

Overflow Car Park, Kassam Stadium

Ref	SPS3
Primary Flood Zone	Flood Zone 1
Vulnerability Classification	More vulnerable

Site Details

Site Location:	X:	454535	Address: Priory Rd, OX4 4YY
	Y:	202548	
Site Area:	2.4 ha		Additional Information: The site serves as an overflow car park to the Kassam Stadium. Currently the western part of the site is tarmacked with the eastern part comprised of bare ground.
Proposed Function:	Residential		
Ground Level Range (m AOD):	58.374m – 63.518m		

Fluvial Flood Risk

	1 in 100 Yr (+26%)	1 in 100 Yr (+84% CC)
Percentage Inundated (%)	4%	6%
Average Flood Depth (m)	0.17m (Max-0.39m)	0.28m (Max-0.58m)
Average Velocity (m/s)	0.07m/s (Max-0.25m/s)	0.15m/s (Max-0.35m/s)
Speed of Onset (hrs)	<1 hrs	<1 hrs

Summary: The majority of the site is at low risk of fluvial flooding, with a significant proportion of the site lying within Flood Zone 1. This is with the exception of an area in the west of the site, it lies in Flood Zone 2 and Flood Zone 3a, with a very small section in Flood Zone 3b also (see fluvial flood map overpage). When accounting for climate change, for the design 100-year (+26% climate change) event, 4% of the site is modelled to be inundated. The hazard map for this event (see hazard maps) shows the hazard rating in the flooded area as *danger for some* indicating moderate flood depths and velocities. Whilst hazard is greater for the extreme climate change scenario, the area inundated remains limited and should not affect allocation given the development type being considered. None of the site lies within the historical flood map.

Defence Infrastructure

Description:	The site is not protected by any flood defence infrastructure.
Owner:	N/A
Standard of Protection:	N/A
Condition:	N/A

Potential Access & Egress Route: The proposed access and egress route to/from the site is along Grenoble Road to the south of the site. Onward travel would likely be via St Nicholas Rd and the Cowley Rd (see access/egress map overpage).

Flood Risk: The route is predominantly flood-free although there is a small section of the route in Flood Zone 2 close to the site. Flood hazard along this section is generally low. Speed of onset values at the site are fast due to its location adjacent to the Littlemore Brook. However, most of the site is in Flood Zone 1 so should provide safe refuge during an extreme flood event. Therefore, detailed provision for flood warning and evacuation should not be required.

Pluvial & Other Sources of Flood Risk

The risk of pluvial flooding has been assessed using the EA surface water flood maps (see pluvial flood map overpage). Parts of the site are shown to be at medium to high risk of pluvial flooding. In most of these areas the principal flood mechanism is thought to be fluvial. The flood maps use a DTM to simulate runoff, meaning that water gravitates to low points, such as streams. The flooding appears to originate from the Littlemore Brook and shows similar extents to the fluvial flood map. Where flooding is considered to be pluvial in origin, it is predominantly limited to the road network to the east of the site which is not currently proposed for access.

The underlying geology at the site comprises freely draining slightly acid loamy soils underlain by sedimentary bedrock in the form of Sandstone. In this regard, the water table is likely to be mobile and groundwater flood risk is considered to be moderate.

The EA's Flood Risk from Reservoirs Map shows no risk of reservoir flooding at the site and based on the LLFA's flood incident data, there have been no recent historical flood incidents recorded close to the site.

FRA Implications, SuDS & Exception Test

Hydraulic modelling of the Littlemore Brook and Northfield Brook has indicated that the site is at low risk of fluvial flooding. A significant proportion of the site lies in Flood Zone 1 with only a small area in the west of the site shown to be at risk. This area lies in Flood Zone 2 and Flood Zone 3a, with a very small section in Flood Zone 3b. A residential development (more vulnerable) is proposed. More vulnerable infrastructure is permissible in Flood Zone 2 but must pass an Exception Test as specified in the latest NPPF if located in Flood Zone 3a, it is not permissible in Flood Zone 3b under any circumstances. When accounting for climate change, 4% of the site is at risk during the design 100-year (+26% Climate change) event.

The site's access route is flood free. Given that a large proportion of the site is within Flood Zone 1, safe refuge during an extreme flood event should also be possible.

The pluvial flood risk at the site is also considered to be low, the flooding shown by the EA surface water flood maps appears to be mostly fluvial in origin. The drainage strategy for the proposed development should be suitably designed to manage additional runoff arising from the development and ensure that pluvial flood risk at the site and to third party land is not increased.

In assessing and demonstrating the viability of any SuDS solution for the site, a site-specific FRA should follow the Non-statutory technical standards for SuDS. The geology at the site consists of freely draining slightly acid loamy soils in this regard the use of infiltration SuDS solutions should be explored. It is recommended that a geotechnical investigation is undertaken at this site to obtain further information relating to infiltration rates, this will confirm whether infiltration could be viable in some areas.

Overall, a residential development at the site should be achievable. Only a very small proportion of the site is within Flood Zone 2 and Flood Zone 3. All development should be located in Flood Zone 1 if possible, with flood zone areas retained as greenfield land or reserved for recreational open space. If development needs to be located within Flood Zone 2 or Flood Zone 3a less vulnerable ancillary infrastructure (e.g. Car Parks) should be prioritised over more vulnerable uses (e.g. Dwellings), the latter will require an exception test if located in Flood Zone 3a. No development (unless water compatible development) is permissible in Flood Zone 3b.

Development may need to be set at a floor level to provide an appropriate freeboard above the flood level for the 100-year (+26% climate change) design event, estimated at 59.02 m. The majority of the site is higher than this level, so ground raising should be limited and can be reduced by locating development outside of low-lying areas. A site-specific FRA should confirm any requirements with the EA including the need to provide compensatory storage and assess 3rd party impacts if ground raising is implemented.

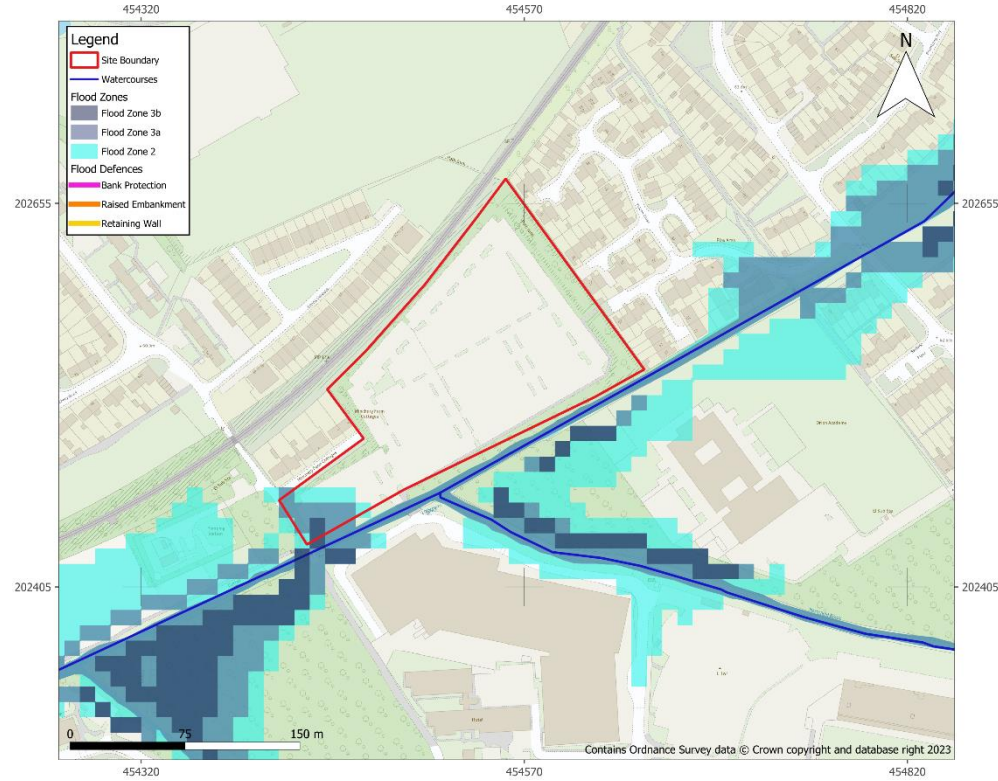
Fluvial Hazard	Low Risk
Pluvial Hazard	Low Risk
Developable	Proposed development type should be appropriate, a sequential approach to development is advised

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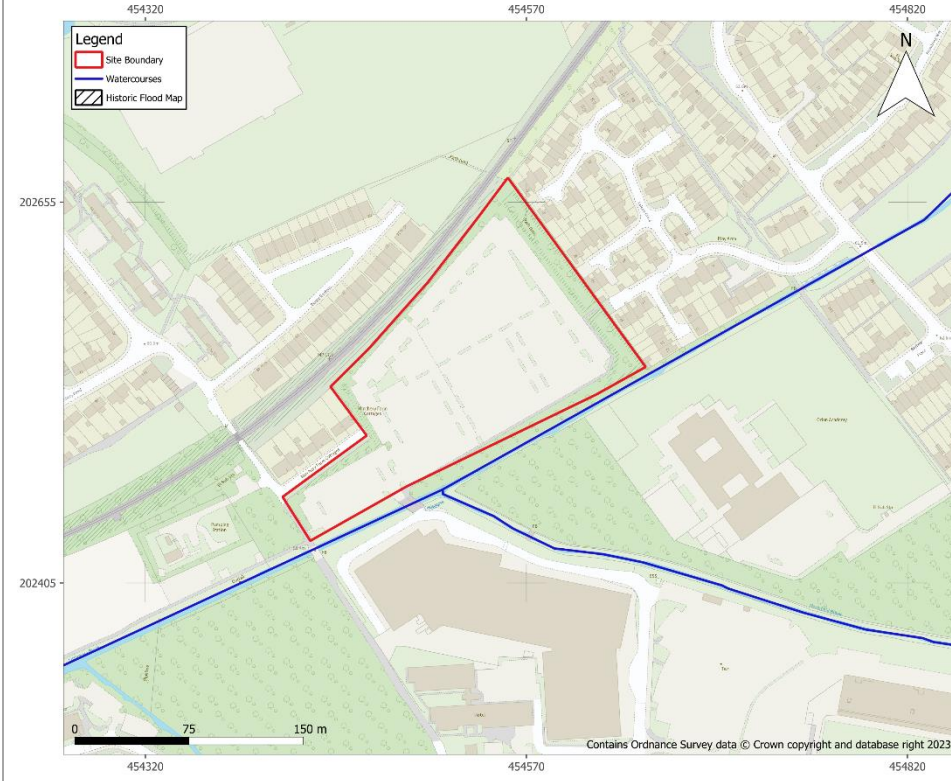
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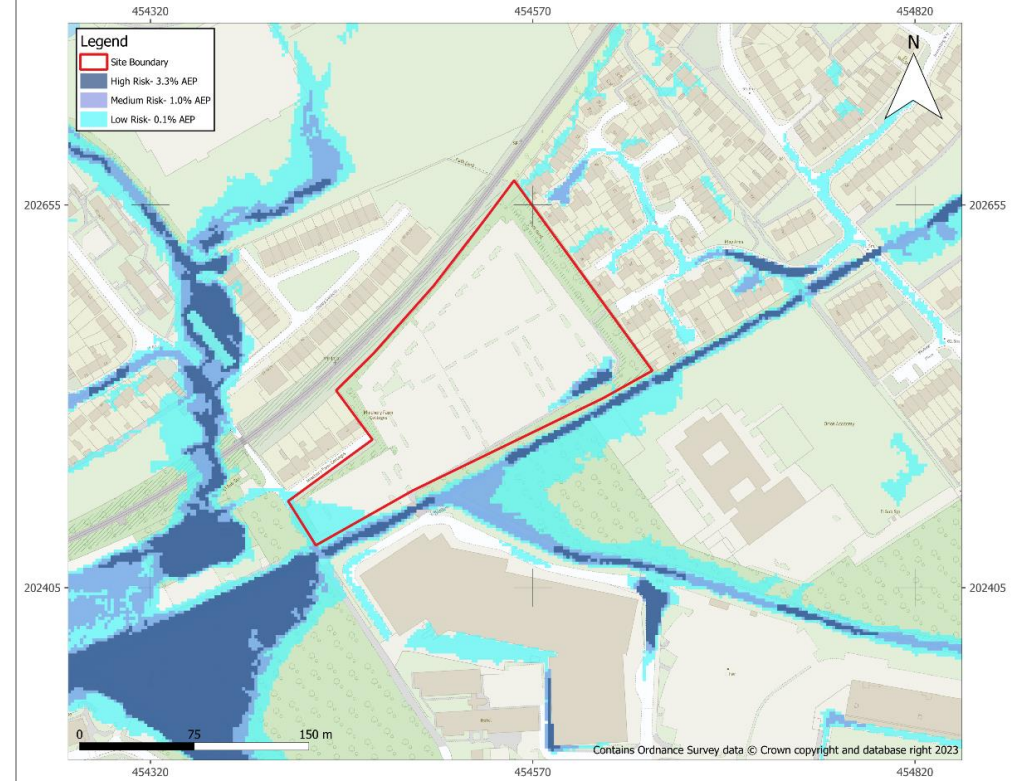
Fluvial Flood Map



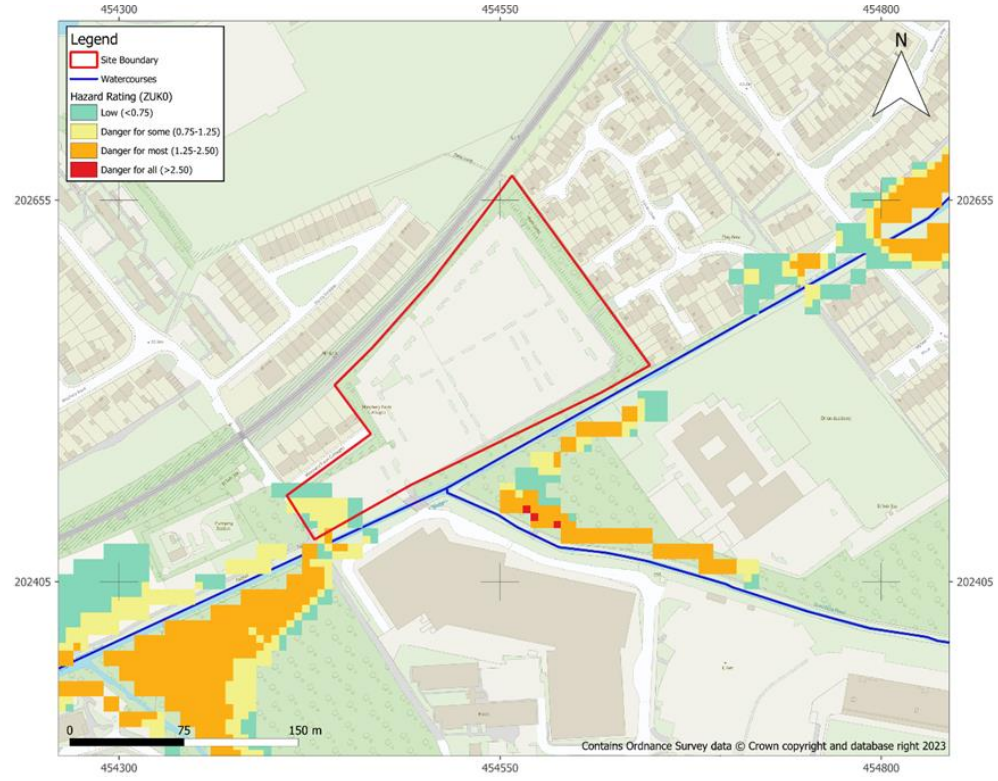
Historical Flood Map



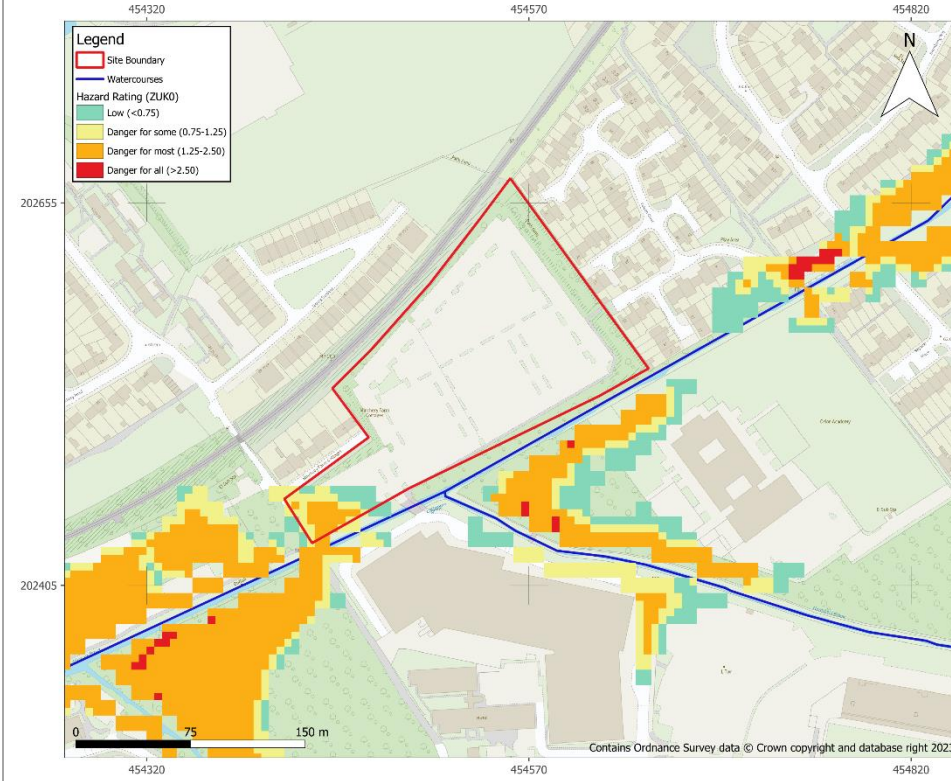
Pluvial Flood Map



Hazard Map (100 Yr + 26% Climate Change)



Hazard Map (100 Yr + 84% Climate Change)



Access/Egress Routes

