

NOTES

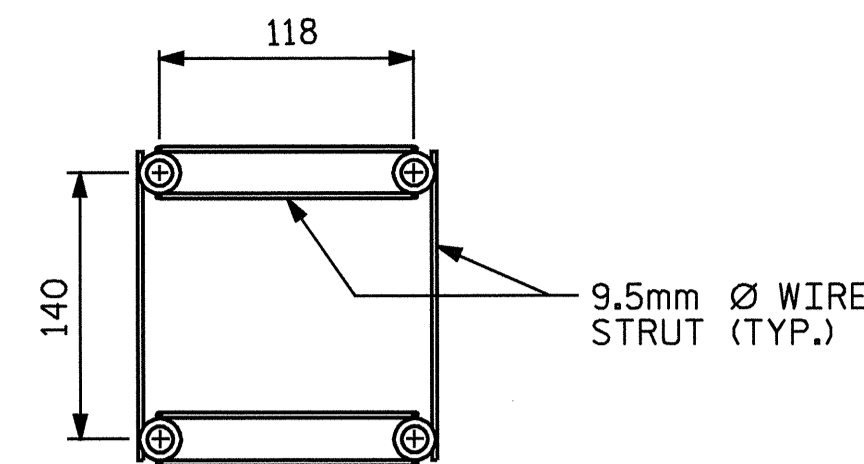
STRUCTURAL CONCRETE ANCHOR ASSEMBLY

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

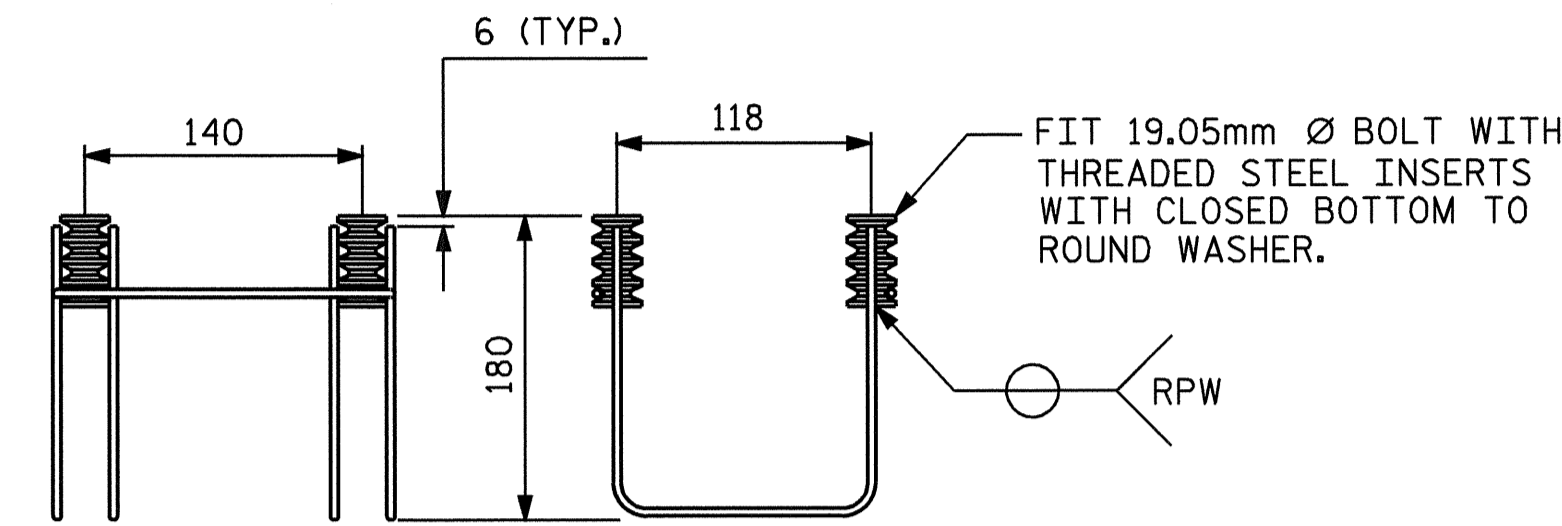
- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 51mm FOR 19mm FERRULES.
- B. 4 - 19.05mm Ø X 64mm BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. 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. 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 TENSILE STRENGTH OF 620 MPa IS ACCEPTABLE.
- D. THE METAL RAIL ANCHOR ASSEMBLY TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF AASHTO M111.
- E. 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.
- F. BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

THE CONTRACTOR, AT HIS OPTION, MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL ANCHOR ASSEMBLY. THE YIELD LOAD OF THE 19.05mm Ø BOLT IS 44.5 kN. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS REQUIRED. SEE SPECIAL PROVISIONS FOR "ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS".

WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS SHALL MEET THE REQUIREMENTS OF ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 517 MPa ULTIMATE STRENGTH. NUTS SHALL MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.



PLAN



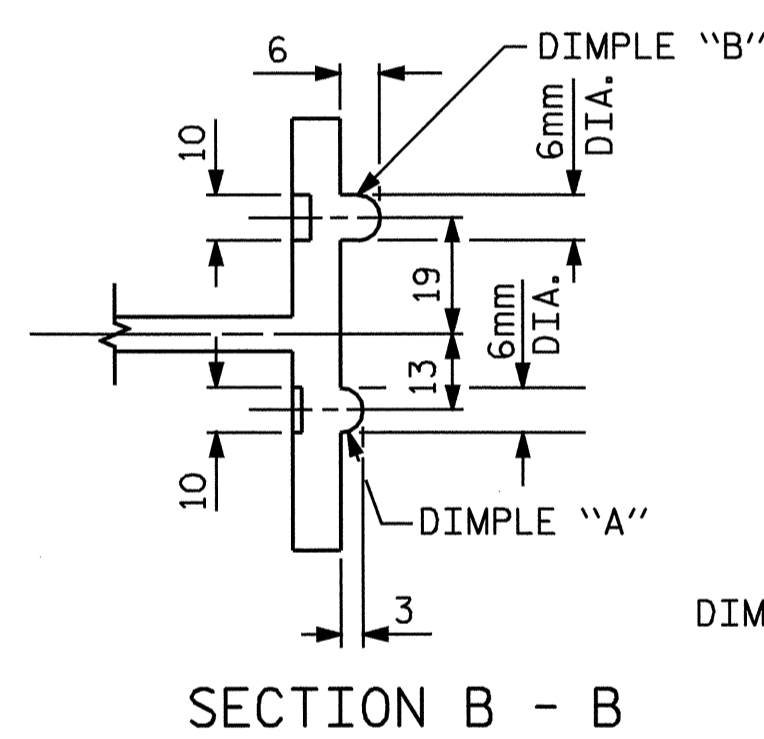
SIDE VIEW

ELEVATION

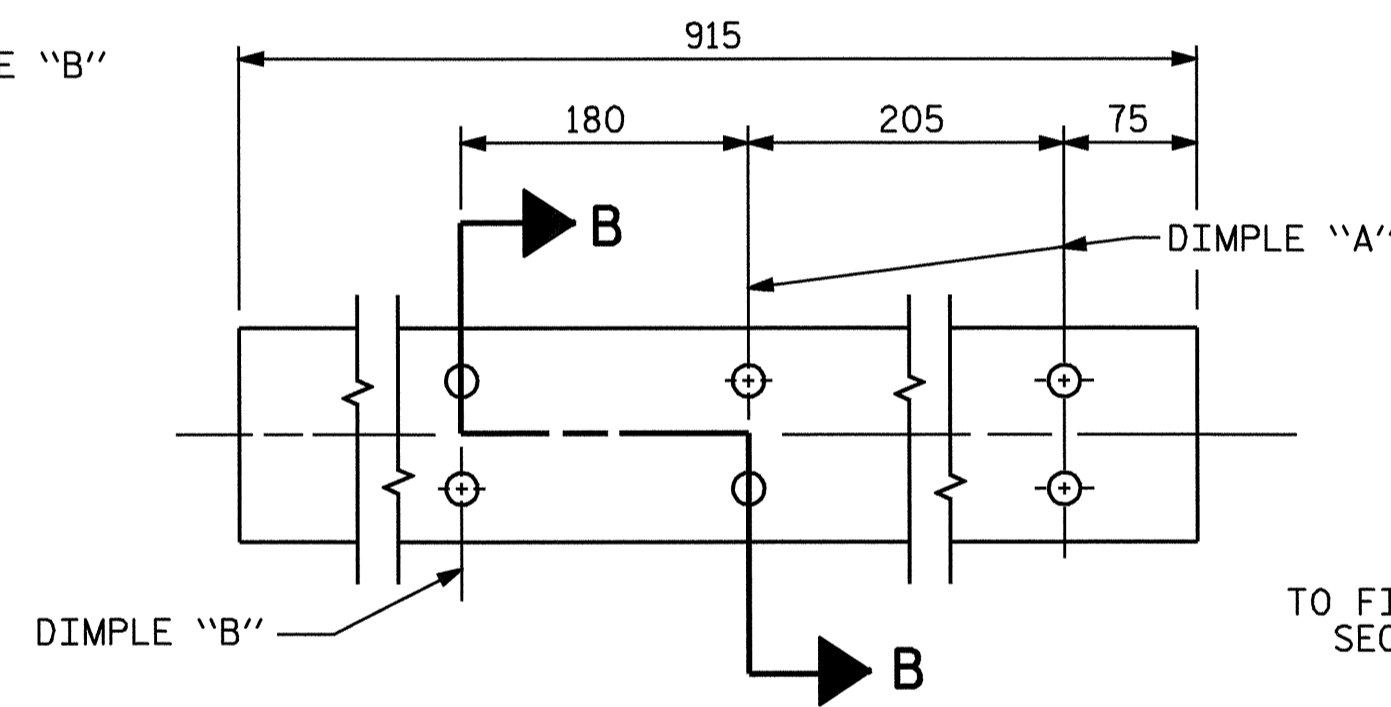
MINIMUM LENGTH OF THREADS IN INSERT (FERRULE) : 44mm

4-BOLT METAL RAIL ANCHOR ASSEMBLY

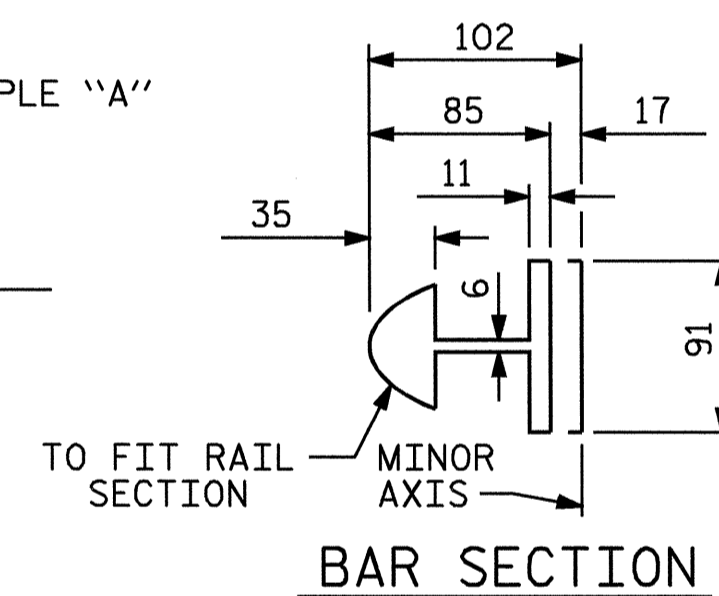
(64 ASSEMBLIES REQUIRED)



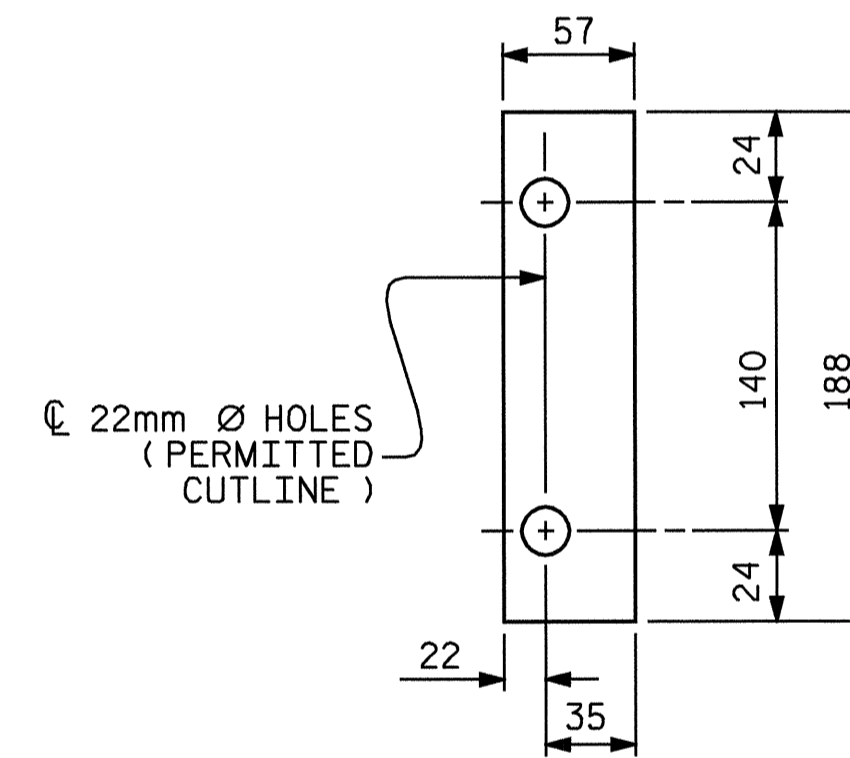
SECTION B - B



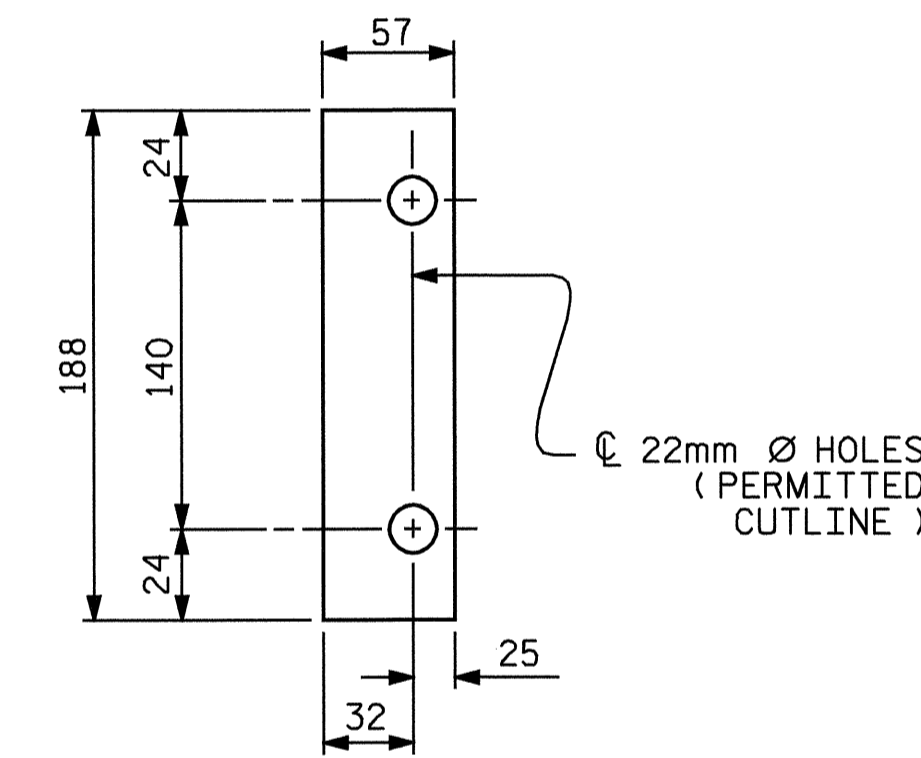
EXPANSION BAR DETAILS



BAR SECTION



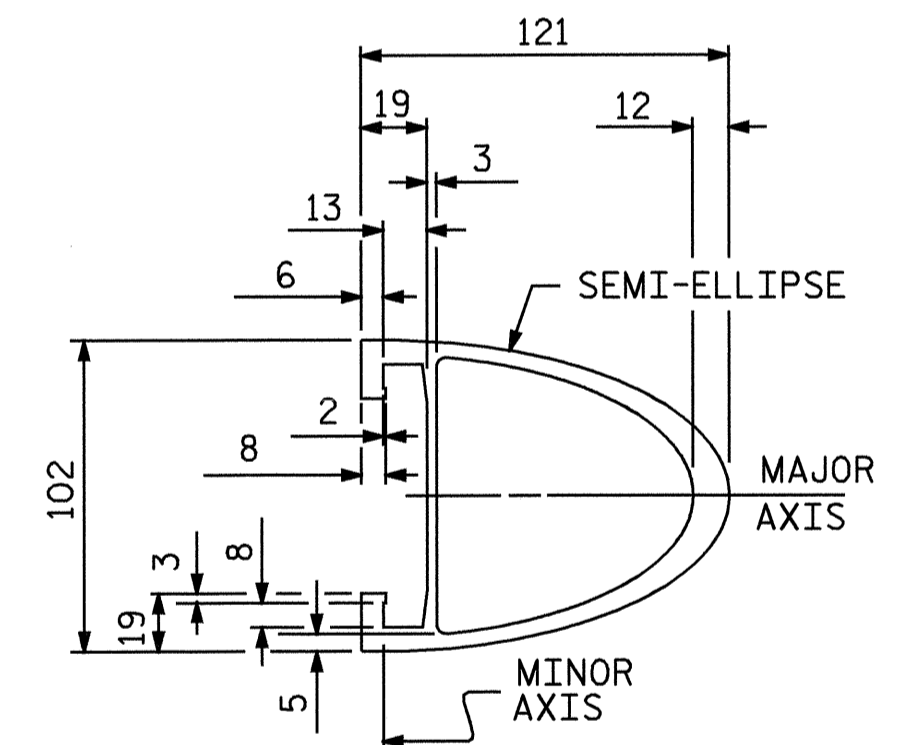
FRONT PLATE



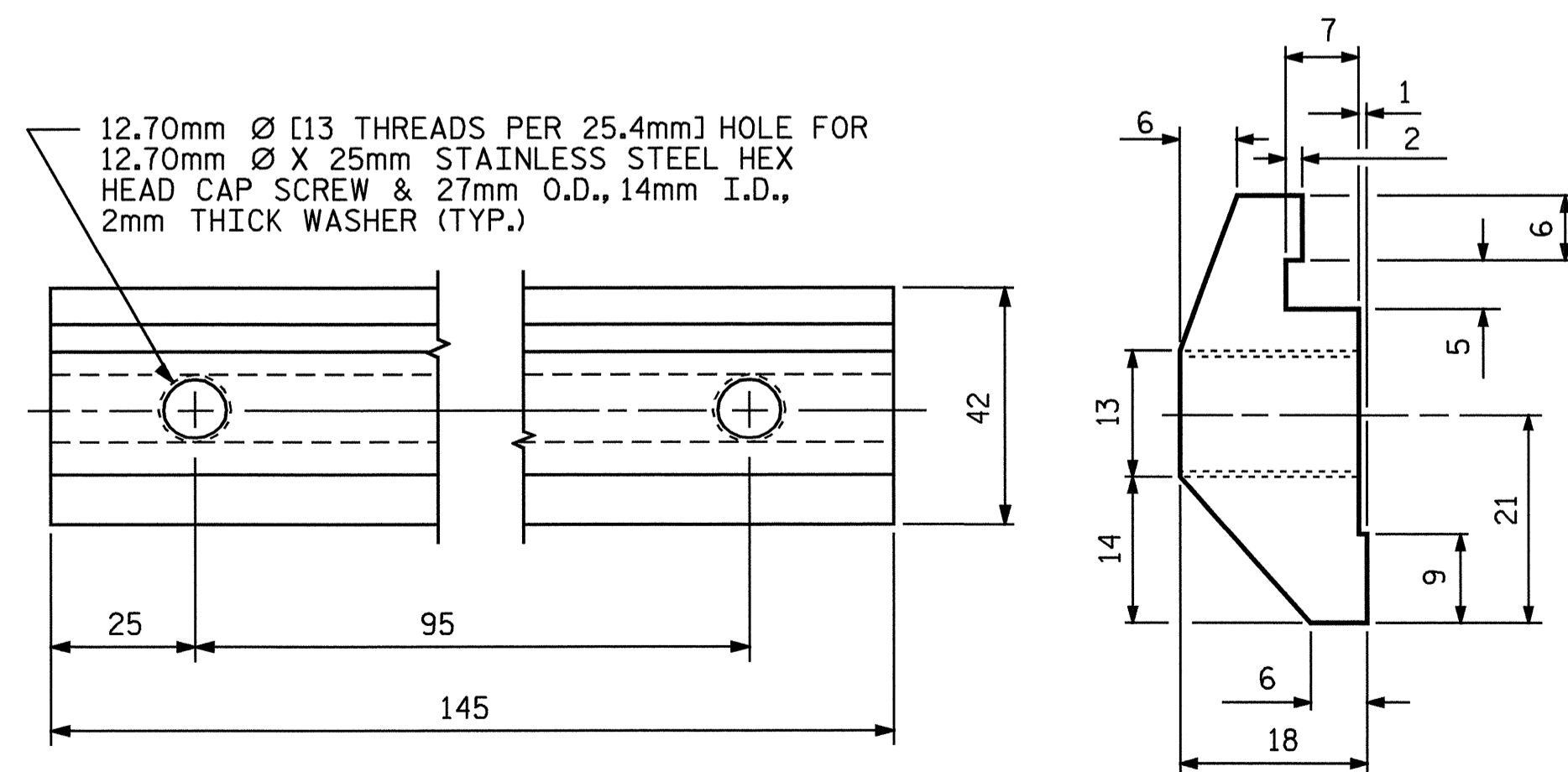
REAR PLATE

SHIM DETAILS

NOTE : SHIMS MAY BE CUT ALONG PERMITTED CUTLINE OR SLOTTED TO EDGE OF PLATE TO FACILITATE PLACEMENT.

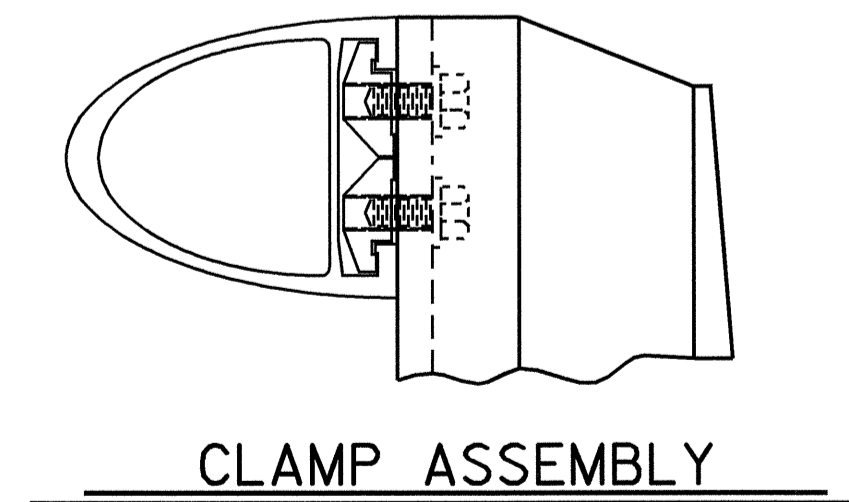


RAIL SECTION

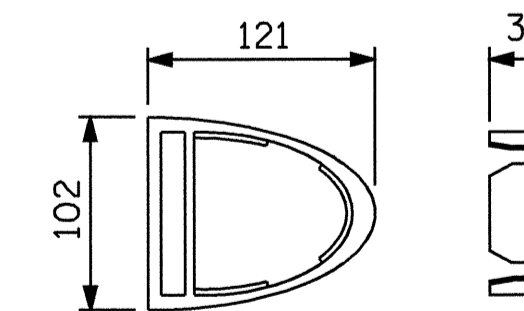


CLAMP BAR DETAIL

(4 REQUIRED PER POST)



CLAMP ASSEMBLY

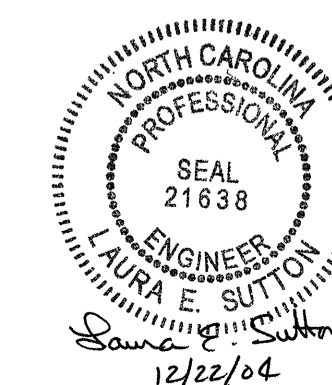


RAIL CAP

PROJECT NO. R-0977A
CHEROKEE COUNTY
 STATION: 41+19.524-LREV-

SHEET 2 OF 3

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



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-149	
1			3			TOTAL SHEETS	
2			4			230	

ASSEMBLED BY : B.N.BARODAWALA	DATE : 4-24-04
CHECKED BY : MIKE ALLEN	DATE : 10-04
DRAWN BY : EEM	6/94
CHECKED BY : RGW	6/94
REV. 8/16/99	RAL/LES
REV. 10/17/00	LES/RDR
REV. 5/7/03	RWW/JTE