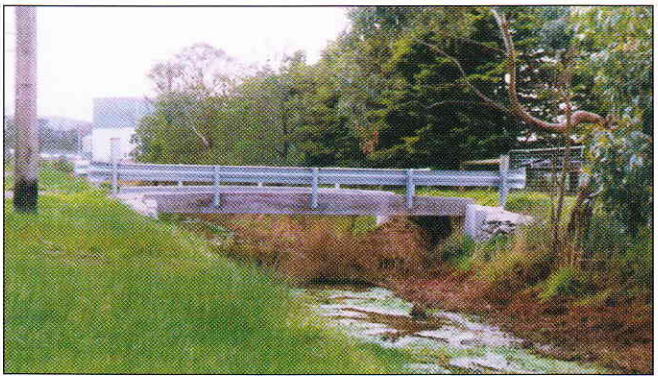
Waldren's Bridges

A complete range of products and designs to meet every bridging need

Innovative Bridge Designs

Induction bent galvanised steel pipes provide strength and stability for the supports of this 12m. high, six span bridge without the usual clutter of ugly bracing and connections.
Existing timber piles were sound, so only a small number of supplementary steel piles were needed to support the new structure.

Practical Solutions



Roads running alongside irrigation channels, with little difference between road and water levels, result in awkward, steep approaches for access bridges. However, precast decks with a parabolic humpback profile solve the problem by having the necessary strength at midspan while providing a gentle, continuous slope down to the abutments and beyond.

Stylish Footbridges Page 4

For some bridges, footbridges in particular, appearance is an important factor. To achieve this economically is challenging, and design effort is applied to ensure practical designs that can be fabricated and constructed readily.

Bridgette precast decks and walls were used as the basis for this combined bridge and irrigation flow regulator. Remotely controlled gates, hinged at the bottom, were attached to cast-in stainless steel elements. Numerous innovative details were used for connections and sealing between the precast elements.

Prefabricated Bridge Kits

A complete bridge "kit" comprising steel girders, precast deck slabs, abutments and all accessories is on its way to a remote forest site. Erection on simple footings by means of a small crane or excavator will take less than a day.

Modular Bridges Page 2

"Bridgette" bolt-together precast concrete bridge components. Complete superstructures - including decks, piers, abutment & wing walls, railing, plus accessories posts, bolts, and bearings - can be erected in a day or two.

Deck Replacement Page 3

"Quikdeck" slabs - ideal for bridge decks, for new and old bridges. Close to 100 bridges now have Quikdek slabs, in Victoria, NSW, Qld, standing up well to punishment from timber jinkers, gravel truck & trailers.

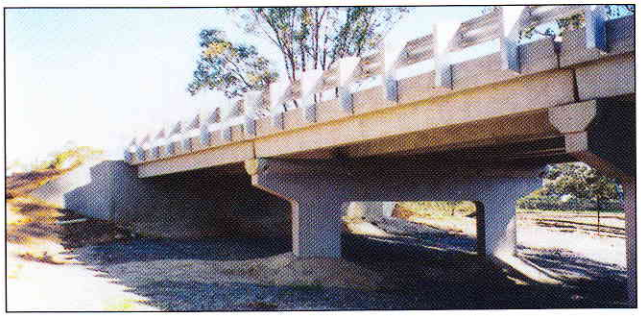
Bridgette (Patented) Precast Reinforced Concrete Superstructures

- 2.5 metre modular deck width (can be varied)
- Span lengths up to 12.5 metres
- Variety of kerb & barrier post options
- Bolted connections
- Abutment and wing wall heights up to 3.9 metres
- Pier walls and columns up to 6 metres
- Geogrid soil reinforcement option for abutments
- Special features eg. fixing for pipes

Semi-skilled workers with no previous experience assembled this Bridgette structure in 3 1/2 days. Cheaper than a conventional culvert the 7 metre spans are less prone to debris accumulation.

A typical 8 metre span double lane irrigation channel crossing. Techniques have been refined such that these simple bridges can be constructed in 3 to 4 days, including footings.

Temporary struts hold walls in place while bases are grouted. Apertures in walls reduce weight for transport and handling.



A different weight reducing shape - the blade columns rest on pad footings. Bridges such as these can be erected very quickly so that if the road is closed for a short time only there is no need for a temporary bypass.

Not just decking, but a comprehensive system including precast piers, abutments, & wing walls, supplied complete with galvanised connections, elastomeric bearings, bolts, dowels, posts and railing.

Superstructure "packages" delivered to site can be erected very quickly - a span a day is normal.

Speed is the key to economy - it is simply not possible to incur high plant hire and labour costs if the job is done within a few days. Cost savings with the Bridgette system sometimes enable a bridge to be built more cheaply than a culvert.

Multi-span bridges can be decked speedily as the crane can move onto the next span immediately. Obviously the decks have to take the high point loads from the crane carrying decks, up to 26 tonnes for the larger 12.5 metre span Bridgette. Sometimes however shorter spans are cheaper overall due to savings in transport, etc.

Tall piers are difficult to construct in situ, and too big to transport if precast as one piece. the problem was solved with these 5.5m high blade columns bolted together at the top.

Construction of a typical small bridge. Often the existing timber piles are sound below ground level and can be reused after capping with concrete. Waldren Bridges has developed designs for precast pile caps which simplify construction.

Quikdek

Precast Reinforced Concrete Bridge Deck

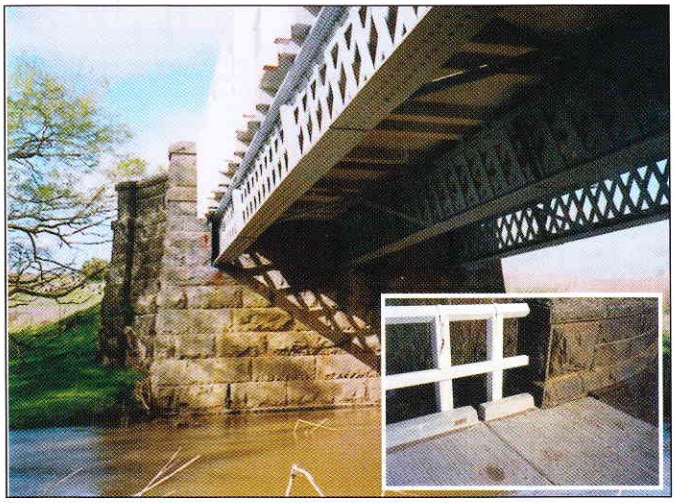
- T 44 load capacity
- 2 metre modular length
- Any width up to 9 metres
- Steel or timber girders
- Bolt fixings
- Rubber pads between slab & girder
- Sturdy, excellent load distribution
- Speedy installation - usually under a day
- Galvanised post fixings

Quikdek slabs enabled the deck of this 72 metre long bridge to be replaced during term holidays, minimising inconvenience to the schoolbus and milk tankers. The 4WD articulated Franna crane is ideal for placing slabs, and can handle double lane Quikdek slabs weighing around 8 tonne.

A dilapidated timber bridge is being given a new lease of life with Quikdek slabs. Even though the concrete deck is heavier than the old timber deck, the load capacity can actually be increased. This is because the slabs distribute wheel loads across *all* girders, as can be seen here where they are carrying a load of around 20 tonnes on the front axle.

Special tools facilitate installation. These cam action levers accurately and safely control the positioning of each slab - decks can be installed almost as fast as the crane can bring them from the truck.

For each bridge a set of slabs is made to suit girders and abutments, and any special features - kerbs, posts, service duct supports, etc., Exact overall deck length and skew angles of 45° or more can be accommodated by means of special end slabs.



This 100 year old historic bridge with rivetted wrought iron girders was refurbished with Quikdek slabs which, having similar proportions to the original timber deck, maintain the appearance. Note the special end slabs which were accurately made to fit the bluestone abutments.

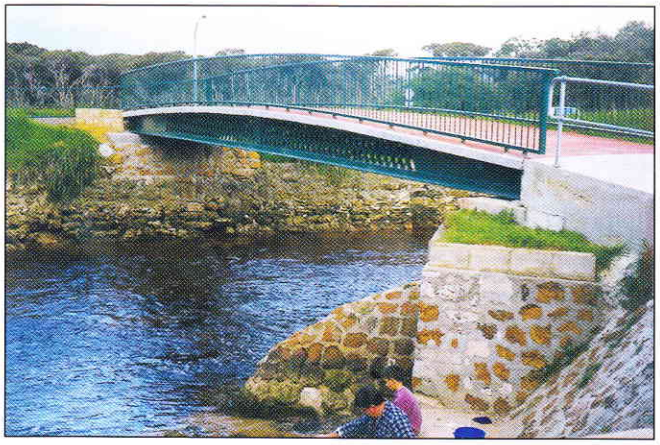
The cantilever capacity of Quikdek slabs enabled a wider roadway plus a footway when this bridge was upgraded, extending its life for many years. When the existing concrete supports eventually need repair or replacement the deck and treated hardwood girders can be readily unbolted and removed for access.

167km west of Bourke this six span bridge, comprising steel piles and girders, Quikdek slabs and guardrailing was transported to site by road train, together with all equipment, including the pile driver, and built in 2½ weeks. Rapid construction is always an advantage, especially "Back of Bourke".

Footbridges

A classic suspension bridge featuring timber was the preferred choice for this footbridge on the Hume & Hovell walking trail near Tumut. Durability was ensured by using ironbark for the main elements - poles, railing, and deck boards. Suspension bridges are inherently flexible, so to reduce the tendency for undulation, stiffness was greatly improved by means of the diamond pattern galvanised steel side panels.

Curved steel lattice girders impart a graceful slender appearance to this award winning 60 metre long footbridge over the Ovens River, Wangaratta, enhanced by the matching piers, decorative railing, and lamp posts.
Practical as well as attractive, the central span of 30 metres copes well with flood debris, and the deck width of 3.3 metres can be used by emergency vehicles. Underneath the deck various pipes carry essential water, sewer, and phone services.



Steel lattice girders, galvanised and painted, provide an attractive 19 metre span footbridge in Busselton, WA. Steelwork was completely assembled prior to lifting into position. The concrete deck (composite with the girders) was then poured in situ, and with the handrails already in place, bolted direct to brackets welded to the girders, temporary safety barriers were not needed.

Rehabilitation of Existing Bridges

Before

During

After

Badly deteriorated piles may still be quite sound below ground level. Many bridges such as this have been rehabilitated by cutting off the old piles, capping with concrete, and rebuilding a new superstructure.

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