted to MCC on 27th September 2022, as presented as **Appendix 2.1**. The Scoping Opinion was received on 7th November 2022 (**Appendix 2.2**). This section provides confirmation on the scope of the assessment presented within this Chapter following submission of the EIA Scoping Report.

Effects Considered Unlikely to be Significant

6.8 The following effects were considered unlikely to be significant as part of the EIA Scoping Report and are not considered further in this Chapter:

- Disturbance due to construction road traffic noise;
- Disturbance due to operational road traffic noise;
- Building services plant noise;
- Commercial noise break-out;
- Commercial delivery and collection noise;
- Vibration from building services plant and tenant activities;
- Existing aircraft noise; and
- Existing environmental vibration from the local transport network.

Effects Considered Likely to be Significant

6.9 **Table 6.2** outlines the effects that were considered likely to be significant at the EIA Scoping stages and have been assessed and reported within this Chapter

Table 6.2: Effects considered likely to be significant

Likely significant effect	Receptors	Applicable stage
Noise emissions from general construction activity	Nearest existing off-Site residents and the nearest existing commercial receptors (locations R1 to R20 (**Figure 6.1**))	Construction
Vibration transfer from general construction activity	Nearest existing off-Site residents and the nearest existing commercial receptors (locations R1 to R20 (**Figure 6.1**))	Construction
Introduction of new residents on operational noise practices of existing late night entertainment premises (including music venues)	Existing late night entertainment premises (including music venues) (locations R21 to R24 (**Figure 6.2**))	Operation
Existing road and commercial premises noise on the Proposed Scheme	Future on-Site residents (location R25 (**Figure 6.3**))	Operation

Assessment Methodology

Legislation Framework, Policy and Guidance

6.10 The following legislation and policy have informed the assessment of effects within this Chapter and is detailed further in **Appendix 6.2**:

- Environmental Protection Act 1990 (EPA)[3];
- Control of Pollution Act 1974 (CoPA)[4];
- Noise Policy Statement for England (NPSE)[5]; and
- National Planning Policy Framework (NPPF) 2021[6].

6.11 The following guidance has informed the assessment of effects within this Chapter and is detailed further in **Appendix 6.2**:

- PPG: Noise[7];
- Professional Practice Guidance (ProPG) on Planning & Noise[8];
- PNTG**Error! Bookmark not defined.**;
- British Standard 6472 Guide to evaluation of human exposure to vibration in buildings[9] (BS 6472-1);
- British Standard 7445 Description and measurement of environmental noise[10] (BS 7445-1);
- British Standard 7445 Guide to the acquisition of data pertinent to land use[11] (BS 7445-2);
- British Standard 5228 Code of practice for noise and vibration control on construction and open sites, Part 1: Noise[12] (BS 5228-1);
- British Standard 5228 Code of practice for noise and vibration control on construction and open sites, Part 2: Vibration[13] (BS 5228-2);
- Transport Research Laboratory (TRL) Report 429[14];
- Good Practice Guide on the Control of Noise from Pubs and Clubs[15] (IOA);
- BS 8233 Guidance on sound insulation and noise reduction for buildings[16] (BS 8233);
- Approved Document E[17] (ADE);
- Approved Document F[18] (ADF);
- Approved Document O[19] (ADO); and
- British Standard 4142 Method for rating and assessing industrial and commercial sound[20] (BS 4142).

Defining the Study Area

6.12 The study area (refer to **Figure 6.4**) has been defined within approximately 100m of the Site boundary to capture the nearest potential 'worst-case' affected occupied buildings

/ premises. It has also been extended to include Ralli Quays in Salford at approximately 115m due to potential sensitivity to noise and vibration.

Establishing the Baseline

6.13 **Table 6.3** summarises all studies / surveys / analysis / evaluations undertaken to inform the assessment presented within this Chapter.

Table 6.3: Background studies / surveys / analysis / evaluations

Study / survey / analysis / evaluation	Overview	Date of completion
Noise measurement survey	A noise measurement survey including attended and unattended positions was carried out, quantifying ambient, background and maximum noise event levels. The survey duration was selected to be seven consecutive days to capture daily fluctuations. Further details are provided in **Appendix 6.3**.	9th March 2022
Vibration perception survey	Perception observations of prevailing vibration were carried out around the Site during typical daytime working hours to observe the most intense period. Further details are provided in **Appendix 6.3**.	9th March 2022
Review of MCC's PNTG 2022	Requirements for noise and vibration surveys and assessments have been reviewed.	19th July 2022
Entertainment noise measurement survey	An attended noise measurement survey was carried out to quantify source sound levels from nearby entertainment activity at night. A dry Friday night in July was selected to capture likely worst-case conditions of use of external areas. Further details are provided in **Appendix 6.3**.	26th July 2022

Assessment Process

Assessment of noise emissions from general construction activity

6.14 In accordance with CoPA and EPA, the effects of construction noise have been considered. **Chapter 4: Development Specification** outlines the proposed construction works but does not define types and quantities of plant involved as these will be defined by the contractor. Construction noise has been treated as a temporary impact. Noise predictions have been carried out following the methods of BS 5228-1, which provides methods for predicting construction noise levels based on reference data for the emissions of typical construction plant and activities.

6.15 **Table 6.4** shows the construction sub-stages that would likely take place, assumed type and quantity of plant along with an assumed percentage of time the relevant plant is likely to operate at maximum power output.

Table 6.4: Construction plant types, quantities and percentage maximum power on-times

Plant and equipment	Enabling works	Demolition	Earthworks	Foundations	Superstructure and cladding	Fit-out	Public realm and landscaping
Tracked excavator	1x10%	1x75%	1x75%	1x75%			1x25%
Cutting tools	2x1%	2x25%	2x10%	2x10%	2x25%	1x10%	1x15%
Hand-held tools	1x10%	1x25%	1x10%	1x10%	1x25%	1x10%	2x25%
HGVs / lorries	2x5%	10x5%	5x5%	5x5%	5x5%	5x5%	2x5%
Bulldozer		1x5%	1x5%				
Compaction plant		1x5%		1x25%			1x10%
Wheeled breakers		1x25%					
Tracked grab / claw		1x75%					
Dumper truck		1x75%	1x75%	1x75%			
Driven piling rig				1x75%			
Generator				1x100%	1x100 %		
Water pump				1x100%	1x100 %		
Concrete mixers and pumps				3x75%	3x75%		
Tower crane					1x25%		
Mobile crane					1x50%		

Plant and equipment	Enabling works	Demolition	Earthworks	Foundations	Superstructure and cladding	Fit-out	Public realm and landscaping
Loader / fork lift truck				1x50%	1x50%		
Mortar mixing					1x75%		
Scaffolding					1x10%		
Asphalt paving							1x10%
Tracked crusher		1x75%					
Note: format used = [quantity] x [percentage maximum power on-time]							

6.16 **Table 6.5** provides the assumed sound power levels associated with each sub-stage of the construction works.

Table 6.5: Construction plant and equipment assumed sound power levels

Plant and equipment	Enabling works	Demolition	Earthworks	Foundations	Superstructure and cladding	Fit-out	Public realm and landscaping
dB L_{WA}	101	118	111	117	114	104	109

6.17 As defined in **Chapter 4: Development Specification**, the proposed working hours are 07:30 – 18:00 hours Monday to Friday and 08:00 – 14:00 on Saturday with no audible working on Sundays or Bank Holidays generally planned. On some occasions there are certain operation that may be required to proceed during these periods. These will be infrequent and will be agreed with key stakeholders (including MCC). Access to the Site will be permitted 30 minutes prior to the working day commencing with noise being kept to a minimum for the first half hour of each day. The working day Monday – Friday has been taken as a 10-hour working period.

6.18 The worst-case assessment has assumed that Building A and Building B will be built out concurrently. It has not been assumed that the peak construction period will occur during any period of occupation of Building A. A minimum distance of assessment has

been adopted from each sensitive receptor (see **Figure 6.1**) to the appropriate working areas as set-out below:

- Enabling works, earthworks, public realm and landscaping to the nearest Site boundary location with the exception of Bridge Street where no works are expected at the Site boundary other than oversailing provision. Along Bridge Street, the closest working location to the Site boundary has been taken as the existing north-eastern pavement location;

- Demolition to the location of the existing buildings on-Site; and

- Foundations, superstructure and cladding, and fit-out to the nearest building footprint of either Building A or Building B with the exception of the north-eastern works to Building B which extend to the Site boundary.

Assessment of vibration transfer from general construction activity

6.19 In accordance with CoPA and EPA, the effects of construction vibration have been considered. Construction vibration has been treated as a temporary impact.

6.20 All construction stage plant has the potential to generate transient vibration when passing by at the Site boundary adjacent / close to sensitive receptors. However, it is generally short lived and such activities are not considered to be significant.

6.21 Methods of working which have a potential to generate significant continuous or periodic intermittent vibration and induce it into the ground have been identified and assessed against BS 5228-2 and BS 6472-1.

6.22 The worst-case assessment has assumed that Building A and Building B will be built out concurrently. It has not been assumed that the peak vibration period will occur during any period of occupation of Building A.

6.23 The identified activities likely to cause a significant effect are:

- Breaking-out ground bearing slabs;

- Driven piling; and

- Use of compaction plant for hardening and levelling piling mats, roads and other surfaces.

6.24 Received vibration at the closest working locations to sensitive receptors have been calculated by comparison to reference plant vibration levels contained in BS 5228-2 or TRL.

Assessment of introduction of new residents on operational noise practices of existing late night entertainment premises (including music venues)

6.25 **Appendix 6.1** describes in detail the 'Agent of Change' principle, which is established in the NPPF. In summary, this principle requires the person or business who is introducing a new land use to manage the impact of that change. Therefore, it places the responsibility of a scheme introducing new residential receptors to suitably address the impact of noise from existing commercial activities which may potentially affect these

receptors. The potential for disturbance should be addressed by first minimising the risk of disturbance from existing sources through good design at an early stage, including considerations of distance, screening, layout and similar measures. Any residual impacts should then be managed using other acoustic design measures, such as incorporation of sound insulating façades.

6.26 The Proposed Scheme will introduce new homes to an area with established late night entertainment premises. The 'Agent of Change' principle has been assessed in a simple manner at this stage to avoid lengthy detailed assessments based on assumptions that may become redundant over the course of the anticipated 3.5 year development period of the Proposed Scheme.

6.27 Existing identified late night entertainment premises (see **Figure 6.2**) have been assessed against the comparison of measured L_{Aeq} (EN) (EN being the measured entertainment noise level) and background L_{A90} (WEN) (WEN being the representative background noise level without the entertainment noise present) to each other alongside the IOA criteria to identify an exceedance level indicating external audibility. Consideration has been given to the expected internal noise contribution from the entertainment noise source accounting for the design sound insulation, ventilation and overheating strategy. The assessment for the potential for disturbance has been carried out against the PNTG and BS 8233 criteria for internal noise levels.

Assessment of existing road and commercial premises noise on the Proposed Scheme

6.28 The results of the baseline environmental noise surveys and the provisions determined for future baseline conditions have been used to conduct an 'Initial Noise Risk Assessment' following the approach outlined in ProPG. The Proposed Scheme committed primary mitigation (see **Chapter 4: Development Specification**) has been used to assess the feasibility of achieving the guidance of BS 8233 and PNTG.

Reporting of the Environmental Effect and Significance Criteria

6.29 The assessment of likely significant environmental effects as a result of the Proposed Scheme has taken into account the construction and operational stages. The following sections define the approach adopted within the assessment for the determination of sensitivity, magnitude of change (or impact), the level of effect and significance.

Determining Sensitivity of Receptor

6.30 The sensitivity of affected receptors has been considered on a scale of **high**, **medium**, **low** or **negligible**.

6.31 **Table 6.6** provides the definitions applied to receptor types which have been determined based on the guidance contained in BS 8233 and other relevant reference criteria. The sensitivity descriptions and examples apply to both noise and vibration.

Table 6.6: Definitions of sensitivity of receptors

Sensitivity	Description	Examples
High	Receptors where people or operations are particularly susceptible to noise or vibration	Homes (dwellings, flats and shared accommodation)
Medium	Receptors moderately sensitive to noise or vibration, where it may cause some distraction or disturbance	Noise sensitive leisure (hotels, art, dance and music, museums); Court Buildings; and commercial offices, conference rooms, meeting rooms
Low	Receptors where distraction or disturbance from noise or vibration is minimal	Commercial facilities (retail), workshops and industrial facilities; and non-noise sensitive leisure (nightclubs, bars, restaurants)
Negligible	Receptors where distraction or disturbance from noise or vibration is not material	Car parks and unoccupied buildings

Determining the Magnitude of Change (or Impact)

6.32 The magnitude of change (or impact) has been considered as the change experienced from the current baseline conditions at the sensitive receptor and / or considers the impacts against prescribed thresholds and criteria (applicable to future receptors). It has been considered on a scale of **large**, **medium**, **small** or **negligible**.

Assessment of noise and vibration transfer from general construction activity

6.33 Annex E of BS 5228-1 provides example criteria of absolute noise limits for construction activities (including demolition) and has been used to determine the impact of the construction stage within this Chapter. The criteria do not represent mandatory limits but rather a set of example approaches intended to reflect the type of methods commonly applied to construction noise. In broad terms, the example criteria are based on a set of fixed limit values which, if exceeded, may result in a significant effect unless ambient noise levels are sufficiently high to provide a degree of masking.

6.34 The range of guidance values detailed in Annex E of BS 5228-1 have been used in conjunction with consideration of the nature of the area and the existing baseline noise levels to numerically define the magnitude levels of **Table 6.7**. Annex E of BS 5228-1 provides varied definitions for the range of daytime working hours which can be grouped for equal consideration. The values presented in **Table 6.7** have been chosen to relate to daytime hours from 07:30 – 18:00 on weekdays (Monday to Friday), and 07:30 – 13:00 on Saturdays. On Saturdays between the working hours of 13:00 and 14:00, the thresholds of the magnitude categories reduce by 10dB. Saturday afternoon noise levels are only considered for residential (home) receptors given that these could be occupied during this period.

6.35 Annex B of BS 5228-2 provides example criteria for the significance of construction stage vibration. Particular regard has been given to Section B.2 of BS 5228-2 which provides advice on human response to vibration and Table B.1 of BS 5228-2 which considered the effects of vibration levels in terms of Peak Particle Velocity (PPV). PPV is considered more appropriate when providing guidance for construction stage activities (including demolition), which are likely to result in events with ranging vibration magnitude. **Table 6.7** provides the magnitude of construction stage vibration impacts considered in this Chapter.

6.36 As construction stage noise and vibration will always be an introduction of a new noise or vibration source (albeit temporarily), where impacts are identified they will be adverse.

Table 6.7: Magnitude of change / impact for construction noise and vibration

Magnitude	Noise level* dB $L_{Aeq,T}$	Noise details	Vibration level PPV $mm.s^{-1}$	Vibration details
Large	> 85	Trigger level for temporary rehousing, or reasonable cost thereof, as set out in E.4 of BS 5228-1.	> 10.0	Vibration above 10 $mm.s^{-1}$ is likely to be intolerable, even during brief exposures. Cosmetic damage may start to occur in some light-weight structures above 10 $mm.s^{-1}$. Considered to be above Significant Observed Adverse Effect Level (SOAEL)[a].
Medium	≥ 75 ≤ 85	Trigger level for noise insulation works occurs at 75 dB(A), or cost thereof, as set out in Table E.2 of BS 5228-1.	> 1.0 ≤ 10.0	Vibration in this range is likely to become intolerable for any more than short duration exposure and therefore considered as the onset of SOAEL. There will be a perception of damage risk to property, but damage risk is very low.
Small	> 65 < 75	Below the threshold level for	≥ 0.3 ≤ 1.0	The threshold of which construction vibration might be perceptible

[a] Definition is provided in **Appendix 6.2**.

Magnitude	Noise level* dB $L_{Aeq,T}$	Noise details	Vibration level PPV $mm.s^{-1}$	Vibration details
		noise insulation works and in accordance with categories B and C in BS 5228-1 Annex E.		in residential environments. The upper value may cause complaint if prior warning is not given. Considered to be between Lowest Observed Adverse Effect Level (LOAEL)[b] and SOAEL. 0.3 $mm.s^{-1}$ is considered as the onset of LOAEL.
Negligible	≤ 65	Threshold of significance for the site based on measured noise levels and BS 5228-1 Annex E, category A.	< 0.3	Vibration levels below this level are unlikely to be perceptible in residential environments.
Note * on Saturdays between 13:00 to 14:00 the threshold noise levels reduce by 10dB.				

Assessment of introduction of new residents on operational noise practices of existing late night entertainment premises (including music venues)

6.37 Consideration has been given to the IOA criteria for entertainment noise to derive a simplified set of likelihood of exceedance criteria (see **Table 6.8** based on the overall value and not a third octave band value) for use in the assessment to identify which premises pose a risk of complaint. The applicable time periods are both daytime (07:00 – 23:00 hours) and night (07:00 – 23:00 hours) as existing entertainment premises operate across both these periods.

Table 6.8: Entertainment noise exceedance criteria

Exceedance level	Criteria	Audibility
Large	$L_{Aeq,T}$ (EN) exceeds $L_{A90,T}$ (WEN) by 10dB or more	Clearly audible
Medium	$L_{Aeq,T}$ (EN) exceeds $L_{A90,T}$ (WEN) by 1dB and 9dB	Clearly audible

[b] Definition is provided in **Appendix 6.2**.

Exceedance level	Criteria	Audibility
None	$L_{Aeq,T}$ (EN) does not exceed $L_{A90,T}$ (WEN)	Just audible
Notes: (EN) is with entertainment noise, (WEN) is without entertainment noise		

6.38 The assessment criteria for magnitude of change applicable are set out in **Table 6.9** based on the 'agent of change' principle of providing an internal environment to suitably control the likelihood of complaint.

Assessment of existing road and commercial premises noise on the Proposed Scheme

6.39 The magnitude criteria of **Table 6.9** are internal received sound levels (inclusive of mixed sources; road, commercial and entertainment noise) derived from BS 8233 and PNTG. The criteria cover all ventilation conditions (defined in ADF) and overheating conditions (defined in ADO).

Table 6.9: Magnitude of internal received environmental noise contributions

Magnitude of change	Criteria	Description
Large	More than 10dB greater than BS 8233 and PNTG Guidance Criteria	Not suitable for new homes.
Medium	More than + 5dB greater than the BS 8233 and PNTG Guidance Criteria up to and including + 10dB	Likely not to be suitable for permanent accommodation as there is an increased risk of adverse conditions for health.
Small	Greater than the BS 8233 and PNTG Guidance Criteria by up to + 5dB	Up to a 5dB increase in the BS 8233 guidance criteria is stated in BS 8233 as reasonable conditions are still achieved in newly constructed homes, where greater levels of external noise may prevail and / or there is a desire for natural ventilation in urban areas.
Negligible	BS 8233 and PNTG Guidance Criteria: 50 – 55dB $L_{Aeq,16hr}$ (daytime) External Amenity Spaces [1]; 35dB $L_{Aeq,16hr}$ (daytime) Living Rooms and Bedrooms; 40dB $L_{Aeq,16hr}$ (daytime) Dining Rooms;	Compliance with BS 8233 guidance criteria for newly constructed homes and the MCC adopted criteria of PNTG.

Magnitude of change	Criteria	Description
	30dB $L_{Aeq,8hr}$ (night) Bedrooms; and 45dB $L_{AFmax,T}$ (night) Bedrooms.[2] ≤ 47dB at 63Hz and ≤ 41dB at 125Hz (for entertainment sources only)	

Notes:

[1] For traditional external amenity areas such as gardens or patios, it is desirable that sound levels do not exceed 50 dB $L_{Aeq,16hr}$ between 07:00 – 23:00, with an upper guideline value of 55 dB $L_{Aeq,16hr}$ as adopted in the PNTG. This would apply to shared outdoor amenity areas proposed as part of the Proposed Scheme. For small balconies, which may be used for activities such as drying washing, or growing pot plants, the setting of noise limits is not necessarily appropriate. It is recognised within BS 8233, ProPG and PPG that these guideline values cannot always be achieved in higher noise areas where development may be desirable. BS 8233 gives the specific example that, in urban areas close to strategic transport links, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations, or making efficient use of land resources, might be warranted. ProPG and PPG acknowledge that, where noise levels in private amenity space are higher than the guideline values, that the impact can be offset should residents have access to quieter amenity space (whether private, or for use by a number of residents) within a short walking distance of their dwelling.

[2] BS 8233 does not specifically specify a sound level, although it states maximum event noise should be controlled, instead a commonly adopted sound level has been applied for this purpose, using guidance from PNTG and ProPG.

Determining the Level of Effect

6.40 The level of effect has been informed by the magnitude of change (or impact) and the evaluation of the sensitivity of the affected receptor. The level of effect has been determined using professional judgement and **Table 6.10** has been a tool which has assisted with this process.

6.41 Whilst **Table 6.10** provides ranges, the level of effect is confirmed as a single level and not a range, informed by professional judgement.

Table 6.10: Determining the level of effect

Magnitude of change (or impact)	Sensitivity			
	High	Medium	Low	Negligible
Large	Major	Moderate to Major	Minor to Moderate	Negligible
Medium	Moderate to Major	Moderate	Minor	Negligible
Small	Minor to Moderate	Minor	Negligible to Minor	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

6.42 The following terms have been used to define the level of the effects identified and these can be 'beneficial' or 'adverse':

- **Major effect**: Where the Proposed Scheme is likely to cause a considerable change from the baseline conditions and the receptor has limited adaptability, tolerance or recoverability or is of the highest sensitivity;
- **Moderate effect**: Where the Proposed Scheme is likely to cause either a considerable change from the baseline conditions at a receptor which has a degree of adaptability, tolerance or recoverability or a less than considerable change at a receptor that has limited adaptability, tolerance or recoverability;
- **Minor effect**: Where the Proposed Scheme is likely to cause a small, but noticeable change from the baseline conditions on a receptor which has limited adaptability, tolerance or recoverability or is of the highest sensitivity; or where the Proposed Scheme is likely to cause a considerable change from the baseline conditions at a receptor which can adapt, is tolerant of the change and / or can recover from the change; and
- **Negligible**: Where the Proposed Scheme is unlikely to cause a noticeable change at a receptor, despite its level of sensitivity or there is a considerable change at a receptor which is not considered sensitive to a change.

6.43 The duration of the effect has been assessed as either 'short-term', 'medium-term' or 'long-term'. Short-term is considered to be up to 1 year, medium-term is considered to be between 1 and 10 years and long-term is considered to be greater than 10 years.

Determining Significance

6.44 For each effect, a statement has been made as to whether the level of effect is '**Significant**' or '**Not Significant**'. This determination has been based on professional judgement and / or relevant guidance / legislation where applicable.

6.45 Significance has only been concluded for residual effects (i.e. following the identification of secondary mitigation).

Baseline Conditions

6.46 **Table 6.11** provides the details of the sensitive receptors included in the assessments. The following figures show their respective locations:

- **Figure 6.1** shows the existing sensitive receptors;
- **Figure 6.2** shows the existing entertainment premises receptors; and
- **Figure 6.3** shows the future introduced sensitive receptors.

Table 6.11: Sensitive receptors

Reference	Status	Type	Description
R1	Existing	Commercial	Plot B7 Salford Central, New Bailey Street
R2	Existing	Homes	Affinity Living Riverside, 29 New Bailey Street
R3	Existing	Commercial	Riverside, Worsley Street
R4	Existing	Homes	Affinity Living Riverside, 32 Quay Street
R5	Existing	Homes	The Bridge, 40 Dearmans Place
R6	Existing	Hotel	The Lowry Hotel, 50 Dearmans Place
R7	Existing	Homes	The Century Buildings, 14 St. Mary's Parsonage
R8	Existing	Commercial	Cardinal House, 20 St. Mary's Parsonage
R9	Existing / Future	Commercial	Alberton House, 30 St. Mary's Parsonage[c]
R10	Existing	Commercial	3 St. Mary's Parsonage
R11	Existing / Future	Commercial	28 St. Mary's Parsonage[d]
R12	Existing	Commercial	19A Back Bridge Street
R13	Existing	Restaurant / Bar / Nightclub	55 – 57 Bridge Street
R14	Existing	Commercial	22 – 44 Bridge Street
R15	Existing	Commercial	18 – 20 Bridge Street

[c] Subject to an application for demolition and redevelopment for commercial use (MCC planning reference: 134287/FO/2022)
[d] Subject to an application for demolition and redevelopment for commercial use (MCC planning reference: 135028/FO/2022)

Reference	Status	Type	Description
R16	Existing	Court Building	Manchester Crown Court
R17	Existing	Court Building	Civil Justice Centre
R18	Existing	Museum	People's History Museum, Left Bank
R19	Existing	Homes	Left Bank
R20	Existing	Commercial	Ralli Quays, Salford
R21	Existing	Restaurant / Bar	The Oast House Bar & Restaurant
R22	Existing	Restaurant / Bar	Manchester Hall, Bridge Street
R23	Existing	Restaurant / Bar / Nightclub	The Liars Club / MOJO / Crazy Pedro's, Bridge Street
R24	Existing	Restaurant / Bar	Carnival Street Food, Bridge Street
R25	Future	Homes	Building A of the Proposed Scheme
R26	Future	Commercial	Building B of the Proposed Scheme

6.47 An environmental noise survey has been carried out within the period of Wednesday 2nd March and Wednesday 9th March 2022 to quantify prevailing ambient, background, late night entertainment and maximum event noise levels in accordance with BS 7445-1 and BS 7445-2. The survey comprised a combination of both attended and unattended measurements. Further details are provided in **Appendix 6.3**, including, location plans, photos, equipment, weather, dates and conditions of measurement.

6.48 A plan showing the noise measurement positions is provided in **Figure 6.5** and **Appendix 6.3** details the measurement position references.

6.49 For the noise measurements, daytime has been defined as 07:00 – 23:00 hours and night as 23:00 – 07:00 hours.

6.50 A summary of the overall 'free-field' (not influenced by reflecting surfaces) results from the measurements at positions P1 and P2 are set out below in **Table 6.12**. The results from positions P3, P4, P5 and P6 have been used to adjust the measurements at P1 and P2 (see **Appendix 6.3**) to give a representation of the noise conditions at ground floor level. The adjusted ground floor noise levels are presented in **Table 6.13**. For reference positions P1 to P6 are defined as:

- Position P1 was at roof level of the central tallest part of the existing building on-Site;
- Position P2 was at roof level of the eastern most block of the existing building on-Site;

- Position P3 was at ground level at the Trinity Bridge public open space;
- Position P4 was at ground level on Bridge Street;
- Position P5 was on the north bank of the River Irwell (within the Public Amenity Space, 32 Quay Street), to the west of Trinity Bridge; and
- Position P6 was at ground level on St. Mary's Parsonage.

6.51 The background noise levels have been statistically analysed (see **Appendix 6.3**) following guidance provided in BS 4142 and the 10th percentile selected as a conservative approach. In accordance with BS 4142 the typical background level for the daytime and night does not necessarily correlate to the lowest or most frequently occurring level. It should be noted that a time period of 15 minutes has been used for both the daytime and night and that BS 4142 uses this period for the night only and a 1 hour period for the daytime. Using a 15 minute period during the daytime, results in lower background noise levels and, therefore, a more stringent assessment. Similarly, a statistical approach has been followed selecting the 90th percentile $L_{AF,max,15mins}$ relating to typical high maximum event values.

Table 6.12: Summary of unattended measured noise levels at Positions P1 and P2

Position reference	Daytime			Night			
	Lowest ambient $L_{Aeq,16hr}$ dB	Highest ambient $L_{Aeq,16hr}$ dB	Background $L_{A90,15min}$ dB	Lowest ambient $L_{Aeq,8hr}$ dB	Highest ambient $L_{Aeq,8hr}$ dB	Maximum event $L_{AFmax,15min}$ dB	Background $L_{A90,15min}$ dB
P1	56	62	53	53	57	73	49
P2	51	56	47	48	53	71	44

Table 6.13: Summary of adjusted measured noise levels at Positions P3, P4, P5 and P6

Position reference	Daytime			Night			
	Lowest ambient $L_{Aeq,16hr}$ dB	Highest ambient $L_{Aeq,16hr}$ dB	Background $L_{A90,15min}$ dB	Lowest ambient $L_{Aeq,8hr}$ dB	Highest ambient $L_{Aeq,8hr}$ dB	Maximum event $L_{AFmax,15min}$ dB	Background $L_{A90,15min}$ dB
P3	54	59	47	51	56	73	44
P4	61	67	55	58	63	73	51
P5	49	54	45	46	51	65	42
P6	58	64	50	55	59	80	46

6.52 Measurement positions P7 to P10 were used to quantify the prevailing noise levels generated by specific late night entertainment premises which incorporate amplified music and / or live music, where:

- Position P7 was at ground level opposite Carnival Street Food on Bridge Street;
- Position P8 was at ground level in Motor Square near Crazy Pedros / MOJO / Liars Club;
- Position P9 was at ground level opposite Manchester Hall on Bridge Street; and
- Position P10 was at ground level near The Oast House Bar and Restaurant off Dolefield / Wood Street.

6.53 **Table 6.14** provides the overall, low frequency 63Hz (Hertz) and 125Hz octave band entertainment noise levels measured at positions P7 to P10 along with a description of what was audible.

Table 6.14: Low frequency measured noise levels from entertainment premises

Position reference	Approximate distance of measurement (m)	Maximum measured noise level $L_{Aeq,T}$ dB	Maximum measured noise level at 63Hz $L_{Aeq,T}$ dB	Maximum measured noise level at 125Hz $L_{Aeq,T}$ dB	Description of audibility
P7	11	79	90	81	Amplified music associated with a DJ set and patrons at Carnival Street Food.
P8	15	73	75	71	Amplified music noise audible from Crazy Pedros / MOJO / Liars Club, although, greatest influence was amplified music from Carnival Street Food.
P9	15	73	78	77	Function on at Manchester Hall, although nothing audible above the amplified music from Carnival Street Food.
P10	25	83	96	88	Amplified music from a live band set at The Oast House Bar and Restaurant.

6.54 Road traffic on Bridge Street to the south and west of the Site is the main source of noise during both the daytime and at night. Amplified music and entertainment noise is audible along Bridge Street from various premises primarily Carnival Street Food with other contributions from Crazy Pedros / MOJO / Liars Club, Manchester Hall and The Oast House Bar and Restaurant most nights of the week, although, Friday and Saturdays have the latest opening hours and greater contributions. At elevated building levels, more so to the east of the Site, there is a greater prevalence of noise from roof mounted building services plant. To the north existing ambient noise levels are lower due to increased distance from Bridge Street and the greater mix of homes.

Future Baseline

6.55 In the absence of the Proposed Scheme, there is anticipated to be a slight change in the noise environment given the absence of traffic movements associated with Albert Bridge House (as it is now vacant) and plant noise.

6.56 There are some variables which could change the prevailing environmental noise conditions, some of which are listed below:

- Road traffic evolution has been assumed to be approximately an 8% increase by 2026 on the local road network. This equates to a less than 1dB change overall.

- Government has committed to phase out the sale of new diesel and petrol engine cars and vans by 2030. This may not specifically reduce the quantity of vehicles on the UK road network, but it is intended to fast track the purchase of new electric vehicles or hybrids, which inherently will be slightly quieter than the existing vehicle mix; and

- Climate changes have the potential to increase local noise levels. The main influence would be from heating, cooling and ventilation plant items working at a greater duty and for longer periods. The immediate local area has much plant of these types, mostly located on roof tops.

Primary and Tertiary Mitigation

Construction Stage

6.57 The following primary and tertiary mitigation which has been evaluated as part of the construction stage assessment is outlined below.

6.58 The construction stage will be governed by the application of a CEMP which will provide the commitments proposed to manage / control noise and vibration (a summary of which is provided in **Chapter 4: Development Specification**). These commitments are integral to the description of the Proposed Scheme.

6.59 For noise and vibration the following are committed to at this stage:

- Best Practical Means (BPM) will be adopted, as defined in the CoPA, 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 BS 5228-2;

- 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; and

- 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.

Operational Stage

6.60 The following primary and tertiary mitigation which has been evaluated as part of the operational stage assessment is outlined below.

- 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 4142 and PNTG at nearest façades or open spaces;

- 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;

- Façade design will include sound insulation specification to achieve the internal noise criteria of BS 8233 and PNTG as may be appropriate in habitable rooms;

- The guidance of ADE for internal sound insulation will be enhanced to a minimum of 60dB DnT,w between non-domestic uses and new homes;

- 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;

- 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 – 07:00 hours unless otherwise agreed by MCC;

- 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 – 07:00 hours would apply;

- Internal vibration transfer between different building uses or from building services plant will be designed in accordance with BS 6472 and PNTG;

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

- The design of Building A is for mechanical ventilation to achieve ADF and ADO requirements and the attenuation of the ducted air intakes and exhausts by design will not degrade the façade performance; and

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

Assessment of Effects, Secondary Mitigation and Residual Effects

Construction Stage

Noise emissions from general construction activity

6.61 Construction stage works will include the demolition of Albert Bridge House and construction of the new buildings and associated infrastructure and landscaping. These types of work can lead to noise generation.

6.62 Construction noise has been assessed following the adoption of the aforementioned tertiary mitigation using the worst-case of Building A and Building B being implemented concurrently. The estimated minimum distances of the works areas to each applicable sensitive receptor have been assessed, which is likely to account for any typical working practice. The noise sensitive receptors included in this assessment are R1 to R20 which are the existing sensitive receptors (see **Figure 6.1**). Building A has not been treated as a sensitive receptor for the construction stage due to the concurrent build approach and it is unlikely to be occupied while Building B is being constructed.

6.63 Calculations using the source noise levels of **Table 6.5** have followed guidance in BS 5228-1. **Table 6.15** provides the distances used in the calculations. For the worst-case assessment no screening effects have been included as some noise sources will be elevated above ground level. It should be noted the minimum distances are plan distances and do not account for variations in height between sources and sensitive receptors to maintain a worst-case approach.

Table 6.15: Sensitive receptor distances for construction stage activities assessment

Receptor reference	Distance to enabling works, earthworks, public realm and landscaping (m)	Distance to demolition (m)	Distance to foundations, superstructure and cladding, and fit-out for Building A (m)	Distance to foundations, superstructure and cladding, and fit-out for Building B (m)
R1	80	136	107	143
R2	46	75	62	88 (95)*
R3	47	61	55	58 (65)*
R4	44	46	56	37 (44)*
R5	76	78	108	73 (80)*
R6	82	84	142	79 (86)*
R7	100	114	190	115
R8	45	61	141	60

Receptor reference	Distance to enabling works, earthworks, public realm and landscaping (m)	Distance to demolition (m)	Distance to foundations, superstructure and cladding, and fit-out for Building A (m)	Distance to foundations, superstructure and cladding, and fit-out for Building B (m)
R9	1	16	98	16
R10	25	50	115	50
R11	16	37	100	20
R12	43	43	116	50
R13	40	40	110	47
R14	28	28	85	34
R15	24	24	48	28
R16	24	24	24	38
R17	34	66	34	76
R18	28	84	42	95
R19	76	123	80	133
R20	130	202	159	211
Note: * The value in brackets ( ) applies to sources of vibration only.				

6.64 **Table 6.16** provides the calculated noise levels and magnitude for the construction stage works for all proposed hours with the exception of between 13:00 and 14:00 hours on a Saturday which are presented in **Table 6.17** for the residential (homes) receptors only (R2, R4, R5, R7 and R19). The Saturday afternoon period has different magnitude criteria than the rest of the typical working week and has been treated separately. The magnitude of construction stage noise has been identified at each sensitive receptor by comparison to **Table 6.7**.

Table 6.16: Calculated magnitude of construction stage noise (except for Saturday afternoon)

Receptor reference	Enabling works	Demolition	Earthworks	Foundations	Superstructure and cladding	Fit-out	Public realm and landscaping
R1	55	67	65	70	67	57	63

Receptor reference	Enabling works	Demolition	Earthworks	Foundations	Superstructure and cladding	Fit-out	Public realm and landscaping
R2	60	72	70	75	72	62	68
R3	60	74	70	77	74	64	68
R4	60	77	70	79	76	66	68
R5	55	72	65	73	70	60	63
R6	55	72	65	72	69	59	63
R7	53	69	63	69	66	56	61
R8	60	74	70	74	71	61	68
R9	> 85	> 85	> 85	85	82	72	> 85
R10	65	76	75	76	73	63	73
R11	69	79	79	83	80	70	77
R12	60	77	70	76	73	63	68
R13	61	78	71	77	74	64	69
R14	64	81	74	79	76	66	72
R15	65	82	75	81	78	68	73
R16	65	82	75	82	79	69	73
R17	62	74	72	79	76	66	70
R18	64	72	74	78	75	65	72
R19	55	68	65	72	69	59	63
R20	51	64	61	67	64	54	59

Notes:

All noise levels presented are in dB(A);

Red = Large magnitude; Amber = Medium magnitude; Green = Small magnitude; and Normal = Negligible magnitude

Table 6.17: Calculated magnitude of construction stage noise (Saturday afternoon 13:00 – 14:00 only)

Receptor reference (only residential / homes receptors)	Enabling works	Demolition	Earthworks	Foundations	Superstructure and cladding	Fit-out	Public realm and landscaping
R2	60	72	70	74	71	61	68
R4	60	77	70	78	75	65	68
R5	55	72	65	73	70	60	63
R7	53	69	63	69	66	56	61
R19	55	68	65	72	69	59	63

Notes:

All noise levels presented are in dB(A);

Red = Large magnitude; Amber = Medium magnitude; Green = Small magnitude; and Normal = Negligible magnitude

6.65 The level of effect has been determined based on the worst magnitude at each sensitive receptor across the construction stage works and by comparison to **Table 6.10**. **Table 6.18** provides a summary of the determined level of effect.

Table 6.18: Summary of construction stage noise level of effect

Receptor reference	Receptor sensitivity	Worst construction magnitude	Level of effect	Applicability
R1	Medium	Small	Minor	Applies throughout construction
R2	High	Medium	Moderate [2]	Applies only during foundations
		Medium [1]	Moderate [1] [2]	Applies after enabling
R3	Medium	Medium	Minor [2]	Applies only during foundations
R4	High	Medium	Moderate [2]	Applies during demolition, foundations and superstructure and cladding

Receptor reference	Receptor sensitivity	Worst construction magnitude	Level of effect	Applicability
		Large [1]	Major [1]	Applies during demolition and foundations only (moderate for others)
R5	High	Small	Minor [2]	Applies throughout construction
		Medium [1]	Moderate [1] [2]	Applies during demolition, earthworks, foundations and superstructure and cladding
R6	Medium	Small	Minor	Applies throughout construction
R7	High	Small	Minor [2]	Applies throughout construction
		Medium [1]	Moderate [1] [2]	Applies during demolition, foundations and superstructure and cladding
R8	Medium	Small	Minor	Applies throughout construction
R9	Medium	Large	Moderate [2]	Applies during enabling, demolition, earthworks and public realm
R10	Medium	Medium	Minor [2]	Applies during demolition, earthworks and foundations
R11	Medium	Medium	Minor [2]	Applies during demolition, earthworks and foundations
R12	Medium	Medium	Minor [2]	Applies during demolition and foundations

Receptor reference	Receptor sensitivity	Worst construction magnitude	Level of effect	Applicability
R13	Low	Medium	Minor	Applies during demolition, foundations and public realm
R14	Medium	Medium	Minor [2]	Applies throughout construction
R15	Medium	Medium	Minor [2]	Applies throughout construction
R16	Medium	Medium	Minor [2]	Applies throughout construction
R17	Medium	Medium	Minor [2]	Applies during foundations and superstructure and cladding
R18	Medium	Medium	Minor [2]	Applies during foundations and superstructure and cladding
R19	High	Small	Minor [2]	Applies throughout construction
		Medium [1]	Moderate [1] [2]	Applies during demolition, earthworks, foundations and superstructure and cladding
R20	Medium	Small	Minor	Applies during foundations only

Notes:

[1] indicates the level of effect for construction working between 13:00 and 14:00 hours on a Saturday. [2] indicates where the level of effect has been determined by professional judgement.

6.66 Where professional judgement has been applied to determine the level of effect, consideration has been given to the City Centre location of the Site and the associated prevailing ambient noise conditions which provide masking noise lowering perception at the receptor locations. The duration of the effect has been assigned based on whether the receptor is exposed to the worst-case predicted noise throughout construction or for multiple parts which would be a duration of greater than a year

(medium-term) or for a single part thereof likely to be a duration of less than a year (short-term).

6.67 The sensitivity of R4 (existing residential property) is considered to be high. The magnitude of change is considered to be large. Therefore, there is likely to be a direct, temporary, short-term, adverse effect which is considered to be major (noting this relates to a Saturday afternoon only and the rest of the construction working period the effect would be direct, temporary, medium-term, adverse effect which is considered to be moderate).

6.68 The sensitivity of R2, R5, R7 and R19 (existing residential properties) is considered to be high. The magnitude of change is considered to be medium. Therefore, there is likely to be a direct, temporary, medium-term, adverse effect which is considered to be moderate.

6.69 The sensitivity of R9 (existing commercial premises) is considered to be medium. The magnitude of change is considered to be large. Therefore, there is likely to be a direct, temporary, medium-term, adverse effect which is considered to be moderate.

6.70 The sensitivity of R3, R10, R11, R12, R14, R15, R16, R17 and R18 (existing commercial premises, court buildings and museum) is considered to be medium. The magnitude of change is considered to be medium. Therefore, there is likely to be a direct, temporary, medium-term, adverse effect which is considered to be minor.

6.71 The sensitivity of R1, R6, R8 and R20 (existing commercial properties and hotel) is considered to be medium. The magnitude of change is considered to be small. Therefore, there is likely to be a direct, temporary, medium-term, adverse effect which is considered to be minor.

6.72 The sensitivity of R13 (existing restaurant / bar / nightclub premises) is considered to be low. The magnitude of change is considered to be medium. Therefore, there is likely to be a direct, temporary, medium-term, adverse effect which is considered to be minor.

Secondary mitigation or enhancement

6.73 The noise assessment has indicated that some sensitive receptors are likely to experience moderate and major levels of effect even taking into account a commitment to a CEMP approach. This is not an unexpected result at this stage for a number of reasons:

- Sensitive receptor R9 is effectively directly adjacent to the Site boundary;
- In practice, plant items will be spread around the works areas and not all located at the closest working location constantly as assumed for the worst-case assessment approach, which will make a considerable difference to the calculated noise levels received;
- The calculations are based on BS 5228-1 reference noise levels for typical types of plant and the actual plant items could be newer models with lower sound power levels;

- The worst-case assessment does not include for down time each day for rest / comfort breaks;

- Actual working practices / methods and durations at each location for specific works items are not finally developed for review or assessment; and

- There are more stringent noise limits on a Saturday afternoon during the working hours of between 13:00 –14:00 hours.

6.74 If the proposed working hours on a Saturday afternoon were curtailed to finish at 13:00 hours, only sensitive receptors R4 and R9 are predicted to result in a moderate level of effect during the main construction working hours (see **Table 6.18**).

6.75 It is expected in practice that the implementation of the CEMP will be an adequate mechanism for controlling noise emissions from the construction stage works. Consideration of the above and application of the management principles in the CEMP are likely to reduce the worst-case assessment calculation results by approximately 5dB(A) and in most cases by more, effectively reducing the magnitude of large to medium in all cases, except for sensitive receptor R9 which could remain as a large magnitude for the closest Site boundary working locations. However, the management and monitoring mechanisms are designed to identify these situations in a swift manner and action would be taken to either reduce the magnitude so it is not prolonged or resolve the matter directly with the sensitive receptor.

6.76 Other mechanisms for 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.

6.77 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 secured by way of a planning condition.

6.78 It is reasonable to conclude that following the managed process above, it is unlikely that there would be a resultant large magnitude of noise remaining. However, depending on the necessity for essential works at close proximity to some sensitive receptors, there could still be a medium magnitude of noise, especially between 13:00 and 14:00 hours on a Saturday.

Residual effect

6.79 The sensitivity of R2, R4, R5, R7 and R19 (existing residential properties) is considered to be high. The magnitude of change, following secondary mitigation, is considered to be medium. Therefore, there is likely to be a direct, temporary, medium-term, adverse residual effect which is considered by professional judgement to be moderate.

6.80 The sensitivity of R3, R9, R10, R11, R12, R14, R15, R16, R17 and R18 (existing commercial premises, court buildings and museum) is considered to be medium. The magnitude of change, following secondary mitigation, is considered to be medium. Therefore, there is likely to be a direct, temporary, medium-term, adverse residual effect which is considered by professional judgement to be minor.

6.81 The sensitivity of R1, R6, R8 and R20 (existing commercial premises and hotel) is considered to be medium. The magnitude of change, following secondary mitigation, is considered to be small. Therefore, there is likely to be a direct, temporary, medium-term, adverse residual effect which is considered to be minor.

6.82 The sensitivity of R13 (existing restaurant / bar / nightclub premises) is considered to be low. The magnitude of change, following secondary mitigation, is considered to be medium. Therefore, there is likely to be a direct, temporary, medium-term, adverse residual effect which is considered to be minor.

Significance

6.83 This effect is considered to be **Significant** at sensitive receptors R2 (Affinity Living Riverside, 29 New Bailey Street), R4 (Affinity Living Riverside, 32 Quay Street), R5 (The Bridge, 40 Dearmans Place), R7 (The Century Buildings, 14 St. Mary's Parsonage) and R19 (Left Bank).

6.84 The effect is considered to be **Not Significant** at sensitive receptors R1 (Plot B7 Salford Central, New Bailey Street), R3 (Riverside, Worsley Street), R6 (The Lowry Hotel, 50 Dearmans Place), R8 (Cardinal House, 20 St. Mary's Parsonage), R9 (Alberton House, 30 St. Mary's Parsonage), R10 (3 St. Mary's Parsonage), R11 (28 St. Mary's Parsonage), R12 (19A Back Bridge Street), R13 (55 – 57 Bridge Street), R14 (22 – 44 Bridge Street), R15 (18 – 20 Bridge Street, R16 (Manchester Crown Court), R17 (Civil Justice Centre), R18 (People's History Museum, Left Bank) and R20 (Ralli Quays, Salford).

Vibration transfer from general construction activity

6.85 During the construction stage, there are various activities that have the potential to give rise to groundborne vibration, of which the following are the more likely encountered for the Proposed Scheme based on the methods of **Chapter 4: Development Specification**, i.e.:

- Use of hydraulic breakers;
- Piling (driven techniques assumed as a worst-case at this stage); and
- Vibratory ground compaction plant.

6.86 Whilst occasional momentary vibration can also arise when heavy plant or vehicles pass buildings at very short separation distances (typically 10m or less), this is not sufficient to constitute a risk of significant effects and therefore on-Site vehicular movement vibration effects have not been considered.

6.87 **Appendix 6.4** provides reference vibration levels in terms of PPV for types of plant that may be used to undertake the above identified activities on the Site[e]. The reference levels align with the magnitude thresholds in **Table 6.7** and present a distance from the vibration source necessary to reach the thresholds for each magnitude of change (or impact) category. For ease of reference the ranges of **Appendix 6.4** are summarised as:

- For hydraulic breaking, typically, from 9m to 100m is necessary to reduce from a large to negligible magnitude of change / impact in respect to vibration;
- For driven piling, typically, from 7m to 160m is necessary to reduce from a large to negligible magnitude of change / impact in respect to vibration; and
- For compaction plant, typically, from 15m to 140m is necessary to reduce from a medium to negligible magnitude of change / impact in respect to vibration.

6.88 All sensitive receptors R1 to R20 have been included in the assessment. Building A has not been treated as a sensitive receptor for the construction stage due to the concurrent build approach and it is unlikely to be occupied while Building B is being constructed.

6.89 Use of excavator mounted hydraulic breakers that could generate groundborne vibration is likely to be limited to the demolition and foundation works sub-stages. Therefore, the closest distance (for vibration sources, taken from **Table 6.15**) of either the demolition or foundation sub-stages has been used as a worst-case in the assessment.

6.90 For the piling assessment, the closest distance (for vibration sources, taken from **Table 6.15**) of either Building A or Building B has been used as a worst-case.

6.91 Use of vibratory ground compaction plant is likely to be limited to the earthworks, foundations and public realm and landscaping sub-stages. Therefore, the closest distance (for vibration sources, taken from **Table 6.15**) of the earthworks, foundations or public realm and landscaping sub-stages have been used as a worst-case in the assessment.

6.92 The vibration sources will only operate at the worst-case locations assessed for short durations within the overall programme and will typically be much further away for the majority of the works.

6.93 **Table 6.19** provides the estimated vibration levels from the construction of the Proposed Scheme for the three activities identified above and by comparison to **Table 6.10**, the level of effect has been determined.

[e] Augering is also considered in **Appendix 6.4** to test this type of foundation. This is considered further under 'Secondary Mitigation and Enhancement'.

Table 6.19: Estimated vibration levels (magnitude) and level of effect from the construction stage

Receptor reference and sensitivity [1]	Breakers		Piling		Compaction	
	PPV ($mm.s^{-1}$)	Level of effect	PPV ($mm.s^{-1}$)	Level of effect	PPV ($mm.s^{-1}$)	Level of effect
R1 (M)	< 0.3 at 107m	Negligible	> 1.0 < 3.0 at 107 m	Minor [2]	≥ 0.3 ≤ 1.0 at 80m	Minor
R2 (H)	≥ 0.3 ≤ 1.0 at 62m	Minor [2]	> 1.0 < 3.0 at 62m	Moderate [2]	≥ 0.3 ≤ 1.0 at 46m	Minor [2]
R3 (M)	≥ 0.3 ≤ 1.0 at 55m	Minor	> 1.0 < 3.0 at 55m	Minor [2]	≥ 0.3 ≤ 1.0 at 47m	Minor
R4 (H)	≥ 0.3 ≤ 1.0 at 56m	Minor [2]	> 3.0 ≤ 10.0 at 44m	Moderate [2]	≥ 0.3 ≤ 1.0 at 44m	Minor [2]
R5 (H)	≥ 0.3 ≤ 1.0 at 78m	Minor [2]	> 1.0 < 3.0 at 80m	Moderate [2]	≥ 0.3 ≤ 1.0 at 76m	Minor [2]
R6 (M)	≥ 0.3 ≤ 1.0 at 84m	Minor	> 1.0 < 3.0 at 86m	Minor [2]	≥ 0.3 ≤ 1.0 at 82m	Minor
R7 (H)	< 0.3 at 114m	Negligible	> 1.0 < 3.0 at 115 m	Moderate [2]	≥ 0.3 ≤ 1.0 at 100m	Minor [2]
R8 (M)	≥ 0.3 ≤ 1.0 at 60m	Minor	> 1.0 < 3.0 at 60m	Minor [2]	≥ 0.3 ≤ 1.0 at 45m	Minor

Receptor reference and sensitivity [1]	Breakers PPV ($mm.s^{-1}$)	Level of effect	Piling PPV ($mm.s^{-1}$)	Level of effect	Compaction PPV ($mm.s^{-1}$)	Level of effect
R9 (M)	> 3.0 ≤ 10.0 at 16m	Moderate	> 3.0 ≤ 10.0 at 16m	Moderate	> 3.0 ≤ 10.0 at 1m	Moderate
R10 (M)	≥ 0.3 ≤ 1.0 at 50m	Minor	> 3.0 ≤ 10.0 at 50m	Moderate	> 1.0 < 3.0 at 25m	Minor [2]
R11 (M)	> 1.0 < 3.0 at 20m	Minor [2]	> 3.0 ≤ 10.0 at 20m	Moderate	> 1.0 < 3.0 at 16m	Minor [2]
R12 (M)	≥ 0.3 ≤ 1.0 at 43m	Minor	> 3.0 ≤ 10.0 at 50m	Moderate	≥ 0.3 ≤ 1.0 at 43m	Minor
R13 (L)	≥ 0.3 ≤ 1.0 at 40m	Negligible [2]	> 3.0 ≤ 10.0 at 47m	Moderate [2]	≥ 0.3 ≤ 1.0 at 40m	Negligible [2]
R14 (M)	> 1.0 < 3.0 at 28m	Minor [2]	> 3.0 ≤ 10.0 at 34m	Moderate	> 1.0 < 3.0 at 28m	Minor [2]
R15 (M)	> 1.0 < 3.0 at 24m	Minor [2]	> 3.0 ≤ 10.0 at 28m	Moderate	> 1.0 < 3.0 at 24m	Minor [2]
R16 (M)	> 1.0 < 3.0 at 24m	Minor [2]	> 3.0 ≤ 10.0	Moderate	> 1.0 < 3.0 at 24m	Minor [2]

Receptor reference and sensitivity [1]	Breakers PPV ($mm.s^{-1}$)	Level of effect	Piling PPV ($mm.s^{-1}$)	Level of effect	Compaction PPV ($mm.s^{-1}$)	Level of effect
			at 24m			
R17 (M)	> 1.0 < 3.0 at 34m	Minor [2]	> 3.0 ≤ 10.0 at 34m	Moderate	> 1.0 < 3.0 at 34m	Minor [2]
R18 (M)	≥ 0.3 ≤ 1.0 at 42m	Minor	> 3.0 ≤ 10.0 at 42m	Moderate	> 1.0 < 3.0 at 28m	Minor [2]
R19 (H)	≥ 0.3 ≤ 1.0 at 80m	Minor [2]	> 1.0 < 3.0 at 80m	Moderate [2]	≥ 0.3 ≤ 1.0 at 76m	Minor [2]
R20 (M)	< 0.3 at 159m	Negligible	≥ 0.3 ≤ 1.0 at 159 m	Minor	≥ 0.3 ≤ 1.0 at 130m	Minor

Notes:

[1] The receptor sensitivity is indicated by (H) = high, (M) = medium, (L) = low and (N) = negligible. [2] Indicates where the level of effect has been determined by professional judgement.

Red = Large magnitude; Amber = Medium magnitude; Green = Small magnitude; and Normal = Negligible magnitude.

6.94 Where professional judgement has been applied to determine the level of effect, consideration has been given to guidance in both BS 5228-2 and BS 6472-1 with regard to human perception at the receptor locations. The duration of the effect has been assigned based on the fact that the worst-case working locations assessed will only be for short periods of time, expected to be less than a year (short-term).

6.95 The findings of **Table 6.19** indicate that the use of excavator mounted hydraulic breakers and compaction plant are unlikely to generate greater than a minor level of effect, with the exception of sensitive receptor R9 which is adjacent to the Site boundary. The driven piling works for forming foundations indicate the potential for a

moderate level of effect at sensitive receptors, except for R1, R3, R6, R8 and R20 where there is likely to be a minor level of effect.

6.96 The worst level of effect for each sensitive receptor is summarised below.

6.97 The sensitivity of R2, R4, R5, R7 and R19 (existing residential properties) is considered to be high. The magnitude of change is considered to be medium. Therefore, there is likely to be a direct, temporary, short-term, adverse effect which is considered to be moderate.

6.98 The sensitivity of R1, R3, R6 and R8 (commercial premises and hotel) is considered to be medium. The magnitude of change is considered to be medium. Therefore, there is likely to be a direct, temporary, short-term, adverse effect which is considered to be minor.

6.99 The sensitivity of R9, R10, R11, R12, R14, R15, R16, R17 and R18 (existing commercial premises, court buildings and museum) is considered to be medium. The magnitude of change is considered to be medium. Therefore, there is likely to be a direct, temporary, short-term, adverse effect which is considered to be moderate.

6.100 The sensitivity of R20 (existing commercial premises) is considered to be medium. The magnitude of change is considered to be small. Therefore, there is likely to be a direct, temporary, short-term, adverse effect which is considered to be minor.

6.101 The sensitivity of R13 (existing restaurant / bar / nightclub premises) is considered to be low. The magnitude of change is considered to be medium. Therefore, there is likely to be a direct, temporary, short-term, adverse effect which is considered to be moderate.

Secondary mitigation or enhancement

6.102 Sensitive receptor R9 may experience a short-term, medium magnitude even with the CEMP in place, when the works undertaken are at the worst-case (i.e. closest) locations. The management and monitoring mechanisms can be enhanced to identify these situations in a swift manner so action can be taken to either reduce the magnitude so it is not prolonged or resolve the matter directly with the sensitive receptor.

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

6.104 Mitigation is necessary to be developed for the piling works. The assessment has assumed driven piling as a worst-case assumption at this stage but the actual foundation construction method is not confirmed. If the piling technique can be developed as Continuous Flight Auger (CFA) to form suitable foundations within the ground conditions of the Site, then there would be a minor magnitude of change at sensitive receptors R9 and R11, and a negligible magnitude at all other sensitive receptors considered (see further details in **Appendix 6.4**).

6.105 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;
- 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 and R11 (and any other receptor deemed appropriate) to advise on actual conditions, to provide a feedback 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.

6.106 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.

6.107 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 way of a planning condition.

6.108 It is reasonable to conclude that following the managed process above and dependant on the necessity for driven piling works and the close proximity of these to some sensitive receptors, there could still be a medium magnitude of vibration at some sensitive receptors.

Residual effect

6.109 The sensitivity of R2, R4, R5, R7 and R19 (existing residential properties) is considered to be high. The magnitude of change, following secondary mitigation, is considered to be medium. Therefore, there is likely to be a direct, temporary, short-term, adverse residual effect which is considered by professional judgement to be moderate.

6.110 The sensitivity of R1, R3, R6 and R8 (existing commercial premises and hotel) is considered to be medium. The magnitude of change, following secondary mitigation, is considered to be medium. Therefore, there is likely to be a direct, temporary, short-term, adverse residual effect which is considered by professional judgement to be minor.

6.111 The sensitivity of R9, R10, R11, R12, R14, R15, R16, R17 and R18 (existing commercial premises, court buildings and museum) is considered to be medium. The magnitude of change, following secondary mitigation, is considered to be medium. Therefore, there

is likely to be a direct, temporary, short-term, adverse residual effect which is considered to be moderate.

6.112 The sensitivity of R20 (existing commercial premises) is considered to be medium. The magnitude of change, following secondary mitigation, is considered to be small. Therefore, there is likely to be a direct, temporary, short-term, adverse residual effect which is considered by professional judgement to be minor.

6.113 The sensitivity of R13 (existing restaurant / bar / nightclub premises) is considered to be low. The magnitude of change, following secondary mitigation, is considered to be medium. Therefore, there is likely to be a direct, temporary, short-term, adverse residual effect which is considered by professional judgement to be moderate.

Significance

6.114 This effect is considered to be **Significant** at sensitive receptors R2 (Affinity Living Riverside, 29 New Bailey Street), R4 (Affinity Living Riverside, 32 Quay Street), R5 (The Bridge, 40 Dearmans Place), R7 (The Century Buildings, 14 St. Mary's Parsonage), R9 (Alberton House, 30 St. Mary's Parsonage), R10 (3 St. Mary's Parsonage), R11 (28 St. Mary's Parsonage), R12 (19A Back Bridge Street, R13 (55 – 57 Bridge Street), R14 (22 – 44 Bridge Street), R15 (18 – 20 Bridge Street), R16 (Manchester Crown Court), R17 (Civil Justice Centre), R18 (People's History Museum, Left Bank) and R19 (Left Bank).

6.115 This effect is considered to be **Not Significant** at sensitive receptors R1 (Plot B7 Salford Central, New Bailey Street), R3 (Riverside, Worsley Street), R6 (The Lowry Hotel, 50 Dearmans Place), R8 (Cardinal House, 20 St. Mary's Parsonage) and R20 (Ralli Quays, Salford).

Operational Stage

Introduction of new residents on operational noise practices of existing late night entertainment premises (including music venues)

6.116 MCC has confirmed that there have been historic complaints of entertainment noise received from residents on St. Mary's Parsonage. It is the intention of the Proposed Scheme to introduce homes on the Site within Building A, sensitive receptor R25 (see **Figure 6.3**). Building A has façades facing towards and located near to existing licensed late-night entertainment premises within the study area, identified as sensitive receptors R21, R22, R23 and R24 (see **Figure 6.2**). **Table 6.20** provides a summary of the restaurant / bar / nightclub (entertainment) premises and their respective operating hours.

Table 6.20: Entertainment noise venues in the study area

Noise source receptor reference / external level dB(A)	Premises name	Location	Operating hours
R21 / (at 25m)	The Oast House Bar and Restaurant	The Avenue Courtyard, Spinningfields	Sun. – Wed. 12:00 to 00:00 Thurs. – Sat. 12:00 to 01:00
R22 / (at 15m)*	Manchester Hall	22 – 44 Bridge Street	Mon. – Sun. 11:00 to 00:00
R23 / (at 15m)*	MOJO / Liars Club / Crazy Pedro's	55 – 57 Bridge Street	Sun. – Thurs. 12:00 to 04:00 Fri. – Sat. 12:00 to 05:00
R24 / (at 11m)	Carnival Street Food	Bridge Street	Sun. – Wed. 12:00 to 22:00 Thurs. 12:00 to 23:00 Fri. 12:00 to 00:00 Sat. 12:00 to 01:00
Note * indicates the premises is not included in the assessment as noise emissions from other premises were of greater influence.			

6.117 Observations made during the night noise measurement survey (refer to **Appendix 6.3**) indicate that amplified music noise from Carnival Street Food (R24) and The Oast House Bar and Restaurant (R21) is the dominant low frequency noise emissions of the local entertainment premises affecting Bridge Street. It was not possible to distinguish source noise levels from sensitive receptors R22 and R23 as their contributions were lower than the overall ambient noise levels. Consequently, R22 and R23 have been excluded from the calculations, concentrating only on the greatest measured noise sources.

6.118 The assessment has used the measured noise levels from R21 83dB $L_{Aeq,T}$ (at 25m) and R24 79dB $L_{Aeq,T}$ (at 11m) to undertake a noise propagation calculation based on plan distances and screening effects at low level.

6.119 The analysis is set out in **Table 6.21** for the daytime and at night, with reference to the entertainment noise exceedance criteria of **Table 6.8**. A tolerance of +5dB has been included for some loss of screening effect with increased height, to account for mid to upper floors which may have a more direct view but will also be further distant in slant.

Table 6.21: Entertainment noise analysis

Source reference	Source noise level dB(A)	Approx. distance to receptor (m)	Distance and screening correction dB [3]	Predicted received noise level $L_{Aeq,T}$ (EN)	Existing background noise level $L_{A90,T}$ (WEN)	Difference between (EN) and (WEN) dB [4]	Exceedance and risk [4]
Daytime (07:00 to 23:00 hours)							
R21	83 [1]	125	-24	59	55	+4 (+9)	Medium (Medium)
R24	79 [2]	127	-31	48	55	-7 (-2)	None (None)
Night (23:00 to 07:00 hours)							
R21	83 [1]	125	-24	59	51	+8 (+13)	Medium (Large)
R24	79 [2]	127	-31	48	51	-3 (+2)	None (Medium)

Notes:

[1] measured at a distance of 25m. [2] measured at a distance of 11m. [3] includes -10 dB screening correction for no direct line of sight in plan to Building A at lower floor levels. [4] tolerance of +5dB added to account for the potential for increased line of sight in slant with increased height up Building A

6.120 The likely effect will be entirely dependent on the subjective response of future occupants to noise levels internally, activities they are undertaking and their personal feelings towards the entertainment premises.

6.121 The analysis presented in **Table 6.21** indicates that there is a risk of complaint from future introduced homes of Building A towards sensitive receptor R21 and potentially R24 if the Proposed Scheme design is not capable of providing suitable internal noise conditions. For sensitive receptors R22 and R23, professional judgement indicates a risk of complaint is unlikely from the currently prevailing activities.

6.122 The provisions stated in **Chapter 4: Development Specification** have been developed in response to the existing external environmental noise conditions. The good practice acoustic design adopted for the Proposed Scheme is to achieve the BS 8233 and PNTG internal noise criteria for new homes for all conditions road traffic, commercial and entertainment noise. Comparison of this approach to the magnitude criteria of **Table 6.9** indicates a negligible magnitude of change. In order to demonstrate the feasibility of the Proposed Scheme's acoustic design approach, example calculations have been

presented for Building A in **Appendix 6.5**. The results indicate the sound reduction required by the façades typically range between Rw + Ctr 24 and 38 to achieve the BS 8233 and PNTG criteria, which is readily achievable with common building materials and acoustically enhanced glazing components. Even at mid to upper floor levels where there may be a slight increase in external noise level, the façade requirement would be Rw + Ctr 41dB at worse (refer to **Appendix 6.5**) which is achievable from acoustically enhanced glazing. The design of Building A is for mechanical ventilation to achieve ADF and ADO requirements and the attenuation of the ducted air intakes and exhausts by design will not degrade the façade performance. This implies that it is very unlikely that the internal noise conditions would invoke a cause for complaint from a reasonable person of normal hearing ability.

6.123 The sensitivity of R21, R22, R23 and R24 (existing restaurants / bar / nightclub premises) is considered to be high. The magnitude of change is considered to be negligible. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be negligible.

Secondary mitigation or enhancement

6.124 No secondary mitigation or enhancement is required.

Residual effect

6.125 In the absence of secondary mitigation the residual effects for R21, R22, R23 and R24 (existing restaurant / bar / nightclub premises) are the same as that reported in the pre-mitigation scenario.

Significance

6.126 This effect is considered to be **Not Significant** for all assessed receptors R21 (The Oast House Bar & Restaurant), R22 (Manchester Hall, Bridge Street), R23 (The Liars Club / MOJO / Crazy Pedro's, Bridge Street) and R24 (Carnival Street Food, Bridge Street).

Existing road and commercial premises noise on the Proposed Scheme

6.127 The existing measured environmental noise on the Site comprised combinations of road traffic from Bridge Street and commercial noise sources during the daytime (transportation noise being most prevalent to the west and south), with additional entertainment noise contributions from commercial premises in the evenings and at night most days of the week. The Proposed Scheme will introduce different uses across the Site. The most sensitive use will be the residential (home) areas above ground floor level (Level 02+) within Building A which have a high sensitivity. All other uses located within Building A (at Level 00 and 01) and Building B are commercial type operations and have lower sensitivity to external noise ingress, hence these have not been included in the assessment.

6.128 The range of measured ambient noise levels in **Table 6.12** have been used for the assessment, the highest of which have been taken as the worst-case.

6.129 An initial noise risk assessment for Building A following the method of ProPG has been carried out. ProPG requires the assessment not to include any sound insulation mitigation or design development, therefore, the design provisions of **Chapter 4: Development Specification** have not been taken into account. The resultant indications for Building A on the Site are:

- During the daytime for façades facing Bridge Street, there is a medium risk for noise;

- During the daytime for façades facing to the east (away from Bridge Street), there is a low to medium risk for noise;

- During the night for façades facing Bridge Street, there is a high risk for noise; and

- During the night for façades facing to the east (away from Bridge Street), there is a medium to high risk for noise.

6.130 The ProPG initial noise risk assessment indicates there are acoustic design challenges to be considered to enable acceptable internal noise conditions on the Site for new homes within Building A.

6.131 An AVO level 1 site risk assessment for Building A has been carried out. AVO requires the assessment not to include any sound insulation mitigation or design development, therefore, the design provisions of **Chapter 4: Development Specification** have not been taken into account. The resultant indications for Building A on the Site are:

- During the daytime for façades facing Bridge Street, there is a high risk of adverse effect of noise by opening windows to mitigate overheating;

- During the daytime for façades facing to the east (away from Bridge Street), there is a medium risk of adverse effect of noise by opening windows to mitigate overheating;

- During the night for façades facing Bridge Street, there is a high risk of adverse effect of noise by opening windows to mitigate overheating; and

- During the night for façades facing to the east (away from Bridge Street), there is a medium to high risk of adverse effect of noise by opening windows to mitigate overheating.

6.132 The AVO level 1 site risk assessment for Building A indicates there are overheating and acoustic challenges to be considered to enable acceptable internal noise conditions, with a recommendation that a level 2 assessment is undertaken as the detailed design develops.

6.133 The provisions stated in **Chapter 4: Development Specification** have been developed in response to the existing external environmental noise conditions. The good practice acoustic design adopted for the Proposed Scheme is to achieve the BS 8233 and PNTG internal noise criteria for new homes for all conditions road traffic, commercial and entertainment noise. Comparison of this approach to the magnitude criteria of **Table 6.9** indicates a negligible magnitude of change.

6.134 In order to demonstrate the feasibility of the Proposed Scheme acoustic design approach, example calculations have been presented for Building A in **Appendix 6.5**. The results indicate the sound reduction required by the façades typically range

between $R_w + C_{tr}$ 22 and 29 to achieve the BS 8233 and PNTG criteria, which is readily achievable with common building materials and acoustically enhanced glazing components. The design of Building A is for mechanical ventilation to achieve ADF and ADO requirements and the attenuation of the ducted air intakes and exhausts by design will not degrade the façade performance.

6.135 There will be common external amenity spaces for residents of Building A at the ground floor level within the Proposed Scheme (see **Figures 4.3** and **4.53**). Existing external noise levels across the Site range between 49dB to 67dB $L_{Aeq,T}$, with the higher levels close to Bridge Street. Within the guidance of BS 8233, ProPG and PPG there is acknowledgement that where there are external amenity spaces with higher noise levels than are desirable, the impact can be offset if there are quieter areas provided within a short walk for occupants. This will be the case for the Proposed Scheme, whereby there are spaces which meet the desirable guidance of BS 8233, for example Clermont-Ferrand Square (north of the River Irwell) and Parsonage Gardens (to the north-east along St. Mary's Parsonage). Professional judgement indicates that external noise amenity would result in a negligible to small magnitude.

6.136 Therefore, for the existing road and commercial premises noise on the Proposed Scheme, the greatest magnitude of change is small resulting from external areas only. The introduced future sensitive receptor R25 has a high sensitivity.

6.137 The sensitivity of R25 is considered to be high. The magnitude of change is considered to be small. Therefore, based on professional judgement there is likely to be a direct, permanent, long-term, adverse effect which is considered to be minor.

Secondary mitigation or enhancement

6.138 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.

Residual effect

6.139 The sensitivity of R25 (introduced residential properties) is considered to be high. The magnitude of change, following secondary mitigation, is considered to be small. Therefore, there is likely to be a direct, permanent, long-term, adverse residual effect which is considered to be minor.

Significance

6.140 This effect is considered to be **Not Significant** for receptor R25 (introduced residential properties).

Limitations and Assumptions

6.141 To ensure transparency within the EIA process, the following limitations and assumptions have been identified.

- The noise measurement positions have not been agreed with MCC but follow normally accepted means of acquiring noise measurements in City Centre locations;

- The measured noise and vibration levels acquired have been assumed to be representative of the existing environmental conditions of the Site;
- The primary and tertiary mitigation of **Chapter 4: Development Specification** will be adopted in full;
- It has been assumed that the existing sensitive receptor locations (R1 to R24) maintain their identified sensitivity until at least the Proposed Scheme is fully operational (anticipated to be in 2026) as a worst-case;
- At this stage the detailed construction processes have not been fully defined in terms of quantities and types of plant and the length of time each day at full operating power. Therefore, reasonable assumptions have been made to permit calculations to be carried out. These have been based on professional judgement for the type of activity but may be subject to alteration when the contractor or sub-contractor plan the works. However, the assumptions made have enabled an assessment of likely significant effects at this stage;
- For the construction noise and vibration assessments, a worst-case has been assumed based on plant operating at the boundary of any working area closest to sensitive receptors as set-out in this Chapter;
- All piling works have been assumed to be of a driven technique as the foundation types and piling methods have not been defined at this stage;
- The assessment of vibration transfer in the ground has been based on clay / hard ground conditions. Other ground types may react differently to vibration source excitation;
- The vibratory roller data has been taken from Figure 11b of TRL based on a trial on both hoggin and London clay surfaces being compacted;
- In **Table 6.20**, the list of late night entertainment premises identified is representative of current conditions and may not be fully comprehensive as premises can change hands frequently and the operational hours are often amended dependant on the patrons on a particular occasion. The operating hours presented are assumed to be representative for assessment purposes; and
- The existing late night entertainment premises remain operational until the completion of the Proposed Scheme (anticipated to be in 2026).

Summary

6.142 **Table 6.22** provides a summary of the effects, receptors, residual effects and conclusions of significance considered within the Chapter.

6.143 The table only provides a summary of the residual effects identified within the assessment and details of all primary, secondary and tertiary mitigation that has been taken into account is set out in detail within the Chapter and summarised within the

Environmental Management Plan included within **Volume 4: Environmental Management Plan**.

Table 6.22: Summary of residual and significant effects

Effect	Receptor	Residual effect	Is the effect significant?
Construction stage			
Noise emissions from general construction activity	Nearest existing off-Site residents and the nearest existing commercial receptors: R2, R4, R5, R7 and R19 (existing residential properties)	Moderate adverse	YES
	R3, R9, R10, R11, R12, R14, R15, R16, R17 and R18 (existing commercial premises, court buildings and museum)	Minor adverse	NO
	R1, R6, R8 and R20 (existing commercial premises and hotel)	Minor adverse	NO
	R13 (existing restaurant / bar / nightclub premises)	Minor adverse	NO
Vibration transfer from general construction activity	Nearest existing off-Site residents and the nearest existing commercial receptors: R2, R4, R5, R7 and R19 (existing residential properties)	Moderate adverse	YES
	R1, R3, R6 and R8 (existing commercial premises and hotel)	Minor adverse	NO
	R9, R10, R11, R12, R14, R15, R16, R17 and R18 (existing commercial premises, court buildings and museum)	Moderate adverse	YES
	R20 (existing commercial premises)	Minor adverse	NO

Effect	Receptor	Residual effect	Is the effect significant?
	R13 (existing restaurant / bar / nightclub premises)	Moderate adverse	YES
Operational stage			
Introduction of new residents on operational noise practices of existing late night entertainment premises (including music venues)	Existing late night entertainment premises including music venues): R21, R22, R23 and R24 (existing restaurants / bar / nightclub premises)	Negligible adverse	NO
Existing road and commercial premises noise on the Proposed Scheme	Future on-Site residents: R25 (introduced residential properties)	Minor adverse	NO

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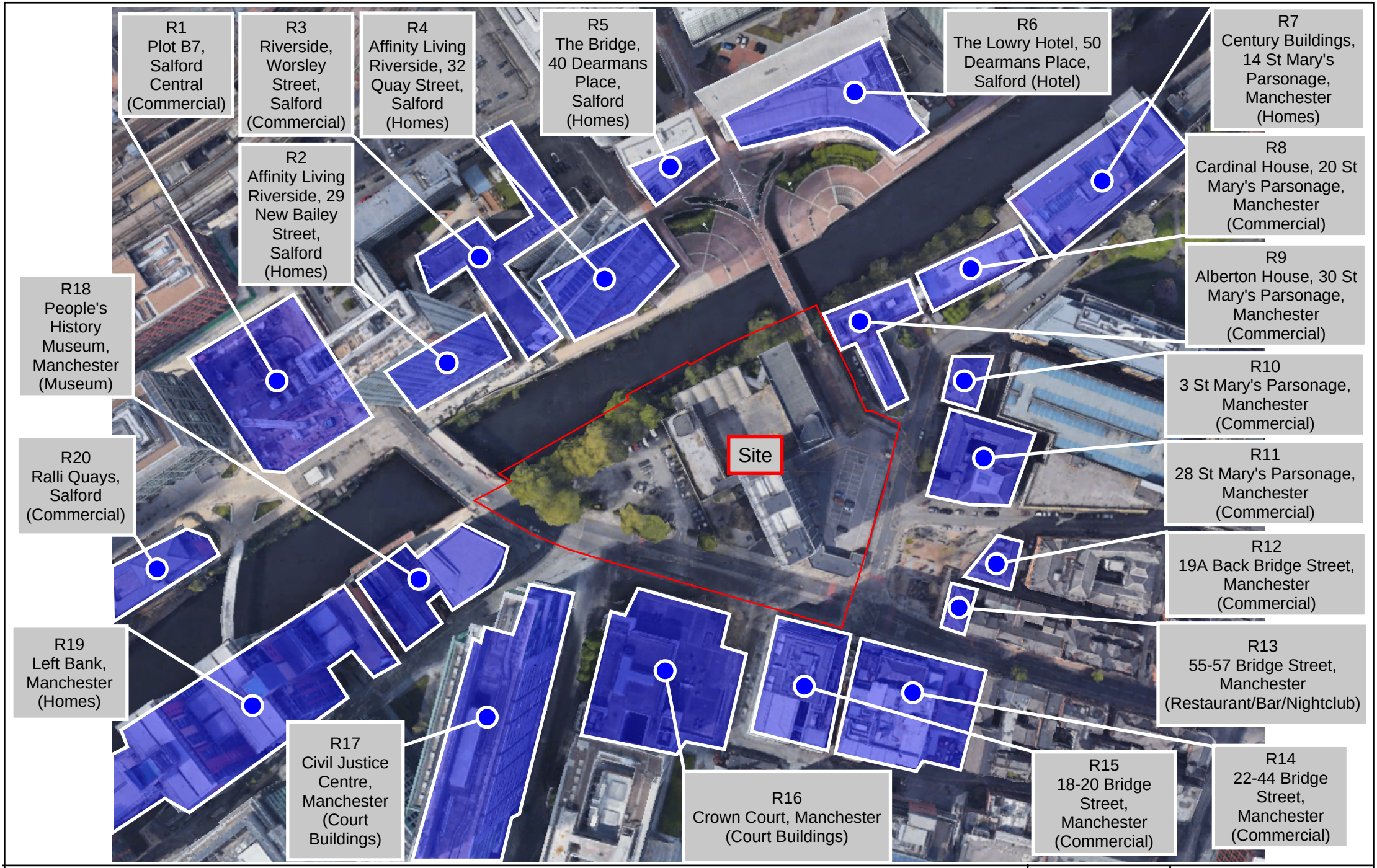


Figure 6.1 Existing Sensitive Receptors Plan

Project: Albert Bridge House, Manchester

N

Not to scale

Client: Oval Real Estate

HOARE LEA
A TETRA TECH COMPANY

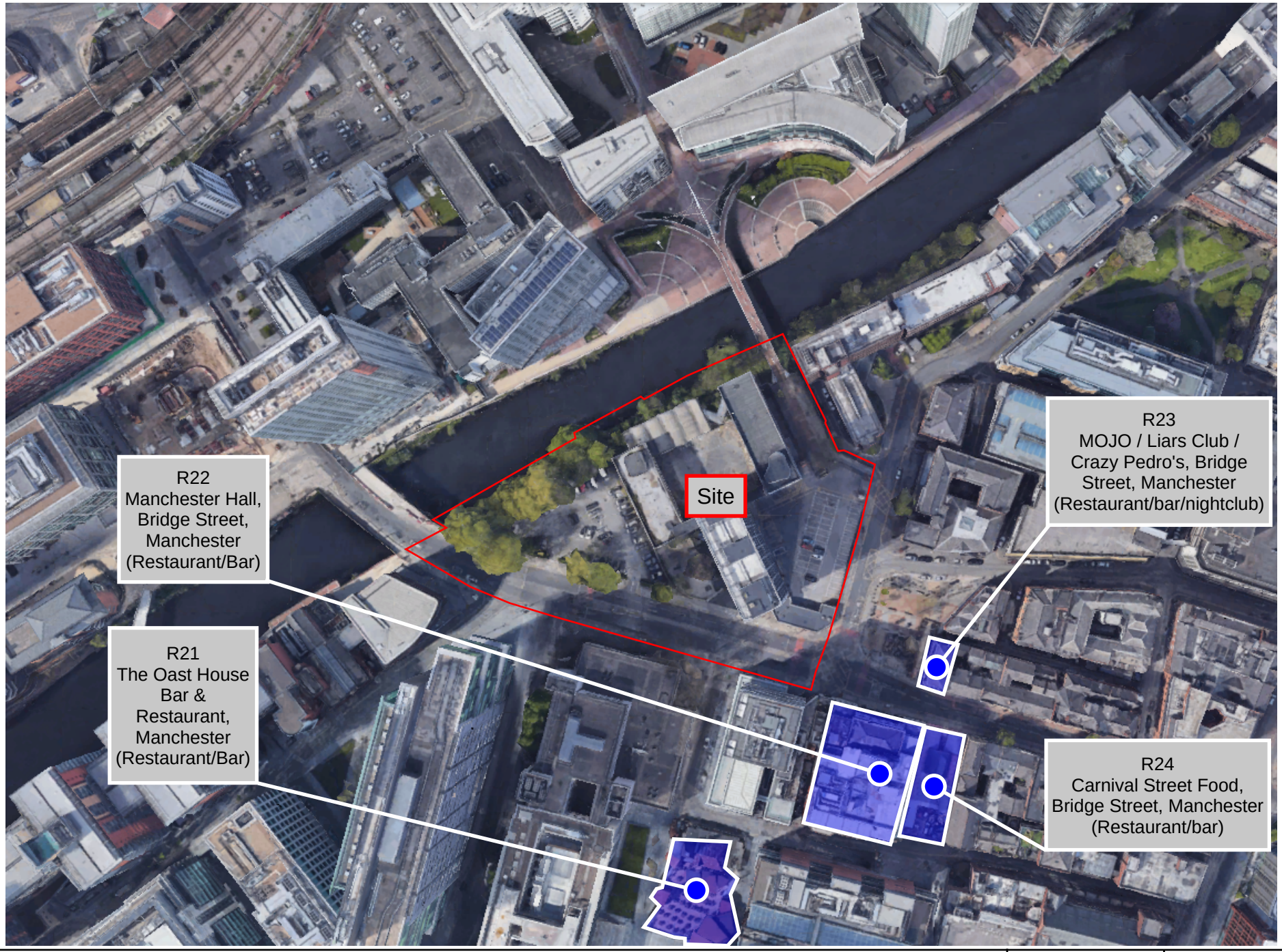


Figure 6.2 Existing Entertainment Premises Plan

Project: Albert Bridge House, Manchester

N

Not to scale

Client: Oval Real Estate

HOARE LEA
A TETRA TECH COMPANY

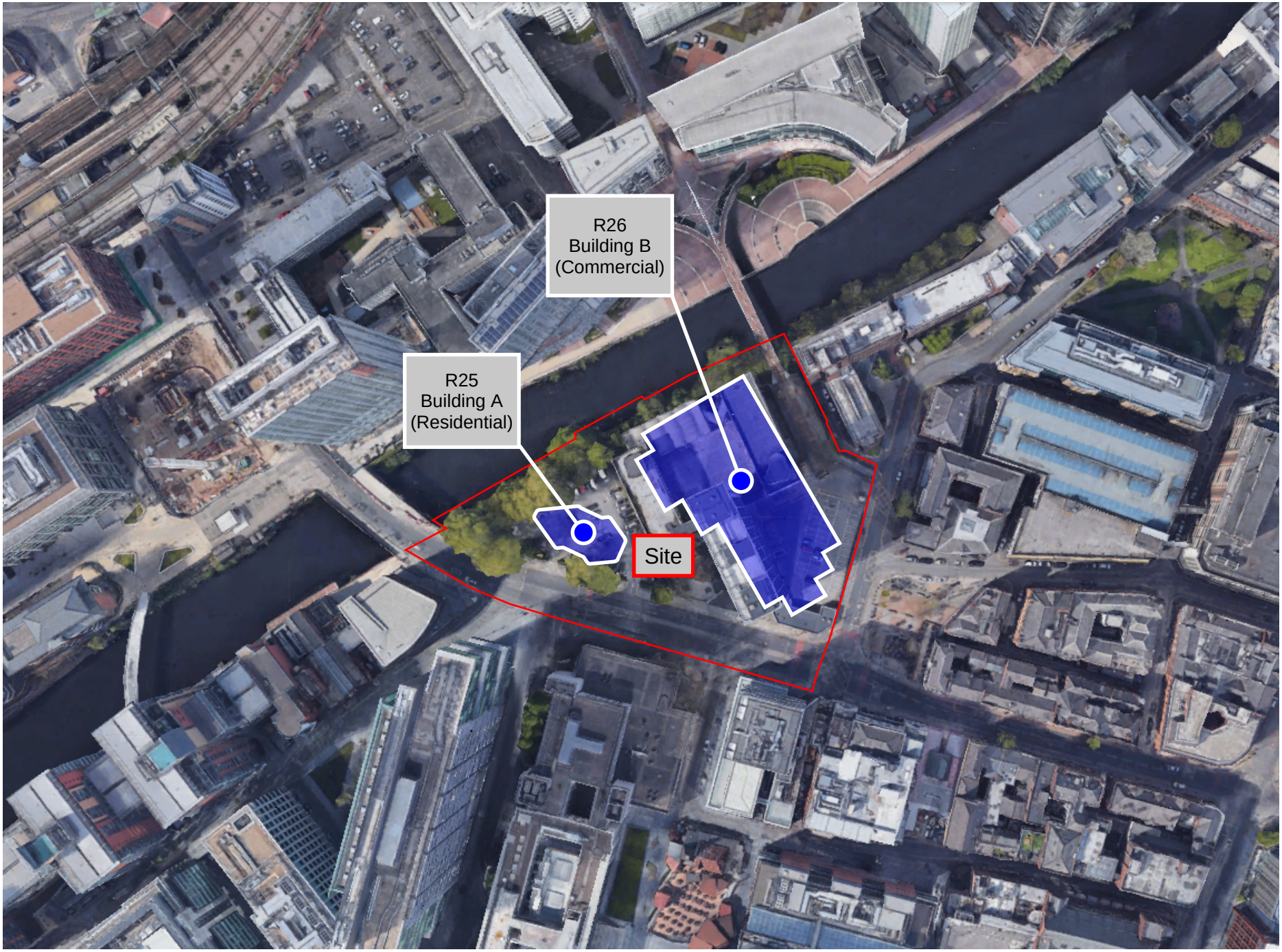


Figure 6.3 Future Introduced Sensitive Receptor Plan

Project: Albert Bridge House, Manchester

N
Not to scale

Client: Oval Real Estate

HOARE LEA
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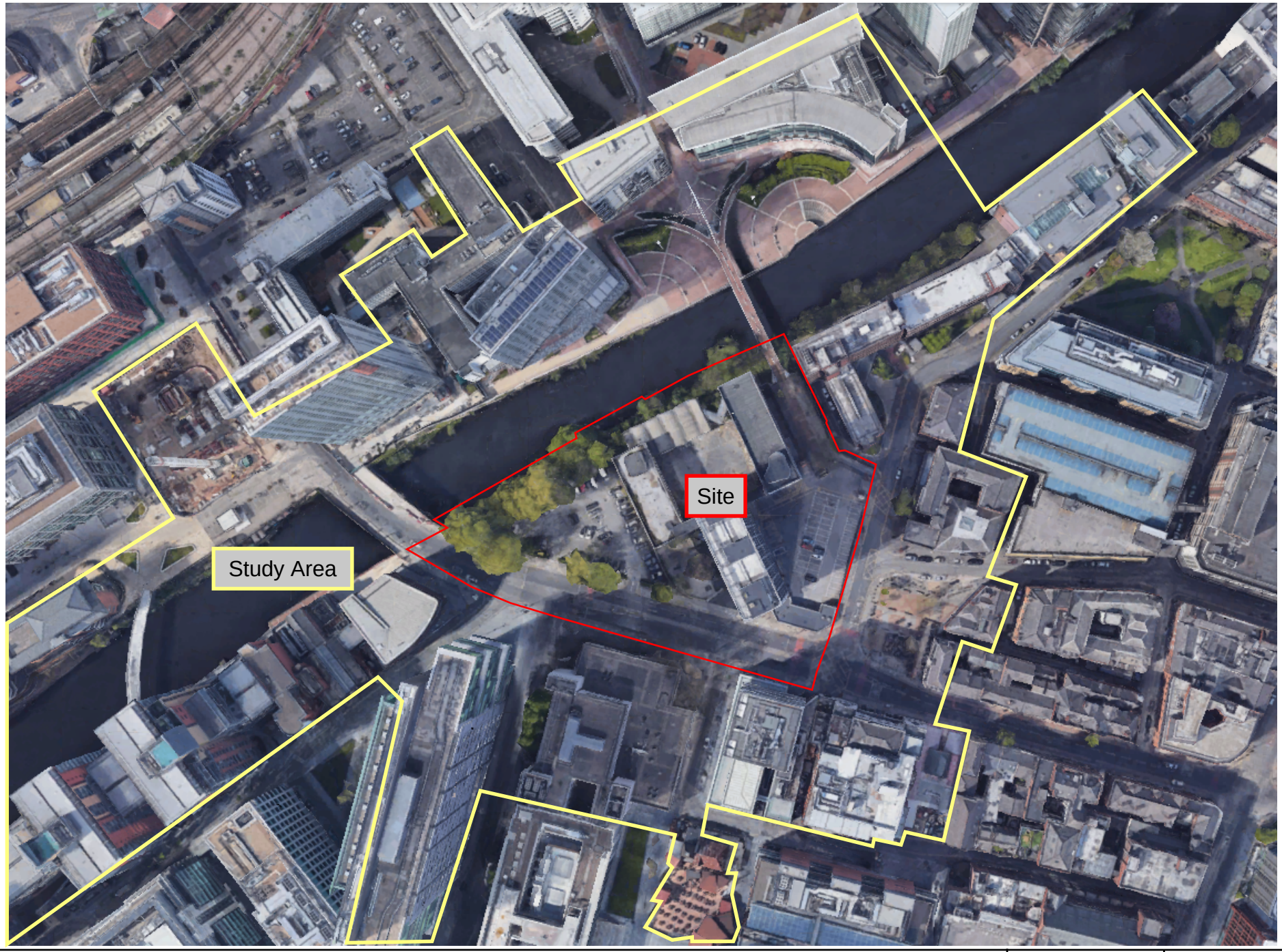


Figure 6.4 Noise and Vibration Study Area

Project: Albert Bridge House, Manchester

N
Not to scale

Client: Oval Real Estate

HOARE LEA
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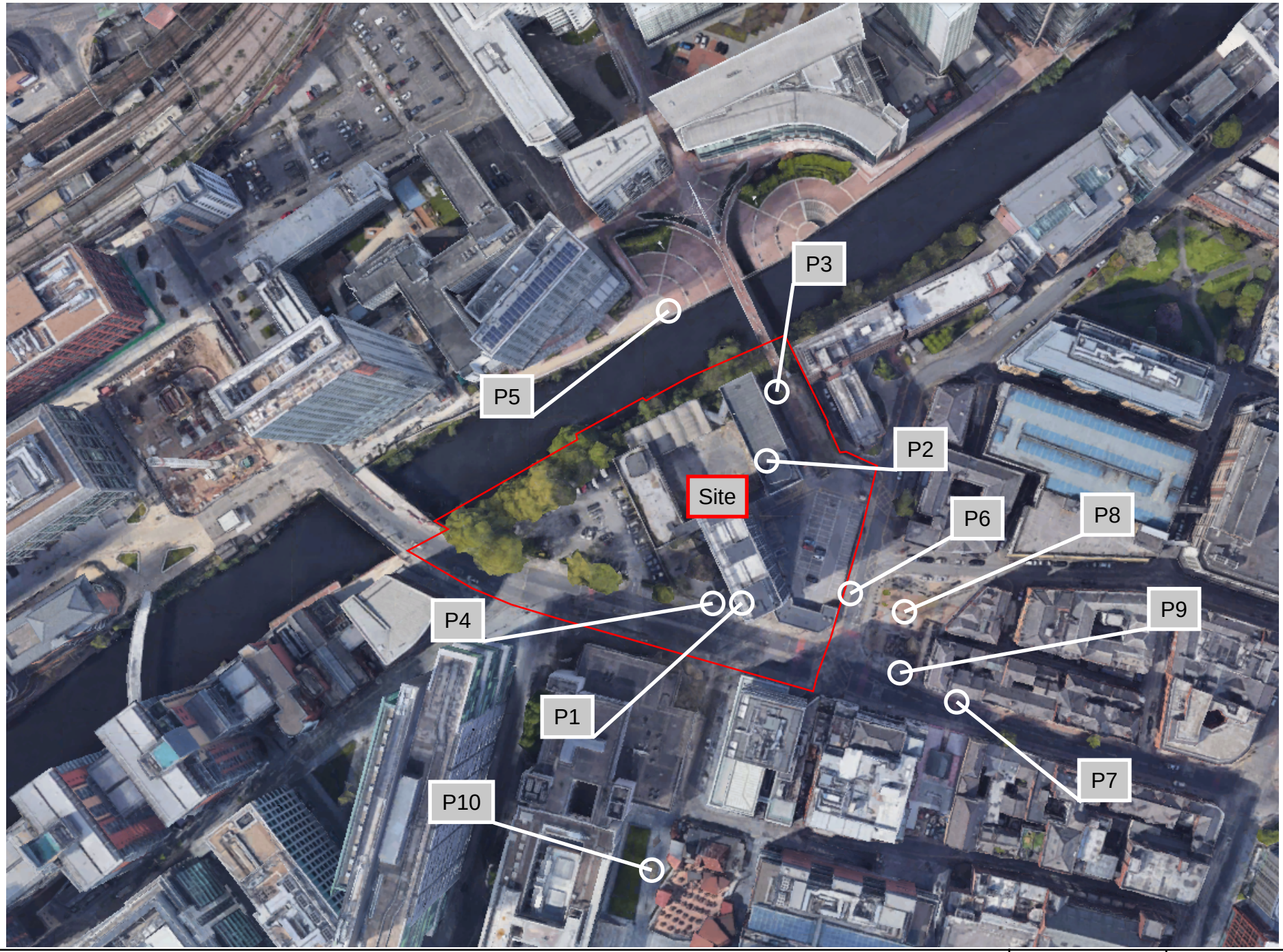


Figure 6.5 Noise Measurement Positions

Project: Albert Bridge House, Manchester

N
Not to scale

Client: Oval Real Estate

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7. Townscape and Visual

Introduction

7.1 This Chapter reports the outcome of the assessment of likely significant environmental effects arising from the Proposed Scheme in relation to townscape and visual.

7.2 The Chapter describes the scope of the assessment and assessment methodology, and a summary of the baseline information that has informed the assessment.

7.3 In line with **Chapter 2: Approach to EIA**, the assessment reports on the likely significant environmental effects, the further mitigation measures required to prevent, reduce or offset any significant adverse effects, or further enhance beneficial effects. The conclusions are provided both in terms of the residual effects and whether these are considered to be significant. The assessment of effects takes into consideration both primary and tertiary mitigation (see **Chapter 2: Approach to EIA** for further details) and is informed by the EIA Scoping process (**Appendices 2.1** and **2.2**) and iterative scoping process where applicable.

7.4 This Chapter, and its associated **Appendix 7.1** (Townscape and Visual Impact Assessment), containing **Figures 7.1.1 – 7.9.1**, is intended to be read as part of the wider ES with particular reference to the introductory Chapters of this ES (**Chapters 1 – 5**).

7.5 In addition, this Chapter should be read in conjunction with **Chapter 12: Assessment of Cumulative Effects**.

Summary of Consultation

7.6 In November 2022, MCC confirmed within their Scoping Opinion that they agreed with the assessment methodology adopted for this Chapter. No further specific technical consultation has taken place as this was not considered necessary.

Scope of the Assessment

7.7 An EIA Scoping Report was submitted to MCC on 27th September 2022, as presented as **Appendix 2.1**. The Scoping Opinion was received on 7th November 2022 (**Appendix 2.2**). This section provides an update on the scope of the assessment presented within this Chapter following submission of the EIA Scoping Report.

Effects Considered Unlikely to be Significant

7.8 The following effects were not considered to be significant as part of the EIA Scoping Report and are not considered further in this Chapter. However, these effects are considered in detail within the Townscape and Visual Impact Assessment (**Appendix 7.1**).

- Impact on townscape character areas (Manchester City Centre Neighbourhoods) outside of the Zone of Theoretical Visibility (ZTV);

- Impact on Townscape character areas (Manchester City Centre Neighbourhoods and Salford City Centre Areas) within the ZTV during construction;
- Impact on townscape character within the ZTV (not in the immediate vicinity of the Site);
- Impact on visual receptors outside of the ZTV;
- Impact on the night-time character;
- Impact on visual receptors during the construction stage;
- Change of land use within the Site;
- Removal of existing vegetation;
- Impact on existing urban grain;
- Impact on the existing Site topography;
- Impact on receptors using the local road network within the ZTV; and
- Impact on receptors at their place of work within the ZTV.

7.9 Following the EIA Scoping process (based on further assessment), effects on the following receptors are now not considered significant and are not considered further in this Chapter. The evidence to support this determination is outlined below:

Impact on townscape character within the ZTV and in close proximity to the Site

7.10 Whilst this effect has been presented within the ES (see **Table 7.2** below), the following specific receptors have been scoped out, namely Spinningfields, Chapel Wharf and New Bailey. Following the conclusion of the assessment these impacts were considered to be negligible adverse and therefore **Not Significant** (refer to **Appendix 7.1**, Table 7.7.1).

Impact on the residential visual receptors within the ZTV in close proximity to the Site

7.11 Whilst this effect has been presented within the ES (see **Table 7.2** below), the following specific receptors have been scoped out, namely those on King Street and Deansgate. Following the conclusion of the assessment these impacts were considered to be minor to negligible adverse and therefore **Not Significant** (refer to **Appendix 7.1**, Table 7.8.1).

Effects Considered Likely to be Significant

7.12 **Table 7.1** sets out the effects likely to be significant at the EIA Scoping stage and that have been assessed and reported within this Chapter. Note that a number of receptors identified at the EIA Scoping stage have not been considered within the assessment within this Chapter (i.e. viewpoints 2, 13 and 41 for impacts on the residential visual receptors) following further analysis. However, the assessment on these views is presented in the Townscape and Visual Impact Assessment (**Appendix 7.1**).

Table 7.1: Effects considered likely to be significant

Likely significant effect	Receptors	Applicable stage
Impact on open space within the Site	Existing open space within the Site	Operation
Impact on townscape character within the ZTV and in close proximity to the Site	Existing townscape character within and in close proximity to the Site - Retail Core (refer to Viewpoints 2, 11, 12, 13, 14, 16 and 32). (Refer to **Appendix 7.1**, **Figure 7.3.1 - Townscape Character - MCC City Centre Neighbourhoods and Salford City Centre Areas**)	Operation
Impact on existing building height within the Site	Existing building height within the Site (contributing to the townscape character)	Operation
Impact on the residential visual receptors within the ZTV in close proximity to the Site	Residents of dwellings including those adjacent to Clermont-Ferrand Square (refer to Viewpoint 1) and on Bridge Street (refer to Viewpoint 3), St. Mary's Parsonage (refer to Viewpoint 12), Left Bank (refer to Viewpoint 6), Albert Bridge / New Bailey Street (refer to Viewpoint 7), King Street West (refer to Viewpoint 14). (Refer to **Appendix 7.1**, **Figure 7.4.1 - Viewpoints, Close Range** and **Figure 7.4.2 – Viewpoints**)	Operation
Impact on receptors using public open space within the ZTV in close proximity to the Site	Users of local areas of open space including those using Clermont-Ferrand Square, Motor Square and Parsonage Gardens (refer to Viewpoints 1, 3 and 13). (Refer to **Appendix 7.1**, **Figure 7.4.1 - Viewpoints, Close Range** and **Figure 7.4.2 – Viewpoints**)	Operation

Assessment Methodology

Legislative Framework, Policy and Guidance

7.13 There is no relevant legislation for townscape and visual.

7.14 The following policy documents have informed the assessment of effects within this Chapter and is detailed further in **Appendix 7.1**:

- NPPF (Revised July 2021)[1];
- MCC Core Strategy (Adopted 2012)[2];
- Saved Policies of Salford UDP (Adopted 2006, amended 2009)[3]; and

- Trafford Council Core Strategy (Adopted 2012)[4].

7.15 The following guidance has informed the assessment of effects within this Chapter and is detailed further in **Appendix 7.1**:

- PPG[5];
- Guidelines for Landscape and Visual Impact Assessment third edition, published by the Landscape Institute (LI) (2013)[6];
- Visual Representation of Development Proposals - Technical Guidance Note 06/19 (2019)[7]; and
- Historic England note on Tall Buildings (2022)[8].

Defining the Study Area

7.16 The extent of the study area is broadly defined by the ZTV Influence as determined by the desktop study, GIS visibility analysis and verified during field studies, up to 2km from the centre of the Site (refer to **Appendix 7.1**, **Figure 7.4.3**). This is in line with GLVIA 3[6] (paragraphs 5.2 and 6.2). Beyond this the townscape is considered to be visually and perceptually divorced from the Site by the intervening topography, vegetation and built form.

Establishing the Baseline

7.17 **Table 7.2** summarises all studies / surveys / analysis / evaluations undertaken to inform the assessment presented within this Chapter.

Table 7.2: Background studies / surveys / analysis / evaluations

Study / survey / analysis / evaluation	Overview	Date of completion
Desk based study	Key townscape and visual receptors which have the potential to be affected by the Proposed Scheme have been identified using Geographical Information Systems (GIS) in combination with published Natural England (NE) and MCC data, identifying and mapping relevant local and national planning designations and constraints	August 2022
Site survey	Documentation of the existing Site and immediate context condition with photographic record	May 2022
Field survey	Representative viewpoint photography taken at identified viewpoint locations in accordance with Landscape Institute Technical Guidance Note 06/19[7]	May – August 2022

Study / survey / analysis / evaluation	Overview	Date of completion
Photomontages	The visual assessment is supported by the use of photomontages to help in the visualisation of the Proposed Scheme. Of the 41 viewpoints, 41 of the views were identified for photomontages, as they are considered to be representative and due to their proximity to the Site and heritage assets, demonstrate how the Proposed Scheme would sit within views of the existing townscape.	September 2022

7.18 The townscape baseline has established the townscape character within the Site and surrounds as a resource in its own right.

7.19 The visual baseline establishes the area in which the Site and the Proposed Scheme may be visible, the different groups of people who may experience the views, the places where they will be affected and the nature, character and amenity of those views.

7.20 The area of study for the visual assessment was determined through identifying the area from which the existing Site and Proposed Scheme may be visible (the Zone of Theoretical Visibility (ZTV)). The baseline ZTV of the Site was determined through digital mapping based on LIDAR data, constructing a map showing the area where the Proposed Scheme may theoretically be visible. The actual extent of visibility was checked in the field to record the screening effect of buildings, walls, fences, trees, and landform to provide an accurate baseline assessment of visibility. Viewpoints within the ZTV were identified during the desk assessment and the viewpoints used for photographs selected to demonstrate the relative visibility of the Site (and its relationship with the surrounding townscape and built forms).

7.21 The site survey includes a photographic record of the viewpoints. At each of the viewpoints the following details were recorded; the grid reference (of the viewpoint); the viewer height (measured to the lens of the camera); the date (of survey); the distance to the development (from the viewpoint). The photographs have been taken using a digital SLR camera with a 50mm fixed focal length lens, giving a focal length equivalent to 75mm on a 35mm film camera. The photographs were taken in accordance with guidance outlined in the document 'Visual Representation of Development Proposals - Technical Guidance Note 06/19 (Landscape Institute; 2019)[10]. **Appendix 7.1**, **Figure 7.4.1 - Viewpoints, Close Range and Figure 7.4.2 – Viewpoints**, illustrates a total of 41 representative viewpoints included within the assessment.

7.22 **Table 7.4** summarises these key external views, which are shown in **Appendix 7.1**, **Figures 7.4.1 and 7.4.2**. These represent a range of representative views from roads, recreational open spaces and publicly accessible locations near to existing dwellings

and heritage assets. Not all of the visual receptors / viewpoints set out in **Table 7.3** are considered in detail as part of the assessment presented in 'Assessment of Effects, Secondary Mitigation and Residual Effects' section below (see **Table 7.1**) (where there was a potential for a likely significant effect to occur). However, an assessment has been undertaken for each visual receptor and is reported in the Townscape and Visual Impact Assessment (**Appendix 7.1**). Those which are considered in further detail in this Chapter are noted in **bold**.

Table 7.3: Visual receptors / baseline

Viewpoint	Location	Visual receptor(s)	Character and amenity of the view	Existing visibility of Site
1	**Trinity Bridge (Adjacent to Clermont-Ferrand Square[a])**	**Residents of dwellings, users of public open space (Clermont-Ferrand Square)**	**Formed by the linear River Irwell in the foreground, and the built form lining the river beyond. Vertical elements of Spinningfields form portions of the existing more distant visual horizon beyond the Site to the right of the view.**	**Open and partial views**
2	St. Mary's Parsonage	Road users, employees at their place of work, setting of heritage assets[b]	Formed by the built form lining St. Mary's Parsonage and Tower 12 within Spinningfields at the head of the junction of St. Mary's Parsonage and Bridge Street. Views out are limited from this location due to the density of the surrounding urban grain, however, further elements within Spinningfields form a part of the distant skyline.	Open and partial views
3	**Bridge Street**	**Residents of dwellings, road users, employees at**	**Formed by the built form of the listed Freemasons Hall lining Bridge Street and the built form of the**	**Open and partial views**

[a] Within this Chapter this also covers the public amenity space adjacent to 32 Quay Street.
[b] Heritage matters are dealt with in the **Heritage Statement** that accompanies the Application.

Viewpoint	Location	Visual receptor(s)	Character and amenity of the view	Existing visibility of Site
		their place of work, users of public open space, setting of heritage assets	**Affinity Living Riverview complex and the emerging built form within New Bailey, Salford which form elements of the skyline beyond the Site.**	
4	Dolefield / Wood Street	Road users, employees at their place of work	Formed by the built form lining Dolefield and the Site at the head of the junction of Dolefield and Bridge Street. Views out are limited from this location due to the density of the urban grain.	Open and partial views
5	Gartside Street	Road users, employees at their place of work	Formed by the built form lining Gartside Street, built form and existing trees within the Site and built form within Affinity Living Riverview complex beyond the Site	Open and partial views
6	**Left Bank**	**Residents of dwellings, road users, employees at their place of work, setting of heritage assets**	**Formed by the built form lining Left Bank, built form and existing trees within the Site and built form within Alberton House (subject to a proposed redevelopment)[c] beyond the Site.**	**Open and partial views**
7	**Albert Bridge / New Bailey Street**	**Residents of dwellings, road users, setting of heritage assets**	**Formed by Albert Bridge, the mature vegetation and built form lining the River Irwell. Vertical elements of Spinningfields and the**	**Open and partial views**

[c] Subject to an approved application for demolition and redevelopment for commercial use (MCC planning reference: 134287/FO/2022). Further details are provided in **Chapter 12: Assessment of Cumulative Effects**.

Viewpoint	Location	Visual receptor(s)	Character and amenity of the view	Existing visibility of Site
			City Centre form portions of the more distant visual horizon beyond the development to the left and right of the view	
8	New Bailey Street	Residents of dwellings, road users, employees at their place of work, setting of heritage assets	Formed by the existing and emerging built form and mature trees lining New Bailey Street and built form within Spinningfields beyond. Views out are limited from this location due to the density of the surrounding urban grain.	Partial views
9	Quay Street	Road users, employees at their place of work	Formed by the built form and surface car parking lining Quay Street, vertical elements within the Affinity Living Riverview complex and emerging built form within New Bailey to the south. Views out are limited from this location due to the density of the surrounding urban grain.	Partial glimpsed views
10	Blackfriars Road (Chapel Street / Church of the Sacred Trinity)	Residents of dwellings, road users, employees at their place of work, setting of heritage assets	Formed by the built form lining Chapel Street including the listed Church of the Sacred Trinity.	Views are truncated
11	Black Friar's Bridge	Residents of dwellings, road users, employees at their place of work, setting	Formed by the view over the River Irwell within the central portion of the view and the built form lining the river.	Partial glimpsed views

Viewpoint	Location	Visual receptor(s)	Character and amenity of the view	Existing visibility of Site
		of heritage assets		
12	**St. Mary's Parsonage / Blackfriars Street**	**Residents of dwellings, road users, employees at their place of work, setting of heritage assets**	**Formed by the built form lining St. Mary's Parsonage. Views out are limited from this location due to the density of the surrounding urban grain.**	**Partial views**
13	**St. Mary's Parsonage**	**Road users, employees at their place of work, setting of heritage assets, users of public open space (Parsonage Gardens)**	**Formed by the built form lining St. Mary's Parsonage including the listed National Buildings and Arkwright House and mature vegetation within Parsonage Gardens. Views out are limited from this location due to the density of the surrounding urban grain.**	**Open and partial views**
14	**King Street West**	**Residents of dwellings, road users, employees at their place of work, setting of heritage assets**	**Formed by the built form lining King Street West including the listed 31 and 33, King Street West. Views out are limited from this location due to the density of the surrounding urban grain.**	**Open and partial views**
15	John Dalton Street	Road users, employees at their place of work, setting of heritage assets	Formed by the road junction of John Dalton Street, Deansgate and Bridge Street and their associated built form. Views out are limited from this location due to the density of the surrounding urban grain.	Partial views
16	King Street	Residents of dwellings, road users,	Formed by the built form lining King Street including the listed	Partial views

Viewpoint	Location	Visual receptor(s)	Character and amenity of the view	Existing visibility of Site
		employees at their place of work, setting of heritage assets	Warehouse Shop and 19 King Street. Views out are limited from this location due to the density of the surrounding urban grain.	
17	Princess Street / Albert Square	Road users, employees at their place of work, setting of heritage assets	Formed by the built form lining Princess Street including the listed Northern Assurance Building.	Partial glimpsed views
18	Great Northern Square	Residents of dwellings, employees at their place of work, setting of heritage assets, open space users	Formed by the built form lining Deansgate and Peter Street.	Views are truncated
19	Junction of Quay Street and Byrom Street	Road users, employees at their place of work, setting of heritage assets	Formed by the built form lining Quay Street and within Spinningfields.	Views are truncated
20	Gartside Street	Road users, employees at their place of work	Formed by the built form lining Gartside Street and the Site at the head of the junction of Gartside Street and Bridge Street. Views out are limited from this location due to the density of the urban grain.	Partial glimpsed views
21	Lower Byrom Street	Residents of dwellings, road users, employees at their place of work, setting	Formed by the built form lining Lower Byrom Street and within Spinningfields	Views are truncated

Viewpoint	Location	Visual receptor(s)	Character and amenity of the view	Existing visibility of Site
		of heritage assets		
22	Junction of New Quay Street and Water Street	Residents of dwellings, road users, setting of heritage assets	Formed by the built form lining New Quay Street, Water Street and within Spinningfields.	Views are truncated
23	Irwell Street Bridge	Residents of dwellings, road users, employees at their place of work, setting of heritage assets	Formed by the Irwell Street Bridge, and built form lining the river.	Partial glimpsed views
24	Junction of Liverpool Road and Old Medlock Street	Residents of dwellings, road users, employees at their place of work, setting of heritage assets	Formed by the built form lining Liverpool Road including parts of the listed Former Liverpool Road Railway Station.	Views are truncated
25	Trinity Way near Frederick Street	Residents of dwellings, road users	Formed by the built form and mature trees lining Trinity Way and the vertical elements of the built form beyond.	Views are truncated
26	Black Friar's Road	Residents of dwellings, road users, employees at their place of work, setting of heritage assets	Formed by the built form lining Black Friar's Road including parts of the listed Manchester Tennis and Racquet Club.	Views are truncated
27	Pedestrian footway north of Victoria Bridge	Residents of dwellings, road users, employees at their place of	Formed by the views along the River Irwell, the built form lining the river and within the City Centre.	Partial glimpsed views

Viewpoint	Location	Visual receptor(s)	Character and amenity of the view	Existing visibility of Site
		work, setting of heritage assets		
28	Junction of Spring Gardens and King Street	Residents of dwellings, road users, employees at their place of work, setting of heritage assets	Formed by the built form lining King Street including the listed Midland Bank Building. Views out are limited from this location due to the density of the surrounding urban grain.	Partial views
29	Peter Street / St. Peter's Square	Road users, employees at their place of work, setting of heritage assets	Formed by St Peter's Square, built form lining, the square and Peter Street.	Views are truncated
30	Junction of Chapel Street and Great George's Street	Residents of dwellings, road users, employees at their place of work, setting of heritage assets	Formed by built form lining Chapel Street.	Views are truncated
31	Victoria Street	Residents of dwellings, road users, employees at their place of work, setting of heritage assets	Formed by the built form lining the river and within the City Centre.	Partial glimpsed views
32	St. Ann's Square	Residents of dwellings, road users, employees at their place of work, setting of heritage assets	Formed by the built form and mature trees lining St. Ann's Street and St. Ann's Square.	Views are truncated

Viewpoint	Location	Visual receptor(s)	Character and amenity of the view	Existing visibility of Site
33	Junction of Liverpool Road and Lower Byrom Street	Residents of dwellings, road users, employees at their place of work, setting of heritage assets	Formed by the built form lining Lower Byrom Street and within Spinningfields.	Views are truncated
34	Junction of Deansgate and Brazennose Street	Road users, employees at their place of work, setting of heritage assets	Formed by the built form lining King Street and Cross Street including the listed John Rylands Library. Views out are limited from this location due to the density of the surrounding urban grain.	Views are truncated
35	Junction of King Street and Deansgate	Residents of dwellings, road users, employees at their place of work, setting of heritage assets	Formed by the built form lining King Street West and Deansgate including the listed Kendals Building. Views out are limited from this location due to the density of the surrounding urban grain.	Partial views
36	Junction of King Street and Cross Street	Residents of dwellings, road users, employees at their place of work, setting of heritage assets	Formed by the built form lining King Street and Cross Street including the listed Eagle House.	Partial glimpsed views
37	Junction of King Street and Cheapside	Residents of dwellings, road users, employees at their place of work, setting of heritage assets	Formed by the built form lining King Street including the listed Lloyds Bank building. Views out are limited from this location due to the density of the surrounding urban grain.	Partial glimpsed views

Viewpoint	Location	Visual receptor(s)	Character and amenity of the view	Existing visibility of Site
38	Junction of King Street and Brown Street	Residents of dwellings, road users, employees at their place of work, setting of heritage assets	Formed by the built form lining King Street including the listed Atlas Chambers building. Views out are limited from this location due to the density of the surrounding urban grain.	Partial glimpsed views
39	Junction of New Bailey Street and Chapel Street	Residents of dwellings, road users, employees at their place of work, setting of heritage assets	Formed by the built form lining New Bailey Street and Chapel Street and within Spinningfields.	Partial glimpsed views
40	Adelphi Street near Adelphi Wharf	Residents of dwellings, road users, employees at their place of work, setting of heritage assets	Formed by the surface level car parking, the built form in the surrounding townscape and within the City Centre beyond.	Views are truncated
41	St. Mary's Parsonage	Road users, employees at their place of work, setting of heritage assets	Formed by the built form lining St. Mary's Parsonage including the listed St. Mary's Parsonage building and Tower 12 within Spinningfields at the head of the junction of St. Mary's Parsonage and Bridge Street. Views out are limited from this location due to the density of the surrounding urban grain.	Open and partial views

Assessment Process

7.23 The assessment has been undertaken in accordance with The Guidelines for Landscape and Visual Impact Assessment (LI and IEMA, 2013)[6]. The assessment has been based on relevant guidance, professional judgement and has used Accurate Visual Representations (AVRs).

7.24 Relevant guidance for the production of the AVRs have been followed, as contained in The Guidelines for Landscape and Visual Impact Assessment (LI and IEMA, 2013)[6] and Visual Representation of Development Proposals (LI TGN 06/19)[7]. Camera points and photo control points have been surveyed and have been tied to the 3D model for the Proposed Scheme.

7.25 The visualisations provided accord with the requirements of type 4 visualisations (as described in LI TGN 06/19)[7]. AVRs for Viewpoints 1, 3, 7, 13, 14, 15, 16, 35 and 41 are produced as rendered Computer Generated Images (CGI). The AVRs for the remaining Viewpoints are produced as block massing or wireframe. Three images have been provided for each viewpoint: Baseline; Proposed Scheme (shown as CGI, block massing or wireline); and Proposed Scheme (shown as CGI, block massing or wireline) with Approved Projects (shown as block massing or wireline). Refer to **Appendix 7.1**, Section 7.6 Photomontages.

Reporting of the Environmental Effect and Significance Criteria

7.26 The assessment of likely significant environmental effects as a result of the Proposed Scheme has taken into account the operational stage. The following sections define the approach adopted within the assessment for the determination of sensitivity, magnitude of change (or impact), the level of effect and significance.

7.27 As defined in GLVIA3, townscape effects are those effects on the townscape as a resource in its own right, and visual effects are those effects on specific views and on the general amenity as experienced by people. The judgement made in respect of both townscape and visual effects is a combination of an assessment of the sensitivity of the receptor against the magnitude of change / the townscape or visual impact.

Determining Sensitivity of Receptor

7.28 The sensitivity of affected receptors has been considered on a scale of **high**, **medium**, **low** or **negligible**.

7.29 The judgement to be made in respect of sensitivity is a combination of the susceptibility of those receptors to the specific change due to the Proposed Scheme (for both townscape and visual receptors) along with the value attached to that receptor (again for both townscape and visual receptors).

7.30 The following criteria in **Table 7.4** have been used to categorise the townscape value of the Site and surrounding area.

Table 7.4: Townscape value

Value	Typical criteria	Typical scale	Typical example
High	High Importance (or Quality) and Rarity. Limited potential for substitution.	International, National, Regional	World Heritage Site National Park or Area of Outstanding Natural Beauty.
Medium	Medium Importance (or Quality) and Rarity. Limited potential for substitution.	Regional, Local	Conservation Areas / value perhaps expressed through non-official publications or demonstrable use.
Low	Low Importance (or Quality) and Rarity.	Local	Areas identified as having few redeeming features and lots of scope for improvement.

7.31 The susceptibility to specific change for each townscape receptor is categorized as set out in the **Table 7.5**.

Table 7.5: Susceptibility of townscape receptors to change

Receptor	Susceptibility of receptor to change		
	High	Medium	Low
Townscape character	A highly distinctive and coherent townscape character, with an absence of detracting or intrusive elements. Low or no capacity to accept change.	Distinctive character, with a general consistency, notwithstanding the presence of some detracting or intrusive elements. Some capacity to accept change.	Mixed character, where there is a lack of coherence and detracting or intrusive elements have become dominant or have eclipsed original character. Significant capacity to accept change.
Designated areas	National designated townscape	Local townscape designations	Not designated
Townscape features	Largely or completely intact, in good condition	Largely in moderate condition – may be in process of improvement	Undesignated but value perhaps expressed through non-official publications or demonstrable use.
Aesthetic / perceptual aspects	Recognised formally as a coherent area/	Some areas/ features of aesthetic attraction	Not noted for aesthetic qualities

Receptor	Susceptibility of receptor to change		
	High	Medium	Low
	feature of aesthetic attraction		

7.32 The overall sensitivity of each townscape receptor is then categorised on a High / Medium / Low / Negligible basis using **Table 7.6**.

Table 7.6: Townscape sensitivity

		Townscape receptor susceptibility		
		High	Medium	Low
Townscape value	High	High	High-Medium	Medium
	Medium	High-Medium	Medium	Medium-Low
	Low	Medium	Medium-Low	Low-Negligible

7.33 In respect of the judgment to be made of the sensitivity of visual receptors, the value of views is categorized as set out in **Table 7.7**.

Table 7.7: Criteria for value of views

Value	Criteria
High	A unique or identified view (e.g. shown as such on OS map or marked on a tourist map) or one noted in literature
Medium	A typical and / or representative view from a particular receptor type
Low	Undistinguished or unprepossessing view

7.34 The susceptibility to specific change for each visual receptor is categorised is set out in **Table 7.8**.

Table 7.8: Susceptibility of visual receptors to change

Type of visual receptor	Susceptibility of specific change	Notes
Residential property	High	Residential properties are considered the most sensitive of potential visual receptors and are thus accorded a high susceptibility. It is an established tenet that the planning system does not serve to protect private interests; the issue is not whether owners and occupiers

Type of visual receptor	Susceptibility of specific change	Notes
		of neighbouring properties would experience financial or other loss (including visual effect) from a particular development but whether a development would unacceptably affect amenities and the existing use of land and buildings which ought to be protected in the public interest. Thus, in seeking to assess the visual effects of development account should be taken of the effects on residential property, but it is pertinent to note that purely private interests may carry less weight than public interests.
Commercial property / places of employment	Low to medium	Indoor workers are likely to have a Low susceptibility; outdoor workers (e.g. in agriculture) a medium susceptibility.
Public roads	Low to medium	The degree of susceptibility will vary according to the nature of the road and its primary purpose for users. Motorways and trunk roads are taken to have a low susceptibility; A class roads a low to medium susceptibility, and all other roads a medium susceptibility.
Public rights of way / cycleways	High	The degree of susceptibility will vary according to the nature of the Public Rights of Way and its primary purpose for users. Bridleways and Public Rights of Way designated locally as specific routes are taken to have a high susceptibility.
Informal paths	Medium to high	Informal paths have been taken to have a medium to high susceptibility.
Public open space	High	Users of areas of public open space are likely to be at leisure, and thus such areas are taken to have a high susceptibility.
Cultural heritage sites	High	Users of areas of cultural heritage sites are likely to be at leisure, and thus such areas are taken to have a high susceptibility.
Recreational land	Medium	Users of recreational land are likely to be at leisure but are taken to be focussed primarily on the recreational activity, and thus such areas are taken to have a medium susceptibility.

7.35 The sensitivity of visual receptors in views is based on the professional judgement combining the value and susceptibility to change on that visual receptor as set out in **Table 7.9**.

Table 7.9: Visual sensitivity

		Visual receptor susceptibility		
		High	Medium	Low
Value of visual receptor	High	High	High-Medium	Medium
	Medium	High – Medium	Medium	Medium – Low
	Low	Medium	Medium – Low	Low – Negligible

7.36 For further detail, refer to **Appendix 7.1**, **Section 7.12 Assessment Methodology**.

Determining the Magnitude of Change / Impact

7.37 The magnitude of change / impact has been considered as the change experienced from the current baseline conditions at the sensitive receptor and has been considered on a scale of **large**, **medium**, **small** or **negligible**.

7.38 In respect of the magnitude of townscape impacts, **Table 7.10** sets out the judgements to be made.

Table 7.10: Magnitude of townscape change / impact

Magnitude of change / impact			
Large	Medium	Small	Negligible
Total loss of, or major alteration to key elements / features / characteristics of the site and/ or the introduction of elements totally uncharacteristic to the receiving townscape	Partial loss of or alteration to one or more key elements / features / characteristics of the site and / or introduction of elements that would be evident, but not necessarily uncharacteristic to the receiving townscape	Limited loss of or alteration to one or more key elements / features / characteristics of the site and / or introduction of elements characteristic with the receiving townscape.	Very limited or no loss or alteration to one or more key elements / features / characteristics of the site and / or introduction of elements characteristic within the surrounding townscape – approximating to a 'no change' situation.

7.39 In respect of the magnitude of visual effects, **Table 7.11** sets out the judgements to be made.

Table 7.11: Criteria for magnitude of visual change / impact

Magnitude of change / impact			
Large	Medium	Small	Negligible
The proposals form a significant and immediately apparent part of the view that will change its overall character.	The proposals will form a visible and recognisable new element within the overall view and will be readily noticed by the observer.	The proposals constitute only a minor component of the wider view, which might be overlooked by the casual observer. Awareness of the proposals will not have a marked effect on the overall quality of the view.	Only a very small Part (or no part) of the proposal will be discernible and / or it will be at such a distance that it will be scarcely appreciated, and consequently it will have very little / no effect on the view.

Determining the Level of Effect

7.40 The level of effect has been informed by the magnitude of change / impact due to the Proposed Scheme and the evaluation of the sensitivity of the affected receptor. The level of effect has been determined using professional judgement and **Table 7.13** has been a tool which has assisted with this process.

7.41 Whilst **Table 7.12** provides ranges, the level of effect is confirmed as a single level and not a range, informed by professional judgement, where possible.

Table 7.12: Determining the level of effect

Magnitude of change / impact	Sensitivity			
	High	Medium	Low	Negligible
Large	Major	Moderate to Major	Minor to Moderate	Negligible
Medium	Moderate to Major	Moderate	Minor	Negligible
Small	Minor to Moderate	Minor	Negligible to Minor	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

7.42 The following terms have been used to define the level of the effects identified and these can be 'beneficial' or 'adverse':

- **Major effect**: Where the Proposed Scheme is likely to cause a considerable change from the baseline conditions and the receptor has limited adaptability, tolerance or recoverability or is of the highest sensitivity;

- **Moderate effect**: Where the Proposed Scheme is likely to cause either a considerable change from the baseline conditions at a receptor which has a degree of adaptability, tolerance or recoverability or a less than considerable change at a receptor that has limited adaptability, tolerance or recoverability;

- **Minor effect**: Where the Proposed Scheme is likely to cause a small, but noticeable change from the baseline conditions on a receptor which has limited adaptability, tolerance or recoverability or is of the highest sensitivity; or where the Proposed Scheme is likely to cause a considerable change from the baseline conditions at a receptor which can adapt, is tolerant of the change and / or can recover from the change; and

- **Negligible**: Where the Proposed Scheme is unlikely to cause a noticeable change at a receptor, despite its level of sensitivity or there is a considerable change at a receptor which is not considered sensitive to a change.

7.43 The duration of the effect has been assessed as either 'short-term', 'medium-term' or 'long-term'. Short-term is considered to be up to 1 year, medium-term is considered to be between 1 and 10 years and long-term is considered to be greater than 10 years.

Determining Significance

7.44 For each effect, a statement has been made as to whether the level of effect is '**Significant**' or '**Not Significant**'. This determination has been based on professional judgement and / or relevant guidance / legislation where applicable.

7.45 Significance has only been concluded for residual effects (i.e. following the identification of secondary mitigation).

7.46 For those assessments, effects of major to moderate or major significance will be considered 'significant' in that they are the principal townscape or visual effects of the Proposed Scheme. Effects assessed as being lower than major to moderate are considered to be a 'Not Significant' effect.

Baseline Conditions

Townscape Baseline

7.47 The Site is currently a collection of office buildings which have recently been vacated. The Site consists of four buildings each connected by covered ground level walkways. There are areas of hardstanding used for car parking to the south west and south east of the Site and a pedestrian walkway connects to Trinity Bridge to the east. Scattered mature trees line Bridge Street to the south west boundary, the bank of the River Irwell to the north and the pedestrian walkway to the east. The Site incorporates portions of the River Irwell to the north, St. Mary's Parsonage to the south east and Bridge Street

to the south west. Boundaries within the Site include brick or concrete walls and metal railings. The Site is bound by the River Irwell, beyond the Site, to the north west, Alberton House to the north east, 31 and 33 King Street West and Motor Square to the south-east and Spinningfields to the south-west.

7.48 There are no local Townscape Character Assessments that cover the Site. The city centres of Manchester and Salford have been broken down by MCC and SCC respectively into a series of Manchester Neighbourhoods (MN) and Salford City Centre Areas (SCCA). There are 28 MNs and SCCAs within 1km of the Site and therefore considered most likely to be impacted by the Proposed Scheme (refer to **Figure 7.3.1 – MCC City Centre Neighbourhoods and Salford City Centre Areas**).

7.49 The Site falls within the Retail Core MN according to the Manchester Residential Quality Guidance document (2017), published by MCC. It also partially sits within / adjoins the Spinningfields MN to the south, and the Chapel Wharf and New Bailey SCCAs to the north west of the River Irwell.

7.50 The Retail Core MN is characterised by the presence of a range of retail properties, largely pedestrianised streets and significant city centre squares and open spaces including St. Ann's Square and Parsonage Gardens. There are numerous heritage assets present including Parsonage Square Conservation Area, which extends in close proximity to the east of the Site.

7.51 Within the study area, the settlements of Manchester and Salford collectively form the dominant feature. The area incorporates the City Centres cores, characterised by commercial, retail, civic and institutional uses extending out to residential areas and Manchester and Salford university campuses.

7.52 The Site lies on a relatively flat plain on the immediate east bank of the River Irwell valley. Landform falls broadly from east to west across the Site, from a high point of approximately 33.1m AOD on the Site's eastern boundary to a low point of approximately 21.7m AOD on the bank adjacent to the River Irwell. The River Irwell and its valley forms the key topographical features within the study area

7.53 Vegetation within the Site is largely limited to the mature trees lining the bank of the River Irwell and western boundary. A tree survey of the Site has been carried out in accordance with BS 5837:2012 'Trees in Relation to Design, Demolition and Construction' (see the **Tree Report** submitted alongside the Application). The report revealed that the Site contains a total of 15 individual trees and 6 groups. Of these there were:

Individual Trees:

- 10 category 'B' trees;
- 3 category 'C' trees; and
- 2 category 'U' trees.

Groups:

- 5 category ‘B’; and
- 1 category ‘C’.

7.54 There are a mix of tree species; those typically characteristic of an urban waterfront area. Species include sycamore, elder, Italian alder, cherry, lime, Norway maple, willow and laurel.

7.55 The principal arboricultural features of ‘good’ to ‘fair’ health are formed by the individual trees and the boundary groups (i.e. those of B grade category). These trees are prominent within the Site and form a strong green infrastructure to the Site boundaries.

7.56 Built form of Albert Bridge House ranges from one up to 18-storeys and approximately 60m in height. Building heights within the vicinity of the Site range from approximately 15 to 138m, with the tallest element the recently completed Affinity Living complex across the River Irwell to the north-west of the Site.

7.57 There are no public rights of way within or in close proximity to the Site. The nearest public right of way within the study area is Footpath Salford Definitive Footpath 5 approximately 1.2km to the north-west of the Site. Along St Mary’s Parsonage, between Alberton House and Albert Bridge House, is a narrow and poorly signed footpath to Trinity Bridge, which provides a pedestrian link between Manchester and Salford City Centres. There is a Transport for Greater Manchester (TfGM) Cycle route adjacent to the north-eastern boundary of the Site, which runs along Trinity Bridge and St. Mary’s Parsonage.

7.58 There are no heritage or townscape designations covering the Site. However, there are numerous heritage assets within the immediate townscape setting of the Site and the wider study area. The closest Listed Buildings to the Site are the Grade II listed 31 and 33 King Street West including 3 Smithy Lane and Three St. Mary's Parsonage (which lie within the Parsonage Square Conservation Area to the east of the Site), the Grade II Masonic Temple (within the Deansgate Conservation Area to the south of the Site), the Grade II Former Hydraulic Power Station in the grounds of City College and the Grade II Albert Bridge to the south-west of the Site.

7.59 Further details of heritage assets are provided in the **Heritage Statement** which accompanies the Application.

7.60 There are no ecological designations covering the Site and they are limited within the study area. There is a Site of Biological Importance (SBI) to the north of the Site associated with the River Irwell. The river is also classified as a Wildlife Corridor.

7.61 The urban grain within the Site broadly relates to the River Irwell, orientated parallel or perpendicular to the river, reflecting the waterfront development up and downstream of the Site. The urban grain within Manchester to the south and east of the Site is laid out on a broadly north-east to south-west grid. Urban grain within Salford to the west of the Site is considerably less dense than the Manchester City Centre core.

Visual Baseline

7.62 A summary of the visual baseline is set out in **Table 7.4**.

7.63 There are currently open and partial views to the Site from portions of Bridge Street, St. Mary's Parsonage, New Bailey Street, Dolefield / Wood Street, Gartside Street, Left Bank and King Street West in close proximity to the Site. There are also partial or partial glimpsed views from portions of King Street, John Dalton Street, Princess Street, Irwell Street, Victoria Bridge Street, Victoria Street and Deansgate at greater distances.

7.64 There are open and partial views of the Site for users of open space from Clermont-Ferrand Square situated on the opposite side of the River Irwell to the north of the Site and Motor Square to the east of the Site. There are also partial views from the western portion of Parsonage Gardens. Further views for users of public open space within the study area are truncated due to the intervening built form.

7.65 Full details of the townscape and visual baselines can be found at **Appendix 7.1,** Section 7.3 Townscape Baseline and Section 7.4 Visual Baseline.

Future Baseline

7.66 If the Proposed Scheme were not to be built out, it is assumed that the existing mature trees vegetation and built form would remain on-Site. As the Site is now vacant, the previous maintenance regimes are unlikely to continue resulting in the existing vegetation to become unmanaged and overgrown and for the existing built form to become degraded.

Primary and Tertiary Mitigation

Operational Stage

7.67 The following primary and tertiary mitigation which has been evaluated as part of the operational stage assessment is outlined below.

- The proposed built form is considered to be of high architectural quality and elevations will include high quality detailing and materials and utilise finishes and hues, which are evident in the local townscape. Building A elevations include polished and ribbed concrete, GRC banding, anodised aluminium corrugated and perforated rainscreen panels and glazing (as shown on **Figures 4.42** and **4.43**). Building B elevations include polished and ribbed concrete, GRC banding, anodised aluminium corrugated and perforated rainscreen panels with screening mesh as well as glazing (as shown on **Figures 4.44 – 4.47**);

- Three key areas of public realm are proposed at ground level internally within the Site: Albert Bridge Square within the western part 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 part of the Site;

- Office winter gardens and accessible roof terraces on Building B provide private amenity open space for the new workers and winter gardens and amenity areas are proposed for future residents within Building A;

- New tree planting is proposed to improve the street scene and the integration of the Site with the River Irwell; and

- The installation of lighting in externals areas is required to provide a safe and secure night-time environment, whilst ensuring that the lighting design respects the setting of the surrounding area and minimises the effect on sensitive receptors. Lighting within the public realm will comprise amenity / architectural lighting, designed to accentuate the architectural value of the structure and the elements of the public realm. This will be achieved through various lighting elements, including ambient lighting, task lighting, accent lighting and decorative lighting elements. In addition, illuminated advertisements / signage associated with the commercial uses are anticipated. The detailed lighting scheme will be designed and installed in all relevant guidance and standards (e.g. British Standard 5489-1:2020 Design of road lighting -Lighting of roads and public amenity areas. Code of practice[9], CIBSE Lighting Guide (LG) 6: The exterior environment[10] and CIE 126: Guidelines for Minimising Sky Glow[11]) and will consider the surrounding sensitivities including existing neighbouring residential properties and sensitive ecological areas and is based on the use of low light pollution installations.

Assessment of Effects, Secondary Mitigation and Residual Effects

Operational Stage

Impact on open space within the Site

7.68 In terms of open space, the Site is currently largely inaccessible to the public apart from the publicly accessible surface car park and public realm (Albert Bridge Gardens) along the northern edge of the Site and footways around the boundary with the A34 Bridge Street, St. Mary's Parsonage and Alberton House.

7.69 The Proposed Scheme will incorporate hard and soft landscaping. It will also include extensive public realm at ground level that will improve permeability for pedestrians and improve accessibility to surrounding open and amenity spaces for the general public. Ground floor active frontages within Building A and Building B will animate the public realm.

7.70 Additionally, the Proposed Scheme incorporates communal circulation spaces at Level 00, double height communal amenity areas at Levels 10 – 11, 22 – 23 and 34 – 35, private external amenity areas to the duplex apartments at Levels 10, 22 and 34 as well as winter gardens for each home within Building A. This will provide access to amenity green / garden space for future residents. Office winter gardens and / or accessible amenity terraces will also be provided on Levels 03 – 18 of Building B for use by future employees / visitors.

7.71 The sensitivity of open space within the Site is considered to be medium based on medium value (associated with medium importance and local scale) and medium susceptibility (associated with moderate condition and capacity to accept change). The magnitude of change is considered to be medium (associated with introduction of elements that would not be necessarily uncharacteristic to the receiving townscape

and the increase in area of publicly accessible space). Therefore, there is likely to be a direct, permanent, long-term, beneficial effect which is considered to be moderate.

Secondary mitigation or enhancement

7.72 A landscape management plan will be prepared and will be subject to a planning condition to ensure that the landscape proposals and public realm areas are installed and maintained throughout the lifetime of the Proposed Scheme; this document will form part of the detailed design stage.

7.73 The contents of this would be:

- **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 3998: 2010 'Tree Work – Recommendations'[12];
- **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. 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. These features will be subject to regular inspections.

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

7.75 With this in place, the proposed landscaping will continue to establish and mature albeit the Proposed Scheme will remain visible.

Residual effect

7.76 The residual effects for open space within the Site remain the same as that reported in the pre-mitigation scenario.

Significance

7.77 This effect is considered to be **Not Significant**.

Impact on townscape character within the ZTV and in close proximity to the Site

7.78 At the local level the majority of the Site lies within the Retail Core Manchester Neighbourhood. This character area is considered to be of medium value (associated with medium importance and demonstrable use). Changes would directly and permanently alter the character and appearance of the Site at a local level, due to removal of built form and vegetation and the creation of additional built development; in turn altering the appearance of a small part of the settlement context. However, the Site is currently developed and development would enable removal of degraded and detracting elements within the Site (e.g. guard huts / fences, as shown in Viewpoint 2). Effects are limited to a very small part of the overall Retail Core Manchester Neighbourhood area in an area already subject to a large number of urbanising influences and change within the vicinity (as shown in Viewpoints 12, 13, 14, 16 and 32). Effects are extenuated by the Site's proximity to the City Centre, the scale of the adjacent recent development (as shown in Viewpoint 11); and through the design quality of the proposed built form and public realm.

7.79 The sensitivity of townscape character is considered to be low to medium based on medium value (as noted above) and low susceptibility (associated with the mixed character). The magnitude of change is considered to be large to medium (associated with the loss / alteration to key elements and features). Therefore, there is likely to be a direct, permanent, long-term adverse effect which is considered to be minor to moderate.

Secondary mitigation or enhancement

7.80 A Landscape Management Plan will be prepared and implemented as set out above in **Paragraphs 7.72 – 7.74**.

Residual effect

7.81 The residual effects of the Proposed Scheme on the townscape character within the ZTV and in close proximity to the Site remains the same as that reported in the pre-mitigation scenario.

Significance

7.82 This effect is considered to be **Not Significant**.

Impact on existing building height within the Site

7.83 Building height within the Site currently range from ~60m AOD to ~5m AOD. The existing buildings will be demolished and replaced with the new buildings with heights that range from 113.49m AOD of Building B in the east of the Site, stepping down from the 177.56m AOD of Building A in the west, close to the tower of the Affinity Living Complex and the Manchester Civil Justice Centre on Bridge Street. Effects are extenuated by the Site's proximity to the City Centre core, the adjacent building heights to the south and west and through the design quality of the proposed built form. Building heights within the wider study area will remain unchanged by the Proposed Scheme.

7.84 The sensitivity of building height is considered to be low based on low value (associated with low importance and rarity locally) and low susceptibility (due to the mixed character, with a lack of coherence). The magnitude of change is considered to be large (associated with total of / major alteration to key elements (i.e. heights)).

Therefore, there is likely to be a direct, permanent, long-term, beneficial effect which is considered to be minor to moderate.

Secondary mitigation or enhancement

7.85 No secondary mitigation or enhancement has been identified.

Residual effect

7.86 In the absence of secondary mitigation, the residual effects for townscape character in close proximity to the Site remains the same as that reported in the pre-mitigation scenario.

Significance

7.87 This effect is considered to be **Not Significant**.

Impact on the residential visual receptors within the ZTV in close proximity to the Site

7.88 The Site is visible by a number of residential receptors within the local area. Residents in dwellings adjacent to Clermont-Ferrand Square, on portions of Bridge Street, St. Mary's Parsonage and King Street West, will have partial and open views of the new built form, tree planting and new public realm**. Table 7.13** sets out the visual assessment (refer to **Appendix 7.1**, Table 7.8.1).

Table 7.13: Assessment of residential visual receptors within the ZTV in close proximity to the Site during operation

VP	Location	Value	Susceptibility	Sensitivity of receptor to change	Size / scale, extent, duration	Overall magnitude	Overall level of effect
1	Trinity Bridge (Adjacent to Clermont-Ferrand Square)	Medium	High	High – medium	Local / long-term / permanent	Small	Minor adverse
There are open and partial views to the Proposed Scheme for a number of receptors within and in close proximity to Clermont-Ferrand Square, in close proximity to the Site. The character and amenity of the view is formed by the linear River Irwell in the foreground, and the built form lining the river beyond. Vertical elements of Spinningfields form portions of the existing more distant visual horizon beyond the development to the right of the view. The built form of the Proposed Scheme will truncate views to these elements. Views of the Proposed Scheme are seen in the context of the existing built form lining the river and in the wider, surrounding townscape. The sensitivity of the residential receptors is considered to be high – medium based on the medium value of the view (medium importance or quality and rarity locally) and the high susceptibility of residents. The magnitude of change is considered to be small (there is considered to be a medium magnitude of change to the view as a result of the massing of the additional built form within the view, though this is considered to be mitigated through the design quality and materiality of the building elevations and the improved design response of the Proposed Scheme to the river frontage). Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be minor.							
3	Bridge Street	Medium	High	High – medium	Local / long-term / permanent	Small	Minor adverse
There are open and partial views to the Proposed Scheme for a limited number of potential receptors in dwellings in close proximity to the Site. The character and amenity of the view is formed by the built form of the listed Freemasons Hall lining Bridge Street and the built form of the Affinity Living Riverview complex and the emerging built form within New Bailey, Salford which form elements of the skyline beyond the Site. The Proposed Scheme will bring built form forward within the Site in views from this location and will truncate views to the more distant elements of the skyline locally. Views of the Proposed Scheme from the potentially small number of residential dwellings are obtuse and from upper storeys of the dwellings on the south side of Bridge Street only and are seen in the context of the existing built form lining Bridge Street, St. Mary's Parsonage and the vertical elements within New							

VP	Location	Value	Susceptibility	Sensitivity of receptor to change	Size / scale, extent, duration	Overall magnitude	Overall level of effect
Bailey beyond the Site. The sensitivity of the residential receptors is considered to be high – medium based on the medium value of the view (medium importance or quality and rarity locally) and the high susceptibility of residents. The magnitude of change is considered to be small (there is considered to be a medium magnitude of change to the view as a result of the massing of the additional built form within the view, this is considered to be mitigated through the design quality of the new built form, the improvements to the streetscape along St Mary's Parsonage and the improved design response of the Proposed Scheme to St Mary's Parsonage and Motor Square). Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be minor.							
6	Left Bank	Medium	High	High – medium	Local / long-term / permanent	Small	Minor adverse
There are open, partial and obtuse views to the development for a number of receptors in dwellings. The character and amenity of this view is formed by the built form lining Left Bank, built form and existing trees within the Proposed Scheme and built form within the committed Alberton House (Bruntwood Development) beyond the Site. The Proposed Scheme will bring built form forward within the view and truncate views to the north east to the Alberton House (subject to an approved redevelopment) beyond the Site. Views of the Proposed Scheme are seen in the context of the existing built form of Left Bank. The sensitivity of the residential receptors is considered to be high – medium based on the medium value of the view (medium importance or quality and rarity locally) and the high susceptibility of residents. The magnitude of change is considered to be small (there is considered to be a small magnitude of change to the view as a result of views being limited to obtuse views, the design quality of the new built form, the improvements to the streetscape and due to views currently being influenced by the built form within and surrounding the Site). Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be minor.							
7	Albert Bridge / New Bailey Street	Medium	High	High – medium	Local / long-term/ permanent	Small	Minor adverse
There are open and partial views to the Proposed Scheme for a number of receptors in dwellings in close proximity to the Site. The character and amenity of the view is formed by Albert Bridge, the mature vegetation and built form lining the River Irwell. Vertical elements of Spinningfields and the City Centre form portions of the more distant visual horizon beyond the development to the left and right of the view. The Proposed Scheme will truncate a central portion of this view towards the City Centre. Views of the Proposed Scheme are seen in the context of the existing built form adjacent to the Site and in							

VP	Location	Value	Susceptibility	Sensitivity of receptor to change	Size / scale, extent, duration	Overall magnitude	Overall level of effect
the wider, surrounding townscape beyond. The sensitivity of the residential receptors is considered to be high – medium based on the medium value of the view (medium importance or quality and rarity locally) and the high susceptibility of residents. The magnitude of change is considered to be small (there is considered to be a medium magnitude of change to the view as a result of the massing of the additional built form within the view, though this is considered to be mitigated through the design quality and materiality of the building elevations and the improved design response of the Proposed Scheme to the river frontage). Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be minor.							
12	St. Mary's Parsonage / Blackfriars Street	Medium	High	High - medium	Local / long-term/ permanent	Small	Minor adverse
There are open and partial views to the Proposed Scheme for a limited number of receptors in dwellings. The character and amenity of the view is formed by the built form lining St. Mary's Parsonage. Views out are limited from this location due to the density of the surrounding urban grain. The Proposed Scheme will form a portion of the skyline at the point where St. Mary's Parsonage turns to the south towards Bridge Street. Views of the Proposed Scheme are seen in the context of the existing built form lining St Mary's Parsonage. The sensitivity of the residential receptors is considered to be high – medium based on the medium value of the view (medium importance or quality and rarity locally) and the high susceptibility of residents. The magnitude of change is considered to be small (there is considered to be a small magnitude of change to the view as a result of views being limited to obtuse views, the design quality of the new built form and due to views currently being influenced by the built form within and adjacent to the Site). Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be minor.							
14	King Street West	Medium	High	High – medium	Local / long-term / permanent	Small	Minor adverse
There are open and partial views to the Proposed Scheme for a number of receptors in dwellings in close proximity to the Site. The character and amenity of the view is formed by the built form lining King Street West including the listed 31 and 33, King Street West. Views out are limited from this location due to the density of the surrounding urban grain. The Proposed Scheme will bring built form forward in the view at the termination of King Street West from this location. Views of the Proposed Scheme are seen in the context of the existing built form lining King Street. The sensitivity of the residential receptors is considered to be high-medium based on the medium value of the view (medium importance or quality and rarity locally) and the							

VP	Location	Value	Susceptibility	Sensitivity of receptor to change	Size / scale, extent, duration	Overall magnitude	Overall level of effect
high susceptibility of residents. The magnitude of change is considered to be small (there is considered to be a small magnitude of change to the view as a result of views being limited to obtuse views, the design quality of the new built form, the improvements to the streetscape and due to views currently being influenced by the built form within and surrounding the Site). Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be minor.							

7.89 In summary, the character and amenity of the view will change from views over the existing built form of the Site to that of the new built form set within the retained mature trees, additional tree planting and new public realm. Due to the extent of the Proposed Scheme, viewers may see it as a new element within the view. These views are already influenced by the existing adjacent built form; and extenuated to a degree through the quality of design of the proposed built form, landscape and public realm schemes.

7.90 The sensitivity of residents is considered to be medium to high. The magnitude of change is considered to be small. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be minor.

Secondary mitigation or enhancement

7.91 A Landscape Management Plan will be prepared and implemented as set out above in **Paragraphs 7.72 – 7.74**.

Residual effect

7.92 The residual effects of the Proposed Scheme for residential visual receptors within the ZTV in close proximity to the Site remain the same as that reported in the pre-mitigation scenario.

Significance

7.93 This effect is considered to be **Not Significant**.

Impact on receptors using public open space within the ZTV in close proximity to the Site

7.94 The Site is visible by a number of receptors using areas of open space within the local area. Users of Clermont-Ferrand Square and Motor Square will have partial and open views of the new built form, tree planting and new public realm. There are also anticipated to be partial views to the upper portions of built form within the Site from limited portions of Parsonage Gardens to the north east of the Site. **Table 7.14** sets out the visual assessment (refer to **Appendix 7.1**, Table 7.8.1).

Table 7.14: Assessment of visual receptors using public open space within the ZTV in close proximity to the Site during operation

VP	Location	Value	Susceptibility	Sensitivity of receptor to change	Size/ scale, extent, duration	Overall magnitude	Overall level of effect
1	Trinity Bridge (Adjacent to Clermont-Ferrand Square)	Medium	High	High – medium	Local / long-term / permanent	Small	Minor adverse
There are open and partial views to the Proposed Scheme for a number of receptors within and in close proximity to Clermont-Ferrand Square, in close proximity to the Site. The character and amenity of the view is formed by the linear River Irwell in the foreground, and the built form lining the river beyond. Vertical elements of Spinningfields form portions of the existing more distant visual horizon beyond the development to the right of the view. The built form of the Proposed Scheme will truncate views to these elements. Views of the Proposed Scheme are seen in the context of the existing built form lining the river and in the wider, surrounding townscape. The sensitivity of the receptors using the open space is considered to be high – medium based on the medium value of the view (medium importance or quality and rarity locally) and the high susceptibility of open space users. The magnitude of change is considered to be small (there is considered to be a medium magnitude of change to the view as a result of the massing of the additional built form within the view, though this is considered to be mitigated through the design quality and materiality of the building elevations and the improved design response of the Proposed Scheme to the river frontage). Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be minor.							
3	Bridge Street	Medium	High	High – medium	Local / long-term / permanent	Medium	Minor adverse
There are open and partial views to the Proposed Scheme for users of Motor Square, in close proximity to the Site. The character and amenity of the view is formed by the built form of the listed Freemasons Hall lining Bridge Street and the built form of the Affinity Living Riverview complex and the emerging built form within New Bailey, Salford which form elements of the skyline beyond the Site. The Proposed Scheme will bring built form forward							

VP	Location	Value	Susceptibility	Sensitivity of receptor to change	Size/ scale, extent, duration	Overall magnitude	Overall level of effect
within the Site in views from this location and will truncate views to the existing skyline beyond the Site. Views of the Proposed Scheme are seen in the context of the existing built form lining Bridge Street, St Mary's Parsonage and the vertical elements within New Bailey beyond the Site. The sensitivity of the receptors using the open space is considered to be high – medium based on the medium value of the view (medium importance or quality and rarity locally) and the high susceptibility of open space users. The magnitude of change is considered to be small (there is considered to be a medium magnitude of change to the view as a result of the massing of the additional built form within the view, though this is considered to be mitigated through the design quality of the new built form, the improvements to the streetscape along St. Mary's Parsonage and the improved design response of the Proposed Scheme to St. Mary's Parsonage and Motor Square). Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be minor.							
13	St. Mary's Parsonage	Medium	High	High – medium	Local / long-term / permanent	Small	Minor adverse
There are open and partial views to the Proposed Scheme for users of St. Mary's Parsonage and Parsonage Gardens, in close proximity to the Site. The character and amenity of the view is formed by the built form lining St. Mary's Parsonage including the listed National Buildings and Arkwright House and mature vegetation within Parsonage Gardens. Views out are limited from this location due to the density of the surrounding urban grain. The Proposed Scheme will form a portion of the skyline at the point where St. Mary's Parsonage turns to the south towards Bridge Street. Views of the Proposed Scheme are seen in the context of the existing built form lining St Mary's Parsonage. The sensitivity of the receptors using the open space is considered to be high – medium based on the medium value of the view (medium importance or quality and rarity locally) and the high susceptibility of open space users. The magnitude of change is considered to be small (there is considered to be a small magnitude of change to the view as a result of views being limited to a small portion of the open space near the northern boundary, the design quality of the new built form and due to views currently being influenced by the built form within and adjacent to the Site). Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be minor.							

7.95 In summary, the character and amenity of the views will change from views over the existing built form of the Site to that of the new built form set within the retained mature trees, additional tree planting and new landscaped public realm. Due to the extent of the Proposed Scheme, viewers may see it as a new element within the view. These views are already influenced by the existing adjacent built form; and extenuated to a degree through the quality of design of the proposed built form, landscape and public realm.

7.96 The sensitivity of users of open space is considered to be medium to high. The magnitude of change is considered to be small. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be minor.

Secondary mitigation or enhancement

7.97 A Landscape Management Plan will be prepared and implemented as set out above in **Paragraphs 7.72 – 7.74**.

Residual effect

7.98 The residual effects of the Proposed Scheme for users of public open space within the ZTV in close proximity to the Site remain the same as that reported in the pre-mitigation scenario.

Significance

7.99 This effect is considered to be **Not Significant**.

Limitations and Assumptions

7.100 To ensure transparency within the EIA process, the following limitations and assumptions have been identified.

- The assessment assumes that the landscape proposals of the Proposed Scheme would be implemented between the construction and operational stages; and
- The field survey for the photographic viewpoints was conducted during May through to August 2022, capturing summer views when trees are in leaf, and therefore not the worst case scenario.

Summary

7.101 **Table 7.15** provides a summary of the effects, receptors, residual effects and conclusions of significance considered within the Chapter.

7.102 The table only provides a summary of the residual effects identified within the assessment and details of all primary, secondary and tertiary mitigation that has been taken into account is set out in detail within the Chapter and summarised within the Environmental Management Plan included within **Volume 4: Environmental Management Plan**.

Table 7.15: Summary of residual and significant effects

Effect	Receptor	Residual effect	Is the effect significant?
Operational stage			
Impact on open space within the Site	Existing open space within the Site	Moderate beneficial	NO
Impact on townscape character within the ZTV and in close proximity to the Site	Existing townscape character within and in close proximity to the Site - Retail Core (refer to viewpoints 2, 11, 13, 14, 16 and 32)	Minor to moderate adverse	NO
Impact on existing building height within the Site	Existing building height within the Site (contributing to the townscape character)	Minor to moderate beneficial	NO
Impact on the residential visual receptors within the ZTV in close proximity to the Site	Residents of dwellings including those adjacent to Clermont-Ferrand Square (refer to Viewpoint 1) and on Bridge Street (refer to Viewpoint 3), St. Mary's Parsonage (refer to Viewpoint 12), Left Bank (refer to Viewpoint 6), Albert Bridge / New Bailey Street (refer to Viewpoint 7) and King Street West (refer to Viewpoint 14)	Minor adverse	NO
Impact on receptors using public open space within the ZTV in close proximity to the Site	Users of local areas of open space including those using Clermont-Ferrand Square, Motor Square and Parsonage Gardens (refer to Viewpoints 1, 3 and 13)	Minor adverse	NO

References

[1] National Planning Policy Framework (NPPF) (Revised July 2021)
[2] Manchester City Council Core Strategy (Adopted 2012)
[3] Saved Policies of Salford UDP (Adopted 2006, amended 2009)
[4] Trafford Council Core Strategy (Adopted 2012)
[5] Planning Policy Guidance (PPG) (2014)
[6] Guidelines for Landscape and Visual Impact Assessment third edition Institute (LI) (2013)
[7] Visual Representation of Development Proposals - Technical Guidance Note 06/19 (2019)
[8] Historic England note on Tall Buildings (2022)
[9] British Standard 5489-1:2020 Design of road lighting -Lighting of roads and public amenity areas. Code of practice.
[10] CIBSE (2016) Lighting Guide 6: The exterior environment.
[11] CIE (1997) 126: Guidelines for Minimising Sky Glow.
[12] British Standard 3998: 2010 'Tree Work – Recommendations'.

8. Daylight, Sunlight and Overshadowing

Introduction

8.1 This Chapter reports the outcome of the assessment of likely significant environmental effects arising from the Proposed Scheme in relation to daylight, sunlight and overshadowing.

8.2 The Chapter describes the scope of the assessment, the associated assessment methodology, and a summary of the baseline information that has informed the assessment.

8.3 In line with **Chapter 2: Approach to EIA**, the assessment reports on the likely significant environmental effects, the further mitigation measures required to prevent, reduce or offset any significant adverse effects, or further enhance beneficial effects. The conclusions are provided both in terms of the residual effects and whether these are considered to be significant. The assessment of effects takes into consideration both primary and tertiary mitigation (see **Chapter 2: Approach to EIA** for further details) and is informed by the EIA Scoping process (**Appendices 2.1** and **2.2**) and iterative scoping process where applicable.

8.4 This Chapter, and its associated **Figures 8.1 – 8.12** and **Appendices 8.1 – 8.6** are intended to be read as part of the wider ES with particular reference to the introductory Chapters of this ES (**Chapters 1** – **5**).

8.5 In addition, this Chapter should be read in conjunction with **Chapter 12: Assessment of Cumulative Effects**.

Summary of Consultation

8.6 No technical consultation with MCC or other statutory agencies during the preparation of this Chapter beyond that undertaken as part of the EIA Scoping Report (**Appendix 2.1**) and Scoping Opinion (**Appendix 2.2**) has been completed.

Scope of the Assessment

8.7 An EIA Scoping Report (**Appendix 2.1**) was submitted to MCC on 27th September 2022. The Scoping Opinion was received on 7th November 2022 (**Appendix 2.2**). This section provides an update on the scope of the assessment presented within this Chapter following submission of the EIA Scoping Report.

Effects Considered Unlikely to be Significant

8.8 The following effects were considered unlikely to be significant as part of the EIA Scoping Report and are not considered further in this Chapter:

- Reduction in availability of daylight and sunlight to surrounding commercial properties;
- Solar glare on train drivers; and

- Internal daylight / sunlight amenity.

8.9 Following EIA Scoping, the following additional effects are now considered unlikely to be significant and the evidence to support this is outlined below:

Alterations to daylight and sunlight amenity on Bradshaw House and Alcock House

8.10 These have now been scoped out as a 25 degree angle test has been undertaken[a], which is reported in **Appendix 8.6**. This assessment outlines what sections of the Proposed Scheme will fall within a 25 degree view of the relevant windows within these properties. Based on a review of this in plan and elevation paired with the results of neighbouring properties (presented in this Chapter below), it is considered unlikely that these properties will experience noticeable alterations. Therefore, alterations to daylight and sunlight amenity for Bradshaw House and Alcock House are unlikely to be significant and are not considered further within this Chapter.

Solar glare on users of junctions of Bridge Street and Kings Street with St. Mary's Parsonage

8.11 The primary concern from a solar Glare perspective is Building B. Building B is made up primarily of perforated and corrugated aluminium screening mesh / panels and as a result there are unlikely to be significant solar glare impacts at the junctions where Bridge Street and Kings Street meet St. Marys Parsonage. Due to its location and orientation Building A is less likely to cause any solar glare issues. However, in addition to its location and orientation the façade is largely made up of aluminium panels that have been given various rusty tones which are less reflective and reduce the potential for solar glare. Therefore, alterations to solar glare on users of junctions of Bridge Street and Kings Street with St. Mary's Parsonage are unlikely to be significant and will not considered further within this Chapter. On this basis, solar glare is 'scoped out' of this Chapter.

Effects Considered Likely to be Significant

8.12 **Table 8.1** outlines the effects likely to be significant at the EIA Scoping stages and which have been assessed and reported within this Chapter. Following further analysis, additional receptors have been considered to those outlined in EIA Scoping (e.g. Motor Square) and two receptors have now been discounted for further assessment (i.e. Bradshaw House and Alcock House, as set out above). It should be noted that 'Riverview' is also now referred to as '29 New Bailey Street'.

Table 8.1: Effects considered likely to be significant

Likely significant effect	Receptors	Applicable stage[b]
Alterations to daylight and sunlight levels within sensitive neighbouring	The Century Buildings 2 – 18 Left Bank Apartments 29 New Bailey Street	Operation

[a] This check is to establish if a proposed development will have an impact with regards to the obstruction of daylight / sunlight to existing neighbours.

[b] As set out in the EIA Scoping Report (**Appendix 2.1**), operational effects are considered to be representative of worst-case construction effects. These will be considered **within Chapter 12: Assessment of Cumulative Effects**, specifically effect interactions.

Likely significant effect	Receptors	Applicable stage[b]
properties as a result of the Proposed Scheme	32 Quay Street The Bridge, 40 Dearmans Place	
Alterations in sunlight to neighbouring amenity spaces due to overshadowing resulting from the Proposed Scheme	Public Amenity Space, 32 Quay Street Public Amenity Space, Clermont-Ferrand Square Public Amenity Space, Motor Square The River Irwell	Operation

8.13 Following demolition, there may be a period where levels of daylight and sunlight are lower or greater than the baseline levels. This will be temporary and short-term in relation to the overall construction period. During construction, effects will gradually increase in magnitude as structures are built. It is considered that the operational assessment will be a suitable 'worst-case' approximation of construction stage effects. Therefore, for the purpose of the EIA, only the operational stage of the Proposed Scheme has been modelled and assessed.

Assessment Methodology

Legislative Framework, Policy and Guidance

8.14 There is no legislation relevant to the daylight, sunlight and overshadowing assessment in this Chapter.

8.15 The following guidance has informed the assessment of effects within this Chapter and is detailed further in **Appendix 8.1**:

- NPPG 2021[1];
- NPPF 2021[2]; and
- BRE Guidelines (2022) Building Research Establishment Guidelines: 'Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice – BR 209, third edition (the '2022 BRE Guidelines').

Defining the Study Area

8.16 Following a review of the location and massing of the Proposed Scheme and based upon professional experience, neighbouring residential properties and neighbouring amenity areas in close proximity to the Site (see **Figure 8.1**) which have the potential to experience alterations in sunlight, daylight, shadow and light effluence in accordance with the methodologies set out in the 2022 BRE Guidelines were identified and thus have been considered as sensitive receptors for assessment.

8.17 Windows / rooms within these properties that are oriented towards the Site and were identified as being sensitive to the Proposed Scheme were included in 3D analysis

model. This 3D model is illustrated in **Figure 8.1** (see also drawings BRE/01-04 located in **Appendix 8.2**).

8.18 The scope of neighbouring properties and amenity areas considered has been determined as a reasonable study area, which considers both the scale of the massing proposed and the proximity of those buildings and amenity spaces which surround and face the Site. The amenity area to be introduced by Alberton House is not included as this primarily serves a commercial space.

Establishing the Baseline

8.19 **Table 8.2** summarises all studies / surveys / analysis / evaluations undertaken to inform the assessment presented within this Chapter.

Table 8.2: Background studies / surveys / analysis / evaluations

Studies / surveys / analysis / evaluations	Overview	Date of completion
Site visit	A visit to the Site to photograph the Site and surrounding buildings to aid in our understating of the area and for the benefit of the modelling.	February 2022
AccuCities 3D model	Provision of a 3D photogrammetry model of the Site and surrounding context for use within the assessments	February 2022
Desk study	An existing baseline characterisation was completed by undertaking a review of the surrounding land uses using information and data sourced online from the Valuation Office Agency (VOA), the local authority and sales records. This review was undertaken for all surrounding properties which were considered likely to be affected by the Proposed Scheme as well as sensitive surrounding amenity spaces.	February 2022

Assessment Process

Overview

8.20 The Chapter reports the assessment of the impact of the completed and operational Proposed Scheme upon neighbouring sensitive receptors with regards to daylight, sunlight and overshadowing. Effects resulting from the Proposed Scheme have been identified where applicable via detailed technical analysis assessments undertaken using specialist computer software called Sol.

8.21 The drawings and results of the technical assessments reported in this Chapter are located in **Appendices 8.2 – 8.6**.

Assessment Scenarios

8.22 The assessment scenarios included:

- The existing baseline conditions; and
- The existing baseline conditions vs the Proposed Scheme.

8.23 This analysis was run in accordance with the 2022 BRE Guidelines to determine the two below points:

- The existing levels of light in the baseline conditions; and
- The change that will occur with the Proposed Scheme in place.

8.24 The assessment scenarios above are reported in this Chapter.

8.25 In addition to the above, the following additional scenarios have been modelled:

- Existing baseline conditions vs Proposed Scheme and relevant Approved Projects, which assumes that the pertinent neighbouring developments (Alberton House Planning Ref - 134287/FO/2022 and Kendal's Fraser Planning Ref - 129251/FO/2021) are built at the same time as the Proposed Scheme (i.e., a 'worst-case' in terms of effects); and
- Existing baseline conditions + relevant Approved Projects vs Proposed Scheme, which assumes the implementation of the neighbouring Alberton House and the Kendal Fraser projects in addition to the existing baseline and it then evaluates how the Proposed Scheme would impact the neighbouring residential receptors with these Approved Projects in place.

8.26 These additional scenarios are reported in **Chapter 12: Assessment of Cumulative Effects**. The relevant Approved Projects are shown in **Figures 8.11** and **8.12**.

BRE Guidelines

8.27 To ensure that the assessment can be appropriately evaluated against national, regional and local planning policy, daylight, sunlight and overshadowing effects have been considered in accordance with the 2022 BRE Guidelines[3].

8.28 The 2022 BRE Guidelines provide methods for calculating the impact on light received by neighbouring buildings and amenity space, as well as the provision of light amenity provided within new development.

8.29 The 2022 BRE Guidelines are not fixed standards but should be applied flexibly to take account of the specific circumstances of each case. Its introduction notes:

'The guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and the guide should not be seen as an instrument of planning policy; its aim is to help rather than constrain the designer. Although it gives numerical guidelines, these should be interpreted flexibly since natural lighting is only one of many factors in site layout design… In special circumstances the developer or planning authority may wish to use different target values.'

8.30 The flexibility it advocates should reflect the particular characteristics of each case under consideration. It is important to bear in mind that the default numerical targets within the 2022 BRE Guidelines are largely based on a low-density suburban housing model. Therefore, it may be entirely appropriate to apply different values, especially where the general scale of obstruction will inevitably be greater. For example, when dealing with larger scale developments in dense urban environments, or where there is a planning aspiration to deliver increased densities in areas with low levels of existing obstruction. In such circumstances, achieving the initial BRE values would be very challenging and conflict with other beneficial factors in site layout design.

8.31 This does not mean that the recommendations and targets within the 2022 BRE Guidelines should be disregarded, but instead applied with careful consideration of each site and its specific constraints. Otherwise, rigid adherence to the BRE recommendations could easily result in an inappropriate form of development. This is acknowledged at section 2.2 of the guidance, under 'Existing Buildings':

'Note that numerical values given here are purely advisory. Different criteria may be used based on the requirements for daylighting in an area viewed against other site constraints.

Another important issue is whether the existing building is itself a good neighbour, standing a reasonable distance from the boundary and taking no more than its fair share of light.'

8.32 Suggested approaches for using alternative target values are provided within Appendix F of the 2022 BRE Guidelines, where it states that '*different targets may be used, based on the special requirements of the proposed development or its location*' (paragraph F1).

8.33 In the context of the Proposed Scheme, the Site is currently low to medium density. There are three blocks within the office buildings currently on-Site, two of which are low rise. The low-rise nature of these two existing buildings on-Site is not typical of the surroundings / urban context.

8.34 With the above in mind, it is also important to consider the effect on daylight, sunlight and overshadowing in terms of the quantum of light that will be left, rather than simply focusing on percentage alterations in the existing levels. However, as a starting point, the default 2022 BRE Guidelines criteria have been applied in its strictest sense for the purpose of determining the level of compliance within the key assessments undertaken.

8.35 Habitable rooms within residential properties are the primary focus of the daylight and sunlight assessments. In addition, non-habitable rooms such as circulation spaces, storerooms, garages, and bathrooms can be discounted, in accordance with the 2022 BRE Guidelines.

Preliminary Tests

8.36 For daylight and sunlight, Section 2.2 of the 2022 BRE Guidelines outlines preliminary tests for determining whether the potential effect on a surrounding building's light may require more detailed technical assessment. For neighbouring property directly

facing a proposed new development, the guidance suggests the use of its preliminary '25°-line test':

'If any part of a new building or extension, measured in a vertical section perpendicular to a main window wall of an existing building, from the centre of the lowest window, subtends an angle of more than 25° to the horizontal, then the diffuse daylighting of the existing building may be adversely affected.'

8.37 For the assessment of neighbouring windows located directly adjacent to a proposed development, the 2022 BRE Guidelines suggest application of the '45°-line approach' instead:

'Take the elevation of the window wall and draw diagonally down at an angle of 45° away from the near top corner of the extension… Then take the plan and draw diagonally back at an angle of 45° towards the window wall from the end of the extension... If the centre of a main window of the next door property lies on the extension side of both these 45° lines, then the extension may well cause a significant reduction in the skylight received by the window.'

8.38 If a proposed development does not meet the above preliminary tests, a more detailed technical assessment is likely to be required. The key methodology in respect of these detailed assessments is set out below.

8.39 The results of the 25 degree test in relation to Bradshaw and Alcock House is set out in **Appendix 8.6**.

Daylight – Vertical Sky Component

8.40 The Vertical Sky Component (VSC) method of assessment is defined in the 2022 BRE Guidelines as the '*ratio of that part of illuminance, at a point on a given vertical plane, that is received directly from a CIE standard overcast sky, to illuminate on a horizontal plane due to an unobstructed hemisphere of this sky*' ('Glossary', pg. 6).

8.41 This ratio is the percentage of the total unobstructed view that is available, once obstructions (e.g. the Proposed Scheme), are placed in front of the point of view.

8.42 The assessment is calculated from the centre of a window on the outward face and measures the amount of light available on a vertical wall or window following the introduction of visible barriers, such as buildings.

8.43 The VSC assessments reported in this Chapter have been calculated by using a 'Waldram Diagram'. The Waldram Diagram is effectively a snapshot that is taken from that point of the sky in front of the window, together with all relevant obstructions to it (i.e. the surrounding buildings. For calculation purposes, trees may be ignored unless they form dense continuous belts).

8.44 The maximum VSC value is almost 40% for a completely unobstructed vertical wall or window. In terms of assessment criteria, the 2022 BRE Guidelines state that:

'If the VSC, with the Proposed Development in place, is both less than 27% and less than 0.8 times its former value, occupants of the existing building will notice the reduction in

the amount of skylight. The area lit by the window may appear more gloomy and electric lighting will be needed more of the time.'

8.45 The above criteria should be applied flexibly and in view of the specific site constraints. For example, it is entirely appropriate to apply a more flexible approach when dealing with higher rise developments in a denser urban and accessible environment, where the general scale of development is greater than the initial BRE default values in sections 2 and 3 of the 2022 BRE Guidelines allow for. However, this does not mean that retained light levels will be out of character, with prevailing levels experienced around such development.

8.46 Suggested approaches for setting appropriate alternative target values are provided within Appendix F of the 2022 BRE Guidelines.

8.47 Alternative target values have been considered as appropriate in consideration of a number of urban regeneration schemes, including the Whitechapel Estate appeal decision in November 2018[c].

Daylight – No Sky Line

8.48 The 2022 BRE Guidelines advise that where room layouts are known, the effect on the daylight distribution can be calculated by plotting the No Sky Line (NSL). In terms of the neighbouring receptors, it has not been possible to obtain room layouts for all of the properties and therefore their layouts have been assumed where information has been unavailable.

8.49 The NSL is a measure of the distribution of daylight at the 'working plane' within a room. The 'working plane' means a horizontal 'desktop' plane 0.85m in height for residential properties. The NSL divides those areas of the working plane which can receive direct sky light from those which cannot. If a significant area of the working plane (normally more than 20%) lies beyond the NSL (i.e. it receives no direct sky light), then the distribution of daylight in the room will look poor and supplementary electric lighting may be required.

8.50 The potential effects of daylighting distribution in an existing building can be identified by plotting the NSL in each of the main rooms. For residential dwellings, this will include living rooms, dining rooms and kitchens. Bedrooms should also be analysed, although they are less important. The 2022 BRE Guidelines identify that if the area of a room that does receive direct sky light is reduced to less than 0.8 times its former value, then this would be noticeable to its occupants.

8.51 In regard to deep rooms which are lit by windows on one side, the 2022 BRE Guidelines state at paragraph 2.2.12:

'If an existing building contains rooms lit from one side only and greater than 5m deep, then a greater movement of the no sky line may be unavoidable.'

[c] Ref: APP/E5900/W/17/3171437 available at: https://acp.planninginspectorate.gov.uk/View Case. aspx?caseid=3171437.

Sunlight – Annual Probably Sunlight Hours

8.52 With regard to sunlight, the same skylight indicator is used as the VSC assessment using the same reference point to calculate Annual Probable Sunlight Hours (APSH), which is expressed as a percentage. The maximum number of APSH for the London orientation is 1,486 hours.

8.53 The 2022 BRE Guidelines, Section 3.2.3 notes that:

'To assess loss of sunlight to an existing building, it is suggested that all main living rooms of dwellings, and conservatories, should be checked if they have a window facing within 90° of due south.'

8.54 The 2022 BRE Guidelines further state in Section 3.2.3 that:

'[…] kitchens and bedrooms are less important, although care should be taken not to block too much sun.'

8.55 The 2022 BRE Guidelines suggest that the sunlight to existing dwellings may be adversely affected if the APSH to main living rooms is less than 25% annually, or less than 5% during winter, and reduced to less than 0.8 times its former value; with a loss of sunlight over the whole year greater than 4% APSH in real terms.

8.56 The above criteria need to be applied sensibly depending on the contextual and site constraints involved, as noted in the 2022 BRE Guidelines:

'In certain situations, care needs to be taken in applying these guidelines… if the existing building stands unusually close to the common boundary with the new development or has a large balcony of overhang above the window, then a greater reduction in sunlight access may be unavoidable.'

8.57 The APSH values in more dense urban locations, or tightly constrained street patterns, will inevitably be lower than for a low-rise suburban environment, upon which the BRE default criteria is based. However, for the purpose of the assessments the criterion has been applied in its strictest sense.

Sun Hours on Ground (SHOG) overshadowing

8.58 The 2022 BRE Guidelines note that good site layout planning for daylight and sunlight should not be limited to providing good natural lighting within buildings and makes recommendations concerning sunlight received by amenity spaces between buildings. Amenity spaces relevant for consideration commonly include main back gardens of houses, allotments, parks and playing fields, children's playgrounds, outdoor swimming pools, sitting-out areas, such as in public squares and focal points for views, such as a group of monuments or fountains.

8.59 Where sunlight to neighbouring amenity spaces may be affected by new development, the 2022 BRE Guidelines recommend that an overshadowing assessment is conducted. The key analysis is the SHOG test, which compares the proportion of an amenity area receiving at least 2 hours of sun on ground on the 21st of March in the current baseline and with the Proposed Scheme in place.

8.60 The 2022 BRE Guidelines note that different types of amenity space may have different sunlighting requirements and therefore, it is hard to provide a definitive rule. However, the 2022 BRE Guidelines suggest that a check may be undertaken, to see if at least 50% of an amenity area should receive 2 hours of sun after a Proposed Scheme is in place; or if below this level, whether it retains at least 0.8 times the former value (i.e. no more than 20% loss of the existing level). If these are not met, the loss of sunlight is likely to be noticeable and the '*amenity area will tend to look more heavily overshadowed*.'

Transient overshadowing

8.61 The 2022 BRE Guidelines suggest that where large buildings are proposed which may affect a number of gardens or open spaces in the surrounding area, it is useful to plot a shadow plan to show the location of shadows at different times of the day and year. This is referred to as 'transient shadow' and involves producing shadow plots to show the difference that the proposed building will make, compared against the existing levels of overshadowing on the surrounding amenity areas.

8.62 The BRE gives no quantitative criteria, but when considering the shadowing effects the 2022 BRE Guidance notes that '*it must be borne in mind that nearly all structures will create areas of shadow, and some degree of transient overshadowing of a space is to be expected.'*

8.63 In this Chapter, transient overshadowing analysis has been carried out for the following dates / times:

- 21st March (Spring Equinox) – 8:00am – 6:00pm;
- 21st June (Summer Solstice) – 6:00am – 8:00pm; and
- 21st December (Winter Solstice) – 10:00am – 4:00pm.

Summary

8.64 **Table 8.3** summarises the above guidance and suggested BRE criteria for daylight, sunlight and overshadowing. Transient overshadowing is not included as there are no quantitative criteria (as noted above).

Table 8.3: BRE daylight, sunlight and overshadowing assessment guidelines

Assessment method	Criteria
VSC *(daylight)*	A window may be affected if the VSC measured at the centre of the window is less than 27% and less than 0.8 times its former value.
NSL *(daylight)*	A room may be adversely affected if a significant area of the room is beyond the NSL and is less than 0.8 times its former value.
APSH *(sunlight)*	A window may be adversely affected following development if: the APSH measured at the centre of a windows is less than 25% annually, or less than 5% during winter; and is reduced to less than

Assessment method	Criteria
	0.8 times its former value; with a loss of sunlight over the whole year greater than 4% APSH in real terms.
Overshadowing *(SHOG)*	An amenity space may be adversely affected if less than 50% of its total area receives 2 hours of sun on ground and is reduced to less than 0.8 times its former value, following development.

Reporting of the Environmental Effect and Significance Criteria

8.65 The assessment of likely significant environmental effects as a result of the Proposed Scheme has taken into account the operational stage[d]. The following sections define the approach adopted within the assessment for the determination of sensitivity, magnitude of change / impact, the level of effect and significance.

Determining Sensitivity of Receptor

8.66 The sensitivity of receptors has been considered on a scale of **high, medium, low** and **negligible:**

- Daylight and Sunlight: Residential dwellings within proximity to the Site are considered to be sensitive to daylight and sunlight levels, specifically habitable rooms within the properties such as living rooms and kitchens due to their reliance on natural daylight; and
- Overshadowing: Open amenity areas (e.g. playgrounds, playing fields, parks, squares, gardens etc.) in proximity to the Site are considered to be sensitive.

8.67 The existing residential sensitive receptors identified are considered to be of high sensitivity of the purposes of the assessments, due to the need for natural light. These are:

- The Century Buildings;
- 2 – 18 Left Bank Apartments;
- 29 New Bailey Street;
- 32 Quay Street; and
- The Bridge, 40 Dearmans Place.

8.68 The existing sensitive receptors identified in terms of open amenity space are considered to be of high sensitivity for the purposes of the assessments, all of which represent public amenity spaces and are listed below:

[d] As noted in **Paragraph 8.65** the operational stage is considered to represent an approximation of the worst-case effects during the construction stage.

- Public Amenity Space, 32 Quay Street;
- Public Amenity Space, Clermont-Ferrand Square;
- Public Amenity Space, Motor Square; and
- The River Irwell.

Determining the Magnitude of Change / Impact

8.69 The magnitude of change has been considered as the change experienced from the current baseline conditions at the sensitive receptors and has been considered on a scale of **large, medium, small** or **negligible**.

8.70 The 2022 BRE Guidelines are deemed to have been met if the levels of daylight / sunlight or overshadowing within sensitive receptors meet or exceed the values established in the default guidance criteria (see **Table 8.2** above).

8.71 The initial numerical values outlined in the 2022 BRE Guidelines for determining the magnitude of change is based on percentage alterations in the baseline value, as set out in **Table 8.3** and **Tables 8.4 – 8.7**. However, where baseline levels within a surrounding receptor are already low, any alterations may show a disproportionately high percentage change that can be misleading (i.e. the change in real terms may not be as noticeable to the occupant as the percentage alteration suggests) and therefore requires consideration of professional judgement also.

8.72 The nature of the daylight, sunlight and overshadowing effects may be either adverse (negative) or negligible. Where results show compliance or exceed the values suggested in the 2022 BRE Guidelines, the magnitude of change will be considered to be negligible. As the Proposed Scheme represents an increase in massing on the Site, 'beneficial' daylight, sunlight and overshadowing effects are not to be expected and as such are not discussed in this Chapter.

8.73 Accounting for the above, the numerical criteria for determining the magnitude of change for daylight, sunlight and overshadowing are set out in **Tables 8.4 – 8.7**. These are applied alongside professional judgement.

Table 8.4: VSC daylight criteria – magnitude of change / impact

Category	Numerical Criteria – Daylight (VSC) – Magnitude of Change / Impact
Negligible	>27% retained VSC and / or relative reduction < 20% VSC
Small	Relative reduction between 20.1% and 29.99% VSC
Medium	Relative reduction between 30% and 39.99% VSC
Large	Relative reduction above 40% VSC

Table 8.5: NSL daylight criteria – magnitude of change / impact

Category	Numerical criteria – Daylight (NSL) – Magnitude of Change / Impact
Negligible	Relative reduction < 20% NSL
Small	Relative reduction between 20.1% and 29.99% NSL
Medium	Relative reduction between 30% and 39.99% NSL
Large	Relative reduction above 40% NSL

Table 8.6: APSH sunlight criteria – magnitude of change / impact

Category	Numerical criteria – Sunlight (APSH) – magnitude of change / impact
Negligible	>25% annual APSH retained, of which >5% during winter months; and / or relative reduction <20% APSH; and / or absolute reduction <4% APSH annually.
Small	Relative reduction between 20.1% and 29.99% APSH
Medium	Relative reduction between 30% and 39.99% APSH
Large	Relative reduction above 40% APSH

Table 8.7: SHOG Criteria – magnitude of change / impact

Category	Numerical criteria – Overshadowing (SHOG) – magnitude of change / impact
Negligible	>50% retained SHOG and / or relative reduction < 20%
Small	Relative reduction between 20.1% and 29.99%
Medium	Relative reduction between 30% and 39.99%
Large	Relative reduction above 40%

Note: the above is taken into account alongside other factors set out above and professional judgement will be applied. In addition, if the absolute values suggested in the BRE Guidelines are met with the completion of the Proposed Scheme, the magnitude of change will be considered negligible, irrespective of the percentage alteration.

8.74 For transient overshadowing, the BRE Guidelines does not include numerical criteria for consideration and simply states that it may be helpful to plot shadow plans of the existing and proposed buildings to define the difference in the shadows cast. Therefore, the results of the transient overshadowing assessment will be discussed, but the magnitude of change for overshadowing will be defined through the quantitative sunlight amenity assessment as described above.

Determining Level of Effect

8.75 The level of effect has been informed by an evaluation of the sensitivity of the affected receptor and the magnitude of change / impact due to the Proposed Scheme.

8.76 It is important to reiterate that the numerical values outlined in the 2022 BRE Guidelines are purely advisory. Therefore, where the effects are beyond the 2022 BRE Guideline levels, as noted above professional judgement will be used to establish the level of effects, taking all relevant factors such as environmental context and policy into consideration and by reference to the discretionary 2022 BRE Guidelines and specific Site and neighbouring constraints.

8.77 Appendix H of the 2022 BRE Guidelines sets out the following recommendations in determining the impacts and effects in relation to daylight and sunlight:

'H1 The guidance in this book may be used as the basis for environmental impact assessment, where the skylight and sunlight impact of a new development on its surroundings are taken into account.

H2 Where a new development affects a number of existing buildings or open spaces, the clearest approach is usually to assess the impact on each one separately. It is also clearer to assess skylight and sunlight impacts separately.

H3 Adverse impacts occur when there is a significant decrease in the amount of skylight and sunlight reaching an existing building where it is required, or in the amount of sunlight reaching an open space.

H4 The assessment of impact would depend on a combination of factors and there is no simple rule of thumb that can be applied.

H5 Where the loss of skylight or sunlight fully meets the guidelines in this book, the impact is assessed as negligible or minor adverse. Where the loss of light is well within the guidelines, or only a small number of windows or limited area of open space lose light (within the guidelines), a classification of negligible is more appropriate. Where the loss of light is only just within the guidelines, and a larger number of windows or open space area are affected, a minor adverse impact would be more appropriate, especially if there is a particularly strong requirement for daylight or sunlight in the affected building or open space.

H6 Where the loss of skylight or sunlight does not meet the guidelines in this book, the impact is assessed as minor, moderate or major adverse. Factors tending towards small adverse impact would include:

- *Only a small number of windows or limited area of open space are affected*
- *The loss of light is only marginally outside the guidelines an affected room has other sources of skylight or sunlight*
- *The affected building or open space only has a low level of requirement for skylight or sunlight*

- *There are particular reasons why an alternative, less stringent, guideline should be applied, for example an overhang above the window or a window standing unusually close to the boundary.*

H7 Factors tending towards a large adverse impact include:

- *A large number of windows or large area of open space are affected*
- *The loss of light is substantially outside the guidelines*
- *All the windows in a particular property are affected*
- *The affected indoor or outdoor spaces have a particular strong requirement for skylight or sunlight e.g. a living room in a dwelling or a children's playground…'*

8.78 The level of effect has been determined in line with the above and **Table 8.8** has been a tool which has assisted with this process.

8.79 Whilst **Table 8.8** provides ranges, the level of effect is confirmed as a single level, where possible.

8.80 An overall effect conclusion has been provided for each sensitive receptor (building) considered.

Table 8.8: Matrix to support determining the level of effect

		Sensitivity			
		High	Medium	Low	Negligible
Magnitude of change / impact	Large	Major	Moderate to Major	Minor to Moderate	Negligible
	Medium	Moderate to Major	Moderate	Minor	Negligible
	Small	Minor to Moderate	Minor	Negligible to Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

8.81 The following terms have been used to define the level of the effects identified:

- **Major effect**: Where the Proposed Scheme is likely to cause a considerable change from the baseline conditions and the receptor has limited adaptability, tolerance or recoverability or is of the highest sensitivity;
- **Moderate effect**: Where the Proposed Scheme is likely to cause either a considerable change from the baseline conditions at a receptor which has a degree of adaptability, tolerance or recoverability or a less than considerable change at a receptor that has limited adaptability, tolerance, or recoverability;

- **Minor effect**: Where the Proposed Scheme is likely to cause a small, but noticeable change from the baseline conditions on a receptor which has limited adaptability, tolerance or recoverability or is of the highest sensitivity; or where the Proposed Scheme is likely to cause a considerable change from the baseline conditions at a receptor which can adapt, is tolerant of the change and / or can recover from the change; and

- **Negligible**: Where the Proposed Scheme is unlikely to cause a noticeable change at a receptor, despite its level of sensitivity or there is a considerable change at a receptor which is not considered sensitive to a change.

8.82 The duration of the effect has been assessed as either 'short-term', 'medium-term' or 'long-term'. Short-term is considered to be up to 1 year, medium-term is considered to be between 1 and 10 years and long-term is considered to be greater than 10 years.

Determining Significance

8.83 For each effect, a statement has been made as to whether the level of effect is '**Significant**' or '**Not Significant'**. This determination has been based on the level of effect (which has been informed by the magnitude of change / impact and the sensitivity of the receptors as outlined above) along with professional judgement and relevant guidance where applicable.

8.84 Significance has only been concluded for residual effects (i.e. following the identification of secondary mitigation). Significance has been provided for each sensitive receptor (building) considered.

Baseline Conditions

8.85 The existing baseline condition for daylight, sunlight and overshadowing analysis comprises the existing Site (as of October 2022), neighbouring properties and amenity areas which are considered relevant for consideration.

Daylight and Sunlight

8.86 As set out above, The Century Buildings, 2 – 18 Left Bank Apartments, 29 New Bailey Street, 32 Quay Street and The Bridge, 40 Dearmans Place have been considered for the daylight and sunlight assessment.

8.87 **Table 8.9** lists the existing sensitive receptors considered for the detailed daylight and sunlight assessments, while **Figure 8.2** indicates their respective location outlined in green.

Table 8.9: Existing sensitive receptors considered for detailed daylight / sunlight assessments

Existing sensitive receptors considered for detailed daylight / sunlight assessments		
Sensitive receptor	Daylight assessment	Sunlight assessment
The Century Buildings	✓	✓
2 – 18 Left Bank	✓	✓
29 New Bailey Street	✓	✓
32 Quay Street	✓	✓
The Bridge, 40 Dearmans Place	✓	✓

8.88 The surrounding receptors with windows that do not face within 90° of due south have been scoped out of the sunlight (APSH) assessment, in accordance with 2022 BRE Guidelines, on the basis that they do not have a reasonable expectation of sunlight amenity due to their orientation.

8.89 **Table 8.10** below summarises the baseline daylight and sunlight results for the identified neighbouring properties. The full set of results is provided in **Appendices 8.2 – 8.5.**

8.90 A total of 1,049 windows, serving a total of 823 rooms were assessed for daylight, with 1,062 windows assessed for sunlight, within the five identified neighbouring properties.

8.91 In relation to daylight, 809 (77%) of the 1,049 windows assessed for VSC have a baseline equal to or greater than the 27% VSC outlined in the 2022 BRE Guidelines.

8.92 793 (96%) of the 851 rooms assessed for NSL have a baseline daylight distribution of at least 80% or more of the total room area.

8.93 With regard to sunlight, 872 (89%) of the 977 windows meet the BRE criteria for winter APSH in the baseline and 871 (89%) windows meet the BRE criteria for annual APSH in the baseline condition.

8.94 Therefore, the baseline daylight and sunlight results indicate that the majority of windows and rooms within the identified neighbouring properties currently enjoy BRE compliant levels of light. Many of the existing values in certain buildings are particularly high given the separation from any other buildings, and smaller existing obstructions on the Site directly opposite.

Table 8.10: Existing baseline results – daylight and sunlight

Existing sensitive receptor	Daylight				Sunlight		
	Total No. windows	Windows achieve ≥27% VSC	Total No. Rooms	Rooms achieve ≥80% NSL	Total No. Windows	Windows achieve ≥5% Winter APSH	Windows achieve ≥25% Annual APSH
The Century Buildings	5	4 (80%)	2	1 (50%)	5	5 (100%)	5 (100%)
2 – 18 Left Bank Apartments	157	27 (17%)	74	59 (80%)	85	28 (33%)	22 (25%)
29 New Bailey Street	512	504 (98%)	447	433 (97%)	512	480 (94%)	479 (94%)
32 Quay Street	274	251 (92%)	242	242 (100%)	274	258 (94%)	267 (97%)
The Bridge, 40 Dearmans Place	101	23 (23%)	58	58 (100%)	101	101 (100%)	98 (98%)
Totals:	**1,049**	**809 (77%)**	**823**	**793 (96%)**	**977**	**872 (89%)**	**871 (89%)**

Overshadowing

8.95 Owing to the southerly location of the sun path, only outdoor amenity / spaces sufficiently close to the Site and located from north-west through to north-east are relevant for consideration.

8.96 There are four existing sensitive receptors close enough and oriented in such a way as to be potentially affected by the Proposed Scheme, and therefore identified as relevant for the SHOG and transient overshadowing assessments. **Figure 8.3** identifies the specific areas considered.

Table 8.11: Existing baseline results – SHOG overshadowing

Existing sensitive receptor	Area Ref.	% area receiving ≥2hrs SHOG on 21st March
Public Amenity Space, 32 Quay Street	A1	99%
Public Amenity Space, Clermont-Ferrand Square	A2	98%
Public Amenity Space, Motor Square	A3	82%
The River Irwell	A4	79%

8.97 The full baseline overshadowing results can be found within **Appendix 8.4**.

8.98 The baseline SHOG results show that all four (100%) of the existing receptors tested receive at least 2hrs of sunlight to at least half their areas on 21st March, being adequately sunlit to between 79% and 99% of their respective areas. Therefore, all the open spaces surrounding the Site satisfy the 2022 BRE Guideline criteria in the existing baseline condition. This represents a high level of direct sunlight given the urban context.

Transient Overshadowing

8.99 The baseline transient shadowing levels are shown on drawings located in **Appendix 8.5**. The assessment covers three key dates in the year: 21st March, 21st June and 21st December.

8.100 A review of the transient shadow images for the key date of 21st March shows that the existing buildings on-the Site cast a shadow throughout the day. The shadow cast moves quickly throughout the day moving west to east and passing over The River Irwell and public amenity space at 32 Quay Street (Area A1). This to be expected given the massing currently on-Site.

Future Baseline

8.101 In the absence of the Proposed Scheme and other development occurring, the current baseline daylight and sunlight availability is considered to remain the same. However, given the urban context of the Site and Approved Projects in proximity to the Site (particularly Alberton House and Kendals Fraser), it is likely that the baseline daylight and sunlight conditions could change. Further details of this future scenario are provided in **Chapter 12: Assessment of Cumulative Effects**.

Primary and Tertiary Mitigation

Operational Stage

8.102 The following primary mitigation has been considered within the assessment.

- The façade of Building A is largely made up of aluminium panels that have been given various rusty tones; and

- The façade of Building B is made up primarily of perforated and corrugated aluminium screening mesh.

8.103 No tertiary mitigation has been considered within the assessment.

Assessment of Effects, Secondary Mitigation and Residual Effects

Operational Stage

Alterations to daylight and sunlight levels within sensitive neighbouring properties as a result of the Proposed Scheme

8.104 In accordance with the 2022 BRE Guidelines, neighbouring residential properties have been considered as sensitive receptors for the daylight and sunlight technical assessment as they are recognised as having a greater requirement for natural light than commercial properties.

8.105 Daylight and sunlight technical analysis has been undertaken to determine if existing neighbouring properties will retain sufficient levels of daylight and sunlight amenity should the proposed development be implemented. Daylight (VSC and NSL) and sunlight (APSH) technical assessments have been undertaken to consider the light levels in the existing baseline and existing baseline vs the Proposed Scheme scenarios. Detailed information regarding the daylight and sunlight technical assessments is provided above.

8.106 The criteria in the assessment that has been applied is outlined in full above in this Chapter, see also **Tables 8.3 – 8.6**.

8.107 The following properties as illustrated on **Figure 8.4** have been considered as sensitive neighbouring residential receptors:

- The Century Buildings;

- 2 – 18 Left Bank Apartments;

- 29 New Bailey Street;

- 32 Quay Street; and

- The Bridge, 40 Dearmans Place.

8.108 The full daylight and sunlight results along with NSL contours are located in **Appendix 8.3**. Sufficient information for the purpose of the assessment within the ES is provided below.

8.109 Of the total 1,049 neighbouring windows and 823 neighbouring rooms considered for the daylight (VSC and NSL) assessment, 614 windows (59%) and 666 rooms (81%) will comply with the recommended 2022 BRE Guidelines for daylight (VSC and NSL) and

thus will experience a negligible magnitude of change as a result of the Proposed Scheme.

8.110 Of the 1,049 neighbouring windows assessed for VSC, 979 (93%) will experience a negligible or a small / medium adverse magnitude of change. Of the 823 neighbouring rooms assessed for NSL, 772 (94%) will experience a negligible, or a small / medium adverse magnitude of change.

8.111 Of the total 977 neighbouring windows considered relevant for the sunlight (APSH) assessment, 888 windows (91%) will comply with the recommended 2022 BRE Guidelines for winter sunlight and 923 windows (94%) will comply with the recommended 2022 BRE guidelines for total sunlight and will experience a negligible magnitude of change as a result of the Proposed Scheme.

8.112 Of the 977 neighbouring windows assessed for APSH in winter, 891 (91%) will experience a negligible change, or a small / medium adverse magnitude of change and 958 (98%) of the 977 will experience a negligible change or a small / medium adverse magnitude of change for annual APSH.

8.113 A summary of the data (**Tables 8.12** and **8.13**) and detailed commentary is provided below for each of the key sensitive neighbouring properties.

Table 8.12: Existing baseline v Proposed Scheme – daylight VSC / NSL assessment summary

Existing sensitive receptor	VSC			Below BRE Guidelines					NSL			Below BRE Guidelines				
	Total no. windows	BRE criteria met (≥27% VSC and/or ≤20% alteration)	%	>20-<30% change	≥30-40% change	≥40% change	Windows below BRE	%	Total no. rooms	BRE criteria met (≤20% alteration)	%	>20 -<30% change	≥30-<40% change	≥40% change	Rooms below BRE	%
The Century Buildings	5	5	100%	0	0	0	0	0%	2	2	100%	0	0	0	0	0%
2 –18 Left Bank Apartments	157	120	76%	26	8	3	37	24%	74	63	85%	7	2	2	11	15%
29 New Bailey Street	512	408	80%	97	7	0	104	20%	447	447	100%	0	0	0	0	0%
32 Quay Street	274	67	24%	24	122	61	207	76%	242	98	40%	44	52	49	145	60%
The Bridge, 40 Dearmans Place	101	14	14%	52	29	6	87	86%	58	56	98%	1	0	0	1	2%
Totals:	**1049**	**614**	**59%**	**199**	**166**	**70**	**435**	**41%**	**823**	**666**	**81%**	**52**	**54**	**51**	**157**	**19%**

Table 8.13: Existing baseline v Proposed Scheme – sunlight APSH assessment summary

Existing sensitive receptor	Annual APSH								Winter APSH							
				Below BRE Guidelines								Below BRE Guidelines				
	Total no. windows	Windows meeting BRE criteria	%	>20-<30% change	≥30-40% change	≥40% change	Windows below BRE	%	Total no. windows	Windows meeting BRE criteria	%	>20 -<30% change	≥30-<40% change	≥40% change	Windows below BRE	%
The Century Buildings	5	5	100%	0	0	0	0	0%	5	5	100%	0	0	0	0	0%
2 – 18 Left Bank Apartments	85	74	87%	1	2	8	11	13%	85	85	100%	0	0	0	0	0%
29 New Bailey Street	512	509	99%	3	0	0	3	1%	512	510	100%	0	2	0	2	0%
32 Quay Street	274	264	96%	0	0	10	10	4%	274	214	78%	1	0	59	60	22%
The Bridge, 40 Dearmans Place	101	71	70%	15	14	1	30	30%	101	74	73%	0	0	27	27	27%
Totals:	**977**	**923**	**94%**	**19**	**16**	**19**	**54**	**6%**	**977**	**888**	**91%**	**1**	**2**	**86**	**89**	**9%**

The Century Buildings

8.114 This property is located to the east of the Site along St. Marys Parsonage and contains residential flats on the upper floors. A total of five windows serving two rooms have been assessed for daylight. These five windows are the only windows that face the Site and require assessment.

8.115 The VSC and NSL daylight technical analysis undertaken confirms that all five windows (100%) and two rooms (100%) assessed will comply with the recommended 2022 BRE Guidelines for daylight (VSC and NSL) and thus will experience a negligible magnitude of change as a result of the Proposed Scheme.

8.116 The sensitivity of the receptor is high. In consideration of the above, including the high BRE compliance for VSC and full compliance for NSL, the overall magnitude of change to daylight amenity within this neighbouring building is considered to be negligible. Therefore, there is likely to be a direct, permanent, long-term effect which is considered to be negligible.

8.117 The APSH results indicate that all five (100%) of the windows tested would meet the BRE Guidelines for annual and winter sunlight (i.e. experience a change which is considered to be negligible).

8.118 The sensitivity of the receptor is high. In consideration of the above, the overall magnitude of change in respect to sunlight amenity within this neighbouring building is considered to be negligible. Therefore, there is likely to be a direct, permanent, long-term effect which is considered to be negligible.

2 – 18 Left Bank Apartments

8.119 2 – 18 Left Bank is a mixed use block west of the Site with residential apartments located from the 1st floor upwards. A total of 157 windows serving 74 rooms have been assessed for daylight.

8.120 120 (76%) of the 157 windows assessed would meet the 2022 BRE Guidelines for VSC and experience a negligible change. 26 of the remaining 37 windows have existing VSC levels of 12% or less. Of this number, 15 windows achieve single digit VSC values in the existing baseline conditions. Therefore, the larger VSC percentage reductions to these windows can be partially attributed to low existing levels of VSC, rather than a significant alteration in absolute VSC.

8.121 Of these same 37 windows, 26 windows would experience a reduction of between 20% – 30% (small adverse magnitude). Eight would experience reductions of between 30% – 40% (medium adverse magnitude), although six of these are fractionally or marginally over a small adverse magnitude, with reductions of circa 30% – 32.65%. The remaining three windows will experience reductions in excess of 40% (large adverse magnitude). These windows have existing VSC levels between 7.63% – 9.63% and as outlined above the larger percentage reduction is largely a result of the low existing levels rather than a significant alteration in absolute VSC which are between 3% – 4% VSC.

8.122 63 (85%) of the 74 rooms assessed would meet the 2022 BRE Guidelines for NSL and experience a negligible change. Seven of these 11 rooms will experience alterations between 20% – 30% (small adverse magnitude).

8.123 The remaining four rooms record greater relative reductions, of which two will be between 30% – 40% (medium adverse magnitude) and two would be in excess of 40% (large adverse magnitude). Of the two rooms experiencing large adverse alterations one is a bedroom (which has a lower requirement for daylight – see 2022 BRE Guidelines 2.2.10), and the other room is for Living/Kitchen/Dining use (LKD) with a low existing level of daylight distribution (NSL) of 36%, and therefore the percentage change suggests a more significant alteration in light, then is likely in absolute terms.

8.124 The sensitivity of the receptor is high. In consideration of the above, the overall magnitude of change in respect to daylight amenity within this neighbouring building is considered to be small. As outlined above this is the conclusion following consideration that the property has low existing light levels in parts, some of the windows and room serve bedrooms and the majority of windows and rooms meet the guidelines. Therefore, there is likely to be a direct, permanent, long-term adverse effect which is considered to minor.

8.125 The APSH results indicate that 74 (87%) of the 85 windows tested would meet the 2022 BRE Guidelines for annual sunlight, while 85 (100%) of 85 windows would meet the 2022 BRE Guidelines for winter sunlight (i.e. experience a change which is considered to be negligible).

8.126 Of the 11 windows below the 2022 BRE Guidelines criteria for annual sunlight, one window will experience alterations between 20% - 30% (small adverse magnitude), two windows will experience alterations between 30% – 40% (medium adverse magnitude) and eight windows will experience alterations in annual sunlight in excess of 40% (large adverse magnitude). All eight of these windows have existing APSH levels between 1% – 2% APSH. Therefore, the absolute loss is small and the large percentage change is a result of the low existing sunlight levels.

8.127 The sensitivity of the receptor is high. In consideration of the above, the overall magnitude of change in respect to sunlight amenity within this neighbouring building is considered to be small. As outlined above the windows not meeting the criteria have low existing sunlight levels and the overall compliance is high. Therefore, there is likely to be a direct, permanent, long-term adverse effect which is considered to be minor.

29 New Bailey Street

8.128 This is a residential block of apartments located to the north of the Site on the opposite side of the River Irwell. A total of 512 windows serving 447 rooms have been assessed for daylight.

8.129 408 (80%) of the 512 windows assessed would meet the 2022 BRE Guidelines for VSC and experience a negligible change. Of the remaining 104 windows, 97 will experience a relative reduction of between 20% – 30% (small adverse magnitude) and seven will experience reductions of between 30% – 40% (medium adverse magnitude). These seven windows retain an average of 24% VSC, which is marginally below the 27% recommendation in the 2022 BRE Guidelines.

8.130 All 447 (100%) of the 447 rooms tested would meet the 2022 BRE Guidelines for NSL and therefore experience a negligible change.

8.131 The sensitivity of the receptor is high. In consideration of the above, the overall magnitude of change to daylight amenity within this neighbouring building is considered to be small. However, the retained VSC is marginally below the BRE recommendation. Therefore, there is likely to be a direct, permanent, long-term adverse effect which is considered to be minor.

8.132 The APSH results indicate that 509 (99%) of the 512 windows tested would meet the 2022 BRE Guidelines for annual sunlight, while 510 (99%) of 512 windows would meet the 2022 BRE Guidelines for winter sunlight (i.e. experience a negligible change).

8.133 All three windows that do not meet the 2022 BRE Guidelines criteria for annual sunlight serve bedrooms and will experience reductions of 25% (small adverse magnitude).

8.134 The two windows will experience a 33% alteration in winter APSH. However, these windows serve bedrooms, which do not normally need to be assessed for sunlight in accordance with the 2022 BRE Guidelines (see BRE paragraph 3.2.3). Furthermore, the low existing winter APSH levels of 3% will result in a 1% absolute change. Therefore, the loss of sunlight to these room is considered negligible or small adverse magnitude.

8.135 The sensitivity of the receptor is high. In consideration of the above, the overall magnitude of change in respect to sunlight amenity within this neighbouring building is considered to be small. As outlined above the absolute change in sunlight levels is small and the overall compliance high. Therefore, there is likely to be a direct, permanent, long-term adverse effect which is considered to be minor.

32 Quay Street

8.136 32 Quay Street is a residential block of apartments located to the north of the Site on the opposite side of the River Irwell. A total of 274 windows serving 242 rooms have been assessed for daylight.

8.137 67 (24%) of the 274 windows assessed would meet the 2022 BRE Guidelines for VSC and experience a negligible change. Of the remaining 207 windows, 24 will experience a relative reduction of between 20% – 30% (small adverse magnitude). 122 windows will experience reductions of between 30% – 40% (medium adverse magnitude). The remaining 61 windows will experience reductions in excess of 40% (large adverse magnitude). The average retained VSC across the 61 windows the experience a large adverse reduction is 18% VSC, which is consistent with the VSC found in many urban / City Centre locations, as acknowledged by the 2022 BRE Guidelines in paragraph F2, Appendix F.

8.138 97 (40%) of the 242 rooms tested will meet the 2022 BRE Guidelines for NSL and therefore experience a negligible change. 44 rooms will experience alterations between 20% – 30%, which is considered to be small adverse magnitude.

8.139 The remaining 101 rooms record greater relative reductions, of which 52 will be between 30% – 40% (medium adverse magnitude) and 49 will be in excess of 40% (large adverse magnitude). Of these 49 rooms, 20 relate to bedrooms which the BRE considers less important than other uses (see 2022 BRE Guidelines, paragraph 2.2.10).

8.140 For the 29 remaining rooms, all relate to deep single aspect living areas. Such single aspect rooms that are deeper then 5m (as it is assumed here) will often see a greater movement of the NSL when developing opposite, as acknowledged by the BRE in paragraph 2.2.12. Nevertheless, most rooms would retain a view of sky to circa 50% or more of their total area, with virtually all receiving direct skylight extending into the rear half of the room.

8.141 The sensitivity of the receptor is high. In consideration of the above, the overall magnitude of change in respect to sunlight amenity within this neighbouring building is considered to be medium to large. Therefore, there is likely to be a direct, permanent, long-term adverse effect which is considered to be moderate.

8.142 The APSH results indicate that 214 (78%) of the 274 windows tested would meet the 2022 BRE Guidelines for winter sunlight, while 264 (96%) of 274 windows would meet the 2022 BRE Guidelines for annual sunlight (i.e. experience a change which is considered to be negligible).

8.143 Of the 60 windows that fall below the 2022 BRE Guidelines criteria for winter sunlight, one will experience a relative reduction of between 20% – 30% (small adverse magnitude). The remaining 59 windows will experience reductions in excess of 40% (large adverse magnitude). 15 of these 59 windows have winter sunlight levels below the recommended 5% in the existing and therefore any change in winter sunlight to these windows will result in a large percentage alteration. However, what is of most relevance is that 48 of these 59 windows serve bedrooms which the BRE states need not be considered for analysis in most cases (see paragraph 3.2.3). The remaining 11 windows serve LKDs.

8.144 All 10 of the windows that fall below the BRE criteria for annual sunlight, will experience reductions in excess of 40% (large adverse magnitude). However, all 10 of these windows serve bedrooms.

8.145 The sensitivity of the receptor is high. In consideration of the above, the overall magnitude of change in respect to sunlight amenity within this neighbouring building is considered to be medium. However, the majority of windows serve bedrooms which are less sensitive. Therefore, there is likely to be a direct, permanent, long-term adverse effect which is considered to be moderate.

The Bridge, 40 Dearman Place

8.146 The Bridge, 40 Dearman Place is a residential block of apartments located to the north of the Site on the opposite side of the River Irwell. A total of 101 windows serving 58 rooms have been assessed for daylight.

8.147 Circa 14 (14%) of the 101 windows assessed would meet the 2022 BRE Guidelines for VSC and experience a negligible change. Of the remaining 87 windows, 52 will experience a relative reduction of between 20% – 30% (small adverse magnitude). 29 windows will experience reductions of between 30% – 40% (medium adverse magnitude). The remaining six windows will experience reductions in excess of 40% (large adverse magnitude).

8.148 It should be noted that the majority of the windows and rooms in this property sit beneath overhanging balconies which limits the ingress of daylight and sunlight, particularly the ability for the sky / sun to see the centerpoint of the windows below the balconies (i.e. the point of VSC and APSH calculation). This is acknowledged by the BRE in paragraph 2.2.13, which states that – '*Because the balcony cuts out light from the top part of the sky, even a modest obstruction opposite may result in a large relative impact on the VSC*'. This paired with the obstruction caused by 32 Quay Street to the south-west will limit its peripheral view and further reduce its daylight and sunlight availability. Therefore, these alterations are in part due to the massing in the area and the property's inherent architectural composition.

8.149 57 (98%) of the 58 rooms tested will meet the 2022 BRE Guidelines for NSL and therefore, experience a negligible change. The remaining room will experience a 21% alteration which marginally pushes it into the small adverse magnitude category, which is a 20% – 30% change.

8.150 The sensitivity of the receptor is high. In consideration of the above, the overall magnitude of change in respect to daylight amenity within this neighbouring building is considered to be medium to large. Therefore, there is likely to be a direct, long-term, permanent adverse effect which is considered to be moderate.

8.151 The APSH results indicate that 74 (73%) of the 101 windows tested would meet the 2022 BRE Guidelines for winter sunlight, while 71 (70%) of 101 windows would meet the 2022 BRE Guidelines for annual sunlight (i.e. experience a which is considered to be negligible).

8.152 Of the 27 windows that fall below the BRE criteria for winter sunlight, all 27 will experience reductions in excess of 40% (large adverse). As internal layouts have not been obtained for this property, these room uses have been allocated as unknown. However, it is assumed a large portion if not a majority of these windows will serve less sensitive bedrooms.

8.153 Of the 30 windows that fall below the BRE criteria for annual sunlight, 15 will experience a relative reduction of between 20%-30% (small adverse magnitude). 14 windows will experience an alteration between 30%-40% (medium adverse magnitude) The remaining window will experience a reduction in excess of 40% (large adverse magnitude). As internal layouts have not been obtained for this property, these room uses have been allocated as unknown. However, it is assumed a large portion if not a majority of these windows will serve less sensitive bedrooms.

8.154 The presence of balconies should also be acknowledged. Balconies do restrict the ability of sunlight to hit the centrepoint of windows (i.e. the point of APSH calculation). This is recognised by the BRE in paragraph 3.2.11, which states – '*Balconies and overhangs above an existing window tend to block sunlight, especially in summer above south-facing windows. Even a modest obstruction opposite may result in a large relative impact*.'

8.155 The sensitivity of the receptor is high. In consideration of the above, the overall magnitude of change in respect to sunlight amenity within this neighbouring building is considered to be medium. However, the majority of windows serve less sensitive bedrooms and balconies are present. Therefore, there is likely to be a direct, permanent, long-term adverse effect which is considered to be moderate.

Secondary mitigation or enhancement

8.156 No secondary mitigation or enhancement is proposed.

Residual effect

8.157 In the absence of secondary mitigation the residual effects are that same as that reported in the pre-mitigation scenario.

8.158 With regard to the daylight alterations to existing sensitive receptors, it is considered that the Proposed Scheme would result in a variety of effects, ranging from: negligible for one (20%) of five receptors; minor adverse for two (40%) of the five receptors; and moderate for two (40%) of five receptors.

8.159 With regard to the sunlight alterations to existing sensitive receptors, it is considered that the Proposed Scheme would result in a variety of effects, ranging from: negligible for one (20%) of five receptors; minor adverse for two (40%) of the five receptors; and moderate for two (40%) of five receptors.

8.160 Nevertheless, the majority of windows and rooms tested would satisfy the default values in the 2022 BRE Guidelines despite the Site's contextual constraints. Furthermore, the majority of the daylight effects that fall beyond the recommended BRE criteria broadly fall into one or more of the following categories:

- They would retain VSC levels of circa 20% and above (which is considered 'good' for an urban context);
- They sit beneath overhanging balconies;
- The NSL criteria for the associated room is satisfied; or
- The windows / rooms serve bedrooms, which the BRE recognise as less important than other uses.

8.161 For sunlight, the majority of the effects recorded represent a minor deviation of the absolute loss and/or retained value targets and many relate to bedroom use which is considered least important for sunlight.

Significance

8.162 The effect is considered to be **Not Significant** for The Century Buildings, 2 – 18 Left Bank Apartments and 29 New Bailey Street.

8.163 The effect is considered to be **Significant** for 32 Quay Street and The Bridge, 40 Dearmans Place.

Alterations in sunlight to neighbouring amenity spaces due to overshadowing resulting from the Proposed Scheme

SHOG analysis

8.164 The SHOG assessment has been undertaken against four existing neighbouring amenity areas, as illustrated in **Figures 8.4** and **8.5** and drawings BRE/04-07 located in **Appendix 8.4**.

8.165 The results of the SHOG analysis show that three (75%) of the four sensitive receptors tested will meet the 2022 BRE Guidelines by either: retaining at least 2 hours of sun in excess of 50% of their respective areas (Public Amenity Space, 32 Quay Street (Area A1), Public Amenity Space, Motor Square (Area A3) and River Irwell (Area A4)). The remaining receptor not meeting the criteria is Public Amenity Space, Clermont-Ferrand Square (Area A2). This is considered in further detail below.

8.166 Therefore, the overshadowing results for SHOG show that the following existing sensitive receptors tested will meet the 2022 BRE Guidelines and therefore, experience a change which is considered to be negligible:

- Public Amenity Space, 32 Quay Street (Area A1);
- Public Amenity Space, Bridge Street (Area A3); and
- The River Irwell (Area A4).

8.167 Public amenity space, Clermont-Ferrand Square (Area A2) is located to the north-east of the Site in front of the Lowry Hotel on the other side of the River Irwell.

8.168 In the existing baseline, 98% of the area receives at least 2 hours of direct sunlight on 21st March. This reduces to 28% with the Proposed Scheme in place, which equates to an alteration in excess of 40% (large adverse magnitude). However, this area's location makes it very sensitive to changes in massing on the Site.

8.169 A further detailed SHOG assessment has been undertaken for this area on June 21st to understand how much sunlight it will receive in the summer months when the sun is higher in the sky. The sunlight levels significantly increase in summer with the area receiving over two hours of direct sunlight to 97% of its area on 21st June. The availability in the summer months is a key consideration as there is a higher expectation for sunlight and outside spaces are most likely to be fully utilised.

Overshadowing transient analysis

8.170 The full transient overshadowing assessment for the existing sensitive receptors is presented within **Appendix 8.5**.

8.171 The assessment covers three key dates in the year: 21st March 21st June and 21st December. The key date for consideration is 21st March, which is the focus of the commentary below.

8.172 As with the SHOG overshadowing test, four existing receptors / public amenity spaces were considered for the transient overshadowing assessment below. These are discussed in groupings that accord with the associated locations considered for the SHOG analysis, in a clockwise direction from west to east, in accordance with the movement of the shadows cast throughout the day.

8.173 Due to the larger massing and increased density the Proposed Scheme will cause some additional transient overshadowing on the 21st March. The additional shadows of note created by the Proposed Scheme are listed as follows:

- Public Amenity Space, 32 Quay Street (Area A1): The shadow will pass over this area during the first half of the day as it does in the existing baseline conditions. However, the Proposed Scheme will cast a larger shadow over the area and whereas it will not experience any overshadowing after 13:00 in the existing baseline conditions, the larger shadows will not completely leave the area until after 15:00 with the Proposed Scheme in place.
- Public Amenity Space, Clermont-Ferrand Square (Area A2): This area does not experience any overshadowing as a result of the buildings on-Site in the existing baseline conditions. However, with the Proposed Scheme in place, this will create shadows that pass over the area between 13:00 and 16:00.
- Public Amenity Space, Motor Square (Area A3): The area will not experience any notable additional shadow throughout the day on 21st March.

- The River Irwell (Area A4): The Proposed Scheme will cast a larger shadow over the River Irwell moving from west to east between 9:00 and 16:00. However, the shadows pass quickly across the River Irwell throughout the day.

8.174 In relation to overshadowing, the sensitivity of the four amenity receptors assessed is high. The magnitude of change is considered to be negligible for three of these amenity spaces (i.e. Public Amenity Space, 32 Quay Street (Area A1), Public Amenity Space, Motor Square (Area A3) and the River Irwell (Area A4)). Therefore, there is likely to be a direct, permanent, long-term, effect which is considered to be negligible.

8.175 Public Amenity Space, Clermont-Ferrand Square (Area A2), however, will experience a large magnitude of change. Despite this the receptor (Area A2) will experience good levels of sunlight in the summer months when outdoor space is likely to be fully utilised. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be moderate.

Secondary mitigation or enhancement

8.176 No secondary mitigation or enhancement is proposed in respect to overshadowing.

Residual effect

8.177 In the absence of secondary mitigation the residual effects are the same as that reported in the pre-mitigation scenario.

Significance

8.178 The effect is considered to be **Not Significant** for Public Amenity Space, 32 Quay Street (Area A1), Public Amenity Space, Motor Square (Area A3) and the River Irwell (Area A4).

8.179 The effect is considered to be **Significant** for Public Amenity Space, Clermont-Ferrand Square (Area A2).

Limitations and Assumptions

8.180 Access has not been obtained into the surrounding properties. Full or partial floor plans for neighbouring properties have obtained from public records, where available and these have been listed below.

- The Century Buildings;
- 2 – 18 Left Bank Apartments;
- 29 New Bailey Street; and
- 32 Quay Street.

8.181 Where floor plan information and precise window locations could not be identified for the sensitive receptors, assumptions have been made based on the information available and external observation (e.g. site visits and online resources, including Google Maps and Bing Maps etc). No floor plans for The Bridge, 40 Dearman Place were obtained and only partial floor plans were obtained for The Century buildings and therefore these properties have been modelled using reasonable assumptions.

8.182 Building plan information for the Approved Projects outlined below were obtained from MCC's online planning portal:

- Alberton House – Planning Ref - 134287/FO/2022 (MCC); and
- Kendal's Fraser - Planning Ref - 129251/FO/2021 (MCC).

8.183 A 3D model of the existing baseline was created using a 3D photogrammetry model (AccuCities model received February 2021), along with site photography and information obtained via online mapping resources (e.g. Google and Bing Maps) and online local authority / estate agent records. The resultant 3D model has been used as the basis for all technical analysis.

8.184 A AccuCities photogrammetry model has been used for the neighbouring context. This building and terrain model has a claimed accuracy estimated to within 15cm or real world coordinates in each axis. The AccuCities model is manually captured by remote photogrammetric surveyors, with no automatic processes used.

8.185 An architectural 3D model of the Proposed Scheme was provided by Studio Egret West and inserted into the analysis model. The positioning of the Proposed Scheme model was verified prior to all technical analysis.

8.186 Where internal layouts have not been acquired, reasonable assumptions as to the internal layouts of the rooms behind the fenestration have been made to enable the NSL assessment in accordance with the 2022 BRE Guidelines. Unless the building form dictates otherwise, a standard 4.2m deep room for residential properties has been assumed depending upon the information received, based upon professional experience and typical residential room depths. Internal layouts are only relevant for the NSL (No Sky Line / daylight distribution) assessment. The primary daylight (VSC) and sunlight (APSH) assessments are calculated at the window face and therefore do not require floor plans.

Summary

8.187 **Table 8.14** provides a summary of the effects, receptors, residual effects and conclusions of significance considered within the Chapter.

8.188 The table only provides a summary of the residual effects identified within the assessment and details of all primary, secondary and tertiary mitigation that has been taken into account is set out in detail within the Chapter and summarised within the Environmental Management Plan included within **Volume 4: Environmental Management Plan**.

Table 8.14: Summary of residual and significant effects

Effect		Receptor	Residual effect	Is the effect significant?
Operational stage				
Alterations to daylight and sunlight levels within sensitive neighbouring properties as a result of the Proposed Scheme	Daylight	The Century Buildings	Negligible	NO
		2 – 18 Left Bank Apartments	Minor adverse	NO
		29 New Bailey Street	Minor adverse	NO
		32 Quay Street	Moderate adverse	YES
		The Bridge, 40 Dearmans Place	Moderate adverse	YES
	Sunlight	The Century Buildings	Negligible	NO
		2 – 18 Left Bank Apartments	Minor adverse	NO
		29 New Bailey Street	Minor adverse	NO
		32 Quay Street	Moderate adverse	YES
		The Bridge, 40 Dearmans Place	Moderate adverse	YES
Alterations in sunlight to neighbouring amenity spaces due to overshadowing resulting from the Proposed Scheme		Public Amenity Space, 32 Quay Street	Negligible	NO
		Public Amenity Space, Clermont-Ferrand Square	Moderate adverse	YES
		Public Amenity Space, Motor Square	Negligible	NO
		The River Irwell	Negligible	NO

References

[1] https://www.gov.uk/government/collections/planning-practice-guidance
[2] https://www.gov.uk/government/publications/national-planning-policy-framework--2.
[3] Building Research Establishment (2022) Report 209: Site Layout Planning for Daylight and Sunlight, A Guide to Good Practice (4th Edition).

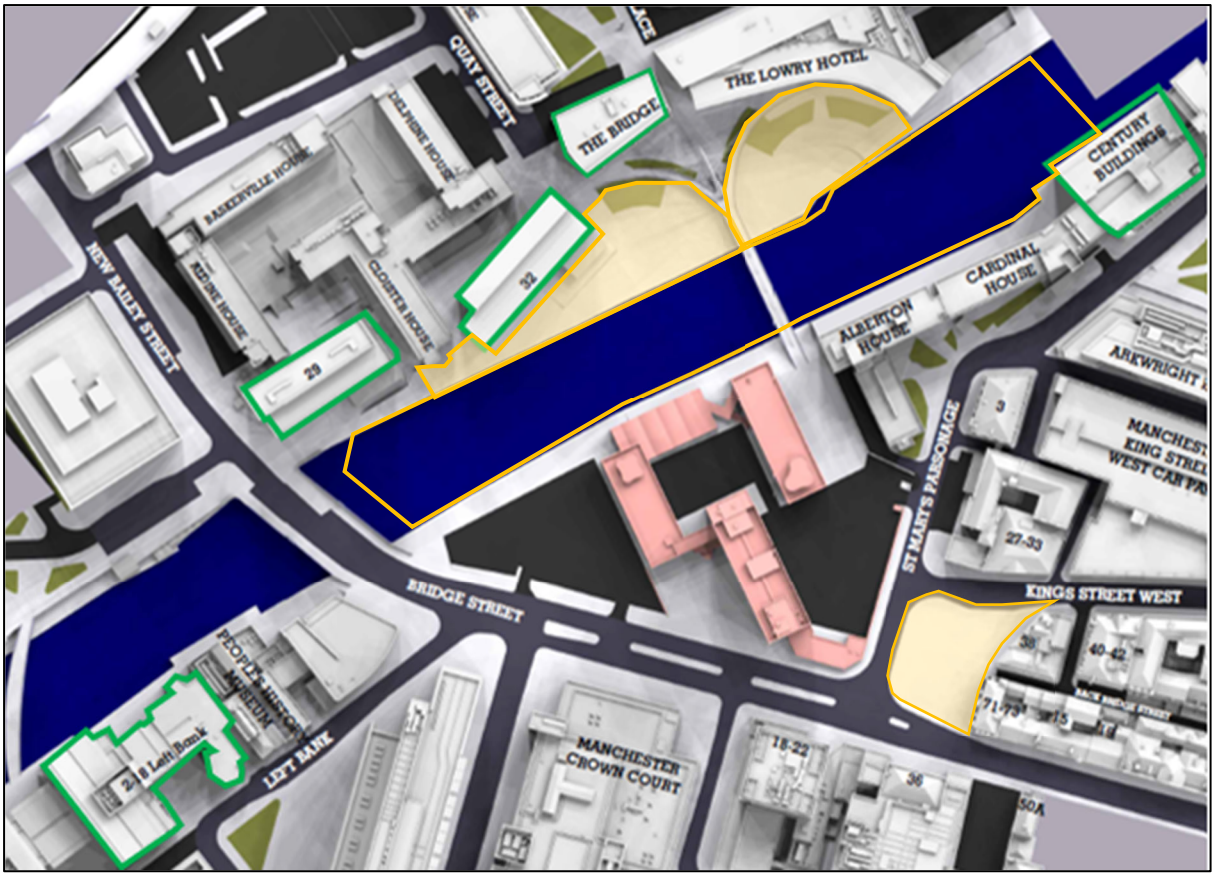


Figure 8.1: Baseline considered for assessment (illustrated in red) and existing neighbouring context (illustrated in grey) – neighbouring residential receptors are outlined in green and the neighbouring amenity areas are highlighted in yellow (see also drawings BRE/01-04 located in Appendix 8.2)

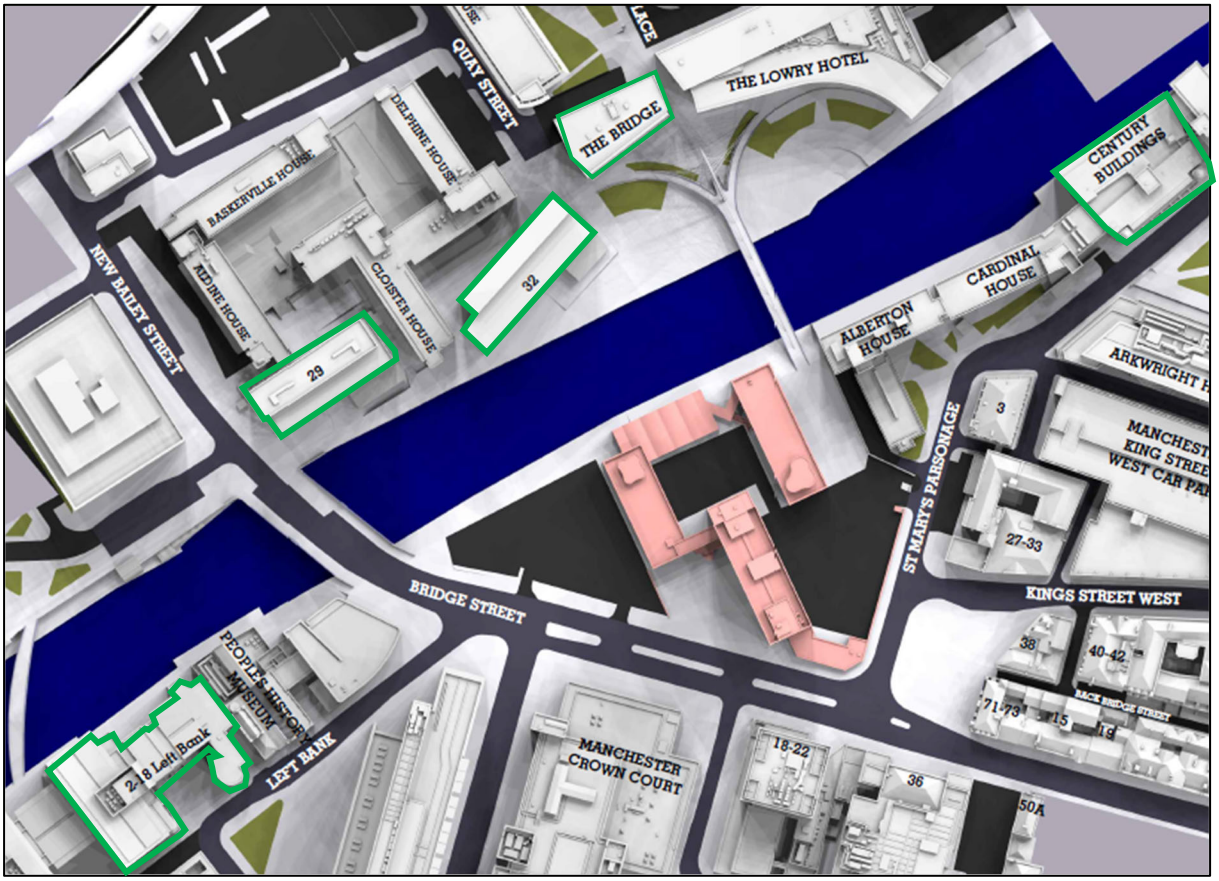


Figure 8.2 - Location of Existing Sensitive Receptors (outlined green) For Daylight/Sunlight

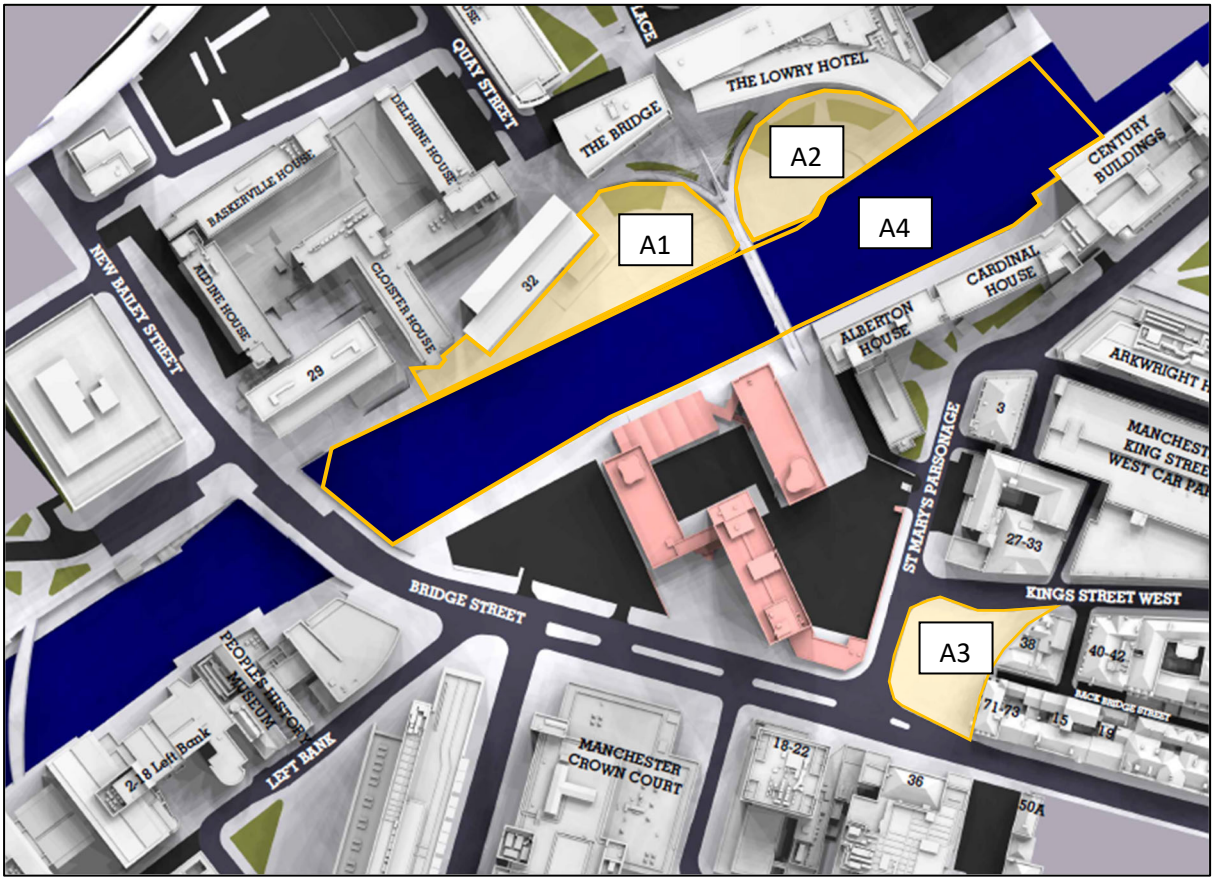


Figure 8.3 Location of Surrounding Existing Space considered for Overshadowing (outlined in yellow)

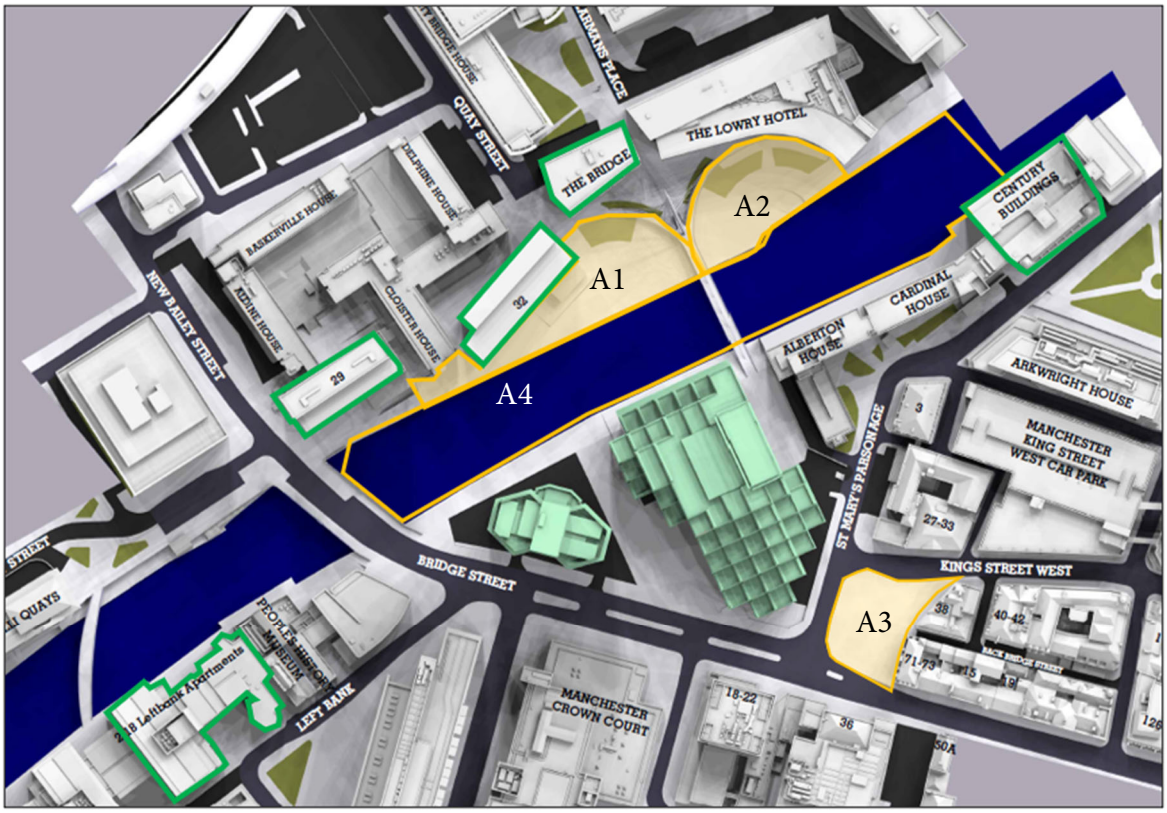


Figure* 8.4: *Proposed development (illustrated in green) and existing neighbouring context (illustrated in grey) – sensitive neighbouring residential receptors are highlighted green and the four sensitive neighbouring amenity areas are outlined in yellow (see also drawings BRE/02 and 04 located in Appendix 8.2)

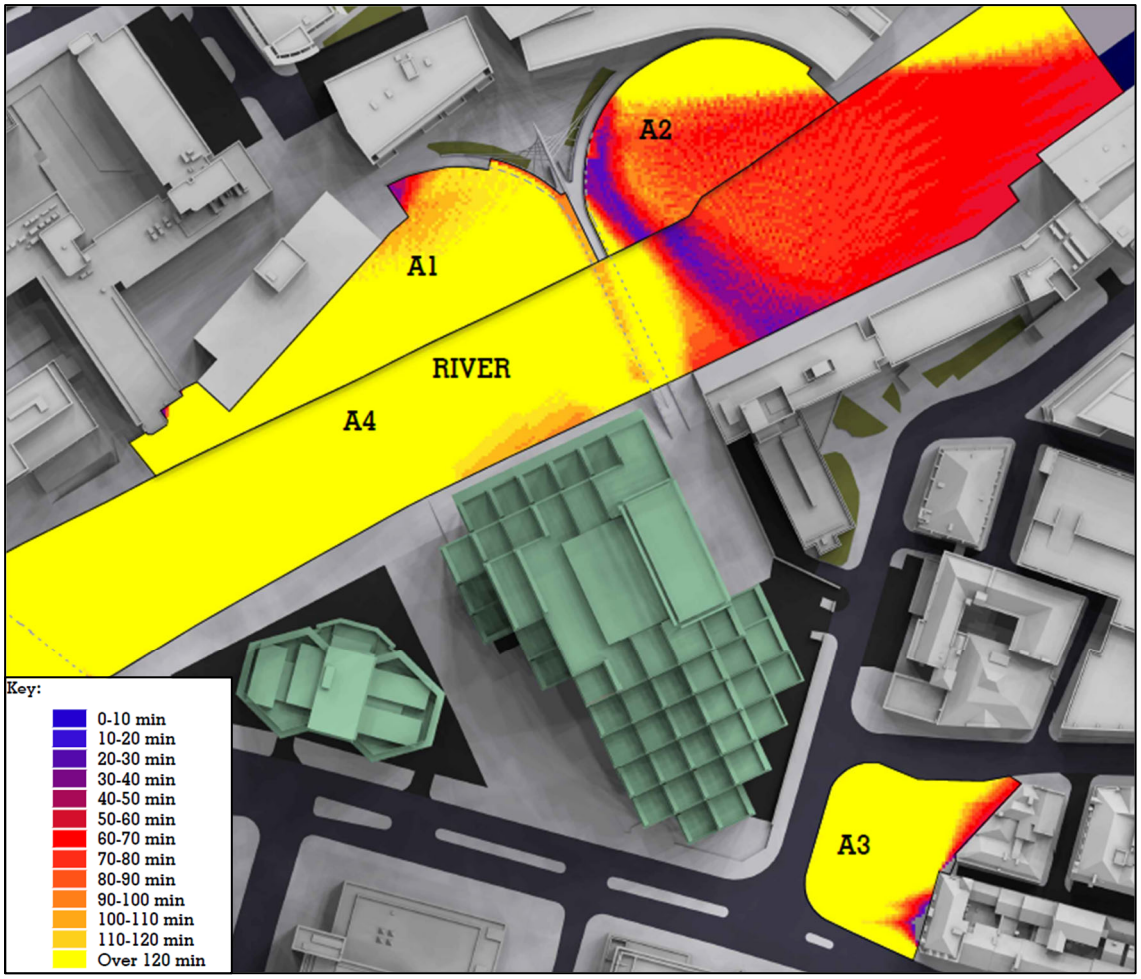


Figure 8.5: Sun Hours on Ground Overshadowing Assessment for sensitive neighbouring amenity areas – 21st March in the proposed context

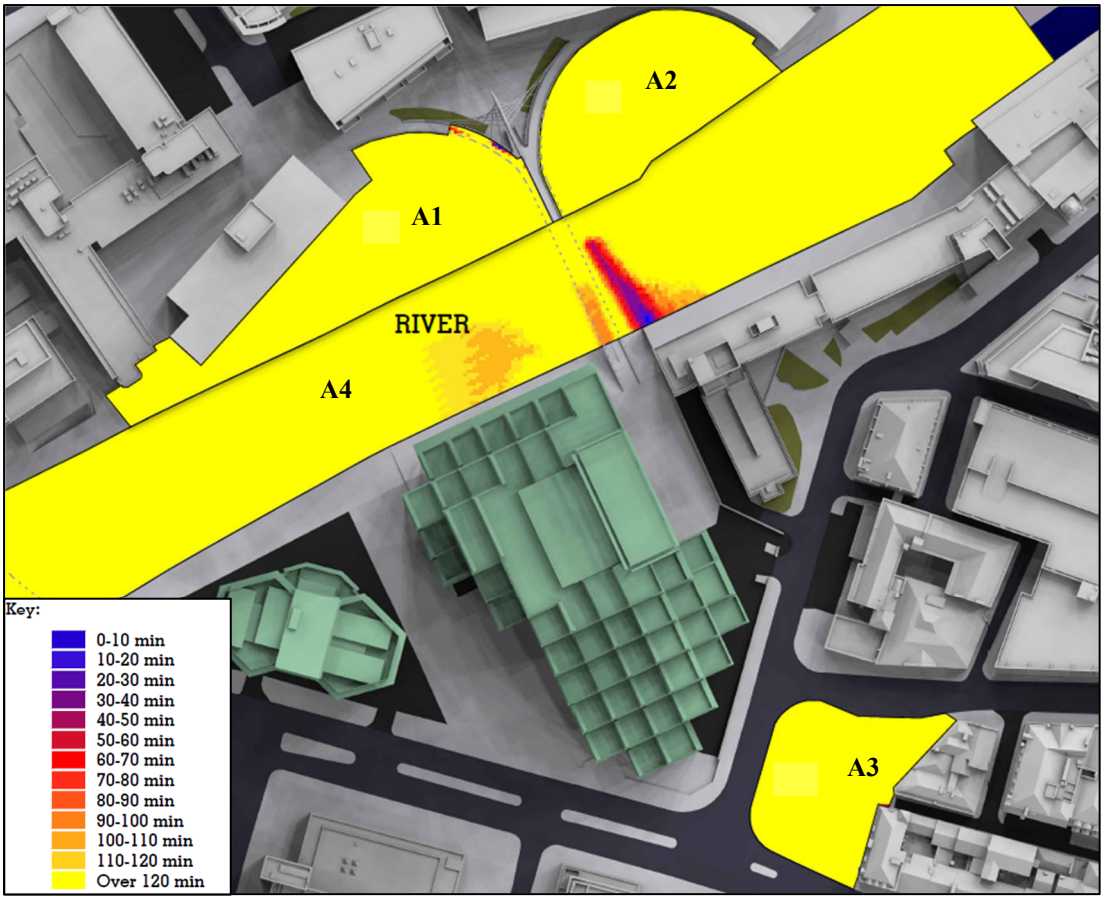


Figure 8.6 : Sun Hours on Ground Overshadowing Assessment for sensitive neighbouring amenity areas, 21st June in the proposed context

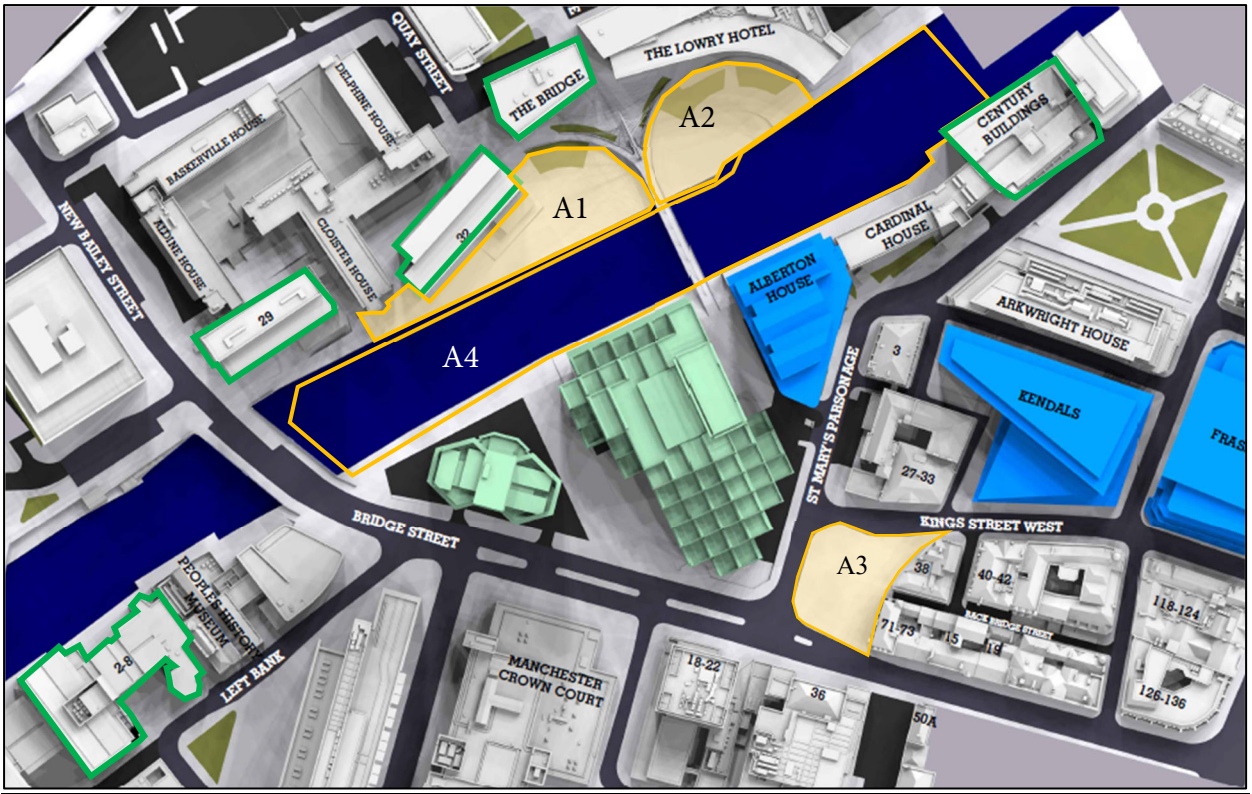


Figure 8.7 : Proposed Scheme (illustrated in green), approved projects (illustrated in blue) and existing neighbouring context (illustrated in grey) – sensitive neighbouring residential receptors are outlined in green and the sensitive neighbouring amenity areas are outlined in yellow (see also drawings BRE/05 and 06 located in Appendix 8.2-8.5)

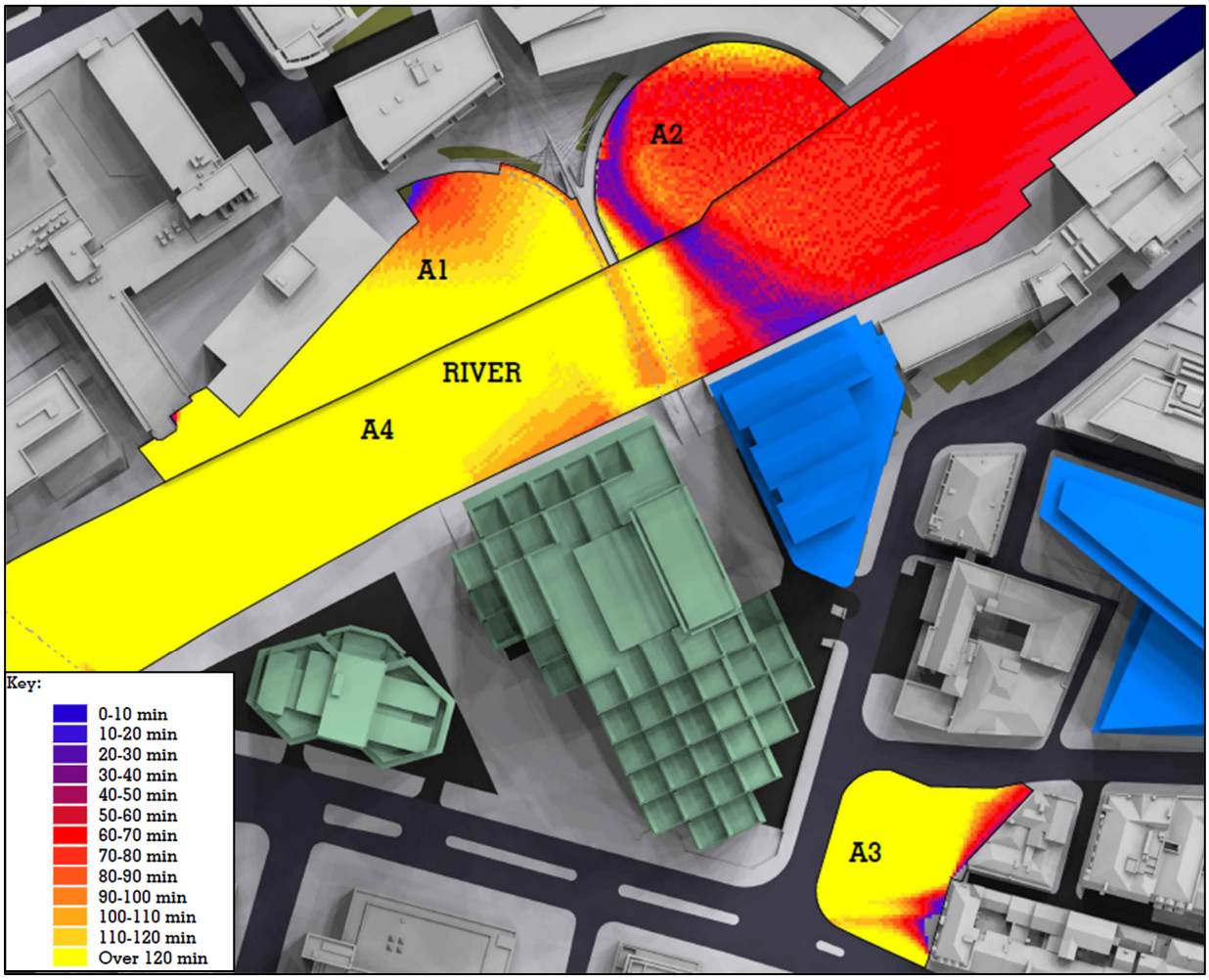


Figure 8.8: Sun Hours on Ground Overshadowing Assessment for sensitive neighbouring amenity areas– 21st March

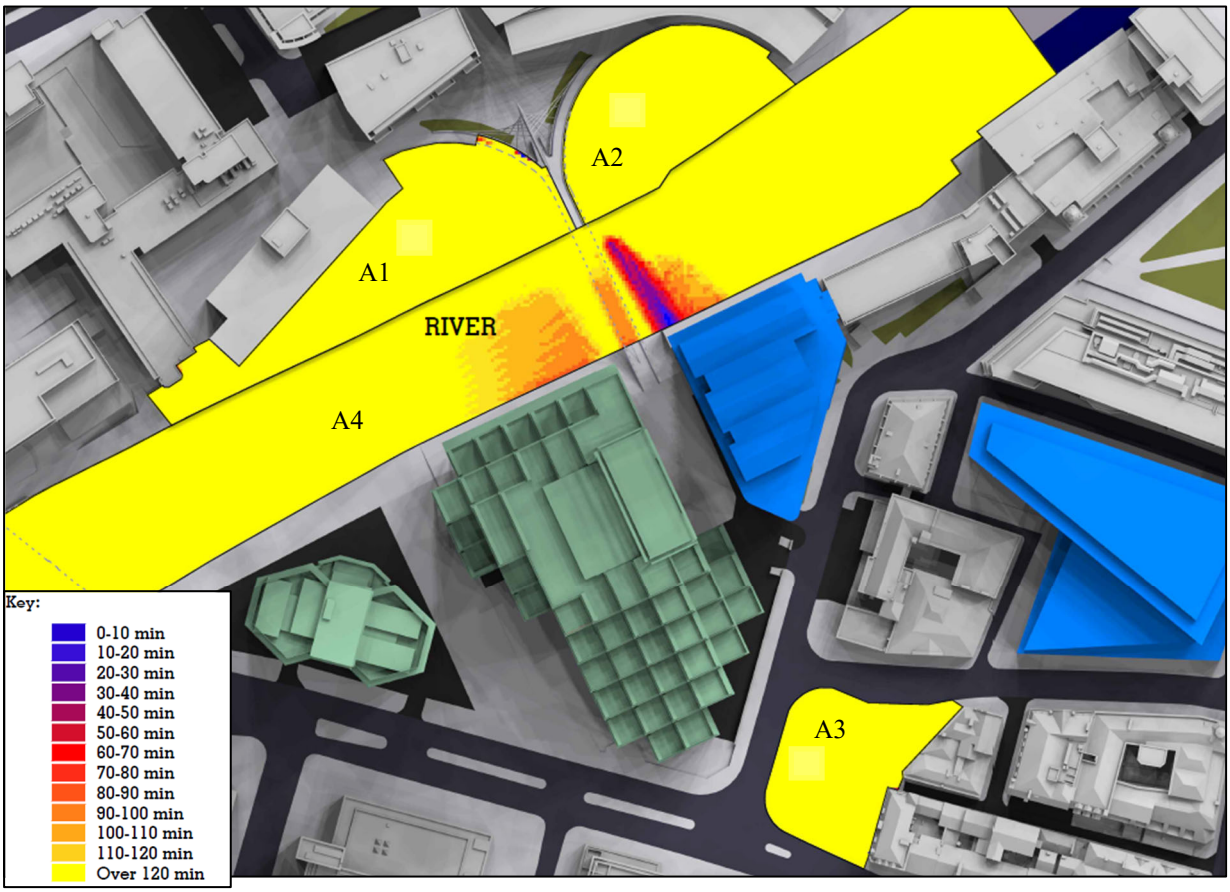


Figure 8.9: Sun Hours on Ground Overshadowing Assessment for sensitive neighbouring amenity areas – 21st June

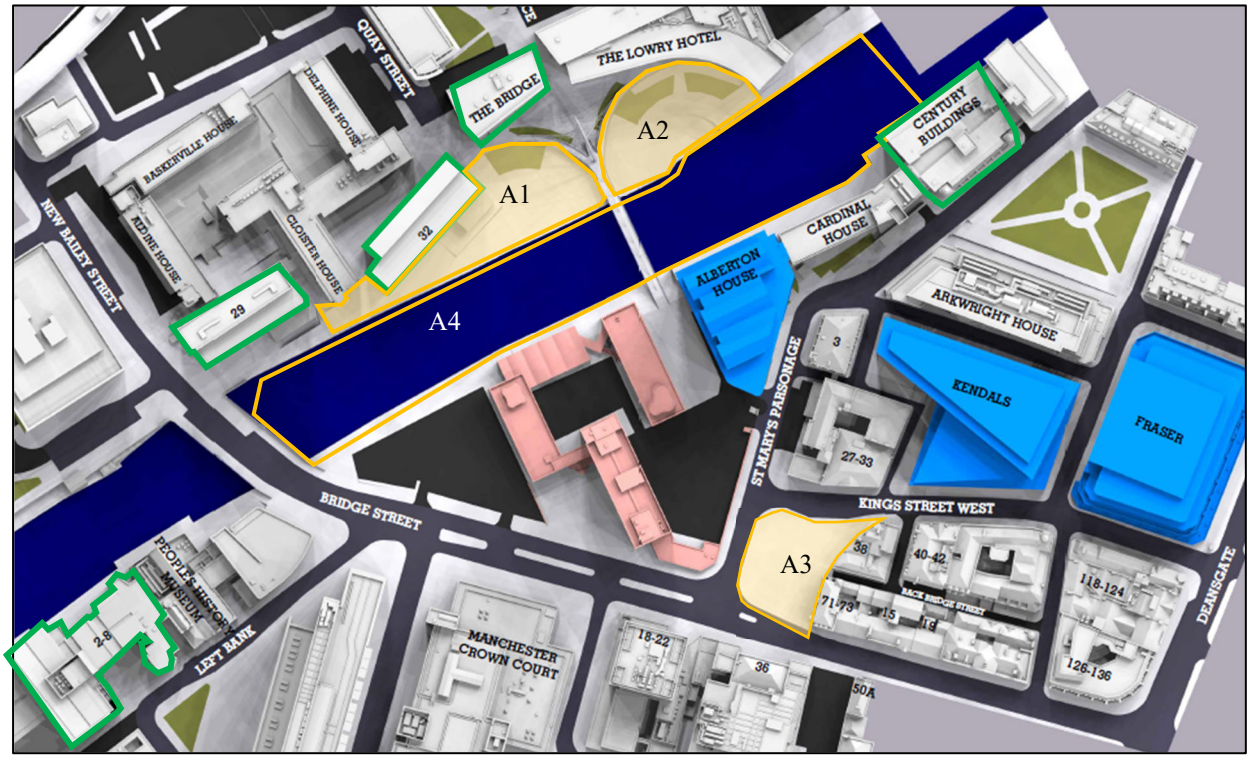


Figure 8.10: Proposed Scheme (illustrated in green) and existing neighbouring context (illustrated in grey) approved projects (illustrated in blue) – sensitive neighbouring residential receptors are highlighted in green and the sensitive neighbouring amenity areas are outlined in yellow (see also drawings BRE/07 and BRE/10 located in Appendix 8.2)

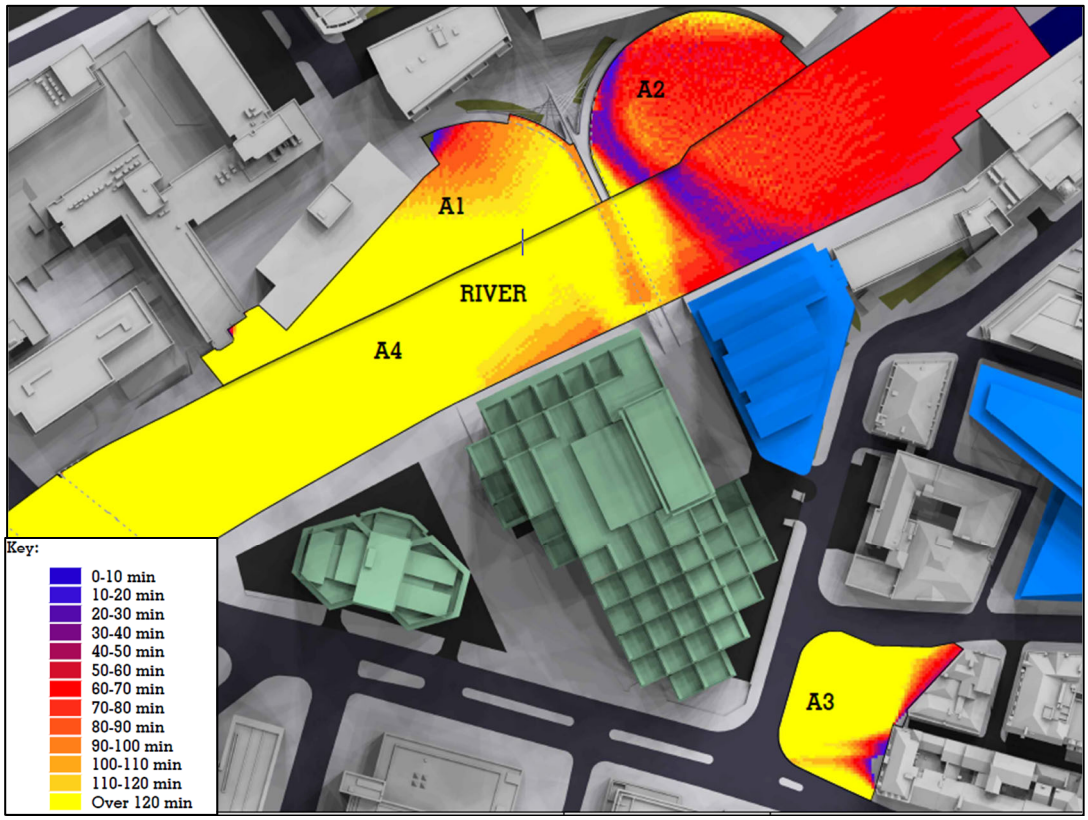


Figure 8.11: Sun Hours on Ground Overshadowing Assessment for sensitive neighbouring amenity areas– 21st March – Future baseline

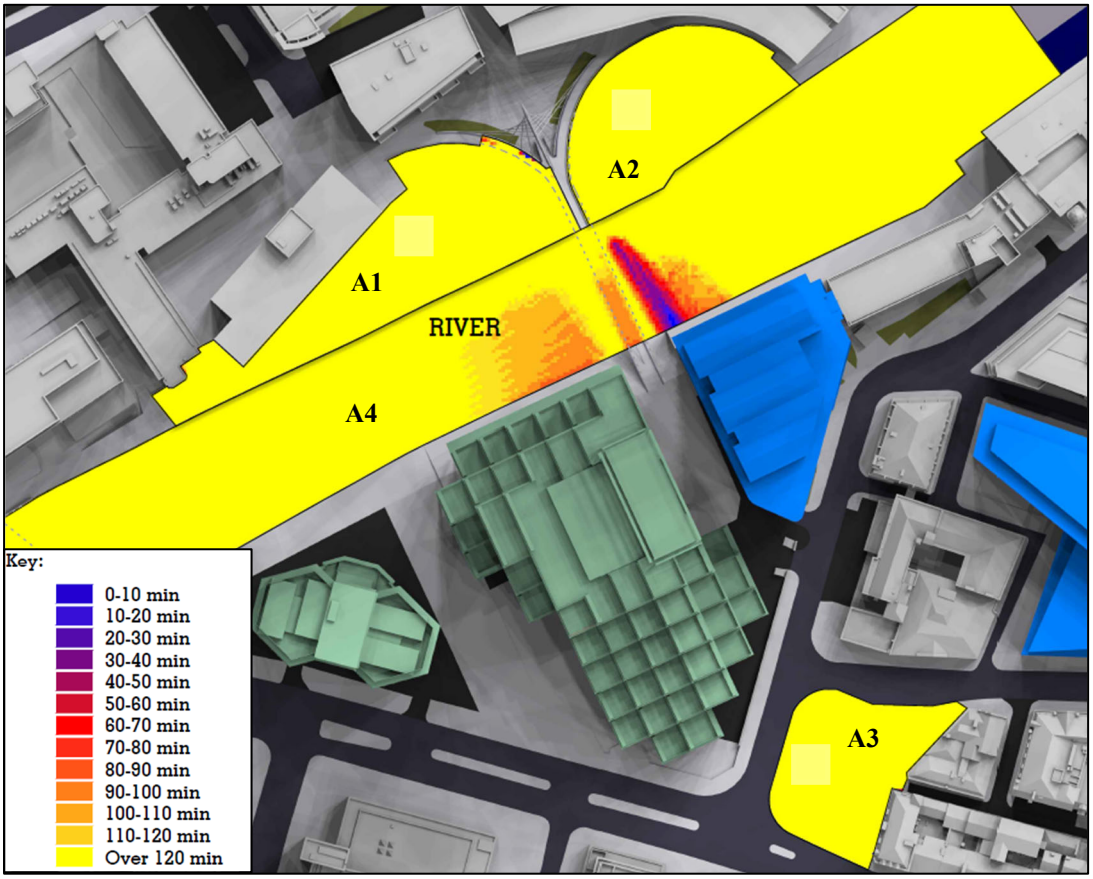


Figure 8.12: Sun Hours on Ground Overshadowing Assessment for sensitive neighbouring amenity areas – 21st June – Future baseline

9. Wind Microclimate

Introduction

9.1 This Chapter reports the outcome of the assessment of likely significant environmental effects arising from the Proposed Scheme in relation to wind microclimate.

9.2 The Chapter describes scope of the assessment and assessment methodology, and a summary of the baseline information that has informed the assessment.

9.3 In line with **Chapter 2: Approach to EIA**, the assessment reports on the likely significant environmental effects, the further mitigation measures required to prevent, reduce or offset any significant adverse effects, or further enhance beneficial effects. The conclusions are provided both in terms of the residual effects and whether these are considered to be significant. The assessment of effects takes into consideration both primary and tertiary mitigation (see **Chapter 2: Approach to EIA** for further details) and is informed by the EIA Scoping process (**Appendices 2.1** and **2.2**) and iterative scoping process where applicable.

9.4 This Chapter, and its associated **Figures 9.1 – 9.18** and **Appendix 9.1** (Wind Microclimate Report) is intended to be read as part of the wider ES with particular reference to the introductory Chapters of this ES (**Chapters 1 – 5**).

9.5 In addition, this Chapter should be read in conjunction with **Chapter 12: Assessment of Cumulative Effects.**

Summary of Consultation

9.6 No technical consultation with MCC or other statutory agencies during the preparation of this Chapter beyond that undertaken as part of the EIA Scoping Report (**Appendix 2.1**) and Scoping Opinion (**Appendix 2.2**) has been completed.

Scope of the Assessment

9.7 An EIA Scoping Report was submitted to MCC on 27th September 2022, as presented as **Appendix 2.1**. The Scoping Opinion was received on 7th November 2022 (**Appendix 2.2**). This section provides a confirmation of the scope of the assessment presented within this Chapter following submission of the EIA Scoping Report.

Effects Considered Unlikely to be Significant

9.8 No effects were considered unlikely to be significant within the EIA Scoping Report (**Appendix 2.1**).

Effects Considered Likely to be Significant

9.9 **Table 9.1** outlines the effects likely to be significant at the EIA Scoping stage and that have been assessed and reported within this Chapter.

Table 9.1: Effects considered likely to be significant

Likely significant effect[a]	Receptors[b]	Applicable stage[c]
Potential adverse wind conditions for proposed uses, including: Exceedance of the Industry standard Lawson Criteria for pedestrian comfort.	Users of thoroughfares, entrances, waiting areas (bus stops) and recreational spaces within and around the Site, where the impact of wind gusts have the potential for the greatest impact on where pedestrian activities are most sensitive to wind and require the most benign conditions (including future residents and Site users, pedestrians and cyclists).	Operation
Exceedance of the Industry standard Lawson Criteria for pedestrian distress.	Users of thoroughfares, entrances, waiting areas (bus stops) and recreational spaces within and around the Site, where the impact of wind gusts have the potential for the greatest impact (including future residents and Site users, pedestrians and cyclists).	Operation

9.10 During construction, built form within the Site will be demolished and construction of the Proposed Scheme will occur. In the first instance, when the demolition of the existing built form occurs, there is considered to be limited opportunity for accelerated wind due to channelling or downdraughts.

9.11 As the built form (specifically the massing) of the Proposed Scheme increases during construction, there is a potential for accelerated wind conditions to occur. As the massing nears completion, the level of effect is likely to be similar to that being considered / assessed for the operational stage, albeit in instances mitigation measures required for appropriate wind conditions for the operational stage may not be fully implemented and wind levels may be temporarily greater than that determined for the completed Proposed Scheme. Nonetheless, given the Site will still be under construction (and secured from general public usage), the receptors within the Site are considered to be of lower sensitivity than at operation. It is considered that the assessment of operational effects would represent an approximation of the worst-case scenario during construction. Therefore, for the purpose of the EIA, only the operational stage of the Proposed Scheme has been modelled and assessed.

[a] Effects spilt out and titles updated to more fully reflect likely significant effects assessed within the EIA and reported in this Chapter.
[b] Receptor descriptions updated to more fully reflect receptors assessed within the EIA and reported in this Chapter.
[c] As set out in the EIA Scoping Report (**Appendix 2.1**), operational effects are considered to be representative of worst-case construction effects. These will be considered within **Chapter 12: Assessment of Cumulative Effects**, specifically within effect interactions.

9.12 Following EIA Scoping, a review of the UK Climate Projections (UKCP18) published by the Met Office has been undertaken, which presents a number of different predicted scenarios. The 'Climate Projects Report'[1] published by UKCP18 presents the probable changes in wind speed for 2070 - 2099 in both the summer and winter seasons. With these predictions, the current trends in climate change are not likely to have any significant effects on the predicted wind microclimate conditions in and around the Proposed Scheme. It is therefore not necessary to provide a quantitative analysis of the increase in storm frequency and its implication on the effects on the wind microclimate for the Proposed Scheme.

Assessment Methodology

Legislative Framework, Policy and Guidance

9.13 There is no specific legislation dealing with wind microclimate.

9.14 The wind microclimate assessment has been undertaken within the context of relevant planning policies and guidance documents summarised below.

NPPF (2021)[2]

9.15 In July 2021, the Government published an updated version of the NPPF. There are no policies or statements that are directly related to the wind microclimate, although the promotion of high-quality built environments was emphasised in the NPPF. For instance, paragraph 130 states the following:'[…] *f) Create places that are safe, inclusive, and accessible and which promote health and well-being, with high standard of amenity for existing and future users*'.

National Design Guidance (2021)[3]

9.16 The Ministry of Housing, Communities & Local Government, paragraph 71 states that '*Proposals for tall buildings (and other buildings with a significantly larger scale or bulk than their surroundings) require special consideration. This includes their location and siting; relationship to context; impact on local character, views and sight lines; composition - how they meet the ground and the sky; and environmental impacts, such as …. wind. These need to be resolved satisfactorily in relation to the context and local character*'.

The Greater Manchester Plan for Homes, Jobs and the Environment: the Greater Manchester Spatial Framework Revised Draft 2019[4]

9.17 The Greater Manchester Plan for Homes, Jobs and the Environment: the Greater Manchester Spatial Framework Revised Draft 2019 enables Greater Manchester to reinforce their ambition to meet local housing need, promote new approach to town centres, achieve carbon neutral goals and supports other wider strategies around air quality, microclimate, walking and cycling etc.

9.18 Policy GM-S 4 Resilience, states that:

'The development of Greater Manchester will be managed so as to increase considerably the capacity of its citizens, communities, businesses and infrastructure to survive, adapt and grow in the face of physical, social, economic and environmental challenges.

9.19 Key measures will include:

'[…] 6. Designing indoor and outdoor environments to provide a reduction and respite from more extreme temperatures and winds associated with climate change and greater urbanisation;'

9.20 Policy GM-E 1 Sustainable Places, states that:

'Greater Manchester will aim to become one of the most liveable city regions in the world, consisting of a series of beautiful, healthy and varied places, each having the following key attributes that all development, wherever appropriate, should be consistent with:

[…] 14. Comfortable and inviting, with indoor and outdoor environments:

A. Offering a high level of amenity that minimises exposure to pollution; and B. Addressing microclimate issues such as sunlight, indoor air quality, overheating, shade, wind and shelter'.

9.21 Policy GM-C 8 Streets For All, states that:

'Greater Manchester's streets will be designed and managed to make a significant positive contribution to the quality of place and support high levels of walking, cycling and public transport, including by:

[…] 8. Offering shelter from wind and rain, and shade from the sun;'.

Guidance on Tall Buildings (2007)[5]

9.22 English Heritage and the Commission for Architecture and the Built Environment (CABE) produced a revised and updated version of their joint guidance on tall buildings. The final version was released in July 2007 and in section Criteria for evaluation, state that:

'… planning permission for tall buildings should ensure therefore that the following criteria are fully addressed: […] The effect on the local environment, including microclimate'.

Tall Buildings: Historic England Advice Note 4 (2022)[6]

9.23 The Historic England Advice Note 4: Tall Buildings states in Section 3.3:

'*The following factors need to be considered to determine the impacts a tall building could have upon the historic environment:*

- *[…]*
- *Environmental: the influence on local micro-climates such as creation of wind tunnels, canyon effect, over-shadowing, glare, and air quality and effect on heritage assets in terms of the impact these micro-climatic changes could have upon their fabric, and how they are experienced; and*
- *Cumulative: the combined impacts on heritage assets from existing, consented and proposed tall buildings'*.

9.24 In Section 4.1, Checklist 1 notes:

'The tall building policy should: […] j. Address the following:

[…] Environmental impacts, such as sunlight, daylight, overshadowing and wind;…'.

9.25 In Section 4.5:

'Using an understanding of the historic environment to inform the approach to tall building design can be achieved by:

[…] 2. The impact on the local environment: people's experience of local character and the historic environment can be affected by factors such as wind and other microclimatic changes, overshadowing, and light pollution from the development of a tall building. In some cases, this has the potential to impact the physical fabric of heritage assets. It is important to test impacts on the local environment at design stage and present these through the application process to reduce the incidence of interventions being required to mitigate impacts post construction (which may in turn harm character and quality of a site, street or area)'.

9.26 In Section 4.6:

'*Designing and planning for tall buildings can be enhanced by, and in some cases may require, the use of three-dimensional digital modelling. Such models support the development of options analysis evidence for tall building policies as they allow:*

[…] Consideration of other environmental factors such as wind, daylight/ sunlight and pollution'.

Lawson criteria, specifically the London Docklands Development Corporation (LDDC) variant[7]

9.27 The Lawson variant of the LDDC criteria has been used in this assessment. This is recognised by many other local authorities across London and the UK as a suitable benchmark for wind assessments.

Defining the Study Area

9.28 The Site is located an urban area in Manchester, surrounded by a variety of low-to-medium rise residential, commercial, industrial, and office buildings. Of particular note, immediately next to the Site to the north, is the River Irwell.

9.29 The baseline wind microclimate in the area is driven by prevailing southerly winds, but also with a contribution from the west. This is typical of the Manchester wind climate.

9.30 The study area considers the built environment of the Site[d], as indicated by **Figure 1.1**. and its surrounding context extending up to 400m, which is in line with the current wind microclimate best practice, (e.g. City of London Wind Microclimate Guidelines (2019)[8]).

[d] It should be noted that on-Site receptors specifically refers to those within / adjacent to the new buildings within the Proposed Scheme. 'Off-Site' receptors are still located within the wider Site boundary.

9.31 Along with the wind conditions on-Site, the off-Site wind conditions within approximately 200m of the Site were considered to include sensitive public amenity areas (receptors) such as Motor Square, Clermont-Ferrand Square and public amenity space at Trinity Square (delivered by the neighbouring Alberton House Approved Project).

9.32 The study area is shown on **Figure 9.2**.

Establishing the Baseline

9.33 **Table 9.2** summarises all studies / surveys / analysis / evaluations undertaken to inform the assessment presented within this Chapter.

Table 9.2: Background studies / surveys / analysis / evaluation

Study / survey / analysis / evaluation	Overview	Date of completion
Wind microclimate testing	Initial wind microclimate assessments using Computational Fluid Dynamics (CFD) for: • Existing Site with existing context surroundings; • Proposed Scheme with existing context surroundings; and • Proposed Scheme with existing context surroundings and scheme for neighbouring building (Alberton House).	April – October 2022

Assessment Process

Modelling

9.34 CFD was used to conduct the wind microclimate assessment for the Proposed Scheme. A full-scale 3D model of the Proposed Scheme and surrounding buildings up to a 400m radius from the Site boundary was produced to carry out the analysis. This is a standard radius for wind microclimate assessments and is considered to allow an assessment of likely significant effects.

9.35 16 wind directions with 22.5° interval were considered for each scenario above. 30 years (1991 –2021) of hourly wind data from Manchester City Airport were used to generate the wind statistics (then corrected to the local conditions at the Site). This is considered to be the most representative meteorological data for the Site. Scaling factors to account for the surrounding terrain roughness were derived using ESDU 01008[9]. Further details of the parameters used in the modelling are provided in the Wind Microclimate Assessment (**Appendix 9.1**).

9.36 Wind speed ratios (e.g., pedestrian level wind speeds as a ratio of a reference wind speed at 120m above ground) were identified at key locations within the Site (both at

ground level and upper levels) where increased windiness is expected because of the proposed buildings' geometry and in areas of wind-sensitive activities such as public entrances, seating areas or pedestrian pathways (see full details below). These were identified based on a review of the relevant plans provided alongside **Chapter 4: Development Specification** (**Figures 4.2 – 4.57**) and using Google street-view. The selected receptors are considered to be representative sample of both existing and proposed receptors.

9.37 Results from the CFD modelling were interpreted using professional judgement. Wind conditions for the assessment scenarios were compared to the required levels for intended use. The suitability of the expected wind conditions for various activities were assessed based on the industry standard Lawson LDDC criteria, which is set out in detail in the following section.

Assessed model scenarios

9.38 Five model scenarios have been simulated and assessed, including two mitigated scenarios, as shown below:

- Baseline: Existing Site with existing context surroundings (Scenario 1);
- Pre-mitigation 1: Proposed Scheme without proposed mitigation and landscaping, and existing context surroundings (Scenario 2);
- Post-mitigation 1: Proposed Scheme with proposed mitigation and landscaping, and existing context surroundings (Scenario 3);
- Pre-mitigation 2: Proposed Scheme without proposed mitigation and landscaping, and existing context surroundings plus Approved Projects within 300m (including Alberton House) (Scenario 4); and
- Post-mitigation 2: Proposed Scheme with proposed mitigation and landscaping, and existing context surroundings plus Approved Projects within 300m (including Alberton House) (Scenario 5).

9.39 Approved Projects in the surrounding context, listed in **Chapter 12: Assessment of Cumulative Effects**, within 300m radius of the Site were considered in Scenarios 4 and 5. This is a standard radius for wind microclimate assessments and is considered to allow an assessment of likely cumulative effects.

9.40 The Approved Projects considered within the assessment were as follows:

- 134287/FO/2022 - Alberton House;
- 129251/FO/2021 – Kendal Milne Building and Fraser Building;
- 20/75571/FUL – Plot B7 Salford Central Masterplan; and
- 21/78277/FUL - Rali Quays site.

9.41 The results of Scenarios 4 and 5 are reported in **Chapter 12: Assessment of Cumulative Effects**.

9.42 On-Site and off-Site wind conditions were assessed for the above scenarios during the following seasons most relevant to the intended use:

- Summer – characterised by calm wind conditions and frequent use of public amenities; and
- Winter – the windiest season of the year.

Pedestrian wind comfort criteria

9.43 The well-established Lawson LDDC criteria were used to identify the wind comfort / distress ratings at all receptor locations.

9.44 Lawson devised a scale for assessing the suitability of wind conditions in the urban environment based upon threshold values of wind speed and frequency of occurrence.

9.45 A range of pedestrian activities from sitting through to more transient activities such as crossing the road are defined. Each activity represents a wind speed and frequency of occurrence. If the wind conditions exceed the threshold, then the conditions are considered unacceptable for the stated activity. If the wind conditions are below the threshold, they are deemed tolerable (or suitable).

9.46 **Table 9.3** describes the Lawson LDDC comfort criteria, which can be visualised using a colour gradient from green to red representing the different grades and associated activities.

Table 9.3: Wind acceptability according to the LDDC Comfort Criteria

Key	Comfort category	Threshold	Description
	Sitting	5% and > 4m/s	Light breezes desired for outdoor restaurants and seating areas where one can read a paper or sit for long periods.
	Standing and Entrances	5% and > 6m/s	Gentle breezes acceptable for main building entrances, pickup / drop-off points and bus stops.
	Strolling	5% and > 8m/s	Breezes that would be appropriate for window shopping and strolling along a city / town centre street, plaza, or park.
	Business Walking	5% and > 10m/s	High speeds that can be tolerated if one / s only objective is to walk, run or cycle without lingering.
	Main Roads	> 5% and > 10m/s	Winds of this magnitude are considered a nuisance for most activities.

9.47 The comfort results are reported by relating the wind conditions in an area to the intended pedestrian use, notably:

- Thoroughfares – requiring, at worst, 'strolling' conditions;
- Entrances – requiring, at worst, 'standing' conditions;
- Seating areas – requiring 'sitting' wind conditions during the summer season;
- Amenity spaces – requiring 'sitting / standing' conditions during the summer season; and
- Private terraces / balconies – requiring 'sitting / standing' conditions during the summer season.

9.48 Additional consideration is given to the following sensitive receptors in the surrounding area where the wind conditions are likely to be affected by the Proposed Scheme:

- Bus stops – requiring, at worst, 'standing' conditions; and
- Pedestrian crossings – requiring, at worst, 'strolling conditions.

Wind distress

9.49 The Lawson Criteria also specify the threshold for wind distress level:

- 15 m/s is the average wind speed threshold for wind distress, especially for the vulnerable user group, including cyclists, the elderly, people with disabilities and the very young.

9.50 Any location with an exceedance of the above threshold, for more than approximately 2 hours of the year will be considered as an intolerable wind distress location.

Reporting of the Environmental Effect and Significance Criteria

9.51 The assessment of likely significant environmental effects created by the Proposed Scheme has taken into account the operational stage[e]. The following sections define the approach adopted within the assessment for the determination of sensitivity, magnitude of change, the level of effect and significance.

Determining Sensitivity of Receptor

9.52 The sensitivity of affected receptors has been considered on a scale of **high**, **medium**, **low** or **negligible**. The sensitivity of a receptor is based on the intended use and whether the location is for public or private use. **Table 9.4** provides a description of the receptor sensitivity scales.

[e] As noted in **Paragraph 9.11** the operational stage is considered to represent an approximation of the worst-case effects during the construction stage.

Table 9.4: Description of sensitivity of receptors

Sensitivity scale	Corresponding intended use
High	Areas intended for long-term seating, e.g., benches, restaurants, bars and cafes etc. which require conditions suitable for 'sitting' activities Entrances, bus stops etc where, at worst, wind conditions suitable for 'standing' activities are required. Areas with public use.
Medium	Areas that are suitable for short-term activities such as 'standing'. Areas for private use.
Low	Off-Site areas that are expected to have short-stay directions, such as movement corridors and thoroughfares, i.e., suitable for 'Business walking'.
Negligible	Areas with no regular pedestrian access, such as the centre of the road.

Determining the Magnitude of Change

9.53 The magnitude of change has been considered on a scale of **large, medium, small or negligible.**

9.54 The determination of the magnitude of change for wind microclimate is based on the comfort and distress ratings outlined in the Lawson criteria. **Table 9.5** provides a description of the definitions of the magnitude of change categories.

Table 9.5: Description of the magnitude of change for existing receptors

Comparison with the baseline condition in terms of Lawson Criteria Ratings	Receptor still suitable for intended use	Receptor not suitable for intended use
Wind comfort result is windier by 2 comfort categories	Medium to Small	Large
Wind comfort result is windier by 1 comfort category	Small to Negligible	Large to Medium
Wind comfort results remain the same or calmer (wind conditions improved)	Negligible	Medium to Small
Wind distress results have changed	Negligible	Large

9.55 For the future receptors, there is no baseline condition against which to compare. Hence, the 'magnitude of change' is benchmarked against the preferred comfort / distress grades for the intended uses based on Lawson criteria. **Table 9.6** lists a description of the definition to the magnitude of change for the future receptors.

Table 9.6: Description of the magnitude of change for future receptors

Comparison with the preferred ratings specified by Lawson Criteria	Receptor still suitable for intended use	Receptor not suitable for intended use
Wind Comfort grades increase by 2 or more grades	n/a	Large / medium
Wind Comfort grades increase by 1 grade	n/a	Large / medium / small
Wind Comfort grades achieve the preferred grade or better	Negligible	N/A
Wind Distress grades have changed	Negligible	Large

Determining the Level of Effect

9.56 The level of effect has been informed by the magnitude of change due to the Proposed Scheme and the evaluation of the sensitivity of the affected receptor. The level of effect has been determined using professional judgement and **Table 9.7** has been a tool which has assisted with this process.

9.57 Whilst **Table 9.7** provides ranges, the level of effect is confirmed as a single level and not a range, where possible, informed by professional judgement. For each effect, it has been concluded whether the effect is '*beneficial*' or '*adverse*'.

Table 9.7: Matrix to support determining the level of effect

		Sensitivity			
		High	Medium	Low	Negligible
Magnitude of change	Large	Major	Moderate to Major	Minor to Moderate	Negligible
	Medium	Moderate to Major	Moderate	Minor	Negligible
	Small	Minor to Moderate	Minor	Negligible to Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

Determining Significance

9.58 For each effect, a statement has been made as to whether the level of effect is '**Significant**' or '**Not Significant**'. This determination has been based on professional judgement and / or relevant guidance, where applicable.

9.59 Significance has only been concluded for residual effects (i.e. following the identification of secondary mitigation).

Baseline Conditions

9.60 The baseline wind conditions have been obtained by assessing the existing Site within the existing context surroundings (Scenario 1).

Baseline Receptor Locations

9.61 The model extent of the wind microclimate results is expected to be within the Site and its immediate surroundings, i.e., a local impact, for all receptors.

9.62 All pedestrians and cyclists on surrounding thoroughfares, entrances to the surrounding buildings and amenity spaces are highly sensitive receptors. Receptor locations in the baseline scenario are listed in **Table 9.8** and shown in **Figure 9.1**.

Table 9.8: Existing receptor locations

Receptor type (Season)	Receptor reference number
Thoroughfares (Winter)	G24 – G36
Entrances (Winter)	G1 – G21
Bus stop (Winter)	G30
Seating areas (Summer)	G22 and G23
Pedestrian crossings	G37 – G40
Terraced seating (Cumulative receptors (Public amenity space introduced by the consented Alberton House scheme))	G55

Overview of Baseline Conditions

9.63 Wind conditions for the baseline scenario (Scenario 1) are presented in **Figure 9.2** for the summer season, in **Figure 9.3** for the winter season and in **Figure 9.4** for the annual wind distress.

9.64 In summer, the results show that the wind conditions at street level are largely suitable for 'sitting' activities. Some areas, mainly to the south of the Site and around Albert Bridge, experience wind conditions suitable for 'standing' activities. The on-Site and off-Site results for winter are similar to that in summer, but with a larger area suitable for 'standing' activities. Localised 'strolling' areas are seen around Albert Bridge. There is no wind distress issue at any receptor location within or around the Site. Each specific category is addressed in turn below.

Off-Site thoroughfares (Winter)

9.65 The wind conditions for the off-Site thoroughfares are generally suitable for 'sitting' or 'standing' activities during the winter season.

9.66 Receptor locations G24, G25, G26, G27, G28, G29 and G36 are suitable for 'standing' activities.

9.67 Receptor locations G30, G31, G32, G33, G34, G35 are suitable for 'sitting' activities.

Off-Site entrances (Winter)

9.68 Off-Site entrance receptors G1 – G9, G11 – G13, G15 – G19 are suitable for 'sitting' activities. Other entrance receptors (G10 and G14) are suitable for 'standing' activities.

9.69 Receptors G20 and G21 represent the inset entrances of Manchester Family Court and People's History Museum, respectively. Therefore, the actual comfort category for both receptors is not directly visible from a plan view in **Figure 9.3**. Detailed figures for both entrances can be found in the technical report (**Appendix 9.1**), which shows that they are both in 'sitting' condition in winter.

Off-Site bus stop (Winter)

9.70 Wind conditions for receptor G30 are suitable for 'sitting' activities.

Off-Site seating areas (Summer)

9.71 Wind conditions for Motor Square (receptor G22) and Clermont-Ferrand Square (receptor G23) are suitable for 'sitting' use during the summer, when frequent pedestrian use is expected.

Off-Site pedestrian crossings (Winter)

9.72 Wind conditions for receptors G37, G38 and G40 are suitable for 'standing' activities whereas location G39 is suitable for 'sitting' activities.

Cumulative receptors (Public amenity space introduced by the consented Alberton House)

9.73 One future cumulative receptor at Trinity Square of the consented Alberton House scheme has been marked as G55. It is a pedestrian walkway in the baseline scenario and is generally in 'sitting' condition in summer and a mixture of 'sitting' and 'standing' conditions in winter.

Wind distress

9.74 There is no wind distress issue at any receptors' location at ground level within the existing conditions.

Future Baseline

9.75 In the absence of the Proposed Scheme, there would be no change to the wind microclimate prior to the introduction of consented developments, relative to baseline conditions. Based on wind microclimate assessment for the Alberton House development[10] (as the closest Approved Project) no potential wind safety or distress risks have been identified comparative to the existing conditions. This also applies with other local Approved Projects included. However, it is noted that there is ongoing regeneration around the Site that could have an influence on the wind conditions within and surrounding the Site, although the specifics of these changes is not fully understood without specific testing.

Primary and Tertiary Mitigation

Operational Stage

9.76 Primary mitigation is provided by the scale, massing and form of the Proposed Scheme as set out in **Chapter 4: Development Specification** and accompanying plans.

9.77 No additional tertiary mitigation is relevant to the wind microclimate assessment.

Assessment of Effects, Secondary Mitigation and Residual Effects

Operational Stage

Potential adverse wind conditions for proposed uses: exceedance of the Industry Standard Lawson Criteria for Pedestrian Comfort

9.78 Assessments using CFD were carried out with the Proposed Scheme in place with the existing surroundings (Scenario 2).

9.79 The Proposed Scheme introduces future receptors while all the existing receptors remain the same as the baseline (set out above and shown in **Figures 9.2 – 9.4**).

Receptor locations following the implementation of Proposed Scheme (Scenario 2)

9.80 Receptor locations within (on-Site) and around (off-Site) the Proposed Scheme are listed in **Table 9.9** their corresponding locations are provided in **Figure 9.5** for all ground-level receptors and **Figure 9.6** for receptors at terrace levels. All the off-Site receptors remain the same as in the baseline, while on-Site receptors are introduced by the Proposed Scheme.

Table 9.9: Existing and future receptor locations

Receptor type (Season)	Receptor reference number
Proposed (on-Site) passageway (Winter)	G46
Proposed (on-Site) entrances (Winter)	G41 – G50
Proposed (on-Site) seating areas (Summer)	G51 - G54
Proposed (on-Site) terraces / balconies (Summer)	T1 – T6
Thoroughfares (Winter)	G24 – G36
Entrances (Winter)	G1 – G21
Bus stop (Winter)	G30
Seating areas (Summer)	G22 and G23
Pedestrian crossings (Winter)	G37 – G40
Terraced seating (Cumulative receptors (Public amenity space introduced by consented Alberton House scheme))	G55

Overview

9.81 Wind conditions at ground-level public realm, following the implementation of the Proposed Scheme within the existing surrounding context (Scenario 2), are presented in **Figure 9.7** for summer and in **Figure 9.8** for winter.

9.82 In summary, during summer the wind conditions are still mostly suitable for 'sitting' activities, with slight increases of wind to conditions suitable for 'standing' activities confined to around the edge of the buildings within the Proposed Scheme, relative to the baseline. During the winter, increased areas, mainly on the western side of the buildings within the Proposed Scheme, become suitable for 'standing' activities, while to the east of the Proposed Scheme is still suitable for 'sitting' activities. Wind conditions suitable for 'Strolling' were identified around the south-west area of Building A.

9.83 Each specific category is addressed in turn below. Detailed results can be found in the Wind Microclimate Assessment (**Appendix 9.1**).

Off-Site thoroughfares (Winter)

9.84 As can be seen in **Figure 9.8,** the wind conditions for off-Site thoroughfares are suitable for 'sitting' or 'standing' activities during the winter season, which is suitable for the intended use.

9.85 Receptors locations G24, G25, G26, G27, G28, G29, G30 and G36 are suitable for 'sitting' or 'standing' activities.

9.86 Receptors locations G31, G32, G33, G34 and G35 are suitable for 'sitting' activities.

9.87 The sensitivity of the receptors is considered to be medium to low. The magnitude of change is considered to be small to negligible. Therefore, there is likely to be a direct, permanent, long-term adverse effect which is considered to be negligible for receptors G24 – G36.

Off-Site entrances (Winter)

9.88 As shown in **Figure 9.8**, receptor locations G1, G10, G11, G12, G14, G15, G16, G20, G21 are suitable for standing activities during the winter season, whereas locations G2, G3, G4, G5, G6, G7, G8, G9, G13, G17, G18, G19 are suitable for sitting activities.

9.89 It should be noted that G20 and G21 represent the inset entrances of Manchester Family Court and People's History Museum, respective. Therefore, the actual comfort category for both receptors is not directly visible from a plan view in **Figure 9.8**. Detailed figures for both entrances can be found in the technical report (**Appendix 9.1**), which shows that they are both in 'sitting' condition in winter.

9.90 The sensitivity of the receptors is considered to be high. The magnitude of change is considered to be negligible to small. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be negligible to minor for receptors G1 – G21.

Off-Site bus stops (Winter)

9.91 Receptor location G30 is suitable for standing activities, as shown in **Figure 9.8**, which remains unchanged to the baseline during the winter season.

9.92 The sensitivity of this receptor is considered to be high. The magnitude of change is considered to be negligible. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be negligible for receptor G30.

Off-Site seating areas (Summer)

9.93 Motor Square (receptor G22) and Clermont-Ferrand Square (receptor G23) and are suitable for 'sitting' activities during the summer season (**Figure 9.7**). It is worth noting a beneficial effect from the Proposed Scheme on Motor Square can be observed from the results in winter (**Figure 9.8**), improving the wind conditions to the baseline from 'standing 'to 'sitting' activities.

9.94 The sensitivity of this receptor is considered to be high. The magnitude of change is overall considered to be negligible. Therefore, there is likely to be a direct, permanent, long-term, effect which is considered to be negligible for receptors G22 and G23.

Off-Site pedestrian crossings (Winter)

9.95 As shown in **Figure 9.8**, receptor locations G37 and G38 are suitable for standing activities, whereas location G39 is suitable for sitting activities - which is the same as the baseline conditions. There is an improvement in wind condition around receptor G40 (i.e. from 'standing' to 'sitting' in both summer and winter compared to the baseline).

9.96 The sensitivity of these receptors is considered to be medium. The magnitude of change is considered overall to be negligible. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be negligible for receptors G37, G38, G39 and G40.

Terraced seating (Cumulative receptors (Public amenity space introduced by the consented Alberton House))

9.97 The future receptor at the public amenity space introduced by the consented Alberton House) (Trinity Square) (receptor G55) in this scenario remains a pedestrian walkway. The results shown in **Figures 9.7** and **9.8** indicate that this location is in a mixture of 'sitting' and 'standing' conditions, which is suitable for the intended use.

9.98 The sensitivity of this receptor is considered to be medium. The magnitude of change is considered to be negligible. Therefore, there is likely to be a direct, permanent, long-term, effect which is considered to be negligible for receptor G55.

9.99 It should be noted that the intended use of this receptor becomes seating in the future cumulative scenarios, i.e. Scenarios 4 and 5. As reported in **Chapter 12: Assessment of Cumulative Effects** and also the technical report (**Appendix 9.1**), the results in summer show that this receptor is in 'sitting' condition; hence, is suitable for the intended use.

9.100 The sensitivity of this receptor (once seating is delivered) is considered to be high. The magnitude of change is considered to be negligible. Therefore, there is likely to be a direct, permanent, long-term, effect which is considered to be negligible for receptor G55.

On-Site entrances (Winter)

9.101 On-Site entrances are introduced by the Proposed Scheme (i.e. receptors G41 – G50) which are found to be in 'sitting' or 'standing' conditions in winter based on the wind comfort results shown in **Figure 9.8**.

9.102 The sensitivity of the receptors is considered to be high. The magnitude of change is considered to be negligible. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be negligible for receptors G41 – G50.

On-Site passageway (Winter)

9.103 As part of the Proposed scheme, a ground-level pedestrian passageway through the Building B (Receptor G46) is included to improve the pedestrian movement around the Site. The results with detailed illustration of this location can be found in the technical report (**Appendix 9.1**), which indicate that the wind conditions along the passageway are suitable for 'standing' activities, with only local areas suitable for 'strolling', and therefore suitable for the intended use.

9.104 The sensitivity of this receptor is considered to be medium. The magnitude of change is considered to be negligible. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be negligible for receptor G46.

On-Site seating areas (Summer)

9.105 Public seating areas, represented by receptors G51 – G54, are proposed as part of the Proposed Scheme to the south-west of Building B / north and east of Building A. The results for summer in **Figure 9.7** indicate that the wind conditions for these locations are suitable for 'sitting' with local areas suitable for 'standing' activities (i.e. not in line with the intended use).

9.106 The sensitivity of these receptors is considered to be high. The magnitude of change is considered to be small to large. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be minor to major.

On-Site terraces (Summer)

9.107 The Proposed Scheme includes terraces on both Building B (receptors T1 – T3) and Building A (receptors T4 – T6)**.** As a residential building, the terraces on Building A are assumed to be for private use. To be conservative, it is assumed the terraces on Building B are for public use.

9.108 While receptor T1 represents all the south-east terraces on Building B, receptor T3 represents the north-west terraces of Building B. Receptor T2 is the Atrium terrace - also on the Building B. Receptors T4 – T6 are located at Building A at different levels. Results for the summer are presented in **Figures 9.9** and **9.10**, as pedestrian use of those terraces is expected to be frequent in summer and reduced in winter.

9.109 For Building B, the terraces represented by receptors T1 and T3 are largely suitable for 'sitting' activities with localised areas suitable for 'standing', which is suitable for the intended use. The Atrium terrace (T2) is mainly in 'standing' condition with small 'strolling' regions to the north.

9.110 Considering the terraces on the Building B could be used by the public, the sensitivity of the receptors is considered to be high. The magnitude of change is considered to be negligible to small. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be negligible to minor for receptors T1 and T3. However, the magnitude of change for receptor T2 is considered to be small to

medium. Therefore, there is likely to be a direct, permanent long-term, adverse effect which is considered to be minor to major for receptor T2.

9.111 For the private terraces on Building A, in summer, receptors T4 and T5 are in wind conditions that are mainly suitable for 'sitting' with localised 'standing' and limited 'strolling' regions. Wind conditions at T6 vary from being suitable for 'sitting to 'business walking' activities. As private terraces, the sensitivity of those receptors is considered to be medium. The magnitude of change is considered to be small to large. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be minor to major for receptors T4 – T6.

Secondary mitigation or enhancement

9.112 The seasonal wind comfort results detailed above have indicated that secondary mitigation is required for the ground-level on-Site seating areas (receptors G51 – G54), Atrium terrace on Building B (receptor T2) and terraces on Building A (receptors T4 – T6).

9.113 To mitigate the exceedances of comfort criteria for the local areas of 'standing' around the proposed on-Site seating areas (receptors G51 – G54), proposed landscaping will be implemented. A detailed illustration of the proposed landscaping arrangements at the ground level can be found in **Figure 4.53**[f]. A landscape management plan is proposed to ensure the installation and ongoing maintenance of the landscaping arrangements.

9.114 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.

9.115 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.

9.116 Further details about the above proposed mitigation measures are presented in the wind technical report (**Appendix 9.1**).

9.117 The implementation of the above mitigation measures will be secured by way of a planning condition.

[f] Note that there is a greater quantum of vegetation proposed than assessed within the modelling. Therefore, the results presented are a worst-case and the wind conditions will be calmer than presented in **Figure 9.11**.

Residual effect

9.118 After implementing the secondary mitigation outlined in the above section, wind conditions across the Site were assessed (Scenario 3).

9.119 The wind comfort results in summer with the proposed landscaping in place, show that the on-Site seating areas (receptors G51 – G55) are suitable for 'sitting' use in summer as shown in **Figure 9.11**, and hence the magnitude of change is considered to be negligible.

9.120 The sensitivity of receptors G51 – G55 is considered to be high. The magnitude of change is considered to be negligible. Therefore, there is likely to be a direct, permanent, long-term, effect which is considered to be negligible for receptors G51 – G55.

9.121 The residual effects for T1 and T3 remain as the pre-mitigation scenario.

9.122 The wind comfort results in summer for the Atrium terrace (receptor T2) with proposed mitigation measures are shown in **Figures 9.12** and **9.13**, which indicate the wind conditions to be largely suitable for 'sitting'. Therefore, the magnitude of change is considered to be small.

9.123 The sensitivity of receptor T2 is considered to be high. The magnitude of change is considered to be small. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be minor for receptor T2.

9.124 The wind comfort results in summer for the terraces on Building A (receptors T4 – T6) with the proposed mitigation measures outlined above are shown in **Figures 9.12** and **9.13**. With the further building management / landscaping measures, those receptors are considered to be largely in 'sitting' or 'standing' conditions.

9.125 As private terraces, the sensitivity of those receptors is considered to be medium. The magnitude of change for T4 – T6 is considered to be small. Therefore, there is likely to be a direct, permanent long-term, adverse effect which is considered to be minor for receptors T4 – T6.

Significance

9.126 This effect for all receptors is considered to be **Not Significant**.

Potential adverse wind conditions for proposed uses: exceedance of the industry standard Lawson Criteria for pedestrian distress

9.127 The pedestrian wind distress was also assessed along with the comfort for the Proposed Scheme within the existing surroundings (Scenario 2) for all the receptors listed in **Table 9.9**.

Ground level

9.128 Wind distress results for the ground-level public spaces (receptors G1 – G55) are shown in **Figure 9.14**. No wind distress issue at any ground-level receptor location at ground level after the Proposed Scheme is implemented.

9.129 The sensitivity of the receptors is considered to be negligible to high. The magnitude of change is considered to be negligible. Therefore, there is likely to be a direct, permanent, long-term, effect of negligible for receptors G1 – G55.

On- Site terraces

9.130 The wind distress results for the proposed terraces can be found in **Figures 9.15** and **9.16.**

9.131 On Building B, no wind distress issue has been identified for receptors T1 and T3 but small distress areas have been identified on the Atrium terraces (receptor T2).

9.132 Considering the terraces on the Building B are public (assumed as conservative case), the sensitivity of those receptors is considered to be high. The magnitude of change for T1 and T3 is considered to be negligible to small. Therefore, there is likely to be a direct, permanent long-term, adverse effect which is considered to be negligible to minor for receptors T1 and T3. However, the magnitude of change for T2 is considered to be small to large. Therefore, there is likely to be a direct, permanent long-term, adverse effect which is considered to be minor to major for receptor T2.

9.133 For the private terraces on Building A (i.e. receptors T4 – T6) results from the assessment suggest the equivalent cumulative time the wind velocities exceed the distress threshold during the year, with most of these occurring in the winter season. Results for those receptors show that localised wind distress regions exist at various locations of receptors T4 – T6.

9.134 The sensitivity of those receptors is considered to be medium. The magnitude of change is considered to be large. Therefore, there is likely to be a direct, permanent long-term, adverse effect which is considered to be major for receptors T4 – T6.

Secondary mitigation or enhancement

9.135 Secondary mitigation / enhancement measures are required for the proposed terraces, i.e. T2, T4 – T6, which is the same as those outlined in the **Paragraphs 9.112 – 9.116**.

9.136 The implementation of this mitigation can be secured by way of a planning condition.

Residual effect

9.137 The residual effects for G1 – G55 remain as the pre-mitigation scenario.

9.138 The wind distress results after implementing the mitigation measures for the proposed terraces are presented in **Figures 9.17** and **9.18.**

9.139 On Building B, no wind distress issue has been identified for any of the receptors (i.e. T1 – T3) with the implementation of the above secondary mitigation. Therefore, the magnitude of change is considered to be negligible to small.

9.140 The sensitivity of receptors T1 and T3 is considered to be high. The magnitude of change is considered to be negligible. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be negligible for receptors T1 and T3.

9.141 The sensitivity of receptor T2 is considered to be high. The magnitude of change is considered to be small. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be minor for receptor T2.

9.142 On Building A (receptors T4 – T6), with the implementation of the above secondary mitigation, the wind issues are reduced. With the building management restrictions / landscaping outlined to block access, no wind distress issues are anticipated. Therefore, the magnitude of change is considered to be negligible to small.

9.143 As private terraces, the sensitivity of those receptors is considered to be medium. For receptors T4 – T6, the magnitude of change is considered to be negligible to small. Therefore, there is likely to be a direct, permanent long-term, adverse effect which is considered to be negligible to minor for receptors T4 – T6.

Significance

9.144 This effect for receptors G1 – G55 and T1 – T6 is **Not Significant**.

Limitations and Assumptions

9.145 To ensure transparency within the EIA process, the following limitations and assumptions have been identified:

- The Lawson Criteria for pedestrian comfort focuses on the average pedestrian's reaction to wind but does not factor in other environmental variables such as air temperature and relative humidity which also affect people's perception of comfort.

Summary

9.146 **Table 9.10** provides a summary of the effects, receptors, residual effects and conclusions of significance considered within the Chapter.

9.147 The table only provides a summary of the residual effects identified within the assessment and details of all primary, secondary and tertiary mitigation that has been taken into account is set out in detail within the Chapter and summarised within the Environmental Management Plan included within **Volume 4: Environmental Management Plan**.

Table 9.10: Summary of residual and significant effects

Effect		Receptor	Residual effect	Is the effect significant?
Operational stage				
Potential adverse wind conditions for	Exceedance of the Industry standard Lawson Criteria for pedestrian comfort	Users of thoroughfares, entrances, waiting areas (bus stops) and recreational spaces within and around the Site, where the impact	Receptors: G1 – G55 and T1 – T6: Negligible to minor adverse	NO

Effect		Receptor	Residual effect	Is the effect significant?
proposed uses:		of wind gusts have the potential for the greatest impact on where pedestrian activities are most sensitive to wind and require the most benign conditions (including future residents and Site users, pedestrians and cyclists).		
	Exceedance of the Industry standard Lawson Criteria for pedestrian distress	Users of thoroughfares, entrances, waiting areas (bus stops) and recreational spaces within and around the Site, where the impact of wind gusts have the potential for the greatest impact on where pedestrian activities are most sensitive to wind and require the most benign conditions (including future residents and Site users, pedestrians and cyclists).	Receptors G1 – G55 and T1 – T6: Negligible to minor adverse	NO

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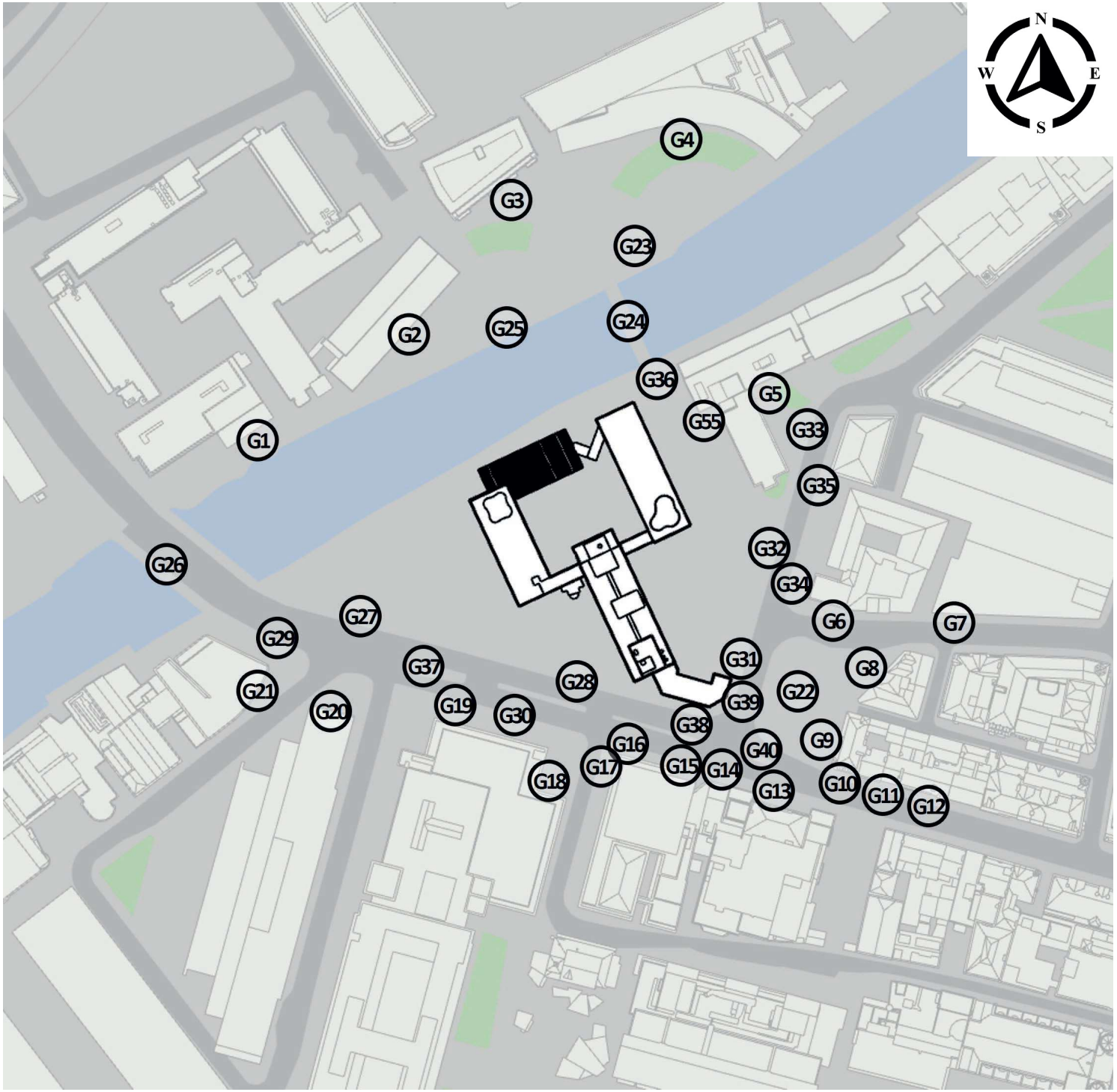


Figure 9.1	Locations of the Off-Site Receptors
Project:	Albert Bridge House, Manchester
Client:	Oval Real Estate
Prepared by:	AKT II



Grade	Activity				
	Main Roads	Business Walking	Strolling	Standing and Entrances	Sitting
1	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	
3	✓	✓	✓		
4	✓	✓			
5	✓				

Figure 9.2	Summer Wind Comfort of Existing Site within Existing Context
Project:	Albert Bridge House, Manchester
Client:	Oval Real Estate
Prepared by:	AKT II



Grade	Activity				
	Main Roads	Business Walking	Strolling	Standing and Entrances	Sitting
1	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	
3	✓	✓	✓		
4	✓	✓			
5	✓				

Figure 9.3	Winter Wind Comfort of Existing Site within Existing Context
Project:	Albert Bridge House, Manchester
Client:	Oval Real Estate
Prepared by:	AKT II



Criteria for distress, wind speed exceeded for 0.025% of the year	
Unacceptable	> 15m/s
Acceptable	< 15m/s

Figure 9.4	Annual Wind Distress of Existing Site within Existing Context
Project:	Albert Bridge House, Manchester
Client:	Oval Real Estate
Prepared by:	AKT II

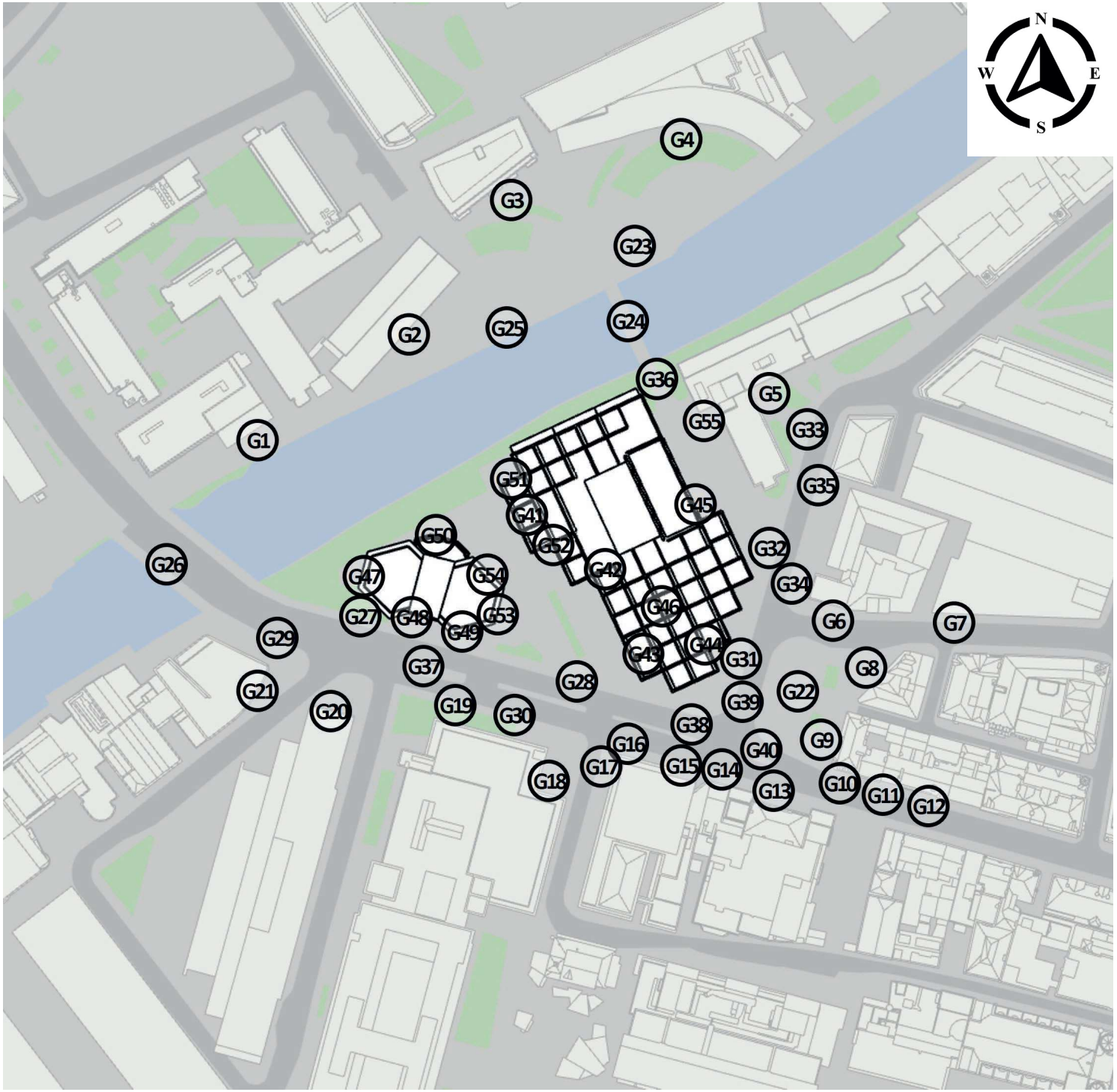


Figure 9.5	Locations of the Off- and On-Site Receptors at Ground Level
Project:	Albert Bridge House, Manchester
Client:	Oval Real Estate
Prepared by:	AKT II

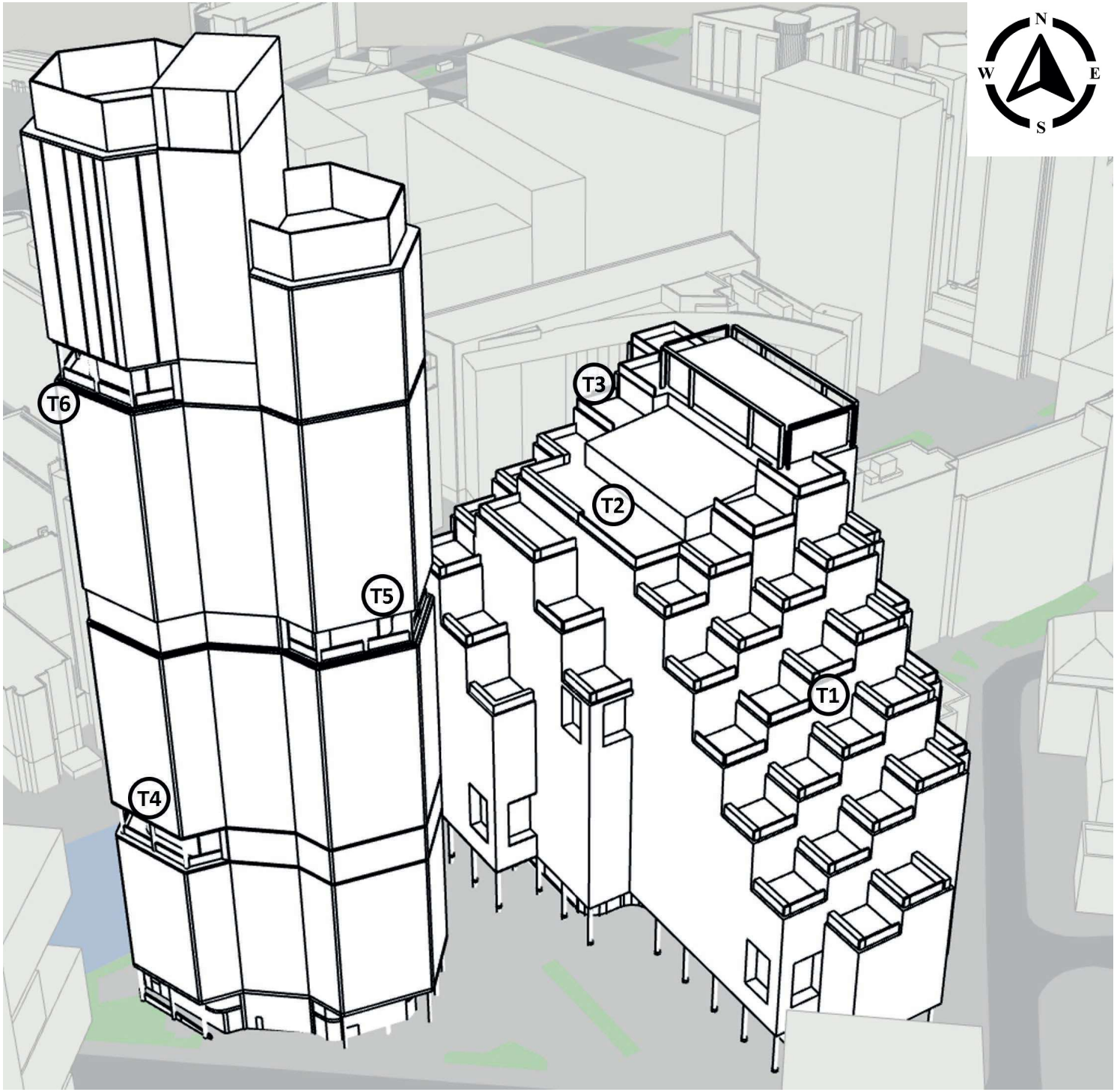
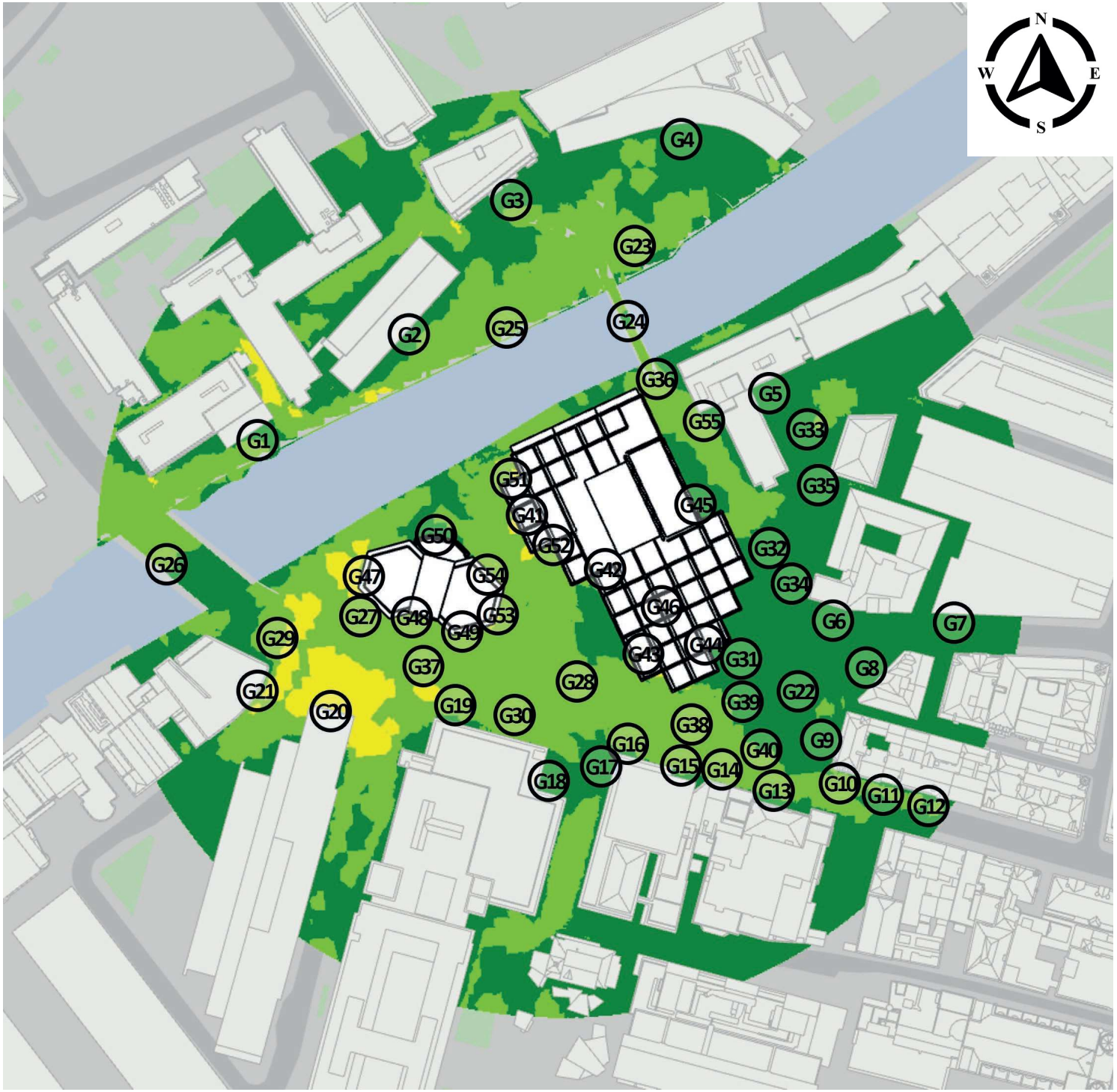


Figure 9.6	Locations of the On-Site Receptors at Terrace Levels
Project:	Albert Bridge House, Manchester
Client:	Oval Real Estate
Prepared by:	AKT II



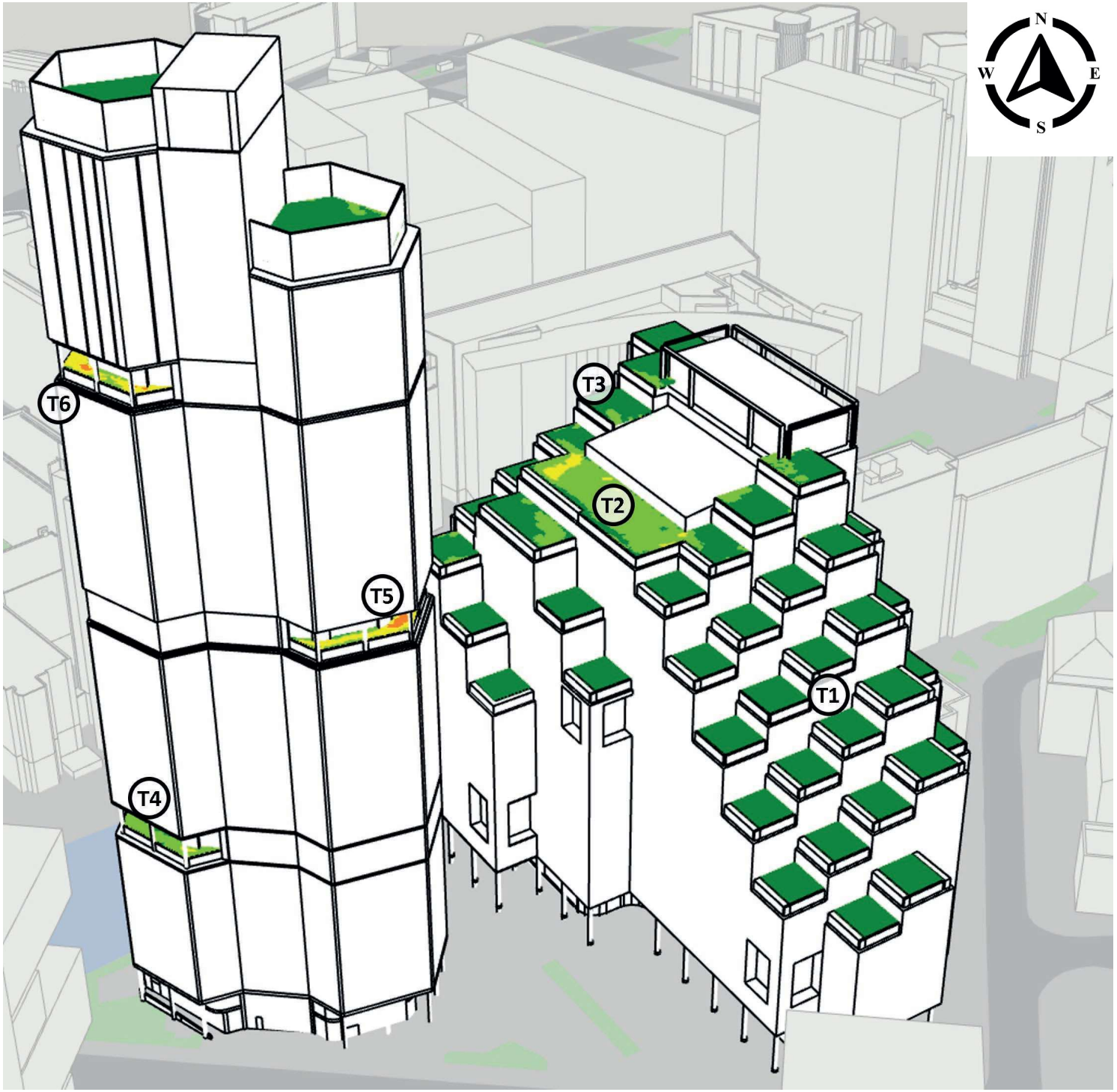
Grade	Activity				
	Main Roads	Business Walking	Strolling	Standing and Entrances	Sitting
1	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	
3	✓	✓	✓		
4	✓	✓			
5	✓				

Figure 9.7	Summer Wind Comfort of Proposed Scheme within Existing Context
Project:	Albert Bridge House, Manchester
Client:	Oval Real Estate
Prepared by:	AKT II



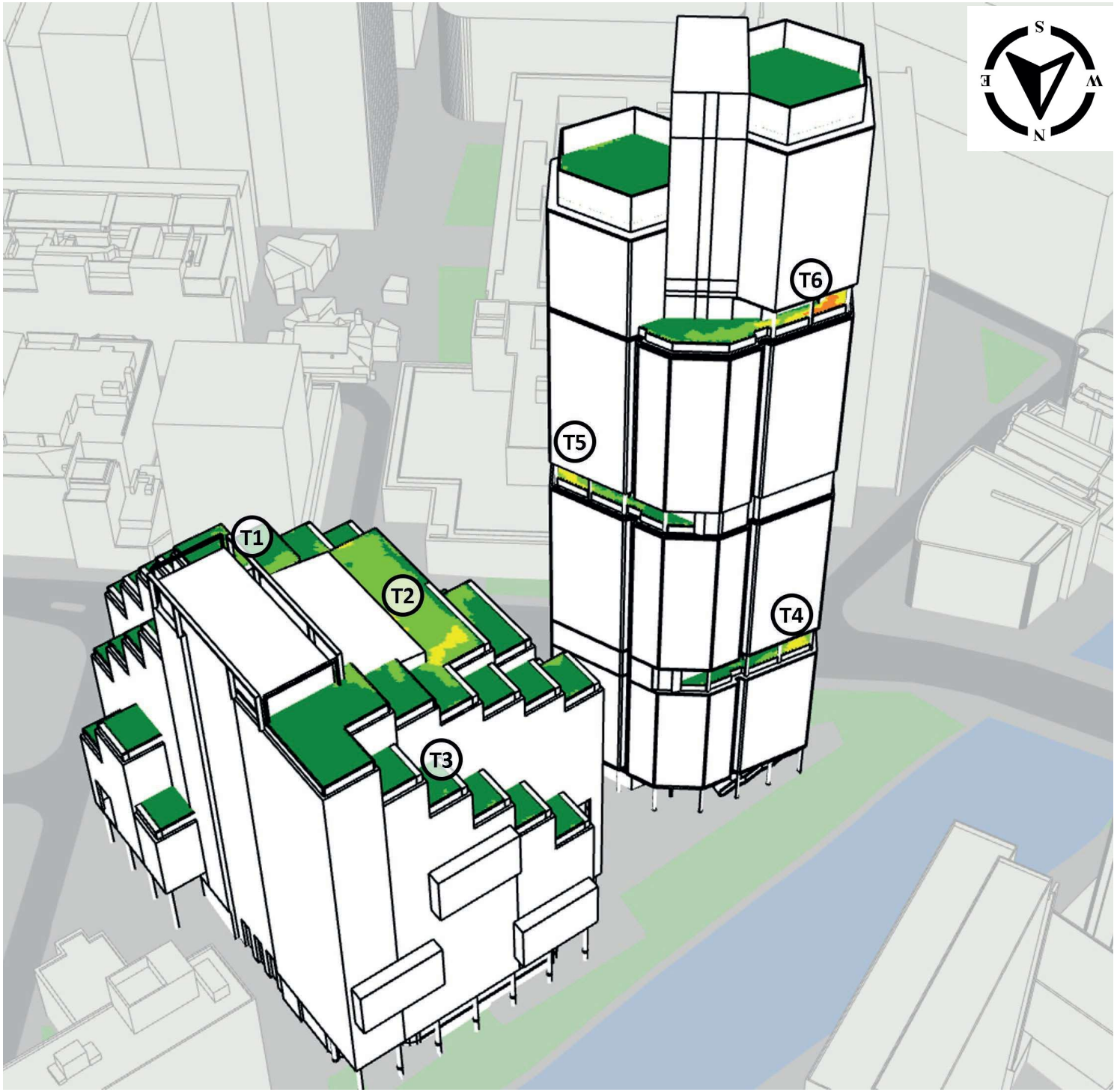
Grade	Activity				
	Main Roads	Business Walking	Strolling	Standing and Entrances	Sitting
1	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	
3	✓	✓	✓		
4	✓	✓			
5	✓				

Figure 9.8	Winter Wind Comfort of Proposed Scheme within Existing Context
Project:	Albert Bridge House, Manchester
Client:	Oval Real Estate
Prepared by:	AKT II



Grade	Activity				
	Main Roads	Business Walking	Strolling	Standing and Entrances	Sitting
1	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	
3	✓	✓	✓		
4	✓	✓			
5	✓				

Figure 9.9	Summer Wind Comfort of Proposed Terraces: South View
Project:	Albert Bridge House, Manchester
Client:	Oval Real Estate
Prepared by:	AKT II



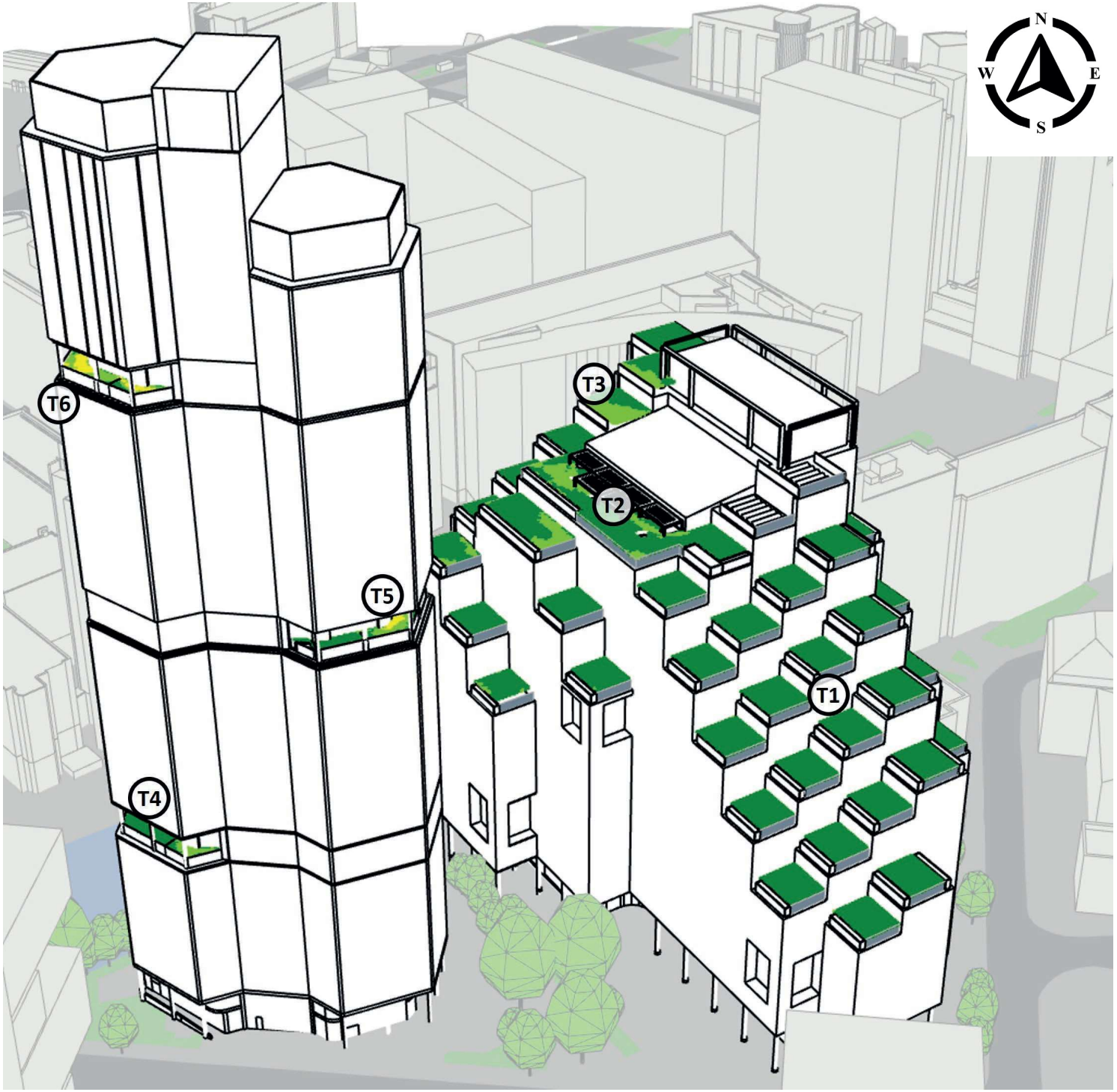
Grade	Activity				
	Main Roads	Business Walking	Strolling	Standing and Entrances	Sitting
1	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	
3	✓	✓	✓		
4	✓	✓			
5	✓				

Figure 9.10	Summer Wind Comfort of Proposed Terraces: North View
Project:	Albert Bridge House, Manchester
Client:	Oval Real Estate
Prepared by:	AKT II



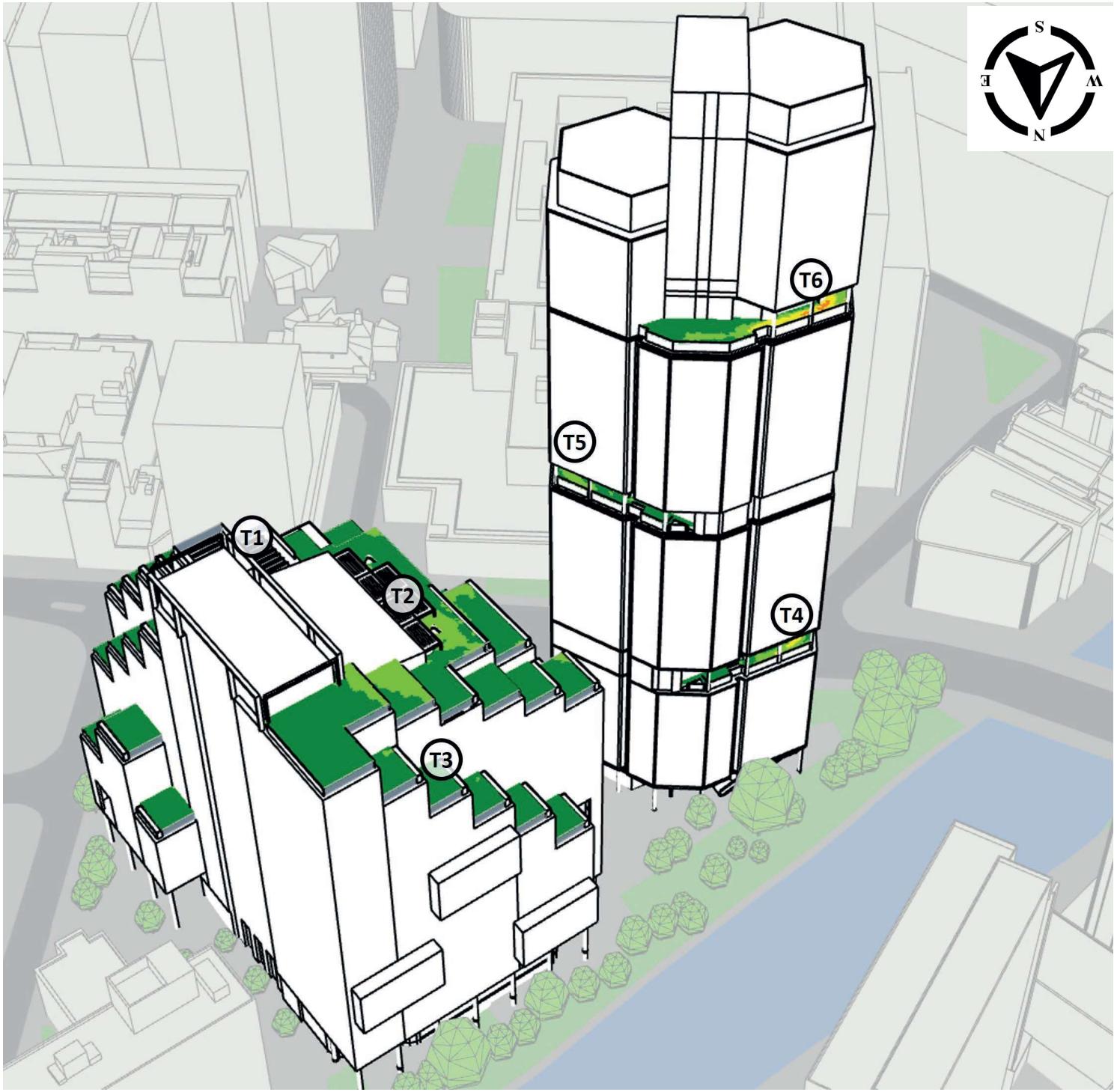
Grade	Activity				
	Main Roads	Business Walking	Strolling	Standing and Entrances	Sitting
1	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	
3	✓	✓	✓		
4	✓	✓			
5	✓				

Figure 9.11	Summer Wind Comfort of Proposed Scheme within Existing Context with Proposed Mitigation and Landscaping
Project:	Albert Bridge House, Manchester
Client:	Oval Real Estate
Prepared by:	AKT II



Grade	Activity				
	Main Roads	Business Walking	Strolling	Standing and Entrances	Sitting
1	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	
3	✓	✓	✓		
4	✓	✓			
5	✓				

Figure 9.12	Summer Wind Comfort of Proposed Terraces with Proposed Mitigation and Landscaping: South View
Project:	Albert Bridge House, Manchester
Client:	Oval Real Estate
Prepared by:	AKT II



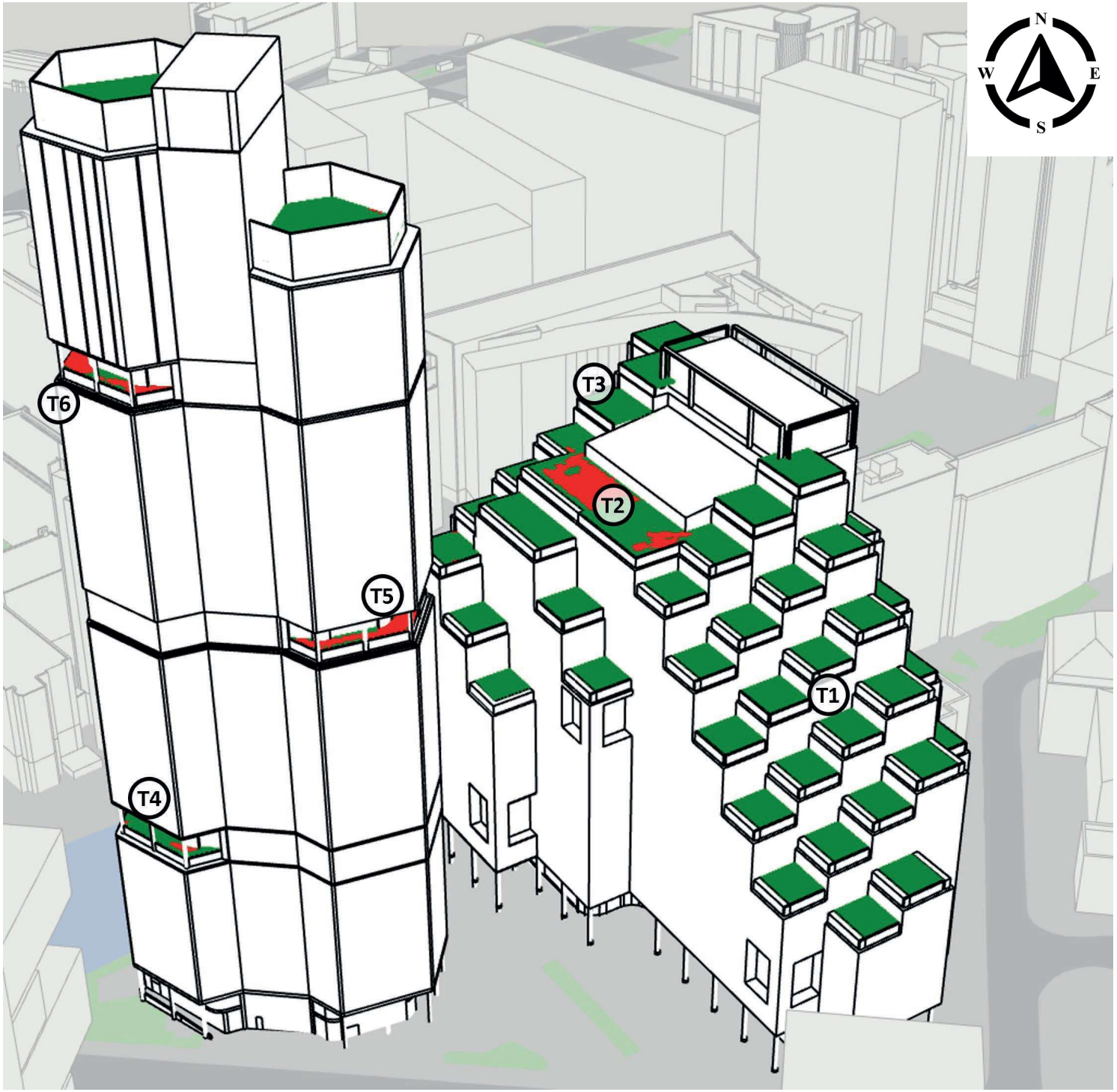
Grade	Activity				
	Main Roads	Business Walking	Strolling	Standing and Entrances	Sitting
1	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	
3	✓	✓	✓		
4	✓	✓			
5	✓				

Figure 9.13	Summer Wind Comfort of Proposed Terraces with Proposed Mitigation and Landscaping: North View
Project:	Albert Bridge House, Manchester
Client:	Oval Real Estate
Prepared by:	AKT II



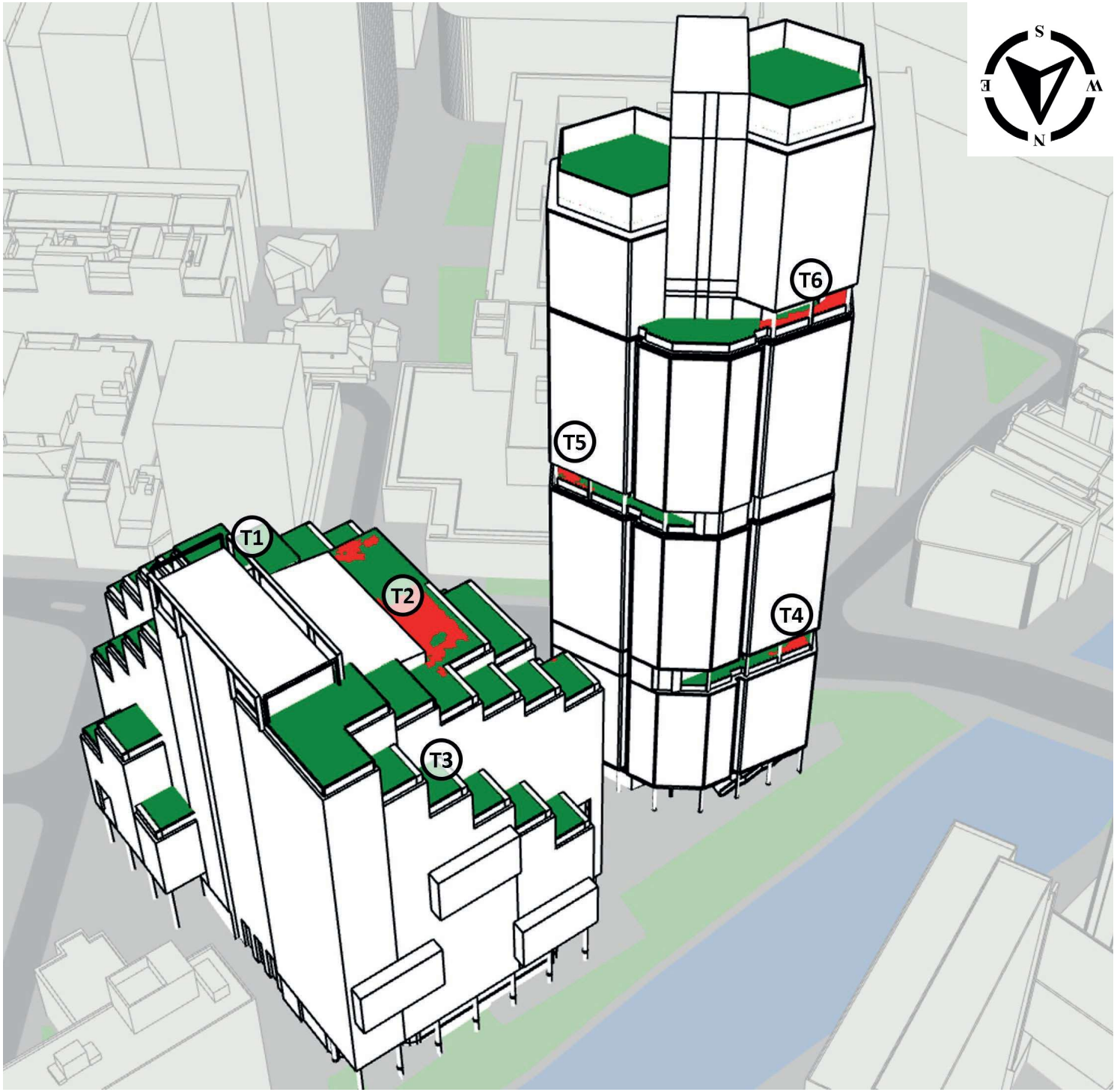
Criteria for distress, wind speed exceeded for 0.025% of the year	
Unacceptable	> 15m/s
Acceptable	< 15m/s

Figure 9.14	Annual Wind Distress of Proposed Scheme within Existing Context: Ground-Level
Project:	Albert Bridge House, Manchester
Client:	Oval Real Estate
Prepared by:	AKT II



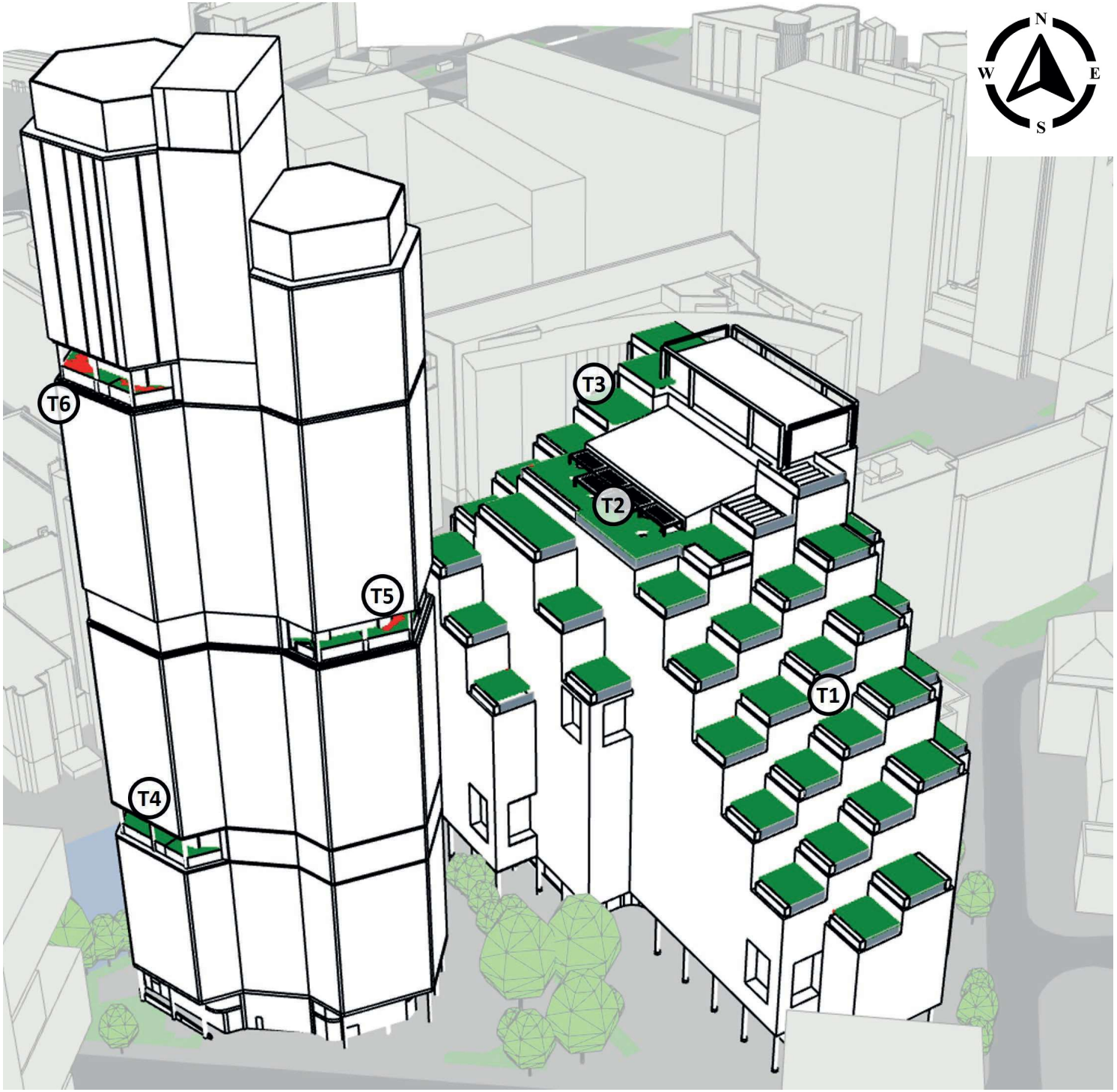
	Criteria for distress, wind speed exceeded for 0.025% of the year	
	Unacceptable	> 15m/s
	Acceptable	< 15m/s

Figure 9.15	Annual Wind Distress of Proposed Terraces: South View
Project:	Albert Bridge House, Manchester
Client:	Oval Real Estate
Prepared by:	AKT II



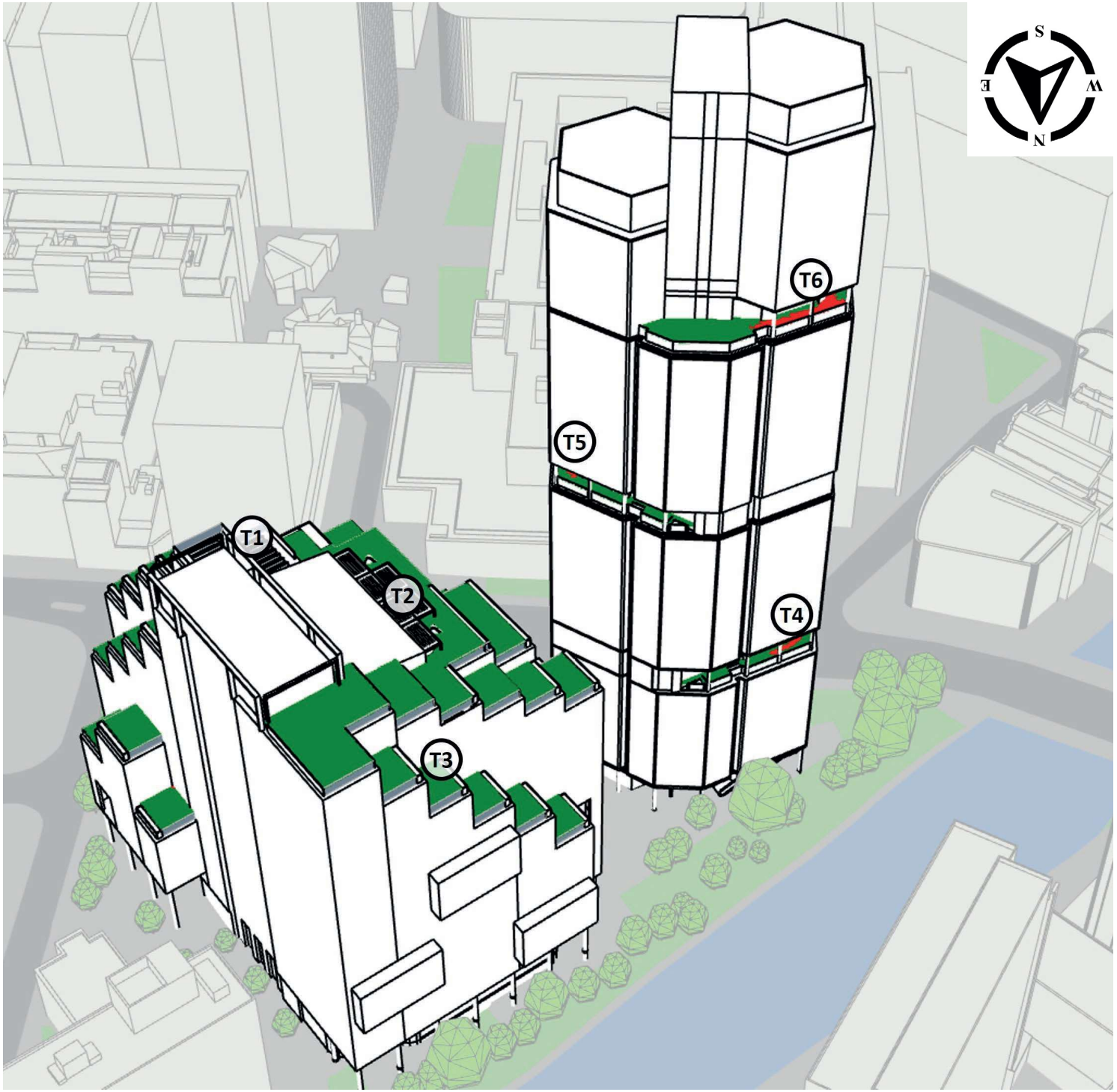
	Criteria for distress, wind speed exceeded for 0.025% of the year
Unacceptable	> 15m/s
Acceptable	< 15m/s

Figure 9.16	Annual Wind Distress of Proposed Terraces: North View
Project:	Albert Bridge House, Manchester
Client:	Oval Real Estate
Prepared by:	AKT II



	Criteria for distress, wind speed exceeded for 0.025% of the year	
	Unacceptable	> 15m/s
	Acceptable	< 15m/s

Figure 9.17	Annual Wind Distress of Proposed Terraces with Proposed Mitigation and Landscaping: South View
Project:	Albert Bridge House, Manchester
Client:	Oval Real Estate
Prepared by:	AKT II



	Criteria for distress, wind speed exceeded for 0.025% of the year	
	Unacceptable	> 15m/s
	Acceptable	< 15m/s

Figure 9.18	Annual Wind Distress of Proposed Terraces with Proposed Mitigation and Landscaping: North View
Project:	Albert Bridge House, Manchester
Client:	Oval Real Estate
Prepared by:	AKT II

10. Socio-economics and Human Health

Introduction

10.1 This Chapter reports the outcome of the assessment of likely significant environmental effects arising from the Proposed Scheme in relation to socio-economics and human health.

10.2 The Chapter describes the scope of the assessment and assessment methodology, and a summary of the baseline information that has informed the assessment.

10.3 In line with **Chapter 2: Approach to EIA**, the assessment reports on the likely significant environmental effects, the further mitigation measures required to prevent, reduce or offset any significant adverse effects, or further enhance beneficial effects. The conclusions are provided both in terms of the residual effects and whether these are considered to be significant. The assessment of effects takes into consideration both primary and tertiary mitigation (see **Chapter 2: Approach to EIA** for further details) and is informed by the EIA Scoping process (**Appendices 2.1** and **2.2**) and iterative scoping process where applicable.

10.4 This Chapter is intended to be read as part of the wider ES with particular reference to the introductory Chapters of this ES (**Chapters 1 – 5**).

10.5 In addition, this Chapter should be read in conjunction with **Chapter 12: Assessment of Cumulative Effects**.

Summary of Consultation

10.6 In November 2022, MCC confirmed within their Scoping Opinion that they agreed with the assessment methodology adopted for this Chapter. No further specific technical consultation has taken place as this was not considered necessary.

Scope of the Assessment

10.7 An EIA Scoping Report was submitted on 27th September 2022, as presented as **Appendix 2.1**. The Scoping Opinion was received on 7th November 2022 (**Appendix 2.2**). This section provides an update on the scope of the assessment presented within this Chapter following submission of the EIA Scoping Report.

Effects Considered Unlikely to be Significant

10.8 The following effects were considered unlikely to be significant were identified as part of the EIA Scoping Report and are not considered further in this Chapter:

- Additional demand for primary and secondary school places;
- Crime and community safety; and
- Human health-related effects.

10.9 Following EIA Scoping, the following additional effect is now considered unlikely to be significant and the evidence to support this is outlined below.

Uplift in local household spend, increasing local expenditure, including on retail, household goods, food and drink, local transport, recreation and leisure and other expenditure likely to be spent locally

10.10 Applying the average weekly household expenditure for households regionally to the number of homes proposed (367) generates an estimated annual household expenditure of £9.7 million. This uplift in spending has the potential to support employment within local shops and services, broadly within retail, leisure and hospitality sectors. The application of a turnover per FTE benchmark for retail, leisure and hospitality sectors[1] to the uplift in annual expenditure indicates that this could support in the order of 85 FTE jobs. This constitutes less than 1% of employment in relevant sectors in the assessment area. This level of employment could in turn support a GVA uplift of £3.8m per annum, which also constitutes less than 1% of GVA of relevant sectors in the assessment area.

10.11 Given this, the effect is unlikely to be significant and is not considered further within this Chapter.

Effects Considered Likely to be Significant

10.12 **Table 10.1** outlines the effects were considered likely to be significant at the EIA Scoping stages and have been assessed and reported within this Chapter.

Table 10.1: Effects considered likely to be significant

Likely significant effect	Receptors	Applicable stage
Temporary employment uplift during the construction stage which will support uplift in Gross Value Added (GVA)	Individuals seeking construction employment and the local economy (through GVA)	Construction
Net change in operational employment (and change in GVA)	Individuals seeking employment and the local economy (through GVA)	Operation
Increase in the number of homes in the assessment area and contribution towards local housing need	Individuals seeking housing	Operation
Additional demand for healthcare facilities (GP services and dentists) as a result of the uplift in population	Healthcare facilities and their patients	Operation
Additional demand for the use of the existing leisure facilities and open / amenity space within close proximity to the Site	Open space and recreational facilities and their users	Operation

Assessment Methodology

Legislative Framework, Policy and Guidance

10.13 There is no legislation relevant to the assessment reported in this Chapter.

10.14 The following policy documents have informed the assessment of effects within this Chapter:

- NPPF[2];
- Emerging Places for Everyone Plan (Greater Manchester)[3]; and
- Manchester Core Strategy[4].

10.15 The following guidance has informed the assessment of effects within this Chapter:

- Homes and Communities Agency (HCA) Employment Density Guidance[5];
- HCA Additionality Guidance[6]; and
- English Partnerships Additionality Guide – A Standard Approach to Assessing the Additional Impacts of Interventions[7].

Defining the Study Area

10.16 The approach to defining an appropriate study area (or assessment area) has been informed by consideration of guidance on the topic[7]. The relevant study area / assessment area can vary according to different receptors; however, broadly, socio-economic and human health impacts can be assessed with reference to a spectrum of spatial scales, ranging from the immediate local catchment through to the wider, sub-regional scale. The study area is also influenced by the availability of baseline data which may not always be available down to a local catchment area level.

10.17 In the case of the Proposed Scheme, for most receptors the MCC local authority area represents the appropriate geography over which to assess the impacts on following receptors given the nature and City Centre location of the Site:

- Individuals seeking construction employment and the local economy (through GVA);
- Individuals seeking employment and the local economy the local economy (through GVA); and
- Individuals seeking housing.

10.18 For some receptors a smaller study area may be required; for instance, with respect to the demand for social and community infrastructure (e.g. healthcare facilities and open space / leisure facilities) within close proximity to the Proposed Scheme. These are typically based on a distance or journey time from the Proposed Scheme and are considered at a local or neighbourhood level. Given the urban location of the Site, within close proximity to a range of amenities and infrastructure, approximately a 1

mile radius is taken to represent the neighbourhood level for the purposes of this assessment.

10.19 Wherever possible, the baseline characteristics of the study area / assessment area have been benchmarked against comparator areas such as the sub-regional (Greater Manchester), regional (North West) and national level.

Establishing the Baseline

10.20 The baseline desk-based assessment has drawn upon a range of published data sources to understand both the social and economic characteristics of the assessment area including (but not limited to) ONS Annual Population Survey, Business Register and Employment Survey, ONS Population Estimates and Sub-National Population Projections and NHS General Practice workforce data. It establishes a baseline position in respect of various demographic, economic and social characteristics of the assessment area and comparator geographies (where possible) at the sub-regional (Greater Manchester), regional and national level, including:

- Population trends and housing provision;
- Employment levels, sectoral breakdown and productivity; and
- Local service provision including analysis of healthcare facilities and the provision of leisure facilities and open / amenity space.

Assessment Process

10.21 As there are no recognised definitive criteria for the assessment of socio-economic and human health effects, a structured approach to quantifying and assessing the scale and nature of potential effects (relative to baseline conditions) is used based on overarching guidance and professional experience. Official guidance and robust benchmarks (for example, HCA guidance on employment density and additionality) is drawn upon to assess the likely effects where possible. In cases where effects cannot be quantified, a qualitative judgement is made, drawing on professional experience.

Reporting of the Environmental Effect and Significance Criteria

10.22 The assessment of likely significant environmental effects as a result of the Proposed Scheme has taken into account the construction and operational stages. The following sections define the approach adopted within the assessment for the determination of sensitivity, magnitude of impact, the level of effect and significance.

Determining Sensitivity of Receptor

10.23 The sensitivity of affected receptors has been considered on a scale of **high**, **medium**, **low** or **negligible**.

10.24 **Table 10.2** sets out the scale of sensitivity that has been applied to receptors identified and considered within the assessment with a broad description for each category. Professional judgement alongside quantitative analysis, where possible, is applied to assess the sensitivity of each receptor.

Table 10.2: Receptor sensitivity

Sensitivity	Definition
High	The receptor / resource has little ability to absorb, adapt or recover from change without fundamentally altering its present condition, or is of international or national importance.
Medium	The receptor / resource has moderate capacity to absorb, adapt or recover from change without significantly altering its present condition, or is of high importance.
Low	The receptor / resource is tolerant of / can adapt and recover from change without detriment to its condition, is of low or local importance.
Negligible	Receptor of limited or no importance.

Determining the Magnitude of Impact

10.25 The magnitude of impact has been considered as the change experienced from the current baseline conditions at the sensitive receptor and has been considered on a scale of **large**, **medium**, **small** or **negligible**.

10.26 **Table 10.3** sets out the scale of magnitude framework that has been used in undertaking the assessment. Professional judgment is combined with quantitative analysis where relevant (e.g. percentage deviation from baseline position) to assess where an impact sits within this framework.

Table 10.3: Scale of magnitude of impact

Magnitude	Definition
Large	Total loss or major / substantial alteration to key element / features of the baseline conditions such that the character / composition / attributes will be fundamentally changed or will be highly likely to affect large numbers of people and / or businesses.
Medium	Loss or alteration to one or more key elements / features of the baseline conditions such that the character / composition / attributes of the baseline will be noticeably changed or will be likely to affect a reasonable number of people and / or businesses.
Small	A limited shift away from baseline conditions or will be likely to affect a small number of people / businesses. Change arising from the loss / alteration will be discernible / detectable. The underlying character / composition/attributes of the baseline condition will remain similar.
Negligible	Very little change from baseline conditions. Change barely distinguishable.

Determining the Level of Effect

10.27 The level of effect has been informed by the magnitude of impact due to the Proposed Scheme and the evaluation of the sensitivity of the affected receptor. The level of effect has been determined using professional judgement and **Table 10.4** has been a tool which has assisted with this process.

10.28 Whilst **Table 10.4** provides ranges, the level of effect is confirmed as a single level and not a range, informed by professional judgement.

Table 10.4: Determining the level of effect

		Sensitivity			
		High	Medium	Low	Negligible
Magnitude of impact	Large	Major	Moderate to Major	Minor to Moderate	Negligible
	Medium	Moderate to Major	Moderate	Minor	Negligible
	Small	Minor to Moderate	Minor	Negligible to Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

10.29 The following terms have been used to define the level of the effects identified and these can be 'beneficial' or 'adverse':

- **Major effect**: Where the Proposed Scheme is likely to cause a considerable change from the baseline conditions and the receptor has limited adaptability, tolerance or recoverability or is of the highest sensitivity;
- **Moderate effect**: Where the Proposed Scheme is likely to cause either a considerable change from the baseline conditions at a receptor which has a degree of adaptability, tolerance or recoverability or a less than considerable change at a receptor that has limited adaptability, tolerance or recoverability;
- **Minor effect**: Where the Proposed Scheme is likely to cause a small, but noticeable change from the baseline conditions on a receptor which has limited adaptability, tolerance or recoverability or is of the highest sensitivity; or where the Proposed Scheme is likely to cause a considerable change from the baseline conditions at a receptor which can adapt, is tolerant of the change and / or can recover from the change; and
- **Negligible**: Where the Proposed Scheme is unlikely to cause a noticeable change at a receptor, despite its level of sensitivity or there is a considerable change at a receptor which is not considered sensitive to a change.

10.30 The duration of the effect has been assessed as either 'short-term', 'medium-term' or 'long-term'. Short-term is considered to be up to 1 year, medium-term is considered to be between 1 and 10 years and long-term is considered to be greater than 10 years.

Determining Significance

10.31 For each effect, a statement has been made as to whether the level of effect is '**Significant**' or '**Not Significant**'. This determination has been based on professional judgement and / or relevant guidance where applicable.

10.32 Significance has only been concluded for residual effects (i.e. following the identification of secondary mitigation).

Baseline Conditions

10.33 As noted in **Chapter 3: Site Context**, Albert Bridge House was until recently occupied by the Department for Work and Pensions and it is now vacant.

10.34 The baseline conditions are summarised in **Table 10.5** as they relate to each sensitive receptor.

Table 10.5: Baseline conditions

Receptor	Assessment area	Baseline
Individuals seeking construction employment and the local economy (through GVA)	Borough level (Manchester)	• Manchester has a lower proportion of employment in the construction sector (1.9%) than Greater Manchester (4.5%), the North West (4.3%) and nationally (4.9%). The sector is therefore underrepresented locally[8]. • Latest labour market indicators suggest that Manchester's unemployment rate is notably higher (8.9%) than comparator areas (Greater Manchester, 5.1%; North West, 4.7%)[9]. Similarly, the proportion of the working age population that are claimants (claimant rate) is higher in Manchester (5.9%) compared to Greater Manchester (5%) and the North West (4.3%)[10]. In Manchester, there are currently (July 2022) 23,225 people claiming Universal Credit (UC) or Job Seeker's Allowance (JSA). • All sector productivity (as measured by GVA per FTE) is lower in Manchester (circa £73,000) compared to the national average (circa £79,000). However, this level is above the Greater Manchester (circa £66,000) and North West (circa £67,000) averages[11]. • Productivity in the construction sector is in the order of £116,000 per FTE – this is notably

Receptor	Assessment area	Baseline
		higher than all comparator areas, including the national average (circa £95,000)[11].
Individuals seeking employment and the local economy (through GVA)	Borough level (Manchester)	• General labour market indicators are as in the row above. • Manchester has a higher share of employment within sectors that broadly approximate to the office-based service economy – constituting broad industrial groups J – N: Information and communication; Financial and insurance activities; Real estate activities; Professional, scientific and technical activities; Administrative and support service activities. These sectors account for 37% of employment, compared to Greater Manchester (29%), the North West (25%) and nationally (28%)[8.] • Manchester has a broadly similar proportion of employment in retail, leisure and hospitality sectors (defined as Retail, Accommodation & food services and Arts, entertainment, recreation & other services) – 18.0% compared to the national and regional averages (18.3%). • All sector productivity is as presented in the row above. • Productivity (as measured by GVA per FTE) in 'service activity' sectors (as previously defined above) is lower in Manchester (circa £99,000) than the national average (circa £112,000) but higher than sub-regional and regional comparators[11]. • Productivity in retail, leisure and hospitality sectors is higher in Manchester (circa £44,000) than comparator areas, including the national average (circa £40,000).
Individuals seeking housing	Borough level (Manchester)	• The assessment area's population is circa 556,000 according to most recent estimates and has grown by 31% since 2001[12]. • This represents a considerably faster growth rate in comparison to Greater Manchester (13%), the North West (9%) and nationally (14%). Projected population growth in the assessment area to the end of the Local Plan period (2032) is broadly in line (5.6%) with the regional (5.2%) and Greater Manchester (5.9%) projections, but lower than the projected growth rate nationally (6.4%)[13].

Receptor	Assessment area	Baseline
		• There were 2,530 homes completed in 2021/22 within the assessment area[14], constituting over a fifth of the total completions across Greater Manchester in this year. MCC has a 10 year housing target of delivering 36,000 homes by 2032[15]. • The Manchester average house price to earnings ratio (6.7) is marginally higher than the regional average (6.4) and lower than the national average (9.1)[16].
Healthcare facilities and their patients	Local / neighbourhood level (1 mile around the Site)	• Within 1 mile of the Site, there are four GP practices operating across the NHS Salford Clinical Commissioning Group (CCG) and NHS Manchester CCG areas. • The closest practice to the Site is Blackfriars (0.2 miles) which is currently operating at patient to FTE GP ratio of 6,841:1. Recognising that different practices have varied operational and staffing requirements to suit the needs of their patient population, this ratio is significantly above a commonly accepted benchmark ratio used in healthcare planning and recommended by the HUDU (1,800 patients per FTE GP). • The City Health Centre, The Doc's Surgery and Lower Broughton Medical Practice are all located within 1 mile of the Site. In-combination with Blackfriars, there are circa 49,000 registered patients and just over 22 FTE GPs – operating at a ratio of circa 2,230 patients per GP[a]. • A new build medical centre is to be provided at the ground and first floor of the Elizabeth Tower residential development within the Great Jackson Street Strategic Regeneration Framework area. It is understood that this facility is likely to be operational within 2023[17]. The Elizabeth Tower development is located within 1 mile of the Site and would add a fifth GP practice within the assessment area. It is understood the new centre will include 16 clinical rooms and could support a patient population in the order of 8,000 – 10,000[18]. The proposed FTE GP staffing arrangements are not known. Although unable to quantify, this

[a] Rounded figure.

Receptor	Assessment area	Baseline
		additional provision would contribute to the alleviation of the current shortfall in the assessment area (as measured by the patient to FTE GP ratio). • There are seven dental practices located within 1 mile of the Site. • A 2021 report by Greater Manchester Healthwatch[19] highlighted that the current capacity of NHS dentists is insufficient to meet demand, and reported that there has been a 'huge increase' in the number of patients struggling to find NHS dentists in the city.
Open space and recreational facilities and their users	Local / neighbourhood level (1 mile around the Site)	• Albert Bridge Gardens lies in the northern part of the Site, fronting onto the River Irwell (approximately 0.1 ha) subject to a renovation and partial re-landscaping scheme around 10 years ago • There are a number of leisure facilities, including gyms / health clubs and sport centres within 1 mile of the Site. • There are a number of open / amenity spaces within 1 mile of the Site, including Parsonage Gardens (0.24 ha), Hardman Square (0.1ha), St. John's Gardens (0.5ha), Piccadilly Gardens (0.5ha), Castlefield Urban Heritage Park (0.81ha) and Trinity Park (0.81ha)[20]. • A City Wide Open Space Sport and Recreation Study (undertaken in 2009) highlighted that a priority for the City is for better quality and improved access for its open space, sport and recreation facilities.

Future Baseline

10.35 When determining the future baseline, the EIA Regulations focus on the 'natural evolution' of the baseline in the absence of the Proposed Scheme. From a socio-economic and human health perspective, there are limited 'natural' aspects that would influence the change in the baseline and any changes would be as a direct consequence of human intervention.

10.36 Without development in this location or re-occupation of the existing buildings, it is not expected that there will be any impact on employment, local economy or healthcare / recreational / leisure facilities from activities within the Site.

10.37 Whilst is likely that wider future changes will occur to the socio-economic and human health receptors presented above in the absence of the Proposed Scheme, the availability of forecasting data limits the extent to which these can be reported.

10.38 2018-based Sub National Population Projections[21] indicate that the population of Manchester is forecast to grow to around 579,000 by 2032 (the end of the current Local Plan period). This represents a growth rate of approximately 4% based on current levels. This rate of growth is forecast to be in line with the regional growth rate but lower than the Greater Manchester (4.6%) and national (5.4%) growth rates.

10.39 Owing to the population forecasts above, there are likely to be changes to the employment and local economy and enhancements to the capacities of healthcare / open space / leisure facilities.

Primary and Tertiary Mitigation

Construction Stage

10.40 There is no primary or tertiary mitigation which has been evaluated as part of the construction stage assessment.

Operational Stage

10.41 The following primary mitigation which has been evaluated as part of the operational stage assessment is outlined below:

- The Proposed Scheme has been informed by 'Secured by Design' principles and appropriate measures to enhance community safety and minimise the risk of anti-social behaviour and crime;
- The Proposed Scheme will deliver E (a, b and c) retail / restaurant / café space in Building A and Building B as well as E(g) office floorspace in Building B;
- The Proposed Scheme will provide ground-level public amenity areas and upper level private amenity space for future site users within Building A and Building B; and
- The Proposed Scheme will deliver a mix of sizes of apartments for a diverse range of accommodation needs in Building A.

Assessment of Effects, Secondary Mitigation and Residual Effects

Construction Stage

Temporary employment uplift during the construction stage which will support uplift in GVA

10.42 The estimated construction value will support temporary economic uplift during the construction period (estimated at 3.5 years). Albert Bridge House is currently vacant and therefore there will be no loss of employment.

10.43 The level of investment proposed has the potential to support an estimated circa 1,970 construction job years, equivalent to 565 full time equivalent (FTE) jobs per year for 3.5

years, based on the average turnover per FTE in Manchester for the construction sector[22].

10.44 The number of construction workers is likely to fluctuate over the duration of the construction programme to reflect the stage of development reached and associated workforce requirements. Although regional and national construction firms will often use their own workers on development schemes, it is common for at least some contractors to be drawn from the immediate local area.

10.45 Owing to this, a leakage[b] allowance of 25% (medium)[23] has been applied, owing to the assessment area's high unemployment and claimant rate relative to comparator areas, and balanced against the possibility that many employment seeking residents locally may not have the relevant skills to access skilled construction sector employment. Given construction sector underrepresentation locally, the likelihood of construction employment being displaced is higher. A 'medium' displacement[c] allowance of 50% has been applied. The total net direct employment is therefore estimated at circa 210 FTE per annum[d].

10.46 These jobs will generate GVA of £24.5m per annum over the construction period, estimated by applying the average GVA per FTE for the Manchester construction sector (£116,000). This constitutes 2.8% of the total construction sector GVA in the assessment area (MCC).

10.47 Multiplier effects[e] as a result of spill-over spending through the supply chain (indirect impacts) and through knock-on consumer spending as a result of wages being derived or spent locally (induced impacts) will generate further employment during the construction stage. Applying the HCA Additionality Guidance sub-regional multiplier for regeneration and physical infrastructure projects (1.33) suggests that the estimated total direct, indirect and induced employment could be in the order of 280 FTEs[f]. This constitutes 3.8% of the total construction sector employment in the assessment area (MCC).

10.48 The sensitivity of the receptor (individuals seeking construction employment and the local economy) is considered to be medium. This assessment reflects a balance between the current rate of unemployment (high), construction sector underrepresentation and relatively strong construction sector productivity performance within the study area (see **Table 10.5**). The magnitude of impact is

[b] 'Leakage' is defined by the HCA Additionality Guide (4th edition) as '*The proportion of outputs that benefit those outside of the intervention's target area or group*'.
[c] 'Displacement' is defined by the HCA Additionality Guide (4th edition) as '*The proportion of intervention outputs/outcomes accounted for by reduced outputs/outcomes elsewhere in the target area*'.
[d] Figure rounded.
[e] 'Multipliers' are defined by the HCA Additionality Guide (4th edition) as '*Further economic activity (jobs, expenditure or income) associated with additional local income and local supplier purchases'*.
[f] Figure rounded up.

considered to be small. Therefore, there is likely to be a direct, temporary, medium-term, beneficial effect which is considered to be minor.

Secondary mitigation or enhancement

10.49 The implementation of a local labour agreement offers the potential to enhance the recruitment of construction labour from within the local area (MCC). 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.

Residual effect

10.50 With the implementation of the secondary mitigation noted above, this will be beneficial to individuals seeking construction employment and to local economy (as measured through GVA). However, it is considered that this is not sufficient to alter the assessment of impact magnitude from small to medium. Therefore, the residual effect for the receptor (individuals seeking construction employment and the local economy) is the same as that reported in the pre-mitigation scenario.

Significance

10.51 This effect is considered to be **Not Significant**.

Operational Stage

Net change in operational employment (and change in GVA)

10.52 Albert Bridge House contains 15,024 sqm (Net Internal Area (NIA)) of office accommodation and was up until recently occupied. The St. Mary's Parsonage Strategic Regeneration Framework[24] highlights that the accommodation *'does not meet the requirements of modern large scale occupiers in an increasingly competitive commercial office market*'. Albert Bridge House has been vacated and the former occupier (HMRC) has relocated to an alternative site (at Three New Bailey). Therefore, for the purposes of this assessment, it is assumed that existing jobs will be relocated to this alternative site and that new, direct employment provided on the Site will be additional.

10.53 **Table 10.6** shows the operational employment calculations.

Table 10.6: Proposed commercial floorspace and employment calculations

Use	NIA	Employment density[25]	Jobs (gross FTE)	Notes
E(a, b, c) Retail / restaurant / café	2,351	17.5	134	Mid-point of the 15 – 20 range for retail, restaurant and café uses specified in the HCA Employment Density Guidance.
E (g) Office	34,601	11.6	2,983	Average of relevant office uses sub-sectors, including: Corporate, Professional Services, Public Sector, TMT

Use	NIA	Employment density[25]	Jobs (gross FTE)	Notes
				and Finance & Insurance specified in the HCA Employment Density Guidance.
Total	**36,952**		**3,117**	

10.54 Through the application of relevant employment densities to the proposed floorspace **Table 10.6** indicates that the Proposed Scheme could provide accommodation for circa 3,100 gross direct FTE jobs. This assumes that the Proposed Scheme would be 100% occupied. Replacing older, 1950s office accommodation with modern, flexible premises is likely to support higher occupancy levels. Whilst full occupancy is unlikely to be achieved immediately upon completion, this represents a feasible upper limit of gross on-site employment generation.

10.55 A 'low' leakage allowance is applied at 10% owing to the assessment area's high representation of employment within office-based service activities. However, the likelihood of employment generated displacing existing activity and causing greater labour market competition within the assessment area is reasonably high. For the purposes of this assessment, it is assumed that 50% of activity will be displaced ('medium' displacement). The total net direct employment is therefore estimated at 1,400 FTEs.

10.56 These jobs will generate GVA of £139m per annum, estimated by applying the average GVA per FTE for the relevant sectors in Manchester (£99,000)[g]. This level of GVA constitutes approximately 1.1% of the GVA for relevant sectors in the assessment area (MCC).

10.57 Multiplier effects as a result of spill-over spending through the supply chain (indirect impacts) and through knock-on consumer spending as a result of wages being derived or spent locally (induced impacts) will generate further employment. Applying the HCA Additionality Guidance local area composite multiplier for office uses (1.29) suggests that the estimated total direct, indirect and induced employment could be in the order of 1,810 FTEs. This level of employment constitutes approximately 1.3% of the employment for relevant sectors (noted above) in the assessment area (MCC).

10.58 The sensitivity of the receptor (individuals seeking employment and the local economy) is considered to be medium. This assessment reflects a balance between the current rate of unemployment (high), a strong representation of employment within service activity sectors and relatively strong productivity performance within service activity sectors across the study area (see **Table 10.5**). Taking into account both change in employment and GVA, the magnitude of impact is considered to be small. Therefore,

[g] Relevant sectors include Broad Industrial Groups J – N (J: Information and communication; K: Financial and insurance activities; L: Real estate activities; M: Professional, scientific and technical activities; and N: Administrative and support service activities).

there is likely to be direct, long-term, permanent, beneficial effect which is considered to be minor.

Secondary mitigation or enhancement

10.59 No secondary mitigation or enhancement is required.

Residual effect

10.60 In the absence of secondary mitigation the residual effect is the same as that reported in the pre-mitigation scenario.

Significance

10.61 This effect is considered to be **Not Significant**.

Increase in the number of homes in the assessment area and contribution towards local housing need

10.62 The provision of 367 new homes by the Proposed Scheme represents 1% of the MCC's 10 year housing target of 36,000 homes by 2032[26]. It also accords with the strategic ambitions at both MCC and Greater Manchester Combined Authority levels to boost brownfield site housing delivery and build 80% of new homes on brownfield sites by 2032.

10.63 The sensitivity of the receptor (individuals seeking housing) is considered to be medium given existing housing need. The magnitude of impact is considered to be small. Therefore, there is likely to be a direct, permanent, long-term, beneficial effect which is considered to be minor.

Secondary mitigation or enhancement

10.64 No secondary mitigation or enhancement is required.

Residual effect

10.65 In the absence of secondary mitigation the residual effect is the same as that reported in the pre-mitigation scenario.

Significance

10.66 This effect is considered to be **Not Significant**.

Additional demand for healthcare facilities (GP services and dentists) as a result of the uplift in population

10.67 Applying the average household size for Manchester (2.44)[27] to the total number of homes proposed (367), indicates that the resident population could increase by 895 residents. This is considered to be an upper estimate of the population yield given the City Centre location and the mix of residential uses, which will be more focused around the provision of one (32% of the total units proposed) and two bedroom flats (56% of the total units proposed). This increase in resident population will increase demand for local healthcare facilities including GP and dental services.

10.68 For the purposes of this assessment, it is assumed that all new residents will not already be registered at local GP and dental practices. Whilst this is unlikely to be the case in practice, this represents a reasonable 'worst case' scenario for the assessment.

10.69 Applying the commonly-used benchmark ratio of 1,800 patients per FTE GP, the increase in population would require approximately 0.5 FTE GPs. As outlined within **Table 10.5**, GP practices within the assessment area (within 1 mile of the Site) are operating at above this benchmark ratio. The additional population would increase the ratio by a small margin to 2,270 per FTE GP[h] within the assessment area (within 1 mile of the Site) and would therefore exacerbate an existing shortfall in the provision of GPs[i]. To meet the benchmark ratio in the assessment area, accounting for the Proposed Scheme, an additional 5.8 FTE GPs would be needed. This quantitative approach does not take account of the variety of operational and staffing requirements that practices employ to suit the needs of their patient population, meaning that it is feasible that certain practices will operate sustainably at levels above and below the benchmark ratio of patients per GP.

10.70 Due to data availability constraints it is not possible to quantitatively assess the impact on dental provision. However, given wider capacity challenges both locally and nationally for the provision of dental services, it is reasonable to assume that the increase in resident population could exacerbate an existing shortfall in provision.

10.71 The sensitivity of the receptor (healthcare facilities and their patients) is considered to be medium given the existing capacity issues, balanced against the short term delivery of a new medical centre within the assessment area (see **Table 10.5**). The magnitude of impact is considered to be small. Therefore, applying professional judgement, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be minor.

Secondary mitigation or enhancement

10.72 No secondary mitigation or enhancement is required.

Residual effect

10.73 In the absence of secondary mitigation the residual effect is the same as that reported in the pre-mitigation scenario.

Significance

10.74 This effect is considered to be **Not Significant**.

Additional demand for the use of the existing leisure facilities and open / amenity areas within close proximity to the Site

10.75 The majority of the existing public realm within the Site is taken up by a publicly accessible pay-and-display car park, Manchester Bridge Car Park. A small area of public realm, Albert Bridge Gardens, lies along the northern edge of the Site and is set down at a lower level along the River Irwell, which does not allow for passive surveillance and encourages antisocial behaviour. There is also the Trinity Bridge open space along the north-eastern boundary, footways along Bridge Street and St. Mary's Parsonage. The remainder of the Site is not publicly accessible.

[h] Figures rounded.

[i] This analysis does not account for planned new provision in the Great Jackson Street area since full details of the scale of provision (registered patients and FTE GPs) are not yet known.

10.76 The Proposed Scheme will incorporate generous hard and soft landscaping. It will also include extensive public realm at ground level that will improve permeability for pedestrians and improve accessibility to surrounding open and amenity spaces for the general public. Ground floor active frontages within Building A and Building B will animate the public realm.

10.77 Additionally, the Proposed Scheme incorporates communal circulation spaces at Level 00, double height communal amenity areas at Levels 10 – 11, 22 – 23 and 34 – 35, private external amenity areas to the duplex apartments occupying Levels 10, 22 and 34 as well as winter gardens for each home within Building A. This will provide access to amenity green / garden space for future residents. Office winter gardens and / or accessible amenity terraces will also be provided on Levels 03 – 18 of Building B for use by future employees / visitors.

10.78 Whilst it would be reasonable to assume that the local open space and recreational facilities may see an increase in usage as a result of the Proposed Scheme, there is considered to be adequate provision within the Site's immediate surroundings to accommodate this, including Parsonage Gardens, Hardman Square and St. John's Gardens. Similarly, given the Site's City Centre location, there is a range of sports and leisure facilities (including multiple swimming and gym facilities) located within close walking distance of the Site (under 1 mile) which is also considered to be adequate to accommodate any increase in usage resulting from the Proposed Scheme.

10.79 Furthermore, the provision of new and improved public realm at ground level, increased permeability and amenity spaces within Building A and Building B will generate benefits for local residents / employees and contribute to improved health and wellbeing outcomes. Since these benefits will mostly be felt exclusively to future site users rather than the existing resident population then this is assessed as being a small magnitude of impact.

10.80 The sensitivity of the receptor (open space and recreational facilities and their users) is considered to be low given the existing open space / recreational resources available in the area (see **Table 10.5**). The magnitude of impact is considered to be small. Therefore, there is likely to be a direct, permanent, long-term, beneficial effect which is considered to be minor.

Secondary mitigation or enhancement

10.81 No secondary mitigation or enhancement is required.

10.82 The public realm / landscaping within the Proposed Scheme will be subject to an ongoing landscape management plan (refer to details in **Chapter 7: Townscape and Visual**).

Residual effect

10.83 In the absence of secondary mitigation the residual effects for the receptor (open space and recreational facilities and their users) is that same as that reported in the pre-mitigation scenario.

Significance

10.84 This effect is considered to be **Not Significant**.

Limitations and Assumptions

10.85 To ensure transparency within the EIA process, the following limitations and assumptions have been identified.

- The assessment of effects has been undertaken against the most recent, publicly available data; the progress of emerging data was tracked during the preparation of the Chapter throughout to ensure an up-to-date assessment is presented;
- The spatial levels have been assessed where data is available and / or where it is considered most informative based on professional judgement. Where data has not been available at the identified levels, alternative spatial data deemed relevant and appropriate has been used; and
- The assessment has been based on information received from a number of parties including the Applicant, and it is assumed that the information is accurate. The assessment assumes that the Proposed Scheme would be delivered as per the plans that accompany the Application.

Summary

10.86 **Table 10.7** provides a summary of the effects, receptors, residual effects and conclusions of significance considered within the Chapter.

10.87 The table only provides a summary of the residual effects identified within the assessment and details of all primary, secondary and tertiary mitigation that has been taken into account is set out in detail within the Chapter and summarised within the Environmental Management Plan included within **Volume 4: Environmental Management Plan**.

Table 10.7: Summary of residual and significant effects

Effect	Receptor	Residual effect	Is the effect significant?
Construction Stage			
Temporary employment uplift during the construction stage which will support uplift in GVA	Individuals seeking construction employment and the local economy (through GVA)	Minor beneficial	NO
Operational Stage			
Net change in operational employment (and change in GVA)	Individuals seeking employment and the local economy (through GVA)	Minor beneficial	NO
Increase in the number of homes in the assessment area and contribution	Individuals seeking housing	Minor beneficial	NO

Effect	Receptor	Residual effect	Is the effect significant?
towards local housing need			
Additional demand for healthcare facilities (GP services and dentists) as a result of the uplift population	Healthcare facilities and their patients	Minor adverse	NO
Additional demand for the use of the existing leisure facilities and open / amenity areas within close proximity to the Site	Open space and recreational facilities and their users	Minor beneficial	NO

References

[1] ONS Annual Business Survey (2020) and Business Register and Employment Survey (2020)
[2] HM Government. National Planning Policy Framework (2019)
[3] Greater Manchester Combined Authority. Emerging Places For Everyone Joint Development Plan (Publication Stage). (2021)
[4] Manchester City Council. Core Strategy (2012)
[5] Homes and Communities Agency. Employment Density Guidance (Third Edition). (2015)
[6] Homes and Communities Agency. Additionality Guide (Fourth Edition). (2014)
[7] English Partnerships. Additionality Guide – A Standard Approach to Assessing the Additional Impacts of Interventions (Third Edition) (2008)
[8] ONS Business Register and Employment Survey (2020)
[9] ONS Annual Population Survey (2021)
[10] ONS Claimant Count, July 2022
[11] ONS Regional Gross Value Added (balanced) by industry (2019)
[12] ONS Population estimates - local authority based by single year of age (2020)
[13] ONS Sub-National Population Projections (2018-based)
[14] DLUHC. Table 253: permanent dwellings started and completed, by tenure and district (2022)
[15] Manchester City Council (2022) Manchester Housing Strategy 2022-2032
[16] ONS Ratio of median house price to median gross annual workplace-based earning by local authority district (2021)
[17] Place North West (2022) Medical centre to open at Renaker's Elizabeth Tower, 23 August 2022. Available at: https://www.placenorthwest.co.uk/medical-centre-to-open-at-renakers-elizabeth-tower/
[18] Bidstats (2022) Fit out of Shell Unit at Elizabeth Tower Medical Centre Contract Award. Available at: https://bidstats.uk/tenders/2022/W44/786039168
[19] Healthwatch in Greater Manchester NHS DENTISTRY Supplemental Report (2021)
[20] Land, Environment, Economics and Policy Institute, University of Exeter, Outdoor Recreation Valuation Tool Version 2.0
[21] ONS Sub-National Population Projections (2018-based)
[22] Using ONS Business Register and Employment Sector and Annual Business Survey data for 2019
[23] Homes and Communities Agency Additionality Guide (2014)
[24] KPF (2020) St. Mary's Parsonage Strategic Regeneration Framework.
[25] Homes and Communities Agency Employment Density Guide (2015)
[26] Manchester City Council (2022) Manchester Housing Strategy 2022-2032
[27] ONS Household projections for England (2020)

11. Climate Change

Introduction

11.1 This Chapter reports the outcome of the assessment of likely significant environmental effects arising from the Proposed Scheme in relation to climate change.

11.2 The Chapter describes the scope of the assessment and assessment methodology, and a summary of the baseline information that has informed the assessment.

11.3 In line with **Chapter 2: Approach to EIA**, the assessment reports on the likely significant environmental effects, the further mitigation measures required to prevent, reduce or offset any significant adverse effects, or further enhance beneficial effects. The conclusions are provided both in terms of the residual effects and whether these are considered to be significant. The assessment of effects takes into consideration both primary and tertiary mitigation (see **Chapter 2: Approach to EIA** for further details) and is informed by the EIA Scoping process (**Appendices 2.1 and 2.2**) and iterative scoping process where applicable.

11.4 This Chapter, and its associated **Appendix 11.1** is intended to be read as part of the wider ES with particular reference to the introductory Chapters of this ES (**Chapters 1 – 5**).

11.5 In addition, this Chapter should be read in conjunction with **Chapter 12: Assessment of Cumulative Effects** and the **Environmental Standards Statement** submitted with the Application.

Summary of Consultation

11.6 No statutory consultee exists in England in relation to climate change. As such, no consultations have been undertaken for the preparation of this Chapter. However, wider consultation as part of the general development stakeholder consultation has included discussion of the energy strategy for the Proposed Scheme. This has included information on the all-electric strategy, glazing ratios and photovoltaics.

Scope of the Assessment

11.7 An EIA Scoping Report was submitted to MCC on 27th September 2022, as presented as **Appendix 2.1**. The Scoping Opinion was received on 7th November (**Appendix 2.2**). This section provides confirmation on the scope of the assessment presented within this Chapter following submission of the EIA Scoping Report.

Effects Considered Unlikely to be Significant

11.8 The following effects were considered unlikely to be significant as part of the EIA Scoping Report and are not considered further in this Chapter:

- Carbon emissions generated by construction and operational traffic;

- Increased flood risk as a result of climate change during construction and operation;
- Increased summer temperatures as a result of climate change during construction;
- Changes to seasonal temperatures and rainfall (as a result of climate change) on ground conditions during operation;
- Changes to seasonal temperatures and rainfall as a result of climate change on-Site habitats and species; and
- Increased summer temperatures as a result of climate change and risk of overheating within buildings during operation.

Effects Considered Likely to be Significant

11.9 **Table 11.1** outlines the effects considered likely to be significant that have been assessed and reported within this Chapter. The titles of the effects have been slightly altered since those presented in the EIA Scoping Report to more fully reflect the likely significant effects considered.

Table 11.1: Effects considered likely to be significant

Likely significant effect	Receptors	Applicable stage
Embodied carbon emissions of buildings	The atmosphere	Construction[a]
Regulated and unregulated carbon emissions generated by buildings	The atmosphere	Operation[b]

Assessment Methodology

Legislative Framework, Policy and Guidance

11.10 The following legislation and policy have informed the assessment of effects within this Chapter and is detailed further in **Appendix 11.1**:

- Legislation:
  - Climate Change Act (2008)[1];

[a] i.e., A1 – A3 GHG emissions associated with the material extraction, transportation and manufacturing of construction products set out in British Standard EN 15978:2011.
[b] i.e., B6 GHG emissions associated with the estimated total operational energy set out in British Standard EN 15978:2011.

- The Climate Change Act 2008 (2050 Target Amendment) Order 2019[2];

- National planning policy:
  - NPPF Chapter 14[3];

- Local planning policy:
  - Manchester Local Plan, Core Strategy[4].

11.11 The following guidance has informed the assessment of effects within this Chapter and is also detailed further in **Appendix 11.1**:

- IEMA Assessing Greenhouse Gas Emissions and Evaluating their Significance (2nd Edition)[5];
- IEMA Principles Series: Climate Change Mitigation & EIA[6];
- Department for Business, Energy & Industrial Strategy (BEIS) (2017) Clean Growth Strategy[7];
- RICS Methodology to calculate embodied carbon (1st Edition)[8];
- RICS Whole life carbon assessment for the built environment (1st Edition)[9];
- Committee on Climate Change The Sixth Carbon Budget. The UK's path to Net Zero[10];
- PPG – Climate change[11];
- Ministry of Housing, Communities & Local Government Conservation of fuel and power: Approved Document L. Statutory guidance[12]; and
- CIBSE Guide F – Energy Efficiency in Buildings[13].

Defining the Study Area

11.12 The Site is located in Manchester City Centre.

11.13 The Site makes up the study area. The assessment also captures certain emissions occurring outside of the Site, including emissions associated with raw material extraction and manufacturing of building materials. It should be noted that the affected receptor considered in this study is 'the atmosphere' which does not have defined geographical boundaries.

Establishing the Baseline

11.14 **Table 11.2** summarises all studies / surveys / analysis / evaluations undertaken to inform the assessment presented within this Chapter.

Table 11.2: Background studies / surveys / analysis / evaluations

Studies / surveys / analysis / evaluations	Overview	Date of completion
Energy consumption analysis for existing building	Energy benchmarking for existing standard air-conditioned office, typical practice (CIBSE Guide F)	August 2022
Calculation of existing emissions from Albert Bridge House	Existing building floor area obtained and calculations undertaken	August 2022
National scale CO_2 emissions data research (UK)	BEIS data relating to year 2020	August 2022
Regional scale CO_2 emissions data research (North West)	BEIS data relating to year 2020	August 2022
Local scale CO_2 emissions data research (Manchester)	BEIS data relating to year 2020	August 2022

Assessment Process

11.15 This assessment has followed the recommendations and best practice contained within the IEMA Principles Series: Climate Change Mitigation & EIA (2010) and IEMA Environmental Impact Assessment Guide to: Assessing GHG Emissions and Evaluating Their Significance (2022). It has also reviewed a list of key legislative instruments and national and local planning policy and related guidance to inform the approach as shown in **Appendix 11.1**.

Construction stage: Embodied carbon emissions of buildings

11.16 The assessment includes an appraisal of the likely embodied carbon of new buildings introduced as part of the Proposed Scheme.

11.17 Embodied carbon is the total carbon emissions generated to produce a built asset. It is defined by the London Energy Transformation Initiative (LETI) as the '*carbon emissions associated with energy consumption (embodied energy) and chemical processes during the extraction, manufacture, transportation, assembly, replacement and deconstruction of construction materials or products*'.

11.18 Embodied carbon assessment is an area which has undergone significant development in recent years. Traditionally the greatest impact on an asset's whole life carbon has been associated with its operational stage. With the ongoing decarbonisation of the UK electricity grid, this trend is expected to shift and embodied carbon is expected to assume an ever-increasing proportion of the overall carbon footprint of developments (made up of embodied and operational carbon emissions).

11.19 An analysis of the anticipated CO_2e emissions associated with the raw material extraction and manufacturing of the building materials used on-Site has been carried out. CO_2e emissions refers to carbon dioxide equivalent emissions, which is a measure used to compare the emission from various greenhouse gases based upon their global warming potential, in order to standardise the climate effects of greenhouse gases. This analysis has been undertaken using the general guidance and benchmark

estimates of embodied carbon associated with construction materials for various building types provided by the Royal Institution of Chartered Surveyors (RICS) set out in the RICS 2014 and 2017 papers.

11.20 The RICS methodology enables the quantification of the carbon emissions associated with life cycle stages A1-A3 (construction materials extraction, transport and fabrication) by assigning suitable carbon factors to materials used in the Proposed Scheme via acceptable data sources, such as a manufacturing databases.

11.21 As the full detail of construction materials and associated volumes is not available at this stage, the assessment has been undertaken based on the proposed area schedule and recognised industry benchmarks. The data available from RICS 2014 provides an indicative carbon rate ($kgCO_2/m^2$) for building use types, which can be used to estimate the associated embodied carbon based on targeted floor area. This has enabled an assessment of the likely significant effects.

11.22 Consideration is also given to the embodied carbon that could be avoided through refurbishment of the existing buildings. This does not inform level of effect or significance but is provided for information purposes. More detail is provided in the 'Assessment of effects' section.

11.23 As noted in the EIA Scoping Report (**Appendix 2.1**), other lifecycle stages (i.e. A4 and A5 construction process (transport and construction and installation)) have not been considered within the assessment as these are expected to represent less than 1% of total emissions.

Operational stage: Regulated and unregulated carbon emissions from buildings during operation

11.24 The operational emissions associated with the Proposed Scheme have been evaluated using projected regulated and unregulated carbon emissions.

11.25 The assessment has reviewed the estimated total operational energy of the Proposed Scheme. This is made up of regulated and unregulated components.

11.26 Regulated energy uses are inherent in the design of a building; they relate to the 'quality' of the building itself and include heating, cooling, hot water, fans, pumps and lighting. The unregulated operational emissions are typically attributable to energy consumption associated with IT equipment, domestic appliances, plug-in devices and catering facilities.

11.27 Estimated carbon emissions from regulated and unregulated operational energy uses of the Proposed Scheme have been calculated from Energy Use Intensity (EUI) targets taken from the LETI Climate Emergency Design Guide[14]. EUI is the total amount of energy used in a building in a year divided by its floor area, measured in kWh/m^2.

Reporting of the Environmental Effect and Significance Criteria

11.28 The assessment of likely significant environmental effects as a result of the Proposed Scheme has taken into account the construction and operational stages. The following

sections define the approach adopted within the assessment for the determination of sensitivity, magnitude of impact, the level of effect and significance.

Determining Sensitivity of Receptor

11.29 The sensitivity of the affected receptor has been considered on a scale **of high, medium, low** or **negligible**.

11.30 In this Chapter, the receptor identified for effects likely to be considered significant is 'the atmosphere' (global climate)'. In light of the extreme importance of limiting global warming to below 1.5°C and in the absence of published standard definition of receptor sensitivity of carbon emissions, this assessment asserts that the sensitivity of the atmosphere (global climate) to increases in CO_2 emissions is always considered to be 'high', as stated in IEMA (2022).

Determining the Magnitude of Impact

11.31 The magnitude of impact has been considered in the context of existing and future emissions and has been considered on a scale of **large, medium, small** or **negligible**.

11.32 The determination of magnitude of impact for the pre-secondary mitigation and enhancement assessment is carried out, taking account of any tertiary or primary mitigation that forms part of the Proposed Scheme.

11.33 In the absence of clearly defined criteria for assessing magnitude in the context of GHG emissions, a blended quantitative / qualitative assessment utilising professional judgement relying on standard GHG accounting and reporting principles has been conducted.

11.34 To provide context and to assist with determining the magnitude of impact, the CO_2 emissions generated by the Proposed Scheme have been assessed in the context of past emissions at a local scale (Manchester), a regional scale (North West), and national scale (the UK as a whole) reflecting the various levels where emissions may occur.

11.35 CO_2 emissions observed at local and regional level have been sourced from UK national statistics collated by BEIS[15]. Newly published Local (Manchester) carbon budgets from the University of Manchester have also been used in assessing the magnitude of the Local / Regional impact of emissions.

11.36 The Proposed Scheme will be constructed in a single phase, with works anticipated to commence in 2023. Consequently, the 2nd Manchester carbon budget is deemed applicable to the construction stage of the Proposed Scheme, and the 3rd, 4th, 5th, 6th and 7th Manchester carbon budgets are deemed to be applicable to the operational stage across the project's anticipated 60-year life.

Table 11.3: Manchester carbon budget levels

Budget	Carbon budget level	Reduction beyond 2015 levels
1st carbon budget (2018 - 2022)	8.6 $MtCO_2$	26.5% by 2020

Budget	Carbon budget level	Reduction beyond 2015 levels
2nd carbon budget (2023 - 2027)	4.6 $MtCO_2$	62.2% by 2025
3rd carbon budget (2028 - 2032)	2.4 $MtCO_2$	80.5% by 2030
4th carbon budget (2033 - 2037)	1.2 $MtCO_2$	90.0% by 2035
5th carbon budget (2038 - 2042)	0.6 $MtCO_2$	94.8% by 2040
6th carbon budget (2043 - 2047)	0.3 $MtCO_2$	97.3% by 2045
7th carbon budget (2048- 2100)	0.3 $MtCO_2$	98.6% by 2050

11.37 The national-scale data is based on the five-year National Carbon Budgets produced by the Committee on Climate Change (CCC), which reflect the requirement to remain within agreed global emission limits. These are outlined in **Table 11.4**. The National Carbon Budgets have been apportioned to reflect the contribution of the built environment towards the UK total carbon footprint (estimated to be nearly 40%). This approach is in alignment with Section 6.4 of the IEMA Guidance for assessing GHG emissions and evaluating their significance, which provides a steer on contextualising a project's carbon impacts.

11.38 Given the phasing of the Proposed Scheme noted above, the 4th, national carbon budget is deemed applicable to the construction stage, and the 4th, 5th and 6th national carbon budgets are deemed to be applicable to the operational stage (as detailed in **Table 11.4**). No data is currently available post-2037 so it is not possible to assess the anticipated operational emissions against UK carbon emissions beyond this date. However, in light of the ambitious sustainability target set by the UK government for the country, i.e. the legally binding 'net-zero' carbon target for 2050, it can be expected that the magnitude of operational emissions will only increase as a proportion of the total national carbon budget.

11.39 The proposed all-electric energy strategy for the Proposed Scheme will benefit from the reductions in grid electricity carbon intensity between now and commencement of the operational development and subsequently throughout its operational life. Therefore, current estimates of operational emissions are likely to represent a worst-case scenario, and the Proposed Scheme will benefit from an energy strategy which makes most pragmatic use of national drivers towards a zero-carbon economy.

Table 11.4: UK National carbon budget levels

Budget	Carbon budget level	Reduction below 1990 levels
1st carbon budget (2008 - 2012)	3,018 $MtCO_2e$	25%
2nd carbon budget (2013 - 2017)	2,782 $MtCO_2e$	31%
3rd carbon budget (2018 - 2022)	2,544 $MtCO_2e$	37% by 2020
4th carbon budget (2023 - 2027)	1,950 $MtCO_2e$	51% by 2025

Budget	Carbon budget level	Reduction below 1990 levels
5th carbon budget (2028 - 2032)	1,725 $MtCO_2e$	57% by 2030
6th carbon budget (2033 – 2037)	965 $MtCO_2e$	78% by 2035

11.40 In GHG accounting, it is a widely accepted practice to exclude emission sources that do not have a material contribution to the overall carbon footprint on the basis of the 'De Minimis' rule. ISO guidance on GHG reporting (ISO 14064-1)[16] states that '*the organisation may exclude from quantification direct or indirect GHG sources or sinks whose contribution to GHG emissions or removals is not material or whose quantification would not be technically feasible or cost effective'*. In this context, multiple sources have introduced a 'materiality threshold'. PAS 2050[17] for example, stipulates that in order to be considered 'material', the contribution from any one source of GHG emissions should be more than 1% of the anticipated total GHG emissions associated with the product being assessed.

11.41 The UK Emissions Trading System (UK ETS)[18] replaced the EU Emissions Trading System (EU ETS) from 1st January 2021. It retains the provision for small installations, which states that small installations whose emissions do not exceed a threshold of 25,000 tCO_2e per annum and, where they carry out combustion activities, have a rated thermal input below 35 MW, excluding emissions from biomass, can opt out from the scheme. Additionally, as part of its public reporting under the Task Force on Climate-related Financial Disclosures framework (IFC Performance Standard 3: Resource Efficiency and Pollution Prevention the International Finance Corporation (IFC) discloses emissions of projects with estimated annual emissions over 25,000 tCO_2e through the Environmental and Social Review Summary for each project.

11.42 In line with the above, a 1% materiality threshold has been implemented in this assessment when determining magnitude of the relevant change in carbon emissions. To ensure a robust approach, a second reference point has been included, i.e. 25,000 tCO_2e annual emission maximum level. It is, therefore, assumed that any annual carbon emissions quantum <1% of the (proportional value) of the relevant carbon budget(s) and < 25,000 tCO_2e would not be considered to have a 'material' contribution to the relevant UK GHG inventory (i.e. at the national scale). More details are provided in **Tables 11.5** and **11.6**.

Table 11.5: Criteria for determining magnitude of impact – national scale

Magnitude of impact	Criteria
Large	Annual carbon emissions represent a contribution **equal to or higher than 1%** of the national baseline emissions and / or annual proportion of the relevant UK National Carbon Budget's share attributable to the built environment sector; AND

Magnitude of impact	Criteria
	Annual carbon emissions are **higher than 25,000 tCO_2e** in any year.
Medium	Annual carbon emissions represent a contribution **lower than 1%** of the national baseline emissions and / or annual proportion of the relevant UK National Carbon Budget's share attributable to the built environment sector; AND Annual carbon emissions are **higher than 25,000 tCO_2e** in any year.
Small	Annual carbon emissions represent a contribution **lower than 1%** of the national baseline emissions and / or annual proportion of the relevant UK National Carbon Budget's share attributable to the built environment sector; AND Annual carbon emissions are **lower than 25,000 tCO_2e** in any year.
Negligible	Annual carbon emissions represent a contribution **lower than 0.1%** of the national baseline emissions and / or annual proportion of the relevant UK National Carbon Budget's share attributable to the built environment sector; AND Annual carbon emissions are **lower than 25,000 tCO_2e** in any year.

Table 11.6: Criteria for determining magnitude of impact – local / regional scale

Magnitude of impact	Criteria
Large	Annual difference in carbon emissions represents a contribution **higher than 1%** of the local / regional baseline emissions share attributable to the built environment sector; AND Annual difference in carbon emissions represents a contribution **higher than 1%** of the relevant local / regional carbon budget's share attributable to the built environment sector.
Medium	Annual difference in carbon emissions represents a contribution **lower than 1%** of the local / regional baseline emissions share attributable to the built environment sector; AND Annual difference in carbon emissions represents a contribution **higher than 1%** of the relevant local / regional carbon Budget's share attributable to the built environment sector.
Small	Additional annual carbon emissions represent a contribution **lower than 1%** of the local / regional baseline emissions share attributable to the built environment sector; AND

Magnitude of impact	Criteria
	Additional annual carbon emissions represent a contribution **lower than 1%** of the relevant local / regional carbon Budget's share attributable to the built environment sector.
Negligible	Additional annual carbon emissions represent a contribution **lower than 0.1%** of the local / regional baseline emissions share attributable to the built environment sector; AND Additional annual carbon emissions represent a contribution **lower than 0.1%** of the relevant local / regional carbon Budget's share attributable to the built environment sector.

11.43 While the emission thresholds outlined above have been used to provide context, it is important to recognise that the application of professional judgement is a critical additional component in the determination of the magnitude of impact, as recognised by the IEMA guidance, which may result in a different overall conclusion than the one suggested by quantitative criteria alone provided in **Tables 11.5** and **11.6**. Where applied, this is set out in the assessment.

Determining the Level of Effect

11.44 The level of effect has been informed by the magnitude of impact due to the Proposed Scheme, the evaluation of the sensitivity of the affected receptor, and application of professional judgement. This has drawn upon the matrix in **Table 11.7**.

Table 11.7: Matrix to support determining the level of effect

		Sensitivity			
		High	Medium	Low	Negligible
Magnitude of impact	Large	Major	Moderate to Major	Minor to Moderate	Negligible
	Medium	Moderate to Major	Moderate	Minor	Negligible
	Small	Minor to Moderate	Minor	Negligible to Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

11.45 However, whist the assessment has drawn upon the above and is in general the methodology of assessment is similar to the other chapters in the ES, when it comes to determining the level of effect, the most recent methodology in IEMA (2022) is also

considered (and deemed more appropriate to this Chapter), as it is more specific to the topic.

11.46 This includes the evaluation of the anticipated environment within which the Proposed Scheme is expected to exist (e.g. ongoing decarbonisation of the grid), and is guided, in addition to the above factors, by IEMA (2022) methodology and its terms defined below:

- **Major adverse effect**: Where the Proposed Scheme's GHG impacts are not mitigated or are only compliant with do-minimum standards set through regulation, and do not provide further reductions required by existing local and national policy for projects of this type. A project with major adverse effects is locking in emissions and does not make a meaningful contribution to the UK's trajectory towards net zero;

- **Moderate adverse effect**: Where the Proposed Scheme's GHG impacts are partially mitigated and may partially meet the applicable existing and emerging policy requirements but would not fully contribute to decarbonisation in line with local and national policy goals for projects of this type. A project with moderate adverse effects falls short of fully contributing to the UK's trajectory towards net zero;

- **Minor adverse effect**: Where the Proposed Scheme's GHG impacts would be fully consistent with applicable existing and emerging policy requirements and good practice design standards for projects of this type. A project with minor adverse effects is fully in line with measures necessary to achieve the UK's trajectory towards net zero;

- **Negligible**: Where the Proposed Scheme's GHG impacts would be reduced through measures that go well beyond existing and emerging policy and design standards for projects of this type, such that radical decarbonisation or net zero is achieved well before 2050. A project with negligible effects provides GHG performance that is well 'ahead of the curve' for the trajectory towards net zero and has minimal residual emissions; and

- **Beneficial**: The Proposed Scheme's net GHG impacts are below zero and it causes a reduction in atmospheric GHG concentration, whether directly or indirectly, compared to the without-project baseline. A project with beneficial effects substantially exceeds net zero requirements with a positive climate impact.

11.47 The duration of the effect has been assessed as either 'short-term', 'medium-term' or 'long-term'. Short-term is considered to be up to 1 year, medium-term is considered to be between 1 and 10 years and long-term is considered to be greater than 10 years.

11.48 In the view of the findings of the Intergovernmental Panel on Climate Change (IPCC)[19] Special Report on the effects of global warming of 1.5 °C that some effects from climate change may be long-lasting, the duration of all effects assessed in this Chapter is assumed to be long-term (and permanent).

Determining Significance

11.49 For each effect, a statement has been made as to whether the level of effect is '**Significant**' or '**Not Significant**'. This determination has been based on professional judgement and / or relevant guidance / legislation where applicable.

11.50 Significance has only been concluded for residual effects (i.e. following the identification of secondary mitigation).

11.51 The IEMA 2022 guidance sets out key principles including that climate change is a cumulative issue, all greenhouse gas emissions may be considered significant in the context that global greenhouse gases are reaching a scientifically defined environmental limit of 1.5 – 2°C, and that greenhouse emissions are considered and reported at varying scales and degrees of detail depending on the project.

11.52 Where mitigation can reasonably be applied this implies significance at the project scale, but there is no single preferred method for evaluating the significance of an effect. The guidance recommends a proportionate approach where boundaries to the assessment are set, and effects are contextualised on a case-by-case basis using the professional judgement of the practitioner.

Baseline Conditions

Site

11.53 The existing Albert Bridge House has a floor area of 19,432m² (Gross Internal Area (GIA)). Based on relevant energy consumption data, taken from CIBSE Guide F (2012), the following annual energy benchmark is calculated:

- Typical practice fossil fuel benchmark for air-conditioned standard offices: 178 kWh per m^2 of gross floor area;
- Typical practice electricity benchmark for air-conditioned standard offices: 226 kWh per m^2 of gross floor area;
- Annual energy consumption: 7,850,528 kWh;
- Using the BEIS UK GHG Conversion Factors for Company Reporting ([20]) for electricity (0.21233 $kgCO_2e/kWh$) and mains gas (0.20297 $kgCO_2e/kWh$) respectively, this results in an estimated carbon baseline of 1,666 tCO_2e per year.

11.54 The annual baseline operational emissions within the existing Site are lower than 25,000 tCO_2e and account proportionally for:

- 0.083% of the local (Manchester) baseline emissions;
- 0.0043% of the regional (North West England) baseline emissions;
- 0.0011% annual proportion of the 4th national carbon budget (2023 – 2027) attributable to the built environment sector (assumed 40% attributed to built environment);

- 0.0012% annual proportion of the 5th national carbon budget (2028 – 2032) attributable to the built environment sector (assumed 40% attributed to built environment); and

- 0.0022% annual proportion of the 6th national carbon budget (2033 – 2037) attributable to the built environment sector (assumed 40% attributed to built environment).

Local Scale (Manchester)

11.55 The latest CO_2 emissions for the Manchester administrative area show that in 2019, 2,019.8 $ktCO_2$ were emitted. The data shows emissions allocated on an 'end-user' basis where emissions are distributed according to the point of energy consumption (or point of emission if not energy related).

Regional Scale (North West)

11.56 The latest available BEIS annual CO_2 emissions data for the North West of England from 2019 were 38,541.6 tCO_2.

11.57 In order to help understand the trends in carbon emissions at a regional level, a breakdown of total carbon emissions from three main sources (industry & commercial, domestic and transport) has been provided for the North West. The BEIS regional statistics data from the UK government, shown by **Table 11.8**, are available for the period 2005 – 2019.

Table 11.8: Carbon emissions within the North West of England 2005 – 2019

Year	Industry & Commercial $ktCO_2$	Public Sector $ktCO_2$	Domestic $ktCO_2$	Transport $ktCO_2$	Land use, land-use change & forestry $ktCO_2$	Grand Total $ktCO_2$	Population '000s, mid-yr estimate	Per Capita Emissions (t)
2005	24,051.30	2,866.90	17,604.60	15,408.90	457.1	60,388.80	6,870.00	8.8
2006	23,474.30	2,804.80	17,503.40	15,245.40	423.2	59,451.20	6,901.60	8.6
2007	22,847.80	2,660.70	16,941.00	15,295.20	401	58,145.60	6,929.30	8.4
2008	22,339.00	2,628.40	16,889.50	14,640.70	365.9	56,863.40	6,958.50	8.2
2009	19,222.30	2,262.00	15,329.50	14,278.10	356.4	51,448.30	6,986.20	7.4
2010	20,295.40	2,477.00	16,299.20	14,175.20	354.5	53,601.20	7,019.90	7.6
2011	18,236.20	2,049.70	14,216.20	14,021.30	346.3	48,869.60	7,056.00	6.9
2012	19,693.60	2,376.20	15,217.40	13,799.20	386.3	51,472.90	7,084.50	7.3
2013	18,294.90	2,226.40	14,829.30	13,661.00	365	49,376.70	7,103.50	7

Year	Industry & Commercial	Public Sector	Domestic	Transport	Land use, land-use change & forestry	Grand Total	Population	Per Capita Emissions
2014	16,046.60	1,944.40	12,449.20	13,814.90	336.1	44,591.20	7,133.00	6.3
2015	14,777.30	1,992.50	11,943.70	14,105.50	332.1	43,151.10	7,175.20	6
2016	13,494.50	1,787.60	11,428.50	14,298.40	340.7	41,349.60	7,224.00	5.7
2017	13,297.50	1,525.80	10,807.10	14,079.50	318.1	40,028.00	7,258.60	5.5
2018	12,709.10	1,563.00	10,789.70	13,964.60	326.5	39,352.80	7,292.10	5.4
2019	12,238.00	1,529.20	10,527.40	13,917.30	329.8	38,541.60	7,341.20	5.3

11.58 In line with the trend shown in **Table 11.8**, the statistics for the North West of England demonstrate a continuing downward trend over the overlapping 2005 – 2019 period, whereby the per capita CO_2 emissions have decreased by approximately 40%. Total emissions have also been reduced by 36% over the studied period despite the observed population growth.

11.59 The main reductions are observed in industry and commercial emissions followed by domestic emissions in line with an overall downward trend for the whole of the UK. In comparison, the reduction observed in the transport sector for the region is considerably smaller amounting to approximately 10%.

National Scale (United Kingdom)

11.60 The latest BEIS data available for the UK was published in 2021 and relates to the year 2020. The total CO_2 emissions generated in the UK in 2019 amount to 344,512 kt CO_2. According to a report by the World Resources Institute, the UK demonstrates one of the largest declines in CO_2 emissions, with a 20% reduction in the period 2000 – 2014. This is one of the biggest percentage reductions in CO_2 emissions of all large economies.

11.61 A study conducted by analysts Carbon Brief reveals that the decline in industry, commercial and domestic emissions is driven by a combination of the introduction of a low- and zero-carbon electricity mix based on gas and renewables instead of coal and reduced non-electric energy consumption in the industrial and residential sectors. The latter is explained mainly by improvements in energy efficiency and switching to lower-carbon fuels. A structural movement towards a less carbon-intensive mix of industrial output, with some energy-intensive industry moving to other countries and UK industry increasingly focusing on higher-value manufacturing with lower energy intensity is also considered to have been a significant factor in the case of industry-related emissions.

Future Baseline

11.62 Future changes to the baseline without the implementation of the Proposed Scheme or other planned development are anticipated to be minor. As the baseline focuses on an estimate of the operational energy of the existing land uses on-Site, this is unlikely to change much without a significant change of use (albeit as Albert Bridge House is now vacant the energy usage is anticipated to reduce). Emissions may also experience a small decrease as a result of external actions to reduce the emissions associated with the energy consumption arising from the uses on-Site.

Primary and Tertiary Mitigation

Construction Stage

11.63 No primary and tertiary mitigation has been evaluated as part of the construction stage assessment. This provides a worst-case assessment.

Operational Stage

11.64 The key aspect of mitigation relating to the operational stage is that the Proposed Scheme is all-electric and combustion-free (with the exception of emergency generators). It is therefore in a position to decarbonise as the electricity grid decarbonises in the future.

11.65 Further work is required in order to identify required measures which enable the Proposed Scheme to meet its operational energy targets, therefore this is discussed in the 'Secondary mitigation and Enhancement' section.

Assessment of Effects, Secondary Mitigation and Residual Effects

Construction Stage

Embodied carbon emissions of buildings

11.66 An appraisal of the anticipated CO_2 emissions associated with the raw material extraction and manufacturing of the building materials used on-Site has been carried out using the general guidance and benchmark estimates of embodied carbon associated with construction materials for various building types provided by RICS set out in the RICS 2014 and 2017 papers.

11.67 The A1 – A3 embodied carbon emissions (i.e. product stage of building life stages considered) have been estimated to be approximately 122,948.2 tCO_2e. The RICS carbon factors represent the embodied carbon in the construction materials (as per lifecycle stages A1 – A3 (EN 15978)) and are shown by **Table 11.9**. The resulting embodied carbon has been calculated by multiplying the derived GIA per land use type by the most relevant RICS carbon factor. Note, while other uses are proposed within the office building (e.g. restaurants and cafes) the 'Office' carbon factor is used as a proxy as it is more conservative, and the areas of other use are relatively small in comparison to the office floorspace proposed.

Table 11.9: Embodied carbon breakdown A1 – A3: Lifecycle stage for each building use type

Building and primary use	GIA area (m^2)	RICS Carbon Factor ($kgCO_2/m^2$)		A1 – A3 embodied carbon (tCO_2e)
Building B – E: Office	48,971	High rise office block	1,465	71,742.5
Building A – C3: Residential apartments	39,389	High rise tower (residential)	1,300	5,1205.7
Total	**88,360**			**122,948.2**

11.68 The Proposed Scheme includes the demolition of the existing building. Reducing the A1 – A3 embodied carbon through refurbishment is not part of the Proposed Scheme.

11.69 In order to approximately quantify the embodied carbon 'lost' due to demolishing the existing building (rather than re-using / refurbishing), the existing Albert Bridge House floor area (19,432 m^2 GIA) can be multiplied by the RICS high rise office carbon factor, giving approximately 28,468 tCO_2e. This is equivalent to circa 23% of the A1 – A3 embodied carbon of the whole Proposed Scheme (as noted in **Table 11.9**). This does not inform the assessment of level of effect and significance below as these emissions do not form part of the Proposed Scheme for which planning permission is sought.

11.70 The anticipated annual embodied emissions are greater than 25,000 tCO_2e and account proportionally for:

- 6% of local (Manchester) baseline emissions (see 'Baseline Conditions' section above);
- 33% of the appropriate local (Manchester) carbon budget (2023 – 2027) attributable to the built environment sector (assumed 40% attributed to built environment);
- 0.32% of regional (North West England) baseline emissions; and
- 0.078% annual proportion of the 4th national carbon budget (2023 – 2027) attributable to the built environment sector (assumed 40% attributed to built environment).

11.71 The sensitivity of the atmosphere is considered to be high. The magnitude of impact at the local / regional level is considered to be large and the magnitude of impact at the national level is considered to be medium based on **Tables 11.5** and **11.6**.

11.72 Based on the magnitude of impact at a local / regional and national level, application of professional judgement has been applied. For example considering that local carbon budgets have drawbacks as noted in IEMA (2022), such as that it is unclear whether the local budgets coherently add up to the national carbon budgets and it is debated as to

whether geographic budgets below national level are meaningful. The IEMA definitions have been considered to assist in determining the level of effect.

11.73 Therefore there is likely to be a direct, permanent, long-term, adverse effect which is considered to be moderate.

Secondary mitigation or enhancement

11.74 A Mat 01 Lifecycle Assessment (LCA) will be undertaken 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 to reduce the embodied carbon of the Proposed Scheme. However details of these are not yet known, so the impact on the residual effect cannot be quantified.

Residual effect

11.75 As the secondary mitigation measures cannot yet be specified or impact quantified, the residual effects for the atmosphere are that same as that reported in the pre-mitigation scenario.

Significance

11.76 This effect is considered to be **Significant**.

Operational Stage

Regulated and unregulated carbon emissions from buildings during operation

11.77 The operational emissions associated with the Proposed Scheme have been evaluated using energy use intensity targets associated with the specific building type. Benchmark EUI targets have been taken from the LETI guidance for residential and office buildings. A breakdown is provided in **Table 11.10**.

11.78 While areas of other usage (e.g. restaurant and café) are proposed within the buildings, these are relatively small in comparison to the office accommodation, and LETI benchmarks are not yet available for these space types. Furthermore, at this stage of the design it is difficult to anticipate the energy usage of the designated restaurant / cafe spaces. Therefore, the office EUI is considered appropriate to cover all areas of this building.

Table 11.10: Annual operational CO_2e emissions for each building use (regulated and unregulated)

Building and primary use	GIA area (m^2)	LETI/ BBP EUI Target ($kWh/m^2/yr$)	Operational carbon (tCO_2e/yr)
Building B-E: Office	48,971	55	571.9
Building A-C3: Residential apartments	39,389	35	292.7
Total	**88,360**		**864.6**

11.79 The total anticipated emissions associated with the operational stage of the Proposed Scheme, relating to the operation of the buildings, have been calculated to be 856 tCO_2e. Therefore, the estimated emissions do not exceed 25,000 tCO_2e per year.

11.80 Compared to local, regional and national GHG inventories the annual emissions from the Proposed Scheme account proportionally for:

- 0.043% of local (Manchester) baseline emissions;
- 0.23% of local (Manchester) carbon budget (2023 – 2027) (40% share attributable to the built environment sector);
- 0.45% of local (Manchester) carbon budget (2028 – 2032) (40% share attributable to the built environment sector);
- 0.9% of local (Manchester) carbon budget (2033 – 2037) (40% share attributable to the built environment sector);
- 1.8% of local (Manchester) carbon budget (2038 – 2042) (40% share attributable to the built environment sector);
- 3.6% of (Manchester) carbon budget (2043 – 2047) (40% share attributable to the built environment sector);
- 3.6% of (Manchester) carbon budget (2048 – 2100) (40% share attributable to the built environment sector);
- 0.0022% of regional (North West England) baseline emissions;
- 0.00055% annual proportion of the 4th national carbon budget (2023 – 2027) (40% share attributable to the built environment sector);
- 0.00062% annual proportion of the 5th national carbon budget (2028 – 2032) (40% share attributable to the built environment sector); and
- 0.0011% annual proportion of the 6th national carbon budget (2033 – 2037) (40% share attributable to the built environment sector).

11.81 The sensitivity of the atmosphere is considered to be high. The magnitude of impact at the local / regional level is considered to be small (when compared against the first three carbon budgets set out in **Table 11.3**) and medium (when compared against the further three carbon budgets set out in **Table 11.3**) based on the criteria in **Table 11.6**. This is largely due to the fact that the local carbon budgets become much smaller over the 60-year operation of the Proposed Scheme, while the annual emissions are based on one energy-based carbon calculation with an electricity grid carbon factor that remains the same. The magnitude of impact at the national level is considered to be negligible based on **Table 11.5**.

11.82 Therefore, there is likely to be a direct, permanent, long-term adverse effect which is considered to be negligible at the national scale and minor at the local / regional scale.

11.83 The level of effect at the local / regional impact increases as the local carbon budgets become smaller during the 60-year operation of the Proposed Scheme. In reality the continued decarbonisation of the electricity grid will reduce the operational emissions from the estimates used in this analysis, as an all-electric energy strategy will be adopted.

Secondary mitigation or enhancement

11.84 The secondary mitigation or enhancement measures that have been identified as being required in order to meet the Proposed Scheme's operational energy targets and mitigate the effect identified are detailed below:

- 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.

11.85 Mitigation is discussed further within the **Environmental Standards Statement** submitted alongside the Application.

Residual effect

11.86 Due to the commitment to the secondary mitigation and further enhancement measures outlined above, the project's GHG impacts would be reduced through measures that go well beyond existing and emerging policy (Part L2A 2021) and design standards for projects of this type, and it is well ahead of the curve for the trajectory towards net zero. It is targeting best practice accreditations such a high NABERS rating and BREEAM Outstanding. Therefore the magnitude of change / level of effect is likely to be negligible, according to IEMA's definitions.

11.87 The sensitivity of atmosphere is considered to be high. The magnitude of impact, following secondary mitigation, is negligible. Therefore, there is likely to be a direct, permanent, long-term adverse residual effect which is considered to be negligible at both the national and local / regional scale.

Significance

11.88 This effect is considered to be **Not Significant**.

Limitations and Assumptions

11.89 To ensure transparency within the EIA process, the following limitations and assumptions have been identified.

- CO_2 emissions generated by Site use have been estimated using benchmark targets from the LETI Climate Emergency Design Guide which provides energy use intensity targets specifically for residential development and offices.
- Units for these benchmarks are kWh per m^2 of gross floor area. Carbon factors as reported by BEIS have been used to convert the energy consumption benchmark to a CO_2eq. emission benchmark.
- The RICS benchmark values have been used to calculate the anticipated embodied carbon emissions including A1-A3 (construction materials) associated with the Proposed Scheme. These benchmark emissions factors are based on broad building use type / size and are provided on a per floor area basis. As such they may not be wholly representative of the Proposed Scheme at detailed design. Nonetheless, the RICS factors are considered to be appropriate to allow an assessment of the likely significant effects associated with anticipated embodied carbon.
- As stated in IEMA (2022) guidance, activities that do not significantly change the result of the assessment can be excluded where expected emissions are less than 1% of total emissions, and where all such exclusions total a maximum of 5% of total emissions. These thresholds have been applied in the assessment.
- The assessment has assumed a design life of 60 years and covers BS EN 15978:2011 life-cycle carbon modules A1 – A5 plus B6 in principle. However further exclusions (due to small proportions of overall GHG emissions) include:
  - Repairs and maintenance (including beyond the 60-year design life);
  - Water use and treatment during all stages;
  - Energy usage during construction;
  - Construction waste; and
  - Operational waste.

  Therefore, modules A1 – A3 and B6 have been assessed.
- No data is currently available post-2037 so it is not possible to assess the anticipated operational emissions against UK carbon emissions beyond this date.

Summary

11.90 **Table 11.11** provides a summary of the effects, receptors, residual effects and conclusions of significance considered within the Chapter.

11.91 The table only provides a summary of the residual effects identified within the assessment and details of all primary, secondary and tertiary mitigation that has been taken into account is set out in detail within the Chapter and summarised within the Environmental Management Plan included within **Volume 4: Environmental Management Plan.**

Table 11.11: Summary of residual and significant effects

Effect	Receptor	Residual effect	Is the effect significant?
Construction stage			
Embodied carbon emissions of buildings	The atmosphere	Moderate adverse	YES
Operational stage			
Regulated and unregulated carbon emissions generated by buildings	The atmosphere	Negligible	NO

References

[1] Climate Change Act 2008 c. 27.
[2] The Climate Change Act 2008 (2050 Target Amendment) Order 2019 No. 1056.
[3] Ministry of Housing, Communities & Local Government (2021) National Planning Policy Framework.
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12. Assessment of Cumulative Effects

Introduction

12.1 Cumulative effects comprise the combined effects of reasonably foreseeable human induced changes within a specific geographical area and over a certain period of time and can be both direct and indirect.

12.2 This Chapter reports the assessment of cumulative effects arising from the Proposed Scheme, in line with Regulation 4 (2) which states:

'*The EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the proposed development on the following factors—*

(a) population and human health;

(b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC(1) and Directive 2009/147/EC(2);

(c) land, soil, water, air and climate;

(d) material assets, cultural heritage and the landscape;

(e) the interaction between the factors referred to in sub-paragraphs (a) to (d)' [emphasis added].

12.3 Schedule 4, Paragraph 5(e) of the EIA Regulations also states the need to consider the following:

'the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources.'

12.4 To accord with the EIA Regulations, in terms of providing an assessment of cumulative effects, this Chapter reports an assessment of the following types of cumulative effects:

- **Effect interactions**: The interactions and combination of environmental effects of the Proposed Scheme affecting the same receptor, either within the Site or in the local area; and
- **In-combination effects**: The interaction and combination of environmental effects of the Proposed Scheme with projects affecting the same receptor.

Guidance

12.5 PPG[1] refers to the need for cumulative effects to be assessed as part of an ES, but at present, there is no widely accepted current methodology or best practice for the assessment of cumulative effects. As such, the methodology has been based on

previous experience and knowledge at Turley, the types of receptors being assessed and the nature of the Proposed Scheme.

Summary of Consultation

12.6 An EIA Scoping Report was submitted to MCC (**Appendix 2.1**), which set out the approach and methodology to be adopted within the EIA for the assessment of cumulative effects. In addition, the EIA Scoping Report set out a list of relevant projects to be considered as part of the assessment of in-combination effects ('Approved Projects'[a]).

12.7 Within the Scoping Opinion (**Appendix 2.2**), MCC confirmed that the Approved Projects identified appeared to be acceptable.

Assessment Methodology

Effect Interactions

12.8 The assessment of effect interactions considers, qualitatively, the changes in baseline conditions at common sensitive receptors due to the Proposed Scheme.

12.9 The common sensitive receptors considered within the assessment are those which are assessed within two or more of the technical assessments within the ES (including where there are two specific effects considered within a single effect – for instance, alterations in daylight and sunlight).

12.10 Following the completion of **Technical Chapters 6 – 11**, the residual effects for the construction and operational stages have been collated into matrices (i.e., **Tables 12.2** and **12.3**) so that the potential effect interactions on common sensitive receptors can be identified.

12.11 Receptors have been categorised into receptor categories, defined by the 'factor' categories outlined in Regulation 4 (2) and Schedule 4, Paragraph 4 of the EIA Regulations. If no residual effects for a specific factor / receptor group were identified, then these were not included in **Tables 12.2** and **12.3**.

12.12 The threshold for inclusion within the assessment has been set at a 'minor' level of effect as this is considered to address the potential for a number of residual effects which are not necessarily considered 'Significant' to a receptor in isolation to be '**Significant**' when they are considered collectively.

12.13 'Negligible' effects have been excluded from the matrices on the basis that a negligible residual effect is unlikely to cause a noticeable change at a receptor and / or the receptor is not considered sensitive to a change.

[a] The term 'Approved Projects' also includes other projects which are not yet approved but which for an application has been submitted.

12.14 Where the level of effect ranged across the receptors assessed, the worst-case level of effect has been included in **Tables 12.2** and **12.3** (i.e., the 'least beneficial' or 'most adverse').

12.15 Where effect interactions have been identified, a qualitative appraisal has been undertaken for the relevant factors / receptor categories. The qualitative evaluation at the receptor level has considered the following:

- Magnitude of change (or impact) for each residual effect;
- Sensitivity (or value / importance) of the receptor / receiving environment to change; and / or
- Duration and reversibility of effect.

12.16 Where possible a conclusion on the effect interactions has been provided, discussing the likelihood of the effect interactions being Significant or Not Significant.

In-Combination Effects

12.17 The assessment of potential in-combination effects has followed a two-step approach:

- **Step 1**: Identification and evaluation of projects for further consideration; and
- **Step 2**: Assessment of in-combination effects.

12.18 Step 1 was completed as part of the EIA Scoping Report, with a list of Approved Projects identified using a series of criteria. As noted above, the list of Approved Projects was confirmed to be acceptable through the Scoping Opinion (see **Chapter 2: Approach to EIA** and **Appendix 2.2**).

12.19 On this basis, Step 1 is not repeated within this Chapter and can be found in full within the EIA Scoping Report (**Appendix 2.1**).

12.20 The Approved Projects considered within the assessment are outlined in **Table 12.1** and their locations are shown on **Figure 12.1**. In addition, consideration has been given to off-site improvement works to provide utilities connections to the Proposed Scheme.

Table 12.1: List of Approved Projects for in-combination assessment

Turley Approved Project Ref.	Application reference	Name	Description	Current status	Approximate distance from the Site	EIA?
1	129251/FO/2021 (MCC)	Kendals & Fraser	Change of use of upper floors and erection of three storey rooftop extension, including plant level, to Kendal Milne building to provide offices on floors 1-9 (Use Class E), together with change of use of ground, lower ground and basement levels of Kendal Milne building to flexible commercial spaces (Use Class E, F2 and /or Sui Generis (Drinking Establishments) and associated elevational alterations and works; Demolition of adjacent Fraser Building and link bridges and erection of 14 storey office building (Use Class E), including plant level, together with associated amenity space and ground and basement floor flexible commercial units (Use Class E, F2 and / or Sui Generis (Drinking Establishments)) and basement areas for cycle storage and plant; Highways landscaping and public realm works, engineering and infrastructure works and other associated works.	Planning permission granted June 2021	250m	Y
2	131314/FO/2021 (MCC)	Speakers House, 39 Deansgate	Erection of a 17 storey building comprising office use (Use Class E(g)(i)) and flexible ground floor commercial units (Use Classes E(a),(b),(c) and sui generis 'drinking establishment'), new electricity sub-station, basement cycle parking and rooftop plant enclosure, together with access, servicing and associated works following demolition of the existing building.	Planning permission granted January 2022	400m	N

Turley Approved Project Ref.	Application reference	Name	Description	Current status	Approximate distance from the Site	EIA?
3	20/75571/FUL (SCC)	Plot B7, Salford Central	Erection of a 10-storey B1(a) office building with flexible ground floor commercial units (A1/A2/A3/A4/B1) with associated ancillary facilities, servicing, means of access, landscaping and public realm.	Under construction	200m	N
4	130446/FO/2021 (MCC)	Treehouse / Ramada, Renaissance Hotel	Development comprising external alterations to the existing hotel building including new building entrance, creation of a rooftop bar and outdoor terrace, modifications to the conference suite mezzanine block, creation of a rooftop kitchen garden, modifications to the building facades, public art installations and other works.	Under construction	320m	N
5	132088/FO/2021 (MCC)	Land to the North of Ramada, Renaissance Hotel	Erection of a part ground and 26 storey, part ground and 13 storey building to form 300 no. residential apartments (Class C3) and ground floor retail/ leisure floorspace (Class E/ Sui Generis (drinking establishments), together with private amenity space for residents (gym, cinema room and external terraces), new public realm to include riverside walkway and leisure/ food and beverage space (Class E/ Sui Generis (drinking establishments/ drinking establishments with food provision/ hot food takeaways), new landscaping, parking (36 spaces level -1), 300 cycle parking spaces, servicing, supporting infrastructure and associated works.	Approved	320m	Y

Turley Approved Project Ref.	Application reference	Name	Description	Current status	Approximate distance from the Site	EIA?
6	21/77363/FUL (SCC)	Audacious Church Extension	Erection of a 5 storey extension to the south west and a 2-storey extension to the north east of the of the existing steel portal frame building to provide new and enhanced facilities for the Church (Use Class F.1), together with the construction of a multi-storey (7 storeys) car park with associated access and landscaping.	Approved	430m	N
7	19/74205/FULEIA (SCC)	Waterloo Place / One Heritage Tower	Erection of a mixed-use development comprising a single building with two blocks (14 and 55 storeys) to include: 545 residential apartments, associated residents' facilities and basement parking; and 3 no. commercial units (use classes A1, A2, A3, B1 & D1) with associated landscaping and public realm works.	Under construction	660m	Y
8	118568/FO/2017 (MCC)	Great Northern Warehouse Redevelopment	Refurbishment, restoration and re-use of Great Northern Warehouse building as mixed-use development including retail units (Use Classes A1 shop, A3 restaurant/cafe and A4 drinking establishment), gym (Use Class D2), casino (sui generis) and 118 no. residential apartments (Use Class C3), refurbishment, restoration and extension of 223-255 Deansgate Terrace and Goods Yard Entrance to accommodate ground floor retail units (Use Classes A1 shop, A3 restaurant/cafe and A4 drinking establishment) and 24 no. residential apartments (Use Class C3) on upper floors, reconfiguration of Great Northern Square to allow for redeveloped and additional public realm, to include hard and soft landscaping, and formation of Dean Street parallel	Approved	530m	N

Turley Approved Project Ref.	Application reference	Name	Description	Current status	Approximate distance from the Site	EIA?
			to Deansgate, together with associated highway works, access, car parking, servicing, rooftop plant, removal of non-original modern installations and making good and associated works.			
9	126648/FO/2020 (MCC)	Union T2, St Johns	Full Planning Permission for the erection of 36 storey plus basement level mixed use building comprising co-living units, amenity space and flexible commercial space (Sui Generis), co-work (Use Class B1), landscaping, access and other associated works.	Under construction	550m	Y
10	14/65793/OUT (SCC)	Middlewood Locks Plot N	Mixed use development including residential (C3) and commercial uses (B1, A1, A2, A3, A4, A5) together with ancillary car parking and public realm/landscaping.	Approved	740m	N
11	125804/FO/2019 (MCC)	325-327 Deansgate	Demolition of existing buildings and structures on-site and erection of 22-storey building comprising apart-hotel (Use Class C1) with flexible commercial uses at ground floor and within existing viaduct arches (Use Class A1, A2, A3, A4, D2), access, landscaping and other associated works.	Approved	760m	Y
12	115107/FO/2017 (MCC)	Trinity Islands, Land Bounded by the River Irwell to the North and West, Water Street to the	Construction of a mixed-use development comprising two podiums of three storeys and five residential (Class C3) towers of 26, 26, 37, 41 and 67 storeys (including podium heights) connected by a new pedestrian bridge. Retail, commercial, leisure (gym and boat club) and community uses (community gallery and events space) (Use Classes A1, A2, A3, A4 or D2), workspace facilities (Class B1) and an educational facility (Class	Under construction	900m	Y

Turley Approved Project Ref.	Application reference	Name	Description	Current status	Approximate distance from the Site	EIA?
		east and the A6402 & A57 to the South	D1) within the lower floors and podium level together with new riverside walkway, public realm and landscaping (including podium level parks). Two levels of parking for 581 cars and 2,532 bicycles and 200 cycle spaces within the public realm areas.			
13	113617/FO/2016 (MCC)	Slate Wharf	Erection of a four-storey building to form 24 residential apartments (Use Class C3) with associated hard and soft landscaping and ancillary development thereto.	Under construction	1km	
14	134287/FO/2022 (MCC)	Alberton House	Demolition of existing building and erection of a new 20 storey building comprising 16 floors of office (Class E), 2 floors of retail (Class E) and a two-storey rooftop pavilion comprising an ancillary wellness centre to directly serve the commercial office tenants (Sui Generis) with landscaping and public realm; and other associated works."	Planning permission granted November 2022	Adjacent	y
15	21/78277/FUL (SCC)	Ralli Quays	Demolition of existing buildings and the erection of a 12-storey office building (Use Class E(g)) and a 16-storey hotel building (Use Class C1) with associated ancillary facilities, servicing, means of access, landscaping and public realm.	Awaiting approval	220m	N
16	132199/FO/2021 (MCC)	Plot F, Great Jackson Street	Demolition of existing structures and the erection of two 51-storey residential buildings (Use Class C3) across two phases, including residential amenity facilities, basement car parking, landscaping and public realm, servicing and access arrangements, highways alterations, and associated works.	Approved	1km	Y

Turley Approved Project Ref.	Application reference	Name	Description	Current status	Approximate distance from the Site	EIA?
17	19/73607/FUL (SCC)	Park View, 275-283 Chapel Street	Construction of an eight-storey mixed use building comprising 270m^2 commercial floorspace and 49 apartments.	Construction started	520m	N

Step 2: Assessment of in-combination effects

12.21 Whilst a number of Approved Projects were identified (**Table 12.1**), it does not necessarily follow that all Approved Projects will exhibit in-combination effects with the Proposed Scheme as there needs to be an effect on the same receptor for a similar duration within the overall programme for the Proposed Scheme.

12.22 Therefore, the sensitive receptors identified for the Proposed Scheme were cross-checked / considered against the receptors for the Approved Projects (where available) (as the focus is on the environmental topics 'scoped in'). Consideration was also given to whether there is likely to be concurrent construction or operational stages with the Proposed Scheme. This was informed by a review of available information (e.g. relevant ESs / environmental reports), again, where available. Where no environmental reporting was available, professional judgement was used in order to determine any potential in-combination effect.

12.23 The assessment of in-combination effects has differed between the environmental topics, due to the nature by which some environmental topics complete their assessment work. For example:

- For daylight, sunlight and overshadowing and wind microclimate, the assessment of in-combination effects has been informed by quantitative modelling work. The models generated for each environmental topic included relevant Approved Projects from **Table 12.1** based on professional judgement alongside the Proposed Scheme; and

- For townscape and visual, the assessment of in-combination visual effects (and to some degree townscape effects) has been informed by visualisations prepared for representative viewpoints considered within **Chapter 7: Townscape and Visual** and the Townscape and Visual Impact Assessment (**Appendix 7.1**).

12.24 The qualitative evaluation at the receptor level has considered the following:

- Combined magnitude of change with the Approved Projects[b];

- Sensitivity (or value / importance) of the receptor / receiving environment to change; and / or

- Duration and reversibility of effect.

12.25 Through a combination of the qualitative evaluation and mitigation presented, conclusions have been drawn as to the likelihood for significant in-combination environmental effects and how these relate to the environmental effects identified for the Proposed Scheme (i.e. the effects reported across **Technical Chapters 6 – 11**) alongside the likelihood of the interaction / combination between 'Significant' or 'Not Significant'.

[b] Given the numerous terms used across all planning applications documents to describe effects, in some instances professional judgement has needed to be used to relate these values to the levels of effect in this ES (i.e. negligible, minor, moderate and major).

12.26 The assessment of in-combination effects has considered each relevant Approved Project with the Proposed Scheme, as well as the collective in-combination effect arising from all Approved Projects with the Proposed Scheme.

12.27 There may be effects at the project level (both for the Proposed Scheme and Approved Projects), which require due consideration and management, but these effects have not been reconsidered as part of the assessment of cumulative effects.

Assessment of Effect Interactions

12.28 **Technical Chapters 6 – 11** report the assessment of effects on specific sensitive receptors. As noted above, these have been grouped into common receptor categories in line with the 'factors' in Regulation 4 (2) and Schedule 4 within **Tables 12.2** and **12.3**.

12.29 Where the residual effects are reported as 'Significant' in **Technical Chapters 6 – 11**, these are shown in **Tables 12.2** and **12.3** as **bold**.

Construction Stage

12.30 The matrix of effect interactions for the construction stage is provided in **Table 12.2**.

Table 12.2: Matrix of effect interactions for the construction stage

Effect		Factor / receptor group	
		Population and human health	Climate
Chapter 6: Noise and Vibration			
Noise emissions from general construction activity		Minor adverse and **Moderate adverse**	
Vibration transfer from general construction activity		Minor adverse and **Moderate adverse**	
Chapter 7: Townscape and Visual – n/a[a]			
Chapter 8: Daylight, Sunlight and Overshadowing[b]			
Alterations to daylight and sunlight levels within sensitive neighbouring properties as a result of the Proposed Scheme	Daylight	Minor adverse and **Moderate adverse** [c]	
	Sunlight	Minor adverse and **Moderate adverse**[d]	
Alterations in sunlight to neighbouring amenity spaces due to overshadowing resulting from the Proposed Scheme		**Moderate adverse**[e]	
Chapter 9: Wind Microclimate – n/a[a f, g, h]			
Chapter 10: Socio-economics and Human Health			
Temporary employment uplift during the construction stage which will support uplift in GVA		Minor beneficial	
Chapter 11: Climate Change			
Embodied carbon emissions of buildings			**Moderate adverse**
Effect interactions		Yes	No

Notes:

[a] All construction stage effects for **Chapter 7: Townscape and Visual** were 'scoped out'.

[b] As reported in **Chapter 8: Daylight, Sunlight and Overshadowing** environmental effects arising from the construction stage are considered to be at their worst when the Proposed Scheme is nearing completion. On this basis, the assessment of operational stage effects is considered to be representative of a 'worst-case' construction stage effect.

[c] **Chapter 8: Daylight, Sunlight and Overshadowing** considered a number of sensitive receptors for which the level of effect individually ranged from negligible to moderate in respect to daylight. Effects on The Century Buildings were concluded to be negligible and are therefore not accounted for within **Table 12.2**.

[d] **Chapter 8: Daylight, Sunlight and Overshadowing** considered a number of sensitive receptors for which the level of effect individually ranged from negligible to moderate adverse in respect to sunlight. Effects on The Century Buildings were concluded to be negligible and are therefore not accounted for within **Table 12.2**.

[e] **Chapter 8: Daylight, Sunlight and Overshadowing** considered a number of sensitive receptors for which the level of effect individually ranged from negligible to moderate adverse in respect to overshadowing. Effects on Public Amenity Space, 32 Quay Street, Public Amenity Space, Motor Square and the River Irwell were concluded to be negligible and are therefore not accounted for within **Table 12.2**.

[f] As reported in **Chapter 9: Wind Microclimate** environmental effects arising from the construction stage are considered to be at their worst when the Proposed Scheme is nearing completion. On this basis, the assessment of operational stage effects is considered to be representative of a 'worst-case' construction stage effect.

[g] **Chapter 9: Wind Microclimate** exceedance of the Industry standard Lawson Criteria for pedestrian comfort considered a number of sensitive receptors for which the level of effect ranged from negligible to minor adverse. Effects on existing receptors (G1 – G21, G22, G23, G24 – G36, G37, G38, G39, G40 and G55) were considered to be negligible / negligible adverse and therefore are not accounted for within **Table 12.2**. Future receptors within the Proposed Scheme (G41 – G54 and T1 – T6) will not be present during construction and are therefore not accounted for in **Table 12.2**. As such, pedestrian comfort effects are not considered in **Table 12.2**.

[h] Within **Chapter 9: Wind Microclimate,** exceedance of the Industry standard Lawson Criteria for pedestrian distress considered a number of sensitive receptors for which the level of effect ranged from negligible to minor adverse. Effects on receptors G1 – G40 and G55 were negligible and therefore are not accounted for within **Table 12.2**. Future receptors within the Proposed Scheme (G41 – G54 and T1 – T6) will not be present during construction and therefore are not accounted for in **Table 12.2**. As such, pedestrian distress effects are not considered in **Table 12.2**.

12.31 From the residual effects identified in **Table 12.2**, effect interactions were identified for the population and human health factor / receptor group. The appraisal of effect interactions during the construction stage is considered further below.

Population and Human Health

12.32 The residual effects relevant to population and human health considered within **Table 12.2** during the construction stage relate to disturbance from noise and vibration associated with general construction activity (**Chapter 6: Noise and Vibration**), alterations to daylight and sunlight levels in sensitive neighbouring properties and overshadowing at neighbouring amenity areas (**Chapter 8: Daylight, Sunlight and Overshadowing**) and uplift in employment / GVA (**Chapter 10: Socio-economics and Human Health**).

12.33 Given the urban context of the Site and the surrounding area (i.e. presence of concentration of receptors within a confined geographical area), the environmental effects considered and the broadness of the receptors that fall within the population and human health receptor group, an effect interaction is not uncommon or unexpected.

12.34 Following analysis of the above construction stage effects identified as contributing to an effect interaction, it is clear that those human receptors located in proximity to the Site (i.e. residential or commercial properties[c]) would experience adverse noise and vibration effects from construction activities. The occurrence of this effect interaction would be linked to phasing of construction and the types of activities in conjunction with the proximity of the works to the receptors. However, such an effect interaction is only likely to occur temporarily and be short-term.

12.35 There is a possibility that some of these same receptors (i.e. residents) could experience further effect interactions in conjunction with the above associated with reductions in daylight and sunlight, specifically those at 32 Quay Street, 2 – 18 Left Bank, 29 New Bailey Street and The Bridge, 40 Dearmans Place[d]. There is also a potential for effect interactions for residents when travelling in the area specifically related to increased overshadowing at Clermont-Ferrand Square.

12.36 Interacting with the above adverse effects is the beneficial effect identified in **Chapter 10: Socio-economics and Human Health** relating to the generation of employment and uplift in GVA during the construction stage. The receptor in this instance is individuals seeking construction employment and the local economy. Therefore, given the geographical extent of the receptor, it is considered unlikely that those receptors experiencing the adverse effects set out above would experience a noticeable effect interaction with this beneficial effect.

12.37 Overall, there is an effect interaction on human receptors close in proximity to the Site (i.e. residential or commercial properties) associated with construction noise and vibration. However, for a small number of receptors (32 Quay Street, Left Bank, 29 New Bailey Street and 40 Dearmans Place) there is a further effect interaction in conjunction with reductions in daylight and sunlight amenity. There is also an effect interaction for residents when

[c] See **Chapter 6: Noise and Vibration** and **Figure 6.1** for further details.

[d] The receptor names are different within the Chapters and are equated here.

using Clermont-Ferrand Square associated with overshadowing. The effect interaction is considered to be **Significant**. However, given the nature and duration of the effects identified, it is considered that any interaction of effects would not result in an effect greater than the effects considered individually / in isolation.

Operational Stage

12.38 The matrix of effect interactions for the operational stage is provided in **Table 12.3**.

Table 12.3: Matrix of effect interactions during the operational stage

Effect		Factor / receptor group	
		Population and human health	Landscape[a]
Chapter 6: Noise and Vibration[b]			
Existing road and commercial premises noise on the Proposed Scheme		Minor adverse	
Chapter 7: Townscape and Visual			
Impact on open space within the Site			Moderate beneficial
Impact on townscape character within the ZTV and in close proximity to the Site			Minor to moderate adverse
Impact on existing building height within the Site			Minor to moderate beneficial
Impact on the residential visual receptors within the ZTV in close proximity to the Site		Minor adverse	
Impact on receptors using public open space within the ZTV in close proximity to the Site		Minor adverse	
Chapter 8: Daylight, Sunlight and Overshadowing			
Alterations to daylight and sunlight levels within sensitive neighbouring properties as a result of the Proposed Scheme	Daylight	Minor adverse and **Moderate adverse**[c]	
	Sunlight	Minor adverse and **Moderate adverse**[d]	
Alterations in sunlight to neighbouring amenity spaces due to overshadowing resulting from the Proposed Scheme		**Moderate adverse**[e]	
Chapter 9: Wind Microclimate			

Effect		Factor / receptor group	
		Population and human health	Landscape[a]
Potential adverse wind conditions for proposed uses, including:	Exceedance of the Industry standard Lawson Criteria for pedestrian comfort	Minor adverse[f]	
	Exceedance of the Industry standard Lawson Criteria for pedestrian distress	Minor adverse[g]	
Chapter 10: Socio-economics and Human Health			
Net change in operational employment (and change in GVA)		Minor beneficial	
Increase in the number of homes in the assessment area and contribution towards local housing need		Minor beneficial	
Additional demand for healthcare facilities (GP services and dentists) as a result of the uplift population		Minor adverse	
Additional demand for the use of the existing leisure facilities and open / amenity areas within close proximity to the Site		Minor beneficial	
Chapter 11: Climate Change – n/a[h]			
Effect Interactions		Yes	Yes

Notes:

[a] It is taken that 'landscape' also relates to townscape.

[b] **Chapter 6: Noise and Vibration** concluded that the introduction of new residents on operational noise practices of existing late night entertainment premises (including music venues) (R21, R22, R23 and R24) is negligible adverse. This effect is therefore not accounted for within **Table 12.3**.

[c] **Chapter 8: Daylight, Sunlight and Overshadowing** considered a number of sensitive receptors for which the level of effect individually ranged from negligible to moderate adverse in respect to daylight. Effects on The Century Buildings were concluded to be negligible and are therefore not accounted for within **Table 12.3**.

[d] **Chapter 8: Daylight, Sunlight and Overshadowing** considered a number of sensitive receptors for which the level of effect individually ranged from negligible to moderate adverse in respect to sunlight. Effects on The Century Buildings were concluded to be negligible and are therefore not accounted for within **Table 12.3**.

[e] **Chapter 8: Daylight, Sunlight and Overshadowing** considered a number of sensitive receptors for which the level of effect individually ranged from negligible to moderate adverse in respect to overshadowing. Effects on Public Amenity Space, 32 Quay Street, Public Amenity Space, Motor Square and the River Irwell were concluded to be negligible and are therefore not accounted for within **Table 12.3**.

[f] **Chapter 9: Wind Microclimate** considered a number of sensitive receptors for which the level of effect individually ranged from negligible / negligible adverse to minor adverse. Effects on receptors G1 – G55 were considered to be negligible / negligible adverse and therefore are not accounted for within **Table 12.3**. Receptors T1 – T6 are accounted for in **Table 12.3** (and the worst-case of minor adverse is reported).

[g] **Chapter 9: Wind Microclimate** considered a number of sensitive receptors for which the level of effect individually ranged from negligible / negligible adverse to minor adverse. Effects on receptors G1 – G55 and T1 and T3 were considered to be negligible / negligible adverse and therefore are not accounted for within **Table 12.3**. Receptors T2, T4 – T6 are accounted for in **Table 12.3** (and the worst-case of minor adverse is reported).

[h] Within **Chapter 11: Climate Change**, regulated and unregulated carbon emissions generated by buildings was concluded to be negligible adverse. Therefore, this effect is not accounted for within **Table 12.3**.

12.39 From the residual effects identified in **Table 12.3**, effect interactions were identified for the population and human health and landscape factors / receptor groups. The appraisal of effect interactions during the operational stage is considered further below.

Population and Human Health

12.40 The residual effects relevant to population and human health considered within **Table 12.3** during the operational stage relate to disturbance from existing road and commercial premises noise on the Proposed Scheme (**Chapter 6: Noise and Vibration**), impacts on residential visual receptors and receptors using public open space within the ZTV in close proximity to the Site (**Chapter 7: Townscape and Visual**), alterations to daylight and sunlight levels in sensitive neighbouring properties and overshadowing at neighbouring amenity areas (**Chapter 8: Daylight, Sunlight and Overshadowing**), exceedances of the industry standard Lawson Criteria for pedestrian comfort and distress (**Chapter 9: Wind Microclimate**) and net change in employment / GVA, increase in the number of homes, additional demand for healthcare facilities (GP services and dentists) as a result of the uplift in population, additional demand for the use of existing leisure facilities and open / amenity areas within close proximity to the Site (**Chapter 10: Socio-economics and Human Health**).

12.41 The likely effects on employment generation, provision of new housing and additional demand for the use of existing leisure facilities and open / amenity areas are concluded to be beneficial, whilst likely effects in respect to noise, visual amenity, daylight, sunlight, overshadowing, wind microclimate and healthcare facilities are considered to be adverse.

12.42 When considering effects on future residents introduced by the Proposed Scheme, there is a potential for adverse interaction in relation to existing road / commercial premises noise and wind microclimate effects.

12.43 When considering effects on existing residential receptors, there is a possibility of adverse effects related to changes in views and reductions in daylight / sunlight amenity at 32 Quay Street, Left Bank and 29 New Bailey Street[e]. There is also a potential for effect interactions on users of nearby amenity spaces related to changes in views and increased overshadowing, specifically at Clermont-Ferrand Square. These receptors may also experience increased demand on healthcare facilities (associated with capacity), albeit given the geographical scale of this effect it is unlikely to be experienced at the same time as the above microclimate-related effects.

12.44 These adverse effects will also interact with beneficial effects, particularly for residents / commercial premises in the local area who may benefit from local employment generated, availability of new housing stock and / or delivery of open space on-Site.

12.45 The above effect interactions are not considered likely to result in an effect interaction any greater (either beneficial or adverse) than for each effect occurring individually. This is due to how the effects influence / impact a receptor differently and that some effects are beneficial whilst others are adverse (i.e. they do not 'cancel' each other out).

[e] The receptor names are different within the Chapters and are equated here.

12.46 Overall, there are effect interactions. However, these are generally limited to those receptors in proximity to the Site (particularly existing and future residents and users of open space). It is these receptors where a number of adverse effects (related to noise, visual amenity, daylight, sunlight, overshadowing, wind and healthcare facilities) will interact with beneficial effects (related to employment provision, housing provision and open space provision). Therefore, for a limited number of receptors the effect interaction is considered to be **Significant**, albeit the degree to which overall this is adverse or beneficial will be down to the subjectivity of the individual receptor. However, given the nature of the effects identified, it is considered that any interaction of effects would not result in an effect greater than the effects considered individually / in isolation.

Landscape

12.47 The residual effects relevant to landscape considered within **Table 12.3** during the operational stage relate to aspects that contribute to townscape character (i.e. impacts on open space and existing building heights within the Site) as well as townscape character within the ZTV and in close proximity to the Site itself (**Chapter 7: Townscape and Visual**).

12.48 The likely effects on open space within the Site and existing building heights are concluded to be beneficial, whilst likely effects in respect to wider townscape character are considered to be adverse.

12.49 Whilst there is an effect interaction, the Proposed Scheme forms part of the heavily urbanised and changing and evolving context within Manchester City Centre, with buildings of height in proximity. Therefore, the effect interaction experienced is considered to be no greater than the effects considered individually and is considered to be **Not Significant**.

Assessment of In-Combination Effects

12.50 As set out under 'Assessment Methodology' above, a shortlist of Approved Projects was identified for consideration. These have been considered alongside the Proposed Scheme with respect to in-combination effects. The Approved Projects are listed in **Table 12.1** and their locations are shown on **Figure 12.1**.

12.51 The assessment of in-combination effects has been set out in line with **Technical Chapters 6 – 11**. The assessment has only focussed on the environmental topics 'scoped in'.

12.52 In addition, a qualitative appraisal of the off-Site improvement to provide utilities connections to the Proposed Scheme has been provided.

Noise and Vibration

12.53 Due to the absence of common sensitive receptors, no in-combination interactions are anticipated to occur with Approved Projects 2, 4, 5, 6, 7, 8, 10, 11, 12, 13, 16 and 17.

12.54 The noise and vibration in-combination assessment is presented in **Table 12.4**.

Table 12.4: Noise and vibration in-combination assessment

Approved Project Ref.	In-combination assessment
1	Approved Project 1 considered construction noise and vibration at a common sensitive receptor, The Century Buildings (R7, see **Chapter 6: Noise and Vibration**). <u>Construction Stage</u> Construction noise was not quantitatively assessed for Approved Project 1. By inference a construction noise working limit of approximately 75dB $L_{Aeq,T}$ could be applied to Approved Project 1 construction working at The Century Buildings. The Proposed Scheme has been assessed at this stage to potentially contribute in the order of 69dB $L_{Aeq,T}$ during the demolition and foundations sub-stages. Adding the contributions together as a worst-case indicates a cumulative noise level at The Century Buildings of approximately 76dB $L_{Aeq,T}$. A 1dB exceedance of the construction noise limit is considered marginal and is based on assessment without screening effects and without information on the construction programme overlaps, which may not occur or be short-term. Therefore, based on professional judgement, cumulative construction noise is considered to be **Not Significant**. Construction vibration was not quantitatively assessed for Approved Project 1, although an estimated 1-2mm.s^{-1} PPV was stated to potentially apply as a worst-case at The Century Buildings if obstacles in the ground were encountered during the piling sub-stage. At all other times, the vibration was stated as likely to be lower. The construction vibration assessment for the Proposed Scheme (refer to **Chapter 6: Noise and Vibration**) predicted a potential worst-case contribution at The Century Buildings of 1-3mm.s^{-1} should driven piling techniques be adopted. The piling technique for the Proposed Scheme is not confirmed at this stage. If a CFA piling technique is feasible for the Proposed Scheme there would be a negligible contribution to an in-combination impact on The Century Buildings. Based on the worst-case analysis the effect is potentially **Significant** if piling works of Approved Project 1 and the Proposed Scheme overlap. If there is no overlap in piling works, cumulative construction vibration is considered to be **Not Significant**.
3	Whilst no common sensitive receptor has been identified, it is considered that there is a potential for cumulative construction noise and vibration effects to Affinity Living Riverside at 29 New Bailey Street (R2, see **Chapter 6: Noise and Vibration**). <u>Construction stage</u> Assuming a noise limit of 75dB $L_{Aeq,T}$ would apply for Approved Project 3 during construction works and the contribution from the Proposed Scheme (considering distance and screening) is estimated to be in the order of 67dB

Approved Project Ref.	In-combination assessment
	$L_{Aeq,T}$ occur concurrently, there could be a cumulative received 76dB $L_{Aeq,T}$ noise level. A 1dB exceedance of the construction noise limit is considered marginal and without information on the construction programme overlaps, which may not occur or be short-term as Approved Project 3 is already under construction. Therefore, based on professional judgement, cumulative construction noise is considered to be **Not Significant**. There is unlikely to be a cumulative construction vibration as Approved Project 3 is already under construction and by the time the Proposed Scheme would potentially become under construction, there is not expected to be an overlap of vibration intensity activity. Therefore, cumulative construction vibration is considered to be **Not Significant**.
9	Approved Project 9 considered construction noise and vibration at one common sensitive receptor, Left Bank (R19, see **Chapter 6: Noise and Vibration**). <u>Construction stage</u> Construction noise was not quantitatively assessed for Approved Project 9 within the submitted planning documentation. By inference a construction noise working limit of approximately 75dB $L_{Aeq,T}$ could be applied to Approved Project 9 construction working at the common sensitive receptors. The Proposed Scheme has been assessed at this stage to potential contribute similar orders of magnitude for the demolition sub-stage. Therefore, there could be a significant effect if the construction stages of Approved Project 9 and the Proposed Scheme occur concurrently. The CEMPs of both will be important to be developed with MCC in order to manage the construction programmes and worst-case working locations to minimise overlap and reduce the likelihood of a significant effect. No significant vibration effects expected to arise from Approved Project 9 due to the use of CFA or rotary bored low-vibration piling techniques. However, the CEMPs of both will be important to be developed with MCC in order to manage the construction programmes and the worst-case working locations to minimise overlap and reduce the likelihood of a significant effect. As a worst-case, the in-combination effect from noise and vibration on Left Bank could therefore be **Significant**.
14	Approved Project 14 considered construction noise and vibration at four common sensitive receptors, The Century Buildings, Cardinal House, 3 St. Mary's Parsonage and 28 St. Mary's Parsonage (R7, R8, R10 and R11, see **Chapter 6: Noise and Vibration**). <u>Construction stage</u> Construction noise was not quantitatively assessed for Approved Project 14 within the submitted planning documentation. By inference a construction noise working limit of approximately 75dB $L_{Aeq,T}$ could be applied to

Approved Project Ref.	In-combination assessment
	Approved Project 14 construction working at the common sensitive receptors. The Proposed Scheme has been assessed at this stage to potential contribute similar orders of magnitude for the demolition and foundations (piling works) phases. Therefore, there could be a significant effect if construction stages of both the Approved Project 14 and the Proposed Scheme occur concurrently. The CEMPs of both will be important to be developed with MCC in order to manage the construction programmes and worst-case working locations to minimise overlap and reduce the likelihood of a significant effect. A similar situation could develop for the effect of construction vibration between Approved Project 14 and the Proposed Scheme, if the vibration intense phases of foundations (involving driven piling) occur concurrently. However, it is anticipated that CFA or rotary bored low-vibration piling techniques may be used, which would reduce the likelihood of any significant cumulative effect. The CEMPs of both will be important to be developed with MCC in order to manage the construction programmes and the worst-case working locations to minimise overlap and reduce the likelihood of a significant effect. As a worst-case, the in-combination effect from noise and vibration on Left Bank could therefore be **Significant**.
15	Whilst no common sensitive receptor has been identified, it is considered that there is a potential for cumulative construction noise and vibration effects to Left Bank (R19, see **Chapter 6: Noise and Vibration**). <u>Construction stage</u> For the effect of cumulative construction noise, the nearest common sensitive receptor would be the northern facing façade of Left Bank (Homes). Assuming a noise limit of 75dB $L_{Aeq,T}$ would apply for Approved Project 15 during construction works and the contribution from the Proposed Scheme (considering distance and screening) is estimated to be in the order of 65dB $L_{Aeq,T}$ occur concurrently, there is unlikely to be an exceedance of the noise limit. Therefore, cumulative construction noise is considered to be **Not Significant**. The construction vibration assessment for the Proposed Scheme (refer to **Chapter 6: Noise and Vibration**) predicted a potential worst-case contribution at Left Bank (Homes) of 1-3mm.s^{-1} should driven piling techniques be adopted. The piling technique for the Proposed Scheme is not confirmed at this stage and is also unknown for Approved Project 15. If a CFA piling technique is feasible for the Proposed Scheme and adopted for the Approved Project 15 there would be a negligible contribution to an in-combination impact on Left Bank. Based on the worst-case analysis the effect is potentially **Significant** if piling works of Approved Project 15 and

Approved Project Ref.	In-combination assessment
	the Proposed Scheme overlap. If there is no overlap in piling works, cumulative construction vibration is considered to be **Not Significant**.
All relevant Approved Projects (1, 3, 9, 14 and 15)	The effect of construction noise could be **Significant** if all the worst-case working locations occur concurrently across the Proposed Scheme and Approved Projects 1, 3, 9, 14 and 15. It is St. Mary's Parsonage that could experience the greatest construction noise levels as the Proposed Scheme and Approved Projects 1 and 14 have the potential to overlap for the longest duration. The affected sensitive receptors are The Century Buildings, Cardinal House, 3 St. Mary's Parsonage, 28 St. Mary's Parsonage. This is the same level of effect as considered for the Proposed Scheme in isolation. The effect of construction vibration could be **Significant** during the foundations phase if driven piling techniques are necessary and while the activity is at the worst-case working locations concurrently across the Proposed Scheme and Approved Projects 1, 3, 9, 14 and 15. This is the same level of effect as considered for the Proposed Scheme in isolation. Co-ordinated input into the development of the Proposed Scheme's CEMP will minimise the likelihood of a significant effect.

Townscape and Visual

12.55 Due to the absence of common sensitive receptors, no in-combination interactions are anticipated to occur with Approved Projects 2, 7, 8, 9, 10, 11, 12, 13, 15, 16 and 17.

12.56 The townscape and visual in-combination assessment is presented in **Table 12.5**.

Table 12.5: Townscape and visual in-combination assessment

Approved Project Ref.	In-combination assessment
1	Approved Project 1 considered changes to common sensitive receptors (viewpoints 1, 13, 15, 16, 17, 28, 31, 32, 34 and 38). Only viewpoints 1 and 13 were considered in detail within **Chapter 7: Townscape and Visual**. <u>Operational stage</u> There is anticipated to be a degree of intervisibility between elements of the Approved Project and the Site. Similarly, there are anticipated to be locations where the Site is visible in the same view with this development. The cumulative effects of the developments in-combination are anticipated to be direct, permanent, long-term, adverse and are considered to be negligible to minor adverse on a small number of receptors. Therefore, the in-combination effect would be **Not Significant**.

Approved Project Ref.	In-combination assessment
3	Approved Project 3 considered changes to common sensitive receptors (viewpoints 7, 22, 23, 26 and 30). None of these viewpoints were considered in detail within **Chapter 7: Townscape and Visual**. <u>Operational stage</u> There is anticipated to be a degree of intervisibility between elements of the Approved Project and the Site. Similarly, there are anticipated to be locations where the Site is visible in the same view with this development. The cumulative effects of the developments in-combination are anticipated to be direct, permanent, long-term, adverse and are considered to be minor adverse on a small number of receptors. Therefore, the in-combination effect would be **Not Significant**.
4	Whilst there is limited information on Approved Project 4, it is assumed that there are common sensitive receptors with the Proposed Scheme due to its location in respect to the Site (for instance, viewpoints 11, 12, 27 and 31). Only viewpoint 12 was considered in detail within **Chapter 7: Townscape and Visual**. <u>Operational stage</u> There is anticipated to be a degree of intervisibility between elements of the Approved Project and the Site. Similarly, there are anticipated to be locations where the Site is visible in the same view with this development. The cumulative effects of the developments in-combination are anticipated to be direct, permanent, long-term adverse and are considered to be minor adverse. Therefore, the in-combination effect would be **Not Significant**.
5	Approved Project 5 considered changes to common sensitive receptors (viewpoints 11, 12 and 27). Only viewpoint 12 was considered in detail within **Chapter 7: Townscape and Visual**. <u>Operational stage</u> There is anticipated to be a degree of intervisibility between elements of the Approved Project and the Site. Similarly, there are anticipated to be locations where the Site is visible in the same view with this development. The cumulative effects of the developments in-combination are anticipated to be direct, permanent, long-term, adverse and are considered to be negligible to minor adverse on a small number of receptors. Therefore, the in-combination effect would be **Not Significant**.
6	Whilst there is limited information on Approved Project 6, it is assumed that there are common sensitive receptors with the Proposed Scheme due to its location in respect to the Site (for instance, viewpoints 25 and 26). These viewpoints were not considered in detail within **Chapter 7: Townscape and Visual**.

Approved Project Ref.	In-combination assessment
	<u>Operational stage</u> There is anticipated to be a degree of intervisibility between elements of the Approved Project and the Site. Similarly, there are anticipated to be locations where the Site is visible in the same view with this development. The cumulative effects of the developments in-combination are anticipated to be direct, permanent, long-term and are considered to be minor adverse on a small number of receptors. Therefore, the in-combination effect would be **Not Significant**.
14	Approved Project 14 considered changes to common sensitive receptors (viewpoints 1, 3, 7, 11, 12, 23, 27, 32 and 37). Only viewpoints 1, 3, 12 were considered in detail within **Chapter 7: Townscape and Visual**. <u>Operational stage</u> The Approved Project is located immediately adjacent to the north-east of the Site. There is anticipated to be intervisibility between elements of the Approved Project and the Site. Similarly, there are anticipated to be a number of locations where the Site is visible in the same view with this development. The cumulative effects of the developments in-combination are anticipated to be direct, permanent, long-term adverse and are considered to be moderate adverse[f]. Therefore, the in-combination effect would be **Not Significant**.
All relevant Approved Projects (1, 3, 4, 5, 6 and 14)	Cumulatively it is assumed that the Approved Projects will seek to retain a large percentage of any existing vegetation structure and townscape features within and on the boundaries of each site. However, it is anticipated that any loss of trees and vegetation will be fully mitigated with the implementation of new tree and shrub planting throughout the Sites of the Approved Projects. Mitigation proposed as part of each development (e.g. through materiality, form etc) is anticipated to maintain key elements is anticipated to maintain key elements of the townscape character at the Site level. There is considered to be a degree of intervisibility between and locations where the Site is visible in the same view with Approved Projects 1, 3, 4, 5, 6 and 14. The cumulative effects of the developments in-combination are anticipated to be direct, permanent, long-term and are considered to range from negligible to minor to moderate adverse. Therefore, it is considered that the cumulative effects would be **Not Significant**.

[f] It is noted that once Approved Project 14 is complete, views of the Proposed Scheme from some viewpoints (e.g., viewpoint 12) will not be possible and therefore there will be no in-combination effect.

Daylight, Sunlight and Overshadowing

12.57 Due to scale, proximity and orientation to the Site and the potential for interactions, no common sensitive receptors / in-combination effects have been identified with Approved Projects 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16 and 17. On this basis, in-combination effects are only expected with Approved Projects 1 and 14.

12.58 When assuming the Approved Projects and the Proposed Scheme are built together simultaneously, there is likely to be an increased combined obstruction to existing sensitive receptors when compared to the assessment reported in **Chapter 8: Daylight, Sunlight and Overshadowing**.

12.59 The in-combination effect assessment considers the combined effect of the above Approved Projects and Proposed Scheme on existing sensitive receptors. As such, adverse effects identified under the in-combination effect may result from the Approved Projects and Proposed Scheme to varying degrees. It is important to have in mind the Proposed Scheme represents one of three projects tested in the in-combination effects scenario and, as such, only a proportion of the adverse effects identified for this scenario may be due to the Proposed Scheme.

12.60 Given this, it is important to understand that part of the in-combination cumulative effect which is relevant to / derived from the Proposed Scheme. For example, the in-combination assessment may identify a significant adverse effect to a receptor; however this may be due to the massing of one of the Approved Projects rather than the Proposed Scheme. Given this, two assessment scenarios have been considered, as reported below:

- Existing baseline vs Proposed Scheme + Approved Projects; and
- Future baseline (existing baseline + Approved Projects) vs Proposed Scheme.

Alterations to daylight and sunlight levels within sensitive neighbouring properties as a result of the Proposed Scheme (Existing Baseline vs Proposed Scheme + Approved Projects)

12.61 The full daylight and sunlight results along with the No Sky Line (NSL) Contours are located in **Appendix 8.3**.

12.62 Of the total 1,049 neighbouring windows and 823 neighbouring rooms considered for the daylight (Vertical Sky Component (VSC) and NSL) assessment, 576 windows (55%) and 653 rooms (79%) will comply with the recommended BRE (2022) Building Research Establishment Guidelines: 'Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice – BR 209, third edition[2] (the '2022 BRE Guidelines') for daylight (VSC and NSL) and thus will experience a negligible change as a result of the Proposed Scheme and relevant Approved Projects.

12.63 Of the 1,049 neighbouring windows assessed for VSC, 865 (82%) will experience a negligible change, or a small / medium adverse magnitude of change. Of the 823 neighbouring rooms assessed for NSL, 729 (86%) will experience a negligible change, or a small / medium adverse magnitude of change.

12.64 Of the total 977 neighbouring windows considered relevant for the sunlight (APSH) assessment, 861 windows (88%) will comply with the recommended 2022 BRE Guidelines

for winter sunlight and 866 windows (89%) will comply with the recommended 2022 BRE Guidelines for total sunlight and will experience a negligible change as a result of the Proposed Scheme and relevant Approved Projects.

12.65 Of the 977 neighbouring windows assessed for APSH in winter, 863 (88%) will experience a negligible change, or a small / medium adverse magnitude of change and 910 (93%) will experience a negligible change, or a small / medium adverse magnitude of change for annual APSH.

12.66 A summary of the data is provided in **Tables 12.6** and **12.7**, followed by detailed commentary.

Table 12.6: Cumulative – Daylight VSC / NSL assessment summary

Existing sensitive receptor	VSC								NSL							
	Total no. windows	BRE criteria met (≥27% VSC and/or ≤20% alteration)	%	Below 2022 BRE Guidelines					Total no. rooms	BRE criteria met (≤20% alteration)	%	Below 2022 BRE Guidelines				
				>20 – <30% change	≥30 – 40% change	≥40% change	Windows below BRE	%				>20 – <30% change	≥30 – <40% change	≥40% change	Rooms below BRE	%
The Century Buildings	5	5	100%	0	0	0	0	0%	2	2	100%	0	0	0	0	0%
2-18 Left Bank	157	120	76%	26	8	3	37	24%	74	63	85%	7	2	2	11	15%
29 New Bailey Street	512	398	78%	101	13	0	114	22%	447	447	100%	0	0	0	0	0%
32 Quay Street	274	50	18%	4	89	131	224	82%	242	90	37%	30	30	92	152	63%
The Bridge	101	3	3%	7	41	50	98	97%	58	51	88%	7	0	0	7	12%
TOTALS:	**1049**	**576**	**55%**	**138**	**151**	**184**	**473**	**45%**	**823**	**653**	**79%**	**44**	**32**	**94**	**170**	**20.66%**

Table 12.7: Cumulative – Sunlight APSH assessment summary

Existing sensitive receptor	Annual APSH								Winter APSH							
	Total no. windows	Windows meeting BRE criteria	%	Below 2022 BRE Guidelines					Total no. windows	Windows meeting BRE criteria	%	Below 2022 BRE Guidelines				
				>20 – <30% change	≥30 – 40% change	≥40% change	Windows % below BRE					>20 – <30% change	≥30 – <40% change	≥40% change	Windows % below BRE	
The Century Buildings	5	5	100%	0	0	0	0	0%	5	5	100%	0	0	0	0	0%
2-18 Left Bank	85	74	87%	1	2	8	11	13%	85	85	100%	0	0	0	0	0%
29 New Bailey Street	512	509	99%	3	0	0	3	1%	512	510	100%	0	2	0	2	0%
32 Quay Street	274	231	84%	4	5	34	43	16%	274	211	77%	0	0	63	63	23%
The Bridge	101	47	47%	3	26	25	54	53%	101	50	50%	0	0	51	51	50%
TOTALS:	**977**	**866**	**89%**	**11**	**33**	**67**	**111**	**11%**	**977**	**861**	**88%**	**0**	**2**	**114**	**116**	**12%**

The Century Buildings

12.67 This property is located to the east of the Site along St. Marys Parsonage and contains residential flats on the upper floors. A total of five windows serving two rooms have been assessed for daylight. These five windows are the only windows that face the Site and require assessment.

12.68 The VSC and NSL daylight technical analysis undertaken confirms that all five windows (100%) and both rooms (100%) assessed will comply with the recommended 2022 BRE Guidelines for daylight (VSC and NSL) and thus will experience a negligible change as a result of the Proposed Scheme and relevant Approved Projects.

12.69 The sensitivity of the receptor is high. In consideration of the above, including the high BRE compliance for VSC and full compliance for NSL, the overall magnitude of change in respect to daylight amenity within this neighbouring building is considered to be negligible. Therefore, there is likely to be a direct, permanent, long-term in-combination effect which is considered to be negligible.

12.70 The APSH results indicate that all five (100%) of the windows tested would meet the BRE Guidelines for annual and winter sunlight (i.e., experience an effect which is considered to be negligible).

12.71 The sensitivity of the receptor is high. In consideration of the above, the overall magnitude of change in respect to sunlight amenity within this neighbouring building is considered to be negligible. Therefore, there is direct, permanent, long-term, in-combination effect which is considered to be negligible.

12.72 Overall this is the same conclusion for the Proposed Scheme in isolation.

2 – 18 Left Bank Apartments

12.73 2 – 18 Left Bank is a mixed used block west of the Site with apartments located from the 1st floor upwards. A total of 157 windows serving 74 rooms have been assessed for daylight.

12.74 120 (76%) of the 157 windows assessed would meet the 2022 BRE Guidelines for VSC and experience a negligible change. 27 of the remaining 37 windows have existing VSC levels of 12% or less. Of this number 16 windows achieve single digit VSC values in the existing conditions. Therefore, the larger VSC percentage reductions to these windows can be partially attributed to low existing levels of VSC rather than a significant alteration in absolute VSC.

12.75 Of these same 37 windows, 26 would experience a reduction of between 20% – 30% (small adverse magnitude). Eight would experience reductions of between 30% – 40% (medium adverse magnitude). However, six of these are fractionally or marginally over a small adverse change, with reductions of circa 30% – 32.65%. The remaining three windows will experience reductions in excess of 40% (large adverse magnitude). These windows have existing VSC levels between 7.63% – 9.63% and as outlined above the larger percentage reduction is largely a result of the low existing levels rather than a significant alteration in absolute VSC which are between 3% – 4% VSC.

12.76 63 (85%) of the 74 rooms assessed would meet the 2022 BRE Guidelines for NSL and experience a negligible change. Seven of these 11 rooms will experience alterations between 20% – 30% (small adverse magnitude).

12.77 The remaining four rooms record greater relative reductions, of which two will be between 30% – 40% (medium adverse) one which will be less than half well lit in the existing and the other a bedroom. The remaining two rooms would experience alterations in excess of 40% (large adverse magnitude). Of the two rooms experiencing large adverse alterations one is a bedroom (which has a lower requirement for daylight– see BRE 2.2.10), and the other room is an LKD with a low existing level of daylight distribution (NSL) at 36% and therefore the percentage change suggests a more significant alteration in light, then is likely in absolute terms.

12.78 The sensitivity of the receptor is high. In consideration of the above, the overall magnitude of change in respect to daylight amenity within this neighbouring building is considered to be small. Therefore, there is likely to be a direct, permanent long-term in-combination adverse effect which is considered to be minor.

12.79 The APSH results indicate that 74 (87%) of the 85 windows tested would meet the 2022 BRE Guidelines for annual sunlight, while 85 (100%) of 85 windows would meet the 2022 BRE Guidelines for winter sunlight i.e. experience an effect which is considered to be negligible.

12.80 Of the 11 windows below the BRE criteria for annual sunlight, one window will experience alterations between 20% – 30% (small adverse magnitude), two windows will experience alterations between 30% – 40% (medium adverse magnitude), and eight windows will experience alterations in annual sunlight in excess of 40% (large adverse magnitude). All 11 of these windows have existing APSH levels between 1% – 3% APSH. Therefore, the large percentage change is a result of the very low existing sunlight levels.

12.81 The sensitivity of the receptor is high. In consideration of the above, the overall magnitude of change in respect to sunlight amenity within this neighbouring building is considered to be small. Therefore, there is likely to be a direct, permanent, long-term, in-combination adverse effect which is considered to be minor.

12.82 Overall this is the same conclusion for the Proposed Scheme in isolation.

29 New Bailey Street

12.83 This is a residential block of apartments located to the north of the Site on the opposite side of the River Irwell. A total of 512 windows serving 447 rooms have been assessed for daylight.

12.84 398 (78%) of the 512 windows assessed would meet the 2022 BRE Guidelines for VSC and experience a negligible change. Of the remaining 114 windows, 101 will experience a relative reduction of between 20% – 30% (small adverse magnitude) and 13 windows will experience reductions of between 30% – 40% (medium adverse magnitude). These 11 windows retain an average VSC of 23% which is not far away from the 27% recommended in the 2022 BRE Guidelines.

12.85 All 447 (100%) of the 447 rooms tested would meet the 2022 BRE Guidelines for NSL and therefore experience a negligible change.

12.86 The sensitivity of receptors is high. In consideration of the above, the overall magnitude of change in respect to daylight amenity within this neighbouring building is considered to be small. Therefore, there is likely to be a direct, permanent, long-term in-combination adverse effect which is considered to be minor.

12.87 The APSH results indicate that 509 (99%) of the 512 windows tested would meet the 2022 BRE Guidelines for annual sunlight, while 510 (99%) of 512 windows would meet the 2022 BRE Guidelines for winter sunlight (i.e. a negligible change).

12.88 The two windows below the 2022 BRE criteria for winter, will experience a 33% alteration in winter APSH. However, these windows serve bedrooms which do not normally need to be assessed for sunlight in accordance with the 2022 BRE Guidelines (see BRE paragraph 3.2.3). Furthermore, the low existing winter APSH levels of 3% will result in a 1% absolute change. Therefore, the loss of sunlight to these room is considered a negligible or small adverse change.

12.89 All three windows that do not meet the 2022 BRE criteria for annual sunlight also serve bedrooms and will experience reductions of 25% (small adverse magnitude).

12.90 The sensitivity of the receptor is high. In consideration of the above, the overall magnitude of change in respect to sunlight amenity within this neighbouring building is considered to be small. Therefore, there is likely to be a direct, permanent, long-term in-combination adverse effect which is considered to be minor.

12.91 Overall this is the same conclusion for the Proposed Scheme in isolation.

32 Quay Street

12.92 32 Quay Street is a residential block of apartments located to the north of the Site on the opposite side of the River Irwell. A total of 274 windows serving 242 rooms have been assessed for daylight.

12.93 50 (18%) of the 274 windows assessed will meet the 2022 BRE Guidelines for VSC and experience a negligible change. Of the remaining 224 windows, four will experience a relative reduction of between 20% – 30% (small adverse magnitude). 89 windows will experience reductions of between 30% – 40% (medium adverse magnitude). The remaining 131 windows will experience reductions in excess of 40% (large adverse magnitude). The average retained VSC across the 131 large adverse reductions is 18% VSC, which is consistent with the VSC found in many urban and historic city centre locations, as acknowledged by the 2022 BRE Guidelines, in paragraph F2 , Appendix F.

12.94 90 (37%) of the 242 rooms tested will meet the 2022 BRE Guidelines for NSL and therefore, experience a negligible change. 30 rooms will experience alterations between 20% – 30%, which is considered to be small adverse magnitude.

12.95 The remaining 122 rooms record greater relative reductions, of which 30 will be between 30% – 40% (medium adverse magnitude) and 92 will be in excess of 40% (large adverse

magnitude). Of these 92 rooms, 34 are bedrooms which the BRE considers less important than other uses (see BRE paragraph 2.2.10).

12.96 For the 58 remaining rooms, 46 relate to deep and single-aspect living areas – such single aspect rooms that are deeper then 5m (as appears to be the case here) will often see a greater movement of the NSL when developing opposite, as acknowledged by the 2022 BRE Guidelines in paragraph 2.2.12. The remaining 12 rooms are large studios.

12.97 The sensitivity of receptors is high. In consideration of the above, the overall magnitude of change in respect to daylight amenity within this neighbouring building is considered to be medium to large. Therefore, there is likely to be a direct, permanent, long-term, in-combination adverse effect which is considered to be major.

12.98 The APSH results indicate that 207 (76%) of the 274 windows tested would meet the 2022 BRE Guidelines for winter sunlight, while 211 (77%) of 274 windows would meet the 2022 BRE Guidelines for annual sunlight (i.e. experience a change which is considered to be negligible).

12.99 Of the 63 windows that fall below the 2022 BRE Guidelines criteria for winter sunlight, all 63 windows will experience reductions in excess of 40% (large adverse magnitude). 16 of these 59 windows have winter sunlight levels below the recommended 5% in the existing and therefore any change in winter sunlight to these windows will result in a large percentage alteration. It should also be highlighted that 51 of these 63 windows serve bedrooms which are less sensitive. The remaining 12 windows serve LKD's.

12.100 Of the 43 windows below the BRE criteria for annual sunlight, four windows will experience alterations between 20% – 30% (small adverse magnitude), five windows will experience alterations between 30% – 40% (medium adverse magnitude), and the remaining 34 windows will experience alterations in annual sunlight in excess of 40% (large adverse magnitude). However, what is of most relevance is that 23 of these 34 windows serve bedrooms which the BRE states need not be considered for analysis in most cases (see paragraph 3.2.3).

12.101 The sensitivity of the receptor is high. In consideration of the above, the overall magnitude of change in respect to sunlight amenity within this neighbouring building is considered to be medium to large. Therefore, there is likely to be a direct, permanent, long-term, in-combination adverse effect which is considered to be major.

12.102 Overall, these are similar conclusions for the Proposed Scheme in isolation. However, the magnitude of the daylight and sunlight in-combination adverse effects is greater than that experienced when the Proposed Scheme is assessed in isolation and the level of effect increases to major (compared with moderate adverse).

The Bridge, 40 Dearman Place

12.103 The Bridge, 40 Dearman Place is a residential block of apartments located to the north of the Site on the opposite side of the River Irwell. A total of 101 windows serving 58 rooms have been assessed for daylight.

12.104 Three (3%) of the 101 windows assessed would meet the 2022 BRE Guidelines for VSC and experience an experience a negligible change. Of the remaining 98 windows, seven will experience a relative reduction of between 20% – 30% (small adverse magnitude). 41 windows will experience reductions of between 30% – 40% (medium adverse magnitude). The remaining 50 windows will experience reductions in excess of 40% (large adverse magnitude).

12.105 It should be noted that the majority of the windows and rooms in this property sit beneath overhanging balconies which limits the ingress of daylight and sunlight, particularly the ability for the sky / sun to see the centrepoint of the widows below the balconies (i.e. the point of VSC and APSH calculation).This is acknowledged by the BRE in paragraph 2.2.13, which goes on to state that – '*Because the balcony cuts out light from the top part of the sky, even a modest obstruction opposite may result in a large relative impact on the VSC*'. This paired with the obstruction caused by 32 Quay Street to the south-west, will limit its peripheral view and further reduce its daylight and sunlight availability. Therefore, these alterations are in part due to the massing in the area and the property's inherent architectural composition.

12.106 51(88%) of the 58 rooms tested will meet the 2022 BRE Guidelines for NSL and therefore experience a negligible change. The remaining seven rooms will experience alterations between 20% – 30% (small adverse magnitude). However all seven rooms will retain a view of the sky to more than half of their room areas retaining NSL values between 62% and 72%.

12.107 The sensitivity of the receptor is high. In consideration of the above, the overall magnitude of change in respect to daylight amenity within this neighbouring building is considered to be medium to large. Therefore, there is likely to be a direct, permanent, long-term in-combination adverse effect which is considered to be major.

12.108 The APSH results indicate that 50 (50%) of the 101 windows tested would meet the 2022 BRE Guidelines for winter sunlight, while 47 (47%) of 101 windows would meet the 2022 BRE Guidelines for annual sunlight (i.e. experience a change which is considered to be negligible).

12.109 Of the 51 windows that fall below the 2022 BRE Guidelines criteria for winter sunlight, all 51 will experience reductions in excess of 40% (large adverse magnitude). As internal layouts for this property have not been obtained, these room uses have been allocated as unknown. However, it is assumed a large portion if not a majority of these windows will serve less sensitive bedrooms.

12.110 Of the 54 windows that fall below the 2022 BRE Guidelines criteria for annual sunlight three windows will experience alterations between 20% – 30% (small adverse magnitude), 26 will experience reductions between 30% – 40% (medium adverse magnitude) and the remaining 25 windows will experience reductions in excess of 40% (large adverse magnitude). As internal layouts for this property have not been obtained, these room uses have been allocated as unknown. However, it is assumed a large portion if not a majority of these windows will serve less sensitive bedrooms.

12.111 The presence of balconies should also be acknowledged. Balconies do restrict the ability of sunlight to hit the centrepoint of windows (i.e. the point of APSH calculation). This is recognised by the BRE in paragraph 3.2.11, which states '*Balconies and overhangs above an existing window tend to block sunlight, especially in summer above south-facing windows. Even a modest obstruction opposite may result in a large relative impact*'.

12.112 In consideration of the above, the overall effect to sunlight amenity within this neighbouring building is considered to be direct, long-term, adverse in-combination effect which is considered to be major.

12.113 Overall, these are similar conclusions for the Proposed Scheme in isolation. However, the magnitude of the daylight and sunlight in-combination adverse effects is greater than that experienced when the Proposed Scheme is assessed in isolation and the level of effect increases to major (compared with moderate adverse).

Summary

12.114 The overall daylight and sunlight level of effect remains the same for The Century Buildings, 2 – 18 Left Bank and 29 New Bailey Street. The in-combination effect is therefore **Not Significant**.

12.115 For 32 Quay Street and The Bridge, 40 Dearman Street, the magnitude of change is greater in-combination and the level of effect increases to major adverse. The in-combination effect is **Significant**, as reported for the effects in isolation. Further discussion of the context of the effects is provided in **Chapter 8: Daylight, Sunlight and Overshadowing**.

Alterations in sunlight to neighbouring amenity spaces due to overshadowing resulting from the Proposed Scheme (Existing Baseline vs Proposed Scheme + Approved Projects)

12.116 A cumulative Sun Hours on Ground Overshadowing (SHOG) assessment has been undertaken against four existing neighbouring amenity areas (Public Amenity Space, 32 Quay Street (Area 01), Public Amenity Space, Clermont-Ferrand Square (Area 02), Public Amenity Space, Motor Square (Area 03) and the River Irwell (Area 04)), as illustrated in **Figures 8.7** and **8.8** and drawings BRE/04-07 located in **Appendix 8.4**.

12.117 The results of the cumulative SHOG analysis show that three (75%) of the four sensitive receptors tested will meet the 2022 BRE Guidelines by either: retaining at least 2 hours of sun in excess of 50% of their respective areas (i.e. Areas A1, A2 and A4). The remaining receptor not meeting the criteria is area A2 (Clermont-Ferrand Square).

12.118 Therefore, the overshadowing results for SHOG show that the following existing sensitive receptors tested will meet the 2022 BRE Guidelines and therefore, experience an effect, which is considered to be negligible:

- Public Amenity Space, 32 Quay Street (Area A1);
- Public Amenity Space, Motor Square (Area A3); and
- The River Irwell (Area A4).

12.119 Public Amenity Space, Clermont-Ferrand Square is located to the north-east of the Site in front of the Lowry Hotel on the other side of the River Irwell.

12.120 In the existing conditions, approximately 98% of this area receives at least 2 hours of direct sunlight on 21st March. This reduces to around 2% with the Proposed Scheme and Approved Projects 1 and 14 in place, which equates to an alteration in excess of 40% (large adverse magnitude). However, this area's location makes it sensitive to changes in massing on-Site.

12.121 A further detailed SHOG assessment has been undertaken for this area on June 21st to understand how much sunlight it will receive in the summer months. The sunlight levels significantly increase in summer with the area receiving over two hours of direct sunlight to all of its area (100%) on 21st June. This high sunlight availability in summer is a key consideration as there is a higher expectation for sunlight and outside spaces are most likely to be fully utilised.

12.122 The full transient overshadowing assessment for the existing sensitive receptors is presented within **Appendix 8.5**. The assessment covers three key dates in the year: 21st March, 21st June and 21st December. The key date for consideration is 21st March, which is the focus of the commentary below.

12.123 As with the in-combination SHOG overshadowing test, four existing receptors / public amenity spaces were considered for the transient overshadowing assessment below. These are discussed in groupings that accord with the associated locations considered for the in-combination SHOG analysis, in a clockwise direction from west to east, in accordance with the movement of the shadows cast throughout the day. As Approved Projects 1 and 14 are included, additional overshadowing is anticipated on the sensitive amenity areas. The additional overshadowing stems primarily from Alberton House:

- At Public Amenity Space, 32 Quay Street (Area A1): The shadow will pass over this area in the first half of the day as it does in the existing baseline conditions. However, the shadow cast is larger with the Proposed Scheme and Approved Projects 1 and 14 and Approved Project 14 will contribute additional overshadowing in the early part of the day between 8:00 and 11:00. The larger shadows will not completely leave until after 15:00.

- Public Amenity Space, Clermont-Ferrand Square (A2): This area will not experience any overshadowing as a result of the buildings on-Site in the existing baseline conditions. However, with the Proposed Scheme and Approved Projects 1 and 14, the shadow will pass over the area between 13:00 and 15:00 and Approved Project 14 casts a larger shadow between 10:00 and 13:00.

- Public Amenity Space, Motor Square (Area A3) will not experience any notable additional shadow on 21 March from the Proposed Scheme in-combination with Approved Projects 1 and 14.

- The River Irwell (Area A4): The Proposed Scheme will cast a larger shadow over the River Irwell moving from west to east between 9:00 and 16:00. However, the

shadows pass quickly across the River Irwell throughout the day. Approved Project 14 will cast an increased shadow over the River Irwell between 8:00 and 15:00.

12.124 In relation to overshadowing, the sensitivity of the four amenity receptors assessed is high. The magnitude of change is considered to be negligible for three of these amenity spaces (i.e. Public Amenity Space, 32 Quay Street (Area A1), Public Amenity Space, Motor Square (Area A2) and the River Irwell (Area A3)). Public Amenity Space, Clermont-Ferrand Square (Area A2) will experience a large magnitude of change. Despite this the receptor will experience good levels of sunlight in the summer months when outdoor space is likely to be fully utilised. Therefore, there is likely to be a direct, permanent, long-term, in-combination adverse effect which is considered to be moderate.

12.125 The overshadowing effect of the proposed scheme is considered to be **Not Significant** for three of the overshadowing receptors (A1, A3 and A4) and **Significant** for Amenity Space A2.

12.126 The overall level of effect and significance remains the same as the Proposed Scheme in isolation.

Alterations to daylight and sunlight levels within sensitive neighbouring properties as a result of the Proposed Scheme (Future Baseline (Existing Baseline + Approved Projects) vs Proposed Scheme)

12.127 The full daylight and sunlight results along with the NSL Contours are located in **Appendix 8.3**.

12.128 Of the total 1,049 neighbouring windows and 823 neighbouring rooms considered for the daylight (VSC and NSL) assessment, 606 windows (58%) and 664 rooms (81%) will comply with the recommended 2022 BRE Guidelines for daylight (VSC and NSL) and thus will experience a negligible change as a result of the Proposed Scheme in the context of the future baseline.

12.129 Of the 1,049 neighbouring windows assessed for VSC, 975 (93%) will experience a negligible change, or a small / medium adverse change. Of the 823 neighbouring rooms assessed for NSL, 733 (89%) will experience a negligible change, or a small / medium adverse change in the context of the future baseline.

12.130 Of the total 977 neighbouring windows considered relevant for the sunlight (APSH) assessment, 862 windows (88%) will comply with the recommended 2022 BRE Guidelines for winter sunlight and 902 windows (92%) will comply with the recommended 2022 BRE guidelines for total sunlight and will experience a negligible change as a result of the Proposed Scheme in the context of a future baseline.

12.131 Of the 977 neighbouring windows assessed for APSH in winter, 862 (88%) will experience a negligible (not significant) effect, or a small / medium adverse impact and 937 (96%) will experience a negligible (not significant) effect, or a small/ medium adverse impact for annual APSH.

12.132 A summary of the data is provided in **Tables 12.8** and **12.9**, followed by detailed commentary.

Table 12.8: Future baseline – Daylight VSC / NSL assessment summary

Existing sensitive receptor	VSC			Below BRE Guidelines					NSL			Below BRE Guidelines				
	Total no. windows	BRE criteria met (≥27% VSC and/or ≤20% alteration)	%	>20 – <30% change	≥30 – 40% change	≥40% change	Windows below BRE	%	Total no. rooms	BRE criteria met (≤20% alteration)	%	>20 – <30% change	≥30 – <40% change	≥40% change	Rooms below BRE	%
The Century Buildings	5	5	100%	0	0	0	0	0%	2	2	100%	0	0	0	0	0%
2-18 Left Bank	157	128	82%	23	3	3	29	18%	74	69	93%	4	0	1	5	7%
29 New Bailey Street	512	419	82%	91	2	0	93	18%	447	447	100%	0	0	0	0	0%
32 Quay Street	274	49	18%	49	123	53	225	82%	242	90	37%	31	32	89	152	63%
The Bridge	101	5	5%	41	37	18	96	95%	58	56	97%	2	0	0	2	3%
TOTALS:	**1049**	**606**	**58%**	**204**	**165**	**74**	**443**	**42%**	**823**	**664**	**81%**	**37**	**32**	**90**	**159**	**19.32%**

Table 12.9: Future baseline – Sunlight APSH assessment summary

Existing sensitive receptor	Annual APSH								Winter APSH							
	Total no. windows	Windows meeting BRE criteria	%	Below BRE Guidelines					Total no. windows	Windows meeting BRE criteria	%	Below BRE Guidelines				
				>20 – <30% change	≥30 – 40% change	≥40% change	Windows below BRE	%				>20 – <30% change	≥30 – <40% change	≥40% change	Windows below BRE	%
The Century Buildings	5	5	100%	0	0	0	0	0%	5	5	100%	0	0	0	0	0%
2-18 Left Bank	85	85	100%	0	0	0	0	0%	85	85	100%	0	0	0	0	0%
29 New Bailey Street	512	512	100%	0	0	0	0	0%	512	510	100%	0	2	0	2	0%
32 Quay Street	274	242	88%	2	0	30	32	12%	274	212	77%	0	0	62	62	23%
The Bridge	101	58	57%	16	17	10	43	43%	101	50	50%	0	1	50	51	50%
TOTALS:	**977**	**902**	**92%**	**18**	**17**	**40**	**75**	**8%**	**977**	**862**	**88%**	**0**	**3**	**112**	**115**	**12%**

The Century Buildings

12.133 This property is located to the east of the Site along St. Marys Parsonage and contains residential flats on the upper floors. A total of five windows serving two rooms have been assessed for daylight. These five windows are the only windows that face the Site and require assessment.

12.134 The VSC and NSL daylight technical analysis undertaken confirms that all five windows (100%) and both rooms (100%) assessed will comply with the recommended 2022 BRE Guidelines for daylight (VSC and NSL) and thus will experience a negligible change as a result of the Proposed Scheme in the context of future baseline.

12.135 The sensitivity of the receptor is high. In consideration of the above, including the high BRE compliance for VSC and full compliance for NSL, the overall magnitude of change in respect to daylight amenity within this neighbouring building is considered to be negligible. Therefore, there is likely to be a direct, permanent, long-term effect which is considered to be negligible.

12.136 The APSH results indicate that all five (100%) of the windows tested would meet the BRE Guidelines for annual and winter sunlight (i.e. experience a change which is considered to be negligible).

12.137 The sensitivity of the receptor is high. In consideration of the above, the overall magnitude of change in respect to sunlight amenity within this neighbouring building is considered to be negligible. Therefore, there is likely to be a direct, permanent, long-term effect which is considered to be negligible.

12.138 This is the same as that identified for the Proposed Scheme in isolation.

2 – 18 Left Bank Apartments

12.139 2 – 18 Left Bank is a mixed used block west of the Site with apartments located from the 1st floor upwards. A total of 157 windows serving 74 rooms have been assessed for daylight.

12.140 128 (82%) of the 157 windows assessed would meet the 2022 BRE Guidelines for VSC and experience a negligible change. 26 of the remaining 29 windows have existing VSC levels 12% or less. Of this number,16 windows achieve single digit VSC values in the existing conditions. Therefore, the larger VSC percentage reductions to these windows can be partially attributed to low existing levels of VSC as opposed to a significant alteration in absolute VSC which range between 1% and 4% change in VSC.

12.141 Of the 29 windows that do not meet BRE guidance, 23 would experience a relative reduction of between 20% – 30% (small adverse magnitude). Three would experience reductions of between 30% – 40% (medium adverse magnitude), although two of these are fractionally or marginally over a small adverse change, with reductions of circa 31% – 32.%. The remaining three windows will experience reductions in excess of 40% (large adverse). These windows have existing VSC levels between 7.61% – 9.12% and therefore as outlined above the larger percentage reduction is a result of the low existing levels rather than a significant alteration in absolute VSC.

12.142 69 (93%) of the 74 rooms assessed would meet the BRE Guidelines for NSL and experience a negligible change. Four of the five rooms will experience alterations between 20%-30% (small adverse).

12.143 The remaining room would experience an alteration be in excess of 40% (large adverse magnitude). The remaining room experiencing a major adverse alteration is a bedroom (which has a lower requirement for daylight – see BRE 2.2.10).

12.144 The sensitivity of the receptor is high. In consideration of the above, the overall magnitude of change in respect to daylight amenity within this neighbouring building is considered to be small. Therefore, there is likely to be a direct, permanent, long-term adverse effect which is considered to be minor.

12.145 The APSH results indicate that 85 (100%) of the 85 windows tested would meet the BRE Guidelines for annual sunlight, while 85 (100%) of 85 windows would meet the BRE Guidelines for winter sunlight (i.e. experience a change which is considered to be negligible).

12.146 The sensitivity of the receptor is high. In consideration of the above, the overall magnitude of change in respect to sunlight amenity within this neighbouring building is considered to be small. Therefore, there is likely to be a direct, permanent, long-term adverse effect which is considered to be minor.

12.147 This is the same as that identified for the Proposed Scheme in isolation.

29 New Bailey Street

12.148 This is a residential block of apartments located to the north of the Site on the opposite side of the River Irwell. A total of 512 windows serving 447 rooms have been assessed for daylight.

12.149 419 (82%) of the 512 windows assessed would meet the 2022 BRE Guidelines for VSC and experience a negligible change. Of the remaining 93 windows, 91 will experience a relative reduction of between 20% – 30% (small adverse magnitude) and the two remaining windows will experience reductions of between 30% – 40% (medium adverse magnitude). These two windows are fractionally or marginally over a small adverse change, with reductions of circa 30% – 31%. These two windows retain VSCs of 19% and 20% VSC respectively which is consistent with the VSC found in many urban and historic city centre locations, as acknowledged by the 2022 BRE Guidelines, paragraph F2, Appendix F.

12.150 All 447 (100%) of the 447 rooms tested would meet the 2022 BRE Guidelines for NSL and therefore experience a negligible change.

12.151 The sensitivity of the receptor is high. In consideration of the above, the overall magnitude of change in respect to daylight amenity within this neighbouring building is considered to be small. Therefore, there is likely to be a direct, permanent long-term adverse effect which is considered to be minor.

12.152 The APSH results indicate that 512 (100%) of the 512 windows tested would meet the 2022 BRE Guidelines for annual sunlight, while 510 (99%) of 512 windows would meet the 2022 BRE Guidelines for winter sunlight i.e. experience a negligible change.

12.153 The two windows below the 2022 BRE Guidelines criteria for winter, will experience 33% alterations (medium adverse magnitude). However, these windows serve bedrooms which do not normally need to be assessed for sunlight in accordance with the 2022 BRE Guidelines (see BRE paragraph 3.2.3). Furthermore, low existing winter APSH levels of 3% will result in a 1% absolute change. Therefore, the loss of sunlight to these rooms is considered negligible or small adverse in terms of magnitude of change.

12.154 The sensitivity of the receptor is high. In consideration of the above, the overall magnitude of change in respect to sunlight amenity within this neighbouring building is considered to be small. Therefore, there is likely to be direct, permanent, long-term adverse effect which is considered to be minor.

12.155 This is the same as that identified for the Proposed Scheme in isolation.

32 Quay Street

12.156 32 Quay Street is a residential block of apartments located to the north of the Site on the opposite side of the River Irwell. A total of 274 windows serving 242 rooms have been assessed for daylight.

12.157 49 (18%) of the 274 windows assessed will meet the 2022 BRE Guidelines for VSC and experience a negligible change. Of the remaining 225 windows, 49 will experience a relative reduction of between 20% – 30% (small adverse magnitude). 123 windows will experience reductions of between 30% – 40% (medium adverse magnitude). The remaining 53 windows will experience reductions in excess of 40% (large adverse magnitude). The average retained VSC for the windows experiencing large adverse changes is 16%.

12.158 90 (37%) of the 242 rooms tested will meet the 2022 BRE Guidelines for NSL and therefore experience a negligible change. 31 rooms will experience alterations between 20% – 30%, which is considered to be small adverse.

12.159 The remaining 121 rooms record greater relative reductions, of which 32 will be between 30% – 40% (medium adverse magnitude) and 89 will be in excess of 40% (large adverse magnitude). Of these 89 rooms, 34 are bedrooms which the BRE considers less important than other uses (see BRE paragraph 2.2.10).

12.160 For the 58 remaining rooms, 46 relate to deep and single-aspect living areas – such single aspect rooms that are deeper then 5m (as it is assumed here) will often see a greater movement of the NSL when developing opposite, as acknowledged by the BRE in paragraph 2.2.12. The remaining relate to large studios.

12.161 The sensitivity of the receptor is high. In consideration of the above, the overall magnitude of change in respect to daylight amenity within this neighbouring building is considered to be medium to large. Therefore, there is likely to be a direct, permanent, long-term adverse effect which is considered to be moderate.

12.162 The APSH results indicate that 212 (77%) of the 274 windows tested would meet the 2022 BRE Guidelines for winter sunlight, while 242 (88%) of 274 windows would meet the 2022 BRE Guidelines for annual sunlight i.e. experience an effect which is considered to be a negligible change.

12.163 Of the 62 windows that fall below the 2022 BRE Guidelines criteria for winter sunlight, all 62 windows will experience reductions in excess of 40% (large adverse magnitude). 15 of these 62 windows have winter sunlight levels below the recommended 5% in the existing and therefore any change in winter sunlight to these windows will result in a large percentage alteration. However what is of most relevance is that 50 of these 62 windows serve bedrooms which the BRE states need not be considered for analysis in most cases (see paragraph 3.2.3). The remaining 12 windows serve LKD's.

12.164 Of the 32 windows below the BRE criteria for annual sunlight, two windows will experience alterations between 20% – 30% (small adverse magnitude) and the remaining 30 windows will experience alterations in annual sunlight in excess of 40% (large adverse magnitude). However, it should be noted that 21 of these 34 windows serve bedrooms.

12.165 The sensitivity of the receptor is high. In consideration of the above, the overall magnitude of change in respect to sunlight amenity within this neighbouring building is considered to be medium to large. Therefore, there is likely to be a direct, permanent, long-term adverse effect which is considered to be moderate.

12.166 This is the same as that identified for the Proposed Scheme in isolation.

The Bridge, 40 Dearman Place

12.167 The Bridge, 40 Dearman Place is a residential block of apartments located to the north of the Site on the opposite side of the River Irwell. A total of 101 windows serving 57 rooms have been assessed for daylight.

12.168 five (5%) of the 101 windows assessed would meet the 2022 BRE Guidelines for VSC and experience a negligible change. Of the remaining 96 windows, 41 will experience a relative reduction of between 20% – 30% (small adverse magnitude). 37 windows will experience reductions of between 30% – 40% (medium adverse magnitude). The remaining 18 windows will experience reductions in excess of 40% (large adverse magnitude).

12.169 It should be noted that the majority of the windows and rooms in this property sit beneath overhanging balconies which limits the ingress of the daylight and sunlight, particularly the ability for the sky / sun to see the centrepoint of the widows below the balconies (i.e. the point of VSC and APSH calculation). This is acknowledged by the BRE in paragraph 2.2.13, which goes on to state that – '*Because the balcony cuts out light from the top part of the sky, even a modest obstruction opposite may result in a large relative impact on the VSC*'. This is paired with the obstruction caused by 32 Quay Street to the south-west will limit its peripheral view and further reduce its daylight and sunlight availability. Therefore, these alterations are in part due to the massing in the area and the property's inherent architectural composition.

12.170 56 (97%) of the 58 rooms tested will meet the 2022 BRE Guidelines for NSL and therefore experience a negligible change. The remaining two rooms will experience alterations

between 20% – 30% (small adverse magnitude). However both will retain a view of the sky to more than half of their room areas retaining NSL values of 63% and 66%.

12.171 The sensitivity of the receptor is high. In consideration of the above, the overall magnitude of change in respect to daylight amenity within this neighbouring building is considered to be medium to large. Therefore, there is likely to be a direct, permanent, long-term adverse effect which is considered to be moderate.

12.172 The APSH results indicate that 50 (50%) of the 101 windows tested would meet the 2022 BRE Guidelines for winter sunlight, while 58 (57%) of 101 windows would meet the 2022 BRE Guidelines for annual sunlight (i.e. experience a change which is considered to be negligible).

12.173 Of the 51 windows that fall below the 2022 BRE Guidelines criteria for winter sunlight, one window will experience an alteration between 30% – 40% (medium adverse magnitude) and 50 will experience reductions in excess of 40% (large adverse magnitude). As internal layouts have not been obtained for this property, these room uses are allocated as unknown. However, it is assumed a large portion if not a majority of these windows will serve less sensitive bedrooms.

12.174 Of the 43 windows that fall below the BRE criteria for annual sunlight 16 windows will experience alterations between 20% – 30% (small adverse), 17 will experience reductions between 30% – 40% (medium adverse magnitude) and the remaining 10 windows will experience reductions in excess of 40% (large adverse magnitude). As internal layouts have not been obtained for this property, these room uses have been allocated as unknown. However, it is assumed a large portion if not a majority of these windows will serve less sensitive bedrooms.

12.175 The presence of balconies should also be acknowledged. Balconies do restrict the ability of sunlight to hit the centrepoint of windows (i.e. the point of APSH calculation. This is recognised by the BRE in paragraph 3.2.11, which states – '*Balconies and overhangs above an existing window tend to block sunlight, especially in summer above south-facing windows. Even a modest obstruction opposite may result in a large relative impact*'.

12.176 The sensitivity of the receptor is high. In consideration of the above, the overall magnitude of change in respect to sunlight amenity within this neighbouring building is considered to be medium to large. Therefore, there is likely to be a direct, permanent, long-term adverse effect which is considered to be moderate.

12.177 This is the same as that identified for the Proposed Scheme in isolation.

Summary

12.178 The alterations between the future baseline and future baseline + Proposed Scheme are less than those in the in-combination cumulative scenario. The magnitude of change is greater than those in the existing baseline conditions vs Proposed Scheme scenario; however, the overall daylight and sunlight level of effect and significance remains the same for all receptors when compared to the existing baseline vs Proposed Scheme. This indicates that the greater effects identified above for the existing baseline vs Proposed Scheme and Approved Projects are driven by the combination with the Approved Projects.

Alterations in sunlight to neighbouring amenity spaces due to overshadowing resulting from the Proposed Scheme (Future baseline (existing baseline + Approved Projects) vs Proposed Scheme)

12.179 A future baseline v proposed Sun Hours on Ground Overshadowing assessment has been undertaken against four existing neighbouring amenity areas, as illustrated in **Figures 8.10** and **8.11** and drawings BRE/04-07 located in **Appendix 8.2**.

12.180 The results of the SHOG analysis show that three (75%) of the four sensitive receptors tested will meet the BRE guidance by either: retaining at least 2 hours of sun in excess of 50% of their respective areas (Public Amenity Space, 32 Quay Street (Area A1), Public Amenity Space, Motor Square (Area A3) and River Irwell (Area A4)). The remaining receptor not meeting the criteria is area Public Amenity Space, Clermont-Ferrand Square.

12.181 Therefore, the overshadowing results for SHOG show that the following existing sensitive receptors tested will meet the 2022 BRE Guidelines and therefore, experience a change which is considered to be negligible:

- Public Amenity Space, 32 Quay Street (Area A1);
- Public Amenity Space, Motor Square (Area A3); and
- The River Irwell (Area A4).

12.182 The Public Amenity Space, Clermont-Ferrand Square (Area A2) is located to the north-east of the Site on the other side of the River Irwell.

12.183 In the existing conditions, approximately 98% of the area receives at least 2 hours of direct sunlight on 21st March. This reduces to around 2% with Approved Projects 1 and 14 in place and the Proposed Scheme and, which equates to an alteration in excess of 40% (large adverse magnitude). However, this area's location makes it sensitive to changes in massing on-Site.

12.184 A further detailed SHOG assessment has been undertaken for this area on June 21st to understand how much sunlight it will receive in the summer months. The sunlight levels significantly increase in summer with the area receiving over two hours of direct sunlight to all of its area (100%) on 21st June. This high sunlight availability in summer is a key consideration as there is a higher expectation for sunlight and outside spaces are most likely to be fully utilised.

12.185 The full transient overshadowing assessment for the existing sensitive receptors is presented within **Appendix 8.5**.

12.186 The assessment covers three key dates in the year: 21st March, 21st June and 21st December. The key date for consideration is 21st March, which is the focus of the commentary below.

12.187 As with the future baseline SHOG overshadowing test, four existing receptors / public amenity spaces were considered for the transient overshadowing assessment below. These are discussed in groupings that accord with the associated locations considered for the SHOG analysis, in a clockwise direction from west to east, in accordance with the

movement of the shadows cast throughout the day. As Approved Projects 1 and 14 are included, additional overshadowing is to be expected on the sensitive amenity areas. This additional overshadowing stems primarily from Approved Project 14:

- Public amenity space, 32 Quay Street (Area A1): The existing shadow cast is larger as Approved Project 14 will contribute to additional overshadowing in the early part of the day between 8:00 and 11:00. The impact from the addition of the Proposed Scheme becomes more poignant for Area A1 between 8:00 and 15:00 where in the existing baseline conditions a smaller shadow that leaves the area after 13:00 is observed.

- Public Amenity Space, Clermont-Ferrand Square (A2): This area will experience additional overshadowing as a result of the future baseline (i.e. existing baseline + Approved Projects 1 and 14) between 10:00 and 14:00 without the Proposed Scheme when compared to the existing baseline. Also, in future baseline, a larger shadow will pass over A2 between 13:00 and 15:00 associated with Approved Projects 1 and 14 and the Proposed Scheme.

- Public Amenity Space, Motor Square (Area A3): This area will not experience any notable additional shadow on 21st March from Approved Projects 1 and 14 and the Proposed Scheme.

- The River Irwell (Area A4): The Proposed Scheme will cast a larger shadow over the River Irwell moving from west to east between 9:00 and 16:00. However, the shadows pass quickly across the River Irwell throughout the day. With Approved Project 14, a larger shadow will be over the River Irwell between 8:00 and 15:00 compared to the existing baseline.

12.188 In relation to overshadowing, the sensitivity of the four amenity receptors is high. The magnitude of change is considered to be negligible for three of these amenity spaces (i.e. Public Amenity Space, Quay Street (Area A1), Public Amenity Space, Motor Square (Area A3) and the River Irwell (Area A4)). Public Amenity Space, Clermont-Ferrand Square (Area A2), however, will experience a large magnitude of change. Despite this the receptor (A2) will experience good levels of sunlight in the summer months when outdoor space is likely to be fully utilised. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be moderate.

12.189 The overshadowing effect of the proposed scheme is considered to be **Not Significant** for three of the overshadowing receptors (A1, A3 and A4) and **Significant** for Amenity Space A2.

12.190 The overall level of effect and significance remains the same as the Proposed Scheme in isolation.

Wind Microclimate

12.191 Due to scale, proximity and orientation to the Site and the potential for interactions, no common sensitive receptors / in-combination effects have been identified with Approved Projects 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 16 and 17. On this basis, in-combination effects are only expected with Approved Projects 1, 3, 14 and 15.

12.192 As noted in **Chapter 9: Wind Microclimate**, the following were considered as part of the modelling:

- Pre-mitigation 2: Proposed Scheme without proposed mitigation and landscaping, and existing context surroundings plus Approved Projects within 300m (including Alberton House) (Scenario 4); and

- Post-mitigation 2: Proposed Scheme with proposed mitigation and landscaping, and existing context surroundings plus Approved Projects within 300m (including Alberton House) (Scenario 5).

12.193 Based on Scenario 5, the wind conditions on-Site and-off-Site are similar to those identified in for the Proposed Scheme in isolation (Scenario 3, as reported in **Chapter 9: Wind Microclimate**), as follows:

- Exceedance of the industry standard Lawson Criteria for pedestrian comfort: Negligible to minor adverse for receptors G1 – G55 and T1 – T6. However, some light improvement was identified for the on-Site seating areas (G51 – G54) with the Approved Projects in place (albeit not considered to be sufficient to change the level of effect); and

- Exceedance of the industry standard Lawson Criteria for pedestrian distress: Negligible to minor adverse for receptors G1 – G55 and T1 – T6.

12.194 Given the above, the overall level of effect remains the same as the Proposed Scheme in isolation. Therefore, the in-combination effect is **Not Significant**.

Socio-economics and Human Health

12.195 In-combination interactions are anticipated to occur with all Approved Projects.

12.196 The socio-economics and human health in-combination assessment is presented in **Table 12.10**. This includes discussion of the specific in-combination effects relevant with each Approved Project.

Table 12.10: Socio-economics and human health in-combination assessment

Approved Project Ref.	In-combination assessment
1	Approved Project 1 considered employment and GVA effects on the common sensitive receptors identified for the Proposed Scheme (individuals seeking construction employment and the local economy (through GVA) and individuals seeking employment and the local economy (through GVA), see **Chapter 10: Socio-economics and Human Health**). <u>Construction stage</u> Assuming the construction stage of Approved Project 1 may overlap with the Proposed Scheme, there is a potential in-combination effect in respect to construction employment and uplift in GVA. The combined magnitude of change is considered to be medium and, considered against a receptor sensitivity of medium, there is likely to be a direct, temporary, medium-term, beneficial in-combination effect which is considered to be moderate. Therefore, there is greater in-combination effect than that identified for the Proposed Scheme in isolation and **Significant**. <u>Operational stage</u> An in-combination effect is anticipated between Approved Project 1 and the Proposed Scheme in respect to employment and uplift in GVA. The combined magnitude of change is considered to be small and, considered against a receptor sensitivity of medium, there is likely to be a direct, permanent, long-term, beneficial in-combination effect which is considered to be minor. Therefore, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**.
2	Approved Project 2 considered employment and GVA effects on the common sensitive receptors identified for the Proposed Scheme (individuals seeking construction employment and the local economy (through GVA) and individuals seeking employment and the local economy (through GVA), see **Chapter 10: Socio-economics and Human Health**). <u>Construction stage</u> Assuming the construction stage of Approved Project 2 may overlap with the Proposed Scheme, there is a potential in-combination effect in respect to construction employment and uplift in GVA. The combined magnitude of change is considered to be small and, considered against a receptor sensitivity of medium, there is likely to be a direct, temporary, medium-term, beneficial in-combination effect which is considered to be minor. Therefore, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**. <u>Operational stage</u> An in-combination effect is anticipated between Approved Project 2 and the Proposed Scheme in respect to employment and uplift in GVA. The combined magnitude of change is considered to be small and, considered

Approved Project Ref.	In-combination assessment
	against a receptor sensitivity of medium, there is likely to be a direct, permanent, long-term, beneficial in-combination effect which is considered to be minor. Therefore, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**.
3	Approved Project 3 provided a high-level consideration of employment and GVA. It is assumed that in-combination effects on common sensitive receptors identified for the Proposed Scheme will occur (individuals seeking construction employment and the local economy (through GVA) and individuals seeking employment and the local economy (through GVA), see **Chapter 10: Socio-economics and Human Health**). <u>Construction stage</u> Whilst limited information is available on construction stage employment and GVA, there is considered to be an in-combination effect in respect to construction employment and uplift in GVA. Based on professional judgement, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**. <u>Operational stage</u> An in-combination effect is anticipated between Approved Project 3 and the Proposed Scheme in respect to employment and uplift in GVA. Whilst limited information is available on operational stage employment and GVA, the combined magnitude of change is considered to be small and, considered against a receptor sensitivity of medium, there is likely to be a direct, permanent, long-term, beneficial in-combination effect which is considered to be minor. Therefore, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**.
4	Approved Project 4 provided a high-level consideration of employment and GVA. It is assumed that in-combination effects on common sensitive receptors identified for the Proposed Scheme will occur (individuals seeking construction employment and the local economy (through GVA) and individuals seeking employment and the local economy (through GVA), see **Chapter 10: Socio-economics and Human Health**). <u>Construction stage</u> Whilst limited information is available on construction stage employment and GVA, there is considered to be an in-combination effect in respect to construction employment and uplift in GVA. Based on professional judgement, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**. <u>Operational stage</u> Whilst limited information is available on operational stage employment and GVA, there is considered to be an in-combination effect in respect to

Approved Project Ref.	In-combination assessment
	employment and uplift in GVA. Based on professional judgement, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**.
5	Approved Project 5 considered employment and GVA effects on the common sensitive receptors identified for the Proposed Scheme (individuals seeking construction employment and the local economy (through GVA) and individuals seeking employment and the local economy (through GVA) and individuals seeking housing, healthcare facilities and their patients and open space and recreational facilities and their users, see **Chapter 10: Socio-economics and Human Health**). <u>Construction stage</u> Assuming the construction stage of Approved Project 5 may overlap with the Proposed Scheme, there is a potential in-combination effect in respect to construction employment and uplift in GVA. The combined magnitude of change is considered to be medium and, considered against a receptor sensitivity of medium, there is likely to be a direct, temporary, medium-term, beneficial in-combination effect which is considered to be moderate. Therefore, there is a greater in-combination effect than that identified for the Proposed Scheme in isolation and **Significant**. <u>Operational stage</u> No in-combination effect is anticipated between Approved Project 5 and the Proposed Scheme in respect to employment and uplift in GVA. Approved Project 5 will deliver 300 dwellings. In-combination effects are therefore anticipated as people requiring housing of all types and tenures in the area will benefit from improved access to housing. The combined magnitude of change is considered to be small and, considered against a receptor sensitivity of medium, there is likely to be a direct, permanent, long-term, beneficial effect which is considered to be minor. Therefore, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**. Approved Project 5 will deliver additional homes, which will generate additional demand for local healthcare facilities. As a result, this is likely to worsen the ratio of patients to FTE GPs in the assessment area. No mitigation measures are proposed as part of Approved Project 5. Therefore, the combined magnitude of change (and level of effect) is considered to be greater and adverse than that identified for the Proposed Scheme. This is considered to be **Not Significant**. Approved Project 5 will deliver additional homes, which will demand for open space and recreational facilities. However, Approved Project 5 will provide public realm and private amenity space and it is assumed that this will mitigate the increased demand derived from residents. Therefore, the combined magnitude of change is considered to be small, and considered

Approved Project Ref.	In-combination assessment
	against a receptor sensitivity of low, there is likely to be a direct, permanent, long-term, beneficial in-combination effect which is considered to be minor. Therefore, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**.
6	Approved Project 6 provided a high-level consideration of employment and GVA. It is assumed that in-combination effects on common sensitive receptors identified for the Proposed Scheme will occur (individuals seeking construction employment and the local economy (through GVA), see **Chapter 10: Socio-economics and Human Health**). <u>Construction stage</u> Whilst limited information is available on construction stage employment and GVA, there is considered to be an in-combination effect in respect to construction employment and uplift in GVA. Based on professional judgement, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**. <u>Operational stage</u> No in-combination effect is anticipated between Approved Project 6 and the Proposed Scheme in respect to employment and uplift in GVA.
7	Approved Project 7 provided a high-level consideration of employment and GVA, provision of housing as well as potential effects on health services and open space. However, it is assumed that in-combination effects on common sensitive receptors identified for the Proposed Scheme will occur on the common sensitive receptors identified for the Proposed Scheme (individuals seeking construction employment and the local economy (through GVA), individuals seeking employment and the local economy (through GVA), individuals seeking housing, healthcare facilities and their patients and open space and recreational facilities and their users, see **Chapter 10: Socio-economics and Human Health**). <u>Construction stage</u> Whilst limited information is available on construction stage employment and GVA, there is considered to be an in-combination effect in respect to construction employment and uplift in GVA. Based on professional judgement, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**. <u>Operational stage</u> Whilst limited information is available on operational stage employment and GVA, there is considered to be an in-combination effect in respect to employment and uplift in GVA. Based on professional judgement, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**. Approved Project 7 will deliver 545 dwellings. In-combination effects are

Approved Project Ref.	In-combination assessment
	therefore anticipated as people requiring housing of all types and tenures in the area will benefit from improved access to housing. The combined magnitude of change is considered to be small and, considered against a receptor sensitivity of medium, there is likely to be a direct, permanent, long-term, beneficial effect which is considered to be minor. Therefore, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**. Approved Project 7 will deliver additional homes, which will generate additional demand for local healthcare facilities. As a result, this is likely to worsen the ratio of patients to FTE GPs in the assessment area. Therefore, the combined magnitude of change (and level of effect) is considered to be greater and adverse than that identified for the Proposed Scheme. This is considered to be **Not Significant**. Approved Project 7 will deliver additional homes, which will demand for open space and recreational facilities. However, Approved Project 7 will provide public realm and it is assumed that this will mitigate the increased demand derived from residents. Therefore, the combined magnitude of change is considered to be small, and considered against a receptor sensitivity of low, there is likely to be a direct, permanent, long-term, beneficial in-combination effect which is considered to be minor. Therefore, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**.
8	Approved Project 8 provided a high-level consideration of employment and GVA, provision of housing as well as potential effects on health services and open space. However, it is assumed that in-combination effects on common sensitive receptors identified for the Proposed Scheme will occur on the common sensitive receptors identified for the Proposed Scheme (individuals seeking construction employment and the local economy (through GVA), individuals seeking employment and the local economy (through GVA), individuals seeking housing, healthcare facilities and their patients and open space and recreational facilities and their users, see **Chapter 10: Socio-economics and Human Health**). <u>Construction stage</u> Whilst limited information is available on construction stage employment and GVA, there is considered to be an in-combination effect in respect to construction employment and uplift in GVA. Based on professional judgement, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**. <u>Operational stage</u> Whilst limited information is available on operational stage employment and GVA, there is considered to be an in-combination effect in respect to employment and uplift in GVA. Based on professional judgement, the in-

Approved Project Ref.	In-combination assessment
	combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**. Approved Project 8 will deliver 118 dwellings. In-combination effects are therefore anticipated as people requiring housing of all types and tenures in the area will benefit from improved access to housing. The combined magnitude of change is considered to be small and, considered against a receptor sensitivity of medium, there is likely to be a direct, permanent, long-term, beneficial effect which is considered to be minor. Therefore, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**. Approved Project 8 will deliver additional homes, which will generate additional demand for local healthcare facilities. As a result, this is likely to worsen the ratio of patients to FTE GPs in the assessment area. Therefore, the combined magnitude of change (and level of effect) is considered to be greater and adverse than that identified for the Proposed Scheme. This is considered to be **Not Significant**. Approved Project 8 will deliver additional homes, which will demand for open space and recreational facilities. However, Approved Project 8 will provide additional public realm and it is assumed that this will mitigate the increased demand derived from residents. Therefore, the combined magnitude of change is considered to be small, and considered against a receptor sensitivity of low, there is likely to be a direct, permanent, long-term, beneficial in-combination effect which is considered to be minor. Therefore, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**.
9	Approved Project 9 provided a high-level consideration of employment and GVA, provision of housing as well as potential effects on health services and open space. However, it is assumed that in-combination effects on common sensitive receptors identified for the Proposed Scheme will occur on the common sensitive receptors identified for the Proposed Scheme (individuals seeking construction employment and the local economy (through GVA), individuals seeking employment and the local economy (through GVA), individuals seeking housing, healthcare facilities and their patients and open space and recreational facilities and their users, see **Chapter 10: Socio-economics and Human Health**)). <u>Construction stage</u> Whilst limited information is available on construction stage employment and GVA, there is considered to be an in-combination effect in respect to construction employment and uplift in GVA. Based on professional judgement, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**. <u>Operational stage</u>

Approved Project Ref.	In-combination assessment
	An in-combination effect is anticipated between Approved Project 9 and the Proposed Scheme in respect to employment and uplift in GVA. Whilst limited information is available on operational stage employment and GVA, the combined magnitude of change is considered to be small and, considered against a receptor sensitivity of medium, there is likely to be a direct, permanent, long-term, beneficial in-combination effect which is considered to be minor. Therefore, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**. Approved Project 9 will deliver 375 units / 806 bedspaces. In-combination effects are therefore anticipated as people requiring housing of all types and tenures in the area will benefit from improved access to housing. The combined magnitude of change is considered to be small and, considered against a receptor sensitivity of medium, there is likely to be a direct, permanent, long-term, beneficial effect which is considered to be minor. Therefore, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**. Approved Project 9 will deliver additional homes, which will generate additional demand for local healthcare facilities. As a result, this is likely to worsen the ratio of patients to FTE GPs in the assessment area. Therefore, the combined magnitude of change (and level of effect) is considered to be greater and adverse than that identified for the Proposed Scheme. This is considered to be **Not Significant**. Approved Project 9 will deliver additional homes, which will demand for open space and recreational facilities. However, Approved Project 9 will provide additional open space and it is assumed that this will mitigate the increased demand derived from residents. Therefore, the combined magnitude of change is considered to be small, and considered against a receptor sensitivity of low, there is likely to be a direct, permanent, long-term, beneficial in-combination effect which is considered to be minor. Therefore, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**.
10	Approved Project 10 provided a high-level consideration of employment and GVA, provision of housing as well as potential effects on health services and open space. However, it is assumed that in-combination effects on common sensitive receptors identified for the Proposed Scheme will occur on the common sensitive receptors identified for the Proposed Scheme (individuals seeking construction employment and the local economy (through GVA), individuals seeking employment and the local economy (through GVA), individuals seeking housing, healthcare facilities and their patients and open space and recreational facilities and their users, see **Chapter 10: Socio-economics and Human Health**).

Approved Project Ref.	In-combination assessment
	Construction stage Whilst limited information is available on construction stage employment and GVA, there is considered to be an in-combination effect in respect to construction employment and uplift in GVA. Based on professional judgement, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**. Operational stage Whilst limited information is available on operational stage employment and GVA, there is considered to be an in-combination effect in respect to employment and uplift in GVA. Based on professional judgement, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**. Approved Project 10 will deliver a maximum of 250 units. In-combination effects are therefore anticipated as people requiring housing of all types and tenures in the area will benefit from improved access to housing. The combined magnitude of change is considered to be small and, considered against a receptor sensitivity of medium, there is likely to be a direct, permanent, long-term, beneficial effect which is considered to be minor. Therefore, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**. Approved Project 10 will deliver additional homes, which will generate additional demand for local healthcare facilities. As a result, this is likely to worsen the ratio of patients to FTE GPs in the assessment area. Therefore, the combined magnitude of change (and level of effect) is considered to be greater and adverse than that identified for the Proposed Scheme. This is considered to be **Not Significant**. Approved Project 10 will deliver additional homes, which will demand for open space and recreational facilities. However, Approved Project 10 will provide additional open space and it is assumed that this will mitigate the increased demand derived from residents. Therefore, the combined magnitude of change is considered to be small, and considered against a receptor sensitivity of low, there is likely to be a direct, permanent, long-term, beneficial in-combination effect which is considered to be minor. Therefore, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**.
11	Approved Project 11 provided a high-level consideration of employment and GVA. It is assumed that in-combination effects on common sensitive receptors identified for the Proposed Scheme will occur (individuals seeking construction employment and the local economy (through GVA) and individuals seeking employment and the local economy (through GVA), see **Chapter 10: Socio-economics and Human Health**). Construction stage

Approved Project Ref.	In-combination assessment
	Whilst limited information is available on construction stage employment and GVA, there is considered to be an in-combination effect in respect to construction employment and uplift in GVA. Based on professional judgement, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**. Operational stage Whilst limited information is available on operational stage employment and GVA, there is considered to be an in-combination effect in respect to employment and uplift in GVA. Based on professional judgement, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**.
12	Approved Project 12 considered employment and GVA effects on the common sensitive receptors identified for the Proposed Scheme (individuals seeking construction employment and the local economy (through GVA) and individuals seeking employment and the local economy (through GVA), individuals seeking housing, healthcare facilities and their patients and open space and recreational facilities and their users, see **Chapter 10: Socio-economics and Human Health**). Construction stage Assuming the construction stage of Approved Project 12 may overlap with the Proposed Scheme, there is a potential in-combination effect in respect to construction employment and uplift in GVA. The combined magnitude of change is considered to be medium and, considered against a receptor sensitivity of medium, there is likely to be a direct, temporary, medium-term, beneficial in-combination effect which is considered to be moderate. Therefore, there is greater in-combination effect than that identified for the Proposed Scheme in isolation and **Significant**. Operational stage An in-combination effect is anticipated between Approved Project 12 and the Proposed Scheme in respect to employment and uplift in GVA. The combined magnitude of change is considered to be small and, considered against a receptor sensitivity of medium, there is likely to be a direct, permanent, long-term, beneficial in-combination effect which is considered to be minor. Therefore, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**. Approved Project 12 will involve the net addition of 1,390 residential units. In-combination effects are therefore anticipated as people requiring housing of all types and tenures in the area will benefit from improved access to housing. The combined magnitude of change is considered to be medium and, considered against a receptor sensitivity of medium, there is likely to be a direct, permanent, long-term, beneficial effect which is considered to be moderate. Therefore, the in-combination effect is greater than that

Approved Project Ref.	In-combination assessment
	identified for the Proposed Scheme in isolation and **Significant**. Approved Project 12 will deliver additional homes, which will generate additional demand for local healthcare facilities. As a result, this is likely to worsen the ratio of patients to FTE GPs in the assessment area. No specific mitigation is noted. Therefore, the combined magnitude of change is medium and, against a receptor sensitivity of medium, there is likely to be a direct, permanent, adverse in-combination effect which is considered to be moderate. Therefore, the in-combination effect is greater than that identified for the Proposed Scheme in isolation and **Significant**. Approved Project 12 will deliver additional homes, which will demand for open space and recreational facilities. However, Approved Project 12 will provide additional open space (including a Riverside Park) and it is assumed that this will mitigate the increased demand derived from residents. Therefore, the combined magnitude of change is considered to be small, and considered against a receptor sensitivity of low, there is likely to be a direct, permanent, long-term, beneficial in-combination effect which is considered to be minor. Therefore, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**.
13	Approved Project 13 provided a high-level consideration of employment and GVA. It is assumed that in-combination effects on common sensitive receptors identified for the Proposed Scheme will occur (individuals seeking construction employment and the local economy (through GVA), see **Chapter 10: Socio-economics and Human Health**). <u>Construction stage</u> Whilst limited information is available on construction stage employment and GVA, there is considered to be an in-combination effect in respect to construction employment and uplift in GVA. Based on professional judgement, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**. <u>Operational stage</u> No in-combination effect is anticipated between Approved Project 13 and the Proposed Scheme in respect to employment and uplift in GVA, provision of housing as well as potential effects on capacity of healthcare facilities and demands on open space.
14	Approved Project 14 considered employment and GVA effects on the common sensitive receptors identified for the Proposed Scheme (individuals seeking construction employment and the local economy (through GVA) and individuals seeking employment and the local economy (through GVA), see **Chapter 10: Socio-economics and Human Health**). <u>Construction stage</u> Assuming the construction stage of Approved Project 14 may overlap with

Approved Project Ref.	In-combination assessment
	the Proposed Scheme, there is a potential in-combination effect in respect to construction employment and uplift in GVA. The combined magnitude of change is considered to be medium and, considered against a receptor sensitivity of medium, there is likely to be a direct, temporary, medium-term, beneficial in-combination effect which is considered to be moderate. Therefore, there is greater in-combination effect than that identified for the Proposed Scheme in isolation and **Significant**. Operational stage An in-combination effect is anticipated between Approved Project 14 and the Proposed Scheme in respect to employment and uplift in GVA. The combined magnitude of change is considered to be medium and, considered against a receptor sensitivity of medium, there is likely to be a direct, permanent, long-term, beneficial in-combination effect which is considered to be moderate. Therefore, the in-combination effect is greater than that identified for the Proposed Scheme in isolation and **Significant**.
15	Approved Project 15 considered employment and GVA effects on the common sensitive receptors identified for the Proposed Scheme (individuals seeking construction employment and the local economy (through GVA) and individuals seeking employment and the local economy (through GVA), see **Chapter 10: Socio-economics and Human Health**). Construction stage Assuming the construction stage of Approved Project 15 may overlap with the Proposed Scheme, there is a potential in-combination effect in respect to construction employment and uplift in GVA. The combined magnitude of change is considered to be medium and, considered against a receptor sensitivity of medium, there is likely to be a direct, temporary, medium-term, beneficial in-combination effect which is considered to be moderate. Therefore, there is greater in-combination effect than that identified for the Proposed Scheme in isolation and **Significant**. Operational stage An in-combination effect is anticipated between Approved Project 15 and the Proposed Scheme in respect to employment and uplift in GVA. The combined magnitude of change is considered to be small and, considered against a receptor sensitivity of medium, there is likely to be a direct, permanent, long-term, beneficial in-combination effect which is considered to be minor. Therefore, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**.
16	Approved Project 16 considered employment and GVA effects on the common sensitive receptors identified for the Proposed Scheme (individuals seeking construction employment and the local economy (through GVA) and individuals seeking employment and the local economy (through GVA), individuals seeking housing, healthcare facilities and their patients and open

Approved Project Ref.	In-combination assessment
	space and recreational facilities and their users, see **Chapter 10: Socio-economics and Human Health**). Construction stage Assuming the construction stage of Approved Project 16 may overlap with the Proposed Scheme, there is a potential in-combination effect in respect to construction employment and uplift in GVA. The combined magnitude of change is considered to be medium and, considered against a receptor sensitivity of medium, there is likely to be a direct, temporary, medium-term, beneficial in-combination effect which is considered to be moderate. Therefore, there is greater in-combination effect than that identified for the Proposed Scheme in isolation and **Significant**. Operational stage No in-combination effect is anticipated between Approved Project 16 and the Proposed Scheme in respect to employment and uplift in GVA. Approved Project 16 will deliver 988 residential new homes. In-combination effects are therefore anticipated as people requiring housing of all types and tenures in the area will benefit from improved access to housing. The combined magnitude of change is considered to be medium and, considered against a receptor sensitivity of medium, there is likely to be a direct, permanent, long-term, beneficial effect which is considered to be moderate. Therefore, the in-combination effect is greater than that identified for the Proposed Scheme in isolation and **Significant**. Approved Project 16 will deliver additional homes, which will generate additional demand for local healthcare facilities. As a result, this is likely to worsen the ratio of patients to FTE GPs in the assessment area, albeit negligible effects are identified for Approved Project 16. No specific mitigation is noted. Therefore, the combined magnitude of change (and level of effect) is considered to be greater and adverse than that identified for the Proposed Scheme. The in-combination effect is considered to be **Not Significant**. Approved Project 16 will deliver additional homes, which will demand for open space and recreational facilities. However, Approved Project 16 will provide new public realm and private amenity gardens and it is assumed that this will mitigate the increased demand derived from residents. Therefore, the combined magnitude of change is considered to be small, and considered against a receptor sensitivity of low, there is likely to be a direct, permanent, beneficial in-combination effect which is considered to be minor. Therefore, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**.
17	Approved Project 17 provided a high-level consideration of employment and GVA. It is assumed that in-combination effects on common sensitive receptors identified for the Proposed Scheme will occur (individuals seeking

Approved Project Ref.	In-combination assessment
	construction employment and the local economy (through GVA), see **Chapter 10: Socio-economics and Human Health**). Construction stage Whilst limited information is available on construction stage employment and GVA, there is considered to be an in-combination effect in respect to construction employment and uplift in GVA. Based on professional judgement, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**. Operational stage No in-combination effect is anticipated between Approved Project 17 and the Proposed Scheme in respect to employment and uplift in GVA, provision of housing as well as potential effects on capacity of healthcare facilities and demands on open space.
All Approved Projects (1 – 17)	Construction stage The collective construction employment requirement of all Approved Projects is estimated to amount to approximately 25% of construction sector employment within the assessment area. The level of GVA potentially supported could also constitute more than one fifth of the sector's economic value within the assessment area. This does not account for several Approved Projects for which there is limited construction information was available – as such, the magnitude of change that this represents (high) is likely to be even higher. It should be noted the aggregate construction employment requirement will not all be required at the same time, given varying potential lead in times and build out rates. Based on a combined magnitude of change of high and, against a receptor sensitivity of medium, there is likely to be a direct, temporary, medium-term, beneficial in-combination effect which is considered to be major. Therefore, the in-combination effect is greater than that identified for the Proposed Scheme in isolation and **Significant**. Operational stage The Approved Projects in conjunction with the Proposed Scheme will collectively deliver a large amount of employment opportunities, broadly within office-based service sector employment. When accounting for additionality factors, it is assessed that the level of employment uplift (c.5% of total employment within relevant sectors in the assessment area) and associated GVA could correspond to a medium magnitude of change. Based on a combined magnitude of change of medium and, against a receptor sensitivity of medium, there is likely to be a direct, permanent, beneficial, long-term in-combination effect which is considered to be moderate. Therefore, the in-combination effect is greater than that identified for the Proposed Scheme in isolation and **Significant**. The Approved Projects in conjunction with the Proposed Scheme will

Approved Project Ref.	In-combination assessment
	collectively deliver over 4,000 additional homes. Constituting over one tenth of the City Council housing strategy delivery target to 2032, and with most, if not all, delivered on City Centre brownfield sites. Based on a combined magnitude of change of large and, against a receptor sensitivity of medium, there is likely to be a direct, permanent, long-term, beneficial in-combination effect which is considered to be major. Therefore, the in-combination effect is greater than that identified for the Proposed Scheme in isolation and **Significant**. The Approved Projects in conjunction with the Proposed Scheme will lead to an uplift in local population. This will generate additional demand for local healthcare facilities. Given the existing underprovision in relation to both GPs and dentists within the assessment area, the additional resident population is likely to exacerbate an existing shortfall. For the purposes of this assessment a worst-case scenario is assumed: it is assumed that all new residents will not already be registered with local GPs and dentists in the assessment area; and that no secondary mitigation is assumed as part the Approved Projects. Therefore, under a worst-case scenario, the combined magnitude of change of high, against a receptor sensitivity of medium, there is likely to be a direct, permanent, adverse in-combination effect which is considered to be moderate. Therefore, the in-combination effect is greater than that identified for the Proposed Scheme in isolation and **Significant**. The Approved Projects in conjunction with the Proposed Scheme will deliver additional homes which will generate additional demand for local open space, leisure and recreational facilities. It is assumed that the Approved Projects (which by and large include public realm improvements and private amenity space) will mitigate the increased demand derived from residents. Therefore, the combined magnitude of change of small, against a receptor sensitivity of low, there is likely to be a direct, permanent, long-term, beneficial in-combination effect which is considered to be minor. Therefore, the in-combination effect is no greater than that identified for the Proposed Scheme in isolation and **Not Significant**.

Climate Change

12.197 The climatic system, the receptor assessed in **Chapter 11: Climate Change**, is not geographically constrained and as such all projects result in some level of effect on the climate, even where negligible in isolation. Such in-combination effects are therefore inevitable, both with the identified Approved Projects. Furthermore, such effects occur across the entire construction and operational stages and therefore not specific to timescales.

12.198 As full GHG emissions information is not available for the majority of Approved Projects, this effect is not able to be quantified. On this basis, it is considered that the in-combination effect with respect to climate change is greater than identified at the project level.

Consideration of Off-Site Improvements

12.199 As set out above, utilities connections will be provided to the Proposed Scheme. Whilst the exact routing and extent of works proposed is unknown at this stage, considering the likely type works proposed, the receptors that may experience an in-combination effect would be residential / commercial receptors due to noise and vibration. During construction, there are is anticipated to be in-combination effects. This is considered to be **Significant**, but the effects are unlikely to be greater than reported in **Chapter 6: Noise and Vibration**, given that such works would be temporary and short-term.

Summary

12.200 An assessment of cumulative effects has been completed considering both effect interactions and in-combination cumulative effects. A summary of the outputs of the assessment for each type of cumulative effect is set out below

Effect Interactions

12.201 The assessment of effect interactions, which considers multiple effects generated by the Proposed Scheme impacting upon the same receptor, identified that effect interactions would be experienced by the population and human health factors / receptor groups for the construction and operational stages and landscape factor / receptor group during the operational stage.

12.202 At the construction stage, there is an effect interaction to the population and human health factor / receptor group. However, given the nature and duration of the effects identified, effect interactions are considered to be no greater than the effects experienced in isolation, which were up to moderate adverse (specifically in relation to daylight, sunlight and overshadowing). The effect interaction is considered to be **Significant**.

12.203 During the operational stage of the Proposed Scheme, there is an effect interaction to the population and human health factor / receptor group. However, these are generally limited to those receptors within or near to the Site (particularly residents). It is these receptors where a number of adverse effects (e.g. noise, reduction in daylight / sunlight amenity, changes in visual amenity, wind and increased demand on healthcare facilities) will interact with beneficial effects (e.g. employment provision and housing and open space provision). Therefore, for a limited number of receptors the effect interaction is considered to be **Significant**, albeit the degree to which overall this is adverse or beneficial will be down to the subjectivity of the individual receptor and the effect interaction is not greater than the effects individually / in isolation.

12.204 In terms of landscape factor / receptor group, there is an effect interaction. However, the Proposed Scheme forms part of the changing and evolving context seen across the City Centre. Therefore, the effect interaction experienced would be no greater than the effects experienced in isolation, which were up to minor to moderate adverse (specifically in terms of changes to townscape character) and minor to moderate beneficial (in respect to open space provision and existing building heights). Therefore, the effect interaction is **Not Significant**.

In-Combination Effects

12.205 The assessment of in-combination effects considered 17 Approved Projects on an environmental topic by topic basis (i.e. **Technical Chapters 6 – 11**).

12.206 A summary of the output of the in-combination assessment is set out within **Table 12.11**.

Table 12.11: Summary of in-combination appraisal

Environmental topic	Summary of appraisal
Noise and vibration	In-combination effects are limited to construction noise and vibration and could be Significant if all works occur concurrently with Approved Projects 1, 3, 9, 14 and 15, although the level of effect experienced is the same as for the project in isolation. This would be experienced at a limited number of receptors: The Century Buildings, Cardinal House, 3 St. Mary's Parsonage, 28 St. Mary's Parsonage. A co-ordinated input into the development of the Proposed Scheme CEMP and then final agreement thereof which will minimise the likelihood of a significant cumulative effect. However, as a worst-case, the in-combination effect would be **Significant**.
Townscape and visual	There is considered to be a degree of intervisibility between and locations where the Site is visible in the same view with Approved Projects 1, 3, 4, 5 and 14. The cumulative effects of the developments in-combination are anticipated to be direct, permanent, long-term and are considered to range from negligible and to minor to moderate adverse. The in-combination effect would be **Not Significant**.
Daylight, sunlight, and overshadowing	The overall daylight and sunlight level of effect / significance remains the same for all properties and amenity areas when compared to the Proposed Scheme in isolation except for 29 Quay Street and The Bridge, 40 Dearman Street, which will experience larger daylight and sunlight alterations when assessed in-combination with the Approved Projects. This changes the level of effect from moderate adverse to major adverse (primarily driven by the combination with the other Approved Projects in addition to the Site's context). This in-combination effect would be **Significant**.
Wind microclimate	No greater in-combination effects are identified with the Approved Projects compared with the effects of the Proposed Scheme in isolation. Therefore, the in-combination effects are **Not Significant**.
Socio-economics and human health	There is an in-combination effect in relation to construction and operational stage employment, housing provision upon completion of the Proposed Scheme. This is greater than the

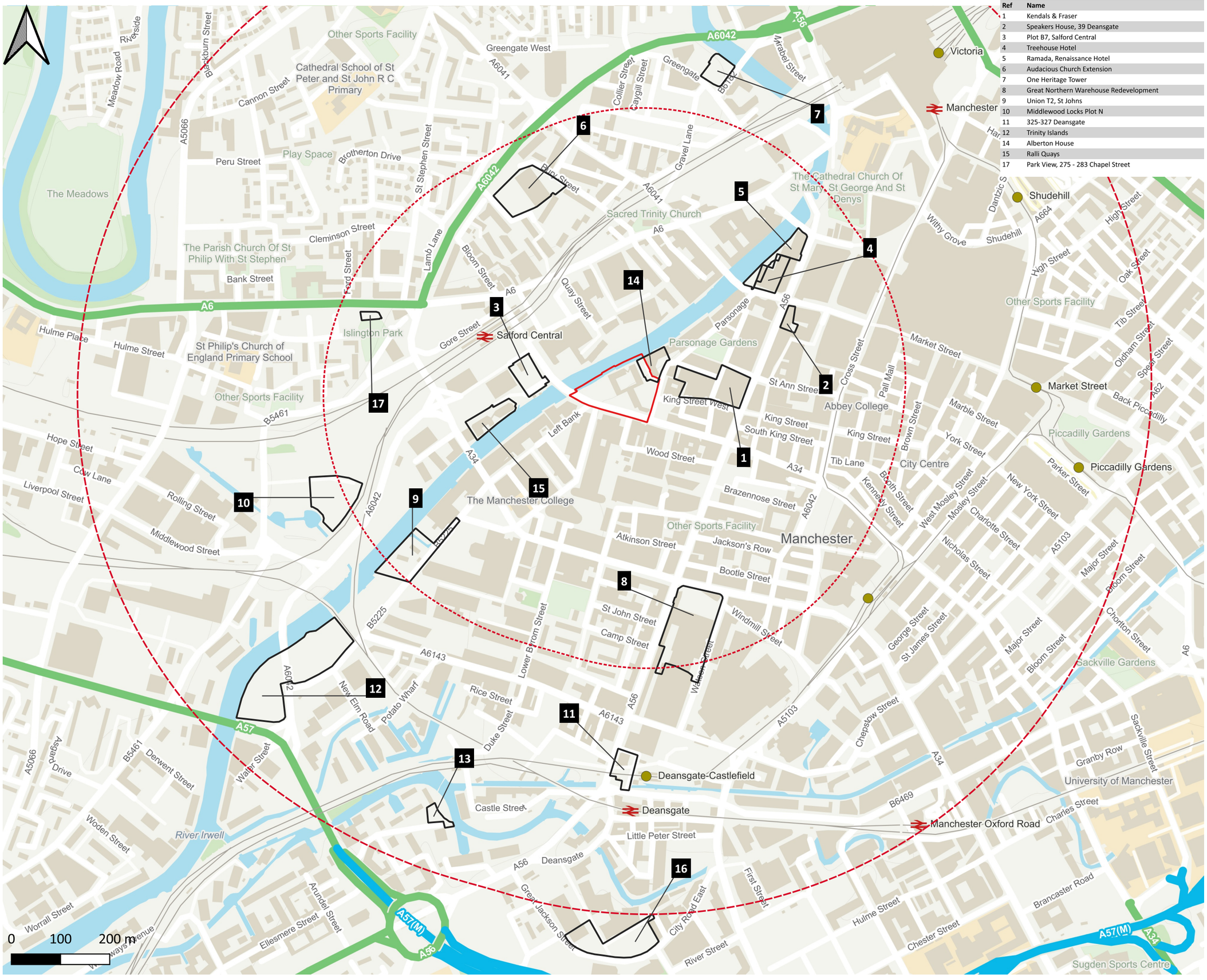
Environmental topic	Summary of appraisal
	effects for the Proposed Scheme in isolation and is considered to be **Significant** and beneficial. In-combination effects in relation to healthcare facilities could be **Significant** and adverse, assuming a worst-case. In-combination effects in relation to open space are anticipated to be no greater than assessed for the Proposed Scheme in isolation and are therefore **Not Significant**.
Climate change	The climatic system, the receptor assessed in **Chapter 11: Climate Change**, is not geographically constrained and as such all projects result in some level of effect on the climate, even where negligible in isolation (such as identified for the operational stage of the Proposed Scheme). Therefore, it is considered that the in-combination effect with respect to climate change is greater than identified for the Proposed Scheme in isolation. Therefore, the in-combination effect is **Significant**.

12.207 In addition, Significant in-combination effects are anticipated with the off-Site utilities connections to the Proposed Scheme.

References

[1] Ministry of Housing, Communities and Local Government (2020) PPG – Environmental Impact Assessment. Available at: https://www.gov.uk/guidance/environmental-impact-assessment [Accessed: 25/08/2022].

[2] BRE (2022) Building Research Establishment Guidelines: 'Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice – BR 209, third edition.



Ref	Name
1	Kendals & Fraser
2	Speakers House, 39 Deansgate
3	Plot B7, Salford Central
4	Treehouse Hotel
5	Ramada, Renaissance Hotel
6	Audacious Church Extension
7	One Heritage Tower
8	Great Northern Warehouse Redevelopment
9	Union T2, St Johns
10	Middlewood Locks Plot N
11	325-327 Deansgate
12	Trinity Islands
14	Alberton House
15	Ralli Quays
17	Park View, 275 - 283 Chapel Street

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Site Boundary

Approved Projects

CLIENT:
Oval Real Estate Ltd.

PROJECT:
Albert Bridge House

DRAWING:
Approved Projects

PROJECT NUMBER:
OVAZ3000

DRAWING NUMBER:
Figure 12.1

CHECKED BY:
ET

REVISION:
1.0

STATUS:
Final

DATE:
December 2022

SCALE:
1:5,900 @ A3

Turley

13. Summary

13.1 The purpose of this Chapter is to provide a summary of the outcome of the assessments reported within **Technical Chapters 6 – 11**.

13.2 The focus is on the following key objectives:

- Provide a summary of residual effects and whether these are Significant or Not Significant; and
- Provide a summary of the assessment of cumulative effects, including how they differ from effects from the Proposed Scheme in isolation and again conclude if these are Significant or Not Significant.

13.3 Through delivering these objectives, MCC should have sufficient information on environmental impacts to inform their decision-making process.

13.4 The residual effects reported in this Chapter rely upon the implementation of the mitigation set out in **Volume 4: Environmental Management Plan**. This is critical as the project team have developed detailed mitigation in order to avoid, resolve or offset impacts.

Summary of Residual and Significant Effects

13.5 Each of the **Technical Chapters 6 – 11** reports the output of the assessment of impacts considered likely to be significant at the EIA scoping stage (unless these have been 'scoped out' since, with supporting justification – further details are provided within the 'Scope of Assessment' section within **Technical Chapters 6 – 11**, where relevant).

13.6 Each Chapter goes on to conclude for each impact the residual level of effect (i.e., negligible, minor, moderate or major) and determination of whether the effect is 'Significant' or 'Not Significant'.

13.7 A consolidated summary of the outputs of the assessment (i.e. the residual level of effect and the judgement on significance) for both the construction and operational stages is set out within **Tables 13.1** and **13.2**, respectively.

13.8 Adverse effects are highlighted in red and beneficial effects are highlighted in green. Negligible effects are provided in black / normal text. The effects identified as 'Significant' are highlighted in **bold**.

13.9 Where levels of effect were individually identified for sensitive receptors or a range was identified across the sensitive receptors assessed in **Technical Chapters 6 – 11** this has been reflected in **Tables 13.1** and **13.2**.

Construction Stage

Table 13.1: Summary of residual and significant effects during construction

Likely significant effect	Receptor	Residual effect
Chapter 6: Noise and Vibration		
Noise emissions from general construction activity	Near existing off-Site residents and the nearest existing commercial receptors: R2, R4, R5, R7, and R19 (existing residential properties)	**Moderate adverse**
	R3, R9, R10, R11, R12, R14, R15, R16, R17 and R18 (existing commercial premises, court buildings and museum)	Minor adverse
	R1, R6, R8 and R20 (existing commercial premises and hotel)	Minor adverse
	R13 (existing restaurant / bar / nightclub premises)	Minor adverse
Vibration transfer from general construction activity	Near existing off-Site residents and the nearest existing commercial receptors: R2, R4, R5, R7 and R19 (existing residential properties)	**Moderate adverse**
	R1, R3, R6 and R8 (existing commercial premises and hotel)	Minor adverse
	R9, R10, R11, R12, R14, R15, R16, R17 and R18 (existing commercial premises, court buildings and museum)	**Moderate adverse**
	R20 (existing commercial premises)	Minor adverse
	R13 (existing restaurant / bar / nightclub)	**Moderate adverse**
Chapter 7: Townscape and Visual – n/a[a]		
Chapter 8: Daylight, Sunlight and Overshadowing – n/a[b]		
Chapter 9: Wind Microclimate – n/a[c]		

[a] All construction stage effects were 'scoped out' for townscape and visual.
[b] Construction stage effects are represented by the operational stage assessments. See **Chapter 8: Daylight, Sunlight and Overshadowing** for further details.
[c] Construction stage effects are represented by the operational stage assessments. See **Chapter 9: Wind Microclimate**.

Likely significant effect	Receptor	Residual effect
Chapter 10: Socio-economics and Human Health		
Temporary employment uplift during the construction stage which will support uplift in GVA	Individuals seeking construction employment and the local economy (through GVA)	Minor beneficial
Chapter 11: Climate Change		
Embodied carbon emissions of buildings	The atmosphere	**Moderate adverse**

13.10 As summarised in **Table 13.1**, out of the four construction stage effects assessed in the ES, three were considered to be adverse and one beneficial. There were no negligible effects identified during the construction stage.

13.11 Three effects were considered to be **Significant** and adverse, and relate to:

- Noise emissions from general construction activity (for one set of receptors);
- Vibration transfer from general construction activity (for three sets of receptors); and
- Embodied carbon emissions of buildings (for one receptor).

13.12 In addition, as noted above, the operational stage assessments for daylight, sunlight and overshadowing and wind microclimate are considered to represent the worst-case construction stage effects. On this basis, there are further three effects, which were considered to be a range of negligible (neither beneficial nor adverse) to adverse, depending on the specific receptor assessed. One significant adverse effect was identified (in relation to daylight and sunlight effects on two sets of receptors).

13.13 No significant beneficial effects were identified during the construction stage.

Operational Stage

Table 13.2: Summary of residual and significant effects during operation

Likely significant effect	Receptor	Residual effect
Chapter 6: Noise and Vibration		

Likely significant effect		Receptor	Residual effect
Introduction of new residents on operational noise practices of existing late night entertainment premises (including music venues)		Existing late night entertainment premises (including music venues): R21, R22, R23 and R24 (existing restaurants / bar / nightclub premises)	Negligible adverse
Existing road and commercial premises noise on the Proposed Scheme		Future on-site residents: R25 (introduced residential properties)	Minor adverse
Chapter 7: Townscape and Visual			
Impact on open space within the Site		Existing open space within the Site	Moderate beneficial
Impact on townscape character within the ZTV and in close proximity to the Site		Existing townscape character within and in close proximity to the Site – Retail Core	Minor to moderate adverse
Impact on existing building height within the Site		Existing building height within the Site	Minor to moderate beneficial
Impact on the residential visual receptors within the ZTV in close proximity to the Site		Residents of dwellings including those adjacent to Clermont-Ferrand Square and on Bridge Street, St. Mary's Parsonage, Left Bank, Albert Bridge / New Bailey Street and King Street West	Minor adverse
Impact on receptors using public open space within the ZTV in close proximity to the Site		Users of local areas of open space including those using Clermont-Ferrand Square, Motor Square and Parsonage Gardens	Minor adverse
Chapter 8: Daylight, Sunlight and Overshadowing			
Alterations to daylight and sunlight levels within sensitive neighbouring properties as a result of the Proposed Scheme	Daylight	The Century Buildings	Negligible
		2 – 18 Left Bank Apartments	Minor adverse
		29 Bailey Street	Minor adverse
		32 Quay Street	**Moderate adverse**
		The Bridge, 40 Dearmans Place	**Moderate adverse**
	Sunlight	The Century Buildings	Negligible
		2 – 18 Left Bank Apartments	Minor adverse
		29 Bailey Street	Minor adverse

Likely significant effect		Receptor	Residual effect
		32 Quay Street	**Moderate adverse**
		The Bridge, 40 Dearmans Place	**Moderate adverse**
Alterations in sunlight to neighbouring amenity spaces due to overshadowing resulting from the Proposed Scheme		Public Amenity Space, 32 Quay Street	Negligible
		Public Amenity Space, Clermont-Ferrand Square	**Moderate adverse**
		Public Amenity Space, Motor Square	Negligible
		The River Irwell	Negligible
Chapter 9: Wind Microclimate			
Potential adverse wind conditions for proposed uses:	Exceedance of the Industry standard Lawson Criteria for pedestrian comfort	Users of thoroughfares, entrances, waiting areas (bus stops) and recreational spaces within and around the Site, where the impact of wind gusts have the potential for the greatest impact on where pedestrian activities are most sensitive to wind and require the most benign conditions (including future residents and site users, pedestrians and cyclists). Receptors G1 – G55 and T1 – T6	Negligible to minor adverse
	Exceedance of the Industry standard Lawson Criteria for pedestrian distress	Users of thoroughfares, entrances, waiting areas (bus stops) and recreational spaces within and around the Site, where the impact of wind gusts have the potential for the greatest impact on where pedestrian activities are most sensitive to wind and require the most benign conditions (including future residents and site users, pedestrians and cyclists). Receptors G1 – G55, T1 –T6	Negligible to minor adverse
Chapter 10: Socio-economics and Human Health			

Likely significant effect	Receptor	Residual effect
Net change in operational employment (and change in GVA)	Individuals seeking employment and the local economy (through GVA)	Minor beneficial
Increase in the number of homes in the assessment area and contribution towards local housing need	Individuals seeking housing	Minor beneficial
Additional demand for healthcare facilities (GP services and dentists) as a result of the uplift population	Healthcare facilities and their patients	Minor adverse
Additional demand for the use of the existing leisure facilities and open / amenity areas within close proximity to the Site	Open space and recreational facilities and their users	Minor beneficial
Chapter 11: Climate Change		
Regulated and unregulated carbon emissions generated by buildings	The atmosphere	Negligible adverse

13.14 As summarised in **Table 13.2**, out of the 15 operational stage effects assessed in the ES, seven were considered to be wholly adverse, five beneficial were considered to be wholly beneficial and three were considered to be a range of negligible (neither beneficial nor adverse) to adverse, depending on the specific receptor assessed.

13.15 Two effects were considered to be **Significant** and adverse, and relate to:

- Alterations to daylight and sunlight levels within sensitive neighbouring properties as a result of the Proposed Scheme (for two receptors in respect to daylight and sunlight); and
- Alterations in sunlight to neighbouring amenity spaces due to overshadowing resulting from the Proposed Scheme (for one receptor).

13.16 No significant beneficial effects were identified.

Summary of Assessment of Cumulative Effects

13.17 An assessment of cumulative effects has been completed within **Chapter 12: Assessment of Cumulative Effects**. The assessment considered the two most common types of cumulative effects; effect interactions and in-combination cumulative effects. A summary of the outputs of the assessment for each type of cumulative effect is set out below.

Assessment of Effect Interactions

13.18 The assessment of effect interactions, which considers multiple effects generated by the Proposed Scheme impacting upon the same receptor, identified that effect interactions would be experienced by the population and human health factors / receptor groups for the construction and operational stages and landscape factor / receptor group during the operational stage.

13.19 At the construction stage, there is an effect interaction to the population and human health factor / receptor group. However, given the nature and duration of the effects identified, effect interactions are considered to be no greater than the effects experienced in isolation, which were up to moderate adverse (specifically in relation to daylight, sunlight and overshadowing). The effect interaction is considered to be **Significant**.

13.20 During the operational stage of the Proposed Scheme, there is an effect interaction to the population and human health factor / receptor group. However, these are generally limited to those receptors within or near to the Site (particularly residents). It is these receptors where a number of adverse effects (e.g. noise, reduction in daylight / sunlight amenity, changes in visual amenity, wind and increased demand on healthcare facilities) will interact with beneficial effects (e.g. employment provision and housing and open space provision). Therefore, for a limited number of receptors the effect interaction is considered to be **Significant**, albeit the degree to which overall this is adverse or beneficial will be down to the subjectivity of the individual receptor and the effect interaction is not greater than the effects individually / in isolation.

13.21 In terms of landscape factor / receptor group, there is an effect interaction. However, the Proposed Scheme forms part of the changing and evolving context seen across the City Centre. Therefore, the effect interaction experienced would be no greater than the effects experienced in isolation, which were up to minor to moderate adverse (specifically in terms of changes to townscape character) and minor to moderate beneficial (in respect to open space provision and existing building heights). Therefore, the effect interaction is **Not Significant**.

Assessment of In-Combination Effects

13.22 The assessment of in-combination effects considered 17 Approved Projects on an environmental topic by topic basis (i.e. **Technical Chapters 6 – 11**).

13.23 A summary of the output of the in-combination assessment is set out within **Table 13.3**.

Table 13.3: Summary of in-combination appraisal

Environmental topic	Summary of appraisal
Noise and vibration	In-combination effects are limited to construction noise and vibration and could be Significant if all works occur concurrently with Approved Projects 1, 3, 9, 14 and 15, although the level of effect experienced is the same as for the project in isolation. This would be experienced at a limited number of receptors: The

Environmental topic	Summary of appraisal
	Century Buildings, Cardinal House, 3 St. Mary's Parsonage, 28 St. Mary's Parsonage. A co-ordinated input into the development of the Proposed Scheme CEMP and then final agreement thereof which will minimise the likelihood of a significant cumulative effect. However, as a worst-case, the in-combination effect would be **Significant**.
Townscape and visual	There is considered to be a degree of intervisibility between and locations where the Site is visible in the same view with Approved Projects 1, 3, 4, 5 and 14. The cumulative effects of the developments in-combination are anticipated to be direct, permanent, long-term and are considered to range from negligible and to minor to moderate adverse. The in-combination effect would be **Not Significant**.
Daylight, sunlight, and overshadowing	The overall daylight and sunlight level of effect / significance remains the same for all properties and amenity areas when compared to the Proposed Scheme in isolation except for 29 Quay Street and The Bridge, 40 Dearman Street, which will experience larger daylight and sunlight alterations when assessed in-combination with the Approved Projects This changes the level of effect from moderate adverse to major adverse (primarily driven by the combination with the other Approved Projects). This in-combination effect would be **Significant**.
Wind microclimate	No greater in-combination effects are identified with the Approved Projects compared with the effects of the Proposed Scheme in isolation. Therefore, the in-combination effects are **Not Significant**.
Socio-economics and human health	There is an in-combination effect in relation to construction and operational stage employment, housing provision upon completion of the Proposed Scheme. This is greater than the effects for the Proposed Scheme in isolation and is considered to be **Significant** and beneficial. In-combination effects in relation to healthcare facilities could be **Significant** and adverse, assuming a worst-case. In-combination effects in relation to open space are anticipated to be no greater than assessed for the Proposed Scheme in isolation and are therefore **Not Significant**.
Climate change	The climatic system, the receptor assessed in **Chapter 11: Climate Change**, is not geographically constrained and as such all projects result in some level of effect on the climate, even where negligible in isolation (such as identified for the operational stage of the Proposed Scheme). Therefore, it is considered that the in-combination effect with respect to climate change is greater than identified for the Proposed Scheme in isolation. Therefore, the in-combination effect is **Significant**.

13.24 In addition, **Significant** in-combination effects are anticipated with the off-Site utilities connections to the Proposed Scheme.