



Bonneagar Iompair Éireann  
Transport Infrastructure Ireland

## TII Publications



---

### Standard Construction Details - Series 300

April 2017

## Standard Construction Details (SCDs) – Series 300

TII Publications contains Standard Construction Details (SCDs) for use on National Road schemes in Ireland. This composite document brings together all the Series 300 SCDs from TII Publications current at the date of this document's publication, into a single location for convenience.

Every effort has been made to keep this composite document updated and available from the TII Publications website (<http://www.tiipublications.ie/>). Please note that the SCD drawings available from the TII Publications website (individually linked below) are the controlled versions for all SCDs.

The SCDs contained in this document are as follows:

### Series 300 Fencing and Environmental Noise Barriers

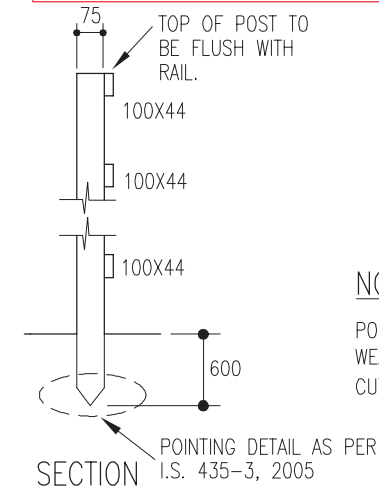
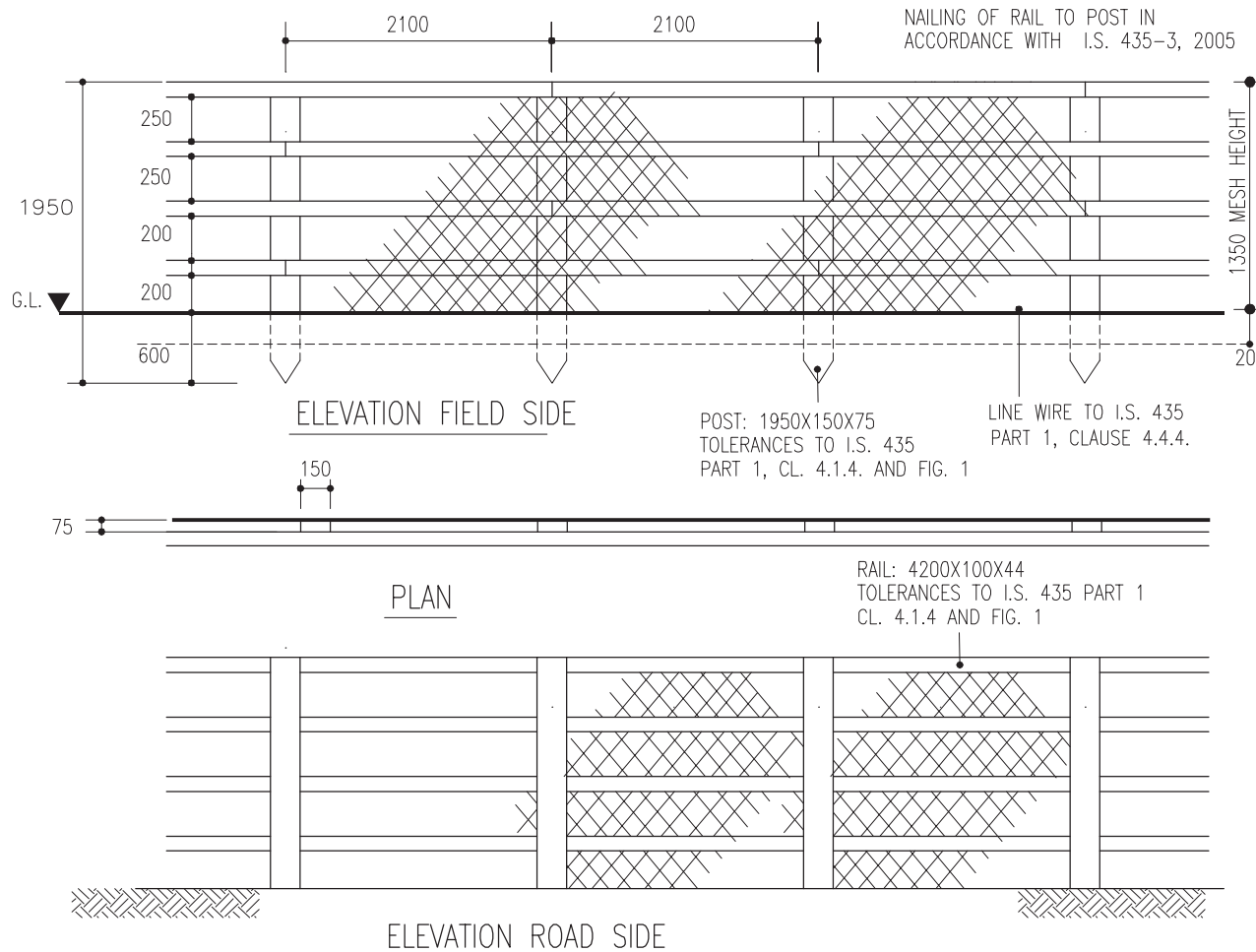
<a href="#">CC-SCD-00301</a>	Fencing - Timber Post and Rail Fence
<a href="#">CC-SCD-00302</a>	Fencing - Stud Fencing Type A
<a href="#">CC-SCD-00303</a>	Fencing - Concrete Post and Rail Fence
<a href="#">CC-SCD-00304</a>	Fencing - Timber Post and Wire Fence
<a href="#">CC-SCD-00305</a>	Fencing - Cleft Chestnut Pale Fence
<a href="#">CC-SCD-00306</a>	Fencing - Concrete Post and Mesh
<a href="#">CC-SCD-00307</a>	Fencing - Woven and Lap Boarded Panel Fences
<a href="#">CC-SCD-00308</a>	Fencing - Diagrammatic Methods of Attaching Fencing to Structures
<a href="#">CC-SCD-00309</a>	Gates - Steel Single Field Gate
<a href="#">CC-SCD-00310</a>	Gates - Steel Double Field Gate
<a href="#">CC-SCD-00311</a>	Gates - Timber Single Field Gate
<a href="#">CC-SCD-00312</a>	Gates - Timber Wicket Gate
<a href="#">CC-SCD-00313</a>	Gates - Hinges for Timber Field Gates
<a href="#">CC-SCD-00314</a>	Gates - Standard Gate Stops
<a href="#">CC-SCD-00315</a>	Stiles - Timber Stile - Type 1

---

**TRANSPORT INFRASTRUCTURE IRELAND (TII) PUBLICATIONS**

<a href="#"><u>CC-SCD-00316</u></a>	Stiles - Timber Stile - Type 2
<a href="#"><u>CC-SCD-00317</u></a>	Fencing - Steel Palisade Security Fence
<a href="#"><u>CC-SCD-00318</u></a>	Fencing - Cranked Concrete Post and Mesh
<a href="#"><u>CC-SCD-00319</u></a>	Fencing - Mammal Resistant Fence
<a href="#"><u>CC-SCD-00320</u></a>	Fencing - Timber Post and Tension Mesh Fence
<a href="#"><u>CC-SCD-00321</u></a>	Fencing - Timber Post and Tension Mesh Stud Fence
<a href="#"><u>CC-SCD-00322</u></a>	Fencing - Stud Fencing Type B
<a href="#"><u>CC-SCD-00323</u></a>	Non-concrete Environmental Noise Barrier- General Arrangement Non-concrete Environmental Noise Barrier Precast Concrete Gravel Board





**NOTE:**

POSTS TO BE MANUFACTURED WITH NO WEATHER DETAIL AND ARE NOT TO BE CUT ON SITE.

**NOTES A:**

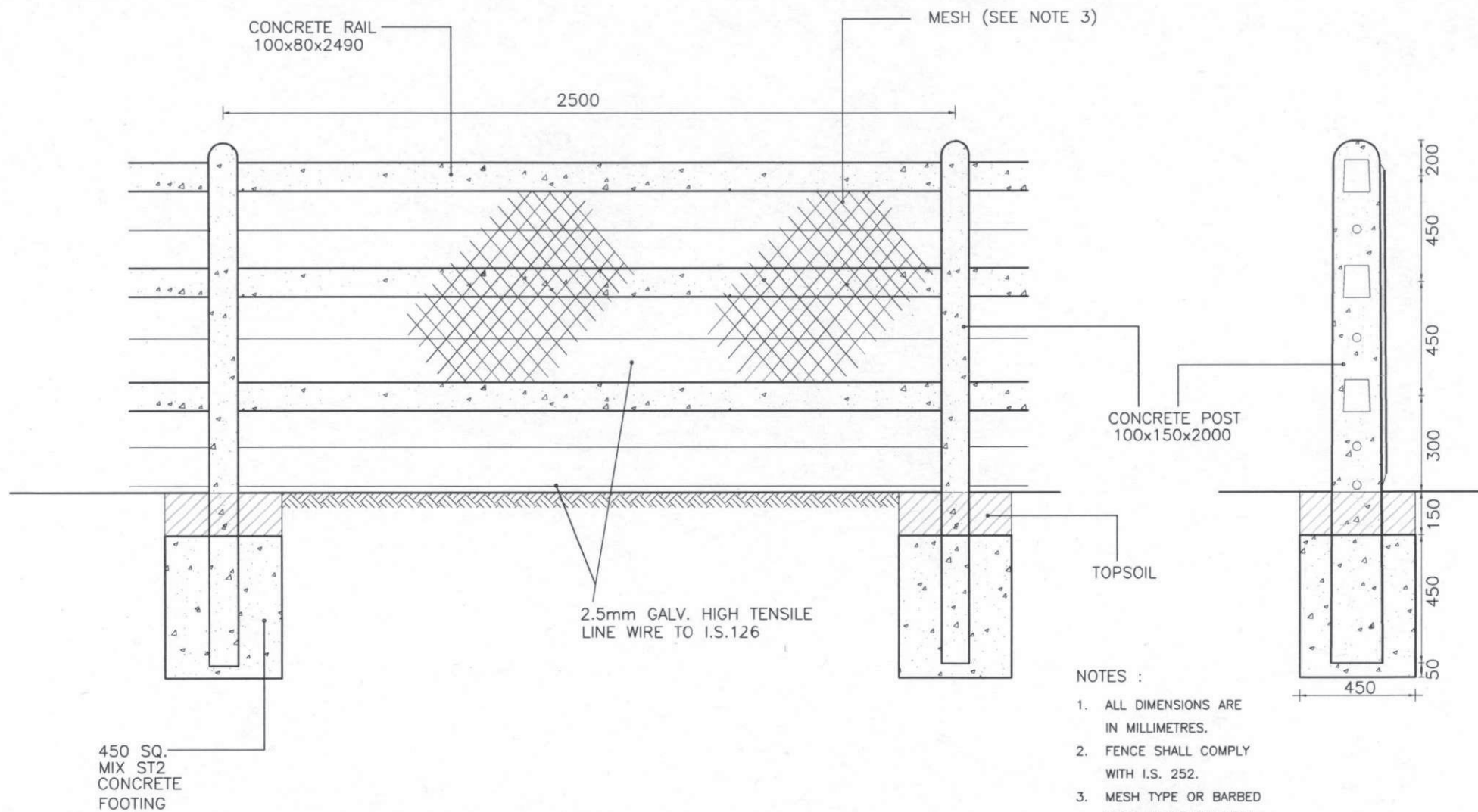
1. FENCES SHALL BE CONSTRUCTED AND ERECTED IN ACCORDANCE WITH IS. 435: 2005 EXCEPT WHERE OTHERWISE SHOWN.
2. ANY LENGTH OF FENCING (INCLUDING BRANCHES AND SPURS) SHALL START WITH A POST AND END WITH A POST. AN ADDITIONAL POST SHALL BE PROVIDED AT FENCE JUNCTIONS AND AT FENCE CORNERS.
3. POST HOLES FALLING IN ROCK SHALL BE EXCAVATED TO THE DEPTH SHOWN ON THIS DRAWING OR, SUBJECT TO AGREEMENT WITH THE EMPLOYER'S REPRESENTATIVE, TO A DEPTH OF 500mm, AND SHALL BE BACKFILLED WITH MIX ST2 CONCRETE. WHERE A REDUCED DEPTH OF HOLE IS AGREED, THE TOP OF THE POST SHALL BE SUITABLY CUT AND TREATED IN ACCORDANCE WITH THE RECOMMENDATIONS OF IS.435: 2005.
4. FENCE POST AND RAIL SHALL BE TREATED WITH PRESERVATIVE IN ACCORDANCE WITH THE REQUIREMENTS OF SERIES 300 OF THE SPECIFICATIONS FOR ROAD WORKS AND APPENDIX B OF IS.435-1: 2005.
5. CONCRETE FOUNDATIONS TO POSTS SHALL BE PROVIDED WHERE STATED IN APPENDIX 1/3.
6. STUD FENCE (RCD/300/2 Type 2) CONSTRUCTED ON LAND-TAKE LINE WHERE ADDITIONAL LAND HAS NOT BEEN PROVIDED.
7. WHERE SIDELONG GROUND SLOPES DOWN TOWARDS THE FENCE AT A SLOPE GREATER THAN 1:4, THEN THE PERMANENT FENCING POST HEIGHT SHALL BE INCREASED BY A MINIMUM OF 250mm AND AN ADDITIONAL RAIL ADDED.

**NOTES B:**

CHAINLINK MESH SHALL BE 1300mm WIDE, 50mm MESH MADE OF 2.25/3.15mm DIAM. PLASTIC COATED GALVANISED MILD MESH STEEL WIRE TO IS EN 10223-6.

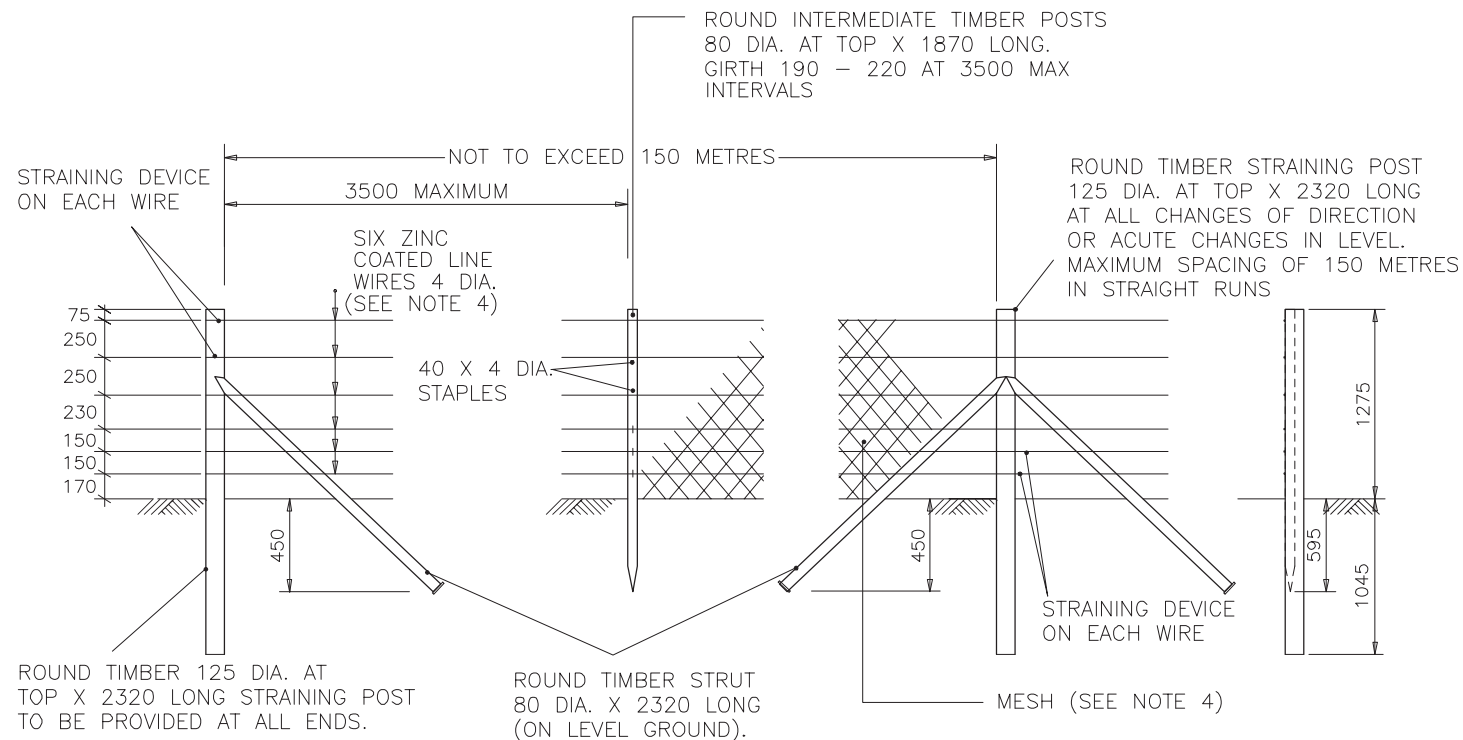
**FIXING.**

FIXING IN ACCORDANCE WITH I.S. 435-3:2005, NOTES 13 AND 14 AND SECTION 4.4 OF I.S. 435-1, 2005



TII PUBLICATION NUMBER: CC-SCD-00303



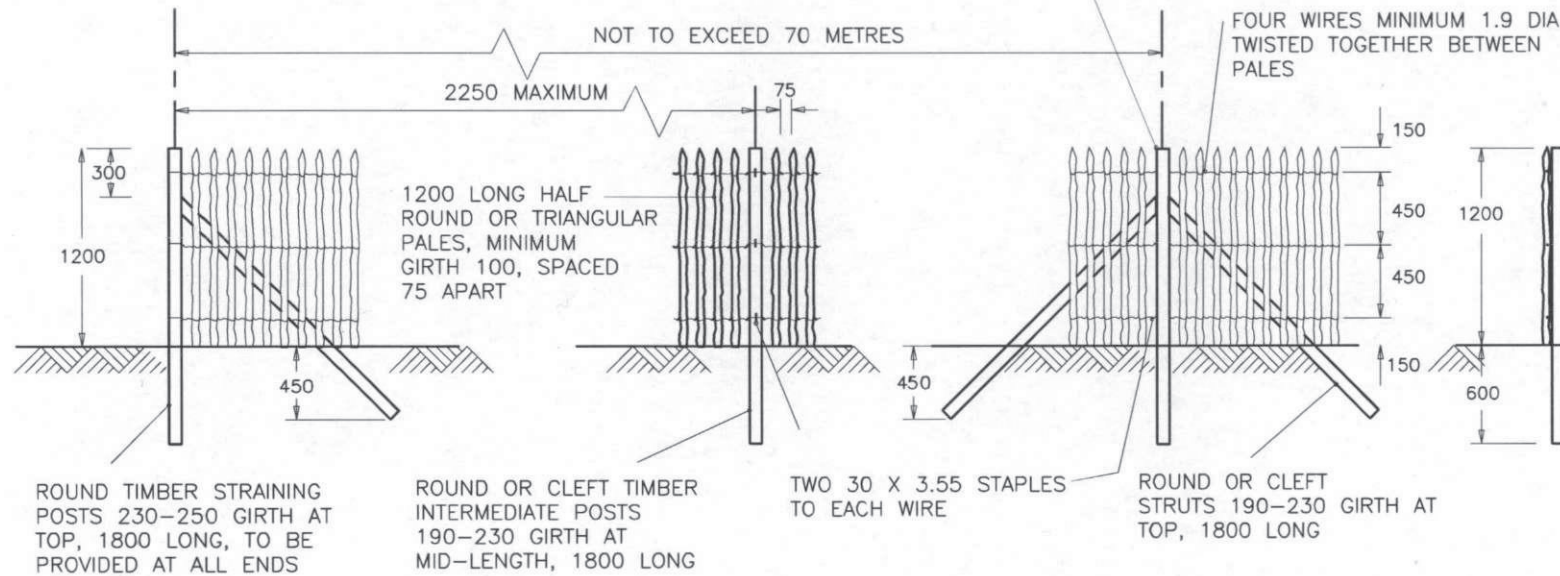


#### NOTES :

1. THE FOLLOWING IS ONE OF THE STANDARD FENCES THAT ARE SUGGESTED FOR ROAD WORKS AND THE TYPE REQUIRED, OR ANY VARIATIONS OF THESE DETAILS SHALL BE AS SHOWN ON THE DRAWINGS. FENCE TYPE IS TO IS 436 AND AS SHOWN ON THIS DETAIL.
2. ALL LINE WIRE, STIRRUP WIRE AND BARBED WIRE SHALL BE ZINC COATED TO COMPLY WITH IS 10223-1.
3. WIRE SHALL BE FIXED TO POSTS BY 40 x 4 DIA. STAPLES.
4. MESH TYPE OR BARBED WIRE WHERE REQUIRED SHALL BE SPECIFIED IN APPENDIX 3/1 TO THE SPECIFICATION.
3. POST HOLES FALLING IN ROCK SHALL BE EXCAVATED TO THE DEPTH SHOWN ON THIS DRAWING OR, SUBJECT TO AGREEMENT WITH THE EMPLOYER'S REPRESENTATIVE, TO A DEPTH OF 500mm, AND SHALL BE BACKFILLED WITH MIX ST2 CONCRETE. WHERE A REDUCED DEPTH OF HOLE IS AGREED, THE TOP OF THE POST SHALL BE SUITABLY CUT AND TREATED IN ACCORDANCE WITH THE RECOMMENDATIONS OF IS.435: 2005.
4. WHEN THIS TYPE OF FENCE OR VARIATIONS OF IT ARE USED FOR ACCOMMODATION WORK FENCES, THE REQUIREMENTS ARE INCLUDED IN APPENDIX 1/15 AND ON THE DRAWINGS.
5. ALL DIMENSIONS ARE IN MILLIMETRES.

TII PUBLICATION NUMBER: CC-SCD-00304

ROUND TIMBER STRAINING POSTS 230–250 GIRTH AT TOP, 1800 LONG, TO BE PROVIDED AT ALL CHANGES OF DIRECTION OR ACUTE CHANGES OF LEVEL. MAXIMUM SPACING 70 METRES.

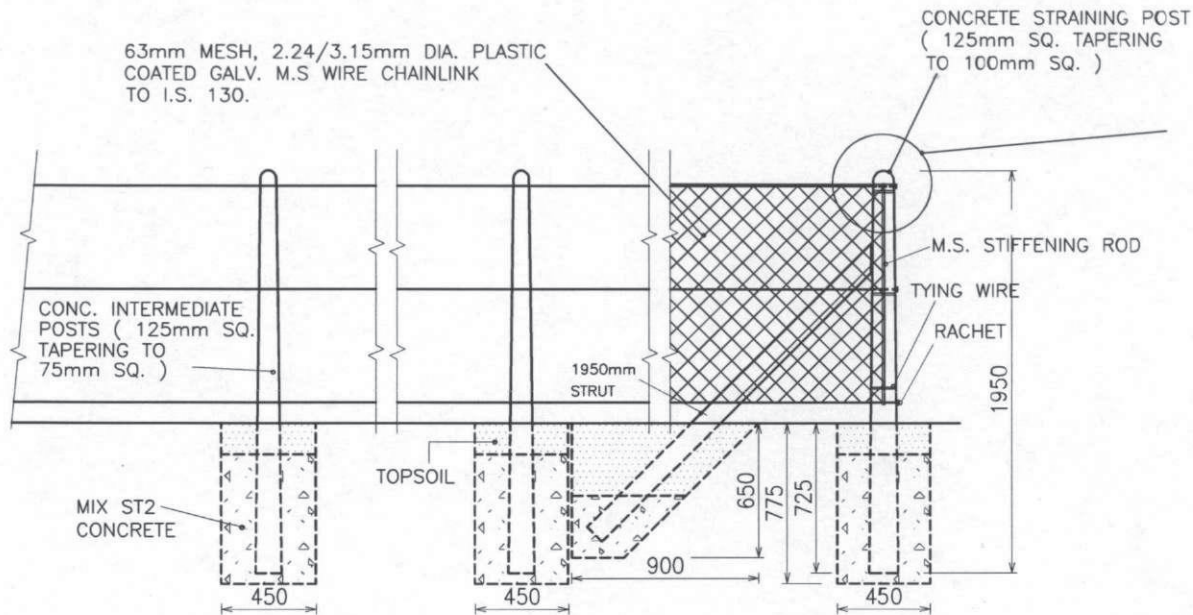


NOTES :

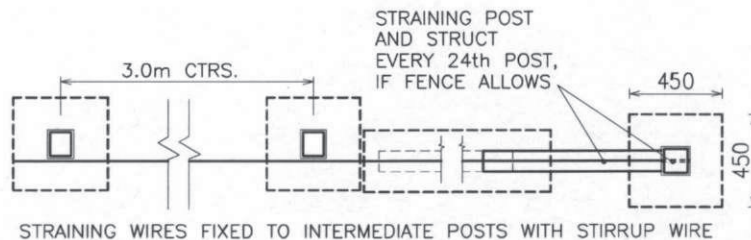
1. THE FOLLOWING IS ONE OF THE STANDARD FENCES THAT ARE SUGGESTED FOR ROAD WORKS AND THE TYPE REQUIRED, OR ANY VARIATIONS OF THESE DETAILS SHALL BE AS SHOWN ON THE DRAWINGS. FENCE TYPE IS CW120 TO B.S. 1722 PART 4 AND AS SHOWN ON THIS DETAIL.
2. ALL LINE WIRE, STIRRUP WIRE AND BARBED WIRE SHALL BE ZINC COATED TO COMPLY WITH BS 443.
3. WIRE SHALL BE FIXED TO POSTS BY TWO 30 x 3.55 STAPLES.
4. IF POSTS ARE TO BE DRIVEN THEN BOTTOM END SHALL BE POINTED FOR 225.
5. WHEN THIS TYPE OF FENCE OR VARIATIONS OF IT ARE USED FOR ACCOMMODATION WORK FENCES, THE REQUIREMENTS ARE INCLUDED IN APPENDIX 1/15 AND ON THE DRAWINGS.
6. ALL DIMENSIONS ARE IN MILLIMETRES.

TII PUBLICATION NUMBER: CC-SCD-00305

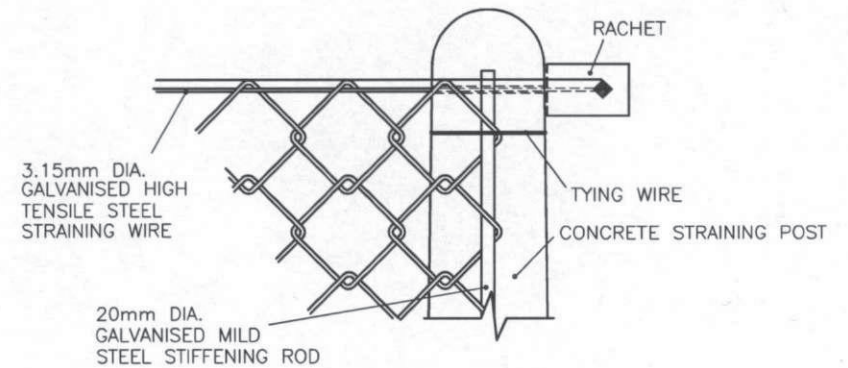




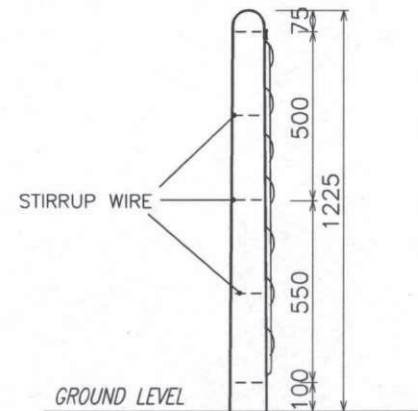
ELEVATION



PLAN



DETAIL SHOWING CHAINLINK STRAINING WIRE ETC

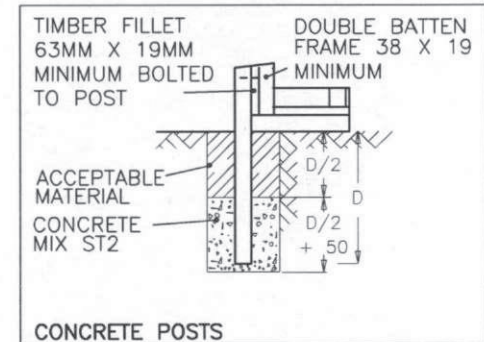
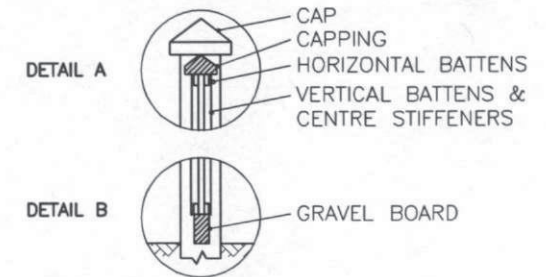
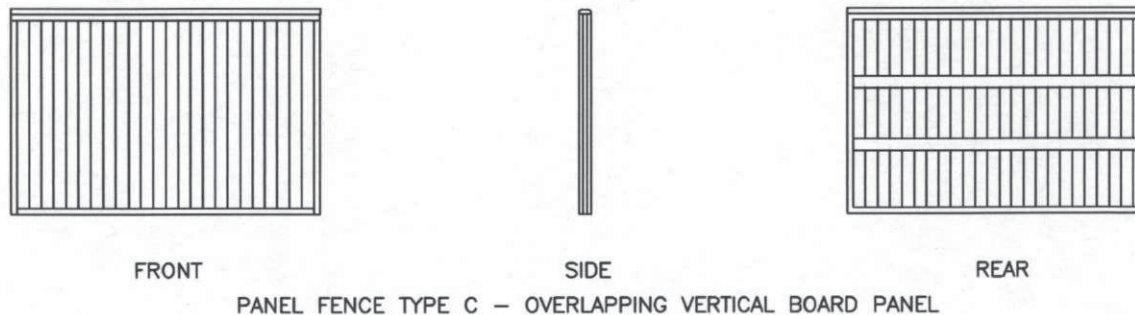
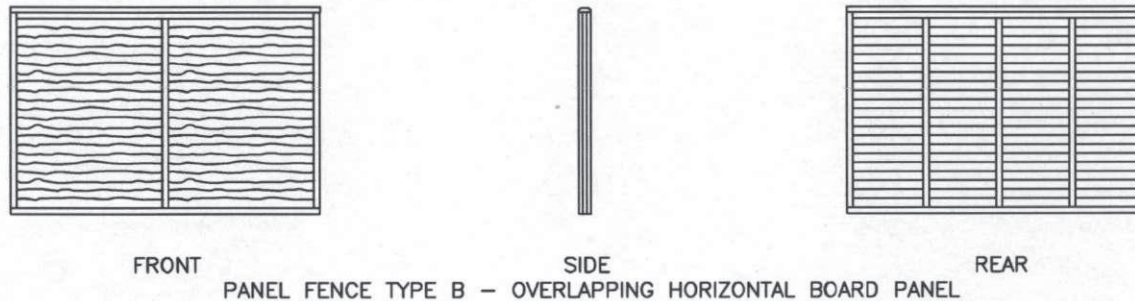
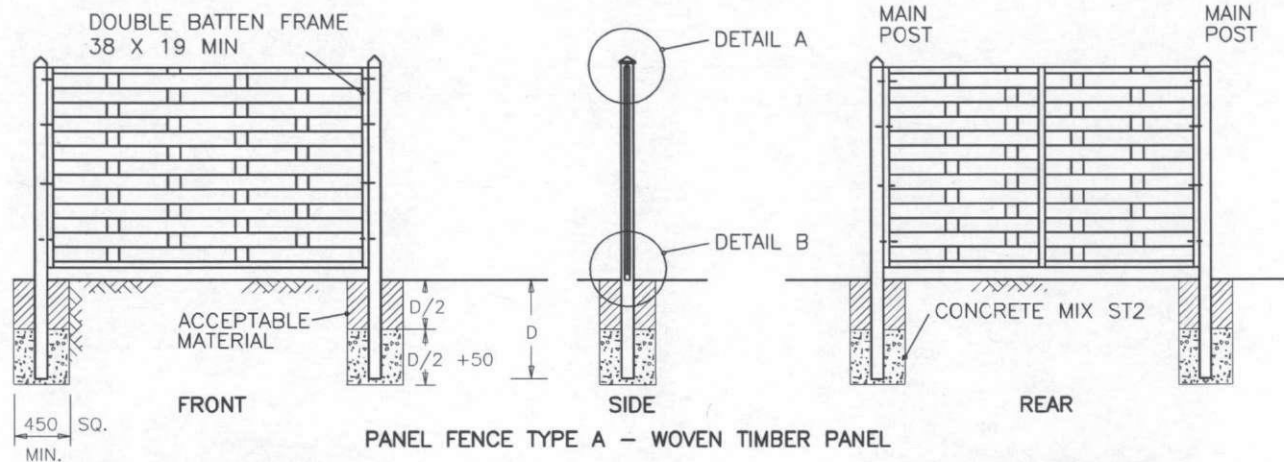


SECTION INTERMEDIATE POST

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. CONCRETE POST SHALL COMPLY WITH I.S. 252.
3. BARBED WIRE WHERE REQUIRED SHALL BE SPECIFIED IN APPENDIX 3/1 TO THE SPECIFICATION.

TII PUBLICATION NUMBER: CC-SCD-00306

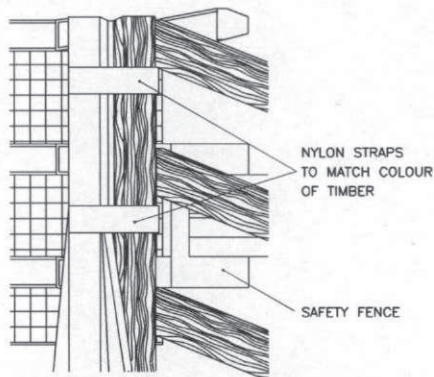


#### NOTES :

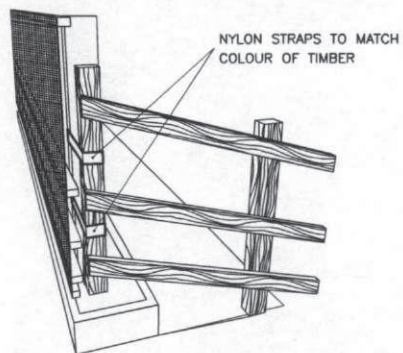
1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. BS 1722 PART 11 APPLIES UNLESS OTHERWISE STATED.
3. DIMENSION D AND SIZES OF POSTS, AND INFILL SHALL BE TAKEN FROM BS 1722 PART 11 AS APPROPRIATE TO THE HEIGHT AND TYPE OF FENCE DESCRIBED IN APPENDIX 1/15 AND ON THE DRAWINGS.
4. ALL TIMBER SHALL COMPLY WITH SPECIFICATION CLAUSE 304 UNLESS OTHERWISE STATED IN APPENDIX 1/15.
5. TIMBER POSTS MAY ONLY BE DRIVEN, OR SUPPORTED IN RAMMED BACKFILL WHERE STATED IN APPENDIX 1/15.
6. THIS RCD IS NOT TO BE USED FOR ENVIRONMENTAL NOISE BARRIER.

II PUBLICATION NUMBER: CC-SCD-00307

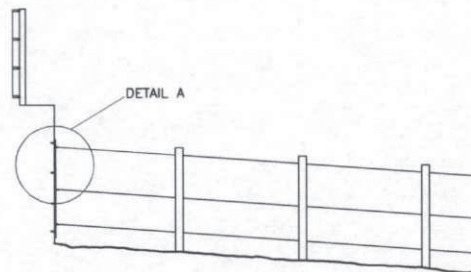




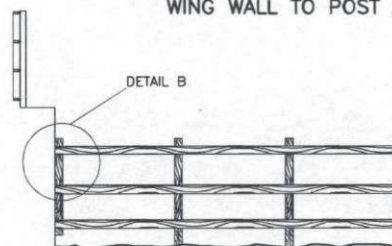
BRIDGE PARAPET WITH SAFETY FENCE AND TIMBER POST AND RAIL FENCE



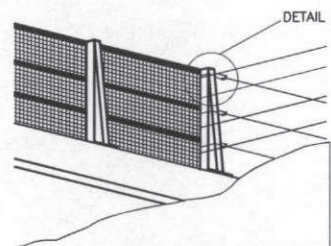
BRIDGE PARAPET WITHOUT SAFETY FENCE TO TIMBER POST AND RAIL FENCE



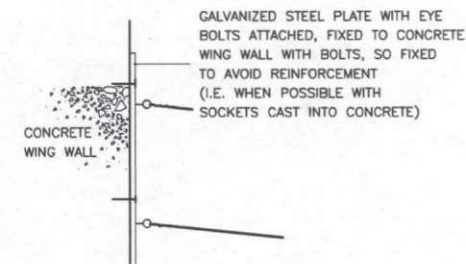
WING WALL TO POST AND WIRE FENCE



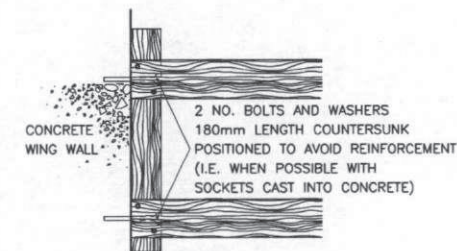
WING WALL TO POST AND RAIL FENCE



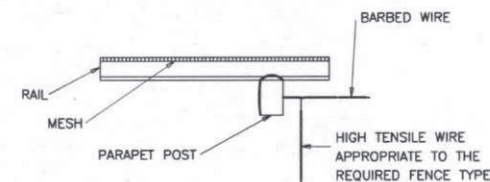
BRIDGE PARAPET TO POST AND WIRE FENCE



DETAIL A

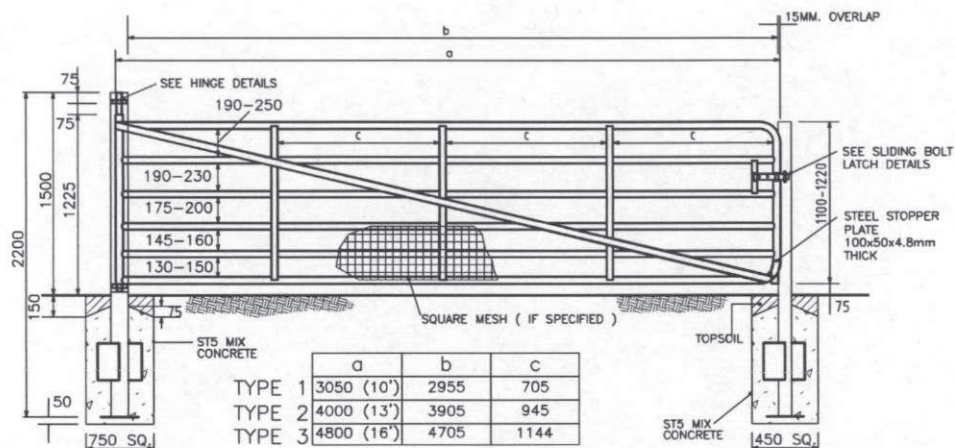


DETAIL B

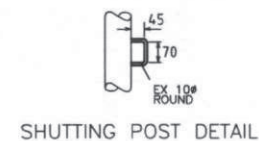
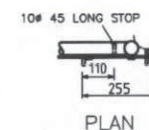
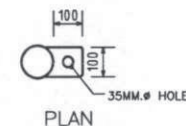
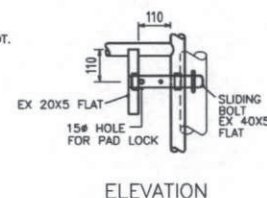
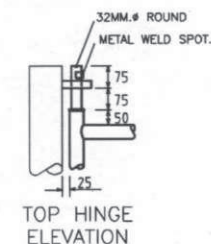


DETAIL C

TII PUBLICATION NUMBER: CC-SCD-00308



MATERIAL DESCRIPTION	SIZE	FIXINGS
HANGING POST ( TUBULAR STEEL )	114.3mm EXT. DIA. 3.6mm THICK	CAP PLATES 4.8mm THICK. BASE PLATES 250X250X4.8mm THICK. CAP & BASE PLATES TO BE CONTINUOUSLY FLUSH WELDED TO TUBE.
SHAPING POST ( TUBULAR STEEL )	88.9mm EXT. DIA. 3.2mm THICK	WING PLATES 250X250X4.8mm THICK STITCH WELDED TO POST.
MAIN FRAME ( TUBULAR STEEL )	48.3mm EXT. DIA. 2.9mm THICK	—
INFILLING HORIZONTAL RAILS ( TUBULAR STEEL )	42.4mm EXT. DIA. 2.6mm THICK	—
BRACES (FLAT STEEL) 3 VERTICAL, 2 DIAGONAL	38X4.8mm	FILLET WELDED TO EACH GATE MEMBER CROSSED BY BRACES
MESH FABRIC ( IF SPECIFIED )	51mm SQ. X 4.1mm $\phi$ STEEL SQUARE WELDED MESH FABRIC.	—



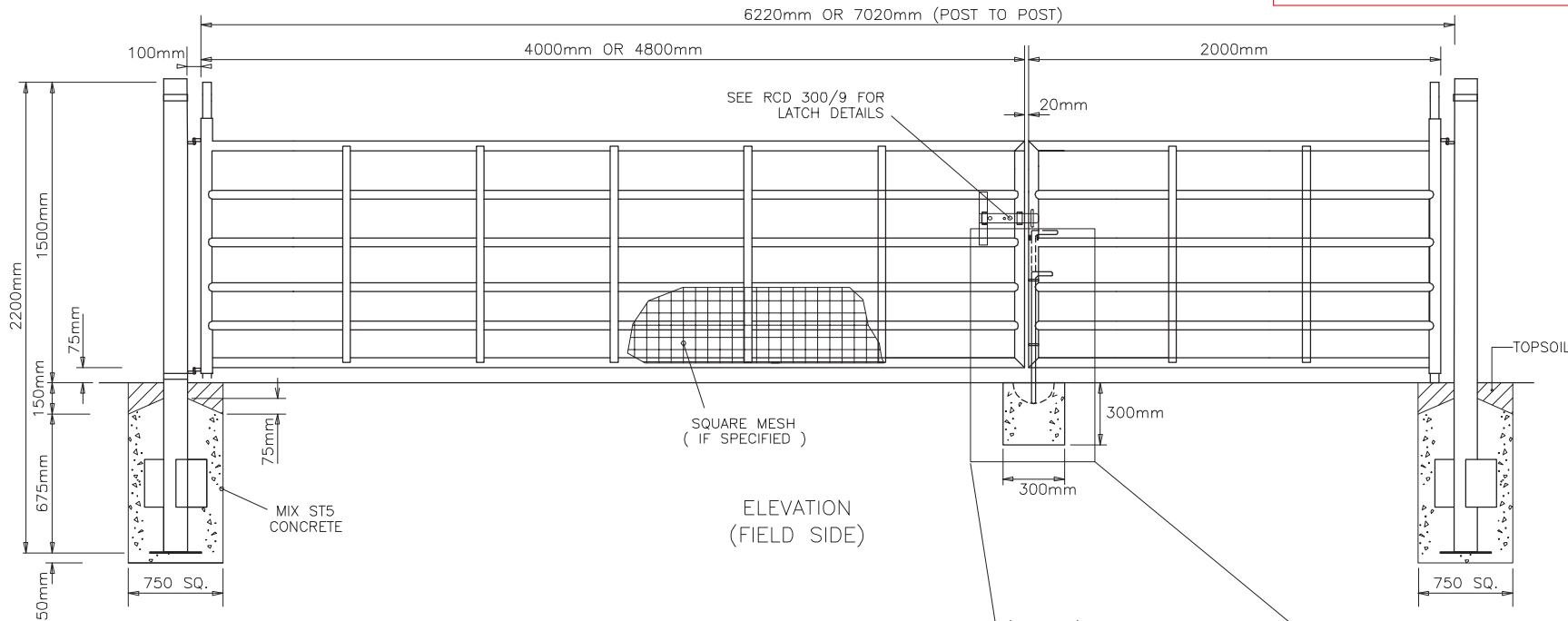
#### HINGE DETAILS

#### SLIDING BOLT LATCH DETAILS

#### NOTES:

- ALL DIMENSIONS ARE IN MILLIMETRES.
- GATES SHALL COMPLY WITH THE APPROPRIATE CLAUSES IN THE 300 SERIES AND ANY FURTHER REQUIREMENTS IN APPENDIX 1/15 OR 3/1.
- GATES SHALL OPEN INWARD FROM THE ADJACENT CARRIAGEWAY INTO THE OWNER'S PROPERTY.
- HINGES AND LATCH AS DETAILED.
- THE CORNERS OF THE MAIN FRAME MAY BE ROUNDED OR MITRED.
- GATES & FITTINGS SHALL BE GALVANISED TO COMPLY WITH IS EN 10240 UNLESS ALTERNATIVE PROTECTIVE TREATMENT DESCRIBED IN APPENDIX 1/15 OR 3/1.
- GATE STOPS TO BE PROVIDED IN ACCORDANCE WITH RCD/300/14.

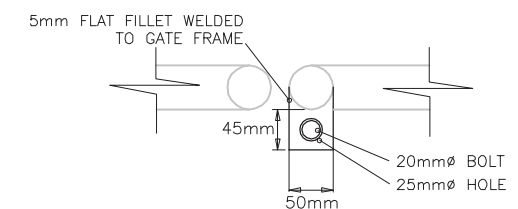
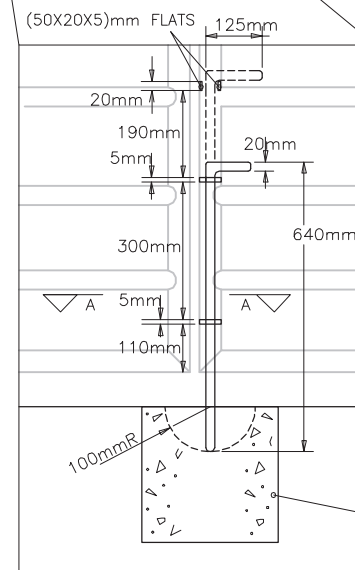
TII PUBLICATION NUMBER: CC-SCD-00309



# NOTES :

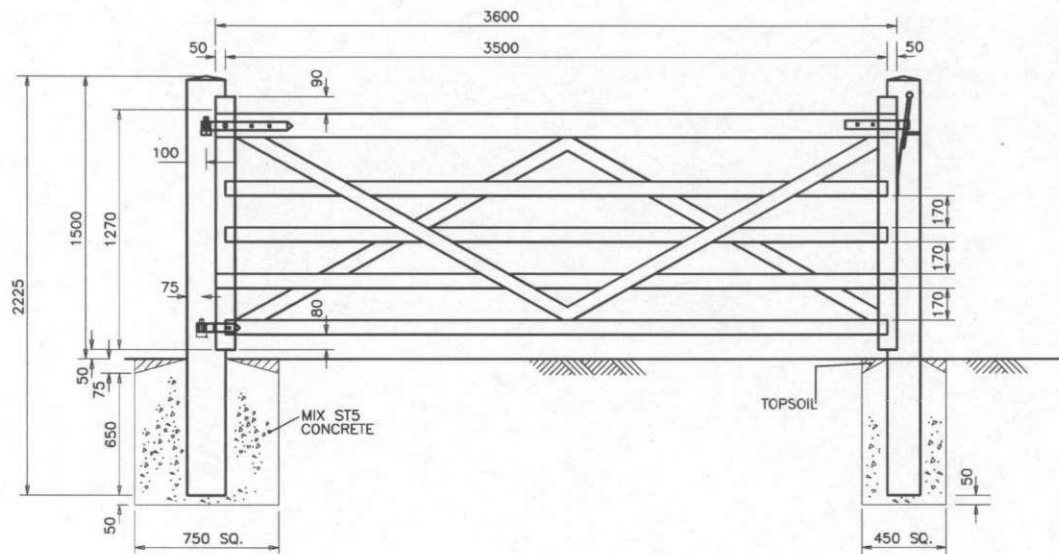
- ALL DIMENSIONS ARE IN MILLIMETRES.
- GATES SHALL COMPLY WITH THE APPROPRIATE CLAUSES IN THE 300 SERIES AND ANY FURTHER REQUIREMENTS IN APPENDIX 1/15 OR 3/1.
- FOR DETAILS OF LATCHES AND HINGES SEE RCD/300/9.
- GATE STOPS TO BE PROVIDED IN ACCORDANCE WITH RCD/300/14.
- THE GATE SHALL OPEN INWARD FROM THE ADJACENT CARRIAGEWAY INTO THE OWNER'S PROPERTY.
- THE CORNERS OF THE MAIN FRAME MAY BE ROUNDED OR/AND MITRED.
- GATE TO BE GALVANISED TO COMPLY WITH IS EN 10240 UNLESS ALTERNATIVE PROTECTIVE TREATMENT DESCRIBED IN APPENDIX 1/15 OR 3/1.

DESCRIPTION OF MATERIAL	SIZE	FIXINGS AND FITTINGS
POSTS (TUBULAR STEEL)	114.3 OUTER DIA. X 3.6 THICK	TOP CAPPING PLATE 4.8 THICK TWO 250X250X4.8 WING PLATES STITCH WELDED TO POST BASE PLATE 250X250X4.8 CAP AND BASE PLATES TO BE CONTINUOUSLY FLUSH WELDED TO TUBE
OUTER FRAMES (TUBULAR STEEL)	48.3 OUTER DIA. X 2.9 THICK	
INFILLING HORIZONTAL RAILS (ALL TUBULAR STEEL)	42.4 OUTER DIA. X 2.6 THICK	
4 VERTICAL BRACES (FLAT STEEL)	38X4.8	FILLET WELDED TO EACH GATE MEMBER CROSSED BY BRACES
MESH FABRIC (IF SPECIFIED)	51mm SQ. x 4.1mm $\phi$ STEEL SQUARE WELDED MESH FABRIC	



SECTION A-A





DESCRIPTION OF TIMBER MATERIALS	SIZE
HANGING POST	200X200X2225 LONG
SHUTTING POST	175X175X2225 LONG
HANGING STILE	100X100
SHUTTING STILE	100X100
TOP RAIL	100X125
UNDER RAILS	75X38
BRACES HOUSED IN TOP RAIL	75X25

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. GATES SHALL COMPLY WITH THE APPROPRIATE CLAUSES IN THE 300 SERIES AND ANY FURTHER REQUIREMENTS IN APPENDIX 1/15 OR 3/1.
3. ALL THROUGH TENONS SHALL BE PEGGED WITH 13 DIA. OAK DOWELS.
4. FOR DETAILS OF FITTINGS FOR HANGING AND FASTENING SEE RCD/300/13 AND RCD/300/14.
5. THE GATE SHALL BE HUNG AS SHOWN FOR SELF CLOSING WITH SELF LATCHING STOP POST AS SHOWN ON RCD/300/14.
6. THE GATE SHALL OPEN INWARD FROM THE ADJACENT CARRIAGEWAY INTO THE OWNER'S PROPERTY.
7. TIMBER TO BE TREATED IN ACCORDANCE WITH IS 435.

SCALE 1:1000

TII PUBLICATION NUMBER: CC-SCD-00311



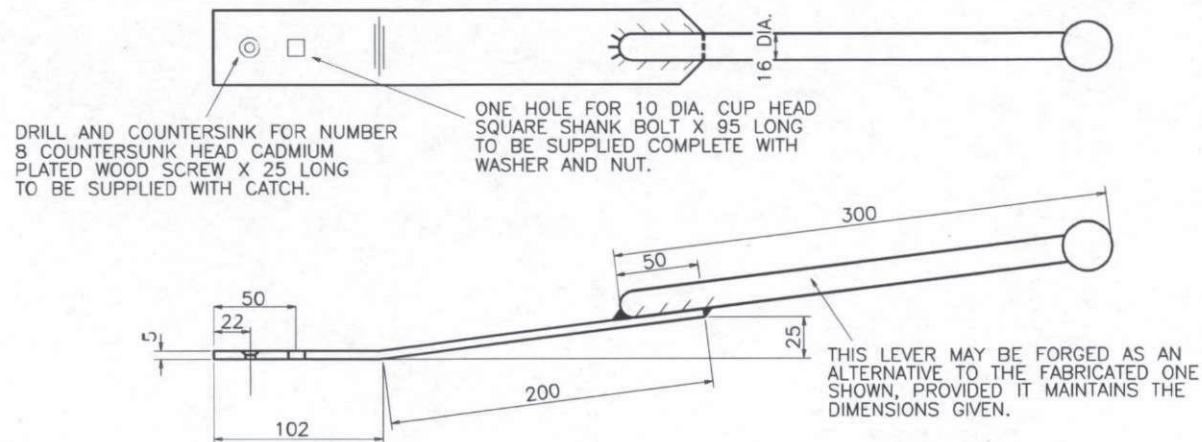
DESCRIPTION OF TIMBER MATERIALS	SIZE
HANGING POST	200x200x2100 LONG
SHUTTING POST	175x175x2100 LONG
HANGING STILE	100x75
SHUTTING STILE	75x75
TOP RAIL	100x75
UNDER RAILS	75x38
BRACE HOUSED IN TOP RAIL	75x25

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
  2. GATES AND GATE FITTINGS SHALL COMPLY WITH THE APPROPRIATE CLAUSES IN THE 300 SERIES AND ANY FURTHER REQUIREMENTS IN APPENDIX 1/15 OR 3/1.
  3. ALL THROUGH TENONS SHALL BE PEGGED WITH 13 DIA. OAK DOWELS.

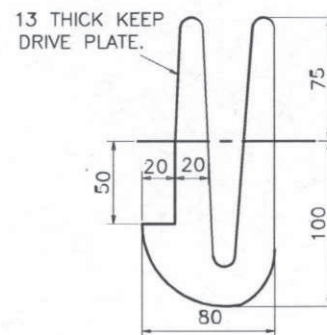
DRIVE CATCH

  4. FOR DETAILS OF FITTINGS FOR HANGING AND FASTENING SEE RCD/300/13.
  5. THE GATE SHALL OPEN INWARDS FROM THE ADJACENT CARRIAGEWAY INTO THE OWNER'S PROPERTY.

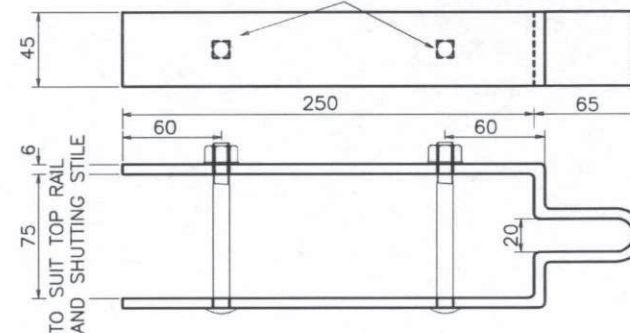


SPRING CATCH

TWO HOLES FOR 10 DIA. CUP  
HEAD SQUARE SHANK BOLTS X 100  
LONG TO BE SUPPLIED EACH WITH  
ONE NUT AS SHOWN.



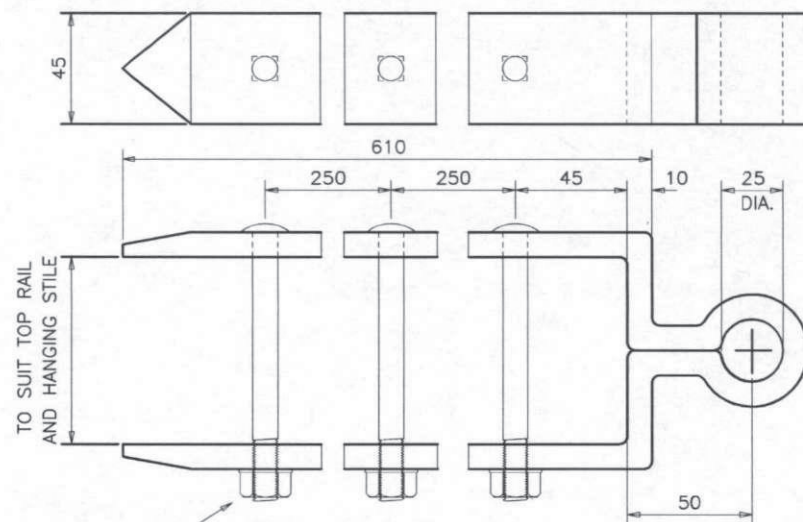
## DRIVE CATCH



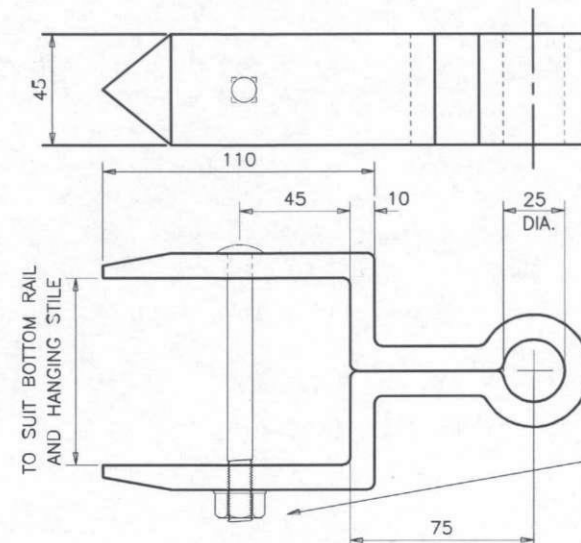
HEAD STRAP

6. TIMBER TO BE TREATED IN ACCORDANCE WITH IS 435.
7. FITTINGS SHALL BE MILD STEEL GALVANISED TO IS EN 10240 WITH THE EXCEPTION OF THE SPRING CATCH WHICH SHALL BE TEMPERED STEEL, PRESET AS SHOWN.





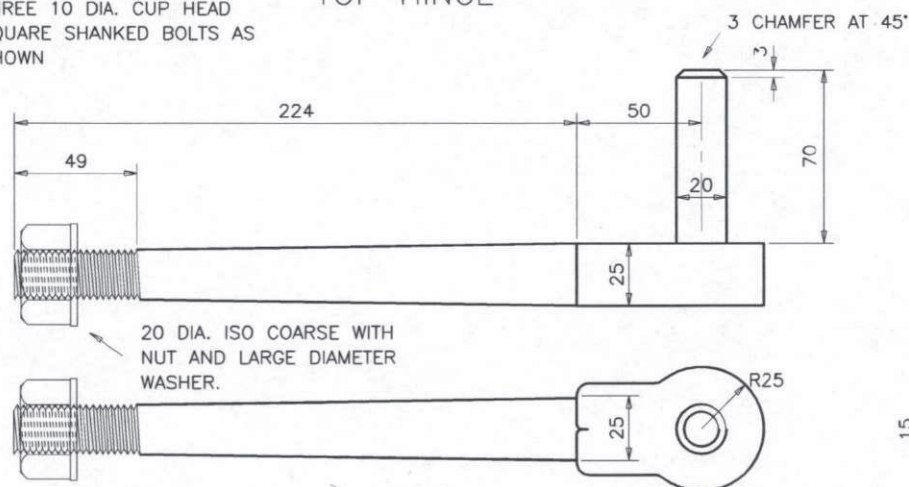
TOP HINGE



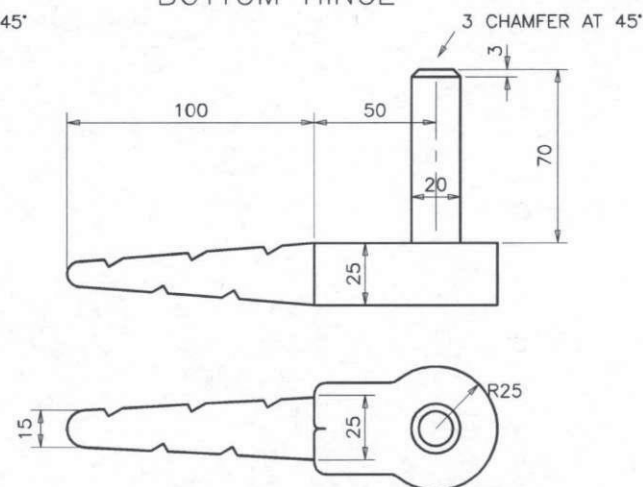
BOTTOM HINGE

PROVISION SHALL BE MADE IN THE TOP HINGE FOR THREE 10 DIA. CUP HEAD SQUARE SHANKED BOLTS AS SHOWN

PROVISION SHALL BE MADE IN THE BOTTOM HINGE FOR ONE 10 DIA. CUP HEAD SQUARE SHANKED BOLTS AS SHOWN



TOP CROOK



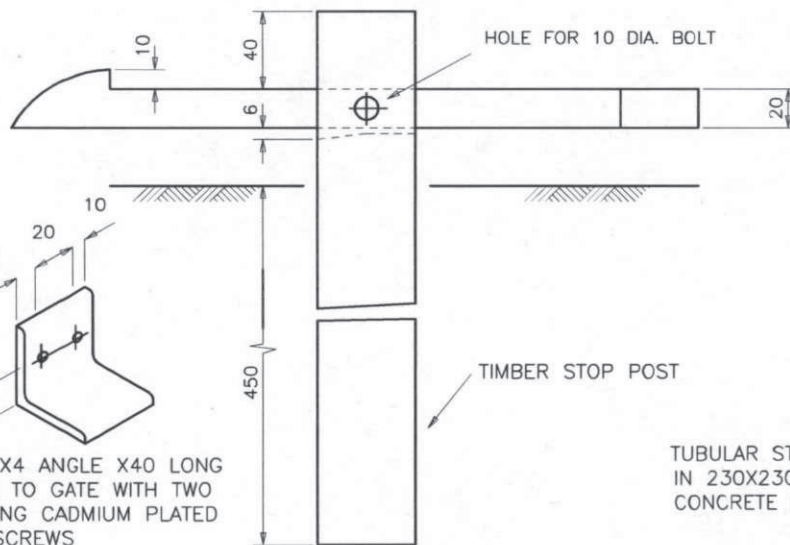
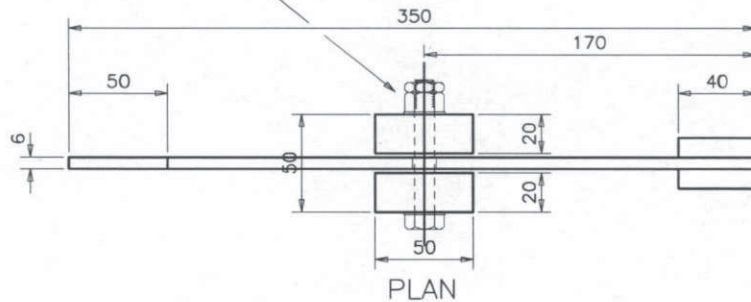
BOTTOM CROOK

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. GATE FITTINGS SHALL COMPLY WITH THE 300 SERIES AND ANY OTHER FURTHER REQUIREMENTS IN APPENDIX 1/15 OR 3/1.
3. FITTINGS SHALL BE MILD STEEL GALVANIZED TO BS 729.

TII PUBLICATION NUMBER: CC-SCD-00313

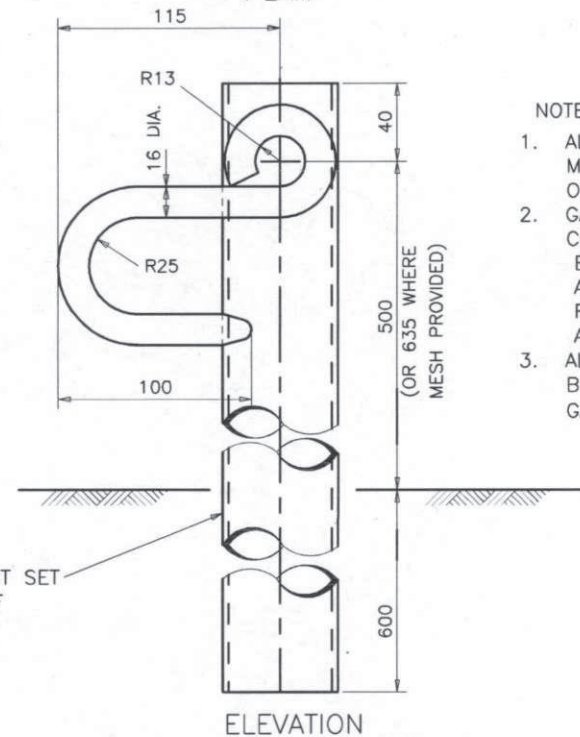
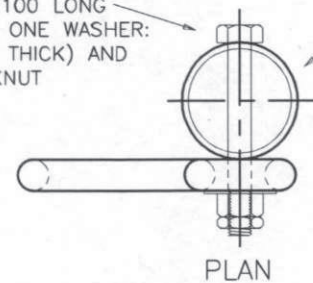
10 DIA. BOLT X 70 LONG COMPLETE WITH TWO WASHERS, ONE NUT AND LOCKNUT (ALTERNATIVELY ONE SELF-LOCKING NUT)



SELF LATCHING STOP POST  
FOR TIMBER GATES

12 DIA. BOLT X100 LONG COMPLETE WITH ONE WASHER: (38 O/DIA X 2 THICK) AND NUT AND LOCKNUT

60.3 O/DIA. TUBE  
3.2 MINIMUM WALL THICKNESS.

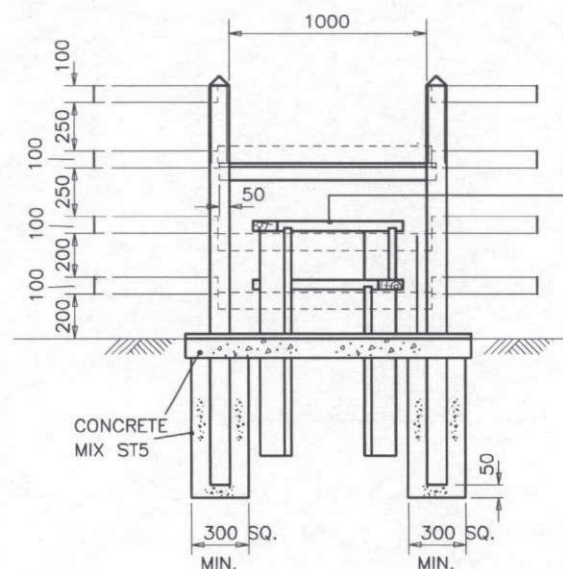


HOLDING BACK STOP POST  
FOR STEEL GATES

#### NOTES :

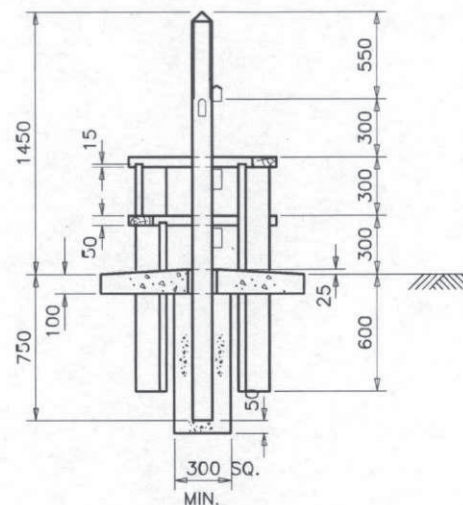
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. GATE FITTINGS SHALL COMPLY WITH BS 3470 OR BS 5709 AS APPROPRIATE, AND ANY OTHER FURTHER REQUIREMENTS IN APPENDIX 1/15 OR 3/1.
3. ALL METAL FITTINGS AND BOLTS SHALL BE MILD STEEL GALVANIZED TO BS 729.





EXPANDED METAL STRIP  
FIXED TO THE TOP OF  
ALL STEPS

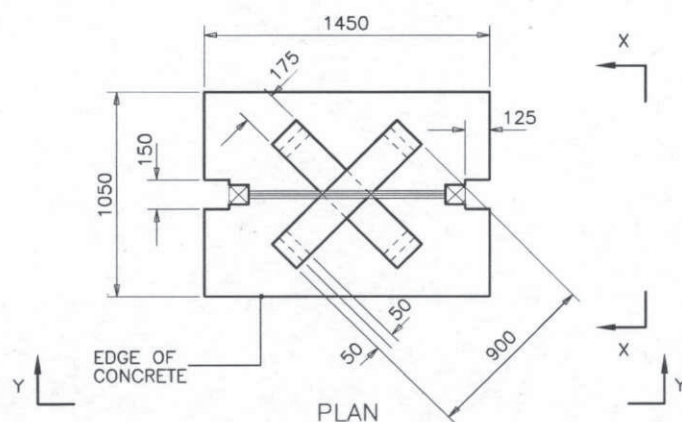
SECTION Y-Y



SECTION X-X

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL TIMBER SHALL BE IN ACCORDANCE WITH THE APPROPRIATE CLAUSES IN THE 300 SERIES AND ANY OTHER REQUIREMENTS IN APPENDICES 1/15 AND 3/1 AND BS 5709.
3. ALL STEELWORK SHALL BE GALVANIZED TO COMPLY WITH B.S. 729.
4. STILE POSTS SHALL BE SET IN LINE OF FENCE.
5. TIMBER TO BE TREATED IN ACCORDANCE WITH IS 435-2005.

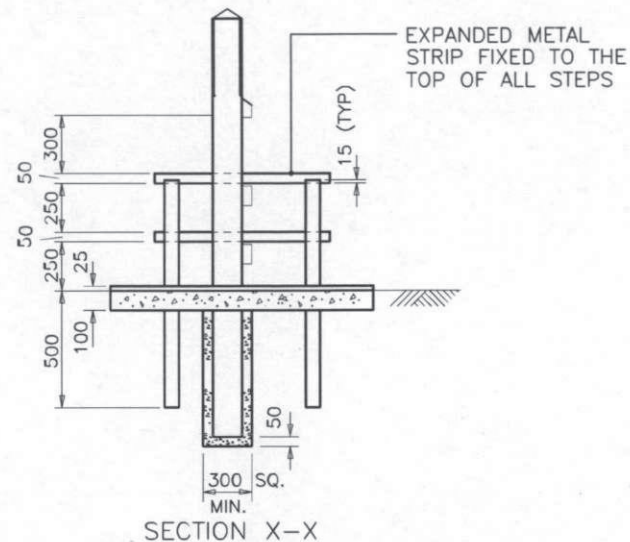


PLAN

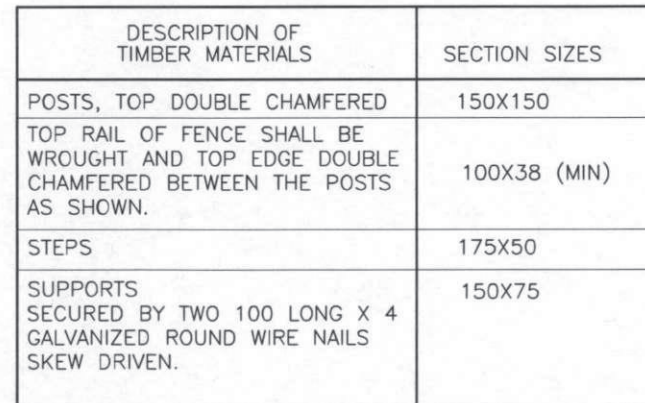
DESCRIPTION OF TIMBER MATERIALS	SECTION SIZE
POSTS TOP DOUBLE CHAMFERED	150X150
CROSSHEAD WROUGHT. TOP EDGE DOUBLE CHAMFERED	100X38 MINIMUM
STEPS	175X50
SUPPORTS SECURED BY TWO 100 LONG X 4 GALVANIZED ROUND WIRE NAILS SKEW DRIVEN	175X50

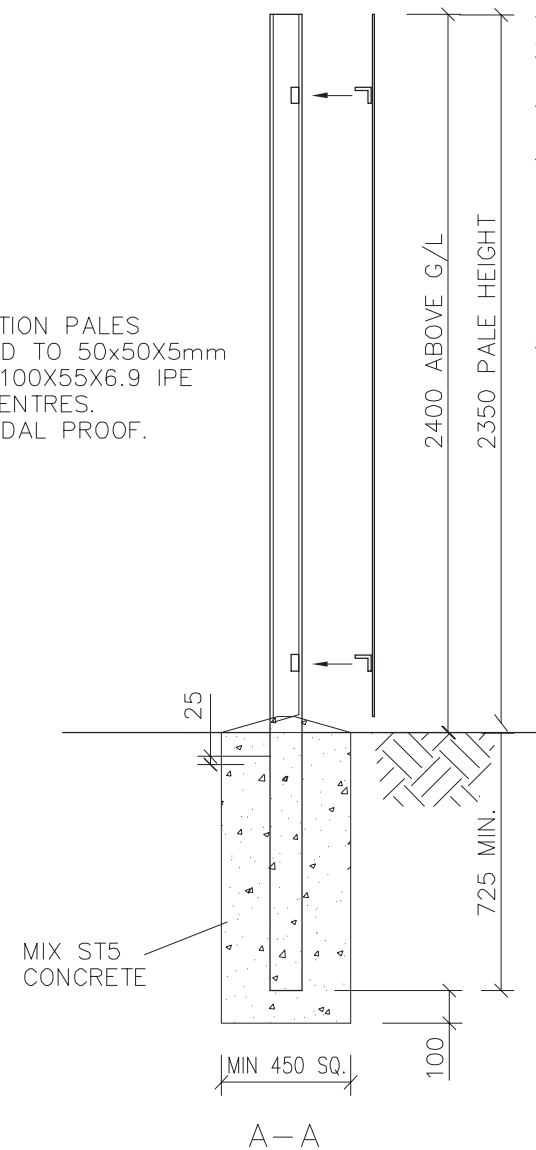
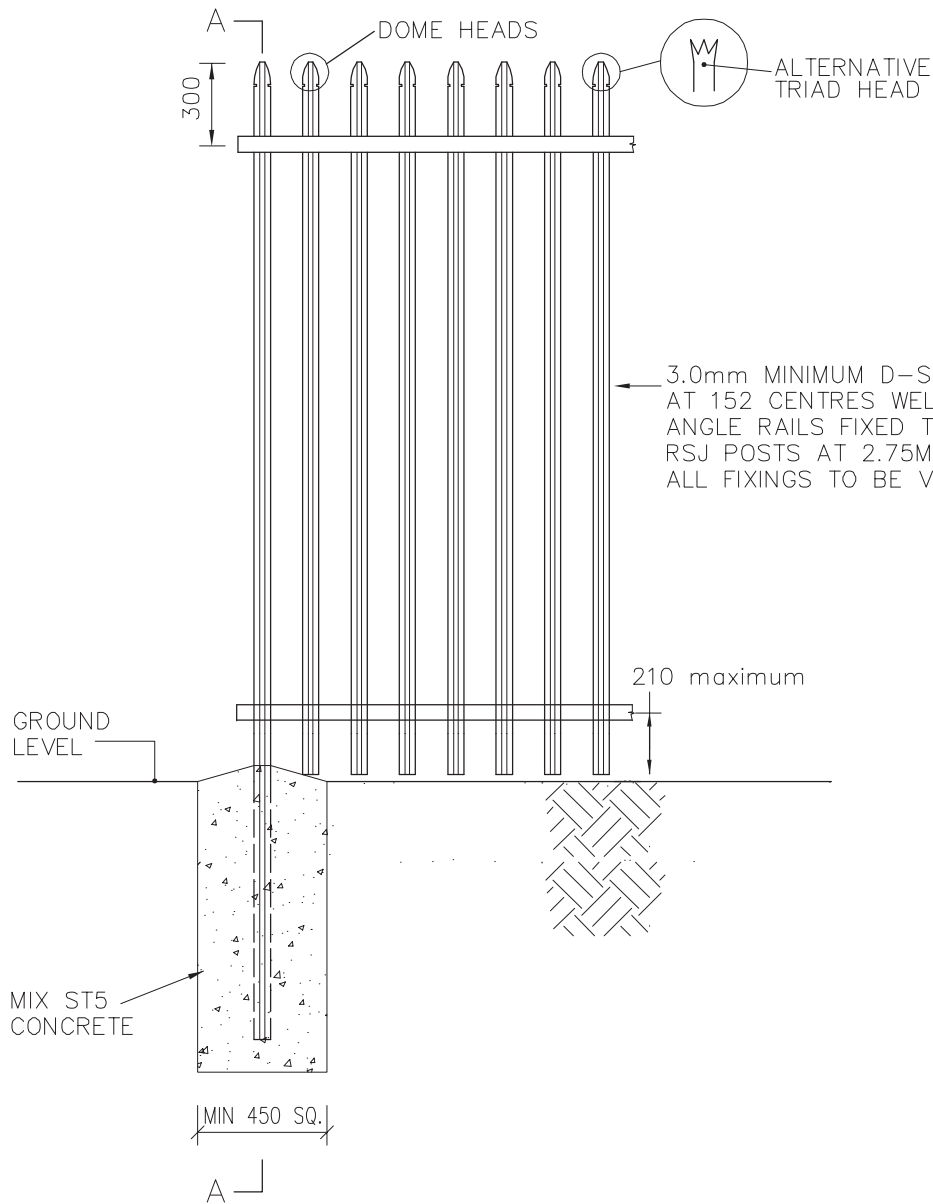
TII PUBLICATION NUMBER: CC-SCD-00315





- NOTES
1. ALL DIMENSIONS ARE IN MILLIMETRES.
  2. ALL TIMBER SHALL BE IN ACCORDANCE WITH THE APPROPRIATE CLAUSES IN THE 300 SERIES AND ANY FURTHER REQUIREMENTS IN APPENDIX 3/1 OR 1/15 AND BS 5709.
  3. ALL STEELWORK SHALL BE GALVANIZED TO COMPLY WITH B.S. 729.
  4. TIMBER TO BE TREATED IN ACCORDANCE WITH IS 435-2005.

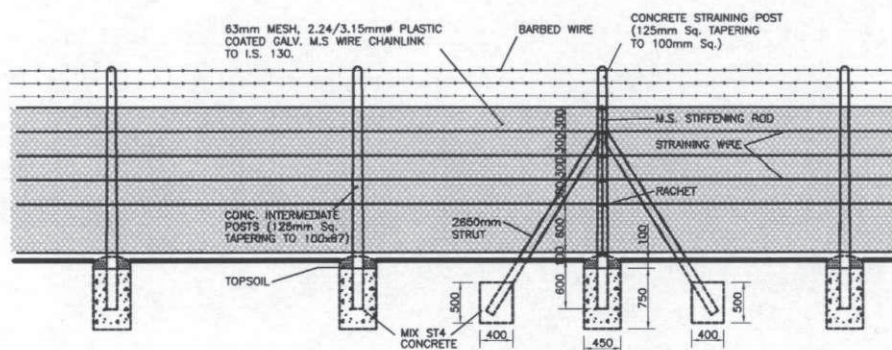




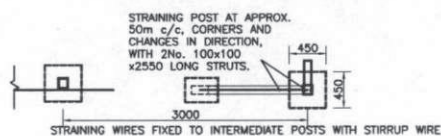
#### NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL MATERIAL SHALL BE GALVANISED TO EN ISO 1461.
3. THE PALE HEADS MAY BE EITHER DOME OR TRIAD UNLESS SPECIFIED.
4. PALES SHALL BE SECURED TO RAILS AT EVERY INTERSECTION BY MEANS OF WELDING. WELDING SHALL CONSIST OF 3mm FILLET WELDS AT LEAST 30mm LONG ON EACH SIDE OF THE PALE.
5. TOP OF CONCRETE FOUNDATION TO BE SLOPED TO DRAIN.

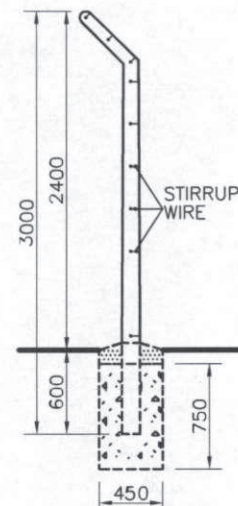
TII PUBLICATION NUMBER: CC-SCD-00317



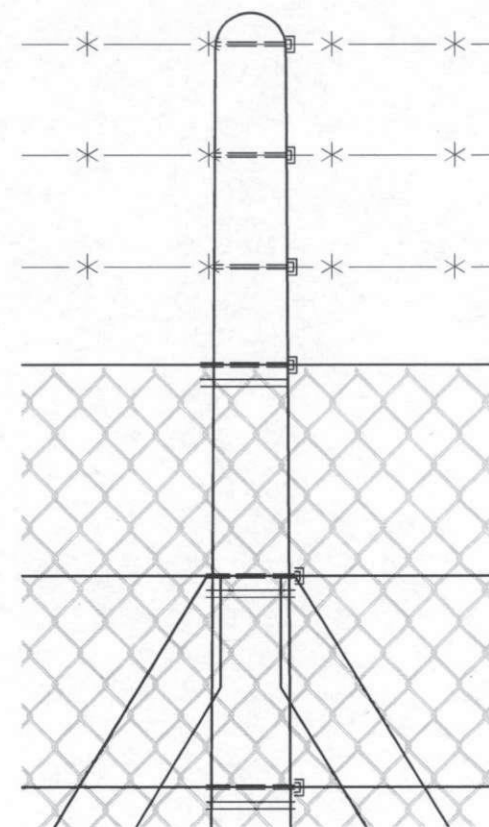
ELEVATION



PLAN



SECTION



DETAIL

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL LINE WIRE, STIRRUP WIRE AND BARBED WIRE SHALL BE ZINC COATED TO COMPLY WITH B.S. 443.
3. WHEN THIS TYPE OF FENCE OR VARIATIONS OF IT ARE USED FOR ACCOMMODATION WORK FENCES, THE REQUIREMENTS ARE INCLUDED IN APPENDIX 1/15 AND ON THE DRAWINGS.

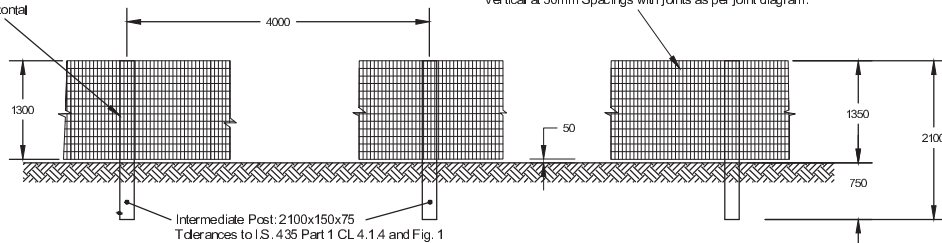
TII PUBLICATION NUMBER: CC-SCD-00318





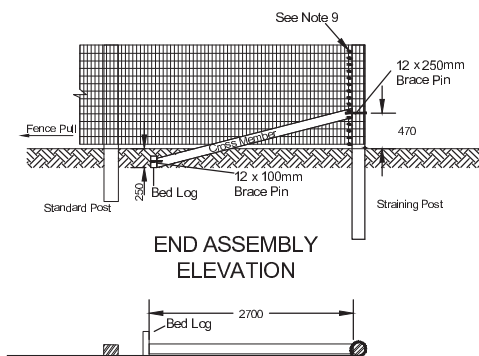
Fix mesh to posts using 40mm x 4mm Ø galvanised staples on every second horizontal line wire

2.5mm Ø, 14-130-5 mesh wire manufactured to IS EN 10223-5, tensile strength 1235-1550 MPa. Galvan standard, 135 g/m<sup>2</sup> of Zinc Aluminium (95% Zinc, 5% Aluminium). Max. spacing between horizontals to be 150mm. Vertical at 50mm Spacings with joints as per joint diagram.



FENCE ELEVATION

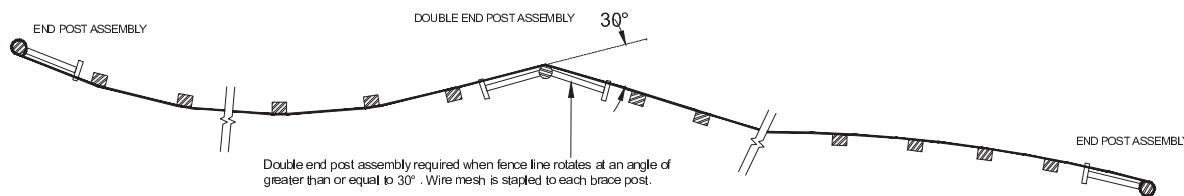
FENCE PLAN



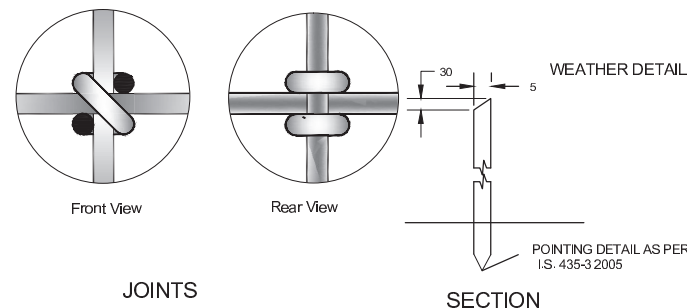
END ASSEMBLY ELEVATION

END ASSEMBLY PLAN

End Assembly Details		
Item	Quantity	Description
Straining Posts	1	500mm x 170mm minimum Ø Timber Post
Cross Member	1	2700mm x 100mm minimum Ø Timber post
Brace Pin	1	12mm x 250mm Galvanised Pin
	1	12mm x 100mm Galvanised Pin
Bed Log	1	150mm x 75mm x 460mm minimum Timber post
Gripple T-Clips	13	Galvanised Wire Joiners



END POST ASSEMBLY FOR CURVED FENCE LINE

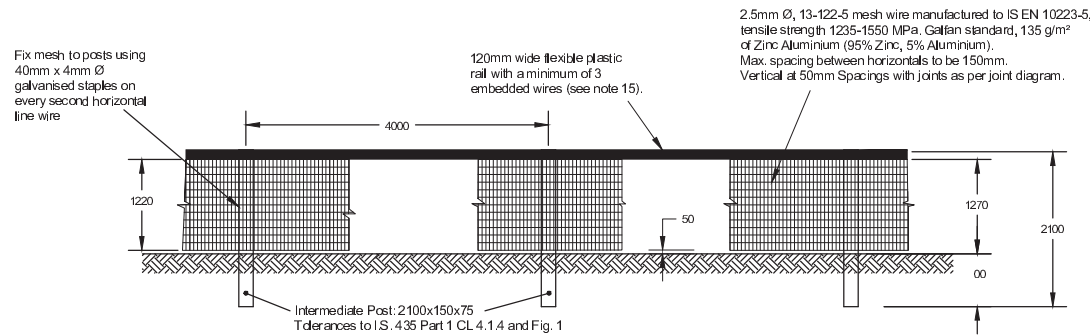


## NOTES:

- FENCES SHALL BE CONSTRUCTED AND ERECTED IN ACCORDANCE WITH I.S. 435, 2005 EXCEPT WHERE OTHERWISE SHOWN.
- ANY LENGTH OF FENCING (INCLUDING BRANCHES OR SPURS) SHALL START WITH A STRAINING POST AND END WITH A STRAINING POST. ADDITIONAL STRAINING POSTS SHALL BE PROVIDED AT FENCE JUNCTIONS AND AT FENCE CORNERS WHERE AT CURVES AND ANGLES. WHERE STRAINING POSTS ARE TO BE DRIVEN, THEY SHOULD BE POINTED PRE-TREATMENT.
- STANDARD POST HOLES FALLING IN ROCK TO BE EXCAVATED TO THE DEPTH SHOWN ON THIS DRAWING OR, WITH THE EMPLOYERS REPRESENTATIVES APPROVAL, TO A DEPTH OF 500mm, AND SHALL BE BACK FILLED WITH MIX ST2 CONCRETE. WHERE A REDUCED DEPTH OF HOLE IS AGREED, THE TOP OF THE POST SHALL BE SUITABLY CUT AND TREATED IN ACCORDANCE WITH THE RECOMMENDATIONS OF I.S. 435:2005. END POST HOLES TO BE EXCAVATED TO 1.1m.
- FENCE POSTS SHALL BE TREATED WITH PRESERVATIVE IN ACCORDANCE WITH THE REQUIREMENTS OF SERIES 300 OF THE NRA SPECIFICATIONS FOR ROAD WORKS AND WITH APPENDIX B OF IS 435-1: 2005.
- WHERE SIDELONG GROUND SLOPES DOWN TOWARDS THE FENCE AT A SLOPE GREATER THAN 1:4 THEN THE PERMANENT FENCING POST HEIGHT SHALL BE INCREASED BY A MINIMUM OF 250mm.
- WHERE THERE IS AN INSTANTANEOUS CHANGE IN DIRECTION OF THE FENCE GREATER THAN 20°, THE 2100 X 150 X 75 POSTS SHOULD BE SUBSTITUTED WITH ROUND 2500MM X 170MM DIAMETER POSTS. POST SPACING SHOULD BE REDUCED TO 2000mm UNTIL THE CHANGE IN DIRECTION IS LESS THAN 20°.
- WHERE A CHANGE IN DIRECTION OF THE FENCE LINE IS GREATER THAN 30° A DOUBLE END POST ASSEMBLY SHOULD BE INSTALLED.
- ON CURVES THE WIRE SHOULD ALWAYS BE ON THE OUTSIDE OF THE CURVE WITH THE WIRE PRESSING AGAINST THE POST.
- WIRE MESH SHOULD BE TIED AROUND THE END POST BY TYING THE HORIZONTAL LINE WIRES AROUND THE END POST AND WRAPPING AROUND FIVE TIMES BACK ONTO THEMSELVES. ALTERNATIVELY GRIPPLE T-CLIPS OR SIMILAR WIRE JOINING DEVICES CAN BE USED FOR THIS PURPOSE. THE WIRE SHOULD NOT BE STAPLED TO THE END POST.
- SECURE WIRE MESH TO FIELD SIDE OF POSTS WITH WIRE STAPLES WIRE STAPLES SHALL BE GALVANISED 40mm x 4mm ROUND, EXCEPT WHERE THERE IS A CURVE. SEE NOTE 8.
- ROLLS OF THE WIRE MESH SHOULD BE JOINED USING CRIMPING SLEEVES OR GRIPPLE-TYPE WIRE JOINERS.
- THE RECOMMENDED TENSION FOR THE WIRE MESH IS 45.5kN/m PER LINE WIRE.
- WHERE STATED IN APPENDIX 3/1 CONCRETE FOOTINGS TO POSTS SHALL BE PROVIDED.
- END POST ASSEMBLY MUST BE PROVIDED AT THE START AND END OF A FENCE RUN AND SHOULD BE NO MORE THAN 150m APART. A DOUBLE END ASSEMBLY SHOULD BE PROVIDED WHERE THE FENCE LINE TURNS AT AN ANGLE OF MORE THAN 30°.
- POST DIAMETERS MUST BE SUCH THAT THE CROSS SECTIONAL AREA SHALL NOT EXCEED THE LIMITS SPECIFIED IN NRA TD 19/14, SUCH THAT THE POST WOULD BE CONSIDERED TO BE A HAZARD.
- WHERE FENCE IS REQUIRED TO BE MAMMAL RESISTANT, THE MESH SHALL PROTRUDE BELOW GROUND LEVELS PER RCD 300/19. IN SUCH INSTANCES A WIDER MESH TYPE SHALL BE REQUIRED TO ACHIEVE THE SPECIFIED MESH HEIGHT ABOVE GROUND LEVEL.

TII PUBLICATION NUMBER: CC-SCD-00320

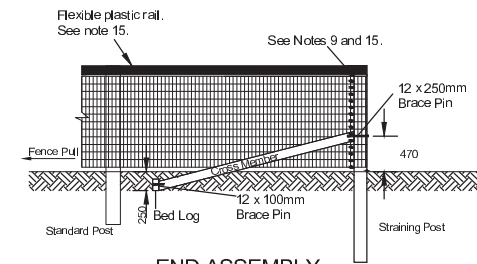




FENCE ELEVATION



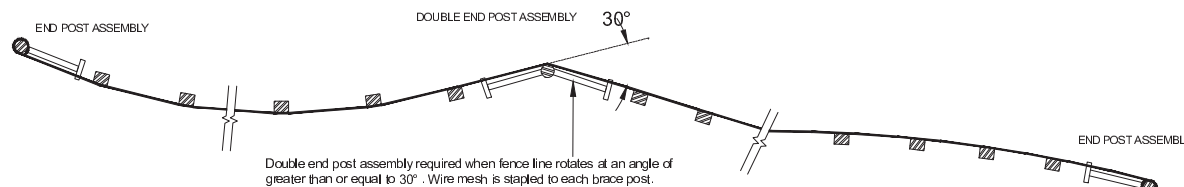
FENCE PLAN



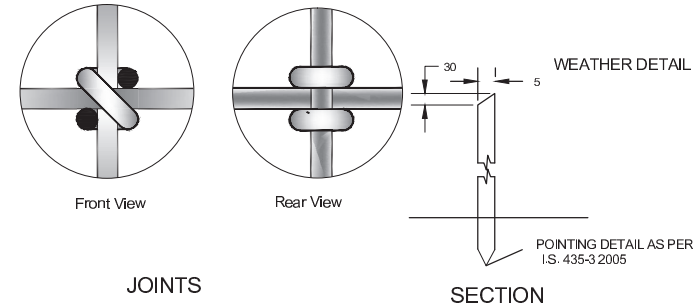
END ASSEMBLY ELEVATION



END ASSEMBLY PLAN

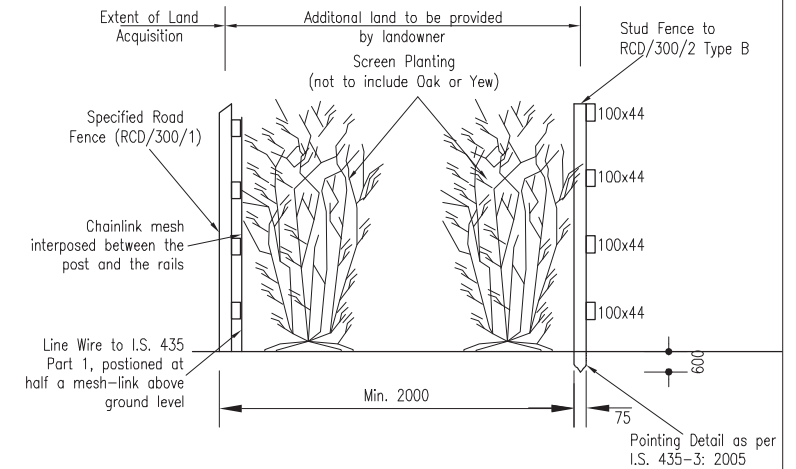
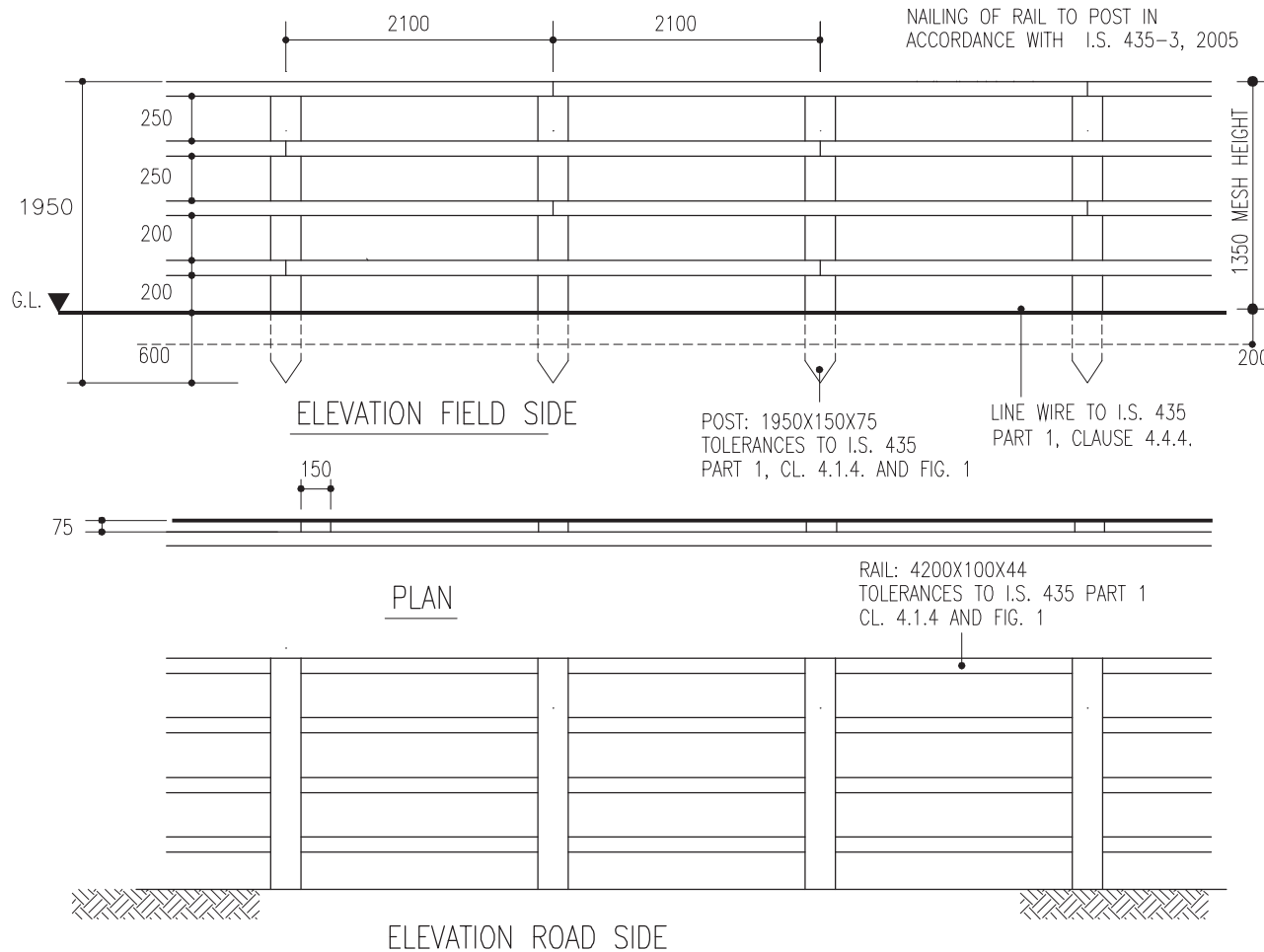


END POST ASSEMBLY FOR CURVED FENCE LINE



NOTES:

- FENCES SHALL BE CONSTRUCTED AND ERECTED IN ACCORDANCE WITH I.S. 435, 2005 EXCEPT WHERE OTHERWISE SHOWN.
- ANY LENGTH OF FENCING (INCLUDING BRANCHES OR SPURS) SHALL START WITH A STRAINING POST AND END WITH A STRAINING POST. ADDITIONAL STRAINING POSTS SHALL BE PROVIDED AT FENCE JUNCTIONS AND AT FENCE CORNERS WHERE AT CURVES AND ANGLES. WHERE STRAINING POSTS ARE TO BE DRIVEN, THEY SHOULD BE POINTED PRE-TREATMENT.
- STANDARD POST HOLES FALLING IN ROCK TO BE EXCAVATED TO THE DEPTH SHOWN ON THIS DRAWING OR, WITH THE EMPLOYERS REPRESENTATIVES APPROVAL, TO A DEPTH OF 500mm, AND SHALL BE BACK FILLED WITH MIX ST2 CONCRETE. WHERE A REDUCED DEPTH OF HOLE IS AGREED, THE TOP OF THE POST SHALL BE SUITABLY CUT AND TREATED IN ACCORDANCE WITH THE RECOMMENDATIONS OF I.S. 435:2005. END POST HOLES TO BE EXCAVATED TO 1.1m.
- FENCE POSTS SHALL BE TREATED WITH PRESERVATIVE IN ACCORDANCE WITH THE REQUIREMENTS OF SERIES 300 OF THE NRA SPECIFICATIONS FOR ROAD WORKS AND WITH APPENDIX B OF IS 435-1: 2005.
- WHERE SIDELONG GROUND SLOPES DOWN TOWARDS THE FENCE AT A SLOPE GREATER THAN 1:4 THEN THE PERMANENT FENCING POST HEIGHT SHALL BE INCREASED BY A MINIMUM OF 250mm.
- WHERE THERE IS AN INSTANTANEOUS CHANGE IN DIRECTION OF THE FENCE GREATER THAN 20°, THE 2100 X 150 X 75 POSTS SHOULD BE SUBSTITUTED WITH ROUND 2500MM X 170MM DIAMETER POSTS. POST SPACING SHOULD BE REDUCED TO 2000mm UNTIL THE CHANGE IN DIRECTION IS LESS THAN 20°.
- WHERE A CHANGE IN DIRECTION OF THE FENCE LINE IS GREATER THAN 30° A DOUBLE END POST ASSEMBLY SHOULD BE INSTALLED.
- ON CURVES THE WIRE SHOULD ALWAYS BE ON THE OUTSIDE OF THE CURVE WITH THE WIRE PRESSING AGAINST THE POST.
- WIRE MESH SHOULD BE TIED AROUND THE END POST BY TYING THE HORIZONTAL LINE WIRES AROUND THE END POST AND WRAPPING AROUND FIVE TIMES BACK ONTO THEMSELVES. ALTERNATIVELY GRIPPLE T-CLIPS OR SIMILAR WIRE JOINING DEVICES CAN BE USED FOR THIS PURPOSE. THE WIRE SHOULD NOT BE STAPLED TO THE END POST.
- SECURE WIRE MESH TO FIELD SIDE OF POSTS WITH WIRE STAPLES WIRE STAPLES SHALL BE GALVANISED 40mm x 4mm ROUND, EXCEPT WHERE THERE IS A CURVE. SEE NOTE 8.
- ROLLS OF THE WIRE MESH SHOULD BE JOINED USING CRIMPING SLEEVES OR GRIPPLE-TYPE WIRE JOINERS.
- THE RECOMMENDED TENSION FOR THE WIRE MESH IS 45.5kN/M PER LINE WIRE.
- WHERE STATED IN APPENDIX 3/1 CONCRETE FOOTINGS TO POSTS SHALL BE PROVIDED.
- END POST ASSEMBLY MUST BE PROVIDED AT THE START AND END OF A FENCE RUN AND SHOULD BE NO MORE THAN 150m APART. A DOUBLE END ASSEMBLY SHOULD BE PROVIDED WHERE THE FENCE LINE TURNS AT AN ANGLE OF MORE THAN 30°.
- FLEXIBLE RAIL SPECIFICATION:  
UV STABILISED EXTRUDED POLYMER FLEXIBLE RAIL WITH MINIMUM 3 NO. EMBEDDED WIRES.  
EMBEDDED WIRES ARE TO BE 2.5mm DIA. AND GALVANISED TO IS EN 10244 CLASS A TENSILE STRENGTH: 1235 TO 1550 MPa  
RAIL WIDTH: 120mm  
BRACKET: HOT DIPPED GALVANISED AND POWDER COATED STEEL BRACKET. TO BE FASTENED TO POST WITH 2 NO. 2.5" EXTERIOR WOOD SCREWS.  
RAIL MUST BE ATTACHED TO EACH POST WITH BRACKETS APPROVED BY THE RAIL MANUFACTURER.  
  
TENSIONING THE RAIL:- A TENSIONER (EITHER INLINE OR MOUNTED ON THE END POST) MUST BE INCLUDED EVERY 100m OR LESS. IF THE FENCE LINE CONTAINS CHANGES OF DIRECTION, IT MAY BE NECESSARY TO ADD EXTRA TENSIONERS TO REMOVE ANY SLACK FROM THE RAIL. THE RAIL MUST BE TAUT WHEN INSTALLED. A CORRECTLY INSTALLED RAIL WILL NOT FLAP IN THE WIND.  
  
JOINING THE RAIL:- THE RAIL MUST BE JOINED USING EITHER A JOINING BUCKLE OR CRIMPING SLEEVES.  
  
ATTACHED TO END POST:- THE RAIL MUST BE ATTACHED TO THE END POST USING AN ATTACHING PLATE OR BUCKLE, APPROVED BY THE RAIL MANUFACTURER.  
POST DIAMETERS MUST BE SUCH THAT THE CROSS SECTIONAL AREA SHALL NOT EXCEED THE LIMITS SPECIFIED IN NRA TD 19/14, SUCH THAT THE POST WOULD BE CONSIDERED TO BE A HAZARD.  
WHERE FENCE IS REQUIRED TO BE MAMMAL RESISTANT, THE MESH SHALL PROTRUDE BELOW GROUND LEVEL AS PER RCD 300/19. IN SUCH INSTANCES A WIDER MESH TYPE SHALL BE REQUIRED, TO ACHIEVE THE SPECIFIED MESH HEIGHT ABOVE GROUND LEVEL.



#### NOTES A:

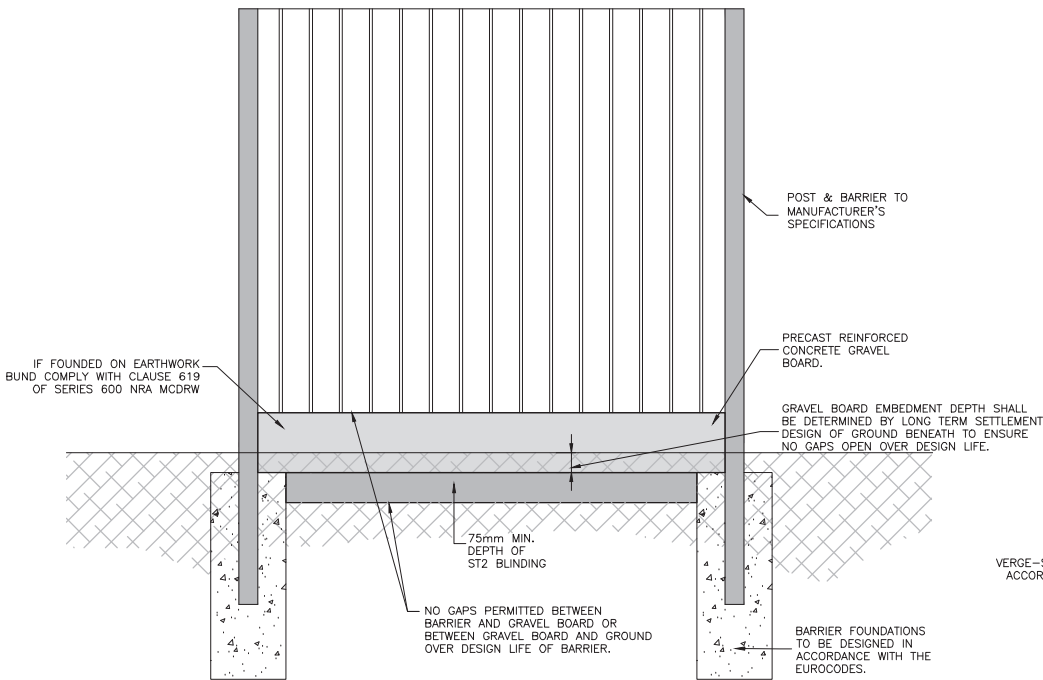
1. FENCES SHALL BE CONSTRUCTED AND ERECTED IN ACCORDANCE WITH IS. 435: 2005 EXCEPT WHERE OTHERWISE SHOWN.
2. ANY LENGTH OF FENCING (INCLUDING BRANCHES AND SPURS) SHALL START WITH A POST AND END WITH A POST. AN ADDITIONAL POST SHALL BE PROVIDED AT FENCE JUNCTIONS AND AT FENCE CORNERS.
3. POST HOLES FALLING IN ROCK SHALL BE EXCAVATED TO THE DEPTH SHOWN ON THIS DRAWING OR, SUBJECT TO AGREEMENT WITH THE EMPLOYER'S REPRESENTATIVE, TO A DEPTH OF 500mm, AND SHALL BE BACKFILLED WITH MIX ST2 CONCRETE. WHERE A REDUCED DEPTH OF HOLE IS AGREED, THE TOP OF THE POST SHALL BE SUITABLY CUT AND TREATED IN ACCORDANCE WITH THE RECOMMENDATIONS OF IS.435: 2005.
4. FENCE POST AND RAIL SHALL BE TREATED WITH PRESERVATIVE IN ACCORDANCE WITH THE REQUIREMENTS OF SERIES 300 OF THE SPECIFICATIONS FOR ROAD WORKS AND APPENDIX B OF IS.435-1: 2005.
5. CONCRETE FOUNDATIONS TO POSTS SHALL BE PROVIDED WHERE STATED IN APPENDIX 1/3.
6. STUD FENCE (RCD/300/2 Type B) TO BE CONSTRUCTED PARALLEL TO ROAD SIDE TIMBER POST AND RAIL FENCE (RCD/300/1). FENCES TO BE CONSTRUCTED 2m APART, WITH ADDITIONAL LAND TO BE SUPPLIED BY LANDOWNER (AS INDICATED ON CROSS SECTION VIEW)
7. WHERE SIDELONG GROUND SLOPES DOWN TOWARDS THE FENCE AT A SLOPE GREATER THAN 1:4, THEN THE PERMANENT FENCING POST HEIGHT SHALL BE INCREASED BY A MINIMUM OF 250mm AND AN ADDITIONAL RAIL ADDED.

#### NOTES B:

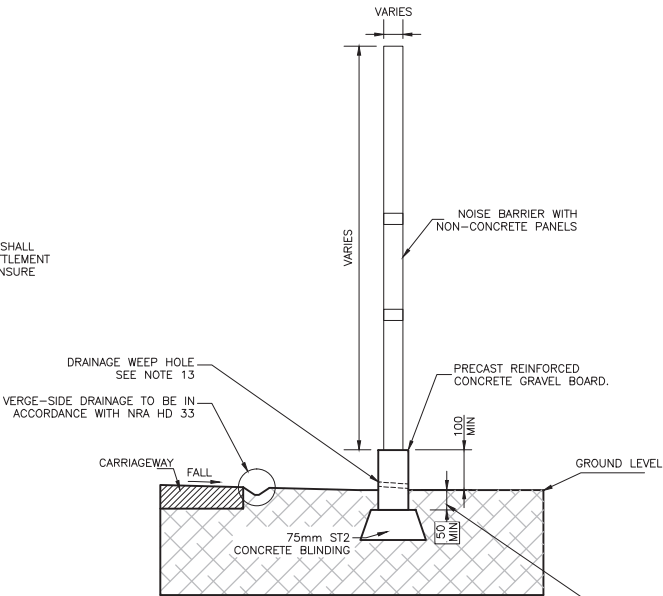
NO CHAINLINK MESH SHALL BE ERECTED ONTO THE STUD FENCE, UNLESS OTHERWISE STATED IN APPENDIX 3/1.

#### FIXING.

FIXING IN ACCORDANCE WITH I.S. 435-3:2005, NOTES 13 AND 14 AND SECTION 4.4 OF I.S. 435-1, 2005



ON-CO CRETE ENVIRONMENTAL NOISE BARRIER ELEVATION  
SCALE: N.T.S.



RAVEL BOARD CROSS SECTION  
SCALE: N.T.S.

- Notes:
1. ALL DIMENSIONS ARE IN MILLIMETRES.
  2. ALL NON-CONCRETE ENVIRONMENTAL NOISE BARRIERS SHALL BE SUPPLIED WITH A PRECAST CONCRETE GRAVEL BOARD.
  3. THE MINIMUM COVER TO REINFORCEMENT SHALL BE IN ACCORDANCE WITH NRA BD57.
  4. MINIMUM EXPOSURE CLASS TO BE XC4.
  5. REINFORCED CONCRETE SHALL BE A MINIMUM GRADE C32/40.
  6. ALL GRAVEL BOARD FACES ARE TO HAVE AN F4 FINISH.
  7. ALL STRUCTURAL CONCRETE SHALL BE SPECIFIED IN ACCORDANCE WITH SERIES 1700 OF THE NRA MCDRW.
  8. EMBEDMENT OF GRAVEL BOARD TO BE A MINIMUM OF 50mm. DEEPER EMBEDMENT TO BE DETERMINED AS REQUIRED ON A CASE BY CASE BASIS.
  9. THIS RCD IS AN INDICATIVE DETAIL SHOWING MINIMUM REQUIREMENTS. FULL DESIGN AND DETAILING SHALL BE UNDERTAKEN ON A SCHEME SPECIFIC BASIS.
  10. THIS RCD IS ONLY TO BE USED IN ASSOCIATION WITH A UNIQUE STRUCTURAL DESIGN. THIS DESIGN IS TO BE CARRIED OUT IN ACCORDANCE WITH THE NRA REQUIREMENTS FOR THE USE OF EUROCODES FOR THE DESIGN OF ROAD STRUCTURES.
  11. ALL ENVIRONMENTAL NOISE BARRIERS SHALL BE SUPPLIED IN ACCORDANCE WITH SERIES 300 OF THE NRA MCDRW.
  12. DETAILING OF THE GRAVEL BOARD SHALL BE THE SOLE RESPONSIBILITY OF THOSE SUPPLYING AND INSTALLING THE BARRIER.
  13. SURFACE AND SUB-SURFACE DRAINAGE ADJACENT TO THE CARRIAGEWAY SHALL BE IN ACCORDANCE WITH NRA DMRB HD33 REQUIREMENTS. WEEP HOLES SHALL BE PROVIDED WHERE REQUIRED. THE INVERT LEVEL OF THE WEEP HOLE, SIZE AND FREQUENCY ALONG THE NOISE BARRIER GRAVEL BOARD IS TO BE DESIGNED SUCH THAT THE GRAVEL BOARD DOES NOT ADVERSELY AFFECT THE ALLOWABLE SURCHARGED FLOW WIDTHS OUTLINED IN NRA DMRB HD33. THE MAXIMUM HEIGHT OF THE WEEP HOLE INVERT SHOULD BE SET SO THAT IT IS NO HIGHER THAN THE EDGE OF THE PAVEMENT. DESIGNERS SHOULD ALSO CONSIDER THE EFFECTS OF THE NOISE BARRIER GRAVEL BOARD IN MORE EXTREME RAINFALL EVENTS WHEN DESIGNING THE WEEP HOLES, TO ALLOW FOR APPROPRIATE ROUTING OF SURCHARGED FLOW AND PREVENT VERGE EROSION AT THE GRAVEL BOARD INTERFACE.



Ionad Ghnó Gheata na Páirce,  
Stráid Gheata na Páirce,  
Baile Átha Cliath 8, D08 DK10, Éire



[www.tii.ie](http://www.tii.ie)



+353 (01) 646 3600



Parkgate Business Centre,  
Parkgate Street,  
Dublin 8, D08 DK10, Ireland



[info@tii.ie](mailto:info@tii.ie)



+353 (01) 646 3601