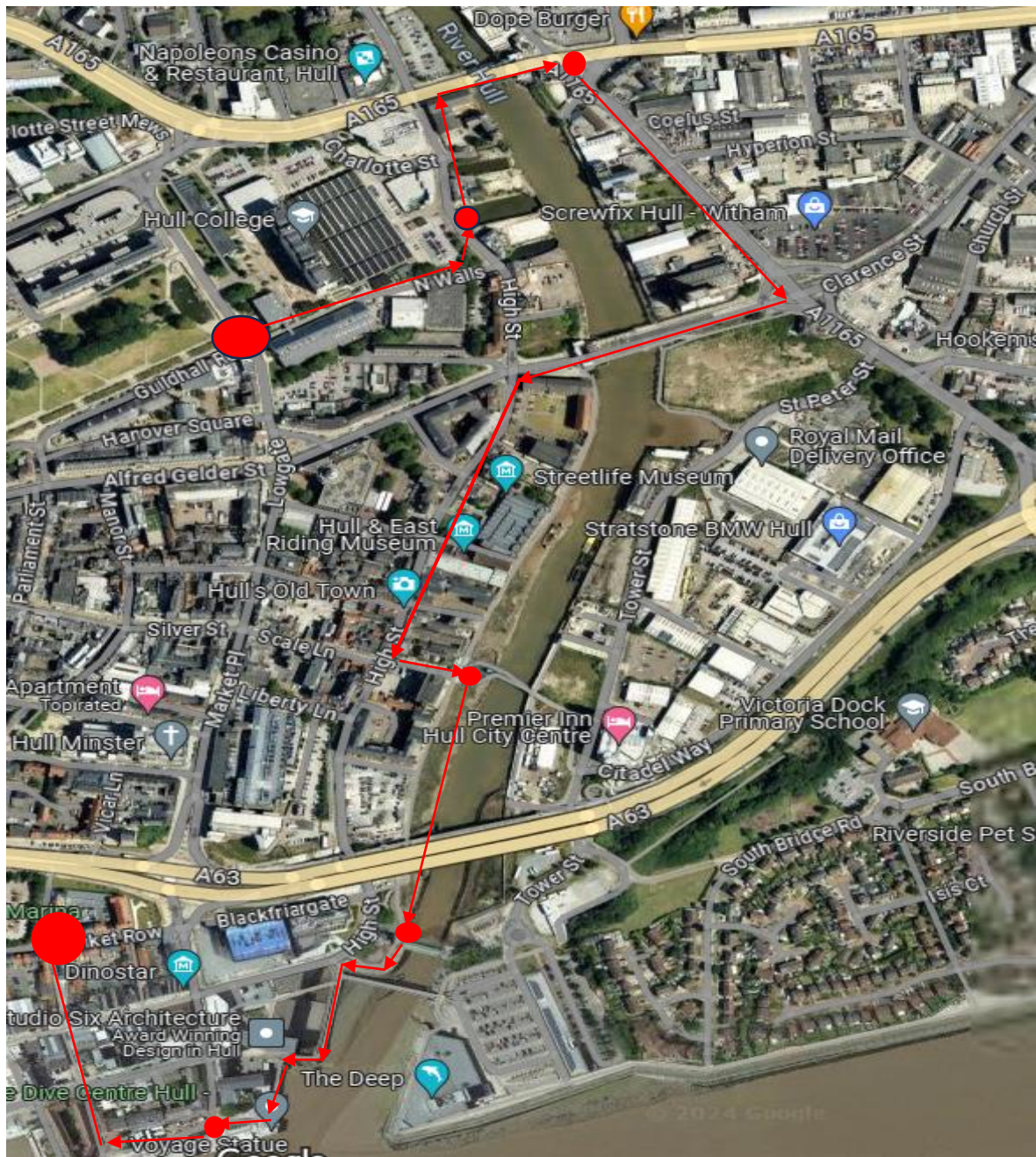


Living with Water tour



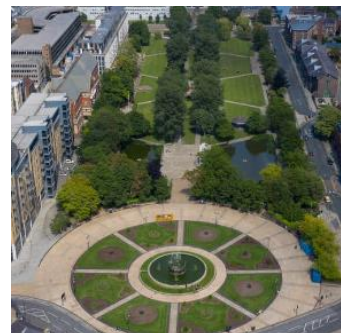
Stopping points on the walk:

1. Queen's Garden
2. Dock Office Row
3. North Bridge
4. Scale Lane Swing Bridge
5. Tidal Barrier
6. Nelson Street
7. Scotts Square

Starting point: Queens Gardens

Queens Gardens was once known as Queens Dock, a working dock in the city centre for over 150 years! New, larger docks on the southern edge of the city meant that Queens Dock was no longer viable.

In the early 1930's the dock was filled in, this took 4 years with 50 tons of material tipped in each day. Things such as rubble from demolished buildings, dredging from other docks and there is even a rumour that a double decker bus and redundant items from a Bakelite factory were used. Lawns, trees, flower beds and fountains replaced the dock, and the site became Queens Gardens.



Queens Gardens is a public green open space and has been used for events and concerts for many years. When Hull was the City of Culture in 2017 the gardens were a focal point for exhibitions and events with the legacy of 2017 continuing this use.

Improvements are currently underway, these tie in with the renovation of the museum and the re-homing of the Arctic Corsair, a former fishing vessel to highlight Hull's maritime history.

The development taking place has incorporated SuDS (Sustainable Drainage Systems), it is one of the council's larger sites which incorporates them. There is permeable paving along Guildhall Road, Tree Pits and Storage crates under the ground. Some of this attenuated water is conveyed into Rain Gardens which will be on the footpath in Queens Gardens themselves (you may be able to see the outlet at the base of the wall).

Want to know more about SuDS? Visit....

Dock Office Row

This Dock is known as the North End Shipyard and is located on one of the oldest streets in the city. This area is at the heart of Hull's maritime and trade industry with over 400 years of ship building history.



The dock is under redevelopment to house the Arctic Corsair in a dry dock, the aim is to celebrate Hull maritime history and the significance of High Steet

The visitor centre promises to be an energy efficient building and visitors will be able to walk under the vessel. The centre will open in 2025 with a hope of 135,000 visitors a year

The Arctic Corsair will from its previous location on the banks of the River Hull to undergo restoration and allow for flood prevention works....

The LLFA (Lead Local Flood Authorities) was consulted on this project, the new sill to the dock gates has been especially constructed to ensure that it is going to compromise the flood defences either side.

Want to know more? Visit maritimehull.co.uk

North Bridge

River Hull Flood Defences

The flood defences were funded through the European Regional Development Fund. The improvements include roosts for birds and 250m of habitat improvements for vegetations, eels and spawning fish.

The exposed sheet piles are reinforced with concrete, they go down about 30 metres to get past the clay and into the chalk bedrock.

The River Hull flood defences targeted benefiting 76,000 residential properties, 9000 businesses, 2 strategic sites including Dock Office Row which we have just seen and Tower Street which we will be able to see at the next stop. The defences are essential given that most of the city sits lower than the banks of the river, should they be breached or overtopped the severity of flooding could be very significant.



Planning for Flood Risk

Development in the city needs to consider the risk of flooding as Hull is the second at most risk of flooding city in the country, and is susceptible to flooding from fluvial, pluvial, tidal, groundwater and sewer (rivers overflowing, excess rainfall, high tides in low lying areas, water rising from the ground and sewars overflowing.)

In built up areas, such as the city centre, undercroft parking (ground level parking below a building) is an option that can be used to better protect properties from the effects of flooding. Elsewhere in the city we are transitioning to more natural flood management solutions such as aqua greens and swales.

Want to know more about natural flood management solutions? Visit

<https://livingwithwater.co.uk/projects/sustainable-drainage-systems-suds>

Scale Lane Swing Bridge



Scale Lane Bridge (opened in 2013) is the first bridge in the world that allows people to remain on it whilst it opens.

Behind the museums (on your left) is where the Artic Corsair was previously berthed

In England, most funding for flood and coastal erosion schemes comes from the Government and must be bid for.

Money is awarded based on the number of homes and businesses that would be better protected. If a 100% of funding from Government is not met, funding from other sources is required. Here the River Hull+ project was funded by the ERDF (European Regional Development Fund). One of the reasons we have timber lattices for wading birds built into the

defences is to form part of the environmental benefits satisfying the funding requirements from the ERDF.

On the east side of the river is one of our strategic sites and has been allocated for housing. As the development is so close to the River, design around flooding of high importance.

Tidal Barrier

Construction on Hull tidal barrier began in January 1977 and was opened on 15th April 1980, costing £4.3 million. The project began after the country saw devastation with the 1953 'great flood' and a further tidal surge inundated the city in 1969, there was also frequent, lower level flooding due to spring tides or tidal surges.

There is 200 cubic meters of concrete in each tower and the gate weighs around 212 tonnes.

There was a £10 million refurb in 2010 to keep the barrier working, some of the work was carried out 98 meters up.



The barrier offers protection to around 17,000 properties, The area most protected by the barriers is Kingswood in the north of the city.

It is estimated that without the barrier there would be around £230 million worth of flood damages to the city centre. The barrier operates 20 -25 times per year on average, this is becoming more frequent as the climate changes.

Nelson Street

The frontages (the concrete walls) were constructed in response to the increased flood risk the city is facing, it is second only to London in terms of flood risk. The frontages span for 7km and we can see they are made up of different elements from concrete walls, brick slips, glazing and flood gates.

Whilst the tidal barrier stops water from heading up the River Hull and overtopping its banks, water was still breaching at low spots along the estuary, as proved in 2013 when a tidal surge caused flooding at Victoria Dock and further inland at Hessle. Additionally, the glazing elements maintain views of the SSSI for smaller or younger people and those in wheelchairs for example.

The scheme had to incorporate the heritage of this area and be in-keeping or sympathetic to it, this included landscaping, planting and opening public spaces to maintain views and vistas from the fruit market area through to the estuary.

The trees planted in this area are in tree pits to help manage that surface water.

Funding for the scheme came from the government (£39m) and National Highways (£3m)

Scotts Square

In the council's Strategic Flood Risk Assessment we can find the predicted flood levels and build accordingly. This square gives us an example of some steps that have been taken to

protect homes and highlights resilience measures a property owner or developer can undertake.

You can see from the steps up to the front door that floor levels have been raised, though raising floor levels can have implication for disability access (Disability discrimination act)

Further options for PFR (property flood resilience) include, water harvesting, non-return valves, self-closing air bricks, sumps and pumps, flood doors and barriers, rain gardens and installing hard floors or plasterboard horizontally. PFR measures do not necessarily exclude water but instead allow a property to recover quicker after a flood event.

Want to know more? Visit