

## Preliminary flood risk assessment: Kent County Council

This addendum by Kent County Council (2017) updates the council's preliminary flood risk assessment report published in 2011. Read the addendum in conjunction with the [preliminary assessment report](#).

### Addendum

The preliminary flood risk assessment (PFRA) and flood risk areas (FRAs) for Kent County Council (KCC) were reviewed during 2017, using all relevant current flood risk data and information.

Changes to the assessment of risk since the preliminary assessment report was published in 2011 are described in the statements in this addendum. KCC have undertaken extensive investigations of flood risk in the county since the publication of the original preliminary assessment, which has greatly improved our understanding of the risks of flooding, however, this has not led us to identify any floods that have led us to alter our understanding of significant flood risk in Kent, according to the criteria established by Defra.

### Past flood risk

Kent has not experienced any floods from surface water, groundwater or ordinary watercourses since 2011 that have led us to alter our understanding of significant flood risk in Kent. However there have been some significant floods from main rivers, which are reported by the Environment Agency.

Whilst there have been not significant floods since 2011, we have added some notable floods in Annex 1 of the PFRA, these include:

<b>Date of event</b>	<b>Comments</b>
<b>3 Jun 2012</b>	Heavy rainfall caused surface water flooding in west Kent, including parts of Tunbridge Wells.
<b>5/6 Dec 2013</b>	Tidal flooding caused floods to properties in a few areas, including Faversham and Sandwich.
<b>24 Dec 2013</b>	Heavy rainfall caused very high flows on the River Medway (main river), causing flooding to a large number of properties in Tonbridge, East Peckham, Yalding, Collier Street, Laddingford, Maidstone, Edenbridge and surrounding areas, as well as other rivers in Kent.
<b>Winter/Spring 2014</b>	High groundwater levels in the chalk aquifers led to groundwater flooding in parts of Kent, most notably the Nailbourne Valley a number of winterbournes also flowed and caused localised flooding, including the Petham and Alkham Bournes. The Nailbourne and Little Stour (main rivers) experienced high flows for prolonged periods which caused flooding and disruption to properties and the communities in these areas. This was caused by high groundwater in the chalk aquifer, which also caused groundwater flooding, High flows and groundwater water also experienced along the Darent Valley and the villages along the southwestern edge of the North Downs, between Maidstone and Ashford.
<b>21 May 2014</b>	Heavy rainfall in east Kent, causing flooding in Deal.
<b>18 -21 Jul 2014</b>	Very heavy rainfall in north Kent led to a number of flooded roads and properties in Gravesend, Sittingbourne and the surrounding areas.
<b>13 Oct 2014</b>	Heavy rainfall in west Kent causing flooded roads in Sevenoaks and surrounding areas
<b>24 Aug 2015</b>	Heavy rainfall in west Kent causing flooding including several roads and properties in Tunbridge Wells town.
<b>5 January 2016</b>	Heavy rainfall in south Kent causing flooding to several roads and properties, particularly Dover and Shepway.
<b>25 Jun 2016</b>	Heavy rainfall in many parts of Kent, particularly Ightham, Sevenoaks and Ramsgate.

**Future flood risk**

KCC has undertaken a number of Surface Water Management Plans (SWMPs) to inform our understanding of the risks of local flooding in Kent. The SWMPs fall into two categories,:

Stage 1 SWMPs - these are simple high-level SWMPs that gather available data on local flood risks, including flood history and national surface water mapping, to identify where the highest risks of local flooding are and where further investigations are needed (or not). Stage 1 SWMPs often cover a large area, we have undertaken them over whole boroughs and districts in Kent.

Stage 2 SWMPs - these are more detailed studies that involve hydraulic modelling of the relevant drainage infrastructure to give a detailed picture of risks of local flooding and to test potential mitigation options.

Details of the Stage 2 SWMPs have been added to Annex 2 of the PFRA as they provide information on future floods.

Some of our SWMPs can be found on our website:

<http://www.kent.gov.uk/about-the-council/strategies-and-policies/environment-waste-and-planning-policies/flooding-and-drainage-policies/surface-water-management-plans>

The table overleaf provides a summary of the findings of the SWMPs we have undertaken:

<b>SWMP area</b>	<b>Type of SWMP</b>	<b>Year of completion</b>	<b>Summary of findings</b>	<b>Further work</b>
<b>Dover (town)</b>	Stage 2	2011	The SWMP modelled the flood risk from the sewers, main river and its tidal outfall and surface water together. It showed several areas of Dover that are at risk of local flooding from surface water runoff.	KCC worked with DDC to implement property level resilience measures in parts of the town centre that are most at risk of flooding. KCC investigated options to reduce flood risk in Buckland and the Mid-town area, however the options provided too few benefits at high costs The Environment Agency has undertaken further modelling of the flood risk in Dover, including surface water, in 2015, which has shown that the risks are lower than this SWMP showed as the rainfall characteristics are more refined. KCC continues to monitor flood risk in Dover.
<b>Paddock Wood</b>	Stage 2	2011	This SWMP modelled the risks of flooding from the main river (Paddock Wood Stream), the ordinary watercourses, the sewers and surface water in the town. It showed that the town centre relies on the capacity of several small watercourses for the function of the surface water drainage.	KCC undertook a further study into the risks and options for mitigation in Paddock Wood. Some of these options are not deliverable as the areas they would be implemented are now allocated sites for development. KCC has worked with the developers to incorporate flood risk management measures into their proposals. KCC is investigating the remaining options for Paddock Wood.
<b>Maidstone and Malling (Maidstone town and East and West Malling)</b>	Stage 1	2012	This SWMP showed that the history of flood risks in these towns is relatively small, it is predominantly from surface water runoff in Maidstone and from ordinary watercourses in East and West Malling.	KCC has worked with the residents of Frog Lane and Network Rail to manage the flows from the watercourse along Frog Lane. KCC has undertaken works on Boarley Lane to remove a weir to reduce flooding. KCC continues to monitor the flood risk in Maidstone and the Malling towns.
<b>Swale</b>	Stage 1	2012	This SWMP showed that there are risks in Sittingbourne from surface water runoff and the Isle of Sheppey from surface water runoff and tide locking of the Scrapesgate Drain.	KCC has investigated options on the High Street and Bell Road in Sittingbourne and is progressing plans for these roads. KCC undertook the Isle of Sheppey Integrated Asset Management Plan to further investigate options to manage the flood risk management assets on the isle. KCC is further investigating the issues in the Snipeshill area of Sittingbourne
<b>Thameside (Dartford)</b>	Stage 1	2012	The SWMP showed that the risk sin Gravesend were predominantly associated with sewerage and that there were surface water management issues in Dartford.	KCC undertook a Stage 2 SMWP for Dartford.

<b>and Gravesham)</b>					KCC has gathered further information on the risks in Gravesend and concluded that there are no significant risks that we are planning to investigate further at this time. KCC continues to monitor the flood risk in Gravesend.
<b>Folkestone and Hythe</b>	Stage 1	2012	The SWMP showed that there are significant risks in Folkestone and Hythe from surface water runoff and from ordinary watercourses.		KC has undertaken a Stage 2 SWMP for the northern part of Folkestone. KCC has undertaken a Stage 2 SWMP for Hythe and Horn Street. KCC has undertaken a survey of the Enbrook Stream, an ordinary watercourse that crosses numerous private properties. KCC worked with the Environment Agency and Southern Water to undertake a flood risk study in Whitstable. KCC undertook a Stage 2 SWMP in the historic city centre of Canterbury. KCC is working with the Environment Agency and Southern Water to manage the joint flood risk issues in the Nailbourne and Petham valleys. The Environment Agency is currently leading an investigation into mitigation options for the Nailbourne and Little Stour. KCC undertook Stage 2 SWMPs for both Margate and Ramsgate.
<b>Canterbury (whole district)</b>	Stage 1	2012	This SWMP highlighted a number of potential risks in the district. Groundwater flooding poses a risk to the southern part of the district, with problems in the Nailbourne and Petham Bourne valleys. There are flood risks from small watercourses in the coastal towns of Whitstable and Herne Bay and the urban areas of Whitstable and Canterbury have surface water flood risks.		
<b>Thanet</b>	Stage 1	2013	This SWMP showed that surface water runoff poses a risk to Margate and Ramsgate.		
<b>Deal</b>	Stage 2	2013	This SWMP included the sewers and surface water. It showed that there are risks from surface water runoff in Deal, but that each area at risk is discrete and that there isn't a single cause of surface water flooding that can easily be mitigated.		KCC has worked with the River Stour IDB and the River Stour Countryside Management Partnership to improve capacity and maintenance of the ditch that runs from Albert Road behind Mathews Close to reduce the flood risk on Albert Road. KCC has worked with Southern Water to investigate options to reduce the flooding on Church Street, Dover Road and Liverpool Road in Walmer. Unfortunately no options have been identified yet. KCC is still working on an option for Church Street. KCC continues to monitor the flood risk in Deal.
<b>Maidstone (remaining district outside Maidstone town)</b>	Stage 1	2013	This SMWP showed that ordinary watercourses and drainage present a flood risk for the town in the south of the borough.		KCC has worked with the Parish of Boughton-on-Monchelsea to improve the Shaw Stream and worked with the Environment Agency and Maidstone Borough Council to develop an understanding of how to use the flood storage reservoir there. KCC has undertaken Stage 2 SWMPS in Marden, Staplehurst and Headcorn.
<b>Tunbridge Wells (whole district except Paddock Wood)</b>	Stage 1	2013	The SWMP showed that the local flood risks in Tunbridge Wells district are relatively low. It highlighted issues in Five Oak Green. Floods in Tunbridge Wells town in 2015 has revised our assessment of the flood risk in the town.		KCC undertook a Section 19 investigation into the flood event in Tunbridge Wells that caused flooding on 24 August 2015, which has led to investigations in to works in the Pantiles area we are undertaking in partnership with Southern Water.

<b>Ashford (whole district)</b>	Stage 1	2013	The SWMP showed that the local flood risks in Ashford district are relatively low. Flood risk issues were highlighted in Hamstreet.	KCC has undertaken surveys, cleansing and improvement works on ordinary watercourses and drainage in Five Oak Green to reduce the risk of flooding. KCC continues to monitor the flood risk in Tunbridge Wells. KCC further investigated the potential flood risks in Hamstreet with partners and they appear to be historic, works undertaken by the Environment Agency in 2008 appear to have reduced the risks. KCC continues to monitor flood events in Hamstreet.
<b>Sevenoaks (whole district)</b>	Stage 1	2013	The SWMP showed that the local flood risks in Sevenoaks district are relatively low. However, the flood event in 2013 in Westerham, Sundridge and Brasted has since revised our assessment of the risks in this area.	Heavy rainfall caused flooding in December 2013, including surface water flooding, in the upper reaches of the River Darent (Westerham, Brasted and Sundridge). Since then KCC has been working with the community and land owners to manage surface water better. We have installed swales to take water away from the road in Sundridge and direct it into the Darent and have installed a by-pass for an old mill race that takes flood flows reducing flooding downstream. We are continuing to work on options for Westerham. KCC continues to monitor the flood risk in Sevenoaks. KCC continues to monitor the flood risk in Whitstable.
<b>Whistable</b>	Environment Agency led Flood Study	2013	The study was led by the Environment Agency and included KCC and Southern Water. The study investigated the risks from the main river, sewer and surface water and showed that the flooding is largely associated with the performance of the public sewer. Mitigation options that we tested, including upstream storage and downstream storage were not found to be feasible as there is insufficient space for them.	
<b>Margate</b>	Stage 2	2014	The model included the sewers and the tidal effect on their outfalls and the surface water in the town. It showed that the risks of flooding are relatively low, however there is a long-term capacity issue for the sewers in Margate from increased development and climate change, there is also an impact on the quality of bathing waters.	KCC has worked with Southern Water to look at a number of options in Margate to reduce surface water runoff into the sewers to improve capacity. Discussions are ongoing with Southern Water about how work like this could be funded.
<b>Folkestone (north of the railway line)</b>	Stage 2	2014	The model included the surface water, sewers and main river in Folkestone north of the railway line, including the areas of Foord, Cheriton and Morehall. It showed that there are complex risks in some of these areas due to the interaction of the various drainage systems.	KCC has progressed works to reduce the risk of flooding in Downs Road. KCC is working with the Environment Agency and Southern Water to develop a joint strategy to understand and address the long-term issues in Folkestone.

<b>Canterbury (historic city centre)</b>	Stage 2	2014	This study included the sewers and surface water and the effect of the river level on the sewer outfalls and focussed predominantly on the historic city centre. It found that the city centre is at relatively low risk of surface water flooding. However it also shows there are potential local flood risks in the urban areas around the historic city centre.	KCC is planning to further investigate the flood risk issues highlighted in the Canterbury SWMP.
<b>Ramsgate</b>	Stage 2	2015	This study included the sewers and surface water. It showed that there are areas where Ramsgate is potentially at risk of local flooding, however, the data gathering exercise did not uncover much evidence of reports of flooding in these areas, which would be expected given the risks that are highlighted.	KCC has undertaken further investigations into the history of flooding in Ramsgate and we now have evidence for some of the areas highlighted. We are planning to look into these areas further.
<b>Hythe and Horn Street</b>	Stage 2	2015	This study included the surface water, sewers, main rivers and ordinary watercourses in Hythe. It showed that there is a risk of flooding in Hythe, partly due to the steep topography and fast runoff. However, the density of the town also limits the options to mitigate the risks.	KCC has worked with Public Rights of Way and a local developer to reduce the risks of runoff flowing onto Seabrook Road once the development is complete. KCC is planning to investigate the options to improve the capacity of the Whytenbrook stream culvert. KCC is planning to look into the other options for Hythe further. There are no further actions for KCC from this study, as there are only a few assets we manage. The Environment Agency have undertaken an investigation into an unidentified asset that may help to manage the impact of tide-locking on the Scrapesgate Drain.
<b>Isle of Sheppey (Integrated Asset Management Plan)</b>	Stage 2	2015	This study looked at the flood risk issues in Sheerness and Minster, it included the main rivers, ordinary watercourses, sewers and surface water. The purpose of the study was not to investigate flood risk management mitigations through new interventions, but to see if alternative management practices could reduce the risks. The study helped to improve the understanding of the different assets owned by the various parties and how they managed them.	
<b>Dartford</b>	Stage 2	2016	This study included surface water and sewers flooding and the impact of the river levels in the sewer outfalls. It showed areas of flooding, but these were primarily associated with the highway.	KCC continues to monitor the flood risk in Dartford.
<b>Marden</b>	Stage 2	Draft (expected 2017)	This study included surface water, sewers, ordinary watercourses and the main river. It showed that there are local flood risks in the area associated with the flat topography and impermeable soils. Well functioning drainage is key to managing the flood risk in Marden.	KCC has cleared some drainage and worked with developers of sites in the vicinity to ensure they are aware of the risks and take appropriate design decisions. KCC works with Maidstone Borough Council to manage the local drainage network in Maidstone Borough, including in Marden.
<b>Staplehurst</b>	Stage 2	Draft (expected 2017)	This study included surface water, sewers, ordinary watercourses and the main river. It showed that there are local flood risks in the area associated with the flat	KCC has investigated the outfall of a surface water storage tank that takes surface water from a development constructed in the 1980s, which appears to be orphaned. We are discussing the ownership with appropriate parties.

<b>Headcorn</b>	Stage 2	Draft (expected 2017)	topography and impermeable soils. Well functioning drainage is key to managing the flood risk in Staplehurst. This study included surface water, sewers, ordinary watercourses and the main rivers. It showed that there are risks from ordinary watercourses and the main river and also that the drainage network in the village is susceptible to flooding.	KCC works with Maidstone Borough Council to manage the local drainage network in Maidstone Borough, including in Staplehurst. KCC are planning to investigate the land drainage network in the village and to work with Maidstone Borough Council to identify opportunities to improve it and keep it maintained.
-----------------	---------	-----------------------------	--	---

**Flood risk areas (FRAs)**

No FRAs have been identified in the Kent County Council lead local flood authority area for the purposes of the Flood Risk Regulations (2009) 2nd planning cycle.

**Other changes**

The West of Gravesend Commissioners of Sewers, formerly an EA administered IDB, has been disbanded following a review and consultation on its role.

The East of Gravesend Commissioners of Sewers, formerly an EA administered IDB, has been reformed into a new independent IDB called the North Kent Marches IDB, following a review and consultation on its role. The new IDB is administered by Medway Council.

**Kent County Council  
December 2017**