



**44 WATERLOO ROAD
UXBRIDGE, UB8 2QX**

FLOOD RISK REPORT

FOR

UXBRIDGE PROPERTY LTD



June 2017

Our Ref: HLEF52952/001R

RPS Health, Safety & Environment
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London
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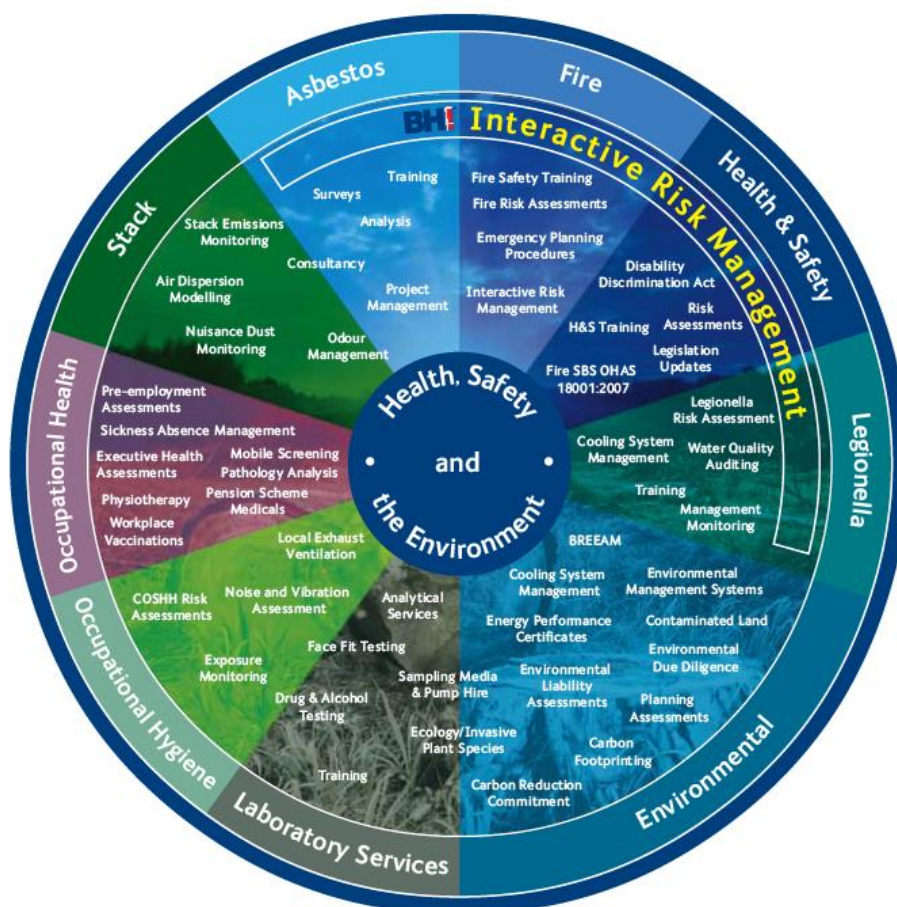
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This report has been prepared in the RPS Group Quality Management System to British Standard EN ISO 9001:2008

RPS Health, Safety & Environment is part of the RPS Group Plc with around 5,000 staff based at over 85 offices located throughout the UK, Ireland and the Netherlands and in the USA, Canada, the Russian Federation, Australia, Malaysia, Singapore and Abu Dhabi. RPS offers an unparalleled range of commercially focused services relating to property and land due-diligence, site development and geo-environmental investigations (including liability reviews, planning feasibility, EIAs and flood risk, energy & sustainability assessments).

RPS Health, Safety & Environment (London office) is certified to Environmental Management Standard ISO 14001.





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EXECUTIVE SUMMARY

Report Summary:

This Flood Risk Report has been prepared in relation to the Permitted Development application for the subject site. The site currently comprises a two storey storage building and associated hardstanding areas. The proposed works comprise the conversion of both floors of the building into a total of 6 residential units.

The assessment considers the risk to the site from key sources of flooding, including fluvial and tidal sources, surface water, sewer surcharging, groundwater and man-made features such as canals and reservoirs. The level of flood risk has been assessed based on available data provided by the Environment Agency, the Local Authority and the Water Authority.

According to online EA flood mapping, the site is located within Flood Zone 1 but adjacent to Flood Zone 2. However, modelled site-specific flood extents provided by the Environment Agency indicate that the site and associated access roads are located well outside of the 1 in 1000 year flood extent. The 1 in 1000 year modelled flood extent provided by the EA has also been used as a conservative proxy for the 1 in 100 year plus 25% climate change design flood extent. It is therefore inferred that the site and access roads remain dry for the design, 1 in 100 year plus 25% climate change, flood event.

No significant risks have been identified associated with other, non-fluvial sources of flooding.

Overall the site is considered to be at a low risk of flooding from all sources assessed. The development is therefore considered to be safe from a flood risk perspective.

In addition, given the nature of the proposed works (comprising conversion of an existing building only) there will be no increase in flood risk as a result of the development proposal.

1 INTRODUCTION

RPS was commissioned to prepare a Flood Risk report in relation to the proposed conversion of the ground and first floors of *44 Waterloo Road, Uxbridge, UB8 2QX* to six residential units.

The aim of this report is to provide an assessment of flood risk to the property, identify any impacts on flood risk resulting from the proposed works, and to provide recommendations for reducing this risk (where applicable). The report has been produced with reference to the guidance detailed in the National Planning Policy Framework (NPPF).

The following has been undertaken as part of the assessment:

- Assessment of the topographical, hydrological and hydrogeological setting through review of information sourced from the British Geological Survey, the Environment Agency (EA) and the Ordnance Survey;
- Review of readily available (online) flood risk mapping provided by the EA;
- Review of the Strategic Flood Risk Assessment (SFRA) produced by the Local Authority outlining flood risk from various sources within the borough;
- Consultation with the Water Authority regarding known records of sewer flooding at the property;
- Review of detailed flood risk data provided by the EA (including modelled flood levels and flood defences information); and
- Topographic Survey to confirm ground / slab levels at the site.

Given that the proposal is for a change of use of the existing property, there is no requirement under the NPPF to apply the Sequential Test or Exception Test in relation to this application.

2 SITE DESCRIPTION AND SETTING

2.1 Site Description

The site is located in Uxbridge at national grid reference TQ 05020 83644. It is within a predominantly residential setting. A site location plan is provided in Figure 1.

The site occupies an area of approximately 0.03 hectares. It is currently occupied by a storage unit and a rear yard. The ground floor of the building currently consists of storage areas, an office and a toilet. The first floor consists of storage space.

A topographic survey was carried out by RPS Group on the 14th June 2017. The survey indicates that the site gently slopes from 31.45m AOD in the east of the site to 31.65m AOD in the west of the site. Finished floor levels of the building on site are shown to be 31.49m AOD. The topographic survey is included in Appendix C.

2.2 Hydrological Setting

The nearest surface water feature is the Grand Union Canal located 40m to the west of the site. The canal appears to have hydraulic connectivity with the fluvial watercourses in the vicinity of the site.

The nearest main watercourse is the River Colne which is located 140m to the west of the site and flows in a southerly direction. An ordinary watercourse named 'The Culvert' is located approximately 130m to the south west of the site and flows from the Grand Union Canal in a westerly direction and into the River Colne.

Fray's River, another main watercourse, is located approximately 280m to the east of the site and flows in southerly direction.

2.3 Hydrogeological Setting

According to BGS mapping, the site is underlain by Alluvium deposits consisting of clay, silt, sand and gravel which are classed as a Secondary A Aquifer. These are layers capable of supporting water supplies at a local rather than strategic scale and often form an important source of base flow to rivers. This is underlain by London Clay which is classed as an Unproductive Stratum. These are layers which have low permeability and negligible significance for water supply or river base flow.

A BGS borehole located approximately 100m to the south of the site encountered groundwater at a depth of 1.7m below ground level.

3 PROPOSED DEVELOPMENT

3.1 Description of Development

The Permitted Development application is for the conversion of both floors of the existing building into six residential units. The yard area in the west of the site will act as a parking area.

The ground floor of each residential unit will consist of open plan living, kitchen and dining space and a toilet. The first floors will consist of sleeping accommodation and a bathroom.

Access to the residential units will be from Waterloo Road to the east and from the lane to the south of the site.

Development plans are provided in Appendix D.

4 CONSULTATIONS & REGULATORY INFORMATION

4.1 Environment Agency

The EA flood map (available online) indicates that the site is located within Flood Zone 1. The annual probability of flooding from fluvial or tidal sources is classified as less than 1 in 1000. An area of the Waterloo Road adjacent to the east of the site is located in Flood Zone 2 whereby the annual probability of flooding from fluvial sources is classified as between 1 in 100 and 1 in 1000. The EA Flood Map is provided in Figure 2.

The EA has been consulted for additional information relating to the fluvial flood risk to the site. The full response has been included in Appendix B. A summary of the key information from the response is included below:

- The EA does not hold any records of any historical fluvial or tidal flooding at the subject site.
- Modelled flood extents and levels have been provided by the EA from the Lower Colne Modelling and Mapping Study carried out by Mott MacDonald in 2012. The site is located outside of the modelled defended fluvial flood extents for all flood events up to and including the 1 in 1000 year event, including the 1 in 100 year plus 20% climate change event.
- There are defences along the River Colne and Fray's River in the form of embankments, high ground and walls which offer a 1 in 80 year standard of protection.
- In-channel modelled flood levels have been provided for the Grand Union Canal located approximately 40m to the west of the site, which appears to be the primary source of fluvial flooding for the area in which the site is located. Those for the nodes most relevant to the site are included below:

		Modelled flood level (mAOD)				
Node point	Distance from site	1 in 5 year	1 in 20 year	1 in 100 year	1 in 100 year plus 20% climate change	1 in 1000 year
I004U	120m	31.61	31.69	31.74	31.79	31.87
I004D	140m	31.61	31.69	31.74	31.79	31.87

The EA Risk of Flooding from Surface Water map (available online) indicates that the site is entirely at 'very low' risk from surface water flooding. This corresponds with an annual probability of flooding that is less than 1 in 1000. The EA Risk of Flooding from Surface Water map is provided in Figure 3.

EA mapping also indicates that the site is not located within an area potentially at risk from reservoir flooding.

4.2 Local Authority

The London Borough of Hillingdon SFRA was published in 2008. The London Borough of Hillingdon Surface Water Management Plan (SWMP) was published in 2013. These documents provide an overview of flood risk from various sources within the Borough. Information of relevance to this assessment is summarised below:

- The River Crane and the River Colne are the two key river catchments in which the London Borough of Hillingdon falls.
- The Grand Union Canal, which is located 40m to the west of the site, contributes to the complex nature of Hillingdon waterways and flood risk. The canal is perched above the surrounding ground level and the maintenance of its assets such as embankments is critical for managing flood risk in the borough.
- 38,000 properties are deemed to be at risk from surface water flooding in the borough.
- The site is not located in a Critical Drainage Area where multiple or interlinked sources of flood risk cause flooding in one or more Local Flood Risk Zones during severe weather.
- There have been no instances of surface water flooding recorded within the vicinity of the site.
- There have been no instances of fluvial flooding recorded within the vicinity of the site.
- There have been between 21 and 50 instances of sewer flooding recorded within the 'UB8 2' postcode area.
- The site is located in an area underlain by permeable deposits and there is therefore increased potential for groundwater flooding to occur.
- No groundwater flooding instances have been recorded within the immediate vicinity of the site.

4.3 Water Authority

Thames Water have confirmed that there have been no instances of sewer flooding recorded within the immediate vicinity of the site.

5 ASSESSMENT OF FLOOD RISK

5.1 Background

The following assessment is based on the data presented in the preceding sections of this report. It should be noted that flooding can occur at any location and cannot always be predicted. However, this report aims to identify any specific or known risks relating to the subject property, based on available information sources.

5.2 Fluvial / Tidal Flooding

Fluvial and tidal flooding refers to flooding from surface watercourses and their tributaries, estuaries and the sea. EA mapping indicates that the site is located within Flood Zone 1, whereby the annual probability of fluvial or tidal flooding is classified as less than 1 in 1000. An area of Waterloo Road adjacent to the east of the site is located in Flood Zone 2 whereby the annual probability of flooding is between 1 in 1000 and 1 in 100. This area of Flood Zone 2 may encroach fractionally onto the site boundary, but does not encroach onto the footprint of the building.

Information provided by the Environment Agency indicates that the site is located outside of the modelled defended flood extents for all events including the 1 in 100 year plus 20% climate change and the 1 in 1000 year events. As the site is outside of the modelled flood extents, safe access and egress will be available from the residential dwellings, even during an extreme 1 in 1000 year flood event.

Comparison of the modelled in-channel flood levels for the Grand Union Canal provided by the EA with site levels from the topographic survey reveals that the 1 in 100 year and 1 in 1000 year flood levels are both higher than the site. However, the modelled flood extents take into account areas of between the site and the Grand Union Canal which protect the site from flooding in reality. The Grand Union Canal is known to be raised above the surrounding ground level and contained by embankments throughout its course. For this reason, the modelled flood extents provided by the EA are considered to provide a more accurate representation of flooding in the area than comparison of in-channel flood levels with site levels.

In accordance with guidance issued by the EA in February 2016, it is necessary to assess the effects of new climate change allowances on the proposed redevelopment. As the proposed use is classed as 'more vulnerable' and located within Flood Zone 2, the 'central' climate change allowance of 25% should be applied to the 1 in 100 year flood level. As a worse-case scenario, should the adjacent area of Flood Zone 2 extend fractionally onto the site, a 25% climate change scenario would still be appropriate in accordance with EA guidance.

The 'basic' and 'intermediate' methods of applying climate change allowance, as described within the guidance issued by the local EA office, involve a manipulation of in-channel flood levels. However, as noted above, this would not provide a realistic interpretation of the effects of climate change, as flow routes between the watercourse and the site would not be properly accounted for. Hydraulic modelling is considered a disproportionate approach given the nature of the proposals and the site's location predominantly, if not wholly, in Flood Zone 1. Therefore, the modelled 1 in 1000 year flood extent is considered a reasonable proxy for the 1 in 100 year plus 25% climate change scenario. This approach is likely to overestimate the design flood extent, because the 1 in 100 year plus 25% climate change flows and flood extents are likely to be relatively similar to the 1 in 100 year plus 20% scenario. The data provided by the EA shows that the 1 in 1000 year flow rate is actually significantly higher than the 1 in 100 year plus 20% flow rate.

Based on the inferred 1 in 100 year plus 25% climate change flood extent, there would be no flooding of the site or the access roads. The proposed change of use is therefore considered to be appropriate from a flood risk perspective.

No historical flood events from fluvial or tidal sources have been recorded by the EA in close proximity to the site.

The Planning Practice Guidance (PPG) details the suitability of different land uses within each flood zone. The proposed land use is classified as 'more vulnerable' and such uses are generally considered compatible with Flood Zones 1 and 2.

Overall, the risk associated with flooding from fluvial or tidal sources is considered to be low.

5.3 Flooding from sewers

Sewer flooding can occur during periods of heavy rainfall when a sewer becomes blocked or is of inadequate capacity.

SFRA mapping shows that 21- 50 instances of sewer flooding have been recorded within the UB8 2QX postcode area. However, Thames Water have confirmed that there have been no recorded instances of sewer flooding in the immediate vicinity of the site.

Overall, the risk associated with flooding from sewers is considered to be low.

5.4 Surface water (pluvial) flooding

This can occur during intense rainfall events, when water cannot soak into the ground or enter drainage systems. Overland flow is likely to follow the local topography, ponding in valleys or topographical depressions.

The entire site is at 'very low' risk from surface water flooding. This corresponds with an annual probability of flooding that is less than 1 in 1000.

The London Borough of Hillingdon SFRA indicates that there have been no recorded instances of surface water flooding within the vicinity of the site.

Overall, the risk associated with surface water flooding is considered to be low.

5.5 Groundwater flooding

This can occur in low-lying areas when groundwater levels rise above surface levels, or within underground structures. BGS mapping indicates that the site is underlain by Alluvium deposits of clay, silt sand and gravel which are classed as a Secondary A Aquifer. This is underlain by the London Clay Formation which is classed as an Unproductive Stratum. A BGS borehole located 100m to the south of the site encountered groundwater at a depth of 1.7m below ground level.

The SFRA states that the site is located in an area with increased potential for elevated groundwater due to the permeable deposits underlying the site. However, groundwater flooding in the borough is complex and it is very difficult to assess its likelihood and location.

As there are no basement levels proposed as part of the development the potential for groundwater flooding to impact the development itself is reduced.

Overall, the risk associated with groundwater flooding is considered to be low.

5.6 Other Sources

Other potential sources of flooding include man-made structures such as reservoirs and canals. EA mapping shows that the site is not within an area considered to be at risk from reservoir flooding.

The site is located approximately 40m to the east of the Grand Union Canal. The levels in the canal are managed through a series of overflows comprising control structures managed by the Canals and River Trust. There are no recorded instances of flooding occurring in the area of the site as a result of the canal overtopping.

As with any urban location, there is the risk of a break in a water main causing localised flooding at the site. However, the risk at this location is no greater than at any other location served by water mains.

Overall the risk associated with flooding from other sources (such as reservoirs and canals) is considered to be low.

5.7 Impact of Development on Flood Risk

Given that the proposed works comprise the conversion of the existing property only, with no external alterations to the building footprint or drainage system, there will be no off-site increase in flood risk as a result of the proposed works. It is therefore considered neither practical nor sustainable to include SuDS in the proposed scheme.

6 CONCLUSIONS & RECOMMENDATIONS

6.1 Conclusions

This assessment has considered the potential risks to the application site associated with flooding from fluvial and tidal sources, sewer surcharging, surface water (pluvial) flooding, groundwater flooding and flooding from other (man-made) sources.

According to online EA flood mapping, the site is located within Flood Zone 1, but adjacent to Flood Zone 2 whereby the annual probability of flooding is between 1 in 1000 and 1 in 100. However, additional information provided by the EA indicates that the site and access roads are located well outside of the 1 in 1000 year modelled flood extent. Consideration of the effects of climate change also shows that the site and access routes would be unaffected by fluvial flooding.

No significant risks have been identified associated with other sources of flooding.

Overall, on the basis of information reviewed by RPS, the subject site is not considered to be at a significant risk of flooding from any of the sources assessed.

The development is considered to be safe from a flood risk perspective, and will not result in an increase in flood risk off-site.

6.2 Recommendations

No further assessment or mitigation is considered necessary in relation to flood risk for the Permitted Development application.

APPENDIX A

Figures

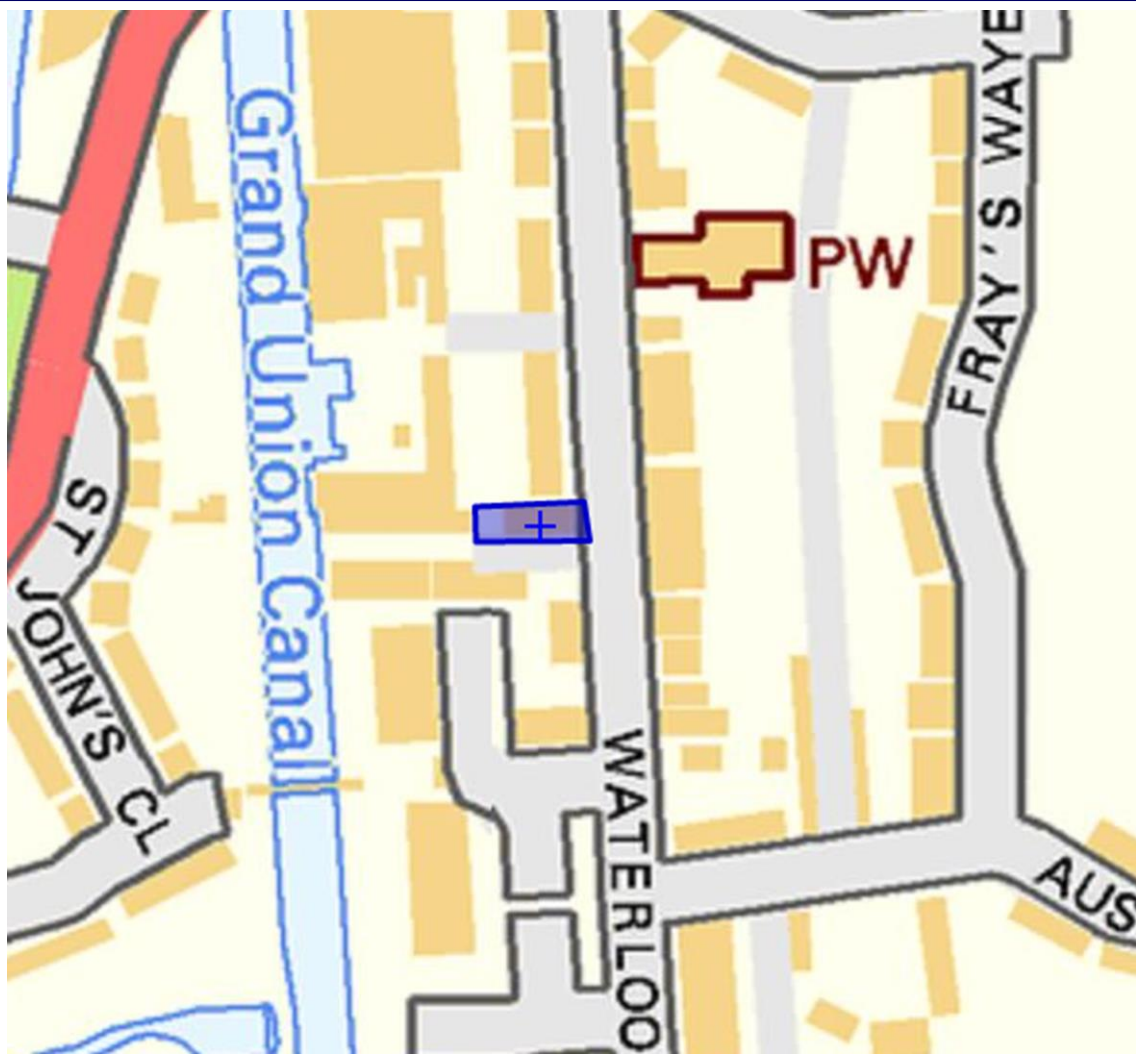


Figure 1: Site Location Plan

Map Date: Current

Scale: Not to scale

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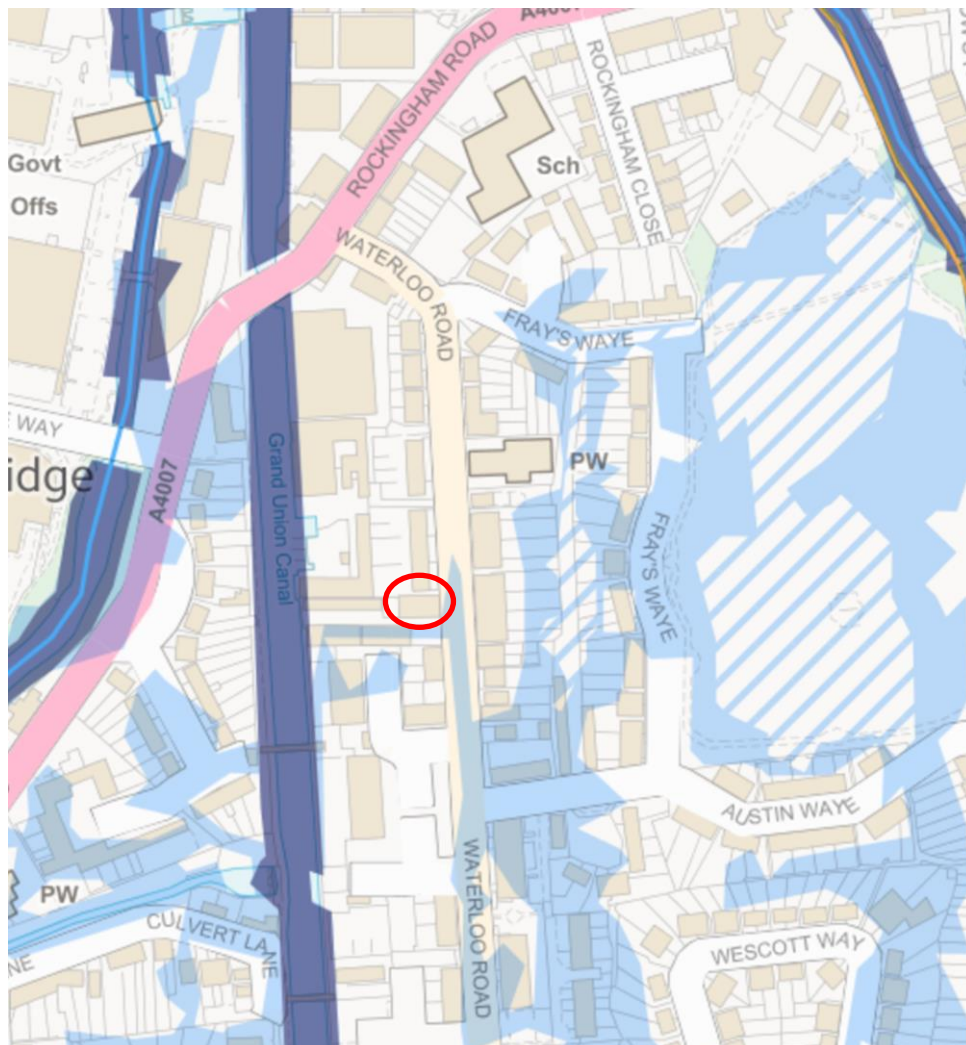


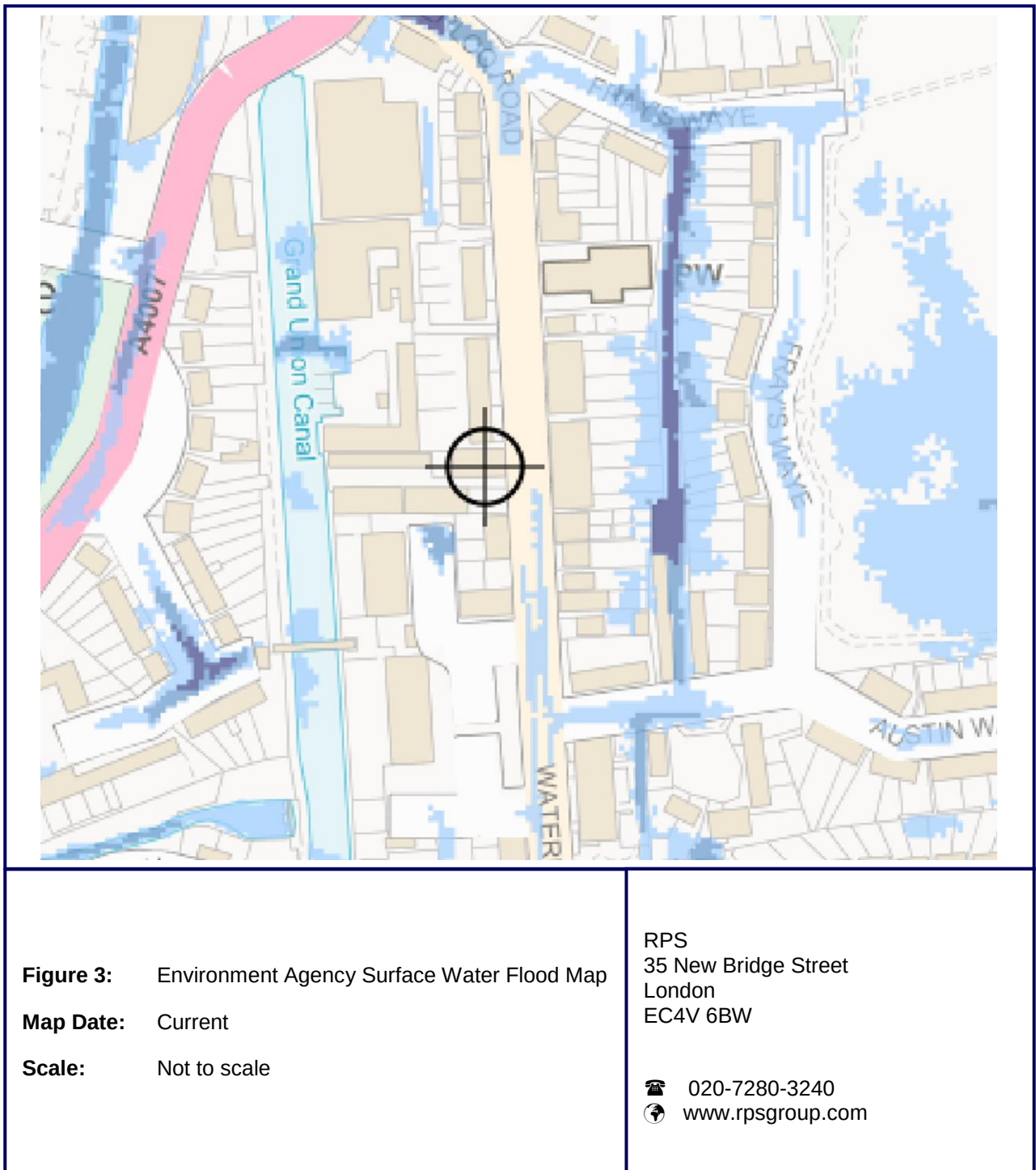
Figure 2: Environment Agency Flood Map

Map Date: Current

Scale: Not to scale

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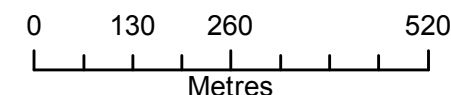
APPENDIX B

Environment Agency Consultation Response

Flood Map for Planning centred on 44 Waterloo Road, Uxbridge, UB8 2QX - 07/06/2017 - HNL48925



Environment Agency
2 Bishops Square Business Park
St Albans Road West
Hatfield
Hertfordshire
AL10 9EX



Legend

— Main Rivers

Flood Map for Planning

- Flood Storage Area
- Areas Benefiting from Flood Defences
- Flood Zone 3
- Flood Zone 2

Flood Map for Planning (assuming no defences)

Flood Zone 3 shows the area that could be affected by flooding:

- from the sea with a 1 in 200 or greater chance of happening each year
- or from a river with a 1 in 100 or greater chance of happening each year.

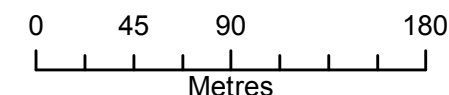
Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to a 1 in 1000 chance of occurring each year.

Produced by:
Partnerships & Strategic Overview,
Hertfordshire & North London

Detailed FRA centred on 44 Waterloo Road, Uxbridge, UB8 2QX - 07/06/2017 - HNL48925



Environment Agency
2 Bishops Square Business Park
St Albans Road West
Hatfield
Hertfordshire
AL10 9EX



Legend

— Main Rivers

Defended Flood Outlines

- 1 in 2 (50%) Defended
- 1 in 5 (20%) Defended
- 1 in 10 (10%) Defended
- 1 in 20 (5%) Defended

The data in this map has been extracted from the Lower Colne Modelling and Mapping Study (Mott MacDonald 2012).

This model has been designed for catchment wide flood risk mapping. It should be noted that it was not created to produce flood levels for specific development sites within the catchment. Modelled outlines take into account catchment wide defences.

Flood risk data requests including an allowance for climate change will be based on the 1 in 100 flood plus 20% allowance for climate change, unless otherwise stated. You should refer to 'Flood risk assessments: climate change allowances' to check if this allowance is still appropriate for the type of development you are proposing and its location. You may need to undertake further assessment of future flood risk using different allowances to ensure your assessment of future flood risk is based on best available evidence.

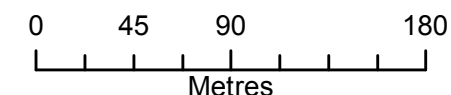
<https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>

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Detailed FRA centred on 44 Waterloo Road, Uxbridge, UB8 2QX - 07/06/2017 - HNL48925



Environment Agency
2 Bishops Square Business Park
St Albans Road West
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Hertfordshire
AL10 9EX



Legend

— Main Rivers

Defended Flood Outlines

- 1 in 50 (2%) Defended
- 1 in 100 (1%) Defended
- 1 in 100+20% (*CC) Defended
- 1 in 1000 (0.1%) Defended

The data in this map has been extracted from the Lower Colne Modelling and Mapping Study (Mott MacDonald 2012).

This model has been designed for catchment wide flood risk mapping. It should be noted that it was not created to produce flood levels for specific development sites within the catchment. Modelled outlines take into account catchment wide defences.

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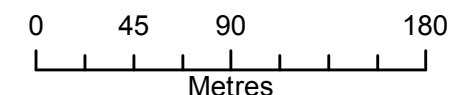
<https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>

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Detailed FRA centred on 44 Waterloo Road, Uxbridge, UB8 2QX - 07/06/2017 - HNL48925



Environment Agency
2 Bishops Square Business Park
St Albans Road West
Hatfield
Hertfordshire
AL10 9EX



Legend

— Main Rivers

1D Node Results

● Node Results

The data in this map has been extracted from the Lower Colne Modelling and Mapping Study (Mott MacDonald 2012).

This model has been designed for catchment wide flood risk mapping. It should be noted that it was not created to produce flood levels for specific development sites within the catchment. Modelled outlines take into account catchment wide defences.

Flood risk data requests including an allowance for climate change will be based on the 1 in 100 flood plus 20% allowance for climate change, unless otherwise stated. You should refer to 'Flood risk assessments: climate change allowances' to check if this allowance is still appropriate for the type of development you are proposing and its location. You may need to undertake further assessment of future flood risk using different allowances to ensure your assessment of future flood risk is based on best available evidence.

<https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>

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Environment Agency ref: HNL48925

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<https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>

All flood levels are given in metres Above Ordnance Datum (mAOD)

All flows are given in cubic metres per second (cumecs)

MODELLED FLOOD LEVEL

			Return Period							
Node Label	Easting	Northing	2 yr	5 yr	10 yr	20 yr	50 yr	100 yr	100 yr + 20%	1000 yr
1.003	504673	183666	29.18	29.34	29.43	29.43	29.63	29.71	29.71	29.98
6.002	504668	183576	29.15	29.3	29.39	29.48	29.58	29.66	29.8	29.94
6.004	504678	183765	29.28	29.43	29.52	29.61	29.72	29.8	29.94	30.08
6.005	504706	183859	29.4	29.53	29.62	29.71	29.82	29.9	30.04	30.17
6.006	504719	183889	29.41	29.55	29.64	29.73	29.85	29.93	30.07	30.21
06.007U	504722	183900	29.68	29.73	29.77	29.82	29.93	30.01	30.14	30.28
6.008	504719	183912	29.74	29.8	29.85	29.89	29.98	30.06	30.19	30.32
B083	504677	183535	29.21	29.36	29.45	29.53	29.63	29.71	29.84	29.99
B084	504772	183568	29.28	29.43	29.51	29.6	29.7	29.78	29.91	30.06
B085	504841	183639	29.32	29.47	29.56	29.64	29.74	29.82	29.95	30.1
B086D	504871	183701	29.35	29.5	29.59	29.68	29.78	29.86	29.98	30.13
B086U	504873	183728	29.35	29.5	29.59	29.68	29.78	29.86	29.98	30.13
B087D	504873	183742	29.38	29.53	29.62	29.7	29.8	29.88	30.01	30.16
B087U	504871	183752	29.39	29.54	29.63	29.72	29.82	29.9	30.04	30.19
B088D	504881	183815	29.43	29.59	29.68	29.76	29.87	29.95	30.08	30.24
B088U	504887	183835	29.43	29.6	29.69	29.78	29.89	29.97	30.11	30.28
B089A	504746	183937	29.77	29.84	29.88	29.93	30.02	30.1	30.23	30.36
B089D	504891	183865	29.44	29.61	29.7	29.79	29.9	29.99	30.13	30.3
B089U	504891	183865	29.44	29.61	29.7	29.79	29.9	29.99	30.13	30.31
B092D	504891	183865	29.44	29.61	29.7	29.79	29.91	29.99	30.13	30.31
B092U	504885	183897	29.5	29.67	29.77	29.86	29.98	30.07	30.22	30.4
B092U1	504881	183914	29.66	29.75	29.84	29.92	30.03	30.12	30.25	30.43
B092U2	504880	183928	29.66	29.75	29.84	29.92	30.03	30.12	30.25	30.43
CUL12U	504751	183453	29.97	30.04	30.08	30.12	30.15	30.18	30.24	30.33
CUL13D	504781	183468	30.21	30.28	30.32	30.35	30.38	30.41	30.45	30.54
CUL13U	504811	183483	30.26	30.34	30.39	30.43	30.47	30.51	30.58	30.71
CUL17	504914	183517	30.43	30.52	30.56	30.6	30.64	30.68	30.73	30.84
CUL8	504659	183336	29.45	29.55	29.61	29.68	29.75	29.81	29.89	29.98
CUL9	504690	183373	29.62	29.71	29.76	29.81	29.87	29.92	30	30.09
FR023	505362	183333	30.69	30.73	30.78	30.87	30.97	31	31.3	31.39
FR024	505363	183443	30.72	30.75	30.8	30.9	30.99	31.02	31.31	31.41
FR025D	505357	183537	30.98	30.99	31.02	31.08	31.13	31.15	31.35	31.44
FR025U	505357	183537	30.98	30.99	31.02	31.08	31.13	31.15	31.35	31.44
FR026	505331	183617	31.23	31.24	31.26	31.3	31.32	31.33	31.45	31.54
FR027	505310	183703	31.3	31.31	31.34	31.4	31.45	31.47	31.61	31.7
FR028D	505270	183813	31.43	31.45	31.49	31.55	31.6	31.62	31.77	31.87
FR028U	505270	183813	31.43	31.45	31.49	31.55	31.6	31.62	31.77	31.87
FR029	505233	183886	31.5	31.52	31.55	31.61	31.67	31.7	31.84	31.94
FR030D	505195	183958	31.5	31.53	31.57	31.63	31.68	31.71	31.86	31.97
FR030U	505195	183958	31.5	31.53	31.57	31.63	31.69	31.72	31.87	31.98
I003D	504941	183916	31.52	31.62	31.66	31.7	31.73	31.75	31.81	31.89
I003U	504942	183940	31.52	31.62	31.66	31.7	31.73	31.75	31.81	31.89
I004D	504956	183506	31.51	31.61	31.65	31.69	31.72	31.74	31.79	31.87
I004U	504954	183532	31.51	31.61	31.65	31.69	31.72	31.74	31.79	31.87

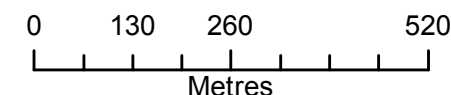
MODELLED FLOWS

Node Label	Easting	Northing	Return Period							
			2 yr	5 yr	10 yr	20 yr	50 yr	100 yr	100 yr + 20%	1000 yr
1.003	504673	183666	4.57	5.89	6.84	7.83	9.23	10.35	0	14.76
6.002	504668	183576	4.57	5.89	6.84	7.83	9.19	10.23	11.88	12.63
6.004	504678	183765	4.57	5.89	6.84	7.83	9.23	10.35	12.51	14.76
6.005	504706	183859	4.57	5.89	6.84	7.83	9.23	10.35	12.51	14.76
6.006	504719	183889	4.57	5.89	6.84	7.83	9.23	10.35	12.51	14.76
06.007U	504722	183900	4.57	5.89	6.84	7.83	9.23	10.35	12.51	14.76
6.008	504719	183912	4.57	5.89	6.84	7.83	9.23	10.35	12.51	14.76
B083	504677	183535	2.55	3.69	4.4	5.1	6.05	6.78	8.16	10.16
B084	504772	183568	2.55	3.7	4.4	5.1	6.05	6.78	8.16	10.15
B085	504841	183639	2.55	3.7	4.4	5.1	6.05	6.78	8.16	10.16
B086D	504871	183701	2.55	3.7	4.4	5.1	6.05	6.79	8.16	9.95
B086U	504873	183728	2.55	3.7	4.4	5.1	6.05	6.79	8.16	9.95
B087D	504873	183742	2.55	3.7	4.4	5.1	6.05	6.78	8.16	9.95
B087U	504871	183752	2.55	3.7	4.4	5.1	6.05	6.78	8.16	9.95
B088D	504881	183815	2.55	3.7	4.4	5.1	6.05	6.78	8.16	9.86
B088U	504887	183835	2.55	3.7	4.4	5.1	6.05	6.78	8.16	9.86
B089A	504746	183937	4.57	5.89	6.84	7.83	9.23	10.35	12.51	14.76
B089D	504891	183865	2.55	3.7	4.4	5.1	6.05	6.79	8.16	9.86
B089U	504891	183865	2.55	3.7	4.4	5.1	6.05	6.79	8.16	9.86
B092D	504891	183865	2.55	3.7	4.4	5.1	6.05	6.79	8.16	9.86
B092U	504885	183897	2.55	3.7	4.4	5.1	6.05	6.79	8.16	9.86
B092U1	504881	183914	2.55	3.7	4.4	5.1	6.05	6.79	8.16	9.86
B092U2	504880	183928	2.42	3.18	3.69	4.2	4.98	5.59	6.73	7.8
CUL12U	504751	183453	2.83	3.44	3.78	4.1	4.41	4.65	5.19	6.08
CUL13D	504781	183468	2.83	3.44	3.78	4.1	4.4	4.65	5.19	6.08
CUL13U	504811	183483	2.83	3.44	3.78	4.1	4.4	4.65	5.19	6.08
CUL17	504914	183517	2.83	3.44	3.78	4.1	4.41	4.66	5.19	6.07
CUL8	504659	183336	2.83	3.44	3.78	4.1	4.4	4.65	5.19	6.08
CUL9	504690	183373	2.83	3.44	3.78	4.1	4.41	4.65	5.19	6.08
FR023	505362	183333	0.48	0.56	0.71	1.08	1.5	1.76	2.52	3.4
FR024	505363	183443	0.48	0.56	0.71	1.05	1.52	1.75	2.52	3.4
FR025D	505357	183537	0.47	0.56	0.71	1.1	1.57	1.89	2.52	3.4
FR025U	505357	183537	0.47	0.56	0.71	1.1	1.57	1.89	2.52	3.4
FR026	505331	183617	0.48	0.56	0.71	1.06	1.57	1.81	2.52	3.4
FR027	505310	183703	0.47	0.56	0.71	1.14	1.64	1.98	2.52	3.4
FR028D	505270	183813	0.48	0.56	0.71	1.07	1.58	1.85	2.52	3.4
FR028U	505270	183813	0.48	0.56	0.71	1.07	1.58	1.85	2.52	3.4
FR029	505233	183886	0.48	0.56	0.71	1.15	1.71	2.03	2.52	3.4
FR030D	505195	183958	0.48	0.56	0.71	1.09	1.64	1.96	2.52	3.4
FR030U	505195	183958	0.48	0.56	0.71	1.09	1.64	1.96	2.52	3.4
I003D	504941	183916	2.85	3.45	3.79	4.11	4.41	4.66	5.19	6.52
I003U	504942	183940	3	3.97	4.5	5.01	5.48	5.87	6.72	8.59
I004D	504956	183506	0.07	0.08	0.11	0.05	0.05	0.04	0.05	0.14
I004U	504954	183532	2.84	3.45	3.79	4.1	4.41	4.66	5.19	6.2

Historic Flood Map centred on 44 Waterloo Road, Uxbridge, UB8 2QX - 07/06/2017 - HNL48925



Environment Agency
2 Bishops Square Business Park
St Albans Road West
Hatfield
Hertfordshire
AL10 9EX



Legend

— Main Rivers

Flood Event Outlines

1988

1987

The historic flood event outlines are based on a combination of anecdotal evidence, Environment Agency staff observations and survey.

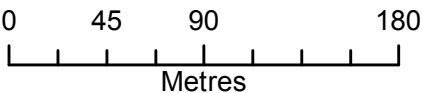
Our historic flood event outlines do not provide a definitive record of flooding. It is possible that there will be an absence of data in places where we have not been able to record the extent of flooding. It is also possible for errors to occur in the digitisation of historic records of flooding.

Produced by:
Partnerships & Strategic Overview,
Hertfordshire & North London

Structures and Defences centred on 44 Waterloo Road, Uxbridge, UB8 2QX - 07/06/2017 - HNL48925



Environment Agency
2 Bishops Square Business Park
St Albans Road West
Hatfield
Hertfordshire
AL10 9EX



Legend

Main Rivers

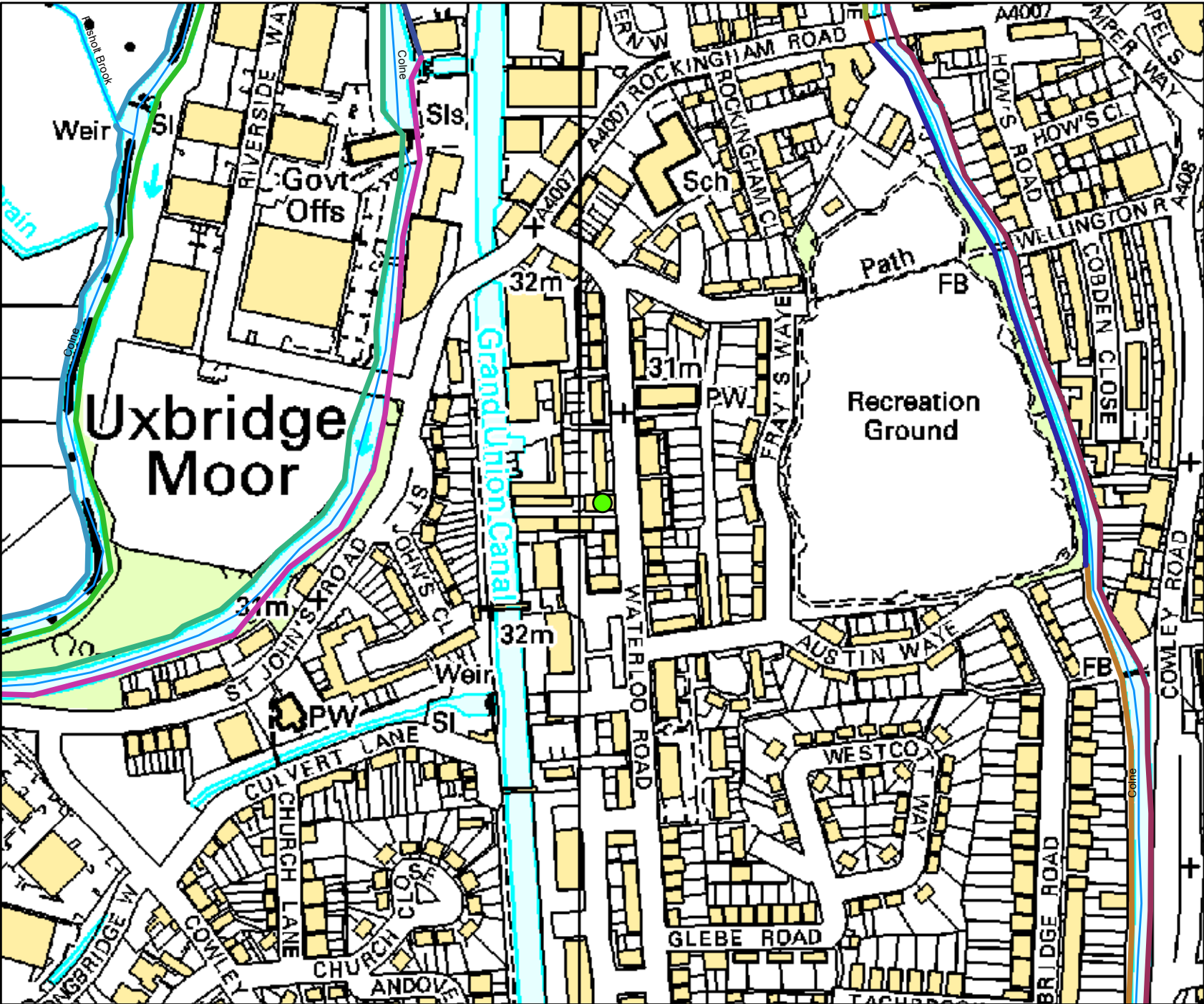
NAFRA_DEFENCE

ASSET_ID

- 17450
- 17943
- 45491
- 136893
- 136894
- 136895
- 137261
- 154903
- 154945
- 156269

The following information on defences has been extracted from the Asset Information Management System (AIMS)

Produced by:
Partnerships & Strategic Overview,
Hertfordshire & North London



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Environment Agency ref: [HNL48925](#)

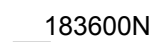
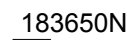
The following information on defences has been extracted from the Asset Information Management System (AIMS)

Defences

Asset ID	Asset Type	Asset Protection	Asset Comment	Asset Description	Design Standard of protection (years)	Downstream Crest Level	Upstream Crest Level	Condition of Defences (1=Good, 5 = Poor)
154903	high_ground	fluvial	Natural vegetated channel	Natural Channel	80	33.6	32.62	3
156269	high_ground	fluvial	Natural vegetated channel with sections of steel piling, brickwork and concrete lining at ends of gardens.	Natural Channel	80	32.2	32.5	2
136893	high_ground	fluvial	Natural vegetated channel	Natural Channel	80	30.57	33.6	2
136895	high_ground	fluvial	Natural vegetated channel	Natural Channel	80	29.9	31.65	3
17450	embankment	fluvial	Vegetated earth embankment. Crest Level data taken from Lower Colne Modelling and Mapping study (2010)	Rockingham Road Recreation Ground Defences	80	32.04	32.25	4
154945	high_ground	fluvial	Sheet steel piling bank protection	Bank protection.	80	31.64	31.1	3
45491	high_ground	fluvial	Natural Vegetated channel	Natural channel	80	<Null>	<Null>	2
17943	wall	fluvial	Double course brick wall defence. Crest Level data taken from Lower Colne Modelling and Mapping Study (2010)	Fassnidge Park Defences	80	32.28	32.33	3
137261	high_ground	fluvial	Natural vegetated channel	Natural Channel	80	29.29	31.55	2
136894	high_ground	fluvial	Natural vegetated channel	Natural Channel	80	31.53	32.05	3

APPENDIX C

Topographic Survey



183650N

183600N

APPENDIX D

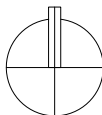
Development Plans



1 SITE LOCATION PLAN
1:1250



2nd Floor
Stanmore House
15 - 19 Church Road
Stanmore
Middlesex HA7 4AR
T: 020 8954 5731
F: 020 8954 9279
E: info@jaspargroup.co.uk



Rev	Description	Date
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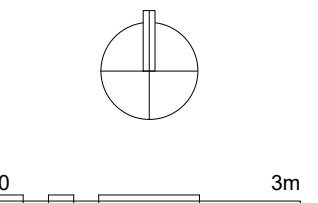
PROJECT: The Old Mission House 44 Waterloo Road Uxbridge Middlesex UB8 2QX			
DRAWING: Site Location Plan			
DWN: AM	CKD: -	DATE: 22/05/17	STATUS: PD
SCALE: 1:1250	DWG NO: JIM043 - BPS - GA - 900	REV: -	

183700

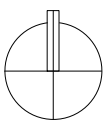
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183700

183600

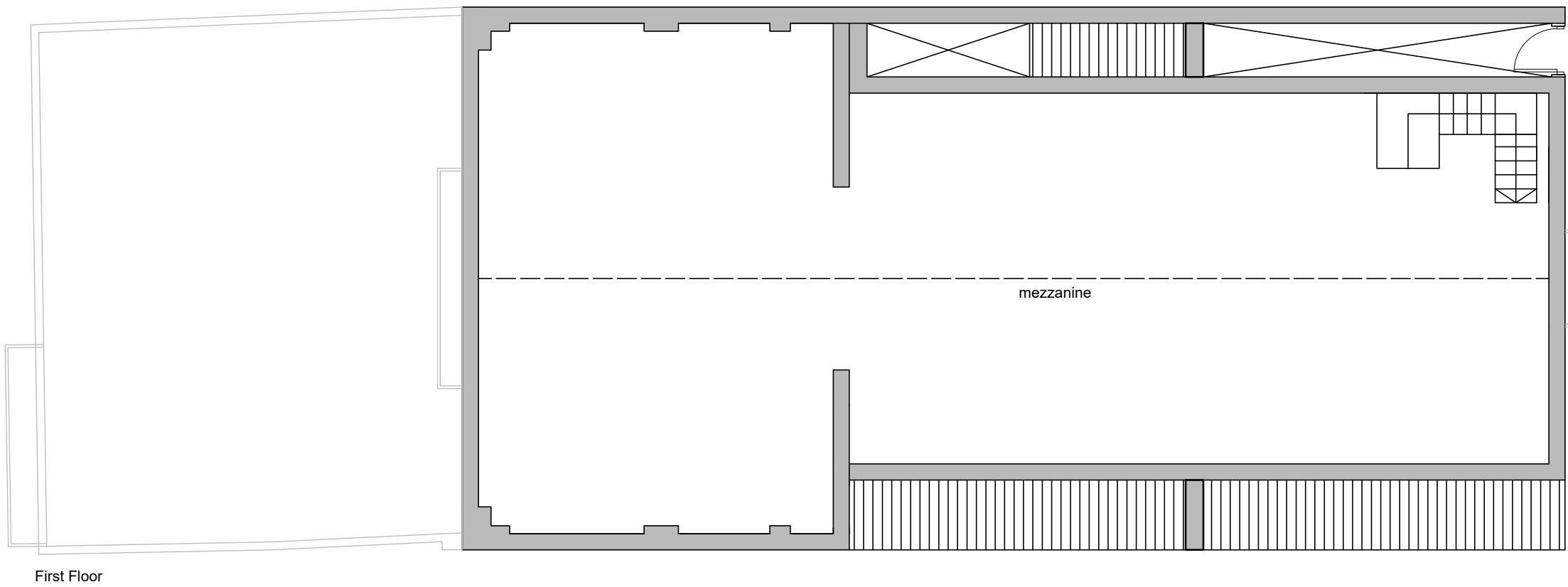
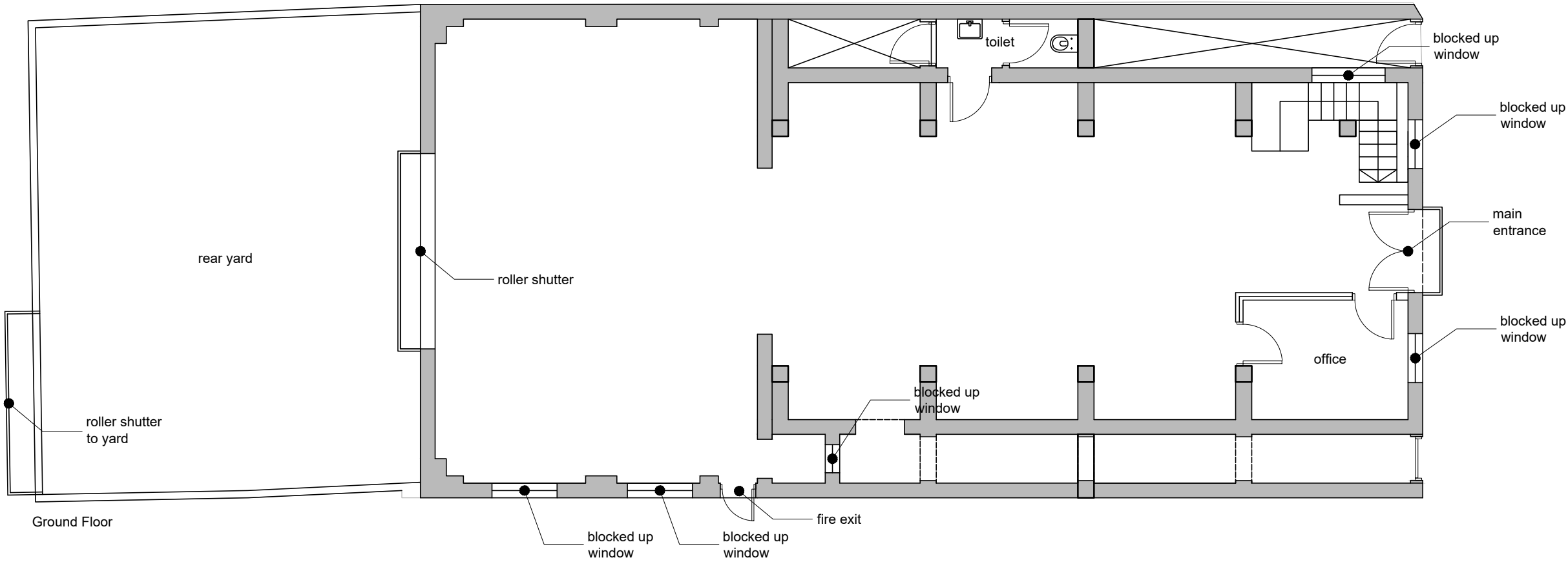


Rev	Description	Date
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PROJECT: The Old Mission House 44 Waterloo Road Uxbridge Middlesex UB8 2QX		
DRAWING: PERMITTED DEVELOPMENT Site Block Plan		
DWN: AM	CKD: -	DATE: 22/05/17
STATUS: PD		REV: -
SCALE: 1:100	DWG NO: JM043 - BPS - GA - 900	

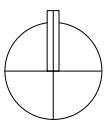


KEY

Existing structure



Rev	Description	Date
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PROJECT: The Old Mission House 44 Waterloo Road Uxbridge Middlesex UB8 2QX		
DRAWING: PERMITTED DEVELOPMENT Existing Ground Floor & First Floor Plan		
DWN: AM	CKD: -	DATE: 22/05/17
STATUS: PD		REV:
SCALE: 1:100	DWG NO: JM043 - BPS - GA - 900	REV: -



KEY

Unit 1

Unit 2

Unit 3

Unit 4

Unit 5

Unit 6

ACCOMMODATION SCHEDULE (GIA)

Flat 1	1b2p	48m ² / 516 sft
Flat 2	1b2p	46m ² / 495 sft
Flat 3	1b2p	46m ² / 495 sft
Flat 4	1b2p	47m ² / 506 sft
Flat 5	1b2p	46m ² / 495 sft
Flat 6	1b2p	48m ² / 516 sft

Total GIA: 281 msq / 3,024 sq ft

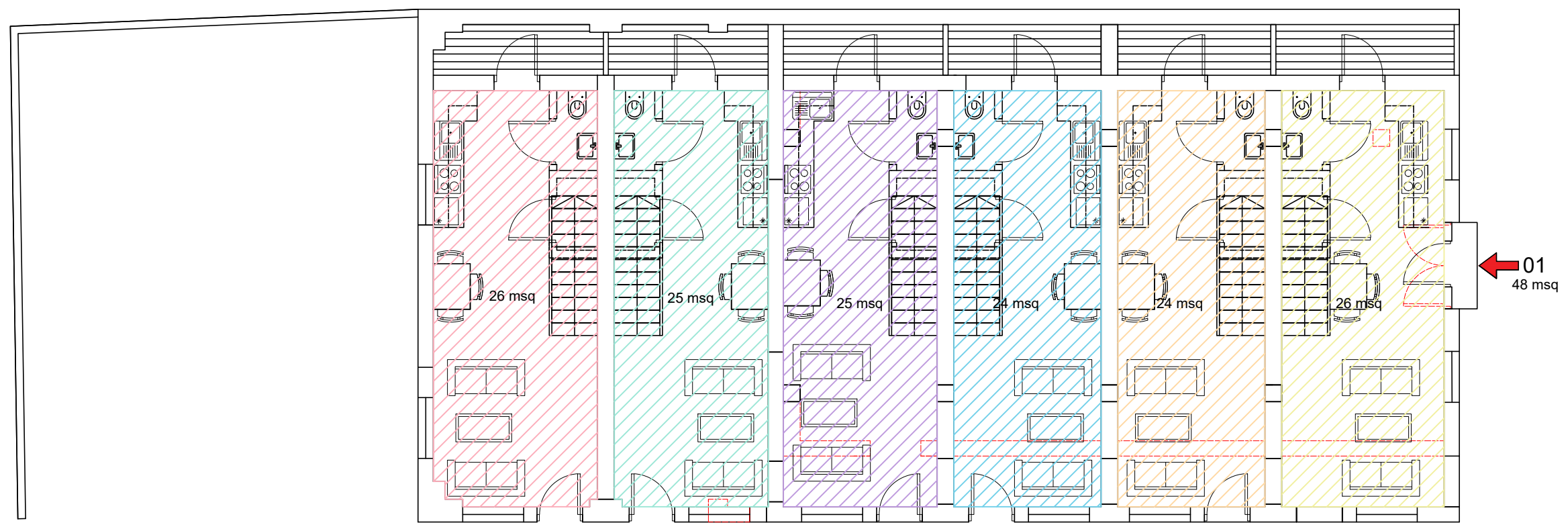
Rev	Description	Date
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This drawing is to be read in conjunction with all relevant consultants and/or specialist's drawings/documents and any discrepancies or variations are to be notified to Jaspargroup before the affected work commences.

PROJECT:
The Old Mission House
44 Waterloo Road
Uxbridge
Middlesex UB8 2QX

DRAWING:
PERMITTED DEVELOPMENT
Proposed Ground Floor & First Floor Plan

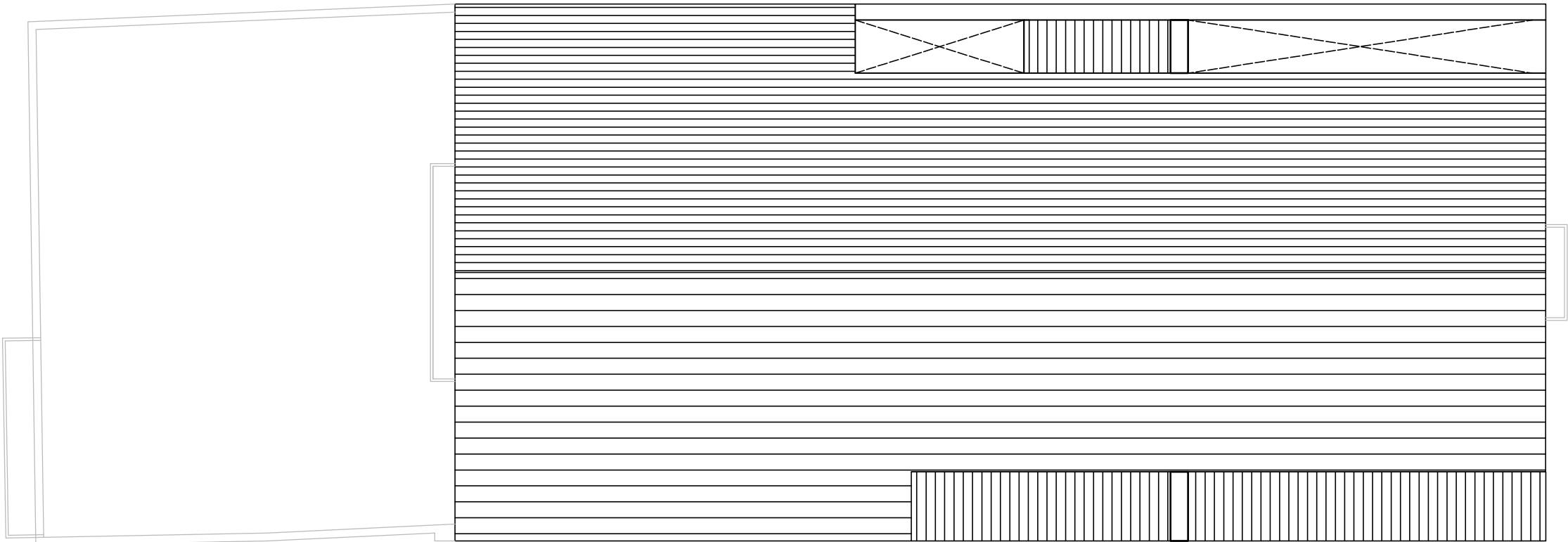
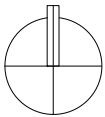
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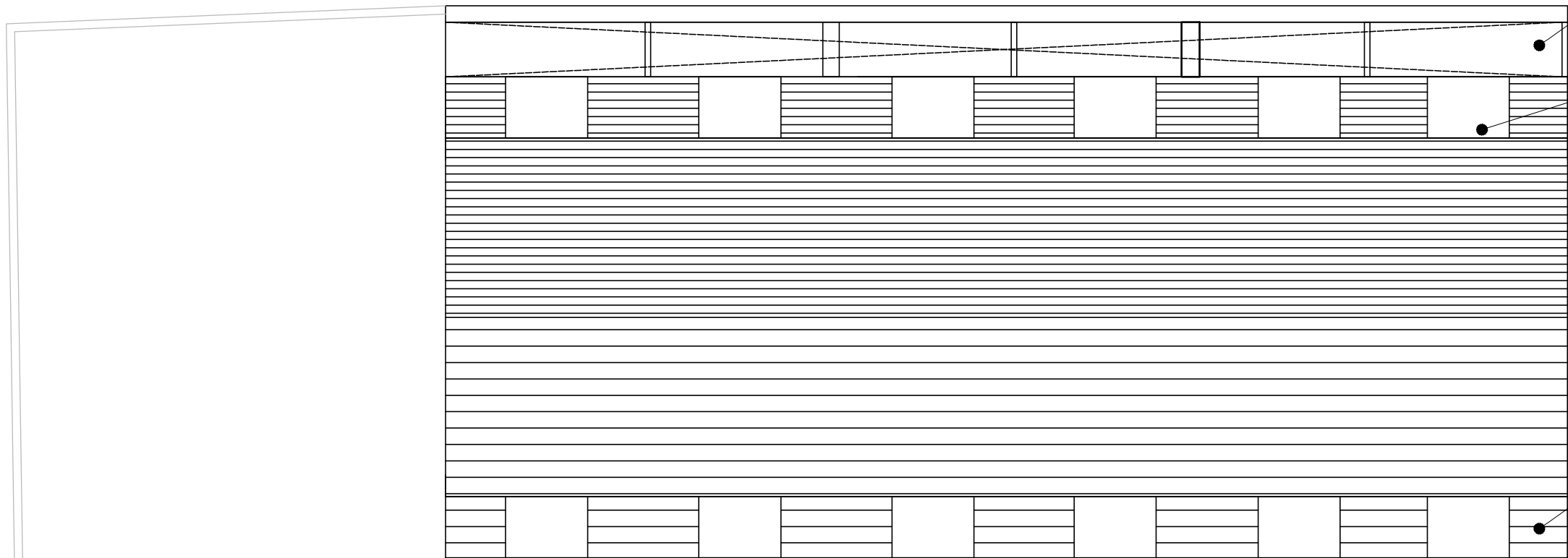
Ground Floor



First Floor



Existing Roofplan



Proposed Roofplan

outdoor
pocket
garden

mansard
dormers

mansard roof

Rev	Description	Date
All dimensions and levels to be checked on site by contractor prior to preparation of shop drawings and commencement of work on site. Do not scale from this drawing or reproduce without consent. This drawing and the design is the copyright and property of Jaspargroup and may not be used in part or in whole without prior written consent. This drawing is to be read in conjunction with all relevant consultants and/or specialist's drawings/documents and any discrepancies or variations are to be notified to Jaspargroup before the affected work commences.		
PROJECT: The Old Mission House 44 Waterloo Road Uxbridge Middlesex UB8 2QX		
DRAWING: PERMITTED DEVELOPMENT Existing & Proposed Roofplans		
DWN: AM	CKD: -	DATE: 22/05/17
STATUS: PD		REV:
SCALE: 1:100	DWG NO: JM043 - BPS - GA - 900	REV: -

APPENDIX E

General Notes

RPS HEALTH, SAFETY & ENVIRONMENT

Flood Risk Desk Study Report

General Notes

The following notes should be read in conjunction with the report:

1. This report contains only that available factual data for the site, which was obtained from the sources, described in the text. These data were related to the site on the basis of the location information made available to RPS by the client.
2. The assessment of the site is based on information supplied by the client. Relevant information was also obtained from other sources.
3. The desk study information is not necessarily exhaustive and further information relevant to the site may be available from other sources.
4. The report reflects both the information provided to RPS in documents made available for review and the results of observations and consultations by RPS staff.
5. Where data have been supplied by the client or other sources, including that from previous site audits or investigations, it has been assumed that the information is correct but no warranty is given to that effect. While reasonable care and skill has been applied in review of this data no responsibility can be accepted by RPS for inaccuracies in the data supplied.
6. This report is prepared and written in the context of the proposals stated in the introduction to this report and its contents should not be used out of context. Furthermore new information, changed practices and changes in legislation may necessitate revised interpretation of the report after its original submission.
7. The copyright in the written materials shall remain the property of the RPS Company but with a royalty-free perpetual licence to the client deemed to be granted on payment in full to the RPS Company by the client of the outstanding amounts.
8. This report contains Environment Agency information © Environment Agency and database right.
9. The report is provided for sole use by the Client and is confidential to them, their professional advisors, no responsibility whatsoever for the contents of the report will be accepted to any person other than the Client. [Unless otherwise agreed]
10. These terms apply in addition to the RPS HSED "Standard Terms & Conditions" (or in addition to another written contract which may be in place instead thereof) unless specifically agreed in writing. (In the event of a conflict between these terms and the said Standard Terms & Conditions the said Standard Terms & Conditions shall prevail.) In the absence of such a written contract the Standard Terms & Conditions will apply.