



INFOSHEET #04

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Logan Water
Alliance

Construction of water, wastewater and recycled water pipelines

Logan Water Alliance is delivering new and improved water infrastructure throughout Allconnex Water's Logan district. This includes the construction of new water, wastewater and recycled water pipelines using conventional and 'trenchless' construction methods.

Why are new pipelines needed?

Allconnex Water's Logan district is one of Queensland's fastest growing areas, with the district's population forecast to reach approximately 434,000 people by 2031.

To support this growth, new pipelines are required to provide essential water services to residents, businesses and industry.

Existing pipelines also need to be upgraded in some areas to improve their capacity, reliability and environmental performance.

Who is installing the pipelines?

Allconnex Water has appointed Logan Water Alliance to plan, design and manage the installation and / or upgrading of water, wastewater and recycled water pipelines throughout the Logan district.

These pipelines range from large diameter 'trunk pipelines' to smaller diameter water supply networks.

Logan Water Alliance is a public and private sector enterprise involving Allconnex Water, and engineering service providers Tenix, Cardno and Parsons Brinckerhoff.

Logan Water Alliance was established in August 2009 to meet the demand for water services in the Logan district - one of Queensland's fastest growing areas. The Alliance will deliver new and improved water, wastewater and recycled water infrastructure throughout the district until at least 2013.



Logan Water Alliance's construction contractors install a new water pipeline using an open trench construction method.



Micro-tunnelling in action.



A restored pipeline construction site, with only a manhole visible.

How are new pipelines constructed?

Logan Water Alliance's construction contractors use a variety of methods to install new pipelines. Sometimes, several methods can be used to lay sections of one interconnecting pipeline.

The choice of construction method is influenced by a number of factors including, ground conditions; site constraints such as busy roads, waterways or significant vegetation; and available funding.

A traditional construction technique commonly used in the Logan district is 'open trench' pipe laying. This method involves the progressive excavation of an earth trench, and laying of sections of pipeline on a bed of gravel / supports. Once a section of pipeline has been completed, the trench is backfilled.

Less conventional methods, known as 'trenchless construction', have fewer impacts on the ground surface. Logan Water Alliance's construction contractors often use these technologies to install pipelines under main roads, waterways, significant vegetation or existing buildings. Common trenchless construction methods include:

- **Auger boring:** A method whereby pipes are pushed into place underground, while the earth inside them is removed using a rotating cutter head.
- **Horizontal directional drilling:** A method that uses a directional drill to dig an earth tunnel, which is filled with bentonite slurry to maintain its stability. Sections of pipeline are assembled above ground, and pulled or pushed into the tunnel before being anchored in place.

- **Micro-tunneling / pipe jacking:** A method that uses a remote-controlled tunnel boring machine to lay pipes underground. As the tunnel boring machine drills forward, pipes are lowered into place behind the machine and pushed into the tunnel using hydraulic rams.

How will pipeline construction affect me?

All pipeline construction methods have the potential to cause temporary construction noise, increased dust or vibration levels near work sites, and local traffic changes.

Even trenchless construction methods, which significantly minimise ground disturbance, involve the construction of earth or concrete pits / shafts at each end of a section of pipeline (eg every 200m). These pits / shafts are the launch and retrieval sites for tunneling operations. Construction of the pits / shafts may require deep excavation, sheet piling works or concrete pouring.

What will the finished pipeline look like?

All pipeline construction sites are restored as closely as possible to their original condition.

Above ground, the only indication of a completed pipeline is a series of manhole covers located along the pipeline route. These covers are secured but can be accessed by Allconnex Water personnel for pipeline maintenance purposes.

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