Brampton Park				
OSNGR: 520831,270156	Area: 34.4ha		Brownfield	
Flood Zone Coverage:	**FZ3b** 7%	**FZ3a** 6%	**FZ2** 37%	**FZ1** 50%

Sources of flood risk:

The site is at risk of fluvial flooding from an unnamed tributary of the River Great Ouse which flows northwards along the western boundary before changing course to flow easterly along the northern boundary of the site. Fluvial flood risk in concentrated in the northern half of the site.

The site is relatively unaffected by surface water flooding, with some small pockets of surface water ponding.

Exception Test Required?

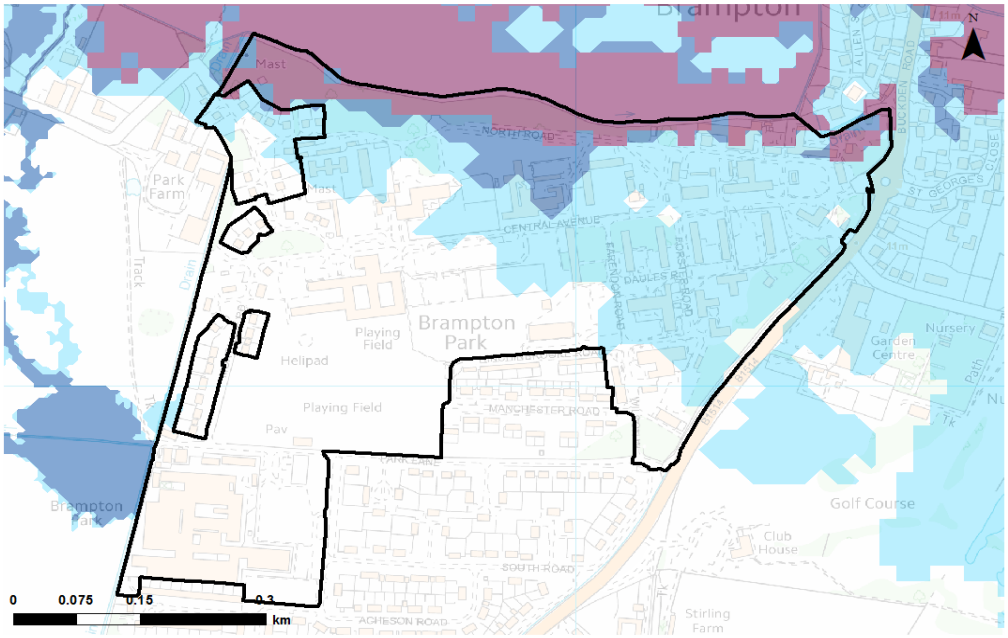
Yes, if More Vulnerable and Essential Infrastructure development is located in FZ3a and for Highly Vulnerable development located in FZ2.

Highly Vulnerable infrastructure should not be permitted within FZ3a and FZ3b.

More Vulnerable and Less Vulnerable Infrastructure should not be permitted within FZ3b.

Essential Infrastructure in Flood Zone 3b will require the Exception Test.

Flood Zone Map



Potential development location

Council boundary

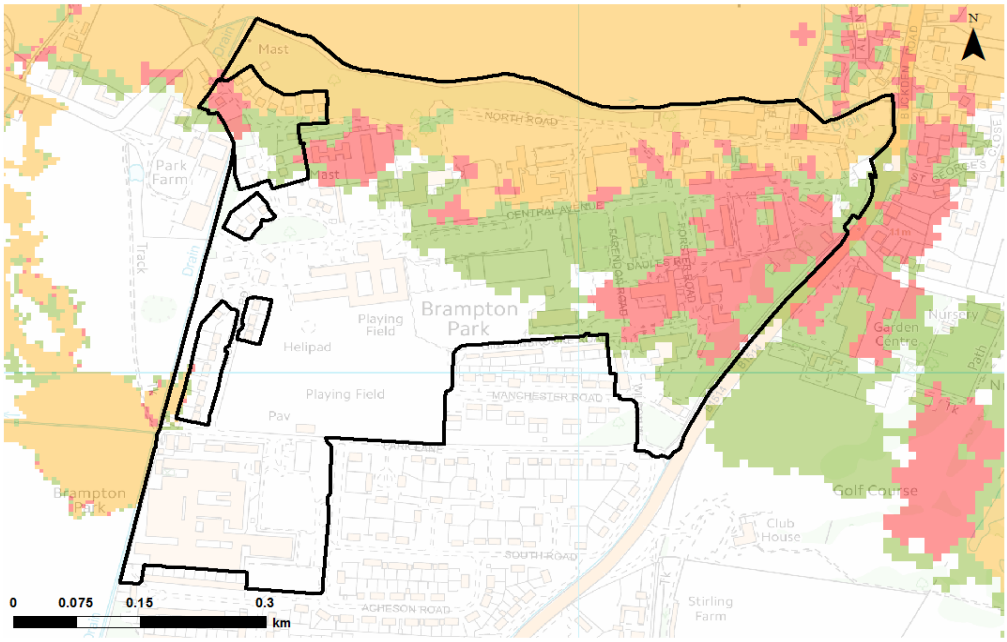
Flood Zone 3b

Indicative Extent of Flood Zone 3b

Flood Zone 3a

Flood Zone 2

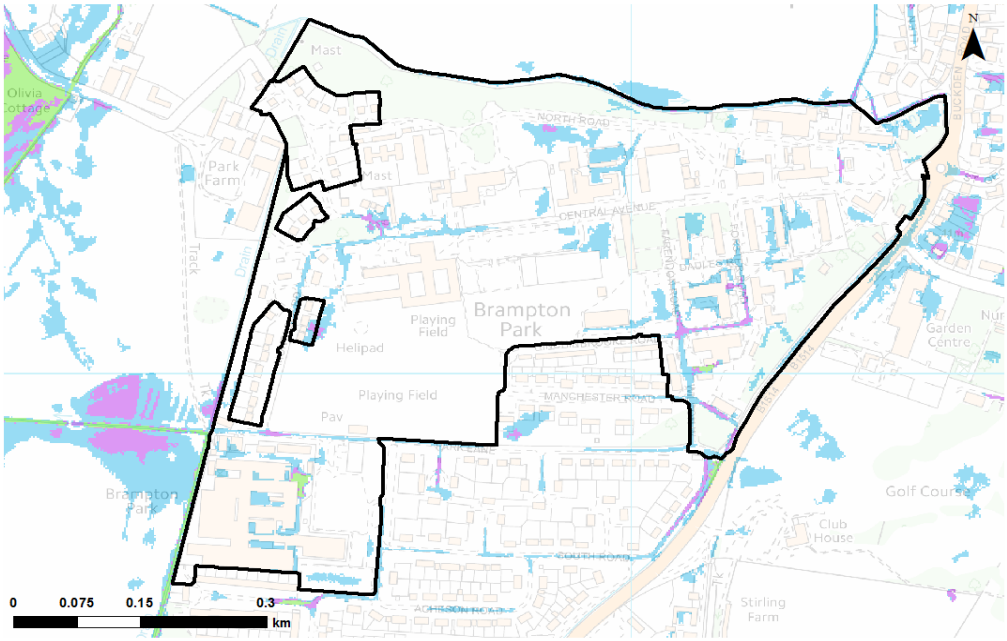
Climate Change Map



Climate change (2080s allowances)

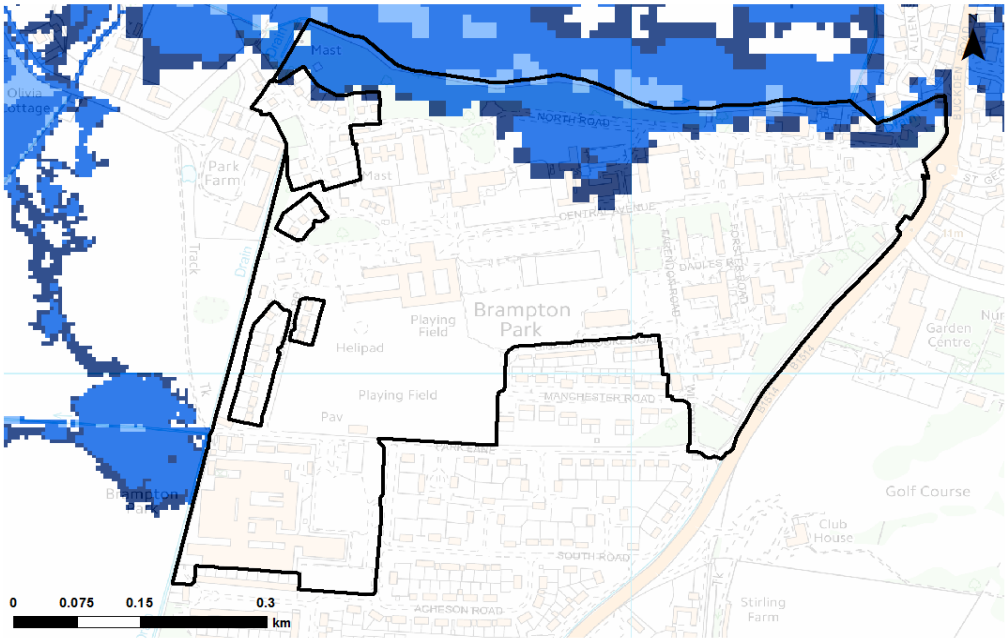
Strategic Site boundary
Borough boundary
Central
Upper End
Higher Central

Surface Water Map



Potential development location
Council boundary
uFMfSW 30-year Extent
uFMfSW 100-year Extent
uFMfSW 1,000-year Extent

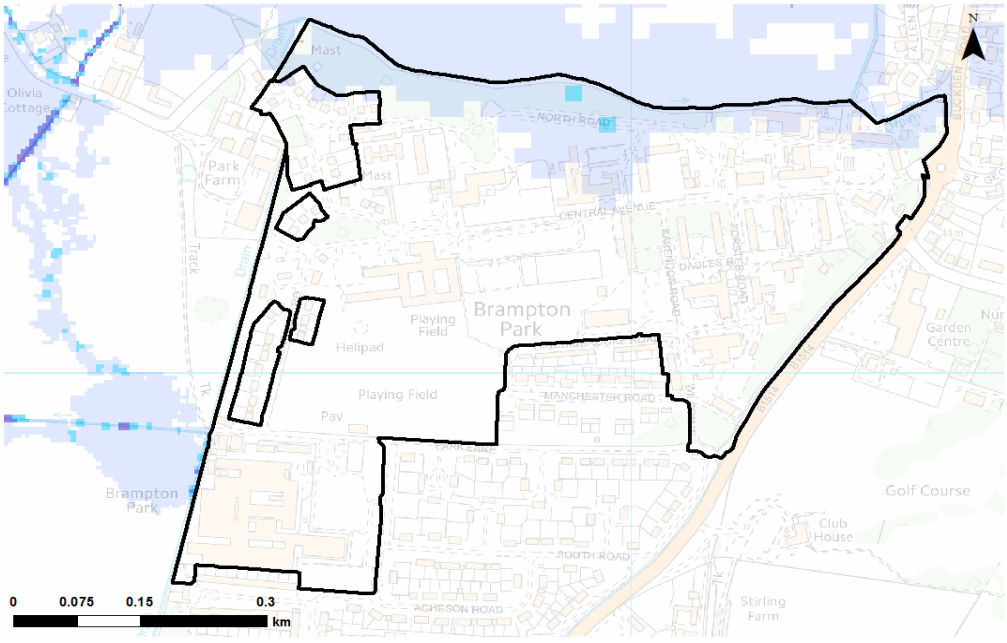
Depth Map - fluvial flooding (1% Annual exceedance probability)



Potential development location
Council boundary

Depth (m)
0 - 0.10
0.10 - 0.50
0.50 - 1.00
1.00 - 1.50
1.50 - 2.00
2.00 - 2.50
2.50 - 3.00
3.00 - 3.50
3.50 - 4.00
>4.00

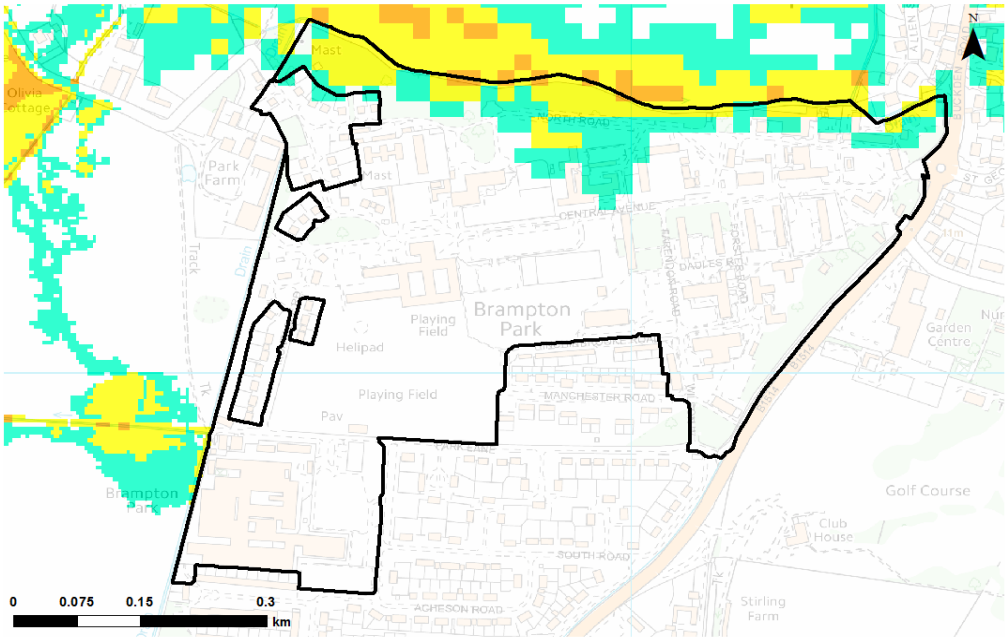
Velocity Map - fluvial flooding (1% Annual exceedance probability)



Potential development location
Council boundary

Velocity (m/s)
0 - 0.2
0.2 - 0.5
0.5 - 1.0
1.0 - 2.0
> 2.0

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



Potential development location
Council boundary

Hazard Rating

Very low hazard - caution
Danger for some
Danger for most
Danger for all

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 may be 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 may be 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 may be 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 partially covered by the Brampton Flood Warning Area

Access & Egress:

The main access road for the site, the B1514, is affected by fluvial flooding in the 0.1% AEP event. It is relatively unaffected by surface water flooding.

Climate Change:

Currently the site is only slightly covered by Flood Zone 3. However, modelling shows that the 1% AEP event will cover the site when the Central, Higher Central and Upper End climate change allowances are applied. This suggests that, in the future, what is currently considered as Flood Zone 2 may become Flood Zone 3.
Climate change may increase the extent of surface water flooding in the future.

Implications for Development:

Use of the Sequential Approach means development can be placed away from Flood Zones 2 and 3, with the area affected by flood risk left undeveloped - approximately 17.3 hectares of land is available for development outside of the Flood Zones.
The main access and agress routes is affected by flooding, therefore safe access and egress will be required by development, or safe refuge provided if evacuation is not possible during a flood. Climate change may increase the extent of surface water and fluvial flooding in the future and have the potential to affect routes.
Broadscale assessment of suitable SuDS has indicated a number of different types may be possible; given the size of the site, the type of SuDS system used is unlikely to be limited by the amount of land available for development.
The site is partially covered by the Environment Agency's Flood Warning Service. However, if development is placed outside of the Flood Zones, then access to the Flood Warning Service would not be required.
The site is not known to benefit from any flood defences. Given the size and location of the site, it is possible 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 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 or 3. 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
Resilience measures will be required if buildings are situated in the flood risk area.
The peak flows on the unnamed tributary of the Great Ouse 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 unnamed tributary of the Great Ouse 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 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:

- Reducing volume and rate of runoff
- Relocating development to zones with lower flood risk
- Creating space for flooding.
- 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.