

## Hinckley and Bosworth Borough Level 2 Strategic Flood Risk Assessment: Detailed Site Summary Tables



<b>Site details</b>	<b>Site Code</b>	Site AS445 – Land south of Desford Road, Newbold Verdon			
	<b>Area</b>	16.0 hectares			
	<b>Current land use</b>	Greenfield			
	<b>Proposed land use</b>	Residential			
<b>Sources of flood risk</b>	<b>Existing drainage features</b>	An unnamed watercourse flows from east to west along the southern boundary of the site.			
	<b>Fluvial</b>	<b>Proportion of site at risk</b>			
		<b>FZ3b</b>	<b>FZ3a</b>	<b>FZ2</b>	<b>FZ1</b>
		9%	10%	12%	88%
	Flood risk to the site is associated with the watercourse that runs along the southern boundary with Flood Zones 3b, 3a and 2 extending away from the channel into the low-lying area of the site and into the narrowest section of the site in the southwest.				
	<b>Surface Water</b>	<b>Proportion of site at risk (RoFfSW)</b>			
		<b>30-year</b>	<b>100-year</b>	<b>1,000-year</b>	
<1%		2%	11%		
The site remains largely unaffected by surface water flooding in the 30-year event with isolated areas of ponding along the unnamed watercourse. Surface water flooding occurs in isolated areas across the site in the 100-year event, with larger areas of ponding and flow paths developing in the narrowest section of the site (southwest) in the 1,000-year event.					
<b>Reservoir</b>	The site is not shown to be at risk of reservoir flooding.				
<b>Flood history</b>	There are no records of historic flooding at the site from Leicestershire County Council or the Environment Agency historic flooding map.				
<b>Flood risk management infrastructure</b>	<b>Defences</b>	<b>Defence Type</b>	<b>Standard of Protection</b>	<b>Condition</b>	
		-	-	-	
	This site is not protected by any formal flood defences.				
<b>Residual risk</b>	N/A				
<b>Emergency planning</b>	<b>Flood warning</b>	The site is not covered by the Environment Agency's Flood Warning Service.			
	<b>Access and egress</b>	<p>Dry access and egress to the site is available via Kirkby Lane and the B582 in all fluvial flooding events and in 30-year and 100-year surface water events. A very small part of the 1,000-year surface water extent is located on Kirkby Lane, but access would not be impeded.</p> <p>Mapping shows that the maximum depth along Kirkby Lane, Desford Road and Barlestone Road away from the sites is 0.3m, therefore access may still be possible; however, the depths, velocities, hazards, durations and speeds of onset of surface water and fluvial flooding along access/ egress routes should be investigated further in a site-specific assessment, to confirm whether access for emergency vehicles could still be obtained.</p>			

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<b>Climate Change</b>	<b>Climate change allowances for '2080s'</b>	<b>River Basin District</b>	<b>Central</b>	<b>Higher Central</b>	<b>Upper End</b>
	<b>Implications for the site</b>	Humber	20%	30%	50%
<b>Requirements for drainage control and impact mitigation</b>	<b>Broad scale assessment of possible SuDS</b>	<p>Fluvial extents from climate change did not increase significantly when compared with FZ3a. As the site is affected by surface water flooding from the 100-year event, climate change may also increase the extent, depth and frequency of surface water flooding. The 1,000-year surface water extent can be used as an indication of surface water climate change extents.</p> <ul style="list-style-type: none"> <li>Geology at the site consists of: <ul style="list-style-type: none"> <li>Bedrock – Mudstone, siltstone and sandstone</li> <li>Superficial – sand and gravel across most of the site. No superficial geology in northeast corner.</li> </ul> </li> <li>The site is not located within a Groundwater Source Protection Zone.</li> <li>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.</li> <li>Infiltration may be suitable. Mapping suggests a medium risk of groundwater flooding and underlying soils may be permeable. Further site investigation should be carried out to assess potential for drainage by infiltration. If infiltration is suitable it should be avoided in areas where the depth to the water table is &lt;1m.</li> <li>Mapping suggests that the site slopes are suitable for all forms of detention. A liner maybe required due to the site potential groundwater flooding.</li> <li>All filtration techniques are likely to be suitable. A liner maybe required to prevent the egress of groundwater</li> <li>All forms of conveyance are likely to be suitable. Where the slopes are &gt;5% features should follow contours or utilise check dams to slow flows. A liner maybe required to prevent the egress of groundwater.</li> <li>The site is not designated by the Environment Agency as previously being a landfill site.</li> <li>Developers should refer to latest SuDS guidance on Leicestershire County Council's <a href="#">website</a> and <a href="#">Environmental Best Practice notes</a> as well as the Level 1 SFRA, for information on suitable types of SuDS, the management train and opportunities and constraints in site master-planning.</li> </ul>			

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<b>NPPF and planning implications</b>	<b>Exception Test requirements</b>	<p>The Sequential Test will need to be passed before the Exception Test is applied.</p> <p>The Exception Test will need to be applied if:</p> <ul style="list-style-type: none"> <li>• More Vulnerable and Essential Infrastructure development is located in FZ3a and for Highly Vulnerable development located in FZ2.</li> <li>• Highly Vulnerable infrastructure should not be permitted within FZ3a and FZ3b.</li> <li>• More Vulnerable and Less Vulnerable Infrastructure should not be permitted within FZ3b.</li> <li>• Essential Infrastructure in Flood Zone 3b will require the Exception Test.</li> </ul> <p>Residential development is classified as 'More Vulnerable'.</p>

	<p><b>Requirements and guidance for site-specific Flood Risk Assessment</b></p>	<ul style="list-style-type: none"> <li>• Consultation with the Local Authority, Local Lead Flood Authority and the Environment Agency should be undertaken at an early stage.</li> <li>• 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 or is greater than one hectare. A Flood Risk Assessment must consider the entire lifetime of the development and consider all sources of flooding</li> <li>• The site area includes the Flood Zone 2 extents. Most development types are appropriate for this flood risk zone but must take into account the flood risk (1% to 0.1% annual exceedance probability).</li> <li>• The site area includes the Flood Zone 3a extents. Future development must take into account the flood risk in this area (5% to 1% annual exceedance probability). More vulnerable and critical infrastructure development is possible within Flood Zone 3a but is required to pass the Exception Test. Highly vulnerable development is not permitted within Flood Zone 3a.</li> <li>• The site area includes the extents of Flood Zone 3b, also known as the functional floodplain. Only essential infrastructure passing the Exception Test is permitted within Flood Zone 3b. Should there be any development within Flood Zone 3b flood storage lost by the development must be offset.</li> <li>• The site extents include the modelled 100-year + 50% climate change flood outline. Any development should consider the future flood risk impacts onsite and the impacts the development may have upon future flood flows.</li> <li>• An ordinary watercourse is within or immediately adjacent to the site area and therefore consultation with Lead Local Flood Authority should be completed. If alterations or discharges are proposed to the watercourse a land drainage consent will be required.</li> <li>• More detailed hydraulic modelling using channel survey may be required as part of a site-specific Flood Risk Assessment, to confirm flood risk shown in the 2D generalised modelling.</li> <li>• Resilience measures will be required if buildings are situated in the flood risk area through the centre of the site's boundary. Raising Finished Floor Levels above the design event may remove the need for resilience measures.</li> <li>• Onsite attenuation schemes would need to be tested against the unnamed watercourse along the boundary of the site to ensure flows are not exacerbated downstream within the catchment.</li> <li>• 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.</li> <li>• Water quality requirements for sustainable development should comply with current SuDS guidance.</li> <li>• Assessment for runoff should include allowance for climate change effects.</li> <li>• Safe access and egress will need to be demonstrated.</li> <li>• New development must seek opportunities to reduce overall level of flood risk at the site, for example by: <ul style="list-style-type: none"> <li>○ Reducing volume and rate of runoff</li> <li>○ Relocating development to zones with lower flood risk</li> <li>○ Creating space for flooding.</li> </ul> </li> </ul>
<b>Mapping Information</b>		
<b>Flood Zones</b>	The Flood Zones have been derived from 2D generalised modelling techniques.	
<b>Climate change</b>	The climate change allowances for the '2080s' epoch were modelled using 2D generalised modelling techniques.	
<b>Surface Water</b>	The Environment Agency's Risk of Flooding from Surface Water has been used to define areas at risk from surface water flooding.	

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<b>Fluvial depth, velocity and hazard mapping</b>		Depth, velocity and hazard mapping for the 1 in 100-year event (Flood Zone 3a) have been taken from 2D generalised modelling techniques.
<b>Surface water depth, velocity and hazard mapping</b>		The surface water depth, velocity and hazard mapping for the 1 in 100-year event (considered to be medium risk) is taken Environment Agency's Risk of Flooding from Surface Water.