

## Flood risk – the true story



Much has been written recently about “Flood Risk” and Burton Waters in particular, is built on land which in the past has been subject to flooding. In his book ‘The Fens and Floods of Mid

Lincolnshire’ published in 1882, J.S. Padley, who was both County Surveyor of Lindsey and Surveyor of the Sewers of the Lincoln District for a period of some 60 years, specifically records floods from the Trent which affected Lincoln in the eighteenth and early nineteenth centuries.

### The 1795 Flood.

In February 1795 the Trent bank at Spalford was breached and nearly 8,000 hectares of land to the west of Lincoln was flooded, including the lowlands of Boultham, Burton and South Carlton, Skellingthorpe, and Broxholme, these being swamp lands, also lands in Saxilby, Broadholme, Harby and Wigsley, growing only gorse and ling. The flood was solely due to melting of snow. A severe frost over a period of two months having preceded the thaw. It was reported at the time:” The bank is formed upon a plain of sandy nature, and when it was broken in 1795, the water forced an immense breach, the size of which may be judged from the fact that eighty loads of faggots and upwards of four hundred tons of earth were required to fill up the hole, an operation which took several weeks to complete.

The water found its way to Lincoln. but the High Street being raised more than ten feet above the level of the adjoining lands became a dam and stop to the flood, causing it to remain above Lincoln. Failing to egress by its ancient outlet, the water spread out like a lake over the twenty thousand acres and continued to cover them for nearly three weeks. I have ascertained that the flood-mark at that time was nearly eight feet above the ordinary height of water in the Fossdyke, or ten feet above the present level of the land.

Many of the houses in Saxilby were flooded, and the families had to be removed to the upper town - indeed, several of them had to live in the church; Broxholme, Hardwick, Hathow, (Odder) Thorney, Fenton, Kettlethorpe and Wigsley, were cut off from all communication with other parts except by boats. The villages of Torksey, Brampton, Fenton, Kettlethorpe, and as stated above, the lower parts of Saxilby, were flooded”.

In his record of eyewitness accounts published by Padley in 1850, both Mr. Edward Cavill and Mr. William Harrison of Saxilby recall that at the ‘Sun’ public house, the water was level with the top of the bottom sash of the ground floor windows. Following further Trent floods in 1824 and 1852, all five ‘gaps along the Trent at Spalford, Newton, Torksey Lock, Torksey and Marton, which can potentially flood Lincoln, were thoroughly repaired under the jurisdiction of the Courts of Sewers at Lincoln and Newark.

Following the Spalford Bank Disaster, an Act was passed on the 20th July, 1804 in the 44th year of the reign of George III “For embanking, draining and improving certain Lands in the City of Lincoln and County thereof and in the parishes or townships of Boultham, Skellingthorpe, Saxilby, Broxholme, North Carlton, South Carlton, Burton and Hathow in the County of Lincoln and for inclosing Lands in the said parish of Skellingthorpe’.

The lands affected by this Act were divided into two Districts - Lincoln West (North District) Drainage Board and Lincoln West (South District) Drainage Board. The Boards were empowered to levy an annual tax on the owners of the lands which were to be embanked and drained.

The main outfall for both the North and South Districts at this time was the sunken tunnel under the River Witham at the south east end of Coulson Road, Lincoln - gravity discharge thus being obtained into the Great Gowts Drain and the Sincil Dyke.

Amongst other matters, the Commissioner of the North District was empowered to construct “a tunnel of cast iron of such dimensions as he thought expedient’ beneath the Fossdyke at Bishop Bridge, together with a new main drain to connect with the main drain in the South District and also “cause a Catchwater Drain to be made and embanked along or near the course of the High Lands bounding the District so as to conduct the Highland Waters into the Fossdyke at Bishop Bridge.’

Similarly the Commissioners of the South District were empowered “to make and embank a Catchwater Drain along or near to the High Lands adjoining the said District on the south, of adequate dimensions, to discharge the waters from the said Lands into the River Witham’.

As a result of the Act, the Burton Catchwater drain was excavated, channeling water from the Carlton and Burton parishes under the Fossdyke at Bishops Bridge. The water was then pumped into the Skellingthorpe drain and from there it flowed into the Witham at Sincil bank. In later years the increase in water flow created problems for the terraced housing along the Sincil dyke!

In 1933, the North and South Districts were amalgamated with the Lincoln Sewers Board to form a single unit. This became the Upper Witham Internal Drainage Board, which still plays a vital part in draining the land and managing pumping stations and flood defences along the Witham.

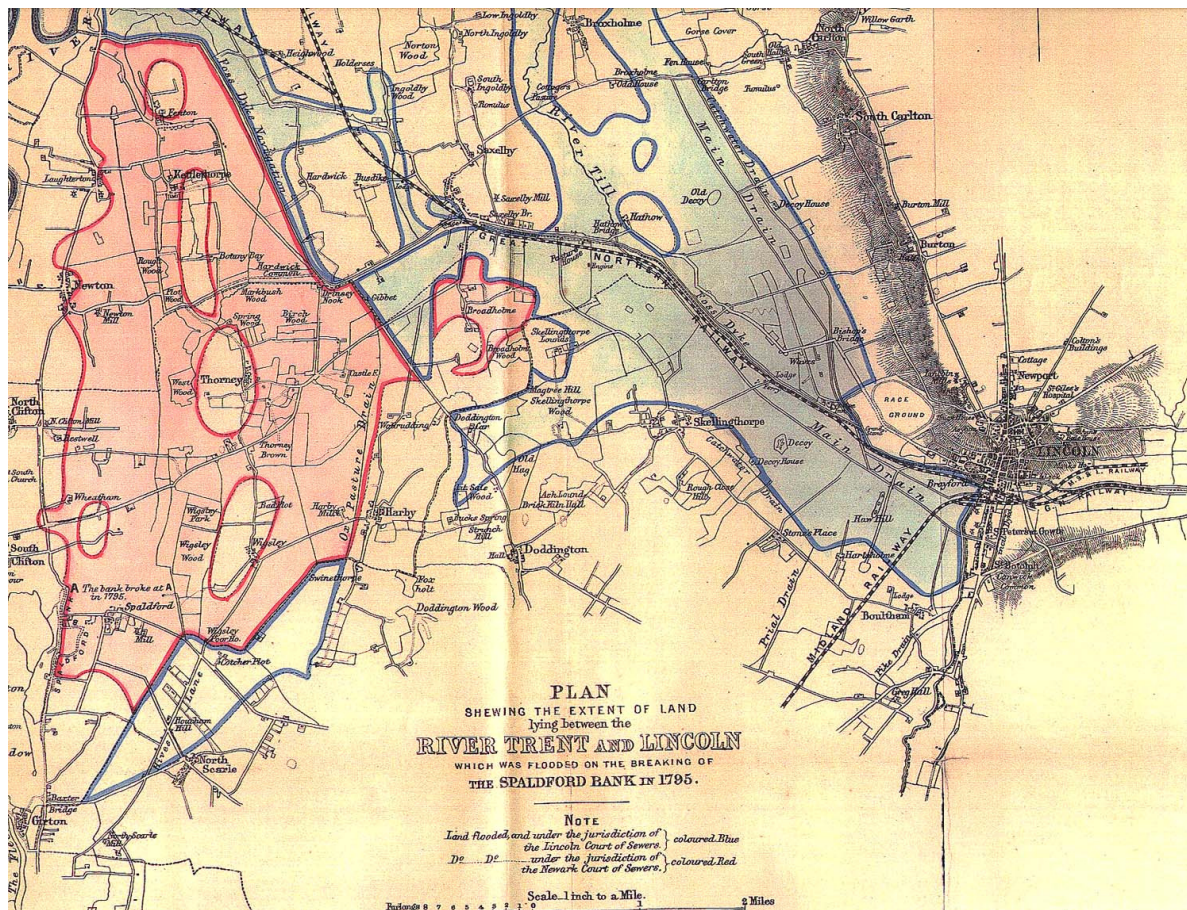
At a presentation to Burton Waters residents at the Burton Estate Club in March, the Chief Engineer, David Van Den Bos, outlined the current flood management systems which are in place to protect householders from flooding. Firstly the flood defences along the River Trent have been greatly improved with embankments capable of holding back the floodwaters experienced in 1795 and 1947. The Fossdyke canal which joins the Trent at Torksey lock, has been embanked by the Environmental Agency to a level at least equal to the 1795 flood level. Automatic flood detection systems are also in place which open and shut sluices and operate pumping stations should the water level rise to danger level.

The first line of defence is the sluices on the river Till at Odder which allow excess water to be diverted onto low lying fields in Carlton and Burton. This last occurred in 1990. The second line is a culvert to the south end of the Burton Waters development which takes water from the canal and diverts it into the Burton main and Catchwater drains. The drains then act as a reservoir for excess water and the flow can be controlled as it flows back into the Witham in Lincoln. Should the waters rise above 5.6m you could then start to get your feet wet as the Marina lock is 5.5m above datum!

The conditions for flooding remain the same as in 1795 and flash flooding is ruled out as we have no hills acting as a catchment. We need heavy snow on the Derbyshire hills and a sudden thaw with the water draining quickly into the Trent. The flood water flows down the Trent and if this spate coincides with a spring tide (the highest tides are on the new or full moon) the tidal waters which flow up river to a depth of 6m, hold back the flood waters which can then overflow and breach the banks.

The land this side of the Trent is about 1m lower so if there is a breach or the Torksey lock fails, water flows naturally towards Lincoln, possibly following the old course of the river before the last ice age.

The contour level for the calculation of flood risk is 5.8m above the Ordnance Survey datum which was the height of the floods in 1795. Planning permission for housing at Burton Waters was given on the understanding that the floor levels of houses built at Burton Waters are at least 5.8m above datum. However, while a flood of this magnitude cannot be discounted, the strengthening of the Trent banks and the additional safety measures which have been introduced over the past years makes a major flood highly unlikely. The latest Environmental Agency flood risk map which takes into account all the latest flood defence measures, places Burton Waters on the edge of the medium risk area with a risk factor of between 1:75 and 1:200 years.



**A map showing the extent of flooding in 1795.**

*The Trent burst its banks at Spaldford and land was flooded almost to the present 6m contour. The water stopped short of New Farm on Fen lane. Odder (Hathow) was cut off but avoided flooding as it is on an island just a few inches above the 5.8m level.*