



The Barrage Bridge consists of two parts - a fixed span of 80m immediately downstream of the spillway and a twin leaf swing bridge spanning 16m across the navigation lock. Like the Sail Bridge, its more dramatic cable-stayed neighbour upstream, the Barrage Bridge is designed to carry both pedestrians and cyclists, and is a key link between the Marina and the new Port Tawe Innovation Village development on the east side. The main contractor for the £800,000 bridge was Balfour Beatty, with fabrication and erection by Rowecord Engineering of Newport. The bridge was opened in June 2003.

The fixed span is a large 94 tonne steel truss with a shallow arch profile top chord rising to 5.4m above deck level at midspan. The truss has a trapezoidal cross section and is formed from square and circular hollow sections. It was assembled off site and lifted into place as one piece in a single carefully controlled operation using a large floating crane approaching from the sea at high tide. In addition to a 1.4m high steel parapet, the truss has a stainless steel mesh on the outside to act as an extra safety net and to prevent illegal fishing over the weir.

The opening bridge over the lock is a double-leaf swing bridge which operates in tandem with the lock gates. Formed from a grid of steel hollow sections, the lightweight 3m wide deck has with a structural depth of only 0.4m, and each half cantilevers 8m from a large slewing ring bearing supported on a steel framework fixed to the quay walls. The bridge is operated by simple hydraulic rams mounted on the quayside, and when open the bridge permits unobstructed passage of vessels through the lock.

Because of the complexity of the site, the choice of location and alignment for the Barrage Bridge involved long discussions with the client, planners, lock operators and others to determine the most effective and economic means of crossing the barrage with the minimum of disturbance to the day to day operation of the lock. Together with the Sail Bridge and the new interconnecting walkway on the east side, these two crossings create a pleasant circular route to enhance the enjoyment of the attractive river side environment and Marina in Swansea.

Client:
Welsh Development Agency

Location:
River Tawe, Swansea, Wales

Service Dates:
2002 - 2003

Services:
Design

Architect:
Wilkinson Eyre

Fabricator:
Rowecord Engineering

