

Watercourse Modelling

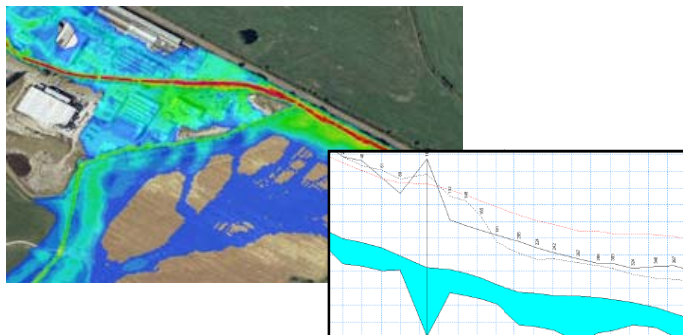
The modelling of rivers, streams and tributaries is becoming an ever important element of the flood risk assessment process.

River models are primarily used to predict flood depths, extents, velocities and flow routes along the specified watercourse and in the wider floodplain. They also help potential developers evaluate the risk of flooding at a specific site enabling informed design and budget decisions to be made at both the pre-acquisition and planning phases of a scheme.

Waterco is one of the UK's leading flood risk consultancies and have established an excellent track record over the past six years of producing detailed hydraulic models. We are also part of the Environment Agency Flood and Coastal Risk Management framework; a testament to our in-house expertise and knowledge.

We pride ourselves on our level of service and could offer you the following benefits:

- Quick response
- Fixed price quote
- Good track record and experience
- Cost effective solutions



The complexity of required hydraulic model is often dictated by the requirements of the EA, the scope of the work or the detail of information required. Depending on the size of the scheme or the location's perceived existing flood risk a simply 1D model may be sufficient. However; we are finding that increasingly integrated 1D/2D models provide a better representation of the floodplain.

The base for our models is initially developed from a combination of site surveyed cross sections and high resolution LiDAR data. Extreme flood event hydrographs, derived for the catchment using FEH and WINFAP, are input into the river network model with numerous branches and tributaries being incorporated as appropriate.

It is vitally important that relevant hydraulic structures (e.g. culverts, bridges, weirs) be incorporated into the models if an accurate representation of the watercourse is to be achieved - features that some EA flood maps do not include and as a result often lead to a conservative assessment of the flood risk.

Additional hydrodynamic parameters are input to improve the accuracy of the simulations with each model being subjected to rigorous calibration and validation checks against know flow details.

Each of our models are produced using the latest modelling software (ISIS, MIKE11, HEC-RAS) with each model being checked an approved by a chartered engineer prior to issue.

For more information please contact us or visit our website:

www.waterco.co.uk

Recent River Modelling Projects

Cresswell, Staffordshire

Hydraulic model of River Blithe through Cresswell in support of a Flood Risk Assessment. Current EA flood map identified the site to lay within Zones 2 and 3. Integrated 1D/2D hydrodynamic river model successfully demonstrated the majority of the site to actually be at low risk (Zone 1). Having accepted the model, the EA have now reclassified the local flood map. The simulation results have also been used to optimise the design layout to minimise the flood risk to occupants.

Beddgelert, North Wales

Linked 1D/2D hydrodynamic river model of the Afon Colwyn and Afon Glaslyn at Beddgelert, North Wales. The proposed development site was shown on the current EA flood maps to be at significant flood risk. A detailed river model was constructed to quantify this risk and assess the potential hazards associated with development. Having quantified the potential flood risk at the site, Waterco completed a Flood Survey Assessment detailing the possible mitigation measures that could be incorporated into the development to allow it to proceed.

Sept 2010