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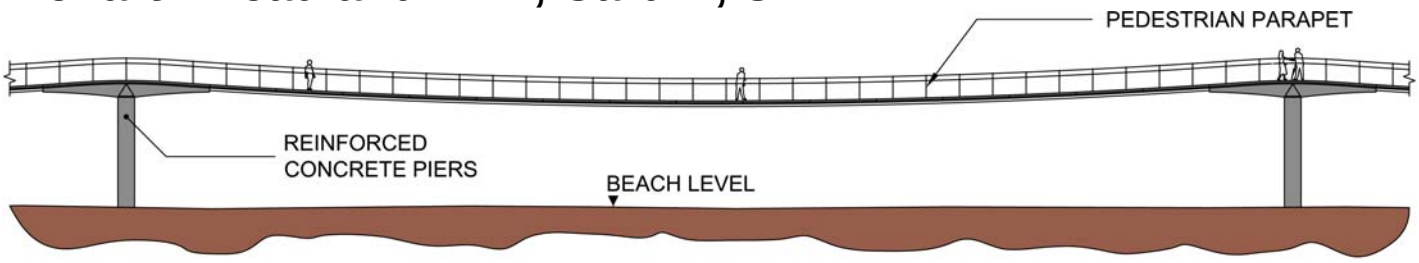
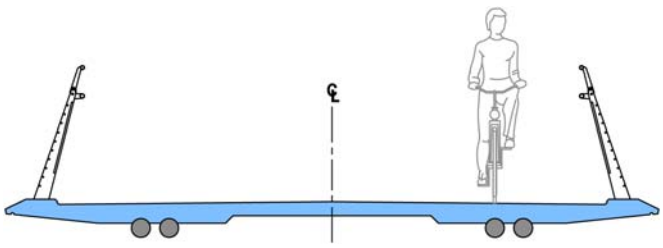
Penarth Headland Link, Cardiff, UK



Penarth Headland Link is a 700 metre long multi-span stress ribbon footbridge providing an innovative design for a pedestrian link between Cardiff Bay and the adjacent seaside town of Penarth. When complete it will be the longest stressed ribbon bridge in the world and only the third bridge of this type in the UK.

The bridge is founded on the beach in the tidal zone at the base of the cliff and follows alignment of Penarth Headland. It consists of nine, 70 metre internal spans with two 35 metre end spans adjacent to each abutment.

The bridge is a very shallow catenary structure in which the deck is suspended from a number of high strength bearing cables and is longitudinally post tensioned. Loads are carried primarily through tension in the deck. The hybrid nature of the suspension system and deck post tensioning make extremely efficient use of the materials used to provide an extremely elegant and durable structural.



The deck consists of 4m long precast deck units post tensioned together thereby increasing the stiffness of the structure and improving durability in the harsh marine environment. The 200mm thick deck units are supported by four bearing cables each of which consist of a number of galvanised high strength strands individual sheathed and contained in an external grouted HDPE duct. The multi barrier corrosion protection system was specifically developed to suit the marine environment.

The scheme is being procured under a design and build framework for the Vale of Glamorgan. The main Contractor is Costain and Flint & Neill Limited are acting as a specialist consultant for the design of the permanent works and erection engineering. The design was developed by Flint & Neill from concept stage.

Flint & Neill Limited, Bridge House, 4 Borough High Street, London SE1 9QQ. Tel: 020 7940 7600 www.flintneill.co.uk