

Elwood Canal Precinct

Existing Designations:

Heritage Council Register: nil

National Estate Register: nil

National Trust Register: nil

History: The Elwood Canal was built in stages as part of a grandiose scheme by the Public Works Department (PWD) to reclaim the South Swamp, a ubiquitous feature in Elwood in its earliest phases of post-contact settlement (see Thematic History). Following the alignment of Elster Creek, the canal was intended to drain the marshy land east of St Kilda Street (outside the present study area). Originally, the canal proper was designed to carry only flood water, with a large pipeline to each side to carry the stream at all other times.¹ The entire scheme was devised by the PWD with the involvement of Carlo Catani, then Assistant Engineer, who later, as Chief Engineer, would be responsible for reclamation of the St Kilda foreshore, and the landscaping of the park that now bears his name. Construction of the £14,000 canal began in May 1889, with the contractors, Messrs Hendon, Clarke & Anderson, engaging sixty workmen. The first stage, from the beach to Glenhuntly Road, was completed in 1897, being $\frac{3}{4}$ mile (1.2 kilometres) long, 54 feet (16.5 metres) wide and 11 feet (3.4 metres) deep. The MMBW map, dated December 1897, shows the completed canal, with bridges at Marine Parade, Barkly Street and Glenhuntly Road, with another three indicated at the future alignments of Addison Street, Broadway and Shelley Streets. Only five of these were evidently built, described in one source as cast iron trough girder bridges with a non-structural concrete decking. Along the sides of the canal, metal mooring rings were fitted 'for the purpose of mooring pleasure boats in the stream'.²

The new canal, however, was not an immediate success. The two pipelines, intended to carry the everyday stream, were not maintained and soon became blocked. All drainage was consequently discharged into the main channel – its capacity (stated as five feet (1.52 metres) at low tide, and eight feet (2.43 metres) at high tide) was soon reduced by silt deposits. Attempts to solve these problems began in 1899, when the Inspector General of Public Works surveyed the canal and recommended that a barrel drain be built – which, in any case, was not a success.³ In January 1901, tenders were called for the cleaning of the canal. Three years later, further works were proposed as part of a grand £30,000 scheme to improve the area's drainage. The existing canal was paved with brick and concrete, and construction began on the Elsternwick Main Drain, extending the canal from Glenhuntly Road to the new Gardenvale railway station.⁴ This was 130 feet (39.6 metres) wide and three feet (0.91 metres) deep, with a central bluestone channel to carry the regular stream, and grassed sloping sides to accommodate flood waters. By the start of 1906, the drain had been completed as far as New Street (outside the present study area, in the adjacent City of Bayside), reaching Gardenvale Station at the end of 1907.

In February 1905, Carlo Catani, by then Chief Engineer of the PWD, had been contacted by engineer John Monash, a pioneer of reinforced concrete construction in Australia, who offered to build a reinforced concrete girder bridge for £1,500, which would be more cost-effective than the cast iron girder bridges that had previously been built across the canal.⁵ Despite some concerns about the veracity of the new technology, Monash's company won the contract.

1 Meyer Eidelson, 'Elwood Canal', 10pp unpublished typescript. p 4.

2 *Ibid.*

3 J B Cooper. *The History of St Kilda*. Vol 1, p 203.

4 L Alves, A Holgate & G Taplin. 'Monash Bridges: Typology study of Reinforced Concrete Bridges in Victoria 1897-1917'.

5 *Ibid.*

Construction of the first bridge, at St Kilda Street, commenced in July 1905 and was completed at the end of September. It was tested in the presence of Catani, the St Kilda City Surveyor and municipal representatives from Brighton and Caulfield, and opened to traffic the following week. Monash went on to design another seven concrete bridges across the canal. Two still survive at Brickwood Street (1906; altered) and New Street (1906-07) in what is now the City of Bayside, while later examples at Marine Parade (1907), Cochrane Street (1907), Elsternwick (1907), Port Nepean Road (1907) and Asling Street (1908) have since been demolished or replaced.

These improvements certainly improved the image of the canal, and the reclaimed swampland nearby, which was mostly sold off in two sales in 1905 and 1910, was subject to intense residential development over the next decade or so. The blocks closest to the canal did not develop until the 1920s; this residential expansion necessitated the construction of a small electrical substation on the north side of the canal, at the intersection of Goldsmith and Byron streets, which still remains.

This period also saw the canal effectively change owners after the passing of the *Metropolitan Drains and Rivers Act 1923*, now falling under the jurisdiction of the Melbourne Metropolitan Board of Works (MMBW). With problems still in evidence five years later, the MMBW engineers put forward three possible solutions: the construction of sluice gates (to cost £57,000), the enlargement and regrading of the existing canal (£73,000), or the entire refilling of the canal to create land that could be sold off for subdivision (£200,000).⁶ The last of these options – the most expensive and drastic of the three – was preferred by both the government and the council. Writing in 1930, J B Cooper emphatically stated: ‘that the work will be done some time is a foregone conclusion’.⁷ The government, however, refused to subsidise the project, and, even three years later, the council were still unable to gain approval. The 1930s saw the canal receive more bad publicity as the scapegoat for a polio epidemic in Melbourne’s southern suburbs; even this prompted little remedial work until October 1937, when the MMBW announced that it would clear and widen the upper reaches of the Elster Creek.

Little else was done to improve the canal until the 1950s, when over 3,000 residents signed a petition to have flood protection measures taken. In December 1954, the State Government made an allowance of £150,000 was made for the underground diversion of floodwaters. The works, which included a diversion canal through Elsternwick Park, were carefully monitored by the newly-formed Elwood Citizens Vigilance Committee, and completed in April 1958.⁸ Five years later, the channel, west of St Kilda Street, was reconstructed in order to triple its capacity. At that time, one of Monash’s reinforced concrete road bridges was partly demolished to form a footbridge (at Brickwood Street in Brighton, just outside the present study area). This was followed by the replacement of several other bridges over the next decade or so, including one at Elsternwick (demolished 1965), another at Marine Parade (replaced 1967) and a third at Asling Street (demolished 1975).⁹ During the 1980 and ‘90s, a number of entirely new footbridges were erected by the City of St Kilda, including a fine laminated timber bridge in the Point Ormond Reserve at the Marine Parade end of the canal (1982).

The most recent addition to the canal reserve has been an installation by artist Maggie Fooke entitled ‘Twenty Seven Stories’, which comprises rows of handmade ceramic tiles, set into the edge of the canal, recording canal-related memories and anecdotes from some of Elwood’s long-term residents including Roslyn Blackman, Pauline Thompson, Don Taggart, Jen Ritchie-Jones, Katie Ragheb and Helen Graham.

Description: The Elwood Canal Precinct includes the entire canal reserve, extending from the foreshore to the municipal boundary at St Kilda Street. It comprises three discrete sections: the foreshore outfall (between the beach and Marine Parade), the Elwood Canal proper (extending from Marine Parade to Glenhuntly Road) and the Elsternwick Main Drain (extending from Glenhuntly Road to St Kilda Street and beyond, into the adjacent City of Bayside).

6 J B Cooper. *The History of St Kilda*. Vol 1, p 208.

7 *Ibid*, p 209.

8 Anne Longmire. *St Kilda: The Show Goes On*. p 161.

9 A Holgate *et al.* Projects Index: Bridges. <http://home.vicnet.net.au/~aholgate/jm/mainpages/list_bridges.html>

At the extreme west end, bisecting the foreshore reserve, the waterway has sloping sides lined with uncoursed rock. The main canal, within a reserve about 35 metres wide, is edged with rough concrete walls, approximately 1.2 metres high, but rising even higher (up to 2 metres) at the bridge crossings. The canal walls have a cement render finish, and an edge capping of large bluestone blocks, 530mm by 230mm. Along both sides of the canal are a series of cast iron mooring rings, at approximately 10 metre centres. Some of these have been removed or damaged. The canal walls are otherwise occasionally penetrated by small terracotta outfall pipes, and, near the various bridges, by outfalls with larger wrought iron pipes. There are also two concrete boat ramps: one at Kent Street, and another just south of Shelley Street.

Between Glenhuntly Road and Marine Parade, the canal proper is flanked by broad expanses, variously grassed or gravelled, forming a reserve. The side fences of adjacent properties form the boundary of this reserve, while the bluestone-pitched laneways, which bisect the residential blocks, open directly onto it. Portions of the canal reserve as partly trafficable, with some adjacent properties having garages or vehicle gateways opening off. Numerous houses also have small pedestrian gates, and some of the inter-war houses and flats (eg 90 Ruskin Street, 2 Shelley Street) have discrete side entrances that provide access to (or from) the canal reserve. One c.1940s block of flats, at 21a Broadway, even has its principal frontage to the canal. Asphalt pathways wind along both sides of the canal; relieved by metal lampposts and park benches of relatively recent origin. The 27 Stories installation, along the edge of the canal, comprises rows of narrow ceramic tiles inscribed with handwritten anecdotes ascribed to various local residents. This portion of the canal reserve also includes a number of mature specimens of trees including cypress (particularly on the south side of the canal between Ruskin and Barkly streets), peppercorn, a white poplar (south side, near Addison Street), a Monterey pine (south side, near Broadway) and a row of five Canary Island date palms (south side, near Goldsmith Street)

At Glenhuntly Road, the canal merges with the Elsternwick main drain. At the junction, just south of the bridge, the concrete canal walls give way to sloping bluestone walls, then a lower concrete wall, and then a flat concrete slab that connects to the main drain itself. This is a bluestone-edged channel, approximately 2 metres wide and 500mm deep, that runs along the bottom of a grassed verge. At the two roadways (Wave and Foam streets), there are bluestone fords, with precast concrete culverts covering the channel. Beyond Wave Street, the channel becomes increasingly overgrown with aquatic plantings. Other landscaping elements in this part of the precinct include some particularly ancient gum trees (including one, at Wave Street, reputed to be an Aboriginal canoe tree), several Moreton Bay fig trees (on the south side, between St Kilda Street and Wave Street) and various native plantings, many marked by interpretative plaques.

There are twelve bridges across the Elwood Canal within the present study area, comprising four pedestrian bridges and eight road bridges. The most important of these is the reinforced concrete girder bridge across St Kilda Street, designed by John Monash in 1905. This is 40 feet (12.2 metres) wide and 60 feet long, and comprises three 20 foot (6.1 metre) spans supported on columns with spread footings and small corbels. Each span, in turn, consisting of seven reinforced concrete girders at 4'8" (1.42 metre) centres supporting a concrete deck slab 6½" (165mm) thick. The footpath, on the west side of the bridge, is supported separately. The abutments are in the form of a row of columns against a retaining wall of precast Monier plates.

Of the remaining road bridges, there are two wide bridges that appear to date from the canal's initial phase of development in the late nineteenth century. These bridges, at Broadway and Glenhuntly Road, have bluestone plinths and rendered brick pier walls that support deep cast iron girders with a concrete deck and asphalt roadway. The bridges at Addison Street, Ruskin Street and Shelley Street also have stone plinths and brick pier walls, but with an entirely reinforced concrete superstructure. The two-lane bridge at Shelley Street has been reconfigured with median strips (of relatively recent origin) to create a single lane bridge, while the two-lane bridge at Ruskin Street has actually been partly demolished to reduce it to a single lane, with only the bluestone plinths, at the base of the canal, remaining of the demolished half. All of these early bridges have broad asphalt footpaths (some on only one side of the road) and painted metal pipe handrails, most being further protected with galvanised steel safety barriers of more recent origin. The Marine Parade Bridge, erected by the County Roads Board in 1967, consists of a pair of three-lane reinforced concrete bridges with a superstructure of concrete piers and metal railing.

The four pedestrian bridges, all of recent origin, are located on the foreshore reserve (two bridges), at Wave Street, and at Foam Street. These are similar in form and detailing, being arched girder bridges with timber decks and railings. The John Cribbes Footbridge, on the foreshore reserve, is of timber construction (including an unusual laminated timber girder) while the other three bridges have steel girders and either timber or steel railings with steel cables.

A unique built element along the canal reserve is an electric substation on the north side, at Goldsmith Street. Apparently dating from the 1920s, this is a small brick structure (approximately 4 metres by 8 metres in plan) with a ruled render finish to imitate ashlar stone. Its roof is concealed by a parapet with stepped coping, and its walls penetrated by large metal grille vents and a timber door on the north side, facing Byron Street.

References:

L Alves, A Holgate & G Taplin. 'Monash Bridges: Typology study of reinforced Concrete Bridges in Victoria 1897-1917'. Excerpt available online at <http://home.vicnet.net.au/~aholgate/jm/girdertexts/gdrtext1.html>

Cooper, J B, *The History of St. Kilda From Its First Settlement to a City and After: 1840 to 1930*. 2 vols. Printers Pty Ltd, 1931.

Liz Johnstone. 'Elwood Canal', 4 pp typescript. 15 April 2005.

Anne Longmire. *St Kilda: The Show goes On: The History of St. Kilda. Volume III, 1930 to July 1983*. Hawthorn: N S Hudson Publishing, 1989.

Information provided by Meyer Eidelson

Thematic Context:

- Land Reclamation
 - Closer Settlement, 1900-1920
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Comparative Analysis: While canals are ubiquitous in Europe, they are considerably less common in Australia, and the example at Elwood is one of a relatively small number of canals that were developed in Victoria in the late nineteenth century. The most well-known is the Coode Canal in the Port of Melbourne, completed in 1886. Designed by the noted English engineer Sir John Coode, the canal was formed to effectively change the course of the Yarra River to make it more easily navigable. It is about 1.8 kilometres long, 100 metres wide, and 8 metres deep. Smaller in scale is the Sale Canal, which was developed in the 1890s as part of a grandiose scheme to link this Gippsland town, and its railway network, to the local shipping trade. The project also included a swing bridge (1883), swinging basin and wharf (1890) as well as the canal, which was 1.25 miles (2 kilometres) long. These two examples, however, sprung from entirely different circumstances to the canal at Elwood. Historically, the Elwood Canal project has much in common with the Patterson River at Carrum, an artificial watercourse that was excavated in 1878 to drain the nearby Carrum Swamp. Unlike Elwood, however, the competition of this project did not spur intense residential development, and it was not until the 1970s that the reclaimed swampland was developed as the suburb of Patterson Lakes.

More pertinent comparison, however, can be drawn between the Elwood Canal and the Bendigo Creek. The latter, originally a natural watercourse running through the centre of that town, was subject to flooding and silting due to nearby mining activity. In the 1890s, the State Government partly funded corrective works, and the creek was consequently straightened, lined with stone and concrete, and bridged. As at Elwood, the bridges over the reformed Bendigo Creek were designed and built in reinforced concrete by engineer John Monash. These included eight concrete arch bridges built 1900-02 (of which all but two survive) and a concrete girder bridge, at Wattle Street, similar to those at Elwood but later in date (built 1914-15).

In its own right, the reinforced concrete bridge over the Elwood Canal at St Kilda Street is a significant element that needs to be seen in the context of other early concrete girder bridges designed by noted engineer John Monash. Two other surviving examples are associated with the Elwood Canal: one at Brickwood Street (1906) and another at new Street (1907), both located outside the present study area in the adjacent City of Bayside. Of these, the former has been partly demolished to create a footbridge while the later has been altered by the replacement of its original railings. The St Kilda Street Bridge is the earliest and most intact of the three. In terms of Monash's broader oeuvre of reinforced concrete girder bridges, this example is predated only by one erected at Stawell Street, Ballarat, in 1904, which proved unsuccessfully and was subsequently replaced. Other early Monash concrete girder bridges that have been demolished include those examples at Lancefield (1906), Elsternwick (1907), Mount Isaac (1907), Waterfield (1908) and Ararat (1910).

Statement of Significance:

What is Significant?

The Elwood Canal Precinct comprises the watercourse formerly known as Elster Creek, extending from Port Phillip Bay to the municipal boundary at St Kilda Street. It comprises the Elwood Canal proper (1889-97), a stone and concrete-lined waterway between Marine Parade and Glenhuntly Road, and the Elsternwick Main Drain (1904-07), a bluestone channel that extends upstream beyond Glenhuntly Road. The watercourse is spanned by two bluestone fords and twelve bridges, including two remnant nineteenth century bridges (at Glenhuntly Road and Broadway), an early reinforced concrete girder bridge (at St Kilda Street), and a laminated timber footbridge (east of Marine Parade). The canal setting is enhanced by mature landscape elements, namely Moreton Bay fig trees, Canary Island date palms, a white poplar, a Monterey pine and gum trees, and by infrastructure spanning a century, including mooring rings, boat ramps and an electrical substation.

How is it Significant?

The Elwood Canal precinct is of historical, aesthetic, social and scientific (technological) significance to the City of Port Phillip.

Why is it Significant?

Historically, the Elwood Canal is significant as the most accessible and most intact of a relatively small number of canals that were developed in Victoria in the late nineteenth century. It retains important historical associations with the Elwood Swamp, a ubiquitous element in the area in the second half of the nineteenth century, and also with the intense phase of residential development that followed the canal's completion in 1905. The canal has featured prominently in Elwood's history for over a century, a fact that is ably demonstrated by surviving elements of infrastructure (eg iron mooring rings, 1920s electrical substation, boat ramps and bridges).

Aesthetically, the Elwood Canal precinct is significant as a prominent element in this suburban landscape. The canal itself, as the only example of its type in the metropolitan area, is a unique element, visible from many parts of Elwood. The aesthetic qualities of the canal reserve are enhanced by its landscaped setting, include numerous mature trees (cypress, Monterey pine, Canary Island date palm, eucalyptus species).

Socially, the Elwood Canal is significant as an important focus for the Elwood community, in both a positive and a negative sense, for over a hundred years. For much of the twentieth century, it was a much-loved venue for swimming, fishing, boating and other recreational activities, while also undergoing phases (such as the recurring threat of flooding, pollution and the polio scare of the late 1930s) when its presence was a source of concern. The precinct remains a strong focus for community interest, including the protection of native flora and fauna. Its social significance is acknowledged by the *27 Stories* exhibit, a public art installation that recorded various canal-related memories and musings by a number of local residents.

Technologically, the Elwood Canal precinct is significant for its ability to demonstrate the type and scale of public engineering works in the late nineteenth century. Specifically, the bridge at St Kilda Street is of technological significance in its own right, as Victoria's earliest surviving example of the type of reinforced concrete girder bridges developed by John Monash, pioneer reinforced concrete engineer, in the early twentieth century.

Recommendations: Infrastructure, bridges, buildings and trees recommended for inclusion in the Schedule to the Heritage Overlay Table in the Port Phillip Planning Scheme.

Assessment: Simon Reeves, Heritage Alliance.



General view of the Elwood Canal; photograph taken after flood rains



Similar view of canal, showing reduced water level during drought conditions



Bend in the canal at Goldsmith Street; note 1920s electrical substation on north bank



Looking south from Glenhuntly Rd bridge, showing start of the Elsternwick Main Drain



Bluestone ford at Wave Street; note reputed Aboriginal scar tree in foreground



Reinforced concrete girder bridge at St Kilda Street, designed by John Monash

