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Protecting Porthleven



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PROTECTING PORTHLEVEN

The fishing village of Porthleven lies in south west Cornwall, between Helston and Penzance.

The Porthleven Stream runs through the centre of this popular Cornish fishing village and is responsible for a long history of flooding.

Porthleven has grown around the harbour and associated commercial activities. Historically, fishing was and still is the main - non-tourist - commercial activity. In the past the harbour was also used to export metallic ores and import timber, coal, lime and building materials. Until 20 years ago the boat yard was active constructing mainly timber vessels. The yard is now used for the storage and maintenance of pleasure craft, car parking, vehicle repairs and a fruit and vegetable wholesalers. The economy of the town now relies on tourism.

Porthleven lies in a rich landscape - it is within an Area of Outstanding Natural Beauty and the Heritage Coast. There are also two Sites of Special Scientific Interest adjacent to Porthleven, known as Porthleven Cliffs to the west and Porthleven Cliffs East.

The Porthleven Stream begins near the hamlet of Trew, near the head of the catchment at Carleen. As the stream reaches the town at Lower Methleigh Farm it enters a series of culverts before eventually discharging to the outer harbour.



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A flood defence scheme for Porthleven

The flood defence scheme for Porthleven was drawn up mainly in response to the flood, which happened in 1993, when 14 residential and commercial properties were inundated with water. The rainfall gauge at Culdrose, Cornwall, recorded that 126 millimetres (5 inches) of rain fell between midnight 8 June 1993 and 10.00am the following day.

The old pipe culvert, which took the Porthleven Stream around the harbour, was not large enough to allow flood flows to escape to the harbour. This, combined with the inadequate trash screen at the culvert inlet, meant that water flooded Gala Parc and many of the properties around it. As well as the homes that were flooded, Porthleven Supermarket and Rosewarnes Garage at Wellmore, also suffered severe flood damage.

The only way that the excess water could escape was along the lane that runs by the supermarket, and through the store itself. Floodwater then ran across the main road, the B3304, before cascading into the harbour.

The Environment Agency appointed consultants – Lewin, Fryer and Partners of Bradford-on-Avon, Wiltshire – to investigate the cause of the flooding and advise on the best and most economical way of overcoming the problems.



▲ Porthleven Stream overflows into the inner harbour



▲ Floodwaters from the Porthleven Stream submerge Gala Parc
Main picture: Methleigh Bottoms, June 1993

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The scheme

The scheme works by allowing the existing culvert to fill to its capacity, and then direct excess floodwater, via an overflow, through a new culvert into the inner harbour alongside the slipway. Gala Parc will still flood occasionally, although not as deep as before, and new banks, ramps and walls have been built to keep floodwater out of homes and businesses.

Main features of the scheme:

- A new inlet structure to the culvert sited in the boatyard car park near Porthleven Supermarket;
- A new outlet into the inner harbour, next to the slipway. This is built into the quay wall and can only be noticed by the grille at beach level on the harbour wall;
- A gentle ramp across the B3304 road at Methleigh Bottoms near Hosking's building merchants, and a grassy bank alongside the stream in the road verge;
- A ramp across the access lane to Gala Parc and The Square.



▲ The combined inlet structure, with new culvert in background



▲ Construction of the base of the combined inlet structure



Numerous organisations and individuals were consulted during the course of the scheme's preparation. The scheme was approved by the Environment Agency's South West Regional Flood Defence Committee, and gained planning permission in 1996.





▼ The landscaped channel to the combined inlet structure



The cost of the scheme was £500,000, supported with grant-aid from the Ministry of Agriculture, Fisheries and Food.

Construction of the outfall into the inner harbour



▲ Excavation



▲ Construction of walls



▲ The completed outfall



▲ Granite blocks replaced exactly as before the scheme

Construction of the scheme

Work on the improved flood defences started in October 1998 and was completed on programme, before Easter 1999.

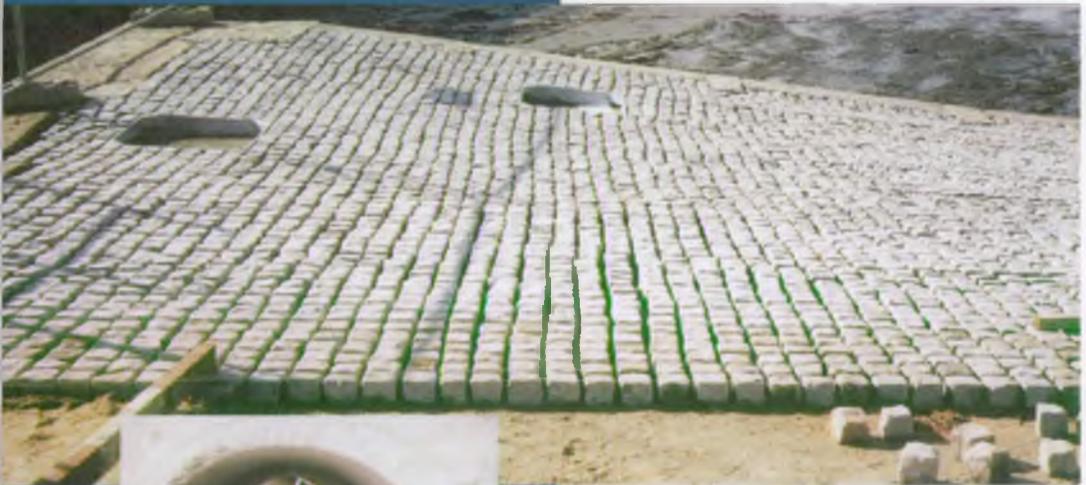
The scheme was designed and the construction works supervised by Halcrow UK.

Contractor for the scheme was Tilbury Douglas Construction Ltd.



▲ (Above and right) The channel into the combined inlet structure

▼ Hundreds of granite setts were placed over the outfall into the inner harbour



▲ The new entry pipe into the old culvert which discharges outside the harbour.





Enhancing Porthleven

The construction work has caused minimal impact on the ecology, archaeology and amenity value of the town. Special care has been taken to blend the improvements with the existing features of Porthleven. Tree and shrub planting has enhanced the area near the supermarket, and the opening up of the existing culvert has also enhanced the area.

Work on the flood defence scheme gave an opportunity to look into the history of Porthleven's harbour area. An archaeological survey by the Cornwall Archaeological Unit found that the environment around the harbour was freshwater marsh until 1811, when the harbour was built. Using carbon-dating techniques archaeologists discovered a timeline from bronze age to present day.



▲ The completed combined inlet structure with angled screens (pipe to old outfall in centre, new culvert entrance under screen on right).

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