INFRASTRUCTURE SERVICES DIVISION

Specification for school security fencing

Disaster, Emergency and School Security

Version 5.1 | August 2026

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Refer to Design Standards for Queensland Government education facilities[1] to ensure you have the most current version of this document

1 qed.qld.gov.au/publications/standards/design-standards-for-doe-facilities

Contents

Introduction 1
General requirements 1
- **Procedures and standards** 1
  - Australian standards and legislation 1
  - Department of Education documentation 2
  - Quotations 2
  - Exclusions 2
  - Disclaimer 2

Site specific requirements 3
- **Location of services** 3
- **Removal of existing fencing** 3
- **Electrical and public infrastructure** 3
- **Access points** 3
- **Flora** 3
- **Drainage** 3

Requirements for installation 4
- **Security fencing summary** 4
- **Requirements for pre-treatment and coating** 5
  - Cleaning and chemical pre-treatment 5
  - Minimum coating requirements 6
  - Coating required in corrosive environments 6
  - Paint coating 6
- **Clearance** 7
- **Welding** 7

Panels 7
- **Panel fittings** 7

Posts 8
- **Posts and post holes summary** 8
- **Post footings** 8

Gates 10
- **Vehicle gates** 10
  - Hinged gates summary 11
  - Other information 11
  - Sliding gates 12
  - Returns 12
  - Gate fittings 13
  - Gate posts 13

Block walls/celebrated entryways 14
Padlocks 14
Key safe 14
Definitions 15
Example images 16
Appendix A: Maintenance of security fencing 22
- **General maintenance** 22
- **Safety and emergency** 22
- **Coded key safes** 22
- **Signage** 22
- **Gate automation and/or additions to the security fence** 22

Appendix B: Gate automation and access control installations 23

Introduction

This document has been developed by the Queensland Department of Education (the department), to outline the minimum requirements for construction and installation of school security fencing. **Security fencing is fencing installed for the identified purpose of providing a physical security barrier to school premises to protect department assets, infrastructure and people.**

For information about other fencing, including pool fences, internal safety fences and fences to department-owned facilities, refer to the current Design standards for Queensland Government education facilities[1].

General requirements

Security fencing is constructed from panels of spear-top steel pickets and rails, manufactured from galvanised steel tube, in accordance with AS 1450: Steel tubes for mechanical purposes and *AS 1397: Continuous hot-dip metallic coated steel sheet and strip – Coatings of zinc and zinc alloyed with aluminium and magnesium* to a steel grade of C250. Posts are to be manufactured from galvanised steel tubing, in accordance with *AS 1163 Cold-formed structural steel hollow sections* and AS 1397, to a steel grade of C350.

Security fencing must be no less than 2100 mm in height and powder-coated black in alignment with the principles of invisible design. No other colours are supported.

Aluminium, or any materials other than those noted in this document must not be used for security fencing.

Procedures and standards

All works to install or maintain security fencing at schools are to be completed to the relevant manufacturer requirements and compliant with:

Australian standards and legislation

- AS/NZS 4750: Electrogalvanised (zinc) coatings on ferrous hollow and open sections
- AS 1163: Cold-formed structural steel hollow sections
- AS 1397: Continuous hot-dip metallic coated steel sheet and strip – Coatings of zinc and zinc alloyed with aluminium and magnesium
- AS 1725.1: Chain link fabric fencing – Security fences and gates – General requirements
- AS 2423: Coated steel wire fencing products for terrestrial, aquatic and general use
- AS 4792: Hot-dip galvanised (zinc) coatings on ferrous hollow sections, applied by a continuous or a specialised process
- AS 4506: Metal finishing – Thermoset powder coatings
- AS 1450: Steel tubes for mechanical purposes
- AS 4680: Hot-dip galvanised (zinc) coatings on fabricated ferrous articles
- AS/NZS 1554.1: Structural steel welding – Welding of steel structures
- AS 4312: Atmospheric corrosivity zones in Australia
- AS 1742.13: Manual of uniform traffic control devices – Local area traffic management
- AS 3700: Masonry structures
- AS 1170.2: Structural design actions – Wind actions
- AS 2870: Residential slabs and footings
- AS 4373: Pruning of Amenity Trees
- AS 4970: Protection of Trees on Development Sites
- *Workplace Health and Safety Act 2011*

1 qed.qld.gov.au/publications/standards/design-standards-for-doe-facilities

Department of Education documentation

- Design standards for Department of Education facilities[1]
- Working on Department of Education facilities[2]
- Asbestos management procedure[3]
- Asbestos incident management procedure[4]
- Standing Offer Arrangement for Security Fencing[5]

Quotations

Quotations for security fencing are to be submitted in accordance with the department's tender process and must include:

- Pre-start site meeting
- Documentation of site-specific requirements
- Handover documentation and user training
- Types and quantities of equipment
- Labour and travel as individual amounts

Exclusions

The scope of this specification is limited to security fencing. For all other types of fencing, direction should be taken from the Design standards for Queensland Government education facilities[1]. The scope of this specification does not include fencing of swimming pools.

Disclaimer

Whilst every care has been taken in the preparation of this publication, the State of Queensland accepts no responsibility for decisions or actions taken because of any data, information, statement or advice, expressed or implied, contained within. To the best of our knowledge, the content was correct at the time of publishing.

Any references to legislation are not an interpretation of the law. They are to be used as a guide only. The information in this publication is general and does not take into account individual circumstances or situations.

For more information, contact Disaster, Emergency and School Security on SchoolSecurity@qed.qld.gov.au.

2 education.qld.gov.au/about-us/reporting-data-research/reporting/asbestos-management/service-providers-contractor
3 ppr.qed.qld.gov.au/pp/asbestos-management-procedure
4 ppr.qed.qld.gov.au/pp/asbestos-incident-management-procedure
5 intranet.qed.qld.gov.au/Services/Procurement_Purchasing/Supplyarrangements/Pages/security-fencing-for-educational-facilities.aspx

Site specific requirements

Location of services

- Identification of all underground services (e.g., water, gas, electricity, communication lines) should take place before work commences.
- Approval from the relevant service provider should be obtained before installing fencing within 1.5 metres of underground electrical or communication lines.
- Any services, surfaces, or finishes damaged during construction should be rectified at the earliest opportunity.
- Any fencing installed within the grounds (e.g. administration block isolation fencing), will require post holes to be vacuum-dug to minimise the risk of damaging underground services.

Removal of existing fencing

The removal and disposal of existing fencing, along with any necessary remediation work, is required where new security fencing is being installed, unless otherwise directed by the department.

Existing fence posts must not be re-sleeved. Any posts that cannot be removed must be cut flush with the ground and filled with concrete to ensure a level surface.

Electrical and public infrastructure

The contractor is to redirect the fence as required to ensure clearance around any electrical infrastructure as required by the relevant standards. Other public infrastructure, including fire hydrants, require a minimum of 1.5 metres clearance for access.

Access points

Access for emergency services and mobile dental clinics must be maintained during installation works, as required.

Flora

Tree removal or pruning must strictly follow the project's scope of work. Pruning must comply with AS 4373-2007 Pruning of Amenity Trees and all tree works must comply with AS 4970-2009 Protection of Trees on Development Sites, including tree protection zone requirements such as vacuum digging new post holes. A supervising level 5 arborist must provide a post-work installation report to the department upon completion. For works on council land, an arborist approved specified by the relevant council must supervise.

The contractor must remove or trim trees and shrubs which may obstruct fence installation or pose a climb risk. In addition, the contractor must comply with tree directions as outlined in the arborist report.

Any replacement planting should take into consideration the selection and placement of vegetation to ensure it does not obstruct sightlines, create concealed areas, or hinder natural surveillance. Refer to the Design standards for Queensland Government education facilities[1] for more information.

Drainage

Where raised roadway concrete plinths or speed bumps are installed, the existing road guttering is to remain clear and able to sufficiently drain water. Where concrete plinths are required to extend over gutters for sliding gates, drainage points should be installed over existing gutters. Suitable drainage points are to be installed where required to avoid any water pooling behind or in front of the installation during wet weather.

Requirements for installation

Security fencing summary

Manufacture

Steel pickets and rails, manufactured from galvanised steel tubing, in accordance with AS 1450 and AS 1397 to a steel grade of C250:

Grade designation	Type of analysis	Chemical composition (max %)					Carbon equivalent (max %)
		C	Si	Mn	P	S	
C250	Cast	0.25	0.40	—	0.04	0.04	0.44
	Product	0.29	0.45	—	0.05	0.05	—

Height

Minimum 2100 mm above ground level.

Panels

Minimum 2400 mm, maximum 2500 mm.

Maximum 100 mm ground clearance.

Rails

Number of rails: 2.

Rail centres: 1690 mm–1770 mm.

Rail measurements: 40 mm × 40 mm × 2 mm thickness.

Top rail position: 200 mm–270 mm from the top of pickets.

Pickets

25 mm × 25 mm × 1.6 mm in thickness × 2100 mm in length, punched through 40 mm square × 2.0 mm rails, and welded on alternative sides of the top and bottom of both rails with silicon bronze wire.

Cut and pressed (crimped) to form a spear point top. Spear tops are to be made from the same piece of steel tubing as the picket and not attached after manufacture.

115 mm between picket centres.

Posts

Galvanised steel tubing, in accordance with AS 1163 and AS 1397 to a steel grade of C350:

Grade designation	Type of analysis	Chemical composition (max %)					Carbon equivalent (max %)
		C	Si	Mn	P	S	
C350	Cast	0.22	0.50	1.60	0.04	0.04	0.49
	Product	0.26	0.55	1.70	0.05	0.05	—

Straightline posts: 75 mm × 75 mm × 3 mm thickness × 3000 mm length.

Corner posts: 100 mm × 100 mm × 4 mm thickness × 3000 mm length. Minimum 2100 mm above ground level.

Vehicle gate posts: 150 mm × 150 mm × 5 mm thickness × 3000 mm length. Minimum 2100 mm above ground level.

Post cap: Matching galvanised steel cap to conform with AS 1450 and AS 1397, secured internally with a black self-drilling anti-tamper Class 3 screw.

Post footings: 250 mm minimum diameter with concrete footings not less than 20 MPa in strength. Above ground concrete finishes are to be domed with a steel trowel finish, to eliminate water lying at the base of posts at the time of the concrete pour.

Post spacing: 2400 mm minimum, 2500 mm maximum.

Welding

Welded on alternative sides of the top and bottom of both rails, with silicon bronze wire (i.e., four welds per picket), as per Figure 1 and Figure 2 on page 5.

Coating

Requirements outlined below and determined by the Corrosion Category of the installation location as defined in AS 4312: Atmospheric corrosivity zones in Australia.

Perforated metal panels

Perforated metal panels to feature a minimum 50% aperture, attached with black self-drilling anti-tamper Class 3 screws larger than the perforated holes.

Where the specific use case requires an alternative to picketed security fencing panels (e.g., for sports courts), approval to use security mesh panels may be granted by the School Security unit instead of perforated metal panels.

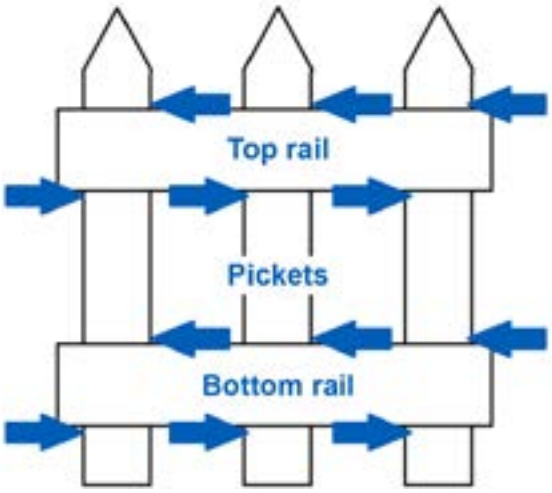


Figure 1. Picket welding in 2D view

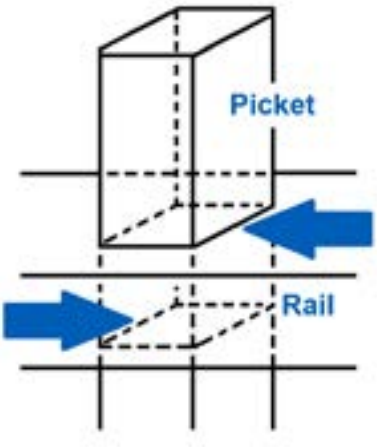


Figure 2. Picket welding in 3D view

Requirements for pre-treatment and coating

The department may have fencing material tested at random by a NATA registered company to ensure that all materials and treatments meet these specifications.

Cleaning and chemical pre-treatment

The application of cleaning and chemical pre-treatment 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.
- All sharp edges and uneven protrusions are to be removed.
- Surfaces that show white storage stain (white rust) or other corrosion products, must be cleaned, degreased and pre-treated for optimal performance. Silicone based anti-spatters are not to be used as they may lead to de-wetting of the powder.

Pre-treatment is to be carried out in accordance with classification D (high marine/industrial) as per AS 4506: Metal finishing – Thermoset powder coatings.

Pre-treatment and coating thickness requirements summary

Atmospheric classification	High marine industrial.
Substrate	Zinc, zinc alloys, steel (zinc coated).
Pre-treatment	Zinc phosphate, or appropriate primer system, or chrome chromate or chrome phosphate.
Minimum coating thickness (µm)	60.
Required test	Adhesion cure, thickness, neutral salt spray, humidity, permeability, durability, holiday.

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.

Minimum coating requirements

For installations located in Corrosion Category C3 (coastal or industrial land, with a mild steel corrosion rate of 25 to 50 µm/year), as defined by AS 4312: Atmospheric corrosivity zones in Australia, a hot-dip galvanised zinc coating is required. The coating must have a mass of ZB135/135(Z275) in accordance with AS 4792.

Coating mass of ZB135/135 (Z275) summary

Coating class	ZB135/135	**Minimum average coating mass (g/m^2)**	**External/internal:** 135
Minimum local coating mass (g/m^2)	110	**Strip coating class**	Z275

Coating required in corrosive environments

For installations located in Corrosion Category C4 (seashore, with a mild steel corrosion rate of 50–80 µm/year), one of the following coatings is required:

- A zinc, aluminium and magnesium coating (type ZM) with a coating mass of ZM275 as specified AS 1397: Continuous hot-dip metallic coated steel sheet and strip – Coatings of zinc and zinc alloyed with aluminium and magnesium.
- Batch hot-dip galvanised (after fabrication) as per AS 4680: Hot-dip galvanised (zinc) coatings on fabricated ferrous articles.

Type ZM with a coating mass of ZM275 summary

Coating class	ZM275	**Minimum average coating mass (g/m^2)**	**Total both surfaces:** Triple spot: 275 Single spot: 250 **One surface:** Single spot: 110
Minimum coating mass (g/m^2)	110		

Hot-dip galvanised zinc coating (after fabrication) per AS 4680 summary

Article thickness (mm)	Minimum local coating thickness (µm)	Minimum average coating thickness (µm)	Minimum average coating mass (g/m^2)
≤1.53	35	45	320
>1.5 ≤3	45	55	390
>3 ≤6	55	70	500
>6	70	85	600

Note: 1 g/m^2 coating mass = 0.14 µm coating thickness.

Paint coating

An epoxy primer with a thickness of 50–60 µm must be applied to the pre-treated substrate in accordance with AS 4506. A ‘green cure’ is recommended, where the primer is partially cured before applying the topcoat. The topcoat must be a black gloss-finish polyester powder-coating, applied in accordance with AS 4506 to a minimum of 80 µm. The total coating thickness (primer and topcoat) must be 130–140 µm.

In Corrosion Category C3 or C4 environments, a Class 1 abrasive ‘whip’ blast must be applied to the substrate before the epoxy primer.

The polyester powder-coating topcoat must meet or exceed the durability, UV stability, and colourfastness requirements detailed in AS 4506. The powder must be fully cured as per the manufacturer’s specifications.

Clearance

The contractor must ensure clearance of 1.5 metres around objects and services. If this clearance cannot be achieved, panels located where services or foliage are within 1.5 metres of the fence line must be fitted with powder-coated perforated steel panels (to be attached with anti-temper screws with a head size of at least 2 mm larger than the perforations).

Welding

Onsite welding is not permitted without prior approval from the department. Any onsite welding must be performed in accordance with AS/NZS 1554.1: Structural steel welding – Welding of steel structures. Repairs to cut or damaged powder-coated materials must use an appropriate anti-corrosion treatment and coating system that provides equivalent protection and appearance to the original finished product.

Vertical pickets must be welded on alternate sides of the top and bottom of both rails, with silicon bronze wire, as illustrated in Figure 1 and Figure 2 on page 5.

All welds must be fully rust-proofed and finished to match the fence colour. Finished panels must be fully powder-coated to meet the minimum coating requirements outlined in this specification. Pickets are not required to be punched through the bottom rail but are to meet flush with the rail and welded either side of the picket. Each picket shall have a total of two welds per cross rail welds.

Panels

2400 mm minimum and 2500 mm maximum for standard panels. Stepped panels must be a minimum width of 1200 mm.

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

All panels are to be fitted with a maximum ground clearance of 100 mm.

Where ground clearance exceeds 100 mm, the panels are to be stepped or raked to achieve clearance of 100 mm unless otherwise specified in the scope of work.

After stepping or raking, in-fills are to be fitted rigidly beneath panels where the ground clearance still exceeds 100 mm. In-fills must not be installed at designated waterways where they will significantly obstruct the natural flow of water. Barbed wire must not be used.

Panel fittings

Panel rails are to be fixed to posts with shrouds. Shrouds must have four pre-punched screw holes.

Each shroud is to be affixed to posts with four black self-drilling anti-tamper Class 3 screws.

The rail is to be fixed to the shroud with one black self-drilling anti-tamper Class 3 screw.

Fixings are to be on the inside of the fence.

Where changes of direction are not 90°, the bracket is to be constructed to suit the angle, and the sleeve is to be purposely made at the required mitre from matching powder-coated material. Internal fitting splay brackets are to be used on angles less than 90°.

Brackets and sleeves must be powder-coated to match finished panels and posts.

Signage required on the fence should affixed directly under the top rail to avoid creating a step/climb point and secured with anti-tamper screws into the pickets.

Posts

Posts and post holes summary

Manufacture	Galvanised steel tubing, in accordance with AS 1163 and AS 1397, to a steel grade of C350.
Height	Minimum 2100 mm above ground level. The top of each post must be higher than the top of either of the adjoining fence panels.
Measurements (straight line posts)	75 mm × 75 mm × 3 mm thickness × 3000 mm in length.
Measurements (corner posts)	100 mm × 100 mm × 4 mm thickness × 3000 mm in length.
Measurements (vehicle gate posts)	150 mm × 150 mm × 5 mm thickness × 3000 mm in length.
Post cap	Matching galvanised steel cap to conform with AS 1450 and AS 1397, secured to the top of the fence post internally using a colour matching self-drilling anti tamper Class 3 screw.
Post footings	250 mm minimum diameter with concrete footings not less than 20 MPa in strength. Above ground concrete finishes are to be domed with a steel trowel finish, to eliminate water lying at the base of posts at the time of the concrete pour.
Post spacing	2400 mm minimum, 2500 mm maximum, excluding custom panels.
Coating	Fully powder-coated as outlined in Minimum coating requirements on page 6.

Post hole excavation must be limited to areas that can be backfilled the same day and are within the temporary fence. Control measures, as outlined in the Work Health and Safety Management Plan, must be implemented to prevent trip and subsidence hazards.

Posts installed onto concrete are to be secured in place with a minimum 5 mm steel base plate, coated to meet the minimum coating requirements outlined in this specification. All posts where the fence line changes direction are to be 100 mm × 100 mm × 4 mm box section steel unless otherwise specified.

Where security fencing joins a chain link fence, the rails are to be fitted to the security fencing post using suitable brackets with a powder-coated galvanised steel end post fixed between rails. The chain link should be fixed to the galvanised post.

Post footings

Requirements for the depth of post footings are dependent on:

- The wind region and terrain categories of the project location, as per AS 1170.2 2011, Structural design actions – wind actions.
- The site classification of the soil type of the project location as per AS2870-2011, Residential slabs and footings.

All posts must be centered within the concrete footing.

Requirements for post footing depths are outlined in the table as part of Figure 3 on page 9.

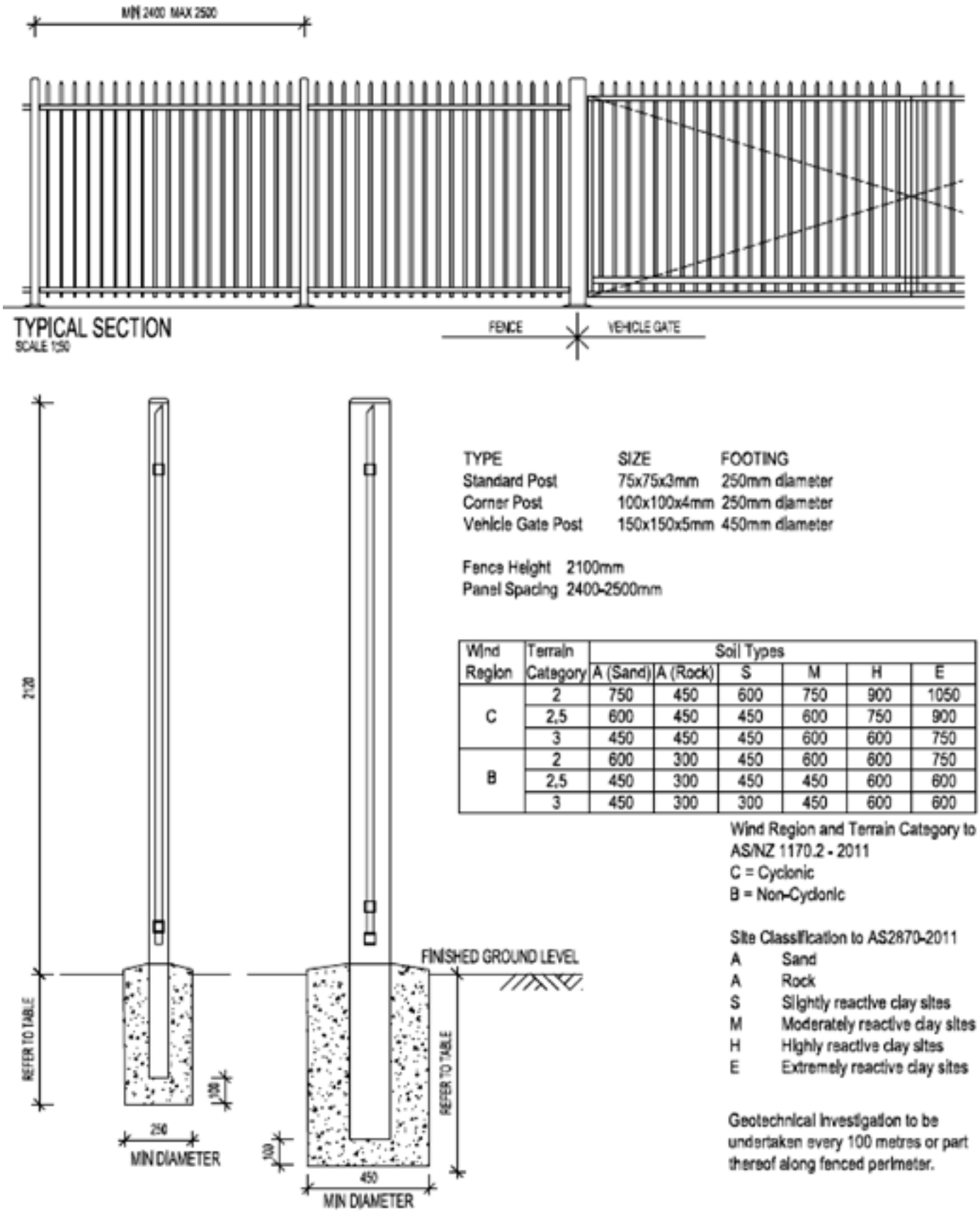


Figure 3. Post footing depths

Gates

The contractor is to allow for the following types and sizes of gates:

Hinged single pedestrian gates	1–3 metres	**Sliding gates**	As required, manufactured as a single piece
Hinged double vehicle access gates	2.4–7 metres	**Cantilever gates**	As required

Gates must open inwardly where possible, with the opening width being equal to or less than the installed concrete path or driveway.

Receiving latches must be installed to enable gates to be secured with heavy duty padlocks (keyed to the site's master keying system) in both open and closed positions.

Galvanised ground sleeves for drop bolts must be concreted in place to prevent trip hazards. Ground domes must be high enough to block dirt/water ingress and painted yellow to highlight potential hazards.

Anti-tamper bolts must be used for all panel and gate hinge fixings to prevent unauthorised removal.

Speed humps must be installed under vehicular gates if ground clearance exceeds 150 mm, in compliance with AS 1742.13: Manual of uniform traffic control devices – Local area traffic management.

Shroud fixings are to be on the inside of the fence wherever possible, unless prevented by bracket positioning.

All pedestrian gates not constructed over existing roadways or paths where the existing surface is not of a suitable solid manufactured base will require a reinforced concrete strip between and including the gate posts. Concrete strips at pedestrian gates are to be no less than 400 mm wide and 150 mm deep.

Safety lanyard chains must be fitted to hinged gates to minimise falls in the event of hinge failure. Any gates in isolation fencing intended to be used for staff/student egress during school days must open outwards and have controls operable by students and staff with a disability. Where free handle egress is required, it must not be possible to access the handle on the opposite side of the door to override the locking mechanism from outside.

Vehicle gates

High activity vehicle gates should be automated. Sliding gates are the preferred option for high activity vehicle gates that will be automated or where gated entry point is in excess of 7 metres. Where a sliding gated entry point is in excess of 7 metres, or where larger sliding gates may be difficult to operate manually on a regular basis, automation should be considered.

Vehicle access gates must be set back within the property boundary to ensure safety, allowing vehicles to pull off the road while the gate is being opened or closed wherever possible.

All vehicle gates not constructed over existing roadways where the existing surface is not of a suitable solid manufactured base will require a reinforced concrete strip between and surrounding the gate posts. Concrete strips at vehicle gates are to be no less than 400 mm wide and 300 mm deep.

Where there are valid traffic safety concerns, and with prior approval from the department, gate returns may be splayed to improve visibility of passing vehicles and pedestrians.

Hinged gates

For pedestrian access, single or double, inwardly opening hinged gates are preferred. Gates in the opened position must not encroach into any area outside the property boundary, footpath or roadway. Where the terrain does not allow for the installation of a hinged gate, sliding gates may be considered.

Hinged gates must be designed to lock securely in both fully open and closed positions and fold back 180° where ground contours allow.

Hinged gates summary

Manufacture	Steel pickets and rails, manufactured from galvanised steel tubing, in accordance with AS 1450 and AS 1397 to a steel Grade of C250.
Measurements	50 mm × 50 mm × 3 mm thickness square box section vertical stiles. 50 mm × 50 mm × 3 mm thickness square box section horizontal stiles. 25 mm × 25 mm × 1.6 mm thickness vertical pickets to match panels.
Height	Minimum 2100 mm above ground level.
Rails	**Number of rails:** 3, twin bottom 50 mm square box section rails are to be fitted to bottom of the gate to provide reinforcing. **Rail centres:** 1690 mm–1700 mm (dependent on height of picket above rail) from top to middle rail. The gap between the two bottom parallel rails is not to exceed 100 mm. **Top rail position:** 200 mm–270 mm from the top of pickets. **Rails measurement:** 50 mm × 50 mm × 3 mm thickness square box section horizontal rails.
Pickets	25 mm × 25 mm × 1.6 mm in thickness × 2100 mm in length, punched through 50 mm square × 3 mm rails, and welded on alternative sides of the top and middle rails, and also either side of the picket on the bottom rail, with silicon bronze wire. **Picket spacing:** standard 115 mm between picket centres. **Picket tops:** Cut and pressed (crimped) to form a spear point top. Spear tops are to be made from the same piece of steel tubing as the picket and not attached after manufacture.
Hinges	Hinges must be of a colour matching the fencing product. Gates to areas used by Outside School Hours Care are to include self-closing hinges.
Welding	Vertical pickets are to be punched through the top and middle rails, and welded on alternative sides of the top and bottom of the top and middle rails with silicon bronze wire (see Figure 1 and Figure 2 on page 5). Pickets are not required to be punched through the bottom rail but are to meet flush with the rail and welded either side of the picket. Each picket shall have a total of two welds per cross rail or as outlined in the scope of works.
Coating	Fully powder-coated as outlined in Minimum coating requirements on page 6.

Other information

All gates must be designed to allow locking with padlocks in both fully open and closed positions.

Where possible, hinged gates must be designed to be padlocked to the fence line in the open position using a lock-back tab. If this is not feasible, an additional yellow post or yellow 'cow-bell' style steel brackets must be installed to secure the gate in the open position at an appropriate angle.

Ground sleeves are to be installed for the security of drop bolts with the gates in the open and closed position, to eliminate any tripping hazards.

All gates are to be fitted with 20 mm slide bolts and Broadhurst lock boxes and padlocks to each securing point. These locks and bolts are to be supplied by the contractor. ABUS 83/50 series padlocks with 50 mm vertical shackles, or equivalent are to be used. Shackle-less padlocks are to be fitted to all slide bolts. The slide bolt should be fitted internally, immediately above the parallel centre.

Sliding gates

Sliding gates are to be guided through a minimum of 2 tunnel posts comprising 100 mm × 100 mm × 4 mm posts. A 40 mm × 10 mm × 50 mm lug is to be welded with a 20 mm hole to secure the gate in the open and closed position. There must be a slot in the catcher bracket to receive the lug welded on the gate. The lug is to be constructed to accommodate a padlock.

Sliding gates summary

Manufacture	Steel pickets and rails, manufactured from galvanised steel tubing, in accordance with AS 1450 and AS 1397 to a steel grade of C250.
Sizes	As required, manufactured as a single piece. Sliding gate panels are to be a minimum of 600 mm longer than the gate opening.
Measurements	50 mm × 50 mm × 3 mm thickness square box section vertical stiles. 50 mm × 50 mm × 3 mm thickness square box section horizontal stiles. 100 mm × 50 mm × 3 mm thickness bottom rail. 25 mm × 25 mm × 1.6 mm thickness vertical pickets to match panels.
Height	Minimum 2100 mm above ground level.
Rails	**Number of rails:** 3 total. Top and middle rail are to be 50 mm square × 3 mm thickness box section horizontal rails. 100 mm × 50 mm × 3 mm thickness box section rail is to be fitted to the bottom of the gate to provide reinforcing. **Top rail position:** 200 mm–270 mm from the top of pickets. **Rail centres:** 1690 mm–1700 mm (dependent on height of picket above rail) from top to middle rail. The gap between the two bottom parallel rails is not to exceed 100 mm.
Pickets	25 mm × 25 mm × 1.6 mm in thickness × 2100 mm in length, punched through 50 mm square × 3 mm rails, and welded on alternative sides of the top and middle rails, and either side of the picket on the bottom rail, with silicon bronze wire. **Picket spacing:** 115 mm between picket centres. **Picket tops:** Cut and pressed (crimped) to form a spear point top. Spear tops are to be made from the same piece of steel tubing as the picket and not attached after manufacture.
Wheels	Double bearing bottom wheels with upper nylon guide rollers.
Track	Galvanised steel track comprising 90 mm × 6 mm plate with 20 mm solid rod welded on centre line, with 2 × 12 mm holes, 50 mm in from edges at 500 mm centres. Track to be fixed to concrete slab with 10 mm × 50 mm galvanised expansion bolts. Concrete slab under track to be length of gate + sliding range × 400 mm × 300 mm deep.
Catcher bracket/ stopping post	100 mm × 100 mm × 5 mm post with steel guide to accommodate impact of gate when in the open position. Post is to be fixed in position with four heavy duty galvanised expansion 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.
Welding	Pickets are not required to be punched through the bottom rail but are to meet flush with the rail and welded either side of the picket. Each picket shall have a total of six welds.
Coating	Fully powder-coated as outlined in Minimum coating requirements on page 6.
Cantilever gates	Engineered with sufficient tail length and counterweight to ensure safe operation. Designs should be signed off by an engineer or supplier for gates over 3 metres.

Returns

Where a security fence meets a different type of fence (e.g., timber or brick) this may create a step point. To ensure adequate security for the school, the security fence must connect to the private fence and include a step-back return along the adjoining property boundary.

Returns are also required where the security fence is to adjoin to a pre-existing internal fence in the school grounds.

Returns required will be detailed in the project's scope of work.

Gate fittings

Double gates are to have internal flag bolts or similar locking mechanism no less than 1200 mm in length from the 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 mechanisms are to have a 20 mm diameter steel bar.

Flag bolt lugs are to be elongated in height and to be bolted to the closing post. Locking lugs are to be welded to the frame to accommodate the flag bolt in the closed position.

Perforated metal is to be affixed against the gate stile. 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). The cut edges of perforated panels are to be finished to remove any sharp edges.

Gate posts

Posts are to be secured in place with a 5 mm (minimum) steel bracing plate, coated to meet the minimum coating requirements outlined in this specification.

Gate posts summary

Manufacture	Galvanised steel tubing, in accordance with AS 1163 and AS 1397, to a steel grade of C350.
Measurements (gates up to 5 metres)	100 mm × 100 mm × 4 mm thickness × 3000 mm in length.
Measurements (gates over 5 metres)	150 mm × 150 mm × 5 mm thickness × 3000 mm in length.
Height	Minimum 2100 mm above ground level.
Post cap	Matching galvanised steel cap to conform with AS 1450 and AS 1397, secured to the top of the fence post using a colour matching self-drilling anti tamper Class 3 screw. 100 mm and 150 mm post caps are to have two screws fitted from opposing ends.
Post footings	450 mm minimum diameter with concrete footings not less than 20 MPa in strength. Requirements for the depth of post footings are detailed in Post footings on page 8. For pedestrian use gates, a concrete plinth 400 mm wide × 150 mm depth is to be installed between gate posts. Concrete plinth to be poured at the same time as the post doming. For vehicle use gates, a concrete plinth 400 mm wide × 300 mm depth is to be installed between gate posts. Concrete plinth to be poured at the same time as the post doming. The above-ground concrete must be domed with a steel trowel finish to prevent water from pooling at the base of the posts. Any excess concrete around the post must be removed during remediation work. The doming of concrete at the base of posts must be completed during the initial concrete pour. Adding a cap or additional material after the concrete has set is not permitted.
Coating	Fully powder-coated as outlined in Minimum coating requirements on page 6.

Block walls/celebrated entryways

Where block walls are included as part of a project's scope of work for a celebrated entryway, the wall height should be 100 mm above the total height of the fence line. Anti-climb product is to be fitted to the top front edge of the block wall. Anti-climb top consisting of a colour-matched powder-coated steel strip with a single row of flat-pressed triangular points no sharper than 30º, and 20–30 mm in height.

Product is to be manufactured from 3 mm thick galvanised steel sheet and powder-coated to Z275 standard.

The contractor is to redirect the fence as required to allow at least 1.5 metres of clearance around any existing block walls which could create step points.

Any block walls or retaining walls built as part of the project must have relevant Council approvals, be assessed and certified by a qualified engineer, and comply with the requirements of AS 3700: Masonry structures.

Padlocks

The contractor is to supply heavy-duty padlocks (ABUS 83/50 or equivalent) to allow all gates to be locked. Padlocks are to be keyed to the school registered master key system. All padlocks are to be key retaining style locks, holding keys until padlocks are secured. One key per gate is to be supplied, keyed to the schools existing key system. Keying of padlocks must be at the lowest zoning level of the school's key system. Keys provided are to open the gate padlocks only.

Key safe

Key safes are to be heavy duty, vandal and weather resistant, constructed from zinc die-cast or equivalent and feature a resettable pin code pad (e.g., ABUS KG 747). Key safe and housing should be fitted to a post at the top rail height. Quantity and location of keys safes will be included in the project's scope of work but should include the main vehicle entry gate at a minimum.

Definitions

Term	Definition
Blending	The procedure for ensuring post construction modifications or enhancements to the final product are finished in the same colour and finish as the original material.
Department	Queensland Department of Education.
Galvanised steel	Steel manufactured in accordance with AS 1450 and AS1163, in a protective coating obtained by dipping (immersing) prepared steel in a bath of molten zinc of purity not less than 98%.
Materials	The raw materials later used in the construction of a fence. This includes metal tubing used for posts, rails, uprights, wooden posts, wooden rails, palings, screws, nails, welding rods. Materials can also include protective coatings such as galvanising, powder-coating, stains and paint.
NATA	National Association of Testing Authorities of Australia.
Picket	Vertical upright forming fencing panels.
Post hole	Also referred to as a dig. A machine-drilled or hand dug hole in soil, rock or other material.
Products	The items cut or constructed to form fencing products including posts, capping, fencing panels, hinges, latches. This includes joining methods such as pressing, welding, riveting, adhesion, nailing to complete the product. Products also include concrete for posts and surface barriers.
Rail	Horizontal form of fencing panels.
Security fencing	Fencing installed for the identified purpose of providing a physical security barrier for the protection of school students, staff, visitors and assets. Security fencing is constructed from panels comprised of black spear-top steel pickets and rails, manufactured of galvanised steel tube to a height of 2100 mm.
Shroud	Steel coupling attached to the top and bottom of fence posts to accommodate the rails of fencing panels. Also referred to as a ‘side fixed security bracket’.

Example images

School security fence

Hinged gate

Powder-coated perforated steel infill panel fixings

Infill bars

Sign correctly affixed to fencing

Key safe

Automated gate motor enclosure

H-post

Security mesh ('358' panels)

Close up

Concrete pad for automated gate motor

Appendix A: Maintenance of security fencing

Maintenance is essential to ensure the longevity, functionality, and effectiveness of your security fence. Follow these guidelines for regular upkeep and safety.

General maintenance

- When open, ensure gates are secured in their correct positions with padlocks to prevent hinge damage.
- Always close and padlock gates after hours. During working hours, limit open gates to control visitor access.
- Use flag bolts or brackets to secure gates; avoid chains as they damage anti-corrosion coatings.
- Grease gate hinges with grease nipples where fitted.
- Maintain 1.5 metres clearance on both sides of the fence. Remove objects like trees, bushes, or structures that could be used as step points. Remove saplings early to save costs.
- Keep new structures (e.g., signs, walls, benches) at least 1.5 metres away from the fence line.
- Avoid poisoning vegetation under the fence, as it weakens soil and allows easier unauthorised entry.
- Prevent underground water from spraying directly onto the fence, as it can cause corrosion and rust.
- Regularly inspect the fence for:
  - Digging or objects placed near the fence
  - Erosion or washouts creating gaps larger than 100 mm
  - Damage from incidents like vandalism, accidents, or structural fatigue.
- Clear debris from gate flag bolts, ground sleeves, and sliding gate tracks to ensure smooth operation.
- Check all padlocks for smooth operation, especially on rarely used gates. Use locks compliant with the fencing specification.
- After break-ins or vandalism, inspect the fence to identify entry points and repair weaknesses promptly.

Safety and emergency

- Educate staff and students not to climb the fence to avoid injuries.
- Require after-hours groups to monitor gates during arrivals and departures to prevent accidental lock-ins.
- Ensure emergency services have access to the grounds. Provide keys or codes as needed.

Coded key safes

- Reserve coded key safes for emergency services to prevent misuse or loss of keys.
- Include a check of the key safe in your end-of-term processes.
- Inform local police, fire stations, and protective services of the key safe code and location.

Signage

- Attach signs securely under the top rail to prevent them from being used as step points.

Gate automation and/or additions to the security fence

Contact your School Security Advisor before automating gates or adding features like internal fencing, gate motors, or boom gates.

For more information, contact the Disaster, Emergency and School Security team on SchoolSecurity@qed.qld.gov.au or search 'school security' on OnePortal.

Appendix B: Gate automation and access control installations

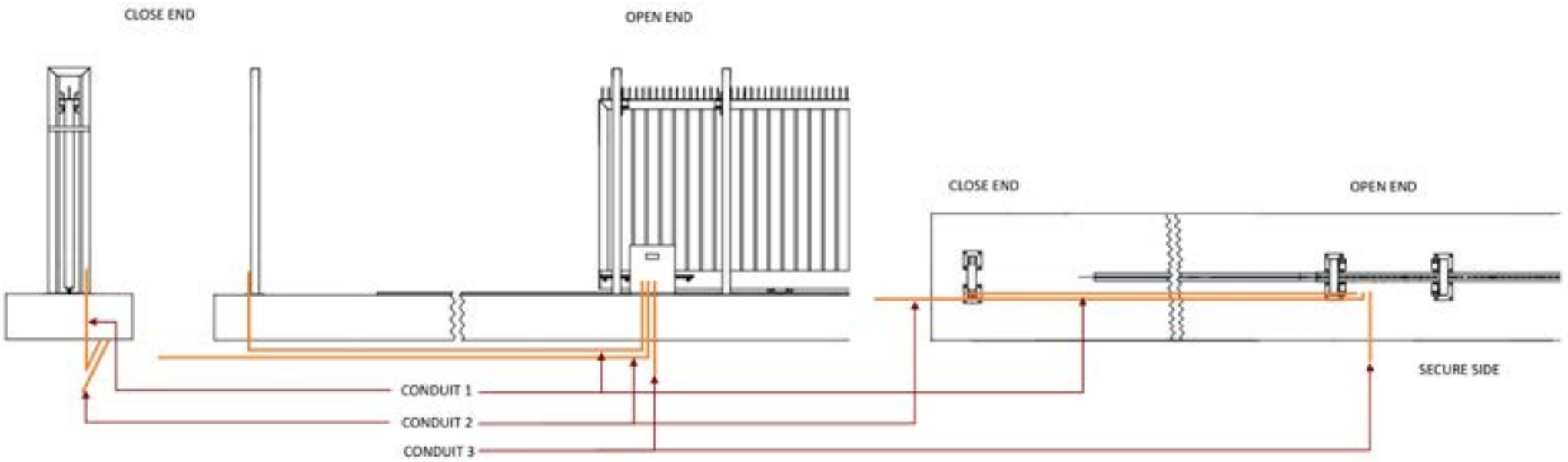
The following must apply to automated gates:

- Sliding and cantilever gates must include security screening along the full length of the external fence line of at the sliding gate return to eliminate potential crush points.
- Sliding and cantilever gates must feature a secured enclosure to protect the motors and prevent unauthorised access during gate operation.
- Bollards should be installed to protect hinged gate motors from accidental damage and collision.
- Sliding and cantilever gates must include two sets of 100 mm × 100 mm posts arranged in an H-posts configuration to guide the gate's movement.
- Hinged gates must feature additional security screening to the external fencing adjacent to the motor to prevent climb points.
- Open latching posts to be installed at the end of gates swing radius, to facilitate the installation of safety beams.
- Hinged gates should have a gap of no greater than:
  - 20 mm between gate leaves
  - 100 mm between the gate and the ground

  to optimise the functionality of security locking equipment.
- Return panels either side of hinged gates must be avoided as these create potential entrapment risks.
- Concrete strips should be installed under the gate line, even if an existing manufactured road base is present. This ensures gate travel path is level for a sliding gate and installation of electrical conduits between two sides.
- Conduits suitable for the electrical cabling are to be installed under the length of concrete strip from one end of the gate to the other. Ends of the conduit to be accessible and visible above the ground level at both sides of the gate near the posts. Refer to the conduit location and pathways plan below.
- A concrete pad to be installed to accommodate gate motor at the time of installation of concrete strip.

Automated gates must include the following safety features:

- Demarcation line markings to be installed to identify gate swing area.
- Audible alarms within the range of 80–105 dB and flashing lights to activate prior to any opening and closing movements.
- Two sets of wired safety beams on each side of the gate (both external post and internal post at truck and car heights).
- Exit detector on the internal vehicle exit path.
- The exit detector shall be installed on a slightly raised concrete pad to suit the size of detector.
- A GSM access control system.
- Standard departmental warning signage on both internal and external sides of gate. Access signage should be included as required by the school.
- Flush mounted electronic key switch to external gate post to override access control.
- Isolated power supply circuit to gate motor with an isolator switch installed outside the gate motor.
- Hinged gates require installation of an additional security locking mechanism.



Conduit name	Conduit description	Conduit type	Reference number
Control and date (PE beams)	Wired control devices installed on close end (end-to-end connection). To be installed on secured side A-frame post turned up minimum 200 mm.	25 mm HD electrical	1
240 mains power – close end supply	240v power supply from close end. Providing power supply from the close end to the motor due to location of the closest building (switchboard). Conduit to remain inground left directly after the A-frame post slab/strip, but turned up (minimum 200 mm) at the gate operator location.	25 mm HD electrical	2
240 mains power – open end supply	240v power supply from open end (operator end). Conduit directly outside the concrete slab to avoid cutting and drilling of concrete. Conduit to remain inground left directly after the A-frame post slab/strip, but turned up (minimum 200 mm) at the gate operator location.	25 mm HD electrical	3