

7-9 PICCADILLY, MANCHESTER, M1 1LZ

Daylight and Sunlight Report

08 November 2021

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1. Introduction

- 1.1. Delva Patman Redler LLP (“we”) have been engaged by the Applicant to assess daylight and sunlight for a planning application for proposed development at 7-9 Piccadilly (“the Site”). We have been instructed to assess the potential effects on neighbouring properties.
- 1.2. Our daylight and sunlight study has been carried out using the assessment methodology recommended in the Building Research Establishment (BRE) Report 209, ‘*Site Layout Planning for Daylight and Sunlight: A guide to good practice*’ (second edition, 2011) (“the BRE guide”) and the Professional Guidance Note, ‘*Daylighting and sunlighting*’ (1st edition, 2012), published by the Royal Institution of Chartered Surveyors.
- 1.3. The Site is located within Manchester City Council. The Site is shown central to the aerial photograph in Figure 1 below and on the location plan in Appendix 2.



Figure 1 - Aerial photo of the Site and neighbouring buildings (© Google)

- 1.4. The proposed development is illustrated in spot-height drawings in Appendix 2. It comprises the sensitive introduction of a third, fourth and fifth floor onto Piccadilly Gardens with a sixth floor set back.
- 1.5. This report is accompanied by Appendices explaining the BRE assessment methodology and containing drawings and tabulated results, as listed on the Contents page.

2. Planning policy and guidance

National Planning Policy and Guidance

National Planning Policy Framework (July 2021)

- 2.1. The National Planning Policy Framework (NPPF) sets out the Government's planning policies and how these should be applied. It provides a framework within which locally prepared plans for housing and other development can be produced. It places an emphasis on sustainable development and delivery of housing.

BRE Report 209, 'Site Layout Planning for Daylight and Sunlight: A guide to good practice' (2011)

- 2.2. The leading publication providing national guidance on the provision of daylight and sunlight to new development, and the impacts of development on daylight and sunlight to neighbouring buildings and open spaces, is BRE Report 209, 'Site Layout Planning for Daylight and Sunlight: A guide to good practice' (second edition, 2011). It is referred to in the development plan documents or supplementary planning documents of most planning authorities.

- 2.3. The BRE guide states:

(Its) main aim is ... to help to ensure good conditions in the local environment, considered broadly, with enough sunlight and daylight on or between buildings for good interior and exterior conditions.

The guide is intended for building designers and their clients, consultants and planning officials. The advice given is not mandatory and the report should not be seen as a part of planning policy. Its aim is to help rather than constrain the designer.

Although it gives numerical guidelines, these should be interpreted flexibly because natural lighting is only one of the many factors in site layout design.

In special circumstances the developer or planning authority may wish to use different target values. For example, in a historic city centre, or in an area with modern high rise buildings, a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings... The calculation methods ... are entirely flexible in this respect.

British Standard, BS EN 17037:2019, 'Daylight in buildings'

- 2.4. British Standard, BS EN 17037:2019, 'Daylight in buildings' provides a standard and methodology by which to assess daylight and sunlight in new buildings. It does not deal with sunlight to open spaces or the effects of development on daylight and sunlight to existing neighbouring buildings.

3. Acceptability of daylight/sunlight levels and impacts

- 3.1. The assessment of impact on daylight and sunlight amenity is a two-part process¹: first, as a matter of calculation, whether there would be a material deterioration in conditions by reference to the BRE guidelines; and second, as a matter of judgment, whether that deterioration would be acceptable in the circumstances.
- 3.2. The first stage can be addressed by applying the BRE assessment methodology and numerical guidelines. The second stage brings into play much wider considerations, such as:
- i) Whether the neighbouring building stands unusually close to the site boundary, including the highway, taking more than its fair share of light, such that a greater reduction in light may be unavoidable if one site is not to be prejudiced by how another has been developed. (A 'mirror-image' study can be informative in such cases.)
 - ii) Whether windows in neighbouring buildings are self-obstructed by overhanging or inset balconies or other projections such as to make relatively larger reductions unavoidable even if there is a modest new obstruction opposite - in effect themselves taking away more than their fair share of light. (A 'without balconies' study can be informative in such cases.)
 - iii) In historic city centres or areas characterised by modern tall buildings, high density and close proximity, a higher degree of obstruction may be unavoidable if new buildings are to match the height and proportion of existing buildings.
 - iv) In areas that are designated by planning authorities for substantial growth or providing opportunities for change and sustainable regeneration, the sort of change that would be brought about by the introduction of taller, denser development is to be expected, including reductions in daylight and sunlight levels, closer proximity, loss of outlook, etc.
- 3.3. Where a higher degree of obstruction may be unavoidable it is appropriate to consider the reasonableness of the retained levels of daylight and sunlight with the proposed development in place.

¹ Rainbird, R (on the application of) v The Council of the London Borough of Tower Hamlets [2018]

4. Assessment methodology and numerical guidelines

- 4.1. The technical assessments that underpin this daylight and sunlight study have been carried out in accordance with the assessment methodology recommended in the BRE guide.
- 4.2. The principal assessments and numerical criteria are summarised below. A fuller explanation of the assessment methodology is given at Appendix 1 of this report.
- 4.3. British Standard, BS EN 17037:2019, '*Daylight in buildings*' provides an alternative method for assessing daylight and sunlight in new buildings; however, it does not cover impacts on existing neighbouring buildings or sunlight to open spaces. The BRE guide does and is the leading publication providing national guidance and is referred to in development plan documents or supplementary planning documents of most planning authorities. We have therefore followed the methodologies in the BRE guide.

Existing neighbouring buildings and amenity spaces

Daylight to neighbouring buildings

- 4.4. If the head of the new development subtends an angle of more than 25° measured from the centre of the lowest affected window in an existing neighbouring building in a plane perpendicular to the window wall, then a more detailed check is needed to find the loss of skylight.
- 4.5. The more detailed tests are:
 - i) vertical sky component (**VSC**) at the centre of each main window, which measures the total amount of skylight available; and
 - ii) no-sky line (**NSL**) on the working plane inside a room, where room layouts are known, which measures the area that can receive direct skylight and assesses the distribution of daylight around the room.
- 4.6. Loss of daylight resulting from development will be noticeable if either:
 - the VSC at the centre of the window will be reduced to both less than 27% and less than 0.8 times its former value, or
 - the area of the working plane in a room that is enclosed by the no-sky line (NSL) and can receive direct skylight will be reduced to less than 0.8 times its former value.
- 4.7. The VSC test need only be run where room layouts are known, for example from planning or estate agents' records. The author of the BRE Guide, Dr Littlefair, recommends not running the NSL test using estimated layouts because it can give inaccurate findings.²
- 4.8. In respect of these numerical guidelines, the BRE guide states:

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 layout constraints.

- 4.9. In respect of the windows and rooms to be assessed, the BRE guide states:

The guidelines given here are intended for use for rooms in adjoining dwellings where daylight is required, including living rooms, kitchens and bedrooms.

- 4.10. In housing, living rooms, dining rooms and kitchens have a greater requirement for daylight. Bedrooms should also be analysed but are less important. Bathrooms, stairwells and other areas without a requirement for daylight need not be assessed.

² BRE Client Report dated 5 March 2019 for a review at Reardon and Lowder Houses, Wapping on behalf of London Borough of Tower Hamlets (Planning application reference PA/18/03541/A1)

- 4.11. For a bay window, the centre window facing directly outwards can be taken as the main window for the VSC calculation. If a room has two or more windows of equal size, the mean of their VSCs may be taken.

Sunlight to neighbouring buildings

- 4.12. In designing new development, care should be taken to safeguard the access to sunlight for existing dwellings and any nearby non-domestic buildings where there is a particular requirement for sunlight.
- 4.13. Obstruction to sunlight may become an issue if part of the development is situated within 90° of due south of a main window wall of an existing building, and in the section drawn perpendicular to this existing window wall, the new development subtends an angle greater than 25° to the horizontal measured from the centre of the lowest window to a main living room.
- 4.14. The amount of sunlight reaching a room is measured by calculating the percentage of annual probable sunlight hours (**APSH**) at the centre its windows.
- 4.15. If, following development, the APSH will be greater than 25%, including at least 5% of APSH in the winter months between 21 September and 21 March, then the room should still receive enough sunlight.
- 4.16. Sunlight will be adversely affected if the centre of the window will:
- receive less than 25% APSH or less than 5% APSH during the winter months (21 September to 21 March); and
 - less than 0.8 times its former sunlight hours during either period; and
 - the reduction in sunlight over the whole year will be greater than 4% APSH.
- 4.17. All main living rooms of dwellings, and conservatories, should be checked if they have a window facing within 90° of due south.
- 4.18. When asked to clarify whether bedrooms should be assessed, the author of the BRE guide, Dr Paul Littlefair, wrote:
- “The BRE Report ‘Site layout planning for daylight and sunlight: a guide to good practice’ recommends that ‘all main living rooms of dwellings, and conservatories, should be checked if they have a window facing within 90° of due south. Kitchens and bedrooms are less important, although care should be taken not to block too much sun.’ Normally we would not include loss of sunlight to bedrooms in a detailed analysis; and loss of sunlight to bedrooms would not be treated as a material issue except in bedrooms that also comprised a living space, for example a bed sitting room in an old people’s home. Loss of diffuse daylight to bedrooms does need to be taken into account, as stated in paragraph 2.2.2 of the BRE Report.”³*
- 4.19. Our assessment has therefore assessed the loss of sunlight to living rooms, conservatories and winter gardens.

³ BRE letter dated 16 December 2014

5. Categorisation of magnitudes of impact and significance of effects

- 5.1. In our summary tables, we have counted the number of impacts that would be inside and outside the BRE guidelines and categorised the latter according to their magnitude of impact. There is no industry-standard scale and this study adopts the approach in Table 1 below.

Table 1 – Categorisation of magnitudes of impact on existing neighbouring properties

Impact inside BRE guidelines	Impact outside BRE guidelines		
	0.70-0.79 times former value (21% to 30% loss)	0.60-0.69 times former value (31% to 40% loss)	<0.60 times former value (>40% loss)
Negligible impact	Low adverse impact	Medium adverse impact	High adverse impact

- 5.2. To understand the significance of effect on a building, it is necessary to consider both the number and magnitude of impacts and a range of other factors. Appendix I of the BRE guide, which is intended for use in Environmental Impact Assessments, provides the following advice on ascribing significance to effects:

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.

The assessment of impact will depend on a combination of factors, and there is no simple rule of thumb that can be applied.

Where the loss of skylight or sunlight fully meets the guidelines, 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 impact 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 and sunlight in the affected building or open space.

Where the loss of skylight or sunlight does not meet the guidelines, the impact is assessed as minor, moderate or major adverse. Factors tending towards a minor adverse impact 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 requirement for skylight or sunlight; and*
- *there are particular reasons why an alternative, less stringent, guideline should be applied.*

Factors tending towards a major 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; and*
- *the affected indoor or outdoor spaces have a particularly strong requirement for skylight or sunlight, e.g. a living room in a dwelling or a children's playground.*

6. Scope of the assessment

Neighbouring buildings

- 6.1. The principal recommendations in the BRE guide relate to residential buildings. Its guidelines on daylight are intended for use for rooms in neighbouring dwellings where daylight is required, including living rooms, kitchens and bedrooms (BRE paragraph 2.2.2). Its guidelines on sunlight apply to all main living rooms of neighbouring dwellings and conservatories that have a window facing within 90° of due south (BRE paragraph 3.2.3).
- 6.2. Consequently, our assessment has been scoped to include nearby residential accommodation, as is common practice for studies for planning applications.
- 6.3. We identified the properties that are in residential use from a site visit and online research, including the Valuation Office Agency council tax list, local authority planning records, and estate agency websites.
- 6.4. We have run the BRE daylight and sunlight tests in the existing baseline and proposed development scenarios. This establishes the levels that would be retained in the proposed development condition and the degree to which they change from the existing baseline.
- 6.5. It is also noted that the neighbouring site at Rylands Buildings, 109-125 Market Street has also obtained planning consent which includes a four-storey roof-top extension for office use. As this scheme has obtained planning consent an additional cumulative assessment has been considered and reported on. The separate results of this cumulative study are presented in Appendix 4.

7. Information used in our technical study

- 7.1. We have undertaken our technical study using a 3D computer model built in AutoCAD and specialist analysis software, which runs the assessments recommended in the BRE guide.
- 7.2. We compiled our 3D computer model from the following information:
- 7.2.1. 3D computer model of the existing buildings on the Site and the contextual massing produced from photogrammetry (aerial photography) supplied by AccuCities Ltd, subsequently enhanced by us with the more detailed information listed below
 - 7.2.2. Measured survey model point cloud produced by our in-house measured survey team in September 2021
 - 7.2.3. Floor plans for neighbouring buildings, where available
 - 7.2.4. Proposed development: 3D model supplied by 5Plus Architecture in October 2021 (file name: 05936_Building Model_211019.skp)
- 7.3. To aid accuracy of the assessment and interpretation of the results, we carried out online searches to obtain the floor plans for the neighbouring buildings referred to above, including from online planning application records and general estate agency websites. This is the approach recommended in the Professional Guidance Note, 'Daylighting and sunlighting' (1st edition, 2012), published by the Royal Institution of Chartered Surveyors, which states:

As a minimum, and subject to any limitations relating to a client instruction, surveyors should undertake searches of the local authority's planning portal to establish existing or proposed room layouts of neighbouring properties if they are available. This will ensure a robust approach and enable the surveyor to produce reliable information for daylight distribution analysis, or if average daylight factor (ADF) tests are appropriate ... Surveyors should also use the internet to search for other relevant information, including estate agent details, which commonly include plans of properties that can also be useful in determining a room layout or use.

- 7.4. Our research yielded the information listed in **Table 2** below. The plan ref. refers to the numbering on the location plan at Appendix 2.

Table 2 - Information on internal layouts of neighbouring properties

Plan ref.	Neighbouring property	Information used
1	11 Tib Street	Plans from planning archive
2	15 Piccadilly	Lease Plans
6	17 Piccadilly	Lease Plans

- 7.5. Where we found plans for neighbouring properties, we used them to model their rooms.
- 7.6. Our 3D computer model is shown on our spot-height drawings at Appendix 2.

Limitations and assumptions

- 7.7. In compiling our 3D computer model for our technical study, we have sought to be as accurate as reasonably possible within the scope of our instruction. We have relied upon the information noted above.
- 7.8. Whilst we have used plans for neighbouring buildings where available, we have typically made reasonable assumptions as to their internal floor levels and wall thicknesses.
- 7.9. We have used proven and trusted specialist computer software (Waldram Tools for AutoCAD®) to run the calculations recommended in the BRE guide.

- 7.10. To the best of our knowledge, the information and advice contained in this report is accurate at the date of issue, based on the information provided to or procured by us prior to its production.

8. Baseline condition for neighbouring properties

- 8.1. We have assessed the impacts of the proposed development relative to the existing baseline condition.
- 8.2. The existing baseline scenario and the proposed development scenario are shown on our spot-height drawing nos. EX1_001 and PRO_001 respectively at Appendix 2.
- 8.3. The daylight and sunlight levels in the existing baseline and proposed development conditions are shown in the results tables Appendix 3.
- 8.4. The levels in the proposed scenario are then compared with those in the baseline scenario so that the loss of natural light can be quantified and compared with the BRE numerical guidelines.
- 8.5. Window maps for the assessed buildings are attached at Appendix 2.

9. Effects of the proposed development on neighbouring properties

9.1. We assessed the effects of the proposed development on the following properties:

- 11 Tib Street
- 15 Piccadilly
- 17 Piccadilly

Daylight to neighbouring properties

VSC and NSL

9.2. The results of the VSC and NSL analyses of the neighbouring properties are tabulated in Appendix 3 and summarised in Table 3 below.

Table 3 – Summary of VSC and NSL effects as a result of the proposed development

Property address	No. of windows tested	No. of rooms tested	No. rooms inside VSC & NSL guidelines	VSC (windows)					NSL (rooms)				
				No. windows inside guidelines	No. windows outside guidelines				No. rooms inside guidelines	No. rooms outside guidelines			
					Low reduction	Medium reduction	High reduction	Sub-total		Low reduction	Medium reduction	High reduction	Sub-total
11 Tib Street	186	144		186	-	-	-	-	144	-	-	-	-
15 Piccadilly	12	6		12	-	-	-	-	6	-	-	-	-
17 Piccadilly	13	8		13	-	-	-	-	8	-	-	-	-
Totals:	211	158		211	0	0	0	0	158	0	0	0	0
				100%	0%	0%	0%	0%	100%	0%	0%	0%	0%

9.3. Of the 211 windows serving 158 habitable rooms assessed in the 3 neighbouring properties they will all (100%) fully achieve the VSC and NSL assessment guidelines.

9.4. The cumulative assessment also demonstrates 100% compliance of the assessment guidelines.

Sunlight to neighbouring properties

9.5. The results of the annual and winter sunlight analyses are tabulated in Appendix 3 and summarised Table 4 below.

Table 4 – Number of rooms experiencing APSH effects as a result of the proposed development

Property address	No. of rooms tested	No. inside APSH annual & winter guidelines	APSH - annual (rooms)					APSH - winter (rooms)				
			No. outside annual guidelines				Sub-total	No. outside winter guidelines				Sub-total
			Low reduction	Medium reduction	High reduction			Low reduction	Medium reduction	High reduction		
11 Tib Street	56	56	-	-	-	-	-	-	-	-	-	-
15 Piccadilly	-	-	-	-	-	-	-	-	-	-	-	-
17 Piccadilly	4	4	-	-	-	-	-	-	-	-	-	-
Totals:	60	60	0	0	0	0	0	0	0	0	0	0
			100%	0%	0%	0%	0%	0%	0%	0%	0%	0%

9.6. Table 4 shows that of the 60 rooms assessed in the three neighbouring properties, all 60 (100%) would satisfy the BRE guidelines for both annual and winter APSH.

9.7. The cumulative assessment also demonstrates 100% compliance of the assessment guidelines.

10. Conclusion

- 10.1. The Site is in an urban location in the centre of Manchester to the north of Piccadilly Gardens
- 10.2. We assessed the potential effects of the proposed development on daylight and sunlight to surrounding residential properties and amenity spaces.
- 10.3. We ran our assessments using methodologies recommended in the BRE guide.
- 10.4. The advice contained in the BRE guide is not mandatory and its numerical guidelines should be interpreted flexibly.
- 10.5. The VSC and NSL daylight analyses undertaken both demonstrate 100% compliance with the assessment guidelines.
- 10.6. The APSH and winter sunlight analyses undertaken both demonstrate 100% compliance with the assessment guidelines.
- 10.7. The cumulative assessment also demonstrates 100% compliance of the daylight and sunlight assessment guidelines.
- 10.8. In conclusion, it is submitted that the layout of the proposed development is consistent with the Council's local planning policy on daylight and sunlight.

Delva Patman Redler LLP
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Appendix 1

Assessment methodology and glossary

1. This appendix explains the daylight and sunlight assessment methodology recommended in BRE Report 209, 'Site Layout Planning for Daylight and Sunlight: A guide to good practice' (2011) and provides a glossary of the terminology used.

Assessment methodology

Daylight and sunlight to neighbouring buildings and amenity spaces

Daylight to neighbouring buildings

2. The BRE guide states:

In designing a new development or extension to a building, it is important to safeguard the daylight to nearby buildings.

The guidelines given here are intended for use for rooms in adjoining dwellings where daylight is required, including living rooms, kitchens and bedrooms. Windows to bathrooms, toilets, storerooms, circulation areas and garages need not be analysed. The guidelines may also be applied to any existing non-domestic building where the occupants have a reasonable expectation of daylight; this would normally include schools, hospitals, hotels and hostels, small workshops and some offices.

3. To quantify the impact of development on daylight to a building, the BRE guide recommends two tests:
 - a) calculating the vertical sky component (**VSC**) at the centre of each main window on the outside plane of the window wall, to measure the total amount of skylight available to the window; and
 - b) plotting the no-sky line (**NSL**) on the working plane inside a room, where layouts are known, and measuring the area that can receive direct skylight, to assess the distribution of daylight around the room.
4. The VSC measures the skylight available at the window. The guide states:

Any reduction in the total amount of skylight can be calculated by finding the VSC at the centre of each main window ... For a bay window, the centre window facing directly outwards can be taken as the main window. If a room has two or more windows of equal size, the mean of their VSCs may be taken. The reference point is in the external plane of the window wall. Windows to bathrooms, toilets, storerooms, circulation areas and garages need not be analysed.

5. The NSL test is described thus:

Where room layouts are known, the impact on the daylighting distribution in the existing building can be found by plotting the 'no sky line' in each of the main rooms. For houses this would include living rooms, dining rooms and kitchens; bedrooms should also be analysed although they are less important. In non-domestic buildings each main room where daylight is expected should be investigated. The no sky line divides points on the working plane which can and cannot see the sky.

6. If, following development, the VSC to a neighbouring window will be greater than 27% then enough skylight should still be reaching the window. Any reduction below this level should be kept to a minimum. If the VSC will be 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 is likely to appear more gloomy and electric lighting will be needed more of the time.
7. If, following development, the no-sky line moves so that the area of the existing room that can receive direct skylight will be reduced to less than 0.8 times its former value, this will be noticeable to the

occupants and more of the room will appear poorly lit. This is also true if the no-sky line encroaches on key areas like kitchen sinks and worktops.

Sunlight to neighbouring buildings

8. The BRE guide states:

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. Kitchens and bedrooms are less important, although care should be taken not to block too much sun.

A point at the centre of the window on the outside face of the window wall may be taken [as the calculation point].

9. To quantify the available sunlight, the BRE guide advises measuring the percentage of annual probable sunlight hours (**APSH**), which is defined as follows:

'probable sunlight hours' means the total number of hours in the year that the sun is expected to shine on unobstructed ground, allowing for average levels of cloudiness for the location in question.

10. The assessment calculates the percentage of APSH over the whole year (annual sunlight) and between 21 September and 21 March (winter sunlight).
11. If, following development, the APSH to a neighbouring window will be greater than 25%, including at least 5% of APSH in the winter months between 21 September and 21 March, then the room should still receive enough sunlight. Any reduction in sunlight access below this level should be kept to a minimum.
12. If the available sunlight hours will be both less than the above amounts and less than 0.8 times their former value, either over the whole year or just in the winter months, then the occupants of the building will notice the loss of sunlight; if the overall annual loss is greater than 4% of APSH, the room may appear colder and less cheerful and pleasant.

Glossary of terms

13. The daylight and sunlight terminology used in our report is explained below.

Term	Meaning
Annual probable sunlight hours (APSH)	The long-term average of the total number of hours during a year in which direct sunlight is expected to shine on the unobstructed ground, allowing for average levels of cloudiness for the location in question.
Average daylight factor (ADF)	Ratio of total daylight flux incident on the working plane to the area of the working plane, expressed as a percentage of the outdoor illuminance on a horizontal plane due to an unobstructed CIE standard overcast sky. Thus a 1% ADF would mean that the average indoor illuminance would be one hundredth the outdoor unobstructed illuminance.
Daylight	Combined skylight and sunlight.
No-sky line (NSL)	The outline on the working plane of the area from which no sky can be seen. It divides points on the working plane which can and cannot see the sky.
Obstruction angle	The angular altitude of the top of an obstruction above the horizontal, measured from a reference point in a vertical plane in a section perpendicular to the vertical plane.
Room depth criterion (RDC)	The limiting depth of a room for good daylighting, where it is lit from one side only. The limiting depth is a factor of the window head height above floor level, the room width, and the average reflectance of surfaces in the rear half of the room (away from the window). Sunlight below an angle of
Sky factor	Ratio of the parts of illuminance at a point on a given plane that would be received directly through unglazed openings from a sky of uniform luminance, to illuminance on a horizontal plane due to an unobstructed hemisphere of this sky. The sky factor does not include reflected light, either from outdoor or indoor surfaces.
Sun on ground (SOG)	The measure of sunlight potential to gardens and amenity spaces. It is measured in hours on the spring equinox (21 March) at a point on the ground accounting for the latitude of the site location. Sunlight below an altitude of 10° is usually discounted as it is likely to be prevented from reaching the ground by fences, plants or other low-level obstructions.
Vertical sky component (VSC)	The amount of daylight falling on a vertical wall or window. It is the ratio of that part of illuminance, at a point on a given vertical plane (e.g. window), that is received directly from a CIE standard overcast sky, to simultaneous illuminance on a horizontal plane due to an unobstructed hemisphere of this sky. The VSC does not include reflected light, either from the ground or from other buildings. The ratio is usually expressed as a percentage. The maximum value is almost 40% for a completely unobstructed vertical wall.
Working plane	Horizontal, vertical or inclined plane in which a visual task lies. Normally the working plane may be taken to be horizontal, 0.85 m above the floor in housing.

Appendix 2

Location drawings

Site location plan
Spot-height drawings
Window maps
Room location plans



NEIGHBOURING
PROPERTIES CONSIDERED
FOR ANALYSIS

- 1: 11 Tib Street:
Dwg No: 21302-LOC-001
- 2: 15 Piccadilly:
Dwg No: 21302-LOC-002
- 3: 17 Piccadilly:
Dwg No: 21302-LOC-002

NO DIMENSIONS TO BE SCALED
FROM THIS DRAWING

KEY:

	Existing		Consented
	Proposed		Cumulative
	Neighboring Property		Cutback Envelope

SOURCE DATA:
Existing and surrounding buildings
DPR measured survey
14-10-2021-21302-21573-7-9 Piccadilly,
Manchester-MASTER MODEL.dwg

NOTES:

REV	Description	Drawn	Date

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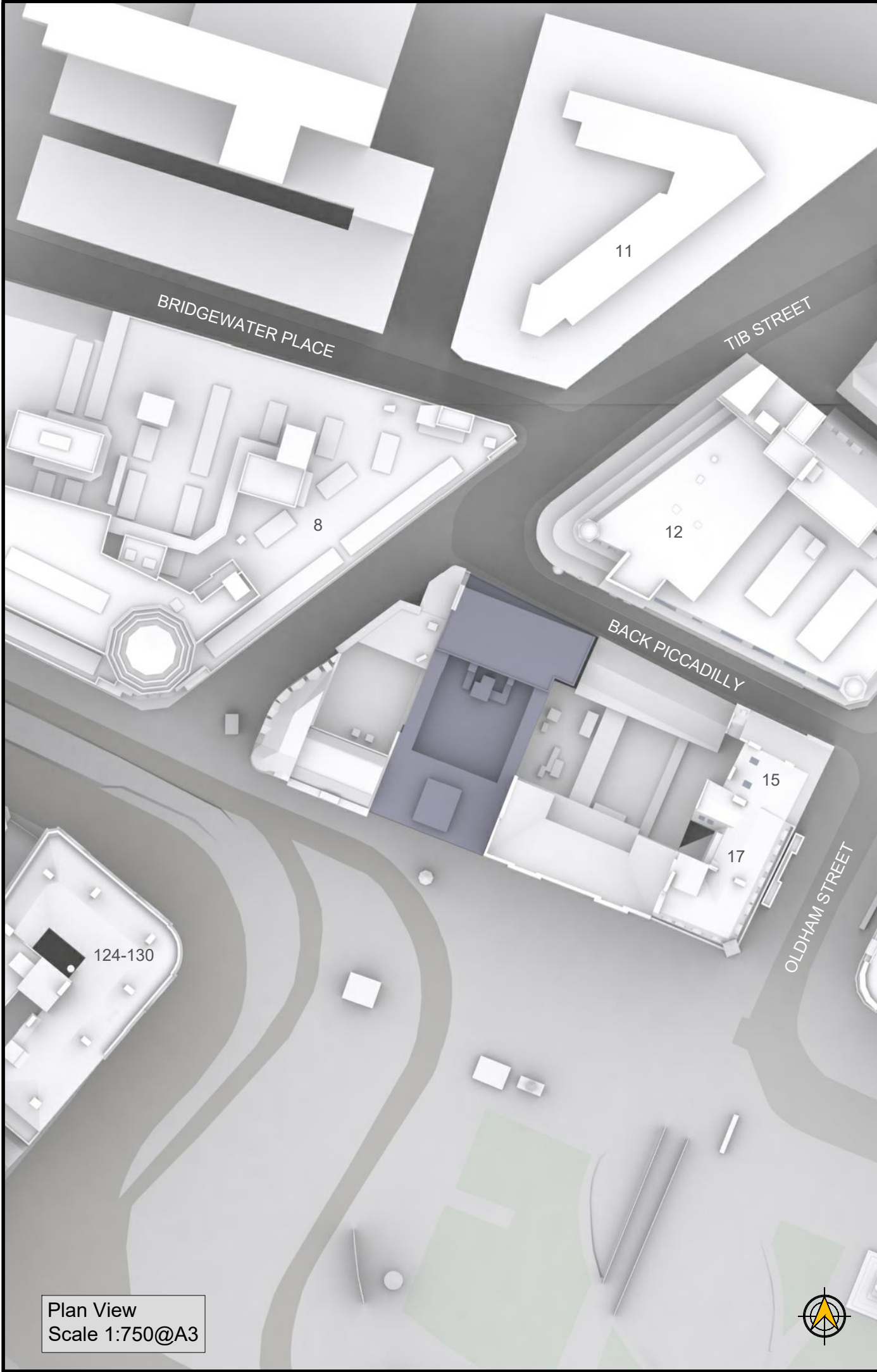
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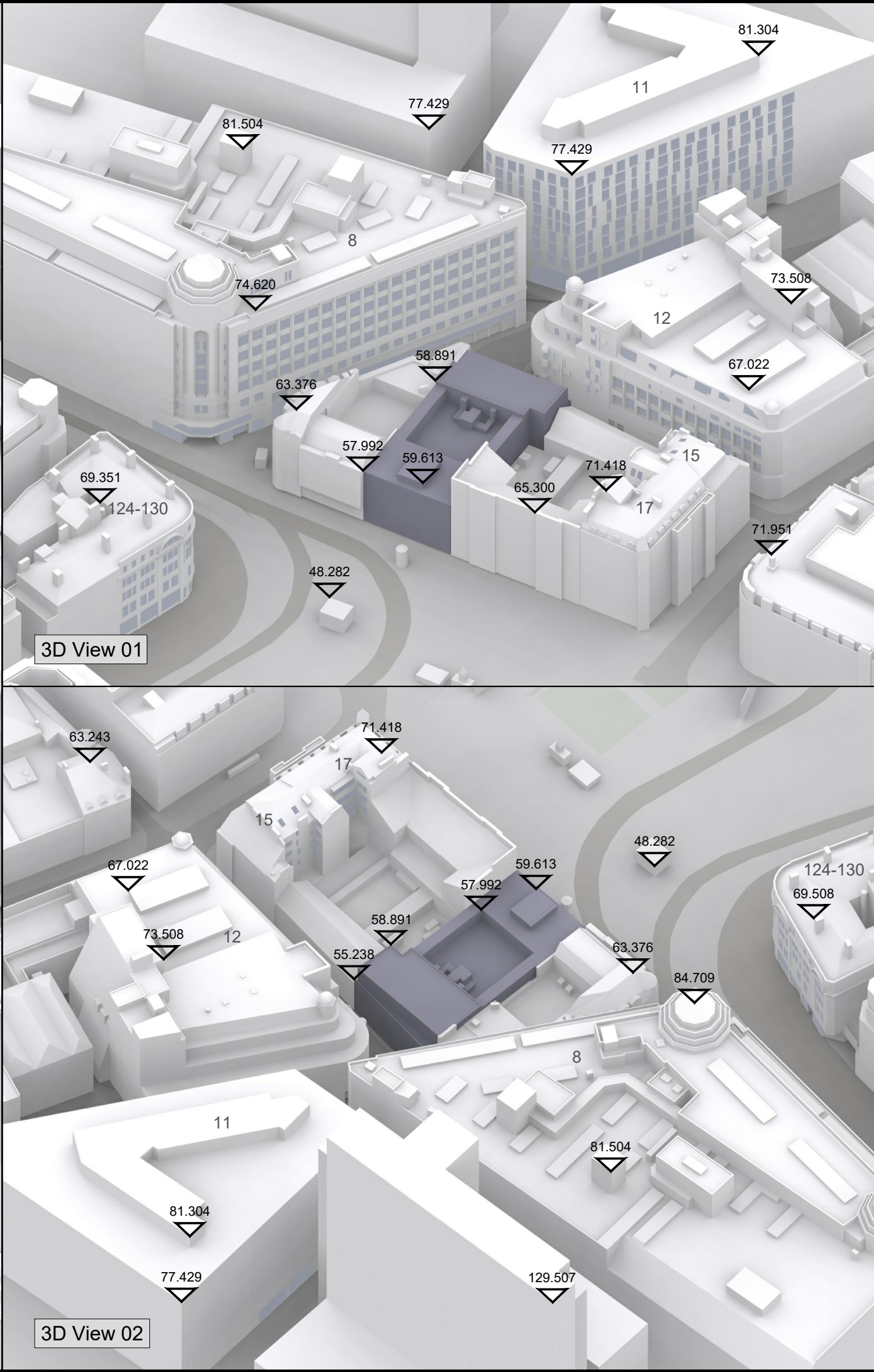
TITLE:
7-9 PICCADILLY
MANCHESTER, M1 1LZ

DRAWING:
LOCATION PLAN
Daylight and Sunlight

DRAWN: IM	JOB NBR:	REV:
SCALE: 1:750@A3	21302	-
DATE: 22.10.2021	DWG NO:	
	LOC-DS-001	



Plan View
Scale 1:750@A3

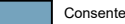
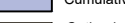


3D View 01

3D View 02

NO DIMENSIONS TO BE SCALED
FROM THIS DRAWING

KEY:

	Existing		Consented
	Proposed		Cumulative
	Neighboring Property		Cutback Envelope

SOURCE DATA:
Existing and surrounding buildings
DPR measured survey
14-10-2021-21302-21573-7-9 Piccadilly,
Manchester-MASTER MODEL.dwg

NOTES:
All heights given in m AOD

REV	Description	Drawn	Date

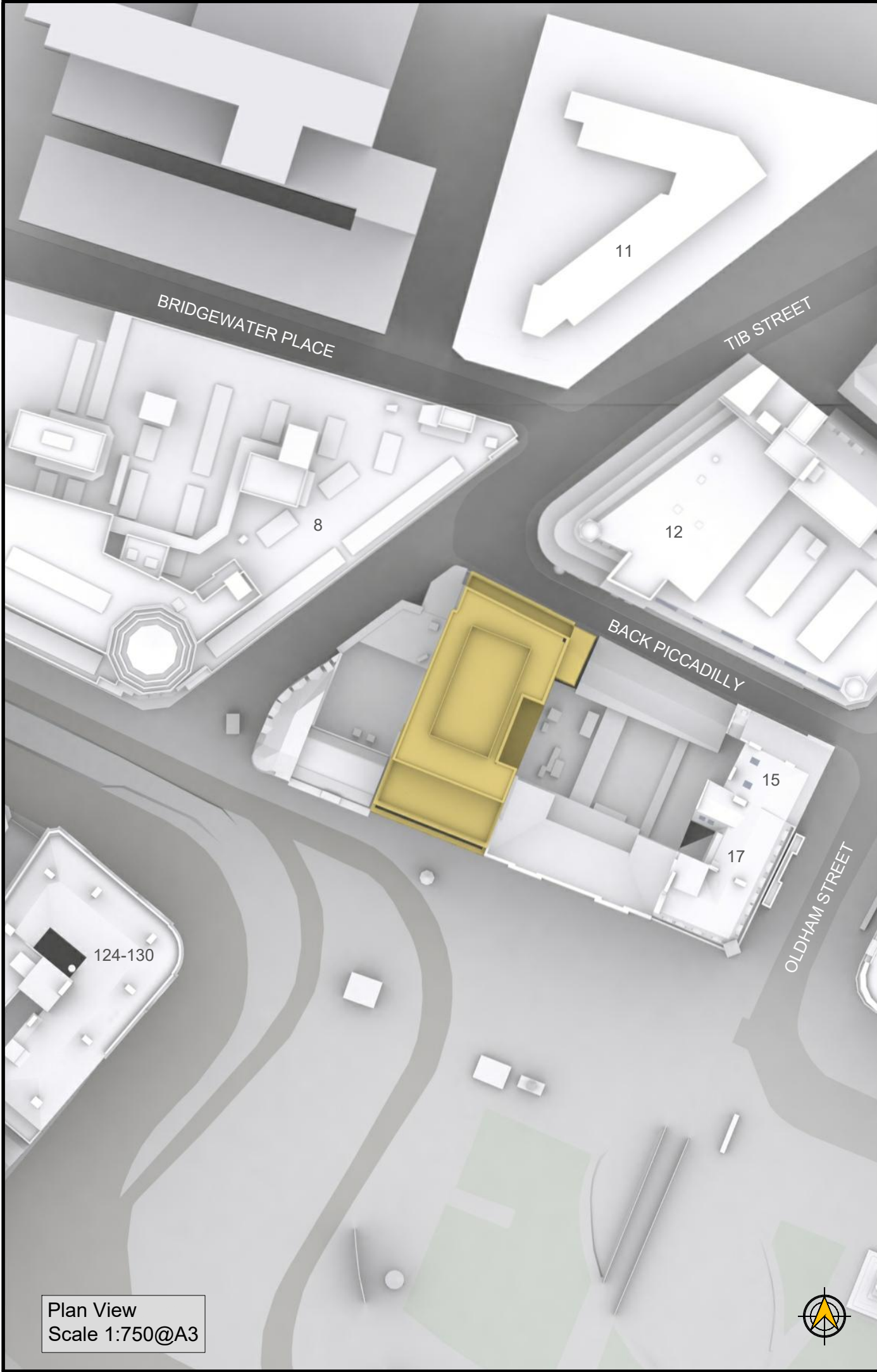
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Chartered Surveyors

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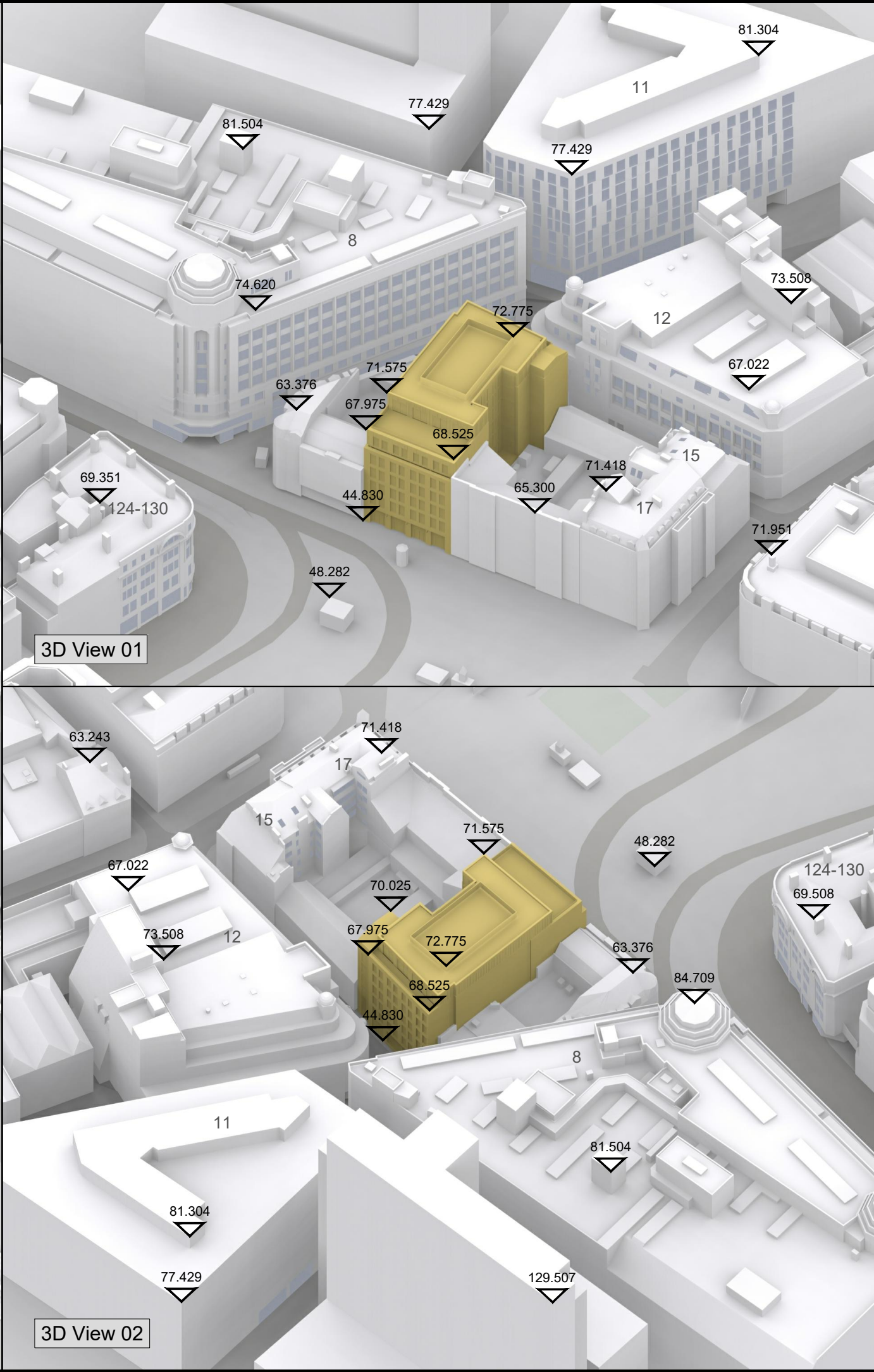
TITLE:
7-9 PICCADILLY
MANCHESTER, M1 1LZ

DRAWING:
EXISTING SCENARIO
Plan and 3D Views

DRAWN: IM	JOB NBR:	REV:
SCALE: NTS	21302	-
DATE: 22.10.2021		
DWG NO:	EX-001	



Plan View
Scale 1:750@A3

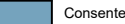
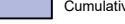


3D View 01

3D View 02

NO DIMENSIONS TO BE SCALED
FROM THIS DRAWING

KEY:

	Existing		Consented
	Proposed		Cumulative
	Neighboring Property		Cutback Envelope

SOURCE DATA:
Existing and surrounding buildings
DPR measured survey
14-10-2021-21302-21573-7-9 Piccadilly,
Manchester-MASTER MODEL.dwg

Proposed scheme:
5plus architects
3D model received 21.10.2021
05936_Building Model_211019.skp
Drwg no's:
05936_B1_04_2200 RevB, 05936_B1_04_2201,
05936_B1_04_2202 RevB, 05936_B1_04_2203

NOTES:
All heights given in m AOD

REV	Description	Drawn	Date

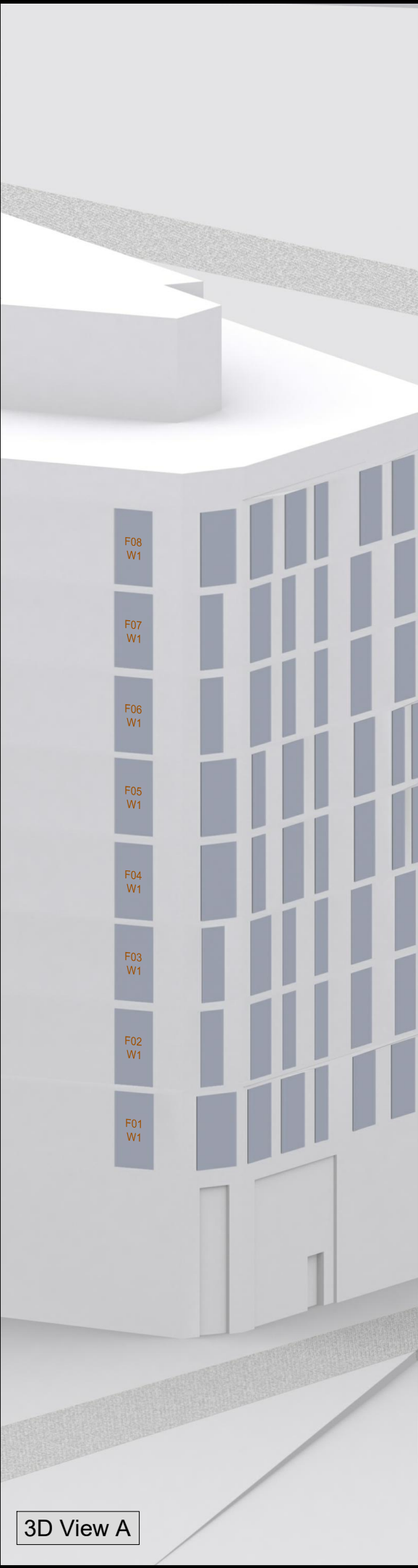
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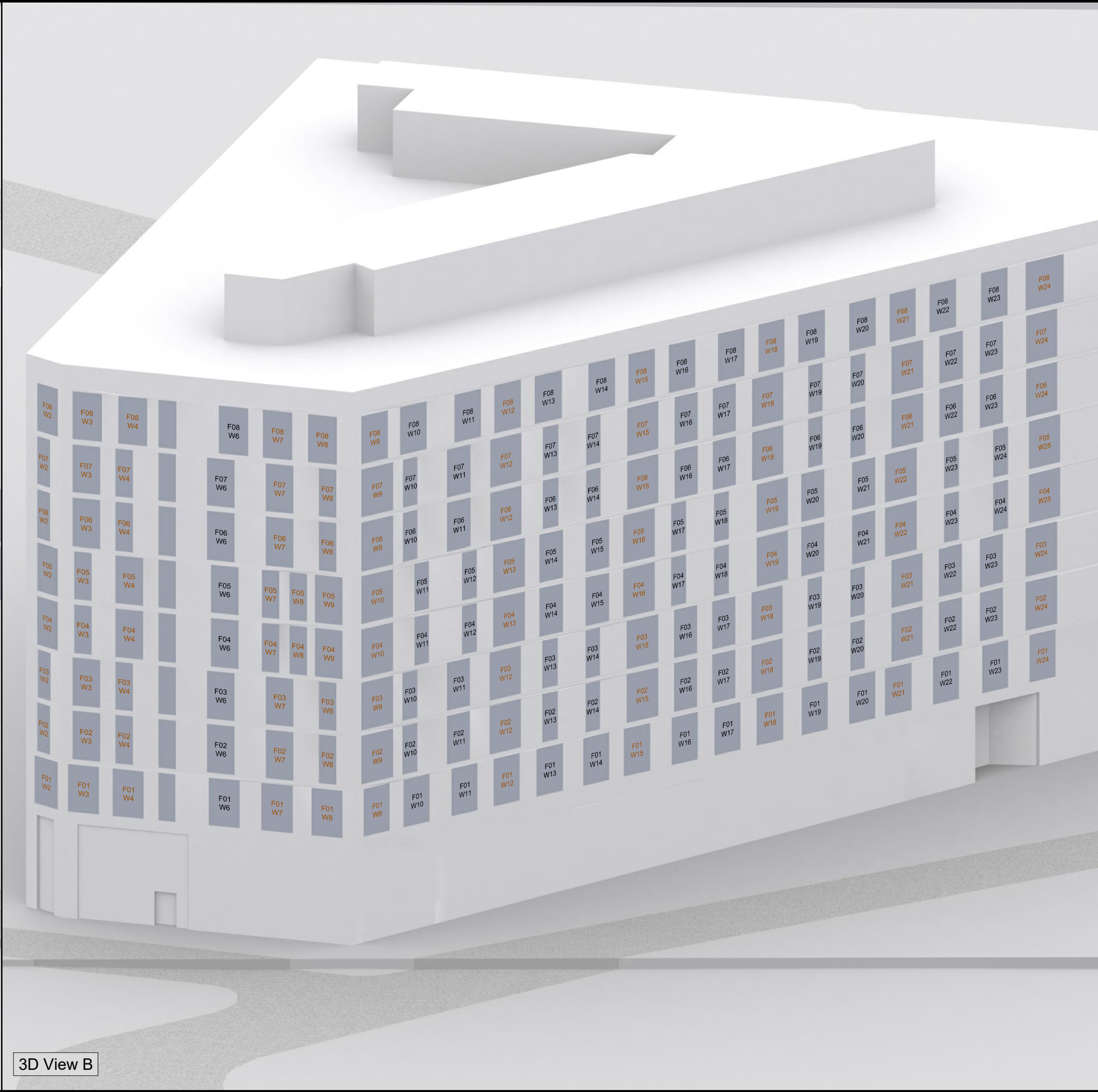
TITLE:
7-9 PICCADILLY
MANCHESTER, M1 1LZ

DRAWING:
PROPOSED SCENARIO
Plan and 3D Views

DRAWN: IM	JOB NBR:	REV:
SCALE: NTS	21302	-
DATE: 22.10.2021		
DWG NO:	PR-001	



3D View A



3D View B

NO DIMENSIONS TO BE SCALED
FROM THIS DRAWING

KEY:

W1

Windows tested
Daylight only

W1

Windows tested
Daylight & Sunlight

SOURCE DATA:

Existing and surrounding buildings
DPR measured survey
14-10-2021-21302-21573-7-9 Piccadilly,
Manchester-MASTER MODEL.dwg

NOTES:

Layouts obtained from local
authority website
IDP Architects
Drwg no's:
C2814-03-001-K, C2814-03-002-D to
C2814-03-005-D, C2814-03-006-E,
C2814-03-007-F, C2814-03-008-F

REV	Description	Drawn	Date

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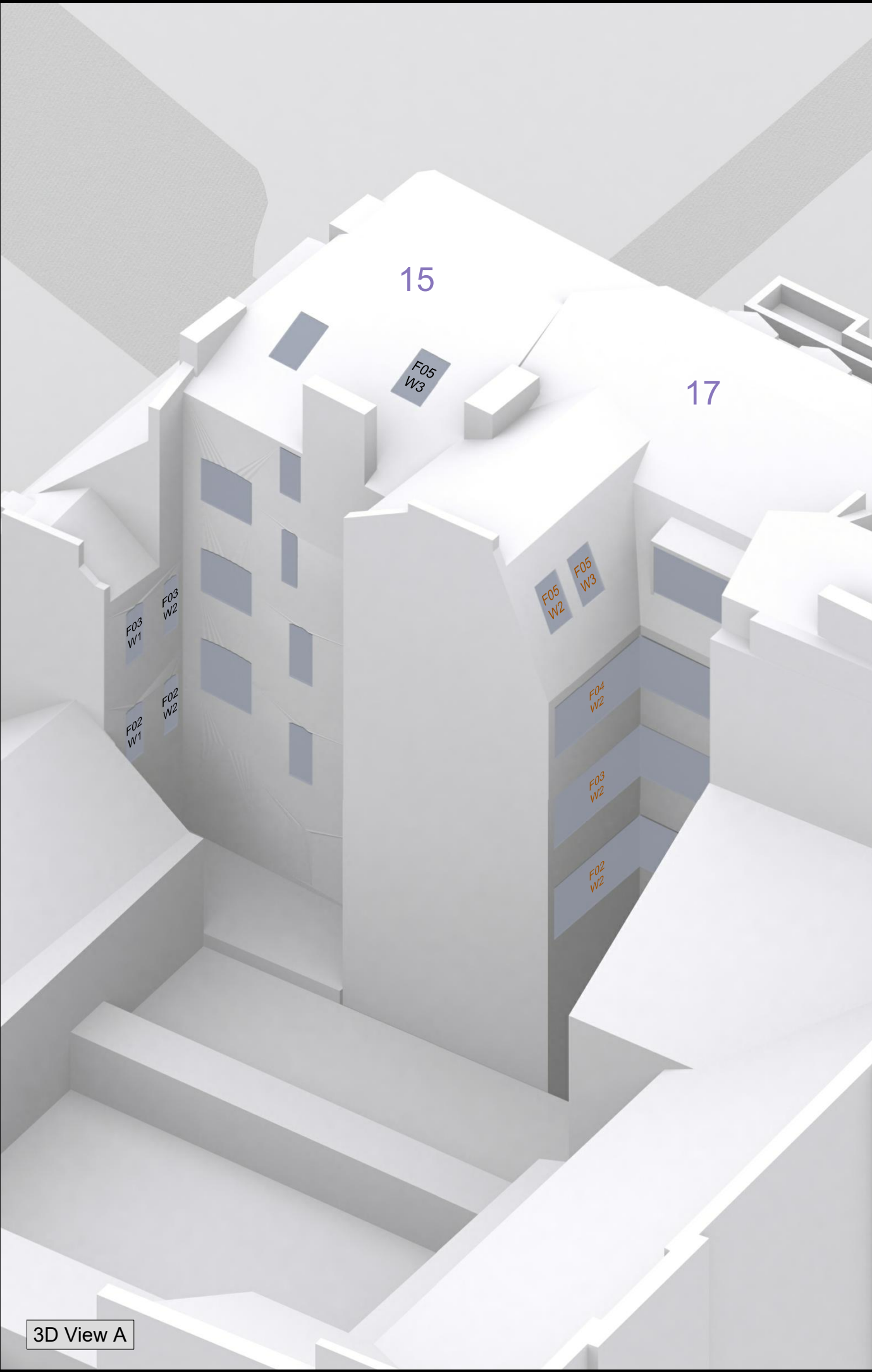
TITLE:

7-9 PICCADILLY
MANCHESTER, M1 1LZ

DRAWING:

KEY WINDOW LOCATIONS
11 Tib Street

DRAWN: IM	JOB NBR:	21302	REV: -
SCALE: NTS			
DATE: 22.10.2021			
DWG NO:	LOC-001		



3D View A



3D View B

NO DIMENSIONS TO BE SCALED
FROM THIS DRAWING

KEY:

W1

Windows tested
Daylight only

W1

Windows tested
Daylight & Sunlight

SOURCE DATA:
Existing and surrounding buildings
DPR measured survey
14-10-2021-21302-21573-7-9 Piccadilly,
Manchester-MASTER MODEL.dwg

NOTES:
Layouts obtained from Residential
Headlease
Northern Counties 12.02.1999

REV	Description	Drawn	Date

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TITLE:
7-9 PICCADILLY
MANCHESTER, M1 1LZ

DRAWING:
KEY WINDOW LOCATIONS
15 and 17 Piccadilly

DRAWN: IM	JOB NBR:
SCALE: NTS	21302
DATE: 22.10.2021	REV:
DWG NO:	LOC-002

Appendix 3

Daylight and sunlight results for neighbouring buildings

Property, room & window attributes					VSC				NSL				APSH (room)						
Floor	Room	Room use	Room layout	Window Ref./Orientation	Exis. (% VSC)	Prop. (% VSC)	Loss (% VSC)	Pro./Ex. ratio	Exis. (% rm)	Prop. (% rm)	Loss (m²)	Pro./Ex. ratio	Annual (%APSH)				Winter (%APSH)		
													Exis.	Prop.	Loss	Pro./Ex	Exis.	Prop.	Pro./Ex
11 Tib Street																			
F01	R1	LKD	Plans	W1 ←	6.1	6.1	0.0	1.00											
		LKD	Plans	W2 ↙	4.9	4.9	0.0	1.00											
		LKD	Plans	W3 ↓	5.1	5.1	0.0	1.00											
		LKD	Plans	W4 ↓	6.2	6.2	0.0	1.00	72%	72%	0.14	0.99	20	20	0	1.00	2	2	1.00
	R3	Bedroom	Plans	W6 ↓	11.3	10.1	1.2	0.89	69%	69%	0.01	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R4	LKD	Plans	W7 ↓	14.2	12.4	1.8	0.87											
		LKD	Plans	W8 ↓	17.2	15.6	1.6	0.91											
		LKD	Plans	W9 ↘	18.8	18.2	0.7	0.96	77%	64%	4.29	0.82	52	48	N/A	N/A	12	8	N/A
	R5	Bedroom	Plans	W10 ↘	18.6	18.1	0.5	0.97	48%	48%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R6	Bedroom	Plans	W11 ↘	18.4	18.0	0.5	0.98	48%	48%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R7	LKD	Plans	W12 ↘	18.4	18.0	0.4	0.98	28%	28%	0.00	1.00	41	41	N/A	N/A	6	6	N/A
	R8	Bedroom	Plans	W13 ↘	18.5	18.2	0.3	0.98	48%	48%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R9	Bedroom	Plans	W14 ↘	18.8	18.5	0.3	0.98	53%	53%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R10	LKD	Plans	W15 ↘	19.4	19.1	0.3	0.99	34%	34%	0.00	1.00	45	44	N/A	N/A	8	7	N/A
	R11	Bedroom	Plans	W16 ↘	20.7	20.5	0.2	0.99	73%	73%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R12	Bedroom	Plans	W17 ↘	21.2	21.1	0.2	0.99	87%	87%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R13	LKD	Plans	W18 ↘	21.8	21.7	0.1	0.99	66%	66%	0.00	1.00	52	51	N/A	N/A	9	8	N/A
	R14	Bedroom	Plans	W19 ↘	22.3	22.2	0.1	0.99	92%	92%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R15	Bedroom	Plans	W20 ↘	22.6	22.5	0.1	1.00	100%	100%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R16	LKD	Plans	W21 ↘	22.8	22.7	0.1	1.00	76%	76%	0.00	1.00	48	48	N/A	N/A	10	10	N/A
	R17	Bedroom	Plans	W22 ↘	22.8	22.7	0.1	1.00	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R18	Bedroom	Plans	W23 ↘	22.5	22.5	0.1	1.00	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R19	LKD	Plans	W24 ↘	22.0	21.9	0.0	1.00	79%	79%	0.00	1.00	45	45	N/A	N/A	11	11	N/A
F02	R1	LKD	Plans	W1 ←	6.9	6.9	0.0	1.00											
		LKD	Plans	W2 ↙	6.1	6.1	0.0	1.00											
		LKD	Plans	W3 ↓	6.4	6.4	0.0	1.00											
		LKD	Plans	W4 ↓	7.4	7.4	0.0	1.00	63%	63%	0.00	1.00	24	24	0	1.00	5	5	N/A

Property, room & window attributes					VSC				NSL				APSH (room)						
Floor	Room	Room use	Room layout	Window Ref./Orientation	Exis. (% VSC)	Prop. (% VSC)	Loss (% VSC)	Pro./Ex. ratio	Exis. (% rm)	Prop. (% rm)	Loss (m²)	Pro./Ex. ratio	Annual (%APSH)				Winter (%APSH)		
													Exis.	Prop.	Loss	Pro./Ex	Exis.	Prop.	Pro./Ex
	R3	Bedroom	Plans	W6 ↓	12.9	11.8	1.1	0.91	64%	63%	0.01	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R4	LKD	Plans	W7 ↓	16.7	15.1	1.7	0.90											
		LKD	Plans	W8 ↓	20.0	18.3	1.6	0.92											
		LKD	Plans	W9 ↘	22.3	21.5	0.8	0.97	79%	69%	2.90	0.88	60	58	N/A	N/A	15	13	N/A
	R5	Bedroom	Plans	W10 ↘	22.0	21.4	0.6	0.97	61%	61%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R6	Bedroom	Plans	W11 ↘	21.8	21.4	0.4	0.98	66%	66%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R7	LKD	Plans	W12 ↘	21.7	21.3	0.4	0.98	40%	40%	0.00	1.00	48	48	N/A	N/A	10	10	N/A
	R8	Bedroom	Plans	W13 ↘	21.7	21.4	0.3	0.98	61%	61%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R9	Bedroom	Plans	W14 ↘	21.9	21.6	0.3	0.99	60%	60%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R10	LKD	Plans	W15 ↘	22.5	22.2	0.3	0.99	46%	46%	0.00	1.00	52	51	N/A	N/A	11	10	N/A
	R11	Bedroom	Plans	W16 ↘	23.5	23.3	0.2	0.99	79%	79%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R12	Bedroom	Plans	W17 ↘	24.0	23.8	0.2	0.99	84%	84%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R13	LKD	Plans	W18 ↘	24.7	24.5	0.1	0.99	70%	70%	0.00	1.00	57	56	N/A	N/A	12	11	N/A
	R14	Bedroom	Plans	W19 ↘	25.4	25.3	0.1	1.00	81%	81%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R15	Bedroom	Plans	W20 ↘	25.9	25.8	0.1	1.00	90%	90%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R16	LKD	Plans	W21 ↘	26.3	26.2	0.1	1.00	92%	92%	0.00	1.00	57	56	N/A	N/A	12	11	N/A
	R17	Bedroom	Plans	W22 ↘	26.4	26.3	0.1	1.00	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R18	Bedroom	Plans	W23 ↘	26.3	26.2	0.1	1.00	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R19	LKD	Plans	W24 ↘	25.8	25.7	0.0	1.00	95%	95%	0.00	1.00	60	59	N/A	N/A	17	16	N/A
F03	R1	LKD	Plans	W1 ←	8.4	8.4	0.0	1.00											
		LKD	Plans	W2 ↙	7.6	7.6	0.0	1.00											
		LKD	Plans	W3 ↓	7.8	7.8	0.0	1.00											
		LKD	Plans	W4 ↓	9.0	9.0	0.0	1.00	69%	69%	0.00	1.00	31	31	N/A	N/A	6	6	N/A
	R3	Bedroom	Plans	W6 ↓	14.9	14.0	1.0	0.93	66%	66%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R4	LKD	Plans	W7 ↓	19.0	17.6	1.4	0.93											
		LKD	Plans	W8 ↓	22.5	21.1	1.4	0.94											
		LKD	Plans	W9 ↘	26.0	25.2	0.8	0.97	80%	78%	0.45	0.98	64	63	N/A	N/A	17	16	N/A
	R5	Bedroom	Plans	W10 ↘	25.7	25.1	0.6	0.98	84%	84%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R

Property, room & window attributes					VSC				NSL				APSH (room)						
Floor	Room	Room use	Room layout	Window Ref./Orientation	Exis. (% VSC)	Prop. (% VSC)	Loss (% VSC)	Pro./Ex. ratio	Exis. (% rm)	Prop. (% rm)	Loss (m²)	Pro./Ex. ratio	Annual (%APSH)				Winter (%APSH)		
													Exis.	Prop.	Loss	Pro./Ex	Exis.	Prop.	Pro./Ex
	R6	Bedroom	Plans	W11 ↘	25.4	25.0	0.4	0.98	89%	89%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R7	LKD	Plans	W12 ↘	25.2	24.9	0.3	0.99	54%	54%	0.00	1.00	54	53	N/A	N/A	13	12	N/A
	R8	Bedroom	Plans	W13 ↘	25.1	24.9	0.3	0.99	85%	85%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R9	Bedroom	Plans	W14 ↘	25.2	25.0	0.3	0.99	79%	79%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R10	LKD	Plans	W15 ↘	25.5	25.3	0.2	0.99	55%	55%	0.00	1.00	60	59	N/A	N/A	15	14	N/A
	R11	Bedroom	Plans	W16 ↘	26.3	26.1	0.2	0.99	87%	87%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R12	Bedroom	Plans	W17 ↘	26.7	26.5	0.2	0.99	90%	90%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R13	LKD	Plans	W18 ↘	27.4	27.2	N/A	N/A	73%	73%	0.00	1.00	61	60	N/A	N/A	13	12	N/A
	R14	Bedroom	Plans	W19 ↘	28.2	28.1	N/A	N/A	84%	84%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R15	Bedroom	Plans	W20 ↘	28.9	28.8	N/A	N/A	94%	94%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R16	LKD	Plans	W21 ↘	29.5	29.5	N/A	N/A	93%	93%	0.00	1.00	65	64	N/A	N/A	15	14	N/A
	R17	Bedroom	Plans	W22 ↘	29.8	29.8	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R18	Bedroom	Plans	W23 ↘	29.9	29.8	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R19	LKD	Plans	W24 ↘	29.6	29.6	N/A	N/A	95%	95%	0.00	1.00	67	67	N/A	N/A	19	19	N/A
F04	R1	LKD	Plans	W1 ←	10.3	10.3	0.0	1.00											
		LKD	Plans	W2 ↙	9.8	9.8	0.0	1.00											
		LKD	Plans	W3 ↓	9.8	9.8	0.0	1.00											
		LKD	Plans	W4 ↓	11.3	11.3	0.0	1.00	81%	81%	0.00	1.00	41	41	N/A	N/A	7	7	N/A
	R3	Bedroom	Plans	W6 ↓	17.5	16.8	0.8	0.96	73%	73%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R4	LKD	Plans	W7 ↓	20.9	19.8	1.0	0.95											
		LKD	Plans	W8 ↓	23.1	22.0	1.1	0.95											
		LKD	Plans	W9 ↓	25.3	24.2	1.1	0.96											
		LKD	Plans	W10 ↘	29.7	29.2	N/A	N/A	91%	91%	0.00	1.00	72	72	N/A	N/A	21	21	N/A
	R5	Bedroom	Plans	W11 ↘	29.5	29.0	N/A	N/A	97%	97%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R6	Bedroom	Plans	W12 ↘	29.2	28.9	N/A	N/A	96%	96%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R7	LKD	Plans	W13 ↘	28.9	28.7	N/A	N/A	90%	90%	0.00	1.00	64	64	N/A	N/A	18	18	N/A
	R8	Bedroom	Plans	W14 ↘	28.8	28.6	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R9	Bedroom	Plans	W15 ↘	28.8	28.6	N/A	N/A	95%	95%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R

Property, room & window attributes					VSC				NSL				APSH (room)						
Floor	Room	Room use	Room layout	Window Ref./Orientation	Exis. (% VSC)	Prop. (% VSC)	Loss (% VSC)	Pro./Ex. ratio	Exis. (% rm)	Prop. (% rm)	Loss (m²)	Pro./Ex. ratio	Annual (%APSH)				Winter (%APSH)		
													Exis.	Prop.	Loss	Pro./Ex	Exis.	Prop.	Pro./Ex
	R10	LKD	Plans	W16 ↘	28.8	28.6	N/A	N/A	84%	84%	0.00	1.00	68	67	N/A	N/A	19	18	N/A
	R11	Bedroom	Plans	W17 ↘	29.1	28.9	N/A	N/A	80%	80%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R12	Bedroom	Plans	W18 ↘	29.4	29.2	N/A	N/A	79%	79%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R13	LKD	Plans	W19 ↘	30.1	29.9	N/A	N/A	81%	81%	0.00	1.00	65	65	N/A	N/A	15	15	N/A
	R14	Bedroom	Plans	W20 ↘	30.7	30.6	N/A	N/A	97%	97%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R15	Bedroom	Plans	W21 ↘	31.6	31.5	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R16	LKD	Plans	W22 ↘	32.1	32.0	N/A	N/A	94%	94%	0.00	1.00	71	71	N/A	N/A	20	20	N/A
	R17	Bedroom	Plans	W23 ↘	32.6	32.6	N/A	N/A	97%	97%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R18	Bedroom	Plans	W24 ↘	33.0	32.9	N/A	N/A	96%	96%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R19	LKD	Plans	W25 ↘	33.1	33.0	N/A	N/A	96%	96%	0.00	1.00	72	72	N/A	N/A	21	21	N/A
F05	R1	LKD	Plans	W1 ←	13.0	13.0	0.0	1.00											
		LKD	Plans	W2 ↙	13.1	13.1	0.0	1.00											
		LKD	Plans	W3 ↓	12.8	12.8	0.0	1.00											
		LKD	Plans	W4 ↓	14.3	14.3	0.0	1.00	89%	89%	0.00	1.00	53	53	N/A	N/A	8	8	N/A
	R3	Bedroom	Plans	W6 ↓	20.5	20.1	0.4	0.98	78%	78%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R4	LKD	Plans	W7 ↓	23.8	23.3	0.6	0.98											
		LKD	Plans	W8 ↓	26.1	25.4	0.6	0.98											
		LKD	Plans	W9 ↓	28.3	27.7	N/A	N/A											
		LKD	Plans	W10 ↘	33.4	33.1	N/A	N/A	97%	97%	0.00	1.00	79	79	N/A	N/A	22	22	N/A
	R5	Bedroom	Plans	W11 ↘	33.3	33.0	N/A	N/A	97%	97%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R6	Bedroom	Plans	W12 ↘	33.1	32.8	N/A	N/A	96%	96%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R7	LKD	Plans	W13 ↘	32.9	32.7	N/A	N/A	95%	95%	0.00	1.00	72	72	N/A	N/A	23	23	N/A
	R8	Bedroom	Plans	W14 ↘	32.7	32.5	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R9	Bedroom	Plans	W15 ↘	32.6	32.4	N/A	N/A	98%	98%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R10	LKD	Plans	W16 ↘	32.3	32.1	N/A	N/A	91%	91%	0.00	1.00	72	72	N/A	N/A	22	22	N/A
	R11	Bedroom	Plans	W17 ↘	32.3	32.2	N/A	N/A	87%	87%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R12	Bedroom	Plans	W18 ↘	32.4	32.3	N/A	N/A	86%	86%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R13	LKD	Plans	W19 ↘	32.9	32.8	N/A	N/A	86%	86%	0.00	1.00	71	71	N/A	N/A	20	20	N/A

Property, room & window attributes					VSC				NSL				APSH (room)						
Floor	Room	Room use	Room layout	Window Ref./Orientation	Exis. (% VSC)	Prop. (% VSC)	Loss (% VSC)	Pro./Ex. ratio	Exis. (% rm)	Prop. (% rm)	Loss (m²)	Pro./Ex. ratio	Annual (%APSH)				Winter (%APSH)		
													Exis.	Prop.	Loss	Pro./Ex	Exis.	Prop.	Pro./Ex
	R14	Bedroom	Plans	W20 ↘	33.4	33.4	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R15	Bedroom	Plans	W21 ↘	34.1	34.1	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R16	LKD	Plans	W22 ↘	34.6	34.5	N/A	N/A	94%	94%	0.00	1.00	73	73	N/A	N/A	22	22	N/A
	R17	Bedroom	Plans	W23 ↘	35.2	35.1	N/A	N/A	97%	97%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R18	Bedroom	Plans	W24 ↘	35.7	35.6	N/A	N/A	96%	96%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R19	LKD	Plans	W25 ↘	36.0	36.0	N/A	N/A	96%	96%	0.00	1.00	76	76	N/A	N/A	25	25	N/A
F06	R1	LKD	Plans	W1 ←	16.5	16.5	0.0	1.00											
		LKD	Plans	W2 ↙	18.2	18.2	0.0	1.00											
		LKD	Plans	W3 ↓	17.4	17.4	0.0	1.00											
		LKD	Plans	W4 ↓	18.6	18.6	0.0	1.00	98%	98%	0.00	1.00	64	64	N/A	N/A	10	10	N/A
	R3	Bedroom	Plans	W6 ↓	24.3	24.2	0.1	0.99	91%	91%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R4	LKD	Plans	W7 ↓	28.1	27.9	N/A	N/A											
		LKD	Plans	W8 ↓	31.4	31.2	N/A	N/A											
		LKD	Plans	W9 ↘	36.5	36.4	N/A	N/A	97%	97%	0.00	1.00	87	87	N/A	N/A	24	24	N/A
	R5	Bedroom	Plans	W10 ↘	36.5	36.3	N/A	N/A	96%	96%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R6	Bedroom	Plans	W11 ↘	36.3	36.2	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R7	LKD	Plans	W12 ↘	36.1	36.0	N/A	N/A	95%	95%	0.00	1.00	74	74	N/A	N/A	24	24	N/A
	R8	Bedroom	Plans	W13 ↘	35.9	35.8	N/A	N/A	97%	97%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R9	Bedroom	Plans	W14 ↘	35.7	35.6	N/A	N/A	97%	97%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R10	LKD	Plans	W15 ↘	35.3	35.2	N/A	N/A	93%	93%	0.00	1.00	75	75	N/A	N/A	24	24	N/A
	R11	Bedroom	Plans	W16 ↘	35.1	35.0	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R12	Bedroom	Plans	W17 ↘	35.0	35.0	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R13	LKD	Plans	W18 ↘	35.2	35.2	N/A	N/A	92%	92%	0.00	1.00	74	74	N/A	N/A	23	23	N/A
	R14	Bedroom	Plans	W19 ↘	35.6	35.6	N/A	N/A	97%	97%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R15	Bedroom	Plans	W20 ↘	36.0	36.0	N/A	N/A	97%	97%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R16	LKD	Plans	W21 ↘	36.5	36.4	N/A	N/A	95%	95%	0.00	1.00	79	79	N/A	N/A	28	28	N/A
	R17	Bedroom	Plans	W22 ↘	36.8	36.8	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R18	Bedroom	Plans	W23 ↘	37.1	37.1	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R

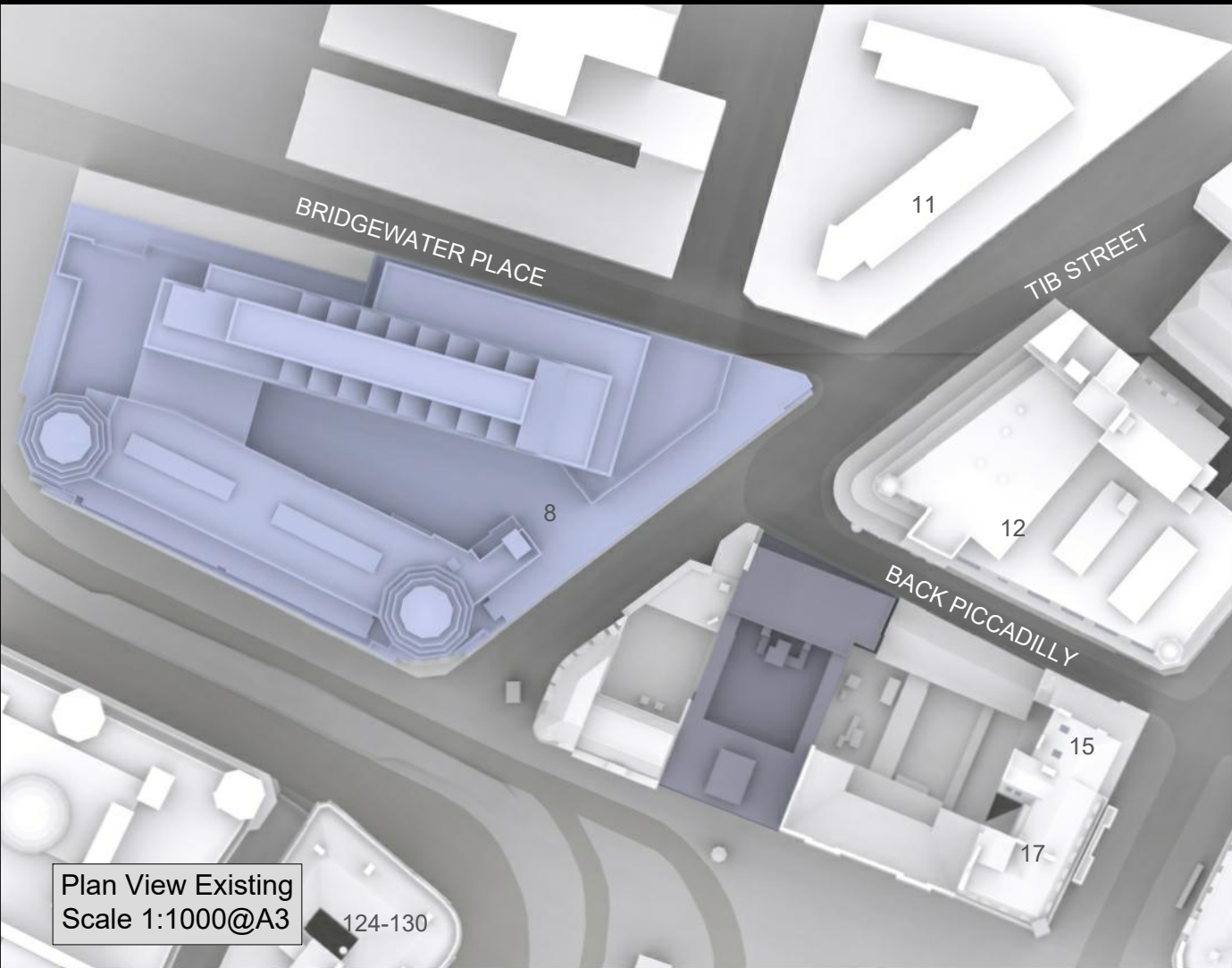
Property, room & window attributes					VSC				NSL				APSH (room)						
Floor	Room	Room use	Room layout	Window Ref./Orientation	Exis. (% VSC)	Prop. (% VSC)	Loss (% VSC)	Pro./Ex. ratio	Exis. (% rm)	Prop. (% rm)	Loss (m²)	Pro./Ex. ratio	Annual (%APSH)				Winter (%APSH)		
													Exis.	Prop.	Loss	Pro./Ex	Exis.	Prop.	Pro./Ex
	R19	LKD	Plans	W24 ↘	37.5	37.4	N/A	N/A	96%	96%	0.00	1.00	79	79	N/A	N/A	28	28	N/A
F07	R1	LKD	Plans	W1 ←	20.6	20.6	0.0	1.00											
		LKD	Plans	W2 ↙	24.8	24.8	0.0	1.00											
		LKD	Plans	W3 ↓	23.8	23.8	0.0	1.00											
		LKD	Plans	W4 ↓	25.1	25.1	0.0	1.00	99%	99%	0.00	1.00	74	74	N/A	N/A	19	19	N/A
	R3	Bedroom	Plans	W6 ↓	29.9	29.9	N/A	N/A	95%	95%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R4	LKD	Plans	W7 ↓	32.3	32.3	N/A	N/A											
		LKD	Plans	W8 ↓	34.5	34.5	N/A	N/A											
		LKD	Plans	W9 ↘	37.8	37.8	N/A	N/A	97%	97%	0.00	1.00	93	93	N/A	N/A	26	26	N/A
	R5	Bedroom	Plans	W10 ↘	37.8	37.8	N/A	N/A	96%	96%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R6	Bedroom	Plans	W11 ↘	37.7	37.7	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R7	LKD	Plans	W12 ↘	37.6	37.6	N/A	N/A	95%	95%	0.00	1.00	76	76	N/A	N/A	25	25	N/A
	R8	Bedroom	Plans	W13 ↘	37.5	37.5	N/A	N/A	97%	97%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R9	Bedroom	Plans	W14 ↘	37.5	37.5	N/A	N/A	97%	97%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R10	LKD	Plans	W15 ↘	37.3	37.3	N/A	N/A	95%	95%	0.00	1.00	78	78	N/A	N/A	27	27	N/A
	R11	Bedroom	Plans	W16 ↘	37.2	37.2	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R12	Bedroom	Plans	W17 ↘	37.2	37.2	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R13	LKD	Plans	W18 ↘	37.3	37.3	N/A	N/A	95%	95%	0.00	1.00	79	79	N/A	N/A	28	28	N/A
	R14	Bedroom	Plans	W19 ↘	37.5	37.5	N/A	N/A	97%	97%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R15	Bedroom	Plans	W20 ↘	37.7	37.6	N/A	N/A	97%	97%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R16	LKD	Plans	W21 ↘	37.9	37.9	N/A	N/A	95%	95%	0.00	1.00	79	79	N/A	N/A	28	28	N/A
	R17	Bedroom	Plans	W22 ↘	38.1	38.1	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R18	Bedroom	Plans	W23 ↘	38.2	38.2	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R19	LKD	Plans	W24 ↘	38.3	38.3	N/A	N/A	96%	96%	0.00	1.00	79	79	N/A	N/A	28	28	N/A
F08	R1	LKD	Plans	W1 ←	24.8	24.8	0.0	1.00											
		LKD	Plans	W2 ↙	31.7	31.7	N/A	N/A											
		LKD	Plans	W3 ↓	31.5	31.5	N/A	N/A											
		LKD	Plans	W4 ↓	32.5	32.5	N/A	N/A	100%	100%	0.00	1.00	84	84	N/A	N/A	28	28	N/A

Property, room & window attributes					VSC				NSL				APSH (room)						
Floor	Room	Room use	Room layout	Window Ref./Orientation	Exis. (% VSC)	Prop. (% VSC)	Loss (% VSC)	Pro./Ex. ratio	Exis. (% rm)	Prop. (% rm)	Loss (m²)	Pro./Ex. ratio	Annual (%APSH)				Winter (%APSH)		
													Exis.	Prop.	Loss	Pro./Ex	Exis.	Prop.	Pro./Ex
	R3	Bedroom	Plans	W6 ↓	35.6	35.6	N/A	N/A	94%	94%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R4	LKD	Plans	W7 ↓	36.5	36.5	N/A	N/A											
		LKD	Plans	W8 ↓	37.1	37.1	N/A	N/A											
		LKD	Plans	W9 ↘	38.6	38.6	N/A	N/A	96%	96%	0.00	1.00	95	95	N/A	N/A	27	27	N/A
	R5	Bedroom	Plans	W10 ↘	38.6	38.6	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R6	Bedroom	Plans	W11 ↘	38.6	38.6	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R7	LKD	Plans	W12 ↘	38.6	38.6	N/A	N/A	94%	94%	0.00	1.00	79	79	N/A	N/A	28	28	N/A
	R8	Bedroom	Plans	W13 ↘	38.6	38.6	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R9	Bedroom	Plans	W14 ↘	38.6	38.6	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R10	LKD	Plans	W15 ↘	38.6	38.6	N/A	N/A	94%	94%	0.00	1.00	79	79	N/A	N/A	28	28	N/A
	R11	Bedroom	Plans	W16 ↘	38.6	38.6	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R12	Bedroom	Plans	W17 ↘	38.6	38.6	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R13	LKD	Plans	W18 ↘	38.7	38.7	N/A	N/A	94%	94%	0.00	1.00	79	79	N/A	N/A	28	28	N/A
	R14	Bedroom	Plans	W19 ↘	38.7	38.7	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R15	Bedroom	Plans	W20 ↘	38.7	38.7	N/A	N/A	100%	100%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R16	LKD	Plans	W21 ↘	38.7	38.7	N/A	N/A	94%	94%	0.00	1.00	79	79	N/A	N/A	28	28	N/A
	R17	Bedroom	Plans	W22 ↘	38.8	38.8	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R18	Bedroom	Plans	W23 ↘	38.8	38.8	N/A	N/A	100%	100%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R19	LKD	Plans	W24 ↘	38.8	38.8	N/A	N/A	96%	96%	0.00	1.00	79	79	N/A	N/A	28	28	N/A
15 Piccadilly																			
F02	R1	Bedroom	Plans	W1 ↙	15.2	14.1	1.1	0.93											
		Bedroom	Plans	W2 ↙	12.5	11.3	1.3	0.90	67%	67%	0.01	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R4	Bedroom	Plans	W4 ↖	22.9	19.3	3.6	0.84											
		Bedroom	Plans	W5 ↖	15.1	13.2	1.9	0.88	87%	71%	3.05	0.81	North	North	N/A	N/A	North	North	N/A
F03	R1	Bedroom	Plans	W1 ↙	18.3	17.1	1.2	0.93											
		Bedroom	Plans	W2 ↙	14.5	13.5	1.1	0.93	72%	72%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R4	Bedroom	Plans	W4 ↖	26.2	23.3	2.8	0.89											

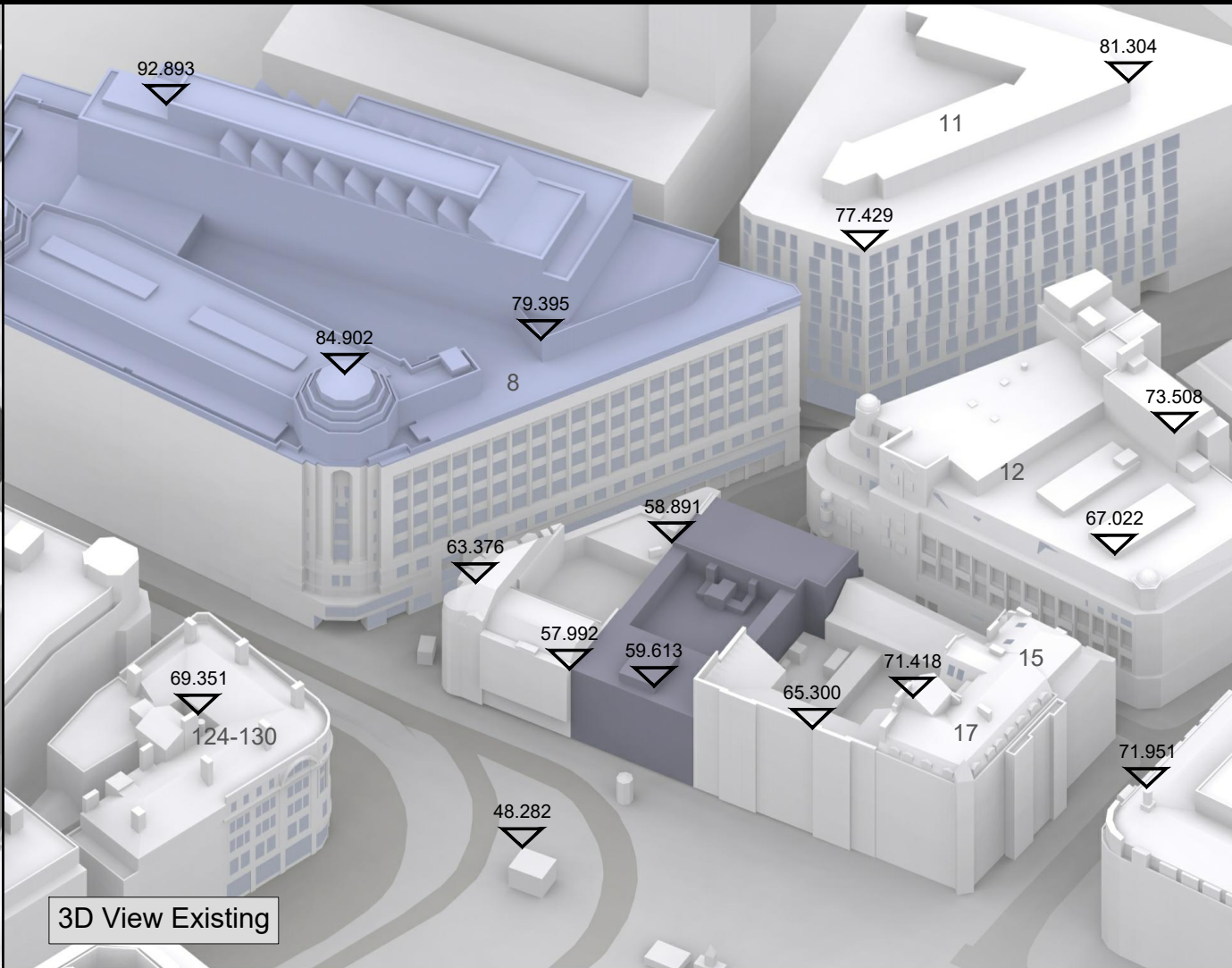
Property, room & window attributes					VSC				NSL				APSH (room)						
Floor	Room	Room use	Room layout	Window Ref./Orientation	Exis. (% VSC)	Prop. (% VSC)	Loss (% VSC)	Pro./Ex . ratio	Exis. (% rm)	Prop. (% rm)	Loss (m²)	Pro./Ex . ratio	Annual (%APSH)				Winter (%APSH)		
													Exis.	Prop.	Loss	Pro./Ex	Exis.	Prop.	Pro./Ex
		Bedroom	Plans	W5 ↖	16.7	15.3	1.3	0.92	91%	91%	0.00	1.00	North	North	N/A	N/A	North	North	N/A
F04	R3	Bedroom	Plans	W2 ↖	29.5	27.6	N/A	N/A											
		Bedroom	Plans	W3 ↖	18.1	17.2	0.8	0.95	90%	90%	0.00	1.00	North	North	N/A	N/A	North	North	N/A
F05	R2	Bedroom	Plans	W2 ↖	32.0	31.1	N/A	N/A											
		Bedroom	Plans	W3 Inc	87.1	87.0	N/A	N/A	100%	100%	0.00	1.00	North	North	N/A	N/A	North	North	N/A
17 Piccadilly																			
F02	R1	LKD	Plans	W1 ↗	12.2	12.0	0.2	0.99											
		LKD	Plans	W2 ↘	6.5	6.1	0.4	0.94	80%	80%	0.00	1.00	9	6	3	N/A*	0	0	N/A
	R2	Bedroom	Plans	W3 Inc	14.4	12.3	2.1	0.85	100%	100%	0.00	1.00	North	North	N/A	N/A	North	North	N/A
F03	R1	LKD	Plans	W1 ↗	15.7	15.6	0.1	0.99											
		LKD	Plans	W2 ↘	10.2	9.8	0.4	0.97	97%	97%	0.00	1.00	18	14	4	N/A*	0	0	N/A
	R2	Bedroom	Plans	W3 Inc	17.5	15.8	1.7	0.90	100%	100%	0.00	1.00	North	North	N/A	N/A	North	North	N/A
F04	R1	LKD	Plans	W1 ↗	19.2	19.1	0.1	1.00											
		LKD	Plans	W2 ↘	15.4	15.1	0.3	0.98	99%	99%	0.00	1.00	29	27	N/A	N/A	2	2	1.00
	R2	Bedroom	Plans	W3 Inc	21.8	20.6	1.3	0.94	100%	100%	0.00	1.00	North	North	N/A	N/A	North	North	N/A
F05	R1	LKD	Plans	W1 ↗	27.0	27.0	N/A	N/A											
		LKD	Plans	W2 Inc	47.3	47.2	N/A	N/A											
		LKD	Plans	W3 Inc	45.2	45.0	N/A	N/A	94%	94%	0.00	1.00	77	77	N/A	N/A	15	15	N/A
	R2	Bedroom	Plans	W4 ↖	25.0	24.6	0.5	0.98	98%	98%	0.00	1.00	North	North	N/A	N/A	North	North	N/A

Appendix 4

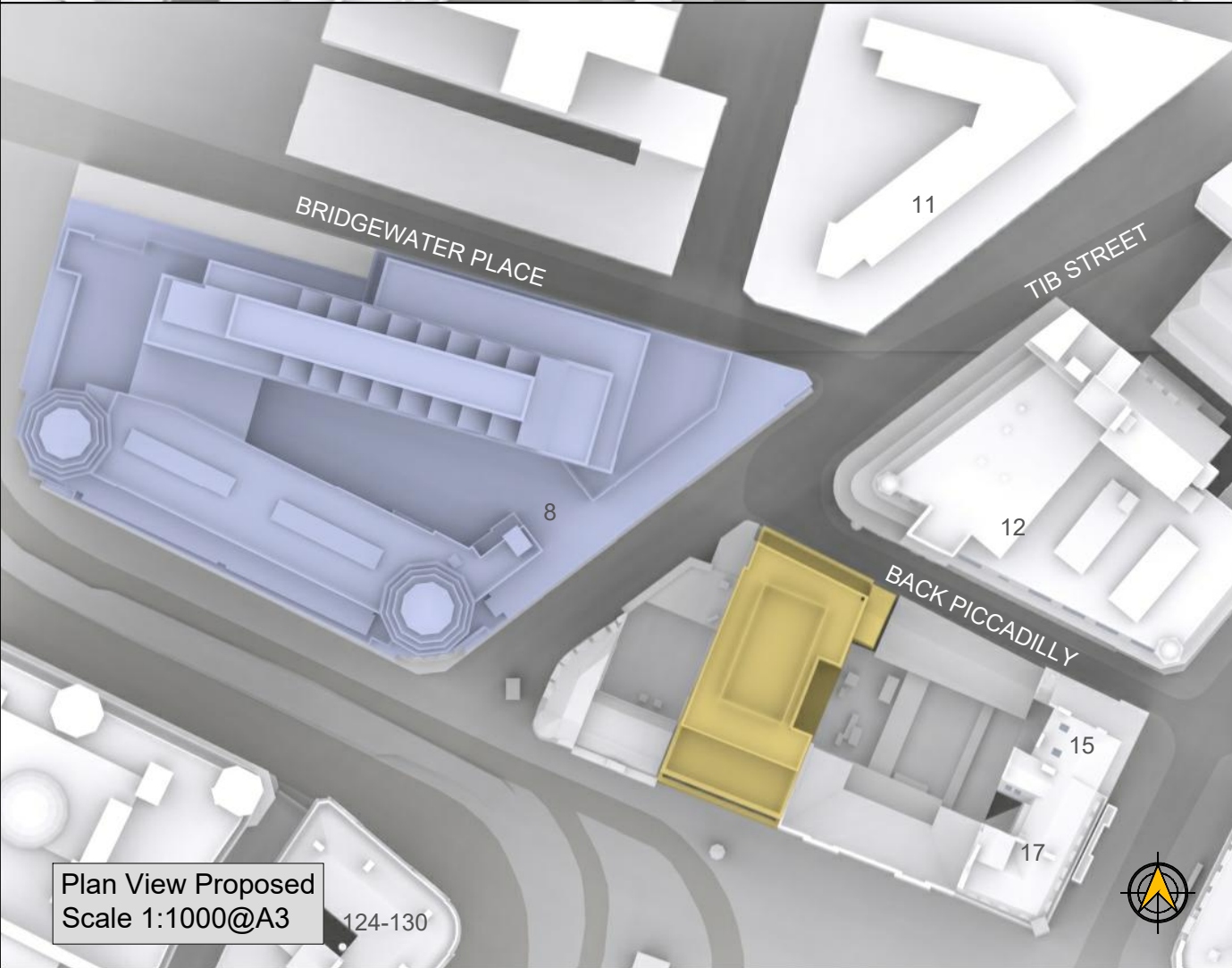
Daylight and sunlight results (cumulative) for neighbouring buildings



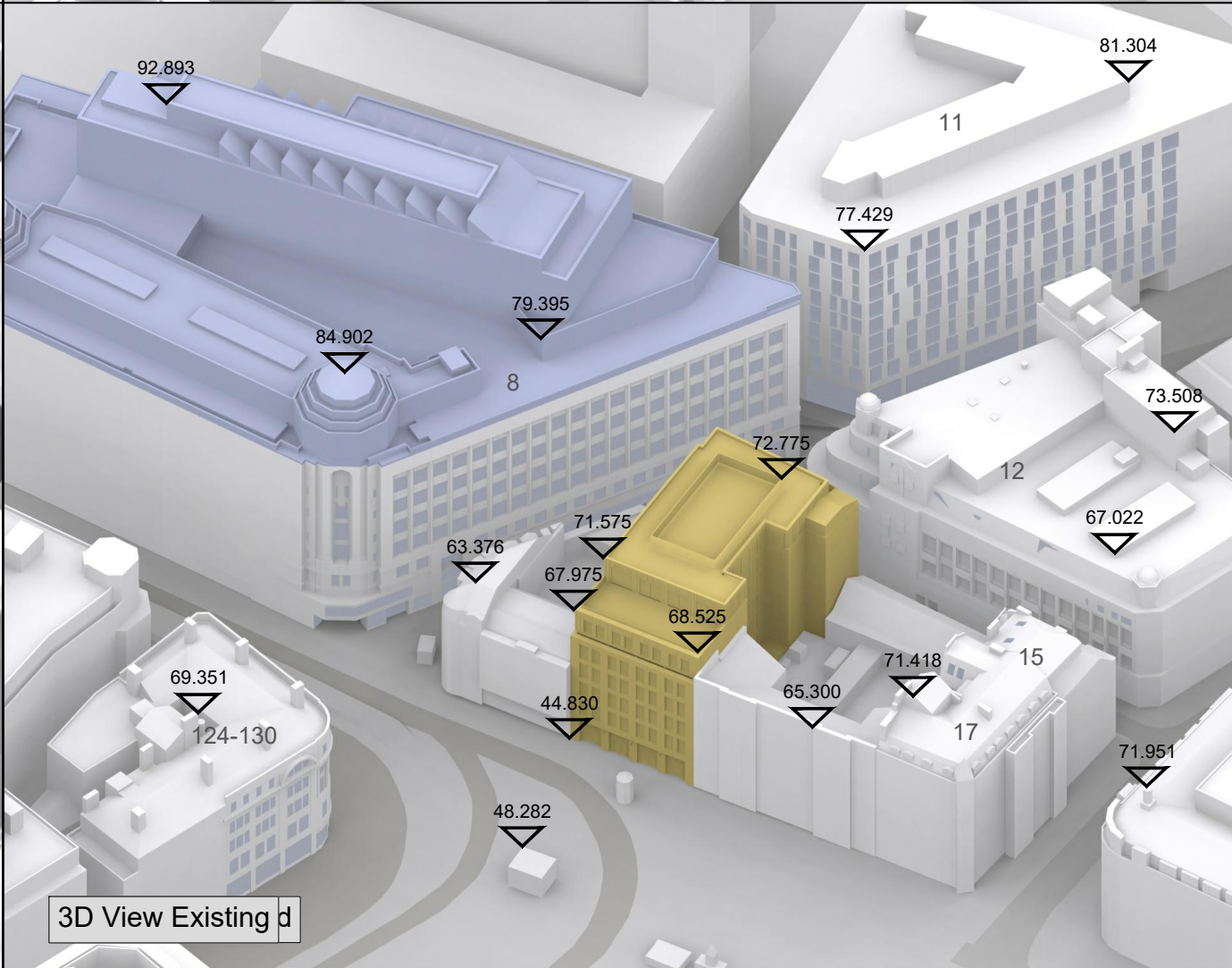
Plan View Existing
Scale 1:1000@A3



3D View Existing



Plan View Proposed
Scale 1:1000@A3



3D View Existing d

NO DIMENSIONS TO BE SCALED FROM THIS DRAWING

KEY:

Existing	Consented
Proposed	Cumulative
Neighboring Property	Cutback Envelope

SOURCE DATA:

Existing and surrounding buildings
DPR measured survey
14-10-2021-21302-21573-7-9 Piccadilly,
Manchester-MASTER MODEL.dwg

Proposed scheme:

5plus architects
3D model received 21.10.2021
05936_Building Model_211019.skp
Drwg no's:
05936_B1_04_2200 RevB, 05936_B1_04_2201,
05936_B1_04_2202 RevB, 05936_B1_04_2203

NOTES:

All heights given in m AOD
Consented 8 High Street plans obtained
from local authority website
Jeffrey Bell Architects
Drwg no's:
1526-AL(05)219A to 1526-AL(05)224A,
1526-AL(05)260A to 1526-AL(05)265A

REV	Description	Drawn	Date

DELVA PATMAN REDLER
Chartered Surveyors

London 020 7936 3668
Liverpool 0151 242 0980
Bristol 0117 450 9703

www.delvapatmanredler.co.uk
info@delvapatmanredler.co.uk

TITLE:

7-9 PICCADILLY
MANCHESTER, M1 1LZ

DRAWING:

CUMULATIVE SCENARIO
Plan and 3D Views

DRAWN: IM	JOB NBR:	REV:
SCALE: NTS	21302	-
DATE: 22.10.2021		
DWG NO:	CUM-001	

Property, room & window attributes					VSC				NSL				APSH (room)						
Floor	Room	Room use	Room layout	Window Ref./Orientation	Exis. (% VSC)	Prop. (% VSC)	Loss (% VSC)	Pro./Ex. ratio	Exis. (% rm)	Prop. (% rm)	Loss (m²)	Pro./Ex. ratio	Annual (%APSH)				Winter (%APSH)		
11 Tib Street																			
F01	R1	LKD	Plans	W1 ←	4.8	4.8	0.0	1.00											
		LKD	Plans	W2 ↙	4.0	4.0	0.0	1.00											
		LKD	Plans	W3 ↓	4.8	4.8	0.0	1.00											
		LKD	Plans	W4 ↓	5.9	5.9	0.0	1.00	70%	69%	0.13	0.99	19	19	0	1.00	2	2	1.00
	R3	Bedroom	Plans	W6 ↓	11.1	9.9	1.2	0.89	69%	69%	0.01	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R4	LKD	Plans	W7 ↓	14.1	12.3	1.8	0.87											
		LKD	Plans	W8 ↓	17.1	15.5	1.6	0.91											
		LKD	Plans	W9 ↘	18.8	18.2	0.7	0.96	77%	63%	4.29	0.82	52	48	N/A	N/A	12	8	N/A
	R5	Bedroom	Plans	W10 ↘	18.6	18.1	0.5	0.97	48%	48%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R6	Bedroom	Plans	W11 ↘	18.4	18.0	0.5	0.98	48%	48%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R7	LKD	Plans	W12 ↘	18.4	18.0	0.4	0.98	28%	28%	0.00	1.00	41	41	N/A	N/A	6	6	N/A
	R8	Bedroom	Plans	W13 ↘	18.5	18.2	0.3	0.98	48%	48%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R9	Bedroom	Plans	W14 ↘	18.8	18.5	0.3	0.98	53%	53%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R10	LKD	Plans	W15 ↘	19.4	19.1	0.3	0.99	34%	34%	0.00	1.00	45	44	N/A	N/A	8	7	N/A
	R11	Bedroom	Plans	W16 ↘	20.7	20.5	0.2	0.99	73%	73%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R12	Bedroom	Plans	W17 ↘	21.2	21.1	0.2	0.99	87%	87%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R13	LKD	Plans	W18 ↘	21.8	21.7	0.1	0.99	66%	66%	0.00	1.00	52	51	N/A	N/A	9	8	N/A
	R14	Bedroom	Plans	W19 ↘	22.3	22.2	0.1	0.99	92%	92%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R15	Bedroom	Plans	W20 ↘	22.6	22.5	0.1	1.00	100%	100%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R16	LKD	Plans	W21 ↘	22.8	22.7	0.1	1.00	76%	76%	0.00	1.00	48	48	N/A	N/A	10	10	N/A
	R17	Bedroom	Plans	W22 ↘	22.8	22.7	0.1	1.00	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R18	Bedroom	Plans	W23 ↘	22.5	22.5	0.1	1.00	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R19	LKD	Plans	W24 ↘	22.0	21.9	0.0	1.00	79%	79%	0.00	1.00	45	45	N/A	N/A	11	11	N/A
F02	R1	LKD	Plans	W1 ←	5.2	5.2	0.0	1.00											
		LKD	Plans	W2 ↙	4.8	4.8	0.0	1.00											
		LKD	Plans	W3 ↓	5.9	5.9	0.0	1.00											
		LKD	Plans	W4 ↓	7.0	7.0	0.0	1.00	57%	57%	0.00	1.00	23	23	0	1.00	5	5	N/A
	R3	Bedroom	Plans	W6 ↓	12.7	11.6	1.1	0.91	63%	63%	0.01	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R

Property, room & window attributes					VSC				NSL				APSH (room)						
Floor	Room	Room use	Room layout	Window Ref./Orientation	Exis. (% VSC)	Prop. (% VSC)	Loss (% VSC)	Pro./Ex. ratio	Exis. (% rm)	Prop. (% rm)	Loss (m²)	Pro./Ex. ratio	Annual (%APSH)				Winter (%APSH)		
													Exis.	Prop.	Loss	Pro./Ex	Exis.	Prop.	Pro./Ex
	R4	LKD	Plans	W7 ↓	16.6	14.9	1.7	0.90											
		LKD	Plans	W8 ↓	19.8	18.2	1.6	0.92											
		LKD	Plans	W9 ↘	22.3	21.5	0.8	0.97	79%	69%	2.90	0.88	60	58	N/A	N/A	15	13	N/A
	R5	Bedroom	Plans	W10 ↘	22.0	21.4	0.6	0.97	61%	61%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R6	Bedroom	Plans	W11 ↘	21.8	21.4	0.4	0.98	66%	66%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R7	LKD	Plans	W12 ↘	21.7	21.3	0.4	0.98	40%	40%	0.00	1.00	48	48	N/A	N/A	10	10	N/A
	R8	Bedroom	Plans	W13 ↘	21.7	21.4	0.3	0.98	61%	61%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R9	Bedroom	Plans	W14 ↘	21.9	21.6	0.3	0.99	60%	60%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R10	LKD	Plans	W15 ↘	22.5	22.2	0.3	0.99	46%	46%	0.00	1.00	52	51	N/A	N/A	11	10	N/A
	R11	Bedroom	Plans	W16 ↘	23.5	23.3	0.2	0.99	79%	79%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R12	Bedroom	Plans	W17 ↘	24.0	23.8	0.2	0.99	84%	84%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R13	LKD	Plans	W18 ↘	24.7	24.5	0.1	0.99	70%	70%	0.00	1.00	57	56	N/A	N/A	12	11	N/A
	R14	Bedroom	Plans	W19 ↘	25.4	25.3	0.1	1.00	81%	81%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R15	Bedroom	Plans	W20 ↘	25.9	25.8	0.1	1.00	90%	90%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R16	LKD	Plans	W21 ↘	26.3	26.2	0.1	1.00	92%	92%	0.00	1.00	57	56	N/A	N/A	12	11	N/A
	R17	Bedroom	Plans	W22 ↘	26.4	26.3	0.1	1.00	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R18	Bedroom	Plans	W23 ↘	26.3	26.2	0.1	1.00	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R19	LKD	Plans	W24 ↘	25.8	25.7	0.0	1.00	95%	95%	0.00	1.00	60	59	N/A	N/A	17	16	N/A
F03	R1	LKD	Plans	W1 ←	6.1	6.1	0.0	1.00											
		LKD	Plans	W2 ↙	5.8	5.8	0.0	1.00											
		LKD	Plans	W3 ↓	7.2	7.2	0.0	1.00											
		LKD	Plans	W4 ↓	8.5	8.5	0.0	1.00	59%	59%	0.00	1.00	25	25	N/A	N/A	6	6	N/A
	R3	Bedroom	Plans	W6 ↓	14.7	13.7	1.0	0.93	64%	63%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R4	LKD	Plans	W7 ↓	18.8	17.4	1.4	0.93											
		LKD	Plans	W8 ↓	22.3	20.9	1.4	0.94											
		LKD	Plans	W9 ↘	26.0	25.2	0.8	0.97	80%	78%	0.45	0.98	62	61	N/A	N/A	17	16	N/A
	R5	Bedroom	Plans	W10 ↘	25.7	25.1	0.6	0.98	84%	84%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R6	Bedroom	Plans	W11 ↘	25.4	25.0	0.4	0.98	89%	89%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R7	LKD	Plans	W12 ↘	25.2	24.9	0.3	0.99	54%	54%	0.00	1.00	54	53	N/A	N/A	13	12	N/A

Property, room & window attributes					VSC				NSL				APSH (room)						
Floor	Room	Room use	Room layout	Window Ref./Orientation	Exis.	Prop.	Loss	Pro./Ex	Exis.	Prop.	Loss	Pro./Ex	Annual (%APSH)				Winter (%APSH)		
					(% VSC)	(% VSC)	(% VSC)	. ratio	(% rm)	(% rm)	(m ²)	. ratio	Exis.	Prop.	Loss	Pro./Ex	Exis.	Prop.	Pro./Ex
	R8	Bedroom	Plans	W13 ↘	25.1	24.9	0.3	0.99	85%	85%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R9	Bedroom	Plans	W14 ↘	25.2	25.0	0.3	0.99	79%	79%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R10	LKD	Plans	W15 ↘	25.5	25.3	0.2	0.99	55%	55%	0.00	1.00	60	59	N/A	N/A	15	14	N/A
	R11	Bedroom	Plans	W16 ↘	26.3	26.1	0.2	0.99	87%	87%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R12	Bedroom	Plans	W17 ↘	26.7	26.5	0.2	0.99	90%	90%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R13	LKD	Plans	W18 ↘	27.4	27.2	N/A	N/A	73%	73%	0.00	1.00	61	60	N/A	N/A	13	12	N/A
	R14	Bedroom	Plans	W19 ↘	28.2	28.1	N/A	N/A	84%	84%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R15	Bedroom	Plans	W20 ↘	28.9	28.8	N/A	N/A	94%	94%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R16	LKD	Plans	W21 ↘	29.5	29.5	N/A	N/A	93%	93%	0.00	1.00	65	64	N/A	N/A	15	14	N/A
	R17	Bedroom	Plans	W22 ↘	29.8	29.8	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R18	Bedroom	Plans	W23 ↘	29.9	29.8	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R19	LKD	Plans	W24 ↘	29.6	29.6	N/A	N/A	95%	95%	0.00	1.00	67	67	N/A	N/A	19	19	N/A
F04	R1	LKD	Plans	W1 ←	7.4	7.4	0.0	1.00											
		LKD	Plans	W2 ↙	7.4	7.4	0.0	1.00											
		LKD	Plans	W3 ↓	9.0	9.0	0.0	1.00											
		LKD	Plans	W4 ↓	10.7	10.7	0.0	1.00	71%	71%	0.00	1.00	33	33	N/A	N/A	7	7	N/A
	R3	Bedroom	Plans	W6 ↓	17.2	16.5	0.8	0.96	71%	71%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R4	LKD	Plans	W7 ↓	20.6	19.6	1.0	0.95											
		LKD	Plans	W8 ↓	22.9	21.8	1.1	0.95											
		LKD	Plans	W9 ↓	25.1	24.1	1.1	0.96											
		LKD	Plans	W10 ↘	29.7	29.2	N/A	N/A	91%	91%	0.00	1.00	70	70	N/A	N/A	21	21	N/A
	R5	Bedroom	Plans	W11 ↘	29.5	29.0	N/A	N/A	97%	97%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R6	Bedroom	Plans	W12 ↘	29.2	28.9	N/A	N/A	96%	96%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R7	LKD	Plans	W13 ↘	28.9	28.7	N/A	N/A	90%	90%	0.00	1.00	64	64	N/A	N/A	18	18	N/A
	R8	Bedroom	Plans	W14 ↘	28.8	28.6	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R9	Bedroom	Plans	W15 ↘	28.8	28.6	N/A	N/A	95%	95%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R10	LKD	Plans	W16 ↘	28.8	28.6	N/A	N/A	84%	84%	0.00	1.00	68	67	N/A	N/A	19	18	N/A
	R11	Bedroom	Plans	W17 ↘	29.1	28.9	N/A	N/A	80%	80%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R12	Bedroom	Plans	W18 ↘	29.4	29.2	N/A	N/A	79%	79%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R

Property, room & window attributes					VSC				NSL				APSH (room)						
Floor	Room	Room use	Room layout	Window Ref./Orientation	Exis. (% VSC)	Prop. (% VSC)	Loss (% VSC)	Pro./Ex. ratio	Exis. (% rm)	Prop. (% rm)	Loss (m²)	Pro./Ex. ratio	Annual (%APSH)				Winter (%APSH)		
													Exis.	Prop.	Loss	Pro./Ex	Exis.	Prop.	Pro./Ex
	R13	LKD	Plans	W19 ↘	30.1	29.9	N/A	N/A	81%	81%	0.00	1.00	65	65	N/A	N/A	15	15	N/A
	R14	Bedroom	Plans	W20 ↘	30.7	30.6	N/A	N/A	97%	97%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R15	Bedroom	Plans	W21 ↘	31.6	31.5	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R16	LKD	Plans	W22 ↘	32.1	32.0	N/A	N/A	94%	94%	0.00	1.00	71	71	N/A	N/A	20	20	N/A
	R17	Bedroom	Plans	W23 ↘	32.6	32.6	N/A	N/A	97%	97%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R18	Bedroom	Plans	W24 ↘	33.0	32.9	N/A	N/A	96%	96%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R19	LKD	Plans	W25 ↘	33.1	33.0	N/A	N/A	96%	96%	0.00	1.00	72	72	N/A	N/A	21	21	N/A
F05	R1	LKD	Plans	W1 ←	9.3	9.3	0.0	1.00											
		LKD	Plans	W2 ↙	9.9	9.9	0.0	1.00											
		LKD	Plans	W3 ↓	11.8	11.8	0.0	1.00											
		LKD	Plans	W4 ↓	13.7	13.7	0.0	1.00	72%	72%	0.00	1.00	38	38	N/A	N/A	8	8	N/A
	R3	Bedroom	Plans	W6 ↓	20.2	19.8	0.4	0.98	78%	78%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R4	LKD	Plans	W7 ↓	23.6	23.0	0.6	0.97											
		LKD	Plans	W8 ↓	25.8	25.2	0.6	0.98											
		LKD	Plans	W9 ↓	28.1	27.5	N/A	N/A											
		LKD	Plans	W10 ↘	33.4	33.1	N/A	N/A	97%	97%	0.00	1.00	77	77	N/A	N/A	22	22	N/A
	R5	Bedroom	Plans	W11 ↘	33.3	33.0	N/A	N/A	97%	97%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R6	Bedroom	Plans	W12 ↘	33.1	32.8	N/A	N/A	96%	96%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R7	LKD	Plans	W13 ↘	32.9	32.7	N/A	N/A	95%	95%	0.00	1.00	72	72	N/A	N/A	23	23	N/A
	R8	Bedroom	Plans	W14 ↘	32.7	32.5	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R9	Bedroom	Plans	W15 ↘	32.6	32.4	N/A	N/A	98%	98%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R10	LKD	Plans	W16 ↘	32.3	32.1	N/A	N/A	91%	91%	0.00	1.00	72	72	N/A	N/A	22	22	N/A
	R11	Bedroom	Plans	W17 ↘	32.3	32.2	N/A	N/A	87%	87%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R12	Bedroom	Plans	W18 ↘	32.4	32.3	N/A	N/A	86%	86%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R13	LKD	Plans	W19 ↘	32.9	32.8	N/A	N/A	86%	86%	0.00	1.00	71	71	N/A	N/A	20	20	N/A
	R14	Bedroom	Plans	W20 ↘	33.4	33.4	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R15	Bedroom	Plans	W21 ↘	34.1	34.1	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R16	LKD	Plans	W22 ↘	34.6	34.5	N/A	N/A	94%	94%	0.00	1.00	73	73	N/A	N/A	22	22	N/A
	R17	Bedroom	Plans	W23 ↘	35.2	35.1	N/A	N/A	97%	97%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R

Property, room & window attributes					VSC				NSL				APSH (room)						
Floor	Room	Room use	Room layout	Window Ref./Orientation	Exis. (% VSC)	Prop. (% VSC)	Loss (% VSC)	Pro./Ex. ratio	Exis. (% rm)	Prop. (% rm)	Loss (m ²)	Pro./Ex. ratio	Annual (%APSH)				Winter (%APSH)		
													Exis.	Prop.	Loss	Pro./Ex.	Exis.	Prop.	Pro./Ex.
	R18	Bedroom	Plans	W24 ↘	35.7	35.6	N/A	N/A	96%	96%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R19	LKD	Plans	W25 ↘	36.0	36.0	N/A	N/A	96%	96%	0.00	1.00	76	76	N/A	N/A	25	25	N/A
F06	R1	LKD	Plans	W1 ←	11.9	11.9	0.0	1.00											
		LKD	Plans	W2 ↙	13.8	13.8	0.0	1.00											
		LKD	Plans	W3 ↓	16.3	16.3	0.0	1.00											
		LKD	Plans	W4 ↓	18.0	18.0	0.0	1.00	79%	79%	0.00	1.00	51	51	N/A	N/A	9	9	N/A
	R3	Bedroom	Plans	W6 ↓	24.1	23.9	0.1	0.99	91%	91%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R4	LKD	Plans	W7 ↓	27.9	27.7	N/A	N/A											
		LKD	Plans	W8 ↓	31.2	31.0	N/A	N/A											
		LKD	Plans	W9 ↘	36.5	36.4	N/A	N/A	97%	97%	0.00	1.00	84	84	N/A	N/A	24	24	N/A
	R5	Bedroom	Plans	W10 ↘	36.5	36.3	N/A	N/A	96%	96%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R6	Bedroom	Plans	W11 ↘	36.3	36.2	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R7	LKD	Plans	W12 ↘	36.1	36.0	N/A	N/A	95%	95%	0.00	1.00	74	74	N/A	N/A	24	24	N/A
	R8	Bedroom	Plans	W13 ↘	35.9	35.8	N/A	N/A	97%	97%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R9	Bedroom	Plans	W14 ↘	35.7	35.6	N/A	N/A	97%	97%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R10	LKD	Plans	W15 ↘	35.3	35.2	N/A	N/A	93%	93%	0.00	1.00	75	75	N/A	N/A	24	24	N/A
	R11	Bedroom	Plans	W16 ↘	35.1	35.0	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R12	Bedroom	Plans	W17 ↘	35.0	35.0	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R13	LKD	Plans	W18 ↘	35.2	35.2	N/A	N/A	92%	92%	0.00	1.00	74	74	N/A	N/A	23	23	N/A
	R14	Bedroom	Plans	W19 ↘	35.6	35.6	N/A	N/A	97%	97%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R15	Bedroom	Plans	W20 ↘	36.0	36.0	N/A	N/A	97%	97%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R16	LKD	Plans	W21 ↘	36.5	36.4	N/A	N/A	95%	95%	0.00	1.00	79	79	N/A	N/A	28	28	N/A
	R17	Bedroom	Plans	W22 ↘	36.8	36.8	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R18	Bedroom	Plans	W23 ↘	37.1	37.1	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R19	LKD	Plans	W24 ↘	37.5	37.4	N/A	N/A	96%	96%	0.00	1.00	79	79	N/A	N/A	28	28	N/A
F07	R1	LKD	Plans	W1 ←	15.6	15.6	0.0	1.00											
		LKD	Plans	W2 ↙	19.6	19.6	0.0	1.00											
		LKD	Plans	W3 ↓	23.2	23.2	0.0	1.00											
		LKD	Plans	W4 ↓	24.9	24.9	0.0	1.00	99%	99%	0.00	1.00	65	65	N/A	N/A	17	17	N/A

Property, room & window attributes					VSC				NSL				APSH (room)						
Floor	Room	Room use	Room layout	Window Ref./Orientation	Exis. (% VSC)	Prop. (% VSC)	Loss (% VSC)	Pro./Ex. ratio	Exis. (% rm)	Prop. (% rm)	Loss (m ²)	Pro./Ex. ratio	Annual (%APSH)				Winter (%APSH)		
													Exis.	Prop.	Loss	Pro./Ex	Exis.	Prop.	Pro./Ex
	R3	Bedroom	Plans	W6 ↓	29.7	29.6	N/A	N/A	95%	95%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R4	LKD	Plans	W7 ↓	31.9	31.9	N/A	N/A											
		LKD	Plans	W8 ↓	34.0	34.0	N/A	N/A											
		LKD	Plans	W9 ↘	37.8	37.8	N/A	N/A	97%	97%	0.00	1.00	91	91	N/A	N/A	26	26	N/A
	R5	Bedroom	Plans	W10 ↘	37.8	37.8	N/A	N/A	96%	96%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R6	Bedroom	Plans	W11 ↘	37.7	37.7	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R7	LKD	Plans	W12 ↘	37.6	37.6	N/A	N/A	95%	95%	0.00	1.00	76	76	N/A	N/A	25	25	N/A
	R8	Bedroom	Plans	W13 ↘	37.5	37.5	N/A	N/A	97%	97%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R9	Bedroom	Plans	W14 ↘	37.5	37.5	N/A	N/A	97%	97%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R10	LKD	Plans	W15 ↘	37.3	37.3	N/A	N/A	95%	95%	0.00	1.00	78	78	N/A	N/A	27	27	N/A
	R11	Bedroom	Plans	W16 ↘	37.2	37.2	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R12	Bedroom	Plans	W17 ↘	37.2	37.2	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R13	LKD	Plans	W18 ↘	37.3	37.3	N/A	N/A	95%	95%	0.00	1.00	79	79	N/A	N/A	28	28	N/A
	R14	Bedroom	Plans	W19 ↘	37.5	37.5	N/A	N/A	97%	97%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R15	Bedroom	Plans	W20 ↘	37.7	37.6	N/A	N/A	97%	97%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R16	LKD	Plans	W21 ↘	37.9	37.9	N/A	N/A	95%	95%	0.00	1.00	79	79	N/A	N/A	28	28	N/A
	R17	Bedroom	Plans	W22 ↘	38.1	38.1	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R18	Bedroom	Plans	W23 ↘	38.2	38.2	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R19	LKD	Plans	W24 ↘	38.3	38.3	N/A	N/A	96%	96%	0.00	1.00	79	79	N/A	N/A	28	28	N/A
F08	R1	LKD	Plans	W1 ←	19.9	19.9	0.0	1.00											
		LKD	Plans	W2 ↙	26.4	26.4	0.0	1.00											
		LKD	Plans	W3 ↓	30.7	30.7	N/A	N/A											
		LKD	Plans	W4 ↓	32.6	32.6	N/A	N/A	100%	100%	0.00	1.00	75	75	N/A	N/A	22	22	N/A
	R3	Bedroom	Plans	W6 ↓	35.1	35.1	N/A	N/A	94%	94%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R4	LKD	Plans	W7 ↓	35.6	35.6	N/A	N/A											
		LKD	Plans	W8 ↓	36.2	36.2	N/A	N/A											
		LKD	Plans	W9 ↘	38.6	38.6	N/A	N/A	96%	96%	0.00	1.00	93	93	N/A	N/A	27	27	N/A
	R5	Bedroom	Plans	W10 ↘	38.6	38.6	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R6	Bedroom	Plans	W11 ↘	38.6	38.6	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R

Property, room & window attributes					VSC				NSL				APSH (room)						
Floor	Room	Room use	Room layout	Window Ref./Orientation	Exis.	Prop.	Loss	Pro./Ex	Exis.	Prop.	Loss	Pro./Ex	Annual (%APSH)				Winter (%APSH)		
					(% VSC)	(% VSC)	(% VSC)	. ratio	(% rm)	(% rm)	(m ²)	. ratio	Exis.	Prop.	Loss	Pro./Ex	Exis.	Prop.	Pro./Ex
	R7	LKD	Plans	W12 ↘	38.6	38.6	N/A	N/A	94%	94%	0.00	1.00	79	79	N/A	N/A	28	28	N/A
	R8	Bedroom	Plans	W13 ↘	38.6	38.6	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R9	Bedroom	Plans	W14 ↘	38.6	38.6	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R10	LKD	Plans	W15 ↘	38.6	38.6	N/A	N/A	94%	94%	0.00	1.00	79	79	N/A	N/A	28	28	N/A
	R11	Bedroom	Plans	W16 ↘	38.6	38.6	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R12	Bedroom	Plans	W17 ↘	38.6	38.6	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R13	LKD	Plans	W18 ↘	38.7	38.7	N/A	N/A	94%	94%	0.00	1.00	79	79	N/A	N/A	28	28	N/A
	R14	Bedroom	Plans	W19 ↘	38.7	38.7	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R15	Bedroom	Plans	W20 ↘	38.7	38.7	N/A	N/A	100%	100%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R16	LKD	Plans	W21 ↘	38.7	38.7	N/A	N/A	94%	94%	0.00	1.00	79	79	N/A	N/A	28	28	N/A
	R17	Bedroom	Plans	W22 ↘	38.8	38.8	N/A	N/A	99%	99%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R18	Bedroom	Plans	W23 ↘	38.8	38.8	N/A	N/A	100%	100%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R19	LKD	Plans	W24 ↘	38.8	38.8	N/A	N/A	96%	96%	0.00	1.00	79	79	N/A	N/A	28	28	N/A
15 Piccadilly																			
F02	R1	Bedroom	Plans	W1 ↙	15.2	14.1	1.1	0.93											
		Bedroom	Plans	W2 ↙	12.5	11.3	1.3	0.90	67%	67%	0.01	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R4	Bedroom	Plans	W4 ↖	22.3	19.3	3.1	0.86											
		Bedroom	Plans	W5 ↖	14.5	13.2	1.3	0.91	84%	70%	2.65	0.83	North	North	N/A	N/A	North	North	N/A
F03	R1	Bedroom	Plans	W1 ↙	18.3	17.1	1.2	0.93											
		Bedroom	Plans	W2 ↙	14.5	13.5	1.1	0.93	72%	72%	0.00	1.00	N/R	N/R	N/R	N/R	N/R	N/R	N/R
	R4	Bedroom	Plans	W4 ↖	25.5	23.3	2.2	0.91											
		Bedroom	Plans	W5 ↖	16.1	15.3	0.7	0.95	91%	91%	0.00	1.00	North	North	N/A	N/A	North	North	N/A
F04	R3	Bedroom	Plans	W2 ↖	28.8	27.3	N/A	N/A											
		Bedroom	Plans	W3 ↖	17.4	17.1	0.3	0.98	90%	89%	0.00	1.00	North	North	N/A	N/A	North	North	N/A
F05	R2	Bedroom	Plans	W2 ↖	31.3	30.6	N/A	N/A											
		Bedroom	Plans	W3 Inc	87.1	87.0	N/A	N/A	100%	100%	0.00	1.00	North	North	N/A	N/A	North	North	N/A
17 Piccadilly																			

Property, room & window attributes					VSC				NSL				APSH (room)						
Floor	Room	Room use	Room layout	Window Ref./Orientation	Exis. (% VSC)	Prop. (% VSC)	Loss (% VSC)	Pro./Ex. ratio	Exis. (% rm)	Prop. (% rm)	Loss (m²)	Pro./Ex. ratio	Annual (%APSH)				Winter (%APSH)		
													Exis.	Prop.	Loss	Pro./Ex	Exis.	Prop.	Pro./Ex
F02	R1	LKD	Plans	W1 ↗	12.1	12.0	0.1	0.99											
		LKD	Plans	W2 ↘	6.5	6.1	0.4	0.94	80%	80%	0.00	1.00	9	6	3	N/A*	0	0	N/A
	R2	Bedroom	Plans	W3 Inc	13.8	12.3	1.6	0.89	100%	100%	0.00	1.00	North	North	N/A	N/A	North	North	N/A
F03	R1	LKD	Plans	W1 ↗	15.6	15.6	0.0	1.00											
		LKD	Plans	W2 ↘	10.2	9.8	0.4	0.97	97%	97%	0.00	1.00	18	14	4	N/A*	0	0	N/A
	R2	Bedroom	Plans	W3 Inc	16.9	15.8	1.1	0.93	100%	100%	0.00	1.00	North	North	N/A	N/A	North	North	N/A
F04	R1	LKD	Plans	W1 ↗	19.1	19.1	0.0	1.00											
		LKD	Plans	W2 ↘	15.4	15.1	0.3	0.98	99%	99%	0.00	1.00	29	27	N/A	N/A	2	2	1.00
	R2	Bedroom	Plans	W3 Inc	21.3	20.4	0.9	0.96	100%	100%	0.00	1.00	North	North	N/A	N/A	North	North	N/A
F05	R1	LKD	Plans	W1 ↗	26.9	26.9	0.0	1.00											
		LKD	Plans	W2 Inc	47.3	47.2	N/A	N/A											
			LKD	Plans	W3 Inc	45.1	45.0	N/A	N/A	94%	94%	0.00	1.00	77	77	N/A	N/A	15	15
	R2	Bedroom	Plans	W4 ↖	24.5	24.1	0.3	0.99	98%	98%	0.00	1.00	North	North	N/A	N/A	North	North	N/A