

Further information:

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Project Description number:

EVY0241

Project Type

Flood Risk/Consequence Assessment

Flood Forecasting

Detailed Design

Calibration & Optimisation

Flood Map Challenge

Scour & Geomorphology

Water Framework Directive

Environmental Impact Assessment

Training

Key Words:

SFRA

River Modelling (ISIS-TUFLOW)

Calibre software

FEH Hydrology

Client and stakeholders:

Environment Agency North West Region

Royal Haskoning Ltd

Walverden, Flood Map Improvements

Edenvale Young in association with Royal Haskoning UK were commissioned to produce an SFRM of Walverden Water in Nelson, Lancashire.



Illustration 1: Structure at risk of blockage

Project Details

The objectives of the study were:

- To undertake improvements to the existing flood map
- To improve understanding of the flood risk from Walverden Water
- To assess areas at risk from flooding due to asset blockage.

An existing ISIS model of Walverden Water was updated in light of new channel surveys and culvert inspections, and calibrated with the *Calibre* software.

The use of *Calibre* resulted in a joint calibration of hydrological and hydraulic

parameters, which is rarely achieved or undertaken.

The updated and calibrated 1D model was then used to construct a 1D-2D ISIS-TUFLOW model.

A novel combination of quantitative as well as subjective assessments of structure blockage were used. It was shown that blockages play an important role in flood risk in Nelson, with a number of structures potentially causing flood risk to critical and emergency infrastructure.

The modelled flood extents differed significantly in some areas from the existing EA flood zone maps.