

Construction Guidelines - Headstones and Monuments

This document relates to the building of new Headstones and Monuments. If any Monumental Mason or employee, (defined as Stonemason) requires clarification on any section of these Guidelines please do not hesitate to contact Shellharbour City Council.

All requests contained within these guidelines will be strictly enforced.

It is strongly recommended that Monumental Masons retain a copy of this document in their vehicle at all times. **All masons are also to have copy of the Australia Standards 4204:1994.**

1. Construction Methods

- 1.1 Monuments are to be a self standing structure. They must not rely on structural support from adjoining monuments.
- 1.2. Dimensions on monuments are to be within the limits of the grave plot and in accordance to Council regulations.

1.3. Footings/Piers

- a. All footings are to be within the confines of the grave plot
 - b. Piers are to be dug as per AS4204:1994 or engineering specifications and footings as per AS3600:2001 (Concrete Structures). Piers will not be approved if they do not comply with the Australian Standards or engineers drawings.
 - c. Concrete footings are to be square and finished in a proper, workmanlike manner.
- 1.4. Monumental Masons or contractors are to ensure jobs are square and line up with kerbing and markers placed by Council prior to approval.
 - 1.5. Contractors who cannot reach full depth on piers are required to consult with Council.
 - 1.6. Bar chairs are to be used to support steel in the footings as per AS4204:1994.
 - 1.7. No concrete paths/plinths/steps are to be poured in front of, to the side of or behind the job in sections where grass paths exist.
 - 1.8. Any pier that fills with water faster than it can be pumped out is to be sleeved and pumped dry prior to the pouring of any concrete.
 - 1.9. All kerbing is to be pointed onto the footing with a maximum clearance of 30mm. A 3:1 (sand:cement) mix which has no slump must be packed tight between the kerb and the footing.
 - 1.10. All formwork is to be sound and to the depth of the beam being poured – (no lifting of formwork whilst the job is wet). It must be stable and not bow. (See 2.2)
 - 1.11. All concrete in foundations should be vibrated.
 - 1.12. Granolite monuments are to have a properly constructed footing, as per a granite monument.
 - 1.13. Construction of the monument should not occur until seven (7) days from the pour of foundations, including jobs.
 - 1.14. Spoil at the grave is to be made level. Excess spoil is to be removed from site and graves are to be topped up with soil to kerb height.

2. Materials for Footings/Piers

- 2.1. All steel reinforcing to remain galvanised.
- 2.2. All formwork to be form ply or steel forms and remain in place until concrete is dry (min 24hrs). Formwork must be removable and strong enough not to deflect or move out of shape
- 2.3. All concrete for piers and footings is to be 'readymix' (certified from a concrete plant), a minimum of 25MPa and 80 slump and certificates provided if requested.
- 2.4. Any small footings under 0.2 of a cubic meter may be hand mixed to the AS3600:2001 (Concrete Structures)
- 2.5. Tie wire should be a minimum of 2-3mm in diameter and steel should overlap by a minimum of 300mm.
- 2.6. All beams to footings are to be constructed to AS4204:1994 at a minimum width of 150mm and depth of 300mm.

3. Materials for Monuments

- 3.1. Candle Storage Area – monuments built with a storage area under the headstone will require a 100mm thick headstone base
- 3.2. All side and foot kerbs of full monuments to be built with solid stone kerbing in accordance to AS4204:1994.
- 3.3. Centre beam is to be constructed of concrete or granite with a minimum width of 200mm and a minimum capping thickness of 50mm.
- 3.4. The overlap of the ledger on the kerbing should be a minimum of 30mm.
- 3.5. Where ledger edges are shaped, a minimum of 30mm is to be left for strength whilst slinging.
- 3.6. All spoil is to be removed from site.
- 3.7. All dowels are to be 304 stainless steel threaded as per Australian standard AS4204 and drilled holes are to be sized to manufacturer's adhesive specifications.

4. Monument Sizes

- 4.1. The top of the Foot kerbs should be not more than 450 mm in height from natural ground level or the footpath at the highest point.
- 4.2. Lawn areas developed with engineered headstone beams have a maximum height of 800mm.
- 4.3. In Lawn headstone areas, headstones are to be lined up back-to-back along the centre line of the beam.
- 4.4. The maximum height of a monument above ground level must not exceed 1400mm with an additional 200mm being permissible for affixing a cross on top of the monument.
- 4.5. The maximum width of a monument must be constructed within the marked boundary of the plot with the remainder of the site to be concreted level with the existing footpath (if applicable). Where a double monument is required on two adjacent 1500mm plots, the monument must be 2700 mm in width.
- 4.6. The internal opening size of each grave is to be a minimum of 750 mm x 2100 mm.

5. Inspections

- 5.1. If required prior to commencement of construction, a mason finds the site left in an untidy state or damage created to the surrounding monuments, a pre-inspection may be requested by phoning the office.
- 5.2. All Monumental Masons are to notify the office when they are ready for the inspection prior to the pouring of any footings.
- 5.3. Depth of piers must comply with AS4204:1994.

6. Worksite

- 6.1. An understanding of special denomination requirements and beliefs is important and should be respected when constructing in the various sections.
- 6.2. No delivery of granite to the job site prior to the construction of the work, unless it is left within barrier confinement.
- 6.3. Barriers to be solid mesh and installed in a manner to fully surround all gaps or holes in the ground. The site is not to be left without barriers installed.
- 6.4. Cover sheets are to be put down before excavation where necessary to protect other monuments and to protect the grass.
- 6.5. No spoil or other possessions and items are to be placed or left on vacant grave sites unless barricaded.

7. Clean-Up

- 7.1. All building materials are to be removed from site at the end of the job.
- 7.2. No rubbish is to be left in the monument and hidden under the ledger or slab.
- 7.3. Rubble, bricks and excess spoil is to be removed from the job and back filled with clean site fill to ground level.
- 7.4. Washing down of tools is to be managed by the Monumental Mason.

8. Occupational, Health & Safety and Risk Management

All of the following requirements comply with Work Cover's OH&S Act 2000 and OH&S Regulation 2001.

- 8.1. Everyone has a responsibility to "duty of care" ensuring that all hazards or potential hazards have been controlled, eliminated or reduced on the work site.
- 8.2. All personnel working on site are required to hold a current Work Cover NSW OH&S general induction certificate.
- 8.3. First Aid facilities are to be provided at your place of work "the grave site" in accordance with the OH&S regulations 2001.
- 8.4. Nothing is to protrude outside the boundaries of the grave plot i.e. clamps during construction. Pathways used during construction should have barriers installed.
- 8.5. All staff are to be fully qualified for the tasks to be completed (alternatively, apprentices and unqualified employees are to be closely supervised while on site).
- 8.6. All Work Cover Regulations and Codes of Practices applicable to your business, including Manual Handling, are to be strictly adhered to by the company and its employees (including sub-contractors).
- 8.7. All necessary safety training is to be provided to employees (including subcontractors).
- 8.8. Any work to be done by you and your employees (including sub-contractors) which may create hazards, (e.g. overhead work, hot work, confined spaces etc.) should comply with all Work Cover regulations.
- 8.9. Ensure all required personal protective equipment is supplied and worn (high visible clothing) by you and your employees (including sub-contractors). This includes shirts.
- 8.10. Guarantee that you and your employees (including sub-contractors):
 - a. Are licensed/certified (where legally required) to operate vehicles and plant on site or to perform certain tasks
 - b. Are trained in the work, authorised by you to undertake the work, and are properly supervised
 - c. Have safe work procedures available to guide all work done.

Construction Diagrams - General

The following diagrams were developed from the Australian Standard 4204: 1994 and experience drawn from the industry. This included Monumental Masons, engineers and cemetery representatives.

THESE DIAGRAMS ARE INTENDED AS A GUIDE ONLY -

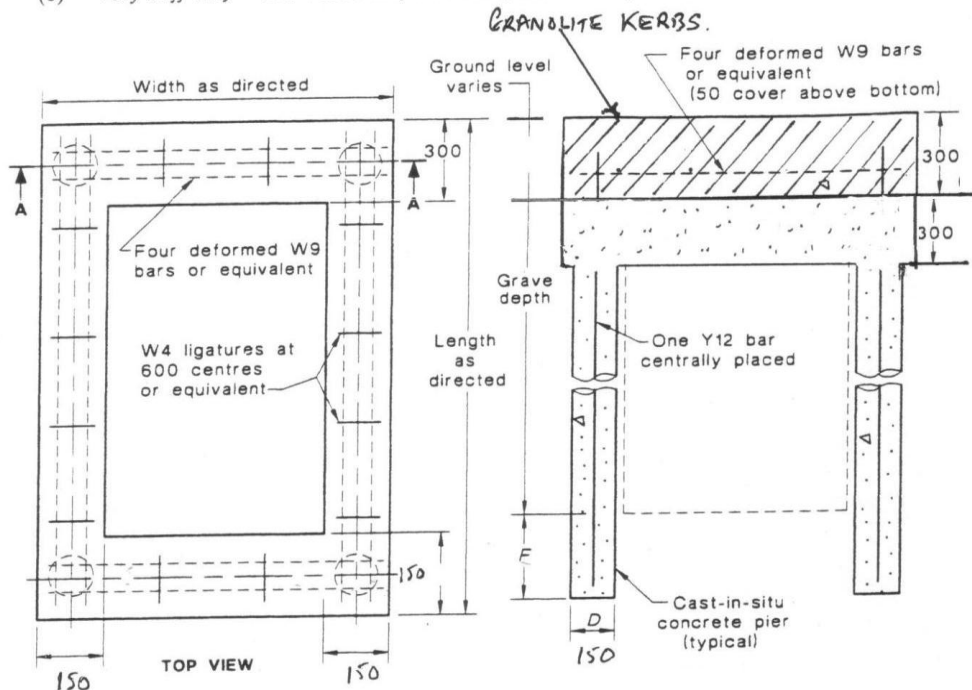
An engineer's opinion should be sought for any interpretations of these diagrams relating to specific site needs.

The following diagrams have been included:

1 – Granolite Memorials

AS 4204—1994

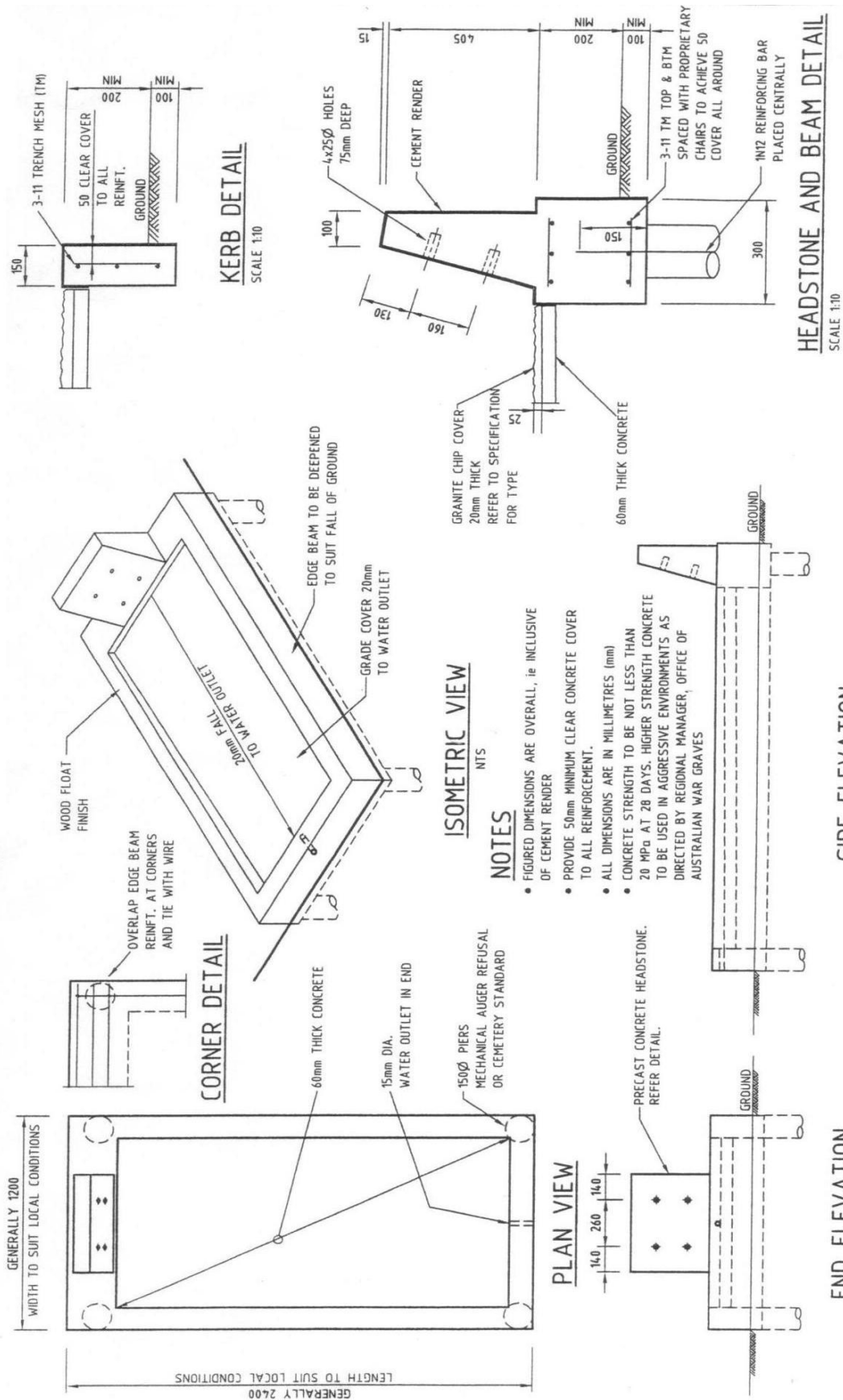
- (b) *Stiff clay*—soil which may readily be indented by the thumb, but penetrated by the thumb only with great effort.
- (c) *Very stiff clay*—soil which may be readily indented by the thumbnail.



Foundation type	Description	Weight of monument— 3 to 4 tonnes		Weight of monument— 2 to 3 tonnes		Weight of monument— less than 2 tonnes	
		D mm	F mm	D mm	F mm	D mm	F mm
Sands, gravels	Medium sand or gravel	150	600	150	100	150	100
	Dense sand or gravel	150	300	150	100	150	100
Clays	Firm	150	1200	150	600	150	300
	Stiff	150	400	150	200	No piers required	
	Very stiff to hard	150	100	No piers required		No piers required	
Rock	Highly to moderately weathered	150	100	No piers required		No piers required	

FIGURE 3.1 MINIMUM FOOTING REQUIREMENTS

2 – War Grave Standard Full Grave Cover

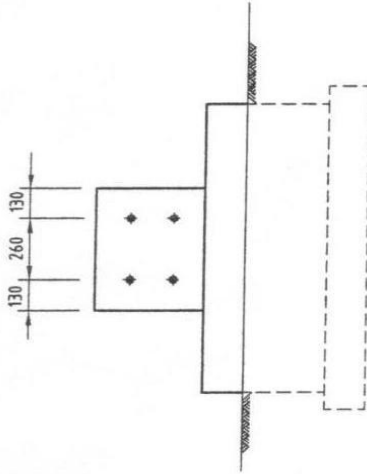


- NOTES**
- FIGURED DIMENSIONS ARE OVERALL, ie INCLUSIVE OF CEMENT RENDER
 - PROVIDE 50mm MINIMUM CLEAR CONCRETE COVER TO ALL REINFORCEMENT.
 - ALL DIMENSIONS ARE IN MILLIMETRES (mm)
 - CONCRETE STRENGTH TO BE NOT LESS THAN 20 MPa AT 28 DAYS. HIGHER STRENGTH CONCRETE TO BE USED IN AGGRESSIVE ENVIRONMENTS AS DIRECTED BY REGIONAL MANAGER, OFFICE OF AUSTRALIAN WAR GRAVES

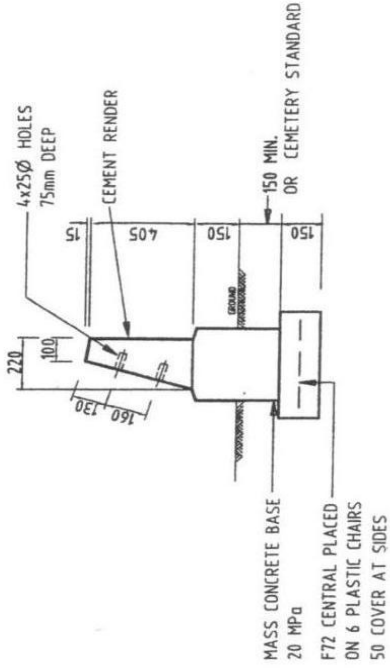
ALL WORK TO BE IN ACCORDANCE WITH THE "WAR GRAVE MONUMENTS" SPECIFICATION AND LOCAL CEMETERY REGULATIONS. IF IN DOUBT ASK REGIONAL MANAGER, OFFICE OF AUSTRALIAN WAR GRAVES.

3 – War Grave Concrete Lawn Pedestal & Concrete or Natural Stone Pedestal

- NOTES**
1. IF PEDESTAL IS TO BE PRECAST CONCRETE THEN PEDESTAL TO HAVE A CONCRETE STRENGTH OF 40MPa NO REINFORCEMENT REQUIRED NATURAL STONE PEDESTAL IF REQUIRED BY CEMETERY.
 2. PEDESTAL IS TO BEAR ON PAD FOOTING AS NOTED OR CONCRETE GROUND BEAM IF ONE IS PROVIDED BY THE CEMETERY.

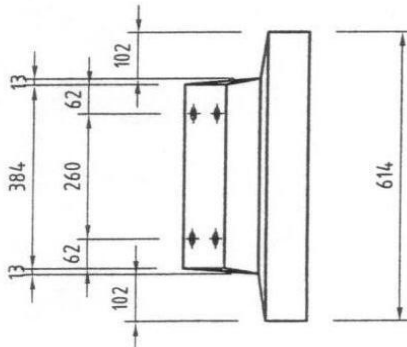


FRONT ELEVATION

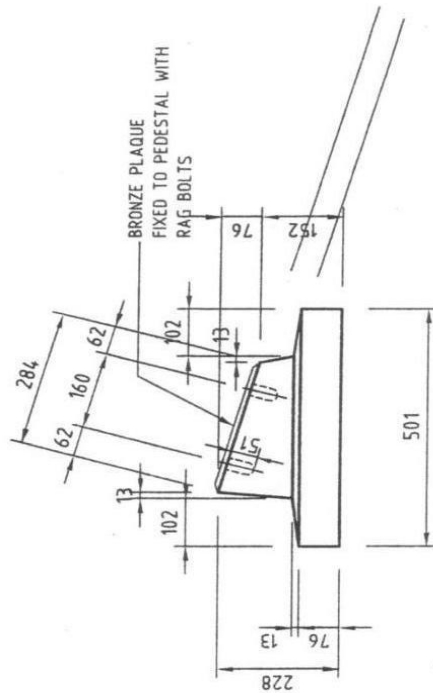


SIDE ELEVATION

- NOTES**
1. DUTCHSTOOL TO BE PRECAST CONCRETE & TO HAVE A CONCRETE STRENGTH OF TO BE 40MPa. NO REINFORCEMENT REQUIRED
 2. DUTCHSTOOL IS TO BEAR ON FIRM NATURAL GROUND OR A CONCRETE GROUND BEAM IF ONE IS PROVIDED BY THE CEMETERY.
 3. ALL DIMENSIONS ARE IN MILLIMETRES (mm)



FRONT ELEVATION

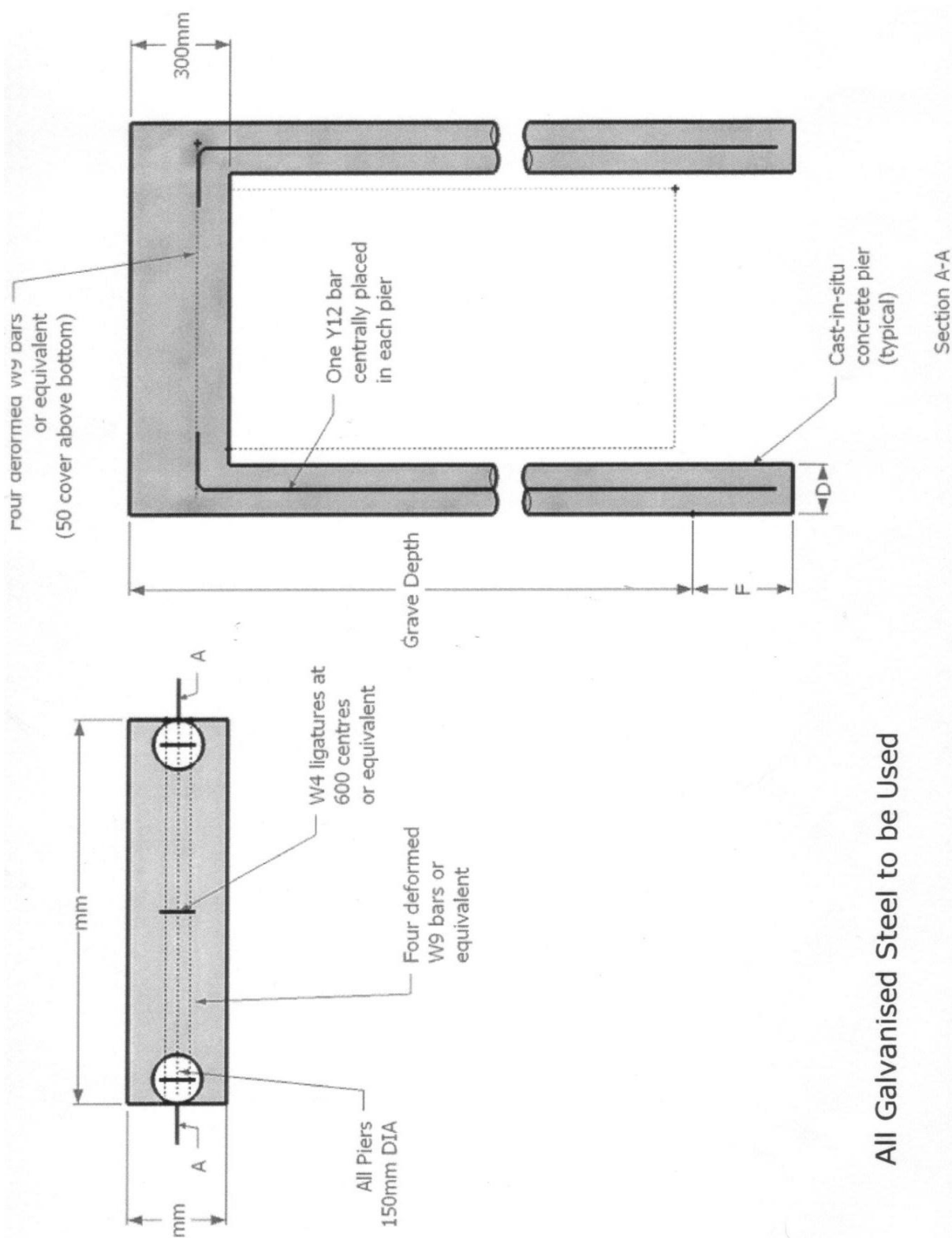


SIDE ELEVATION

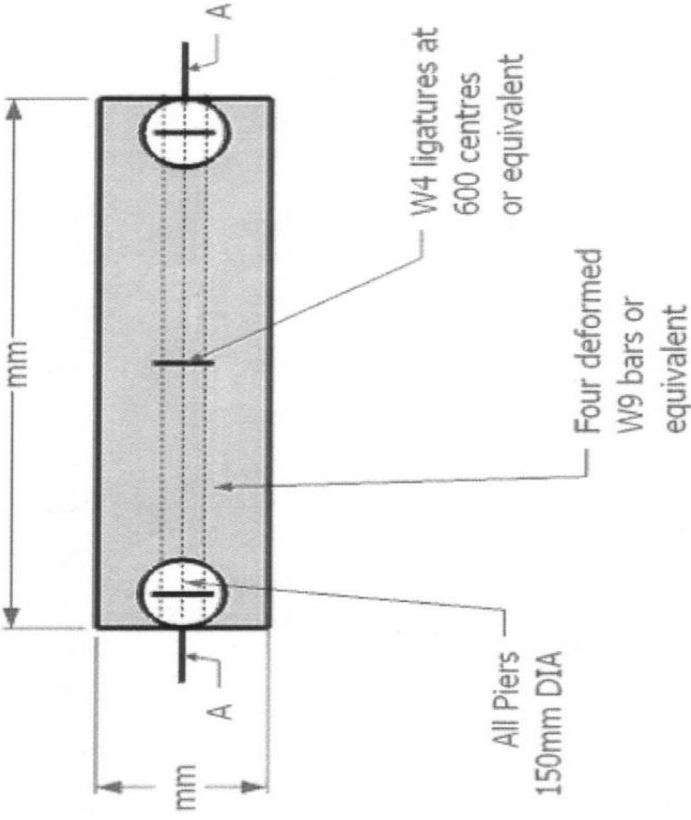
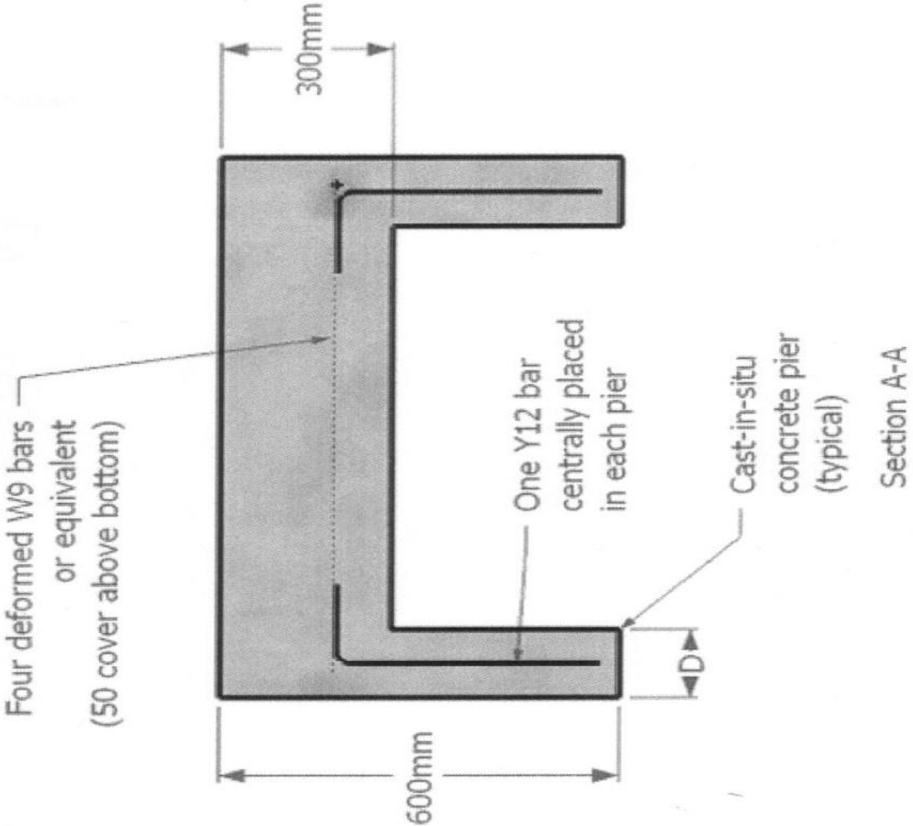
CONCRETE OR NATURAL STONE PEDESTAL

CONCRETE LAWN PEDESTAL

4 – Pad with Piers (HS & Base) Foundation

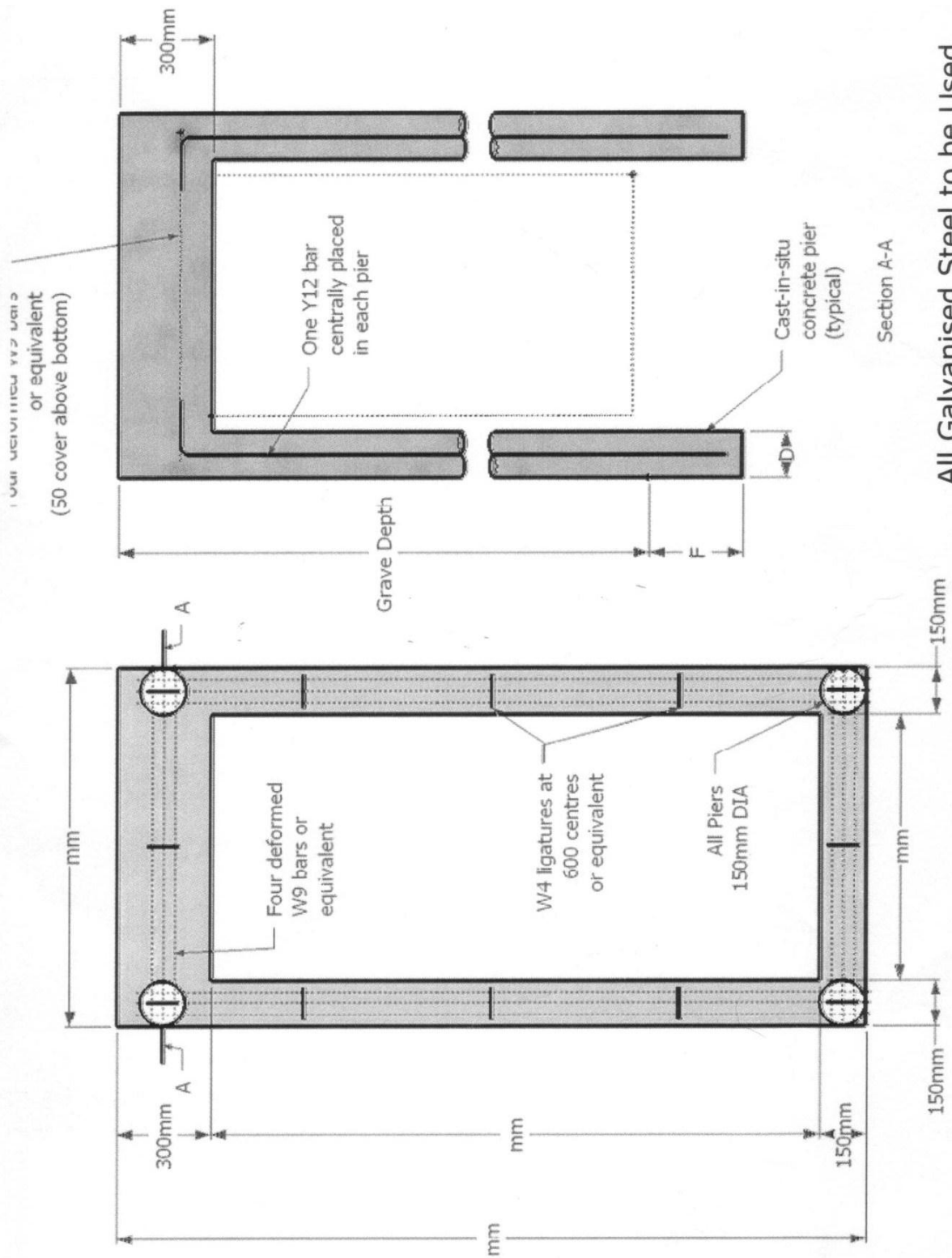


5 – Pad Piers (Sloper) Foundation

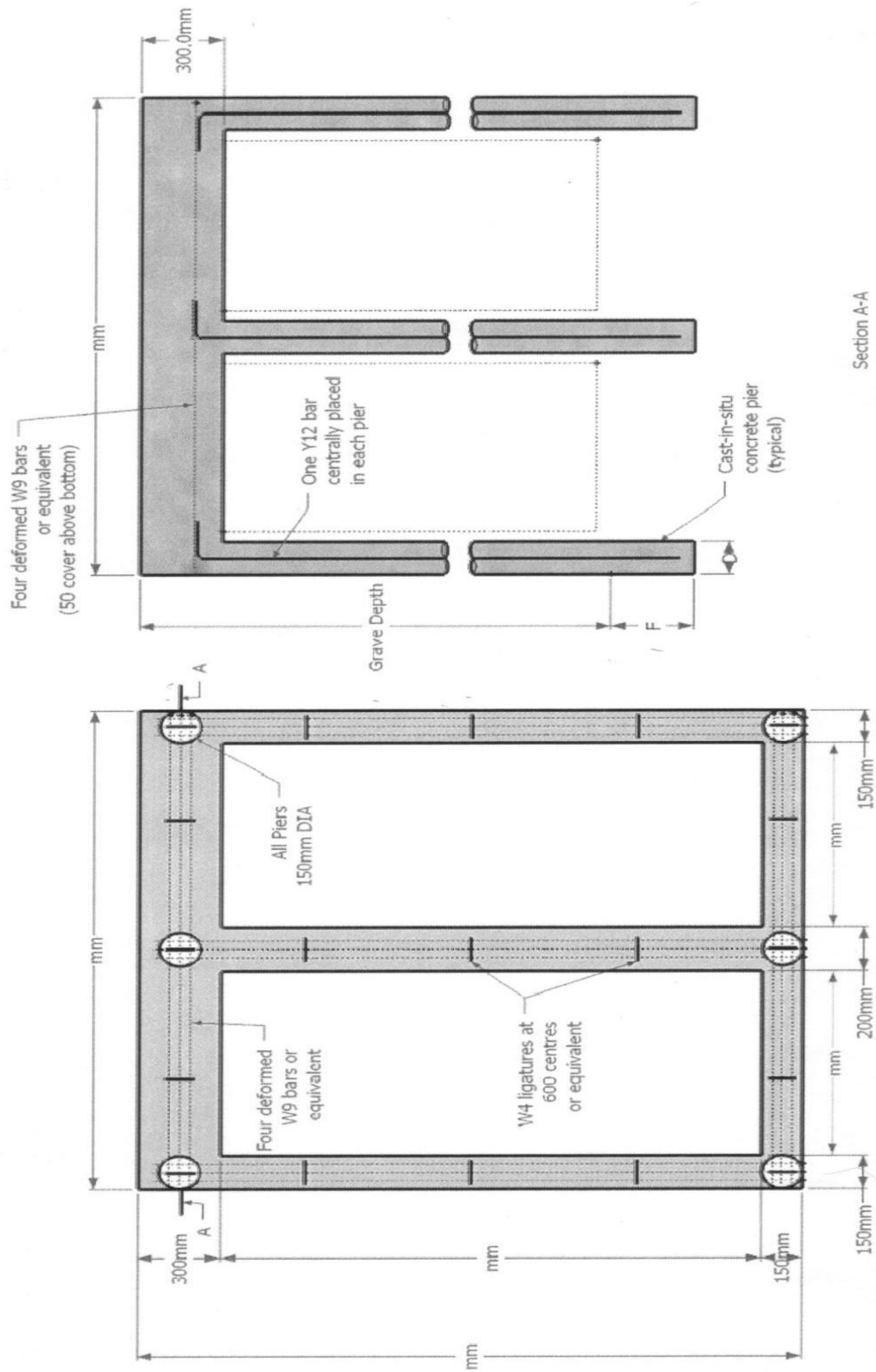


All Galvanised Steel to be Used

6 – Single Foundation



7 – Double Foundation



All Galvanised Steel to be Used