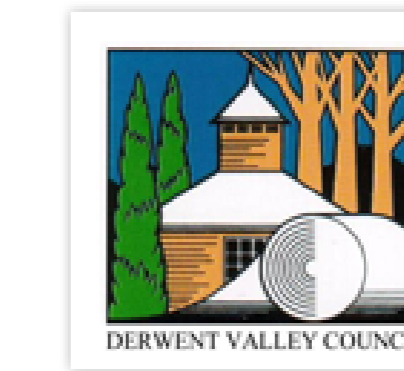
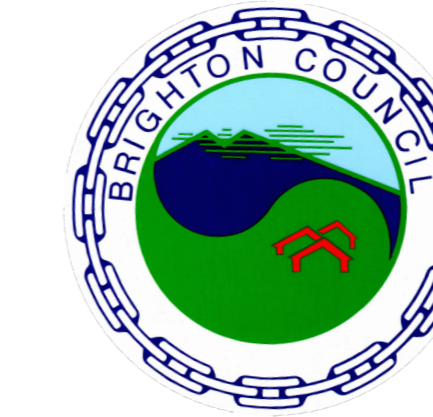


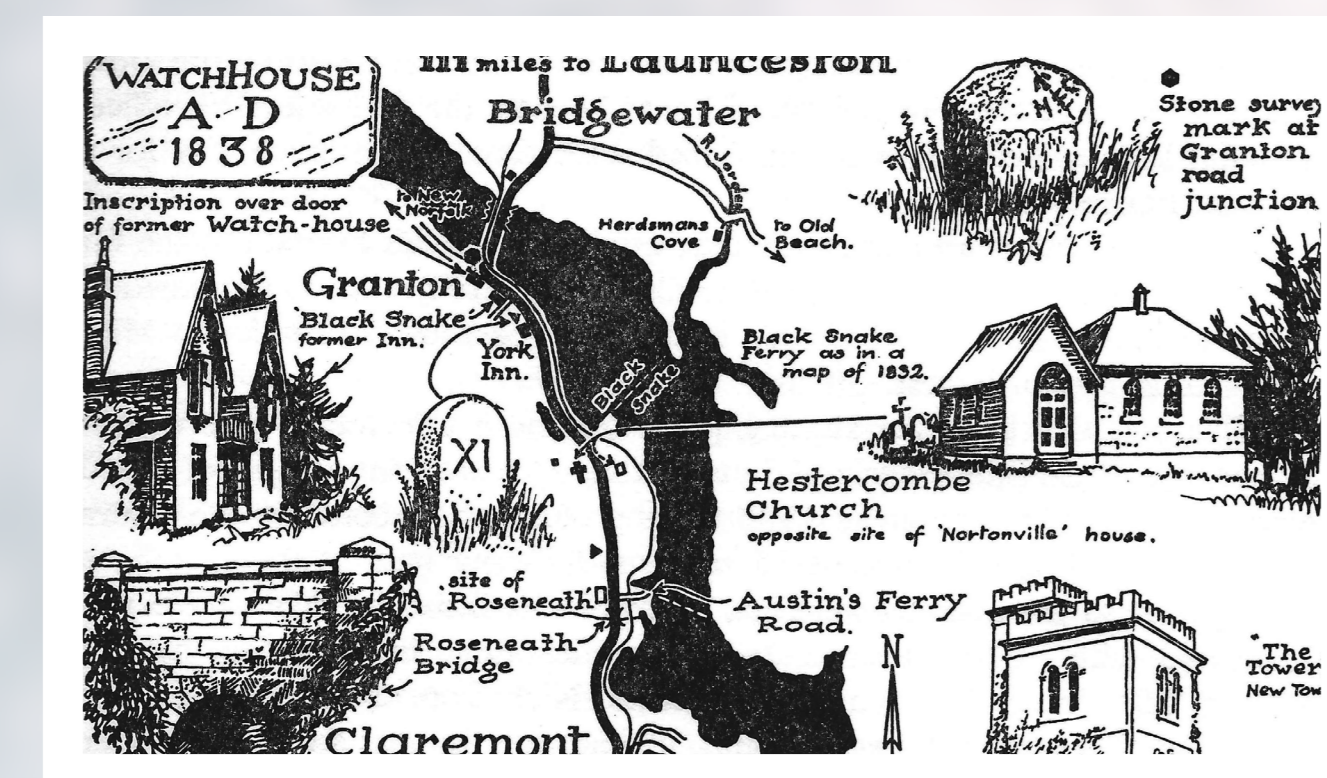
Bridgewater Bridge and Causeway



CROSSING THE DERWENT

As early as 1816, ferries were operating from Austin's Ferry across to Old Beach and in 1821 another from Black Snake, just downstream from the present causeway. Flat-bottomed boats carried passengers, livestock, goods and vehicles, but were dangerous and costly.

A Committee was established in 1828 to consider a more convenient and safe crossing of the River Derwent.



Showing the convict built Watch House, 'Black Snake Inn' and the early ferries – Illustrations by Eric Ratcliff

BRIDGEWATER CAUSEWAY

The final decision was to build a causeway, from the south bank where mud flats extended three quarters of the way across the river.

Work began in 1830, using repeat-offending convicts. Stone, available close-by, was quarried and transported by wheel barrow to the water's edge. Convicts worked with chains from ankle to waist; good conduct prisoners were awarded a long chain but petty offenders had shortened chains that chafed legs and restricted movement.

The completed causeway was 730m long but raised and widened a number of times. A large volume of mud was displaced by the mass of rock filling, creating mud banks on either side of the causeway.

Three options for crossing the remaining 340m gap was a punt, pontoon bridge or suspension bridge with the punt the chosen option.

Convict-built punts were moved from Port Arthur to the site. Cables were used to haul the punt across the gap, offering a safe crossing, still allowing vessels to travel through the gap.



View of Causeway in 1840s with Mount Dromedary in the LHS background with passengers waiting for the punt – Courtesy Tasmanian Museum and Art Gallery

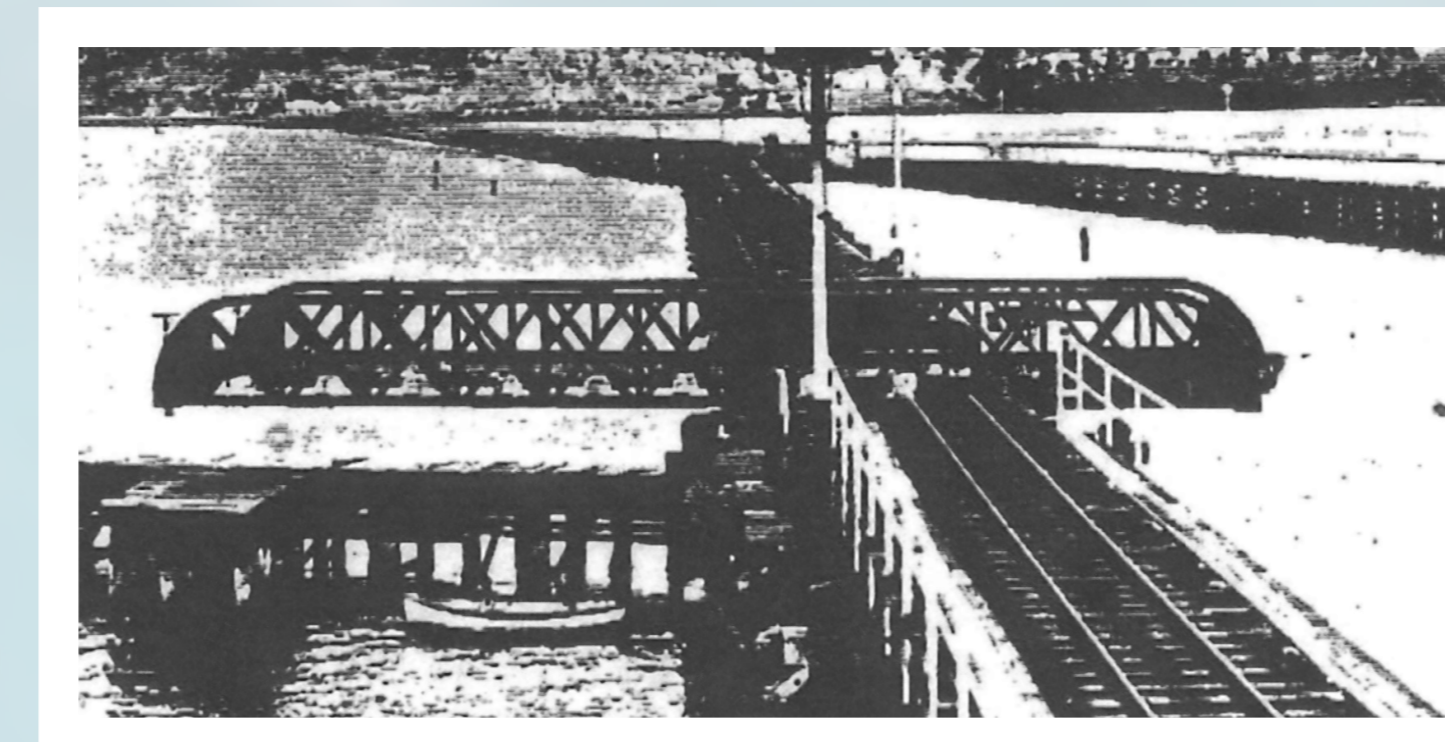
BRIDGING THE GAP

Bridge No.1 was built by Thomson and Blackburn in 1849. Timber was sourced from Mount Dromedary for piles and bridge spans. Many of the 363 piles needed were 18m to 27m, presenting a formidable problem of pile driving. A timber rolling truss spanned the navigation channel. The truss was 23m long, supported on iron wheels and iron rails, and operated by hand winches. Additional support for the rolling span was a central tower with chains at each end.



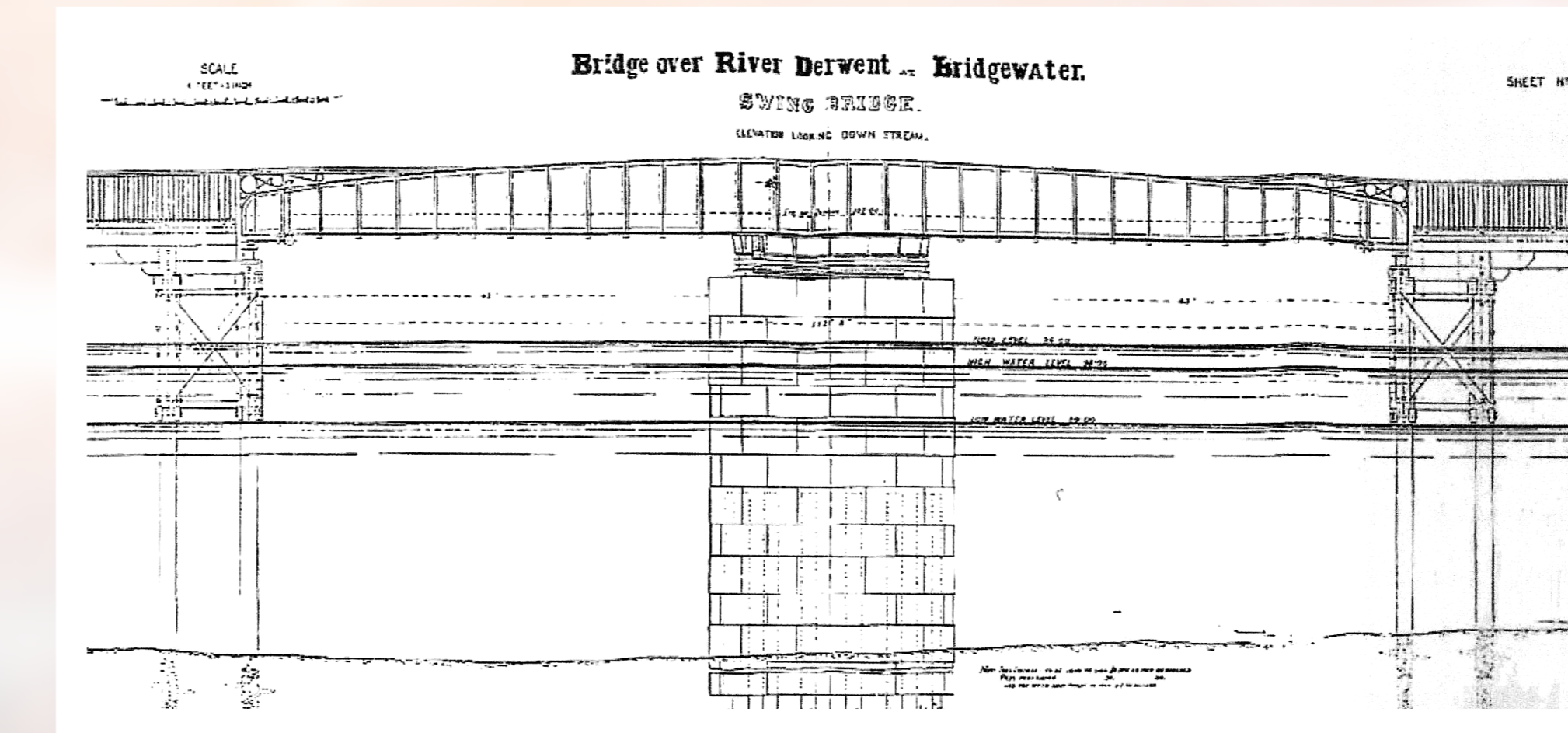
Bridge No.1 view downstream on the northern banks showing tower and timber tow path for vessels. The iron wheels are visible on the right side of the tower. – Courtesy Tasmanian Archives and Heritage Office [TAHO]

Bridge No.2 With the introduction of rail in the 1870s, a connection between Hobart and the north was important. The causeway was widened on the downstream side to accommodate the rail track and bridge. The works were completed in 1874 with the rail deviating east from the causeway, ending some 15m downstream from the road bridge. The movable part was a swing span of steel lattice girder also operated by hand winches. A tow path was also constructed to guide vessels between the two bridges.



Bridge No.2 rail bridge swing span open for vessels – Courtesy TAHO

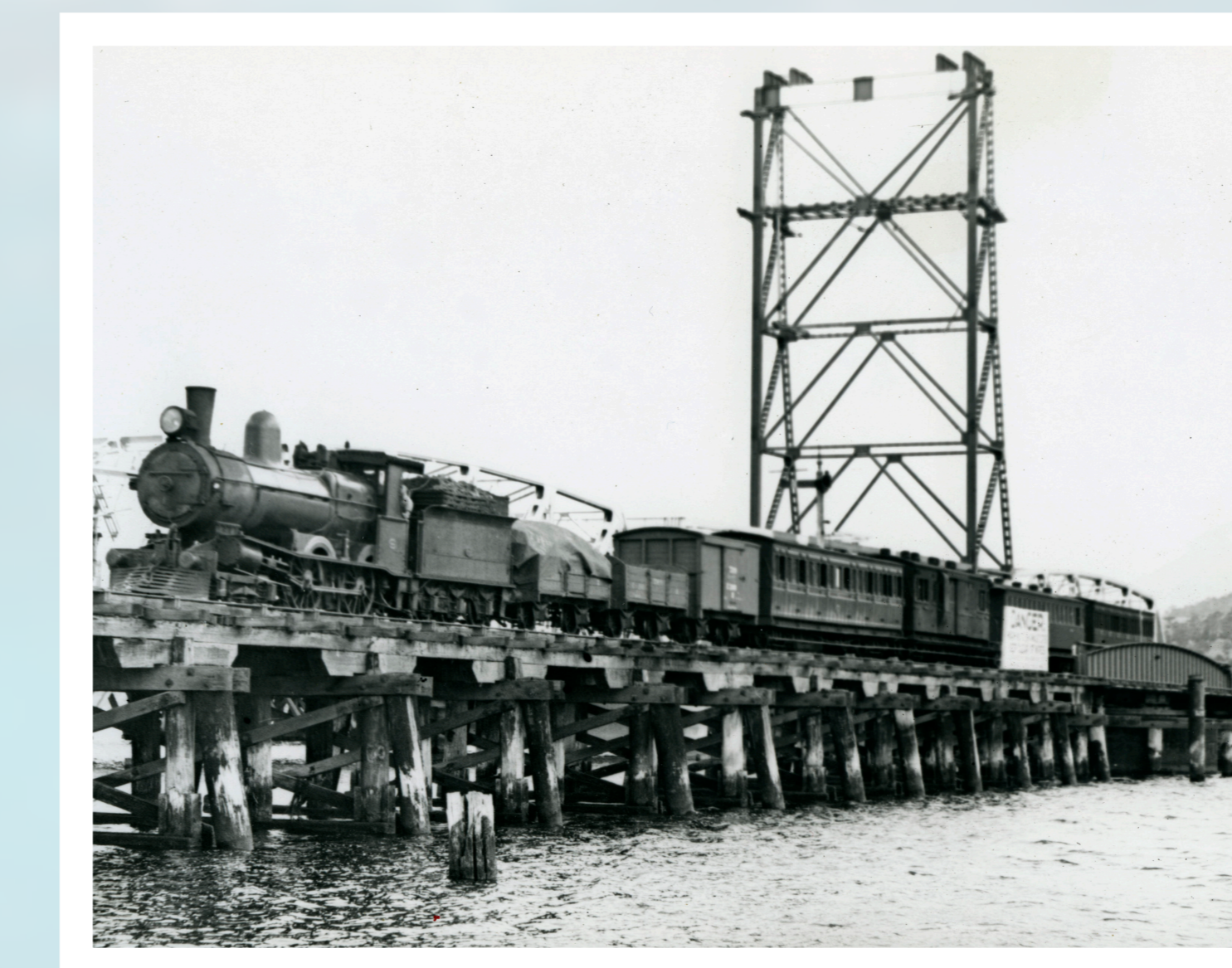
Bridge No.3 In 1892 a contractor from South Australia, Wishart and Son, was awarded the tender for a swing span road bridge that extended straight out from the causeway. Originally needed for road traffic, the bridge was also designed for conversion to rail.



Bridge No.3 road and rail bridge swing span – Courtesy TAHO

Bridge No.4 The current Bridgewater Bridge is an all-welded structure including the towers, lift span truss and the two truss approach spans. There are two northern steel girder approach spans with nine on the southern approach. The designer and Chief Engineer, Allan Knight (later Sir Allan) was determined to consider weld fatigue in the design of the bridge and engaged David Isaacs, a pioneer in the field.

Isaacs found that the stress in fillet welds may not be uniform causing an increased risk of fatigue cracking. His decision was to join members with butt welds that were uniformly stressed.



Train crossing the 1893 bridge with the tower of Bridge No.4 under construction c1940 – Courtesy Tasmanian Government Railways

Work commenced in 1938 but was halted during the Second World War. In 1942, the bridge was opened to limited road traffic. The full deck was completed in 1944, the lift span in August 1946 and the rail crossing in October 1946. River navigation through the misaligned spans of the three bridges during construction was difficult, so the two redundant bridges were demolished.

This bridge has been operational for over 75 years carrying 20,000 vehicles per day with 10 per cent commercial vehicles. The bridge has been maintained and strengthened over the years but there has been no sign of weld fatigue.



Bridge no.4 the current bridge looking south shows heritage items of the early abutments and steel caisson of the 1893 bridge. On the southern bank is the quarry where stone was dug with pick and shovel and barrowed to the water's edge – Courtesy Ian D Cooper

Bridgewater Bridge & Causeway was recognised by Engineers Australia with an Engineering Heritage National Marker in 2018.

