

# VINCENTS RIVULET BRIDGE

**Location:** On Proctors Road about 9 km south of Hobart.

**Owner:** Dept of Infrastructure, Energy & Resources.

The plaque is located beside the road at the southern end of the bridge.

## Composite action

When the bridge is loaded, the effect of joining the concrete deck to the underlying steel girders is to develop a compressive stress in the concrete and a corresponding tensile stress to the girders.

This makes better use of the strengths of those materials.

## The bridge

The single lane trial bridge had a 10.4 m span and 3.6 m width.

When the bridge was tested with a loaded truck, the measured deflections, as predicted, were much smaller than for a non-composite beam bridge in which the concrete and steel carry the load independently.



**Sir Allan Knight & Vincents Rivulet Bridge**

## HISTORIC ENGINEERING MARKER

### Vincents Rivulet Bridge

This was the first composite beam bridge in Australia. The bridge was designed by Allan W Knight and built by the Public Works Department in 1932. Load testing of the bridge confirmed his theory that the concrete deck and steel girders would carry a much heavier load if rigidly joined together. The method was then adopted for much larger bridges both in Tasmania and in other states, with significant cost savings.

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## Sir Allan Knight (1910-1998)

Allan Knight modelled and proved his composite beam theory while a demonstrator at the University of Tasmania under Professor Alan Burn.

He joined the Public Works Department, designed the test bridge and went on to design the Leven River Bridge at Ulverstone with seven spans of 18.6 metres using this method.

He was Chief Engineer of the PWD for 10 years and Commissioner of the Hydro-Electric Commission for 30 years, overseeing rapid expansion of the electricity system in Tasmania.