Natural Flood Management

Sundridge Bypass Channel

Natural Flood Management (NFM) is used to protect, restore or mimic the natural functions of catchments to reduce the risk of flooding.

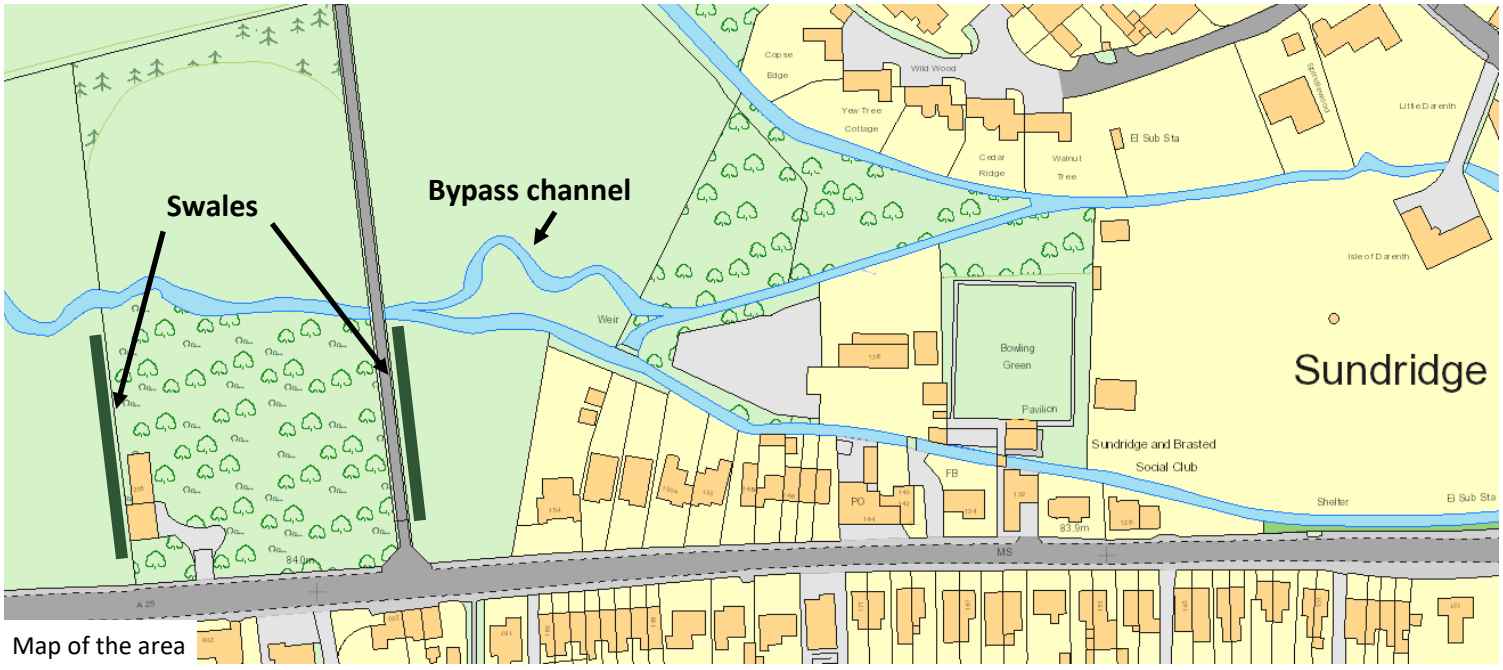
Working with natural processes, NFM uses a variety of mechanisms to reduce flood risk by increasing infiltration, slowing the flow of water, storing water and holding back sediment.

Often NFM use a combination of these mechanisms within a catchment with features such as cross slope hedgerows, swales, leaky barriers, floodplain reconnection and revegetation of bare areas.

Using NFM techniques to manage water can have a range of additional benefits:

- Reduced flood risk
- Increased biodiversity
- Carbon storage
- Recreational areas
- Improved water quality
- Increased resilience to climate change
- Improved groundwater recharge
- Improved liveability for the community

Sundridge weir was a total barrier to fish passage on the River Darent, preventing fish from moving up and down the river throughout the year to find food, spawning grounds and seasonal habitat. A bypass channel was designed to divert water around the weir, creating a channel to allow fish passage and to allow high river flows to spill over the banks and flood into the surrounding land.



Map of the area

The project also included the construction of two swale areas to take surface water from the A25 which led to localised flooding. The shallow, vegetated swales remove pollutants, improves biodiversity and allows the surface water to slowly drain into the River Darent. The swales will manage flooding affecting the A25 and surrounding properties and the bypass channel will reduce the flood risk to properties near the river.

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Sundridge weir

The bypass channel was designed to ensure the channel is the primary flow route and does not increase flood risk to the local area. Sundridge weir splits the flow of the River Darent between the main river and a leat that runs alongside gardens of adjacent properties.

Modelling was required to design an effective bypass channel that splits the flow to ensure that a flow of water is maintained within the leat during low flow conditions.

The construction of the bypass channel has enabled the movement of fish both up and downstream but has also increased the biodiversity within the river.

Designed as a two-stage channel, the wetted margins have been planted with a mixture of native aquatic plant species which creates habitat for invertebrates, birds, small mammals and amphibians.

The project has delivered both flood risk managements and biodiversity benefits.

Construction of the bypass channel

The Sundridge bypass channel project was delivered as a partnership with North West Kent Countryside Partnership (NWKCP) , Environment Agency, The Rivers Trust, Department of Environment Food and Rural Affairs (DEFRA) and Kent County Council.

Completed bypass channel

Completed bypass channel