

Interflow[®]

**Creating the
Future of Water**



Culverts

CHANNELLING FLOWS

Who we are

**We deliver elegant
solutions for all
your culvert needs**



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Since our inception in 1936, we have been providing our customers with essential pipeline infrastructure solutions for roads, rail and bridges. Our expertise in this field enables us to offer end-to-end solutions for the understated but essential pieces of infrastructure that support our transport networks – culverts.

These enduring structures are critical links, providing safe and sustainable extensions for nature's waterways – allowing safe passage for aquatic life while keeping our communities and industries connected above.

Our experience in developing elegant solutions for culvert systems has enabled our customers to proactively manage these assets to maintain their communities' desired levels of service.

Having worked with our customers in many different environments, we understand the crucial role culverts play in keeping people moving.

We bring this approach to the way we do business and will work collaboratively with you to provide efficient and sustainable road and rail culvert services for your community.

By working with us, we can help you develop a Culvert Asset Management Plan that is specific to your evolving needs.

We look forward to channelling flows together, now and into the future.

Understanding and solving your culvert needs

Just like any critical infrastructure project, culvert asset management consists of revolving phases – from condition assessment, to design, planning, construction and maintenance – all aspects are vital to meeting your overall objectives and servicing your community.

Our experienced teams are trained in delivering every phase of a Culvert Asset Management Plan and will work with you throughout your asset's entire life cycle.

Our involvement in all phases of your culvert asset management plan will enable you to track your culvert infrastructure costs and regularly monitor conditions. This will enable us to develop tailored solutions that place safety, quality, our environment and the communities we serve at the forefront of every decision.

By adopting a customised, 'end-to-end' approach, we can help you mitigate the risk of failure, limit emergency repair costs and avoid unplanned financial burden.









Your program management Delivery Partner

We have built a multi-skilled and talented workforce for more than 85 years. This means our people have a comprehensive understanding of all the tasks involved in managing a program of works.

When delivering your culvert project, we can provide you with a full suite of civil works capabilities, and our specialist teams have extensive, first-hand experience with materials, labour and resource management.

Our 'in-built' capacity is crucial for your Total Delivered Cost, as we can save you time and money by filling in the gaps with our trained personnel. It also ensures we're delivering your project to the highest quality and safety standards. Our in-house Safety Managers will oversee your entire project and receive continuous training in construction safety to stay abreast with best-practice HSE standards.

When you work with us, you can be assured that we will own and manage your projects every step of the way, taking full responsibility for their successful delivery.

We pride ourselves on our self-perform capabilities and we continually invest in the growth and development of our people. By drawing on their knowledge and expertise, we can select from a diverse internal talent pool, offering you the best end-to-end solution for your culvert infrastructure needs.

Delivering what you need, when you need it

Our collaborative approach helps you understand the 'why' and the 'how' of delivering a successful Culvert Asset Management Plan for your community

From years of working with our customers on small to complex projects in many different environments, we understand that no two projects are the same.

To meet these demands, our culvert systems are designed to meet the myriad of types, sizes, and shapes of your culvert assets.

We also have an extensive range of trenchless culvert renewal solutions including corrugated metal and box culverts, which can be tailored to a range of sizes, ensuring minimal loss of diameter.

Given our extensive history working with customers across Australia and New Zealand for over eight decades, our team will work with you to meet your objectives and priorities for reliable, long-term service delivery.

Prior to any project works, we design a bespoke solution based on the dimensions, material, shape and position of your culverts so they are operating at their optimum.

When we work with you to solve your problems, we are reinforcing our organisational commitment towards managing your culvert assets so they can provide their desired level of service for present and future generations.



Working with your environment

At Interflow, we know that our workers must be fully aware of their surroundings to safely deliver your project. Factors such as remote work, inclement weather, low visibility, high winds, tides and flooding, bushfires and extreme temperatures pose a significant risk for potential accidents on a construction site.

At Interflow, safety is not negotiable. Prioritising the safety of our people, our customers and our communities, we conduct risk assessments and implement suitable precautions to minimise potential damage during the life of your project.

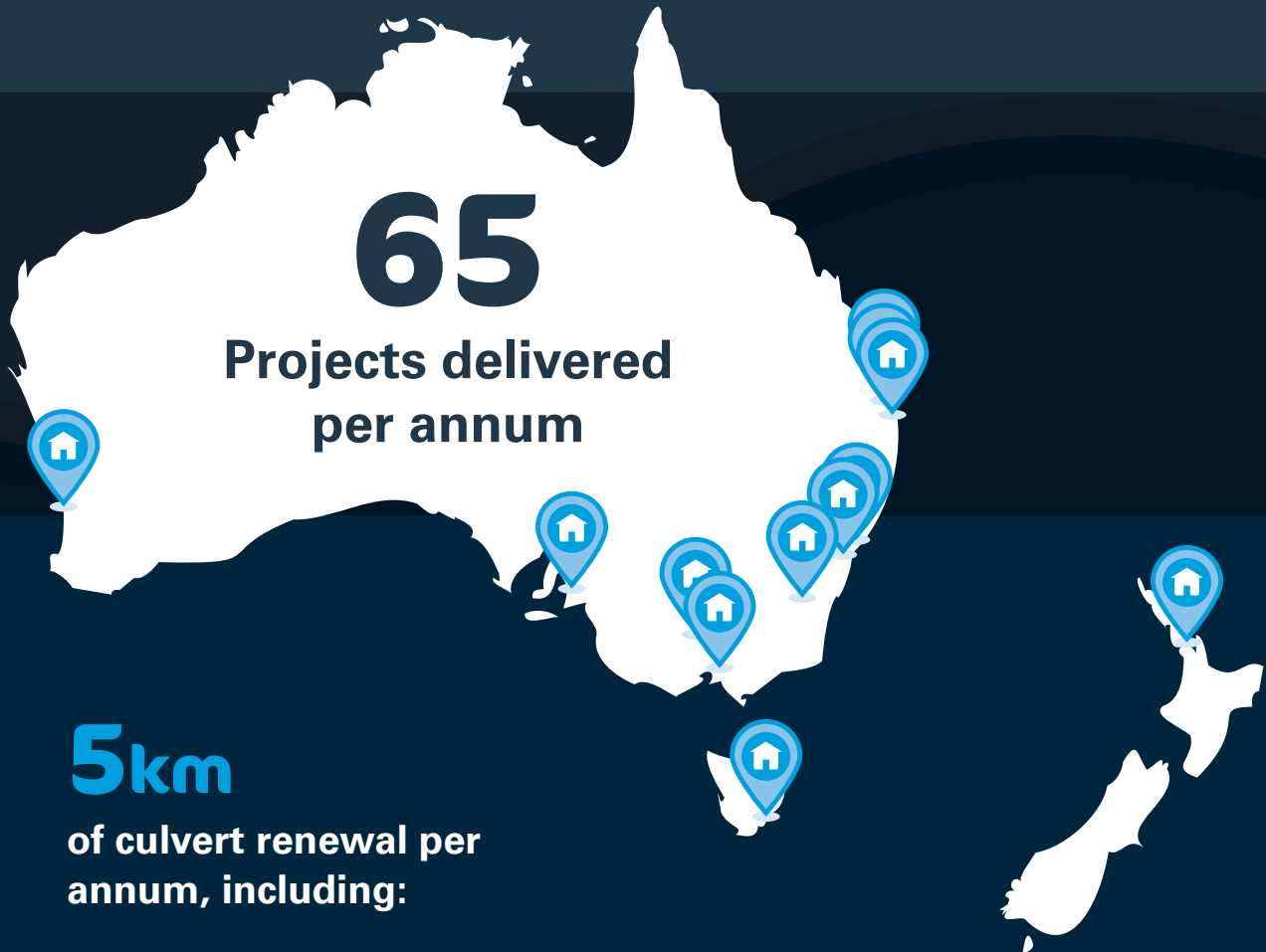
Depending on your environment, we have developed technologies which allow our crews to deliver works remotely. This 'non-person-entry' approach removes any risks and ensures a safe environment for our crews.





Culverts

CHANNELLING FLOWS



dedicated crews



Ensuring a sustainable
outcome for every project

H20 — Harm 2 Zero



Best practice
safety and environmental
stewardship

Our services, capabilities and solutions

Channelling Flows

Key to our success has been our ability to listen to our customers and develop solutions that truly solve their problems. Our services, capabilities and products are ancillary to our outward-looking approach and will complement the Total Delivered Cost of your Culvert Asset Management Plan.

We move with the times, using products that have been developed and tested for over 85 years. Our culvert management teams will guide you throughout every stage of the project including planning, design, construction and maintenance.

Our key services in the culverts space include:



Structural solutions from DN450 to DN3000



Condition assessment and design



Environmentally safe solutions



Minimising disruption to rail or road freight lines



Robotic repairs and silt removal



Working to design standards 300LA and AS/NZS 2556.1

Our services



Planning and design

- Community relations
- Environmental management
- Flow management and bypass
- Traffic management
- Safety management and risk assessment
- Client asset management
- Emergency incident response
- Asset management planning and budgeting



Construction

- Drainage pipelines
- Headwalls
- Energy dissipation device
- Headwalls and wingwalls
- Water treatment
- Civil dig-ups and repairs
- Access chambers
- New connection to drains
- Civil/structural rehabilitation, e.g. ARTC
- Installation, replacement, and repairs to concrete structures



Maintenance

- CCTV inspection
- Laser profiling
- MD / HD profiling
- Concrete core sampling
- Service prediction
- Cleaning
- Silt removal and dredging
- Patch lining (Interpatch)
- Mechanical repair bands
- Robotic grinding
- Localised repair by excavation
- Grouting of voids
- Spiral lining (Expanda, Rotaloc, Ribline)
- Cured in place lining (Interline)
- Ribsteel lining
- GRP slip lining (circular and non-circular)
- Protective coatings (epoxy and CAC)
- Culvert replacement by excavation
- Interline RC (reinforced concrete)



Our case studies

We are committed to offering our customers optimum solutions of the highest quality for culvert construction and renewal. With a long history of building and rehabilitating road and rail culverts, we provide solutions that are smart, effective and sustainable, which set our communities up for the future – read on for examples of this in action.

Whatever your needs, we work with you to create an ideal solution that you and your communities can depend on.



A robust, reliable solution

Location: Port Hedland, WA

Customer: Mine & Ports Developments Joint Venture

Aggressive conditions in Port Hedland mean that many corrugated metal and cast iron culverts rapidly deteriorate, resulting in holes in invert and leading to formations of cavities underneath. This means that lining solutions need to be designed to be fully structural so they can withstand all loads, including road and rail traffic.

We were engaged by the Mines & Ports Developments Joint Venture to provide a solution for 48 corrugated metal and cast iron culverts, which were roughly 750mm in diameter and on average 28m in length.

We installed Expanda in these culverts as it could provide a lined culvert with maximum internal diameter. Scalability was also important, because although the culverts had nominal diameters of DN750, the actual diameters varied due to abrasion, corrosion and the different culvert materials.

Expanda overcame this problem as it was the standout solution, able to provide a circular liner that would fit tightly, even if the diameter varied along the length of the culvert.

Cementitious grout was used to fill the gaps between the outside of the liner and the corrugations in the deteriorated culvert, as well as the holes that had been scoured in the invert. Rehabilitation also included treatment of the exposed ends.

The delivery to the site of Expanda as spools of profile strip, rather than as lengths of pipe, also meant more economical delivery costs.

The project needed to be completed within strict time constraints, and we were able to deliver ahead of time, almost two weeks before the end of the stipulated contract period.

Relining over replacing

Location: Central Hawke's Bay, NZ

Customer: Central Hawke's Bay District Council

The Central Hawke's Bay District Council had several ageing culverts across the district in remote locations. Initially, the Council was going to replace these culverts in their entirety – a solution that would have been unnecessarily expensive and disruptive to network/transport operations. However, after engaging us early in the project, we established that relining the culverts would be a more cost-effective option and achieve similar results.

To rehabilitate the five nominated culverts, we installed a total of 37m of DN900 Expanda pipe, as well as 14m of DN1050 and 10m of DN1500 Rotaloc pipe.

We completed all works including cleaning, lining, grouting and final CCTV inspections of the culverts in a short time frame – just one week – extending the life of the assets by at least 50 years.

Using our trenchless technologies, we provided an easily scalable solution with substantial cost savings to the Council, while also minimising disruption to the surrounding communities.

Central Hawke's Bay District Council was very pleased with the outcome of the project and anticipates engaging us again to rehabilitate more culverts in the future.





A bespoke, streamlined solution

Location: Brisbane, QLD

Customer: Brisbane City Council

During a major stormwater and drainage program, Brisbane City Council discovered that a culvert running under the busy Brisbane Corso was reaching the end of its structural lifespan. The 13m arched culvert needed to be rehabilitated with a structural lining within six months to continue its safe operation.

The deteriorated culvert runs beneath a high-volume traffic area on a bus route, also used extensively by large groups of cyclists and families. Its outlet's location, in a small, environmentally sensitive section of parkland alongside the Brisbane River, was also a factor to be considered.

The scenario of a long-term closure of the Corso while a new reinforced concrete culvert could be constructed was unacceptable. Consequently, rehabilitation with a structural lining within six months was considered a potentially feasible alternative. The liner would need to be structurally designed to take all load independent of the existing culvert. Its location close to the Brisbane River meant that the liner installation process would also have to manage tidal effects as well as the passage of normal stormwater flows.

With these constraints in mind, the Council requested innovative design and construction options to minimise community and environmental impact.

Working closely with the Council, we proposed the use of Channeline, a bespoke modular lining solution that could be installed quickly, safely, and with minimal community impact. This solution would allow crew members to deliver project works around tidal movements and avoid the costly construction of an interim coffer dam. The prefabricated 1.2m units were winched in place and sealed.

Council accepted our offer of Channeline, a bespoke manufactured GRP box-section solution, that was able to meet all the project requirements.

Even with the works taking place in an environmentally sensitive area, with tides to consider, our crews undertook the rehabilitation without shutting down the Corso.

Our culvert projects are a prime example of how we are all about delivering the 'how' for our customers – ensuring that the systems and networks that we work on operate efficiently, are well maintained, and provide the community with the assurance of safe and healthy environments.



Maximum results with minimal disruption

Location: Bungaree, VIC

Customer: Department of Transport Victoria

We were engaged by Victoria's Department of Transport (then VicRoads) to work on deteriorated culverts for the Western Freeway at Bungaree, near Ballarat. The freeway passes over a bank of seven DN1800 corrugated metal culverts approximately 113m in length, which were showing signs of deterioration due to corrosion and abrasion.

To deliver this project, we used Ribline which, with its steel reinforced polyethylene composition, can be designed as a structural liner for large diameter culverts up to DN3000 and is capable of meeting the onerous structural design and installation requirements for the application.

Before installation of the liner could commence, considerable site preparation work was needed.

An existing overgrown access track to the face of the culverts was cleared and a narrow hard standing area constructed.

The winding machine was placed adjacent to each culvert's opening at the headwall and set to wind the largest diameter liner that could fit into the culvert. Barrels of liner about 50m long were wound and then winched along steel rails in the base of the culvert, with successive barrels of the liner being joined by welding.

After installation, the liner was fixed in position with cementitious grout filling the annulus between the outside of the liner and the inside of the culvert.

The project was completed without excavation and with minimal disturbance to highway traffic and the surrounding community.

How can we help you?

We are all about delivering the 'how' for our customers – our road and rail culvert solutions provide safe passage for aquatic life, keep our roads and railways moving, and our communities connected.

You have learnt about who we are and why we exist – to solve our customers' problems. To continually challenge the status quo. No job is too large and complex, or too small and simple. We work around you.

**Contact us today
and find out how
we can help**

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