The Type K Temporary Concrete Barrier System has been crash tested to NCHRP Report 350 TL-3 criteria or structurally evaluated to meet the requirements of NCHRP Report 350 TL-3 criteria for the installation configurations as shown utilizing the types, sizes, lengths, shapes, strengths and grades of the fabrication and installation materials as shown.

In order to maintain crashworthiness of the system, do not substitute different grades, sizes, shapes or types of reinforcing steel for those shown for constructing Type K Barrier Units. Also, do not substitute different type, size, length or material grade anchor bolts, nuts, washers, adhesives, connector pins, stakes, keeper pins, or guardrail components for installing Type K Barrier Units.

**FABRICATION NOTES:**

**FABRICATOR PREQUALIFICATION:** The Barrier Units shall be made in a prestressed concrete plant that meets the requirements of Specification Section 450 or in a prestress plant meeting the requirements of Specification Section 355.

**CONCRETE:** Concrete shall be Class IV in accordance with Specification Section 346. Specification Sections 346-10.2 through 346-10.4 are not applicable. Barrier Units represented by concrete acceptance strength tests which fall below 5000 psi will be rejected.

**REINFORCING STEEL:** All reinforcing steel shall be ASTM A 615, Grade 60 except for Bars 6D1, 6D2 and 6D3. Bars 6D1, 6D2 and 6D3 shall be ASTM A 706 except that a 3/8” diameter pin must be used for the 180 degree bend test. After fabrication, all or part of Bars 6D shall be hot dip galvanized in accordance with Specification Section 962 or coated with a cold galvanizing compound in accordance with Specification Section 562. The minimum limit of galvanizing or coating is shown in the Bending Diagrams. At the fabricator’s option, the entire length of Bars 6D may be galvanized or coated. Install Bars 6D within 3/8 of the plan dimensions. Correct placement of Bars 6D is critical for proper fit up and performance of individual Barrier Units.

At the option of the fabricator, Deformed Welded Wire Fabric in accordance with Specification Section 931 and the details shown on Sheet 2 may be utilized in lieu of Bars 44 and 58. All dimensions in the Bending Diagrams are out to out. All reinforcing steel shall have a 2” minimum cover except as noted.

**LIFTING SLEEVE ASSEMBLY:** Inclusion of the lifting Sleeve Assembly is optional. Steel for Pipe Sleeve shall be in accordance with ASTM A 53. Hot-dip galvanize the Lifting Sleeve Assemblies after their fabrication in accordance with the Specifications.

**SURFACE FINISH:** Construct Barrier Units in accordance with Specification Sections 400 and 531. Finish the top and sides of the Barrier Units with a General Surface Finish. Finish the bottom of the Barrier Units to a dense uniform surface by floating in lieu of the General Surface Finish. Use stationary metal forms or stationary timber forms with a form liner.

**MARKING:** Permanently mark the top left end of each Barrier Unit by the use of an embedded and anchored metallic plate with letters and figures a minimum of 0.5” tall. Ink stamps are not allowed. Permanently mark with the following information:

- Type K
- Fabricator’s name or symbol
- Date of manufacture (day, month and year)

**HANDLING:** At no time shall the Barrier Units be lifted or moved by use of Bars 6D that extend from the ends of the units. Approximate weight of one unit equals 2.7 tons.

Alternate Designs: Manufacturers/vendors seeking approval of proprietary Temporary Barrier Systems for inclusion on the Approved Products List (APL) as alternative designs shall submit a Product Application package. The application package shall include manufacturer’s product drawings, specifications, installation manual, National Cooperative Highway Research Program (NCHRP) Report 350 or Manual for Assessing Safety Hardware (MASH) Test Level 3 (TL-3) crash test documentation and the FHWA “Letter of Acceptance.”

The posted APL drawings will need to include the following:

1. Anchorage, bolting, and staking details for connections to asphalt and concrete pavement.
2. Sections and tables showing required deflection space and minimum offsets to above ground hazards or drop-offs.
3. Alignment and length of need details.
4. Transition and overlap details.
5. End treatment details.
**Concrete Barrier System**

**Description:**

- **Type:** K Temporary Concrete Barrier System
- **FY:** 2017-18

**Design Standards:**

- **Revision:** 07/01/07
- **Last Revision of Design Standards:** 07/01/07

**Concrete Barrier Quantities:**

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<tr>
<th>Item</th>
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<th>Quantity</th>
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<tr>
<td>Concrete</td>
<td>CY</td>
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<tr>
<td>Reinforcing Steel</td>
<td>LB</td>
<td>218</td>
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</table>

**Details:**

- **PLAN VIEW**
  - Bars 4E (Bend to clear Bars 6D)
  - Anchor Blockout

- **ELEVATION VIEW**
  - Bars 4E (Bend to clear Bars 6D)
  - Anchor Blockout

**Cross References:**

- For Section A-A, Section B-B, and Section C-C see Sheet 3.

**Dimensions:**

- 2'-0" (Lift/Drain Slot)
- 3'-0"

**Anchor Blockout Detail**

**Lifting Sleeve Assembly Detail (Optional)**

*Measured from end of Barrier Unit to outside edge of Bars 60.*
**CONVENTIONAL REINFORCING STEEL BENDING DIAGRAMS**

<table>
<thead>
<tr>
<th>BILL OF REINFORCING STEEL</th>
</tr>
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<tbody>
<tr>
<td><strong>MARK</strong></td>
</tr>
<tr>
<td>A1</td>
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<tr>
<td>B</td>
</tr>
<tr>
<td>C</td>
</tr>
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<td>D1</td>
</tr>
<tr>
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</tr>
<tr>
<td>D3</td>
</tr>
<tr>
<td>E</td>
</tr>
</tbody>
</table>

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**ALTERNATE REINFORCING STEEL DETAIL**

**WELDED WIRE REINFORCEMENT**

**NO. 4 DRAIN BAR OVER DRAIN SLOTS (CONVENTIONAL STEEL)**

**CONFIGURATION ONE**

- NO. 4 Drain Bar over drain slots (Conventional Steel), placed with Ø 19.7
- 2 - No. 5 Bars (Conventional Steel)
- D 17.2 (Typ.) vertical bar
- D 13.5 (Typ.) end cut
- 2'' Ø Pin (Typ.) all bends

**REVISION**

**NO. 4 TYPICAL BAR (CONVENTIONAL STEEL)**

**CONFIGURATION TWO**

- NO. 4 Drain Bar over drain slots (Conventional Steel), placed with Ø 19.7
- D 6.3 (2 required)
- 2 - No. 5 Bars (Conventional Steel)

**NOTES:**

Place 2 - No. 5 Bars (12'-3" long) in bottom of Welded Wire Reinforcement cage as shown.
D 17.2 spacing shall match spacings for Bars 4A shown in Elevation View. Sheet 2. Field trim D 17.2 to clear drain slots by 2''.

---

**TYPE K TEMPORARY CONCRETE BARRIER SYSTEM**

**SECTION A-A (SHOWN)**

(SECTION B-B SIMILAR)

- Bars 6D (Typ.)
- 8'' Min. (Limit of Galvanizing)
- TOP VIEW
- BARS 6D1, 6D2 & 6D3
- NOTE: Provide 1/8'' Chamfer at top and bottom corners of barrier.

**SECTION C-C**

(Bars 6D not shown for clarity)

- Bars 4E (see detail)
- Anchor Blockout (see detail)
- Cover top - Bars 6C to 2'' Ø Holes (Typ.)

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**LAST REVISION:** 07/01/14

**DESCRIPTION:**

**FY 2017-18 DESIGN STANDARDS**

**INDEX NO.**: 414

**SHEET NO.**: 3 of 15
NOTES FOR ALL INSTALLATIONS:

1. **LIMITATION OF USE**: This Temporary Concrete Barrier System is intended for work zone traffic control and other temporary applications. It shall not be used for permanent traffic railing construction unless specifically permitted by the Plans. Except as shown for the Back Filled Roadway Installations, the Barrier Units must be installed on a flexible pavement (asphalt) or rigid pavement (concrete) surface as shown with a cross slope of 1:10 or flatter. Except as shown for transition installations, Type K Barrier Units are not intended to be bolted down or staked down in locations where they can be impacted from the back side.

2. **HANDLING**: At no time shall the Barrier Units be lifted or moved by use of Bars 60 that extend from the ends of the units. Approximate weight of one unit equals 2.7 tons.

3. **ASPHALT PAD**: Where existing flexible pavement is not present, construct a minimum 2” thick temporary Asphalt Pad using Miscellaneous Asphalt Pavement in accordance with Specification Section 339 with the exception that the use of a pre-emergent herbicide is not required. No separate payment will be made for the Asphalt Pad.

4. **SURFACE PREPARATION**: Except as shown for the Back Filled Roadway Installations, remove all grass, debris, loose dirt and sand from the pavement, bridge deck or Asphalt Pad surface within the barrier footprints just prior to placement of the Barrier Units.

5. **OFFSET TO TRAVELWAY**: Offset shall meet requirements as shown on sheet 1 of Index 415.

6. **CONNECTION PIN ASSEMBLY**: Steel for Connection Pin and Top Plate assemblies shall be in accordance with ASTM A 36 or ASTM A 709 Grade 36. Nondestructive testing of welds shall not be required. At the Contractor’s option, a 1/2” diameter hole may be provided at the bottom of the Connection Pin, as shown, for the installation of a vane resistance bolt.

7. **CONNECTION PIN INSTALLATION**: Initially set Barrier Units by using a 1/2” wooden block between ends of adjacent units. Install Connection Pin between adjacent Barrier Units as shown, then pull newly placed Barrier Unit away from adjacent Barrier Unit to remove slack between Connection Pin and Bars 60 (except as shown on Sheet 3). Barrier Units shall not be used unconnected.

8. **DELINERATION**: Mount Barrier Delinicators on top of Barrier Units that are used as traffic barriers along travel ways in work zones. Space the Barrier Delinicators at 50’ centers in alignment transitions and 100’ centers at all other locations. Color must match adjacent longitudinal pavement markings.

9. **MAINTENANCE**: Deflection space shall be kept clear of any grass, construction debris, stockpiled materials, equipment, and objects.

10. **REUSE OF CONNECTION PINS**: Connection pins may be reused if they have the structural integrity of new pins.

11. **INSTALLATIONS ON CURVED ALIGNMENTS**: The details presented in these Standards are shown for installations on tangent alignments. Details for horizontally curved alignments are similar.

12. **TRANSITIONS**: Transitions are required between freestanding, bolted down, staked down and back filled Type K Barrier installations, see Sheet 8 for transition requirements and details. Transitions are also required between installations of Type K Barrier and other types of temporary barrier, see Index No. 415 for transition requirements and details. Splices and transitions are required between installations of Type K Barrier and permanent Bridge or Roadway Traffic Railings, see Sheets 9 through 13 for transition requirements and details. Transitions are required for installations of Type K Barrier and Proprietary (APL) Barrier Systems, see Sheets 14 and 15 for transition requirements and details.

13. **PAYMENT**: Barrier Units for work zone traffic control and other temporary applications shall be paid for under the contract unit price for Barrier (Temporary) (F14) (Type K). Any relocation of the Barrier Units required for the project shall be paid for under the contract unit price for Barrier (Temporary) (Relocate) (Type K) (If). The Contractor shall furnish all hardware required for the availability of Department owned units. Regardless of unit source the Contractor shall furnish all hardware and shall be responsible for all handling including loading, transport, unloading, stockpiling, Installation, removal and return. Unless otherwise noted in the Plans, the Barrier Units shall become the property of the Contractor and shall be removed from the site prior to acceptance for the completed project.

NOTES FOR THRIE BEAM GUARDRAIL SPLICE INSTALLATIONS:

1. **THRIE-BEAM GUARDRAIL**: Provide Thrie-Beam Guardrail for splices in accordance with AASHTO M 180, Type II (Zinc coated) and as follows: Two (2) per splice (one per side) of Class A (12 gauge). Guardrail panel length shall be 12'-6". Provide and install all other associated metallic guardrail components (Terminal Connectors, Shoulder Bolts, Hex Bolts and Nuts, Filler Plates, etc.) in accordance with Index No. 400. Install Five Guardrail Anchor Bolts at each end of each splice in any of the standard seven anchor bolt holes in the Thrie-Beam Terminal Connector. If reinforcing steel is encountered when drilling holes for Guardrail Anchor Bolts in Type K Barrier Units, shift Thrie-Beam Terminal Connector so as to clear reinforcing steel within the given tolerances or select a different bolt hole to use. Do not drill or cut through reinforcing steel within Type K Barrier Units. Drilling or cutting through reinforcing steel within permanent concrete traffic railings is permitted. Do not drill or cut through utilities or conduits within permanent concrete traffic railings.

2. **GUARDRAIL OFFSET BLOCKS**: Provide and install timber Offset Blocks meeting the material requirements of Index No. 400. Field trim Offset Blocks as required for proper fit. Utilize Offset Blocks as shown and required in order to prevent bending or kinking of Thrie-Beam Guardrail panels.

3. **CONCRETE FOR FILLING TAPERED TRAFFIC RAILING TOES**: Provide concrete for filling tapered toes of Traffic Railings as shown meeting the material requirements of Specification Section 346, any Class, or a commercially available prebagged concrete mix (3000 psi minimum compressive strength). Sampling, testing, evaluation and certification of the concrete in accordance with Specification Section 346 is not required. Saturate with water the surfaces upon and against which the concrete fill will be placed prior to placing concrete. Place and finish concrete fill using forms or by hand methods to the general configurations shown so as to provide a smooth shape transition between Type K Barrier and the adjacent Traffic Railing. A low slump is desirable if placing and finishing concrete by hand methods. Cure the concrete fill by application of a curing compound, or by covering with a wet tarp or burlap for a minimum of 24 hours. Completely remove the concrete fill upon relocation or removal of the Type K Temporary Concrete Barrier.
**TYPICAL SECTION (BRIDGE DECK SHOWN, APPROACH SLAB OR RIGID PAVEMENT SIMILAR; INSTALLATION ADJACENT TO DROP-OFF SHOWN, MEDIUM TRANSITION INSTALLATION SIMILAR)**

**NOTES FOR BOLTED DOWN BRIDGE, APPROACH SLAB, ROADWAY AND TRANSITION INSTALLATIONS:**

- **LIMITATION OF USE:** This installation technique can only be used on rigid pavement and concrete bridge decks as shown. Barrier Units shall not be bolted on bridge superstructures that contain post-tensioned tendons within the concrete deck (top flange of concrete box girders) or on bridge superstructures consisting of longitudinally prestressed, transversely post-tensioned, solid or voided concrete slab units. Anchor Bolts must not be installed on both sides of the Barrier Units. Do not bolt down Barrier Units across bridge finger or modular expansion joints.

- **ANCHOR BOLTS, NUTS AND WASHERS:** Adhesive-Bonded Anchor Bolts shall be fully threaded rods in accordance with ASTM F 1554 Grade 36. Anchor Bolts for through bolting shall be in accordance with ASTM A 307 or ASTM A 709 Grade 36. Nuts shall be in accordance with ASTM A 563 or ASTM A 194. Flat Washers shall be in accordance with ASTM F 436 and Plate Washers shall be in accordance with ASTM A 36 or ASTM A 709 Grade 36.

- **Install three (3) Anchor Bolts per Barrier Unit on the traffic side of the Barrier Units as shown, except for Transition Installations.**

- **For the number and positions of Anchor Bolts required in Transition Installations see Sheets 8 and 9 and Index No. 415.**

- **Drilling through deck reinforcing steel to install Anchor Bolts is permitted. Unless otherwise shown in the Plans, at the Contractor's option Barrier Units may be installed by through bolting (where geometrically possible) or by the use of Adhesive-Bonded Anchor Bolts. Do not drill into or otherwise damage the tops of supporting beams or girders, bridge deck expansion joints or drains. Install Anchor Bolts and Nuts so that the maximum extension beyond the face of the Barrier Units is 1/2". Stagger the Nuts on the Anchor Bolts. For through bored installations, stagger the Nuts on the underside of the deck against each other to minimize the potential for loosening.

- **Omit one (1) Anchor Bolt within a single Barrier Unit if a conflict exists between the Anchor Bolt location and a bridge deck expansion joint or drain. The adjacent Barrier Units must each be installed with the standard three (3) Anchor Bolts.**

- **ADHESIVE-BONDING MATERIAL SYSTEMS:** Adhesive Bonding Material Systems for Anchor Bolts shall be Type HSHV in accordance with Specification Section 937 and shall be installed in accordance with Specification Section 416. Prior to installation of the Barrier Units in the Plan location(s), install a demonstration Barrier Unit using the proposed production installation method, at a location approved by the Engineer. In lieu of the production test requirements of Specification Section 416-6, install six (6) Adhesive-Bonded Anchor Bolts in the demonstration Barrier Unit and test each Anchor Bolt with a 29,800 pound tensile proof load. Install and test additional demonstration Barrier Units when requested by the Engineer. Remove the demonstration Barrier Unit prior to testing the Anchor Bolts.

**Omit Anchor Bolts after testing as directed by the Engineer.**

**REMOVAL OF ANCHOR BOLTS:** Upon removal or relocation of Barrier Units, remove all Anchor Bolts and completely fill the remaining holes in the bridge decks, approach slabs and roadway rigid pavements that are to remain with Magnesium Ammonium Phosphate Concrete in accordance with Specification Section 926. See SIP Metal Forms present.

If a flexible pavement overlay is present and is to remain, completely fill the remaining holes in the flexible pavement with hot or cold patch asphalt material.

**TREATMENT AT BRIDGE DECK EXPANSION JOINT SCHEMATIC**

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**BOLTED DOWN BRIDGE, APPROACH SLAB, ROADWAY AND TRANSITION INSTALLATIONS**
NOTES FOR FREE STANDING BRIDGE OR APPROACH SLAB INSTALLATIONS:

KEEPER PINS: Keeper Pins shall be 1/2 diameter, smooth steel bar in accordance with ASTM A 36 or ASTM A 709 Grade 36. As directed by the Engineer in order to limit vibration induced translation of the Barrier units, install one (1) Keeper Pin per Barrier unit on the traffic side of the Barrier Units as shown. Do not drill into or otherwise damage bridge deck expansion joints or drains.

REMOVAL OF KEEPER PINS: Upon removal or relocation of Barrier Units, remove all Keeper Pins and completely fill the remaining holes in bridge decks and approach slabs that are to remain with Magnesium Ammonium Phosphate Concrete in accordance with Specification Section 930 or with an Epoxy Resin Compound, Type F or Q, in accordance with Specification Section 926. If a flexible pavement overlay is present and is to remain, completely fill the remaining holes in the flexible pavement with hot or cold patch asphalt material.

LIMITATION OF USE: This installation technique can only be used on flexible or rigid pavement or on an Asphalt Pad as shown.

FREESTANDING ROADWAY INSTALLATION:

LIMITATION OF USE: This installation technique can only be used on flexible pavement or an Asphalt Pad as shown. Stakes must not be installed on both sides of the Barrier Units.

STAKES: Provide steel for Stake assemblies in accordance with ASTM A 36 or ASTM A 709 Grade 36. All welding shall be in accordance with the American Welding Society Structural Welding Code (Steel) AWS/MS D1.1 (current edition) Weld metal shall be E60XX or E70XX. Nondestructive testing of welds is not required.

Install three (3) Stakes on the traffic side of the Barrier units as shown, except for Transition Installations. For the number and positions of stakes required in Transition Installations see Sheets 4, 5 and 6 and Index No. 415. Install Stakes so that the Stop Plate is snug against the bottom of the anchor blockout.

BURIED UTILITIES: Prior to installation of Stakes verify locations of all adjacent buried utilities, drainage structures, pipes, etc. If conflicts between Stake locations and buried elements exist, a maximum of two (2) Stakes within a single Barrier Unit may be omitted if the adjacent Barrier Units are installed with the standard three (3) Stakes.

REMOVAL OF STAKES: Upon removal or relocation of Barrier Units, completely remove all Stakes and completely fill the remaining holes in flexible pavement that is to remain with hot or cold patch asphalt material.

REUSE OF STAKES: Stakes may be reused if they have the structural integrity of new stakes.

REMOVAL OF KEEPER PINS: Upon removal or relocation of Barrier Units, remove all Keeper Pins and completely fill the remaining holes in bridge decks and approach slabs that are to remain with Magnesium Ammonium Phosphate Concrete in accordance with Specification Section 930 or with an Epoxy Resin Compound, Type F or Q, in accordance with Specification Section 926. If a flexible pavement overlay is present and is to remain, completely fill the remaining holes in the flexible pavement with hot or cold patch asphalt material.

LIMITATION OF USE: This installation technique can only be used on flexible or rigid pavement or on an Asphalt Pad as shown.
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TYPE K TEMPORARY CONCRETE BARRIER SYSTEM

NOTES FOR FREESTANDING MEDIAN INSTALLATION:
KEEPER PINS: Required for Bridge Decks only. Keeper Pins shall be 1/2" diameter, smooth steel bar in accordance with ASTM A 36 or ASTM A 709 Grade 36. As directed by the Engineer in order to limit vibration induced translation of the Barrier Units, install one (1) Keeper Pin per Barrier Unit as shown. Alternate Keeper Pin locations from side to side of Barrier Units along the length of the installation. Do not drill into or otherwise damage bridge deck expansion joints or drains. Upon removal or relocation of Barrier Units, remove all Keeper Pins and completely fill the remaining holes in bridge decks and approach slabs that are to remain with Magnesium Ammonium Phosphate Concrete in accordance with Specification Section 930 or with an Epoxy Resin Compound, Type F or Q, in accordance with Specification Section 926. If a flexible pavement overlay is present and is to remain, completely fill the remaining holes in the flexible pavement with hot or cold patch asphalt material.

NOTES FOR SOIL BACK FILLED ROADWAY INSTALLATIONS:
SOIL BACK FILL MATERIAL: Provide Back Fill Material consisting of any available clean soil. Compact Back Fill Material until the soil mass is firm and unyielding. Provide erosion control as specified in the Plans. If none is specified in the Plans, provide erosion control as required to maintain the integrity of the Back Fill embankment.

GEOTEXTILE FabRIC: Provide Type D-5 Geotextile Fabric in accordance with Specification Section 985 to contain Back Fill Material behind Barrier Units. Geotextile Fabric may be continuous over the length and height of the installation or may be individual pieces as required to cover the Lift / Drain Slots and open vertical joints between Barrier Units.

FLOWABLE FILL BACK FILL ROADWAY INSTALLATIONS

NOTES FOR SOIL BACK FILLED ROADWAY INSTALLATIONS:
SOIL BACK FILL MATERIAL: Provide Back Fill Material consisting of any available clean soil. Compact Back Fill Material until the soil mass is firm and unyielding. Provide erosion control as specified in the Plans. If none is specified in the Plans, provide erosion control as required to maintain the integrity of the Back Fill embankment.

GEOTEXTILE FabRIC: Provide Type D-5 Geotextile Fabric in accordance with Specification Section 985 to contain Back Fill Material behind Barrier Units. Geotextile Fabric may be continuous over the length and height of the installation or may be individual pieces as required to cover the Lift / Drain Slots and open vertical joints between Barrier Units.
**APPRAISAL TRANSITION FROM FREESTANDING TO BOLTED OR STAKED DOWN TYPE K TEMPORARY CONCRETE BARRIERS**

- **Type K Barrier Units (Typ.)**
- **First full Barrier Unit before Drop-off or Hazard shielded by Bolted or Staked Units**
- **Bolted - 1/2' Nominal**
- **Staked - 1'-0" Min.**
- **Drop-off or Hazard**
- **Back Fill**
- **Freestanding Units (13 Units Min.)**

**NOTE:**
Where Barrier is located within Clear Zone of opposing traffic, Approach Transition is required.

**APPRAISAL TRANSITION FROM FREESTANDING TO BACK FILLED TYPE K TEMPORARY CONCRETE BARRIERS**

- **Type K Barrier Units (Typ.)**
- **First full Barrier Unit before Back Filled Units**
- **Type K Barrier Units (Typ.)**
- **See Sheet 6 for dimensions**
- **Back Fill**
- **Transition Units (6 Units)**
- **Back Filled Units**

**LEGEND:**
- * = Approach Transition from Freestanding to Back Filled Type K Temporary Concrete Barriers

**TRAILING END TRANSITION FROM BOLTED OR STAKED DOWN TO FREESTANDING TYPE K TEMPORARY CONCRETE BARRIERS**

- **Type K Barrier Units (Typ.)**
- **Bolted - 1/2' Nominal**
- **Staked - 1'-0" Min.**
- **Drop-off or Hazard**
- **Freestanding Units**

**TRAILING END TRANSITION FROM BACK FILLED TO FREESTANDING TYPE K TEMPORARY CONCRETE BARRIERS**

- **Type K Barrier Units (Typ.)**
- **See Sheet 6 for dimensions**
- **Back Filled Units**
- **Back Filled Units**
- **Freestanding Units**
TRANSITION FROM FREESTANDING TYPE K TEMPORARY CONCRETE BARRIERS TO BRIDGE MEDIAN TRAFFIC RAILING OR ROADWAY MEDIAN CONCRETE BARRIER WALL

*NOTE:
Where barrier is located within clear zone of opposing traffic, approach transition is required.

TRANSITION FROM FREESTANDING TYPE K TEMPORARY CONCRETE BARRIERS TO BRIDGE TRAFFIC RAILING OR ROADWAY CONCRETE BARRIER WALL

LEGEND:

- Dot indicates number and position of Bolts or Stakes
**PARTIAL PLAN VIEW AT MEDIAN TRAFFIC RAILING**

32” F Shape Traffic Railing (shown); 32” New Jersey Shape and 42” F Shape Traffic Railings and 8’ or 14’ Traffic Railing / Noise Walls (similar)

- Bolted or Staked Down Type K Barrier Units
- *Thrie-Beam Guardrail Splice
- Anchor Bolts or Stakes
- Align Top of Type K Barrier Unit with Traffic Railing at its end

Cross References:
- See Sheet 13 for Section A-A, Section B-B and Section C-C.

**PARTIAL PLAN VIEW AT SHOULDER TRAFFIC RAILING**

32” F Shape Traffic Railing (shown); 32” New Jersey Shape and 42” F Shape Traffic Railings and 8’ or 14’ Traffic Railing / Noise Walls (similar)

- Bolted or Staked Down Type K Barrier Units
- *Thrie-Beam Guardrail Splice
- Anchor Bolts or Stakes
- Align Top of Type K Barrier Unit with Traffic Railing at its end

**PARTIAL ELEVATION VIEW - FLORIDA CORRAL TRAFFIC RAILING**

32” Florida Corral Traffic Railing (shown);

- Bolted or Staked Down Type K Barrier Units
- *Thrie-Beam Guardrail Splice
- Anchor Bolts or Stakes (shown)
- Paved Surface (Type varies)

**PARTIAL ELEVATION VIEW - VERTICAL SHAPE TRAFFIC RAILINGS**

42” Vertical Shape Traffic Railing (shown);

- Bolted or Staked Down Type K Barrier Units
- *Thrie-Beam Guardrail Splice
- Anchor Bolts or Stakes (shown)
- Paved Surface (Type varies)

**APPENDIX A:**

**APPENDIX B:**

**APPENDIX C:**

**APPENDIX D:**

**APPENDIX E:**

**APPENDIX F:**

**APPENDIX G:**

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**APPENDIX O:**

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**APPENDIX R:**

**APPENDIX S:**

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**TYPE K TEMPORARY CONCRETE BARRIER SYSTEM**

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**REVISION:** 07/01/13

**DESIGN STANDARDS**

**PARTIAL PLAN VIEWS FOR MEDIAN TRAFFIC RAILING**

- See Sheet 13 for Section A-A, Section B-B and Section C-C.

**PARTIAL ELEVATION VIEWS FOR MEDIAN TRAFFIC RAILING**

- See Partial Plan Views for locations

**PARTIAL PLAN VIEWS FOR SHOULDER TRAFFIC RAILING**

- See Partial Plan Views for locations

**PARTIAL ELEVATION VIEWS FOR FLORIDA CORRAL TRAFFIC RAILING**

- See Partial Plan Views for locations

**PARTIAL ELEVATION VIEWS FOR VERTICAL SHAPE TRAFFIC RAILINGS**

- See Partial Plan Views for locations

**APPENDIX:**

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**APPENDIX E:**

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**APPENDIX H:**

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**TYPE K TEMPORARY CONCRETE BARRIER SYSTEM**

**FY 2017-18 DESIGN STANDARDS**

**REVISION:** 07/01/13

**DESIGN STANDARDS**

**PARTIAL PLAN VIEWS FOR MEDIAN TRAFFIC RAILING**

- See Sheet 13 for Section A-A, Section B-B and Section C-C.

**PARTIAL ELEVATION VIEWS FOR MEDIAN TRAFFIC RAILING**

- See Partial Plan Views for locations

**PARTIAL PLAN VIEWS FOR SHOULDER TRAFFIC RAILING**

- See Partial Plan Views for locations

**PARTIAL ELEVATION VIEWS FOR FLORIDA CORRAL TRAFFIC RAILING**

- See Partial Plan Views for locations

**PARTIAL ELEVATION VIEWS FOR VERTICAL SHAPE TRAFFIC RAILINGS**

- See Partial Plan Views for locations

**APPENDIX:**

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**APPENDIX G:**

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**APPENDIX K:**

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**APPENDIX N:**

**APPENDIX O:**

**APPENDIX P:**

**APPENDIX Q:**

**APPENDIX R:**

**APPENDIX S:**

**APPENDIX T:**

**APPENDIX U:**

**APPENDIX V:**

**APPENDIX W:**

**APPENDIX X:**

**APPENDIX Y:**

**APPENDIX Z:**
32' F Shape Traffic Railing (shown);
32' New Jersey Shape and 42' F Shape
Traffic Railings and 8' or 14' Traffic
Railing / Noise Walls (similar)

Freestanding Type K Barrier Units shown;
Staked units similar. See Plans for specific requirements.

Align Top of Type K Barrier Unit
with Traffic Railing at its end

Fill tapered toe if present (shown hatched)
with concrete, see Notes on Sheet 4

PARTIAL ELEVATION VIEW

Cross References:
See Sheet 13 for Section A-A,
Section B-B and Section C-C.

TRAILING END SPCIE DETAIL
FOR F AND NEW JERSEY SHAPE TRAFFIC RAILINGS
AND 8' & 14' TRAFFIC RAILING / NOISE WALLS

* See Thrie-Beam Guardrail Positioning
Detail, Sheet 13 and Notes for Thrie-Beam
Guardrail Splice Installations, Sheet 4.

1'-0" ± Limits of concrete fill
7'-0" ±
TRAILING END SPLICE DETAIL

FOR 32" F AND NEW JERSEY SHAPE TRAFFIC RAILINGS
WITH RAILING TRANSITION AND END POST

PARTIAL PLAN VIEW

- Freestanding Type K Barrier Units shown, Bolted or Staked
- Bolted or Staked Down Type K Barrier Units shown, See Plans for specific requirements
- Begin or End Approach Slab (approximate location)
- Align Top of Type K Barrier Unit with Traffic Railing at its end
- Fill tapered toe if present (shown hatched) with concrete, see Note on Sheet 4

PARTIAL ELEVATION VIEW

- Cross References: See Sheet 13 for Section B-B, Section C-C and Section D-D.

APPROACH TRANSITION SPLICE DETAIL

FOR 32" F AND NEW JERSEY SHAPE TRAFFIC RAILINGS
WITH RAILING TRANSITION AND END POST

PARTIAL PLAN VIEW

- Bolted or Staked Down Type K Barrier Units shown, Bolted or Staked
- Bolted or Staked Down Type K Barrier Units shown, See Plans for specific requirements
- Begin or End Approach Slab (approximate location)
- Align Top of Type K Barrier Unit with Traffic Railing at its end
- Anchor Bolts (shown) or Stakes, see Partial Plan View for locations

PARTIAL ELEVATION VIEW

- Cross References: See Sheet 13 for Section B-B, Section C-C and Section E-E.

Section C-C and Section E-E.
See Sheet 13 for Section B-B, Cross References: Sheet 13 and Notes for Thrie-Beam Guardrail Positioning.
TYPE K TEMPORARY CONCRETE BARRIER SYSTEM

SECTION A-A
32" F Shape Median Traffic Railing (shown), Median Concrete Barrier Wall (similar)

SECTION A-A
32" F Shape Traffic Railing (shown), 42" Traffic Railing and 8' & 14' Traffic Railing / Noise Walls (similar)

SECTION A-A
32" New Jersey Shape Concrete Barrier Wall (shown), 32" New Jersey Shape Traffic Railing & other Narrow Traffic Railings (similar)

SECTION A-A
32" & 42" Vertical Shape Traffic Railing (shown), Florida Corral Traffic Railing (similar)

SECTION B-B
Adjacent to Shoulder Traffic Railings

SECTION C-C
Adjacent to 32" F or New Jersey Shape Median Traffic Railing or Median Concrete Barrier Wall

SECTION C-C
32" F or New Jersey Shape Traffic Railing (shown), 32" New Jersey Shape Traffic Railing & other Narrow Traffic Railings (similar)

SECTION D-D
32" F or New Jersey Shape Traffic Railing, Railing Transition & End Post

SECTION E-E
32" New Jersey Shape Traffic Railing (shown), 32" F Shape Traffic Railing (similar)

THREE-BEAM GUARDRAIL POSITIONING DETAIL

* Shift Thrie-Beam Guardrail Splice beyond Open joint 2'-0" Min. (as shown) when 3' Min. dimension cannot be obtained
Approach Transition is required.

Clearly Zone of opposing traffic, Where Barrier is located within Edge of Travel Way

* NOTE:
- Edge of Travel Way
- Hazard shielded by Bolted or Staked Units
- First full Type K Barrier Unit before Drop-off or Staked - 1'-0" Min.
- Bolted - 1/8' Nominal

See Sheet 6 for dimensions

Approach and Trailing End Transitions from Freestanding Type K Temporary Concrete Barriers to Freestanding Proprietary Temporary Barriers

Type K-Proprietary Temporary Concrete Barrier Transitions
NOTE:
Where Barrier is located within clear zone of opposing traffic, Approach Transition is required. 

APPRAOCH TRANSITION FROM FREESTANDING PROPRIETARY TEMPORARY BARRIERS TO BACK FILLED TYPE K TEMPORARY CONCRETE BARRIERS

TRAILING END TRANSITION FROM BACK FILLED TYPE K TEMPORARY CONCRETE BARRIERS TO FREESTANDING PROPRIETARY BARRIERS

MEDIAN APPROACH AND TRAILING END TRANSITIONS FROM FREESTANDING TYPE K TEMPORARY CONCRETE BARRIERS TO FREESTANDING PROPRIETARY TEMPORARY BARRIERS

TYPE K-PROPRIETARY TEMPORARY CONCRETE BARRIER TRANSITIONS