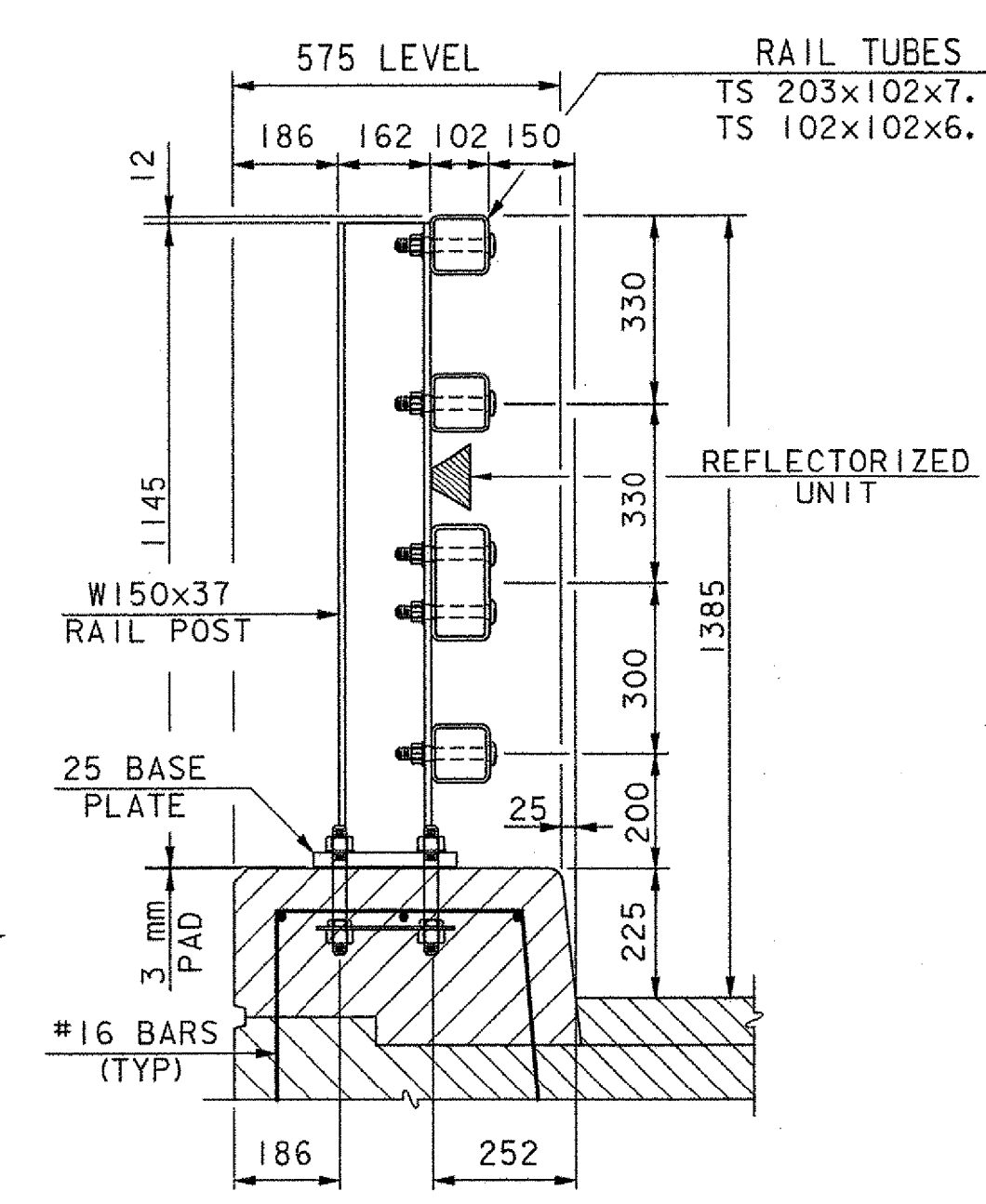
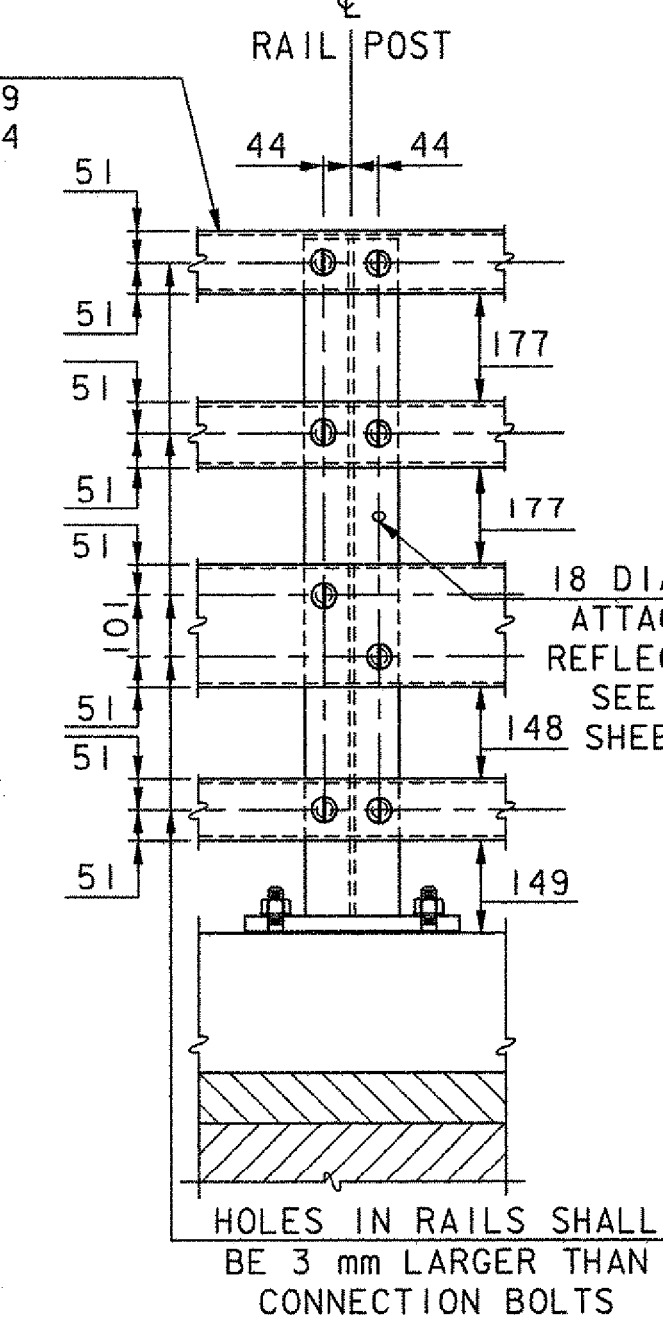


BRIDGE RAILING ELEVATION
NOT TO SCALE



TYPICAL SECTION
NOT TO SCALE



ELEVATION
NOT TO SCALE

- NOTES:**
- ALL WORK AND MATERIALS SHALL CONFORM TO THE PROVISIONS OF SECTION 525 - RAILINGS OF THE STANDARD SPECIFICATION FOR CONSTRUCTION.
 - TUBING AND POSTS SHALL MEET THE REQUIREMENTS OF SECTION 732 - RAILING MATERIALS OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION EXCEPT THE DROP-WEIGHT TEAR TEST IN SECTION 732 SHALL NOT APPLY TO THE STRUCTURAL TUBING.
 - ALL EXPOSED CUT OR SHEARED EDGES SHALL BE ROUNDED TO A 2 mm RADIUS AND BE FREE OF BURRS.
 - RAIL POSTS SHALL BE SET NORMAL TO GRADE.
 - SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO (2) RAIL POSTS AND PREFERABLY TO AT LEAST FOUR (4) POSTS.
 - RAIL TUBE EXPANSION JOINTS SHALL BE PROVIDED IN ANY RAIL BAY SPANNING A SUPERSTRUCTURE EXPANSION JOINT. EXPANSION JOINT WIDTH SHALL BE "X" AT 7°C AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER FOR OTHER TEMPERATURES.
 - ALL PARTS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH AASHTO M 111M, EXCEPT THAT HARDWARE SHALL MEET THE REQUIREMENTS OF AASHTO M 232M.
 - RAIL POST ANCHORING NUTS SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ONE-EIGHTH TURN.
 - RAIL TUBES SHALL BE ATTACHED USING M20 FULL DIAMETER BODY AASHTO M 164M (TYPE 1) ROUND HEAD BOLTS INSERTED THROUGH THE FACE OF THE TUBE. HOLES IN POSTS SHALL BE 2 mm LARGER THAN THE BOLT SIZE.
 - HOLES IN RAILS FOR RAIL TUBE ATTACHMENT MAY BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO ERECTION.
 - NOTE NOT USED.
 - ANY BENDING OF RAIL SHALL BE BY SHOP PROCEDURE ONLY.
 - THE FABRICATOR SHALL SUBMIT SHOP DRAWINGS INCLUDING WELDING PROCEDURES TO THE STRUCTURES SECTION FOR APPROVAL IN ACCORDANCE WITH THE PROVISION OF 506.04, DRAWINGS AND PROCEDURES. ALL WELDING SHALL CONFORM WITH SECTION 506.10.
 - RAIL POSTS AND BASE PLATES SHALL BE TESTED FOR IMPACT PROPERTIES IN ACCORDANCE WITH ASTM A370 CHARPY IMPACT TESTING USING A TYPE A SPECIMEN.
 - ANCHOR BOLTS THAT LACK THE REQUIRED PROJECTION REQUIRE THE USE OF THE FABRICATED SHOULDER NUTS.**

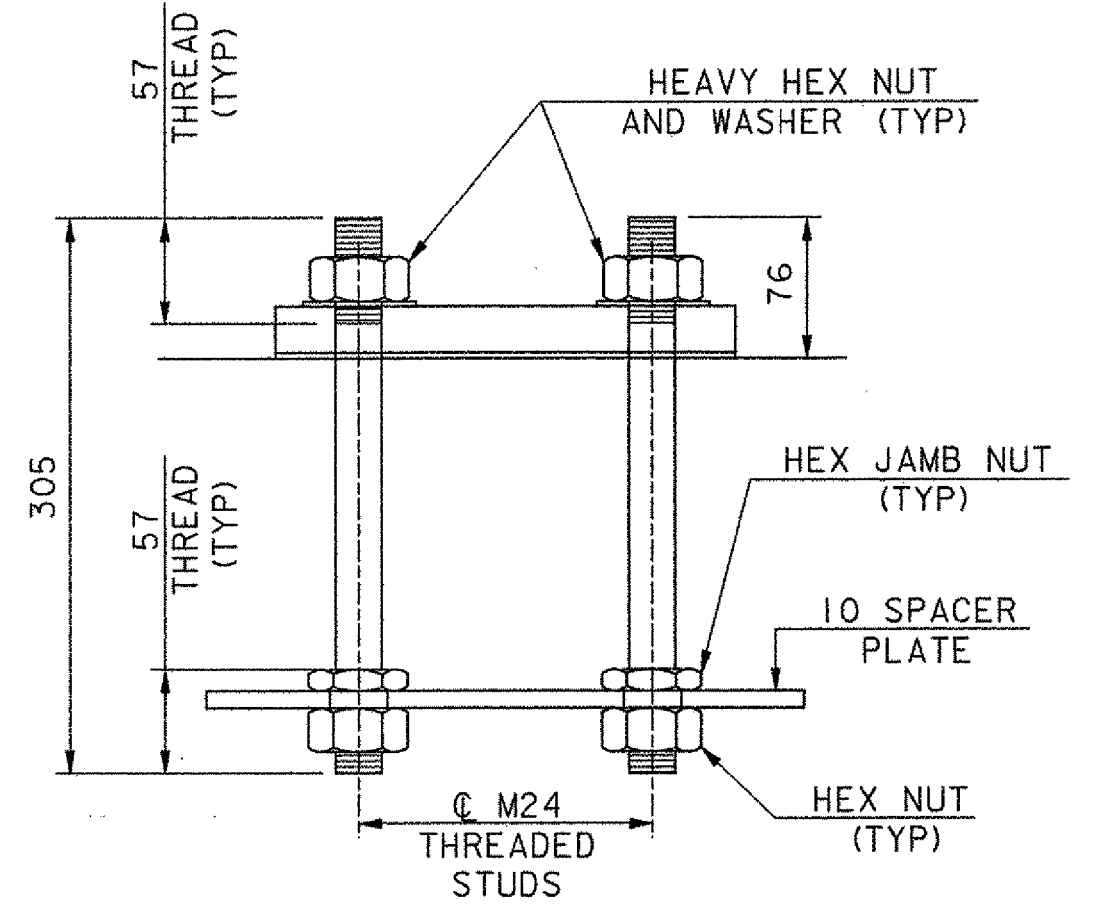
MATERIALS

RAIL TUBES.....ASTM A500, GRADE B
 RAIL POSTS AND BASE PLATES.....ASTM A709/A709M, GRADE 345
 ALL OTHER SHAPES AND PLATES.....ASTM A709/A709M, GRADE 250
 ANCHOR STUDS.....ASTM A449
 ALL OTHER BOLTS (UNLESS NOTED).....AASHTO M 164M, TYPE 1

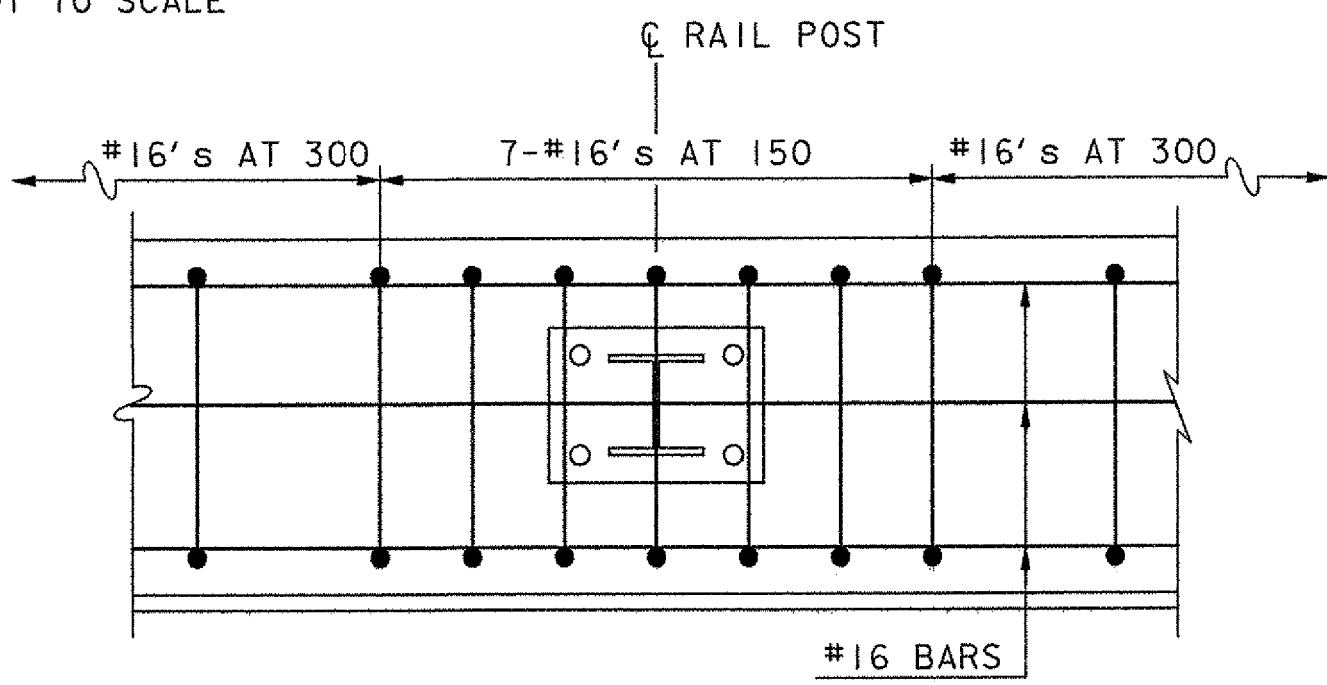
NUTS FOR AASHTO M 164M BOLTS AND FOR ANCHOR STUDS SHALL COMPLY WITH AASHTO M 291 (ASTM A563).

WASHERS SHALL COMPLY WITH AASHTO M 293 (ASTM F436) SPECIFICATIONS.

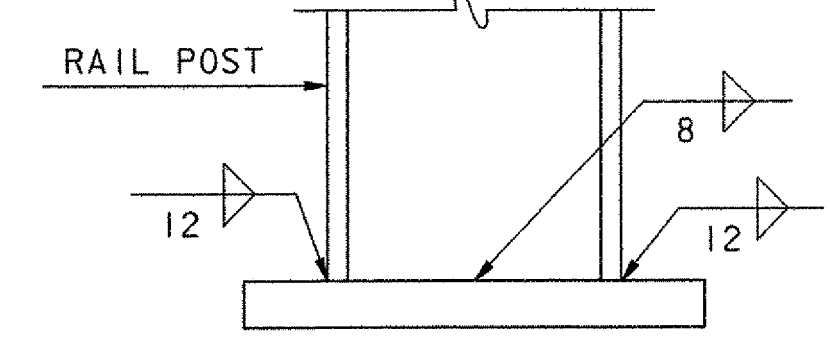
3 mm PAD SHALL COMPLY WITH STANDARD SPECIFICATION SUBSECTION 731.01 OR 731.02.



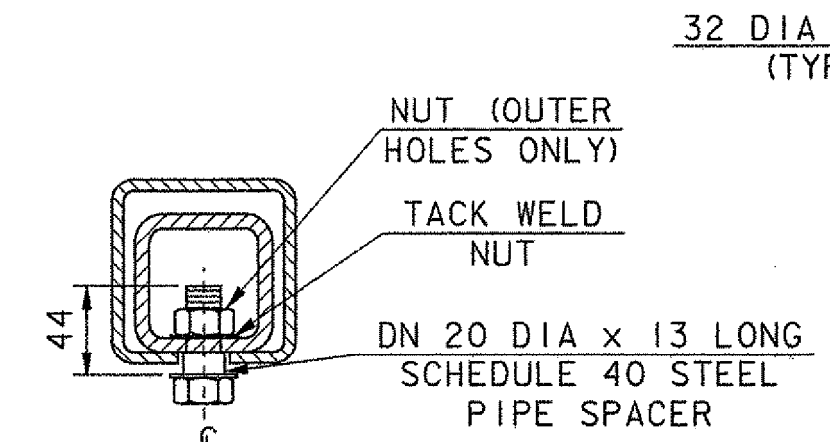
RAIL POST ANCHORAGE
NOT TO SCALE



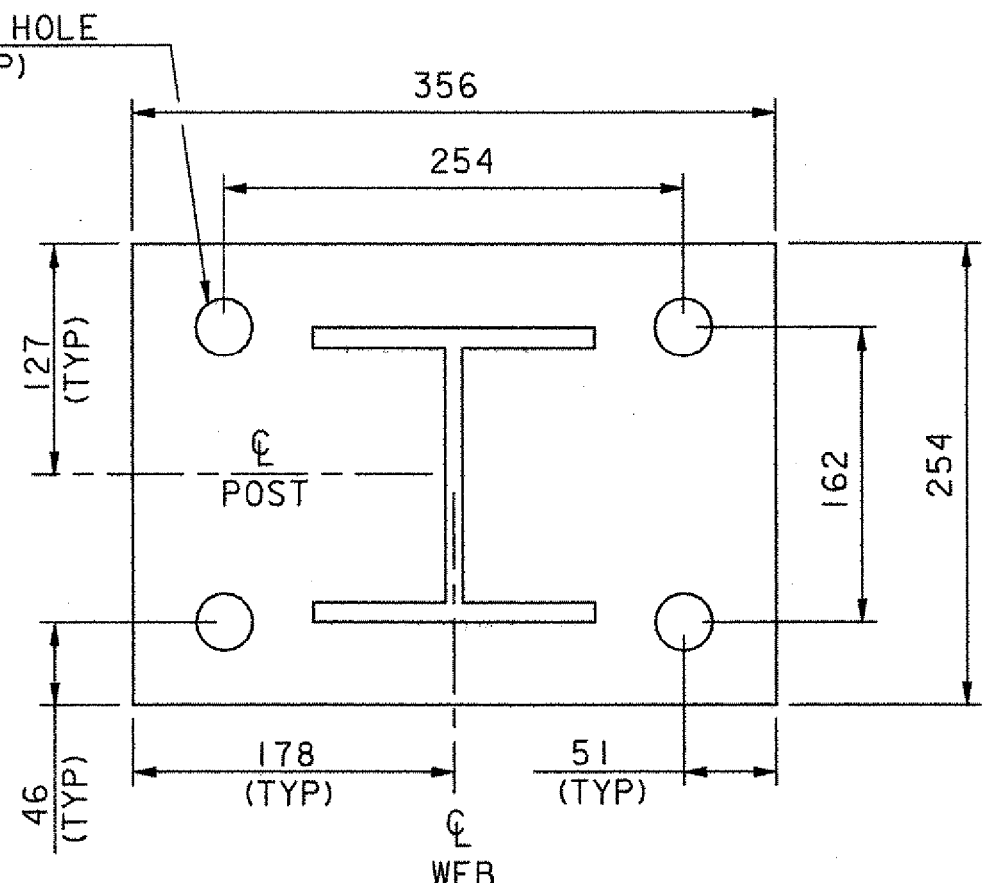
CURB REINFORCING PLAN
NOT TO SCALE



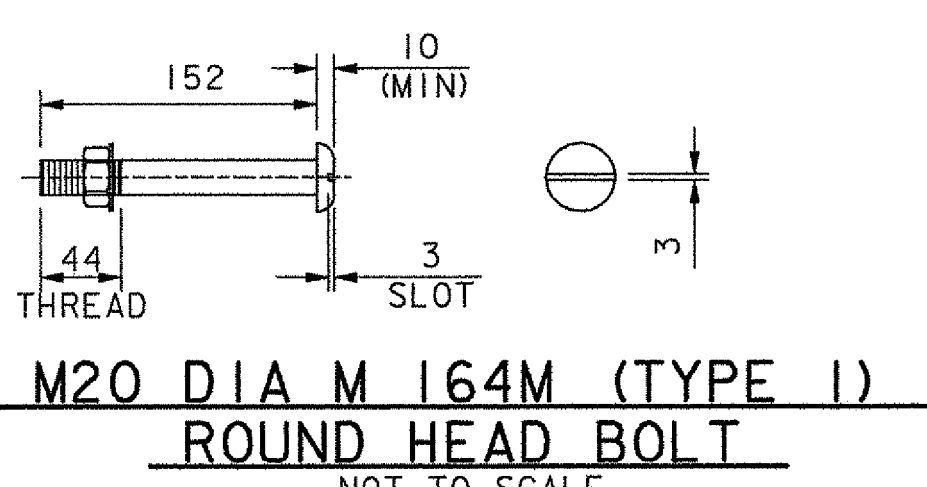
BASE WELD DETAIL
NOT TO SCALE



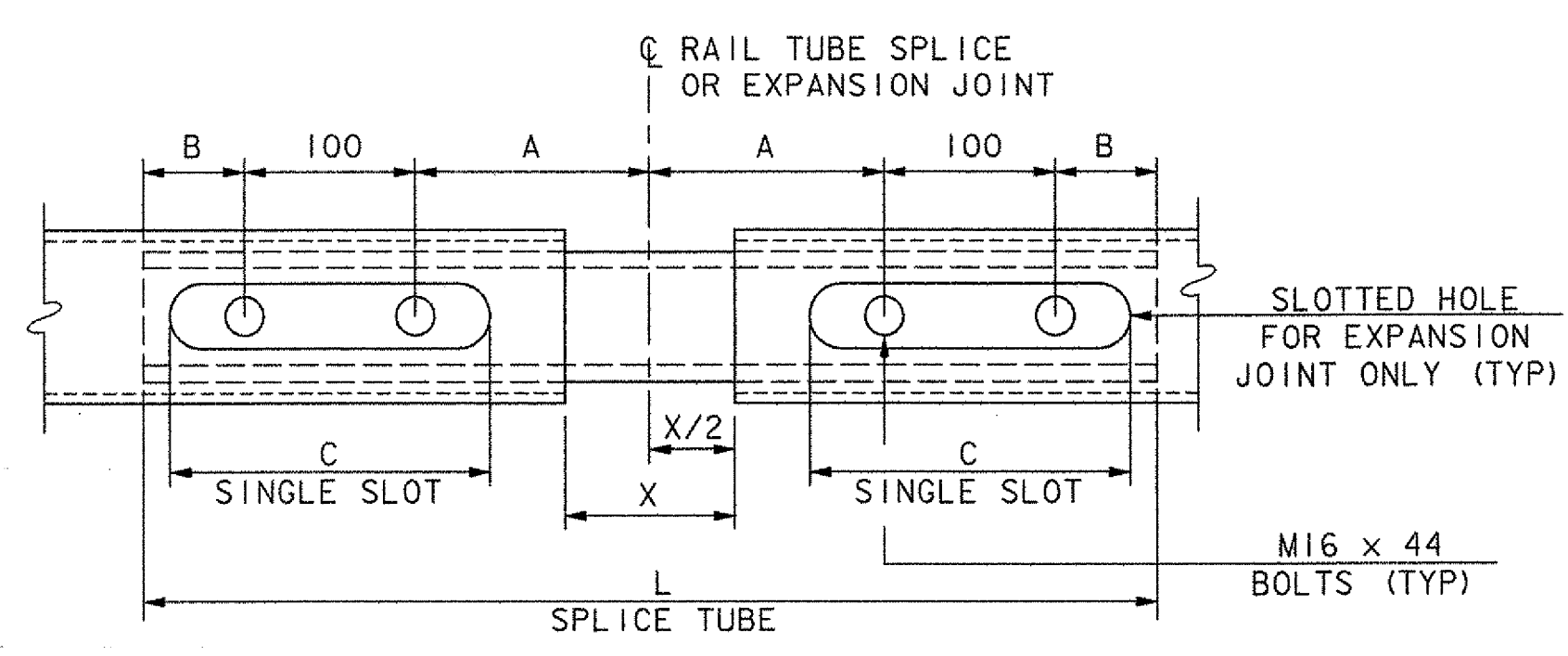
EXPANSION JOINT SECTION
NOT TO SCALE
FOR DETAILS NOT SHOWN, SEE "RAIL TUBE SPLICE SECTION"



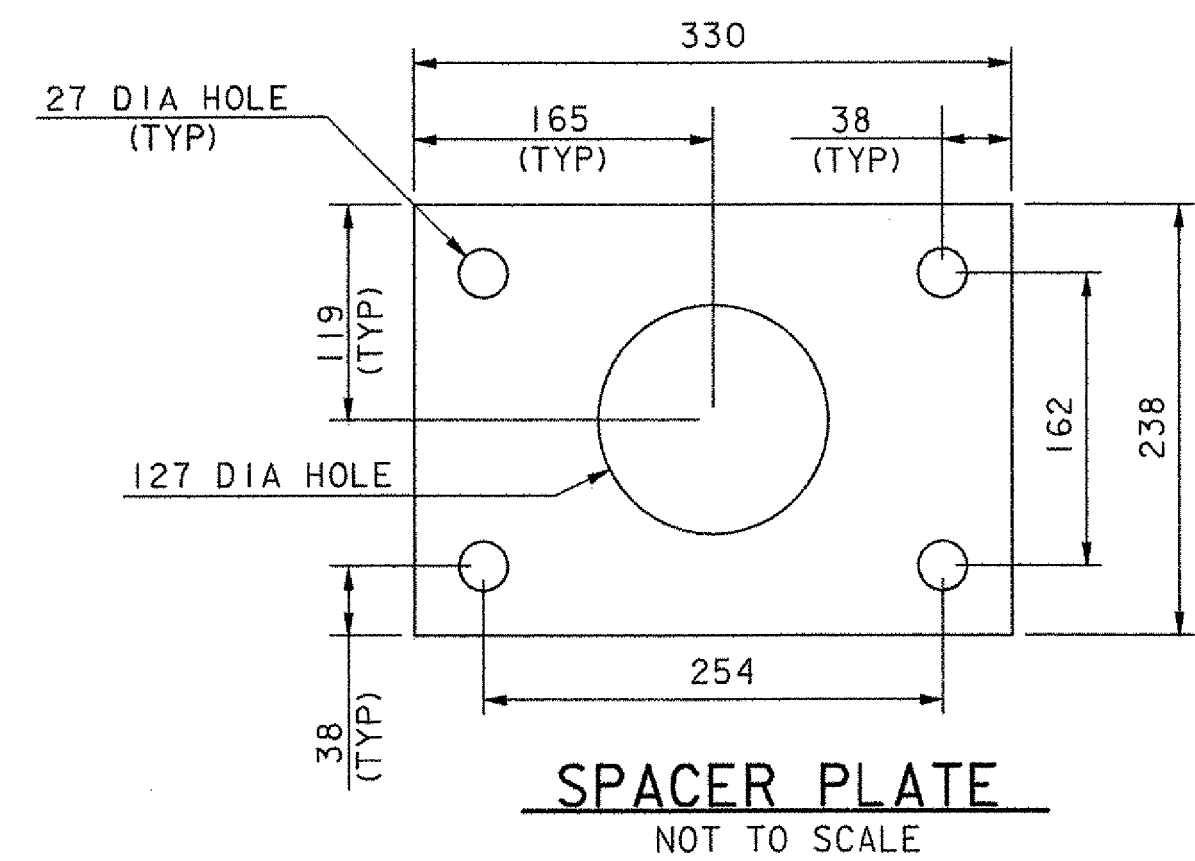
POST AND BASE PLATE
NOT TO SCALE



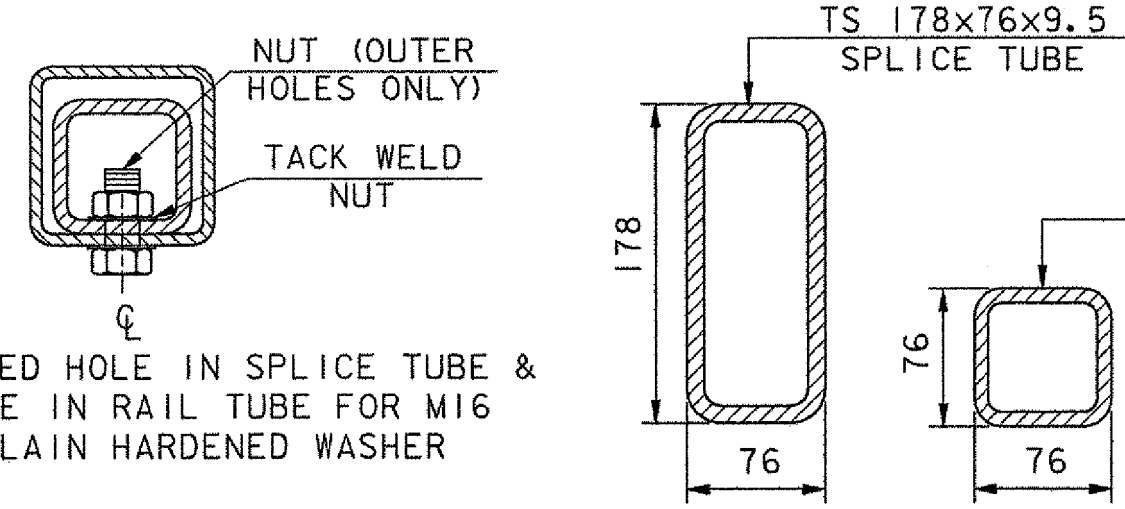
M20 DIA M 164M (TYPE 1) ROUND HEAD BOLT
NOT TO SCALE
(WITH WASHER AND PREVAILING TORQUE TYPE LOCK NUT) (SEE NOTE #9)
ONLY FULL DIAMETER BODY BOLTS WILL BE ALLOWED.



RAIL TUBE SPLICE AND RAIL EXPANSION JOINT DETAIL
NOT TO SCALE (BOTTOM VIEW)



SPACER PLATE
NOT TO SCALE



RAIL TUBE SPLICE SECTION
NOT TO SCALE

SPLICE TABLE						
JOINT TYPE	T	A	B	C	L	X
N/A	N/A	100	50	--	500	20
EXPANSION JOINT TABLE						
1	185	180	95	250	750	130
2	370	255	135	330	980	200

T = TOTAL MOVEMENT BETWEEN BRIDGE EXPANSION JOINTS. SEE NOTE 6.

STATE OF VERMONT AGENCY OF TRANSPORTATION		
Town Of	ALBURG-SWANTON	Bridge No. 2
Highway No.	VT 78	Log Sta. Surv. Sta.
VT 78 OVER MISSISQUOI BAY		
NETC 4 RAIL - BRIDGE RAILING		
Designed By	J. T. KLEIN	Drawn By W. B. LAVERGNE (TS)
Checked By	Date	Bridge Design Supervisor
S. M. HODGDON	10/03	S. W. JOHNSON
PROJECT	ALBURG-SWANTON	PROJECT NO. BRF 036-1 (1)
I.G.C. Info.	File No. ZE072br2	Sheet SS 48 of SS 57

VANASSE HANGEN BRUSTLIN, INC.