<table>
<thead>
<tr>
<th>Standard</th>
<th>Modification Summary</th>
<th>Effective: 03-31-2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>The electronic (pdf) version of the Standard Drawing are now made searchable (text).</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C1</th>
<th>Galvanized Steel Plate Beam Guardrail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notes 5 &amp; 7. Clarified aggregate shoulder width.</td>
<td></td>
</tr>
<tr>
<td>Revised aggregate shoulder at shoulder point on sections to match base sheets. Added cut section with gutter.</td>
<td></td>
</tr>
<tr>
<td>Sheet 2 Removed Wood Post column in Table 1, since it’s not applicable. Corrected equation for &gt; 28 1/8” depth.</td>
<td></td>
</tr>
<tr>
<td>Sheet 3 Included notes into Leave Out details.</td>
<td></td>
</tr>
<tr>
<td>Sheet 4 Clarified notes for use of detail with other underground conflicts.</td>
<td></td>
</tr>
<tr>
<td>Added Minimum Barrier Clearance Distances (MASH) to be used after 2017 to Table 2.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C3</th>
<th>Single Face Reinforced Concrete Barrier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Added maximum exposure depth for base. Revised expansion joint sealant note to match structure detail.</td>
<td></td>
</tr>
<tr>
<td>Removed backer rod from sides and beneath base.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C4</th>
<th>Concrete Shoulder Barrier Transition Type F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revised expansion joint sealant note to match structure detail. Removed backer rod from sides and beneath base.</td>
<td></td>
</tr>
<tr>
<td>Note 10. Revised minimum expansion joint spacing from 27” to 25”</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C5</th>
<th>Concrete Barrier Base, and Concrete Barrier, Double Face, 42” and Variable Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deleted previous Notes 2. &amp; 5 and renumbered Notes. Re-arranged sections.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C6</th>
<th>Shoulder Widening for Traffic Barrier Terminal, Type T1 (Special) Tangent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deleted Sheet 3. Incorporated Gutter, Type G-2 into Sheet 2.</td>
<td></td>
</tr>
<tr>
<td>Note 2. Added reference to minimum offset to rail.</td>
<td></td>
</tr>
<tr>
<td>Note 6. Incorporated tangent and curved section notes into note 6.</td>
<td></td>
</tr>
<tr>
<td>Revised Aggregate Shoulder in section to match base sheets. Revised Recovery Area so that 90° starts at Post 1.</td>
<td></td>
</tr>
<tr>
<td>Removed minimum rail offset dimension in plan view.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C7</th>
<th>Traffic Barrier Terminal, Type T2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revised Aggregate Shoulder in sections to match base sheets. Added edge of paved shoulder and shoulder point line to plan views.</td>
<td></td>
</tr>
<tr>
<td>Sheet 3 Revised pipe diameter to 2” in Wood Post Detail</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C9</th>
<th>Traffic Barrier Terminal, Type T6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revised Aggregate Shoulder in sections to match base sheets. Added shoulder point line to plan views.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C10</th>
<th>Traffic Barrier Terminal, Type T6B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revised Aggregate Shoulder in sections to match base sheets. Added shoulder point line to plan view.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C11</th>
<th>Traffic Barrier Terminal, Type T10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revised Flared Wing angle from 15° to 20° (minimum), deleted note previously associated with it, and deleted 2’ dimension</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C12</th>
<th>Shoulder Widening for Traffic Barrier Terminal, Type T1-A (Special) Tangent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Note 3. Added reference to minimum offset to rail.</td>
<td></td>
</tr>
<tr>
<td>Note 7. Incorporated tangent and curved section notes into note 7.</td>
<td></td>
</tr>
<tr>
<td>Revised Aggregate Shoulder in sections to match base sheets. Revised Recovery Area so 60° starts at Post 1.</td>
<td></td>
</tr>
<tr>
<td>Removed minimum rail offset dimension in plan views. Removed Gutter, Type G-3 Row in Table 1.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C13</th>
<th>Concrete Median Barrier Transition, Type V-F at Bridge Piers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combined Notes 1 &amp; 2 and renumbered Notes.</td>
<td></td>
</tr>
<tr>
<td>Note 3 (former Note 4). Revised expansion joint sealant note to match structure detail.</td>
<td></td>
</tr>
<tr>
<td>Removed Tie Bars in Section D-D. Removed backer rod from sides and beneath base in Section A-A.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C14</th>
<th>Concrete Median Barrier Transition, Type V at Bridge Piers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aligned Plan and Elevation views. Added ditch to Elevation view. Re-arranged Notes and Sections.</td>
<td></td>
</tr>
</tbody>
</table>

| New Sheet | Retired Standard |
TABLE 1

<table>
<thead>
<tr>
<th>V</th>
<th>W</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 16&quot;</td>
<td>24&quot;</td>
<td>21&quot;</td>
</tr>
<tr>
<td>&gt; 16&quot; - 28&quot;</td>
<td>12&quot;</td>
<td>8&quot;</td>
</tr>
<tr>
<td>&gt; 28&quot; - 40&quot;</td>
<td>12&quot; - 0</td>
<td>8&quot;</td>
</tr>
</tbody>
</table>

* V + W = 40"/"
PLAN

ELEVATION

STANDARD C1-08

BEAM GUARDRAIL

GALVANIZED STEEL PLATE

APPROVED

DATE

CHIEF ENGINEER

5-1-2009

SHEET 3 OF 4

LEAVES OUT

FOR 9' POSTS ONLY (STAMP BOTH SIDES)

STEEL POST CONSTRUCTION

W6x3 or W6x5.5 STEEL POST

STEEL POST

COLD MIX ASPHALT (CMA) OR CONTROLLED LOW STRENGTH MATERIAL (CLSM) CAP (MATCH THE EXISTING CROSS SLOPE)

LEAVE-OUTS

† THE AREA AROUND THE POST THAT IS EITHER OMITTED FROM THE NEW CONSTRUCTION OR REMOVED FROM THE EXISTING CONCRETE OR ASPHALT.
**Table 2**

<table>
<thead>
<tr>
<th>Guardrail System</th>
<th>Post Spacing</th>
<th>Minimum Barrier Clearance Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Current</td>
</tr>
<tr>
<td>Type A</td>
<td>6'-3&quot;</td>
<td>28&quot;</td>
</tr>
<tr>
<td>1/2 Post Spacing</td>
<td>3'-1 1/2&quot;</td>
<td>23&quot;</td>
</tr>
<tr>
<td>Type C</td>
<td>1'-6 1/2&quot;</td>
<td>14&quot;</td>
</tr>
</tbody>
</table>

**Diagram Notes:**

- When length of obstacles is 1'-3" or less, the downstream transition shall be omitted.
- Underground conflicts.

**Frequency of Observations:**

- **A:** Guardrail posts shall not be eliminated; all posts must be used. Posts adjacent to repositioned posts may need to be moved to keep 3'-1/2" minimum spacing.
- **B:** Guardrail posts shall not be set back to avoid conflicts with a drainage structure.
- **C:** This detail also applies to other underground conflicts.
REINFORCEMENT AROUND DRAINAGE STRUCTURE

NOTES:

1. TOP SHOULDER EDGE OF BARRIER BASE GUTTER SHALL MATCH THE TOP OF SHOULDER ELEVATION.

2. 1" DEEP CONTRACTION JOINTS SHALL BE CONSTRUCTED IN BOTH THE REINFORCED CONCRETE BARRIER WALL AND BASE. CONTRACTION JOINTS SHALL ALSO BE CONSTRUCTED AT BOTH SIDES OF ALL DRAINAGE STRUCTURES. MAXIMUM CONTRACTION JOINT SPACING SHALL BE 30'-0".

3. THE FORMING OF CONTRACTION JOINTS SHALL BE DONE WITH AN APPROVED FINISHING TOOL OR BY SAWING SUBJECT TO THE SATISFACTORY CONTROL OF CRACKING.

4. REINFORCEMENT BARS DESIGNATED "(E)" SHALL BE EPOXY COATED.

5. REINFORCEMENT BARS BENDING DETAILS SHALL BE IN ACCORDANCE WITH THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 318, LATEST EDITION.

6. REINFORCEMENT BARS BENDING DIMENSIONS ARE OUT TO OUT.

7. AT DRAINAGE STRUCTURES, CUT FOOTING BARS TO FIT, AND ADD AN ADDITIONAL SET OF d, d1, t, AND t1 BARS ON EACH SIDE OF THE DRAINAGE STRUCTURE.

8. EXPANSION JOINTS SHALL BE CONSTRUCTED IN BARRIER WALL AT MAXIMUM JOINT SPACING OF 90'-0". SEE SECTION B-B FOR DETAILS.

9. MINIMUM LENGTH OF INSTALLATION SHALL BE 25'-0".

10. MINIMUM EXPANSION JOINT SPACING SHALL BE 20'-0".

EXPANSION JOINTS SHALL BE CONSTRUCTED AT BOTH SIDES OF ALL DRAINAGE STRUCTURES. MAXIMUM JOINT SPACING SHALL BE 30'-0".

NOTE: REINFORCEMENT BARS DESIGNATED "(E)" SHALL BE EPOXY COATED.

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REINFORCEMENT BARS BENDING DIMENSIONS ARE OUT TO OUT.

AT DRAINAGE STRUCTURES, CUT FOOTING BARS TO FIT, AND ADD AN ADDITIONAL SET OF d, d1, t, AND t1 BARS ON EACH SIDE OF THE DRAINAGE STRUCTURE.

EXPANSION JOINTS SHALL BE CONSTRUCTED IN BARRIER WALL AT MAXIMUM JOINT SPACING OF 90'-0". SEE SECTION B-B FOR DETAILS.

MINIMUM LENGTH OF INSTALLATION SHALL BE 25'-0".

MINIMUM EXPANSION JOINT SPACING SHALL BE 20'-0".
**Concrete Shoulder Barrier Transition, Type F**

1. **Taper Length Required for the Width Transition Will Be 25'-0" Minimum. Increase Taper Rate as Required to Obtain the Length of 25'-0".**

2. **Top Shoulder Edge of Barrier Base Gutter Shall Match the Top of Shoulder Elevation.**

3. **1" Deep Contraction Joints Shall Be Constructed in Both the Reinforced Concrete Barrier Wall and Base. Contraction Joints Shall Also Be Constructed at Both Sides of All Drainage Structures. Maximum Contraction Joint Spacing Shall Be 30'-0".**

4. **The Forming of Contraction Joints Shall Be Done With an Approved Finishing Tool Or By Sawing Subject To the Satisfactory Control of Cracking.**

5. **Reinforcement Bars Designated "(E)" Shall Be Epoxy Coated.**


7. **Reinforcement Bars Bending Dimensions Are Cut to Cut.**

8. **Type F Barrier Shall Be Used With All New Construction, Or Reconstruction of Existing Barriers.**

9. **E.F. Denotes Each Face.**

10. **Minimum Expansion Joint Spacing Shall Be 25'-0".**

---

**Notes:**
- 6-#4 e (E) Bars @ 12" E.F., #4 e (E) Bars @ 12" E.F.
- 4 #4 e (E) Bars @ 18" E.F. (VARIES @ 18" E.F. TO 12" E.F.)
- RECONSTRUCTION OF EXISTING BARRIERS. TYPE F BARRIER SHALL BE USED WITH ALL NEW CONSTRUCTION, OR RECONSTRUCTION OF EXISTING BARRIERS.
- CONSTRUCTION OF CONTRACTION JOINTS SHALL BE DONE WITH AN APPROVED FINISHING TOOL OR BY SAWING SUBJECT TO THE SATISFACTORY CONTROL OF CRACKING.
- REINFORCEMENT BARS DESIGNATED "(E)" SHALL BE EPOXY COATED.
- REINFORCEMENT BARS BENDING DETAILS SHALL BE IN ACCORDANCE WITH THE "MANUAL OF STANDARD PRACTICES FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315, LATEST EDITION.
- SATISFACTORY CONTROL OF CRACKING.
- USE T WITH A BACKER ROD.
- EXPANSION JOINTS SPACING MINIMUM EXPANSION JOINT 10.

---

**ILLINOIS "TOLLWAY"**

**CONTINUOUS WITH MIN LAP**

- #4 w(E) Bars Shall Be
- @ 8" BARS
- @ 6" BARS
- @ 6" BARS
- @ 8" **2" VERTICAL CLR.
- CUT TO FIT IN FIELD
- 1" PJF
- 1" PJF
- MINIMUM
- BARRIER TRANSITION = 25'-0" 10'-0" 5'-0"

**Standard C4-06**

CONCRETE SHOULDER BARRIER TRANSITION

---

**APPROVED DATE**

CHIEF ENGINEER

2-7-2012

REVISIONS

DATE

CHIEF ENGINEER

10-01-13

11-01-12

NOTES:

- SECTION D-D
- SECTION A-A
- BENDING DIAGRAMS
- #4 d1(E) BAR
- #6 d(E) BAR
- 2" VERTICAL CLR.
- 1" PJF
- MINIMUM
- BARRIER TRANSITION = 25'-0"
- 10'-0" 5'-0"
- 3'-6"
- TAPER LENGTH 25'-0" MINIMUM
- 10'-0" 5'-0"
- 3'-6"
- TAPER LENGTH REQUIRED FOR THE WIDTH TRANSITION WILL BE 25'-0"
- 10'-0" 5'-0"
- MINIMUM EXPANSION JOINT
- 1'-6"
- 1" DEEP CONTRACTION JOINTS SHALL BE CONSTRUCTED IN BOTH THE REINFORCED CONCRETE BARRIER WALL AND Base. CONTRACTION JOINTS SHALL ALSO BE CONSTRUCTED AT BOTH SIDES OF ALL DRAINAGE STRUCTURES. MAXIMUM CONTRACTION JOINT SPACING SHALL BE 30'-0".
- THE FORMING OF CONTRACTION JOINTS SHALL BE DONE WITH AN APPROVED FINISHING TOOL OR BY SAWING SUBJECT TO THE SATISFACTORY CONTROL OF CRACKING.
- REINFORCEMENT BARS DESIGNATED "(E)" SHALL BE EPOXY COATED.
- REINFORCEMENT BARS BENDING DETAILS SHALL BE IN ACCORDANCE WITH THE "MANUAL OF STANDARD PRACTICES FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315, LATEST EDITION.
- SATISFACTORY CONTROL OF CRACKING.
- USE T WITH A BACKER ROD.
- EXPANSION JOINTS SPACING MINIMUM EXPANSION JOINT 10.

---

**PLAN**

**ELEVATION**

**CONCRETE SHOULDER BARRIER TRANSITION, TYPE F**

---

**SECTION D-D**

**SECTION A-A**

**SECTION B-B**

**SECTION C-C**
NOTES:

1. 2" deep contraction joints shall be done by sawing and shall be constructed in the concrete barrier wall, concrete barrier base, and concrete gutter special. Contraction joints shall also be constructed at both sides of all drainage structures. Maximum contraction joint spacing shall be 10'-0". The minimum distance between contraction joints in the median barrier wall shall be 2'-0" when a drainage structure falls within 2'-0" from an expansion joint or contraction joint. The nearest contraction joint shall be omitted.

2. Gutter profile in the vicinity of sag vertical curves, along flat grades, and at the meeting of proposed and existing gutter, shall be carefully controlled and field adjusted if necessary to ensure positive drainage and avoid ponding.

3. In areas of relatively flat longitudinal profile grades, the 3" vertical dimension at the bottom of the barrier can vary from 2" to 3" to create an acceptable longitudinal grade in the gutter.

4. Reference plan sheet for type, size, and number of conduits, provide 1/2" (min.) clearance to the top of conduit and 2" (min.) clearance to the bottom of the conduit.

5. When variable height vertical differential exceeds 9", see structural plans for details.

6. Gutter slope shall be 4.17% sloped toward the median unless otherwise noted. Gutter slope is reverse pitched in super-elevated sections. Transition gutter slope over 30'-0". Gutter slope transitions are included in the cost of concrete base and/or concrete gutter special. See roadway plans for limits of reverse pitched gutter and transitions.

CONCRETE BARRIER, DOUBLE FACE, 42"
CONCRETE BARRIER BASE, 7'-0"

CONCRETE BARRIER, DOUBLE FACE, VARIABLE HEIGHT
CONCRETE BARRIER BASE, VARIABLE HEIGHT, 7'-0"

CONCRETE BARRIER, DOUBLE FACE, VARIABLE HEIGHT
CONCRETE BARRIER BASE, VARIABLE HEIGHT, 5'-0"

*When 6" or greater add top tie bar.

NOTES:

2'-0"
1'-6"
1'-6"
2'-0"

3/4"
3/4"
3/4"
3/4"

5"
5"
5"
5"

7'-0"
7'-0"
7'-0"
7'-0"

5" TIE BARS
12" LONG @ 30" CTS

CONCRETE GUTTER SPECIAL

NOTE 4

NOTE 4

NOTE 4

NOTE 4

NOTE 4

CONCRETE BARRIER, DOUBLE FACE, VARIABLE HEIGHT
CONCRETE BARRIER BASE, VARIABLE HEIGHT, 5'-0"

BARRIER HEIGHT VERTICAL DIFFERENTIAL VARIES 0" TO 3"

(BARRIER HEIGHT VERTICAL DIFFERENTIAL VARIES 3" TO 9"

WHEN 6" OR GREATER ADD TOP TIE BAR.

NOTE 4

NOTE 4

NOTE 4

NOTE 4

NOTE 4

CONCRETE BARRIER, DOUBLE FACE, VARIABLE HEIGHT
CONCRETE BARRIER BASE, VARIABLE HEIGHT, 7'-0"

BARRIER HEIGHT VERTICAL DIFFERENTIAL VARIES 0" TO 3"

(BARRIER HEIGHT VERTICAL DIFFERENTIAL VARIES 3" TO 9"

WHEN 6" OR GREATER ADD TOP TIE BAR.

NOTE 4

NOTE 4

NOTE 4

NOTE 4

NOTE 4

CONCRETE BARRIER, DOUBLE FACE, VARIABLE HEIGHT
CONCRETE BARRIER BASE, VARIABLE HEIGHT, 5'-0"

BARRIER HEIGHT VERTICAL DIFFERENTIAL VARIES 0" TO 3"

(BARRIER HEIGHT VERTICAL DIFFERENTIAL VARIES 3" TO 9"

WHEN 6" OR GREATER ADD TOP TIE BAR.

NOTE 4

NOTE 4

NOTE 4

NOTE 4

NOTE 4

CONCRETE BARRIER, DOUBLE FACE, VARIABLE HEIGHT
CONCRETE BARRIER BASE, VARIABLE HEIGHT, 7'-0"

BARRIER HEIGHT VERTICAL DIFFERENTIAL VARIES 0" TO 3"

(BARRIER HEIGHT VERTICAL DIFFERENTIAL VARIES 3" TO 9"

WHEN 6" OR GREATER ADD TOP TIE BAR.

NOTE 4

NOTE 4

NOTE 4

NOTE 4

NOTE 4

CONCRETE BARRIER, DOUBLE FACE, VARIABLE HEIGHT
CONCRETE BARRIER BASE, VARIABLE HEIGHT, 5'-0"

BARRIER HEIGHT VERTICAL DIFFERENTIAL VARIES 0" TO 3"

(BARRIER HEIGHT VERTICAL DIFFERENTIAL VARIES 3" TO 9"

WHEN 6" OR GREATER ADD TOP TIE BAR.
GENERAL NOTES:

1. All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).

2. Reference Illinois Tollway Standard Drawing B28 for gutter transition, and minimum distance from edge of paved shoulder to face of rail.

3. Under no circumstances shall an existing terminal, that was designed using a previous standard, be attached to or modified in any way from its original design. If any modification is required and a proper barrier warrant has been completed, the entire barrier installation shall be completely removed and replaced with a new system that conforms to the current standard.

4. Traffic barrier terminal shall be in accordance with the manufacturer's details and specifications.

5. No roadside obstacle of any type—fixed or breakaway, either temporary or permanent—shall be allowed within this recovery area.

6. On tangent roadway, traffic barrier terminal shall be installed at a 50:1 taper measured from edge of traveled way. On curved roadway, the edge of the terminal extruder head shall be offset a distance from a point on the back of the curved edge of paved shoulder as shown in Table 1. No curved W-beam sections are permitted within the terminal pay limits. The terminal shall be laid out in a straight line.

7. Terminal posts shall not be installed in concrete or HMA. When necessary, leave-out detail shown on Illinois Tollway Standard Drawing C1.

8. The terminal system has been performance-tested for crashworthiness under procedures defined in the National Cooperative Highway Research Program (NCHRP) Report 350, No modification to this standard drawing shall be permitted.

REVISED NOTES

STANDARD C6-08
TRAFFIC BARRIER TERMINAL, TYPE T2-WITHOUT GUTTER

NOTES:

1. SEE ILLINOIS TOLLWAY STANDARD DRAWING C1 FOR DETAILS OF GUARDRAIL NOT SHOWN.

2. THE BEARING PLATE K SHALL BE HELD IN POSITION BY TWO 8D NAILS DRIVEN INTO THE POST AND BENT OVER THE TOP OF THE PLATE.

3. THE TRAFFIC BARRIER TERMINAL TYPE T2 IS TYPICALLY UTILIZED FOR THE GIRDING END SECTION OF A GALVANIZED STEEL PLATE BEAM GUARDRAIL BARRIER SYSTEM.

4. UNDER NO CIRCUMSTANCES SHALL AN EXISTING TERMINAL, THAT IS DESIGNED USING A PREVIOUS STANDARD, BE ATTACHED TO OR MODIFIED IN ANY WAY FROM ITS ORIGINAL DESIGN. IF ANY MODIFICATION IS REQUIRED AND A PROPER BARRIER WARRANTY HAS BEEN COMPLETED, THE ENTIRE BARRIER INSTALLATION SHALL BE COMPLETELY REMOVED AND REPLACED WITH A NEW SYSTEM THAT CONFORMS TO THE CURRENT STANDARD.

5. TRAFFIC BARRIER TERMINAL SHALL BE IN ACCORDANCE WITH THE ILLINOIS TOLLWAY'S DETAILS AND SPECIFICATIONS. NO MODIFICATIONS SHALL BE PERMITTED.

6. TERMINAL POSTS SHALL NOT BE INSTALLED IN CONCRETE OR ASPHALT PAVEMENT. WHEN NECESSARY USE LEAVE-OUT DETAIL PER ILLINOIS TOLLWAY STANDARD DRAWING C1.


DETAILS OF GUARDRAIL NOT SHOWN.

SEE ILLINOIS TOLLWAY STANDARD DRAWING C1 FOR MORE DETAILS.
NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.
NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

CABLE ASSEMBLY
140,000 LBS. minimum breaking strength
TIGHTEN TO TAUT TENSION

STEEL TUBE

WOOD POST

YOKES

1/8" STEEL PLATE

BEARING PLATE K

CABLE STRUT

ANCHOR PLATE T DETAILS

NOTE:
ANCHOR PLATE T SHALL BE USED TO ATTACH CABLE ASSEMBLY TO GUARDRAIL WHEN REQUIRED ON TRAFFIC BARRIER TERMINALS.

CLIENT:
ILLINOIS TOLLWAY

LOCATION:

TRAFFIC BARRIER TERMINAL, TYPE T2

STANDARD C7-07

NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.
REVISIONS
DATE
2-07-2012
3-31-2014
SHEET 1 OF 5
REVISED BOLT NOTES, ANCHORAGE
MODIFIED AGGREGATE SHOULDERS,
APPROVED
DATE
CHIEF ENGINEER
7-1-2009
NOTES:
PLAN
ELEVATION
1. SEE ILLINOIS TOLLWAY STANDARD DRAWING C1 FOR DETAILS OF GUARDRAIL NOT SHOWN.
2. THRIE BEAM RAIL SHALL BE BOLTED TO BLOCK-OUT AT ALL POSTS.
3. ALL SLOPE RATIOS ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).
4. THE TRAFFIC BARRIER TERMINAL, TYPE T6 IS TYPICALLY UTILIZED TO ATTACH GALVANIZED STEEL PLATE BEAM GUARDRAIL AT THE UPSTREAM END OF THE BRIDGES CONCRETE PARAPET, WHERE A ROADSIDE GUARD RAIL IS TO BE INSTALLED.
5. SEE ILLINOIS TOLLWAY STANDARD DRAWING B3 FOR GUTTER TRANSITION AT TRAFFIC BARRIER TERMINAL, TYPE T6.
6. UNDER NO CIRCUMSTANCES SHALL AN EXISTING TERMINAL, THAT WAS DESIGNED USING A PREVIOUS STANDARD, BE ATTACHED TO OR MODIFIED IN ANYWAY FROM ITS ORIGINAL DESIGN, IF ANY MODIFICATION IS REQUIRED AND A PROPER WARRANT HAS BEEN COMPLETED. THE COMPLETE INSTALLATION SHALL BE COMPLETELY REMOVED AND REPLACED WITH A NEW SYSTEM THAT CONFORMS TO THE CURRENT STANDARD.
7. TRAFFIC BARRIER TERMINAL, TYPE T6 SHALL BE IN ACCORDANCE WITH THE ILLINOIS TOLLWAY'S DETAILS AND SPECIFICATIONS. NO MODIFICATIONS SHALL BE PERMITTED.
8. TERMINAL POSTS SHALL NOT BE INSTALLED IN CONCRETE OR ASPHALT PAVEMENTS. WHEN NECESSARY USE LEAVE-OUT DETAIL PER ILLINOIS TOLLWAY STANDARD DRAWING C1.
9. TERMINAL POSTS TO BE INSTALLED PERPENDICULAR TO BACK OF GUTTER.
10. THE TERMINAL SYSTEM HAS BEEN PERFORMANCE-TESTED FOR CRASHWORTHINESS UNDER PROCEDURES DEFINED IN THE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) REPORT 350. NO MODIFICATION TO THIS STANDARD DRAWING SHALL BE PERMITTED.
11. TERMINAL BARRIER CLEARANCE DISTANCE SHALL CONFORM WITH TABLE 2 ON ILLINOIS TOLLWAY STANDARD DRAWING C1.
12. LEAVE-OUT DIMENSION BEHIND POSTS 1-6, SHALL BE A MINIMUM OF 4".

For Parapet (Safety Face)
WITH GUTTERS, TYPE G-3

WITH GUTTERS, TYPE G-3

SHEET 1 OF 5
TRAFFIC BARRIER TERMINAL, TYPE T6
STANDARD C9-07

ILLINOIS TOLLWAY
FOR CONCRETE BARRIER, SINGLE-FACE W/ GUTTER, TYPE G-3

ELEVATION

NOTE:
SEE SHEET 1 OF THIS SERIES FOR GUTTER TRANSITION NOTES AND SECTION A-A,

TRAFFIC BARRIER TERMINAL, TYPE T6
STANDARD C9-07
NOTES:

1. SEE ILLINOIS TOLLWAY STANDARD DRAWING C1 FOR DETAILS OF GUARDRAIL NOT SHOWN.

2. THRIE BEAM RAIL SHALL BE BOLTED TO BLOCK-OUT AT ALL POSTS.

3. ALL SLOPE RATIOS ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).

4. THE TRAFFIC BARRIER TERMINAL, TYPE T6B IS TYPICALLY UTILIZED TO ATTACH GALVANIZED STEEL PLATE BEAM GUARDRAIL AT THE UPSTREAM END OF THE BRIDGE CONCRETE PARAPET, WHERE A ROADSIDE GUTTER IS NOT TO BE INSTALLED.

5. UNDER NO CIRCUMSTANCES SHALL EXISTING TERMINAL, THAT WAS DESIGNED USING A PREVIOUS STANDARD, BE ATTACHED TO OR MODIFIED IN ANYWAY FROM ITS ORIGINAL DESIGN. IF ANY MODIFICATION IS REQUIRED AND A PROPER BARRIER WARRANT HAS BEEN COMPLETED, THE ENTIRE BARRIER INSTALLATION SHALL BE COMPLETELY REMOVED AND REPLACED WITH A NEW SYSTEM THAT CONFORMS TO THE CURRENT STANDARD.

6. TRAFFIC BARRIER TERMINAL SHALL BE IN ACCORDANCE WITH THE ILLINOIS TOLLWAY'S DETAILS AND SPECIFICATIONS, NO MODIFICATIONS SHALL BE PERMITTED.

7. TERMINAL POSTS SHALL NOT BE INSTALLED IN CONCRETE OR ASPHALT PAVEMENTS. WHEN NECESSARY USE LEAVE-OUT DETAIL PER ILLINOIS TOLLWAY STANDARD DRAWING C1, SHEET 8 OF 4.

8. TERMINAL BARRIER CLEARANCE DISTANCE SHALL CONFORM WITH TABLE 2 ON ILLINOIS TOLLWAY STANDARD DRAWING C1.

9. LEAVE-OUT DIMENSION BEHIND POSTS #1-6 SHALL BE A MINIMUM OF 4".
**GENERAL NOTE:**

3'-1" 

2'-0" 

* 

**DETAIL "A"**

**TERMINAL, TYPE T10**

TRAFFIC BARRIER

REVISED NOTES, ADDED END SHOE AND REVISED END SHOE HEIGHT ATTACHMENT AND REVISED NOTES.

3-31-2014
2-07-2012
1-01-2011
3-01-2010

**APPROVED DATE**

CHIEF ENGINEER

7-1-2009

**REVISED BOLT NOTE, ADDED DETAIL "A" END SHOE**

**TANGENT WING**

**FLARED WING**

**CURVED WING**

**ELEVATION**

**PLAN**

**NOTES:**

1. SEE ILLINOIS TOLLWAY STANDARD DRAWING C1 FOR DETAILS OF GUARDRAIL NOT SHOWN.

2. THE 24½" TYPICAL RAIL HEIGHT IS MEASURED FROM EXISTING SURFACE 2'-0" IN FRONT OF RAIL, OR FROM EDGE OF SHOULDER/EDGE OF GUTTER AND EDGE IS MORE THAN 1'-0" IN FRONT OF RAIL TO CENTER OF RAIL.

3. THE TRAFFIC BARRIER TERMINAL, TYPE T10, IS TYPICALLY UTILIZED TO CONNECT GALVANIZED STEEL PLATE BEAM GUARDRAIL TO THE DEPARTING END OF AN EXISTING BRIDGE CONCRETE WING WALL OR PARAPET.

4. UNDER NO CIRCUMSTANCES SHALL AN EXISTING TERMINAL, THAT WAS DESIGNED USING A PREVIOUS STANDARD, BE ATTACHED TO OR MODIFIED IN ANY WAY FROM ITS ORIGINAL DESIGN. IF ANY MODIFICATION IS REQUIRED AND A PROPER BARRIER WARRANT HAS BEEN COMPLETED, THE EXISTING INSTALLATION SHALL BE COMPLETELY REMOVED AND REPLACED WITH A NEW SYSTEM THAT CONFORMS TO THE CURRENT STANDARD.

5. TRAFFIC BARRIER TERMINAL SHALL BE IN ACCORDANCE WITH THE ILLINOIS TOLLWAY'S DETAILS AND SPECIFICATIONS. NO MODIFICATIONS SHALL BE PERMITTED.

6. WHEN END SHOE IS ATTACHED TO A BRIDGE PARAPET WHICH HAS AN EXPANSION JOINT, THE BOLTS SHALL BE PROVIDED WITH A LOCKNUT OR DOUBLE NUT AND SHALL BE TIGHTENED ONLY TO A POINT THAT WILL ALLOW GUARDRAIL MOVEMENT.

7. THE ANCHOR CONE SHALL BE SET FLUSH WITH THE SURFACE OF THE CONCRETE.

8. EXTERNALLY THREADED STUDS PROTRUDING FROM THE SURFACE OF THE CONCRETE SHALL NOT BE PERMITTED.

9. WHEN WING WALL THICKNESS IS GREATER THAN 18" OR NOT ACCESSIBLE TO THE BACK SIDE, 4-½" BOLTS SHALL BE ANCHORED INTO DRILLED HOLES USING A CHEMICAL ADHESIVE. MINIMUM EMBEDMENT SHALL BE 10". ANCHOR BOLTS WITH STANDARD WASHER SHALL BE USED. AFTER TIGHTENING, CUT THE ANCHOR BOLTS FLUSH WITH THE NUTS, AND DAMAGE THE NUTS TO PREVENT THEM FROM LOOSENING.

**DETAIL "A"**

END SHOE

**TOLLWAY'S DETAILS AND SPECIFICATIONS. NO MODIFICATIONS SHALL BE PERMITTED.**

**DATE**

**REVISED BOLT NOTE, ADDED DETAIL "A" END SHOE**

**TANGENT WING**

**FLARED WING**

**CURVED WING**

**ELEVATION**

**PLAN**

**NOTES:**

1. SEE ILLINOIS TOLLWAY STANDARD DRAWING C1 FOR DETAILS OF GUARDRAIL NOT SHOWN.

2. THE 24½" TYPICAL RAIL HEIGHT IS MEASURED FROM EXISTING SURFACE 2'-0" IN FRONT OF RAIL, OR FROM EDGE OF SHOULDER/EDGE OF GUTTER AND EDGE IS MORE THAN 1'-0" IN FRONT OF RAIL TO CENTER OF RAIL.

3. THE TRAFFIC BARRIER TERMINAL, TYPE T10, IS TYPICALLY UTILIZED TO CONNECT GALVANIZED STEEL PLATE BEAM GUARDRAIL TO THE DEPARTING END OF AN EXISTING BRIDGE CONCRETE WING WALL OR PARAPET.

4. UNDER NO CIRCUMSTANCES SHALL AN EXISTING TERMINAL, THAT WAS DESIGNED USING A PREVIOUS STANDARD, BE ATTACHED TO OR MODIFIED IN ANY WAY FROM ITS ORIGINAL DESIGN. IF ANY MODIFICATION IS REQUIRED AND A PROPER BARRIER WARRANT HAS BEEN COMPLETED, THE EXISTING INSTALLATION SHALL BE COMPLETELY REMOVED AND REPLACED WITH A NEW SYSTEM THAT CONFORMS TO THE CURRENT STANDARD.

5. TRAFFIC BARRIER TERMINAL SHALL BE IN ACCORDANCE WITH THE ILLINOIS TOLLWAY'S DETAILS AND SPECIFICATIONS. NO MODIFICATIONS SHALL BE PERMITTED.

6. WHEN END SHOE IS ATTACHED TO A BRIDGE PARAPET WHICH HAS AN EXPANSION JOINT, THE BOLTS SHALL BE PROVIDED WITH A LOCKNUT OR DOUBLE NUT AND SHALL BE TIGHTENED ONLY TO A POINT THAT WILL ALLOW GUARDRAIL MOVEMENT.

7. THE ANCHOR CONE SHALL BE SET FLUSH WITH THE SURFACE OF THE CONCRETE.

8. EXTERNALLY THREADED STUDS PROTRUDING FROM THE SURFACE OF THE CONCRETE SHALL NOT BE PERMITTED.

9. WHEN WING WALL THICKNESS IS GREATER THAN 18" OR NOT ACCESSIBLE TO THE BACK SIDE, 4-½" BOLTS SHALL BE ANCHORED INTO DRILLED HOLES USING A CHEMICAL ADHESIVE. MINIMUM EMBEDMENT SHALL BE 10". ANCHOR BOLTS WITH STANDARD WASHER SHALL BE USED. AFTER TIGHTENING, CUT THE ANCHOR BOLTS FLUSH WITH THE NUTS, AND DAMAGE THE NUTS TO PREVENT THEM FROM LOOSENING.
GENERAL NOTES:

1. All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).
2. The traffic barrier terminal, Type T1-A (Special) is the upstream end section of a galvanized steel plate beam guardrail barrier system, for ramp installation with design speed limit of 40 MPH or less. NCHRP 350, Test Level TL-3.
3. Reference Illinois Tollway Standard Drawing C29 for gutter transition at Traffic Barrier Terminal, Type T1-A (Special) and minimum distance from edge of paved shoulder to face of rail.
4. Under no circumstances shall an existing terminal, that was designed using a previous standard, be attached to or modified in anyway from its original design. If any modification is required and a proper barrier warrant has been completed, the entire barrier installation shall be completely removed and replaced with a new system that conforms to the current standard.
5. Traffic barrier terminal shall be in accordance with the manufacturer’s details and specifications.
6. No roadside obstruction of any type-fixed or breakaway, either temporary or permanent shall be allowed within this recovery area.
7. On tangent highways, traffic barrier terminal shall be installed at a 25:1 taper measured from edge of traveled way.
8. On curved roadways, the edge of the terminal extruder head shall be offset a distance from a point on the back of the curved edge of paved shoulder as shown in Table 2. No curved beam sections are permitted within the terminal pay limits. The traffic barrier terminal, Type T1-A (Special) shall be laid out in a straight line.
9. Terminal posts shall not be installed in concrete or HMA, when necessary use leave-out detail shown on Illinois Tollway Standard Drawing C42.
10. The terminal system has been performance-tested for crashworthiness under procedures defined in the National Cooperative Highway Research Report (NCHRP) Report 350. No modification to this standard drawing shall be permitted.
**TRAFFIC BARRIER TERMINAL, TYPE T1-A (SPECIAL) - SHEET 2 OF 2**

**NOTES:**
- See Sheet 1 of this series for notes.
- For Traffic Barrier Terminal, Type T1-A (Special)

**SHOULDER WIDENING TRANSITION-WITH GUTTER, TYPE G-2**

**CURVED ROADWAY TRAFFIC BARRIER TERMINAL PLACEMENT**

**TABLE 1**

<table>
<thead>
<tr>
<th>GUTTER TYPE</th>
<th>INSIDE RADIUS OF CURVE</th>
<th>OUTSIDE RADIUS OF CURVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO GUTTER</td>
<td>1'-0&quot;</td>
<td>1'-0&quot; MIN.</td>
</tr>
<tr>
<td>GUTTER TYPE G-2</td>
<td>1'-2¾&quot;</td>
<td>1'-2¾&quot; MIN.</td>
</tr>
</tbody>
</table>

(*) Offset distance will vary based on radius of horizontal curve and the terminal being installed in a straight line.

**EXTRUDER HEAD OMITTED FOR CLARITY!**

**SECTION B-B**

**GUTTER, TYPE G-2, MODIFIED**

**SHOULDER WIDENING FOR TRAFFIC BARRIER TERMINAL, TYPE T1-A (SPECIAL)**

**STANDARD C12-06**
**Concrete Median Barrier Transition, Type V-F**

**Plan 1**

- Concrete Barrier Wall and Base
- Edge of Pavement

**Plan 2**

- Concrete Barrier Wall and Base
- Edge of Pavement

**Notes**

1. **2" Deep Contraction Joints:** Shall be done by sawing and shall be constructed in the concrete barrier wall, concrete barrier base, and concrete gutter (special). Contraction joints shall also be constructed at both sides of all drainage structures. Maximum contraction joint spacing shall be 30'-0". The minimum distance between contraction joints in the median barrier wall shall be 2'-0". When a drainage structure falls within 2'-0" from an expansion joint (or contraction joint), the nearest contraction joint shall be omitted.

2. **Gutter Profile:** In the vicinity of sag vertical curves, along flat grades, and at the meeting of proposed and existing gutters, shall be carefully controlled and field adjusted if necessary to ensure positive drainage and avoid ponding.

3. **Non-Staining Gray One Component Non-Sag Elastomeric Gun Grade Polyurethane Sealant Meeting the Requirements of ASTM C920, Type S, Grade NS, Class 25, Use 7 with a Backer Rod.**

**Table of Variables**

<table>
<thead>
<tr>
<th>Case</th>
<th>L</th>
<th>W</th>
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</thead>
<tbody>
<tr>
<td>1-3&quot;</td>
<td>31&quot;</td>
<td>10'-0&quot;</td>
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<tr>
<td>3-6&quot;</td>
<td>33&quot;</td>
<td>10'-0&quot;</td>
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<td>4-9&quot;</td>
<td>34&quot;</td>
<td>15'-0&quot;</td>
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<td>4-6&quot;</td>
<td>46&quot;</td>
<td>10'-0&quot;</td>
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<tr>
<td>5-9&quot;</td>
<td>52&quot;</td>
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<td>5-6&quot;</td>
<td>59&quot;</td>
<td>22'-6&quot;</td>
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<tr>
<td>6-0&quot;</td>
<td>66&quot;</td>
<td>30'-0&quot;</td>
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**Date:** 2-7-2012

**Revisions**

- 11-01-2012: Modified Barrier Base.
- 3-31-2014: Modified Median Barrier Transition.
- 3-11-2015: Modified Notes (See Note 3)
- 3-31-2016: Modified Notes (Per Plan Detail)
NOTES:

SEE SHEET 1 OF THIS SERIES FOR NOTES.
CONCRETE MEDIAN BARRIER
TRANSITION, TYPE V

NOTES:

1. SLOPE RATIOS ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).

2. ENERGY ATTENUATOR AND PAD SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S DETAILS AND SPECIFICATIONS.

3. 2" DEEP CONTRACTION JOINTS SHALL BE DONE BY SAWING AND SHALL BE CONSTRUCTED IN THE CONCRETE BARRIER WALL AND CONCRETE BARRIER BASE. MAXIMUM CONTRACTION JOINT SPACING SHALL BE 30'-0". THE MINIMUM DISTANCE BETWEEN CONTRACTION JOINTS IN THE MEDIAN BARRIER WALL SHALL BE 2'-0".

Wc=PIER CRASH WALL WIDTH
Wc=3'-6" - 5'-0" VARIES

TABLE A

<table>
<thead>
<tr>
<th>Wc</th>
<th>L (MIN.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>35&quot;</td>
<td>20'-0&quot;</td>
</tr>
<tr>
<td>35&quot; &lt; Wc &lt; 43&quot;</td>
<td>30'-0&quot;</td>
</tr>
<tr>
<td>43&quot; &lt; Wc &lt; 51&quot;</td>
<td>40'-0&quot;</td>
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<tr>
<td>51&quot; &lt; Wc &lt; 59&quot;</td>
<td>50'-0&quot;</td>
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<tr>
<td>59&quot; &lt; Wc &lt; 67&quot;</td>
<td>60'-0&quot;</td>
</tr>
<tr>
<td>Wc &lt; 35&quot;</td>
<td>70'-0&quot;</td>
</tr>
</tbody>
</table>

SEE ATTACHMENTS AND DETAILS FOR ADDITIONAL INFORMATION.

DATE
3-31-2016

CHIEF ENGINEER
3-31-2014

ILLINOIS TOLLWAY