

David Lloyd Clubs
David Lloyd, Club Extension and Spa Garden
Reading
Flood Risk Assessment

Document No.: **DLRD-WHE-XX-XX-RP-C-00001**

Revision: **B**

Date: **26th June 2026**

Project Details

Project	David Lloyd Reading, club extension and spa garden
Location	David Lloyd, Thames Valley Business Park, 1 Thames Valley Park Dr, Early, Reading RG6 1PT

B	For Planning	26/06/2026	Jonny Wilkinson	Rob Hazell

Project Team

Client	David Lloyd Leisure Limited	https://www.davidlloyd.co.uk/
Architect	Hadfield Cawkwell Davidson	https://www.hcd.co.uk/
Civil & Structural Engineer	Willis Hazell Engineers Limited	willishazell.com
Planning Consultant	Lichfields	https://lichfields.uk/

Document Revision History

Revision	Reason for Issue	Date of Issue	Prepared by	Approved
A	For Planning	09/03/2026	Jonny Wilkinson	Rob Hazell

CONTENTS

FIGURES.....	3
EXECUTIVE SUMMARY	4
1 INTRODUCTION.....	5
1.1 Appointment.....	5
1.2 Description of the Project	5
1.3 Limitations.....	5
2 SITE DESCRIPTION	6
2.1 Site Location and Existing Site Usage	6
2.2 Site Topography.....	6
2.3 Ground Conditions	6
2.4 Existing Watercourses.....	6
2.5 Existing Site Drainage and Public Sewers.....	6
3 PROPOSED DEVELOPMENT.....	8
4 PLANNING POLICY REQUIREMENTS	9
4.1 NPPF and Planning Practice Guidance.....	9
4.2 Wokingham Borough Council.....	9
5 FLOOD RISK ASSESSMENT	10
5.1 Flood Risk and sequential test.....	10
5.2 Fluvial Flood Risk.....	10
5.3 Tidal Flood Risk	12
5.4 Climate change.....	12
5.5 Surface Water Flood Risk	12
5.6 Historic Flooding.....	13
5.7 Groundwater Flood Risk.....	13
5.8 Flood Risk from Sewers.....	13
5.9 Flood Risk from Reservoirs, Canals and other Artificial Sources.....	14
5.10 Access and Egress.....	14
5.11 Summary of Flood Risk to the Development	15
6 SURFACE WATER MANAGEMENT STRATEGY.....	16
6.1 General Drainage Design Principles.....	16
APPENDIX A – SITE LOCATION PLAN.....	17
APPENDIX B – TOPOGRAPHICAL INFORMATION	18
APPENDIX C – BOREHOLE INFORMATION.....	19
APPENDIX D – THAMES WATER ASSET MAP	20
APPENDIX E – SURVEYED UTILITY MAP	21
APPENDIX F – PROPOSED SITE PLAN.....	22
APPENDIX G – FLOOD MAP FOR PLANNING	23
APPENDIX H – FLOODING FROM RIVERS AND SEA	24
APPENDIX J– FLOODING FROM SURFACE WATER	25
APPENDIX K – FLOODING FROM RESERVOIRS	26
APPENDIX L – PRODUCT 4 DATA.....	27

APPENDIX M – HISTORIC FLOODING.....	28
APPENDIX N – EA HAZARD MAP.....	29

TABLES

Table 1: Summary of Flood Risk to the Development.....	15
--	----

FIGURES

Figure 1: Aerial view of site location.....	6
Figure 2: Proposed site for spa extension and spa garden.....	6
Figure 3: Thames Water asset map.....	7
Figure 4: Proposed ground and first floor plan.....	8
Figure 5: External plant and car park alterations.....	8
Figure 6: Proposed Spa Garden.....	8
Figure 7: Extract from EA flood map for planning	10
Figure 8: Extract from EA flood map rivers and the sea	10
Figure 9: EA data modelled fluvial extent + Climate change	11
Figure 10: EA data modelled fluvial node locations	11
Figure 11: EA data modelled fluvial extent and height	11
Figure 12: Extract from EA surface water flood extent map	12
Figure 13: EA Past floods.....	13
Figure 14: Extract from EA flood map for planning on groundwater.....	13
Figure 15: Extract from EA flood map for planning on reservoirs	14
Figure 16: EA Hazard map.....	14

EXECUTIVE SUMMARY

This report has been prepared for David Lloyd Leisure Limited and assesses the level of Flood Risk to and resulting from the proposed development to the existing David Lloyd Reading building. It is proposed to build a two-storey extension to house the refurbished poolhall, an extended gym and indoor spa with a connecting spa garden.

The report has demonstrated that the site is located within Flood Zone 2. Flood zone 2 has a medium probability of flooding and has an annual probability of river flooding between 1% and 0.1% and annual probability of sea flooding between 0.5 and 0.1%.

The Flood Risk to the site from other potential sources is Low and no specific mitigation measures are required.

The proposed development involves redevelopment of one part of the existing David Lloyd building, so the development could not be provided elsewhere. Therefore, the development proposals meet the sequential test.

It has also been demonstrated that the development will not cause any increase in flood risk either within the site itself or to adjacent properties.

1 INTRODUCTION

1.1 Appointment

Willis Hazell Engineers Limited (Willis Hazell) has been appointed by David Lloyd Leisure Limited to provide a Flood Risk Assessment in support of a planning application for refurbishment of the existing David Lloyd Reading.

1.2 Description of the Project

The project proposes to build a two-storey extension to house the refurbished poolhall, an extended gym and indoor spa with a connecting spa garden, external plant and minor car park alterations.

This report has been prepared for David Lloyd Clubs and reviews the level of Flood Risk to the proposed development in line with guidance set out in national and local planning policy.

The aim of this report is to define the following to a suitable level of detail to obtain planning approval for the development:

- Site's characteristics (topography, soil geology, existing drainage features).
- Details of the proposed development.
- A summary of the existing level of flood risk to the site, based on the Environment Agency online Flood Maps, the Wokingham Borough Council Local Flood Risk Management Strategy, and Thames Water sewer records.
- Details of existing / proposed site levels in relation to the flood extents and overland flow paths indicated by the information described above.
- Appropriateness of the development given the identified level of Flood Risk.
- An assessment of whether the development will increase flood risk elsewhere, including details of existing surface water drainage provision and proposed amendments to the existing surface water drainage regime.

1.3 Limitations

This report has been produced exclusively for the use of David Lloyd Clubs. Any other party seeking to rely on this report should seek written permission from Willis Hazell. This report has been produced for the proposed two-storey extension to house the refurbished poolhall, an extended gym and indoor spa with a connecting spa garden, external plant and minor car park alterations as currently shown on the architect's drawings submitted in support of the Planning Application. If the proposals change, then findings of this report should be reviewed accordingly.

In preparing this report, we have relied on information provided by third parties, and as such, Willis Hazell cannot accept responsibility for the accuracy of the information received.

2 SITE DESCRIPTION

2.1 Site Location and Existing Site Usage

The existing David Lloyd Club site is located to the east of Reading, off Valley Drive, close to the A3290. The club is accessed off Valley Park Drive and is bounded to the north by the Thames Valley Nature Reserve. The wider area consists of various commercial buildings with surrounding greenery and trees. The site location is indicated on Figure 1 below, and a more detailed Site Location Plan can be found in **Appendix A**.



Figure 1: Aerial view of site location

The club uses a dedicated car park. The proposed application site for the additional facilities includes the existing pool hall and the areas directly east and south of the pool hall, which currently form part of the club car park (Figure 2).



Figure 2: Proposed site for spa extension and spa garden

2.2 Site Topography

A Topographical survey was completed in November 2025 by Malcom Hughes Land Surveyors. The topographical information shows that the site is generally flat at a consistent level of approximately 37.0 AoD.

The topographical survey information can be seen in **Appendix B**.

2.3 Ground Conditions

In January 2026, JPP conducted a Phase 1 & 2 Ground investigation report for the adjacent site.

British Geological Society (BGS) online mapping indicates that the site is underlain by made ground (artificial deposit). Superficial deposits mapped include alluvium in the north, the Langley Silty member across the central area with Kempton Park Gravel member to the south. The underlying geology is mapped as Seafood chalk formation and the Newhaven chalk formation.

The superficial alluvium, Langley Silt member and Kempton Gravel member are all classified as a Secondary A aquifer. The bedrock of the chalk is classified as a principal aquifer.

Soil investigation in the form of boreholes confirmed the site is underlain by made ground proven to depths of 7.30m and 9.40m bgl in the deep boreholes. The shallow made ground comprised of variable granular and clay layers, with the deeper made ground consisting of PFA with some variation in gravel, sand, silt and clay.

Kempton Park gravel member was encountered within deep boreholes from 7.20m to 9.20m bgl in BH01 and from 9.40m to 10.10m bgl in BH02.

The chalk bedrock was encountered in both deep boreholes, proven to the base at 20.0m bgl.

The borehole logs can be found in **Appendix C**.

2.4 Existing Watercourses

The closest watercourse to the site approximately 275m to the north, as shown on Ordnance Survey mapping, is the River Thames, a non-tidal EA main river which flows to the east. The Thames flows from west to east through Reading heading towards London and eventually the North Sea.

A drainage ditch flows to the northwest to join the River Thames. A pond is located to the northeast of the site in the Thames Valley Park nature reserve, with further likely attenuation ponds located to the south.

2.5 Existing Site Drainage and Public Sewers

Thames Water sewer record plans for the area surrounding the site have been obtained for the site, a copy of these plans can be found in **Appendix D**. A Utility mapping survey was also completed in November 2025 by Malcom Hughes Land Surveyors, a copy of these plans can be found in **Appendix E**. The record plans show that there are foul and surface water sewer networks present within the public highway network to the south of the site.

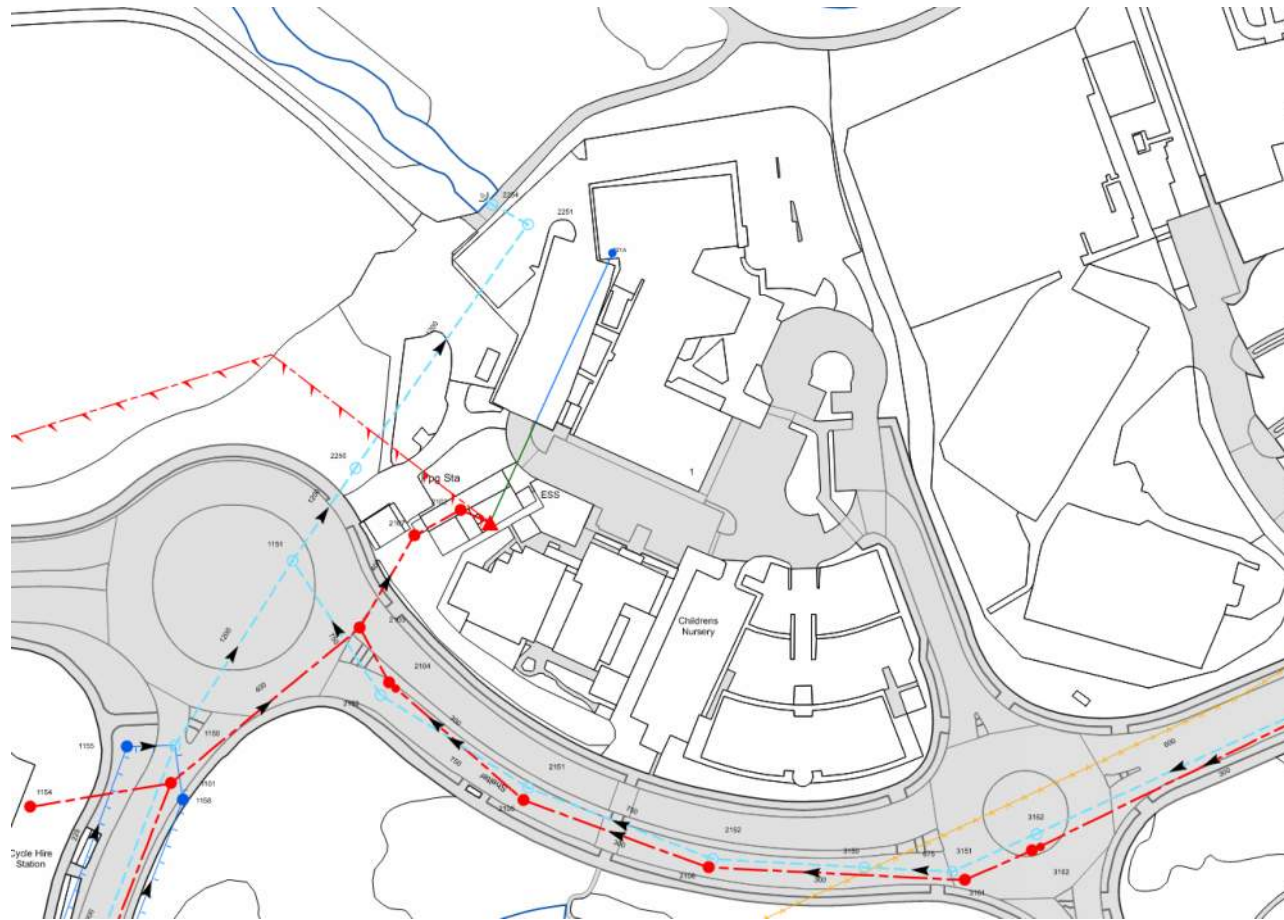


Figure 3: Thames Water asset map

A 300mm foul sewer is shown to run east to west along Thames Valley Park Drive and south to north along Oracle Parkway, with both sections terminating at a pumping station located on land to the south of the existing David Lloyd building. The foul flows are indicated to be pumped eastwards along the alignment of Thames Valley Park Drive.

A 1200 mm diameter surface water sewer is shown to run south to north along the western side of the existing David Lloyd building. Manhole 2251 is located within the David Lloyd car park, with a cover level (CL) of 37.22 m and an invert level (IL) of 34.14 m.

Thames Water sewer records indicate that all surface water within the site discharges to the River Thames via a ditch running through a tree and shrub corridor approximately 30 m wide, which extends to the River Thames.

The asset maps also indicate a sludge main from the David Lloyd swimming pool area that terminates at the pumping station.

The utility map survey completed in November 2025 by Malcom Hughes Land Surveyor highlights the private network of surface water and foul water around the existing building.

At the entrance to David Lloyd Gym, the utility map indicates gullies connected to a 150 mm surface water sewer flowing south and ultimately towards the northwest corner of the building.

Rainwater pipe (RWP) connections from the eastern side of the building also discharge into this network.

A 375 mm surface water sewer is shown on the western side of the building, collecting runoff from car park gullies and RWPs serving the building. All surface water sewers are shown to terminate at the point where the Thames Valley asset connects into the ditch. It is assumed that the two manholes shown on the northwest corner of the carpark are Thames water manholes 2251 and 2254.

No surface water drainage is shown in the carpark to the east of the building, but it is highly likely that any surface water from the area discharges into the ditch network and ultimately the river Thames.

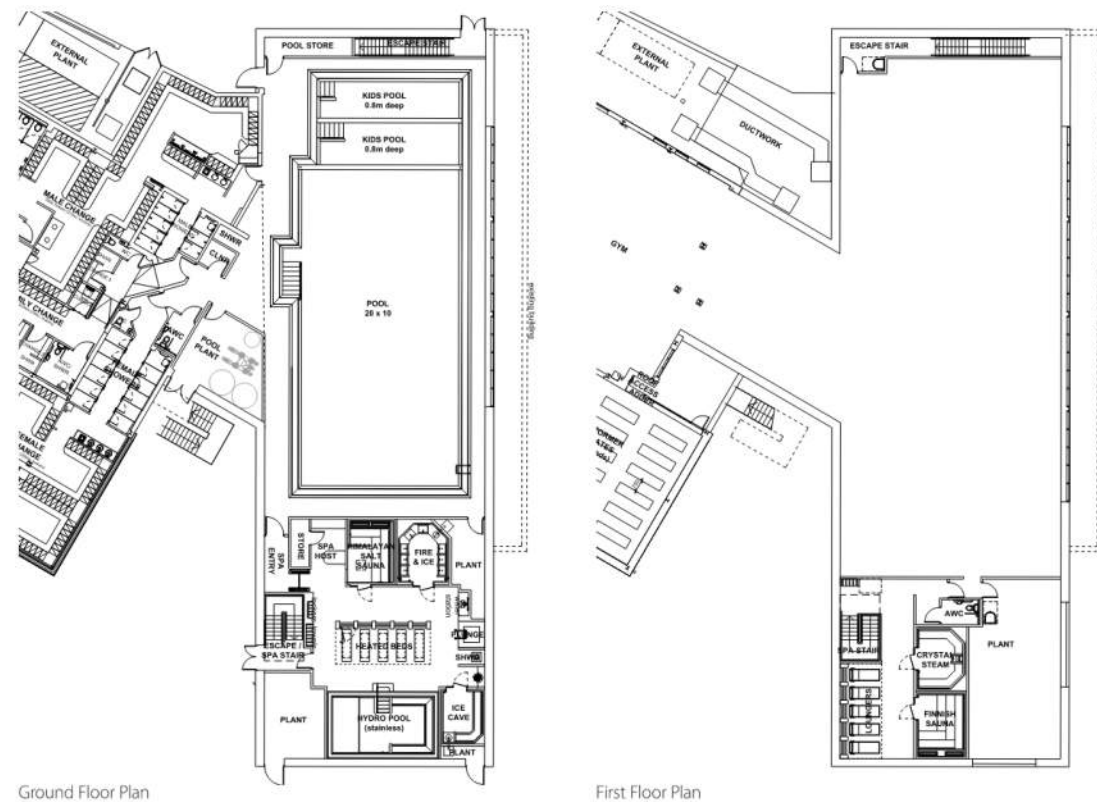
A 150mm foul sewer is shown on the west side of the building, its direction of flow is towards the pumping station.

3 PROPOSED DEVELOPMENT

The project proposes to build a two-storey extension to house the refurbished pool hall, an extended gym and indoor spa with a connecting outdoor spa garden. The majority of the proposed additional floorspace (838m² GIA) is located at first floor to the east of the existing pool hall.

The new spa facility will be provided at ground floor, and the existing gym and fitness suite will be extended into the first-floor extension. Figure 6 below shows the proposed ground and first floor plans.

Figure 4: Proposed ground and first floor plan.

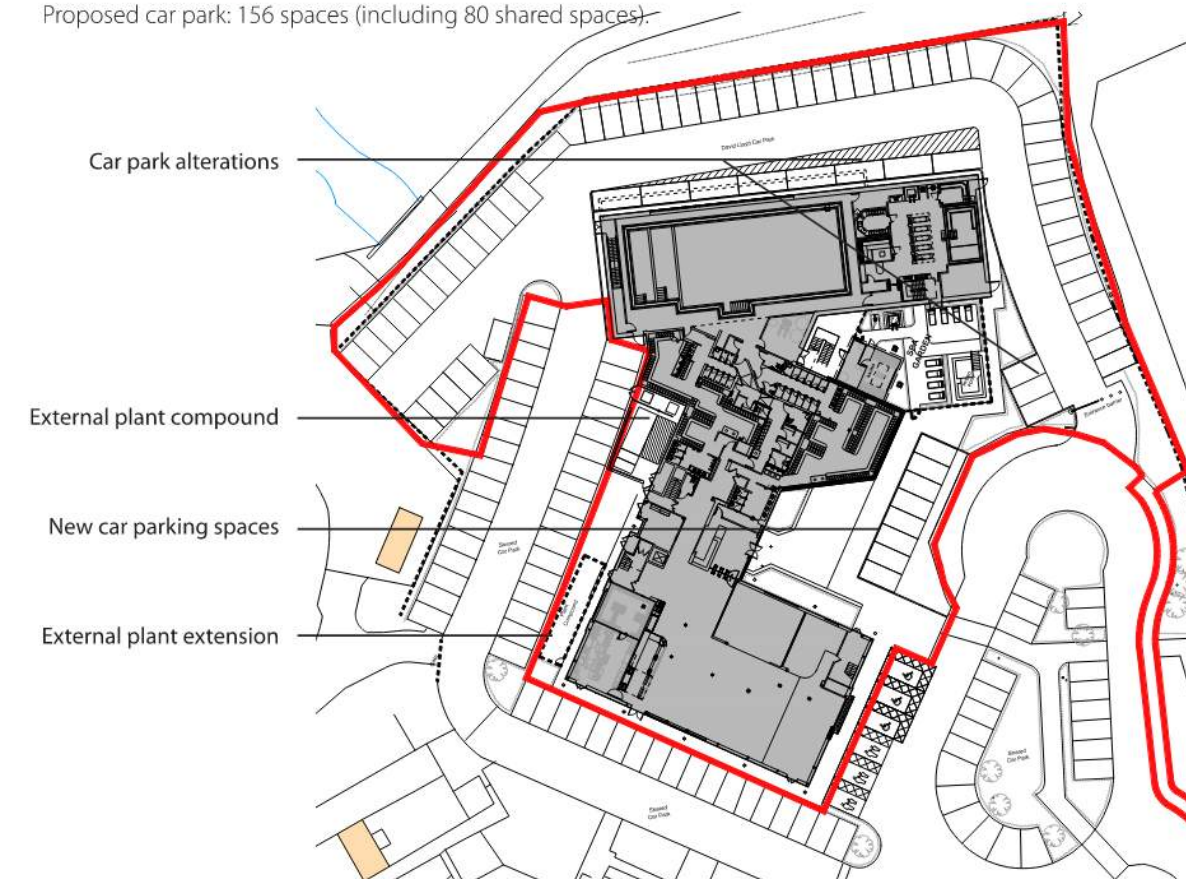


To the southwest of the existing club there is an external plant compound. It is proposed that this compound is extended to house the additional condensers required to serve the proposed extension.

Minor carpark alterations are proposed as the carpark is impacted by the proposed extension. Figure 5 below highlights the minor alterations.

A proposed Site Plan drawing can be found in **Appendix F**.

Existing car park: 155 spaces (including 80 shared spaces).
Proposed car park: 156 spaces (including 80 shared spaces).



A new external spa garden facility is proposed in the unused space to the southeast of the pool hall.

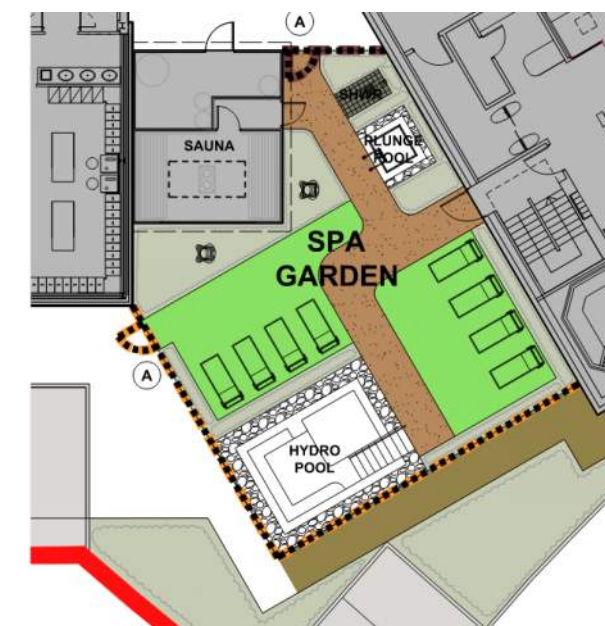


Figure 6: Proposed Spa Garden

4 PLANNING POLICY REQUIREMENTS

4.1 NPPF and Planning Practice Guidance

The National Planning Policy Framework (NPPF) was first published in March 2012 and was most recently updated 7th February 2025. Paragraphs 170 to 182 set out the principle aims of the NPPF relating to planning and flood risk, ensuring that flood risk is considered at all stages of the planning process.

Paragraph 170 states that *“Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere”*.

Paragraph 172 sets out “All plans should apply a sequential, risk-based approach to the location of development, taking into account all sources of flood risk and the current and future impacts of climate change – so as to avoid, where possible, flood risk to people and property....by:

- (a) *Applying the sequential test, and then, if necessary, the exception test;*
- (b) *Safeguarding land from development that is required, or likely to be required, for current and future flood management;*
- (c) *Using opportunities provided by new development and improvements in green and other infrastructure to reduce the causes and impacts of flooding, (making as much use as possible of natural flood management techniques as part of an integrated approach to flood risk management); and*
- (d) *Where climate change is expected to increase flood risk so that some existing development may not be sustainable in the long-term, seeking opportunities to relocate development, including housing, to more sustainable locations.”*

The NPPF also states the “A site-specific flood risk assessment should be provided for all development in Flood Zones 2 and 3. In Flood Zone 1, an assessment should accompany all proposals involving: sites of 1 hectare or more; land which has been identified by the Environment Agency as having critical drainage problems; land identified in a strategic flood risk assessment as being at increased flood risk in future; or land that may be subject to other sources of flooding, where its development would introduce a more vulnerable use”.

4.2 Wokingham Borough Council

The Wokingham Borough Adopted Core Strategy Development Plan (2010) includes policies CP1 (Sustainable Development), which sets out the Council's approach to flood risk. Point 9 states ‘avoid *increasing (and where possible reduce) risks of or from all forms of flooding (including from groundwater)*.

The Council has a Strategic Flood Risk Assessment Level 1 (2023), a Local Flood Risk Management Strategy (2015) as well as a Strategic Environmental Assessment (2014).

5 FLOOD RISK ASSESSMENT

5.1 Flood Risk and sequential test

The site is shown by the EA Flood risk Data to be located within Flood Zone 2. Flood zone 2 has a medium probability of flooding, an annual probability of river flooding between 1% and 0.1% (between 1 in 100 and 1 in 1000) chance of flooding from rivers and 0.5 and 0.1% (between 1 in 200 and 1 in 1000) chance of flooding from the sea. An extract of this mapping is shown below in Figure 9, and a larger scale version of this mapping can be found in **Appendix G**.

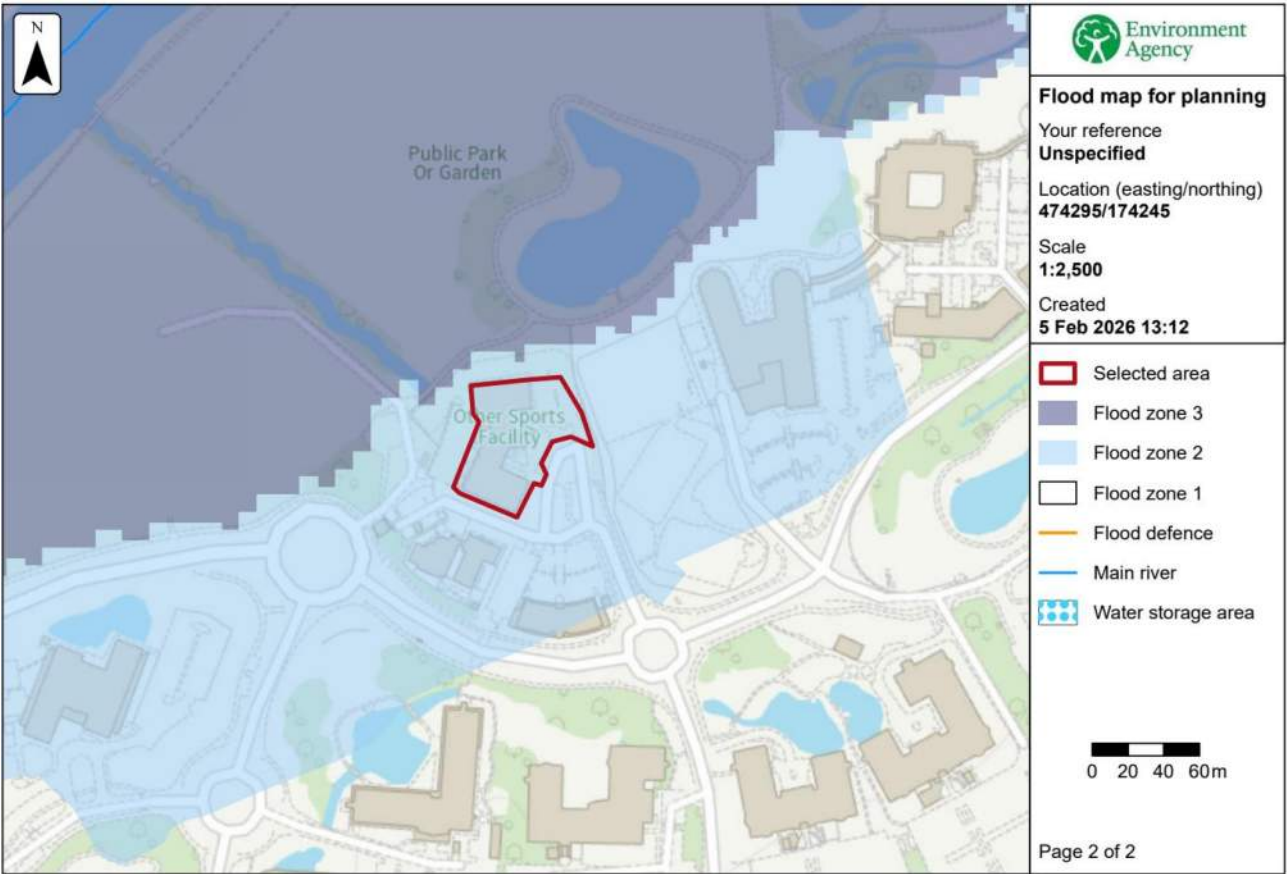


Figure 7: Extract from EA flood map for planning

The NPPF states that the suitability of all new development in relation to flood risk should be assessed by applying the Sequential Test to demonstrate that there are no reasonably available sites in areas with a lower probability of flooding that would be appropriate to the type of development proposed.

Paragraph 176 of NPPF states ‘Applications for some minor development and changes of use should also not be subject to the sequential test, nor the exception test set out below, but should still meet the requirements for site-specific flood risk assessments set out in footnote 63’.

Footnote 62 confirms ‘changes of use, inter alia, are not subject to the sequential test.

The NPPF states that the suitability of all new development in relation to flood risk should be assessed by applying the sequential test to demonstrate that there are no reasonable available

sites in areas with a lower probability of flooding that would be appropriate to the type of development proposed.

In this instance, the proposed development involves redevelopment of one part of the existing David Lloyd building, so the development could not be provided elsewhere. Therefore, the development proposals meet the sequential test.

The exception test is designed to require evidence of how flood risk will be managed on the proposed development site, ensuring that it is safe for its lifetime and will not increase flood risk elsewhere. There will be no change in site levels, the amount of drained area, or the current discharge rate from the site.

The remainder of this section of the report provides an assessment of flood risk from other potential sources of flooding, in line with the requirements of the NPPF and the Wokingham Borough Council Local Flood Risk Management Strategy.

5.2 Fluvial Flood Risk

The River Thames is an EA Main River and the primary source of flood risk to the site. At its closest point the river is approximately 275m to the north of the David Lloyd building.

The EA risk of flooding from rivers and the sea shown below indicates that the proposed development has a very low ‘less than 0.1% chance each year’ of flooding.

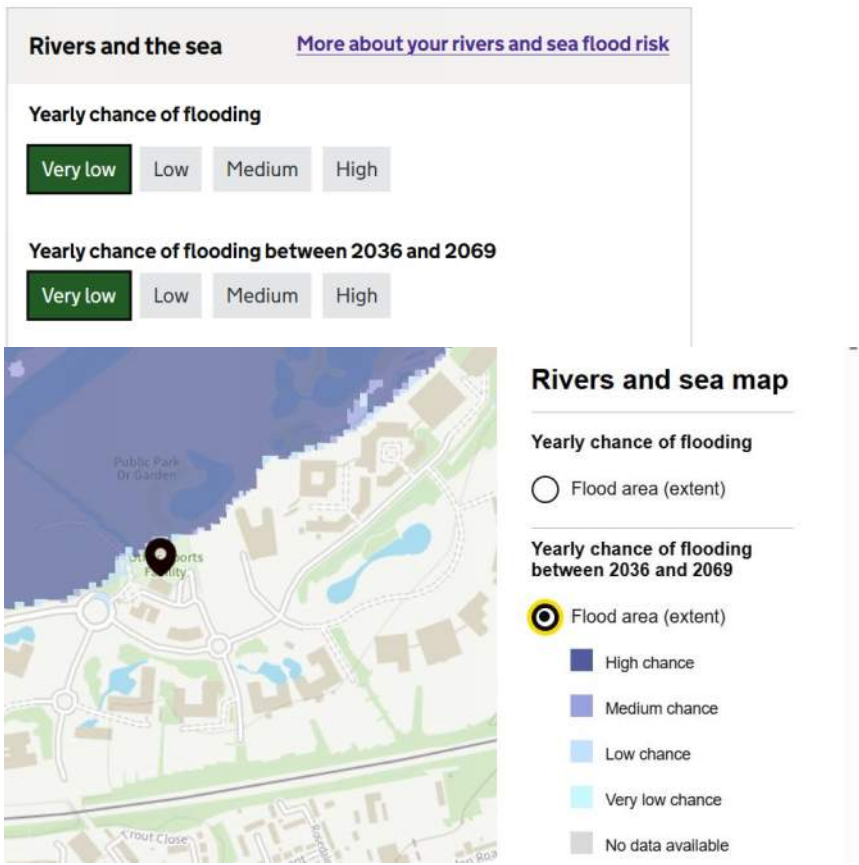


Figure 8: Extract from EA flood map rivers and the sea

The above map shows the indicative extent of the natural floodplain if there were no flood defences. The site location is not currently protected by any formal defences, and the EA do not currently have any flood alleviation works planned for the area. A larger scale version of this mapping can be found in **Appendix H**.

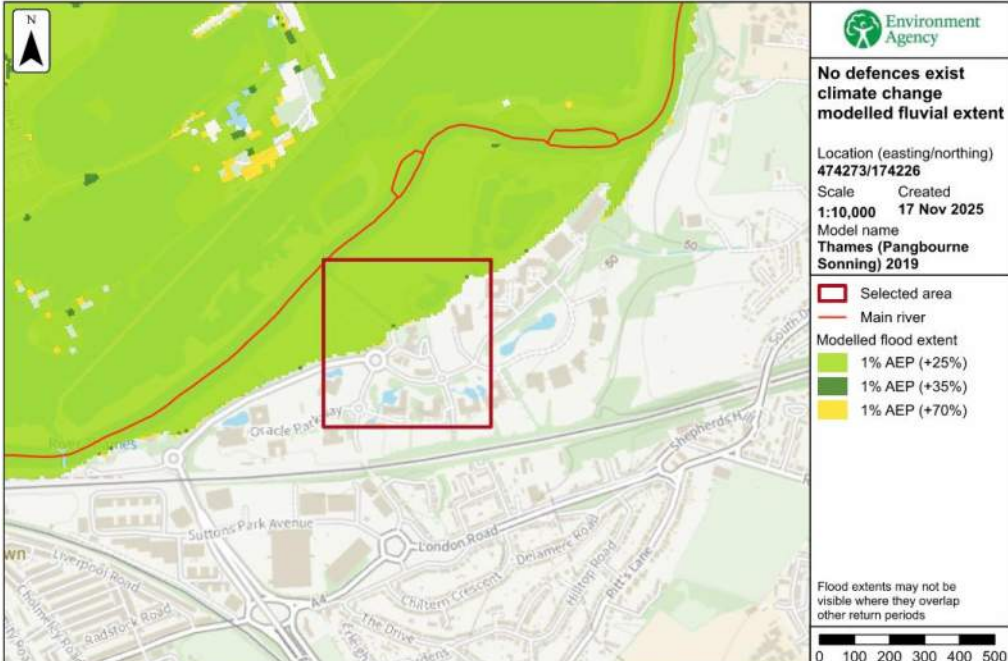


Figure 9: EA data modelled fluvial extent + Climate change

The 'No defences exist climate change modelled fluvial extent' map shown above confirms that no flooding will occur on site in a 1 in 100-year (1% AEP) event with a 35% allowance for climate change. A larger version of this drawing can be found in **Appendix L**.

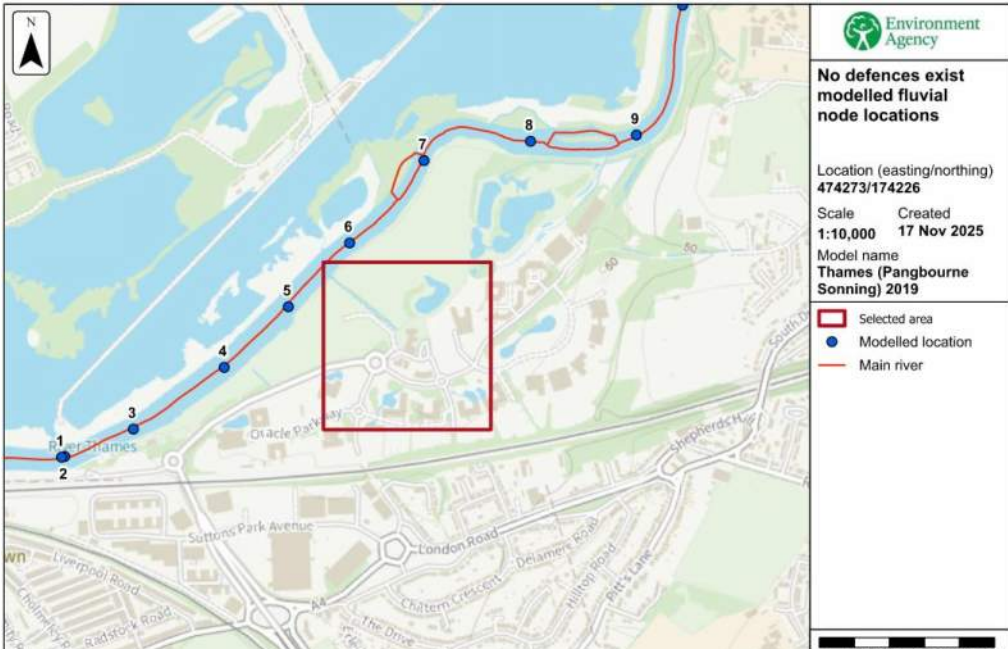


Figure 10: EA data modelled fluvial node locations

The EA product data includes modelled fluvial flood levels for the River Thames for the 1 in 100 year (1% AEP) annual probability event with varying allowances for climate change including 25%, 35% and 70%.

Considering climate change the modelled data for point 5 have the following flood heights.

- 1% AEP (+25%) = 36.58 AOD
- 1% AEP (+35%) = 36.63 AOD
- 1% AEP (+70%) = 36.81 AOD

Levels shown on the topographical survey show the ground adjacent to the building to be at a minimum of 37.0 AOD so the above levels demonstrates that finished floor levels are set above the 1% AEP plus climate change flood level to reduce the risk of flooding to people and property.

The extent of the flooding shown on the map does not reach the proposed development, and no point data is available for point no. 13. The nearest point data to the development is point no. 18.

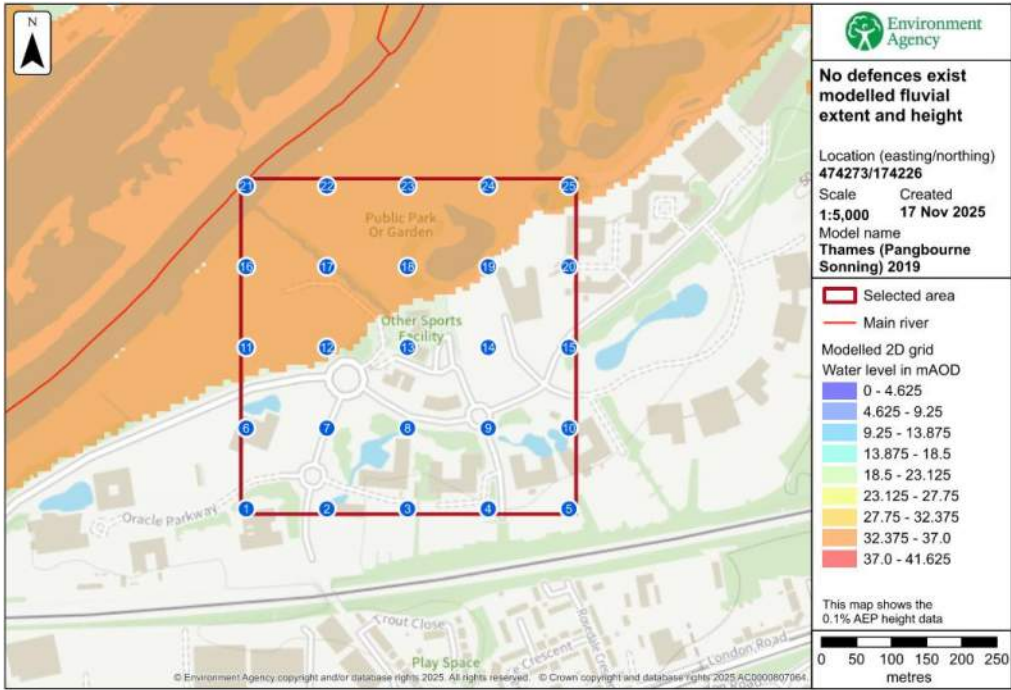


Figure 11: EA data modelled fluvial extent and height

Without considering climate change the modelled data for point 18 have the following flood heights.

- 1% AEP = 36.40 AOD
- 0.5% AEP = 36.47 AOD
- 0.1% AEP = 36.65 AOD

The above levels also demonstrates that the finished floor levels are set a minimum of 300mm the nearest flood level to reduce the risk of flooding to people and property.

5.3 Tidal Flood Risk

The River Thames is non-tidal as it flows through Reading, therefore, the site is not at risk of flooding from tidal sources.

5.4 Climate change

Climate change: projected chance of flooding

This location is at risk from flooding from rivers or the sea when climate change is taken into account:

- from rivers for the period 2070 to 2125
- from the sea (tidal flooding) by the year 2125

For a proposed development located within Flood Zone 2, with a Flood Risk Classification of Less Vulnerable, the Central Allowance should be used. In the Thames and South Chilterns Catchment – 2080's (2025 + 100yrs) the Central Allowance is 31%. The Design Flood level would therefore be 1% AEP + 31%CC.

Finished floor levels should be set at a minimum of 300mm above the 1% AEP plus climate change peak flood level.

5.5 Surface Water Flood Risk

The site is in a generally flat area with gentle falls. Generally flat areas do not tend to generate significant amount of sheet runoff and any surface flooding from pluvial sources tends to pond in localised depressions.

The surface water mapping indicates that most of the site is at very low risk of surface water flooding. The southeast side of the existing building show some areas of increased surface water flood risk, but none of these will impact the site.

The EA Flood Map for Surface Water delineates risk into the 3 following categories:

- Very Low – each year, this area has a chance of flooding less than 1 in 1,000 (0.1%).
- Low - each year, this area has a chance of flooding of between 1 in 1,000 (0.1%) and 1 in 100 (1%).
- Medium - each year, this area has a chance of flooding of between 1 in 100 (1%) and 1 in 30 (3.3%).
- High - each year, this area has a chance of flooding of greater than 1 in 30 (3.3%).

The EA flood maps highlight these areas in different shades of blue, with the darkest blue shading representing the area at risk at 1:30-year return period event, and the lightest shade of blue representing the area at risk at a 1:1000-year return period event.

The mapping shows that the proposed refurbishment is not at risk of surface water flooding during any flood event.

An extract of this mapping is shown below in Figure 9, and a larger scale version of this mapping can be found in **Appendix J**.

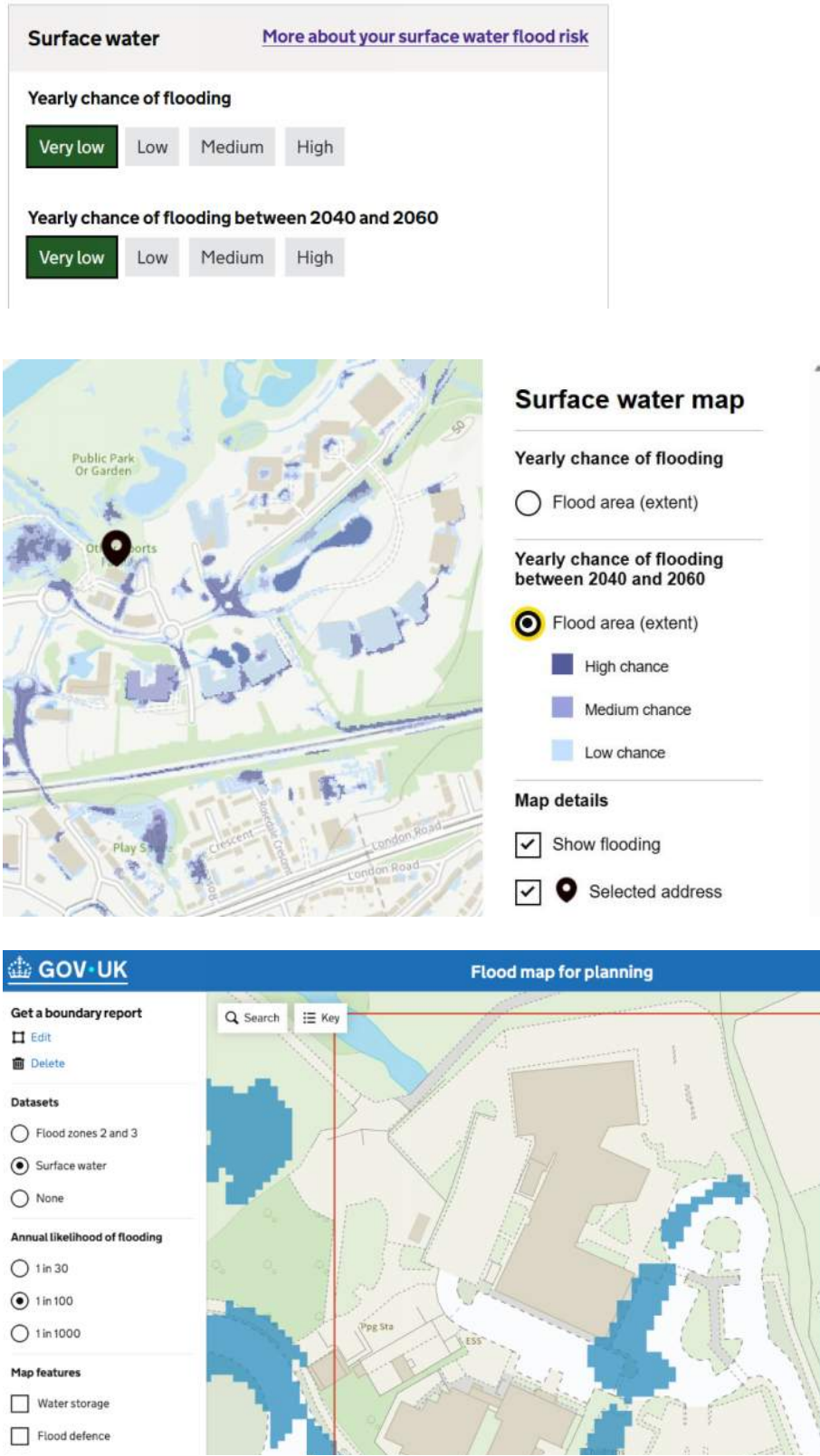
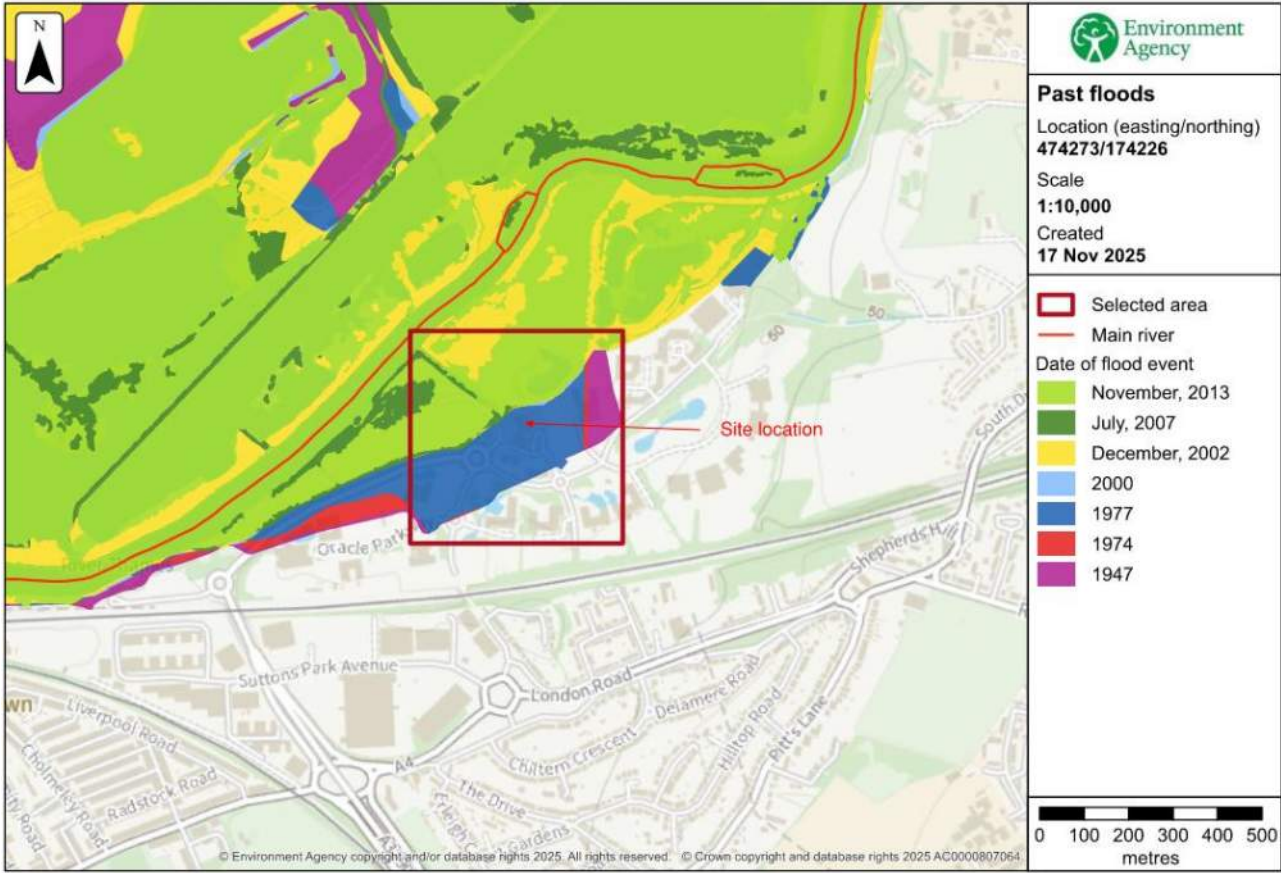


Figure 12: Extract from EA surface water flood extent map

5.6 Historic Flooding

There has been one past flooding event on site that happened in 1977 where the main river channel capacity was exceeded. A larger scale version of this mapping can be found in **Appendix M**.



Data on past flood events

Start date	End date	Source of flood	Cause of flood	Affects location
23 November 2013	28 February 2014	main river	channel capacity exceeded (no raised defences)	Yes
19 July 2007	29 July 2007	main river	channel capacity exceeded (no raised defences)	Yes
23 December 2002	12 January 2003	main river	channel capacity exceeded (no raised defences)	Yes
2000	2000	main river	channel capacity exceeded (no raised defences)	Yes
1977	1977	main river	channel capacity exceeded (no raised defences)	Yes
1974	1974	main river	channel capacity exceeded (no raised defences)	Yes
1947	1947	main river	channel capacity exceeded (no raised defences)	Yes

Figure 13: EA Past floods

5.7 Groundwater Flood Risk

As described in Section 2.3 of this report, the general Ground Conditions around the site is underlain made ground (artificial deposit). Superficial deposits mapped include alluvium in the north, the Langley Silty member across the central area with Kempton Park Gravel member to the south. The underlying geology is mapped as Seaford chalk formation and the Newhaven chalk formation.

Based on the information provided in section 2.3 the site is considered to be at low risk of flooding from groundwater sources. However, due to the nature of groundwater flooding, any risk associated with the source is likely to be heavily influenced by the local watercourses and primarily the River Thames. Where groundwater flooding is likely to occur, this will likely be due to rising flood levels from the River Thames, and any resulting groundwater would occur in conjunction with fluvial flooding.

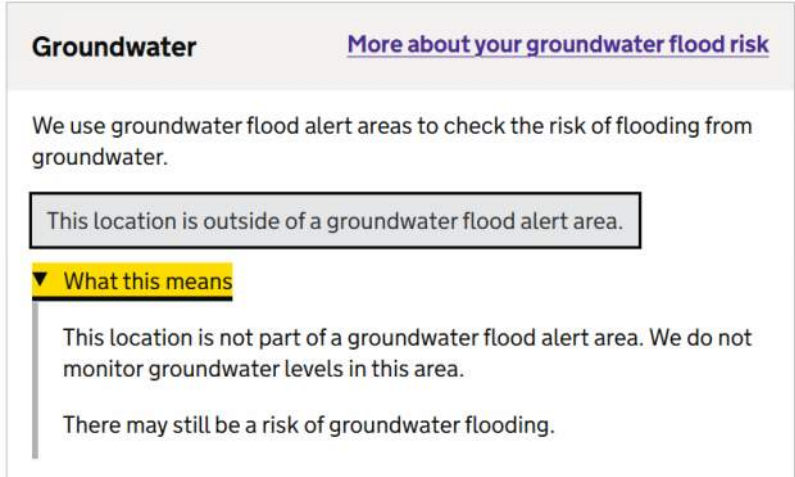


Figure 14: Extract from EA flood map for planning on groundwater

Unfortunately, the EA do not monitor ground water levels in the site area. However, BH01 and BH02 included in **Appendix C** state that water strikes occurred at 7.30m bgl at BH01 and 9.40m bgl at BH02. Therefore, it is concluded that the level of flood risk to the site from groundwater flooding is low.

5.8 Flood Risk from Sewers

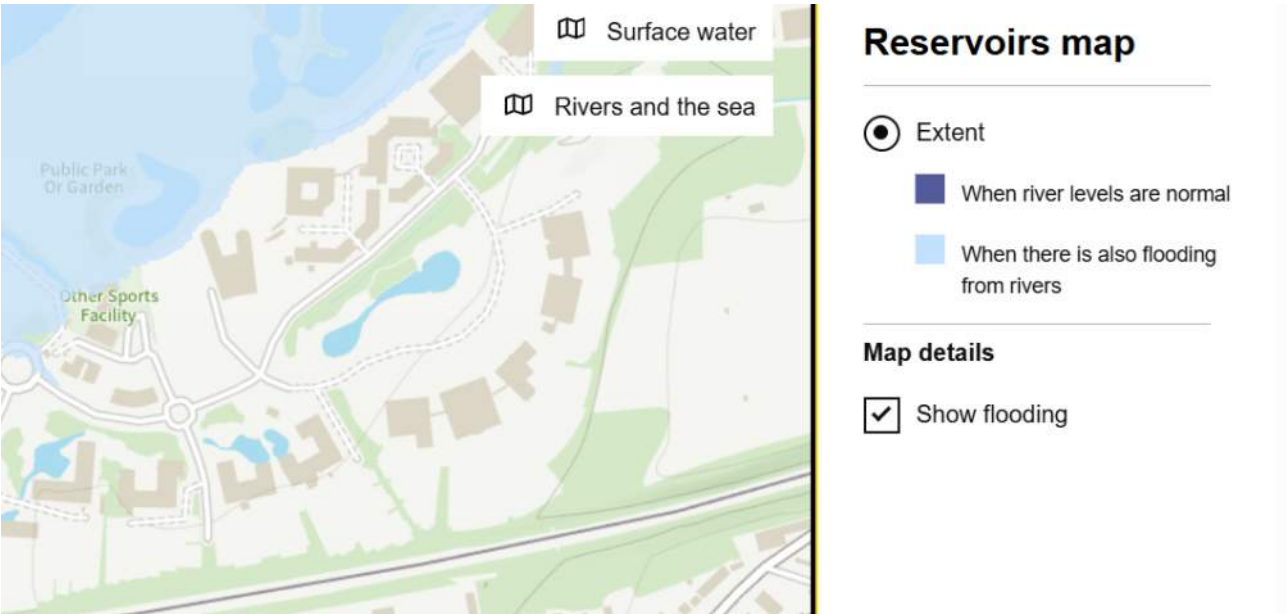
The local sewers are operated and maintained by Thames Water (STW). The existing sewers within proximity to the site are described in section 2.5, and a copy of the sewer record plan included in **Appendix D**.

A sewer flooding enquiry was submitted to Thames Water, which showed that their flooding records indicated that there have been no incidents of flooding at the David Lloyd Reading site because of surcharging of public sewers. A copy of this correspondence can be found in **Appendix D**. Therefore, it is concluded that the level of flood risk to the site from sewer flooding is low.

5.9 Flood Risk from Reservoirs, Canals and other Artificial Sources

A search on the Environment Agency website shows that there is no risk of flooding from reservoirs. The map represents the maximum possible extent of flooding from the unlikely event that reservoirs upstream of the site were to breach simultaneously while river levels remain normal. However, flooding from reservoirs is extremely unlikely.

An extract of this mapping is shown below in Figure 16, and a larger scale version of this mapping can be found in **Appendix K**.



Reservoirs: understand your flood risk

Your selected location: David Lloyd Sports Centre, Thames Valley Park Drive, Reading, RG6 1PT

This information tells you the flood risk of the land around a building, not the building itself.

Flooding from reservoirs is unlikely in this area.

Figure 15: Extract from EA flood map for planning on reservoirs

There are no canals in the immediate vicinity of the site so this flood risk source can therefore be discounted as a significant source of flood risk to the site.

Surrounding the site there are multiple ponds, all have a very low chance of flooding therefore be discounted as a significant source of flood risk to the site.

5.10 Access and Egress

As there is no risk of flooding to the site and the proposed extension, there is safe access and egress during a flood event.

The below image shows the hazard map for the 1% AEP + 35% climate change event for the site highlighting very low to no hazard.

A larger scale version of this mapping can be found in **Appendix N**.

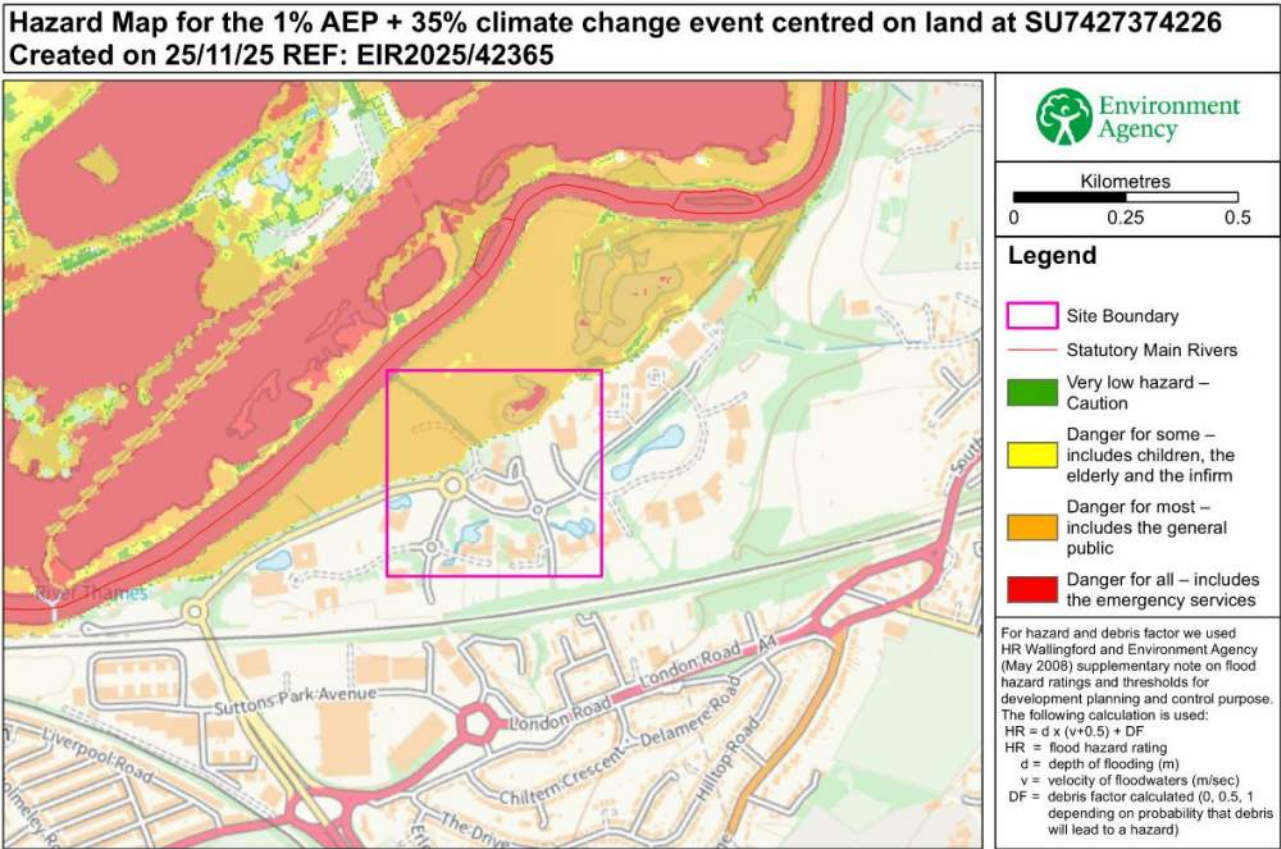


Figure 16: EA Hazard map

5.11 Summary of Flood Risk to the Development

The NPPF identifies several categories of land use vulnerability characteristics in terms of their vulnerability to flooding and therefore the compatibility of these different land uses within areas of elevated flood risk.

Buildings used for shops; professional and other services; restaurants, cafes and hot food takeaways; offices; general industry. Storage and distribution; non-residential institutions not included in the ‘more vulnerable’ class; and assembly and leisure are classed as ‘less vulnerable.’

Based on the above and the assessments in this chapter, the level of flood risk to the development from various potential sources of flooding is summarised in Table 1 below.

Table 1: Summary of Flood Risk to the Development

Potential Source of Flooding	Likelihood (L)	Vulnerability (V)	Risk (L x V)	Consequence
Fluvial / Tidal	Low	Low	Low	The site is in Flood Zone 2 (medium Risk) No specific mitigation required.
Surface Water	Low	Low	Low	No specific mitigation required.
Groundwater	Low	Low	Low	No specific mitigation required.
Sewers	Low	Low	Low	No specific mitigation required.
Artificial Sources	Very Low	Very Low	Very Low	No specific mitigation required.

6 SURFACE WATER MANAGEMENT STRATEGY

6.1 General Drainage Design Principles

The proposed development will not make any changes to the site levels or drained area on the site, and as such it is not proposed to make any major changes to the existing site drainage system(s), as it would be impractical for such a minor development.

As discussed in Section 2.5 of this report, the existing surface water regime on the site has not been fully identified, but surveyed utility maps suggest that the proposed area is drained via gullies and possible channel drains with a positive discharge to the site's drainage system. The proposed works will not involve any notable amendments to such an arrangement; therefore, this existing arrangement will remain in place where possible to manage surface water runoff from the development.

The development will therefore not cause any increase in flood risk either within the site itself or to adjacent properties.

APPENDIX A – SITE LOCATION PLAN

APPENDIX B – TOPOGRAPHICAL INFORMATION

APPENDIX C – BOREHOLE INFORMATION

APPENDIX D – THAMES WATER ASSET MAP

APPENDIX E – SURVEYED UTILITY MAP

APPENDIX F – PROPOSED SITE PLAN

APPENDIX G – FLOOD MAP FOR PLANNING

APPENDIX H – FLOODING FROM RIVERS AND SEA

APPENDIX J- FLOODING FROM SURFACE WATER

APPENDIX K – FLOODING FROM RESERVOIRS

APPENDIX L – PRODUCT 4 DATA

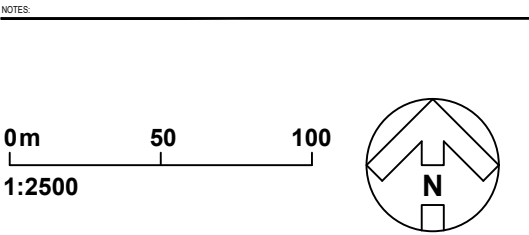
APPENDIX M – HISTORIC FLOODING

APPENDIX N – EA HAZARD MAP

APPENDIX A – SITE LOCATION PLAN



Ordnance Survey, (c) Crown Copyright 2024. All rights reserved. Licence number 100022432



Application Boundary

REVISION: P01 BY: HP CHECKED: MPB DATE: 16/12/2025
Planning Issue
STATUS

S4a | FOR PLANNING

CLIENT

David Lloyd
CLUBS

PROJECT
DAVID LLOYD READING
THAMES VALLEY
BUSINESS PARK

TITLE

LOCATION PLAN

Hadfield Cawkwell Davidson

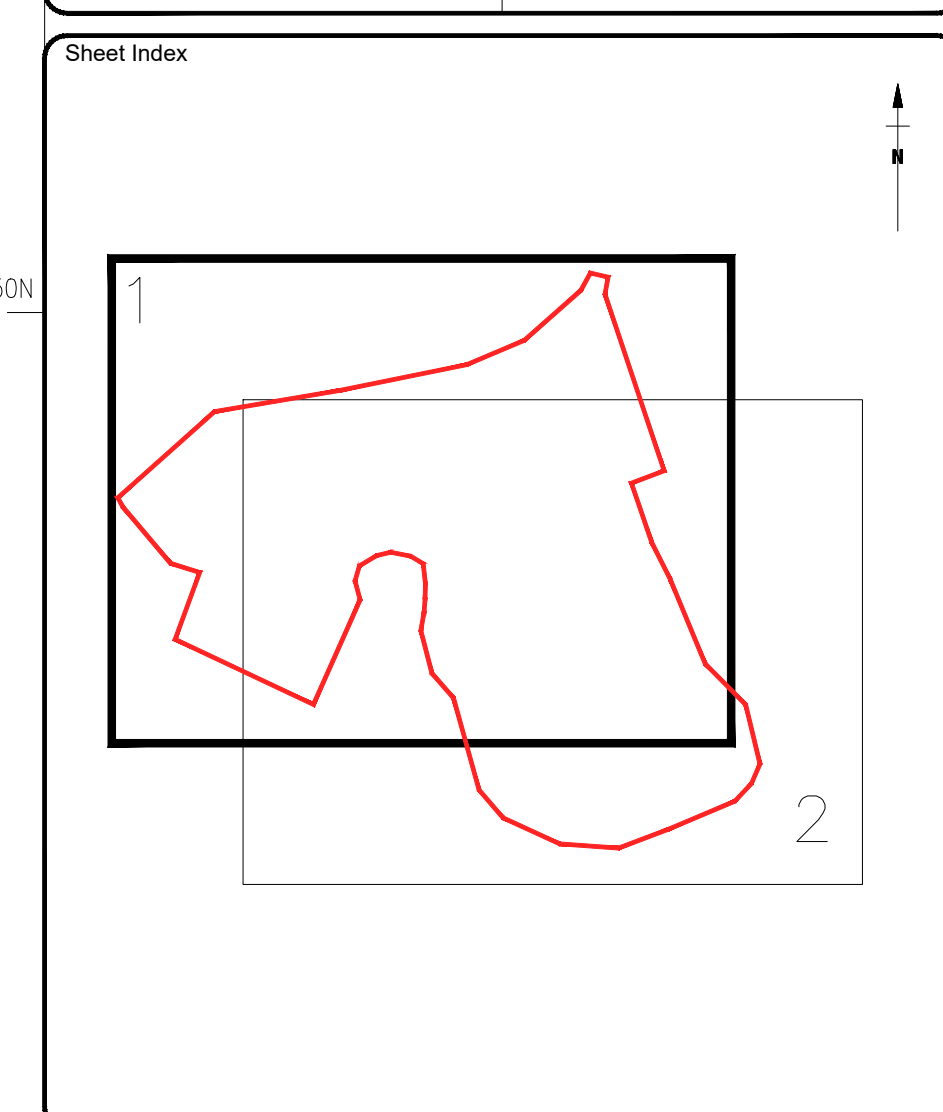
Broomgrove Lodge, 13 Broomgrove Rd, Sheffield, S10 2LZ T 0114 266 8181 www.hcd.co.uk

HCD PROJECT NO.	SCALE	REV.
2025-219	1:2500 @ A3	P01

PROJECT NO.	ORIGINATOR	VOLUME	LEVEL	TYPE	ROLE + NUMBER
25219	HCD	ZZ	00	DR	A-PL-001

S:\Architecture\25219\Drawings\DR - Plotsheets\Planning\A-PL-001 - Location Plan.dwg | © HCD

APPENDIX B – TOPOGRAPHICAL INFORMATION

[illegible]

Rev.	Date	Description
01	26.11.25	Original Issue



**MALCOLM
HUGHES**

**CHARTERED
LAND SURVEYORS**

Aintree House, Trident Business Park
Warrington, WA3 6BX
Tel: 0151 905 1265
www.malcolmhughes.co.uk
survey@mh.co.uk

Accreditations








Client

WILLIS HAZELL ENGINEERS
61 WOODFIELD LANE, ASHTEAD
SURREY, KT21 2BT

Project

DAVID LLOYD
READING

Drawing Title

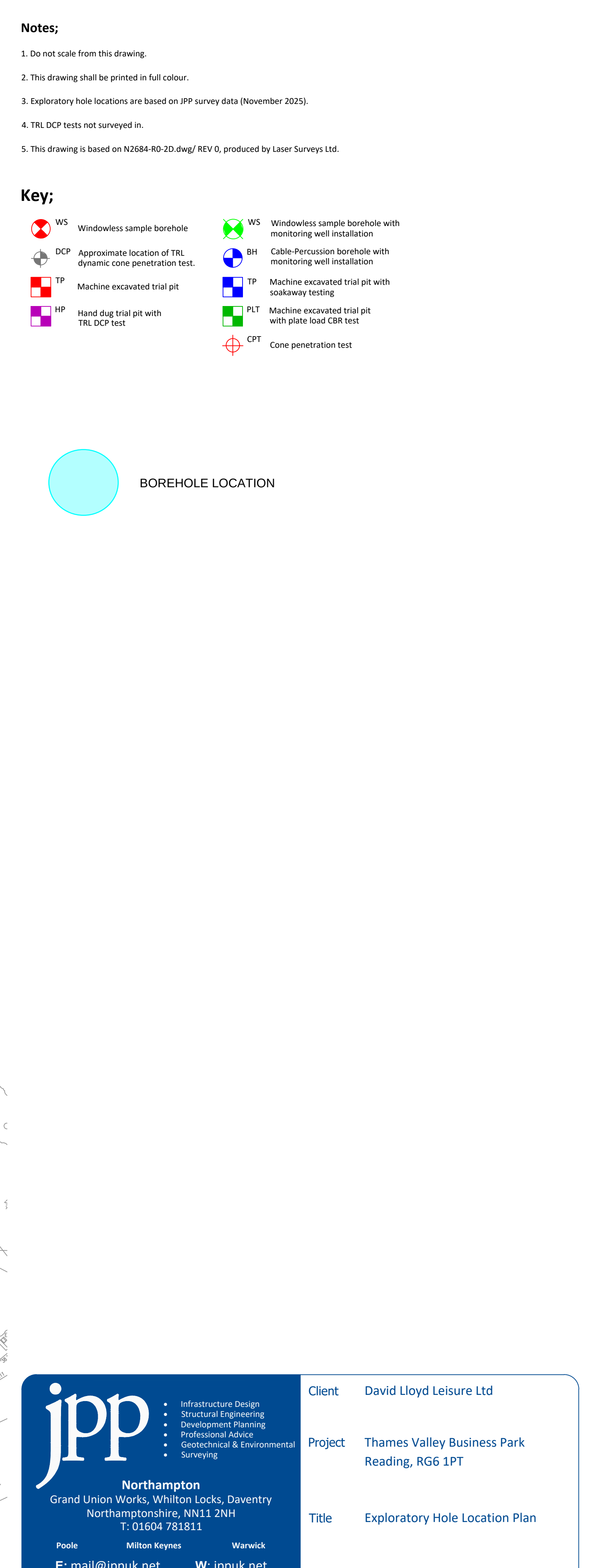
TOPOGRAPHICAL SURVEY
(Sheet 1 of 2)

(Sheet 1 of 2)

Drawn By DCL 25/11/25	Survey Date November 2025
Checked by EAD 25/11/25	Scale A0 @ 1:200

File Name
63619-VTO-DavidLloyd_Reading-M3-G-0001

APPENDIX C – BOREHOLE INFORMATION



1. Do not scale from this drawing.
2. This drawing shall be printed in full colour.
3. Exploratory hole locations are based on JPP survey data (November 2025).
4. TRL DCP tests not surveyed in.
5. This drawing is based on N2684-RO-2D.dwg/ REV 0, produced by Laser Surveys Ltd.

	WS	Windowless sample borehole		WS	Windowless sample borehole with monitoring well installation
	DCP	Approximate location of TRL dynamic cone penetration test.		BH	Cable-PerCUSsion borehole with monitoring well installation
	TP	Machine excavated trial pit		TP	Machine excavated trial pit with soakaway testing
	HP	Hand dug trial pit with TRL DCP test		PLT	Machine excavated trial pit with plate load CBR test
				CPT	Cone penetration test

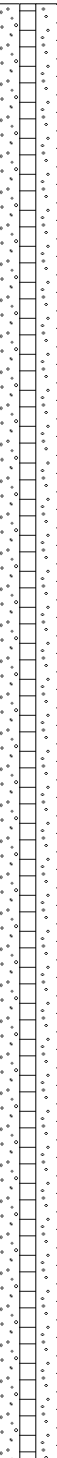
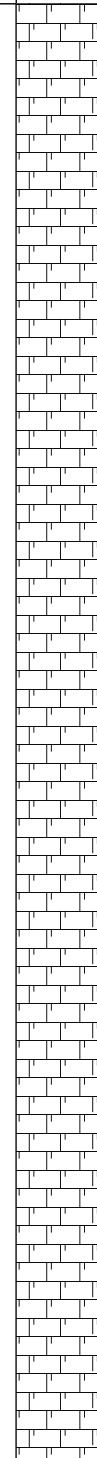
 BOREHOLE LOCATION

JPP QA Document T07 R3



Remarks	
Wet from 6.50m bgl -7.30m bgl. Water strike 7.30m bgl rising to 4.30m bgl after 20 minutes. Casing at 6.0m bgl. Monitoring well installed to 20.00m bgl. Response zone from 10.00m to 20.00m bgl.	



Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		10.50	D	N=12 (10,6/4,3,2,3)				Recovered as off white moderately strong slightly silty sandy fine to coarse angular to subangular flint and chalk GRAVEL with pockets of moderately weak to weak putty chalk. Sand is fine to coarse. (SEAFORD CHALK FORMATION/NEWHAVEN CHALK FORMATION)		
		11.00	D							11
		11.00	SPT							
		12.00	D	N=17 (2,4/3,4,4,6)						12
		12.50	D							
		12.50	SPT							13
		13.50	D	N=22 (4,8/8,4,5,5)						
		14.00	D							14
		14.00	SPT							
		15.00	D	N=43 (12,8/18,7,8,10)						15
		15.50	D							
		15.50	SPT							16
		16.50	D	N=21 (3,4/4,4,6,7)						
		17.00	D							17
		17.00	SPT							
18.00	D	25 (25,25/25 for 145mm)		18						
18.50	D									
18.50	SPT			19						
		19.50	D							
		20.00	D					20		

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
		7.50 19.50	200 150								

Wet from 6.50m bgl -7.30m bgl. Water strike 7.30m bgl rising to 4.30m bgl after 20 minutes. Casing at 6.0m bgl. Monitoring well installed to 20.00m bgl. Response zone from 10.00m to 20.00m bgl.



Dynamic Sampling Log

Project Name: Thames Valley Business Park			Client: David Lloyd Leisure Ltd			Date: 12/11/2025 - 13/11/2025					
Location: Reading			Contractor:			Co-ords: E474407.66 N174221.19					
Project No. : 30799			Crew Name:			Drilling Equipment: Dando 4000					
Borehole Number BH01		Hole Type BH		Level 38.42m AoD		Logged By FH		Scale 1:50		Page Number Sheet 3 of 3	
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
		20.00	SPT	N=30 (4,4/4,8,8,10)	20.45	17.97		Recovered as off white moderately strong slightly silty sandy fine to coarse angular to subangular flint and chalk GRAVEL with pockets of moderately weak to weak putty chalk. Sand is fine to coarse. (SEAFORD CHALK FORMATION/NEWHAVEN CHALK FORMATION)			
										21	
										22	
										23	
										24	
										25	
										26	
										27	
										28	
										29	
										30	
Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
		7.50 19.50	200 150								
Remarks											
Wet from 6.50m bgl -7.30m bgl. Water strike 7.30m bgl rising to 4.30m bgl after 20 minutes. Casing at 6.0m bgl. Monitoring well installed to 20.00m bgl. Response zone from 10.00m to 20.00m bgl.											



Remarks	
Wet from 8.0m bgl to 8.9m bgl. Water strike 9.40m bgl rising to 8.55m bgl after 20 minutes. Monitoring well installed to 20.00m bgl. Response zone 11.00m to 20.00m bgl.	

[illegible]

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
		9.00 19.50	200 150								

Wet from 8.0m bgl to 8.9m bgl. Water strike 9.40m bgl rising to 8.55m bgl after 20 minutes. Monitoring well installed to 20.00m bgl. Response zone 11.00m to 20.00m bgl.



Dynamic Sampling Log

Project Name: Thames Valley Business Park			Client: David Lloyd Leisure Ltd				Date: 12/11/2025 - 13/11/2025				
Location: Reading			Contractor:				Co-ords: E474351.76 N174247.63				
Project No. : 30799			Crew Name:				Drilling Equipment: Dando 3000				
Borehole Number BH02		Hole Type BH		Level 38.57m AoD		Logged By AH		Scale 1:50		Page Number Sheet 3 of 3	
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
		20.00	SPT	N=44 (10,10/10,9,11,14)	20.45	18.12		Recovered as off white and brown very silty slightly sandy medium to coarse subangular chalk GRAVEL with occasional flint. (SEAFORD CHALK FORMATION/NEWHAVEN CHALK FORMATION) End of Borehole at 20.450m			
										21	
										22	
										23	
										24	
										25	
										26	
										27	
										28	
										29	
										30	
Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
		9.00 19.50	200 150								
Remarks											
Wet from 8.0m bgl to 8.9m bgl. Water strike 9.40m bgl rising to 8.55m bgl after 20 minutes. Monitoring well installed to 20.00m bgl. Response zone 11.00m to 20.00m bgl.											

APPENDIX D – THAMES WATER ASSET MAP

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
0053	n/a	n/a
0057	n/a	n/a
0058	n/a	n/a
1001	37.29	31.49
1055	n/a	n/a
1058	n/a	n/a
1005	n/a	n/a
1002	37.35	36.02
1050	37.64	34.93
1154	n/a	n/a
1051	37.78	34.89
1003	37.82	31
1056	n/a	n/a
1063	n/a	n/a
1061	n/a	n/a
1151	37.17	34.47
2250	n/a	n/a
2103	37.08	30.29
2150	37.19	34.92
2104	37.28	30.5
2107	38.32	30.09
2102	n/a	n/a
2254	36.54	34.14
2251	37.22	34.05
221A	n/a	n/a
4103	37.96	32.15
4102	38.02	32.54
4151	38.08	36.29
4350	n/a	n/a
4201	37.96	34.9
4250	37.91	36.67
4351	n/a	n/a
5101	37.96	32.85
5201	38.43	35.41
5251	38.4	35.88
1064	n/a	n/a
1065	n/a	n/a
1155	n/a	n/a
1101	37.28	30.6
1150	37.25	34.59
1158	n/a	n/a
2105	37.5	30.78
2151	37.42	35.12
2106	37.8	31.1
2152	37.76	35.22
3150	37.92	35.42
3151	38.18	35.5
3101	38.16	31.42
3102	38.31	31.54
3152	38.41	35.59
4150	38.02	35.92
5150	37.93	36.63
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.		



Asset Location Search - Sewer Key

Public Sewer Types (Operated and maintained by Thames Water)

	Foul Sewer: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.
	Surface Water Sewer: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.
	Combined Sewer: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.
	Storm Sewer
	Sludge Sewer
	Foul Trunk Sewer
	Surface Trunk Sewer
	Combined Trunk Sewer
	Foul Rising Main
	Surface Water Rising Main
	Combined Rising Main
	Vacuum
	Thames Water Proposed
	Vent Pipe
	Gallery

Other Sewer Types (Not operated and maintained by Thames Water)

	Sewer		Culverted Watercourse
	Proposed		Decommissioned Sewer
	Content of this drainage network is currently unknown		Ownership of this drainage network is currently unknown

Notes:

- 1) All levels associated with the plans are to Ordnance Datum Newlyn.
- 2) All measurements on the plan are metric.
- 3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate the direction of flow.
- 4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.

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		Meter
	Dam Chase		Vent
	Fitting		

Operational Controls

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

	Ancillary		Drop Pipe
	Control Valve		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.

	Inlet		Outfall
	Undefined End		

Other Symbols

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

	Change of Characteristic Indicator		Public / Private Pumping Station
	Invert Level		Summit

Areas

Lines denoting areas of underground surveys, etc.

	Agreement
	Chamber
	Operational Site

Ducts or Crossings

	Casement	Ducts may contain high voltage cables. Please check with Thames Water.
	Conduit Bridge	
	Subway	
	Tunnel	

5) 'na' or '0' on a manhole indicates that data is unavailable.

6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimeters. 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, please contact Property Searches on 0800 009 4540.

Sewer Flooding

History Enquiry



Property
Searches

Willis Hazell

40 BERKELEY SQUARE, CLIFTON

Search address supplied

Computacenter Ltd
Thames Valley Park Drive
Reading
RG6 1PT

Your reference

Reading DL

Our reference

SFH/SFH Standard/2026_5284306

Received date

6 February 2026

Search date

6 February 2026



Thames Water Utilities Ltd
Property Searches, Clearwater Court, Vastern Road, Reading RG1 8DB



property.searches@thameswater.co.uk
thameswater.co.uk/propertysearches



0800 009 4540

Sewer Flooding

History Enquiry



Property
Searches

Search address supplied: Computacenter Ltd, Thames Valley Park
Drive, Reading, RG6 1PT

This search is recommended to check for any sewer flooding at a specific address or area

TWUL are responsible in respect of the following:-

- (i) any negligent or incorrect entry in the records searched;
- (ii) any negligent or incorrect interpretation of the records searched;
- (iii) and any negligent or incorrect recording of that interpretation in the search report
- (iv) compensation payments



Thames Water Utilities Ltd
Property Searches, Clearwater Court, Vastern Road, Reading RG1 8DB



property.searches@thameswater.co.uk
thameswater.co.uk/propertysearches



0800 009 4540

History of Sewer Flooding

Is the requested address or area at risk of flooding due to overloaded public sewers?

The flooding records held by Thames Water indicate that there have been no incidents of flooding in the requested area as a result of surcharging public sewers.

For your guidance:

- A sewer is “overloaded” when the flow from a storm is unable to pass through it due to a permanent problem (e.g. flat gradient, small diameter). Flooding as a result of temporary problems such as blockages, siltation, collapses and equipment or operational failures are excluded.
- “Internal flooding” from public sewers is defined as flooding, which enters a building or passes below a suspended floor. For reporting purposes, buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.
- “At Risk” properties are those that the water company is required to include in the Regulatory Register that is presented annually to the Director General of Water Services. These are defined as properties that have suffered, or are likely to suffer, internal flooding from public foul, combined or surface water sewers due to overloading of the sewerage system more frequently than the relevant reference period (either once or twice in ten years) as determined by the Company’s reporting procedure.
- Flooding as a result of storm events proven to be exceptional and beyond the reference period of one in ten years are not included on the At Risk Register.
- Properties may be at risk of flooding but not included on the Register where flooding incidents have not been reported to the Company.
- Public Sewers are defined as those for which the Company holds statutory responsibility under the Water Industry Act 1991.
- It should be noted that flooding can occur from private sewers and drains which are not the responsibility of the Company. This report excludes flooding from private sewers and drains and the Company makes no comment upon this matter.
- For further information please contact Thames Water on Tel: 0800 316 9800 or website www.thameswater.co.uk



Thames Water Utilities Ltd
Property Searches, Clearwater Court, Vastern Road, Reading RG1 8DB

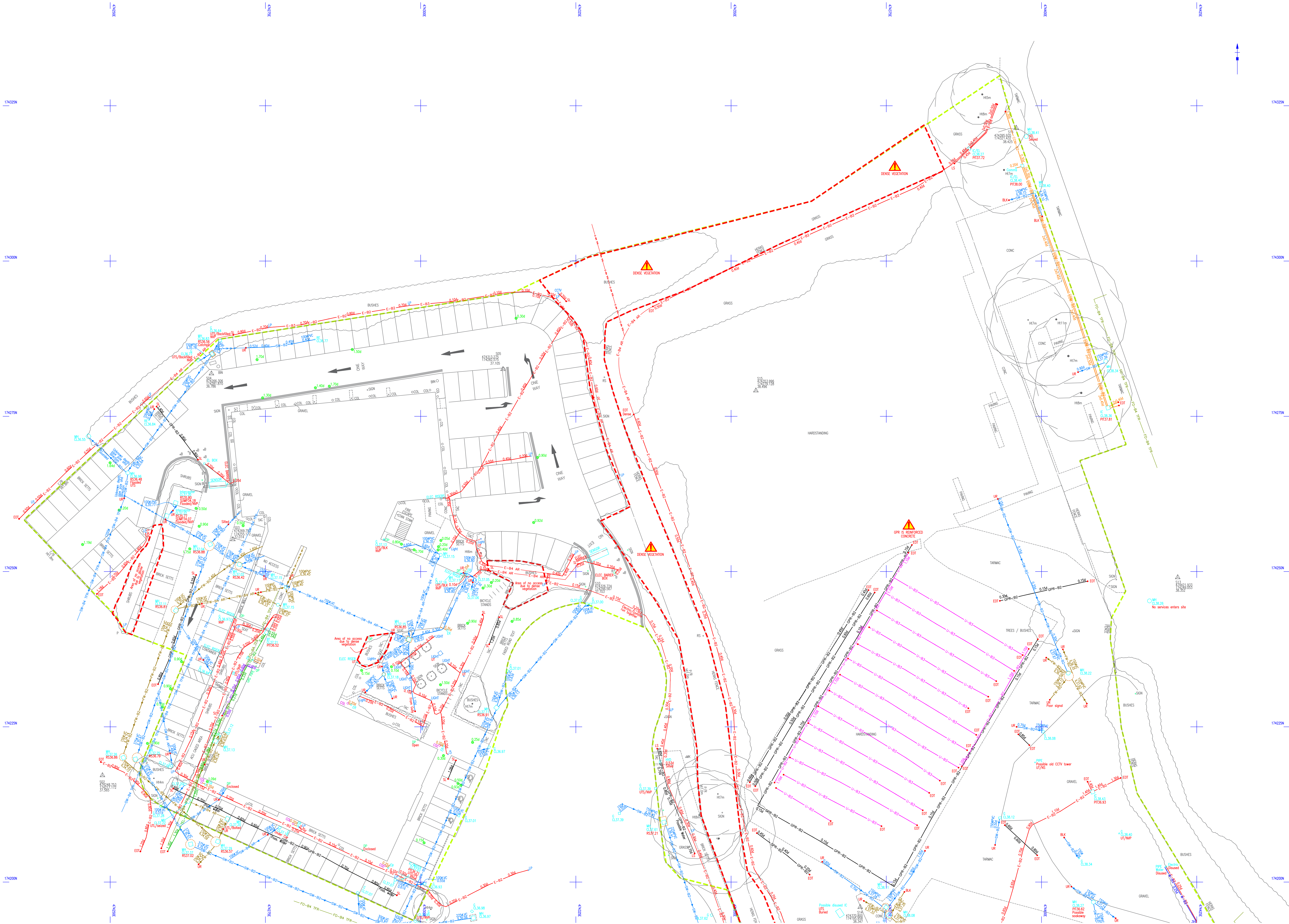


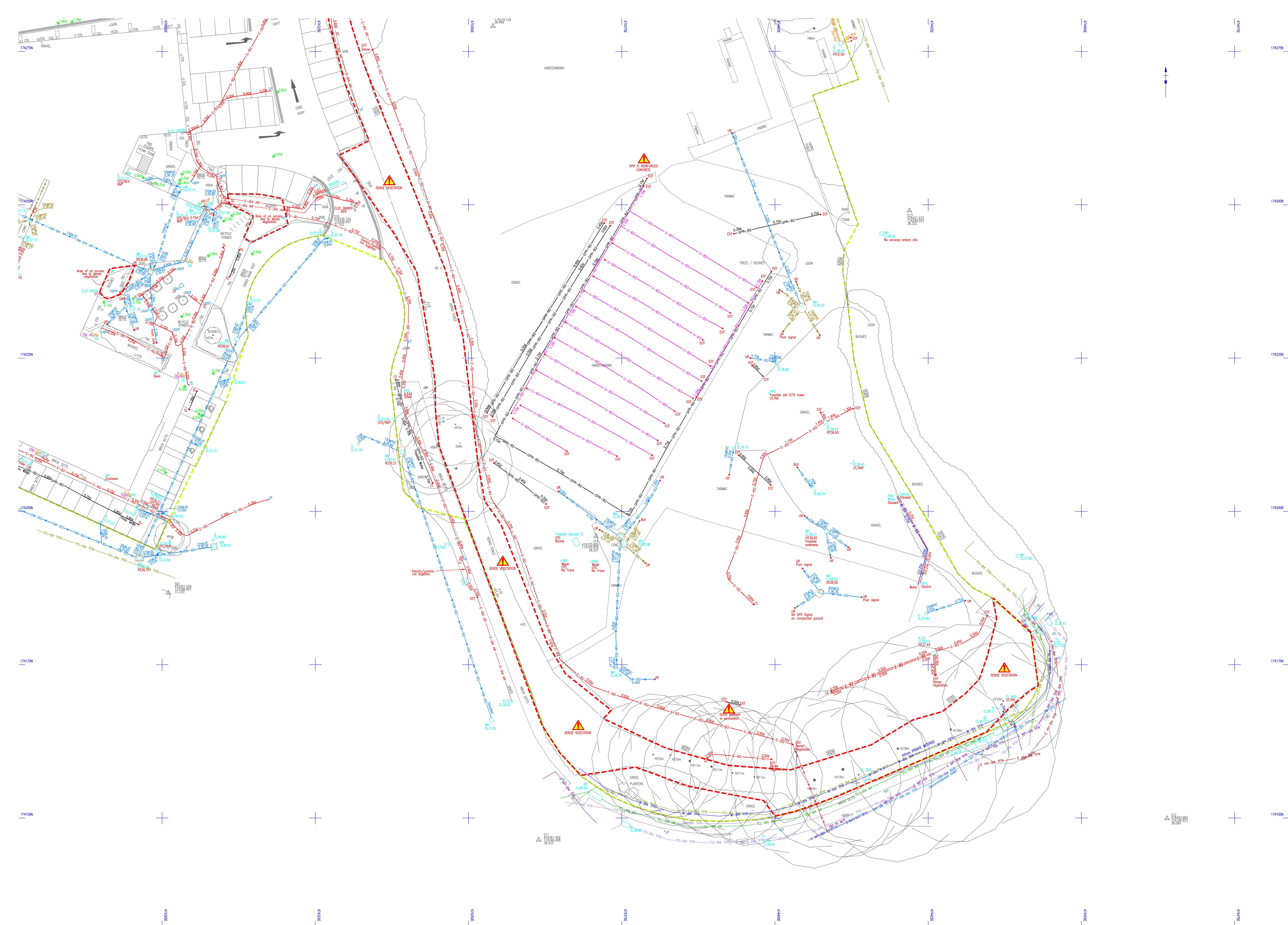
property.searches@thameswater.co.uk
thameswater.co.uk/propertysearches



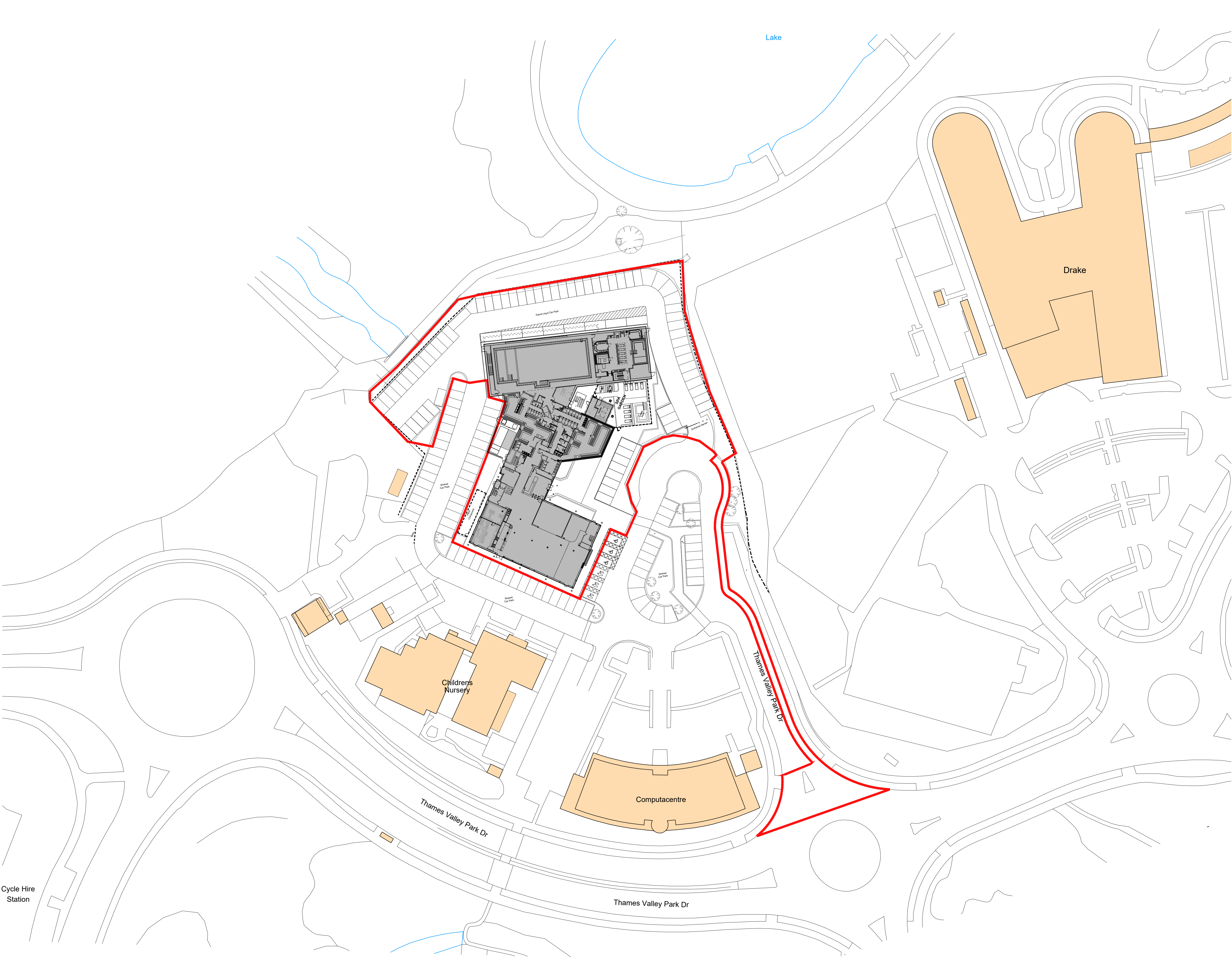
0800 009 4540

APPENDIX E – SURVEYED UTILITY MAP





APPENDIX F – PROPOSED SITE PLAN



NOTES

0m5101520

1:200

N

Application Boundary
0.58 hectares / 5790 sqm

Car Park
156 spaces
inc.
76 David Lloyd spaces
80 shared spaces

REVISION P03 BY: KDS CHECKED: MPB DATE: 10/02/2026
Planning Issue: Extension footprint reduced in size. Additional parking bays added. Existing plant compound extended.

REVISION P02 BY: KDS CHECKED: MPB DATE: 03/02/2026
Planning Issue

REVISION P01 BY: KDS CHECKED: MPB DATE: 16/12/2025
Planning Issue

STATUS

S4a | FOR PLANNING

CLIENT

David Lloyd

CLUBS

PROJECT

DAVID LLOYD READING
THAMES VALLEY
BUSINESS PARK

TITLE

PROPOSED SITE PLAN

Hadfield Cawkwell Davidson

Broomgrove Lodge, 13 Broomgrove Rd, Sheffield, S10 2LZ T 0114 266 8181 www.hcd.co.uk

HCD PROJECT NO.
2025-219

SCALE
1:200 @ A1

REV
P03

PROJECT NO.
25219

ORIGINATOR
HCD

VOLUME
A0

LEVEL
00

TYPE
DR

ROLE - NUMBER
A-PL-003

S:\Architecture\25219\Drawings\DR - Plotsheets\Planning\A-PL-003 - Proposed Site Plan.dwg

© HCD

Ordnance Survey, (c) Crown Copyright 2024. All rights reserved. Licence number 100022432

APPENDIX G – FLOOD MAP FOR PLANNING

Flood map for planning

Your reference
Unspecified

Location (easting/northing)
474295/174245

Created
5 February 2026 13:12

Your selected location is in flood zone 2, an area with a medium probability of flooding.

This means:

- you must complete a flood risk assessment for development in this area
- you should follow the Environment Agency's standing advice for carrying out a flood risk assessment (see <https://www.gov.uk/guidance/flood-risk-assessment-standing-advice>)

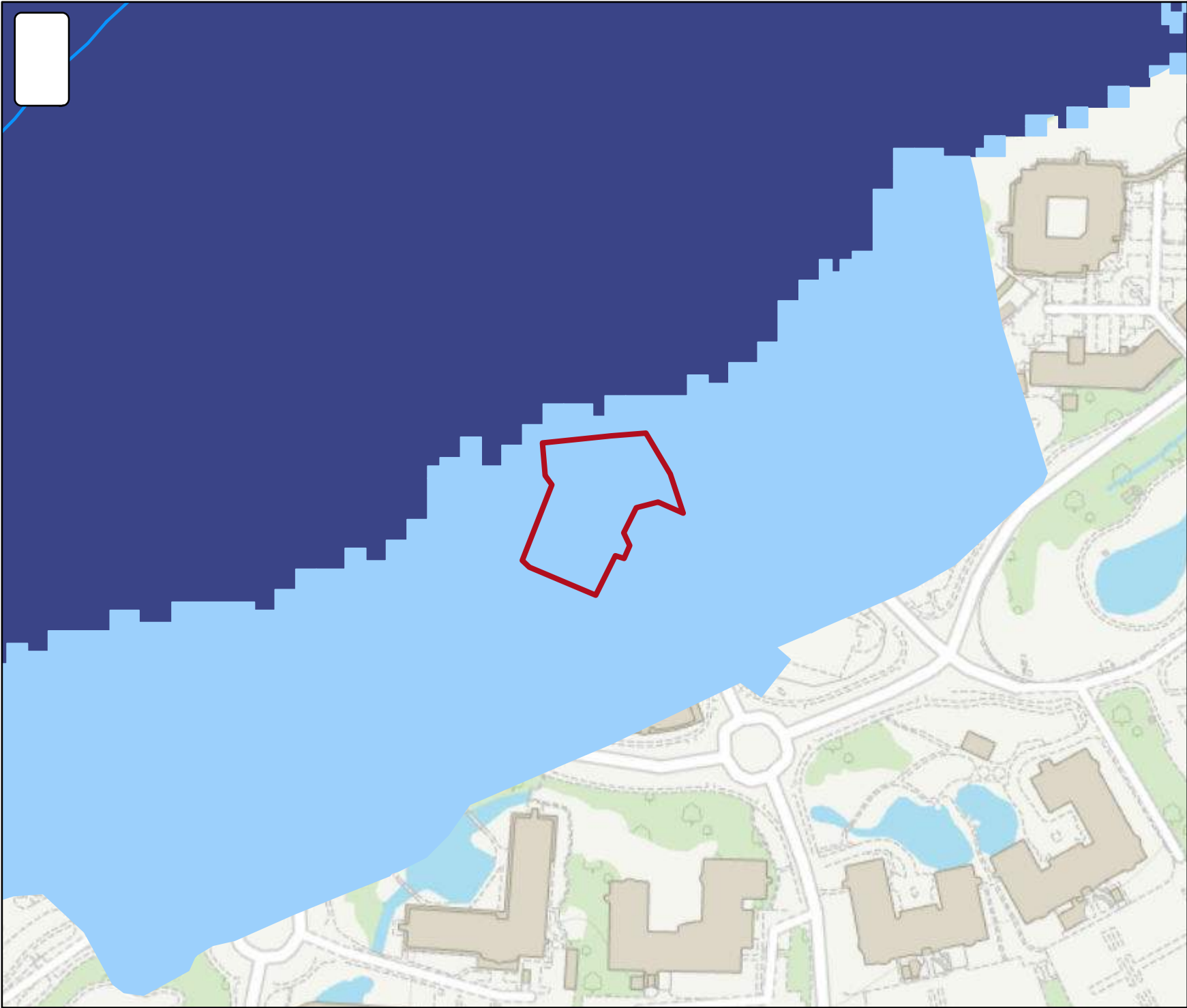
Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence which sets out the terms and conditions for using government data. <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3>

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2026 AC0000807064. <https://flood-map-for-planning.service.gov.uk/os-terms>



)ORRG PDS IRU S
<RXU UHIHUHQFH
8QVSHFLILHG
/RFDWLRQ HDVWL
6FDOH
&UHDWHG
)HE

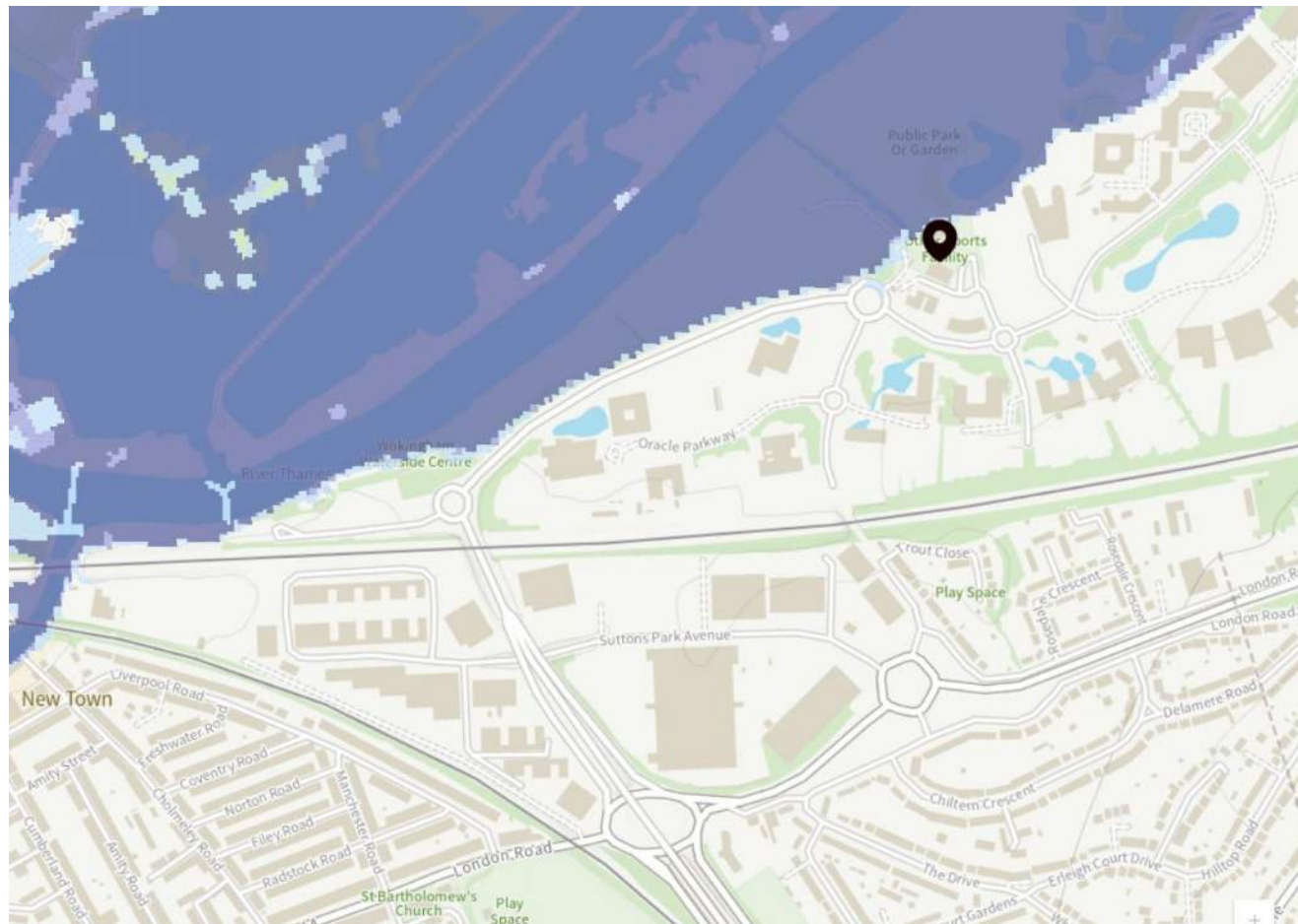
- 6HOHFWHG DUH
-)ORRG]RQH
-)ORRG]RQH
-)ORRG]RQH
-)ORRG GHIHQFH
- 0DLQ ULYHU
- :DWHU VWRUDJ



P

3DJH RI

APPENDIX H – FLOODING FROM RIVERS AND SEA



Rivers and sea map

Yearly chance of flooding

☐ Flood area (extent)

Yearly chance of flooding between 2036 and 2069

☒ Flood area (extent)

■ High chance

■ Medium chance

■ Low chance

■ Very low chance

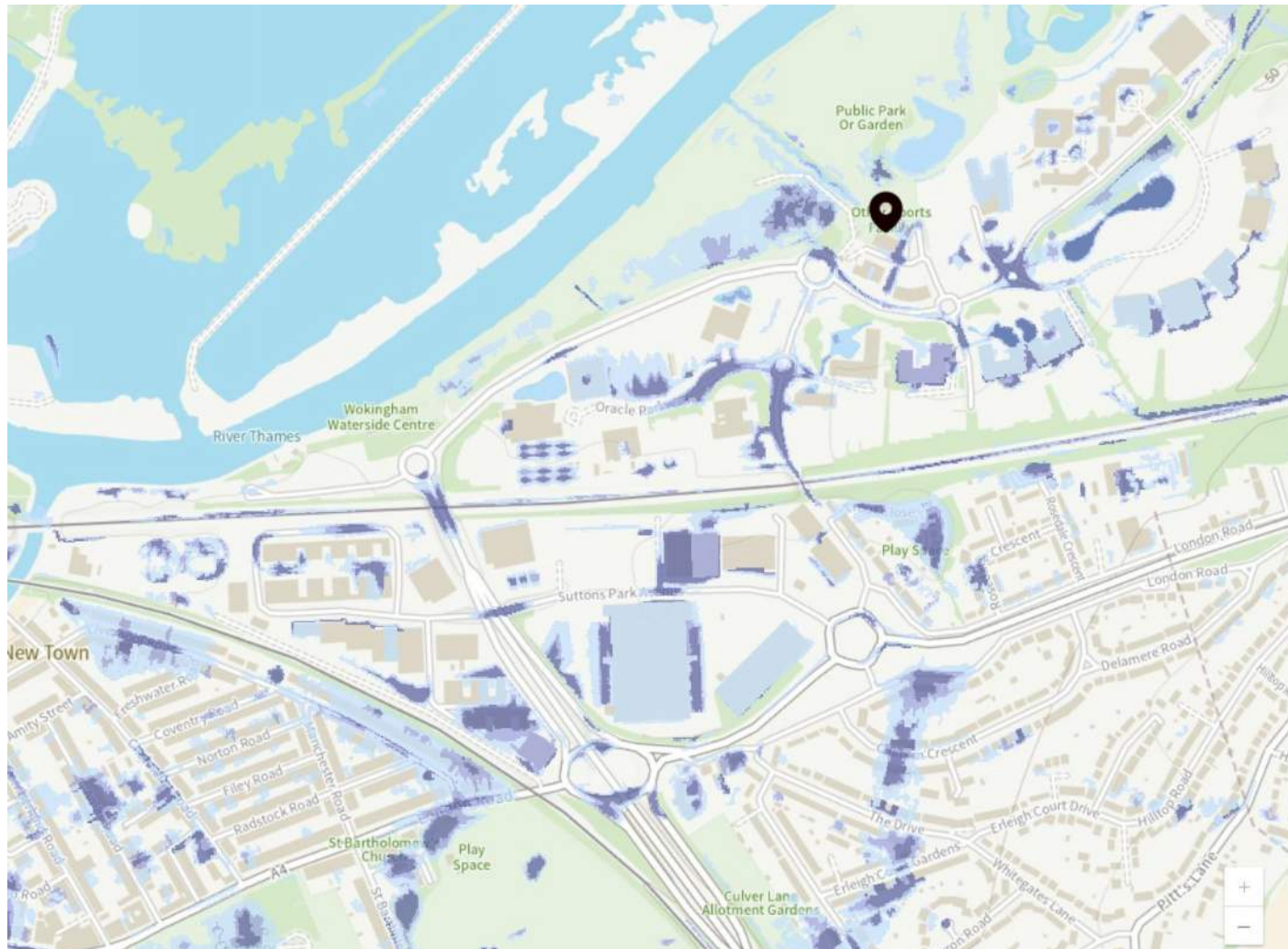
■ No data available

Map details

☒ Show flooding

☒  Selected address

APPENDIX J- FLOODING FROM SURFACE WATER



Surface water map

Yearly chance of flooding

☐ Flood area (extent)

Yearly chance of flooding between 2040 and 2060

☒ Flood area (extent)

■ High chance

■ Medium chance

■ Low chance

Map details

☒ Show flooding

☒  Selected address

APPENDIX K – FLOODING FROM RESERVOIRS



Reservoirs map

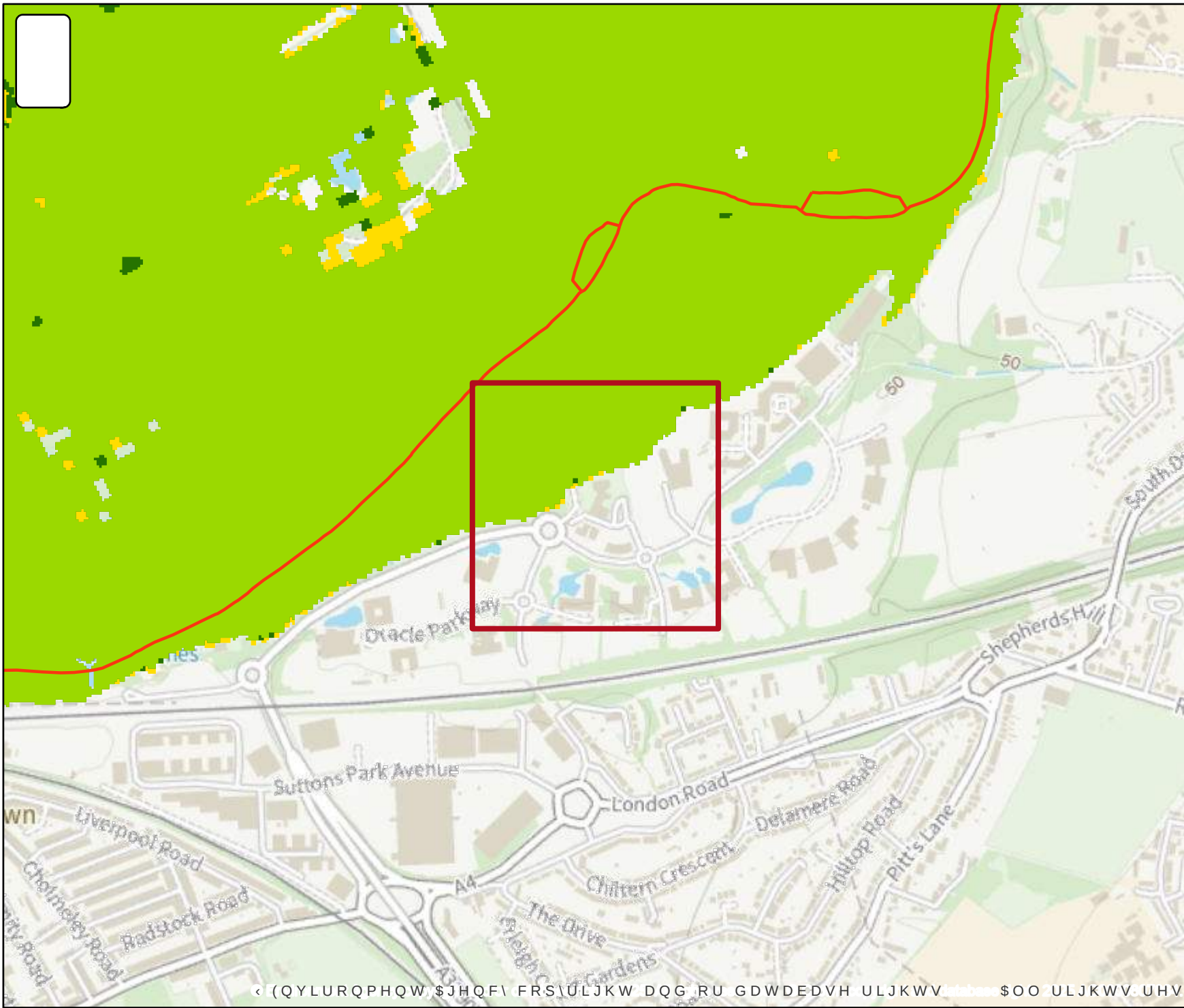
Extent

- ☒ When river levels are normal
- ☐ When there is also flooding from rivers

Map details

- ☒ Show flooding

APPENDIX L – PRODUCT 4 DATA



1R GHIHQFHV H[
FOLPDWH FKDOJ
PRGHOOHG IOXY

/RFDWLRQ HDVWL

6FDOH &UHDWHG
1RY

0RGHO QDPH
7KDPHV 3DQJERXU
6RQQLQJ

6HOHFWHG DUH

0DLQ ULYHU

0RGHOOHG IORRG

\$(3

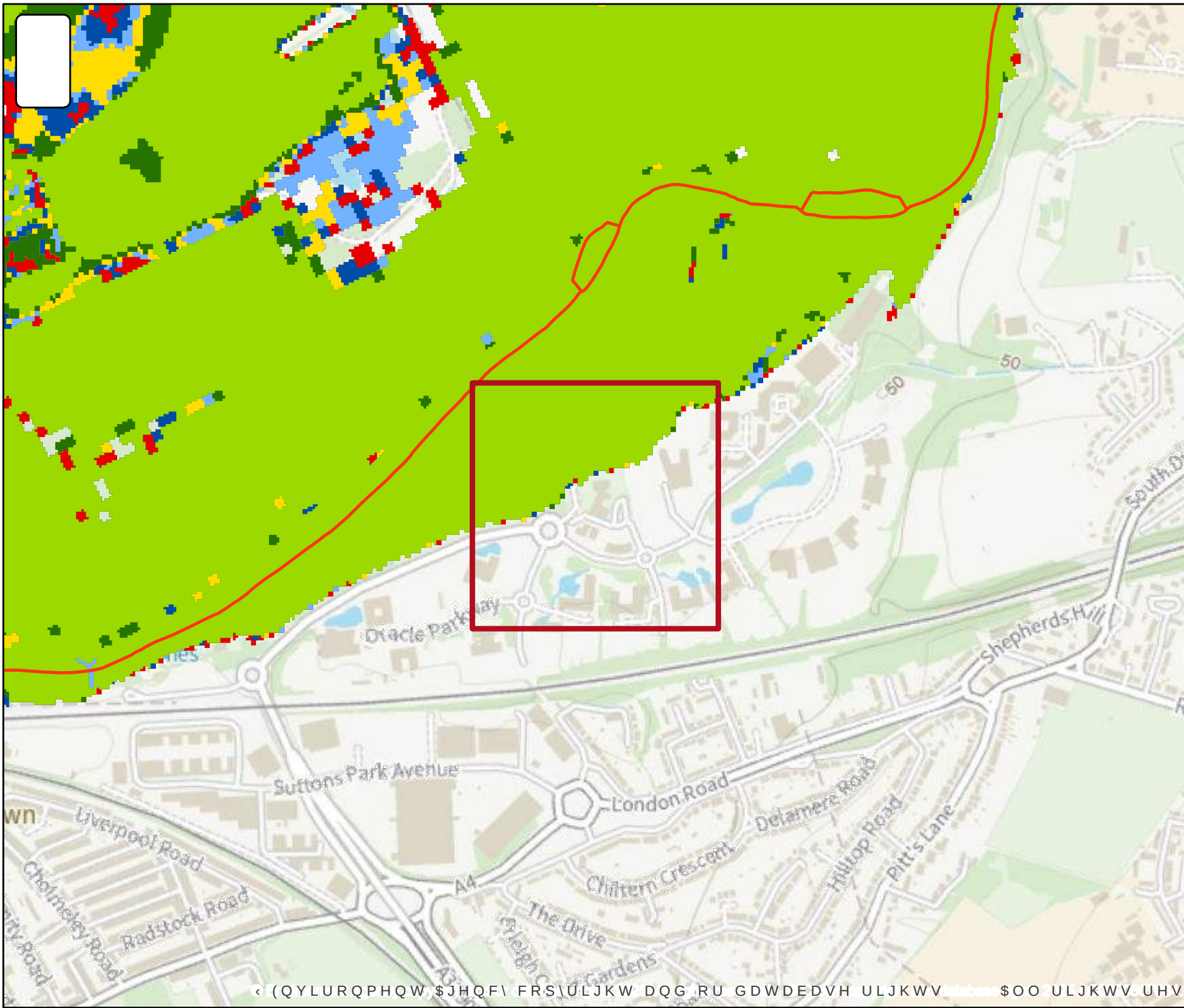
\$(3

\$(3

)ORRG H[WHQWV PDI Q
YLVLEOH ZKHU WKH
RWKHU UHWXUQ SHULF



<(QYLURQPHQW \$JHQ\ FRS\ULJKW DQG RU GDWDEDVH ULJKWV \$OO ULJKWV UHVHUYHG <PHWUHV

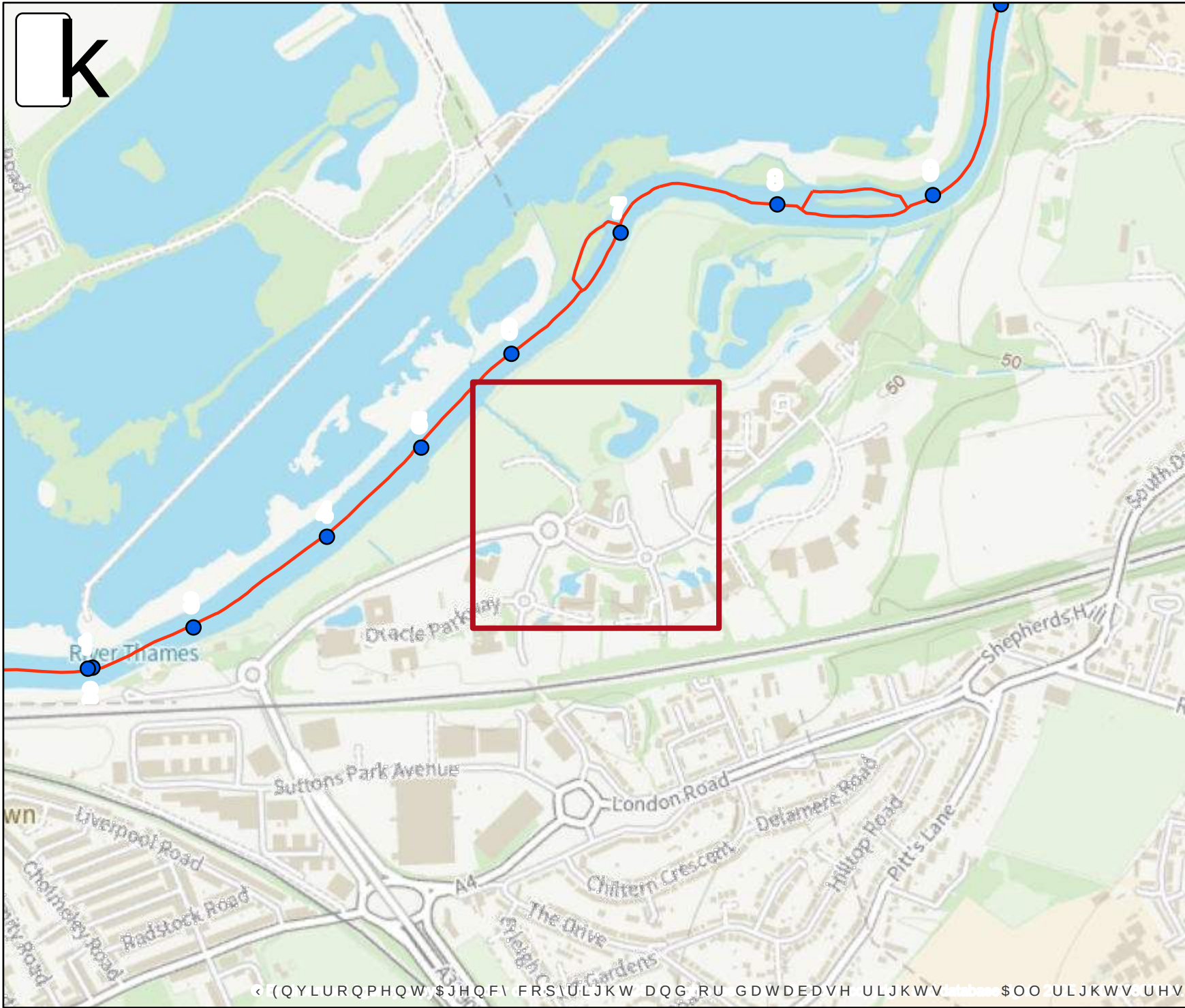


1R GHIHQFHV H[
PRGHOOHG IOXY
/RFDWLRQ HDVWLQ
6FDOH &UHDWHG
1RY
0RGHO QDPH
7KDPHV 3DQJERXU
6RQQLQJ

- 6HOHFWHG DUH
- 0DLQ ULYHU
- 0RGHOOHG IORRG
- \$(3
- \$(3
- \$(3
- \$(3
- \$(3
- \$(3

)ORRG H[WHQWV PDIQ
YLVLEOH ZKHUH WKH
RWKHU UHWXUQ SHULR





3 D J H

Modelled node locations data

No defences exist climate change

Label	Modelled location ID	Easting	Northing	1% AEP (+25%)	1% AEP (+35%)	1% AEP (+70%)	1% AEP (+25%)	1% AEP (+35%)	1% AEP (+70%)
				Level	Level	Level	Flow	Flow	Flow
1	1400403	473288	173909	36.69	36.74	36.91	401.87	433.81	529.65
2	1400315	473297	173911	36.69	36.74	36.91	401.87	433.81	529.65
3	1400303	473493	173989	36.64	36.69	36.85	355.66	379.01	456.22
4	1400304	473752	174165	36.62	36.67	36.85	310.71	326.62	388.12
5	1400353	473935	174338	36.58	36.63	36.81	265.78	275.15	313.24
6	1400394	474110	174520	36.53	36.59	36.78	229.93	234.82	262.71
7	1400357	474322	174755	36.49	36.55	36.72	192.16	199.93	233.47
8	1400459	474626	174810	36.48	36.53	36.71	170.90	171.69	191.96
9	1400305	474928	174828	36.46	36.51	36.70	166.05	166.63	171.31
10	1400445	475060	175198	36.45	36.51	36.69	153.91	156.03	162.07

Data in this table comes from the Thames (Pangbourne to Sonning) 2019 model.
 Level values are shown in mAOD, and flow values are shown in cubic metres per second.
 Any blank cells show where a particular scenario has not been modelled for this location.

k



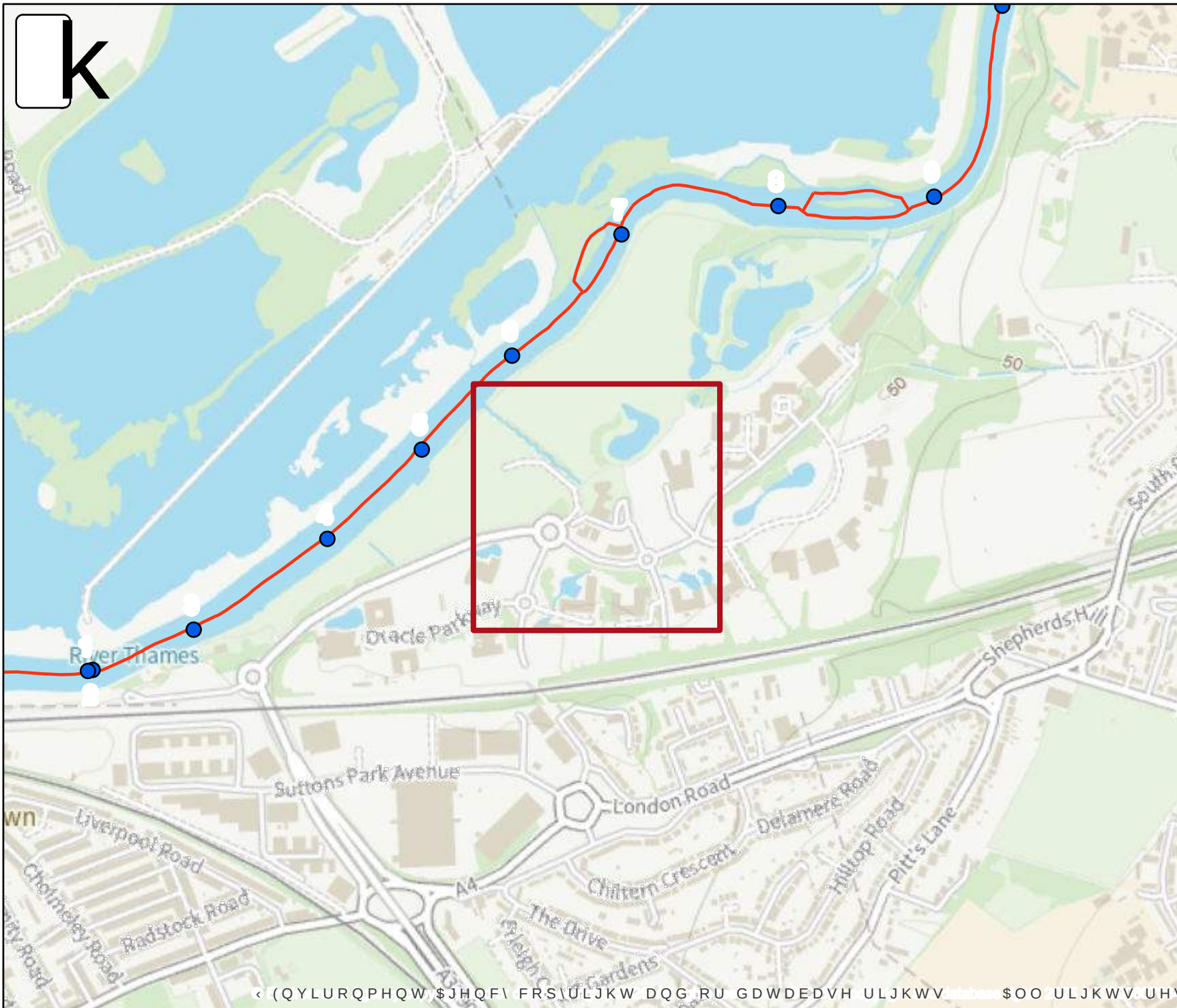
1R GHIHQFHV H
PRGHOOHG IOXY
QRGH ORFDWLRQ

/RFDWLRQ HDVWLQ

6FDOH &UHDWHG
1RY

0RGHO QDPH
7KDPHV 3DQJERXU
6RQQLQJ

6HOHFWHG DUHD
0RGHOOHG ORF
0DLQ ULYHU



<(QYLURQPHQW \$JHQ\ FRS\ULJKW DQG RU GDWDEDVH ULJKWV <P&WULJKWV SOO ULJKWV UHV HUYHG <P&WULJKW

Modelled node locations data

No defences exist

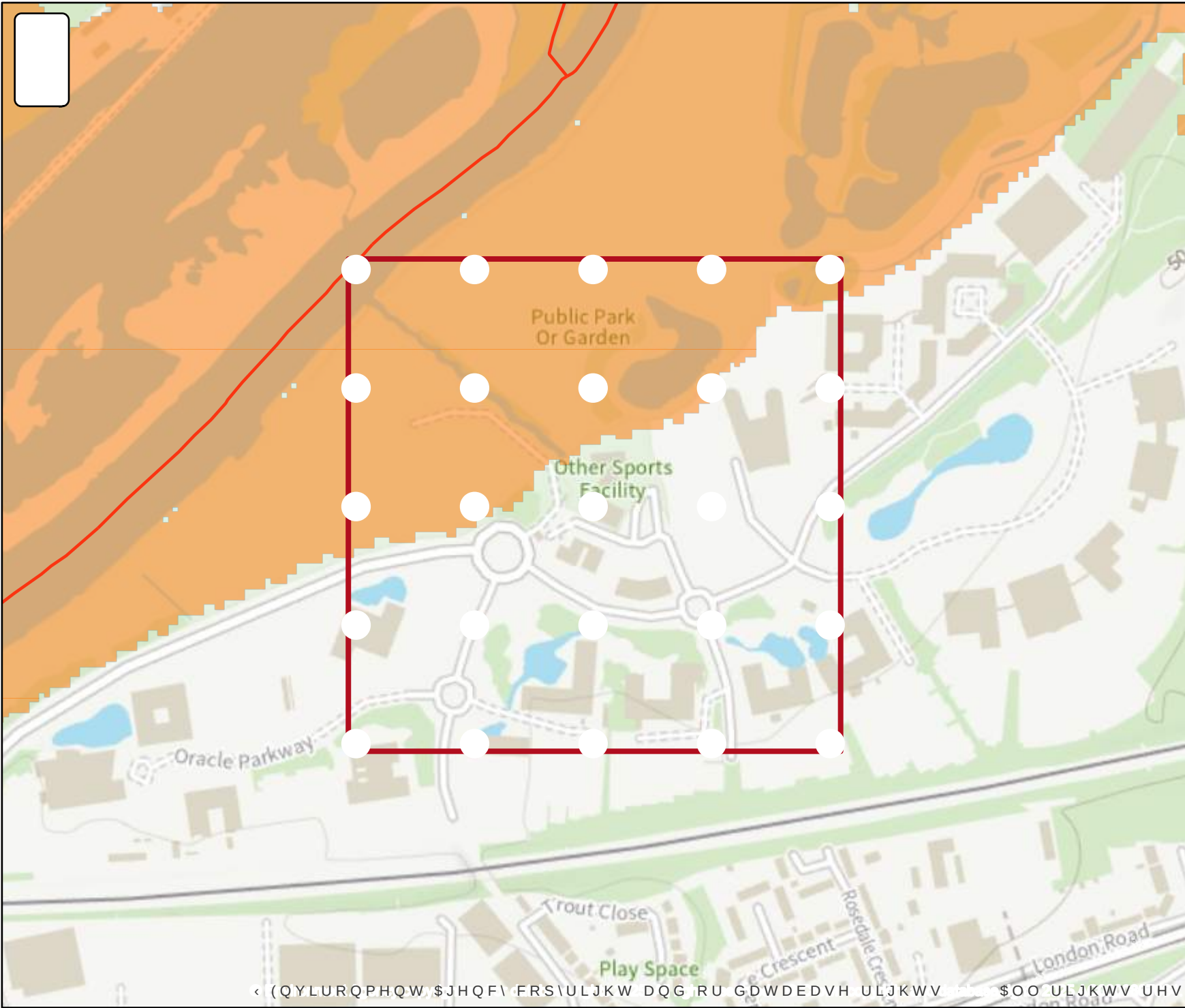
Label	Modelled location ID	Easting	Northing	20% AEP	10% AEP	5% AEP	3.33% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
				Level	Level	Level	Level	Level	Level	Level	Level	Level
1	1400403	473288	173909	36.25	36.33	36.40	36.44	36.49	36.53	36.56	36.63	36.77
2	1400315	473297	173911	36.25	36.33	36.40	36.44	36.49	36.53	36.56	36.63	36.77
3	1400303	473493	173989	36.23	36.31	36.37	36.41	36.45	36.49	36.52	36.59	36.73
4	1400304	473752	174165	36.20	36.28	36.34	36.38	36.42	36.47	36.49	36.56	36.71
5	1400353	473935	174338	36.16	36.24	36.30	36.34	36.38	36.42	36.45	36.51	36.67
6	1400394	474110	174520	36.11	36.19	36.25	36.28	36.33	36.37	36.40	36.46	36.63
7	1400357	474322	174755	36.03	36.12	36.19	36.23	36.28	36.33	36.36	36.42	36.59
8	1400459	474626	174810	35.98	36.07	36.15	36.19	36.25	36.30	36.33	36.41	36.57
9	1400305	474928	174828	35.94	36.03	36.12	36.16	36.22	36.27	36.31	36.38	36.56
10	1400445	475060	175198	35.90	36.0	36.10	36.15	36.21	36.26	36.30	36.38	36.55

Data in this table comes from the Thames (Pangbourne to Sonning) 2019 model.
Level values are shown in mAOD, and flow values are shown in cubic metres per second.
Any blank cells show where a particular scenario has not been modelled for this location.

No defences exist

Label	Modelled location ID	Easting	Northing	20% AEP	10% AEP	5% AEP	3.33% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
				Flow	Flow	Flow	Flow	Flow	Flow	Flow	Flow	Flow
1	1400403	473288	173909	183.55	203.49	229.23	246.15	274.83	301.40	313.66	357.14	457.22
2	1400315	473297	173911	183.55	203.49	229.23	246.15	274.83	301.40	313.66	357.14	457.22
3	1400303	473493	173989	173.82	190.84	213.23	230.05	254.56	274.98	283.03	321.57	397.70
4	1400304	473752	174165	171.49	186.51	203.70	216.15	234.01	248.94	258.87	286.72	339.93
5	1400353	473935	174338	168.64	179.89	192.78	201.87	213.63	225.22	233.06	252.41	283.16
6	1400394	474110	174520	166.53	175.16	183.86	189.12	197.06	206.77	211.53	223.16	239.45
7	1400357	474322	174755	163.60	168.74	169.13	169.38	172.22	175.49	177.53	184.17	206.90
8	1400459	474626	174810	165.34	170.09	170.13	170.04	169.93	169.98	170.01	170.88	171.74
9	1400305	474928	174828	161.30	165.34	165.33	165.13	165.09	165.13	165.23	166.04	166.68
10	1400445	475060	175198	150.10	150.26	150.23	150.24	150.30	150.50	150.45	150.74	157.82

Data in this table comes from the Thames (Pangbourne to Sonning) 2019 model.
Level values are shown in mAOD, and flow values are shown in cubic metres per second.
Any blank cells show where a particular scenario has not been modelled for this location.



1R GHIHQFHV H[
PRGHOOHG IOXY
H[WHQW DQG KH

/RFDWLRQ HDVWL

6FDOH &UHDWHG
1RY

0RGHO QDPH
7KDPHV 3DQJERXU
6RQQLQJ

 6HOHFWHG DU

 0DLQ ULYHU

0RGHOOHG ' JULG
:DWHU OHYHO LQ F



7KLV PDS VKRZV WKH
\$(3 KHLJKW GDWD



< (QYLURQPHQW \$JHQF\ FRS\ULJKW DQG RU GDWDEDVH ULJKWV H[SOO ULJKWV UHVHUYHG < RHWUHV ULJKW

Sample point data

No defences exist

Label	Easting	Northing	20% AEP	10% AEP	5% AEP	3.33% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Height	Height	Height	Height	Height	Height	Height	Height	Height
1	474042	173995	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
2	474157	173995	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
3	474272	173995	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
4	474387	173995	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
5	474502	173995	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
6	474042	174110	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
7	474157	174110	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
8	474272	174110	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
9	474387	174110	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
10	474502	174110	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
11	474042	174225	36.11	36.22	36.29	36.33	36.38	36.42	36.45	36.51	36.69
12	474157	174225	36.10	36.21	36.28	36.32	36.36	36.40	36.43	36.49	36.67

Label	Easting	Northing	20% AEP	10% AEP	5% AEP	3.33% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Height	Height	Height	Height	Height	Height	Height	Height	Height
13	474272	174225	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
14	474387	174225	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
15	474502	174225	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
16	474042	174340	36.11	36.22	36.29	36.33	36.37	36.41	36.44	36.50	36.68
17	474157	174340	36.09	36.20	36.27	36.31	36.35	36.40	36.42	36.49	36.67
18	474272	174340	36.06	36.16	36.24	36.28	36.33	36.37	36.40	36.47	36.65
19	474387	174340	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
20	474502	174340	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
21	474042	174455	36.12	36.21	36.28	36.32	36.36	36.40	36.43	36.49	36.67
22	474157	174455	36.10	36.20	36.26	36.30	36.34	36.38	36.41	36.48	36.66
23	474272	174455	36.06	36.16	36.23	36.27	36.32	36.37	36.39	36.46	36.64
24	474387	174455	36.06	36.15	36.22	36.26	36.31	36.36	36.39	36.46	36.63

Label	Easting	Northing	20% AEP	10% AEP	5% AEP	3.33% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Height	Height	Height	Height	Height	Height	Height	Height	Height
25	474502	174455	36.04	36.13	36.19	36.24	36.29	36.33	36.37	36.44	36.61
Max value in selected area:			36.13	36.23	36.30	36.33	36.38	36.42	36.45	36.51	36.69

Data in this table comes from the Thames (Pangbourne to Sonning) 2019 model. Height values are shown in mAOD, and depth values are shown in metres.

Any blank cells show where a particular scenario has not been modelled for this location.

Cells which contain text 'NoData' for a scenario show that return period has been modelled but there is no flood risk for that return period for that location.

'Max value in selected area' is the deepest depth or highest height at any location within your drawn boundary.

No defences exist

Label	Easting	Northing	20% AEP	10% AEP	5% AEP	3.33% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
1	474042	173995	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
2	474157	173995	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
3	474272	173995	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
4	474387	173995	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
5	474502	173995	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
6	474042	174110	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
7	474157	174110	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
8	474272	174110	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
9	474387	174110	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
10	474502	174110	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
11	474042	174225	0.57	0.69	0.76	0.80	0.84	0.88	0.91	0.97	1.15
12	474157	174225	0.35	0.46	0.53	0.57	0.62	0.66	0.68	0.75	0.93

Label	Easting	Northing	20% AEP	10% AEP	5% AEP	3.33% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
13	474272	174225	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
14	474387	174225	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
15	474502	174225	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
16	474042	174340	0.08	0.19	0.26	0.30	0.34	0.38	0.41	0.47	0.65
17	474157	174340	0.64	0.75	0.82	0.86	0.90	0.95	0.97	1.04	1.22
18	474272	174340	0.79	0.89	0.96	1.00	1.05	1.10	1.12	1.19	1.37
19	474387	174340	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
20	474502	174340	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
21	474042	174455	3.86	3.95	4.01	4.05	4.09	4.13	4.16	4.22	4.39
22	474157	174455	0.04	0.14	0.20	0.24	0.29	0.33	0.35	0.42	0.60
23	474272	174455	0.45	0.55	0.62	0.66	0.71	0.75	0.78	0.85	1.03
24	474387	174455	0.58	0.68	0.75	0.79	0.84	0.88	0.91	0.98	1.16

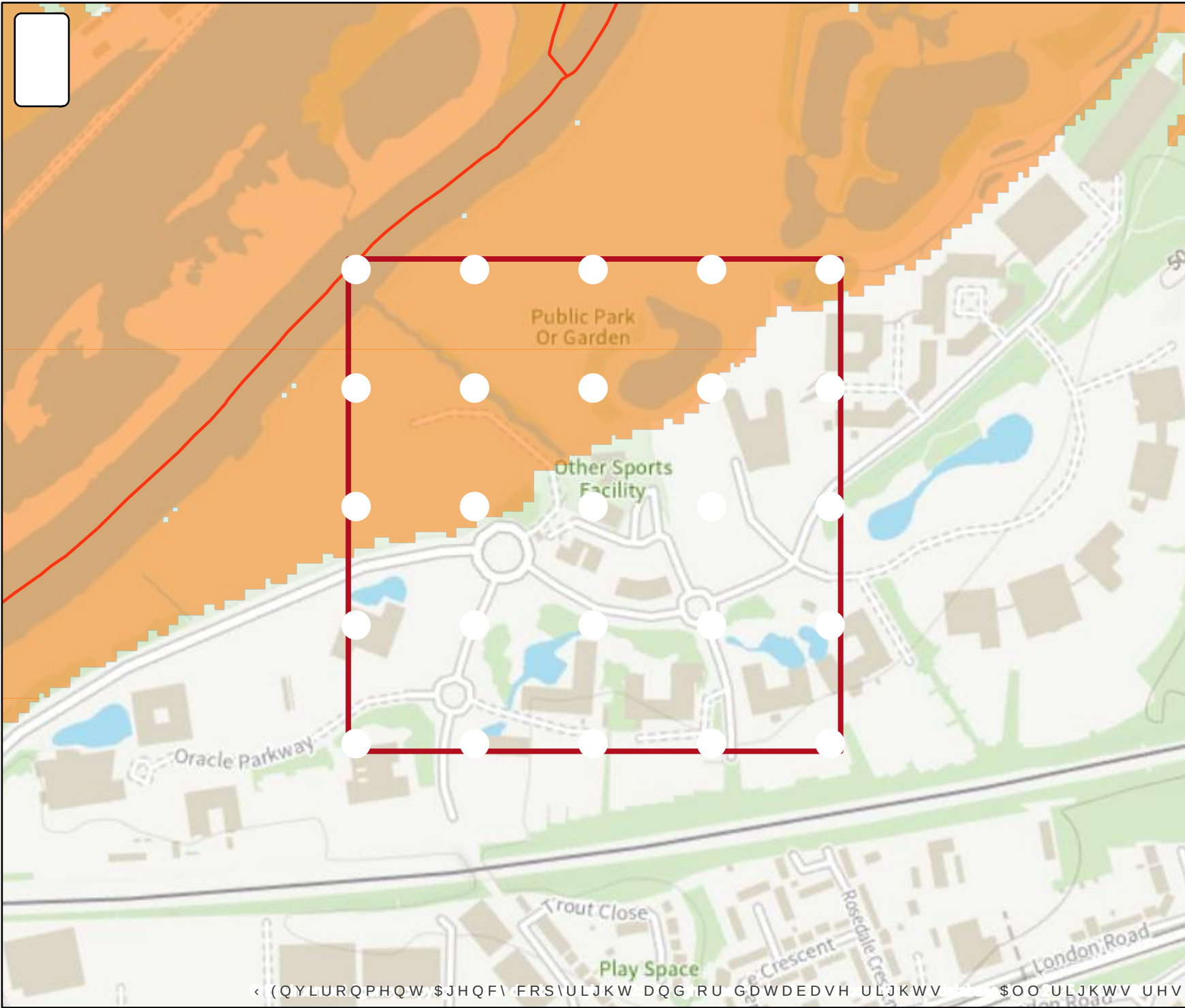
Label	Easting	Northing	20% AEP	10% AEP	5% AEP	3.33% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
25	474502	174455	0.34	0.43	0.50	0.54	0.60	0.64	0.67	0.74	0.92
Max value in selected area:			3.90	3.99	4.06	4.09	4.14	4.18	4.20	4.27	4.45

Data in this table comes from the Thames (Pangbourne to Sonning) 2019 model. Height values are shown in mAOD, and depth values are shown in metres.

Any blank cells show where a particular scenario has not been modelled for this location.

Cells which contain text 'NoData' for a scenario show that return period has been modelled but there is no flood risk for that return period for that location.

'Max value in selected area' is the deepest depth or highest height at any location within your drawn boundary.



1R GHIHQFHV H[
FOLPDWH FKDOJ
PRGHOOHG IOXY
H[WHQW DQG KH
/RFDWLRQ HDVWLQ

6FDOH &UHDWHG
1RY
0RGHO QDPH
7KDPHV 3DQJERXU
6RQQLQJ

6HOHFWHG DU
0DLQ ULYHU
0RGHOOHG ' JULG
:DWHU OHYHO LQ F



7KLV PDS VKRZV WKH
\$(3 KHLJKW GDW



< (QYLURQHFW \$JHQF\ FRS\ULJKW DQG RU GDWDEDVH ULJKWV H[SOO ULJKWV UHVHUYHG < RHWUHV ULJKW

Sample point data

No defences exist climate change

Label	Easting	Northing	1% AEP (+25%)	1% AEP (+35%)	1% AEP (+70%)	1% AEP (+25%)	1% AEP (+35%)	1% AEP (+70%)
			Height	Height	Height	Depth	Depth	Depth
1	474042	173995	NoData	NoData	NoData	NoData	NoData	NoData
2	474157	173995	NoData	NoData	NoData	NoData	NoData	NoData
3	474272	173995	NoData	NoData	NoData	NoData	NoData	NoData
4	474387	173995	NoData	NoData	NoData	NoData	NoData	NoData
5	474502	173995	NoData	NoData	NoData	NoData	NoData	NoData
6	474042	174110	NoData	NoData	NoData	NoData	NoData	NoData
7	474157	174110	NoData	NoData	NoData	NoData	NoData	NoData
8	474272	174110	NoData	NoData	NoData	NoData	NoData	NoData
9	474387	174110	NoData	NoData	NoData	NoData	NoData	NoData
10	474502	174110	NoData	NoData	NoData	NoData	NoData	NoData
11	474042	174225	36.58	36.64	36.83	1.05	1.10	1.29
12	474157	174225	36.57	36.63	36.81	0.82	0.88	1.07

Label	Easting	Northing	1% AEP (+25%)	1% AEP (+35%)	1% AEP (+70%)	1% AEP (+25%)	1% AEP (+35%)	1% AEP (+70%)
			Height	Height	Height	Depth	Depth	Depth
13	474272	174225	NoData	NoData	NoData	NoData	NoData	NoData
14	474387	174225	NoData	NoData	NoData	NoData	NoData	NoData
15	474502	174225	NoData	NoData	NoData	NoData	NoData	NoData
16	474042	174340	36.58	36.63	36.82	0.55	0.61	0.80
17	474157	174340	36.56	36.62	36.81	1.11	1.17	1.36
18	474272	174340	36.54	36.60	36.78	1.27	1.33	1.51
19	474387	174340	NoData	NoData	NoData	NoData	NoData	NoData
20	474502	174340	NoData	NoData	NoData	NoData	NoData	NoData
21	474042	174455	36.57	36.62	36.81	4.30	4.35	4.53
22	474157	174455	36.55	36.61	36.80	0.50	0.56	0.74
23	474272	174455	36.54	36.60	36.78	0.93	0.98	1.17
24	474387	174455	36.53	36.59	36.77	1.06	1.11	1.29

Label	Easting	Northing	1% AEP (+25%)	1% AEP (+35%)	1% AEP (+70%)	1% AEP (+25%)	1% AEP (+35%)	1% AEP (+70%)
			Height	Height	Height	Depth	Depth	Depth
25	474502	174455	36.52	36.57	36.75	0.82	0.88	1.05
Max value in selected area:			36.59	36.64	36.83	4.34	4.40	4.59

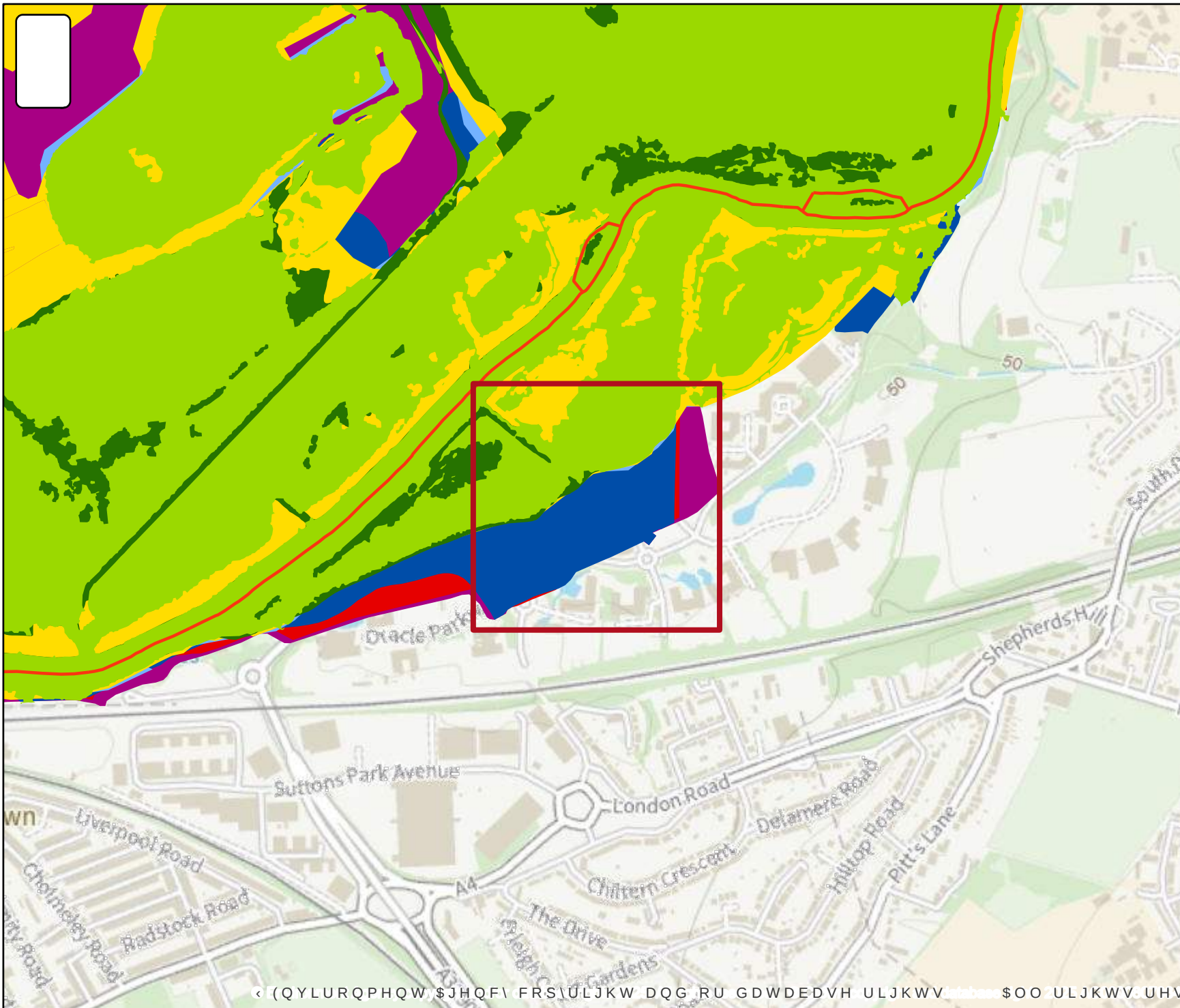
Data in this table comes from the Thames (Pangbourne to Sonning) 2019 model. Height values are shown in mAOD, and depth values are shown in metres.

Any blank cells show where a particular scenario has not been modelled for this location.

Cells which contain text 'NoData' for a scenario show that return period has been modelled but there is no flood risk for that return period for that location.

'Max value in selected area' is the deepest depth or highest height at any location within your drawn boundary.

APPENDIX M – HISTORIC FLOODING
















< (QYLURQPHQW \$JHQF\ FRS ULJKW DQG RU GDWDEDVH ULJKWV \$OO ULJKWV UHV HUYHG < P HWOH S ULJKW

3 D J H

Data on past flood events

Start date	End date	Source of flood	Cause of flood	Affects location
23 November 2013	28 February 2014	main river	channel capacity exceeded (no raised defences)	Yes
19 July 2007	29 July 2007	main river	channel capacity exceeded (no raised defences)	Yes
23 December 2002	12 January 2003	main river	channel capacity exceeded (no raised defences)	Yes
2000	2000	main river	channel capacity exceeded (no raised defences)	Yes
1977	1977	main river	channel capacity exceeded (no raised defences)	Yes
1974	1974	main river	channel capacity exceeded (no raised defences)	Yes
1947	1947	main river	channel capacity exceeded (no raised defences)	Yes

APPENDIX N – EA HAZARD MAP

Hazard Mapping

EIR2025/42365

Hazard Mapping methodology:

To calculate flood hazard with the debris factor we have used the supplementary note to Flood Risk to People Methodology (see below).

The following calculation is used:

$$HR = d \times (v+0.5) + DF$$

Where HR = flood hazard rating

d = depth of flooding (m)

v = velocity of floodwaters (m/sec)

DF = debris factor calculated (0, 0.5, 1 depending on probability that debris will lead to a hazard)

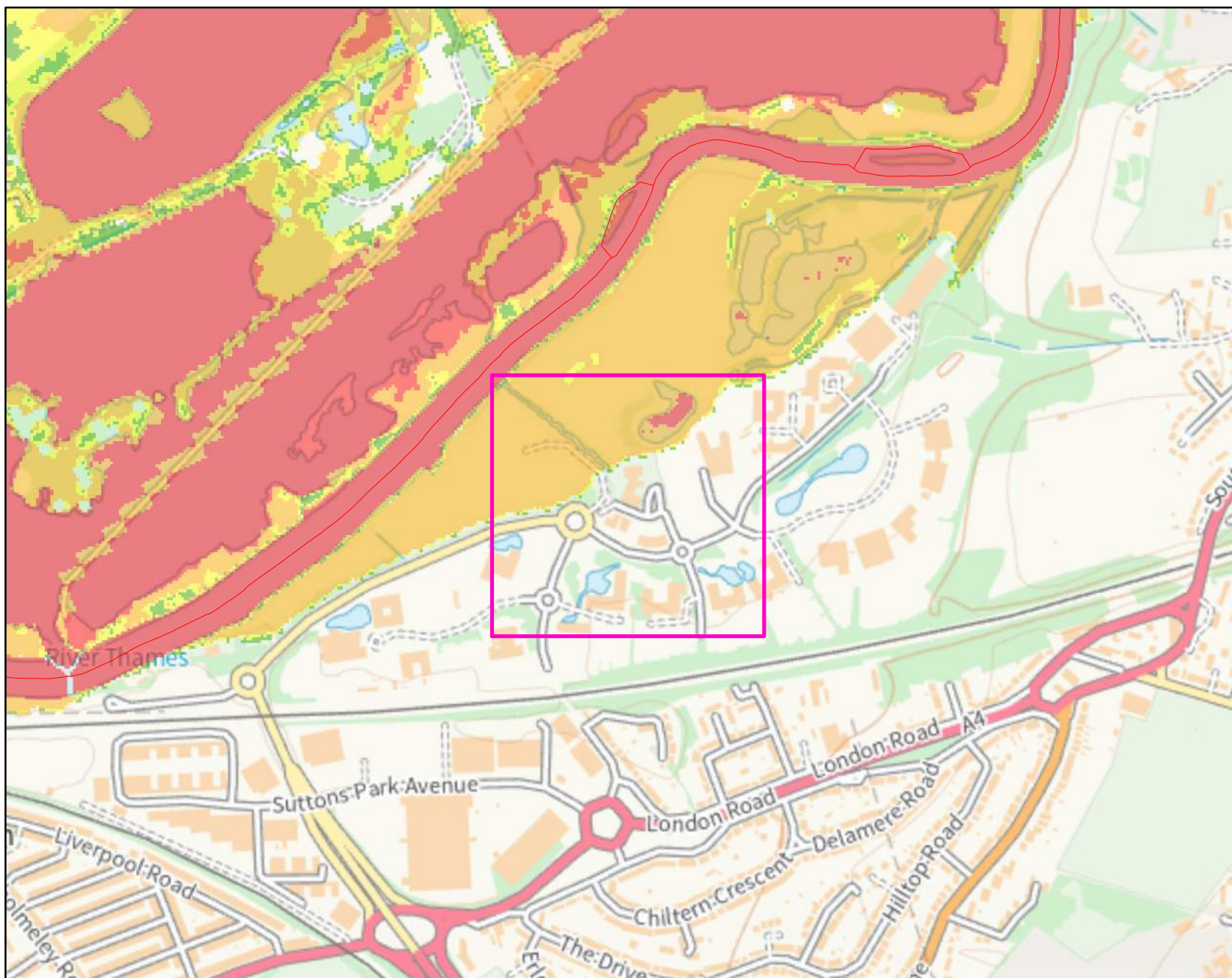
The resultant hazard rating is then classified according to:

Flood Hazard	Colour	Hazard to People Classification
Less than 0.75	Green	Very low hazard - Caution
0.75 to 1.25	Yellow	Danger for some - includes children, the elderly and the infirm
1.25 to 2.0	Orange	Danger for most - includes the general public
More than 2.0	Red	Danger for all - includes the emergency services

REF: HR Wallingford and Environment Agency (May 2008) Supplementary note of flood hazard ratings and thresholds for development planning and control purpose – Clarification of the Table 113.1 of FD2320/TR2 and Figure 3.2 of FD2321/TR1

Hazard Map for the 1% AEP + 35% climate change event centred on land at SU7427374226

Created on 25/11/25 REF: EIR2025/42365



Legend

- Site Boundary
- Statutory Main Rivers
- Very low hazard – Caution
- Danger for some – includes children, the elderly and the infirm
- Danger for most – includes the general public
- Danger for all – includes the emergency services

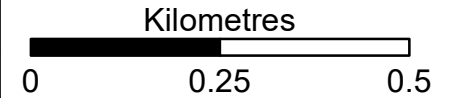
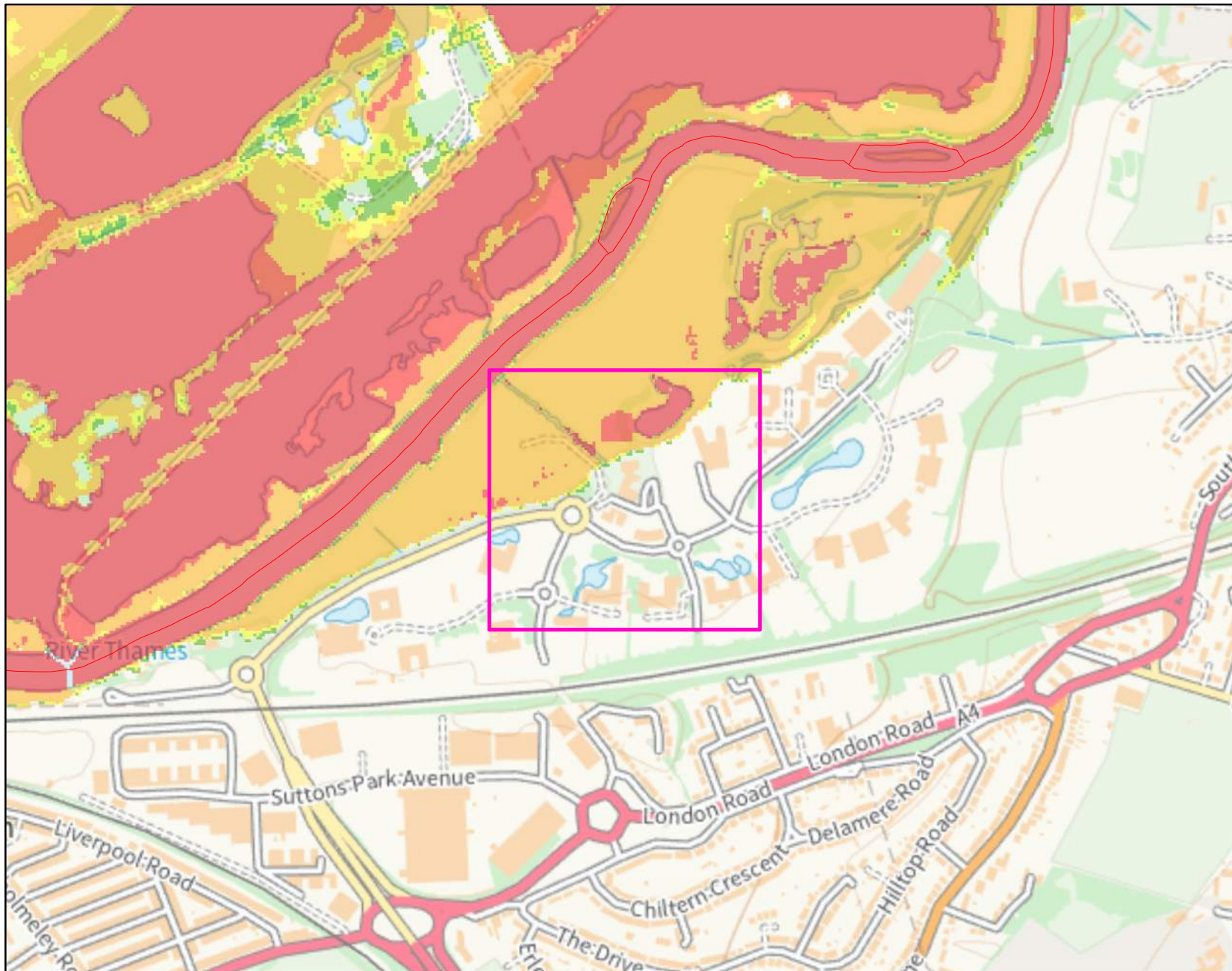
For hazard and debris factor we used HR Wallingford and Environment Agency (May 2008) supplementary note on flood hazard ratings and thresholds for development planning and control purpose. The following calculation is used:

$$HR = d \times (v + 0.5) + DF$$

HR = flood hazard rating
d = depth of flooding (m)
v = velocity of floodwaters (m/sec)
DF = debris factor calculated (0, 0.5, 1 depending on probability that debris will lead to a hazard)

Hazard Map for the 1% AEP + 70% climate change event centred on land at SU7427374226

Created on 25/11/25 REF: EIR2025/42365



Legend

- Site Boundary
- Statutory Main Rivers
- Very low hazard – Caution
- Danger for some – includes children, the elderly and the infirm
- Danger for most – includes the general public
- Danger for all – includes the emergency services

For hazard and debris factor we used HR Wallingford and Environment Agency (May 2008) supplementary note on flood hazard ratings and thresholds for development planning and control purpose. The following calculation is used:

$$HR = d \times (v + 0.5) + DF$$

HR = flood hazard rating
d = depth of flooding (m)
v = velocity of floodwaters (m/sec)
DF = debris factor calculated (0, 0.5, 1 depending on probability that debris will lead to a hazard)