

## King's Lynn and West Norfolk Borough Strategic Flood Risk Assessment Level 2 Community Level Guidance Tables

Completed by	JBA consulting
Date	April 2019
Author	Freyja Scarborough
Reviewer / Sign-off	Hannah Coogan
Version Number	Version 3.0

<b>Community details</b>	<b>Community</b>	West Walton and West Walton Highway			
	<b>Flood Risk Summary</b>	Highest risk flooding mechanism	Tidal / Coastal		
		Most likely source of flooding	Surface Water		
<b>Sources of flood risk</b>	<b>Existing drainage features</b>	There are numerous small areas of open watercourse between culverts mainly concentrated along the western community boundaries.			
	<b>Fluvial</b>	Indicative Flood Zone 3b encroaches on the western tip of West Walton.			
	<b>Tidal</b>	Almost complete coverage by the 0.5% AEP event.			
	<b>Surface Water</b>	Minor impact from 3.3% AEP return period event and above.			
	<b>Residual Risk</b>	Large impact from breach on the Tidal River Nene.			
	<b>IDB watercourse present?</b>	<p>This community is entirely covered by the King's Lynn IDB, in the admin area of the WLMA. The drains influencing the community are:</p> <ul style="list-style-type: none"> <li>• School Road Drain</li> <li>• Hartfords Dyke Drain</li> <li>• Salts Road Drain</li> <li>• Common Road Drain</li> <li>• Playing Field Dyke Drain</li> </ul>			
<b>Flood history</b>	<ul style="list-style-type: none"> <li>• There are no records of historical flooding in the Environment Agency recorded flood outlines, provided Section 19 reports and internet searches.</li> <li>• There are records of sewer flooding in this community from February 2013.</li> </ul>				
<b>Flood risk management infrastructure</b>	<b>Defences</b>	<b>Defence Type</b>	<b>Flood risk management infrastructure</b>	<b>Defences</b>	<b>Defence Type</b>
		Embankment (x4)	Coastal	200	Embankment (x4)
		<ul style="list-style-type: none"> <li>• The areas benefiting from defences information covers most of Walton Highway and encroaches West Walton from the east.</li> <li>• Tidal defences benefit this community from the Tidal Nene on the West of the community.</li> </ul>			
<b>Opportunities for sustainable development</b>	<b>Asset management</b>	No EA pipeline schemes at or near this community.			
	<b>Capital investment policy and regeneration</b>	No current schemes identified for this community.			

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	<b>Higher level policy</b>	<p>Settlement not explicitly mentioned in any higher-level policy documents. This area is within the Great Ouse Catchment Flood Management Plan and sub area 10, the Fens. Within this sub-area the current flood risk is appropriately managed. However, the risk is expected to significantly rise in the future with impacts from climate change.</p> <p>This area is designated as low-lying fenland in the hinterland of the Wash Shoreline Management Plan (SMP) 2 is protected by defences along the wash coastline and is therefore relevant to the SMP. The policy within this area (PDZ1) is to maintain the current defences into the future, considering an 'envelope of potential developments' for all future scenarios.</p> <p>CFMP/ SMP policies set the high level and strategic direction for flood risk and coastal change management. There is no guarantee that funding will be available from national, regional or local sources to implement the policy. More detailed strategy and scheme work considers funding needs and availability at a community level.</p>	
<b>Emergency planning</b>	<b>Flood warning</b>	<ul style="list-style-type: none"> <li>The community is covered by the 'East of Wisbech along the A47 to Terrington St John and surrounding areas' Flood Warning Area.</li> <li>The community is covered by the 'Tidal River from Denver to south of King's Lynn' Flood Alert Area.</li> </ul>	
	<b>Access and egress</b>	<ul style="list-style-type: none"> <li>Access and egress is possible in a 5% AEP fluvial or tidal event except the small area of inundation to the west of West Walton.</li> <li>Above the 0.5% AEP period tidal event, access and egress routes out of the communities will not be possible.</li> <li>Some minor local impacts on access and egress in west Walton during the 0.1% AEP surface water event.</li> </ul>	
<b>Climate Change</b>	<b>Implications for the community</b>	<ul style="list-style-type: none"> <li>Climate change modelling does not show any impact to the surface water or defended tidal scenario (which assumes no breach occurs). However, it may have a significant impact on the frequency and severity of storm surges which have not been modelled for the SFRA.</li> </ul>	
<b>Requirements for drainage control and impact mitigation</b>	<b>Broad scale assessment of possible SuDS</b>	<b>Bedrock Geology</b>	Mudstone
		<b>Superficial Geology</b>	Clay and silt
		<b>Soil Type</b>	Naturally high groundwater
		<b>Groundwater Source Protection Zone</b>	No
		<b>Historic Landfill Site</b>	No

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		<ul style="list-style-type: none"> <li>• AStGWF data is not available for this site, as such the potential of broadscale assessment is limited and the suitability of SuDS will need to be determined by on-site investigations.</li> <li>• Source control techniques are likely to be suitable for this site.</li> <li>• Infiltration techniques will be suitable providing there are areas of the site not at high or medium ground water flood risk.</li> <li>• Detention features may be feasible providing site slopes are &lt;5% at the location of the detention feature. If groundwater is a risk to the site, then a liner may be required to mitigate against potential contamination issues.</li> <li>• Filtration systems are probably suitable providing site slopes are &lt;5% and the depth to the water table is &gt;1m. If the site has groundwater issues, then a liner will be required.</li> <li>• All forms of conveyance features are likely to be suitable. Where slopes are &gt;5%, features should follow contours or utilise check dams to slow flows.</li> </ul>	
<b>NPPF and planning implications</b>	<b>Existing Local Considerations</b>	<ul style="list-style-type: none"> <li>• The Borough Council's Local Plan has grouped West Walton and Walton Highway together to form a Key Rural Service Centre. The two preferred development sites are located in Flood Zone 2 and are capable of accommodating a maximum of 20 dwellings.</li> <li>• The community benefits from a large number of defences both coastal defences to the north and tidal defences from the River Great Ouse to the east of the community and from the Tidal Nene on the West of the community. It should be considered, to mitigate the impacts of flooding in this community, that a contribution to the maintenance and or replacement of this defence infrastructure may be considered to assist with safeguarding of residual risk from defence breach within the community. This is especially relevant due to the residual impacts of tidal breach from The River Nene and River Great Ouse as well as the impacts of climate change on the community.</li> </ul>	

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	<b>Requirements and guidance for site - specific Flood Risk Assessment</b>	<ul style="list-style-type: none"> <li>Early consultation with WLMA is strongly recommended in this area.</li> <li>The FRA should address all forms of flood risk (coastal inundation, tidal flooding, fluvial, pluvial and groundwater).</li> <li>Investigate the impacts of climate change from all flooding sources on the site.</li> <li>Safe access and egress will need to be considered, taking into account the additional impact of climate change. An FRA should also suggest appropriate mitigation (flood resilience) measures and prepare a flood evacuation plan for the site.</li> <li>AStGWF data availability was limited for this site, as such the potential of broadscale assessment is limited and the suitability of SuDS will need to be determined by on-site investigations. Any SuDS measures should be applied using the guidance provided by the LLFA.</li> <li>Consideration needs to be given to the impacts of tidal breach on the site by investigating changes in depths and velocities of flood waters at the site.</li> <li>Detailed hydraulic modelling will need to consider any drains within and surrounding the settlement that are likely to affect the site to assess fluvial flood risk in the community (including IDB drains). Hydraulic modelling should also seek to understand the impact of residual risk from culvert blockage to any proposed site from structures along these watercourses.</li> <li>The FRA must demonstrate how the development would provide wider sustainability benefits to the community that outweigh the risk associated with flooding and that the development would be safe for its lifetime without increasing flood risk elsewhere and, where possible, would reduce flood risk overall.</li> </ul>	

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Most likely source of flooding		Surface Water		
<b>Conclusions and recommendations</b>	Tidal and Coastal	Fluvial	Surface Water	
	200-year and Breach	5% AEP	3.3% AEP	
	<ul style="list-style-type: none"> <li>The two preferred development sites highlighted in the Local Plan are located in Flood Zone 2 and are capable of accommodating a maximum of 20 dwellings.</li> <li>The community is mostly within an area benefiting from flood defences.</li> <li>Consider contributions to the defences protecting the settlement.</li> <li>Majority of the settlement located in Flood Zone 3a.</li> <li>No historical flooding recorded.</li> <li>No additional impacts of fluvial and tidal climate change however the impact of climate change is highlighted for this area in higher level policy considerations.</li> <li>Consider the impacts of tidal breach.</li> <li>Consideration of safe access and egress.</li> <li>Early consultation with WLMA is strongly recommended in this area.</li> </ul>			
	<b>Mapping Information</b>			
<b>Flood Zones</b>	<ul style="list-style-type: none"> <li>Indicative Flood Zone 3b is comprised from Environment Agency Flood Zone 3 containing fluvial model outlines.</li> <li>Flood Zone 3a is comprised of Environment Agency supplied outlines from the tidal Wash 2018 modelling and from Environment Agency Flood Zones 3 containing fluvial model outlines.</li> <li>Flood Zone 2 is comprised of Environment Agency supplied outlines from the tidal Wash, 2018 modelling and from Environment Agency Flood Zone 2 containing fluvial model outlines.</li> </ul>			