LANMOR Consulting

Civil Engineers & Transport Planners

Kingston Bridge House

Drainage Strategy

November 2020

201345/DS/JR/KBL/01

LANMOR Consulting

Civil Engineers & Transport Planners

LANMOR Consulting Ltd,
Thorogood House, 34 Tolworth Close
Surbiton, Surrey, KT6 7EW

Tel: 0208 339 7899 Fax: 0208 339 7898
E-mail: info@lanmor.co.uk
Internet: www.lanmor.co.uk

DOCUMENT STATUS

Project:	Kingston Bridge House
Title:	Drainage Strategy
Client:	Westcombe Group
Reference:	201345/DS/JR/KBL/01

Produced by:	JR	----------	Date:	----------
Checked by:	KBL	----------	Date:	----------
Approved by:	KBL	----------	Date:	----------

Issue/revision	Date	Status	Issued by
First	03/11/2020	For Approval	JR

CONTENTS

TABLES

FIGURES

APPENDICES

1 INTRODUCTION

1.1 Scope

1.1.1 Lanmor Consulting has been commissioned by Westcombe Group to prepare a Drainage Strategy for the proposed development at Kingston Bridge House, Church Road, Hampton Wick, KT1 4AG. This report has been prepared in support of redevelopment of the site and has been commissioned to advise on the feasibility of providing a solution for the foul and surface water drainage for the proposed development.

1.1.2 This report will consider the drainage regime for the site and sets out the drainage strategy for the development including discharge rates and any requirements for attenuation.

1.1.3 The information within this report will be refined, modified, and updated as the detailed design is progressed. The scope of the works for this drainage strategy report is outlined below:

- Review available data in relation to on-site drainage and other drainage networks near the site
- Review of the ground conditions for the suitability of Sustainable Drainage Systems (SuDS)
- Consider the use of SuDS as an option for disposal of surface water runoff from the proposed development
- An assessment of the run-off likely to be generated.
- Undertake drainage assessments to establish attenuation requirements to deal with any increase in surface water runoff from the development.

2 SITE LOCATION AND DESCRIPTION

2.1 Location

2.1.1 The site is located with the Borough of Richmond. The site is located at the junction of Church Grove and Hampton Court Road, opposite the Kings Field. The River Thames is located just east of the site, approximately 140m away. Figure 2.1 below shows the location of the site.

2.1.2 Kingston Bridge House is currently made up of student living facilities which spans over 7 floors. Drawings FLU.1191.2.03 – 09 in Appendix A show the plans for the existing development.

Figure 2.1 – Site Location

2.2 Existing Geology

2.2.1 The British Geological Survey indicates that the site has an underlying bedrock of London Clay Formation, which consists primarily of clay, silt and sand. Sedimentary bedrock formed between 56 and 47.8 million years ago during the Palaeogene period.

2.2.2 Superficial deposits have also been recorded at the site. The superficial geology consists Kempton Park Gravel Member, which is made up of sand and gravel. These deposits were formed between 1.6 and 1.8 million years ago during the Quaternary period.

2.3 Proposed Development

2.3.1 The proposed development will consist of the conversion of the existing student living accommodation to residential apartments a total of 89 units will be provided with additional floors constructed on the roof of the existing building. The development will consist of 7 x studio, 45 x 1-bed, 26 x 2-bed and 11 x 3-bed units.

2.3.2 Drawings FLU.1191.2.11 – 17 included in Appendix B shows the proposed make-up of the development at Kingston Bridge House.

3 EXISTING DRAINAGE

3.1 Existing Foul Drainage

3.1.1 As part of the investigation, Thames Water asset mapping was requested. The records show that there is an existing foul sewer located beneath Church Grove flowing from northwest to southeast. The pipe is 175mm in diameter and flows to another network located beneath Hampton Court Road. The nearest manholes located to the site are 4301 and 4302. Unfortunately, Thames Water have not provided any level information for either of these manholes.

3.1.2 The next nearest manholes are 4306 and 4308, which are located to towards the south of the site at the junction between Hampton Court Road and Church Grove. Manhole 4305 has no information. Manhole 4308 has a cover level of 7.61m and an invert level of 5.48m.

3.2 Existing Surface Water Drainage

3.2.1 According to the sewer records, there is an existing surface water located to the southeast of the site beneath Hampton Court Road, flowing from the southwest to the northeast. The sewer is a 450mm diameter pipe with the nearest manhole to the site being 4306. Manhole 4306 has a cover level of 7.49m and an invert level of 5.18m.

3.2.2 The Thames Water records can be found in Appendix B of this report.

4 PROPOSED DRAINAGE REGIME

4.1 Proposed Foul Drainage

4.1.1 The proposed foul drainage will utilise the existing foul drainage pipe network on site. The existing building accommodates approximately 216 students and has the potential to generate up to 10 l/s foul flows.

4.1.2 The proposed development will include for 89 new residential units with up to 210 residents in the development. Based on Sewers for Adoption 0.046 l/s per dwelling the 89 residential units might generate 4.1 l/s.

4.1.3 The proposed discharge rate will be a reduction on the current facility and therefore there will be no capacity issues with the existing drainage network as it will be approximately 50% less.

4.2 Proposed Surface Water Drainage

4.2.1 The development proposals do not involve an extension of to the existing buildings other than at roof level. The existing site is largely hard surfaced as indicated in Figure 4.1 below.

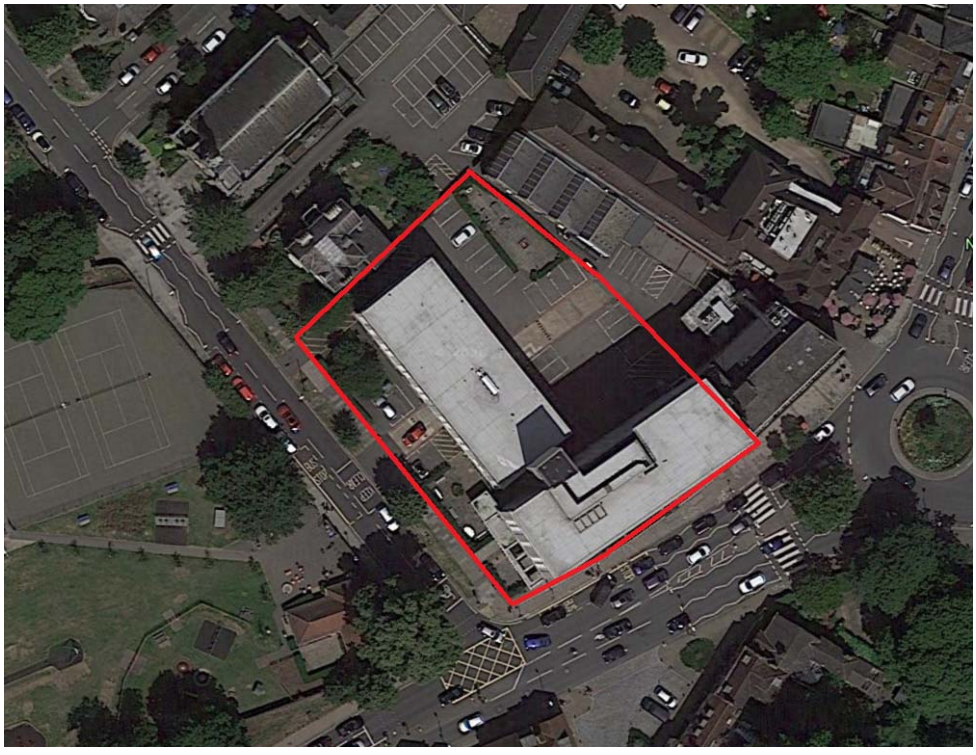


Figure 4.1 – Arrival View of Site

4.2.2 The proposed development will incorporate landscaped areas so the proposals will reduce the impermeable area on site. Sustainable Drainage Systems (SuDS) were considered as part of this assessment for disposing of the surface water run from the development. A copy of the proposed site plan is included in Appendix C as drawing FLU.1191.2.10. However, the building is already drained, and it is not possible to introduce any recycling of rainwater, or attenuation within the building.

4.2.3 Also, for rainwater harvesting to be affective the harvesting tank needs to be empty to receive the next storm. For these reasons, rainwater harvesting has been discounted.

4.2.4 Next on the sustainable drainage hierarchy is the use of ground infiltration techniques such as soakaways and infiltration basins. BGS records indicate the underlying bedrock to consist of London Clay. Therefore, since the ground conditions are not viable and the there is a lack of space on site, the use of infiltration techniques have been discounted.

4.2.5 The hierarchy suggest the next method of discharge is to a watercourse. The River Thames is the nearest but is located 140m away to the east of the site and is concluded to be too far from the site to discharge surface water run-off there. Thus it is not possible to adopt this method of discharge.

4.2.6 Therefore, in accordance with the SuDS hierarchy, surface water runoff will discharge to the existing surface water sewer, the proposed development will reduce the volume and rate of discharge from the development due to the introduction of soft landscaped areas. The existing drainage network for the building is already in place and connected to the existing Thames Water sewer, the drainage will therefore be utilised for the proposed development.

4.2.7 The drainage proforma is included in Appendix D shows the proposed / existing drainage areas and discharge rates.

5 SURFACE WATER DRAINAGE MAINTENANCE

5.1 General

5.1.1 Regularly inspection of the surface water drainage network for blockages and clearing unwanted debris / silt from the system should improve the performance of the surface water network and decrease the need for future repairs. In the event of blockages, high pressure water jets can be used to clear the gullies and pipes to ensure they are functioning correctly, this should be undertaken by certified trained professionals.

5.1.2 The level and frequency of maintenance required on site is dependent on the type of facility. The type of maintenance will fall into one of three categories "regular maintenance", "occasional maintenance" and "remedial maintenance".

5.1.3 Regular maintenance of the drainage features will include, inspections, removal of litter / debris and sweeping of the surfaces. Occasional maintenance will include removal of sediment etc. and remedial maintenance may include structural repairs and infiltration reconditioning if required.

5.1.4 Following completion of the development a Management Company will be set up to maintain all the communal areas, including the drainage. It will be their responsibility to maintain the drainage networks.

5.2 Inspection, Manhole, Catchpit Chambers and Pipes

5.2.1 The appropriate health and safety equipment must be used when accessing manholes. Confined space certificates must be held by any personnel entering a manhole and the appropriate permits should be obtained.

5.2.2 Pipes are intended to be the main conveyance across the development. They are intended to be dry except for during rainfall events. These have been designed to be self-cleaning where possible for smaller diameter pipes, and for larger diameters the risk is reduced due to the overall pipe size.

5.2.3 For the Inspection, Manhole, Catchpit Chambers and Pipes, the following maintenance will be required.

Manhole / Pipe Maintenance Schedule		
	Required Action	**Typical Frequency**
Regular maintenance	Inspect for evidence of poor operation via water level in chambers. If required, take remedial action.	3-monthly, 48 hours after large storms.
	Check and remove large vegetation growth near pipe runs.	Monthly or as required
	Remove sediment from structures.	Annually or as required
Remedial Actions	Rod through poorly performing runs as initial remediation.	As required
	If continued poor performance jet and CCTV survey poorly performing runs.	As required
Monitoring	Inspect/check all inlets, outlets, to ensure that they are in good condition and operating as designed.	Annually
	Survey inside of pipe manholes for sediment build-up and remove if necessary	Every 5 years or as required

Table 5.1 – Manhole, Catchpit and Pipes Maintenance

5.3 Drainage Channels and Gullies

5.3.1 For the Inspection, drainage channel and gullies, the following maintenance will be required.

Channel and Gully Maintenance Schedule		
	Required Action	**Typical Frequency**
Regular maintenance	Litter and debris removal	Monthly or as required
	Check and remove large vegetation growth near channel runs	Monthly or as required
	Inspect for evidence of poor operation and/or weed growth. If required, take remedial action. Inspect silt accumulation rates and establish appropriate brushing frequencies. Silt can also be caused by adjacent landscaping areas which should be reprofiled to provide a flat area or berm adjacent to the paving	3-monthly, 48 hours after large storms
Remedial Actions	Inspect access/outlet boxes and rod through poorly performing channels and outlets as initial remediation.	As required
Monitoring	Inspect/check all inlets, outlets, to ensure that they are in good condition and operating as designed.	Annually
	Survey inside of gullies for sediment build-up and remove if necessary	Every year or as required

Table 5.2 – Channel and Gully Maintenance

6 SUMMARY AND CONCLUSION

6.1.1 The proposals seek permission to convert the existing building to provide 89 residential units including additional floors on the existing building. The majority of the site is currently hard surfaced, and the building is positively drained to the public surface water.

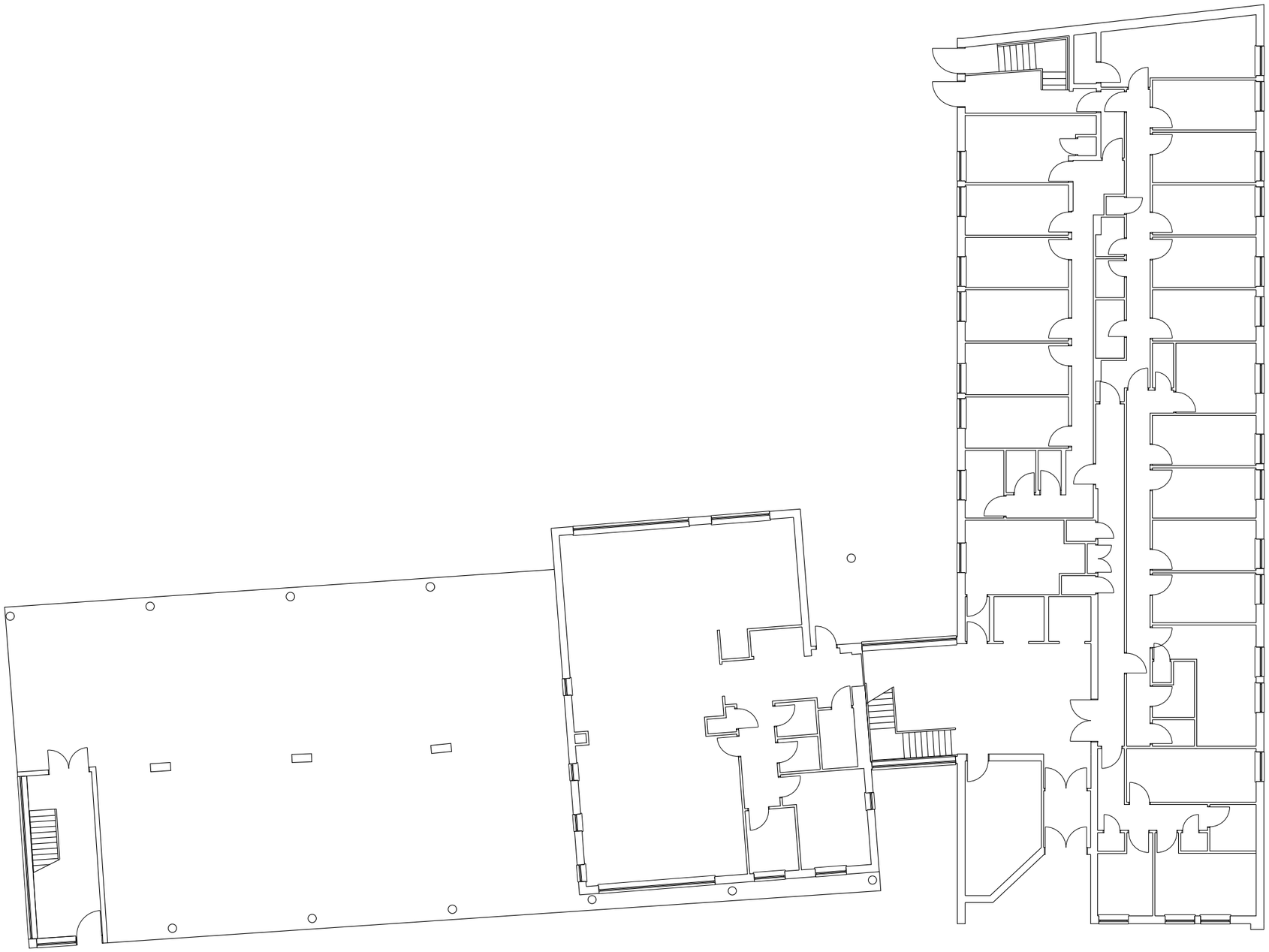
6.1.2 The proposed drainage strategy is to reuse the existing drainage network, for the proposed conversion. Additional soft landscape area will be provided in the existing hard surfaced parking areas which will result in a reduction in the volume and rate of discharge leaving the site.

6.1.3 The foul sewage currently serves 216 students, the proposed 89 apartments will generate 50% of the current discharge so there will no issue with the capacity for the proposed development.

6.1.4 The proposed development will result in a reduction in the discharge of both foul and surface water discharges from the development. For the reasons set out above, the proposed development is considered suitable for the development, as there will be no negative impacts on the public sewers or result in increased flood risk in the area.

APPENDIX A

Drawings FLU.1191.2.03 – 09 – Existing Floor Plans



Rev	Date	Description

Fluent
ARCHITECTURAL DESIGN SERVICES

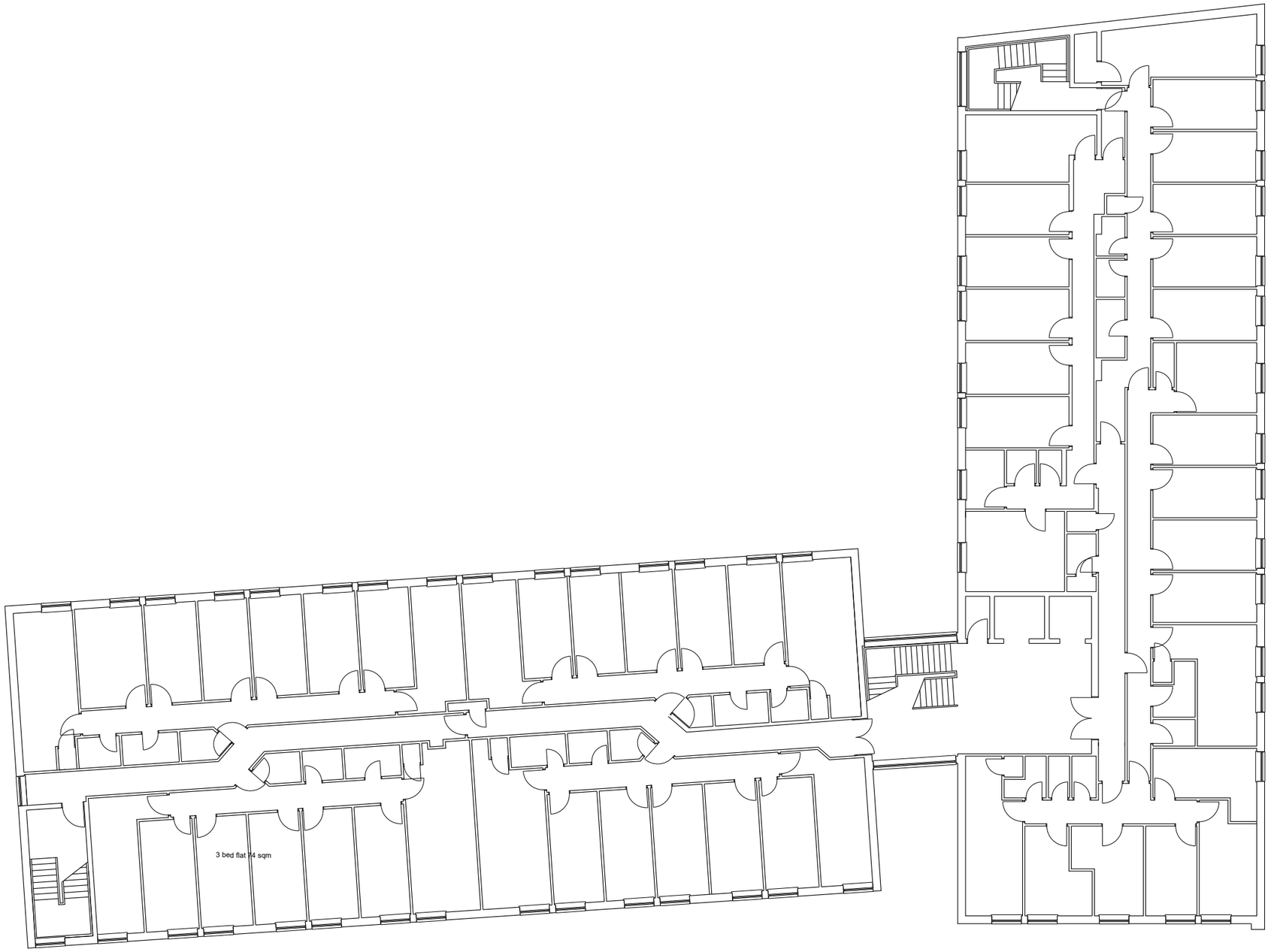
FLUENT
ARCHITECTURAL DESIGN SERVICES
69-71 Windmill Road, Sunbury,
Middlesex, TW16 7DT
Tel: 0800 0438838
E-mail: info@fluent-ads.co.uk
Web: fluent-ads.co.uk

Kingston Bridge House
Church Grove, Hampton Wick

Existing Ground Floor Plan

0 2 4 6 8

Scale: 1:200 @ A3	Dwg No.: FLU.1191.2.03
Date: 28.09.20	Rev
Drawn: N.Millin	



Rev	Date	Description

Fluent®
ARCHITECTURAL DESIGN SERVICES

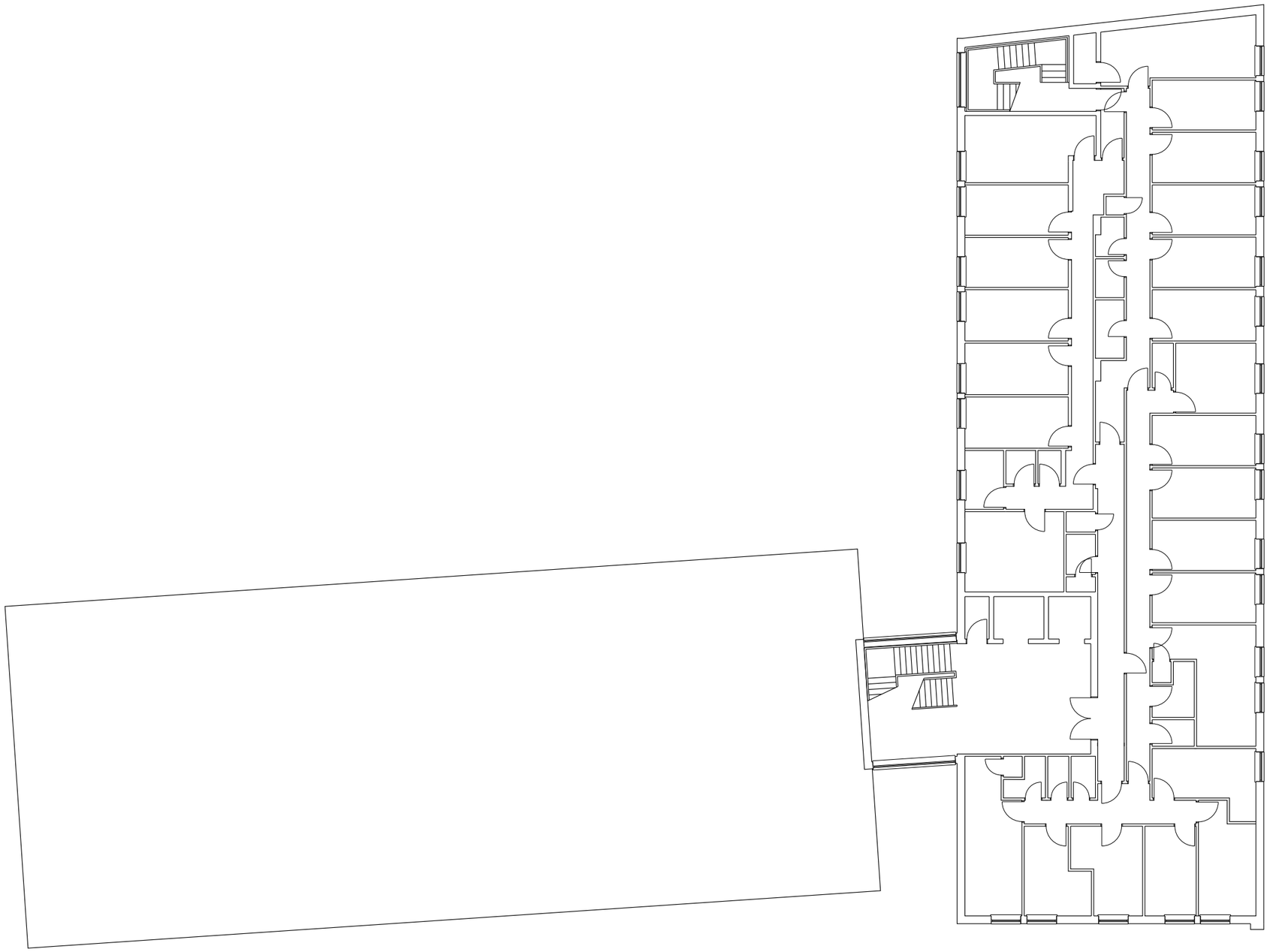
FLUENT
ARCHITECTURAL DESIGN SERVICES
69-71 Windmill Road, Sunbury,
Middlesex, TW16 7DT
Tel: 0800 0438838
E-mail: info@fluent-ads.co.uk
Web: fluent-ads.co.uk

Kingston Bridge House
Church Grove, Hampton Wick

Existing 1st, 2nd & 3rd Floor Plan

0 2 4 6 8

Scale	Dwg No.
1:200 @ A3	FLU.1191.2.04
Date	Rev
28.09.20	
Drawn	
N.Millin	



Rev	Date	Description

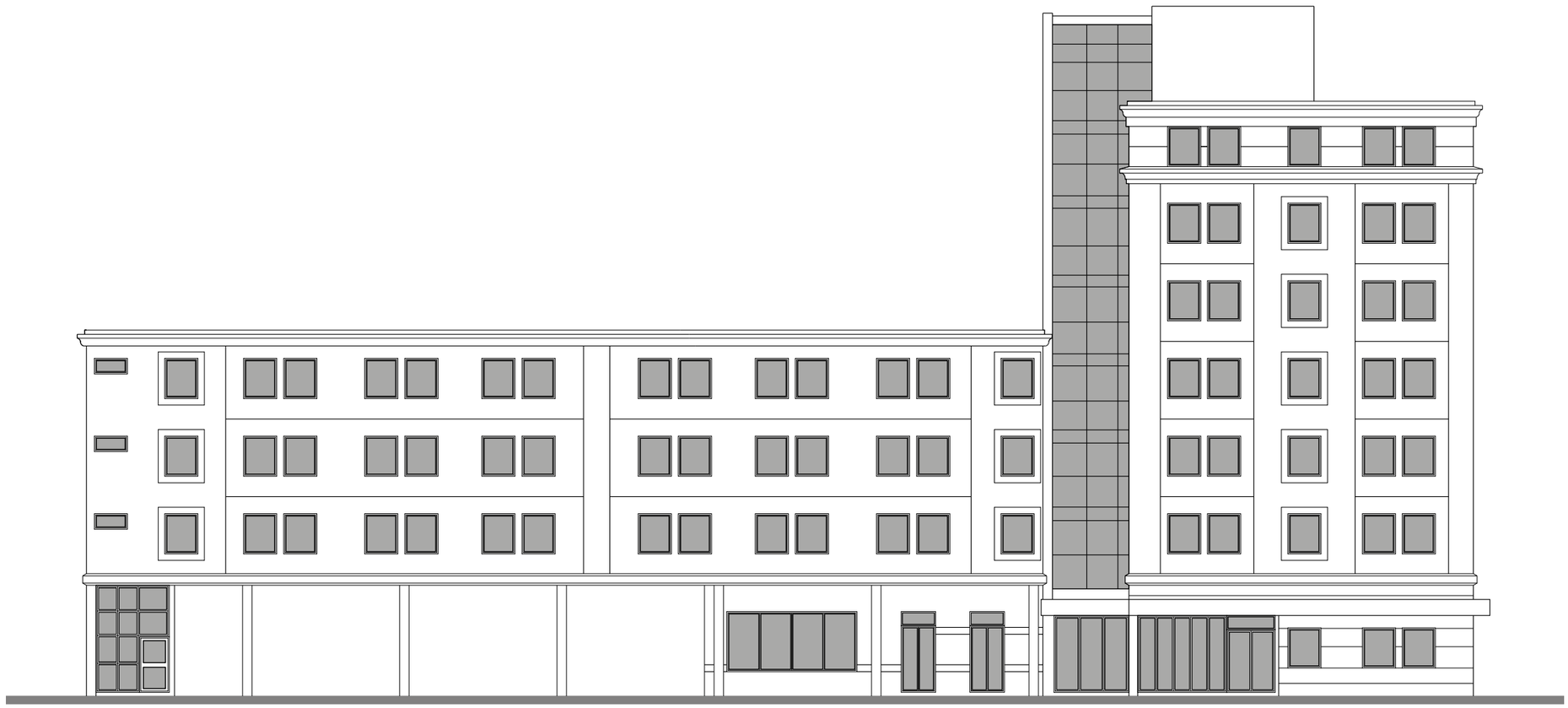
FLUENT
ARCHITECTURAL DESIGN SERVICES
69-71 Windmill Road, Sunbury,
Middlesex, TW16 7DT
Tel: 0800 0438838
E-mail: info@fluent-ads.co.uk
Web: fluent-ads.co.uk

Kingston Bridge House
Church Grove, Hampton Wick

Existing 4th, 5th & 6th Floor Plan

0 2 4 6 8

Scale 1:200 @ A3	Dwg No. FLU.1191.2.05
Date 28.09.20	Rev
Drawn N.Millin	



Rev	Date	Description

FLUENT
ARCHITECTURAL DESIGN SERVICES
69-71 Windmill Road, Sunbury,
Middlesex, TW16 7DT
Tel: 0800 0438838
E-mail: info@fluent-ads.co.uk
Web: fluent-ads.co.uk

Kingston Bridge House
Church Grove, Hampton Wick

Existing Front Elevation

0 2 4 6 8

Scale: 1:200 @ A3	Dwg No.: FLU.1191.2.06
Date: 28.09.20	Rev
Drawn: N.Millin	

Rev	Date	Description

FLUENT
ARCHITECTURAL DESIGN SERVICES
69-71 Windmill Road, Sunbury,
Middlesex, TW16 7DT
Tel: 0800 0438838
E-mail: info@fluent-ads.co.uk
Web: fluent-ads.co.uk

Kingston Bridge House
Church Grove, Hampton Wick

Existing Side Elevation

0 2 4 6 8

Scale 1:200 @ A3	Dwg No. FLU.1191.2.07
Date 28.09.20	Rev
Drawn N.Millin	

Rev	Date	Description

Fluent®
ARCHITECTURAL DESIGN SERVICES

FLUENT
ARCHITECTURAL DESIGN SERVICES
69-71 Windmill Road, Sunbury,
Middlesex, TW16 7DT
Tel: 0800 0438838
E-mail: info@fluent-ads.co.uk
Web: fluent-ads.co.uk

Kingston Bridge House
Church Grove, Hampton Wick

Existing Rear Elevation

0 2 4 6 8

Scale 1:200 @ A3	Dwg No. FLU.1191.2.08
Date 28.09.20	Rev
Drawn N.Millin	

Rev	Date	Description

FLUENT
ARCHITECTURAL DESIGN SERVICES
69-71 Windmill Road, Sunbury,
Middlesex, TW16 7DT
Tel: 0800 0438838
E-mail: info@fluent-ads.co.uk
Web: fluent-ads.co.uk

Kingston Bridge House
Church Grove, Hampton Wick

Existing Side Elevation

0 2 4 6 8

Scale 1:200 @ A3	Dwg No. FLU.1191.2.09
Date 28.09.20	Rev
Drawn N.Millin	

Drawings FLU.1191.2.11 – 17 – Proposed Floor Plans

Rev	Date	Description

FLUENT
ARCHITECTURAL DESIGN SERVICES
69-71 Windmill Road, Sunbury, Middlesex, TW16 7DT
Tel: 0800 0438838
E-mail: info@fluent-ads.co.uk
Web: fluent-ads.co.uk

Kingston Bridge House
Church Grove, Hampton Wick

Proposed Ground Floor Plan

0 2 4 6 8

Scale: 1:200 @ A3	Dwg No.: FLU.1191.2.11
Date: 28.09.20	Rev: B
Drawn: N.Millin	

Rev	Date	Description

FLUENT
ARCHITECTURAL DESIGN SERVICES
69-71 Windmill Road, Sunbury,
Middlesex, TW16 7DT
Tel: 0800 0438838
E-mail: info@fluent-ads.co.uk
Web: fluent-ads.co.uk

Kingston Bridge House
Church Grove, Hampton Wick

Proposed 1st - 5th Floor Plan

0 2 4 6 8

Scale: 1:200 @ A3	Dwg No.: FLU.1191.2.12
Date: 28.09.20	Rev: B
Drawn: N.Millin	

Rev	Date	Description

Fluent®
ARCHITECTURAL DESIGN SERVICES

FLUENT
ARCHITECTURAL DESIGN SERVICES
69-71 Windmill Road, Sunbury,
Middlesex, TW16 7DT
Tel: 0800 0438838
E-mail: info@fluent-ads.co.uk
Web: fluent-ads.co.uk

Kingston Bridge House
Church Grove, Hampton Wick

Proposed 6th-7th Floor Plan

0 2 4 6 8

Scale: 1:200 @ A3	Dwg No.: FLU.1191.2.13
Date: 28.09.20	Rev: B
Drawn: N.Millin	

Rev	Date	Description

Fluent®
ARCHITECTURAL DESIGN SERVICES

FLUENT
ARCHITECTURAL DESIGN SERVICES
69-71 Windmill Road, Sunbury,
Middlesex, TW16 7DT
Tel: 0800 0438838
E-mail: info@fluent-ads.co.uk
Web: fluent-ads.co.uk

Kingston Bridge House
Church Grove, Hampton Wick

Proposed Front Elevation

0 2 4 6 8

Scale	Dwg No.
1:200 @ A3	FLU.1191.2.14
Date	Rev
28.09.20	B
Drawn	
N.Millin	

Rev	Date	Description

Fluent®
ARCHITECTURAL DESIGN SERVICES

FLUENT
ARCHITECTURAL DESIGN SERVICES
69-71 Windmill Road, Sunbury,
Middlesex, TW16 7DT
Tel: 0800 0438838
E-mail: info@fluent-ads.co.uk
Web: fluent-ads.co.uk

Kingston Bridge House
Church Grove, Hampton Wick

Proposed Side Elevation

0 2 4 6 8

Scale 1:200 @ A3	Dwg No. FLU.1191.2.15
Date 28.09.20	Rev A
Drawn N.Millin	

Rev	Date	Description

Fluent®
ARCHITECTURAL DESIGN SERVICES

FLUENT
ARCHITECTURAL DESIGN SERVICES
69-71 Windmill Road, Sunbury,
Middlesex, TW16 7DT
Tel: 0800 0438838
E-mail: info@fluent-ads.co.uk
Web: fluent-ads.co.uk

Kingston Bridge House
Church Grove, Hampton Wick

Proposed Rear Elevation

0 2 4 6 8

Scale 1:200 @ A3	Dwg No. FLU.1191.2.16
Date 28.09.20	Rev B
Drawn N.Millin	

Rev	Date	Description

Fluent®
ARCHITECTURAL DESIGN SERVICES

FLUENT
ARCHITECTURAL DESIGN SERVICES
69-71 Windmill Road, Sunbury,
Middlesex, TW16 7DT
Tel: 0800 0438838
E-mail: info@fluent-ads.co.uk
Web: fluent-ads.co.uk

Kingston Bridge House
Church Grove, Hampton Wick

Proposed Side Elevation 2

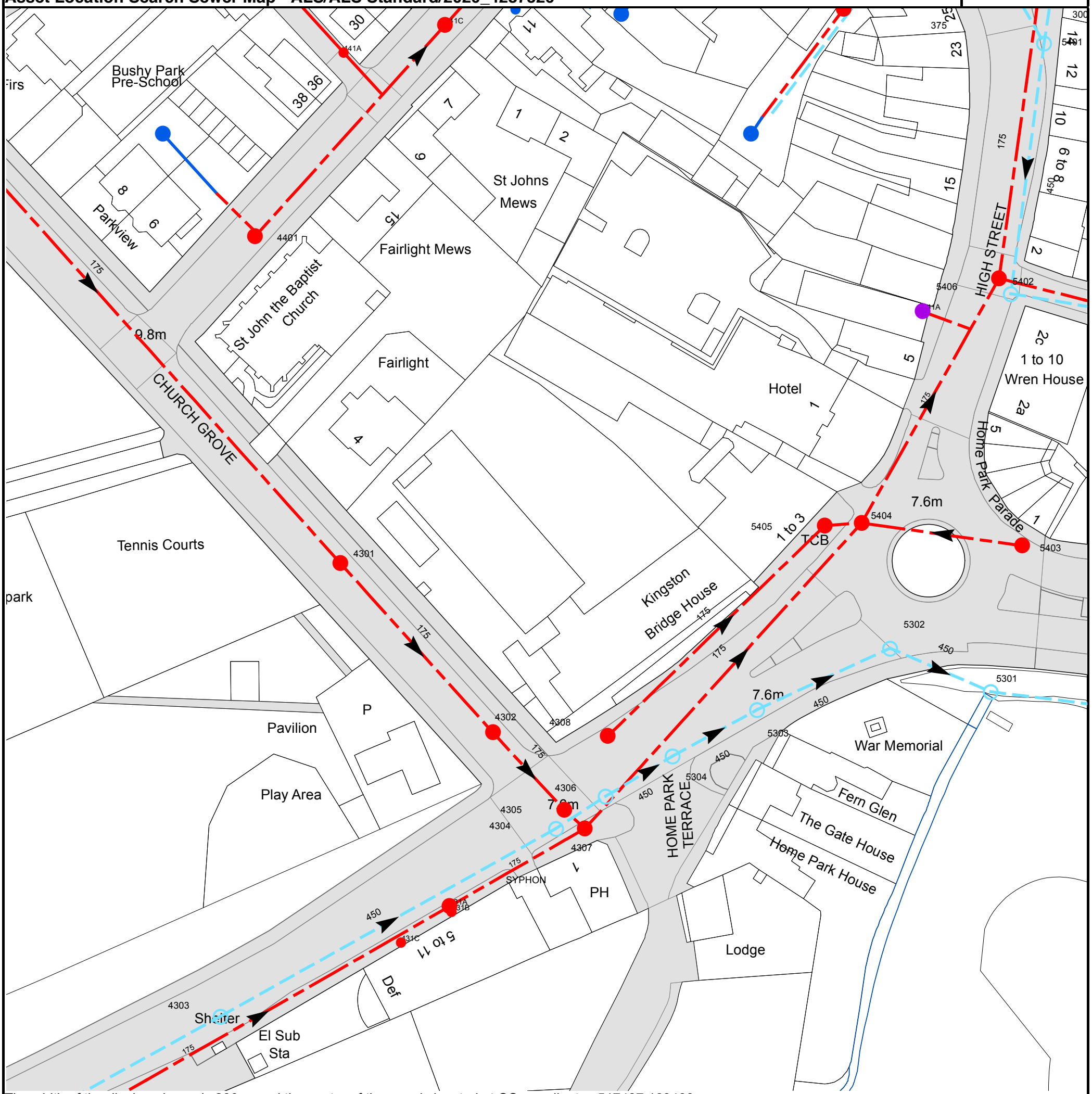
0 2 4 6 8

Scale 1:200 @ A3	Dwg No. FLU.1191.2.17
Date 28.09.20	Rev B
Drawn N.Millin	

APPENDIX B

Thames Water Record Drawings

Asset Location Search Sewer Map - ALS/ALS Standard/2020_4287326



The width of the displayed area is 200 m and the centre of the map is located at OS coordinates 517487,169400

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
441C	n/a	n/a
541A	n/a	n/a
4301	n/a	n/a
5403	n/a	n/a
5405	n/a	n/a
5404	n/a	n/a
5402	n/a	n/a
5406	n/a	n/a
4401	n/a	n/a
44ZY	n/a	n/a
54ZT	n/a	n/a
441A	n/a	n/a
5401	n/a	n/a
54ZY	n/a	n/a
441B	n/a	n/a
54ZR	n/a	n/a
4303	7.23	5.39
431C	n/a	n/a
431B	n/a	n/a
431A	n/a	n/a
4307	7.55	5.43
4304	7.46	5.19
4305	n/a	n/a
4306	7.49	5.18
5304	7.53	5.11
4308	7.61	5.48
4302	n/a	n/a
5303	n/a	n/a
5301	n/a	n/a
5302	n/a	n/a

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

ALS Sewer Map Key

Public Sewer Types (Operated & Maintained by Thames Water)

Foul: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.

Surface Water: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.

Combined: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.

Trunk Surface Water

Trunk Foul

Storm Relief

Trunk Combined

Vent Pipe

Bio-solids (Sludge)

Proposed Thames Surface Water Sewer

Proposed Thames Water Foul Sewer

Gallery

Foul Rising Main

Surface Water Rising Main

Combined Rising Main

Sludge Rising Main

Proposed Thames Water Rising Main

Vacuum

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

Air Valve

Dam Chase

Fitting

Meter

Vent Column

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

Control Valve

Drop Pipe

Ancillary

Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol, Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

Outfall

Undefined End

Inlet

Other Symbols

Symbols used on maps which do not fall under other general categories

Public/Private Pumping Station

Change of characteristic indicator (C.O.C.I.)

Invert Level

Summit

Areas

Lines denoting areas of underground surveys, etc.

Agreement

Operational Site

Chamber

Tunnel

Conduit Bridge

Other Sewer Types (Not Operated or Maintained by Thames Water)

Foul Sewer

Surface Water Sewer

Combined Sewer

Gulley

Culverted Watercourse

Proposed

Abandoned Sewer

Notes:

1) All levels associated with the plans are to Ordnance Datum Newlyn.
2) All measurements on the plans are metric.
3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.
4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.
5) 'na' or '0' on a manhole level indicates that data is unavailable.
6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in milimetres. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology present on the plan, please contact a member of Property Insight on 0845 070 9148.

APPENDIX C

Drawings FLU.1191.2.10 – Proposed Site Layout

Rev	Date	Description

Fluent
ARCHITECTURAL DESIGN SERVICES

FLUENT
ARCHITECTURAL DESIGN SERVICES
69-71 Windmill Road, Sunbury,
Middlesex, TW16 7DT
Tel: 0800 0438838
E-mail: info@fluent-ads.co.uk
Web: fluent-ads.co.uk

Kingston Bridge House
Church Grove, Hampton Wick

Proposed Site Plan

0 10 20

Scale	1:500 @ A3
Date	28.09.20
Drawn	N.Millin
Dwg No.	FLU.1191.2.10
Rev	D

APPENDIX D

Drainage Proforma

LONDON BOROUGH OF RICHMOND UPON THAMES

GREATER**LONDON**AUTHORITY

LoDEG

1. Project & Site Details

Project / Site Name (including sub-catchment / stage / phase where appropriate)	Kingston Bridge House
Address & post code	at Kingston Bridge house, Church Road, Hampton Wick, KT1 4AG
OS Grid ref. (Easting, Northing)	E 517487
	N 169400
LPA reference (if applicable)	
Brief description of proposed work	Conversion of exisitng building from student accomodation to residential apartments
Total site Area	2,780 m^2
Total existing impervious area	2,550 m^2
Total proposed impervious area	2,200 m^2
Is the site in a surface water flood risk catchment (ref. local Surface Water Management Plan)?	no
Existing drainage connection type and location	Sewer
Designer Name	
Designer Position	
Designer Company	

2. Proposed Discharge Arrangements

2a. Infiltration Feasibility

Superficial geology classification	Kempton Park Gravels
Bedrock geology classification	London Clay
Site infiltration rate	m/s
Depth to groundwater level	m below ground level
Is infiltration feasible?	

2b. Drainage Hierarchy

	Feasible (Y/N)	*Proposed (Y/N)*
1 store rainwater for later use	N	N
2 use infiltration techniques, such as porous surfaces in non-clay areas	N	N
3 attenuate rainwater in ponds or open water features for gradual release	N	N
4 attenuate rainwater by storing in tanks or sealed water features for gradual release	N	N
5 discharge rainwater direct to a watercourse	N	N
6 discharge rainwater to a surface water sewer/drain	Y	Y
7 discharge rainwater to the combined sewer.	N	N

2c. Proposed Discharge Details

Proposed discharge location	Existing conection to sewer
Has the owner/regulator of the discharge location been consulted?	No

3. Drainage Strategy

3a. Discharge Rates & Required Storage

	Greenfield (GF) runoff rate (l/s)	*Existing discharge rate (l/s)*	*Required storage for GF rate (m^3)*	*Proposed discharge rate (l/s)*
Qbar	n/a			
1 in 1	n/a	n/a	n/a	n/a
1 in 30	n/a	n/a	n/a	n/a
1 in 100	n/a	n/a	n/a	n/a
1 in 100 + CC			n/a	n/a
Climate change allowance used		40%		
3b. Principal Method of Flow Control				

3c. Proposed SuDS Measures

	Catchment area (m^2)	*Plan area (m^2)*	*Storage vol. (m^3)*
Rainwater harvesting	0		0
Infiltration systems	0		0
Green roofs	0	0	0
Blue roofs	0	0	0
Filter strips	0	0	0
Filter drains	0	0	0
Bioretention / tree pits	0	0	0
Pervious pavements	0	0	0
Swales	0	0	0
Basins/ponds	0	0	0
Attenuation tanks	0		0
Total	**0**	**0**	**0**

4. Supporting Information

4a. Discharge & Drainage Strategy	*Page/section of drainage report*
Infiltration feasibility (2a) – geotechnical factual and interpretive reports, including infiltration results	section 2.2
Drainage hierarchy (2b)	section 4.2
Proposed discharge details (2c) – utility plans, correspondence / approval from owner/regulator of discharge location	Appendix B
Discharge rates & storage (3a) – detailed hydrologic and hydraulic calculations	section 4
Proposed SuDS measures & specifications (3b)	section 4.2
4b. Other Supporting Details	*Page/section of drainage report*
Detailed Development Layout	Appendix C
Detailed drainage design drawings, including exceedance flow routes	n/a
Detailed landscaping plans	Appendix C
Maintenance strategy	section 5
Demonstration of how the proposed SuDS measures improve:	n/a
a) water quality of the runoff?	
b) biodiversity?	
c) amenity?	