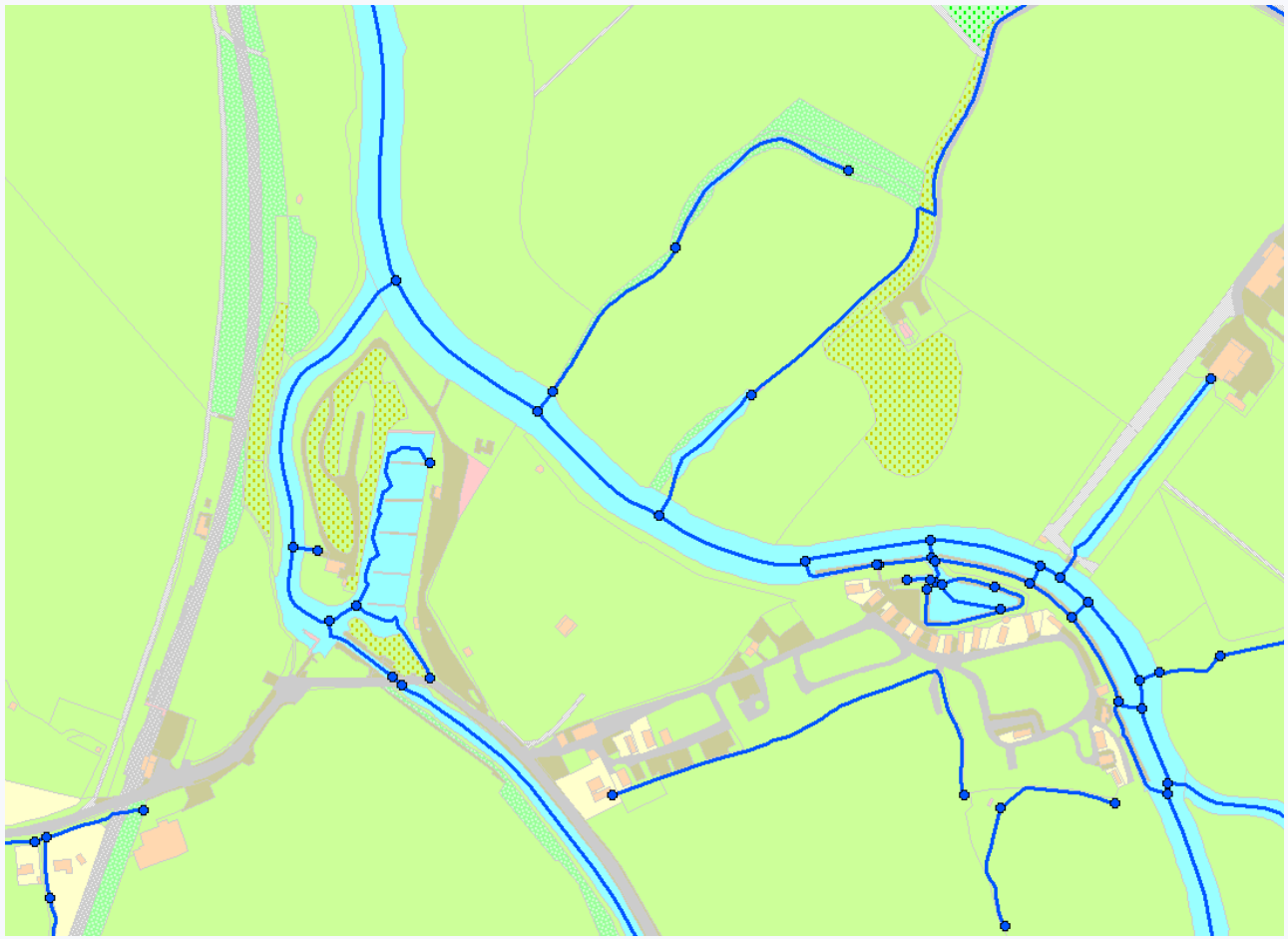
Validating a Water Network

Jonathan Holmes
Corporate Data Manager
6th April 2017

Ordnance Survey

OS MasterMap Water Network – What is it?



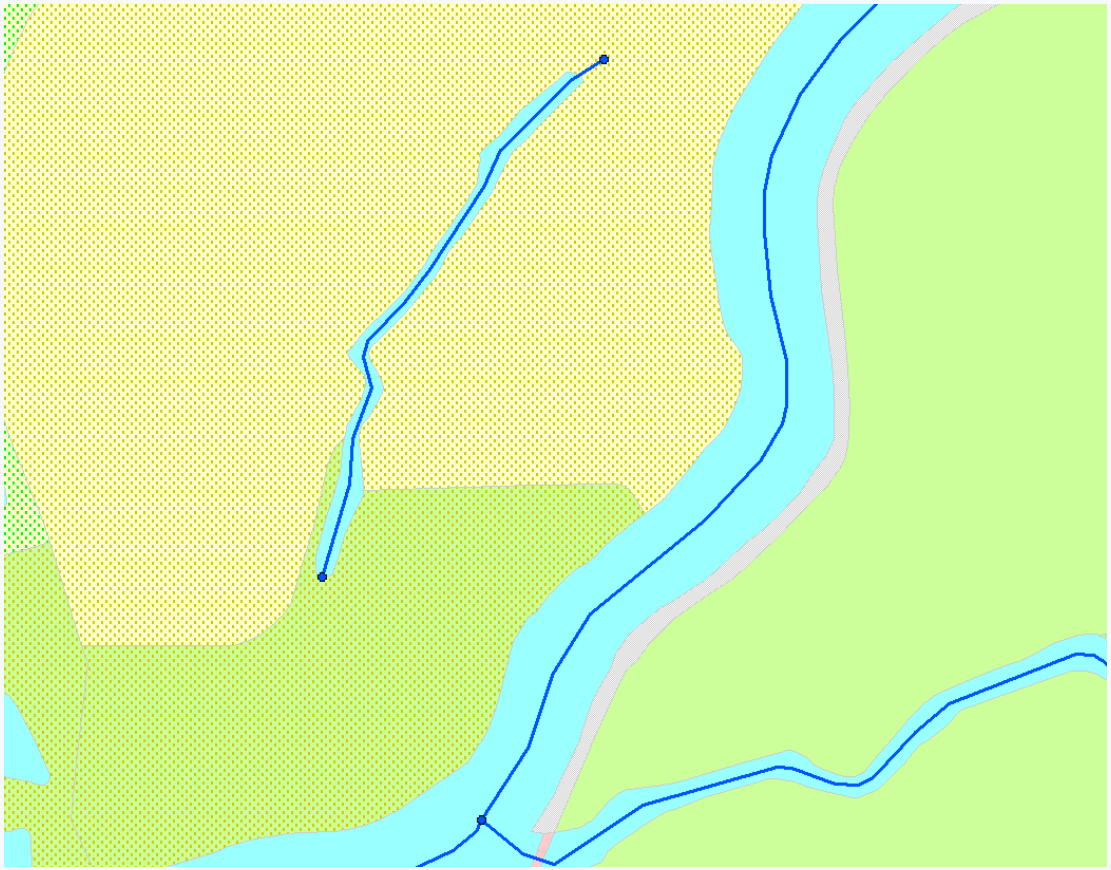
KEY FEATURES

OS MasterMap Water Network contains

- Flow and connectivity.
- Three dimensional geometry.
- Catchment information including name.
- Names of watercourses including language alternatives.
- Vertical relationships where water courses pass over or under one other.
- Average widths.

How is it different from a transport network?

- Not all features are joined

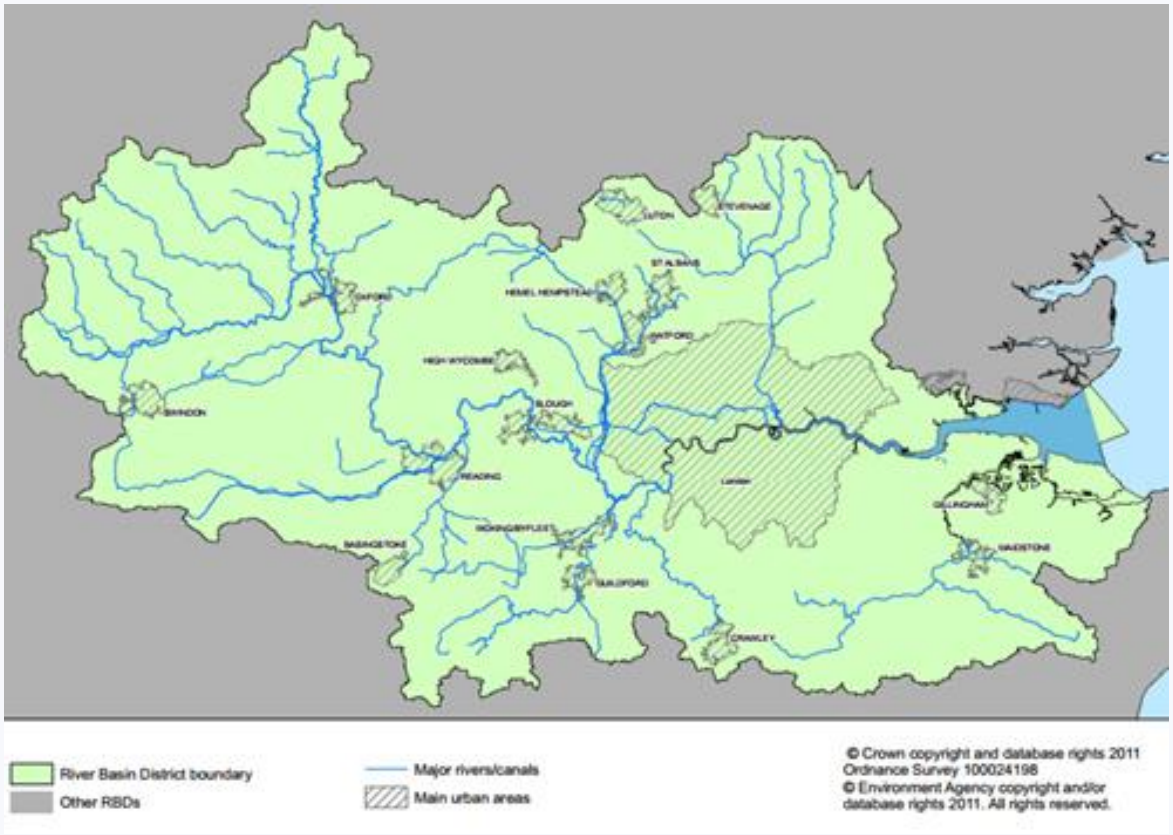


How is it different from a transport network?

Not every feature has flow

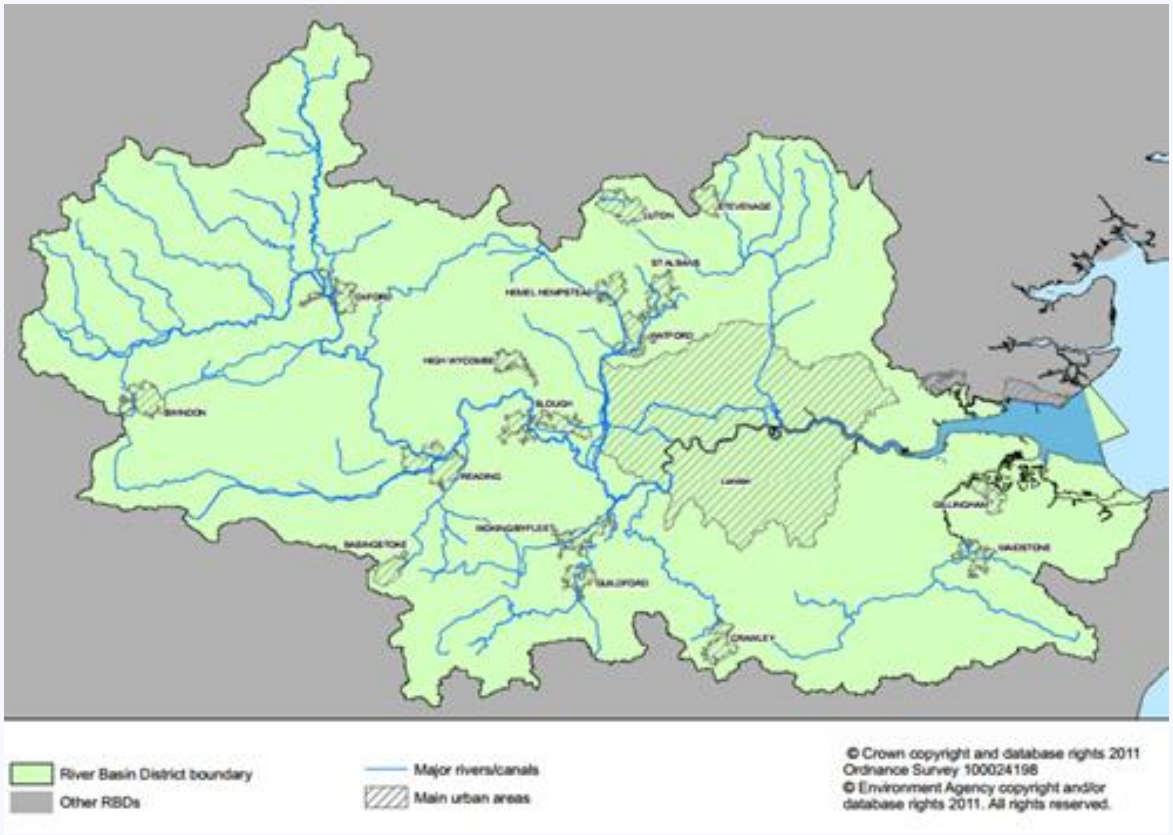
How is it different from a transport network?

Not every water link connects to every other one



How is it different from a transport network?

Multiple sources end up at a single terminal



How is it different from a transport network?

Water can be transferred across watersheds

How is it different from a transport network?

Gradient is an important factor – water flows downhill

In flat areas heighting is critical. Lidar heighting won't be good enough

How is it different from a transport network?

Canals are special features in a water network

How is it different from a transport network?

Sometimes the water just disappears!

How we validated the network

- Validate topology first. Are all links and nodes connected if they should be?
- Traced from source to sea. Starting at any node where water was flowing away from it
- Links must be classified – River, Canal, Drain etc.
- Trace from link to link ignoring anything that is artificial and generally trying to downhill.
- If there is more than one valid exit from a node then take the most appropriate based on width, classification and flow direction.
- Trace until a known valid end is reached or flag an error.
- Ends should be in the sea or in another body of water
- When an invalid end is reached. Trace back upwards to all ends to identify how much water is held back. This helps to prioritise the errors.