WATER DESIGN ENGINEERS
— Solving water in the landscape —

CASE STUDY

Location: **Somerset**
Client: **Somerset Rivers Authority**
Completion: **July 2025**
Service: **Wetland Creation**

RIVER SOWY, SOMERSET WETLAND CREATION

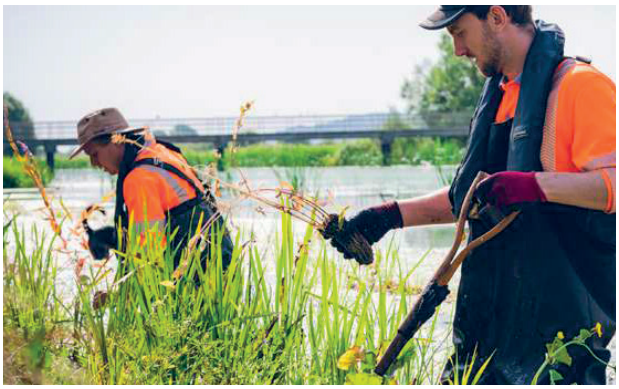
The Project

The Somerset Levels are a large coastal plain of lowlying land, most of which formed part of the Severn estuary within the past 5000 years. Some areas were still under seawater as recently as 700BC, although coastal reclamation and the natural process of reed swamp colonisation slowly changed this landscape from mudflats to dry land.

Even today, the Levels are often subject to extensive flooding, such as in 2014 or 2023. But drains, 'rhynes' (smaller drainage ditches) and in-field 'gripes' (handdug channels) help to keep these pastures dry.

The River Sowy is a drain, excavated in 1969-72 to reduce flooding. It has all the characteristics of an artificial channel - fast flow, low biodiversity and a high capacity to evacuate water. It has been efficient at delivering reduced flooding, but, when additional works were carried out in 2021 to increase the capacity of the water course, ecological enhancements were also added to the system.

According to the Somerset Rivers Authority, these enhancements included "features such as different shelves along parts of the riverbank and smaller parallel channels", to create a variety of flow speeds and "more diverse habitats for wildlife". Ecosulis was contracted to plant out these habitats, creating new marginal wetland and riparian woodland.



A Different Kind of River

In a natural river system, we can reduce flooding by slowing the flow of water from source to sea. But in the Somerset Levels, the landscape is not 'natural'. Here, the land, much like the Dutch Polders, has been artificially drained. Slowing the flow of water by 'rewiggling' rivers or using natural flood management techniques (like blocking watercourses with fallen trees) will cause more, rather than less flooding here.

In the Levels, when high rainfall occurs, the aim is not to slow the flow of water, but to remove it from the land, down the drains into the ocean as quickly as possible. Ecological interventions must not impede the flow of water through the main river channel.

To get around this problem, the Somerset Rivers Authority commissioned work to excavate smaller channels which ran in parallel to the main river. These increased the water capacity while creating slowerflowing areas that would be better for biodiversity.

While many invertebrates and fish are adapted to fast-flowing, 'lotic' areas of rivers like rapids, these systems are typically turbid, with low levels of plant life. In slower-flowing 'lentic' systems, sediments drop out of suspension, making the water clearer.

Reducing Erosion

Ecosulis planted out marginal wetlands along the edges of the parallel channels and additional cuts that widened the River Sowy. The marginals were planted directly into the substrate, with over 330 preestablished coir rolls deployed along the edge of these areas to reduce erosion. The rolls were supported by 3000 natural chestnut stakes - a wood which is resistant to rot - it will allow these rolls time for roots to establish and anchor them to the riverbed.

In addition to the marginals, Ecosulis also improved the quality of bank habitat with over 400 trees planted and seeding of 28,000m2 of new raised river banks. Our interventions were based on designs from Jacobs Engineering, which adhered to the Environment Agency's Water Framework Directive. We worked alongside Kier Infrastructure, which carried out works on site.

According to the Somerset Rivers Authority, these enhancements included "features such as different shelves along parts of the riverbank and smaller parallel channels", to create a variety of flow speeds and "more diverse habitats for wildlife". Ecosulis was contracted to plant out these habitats, creating new marginal wetland and riparian woodland.

Landscape

In a natural river system, we can reduce flooding by slowing the flow of water from source to sea. But in the Somerset Levels, the landscape is not 'natural'. Here, the land, much like the Dutch Polders, has been artificially drained. Slowing the flow of water by 'rewiggling' rivers or using natural flood management techniques (like blocking watercourses with fallen trees) will cause more, rather than less flooding here.

In the Levels, when high rainfall occurs, the aim is not to slow the flow of water, but to remove it from the land, down the drains into the ocean as quickly as possible. Ecological interventions must not impede the flow of water through the main river channel.

To get around this problem, the Somerset Rivers Authority commissioned work to excavate smaller channels which ran in parallel to the main river. These increased the water capacity while creating slowerflowing areas that would be better for biodiversity.

While many invertebrates and fish are adapted to fast-flowing, 'lotic' areas of rivers like rapids, these systems are typically turbid, with low levels of plant life. In slower-flowing 'lentic' systems, sediments drop out of suspension, making the water clearer.

The Habitat Creation

Ecosulis planted out marginal wetlands along the edges of the parallel channels and additional cuts that widened the River Sowy. The marginals were planted directly into the substrate, with over 330 preestablished coir rolls deployed along the edge of these areas to reduce erosion. The rolls were supported by 3000 natural chestnut stakes - a wood which is resistant to rot - it will allow these rolls time for roots to establish and anchor them to the riverbed.

In addition to the marginals, Ecosulis also improved the quality of bank habitat with over 400 trees planted and seeding of 28,000m2 of new raised river banks. Our interventions were based on designs from Jacobs Engineering, which adhered to the Environment Agency's Water Framework Directive. We worked alongside Kier Infrastructure, which carried out works on site.

Footprint

Living systems

Duis feugiat volutpat rutrum. Donec et eros faucibus mi luctus vehicula a sit amet urna. Nunc iaculis viverra est ac laoreet. Curabitur condimentum lorem non quam euismod, sit amet laoreet nisi iaculis. amet aliquam dictum.

Ecologies

Integer diam lorem, suscipit eu sem a, fringilla ultricies justo. Ut sed pulvinar metus, non pretium nunc. Phasellus urna mi, tempor non imperdiet sit amet, ipsum sit amet aliquam fringilla auctor id quam. Fusce vel metus a lacus scelerisque dui.

Stakeholders

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nam commodo elementum purus, in elementum felis tincidunt suscipit. Nam gravida ipsum sit amet aliquam fringilla. Mauris et finibus dolor. Morbi tellus nunc, faucibus ac dictum eget, molestie nec orci.

Social Impact

Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia curae; Sed commodo, neque ut pellentesque consectetur, nisi turpis mollis mauris, vel sodales ante lacus a dolor. Praesent nisi neque, aliquet quis mollis vitae, aliquam eu tortor.