DETE Fencing Specification
School Security Program

Version 3
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Guidelines Prepared By:
School Security Program
Asset Maintenance Unit
Infrastructure Delivery and Operations

Queensland Government
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Fencing Specification

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Section 1 - General

1.1 General
The contractor is required to submit all quotations in accordance with the tender process.

Department of Education (DET) Project Co-ordinators may have fencing material tested at random by a NATA registered company to ensure that all materials and treatments meet these specifications.

Please note that any reference to “Galvabond” or any proprietary product in the specification is for guidance only. The department will consider any alternative manufacturers and/or models which meets the required functionality.

Site Specific Requirements

1.2 Site Survey
The contractor is to arrange for a Registered Surveyor to survey the school, if required, in cases where a clearly defined boundary is not evident. The contractor is to obtain a soil test report prior to commencement of each project and supply reports to determine if further works may be required.

1.3 Location of Services
The contractor is to determine, prior to commencing work, the location of all underground services such as water, gas, electricity and communication pipes or lines by engaging an authorised service locator, the cost of which is to be borne by the contractor.

Prior to the installation of any fencing within one (1) metre of underground electrical or communication lines, consent of the service provider must be obtained.

The contractor will make good any services, surfaces and finishing damaged during course of construction.

1.4 Removal of Existing Fencing
The contractor is responsible for the removal and disposal of the existing fence and to make good as necessary, unless advised otherwise by the Project Co-ordinator.
1.5 **Light Poles, Signs and/or Sub-stations**

The contractor is to redirect the fence by allowing one (1) metre clearance around any power pole, sign or sub-station or other item identified by the Project Co-ordinator.

1.6 **Shrubs and Foliage**

The contractor must remove or trim trees and shrubs which could obstruct erection of the fence or enable climbing access over the proposed fence prior to the installation of the new fence at the school. Garden beds, grass etc disturbed by machinery will be re instated to previous condition by contractor."

1.7 **Removal of all Rubbish**

Rubbish and unwanted materials are to be stored in secure area until disposed of. Rubbish is to be removed a minimum of once per week.

1.8 **Emergency access points**

The contractor is to liaise with the school Principal to determine the location of dedicated emergency vehicle access points and ensure that these access points are kept clear at all times.

1.9 **Safety**

Workplace Health & Safety Form 34 is to be submitted prior to commencing construction with a copy provided to the Project Co-ordinator.

Site Safety Plan and Work Method Statement to be provided to the Project Co-ordinator prior to commencing construction.

**Section 2 - Installation**

2.1 **Fencing Generally**

The contractor is to allow one (1) metre around objects as identified in Items 1.3 and 1.6, however, if this is not possible, the panel shall be fitted with perforated metal prior to powder-coating.

Onsite welding is to be approved by the Project Co-ordinator. Repairs to cut or damaged powder coated material are to be made using an appropriate anti-corrosion treatment and coating system that provides the same protection and appearance as the finished product.

2.2 **Panels**

The contractor must ensure that full panels are installed on both sides of all gates where practical.

All panels are to be fitted with a maximum ground clearance of 150mm.
Where ground clearance exceeds 150mm the panels are to be stepped or raked to achieve the foregoing level of clearance. Stepped panels must be a minimum width of 1200mm. After stepping or raking, in-fills are to be fitted and rigidly fixed beneath panels where the ground clearance still exceeds 150mm.

Barbed wire must not be used as an in-fill underneath panels. Cut panels must be a minimum of 1200mm.

2.3 Gates Generally

The contractor is to allow for three types of gates, the approximate size as follows:

- Single  1.3 – 2.4 metres
- Double  2.4 – 4.8 metres
- Other   4.8 – 6.0 metres

Gates are to be manufactured from Galvabond steel tube, zinc coated inside and outside to conform with AS 1450 – 1983 and AS 1397 – 2001.

On-site welding is not acceptable except in exceptional circumstances and agreed to by the Project Co-ordinator.

All hinged gate/s are to be constructed and installed, to enable the gate/s to be locked in the fully open and closed position. Gates are to open and fold back 180 degrees where ground contours allow.

Receiving latches are to be fitted to enable gate/s to be secured with heavy duty padlocks in the open and closed position.

Galvanised ground sleeves for the security of drop bolts with the gates in the open and closed position are to be installed in concrete so as not to present a trip hazard. Ground domes must be domed high enough to inhibit dirt/water ingress and painted yellow indicating a possible hazard.

All bolts used for panel and gate hinge fixings must be spot welded or burred after installation to prevent removal of nuts.

Speed humps must be installed under vehicular gates where the ground clearance exceeds 150mm. Compliance with AS 1742/13 is required. Consult with Project Co-ordinator

The contractor is to verify the width of all gates in accordance with the scope of works.

2.4 Vehicle Gates

Vehicle access gates must be recessed within the property boundary, where necessary, to enable vehicles to stop off road to allow opening and closing of the gate. Returns are to be splayed to maximise sighting of passing vehicles and pedestrians.
2.5 Post Holes

A post hole (also referred to as a dig) is a machine-drilled or hand dug hole in soil, rock or other than rock material. All post holes are to be installed as set out in the respective fence type.

2.6 Fence Posts

Fence posts, including corner and intermediate posts, are to be installed as set out in the respective fence type.

2.7 Gate Posts

Gate posts are to be set as specified under each fence type. The above ground concrete finish is to be domed with a steel trowel finish to eliminate water lying at base of posts. Doming of concrete at base of posts must be performed at time of original concrete pour.

2.8 Padlocks

The installer is to supply all heavy-duty padlocks (eg. Lockwood 45 series or ABUS 83/50) to allow all gates to be locked. Padlocks are to be keyed to the school registered master key system. This should be discussed with the Project Co-ordinator.

2.9 Site Storage and Protection

Unless alternative arrangements are agreed with the Project Co-ordinator, to avoid hazards and complaints, the contractor is to store all goods, materials and equipment, including any shed or portable toilet, on site within the school boundary within a secure “construction safety fence” (ATF type or similar) of a minimum height of 2100mm.

Safety fencing (ATF type or similar) is to be provided to all work areas including areas where existing fencing is removed until new fencing is installed. The removal of existing fences should be limited to areas that can be protected. The type of safety fencing required and the timing of installation of the safety fencing are to be determined in accordance with the Construction Safety Plan as described in Workplace Health & Safety procedures. Non rigid bunting style barrier is not acceptable.

The excavation of post holes is to be limited to areas that can be backfilled within the day. Control measures are be provided to protect the site in accordance with the construction safety plan as described in Workplace Health & Safety procedures. Trip and subsidence hazards are to be avoided.

The type of protection required and the timing of the protection works is to be determined in accordance with normal safety procedures exercised on a designated construction site.

2.10 Returns

When a school adjoins a private property with front and side fence of timber or brick and then a timber or colourbond side fence, the security fence will proceed along the front street line of the school to the adjoining property and then along the adjoining property boundary to provide adequate security for the school. Detailed “Scope of Works” for each project will include provisions for this requirement.
2.11 Electricity and Water

The Contractor must arrange with the Project Co-ordinator person at the time of inspection as to availability of electricity and water if required. A reasonable amount will be provided by the school Principal.

Section 3 – Security Fence Type 1

Decorative steel fencing used for frontage of school/entryway

3.1 Panels

Black steel pickets and rails will be manufactured of Galvabond tube measuring 25mm x 25mm x 1.6mm in accordance with AS1450 - 1983 and AS1397 - 2001.

- Height will be 2100mm
- Length will be 2400mm minimum and 2500mm maximum
- Top of picket will protrude 200mm - 270mm past the top rail
- Rail centres will be 1690mm – 1770mm (dependant on height of picket above rail)
- Picket length will be 2100mm
- The bottom of picket to ground level clearance is to be 100mm minimum and 150mm maximum
- Picket space (gap) will be 100mm normally and 90mm for preparatory (prep) area fencing.
- Vertical pickets will be 25mm square x 1.6mm in thickness x 2100mm in length punched through 40mm square x 2.0mm rails and welded on alternative sides of the picket on top of the upper and lower level rails with silicon bronze wire i.e. four welds per picket.
- Top of pickets will be cut and pressed (crimped) to form spear point top, steel only
- Unless otherwise specified the fence must be raked to follow the ground contour. Where ground clearance exceeds 150mm the panels are to be stepped or raked to achieve the foregoing level of clearance. Stepped panels must be a minimum length of 1200mm. After stepping or raking, in-fills are to be fitted rigidly beneath panels where the ground clearance still exceeds 150mm. This practice should not be utilised in
covering designated waterways where such installation would obstruct the natural flow of water.

**N.B.** All welds to be fully rust-proofed and finished to match fence colour. Silicone bronze welds are preferred and must always have double welds either side of the fence rails. Finished panels must be fully powder coated to meet the requirements as detailed in Clause 3.7.

### 3.2 Fence Panel Fittings

- Panel rails will be fully fixed home to posts with shrouds. Shrouds to be equipped with four (4) holes. Shrouds to be approved by the Project Co-ordinator.
- Two (2) self-drilling anti tamper class three screws (photo supplied) and two (2) stainless steel big dome rivets, code 73ST/ST-L6-6 are to be used on each shroud.
- The rail is to be fixed to the shroud with one (1) self drilling anti tamper class three screw (photo supplied).
- Fixings are to be on the inside of the fence, where possible, unless prevented by bracket positioning.
- Where changes of direction are not 90°, the bracket is to be reconfigured on site to suit the angle, and the sleeve is to be cut at the required mitre from matching powder coated material. Where necessary, shrouds must be custom made to suit angles where existing shrouds cannot be suitably reconfigured to provide a secure mounting point for the rail.
- Brackets and sleeves must be powder coated to match finished panels and posts to meet the requirements detailed in Clause 3.7.

### 3.3 Fence Posts

Posts will be constructed using the following dimensions:

- 75mm x 75mm x 3mm x 3000mm long Galvabond steel post complete with Galvabond steel cap to conform with AS 1450 – 1983 and AS 1397 – 2001;
- Post spacings are to be 2400mm minimum, 2500mm maximum;
- The Galvabond steel cap is to be riveted to the top of the fence post; Post footings are to be 230mm minimum diameter x 700mm minimum depth with not less than 20Mpa in strength concrete footings. Above ground concrete finish is to be domed with a steel trowel finish to eliminate water lying at base of posts. Doming of concrete at base of posts must be performed at time of original concrete pour;
- All corner posts will be 100mm x 100mm x 4mm box section steel, and
- Finished posts and caps must be fully powder coated to meet the requirements detailed in Clause 3.7.
3.4 Hinged Gates

Gates are to be manufactured from Galvabond steel.

All gates are to be constructed and installed with receiving latches to enable the gates to be locked in the fully open and closed position with heavy duty padlocks. Gates are to open and fold back 180 degrees where ground contours allow. Ground sleeves are to be galvanised for the security of drop bolts with the gates in the open and closed position. Sleeves are to be installed in concrete so no tripping hazard is present. Small pedestrian gates are to be fitted with a heavy duty 600mm drop bolt to the internal side of the stile to allow securing in both the open and closed position. Ground domes must be domed high enough to inhibit dirt/water ingress and painted yellow indicating a possible hazard.

3.4.1 Gate Types

- Single - 1.2 – 2.4 metre opening (dependant on path width or as specified separately).
- Double - 2.4 – 4.8 metre opening (dependant on driveway width or as specified separately).
- Other – 4.8 - 6.0 metre opening (dependant on driveway width or as specified separately).

3.4.2 Gate Dimensions

Gates will be constructed using the following dimensions:

- 50mm x 50mm x 3mm square box section vertical stiles.
- 50mm x 50mm x 3mm square box section horizontal rails.
- 25mm x 25mm x 1.6 vertical pickets to match panels.
- Twin bottom 50mm square box section rails are to be fitted to bottom of gate to provide reinforcing.
- The gap between parallel rails shall not exceed 100mm.
- There will be no diagonal bracing on gates that will form a foothold for unauthorised access.
- Rail centres will be at 1690mm –1700mm.
- Picket space (gap) will be 100mm normally and 90mm for preparatory(Prep) area gates.
- Pickets are to be cut and pressed (crimped) to form spear point top, steel only
- Picket length is to be 2100mm.
• Pickets are not required to be punched through the bottom rail but are to meet flush with the rail and welded either side of picket.
• Gates are to be supplied and fitted with hinges as per photos supplied. All hinges will be bolted through gate posts. Top and bottom hinges are to be reversed i.e.: 1 x hinge faced downwards and 1 x hinge faced upwards to ensure gates cannot be removed. Photos of acceptable hinges are included at end of document. Alternative hinges to be approved by Project Co-ordinator.
• Gates will have internal flag bolts or similar locking mechanism no less than 1200mm in length from bottom of each individual gate. Steel tags are to be welded to the gate to accommodate the flag bolt when in the open and closed position through passing a padlock through the flag.
• Flag bolts or similar locking mechanism are to have a 20mm diameter steel bar.
• Flag bolt lugs are to be elongated in height and to be bolted to closing post.
• Locking lugs are to be welded to frame to accommodate the flag bolt in the closed position.
• Perforated metal is to be welded against the gate stile and the second picket from the top of bottom higher rail to top of railing. This must be designed specifically to stop access to the locking mechanism from outside the gate. In cases where dual access is required a portion of the perforated metal will be cut in proximity to the locking device to allow hand access i.e. Access through double gates for emergency service personnel. Cut edge of perforated panel to be finished to remove sharp edges.
• A single gate should have a plate or box section welded onto the gate to take the sliding bolt and padlock. This should be fitted internally immediately above the parallel centre.
• Finish on all gates must be fully powder coated to meet the Specifications detailed in Clause 3.7.

3.4.3 Gate Posts
• Posts are to be 100mm x 100mm x 4mm x 3000mm Galvabond steel to conform with AS 1450 – 1983 and AS 1397 – 2001 steel post complete with Galvabond box steel cap for gate openings 3 metres and under. For gate openings over three metres, 150mm x 150mmx 5mm posts are to be used.
• Galvabond cap is to be riveted to top of every post.
• Gate post footings are to be 400mm minimum diameter x 800mm minimum depth with not less than 20Mpa in strength concrete footings. Above ground concrete finish is to be domed with steel trowel finish to eliminate water lying at base of posts.
• Single gates will have a 1.5m opening or less, and double gates a 3m opening or less. Gates shall be hinged from a single 100mm x 100mm x 4mm x 3000mm pre-galvanised box section of steel posts, coated inside and outside to AS 1163 - 1991 and AS 4750 - 2003, capped with Galvabond steel caps.
• Finished posts must be fully powder coated to meet the specifications detailed in Clause 3.7.
3.5 Sliding Gates

Posts, rails, gates, brackets, sleeves, caps and all materials must be fully powder coated to meet the specifications detailed in Clause 3.7.

Gates are to be manufactured from Galvabond steel and be a minimum of 600mm longer than gate opening.

- Top and side stiles must be 50mm x 50mm x 3mm Galvabond box section black steel.
- Bottom rail is to be 100mm x 50mm x 3mm Galvabond box section black steel.
- A 40mm x 10mm x 50mm lug must be welded with 20mm hole to secure the gate in the open and closed position. Lug is to be constructed to accommodate a padlock.
- Gate is to be guided through two (2) ‘U frames’ comprising 100mm x 100mm x 4mm posts. Posts are to be secured in place with 5mm (minimum) steel plate.

3.5.1 Vertical pickets

- Pickets are to be 25mm x 25mm x 1.6 mm Galvabond box section black steel.
- They must be cut and pressed (crimped) to form spear point top.
- Pickets to be punched through top and middle rail and welded each side of picket as per fence panels. They are not required to be punched through the bottom rail but are to meet flush with the rail and welded either side of picket. Each picket shall have a total of six welds.

3.5.2 Catcher bracket/stopper post

- The bracket or stopper must be Galvabond box section 100mm x 100mm x 5mm steel post with steel guide to accommodate impact of gate when in the open position. There must be a slot in the catcher bracket to receive the 40mm x 10mm x 50mm lug welded on the gate to accommodate a padlock.
- Post is to be fixed in position with four (4) heavy duty galvanised dyna bolts which are to be anchored into a concrete footing. Where necessary, the upright is to be braced to combat movement caused through constant impact.

3.5.3 Wheels

- Wheels must be double bearing bottom wheels together with upper nylon guide rollers.
3.5.4 Track

- Steel galvanised track is to be used comprising 90mm x 6mm plate with 20mm solid rod welded on centre line with 2 x 12mm holes 50mm in from edges at 500mm centres.
- Track is to be fixed to concrete slab with 10mm x 50mm galvanised dyna bolts.

3.6 Specific Coating System

3.6.1 Cleaning and Chemical Pre-Treatment

This application is required for all fencing panels, posts and gates prior to application of the specified coating system.

- New zinc surfaces are to be examined for flux residues, light roll forming oils and foreign matter all of which are to be removed prior to pre-treatment for powder coating.
- Surfaces that show white storage stain (white rust) or other corrosion products, must be cleaned, degreased and pre-treated for optimal performance. White rust can lead to adhesion problems or out-gassing of the powder coating. Silicone based anti spatters are not to be used as they may lead to de-wetting of the powder.
- Pre-treatment shall be carried out in accordance with AS4506 - 2005 table 2.1, D High Marine/Industrial.
- Powder application must occur within 24 hours of substrate pre-treatment.
- Pre-treatment systems are to be maintained and tested in accordance with the pre-treatment supplier’s recommendations.

3.6.2 Coating Systems

Option 1 - Standard Coating System

- The topcoat shall consist of a polyester powder coating in the nominated colour and gloss finish, applied in accordance with AS4506 - 2005. The powder coating must meet or exceed durability, UV stability and colourfastness requirements of this standard.
- Film thickness is to be greater than 60 - 76 microns on average.
- The powder must be fully cured as per the powder manufacturer’s specification.

Option 2 - Corrosion Protection Coating System (Preferred option unless otherwise specified)

This Coating System is to be applied in addition to the Standard Coating System as directed.

- An epoxy primer of 50 - 60 microns must be applied to the pre-treated substrate in accordance with AS4506 – 2005.
- A ‘green cure’ is recommended when applying the primer, whereby the primer is half cured before applying the topcoat.
- The topcoat shall consist of a polyester powder coating in the nominated colour and gloss finish applied in accordance with AS4506 - 2005 to a minimum of 80 microns, thus achieving a total coating thickness of between 130 - 140 microns.
- The polyester powder coating topcoat must meet or exceed durability, UV stability and colourfastness requirements of AS4506 – 2005.
- The powder must be fully cured as per the powder manufacturer’s specification.

Option 3 – Hot Dip Galvanised – for extended life of 25 years plus
• Use all mild steel (black and painted) A grade C350LO or greater.
• Weld general mild steel wire, ES 7056 specifications.
• Hot dip after fabrication.

Procedures

• After galvanising ensure all ‘dags’ and sharp edges are removed
• VIP blast after galvanising
• Degas
• Apply epoxy primer
• Apply final top coat (powder-coating to 60 – 70 microns)
• All work must be completed to AS 4506 - 2005 specifications.
Section 4 – Security Fence Type 2

Chain-link fabric boundary fence used for rear/side of block.

Chain-link fabric security fences and gates will comply with Australian Standard AS 1725 – 2003. All chain link fabric fences are to be supplied and installed as per fences Type 2 -T-B/P-T (top and bottom rail) or as specified.

The galvanised (zinc) coating on the steel pipes will comply with AS/NZ 4792. Post and rails to be manufactured from medium-quality galvanised pipe to comply with AS 1725-2003 and AS 1163 grade (C250LO).

All chain link fabric mesh fence will be all galvanised. Black PVC coating can be applied where specified. Regardless, the PVC will be applied over galvanised fabric mesh.

All fittings are to be colour matched.

All powder coating, where specified is to be finished to AS 5405. See 3.7 Specific Coating Systems.

All items welded or cut on site must be primed followed by galvanising or black paint.

All fittings including nuts and bolts are to be spot-welded to stop removal.

4.1 Panels

- Height is to be 2100mm or 2400mm.
- Length is to be 2400mm minimum, 2500mm maximum.
- Chain link fabric is to be –
  - Heavy duty (3.15mm) - galvanised 3.15mm 50 pitch or PVC 4.15mm 50 pitch or where specified
  - Light duty (2.5mm) - galvanised 2.50mm 50 pitch or PVC 3.40mm 50 pitch
- Chain link fabric is to be finished with barbed top selvedge and knuckled bottom selvedge.
• Support cables are to be 4mm diameter helicoil and to be the same coating quality as the chain link fabric.
• All tie wires and clips to be 2mm and to be the same coating quality as the chain link fabric.
• Every second chain link diamond on top rail and every second chain link diamond on bottom rail are to be individually secured using double wrapped tie wire. Continuous lacing is not acceptable.
• Chain link fabric is to be placed on the outside of posts and strained taut and secured to each support cable, all rails, all posts and bracing rails with tie wires, except at the end posts and gateposts.
• At the end posts and gateposts the every chain link diamond is to be individually secured using double wrapped tie wire to end posts, internal corner posts and gateposts.
• The space between the bottom selvedge of the chain link fabric and the ground will be sufficiently small to clear the surface and maintain security.

4.2 Posts and Rails

• Corner posts are to be galvanised pipe DN50.
• Intermediate posts are to be galvanised pipe DN40.
• Single gate posts are to be galvanised pipe DN50.
• Double gate posts are to be galvanised pipe DN80.
• Top rail posts are to be galvanised pipe DN32.
• Bottom rails are to be galvanised pipe DN32.
• All posts must be completed with Galvabond steel cap.
• Bracing rails, bracing stays and back stays if required are to be provided without joints and will be 32mm extra light nominal bore.
• All rails will be securely connected to posts with galvanised bolted split clamp.

4.3 Post footings

• End/corner posts are to be 250mm minimum diameter x 7500mm minimum depth with not less than 20Mpa in strength concrete footings.
• Intermediate posts are to be 250mm minimum diameter x 600mm minimum depth with not less than 20Mpa in strength concrete footings.
• Above ground concrete finish is to be domed with steel trowel finish to eliminate water lying at base of posts and is to be completed at time of original concrete pour.
• Ends of the support cable wire are to be firmly secured to all terminal posts.
• Where specified, a top rail is not used, then the top support cable is to be positioned one half-diamond below the top selvedge of the chain link fabric.
• The bottom support cable is to be positioned not more than one diamond above the bottom selvedge of the chain link fabric.
• Knotted joins in cable wire are not permitted.

4.4 Gates

Gates to be manufactured from medium-quality galvanised pipe to comply with AS1725-2003 and AS1163 grade (C25OLO) and in accordance with AS1725 - 2003 Clause 3.11. The galvanised (zinc) coating on the steel pipes will comply with AS/NZ 4792.
4.4.1 Single leaf gate

- Maximum width of gate to be 2400mm.
- Gate outer frame to be constructed of DN25 and inner frame of DN20. Design to be in accordance with AS 1725-2003.
- Gates to open 180 degrees and lock back against fence line where ground contours allow.

4.4.2 Double-leaf gate

- Gate outer frame to be constructed of DN25 and inner frame of DN20. Design to be in accordance with AS 1725-2003.
- Post footings are to be in accordance with the table shown in the Australian Standard AS 1725-2003 or as specified separately not less than 20Mpa in strength concrete footings.
- Above ground concrete finish is to be domed with steel trowel finish to eliminate water lying at base of posts and is to be completed at time of original concrete pour.
- All joints will be fully welded, staggered welding will not be allowed.
- Flag drop bolt or similar locking mechanism is to be no less than 1200mm in length from the bottom of each individual gate and made from 16 mm diameter round, galvanised, plain carbon. Steel is to be fitted to each double-leaf gate for the provision of locking the gates.
- Galvanised ground pipes will be provided at ground level to hold the gates in both the open and closed position. Care is to be taken that such devices do not present a trip hazard. Doming of concrete will be sufficiently high enough to prohibit the ingress of dirt and is to be painted yellow to indicate possible trip hazard.
- Flag bolt lug is to be elongated in height and be bolted to closing post.
- Locking lugs are to be welded to the frame to accommodate the flag bolt in the closed position.
- Two coats of approved zinc-rich paint will be applied to all galvanised surfaces damaged by welding.
- The height of the gate is to match the height of the fence (allowing for sufficient minimum ground clearances).
- The gate will be covered with chain link fabric to match the fence. The chain link fabric will be tied individually to gate frame on every chain link diamond to gate frame and along internal member.
- Gate hinges are to be heavy duty to prohibit removal of the gate.
- Trip-type catches are to be fitted to gates to deter slam closing.
- Gates to open 180 degrees and lock back against fence line where ground contours allow.

4.5 Base plates

Base plates can be installed where suitable concrete pavement or similar surfaces are available.

- If required, there are to be 4 holes in a heavy duty baseplate.
- The base plates are to be fixed with heavy duty galvanised dyna bolts to the concrete.
- Posts are to be fully secured and the bolt nuts are welded or buried to prevent removal.
Section 5 – Security Fence Type 3

Welded wire boundary fence for use near creeks or in rural areas.

Fence to be used predominantly but not exclusive to areas not visible to the general public eg near creeks or in rural areas including sporting and agricultural areas. In special circumstances, when powder coated, the fence may be used on street frontages. Provisions of Section 2 apply.

5.1 Panels

- Welded wire mesh panels have two horizontal presses, foiled bottoms and spiked top.
- Height is to be between 2000mm and 2400mm.
- Height over 2100mm is to be achieved by fitting rolled top and bottom panel of 900mm, 1200mm, 1500mm, or 1800mm, underneath 2100mm high panels with two horizontal presses, rolled bottoms and spiked top.
- Length is to be 2400mm.
- Mesh is to be 50mm horizontal spacing x 75mm vertical spacing x 5mm diameter wire.
- Panels are to be hot dip galvanised after manufacture.
- All panels are to be fitted with U clips, total number to be determined by total height of panel/s and predrilled holes in posts.

5.2 Fence Posts

- Posts are to be 50mm nominal bore (NB)/60.3mm outside diameter medium grade galvanised steel pipe, for heights of 2100mm and 2400mm. Wall thickness is to be 3.6mm.
- Posts are to be 80mm nominal bore /88.9mm outside diameter medium grade galvanised steel pipe for heights of 3300mm, 3600mm and 3900mm where specified. Wall thickness is to be 4mm.
- Length is to suit total height of panels, with allowance for 900mm of post installed into concrete footing in ground.
- Each post can be drilled with 11, 12, 13, or 14 x 10mm holes, dependant upon total height of combined panels and must include a hole to enable stepping of panels where necessary.
- Posts must be capped with galvanised steel caps.

5.3 Fittings
- Galvanised U clips must be fastened to posts at each predrilled hole.
- Hexagonal head galvanised bolts and nuts are to be:
  - M8 x 90mm for 50mm NB posts
  - M8 x 100mm for 80mm NB posts
  - M8 x 150mm for 100mm NB posts.

5.4 Gates
5.4.1 Single Gates
- Maximum width is to be 2400mm.
- Height is to be 2100mm to 2400mm with spike top.
- Gates are to be constructed of 32mm nominal bore galvanised steel pipe frame and internal bracing. Spike top is to protrude approx 50mm above top of gate frame, level with top of gate stile.
- Weld mesh infill is to match fence panel - 50mm x 75mm x 5mm.
- Gate must be complete with internal Broadhurst or similar protected/encased locking mechanism and hand hole 1500mm from bottom of gate. Weldmesh infill is to remain over hand hole, slide bolt is to be lockable in both the open and closed position.
- Broadhurst or similar protected/encased locking mechanism is to have 20mm diameter steel bar.
- Broadhurst lug is to be bolted to closing post.
- Gate will be equipped with an 850mm lockable drop bolt. Where it is not possible to engage the drop bolt to ground level then provision is to be made for the installation of a post comprising 65mm x 65mm x 2.5mm Galvabond steel post to a height of 1800mm.
- Each leaf is to have a 32mm nominal bore internal stile between the middle and bottom rails, with a 100mm space with no mesh from the closing stile, to allow external access to the drop bolt and lock.
- Gate must have clamped on type galvanised steel hinges that are bolted or welded to posts.
- Gates are to open 180 degrees and lock back against fence line where ground contours allow.

5.4.2 Double Gates
- Total maximum width is to be 4800mm.
- Height is to be 2100mm or 2400mm with spike top.
- Gates must be constructed of 32mm nominal bore galvanised steel pipe frame and internal bracing. Spike top is to protrude approx 50mm above the top of the gate frame level with the top of the gate stile.
- Weld mesh infill is to match fence panel – 50mm x 75mm x 5mm.
• Gates must be complete with internal Broadhurst or similar protected/encased locking mechanism and hand hole, 1500mm from the bottom of the gate; weld mesh infill is to remain over the hand hole. Slide bolt is to be lockable in both the open and closed position.
• Broadhurst or similar protected/encased locking mechanism is to have 20mm diameter steel bar and two lugs, or one lug of sufficient width, bolted to closing post to receive the shot bolt, to prevent gates opening when drop bolts are not closed and/or locked.
• Gates must be complete with lockable drop bolts (850mm in length) on each leaf where drop bolts do not reach the ground when the gates are open. Gates will be equipped with an 850mm lockable drop bolt. Where it is not possible to engage the drop bolt to ground level then provision is to be made for the installation of a post comprising 65mm x 65mm x 2.5mm Galvanbond steel post to a height of 1800mm. Each leaf is to have a 32mm nominal bore internal stile between the middle and bottom rails, with a 100mm space with no mesh from the closing stile, to allow external access to the drop bolt and lock.
• Gates are to be fixed by galvanised steel hinges that are bolted or welded to the posts.
• Gates are to open 180 degrees and lock back against fence line where ground contours allow.

5.4.3 Gate Posts

• Posts will be 100mm nominal bore, with 114.3mm outside diameter, medium grade, pre-galvanised, steel pipe.
• Wall thickness is to be 4.5mm.
• Posts are to be capped with pre-galvanised steel caps.

5.4.4 Specific Coating System

Coating will be completed in accordance with Options 1 and 3 only, as directed in accordance with Clause 3.7.
Section 6 – Photos

Photo 1 - Double Gate hinge

Photo 2 - Single Gate Hinge
Photo 3 - Single Gate Hinge

Photo 4 - Anti Tamper screw, approx 30mm long
Photo 5 - Type 1 gate
Photo 6 - Extension on vertical gate stile to allow gate to open 180 degrees
Photo 7 - Acceptable pad bolt (with drop down sheath) for single gates. No drop bolt required. Gate must be able to be locked in open position.
Photo 8 - Infill bar to reduce space beneath pickets for uneven ground.

Photo 9 - Infill bar to reduce space beneath pickets for uneven ground.
Photo 10 – Mesh infill panel fixing