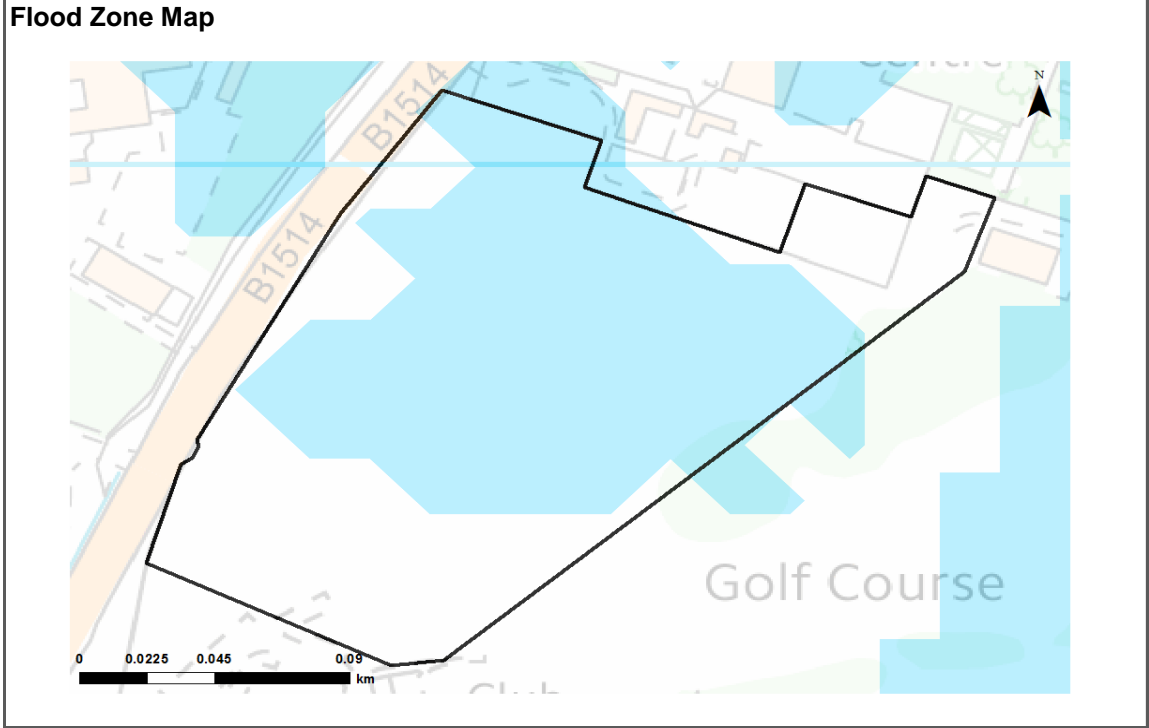


Brampton Golf Course

OSNGR: 521214 269908	Area: 2.95ha		Greenfield	
Flood Zone Coverage:	FZ3b 0%	FZ3a 0%	FZ2 59%	FZ1 41%

Sources of flood risk:
 The main sources of flood risk to the site is from the River Great Ouse, the Brampton Brook and from surface water. However, Flood Zones show the site does not flood until a 0.1% AEP event. High levels in the River Great Ouse may also cause the Bramton Brook to back up and flood.

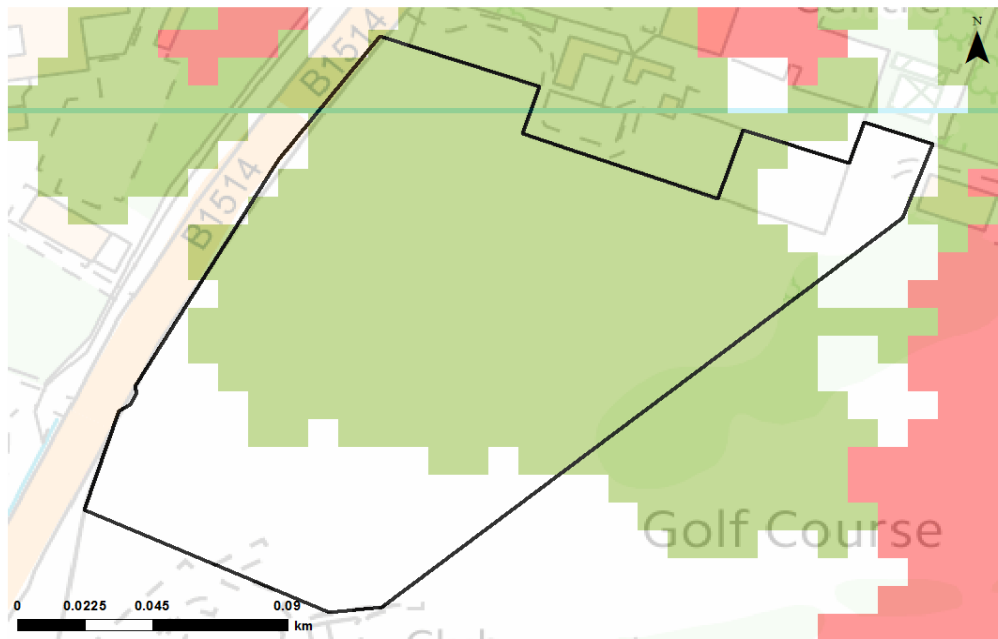
Exception Test Required?
 Yes, for Highly Vulnerable development located in FZ2.



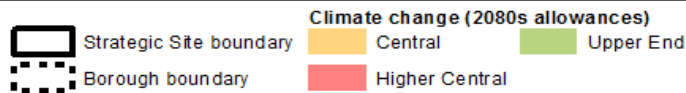
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	Potential development location		Flood Zone 3b		Flood Zone 3a
	Council boundary		Indicative Extent of Flood Zone 3b		Flood Zone 2

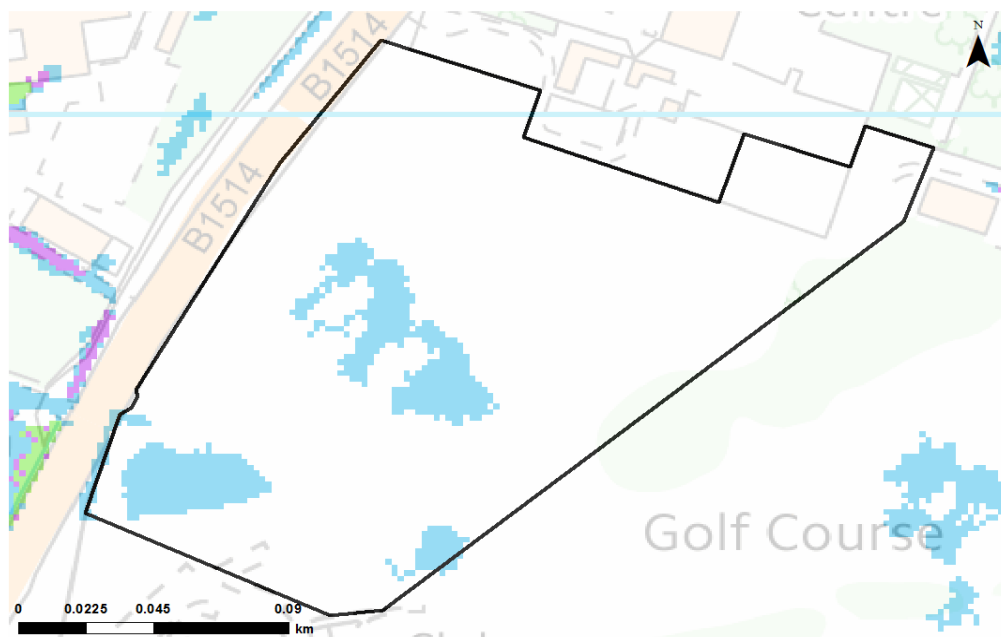
Climate Change Map



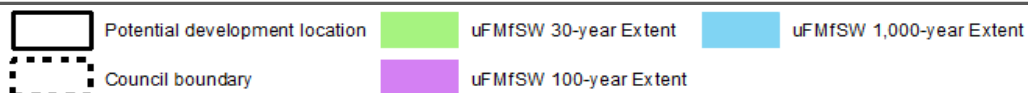
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Surface Water Map



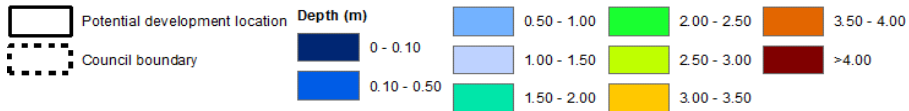
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Depth Map - fluvial flooding (1% Annual exceedance probability)



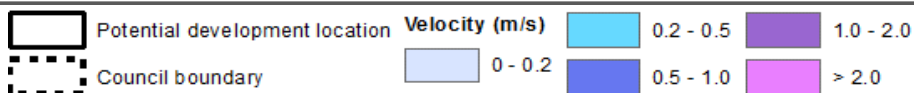
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Velocity Map - fluvial flooding (1% Annual exceedance probability)



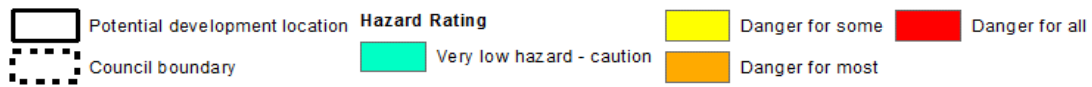
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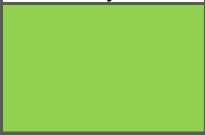
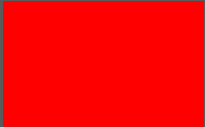



Hazard Map - fluvial flooding (1% Annual exceedance probability)



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SuDS & the development site:

SuDS Type	Suitability	Comments
Source Control		Most source control techniques are likely to be suitable. Mapping suggests that permeable paving may have to use non-infiltrating systems given the possible risk from groundwater and that the site is classified as Brownfield.
Infiltration		Mapping suggests that there is a high risk of groundwater flooding at this location, therefore it is possible infiltration techniques will not be suitable.
Detention		This option may be feasible provided site slopes are < 5% at the location of the detention feature. A liner maybe required to prevent the egress of groundwater and if there are any contamination issues.
Filtration		This feature is probably suitable provided site slopes are <5% and the depth to the water table is >1m. A liner maybe required to prevent the egress of groundwater and if there are any contamination issues.
Conveyance		All forms of conveyance are likely to be suitable. Where the slopes are >5% features should follow contours or utilise check dams to slow flows. A liner maybe required to prevent the egress of groundwater and if there are any contamination issues.

Drainage strategies should demonstrate that an appropriate number of treatment stages have been delivered. This depends on the factors such as the type of development, primary source of runoff and likelihood of contamination. Guidance should be sought from the LLFA and other guidance documents such as the CIRIA SuDS Manual (C753).

Flood Defences:

There are no flood defences at this site.

Emergency Planning:

This site is covered by the Brampton Flood Warning Area

Access & Egress:

Access to the site is via the B1514. There are no access or egress issues from fluvial flooding or surface water flooding.

Climate Change:

Approximately two thirds of the site is in Flood Zone 2. However, climate change modelling shows that when the Higher Central and Upper End climate change allowances are applied to the 1% AEP event, flooding occurs within the site. This suggests that in the future, what is currently considered Flood Zone 2 may become Flood Zone 3. Climate change may increase the extent and depth of surface water flooding in the future.

Implications for Development:

Use of the Sequential Approach is limited due to the amount of the site that is covered by Flood Zone 2; therefore any Highly Vulnerable development placed within Flood Zone 2 will be required to pass the Exception Test. As less than half the site is in Flood Zone 1, there may be implications for the amount and type of development for the site. Development should also ensure that there is no increase in flood risk that may exacerbate flooding to access or egress routes.

Broadscale assessment of suitable SuDS has indicated a number of different types may be possible; however, given the size of the site and the proportion of the site at risk from flooding, the type of SuDS system used may be influenced by amount of land available; depending on the system used there may be an impact on the amount of land available for development and the cost of development.

The site is covered by the Environment Agency's Flood Warning Service.

The site is not known to benefit from any flood defences. Given the size and location of the site, it is unlikely the site could be used to implement strategic solutions to alleviate flood risk elsewhere in the catchment.

Guidance for Developers:

[Mapping in this table is based on results from the Environment Agency's Upstream Ouse 1D-2D model and the Brampton 2D model.](#)

At the planning application stage, a site-specific flood risk assessment will be required if any development is located within Flood Zones 2. Other sources of flooding should also be considered. Where a site specific FRA has produced modelling outlines which differ from the Flood Map for Planning then a full evidence based review would be required; where this is acceptable to the EA then amendments to the Flood Map for Planning may take place.

The interaction between the two watercourses should be considered to fully understand the influence of the River Great Ouse on levels in the Brampton Brook.

Resilience measures will be required if buildings are situated in the flood risk area.

The peak flows on the River Great Ouse and Brampton Brook should be considered when considering drainage.

Assessment for runoff should include allowance for climate change effects.

New or re-development should adopt exemplar source control SuDS techniques to reduce the risk of frequent low impact flooding due to post-development runoff.

Onsite attenuation schemes would need to be tested against the hydrographs of the River Great Ouse and Brampton Brook to ensure flows are not exacerbated downstream within the catchment.

Safe access and egress will need to be demonstrated; currently access and egress is affected by surface water flooding and fluvial flooding from a 0.1% AEP event.

New development must seek opportunities to reduce overall level of flood risk at the site, for example by:

- o Reducing volume and rate of runoff
- o Relocating development to zones with lower flood risk
- o Creating space for flooding.
- o Green infrastructure should be considered within the mitigation measures for surface water runoff from potential development and consider using Flood Zones 2 and 3 as public open space.

Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage.