BRITISH STANDARD

BS 6579-5: 1986

Safety fences and barriers for highways —

Part 5: Specification for open box beam safety fence (single height)

UDC 625.738 + 692.88

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Road Engineering Standards Committee (RDB/-) to Technical Committee RDB/18, upon which the following bodies were represented;

Aluminium Federation
Association of Consulting Engineers
British Railways Board
British Steel Industry
Cement and Concrete Association
Convention of Scottish Local Authorities
County Surveyor's Society
Department of Transport (Highways)
Institution of British Engineers
Institution of Civil Engineers
Institution of Highways and Transportation
Royal Automobile Club
Royal Society for the Prevention of Accidents
Coopted members

The following bodies were also represented in the drafting of the standard, through subcommittees and panels:

Department of Transport (Transport and Road Research Laboratory)
Fencing Contractors' Association

This British Standard, having been prepared under the direction of the Road Engineering Standards Committee, was published under the authority of the Board of BSI and comes into effect on 31 December 1986

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Contents

Foreword

This Part of BS 6579 has been prepared under the direction of the Road Engineering Standards Committee. The other Parts of BS 6579 either published or in preparation are:

— *Part 1: Specification for components for tensioned corrugated beam safety fence on Z posts;*

— *Part 2: Specification for tensioned corrugated beam safety fence on offset brackets;*

— *Part 3: Specification for tensioned rectangular hollow section beam safety fence (100 mm × 100 mm);*

— *Part 4: Specification for tensioned rectangular hollow section beam safety fence (200 mm × 100 mm);*

— *Part 6: Specification for open box beam safety fence (double height);*

— *Part 7: Specification for untensioned corrugated beam safety fences;*

— *Part 8: Specification for concrete safety barriers.*

Appendix A and Appendix B of this Part of BS 6579 provide additional information helpful to the users of the components.

BS 6579 is being produced at the request of users and manufacturers in order to cover the various types of safety fences and barriers available.

Fences detailed in Parts 1 to 7 have been developed already and approved for use on roads in the United Kingdom.

The designs are based on the results of static and dynamic tests carried out in the past on components and complete systems under the direction of the Transport and Road Research Laboratory (TRRL).

The safety barrier detailed in Part 8 is for use only on certain roads at the date of publication of this standard.

If further types are developed, BS 6579 will be revised and increased in scope to cover additions and variations.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 22, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

0 Introduction

0.1 The objective of providing safety fences or barriers adjacent to a highway is to reduce the consequences of vehicles leaving the carriageway and entering areas where it would be unsafe for them to travel.

Safety fences are intended to absorb some of the energy of impact and to redirect the errant vehicle, so that it follows, within a narrow angle, the line of the fence in the direction of the traffic and does not overturn.

Safety barriers are intended to provide containment without significant deflection or deformation under impact, and to re-direct errant vehicles along the line of the barrier in the direction of traffic.

0.2 The safety fences and barriers for ground mounting which are the subject of BS 6579 are for use in conjunction with parapets on bridges, which are the subject of an associated British Standard. Although definitions in both standards have been chosen so as to align as closely as possible, there are some cases where a definition is applicable only to a particular Part of BS 6579 and does not apply generally.

0.3 No direct guidance is given in BS 6579 on the situations where safety fences and barriers should be erected or on the choice of the types described in the various Parts, but information pertaining to general characteristics of different types of safety fences and barriers is given in Appendix A.

0.4 There are various situations and various methods by which transition between a safety fence or safety barrier and a vehicle containment parapet can be assured without impairing the overall protection afforded to users of the highway.

Appendix B gives recommendations for connections between this type of safety fence and existing designs of metal parapet and also connections to other types of safety fence.

In Appendix C the number of components is given for 1 km of safety fence and Appendix D gives recommendations for mounting an open box beam fence on acoustic barrier.

0.5 It is important to recognize that the performance of a safety fence can be affected by factors that are not covered by the specifications for the components. These factors include the choice of intermediate posts to suit the ground conditions and the erection and maintenance of the fence.

0.6 Direct connection to a bridge parapet is to be made by using the special connectors as shown on the drawings. These vary according to the material of the parapet and whether the tension from a tensioned corrugated beam safety fence is transmitted through the open box beam fence to the parapet end post or absorbed in a full-height anchorage.

0.7 Figure 1 illustrates the general arrangement of an open box beam safety fence for which the components specified in this Part of BS 6579 are intended. It is essential that the end posts and all angled beam posts are set in concrete as illustrated in the figure. Intermediate posts (see Figure 2) however, are expected to be either driven, or set in concrete into the ground, or mounted on bridge decks using "bridge deck posts" as shown in Figure 2. Where an open box beam fence is not continued over a bridge, the full height anchorages shown in Figure 3 should be used. These should be set in concrete and located adjacent to the approach and departure ends of the bridge deck.

0.8 Where an open box beam safety fence is used on a curve the limiting radius of the installation should be as given in Appendix E.

0.9 The approach to the safety fence should be set back away from the traffic and flared as shown in Figure 1. The flare length should be at least ten times the set back.

0.10 Enquiries concerning the availability of detailed drawings providing information on manufacture and installation should be made to the Transport and Road Research Laboratory[1)].

0.11 In Appendix F important recommendations are given on the transport, handling and storage of components prior to assembly on site and Appendix G lists information that should be provided when making an enquiry or order.

1 Scope

This Part of BS 6579 specifies the requirements for the components to be used in the construction of the open box beam type of safety fence. Requirements are given for the materials and dimensions of the components and for protective finishes.

Erection of the assembled fence is outside the scope of this Part of BS 6579 (see clause **0**).

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

[1)] Transport and Road Research Laboratory, Old Wokingham Road, Crowthorne, Berks, RG11 6AU.

2 Definitions

For the purposes of this Part of BS 6579 the following definitions apply.

2.1
safety fence

an installation provided for the protection of users of the highway consisting of horizontal beams mounted on posts

2.2
safety barrier

an installation provided for the protection of users of the highway which is continuously in contact with its supporting foundation

2.3
single sided safety fence

a safety fence having its beams on the side of the mounting posts nearest to the traffic

2.4
double sided safety fence

a safety fence with beams on opposite sides of the mounting posts and at the same height

2.5
traffic face

the face of a safety fence or barrier that is nearer to the vehicular traffic flow

2.6
impacting vehicle

a vehicle striking a safety fence or barrier whether or not is redirected

2.7
terminal

the end-section of the length of a safety fence within which the beam rises from or is brought down to an anchorage

2.8
flaring (of the ends)

the setting back of ground anchorages behind the line of a safety fence

NOTE Flaring is intended to reduce the risk of errant vehicles hitting or mounting the anchorages and to reduce the risk of a vehicle passing behind the safety fence.

2.9
full height anchorage

a cross-braced frame extending to the full height of a safety fence

NOTE Full height anchorages are used in locations where ground anchorages are not suitable.

2.10
initial installation length

the length of safety fence obtained by setting out the position of each intermediate post from the centre of the angled beam post (the datum)

3 Components

NOTE 1 Where it is required to provide a connection to a tensioned-corrugated beam safety fence, special transition pieces should be provided (see Figure 5).
NOTE 2 An expansion beam assembly (see Figure 1) should be installed when uninterrupted lengths of open box beam safety fence exceeding 100 m are erected. When the temperature is expected to fluctuate more than 60 °C additional expansion beam assemblies will be required.

3.1 Beams

All beams shall be formed from steel, 5 mm stock thickness, to grade 43A of BS 4360 (see Figure 4).

3.2 Posts and anchorages

3.2.1 All posts and anchorages shall be made from steel complying with the requirements of BS 4360 and to the following grades:

a) End posts:	sections grade 43C, 5 mm stock thickness plates grade 43A, 10 mm stock thickness
b) Other posts:	grade 43A, 5 mm stock thickness
c) Full height anchorages:	sections grade 43C plates and angles grade 43A

3.2.2 Posts and anchorages shall conform to the appropriate dimensional requirements shown in Figure 2 and Figure 3.

3.3 Fish plates

Flanged channel section plates (see Figure 2) shall be formed from steel, 6 mm stock thickness, to grade 43A of BS 4360 and used in pairs for connecting the beams together, the standard plates being designed to transmit bending to the adjacent beams.

NOTE The special plates, which should be painted red for the purposes of identification, are narrower, and when used in conjunction with the half length beams enable the fence to be installed to a curve (see Appendix E).

3.4 Mounting brackets

Where the beam is mounted on a structure other than on posts hexagonal shaped brackets (see Figure 5 and Figure 6) for absorbing impact energy shall be provided between the beam and the structure. They shall be fabricated from steel, 6 mm stock thickness, to grade 43A of BS 4360 except in the case of an acoustic barrier where they shall be steel, 8 mm stock thickness. Where the mounting of brackets is such that a parallel face is not presented to the carriageway an adaptor platform, also fabricated from steel to grade 43A of BS 4360 shall be provided and attached to the bridge pier or structure by means of anchor bolts (see Figure 1).

3.5 Clamp plates

Clamp plates fabricated in steel, 6 mm stock thickness, (see Figure 5) to grade 43A of BS 4360 shall be inserted into the open box beams so as to register on the flanges and shall be used to clamp the beams to the posts or to the off-set brackets or spacers.

3.6 Spacers and stiffeners

When it is necessary for a double-sided safety fence to be used to enclose lighting columns, spacer channels shall be provided on both sides of the posts so as to increase the gap between the backs of the two beams from 110 mm to 300 mm or 400 mm, depending upon the requirement and the type of spacer used. In order to provide additional rigidity, cross-braced frames shall be fitted at the mid-point between each post (see Figure 1). Spacers and stiffeners shall be fabricated from steel, 5 mm and 6 mm stock thicknesses respectively, to grade 43A of BS 4360.

3.7 Fasteners

Bolts, screws, nuts and washers shall be manufactured in steel as follows.

a) Bolts and screws shall be ISO metric black hexagon type, complying with grade 4.6 of BS 4190.

b) Nuts shall be ISO metric black hexagon nuts, complying with grade 4 of BS 4190.

c) Washers shall be black complying with BS 4320, Form A, E or F as in Table 2, or grade 304S15 of BS 1449-2, for stainless steel washers.

d) Stainless steel bolts and nuts shall be in accordance with grade A.4.80 of BS 6105.

NOTE The items listed in a), b) and c) are to be galvanized before use (see clause **5**).

3.8 Reinforcing rings and tie bars

Reinforcement for use in concrete foundations shall be made from 10 mm diameter steel rod complying with grade 250 of BS 4449.

4 Tolerances

4.1 Tolerances on dimensions of components shall be in accordance with the appropriate dimensional specification, detailed drawings and relevant figure of this Part of BS 6579.

4.2 Deviation from the specified dimensions for materials and fabricated components shall be measured before galvanizing.

5 Protective finish

All steel components excluding stainless steel items, reinforcing rings and reinforcing bars shall be hot dip galvanized, in accordance with BS 729, after fabrication.

NOTE 1 Where the purchaser wishes the components to be further protected by a paint system such requirements should be specified at the time of the enquiry and/or order. In this respect attention is drawn to BS 5493.

NOTE 2 At connections to parapets additional protection may be required (see **B.4.2** and **B.5.2**).

Fasteners shall be spun galvanized.

6 Marking

6.1 Every beam, fish plate, post, stiffener, mounting bracket and anchorage shall be marked with:

a) the number of this British Standard, i.e. BS 6579[2)];

b) manufacturers identification mark;

c) digits indicating month and year of manufacture.

(Note for example 10/86 indicates manufacture during October 1986.)

[2)] Marking BS 6579 on or in relation to a product is a claim by the manufacturer that the product has been manufactured to the requirements of the appropriate Part of BS 6579. The accuracy of such a claim is therefore solely the manufacturer's responsibility. Enquiries as to the availability of third party certification should be addressed to the appropriate certification body.

Appendix A Vehicle safety fences and barriers for highways: type characteristics

Information on type characteristics is given in Table 1. Illustrations of fence and barrier types are given in Figure 13.

Table 1 — Safety fences and barriers: type characteristics

Type	Reference	Material	Type of support or mounting	Post spacing	Beam position mounting height	Single/ double sided	Tension/ untensioned T/UT	Design deflection	Design vehicle mass	Vehicle speed		Design angle of departure (max.)
				m	mm			mm	t	km/h	miles/h	degrees
Corrugated beam	TCB1	Steel	Z section steel post	3.2	Side 610	Single	T	1 000	1.5	113	(70)	8
Corrugated beam[a]	TCB2	Steel	Z section steel post	1.6	Side 610	Single	T	800	1.5	113	(70)	10
Corrugated beam	TCB3	Steel	Steel or timber post with offset	3.2	Side (inclined at 15°) 535	Double	T	800	1.5	113	(70)	10
Corrugated beam	TCB4	Steel	Single Z section steel post	3.2	Side 610	Double	T	800	1.5	113	(70)	10
Corrugated beam	UCB	Steel	Steel or timber posts with offsets	3.8 (max.)	Side 525	Single or double	UT		1.5	80	(50)	10
Rectangular hollow section 100 mm × 100 mm[b]	TRHS1	Steel	Single Z section steel post	3.2	Top 610	Both	T	1 000	1.5	113	(70)	10
Rectangular hollow section 200 mm × 100 mm	TRHS2	Steel	Single Z section steel post	3.2	Top or side 610	Both Single	T T	600 600	1.5	113	(70)	8
Open box beam	OB1	Steel	Z section steel post	2.4	Side 610	Single	UT	600	1.5	113	(70)	10
Open box beam	OB2	Steel	Z section steel post	2.4	Side 610	Double	UT	400	1.5	113	(70)	10
Open box beam (double height)[c]	OB3	Steel	Z section steel post	2.4	Side 610 and 1 020	Single	UT	1 000	5	80	(50)	15
Concrete barrier[d]	CSB	Concrete	Profiled barrier on continuous foundation	—	816 to top of concrete	Double	—	Zero	1.5	80	(50)	8

NOTE 1 Mounting heights quoted are to the centre of the beam above the adjacent carriageway level.
NOTE 2 Design angle of approach of vehicle is 20° in each case.
NOTE 3 Beams THRS2 and OB1 may be mounted on steel brackets fixed to structures.
NOTE 4 Generally, double sided beams for dual carriageways on similar levels require only a single line of posts.
[a] May reduce dazzle when mounted in central reserve.
[b] Reduces extent of snow/sand drift. On dual carriageway central reserve has to be hardened.
[c] This type of safety fence will also satisfy the condition of a 1.5 t vehicle impacting at 20° and travelling at 113 km/h (70 miles/h).
[d] May reduce dazzle when mounted in central reserve.

Appendix B Transition between safety fences, bridge parapets and other types of safety fence

B.1 General

B.1.1 This appendix describes the method of connecting an open box beam safety fence to bridge parapets.

NOTE The tensioned corrugated and open box beam safety fences are complementary, the latter being used where a limited deflection is required. Hence a suitable transition between the two types has been developed.

B.1.2 Full height anchorages are to be provided at each side of expansion joints.

B.1.3 Where a direct connection is made to a metal parapet, the parapet end posts should be a special end post, see BS 6779-1[3)], or where there is a transition from tensioned corrugated to open box beam safety fence a full height anchorage should be provided.

NOTE The means for connecting safety fences to metal parapets varies according to whether the latter are fabricated in steel or aluminium. See Figure 7, Figure 8 and Figure 9.

B.2 Transition to tensioned corrugated safety fence

B.2.1 A specially fabricated unit should be incorporated along the length of the safety fence installation in order to provide a transition from a single-sided open box safety fence to either:

a) a single sided tensioned corrugated safety fence (item No. 006 on TRRL drawing); or

b) a double sided tensioned corrugated safety fence (item No. 024 on TRRL drawing).

B.2.2 When either of these transition pieces are fitted, the post spacing should change from 2.4 m centres for the open box to 1.6 m for the first 10 m of tensioned corrugated safety fence and 3.2 m thereafter.

B.3 Expansion joints in structures

B.3.1 Where an open box safety fence extends across an expansion joint in a structure, continuity should be provided by siting two full height anchorages (see Figure 3) as close as possible to the expansion joint.

B.3.2 To complete the traffic face between the two anchorages a connector, bolted at one end, should be provided which fits inside the open box beams.

B.4 Connections to steel parapets

B.4.1 The connection is to be effected between the beam and the two lower rails of the parapet in such a way that the two traffic faces are in line (see Figure 7).

B.4.2 The connection should be made by providing clamp plates which are bolted to the ends of the parapet rails. If site drilling is necessary it is essential that all cut surfaces are treated with zinc-rich paint.

B.5 Connections to aluminium parapets

B.5.1 Parapet connection beams should be provided by the safety fence supplier to attach the open box safety fence to the end post of the parapet, and there are various detail methods of attachment. (See Figure 8 and Figure 9.)

B.5.2 In making all connections between steel and aluminium components stainless steel bolts should be used and a suitable insulating material applied to the interface which should be supplied by the safety fence supplier.

B.6 Connections to concrete parapet or safety barriers

B.6.1 Inserts should be set into the end face of the concrete situated so that the open box beam can be bolted direct (see Figure 10 and Figure 11).

B.6.2 The traffic face of the open box should align with that of the concrete barrier.

Appendix C Schedule of components for 1 km of fence

For the convenience of users of this Part of BS 6579, Table 2 gives the numbers of components required for an uninterrupted length of approximately 1 km (0.621 miles).

Appendix D Mounting of open box beam safety fence on acoustic barrier

D.1 General

D.1.1 This appendix describes the method of connecting an open box beam safety fence to an acoustic barrier of the type given in Figure 12.

D.1.2 No transition to other types of safety fence should be made where acoustic barriers are fitted.

[3)] In preparation.

Table 2 — Components for 1 km of fence

Item number (correlates with TRRL drawing)	No. required			Description of item
	Single-sided	Double-sided	Double-sided enclosing lighting columns	
001	—	—	—	Profile of post
002	—	—	—	Profile of beam
003	205	410	410	Standard beam
004	[a]	[a]	[a]	Beam-half length
005	2	4	4	End beam
006	[a]	[a]	[a]	Transition piece single-sided
007	2	4	4	Angled beam
008	7	—	—	End post (single beam) departure
009	1	—	—	End post (single beam) approach
010	[a]	[a]	[a]	Bridge deck post (central reserve)
011	[a]	[a]	[a]	Mounting bracket (bridge pier abutment or retaining wall)
012	410	820	820	Fish plate, standard
013	[a]	[a]	[a]	Fish plate, special
017	410	820	820	Clamp plate, standard
018	410	410	410	Post, intermediate
019	[a]	[a]	[a]	Post, driven (central reserve)
020	2	2	2	Post angled beam
021	410	410	410	Reinforcing ring
023	[a]	[a]	[a]	Clamp plate, mounting bracket
024	[a]	[a]	[a]	Transition piece double-sided
025	—	2	—	End post, double beam
026	—	—	2	End post, double beam (lighting columns)
027	—	—	820	Spacer 95 mm, intermediate post
028	—	—	4	Spacer 95 mm, angled beam post
029	—	—	412	Stiffener, lighting columns
030	[a]	—	—	Post, driven (verge)
031	—	—	8	Spacer, end post
032	[a]	—	—	Anchorage — socketed, approach (expansion joint)
033	[a]	—	—	Anchorage — socketed, departure (expansion joint)
034	[a]	—	—	Anchorage — bolted, departure (expansion joint)
035	[a]	—	—	Anchorage — bolted, approach (expansion joint)
036	[a]	—	—	Connector (expansion joint)
037	—	[a]	[a]	Bridge deck post adjustable height (central reserve)
038	[a]	[a]	[a]	Post extension
040	—	[a]	—	Anchorage, socketed double-sided (expansion joint)

[a] No. off as required.

Table 2 — Components for 1 km of fence

Item number (correlates with TRRL drawing)	No. required			Description of item
	Single-sided	Double-sided	Double-sided enclosing lighting columns	
041	—	[a]	—	Anchorage, bolted double-sided (expansion joint)
042	—	—	[a]	Anchorage, socketed for lighting column, approach (expansion joint)
043	—	—	[a]	Anchorage, socketed for lighting column, departure (expansion joint)
044	—	—	[a]	Anchorage, bolted for lighting column, approach (expansion joint)
045	—	—	[a]	Anchorage, bolted for lighting column, departure (expansion joint)
048	[a]	[a]	[a]	Connection piece, beam to steel parapet
049	[a]	[a]	[a]	Clamp plate, fish plates
050	13	26	26	Expansion joint beam, long
051	13	26	26	Expansion joint beam, short
052	13	26	26	Connector (expansion beam)
053	[a]	—	—	Bridge deck post (verge)
054	[a]	—	—	Bridge deck post adjustable height (verge)
055	[a]	[a]	[a]	Long post, driven (central reserve)
056	[a]	—	—	Long post, driven (verge)
057	[a]	—	—	Parapet connection beam (Baco inclined) type “A” (approach)
058	[a]	—	—	Parapet connection beam (Baco inclined) type “A” (departure)
059	[a]	—	—	Anchor bolt M10
060	[a]	—	—	Anchor bolt M20 (see 059)
062	[a]	—	—	Cast-in socket (3 × M20)
063	[a]	—	—	Cast-in socket (6 × M20)
064	[a]	—	—	Parapet connection beam (Baco vertical) type “A”
065	[a]	—	—	Parapet connection beam (Baco vertical) type “B”
066	[a]	—	—	Parapet connection beam (Baco inclined) type “B” (approach)
067	[a]	—	—	Parapet connection beam (Baco inclined) type “B” (departure)
068	2482	4964	[a]	Connecting bolt
069	4	8	8	Reinforcing rod
SA3	[a]	[a]	[a]	Expansion beam assembly (factory pre-set)

[a] No. off as required.

Table 2 — Components for 1 km of fence

Item number (correlates with TRRL drawing)	No. required			Description of item
	Single-sided	Double-sided	Double-sided enclosing lighting columns	
A	156	312	312	Bolt, M16 × 45 mm length
B	2482	4964	[a]	Bolt, M16 × 45 mm length
C	2	4	8	Bolt, M16 × 35 mm length
D	[a]	[a]	[a]	Screw, M12 × 35 mm length
E	410	820	820	Screw, M10 × 30 mm length
F	12	24	24	Nut, M20
G	2484	4968	[a]	Nut, M16
H	[a]	[a]	[a]	Nut, M12
J	410	820	820	Nut, M10
K	24	48	48	Black washer, M20 (Form E)
L	5280	10560	[a]	Black washer, M16 (Form F)
M	[a]	[a]	[a]	Black washer, M12 (Form E)
N	820	1640	1640	Black washer, M10 (Form E)
P	[a]	—	—	Washer, M12 (Form A)
Q	[a]	—	—	Nut, M12 stainless steel
R	156	312	312	Stiffnut, M16 “Nyloc” zinc plated
S	12	24	—	Bolt, M20 × 45 mm length
T	—	—	24	Bolt, M20 × 75 mm length
U	[a]	[a]	[a]	Bolt, M16 × 120 mm length
V	[a]	[a]	[a]	Bolt, M16 × 140 mm length
W	[a]	[a]	[a]	Bolt, M20 × 50 mm length
X	[a]	[a]	[a]	Bolt, M20 × 100 mm length
Y	[a]	[a]	[a]	Screw, M12 × 25 mm length
Z	[a]	—	—	Screw, M12 × 45 mm length stainless steel
AA	[a]	—	—	Screw, M16 × 35 mm length stainless steel
AB	[a]	—	—	Nut, M16 stainless steel
AC	[a]	—	—	Washer, M16 (Form A) stainless steel

NOTE 1 Quantities quoted are for uninterrupted length of approximately 1 km (0.621 mile) on a single line of posts.
NOTE 2 All above items to be spun galvanized except P, Q, R, Z, AA, AB, AC.
[a] No. off as required.

D.2 Beam attachment

D.2.1 The standard and half length beams should be attached to posts through hexagonal energy-absorbing brackets and offset attachments, and should be arranged so as to prevent the wheels or any part of the vehicle structure from striking the acoustic barrier during an impact.

D.2.2 The beams should be connected to one another by means of fishplates as specified for the safety fence when mounted on Z posts.

D.2.3 The expansion beam assembly (see note 2 to clause **3**) should be incorporated where the length of the installation warrants.

D.2.4 The acoustic barrier should terminate at least 2.4 m before the angled rail post adjacent to the open box beam safety fence anchorage.

D.3 Posts

D.3.1 Posts should be installed in concrete foundations or sockets provided in the concrete and should have adequate strength to provide:

a) the required stability for the acoustic barrier under all normal conditions; and

b) support and resistance to deflection during vehicle impact.

D.3.2 Between the beams and the posts an offset bracket (see Figure 12) should be provided, part rigid and part energy-absorbing.

Appendix E Limiting radius of installation on a curve

The limiting radius of installation on a curve is given in Table 3.

Table 3 — Limiting radius of installation on a curve

Radius of curvature	Beam (item no.)	Fishplate (item no.)
m		
> 335	003	012
⩽ 335 but > 107	003	013
⩽ 107 but ⩾ 50	004	013

NOTE 1 This Part of BS 6579 does not cover the use of open box beam safety fence for radii less than 50 m.

NOTE 2 Where a double-sided barrier is installed on curves it may be necessary to specify one or more special length beams in order to compensate for the difference in length between the two sides.

Appendix F Transport handling and storage

Components should be transported in a manner such as to preserve the profile and finish required by this British Standard.

The method of handling and storage can adversely affect the supplied finish and it is essential that care is taken to provide for the circulation of air and the avoidance of trapping moisture between beam sections and the growth of "white rust" and other deposits accumulating on surfaces.

Appendix G Information to be supplied

The following information should be provided when making an enquiry or order:

a) the number of this British Standard, i.e. BS 6579-5;

b) the type and reference of the safety fence, i.e. open box beam OB1 or OB2 (see Appendix A);

c) the item number and description of each component (description as given in Table 2 of Appendix B);

d) any requirements for painting.

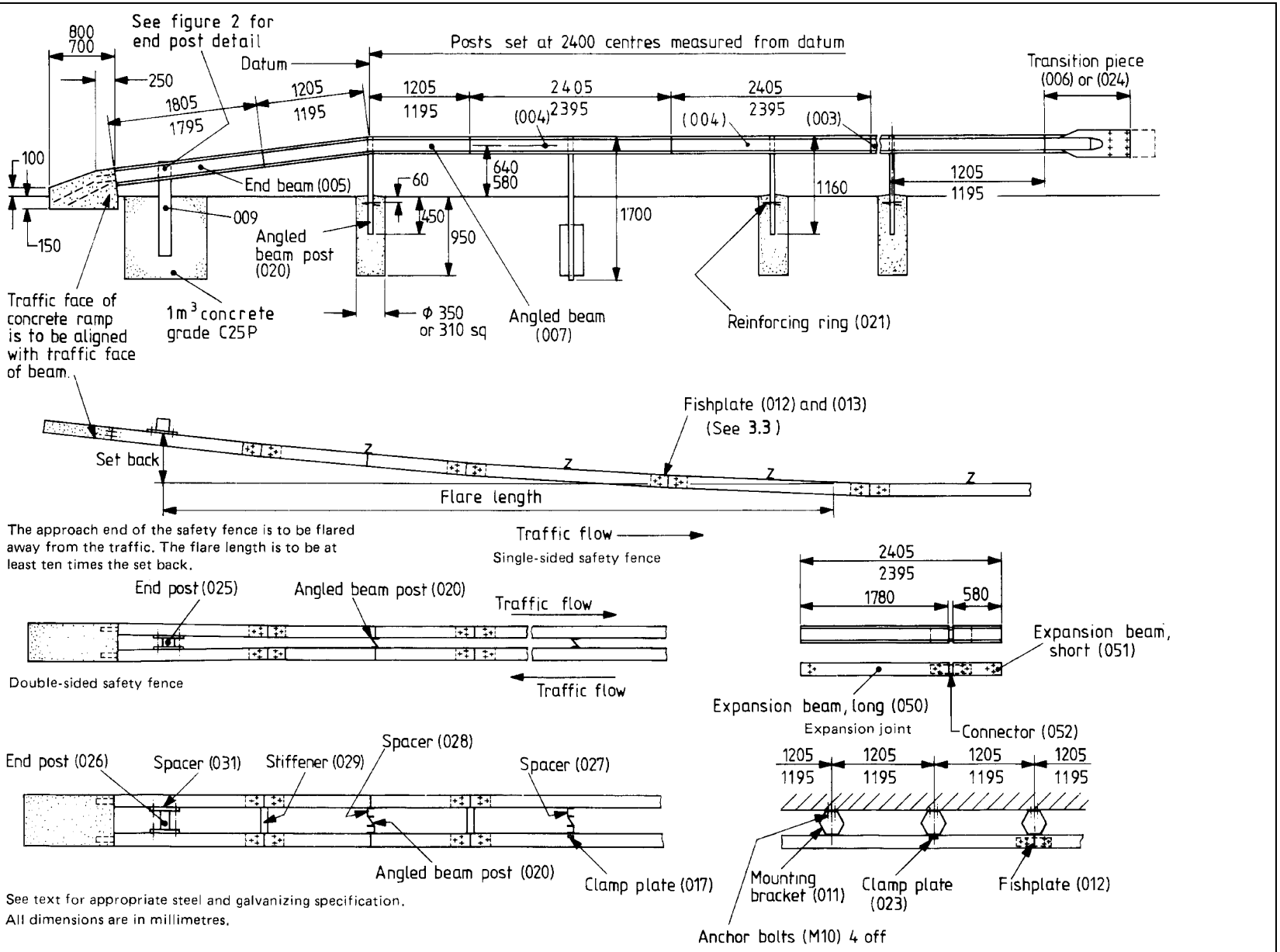
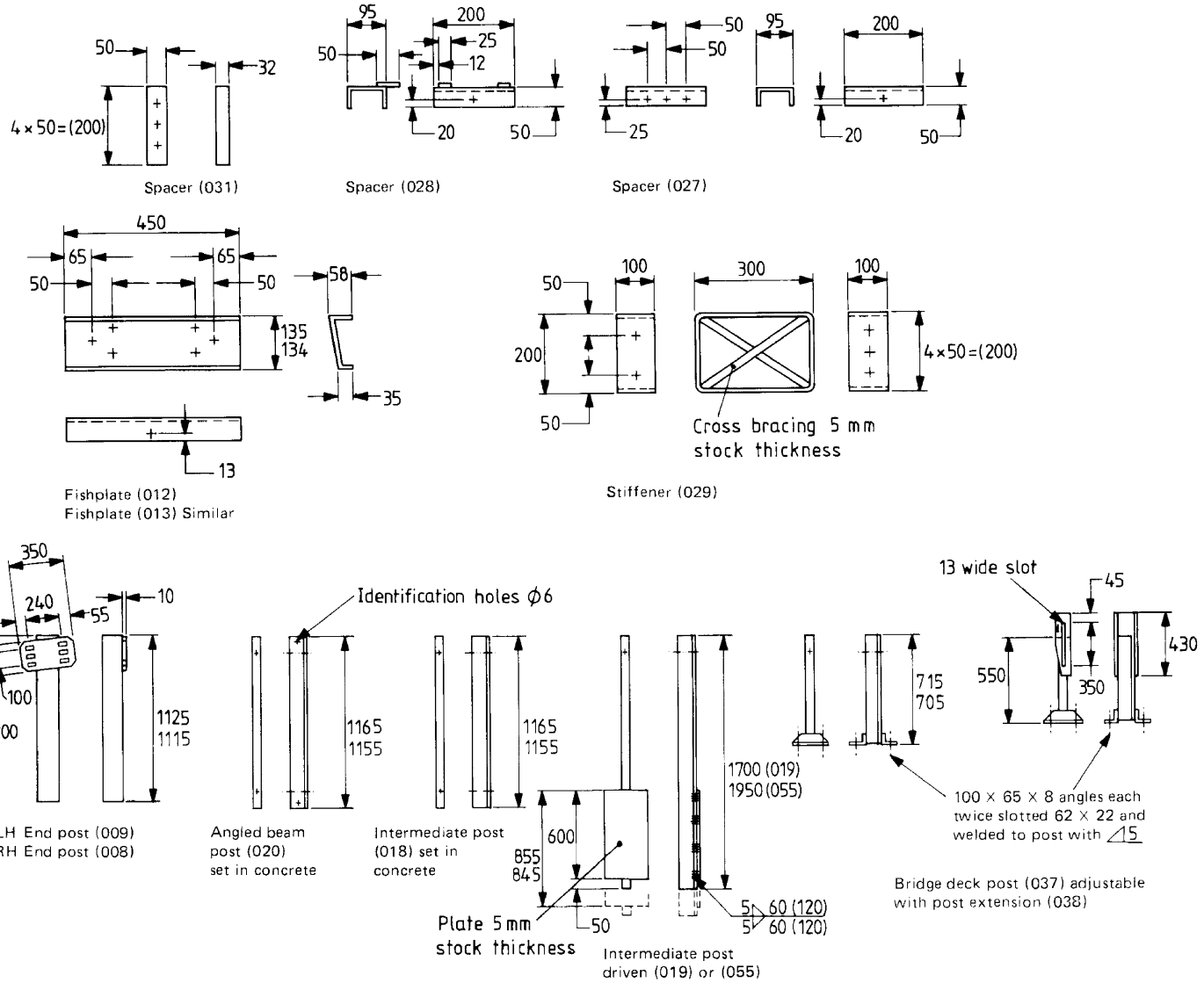
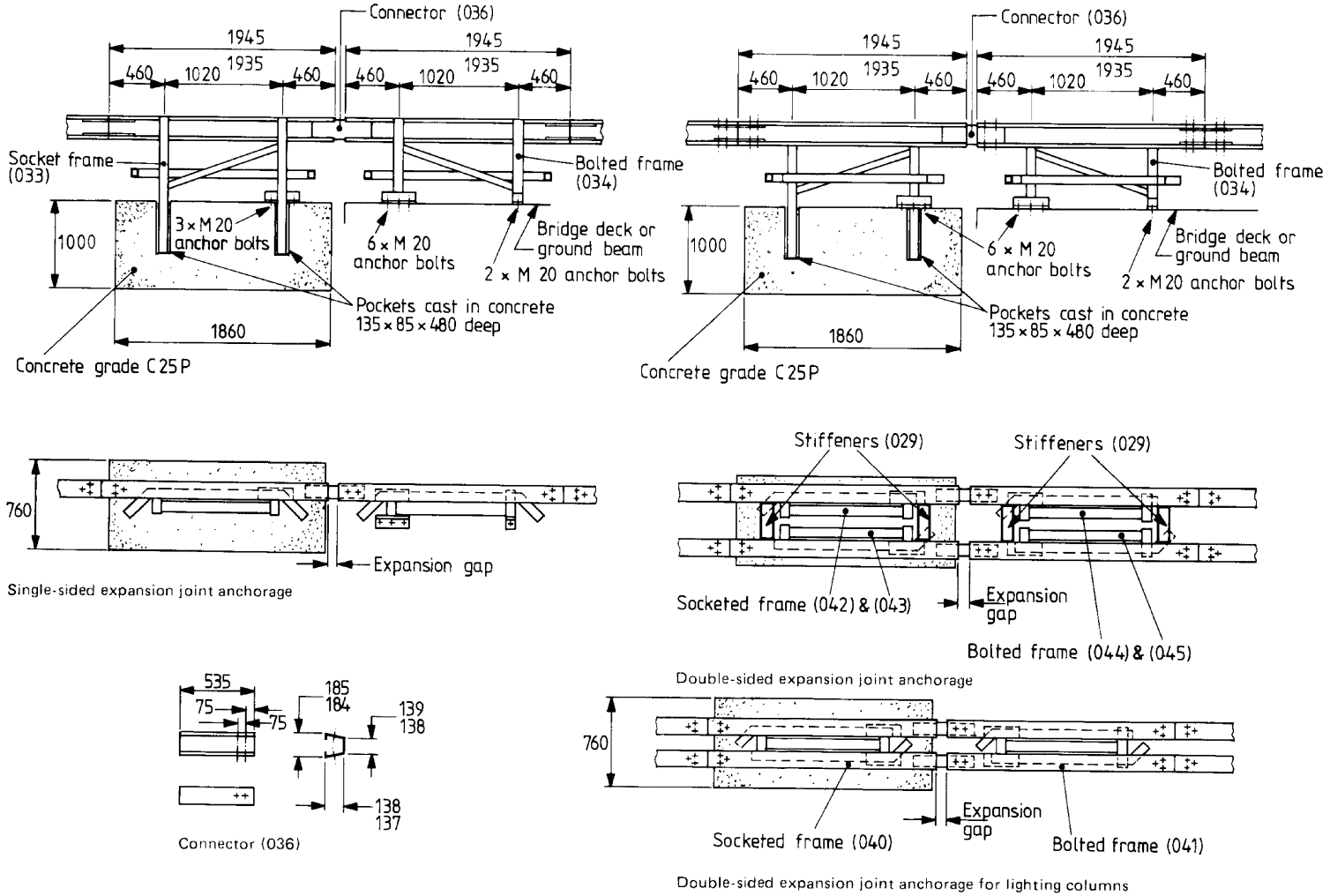


Figure 1 — General arrangement of an open box beam safety fence



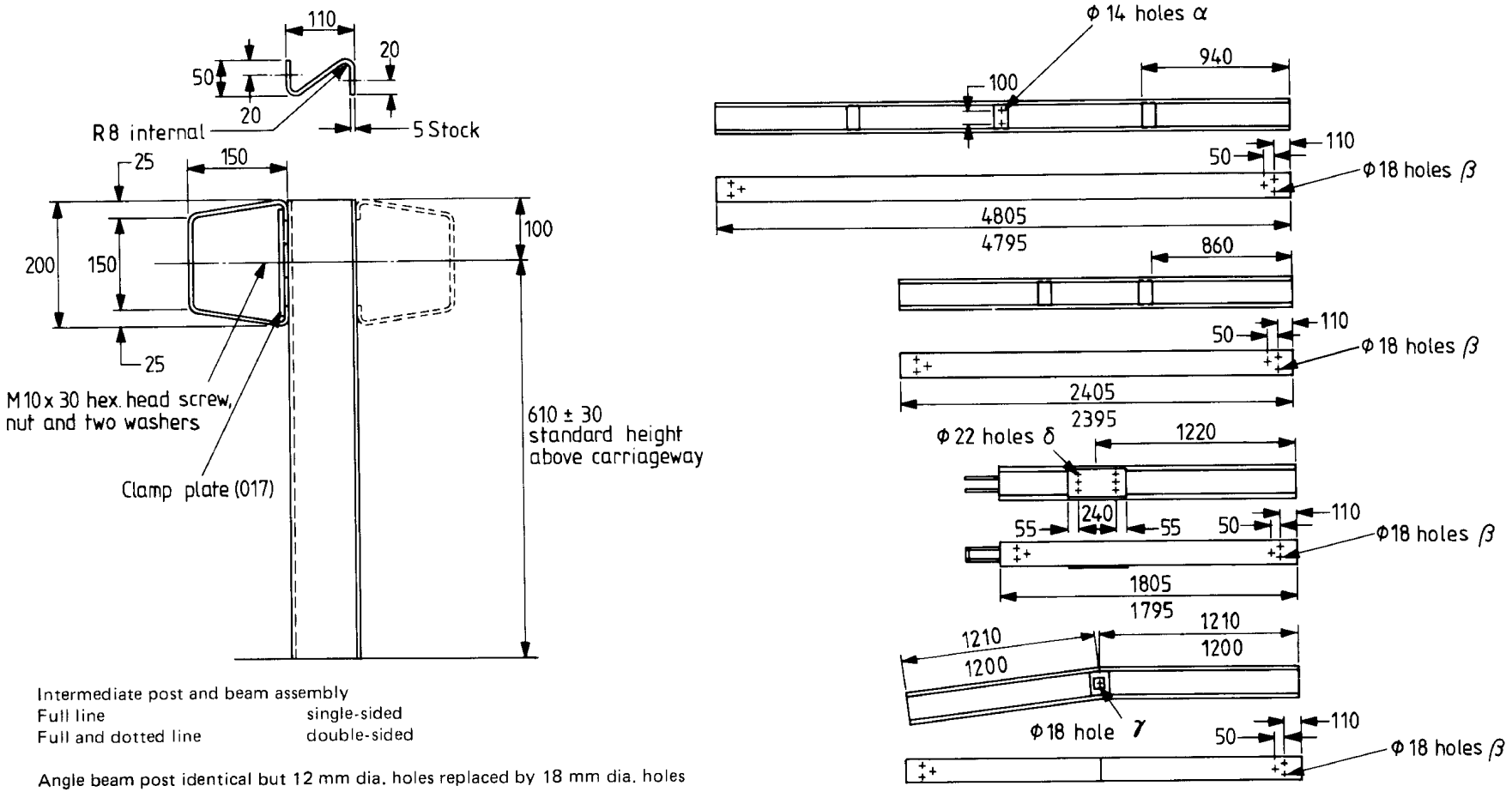
NOTE See text for appropriate steel and galvanizing specification.
All dimensions are in millimetres.

Figure 2 — Details of posts, spacers, fishplates and stiffeners



NOTE 1 All anchorage frames can either have posts extended into concrete pockets or have posts provided with angle brackets for securing with anchor bolts.
NOTE 2 See text for appropriate steel and galvanizing specifications.
All dimensions are in millimetres.

Figure 3 — Anchorages



NOTE 1 If the horizontal distance from the beam traffic face to the carriageway exceeds 1 500 mm. The 610 dimension refers to height at the beam centreline above the surface immediately below.

NOTE 2 Numbers in brackets are the detail TRRL drawing numbers in the 16/B series.

α to accommodate 12 mm dia. hex. head screw, nut and two washers

ρ to accommodate 16 mm dia. HTS hex. head bolt, nut and two washers

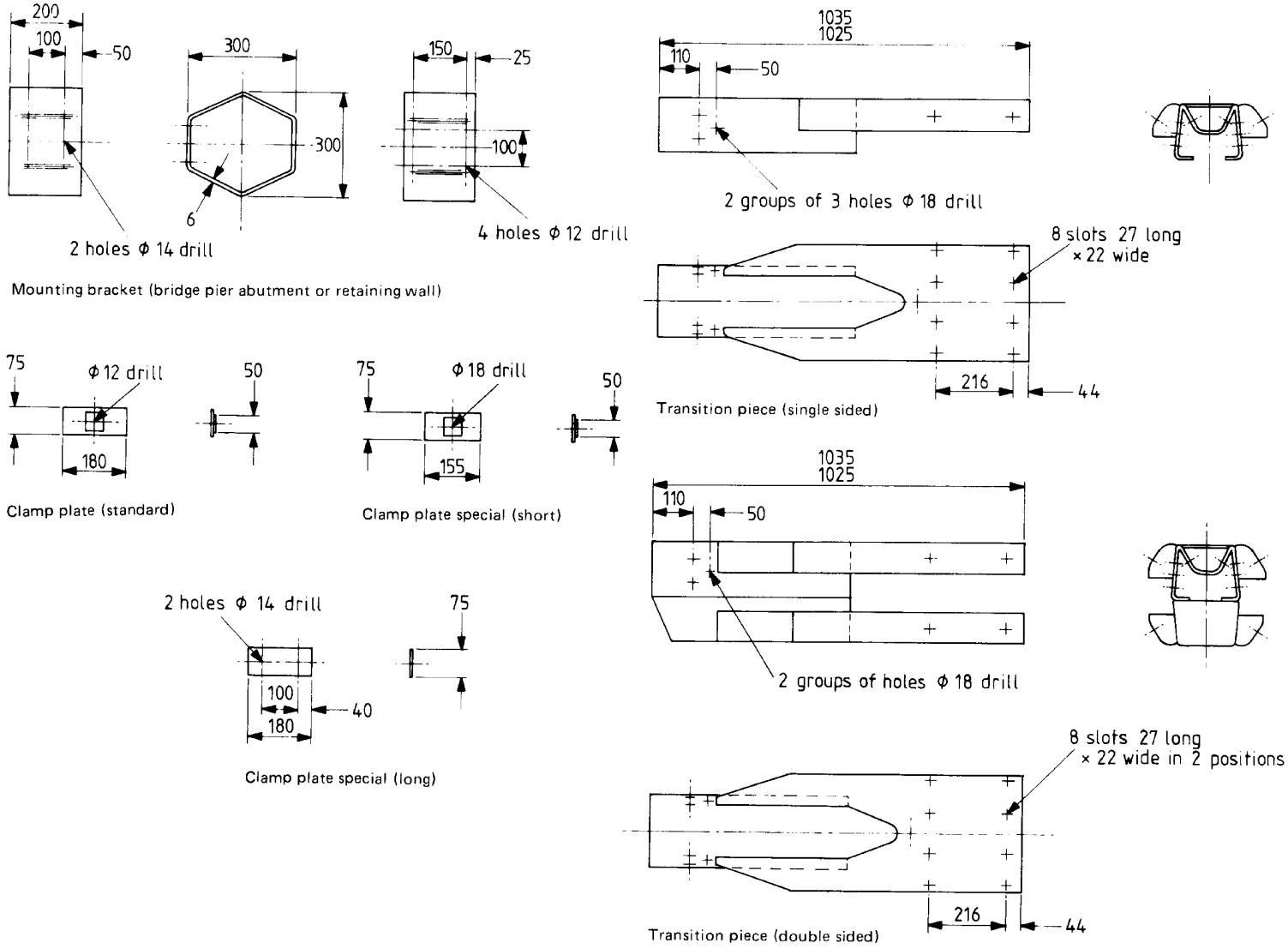
γ to accommodate 16 mm dia. hex. head bolt, nut and two washers

δ to accommodate 20 mm dia. hex. head bolt, nut and two washers

NOTE 3 See text for appropriate steel and galvanizing specifications.

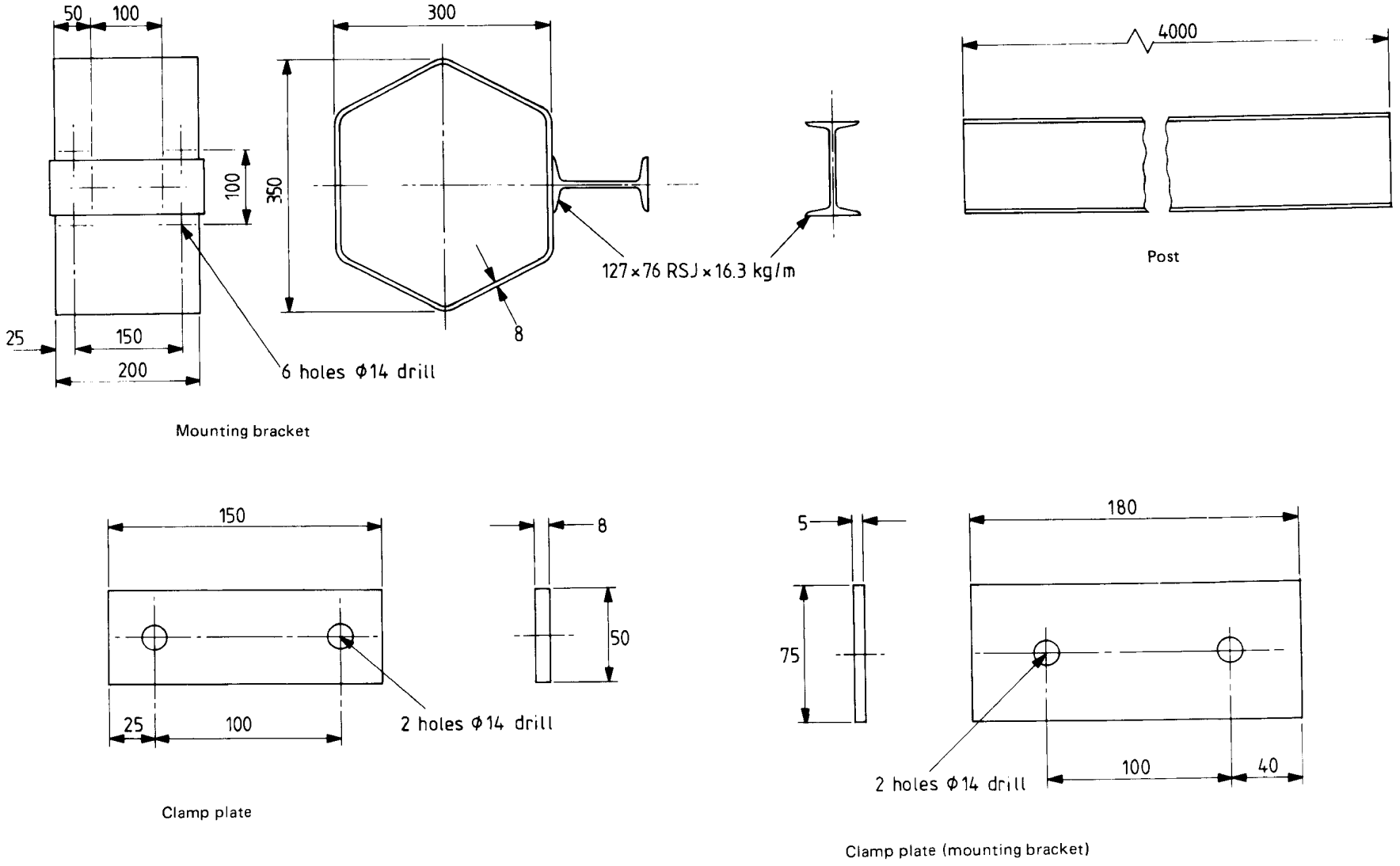
All dimensions are in millimetres.

Figure 4 — Section through fence: beams



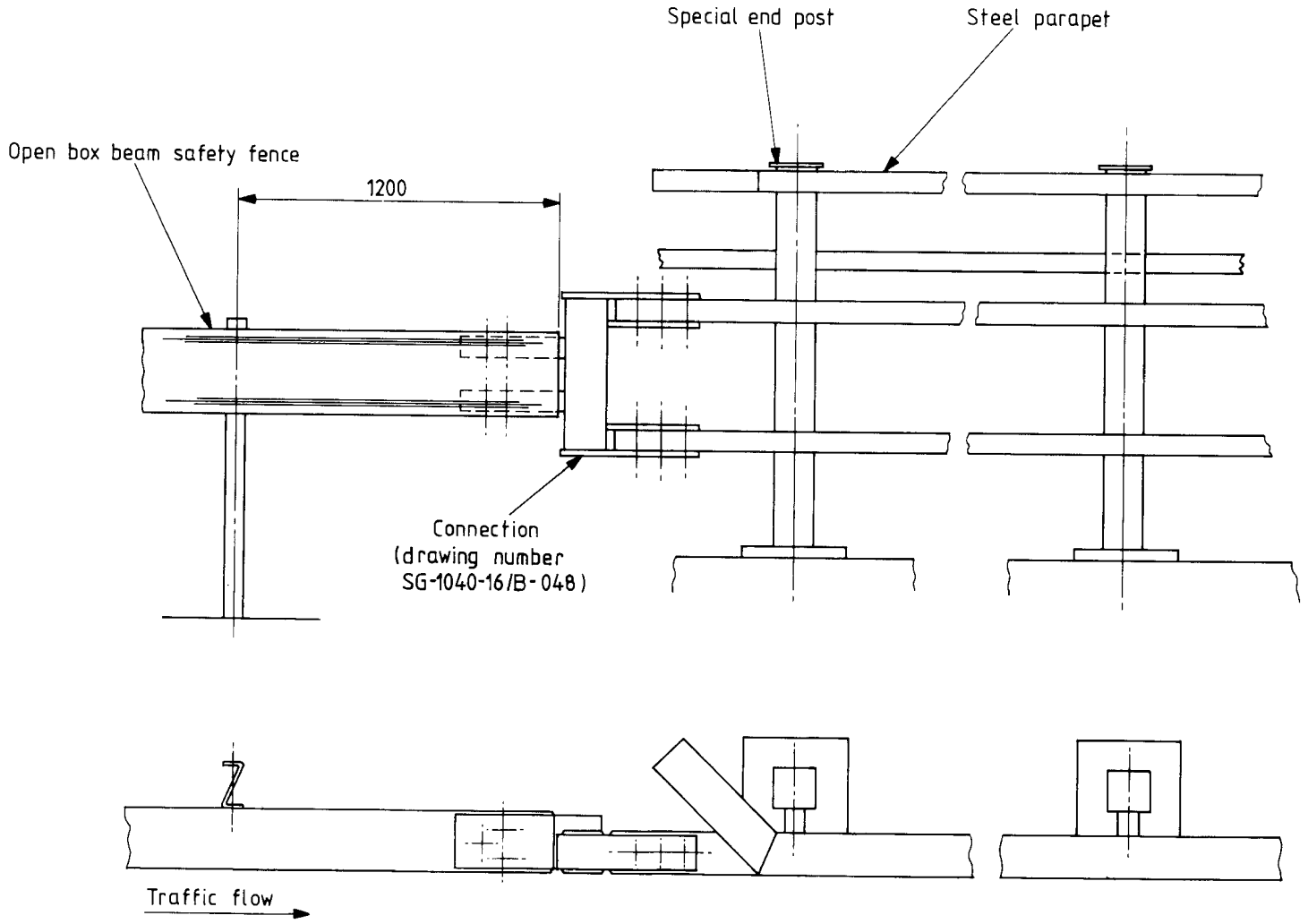
NOTE 1 See text for appropriate steel and galvanizing specification.
NOTE 2 See Figure 6 and Figure 13 for mounting brackets for acoustic barrier.
All dimensions are in millimetres.

Figure 5 — Mounting bracket, transition pieces and clamp plates



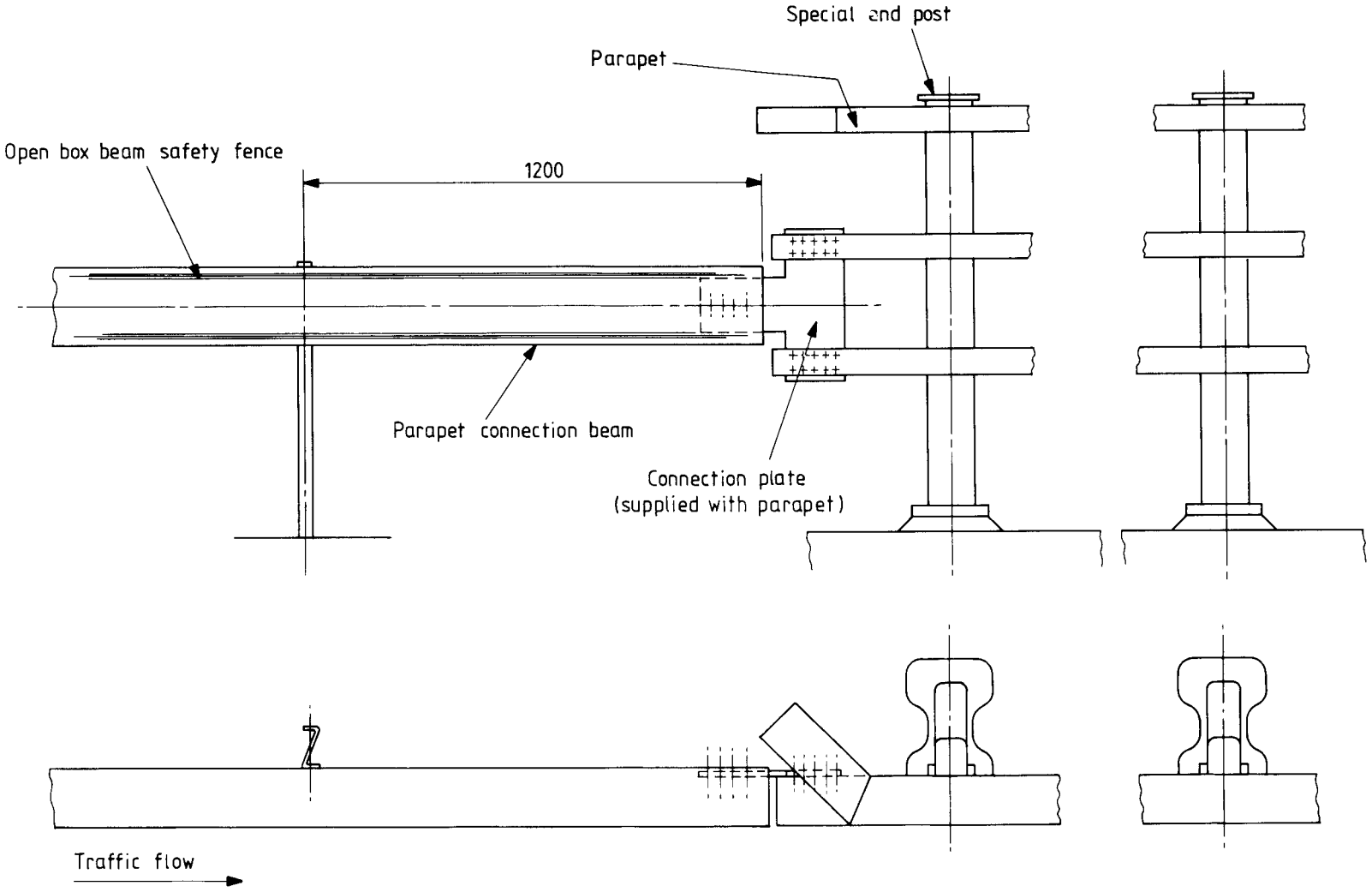
NOTE See text for appropriate steel and galvanizing specification.
All dimensions are in millimetres.

Figure 6 — Mounting brackets for open box beam safety fence on acoustic barrier



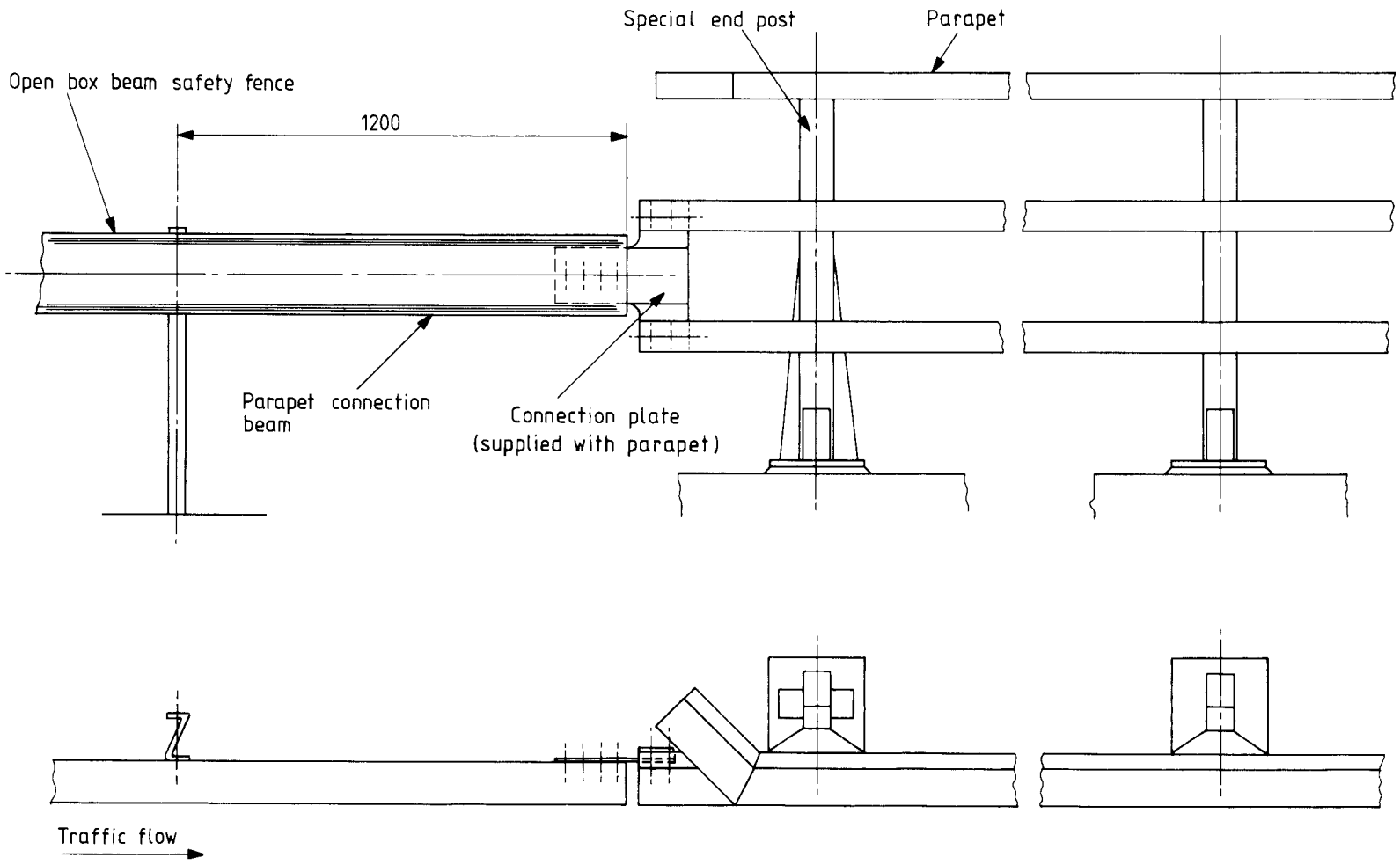
Dimension is in millimetres.

Figure 7 — Open box beam safety fence connection to steel parapet



Dimension is in millimetres.

Figure 8 — Open box beam safety fence connection to BACO parapet



Dimension is in millimetres.

Figure 9 — Open box beam safety fence connection to Alcan High Duty Extrusions Ltd. parapet

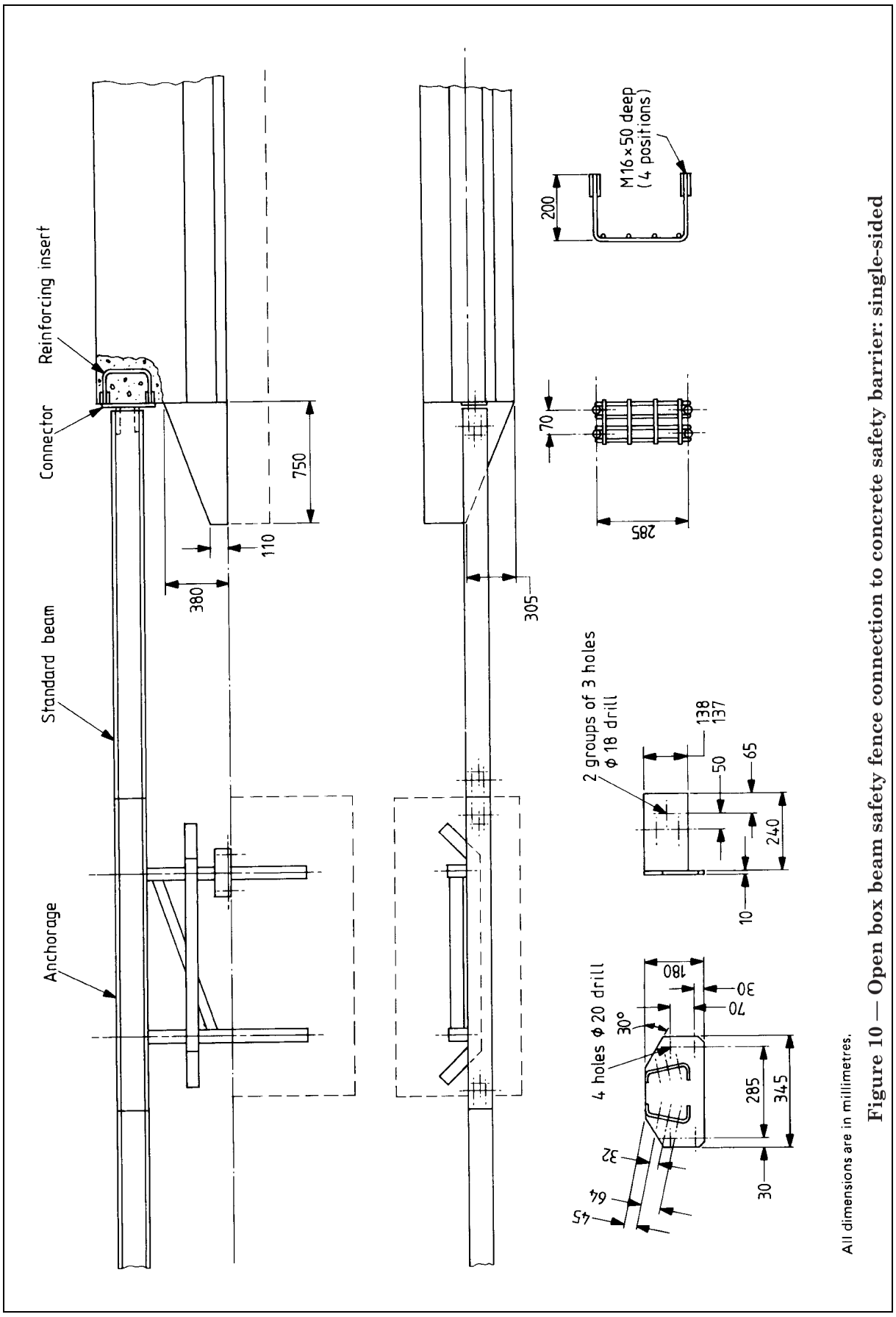


Figure 10 — Open box beam safety fence connection to concrete safety barrier: single-sided

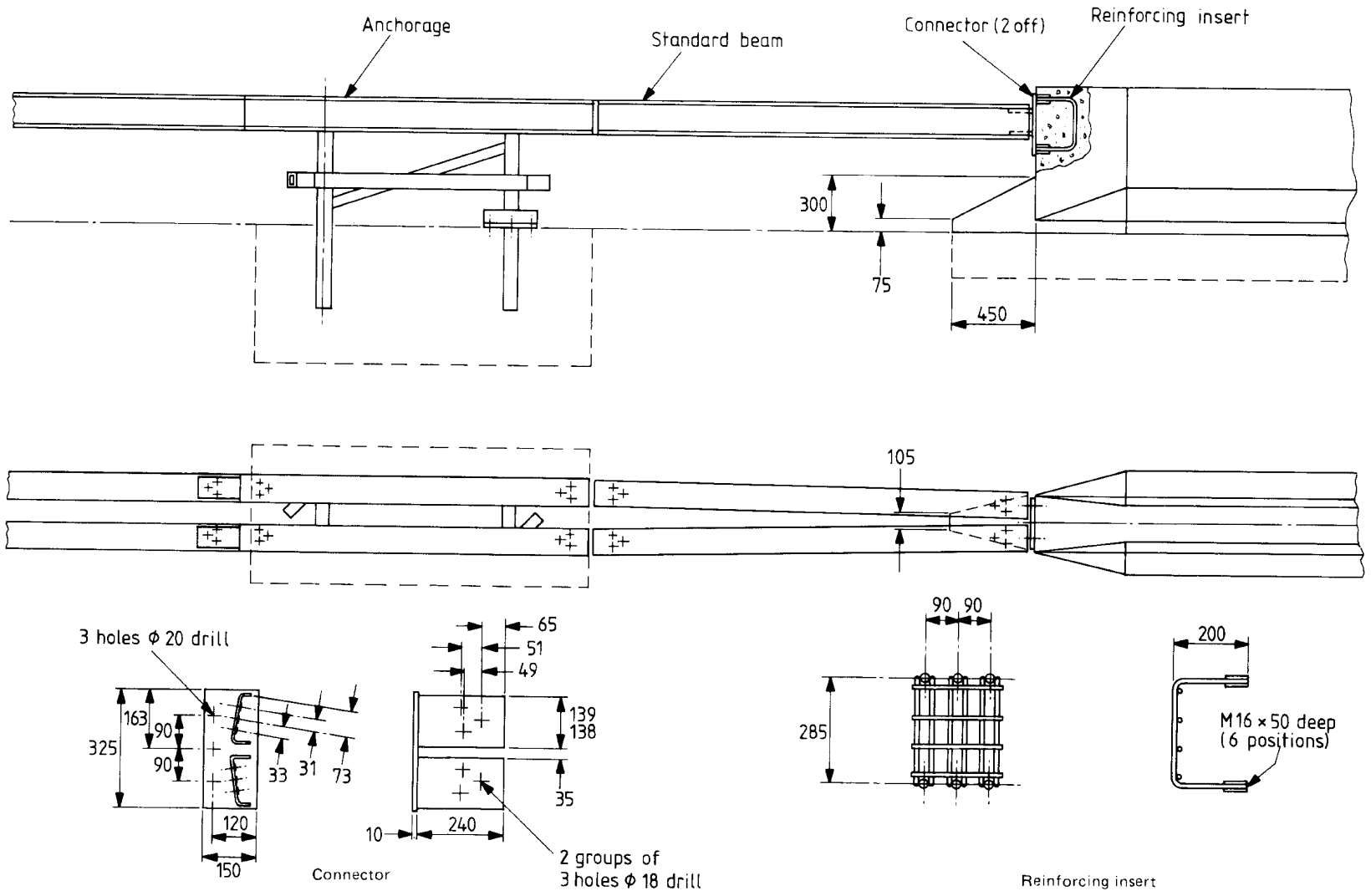
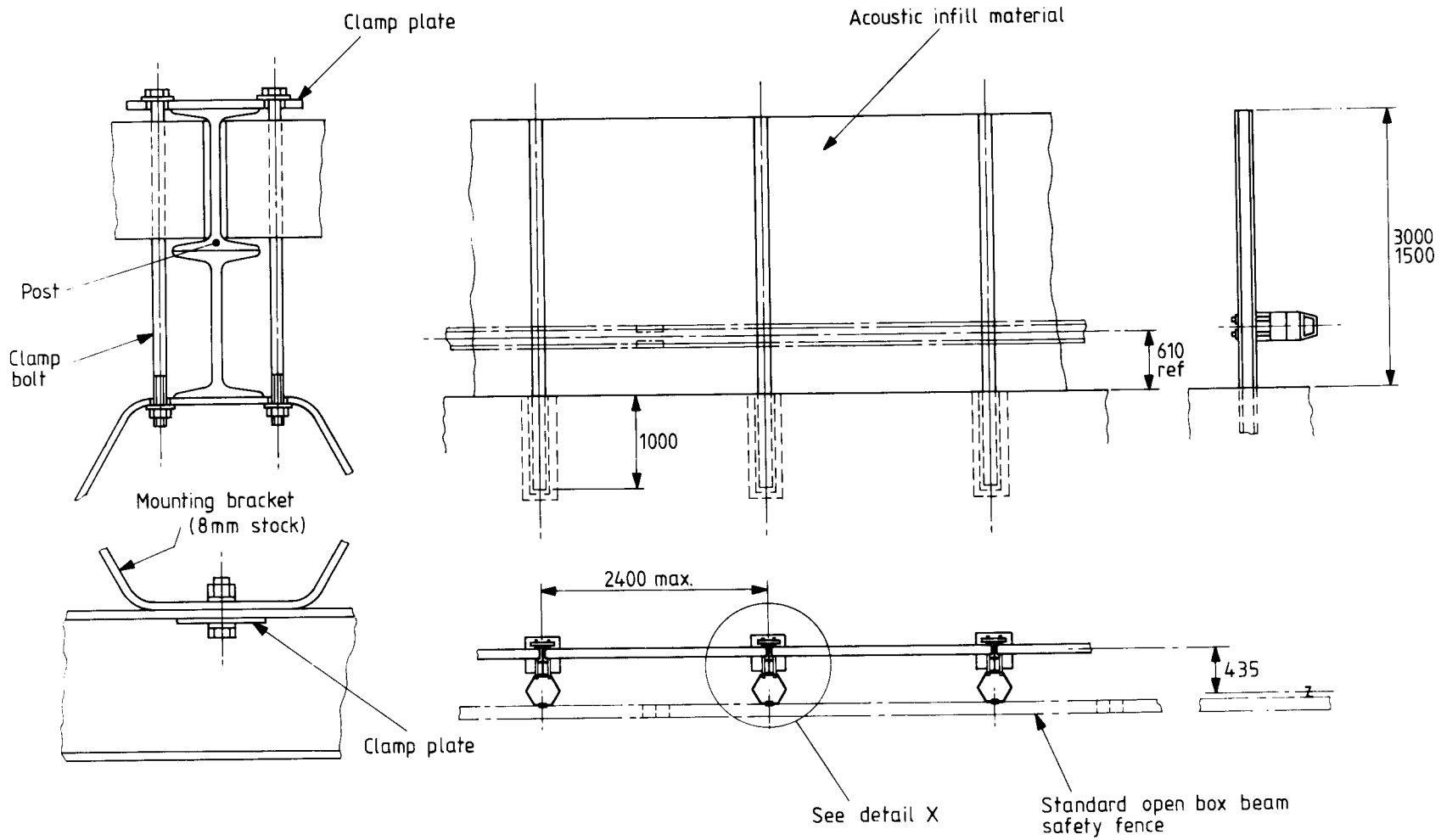


Figure 11 — Open box beam safety fence connection to concrete safety barrier: double-sided



(For dimensions see Figure 6.)
All dimensions are in millimetres.

Figure 12 — Diagrammatical representation of fences and barriers

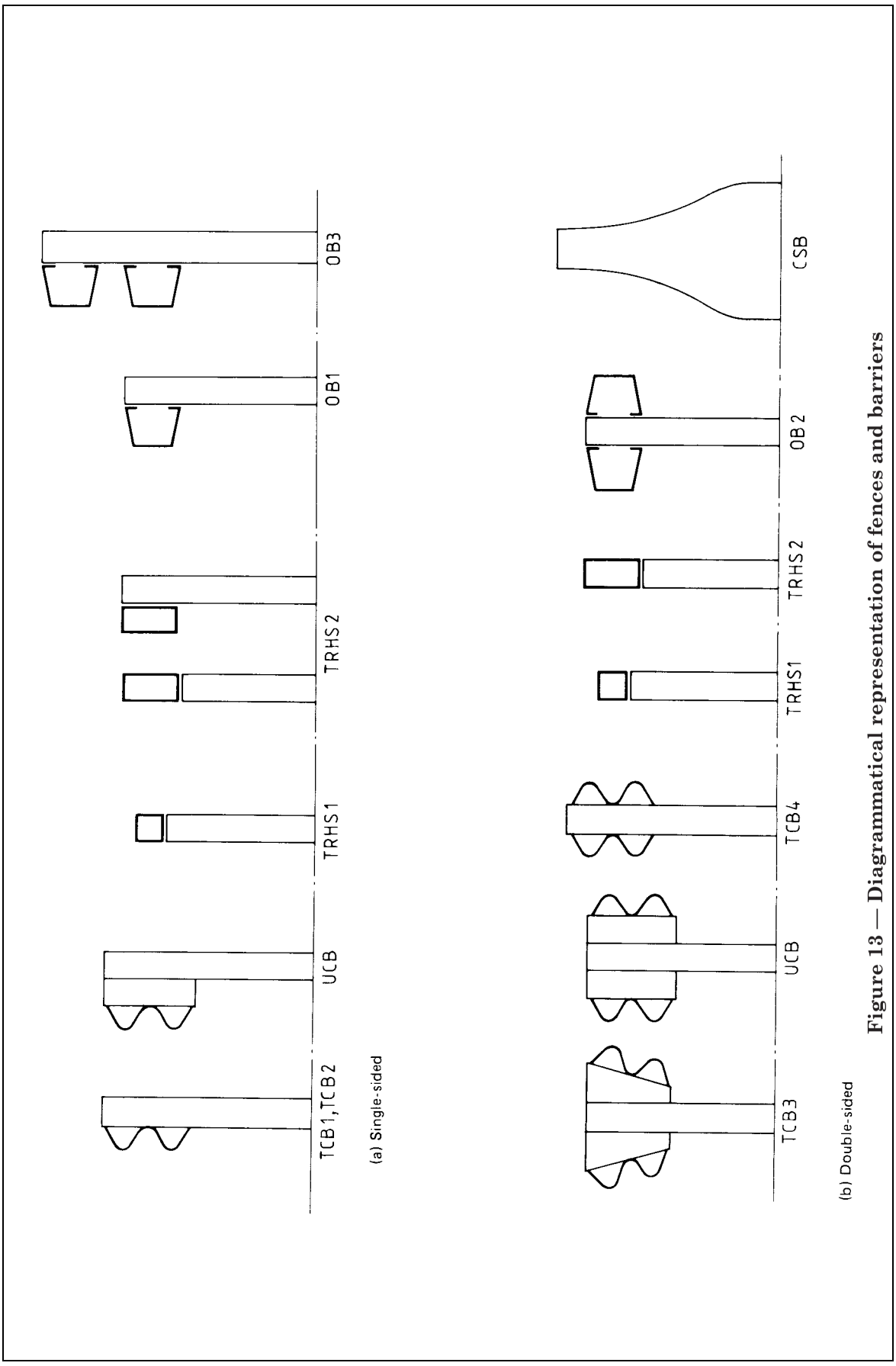


Figure 13 — Diagrammatical representation of fences and barriers

Publications referred to

BS 729, *Hot dip galvanized coatings on iron and steel articles.*
BS 1449, *Steel plate, sheet and strip.*
BS 1449-2, *Specification for stainless and heat resisting steel plate, sheet and strip.*
BS 4190, *ISO metric black hexagon bolts, screws and nuts.*
BS 4320, *Metal washers for general engineering purposes.*
BS 4360, *Specification for weldable structural steels.*
BS 4449, *Specification for hot rolled steel bars for the reinforcement of concrete.*
BS 5493, *Code of practice for protective coating of iron and steel structures against corrosion.*
BS 6105, *Specification for corrosion-resistant stainless steel fasteners.*
BS 6779, *Parapets for vehicle containment on highways*[4)].
BS 6779-1, *Specification for parapets of metal construction.*

[4)] In preparation.

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