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Daylight and Sunlight Study (Neighbouring Properties)
Twickenham Rediscovered Programme - Riverside, King Street,
Twickenham TW1 3SD

23 November 2017

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DAYLIGHT AND SUNLIGHT STUDY
Twickenham Riverside, King Street, Twickenham TW1 3SD

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1 EXECUTIVE SUMMARY

1.1 Overview

- 1.1.1 Right of Light Consulting has been commissioned by London Borough of Richmond to undertake a daylight and sunlight study of the proposed development at Twickenham Rediscovered Programme - Riverside, King Street, Twickenham TW1 3SD.
- 1.1.2 The aim of the study is to assess the impact of the development on the light receivable by the neighbouring properties at 2 to 10, 12, 14, 16, 18 to 22 King Street, 2 York Street, 31 Church Street, 1, 1A, 3, 5, 7 to 9, 11, 13, 15, 17, 19 & 21 Water Lane and Queens Hall. The study is based on the various numerical tests laid down in the Building Research Establishment (BRE) guide 'Site Layout Planning for Daylight and Sunlight: a guide to good practice' by P J Littlefair 2011.
- 1.1.3 The window key in Appendix 1 identifies the windows analysed in this study. Appendix 2 gives the numerical results of the various daylight and sunlight tests.
- 1.1.4 The majority of the windows tested meet or surpass the BRE numerical recommendations. Whilst some windows do not meet the recommendations, the results are not unusual in the context of an urban location. The BRE guide explains that the numerical guidelines should be interpreted flexibly, since natural lighting is only one of many factors in site layout design. The local authority should therefore balance daylight and sunlight considerations against all other material planning considerations when deciding whether to grant planning permission.

2 INFORMATION SOURCES

2.1 Documents Considered

2.1.1 This report is based on drawings:

Cjct Architects

(20)_001	Existing Site Location Plan	Rev D03
(20)_010	Existing Site Plan	Rev D03
(20)_011	Existing Block Plan	Rev D03
(20)_020	Proposed Site Plan	Rev D03
(20)_099	Proposed Lower Ground Floor	Rev D06
(20)_100	Proposed Ground Floor Plan	Rev D06
(20)_101	Proposed First Floor Plan	Rev D06
(20)_102	Proposed Second Floor Plan	Rev D05
(20)_103	Proposed Third Floor Plan	Rev D05
(20)_104	Proposed Roof Plan	Rev D06
(20)_200	Proposed Elevations	Rev D06
(20)_201	Proposed Elevations	Rev D06
(20)_202	Proposed Elevations Building B	Rev D02
(20)_203	Proposed Elevations	Rev D02
(20)_204	Proposed Elevations	Rev D02
(20)_300	Proposed Sections AA-CC	Rev D02

Survey Solutions

16304se-02	Water Lane, Twickenham, TW1 3NP	Rev -
16304se-02	Elevation Plan	Rev -
16304se-02	Elevation Plan	Rev -

Francis Terry and Associates

004 / 1000 / P13	Site Plan	Rev -
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3 METHODOLOGY OF THE STUDY

3.1 BRE Guide : Site Layout Planning for Daylight and Sunlight

3.1.1 The study is based on the various numerical tests laid down in the Building Research Establishment (BRE) guide 'Site Layout Planning for Daylight and Sunlight: a guide to good practice' by P J Littlefair 2011. In general, the BRE tests are based on the requirements of the British Standard, BS 8206 Part 2.

3.1.2 The standards set out in the BRE guide are intended to be used flexibly. The following statement is quoted directly from the BRE guide:

3.1.3 "The guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and the guide should not be seen as an instrument of planning policy; its aim is to help rather than constrain the designer. Although it gives numerical guidelines, these should be interpreted flexibly, since natural lighting is only one of many factors in site layout design."

3.2 Daylight to Windows

3.2.1 Diffuse daylight is the light received from the sun which has been diffused through the sky. Even on a cloudy day, when the sun is not visible, a room will continue to be lit with light from the sky. This is diffuse daylight.

Diffuse daylight calculations should be undertaken to all rooms where daylight is required, including living rooms, kitchens and bedrooms. Usually, if a kitchen is less than 13m², it is considered to be a non-habitable room and the daylight tests need not be applied. The BRE guide states that windows to bathrooms, toilets, storerooms, circulation areas and garages need not be analysed.

3.2.2 The BRE guide contains two tests which measure diffuse daylight:

3.2.3 Test 1 Vertical Sky Component

The percentage of the sky visible from the centre of a window is known as the Vertical Sky Component. Diffuse daylight may be adversely affected if after a development the Vertical Sky Component is both less than 27% and less than 0.8 times its former value.

3.2.4 Test 2 Daylight Distribution

The BRE guide states that where room layouts are known, the impact on the daylighting distribution can be found by plotting the 'no sky line' in each of the main rooms. The no sky line is a line which separates areas of the working plane that do and do not have a direct view of the sky. Daylight may be adversely affected if, after the development, the area of the working plane in a room which can receive direct skylight is reduced to less than 0.8 times its former value.

3.3 Sunlight availability to Windows

3.3.1 The BRE sunlight tests should be applied to all main living rooms and conservatories which have a window which faces within 90 degrees of due south. The guide states that kitchens and bedrooms are less important, although care should be taken not to block too much sunlight.

3.3.2 The BRE guide states that sunlight availability may be adversely affected if the centre of the window:

- receives less than 25% of annual probable sunlight hours, or less than 5% of annual probable sunlight hours between 21 September and 21 March and
- receives less than 0.8 times its former sunlight hours during either period and
- has a reduction in sunlight received over the whole year greater than 4% of annual probable sunlight hours.

3.4 Overshadowing to Gardens and Open Spaces

3.4.1 The availability of sunlight should be checked for all open spaces where sunlight is required. This would normally include:

- Gardens, usually the main back garden of a house
- Parks and playing fields
- Children's playgrounds
- Outdoor swimming pools and paddling pools
- Sitting out areas, such as those between non-domestic buildings and in public squares
- Focal points for views such as a group of monuments or fountains.

3.4.2 The BRE guide recommends that at least 50% of the area of each amenity space listed above should receive at least two hours of sunlight on 21 March. If as a result of new development an existing garden or amenity area does not meet the above, and the area which can receive two hours of sunlight on 21 March is less than 0.8 times its former value, then the loss of light is likely to be noticeable.

4 RESULTS OF THE STUDY

4.1 Windows & Amenity Areas Considered

4.1.1 Appendix 1 provides a plan and photographs to indicate the positions of the windows and gardens analysed in this study.

4.2 Numerical Results

4.2.1 Appendix 2 lists the detailed numerical daylight and sunlight test results. The results are interpreted below.

4.3 Daylight to Windows

4.3.1 The results confirm that approximately 84% of the main habitable room windows tested meet or surpass the standard BRE Vertical Sky Component (VSC) target. 16% of the windows fall short of the standard targets (26 windows out of 159 main habitable room windows tested). These include windows at 3 King Street, Queens Hall, 1A, 1, 3, 5, 7 to 9, 11, 13, 15, 17, & 19 Water Lane and are presented in Appendix 2.

4.3.2 Where windows do not meet the standard BRE targets it does not automatically follow that daylight will be adversely affected. As explained below with reference to the 16% of windows that do not meet the standard BRE targets, the BRE guide contains special provisions in certain situations.

4.3.3 It should be noted that the BRE Guidelines were written with a suburban context in mind and should be interpreted flexibly as the same BRE daylight criteria is applied to each window irrelevant of its existing surrounding context. The BRE Guidelines state that *“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”*. The Twickenham Riverside development is sited in an area that is characterised by narrow streets with building lines sitting to the back of pavement edges. With this in mind, for the purpose of this development, we are of the opinion that a reduction ratio of 0.7 and above (compared to the BRE target of 0.8) should be considered acceptable. The analysis confirms that of the 26 windows that

do not achieve an ideal standard of daylight, 53% fall only marginally short of the VSC target (i.e. 14 of the 26 windows achieve acceptable reduction ratios).

- 4.3.4 As individual's perception of light loss is different, losses of light can be considered based on the relative reduction to the amount of daylight the room already achieves. i.e. a VSC ratio of 0.74 means that the light reaching the window after the development is 26% less than what it currently receives. The BRE guide states that a reduction of 20% or less would be unnoticeable. Therefore, as the percentage becomes greater than 20% the reduction in daylight will become more noticeable.
- 4.3.5 Finally, the majority of the remaining 12 windows appear to serve bedrooms. Whilst under the BRE guide a universal test is applied to all room types, the BRE guide explains that daylight in bedrooms is less important than in other habitable rooms such as kitchens and living rooms. We are therefore of the opinion that the development design is likely to be acceptable.
- 4.3.6 Where room layouts have been sourced/identified, we have applied the Daylight Distribution test. The results confirm all the tested rooms pass the Daylight Distribution test with the exception of the rooms served by windows 54 & 58 at Queens Hall and window 248 at 7 to 9 Water Lane. Given the very high level of compliance and the borderline nature of the shortfalls, we are of the opinion that the proposed development has an acceptable impact on the daylight distribution achievable by the neighbouring properties.

4.4 Sunlight to Windows

- 4.4.1 All windows which face within 90 degrees of due south have been tested for direct sunlight. All main living room windows pass both the total annual sunlight hours test and the winter sunlight hours test (annual probable sunlight hours between 21 September and 21 March) with the exception of window 1 at 3 King Street, windows 53, 54 & 61 at Queens Hall, window 259 at 13 Water Lane and window 269 at 17 Water Lane. However, the mitigating factors mentioned above in connection with daylight apply equally to direct sunlight. Furthermore, in urban locations it is very often not possible to achieve recommended levels of direct sunlight – particularly during the winter months. The net effect of these factors is that it is impractical to avoid the minor transgression of the BRE recommendations in this instance.

4.5 Overshadowing to Gardens and Open Spaces

4.5.1 The proposed development will not create any new areas which receive less than two hours of sunlight on 21 March. The before/after ratio is 1 (no loss) and the proposed development therefore passes the BRE overshadowing to gardens and open spaces test.

4.6 Conclusion

4.6.1 The majority of the windows tested meet or surpass the BRE numerical recommendations. Whilst some windows do not meet the recommendations, the results are not unusual in the context of an urban location. The BRE guide explains that the numerical guidelines should be interpreted flexibly, since natural lighting is only one of many factors in site layout design. The local authority should therefore balance daylight and sunlight considerations against all other material planning considerations when deciding whether to grant planning permission.

5 CLARIFICATIONS

5.1 General

- 5.1.1 The report provided is solely for the use of the client and no liability to anyone else is accepted.
- 5.1.2 We have undertaken the survey following the guidelines of the RICS publication “Surveying Safely”.
- 5.1.3 We have used our best endeavours to ensure all relevant windows within the neighbouring properties have been identified.
- 5.1.4 Where limited access is available, assumptions will have been made.
- 5.1.5 We have adopted the conventional approach of assessing all habitable rooms within domestic properties.
- 5.1.6 This report is based upon and subject to the scope of work set out in Right of Light Consulting’s quotation and standard terms and conditions.
- 5.1.7 Right of Light Consulting have endeavoured to include in the report those matters, which they have knowledge of or of which they have been made aware, that might adversely affect the validity of the opinion given.

5.2 Project Specific

- 5.2.1 None.

APPENDICES

APPENDIX 1

WINDOW & GARDEN KEY

Window & Garden Key

Key

- Window 1 ● Window reference
- Development site
- Neighbouring Properties
- Neighbouring Gardens and Amenity Areas



Project Name: **Twickenham Rediscovered Riverside Programme TV1 3SD**

Drawing Title: **Appendix 1 - Neighbouring Windows**

Scale: **Do not scale**

Drawing No: **1 of 6**

Rev: **-**

Client: **Twickenham**

Date: **04/05/2018**

Author: **[Redacted]**

Check: **[Redacted]**

Drawn: **[Redacted]**

Scale: **[Redacted]**

Rev: **[Redacted]**

Project Name: **Twickenham Rediscovered Riverside Programme TV1 3SD**

Drawing Title: **Appendix 1 - Neighbouring Windows**

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Check: **[Redacted]**

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Rev: **[Redacted]**

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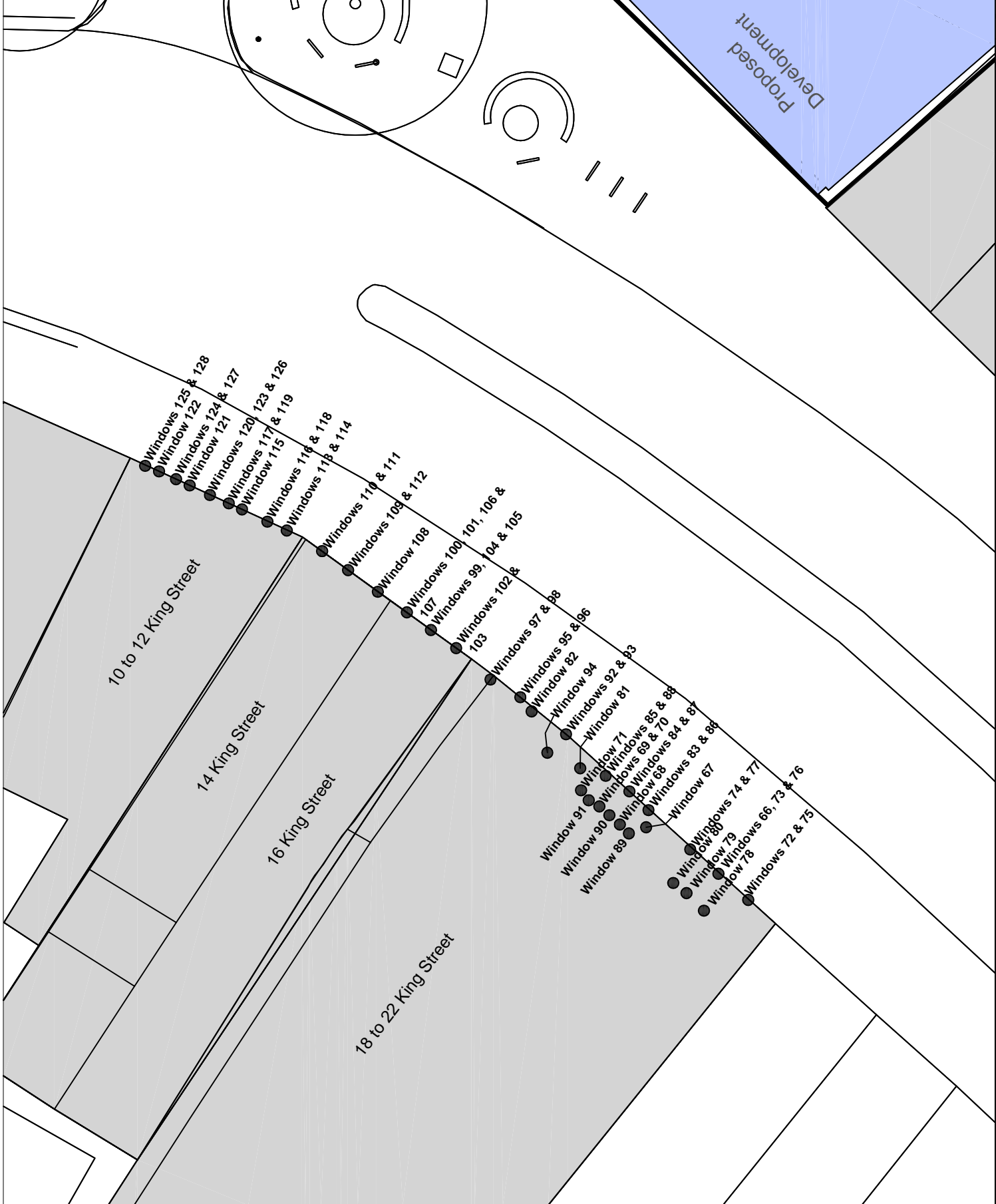
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Window & Garden Key

Key

- Window 1 ● Window reference
- Development site
- Neighbouring Properties
- Neighbouring Gardens and Amenity Areas
- (G1)



Project Name: **Twickenham Rediscovered Riverside Programme TV1 3SD**

Drawing Title: **Appendix 1 - Neighbouring Windows**

Scale: **Do not scale**

Drawing No: **2 of 6**

Rev: **-**

Author: **CH/MS/ST/MS/MS**

Date: **11/01/2017**

Client: **Twickenham Stadium Foundation**

Contract: **17/01/17**

Site: **Twickenham Stadium**

Sheet: **1 of 1**

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Chartered Surveyors

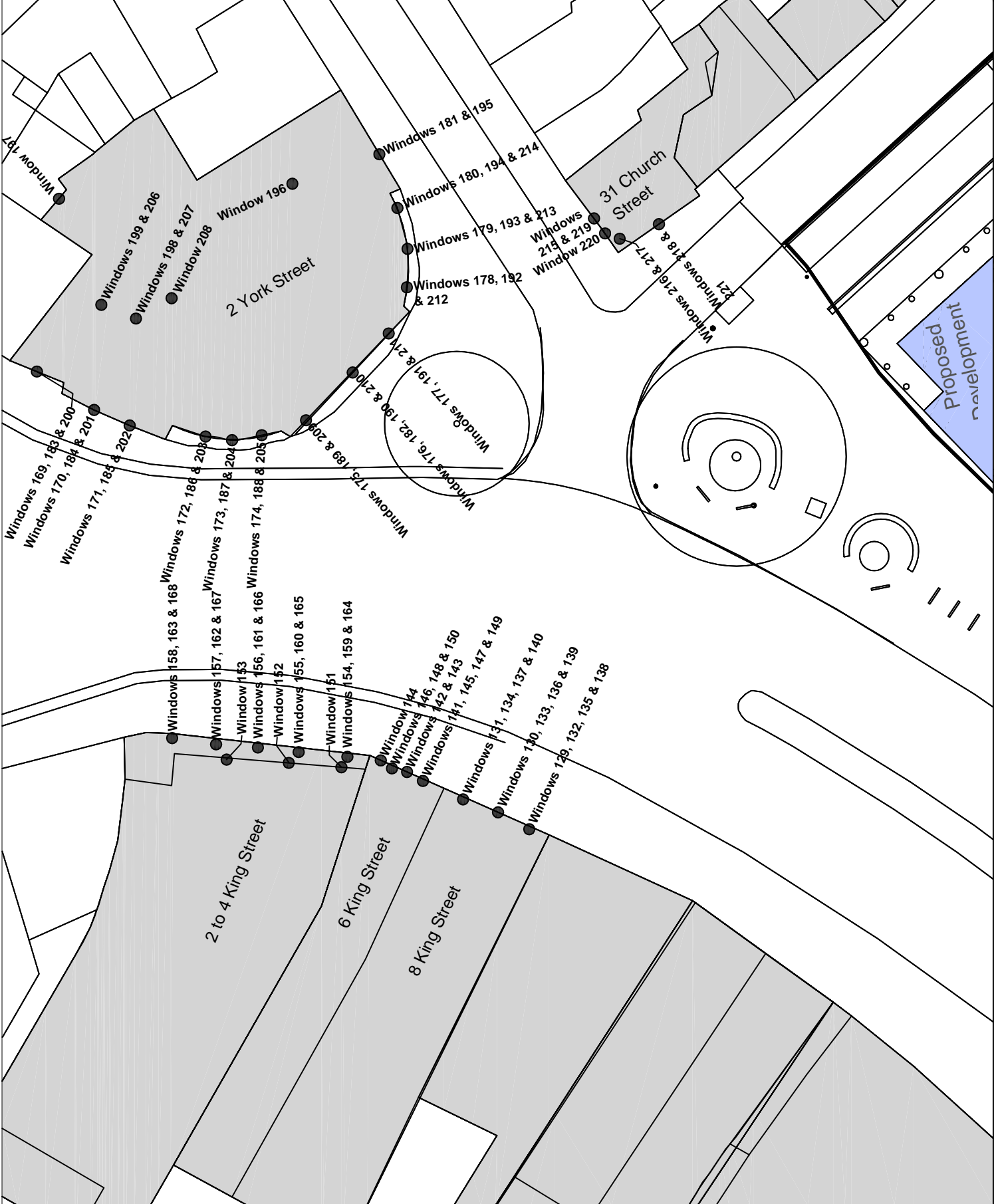
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Window & Garden Key

Key

- Window 1 ● Window reference
- Development site
- Neighbouring Properties
- Neighbouring Gardens and Amenity Areas



Project Name:	Twickman Rediscovered Riverside Programme TV1 3SD
Drawing Title:	Appendix 1 - Neighbouring Windows
Scale:	Do not scale
Drawing No.:	3 of 6
Rev.:	-
Date:	04/05/2018
Drawn by:	
Checked by:	



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Window & Garden Key

Key

- Window 1 ● Window reference
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- Neighbouring Gardens and Amenity Areas



Project Name: **Twickenham Rediscovered Riverside Programme TV1 3SD**

Drawing Title: **Appendix 1 - Neighbouring Windows**

Scale: **Do not scale**

Drawing No: **4 of 6**

Rev: **-**

Date	Drawn by	Checked by



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Window & Garden Key

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- Neighbouring Properties
- Neighbouring Gardens and Amenity Areas



Project Name: **Twickenham Rediscovered Riverside Programme TV1 3SD**

Drawing Title: **Appendix 1 - Neighbouring Windows**

Scale: **Do not scale**

Drawing No: **5 of 6**

Rev: **-**

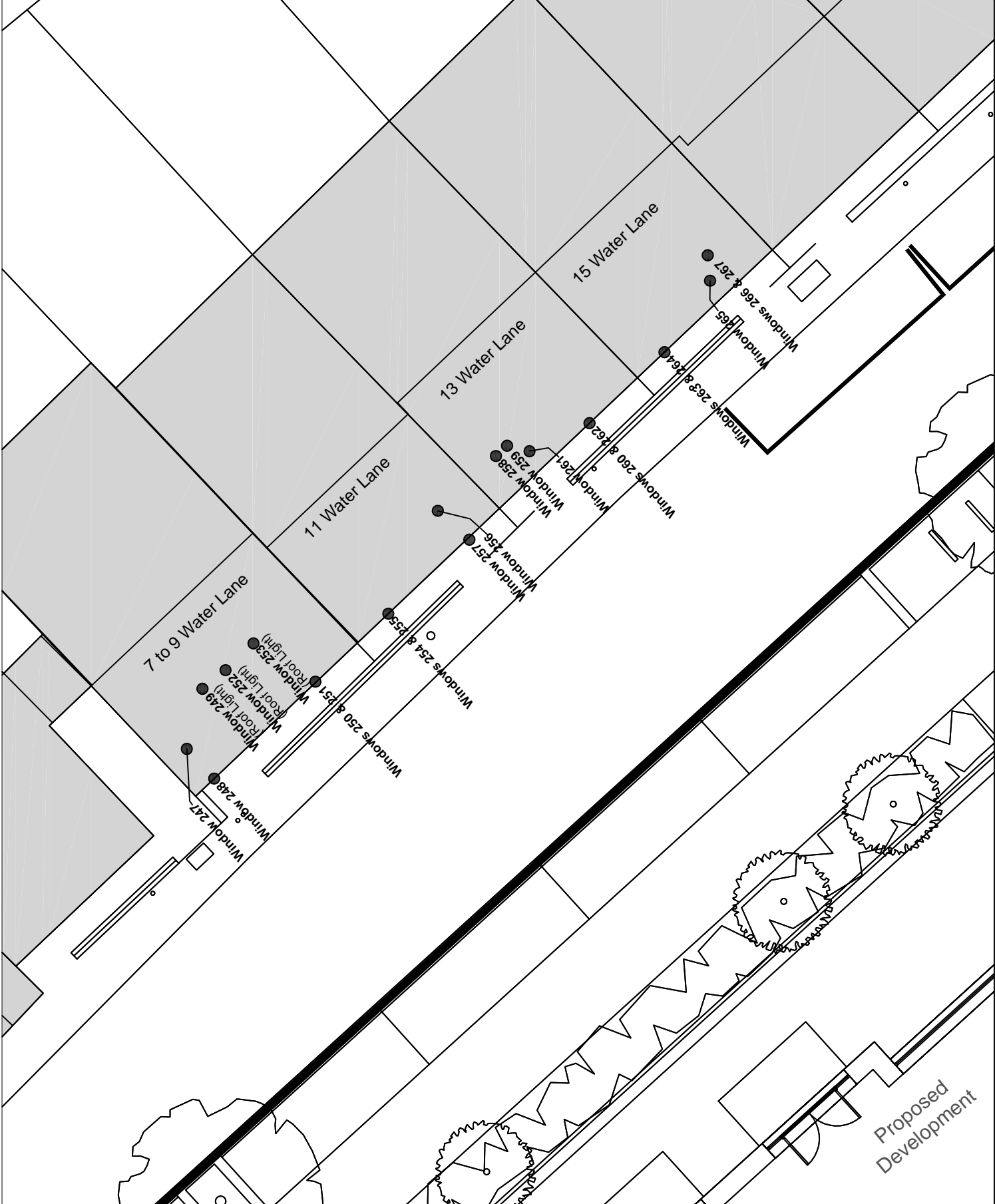
Author: **Charles Craven**



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Window & Garden Key

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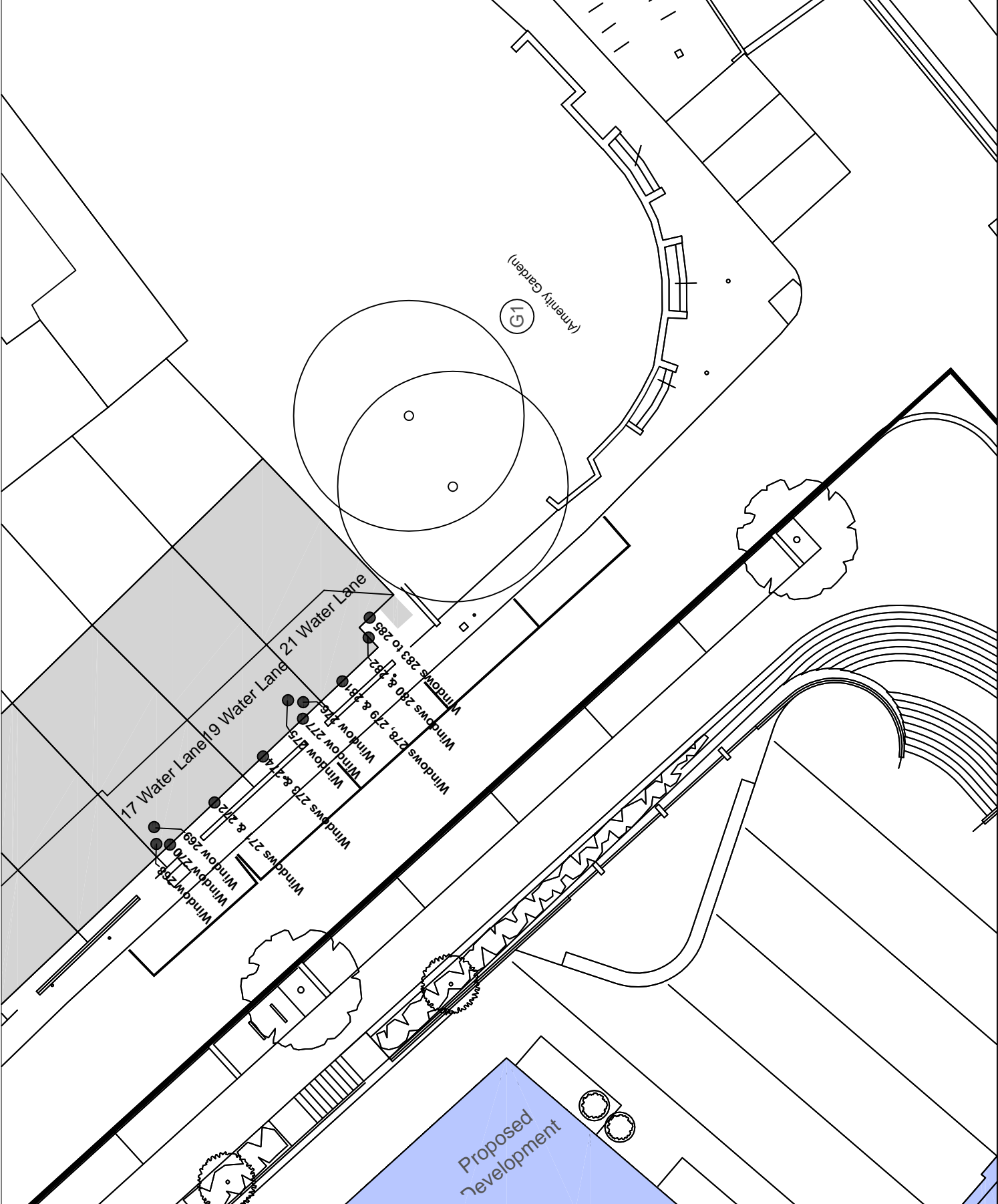


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Project Name: Twickenham Rediscovered Riverside Programme TV1 3SD	
Drawing Title: Appendix 1 - Neighbouring Windows	
Scale: Do not scale	Rev: -
Drawing No: 6 of 6	
Plot Date: 04/05/2018	



Project Name:	Twickenham Rediscovered Riverside Programme TV1 3SD
Drawing Title:	Appendix 1 - Neighbouring Properties
Scale:	Do not scale
Drawing No.:	1 of 1
Rev.:	-
Drawn By:	Charles Craven
Check By:	
Date:	

- Key**
- Development site
 - Neighbouring Properties

Property Key

