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<td>50.5.0</td>
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<td>Ornamental Grass Planting Detail</td>
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<td>50.6.0</td>
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<td>Groundcover Planting Detail</td>
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<td>Bulb Planting Detail</td>
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<td>51.1.0</td>
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<td>Tree Protection Device</td>
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<tr>
<td>51.1.1</td>
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<td>Drip Line Tree Protection Device for Existing Trees</td>
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<tr>
<td>51.2.0</td>
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<td>Shrub Protection Device</td>
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<td>51.3.0</td>
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<td>Tree Well</td>
</tr>
<tr>
<td>51.4.0</td>
<td>6/98</td>
<td>Tree Wall</td>
</tr>
</tbody>
</table>
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 703 OF THE R.I. STANDARD SPECIFICATIONS.
2. WIDTH (W) OF TRENCH = INSIDE DIAMETER OF PIPE + 1'-0" OR 2'-0"
   WHICH EVER IS GREATER.
3. MINIMUM PIPE DIAMETER 8".
4. DISTANCE DIMENSIONS ARE GIVEN TO THE OUTSIDE DIAMETER OF PIPE.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 703 OF THE R.I. STANDARD SPECIFICATIONS.
2. MINIMUM PIPE DIAMETER 1' - 0".
3. TRENCH WIDTHS: PIPE ≤ 36" = O.D. + 24" 
   EACH SIDE
PIPE > 36" = O.D. + 30" 
   EACH SIDE
4. DISTANCE DIMENSIONS ARE GIVEN TO THE OUTSIDE DIAMETER OF PIPE.
5. SEE CONSTRUCTION PLANS FOR LOCATION.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 709 OF THE R.I. STANDARD SPECIFICATIONS.
2. MAXIMUM PIPE DIAMETER FOR USE OF CONNECTING COLLAR IS 2'-0".
3. PIPE WITH LARGEST OUTSIDE DIAMETER USED TO DETERMINE SIZE OF COLLAR.
1. Shall be in accordance with Section 709 of the R.I. Standard Specifications.
2. 3/4" chamfer on all exposed edges.
3. 1"-0" compacted gravel under headwall.
4. All reinforcing bars shall be epoxy coated.
FOR CORRUGATED METAL PIPE

<table>
<thead>
<tr>
<th>DIAMETER OF PIPE</th>
<th>S</th>
<th>T</th>
<th>FILL SLOPE 1 1/2:1</th>
<th>FILL SLOPE 2:1</th>
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<tr>
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<td>FOR EACH ADDITIONAL</td>
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<td>ENDWALL</td>
<td>PIPE</td>
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<tr>
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<td>5'-3 1/2&quot;</td>
<td>8'-9 1/2&quot;</td>
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<td>1.3</td>
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<td>4'-0&quot;</td>
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<td>1.7</td>
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<td>2.1</td>
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<td>5'-0&quot;</td>
<td>7'-6 1/2&quot;</td>
<td>12'-6 1/2&quot;</td>
<td>10.4</td>
<td>2.7</td>
</tr>
<tr>
<td>5'-6&quot;</td>
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<td>13'-9 1/2&quot;</td>
<td>12.8</td>
<td>3.3</td>
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<td>6'-0&quot;</td>
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<td>16'-0 1/2&quot;</td>
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<td>22.8</td>
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FOR CONCRETE PIPE

<table>
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<tr>
<th>DIAMETER OF PIPE</th>
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<th>FILL SLOPE 1 1/2:1</th>
<th>FILL SLOPE 2:1</th>
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<tr>
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<td>CU. YD. CONCRETE</td>
<td>INCREASE CU. YD.</td>
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<tr>
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<td>ONE DOUBLE</td>
<td>FOR EACH ADDITIONAL</td>
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<tr>
<td></td>
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<td>ENDWALL</td>
<td>PIPE</td>
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<td>4.1</td>
<td>1.3</td>
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<td>7'-0&quot;</td>
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<td>7.7</td>
<td>2.1</td>
</tr>
<tr>
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<td>13'-6&quot;</td>
<td>9.7</td>
<td>2.6</td>
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<td>21.2</td>
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</tr>
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</table>

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

STANDARD HEADWALLS FOR MULTIPLE
3'-6" TO 7'-0" PIPE CULVERTS
### TABLE OF DIMENSIONS AND CONCRETE VOLUMES PER HEADWALL FOR 3'-6" TO 7'-0" CIRCULAR PIPE CULVERTS

<table>
<thead>
<tr>
<th>FOR 1 1/2:1 FILL SLOPE</th>
<th>DIAMETER OF PIPE CULVERTS</th>
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<tbody>
<tr>
<td>C 3'-6&quot;</td>
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<tr>
<td>A 1'-6&quot;</td>
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</tr>
<tr>
<td>B 4'-4&quot;</td>
<td>4'-10&quot;</td>
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<tr>
<td>C 3'-3/4&quot;</td>
<td>3'-9&quot;</td>
</tr>
<tr>
<td>D 3'-6&quot;</td>
<td>4'-0&quot;</td>
</tr>
<tr>
<td>E 0'-6&quot;</td>
<td>0'-6&quot;</td>
</tr>
<tr>
<td>H 0'-10&quot;</td>
<td>0'-10&quot;</td>
</tr>
<tr>
<td>J 11'-8 1/2&quot;</td>
<td>13'-2 1/4&quot;</td>
</tr>
<tr>
<td>K 1'-11&quot;</td>
<td>2'-0 1/2&quot;</td>
</tr>
<tr>
<td>L 6'-7 5/8&quot;</td>
<td>7'-6&quot;</td>
</tr>
<tr>
<td>P 5'-9&quot;</td>
<td>6'-6&quot;</td>
</tr>
<tr>
<td>Q 0'-11 1/2&quot;</td>
<td>0'-11 1/2&quot;</td>
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<table>
<thead>
<tr>
<th>FOR 2:1 FILL SLOPE</th>
<th>CONC. PIPE</th>
<th>C.M. PIPE</th>
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<tbody>
<tr>
<td>C 4'-4&quot;</td>
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<td>3.8</td>
</tr>
<tr>
<td>J 11'-8 1/4&quot;</td>
<td>13'-2&quot;</td>
<td>14'-9&quot;</td>
</tr>
<tr>
<td>L 8'-0&quot;</td>
<td>9'-9 3/4&quot;</td>
<td>10'-11 5/8&quot;</td>
</tr>
<tr>
<td>P 7'-6&quot;</td>
<td>8'-6&quot;</td>
<td>9'-6&quot;</td>
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<table>
<thead>
<tr>
<th>FOR 3:1 FILL SLOPE</th>
<th>CONC. PIPE</th>
<th>C.M. PIPE</th>
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</thead>
<tbody>
<tr>
<td>C 4'-10 7/8&quot;</td>
<td>4'-10 7/8&quot;</td>
<td>5'-5 3/4&quot;</td>
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<tr>
<td>J 13'-2&quot;</td>
<td>14'-9&quot;</td>
<td>16'-3 3/4&quot;</td>
</tr>
<tr>
<td>L 10'-11 5/8&quot;</td>
<td>12'-1 1/2&quot;</td>
<td>13'-3 3/8&quot;</td>
</tr>
<tr>
<td>P 12'-1 1/2&quot;</td>
<td>12'-6&quot;</td>
<td>13'-6&quot;</td>
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**Note:**
For all dimensions not shown, see values listed above for 1 1/2:1 fill slope.
## Dimensions

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<tr>
<th>DIA.</th>
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<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>R</th>
<th>T</th>
<th>MIN. AREA OF EACH WAY (SQ. IN./FT.)</th>
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<td>2'-10 3/4&quot;</td>
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<td>1'-10&quot;</td>
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<td>6&quot;</td>
<td>0.144</td>
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**NOTE:**
SHALL BE IN ACCORDANCE WITH SECTION 701 OF THE R.I. STANDARD SPECIFICATIONS.

**RHODE ISLAND DEPARTMENT OF TRANSPORTATION**

**PRECAST CONCRETE FLARED END SECTION**

<table>
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<tr>
<th>REVISIONS</th>
<th>NO.</th>
<th>BY</th>
<th>DATE</th>
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<tbody>
<tr>
<td></td>
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</tbody>
</table>

**JUNE 15, 1998**

**R.I. STANDARD 2.3.0**

**CHIEF ENGINEER**

**CHIEF DESIGN ENGINEER**

**CHIEF TRANSPORTATION**

**CHIEF TRANSPORTATION**
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. 1/2" CEMENT MORTAR PLASTER COAT REQUIRED ON ALL INSIDE AND OUTSIDE SURFACES.
3. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. 1/2" CEMENT MORTAR PLASTER COAT REQUIRED ON ALL INSIDE AND OUTSIDE SURFACES.
3. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.

SECTION A-A

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

BRICK/SOLID BLOCK
5'-0" OR 6'-0" ROUND MANHOLE

R.I. STANDARD
3.2.1

JUNE 15, 1998
ISSUE DATE
CONCRETE COVER (SEE STD. 4.6.0 OR 4.6.1)

PLAN

4" FRAME AND COVER
ADJUST TO GRADE USING MORTAR

#4 DOWEL (TYP.)

SOLID BLOCK (TYP.)

3" COVER (TYP.)

4" (TYP.)

3" COVER (TYP.)

CONCRETE BASE (PRECAST OPTIONAL)

4'-0" OR 5'-0"

1:25

6"

1/2 ø OF PIPE

#5 Ø 9" E.W.

BRICK/SOLID BLOCK INVERT

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. 1/2" CEMENT MORTAR PLASTER COAT REQUIRED ON ALL INSIDE AND OUTSIDE SURFACES.
3. ADJUST DOWEL LOCATION BASED ON PIPE CONFIGURATION, AS REQUIRED.
4. PIPE COVER FOR THIS DETAIL SHALL BE 1'-6" TO 3'-0".
5. ALL PIPES SHALL BE SEALED TO MANHOLE ON INSIDE AND OUTSIDE SURFACES.
6. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

SOLID BLOCK SHALLOW 4'-0" OR 5'-0" ROUND MANHOLE

REVISIONS

NO. BY DATE

R.I. STANDARD 3.2.2

JUNE 15, 1998

ISSUE DATE
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. 1/2" CEMENT MORTAR PLASTER REQUIRED ON ALL INSIDE AND OUTSIDE SURFACES.
3. USE 8" WALLS UP TO 6'-0" DEPTH AND 1'-0" WALLS UP TO 8'-0" DEPTH.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. 1/2" CEMENT MORTAR PLASTER REQUIRED ON ALL INSIDE AND OUTSIDE SURFACES.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. 1/2" CEMENT MORTAR PLASTER REQUIRED ON ALL INSIDE AND OUTSIDE SURFACES.
3. USE 8" WALLS TO 6'-0" DEPTH, USE 1'-0" WALLS TO 8'-0" DEPTH.

FRAME AND GRATE (ORDER 4 FLANGE WHEN APRON STONE IS NOT USED)

SECTION A-A
BRICK/SOLID BLOCK
CONCRETE BASE (PRECAST OPTIONAL)

SECTION B-B
SEEP HOLE (2)-#5 x 4'-0" LONG DIAGONAL (TYP.)

RHODE ISLAND DEPARTMENT OF TRANSPORTATION
BRICK/SOLID BLOCK
TYPE "F" SQUARE CATCH BASIN
R.I. STANDARD 3.3.2
JUNE 15, 1998
ISSUE DATE
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. 1/2" CEMENT MORTAR PLASTER COAT REQUIRED ON ALL INSIDE AND OUTSIDE SURFACES.
3. ALL REINFORCING BARS TO BE 5'-0" LONG UNLESS OTHERWISE NOTED.
4. USE 8" WALLS UP TO 6'-0" DEPTH AND 1'-0" WALLS UP TO 8'-0" DEPTH.
5. ALL REINFORCING SHALL BE EPOXY COATED.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION
SOLID BLOCK FLUSH SQUARE CATCH BASIN

REVISIONS
NO. BY DATE

JUNE 15, 1998

R.I. STANDARD

3.3.3
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. 1/2" CEMENT MORTAR PLASTER COAT ON ALL INSIDE AND OUTSIDE SURFACES.
3. USE 8" WALLS UP TO 6'-0" DEPTH, AND 1'-0" WALLS UP TO 8'-0" DEPTH.
4. TWO SINGLE FRAMES WITH THREE FLANGES AND TWIN GRATES MAY BE SubSTITUTED FOR THE DOUBLE FRAME WITH TWIN GRATES.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

BRICK/SOLID BLOCK DOUBLE GRATE CATCH BASIN
GRATE PARALLEL TO EDGE OF PAVEMENT

R.I. STANDARD 3.3.4

JUNE 15, 1998
ISSUE DATE
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. 1/2" CEMENT MORTAR PLASTER COAT ON ALL INSIDE AND OUTSIDE SURFACES.
3. USE 8" WALLS UP TO 6'-0" DEPTH, AND 1'-0" WALLS UP TO 8'-0" DEPTH.
4. TWO SINGLE FRAMES WITH THREE FLANGES AND TWIN GRATES MAY BE SUBSTITUTED FOR THE DOUBLE FRAME WITH TWIN GRATES.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION
BRICK/SOLID BLOCK DOUBLE GRATE CATCH BASIN
GRATE PERPENDICULAR TO EDGE OF PAVEMENT

REVISIONS

JUNE 15, 1998

RI STANDARD

3.3.5
SECTION C-C

A BARS

K₁ BARS

K₂ BARS

J BARS

H₁ BARS

NOTE: SKETCH SHOWS USE OF INLET SAGS. BOTH SIDES TO BE SYMMETRICAL.

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. 1/4" EXPANSION JOINT NOT NECESSARY WHEN FLEXIBLE PAVEMENT IS USED FOR SIDEWALK OR ROADWAY.
3. THE COVERING FOR ALL REINFORCING STEEL SHALL BE 2", MEASURED FROM THE SURFACE OF THE CONCRETE TO THE FACE OF THE BAR, UNLESS OTHERWISE SHOWN.
4. THE HIGH CAPACITY INLET DETAILED HEREIN IS FOR USE ON A GRADE, IF IT IS TO BE USED IN A SAG, (SEE SKETCH HEREIN), IT SHOULD BE BUILT SYMMETRICALLY ABOUT THE CENTERLINE OF THE PIPE AND LENGTH OF OPENING SPECIFIED.
5. THE TYPE AND SIZE OF PIPE TO BE USED WITH THIS INLET SHALL BE THE TYPE AND SIZE AS CALLED FOR ON THE PLANS.
6. TYPICAL "KEYED" CONSTRUCTION JOINTS ARE SHOWN ON THE DETAILS HEREIN. OTHER "KEYED" OR "DOWELED" TYPE CONSTRUCTION JOINTS MAY BE USED IF ACCEPTABLE TO THE ENGINEER.
7. THE BEARING AREA OF FRAME AND COVER SHALL BE SO FITTED AND FINISHED AS TO PROVIDE A FIRM AND EVEN SEAT FOR THE ENTIRE COVER IN THE FRAME. NO PROJECTIONS SHALL EXIST ON BEARING AREAS OF EITHER CASTING, AND THE COVER SHALL SEAT IN ITS FRAME WITHOUT ROCKING.
8. ALL REINFORCING BARS SHALL BE EPOXY COATED.
9. A SLAB TYPE MANHOLE AND STD. 7.1.0 PRECAST CURB TO BE USED WITH HIGH CAPACITY INLET.
10. THE BELL OR GROOVE OF CONCRETE PIPE CANNOT BE USED INSIDE THE INLET. IT MUST BE CUT OFF.
11. ALL EXPOSED EDGES AT CONSTRUCTION JOINTS SHALL BE BEVELED 3/4".
12. WHEN DEEMED NECESSARY, WEEP HOLES MAY BE INSTALLED IN THE SIDEWALLS OF INLETS DURING CONSTRUCTION TO PROVIDE BASE COURSE DRAINAGE PRIOR TO PLACEMENT OF PAVEMENT. THESE WEEP HOLES SHALL BE LOCATED AT OR BELOW SUBGRADE ELEVATION AS DIRECTED OR APPROVED BY THE ENGINEER TO PROPERLY DRAIN SUBSURFACE MATERIAL.
13. IF HIGH CAPACITY INLET IS TO BE CONSTRUCTED ALONG WITH A SIDEWALK, THE SIDEWALK SHALL BE CONSTRUCTED MONOLITHIC WITH THE TOP SLAB ON THE INLET. THE SIDEWALK SHALL BE REINFORCED WITH WELDED WIRE MESH 6x6-W2.9xW2.9 PLACED 2" BELOW SURFACE OF SIDEWALK AND EXTENDED INTO THE TOP SLAB OF THE INLET A MINIMUM DISTANCE OF 8".
14. BAR SIZES = B BARS, C BARS, D BARS, E BARS, F BARS, G BARS K₁ BARS AND K₂ BARS ARE ALL TO BE #5 BARS. H₁ BARS AND J BARS ARE ALL TO BE #6 BARS. A BARS ARE TO BE #7 BARS.
15. THE COST TO NOTCH THE CURB SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE CURBING.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION
HIGH CAPACITY INLET

JUNE 15, 1998
3.3.6B
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. 1/2" CEMENT MORTAR PLASTER COAT REQUIRED ON ALL INSIDE AND OUTSIDE SURFACES.
3. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

BRICK/SOLID BLOCK

TYPE "D" ROUND CATCH BASIN

R.I. STANDARD

3.4.0

REVISIONS

NO.  BY  DATE
1  MLP  Mar  05

JUNE 15, 1998

ISSUE DATE

CHIEF ENGINEER

TRANSPORTATION

CHIEF DESIGN ENGINEER

TRANSPORTATION

JAME D. CAGLIO

EDWARD P. RABE

MAY 05 MLP

K.

JUNE 15, 1998
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. 1 1/2" CEMENT MORTAR PLASTER COAT REQUIRED ON ALL INSIDE AND OUTSIDE SURFACES.
3. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. 1/2” CEMENT MORTAR PLASTER REQUIRED ON ALL INSIDE AND OUTSIDE SURFACES.
3. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.

FRAME AND GRATE
(OPTION 4 FLANGE AND SQUARE RING WHEN APRON STONE IS NOT USED)

SECTION A-A
SECTION B-B

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

BRICK/SOLID BLOCK
TYPE "F" ROUND CATCH BASIN

R.I. STANDARD 3.4.2

REVISIONS
NO. BY DATE
1 MLP Mar 05

JUNE 15, 1998

Chairman
Chief Engineer
Chief Design Engineer
JUNE 15, 1998
ISSUE DATE

PROFESSIONAL ENGINEERS IN RHODE ISLAND

1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. 1/2” CEMENT MORTAR PLASTER REQUIRED ON ALL INSIDE AND OUTSIDE SURFACES.
3. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. 1/2" CEMENT MORTAR PLASTER COAT REQUIRED ON ALL INSIDE AND OUTSIDE SURFACES.
3. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

BRICK/SOLID BLOCK
TYPE "R" CATCH BASIN

REVISIONS

NO. BY DATE
1 MLP Mar 05
SECTION A-A

SECTION B-B

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. 1/2" CEMENT MORTAR PLASTER COAT REQUIRED ON ALL INSIDE AND OUTSIDE SURFACES.
3. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.
4. ALL REINFORCING SHALL BE EPOXY COATED.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. 1/2" CEMENT MORTAR PLASTER COAT REQUIRED ON ALL INSIDE AND OUTSIDE SURFACES.
3. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. 1/2" CEMENT MORTAR PLASTER COAT REQUIRED ON ALL INSIDE AND OUTSIDE SURFACES.
3. ADJUST DOWEL LOCATION BASED ON PIPE CONFIGURATION, AS REQUIRED.
4. USE 8" WALLS UP TO 6'-0" DEPTH, USE 1'-0" WALLS UP TO 8'-0" DEPTH.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION
SOLID BLOCK SHALLOW TYPE "E" SQUARE CATCH BASIN
(PIPE COVER 1'-6" TO 3'-0")

JUNE 15, 1998  ISSUE DATE
R.I. STANDARD 3.5.0
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. 1/2" CEMENT MORTAR PLASTER COAT REQUIRED ON ALL INSIDE AND OUTSIDE SURFACES.
3. ADJUST DOWEL LOCATION BASED ON PIPE CONFIGURATION, AS REQUIRED.
4. USE 8'' WALLS UP TO 6''-0'' DEPTH, USE 1''-0'' WALLS UP TO 8''-0'' DEPTH.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. 1/2" CEMENT MORTAR COAT REQUIRED ON ALL INSIDE AND OUTSIDE SURFACES.
3. 8" HIGH FRAME MAY BE SUBSTITUTED WITH A 4" HIGH FRAME AS NEEDED. SHOP DRAWINGS ARE REQUIRED.
4. ADJUST DOWEL LOCATION BASED ON PIPE CONFIGURATION, IF REQUIRED.
5. PIPE COVER FOR THIS DETAIL SHALL BE 1'-6" TO 3'-0".
6. USE 8" WALLS UP TO 6'-0" DEPTH, USE 1'-0" WALLS UP TO 8'-0" DEPTH.
7. TWO SINGLE FRAMES WITH THREE FLANGES AND TWIN GRATES MAY BE SUBSTITUTED FOR THE DOUBLE FRAME WITH TWIN GRATES.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION
SOLID BLOCK SHALLOW DOUBLE GRATE CATCH BASIN
GRATE PARALLEL TO CURB

JUNE 15, 1998
ISSUE One
FILL VOID UNDER GRATE FRAME
WITH AN ADDITIONAL BLOCK COURSE
AND GROUT INTO PLACE

CONCRETE COVER
(SEE STD. 4.8.1)

DRILL AND GROUT
#4 DOWEL (TYP.)
(SEE STD. 4.8.1)

A

PLAN

ADJUST TO GRADE
USING MORTAR

JOINT SEALER
(PIPE WILL BE SEALED TO
CATCH BASIN ON INSIDE
AND OUTSIDE SURFACES)

FRAME AND GRATE
PAVEMENT

BERM

STD. 5.3.0
1'-0" O.C.

SOLID BLOCK

CEMENT MORTAR
SLOPED TRANSITION

3" COVER (TYP.)

1'-0" # SEEP HOLE

CONCRETE BASE
(PRECAST OPTIONAL)

3" COVER

#5 @ 9" E.W.

(2) - #5 x 4'-0" LONG
DIAGONAL (TYP.)

SECTION A-A

SECTION B-B

SECTION C-C

FRAME DETAILS

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. 1/2" CEMENT MORTAR COAT REQUIRED ON ALL INSIDE AND OUTSIDE SURFACES.
3. 8" HIGH FRAME MAY BE SUBSTITUTED WITH A 4" HIGH FRAME AS NEEDED. SHOP DRAWINGS ARE REQUIRED.
4. ADJUST DOWEL LOCATION BASED ON PIPE CONFIGURATION, IF REQUIRED.
5. PIPE COVER FOR THIS DETAIL SHALL BE 1'-0" TO 3'-0".
6. USE 8" WALLS UP TO 6'-0" DEPTH, USE 1'-0" WALLS UP TO 8'-0" DEPTH.
7. TWO SINGLE FRAMES WITH THREE FLANGES AND TWIN GRATES MAY BE SUBSTITUTED FOR THE DOUBLE FRAME WITH TWIN GRATES.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

SOLID BLOCK SHALLOW DOUBLE GRATE CATCH BASIN
GRATE PARALLEL TO EDGE OF PAVEMENT

R.I. STANDARD

ANN M. RIPA
CHIEF ROAD DESIGNER

JUNE 15, 1998
ISSUE DATE
CONCRETE COVER (SEE STD. 4.8.1)

DRILL AND GROUT #4 DOWEL (TYP.) (SEE STD. 4.8.1)

FILL VOID UNDER GRATE FRAME WITH AN ADDITIONAL BLOCK COURSE AND GROUT INTO PLACE

ADJUST TO GRADE USING MORTAR

JOINT SEALER (PIPE WILL BE SEALED TO CATCH BASIN ON INSIDE AND OUTSIDE SURFACES)

PAVEMENT

FRAME AND GRATES

SOLID BLOCK

8" PILASTER WITH 3/16" GALVANIZED BLOCK TIES Ø 8" O.C. VERTICAL

CEMENT MORTAR SLOPED TRANSITION

3" COVER (TYP.)

1'-0" Ø SEEP HOLE

CONCRETE BASE (PRECAST OPTIONAL)

(2) #5 x 4'-0" LONG DIAGONAL (TYP.)

3" COVER (TYP.)

1'-0" Ø SEEP HOLE

CONCRETE BASE (PRECAST OPTIONAL)

(2) #5 x 4'-0" LONG DIAGONAL (TYP.)

SECTION A-A

SECTION B-B

SECTION C-C

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. 1/2" CEMENT MORTAR COAT REQUIRED ON ALL INSIDE AND OUTSIDE SURFACES.
3. 8" HIGH FRAME MAY BE SUBSTITUTED WITH A 4" HIGH FRAME AS NEEDED. SHOP DRAWINGS ARE REQUIRED.
4. ADJUST DOWEL LOCATION BASED ON PIPE CONFIGURATION, IF REQUIRED.
5. PIPE COVER FOR THIS DETAIL SHALL BE 1'-0" TO 3'-0".
6. USE 8" WALLS UP TO 6'-0" DEPTH, USE 1'-0" WALLS UP TO 8'-0" DEPTH.
7. TWO SINGLE FRAMES WITH THREE FLANGES AND TWIN GRATES MAY BE SUBSTITUTED FOR THE DOUBLE FRAME WITH TWIN GRATES.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION
SOLID BLOCK SHALLOW DOUBLE GRATE CATCH BASIN
GRATE PERPENDICULAR TO CURB
FILL VOID UNDER GRATE FRAME WITH AN ADDITIONAL BLOCK COURSE AND GROUT INTO PLACE (TYP.)

ADJUST TO GRADE USING MORTAR

JOINT SEALER (PIPE WILL BE SEALED TO CATCH BASIN ON INSIDE AND OUTSIDE SURFACES)

CONCRETE COVER (SEE STD. 4.8.2)

CONCRETE BASE (PRECAST OPTIONAL)

CEMENT MORTAR SLOPED TRANSITION

SECTION A-A

SECTION B-B

SECTION C-C

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. 1/2" CEMENT MORTAR COAT REQUIRED ON ALL INSIDE AND OUTSIDE SURFACES.
3. 8" HIGH FRAME MAY BE SUBSTITUTED WITH A 4" HIGH FRAME AS NEEDED. SHOP DRAWINGS ARE REQUIRED.
4. ADJUST DOWEL LOCATION BASED ON PIPE CONFIGURATION, IF REQUIRED.
5. PIPE COVER FOR THIS DETAIL SHALL BE 1'-6" TO 3'-0".
6. USE 8" WALLS UP TO 6'-0" DEPTH, USE 1'-0" WALLS UP TO 8'-0" DEPTH.
7. TWO SINGLE FRAMES WITH THREE FLANGES AND TWIN GRATES MAY BE SUBSTITUTED FOR THE DOUBLE FRAME WITH TWIN GRATES.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION
SOLID BLOCK SHALLOW DOUBLE GRATE CATCH BASIN GRATE PERPENDICULAR TO EDGE OF PAVEMENT

JUNE 15, 1998
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. 1/2" CEMENT MORTAR PLASTER COAT REQUIRED ON ALL INSIDE AND OUTSIDE SURFACES.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

BRICK/SOLID BLOCK DROP INLET

JUNE 15, 1998

R.I. STANDARD 3.6.0
NOTE:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. 1/2" CEMENT MORTAR PLASTER COAT REQUIRED ON ALL INSIDE AND OUTSIDE SURFACES.
3. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. CIRCUMFERENTIAL STEEL REINFORCEMENT REQUIRED = 0.12 SQ. IN. / LIN. FT. MINIMUM.
3. STEEL REINFORCEMENT FOR BASE SECTION BOTTOM SHALL BE A MINIMUM OF 0.12 SQ. IN/LIN. FT. (BOTH WAYS).
4. ONE POUR MONOLITHIC BASE SECTION.
5. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW-CUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS AND CHISELS OR PNEUMATIC TOOLS WILL BE ALLOWED.
6. STEPS SHALL CONFORM TO STD. 5.3.0 AND SHALL BE INSTALLED AT THE CASTING PLANT.
7. ALTERNATE TOP SLAB IS STEEL REINFORCED TO MEET OR EXCEED H-25 LOADING (SEE STD. 4.7.2).
8. ALTERNATE TOP SLAB IS ONLY FOR USE WHEN REDUCING SECTION DOES NOT FIT BECAUSE OF STRUCTURE DEPTH.
9. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. CIRCUMFERENTIAL STEEL REINFORCEMENT REQUIRED = 0.15 SQ. IN./LIN. FT. MINIMUM.
3. STEEL REINFORCEMENT FOR BASE SECTION BOTTOM SHALL BE A MINIMUM OF 0.12 SQ. IN./LIN. FT. (BOTH WAYS).
4. ONE POUR MONOLITHIC BASE SECTION.
5. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW-CUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS AND CHISELS OR PNEUMATIC TOOLS WILL BE ALLOWED.
6. STEPS SHALL CONFORM TO STD. 5.3.0 AND SHALL BE INSTALLED AT THE CASTING PLANT.
7. ALTERNATE TOP SLAB IS STEEL REINFORCED TO MEET OR EXCEED H-25 LOADING (SEE STD. 4.7.0).
8. ALTERNATE TOP SLAB IS ONLY FOR USE WHEN REDUCING SECTION DOES NOT FIT BECAUSE OF STRUCTURE DEPTH.
9. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

PRECAST 5'-0" ROUND MANHOLE

REVISIONS
NO. BY DATE

R.I. STANDARD
4.2.1

JUNE 15, 1998
ISSUE DATE
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. CIRCUMFERENTIAL STEEL REINFORCEMENT REQUIRED = 0.15 SQ. IN./LIN. FT. MINIMUM.
3. STEEL REINFORCEMENT FOR BASE SECTION BOTTOM SHALL BE A MINIMUM OF 0.12 SQ. IN./LIN. FT. (BOTH WAYS).
4. ONE POUR MONOLITHIC BASE SECTION.
5. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW-CUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS AND CHISELS OR PNEUMATIC TOOLS WILL BE ALLOWED.
6. STEPS SHALL CONFORM TO STD. 5.3.0 AND SHALL BE INSTALLED AT THE CASTING PLANT.
7. ALTERNATE TOP SLAB IS STEEL REINFORCED TO MEET OR EXCEED H-25 LOADING (SEE STD. 4.7.2).
8. ALTERNATE TOP SLAB IS ONLY FOR USE WHEN REDUCING SECTION DOES NOT FIT BECAUSE OF STRUCTURE DEPTH.
9. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

PRECAST 6'-0" ROUND MANHOLE

R.I. STANDARD
4.2.2

JUNE 15, 1998
ISSUE DATE
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW-CUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS AND CHISELS OR PNEUMATIC TOOLS WILL BE ALLOWED.
3. THE CENTERLINE OF THE OPENING MUST BE WITHIN 2'-0" FROM THE STEPS.
4. TOP SLAB, RISER AND BASE SECTIONS HAVE BEEN REINFORCED TO MEET OR EXCEED H-25 OR HS-25 LOADINGS WITH EARTH PRESSURES INCLUDED. THIS IMPLIES THAT THE TOP SLAB, RISER AND BASE SECTIONS ARE DESIGNED FOR AXLE LOAD OF NO GREATER THAN 20 TONS.
5. THERE IS TO BE 2'-0" MINIMUM COVER ON ALL REBARS.
6. ALL REBARS ARE TO HAVE MINIMUM 2" CLEARANCE FROM OPENING.
7. STEPS SHALL CONFORM TO STD. 5.3.0 AND SHALL BE INSTALLED AT THE CASTING PLANT.
8. THE SPlice LENGTHS ON TIES ARE TO BE A MINIMUM OF 1'-7".
9. WHERE THE CLEARANCE FROM THE TOP OF THE PIPE TO THE RIM IS 9" OR LESS, PLUGS SHALL BE USED IN CONJUNCTION WITH SLOTTED HOLES. NO SLOTTED HOLE WILL BE PERMITTED WHERE THE CLEARANCE IS GREATER THAN 8". IN CASES WHERE SLOTTED HOLES ARE NOT USED AND THE WALL OPENING COMES WITHIN 1'-3" OF THE RIM, AN ADDITIONAL #8 BAR SHALL BE USED ABOVE THE OPENING THE WIDTH "C" OF THE WALL.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

PRECAST 4'-0" OR 6'-0" SQUARE MANHOLE OR CATCH BASIN

SECTION B-B

SECTION A-A
ALTERNATE TOP SLAB (SEE NOTES 10 AND 11)

ADJUST TO GRADE AS REQUIRED USING RED CLAY BRICK COURSE

FRAME AND GRATE/COVER

ROUND OR SQUARE

PIECE OPENINGS CAST TO PLAN

STEPS PER APPROVED PRODUCTS LIST

1'-0" O.C.

MORTAR ALL JOINTS TOTAL WIDTH OF WALL

D

A

B

(SEE NOTE 3)

1'-0" SEEP HOLE

9" MIN. OVERLAP (TYPE)

B

CONE SECTION

1'-0" TO 2'-0"

BASE SECTION

1'-0" MIN.

RISER SECTION (OPTIONAL)

2'-0"

AS REQUIRED

TABLE 1

| CATCH BASIN DIAMETER (D) | A | B | CIRCUMFERENTIAL STEEL REINFORCEMENT REQUIRED *
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4'-0&quot;</td>
<td>5&quot;</td>
<td>6&quot;</td>
<td>0.12 SQ. IN./LIN. FT.</td>
</tr>
<tr>
<td>5'-0&quot;</td>
<td>6&quot;</td>
<td>7&quot;</td>
<td>0.15 SQ. IN./LIN. FT.</td>
</tr>
<tr>
<td>6'-0&quot;</td>
<td>7&quot;</td>
<td>8&quot;</td>
<td>0.18 SQ. IN./LIN. FT.</td>
</tr>
</tbody>
</table>

* FOR LONGITUDINAL (VERTICAL STANDING) REINFORCEMENT REFER TO ASTM C478, ITEM 8.1.2

TABLE 1

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. SEE TABLE 1 FOR STEEL REINFORCEMENT REQUIREMENTS.
3. STEEL REINFORCEMENT FOR BASE SECTION BOTTOM SHALL BE A MINIMUM OF 0.12 SQ. IN./LIN. FT. (BOTH WAYS).
4. STEPS SHALL CONFORM TO STD. 5.3.0 AND SHALL BE INSTALLED AT THE CASTING PLANT.
5. ONE POUR MONOLITHIC BASE SECTION.
6. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW-CUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS AND CHISELS OR PNEUMATIC TOOLS WILL BE ALLOWED.
7. CORBEL MADE OF RED CLAY BRICK WILL BE PERMITTED FOR THE "CONE SECTION" OF THE 4'-0" CATCH BASIN ONLY.
8. FOR CATCH BASIN TYPES "D" AND "F" STEPS MUST BE INSTALLED ON THE CURB SIDE OF THE STRUCTURE.
9. THE CENTERLINE OF THE OPENING MUST BE WITHIN 2'-0" FROM THE STEPS.
10. ALTERNATE TOP SLAB IS STEEL REINFORCED TO MEET OR EXCEED H-25 LOADING (SEE STD. 4.7.2).
11. ALTERNATE TOP SLAB IS ONLY FOR USE WHEN REDUCING SECTION DOES NOT FIT BECAUSE OF STRUCTURE DEPTH.
12. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.

TYPE "D"  TYPE "R"  TYPE "F"

TYPE CATCH BASIN AS REQUIRED

PRECAST 4'-0", 5'-0", OR 6'-0" ROUND CATCH BASIN

RHODE ISLAND DEPARTMENT OF TRANSPORTATION
PRECAST 4'-0", 5'-0", OR 6'-0" ROUND CATCH BASIN
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. MINIMUM REQUIRED CONCRETE REINFORCEMENT = 0.12 SQ. IN./LIN. FT. (EACH WAY).
3. MINIMUM COVER ON REINFORCEMENT SHALL BE 2".

<table>
<thead>
<tr>
<th>CONCRETE TOLERANCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIMENSION</td>
</tr>
<tr>
<td>0&quot;–12&quot;</td>
</tr>
<tr>
<td>12&quot;–24&quot;</td>
</tr>
<tr>
<td>24&quot;–36&quot;</td>
</tr>
</tbody>
</table>

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

PRECAST CONCRETE DROP INLET

JUNE 15, 1998
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. MINIMUM REQUIRED CONCRETE REINFORCEMENT = 0.12 SQ. IN./LIN. FT. (EACH WAY).
3. MINIMUM COVER ON REINFORCEMENT SHALL BE 2".
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. MINIMUM REQUIRED CONCRETE REINFORCEMENT = 0.12 SQ. IN./LIN. FT. (EACH WAY).
3. MINIMUM COVER ON REINFORCEMENT SHALL BE 2".

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

PRECAST CONCRETE DROP INLET
LONGITUDINAL OUTLET

JUNE 15, 1998
ISSUE DATE
R.I. STANDARD 4.5.2
SECTION A-A

2" COVER (MIN.) ON ALL BARS

2' - 0" Ø

#6 @ 2" C.-C.

7" (TYP.) (SEE NOTE 7)

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. THE CENTERLINE OF THE OPENING MUST BE WITHIN 2'-0" FROM THE STEPS.
3. TOP SLAB HAS BEEN REINFORCED TO MEET OR EXCEED H-25 OR HS-25 LOADINGS WITH EARTH PRESSURES INCLUDED. THIS IMPLIES THAT THE TOP SLAB IS DESIGNED FOR AXLE LOADS OF NO MORE THAN 20 TONS.
4. ALL REBARS ARE TO HAVE A MINIMUM 2" CLEARANCE FROM OPENING.
5. PRECAST SECTION SHALL BE LIFTED USING APPROVED LIFTING LUGS LOCATED SUCH THAT NO DAMAGE TO THE SLAB OCCURS.
6. DOWEL HOLES IN COVER TO BE FORMED OR CORED BY THE FABRICATOR.
7. ALL REBARS IN THE BOTTOM MAT ARE #5 @ 7", BOTH WAYS, WITH 2" MINIMUM COVER, EXCEPT FOR REBARS ADJACENT TO THE OPENING. THESE REBARS SHALL BE #6 (SHOWN WITH HEAVIER LINE FOR CLARITY). REBARS IN THE TOP MAT ARE #6 BARS PLACED ADJACENT TO THE OPENING, BOTH WAYS, WITH 2" MINIMUM COVER.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

CONCRETE COVER FOR SHALLOW 4' - 0" ROUND MANHOLES

R.I. STANDARD

4.6.0

JUNE 15, 1998

ISSUE DATE
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. THE CENTERLINE OF THE OPENING MUST BE WITHIN 2'-0" FROM THE STEPS.
3. TOP SLAB HAS BEEN REINFORCED TO MEET OR EXCEED H-25 OR HS-25 LOADINGS WITH EARTH PRESSURES INCLUDED. THIS IMPLIES THAT THE TOP SLAB IS DESIGNED FOR AXLE LOADS OF NO MORE THAN 20 TONS.
4. ALL REBARS ARE TO HAVE A MINIMUM 2" CLEARANCE FROM OPENING.
5. PRECAST SECTION SHALL BE LIFTED USING APPROVED LIFTING BOLTS LOCATED SUCH THAT NO DAMAGE TO THE SLAB OCCURS.
6. DOWEL HOLES IN COVER TO BE FORMED OR CORED BY THE FABRICATOR.
7. ALL REBARS IN THE BOTTOM MAT ARE #5 @ 7', BOTH WAYS, WITH 2" MINIMUM COVER, EXCEPT FOR REBARS ADJACENT TO THE OPENING. THESE REBARS SHALL BE #6 (SHOWN WITH HEAVIER LINE FOR CLARITY). REBARS IN THE TOP MAT ARE #6 BARS PLACED ADJACENT TO THE OPENING, BOTH WAYS, WITH 2" MINIMUM COVER. 

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

CONCRETE COVER FOR SHALLOW 5'-0" ROUND MANHOLES

REVISIONS

NO. BY DATE

JUNE 15, 1998

R.I. STANDARD 4.6.1
2" MIN. COVER (TYP.)

#5 @ 1'-0" E.W., TOP

SEE ASTM SPEC.
C 478, ITEM 8.1.3

OPTIONAL LIP
(SEE NOTE 7)

#5 @ 8" E.W., BOTTOM

T/2

T/2

T=WALL THICKNESS

SECTION A-A

ASTM SPECIFICATION C478, ITEM 8.1.3

2" MIN. COVER ON ALL BARS

2" R (TYP.)

8" MIN. FOR CIRCULAR OR SQUARE OPENING

A

(2) #5, TOP

(3) #6, BOTTOM

SEE NOTE 8

PLAN

A

TONGUE AND GROOVE EDGE

(2)#5 x 4'-0" LONG DIAGONAL (TYP.
TOP AND BOTTOM)

NOTES:

1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. THIS TOP COVER IS FOR STD. 4.3.0.
3. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW-CUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS AND CHISELS OR PNEUMATIC TOOLS WILL BE ALLOWED.
4. THE CENTERLINE OF THE OPENING MUST BE WITHIN 2'-0" FROM THE STEPS.
5. TOP SLAB HAS BEEN REINFORCED TO MEET OR EXCEED H-25 OR HS-25 LOADINGS WITH EARTH PRESSURES INCLUDED. THIS IMPLIES THAT THE TOP SLAB IS DESIGNED FOR AXLE LOADS OF NO MORE THAN 20 TONS.
6. ALL REBARS ARE TO HAVE A MINIMUM 2" CLEARANCE FROM OPENING.
7. WHERE NO LIP IS PROVIDED, THE ASTM SPECIFICATION REFERECE SHALL BE IGNORED.
8. IN ALL CASES, THE CONTACT SURFACES SHALL MATCH.
9. ALL REBARS IN THE BOTTOM MAT ARE #5 @ 7" BOTH WAYS WITH 2" MINIMUM COVER, EXCEPT FOR BARE ADJACENT TO THE OPENING. THESE BARS SHALL BE (3)#6 (SHOWN WITH HEAVIER LINE FOR CLARITY). REBARS IN THE TOP MAT ARE #5 @ 1'-0" BOTH WAYS WITH 2" MINIMUM COVER, EXCEPT FOR BARS ADJACENT TO THE OPENING. THESE BARS SHALL BE (2)#5 BARS.
10. FOR DOUBLE GRATE OPENINGS, THE REBARS SURROUNDING THE OPENING IN THE BOTTOM MAT SHALL BE #7 BARS.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

TOP COVER FOR 4'-0" OR 6'-0" SQUARE CATCH BASINS AND MANHOLES

R.I. STANDARD 4.7.0

JUNE 15, 1998
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW-CUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS AND CHISELS OR PNEUMATIC TOOLS WILL BE ALLOWED.
3. THE CENTERLINE OF THE OPENING MUST BE WITHIN 2'-0" FROM THE STEPS.
4. TOP SLAB MONOLITHIC WITH RISER SECTION HAS BEEN REINFORCED TO MEET OR EXCEED H-25 OR HS-25 LOADING WITH EARTH PRESSURES INCLUDED. THIS IMPLIES THAT THE TOP SECTION IS DESIGNED FOR AXLE LOADS OF NO MORE THAN 20 TONS.
5. ALL REBARS ARE TO HAVE A 2" MINIMUM CLEARANCE FROM OPENING.
6. THE STIPED LENGTHS OF TIES ARE TO BE A MINIMUM OF 1'-8".
7. WALL WIDTHS MUST BE EQUIVALENT TO THOSE OF THE BASE SECTION.
8. ALL REBARS IN THE BOTTOM MAT ARE #5 @ 7" BOTH WAYS, WITH A 2" MINIMUM COVER, EXCEPT FOR THE REBARS ADJACENT TO THE OPENING. THESE BARS SHALL BE (3)-#8 (SHOWN WITH HEAVIER LINES FOR CLARITY). REBARS IN THE TOP MAT ARE #5 @ 1'-0" BOTH WAYS, WITH A 2" MINIMUM COVER, EXCEPT FOR THE REBARS ADJACENT TO THE OPENING. THESE BARS SHALL BE (3)-#8 BARS.
9. FOR DOUBLE GRID OPENINGS, THE REINFORCING BARS SURROUNDING THE OPENING IN THE BOTTOM MAT SHALL BE #7 BARS.
NOTES:

1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW-CUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS AND CHISELS OR PNEUMATIC TOOLS WILL BE ALLOWED.
3. THE CENTER LINE OF THE OPENING MUST BE WITHIN 2" FROM THE STEPS.
4. ALTERNATE TOP COVER IS STEEL REINFORCED TO MEET OR EXCEED H-25 OR HS-25 LOADINGS WITH EARTH PRESSURES INCLUDED. THIS IMPLIES THAT THE TOP SLAB IS DESIGNED FOR AXLE LOADS OF NO MORE THAN 20 TONS.
5. ALL REBAR SHALL HAVE A MINIMUM OF 2" CLEARANCE FROM OPENING.
6. ALL REBARS IN THE BOTTOM MAT ARE #5 @ 2", BOTH WAYS, WITH 2" MINIMUM COVER, EXCEPT FOR REBARS ADJACENT TO THE OPENING. THESE BARS SHALL BE (3)—#6 SHOWN WITH A HEAVIER LINE FOR CLARITY). REBARS IN THE TOP MAT ARE #5 @ 1’-0", BOTH WAYS, WITH 2" MINIMUM COVER, EXCEPT FOR REBARS ADJACENT TO THE OPENING. THESE BARS SHALL BE (2)—#5 BARS.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. THE CENTERLINE OF THE OPENING MUST BE WITHIN 2'-0" FROM THE STEPS.
3. TOP SLAB HAS BEEN REINFORCED TO MEET OR EXCEED H-25 OR HS-25 LOADINGS
   WITH EARTH PRESSURES INCLUDED. THIS IMPLIES THAT THE TOP SLAB IS DESIGNED
   FOR AXLE LOADS OF NO MORE THAN 20 TONS.
4. ALL REBARS ARE TO HAVE A MINIMUM 2" CLEARANCE FROM OPENING.
5. PRECAST SECTION SHALL BE LIFTED USING APPROVED LIFTING LUGS LOCATED SUCH
   THAT NO DAMAGE TO THE SLAB OCCURS.
6. DOWEL HOLES IN COVER TO BE FORMED OR CORED BY THE FABRICATOR.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

CONCRETE COVER FOR SHALLOW
TYPE "F" SQUARE CATCH BASINS

REVISIONS

NO.  BY  DATE

R.I. STANDARD

4.8.0

JUNE 15, 1998

ISSUE DATE

JOHN X. CARRIOLI  EDWARD PETERSON
CHIEF ENGINEER  CHIEF DESIGN ENGINEER
TRANSPORTATION  TRANSPORTATION

S_No. 254
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. THE CENTERLINE OF THE OPENING MUST BE WITHIN 2'-0" FROM THE STEPS.
3. TOP SLAB HAS BEEN REINFORCED TO MEET OR EXCEED H-25 OR HS-25 LOADINGS
   WITH EARTH PRESSURES INCLUDED. THIS IMPLIES THAT THE TOP SLAB IS DESIGNED
   FOR AXLE LOADS OF NO MORE THAN 20 TONS.
4. ALL REBARS ARE TO HAVE A MINIMUM 2" CLEARANCE FROM OPENING.
5. PRECAST SECTION SHALL BE LIFTED USING APPROVED LIFTING LUGS LOCATED SUCH
   THAT NO DAMAGE TO THE SLAB OCCURS.
6. DOWEL HOLES IN COVER TO BE FORMED OR CORED BY THE FABRICATOR.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

CONCRETE COVER FOR SHALLOW DOUBLE
GRATE CATCH BASINS WITH CURB

JUNE 15, 1998

R.I. STANDARD
4.8.1
#6 @ 4" EACH WAY
TOP AND BOTTOM (TYP.)
2" MIN. COVER (TYP.)

SECTION

2" COVER (MIN.)
ON ALL BARS

5'-4"

1'-8"

DOWEL DETAIL

(TWO REQUIRED FOR EACH CATCH BASIN)

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. THE CENTERLINE OF THE OPENING MUST BE WITHIN 2'-0" FROM THE STEPS.
3. TOP SLAB HAS BEEN REINFORCED TO MEET OR EXCEED H-25 OR HS-25 LOADINGS
   WITH EARTH PRESSURES INCLUDED. THIS IMPLIES THAT THE TOP SLAB IS DESIGNED
   FOR AXLE LOADS OF NO MORE THAN 20 TONS.
4. ALL REBARS ARE TO HAVE A MINIMUM 2" CLEARANCE FROM OPENING.
5. PRECAST SECTION SHALL BE LIFTED USING APPROVED LIFTING LUGS LOCATED SUCH
   THAT NO DAMAGE TO THE SLAB OCCURS.
6. DOWEL HOLES IN COVER TO BE FORMED OR CORED BY THE FABRICATOR.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

CONCRETE COVER FOR SHALLOW DOUBLE
GRATE CATCH BASINS WITHOUT CURB

R.I.
STANDARD
4.8.2

JUNE 15, 1998
ISSUE DATE
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. THE CENTERLINE OF THE OPENING MUST BE WITHIN 2'-0" FROM THE STEPS.
3. TOP SLAB HAS BEEN REINFORCED TO MEET OR EXCEED H-25 OR HS-25 LOADINGS WITH EARTH PRESSURES INCLUDED. THIS IMPLIES THAT THE TOP SLAB IS DESIGNED FOR AXLE LOADS NO GREATER THAN 20 TONS.
4. ALL REBARS ARE TO HAVE A MINIMUM 2" CLEARANCE FROM OPENING.
5. PRECAST SECTION SHALL BE LIFTED USING APPROVED LIFTING LUGS LOCATED SUCH THAT NO DAMAGE TO THE SLAB OCCURS.
6. DOWEL HOLES IN COVER TO BE FORMED OR CORED BY THE FABRICATOR.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. THE CENTERLINE OF THE OPENING MUST BE WITHIN 2'-0" FROM THE STEPS.
3. TOP SLAB HAS BEEN REINFORCED TO MEET OR EXCEED H-25 OR HS-25 LOADINGS WITH EARTH Pressures INCLUDED. THIS IMPLIES THAT THE TOP SLAB IS DESIGNED FOR AXLE LOADS OF NO MORE THAN 20 TONS.
4. ALL REBARS ARE TO HAVE A MINIMUM 2" CLEARANCE FROM OPENING.
5. PRECAST SECTION SHALL BE LIFTED USING APPROVED LIFTING LUGS LOCATED SUCH THAT NO DAMAGE TO THE SLAB OCCURS.
6. DOWEL HOLES IN COVER TO BE FORMED OR CORED BY THE FABRICATOR.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. EITHER TYPE I OR TYPE II MAY BE USED AT THE DISCRETION OF THE ENGINEER.
3. REINFORCING TO BE 4x4-W4.0 xW4.0 WELDED WIRE MESH, 2 LAYERS, HORIZONTAL AND VERTICAL (EPOXY COATED).

PLAN

SECTION A-A

ADAPTER RING

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

PRECAST CONCRETE SUMP FOR ROUND CATCH BASINS (WET AREAS)

R.I. STANDARD 5.1.0

JUNE 15, 1998

CHIEF ENGINEER
CHIEF DESIGN ENGINEER
TRANSPORTATION
TRANSPORTATION
CROSS SECTION OF MANHOLE OR CATCH BASIN

<table>
<thead>
<tr>
<th></th>
<th>4 FT. MANHOLE OR CATCH BASIN</th>
<th>5 FT. MANHOLE OR CATCH BASIN</th>
<th>6 FT. MANHOLE OR CATCH BASIN</th>
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<tr>
<td>MAX. PIPE O.D.</td>
<td>33 1/2&quot; O.D. 27&quot; R.C. PIPE</td>
<td>44&quot; O.D. 36&quot; R.C. PIPE</td>
<td>51&quot; O.D. 42&quot; R.C. PIPE</td>
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<td>STRAIGHT THRU TO 45°</td>
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<td>90° DEFLECTION</td>
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NOTE:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. THE MINIMUM DISTANCE BETWEEN PIPES ENTERING MANHOLES AND CATCH BASINS MUST BE 1'-6". THE SIZE OF THE CATCH BASIN WILL BE DETERMINED BY THE PIPE SIZE AND ENTRY ANGLE. (SEE TABLE ABOVE.)
NOTES:
1. STEPS SHALL CONFORM TO SECTION M.04 OF THE R.I. STANDARD SPECIFICATIONS.
2. CROSS SECTION AREA MAY BE REDUCED UPON SUBMISSION OF CERTIFIED LOAD TESTS.
   STEPS MUST SUPPORT 300 LBS.
3. STOCK SHOWN IS 1" SQUARE WHICH MAY BE REPLACED BY 1" DIAMETER.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

CATCH BASIN AND MANHOLE STEP

R.I. STANDARD
5.3.0

JUNE 15, 1998

CHIEF ENGINEER
TRANSPORTATION

CHIEF DESIGN ENGINEER
TRANSPORTATION

ISSUE DATE
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. COLLARS TO BE CONCRETE MASONRY AS DIRECTED.
3. 9" OF CONCRETE IN BITUMINOUS PAVED AREAS. MEET EXISTING CONCRETE IN PORTLAND CEMENT CONCRETE AREAS.
NOTES:
1. FRAME AND COVER SHALL CONFORM TO SECTION M.04 OF THE R.I.
   STANDARD SPECIFICATIONS.
2. FRAME AND COVER SEATS TO BE MACHINE FINISH.
SECTION A-A

NOTES:
1. FRAME AND COVER SHALL CONFORM TO SECTION M.04 OF THE R.I. STANDARD SPECIFICATIONS.
2. FRAME AND COVER SEATS TO BE MACHINE FINISH.
NOTE:
FRAME AND GRATE SHALL CONFORM TO SECTION M.04 OF THE R.I. STANDARD SPECIFICATIONS.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

ROUND FRAME AND COVER
LIGHT-DUTY

JUNE 15, 1998
ISSUE DATE
COVER SECTION

FRAME SECTION

NOTES:
1. FRAME AND GRATE SHALL CONFORM TO SECTION M.04 OF THE R.I. STANDARD SPECIFICATIONS.
2. FRAME AND COVER SEATS MUST HAVE MACHINE FINISH.
4TH FLANGE WHEN ORDERED

SECTION A-A

SECTION B-B

NOTE: FRAME AND GRATE SHALL CONFORM TO SECTION M.04 OF THE R.I. STANDARD SPECIFICATIONS.
SQUARE FRAME AND GRATE

FRAME AND GRATE SHALL CONFORM TO SECTION M.04 OF THE R.I. STANDARD SPECIFICATIONS.
NOTE: FRAME AND GRATE SHALL CONFORM TO SECTION M.04 OF THE R.I. STANDARD SPECIFICATIONS.
NOTES:
1. FRAME AND GRATE SHALL CONFORM TO SECTION M.04 OF THE R.I. STANDARD SPECIFICATIONS.
2. GRATES CAN BE INSTALLED IN ONLY ONE POSITION IN THE FRAME. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING FRAME FOR PROPER ORIENTATION OF GRATE.
3. ORDER 2 FLANGE FRAME WHEN USED WITH CURBING OR APRON STONE.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

HIGH CAPACITY FRAME AND GRATE
(SEE NOTE 2)

SECTION A-A

NOTES:
1. FRAME AND COVER SHALL CONFORM TO SECTION M.04 OF THE R.I. STANDARD SPECIFICATIONS.
2. THIS CORNER LEFT FOR "LEFT" GRATE, DIAGONALLY OPPOSITE CORNER FOR "RIGHT" GRATE TO FIT IN KEYED FRAME.
NOTE:
FRAME AND GRATE SHALL CONFORM TO SECTION M.04 OF THE R.I. STANDARD SPECIFICATIONS.
7/8" DIA HOLES ON 30" DIA BOLT CIRCLE

FRAME SECTION

GRATE SECTION A-A

DETAIL B

NOTES:
1. FRAME AND GRATE SHALL CONFORM TO SECTION M.04 OF THE R.I. STANDARD SPECIFICATIONS.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. MINIMUM LENGTH OF STRAIGHT OR CIRCULAR FILLER PIECES TO BE 3'–0".
3. EXPOSED SURFACES TO HAVE A SPONGE FLOAT FINISH.
4. CIRCULAR CURB IS REQUIRED ON CURVES WITH RADII OF 160’–0" OR LESS. STRAIGHT CURB TO BE USED ON CURVES OF MORE THAN 160’–0" RADIUS.
5. EXPOSED EDGES TO HAVE A 3/4" CHAMFER.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. DRAWING SHOWS TRANSITION CURB FOR ONE DIRECTION, FOR OTHER DIRECTION USE OPPOSITE HAND AND INCLUDE A 1/2" ø x 4" EPOXY COATED DOWEL.
3. EXPOSED SURFACES TO HAVE A SPONGE FLOAT FINISH.
4. EXPOSED EDGES TO HAVE A 3/4" CHAMFER.
5. LEFT AND RIGHT SECTIONS SHALL BE INSTALLED AS REQUIRED.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. DRAWING SHOWS TRANSITION CURB FOR ONE DIRECTION. FOR OTHER DIRECTION USE OPPOSITE HAND AND INCLUDE A 1/2" Ø X 4" EPOXY COATED DOWEL.
3. EXPOSED SURFACES TO HAVE A SPONGE FLOAT FINISH.
4. EXPOSED EDGES TO HAVE A 3/4" CHAMFER.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. CIRCULAR CURB IS REQUIRED ON CURVES WITH RADII OF 160’-0” OR LESS. STRAIGHT CURB TO BE USED ON CURVES OF MORE THAN 160’-0” RADIUS.
3. EXPOSED EDGES TO HAVE A 3/4” CHAMFER.
4. EXPOSED SURFACES TO HAVE A SPONGE FLOAT FINISH.
5. MINIMUM LENGTH OF STRAIGHT OR CIRCULAR CURB FILLER PIECES TO BE 3’-0” (GREATER LENGTHS PREFERRED).
Wheelchair Ramp Transition Curb Chart
Required Transition Length to Achieve 1:12 Ramp Transition Slope

Minimum Length of Transition

\[ L = \frac{6 \text{ ft.}}{(1 - (12 \times \text{RG}))} \]

Running Grade

- **1.** USE WITH STD. 7.1.3 AND 7.3.3.
- **2.** THE HIGH SIDE TRANSITION CURB LENGTH SHALL BE ROUNDED UP TO THE NEXT HALF FOOT INCREMENT.
- **3.** FOR RUNNING GRADES GREATER THAN 5%, THE LENGTH OF TRANSITION CURB SHALL BE 18 FEET.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. EXPOSED SURFACES TO HAVE A SPONGE FLOAT FINISH.
3. NO REINFORCEMENT REQUIRED.
4. EXPOSED EDGES TO HAVE A 3/4" CHAMFER.
5. SEE STD. 7.1.0 FOR DOWEL SOCKET LOCATION.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. EXPOSED SURFACES TO HAVE A SPONGE FLOAT FINISH.
3. EXPOSED EDGES TO HAVE A 3/4" CHAMFER.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

PRECAST CONCRETE INLET STONE
(FOR SQUARE CATCH BASIN)

JUNE 15, 1998
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. EXPOSED SURFACES TO HAVE A SPONGE FLOAT FINISH.
3. EXPOSED EDGES TO HAVE A 3/4" CHAMFER.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION
PRECAST CONCRETE INLET STONE
(FOR ROUND CATCH BASIN)

JUNE 15, 1998
ISSUE DATE

R.I. STANDARD
7.1.6
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. EXPOSED SURFACES TO HAVE A SPONGE FLOAT FINISH.
3. EXPOSED EDGES TO HAVE A 3/4" CHAMFER.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. EXPOSED SURFACES TO HAVE A SPONGE FLOAT FINISH.
3. EXPOSED EDGES TO HAVE A 3/4" CHAMFER.
CIRCULAR CONCRETE RAMP STONE

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. MINIMUM LENGTH OF STRAIGHT OR CIRCULAR RAMP STONE TO BE 4’—0”.
3. EXPOSED SURFACES TO HAVE A SPONGE FLOAT FINISH.
4. CIRCULAR RAMP STONE IS REQUIRED ON CURVES WITH RADII OF 160’—0” OR LESS.
   STRAIGHT RAMP STONE TO BE USED ON CURVES OF MORE THAN 160’—0” RADIUS.
5. EXPOSED EDGES TO HAVE A 3/4” CHAMFER.
6. RAMP STONE SHALL BE SET IN ACCORDANCE WITH STD. 43.3.0.
7. 12” RAMP STONE SHALL BE SET IN CONJUNCTION WITH STD. 7.1.2.
8. 18” RAMP STONE SHALL BE SET IN CONJUNCTION WITH STD. 7.1.3.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. MINIMUM LENGTH OF STRAIGHT OR CIRCULAR PIECES TO BE 3'-0".
3. EXPOSED SURFACES TO HAVE A SPONGE FLOAT FINISH.
4. EXPOSED EDGES TO HAVE A 3/4" CHAMFER.
5. CIRCULAR CURB IS REQUIRED ON CURVES WITH RADII OF 160'-0" OR LESS. STRAIGHT CURB TO BE USED ON CURVES OF MORE THAN 160'-0" RADIUS.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. EXPOSED SURFACES TO HAVE A SPONGE FLOAT FINISH.
3. EXPOSED EDGES TO HAVE A 3/4" CHAMFER.
4. DRAWING SHOWS TRANSITION CURB FOR ONE DIRECTION, FOR OTHER DIRECTION USE OPPOSITE HAND AND INCLUDE A 1/2" Ø x 4" EPOXY COATED DOWEL.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

PRECAST CONCRETE
SLOPED FACE TRANSITION CURB

JUNE 15, 1998

R.I. STANDARD
7.2.1
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. EXPOSED SURFACES TO HAVE A SPONGE FLOAT FINISH.
3. EXPOSED EDGES TO HAVE A 3/4" CHAMFER.
4. DRAWING SHOWS TRANSITION CURB FOR ONE DIRECTION. FOR OTHER DIRECTION USE OPPOSITE HAND AND INCLUDE A 1/2" Ø x 4" EPOXY COATED DOWEL.
LONGITUDINAL SECTION @ JOINT

1'-6" LOT CURB

END SECTION

LONGITUDINAL SECTION @ JOINT

2'-0" LOT CURB

END SECTION

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. 1/8" JOINTS DOWELED WITH A 3/4" Ø DOWEL 6" LONG.
3. TOP AND EXPOSED SURFACES TO H+2" TO HAVE A SPONGE FLOAT FINISH.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. ALL EXPOSED EDGES TO HAVE A 3/4" CHAMFER.
3. ALL SURFACES TO HAVE A SPONGE FLOAT FINISH.
1/2” CHAMFER

CHAMFER 1/2”

3’-0” MIN.

6” ± 1”

QUARRY SPLIT

CIRCULAR CURB

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. TOP SURFACE TO BE DRESSED BY SAW. REMAINDER MAY BE QUARRY SPLIT.
3. MINIMUM LENGTH OF STRAIGHT OR CIRCULAR PIECES TO BE 3’-0”.
4. CIRCULAR CURB IS REQUIRED ON CURVES WITH RADII OF 160'-0” OR LESS. STRAIGHT CURB TO BE USED ON CURVES OF MORE THAN 160'-0” RADIUS.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. TOP SURFACE TO BE DRESSED BY SAW. REMAINDER MAY BE QUARRY SPLIT.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. THE CONTRACTOR MAY CUT EXISTING CURB SECTIONS AS REQUIRED TO MEET THIS DETAIL AND THE R.I. STANDARD SPECIFICATIONS, WHERE OLD CURBING IS BEING REUSED.
3. TOP SURFACE TO BE DRESSED BY SAW. REMAINDER MAY BE QUARRY SPLIT.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. THE CONTRACTOR MAY CUT EXISTING CURB SECTIONS AS REQUIRED TO MEET THIS DETAIL AND THE R.I. STANDARD SPECIFICATIONS, WHERE OLD CURBING IS BEING REUSED.
3. MINIMUM LENGTH OF STRAIGHT OR CIRCULAR CURB FILLER PIECES TO BE 3’-0” (GREATER LENGTHS PREFERRED).
4. TOP SURFACE TO BE DRESSED BY SAW. REMAINDER MAY BE QUARRY SPLIT.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. TOP SURFACE TO BE DRESSED BY SAW. REMAINDER MAY BE QUARRY SPLIT.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. TOP SURFACE TO BE DRESSED BY SAW. REMAINDER MAY BE QUARRY SPLIT.
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NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. TOP SURFACE TO BE DRESSED BY SAW. REMAINDER MAY BE QUARRY SPLIT.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. TOP SURFACE TO BE DRESSED BY SAW. REMAINDER MAY BE QUARRY SPLIT.
CIRCULAR GRANITE RAMP STONE

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. TOP SURFACE TO BE DRESSED BY SAW TO PROVIDE NO-SLIP SURFACE; REMAINDER MAY BE QUARRY SPLIT.
3. MINIMUM LENGTH OF STRAIGHT OR CIRCULAR RAMP STONE TO BE 4’–0”.
4. CIRCULAR RAMP STONE IS REQUIRED ON CURVES WITH RADII OF 160’–0” OR LESS. STRAIGHT RAMP STONE TO BE USED ON CURVES OF MORE THAN 160’–0” RADIUS.
5. RAMP STONE SHALL BE SET IN ACCORDANCE WITH STD. 43.3.0 AND IN CONJUNCTION
CIRCULAR CURB

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. TOP SURFACE AND SLOPED SURFACE TO BE DRESSED BY SAW. REMAINDER TO BE QUARRY SPLIT.
3. MINIMUM LENGTH OF STRAIGHT OR CIRCULAR PIECES TO BE 3’–0”.
4. CIRCULAR CURB IS REQUIRED ON CURVES WITH RADII OF 160’–0” OR LESS. STRAIGHT CURB TO BE USED ON CURVES OF MORE THAN 160’–0” RADIUS.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. TOP SURFACE AND SLOPED SURFACE TO BE DRESSED BY SAW. REMAINDER TO BE QUARRY SPLIT.
3. DRAWING SHOWS TRANSITION CURB FOR ONE DIRECTION. FOR OTHER DIRECTION USE OPPOSITE HAND.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. TOP SURFACE AND SLOPED SURFACE TO BE DRESSED BY SAW. REMAINDER TO BE QUARRY SPLIT.
3. DRAWING SHOWS TRANSITION CURB FOR ONE DIRECTION. FOR OTHER DIRECTION USE OPPOSITE HAND.
NOTE:
SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

BITUMINOUS CONCRETE LIP CURB

R.I. STANDARD
7.5.0
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. BITUMINOUS BERM CAN BE PLACED AT THE SAME TIME THAT THE SURFACE COURSE LAYER IS PLACED ON THE PROJECT ROADWAY, OR IT CAN BE INSTALLED IN A SEPARATE OPERATION.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. CEMENT CONCRETE SHALL BE USED ONLY WHEN THE CURB IS SET AFTER THE BASE AND/OR BINDER COURSES ARE IN PLACE, OTHERWISE THE CEMENT CONCRETE WILL BE ELIMINATED AND THE GRAVEL BROUGHT UP TO BOTTOM OF THE BASE COURSE.
3" EXPOSED SAW CUT FACE
TOP OF TRUCK APRON STONE

18"
4'-0"
MINIMUM
FRONT ELEVATION

2"
SAW CUT
TOP FACE

5"
3"
3"
18"
4"
6"
END ELEVATION

RADIAL SAWCUT END
RADIAL SAWCUT END

CIRCULAR TRUCK APRON STONE
PLAN VIEW

TRUCK APRON STRUCTURE AS SPECIFIED
APRON STONE
ROAD STRUCTURE AS SPECIFIED

GRAVEL BORROW SUBBASE
MORTAR BEDDING
GRAVEL BORROW SUBBASE

18" x 6" CLASS XX CONCRETE FOUNDATION W/5X5-W5.5X5.5 WWF

GRANITE TRUCK APRON STONE
ON CONCRETE FOUNDATION

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. ALL EXPOSED SURFACES AND ALL SURFACES FIVE (5) INCHES FROM THE TOP OR BOTTOM TO BE DRESSED BY SAW; REMAINDER MAY BE QUARRY SPLIT.
3. MINIMUM LENGTH OF STRAIGHT OR CIRCULAR RAMP STONE TO BE 4'-0".
4. CIRCULAR APRON STONE IS REQUIRED ON CURVES WITH RADI OF 140'-0" OR LESS.
5. GRANITE TRUCK APRON STONES ARE TO BE USED ON ROUNDABOUTS TO TRANSITION FROM THE ROADWAY SURFACE TO THE TRUCK APRON SURFACE.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

GRANITE TRUCK APRON STONE

REVISIONS
NO. BY DATE

CHIEF ENGINEER TRANSPORTATION

MARCH 25, 2014
ISSUE DATE

R.I. STANDARD
7.7.0
NOTE:
SLOPES MAY VARY TO SUIT CONDITIONS AS PER PLANS OR ENGINEER.
NOTE:
SLOPES MAY VARY TO SUIT CONDITIONS AS PER PLANS OR ENGINEER.
NOTES:
1. SLOPES MAY VARY TO SUIT CONDITIONS AS PER PLANS OR ENGINEER.
2. RIP–RAP AND BEDDING SIZE MAY VARY. SEE CONTRACT DOCUMENTS.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 711 OF THE R.I. STANDARD SPECIFICATIONS.
2. WHEN PAVED WATERWAY IS USED AT A LOW POINT THIS ANGLE SHALL BE 90°.
LIMIT OF CLEARING

PROTECTED AREA

AREA OF DISTURBANCE

LOCATION AS DETAILED ON PLANS

HORIZONTAL BALE BINDING

EXISTING GROUND

BALED HAY OR STRAW STAKED IN PLACE WITH (2) 1"x1"x3'-0" (MIN.) STAKES

HIGHWAY SLOPE

ELEVATION

LIMIT OF CLEARING

PROTECTED AREA

AREA OF DISTURBANCE

LOCATION AS DETAILED ON PLANS

(2) 1"x1"x3'-0" (MIN.) STAKES PER BALE

BALES TO BUTT TOGETHER

WEDGE LOOSE HAY BETWEEN BALES TO MAKE A CONTINUOUS BARRIER (TYP.)

1'-6" (MIN.)

FLOW

TOE OF SLOPE

100'-0"

PLAN

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 206 OF THE R.I. STANDARD SPECIFICATIONS.
2. TO BE USED WHERE THE EXISTING GROUND SLOPES AWAY FROM THE HIGHWAY EMBANKMENT AS CALLED FOR ON PLANS.
3. AT APPROXIMATE 100'-0" INTERVALS A BALE OF HAY IS TO BUTT PERPENDICULARLY.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

BALED HAY EROSION CHECK

REVISIONS

NO. BY DATE

R.I. STANDARD 9.1.0

JUNE 15, 1998

CHIEF ENGINEER TRANSPORTATION

CHIEF DESIGN ENGINEER TRANSPORTATION

ISSUE DATE
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 206 OF THE R.I. STANDARD SPECIFICATIONS.
2. 2"x2"x4'-6"(MAX.) OAK POSTS FOR SILT FENCE SHALL BE LOCATED 8'-0" (MAX.) O.C. IN WETLAND AREAS AND 4'-0" (MAX.) O.C. IN WETLAND RAVINE, GULLY OR DROP-OFF AREAS AS SHOWN ON PLANS.
3. 1"x1"x4'-6"(MIN.) POSTS PERMITTED FOR PRE-FABRICATED SILT FENCE.
4. SILT FENCE SHALL BE INSTALLED BEFORE ANY GRUBBING OR EARTH EXCAVATION TAKES PLACE.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 206 OF THE R.I. STANDARD SPECIFICATIONS.
2. STD. 9.1.0 IS INSTALLED "TIGHT" AGAINST SILT FENCE. THOROUGHLY COMPACT EXCAVATED SOILS BACK INTO TRENCH AFTER INSTALLATION OF EROSION CONTROL DEVICE. SILT FENCE FABRIC SHALL NOT BE SLIT. STD. 9.1.0 POST SHALL BE DRIVEN THROUGH SILT FENCE FABRIC. 2"x2"x4'-6"(MAX.) OAK POST FOR SILT FENCE SHALL BE LOCATED 8'-0"(MAX.) O.C. IN WETLAND AREAS AND 4'-0"(MAX.) O.C. IN WETLAND RAVINE, GULLY OR DROP-OFF AREAS AS SHOWN ON PLANS.
3. 1"x1"x4'-6"(MIN.) POSTS PERMITTED FOR PRE-FABRICATED SILT FENCE.
4. SILT FENCE AND BALED HAY SHALL BE INSTALLED BEFORE ANY GRUBBING OR EARTH EXCAVATION TAKES PLACE.
3" EMBEDMENT (TYP.)
BALED HAY OR STRAW STAKED IN PLACE WITH (2) 1" x 1" x 3'-0" (MIN.) STAKES

HIGHWAY SLOPE

EXISTING GROUND
OVERLAP EDGES

BALED HAY OR STRAW STAKED IN PLACE WITH (2) 1" x 1" x 3'-0" (MIN.) STAKES

3" EMBEDMENT (TYP.)
OVERLAP EDGES
BALE BINDING (TYP.)

SWALE ELEVATION
DITCH ELEVATION

WEDGE LOOSE STRAW BETWEEN BALES TO CREATE A CONTINUOUS BARRIER (TYP.)

SWALE PLAN
DITCH PLAN

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 207 OF THE R.I. STANDARD SPECIFICATIONS.
2. TO BE USED IN LOCATIONS WHERE THE EXISTING GROUND SLOPES IN TOWARD THE EMBANKMENT OR IN DRAINAGE DITCHES AS CALLED FOR ON THE PLANS.
3. THE BALES ARE TO BE EMBEDDED A MINIMUM OF 3" INTO THE EXISTING GROUND, HIGHWAY SLOPE OR DITCH SECTION.
4. POINTS "A" SHOULD BE AT A HIGHER ELEVATION THAN POINTS "B".

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

REVISIONS

BALED HAY DITCH AND SWALE EROSION CHECK

R.I. STANDARD 9.4.0

JUNE 15, 1998
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 207 OF THE R.I. STANDARD SPECIFICATIONS.
2. DAM TO BE CONSTRUCTED OF NATIVE LOGS OBTAINED FROM CLEARING OPERATION, WHEN AVAILABLE. ALL LOGS TO BE SPIKED WITH WIRE SPIKES OR BOLTED TOGETHER. EXISTING TREES, BOULDERS OR LEDGE MAY BE USED IN PLACE OF THE VERTICAL POSTS AT THE DISCRETION OF THE ENGINEER.
3. WHEN VERTICAL POST CANNOT BE DRIVEN INTO THE STREAM BED, STONES SHALL BE USED TO BRACE THE STRUCTURE.
4. BALES OF HAY TO BE EMBEDDED A MINIMUM OF 6" INTO THE EXISTING GROUND. IF THE EXISTING GROUND IS LEDGE, A 2'-0" x 2'-0" WEDGE OF CRUSHED STONE IS TO BE PLACED AGAINST THE UPSTREAM FACE OF THE CHECK DAM.
5. HEIGHT OF THE DAM WILL VARY BASED ON HIGH WATER LEVEL.
ELEVATION

4 LAYERS OF SAND BAGS (MIN.)

TOP OF DITCH

5'-0" MIN.

FLOW

BOTTOM OF DITCH

TYPE R-3 RIP-RAP (UNLESS NOTED OTHERWISE ON THE PLANS)

SECTION A-A

NOTE: SHALL BE IN ACCORDANCE WITH SECTION 207 OF THE R.I. STANDARD SPECIFICATIONS.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 208 OF THE R.I. STANDARD SPECIFICATIONS.
2. PROVIDE ADDITIONAL SAND BAGS AS REQUIRED TO FILL SPACE BETWEEN ADJACENT BARRIERS.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 209 OF THE R.I. STANDARD SPECIFICATIONS.
2. THIS INLET PROTECTION CAN ALSO BE USED WHEN CONSTRUCTION SEQUENCING REQUIRES A CATCH BASIN TO BE EXPOSED TO SEDIMENT FROM THE SUBGRADE. THIS WILL BE ACHIEVED BY INSTALLING THE BALED HAY AS SHOWN ON THIS DETAIL INTO THE SUBGRADE.
3. THE PERIMETER CONFIGURATION OF THE BALED HAY WILL VARY DEPENDING ON THE PARTICULAR TYPE OF CATCH BASIN INLET BEING CONSTRUCTED. THE ENGINEER WILL PROVIDE SPECIFIC DIRECTION IN SUCH CASES.
NOTE:
SHALL BE IN ACCORDANCE WITH SECTION 211 OF THE R.I. STANDARD SPECIFICATIONS.
1. Construction shall be in accordance with Section 911 of the R.I. Standard Specifications.
2. Joints shall not exceed 1" in width.
3. Joints on the face of wall shall be pointed to the face line of the wall unless recessed joints are called for above grade.
4. Pointing of joints on top of wall shall be flush and pitched to deflect water off of the wall.
5. Dress 6" below grade for front face of wall.
6. Weep holes shall be constructed of 3" gray schedule 80 PVC pipe when H ≤ 5'-0" and 4" gray schedule 80 pipe when H > 5'-0" all pipe is to be solid.
7. Tie stones shall be placed a maximum of 4'-0" O.C.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

WET STONE MASONRY RETAINING WALL

JUNE 15, 1998
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 912 OF THE R.I. STANDARD SPECIFICATIONS.
2. TIE STONES SHALL BE PLACED A MAXIMUM OF 4'-0" O.C.
H = 2'-0" TO 5'-0"

DIMENSIONS AND QUANTITIES

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<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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H = 6'-0" TO 12'-0"

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 808 OF THE R.I. STANDARD SPECIFICATIONS.
2. USE 1/2" PREFORMED JOINT FILLER AND DEVEL EXPOSED EDGES WITH 3/4" CHAMFER.
3. SEAL BACKFACE WITH 1/4"x1/2" JOINT SEALANT.
4. SURFACE RUB EXPOSED FACE AND TOP.
5. ALL REINFORCING TO BE EPOXY COATED.
6. PROVIDE EXPANSION JOINTS EVERY 25'-0" IN STEMS.
1. SHALL BE IN ACCORDANCE WITH SECTION 911 OF THE R.I. STANDARD SPECIFICATIONS.
2. ALL EXPOSED TOP EDGES OF TREADS TO HAVE 1/2" CHAMFER (SAW OR TOOLED).
BUSH HAMMERED OR SPONGE FLOATED

CONICAL CENTER HOLE 1/2" Ø
3/4" DEEP

1/2" Ø CENTER HOLE
1" CHAMFER

1/8"
1/8"
1 5/8"

1/8"

3'-8"
#3 DEFORMED EPOXY COATED REINFORCEMENT

#8 WIRE 6" O.C.

ELEVATION

SECTION C-C

6" 2"
2"
1" CHAMFER

SECTION A-A

SECTION B-B

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 915 OF THE R.I. STANDARD SPECIFICATIONS.
2. #3 DEFORMED EPOXY COATED REINFORCEMENT TO CLEAR TOP AND BOTTOM BY 2".
3. #8 EPOXY COATED WIRE TO CLEAR TOP AND BOTTOM BY 3".
4. BOUNDS TO BE SET 6" ABOVE FINISHED GRADE, EXCEPT IN SIDEWALKS, LAWNS AND DRIVeways WHERE THEY SHALL BE SET FLUSH WITH FINISHED GRADE.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

CONCRETE HIGHWAY BOUND

REVISIONS
NO. BY DATE

JUNE 15, 1998

RI. STANDARD
14.1.0

CHIEF ENGINEER
TRANSPORTATION

CHIEF DESIGN ENGINEER
TRANSPORTATION

ISSUE DATE
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 915 OF THE R.I. STANDARD SPECIFICATIONS.
2. BOUND TO BE QUARRY SPLIT FROM FINE GRAIN GRANITE FREE FROM NATURAL
   FRACTURES, SEAMS, LAMINATIONS, CRACKS OR IMPURITIES.
3. TOP SURFACE OF BOUND TO BE DRESSED OR SAWED.
4. CONICAL DRILL HOLE IN CENTER OF TOP TO BE 1/4" Ø AND 3/4" DEEP.
5. BOTTOM TO BE AT LEAST 6" SQUARE AND FLAT.
6. LETTERS "RIHB" ON TOP TO BE OF DIMENSIONS AS SHOWN.
7. BOUNDS TO BE SET 6" ABOVE FINISHED GRADE, EXCEPT IN SIDEWALKS, LAWNS
   AND DRIVEWAYS WHERE THEY SHALL BE SET FLUSH WITH FINISHED GRADE.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

GRANITE HIGHWAY BOUND

R.I. STANDARD 14.2.0

JUNE 15, 1998

CHIEF ENGINEER
TRANSPORTATION

CHIEF DESIGN ENGINEER
TRANSPORTATION
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 915 OF THE R.I. STANDARD SPECIFICATIONS.
2. SEE STD. 14.1.0 OR STD. 14.2.0 FOR DETAILS OF BOUND.
3. 9" SQUARE HOLE, 4" DEEP TO BE CHIPPED IN LEDGE.
4. BOUNDS TO BE SET 6" ABOVE FINISHED GRADE, EXCEPT IN SIDEWALKS, LAWNS AND DRIVEWAYS WHERE THEY SHALL BE SET FLUSH WITH FINISHED GRADE.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 915 OF THE R.I. STANDARD SPECIFICATIONS.
2. MONUMENTS TO BE SET 6" ABOVE FINISHED GRADE, EXCEPT IN SIDEWALKS, LAWNS AND DRIVEWAYS WHERE THEY SHALL BE SET FLUSH WITH FINISHED GRADE.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION
REINFORCED CONCRETE PRECISE LEVEL MONUMENT

REVISIONS

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JUNE 15, 1998

14.4.0
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 915 OF THE R.I. STANDARD SPECIFICATIONS.
2. OUTER LETTERS: 1/4" HIGH
   3/64" STROKE
   1/32" INSET
3. MIDDLE LETTERS: 1/4" HIGH
   1/32" STROKE
   1/64" INSET
4. INNER LETTERS: 3/32" HIGH
   1/32" STROKE
   1/64" INSET
5. CIRCLES: 1/32" STROKE
   1/64" INSET
   CENTER PUNCHMARK— 1/32" INSET

STEEL WEDGE FOR LEDGE SHANK

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

STANDARD BENCH MARK HEADS

REVISIONS

NO.  BY  DATE

JUNE 15, 1998

R.I. STANDARD 14.4.1
NOTE:
1. SHALL BE IN ACCORDANCE WITH SECTION 915 OF THE R.I. STANDARD SPECIFICATIONS.
2. OUTER LETTERS: 1/4" HIGH
   3/64" STROKE
   1/32" INSET
3. MIDDLE LETTERS: 1/8" HIGH
   1/32" STROKE
   1/64" INSET
4. INNER LETTERS: 3/32" HIGH
   1/32" STROKE
   1/64" INSET
5. CIRCLES: 1/32" STROKE
   1/64" INSET
6. TRIANGLE: 3/64" STROKE
   1/32" INSET
   CENTER PUNCHMARK - 1/32" INSET

STEEL WEDGE FOR LEDGE SHANK

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

STANDARD MARKER
TRIANGULATION STATION

REVISIONS
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JUNE 15, 1998

R.I. STANDARD 14.4.2
NOTE:
SHALL BE IN ACCORDANCE
WITH SECTION 915 OF THE R.I.
STANDARD SPECIFICATIONS.

SECTION A-A

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

GEODETIC SURVEY DISK

R.I. STANDARD 14.4.3

REVISIONS

NO. BY DATE

JUNE 15, 1998

ISSUE DATE
NOTE:
WEDGE SHALL BE OF SEASONED OAK AND FREE OF KNOTS.
NOTE:
STAKE SHALL BE OF SEASONED OAK AND FREE OF KNOTS.
SOCKET DETAIL

SOCKET PLAN VIEW

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 917 OF THE R.I. STANDARD SPECIFICATIONS.
2. CONTRACTOR WILL REPLACE EXISTING BOX IF BOX DOES NOT CONFORM TO U.S. POSTAL SERVICE SPECIFICATIONS. CONTRACTOR SHALL USE U.S. POSTAL SERVICE BOX 1, 1A OR 2.
3. LOCATION OF POSTS TO BE SET UNDER ADVICE OF LOCAL MAIL CARRIER.
4. ALL METAL SURFACES (INCLUDING MAILBOX) AND HARDWARE SHALL BE GALVANIZED WITH A MINIMUM GALVANIZED COATING OF 1.9 MILS.
5. WHEN MORE THAN ONE SUPPORT SYSTEM IS TO BE INSTALLED, THE MINIMUM SPACING OF SUPPORT POSTS SHALL BE 3'-0".
6. USE 8-0.1875"x0.75"BOLTS WITH LOCKWASHERS FOR ALL SIZE BOXES (4 EACH SIDE).
7. USE WITH RI STANDARD DETAIL 15.1.1.
NOTES:
1. SHALL BE WHEN INSTALLING RURAL MAILBOXES RI STANDARD NOS. 15.1.0 AND 15.2.0.
2. MAILBOXES SHALL BE SET TO PROVIDE 3'–0" OF CLEARANCE BETWEEN THE BACK FACE OF MAILBOX AND BACK OF SIDEWALK OR OBSTRUCTION.
3. LOCATION OF POSTS TO BE SET UNDER ADVICE OF LOCAL MAIL CARRIER.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 917 OF THE R.I. STANDARD SPECIFICATIONS.
2. CONTRACTOR SHALL REPLACE EXISTING BOX IF IT DOES NOT CONFORM TO U.S. POSTAL
   SERVICE SPECIFICATIONS. CONTRACTOR SHALL USE U.S. POSTAL SERVICE BOX 1, 1A OR 2.
3. LOCATION OF POSTS TO BE SET UNDER THE ADVICE OF THE LOCAL MAIL CARRIER.
4. ALL METAL SURFACES (INCLUDING MAILBOX) AND HARDWARE SHALL BE GALVANIZED WITH
   A MINIMUM GALVANIZED COATING OF 1.9 MILS.
5. WHEN MORE THAN ONE SUPPORT SYSTEM IS TO BE INSTALLED THE MINIMUM SPACING
   OF THE SUPPORT POSTS SHALL BE 4'-7 1/2".
6. FOR SOCKET SYSTEM DETAILS SEE STD. 15.1.0.
7. USE WITH RI STANDARD DETAIL 15.1.1.
AMPHENOL CONNECTOR WITH SCREW COVER FOR COUNTER CABLE

6\"x6\" PRESSURE TREATED POLE

6\"x6\"x4\" PVC JUNCTION BOX WITH GASKETED COVER

PVC SCHEDULE 40 BRACKET AND SCREWS

1\" PVC SCHEDULE 40 CONDUIT TO HANDHOLE

PVC SCHEDULE 40 CONDUIT (SLOPE TO HANDHOLE)

RIDOT IDENTIFICATION NUMBER (FACING RAMP)

FRONT ELEVATION

SIDE ELEVATION
2" RIGID STEEL CONDUIT

GALVANIZED U-CLAMP

25'-0" WOOD POLE

TYPE "H" CABINET

3'-2 1/4"
3'-0"
1'-0"

3-1" DRILL HOLES
(SEE NOTE)

1'-6"

2" RIGID STEEL CONDUIT

HANDBOILE

FRONT ELEVATION

SIDE ELEVATION

NOTE:
1. TYPE "H" CABINET MUST BE LOCATED A MIN. OF 30'-0" FROM PAVED HIGHWAY SURFACE OR LOCATED BEHIND A PROTECTIVE BARRIER.
2. PROVIDE WEATHER HEAD AT TOP OF POLE.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

TRAFFIC MONITORING STATION
TYPE "H" CABINET
POST MOUNTED INSTALLATION

REVISIONS
NO. BY DATE

R.I. STANDARD
17.3.1

JUNE 15, 1998

ISSUE DATE
NOTE:
TYPE "H" CABINET MUST BE LOCATED A MINIMUM OF 30'-0" FROM PAVED HIGHWAY SURFACE OR LOCATED BEHIND A PROTECTIVE BARRIER.
NOTE:
GASKET AND/OR CAULKING TO BE APPLIED BETWEEN CABINET AND FOUNDATION TO PROVIDE A PERMANENT WEATHERTIGHT SEAL.
FAN AND THERMOSTAT

METER AND METER TRIM IF REQUIRED

POWER OUTLET BOX

TRANSFORMER (NOT REQUIRED WITH 120 VOLTAGE)

DOUBLE POLE 30 AMP CIRCUIT BREAKER AND ENCLOSURE ("MAIN")

240 OR 120 VOLTAGE SUPPLY

CABINET

NEUTRAL WIRE GROUND ROOF WITH ACORN CLAMP

DOUBLE ROW TERMINAL STRIP (40 HEADS)

2 ADJUSTABLE SHELVES (SPACED AT APPROXIMATELY 1/3 AND 2/3 CABINET HEIGHT)

COILED DETECTOR LOOP WIRE

ELECTRIC CONDUIT (2" RIGID STEEL)

LOOP CONDUIT (2" RIGID STEEL)

TELEPHONE CONDUIT (2" RIGID STEEL)

FRONT SECTION

SIDE SECTION

NOTES:
1. TRANSFORMER MUST BE WIRED TO ALLOW 120 SECONDARY VOLTAGE AT POWER OUTLET BOX.
2. WIRING SHOWN WITHOUT METER. IF METER IS REQUIRED, WIRE METER BETWEEN CONDUIT AND "MAIN."
3. 3/4" MARINE PLYWOOD TO BE USED AS BACKING TO MOUNT ACCESSORIES.
4. DOUBLE POLE BREAKER SWITCH REQUIRED FOR 220 VOLTAGE ONLY. SINGLE POLE BREAKER WITH ENCLOSURE MAY BE USED FOR 110 VOLTAGE.
5. INSTALLATION TO INCLUDE TELEPHONE JACK, PULL CHAIN LIGHT AND SURGE ARRESTER.
6. PROVIDE 60 AMP SERVICE.
FILL WITH LOOP EMBEDDING SEALER

HOLD DOWN

LOOP WIRE (NO TWISTS IN SAWCUT)

USE INSULATING BUSHING TO SEAL THE END OF THE CONDUIT AND THE HOLE THROUGH THE PAVEMENT, TO PREVENT LOOP EMBEDDING SEALER FROM ENTERING

30° TO 60° (TYP.)

FLEXIBLE PVC LIQUID TIGHT PLASTIC TUBING

LOOP WIRE (TWIST 3 TURNS PER FT. MIN.)

SLOPE 2" PVC CONDUIT TO HANDHOLE (SEE LOCATION PLANS)

NOTES:
1. DO NOT USE SHARP OBJECTS TO HOLD DOWN WIRE.
2. CURB DETAIL IS SHOWN BY DASHED LINES, RUN THE CONDUIT UNDER THE CURB.
STEP 1

FEED WIRE FROM EQUIPMENT LOCATION
ONE CIRCUMFERENCE OF LOOP WIRE

STEP 2

TWO ADDITIONAL CIRCUMFERENCES OF LOOP WIRE

STEP 3

FOURTH AND FINAL CIRCUMFERENCE OF LOOP WIRE
RETURN WIRE TO EQUIPMENT LOCATION
NOTE:
USE SHORT (2” TYP.) PIECES OF OPEN CELLED POLYURETHANE BACKER ROD FOAM SEALER STRIPS AT 2'–0" CENTERS TO HOLD LOOP WIRES IN PLACE UNTIL SEALER SETS. DO NOT USE SHARP OBJECTS TO HOLD WIRE DOWN.
NOTE:
USE SHORT (2" TYP.) PIECES OF OPEN CELLED POLYURETHANE BACKER ROD FOAM SEALER STRIPS AT 2'-0" CENTERS TO HOLD LOOP WIRES IN PLACE UNTIL SEALER SETS. DO NOT USE SHARP OBJECTS TO HOLD WIRE DOWN.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.08 OF THE R.I. STANDARD SPECIFICATIONS.
2. 2" GALVANIZED CONDUIT WITH 92° BEND AND 1"-6" RADIUS, PROJECTING 2 3/4" AS SHOWN. THREADS TO HAVE PROTECTOR.
3. BOLTS - (4) 1" Ø x 3'-0" LONG WITH 4" HOOK.
4. STD. 18.3.5 TO BE USED WITH THIS STANDARD.
5. DESIGN BOLT TENSION = 30 K.
6. FOUNDATION DESIGN IS BASED ON COMPETENT GRANULAR SOIL CONDITIONS. A SPECIAL DESIGN IS REQUIRED IF FIELD CONDITIONS VARY FROM THIS.
7. 2 3/4" PROJECTION OF RECESSED BOLT COUPLINGS (RI STD. 18.3.5). ALL GALVANIZED BOLTS ON A 11 1/2" BOLT CIRCLE SHALL BE SHIPPED WITH GALVANIZED WASHERS AND GALVANIZED HEX NUTS (BOLT THREAD IS 8NC). BOLT MATERIAL IS 55,000 PSI MIN. YIELD.
8. FOUNDATIONS MAY BE PRECAST OR CAST IN-PLACE.
1. **DESCRIPTION:** The devices shall be furnished in "sets". Each "set" shall be packaged in a corrugated box and shall contain the following:

   1. **1 EA.** Galvanized ductile iron reaction plate, 7/8" thick. Manufactured in accordance with ASTM specification A536, standard specification for ductile iron castings, as illustrated. The purpose of this device is to prevent damage to the anchor bolts when breakaway couplings are fractured and to permit leveling.

   4. **4 EA.** Gray iron breakaway couplings manufactured in accordance with ASTM specification A48, standard specification for gray iron castings, as illustrated. Dissimilar metals, such as cast aluminum, are not acceptable.

   4. **4 EA.** Zinc plated threaded studs

   12. **12 EA.** Zinc plated hex nuts

   4. **4 EA.** Plastic spacers

   12. **12 EA.** Galvanized washers

   1. **1 EA.** 0.045 gauge aluminum protective shroud

2. **SHALL BE IN ACCORDANCE WITH SECTION T.08 OF THE R.I. STANDARD SPECIFICATIONS.**

3. **THIS ITEM TO BE USED WITH STD. 18.1.0.**

4. **THIS ITEM SHALL BE INSTALLED IN ALL INSTALLATIONS, INCLUDING BEHIND GUARDRAIL UP TO 4' FROM THE BACK OF GUARDRAIL.**

---

**RHODE ISLAND DEPARTMENT OF TRANSPORTATION**

**BREAKAWAY SUPPORT COUPLINGS FOR LIGHT STANDARDS**

**R.I. STANDARD 18.1.1**

**REVISIONS**

<table>
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<th>NO.</th>
<th>BY</th>
<th>DATE</th>
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</thead>
</table>

**Chief Engineer Signature**

**Deputy Chief Engineer Signature**

**Issue Date:** JUNE 27, 2008
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.05 OF THE RI STANDARD SPECIFICATIONS.
2. COVER TO HAVE NON-SLIP DIAMOND SURFACE AND THE WORD "ELECTRIC" ON ELECTRIC HANDHOLES, "SIGNAL" ON SIGNAL HANDHOLES, AND "COMM" ON TELEPHONE HANDHOLES.
3. 4" KNOCKOUTS ARE TO BE PROVIDED ON ALL FOUR SIDES OF THE HANDHOLE. FOLLOWING CONDUIT INSTALLATION THE CONTRACTOR SHALL SEAL AROUND CONDUIT ENTRANCES WITH CEMENT.
4. MINIMUM REQUIRED CONCRETE REINFORCEMENT = 0.058 SQ. IN./LIN. FT. (EACH WAY).
5. HANDHOLE RING TO BE SET IN MORTAR OVER HANDHOLE WALL.
6. FRAME AND COVER TO BE PROVIDED WITH GROUND CONNECTOR (FASTENED WITH 3/8-16 THREADS INTO BLIND HOLE) AND WELDED NUT. BOND BOTH ITEMS TO GROUND ROD USING #6cu. BARE CONDUCTOR.
7. MAX. ADJUSTMENT FOR COVER TO FINISHED GRADE SHALL BE 3".
7. NOT INTENDED FOR USE IN ROADWAY.

MORTAR (TYP.)
#6 BARE COPPER WITH 5' OF SLACK
INSULATED BONDING BUSHINGS WITH THREADED ENDS (STEEL CONDUIT ONLY). BELL ENDS FOR PVC CONDUIT.
4" KNOCKOUT (SEE NOTE 3)
GROUT AROUND CONDUITS
CRUSHED STONE
COMPACTED GRAVEL BORROW
5/8"φx10’-0” GROUND DRIVE ROD TO SAME LEVEL AS CONDUIT

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

PRECAST TYPE "A" HANDHOLE

JUNE 15, 1998

REVISIONS

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<th>BY</th>
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NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.05 OF THE RI STANDARD SPECIFICATIONS.
2. COVER TO HAVE NON-SLIP DIAMOND SURFACE AND THE WORD "ELECTRIC" ON ELECTRIC
   HANDBOLES, "SIGNAL" ON SIGNAL HANDBOLES, AND "COMM" ON TELEPHONE HANDBOLES.
3. 4" KNOCKOUTS ARE TO BE PROVIDED ON ALL FOUR SIDES OF THE HANDBOLE. FOLLOWING
   CONDUIT INSTALLATION THE CONTRACTOR SHALL SEAL AROUND THE CONDUIT ENTRANCES
   WITH CEMENT.
4. FRAME AND COVER TO BE PROVIDED WITH GROUND CONNECTOR (FASTENED WITH 3/8-16
   THREADS INTO BLIND HOLE) AND WELDED NUT. BOND BOTH ITEMS TO GROUND ROD
   USING #6cu. BARE CONDUCTOR.
5. MAX. ADJUSTMENT FOR COVER TO FINISHED GRADE SHALL BE 3".

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

PRECAST TYPE "H"
HEAVY-DUTY HANDBOLE

REVISIONS

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<thead>
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<th>NO.</th>
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JUNE 15, 1998

R.I. STANDARD 18.2.1
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.05 OF THE RI STANDARD SPECIFICATIONS.
2. COVER TO HAVE NON-SLIP DIAMOND SURFACE AND THE WORD "ELECTRIC".
3. FRAME AND COVER TO BE PROVIDED WITH GROUND CONNECTOR (FASTENED WITH 3/8-16 THREADS INTO BLIND HOLE) AND WELDED NUT. BOND BOTH ITEMS TO GROUND ROD USING #6 CUS. BARE CONDUCTOR.
4. MAX. ADJUSTMENT FOR COVER TO FINISHED GRADE SHALL BE 3".

SECTION A-A
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.08 OF THE RI STANDARD SPECIFICATIONS.
2. SEE CONTRACT DOCUMENTS FOR SPECIFIC POLE HEIGHTS AND DAVIT CONFIGURATIONS.
3. FOR BREAKAWAY COUPLING DETAIL, SEE STD. 18.1.1.
4. SMALLER ARMS (4'-0" AND 6'-0") ALLOWED FOR RAMPS.
5. WHEN LIGHTING STANDARDS ARE INSTALLED ON BRIDGE PARAPETS, A DAMPER PAD (RUBBER) MUST BE INSTALLED BETWEEN STANDARD BASE AND CONCRETE FOUNDATION.
6. FOR INSTALLATION ON BRIDGES AND WHERE EXCESSIVE WINDS MAY BE PRESENT, CONSIDERATION IS TO BE GIVEN TO THE APPLICATION OF EXTERNAL DAMPERS ON THE DAVITS TO REDUCE VIBRATION.
NOTE:
SHALL BE IN ACCORDANCE WITH SECTION T.04 OF THE RI STANDARD SPECIFICATIONS.
NOTE:
SHALL BE IN ACCORDANCE WITH SECTION T.04 OF THE RI STANDARD SPECIFICATIONS.
NOTE:
1. SHALL BE IN ACCORDANCE WITH SECTION T.08 OF THE R.I. STANDARD SPECIFICATIONS.
2. STD. 18.3.5 TO BE USED WITH THIS STANDARD.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.08 OF THE R.I. STANDARD SPECIFICATIONS.
2. THIS STANDARD SHALL BE COORDINATED WITH STD. 18.1.0 AND 18.1.1.
3. THE HEXAGONAL COUPLINGS SHALL BE GALVANIZED AND SHALL BE ABLE TO DEVELOP THE STRENGTH OF THE 1"\(\phi\) ANCHOR BOLTS. THE BOLT LENGTH SHALL BE DETERMINED BY THE BOLT SUPPLIER AND SHALL MEET THE APPROVAL OF THE ENGINEER.
4. GALVANIZED OR STAINLESS STEEL HEX BOLTS SHALL BE USED. THEY SHALL BE ABLE TO DEVELOP THE STRENGTH OF THE 1"\(\phi\) ANCHOR BOLTS.
5. APPROVED PLUGS SHALL BE INSERTED INTO THE HEX COUPLINGS DURING CONSTRUCTION OF THE FOUNDATION.

1"\(\phi\) GALVANIZED HEX COUPLING (SEE NOTE 3)

1"\(\phi\) GALVANIZED ANCHOR BOLTS, 8 NC BOLT THREADS, 3'-0" LONG WITH 4" HOOK, 55,000 PSI MINIMUM YIELD
2" R.S. CONDUIT W/CLAMPS, STAINLESS STEEL MECHANICAL ANCHORS, AND STAINLESS STEEL BOLTS

16"x16"x8" GALV. JUNCTION BOX W/GASKETED COVER

1/2" GALV. SUPPORT ROD

3/4" PVC COATED FLEX R.S. CONDUIT WITH SEAL TIGHT CONNECTOR

XXX WATT HPS TUNNEL LUMINAIRE BOTTOM TO EXTEND 1"± BELOW BEAM (SEE NOTE 2)

TUNNEL LUMINAIRE ATTACHMENT DETAIL

16"x16"x8" GALV. JUNCTION BOX

XXX WATT HPS TUNNEL LUMINAIRE (SEE NOTE 2)

1/2" GALV. SUPPORT ROD AND STAINLESS STEEL MECHANICAL ANCHORS

2" R.S. GALV. CONDUIT SURFACE MOUNTED TO ABUTMENT FACE

SLOPED EMBANKMENT

UNDERPASS LIGHTING – VERTICAL ELEVATION

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.08 OF THE RI STANDARD SPECIFICATIONS.
2. WATTAGE TO BE SPECIFIED BASED ON EACH INDIVIDUAL APPLICATION.
3. CONDUIT SIZE, JUNCTION BOXES, EXPANSION JOINTS AND CONDUCTORS TO BE ACCORDING TO PLANS FOR EACH PROJECT.
4. MECHANICAL ANCHORS SHALL BE USED FOR OVERHEAD MOUNTING – NO EPOXY ANCHORAGE SYSTEMS ARE ALLOWED.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

UNDERPASS LIGHTING DETAIL

REVISIONS

NO. BY DATE

CHIEF ENGINEER TRANSPORTATION

DEPUTY CHIEF ENGINEER TRANSPORTATION

JUNE 27, 2008

ISSUE DATE

R.I. STANDARD 18.3.7
9"x5 1/2" LEXAN WINDOW WITH GASKET FOR PHOTO ELECTRIC CONTROL (FACING NORTH)

NEMA 3R STAINLESS STEEL CABINET BOLTED DOUBLE DOOR PADLOCK AND HASP

NEOPRENE GASKET ALL AROUND

1" CHAMFER

CONCRETE PAD (REFER TO RI STD. 18.4.6)

1" CHAMFER

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<thead>
<tr>
<th>CABINET DIMENSIONS</th>
<th>A</th>
<th>B</th>
<th>C</th>
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<tr>
<td>120/240 OR 120/208 VOLT</td>
<td>4'-0&quot; TO 4'-4&quot;</td>
<td>3'-6&quot; TO 4'-2&quot;</td>
<td>1'-2&quot; TO 2'-0&quot;</td>
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<tr>
<td>240/480 VOLT</td>
<td>4'-0&quot; TO 6'-0&quot;</td>
<td>3'-6&quot; TO 6'-0&quot;</td>
<td>2'-0&quot;</td>
</tr>
</tbody>
</table>

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.09 OF THE RI STANDARD SPECIFICATIONS.
2. PEDESTAL DIMENSIONS ARE APPROXIMATE. CONTRACTOR TO ASSURE THAT ALL COMPONENTS FIT INSIDE THE ENCLOSURE ACCORDING TO NEC REQUIREMENTS.
3. ENCLOSURE TO BE SECURED TO FOUNDATION BY USING (2) 1/2" "THUNDERSTUDS" STAINLESS STEEL BOLTS ON EACH SIDE.
NOTES:
1. SHALL BE IN ACCORDANCE WITH LATEST NEC(2005) AND WITH SECTION T.04 OF THE RI STANDARD SPECIFICATIONS.
2. #2cu. BARE GROUND WIRE 1’-0” BELOW GRADE. ALLOW 3’-0” SLACK LEADS TO BOND AT GROUNDING LUGS IN CABINET.
3. GROUND RODS MUST BE SPACED A MINIMUM OF 6’-0” FROM EACH OTHER.
2P-200 AMP WITH DOUBLE LUGS
ELECTRIC METER MAIN (200A) WITH BY-PASS SWITCH IN WATER TIGHT ENCLOSURE
2P-20 AMP BREAKER
200 AMP – 600 V. DISCONNECT SWITCH (SEE NOTE 3)
3 KVA TRANSFORMER 240/480 V.–120/240 V.
3’ MIN. TO BOTTOM OF METER
DUPLEX RECEPTACLE WITH GFI
500 WATT ELECTRIC PUMP HOUSE HEATER WITH THERMOSTAT

NOTE:
1. SHALL BE IN ACCORDANCE WITH SECTION T.09 OF THE RI STANDARD SPECIFICATIONS.
2. APPROXIMATE DIMENSION 6’-0”(MAX.) x 4’-0” x 1’-6” TO 2’-0”(MAX.).
3. DISCONNECT SWITCH TO MEET UTILITY COLD SEQUENCE REQUIREMENTS. LOCKED BY UTILITY.
4. CONTRACTOR TO INSTALL OUTGOING CONDUITS DIRECTLY UNDERNEATH EACH PANELBOARD.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

SERVICE PEDESTAL
240/480 VOLTS – 3W

REVISIONS
NO.  BY  DATE
1  MLP  6/27/08

CHIEF ENGINEER
TRANSPORTATION

CHIEF DESIGN ENGINEER
TRANSPORTATION

JUNE 15, 1998
ISSUE DATE

R.I. STANDARD
18.4.2
POWER SCHEMATIC

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.09 OF THE RI STANDARD SPECIFICATIONS.
2. ON THREE-WIRE INSTALLATIONS, TERMINAL AND JAW AT "B" MUST BE GROUNDED.
SWITCHGEAR DETAIL
FRONT VIEW

NOTE:
1. SHALL BE IN ACCORDANCE WITH SECTION T.09 OF THE RI STANDARD SPECIFICATIONS.
2. CONTRACTOR TO INSTALL OUTGOING CONDUITS DIRECTLY UNDERNEATH EACH PANELBOARD.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

SERVICE PEDESTAL
120/240 OR 120/208 VOLTS – 3W

R.I. STANDARD
18.4.4
5-TERMINAL METER SOCKET DETAIL

POWER SCHEMATIC

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.09 OF THE RI STANDARD SPECIFICATIONS.
2. ON THREE-WIRE INSTALLATIONS, TERMINAL AND JAW AT "B" MUST BE GROUNDED.
RHODE ISLAND DEPARTMENT OF TRANSPORTATION

SERVICE PEDESTAL FOUNDATION

REVISIONS

NO. BY DATE

18.4.6
#10 CU. TO JUNCTION BOX OR HANDBOJE

LINE SIDE DOUBLE RIDGE

WHITE BAND (NEUTRAL SIDE)

FUSE (5 AMP.)

LOAD SIDE SINGLE RIDGE

METAL PIN CONTRACT

WHITE BAND (NEUTRAL SIDE)

#10 CU. TO LUMINAIRE

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.04 OF THE R.I. STANDARD SPECIFICATIONS.
2. LOCATED IN HANDBOJE AT BASE OF ALUMINUM POLE.
NOTE:
INSTALL SPACERS AT APPROXIMATELY 6’ APART.

STANDARD TRENCH DETAIL

NOTE:
SHALL BE IN ACCORDANCE WITH SECTION T.06 OF THE RI STANDARD SPECIFICATIONS.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

TRENCH DETAIL FOR CONDUIT IN EXISTING ROADWAY

1  MLP  6/27/08
MATCH EXISTING PAVEMENT DEPTH WITH BITUMINOUS OR CONCRETE SURFACE COURSE

YELLOW WARNING TAPE
PLASTIC CONDUIT SPACER
3" PVC SCH. 80 CONDUITS

COMPACTED GRAVEL BORROW
UNDISTURBED EARTH

NOTE:
INSTALL SPACERS AT APPROXIMATELY 6’ APART.

TRENCH SECTION

ROAD PAVEMENT
YELLOW WARNING TAPE
CURB
GRADE

24" MIN.
12"

SECTION
TYPE "A" HANDBOILE
RIDOT 18.2.0

TYPE "H" HD HANDBOILE
RIDOT 18.2.1
OR TYPE "B" PULLBOX
RIDOT 18.2.2

NOTE:
SHALL BE IN ACCORDANCE WITH SECTON T.06 OF THE RI STANDARD SPECIFICATIONS.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

LIGHT CONDUIT — ROAD/RAMP CROSSING

REVISIONS
NO.  BY  DATE

CHIEF ENGINEER TRANSPORTATION
DEPUTY CHIEF ENGINEER TRANSPORTATION

JUNE 27, 2008
ISSUE DATE

R.I. STANDARD 18.6.1
EXPANSION JOINT DETAIL W/OUT DEFLECTION WATERTIGHT COUPLING

SWITCHGEAR DETAIL

EXPANSION JOINT DETAIL W/DEFLECTION WATERTIGHT COUPLING

NOTE: SHALL BE IN ACCORDANCE WITH SECTION T.06 OF THE RI STANDARD SPECIFICATIONS.
"V" PULLBOX NOTES:
1. FLANGE AND COVER TO BE MACHINED AT JOINT.
2. BOX TO BE U.L. LISTED.
3. BOX TO BE U.L. LISTED FOR SUBMERSIBLE USE. BOX TO BE CONSTRUCTED OF GALVANIZED STEEL WITH CAST IRON COVER.
4. PROVIDE HUBS AS REQUIRED.
5. SHALL BE IN ACCORDANCE WITH R.I. STANDARD, SPEC. T.05.
6. BOX SIZES TO BE: 24"Lx12"Wx8"D FOR 3" CONDUIT, 16"Lx12"Wx8"D FOR 2" CONDUIT.

TYPICAL SECTION AT TYPE "V" PULLBOX — WITHIN STRUCTURE

"W" PULLBOX NOTES:
1. FLANGE AND COVER TO BE MACHINED AT JOINT.
2. BOX TO BE U.L. LISTED.
3. BOX TO BE U.L. LISTED FOR SUBMERSIBLE USE. BOX TO BE CONSTRUCTED OF GALVANIZED STEEL.
4. PROVIDE HUBS AS REQUIRED.
5. SHALL BE IN ACCORDANCE WITH R.I. STANDARD, SPEC. T.05.

TYPICAL SECTION AT TYPE "W" PULLBOX — SURFACE MOUNTED
WEATHERHEAD
SECONDARY TO TRANSFORMER

PVC SCH. 40 (SEE NOTE 2)
TRANSITION COUPLING R.S./PVC

GROUND CLAMP AT TOP OF STEEL RISER

#6cu. BARE STRANDED TO GROUND ROD

RIGID STEEL CONDUIT (SEE NOTE 2)

GALVANIZED CLAMPS (SEE NOTE 2)

FINISHED GRADE

16'-0" MIN.

10±

2'-0" OR
3'-0"

2'-0"R (2" RISER) OR
3'-0"R (3" RISER)

5/8"x10'-0"
GROUNDING ROD

2" OR 3" R.S.
CONDUIT TO SERVICE PEDESTAL

RISER POLE

NOTE:
1. SHALL BE IN ACCORDANCE WITH SECTION T.06 OF THE RI STANDARD SPECIFICATIONS.
2. 2" RISER TO BE USED FOR 100 AMP SERVICE AND 3" RISER TO BE USED FOR 200 AMP SERVICE.
3. GROUND WIRE AND GROUND ROD TO BE SUPPLIED BY UTILITY.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.12 OF THE R.I. STANDARD SPECIFICATION.
2. TRAFFIC SIGNAL NUMBER TO BE STENCIL ON EXTERIOR AND INTERIOR OF ALL CABINET DOORS (GROUND AND POLE MOUNTED). STENCIL SHALL BE 3" HIGH BLOCK LETTERS APPLIED WITH BLACK PAINT.
3. SILICONE CAULKING TO BE APPLIED BETWEEN CABINET AND FOUNDATION TO PROVIDE A PERMANENT WEATHER TIGHT SEAL.
4. IN UNPAVED AREAS A 4'-0"x2'-6" PAVED WORK PAD SHALL BE PLACED IN FRONT OF THE CABINET DOOR. PAD AND FOUNDATION SHALL BE COMPLETED IN ONE POUR.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.12 OF THE R.I. STANDARD DETAILS.
2. THE CABINET SHALL BE MOUNTED SO THAT HOLES IN THE POLE FOR WIRE ACCESS FITTINGS ARE AT 90° TO THE AXIS OF POLE LOAD.
3. LOCATE BRACKETS AND ATTACHING BOLTS TO CLEAR EQUIPMENT WITHIN CABINET.
4. IN UNPAVED AREAS, A 4'-0"x2'-6"x4" PAVED WORK PAD SHALL BE PLACED IN FRONT OF THE DOOR.
5. ALL HARDWARE SHALL BE STAINLESS STEEL.
6. LINE CONDUCTORS SHALL BE PROTECTED TO THE METER.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION
POLE MOUNTED CONTROLLER INSTALLATION

JUNE 15, 1998
ISSUE DATE

REVISIONS
NO.  BY  DATE

[Signatures]
J. Capoli, Chief Engineer
E. Potts, Chief Design Engineer

19.1.1
NOTES: 1. SHALL BE IN ACCORDANCE WITH SECTION 11.11 OF THE R.I. STD. SPECIFICATIONS.
2. EQUIPMENT & LOCATIONS SHOWN ON MAST ARM ELEVATION IS FOR DESIGN PURPOSES ONLY. SEE CONTRACT PLANS FOR ACTUAL EQUIPMENT/LOCATIONS TO BE USED.
4. FOR DESIGN PURPOSES, STREET NAME SIGNS ARE 1'-6" BY 8'-0". STREET NAME SIGN MOUNTING BRACKETS SHALL BE MOUNTED SECURELY WITH STAINLESS STEEL BOLTS, AND THE MOUNTING BRACKETS SHALL BE ADJUSTABLE SUCH THAT THE FACE OF THE SIGN IS PERPENDICULAR TO THE DIRECTION OF TRAFFIC. THE MOUNTING BRACKETS SHALL HOLD THE SIGN RIGIDLY IN PLACE AND RESIST MOVEMENT IN ALL DIRECTIONS; SIGN SHALL BE LEVEL.
5. FOR DESIGN PURPOSES, VEHICLE SIGNAL HEADS SHALL INCLUDE 6" BACKPLATES.
6. SIGNAL HEAD DOOR FACE AND UNDERSIDE OF VISORS SHALL BE PAINTED FLAT BLACK.
7. SIGNAL HEADS SHALL BE PLACED ON THE MAST ARM SO THAT THE RED LENSES ARE AT ELEVATION ABOVE THE PAVEMENT SURFACE.
8. FOR DESIGN PURPOSES, ALL MAST ARMS SHALL INCLUDE A 1 WAY/4 SECTION SIGNAL HEAD AND A 2 WAY PEDESTRIAN SIGNAL HEAD MOUNTED ON THE MAST ARM POLE.
9. FOR RI-30H, O.V.D. (POS. 2) SHALL BE LOCATED 18'-6" FROM THE X OF POLE.

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<th>EQUIPMENT DESCRIPTION</th>
<th>DESIGN WEIGHT (LB)</th>
<th>FRONT AREA (SF)</th>
<th>SIDE AREA (SF)</th>
<th>ICE AREA (SF)</th>
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<td>6.0</td>
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<th>DIMENSION A (FT)</th>
<th>DESIGN SIGNAL CONFIGURATION A</th>
<th>DIMENSION B (FT)</th>
<th>DESIGN SIGNAL CONFIGURATION B</th>
<th>DIMENSION C (FT)</th>
<th>DESIGN SIGNAL CONFIGURATION C</th>
<th>DIMENSION D (FT)</th>
<th>DESIGN SIGNAL CONFIGURATION D</th>
<th>DESIGN # OF OPTICAL DETECTION EQUIP.</th>
<th>DESIGN # OF OVERHEAD VEHICLE DETECTION</th>
<th>POSITION 1</th>
<th>POSITION 2</th>
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<tr>
<td>STANDARD LOADINGS (GENERALLY SINGLE DIRECTION MAST ARMS PERPENDICULAR TO TRAFFIC FLOW)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>RI-20</td>
<td>20</td>
<td>1 WAY/3 SEC</td>
<td>12</td>
<td>1 WAY/3 SEC</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>RI-25</td>
<td>25</td>
<td>1 WAY/4 SEC</td>
<td>17</td>
<td>1 WAY/3 SEC</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>RI-30</td>
<td>30</td>
<td>1 WAY/4 SEC</td>
<td>20</td>
<td>1 WAY/3 SEC</td>
<td>10</td>
<td>1 WAY/3 SEC</td>
<td>N/A</td>
<td>N/A</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>RI-35</td>
<td>35</td>
<td>1 WAY/4 SEC</td>
<td>25</td>
<td>1 WAY/3 SEC</td>
<td>15</td>
<td>1 WAY/3 SEC</td>
<td>N/A</td>
<td>N/A</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>RI-40</td>
<td>40</td>
<td>1 WAY/4 SEC</td>
<td>30</td>
<td>1 WAY/3 SEC</td>
<td>20</td>
<td>1 WAY/3 SEC</td>
<td>N/A</td>
<td>N/A</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>RI-45</td>
<td>45</td>
<td>1 WAY/4 SEC</td>
<td>35</td>
<td>1 WAY/3 SEC</td>
<td>25</td>
<td>1 WAY/3 SEC</td>
<td>N/A</td>
<td>N/A</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>RI-50</td>
<td>50</td>
<td>1 WAY/4 SEC</td>
<td>40</td>
<td>1 WAY/3 SEC</td>
<td>30</td>
<td>1 WAY/3 SEC</td>
<td>20</td>
<td>1 WAY/3 SEC</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

| HEAVY LOADINGS (GENERALLY DIAGONAL MAST ARM) |
| RI-30H | 30 | 2 WAY/4 SEC | 20 | 2 WAY/3 SEC | N/A | N/A | N/A | N/A | 3 | 2 | 1 |
| RI-35H | 35 | 3 WAY/4 SEC | 25 | 3 WAY/3 SEC | 15 | 2 WAY/3 SEC | N/A | N/A | 3 | 2 | 2 |
| RI-40H | 40 | 3 WAY/4 SEC | 30 | 3 WAY/3 SEC | 20 | 2 WAY/3 SEC | N/A | N/A | 3 | 2 | 2 |
| RI-45H | 45 | 3 WAY/4 SEC | 35 | 3 WAY/3 SEC | 25 | 2 WAY/3 SEC | 15 | 2 WAY/3 SEC | 4 | 2 | 2 |
| RI-50H | 50 | 3 WAY/4 SEC | 40 | 3 WAY/3 SEC | 30 | 2 WAY/3 SEC | 20 | 2 WAY/3 SEC | 4 | 2 | 2 |
NOTE:
SHALL BE IN ACCORDANCE WITH SECTION T.11 OF THE R.I. STANDARD SPECIFICATIONS.
DON'T WALK

6063-T6 ALUMINUM ALLOY SHAFT WALL-TAPERED 6"x4 1/2"

SIGN

PEDESTRIAN PUSHBUTTON

TRANSFORMER BASE 356 CAST ALUMINUM ALLOY

HANDHOLE

1'-8"

2'-6"

3'-6"

BOLT CIRCLE SHALL BE DESIGNATED BY THE MANUFACTURER IN ACCORDANCE WITH THE SPECIFICATIONS

PLAN

POLE DETAIL

GALVANIZED STEEL ANCHOR BOLTS 3/4" Øx2'-1" LONG WITH 3" - 90° HOOK AND 4" THREADED END

RIGID STEEL CONDUIT AND GROUNDING BUSHING SEE PLANS FOR SIZE AND NUMBER REQUIRED

1" CHAMFER (TYP.)

FINISHED GRADE

ELEVATION

FOUNDATION DETAIL

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.11 OF THE R.I. STANDARD SPECIFICATIONS.
2. PRECAST CONCRETE FOUNDATIONS MAY BE PROVIDED AS AN ALTERNATE TO CAST IN-PLACE FOUNDATIONS.
### DESIGN TABLES

#### STEP 1

**CHOOSE SOIL CLASS USING THE SITE SPECIFIC SOIL TYPE.**

#### STEP 2

**CHOOSE THE MAST ARM TYPE FROM R.I. STD. 19.2.0 BASED ON THE MAXIMUM OF THE OVERTURNING MOMENT OR TORSION APPLIED AT THE BASE OF THE POLE.**

#### STEP 3

**DETERMINE THE SIZE, DEPTH AND REINFORCING REQUIRED FOR THE FOUNDATION. SEE R.I. STD. 19.5.0A FOR FOUNDATION DETAILS.**

<table>
<thead>
<tr>
<th>MAST ARM TYPE</th>
<th>MAST ARM LENGTH (FT)</th>
<th>LOADING</th>
<th>MAXIMUM OVERTURNING MOMENT (K-FT)</th>
<th>MAXIMUM TORSION (K-FT)</th>
<th>BOLT CIRCLE DIAMETER (IN)</th>
<th>NUMBER OF ANCHOR BOLTS</th>
<th>DIAMETER OF BOLTS (IN)</th>
<th>ANCHOR BOLT EMBEDMENT (IN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RI-20</td>
<td>20</td>
<td>STANDARD</td>
<td>61.0</td>
<td>31.0</td>
<td>17.0</td>
<td>6</td>
<td>1.5</td>
<td>42</td>
</tr>
<tr>
<td>RI-25</td>
<td>25</td>
<td>STANDARD</td>
<td>69.0</td>
<td>44.0</td>
<td>19.0</td>
<td>6</td>
<td>1.5</td>
<td>42</td>
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<tr>
<td>RI-30</td>
<td>30</td>
<td>STANDARD</td>
<td>84.0</td>
<td>56.0</td>
<td>19.0</td>
<td>6</td>
<td>1.5</td>
<td>42</td>
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<tr>
<td>RI-35</td>
<td>35</td>
<td>STANDARD</td>
<td>93.0</td>
<td>70.0</td>
<td>20.0</td>
<td>6</td>
<td>1.5</td>
<td>42</td>
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<td>RI-40</td>
<td>40</td>
<td>STANDARD</td>
<td>106.0</td>
<td>84.0</td>
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<td>6</td>
<td>1.5</td>
<td>42</td>
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<td>RI-45</td>
<td>45</td>
<td>STANDARD</td>
<td>143.0</td>
<td>119.0</td>
<td>24.0</td>
<td>6</td>
<td>1.75</td>
<td>42</td>
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<tr>
<td>RI-50</td>
<td>50</td>
<td>STANDARD</td>
<td>163.0</td>
<td>141.0</td>
<td>25.0</td>
<td>6</td>
<td>1.75</td>
<td>42</td>
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<tr>
<td>RI-30H</td>
<td>30</td>
<td>HEAVY</td>
<td>99.0</td>
<td>72.0</td>
<td>21.0</td>
<td>6</td>
<td>1.75</td>
<td>42</td>
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<td>RI-35H</td>
<td>35</td>
<td>HEAVY</td>
<td>169.0</td>
<td>133.0</td>
<td>25.0</td>
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<td>1.75</td>
<td>42</td>
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<td>HEAVY</td>
<td>198.0</td>
<td>160.0</td>
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<td>1.75</td>
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<td>RI-45H</td>
<td>45</td>
<td>HEAVY</td>
<td>262.0</td>
<td>210.0</td>
<td>26.0</td>
<td>10</td>
<td>1.75</td>
<td>42</td>
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<td>RI-50H</td>
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<td>HEAVY</td>
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<td>244.0</td>
<td>26.0</td>
<td>10</td>
<td>1.75</td>
<td>42</td>
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</tbody>
</table>

#### RHODE ISLAND DEPARTMENT OF TRANSPORTATION

**MAST ARM FOUNDATION – DESIGN TABLES**

<table>
<thead>
<tr>
<th>SOIL CLASS</th>
<th>SOIL TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>LOOSE SAND (SP, SW)</td>
</tr>
<tr>
<td></td>
<td>LOOSE SAND AND GRAVEL (GP, GW)</td>
</tr>
<tr>
<td></td>
<td>MEDIUM DENSE SILTY SAND (SM)</td>
</tr>
<tr>
<td></td>
<td>COMPACTED COMMON BORROW</td>
</tr>
<tr>
<td>2</td>
<td>MEDIUM DENSE SAND (SP, SW)</td>
</tr>
<tr>
<td></td>
<td>MEDIUM DENSE SAND AND GRAVEL (GP, GW)</td>
</tr>
<tr>
<td></td>
<td>DENSE SILTY SAND (SM)</td>
</tr>
<tr>
<td></td>
<td>COMPACTED GRAVEL BORROW</td>
</tr>
<tr>
<td>3</td>
<td>DENSE SAND (SP, SW)</td>
</tr>
<tr>
<td></td>
<td>DENSE SAND AND GRAVEL (GP, GW)</td>
</tr>
<tr>
<td></td>
<td>VERY DENSE SAND AND GRAVEL (SW, GP, GW, GLACIAL TILL)</td>
</tr>
</tbody>
</table>

#### STANDARD LOADING

<table>
<thead>
<tr>
<th>MAST ARM TYPE</th>
<th>DIA</th>
<th>DEPTH</th>
<th>DEPTH</th>
<th>VERTICALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>RI-20</td>
<td>3'-6&quot;</td>
<td>9'-0&quot;</td>
<td>9'-0&quot;</td>
<td>13-#8</td>
</tr>
<tr>
<td>RI-25</td>
<td>3'-6&quot;</td>
<td>10'-0&quot;</td>
<td>10'-0&quot;</td>
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<td>RI-30</td>
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<td>RI-40</td>
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<td>13'-0&quot;</td>
<td>13-#8</td>
</tr>
<tr>
<td>RI-45</td>
<td>3'-6&quot;</td>
<td>14'-0&quot;</td>
<td>14'-0&quot;</td>
<td>13-#8</td>
</tr>
<tr>
<td>RI-50</td>
<td>3'-6&quot;</td>
<td>15'-0&quot;</td>
<td>15'-0&quot;</td>
<td>13-#8</td>
</tr>
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</table>

#### HEAVY LOADING

<table>
<thead>
<tr>
<th>MAST ARM TYPE</th>
<th>DIA</th>
<th>DEPTH</th>
<th>DEPTH</th>
<th>VERTICALS</th>
</tr>
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<tbody>
<tr>
<td>RI-30H</td>
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<td>13-#8</td>
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<td>RI-40H</td>
<td>3'-6&quot;</td>
<td>12'-0&quot;</td>
<td>12'-0&quot;</td>
<td>13-#8</td>
</tr>
<tr>
<td>RI-45H</td>
<td>3'-6&quot;</td>
<td>13'-0&quot;</td>
<td>13'-0&quot;</td>
<td>13-#8</td>
</tr>
<tr>
<td>RI-50H</td>
<td>3'-6&quot;</td>
<td>14'-0&quot;</td>
<td>14'-0&quot;</td>
<td>13-#8</td>
</tr>
</tbody>
</table>

#### NOTES:

1. FOUNDATIONS SHALL COMPLY WITH THE DETAILS AND NOTES SHOWN ON R.I. STD. 19.5.0A AND 19.5.0C.
2. USE DEPTH IF NO GROUNDWATER IS PRESENT.
3. USE DEPTH IF GROUNDWATER IS PRESENT. FOUNDATION TABLES ARE APPLICABLE ONLY WHERE GROUNDWATER IS EQUAL TO OR GREATER THAN 5'-0" FROM THE GROUND SURFACE – SEE R.I. STD. 19.5.0C NOTE 6.
NOTES:

1. MAST ARM FOUNDATIONS SHALL BE IN ACCORDANCE WITH SECTION T.11 OF THE R.I. STANDARD SPECIFICATIONS.

2. SERVICE CONDUIT(S) FOR POLE SHALL BE CAST INTEGRAL WITH THE FOUNDATION. CONDUITS SHOWN SCHEMATICALLY. REFER TO CONTRACT PLANS FOR ACTUAL CONDUIT CONFIGURATION.

3. SOIL CLASS, SOIL TYPE AND GROUNDWATER PRESENCE SHOWN ON THE CONTRACT PLANS SHALL BE USED TO SELECT THE FOUNDATION FROM THE MAST ARM FOUNDATION DESIGN TABLES. DESIGN OF STANDARD FOUNDATIONS ARE BASED ON GRANULAR SOILS AND EXCLUDE POOR SOILS WHERE THE SPT N-VALUE IS LESS THAN 5, INCLUDING LOOSE SILTY SAND (SM), SILTS (ML), COHESIVE SOILS, MUCK, ORGANIC SOILS, MISCELLANEOUS FILLS, AND ROCK.

4. COMPACTED COMMON BORROW AND COMPACTED GRAVEL BORROW IN THE SOIL TYPE TABLE APPLY TO GRANULAR HIGHWAY EMBANKMENT FILL, IN WHICH THE TOP 3 FEET IS COMPACTED TO AT LEAST 95 PERCENT OF T180 AND MATERIAL BELOW 3 FEET IS COMPACTED TO AT LEAST 90 PERCENT OF T180.


6. FOUNDATIONS SHOWN IN THE DESIGN TABLES ARE DESIGNED FOR DRY CONDITIONS (NO GROUND WATER) AND WET CONDITIONS WHEN GROUNDWATER IS 5’-0” OR GREATER FROM THE GROUND SURFACE.

7. ALL FOUNDATIONS MUST HAVE CONES OR BARRELS BOLTED TO FOUNDATION BASES UNTIL ACTUAL POLE IS INSTALLED.


9. CONTRACTOR SHALL ENSURE THAT FINAL GRADING ALLOW RUN-OFF FROM TOP OF FOUNDATION. FOR INSTALLATIONS AT SIDEWALKS, REFER TO CONTRACT PLANS TO ENSURE TOP OF FOUNDATION WILL BE FLUSH AND WILL MATCH SLOPE AND GRADE OF PROPOSED SIDEWALK.

10. CONCRETE SHALL BE CLASS XX 3/4” $f'c = 4000$ PSI.

11. REINFORCING STEEL SHALL BE IN AASHTO DESIGNATION M31 (ASTM DESIGNATION A615) GRADE 60 AND SHALL BE GALVANIZED PER SECTION 810.

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.11 OF THE R.I. STANDARD SPECIFICATIONS.
2. M (MOMENT AT BASE) TO BE FURNISHED BY SPAN POLE FABRICATOR.
3. GROUND ROD 5/8" Ø x 10'-0" LONG, IF CONTROLLER IS POLE MOUNTED.
4. CAST FOUNDATIONS AGAINST UNDISTURBED EARTH.
5. REFERENCE STD. 19.2.0.
6. NO FOUNDATIONS TO BE PLACED IN CLAY, SILT OR MUCK.
7. M (MOMENT AT BASE) MAY BE REDUCED (DIVIDED BY 1.4) FOR LOADING COMBINATIONS CONTAINING WIND.
8. DESIGN SOIL PRESSURE 1250 PSF.
9. PRIOR TO INSTALLATION OF THE POLES, THE FOUNDATION BOLTS SHALL BE MARKED BY A TRAFFIC CONE AND DOUBLE-NUTTED TO THE ANCHOR BOLT.
10. FOUNDATION DESIGN IS BASED ON WELL GRADED GRANULAR SOIL CONDITIONS. A SPECIAL DESIGN IS REQUIRED IF FIELD CONDITIONS VARY FROM THIS.
SAW CUT CROSS SECTION IN ASPHALT

SECTION A-A
WHERE AN OVERLAY IS BEING PLACED

NOTE: USE SHORT (2" X 3") PIECE OF OPEN CELLED POLYURETHANE BACKER ROD FOAM SEALER STRIPS AT 2'-0" CENTERS TO HOLD LOOP WIRES IN PLACE UNTIL SEALER SETS. DO NOT USE SHARP OBJECTS TO HOLD WIRE DOWN.

SAW CUT CROSS SECTION IN CONCRETE OR ASPHALT

CROSSING PAVEMENT JOINTS OR CRACKS
**Note:** Place the loop wire near the center of the corner to allow the sealant to flow on both sides of wire.

**Chip out Corner**

**Core Corner**

**Corner Details**

**Detail "B"**

**Detail "C"**

**Loop Lead In At Pavement Edge**

**Detail "D"**

**Insulation高新**

**Detail "E"**

**Splice Detail**

---

**NOTE:** Shall be in accordance with Section 1.13 of the R.I. Standard Specifications.
R1 = 3'-2"
R2 = 2'-2"

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.20 OF THE R.I. STANDARD SPECIFICATIONS.
2. THE LONGITUDINAL SPACE BETWEEN WORD OR SYMBOL MESSAGES, INCLUDING ARROWS, SHOULD BE AT LEAST FOUR TIMES THE HEIGHT OF THE CHARACTER FOR LOW SPEED ROADS BUT NOT MORE THAN TEN TIMES THE HEIGHT OF THE CHARACTER UNDER ANY CONDITIONS.
3. THE SPACING OF THE PAVEMENT MARKINGS WILL BE AS SHOWN ON THE PLAN AND AS PER THE MUTCD.
4. SYMBOLS AND WORDS SHALL MEET THE REQUIREMENTS OF THE FHWA "STANDARD ALPHABET AND SYMBOLS FOR HIGHWAY PAVEMENT MARKINGS."

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKINGS
ARROWS AND ONLY

JUNE 15, 1998
20.1.0
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.20 OF THE R.I. STANDARD SPECIFICATIONS.
2. THE RAISED REFLECTIVE PAVEMENT MARKERS SHALL BE INSTALLED AFTER THE 8" ARROW HAS BEEN PLACED.
GENERAL NOTES:
1. ALL MARKINGS SHALL BE IN ACCORDANCE WITH SECTION 7.20 OF THE RI STANDARD SPECIFICATIONS.
2. ALL CROSSWALK AND STOP LINE MARKINGS SHALL BE WHITE.
3. CROSSWALK AND STOP LINE MARKINGS SHALL ONLY BE INSTALLED WHERE CALLED FOR ON THE PLANS.

CROSSWALK NOTES:
1. CROSSWALK WIDTH SHALL BE 8'-0" UNLESS OTHERWISE CALLED FOR ON THE PLANS.
2. CROSSWALK MARKINGS SHALL BE Laid OUT only AFTER MEASUREMENT OF THE ACTUAL DISTANCE BETWEEN EDGES OF PAVEMENT ALONG THE CENTERLINE OF THE PROPOSED CROSSING. THE FIRST CROSSWALK MARKING ESTABLISHED SHALL BE A 4'-0" WIDE LINE CENTERED UPON THE MIDPOINT OF THIS CENTERLINE. EACH GAP BETWEEN ADJACENT CROSSWALK LINES SHALL BE 2'-0" WIDE. THE SPACE BETWEEN EACH CROSSWALK LINE CLOSEST TO THE EDGE OF PAVEMENT AND THE LATTER MAY BE LESS THAN 2'-0" WIDE, BUT SUCH SPACES AT BOTH ENDS OF EACH INDIVIDUAL CROSSWALK SHALL BE OF EQUAL LENGTH UNLESS THE CONDITION OF NOTE 4 OR 5 APPLIES.
3. CROSSWALK LINES SHALL BE ORIENTED IN-LINE AND PARALLEL WITH THE PREDOMINANT PATH OF VEHICLES PASSING OVER THE CROSSWALK; TYPICALLY THIS WILL BE PARALLEL TO THE CURB LINE OF THE UPSTREAM ROADWAY APPROACH.
4. SHORTER SEGMENTS OF THE CROSSWALK LINE MARKINGS SHALL BE INSTALLED AT THE ENDS OF CROSSWALKS WHERE REQUIRED TO ENSURE THAT THE CROSSWALK IS MARKED OVER THE ENTIRE DISTANCE OF THE CROSSING BETWEEN EDGES OF PAVEMENT.
5. WHERE TWO CROSSWALKS MEET, THE ORIENTATION OF THE CROSSWALK LINES INSTALLED ACROSS THE MAJOR ROADWAY SHALL BE CARRIED TO THE EDGE OF PAVEMENT. THE ROADWAY RUNNING LEFT TO RIGHT IS THE MAJOR ROADWAY IN THIS DETAIL.

STOP LINE NOTES:
1. STOP LINE WIDTH SHALL BE 1'-0" UNLESS OTHERWISE CALLED FOR ON THE PLANS.
2. UNLESS OTHERWISE CALLED FOR ON THE PLANS, STOP LINES SHALL BE INSTALLED PARALLEL TO THE NEAREST MARKED CROSSWALK OR, IF NO CROSSWALK IS MARKED, PARALLEL TO THE EDGE OF THE NEAREST INTERSECTING TRAVELED WAY.
NOTES:
1. ALL MARKINGS SHALL BE IN ACCORDANCE WITH SECTION T.20 OF THE RI STANDARD SPECIFICATIONS.
2. ALL YIELD LINE MARKINGS SHALL BE WHITE.
3. YIELD LINE MARKINGS SHALL ONLY BE INSTALLED WHERE CALLED FOR ON THE PLANS.
4. THE EDGE OF TRAVEL LANE IS THE EDGE OR LANE EDGE PAVEMENT MARKING OR, WHERE NO SUCH MARKING IS PRESENT, THE EDGE OF THE PAVEMENT.
7. UNLESS OTHERWISE CALLED FOR ON THE PLANS:
   A. WHERE A MARKED CROSSWALK IS ABSENT FROM A YIELD—CONTROLLED APPROACH, THE YIELD LINE SHOULD BE PLACED AT THE LOCATION OF THE YIELD SIGN(S), BUT SHALL NOT BE PLACED MORE THAN 30°-0" NOR LESS THAN 4°-0" FROM THE NEAREST EDGE OF THE INTERSECTING TRAVEL LANE.
   B. WHERE A MARKED CROSSWALK IS PRESENT ON THE YIELD—CONTROLLED APPROACH, THE YIELD LINE SHOULD BE PLACED AT THE LOCATION OF THE YIELD SIGN(S), BUT SHALL NOT BE PLACED MORE THAN 30°-0" FROM THE NEAREST EDGE OF THE INTERSECTING TRAVEL LANE NOR LESS THAN 4°-0" IN ADVANCE OF THE NEAREST CROSSWALK LINE (OR THE NEAREST EDGE OF THE INTERSECTING TRAVEL LANE).
8. FOR YIELD LINES ON DESIGNATED BICYCLE FACILITIES, REFER TO THE PLANS FOR REDUCED—SIZE YIELD LINE TRIANGLES AND ALTERNATE LAYOUT.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.15 OF THE R.I. STANDARD SPECIFICATIONS.
2. SIGN SUPPORTS HAVE BEEN DESIGNED IN ACCORDANCE WITH AASHO SPECIFICATIONS FOR A 10-YEAR MEAN WIND RECURRENCE INTERVAL.
3. FOR INSTALLATION IN GROUND OR BITUMINOUS CONCRETE DRIVE SIGN POST ANCHOR TO REQUIRED DEPTH SO THAT THE HOE WILL MATCH TO SIGN POST ABOVE GROUND FOR THE BOLT CONNECTION, INSERT SIGN POST AND BOLT IN PLACE.
4. FOR INSTALLATION IN CONCRETE SEE STD. 25.3.0 AND FOLLOW THE PROCEDURE IN NOTE 2.
5. FOR INSTALLATION IN LEDGE LESS THAN 3'-0" BELOW GRADE SEE DETAIL ABOVE.
6. EDGE OF SIGN SHALL BE 1'-0" (MIN.) FROM EDGE OF CURB IN URBAN AREAS AND 6'-0" (MIN.) FROM EDGE OF CURB IN EDGE OF CURB IN RURAL AREAS.
7. INSTALLATION PROCEDURES SHALL BE IN ACCORDANCE WITH THE MANUFACTURER’S RECOMMENDATIONS.
8. BREAKAWAY SIGN SUPPORTS SHALL BE FABRICATED FROM STEEL AND SHALL CONFORM TO THE BREAKAWAY DESIGN SHOWN ON THIS SHEET.
9. STEEL POSTS SHALL CONFORM TO ASTM—A36, FY= 55 KSI, THE CROSS SECTION OF THE POST SHALL BE SQUARE TUBE FORMED OF 12 GAUGE (.105" U.S.S. GAUGE) COLD-ROLLED CARBON STEEL SHEETS WHICH HAVE BEEN ZINC COATED (1.25 OZ.) CONFORMING TO ASTM—A252, CAREFULLY ROLLED TO SIZE AND WELDED DIRECTLY IN THE CORNER BY HIGH FREQUENCY RESISTANCE WELDING OR EQUAL AND EXTERNALLY SCARED TO AGREE WITH CORNER RADIAL STANDARD CORNER RADIUS SHALL BE 3/32" PLUS OR MINUS 1/64".
10. ALL BOLTS SHALL CONFORM TO ASTM—A307, CLASS A.
12. FOR SIGNS GREATER THAN 32 SQ. FT., REFER TO STD. 30.1.0, 30.1.1, 30.2.0, 30.2.1, 30.3.0, 30.3.1, 30.4.0, 30.4.1, 30.4.2 AND 30.4.3.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

SIGN POST SELECTION AND INSTALLATION DETAILS
SQUARE POST (SIGNS UP TO 8'-0"Wx4'-0"H)

DETAIL "A"

* AT WEATHERED ROCK, DEPTH AS PER ENGINEER
TYPICAL POST AT Ledge
LESS THAN 3'-0" BELOW GRADE
SIGN POST SELECTION AND INSTALLATION DETAILS
U-CHANNEL POST (SIGNS UP TO 8'-0" W x 4'-0" H)

INSTALLATION PROCEDURE:
1. REMOVE A SPADE FULL OF SOIL (APPROXIMATELY 2" DEEP) FROM WHERE THE BASE POST WILL BE LOCATED.
2. DRIVE THE BASE POST IN THE CENTER OF THE HOLE JUST CREATED. TO WITHIN 4" OF GRADE LEVEL.
3. PLACE ONE BOLT AND FLAT WASHER IN THE TOP HOLE OF THE BASE POST. (IF THE TOP HOLE ON THE BASE POST, OR THE BOTTOM HOLE ON THE TOP POST IS LESS THAN 3/4" FROM END OF POST USE THE SECOND AND SIXTH HOLES.)
4. WITH THE THREADED BAR SPACER ALIGNED WITH TOP HOLE ON THE BACK SIDE OF THE BASE POST, SECURELY TIGHTEN THE BOLT TO 20 FT. LBS. OF TORQUE. REPEAT THIS PROCES FOR THE LOWER BOLT.
5. NEST THE TOP POST OVER THE PROTRUDING BOLTS ON THE BASE POST. PLACE A SELF-LOCKING FLANGE NUT ON EACH BOLT AND TIGHTEN SECURELY TO 20 FT. LBS. OF TORQUE.
6. IN TRIPLE POST INSTALLATIONS USING 4 LB./FT. POSTS IN WEAK SOIL, A 1'-0"W x 6"H SOIL PLATE IS REQUIRED.

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.15 OF THE R.I. STANDARD SPECIFICATIONS.
2. THE SIVER ANODIZED BAR SPACER IS FOR USE WITH 2, 2.5 AND 2.75 LB./FT. RIB-BAK POST GRADE SP-80 ONLY.
3. THE GOLD ANODIZED BAR SPACER IS FOR USE WITH 3 AND 4 LB./FT. RIB-BAK POST GRADE SP-80 ONLY.
4. INSTALLATION PROCEDURES SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
5. FOR SIGNS GREATER THAN 40 SQ. FT., REFER TO STD. 30.1.0, 30.1.1, 30.2.0, 30.2.1, 30.3.0, 30.3.1, 30.4.0, 30.4.1, 30.4.2 AND 30.4.3.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

JUNE 15, 1998
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 7.15 OF THE R.I. STANDARD SPECIFICATIONS.
2. USE (2) 4"x6" POSTS FOR SIGN AREAS GREATER THAN 20 SQ. FT.
3. DRILL 1 1/2" HOLE FOR 4"x6" POSTS ONLY.
4. FOR SIGNS 5'-0"x5'-0" AND LARGER USE DIAGONAL BRACING ON EACH VERTICAL POST AND 4 LAG SCREWS
5. CONSTRUCTION AND TEMPORARY SIGN PANELS SHALL BE 3/4" THICK EXTERIOR GRADE PLYWOOD OR ALUMINUM.
6. ALL SIGN SUPPORTS (INCLUDING TEMPORARY) MUST BE SUCCESSFULLY CRASH TESTED
7. FOR SIGNS GREATER THAN 60 SQ. FT., REFER TO STD. 30.1.0, 30.1.1, 30.2.0, 30.2.1, 30.3.0, 30.3.1, 30.4.0, 30.4.1, 30.4.2 AND 30.4.3.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.15 OF THE R.I. STANDARD SPECIFICATIONS.
2. THIS SIGN MOUNTING SHALL NOT REPLACE STD. 24.6.0 PARKING SIGN MOUNTING.
3. INSTALLATION SOIL, GRAVEL, OR ASPHALT CAP AND SLEDGE HAMMER. CONCRETE USE PNEUMATIC HAMMER OR CONCRETE DRILL.
4. MAXIMUM SIGN AREA 7.5 SQ. FT.
5. DOUBLE TEE EXTRUSION MAY BE ORDERED OR CUT TO EQUAL HORIZONTAL EDGE OF SIGN.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

CANTILEVER BREAKAWAY SIGN SUPPORT FOR 4'-0" TO 5'-0" SIDEWALKS

REVISIONS

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<th>BY</th>
<th>DATE</th>
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</thead>
</table>

JUNE 15, 1998

R.I. STANDARD
24.4.0

CHIEF ENGINEER
TRANSPORTATION

CHIEF DESIGN ENGINEER
TRANSPORTATION

ISSUE DATE
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.15 OF THE STANDARD SPECIFICATIONS.
2. PARKING SIGNS SHALL BE SET AT AN ANGLE OF NOT LESS THAN 30° NOR MORE THAN 45° WITH A LINE PARALLEL TO FLOW OF TRAFFIC, 1'-6" (1'-0" MIN.) FROM EDGE OF CURB FACE.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

PARKING SIGN MOUNTING DETAIL

JUNE 15, 1998

R.I. STANDARD
24.6.0
TYPICAL SIGN LOCATION

IF SIGNS ARE ON THEIR OWN SUPPORT POST, THE POST SHALL BE LOCATED NEARER TO THE MAJOR STREET AND WITHIN 5'-0" OF THE P.T. OF THE CURVE.

2'-0" + DESIRABLE
1'-0" MIN.
(SEE NOTE 3)

VARIABLE

(SEE DETAIL "A")

3/4"x0.20 STAINLESS STEEL STRAP

ALUMINUM TOP BRACKET MOUNTING

14 1/2"Lx7 1/2"H L-BRACKET OR WING TYPE

FOR SIGN POST DETAILS SEE STD. 24.1.0 OR 24.2.0

STD. 25.5.0

4'-0"

POST ANCHOR

DETAIL "A"

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.15 OF THE R.I. STANDARD SPECIFICATIONS.
2. EACH SIGN SHALL HAVE LEGEND ON BOTH SIDES.
3. POSTS SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO THE BACK OF SIDEWALK, UNLESS SPACE DOES NOT PERMIT.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.19 OR THE R.I. STANDARD SPECIFICATIONS.
2. POSTS FOR MARKERS SHALL CONFORM TO STD. 24.6.0
3. POST LENGTH FOR MILE MARKER SHALL BE 8'-0" WITH 3/8" Ø HOLES 1" O.C. FOR A LENGTH OF 2'-6" FROM TOP OF POST.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.18 OF THE R.I. STANDARD SPECIFICATIONS.
2. INSTALLATION SHALL CONFORM TO THE LATEST EDITION OF THE MUTCD.
3. MOUNT WITH 3/16" ALUMINUM DRAW RIVETS AND WASHERS OR 1/4" ALUMINUM CARRIAGE BOLTS AND WAHERS.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.18 OF THE R.I. STANDARD SPECIFICATIONS.
2. SIGN SHOWN IS FOR RIGHT BRIDGE ABUTMENT. USE OPPOSITE SIGN FOR LEFT SIDE.
3. POSTS FOR MARKERS SHALL CONFORM TO STD. 24.6.0.
1" METAL CHANNEL TO RECEIVE 1/4" OR 1/2" PLYWOOD CONSTRUCTION SIGN COVER (SEE NOTES)

1/4" SIGN COVER  

3/4" CONSTRUCTION SIGN

A) BLACK LEGEND
B) ORANGE BACKGROUND
C) BLACK BACK SIDE

DENOTES SECONDARY SIGN MESSAGE AND/OR SIGN COVER

1/2"

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 922 OR THE R.I. STANDARD SPECIFICATIONS.
2. HARD COVER – FOR DAILY COVERING OF CONSTRUCTION SIGNS AS NEEDED OR TO CHANGE SIGN MESSAGE AS NEEDED.
3. SOFT COVER – AN ALTERNATIVE TO USING A PLYWOOD SIGN COVER WILL BE A TARP COVER (NON-TRANSPARENT) WITH GROMMETS FOR THE PURPOSE OF RECEIVING A CORD OR A ROPE TO SECURE TARP COVER TO EXISTING CONSTRUCTION SIGN FACE. TARP COVER DIMENSIONS SHALL BE AT LEAST EQUAL TO THE CONSTRUCTION SIGN DIMENSIONS. THIS SOFT COVER IS SOLELY FOR THE PURPOSE OF COVERING CONSTRUCTION SIGNS, AT NO TIME SHALL SIGN MESSAGES APPEAR ON THE FACE OF THE TARP COVERS, NOR SHALL TARP COVERS BE SECURED BY TAPING OR STAPLING TO FRONT OF SIGN.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

TEMPORARY CONSTRUCTION SIGN COVER DETAIL

R.I. STANDARD
25.1.0

JUNE 15, 1998

CHIEF ENGINEER  
CHIEF DESIGN ENGINEER  
TRANSPORTATION  
TRANSPORTATION  
ISSUE DATE
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NOTES:
1. 3/4" x 6" BOARDS TO BE USED FOR FORMS FOR POST MOUNTING IN CONCRETE AND ASPHALT SIDEWALK AREAS.
2. DIMENSION "A" SHALL NOT BE LESS THAN 8".
3. AFTER INSTALLATION OF THE POST AND PROPER COMPACTION, THE HOLE SHALL BE PAVED TO MATCH THE SURROUNDING SIDEWALK.
4. THE BOX FORM SHALL BE REMOVED PRIOR TO PATCHING THE SIDEWALK AREA.
5. IN CONCRETE SIDEWALK AREAS EXPANSION JOINT MATERIAL SHALL BE PLACED BETWEEN THE NEW PATCH AND THE ADJACENT SIDEWALK AREA.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 923 OF THE R.I. STANDARD SPECIFICATIONS.
2. DIMENSIONS MAY VARY WITH MANUFACTURER’S RECOMMENDATIONS.
3. IN AREAS WHERE POSTED SPEED IS 45 MPH AND OVER ADD A 7 LB. WEIGHTED RING TO EACH CONE.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 923 OF THE R.I. STANDARD SPECIFICATIONS.
2. BASE TO BE ADAPTED FOR SANDBAG BALLAST.
3. DRUM CAN BE CYLINDRICAL OR PARTLY CYLINDRICAL WITH A FLAT SIDE.
4. DRUM SHALL BE MANUFACTURED FROM TOUGH, REBOUNDABLE PLASTIC, MADE OF HIGH DENSITY (HARD) POLYETHYLENE.
RHODE ISLAND DEPARTMENT OF TRANSPORTATION

PVC PLASTIC PIPE TYPE III BARRICADE

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 923 OF THE R.I. STANDARD SPECIFICATIONS.
2. ALL PIPE SHALL BE POLYVINYL CHLORIDE (PVC) PRESSURE RATED CLASS SDR 21 OR SDR 26 CONFORMING TO ASTM D2241 OR ASTM D2729.
4. ALL PIPES SHALL BE WHITE. WHITE FITTINGS ARE PREFERRED, BLACK MAY BE USED.
5. ALL JOINTS SHALL BE FREE TO SEPARATE UPON VEHICLE IMPACT.
6. A FIXED FRANGIBLE PAVEMENT CONNECTION PREFERRED. SAND BAGS MAY BE SUBSTITUTED.
7. STRIPES SHALL BE SLOPED DOWNWARD IN DIRECTION OF TRAFFIC TO PASS.
8. PVC PIPE SHALL BE ULTRAVIOLET LIGHT STABILIZED.
9. ATTACH PANELS WITH 1” NO. 14 PAN HEAD METAL SCREWS.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 923 OF THE R.I. STANDARD SPECIFICATIONS.
2. THE BASE AND UPRIGHT PIPE SHALL BE ROTATIONALLY MOLDED POLYETHYLENE PLASTIC CONFORMING TO ASTM D1248, CLASS A3-E4 OR CLASS II A4.
4. ALL PIPE SHALL BE WHITE AND SHALL BE ULTRAVIOLET LIGHT STABILIZED.
5. ALTERNATE ORANGE AND WHITE STRIPES SHALL BE REFLECTORIZED, 6” WIDE, SLOPED DOWNWARD IN THE DIRECTION OF TRAFFIC TO PASS.
6. THE BARRICADE RAILS SHALL BE 9”x48”x0.125” PLASTIC PANELS ATTACHED WITH 1” PLASTIC RIVETS, 4 PER RAIL.
7. THIS IS AN APPROVED ALTERNATE TO STD. 26.3.0.
8. ALL SHEETING SHALL BE TYPE IV FLEXIBLE SHEETING.
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NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 1.15 OF THE R.I. STANDARD SPECIFICATIONS.
2. " denotes TYPE III GRADE SANDING.
3. REGULATORY SIGNS SHALL BE MOUNTED IN ACCORDANCE WITH STD. 24.1.0, 24.2.0 OR 24.6.0.
4. THICKNESS OF ALUMINUM SIGN PLATES:
   LESS THAN 10 SQ. FT. - 0.001 "
   10 SQ. FT. TO 36 SQ. FT. - 0.010 "
   GREATER THAN 36 SQ. FT. - 0.012 "
5. FOR ADDITIONAL SIGNS SEE THE MUTCD.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION
REGULATORY SIGNS

REVISIONS
NO. BY DATE

JUNE 15, 1998
R.I. STANDARD 27.1.0
LEGEND/BORDER - BLACK
BACKGROUND - ORANGE (REFLECTIVE)

LEGEND/BORDER - BLACK
BACKGROUND - WHITE (REFLECTIVE)

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NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.15 OF THE R.I. STANDARD SPECIFICATIONS.
2. STANDARD: 50'-0" < 200'-0"
   RURAL: > 200'-0" < 400'-0"
   EXPRESSWAY: > 400'-0" < 800'-0"
3. WHEN INSTALLING ON JERSEY BARRIERS LESS THAN 48" WIDE, A 36"x54" SIGN DIMENSION MAY BE USED.
### RHODE ISLAND DEPARTMENT OF TRANSPORTATION

**WARNING SIGNS**

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<td>WIDTH: 30” 36” 48”</td>
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<tr>
<td>SIGN DIMENSION</td>
<td>WIDTH: 30” 36” 48”</td>
<td>HEIGHT: 30” 36” 48”</td>
<td>WIDTH: 30” 36” 48”</td>
<td>HEIGHT: 30” 36” 48”</td>
<td>WIDTH: 30” 36” 48”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SIGN NUMBER</th>
<th>W5-1</th>
<th>W5-2</th>
<th>W5-3</th>
<th>W5-4</th>
<th>W5-5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LEGEND</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIGN DIMENSION</td>
<td>WIDTH: 30” 36” 48”</td>
<td>HEIGHT: 30” 36” 48”</td>
<td>WIDTH: 30” 36” 48”</td>
<td>HEIGHT: 30” 36” 48”</td>
<td>WIDTH: 30” 36” 48”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SIGN NUMBER</th>
<th>* W10-1</th>
<th>W11a-2</th>
<th>W11-2</th>
<th>W11-3</th>
<th>W12-1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LEGEND</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIGN DIMENSION</td>
<td>WIDTH: 36” 48”</td>
<td>HEIGHT: 30” 36” 48”</td>
<td>WIDTH: 30” 36” 48”</td>
<td>HEIGHT: 30” 36” 48”</td>
<td>WIDTH: 30” 36” 48”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SIGN NUMBER</th>
<th>W13-1</th>
<th>W13-2</th>
<th>W13-3</th>
<th>W14-1</th>
<th>W14-3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LEGEND</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIGN DIMENSION</td>
<td>WIDTH: 18” 24”</td>
<td>HEIGHT: 18” 24”</td>
<td>WIDTH: 24” 30” 48”</td>
<td>HEIGHT: 24” 30” 48”</td>
<td>WIDTH: 24” 30” 48”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SIGN NUMBER</th>
<th>* HAZARD MARKER</th>
<th>S1-1</th>
<th>S2-1</th>
<th>* E3-1 (R OR L)</th>
<th>* E3-1a (R OR L)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LEGEND</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIGN DIMENSION</td>
<td>WIDTH: 24” 30” 36” 48”</td>
<td>HEIGHT: 30” 36” 48”</td>
<td>WIDTH: 30” 36” 48”</td>
<td>HEIGHT: 30” 36” 48”</td>
<td>WIDTH: 24” 30” 48”</td>
</tr>
</tbody>
</table>

**NOTES:**

1. SHALL BE IN ACCORDANCE WITH SECTION 7.15 OF THE R.I. STANDARD SPECIFICATIONS.
2. * DENOTES TYPE 3E. GRAY SHEETING. IF USED WITHIN WORK ZONE, USE TYPE 2E SHEETING.
3. WARNING SIGNS SHALL BE MOUNTED IN ACCORDANCE WITH STD. 24-1.0, 24-2.0 OR 24-6.4.
4. FOR ADDITIONAL SIGNS SEE THE MUTCD.
**LEGEND**

<table>
<thead>
<tr>
<th>SIGN NUMBER</th>
<th>W21-4</th>
<th>W20-2</th>
<th>W20-3</th>
<th>W20-4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>COLOR</strong></td>
<td>COPY</td>
<td>COPY</td>
<td>COPY</td>
<td>COPY</td>
</tr>
<tr>
<td><strong>BACKGROUND</strong></td>
<td>ORANGE</td>
<td>ORANGE</td>
<td>ORANGE</td>
<td>ORANGE</td>
</tr>
<tr>
<td><strong>DIMENSION</strong></td>
<td>WIDTH: 30&quot; 36&quot; 48&quot; 96&quot;</td>
<td>WIDTH: 30&quot; 36&quot; 48&quot; 96&quot;</td>
<td>WIDTH: 30&quot; 36&quot; 48&quot; 96&quot;</td>
<td>WIDTH: 30&quot; 36&quot; 48&quot; 96&quot;</td>
</tr>
<tr>
<td></td>
<td>HEIGHT: 30&quot; 36&quot; 48&quot; 96&quot;</td>
<td>HEIGHT: 30&quot; 36&quot; 48&quot; 96&quot;</td>
<td>HEIGHT: 30&quot; 36&quot; 48&quot; 96&quot;</td>
<td>HEIGHT: 30&quot; 36&quot; 48&quot; 96&quot;</td>
</tr>
</tbody>
</table>

**NOTE:**

1. SHALL BE IN ACCORDANCE WITH SECTION 922 OF THE R.I. STANDARD SPECIFICATIONS.
2. LEGEND ON W20-SERIES SHALL INDICATE DISTANCE AS FOLLOWS: 1500 FT 1/2 MILE
   1000 FT 1 MILE
   500 FT AHEAD

**EXAMPLE:** W20-2a = DETOUR 1500 FT

3. * DENOTES TYPE V GRADE SHEETING.
4. CONSTRUCTION SIGNS SHALL BE MOUNTED IN ACCORDANCE WITH STD. 24.1.0, 24.2.0 OR 24.3.0.
5. FOR ADDITIONAL SIGNS SEE THE MUTCD.
Property of
The State of Rhode Island
Department of Transportation
TRESPASSERS WILL BE PROSECUTED
UNITED STATES GOVERNMENT
FEDERAL HIGHWAY ADMINISTRATION

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 922 OF THE R.I. STANDARD SPECIFICATIONS.
2. SIGN SHALL BE 3/4" EXTERIOR MARINE PLYWOOD OR ALUMINUM (THICKNESS = 0.081").
3. SIGN SHALL HAVE A WHITE REFOCTORIZED BACKGROUND WITH A BLUE LEGEND AND LIGHT BLUE STATE SEAL.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION
FIELD OFFICE IDENTIFICATION SIGN

R.I. STANDARD
29.1.1

REVISIONS
NO. BY DATE

JUNE 15, 1998
ISSUE DATE
<table>
<thead>
<tr>
<th>SIGN NUMBER</th>
<th>M1-1</th>
<th>M1-4</th>
<th>M1-5 (SEE NOTE 1)</th>
<th>M2-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEGEND</td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
</tr>
<tr>
<td>COLOR</td>
<td>BACKGROUND</td>
<td>STANDARD INTERSTATE COLORS</td>
<td>BACKGROUND</td>
<td>STANDARD INTERSTATE COLORS</td>
</tr>
<tr>
<td>COLOR</td>
<td>WHITE</td>
<td>BLACK</td>
<td>WHITE</td>
<td>BLACK</td>
</tr>
<tr>
<td>DIMENSION</td>
<td>WIDTH</td>
<td>24&quot;, 36&quot;, 48&quot;</td>
<td>30&quot;, 45&quot;, 60&quot;</td>
<td>24&quot;, 24&quot;, 30&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SIGN NUMBER</th>
<th>M3-1, 2, 3, 4 (SEE NOTE 3)</th>
<th>M4-5</th>
<th>M4-6</th>
<th>M4-7, 8, 9</th>
<th>M4-10 (R OR L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEGEND</td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
</tr>
<tr>
<td>COLOR</td>
<td>BACKGROUND</td>
<td>WHITE</td>
<td>BLUE</td>
<td>WHITE</td>
<td>BLUE</td>
</tr>
<tr>
<td>COLOR</td>
<td>COPY</td>
<td>BLACK</td>
<td>WHITE</td>
<td>BLACK</td>
<td>WHITE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SIGN NUMBER</th>
<th>M5-1 (R OR L)</th>
<th>M5-2 (R OR L)</th>
<th>M5-1 (R OR L)</th>
<th>M5-2 (R OR L)</th>
<th>M5-1 (R OR L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEGEND</td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
</tr>
<tr>
<td>COLOR</td>
<td>BACKGROUND</td>
<td>WHITE</td>
<td>WHITE</td>
<td>BLUE</td>
<td>BLUE</td>
</tr>
<tr>
<td>COLOR</td>
<td>COPY</td>
<td>BLACK</td>
<td>WHITE</td>
<td>BLACK</td>
<td>WHITE</td>
</tr>
<tr>
<td>DIMENSION</td>
<td>WIDTH</td>
<td>21&quot;</td>
<td>21&quot;</td>
<td>21&quot;</td>
<td>21&quot;</td>
</tr>
<tr>
<td></td>
<td>HEIGHT</td>
<td>15&quot;</td>
<td>15&quot;</td>
<td>15&quot;</td>
<td>15&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SIGN NUMBER</th>
<th>M6-1 (R OR L)</th>
<th>M6-2 (R OR L)</th>
<th>M6-3</th>
<th>M6-4</th>
<th>M6-1 (R OR L)</th>
</tr>
</thead>
<tbody>
<tr>
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<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
</tr>
<tr>
<td>COLOR</td>
<td>BACKGROUND</td>
<td>WHITE</td>
<td>WHITE</td>
<td>BLUE</td>
<td>BLUE</td>
</tr>
<tr>
<td>COLOR</td>
<td>COPY</td>
<td>BLACK</td>
<td>BLACK</td>
<td>WHITE</td>
<td>WHITE</td>
</tr>
<tr>
<td>DIMENSION</td>
<td>WIDTH</td>
<td>21&quot;</td>
<td>21&quot;</td>
<td>21&quot;</td>
<td>21&quot;</td>
</tr>
<tr>
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<td>HEIGHT</td>
<td>15&quot;</td>
<td>15&quot;</td>
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</table>

<table>
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<tr>
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<th>M7-1</th>
<th>M7-2</th>
<th>M7-3</th>
<th>M7-4</th>
<th>M7-5</th>
<th>M7-6</th>
<th>M7-7</th>
<th>M7-8</th>
<th>M7-9</th>
<th>M7-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEGEND</td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
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<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
</tr>
<tr>
<td>COLOR</td>
<td>BACKGROUND</td>
<td>BLUE</td>
<td>WHITE</td>
<td>BLUE</td>
<td>BLUE</td>
<td>GREEN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COLOR</td>
<td>COPY</td>
<td>BLACK</td>
<td>WHITE</td>
<td>BLACK</td>
<td>WHITE</td>
<td>WHITE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIMENSION</td>
<td>WIDTH</td>
<td>21&quot;</td>
<td>21&quot;</td>
<td>24&quot;x4&quot;</td>
<td>24&quot;x4&quot;</td>
<td>10&quot;</td>
<td>10&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>HEIGHT</td>
<td>15&quot;</td>
<td>15&quot;</td>
<td>24&quot;x8&quot; (PLAQUE)</td>
<td>24&quot;x8&quot; (PLAQUE)</td>
<td>15&quot;</td>
<td>15&quot;</td>
<td></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>SIGN NUMBER</th>
<th>D10-3</th>
<th>D10-4</th>
<th>D10-5</th>
<th>D11-1</th>
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<tbody>
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<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
</tr>
<tr>
<td>COLOR</td>
<td>BACKGROUND</td>
<td>GREEN</td>
<td>GREEN</td>
<td>GREEN</td>
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<td>12&quot;</td>
<td>12&quot;</td>
<td>24&quot;x18&quot;</td>
</tr>
<tr>
<td></td>
<td>HEIGHT</td>
<td>24&quot;</td>
<td>36&quot;</td>
<td>24&quot;x8&quot; (PLAQUE)</td>
</tr>
</tbody>
</table>

**NOTES:**
1. SHALL BE IN ACCORDANCE WITH SECTIONS T.15 OF THE R.I. STANDARD SPECIFICATIONS.
2. SIGN M1-4:
   A. LEGEND RI SHALL BE 4" SERIES D.
   B. ONE NUMERAL SHALL BE 12" SERIES E.
   C. TWO OR THREE NUMERALS SHALL BE 12" SERIES D.
   D. BORDER - 5/8" BLACK, 3/8" WHITE.
   E. RADIUS - 1 1/2".
   F. POST LENGTH SHALL BE 8"-0" FOR MP SIGNS.
3. M3-5 SERIES WIDTH SAME AS M1-5 SERIES WIDTH.
4. D10-3A MILE TENTH'S USE 24.6.3.
5. GUIDE SIGNS SHALL BE MOUNTED IN ACCORDANCE WITH STD. 24.1.0, 24.2.0, 24.6.2 OR 24.6.3.
6. FOR ADDITIONAL SIGNS SEE THE MUTCD.

**REVISIONS**

<table>
<thead>
<tr>
<th>NO.</th>
<th>BY</th>
<th>DATE</th>
</tr>
</thead>
</table>

**RHODE ISLAND DEPARTMENT OF TRANSPORTATION**

**GUIDE SIGNS**

**R.I. STANDARD**

29.2.0

JUNE 15, 1998
Determine required values of:  
W = Maximum width of sign  
H = Maximum height of sign  
L = Maximum distance between top of footing and center line of sign

Enter the post selection table with maximum value of "L" and required values of "W" and "H" for selection of post sign. For sign sizes between those values of "W", "H" and "L" in the table, use next higher foot value.
<table>
<thead>
<tr>
<th>H</th>
<th>L</th>
<th>WEIGHT OF SIGN (LB)</th>
<th>POST ASSEMBLY TABLE FOR BREAKAWAY SIGNS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>80 MPH WIND — 2 POST — ASTM A36 STEEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>POST SELECTION TABLE FOR BREAKAWAY SIGNS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(SIGNS 6'-0&quot;WX4'-0&quot;H AND GREATER)</td>
</tr>
<tr>
<td>(13)</td>
<td>(FT.)</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8</td>
<td>6</td>
<td>W</td>
<td>X</td>
</tr>
<tr>
<td>8</td>
<td>6</td>
<td>W</td>
<td>X</td>
</tr>
<tr>
<td>10</td>
<td>12</td>
<td>W</td>
<td>X</td>
</tr>
<tr>
<td>14</td>
<td>18</td>
<td>W</td>
<td>X</td>
</tr>
<tr>
<td>16</td>
<td>20</td>
<td>W</td>
<td>X</td>
</tr>
<tr>
<td>8</td>
<td>12</td>
<td>W</td>
<td>X</td>
</tr>
<tr>
<td>10</td>
<td>16</td>
<td>W</td>
<td>X</td>
</tr>
<tr>
<td>12</td>
<td>18</td>
<td>W</td>
<td>X</td>
</tr>
<tr>
<td>14</td>
<td>20</td>
<td>W</td>
<td>X</td>
</tr>
</tbody>
</table>

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

POST SELECTION TABLE FOR BREAKAWAY SIGNS
(SIGNS 6'-0"WX4'-0"H AND GREATER)

REVISIONS

NO. | BY | DATE

JUNE 15, 1998

R.I. STANDARD

30.1-1
**SECTION A-A**

**FOUNDATION SELECTION TABLE**

<table>
<thead>
<tr>
<th>POST SIZE</th>
<th>DIAMETER (D)</th>
<th>DEPTH (K)</th>
<th>REINFORCING STEEL (W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WB</td>
<td>2.0</td>
<td>5.50</td>
<td>8-#5</td>
</tr>
<tr>
<td>WB2</td>
<td>3.5</td>
<td>0.50</td>
<td>8-#5</td>
</tr>
<tr>
<td>WB10</td>
<td>3.0</td>
<td>2.00</td>
<td>8-#6</td>
</tr>
<tr>
<td>WB12</td>
<td>3.0</td>
<td>2.50</td>
<td>8-#7</td>
</tr>
<tr>
<td>WB14</td>
<td>3.0</td>
<td>3.00</td>
<td>8-#7</td>
</tr>
</tbody>
</table>

**NOTES:**
1. The contractor shall develop drawings for the foundation and structural supports based on the data included in these details.
2. Foundation holes, except in ledge, shall be excavated by the auger method to the neat lines of the outside dimensions of the footings without disturbing the soil around or below the proposed footing.
3. In areas where rock or ledge is encountered, the bottom of the footing shall be placed to the design depth shown on this sheet. The concrete shall fill the entire volume of the excavation to the full depth of the footing.
4. Where the foundation requires a spread footing, it may be placed separately and the pedestal then brought to grade. The footings shall be designed by a registered professional engineer. The cost of the design and construction of the spread footings shall be at the expense of the contractor.
5. Backfill for footings, if required by the engineer, shall be trimmed and tamped conforming to the requirements of the R.I. Standard Specifications, except that no stone larger than 4\%\% will be allowed.
6. Where footings are placed against embankments, the top 4\%\% below finished grade shall be formed.
7. Anchor bolts shall be set to conform with the base-plate template as furnished in conformance with the standard plans.
8. The top of the foundations shall be properly finished and dressed to assure that full bearing will be provided on the leveling nuts which are to be set in concrete. All exposed edges shall have a 1/2" chamfer.
DETAIL "E"  DETAIL "F"

ELEVATION

NOTES:
1. FOR CONCRETE CLASS, SEE SECTION 601.01.1, TABLE 1 OF THE R.I. STANDARD SPECIFICATIONS.
2. WHEN EXISTING POST IS ATTACHED TO FOUNDATION BY ANCHOR BOLTS, REMOVE EXISTING ANCHOR BOLTS A MINIMUM OF 1" BELOW TOP OF NEW FOUNDATION. A 3 3/4" DEEP SECTION OF POST SHALL BE USED TO ATTACH THE ANCHOR PLATES. ANY UNCOATED PORTION OF THE SECTION SHALL BE PAINTED WITH AN APPROVED ZINC RICH PAINT.
3. WHEN EXISTING POST IS EMBEDDED IN A FOUNDATION, REMOVE POST APPROXIMATELY 3 3/4" ABOVE TOP OF NEW FOUNDATION. INSTALL ANCHOR PLATES AND PAINT TOP OF POST WITH AN APPROVED ZINC RICH PAINT.
4. AFTER CORRECTLY POSITIONING ANCHOR BOLTS AND ANCHOR PLATES, FILL HOLES WITH NON-SHRINK GROUT.
5. PAINT ANY EXPOSED EXISTING REINFORCING BARS WITH A ZINC RICH PAINT BEFORE APPLYING GROUT.
ISOMETRIC SHOWING SIGN COMPONENTS

REAR ELEVATION
SHOWING ARRANGEMENT OF POST CLIPS (BOTH POSTS OR ALL POSTS) AND PANEL BOLTS

NOTES:
1. PANEL HEX BOLT AND WASHER ASTM-B211 ALUMINUM ALLOY 2024-T4 3/4"-16×3/4" LONG.
2. ALUMINUM SIGN PANEL (TYPE B) ALUMINUM ALLOY 6063-T6 ASTM-B221 THICKNESS 0.125".
3. PANEL HEX NUT ALUMINUM ALLOY 6062-T9 3/8"-16 HEX. HD. NUT ASTM-B211.
4. ALL EXTRUDED ALUMINUM PANELS SHALL HAVE SIDE MOULDINGS.
5. PANEL BOLTS TO BE PLACED SYMMETRICALLY ABOUT 4" OF SIGN PANEL.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION
SIGN PANEL DETAILS
(SIGNS 6'-0"W×4'-0"H AND GREATER)

JUNE 15, 1998
ALUMINUM SHALL HAVE ONE COAT OF BITUMINOUS PAINT PER AASHTO SPECIFICATIONS

1" 7/16" 23/64" 1 3/8"
1 3/64"
1 31/64"
2 11/64"

1 3/4" 5/8" 3/8"-16 UNC
3/8" 3/8"

LOCK NUT

SERRATED SURFACE

FLAT WASHER 3/4"Øx.062" WITH .406 Ø HOLE ASTM-A-276 TYPE 302 (STAINLESS STEEL)

NOTES:

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

POST CLIP AND BOLT DETAIL (FOR EXTRUDED ALUMINUM)

REVISIONS
NO. BY DATE

JUNE 15, 1998

ISSUE DATE

30.3.1
# BRACKET SELECTION TABLE

<table>
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<tr>
<th>POST SIZE</th>
<th>#1 E=.100&quot;</th>
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<th>#2 E=.150&quot;</th>
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<th>#3 E=.200&quot;</th>
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<td>GROUP A</td>
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</tr>
<tr>
<td>6 WF 9</td>
<td>12'-'2&quot;</td>
<td>25'-'0&quot;</td>
<td>8'-'7&quot;</td>
<td>12'-'1&quot;</td>
<td>6'-'7&quot;</td>
<td>8'-'6&quot;</td>
<td>--</td>
<td>6'-'6&quot;</td>
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<tr>
<td>6 WF 12</td>
<td>12'-'4&quot;</td>
<td>25'-'0&quot;</td>
<td>8'-'9&quot;</td>
<td>12'-'3&quot;</td>
<td>6'-'9&quot;</td>
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<td>6 WF 15</td>
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<td>6'-'8&quot;</td>
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<tr>
<td>8 WF 18</td>
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<td>7'-'10&quot;</td>
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<td>12 WF 26</td>
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<td>13'-'9&quot;</td>
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<td>10'-'7&quot;</td>
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## BOLT CIRCLE (DIAMETER)

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<td>GROUP A</td>
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<td>15'-'1/2&quot;</td>
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<tr>
<td>8 WF 18</td>
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<td>17'-'1/4&quot;</td>
<td></td>
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<tr>
<td>8 WF 21</td>
<td>17'-'3/8&quot;</td>
<td>17'-'3/8&quot;</td>
<td>17'-'3/8&quot;</td>
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<tr>
<td>GROUP B</td>
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<tr>
<td>10 WF 22</td>
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<td>19'-'1/2&quot;</td>
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<tr>
<td>10 WF 26</td>
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<td>19'-'5/8&quot;</td>
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<tr>
<td>12 WF 30</td>
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<td>23'-'3/16&quot;</td>
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</tbody>
</table>

## NOTES:
1. SHALL MEET ALL REQUIREMENTS OF "AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS."
2. ALL HARDWARE (AMERICAN STANDARD) SUPPLIED IS TO BE HOT DIP GALVANIZED PER ASTM A153 OR MECHANICALLY GALVANIZED PER ASTM B695.
3. FASTENERS, EXCEPT FOR SPECIAL BOLT AND COUPLING, SHALL BE INSTALLED WITH LOCKWASHERS OR LOCKNUTS AND DO NOT HAVE SPECIFIC TORQUE REQUIREMENTS. FASTENERS SHOULD BE MADE AS TIGHT AS POSSIBLE WITH CONVENTIONAL WRENCHES UNLESS NOTED OTHERWISE.
4. SQUARE AND LEVEL INDIVIDUAL COMPONENTS TO MINIMIZE NEED FOR SHIMMING.
5. STRUCTURAL STEEL TO BE HOT DIP GALVANIZED PER ASTM A123 AFTER FABRICATION.
6. NO MORE THAN TWO SHIMS UNDERNEATH ANY ONE COUPLING AND NO MORE THAN THREE SHIMS UNDERNEATH ANY TWO COUPLINGS.
7. SELECT PROPER POST SIZE BY REFERRING TO POST SELECTION TABLES FOR MEDIUM AND LARGE SIGNS.

---

**RHODE ISLAND DEPARTMENT OF TRANSPORTATION**

**Bracket Selection Table**

**Bolt Circle and General Notes**

<table>
<thead>
<tr>
<th>REVISIONS</th>
<th>NO.</th>
<th>BY</th>
<th>DATE</th>
</tr>
</thead>
</table>

[Signatures]

**JUNE 15, 1998**

**R.I. STANDARD**

**30.4.1**
INSTALLATION NOTES:
WRENCH SIZES REQUIRED: 9/16", 7/8", 1", 1 1/16", 1 1/4", 1 7/16", 1 5/8"

ANCHOR ASSEMBLY:
1. ASSEMBLE COUPLING ANCHORS 6A TO INSTALLATION TEMPLATE (NOT SHOWN). RIGID STEEL TEMPLATE IS RECOMMENDED.
2. LOWER ENTIRE ANCHOR ASSEMBLY INTO FRESH CONCRETE AND VIBRATE INTO POSITION SO THAT THE TOPS OF THE INDIVIDUAL ANCHORS 6A ARE FLUSH WITH THE FINISHED TOP SURFACE OF THE FOOTINGS.

BRACKET ASSEMBLY:
1. ASSEMBLE BRACKET TO POST WITH BOLTS PROVIDED.
2. SQUARE AND TIGHTEN. (ITEMS 1, 2A, 2B, 2C, 2D, 2E, AND 2F)

HINGE ASSEMBLY:
1. BUTT UPPER AND LOWER POSTS TOGETHER ON FLAT SURFACE.
2. PLACE HINGE PLATES 4A ON OUTER FLANGES AND SECURE WITH BOLTS 5A, 5B AND 5C. SNUG BUT DO NOT TIGHTEN.
3. MAKE SURE UPPER AND LOWER POSTS ARE IN ALIGNMENT, THEN TIGHTEN ALL NUTS 5C TO PROOF LOAD (1/2 TURN BEYOND SNUG).

COUPLING ASSEMBLY:
1. SUSPEND POST OVER FOOTING AND INSERT SPECIAL BOLTS 3A THROUGH BRACKET 1.
2. BELOW BRACKET, THREAD COUPLINGS 3B INTO ANCHORS 6A BUT LEAVE LOOSE.
3. LOWER POST WITH SPECIAL BOLTS 3A ONTO LOOSE COUPLINGS 3B AND THREAD BOLTS INTO COUPLINGS.
4. THREAD COUPLINGS ALL THE WAY IN ANCHORS 6A.
5. TIGHTEN SPECIAL BOLTS 3A. DO NOT PLACE TORQUE ACROSS NECKED DOWN PORTION OF COUPLINGS. WRENCH FLATS ARE PROVIDED ON EITHER SIDE FOR PROPER TIGHTENING.
6. IF POST IS NOT PLUMB, INSERT SHIMS 2G AND 2H BETWEEN COUPLINGS 3B AND AND ANCHOR 6A.
# Bill of Materials

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>QTY./POS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 BRACKET</td>
<td>6061-T6 ALUMINUM (SEE BRACKET SELECTION TABLE)</td>
<td>2</td>
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<tr>
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<td><strong>BRACKET HARDWARE ASSEMBLY:</strong></td>
<td></td>
</tr>
<tr>
<td>2A BOLT GROUP</td>
<td>A – 1/2&quot;-13UNC x 2-1/2&quot;, HEX HEAD, ASTM A325, GALV., ASTM A153</td>
<td>4</td>
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<tr>
<td>2B BOLT GROUP</td>
<td>A – 1/2&quot;-13UNC x 2-3/4&quot;, HEX HEAD, ASTM A325, GALV., ASTM A153</td>
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<tr>
<td>2C BOLT GROUP</td>
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<td>2D CAP SCREW</td>
<td>GROUP A – 1/2&quot;-13UNC x 1-1/4&quot;, HEX HEAD, ASTM A307, GALV., ASTM A153</td>
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<tr>
<td>2E LOCK WASHER</td>
<td>GROUP A – 1/2&quot;, ANSI B18-21-1, GALV., ASTM A153</td>
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<tr>
<td>2F NUT GROUP</td>
<td>A – 1/2&quot;-13UNC, HEAVY HEX, ASTM A563, GR. DH, GALV., ASTM A1531</td>
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<tr>
<td>2G SHIM GROUP</td>
<td>A – 21&quot; HORSESHOE, 18 GAUGE, GALV., STEEL SHEET</td>
<td>2</td>
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<tr>
<td>2H SHIM GROUP</td>
<td>B – 1&quot; HORSESHOE, 18 GAUGE, GALV., STEEL SHEET</td>
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<tr>
<td>3A SPECIAL BOLT</td>
<td>1&quot;-8 UNC ASTM A449, GALV., ASTM A153/B895</td>
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<tr>
<td>3B COUPLING</td>
<td>1&quot;-8 UNC LP., AMS 63780G, GALV., ASTM A153, POLYESTER COAT **</td>
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<td><strong>HINGE ASSEMBLY:</strong></td>
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<td></td>
<td>A – TYPE B525, AISI A130 STEEL, GALV., ASTM A123</td>
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<tr>
<td>4A HINGE PLATE</td>
<td>B – TYPE B650, AISI A130 STEEL, GALV., ASTM A123</td>
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<td><strong>HINGE HARDWARE ASSEMBLY:</strong></td>
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<td>5A BOLT GROUP</td>
<td>3/4&quot;-10UNC x 2-1/4&quot;, HEX HEAD, ASTM A325, GALV., ASTM A153</td>
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<td>5B LOCK WASHER</td>
<td>3/4&quot;-10UNC, HEAVY HEX, ASTM A563, GR. DH, GALV., ASTM A153</td>
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<tr>
<td>5C NUT GROUP</td>
<td>3/4&quot;-10UNC, HEAVY HEX, ASTM A563, GR. DH, GALV., ASTM A153</td>
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</tr>
<tr>
<td>6A ANCHOR</td>
<td>GROUP A – 1&quot;-8 BUNC, 304 S.S. FERRULE, AISI 1038 ROD. AISI 1008 COIL</td>
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<tr>
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<td>GROUP B – 1&quot;-8 BUNC, 304 S.S. FERRULE, AISI 1008 COIL</td>
<td>4</td>
</tr>
</tbody>
</table>

*WITH EXCEPTION TO DECARBURIZATION AND MACROSTRUCTURE CLAUSES
**2-4 MIL. THICK MORTON POWDER coatings 20-7037 POLYESTER POWDER COAT
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 903 OF THE R.I. STANDARD SPECIFICATIONS.
2. INTERMEDIATE POSTS REQUIRED EVERY 200'-0".
3. ALL PIPES REFER TO SCHEDULE 40 NOMINAL PIPE SIZES.
Notes:
1. In accordance with Section 303 of the R.I. Standard Specifications, all posts, edges, fixtures shall be galvanized. Fixtures are as shown or equivalent.
2. Connect Line Brace at All Sags - Summit. In Long Even Runs, Brace Every 15 Bays with Near Brace Posts C-C.
3. Cap to be Secured to Post with 5/16" Pin, Peened to Hold, in Field or Preassembled.
4. The Bulb Stud Tee ( ) is an acceptable substitution.
5. All Posts, Fences, Fixtures to be Galvanized. Fixtures are as shown or equivalent.

Dimensions:
- 1/2" O.D. Pipe (Post)
- 5/16" O.D. Pipe (Brace)
- 1/8" Studs
- 1" Studs
- 2 1/4" Round Post Cap
- 7/8" Snap Clip
- 1 3/8" x 1 1/4" x 1/8", 1.33 LB./FT.
- 1 1/2" x 1/4", 0.33 LB./FT.

Sections:
- A-A (Stud Detail - Line Post)
- A-A (Brace or Rail End)

Material:
- Anchor Plate: 1 1/2" x 4" x 1 1/4" x 1/8", 1.33 LB./FT.
- Studs: 1 1/4" x 1 1/4" x 1/8", 1.33 LB./FT.
- Brace or Rail End: 1 1/2" x 1/4", 0.33 LB./FT.

Design:
- RHODE ISLAND DEPARTMENT OF TRANSPORTATION
- WOVEN WIRE RIGHT-OF-WAY FENCE (STEEL POST)
- JUNE 15, 1998
- ISSUE DATE
- R.I. STANDARD 31.3.0
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTIONS 901, 902 OF THE RI STANDARD SPECIFICATIONS.
2. SHALL BE IN ACCORDANCE WITH SECTION 213 OF THE RI STANDARD SPECIFICATIONS.
3. SETBACK FROM CURB FACE OR BERM AS SPECIFIED ON PLANS, 8' LESS THAN 40 MPH; 13' LESS THAN 50 MPH.
4. W-BEAM POSTS W/6X9 STANDARD 72 INCHES OR AS SPECIFIED ON PLANS.
5. THREIE BEAM POSTS W/6X9 STANDARD 81 INCHES OR AS SPECIFIED ON PLANS.
6. TOP OF RAIL HEIGHT MEASURED FROM 10:1 SURFACE.
NOTE: THIS DETAIL IS ONLY APPLICABLE IF OBSTRUCTION IS LESS THAN 30'-0" FROM THE EDGE OF THE TRAVEL LANE.

DETAIL AT ROADSIDE OBSTRUCTION

NOTE: SHALL BE IN ACCORDANCE WITH SECTION 901 OF THE R.I. STANDARD SPECIFICATIONS.
7/8" Ø HOLE IN PLATE (TYP.)

SECTION A-A

1' - 0"

2"

2"

1 1/2"

8"

1 1/2"

3/16"

1 1/2"

(2) - 1" STITCH EACH SIDE

3"

7"

10"

3"

1' - 0" SQ.

MIN.

1' - 0" SQ.

MIN.

10" Ø SONOTUBE (SEE NOTE 2)

CONCRETE FILL

DRILL AND GROUT 1 3/8" Ø HOLES 1 1/2" DEEP AND FILL WITH NON-SHRINK GROUT

VARIES

2'-0" MAX.

2'-0" MAX.

VARIES

A

A

SOFT TO MEDIUM LEDGE

HARD LEDGE

LEDGE 0'-0" TO 0'-2" BELOW GROUND

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 901 OF THE R.I. STANDARD SPECIFICATIONS.
2. A 10" Ø DRILLED HOLE 1'-6" DEEP IS AN ACCEPTABLE SUBSTITUTE.
3. WET SAND FILL, HAND COMPACTED SHALL BE USED TO BACKFILL SONOTUBE AFTER INSERTING GUARDRAIL POST.

EXISTING GROUND

10" Ø SONOTUBE

CONCRETE FILL

2'-0"

VARIES

2'-0" MIN.

3'-9" MAX.

LEDGE 2'-0" TO 3'-9" BELOW GROUND

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

TYPICAL GUARDRAIL POST INSTALLATION IN LEDGE

JUNE 15, 1998

R.I. STANDARD 34.1.2

CHIEF ENGINEER
TRANSPORTATION

CHIEF DESIGN ENGINEER
TRANSPORTATION

ISSUE DATE
**Splice Detail**

- **SLOT**
  - 3/4" x 1/2"-3" O.C.

- **POST BOLT SLOTS**
  - 3/4" x 2 1/2"-6"-3" O.C. (See Note 2)

**Notes:**
1. (X) Tolerance
2. End post bolt slots 1/2"-4" O.C. Intermediate post slot 6"-3" O.C. (Unless otherwise noted)

**Section**

**Rub Rail**

- **5/8" x 1/4" Button Head Bolt**
- **5/8" Standard Nut**
- **Steel Washer F-13-70**
- (8 required at each splice)

**RUB RAIL SPICE PLATE**

- **5/8" x 1/2" Hex Bolt**
- **5/8" Hex Nut**
- **Steel Washer F-13-70**

**Notes:**
1. All slots 11/16"-x-2", all square holes 11/16".
2. Splice occurs at posts only.

**Rub Rail**

- **1 1/2" 2" 3 1/4" 3 1/2" 4 1/2"**

**Notes:**
- Shall be in accordance with Section 901 of the R.I. Standard Specifications.

**Back-Up Plate**

- **6" x 6"**

**Section A-A**

- **1 1/2" 1 1/4" 5/8"**

**Rub Rail**

- **12"-1½" or 24"-7½"**

- **12"-5 3/4" min. or 24"-11 3/4" Max.**
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 901 OF THE R.I. STANDARD SPECIFICATIONS.
2. ALL DIMENSIONS SUBJECT TO MANUFACTURING TOLERANCES.
3. AFTER GALVANIZING THE NUT SHALL BE FREE RUNNING ON THE BOLT.
4. THE RAIL ELEMENT SHALL BE SHOP CURVED WHEN THE PLACEMENT OF GUARDRAIL IS ON A CURVE HAVING A RADIUS OF 150'-0" OR LESS.
### BOLT SELECTION TABLE

<table>
<thead>
<tr>
<th>INTENDED USE</th>
<th>BOLT TYPE</th>
<th>L</th>
<th>THREAD LENGTH</th>
<th>NUT TYPE</th>
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<tbody>
<tr>
<td>AS SPlice ON &quot;W&quot; BEAM GUARD RAIL</td>
<td>5/8&quot; Ø BUTTON HEAD</td>
<td>1 1/4&quot;</td>
<td>FULL</td>
<td>5/8&quot; Ø STANDARD</td>
</tr>
<tr>
<td>FOR FASTENING &quot;W&quot; BEAM RAIL TO STEEL POSTS OR BRACKET</td>
<td>5/8&quot; Ø BUTTON HEAD</td>
<td>2&quot;</td>
<td>1 1/2&quot; MIN.</td>
<td>5/8&quot; Ø STANDARD</td>
</tr>
<tr>
<td>AS SPlice BOLT FOR CHANNEL RUB RAIL ELEMENTS USED IN &quot;W&quot; BEAM GUARD RAIL</td>
<td>5/8&quot; Ø CARRIAGE HEAD</td>
<td>1 1/4&quot;</td>
<td>FULL</td>
<td>5/8&quot; Ø HEX</td>
</tr>
<tr>
<td>FOR FASTENING CHANNEL RUB RAIL ELEMENTS TO STEEL POSTS IN &quot;W&quot; BEAM GUARD RAIL</td>
<td>5/8&quot; Ø CARRIAGE HEAD</td>
<td>3&quot;</td>
<td>1 1/2&quot; MIN.</td>
<td>5/8&quot; Ø HEX</td>
</tr>
<tr>
<td>FOR FASTENING STEEL BLOCK TO STEEL POSTS</td>
<td>5/8&quot; Ø HEX</td>
<td>1 1/2&quot;</td>
<td>FULL</td>
<td>5/8&quot; Ø HEX</td>
</tr>
</tbody>
</table>

**NOTE:** USE ONLY AT 8TH POST ON STD. 34.3.1

**RECTANGULAR**

PLATE WASHER F-12-70  
SPlice BOLT  
SLOT  
POST BOLT SLOT
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 901 OF THE R.I. STANDARD SPECIFICATIONS.
2. ALL HOLES TO BE 13/16" Ø.
3. ONLY ONE TYPE OF POST SHALL BE USED IN A SINGLE RUN. OPEN SIDE SHALL FACE AWAY FROM DIRECTION OF ONCOMING TRAFFIC.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 901 OF THE R.I. STANDARD SPECIFICATIONS.
2. REFLECTIVE MATERIAL SHALL BE OF ENCAPSULATED LENS SILVER OR AMBER.
3. SILVER REFLECTORS SHALL BE INSTALLED ON THE RIGHT SIDE OF THE ROAD AND AMBER ON THE LEFT, IN ACCORDANCE WITH MUTCD GUIDELINES FOR PAVEMENT EDGELINE MARKINGS.
4. THE REFLECTORIZED ALUMINUM WASHER IS TO BE PLACED IN VALLEY OF BEAM WHEN MOUNTING BEAM ONTO EACH SIXTH POST.
5. REFLECTORIZED GALVANIZED WASHERS MAY BE USED AS AN OPTION.
LENGTH OF TERMINAL SECTION = 20'±

14'-0" MAX.

15'-0"

15'-0" MIN.

2:1 OR FLATTER

TOE OF BERM

20:1 OR FLATTER

FLAT

2:1 OR FLATTER

3:1 OR FLATTER

1'-6" MIN. (SEE NOTE 3)

TOE OF BERM

4:1 OR FLATTER

EDGE OF SHOULD

2" MIN.

W = WIDTH OF GUARDRAIL OR WIDTH OF GUARDRAIL AND POST

COMPACTED GRAVEL BORROW

DIRECTION OF TRAVEL

PLAN

END OF TERMINAL SECTION

5'-0" ROUNDED

TOP OF TERMINAL (11:1)

TOP OF BERM 20:1 OR FLATTER

14'-0" MAX.

30'-0"

4" MIN.

ELEVATION

NOTES:

1. SHALL BE IN ACCORDANCE WITH SECTION 901 OF THE R.I. STANDARD SPECIFICATIONS.

2. THE ACTUAL DIMENSIONS OF THE BERM SHALL VARY IN ACCORDANCE WITH THE VARIABLE DIMENSIONS SHOWN AND AS DIRECTED BY THE ENGINEER.

3. SEE PLANS FOR DETAILS OF SPECIFIED ROADSIDE BARRIER AND TERMINAL SECTIONS.

4. IF THE TAPER ON THE TOP OF THE TERMINAL SECTION IS STEEPER THAN 11:1, THE MINIMUM HEIGHT OF THE BERM SHALL BE 2'-0".

SECTION A-A

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

EARTH BERM FOR ROADSIDE BARRIER TERMINAL SECTIONS

R.I. STANDARD 34.3.0

CHIEF ENGINEER TRANSPORTATION

CHIEF DESIGN ENGINEER TRANSPORTATION

JUNE 15, 1998

ISSUE DATE

REVISIONS

NO. BY DATE

______________  ______________  ______________

______________  ______________  ______________

______________  ______________  ______________
OFFSET TO FACE OF POST FROM BACK OF RAIL ALIGNMENT

<table>
<thead>
<tr>
<th>POST NO.</th>
<th>OFFSET</th>
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</thead>
<tbody>
<tr>
<td>8</td>
<td>4.00'</td>
</tr>
<tr>
<td>7</td>
<td>2.79'</td>
</tr>
<tr>
<td>6</td>
<td>1.79'</td>
</tr>
<tr>
<td>5</td>
<td>1.25'</td>
</tr>
<tr>
<td>4</td>
<td>0.80'</td>
</tr>
<tr>
<td>3</td>
<td>0.45'</td>
</tr>
<tr>
<td>2</td>
<td>0.11'</td>
</tr>
<tr>
<td>1</td>
<td>0.00'</td>
</tr>
</tbody>
</table>

PAY LIMIT FOR APPROACH SECTION (25'-0" NOMINAL RAIL LENGTH)

3 SPACES @ 4'-2"

REQUIRED GUARDRAIL NORMAL LENGTH
PAYMENT BY LIN. FT.
6'-3"

6 W 8.5

STD. POST SPACING

FACE OF RAIL TANGENT LINE

1'-0"
BACKUP PLATE

Omit POST BOLT WASHERS UNDER BOLT HEAD

SHOULDER LINE

POST SIZE 6"x8"
(PRESSURE TREATED WOOD)

LIMIT OF PAYMENT

SLOPE OR FLATTER

10:1

BUFFET END SECTION

3'-0"

CONCRETE FOOTING (TYP.)

10" SODIATE BEVEL POST CORNERS

FIELD COAT (TYP.)

3/4"CABLE (DRAWN TAUT NO SLACK SECURELY FASTENED)

ANCHOR PLATE AND 5/8" BOLT WITH STEEL WASHER

3'-0"
TYP.

WELDED WIRE FABRIC (TYP.)

3'-0"

CONCRETE FOOTING (TYP.)

1'-0"
HOLE

6 1/8"

6x6.6/6 (TYP.)

1'-0"

BACKUP PLATE

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 901 OF THE R.I. STANDARD SPECIFICATIONS.
2. THIS STANDARD IS NOT TO BE USED WHEN THE DESIGN SPEED IS EXCEEDS 45 MPH.
3. ALL METAL BEAM RAIL, POST, OFFSET BRACKETS, NUTS, BOLTS, WASHERS, AND ALL OTHER ACCESSORIES SHALL BE HOT DIPPED GALVANIZED.
4. ALL DIMENSIONS SUBJECT TO MANUFACTURERS' TOLERANCES.
5. AFTER GALVANIZING, THE NUT SHALL BE FREE RUNNING ON THE BOLT.
6. THE RAIL ELEMENT SHALL BE SHAPED CURVED WHEN THE PLACEMENT OF GUARDRAIL IS ON A CURVE HAVING A RADIUS OF 150'-0" OR LESS. NO ADDITIONAL PAYMENT SHALL BE ALLOWED FOR THIS WORK.
7. POST AND OFFSET BRACKET TO BE FABRICATED FROM 6"x4" 8 1/2 lbs. STEEL "H" SECTIONS.
8. POST AND BRACKET BOLT HOLES TO BE OVAL UNLESS OTHERWISE SPECIFIED.
9. ALL HOLES SHALL BE 13'/16".
10. FOR DETAILS ON CABLE, ANCHOR PLATE, END POST, BUFFER END SECTION, AND BACKUP PLATE SEE STD. 34.3.3.
11. TO FACILITATE REMOVAL OF BROKEN WOOD POST, 10" OF (ONLY) PERMANENT CARDBOARD SIGATURES OR METAL SLEEVES ARE TO BE INSTALLED AROUND THE POST PRIOR TO CASTING THE FOOTINGS. (SLEEVE TO BE FILLED WITH CONCRETE SAND.) CORNERS OF POST TO BE BEVELED TO FIT 10" SODIATE. FIELD TREAT THE BEVELS WITH CHROMATED COPPER.
12. FOR TRAILING END OF GUARDRAIL ADJACENT TO ONE-WAY ROADWAY OMIT TERMINAL SECTION. NEXT TO LAST POST TO BE A LINE POST.
13. USE NO WASHERS UNDER POST BOLT HEADS FROM FIRST THRU SEVENTH POSTS.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

GUARDRAIL END SECTION

JUNE 15, 1998

REVISIONS

R.I. STANDARD
34.3.1

NO. BY DATE
NOTE:
SHALL BE IN ACCORDANCE WITH SECTION 901 OF THE R.I. STANDARD SPECIFICATIONS.
**REQUIRED GUARDRAIL**

**NORMAL LENGTH**

|- 6" |
|---|---|
| 1' - 4" |
| 2' - 6" |
| 3' - 6" |
| 3' - 8" |
| 6 W 8.5 |
| 1 1/4" x 4' - 6" GALVANIZED ROD WITH WELDED EYE (SEE NOTE 1) |
| 3/4" CABLE (SEE NOTE 1) |
| SECURE CABLE LOOP WITH 5 CABLE CLIPS |
| 1 1/4" x 4' - 6" GALVANIZED ROD WITH WELDED EYE (SEE NOTE 2) |
| #4 REINFORCEMENT STEEL (40 KSI OR 60 KSI) |
| #4 REINFORCEMENT TOTAL: 2 |
| #8 REINFORCEMENT TOTAL: 4 (SEE DETAIL "A") |
| 2" COVER (MIN.) |
| 1' - 0" |

**CONCRETE**

**LIMIT OF PAVEMENT**

**TERMINAL END SECTION**

**REPRESENTATION**

**DETAIL "A"**

1 1/2" EYES ORIENT TO ACCOMMODATE TURNBUCKLE CONNECTIONS FOR CABLE BARRIER

1 1/4" x 4' - 6" GALVANIZED RODS PARALLEL TO AXIS OF GUARDRAIL AT POINT OF ANCHORAGE

**NOTES:**

1. SHALL BE IN ACCORDANCE WITH SECTION 901 OF THE R.I. STANDARD SPECIFICATIONS.
2. CABLE TO BE PARALLEL TO GUARDRAIL FOR STRAIGHT RUNS OF RAIL. CABLE MAY HAVE ANGLE POINT AT ANCHOR PLATE IF GUARDRAIL IS CURVED.

**RHODE ISLAND DEPARTMENT OF TRANSPORTATION**

**ANCHORAGE DETAILS**

**TRAILING END SECTION**

**REVISIONS**

<table>
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<th>BY</th>
<th>DATE</th>
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</thead>
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**JUNE 15, 1998**

**R.I. STANDARD 34.3.4**
CORE DRILL 1" HOLES IN END POST FOR 4 3/4" HIGH STRENGTH (A325) THROUGH BOLTS (GALVANIZED) WITH WASHERS
RE-8-79 TERMINAL CONNECTOR

1/4"X3"X3" PLATE WASHERS
ASTM A36 GALVANIZED

SECTION A-A

LIMIT OF PAYMENT = 26'-10 1/2"

DIRECTION OF TRAFFIC

PLAN

ELEVATION

WEARING SURFACE

PLATE WASHER ARRANGEMENT

TERMINAL CONNECTOR
(RE-8-79)

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 901 OF THE R.I. STANDARD SPECIFICATIONS.
2. TERMINAL CONNECTOR, GUARDRAIL, POSTS, BRACKETS, ALL HARDWARE, NUTS, BOLTS WASHERS, DRILLING AND ALL OTHER INCIDENTALS NECESSARY TO COMPLETE THE INSTALLATION ARE INCLUDED AS PART OF THIS STANDARD.
3. DIMENSIONAL TOLERANCES NOT SHOWN OR IMPLIED ARE INTENDED TO BE THOSE CONSISTENT WITH THE PROPER FUNCTIONING OF THE PART, INCLUDING ITS APPEARANCE, AND ACCEPTED MANUFACTURING PRACTICES.
LIMIT OF PAYMENT = 45° 6 1/4°  
8° 3°  
NEMENT BEAM FOR TWO LENGTHS OF RAIL = 26° 1/2°  
1° 1/2°  2° 8° 4°  
2° 8° 3/4°  10 SPACES AT  
3° 1/2° = 31° 3°  

ELEVATION

EXISTING END POST

WEARING SURFACE

SECTION B-B

PLAN

DIRECTION OF TRAVEL

END SECTION

CUT SQUARE FOR WELDING (TYP.)  
6 3/8°  
5/8° H.S. BOLT 1 3/4° LONG (TYP.)  
7/8°  
2 1/2°  

1° 2°  

4"  
6 3/8°  
7/8°  
2 1/2°  
3/8° BACK PLATE A36  
THREADED CONCRETE INSERT FOR 3/4° H.S. BOLT 4° LONG (TYP.)  
L6"x4"x3/8" 32° LONG A36 (TYP.)  

SECTION A-A

MASONRY BRACKET

2° 3° 1/2°  
6 1/4°  
1° 9 1/4°  
1° 1/2° LAP  

6 1/8°  
6 1/8°  

3/8°  
3/8°  
2° 4 1/4°  4 1/4°

FLARED END SECTION SECTION (RE-5-76)

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 901 OF THE R.I. STANDARD SPECIFICATIONS.
2. MASONRY BRACKET, END SECTION, GUARDRAIL, POSTS ALL HARDWARE, NUTS, BOLTS, WASHERS, DRILLING AND ALL OTHER INCIDENTALS NECESSARY TO COMPLETE THE INSTALLATION ARE INCLUDED AS PART OF THIS STANDARD.
3. ALL STRUCTURAL SHAPES WHICH MAKE UP THE MASONRY BRACKET SHALL BE GALVANIZED.
4. FOR HIGH SPEED, UPGRADE TO THIER BEAM ESPECIALLY AT FIXED OBJECT LOCATIONS.
5. DIMENSIONAL TOLERANCES NOT SHOWN OR IMPLIED ARE INTENDED TO BE THOSE CONSISTENT WITH THE PROPER FUNCTIONING OF THE PART, INCLUDING ITS APPEARANCE, AND ACCEPTED MANUFACTURING PRACTICES.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION
GUARDRAIL CONNECTION TO EXISTING END POST TRAILING END SECTION

R.I. STANDARD 34.3.6

JUNE 15, 1998
ISSUE DATE
CORE DRILL 1" Holes in end post for 4 3/4" HIGH STRENGTH (A325) THROUGH BOLTS (GALVANIZED) WITH WASHERS

RE-8 TERMINAL CONNECTOR

LIMIT OF PAYMENT = 26'-10 1/2"

7 SPACES AT 3'-1/2"=21'-10 1/2"

RE-8

DIRECTION OF TRAFFIC

SECTION A-A

ELEVATION

PLATE WASHER ARRANGEMENT

3 1/2" Post bolt slots (optional)

29/32"x1 1/8" slots

3/4"x2 1/2" Post bolt slots (optional)

TERMINAL CONNECTOR (RE-8)

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 901 OF THE R.I. STANDARD SPECIFICATIONS.
2. TERMINAL CONNECTOR, GUARDRAIL, POSTS, BRACKETS, ALL HARDWARE, HUTS, BOLTS, WASHERS, DRILLING AND ALL OTHER INCIDENTALS NECESSARY TO COMPLETE THE INSTALLATION ARE INCLUDED AS PART OF THIS STANDARD.
3. DIMENSIONAL TOLERANCES NOT SHOWN OR IMPLIED ARE INTENDED TO BE THOSE CONSISTENT WITH THE PROPER FUNCTIONING OF THE PART, INCLUDING ITS APPEARANCE, AND ACCEPTED MANUFACTURING PRACTICES.
"6" BEAM TERMINAL CONNECTOR RE-8 WITH
(4) 1/4" # HIGH STRENGTH BOLTS (A325 GALVANIZED)
AND 1/4" BACKUP PLATES (A36 GALVANIZED)
WITH WASHERS (F-46)

PLAN

ELEVATION

10'-0"
1'-6"
9"
1'-0"

2'-3"
2'-3"
5'
5'
6'
6'

#5 (TYP.)
#5 (TYP.)

5'
5'
6'
6'

4" (O.A.
AND SEED

GRASS SEED
SEED

DIRECTION OF TRAVEL

SECTION A-A
1. SHALL BE IN ACCORDANCE WITH SECTION 902 OF THE R.I. STANDARD SPECIFICATIONS.
2. ALL STRUCTURAL STEEL AND FASTENER HARDWARE SHALL BE WEATHERING STEEL AS SPECIFIED.
30'-0" FLARED LENGTH (SEE NOTE 3)

TOP OF FILL SIDE SLOPE

5/8" SINGLE BOLT WITH PLATE

2'-0" MIN. (SEE NOTE 3)

EDGE OF PAVEMENT

BEGIN FLARE (SEE NOTE 3)

SEE ROADWAY TYPICAL SECTION FOR OFFSET DISTANCE

PLAN

<table>
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<tr>
<th>DESIGN SPEED (MPH)</th>
<th>FLARE RATE A:B</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>13:1</td>
</tr>
<tr>
<td>50</td>
<td>11:1</td>
</tr>
<tr>
<td>40</td>
<td>9:1</td>
</tr>
<tr>
<td>30 OR LESS</td>
<td>7:1</td>
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</tbody>
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GUARDRAIL FLARE RATES

STEEL BACKED TIMBER GUARDRAIL (SEE STD. 34.4.0)

STEEL SPLICE PLATE

END AND PAY LIMITS FOR GUARDRAIL

EARTH BERM (SEE NOTE 2)

GROUND LINE

10'-0" (TYP.)

13/16" HOLE (TYP.)

3/4"x1"x9" A325 HIGH STRENGTH BOLT WITH HEX NUT AND WASHER

BACK-UP PLATES (SEE DETAIL)

6"x1/2"x9"

CONCRETE ANCHOR

DETAIL "A"

SECTION A-A

BACK-UP PLATE DETAIL

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 902 OF THE R.I. STANDARD SPECIFICATIONS.
2. REFERENCE STD. 34.3.0 FOR CONSTRUCTION OF EARTH BERM.
4. REFERENCE STD. 34.4.0 FOR TIMBER, STRUCTURAL STEEL AND HARDWARE DETAILS.
5. THE BLOCKS SHALL BE INCLUDED IN THE TERMINAL SECTION, EXCEPT ON THE CONCRETE ANCHOR.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 902 OF THE R.I. STANDARD SPECIFICATIONS.
2. THIS STANDARD IS NOT TO BE USED WHEN THE DESIGN SPEED EXCEEDS 45 MPH.
3. SEE STD. 34.4.0 STEEL BACKED TIMBER GUARDRAIL, FOR TIMBER, STRUCTURAL STEEL AND HARDWARE DETAILS.
4. THE BLOCKS SHALL BE INCLUDED IN THE TERMINAL SECTION, EXCEPT ON THE CONCRETE ANCHOR.
5. CUT FLARES SHALL BEGIN AT THE NEAREST POST TO A TRANSITION POINT BETWEEN FILL AND CUT AS DIRECTED BY THE ENGINEER.
6. THE FLARE SHALL BE EXTENDED INTO THE CUT UNTIL A MINIMUM OF 1'-0" COVER IS OBTAINED OVER THE GUARDRAIL END.
AASHTO M180 CLASS A TYPE II
BEAM SECTION

15/16" R
1 17/32"
15/16" R
2 1/4"
3 3/16" 1/16"
3 1/4" 1/16" 3 3/16" 1/16"
2.5/16"

M14X18 BLOCK

13 3/4"
2 1/4"

M14X18 BLOCK

SIDEBLOCKOUT

FLANGE FACING TRAFFIC

OPTIONAL HOLE

3/4" x 2 - 1/2" POST BOLT SLOTS

29/32" x 1 1/8" SLOTS

FLANGE FACING POST

2 1/4"

12 GAUGE

11/16"

6' 3"

PLAN OF RAIL

THRIE BEAM BACKER PLATE AT INTERMEDIATE POST

W6X9 POST

M14X18 BLOCK

ELEVATION OF RAIL

EMBEDMENT LENGTH 46"

81"

W6X9 POST

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 901 OF THE R.I. STANDARD SPECIFICATIONS.
2. POST TO BE FABRICATED FROM W6X9 BY 8" LONG STEEL SECTIONS.
3. MODIFIED BLOCKOUT TO BE FABRICATED FROM M14X18 BY 17" LONG STEEL SECTIONS.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

STEEL THRIE BEAM GUARDRAIL SINGLE FACE

MAY 1, 2009

REVISIONS

R.I. STANDARD 34.5.3

SHEET ENGINEER

SHEET DESIGN ENGINEER

REVISIONS

NO. BY DATE

signature

signature
AASHTO M180 CLASS A Type II

BEAM SECTION

29/32" x 1 1/8" SLOTS
3/4" x 2 - 1/2" POST BOLT SLOTS
29/32" x 1 1/8" SLOTS
12 GAUGE
11/16"
15/16" R
17/32"
2 1/4"
15/16" R
2 1/4"
15/16" R
3 1/4"
3 1/4"
1/16"
3 3/16"
2 5/16"
2 1/4"
11/16"
20"

FLANGE FACING TRAFFIC
SIDE ELEVATION
FLANGE FACING POST

MODIFIED THRIE BEAM BLOCKOUT

6'-3" DIRECTION OF TRAVEL

PLAN OF MEDIAN RAIL

A-A

THRIE BEAM BACKER PLATE AT INTERMEDIATE POST

ELEVATION OF MEDIAN RAIL

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 901 OF THE R.I. STANDARD SPECIFICATIONS.
2. POST TO BE FABRICATED FROM W6X9 BY 78" LONG STEEL SECTIONS.
3. MODIFIED BLOCKOUT TO BE FABRICATED FROM M14X18 BY 17" LONG STEEL SECTIONS.
1/4" MAXIMUM OPEN JOINTS ON TANGENT SECTIONS
1/4" MAXIMUM OPEN MEASURED AT INSIDE OF CURVES

1 1/2" x 8" SLOT (10" DEEP)

SECTION A-A

SECTION B-B

PLAN

DOWEL DETAIL AT ENDS

ELEVATION

PAVEMENT

GRAVEL SUBBASE (COMPACTED TO 95% MAXIMUM DENSITY)

1/2" CHAMFER (TYP.) (BOTH ENDS)

GRAVEL SUBBASE (COMPACTED TO 95% MAXIMUM DENSITY)

SETTING DETAIL

8" x 16" x 4" CONCRETE BLOCK (TYP. EACH JOINT AND AT CENTER OF BARRIER)

OPTIONAL LIFTING KEY DETAIL FOR 20'-0" SECTION ONLY

NOTE:
SHALL BE IN ACCORDANCE WITH SECTION 909 OF THE R.I. STANDARD SPECIFICATIONS.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

DOUBLE-FACED PRECAST MEDIAN BARRIER

REVISIONS

NO. BY DATE

JUNE 15, 1998

R.I. STANDARD 40.1.0
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 909 OF THE R.I. STANDARD SPECIFICATIONS.
2. UNIT SHALL BE SUPPORTED BY CONCRETE SETTING BLOCKS (SEE STD. 40.1.0).

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

SINGLE-FACED PRECAST MEDIAN BARRIER

REVISIONS

NO.  BY  DATE

JUNE 15, 1998

R.I. STANDARD 40.2.0
SECTION A-A

DOWEL DETAIL AT ENDS

1/4" MAXIMUM OPEN JOINTS ON TANGENT SECTIONS
1/4" MAXIMUM OPEN MEASURED AT INSIDE OF CURVES

SECTION B-B

REINFORCING

BEND AROUND 1" PIN

#4 @ 1'-0" TYP. (6'-0" ± LONG)

2'-0" LIFT HOLE

6" CRUSHED STONE

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

SINGLE-FACED PRECAST MEDIAN BARRIER WITH CONCRETE SLAB

REVISIONS

R.I. STANDARD 40.2.1

JUNE 15, 1998
Dowel Details at 2'-0" Ends

Notes:
1. Shall be in accordance with Section 909 of the R.I. Standard Specifications.
2. Units shall be supported by concrete setting blocks (see Std. 40.1.0).

Rhode Island Department of Transportation

Precast Median Barrier Transition Unit

June 15, 1998

R.I. Standard
40.3.0
REINFORCING

SECTION A-A

ELEVATION

SECTION B-B

DO Welch DETAIL AT ENDS

PLAN

SECTION C-C

SECTION D-D

NOTE:
SHALL BE IN ACCORDANCE WITH SECTION 909 OF THE R.I. STANDARD SPECIFICATIONS.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 926 OF THE R.I. STANDARD SPECIFICATIONS.
2. BEND REBARS AROUND A 1 3/8" Ø PIN.
3. BARS R-1 SHALL BE FABRICATED CONTINUOUSLY. R-2 BARS SHALL BE FABRICATED WITH 2'-0" MINIMUM LAPS AS SHOWN ON THE DETAIL.
NOTES
1. SHALL BE IN ACCORDANCE WITH SECTION 905 OF THE R.I. STANDARD SPECIFICATIONS.
2. FOR CURB SETTING DETAIL REFERENCE STD. 7.6.0.
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 905 OF THE R.I. STANDARD SPECIFICATIONS.
2. FOR CURB SETTING DETAIL REFERENCE STD. 7.6.0.
CONSTRUCTION JOINT (TYP.)

DETECTABLE WARNING RI STD. 48.1.0

MINIMUM 4"-0"

1:12 MAX.

RAMP STONE

4"-0"

1:12 MAX.

RAMP TRANSITION CURB

RI STD. 7.1.2
RI STD. 7.1.3
RI STD. 7.3.2

STANDARD CURB SECTIONS OR WHEELCHAIR RAMP TRANSITION CURB AS REQUIRED

ISOMETRIC VIEW
NOT TO SCALE

GRANITE STD. 7.3.9
PCC STD. 7.1.9
RAMP STONE

SECTION A-A
NOT TO SCALE

ROADWAY PROFILE GRADE | T (FT.)
---|---
0.00 | 6.0
0.01 | 7.0
0.02 | 8.0
0.03 | 9.5
0.04 | 11.5
0.05 | 15.0

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 905 OF THE RI STANDARD SPECIFICATIONS.
2. WHEN ANY OBSTRUCTION LOCATED IN THE SIDEWALK FALLS WITHIN A CROSSWALK AREA, THE WHEELCHAIR RAMP SHALL BE PLACED SUCH THAT THE OBSTRUCTION FALLS OUTSIDE OF THE RAMP.
3. AT NO TIME IS ANY PART OF THE WHEELCHAIR RAMP TO BE LOCATED OUTSIDE OF THE CROSSWALK, AND IT IS TO BE CENTERED WHENEVER POSSIBLE.
4. DRAINAGE FACILITIES ARE TO BE LOCATED UP-GRADE OF ALL WHEELCHAIR RAMPS.
5. LOCATION OF WHEELCHAIR RAMPS IS AS SHOWN ON CONTRACT DRAWINGS.
6. IN NO INSTANCE SHALL THE SIDEWALK CROSS SLOPE EXCEED 1:50 EXCEPT WITHIN THE RAMP AREA.
7. AN UNOBSERVED PATH OF TRAVEL WITH A MINIMUM WIDTH OF 4'-0" SHALL BE MAINTAINED.
8. THE WHEELCHAIR RAMP SLOPE AND SIDE SLOPES (TRANSITIONS), MUST NOT BE STEEPER THAN 1:12. HOWEVER, THESE SLOPES MAY BE FLATTER THAN 1:12 WHEN WARRANTED BY SURROUNDING CONDITIONS.
9. WHERE THE ROAD PROFILE EXCEEDS 5% THE HIGH SIDE TRANSITION LENGTH (T) SHALL BE EIGHTEEN FEET (18'-0")
10. IN NO CASE, WHERE A STOP LINE IS WARRANTED, SHALL A RAMP BE PLACED BEHIND THE STOP LINE.
11. THE ENTRANCE OF THE WHEELCHAIR RAMP SHALL BE FLUSH WITH THE ROADWAY.
12. THE WHEELCHAIR RAMP SHALL BE CENTERED RADIALY, OPPOSITE THE RADIUS POINT WHEN POSSIBLE.
13. MINIMUM LENGTH OF STRAIGHT OR CIRCULAR FILLER PIECES TO BE 3'-0" (GREATER LENGTHS PREFERRED).
14. ALL REQUIRED CUTTING OF CURB PIECES TO BE PAID FOR UNDER COST OF CURB.
15. DETECTABLE WARNINGS TO BE PAID FOR UNDER SECTION 942 OF THE RI STANDARD SPECIFICATIONS.
16. 8" CONCRETE DEPTH FOR RADIUS WHEELCHAIR RAMPS ONLY. USE 4" DEPTH FOR TANGENT (MI-BLOCK) LOCATIONS.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

WHEELCHAIR RAMP

JUMP STARTER STANDARD
43.3.0

REVISIONS

NO. | BY | DATE
---|---|---
1 | MLP | Oct 2005
2 | MLP | Jun 2008
3 | MLP | Sep 2012

June 15, 1998
SHEET ONE
1. SHALL BE IN ACCORDANCE WITH SECTION 905 OF THE R.I. STANDARD SPECIFICATIONS.
2. THIS DETAIL IS TO BE USED ONLY WHEN STATE RIGHT–OF–WAY IS LIMITED TO BACK OF SIDEWALK, AND SIDEWALK IS NARROW WITH NO PEDESTRIAN TRAFFIC FROM SIDE STREET.
3. WHEN ANY OBSTRUCTION LOCATED IN THE SIDEWALK FALLS WITHIN A CROSSWALK AREA, IF POSSIBLE, THE OBSTRUCTION SHALL BE PLACED SUCH THAT IT FALLS OUTSIDE OF THE RAMP.
4. AT NO TIME IS ANY PART OF THE WHEELCHAIR RAMP TO BE LOCATED OUTSIDE OF THE CROSSWALK, AND IT IS TO BE CENTERED WHENEVER POSSIBLE.
5. DRAINAGE FACILITIES ARE TO BE LOCATED UP–GRADE OF ALL WHEELCHAIR RAMPS.
6. LOCATION OF WHEELCHAIR RAMPS IS AS SHOWN ON CONTRACT DRAWINGS.
7. ALL REQUIRED CUTTING OF CURB PIECES TO BE PAID FOR UNDER COST OF CURB.
8. WHERE THE ROAD PROFILE EXCEEDS 5% THE TRANSITION LENGTH (T) SHALL BE EIGHTEEN FEET (18’–0”).
9. THE ENTRANCE OF THE WHEELCHAIR RAMP SHALL BE FLUSH WITH THE ROADWAY.
10. MINIMUM LENGTH OF STRAIGHT OR CIRCULAR FILLER PIECES TO BE 3’–0” (GREATER LENGTHS PREFERRED).
11. AN UNOBSERVED PATH OF TRAVEL WITH A MINIMUM WIDTH OF 4’–0” SHALL BE MAINTAINED.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

WHEELCHAIR RAMP
FOR LIMITED RIGHT–OF–WAY AREAS

REVISIONS
NO. BY DATE
1 MLP Dec 2005
2 MLP Sep 2012

JUNE 15, 1998
ISSUE DATE

CHIEF ENGINEER
TRANSPORTATION

CHIEF DESIGN ENGINEER
TRANSPORTATION

43.3.1
NOTES:
1. THIS DETAIL MAY BE USED WHEN A PHYSICAL BARRIER IS PRESENT AND THERE IS INSUFFICIENT ROOM TO PROPERLY CONSTRUCT AN ADA ACCESSIBLE RAMP AND LANDING; A TECHNICAL INFEASIBILITY FINDING IS REQUIRED.
2. SHALL BE IN ACCORDANCE WITH SECTION 905 OF THE RI STANDARD SPECIFICATIONS.
3. THE RAMP—LANDING AND TRANSITIONS SHALL BE FREE OF OBSTRUCTIONS.
4. LOCATION OF THE RAMP—LANDING IS AS SHOWN ON CONTRACT DRAWINGS.
5. AN UNOBSTRUCTED PEDESTRIAN ACCESS ROUTE (PATH OF TRAVEL) WITH A MINIMUM WIDTH OF 4'-0" SHALL BE MAINTAINED.
6. THE ENTRANCE OF THE RAMP—LANDING SHALL BE FLUSH WITH THE PAVEMENT.
7. MINIMUM LENGTH OF STRAIGHT OR CIRCULAR FILLER PIECES TO BE 3'-0" (GREATER LENGTHS PREFERRED).
8. ALL REQUIRED CUTTING OF CURB PIECES TO BE PAID FOR UNDER COST OF CURB.
9. DETECTABLE WARNINGS TO BE PAID FOR UNDER SECTION 942 OF THE RI STANDARD SPECIFICATIONS
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 905 OF THE R.I. STANDARD SPECIFICATIONS.
2. WHEN DRIVEWAY IS BELOW BACK EDGE OF SIDEWALK PROFILE, STD. 43.4.1 MUST BE USED.
CUT AND MATCH EXISTING CONCRETE OR BITUMINOUS DRIVEWAY AS REQUIRED

SECTION A–A

NOTE: SHALL BE IN ACCORDANCE WITH SECTION 905 OF THE R.I. STANDARD SPECIFICATIONS.
NOTE:
SHALL BE IN ACCORDANCE WITH SECTION 905 OF THE R.I. STANDARD SPECIFICATIONS.
NOTES:
1. TRANSVERSE DROP-OFF:
   POSTED SPEED ≤ 35 M.P.H.: 5 FEET HORIZONTALLY TO 1 INCH VERTICALLY
   POSTED SPEED > 35 M.P.H.: 10 FEET HORIZONTALLY TO 1 INCH VERTICALLY
2. LONGITUDINAL DROP-OFF (OUTSIDE EDGES OF PAVEMENT):
   POSTED SPEED ≤ 35 M.P.H.: DROP-OFFS > 3" BUT < 5" SHALL BE TAPERED TO A 1:1
   OR FLATTER SLOPE TO EXISTING GROUND.
   ALL DROP-OFFS ≥ 5" SHALL BE TAPERED TO A 4:1 OR
   FLATTER SLOPE TO EXISTING GROUND.
   POSTED SPEED > 35 M.P.H.: LONGITUDINAL DROP-OFFS WILL NOT BE PERMITTED WITHIN
   2'-0" OF A TRAVEL LANE. THIS AREA MUST BE AT GRADE WITH THE TRAVEL LANE.
   HOWEVER, SHOULD THE CONTRACTOR’S APPROVED SEQUENCE OF OPERATIONS RESULT IN
   OVERNIGHT DROP-OFFS GREATER THAN THREE INCHES OCCURRING BETWEEN 2'-0" TO
   6'-0" FROM A TRAVEL LANE, THEN THE DROP-OFFS SHALL BE TAPERED TO A 4:1 OR
   FLATTER SLOPE TO EXISTING GROUND.
EXISTING PAVEMENT DEPTH ≤ 4"

EXISTING PAVEMENT DEPTH > 4"

NOTE:
A BOND BREAKER (TAPERED OR EQUIVALENT) WILL BE PLACED 5'–0" FROM THE JOINT AND COVERED WITH THE BINDER COURSE AS THE TEMPORARY RAMP. PRIOR TO PLACING THE SURFACE COURSE, THE BINDER COURSE AND BOND BREAKER WILL BE REMOVED.
NOTES
1. DETECTABLE WARNING PANEL SHALL BE IN ACCORDANCE WITH SECTION 942 OF THE RHODE ISLAND STANDARD SPECIFICATIONS; PANEL TO MATCH RAMP WIDTH.
NOTE: SHALL BE IN ACCORDANCE WITH SECTION L.06 OF THE R.I. STANDARD SPECIFICATIONS.
DO NOT CUT LEADER

REMOVE ALL DEADWOOD
(DO NOT REMOVE ANY OTHER VEGETATION)

TREE PER PLAN

REMOVE ALL NURSERY PROTECTION DEVICES PRIOR TO PLANTING

3" PINEBARK MULCH (UNLESS OTHERWISE NOTED ON PLANS)

MOUND WITH EXCAVATED SOIL TO 3" ABOVE FINISHED GRADE

EXISTING GROUND

PLANT TREE AT DEPTH EQUAL TO 2" LESS THAN THE DISTANCE FROM BOTTOM OF ROOTBALL TO ROOT COLLAR

2 x ROOTBALL DIAMETER (MIN.)

BACKFILL WITH LOAM

ROOTBALL ON UNDISTURBED SUBGRADE

CUT AND REMOVE BURLAP AND WIRE BASKET FROM TOP 1/3 OF ROOTBALL

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION L.06 OF THE R.I. STANDARD SPECIFICATIONS.
2. FOR STAKING DETAIL SEE STD. 50.1.0

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

TREES PLANTING ON SLOPE

REVISIONS
NO. BY DATE

JUNE 15, 1998

CHRISTINE CADDIE
CHIEF ENGINEER
TRANSPORTATION

ELIZABETH PETERSON
CHIEF DESIGN ENGINEER
TRANSPORTATION

R.I. STANDARD
50.1.1

ISSUE DATE
SECTION

LEAVE OUT PAVERS FOR TREE STAKING (TYP.) (SEE NOTE 2)

BACK OF CURB

PAVER DETAIL AROUND NEW TREES

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTIONS L.06 AND L.12 OF THE R.I. STANDARD SPECIFICATIONS.
2. STAKES SHOULD BE LOCATED PARALLEL TO ROAD AND SIDEWALK.
3. AFTER THE GUARANTEE PERIOD THE CONTRACTOR WILL BE RESPONSIBLE FOR REMOVAL OF STAKES AND GUY WEBBING, AND FOR THE INSTALLATION OF PAVERS PREVIOUSLY LEFT OUT FOR STAKING.
GUYING DETAIL

DO NOT CUT LEADER

TREE PER PLAN

REMOVE ALL DEADWOOD (DO NOT REMOVE ANY OTHER VEGETATION)

GUY WEBBING ATTACHED NO HIGHER THAN 1/2 AND NO LOWER THAN 1/3 THE HEIGHT OF THE TREE

8" (MAX.)

BACKFILL WITH LOAM

2" x 2" HARDWOOD STAKES (TYP.) HEIGHT VARIES
DRIVE 3'-0" INTO GROUND OUTSIDE OF PLANTING PIT

ROOTBALL ON UNDISTURBED SUBGRADE

2 x ROOTBALL DIAMETER (MIN.)

3" PINEBARK MULCH (UNLESS OTHERWISE NOTED ON PLANS)

MOUND WITH EXCAVATED SOIL TO 3" ABOVE FINISHED GRADE

PLANT TREE AT DEPTH EQUAL TO 2" LESS THAN THE DISTANCE FROM BOTTOM OF ROOTBALL TO ROOT COLLAR

CUT AND REMOVE BURLAP AND WIRE BASKET FROM TOP 1/3 OF ROOTBALL

NOTE: SHALL BE IN ACCORDANCE WITH SECTION L.06 OF THE R.I. STANDARD SPECIFICATIONS.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

EVERGREEN TREE PLANTING DETAIL (4'-0" HIGH AND GREATER)

JUNE 15, 1998

R.I. STANDARD 50.2.0
NOTE:
SHALL BE IN ACCORDANCE WITH SECTION L.06 OF THE R.I. STANDARD SPECIFICATIONS.
SHRUB PER PLAN

REMOVE ALL DEADWOOD (DO NOT REMOVE ANY OTHER VEGETATION)

3" PINEBARK MULCH (UNLESS OTHERWISE NOTED ON PLANS)

BACKFILL WITH LOAM

MOUND WITH EXCAVATED SOIL TO 3" ABOVE FINISHED GRADE

GENTLY HAND LOOSEN SOIL FROM AROUND ROOTBALL WITHOUT SEVERING MAIN ROOTS

SPREAD ROOTS OVER UNDISTURBED SUBGRADE

PLANT SHRUB AT DEPTH EQUAL TO 2" LESS THAN THE DISTANCE FROM BOTTOM OF ROOTBALL TO THE ROOT COLLAR

2 x ROOTBALL DIAMETER (MIN.)

NOTE: SHALL BE IN ACCORDANCE WITH SECTION L.06 OF THE R.I. STANDARD SPECIFICATIONS.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

CONTAINER GROWN SHRUB PLANTING DETAIL

R.I. STANDARD 50.3.1

JUNE 15, 1998

SIGNATURES
SHRUB PER PLAN

REMOVE ALL DEADWOOD
(DO NOT REMOVE ANY OTHER VEGETATION)

3" PINEBARK MULCH
(UNLESS OTHERWISE NOTED ON PLANS)

MOUND WITH EXCAVATED SOIL
TO 3" ABOVE FINISHED GRADE

EXISTING GROUND

2" (MAX.)

BACKFILL WITH LOAM

ROOTBALL ON UNDISTURBED SUBGRADE

PLANT SHRUB AT DEPTH EQUAL TO 2" LESS THAN THE DISTANCE FROM BOTTOM OF ROOTBALL TO ROOT COLLAR

CUT AND REMOVE BURLAP FROM TOP 1/3 OF ROOTBALL

2 x ROOTBALL DIAMETER (MIN.)

NOTE:
SHALL BE IN ACCORDANCE WITH SECTION L.06 OF THE R.I. STANDARD SPECIFICATIONS.
GENTLY HAND LOOSE SOIL FROM AROUND ROOTBALL WITHOUT SEVERING MAIN ROOTS

BACKFILL WITH LOAM

SPREAD ROOTS OVER UNDISTURBED SUBGRADE

PERENNIAL PER PLAN

2" PINEBARK MULCH (UNLESS OTHERWISE NOTED ON PLANS)

MOUND WITH EXCAVATED SOIL TO 3" ABOVE FINISHED GRADE

PLANT PERENNIAL AT DEPTH EQUAL TO THAT WHICH THE PLANT WAS GROWN IN THE NURSERY

NOTE:
SHALL BE IN ACCORDANCE WITH SECTION L.06 OF THE R.I. STANDARD SPECIFICATIONS.
ORNAMENTAL GRASS PER PLAN

GENTLY HAND LOOSEN
SOIL FROM AROUND
ROOTBALL WITHOUT
SEVERING MAIN ROOTS

BACKFILL WITH LOAM

2" PINEBARK MULCH
(UNLESS OTHERWISE
NOTED ON PLANS)

MOUND WITH
EXCAVATED SOIL
TO 3" ABOVE
FINISHED GRADE

SPREAD ROOTS OVER
UNDISTURBED SUBGRADE

PLANT GRASS AT
DEPTH EQUAL TO
THAT WHICH THE
PLANT WAS GROWN
IN THE NURSERY

2 x ROOTBALL
DIAMETER (MIN.)

NOTE:
SHALL BE IN ACCORDANCE WITH SECTION L.06 OF THE R.I. STANDARD SPECIFICATIONS.
PLANT GROUND COVER AT DEPTH EQUAL TO THAT WHICH IT WAS GROWN IN THE NURSERY.

BACKFILL WITH LOAM

SPREAD ROOTS OVER UNDISTURBED SUBGRADE

MOUND WITH EXCAVATED SOIL TO 3" ABOVE FINISHED GRADE

GENTLY HAND LOOSEN SOIL FROM AROUND ROOTBALL WITHOUT SEVERING MAIN ROOTS

GROUND COVER PER PLAN

2" PINEBARK MULCH (UNLESS OTHERWISE NOTED ON PLANS)

SEE PLAN FOR PLANTING BED LAYOUT

NOTE:
SHALL BE IN ACCORDANCE WITH SECTION L.06 OF THE R.I. STANDARD SPECIFICATIONS.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

GROUNDCOVER PLANTING DETAIL

R.I. STANDARD 50.6.0

CHIEF ENGINEER TRANSPORTATION
CHIEF DESIGN ENGINEER TRANSPORTATION

JUNE 15, 1998
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION L.06 OF THE R.I. STANDARD SPECIFICATIONS.
2. BY HAND, SPREAD BONE MEAL OVER ENTIRE PLANTING BED AT A RATE NOT TO EXCEED 1/2 LB. PER 25 SQ. FT.
NOTE:
SHALL BE IN ACCORDANCE WITH SECTION L.11 OF THE STANDARD SPECIFICATIONS.
NOTE:
SHALL BE IN ACCORDANCE WITH SECTION L.11 OF THE R.I. STANDARD SPECIFICATIONS.
SHRUB TO BE PROTECTED

1'-0" CLEARANCE AROUND SHRUB

6'-0" STANDARD STEEL POST

2'-0" (MIN.)

NOTE:
SHALL BE IN ACCORDANCE WITH SECTION L.11 OF THE R.I. STANDARD SPECIFICATIONS.
PARTIAL TREE WELL

CIRCUMFERENTIAL TREE WELL

NOTE:
SHALL BE IN ACCORDANCE WITH SECTION L.13 OF THE R.I. STANDARD SPECIFICATIONS.
1. SHALL BE IN ACCORDANCE WITH SECTION L.13 OF THE R.I. STANDARD SPECIFICATIONS.
2. FOR WALL INSTALLATION DETAILS REFERENCE STD. 10.0.1.
3. PRIOR TO EXCAVATION, THE CONTRACTOR SHALL ROOT PRUNE THE TREE. ALL ROOT PRUNING SHALL BE IN ACCORDANCE WITH SECTION L.10 OF THE R.I. STANDARD SPECIFICATIONS.