# Manor Place

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| **Ref** | SPCW3 |
| **Primary Flood Zone** | Flood Zone 1 |
| **Vulnerability Classification** | More vulnerable |

## Site Details

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| **Site Location:** | **X:** | 452107 | **Address:** Manor Place, OX1 3UP |
| | **Y:** | 206566 | |
| **Site Area:** | 1.24 ha | | **Additional Information:** The site is currently made up of mostly open space with some impermeable surfaces. |
| **Proposed Function:** | Residential | | |
| **Ground Level Range (m AOD):** | 56.426m – 57.744m | | |

## Fluvial Flood Risk

| | 1 in 100 Yr (+26%) | 1 in 100 Yr (+84% CC) |
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| **Percentage Inundated (%)** | 8% | 70% |
| **Average Flood Depth (m)** | 0.10m (Max – 0.22m) | 0.48m (Max – 0.69m) |
| **Average Velocity (m/s)** | 0.01m/s (Max – 0.05m/s) | 0.03m/s (Max – 0.20m/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 a small area in the north of the site which lies in Flood Zone 2, Flood Zone 3a and Flood Zone 3b (see fluvial flood map overpage). When accounting for climate change, for the design 100-year (+26% climate change) event, 8% 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 *low* indicating limited flood depths and velocities. Whilst extent and hazard increase significantly for the extreme climate change scenario, the area inundated remains limited and should not affect allocation given the development type being considered. A small part of the eastern side of the site lies within the historical flood map associated with an event in February 1979.

## Defence Infrastructure

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| **Description:** | A retaining wall is sited on the left-hand bank of the River Cherwell close to the site. Proposed development is on the right-hand bank; therefore the defence infrastructure is not expected to have significant impact on flooding at the site. |
| **Owner:** | Private |
| **Standard of Protection:** | 2-years |
| **Condition:** | 2 (Good) |

**Potential Access & Egress Route:** The proposed access and egress routes to/from the site are initially in a westward direction. Onward travel is available in either a north or south direction with flood risk minimal (see access/egress map overpage).

**Flood Risk:** The routes identified are flood-free. Speed of onset values at the site are fast due to the site's location adjacent to the River Cherwell. 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 low to medium 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 River Cherwell.

The underlying geology at the site comprises freely draining lime-rich loamy soils underlain by sedimentary bedrock in the form of Mudstone. 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 the site to be at risk during the wet-day scenario, it is not at risk in the dry-day scenario. Reservoir failure is a rare event with a very low probability of occurrence, so this risk is not considered a significant barrier to development at the site. 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 River Thames and its associated tributaries 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 north of the site shown to be at risk. This area mostly lies in Flood Zone 2, however where the site borders the River Cherwell a small section is also in Flood Zone 3a and 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, 8% 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, 3a and 3b. 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 less vulnerable ancillary infrastructure (e.g. Car Parks) should be prioritised over more vulnerable uses (e.g. Dwellings).

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 56.88 m AOD. 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.

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| **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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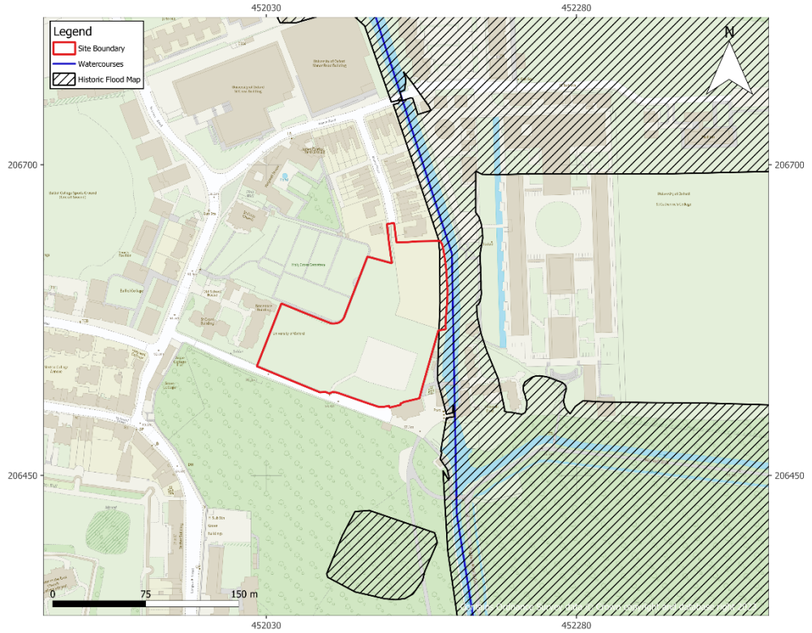
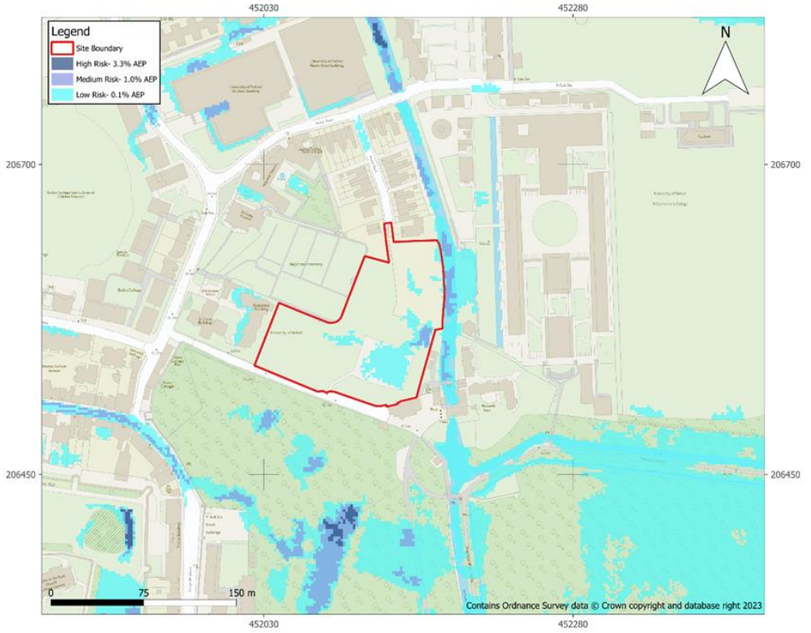
## Fluvial Flood Map

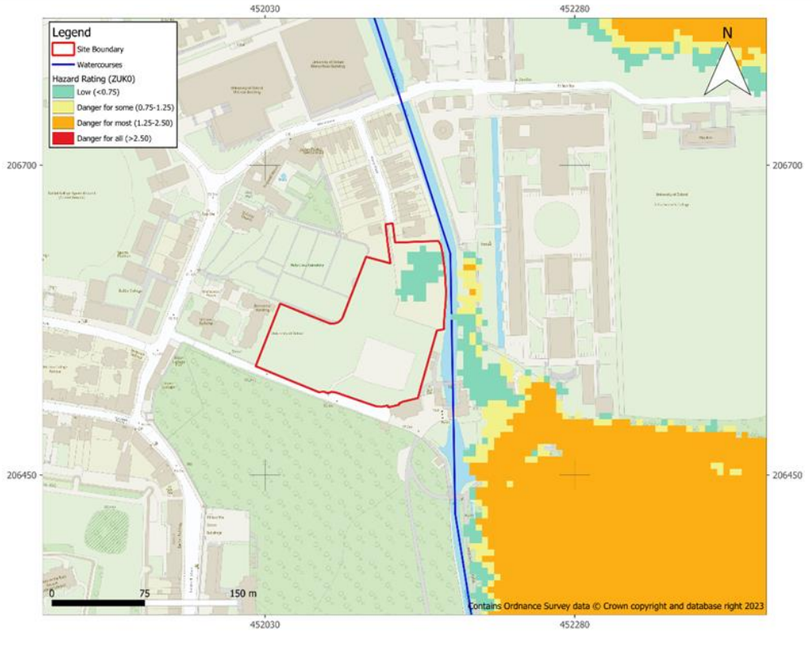

## Historical Flood Map



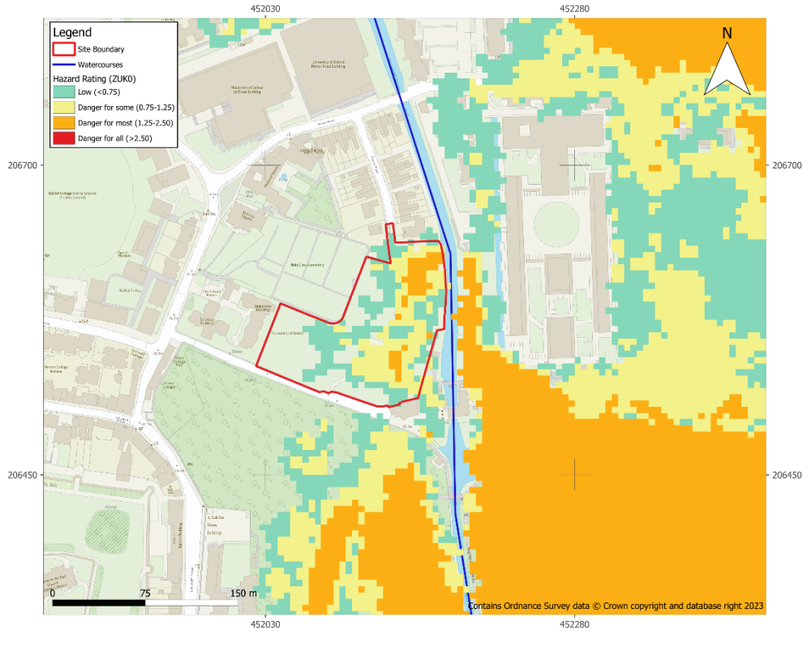

## Pluvial Flood Map




## Hazard Map (100 Yr + 26% Climate Change)




## Hazard Map (100 Yr + 84% Climate Change)




## Access/Egress Routes