DAYLIGHT, SUNLIGHT AND OVERSHADOWING ASSESSMENT

On the proposed development at:

17 Kenbury Close, Ickenham UB10 8HU

Client:

Arrow Planning

Prepared By:

Peter Spence
Rights of Light Director

Date of Report:

8th March 2024

1 INTRODUCTION

The client is proposing a single storey side and rear extension, new front porch, loft conversion including hip to gable and four skylight windows at 17 Kenbury Close and Anderson Wilde & Harris has been instructed to undertake the assessment in accordance with the recommendations contained in BR209 Site Layout Planning for Daylight and Sunlight A Guide to Good Practice and BS 8206-2.

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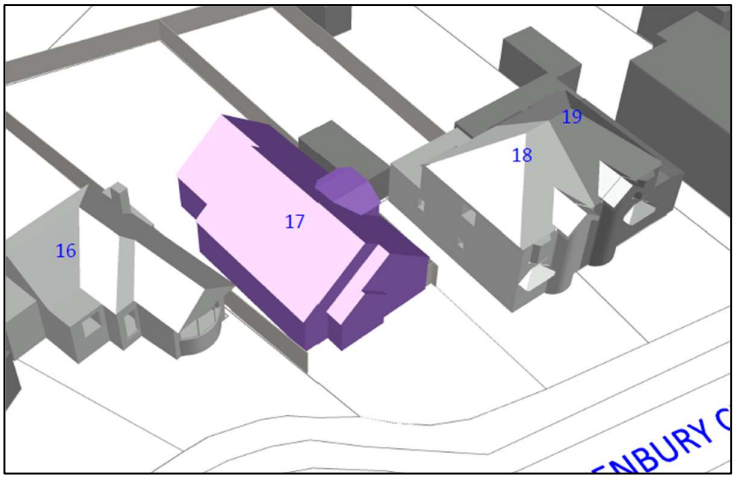
CONTENTS

2 LOCATION

2.1 EXISTING SITE

The site is located at 17 Kenbury Close. The neighbouring properties are 16 and 18 Kenbury Close. The neighbours are shown on the image below and in the appendices.



3 Basis of Assessment

In the latest BRE report BR 209 (2022) it states:

This guide gives advice on site layout planning to achieve good sunlighting and daylighting, both within buildings and in the open spaces between them. It is intended to be used in conjunction with the interior daylight recommendations for new buildings in the British Standard Daylight in buildings, BS EN 17037. It contains guidance on site layout to provide good natural lighting within a new development; safeguarding of daylight and sunlight within existing buildings nearby; and the protection of daylighting of adjoining land for future development.

This report is a comprehensive revision of the 2011 edition of Site layout planning for daylight and sunlight: a guide to good practice. It is purely advisory and the numerical target values within it may be varied to meet the needs of the development and its location.

The main criteria considered for daylighting to neighbouring properties remain unchanged from the previous BR209 (2011) and are the Vertical Sky Component (VSC) measured on the face of the window and Daylight Distribution (DD) measured using the No Sky Line (NSL). This latter is the series of points within the room at 850 mm (tabletop height) above floor level where the sky is no longer visible through the window(s).

The BRE guidelines aims to offer guidance only and is not intended to place restrictions on developing parties or Local Authorities.

4 SCOPE OF THIS REPORT

Daylight and sunlight to non-residential units are not generally considered as they are not typical town-planning issues, therefore non-residential properties have not been assessed.

The analyses used in this chapter are:

4.1 DAYLIGHT (NEIGHBOURING PROPERTIES)

As a preliminary assessment BR209 suggests the use of a series of reference points around the proposed building, for new developments. If none of the surrounding obstructions subtends an angle to the horizontal, at the reference point, of greater than 25 degrees then there will be the potential for good day-lighting in the interior and there should therefore be no need to produce further calculations to demonstrate the levels of daylighting available.

If an obstruction is taller than this, then there may still be the potential to achieve a satisfactory level of daylighting if the obstruction is not continuous and is narrow enough to allow adequate daylight around its sides and here further calculations should be used.

BR209 also describes a simple assessment using 45 degree lines in the horizontal and vertical planes from the extremities of an obstruction and where both these lines crossed above the centre of any window there is then a likelihood that the daylighting in the room will be adversely affected. For this reason, we have concentrated on those windows, which fall within the 45-degree lines. If the results proved to be adverse for all windows in this area, then our scope would be extended.

The amount of skylight falling on a vertical wall or window can be quantified as the Vertical Sky Component (VSC). This is the ratio of direct sky illuminance falling on the vertical wall at a reference point, to the simultaneous horizontal illuminance under an unobstructed sky. The maximum value is 40% for a completely unobstructed vertical wall.

For a room with non-continuous obstructions, there is the potential for good daylighting provided that the VSC at the window position, 2 metres above ground is not less than the value for a continuous obstruction of altitude 25 degrees which is equal to a VSC of 27%. This is a complex way of saying that sufficient day-lighting can be achieved by other means and the guidance suggests that if the VSC of 27% is achieved within 4 metres horizontally from any window then sufficient daylighting is still likely to be achieved.

At paragraph 2.1.6 of BR209 it advises that where a room is served by a single window and the VSC meets or exceeds 27% then conventional window design will usually provide adequate daylighting. Where the VSC value is between 15% and 27% then larger windows or changes to room layout will normally be required and if the value is between 5% and 15% then large windows will almost certainly be required. Below this value the room is unlikely to benefit from adequate daylighting.

A modified form of these calculations can be used for existing buildings to determine the impact potential of new developments but, as in this case, we prefer to use our software for this process as the results are more useful and relevant. Our software has been produced specifically for this purpose and is used by other consultants in the field. It is our practice to benchmark test results periodically against the manual methods described by the BRE and against our competitors who use different software providers. In this way we can ensure the relative accuracy of our results.

Again according to BR209, when considering existing buildings, if the VSC or the no-sky line contours produce results which reflect a reduction of daylight, caused by any new obstruction, below 80% of that which was originally available and the VSC is less than 27%, then the loss would be noticeable to the occupants.

4.2 SUNLIGHT (NEIGHBOURING PROPERTIES)

Sunlighting is measured using sunlight availability indicators or sun path indicators, which are also reproduced in the guidance by P J Littlefair for a selection of latitudes. Here too we have computer software to produce the results.

The British Standard recommends that at least 25% of annual probable sunlight hours be available at the reference point, including at least 5% of annual probable sunlight hours in the winter months, between Sept 21 and March 21. This is checked using the horizontal equinox line on the sunlight availability indicator.

When using the sunlight indicator, any obstructions to the north can be ignored as can any windows that do not face within 90 degrees of due south.

The current BRE guidance also sets out limited parameters for assessment of shadow in amenity space and stipulates that at least 50% of the area considered should have the potential benefit of 2 hours of direct sunlight on 21st March each year. If an existing garden or outdoor space is already heavily obstructed, then any further loss of sunlight should be kept to a minimum. If as a result of new development, the area which can receive two hours sunlight on 21 March is reduced to less than 0.8 times its former size, this further loss is significant.

4.3 DETERMINING SIGNIFICANCE

The BRE Report states on Page 1: The advice given here is not mandatory and the guide should not be 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.

The BRE Report states that the numerical values are advisory only and failure to meet the guideline criteria should not be used by Local Councils as an indicator as to whether a development is acceptable.

The BRE Report suggests alternative targets can be used:

- Where the site already has an existing planning permission that the development wants to vary, the VSC and APSH (annual probable sunlight hours) of the permitted scheme may be used as alternative benchmarks.
- In a historic city centre environment, it is often not possible to achieve 27% VSC, therefore it is sensible to use a target value consistent with levels of daylight typically experienced in the street.
- Where an existing building has windows that are unusually close to the site boundary and taking more than their fair share of light, to ensure that new development matches the height and proportions of existing buildings, the VSC and APSH targets for these windows could be set to those for a “mirror-image” building of the same height and size, and equal distance away on the other side of the boundary.

A habitable room may be adversely affected if any part of a new building measured in a vertical section perpendicular to the window wall subtends an angle of 25° taken from the centre of the window or a point at the centre of a window opening receives less than 27% VSC; and there is a reduction greater than 20% of its former value.

For sunlight APSH assessment, a living room may be adversely affected if a point at the centre of an existing window receives less than 25% of the total APSH of which at least 5% should be available during the winter months (21 September to 21 March) and there will be a reduction greater than 20% of its former value during either period.

It is recommended that at least half of the area of the amenity space should be able to benefit from at least 2 hours of sunlight on 21st March. This applies to both new gardens and amenity spaces and to existing ones which are affected by new developments. If an existing garden or outdoor space is already heavily obstructed, then any further loss of sunlight should be kept to a minimum. If as a result of new development, the area which can receive two hours sunlight on 21 March is reduced to less than 0.8 times its former size, this further loss is significant.

There is no published research into how the levels of noticeability might be categorised but for the purposes of this report the following has been adopted:

VSC Results

Pass/ Unaffected	=	Meets BRE target value or is unaffected by the proposals
Minor	=	The VSC will be reduced between 20% and 30%.
Noticeable 1	=	The VSC will be reduced between 30% and 40%.
Noticeable 2	=	The VSC will be reduced between 40% and 50%.
Noticeable 3	=	The VSC will be reduced by greater than 50%.

Daylight Distribution Results

Pass	=	At least 80% of the proposed room can receive direct daylight or the existing value will be reduced by no more than 20%.
Minor	=	Between 64% and 79% of the room will be able to receive direct daylight or the existing value will be reduced by no more than 30%.
Noticeable 1	=	Between 48% and 63% of the room will be able to receive direct daylight or the existing value will be reduced by no more than 40%
Noticeable 2	=	Between 32% and 47% of the room will be able to receive direct daylight or the existing value will be reduced by no more than 50%
Noticeable 3	=	Less than 31% of the room will be able to receive direct daylight or the existing value will be reduced by more than 50%

APSH Sunlight Results

Pass	=	At least 25% of annual probable sunlight hours achieved or existing being reduced by no more than 20%.
Minor	=	Existing reduced by no more than 30% or proposed at least 20% APSH
Noticeable 1	=	Existing reduced by no more than 40% or proposed at least 15% APSH
Noticeable 2	=	Existing reduced by no more than 50% or proposed at least 10% APSH
Noticeable 3	=	Existing reduced by more than 50% or proposed less than 10% APSH

5 SOURCES OF INFORMATION

We have been provided with the following information that has been used to develop our electronic model:

- Details of proposed scheme
- Existing building on the site and existing surrounding buildings
- Aerial photography from Google Earth and Bing
- Site visit, photographs and measurements
- Internal arrangements within existing surrounding buildings
- Property Drawings from Websites etc.
- Where drawings were not available we estimated the internal arrangements and room uses based on our external inspection

Where we have had to estimate the internal arrangements and room uses, as noted above, this will not affect the results for VSC or APSH because the reference point is at the centre of the window being tested. It is relevant to the daylight distribution assessment, but in the absence of suitable plans, estimation is a conventional approach.

6 RESULTS

6.1 SURROUNDING PROPERTIES

Daylight

We have assessed impacts on existing habitable rooms in the adjacent surrounding properties. Our detailed results are appended, and the tables below show the results for Vertical Sky Component (VSC) on individual windows. We have then assessed the Daylight Distribution (DD) using the No-Sky Line.

VSC		VSC reduction %		
		Minor	Noticeable	
	Pass	20 – 30 %	30 – 40 %	40% +
16 Kenbury Close	5	0	0	0
18 Kenbury Close	4	0	0	0
Total	9	0	0	0

The results show that all windows analysed in the neighbouring properties will meet the BRE recommendation for VSC.

In the below table we summarise the results for Daylight Distribution.

DD		VSC reduction %		
		Minor	Noticeable	
	Pass	20 – 30 %	30 – 40 %	40% +
16 Kenbury Close	3	0	0	0
18 Kenbury Close	2	0	0	0
Total	5	0	0	0

The results show that all rooms analysed in the neighbouring properties will meet the BRE recommendation for DD.

Sunlight

The test we have carried out to assess the impact on neighbouring sunlight is the Annual Probable Sunlight Hours (APSH). As per the BRE recommendations, this test has been carried out on all windows facing within 90 degrees of due south.

APSH – Annual & Winter		APSH reduction %		
		Minor	Noticeable	
	Pass	20 – 30 %	30 – 40 %	40 %+
16 Kenbury Close	5	0	0	0
18 Kenbury Close	2	0	0	0
Total	7	0	0	0

The results show that all windows facing within 90 degrees of due south will meet the BRE recommendation for annual and winter APSH.

Sunlight (Overshadowing) to Existing Amenity Spaces

We have carried out the overshadowing analysis and the results for the gardens to 16 and 18 Kenbury Close are contained in the appendices.

The results show that the neighbouring gardens all have results that meet the BRE recommendation on the 21st March.

7 Conclusion

Existing Buildings

All windows and rooms in the neighbouring properties will meet the BRE recommendations for VSC, DD and APSH.

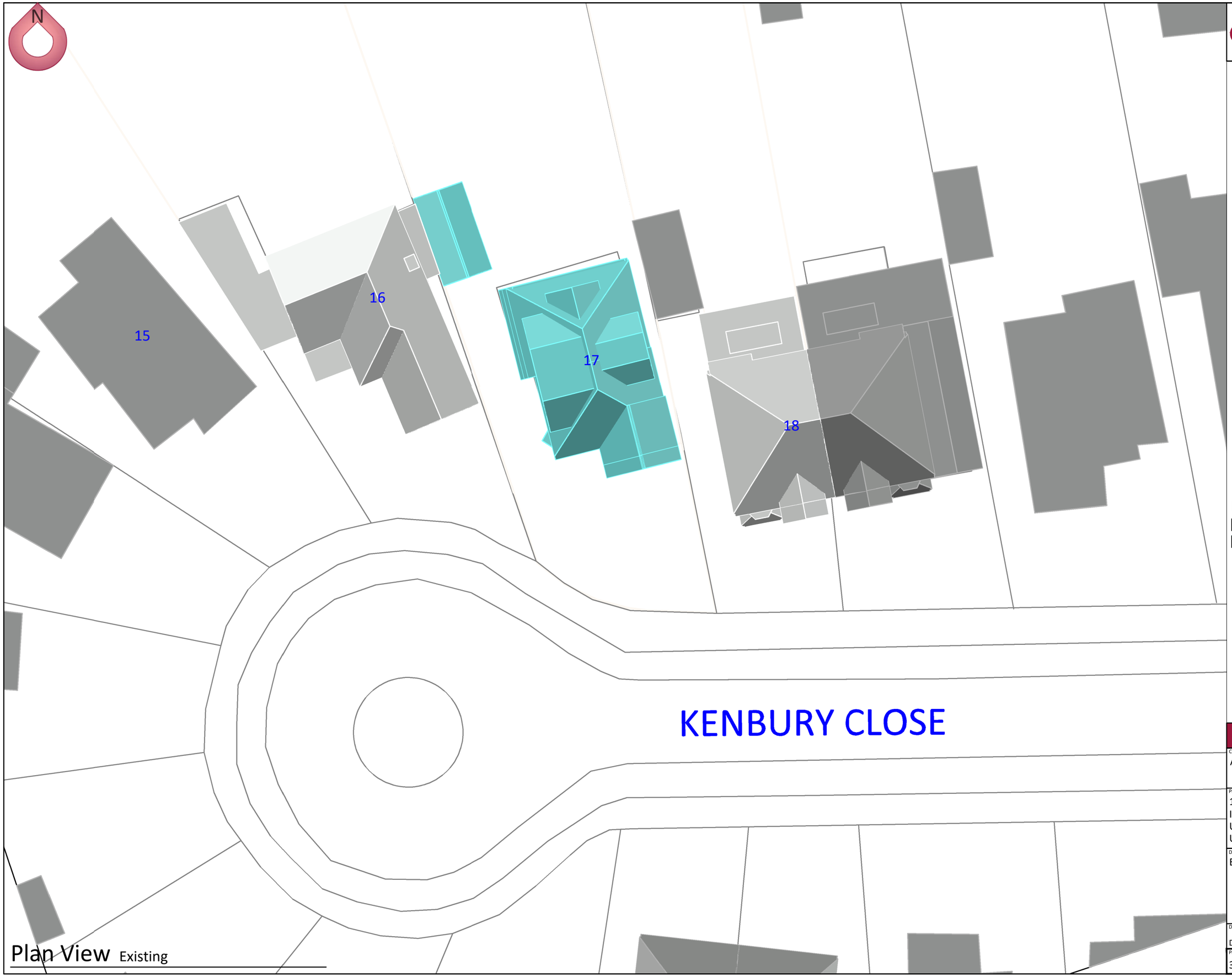
Overall, the effect that the proposed development will have on the daylight and sunlight amenity of the neighbouring properties is considered to be acceptable.

Signed:…… ……

Peter Spence

8 Appendix

8.1 Appendix 1 – Drawings



Plan View Existing

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Key
- Surroundings
- Existing

Site Plan Existing

Client: Arrow Planning

Project: 17 Kenbury Cl, Ickenham, Uxbridge, UB10 8HU

Drawing Title: Existing Site Plan

Drawn By	Checked By	Scale	Date
DKG	PS	NTS	07/03/2024

Project No./Drawing Type/Drawing No.	Release No.
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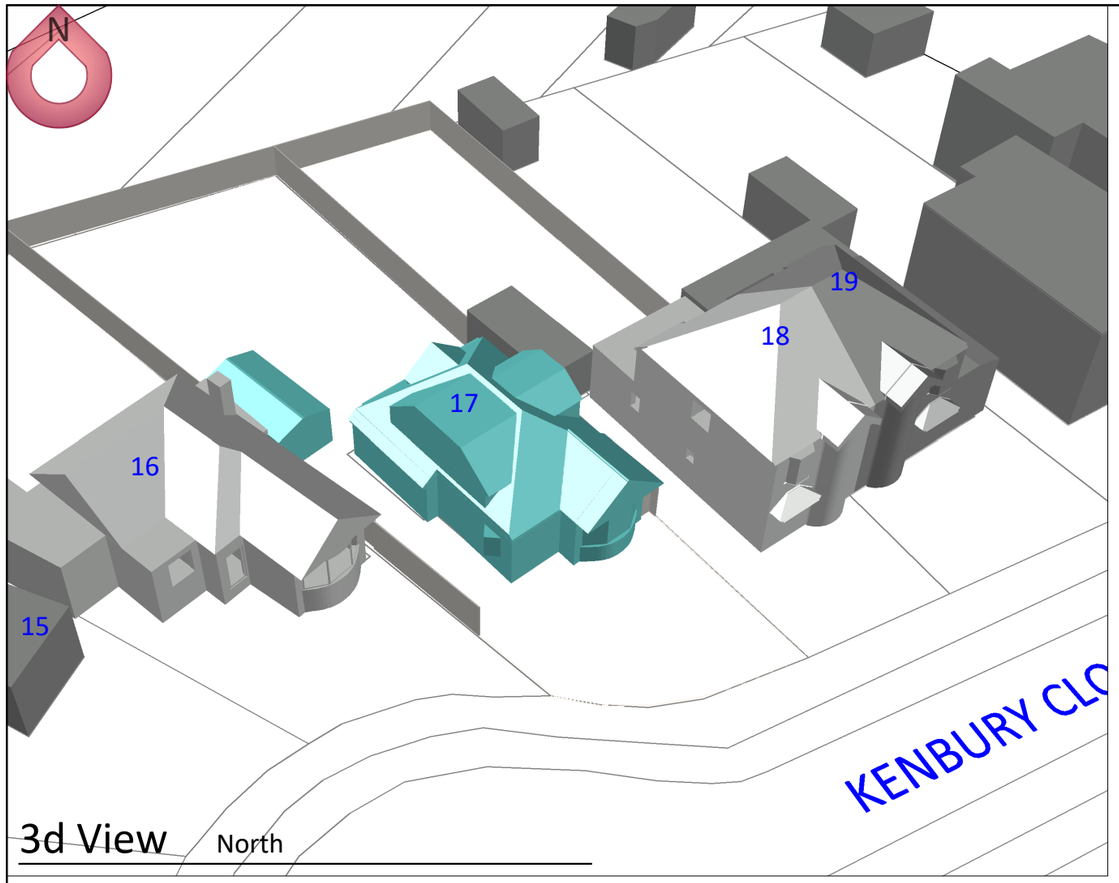
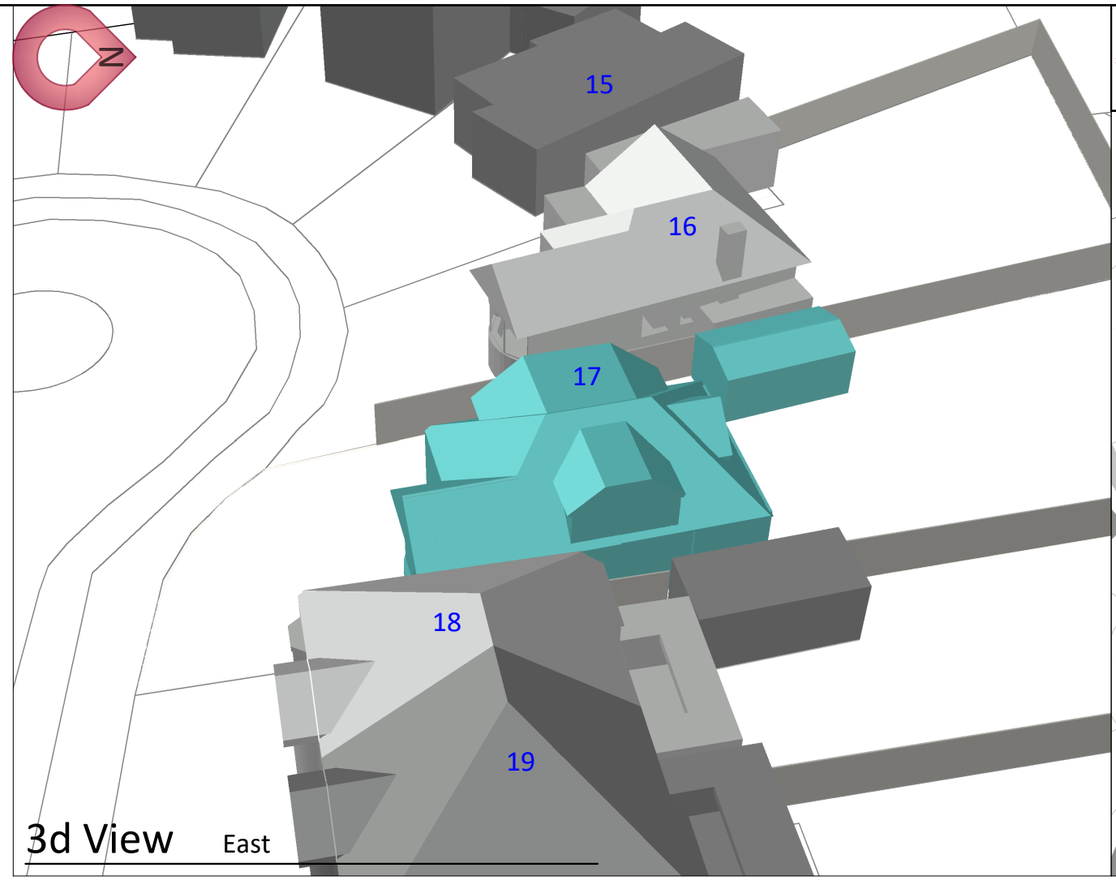


3d View North



3d View East

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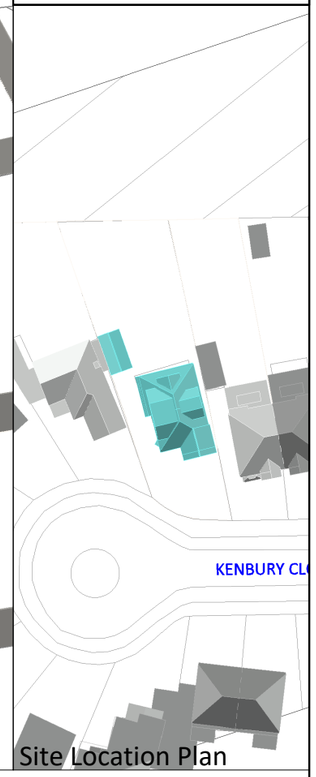
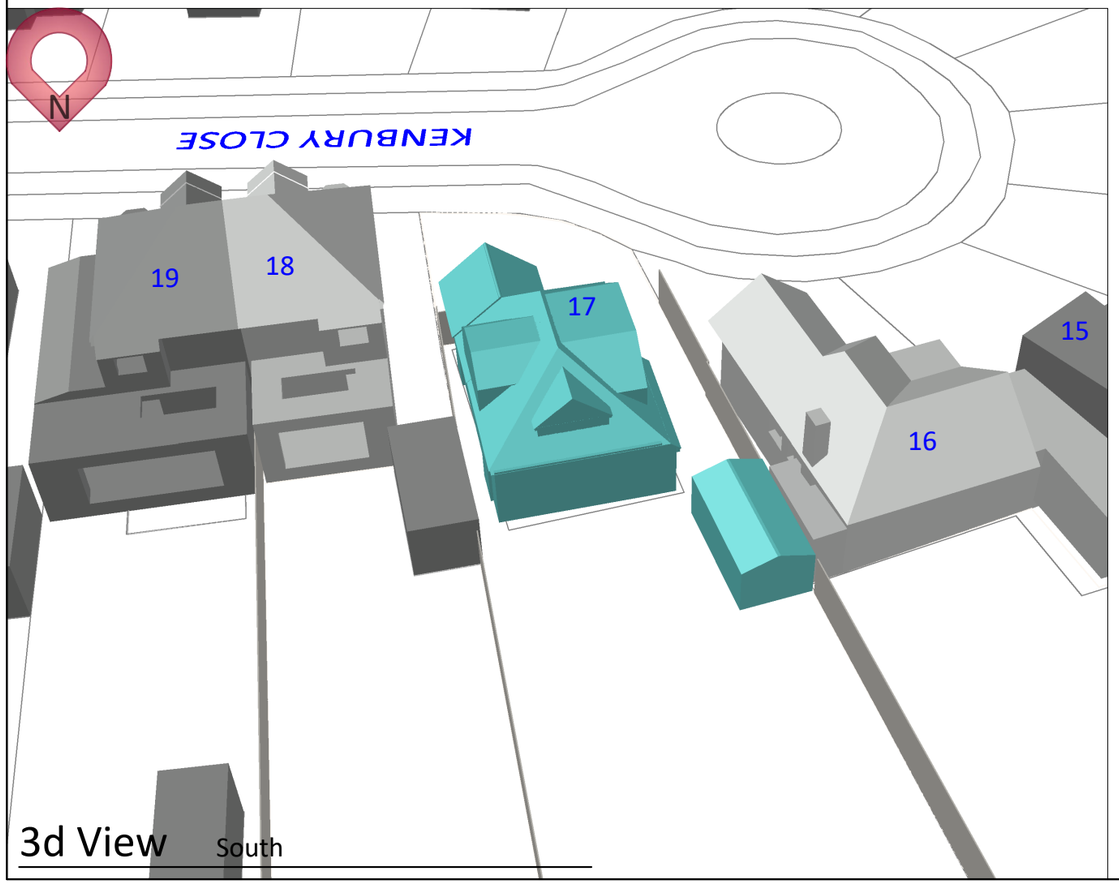
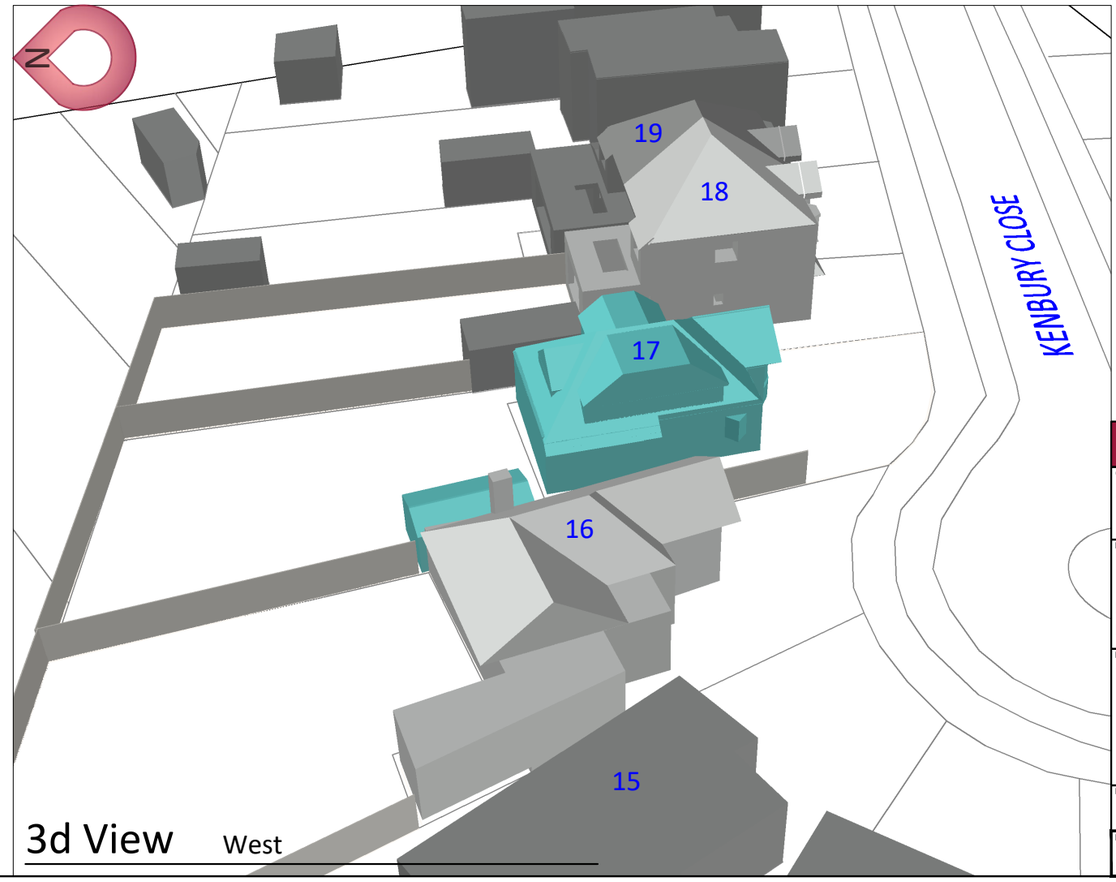


Site Location Plan



3d View South



3d View West

Key

- Surroundings
- Existing

Height in Meters

3D View Existing

Client
Arrow Planning

Project
17 Kenbury Cl,
Ickenham,
Uxbridge,
UB10 8HU

Drawing Title
3D Views of Existing Site

Drawn By	Checked By	Scale	Date
DKG	PS	NTS	07/03/2024

Project No./Drawing Type/Drawing No.	Release No.
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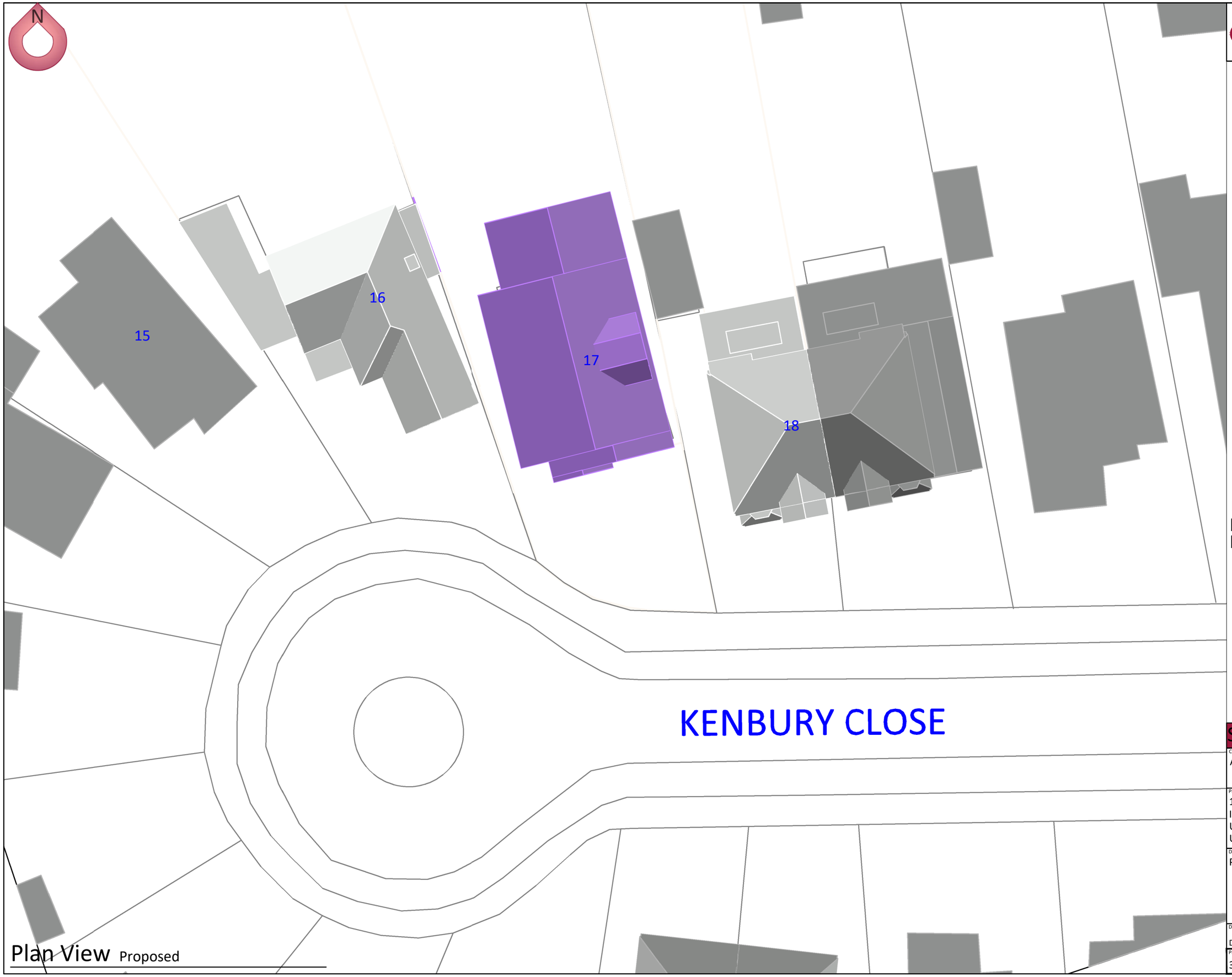

Plan View Proposed

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Key
- Surroundings
- Proposed

Site Plan Proposed

Client
Arrow Planning

Project
17 Kenbury Cl,
Ickenham,
Uxbridge,
UB10 8HU

Drawing Title
Proposed Scheme Site Plan

Drawn By	Checked By	Scale	Date
DKG	PS	NTS	07/03/2024

Project No./Drawing Type/Drawing No.	Release No.
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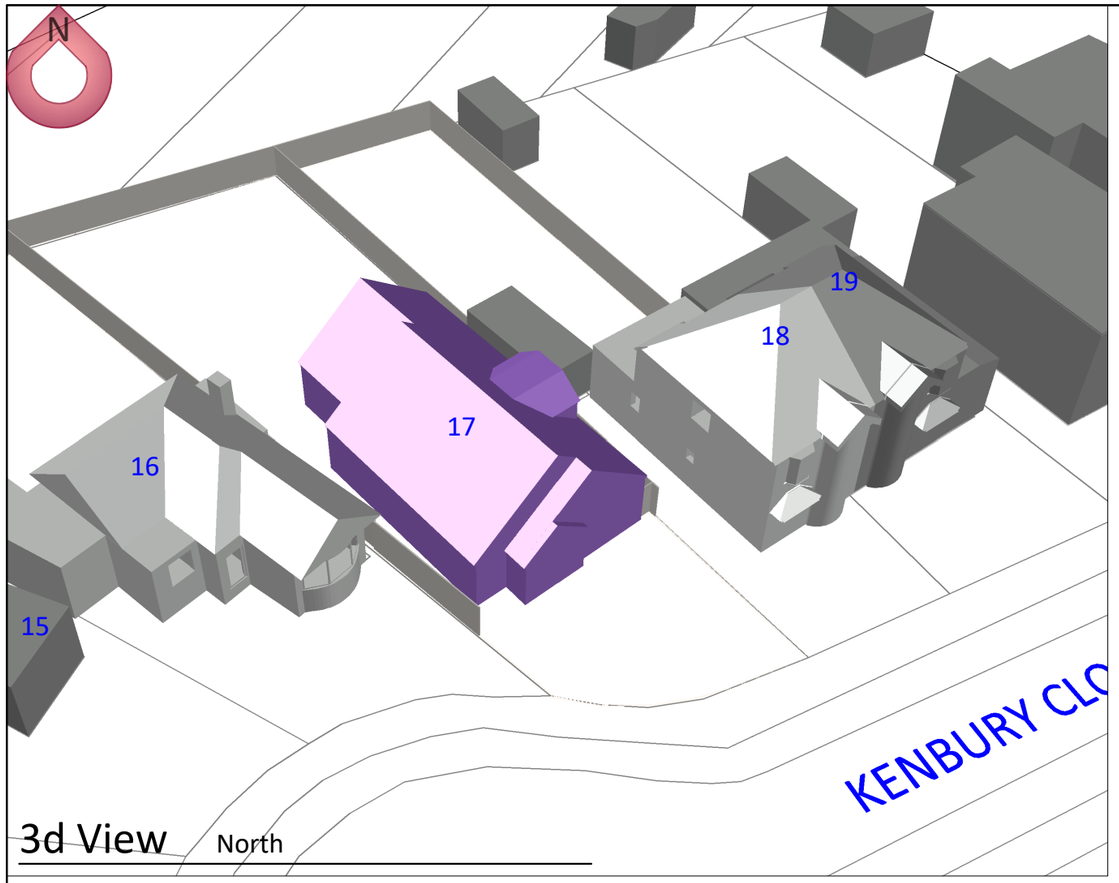

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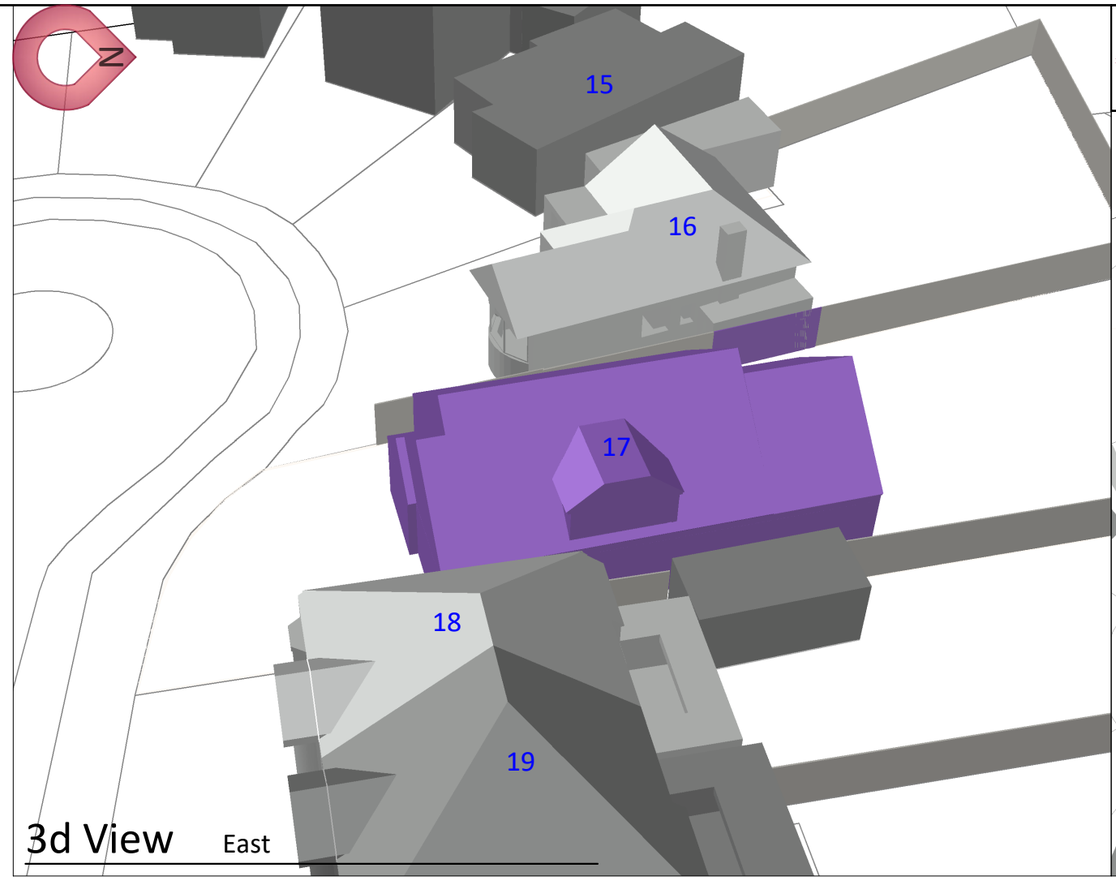

3d View East

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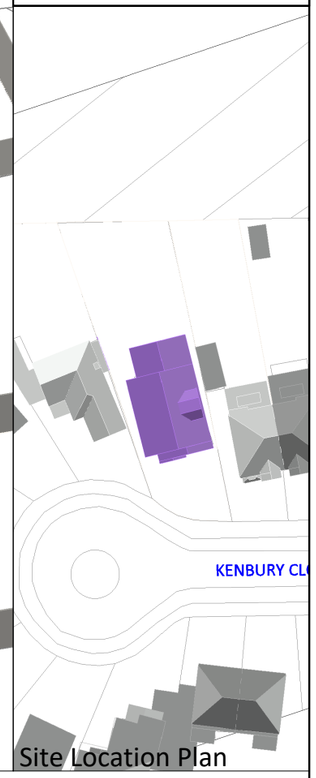
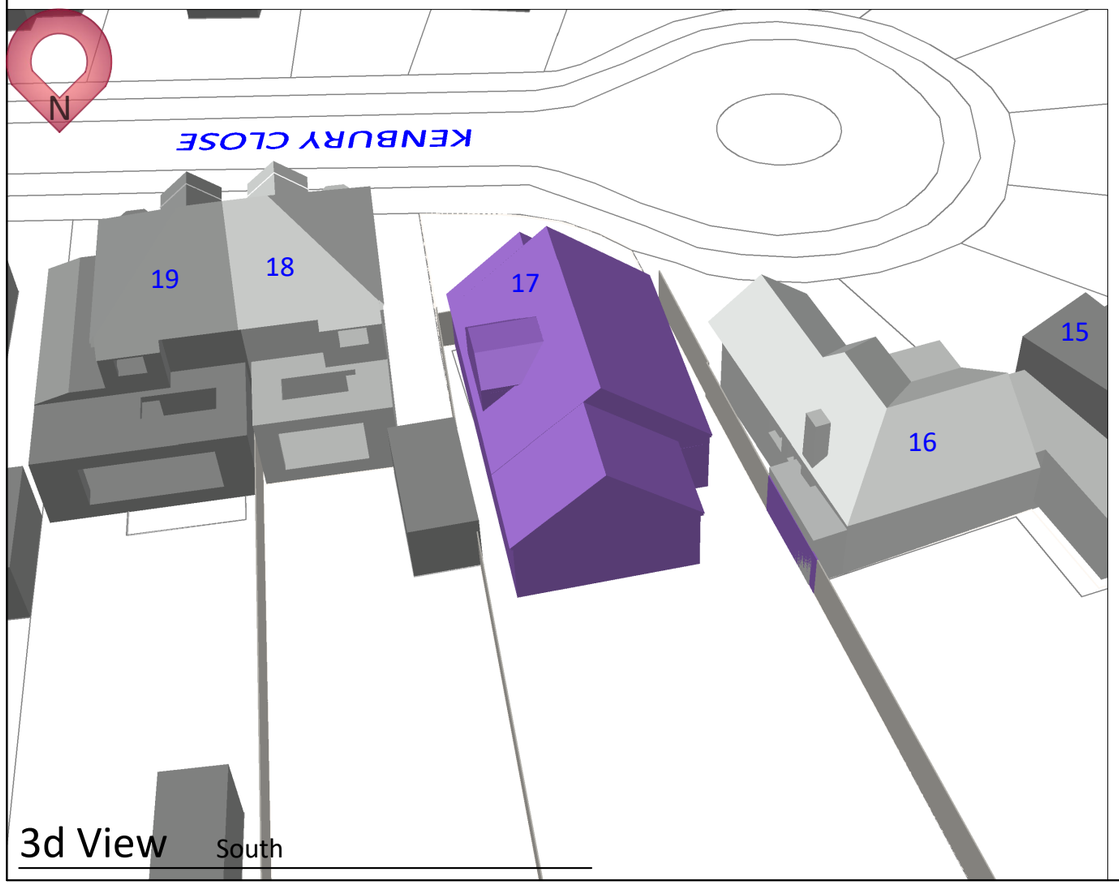


Site Location Plan



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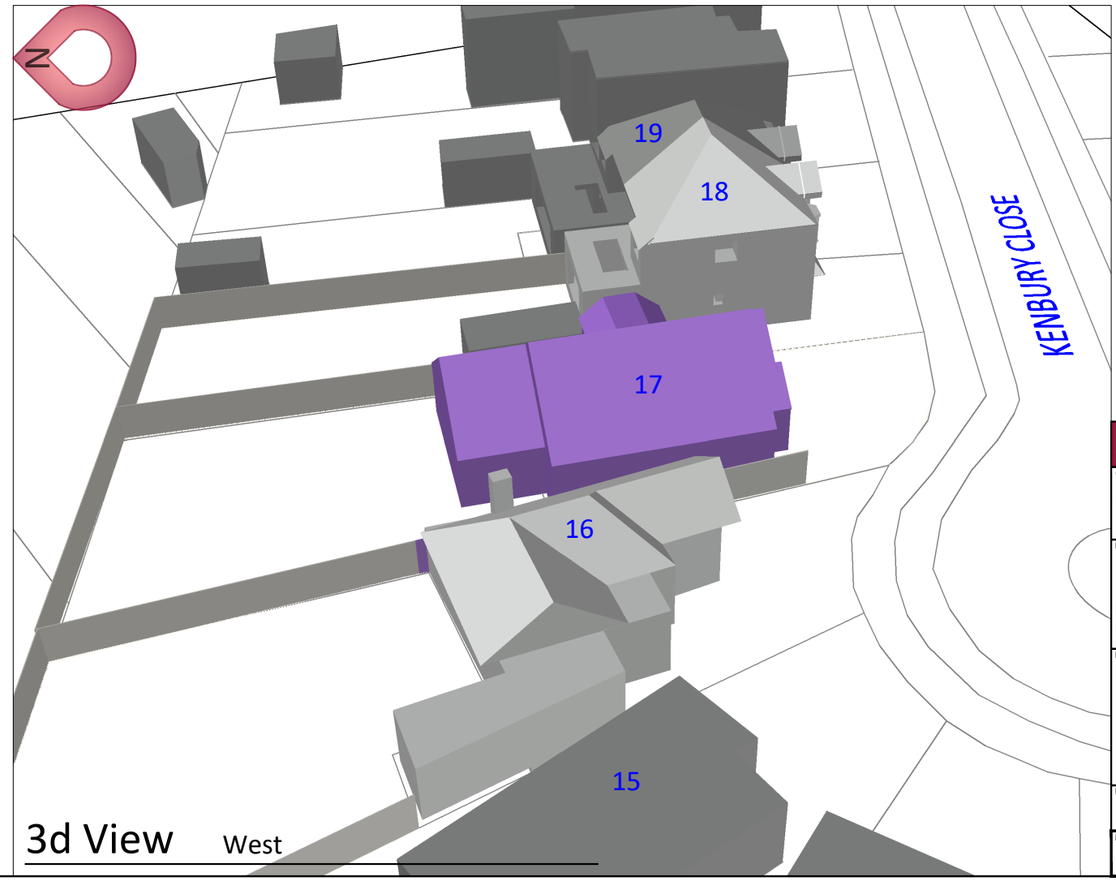

3d View West

Key

Surroundings

Proposed

Height in Meters

3D View Proposed

Client
Arrow Planning

Project
17 Kenbury Cl,
Ickenham,
Uxbridge,
UB10 8HU

Drawing Title
3D Views of the Proposed Scheme

Drawn By	Checked By	Scale	Date
DKG	PS	NTS	07/03/2024

Project No./Drawing Type/Drawing No.	Release No.
30302_ PR3D_04	1

N

Ground
R6
Unknown

W8
W1

Ground
R5
WC

W2

Ground
R1
Bathroom

Ground
R4
Bedroom

Ground
R3
Hallway

W7

W6

Ground
R2
Bedroom

W3

W4

W5

Ground Floor 16 Kenbury Close

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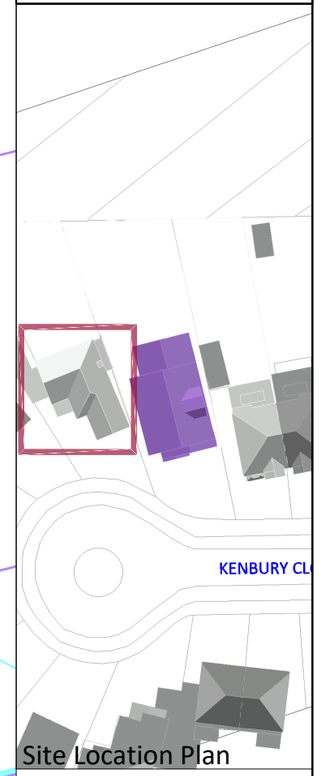
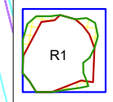
DAYLIGHT/SUNLIGHT, RTL.



Site Location Plan

Key
- Existing Contour
- Proposed Contour
- Room Outline
- Area of Loss



Daylight Distribution

Client
Arrow Planning

Project
17 Kenbury Cl,
Ickenham,
Uxbridge,
UB10 8HU

Drawing Title
Daylight Distribution Contours
16 Kenbury Close
Vs the Proposed Scheme

Drawn By	Checked By	Scale	Date
DKG	PS	NTS	07/03/2024

Project No./Drawing Type/Drawing No.	Release No.
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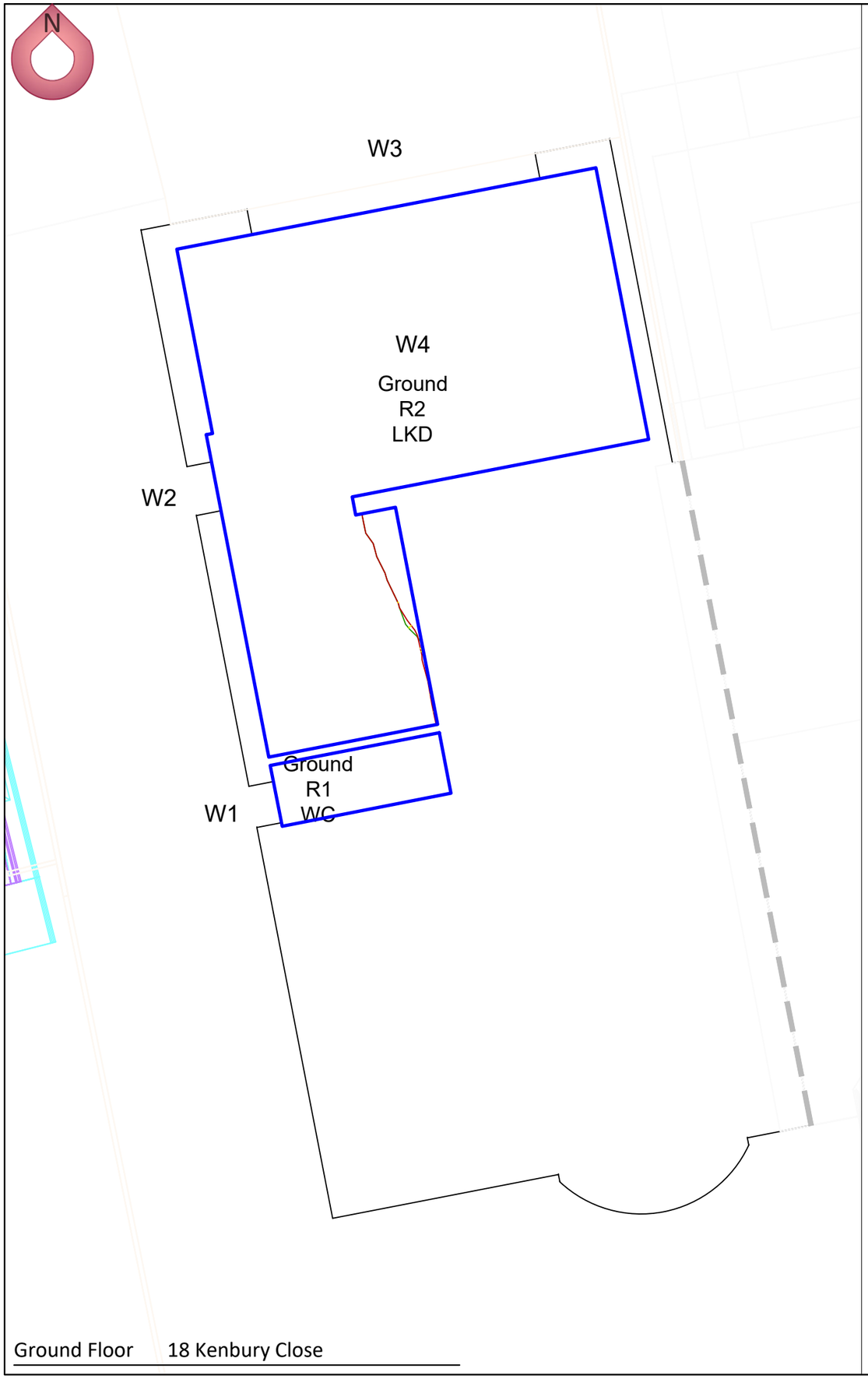
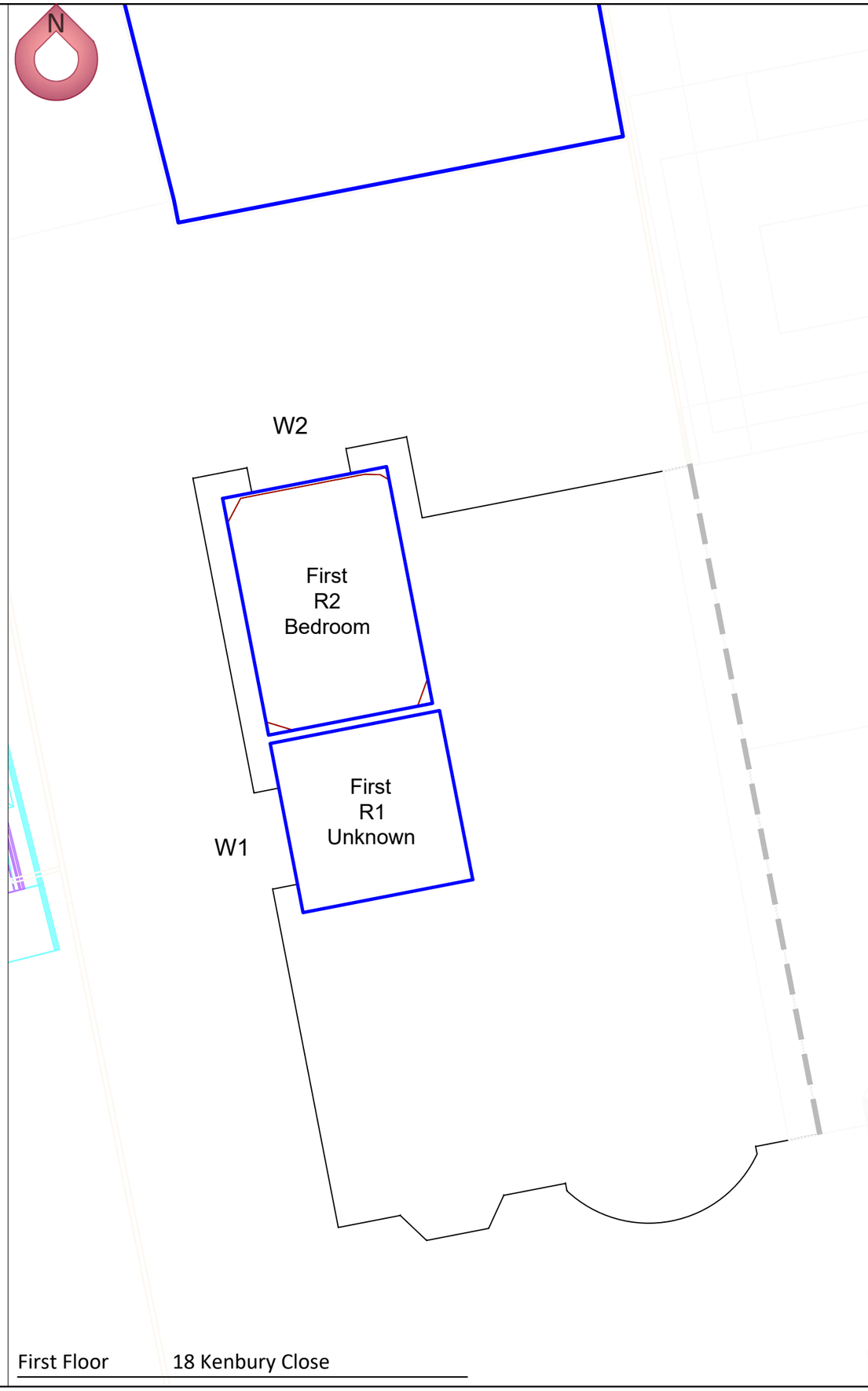


Ground Floor 18 Kenbury Close



First Floor 18 Kenbury Close

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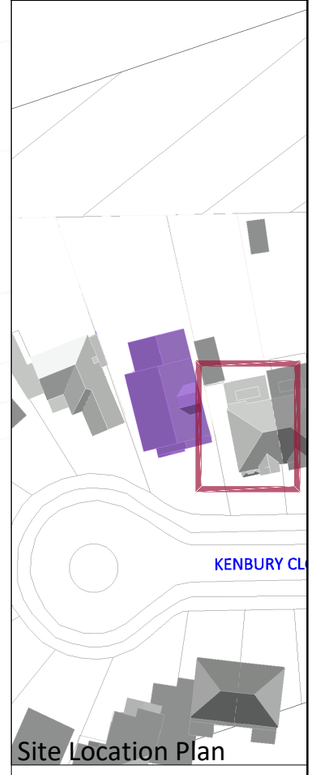
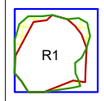


Site Location Plan

Key

- Existing Contour
- Proposed Contour
- Room Outline
- Area of Loss



Daylight Distribution

Client
Arrow Planning

Project
17 Kenbury Cl,
Ickenham,
Uxbridge,
UB10 8HU

Drawing Title
Daylight Distribution Contours
18 Kenbury Close
Vs the Proposed Scheme

Drawn By	Checked By	Scale	Date
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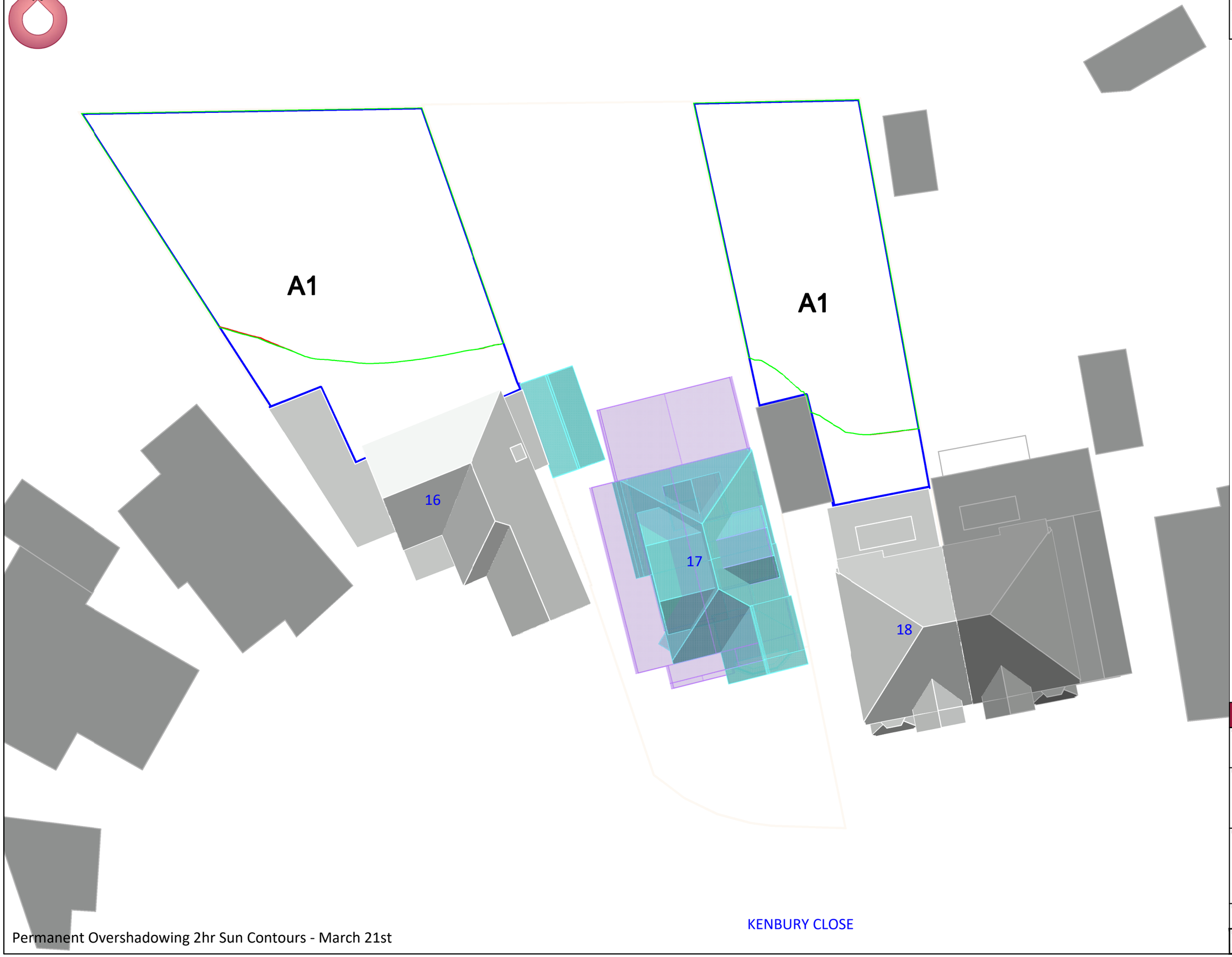

KENBURY CLOSE

Permanent Overshadowing 2hr Sun Contours - March 21st

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DAYLIGHT/SUNLIGHT, RTL.

Client
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Project
17 Kenbury Cl,
Ickenham,
Uxbridge,
UB10 8HU

Drawing Title
Permanent Overshadowing
2hr Sun Contours - 21st March

Drawn By	Checked By	Scale	Date
DKG	PS	NTS	07/03/2024

Project No./Drawing Type/Drawing No.	Release No.
30302_ PO_01	1

8.2 Appendix 2 – Results

AWH 30302_17 Kenbury Cl_UB10 8HU_REL01 VSC, DD and APSH Results																	
				Vertical Sky Component			Daylight Distribution				Annual (APSH)			Winter (APSH)		
Floor	Room	Window	Room Use	Existing	Proposed	% Reduction	Whole Room Sqm	Previous Sqm	Proposed Sqm	% Reduction	Existing	Proposed	% Reduction	Existing	Proposed	% Reduction
16 Kenbury Close																
Ground	R2	W3	Bedroom	25.04	23.58	0.94	14.09	14.08	14.08	1.00	60.00	56.00	0.93	23.00	20.00	0.87
		W4		35.05	33.96	0.97					78.00	74.00	0.95	28.00	27.00	0.96
		W5		31.16	31.08	1.00					77.00	77.00	1.00	29.00	29.00	1.00
	R4	W7	Bedroom	32.31	32.31	1.00	8.95	8.77	8.77	1.00	66.00	66.00	1.00	25.00	25.00	1.00
	R6	W8	Unknown	15.35	15.18	0.99	3.52	2.92	2.91	1.00	23.00	25.00	1.09	4.00	6.00	1.50
18 Kenbury Close																
Ground	R2	W2	LKD	23.35	23.21	0.99	22.62	22.20	22.19	1.00	34.00	32.00	0.94	10.00	9.00	0.90
		W4		72.20	71.96	1.00					65.00	65.00	1.00	5.00	5.00	1.00
		W3		35.47	35.17	0.99					North	North	North	North	North	North
First	R2	W2	Bedroom	37.72	37.21	0.99	5.66	5.48	5.48	1.00	North	North	North	North	North	North