

FLOOD RISK ASSESSMENT

for

25 LAUSANNE ROAD, WITHINGTON, MANCHESTER
M20 3EU

	Name	Signed	Date
Author(s)	Lee Alan Brocklehurst MEng MSc CEng MICE		15 th March 2023

CONTENTS

1	INTRODUCTION AND SITE INFORMATION	3
2	PROPOSED DEVELOPMENT	5
3	ASSESSMENT OF FLOOD RISK	7
4	MANAGEMENT AND MITIGATION OF FLOOD RISK	13
5	CONCLUSION AND SUMMARY	15
6	COMPETENCY STATEMENT	15
	APPENDIX 1: LEVEL SURVEY FIELD NOTES.....	16
	APPENDIX 2: MODELLED RIVER FLOOD WATER LEVELS, 25 LAUSANNE ROAD M20 3EU.....	19
	APPENDIX 3: ENVIRONMENT AGENCY CORRESPONDENCE.....	20
	APPENDIX 4: ANECDOTAL EVIDENCE OF FLOOD RISK HISTORY AND SIMILAR PREVIOUS DEVELOPMENTS	21

LIST OF TABLES AND FIGURES

Table 1 – Assessment of Flood Risk.....	8
Table 2 – Proposed Management and Mitigation Measures	13
Figure 1 – 25 Lausanne Road M20 3EU Location Plan	3
Figure 2 – 25 Lausanne Road M20 3EU Views (Existing)	4
Figure 3 – Existing (left) and Proposed (right) Lower Ground Floor Layouts	5
Figure 4 – Existing (left) and Proposed (right) Ground Floor Layouts	6
Figure 5 – Extent of Flooding from Cringle Brook - without Flood Defences (Environment Agency).....	9
Figure 6 – Extent of Flooding from Cringle Brook - with Flood Defences (Environment Agency)	10
Figure 7 – Locations of Existing Flood Defences along Cringle Brook (Environment Agency)	11
Figure 8 – Extent of Surface Water Flooding (UK Government)	12
Figure 9 – Front Elevation 1:1000 Year Flood Depths and Defences (image from Google).....	14

1 INTRODUCTION AND SITE INFORMATION

The approach adopted for this flood risk assessment takes into account the guidance set out in CIRIA C790A guide “Code of Practice for Property Flood Resilience (2nd Edition, 2010)” and a site-specific flood risk assessment checklist¹.

The proposed development is situated at 25 Lausanne Road, Withington, Manchester M20 3EU and the property is situated as shown in Figure 1.



Figure 1 – 25 Lausanne Road M20 3EU Location Plan

The property is a four-storey terraced property dating from around the year 1900 and is utilised as a 7 bedroom House in Multiple Occupation (HMO) occupied by students. Although the site itself lies just outside of a flood zone according to the Environment Agency², it is bounded by a Flood Zone 3 along its northern boundary and a Flood Zone 2 along its western boundary, therefore a site-specific flood risk assessment has been carried out.

A topographical survey was carried out by Sassi Consultants Limited utilising local intact Ordnance Survey benchmarks. Key elevations above mean sea level (Ordnance Datum Newlyn) were determined as follows (see Appendix 1):

- Ground floor elevation = 36.035 m
- Lower ground floor elevation = 33.794 m

¹ <https://www.gov.uk/guidance/flood-risk-and-coastal-change#para80>

² <https://check-long-term-flood-risk.service.gov.uk/map?eastings=384931&northings=393311&map=RiversOrSea>

- Footpath (top of kerb) elevation at northern boundary of 25 Lausanne Road = 34.787 m
- Top of step level into front garden = 35.053 m
- Main door threshold elevation at 25A Lausanne Road = 35.025 m

The existing principal elevations of the property are illustrated in Figure 2.

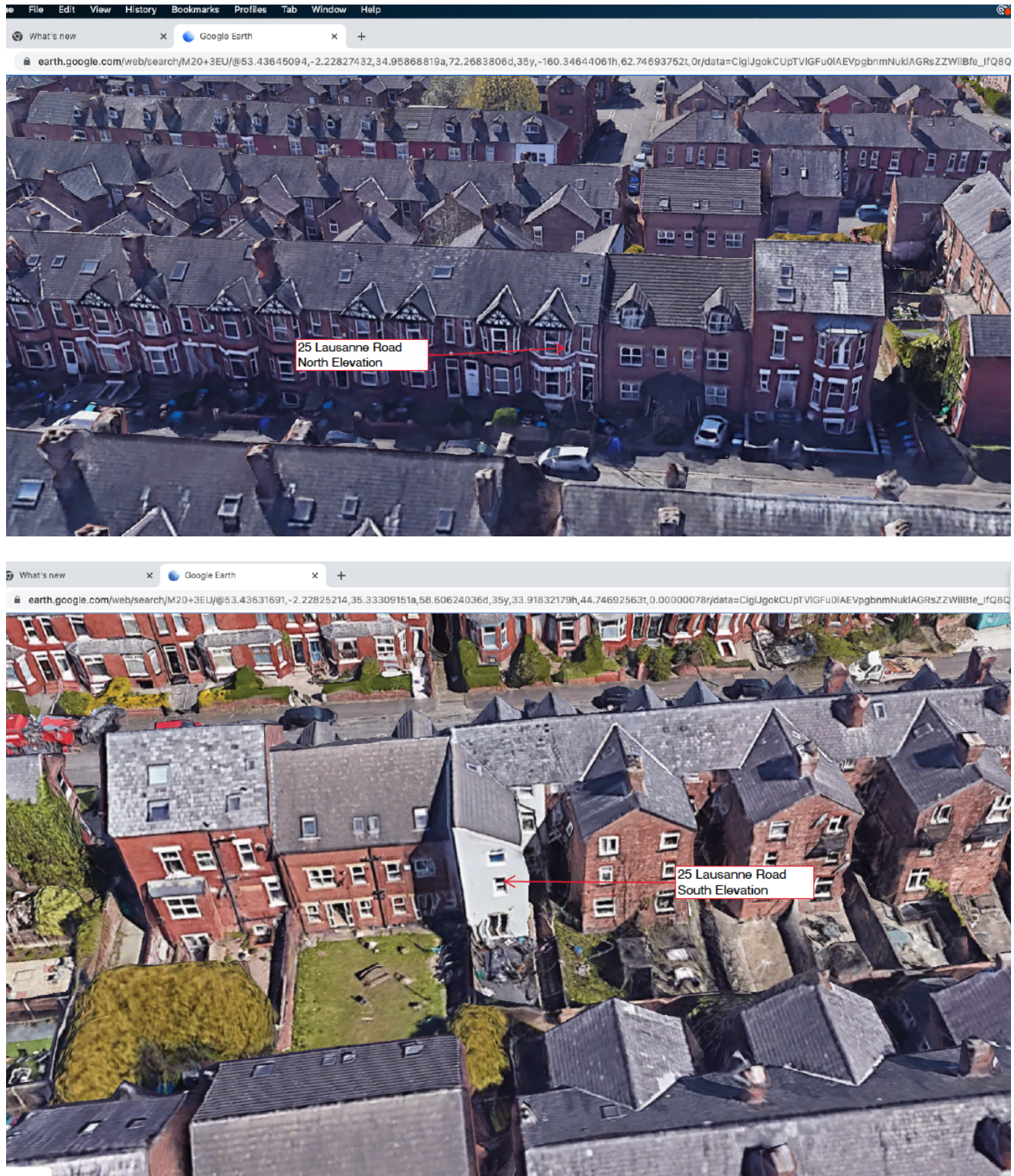


Figure 2 – 25 Lausanne Road M20 3EU Views (Existing)

2 PROPOSED DEVELOPMENT

The proposed development is to convert the existing lower ground floor (basement) living room into a bedroom and to convert the unused part of the basement into an additional bedroom, shower room/WC and a laundry room. No external extensions are proposed.

The development will increase the occupancy of the property from seven to eight people. The lifetime of the proposed development is assumed to be at least 100 years.

The existing and proposed layout plans for the lower ground floor are as follows:

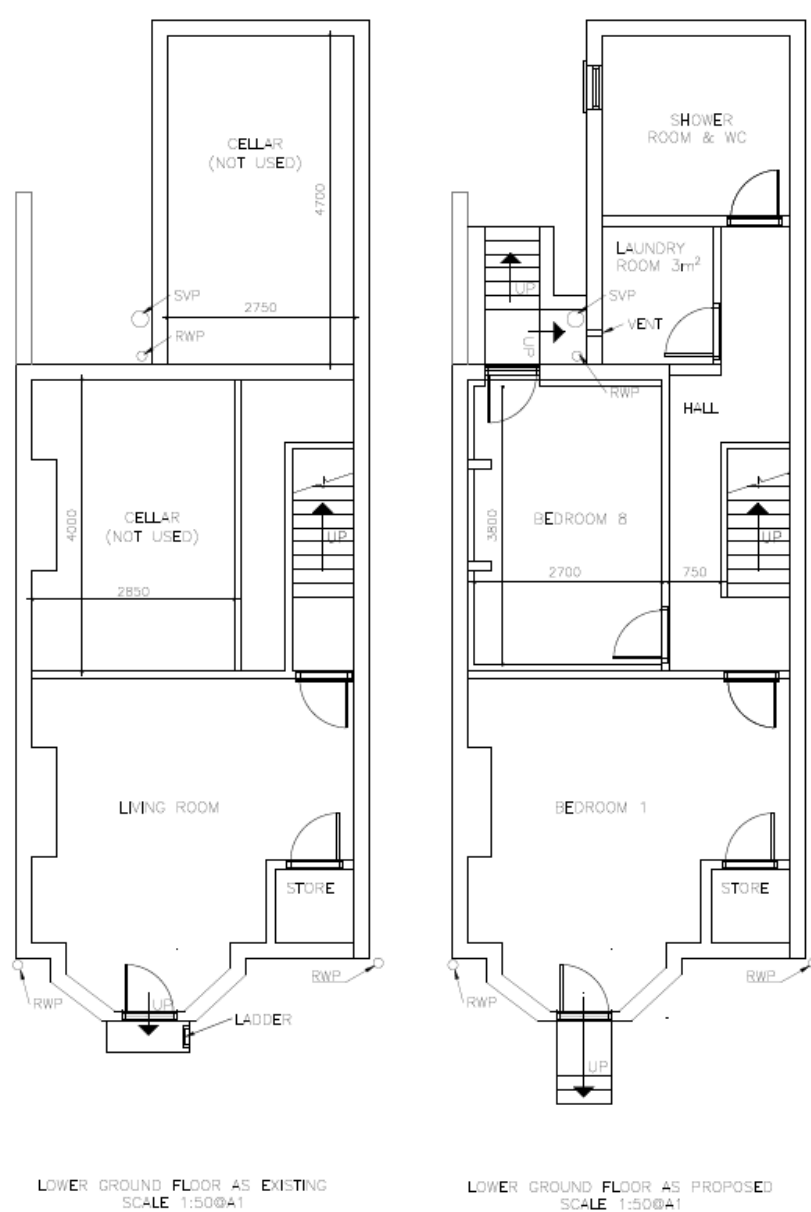


Figure 3 – Existing (left) and Proposed (right) Lower Ground Floor Layouts

The existing and proposed layout plans for the ground floor are as follows:

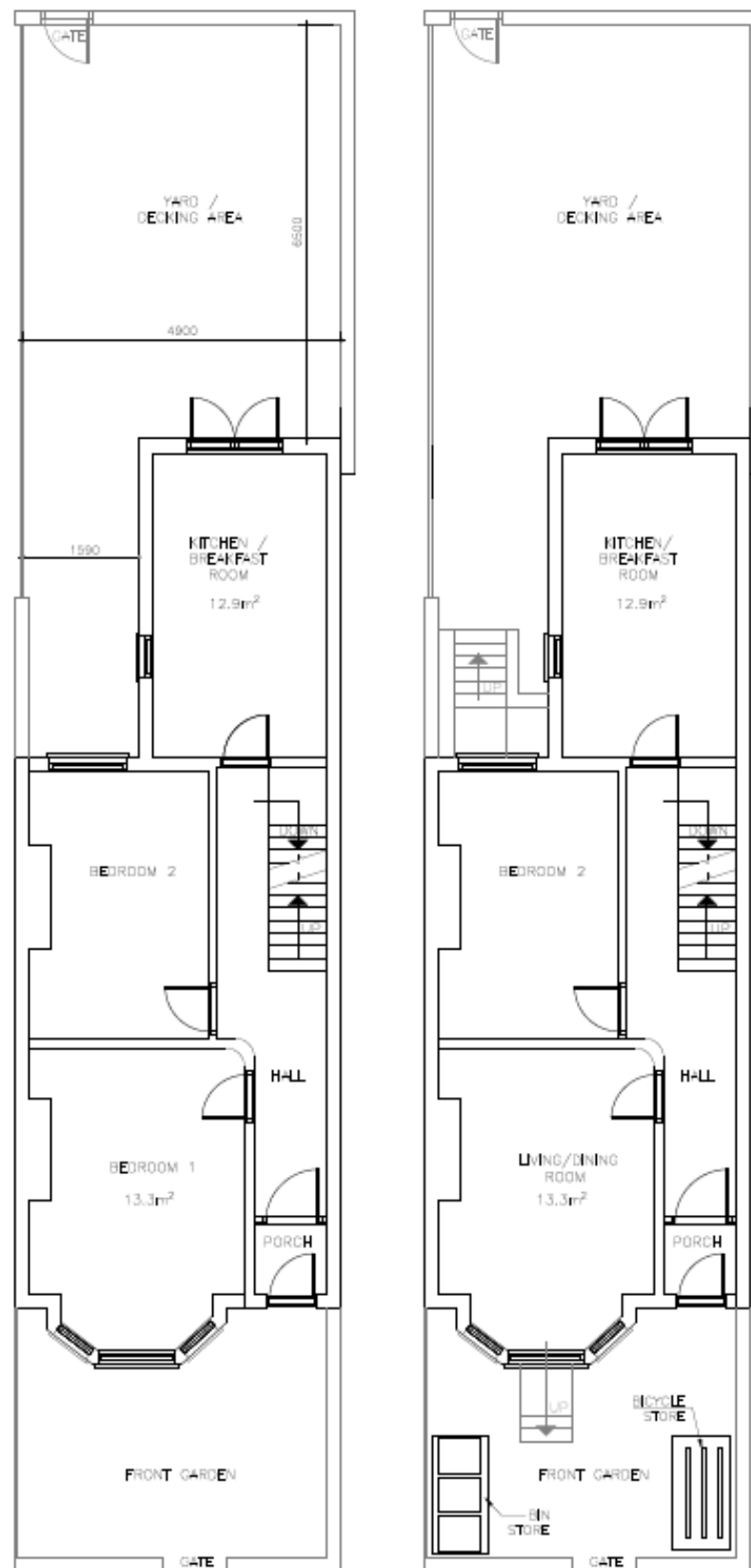


Figure 4 – Existing (left) and Proposed (right) Ground Floor Layouts

3 ASSESSMENT OF FLOOD RISK

An assessment of specific flood hazards for 25 Lausanne Road which considers all credible sources of potential flooding is presented in the Table 1.

Flooding Source	Flood Hazard and Description
Fluvial (Rivers)	The site is located within the Cringle Brook catchment area which is part of the wider River Mersey basin. Whilst the site lies just outside of Flood Zones 2 and 3 (see Figure 5) and is protected by flood defences (Figures 6 and 7), the proximity of the flood zones to the site and nature of the proposed development to provide further accommodation on the lower ground floor justifies a detailed review of the flood hazard. The undefended 1 in 100 year (1% probability) modelled flood depth at the southern boundary (point '5') in Figure 5 is 35.00 m according to the Environment Agency (see Appendix 2). Based on the elevations stated in section 1 of this FRA, the 1 in 100 year undefended flood top water level is approximately 1.04 m below the ground floor level and 1.21 m above lower ground floor level, therefore it is prudent to consider appropriate mitigation measures for the lower ground floor to guard against infiltration and direct ingress of flood water. There is a negligible difference (0.05 m) in modelled flood levels between the climate change allowances from a 30% increase to a 70% increase in flows. The flood modelling map (Figure 5) indicates that flood water would enter the rear alleyway between the rear yards of properties on Lausanne Road and Ripplingham Road, however, the same map does not indicate the presence of any flood water within the rear yard area of 25 Lausanne Road. No flood water level data was provided by the Environment Agency for the 1 in 100 year event for the northern boundary. The modelled level for the 1 in 1000 year (0.1% probability) event at this location, in both defended and undefended scenarios with 30% climate change increase, is 35.04 m. From the author's own working knowledge of Cringle Brook (see section 6 of this FRA), which expands upon the Environment Agency's statement that "any flooding would be from the culvert" (Appendix 3), the risk from flooding to 25 Lausanne Road from Cringle Brook is most likely to come from surcharging of the 1.4 km long Egerton Road culvert that leads to discharge from manhole chambers to above ground. This scenario was considered in the implementation of the Cringle Brook Flood Alleviation Scheme in 2003. The outcome

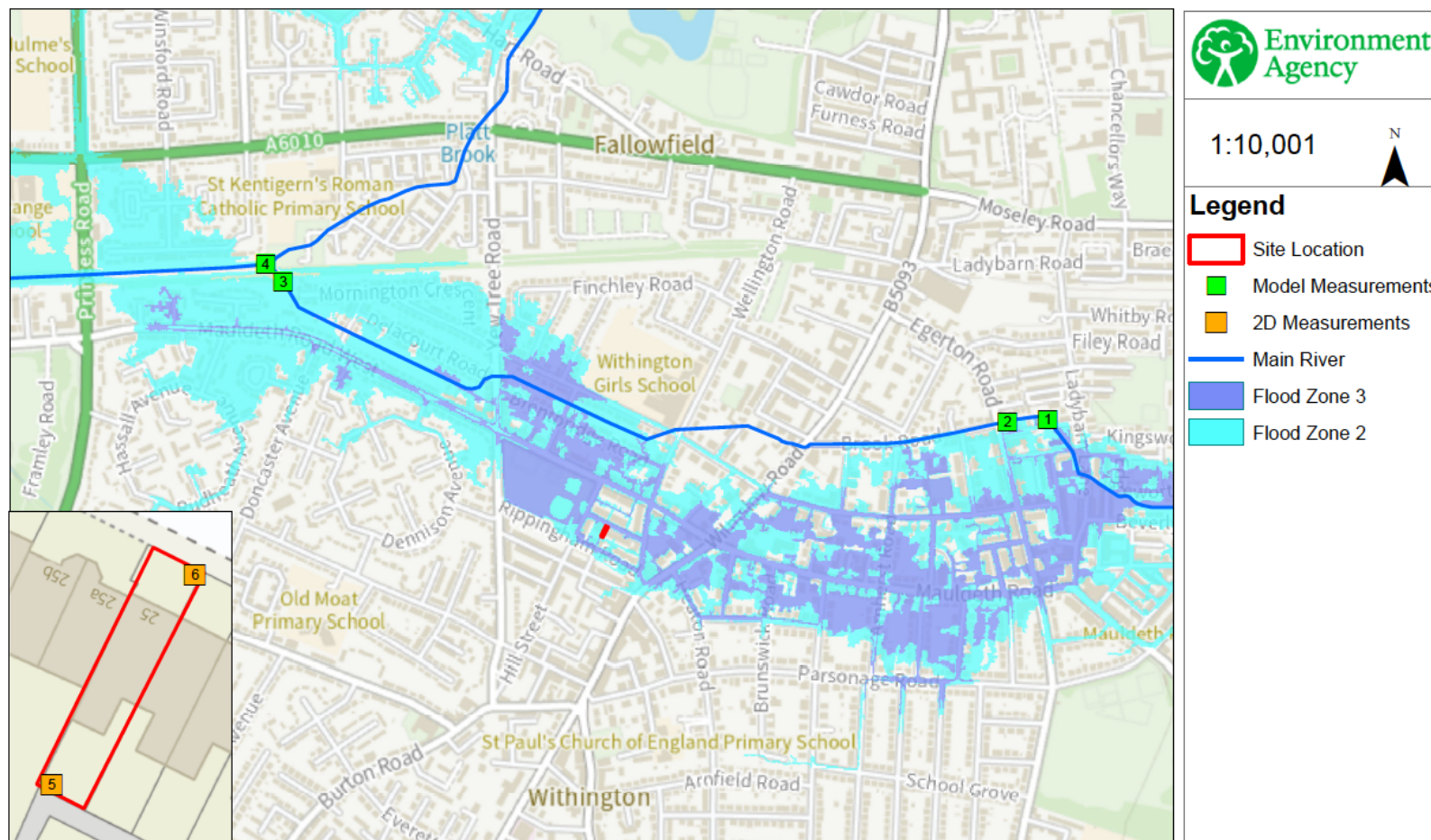
Doc. Ref. SAS001FRA	Flood Risk Assessment	Date: March 2023
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	led to the installation of sealed covers on certain manhole chambers on the culvert along the length deemed to be most at risk beneath gardens east of Wellington Road. Notwithstanding the Environment Agency's modelled data, it is not considered credible that water from the culvert would reach the location of 25 Lausanne Road in a quantity sufficient to affect the property. Escape of flood water from the culvert will be limited by a combination of the seated manhole chamber covers, low surcharge pressure (estimated to be less than 0.4 bar based on Egerton Road trash screen top water level compared to ground level at Wellington Road) and hydraulic relief via free discharge to the open channel beyond the culvert west of Mornington Crescent. Furthermore, the beneficial effects of any drainage of flood water into the combined sewer network, or any soakaway to ground, over the distance between the culvert at Wellington Road and Lausanne Road, is conservatively ignored in this argument. As Cringle Brook is known to be a 'flashy' watercourse where water levels rise and fall quickly, any standing water is likely to drain away within a short time period and is very unlikely to extend over an area at a depth sufficient to adversely affect 25 Lausanne Road.
Surface Water	According to the Environment Agency (Figure 8) 25 Lausanne Road is at 'Low' risk of surface water flooding and lies outside of any affected areas. The closest accumulation of surface water is along Lausanne Road highway to the north. Nevertheless, proportionate measures to mitigate against surface water flooding should be considered due to the proximity of modelled surface water to the property boundaries (Figure 8).
Sewer Flooding	No records of sewer flooding affecting the site have been obtained. The presence of an existing gravity drain serving the current living accommodation on the lower ground floor indicates that invert levels of sewer pipes are lower than this floor level. This indication is supported by the presence of developments with shower rooms and WCs in basements along the same terrace (Appendix 2). Despite there being no records of sewer flooding it is considered prudent to include proportionate cost-effective mitigation measures against sewer flooding.

Table 1 – Assessment of Flood Risk

In addition to the information presented in Table 1 it is noted that there is no anecdotal evidence of any type of flooding affecting 25 Lausanne Road. The previous owner of the property has stated that they have no knowledge of flooding at the address during their ownership which dated back to 2003. The completed Law Society Property Information Form provided to the current owner prior to exchange of ownership (see Appendix 4) in 2021 supports this statement. Furthermore, work for a basement conversion to provide self-contained accommodation was approved for 15 Lausanne Road, on the same row of terraced houses as 25 Lausanne Road, in 2006 (see Appendix 3).

**Detailed Flood Map Centred on Lausanne Road, Manchester, M20 3EU.
Created 16/02/2023 [GMMC298458JP]**



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Figure 5 – Extent of Flooding from Cringle Brook - without Flood Defences (Environment Agency)

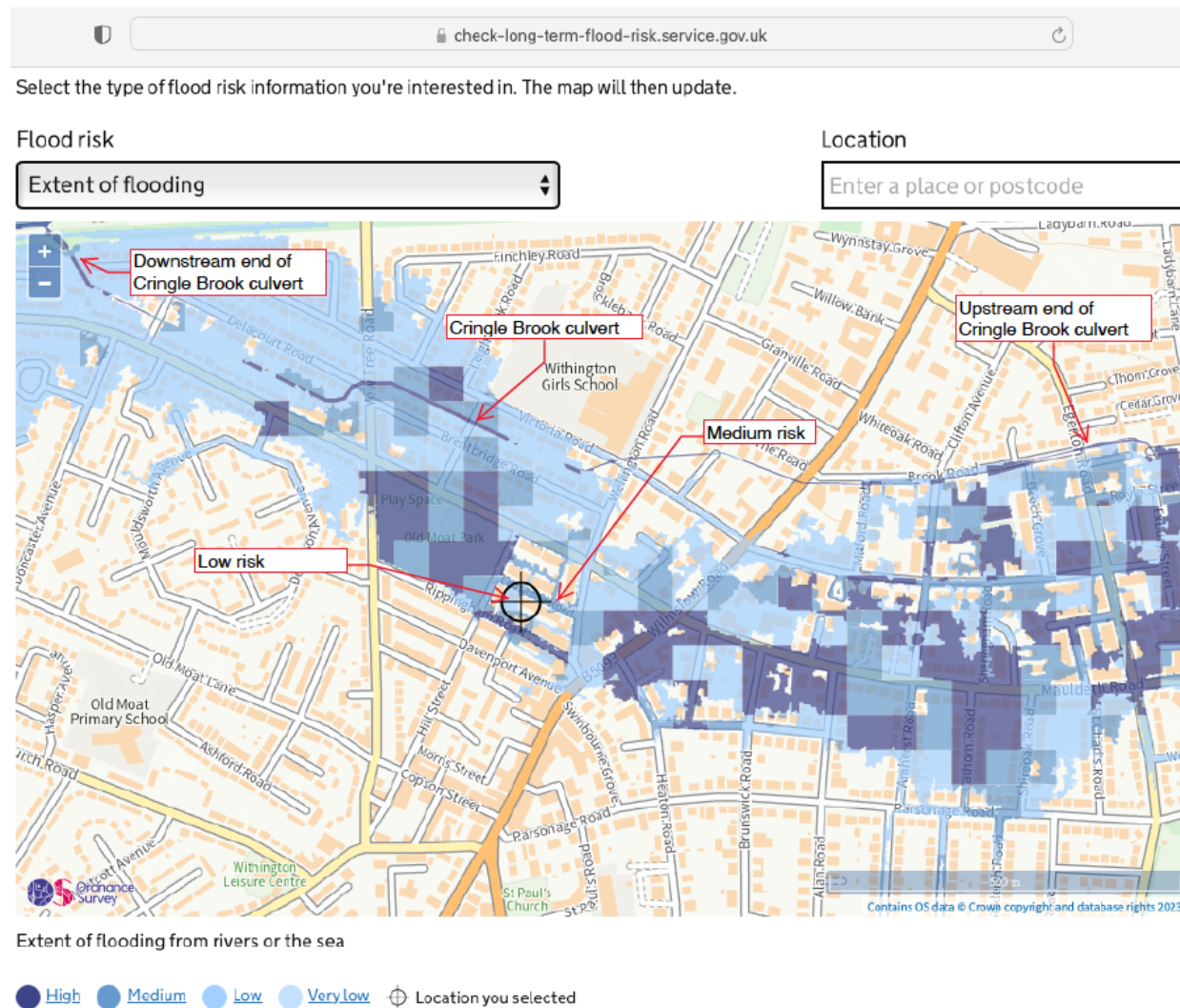
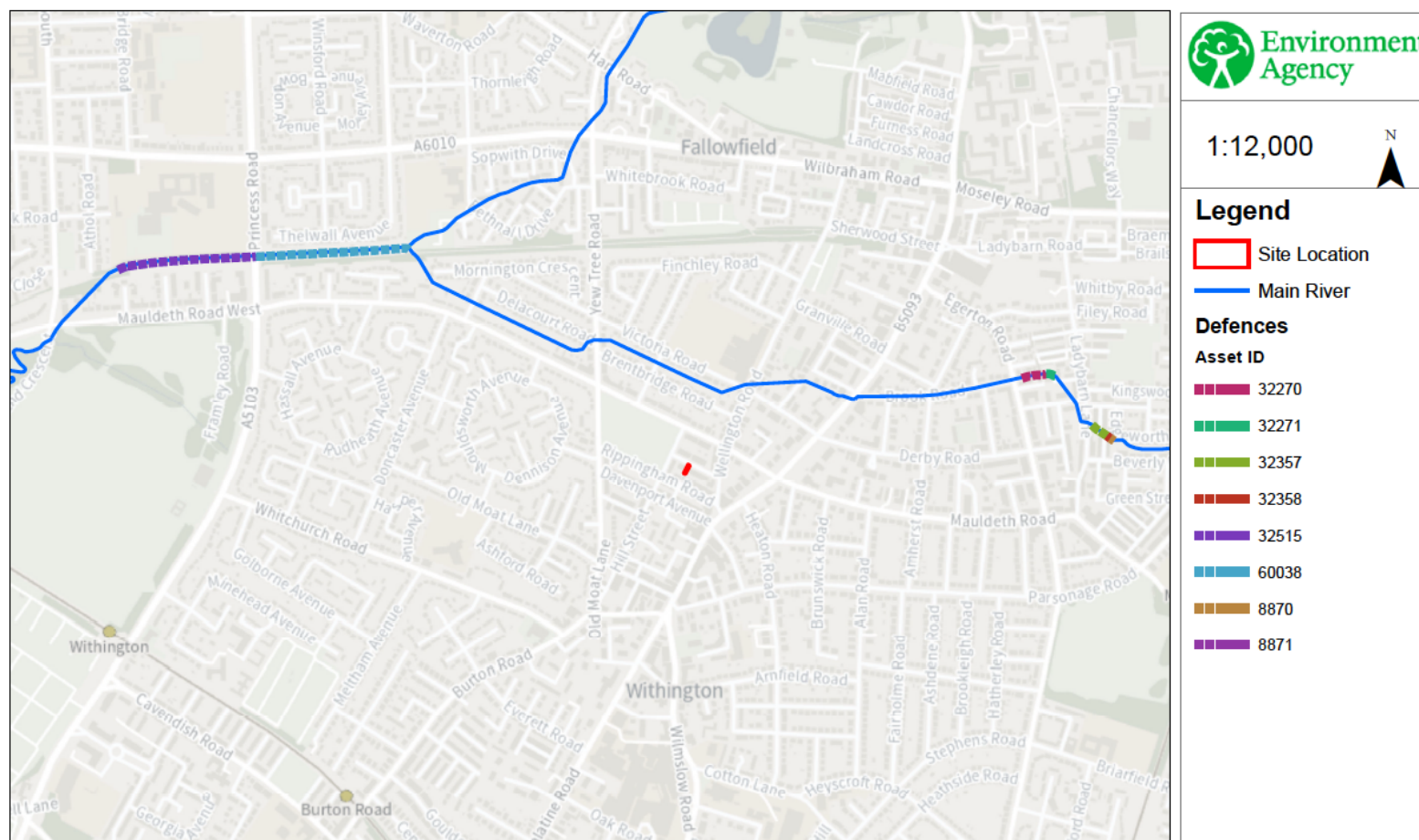


Figure 6 – Extent of Flooding from Cringle Brook - with Flood Defences (Environment Agency)

**Flood Defence Map Centred on Lausanne Road, Manchester, M20 3EU.
Created 20/02/2023 [GMMC298458JP]**



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Figure 7 – Locations of Existing Flood Defences along Cringle Brook (Environment Agency)

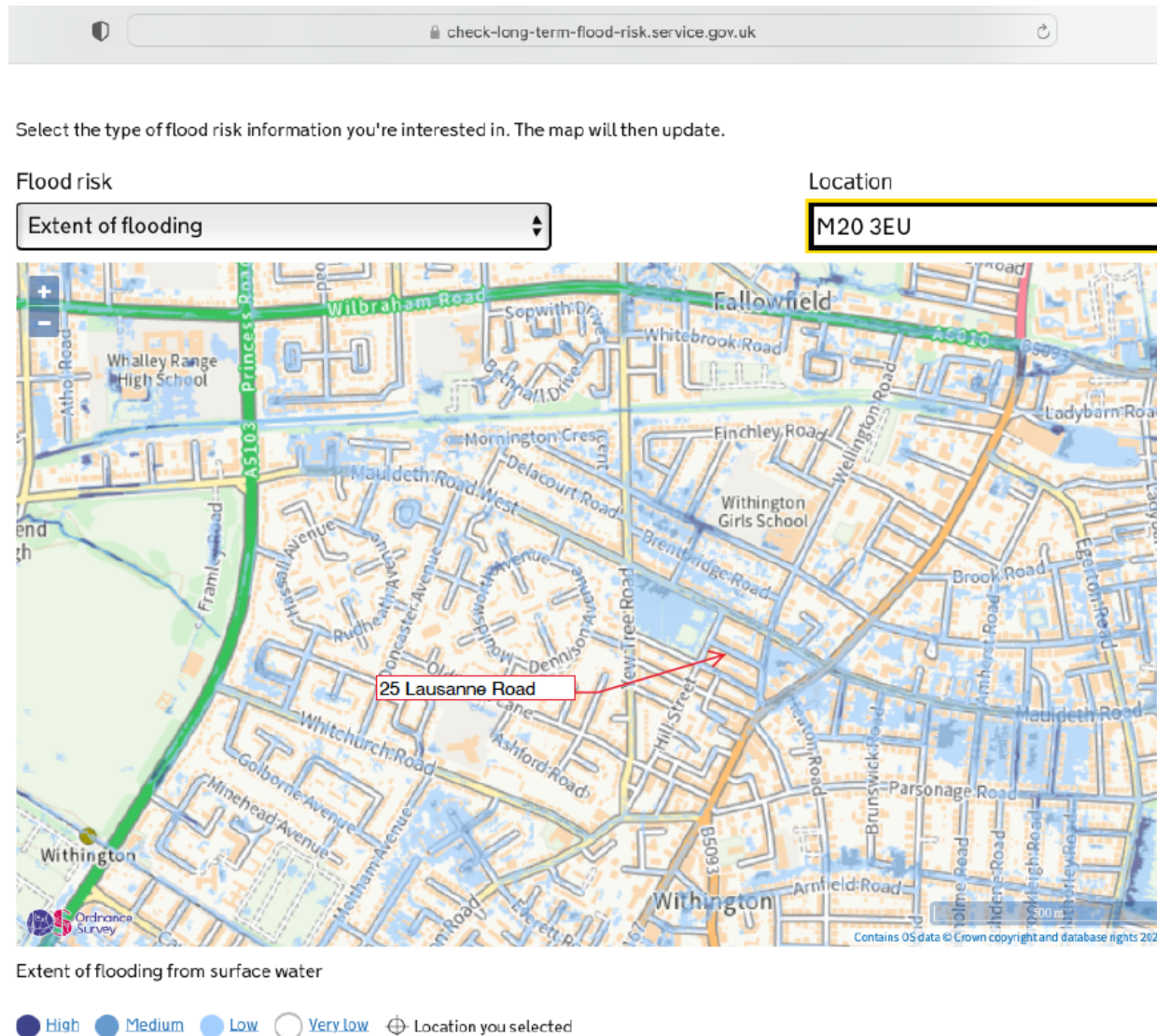


Figure 8 – Extent of Surface Water Flooding (UK Government)

4 MANAGEMENT AND MITIGATION OF FLOOD RISK

Flooding Source	Proposed Management and Mitigation Measures
Fluvial (Rivers)	The existing living room area on the lower ground floor of 25 Lausanne Road was constructed in 2012 and a Building Regulations Completion Certificate was obtained. The walls are lined with a 'Type C' cavity drain membrane system, as described in British Standard BS 8102 'Protection of Below Ground Structures Against Water Ingress – Code of Practice'. In the case of 25 Lausanne Road a 'Newton System 500' waterproof membrane has been installed to the basement living room walls and the floor is protected by a 'Newton System 520' cavity drain waterproof membrane. A sump is provided to enable pumping out of water beneath the basement main floor level. The proposed development of the two unused lower ground floor rooms will utilise a similar cavity drain membrane system ('Newton' or equivalent) with sump, to prevent any potential in infiltration of water due to a flood event. As a cost-effective measure to address any residual flood risk, all permanent electrical circuits and power sockets for the proposed development will be sited 600mm above floor level. Full details will be developed at the Building Regulations plans approval stage. In addition to the above measures and in order to prevent any flood water from entering the lower ground floor directly through the proposed doorway to the north elevation, a high point threshold will be constructed to an elevation of at least 35.34 m AoD within the reinstated paving profile in the front garden, as illustrated in Figure 9. This will take the form of a concrete ramp and sit at a level 300 mm above the maximum modelled flood water level of 35.04 m AoD (with climate change allowance) for Lausanne Road highway, as reported by the Environment Agency (Appendix 2). A similar high point threshold at a level of 35.45m (including 300 mm freeboard) will be provided within the rear yard to the south to prevent flood water from entering the lower ground floor via the proposed doorway on this elevation.
Surface Water	For prevention of surface water flooding the proposed development will utilise the same solutions as outlined for fluvial flood mitigation.
Sewer Flooding	Any potential sewer for flooding will be prevented by the installation of a non-return valve on the existing sewer drain within the property boundary. The feasibility of this proposal will be investigated through a CCTV survey and if deemed not practicable alternative solutions will be explored. All relevant permissions will be obtained from the statutory undertaker (United Utilities) before any works.

Table 2 – Proposed Management and Mitigation Measures



Figure 9 – Front Elevation 1:1000 Year Flood Depths and Defences (image from Google)

5 CONCLUSION AND SUMMARY

A detailed assessment of the site-specific flood risk for 25 Lausanne Road has been undertaken. Although the Environment Agency's flood map (Figure 5) shows the property to be bounded by Flood Zones 2 and 3, the assessment has shown that the likelihood of any flooding to the proposed development on the lower ground floor is at a tolerable level.

The following mitigations and measures to deal with any residual flood risk are to be implemented for the proposed development:

- All new rooms on the lower ground floor are to be protected with a 'Type C' drained cavity lining system complying with BS 8102, The Building Regulations 2010 and all other relevant building codes.
- Raised ground level areas (thresholds) are to be incorporated into the rear yard and front garden of the property.
- All power sockets to be sited at least 600 mm above finished internal floor level.

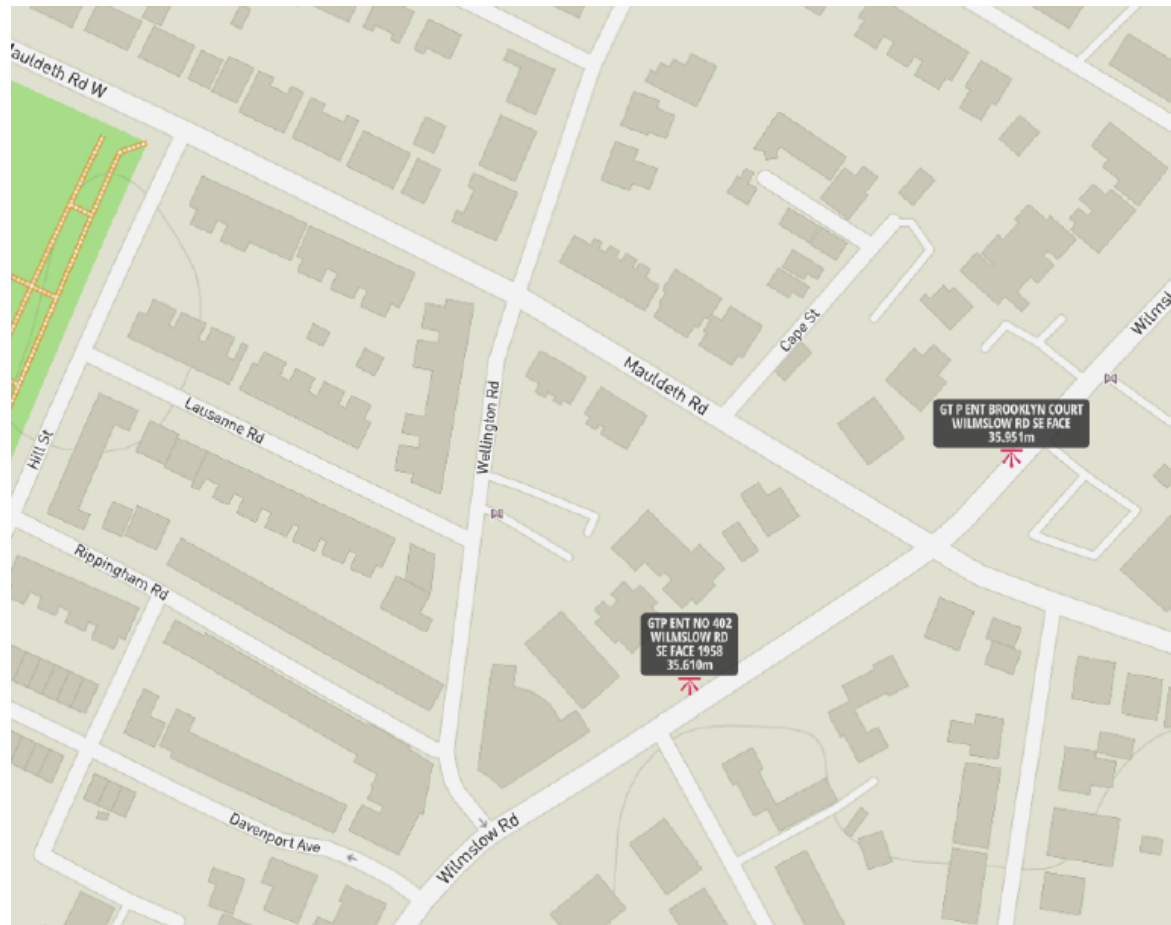
6 COMPETENCY STATEMENT

This FRA has been carried out by Mr. Lee Brocklehurst who is a chartered civil engineer with over 20 years of experience in industry. Lee has a unique perspective and detailed knowledge of flood risk in the Fallowfield and Withington areas of South Manchester, having previously worked for seven years as a civil engineer in a role carrying out computational flood modelling, designing flood defences and supervising the construction of projects for the Environment Agency (EA).

One of the schemes on which Lee was both designer and the Resident Engineer during construction was the Cringle Brook Flood Alleviation Scheme, completed in 2004. As part of this scheme the culvert carrying the brook underwent structural repairs throughout its length from Egerton Road up to its outfall just west of Mornington Crescent. Lee has in-depth knowledge of this culvert and supervised repairs to its structure. He also designed and oversaw the construction of the Egerton Road trash screen, flood defence walls off Ladybarn Lane and other improvements at Cringle Park.

It is therefore considered that the author is competent to undertake this FRA owing to his qualifications, experience and specific knowledge of the fluvial flood risk in South Manchester. This FRA has been undertaken by the author in a professional capacity working for Sassi Consultants Limited.

APPENDIX 1: LEVEL SURVEY FIELD NOTES

OS Benchmark Locations³

³ <https://interactivemaps.uk/os-benchmark-archive/#16.99/53.436384/-2.226749>

Date. 16/03/23 Levels					Doorstep 057.2 ³ next to ladder 077.5 taken for No. 25A 124.4 To top of kerb PATTERN B				
From Withington Library					front garden 121.6 door step 040.4				
BACK SIGHT	INTER-MEDIATE	FORE SIGHT	COLLIMATION OR H.P.C.	REDUCED LEVEL	DISTANCE	REMARKS			
		05 BM	No 402 →	35.610	Adjusted level				
123.5			36.845	35.259	35.261				
157.8	158.6		36.837	35.059	35.061				
152.6		177.8	36.585	34.402	34.404				
146.3		168.3	36.365	34.785	34.787	- herb level			
148.2		158.0	36.267	35.695	36.212				
↓	0.57.2			35.492	35.494	- upper step			
see door step	077.5			35.023	35.025	next to ladder (170cm to cellar)			
	124.4			35.051	35.053	no 25A			
	121.6			35.863	35.865	- front garden -			
	040.4					door step + 113mm to ground floor			
		148.1	back bit kerb	34.786	34.788	herb level due to inner step			
154.6			36.332	34.905	34.907				
169.4		142.7	36.599	35.061	35.063				
		153.8							
					Ground floor level = 36.035 m				
					Basement floor level = 35.494 - 1.70 = 33.794 m				

16/3/23
Date: 16/3/23
From: Wittington Library
To:
Pattern:
Level:
Code:
Mark:
taken for:
To:
Pattern:
BENCH MARK

BACK SIGHT	INTER-MEDIATE	FORE SIGHT	COLLIMATION OR H.P.C.	REDUCED LEVEL	DISTANCE	REMARKS
178.3		1594	36.844	35.250	35.252	error: $\frac{35.610 - 35.584}{13} = 2mm$
161.0		1276	36.860	35.584	35.586	back at bench mark
forward, other BM.			BM A	35.610		
		153.0		35.330		Not used.
168.3		148.7	37.613	35.526		
165.7			37.153			
		124.7	other BM	35.936		

APPENDIX 2: MODELLED RIVER FLOOD WATER LEVELS, 25 LAUSANNE ROAD M20 3EU

Map Reference	Model Node Reference	Easting	Northing	Data	Undefended			
					1 % AEP (1 in 100 year) + 30% increase in flow	1 % AEP (1 in 100 year) + 35% increase in flow	1 % AEP (1 in 100 year) + 70% increase in flow	0.5 % AEP (1 in 200 year)
5	2D Levels	384926	393301	Modelled Water Level (m aodN)	35.00	35.01	35.05	34.97
6		384939	393321	Modelled Water Level (m aodN)				

Model data taken from Cringle Brook 2017

AEP - Annual Exceedence Probability

m aodN - metres above ordnance datum Newlyn

cumecs - cubic metres per second

Notes: *Climate Change Scenario - 30%, 35% and 70% increases in flow calculated for the 2080's (2070 - 2115). Please see <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances> for more information regarding the new climate change guidance. The (vulnerability) of development determine the climate change allowances to consider in any flood risk assessment.

Undefended			Defended					
0.5 % AEP (1 in 200 year)	0.1 % AEP (1 in 1000 year)	0.1 % AEP (1 in 1000 year) + 30% increase in flow	1 % AEP (1 in 100 year) + 30% increase in flow	1 % AEP (1 in 100 year) + 35% increase in flow	1 % AEP (1 in 100 year) + 70% increase in flow	0.5 % AEP (1 in 200 year)	0.1 % AEP (1 in 1000 year)	0.1 % AEP (1 in 1000 year) + 30% increase in flow
34.97	35.11	35.15	34.98	34.99	35.04	34.93	35.11	35.15
	35.02	35.04					35.02	35.04

new climate change guidance. The location of the site and the type

APPENDIX 3: ENVIRONMENT AGENCY CORRESPONDENCE

GMMC298458JP - Follow On Response attached from the Environment Agency - RJ7UR2TG3PVV

GMMC Info Requests <InfoRequests.GMMC@environment-agency.gov.uk>

Tue 28/02/2023 08:18

To: Lee Brocklehurst <labrocklehurst@hotmail.com>

Dear Lee Brocklehurst,

Thank you for your follow on query on the 24/02/2023.

I have now had information back from our officers:

- Please note that the flood zone extents shown on the published [flood map for planning](#) ignore the presence of any defences. This follows a precautionary approach taken by the national planning policy framework to highlight where development proposals need to consider flood risk in more detail. They also ignore the potential impact of climate change. If you undertake the same search using the [Check the long term flood risk](#) for an area in England mapping, you will see that this suggests lower risk for your location. That is because this data set does include the impact of any defences on flood risk.
- The scheme most likely being referring to is upstream at Ladybarn and screen on Eggerton road. This would not have any bearing on this location which any flooding would be from the culvert. Some sections of culvert were replaced here around the time referred to.

I hope this helps to answer the query.

Please refer to the [Open Government Licence](#) which explains the permitted use of this information.

Please get in touch if you have any further queries or contact us within two months if you'd like us to review the information we have sent.

Kind regards,

Julia Poole
Customer and Engagement Officer
Greater Manchester, Merseyside and Cheshire
Email: InfoRequests.gmmc@environment-agency.gov.uk

APPENDIX 4: ANECDOTAL EVIDENCE OF FLOOD RISK HISTORY AND SIMILAR PREVIOUS DEVELOPMENTS**7. Environmental matters****Flooding**

Note: Flooding may take a variety of forms: it may be seasonal or irregular or simply a one-off occurrence. The property does not need to be near a sea or river for flooding to occur. Further information about flooding can be found at:

www.gov.uk/government/organisations/department-for-environment-food-rural-affairs.

The flood risk check can be found at: www.gov.uk/check-flood-risk.

Read our updated Flood Risk Practice Note at <https://www.lawsociety.org.uk/support-services/advice/practice-notes/flood-risk/>

- 7.1 Has any part of the property (whether buildings or surrounding garden or land) ever been flooded?**
If Yes, please state when the flooding occurred and identify the parts that flooded:

☐ Yes ☒ No

If No to question 7.1 please continue to 7.3 and do not answer 7.2 below.

- 7.2 What type of flooding occurred?**

(a) Ground water

☐ Yes ☐ No

(b) Sewer flooding

☐ Yes ☐ No

(c) Surface water

☐ Yes ☐ No

TA6

Law Society Property Information Form

Page 9 of 18

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pa.manchester.gov.uk/online-applications/applicationDetails.do?keyVal=IZICXWBC62000&activeTab=summary

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Planning – Application Summary

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079500/FO/2006/S1 | Conversion of basement into one self contained flat | 15 Lausanne Road Withington Manchester M20 3EU

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Details [Comments \(0\)](#) [Documents \(10\)](#) [Related Cases \(1\)](#) [Map](#)

Summary [Further Information](#) [Important Dates](#) [Contacts](#)

Reference	079500/FO/2006/S1
Alternative Reference	
Application Validated	Mon 12 Jun 2006
Address	15 Lausanne Road Withington Manchester M20 3EU
Proposal	Conversion of basement into one self contained flat
Decision	Approved
Decision Issued Date	Wed 26 Jul 2006
Appeal Status	Unknown
Appeal Decision	

There are [10 documents](#) associated with this application.

There are 0 cases associated with this application.