

## River Chew Modelling Fact Sheet

### BACKGROUND

- Our flood model of the River Chew catchment includes

The **Chew Stoke Stream** from Lower Strode farm down to its confluence with the River Chew its confluence with the River Avon in Keynsham.

**The Regil Stream** through Chew Stoke.

The **Winford Brook** from Winford through to Chew Magna Reservoir to its confluence with the River Chew.

The **River Chew** from upstream of Chew Valley Lake to its confluence with the River Avon in Keynsham.

- Our current flood modelling on the River Chew did not fully represent the flood risk from rivers experienced in recent flood events.
- New data from the recent flood events along with improved data on some of our gauges and updated survey data means that we can now improve the modelling.
- We are updating our modelling to ensure that it is more representative of the flood risk on the ground.
- The modelling will be used to assess the risk from river flooding (fluvial), we have other flood mapping which shows the potential risk from surface water flooding.
- The 2012 flood events will be run through the model in order to ensure that the model outputs match as closely as possible with observed flooding.

### MODEL USES

- We will be using the modelling to test several scenarios, these are:
  - To assess the influence of Chew Magna Reservoir and Chew Valley Lake by assuming they are full, half empty, empty and if they did not exist.
  - To assess the impacts of channel maintenance. Our operations teams clear large volumes of silt from a few structures within the River Chew and Winford Brook, what is the impact of silt build up at these structures.
  - To report on the impact of the road bridge at the end of Norton Lane.
  - To test how buildings influence flooding and flood flow paths by including/removing them from the model of the floodplain.
  - Removal of the weir near the B3130 Stanton Road road.

- To assess whether the confluence of the River Chew and the Winford Brook causes a backwater effect up in to the communities upstream.
  - To analysis of the sizing of a box culverts to replace the Irish Ford at Chew Stoke.
- The model output will be used to update our flood mapping and National Flood Risk Assessment products.
  - Our Flood Warning areas and service will be updated using results from the modelling
  - We can produce animations, flood depths, flow routes, velocities and water levels from the modelling.

## PROGRESS

- The modelling project began when it was commissioned to our framework consultant Jeremy Benn Associates (JBA), following a competitive tender in August 2013.
- The Environment Agency has carried out an updated threshold survey of all properties at risk in Chew Magna
- We have completed new river bank surveys within Chew Magna and Chew Stoke and this has been input in to the model.
- Updates and improvements to the hydraulic model have been completed.
- The draft interim hydrology report was completed in February 2014 and has been reviewed and signed off.
- We are now running some of the flows from the interim hydrology calculations through the model to test its performance and check their validity. We are also running flows from the 2012 flood events through the model in order to calibrate it to recorded flood events.
- The next step will be to refine the modelling and hydrology where appropriate to ensure results match those recorded at river gauges during key flood events and to ensure that the mapping is representative of the flood risk from the rivers as recorded/reported from flood events in 2012.
- Draft outputs/maps from the modelling should be available from late May 2014 and we would hope to share these and gain opinions from some members of the community and our partners.
- The final outputs are due to be delivered to us in late June 2014. The original delivery date of April 2014 was delayed due to our response to the winter flooding across the South West from December through to March.