

# DIAPHRAGM WALL



**GFWA**

SUSTAINABLE TECHNOLOGY



The principle concept of a Diaphragm Wall is to construct a retaining wall within a slot excavated in the ground. Once completed the diaphragm wall can be used as a retaining wall for a multitude of applications, for example basement walls, earth retaining wall, water storage tank, cut off walls, etc.

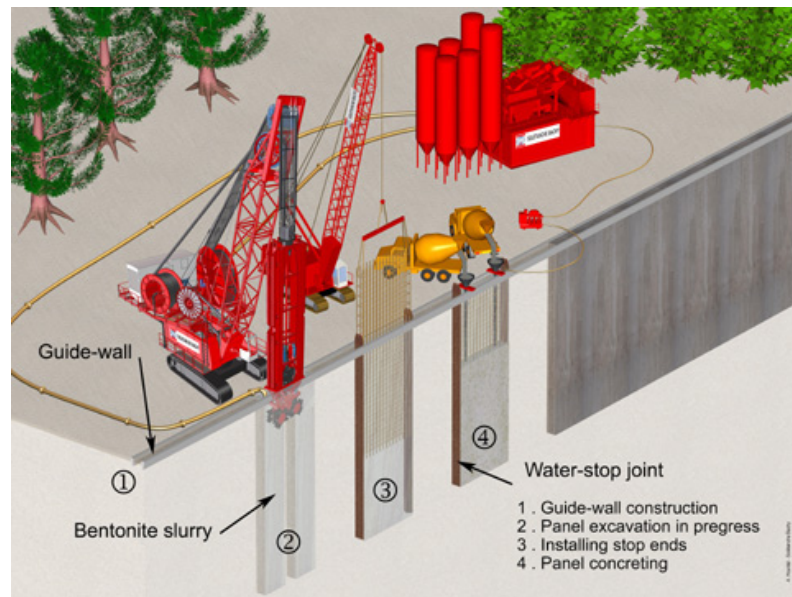
Excavation can be made with conventional cable grabs, hydraulic grabs or reverse circulation Hydrofraise equipment. Trench widths generally range from 600 to 1500 mm. At the outset a guide wall is built to ensure correct positioning and it also acts as a support for the reinforcement cage prior to concreting.

There are a number of factors which determine whether the cage is fabricated and placed in one piece or several elements spliced together. Care should be taken when detailing the reinforcement cage to ensure that concrete flows between the reinforcement bars.

Concrete is placed into the trench by tremie pipe. This is necessary to avoid segregation of the concrete. As concrete fills the wall from the bottom it displaces the bentonite that was used during excavation to maintain the excavation's stability.



## Work procedure for Anchoring



## Binningup Southern Seawater Desalination Plant



As part of the intake, outfall and TBM launch chambers of this project 38 diaphragm wall panels and 28 barrettes, each 25 m deep, were constructed. Total wall length was 250 m.

All panels were heavily reinforced with weights approaching  $360\text{kg/m}^3$  and with maximum cage weights being about 72 tons.

Rock sockets up to 2.5 m in depth were excavated in limestone with a compressive strength of 150 MPa.



### Recent References

- Kwinana Desalination Plant (WA, Australia)
- Binningup Desalination Plant, Perth (WA, Australia)
- New Performing Arts Venue, Perth (WA, Australia)
- Century City, Perth (WA, Australia)
- Raine Square, Perth (WA, Australia)
- CC211 Airport Link, Brisbane (QLD, Australia)
- Liberty Tower (SA, Australia)

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