

## Appendix E – Summary of flood risk in Uttlesford District

The table below summarises the areas where there are notable flood risks within Uttlesford District. For this summary, the district has been delineated into three sub-areas, taking into account the direction of flow of watercourses. Further information on the Uttlesford District sub-areas can be found in Section 5.10 of the main report.

Sub-area	Fluvial flood risk	Existing defences	Surface water flood risk	Susceptibility to Groundwater flood risk	Reservoir inundation risks	Historic, recorded flood events
Sub-area 1: River Cam North Flowing	<p>This area is largely rural and located in the north of the District. The River Cam runs through the centre of the sub-area, in a northerly direction, into the River Cam (outside the District). There is fluvial flood risk through the centre of the sub-area, following the route of the River Cam. Significant proportions of this are in Flood Zone 3, including the centre of Saffron Walden, Wendens Ambo and Newport. One flow path of Flood Zone 3 follows the B1039. It is also likely that roads in and around Saffron Walden will be inundated, particularly the B1053, Thaxted Road and Little Walden Road.</p> <p>The east of the sub-area is at fluvial risk from the River Bourne, flowing in a northerly direction towards the River Cam. The centre of Ashdon is within Flood Zone 3 and therefore at fluvial flood risk. Church Hill Road and Bartlow Road are at risk from inundation in both Flood Zones 2 and 3.</p>	<p>The EA AIMS dataset shows a series of 'natural high ground' defences along the River Cam and its tributaries, through the centre of the sub-area.</p>	<p>Surface water flood risk follows the topography of the area.</p> <p>The RoFfSW map shows that in general, most surface water flow paths route water to the centre of the sub-area from the western border and eastern border of the sub-area.</p> <p>During the 3.3% AEP events and greater, a major flow path flowing from south to north puts Newport at risk from surface water flooding. A second flow path flowing east to west puts Saffron Walden at risk. As the AEP event increases, the extent, depths and velocities of this flooding intensifies.</p> <p>During the 3.3% AEP event residential areas such as Wicken Bonhunt and south Wendens Ambo are at risk of inundation. During the 1% AEP event the number of residential areas inundated increases to include Quendon and Arkesden. During the 0.1% AEP event Widdington, Hadstock, Little Chesterford and</p>	<p>The JBA Groundwater Emergence map dataset shows groundwater levels at or very near (within 0.025m of) the ground surface surrounding the River Cam. Saffron Walden, Little Chesterford, Great Chesterford and the east of Newport are susceptible to Groundwater flooding due to being in this zone.</p> <p>Groundwater levels between 0.025m and 5m below the surface are present down the centre of the sub-area.</p> <p>Based on the RoFfSW dataset, it is likely any groundwater that emerges in sub-area 1 will flow south to north through the centre of the sub-area, following the route of the River Cam. This is a risk to urban centres such as Newport, Saffron Walden, Little Chesterford and Great Chesterford.</p>	<p>There are no reservoir flood extents which impact the area during the 'Dry Day' nor the 'Wet day' scenarios.</p>	<p>Historic flood mapping, EA recorded flood outlines, and LLFA historic flood points suggest the following:</p> <ul style="list-style-type: none"> <li>• Northwest Newport- Fluvial flooding from the River Cam in October 2001, however the cause of the flooding is unknown.</li> <li>• West of Audley End Estate- Fluvial flooding from the River Cam in October 2001, however the cause of the flooding is unknown.</li> <li>• West of Saffron Walden Golf Club- Fluvial flooding from the River Cam in October 2001, however the cause of the flooding is unknown.</li> <li>• East of Littlebury- Fluvial flooding from the River Cam in October 2001, however the cause of the flooding is unknown.</li> <li>• Centre of Little Chesterford- Fluvial flooding from the River Cam in October 2001, however the cause of the flooding is unknown.</li> <li>• East of Great Chesterford- Fluvial flooding from the River Cam in October 2001, however the cause of the flooding is unknown.</li> <li>• North of Great Chesterford- Surface water runoff in October 2001, however the cause of the flooding is unknown.</li> <li>• East of Ashdon- Fluvial flooding from the River Bourne in October 2001, however the cause of the flooding is unknown.</li> <li>• The LLFA historic flood points and recorded flood outlines also show other isolated incidents of surface water flooding in the sub-area.</li> <li>• There are 3 recorded incidences of sewer flooding in this sub-area, centred around Saffron Walden.</li> </ul>

Sub-area	Fluvial flood risk	Existing defences	Surface water flood risk	Susceptibility to Groundwater flood risk	Reservoir inundation risks	Historic, recorded flood events
			<p>Great Chesterford are also inundated, along with several other smaller residential areas.</p> <p>To the northeast of the sub-area, surface water flow paths are flowing from southwest to northeast, putting Ashdon at risk. There are also small, isolated areas of surface water ponding which suggest localised flood risk.</p>			
<p>Sub-area 2: River Chelmer and River Pant</p>	<p>This area is largely rural and located in the east of the District. The River Chelmer runs through the centre of the south of the sub-area, in a southeasterly direction.</p> <p>There is fluvial flood risk through the centre of the sub-area, following the route of the River Chelmer. Significant proportions of this are in Flood Zone 3, including the west of Thaxted, west of Great Dunmow and the east of Stebbing. Smaller residential areas which would be impacted include Flich Green and Lindsell.</p> <p>The south of the sub-area is at fluvial risk from the River Ter, flowing in a southeasterly direction. This is in Flood Zone 2, but due to the rural nature of the area, no</p>	<p>The EA AIMS dataset shows high ground defences along the River Chelmer to the east of the sub-area, Stebbing Brook to the south, the River Ter to the southwest and the River Pant to the north of the sub-area.</p>	<p>Surface water flow paths follow the topography of the land, flowing south. The RoFfSW map shows Great Stamford is at risk of flooding due to a surface water flow following the River Pant. Great Dunmow is at risk of surface water flooding following the alignment of the River Chelmer floodplain.</p> <p>During the 3.3% AEP event residential areas such as Radwinter, Little Bardfield, Stebbing and Little Dunmow are at risk of inundation. During the 1% AEP event the number of residential areas inundated increases to include settlements such as Flich Green. During the 0.1% AEP event several other</p>	<p>The JBA Groundwater Emergence map dataset shows groundwater levels at or very near (within 0.025m of) the ground surface in the immediate floodplain surrounding the River Pant and Stebbing Brook.</p> <p>Groundwater levels between 0.025m and 5m below the surface are present in the wider floodplain of Stebbing Brook, River Chelmer and the River Pant. This will impact Thaxted, Stebbing and Great Dunmow.</p> <p>Based on the RoFfSW dataset, it is likely any groundwater that emerges in sub-area 1 will flow southwest through the sub-area, following the route of Stebbing Brook, River Chelmer and the River Pant. This is a risk to urban centres such as</p>	<p>The following reservoirs impact the sub-area in the 'dry day' scenario.</p> <ul style="list-style-type: none"> <li>Little Easton Reservoir – Located to the west of Little Easton the flow path of this reservoir in a 'dry day' scenario is moving in a south-easterly direction through the centre of the sub-area, and then along the boundary of Uttlesford District in the south. The extent of the flooding does not impact any residential areas.</li> </ul> <p>The following reservoirs impact the sub-area in the 'wet day' scenario.</p> <ul style="list-style-type: none"> <li>Little Easton Reservoir- The 'Wet Day' scenario inundates to a greater extent. The west of Great Dunmow is inundated, as well as the south of Flich Green.</li> </ul>	<p>Historic flood mapping, EA recorded flood outlines, and LLFA historic flood points suggest the following:</p> <ul style="list-style-type: none"> <li>Southwest of Great Sampford- Fluvial flooding due to channel capacity exceedance of the River Pant in 1947.</li> <li>East and south of Radwinter- Fluvial flooding due to channel capacity exceedance of the River Pant in 1947.</li> <li>East of Thaxted- Fluvial flooding due to channel capacity exceedance of the River Chelmer in 1947.</li> <li>East of Great Easten- Fluvial flooding due to channel capacity exceedance of the River Chelmer in 1947.</li> <li>East of Little Easten- Fluvial flooding due to channel capacity exceedance of the River Chelmer in 1947.</li> <li>East of Great Dunmow- Fluvial flooding due to channel capacity exceedance of the River Chelmer in 1947.</li> <li>South of Flich Green- Fluvial flooding due to channel capacity exceedance of the River Chelmer in 1947.</li> <li>The LLFA historic flood points and recorded flood outlines also show other isolated incidents of surface water flooding in the sub-area.</li> </ul>

Sub-area	Fluvial flood risk	Existing defences	Surface water flood risk	Susceptibility to Groundwater flood risk	Reservoir inundation risks	Historic, recorded flood events
	<p>large residential areas are at risk.</p> <p>The north of the sub-area is at fluvial risk from the River Pant, flowing in a southeasterly direction. Parts of this are in Flood Zone 3, putting Radwinter and Great Stampford at risk. The B1053 and B1055 are also at risk from inundation.</p>		<p>smaller residential areas are inundated.</p> <p>There are also a significant number of small, isolated, areas of surface water ponding, which may suggest localised flood risk. These are focussed to the east of the sub-area, impacting agricultural land.</p>	<p>Thaxted, Stebbing and Great Dunmow .</p>		<ul style="list-style-type: none"> <li>There are 11 recorded incidences of sewer flooding in this sub-area, mostly centred around Dunmow.</li> </ul>
<p>Sub-area 3: River Stort, Stansted Brook, Pincey Brook and River Roding</p>	<p>This area is largely rural and located in the west of the District. The River Stort runs through the north of the sub-area in a southerly direction. Clavering is at risk from flooding due to being in Flood Zones 2 and 3 however, fluvial flood risk is more centred to the south of the river with the east of Manuden in Flood Zone 3. The B1383 to the south of the river is inundated by Flood Zones 2 and 3.</p> <p>Bourne Brook flows parallel to the River Stort, to the east of the Catchment however, due to the rural nature of the area, no large residential areas are within Flood Zones 2 or 3.</p> <p>Ugley Brook flows parallel to the River Stort, to the west of the sub-area with Flood Zones 2 and 3 putting</p>	<p>The EA AIMS dataset shows that in numerous sites along the main channel of the River Stort, Embankments are present. This protects the north of the sub-area. A tributary to the River Stort, along the southwestern sub-area boundary is also protected by embankments.</p> <p>Stansted Brook running through the centre of the sub-area, Bourne Brook, Ugley Brook, Pincey Brook and associated tributaries are protected by natural high ground.</p>	<p>Surface water flow paths follow the topography of the land, flowing from northeast to southwest. An extensive surface water flow path crosses the M11 to the north of the sub-area.</p> <p>Stansted Mountfitchet and Takeley are impacted in the 3.3% AEP events and greater with surface water flow paths mainly flowing down roads.</p> <p>There is extensive ponded surface water flooding in and around Hatfield Forest and south of London Stansted airport.</p> <p>There are also small, isolated areas of surface water ponding, which may suggest localised flood risk.</p> <p>During the 3.3% AEP event residential areas</p>	<p>The JBA Groundwater Emergence map dataset shows groundwater levels at or very near (within 0.025m of) the ground surface surrounding Stansted Brook and the River Stort. The centre of Stansted Mountfitchet is susceptible to Groundwater flooding due to being in this zone.</p> <p>Groundwater levels between 0.025m and 5m below the surface are present in the wider floodplain of Stansted Brook and the Rivert Stort, as well as Bourne Brook. This will impact Stansted Mountfitchet, Elsenham, Manuden and Hatfield Heath.</p> <p>Based on the RoFfSW dataset, it is likely any groundwater that emerges in sub-area 1 southeast through the centre of the sub-area, following the route of Stansted Brook, the River Stort and Bourne</p>	<p>The following reservoirs impact the sub-area in the 'dry day' scenario.</p> <ul style="list-style-type: none"> <li>Balancing Pond C – Located to the west of Takeley, the flow path is moving in a southerly direction through the southwest of the sub-area. The flow path converges with that of the 'dry day' Hatfield Forest Lake. The extent of the flooding does not impact any residential areas, but the north of Dunhall Wood is inundated.</li> <li>Hatfield Forest Lake – This lake is located to the east of Hatfield Forest and the flood water flows in a southerly direction, through the southwest of the sub-area. The extent of the flooding does not impact any residential areas, but the north of Dunhall Wood is inundated.</li> <li>Lancaster Lake- This lake is located outside the sub-area, to the east of Uttlesford District, east of Mathams Wood. A small proportion of the 'dry day' scenario flows along the western boundary of the sub-area but does not inundate any residential areas.</li> </ul>	<p>Historic flood mapping, EA recorded flood outlines, and LLFA historic flood points suggest the following:</p> <ul style="list-style-type: none"> <li>March 1947- There is recorded fluvial flooding due to channel capacity exceedance of the Bourne Brook and Pincey Brook. These inundate multiple sites along the water courses, including the east of Mauden and the east and centre of Stansted Mountfitchet.</li> <li>October 1993- There is recorded fluvial flooding due to channel capacity exceedance of the River Roding. This inundates a number of sites along the River Roding including the centre of Great Canfield.</li> <li>October 2001- There is recorded fluvial flooding due to channel capacity exceedance of the Pincey Brook and River Stort. These inundate multiple sites along the water courses, including the east of Clavering and the east and centre of Stansted Mountfitchet.</li> <li>March 1947- Flooding due to surface water run-off in the northeast of the Sub-area</li> <li>November 1974, May 1978 and October 1993- Flooding due to surface water run-off in the southeast of the Sub-area</li> <li>The LLFA historic flood points and recorded flood outlines also show other isolated incidents of surface water flooding in the sub-area.</li> </ul>

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	<p>Bentfield and Stansted Mountfitchet at risk.</p> <p>Stansted Brook flows in a westerly direction through the centre of the sub-area. The east of Stansted Mountfitchet is at risk from Flood Zones 2 and 3 as well as Elsenham and the M11.</p> <p>The Bourne flows in a westerly direction, to the south of Stansted Brook, putting the M11 at risk from fluvial flooding.</p> <p>The Pincey Brook flows in a southerly direction in the southeast of the sub-area. The west of Hatfield Broad Oak, the east of Hatfield Heath and the A120 are within Flood Zone 3.</p> <p>The River Roding flows in a southerly direction in the southwest of the sub-area. Flood Zones 2 and 3 put Molehill Green, Little Canfield and Great Canfield at risk.</p> <p>The River Can flows in a southerly direction in the southwest of the sub-area. However, due to the rural nature of the area, no residential areas are within Flood Zones 2 or 3.</p>		<p>such as Clavering and Manuden are at risk of inundation. During the 1% AEP event the number of residential areas inundated increases to include settlements such as Hatfield Broad Oak and Little Canfield. During the 0.1% AEP event several other smaller residential areas.</p>	<p>Brook. This is a risk to urban centres such as impact Stansted Mountfitchet, Elsenham, Manuden and Hatfield Heath .</p>	<p>The following reservoirs impact the sub-area in the 'wet day' scenario.</p> <ul style="list-style-type: none"> <li>• Balancing Pond C – The 'wet day' scenario inundates to a greater extent however, the extent of the flooding does not impact any residential areas, but the north of Dunhall Wood is inundated.</li> <li>• Hatfield Lake - The 'wet day' scenario inundates to a greater extent however, the extent of the flooding does not impact any residential areas, but the north of Dunhall Wood is inundated.</li> <li>• Lancaster Lake- proportion of the 'wet day' scenario flows along the western boundary of the sub-area but does not inundate any residential areas.</li> </ul>	<ul style="list-style-type: none"> <li>• There are 25 recorded incidences of sewer flooding in this sub-area, based on postcode area. Most of these are to the west of Bishop Stortford.</li> </ul>