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Manchester Ship Canal
A case study of floodplain development

This case study highlights some of the complex issues surrounding the assessment of flood risk by setting out a recent conflict between a commercial property developer and the Environment Agency.

The Manchester Ship Canal was opened by Queen Victoria in May 1894. It connected the newly founded Port of Manchester to the Irish Sea, allowing Manchester’s merchants to bypass the Port of Liverpool. Within just a few decades, the Port of Manchester became the third busiest in Britain.

When it was opened, the ship canal was the largest river-navigation canal in the world. It remains a striking feature in the landscape of northwest England.

Recent history
The amount of freight passing through the canal peaked in the late 1950s. With the rise of containerisation from the 1960s, international trade became dominated by vessels that were too large for the canal and it fell into decline. Salford Docks — at the end of the canal — closed in 1982.

Over the last two decades, the upper reaches of the canal have been the focus of one of the largest urban regeneration projects in Britain. Salford Quays is now home to flagship multi-million pound developments including Media City, The Lowry gallery and theatres, and the Imperial War Museum North. Waterside development — commercial, cultural and residential — is now big business at the old docks and along the canal.

Peel Holdings, the largest property developer in the UK, has been the driving force behind much of this development. When Peel purchased The Manchester Ship Canal Company in 1993, it acquired over 100 hectares of land adjacent to the canal.

Flood-risk mapping
A core responsibility of the Environment Agency (EA) is to manage the risk of flooding across England from rivers, reservoirs, estuaries and the sea. The creation of flood-risk maps is a key part of this role (Box 1).

The Manchester Ship Canal drains a catchment area of more than 3,000 km². It receives runoff from various large catchments including the Irwell, the upper Mersey and the Bollin.

- The upper section of the canal follows the old course of the lower River Irwell downstream of Manchester city centre.
- The central section follows the Mersey valley between Irlam and Widnes.
The canal joins the Mersey estuary at Eastham Locks (Figure 1). A series of large locks enables the 18 m drop in elevation between Salford and Eastham.

When the EA carried out flood-risk mapping of the Irwell and Mersey catchments it designated much of the land adjacent to the Manchester Ship Canal as a high-risk flood zone (Flood Zone 3, Box 2). In other words there was a 1% chance of a floodplain inundation each year. The EA’s flood risk-assessment methodology obliged it to assess the flood risk on the basis that the Ship Canal locks/sluices would fail, despite the fact that this had never happened.

This designation was immediately challenged by The Manchester Ship Canal Company (MSCC) and its parent company Peel Holdings. Such a designation would not only reduce the value of land along the length of the canal — planning restrictions on land in the high-risk category would severely reduce future opportunities for canal-side development. The EA refused to change the high-risk designation and the dispute went all the way to the High Court.

**The High Court judgment**

In June 2012, the High Court ruled in favour of Peel Holdings and the MSCC. The EA was ordered to downgrade the flood-risk designation from high (Zone 3) to low (Zone 2) (see Box 2 and Figure 2 on page 16).

EA flood-risk assessments are partly based on the assumption that any infrastructure such as sluice gates, locks etc. will, at some stage, fail. Peel Holdings strongly contested this by pointing out that since the opening of the MSC in 1894, the land adjacent to the canal had never been flooded. In other words, the designation of Flood Zone 3 was not appropriate for land that had not been inundated for well over 100 years. Most crucially, it pointed out that the locks and sluices on the canal were never intended to be flood-defence measures — they were built to maintain water levels for shipping and therefore fell outside the EA’s own rules.

The judge agreed and ruled that the EA was incorrect in treating the main sluices as formal flood defences. The EA appealed the decision in 2013 but again lost the case. After the failed appeal a spokesman for the EA commented: ‘The High Court and Court of Appeal judgements highlight the complexity of the decisions we make in relation to flood mapping. At this stage we have decided that we will not be taking further legal proceedings.’

**The Ocean Gateway**

The High Court judgement was critical for future investment plans along the Ship Canal corridor between Manchester and Liverpool. The stakes could not be higher. The Peel Group’s Ocean Gateway project ([www.oceangateway.co.uk](http://www.oceangateway.co.uk)) is currently the largest development project in the UK. This is a long-term investment in the economy of northwest England that will create thousands of jobs. It has been billed as: ‘50 years, 50 projects, 50 billion pounds of investment’. The Ocean Gateway web pages set out the vision:

> Over the next 50 years, Peel’s Ocean Gateway concept will deliver an unprecedented scale of co-ordinated private sector investment. It is a truly pioneering approach to the renaissance of a strategic corridor encompassing the City Regions of Liverpool and Manchester and adjacent areas within Cheshire and Warrington.

If the EA had been successful in designating much of the land in the Manchester Ship Canal as a high-risk zone, it would have severely limited any future development in the area, including Peel’s Ocean Gateway project.

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**Box 1 Who uses the EA flood maps and why?**

A key aim of the EA flood maps is to ‘increase awareness among the public, local authorities and other organisations of the likelihood of flooding, and to encourage people living and working in areas prone to flooding to find out more and take appropriate action’ ([www.environment-agency.gov.uk](http://www.environment-agency.gov.uk)).

Flood maps also feed into the risk-assessment protocols used by insurance companies and play a key role in the planning process. It is much more difficult to secure planning permission for a commercial or residential project if the proposed development is in a high-risk zone.

www.hoddereducation.co.uk/geographyreview
Canal corridor as Flood Zone 3, this would have presented a major obstacle for planning permissions. It would have severely reduced the value of the land and limited its development potential. Much of the Ocean Gateway investment and thousands of new jobs would have been put at risk.

**Box 2 Flood-risk zones**

Areas at risk of flooding are shaded light blue (low risk) or dark blue (high risk) on Environment Agency flood maps. It is important to appreciate that “These two colours show the extent of the natural floodplain if there were no flood defences or certain other manmade structures and channel improvements” ([www.environment-agency.gov.uk](http://www.environment-agency.gov.uk)). The EA approach to flood-risk assessment is to assume that any artificial structures will fail, and map the areas liable to inundation accordingly. For rivers, the following categories are used:

- Dark-blue shading indicates Flood Zone 3 — it shows areas of the floodplain that are at risk from a flood that has a 1% (1 in 100) or greater chance of happening each year.
- Light-blue shading indicates Flood Zone 2 — it shows areas with a much lower risk of flooding. These areas are at risk from a flood that has a 0.1% (1 in 1,000) chance of occurring each year.

Source: [http://apps.environment-agency.gov.uk/wiby/37837.aspx](http://apps.environment-agency.gov.uk/wiby/37837.aspx)

**The next 100 years**

There is no doubt the canal-side development has boosted the economy and cultural capital of Manchester. But how great a flood risk has it created? This case study raises important questions around flood-risk assessment policy and practice — not least what constitutes a formal flood defence. It highlights a particular conflict between those who wish to fund developments on floodplains and those who carry out hazard assessment.

The Environment Agency has to reconcile many competing interests and this is a difficult task.

- Was a High Court hearing the best way to resolve this conflict?
- Has the problem been solved or are the developers creating a much higher risk environment?
- What would happen if the Ship Canal and adjacent land were overwhelmed by a great flood?

Immediately upstream of their junctions with the canal, large tracts of the Irwell, Mersey and Bollin floodplains are mapped as higher risk (Flood Zone 3). There are detailed historical records showing that the floodplains of the Irwell and Mersey along the present course of the Ship Canal were regularly flooded in the nineteenth century. In 1946, 5,000 properties were flooded in Salford, upstream of the canal. This shows that operation of the canal sluices has been successful in conveying floodwaters through the system since 1894. Hydrologists argue that big floods will be much more frequent in the coming decades. The ageing infrastructure of the Ship Canal must be maintained.

Jamie Woodward