

Ancholme IDB Modelling

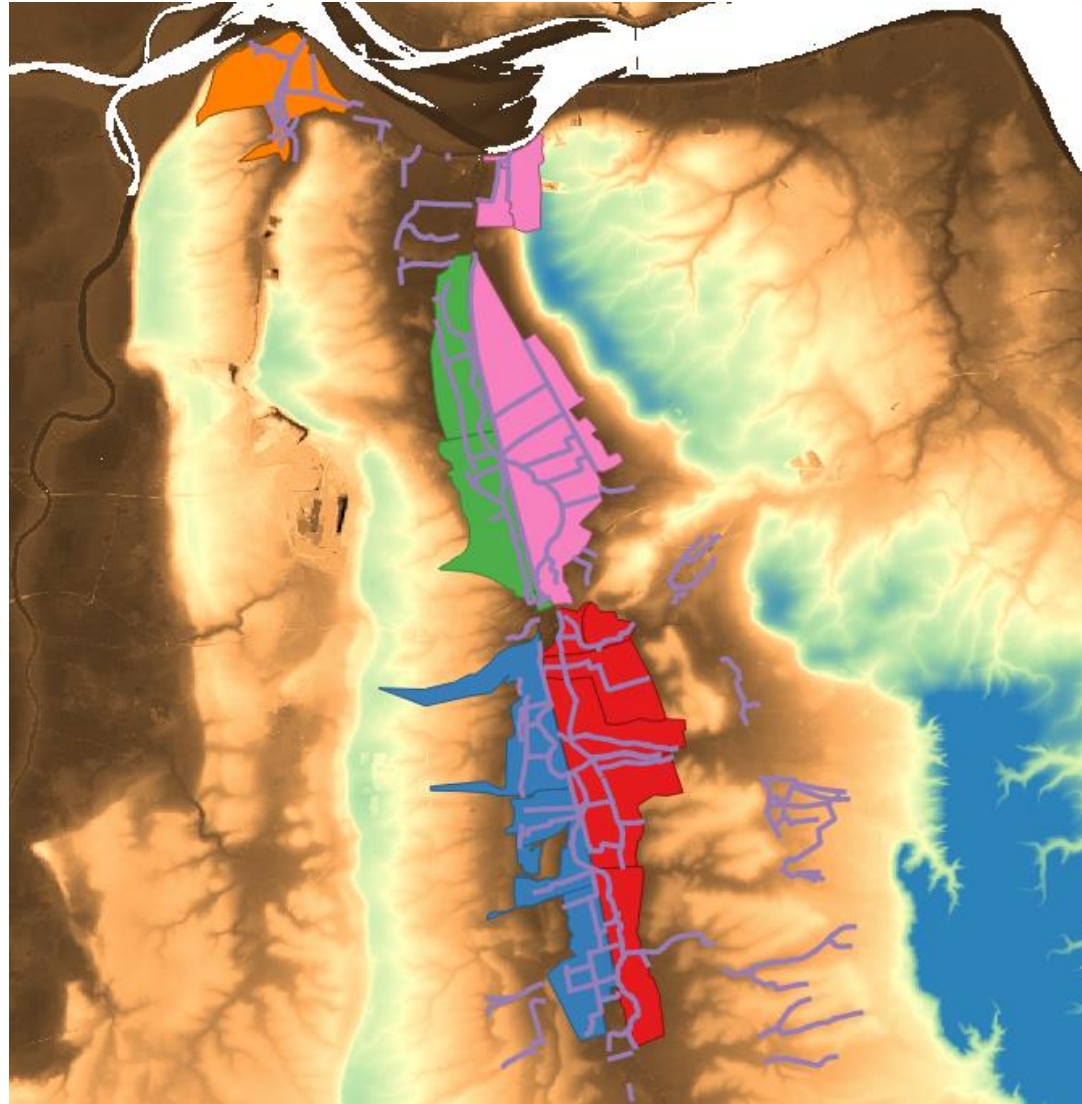
Progress update – Oct 2021

- Work completed to date
 - Next steps



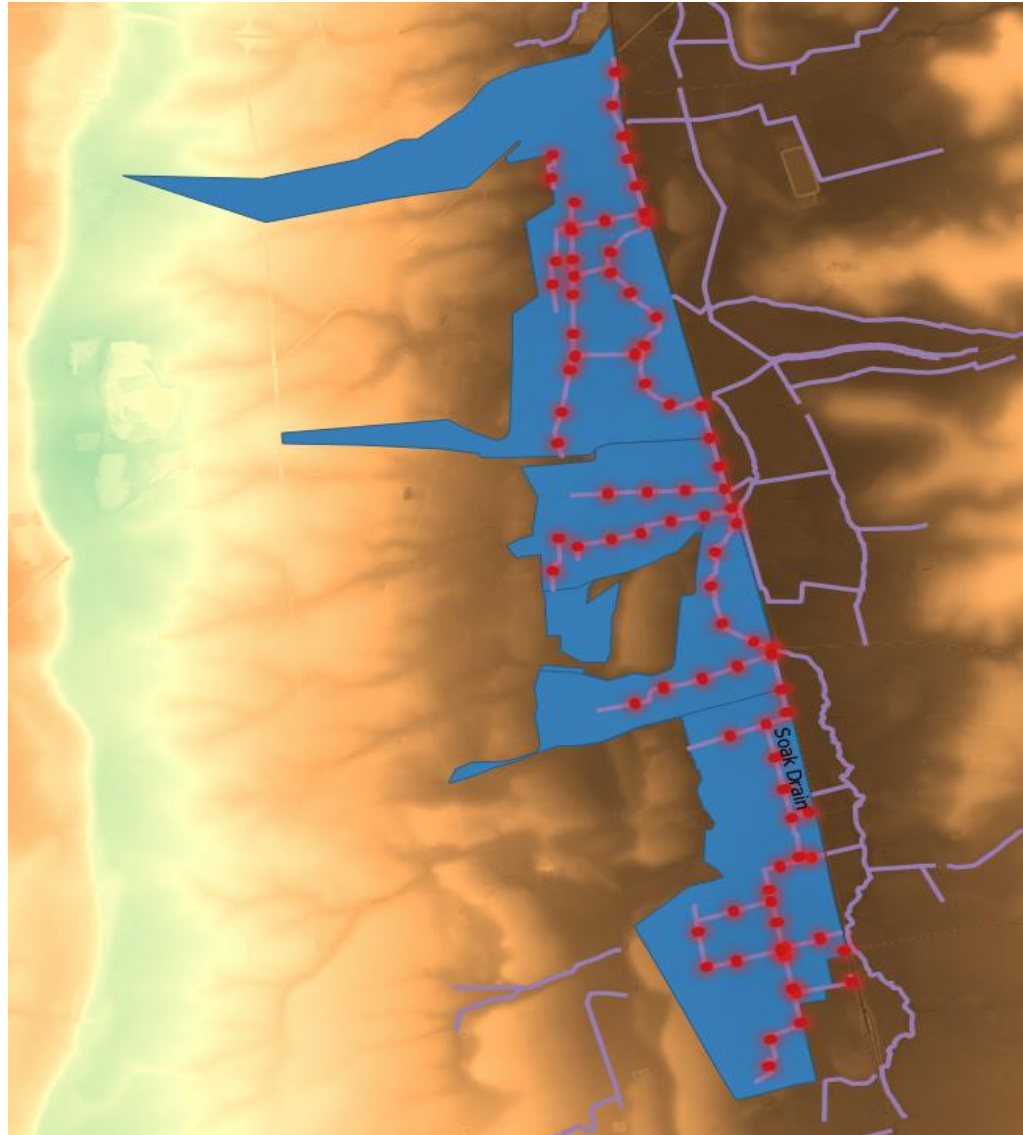
Ancholme District Overview

- Over 200km of drains
- 17 lowland catchments
- Gravity systems
- District divided in 6 areas for survey and modelling



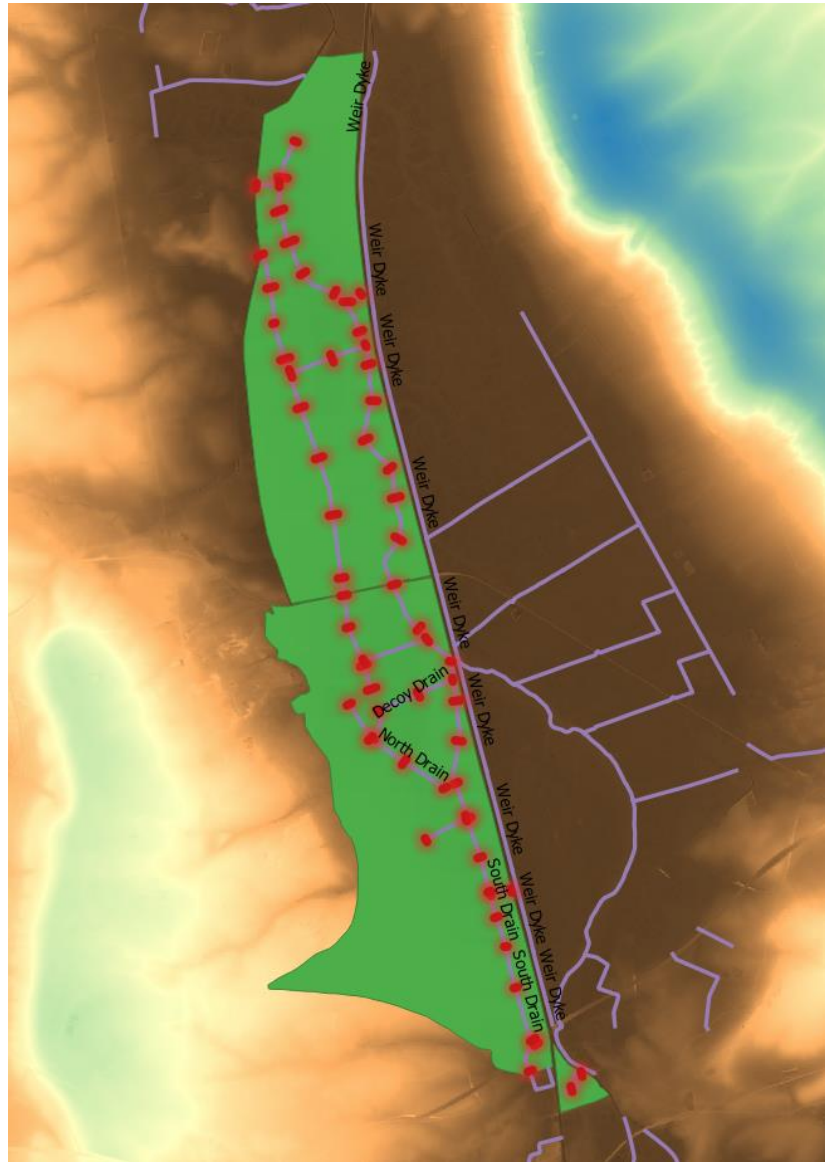
Area 1

- Redbourne, Hibaldstow and Waddingham
- 103 cross sections surveyed
- HEC-RAS model completed



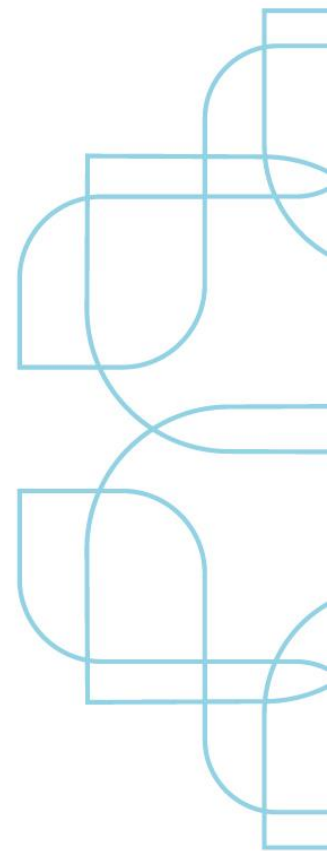
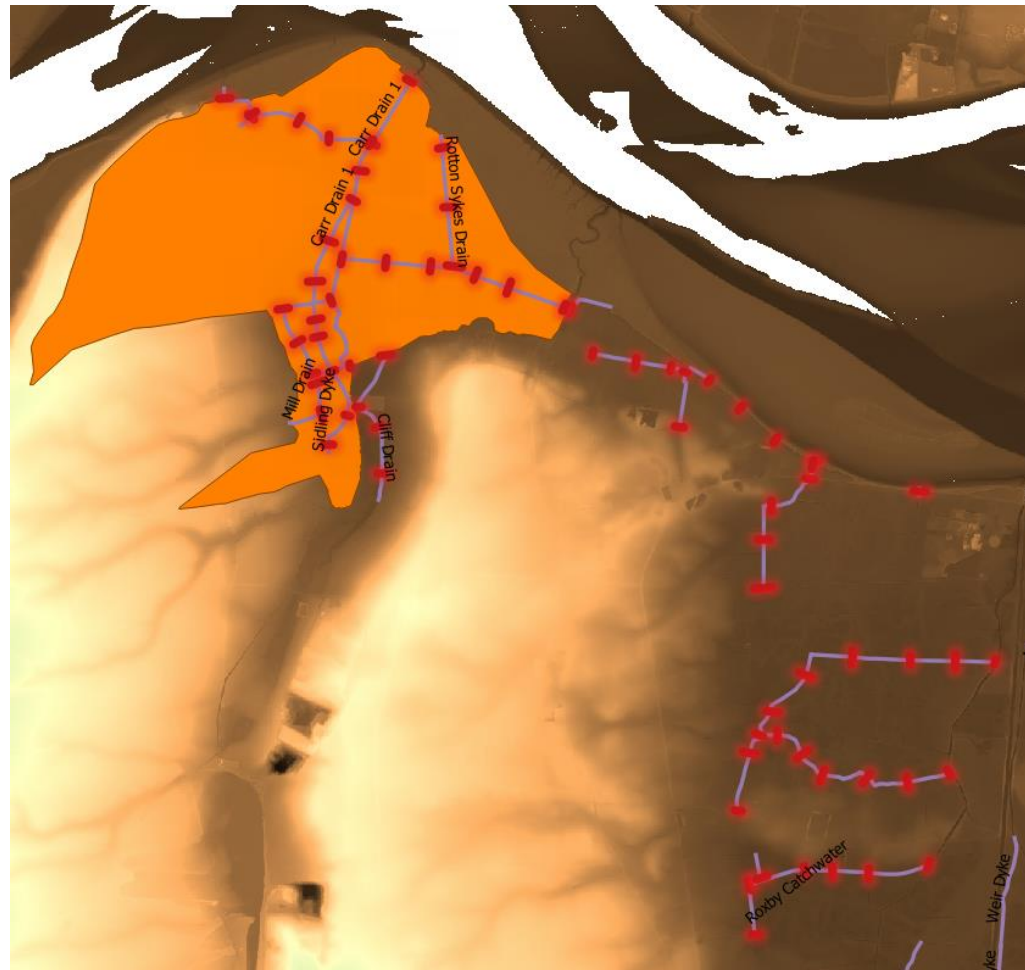
Area 2

- Broughton, Appleby and Island Carr
- 76 cross sections surveyed
- HEC-RAS model completed



Area 3

- Whitton Carr and gravity systems
- 82 cross sections surveyed
- HEC-RAS model completed



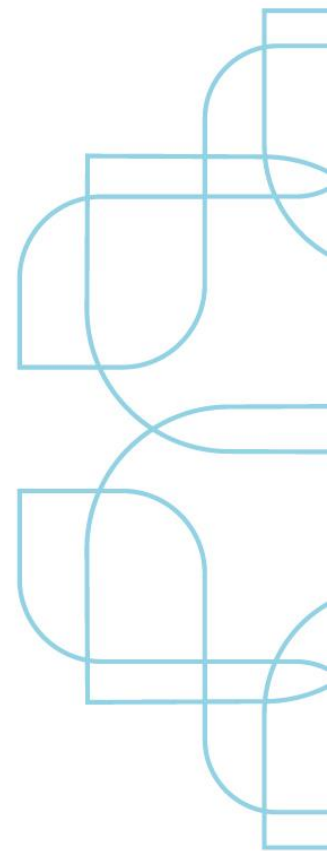
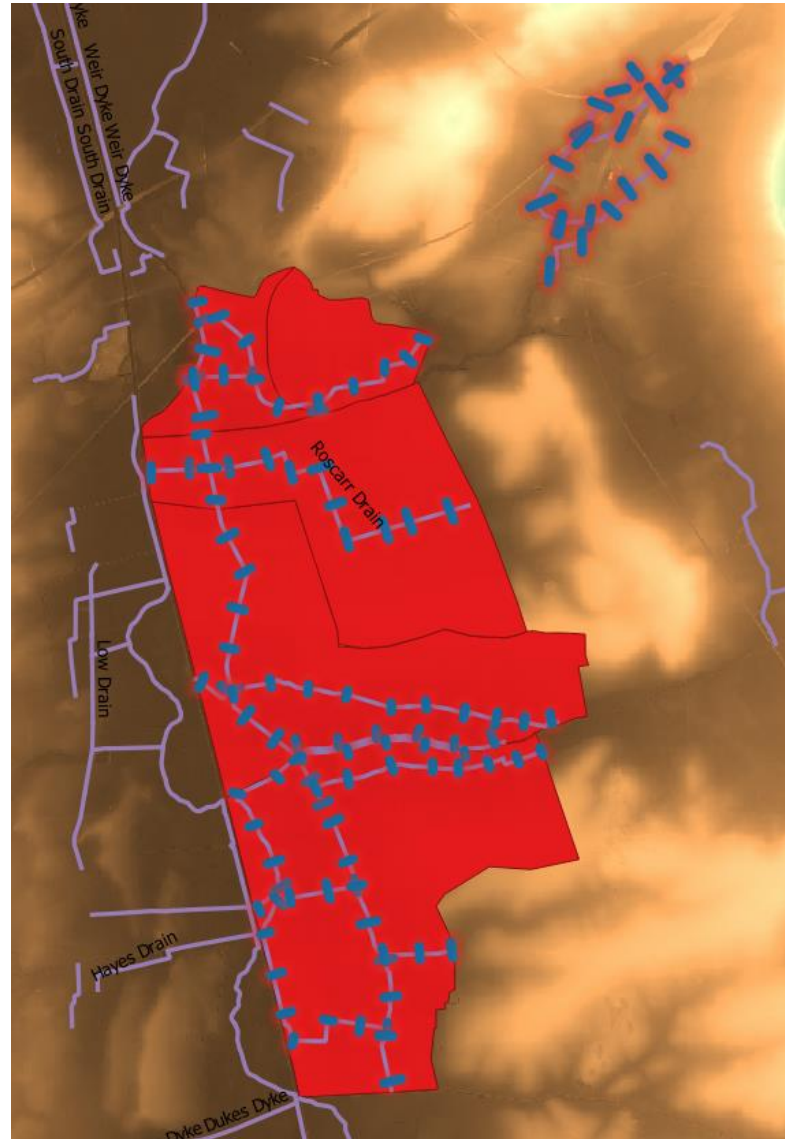
Area 4

- Marsh Drain, Fulseas and Worlaby catchments
- 111 cross sections surveyed
- HEC-RAS model completed



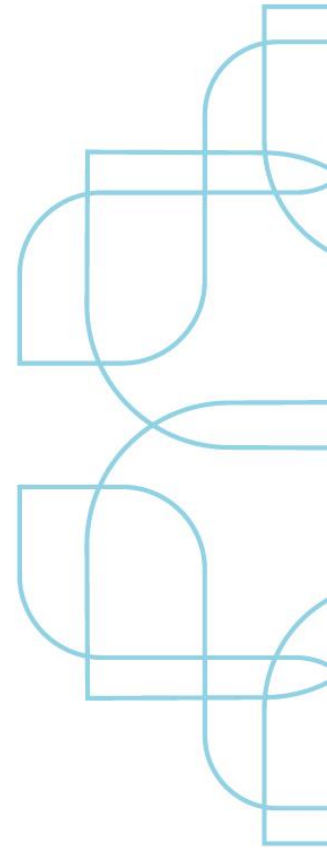
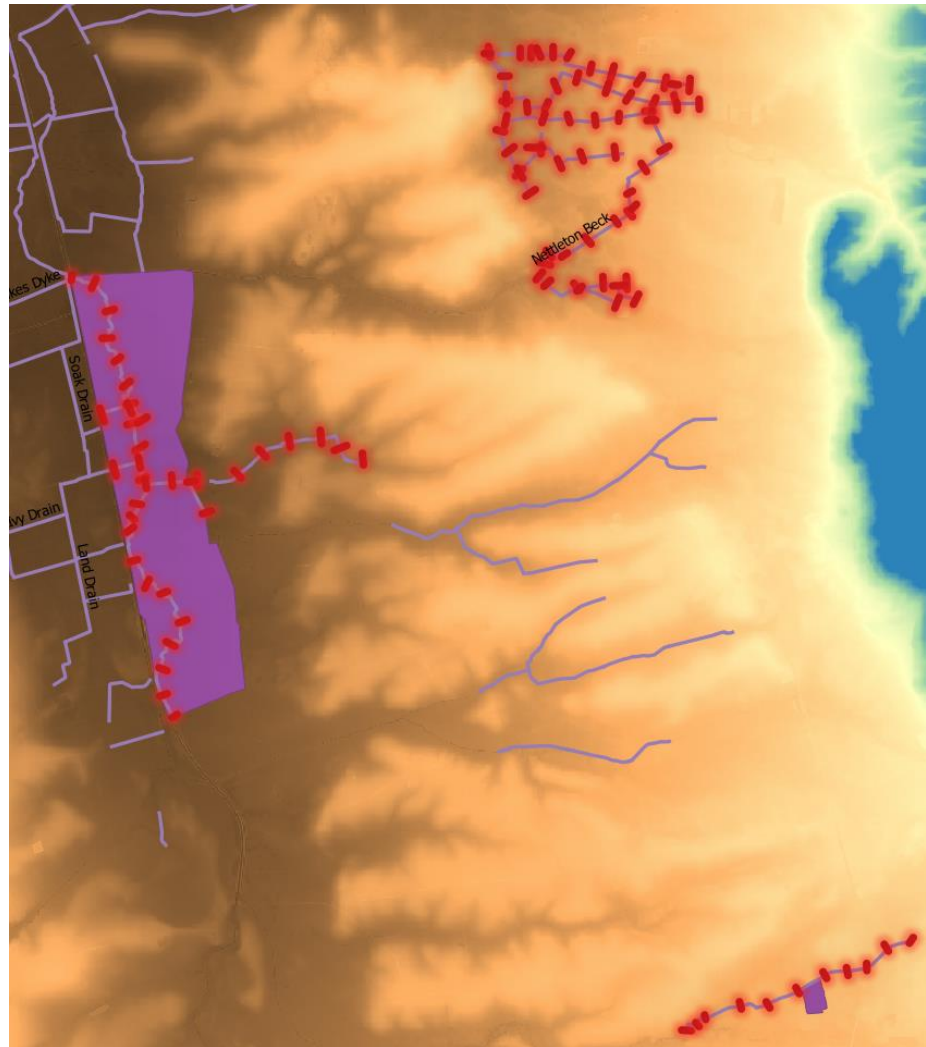
Area 5

- Bentley Farm, Candley Beck, Cadney, Thirty Foot and North Kelsey catchments
- 128 cross sections surveyed
- HEC-RAS model in progress



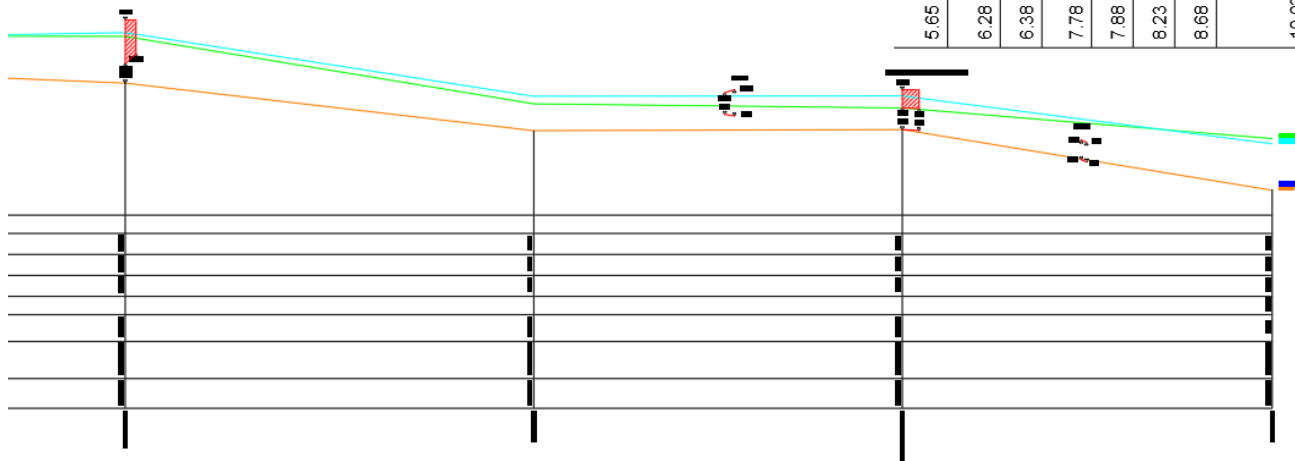
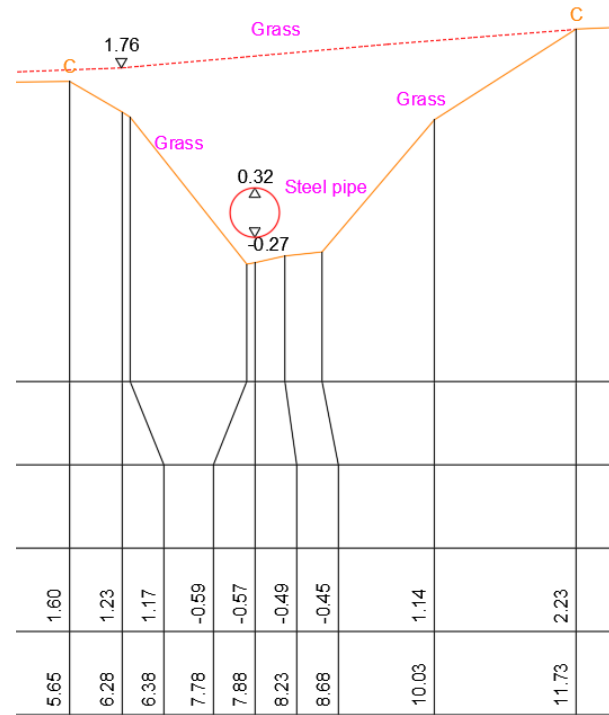
Area 6

- South Kelsey, Brimmer Beck and Nettleton Beck area
- 70 cross sections surveyed so far



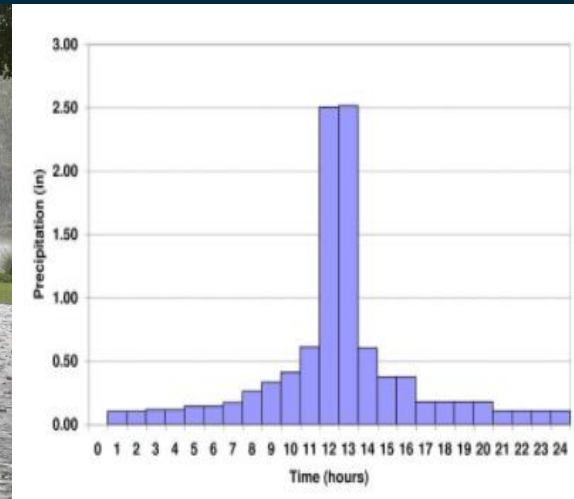
Topographic survey

- 568 cross sections complete so far (as of 14 October 2021)
- 180km of drain surveyed to date
- Drawing of cross sections (right) long sections (below) and top plans produced
- Photographs available for all surveyed location



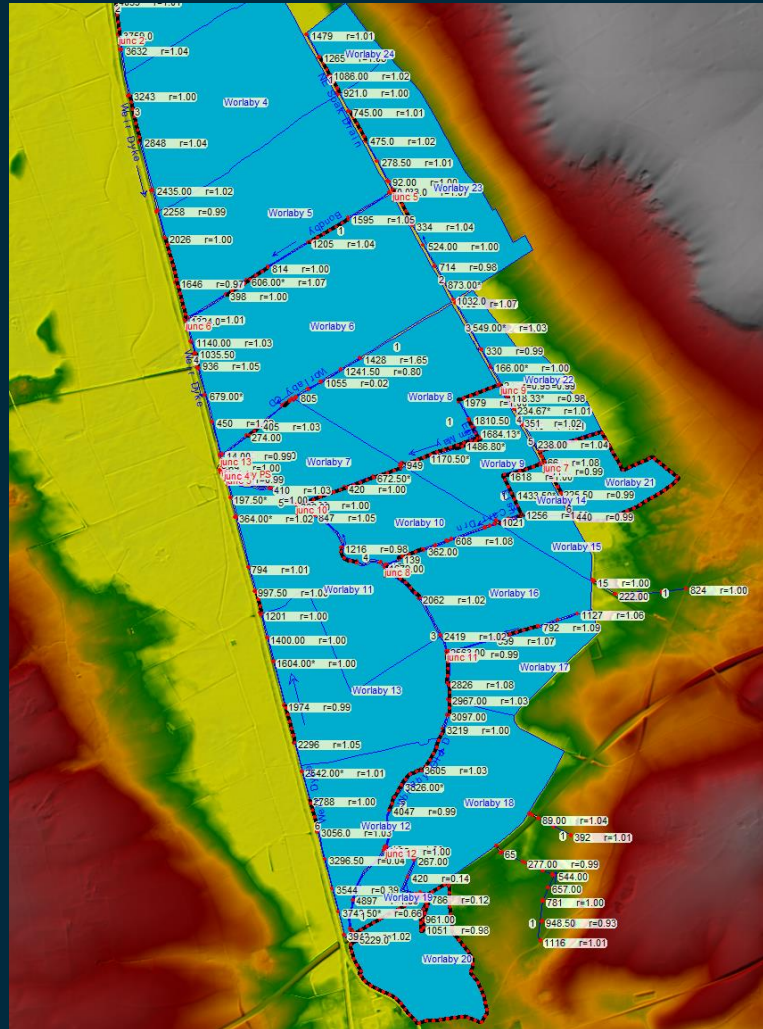
Hydrological analysis

- Model inflows for 11 return periods calculated using industry standard approaches (ReFH2)
- Downstream boundary data (River Ancholme and Humber) uses latest Environment Agency models



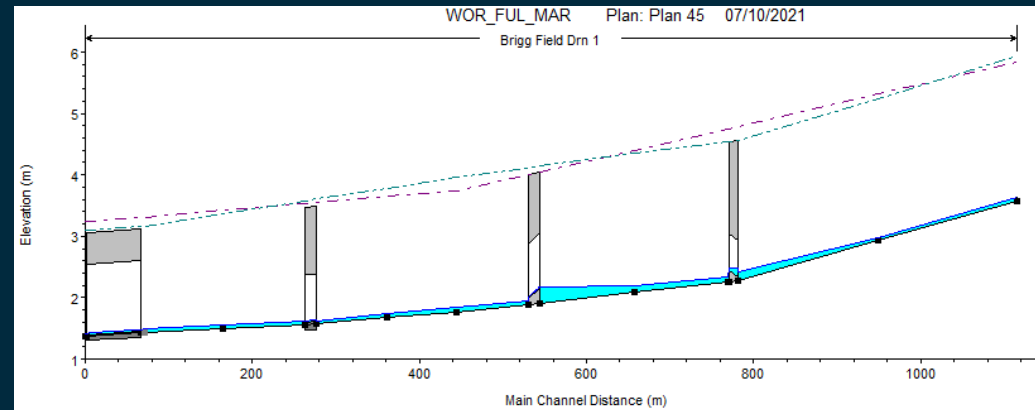
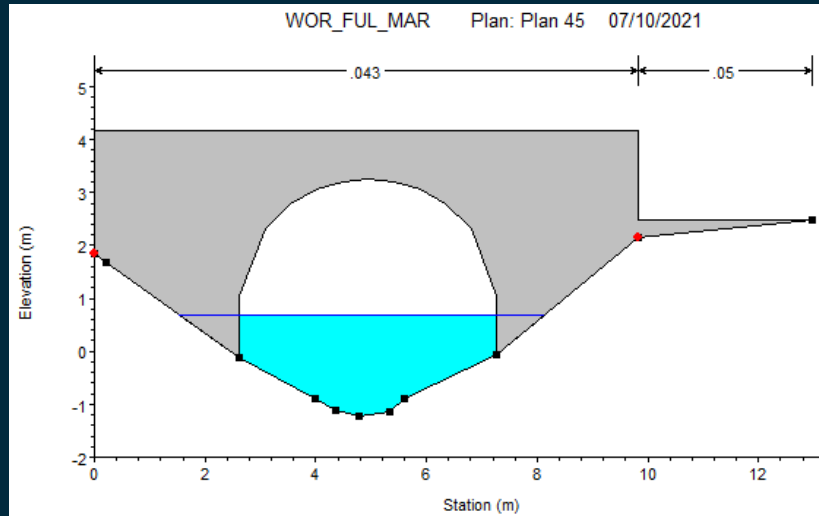
HEC-RAS model building

- 1D channels and out of bank floodplain areas built from survey data and digital terrain models
- Models adapted to 2D where appropriate



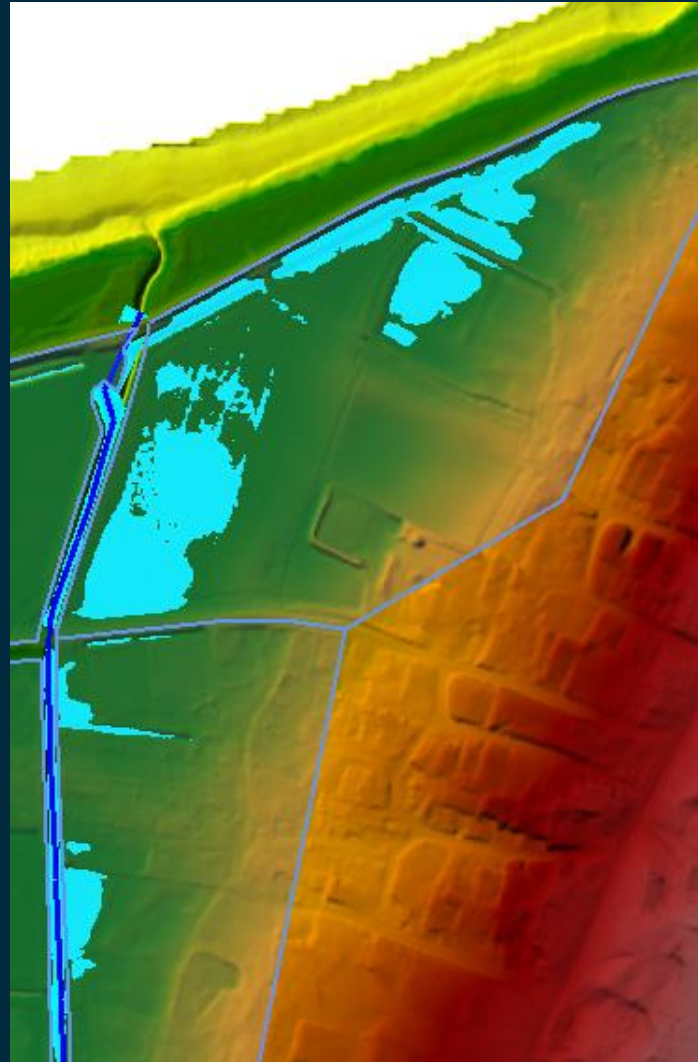
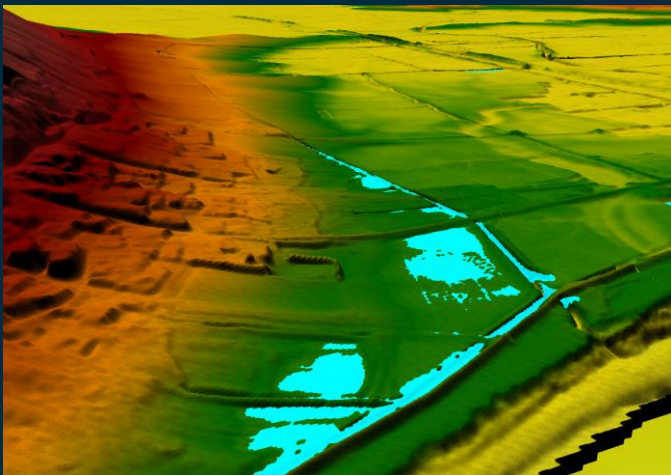
Representation of structures

- Bridges and culverts incorporated into the HEC-RAS models
- Dimensions ascertained from survey drawings



Sample draft baseline results

- Flood mapping generated in RAS-mapper
- Inundation outlines produced as shapefiles
- Depth and water levels grids produced in raster format



Next steps

- Complete survey of gravity systems
- Complete modelling are areas 5, 6 and gravity systems
- Produce base results
- Options testing (blockage, impact of saturation, DoNothing scenario, storage options)
- NLC extended survey
- Modelling of NLC watercourses
- Reporting and mapping
- Packaging of final model outputs and survey information

