Preliminary flood risk assessment: Surrey County Council

This addendum by Surrey 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 Surrey County Council 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.

Past flood risk

The Environment Agency PFRA 2017 Guidance (see ref 1) states that Section 19[1] flood investigations are to be used to list past flood events since the PFRA 2011. The following lists the Section 19s carried out by Surrey lead local flood authority (LLFA) that are published on the Surrey County Council website:

Winter 13/14 – published Section 19s for all Districts / Boroughs in Surrey
Woking 11th May 2016 – published Section 19
Caterham Hill 7th June 2016 – published Section 19
Hengest Avenue 23rd June 2016 – published Section 19
Woking 16th September 2016 – addendum to Woking 11th May Section 19

Copies of the Section 19 investigations are located at:
https://www.surreycc.gov.uk/people-and-community/emergency-planning-and-community-safety/flooding-advice/more-about-flooding/surrey-s19-flood-investigations

The Winter 2013/14 events indicated that flooding from multiple sources was common in many areas throughout Surrey. In particular, groundwater flooding occurred in areas of Spelthorne and Runnymede. Groundwater recharge in the Thames gravels from the River Thames together with the cumulative infiltration from the numerous rainfall events caused groundwater flooding at surface in many areas that was compounded by river flooding and surface water overland flows.

In the Caterham area the Bourne is a groundwater fed river. The Section 19 for this area in Winter 13/14 indicates the complex interplay between groundwater flooding at surface, river flooding and surface water flooding, in particular where the Bourne is culverted.

The summer storm events in 2016 located in Caterham Hill, Woking and Hengest Avenue Elmbridge resulted in predominantly surface water flooding. With the first two events, sewage was included in some of the internal flooding and external flood locations. These events indicated the complex interplay between surface water infiltration and overland flows during the incidents, and the exceedance of drainage systems during these intense rainfall events.

[1] An investigation into a flooding event that a lead local flood authority (LLFA) is required to carry out under Section 19 of the Flood and Water Management Act 2010, and according to the LLFA's local flood risk management strategy

Historic Flood Data used in Surrey

The historic flood datasets used by Surrey LLFA include information collated by the flood risk management authorities and Environment Agency specific historic data. Surrey County Council keep a record of flood enquiries relating to flooding reported to Surrey County Council using a works management system (WMS). A list of the main historic datasets used by Surrey LLFA and partners are listed in Table 1.

Table 1. List of historic flood data evidence used by the LLFA for mapping historic flood events.

Historic flood data	Agency	Currency	Description
Historic Flood Map	EA	April 2017	Aggregated recorded flood outlines define maximum areal extent of historic flood outlines.
Recorded Flood Outlines	EA	April 2017	Mapped extents of recorded flood events.
Wetspot	SCC	May 2017	Historic location of flooding on the highway. Process is being reviewed.
Property Flooding database	SCC collated	May 2017	Collation of property flood information. Data collated from Surrey Fire and Rescue, EA, SCC Highways, SCC Contact Centre and Local Authorities. As part of the Strategy, SCC is looking to put in place regular updates. This sensitive dataset is not published publically. Property flood points are aggregated to road sections to show indicative location of property flooding.
Historic Flooding Incidents	SCC collated	May 2017	Indicative non-point specific location of flooding aggregated to road sections. Review being carried out as part of LFRMS. RMAs (listed above) provide information for this dataset.
Flood Enquiries	SCC	May 2017	The LLFA and SCC Highways record locations of highway flooding and flood enquiries. This is currently recorded using a works management system (WMS).

Historic flooding incidents are also referenced in the 11 District / Borough Strategic Flood Risk Assessments (SFRAs). Six of the District / Boroughs have updated their SFRAs since the PFRA 2011. A list of the published SFRAs is outlined in Table 2.

Table 2: Local Authority Strategic Flood Risk Assessment information.

Local Authority	SFRA publish date	SFRA website location url
Elmbridge	June 2015	http://www.elmbridge.gov.uk/planning/sdps/flood-risk/sfra/
Epsom and Ewell	May 2008	http://www.epsom-ewell.gov.uk/sites/default/files/documents/residents/planning/planning-policy/SFRA%202008.pdf
Guildford	January 2016	http://www.guildford.gov.uk/newlocalplan/strategicfloodriskassessment
Mole Valley	January 2012	https://www.molevalley.gov.uk/index.cfm?Articleid=18367
Reigate and Banstead	May 2012	http://www.reigate-banstead.gov.uk/downloads/file/200/reigate_and_banstead_strategic_flood_risk_assessment_2012
Runnymede	May 2009	https://www.runnymede.gov.uk/article/5246/Flooding-policy-documents-and-guidance
Spelthorne	December 2006	https://www.spelthorne.gov.uk/article/2881/Flood-risk-areas
Surrey Heath	October 2015	http://www.surreyheath.gov.uk/residents/planning/planning-policy/evidence-base

Tandridge	December 2008	http://www.tandridge.gov.uk/yourcouncil/documents/document_display.htm?pk_document=1416
Waverley	June 2010	http://www.waverley.gov.uk/site/scripts/download_info.php?downloadID=909
Woking	November 2015	https://www.woking.gov.uk/planning/policy/ldfresearch/sfra

Three District / Boroughs have produced a Surface Water Management Plan (SWMP) since the PFRA 2011 (see table 3). Information regarding local knowledge on historic flood evidence is located in relevant sections.

Table 3. List of published SWMPs and Critical Drainage Areas.

District / Borough	Published	Description
Epsom and Ewell	2010	The SWMP and associated Critical Drainage Area is referenced in the LA SFRA and Surrey's LFRMS 2014.
Guildford	Oct 2014	The Surface Water Management Plans for Guildford and Ash local areas are located: http://www.guildford.gov.uk/newlocalplan/surfacewatermanagementplan
Woking	July 2014 - draft	The SWMP is referenced in the Woking SFRA and Surrey's LFRMS 2014. The SWMP covers Woking and Byfleet.

In the Guildford SWMP, past flooding events have been recorded which was used to identify local area flooding hotspots; see pages 22-23 in the Guildford Technical Report. In the Woking SWMP section 3 details information on locations of historic flooding; see pages 9 to 12.

Epsom and Ewell have carried out an assessment of surface water risk and have defined a Critical Drainage Area located in Epsom. This is an extension southwards of the risk of flooding from rivers related to the Hogsmill Stream.

Surrey LLFA attends the Wey Landscape Partnership and River Mole Catchment Partnerships. The LLFA is reviewing how to capture local information on past flooding from these groups listed in the LFRMS Information Objective 1 action plans.

Future flood risk

The Environment Agency flood risk modelling including flooding from rivers and sea, and surface water has changed since the PFRA 2011. Table 4 includes the key risk datasets, used to assess risk in Surrey, that have been updated since the PFRA 2011 including the change in risk dataset name.

Table 4. Changes to modelled risk data provided by the EA and groundwater flooding data provided by the British Geological Survey (BGS).

Flood Risk Model / Susceptibility map	Agency	Data Currency	Dataset updates
Fluvial - Flood Map for Planning	EA	April 2017	The "Flood Map for Planning" is updated quarterly.
Fluvial - Risk of Flooding from Rivers and Sea	EA	March 2017	The "Risk of Flooding from Rivers and Sea" (RoFRS) includes modelled risk include areas benefitting from defences. The current datasets is dated March 2017.
Fluvial - Properties at RoFRS	EA	March 2017	Properties and postcodes at RoFRS is based on the National Receptors Database. The current point data is March 2017.

Surface Water - Risk of Flooding from Surface Water	EA	May 2016	The uFMfSW has now been renamed to "Risk of Flooding from Surface Water" (RoFSW). The data is updated annually.
Surface Water - Properties at RoFSW	EA	V1	The properties at risk of flooding from surface water (formerly uFMfSW wetted perimeter dataset) is provided to LLFAs on request. Surrey LLFA to check on version.
Risk of flooding from Multiple Sources	EA	Sept 2016	Raster datasets showing combined risk. Three data layers including Risk Band, Risk Contribution and Suitability.
Groundwater	EA / BGS	May 2011	Areas Susceptible to Groundwater Flooding 2010 is a regional dataset where the BGS Susceptibility of Groundwater Flooding dataset was aggregated to a 1km grid.
Groundwater	BGS	V6.1	The Susceptibility of Groundwater Flooding v6.1
SuDS detailed	BGS		The Sustainable Drainage detailed dataset includes data layers that can be used to assess the regional to local suitability for applying SuDS e.g. suitability for using SuDS for infiltration. The "depth to water table" is used to gain an understanding on the local depth to groundwater.

Since the PFRA 2011 there have been significant updates to the "Flood Map for Planning" and "Risk of Flooding from Rivers and Sea (RoFRS)". The updated flood map for surface water (uFMfSW) has been updated and the data name changed to "Risk of Flooding from Surface Water". Also, in 2016 the "Risk of Flooding from Multiple Sources" is a new Environment Agency dataset that combines all sources of flood risk.

The risk of flooding from groundwater is currently not at the same spatial resolution as fluvial and surface water risk. The "Areas Susceptible to Groundwater Flooding 2010" based on the BGS Susceptibility to Groundwater flooding was used to assess the regional susceptibility to groundwater flooding for the PFRA 2011. Surrey LLFA now use the BGS "Susceptibility to Groundwater Flooding" to assess regional and local areas. The BGS SuDS detailed is also used to understand information on the current knowledge on "depth to water table". Surrey LLFA receive Groundwater situation reports (from Environment Agency Kent and South London Area and Environment Agency West Thames Area) during the autumn / winter season. The LLFA also receives monthly Water Situation reports which includes information on groundwater levels.

Local Authority SFRAs and SWMPS
In the Districts and Borough SFRAs, in particular those published since the PFRA 2011, flood risk is mapped using the EA modelled risk data. Many of the SFRAs outline the flood risk in local areas often at the Parish or Ward administration level.

Woking, Guildford and Epsom & Ewell have produced SWMPs where surface water risk assessments have been carried out. As a result, high risk of flooding from surface water areas within these District/ Boroughs has been identified.

In the Guildford SWMP the risk of surface water flooding in identified areas is detailed; see pages 24-74 in the Guildford Technical Report. The SWMP has an associated action plan for looking at options to reduce risk in these hotspot areas. As part of the Guildford wide study the Ash area was identified as a separate hotspot area which has a separate SWMP.
In the Woking SWMP, observations related to identified surface water flood risk areas is detailed in section 5. Risk assessments of areas was carried out including assessment of house door thresholds; see Table 5-2 on page 19.

Table 5. District / Borough SWMP section related to flood risk.

District / Borough	SWMP Report pages on surface water risk	Description
Guildford	Guildford SWMP technical report - pages 24 - 74	Area specific sections regarding surface water risk.
Guildford	Three separate studies carried out in the Ash area.	The Ash Surface Water Study details risk in the Ash Vale, Ash Station, Ash Lodge and Tongham areas.
Woking	Section 5 - pages 17 to 27	The SWMP covers a risk assessment of hotspot areas where house thresholds were assessed.
Epsom and Ewell		Detailed modelling was carried out to assess risk areas. Groundwater flood risk is related to the chalk in this Borough. A Critical Drainage Area covers Epsom northwards to the Hogsmill (an extension of the fluvial risk from the Hogsmill river).

Planning Duties
From April 2015 (Ministerial statement extension to the Flood and Water Management Act 2010 and Town and Country Planning, Development Management Procedure, England, Order 2015), the LLFA is a statutory consultee on major new development planning applications regarding flood risk. All new developments should meet National Standards (NPPF) regarding greenfield run-off rates and where appropriate include the use of sustainable drainage systems to ensure that local flood risk is not increased. The LLFA is consulted on District / Borough Local Plans.

Catchment Partnerships
Surrey LLFA attends the Wey Landscape Partnership and River Mole Catchment Partnerships. As part of the LFRM Strategy, Surrey LLFA is reviewing how to efficiently capture catchment information on river and local areas of the Wey and Mole rivers. The catchment partnerships are supported by all the main flood Risk Management Authorities and local groups e.g. canoeing and angling groups. The local knowledge gained from Surrey Wildlife Trust and the Rivers Trust local resident groups e.g. RiverSearch groups, can assist in providing local knowledge on the condition of local stretches of these rivers including flood risk.

Flood risk areas (FRAs)
The following FRAs have been identified wholly or partly within the Surrey County Council LLFA area for the purposes of the Flood Risk Regulations (2009) second planning cycle:

- Farnborough
- Reigate
- Greater London (this FRA extends into Surrey in places)

Other changes
Since the PFRA 2011 the Surrey Flood Risk Partnership Board now meets quarterly to review flood risk management work. It has recently published the Local Flood Risk Management Strategy (March 2017) and will be responsible for delivering the LFRM Strategy and monitoring progress on the LFRMS action plans.

Surrey County Council
December 2017

LIT 10915