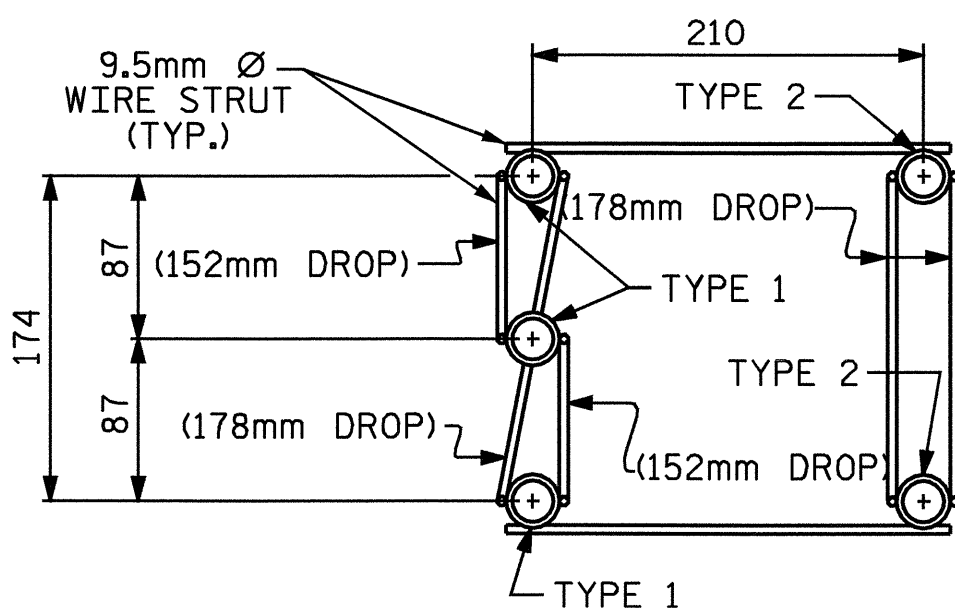


NOTES

STRUCTURAL CONCRETE ANCHOR ASSEMBLY

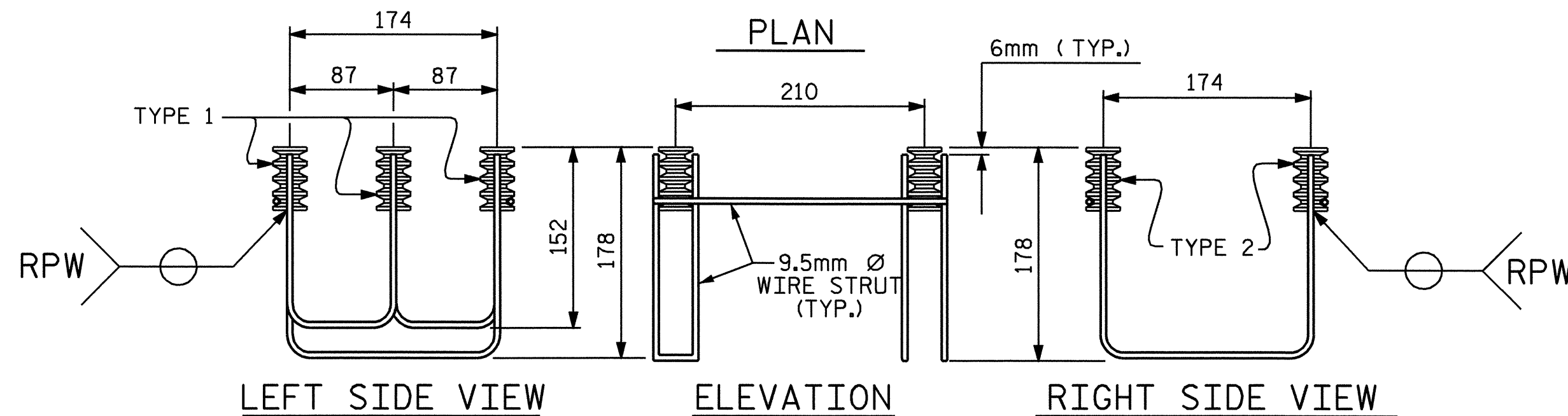
THE STRUCTURAL CONCRETE ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 51mm FOR 19.05mm FERRULES AND 45mm FOR 15.88mm FERRULES.
- B. 3 -19.05mm Ø X 64mm BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 19.05mm Ø X 64mm GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.
- C. 2 -15.88mm Ø X 57mm BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 15.88mm Ø X 57mm GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.
- D. WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 689 MPa. AS AN OPTION, A 11mm Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 620 MPa. IS ACCEPTABLE.
- E. THE METAL RAIL ANCHOR ASSEMBLIES TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF AASHTO M111.
- F. THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR METERS OF METAL RAIL.
- G. BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.



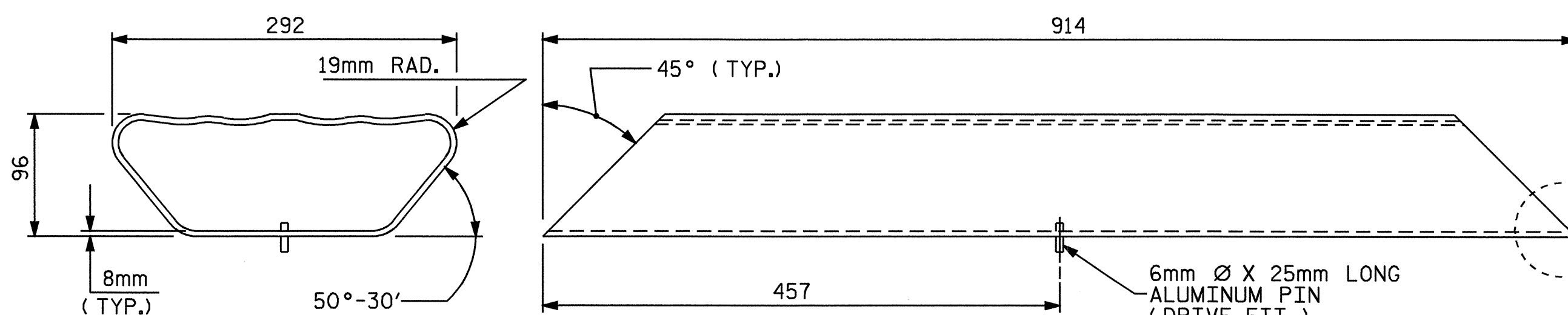
TYPE 1 FERRULE  
THREADED STEEL FERRULES  
WITH CLOSED BOTTOM TO FIT  
19.05mm Ø BOLT WITH ROUND WASHER.

TYPE 2 FERRULE  
THREADED STEEL FERRULES  
WITH CLOSED BOTTOM TO FIT  
15.88mm Ø BOLT WITH ROUND WASHER.



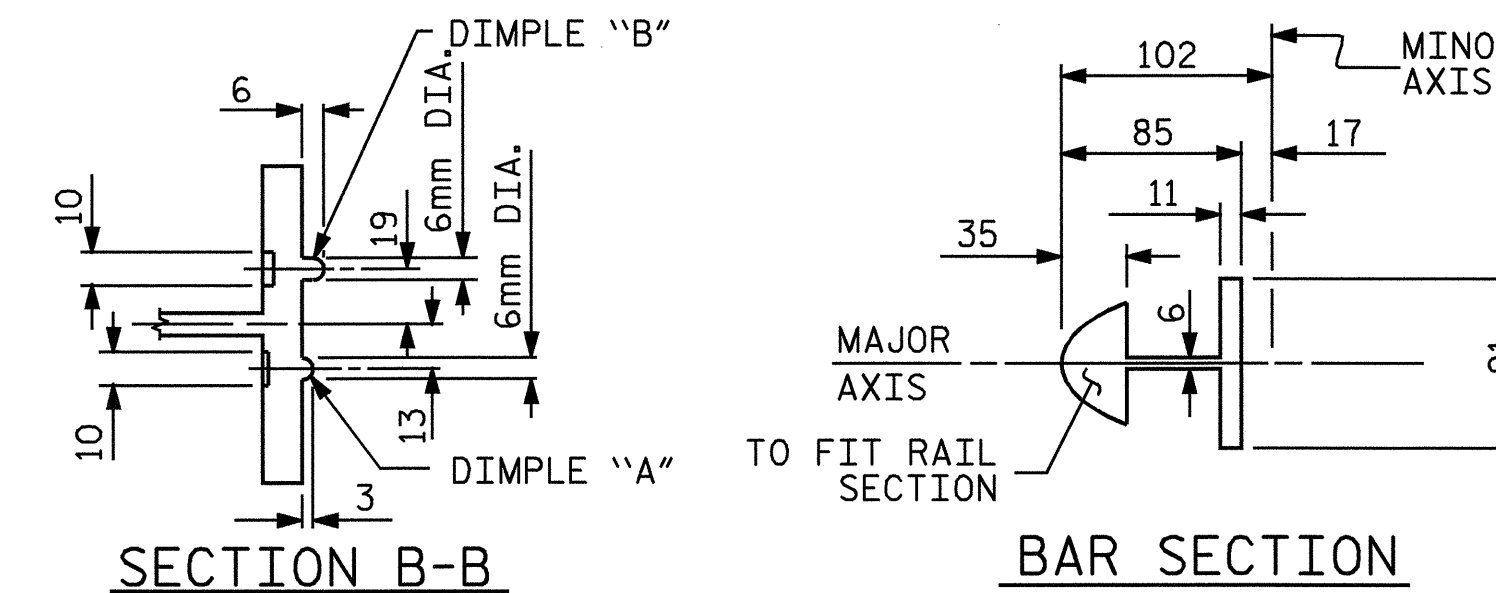
5-BOLT METAL RAIL ANCHOR ASSEMBLY

( 39 ASSEMBLIES REQUIRED )



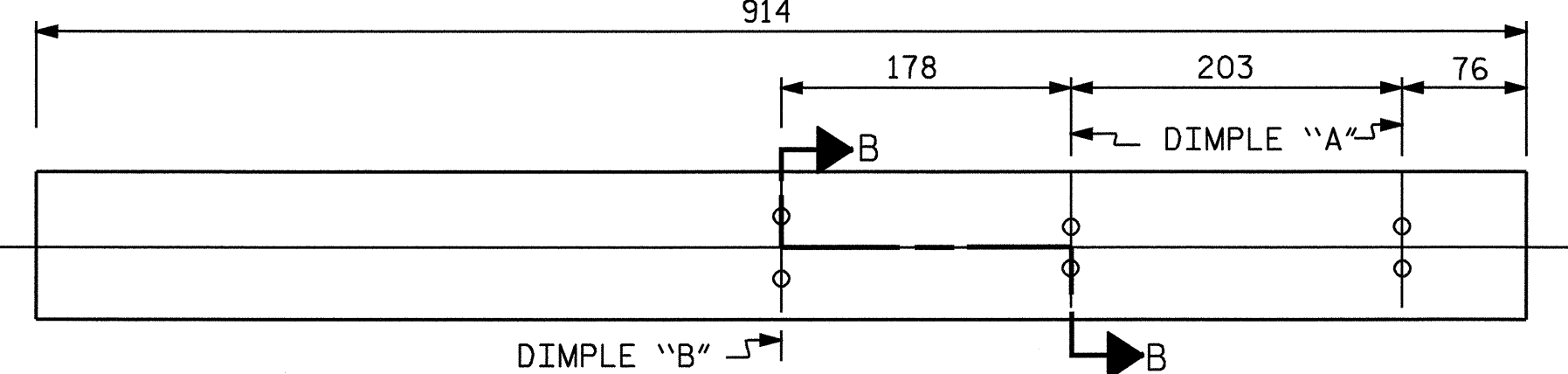
BOTTOM RAIL EXPANSION BAR

BREAK 3mm RAD. WITH GRINDER - BOTH ENDS



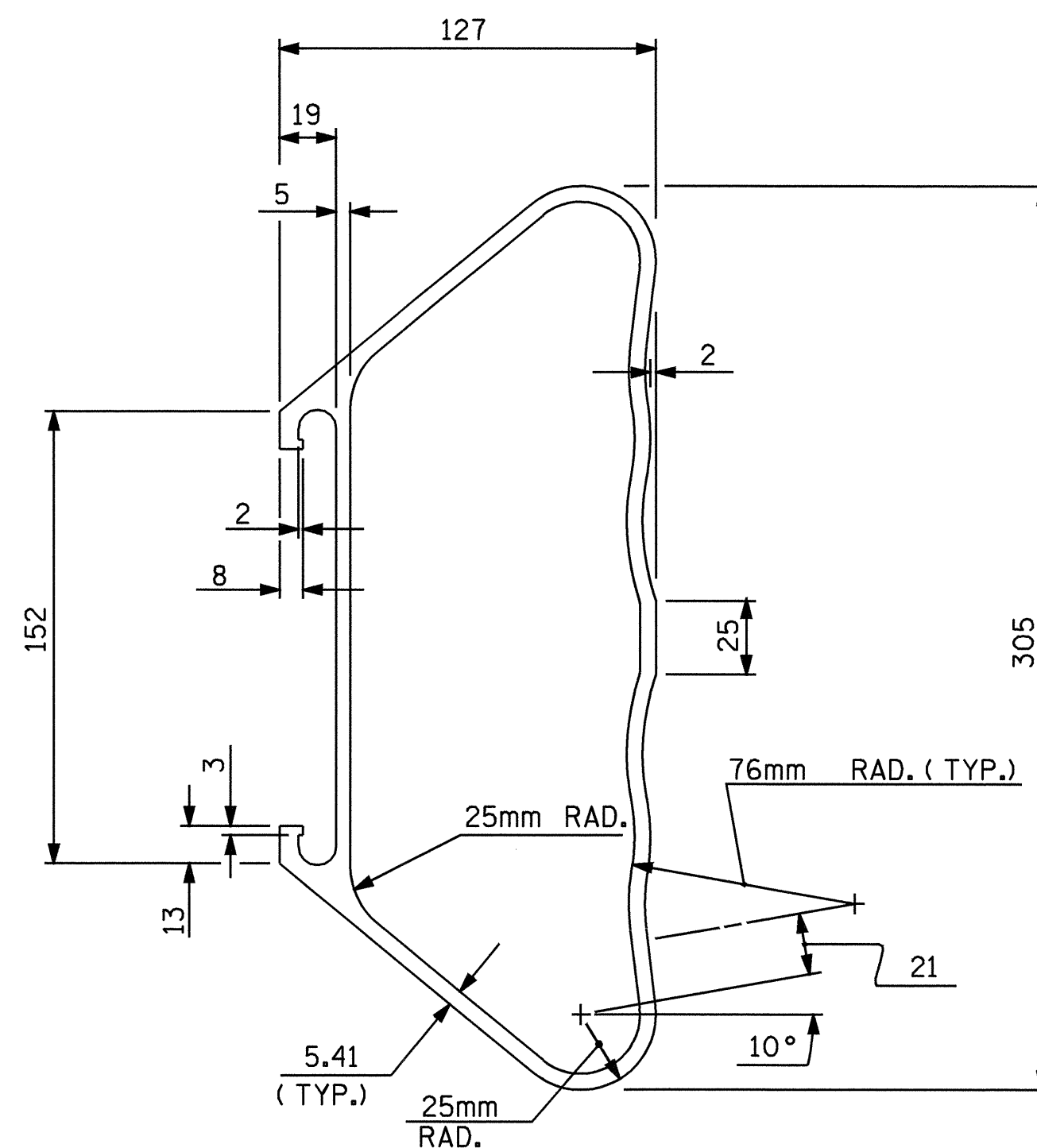
SECTION B-B

BAR SECTION

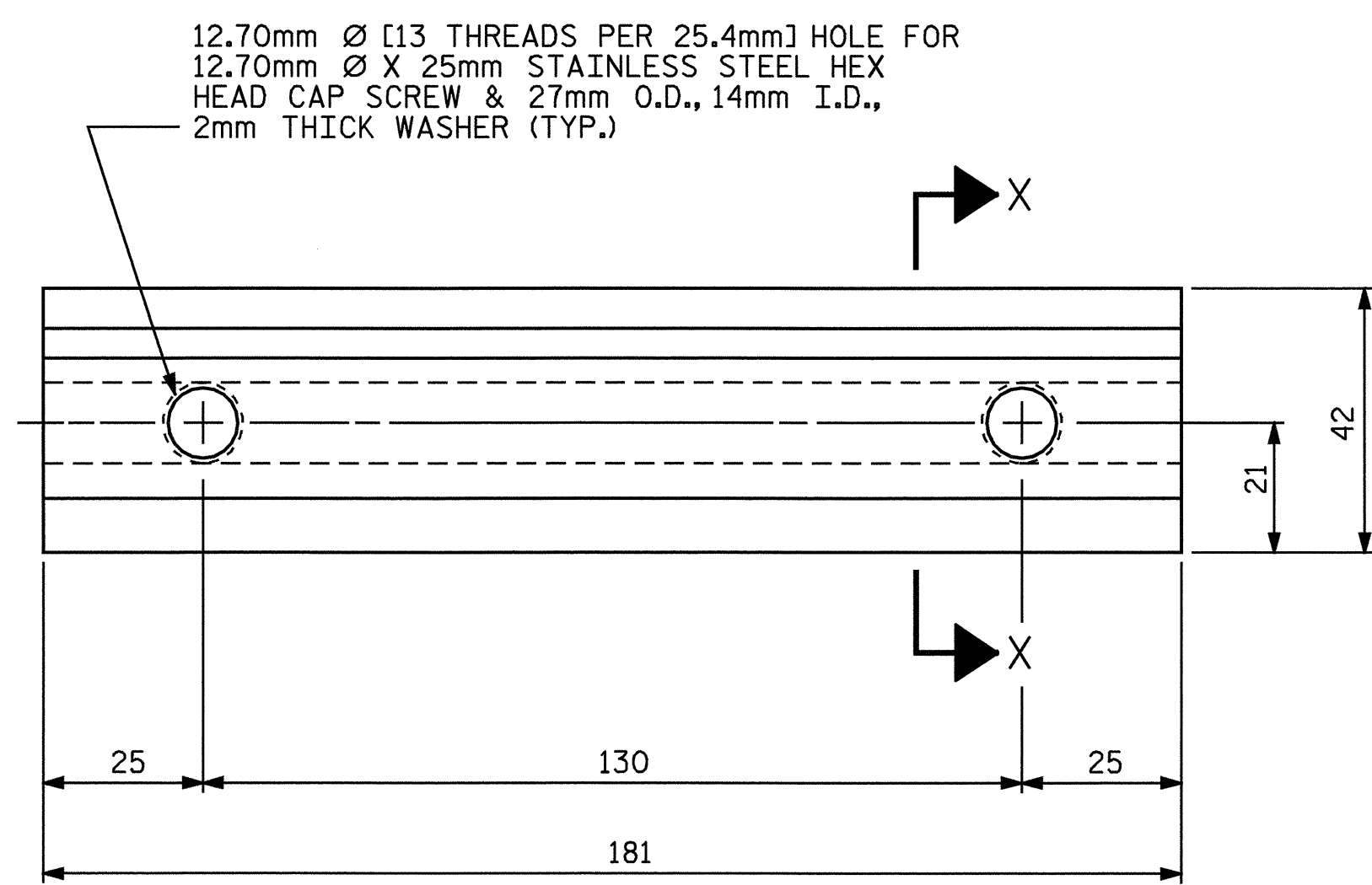


BACK ELEVATION

TOP & MIDDLE RAIL EXPANSION BAR

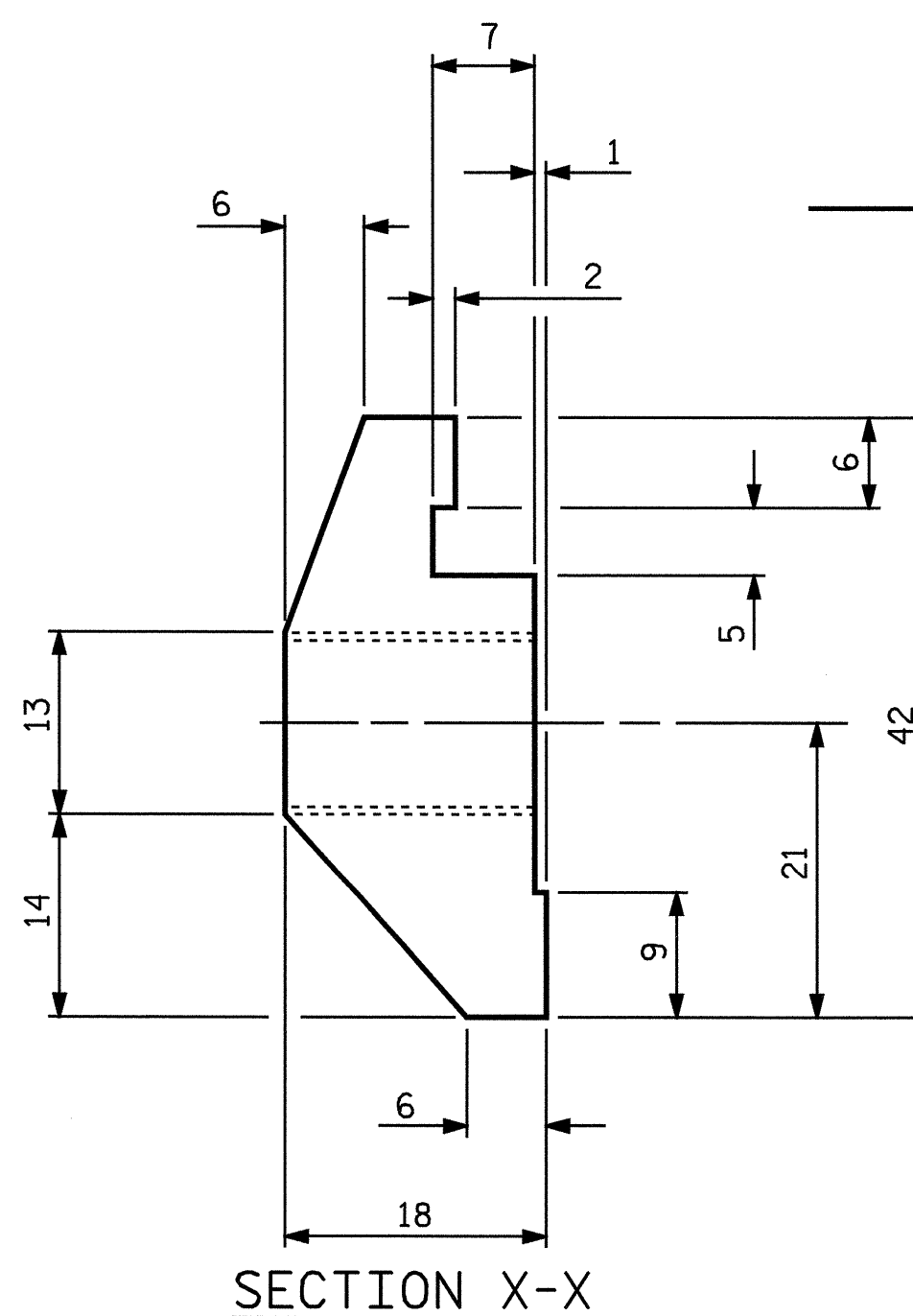


BOTTOM RAIL SECTION

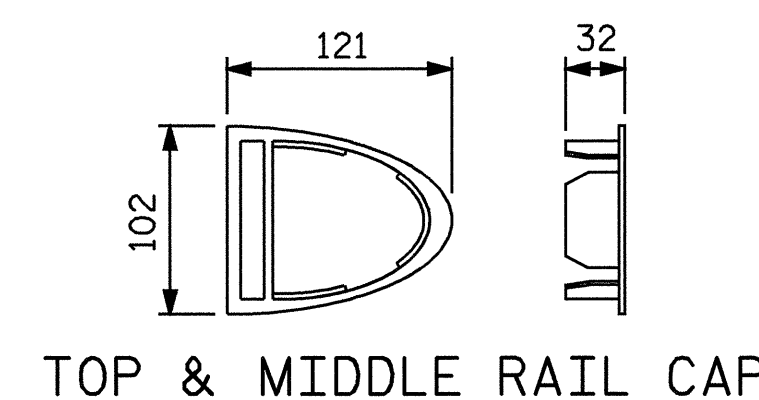


CLAMP BAR DETAIL

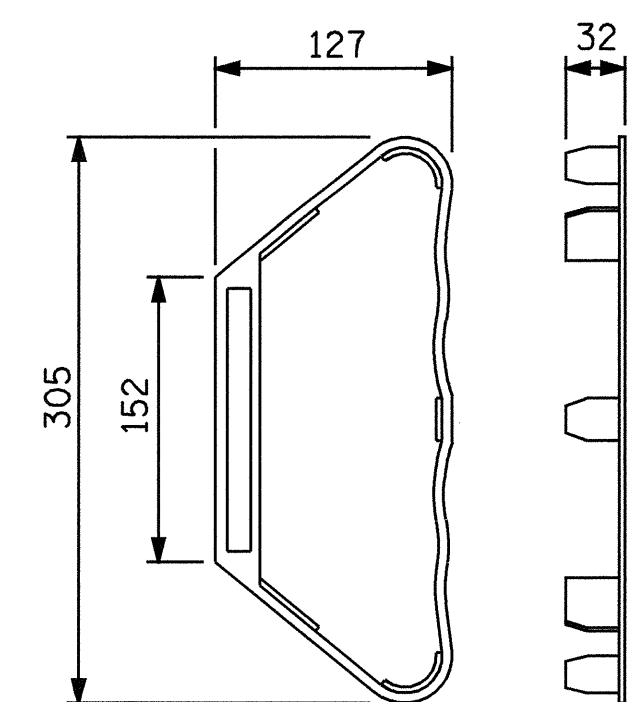
( 6 REQUIRED PER POST )



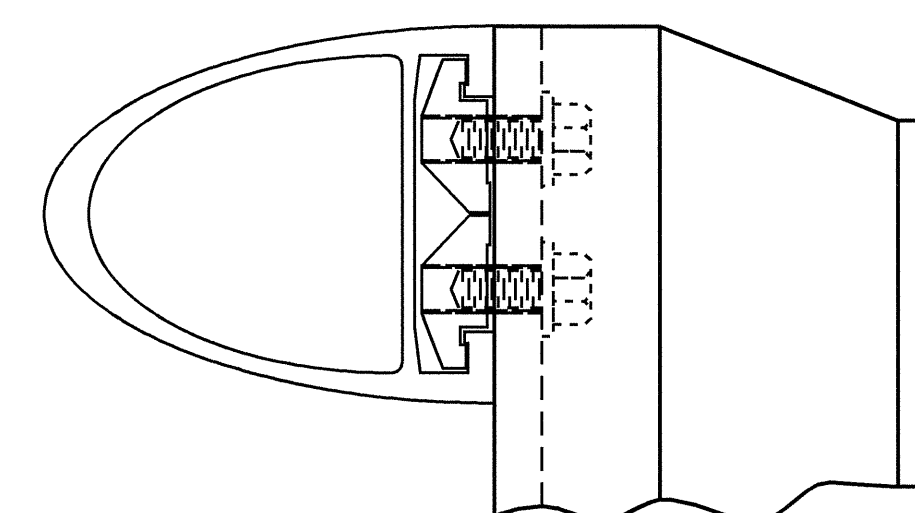
SECTION X-X



TOP & MIDDLE RAIL CAP

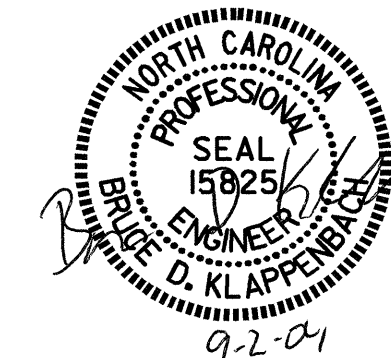


BOTTOM RAIL CAP



CLAMP ASSEMBLY

TOP RAIL SHOWN  
( MIDDLE & BOTTOM RAIL ARE SIMILAR )



PROJECT NO. U-2717  
GUILFORD COUNTY  
STATION: 40+56.584 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
3 BAR METAL RAIL

ASSEMBLED BY :	M. G. SHIAKH	DATE :	5-25-04
CHECKED BY :	D. A. GLADDEN	DATE :	08-04
DRAWN BY :	JMB	1/88	
CHECKED BY :	GCH	1/88	
REV. 8/16/99	RAL/LES		
REV. 10/17/00	LES/RDR		
REV. 7/10/01R	RWW/LES		

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-28
2			4			47