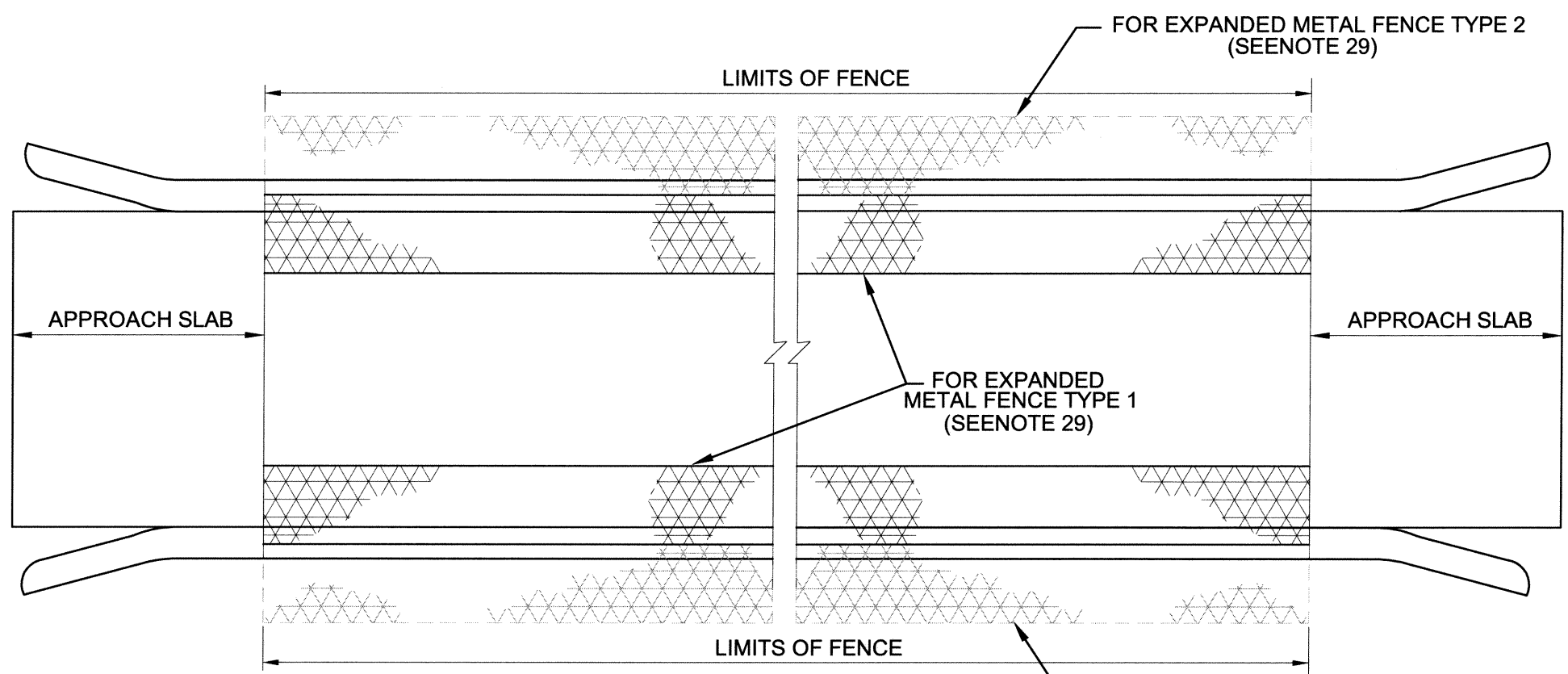


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**FENCE PLAN**  
NOT TO SCALE

**NOTES:**

1. ALL STEEL SURFACES WHICH WILL BE IN CONTACT WITH CONCRETE SHALL BE CLEANED OF ALL ADHERING RUST, SCALE, DIRT, GREASE OR OTHER FOREIGN MATTER.
2. DRILLED HOLES ON THE STEEL PLATE SHALL BE 1/16 INCH LARGER THAN THE NOMINAL DIAMETER OF THE BOLT AND ON CONCRETE SHALL BE OF THE SAME NOMINAL DIAMETER AS THE CARBON STEEL STUD WEDGE EXPANSION ANCHOR GRADE "A".
3. WELDING OF STEEL STRUCTURES, WHEN AUTHORIZED SHALL COMPLY WITH THE REQUIREMENT OF THE CURRENT EDITION OF THE AMERICAN WELDING SOCIETY (AWS) STRUCTURAL WELDING CODE AWS D1.1 AS MODIFIED BY CURRENT A.A.S.H.T.O. STANDARD SPECIFICATIONS FOR WELDING OF STRUCTURAL STEEL HIGHWAY BRIDGES.
4. STRUCTURAL STEEL TYPE:
  - a) BASE PLATE - ASTM A36, Fy = 36KSI
  - b) STRUCTURAL TUBING - ASTM A500 GRADE B, Fy = 46KSI
  - c) STEEL BRACKET - ASTM A36, Fy = 36KSI
  - d) CARBON STEEL STUD WEDGE EXPANSION ANCHOR GRADE "A" FOR HEAVY DUTTY AS PER ASTM A307 AND ASTM A108.
  - e) 1/4-14 X 1" HEX WASHER HEAD SELF DRILLING SCREW, NO.3 DRILL POINT.
5. WELDING ELECTRODES: E70 XX
6. EXPANDED METAL TYPE TO BE USED MUST BE 1-1/2" NO. 9 FLATTENED HOT DIP GALVANIZE AS PER ASTM A-123.
7. THE CONCRETE COMPRESSIVE STRENGTH FOR CONSTRUCTION OF BLOCKOUT SECTION SHALL USE THE COMPRESSIVE STRENGTH OF CONCRETE PARAPET.
8. ALL POSTS MUST BE PROTECTED TO AVOID WATER ENTRANCE.
9. THE ANCHORS, BOLTS, NUTS WASHERS, BASE PLATE, CIRCULAR PLATE, FASTENERS AND STEEL BRACKETS MUST BE GALVANIZED.
10. MINIMUM EMBEDMENT OF BOLTS IN CONCRETE MUST BE 8 INCHES.
11. MINIMUM SIZE OF WELDS IS 3/16" UNLESS OTHERWISE INDICATED.
12. METAL WHICH HAS BEEN SHOP COATED SHALL BE TOUCHED UP WITH THE SAME TYPE THIS TOUCH UP SHALL INCLUDE CLEANING AND PAINTING OF FIELD OF PAINT AS THE SHOP COAT. CONNECTIONS, WELDS AND ALL DAMAGED AREAS.
13. ALL WELDS MUST BE TREATED WITH GALVANIC AGENT TO PROTECT IT FROM CORROSION.
14. PARAPET AREA TO BE DEMOLISH FOR POST INSTALATION MUST BE 20 INCHES LENGTH BY 22 INCHES DEPTH.
15. PROVISIONS SHALL BE MADE TO CUT EXPANDED METAL NEAR BRACKET PLATE WHEN OCCURS.
16. THE PORTION OF STRUCTURAL TUBING AND BASE PLATE TO BE EMBEDDED IN CONCRETE MUST BE COVERED WITH A STRUCTURAL BONDING AGENT PRIOR TO CASTING NEW CONCRETE.
17. ANY EXISTING ALUMINUM RAILING ON TOP OF PARAPETS SHALL BE REMOVED AND DELIVERED TO THE OWNER. THE EXISTING EXPOSED BOLTS SHALL BE CUT FLAT TO THE CONCRETE SURFACE. THE REMOVAL, DELIVERING AND ANY CUT OF EXPOSED BOLTS SHALL BE CONSIDERED A SUBSIDIARY OBLIGATION OF THE CONTRACTOR AND ITS COST INCLUDED IN THE MOBILIZATION PAY ITEM.
18. THE SECTION OF CONCRETE PARAPET TO BE REMOVED SHALL BE SAW CUT TO INCH DEPTH TO PROVIDE A STRAIGHT JOINT.
19. BEFORE POURING THE CLASS A NEW CONCRETE THE FACES OF THE EXISTING PARAPET SHALL BE COVERED WITH AN EPOXY COAT AND SHALL BE COMPLY TO REQUIREMENTS OF SPECIFICATION 652.
20. SIDE OR END FILLET WELDS TERMINATING AT ENDS OR SIDES, RESPECTIVELY , OF PARTS OF MEMBERS SHALL, WHEREVER PRACTICABLE, BE RETURNED CONTINUOUSLY AROUND THE CORNERS FOR A DISTANCE NOT LESS THE 2 TIMES THE NOMINAL SIZE OF THE WELD.
21. FOR BRIDGES WITH SIDEWALKS LESS THAN 3 FEET. WIDTH, THE CONTRACTOR SHALL USE THE "EXPANDED METAL FENCE TYPE 2".
22. THE STEEL REINFORCEMENT SHALL NOT BE DAMAGED, AND IT SHALL REMAIN DURING THE REMOVAL OF BLOCKOUT SECTION IN CONCRETE.
23. BEFORE THE INSTALLATION OF EXPANDED METAL FENCE, THE BLOCKOUT SECTION SHALL BE REMOVED IN EXISTING CONCRETE PARAPET OR IT SHALL BE PREFORMED IN NEW CONCRETE PARAPET.
24. AFTER THE INSTALLATION OF EXPANDED METAL FENCE, THE BLOCKOUT SECTION SHALL BE CONSTRUCTED AS PER CONCRETE PARAPET CONFIGURATION.
25. THE STRUCTURAL BONDING AGENT SHALL BE AN EPOXY-CEMENTITIOUS BONDING AGENT AND ANTI-CORROSION COATING FOR REINFORCEMENT. THE STRUCTURAL BONDING AGENT SHALL HAVE A MINIMUM BOND STRENGTH (ASTM C 882) OF 2,500 PSI AT 24 HOURS OPEN TIME, A MINIMUM COMPRESSIVE STRENGTH (ASTM C 109) OF 8,000 PSI AT 28 DAYS, AND A MINIMUM POT LIFE OF 60 MINUTES.
26. THE STRUCTURAL BONDING AGENT SHALL BE APPLIED TO THE SURFACES OF BLOCKOUTS, THE METAL PIPES AND ACCESSORIES IN THIS SECTION.
27. THE STRUCTURAL BONDING AGENT SHALL BE CONSIDERED A SUBSIDIARY OBLIGATION BY THE CONTRACTOR AND ITS COST INCLUDED IN THE "EXPANDED METAL FENCE" PAY ITEM.
28. FOR BLOCKOUT SECTION TO BE REMOVED IN EXISTING CONCRETE PARAPET, THE CONTRACTOR SHALL USE A 20LB MAX. CHIPPING HAMMER. THE CHIPPING HAMMER SHALL BE ELECTRICALLY OR PNEUMATICALLY POWERED.
29. SEE THE DETAILS AND SECTIONS ON SHEET MBD-2 AND MBD-3.



COMMONWEALTH OF PUERTO RICO  
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS  
HIGHWAY AND TRANSPORTATION AUTHORITY

DATE: 2/7/09

STANDARD DRAWING APPROVED BY: *[Signature]*  
DEPUTY EXECUTIVE DIRECTOR FOR INFRASTRUCTURE

MISCELLANEOUS BRIDGE DETAILS  
EXPANDED METAL FENCE FOR BRIDGE

MBD-1  
SEPTEMBER 2009

ENGINEERING SERVICES AREA ENGINEERING STANDARDS OFFICE