

TECHNICAL NOTE

Job Name: Norman Place, Reading
Job No: 332610561
Note No: TN003
Date: January 2025
Prepared By: Richard Fisher
Subject: **FLOOD RISK ASSESSMENT (FRA) LETTER REPORT**
2 NORMAN PLACE - PROPOSED CAR PARK CHANGE OF USE

1. Introduction

This Flood Risk Assessment (FRA) Technical Note has been prepared by Stantec UK Limited (Stantec) to summarise the flood risk and demonstrate compliance with planning policy for the proposed change of use of the car park at the former COVEA Building, Norman Place, Reading ("the site").

The proposal is described as retrospective change of use of existing car park associated with the former office premises to public car park (Sui Generis). The temporary consent period will be for up to three years or upon vacation of the operation to allow the wider site redevelopment to comment, whichever is sooner. The FRA follows the standing advice for 'vulnerable' developments located via the national planning guidance here:

<https://www.gov.uk/guidance/flood-risk-assessment-standing-advice#standing-advice-for-vulnerable-developments>

Stantec has many years of experience in, amongst other areas, the assessment of flood risk, hydrology, flood defence and river engineering. The authors and reviewers of this letter are experienced engineers and are members of the Chartered Institution of Water and Environmental Management (CIWEM).

This assessment has been prepared in accordance with the National Planning Policy Framework (NPPF) and the Planning Practice Guidance (PPG) 'Flood Risk and Coastal Change' section.

2. Planning Policy Context

2.1 - National Policy and Guidance

National policy in relation to flood risk is contained within the National Planning Policy Framework (NPPF), updated December, issued by the Ministry of Housing, Communities and Local Government, with reference to Section 14 'Meeting the challenge of climate change, flooding and coastal change'.

The associated Planning Practice Guidance (PPG), with reference to the 'Flood Risk and Coastal Change' section, was last updated in August 2022. In May 2022, the guidance within the PPG on the application of climate change allowances in FRAs was significantly updated:

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

The guidance provides contingency allowances for the potential increases in peak river flow, peak rainfall intensity and sea level rise which are considered accordingly subject to the site conditions – discussed further in **Section 4**.

2.2 - Local Planning Policy

Local planning policy is contained within the Reading Borough Local Plan adopted November 2019, with specific reference to Policy EN18 'Flooding and Sustainable Drainage Systems', which states:

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“Development will be directed to areas at lowest risk of flooding in the first instance, following the Sequential and Exceptions Test set out in the NPPF, and taking into account the effects of climate change. It will consider flooding from all sources, including fluvial, surface water, groundwater, and sewer flooding. Where development in areas at risk of flooding is necessary, it will not reduce the capacity of the flood plain to store floodwater, impede the flow of floodwater or in any way increase the risks to life and property arising from flooding. Wherever possible, development should be designed to reduce flood risk, both on- and off-site..”.

3. Site Setting

The site is located at No 2 Norman Place, off the A329 Vastern Road, postcode RG1 8DA, site centre OS grid reference 471,670m E, 174,060m N.

The site consists of the car park associated with the former Covea Insurance Building, located between the building and the Vastern Road footpath and accessed off Norman Place to the immediate west.

A topographic survey undertaken for the wider site confirms the carpark ground levels are at 38.50m AOD to 38.60m AOD, rising up from a level on the Vastern Road footpath of 37.9m AOD.

4. Overview of Flood Risk

4.1 Fluvial (River) Flood Risk

The first phase in identifying whether a site is potentially at risk of flooding is to consult the GOV.UK 'Flood Map for Planning' website. This provides an initial indication of the extent of the Flood Zones, which identify the probability of flooding from rivers or the sea – see appended Opendata Flood Maps (**Appendix A**).

The site lies mainly within Flood Zone 1 'Low Probability'. Small areas along the eastern boundary are impacted by Flood Zone 2 'Medium Probability' and Flood Zone 3 'High Probability'. Vastern Road on the southern side of the site is in Flood Zone 2 'Medium Probability'.

Stantec has extracted modelled flood extents from the River Thames (Pangbourne to Sonning) 2019 1D-2D hydraulic model.

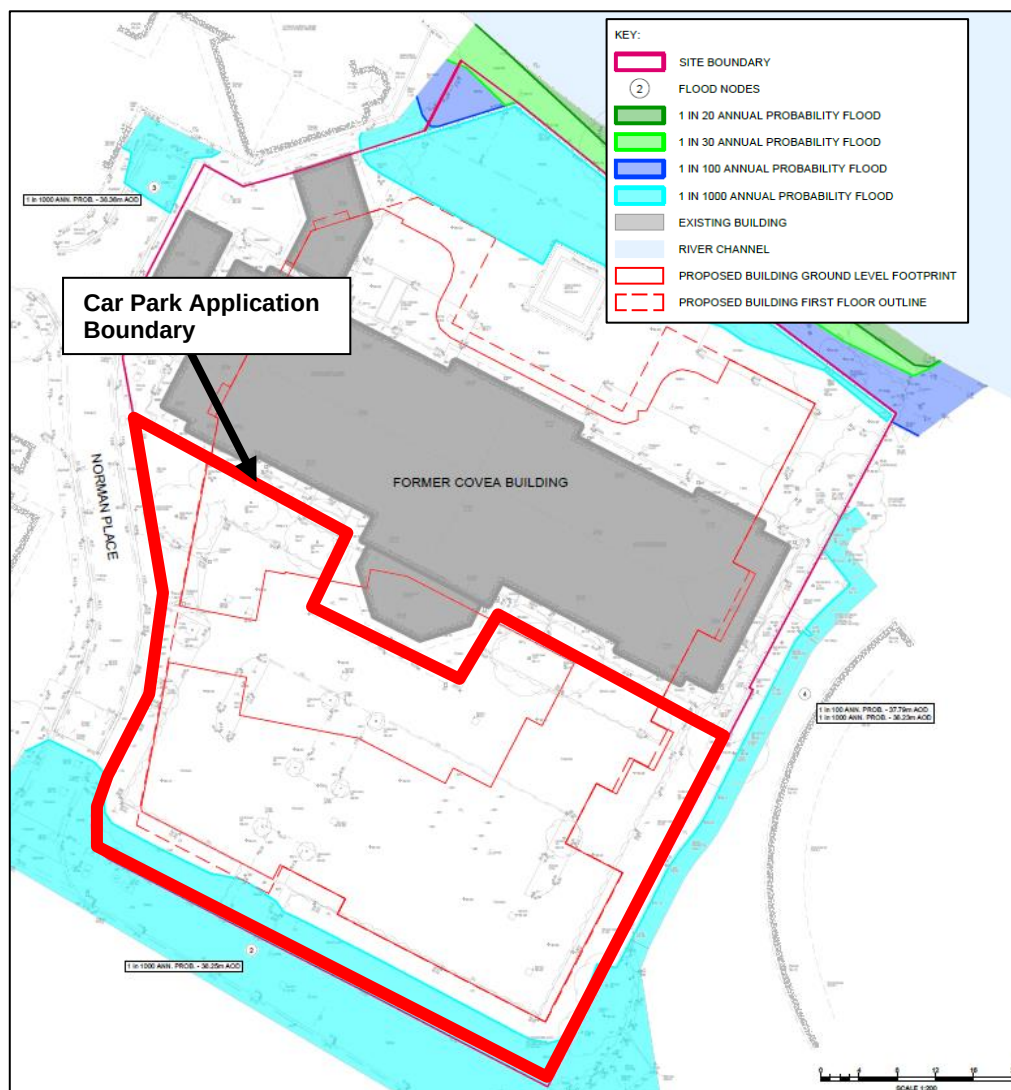
In the present day scenarios, the modelled data confirms the car park area is unaffected by events up to and including the 1 in 100 Annual Probability (AP) flood events, which are contained to the low lying ground alongside the River Thames to the north.

However, in the extreme 1 in 1000 AP event, flooding occurs down Vastern Road to a level of 38.25m AOD. In this event, the main car park area remains unaffected by flooding, but the adjacent Vastern Road footpath is impacted by up to 350mm.

The detailed flood extents are shown in **Figure 1**.

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Figure 1: Modelled Flood Extents - Present Day - Detailed



Climate change guidance for the area requires an increase in peak river flow of +31% over the next 100-year period. The EA-modelled 1 in 100 AP +31% climate change floodplain is consistent with the extreme 1 in 1000 AP event in the vicinity of the site, and the main car park area is outside this floodplain.

The 1 in 100 AP +31% climate change flood level of 38.20m AOD on Vastern Road is lower than the 1 in 1000 AP equivalent, and results in flood depths of up to 300mm on the Vastern Road footpath.

4.2 Flood Risk from Reservoirs and Artificial Sources

The EA reservoir maps show two flooding scenarios, a 'dry-day' and a 'wet-day'. The 'dry-day' scenario predicts the flooding that would occur if the dam or reservoir failed when rivers are at normal levels. The 'wet day' scenario predicts how much worse the flooding might be if a river is already experiencing an extreme natural flood.

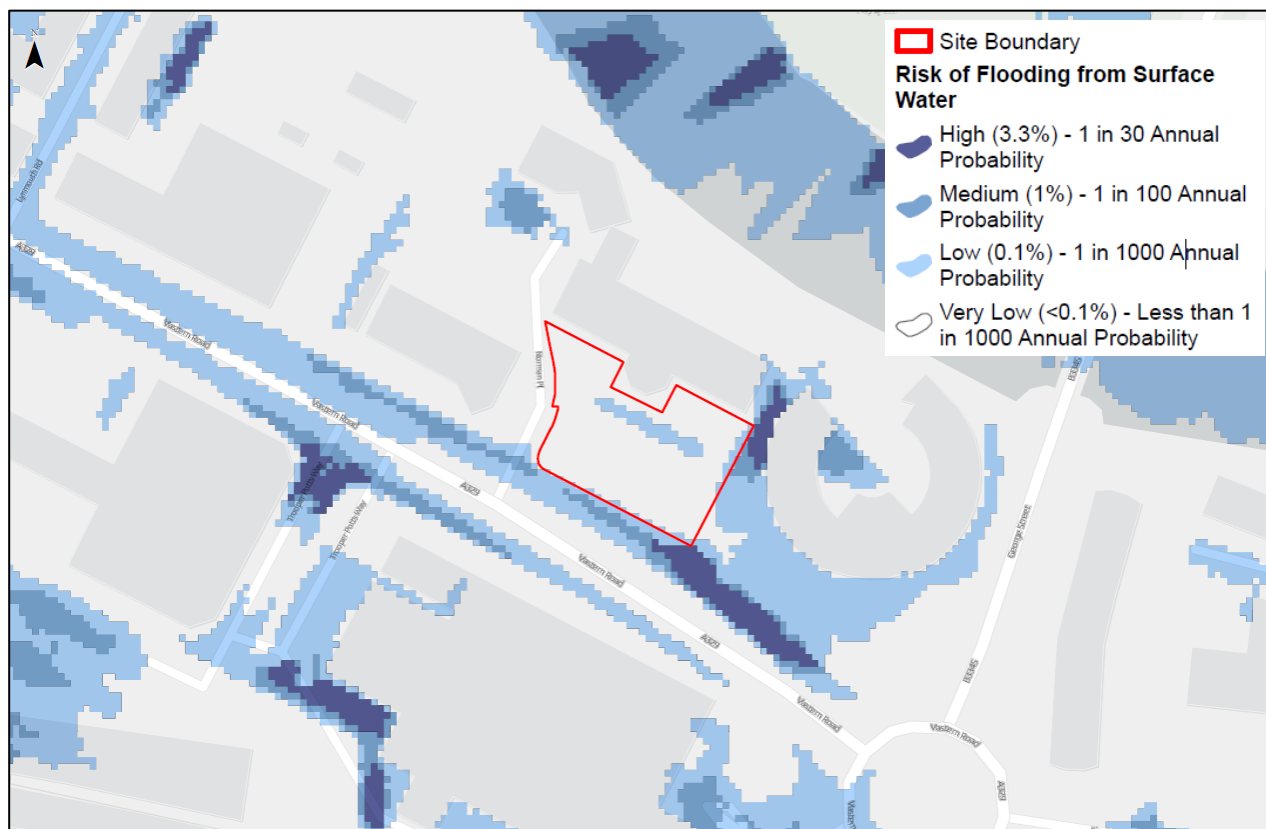
The mapping confirms the site is not at risk of reservoir breach during a 'dry-day' scenario, but the site is at risk of flooding during a 'wet-day' scenario. However, the risk of flooding from a reservoir breach is very small as there is a mandatory requirement through the Reservoirs Act (1975) for all large, raised reservoirs to be inspected and supervised by reservoir panel engineers. The reservoir owner has a duty of care under the Health and Safety at Work Act 1974 to ensure others are not placed at risk from their assets or actions.

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4.3 Pluvial (Surface Water) Flood Risk

The EA 'Risk of Flooding from Surface Water' (RFfSW) map shows where areas could be potentially susceptible to surface water flooding in an extreme rainfall event. **Figure 2** indicates that the site is predicted to be at a 'Very Low' risk of surface water flooding, although a narrow area in the low point along the car park is shown as 'Low' risk.

Figure 2: Risk of Flooding from Surface Water Map



4.4 Flood Risk from Groundwater

The Reading Strategic Flood Risk Assessment (SFRA), dated 2017, Map F_8 provides a high-level overview of areas susceptible to ground water flooding, taken from a national dataset and based on topography and geological conditions across 1km grid squares. The site is shown in an area at 'between 25% and 50% susceptibility, but this analysis is not based on any detailed modelling, or on any records of groundwater flooding.

From consideration of the local geomorphological and topographical setting of the site, it is anticipated that groundwater level will be broadly consistent with the typical river level at approximately 36.6m AOD (based on the SHWL), over 1.5m below the typical site level, although locally higher water levels may be present following periods of prolonged rainfall and elevated river levels.

As such, and since the site is outside all modelled fluvial flood events, the groundwater flood risk is considered to be low.

4.5 Flood Risk from Sewers

Reading SFRA Map F_9 provides a summary of Thames Water sewer flooding incidents by postcode, indicating the postcode area of the site has between 21-50 recorded sewer flooding incidents from both internal and external sources. Given the nature and topography of the site, sewer flood risk is considered to be low.

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5. Flood Risk Vulnerability & NPPF Sequential Test

NPPF Annex 3 confirms the '*Flood risk vulnerability classification*' of a site, depending upon the proposed usage. This classification is subsequently applied to PPG 'Flood Risk and Coastal Change' Table 2 to determine whether:

- The proposed development is 'compatible' for the Flood Zone in which it is located, and;
- Whether an Exception Test is required for the proposed development

The proposed development is classed as 'Less Vulnerable' under Annex 3 ('*car parks*')

This form of development is appropriate in Flood Zone 1, 2 and 3a. As a change of use the Sequential Test is not applicable.

6. Summary

The proposal is for retrospective change of use of existing car park associated with the former office premises to public car park (Sui Generis).

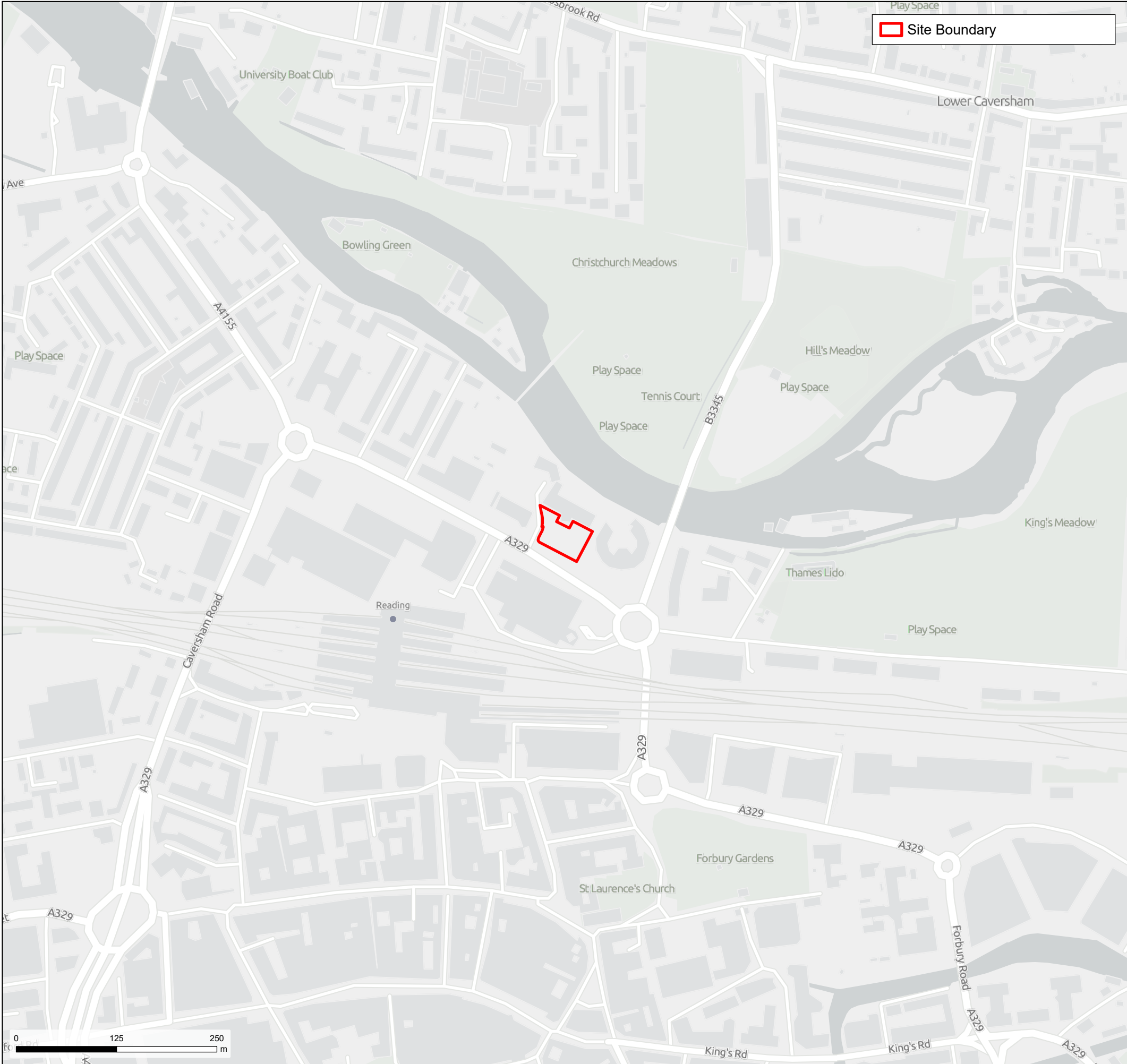
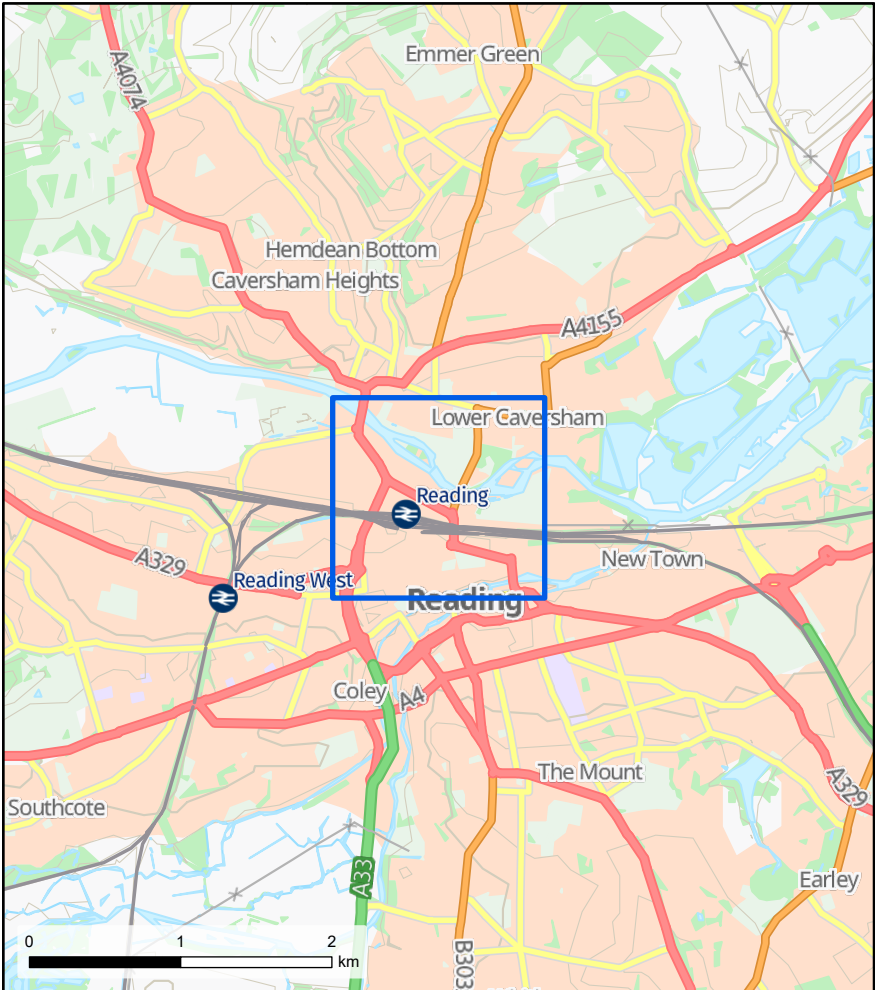
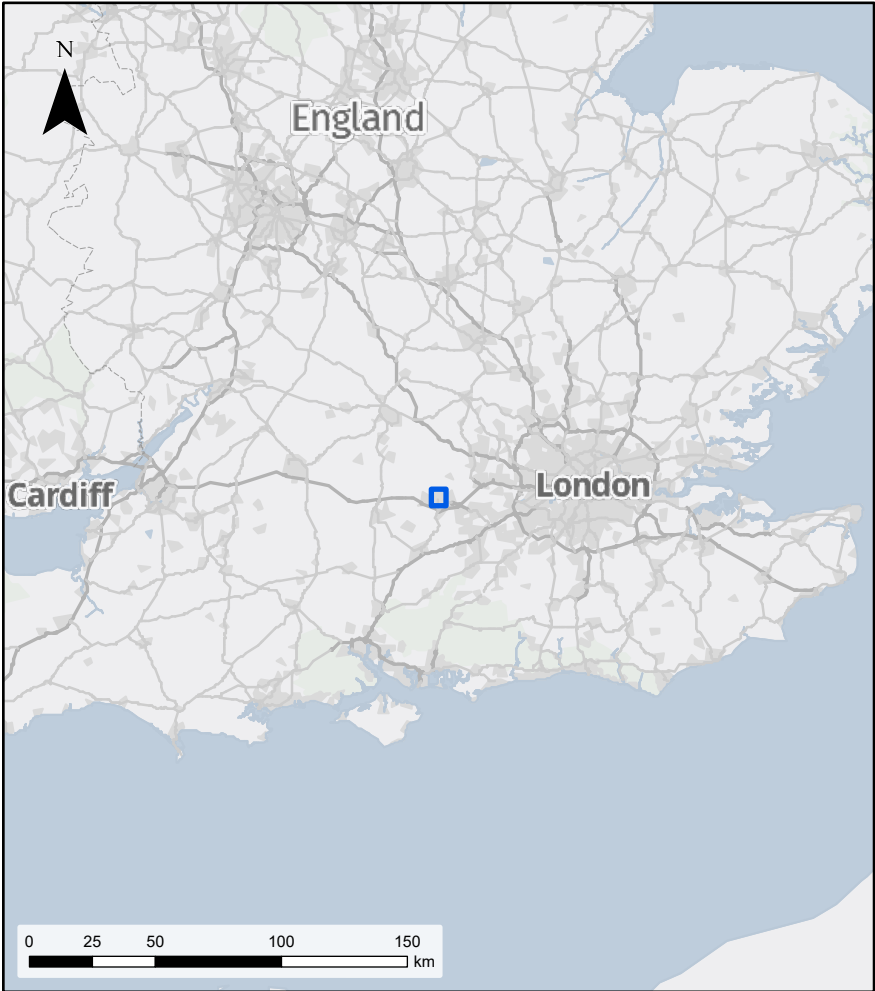
The site lies almost all within Flood Zone 1 'Low Probability', but the site boundary with Vastern Road lies within the 1 in 1000 annual probability floodplain (Flood Zone 2 'Medium Probability'). The site is at low risk of flooding from other sources.

The development is a 'less vulnerable' use, which is appropriate within Flood Zones 1, 2 and 3a, and as a change of use the Sequential Test is not applicable.

As the proposals involve no changes to ground level or modification of the existing formalised surface water drainage arrangements, there will be no detrimental impact on flood risk and the proposals comply with national and local planning policy.

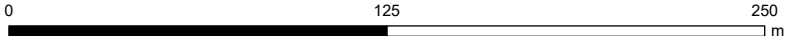
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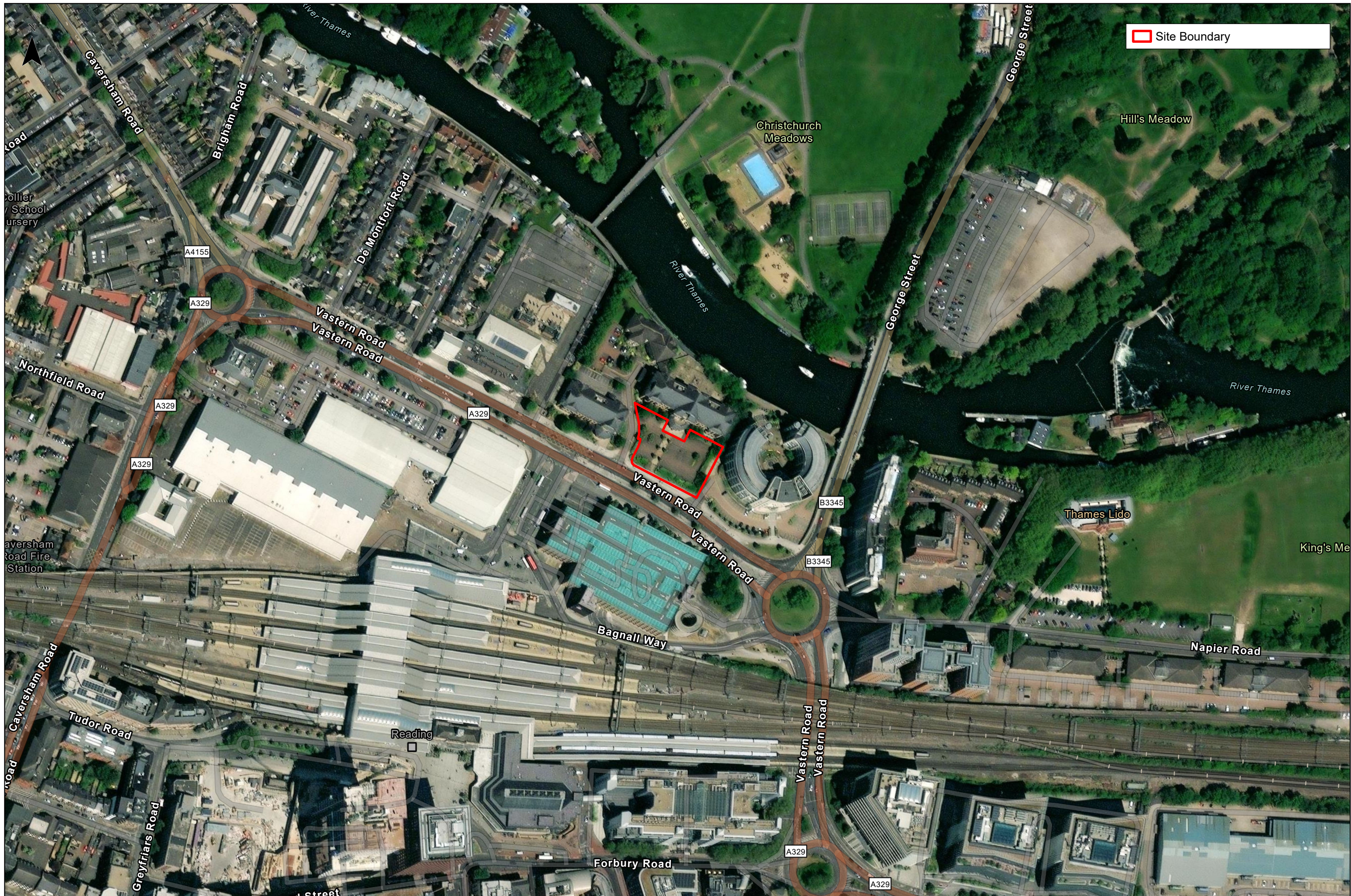
Appendix A – Opendata GIS Flood Maps





 Site Boundary

		CAR PARK SCHEME Site Location (Detailed)	 Contains OS data © Crown Copyright and database right 2025 Contains data from OS Zoomstack		Date: 22/01/2025
			1:2,500 @ A3		Checked: RMF
			Figure: 01.1		Rev: A

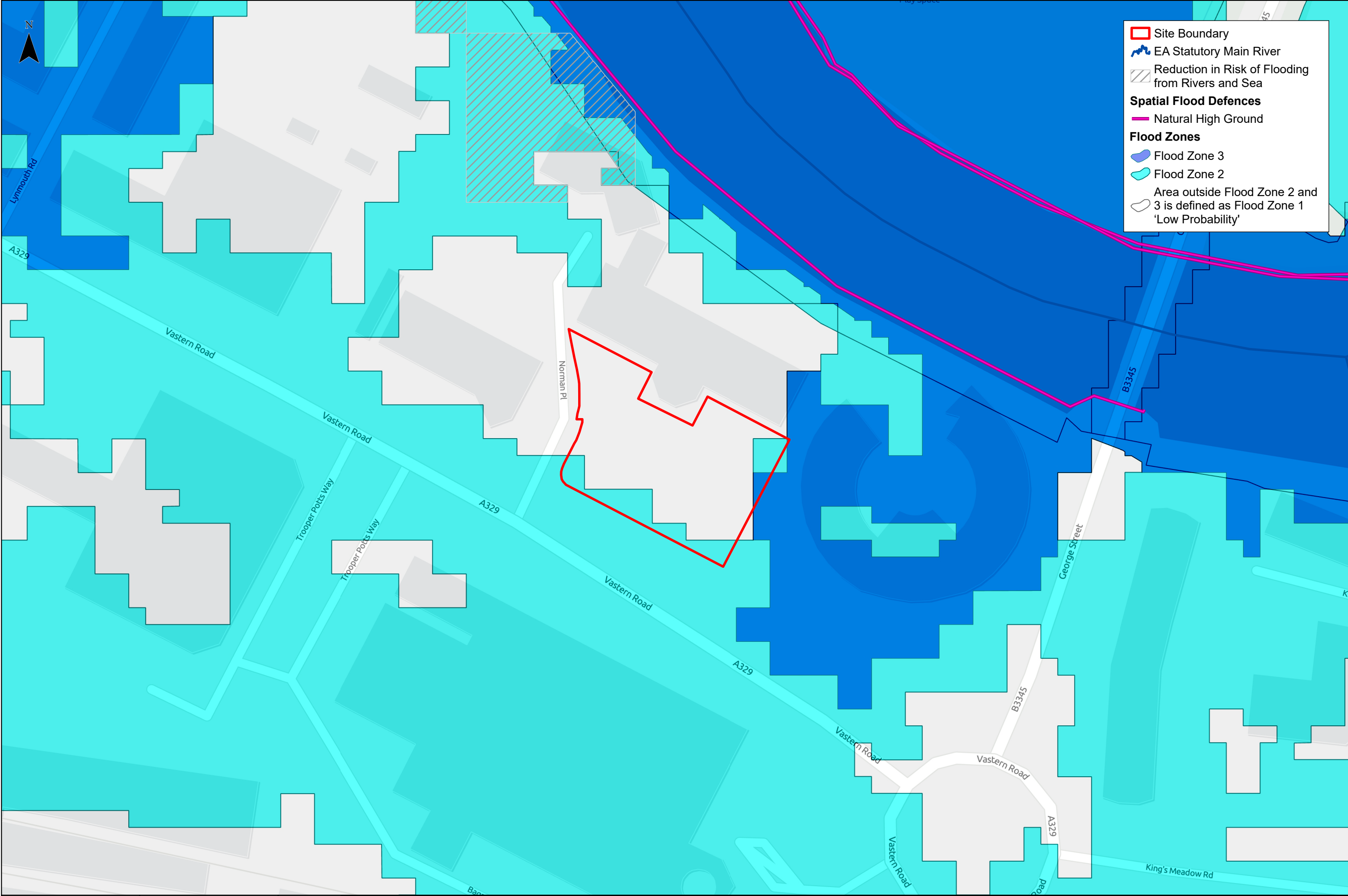


Site Boundary

	Client 	CAR PARK SCHEME Site Location - Aerial	0125250 m		1:2,500 @ A3	Date: 22/01/2025
			Esri Community Maps Contributors, Esri UK, Esri, TomTom, Garmin, Foursquare, GeoTechnologies, Inc, MET/NASA, USGS, Maxar, Microsoft		Drawn: ML	Checked: RMF
					Figure: 02	Rev: A







Site Boundary

EA Statutory Main River

Reduction in Risk of Flooding from Rivers and Sea

Spatial Flood Defences

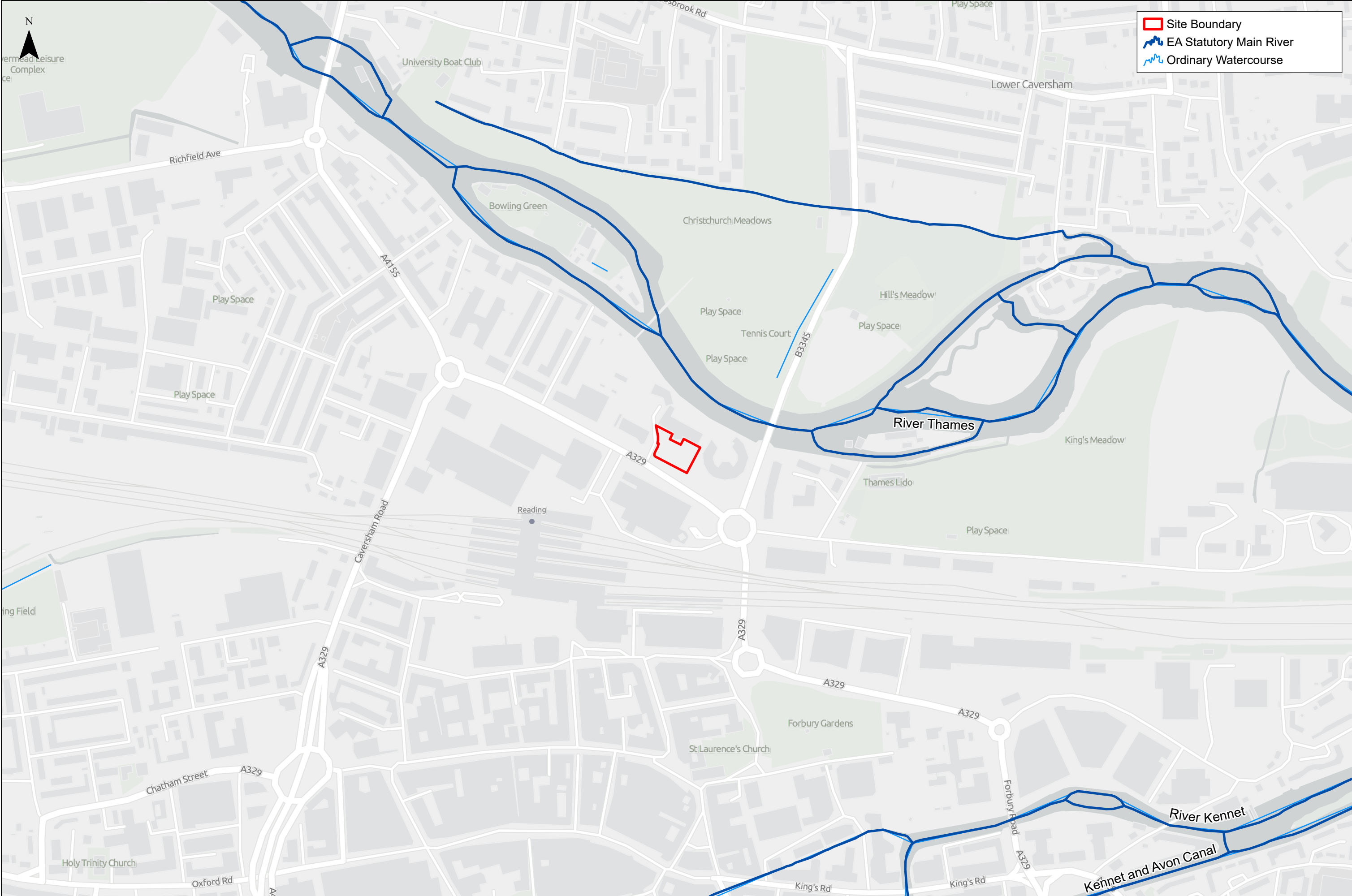
Natural High Ground

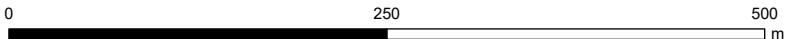
Flood Zones

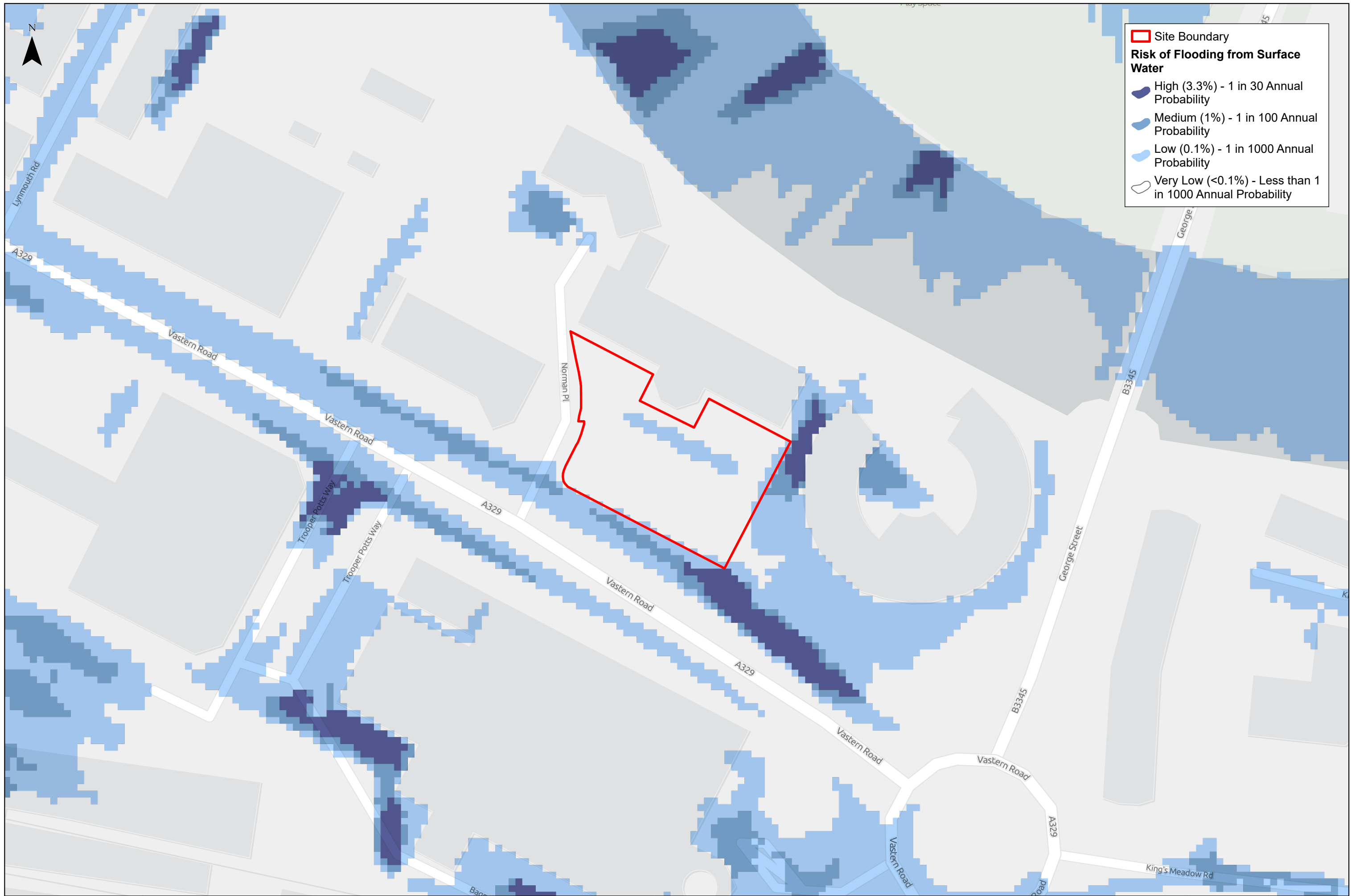
Flood Zone 3

Flood Zone 2

Area outside Flood Zone 2 and 3 is defined as Flood Zone 1 'Low Probability'



	Client 	CAR PARK SCHEME Watercourse Location	 Contains OS data © Crown Copyright and database right 2020 Contains data from OS Zoomstack Contains OS data © Crown copyright and database right 2021 Contains Ordnance Survey data © Crown copyright and database right 2022 © Environment Agency copyright and/or database right. Contains OS data © Crown copyright and database right 2023		1:5,000 @ A3	Date: 22/01/2025
			Drawn: ML		Checked: RMF	
			Figure: 04.1		Rev: A	



Site Boundary

Risk of Flooding from Surface Water

High (3.3%) - 1 in 30 Annual Probability

Medium (1%) - 1 in 100 Annual Probability

Low (0.1%) - 1 in 1000 Annual Probability

Very Low (<0.1%) - Less than 1 in 1000 Annual Probability





Site Boundary

Risk of Flooding from Surface Water - Depth

Below 150mm

150 - 300mm

300 - 600mm

600 - 900mm

900 - 1200mm

Over 1200mm

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CAR PARK SCHEME

EA Surface Water Flood Risk - Depth

1.0 Percent Chance

0

50

100

m

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Maps based on EA updated 'Flood Map for Surface Water' ('uFMSW') released in 2013 as the latest iteration of a national scale surface water modelling exercise.

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Date: 22/01/2025

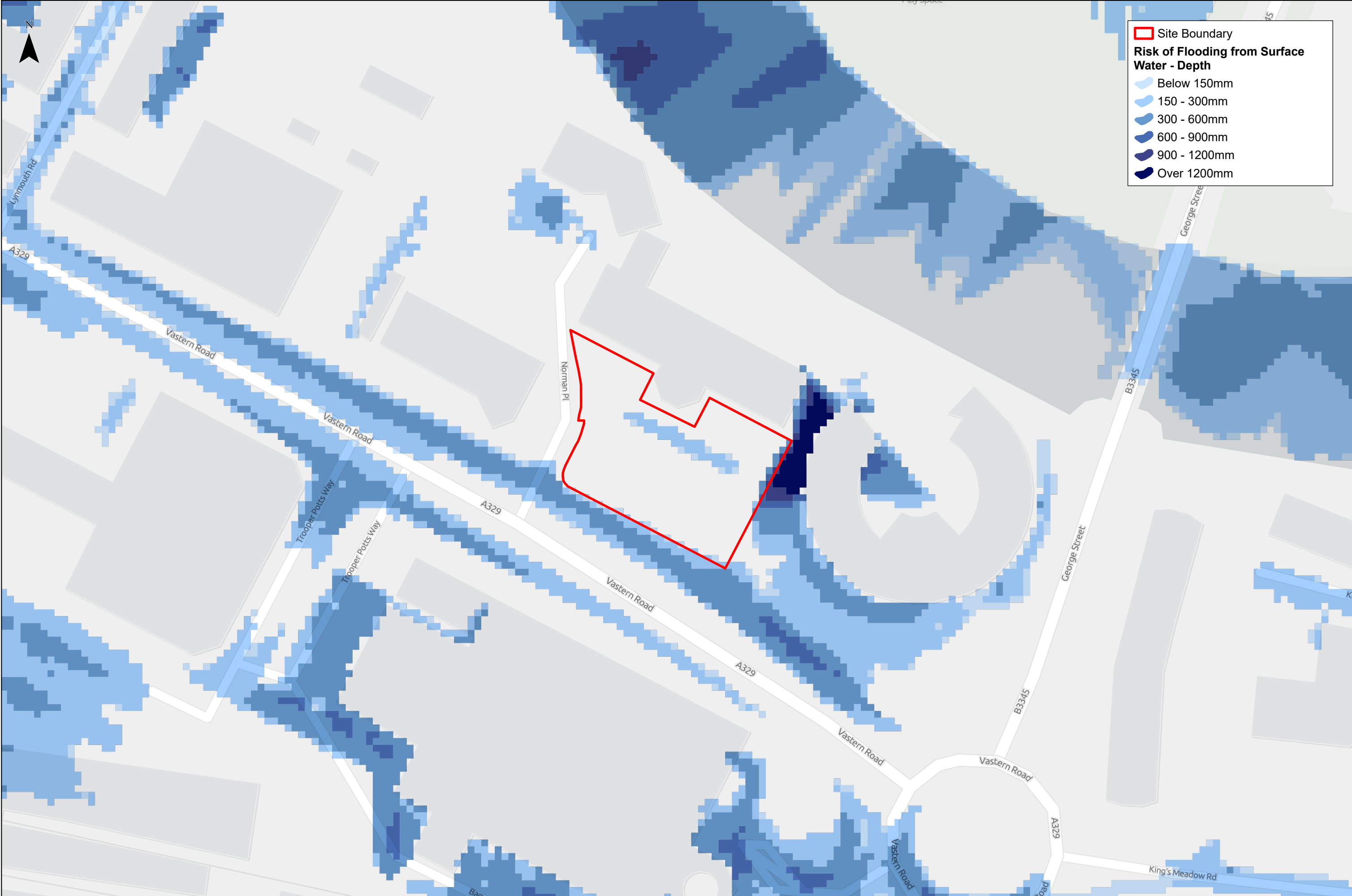
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Figure: 05.2

Rev: A

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Site Boundary

Risk of Flooding from Surface Water - Depth

Below 150mm

150 - 300mm

300 - 600mm

600 - 900mm

900 - 1200mm

Over 1200mm

Client

CAR PARK SCHEME

EA Surface Water Flood Risk - Depth

0.1 Percent Chance

050100

Jm

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Maps based on EA updated 'Flood Map for Surface Water' ('uFMSW') released in 2013 as the latest iteration of a national scale surface water modelling exercise.

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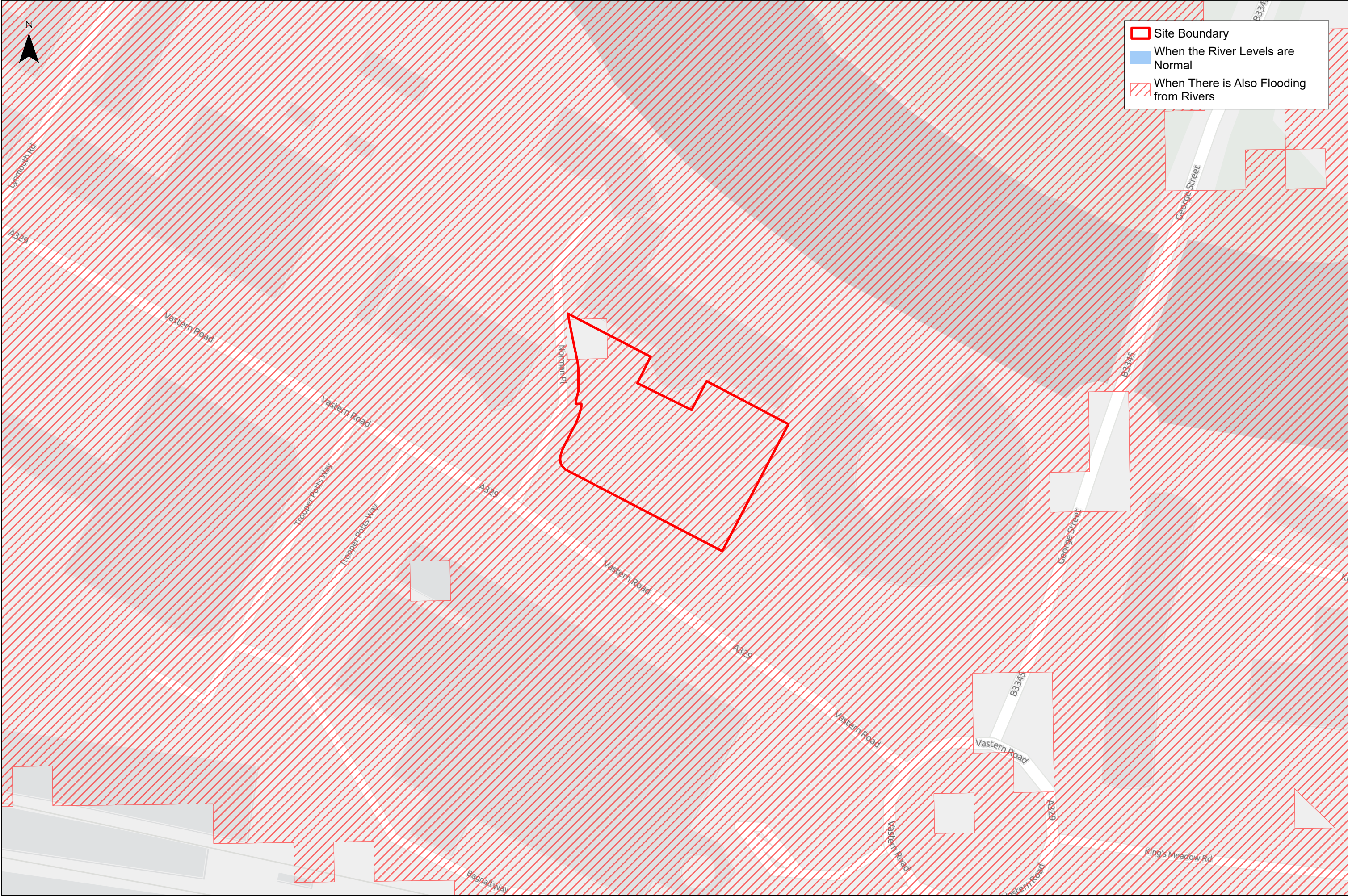
Figure: 05.3

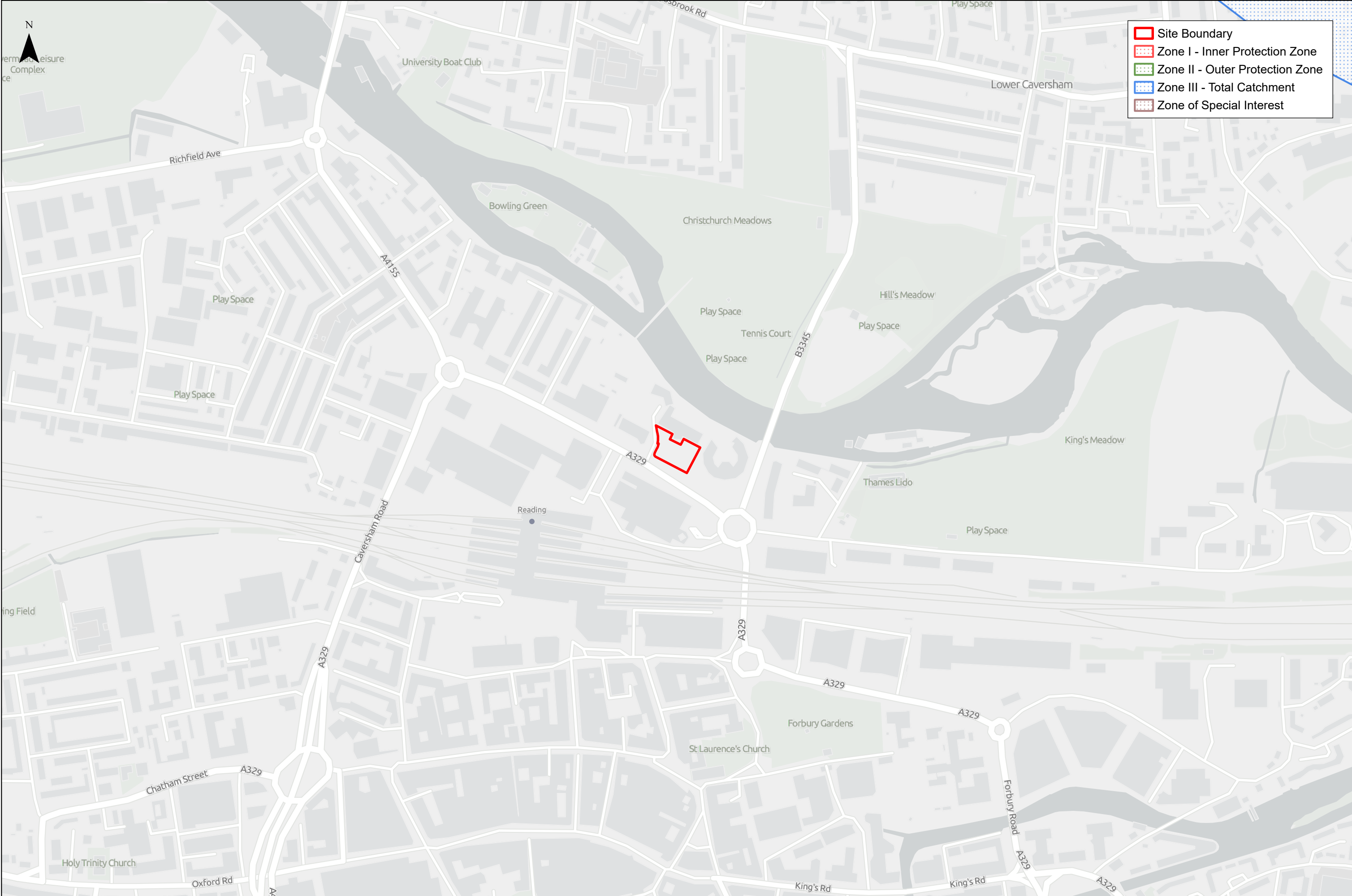
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- Site Boundary
- Zone I - Inner Protection Zone
- Zone II - Outer Protection Zone
- Zone III - Total Catchment
- Zone of Special Interest

		CAR PARK SCHEME EA Ground Water Source Protection Zones			1:5,000 @ A3	Date: 22/01/2025
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					Figure: 07	Rev: A



Site Boundary

Historic Flood Map

Recorded Flood Outlines

Client

CAR PARK SCHEME

EA Recorded Historic Flood Extents

0100m

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Contains data from OS Zoomstack
Contains Environment Agency information © Environment Agency and database right.
Historic Flood Map shows the maximum extent of all individual Recorded Flood Outlines from river, the sea and groundwater springs and shows areas of land that have previously been subject to flooding in England.
Recorded Flood Outlines shows all EA records of historic flooding from rivers, the sea, groundwater and surface water

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