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ORIONE HOUSE,

12/14 STATION ROAD,

HAMPTON WICK

Daylight and Sunlight Report

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CLIENT: CIRC CONSTRUCTION

Management Ltd

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PROJECT: P1999

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1 Introduction

- 1.1 Point 2 Surveyors have been appointed by Circ Construction Management Limited to undertake a daylight and sunlight assessment with regards to the proposed development of Orione House, 12/14 Station Road, Hampton Wick.
- 1.2 This report will assess the potential daylight and sunlight effects of the proposed development on the existing surrounding residential properties.
- 1.3 The analysis has been based upon a photogrammetry model provided by Z-Mapping Ltd and supplemented by a site inspection, photographs and research into publicly available records.
- 1.4 In compiling this report, we have used the following information:

Sources of information

Point 2 Surveyors

Site Photos

Z-Mapping

3D Photogrammetry model of site and surrounds

PRC Architecture and Planning

Proposed Info (received 14/12/18) 10901_Revit Model (Export 181214).dwg

London Borough of Richmond upon Thames

Various surrounding building layouts and elevations

Estate Agent Sales Details

Various surrounding building layouts



2 Methodology

- 2.1 It is usual to assess daylight and sunlight in relation to the guidelines set out in the 2011 Building Research Establishment (BRE) Report 'Site layout planning for daylight and sunlight A guide to good practice' by Paul Littlefair. This document is most widely accepted by planning authorities as the means by which to judge the acceptability of a scheme. One of the primary sources for the BRE Report is the more detailed guidance contained within 'British Standard 8206 Part 2:2008'.
- 2.2 The BRE guidelines are not mandatory, and they explicitly state that the numerical target values should be interpreted flexibly. While local planning authorities will consider the acceptability of a proposed scheme in relation to BRE guidance, consideration will be given to the context within which a scheme is located, and daylight and sunlight will be one of a number of planning considerations.
- 2.3 In relation to the properties surrounding a site, usually the local planning authority will only be concerned with the impact to main habitable accommodation (i.e. living rooms, bedrooms and kitchens) within residential properties.
- 2.4 To determine whether a neighbouring existing building may be adversely affected, the initial test provided by the BRE is to establish if any part of the proposal subtends an angle of more than 25° from the lowest window serving the existing building. If this is the case then there may be an adverse effect, and more detailed calculations are required to quantify the extent of any impact.
- 2.5 The BRE guidelines provide two principal measures of daylight for assessing the impact on properties neighbouring a site, namely Vertical Sky Component (VSC) and No-Sky Line (NSL). They also detail a third measure of daylight which is primarily used for assessing amenity within proposed accommodation, namely Average Daylight Factor (ADF).
- 2.6 In terms of sunlight we examine the BRE Annual Probable Sunlight Hours (APSH); and in relation to sunlight amenity to gardens and amenity spaces, we apply the quantitative BRE overshadowing guidance.
- 2.7 These measures of daylight and sunlight are discussed in the following paragraphs -

Diffuse Daylight

- 2.8 **Vertical Sky Component (VSC)** VSC is a measure of the direct skylight reaching a point from an overcast sky. It is the ratio of the illuminance at a point on a given vertical plane to the illuminance at a point on a horizontal plane due to an unobstructed sky.
- 2.9 For existing buildings, the BRE guideline is based on the loss of VSC at a point at the centre of a window, on the outer plane of the wall.
- 2.10 The BRE guidelines state that if the VSC at the centre of a window is less than 27%, and it is less than 0.8 times its former value (i.e. the proportional reduction is greater than 20%), then the reduction in skylight will be noticeable, and the existing building may be adversely affected.



- 2.11 **No-Sky Line (NSL)** NSL is a measure of the distribution of daylight within a room. It maps out the region within a room where light can penetrate directly from the sky, and therefore accounts for the size of and number of windows by simple geometry.
- 2.12 The BRE suggest that the area of the working plane within a room that can receive direct skylight should not be reduced to less than 0.8 times its former value (i.e. the proportional reduction in area should not be greater than 20%).
- 2.13 Average Daylight Factor (ADF) ADF is a measure of the overall amount of diffuse daylight within a room. It is the average of the daylight factors across the working plane within a room. This equates to the ratio of the average illuminance across the working plane, to the illuminance due to an unobstructed sky.
- 2.14 In addition to accounting for external obstructions, the ADF accounts for the number of windows and their size in relation to the size of the room, the window transmittance and the reflectance of the internal walls, floor and ceiling.
- 2.15 While the ADF can be calculated from first principles using a lighting simulation software suite such as Radiance, in simple situations it can be approximated using the empirical formula detailed in both British Standard 8206 Part 2:2008 and Appendix C of the BRE Report.
- 2.16 Both the BRE Report and BS 8206 Part 2:2008 provide guidance for acceptable ADF values in the presence of supplementary electric lighting, depending on the room use. These are:
 - 1.0% for a bedroom
 - 1.5% for a living room
 - 2.0% for a kitchen

Sunlight

- 2.17 Annual Probable Sunlight Hours (APSH) In relation to sunlight, the BRE recommends that the APSH received at a given window in the proposed case should be at least 25% of the total available, including at least 5% in winter.
- 2.18 Where the proposed values fall short of these, and the absolute loss is greater than 4%, then the proposed values should not be less than 0.8 times their previous value in each period (i.e. the proportional reductions should not be greater than 20%).
- 2.19 The BRE guidelines state that '...all main living rooms of dwellings, and conservatories, should be checked if they have a window facing within 90 degrees of due south. Kitchens and bedrooms are less important, although care should be taken not to block out too much sun'.
- 2.20 The APSH figures are calculated for each window, and where a room is served by more than one window the contribution of each is accounted for in the overall figures for the room. The acceptability criteria are applied to overall room based figures.



3 The Site and Proposed Development

- 3.1 The development site is Orione House, 12/14 Station Road, nos. 13 and 19-33 Lower Teddington Road in Hampton Wick. This report focusses on the development of the three storey Orione House as all other parts of the site will not be changing in mass or scale and so will have no bearing on the daylight and sunlight amenity currently enjoyed by neighbouring residential dwellings.
- 3.2 Orione House is bound by Station Road to the north, Lower Teddington Road to the east, Seymour Lodge / National Rail tracks to the south and Seymour Road to the west.
- 3.3 Drawing numbers P1999_01-03 at Appendix 1 of this report illustrate the location of the existing buildings on site and their relationship to the surrounding properties. A 3D view of the existing site is also shown below.



EXISTING SITE

- 3.4 The proposed development involves the demolition of the existing care home and the erection of 28 x 1 and 2 bed independent senior living extra care apartments with 30 car parking spaces (22 in the basement and 8 surface spaces). The development will also create a lightweight connecting walkway with the link between nos. 25 and 27 on Lower Teddington Road to provide the main entrance to the new units and will provide comprehensive refurbishment and enhancement of the existing buildings and street frontage on Lower Teddington Road.
- Our interpretation of the proposed development is shown on drawing numbers P1999_04-06 in Appendix 1. A 3D view of the proposed scheme is also provided below.





PROPOSED DEVELOPMENT



4 Daylight and Sunlight to Existing Neighbouring Properties

- 4.1 A full set of detailed daylight and sunlight results for the assessed properties is included within Appendix 2 of this report. Appendix 3 contains window maps illustrating the location of the assessed windows, which can be cross referenced to the tabulated results in Appendix 2.
- 4.2 The BRE guidelines recommend that daylight and sunlight assessments should be undertaken in relation to any properties that have a reasonable expectation for natural light. In our experience of development in the London Borough of Richmond, this usually focusses on residential buildings. It does not usually extend to commercial buildings and therefore such uses have been excluded from this assessment.
- 4.3 Following a review of VOA records, the following buildings are understood to contain residential uses and have been included within the assessment:
 - Seymour Lodge
 - Wick House
 - 7 Station Road

- 9 Station Road
- 11 Station Road
- 4.4 We believe that all other properties are located too far away or have too oblique a view of the site to be materially affected by the development. In addition to this, 13 and 19-33 Lower Teddington Road (inclusive) will form part of the development site and have therefore not been included within the assessment as this report is only focussed on the impacts to the existing surrounding neighbours.
- 4.5 Based on the detailed results in Appendix 2, the impacts on the neighbours are summarised on a property by property basis below.

Seymour Lodge



4.6 This residential apartment block is located to the south of the site. We have obtained partial floorplans from sales details which have been used to model internal room layouts and inform neighbouring layouts. In instances where layout information is unknown, we have assumed room uses and layouts configurations. Windows have been modelled based upon external inspection photography and brick counting.



4.7 The detailed technical results confirm that all of the habitable windows and rooms tested will fully meet the BRE guideline recommendations for VSC, NSL and APSH. It is therefore demonstrably the case that the Proposed Development will have no noticeable effect on the daylight and sunlight amenity enjoyed by this property.

Wick House



- 4.8 This residential apartment block is located to the west of the site. Floor plans for the 1st and 2nd floor have been obtained from Richmond's planning records (Planning ref: 15/3394/FUL) which have been used to model the internal room layouts and inform the ground floor layouts. Elevation drawings have also been obtained which have been used to inform the window locations.
- 4.9 In terms of the VSC form of assessment, 29/32 windows assessed (91%) meet the BRE criteria. The three windows that do not meet the criteria experience relative reductions between 20.88-42.68%. It should however be noted that one of these windows, W4/10, serves a ground floor kitchen and experiences a relative reduction of 20.88% which is only fractionally short of the BRE guideline recommendations.
- 4.10 The remaining two windows (W2/10 and W2/11) are secondary panes within corner windows where the main larger panes meet the BRE criteria. The rooms these windows serve are also served by an additional window that meet the BRE criteria. Each of the habitable rooms tested within this property also satisfy the NSL form of daylight assessment, and therefore overall, the rooms in question will continue to have adequate levels of daylight amenity and will therefore not be noticeably affected by the Proposed Development.
- 4.11 For sunlight, all southerly orientated rooms comfortably meet the BRE criteria for winter and annual sunlight.
- 4.12 It is therefore demonstrably the case that the Proposed Development will have no noticeable effect on the daylight and sunlight amenity enjoyed by this property.



7 Station Road



- 4.13 This property is located to the north west of the site and has been confirmed as residential in use by VOA. We have obtained internal room layouts from Richmond's planning records (ref: 14/3188/FUL) and used sections from this to inform window heights.
- 4.14 The detailed technical results confirm that all windows and rooms will fully meet the BRE guideline recommendations for VSC, NSL and APSH. It is therefore demonstrably the case that the Proposed Development will have no noticeable effect on the daylight and sunlight amenity enjoyed by this property.

9 Station Road



- 4.15 This property is located to the north of the site. Floor plans have been obtained from Richmond's planning records (Planning refs: 05/2991/HOT and 13/1694/HOT) which have been used to model the internal room layouts. Elevation drawings have also been obtained which have been used to inform the window locations.
- 4.16 The detailed technical results confirm that all of the habitable windows and rooms tested will fully meet the BRE guideline recommendations for VSC, NSL and APSH. It is therefore demonstrably the case that the Proposed Development will have no noticeable effect on the daylight and sunlight amenity enjoyed by this property.



11 Station Road



- 4.17 This property is located to the north of the site. Ground floor plans have been obtained from Richmond's planning records (Planning ref: 06/3787/HOT) which have been used to model the ground floor layouts. In the absence of plans for the first and second floor level, the information obtained for the adjacent 9 Station Road has been used.
- 4.18 The detailed technical results confirm that all of the habitable windows and rooms tested will fully meet the BRE guideline recommendations for VSC, NSL and APSH. It is therefore demonstrably the case that the Proposed Development will have no noticeable effect on the daylight and sunlight amenity enjoyed by this property.



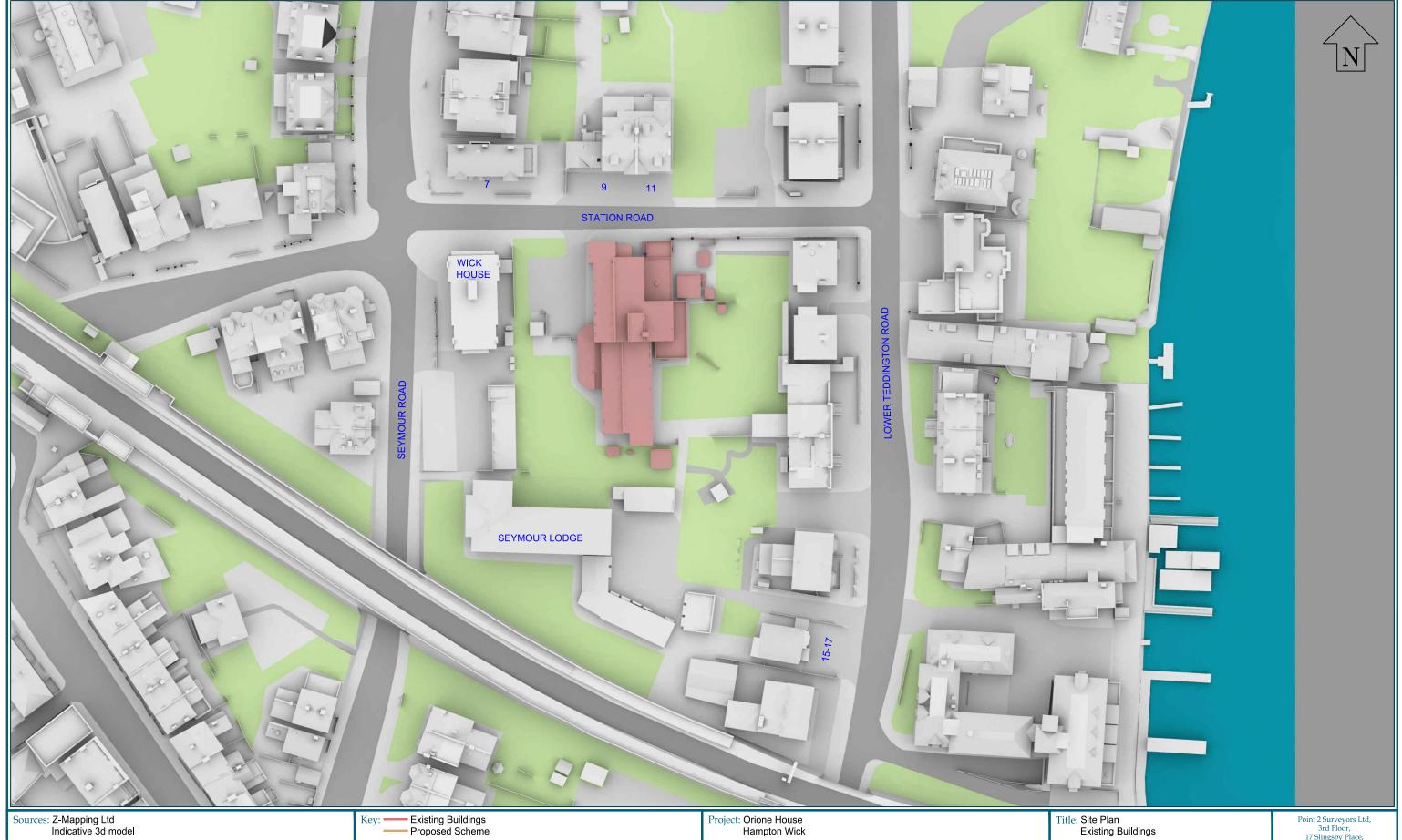
5 <u>Conclusion</u>

- 5.1 Point 2 Surveyors have undertaken a detailed daylight and sunlight assessment of the existing surrounding residential properties in respect of the proposed development of Orione House, Hampton Wick.
- 5.2 Our detailed technical assessments have confirmed that the overwhelming majority of habitable rooms and windows tested will comfortably satisfy the BRE guideline recommendations for daylight and sunlight following the implementation of the proposed development.
- 5.3 In the very few isolated instances where the BRE guideline recommendations are not met, these relate to individual windows in respect of the VSC form of daylight assessment. In all cases, the NSL form of daylight distribution assessment is satisfied, and there are either additional larger mitigating windows serving those rooms that do meet guidance, or the relative reductions are only fractionally beyond the BRE recommended target.
- Overall, it is considered that the Proposed Development will not give rise to a noticeable reduction to the daylight and sunlight amenity currently enjoyed by the existing surrounding residential properties and the London Borough of Richmond's planning policy on daylight and sunlight should be satisfied.



Appendix 1 – Existing and Proposed Plan and 3D Drawings





Site Photography Local Planning Authority Site Plans and Elevation for various surrounding buildings

PRC Architecture & Planning
Proposed Scheme 14/12/18
10901_Revit Model (Export 181214).dwg
Site Topo Survey
2018063_LOWER TEDDINGTON ROAD_SITE SURVEY - scaled
0,0.dwg

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Scheme Confirmed: PRC Architecture

Date:-

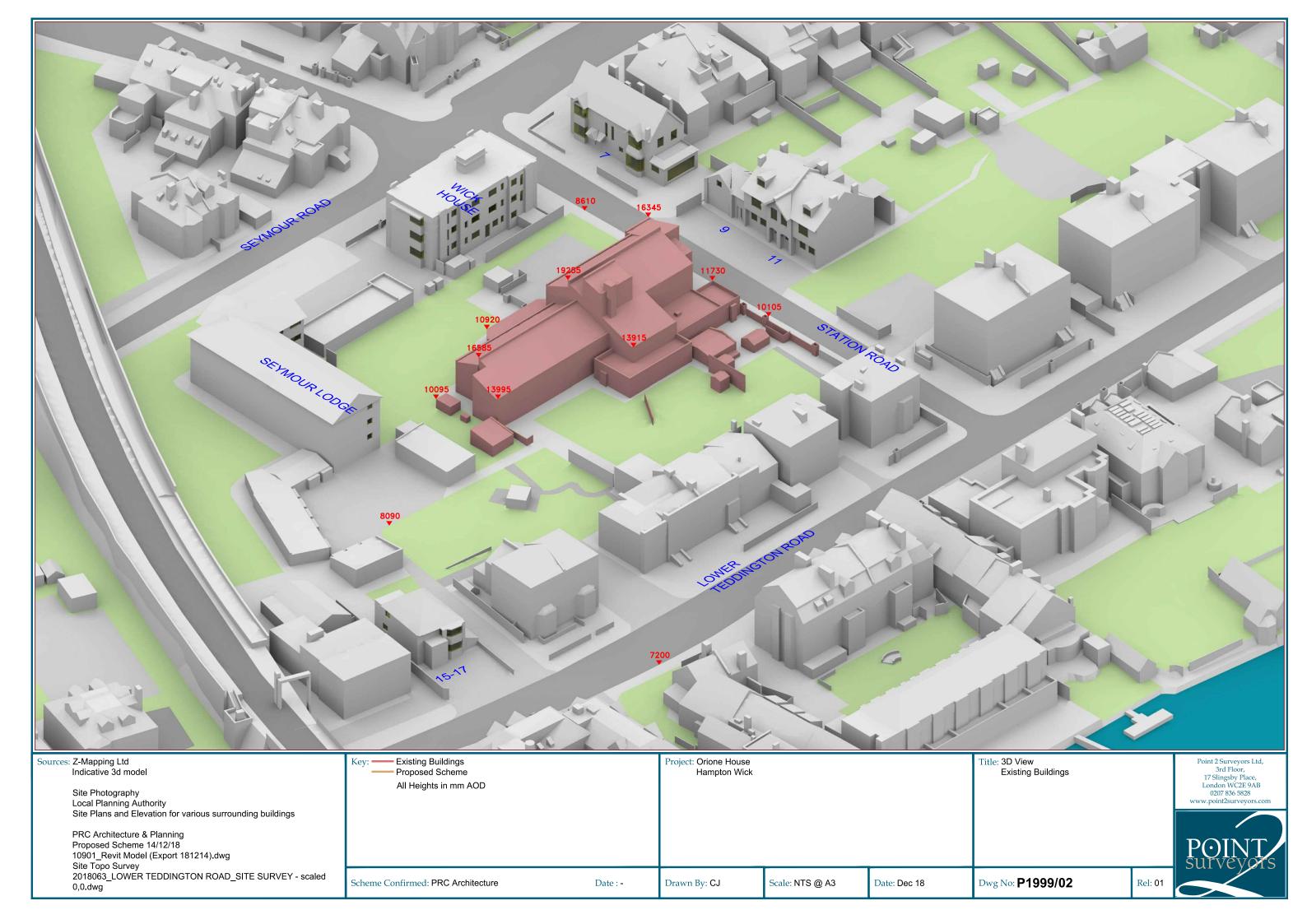
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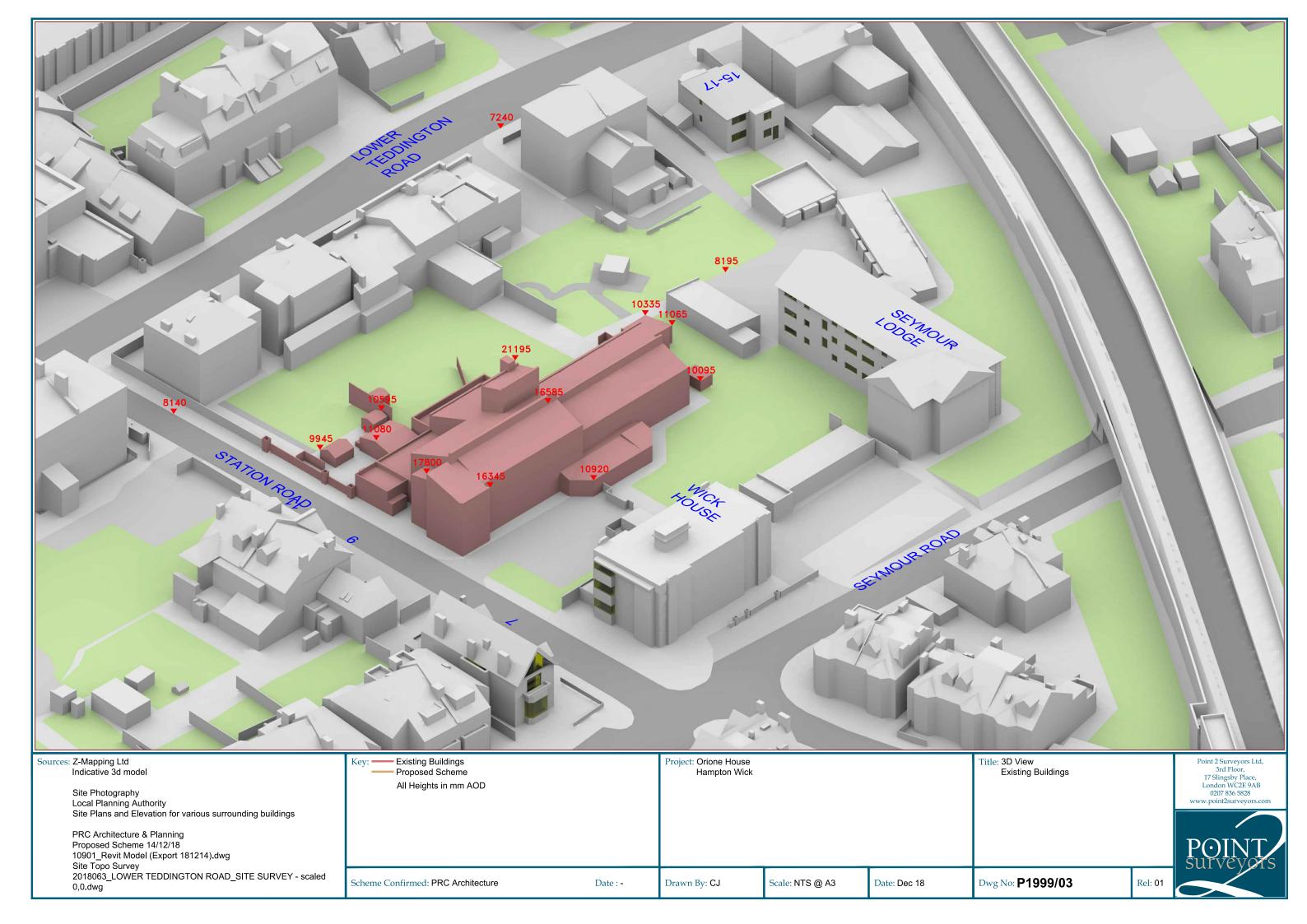
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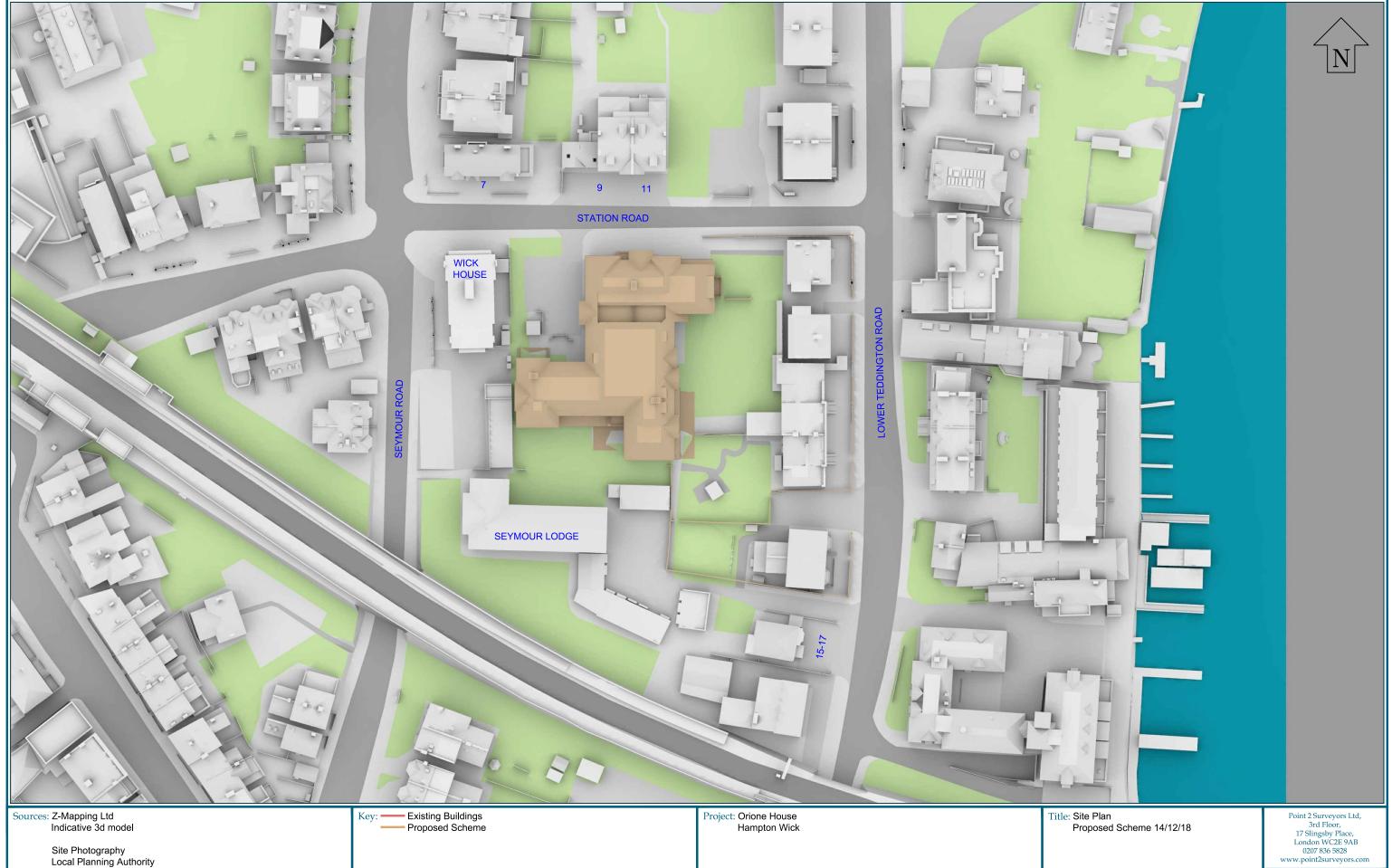
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Dwg No: **P1999/01**

Rel: 01







Site Photography Local Planning Authority Site Plans and Elevation for various surrounding buildings

PRC Architecture & Planning Proposed Scheme 14/12/18 10901_Revit Model (Export 181214).dwg Site Topo Survey
2018063_LOWER TEDDINGTON ROAD_SITE SURVEY - scaled 0,0.dwg



Scheme Confirmed: PRC Architecture

Date:-

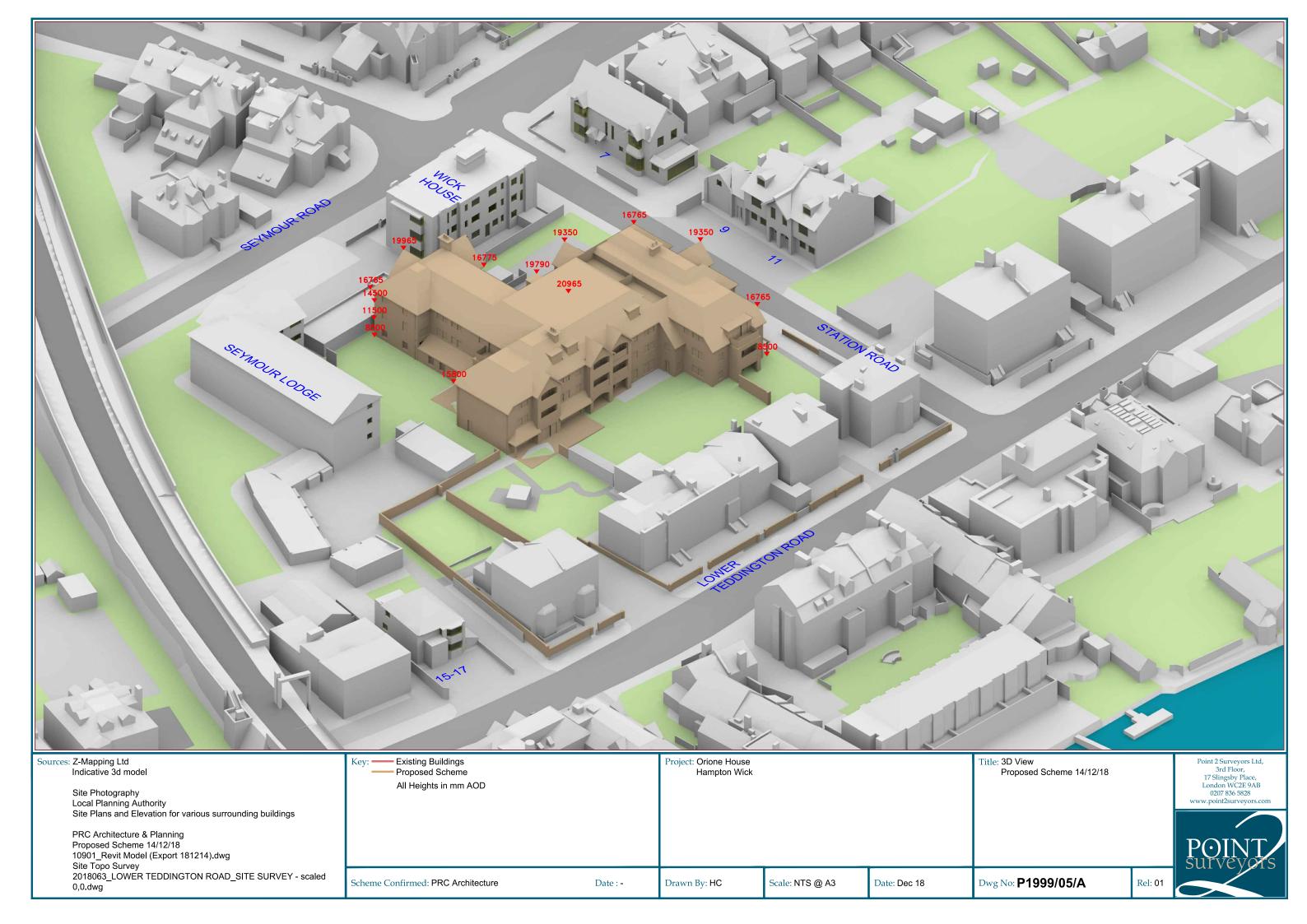
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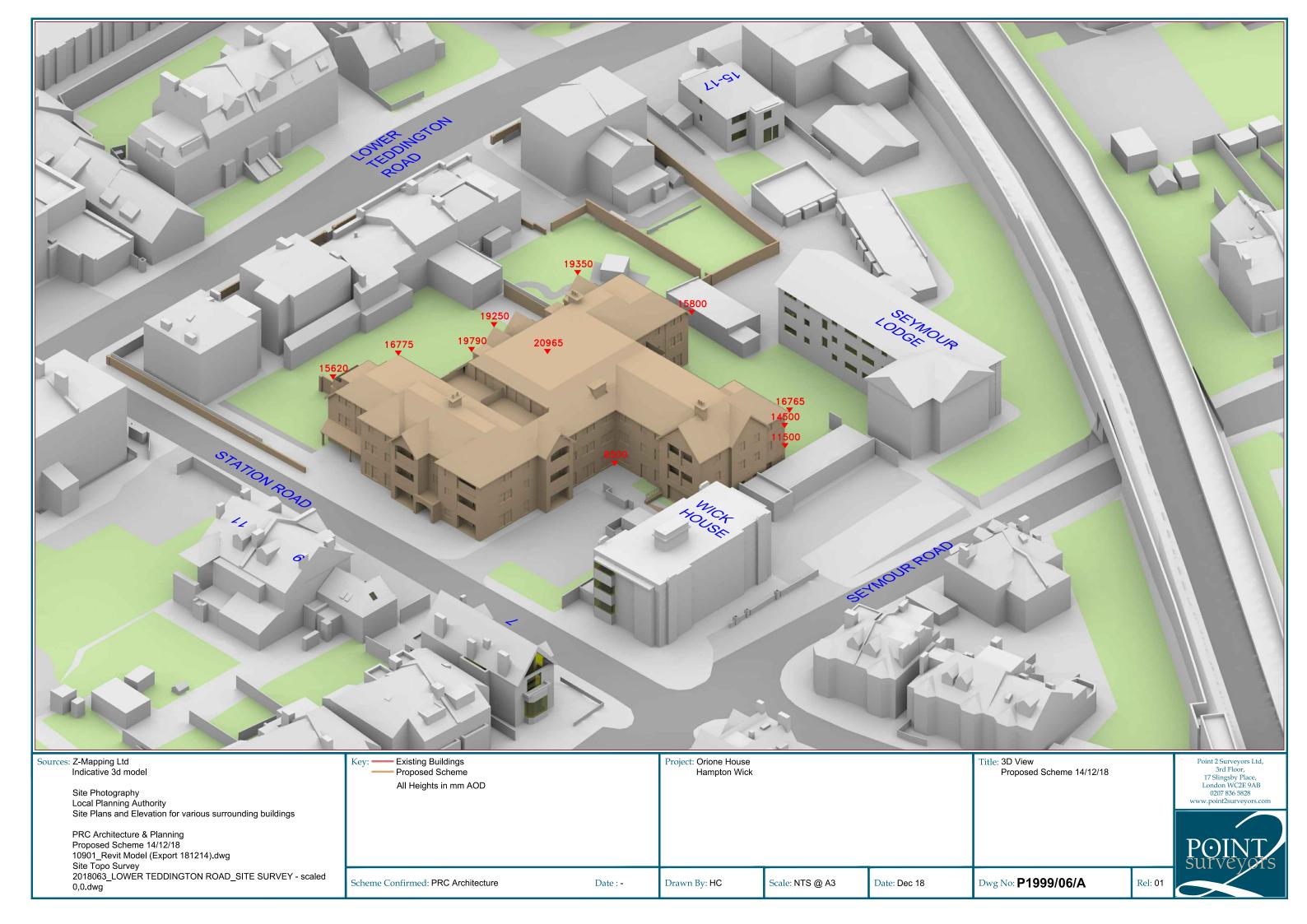
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Dwg No: P1999/04/A

Rel: 01





Appendix 2 – Detailed Technical Results



			EXISTING	PROPOSE	DLOSS	%LOSS				EXIST	ING	PROP	OSED	TOTAL	%LOSS
Room	Room Use	Window	VSC	VSC	VSC	VSC	Room	Room Use	Window	ADF	TOTAL			LOSS	ADF
Seymour	Seymour Lodge							r Lodge							
R1/30	KITCHEN	W9/30	26.42	24.06	2.36	8.93	R1/30	KITCHEN	W9/30	1.43	1.43	1.33	1.33	0.10	6.73
R4/30	KITCHEN	W6/30	31.95	27.54	4.41	13.80	R4/30	KITCHEN	W6/30	1.63	1.63	1.43	1.43	0.19	11.92
R5/30	KITCHEN	W5/30	33.77	28.87	4.90	14.51	R5/30	KITCHEN	W5/30	1.69	1.69	1.48	1.48	0.21	12.63
R8/30 R8/30	KITCHEN KITCHEN	W1/30 W2/30	36.25 34.65	34.88 28.72	1.37 5.93	3.78 17.11	R8/30 R8/30	KITCHEN KITCHEN	W1/30 W2/30	0.77 1.73	2.50	0.76 1.47	2.22	0.28	11.09
R1/31	KITCHEN	W9/31	30.84	28.93	1.91	6.19	R1/31	KITCHEN	W9/31	1.61	1.61	1.53	1.53	0.08	4.86
R4/31	KITCHEN	W6/31	34.59	31.28	3.31	9.57	R4/31	KITCHEN	W6/31	1.74	1.74	1.59	1.59	0.15	8.51
R5/31	KITCHEN	W5/31	35.68	32.00	3.68	10.31	R5/31	KITCHEN	W5/31	1.79	1.79	1.62	1.62	0.17	9.22
R8/31 R8/31	KITCHEN KITCHEN	W1/31 W2/31	37.51 36.45	36.52 31.75	0.99 4.70	2.64 12.89	R8/31 R8/31	KITCHEN KITCHEN	W1/31 W2/31	0.79 1.82	2.62	0.78 1.61	2.40	0.22	8.45
R1/32	KITCHEN	W9/32	23.28	21.96	1.32	5.67	R1/32	KITCHEN	W9/32	1.18	1.18	1.12	1.12	0.06	4.68
R4/32	KITCHEN	W6/32	27.71	25.66	2.05	7.40	R4/32	KITCHEN	W6/32	1.32	1.32	1.23	1.23	0.09	6.59
R5/32	KITCHEN	W5/32	27.82	25.54	2.28	8.20	R5/32	KITCHEN	W5/32	1.33	1.33	1.23	1.23	0.10	7.15
R8/32 R8/32	KITCHEN KITCHEN	W1/32 W2/32	33.48 26.79	32.97 23.92	0.51 2.87	1.52 10.71	R8/32 R8/32	KITCHEN KITCHEN	W1/32 W2/32	0.66 1.30	1.96	0.66 1.18	1.84	0.13	6.42
Wick Hou	ıse						Wick Ho	use							
R1/10 R1/10 R1/10	LIVINGROOM LIVINGROOM LIVINGROOM	W11/10 W12/10 W13/10	22.85 30.98 15.20	23.02 30.99 15.20	-0.17 -0.01 0.00	-0.74 -0.03 0.00	R1/10 R1/10 R1/10	LIVINGROOM LIVINGROOM LIVINGROOM	W11/10 W12/10 W13/10	0.36 2.34 0.29	2.98	0.37 2.34 0.29	2.99	0.00	-0.10
R2/10	KITCHEN	W10/10	32.17	30.32	1.85	5.75	R2/10	KITCHEN	W10/10	2.21	2.21	2.13	2.13	0.08	3.62
R4/10	BEDROOM	W8/10	32.23	29.39	2.84	8.81	R4/10	BEDROOM	W8/10	1.35	1.35	1.27	1.27	0.08	6.15
R5/10	BEDROOM	W6/10	32.35	28.14	4.21	13.01	R5/10	BEDROOM	W6/10	1.45	1.45	1.30	1.30	0.15	10.53
R7/10	KITCHEN	W4/10	29.65	23.46	6.19	20.88	R7/10	KITCHEN	W4/10	2.01	2.01	1.69	1.69	0.32	16.09
R8/10	LIVINGROOM	W1/10	34.91	29.94	4.97	14.24	R8/10	LIVINGROOM	W1/10	1.97		1.74			
R8/10 R8/10	LIVINGROOM LIVINGROOM	W2/10 W3/10	20.29 27.81	11.63 22.41	8.66 5.40	42.68 19.42	R8/10 R8/10	LIVINGROOM LIVINGROOM	W2/10 W3/10	0.32 0.46	2.74	0.22 0.42	2.38	0.37	13.35
R1/11 R1/11	LIVINGROOM LIVINGROOM	W10/11 W11/11	31.24 24.74	29.95 24.74	1.29 0.00	4.13 0.00	R1/11 R1/11	LIVINGROOM LIVINGROOM	W10/11 W11/11	0.51 0.39		0.50 0.39			
R1/11 R1/11	LIVINGROOM LIVINGROOM	W12/11 W13/11	33.98 14.86	33.99 14.86	-0.01 0.00	-0.03 0.00	R1/11 R1/11	LIVINGROOM LIVINGROOM	W12/11 W13/11	2.60 0.29	3.79	2.60 0.29	3.79	0.01	0.16
R2/11	KITCHEN	W9/11	34.94	33.38	1.56	4.46	R2/11	KITCHEN	W9/11	2.46	2.46	2.38	2.38	0.07	3.01
R4/11	BEDROOM	W7/11	35.05	32.61	2.44	6.96	R4/11	BEDROOM	W7/11	1.62	1.62	1.52	1.52	0.09	5.82
R5/11	BEDROOM	W6/11	35.19	31.86	3.33	9.46	R5/11	BEDROOM	W6/11	1.61	1.61	1.48	1.48	0.13	8.03
R7/11	KITCHEN	W4/11	32.32	27.41	4.91	15.19	R7/11	KITCHEN	W4/11	2.23	2.23	1.96	1.96	0.27	12.09
R8/11	LIVINGROOM	W1/11	36.76	33.06	3.70	10.07	R8/11	LIVINGROOM	W1/11	2.11		1.92			
R8/11 R8/11	LIVINGROOM LIVINGROOM	W2/11 W3/11	21.26 30.43	14.39 25.85	6.87 4.58	32.31 15.05	R8/11 R8/11	LIVINGROOM LIVINGROOM	W2/11 W3/11	0.34 0.48	2.93	0.26 0.45	2.63	0.30	10.21
R1/12	LIVINGROOM	W10/12	33.59	32.59	1.00	2.98	R1/12	LIVINGROOM	W10/12	0.54		0.53			
R1/12 R1/12	LIVINGROOM LIVINGROOM		26.71 31.85	26.58 31.85	0.13 0.00	0.49 0.00	R1/12 R1/12	LIVINGROOM LIVINGROOM		0.41 2.25	2 20	0.41 2.25	2 27	0.01	0.24
R1/12 R2/12	LIVINGROOM KITCHEN	W13/12 W9/12	7.33 37.37	7.33 36.27	0.00 1.10	0.00 2.94	R1/12 R2/12	LIVINGROOM	W13/12 W9/12	0.18 2.61	3.38 2.61	0.18 2.55	3.37 2.55	0.01	0.24 2.26
R2/12 R4/12	BEDROOM	W7/12	37.51	35.89	1.62	4.32	R4/12	BEDROOM	W7/12	1.72	1.72	1.65	1.65	0.06	3.85
R5/12	BEDROOM	W6/12	37.61	35.42	2.19	5.82	R5/12	BEDROOM	W6/12	1.72	1.72	1.62	1.62	0.09	5.28
R7/12	KITCHEN	W4/12	34.87	31.72	3.15	9.03	R7/12	KITCHEN	W4/12	2.36	2.36	2.18	2.18	0.18	7.59
R8/12	LIVINGROOM	W1/12	33.12	31.03	2.09	6.31	R8/12	LIVINGROOM	W1/12	1.76		1.66			
R8/12 R8/12	LIVINGROOM LIVINGROOM	W2/12 W3/12	24.02 32.78	19.62 29.59	4.40 3.19	18.32 9.73	R8/12 R8/12	LIVINGROOM LIVINGROOM	W2/12 W3/12	0.36 0.51	2.63	0.31 0.49	2.46	0.17	6.43
7 Station	Road						7 Station	n Road							
R1/100 R1/100 R1/100 R1/100 R1/100 R1/100 R1/100	LIVINGROOM LIVINGROOM LIVINGROOM LIVINGROOM LIVINGROOM LIVINGROOM LIVINGROOM LIVINGROOM	W1/100 W2/100 W3/100 W4/100 W5/100 W6/100 W7/100 W8/100	16.68 30.13 33.92 32.79 20.32 21.40 32.30 8.86	16.68 30.13 33.92 32.79 20.32 21.40 31.77 8.36	0.00 0.00 0.00 0.00 0.00 0.00 0.53 0.50	0.00 0.00 0.00 0.00 0.00 0.00 1.64 5.64	R1/100 R1/100 R1/100 R1/100 R1/100 R1/100 R1/100	LIVINGROOM LIVINGROOM LIVINGROOM LIVINGROOM LIVINGROOM LIVINGROOM LIVINGROOM LIVINGROOM	W1/100 W2/100 W3/100 W4/100 W5/100 W6/100 W7/100 W8/100	0.35 0.47 2.17 0.49 0.34 0.30 1.47 0.17	5.75	0.35 0.47 2.17 0.49 0.34 0.30 1.45 0.17	5.72	0.02	0.42
R3/100 R3/100	LKD LKD	W12/100 W13/100	16.30 29.11	16.30 28.69	0.00 0.42	0.00 1.44	R3/100 R3/100	LKD LKD	W12/100 W13/100	0.20 0.28		0.20 0.28			

			EVICTING	DDODGGE	D I 000	9/1-000				EVI6-	TINC -	DDAE	OCER-	TOTAL	9/L OCO.
Room	Room Use	Window	EXISTING VSC	PROPOSE VSC	VSC	%LOSS VSC	Room	Room Use	Window	EXIST ADF	TOTAL		POSED TOTAL	TOTAL LOSS	%LOSS ADF
R3/100	LKD	W14/100	32.75	31.54	1.21	3.69	R3/100	LKD	W14/100	1.34		1.30			
R3/100	LKD	W15/100	31.98	30.67	1.31	4.10	R3/100	LKD	W15/100	0.30		0.29			
R3/100	LKD	W16/100	19.13	18.53	0.60	3.14	R3/100	LKD	W16/100	0.21		0.21			
R3/100	LKD	W17/100	31.32	30.03	1.29	4.12	R3/100	LKD	W17/100	0.45		0.43			
R3/100	LKD	W18/100	29.34	28.69	0.65	2.22	R3/100	LKD	W18/100	2.52		2.48			
R3/100	LKD	W19/100	28.34	28.34	0.00	0.00	R3/100	LKD	W19/100	0.40	5.69	0.40	5.58	0.11	1.90
R1/101	BEDROOM	W1/101	35.44	35.44	0.00	0.00	R1/101	BEDROOM	W1/101	2.04		2.04			
R1/101 R1/101	BEDROOM	W1/101 W2/101	35.44 20.85	35.44 20.85	0.00	0.00	R1/101 R1/101	BEDROOM	W1/101 W2/101	2.04 0.26		2.04 0.26			
R1/101	BEDROOM	W3/101	34.26	33.83	0.00	1.26	R1/101	BEDROOM	W3/101	1.48		1.46			
R1/101	BEDROOM	W4/101	18.23	17.80	0.43	2.36	R1/101	BEDROOM	W4/101	0.24	4.02	0.24	4.00	0.02	0.47
R2/101	BEDROOM	W5/101	16.12	16.12	0.00	0.00	R2/101	BEDROOM	W5/101	0.36		0.36			
R2/101	BEDROOM	W6/101	32.25	31.35	0.90	2.79	R2/101	BEDROOM	W6/101	2.29		2.23			
R2/101	BEDROOM	W7/101	19.25	18.73	0.52	2.70	R2/101	BEDROOM	W7/101	0.40	4.40	0.40	4.00	0.0=	4.50
R2/101	BEDROOM	W8/101	35.94	35.46	0.48	1.34	R2/101	BEDROOM	W8/101	1.39	4.43	1.37	4.36	0.07	1.56
R3/101	BEDROOM	W9/101	35.91	35.47	0.44	1.23	R3/101	BEDROOM	W9/101	1.40	1.40	1.39	1.39	0.01	0.79
9 Station	Road						9 Station	n Road							
R3/80	LIVINGROOM	W5/80	25.47	23.44	2.03	7.97	R3/80	LIVINGROOM	W5/80	0.65		0.60			
R3/80	LIVINGROOM	W6/80	25.47 25.26	23.44	2.03 1.84	7.97 7.28	R3/80	LIVINGROOM	W6/80	0.65	1.29	0.60	1.21	0.08	6.22
R3/81	BEDROOM?	W2/81	31.04	28.92	2.12	6.83	R3/81	BEDROOM?	W2/81	1.60	1.60	1.51	1.51	0.09	5.64
R4/81	BEDROOM?	W4/81	30.49	28.58	1.91	6.26	R4/81	BEDROOM?	W4/81	1.75	1.75	1.66	1.66	0.09	5.36
R1/82	BEDROOM	W6/82	38.31	36.97	1.34	3.50	R1/82	BEDROOM	W6/82	1.27	1.27	1.22	1.22	0.05	3.55
R1/91		W1/91	35.58	34.07	1.51	4.24	R1/91		W1/91	0.74	1.60	0.71	4.05	0.00	1 70
R1/91	n Dacid	W3/91	80.38	80.34	0.04	0.05	R1/91	un Dand	W3/91	0.94	1.68	0.94	1.65	0.03	1.79
11 Statio		144455					11 Statio		Maria	0.5-					
R2/80	LIVINGROOM	W1/80	26.04	23.14	2.90	11.14	R2/80	LIVINGROOM	W1/80	0.69	1 25	0.62	1 22	0.12	0 05
R2/80	LIVINGROOM	W2/80	24.78	22.08	2.70	10.90	R2/80	LIVINGROOM	W2/80	0.66	1.35	0.60	1.23	0.12	8.85
R1/81	BEDROOM?	W1/81	32.00	29.71	2.29	7.16	R1/81	BEDROOM?	W1/81	1.85	1.85	1.74	1.74	0.11	6.00
R2/81	BEDROOM?	W3/81	30.89	28.68	2.21	7.15	R2/81	BEDROOM?	W3/81	1.55	1.55	1.46	1.46	0.09	6.00
R2/82	BEDROOM	W5/82	38.10	36.78	1.32	3.46	R2/82	BEDROOM	W5/82	1.26	1.26	1.22	1.22	0.04	3.41
15-17 L o	wer Teddington F	Poad					15_17 ^	wer Teddington	Road						
19-11 LU	wei reddington f	\oau					13-17 LO	wei i eddington	ivoau						
R1/60	KITCHEN	W1/60	25.45	25.45	0.00	0.00	R1/60	KITCHEN	W1/60	0.81		0.81			
R1/60	KITCHEN	W2/60	33.98	33.67	0.31	0.91	R1/60	KITCHEN	W2/60	1.24		1.24			
R1/60	KITCHEN	W3/60	34.08	33.71	0.37	1.09	R1/60	KITCHEN	W3/60	1.80	3.85	1.79	3.83	0.02	0.54
R2/60	BEDROOM	W4/60	29.57	29.03	0.54	1.83	R2/60	BEDROOM	W4/60	1.79	1.79	1.77	1.77	0.03	1.45
R3/60	LIVINGROOM	W5/60	26.58	26.10	0.48	1.81	R3/60	LIVINGROOM	W5/60	0.30		0.29			
R3/60	LIVINGROOM	W6/60	29.13	29.13	0.40	0.00	R3/60	LIVINGROOM	W6/60	0.30		0.29			
R3/60	LIVINGROOM	W7/60	33.80	33.80	0.00	0.00	R3/60	LIVINGROOM	W7/60	1.36		1.36			
R3/60	LIVINGROOM	W8/60	17.63	17.63	0.00	0.00	R3/60	LIVINGROOM	W8/60	0.30	2.40	0.30	2.40	0.00	0.17
R1/61	KITCHEN	W6/61	37.09	36.70	0.39	1.05	R1/61	KITCHEN	W6/61	1.23		1.22			
R1/61	KITCHEN	W7/61	32.92	32.92	0.00	0.00	R1/61	KITCHEN	W7/61	0.90	2.13	0.90	2.12	0.01	0.52
R2/61	BEDROOM	W5/61	32.69	32.26	0.43	1.32	R2/61	BEDROOM	W5/61	1.72	1.72	1.70	1.70	0.02	1.16
R3/61	LIVINGROOM	W1/61	33.40	33.40	0.00	0.00	R3/61	LIVINGROOM	W1/61	0.44		0.44			
R3/61	LIVINGROOM	W 1/61 W 2/61	36.18	36.18	0.00	0.00	R3/61	LIVINGROOM	W1/61 W2/61	1.37		1.37			
R3/61	LIVINGROOM	W2/61	32.34	32.34	0.00	0.00	R3/61	LIVINGROOM	W2/61	0.46		0.46			
R3/61	LIVINGROOM	W4/61	27.49	27.09	0.40	1.46	R3/61	LIVINGROOM	W4/61	0.27		0.27			
R3/61	LIVINGROOM	W8/61	18.16	18.16	0.00	0.00	R3/61	LIVINGROOM	W8/61	0.34	2.88	0.34	2.88	0.00	0.10

DAYLIGHT DISTRIBUTION ANALYSIS SCHEME 14/12/18 PRC ARCHITECTURE

Room/ Floor	Room Use	Whole Room	Prev sq ft	New sq ft	Loss sq ft	%Loss
Seymour Lo	dge					_
R1/30 R4/30 R5/30 R8/30 R1/31 R4/31 R5/31 R8/31 R1/32 R4/32	KITCHEN	131.4 131.4 131.4 131.4 131.4 131.4 131.4 131.4 131.4	126.4 126.4 125.8 131.0 126.4 126.4 126.4 131.0 123.6 123.2	126.4 125.8 131.0 126.4 126.4 126.4 131.0 123.6 123.2	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
R5/32 R8/32	KITCHEN KITCHEN	131.4 131.4	123.2 130.7	123.2 130.7	0.0 0.0	0.0 0.0
Wick House						
R1/10 R2/10 R4/10 R5/10 R7/10 R8/10 R1/11 R2/11 R4/11 R5/11 R7/11 R8/11 R1/12 R2/12 R4/12 R5/12 R5/12 R7/12	LIVINGROOM KITCHEN BEDROOM BEDROOM KITCHEN LIVINGROOM KITCHEN BEDROOM BEDROOM KITCHEN LIVINGROOM KITCHEN LIVINGROOM KITCHEN LIVINGROOM KITCHEN BEDROOM KITCHEN BEDROOM KITCHEN BEDROOM KITCHEN BEDROOM KITCHEN LIVINGROOM	39.1 79.9 136.3 41.8 169.9 163.9 39.1 135.1 136.3 41.8 169.9 163.9 39.1 135.1 136.3 41.8	159.4 38.3 79.1 134.2 41.1 162.8 162.8 38.3 133.0 134.2 41.1 162.8 38.3 133.2 134.2 41.1 162.8	159.4 38.3 74.6 124.4 41.1 162.8 162.8 38.3 133.0 134.2 41.1 162.8 162.8 38.3 133.2 134.2 41.1 162.8	0.0 0.0 4.5 9.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	0.0 0.0 5.7 7.3 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0
7 Station Ro	ad					
R1/100 R3/100 R1/101 R2/101 R3/101	LIVINGROOM LKD BEDROOM BEDROOM BEDROOM	313.6 515.7 282.3 137.3 147.3	312.8 513.4 280.1 136.9 145.2	312.8 513.4 280.1 136.9 145.2	0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0
9 Station Ro	ad					
R3/80 R3/81 R4/81 R1/82 R1/91 org:P2-1900\Orione Ho	LIVINGROOM BEDROOM? BEDROOM? BEDROOM	98.7 218.9 177.5 151.9	224.0 97.4 215.2 176.9 149.2	224.0 97.4 215.2 176.9 149.2	0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0

DAYLIGHT DISTRIBUTION ANALYSIS SCHEME 14/12/18 PRC ARCHITECTURE

DEC 2018

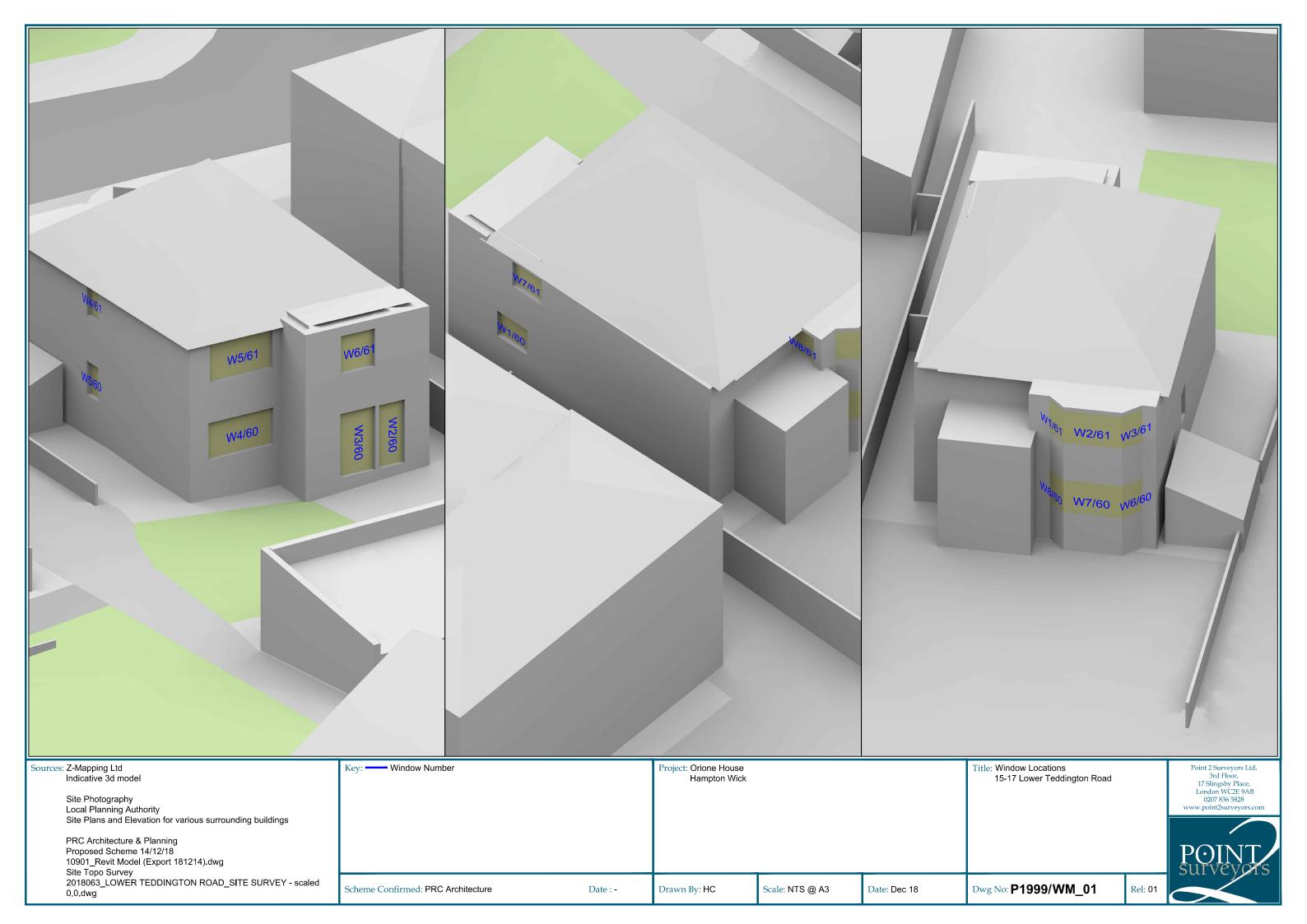
Room/ Floor	Room Use	Whole Room	Prev sq ft	New sq ft	Loss sq ft	%Loss
11 Station Ro	oad					
R2/80 R1/81 R2/81 R2/82	LIVINGROOM BEDROOM? BEDROOM? BEDROOM	220.5 209.9 92.0 177.5	210.3 206.7 91.1 177.3	210.3 206.7 91.1 177.3	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0
15-17 Lower	Teddington Roa	nd				
R1/60 R2/60 R3/60 R1/61 R2/61 R3/61	KITCHEN BEDROOM LIVINGROOM KITCHEN BEDROOM LIVINGROOM	122.2 152.1	120.6 150.7 176.3 119.0 151.7 176.5	120.6 150.7 176.3 119.0 151.7 176.5	0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0

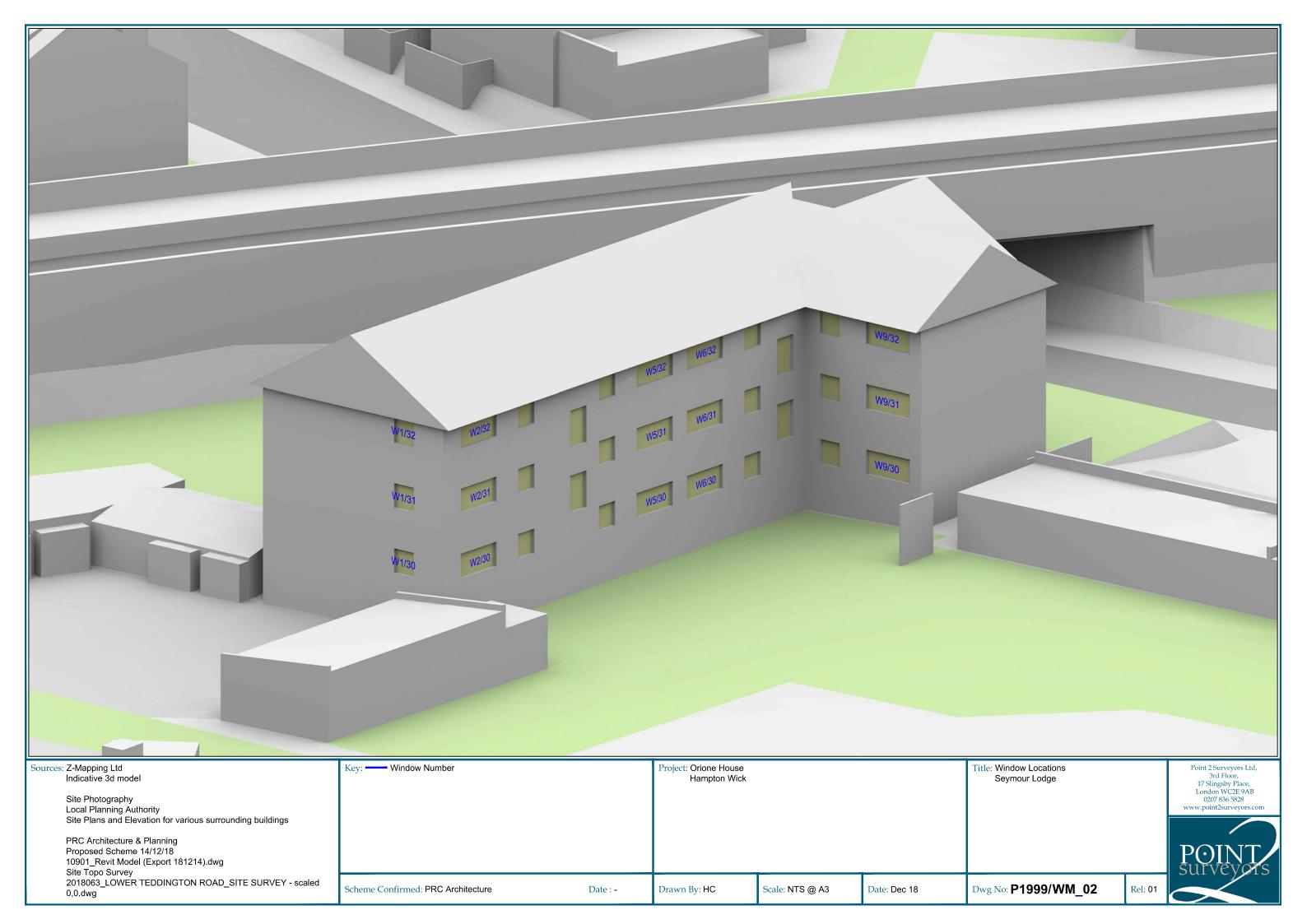
				Wii	ndow				Room					
Room	Window	Room Use	Exi Winter APSH	sting Annual APSH		posed Annual APSH	Winter %Loss	Annual %Loss	Exi Winter APSH	sting Annual APSH		posed Annual APSH	Winter %Loss	Annual %Loss
Seymour	Lodge													
R1/30	W9/30	KITCHEN	0	20	0	20	-	0.0	0	20	0	20	-	0.0
R8/30 R8/30	W1/30 W2/30	KITCHEN KITCHEN	15 0	49 8	15 0	49 8	0.0	0.0 0.0	15	52	15	52	0.0	0.0
R1/31	W9/31	KITCHEN	0	33	0	33	_	0.0	0	33	0	33	-	0.0
R8/31 R8/31	W1/31 W2/31	KITCHEN KITCHEN	15 0	49 11	15 0	49 11	0.0	0.0 0.0	15	54	15	54	0.0	0.0
R1/32	W9/32	KITCHEN	4	26	4	25	0.0	3.8	4	26	4	25	0.0	3.8
R8/32 R8/32	W1/32 W2/32	KITCHEN KITCHEN	12 0	40 5	12 0	40 5	0.0	0.0 0.0	12	42	12	42	0.0	0.0
Wick Hou	ise													
R1/10 R1/10 R1/10	W11/10 W12/10 W13/10	LIVINGROOM LIVINGROOM LIVINGROOM	0 0 0	13 11 4	0 0 0	12 11 4	- - -	7.7 0.0 0.0	0	20	0	19	-	5.0
R8/10 R8/10 R8/10	W1/10 W2/10 W3/10	LIVINGROOM LIVINGROOM LIVINGROOM	27 13 3	84 43 25	21 8 0	67 27 13	22.2 38.5 100.0	20.2 37.2 48.0	27	85	21	73	22.2	14.1
R1/11 R1/11 R1/11 R1/11	W10/11 W11/11 W12/11 W13/11	LIVINGROOM LIVINGROOM LIVINGROOM LIVINGROOM	13 0 0 0	48 14 10 5	12 0 0 0	47 14 10 5	7.7 - -	2.1 0.0 0.0 0.0	13	54	12	53	7.7	1.9
R8/11 R8/11 R8/11	W1/11 W2/11 W3/11	LIVINGROOM LIVINGROOM LIVINGROOM	30 15 5	87 46 29	25 9 0	78 36 20	16.7 40.0 100.0	10.3 21.7 31.0	30	90	25	83	16.7	7.8
R1/12 R1/12 R1/12 R1/12	W10/12 W11/12 W12/12 W13/12	LIVINGROOM LIVINGROOM LIVINGROOM LIVINGROOM	14 0 0 0	49 15 10 2	14 0 0 0	49 15 10 2	0.0 - - -	0.0 0.0 0.0 0.0	14	54	14	54	0.0	0.0
R8/12 R8/12 R8/12	W1/12 W2/12 W3/12	LIVINGROOM LIVINGROOM LIVINGROOM	30 15 5	78 47 30	27 12 2	74 42 27	10.0 20.0 60.0	5.1 10.6 10.0	30	87	28	85	6.7	2.3
7 Station	Road													
R1/100 R1/100 R1/100 R1/100 R1/100 R1/100 R1/100	W1/100 W2/100 W3/100 W4/100 W5/100 W6/100 W7/100 W8/100	LIVINGROOM LIVINGROOM LIVINGROOM LIVINGROOM LIVINGROOM LIVINGROOM LIVINGROOM	0 2 12 15 15 14 23 8	5 23 45 53 45 46 79 23	0 2 12 15 15 14 23 8	5 23 45 53 45 46 79 23	0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	25	86	25	86	0.0	0.0
R3/100 R3/100 R3/100 R3/100 R3/100 R3/100 R3/100	W12/100 W13/100 W14/100 W15/100 W16/100 W17/100 W18/100 W19/100	LKD LKD LKD LKD LKD LKD LKD LKD	11 21 25 20 14 24 13 0	38 61 83 65 44 74 39	11 21 25 20 14 23 13 0	38 61 83 65 44 73 39	0.0 0.0 0.0 0.0 0.0 4.2 0.0	0.0 0.0 0.0 0.0 0.0 1.4 0.0	27	90	27	90	0.0	0.0
R1/101 R1/101 R1/101 R1/101	W1/101 W2/101 W3/101 W4/101	BEDROOM BEDROOM BEDROOM BEDROOM	12 15 29 14	41 46 86 42	12 15 29 14	41 46 86 42	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	29	93	29	93	0.0	0.0
R2/101 R2/101 R2/101 R2/101	W5/101 W6/101 W7/101 W8/101	BEDROOM BEDROOM BEDROOM BEDROOM	14 28 14 15	37 82 42 49	14 28 14 14	37 82 42 48	0.0 0.0 0.0 6.7	0.0 0.0 0.0 2.0	29	93	28	92	3.4	1.1

			Window						R					
Room	Window	Room Use	Exi Winter APSH	isting Annual APSH	Pro Winter APSH	posed Annual APSH	Winter %Loss	Annual %Loss	Ex Winter APSH	isting Annual APSH	Pro Winter APSH	pposed Annual APSH	Winter %Loss	Annual %Loss
R3/101	W9/101	BEDROOM	15	49	14	48	6.7	2.0	15	49	14	48	6.7	2.0
9 Station Road														
R3/80 R3/80	W5/80 W6/80	LIVINGROOM LIVINGROOM	23 20	60 57	20 19	57 56	13.0 5.0	5.0 1.8	24	63	22	61	8.3	3.2
R3/81	W2/81	BEDROOM?	29	71	27	69	6.9	2.8	29	71	27	69	6.9	2.8
R4/81	W4/81	BEDROOM?	29	73	28	72	3.4	1.4	29	73	28	72	3.4	1.4
R1/82	W6/82	BEDROOM	29	87	29	87	0.0	0.0	29	87	29	87	0.0	0.0
R1/91 R1/91	W1/91 W3/91		28 19	86 70	26 19	84 70	7.1 0.0	2.3 0.0	29	91	28	90	3.4	1.1
11 Statio	on Road													
R2/80 R2/80	W1/80 W2/80	LIVINGROOM LIVINGROOM	25 21	61 54	21 19	57 52	16.0 9.5	6.6 3.7	25	63	22	60	12.0	4.8
R1/81	W1/81	BEDROOM?	28	74	28	74	0.0	0.0	28	74	28	74	0.0	0.0
R2/81	W3/81	BEDROOM?	30	72	28	70	6.7	2.8	30	72	28	70	6.7	2.8
R2/82	W5/82	BEDROOM	29	87	29	87	0.0	0.0	29	87	29	87	0.0	0.0
15-17 Lo	wer Teddin	gton Road												
R1/60 R1/60 R1/60 R3/60	W1/60 W2/60 W3/60	KITCHEN KITCHEN KITCHEN LIVINGROOM	11 8 8	65 37 37	11 8 8	65 37 37	0.0 0.0 0.0	0.0 0.0 0.0	11	67	11	67	0.0	0.0
R3/60 R3/60 R3/60	W6/60 W7/60 W8/60	LIVINGROOM LIVINGROOM LIVINGROOM	4 12 4	30 49 30	4 12 4	30 49 30	0.0 0.0 0.0	0.0 0.0 0.0	12	51	12	51	0.0	0.0
R1/61 R1/61	W6/61 W7/61	KITCHEN KITCHEN	12 25	42 81	12 25	42 81	0.0 0.0	0.0 0.0	25	84	25	84	0.0	0.0
R3/61 R3/61 R3/61 R3/61 R3/61	W1/61 W2/61 W3/61 W4/61 W8/61	LIVINGROOM LIVINGROOM LIVINGROOM LIVINGROOM LIVINGROOM	19 17 5 0 16	62 57 32 7 46	19 17 5 0 16	62 57 32 7 46	0.0 0.0 0.0 - 0.0	0.0 0.0 0.0 0.0 0.0	19	64	19	64	0.0	0.0

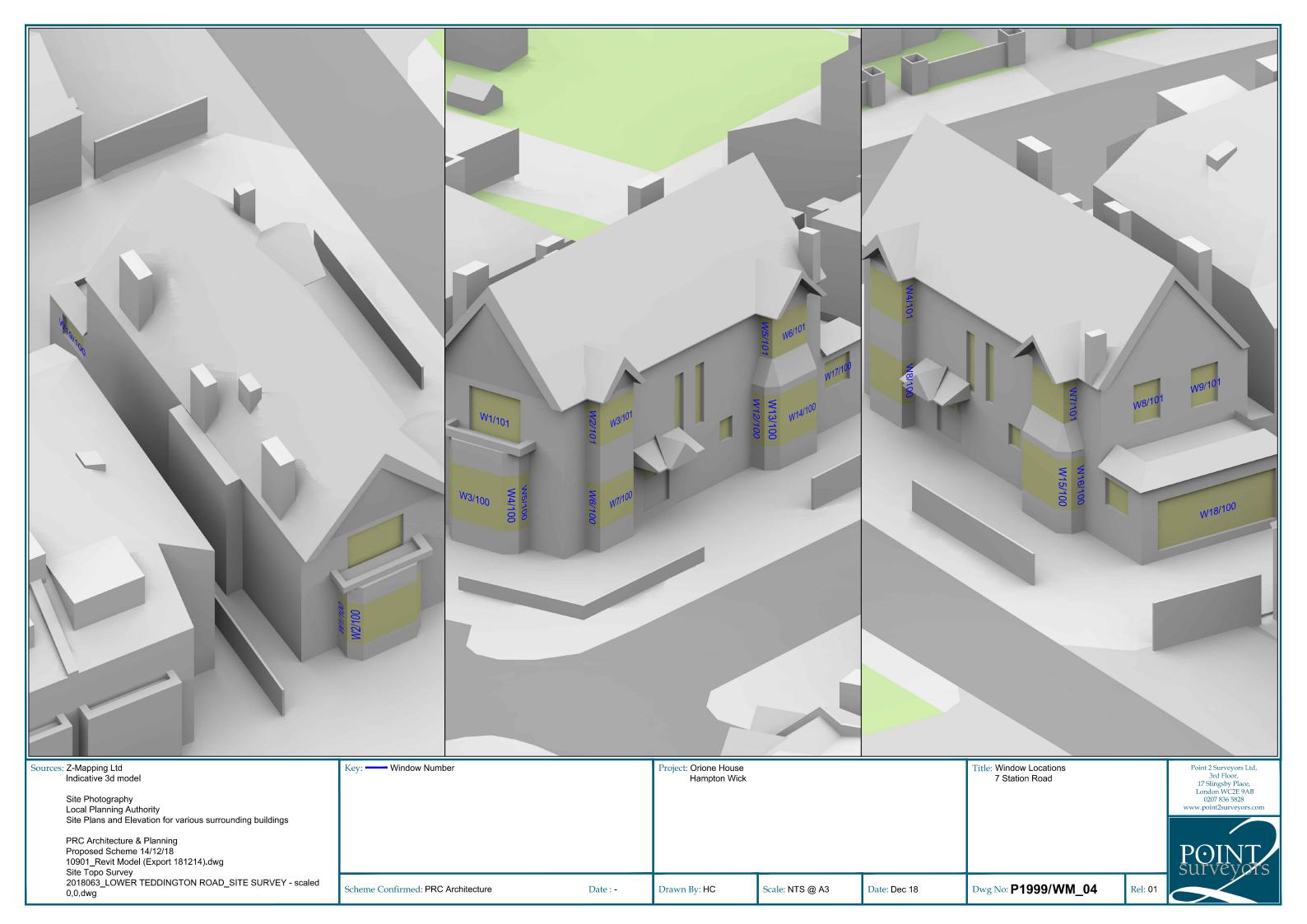
Appendix 3 – Window Maps













PRC Architecture & Planning
Proposed Scheme 14/12/18
10901_Revit Model (Export 181214).dwg
Site Topo Survey
201803_LOWER TEDDINGTON ROAD_SITE SURVEY - scaled 0,0.dwg

Scheme Confirmed: PRC Architecture

Date:-

Drawn By: HC

Scale: NTS @ A3

Date: Dec 18

Dwg No: P1999/WM_05

Rel: 01