waterRIDE™ 1D Surface

Making 1Dimensional flood modelling data more usable

waterRIDE™

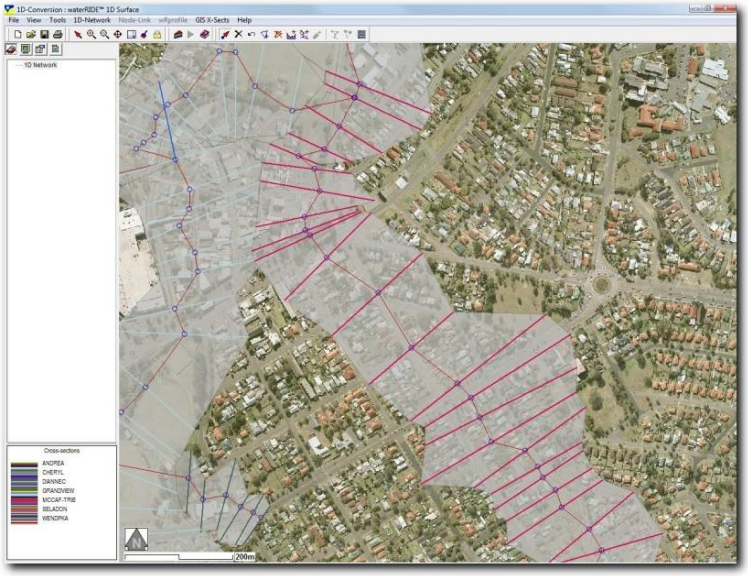
www.waterRIDE.net

waterRIDE™ 1D provides users with the common waterRIDE™ interface to assist in the conversion of one dimensional model results into a two dimensional spatial dataset. The aim of waterRIDE™ 1D Surface is to create a 2D framework for 1D model results, which can then be used in waterRIDE™ FLOOD Manager as if they were 2D model results, including the full time series of water levels, depths, velocities, velocity times depth, hazard, bed shear etc

Time-varying results from branch/cross-section models such as MIKE 11 & SOBEK 1D, and node/link models such as EXTRAN & ESTRY can be converted into triangulated 2D networks. Steady state models such as HEC-RAS (traditional) and DRAINS along with simple stream profiles can be converted into peak surfaces of water level and velocity (where available). GIS cross-sections and/or points with water levels and velocities attached as field data, and even hard-copy results can be converted into 2D surfaces!

The final objective of the conversion process is to map the relatively coarse model network onto a fine meshed TIN or grid DEM created from LiDAR (ALS) or other survey data.

waterRIDE™ 1D Surface allows you to interpret your 1D model results onto a 2D surface, on behalf of your model results users.

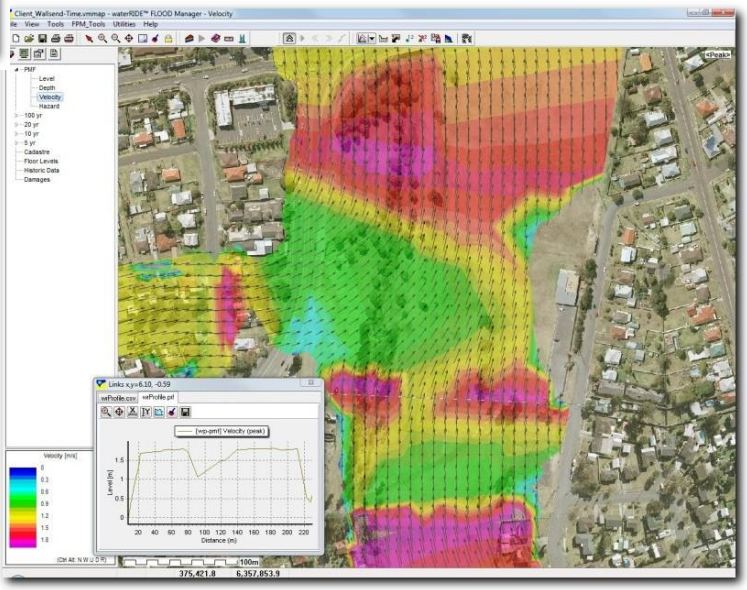


Onscreen Editing Tools

- Triangles can be manually added to 'stitch' tributaries to main branches.
- Cross-sections can be rotated and extended to represent flow direction and floodplain extent, allowing "glass walls" to be quickly dealt with
- Flow (velocity) is distributed across each cross section using Manning's equation to provide a realistic interpretation of flow velocities.
- Insert 'artificial' cross sections to overcome issues with mapping sinuous waterways from sparse cross section data.

Rapid Creation of 2D Framework

- Automatic triangulation between upstream and downstream cross sections along each branch, using the offset/elevation points
- Branches such as cross-links that are not required to in the water surface can be "turned off"
- Individual cross-sections where branches overlap can be removed
- Cross-sections can be rotated and extended to represent flow direction and floodplain extent, allowing "glass walls" to be quickly dealt with
- Individual cross sections can be moved or "turned off", as required



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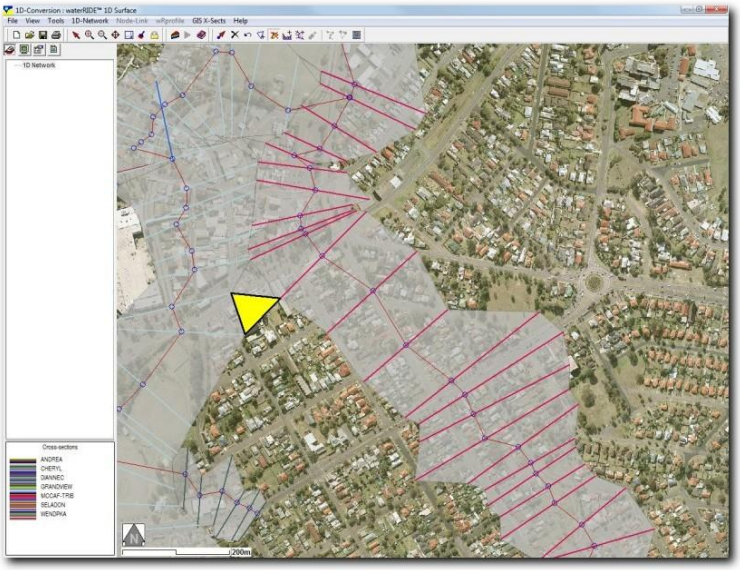
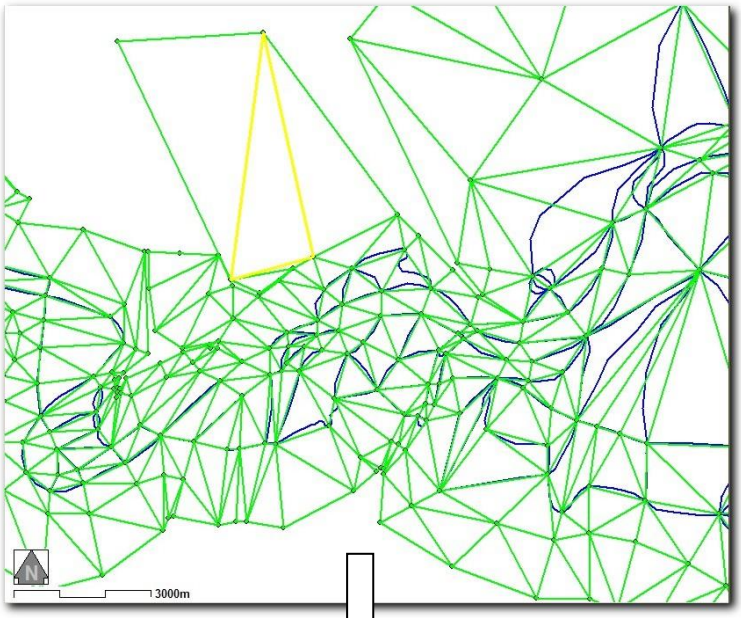


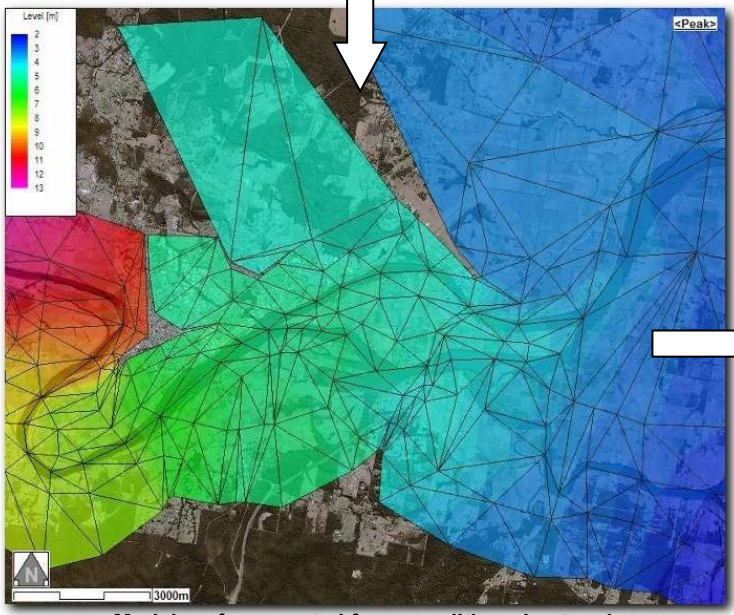
Batch Processing of 1D Results

- The coarse 2D framework created by triangulating cross sections is now ready for mapping to a finer scale DEM.
- Once the network has been conditioned for a 1D model framework, all model "runs" can be batch processed using the common framework.
- If your model results subsequently change, simply click the "process" update the results

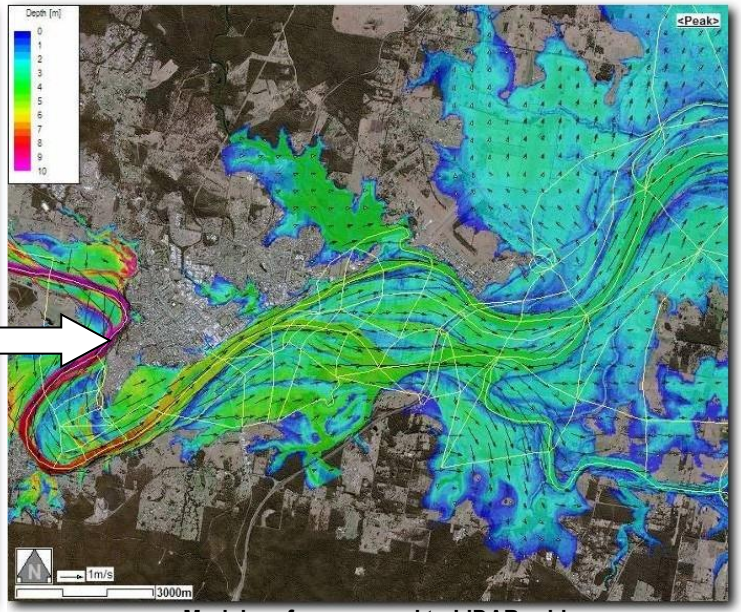


High Quality Output

- 1D models are "revitalised" by converting them into 2D space.
- The image to the left shows Link-Node model network
- The image to the lower-left shows a depth surface with velocity vectors, overlaying the original link/node 1D model network
- The image below shows the output depth surface with velocity vectors of the *mapped* dataset (mapping is carried out using waterRIDE™ FLOOD Manager)



Model surface created from conditioned network.



Model surface mapped to LiDAR grid.

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