



GROUT TRENCH CUT-OFF WALLS

Creating In-ground
Barriers and Protecting the
Environment

mainmark



Mainmark offers grout trench cut-off walls to contain contamination

Groundwater is an important water source but it can be susceptible to pollutants like refuse leachates, gases, chemicals, oil or petrol. These substances can leach into the groundwater over time and render it dangerous for both humans and animals.

It can be difficult, but not impossible, to mitigate or stop the migration of subsurface contaminants. One of the first and most important steps is to cut-off the source of the contamination and impacted water from other water sources.

Mainmark's grout trench cut-off walls are used to control and contain leachates, gases and ground water.

This method of containment is a cost-effective solution with a long-term effective life. It has low maintenance costs and a very low impact on the environment. This makes it perfect for Australian conditions where environmental considerations are paramount.

Mainmark is one of the few companies in Australia that has the full equipment and the expertise to construct grout cut-off walls using the slurry trench installation method. This method is fast and reliable, resulting in cut-off walls that prevent contaminated groundwater from passing through.

We specialise in grout trench cut-off walls:

- at sites where contaminated groundwater needs to be contained
- at waste sites, tips and dumps to contain contaminated groundwater
- at construction sites to allow the installation of sheet piling without vibration
- at dams and levees to contain storage or contaminated water

FEATURES

FEATURES	BENEFITS
Cost effective	<ul style="list-style-type: none">• The relatively low cost makes grout cut-off walls suitable for almost any situation
Long lasting	<ul style="list-style-type: none">• Grout cut-off walls have been used as a key containment solution for more than 50 years
Fast to implement	<ul style="list-style-type: none">• Mainmark grout cut-off walls help contain contaminated water faster; preventing and limiting spreading

Solving your contamination issues



MINING: creating grout trench cut-off walls

With ageing infrastructure and mine tailings dam failures, emphasis is being placed on ensuring that clay core dam integrity is maintained. Grout trench cut-off walls represent a cost-effective remediation technology for the treatment of leaks within the dam core, body or dam toe. Where grout trench cut-off walls are used in this manner, they contain dam tailings or mine waste. The cut-off walls are normally taken down to an impermeable stratum or at least half a metre below the greatest depth of dam clay core or toe, subject to geotechnical conditions.



SITE RE-DEVELOPMENT: isolating and controlling contaminated groundwater and seepage

With growing urban population and ever increasing inner city development, sites previously occupied by industrial facilities are now being re-developed for residential and other community uses. Many sites come with ground contamination issues which need to be managed. Controlling contaminated groundwater and preventing it from seeping into uncontaminated sites is critical. Grout trench cut-off walls achieve fast containment and are reliable over the long term.



DUMPS AND LANDFILLS: creating reliable leachates and gas barriers

With growing urban population, dumps and land fill sites are often filled to capacity, with many impacted by ageing liners, which makes them susceptible to breaches in their containment. Grout trench cut-off walls can be used to control migration of contaminated leachates from industrial dumps or landfill sites. They can be installed quickly and on slopes, and do not require temporary excavation support, making them a low-cost, effective solution.

TECHNICAL INFORMATION

Mainmark has a twin tank grout mixer which has been specifically designed and manufactured to mix bentonite, cement and water for grout cut-off walls.

The three main types of grout cut-off walls are soil-bentonite, cement-bentonite, and soil-cement-bentonite.

Cut-off walls are typically 600mm thick and the target permeability of the cured grout ranging between $1 \times 10^{-7} \text{m/s}$ and $1 \times 10^{-9} \text{m/s}$ depending on project parameters.



Constructing the grout trench cut-off walls

Mainmark's trench cut-off walls are excavated using regular wheeled or tracked hydraulic excavators for depths up to 8m, or specialist hydraulic long-reach excavator machines for depths up to 20m, dependent upon ground conditions. The trenches are excavated on a continuous basis under a self curing grout with a day joint left at the end of each shift. Excavated spoil is deposited directly into trucks for immediate removal from the working area in order to maintain a clean site and minimise the risk of excessive loading adjacent to the excavated wall which might precipitate localised collapses.

The slurry mixing station comprises bulk powder storage silos or pre-filled bulk bags of the

component materials, twin bowl colloidal grout mixer, wet storage tank or silos and pumps. The bentonite powder is mixed with water and pumped to storage silos where it is allowed to fully hydrate.

Specialist or Ordinary Portland Cement is then blended with the bentonite slurry before being pumped to the trench. On completion it is usual practice to place a capping layer of clay or concrete over the top of the cut-off wall to prevent drying or shrinkage cracking of the surface.

Mainmark can build non-structural grout cut-off walls up to 20m deep.

The Mainmark group of companies are leaders in advanced ground engineering and asset preservation technologies. For more than 20 years, Mainmark has led the world in offering unique, innovative solutions for foundation repair, and rectifying problems in residential, industrial, commercial, civil engineering, and mining situations.

In Australasia, the Mainmark group of companies has been in operation since 1995, with seven offices throughout Australia and New Zealand. Since 2001, we have also operated wholly-owned subsidiaries in Thailand and Japan.

We are a privately-owned company with highly-trained technicians and state-of-the-art equipment. Our solutions are all non-toxic, inert, and environmentally neutral. All of our works are planned, supervised, and executed by our own experienced personnel. We guarantee our products.

Companies of the Mainmark group present creative, effective solutions to many types of ground engineering problems in a wide range of sectors: industrial; commercial; residential; civil; and mining. Some of the companies offer related solutions in the building and construction areas. Many of these solutions are unique to Mainmark and its associates.

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