



Correctional Service
Canada

Service correctionnel
Canada



SAFETY, RESPECT
AND DIGNITY
FOR ALL

LA SÉCURITÉ,
LA DIGNITÉ
ET LE RESPECT
POUR TOUS

Technical Criteria for Correctional Institutions

SECTION SP - SITE

SP-1 SITE - SITE PLANNING AND DEVELOPMENT

1.	SCOPE	1
2.	RELATED SECTIONS.....	1
3.	INSTITUTIONAL PROPERTY	1
4.	RESERVE OF OPEN LAND	1
5.	NO MAN ZONE.....	2
6.	BUFFER ZONE.....	2
7.	NO BUILDING ZONE	2
8.	NO INMATE ZONE.....	2
9.	SITE PLANNING AND DEVELOPMENT OF AN INSTITUTION	3
10.	SIGNAGE	3
11.	LANDSCAPING AND LIMITED ACCESS GROUNDS	4
12.	PLAYFIELD AND YARDS	5
13.	FLAG AND FLAGPOST.....	5

SP-2 SITE - FENCE

1.	SCOPE	11
2.	RELATED SECTIONS.....	11
3.	EXTERNAL BOUNDARY FENCES	11
4.	PERIMETER SECURITY FENCES.....	11
5.	INTERIOR FENCES	15
6.	SEPARATION OF DISTINCT POPULATIONS IN ONE INSTITUTION (MULTI-LEVEL).....	15
7.	EXTERIOR SERVICE COMPOUND FENCE	16

SP-3 SITE - GATES/SALLY PORT

1.	SCOPE	23
2.	RELATED SECTIONS.....	23
3.	ACCESS CONTROL SECURITY REQUIREMENTS.....	23
4.	PRINCIPAL ENTRANCE.....	24
5.	FENCE GATES	25

SP-4 SITE - EXTERIOR LIGHTING

1.	SCOPE	35
2.	RELATED SECTIONS.....	35
3.	GENERAL REQUIREMENTS.....	35
4.	APPLICATIONS	35
5.	PERFORMANCE REQUIREMENTS.....	36

SP-5 SITE - TRAFFIC CIRCULATION AND PARKING

1.	SCOPE	49
2.	RELATED SECTIONS.....	49
3.	CIRCULATION SECURITY REQUIREMENTS	49
4.	DESIGN REQUIREMENTS.....	50

SP-6 SITE - TEMPORARY CONSTRUCTION FENCES

1.	SCOPE AND DEFINITIONS	55
2.	RELATED SECTIONS.....	55
3.	PERFORMANCE CRITERIA	56
4.	RELEVANT SPECIFICATIONS.....	57

SP-1 SITE – SITE PLANNING AND DEVELOPMENT

1. SCOPE

This section outlines planning and development principles and specific definitions of terms related to detention institutions.

2. RELATED SECTIONS

SP-2 – Fence

SP-3 – Gates / Sally Port

SP-4 – Exterior Lighting

SP-5 – Traffic Circulation and Parking

3. INSTITUTIONAL PROPERTY

3.1 There is no specific requirement for demarcation or fencing at the CSC owned property line. Signage at the property limit is recommended. Where signage is used, it shall follow the Federal Identity Program¹.

3.2 Property features such as topographical conditions and existing trees and bushes shall be used to screen CSC institutions from adjoining properties. Landscaping and site development along the main entry road shall be visually appealing.

3.3 Where more than one institution is located on a CSC property, sufficient space shall be allowed between institutions. Minimum security institutions shall be located furthest from that part of a medium or maximum institution where inmate circulation and activities take place.

4. RESERVE OF OPEN LAND

4.1 Where possible and with minimal alterations to natural land and its condition, a reserve of open land shall be provided for a distance of 100 m from the exterior of the outer perimeter fence to facilitate views of an intruder or escapee. Where natural grade changes exist, these shall be retained. Where open land reserves are smaller than the 100 m due to prohibitive site conditions or limiting extent of CSC property, additional security measures may be required, as determined on a project specific basis.

4.2 Landscaping for the first 100 m within the open land reserve shall consist of grasses, trees and shrubs which minimize the potential for screening an intruder or an escapee.

4.3 Due to specific operational requirements, the reserve of open land can extend over structures such as CSC service buildings, parking lots, flag posts and light standards, and site enhancements. These elements should be located close to the main entrance of the institution and away from inmate outdoor circulation and activity areas in order to limit the potential for contraband transfer over the institutional perimeter.

¹ 4.3 – Common-use and operational signs, Federal Identity Program Manual, March 1990
http://www.tbs-sct.gc.ca/fip-pcim/man_4_3-eng.asp

5. NO MAN ZONE

- 5.1 This zone is the ground area between the outer perimeter fence and the inner perimeter fence. The distance between the perimeter fences is 7.5 m.
- 5.2 The no man zone ground surface shall have the top soil removed and covered with filter fabric and crushed stone for a depth of at least 200 mm to minimize plant growth.
- 5.3 This zone is equipped with an in-ground sensor to detect motion. It is a component of the Perimeter Intrusion Detection System (PIDS), referred to as the Motion Detection System (MDS). To minimize false alarms activated by the MDS, the ground surface between the fences shall be graded to prevent pooling of water and run-off shall be collected as described in section SU-1, Storm and Sanitary Sewers.
- 5.4 This zone is covered by camera surveillance. The cameras will focus on the section of the fence line which has been disturbed. Cameras are an integrated part of the PIDS.

6. BUFFER ZONE

- 6.1 A 4-meter buffer zone parallel to the interior side of the inner perimeter fence shall be free of all structures, trees, shrubs and roads, except for road access through the perimeter and connecting interior fences where required.
- 6.2 Where adjacent to playfields, ceremonial grounds, and gardens, this zone shall be marked by signage informing inmates not to trespass. Fencing shall not be used to demarcate this zone as it only serves to obstruct views from the mobile patrols on the outside of the perimeter. As well, the fence may capture balls which may only encourage retrieval resulting in enforcement and imposition of charges.
- 6.3 The buffer zone is covered by a separate line of PIDS cameras from those used to cover the no man zone. Similar to the no man zone, the cameras will focus on the section of the buffer zone in which the fence has been disturbed.

7. NO BUILDING ZONE

- 7.1 With the exception of the Gatehouse, no building shall be closer than 12 m to the inner perimeter fence.

8. NO INMATE ZONE

- 8.1 This is the area along the perimeter fence which is close to the Gatehouse and functions receiving vehicles. Access to inmates here is generally restricted or highly controlled. There is no specific distance to delimit this zone as it varies depending on the site layout configuration.
- 8.2 Functions allowing controlled access to inmates within this zone include Visits and Private family visits, both shared with outside visitors.

9. SITE PLANNING AND DEVELOPMENT OF AN INSTITUTION

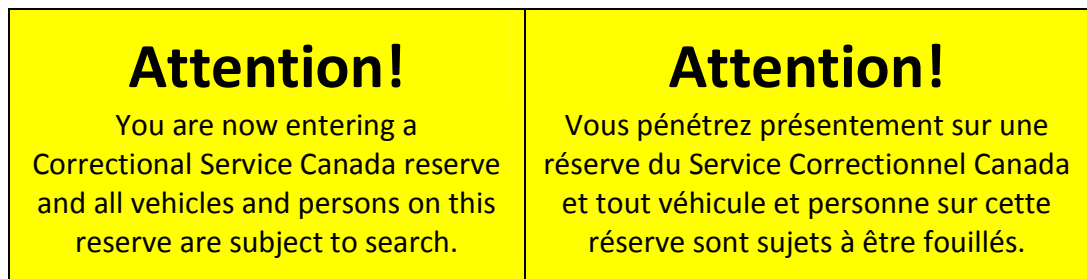
- 9.1** Planning of facilities and amenities shall be dictated by time of use and user type. Institutional buildings closest to the gatehouse shall accommodate functions which are inaccessible to inmates or where access is supervised. Those functions requiring vehicle access for servicing and supplies shall also be relatively close to the gatehouse while vehicle access routes shall be away from inmate circulation and activity areas. Evening use functions, housing, playfields, gardens, and ceremonial grounds shall be located furthest from the entrance.
- 9.2** See item 11 for Landscaping and limited access grounds and item 12 for Playfields and yards. Also see Plate SP-1-1 for idealized site plan which illustrates building relationships.

10. SIGNAGE

- 10.1** All exterior and interior building signage shall conform to the Federal Identity Program (FIP). The FIP Manual is fully available at:

<http://www.tbs-sct.gc.ca/fip-pcim/>

- 10.2** The CSC “Search Sign” shall be located at each public entry leading to an institution. The “Search Sign” is a warning sign as prescribed in the Federal Identity Program Manual² (Caution!, Attention! under Type 3). The standard is yellow background with black letters. For the purpose of a reading distance of 30 m and a vehicular speed of 30 km/h, “x” is defined as 50 mm. Therefore, the text letters size is 50 mm (x) and the header letters size is 150 mm (3x). The layout is provided in Table 5 – Standard spaces, 50 mm to 200 mm x-height of section 4.3 of the FIP Manual (see footnote 8). The bilingual text is side by side, the official language on the left side being according to the regional practice. As the font and design follows the Federal Government standards the use of the Department signature or CSC badge is optional.



OR

² Federal Identity Program Manual – 4.3 Common-use and operational signs, Treasury Board of Canada, Secretariat, March 1990; http://www.tbs-sct.gc.ca/fip-pcim/documents/man_4_3_p1.pdf and http://www.tbs-sct.gc.ca/fip-pcim/documents/man_4_3_p2.pdf
Federal Identity Program Manual – 4.5 Signage typeface, Treasury Board of Canada, January 1988; http://www.tbs-sct.gc.ca/fip-pcim/documents/man_4_5.pdf

<p>Attention!</p> <p>Vous pénétrez présentement sur une réserve du Service Correctionnel Canada et tout véhicule et personne sur cette réserve sont sujets à être fouillés.</p>	<p>Attention!</p> <p>You are now entering a Correctional Service Canada reserve and all vehicles and persons on this reserve are subject to search.</p>
--	--

Refer to *CAN/CGSB-109.1M-1989*³ for the sign structure and characteristics.

- 10.3** All areas restricted only to authorized personnel shall be clearly and boldly identified according to the common-use and operational signs as described in the Federal Identity Program Manual⁴. Refer to section A-9 Interior Signage for interior signage requirements.

11. LANDSCAPING AND LIMITED ACCESS GROUNDS

- 11.1** Only indigenous plants and locally available materials shall be used.
- 11.2** All layouts and landscape material shall take into account snow removal, grass cutting, watering and tree and shrub trimming to ensure minimum watering.
- 11.3** Soft landscaping is encouraged but plant type should be selected so as not to obstruct views. Gentle contouring is also acceptable as are earth berms and timber retaining walls provided they do not facilitate hiding.
- 11.4** Colour and visual relief can be achieved by the use of flowers beds, which shall be planted and maintained by inmates.
- 11.5** At medium security level and above, all site furniture shall be secured in place. All walking surfaces shall be of monolithic material or compacted stone dust. Small and light paving materials (brick, concrete pavers, or gravel) shall not be used.
- 11.6** Positive drainage for the entire site shall be provided with the use of ditches, swales and flumes. All drainage areas shall be designed to be as shallow as possible to allow for ease of maintenance and so not to obstruct visibility.
- 11.7** The minimum grade slope shall be 3% or gradual slope where natural grade changes exist for grass and landscaped areas.
- 11.8** Vegetable gardens where provided shall be located in designated areas away from general inmate traffic and playfields. Authorized inmates are permitted access to gardens.
- 11.9** Fruit trees are not permitted on institutional grounds.
- 11.10** Sacred Grounds for sweat lodge and ceremonies shall be located in designated areas away from general inmate traffic and playfields. Only authorized inmates are given access to sacred grounds. Firewood used in ceremonies shall be stored under cover and be protected.

³ CAN/CGSB-109.1M-1989 – Signage System, Extruded Aluminum, Federal Identity Program

⁴ Page 11 – Federal Identity Program Manual – 4.3 Common-use and operational signs, Treasury Board of Canada, Secretariat, March 1990; http://www.tbs-sct.gc.ca/fip-pcim/documents/man_4_3_p1.pdf

11.11 Snow storage areas shall be located in a manner that does not restrict drainage and visibility. A space wide enough to accommodate tractor power mowers shall be provided between trees and planting beds. Hose bibs shall be provided throughout the site as required on a project specific basis. Underground watering pipes or hoses shall not be used.

12 PLAYFIELDS AND YARDS Playfields, which often have a high concentration of inmates, generally have their outer bounds located adjacent to the perimeter fence. When planning playfields for new institutions or where housing unit disposition permits at existing, playfields shall be located within an interior courtyard bounded by housing units. Playfields in either location shall be distant from the Gatehouse, service buildings located on the exterior, and parking lots in order not to offer opportunities to covertly approach the perimeter fence line and throw over contraband in proximity of the playfield. Playfields shall also be located distant from Segregation and its yards and from Health Care facilities.

12.2 Playfields are typically grassed except where the activity calls for a hard surface. Compacted fine gravel or stone dust or, a monolithic hard surface such as asphalt is acceptable.

12.3 Mini fenced yards associated with Segregation, maximum security or special population units are provided with an engineered asphalt surface to allow use in all weather, to prevent hiding of contraband, and to facilitate maintenance. The asphalt surface shall extend beyond the containment fence by 900 mm for anti-tunnelling protection and to prevent edge fracture and removal. Poured in place concrete surface may be used on account of seasonal or installation constraints. Use of concrete may be favoured for ease of construction and maintenance where a yard is enclosed by buildings or walls where a wall is intended for screening.

13 FLAG AND FLAGPOST

Rules and protocol for “flying the flag” are fully available at:

<http://www.pch.gc.ca/pgm/ceem-cced/etiqt/101-eng.cfm>

Refer to *CAN/CGSB-98.1-2003*⁵ for the outdoor use of the National Flag of Canada.

⁵ CAN/CGSB-98.1-20011 – National Flag of Canada (Outdoor Use) ICS 99.020.10

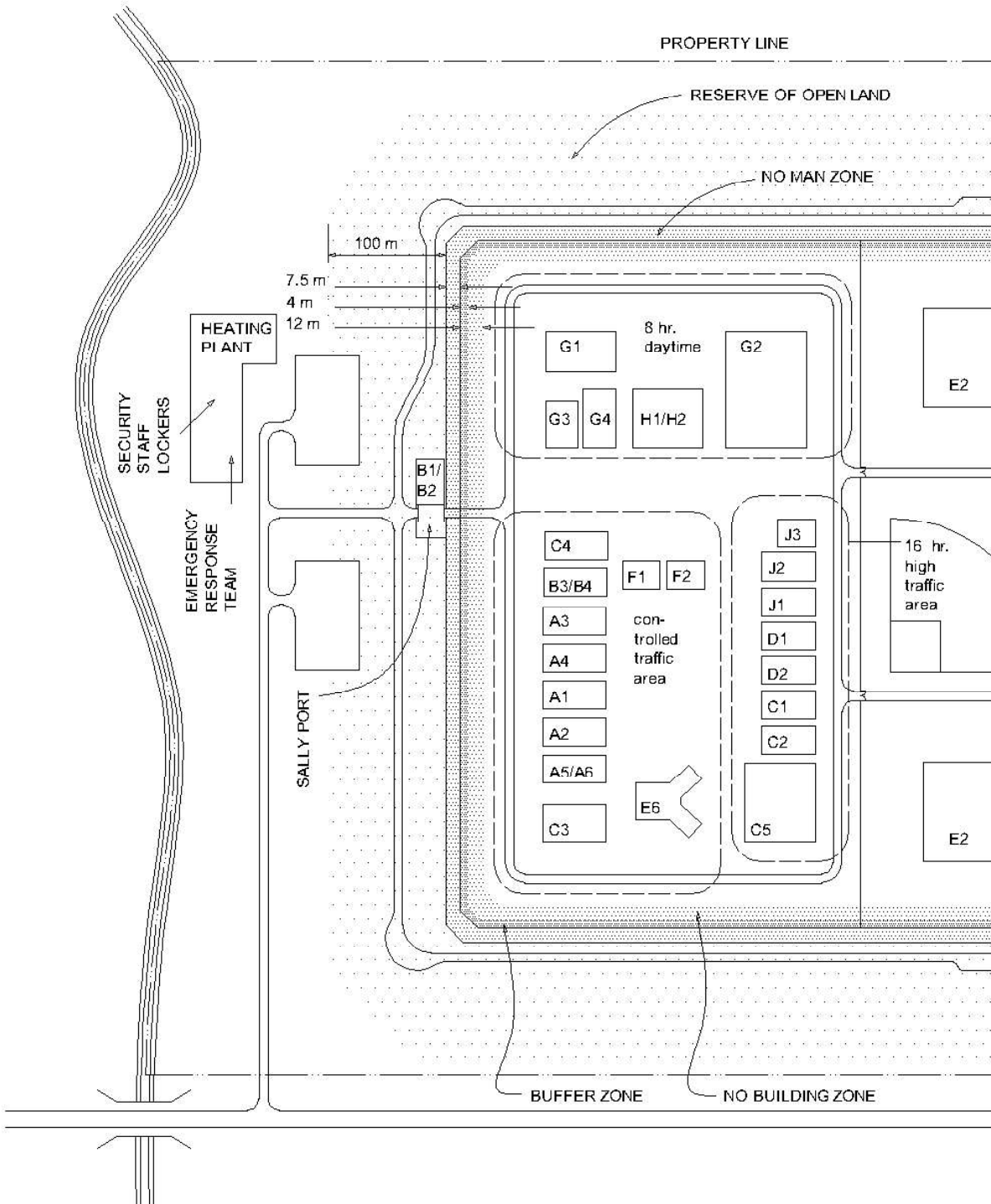
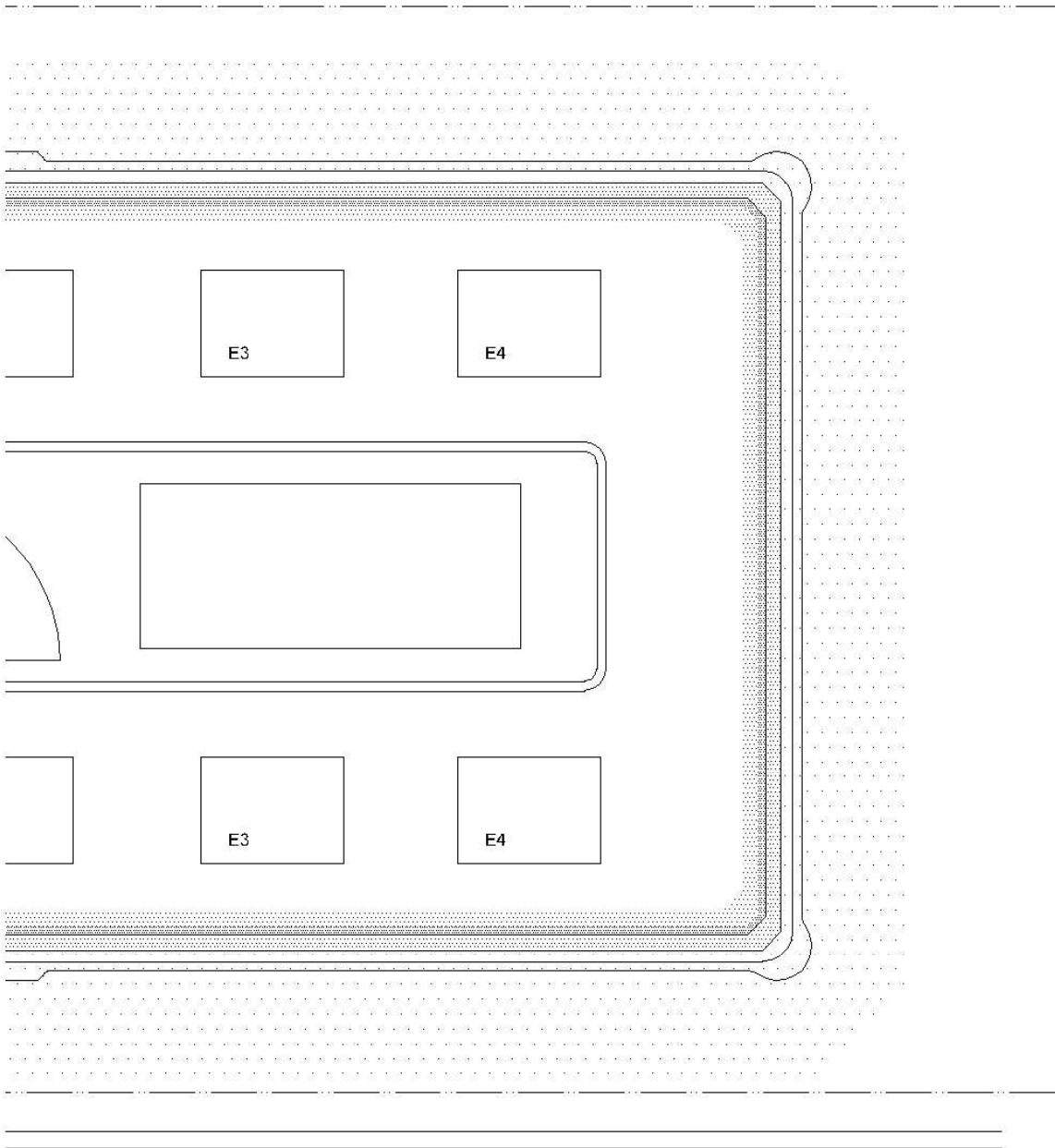


PLATE SP-1-1



BLE A-1-1 – ORGANIZATION OF DEPARTMENTS**GROUP A – ADMINISTRATION**

- A1 MANAGEMENT CENTRE
- A2 FINANCE
- A3 STAFF SERVICES AND TRAINING
- A4 ADMINISTRATION AND PERSONNEL
- A5 CASE AND SENTENCE ADMINISTRATION
- A6 NATIONAL PAROLE BOARD HEARING

GROUP B – SECURITY

- B1 EXTERNAL CONTROL (GATEHOUSE)
- B2 EMERGENCY RESPONSE TEAM AND ARMOURY
- B3 SECURITY ADMINISTRATION
- B4 ADMISSIONS AND DISCHARGE

GROUP C – SOCIALIZATION

- C1 SOCIAL AND CULTURAL DEVELOPMENT
- C2 ARTS AND CRAFTS
- C3 PRIVATE FAMILY VISITING
- C4 VISITS AND CORRESPONDENCE
- C5 RECREATION

GROUP D – SPIRITUALITY

- D1 CHAPLAINCY
- D2 ABORIGINAL SERVICES

GROUP E – HOUSING

- E1 FREE EGRESS – SMALL GROUP ACCOMMODATION (S-2)
- E2 RESPONSIBILITY UNITS (S-3)
- E3 STRUCTURED SECURITY UNITS – OPEN POST / RANGE (S-4)
- E4 STRUCTURED SECURITY UNITS – CLOSED POST / RANGE (S-5)
- E5 MAXIMUM SECURITY UNITS (S-6 / S-7)
- E6 SEGREGATION UNIT
- E7 SPECIAL HANDLING UNIT

GROUP F – HEALTH CARE

- F1 HEALTH CARE CENTRE
- F2 MENTAL HEALTH CARE

GROUP G – TECHNICAL SERVICES

- G1 MAINTENANCE
- G2 FOOD SERVICES
- G3 INSTITUTIONAL SERVICES
- G4 MATERIAL MANAGEMENT

GROUP H – OCCUPATIONAL DEVELOPMENT PROGRAMS

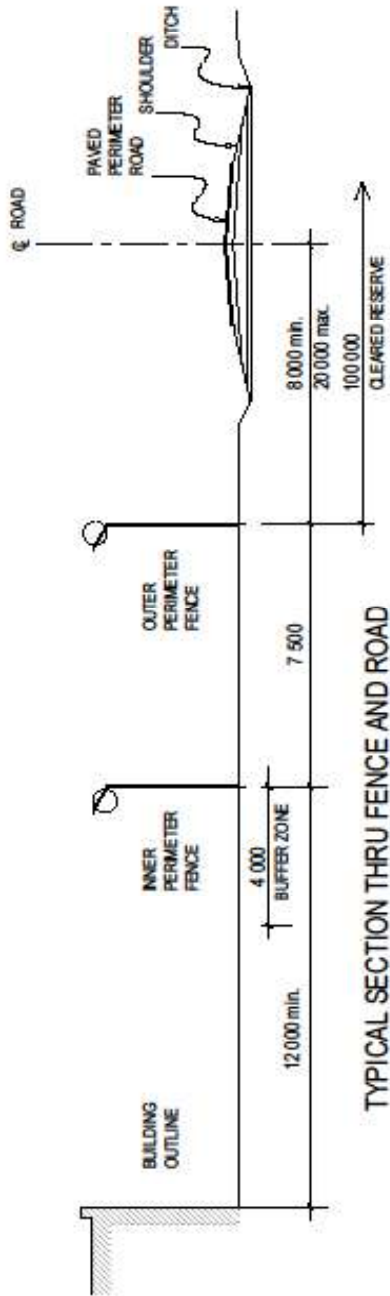
- H1 OCCUPATIONAL DEVELOPMENT PROGRAMS (ODP) CORE
- H2 CORCAN

GROUP J – EDUCATION AND PERSONAL DEVELOPMENT

J1 EDUCATION

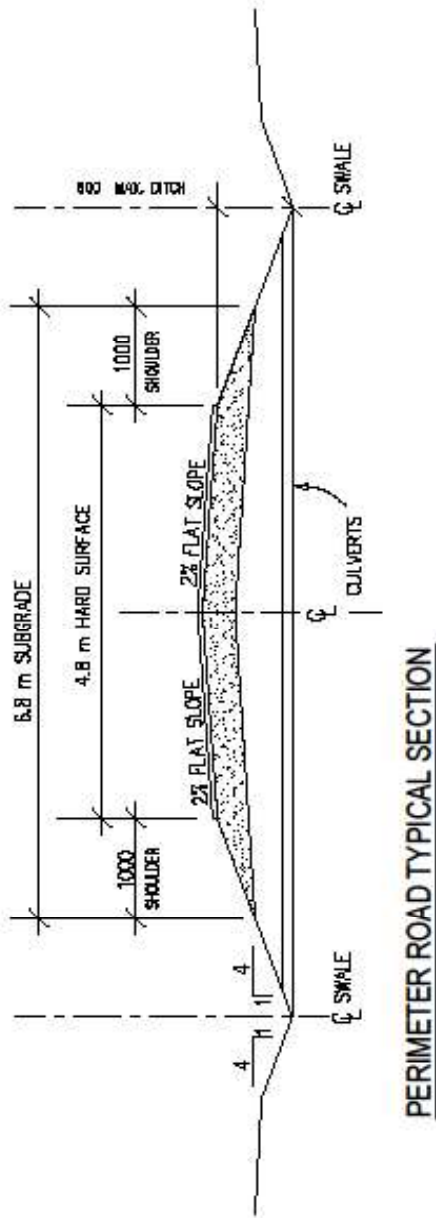
J2 CORRECTIONAL PROGRAMS

J3 LIBRARY



TYPICAL SECTION THRU FENCE AND ROAD

PLATE SP -1-2 - SECTION THROUGH FENCE AND ROAD



PERIMETER ROAD TYPICAL SECTION

SP-2 SITE - FENCE

1. SCOPE

This section provides performance criteria and conforming specifications for all fences related to institutions of security levels medium, maximum and multi-level inclusive. There are no special requirements for fences at minimum institutions.

It is imperative that all fence projects, either perimeter or interior, are submitted to the office of the Director Facility Planning and Standards at NHQ for review and approval.

2. RELATED SECTIONS

2.1 *Technical Criteria Document sections:*

SP-1 – Site Planning and Development

SP-3 – Gates/Sally Ports

SP-4 - Exterior Lighting

SP-5 – Traffic Circulation and Parking

ST-1 – Guard Towers

& any sub-section referring to the Perimeter Intrusion Detection System (P.I.D.S.)

2.2 *National Master Specification Section*

01 35 13.16 – Special Project Procedures for Detention Facilities

28 01 10 – Operation & Maintenance of Electronic Access Control & Intrusion Detection

28 16 00 (13705) – Intrusion Detection

32 31 13 – Chain Link Fences and Gates

32 31 13.53 – High-Security Chain Link Fences and Gates

3. EXTERNAL BOUNDARY FENCES

External boundary (property) lines shall not be fenced unless specific site conditions warrant it. The type of fence in such locations will be project specific.

4. PERIMETER SECURITY FENCES

4.1 *Performance Criteria*

4.1.1 The institution will be enclosed by a double chain link fence perimeter supported by intrusion detection and camera system, and mobile patrol on the exterior of the perimeter. The perimeter fences form the last physical obstacle to escape from the institution. The design of the fence system shall be such that an escapee shall not be able to breach the perimeter in less than 45 seconds. This time duration is based on a maximum time for the perimeter security mobile patrol to respond after the first signal following a detected disturbance of the fence at the Main communication control post (MCCP). The optimal reaction time for the mobile patrol is 30 seconds.

4.1.2 Fences shall be erected in straight lines from corner to corner for direct viewing by camera. The corners of the perimeter shall be truncated at 45° to allow suitable placement of camera poles and cameras to afford optimal viewing

between the fences and on the interior of the Inner Perimeter Fence. In addition, the truncated corners allow for a gentler curve of the patrol road.

- 4.1.3 To render climbing more difficult, the fence fabric shall be installed on the institution side of the fence posts. Sharp corners of less than 120°, shall be avoided except where fences intersect.
- 4.1.4 For fences equipped with a Fence Detection System (FDS), the fence shall balance fabric tension to ensure fabric vibration travel across posts while not causing excessive false alarms. Fabric vibration terminates at strain post locations where the fence fabric ends thus allowing zone separations for the PIDS.
- 4.1.5 Special attention shall be paid to sloped sites to ensure that gaps do not develop between the ground surface and the lower fence rail. Where necessary, due to severe ground slope longitudinally, fencing may be stepped, but the minimum height of the fence shall be maintained at all times. Ground slope across the fence line shall be minimized to prevent erosion under the perimeter fences.
- 4.1.6 Water shall be prevented from pooling between the perimeter fences, as this could affect the operation of the Motion Detection System (MDS). For special underground drainage requirements relating to perimeter fences, see sections SU-1 Storm and Sanitary Sewers.
- 4.1.7 Barbed tape concertina (BTC) wire shall be installed in such a manner that it prevents the passage of a person across the barbed coils. (See plates SP-2-2 and SP-2-3).
- 4.1.8 Where interior fences intersect the Inner Perimeter Fence, the interior fence shall be designed to prevent it from being used to aid in crossing the Inner Perimeter Fence. To achieve this, the interior fence shall be equipped with:
- a Fence detection system (FDS) for a length of 2.5 meters. The fence fabric shall extend for that length and be connected to a strain post so that the vibration does not travel beyond.
 - and BTC on both sides on the fence No gap between posts or fabric shall exceed 125 mm.
- 4.1.9 To inhibit tunnelling under the Inner Perimeter Fence, a ground barrier shall be provided by installing either a continuous concrete footing or a concrete or asphalt sidewalk on the institution side. (See Plate SP-2-1). Roadways crossing perimeter fence lines shall be topped with asphalt which also serves as a ground barrier.
- 4.1.10 The fence system comprising foundation, line, strain, corner and gate posts shall meet local environmental conditions. Fence systems shall be engineered to resist local wind and snow conditions.
- 4.1.11 Where a building or other structure interrupts the perimeter fence run, the design to ensure perimeter integrity shall be approved by the issuing authority.
- 4.1.12 Where a perimeter comprises or integrates a wall, the design to ensure perimeter integrity shall be approved by the issuing authority.

4.2 Conforming Specifications

- 4.2.1 Perimeter fences shall consist of two (2) parallel fences, erected in straight lines, with a 7.5-m gravel strip between the fence lines. For retrofit installations, where it has been proven that a lesser separation has been effective, the existing spacing shall be maintained. Height of both fences, excluding overhang arms, shall be 3.6 m. Corners shall be truncated and the maximum length of the interior fence on the truncated line shall be 25 m.
- 4.2.2 No structure, with the exception of the Gatehouse and guard towers, shall be closer than 12 m to the Inner Perimeter Fence.
- 4.2.3 The area between the perimeter security fences shall be free of topsoil and be graded to a slope of 2% from the interior to the Outer Perimeter Fence. The surface will then be covered with a filter fabric and topped with a mix no larger than 20 mm crushed stone to a depth of 200 mm. For the Outer Perimeter Fence an area of 500 mm on each side of the fence shall be stabilized to a depth of 300 mm with a compaction of 95% corrected maximum dry density to hinder run off erosion and tunnelling by inmates.
- 4.2.4 All chain link fencing shall be installed in accordance with the *National Master Specification (NMS) 32 31 13*⁶ and *CAN/CGSB-138.3-96* standard⁷. Where there is a conflict between the NMS and this criterion, the TCD shall prevail.
- 4.2.5 Chain link fence fabric shall conform to the following specifications⁸:
- 4.2.5.1 Wire Size: 4.8 mm (min) (6 Gauge)
 - 4.2.5.2 Size of mesh: 50.8 mm
 - 4.2.5.3 Height of fence fabric: 3600 mm
 - 4.2.5.4 Barbed edges top and bottom
 - 4.2.5.5 Average mass of zinc coating to be not less than 610 g/m² of uncoated wire
 - 4.2.5.6 Breaking tensile strength to be 10,000 N·min.
- 4.2.6 Wire mesh shall be continuous from top to bottom and shall be applied on the institutional compound side of the posts.
- 4.2.7 Fence fabric shall be pulled taut before fixing in place. Tautness, when fixed in place, is to be established by pull tests. The application of a 12 kg perpendicular pull at the midpoint of the mesh panel (midpoint of posts/rails) shall show a displacement of no more than 30 mm from the fence at rest plane.
- 4.2.8 Posts, (corner, gate, strain, line) shall conform to *CAN/CGSB-138.2-96*⁹, galvanized steel pipe.
- 4.2.8.1 Posts shall be spaced a maximum of 2.5 m apart.
 - 4.2.8.2 Line post minimal size shall be 73 mm O.D. 8.6 kg/m.

⁶ National Master Specification 32 31 13 – Chain Link Fences and Gates (2004/12/31), there is also specifically Master format reference number 32 31 13.53 for High-Security Chain Link Fences And Gates

⁷ CAN/CGSB-138.3-96 – Installation of Chain Link Fence

⁸ Refer also to: CAN/CGSB-138.1-96 – Fabric for Chain Link Fence

⁹ CAN/CGSB-138.2-96 -- Steel Framework for Chain Link Fence

- 4.2.8.3 Strain post minimum size shall be 114.3 mm O.D. 15.92 kg/m. Strain posts shall be spaced not more than 60 m apart.
- 4.2.8.4 Corner and gate post minimum size shall be 143.3 mm O.D. 21.0 kg/m.
- 4.2.9 Galvanized steel arms shall be provided on all posts where barbed concertina is to be installed, as shown on Plate SP-2-2 and SP-2-3.
- 4.2.10 Bottom and top rails shall be 42.2 mm O.D. minimum, 3.4 kg/m.
- 4.2.11 Tie wires shall be 3.7 mm diameter (9 gauge) galvanized steel wire to secure chain link fabric to bottom rail, top rail and line posts at 300 mm spacing.
- 4.2.12 An intermediate galvanized anchor shall be used to secure the bottom rail to the ground barrier, where such a barrier is installed. This anchor shall limit vertical movement of the bottom rail to a maximum of 125 mm.
- 4.2.13 Intermediate rails shall not be used.
- 4.2.14 Tension bars used for holding the ends of the fence fabric at the location of strain posts and corner posts shall be 5 mm x 20 mm minimum x 3600 mm galvanized steel.
- 4.2.15 Tension bar bands shall be 3 mm x 20 mm minimum galvanized steel and spaced vertically at 300 mm o.c.
- 4.2.16 Where nuts and bolts are required for fastening, nuts shall face compound exterior and be torqued tight.
- 4.2.17 Where tension cables are used at corner, end, gate, strain posts, and fittings shall be of galvanized steel.
- 4.2.18 Barbed tape concertina (B.T.C.) shall be galvanized tape 20 x 0.5 mm clenched around a 2.5 mm diameter spring steel galvanized core wire to form a concertina coil with a nominal exterior coil diameter of 710 mm. The coil, when installed, shall have a minimum diameter of 635 mm. The barbed concertina shall have 20 mm long blade type barbs measured from tip to tip of the blade, and barb clusters shall be spaced approximately 45 mm on centre (see Plate SP-2-3). The concertina shall be formed by clipping adjacent loops of single helical coils together at a minimum of three (3) points on the circumference. Clips shall be galvanized. The resulting coil, when stretched, shall form a cylindrical pattern. The loop spacing shall not exceed 230 mm.
- 4.2.19 For concertina coil support at fence top, two barbed wires stretched and fixed to post arms shall be provided. Barbed wire shall consist of two strands of 12 gauge wire with 4 point barbs at 130 mm spacing, all galvanized.
- 4.2.20 Concertina coils are to be turned onto a secondary internal fence for a distance of 2.5 m when such a fence meets the perimeter fence. (See plate SP-2-6).
- 4.2.21 Installation of barbed tape coils shall be as follows:
- 4.2.21.1 The barbed tape concertina is to be supported and tied at 230 mm spacing onto each of the barbed wire. Additional coils that are required on fences are to be tied as shown on Plate SP-2-3.

- 4.2.21.2 A second row of BTC may be installed on fence tops at existing sites due to local conditions with the approval of the issuing authority (see plate SP-2-3)

5. INTERIOR FENCES

5.1 Area and Yard Fences

5.1.1 Performance Criteria

- 5.1.1.1 Interior fences located at Maximum security institutions and those defining segregation yards at Mediums and Maximums shall be a maximum of 3.6 m in height topped with steel arms, barbed wire, and BTC. Other fenced areas at Medium Institutions may be topped with BTC where the fence separates inmate high activity from vehicle circulation areas and loading bays.
- 5.1.1.2 The use of fences and those topped with BTC for refuge corridors for staff evacuating housing units will be evaluated based on a Threat Risk Assessment. Proposed works must be submitted for approval to the issuing authority.
- 5.1.1.3 The use of fences and those topped with BTC for separation of housing unit types in mediums such as S-3, S-4 and S-5 will be evaluated based on a Threat Risk Assessment. Proposed works must be submitted for approval to the issuing authority. See item 6 for Separation of distinct populations as in multi-level
- 5.1.1.4 Where interior fences intersect the Inner Perimeter Fence, refer to item 4.1.8 above and plate SP-2-6.
- 5.1.1.5 Tunnelling barriers are not required on interior fences except where they are topped with BTC. Barrier type shall be compacted gravel to 300 mm on either side extending 900 mm.
- 5.1.1.6 See chapter SP-1 Site Planning and Development, item 12.3 for mini yard ground surface and anti-tunnelling protection.
- 5.1.1.7 Fences shall not be used to demarcate the buffer zone.

5.1.2 Conforming Specifications

- 5.1.2.1 Materials shall be similar to those specified for the perimeter fences (see item 4.2).
- 5.1.2.2 For fences where post steel arms or outriggers are not provided, posts shall be provided with galvanized post caps.
- 5.1.2.3 Two coils of BTC shall be installed on the top of Segregation exercise yard fence as indicated on Plate SP-2-3. A flat solid wall shall be provided where visibility and contact is at issue with approval of the issuing authority.

6. SEPARATION OF DISTINCT POPULATIONS IN ONE INSTITUTION (MULTI-LEVEL)

Types of Multi-level and Fencing Needs

Multi-level institutions vary in the type of populations they accommodate. Two populations such as minimum and medium may be fully integrated with no physical separation or fencing required. Control and supervision is managed through operational means.

A second type of multi-level institution accommodates several populations, short term and assigned to a specialized program. Inmates here have limited access to the institution at large and have restricted movement. The housing units accommodating these populations are generally self-contained integrating staff and related program areas including mini yards. These units do not require fenced separation as movement outside of the units are under escort and limited to individual or small groups. Yards for these units are fenced and topped with BTC.

A third type of multi-level is where a distinct smaller population as part of a specialized program remains largely in their unit and does not mix with the general population which has normal movement to program and activity areas. The specialized program unit is also self-contained which includes mini yards. The mini yards of this unit are fenced and topped with BTC while the complete unit is separated from the rest of the institution by a fence but without BTC topping. The fenced mini yards here do not form part of the separation fence.

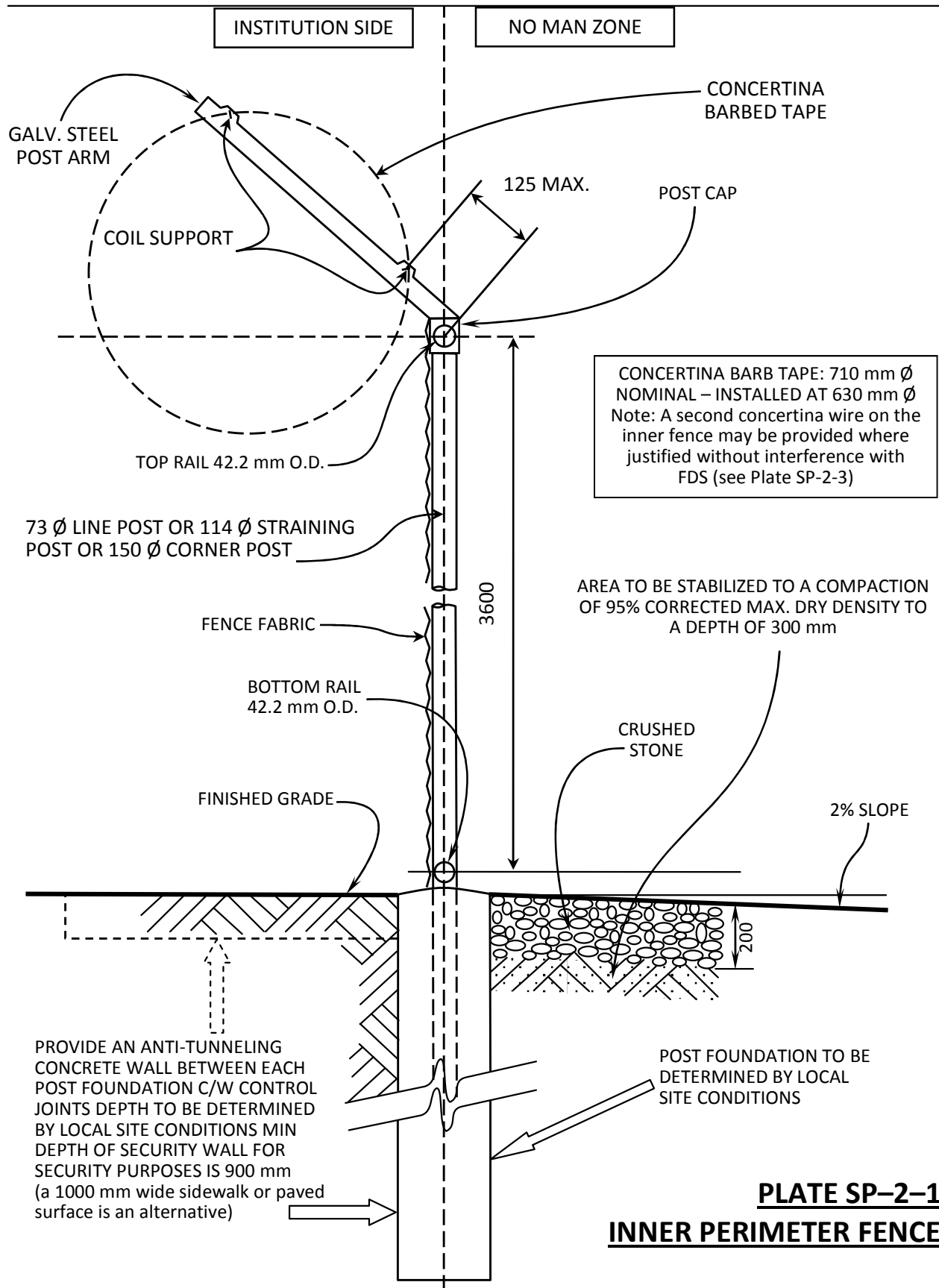
7. EXTERIOR SERVICE COMPOUND FENCE

7.1 *Performance Criteria*

Where bulk fuel storage (propane and gasoline) is provided, the storage area shall be fenced (see section SP-5, Traffic Circulation and Parking).

7.2 *Conforming Specifications*

- 7.2.1 Materials will be similar to those specified for the perimeter fences (item 4).
- 7.2.2 Fence height shall be 2.5 m.



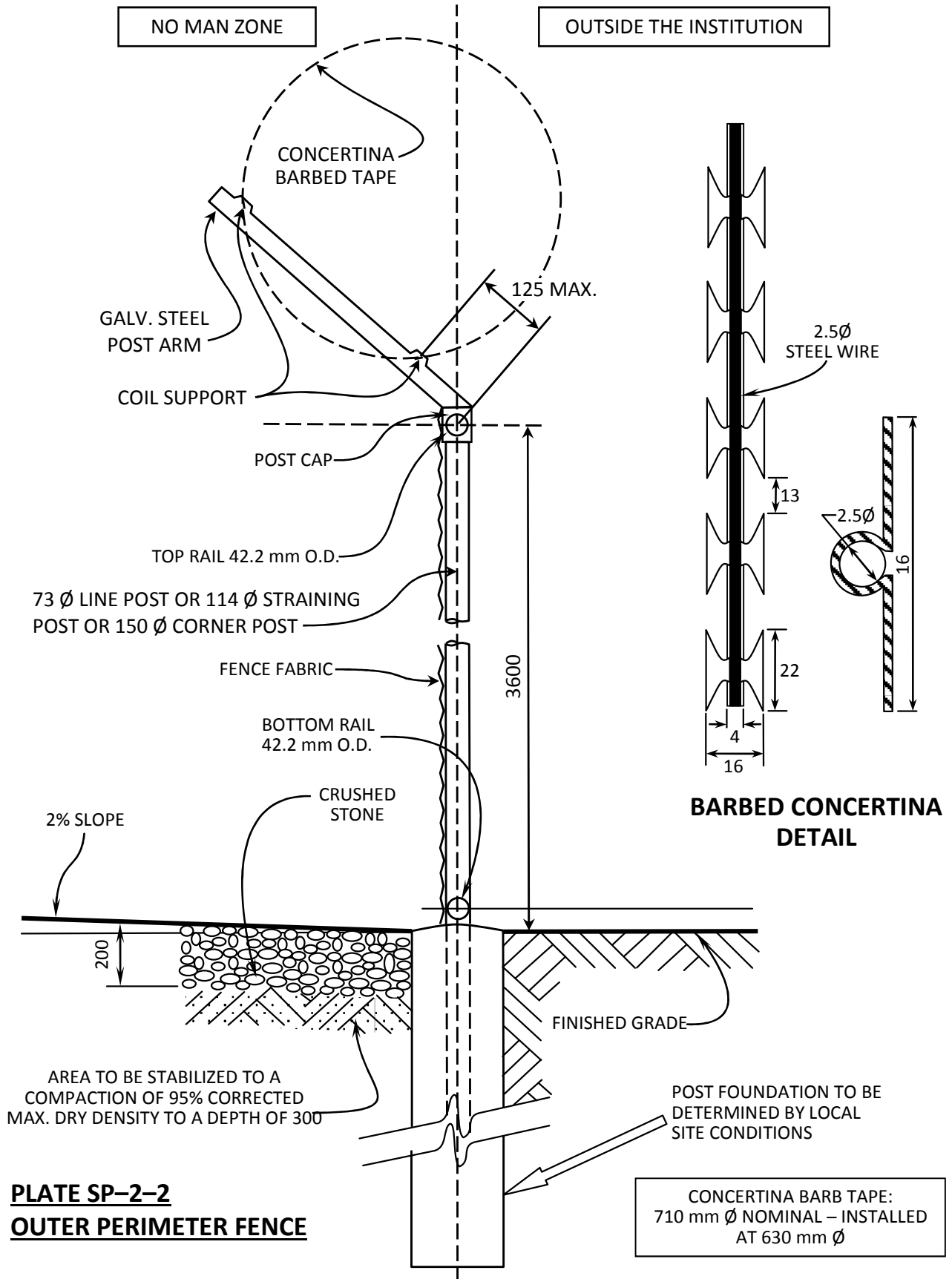


PLATE SP-2-2
OUTER PERIMETER FENCE

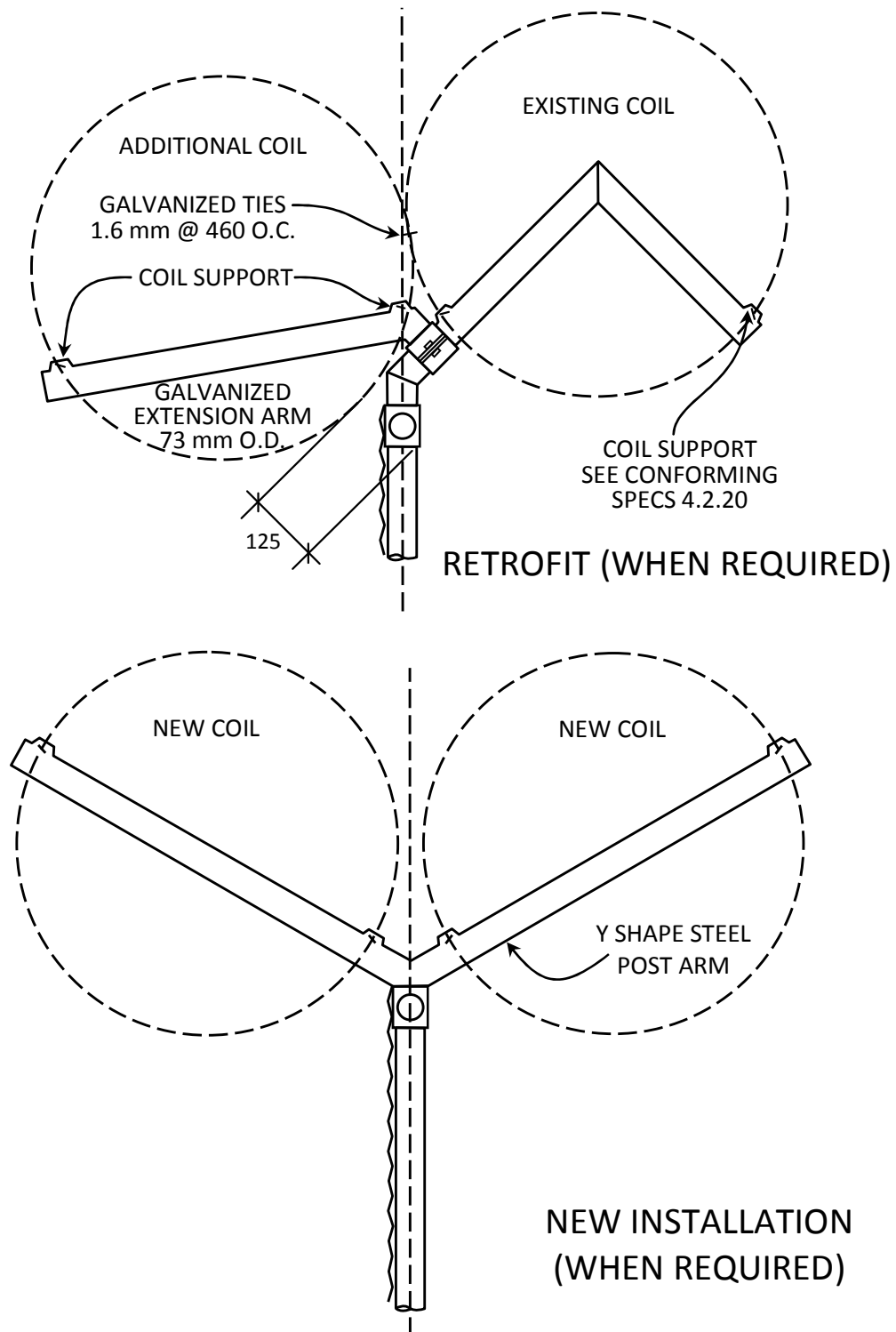


PLATE SP-2-3 – INNER FENCE WITH A SECOND CONCERTINA TAPE
CONCERTINA BARB TAPE: 710 mm Ø NOMINAL – INSTALLED AT 630 mm Ø

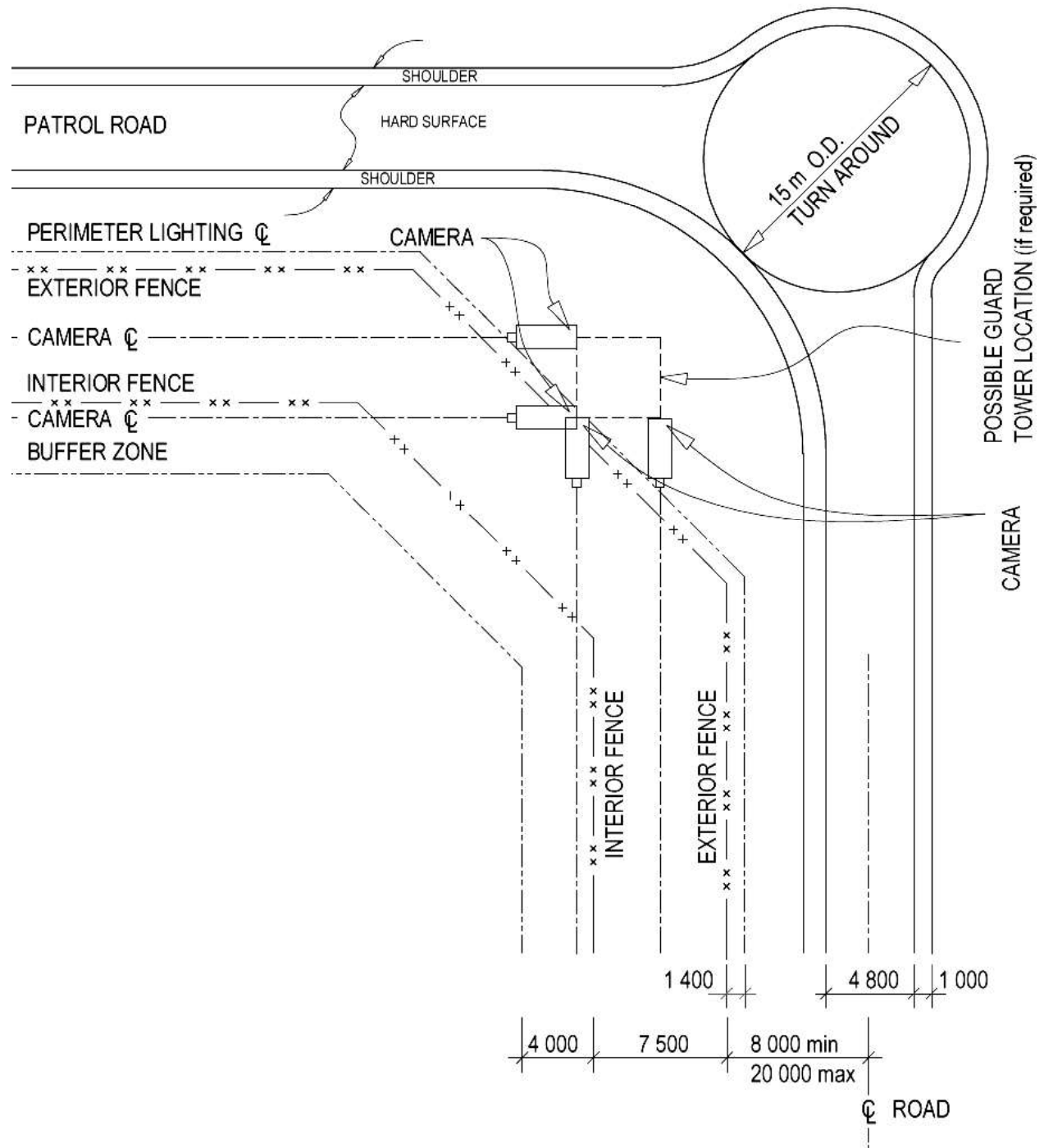


PLATE SP-2-4 – TYPICAL PERIMETER FENCE CORNER WITH TOWER
NOTE: CAMERA LINES ARE FOR INFORMATION PURPOSES ONLY

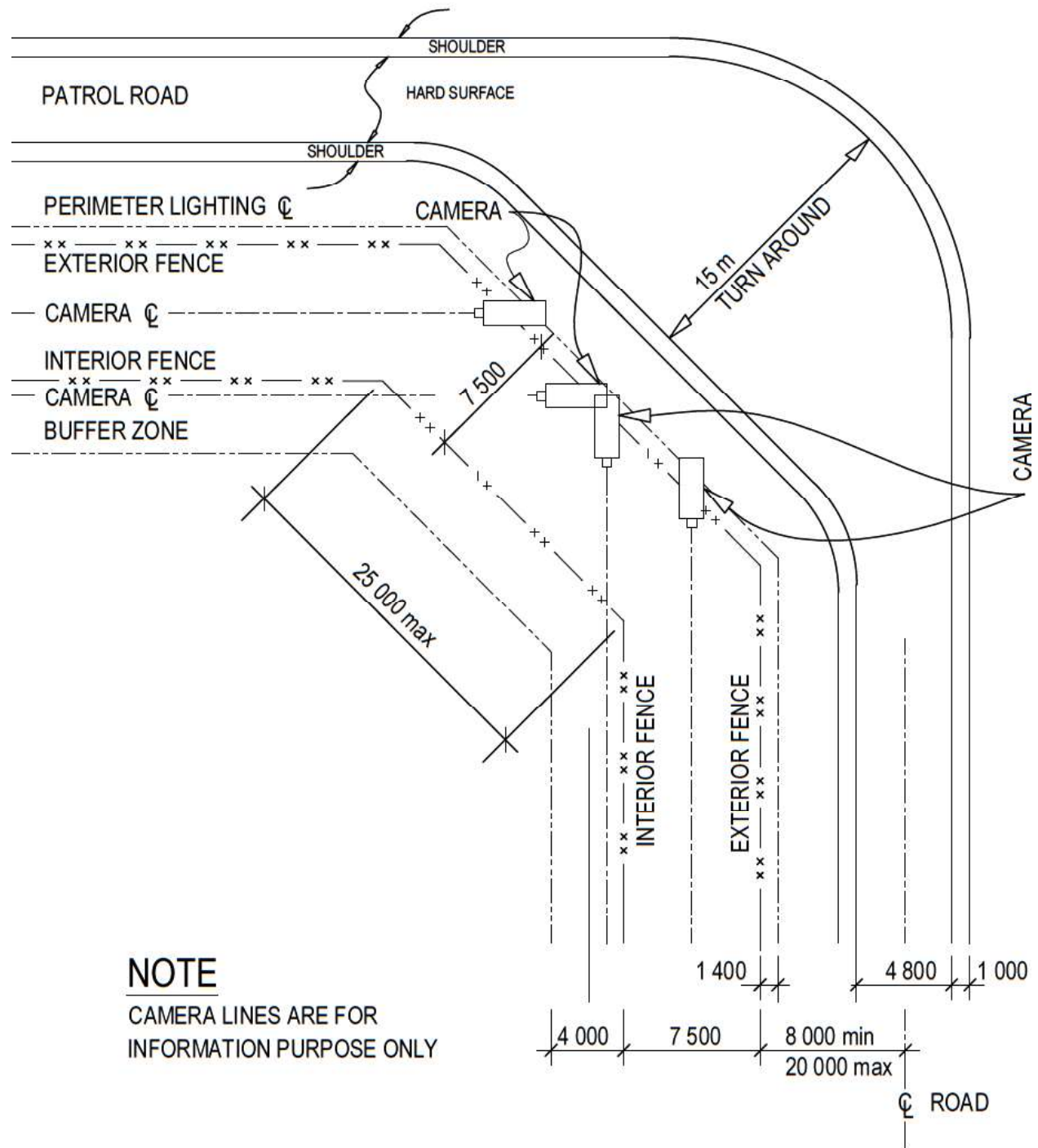
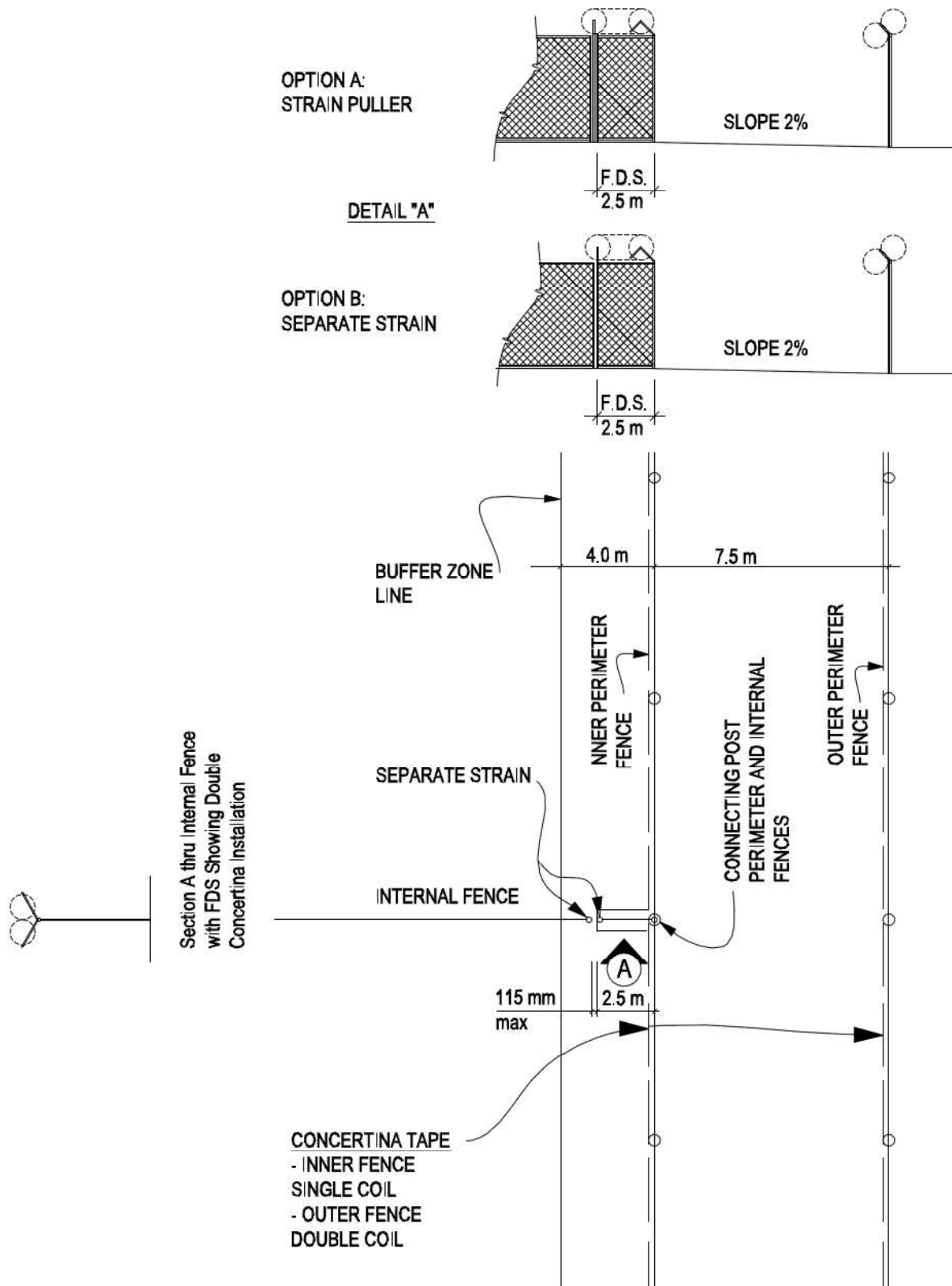


PLATE SP-2-5 – TYPICAL PERIMETER FENCE CORNER WITHOUT TOWER
CAMERAS ARE MOUNTED ON OUTRIGGERS OVER THE CONCERTINA



**PLATE SP-2-6 – INTERNAL FENCES INTERSECTING
THE INNER PERIMETER FENCE – DETAILS**

SP-3 SITE – GATES/SALLY PORT

1. SCOPE

This section outlines requirements for vehicle and pedestrian access and egress control for institutions with a secure perimeter as at medium, maximum and multi-level institutions.

Access and egress control for open minimum institutions involves signage and reporting to a 24 hr Duty office but does not include fencing and gates. Refer to A-12 Control posts for functional requirements as well as the CSC Accommodation Guidelines.

It is imperative that all Gate projects, on either perimeter or interior fences, are submitted to the office of the Director Facility Planning and Standards at NHQ for review and approval.

2. RELATED SECTIONS

7.3 Technical Criteria Document sections:

SP-1 – Site Development

SP-2 – Fences

A-6 – Hardware

A-10 – Contraband Control Systems

A-12 – Control Posts and Dedicated Security Routes

2.1 National Master Specification Section

01 35 13.16 – Special Project Procedures for Detention Facilities

08 34 56 – Security Gates

32 31 13 – Chain Link Fences and Gates

32 31 13.53 – High-Security Chain Link Fences and Gates

34 71 13 – Vehicle Barriers

34 71 13.16 – Vehicle Crash Barriers

34 75 13.13 – Active Vehicle Barriers

2.2 ASTM Standards

F2656-07 – Standard Test Method for Vehicle Crash Testing of Perimeter Barriers

3. ACCESS CONTROL SECURITY REQUIREMENTS

3.1 All new institutions equipped with a fenced perimeter shall have one entrance point for pedestrian and vehicle traffic, referred to as the Principal Entrance.

3.2 Because the Principal Entrance may at some time be inoperable, one Emergency Vehicle Entrance shall be provided, to be located at a point convenient for vehicle access. This Emergency Vehicle Entrance can have either a Sliding Gate (Section 5.1) or a Swing Gate (Section 5.2).

3.3 Vehicle access shall be provided into the area between the inner and Outer Perimeter Fences for snow clearing and maintenance of the Motion Detection System (MDS). Snow build up between the fences can adversely affect the operation of the MDS.

4. PRINCIPAL ENTRANCE

4.1 Definition

The Principal Entrance is formed by a Gatehouse for pedestrian traffic control and an open air chain-link fence compound with inter locking gates for vehicle traffic control (vehicle Sally Port). The Gatehouse contains the Principal Entrance Control Post and a reception station from which staff supervise all traffic in and out of the institution and operate by remote control all gates and doors. For detailed requirements see A-12 Control Posts and Dedicated Security Routes. At institutions where a separate vehicle service entrance Sally Port exists, Sally Port gates are remote operated from an adjacent tower or a post within the Sally Port. The tower or ground post officer also observes the inspection of vehicles and assures the safety of the vehicle inspection officer.

- 4.1.1 All vehicle Sally Ports shall be equipped with sliding gates. The sliding gates shall be remote controlled from the Principal Entrance control post and interlocked to prevent simultaneous unlocking. The sliding gates control must provide for the opening of one of the gate only when the other gate is in its latched position. Both gates shall be also capable of manual unlocking and opening.
- 4.1.2 Vehicle Sally Ports shall be sized to include an inspection area, to facilitate a thorough inspection of vehicles, which can hold in width two van type trucks (8.5 m min.), and hold one semi trailer truck in length (23 m min.).
- 4.1.3 In order to prevent forced drive through of vehicles, the exterior gate of the vehicle Sally Port shall be equipped with a crash barrier (see section 4.4 and Plates SP-3-6 to SP-3-8). The width of the Sally Port shall be sized to accommodate the crash barrier in the open position.
- 4.1.4 All Principal Entrance pedestrian traffic shall be physically separated from vehicular traffic.
- 4.1.5 Where vehicle access into the area between the perimeter fences is provided from the vehicle Sally Port, the gates shall be swing type, manually operated and lockable with a padlock.
- 4.1.6 All pedestrian traffic through the Principal Entrance, including traffic between the vehicle Sally Port and the pedestrian Sally Port, shall be through swing gates. Principal Entrance pedestrian gates shall be remote unlocking, self closing and locking, and capable of manual unlocking.
- 4.1.7 To allow continuous CCTV coverage of the area between the perimeter fences while maintaining a minimum number of cameras, the Gatehouse building shall be sited on the outside of the Outer Perimeter Fence with one face of the building flush with that Outer Perimeter Fence.
- 4.1.8 See Plate SP-3-1 for a typical Principal Entrance layout.

4.2 Crash Barriers

- 4.2.1 Crash barriers for Sally Port sliding gates shall be connected to the interior side of the exterior gate or the rack and pinion rail depending on the gate operator type and shall be operated simultaneously with the remote operation of the gate.

- 4.2.2 In order to resist vehicle impact, crash barriers shall be made of a steel I-beam or rectangular tubing supported on anti friction rollers on heavy uprights. In a test equivalent to the US Department of State K4 certification¹⁰ (6 804 kg @ 48.3 km/hr or 15,000 lbs @ 30 mph) the vehicle must be inoperable after hitting the crash bar; disabling the vehicle being the main purpose.
- 4.2.3 Three heavy engineered uprights support the crash barrier and as well serve as bollards protecting the adjacent fence and gate posts. In either open or closed gate position, the crash barrier is supported by 2 uprights.
- 4.2.4 If crash barriers are used for emergency gates on the perimeter, they shall be made of a simple beam or rectangular tubing with a counter weight mechanically lifted and lockable in closed position with the use of a security padlock.
- 4.2.5 Gates having integrated crash bar or crash cables system are acceptable if they meet M30 designation of *ASTM F2656-07*¹¹, K4 certification of the US Department of State (see footnote 1) or the European equivalent.
- 4.2.6 See Plates SP-3-3 to SP-3-5 for typical Sally Port crash barriers.

5. FENCE GATES

5.1 *Vehicle Sliding Gates*

- 5.1.1 The size of each gate shall provide for a 4 m wide x 4.5 m high clear opening.
- 5.1.2 Gate chain link fabric shall match perimeter fence. (See section SP-2, Fences).
- 5.1.3 Gate framing members shall be 73 mm O.D. pipe weighing 8.6 kg/m welded and drained.
- 5.1.4 Motorized gates shall be capable of moving at a speed of 150 mm/s.
- 5.1.5 Gate shall have three point locking (top, bottom and middle) or be locked by way of rack and pinion mechanism and a vertical channel to clasp the gate.
- 5.1.6 Locking column shall be equipped with an emergency manual control mechanism located for easy access.
- 5.1.7 Operator and track shall be protected and electrically heated to ensure all weather operation. In rack and pinion system (or “drive rail” operator) the teeth of the rack can be unprotected provided that they are on the lower side of the rack and visible to the operator.
- 5.1.8 Outer perimeter gates with connected crash beams shall be designed to take the additional weight into account.
- 5.1.9 For gates operated by an overhead chain drive system, a guide shall be provided at the bottom of the gate running in a channel.
- 5.1.10 Motors shall be located low to the ground to facilitate maintenance
- 5.1.11 All gate components shall be galvanized.

¹⁰ US Department of State SD–STD–02.01, Revision A , March 2003, Test Method for Vehicle Crash Gate Testing of Perimeter Barriers and Gates

¹¹ ASTM F2656–07, Standard Test Method for Vehicle Crash Testing of Perimeter Barriers, M30 Designation: Medium-duty truck (M) 6800 kg @ 50 km/h

5.1.12 All security hardware shall be in accordance with chapter A-6, Hardware of the present document. All other components shall be in accordance with the Fences section of this criterion.

5.1.13 See Plates SP-3-2 and SP-3-3 for a typical gate installation.

5.2 Vehicle Swing Gates (Perimeter and Internal Fences)

5.2.1 Gates shall consist of a pair of 2 m wide by 4.5 m high sections, for an opening of 4 m wide X 4.5 m high, except where municipal by law or sufficient height and width for local emergency vehicles (fire trucks) dictate otherwise¹².

5.2.2 The swing direction of gates shall be based on road access design and snow removal constraints.

5.2.3 Any gap between the bottom rail of a gate and the ground shall not exceed 125 mm. Where gates are located on a fence equipped with a ground barrier, this barrier shall be continuous.

5.2.4 The chain link fabric for gates shall match that of the fence (see section SP-2, Fences).

5.2.5 Gate framing shall be as per item 5.1.3 above.

5.2.6 There shall be three gate hinges and they shall be of standard quality. Foot, mid height, and top locking shall be accomplished with either detention grade cremone lock or engineered mechanism and locked with the use of padlocks.

5.2.7 Plate SP-3-7 illustrates a typical design for vehicle swing gate.

5.3 Pedestrian Gates (Perimeter and Internal Fences)

5.3.1 The size of each swing gate shall provide for a 1.2 m wide x 2.1 m high clear opening.

5.3.2 Items 5.2.2, 5.2.3 and 5.2.4 noted above for vehicle swing gates shall apply.

5.3.3 Swing gate framing members shall be 43 mm O.D. pipe weighing 3.4 kg/m.

5.3.4 Swing gates shall be manually operated with security key locks when gates are used daily. Principal Entrance gates shall be remote unlocked and equipped with closers. Infrequently used gates shall be security padlocked.

¹² For example, in Ontario the *Highway Traffic Act* Section 109 stipulate a maximum height of 4.15 m by a width of 2.6 m, which is similar to the 13'-6" (4.12 m) by 8 (2.43 m) in USA.

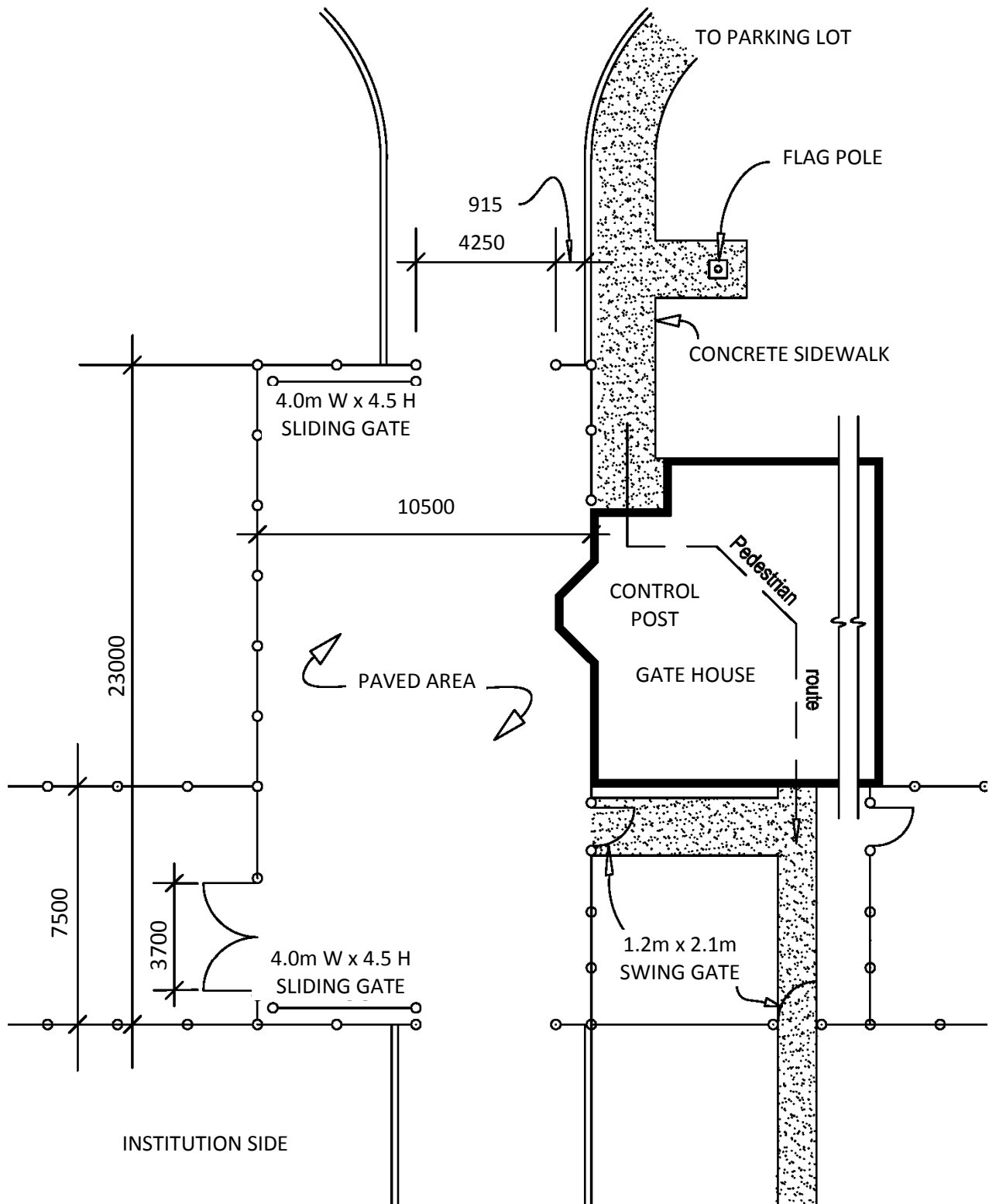
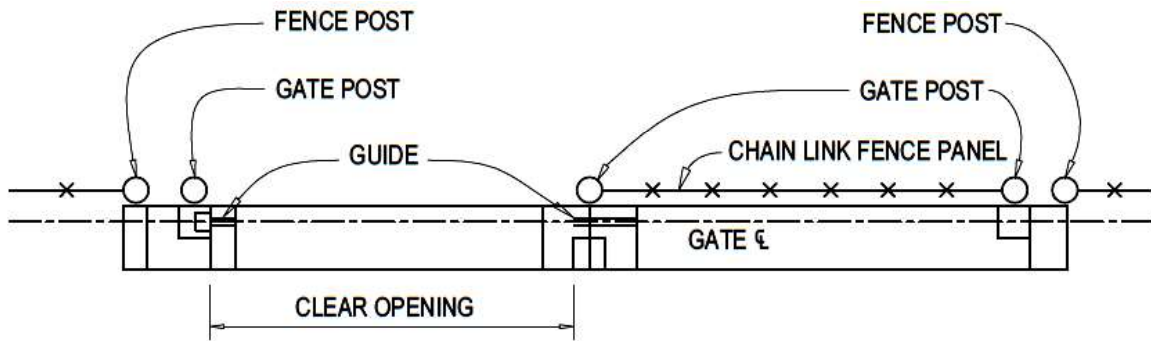
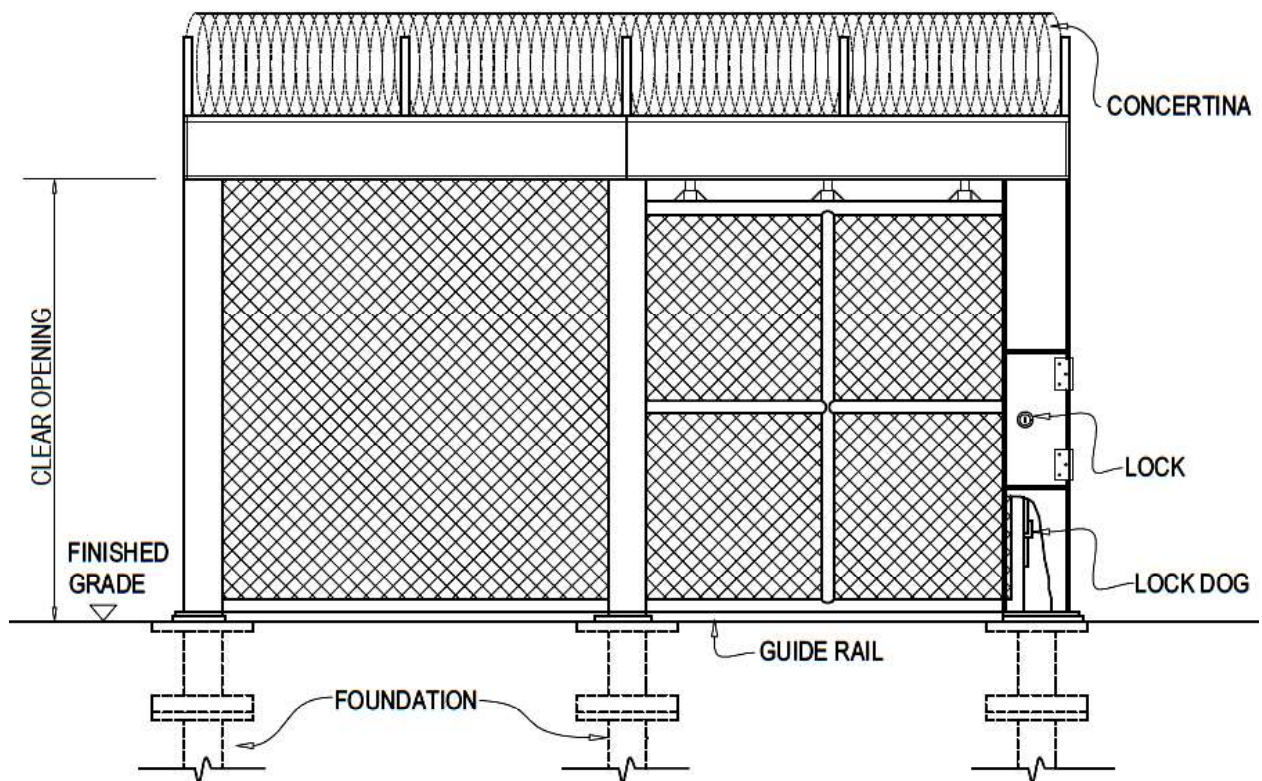


PLATE SP-3-1 – TYPICAL SALLY PORT ARRANGEMENT

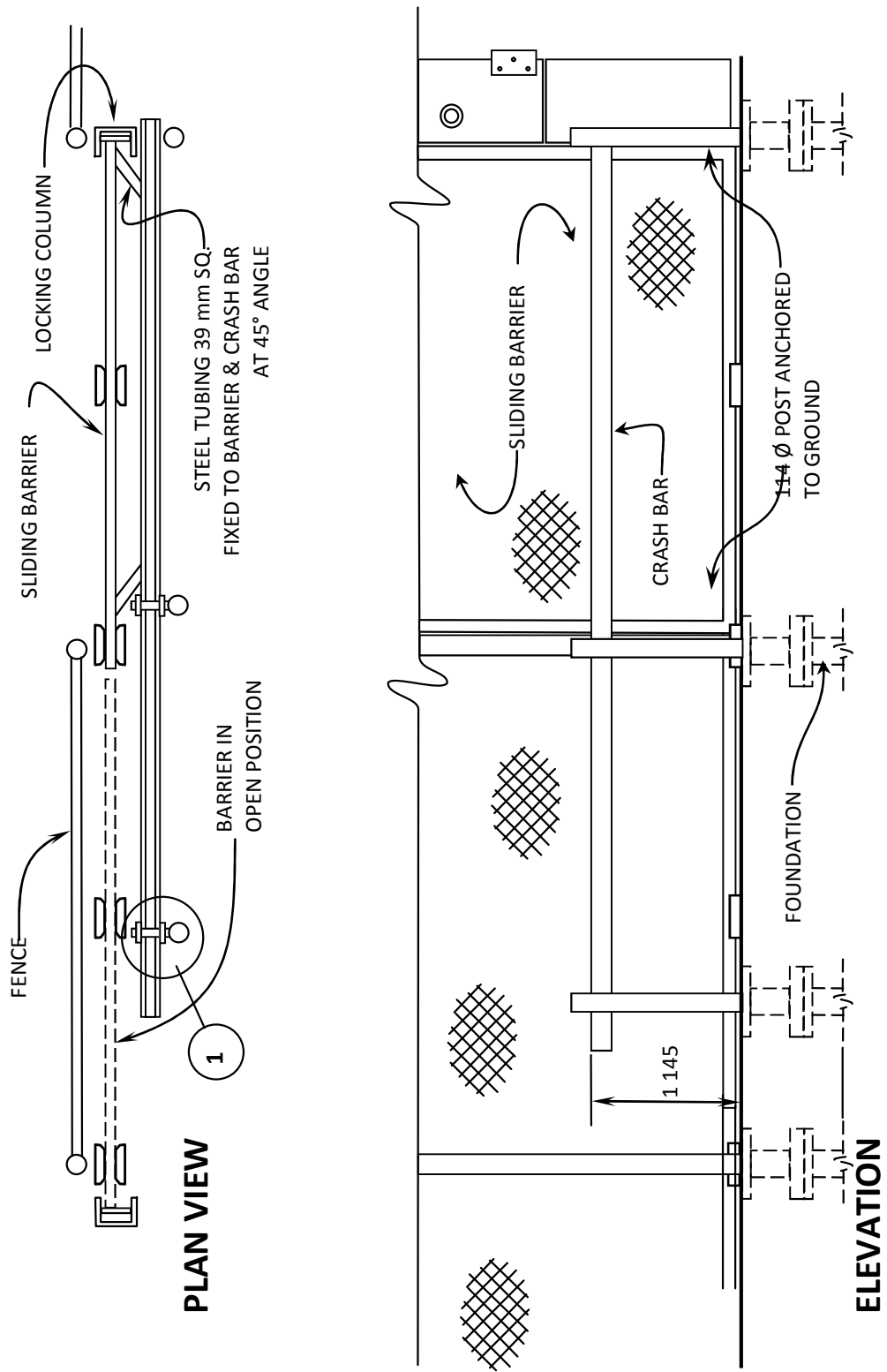


TOP VIEW



FRONT VIEW

PLATE SP-3-2 – FENCE GATE WITH OVERHEAD CHAIN DRIVE
INNER PERIMETER FENCE



**SP-3-3 – FENCE GATE WITH OVERHEAD CHAIN DRIVE
OUTER PERIMETER FENCE**

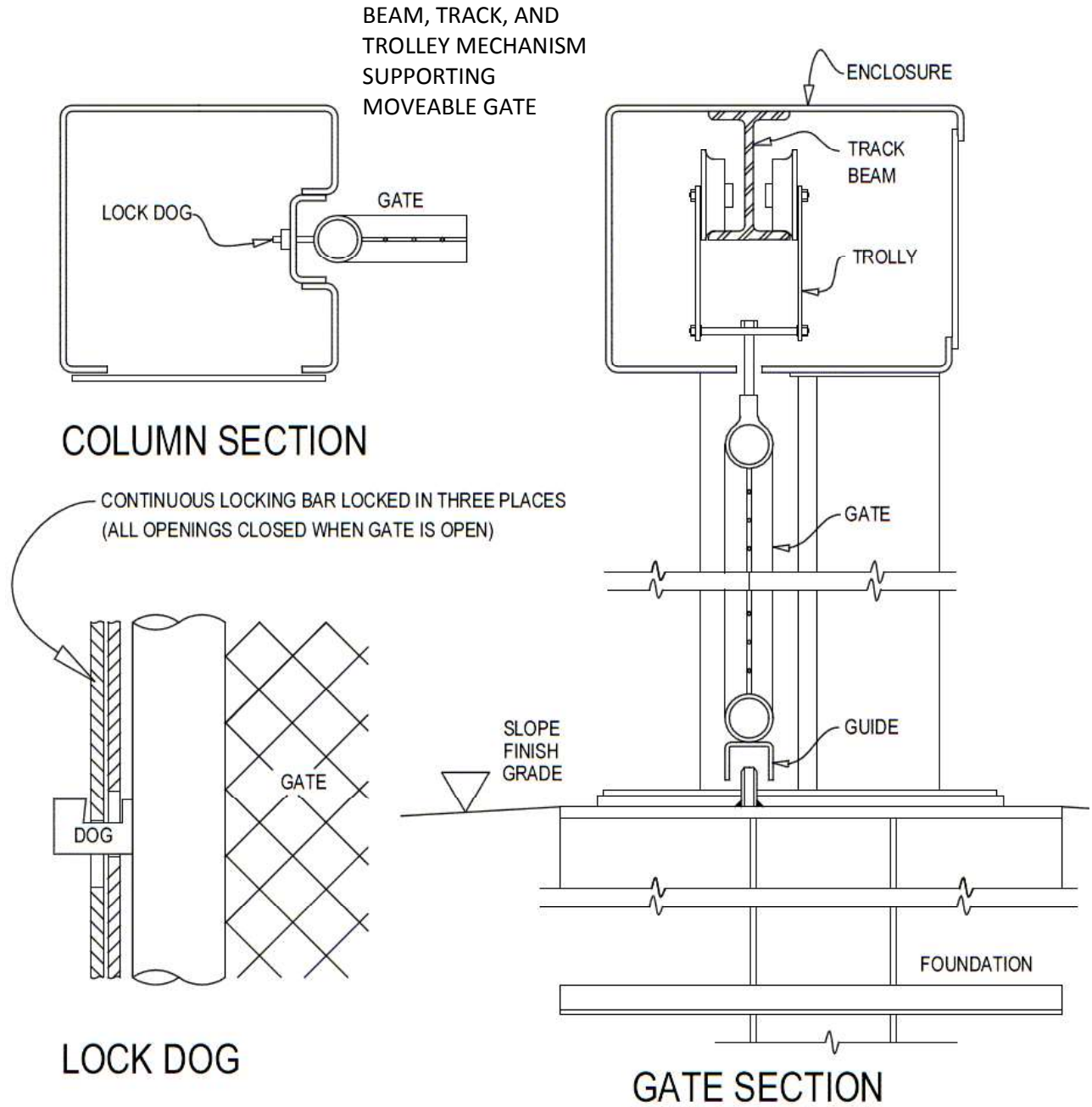


PLATE SP-3-4 – FENCE GATE WITH OVERHEAD CHAIN DRIVE – DETAILS

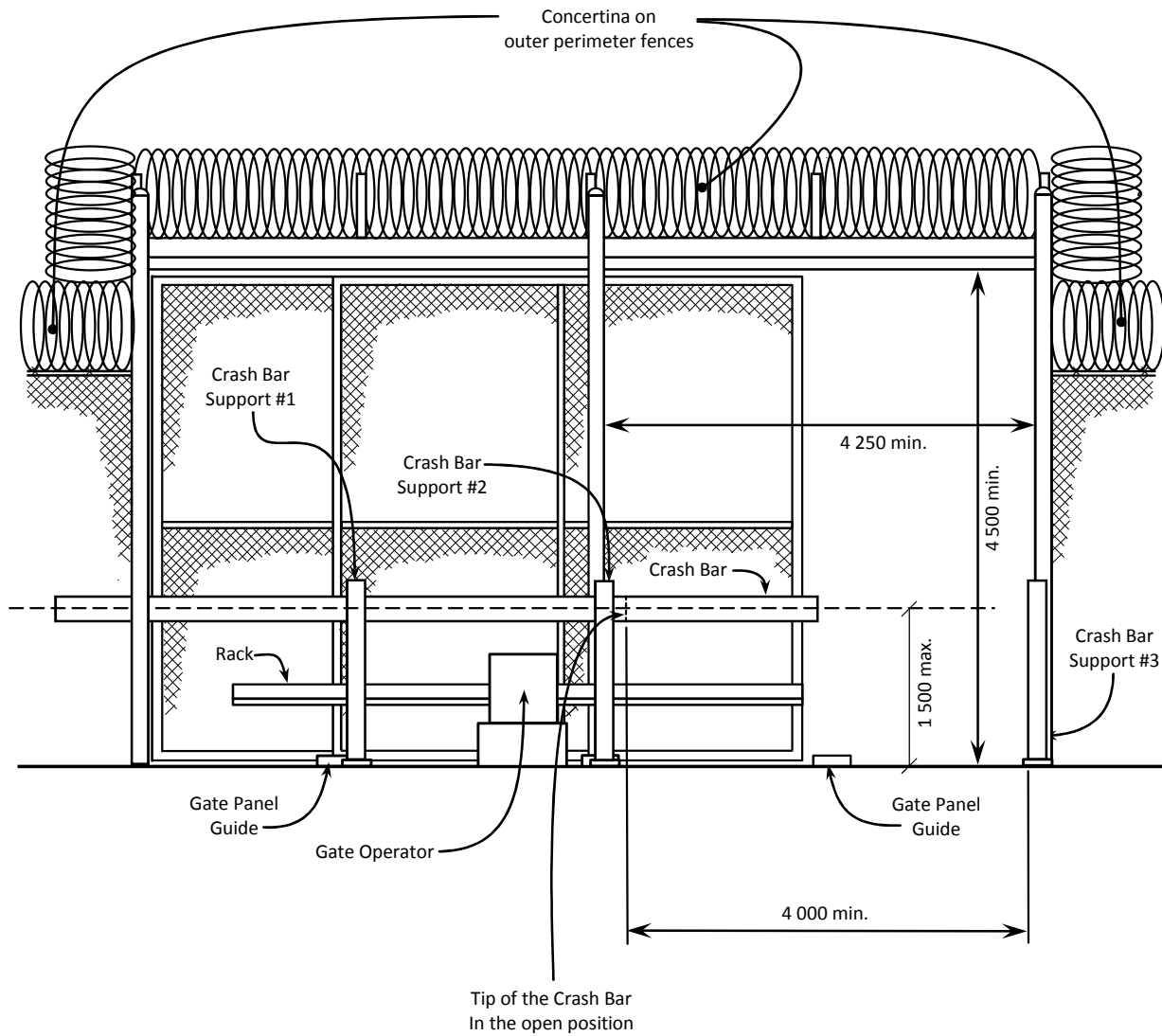


PLATE SP-3-5 – FENCE GATE WITH RACK & PINION –
INSIDE ELEVATION OUTER PERIMETER FENCE

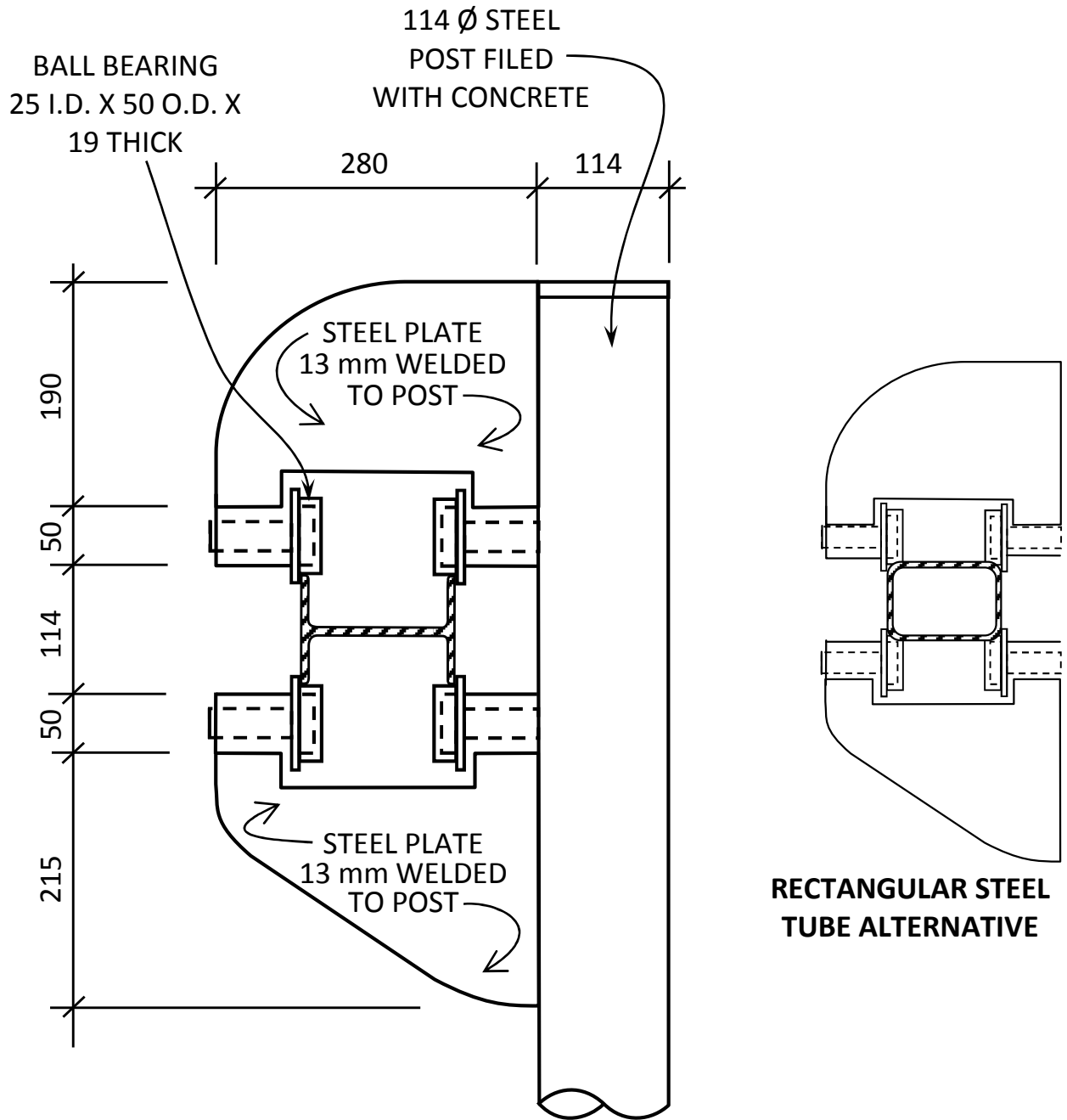


PLATE SP-3-6 – CRASH BAR DETAILS

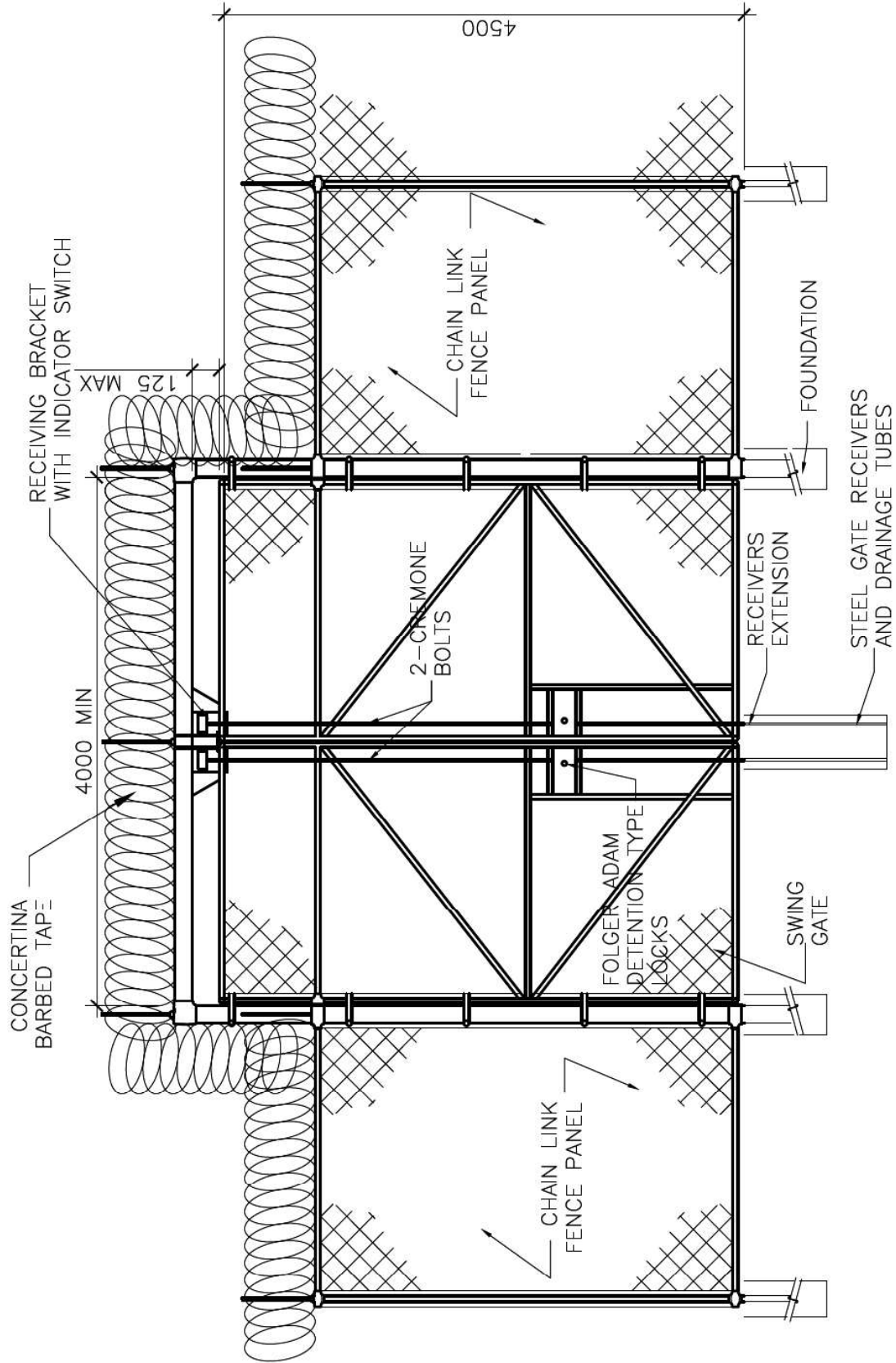


PLATE SP-3-7 – VEHICLE SWING GATE (EMERGENCY GATE)