

City of **Perth**

Design and Construction Note **Book 800**

Structural Engineering &
Construction Guidelines
Version 1.1

Book 800 - Amendments

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1.0 Introduction

Options for the design of River Walls, which the City of Perth endorse, include:

- A mixture of rock revetment
- Pocket Beaches
- Limestone Wall

When deciding which option is most appropriate consideration must be given to the sustainability, community interaction with the river, long term viability, aesthetics and the nature of the surrounding environment.

The design and construction of the River Wall Structure must align with the following principles:

- a) All structures must have an attractive appearance that is appropriate to their general surroundings and adjacent structures
- b) Structural Design is based on proven methods, materials and technology
- c) Fixing for retaining structures are concealed and integrated as a design factor.
- d) Unless a feature of the architectural design, all structures are to be of uniform colour and surface finish, including after repair work.
- e) River Walls must follow simple straight or smooth alignments with large radii, and interface with adjoining pathways, structures and environmental features.

2.0 Design Specification and Guidelines

All River Wall structures are to be designed in accordance with all relevant standards, including but not limited to the following:

AS 4997-2005	<i>Guidelines for the Design of Maritime Structures</i>
AS 4678-2002	<i>Earth-retaining Structures</i>
AS 5100 Set-2007	<i>Bridge Design</i>
BS 6349-1-4:2013	<i>Maritime Works</i>

Where design and construction aspects of River Walls are not considered in the above references, it is necessary to consider and conform to other international codes of practice and design guidelines.

2.1 Design Life

River Walls are to be designed to achieve the maximum life outlined in the the table below, without any major maintenance or replacement of elements whilst remaining safe and functional.

Asset	Design Life
River Wall, Embankments and Scour protection	100 years
Drainage and other structures which are accessible for maintenance	50 years

2.2 Hydrology

The River Wall must be designed to survive all water and debris forces in accordance with AS 5100 and must be designed to minimise the potential of scouring affects. The impact of climate change during the structures design life are to be assessed and taken in to account in assessing the tide height, flood levels and water velocities.

2.3 Applied Loads

The applied loads are to be assessed in accordance with the relevant standards including but not limited to AS 5100, AS 4678 and AS 1170.

2.4 Concrete Durability

Minimum concrete strength and associated nominated concrete cover thickness must comply with the relevant Australian Standards.

2.5 Rip-Rap Durability

Rip-Rap must comprise of suitable rock with a nominal diameter greater than 450mm.

2.6 Barriers

If there is a possible risk where a member of the public may fall from a height, pedestrians, bicycle and/or vehicle barriers may be needed. If so the barriers, fixings and support structured must be design in accordance with all relevant Australian Standards.

2.7 Public Utilities and Service Providers

Any service line that runs parallel to the River Wall must maintain a clearance of 1.5M to the nearest face of the structure.

Construction Barriers

Construction works need to be guarded by firmly fenced and properly maintained barricades, extending from the ground to at least one metre height.

The barricades should be constructed in such a way that a white cane, used by a blind or vision impaired person will not normally pass underneath.

The barricades should be strongly colour contrasted in relation to the ground and adequately lit at night.

Busy pedestrian areas often require an elevated standard of barricading.

Signage is important to identify hazards and identify paths of travel.

Use of cones in pedestrian areas are not generally acceptable as they can be easily moved and do not provide clear pedestrian barrier for those with low vision. Large cones (min 750mm high) may be used in restricted circumstances, such as very small installations where works are attended, however they must be spaced closely together.

Signs must not be placed in pedestrian pathway.

Barricades or signs with supports or feet that protrude in to the pedestrian pathway are a trip hazard and therefore not acceptable.

For more information refer to the City of Perth's Guidelines: Construction Barriers in Public Areas. For roadworks or road closure, refer to Main Roads Traffic Management plans at www.mainroads.wa.gov.au



Scaffolding and Impact Hazards

An impact hazard is 'a danger or risk of forceful contact or collision'.

In the past, impact hazards were either painted or covered with old rags and duct tape. These methods were time consuming, costly, didn't completely mitigate the hazard, and contributed to waste issues. The City of Perth has agreed that using rags and duct tape is unsightly and unprofessional and no longer adequate for the streets of Perth.

There is now an innovative new solution for removing these hazards in a cheaper, safer and more professional way, and increases workplace safety and reduces compensation and downtime costs.

- The method uses a high quality foam safety pad attached with Velcro straps and features reinforced steel eyelets for securing with cable tie to deter theft.
- These items are adaptable, reusable and effective in the public arena.
- They are readily available in Perth.

The new method:

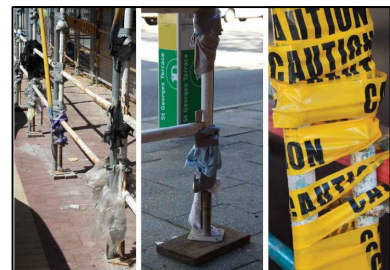
- Reduces the likelihood of impact by highlighting the hazard using high-vis material
- Reduces the consequences by covering the hazard with protective padding

Please see the photographs which demonstrate how the new method is being employed.

NOTE:

The new solution shown is one example and City of Perth is happy to accept similar or approved equivalent types of products which provide similar protection.

OLD (INADEQUATE) METHOD:



NEW METHOD:

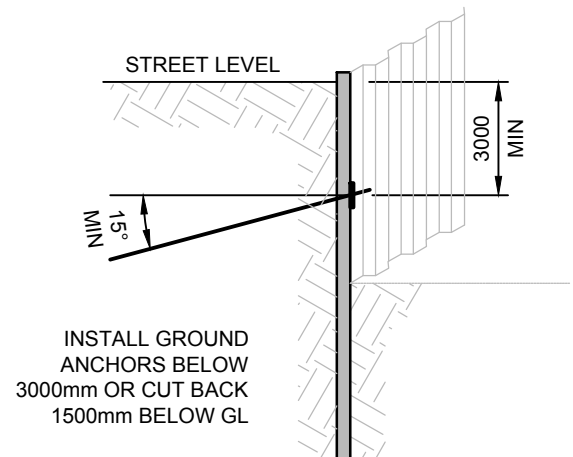


GROUND ANCHORS

It is required that ground anchors to be installed in the road reserve to be at least 3000mm below the surface and be inclined downwards at an angle of at least 15°.

If anchors cannot be installed 3000mm below the surface level, once work has completed ground anchors are to be removed or if impossible then the anchors need to be cut down to 1500mm below the surface.

Depending on services in the street, the ground anchors may need to be cut down to a deeper level.

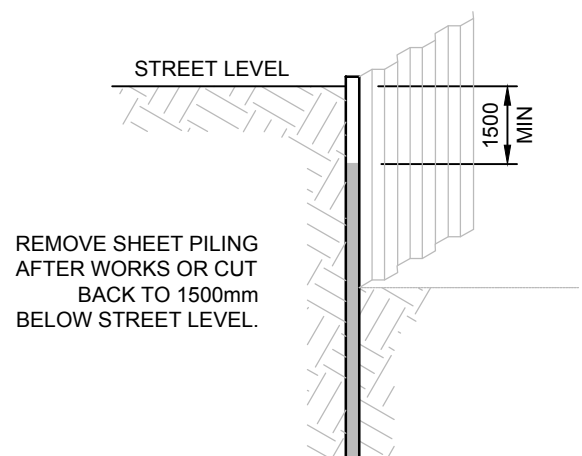


SHEET PILING

Once works have been completed, sheet piles are to be removed or if impossible than sheet piles need to be cut down to 1500mm below the surface level of the street.

Depending on services in the street, the sheet piles may need to be cut down to a deeper level.

It is the builders responsibility to ensure that the clearances are obtained from all the service providers and authorities.



Note:

1. The Local Government Act requires the applicant to obtain permission from the local authority for any works in, over or above the street to indemnify the local authority against any damages which may arise from the works.



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Site Fences & Hoardings

REVIEWED: 21/11/2018

Pending Information



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Construction Workzones

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