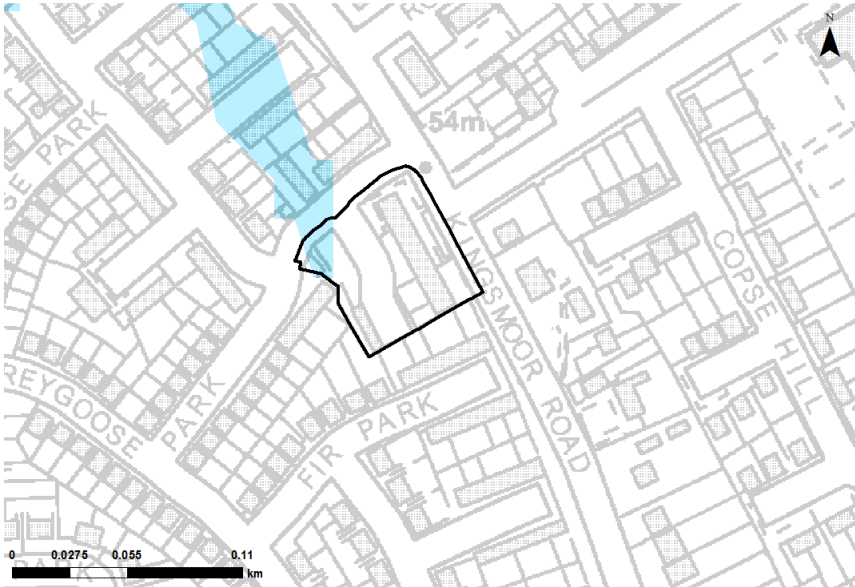





<div>SITE CODE</div> <div>ID: 45</div>		<div>Harlow Council Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables</div>		<div>JBA consulting</div>	
<div>SITE NAME</div> <div>-</div>					
<div>Flood Zones</div> <div></div> <div><div><div>Potential development location</div><div>Borough boundary</div></div><div><div>Flood Zone 3b</div><div>Flood Zone 3a</div></div><div><div>Flood Zone 2</div></div></div>		<div>100-year plus climate change (2080s allowances)</div> <div><p>The upper end climate change allowances for the '2080's were modelled for the Parndon Brook using 2D Jflow+ for the purposes of this SFRA. The mapping showed that, even with the effects of climate change, the extent of Flood Zone 3 would not increase to cover the site. Therefore, no outlines have been provided.</p></div> <div><div><div>Potential development location</div><div>Borough boundary</div></div><div><div>100yr+25% climate change</div><div>100yr+35% climate change</div></div><div><div>100yr+70% climate change</div></div></div>		<div>Surface Water (updated Flood Map for Surface Water)</div> <div></div> <div><div><div>Potential development location</div><div>Council boundary</div></div><div><div>uFMfSW 30-year Extent</div><div>uFMfSW 100-year Extent</div></div><div><div>uFMfSW 1,000-year Extent</div></div></div>	
<div>100-year depth</div> <div><p>No depth, velocity and hazard information can be provided because Flood Zone 3 (the 1% AEP event) does not extend to the site.</p></div> <div><div><div>Potential development location</div><div>Council boundary</div></div><div><div>Depth (m)</div><div><div>0 - 0.10</div><div>0.10 - 0.50</div></div><div><div>0.50 - 1.00</div><div>1.00 - 1.50</div></div><div><div>1.50 - 2.00</div><div>2.00 - 2.50</div></div><div><div>2.50 - 3.00</div><div>3.00 - 3.50</div></div><div><div>3.50 - 4.00</div><div>&gt;4.00</div></div></div></div>		<div>100-year velocity</div> <div><p>No depth, velocity and hazard information can be provided because Flood Zone 3 (the 1% AEP event) does not extend to the site.</p></div> <div><div><div>Potential development location</div><div>Council boundary</div></div><div><div>Velocity (m/s)</div><div><div>0 - 0.2</div><div>0.2 - 0.5</div></div><div><div>0.5 - 1.0</div><div>1.0 - 2.0</div></div><div><div>&gt; 2.0</div></div></div></div>		<div>100-year hazard</div> <div><p>No depth, velocity and hazard information can be provided because Flood Zone 3 (the 1% AEP event) does not extend to the site.</p></div> <div><div><div>Potential development location</div><div>Council boundary</div></div><div><div>Hazard Rating</div><div><div>Very low hazard - caution</div><div>Danger for some</div></div><div><div>Danger for most</div><div>Danger for all</div></div></div></div>	

Site details	Site Code	ID: 376			
	Site Name	-			
	OS Grid reference	514878 , 211262			
	Area (ha)	2.8			
	Current land use	Brownfield			
	Proposed site use	-			
Sources of flood risk	Existing drainage features	River Stort (Navigation) located to the north of the site Drains located to the east of the site			
	Fluvial	Proportion of site at risk			
		FZ3b	FZ3a	FZ2	FZ1
		20%	6%	68%	6%
		Flood risk to the site is from the River Stort. Flood Zones 3b and 3a are located in the land immediately south of the railway line. The majority of the site is located within Flood Zone 2 with the exception of a small area in the south east corner.			
	Surface Water	Proportion of site at risk (uFMFSW)			
		30-year	100-year	1,000-year	
		31%	56%	65%	
		Surface water risk is located mainly in the area south of the railway line and in the south east corner in the 30-year and 100-year events. Risk in the 1,000-year event is greater, extending across the centre of the site.			
	Reservoir	The site is not shown to be at risk in the event of reservoir failure			
Flood history	The Environment Agency's Recorded Flood Outline dataset shows the site partially flooded in 2001, and the majority of the site flooded in 1947.				
Flood risk management infrastructure	Defences	Defence Type	Standard of Protection	Condition	
		-	-	-	
		The site is not protected by any formal flood defences.			
	Residual risk	Culvert / structure blockage?	There is no residual risk to the site from culvert or structure blockage.		
		Impounded water body failure?	The site is not at risk from inundation in the event of failure of an impounded water body.		
Defence breach / overtopping?		The site is not at risk from inundation in the event of failure of an impounded water body.			
Emergency planning	Flood warning	The majority of the site is covered by the River Stort at Harlow Flood Warning Area.			
	Access and egress	The access road to the site, off of the A414 (Edinburgh Way) roundabout is shown to be in Flood Zone 2.			

Site details	Site Code	ID: 376			
	Site Name	-			
	OS Grid reference	514878 , 211262			
	Area (ha)	2.8			
	Current land use	Brownfield			
	Proposed site use	-			
Climate Change	Climate change allowances for '2080s'	River Basin District	Central	Higher Central	Upper End
		Thames	25%	35%	70%
	Implications for the site	The effect of climate change on Flood Zone 3 is relatively small for the Central and Higher Central allowances. The Upper End allowance sees a more noticeable increase in the extent of Flood Zone 3.			
Requirements for drainage control and impact mitigation	Broad scale assessment of possible SuDS constrains	SuDS Type	Comment		
		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.		
		Infiltration	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 <1m		
		Detention	Mapping suggests that the site slopes are suitable for all forms of detention. A liner maybe required due to the site potential groundwater flooding.		
		Filtration	All filtration techniques are likely to be suitable. A liner maybe required to prevent the egress of groundwater.		
		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.		
	Groundwater Source Protection Zone	The site is not located within a Groundwater Source Protection Zone.			
	Historic Landfill Site	The site is not located within a historic landfill site.			
NPPF and planning implications	Exception Test requirements	The Exception test will be required in the following scenarios <ul style="list-style-type: none"><li>• If More Vulnerable and Essential Infrastructure is located in FZ3a.</li><li>• If Highly Vulnerable development is located in FZ2.</li><li>• If Essential Infrastructure is located in Flood Zone 3b</li></ul> Development will not be permitted in the following scenarios <ul style="list-style-type: none"><li>• Highly Vulnerable infrastructure within FZ3a and FZ3b.</li><li>• More Vulnerable and Less Vulnerable Infrastructure within FZ3b.</li></ul>			

Site details	Site Code	ID: 376
	Site Name	-
	OS Grid reference	514878 , 211262
	Area (ha)	2.8
	Current land use	Brownfield
	Proposed site use	-
	Requirements for site-specific Flood Risk Assessment	<ul style="list-style-type: none"> <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 for any development greater than one hectare in Flood Zone 1. Other sources of flooding should also be considered.</li> <li>Climate change modelling should be undertaken using the relevant allowances for the type of development and level of risk.</li> <li>Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage.</li> <li>Resilience measures will be required if buildings are situated in the flood risk area.</li> <li>Onsite attenuation schemes would need to be tested against the hydrographs of the River Stort 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>Assessment for runoff should include allowance for climate change effects.</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> <li>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.</li> </ul>
Mapping Information		
Flood Zones		<p>Flood Zones 2 and 3a are based on the Environment Agency's Flood Zone 2 and 3. The SFRA has identified Flood Zone 3b as land which would flood with an annual probability of 1 in 20 years.</p> <p>Flood Zone 3b has been derived from results from Environment Agency detailed hydraulic model of the River Stort.</p>
Climate change		<p>The upper end climate change allowances for the '2080's were modelled using the Environment Agency's detailed hydraulic model of the River Stort. The mapping provides a strategic assessment of climate change risk – developers should undertake detailed modelling of climate change allowances as part of a site specific FRA.</p>
Surface Water		<p>The updated Flood Map for Surface Water has been used to define areas at risk from surface water flooding.</p>

## Mapping

### Harlow Council Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	ID: 376
	Site Name	-
	OS Grid reference	514878 , 211262
	Area (ha)	2.8
	Current land use	Brownfield
	Proposed site use	-
Depth, velocity and hazard mapping		Depth, velocity and hazard mapping for the 1 in 100-year event (Flood Zone 3a) have been taken from the Environment Agency's detailed hydraulic model of the River Stort.

Site details	Site Code	ID: 4			
	Site Name	-			
	OS Grid reference	548726, 210381			
	Area (ha)	131.3			
	Current land use	Predominantly greenfield			
	Proposed site use	-			
Sources of flood risk	Existing drainage features	Harlowbury Brook Unnamed ordinary watercourse flowing through the south west of the site Culverts under field access bridges			
	Fluvial	Proportion of site at risk			
		FZ3b	FZ3a	FZ2	FZ1
		2%	1%	2%	95%
		Flood risk to the site is from the Harlowbury Brook and the unnamed ordinary watercourse. The Harlowbury Brook remains in bank along much of its length, with the area at greatest risk being a section of Hobbs Cross Road by Spiers Farm. Flood risk from the unnamed watercourse remains in the areas of close proximity to the watercourse and there is little difference in the extent of Flood Zones 3b, 3a and 2.			
	Surface Water	Proportion of site at risk (uFMFSW)			
		30-year	100-year	1,000-year	
		4%	5%	7%	
		Surface water risk tends to follow the flow paths of the Harlowbury Brook and unnamed ordinary watercourse. There is also another surface water flow path in the rural land north of Franklins Farm as well as some smaller pockets of ponding to the north and the west of the site.			
Reservoir	The site is not shown to be at risk in the event of reservoir failure				
Flood history	The Environment Agency's Recorded Flood Outline dataset shows a section of Hobbs Cross Road near Spiers Farm flooded in 2014.				
Flood risk management infrastructure	Defences	Defence Type	Standard of Protection	Condition	
		-	-	-	
		The site is not protected by any formal flood defences.			
	Residual risk	Culvert / structure blockage?	There are a number of field access bridges / culverts under the unnamed ordinary watercourse. These may pose a residual risk of flooding in the event of culvert blockage or surcharge.		
		Impounded water body failure?	The site is not at risk from inundation in the event of failure of an impounded water body.		
		Defence breach / overtopping?	The site is not at risk from inundation in the event of failure of an impounded water body.		



Site details	Site Code	ID: 4			
	Site Name	-			
	OS Grid reference	548726, 210381			
	Area (ha)	131.3			
	Current land use	Predominantly greenfield			
	Proposed site use	-			
Emergency planning	Flood warning	The site is not currently covered by the Environment Agency's Flood Warning Service.			
	Access and egress	A section of Hobbs Cross Road by Spiers Farm is shown to be at risk from fluvial flooding and the majority of the road is at risk from surface water flooding. Safe access and egress would need to be demonstrated as part of a site-specific flood risk assessment.			
Climate Change	Climate change allowances for '2080s'	River Basin District	Central	Higher Central	Upper End
		Thames	25%	35%	70%
	Implications for the site	The effect of climate change on Flood Zone 3 is relatively small for all allowances.			
Requirements for drainage control and impact mitigation	Broad scale assessment of possible SuDS constrains	SuDS Type	Comment		
		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. Mapping also suggests that slopes may be unsuitable for selective source control techniques.		
		Infiltration	Mapping suggests that there is a high risk of groundwater flooding at this location, therefore it is likely infiltration techniques will not be suitable. This should be confirmed via site investigations to assess the potential for infiltration.		
		Detention	This option is unlikely to be feasible as mapping suggests mean site slopes are > 5%. Feasibility of such options should be assessed as part of a site specific assessment. If this feature is feasible a liner maybe required to prevent the egress of groundwater.		
		Filtration	This option is unlikely to be feasible as mapping suggests mean site slopes are > 5%. Feasibility of such options should be assessed as part of a site specific assessment. If this feature is feasible it should be located where the depth to the water table is >1m, additionally a liner maybe required to prevent the egress of groundwater.		
	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.			
	Groundwater Source Protection Zone	The site is not located within a Groundwater Source Protection Zone.			

Site details	Site Code	ID: 4
	Site Name	-
	OS Grid reference	548726, 210381
	Area (ha)	131.3
	Current land use	Predominantly greenfield
	Proposed site use	-
	Historic Landfill Site	This site has areas within its boundary 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.
NPPF and planning implications	Exception Test requirements	<p>The Exception test will be required in the following scenarios</p> <ul style="list-style-type: none"> <li>• If More Vulnerable and Essential Infrastructure is located in FZ3a.</li> <li>• If Highly Vulnerable development is located in FZ2.</li> <li>• If Essential Infrastructure is located in Flood Zone 3b</li> </ul> <p>Development will not be permitted in the following scenarios</p> <ul style="list-style-type: none"> <li>• Highly Vulnerable infrastructure within FZ3a and FZ3b.</li> <li>• More Vulnerable and Less Vulnerable Infrastructure within FZ3b.</li> </ul>
	Requirements for site-specific Flood Risk Assessment	<ul style="list-style-type: none"> <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 for any development greater than one hectare in Flood Zone 1. Other sources of flooding should also be considered.</li> <li>• A detailed hydraulic model of the unnamed ordinary watercourse flowing through the south west of the site should be undertaken as part of the site-specific flood risk assessment.</li> <li>• Climate change modelling should be undertaken using the relevant allowances for the type of development and level of risk.</li> <li>• Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage.</li> <li>• Resilience measures will be required if buildings are situated in the flood risk area.</li> <li>• Onsite attenuation schemes would need to be tested against the hydrographs of the Harlowbury Brook 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>• Assessment for runoff should include allowance for climate change effects.</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>

Site details	Site Code	ID: 4
	Site Name	-
	OS Grid reference	548726, 210381
	Area (ha)	131.3
	Current land use	Predominantly greenfield
	Proposed site use	-
		<ul style="list-style-type: none"> <li>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.</li> </ul>
Mapping Information		
Flood Zones		<p>Flood Zones 2 and 3a are based on the Environment Agency's Flood Zone 2 and 3. The SFRA has identified Flood Zone 3b as land which would flood with an annual probability of 1 in 20 years.</p> <p>Flood Zone 3b has been derived from results from Environment Agency detailed hydraulic model of the Harlowbury Brook and additional 2D hydraulic modelling, undertaken for this SFRA, of the unnamed ordinary watercourse.</p>
Climate change		<p>The upper end climate change allowances for the '2080's were modelled using the Environment Agency's detailed hydraulic model of the Harlowbury Brook and additional 2D hydraulic modelling, undertaken for this SFRA, of the unnamed ordinary watercourse. The mapping provides a strategic assessment of climate change risk – developers should undertake detailed modelling of climate change allowances as part of a site specific FRA.</p>
Surface Water		<p>The updated Flood Map for Surface Water has been used to define areas at risk from surface water flooding.</p>
Depth, velocity and hazard mapping		<p>Depth, velocity and hazard mapping for the 1 in 100-year event (Flood Zone 3a) have been taken from the Environment Agency's detailed hydraulic model of the Harlowbury Brook and additional 2D hydraulic modelling, undertaken for this SFRA, of the unnamed ordinary watercourse.</p>



Site details	Site Code	ID: 45			
	Site Name	-			
	OS Grid reference	543627, 208345			
	Area (ha)	0.4			
	Current land use	Brownfield			
	Proposed site use	-			
Sources of flood risk	Existing drainage features	Parndon Brook flows approximately 5km to the east of the site.			
	Fluvial	Proportion of site at risk			
		FZ3b	FZ3a	FZ2	FZ1
		0%	0%	7%	93%
		Flood risk to the site is from the Parndon Brook. However, the site is shown to only be in Flood Zone 2. This area of Flood Zone 2 appears to correspond to a historic flooding extent. Detailed hydraulic modelling of the Parndon Brook should be undertaken to confirm the level of flood risk to the site.			
	Surface Water	Proportion of site at risk (uFMFSW)			
		30-year	100-year	1,000-year	
		52%	56%	79%	
		Surface water risk poses a significant risk to the site with other half the site shown to be affected by a 1 in 30-year event. The increase in the level of risk in a 1 in 100-year event is small, but in a 1 in 1,000-year event almost two thirds of the site is at risk.			
	Reservoir	The site is shown to be at risk in the event of failure of the Rye Hill Reservoir.			
Flood history	The Environment Agency's Recorded Flood Outline dataset shows the site partially flooded in 1947.				
Flood risk management infrastructure	Defences	Defence Type	Standard of Protection	Condition	
		-	-	-	
		The site is not protected by any formal flood defences.			
	Residual risk	Culvert / structure blockage?	There is no residual risk to the site from culvert or structure blockage.		
		Impounded water body failure?	The site is at risk from inundation in the event of failure of the Rye Hill 2 reservoir.		
		Defence breach / overtopping?	The site is not at risk from inundation in the event of failure of an impounded water body.		
Emergency planning	Flood warning	The majority of the site is covered by the River Stort at Harlow Flood Warning Area.			
	Access and egress	The access road to the site, Kingsmoor Road, is not affected by fluvial flooding. However, it is shown to be affected by the 1 in 1,000-year surface water event. Safe access and egress would need to be demonstrated.			

Site details	Site Code	ID: 45			
	Site Name	-			
	OS Grid reference	543627, 208345			
	Area (ha)	0.4			
	Current land use	Brownfield			
	Proposed site use	-			
Climate Change	Climate change allowances for '2080s'	River Basin District	Central	Higher Central	Upper End
		Thames	25%	35%	70%
	Implications for the site	Modelling shows that, even with the effects of climate change, the extent of Flood Zone 3 would not increase to cover the site.			
Requirements for drainage control and impact mitigation	Broad scale assessment of possible SuDS constrains	SuDS Type	Comment		
		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.		
		Infiltration	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 <1m		
		Detention	Mapping suggests that the site slopes are suitable for all forms of detention. A liner maybe required due to the site potential groundwater flooding.		
		Filtration	All filtration techniques are likely to be suitable. A liner maybe required to prevent the egress of groundwater.		
		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.		
	Groundwater Source Protection Zone	The site is not located within a Groundwater Source Protection Zone.			
	Historic Landfill Site	The site is not located within a historic landfill site.			
	Exception Test requirements	The Exception test will be required in the following scenarios <ul style="list-style-type: none"><li>If Highly Vulnerable development is located in FZ2.</li></ul>			

Site details	Site Code	ID: 45
	Site Name	-
	OS Grid reference	543627, 208345
	Area (ha)	0.4
	Current land use	Brownfield
	Proposed site use	-
NPPF and planning implications	Requirements for site-specific Flood Risk Assessment	<ul style="list-style-type: none"> <li>At the planning application stage, a site-specific flood risk assessment will be required if any development is located within Flood Zone 2 or for any development greater than one hectare in Flood Zone 1. Other sources of flooding should also be considered.</li> <li>A detailed hydraulic model of the Parndon Brook should be developed as part of a site-specific flood risk assessment to confirm the extent of Flood Zones.</li> <li>If the hydraulic model confirms the site is at risk, then climate change modelling should be undertaken.</li> <li>Resilience measures will be required if buildings are situated in the flood risk area.</li> <li>Onsite attenuation schemes would need to be tested against the hydrographs of the Parndon Brook 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>Assessment for runoff should include allowance for climate change effects.</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> <li>Green infrastructure should be considered within the mitigation measures for surface water runoff from potential development and consider using Flood Zones 2 as public open space.</li> </ul>
Mapping Information		
Flood Zones	Flood Zones 2 and 3a are based on the Environment Agency's Flood Zone 2 and 3. As the site is outside of Flood Zone 3b, no modelling was undertaken to derive a Flood Zone 3b	
Climate change	The upper end climate change allowances for the '2080's were modelled for the Parndon Brook using 2D Jflow+ for the purposes of this SFRA. The mapping showed that, even with the effects of climate change, the extent of Flood Zone 3 would not increase to cover the site. Therefore, no outlines have been provided.	
Surface Water	The updated Flood Map for Surface Water has been used to define areas at risk from surface water flooding.	
Depth, velocity and hazard mapping	No depth, velocity and hazard information can be provided because Flood Zone 3 (the 1% AEP event) does not extend to the site.	