

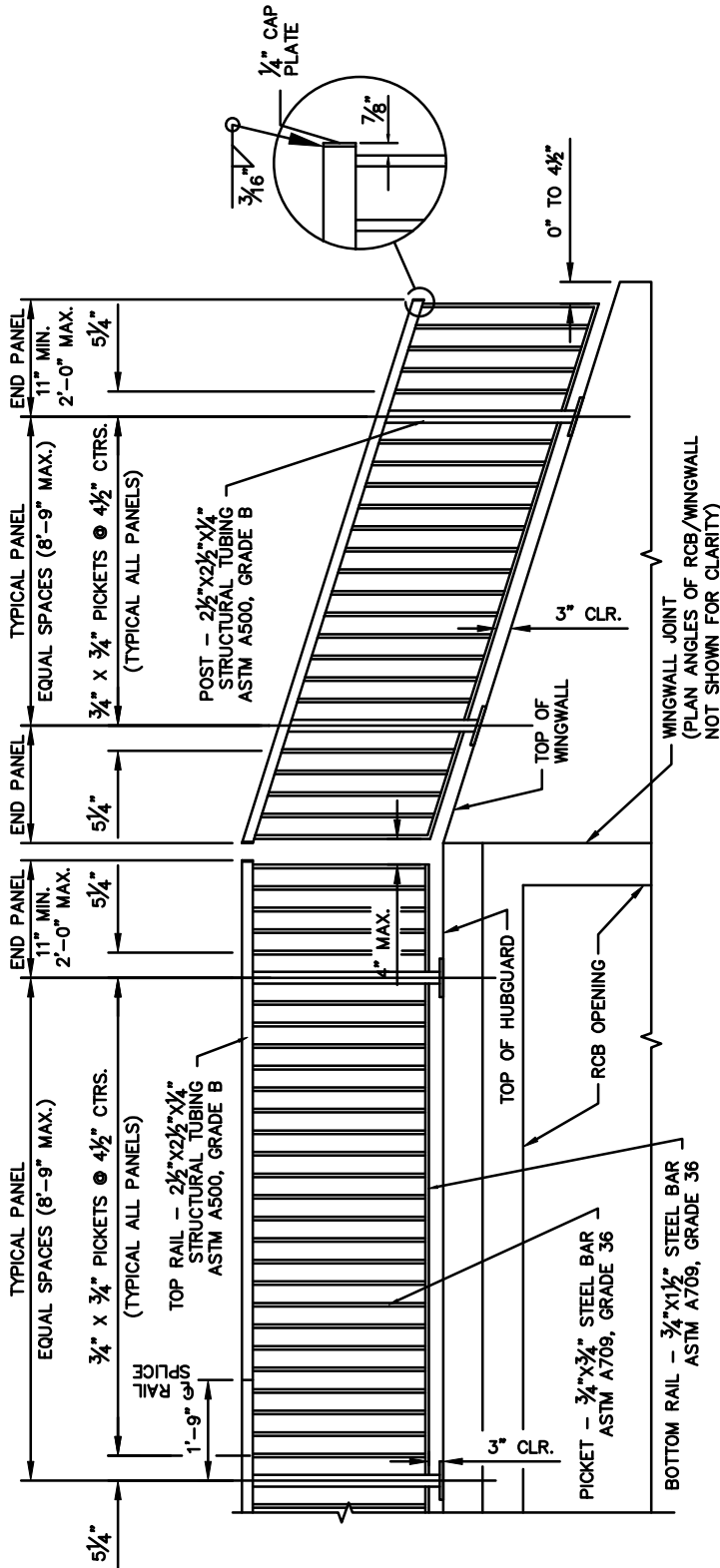


APPROVED
 TRM
 CITY ENGINEER
 2-1-07
 DATE

REVISED
 5-25-22

HANDRAIL DETAIL

STANDARD
 DETAIL
 40-7



TYPICAL METAL HANDRAIL ELEVATION ON CONCRETE HEADWALL & WINGWALL

NOT TO SCALE

HANDRAIL GENERAL NOTES:

1. GALVANIZE ALL RAIL, POSTS, PICKETS, AND BASE PLATES AFTER FABRICATION IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A123. PAINTING SHALL CONSIST OF ONE COAT OF TNEPEC TNEC-ZINC #90-97 AND TWO COATS OF TNEPEC ENDURA-SHIELD II #1075 (GLOSS BLACK) OR APPROVED EQUAL. HANDRAILS SHALL BE PROTECTED FROM ANY DAMAGE TO THE FINISHED SURFACE. NO FIELD GALVANIZING WILL BE ALLOWED.
2. SET RAILS PARALLEL TO THE TOP OF THE WALL. SET POSTS AND PICKETS VERTICAL IN BOTH PLANES OF THE HANDRAIL. SHIMS MAY BE USED BETWEEN CONCRETE AND BASE PLATE OF STEEL POST.
3. GRIND SMOOTH ALL TOP AND BOTTOM RAIL-TO-POST WELDED CONNECTIONS. FIELD WELDING IS NOT PERMITTED. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION OF THE HANDRAIL. FIELD VERIFY AS-BUILT DIMENSIONS AND ELEVATIONS OF RETAINING WALLS, HUBGUARDS OR WINGWALLS PRIOR TO FABRICATION OF HANDRAIL. POST SPACING WILL BE REVIEWED DURING THE SHOP DRAWING REVIEW PERIOD TO COORDINATE WITH EXPANSION AND CONTRACTION JOINT SPACING IN THE WALL.
4. FABRICATE HANDRAIL IN LENGTHS TO INCLUDE A MINIMUM OF ONE AND A MAXIMUM OF THREE PANELS.
5. ATTACH TOP RAIL MEMBERS TO AT LEAST TWO POSTS. LOCATE CENTER OF RAIL SPLICES 1'-9" FROM CENTERLINE OF POST UNLESS SHOWN OTHERWISE.
6. THE THREADED ROD CONCRETE ANCHORS SHALL BE GALVANIZED AND PROVIDE A MINIMUM PULLOUT STRENGTH OF 8000 POUNDS ON 4000 PSI CONCRETE. LENGTH OF EMBEDMENT INTO CONCRETE SHALL CONFORM TO MANUFACTURER'S RECOMMENDATIONS. AFTER THE HOLES ARE DRILLED, REMOVE ALL LOOSE MATERIAL BY USING A WIRE BRUSH TO FREE THE DUST FROM THE SIDE OF THE HOLE AND THEN VACUUMING TO REMOVE MATERIAL AND DUST. PLACE EPOXY CAPSULE SYSTEM IN THE HOLE AND INSERT THE THREADED ROD IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS.
7. ALL TOOLS, MATERIALS, LABOR AND INCIDENTALS NECESSARY TO COMPLETE THE WORK SHALL BE PAID FOR UNDER THE BID ITEM "HANDRAIL". THE HANDRAIL IS TO BE BID ON A PER LINEAR FOOT BASIS MEASURED FROM END TO END OF HANDRAIL.