

## L30 - Sutton Stop (Site B)

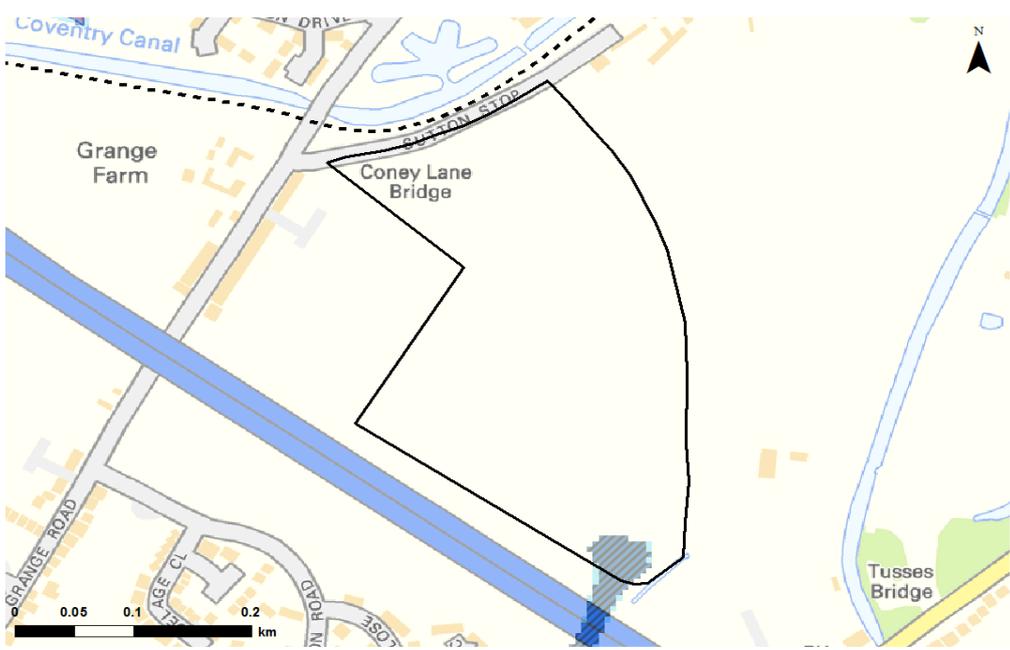
<b>OSNGR:</b> 436062,284211	Area: 8.6ha	Greenfield	
<b>Flood Zone Coverage:</b>	<b>FZ3b</b> 0%	<b>FZ3a</b> 2%	<b>FZ2</b> 2%
			<b>FZ1</b> 98%

**Sources of flood risk:**  
 Primary flood risk is from surface water flooding in the southern portion of the site. There is additional fluvial flood risk from an unnamed watercourse in the southern portion of the potential development site. The Environment Agency's Flood Zones in this location are based on generalised 2D modelling and may be overestimating the risk by water backing up behind the M6. Survey was undertaken of the M6 culvert which shows it to be over 3m high and 3m wide which suggests water would not back up. A detailed assessment would need to confirm this.

**Exception Test Required?**  
 Possibly, depending on a detailed assessment of the risk from the unnamed watercourse.  
 If "More Vulnerable" and "Essential Infrastructure" development is located in FZ3a and for "Highly Vulnerable" development located in FZ2 an Exception test will be required.  
 "Essential Infrastructure" development in FZ3b will also require the Exception Test.  
 "Highly Vulnerable" development should not be permitted within FZ3a and FZ3b.  
 "More Vulnerable" and "Less Vulnerable" development should not be permitted within FZ3b.

- NPPF Guidance:**
- The majority of the site is shown to be located within Flood Zone 1. If development is located away from the unnamed watercourse and outside of Flood Zones 2 and 3, the Exception Test will not be required.
  - However, sites over 1 hectare will require a site-specific Flood Risk Assessment (FRA), in which the vulnerability to flooding from other sources should be considered.
  - If development is placed in Flood Zones 2 or 3 then, depending on the type of the development, the Exception test may be required. To pass Part 'b' of the Exception Test, a FRA should demonstrate that the development will be safe, will avoid increasing flood risk elsewhere, and will reduce flood risk overall.
  - The potential to increase flood risk elsewhere through the addition of hard surfaces and the effect of the new development on surface water run-off should be considered.
  - Developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area and beyond, through the layout and form of the development and through appropriate sustainable drainage techniques.

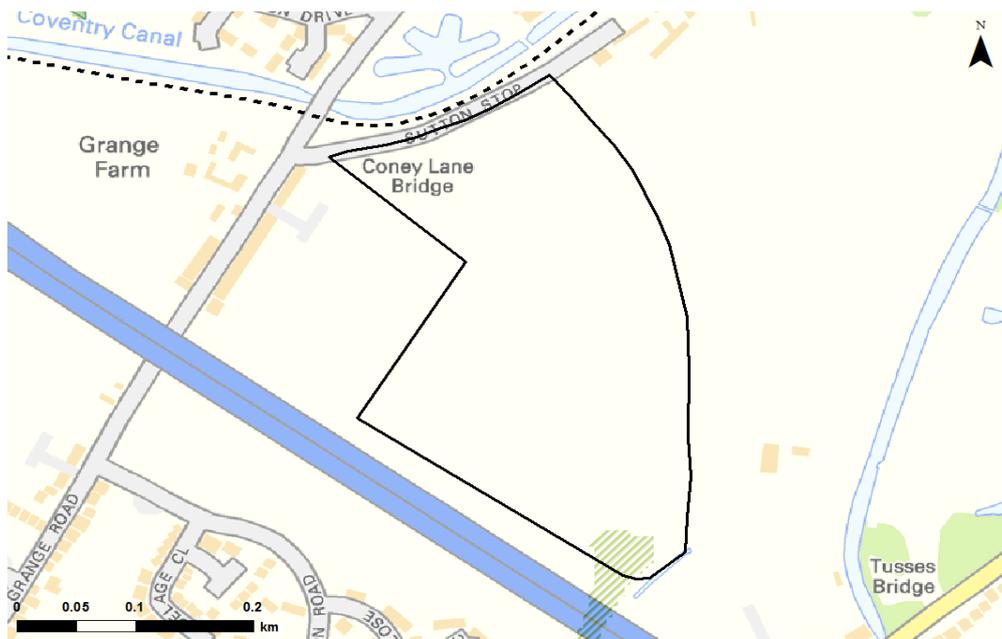
**Flood Zone Map**



Reproduced from Ordnance Survey mapping with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office. © Crown copyright and database rights 2015 Ordnance Survey 100026294.  
 Note: Indicative flood extents have been used to represent FZ3b in certain locations.

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

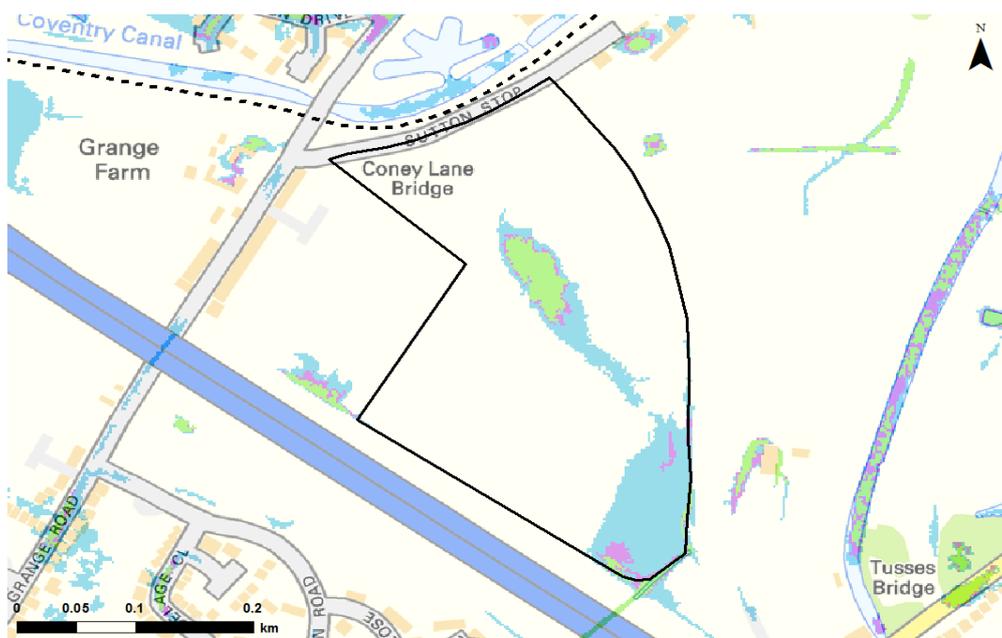
**Climate Change Map**



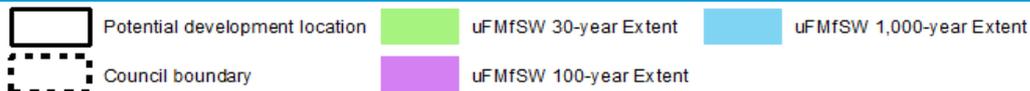
Reproduced from Ordnance Survey mapping with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office. © Crown copyright and database rights 2015 Ordnance Survey 100026294.



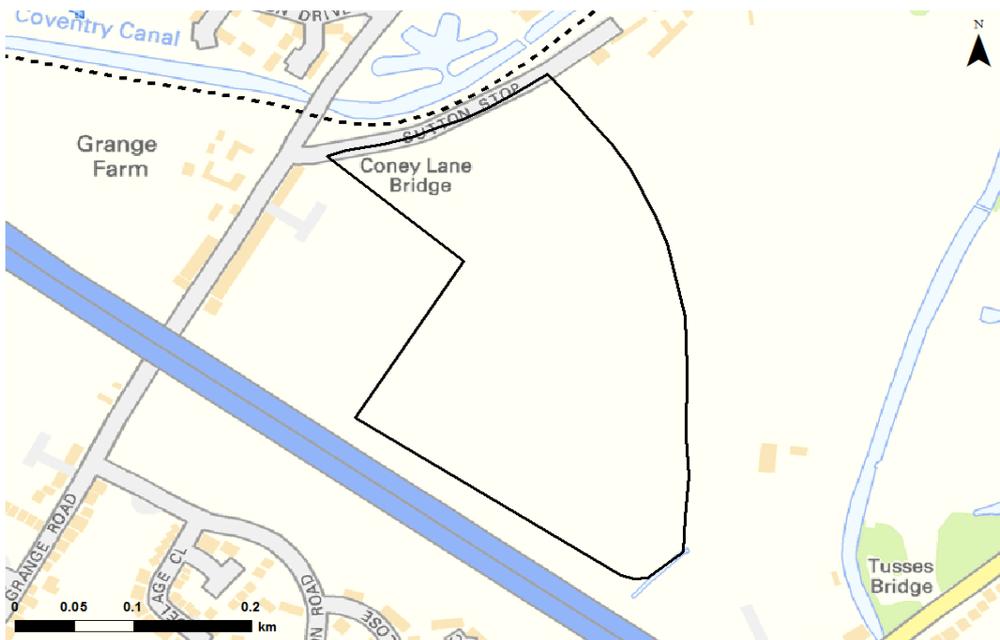
**Surface Water Map**



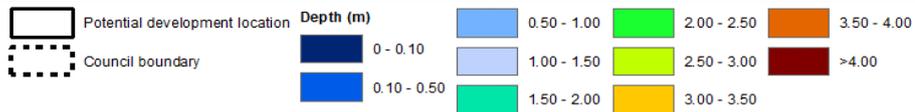
Reproduced from Ordnance Survey mapping with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office. © Crown copyright and database rights 2015 Ordnance Survey 100026294.



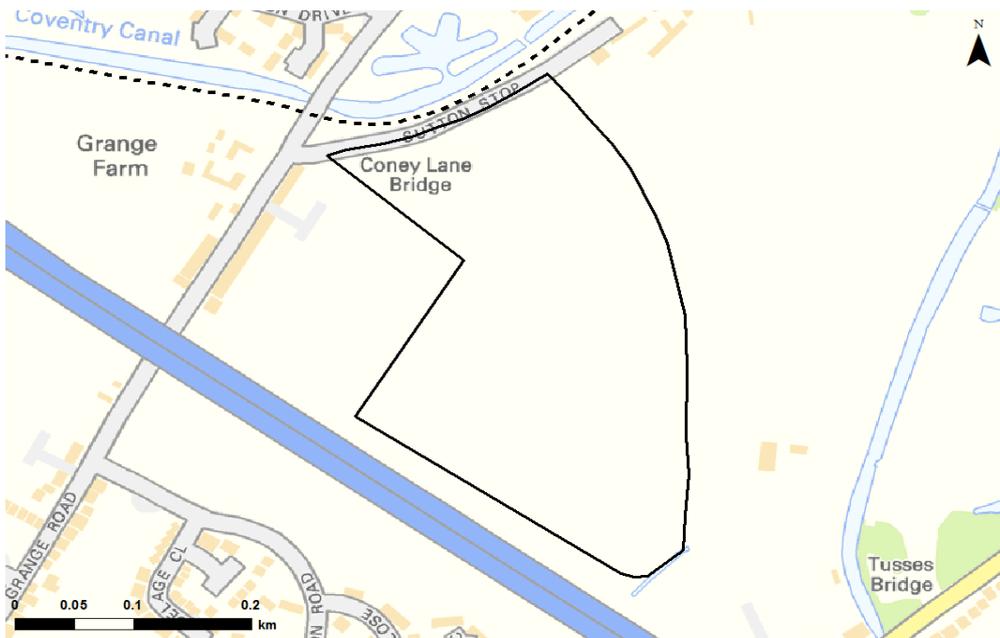
**Depth Map - fluvial flooding (1 in 100-year event)**



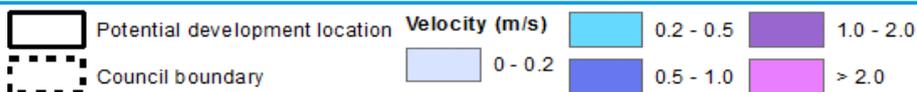
Reproduced from Ordnance Survey mapping with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office. © Crown copyright and database rights 2015 Ordnance Survey 100026294.



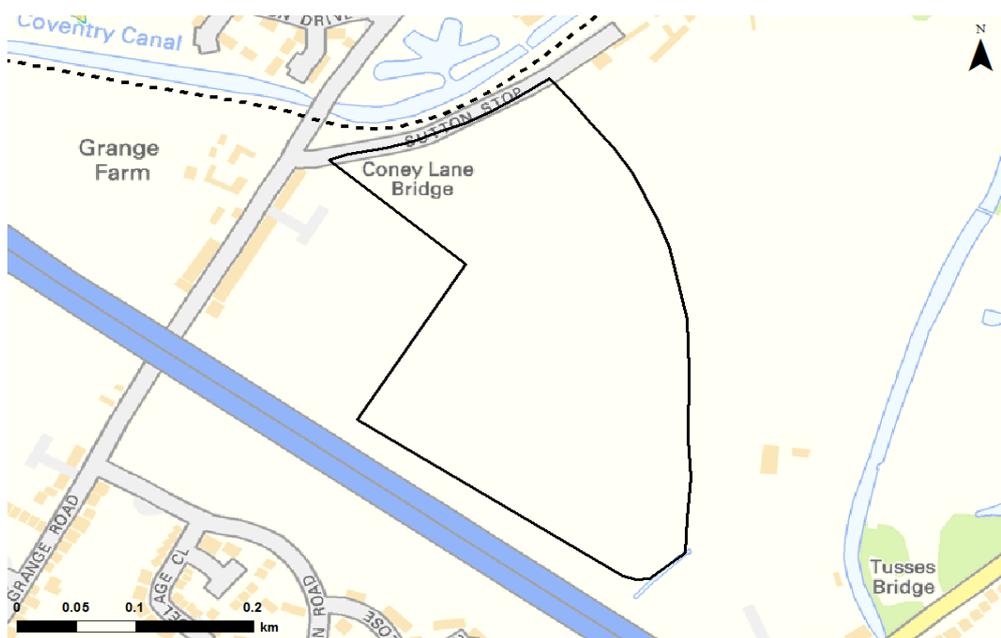
**Velocity Map - fluvial flooding (1 in 100-year event)**



Reproduced from Ordnance Survey mapping with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office. © Crown copyright and database rights 2015 Ordnance Survey 100026294.



**Hazard Map - fluvial flooding (1 in 100-year event)**



Reproduced from Ordnance Survey mapping with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office. © Crown copyright and database rights 2015 Ordnance Survey 100026294.



**SuDS & the development site:**

SuDS Type	Suitability	Comments
Source Control		All forms of source control are likely to be suitable. Permeable paving should use non-infiltrating systems where appropriate due to the risk of contaminated land.
Infiltration		Infiltration likely to be suitable. Mapping suggests a low risk of ground water flooding however, site investigations should be carried out to assess potential for drainage by infiltration given the presents of a designated landfill site adjacent to the site.
Detention		Mapping suggests that the site slopes are suitable for all forms of detention. A liner maybe required due to the potential groundwater contamination issues.
Filtration		All filtration techniques are likely to be suitable. If the site has contaminated land or groundwater issues; a liner will be required.
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. If the site has groundwater contamination issues, a liner will be required.

- Residential developments / mixed use developments should provide at least two independent SuDS features in series to provide a suitable level of water quality treatment. Industrial developments should provide at least three independent SuDS features in series to provide a suitable level of water quality treatment.

- This site boundary is adjacent to an area designated by the Environment Agency as being a landfill site. A thorough ground investigation will be required as part of a detailed FRA to determine the extent of the contamination and the impact this may have on SuDS. As such proposed SuDS should be discussed with the relevant stakeholders (LPA, LLFA and EA) at an early stage to understand possible constraints.

- The site is not located within any Environment Agency designated ground source protection zones.

**Flood Defences:**

There are no flood defences at this site.

**Flood Warning:**

This potential development site is not covered by a FWA; however it is covered (or partly covered by) the River Sowe, River Sherbourne, Canley Brook and Finham Brook Flood Alert Area.

**Access & Egress:**

Primary access and egress to the potential development site is via Grange Road & Sutton Road. These are shown to be large unaffected by both surface water and fluvial flooding.

**Climate Change:**

- Increased storm intensities.
- Increased water levels in the unnamed watercourse.

**Flood Risk Implications for Development:**

- At the planning application stage, a site-specific FRA will be required for any development or re-development within the potential development site as detailed by the standing conditions in the LFRMS. Site-specific FRAs should be produced to current national and local standards and consider all sources of flood risk (including residual risk). Strategic documents such as the SWMP, PFRA and SFRA should be used as sources of information.
- 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.
- Although not adjacent to the canal, an assessment of flood risk from the Coventry Canal should be conducted as part of site-specific FRA due to the residual risk posed to the site. This should include simulation of a canal breach to assess the impact to the potential development site.
- The detailed hydraulic model for the unnamed watercourse should be used to investigate flood risk to the potential development. The hydraulic model should also be used to assess blockage to culvert inlets located within the site boundary and the impact on flood risk.
- No ordinary watercourse should be culverted unless there is an overriding need to do so and justification is provided in line with current Environment Agency policy. This is to ensure risk of blockage is minimal and the ecological status of watercourses are not degraded.
- No building, structure (whether temporary or permanent), or planting of vegetation within 5 metres of an ordinary watercourse, even if the watercourse is culverted.
- The peak flows on the unnamed tributary should be considered when reviewing drainage.
- Any designated features of significance to flood risk should be removed or altered without prior consent from the designated authority.
- No overland flow route or channel is to become obstructed without appropriate interception and diversion of flows (agreed in writing with the LLFA). This is to prevent damage to property.
- Resilience measures will be required if buildings are situated in the flood risk area.
- New or re-development should adopt source control SuDS techniques to reduce the risk of frequent low impact flooding due to post-development runoff. These should be predominately open air SuDS techniques and will be assessed in accordance with National and Local standards and guidance as agreed by the LLFA. The LLFA and relevant stakeholders should be consulted at an early stage to ensure SuDS are implemented and designed to overcome site-specific constraints.

- Rainwater runoff from a drainage systems shall discharge to one of the following (listed in order of priority)
  - 1) an adequate soakaway or some other adequate infiltration system
  - 2) a watercourse
  - 3) surface water sewer.
- Surface water discharge to foul or combined systems will not be accepted.
- Flows and volumes should be restricted to the Greenfield QBar less 20% for any site using the most appropriate form of calculation agreed with the LLFA. This is required for both new and redeveloped sites.
- Assessment for runoff should include allowance for climate change effects.
- Green infrastructure should be considered as part of the mitigation measures for surface water runoff from potential development. Consideration should also be given to using Flood Zones 2 and 3 as public open space.
- It is important to ensure that any new connections to sewer systems or watercourses do not have a detrimental impact to third party lands downstream. Any connection should be approved with the consent from the relevant flood risk management authority.
- On-site attenuation schemes would need to be tested against the hydrographs of the unnamed watercourse to ensure flows are not exacerbated downstream within the catchment.
- All developments need to utilise water harvesting techniques to reduce the use of fresh water within a development and reduce the discharge volumes from the site. This must be implemented unless evidence can be provided that it is unsuitable.
- Groundwater levels should be considered when developing or redeveloping areas of potential development sites. Development should not cause or increase groundwater flood risk.
- If required an intrusive ground investigation report should be provided to establish depth and type of strata, including percolation results in accordance with BRE 365 as well as the presence and risk with migrant contaminants.
- Safe access and egress will need to be demonstrated.
- Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage.