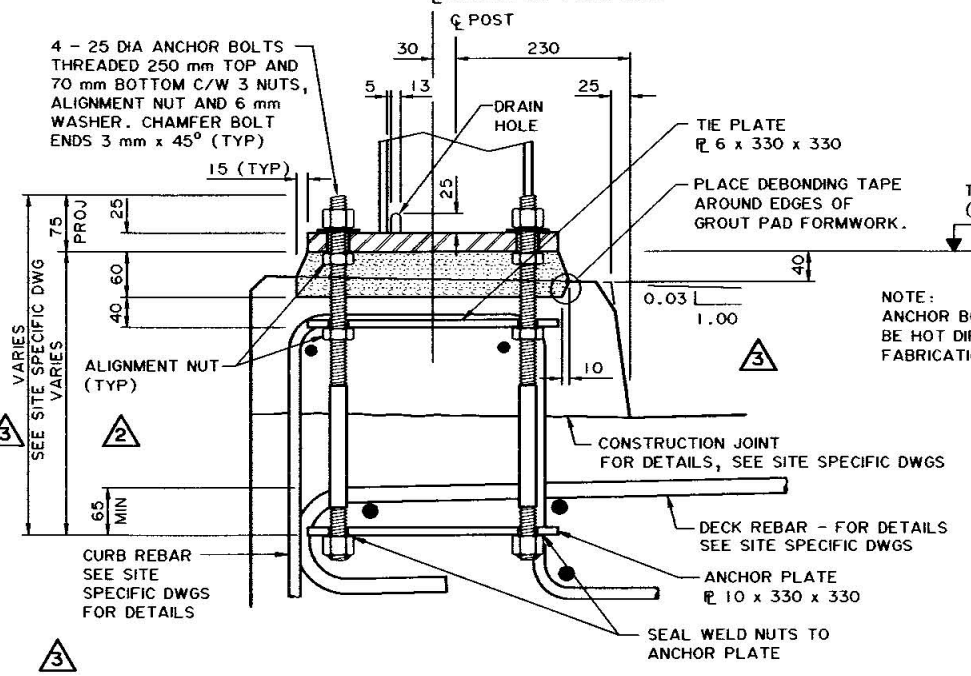
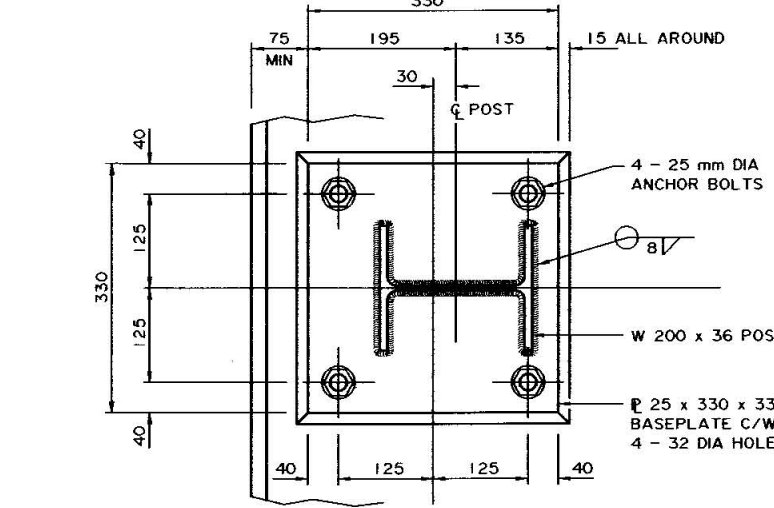


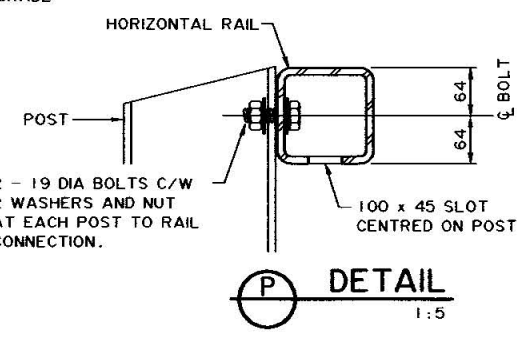
RAIL SECTION 1:10

C=150 FOR 90mm ACP WEARING SURFACE
 =200 FOR FINISHED CONCRETE TO GRADE
 UNLESS NOTED OTHERWISE ON
 SITE SPECIFIC DRAWINGS.



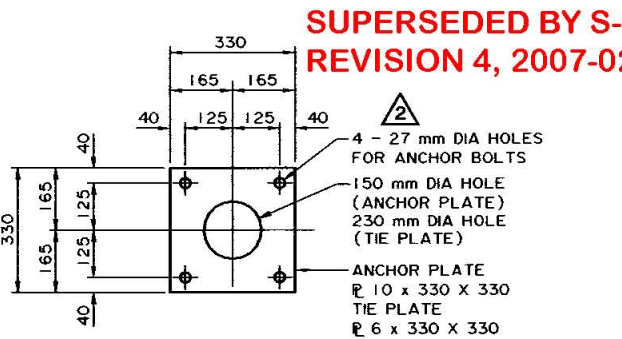
ANCHOR BOLT ASSEMBLIES DETAIL 1:5

(ANCHOR BOLT ASSEMBLY SHALL BE MINIMUM 25 CLEAR FROM BOTTOM OF DECK)

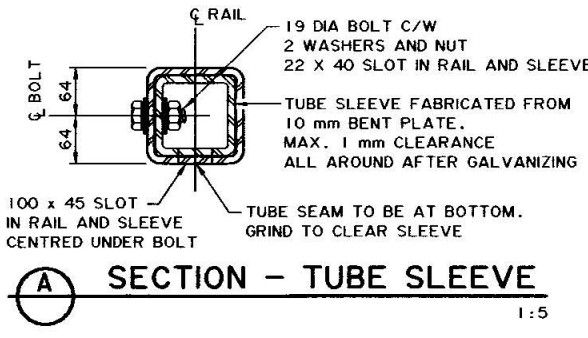


NOTE:
 RAIL SPLICES IF REQUIRED SHALL CONFORM TO THE ABOVE DETAIL AND BE CLEAR OF JOINTS AND CONNECTIONS. NOT MORE THAN ONE SPLICE PER TUBE SECTION.

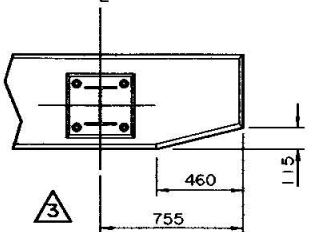
RAIL SHOP SPLICE DETAIL 1:5



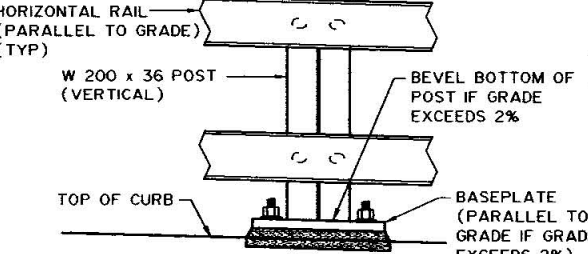
ANCHOR PLATE AND TIE PLATE DETAIL 1:10



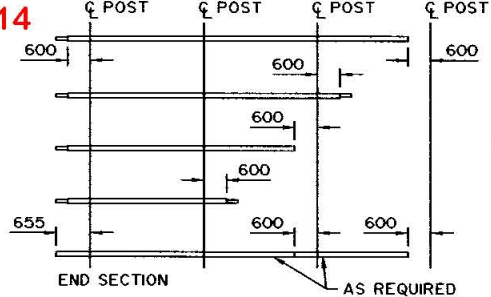
SECTION - TUBE SLEEVE 1:5



CURB END DETAIL 1:20



POST LEVEL DETAIL 1:10



TUBE SECTION TYPES (DIMENSIONS ARE TO REFERENCE LINES) NTS

- GENERAL NOTES**
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
 - RAILING CONFIGURATION IS BASED ON A RAILING CONFIGURATION THAT HAS BEEN CRASH TESTED AND MEETS THE REQUIREMENTS OF NCHRP 350, TEST LEVEL 4. (EQUIVALENT TO PERFORMANCE LEVEL 2 OF AASHTO GUIDE SPECIFICATIONS FOR BRIDGE RAILING, 1989).
 - RAILING SHALL BE USED WITH CURB CONFIGURATION SHOWN.
 - DESIGN OF DECK AND CURB REBAR SHALL BE CARRIED OUT ON A SITE SPECIFIC BASIS TO DEVELOP THE CAPACITY OF THE BRIDGERAIL POSTS BASED ON $F_y = 350 \text{ MPa}$.

- FABRICATION**
- BRIDGERAIL INCLUDING APPROACH RAIL TRANSITION SHALL CONFORM TO CURRENT REQUIREMENTS OF THE SPECIFICATIONS FOR BRIDGE CONSTRUCTION SECTION 12 - BRIDGERAIL AND SECTION 14 - GUARDRAIL.
 - ALL PLATE STEEL AND STRUCTURAL SHAPES SHALL CONFORM TO CSA G40.21 GRADE 350W OR ASTM A36 EXCEPT STRUCTURAL TUBING SHALL CONFORM TO ASTM A500B.
 - ALL ANCHOR BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A193 GRADE B7 ($F_y = 725 \text{ MPa}$, $F_u = 860 \text{ MPa}$). ALL NUTS AND WASHERS SHALL CONFORM TO A325. GALVANIZING SHALL STRICTLY FOLLOW THE FOLLOWING PROCEDURE WITH THE PRESENCE OF THE CONSULTANT:
 - BRUSH BLAST ANCHOR BOLTS TO REMOVE MILL SCALE AND OIL AFTER THREADING ENDS.
 - FLASH PICKLING NOT TO EXCEED 5 MINUTES.
 - QUICK DRY PRIOR TO HOT-DIP GALVANIZING (DO NOT STORE IN FLUX OR ACID RINSE).
 - ALL W-BEAM AND THRIE BEAM GUARDRAIL (INCLUDING W-THRIE BEAM TRANSITION SECTION) SHALL HAVE A MINIMUM YIELD STRENGTH OF 345 MPa.
 - ALL WELDING SHALL CONFORM TO CURRENT AWS SPECIFICATION D1.5.
 - POST BASEPLATES SHALL BE PLACED ON BEVEL IF ROADWAY GRADE EXCEEDS 2% (SEE POST BEVEL DETAIL).
 - IF THE ROADWAY GRADE EXCEEDS 1%, AN ADJUSTMENT OF THE RAIL LENGTH SHALL BE MADE BY VARYING THE 655 mm DIMENSION AT THE ENDS OF THE BRIDGERAIL.
 - TUBE SECTIONS SHALL BE FABRICATED IN THE CONFIGURATIONS SHOWN IN "TUBE SECTION TYPES".
 - ALL MATERIALS SHALL BE HOT DIP-GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH CSA G164 UNLESS NOTED OTHERWISE.
 - THE BOTTOM SURFACE OF THE BASEPLATES SHALL BE COATED WITH AN APPROVED COATING SYSTEM, SUITABLE FOR APPLICATION ON GALVANIZED STEEL, TO PREVENT CONTACT BETWEEN THE ZINC AND THE GROUT. THE COLOUR SHALL BE MEDIUM GREY.
 - TIMBER POSTS AND SPACERS SHALL BE COAST DOUGLAS FIR, PACIFIC COAST HEMLOCK OR LODGEPOLE PINE CONFORMING TO THE STRESS GRADE "SELECT STRUCTURAL POSTS AND TIMBERS" (NLGA PARAGRAPH 131 a).

- ERECTION**
- ALL A325 BOLTS SHALL BE TIGHTENED AN ADDITIONAL 1/3 TURN OF THE NUT PAST THE "SNUG-TIGHT" CONDITION EXCEPT FOR ANCHOR BOLTS WHICH SHALL BE TIGHTENED AN ADDITIONAL 1/2 TURN OF THE NUT PAST THE "SNUG-TIGHT" CONDITION. ALL POST SHALL BE VERTICAL.
 - ALL DIMENSIONS ARE MEASURED PARALLEL TO TOP OF CURB AND ALONG THE CENTRELINE OF ANCHOR BOLT ASSEMBLIES.
 - LINE AND ELEVATION OF RAIL SHALL BE SET BY INSTRUMENT.

WORK THESE DRAWINGS TOGETHER: S-1642-00 AND S-1643-00

				<p>PERMIT TO PRACTICE UMA ENGINEERING LTD. PERMIT NUMBER: P 5778 ORIGINAL SIGNED AND STAMPED BY: ART WASHUTA ON: NOVEMBER 21, 2000 The Association of Professional Engineers, Geologists and Geophysicists of Alberta</p>		<p>RECOMMENDED DIRECTOR BRIDGE ENGINEERING</p>			
<p>ORIGINAL SIGNED BY REG QUINTON</p>		<p>APPROVED EXECUTIVE DIRECTOR TECHNICAL STANDARDS BRANCH</p>		<p>ORIGINAL SIGNED BY TIM HAWNT</p>		<p>PL-2 DOUBLE TUBE TYPE BRIDGERAIL BRIDGERAIL DETAILS</p>			
<p>REV 2004-03-01 GEN NOTES, CURB END DETAIL, ANCHOR BOLT ASSEMBLY DETAIL</p>		<p>REV 2001-12-03 GEN NOTES, RAIL SECTION DETAIL, ANCHOR PLATE & ASSEMBLY</p>		<p>REV 2000-09-20 ANCHOR BOLTS, NOTES, MISC</p>		<p>DATE NOV 22, 2000</p>			
<p>DATE</p>		<p>REVISIONS</p>		<p>BY</p>		<p>AI BAR CODE DATE SHEET DRAWING 2000-03-30 1 of 2 S-1642-00</p>			