

**St Mary's Urban Village, St Neots (SN7)**

<b>OSNGR:</b> 518380,260198	<b>Area:</b> 0.9ha		<b>Brownfield</b>	
<b>Flood Zone Coverage:</b>	<b>FZ3b</b> 7%	<b>FZ3a</b> 6%	<b>FZ2</b> 88%	<b>FZ1</b> >1%

**Sources of flood risk:**  
 The site is at risk of fluvial flooding from the Hen Brook. The River Great Ouse may also influence flooding at this site, either from flooding from the River Great Ouse directly, or from high water levels in the River Great Ouse preventing the Hen Brook from discharging.  
 The site is unaffected by surface water flooding.

**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.

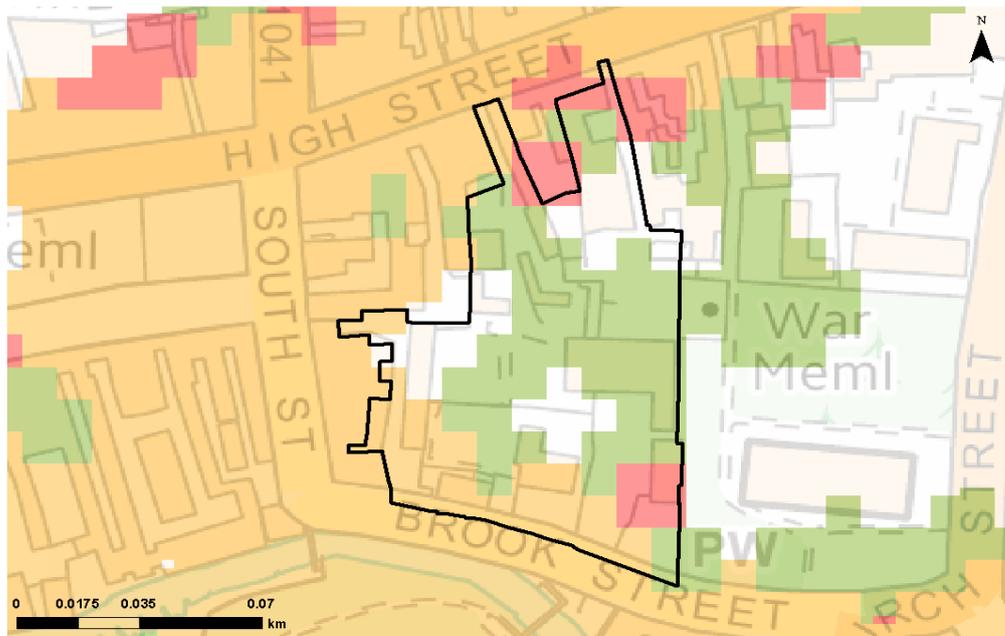
**Flood Zone Map**



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

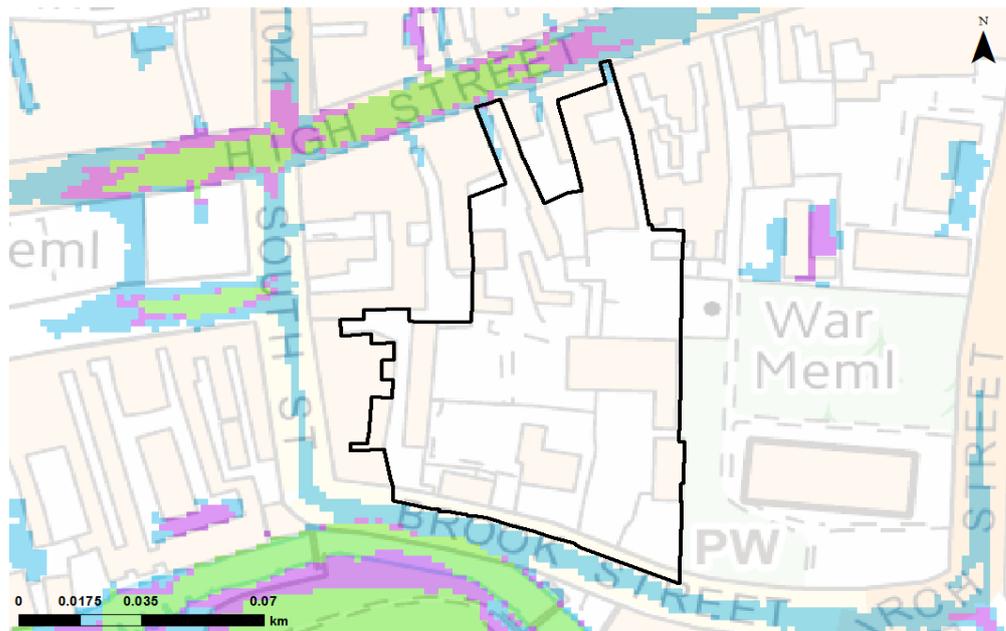
**Climate Change Map**



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**Surface Water Map**



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



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Potential development location	<b>Depth (m)</b>	0.50 - 1.00	2.00 - 2.50	3.50 - 4.00
Council boundary	0 - 0.10	1.00 - 1.50	2.50 - 3.00	>4.00
	0.10 - 0.50	1.50 - 2.00	3.00 - 3.50	

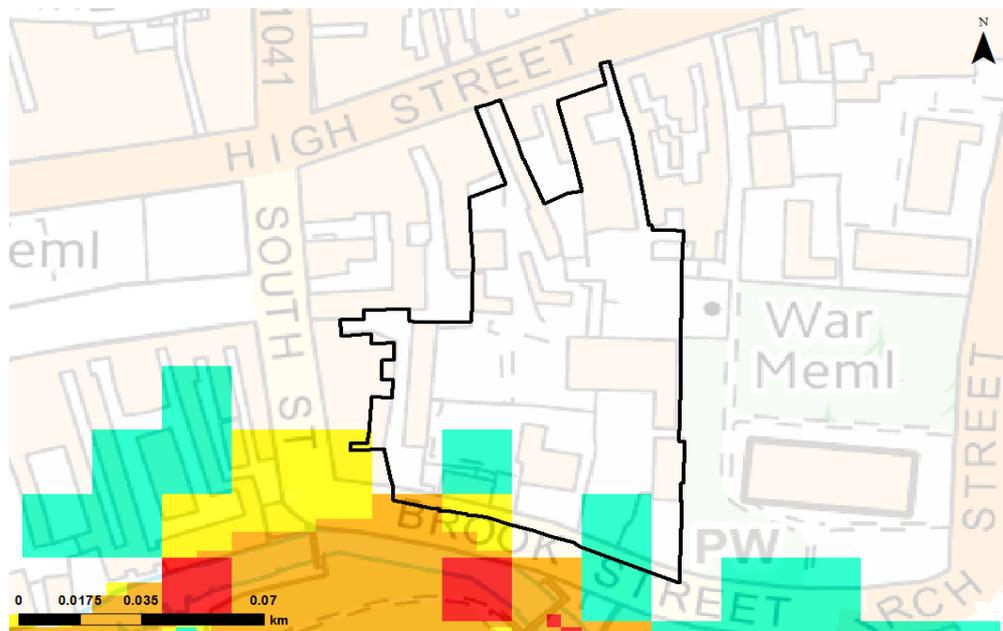
**Velocity Map - fluvial flooding (1% Annual exceedance probability)**



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Potential development location	<b>Velocity (m/s)</b>	0.2 - 0.5	1.0 - 2.0
Council boundary	0 - 0.2	0.5 - 1.0	> 2.0

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



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 Potential development location	<b>Hazard Rating</b>	 Danger for some	 Danger for all
 Council boundary	 Very low hazard - caution	 Danger for most	

**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 possibly a high susceptibility to 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 covered by the River Great Ouse from Tempsford to Offord Flood Warning Area. However, this only warns on levels in the River Great Ouse, not the Hen Brook.

**Access & Egress:**

Of the three potential access and egress routes, High Street is the only route unaffected by fluvial flooding. All three routes are at risk from surface water flooding.

**Climate Change:**

Climate change modelling suggests that in the future, areas of the site that are currently classed as Flood Zone 2 may be at risk from flooding in the 1% AEP event (Flood Zone 3). The risk from a 1% AEP event with the Central and Higher Central climate change allowances applied is mainly confined in the south of the site. However, the risk from a 1% AEP event with the Upper End climate change allowance applied corresponds largely with the current Flood Zone 2. Flood depths may also increase in the site.

Climate change may increase the extent of surface water flooding in the future.

**Implications for Development:**

The majority of the site is located in Flood Zone 2 and it is therefore not feasible to place development outside of Flood Zones 2 and 3. This may have implications for the amount and type of development for the site. Any Highly Vulnerable development placed within Flood Zone 2 will be required to pass the Exception Test.

The main access and egress routes are 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; 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 not known to benefit from any flood defences. Given the size and location of the site, it is unlikely the site itself could be used to implement strategic solutions to alleviate flood risk elsewhere in the catchment. However, the upper reaches of the Hen Brook are predominantly rural and therefore it is possible that strategic solutions could be investigated in the upper reaches which may benefit properties downstream.

**Guidance for Developers:**

Mapping in this table is based on results from the Environment Agency's Upstream Ouse 1D-2D model and 2D Abbotsley Brook model.

At the planning application stage, a site-specific flood risk assessment will be required to confirm the Flood Zone 2 and 3 extents. The model should also consider both the Ouse and Hen Brook in flood as when levels in the Ouse are high, the Hen Brook is unable to discharge into the Ouse. 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 Hen 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 Hen 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.