

Headwalls

Issue 1



Headwalls

Humes manufactures a comprehensive range of standard headwalls to conform with the requirements of individual state and local authorities.

These headwalls may be customised to accommodate multiple conduit applications for both pipes and box culverts. Also available on a regional basis are sloping headwalls and endwalls – these are used primarily in property access applications.

Purpose

Headwalls are used at both the inlet and the outlet of a pipe system. While they are primarily used in culvert applications they will have application at the outlet point of a stormwater system.

Culvert applications

The natural water way will generally be wider than the culvert structure and transition sections will be required to receive the upstream water, direct it through the culvert and then return it to the natural water course in an undisturbed manner.

Where the velocity of the water is of the order of 4 m per second the headwall is the most common structure used to effectively achieve these conditions.

The wingwalls train the water and the base slab combined with the wing walls provide protection for the embankment and surrounds. Where exit velocities are high it may be necessary to incorporate energy dissipators into the structure. Where sediments are carried in the water it may be necessary to incorporate a silt trap at the exit.

Stormwater applications

Where headwalls are used in these applications the key issue will be to train the water in the path that will cause minimum turbulence and hence optimise the hydraulic capacity of the line.



Top:
Single steel
reinforced concrete
pipe headwall

Bottom:
Multiple steel
reinforced concrete
pipe headwall



Product range

Standard products

Humes manufactures a comprehensive range of standard headwalls to conform with the requirements of individual state and local authorities.

These headwalls may be customised to accommodate multiple conduit applications for both pipes and box culverts. Wing wall angles can be varied to suit the specific application.

Also available on a regional basis are sloping headwalls and endwalls – these are used primarily in property access applications.

Custom solutions

Where a project requires specific needs we will work with you to produce a dedicated design for a headwall that provides a cost effective solution. We detail below two examples of such design work which met the unique requirements of specific sites.

Innovative precast options

Irrigation headwall – Cotton Area, NSW

This headwall sited in a channel incorporates a pump station. The water is sourced from the Macquarie River and gravitates to the headwall where it is pumped into an adjacent water storage area.

The system may be reversed so that the flow of water returns ensuring that the demand for water may be met

Modular headwall – SEQ

The drainage design for a canal estate required a headwall to be fitted onto a 2,100 mm diameter pipe in a submerged situation.

The headwall was precast in modules and assembled on site and lowered into position, fitted and secured by divers. The in-situ alternative was to construct a coffer dam, dewater the site, pour an in-situ structure and then remove the coffer dam. This precast option was supplied and installed for 25% of the estimated cost of the in-situ option.



Benefits

- Reduced installation time
- Fewer people on site
- No reinforcement on site
- No premix concrete
- No waste, no clean up
- No formwork
- Remote sites are not an issue
- Concrete at strength when delivered
- No delays waiting to strip formwork
- Ancillary components may be fitted

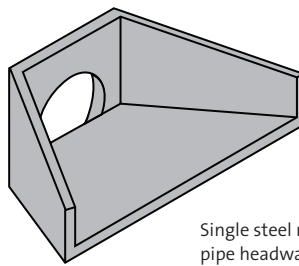
Ordering the headwall

Headwalls can be custom designed and manufactured to suit the complete range of steel reinforced concrete pipe and reinforced concrete box culverts we supply.

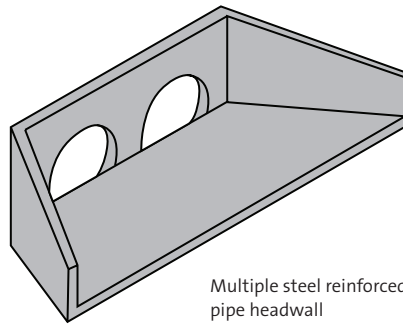
When you are designing, specifying or ordering a headwall(s) it is necessary for us to obtain project specific details from you. These details will include the conduit type (steel reinforced concrete pipe, box culvert or custom profiled pipe), the exposure classification (freshwater, saltwater or other) and the site specific geometry including number of cells and angle of conduit to headwall if other than normal.

Your headwall(s) will then be manufactured to specification and will perform in accordance with your expectations.

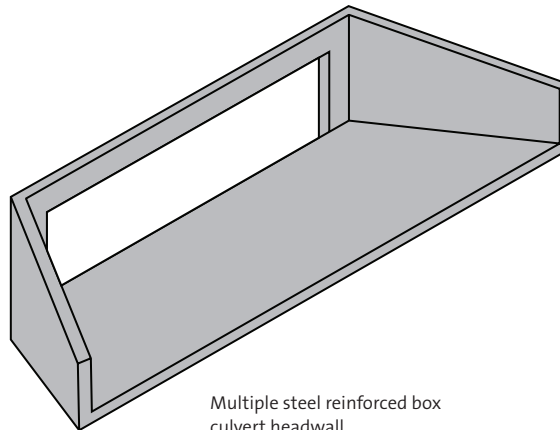
Figure 1 – Type of headwalls



Single steel reinforced concrete pipe headwall



Multiple steel reinforced concrete pipe headwall



Multiple steel reinforced box culvert headwall



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