DESIGN VALUES ARE PRESENTED IN THIS DOCUMENT IN BOTH METRIC AND U.S. CUSTOMARY UNITS AND WERE DEVELOPED INDEPENDENTLY WITHIN EACH SYSTEM. THE RELATIONSHIP BETWEEN THE METRIC AND U.S. CUSTOMARY VALUES IS NEITHER AN EXACT (SOFT) CONVERSION NOR A COMPLETELY RATIONALIZED (HARD) CONVERSION. THE METRIC VALUES ARE THOSE THAT WOULD HAVE BEEN USED HAD THIS DOCUMENT BEEN PRESENTED EXCLUSIVELY IN METRIC UNITS; THE U.S. CUSTOMARY VALUES ARE THOSE THAT WOULD HAVE BEEN USED IF THIS DOCUMENT HAD BEEN PRESENTED EXCLUSIVELY IN U.S. CUSTOMARY UNITS. THEREFORE, THE USER IS ADVISED TO WORK COMPLETELY IN ONE SYSTEM AND NOT ATTEMPT TO CONVERT DIRECTLY BETWEEN THE TWO.
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  - 6 34" (865) x 24" (610) DRAINAGE INLET AND COVER SLAB DETAILS
  - 7 34" (865) x 38" (955) DRAINAGE INLET DETAILS
  - 8 DRAINAGE INLET TOP UNIT, TYPE B
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DEPARTMENT OF TRANSPORTATION

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<td>MESSENGER WIRE ATTACHMENT.</td>
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<td>(2005) - 2 ANGULAR MIDDLE MESSENGER WIRE ATTACHMENT.</td>
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<td>(2005) - 1 TYPE B</td>
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<td>ITEM NO.</td>
<td>DESCRIPTION</td>
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<td>---------</td>
<td>-------------</td>
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<tr>
<td>1</td>
<td>W-BEAM</td>
</tr>
<tr>
<td>2</td>
<td>W6 X 9 (W150 x 13.5) STEEL POST</td>
</tr>
<tr>
<td>3A 3B</td>
<td>3A - 6&quot; (150) x 12&quot; (300) x 14&quot; (350) OFFSET BLOCK&lt;br&gt;3B - 6&quot; (150) x 8&quot; (200) x 14&quot; (350) OFFSET BLOCK</td>
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<td>3/8&quot; (16) GUARDRAIL BOLT (L=1 1/4&quot; (35)) AND RECESS NUT</td>
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TYPE 1-31 GUARDRAIL
POST SPACING 6'-3" (19051)

SOLID / OBSTRUCTION

REQUIRED CLEARANCE
2'-0" (600 MIN)

SEE NOTE *1

EDGE OF SHOULDER
SHOULDER

EDGE OF TRAVEL LANE

TYPE 2-31 GUARDRAIL
POST SPACING 3'-11" (9625)

SOLID / OBSTRUCTION

REQUIRED CLEARANCE
2'-0" (600 MIN)

SEE NOTE *1

EDGE OF SHOULDER
SHOULDER

EDGE OF TRAVEL LANE

TYPE 3-31 GUARDRAIL
POST SPACING 5'-0" (1524)

SOLID / OBSTRUCTION

REQUIRED CLEARANCE
2'-0" (600 MIN)

SEE NOTE *1

EDGE OF SHOULDER
SHOULDER

EDGE OF TRAVEL LANE

**GUARDRAIL FLARE RATE**

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<th>FLARE RATES</th>
<th>DESIGN SPEED</th>
<th>FLARE RATE</th>
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<tr>
<td>70 MPH (110 km/h)</td>
<td>15/1</td>
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<tr>
<td>60 MPH (100 km/h)</td>
<td>14/1</td>
<td></td>
</tr>
<tr>
<td>55 MPH (90 km/h)</td>
<td>12/1</td>
<td></td>
</tr>
<tr>
<td>50 MPH (80 km/h)</td>
<td>11/1</td>
<td></td>
</tr>
<tr>
<td>45 MPH (70 km/h)</td>
<td>10/1</td>
<td></td>
</tr>
<tr>
<td>40 MPH (60 km/h)</td>
<td>9/1</td>
<td></td>
</tr>
<tr>
<td>30 MPH (50 km/h)</td>
<td>7/1</td>
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**DELWARE DEPARTMENT OF TRANSPORTATION**

**TYPES 1-31, 2-31, AND 3-31 GUARDRAIL APPLICATIONS**

**APPROVED**

**STANDARD NO.** B-1 (2010)

**SHT.** 1 OF 3

**RECOMMENDED**

**SIGNATURE ON FILE** 12/28/2010

**NOTE:**

1. THE DISTANCE FROM THE EDGE OF THE TRAVEL LANE OR SHOULDER TO THE FACE OF GUARDRAIL SHOULD BE MAXIMIZED. THIS AREA SHALL BE GRADED TO BE FLAT.

2. PLACE GUARDRAIL ELEMENATI AT THE INTERVALS SPECIFIED IN THE DELWARE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
GUARDRAIL SECTION
RURAL SHOULDER APPLICATION

GUARDRAIL SECTION
MEDIUM APPLICATION

GUARDRAIL SECTION
URBAN SHOULDER APPLICATION

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<th>CLEAR AREA BEHIND POST</th>
<th>DESIGN SPEED</th>
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<td>1</td>
<td>6'-3&quot; (1905)</td>
<td>2'-0&quot; (600) MIN</td>
<td>15/95 MPH (89 km/h)</td>
<td>8'-0&quot; (2400)</td>
</tr>
<tr>
<td>2</td>
<td>3'-11½&quot; (952.5)</td>
<td>2'-0&quot; (600) MIN</td>
<td>30/95 MPH (83 km/h)</td>
<td>12'-0&quot; (3600)</td>
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CURB SHALL BE USED ONLY WHEN INDICATED ON THE PLANS

4' (1200) Rounding

NO FIXED OBJECTS OR OBSTRUCTIONS
SEE TABLE BELOW

HINGE POINT
SEE PLAN FOR SLOPE

CURB TO BE USED ONLY WHEN INDICATED ON PLANS

PAVEMENT SHALL BE USED ONLY WHEN INDICATED ON PLANS

DELWARE
DEPARTMENT OF TRANSPORTATION

TYPES 1-3I, 2-3I, AND 3-3I GUARDRAIL APPLICATIONS

APPROVED

STANDARD NO. B-1 (2010) SHT. 1 OF 1

12/28/2010

12/27/2010

12/6/2010
NOTES:
1. FLARE THE END TREATMENT AT 25:1 BEGINNING 50' (15m) FROM THE END OF THE IMPACT HEAD, UNLESS THE CONSTRUCTION PLANS OR SPECIFICATIONS SPECIFY A SMALLER FLARE.
2. THIS DETAIL IS SOLELY CREATED TO SHOW THE GRADING REQUIRED FOR THIS TYPE OF ATTENUATOR AND IS APPLICABLE REGARDLESS OF THE HEIGHT OF THE GUARDRAIL SYSTEM.
3. THE GUARDRAIL END TREATMENT ATTENUATOR SHALL BE INSTALLED AS PER THE MANUFACTURER'S AND THE DEPARTMENT OF TRANSPORTATION'S SPECIFICATIONS.
4. IF CURB IS PRESENT, DEPRESS THE CURB TO A MAXIMUM HEIGHT OF 2" (50mm) WITHIN THE LIMITS OF THE END TREATMENT AND THROUGHOUT THE LENGTH OF THE TAPER GRADING.
NOTES:

1. FLARE SHALL BE 4' (1200) UNLESS THE CONSTRUCTION PLANS OR SPECIFICATIONS SPECIFY A SMALLER FLARE. FLARE MAY BE PARABOLIC OR STRAIGHT BASED ON MANUFACTURER'S SPECIFICATIONS.

2. THIS DETAIL WAS SOLELY CREATED TO SHOW THE GRADING REQUIRED FOR THIS TYPE OF ATTENUATOR AND IS APPLICABLE REGARDLESS OF THE HEIGHT OF THE GUARDRAIL SYSTEM.

3. THE GUARDRAIL END TREATMENT ATTENUATOR SHALL BE INSTALLED AS PER THE MANUFACTURER'S AND THE DEPARTMENT OF TRANSPORTATION'S SPECIFICATIONS.

4. IF CURB IS PRESENT, DEPRESS THE CURB TO A MAXIMUM HEIGHT OF 2" (50) WITHIN THE LIMITS OF THE END TREATMENT AND THROUGHOUT THE LENGTH OF THE TAPER GRADING.

SECTION A-A

DELAWARE
DEPARTMENT OF TRANSPORTATION

GRADING FOR GUARDRAIL END TREATMENT ATTENUATOR, TYPE 2

STANDARD NO. B-2 (2010) SHT. 2 OF 3

APPROVED SIGNATURE ON FILE 12/28/2010

RECOMMENDED SIGNATURE ON FILE 12/27/2010
NOTES:
1. THIS DETAIL WAS SOLELY CREATED TO SHOW THE GRADING REQUIRED FOR THIS TYPE OF ATTENUATOR AND IS APPLICABLE REGARDLESS OF THE HEIGHT OF THE GUARDRAIL SYSTEM.
2. 6' OR FLATTER GRADING IS ALLOWABLE WHEN THE BARRIER IS LOCATED 12' (3.65m) OR MORE FROM THE OUTSIDE EDGE OF THE SHOULDER.
3. THIS END TREATMENT CAN ALSO BE USED IN RAMPS GORGES OR OTHER AREAS WHERE TWO RAILS OF W-BEAM COME TOGETHER AND TERMINATE WITH ONE END TREATMENT.
4. WHEN OPPOSING ROADWAYS HAVE EQUAL ELEVATIONS THE TRAFFIC BARRIER SYSTEM SHOULD BE PLACED ON THE OPPOSITE SIDE OF THE DITCH LINE FROM APPROACHING TRAFFIC.
5. THE GUARDRAIL END TREATMENT ATTENUATOR SHALL BE INSTALLED AS PER THE MANUFACTURER'S AND THE DEPARTMENT OF TRANSPORTATION'S SPECIFICATIONS.
6. IF CURB IS PRESENT, EXPRESS THE CURB TO A MAXIMUM HEIGHT OF 2" (50MM) WITHIN THE LIMITS OF THE END TREATMENT AND THROUGHOUT THE LENGTH OF THE TAPER GRADING.

DELAWARE
DEPARTMENT OF TRANSPORTATION

GRADING FOR GUARDRAIL END TREATMENT ATTENUATOR, TYPE 3

APPROVED
SIGNATURE ON FILE 12/28/2010

STANDARD NO. B-2 (2010) SHT. 3 OF 3 RECOMMENDED
SIGNATURE ON FILE 12/27/2010

09/03/2010
NOTES:
3. ALL W-CBEAMS ARE 13'-6"/S (4130) IN LENGTH.
4. PLACE GUARDRAIL DELINERATORS AT THE INTERVALS SPECIFIED IN THE DELAWARE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
5. POSTS 1, 2, 3, 4, 6, AND 10 ARE TO BE W-60-160 (4"X3.5") STEEL POSTS. POSTS 1 THROUGH 8 ARE TO BE TYPE 31: LONG WOOD BREAKAWAY POSTS.
6. THE RAIL SHALL BE ATTACHED AT POSTS 3 THROUGH 8 WITH A 3/8" (16) X 22" (560) GUARDRAIL BOLT, STEEL WASHER, AND RECESS NUT.

DELWARE
DEPARTMENT OF TRANSPORTATION

GUARDRAIL OVER CULVERTS, TYPE I-31

STANDARD NO. B-3 (MO) SHT. 1 OF 3

APPROVED
SIGNATURE ON FILE
12/28/2010

RECOMMENDED
SIGNATURE ON FILE
12/27/2010
NOTES:
1. ALL W-BEAMS ARE 12'-6½" (3.83m) IN LENGTH.
2. PLACE GUARDRAIL DIRECTIONAL SIGNS AT THE INTERVALS SPECIFIED IN THE DELAWARE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
3. POSTS 1, 2, 6, & 10 ARE TO BE 6x6 (150x150) WHITE PINE 10.5 FEET LONG STEEL POSTS. POSTS 3 THROUGH 8 ARE TO BE TYPE 31 LONG WOOD BREAKAWAY POSTS.
4. THE RAIL SHALL BE ATTACHED AT POSTS 3 THROUGH 8 WITH A 3" (76mm) x 22" (560mm) GUARDRAIL BOLT, STEEL WASHER, AND Recess NUT.
DELAWARE
DEPARTMENT OF TRANSPORTATION

GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE I-II

STANDARD NO. B-6 (M10) SHT. 1 OF 6

APPROVED

NOTE:

1. DO NOT ATTACH W BEAM TO POSTS 2 THROUGH 4.
2. DO NOT ATTACH RUB RAIL TO POSTS 2 AND 4.
3. POSTS 1 THROUGH 6 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER OFFSET BLOCKS AND/OR RUBRAIL AND WOOD BLOCK.
4. USE APPROPRIATE EPOXY BOLT ANCHORS TO REDUCE THE CHANCE OF SPLITTING THE CONCRETE. PLACE STEEL WAGERS FOR 3/8" (10) BOLT BETWEEN HEADS AND RUB RAIL.
5. ALL HOLES SHALL BE DRILLED PRIOR TO CALVANIZING.

ELEVATION

8. PLACE GUARDRAIL REFLECTOR AS PER THE DELAWARE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
9. APPROVED CONCRETE INSERTS MAY BE USED IN NEW CONSTRUCTION TO ATTACH TERMINAL CONNECTOR TO PARAMET.
10. POSTS 1 & 2 ARE W8x8 (190x190), 7'-6" (2.3m) LONG. ALL OTHER POSTS IN TRANSITION ARE W6x6 (165x165), 8'-0" (2.4m) LONG.
11. A 6" (150) x 8" (200) x 14" (350) OFFSET BLOCK IS USED AT POSTS 1 THROUGH 6 AND A 6" (150) x 8" (200) x 14" (350) OFFSET BLOCK IS USED AT POSTS 7 THROUGH 9.

DRAWN: 11/27/10
SIGNATURE ON FILE 12/28/10
RUB RAIL OFFSET BLOCKS

<table>
<thead>
<tr>
<th>POST NO.</th>
<th>THICKNESS</th>
<th>BOLT LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4 1/2&quot; (108)</td>
<td>5&quot; (150)</td>
</tr>
<tr>
<td>2</td>
<td>3 1/4&quot; (83)</td>
<td>4&quot; (100)</td>
</tr>
<tr>
<td>3</td>
<td>2&quot; (50)</td>
<td>4&quot; (100)</td>
</tr>
<tr>
<td>4</td>
<td>1 1/2&quot; (25)</td>
<td>2&quot; (50)</td>
</tr>
</tbody>
</table>

NOTES:
1. THE RUB RAIL TO BARRIER CONNECTION END MUST BE ATTACHED FLUSH WITH THE SLOPED TOE OF THE SAFETY BARRIER. INSTALLATION CAN BE SIMPLIFIED BY FABRICATING OR SHOP TWISTING THE RUB RAIL END TO BE CONSISTENT WITH THE SLOPE OF THE BARRIER, HOWEVER, FIELD BENDING USING HEAT IS PERMITTED.
2. STEEL SPACER TUBE IS SCHEDULE 40 GALVANIZED PIPE, 6" (150) X 9" (225).
3. ALL HARDWARE ON THIS DETAIL IS COMPATIBLE WITH GUARDRAIL TO BARRIER CONNECTION, TYPES 4-31 AND 4-27.
NOTES:
1. CURB SHALL NOT BE USED AT THE FACE OF RAIL WITHIN THE LIMITS OF THIS INSTALLATION.
2. POSTS 1, 2, 3, 4, AND 6 REQUIRE AN ADDITIONAL HOLE TO ATTACH OFFSET BLOCKS AND/OR BENT RAIL.
3. DO NOT ATTACH RAILS TO POSTS 1, 2, 3, 5, OR 7.
4. POSTS 1 AND 2 ARE W6x13 (200x83.5). 7'-6" (2.28m) LONG. ALL OTHER POSTS IN TRANSITION ARE W6x9 (200x63). 6'-0" (1.83m) LONG.
5. ALL HOLES SHALL BE DRILLED PRIOR TO GALVANIZING.
6. BENT RAIL MAY BE SHOP BENT TO FACILITATE INSTALLATION OR MAY BE FIELD BENT USING HEAT.

ELEVATION
71. APPROVED CONCRETE INSERTS MAY BE USED IN NEW CONSTRUCTION TO ATTACH TERMINAL CONNECTORS TO PARAPET.
81. PLACE GUARDRAIL Delineators at the intervals specified in the Delaware Manual on Uniform Traffic Control Devices.
91. FOR INSTALLATIONS WHERE CURB EXISTS, IF THE EXISTING CURB IS 8" (200) OR HIGHER AND CANNOT BE REMOVED, THE BOTTOM RAIL CAN BE ELIMINATED.
101. A 6" (150) x 8" (200) x 14" (350) OFFSET BLOCK IS USED AT POSTS 1 THROUGH 6 AND A 8" (200) x 12" (300) x 14" (350) OFFSET BLOCK IS USED AT POSTS 7 THROUGH 9.
**BENT RAIL**

**SCALE:** 1" = 1'-0"

**BENT RAIL OFFSET BLOCKS**

**SCALE:** 1" = 1'-0"

**THICKNESS VARIES (SEE TABLE)**

<table>
<thead>
<tr>
<th>BLOCK</th>
<th>THICKNESS</th>
<th>BOLT LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5&quot; (125)</td>
<td>8&quot; (200)</td>
</tr>
<tr>
<td>2</td>
<td>4&quot; (100)</td>
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</tr>
<tr>
<td>4</td>
<td>2&quot; (50)</td>
<td>4&quot; (100)</td>
</tr>
</tbody>
</table>

**NOTES:**

1. BOTTOM OFFSET BLOCKS LOCATED ON POSTS 1-4 ARE OFFSET DRILLED TO 5/16 SQUARELY ON THE POST FLANGE AND SECURED WITH 3/8" (10.8) CARRIAGE BOLTS. SEE BENT RAIL OFFSET BLOCK TABLE FOR BOLT LENGTH.

2. ALL HARDWARE ON THIS DETAIL IS COMPATIBLE WITH GUARDRAIL TO BARRIER CONNECTION, TYPES 2-31 AND 2-27.
**Notes:**

1. Concrete inserts may be used in new construction to attach terminal connector to parapet.
2. Guardrail section and terminal connections shall be overlapped in the direction of travel.
3. Installation shown above with an T-type barrier face, guardrail section of barrier connection shall be adjusted horizontally in order to meet flush against various types of walls and barriers.
W6 x 15 (W150 x 22) STEEL GUARDRAIL POST

BASE PLATE DETAIL

W6 x 15 (W150 x 22)

WILD ALL AROUND INCLUDING EXTERIOR FLANGE SURFACE

1/4" (16)

1-1/8" (28)

3-1/8" (79)

5-1/8" (129)

9-3/4" (248)

13-1/2" (343)

3/8" (9.5)

5/8" (16)

3/4" (17)

5/8" (16)

1/2" (12)

W6 x 15 (W150 x 22)

SIDE

FRONT

SECTION A-A

PLAN

TRAFFIC FACE

DELAWARE
DEPARTMENT OF TRANSPORTATION

BRIDGE RAIL RETROFIT, TYPE 2 HARDWARE

APPROVED

STANDARD NO. B-6 (M10)

SHT. 3 OF 5

RECOMMENDED

SIGNATURE ON FILE 12/28/2010

DATE

SIGNATURE ON FILE 12/27/2010

DATE

09/6/2010
TYPE 1-27 OR TYPE 1-31 GUARDRAL, PLACEMENT OR APPROPRIATE END TREATMENT
GUARDRAL TO BARRIER CONNECTION
LIMIT OF PAYMENT

END OF SIDEWALK

TAPER END OF WALL TO TOP OF GUARDRAL AT A SLOPE OF 4:1 OR FLATTER

12" (300) MAX
EXISTING BRIDGE RAIL

CONTRACTION JOINTS

BRIDGE BARRIER

DIRECTION OF TRAVEL

PLAN

A

15" (375) (TYPICAL BAR SPACING)

END OF SIDEWALK

TAPER END OF WALL TO TOP OF GUARDRAL AT A SLOPE OF 4:1 OR FLATTER

A

15" (375) (TYPICAL BAR SPACING)

NOTE: STANDARD GUARDRAL TO BARRIER CONNECTIONS
SHALL BE CONNECTED TO THE ENDS OF THE NEW
BRIDGE BARRIER AND TRANSITIONED TO THE EXITING
GUARDRAL.

SECTION A-A

EXISTING RAIL - DO NOT DISTURB

2" (50) MIN. COVER

TYP.

4" (100) MIN

3/8" (20) CHAMFER (TYP.)

1/2" (12.7) REbars (4)

DRILL 1" (25) Dia. HOLE, FILL WITH HIGH
STRENGTH, NON-SHRINK GROUT

*6 (19) BARS SPACED 15" (375) LONGITUDINALLY,
FRONT AND BACK ROWS SHALL BE STAGGERED

DELAWARE
DEPARTMENT OF TRANSPORTATION

BRIDGE RAIL RETROFIT, TYPE 3

APPROVED

STANDARD NO.
B-6 (MM10)
SHT. 4 OF 5

12/28/2010
12/27/2010

12/06/2010
DRILL 3/8" (20) DIA HOLE FOR 5/8" (16) BUTTON HEAD BOLTS (LENGTH VARY) AND RECESSED HEX NUTS

SECTION VIEW

THREE-BEAM BEARING PLATE DETAIL

NOTES:
1. BRIDGE RAIL RETROFIT, TYPE 4 SHALL BE USED WHEN THE EXISTING PARAPET HEIGHT IS BETWEEN 22" (550) AND 26" (660).
2. USE A THREE-BEAM EXPANSION ELEMENT AT BRIDGE EXPANSION JOINTS.
3. PLACE GUARDIAN ELIMINATORS IN THE UPPER VALLEY OF THE THREE-BEAM AT THE INTERVAL SPECIFIED IN THE DELAWARE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
4. SEE DETAIL B-5, SHEET 1 OF 5 FOR ENTRANCE AND EXIT APPLICATION DETAILS AND NOTES.
5. SPACING OF WOOD POSTS MAY NEED TO BE REDUCED TO ACCOMMODATE LINING UP POSTS AT THE END OF THE PARAPET.
6. USE APPROPRIATE EPOXY BOLT ANCHORS TO REDUCE THE CHANCE OF SPLINTERING THE CONCRETE. PLACE STEEL WASHERS (FOR 5/8" HD BOLT) BETWEEN BOLT HEADS AND RUBBER.
7. ALL HOLES SHALL BE DRILLED PRIOR TO GALVANIZING.
W-Beam Elevation

W-Beam Section

Note:
1. Four additional 3/8 x 2 1/2 inch bolts shall be provided at 3-1/2 foot (952) spacing for a 20-1/8 (7440) beam length.
W-BEAM STEEL POST AND OFFSET BLOCK

NOTE:
1. ALL HOLES SHALL BE 7/8" (22.22 mm) HOLE PATTERN IS SYMMETRICAL WITH RESPECT TO THE VERTICAL AXIS OF THE POST.
2. WHERE CONDITIONS REQUIRE, ALTERNATE POST LENGTHS IN INCREMENTS OF 6" (1500) MAY BE USED.
3. THE RUB RAIL HOLE OFFSET DISTANCE IS 12" (3000) FOR GUARD RAIL TO BARRIER CONNECTION, TYPE 2-27 AND 1-31, TYPE 2-3 FOR GUARD RAIL TO BARRIER CONNECTION TYPE 2-3.

DELTA BEAM INTERNATIONAL, Inc.

DEPARTMENT OF TRANSPORTATION HARDWARE APPROVED

STANDARD NO. B-13 (2010) SHT. 2 OF 10 RECOMMENDED

08/23/2010
THREE BEAM STEEL POST AND OFFSET BLOCK

NOTE:
WHERE CONDITIONS REQUIRE, USE ALTERNATE LENGTHS IN INCREMENTS OF 6" (150)

OPTIONAL FOR HANDLING DURING GALVANIZING

POST

SIDE

NOTE:
ALL HOLES SHALL BE 3/8" (20) O.A. BOLT HOLE
PATTERN IS SYMMETRICAL WITH RESPECT TO THE VERTICAL AXIS OF THE POST.