February 2014 flooding

Number 2
March 2014

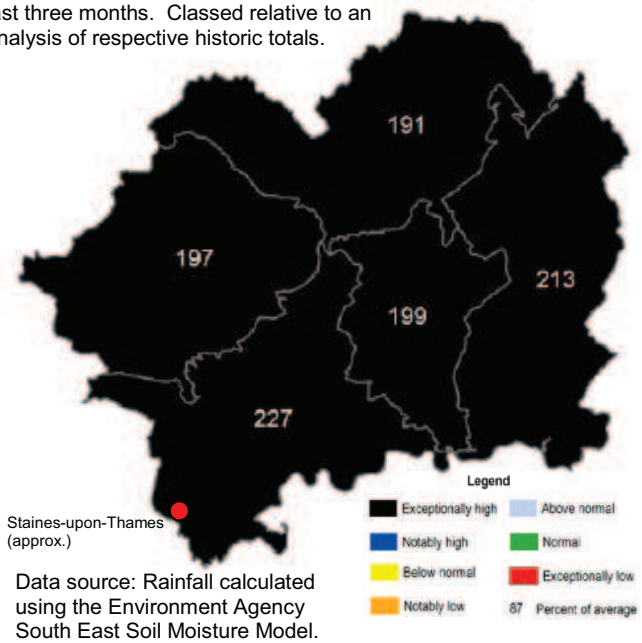
Lower Colne and River Ash in Staines-upon-Thames area

Over winter 2013-2014 the country faced an extraordinary combination of weather conditions. The South East region received 250% of the long term average rainfall in both January and February. With river catchments already saturated at the beginning of December, river levels responded to this rainfall and we saw widespread property flooding from the River Thames and its tributaries. The sheer volume of water received by the catchment meant we could not completely eliminate the risk of flooding. However we worked throughout the duration of the incident to protect communities and warn people of the risks of flooding.

River system in the Staines-upon-Thames area

The river system in the Staines-upon-Thames area is complex and consists of various connected channels which drain into the Thames itself (see Fig.1). All of these rivers, at some point, cross the Thames Water aqueduct before reaching the Thames. As levels on the River Thames were so high, these rivers were not able to discharge into it as they normally would. This caused them to back up and spill into the aqueduct at various points. This was compounded by the fact that following months of persistent rain there was also high groundwater levels (saturated ground) meaning that water could not drain away. Our initial review indicates that it was a combination of saturated ground, high rainfall and high levels on the River Thames causing its tributaries to back up that caused the flooding experienced in the Staines-upon-Thames area.

Fig.2. Total rainfall for hydrological areas across the North East Thames Area for the last three months. Classed relative to an analysis of respective historic totals.



Data source: Rainfall calculated using the Environment Agency South East Soil Moisture Model.

Our incident response

We first opened our incident room to respond to the increasing flood risk in the area on 23 December 2013. The focus on the flood event moved to the Staines-upon-Thames area in early February. For the duration of the flood event we worked closely with professional partners to minimise flooding across the North East Thames area. This included working with Thames Water to manage high flows in their aqueduct and main rivers in the Staines-upon-Thames area. Our field teams were out across the area, clearing screens and river blockages to ensure that, wherever possible, rivers and streams were flowing freely.

River Ash sluice gate

We own and operate a sluice gate which we use to control flows from River Colne to the River Ash. This sluice gate is designed to ensure there is always a base flow in the River Ash, enough to maintain the ecosystem of the river. This is an automatic sluice gate, which adjusts automatically to send flow into the River Ash as needed. However, on 9 February we overrode this automatic setting and manually closed it completely to minimise flood flows entering the River Ash from the River Colne. As river levels on the Ash were low immediately downstream of the sluice it later automatically re-opened (as designed to do) to send a base flow back into the Ash. However on 11 February we closed the gate again and set it on manual, so it would not automatically re-open, even if the river levels immediately downstream were low and needed to be increased. As the gate was operating as designed prior to us manually closing it, and only open enough to provide a base flow, its full closure had only a negligible effect on the river levels on the River Ash downstream of the sluice.

We reopened the sluice slightly on the 13 February to allow a small flow back into the Ash as the river was dry immediately downstream of the structure. We did this to avoid an environmental issue (i.e. a fish kill) and damage to the river habitat. As river levels in the Ash were dropping downstream levels were able to cope with the re-introduction of this base flow.

Thames Water aqueduct

In normal conditions Thames Water pump water from the aqueduct in Staines-upon-Thames into their reservoirs. On 10 February, when flood water was overflowing into the aqueduct, the river intake was closed and they increased the pumping rate to alleviate flooding in the area. While the pumping operation continued we worked with Thames Water to partially close their sluice gate located on the aqueduct. As flows and levels began to recede on the rivers Ash and Colne Brook on the afternoon of 12 February, they did not need to close the sluice gate any further.

On 17 February, Thames Water asked if they could re-open the gate on the aqueduct to allow them to sustain pumping at full capacity to top up their reservoirs. As river levels were falling by this time we agreed that they can do this safely without increasing flood risk downstream.

We are aware of local concerns about the operation of the sluice gate on the aqueduct. Thames Water has said to us: “There have been suggestions that the sluice gate failed, leading to flooding in the area. This is incorrect. We did bring in extra equipment (including a crane) to help close the gate as it had not been used for some time, but the gate was operated as required”.

Informing the public

We had flood data recorders and flood ambassadors out in the Staines-upon-Thames area from 10 to 14 February. They were on site to collect and record data on the location and number of flooded properties, as well as the flood extent, water levels and, where possible, the source and depth of flooding. They were also speaking to the public and answering any of their questions.

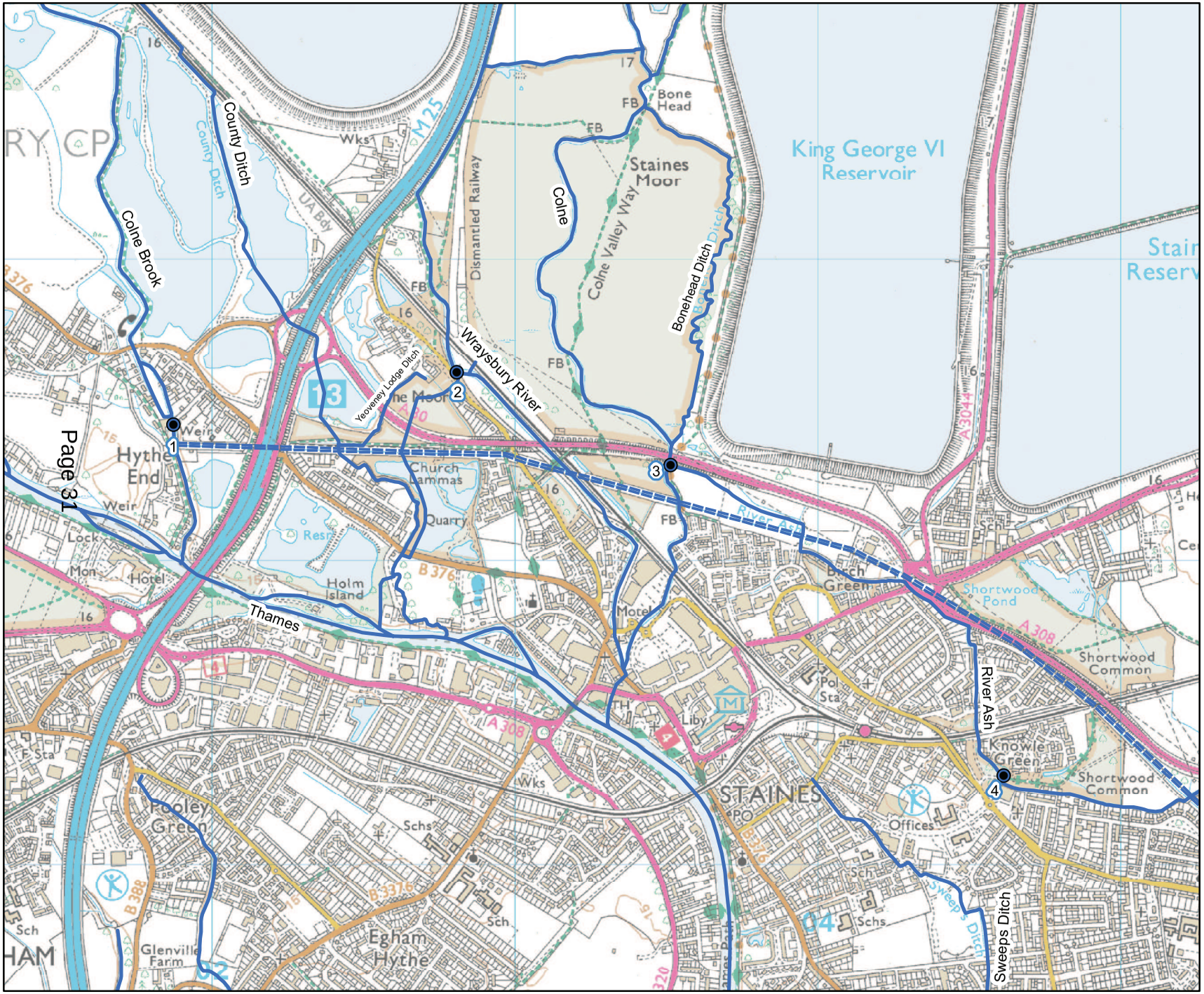
We issued the following flood alerts and warnings that cover the Staines-upon-Thames area.

- 24 December 2013 **flood alert** “River Thames from Datchet to Shepperton Green”
  7 February 2014 **flood warning** “River Thames at Staines and Egham”
  9 February2014 **severe flood warning “**River Thames at Staines and Egham”
- 29 January 2014 **flood alert** “Lower River Colne and Frays River”
  7 February 2014 **flood warning** “River Colne and Frays River at West Drayton and Stanwell Moor”
- 31 January 2014 **flood alert** “Colne Brook at Iver and Colnbrook”
  31 January 2014 **flood warning “**Colne Brook at Colnbrook”
- 10 February 2014 **flood alert** “River Ash in the Borough of Spelthorne including Ashford and Staines”
  10 February 2014 **flood warning** ”River Ash at Ashford and Staines, including Birch Green, Knowle Green, Littleton and Shepperton”

As we automatically register all landlines within the flood warning area, all residents in these warning areas would have received the warnings to their home phone number unless they have previously opted out from the service. Those fully registered on our Flood Warnings Direct service would have received them to their chosen contacts. You can check which cover your property by visiting our website http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683.0&y=355134.0&scale=1&layerGroups=default&ep=map&textonly=off&lang=_e&topic=fwa

Flood Warnings Direct is a free service that allows you to receive warnings by phone, text, email and fax. To check if you are eligible to sign up and register please visit our website: http://www.environment-agency.gov.uk/homeandleisure/floods/38289.aspx or call Floodline on 0345 988 1188 or 0845 988 1188.

Figure 1: Main Rivers and Environment Agency assets in Staines-upon-Thames area



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0 0.25 0.5

Kilometres

Legend

- 1 - Hythe End automated weir and gauge
- 2 - Moor Lane automated tilting gate
- 3 - River Ash automated offtake and gauge
- 4 - Knowle Green gauge
- Main River
- Thames Water Aqueduct (non main river)

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