

## **NORTHWICH FLOOD RISK MANAGEMENT SCHEME NORTHWICH CHESHIRE**

ENVIRONMENT AGENCY

BIG Biodiversity Challenge Award category: Small Scale Permanent Award

### **Project overview**

The scheme, which began in the spring of 2015, has seen construction of the flood defences along the banks of the River Dane and River Weaver in Northwich town centre, and has been the product of a successful partnership between the Environment Agency and Cheshire West & Chester Council, with the construction work undertaken by a consortium of Black & Veatch and Galliford Try (GBV). The £7m scheme is nearing completion with the majority of the flood defences built. The scheme will reduce the risk of flooding to over 600 homes and businesses from both rivers to a probability of 1% in any one year.

### **What were the biodiversity conditions on site, prior to the enhancement?**

The new floating ecosystem has been installed around an area known as the Bull Ring in the centre of Northwich.

Prior to the works this section of the riverbank consisted of an old riverbank wall made with gabions, sheet-piles and stone so there was no formal natural edge for vegetation to establish.

### **Were there any specific conditions that led to you carrying out this work?**

There were no specific planning conditions to deliver this enhancement but the design team were keen to reduce the visual impact of the new flood wall. This was achieved via a few methods including glass panels and sandstone cladding, as well as the floating ecosystem which will create a soft edge along the riverbank and a valuable habitat for flora and fauna.

Much of the riverfront through the town centre consists of hard revetments so this innovative solution is a great example of how to green up the riverbank.



*Visualisation of the floating habitat system in front of the new flood wall*

### What were the biodiversity measures taken?

The floating ecosystem is a great example of how habitat can be created when there appears to be no space. The ecosystem will provide multiple benefits from habitat and biodiversity to waterscape amenity and water quality. The floating habitat consists of 24 interlocking floating sections which are secured to the floodwalls with stainless steel guide cables that allow it to float up and down with the changing water levels. The diagram on the next page shows how the system will react to changing river levels.

The system is planted with a diversity of native aquatic plants, which will provide habitat for bees, dragonflies and damselflies. Within the system itself, the planting media is designed to provide hundreds of microhabitats for amphibians and aquatic insects. Underneath the system the plant roots will grow down in to the water, providing hundreds of square meters of root surface area which directly absorb nutrients from the water, helping to improve water quality and providing shelter and feeding ground for fish. The diverse range of native aquatic plants will also help to soften the aesthetics of the flood defence wall, providing a naturalised waterscape in this town centre location.

Floating ecosystems provide a low maintenance approach to restore riparian waterway edges. The maintenance can be compared to a typical natural landscape installation. In practice, most floating ecosystems installed receive little to no active maintenance. One of the main benefits of floating ecosystem units is that nature tends to be very effective at managing itself once we provide the floating structure for it to grow on.



*Environment Agency planting the floating habitats with Witton Church Walk pupils*

As part of the installation, students from Witton Church Walk CofE Primary School were invited along to learn about, create and implement habitats for wildlife to thrive. The children were submersed into the day starting with a talk explaining the benefits of the floating ecosystems, followed by getting their hands dirty planting various grass and flowers and finally releasing the habitat into the river.

### How would you best describe the project?

An enhancement

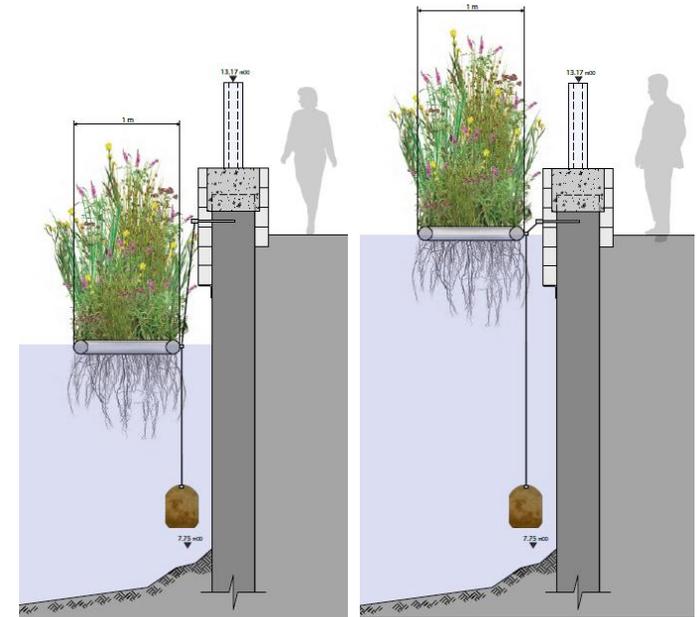
### Further information

The innovative modular floating ecosystem system is provided by Biomatrix Water Solutions ([www.biomatrixwater.com](http://www.biomatrixwater.com)) who are based in Scotland. The Biomatrix team provides innovative solutions for water management around the world, with floating ecosystem installations ranging across the UK, and as far afield as the USA and China, building on decades of experience to provide the most robust floating ecosystem solution built today.

The interlocking floating ecosystem sections used in this location are made with a structural Tough Float™ frame with a 6 layer multi-level planting system. There are 14 sets of floating edge anchor kits to ensure that the system remains securely in place during normal conditions and peak storm flow events.

### What was your personal motivation for carrying out the enhancement?

This was a cost effective and innovative way to transform the riverbank on this well used stretch of the Weaver Navigation for the benefit of all.



*Schematics of the floating habitat during normal and high river levels*