ORIGINATION FORM

Proposed Revisions to a Design Standards Index

(Please provide all information – Incomplete forms will be returned)

Contact Information:

Date: February 16, 2017
Originator: **Derwood Sheppard**
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Design Standards:

Index Number: **414**
Sheet Number (s): ALL SHEETS
Index Title: Type K Temporary Concrete Barrier System

Summary of the changes:

Redeveloped Index

Commentary / Background:

This is part of the effort to make Temporary Barrier more comprehensive in respect to optional materials (concrete, steel, and water-filled).

Other Affected Offices / Documents: (Provide name of responsible personnel)

Yes	No	
☐	☐	Other Design Standards –
☑	☐	Plans Preparation Manual – Mary Jane Hayden
☐	☐	Basis of Estimates Manual –
☐	☐	Standard Specifications –
☐	☐	Approved Product List –
☐	☐	Construction –
☐	☐	Maintenance –

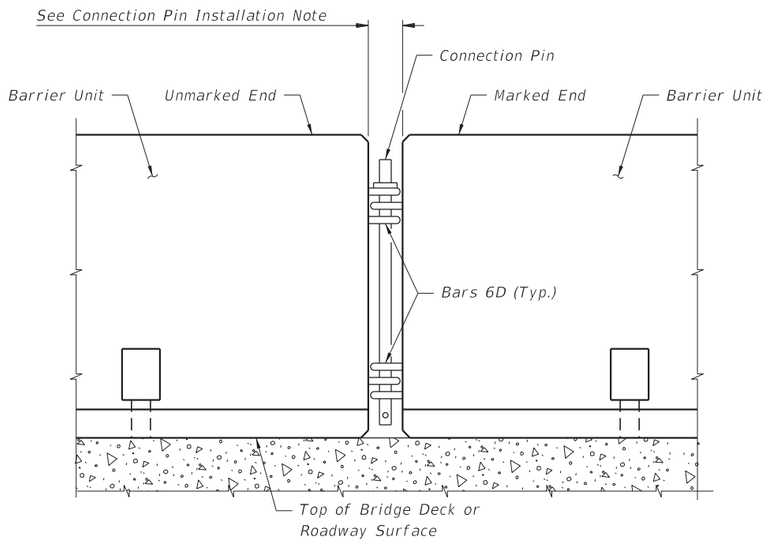
Origination Package Includes: (Email or hand deliver package to Derwood Sheppard)

Yes	N/A	
☑	☐	Redline Mark-ups
☐	☑	Proposed IDS
☐	☑	Revised IDS
☐	☑	Other Support Documents

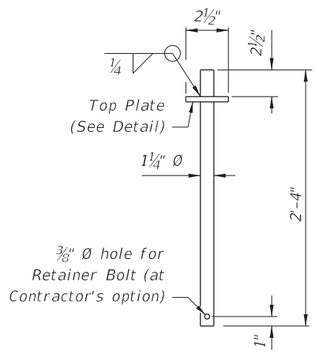
Implementation:

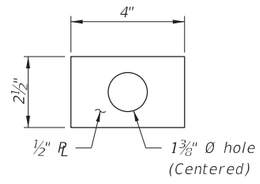
☐ Design Bulletin (DSR) ☐ DCE Memo ☐ Program Mgmt. Bulletin ☑ Design Standards e-Booklet (Next Release)

Contact the Roadway Design Office for assistance in completing this form



DETAIL OF CONNECTION BETWEEN BARRIER UNITS





TOP PLATE DETAIL

CONNECTION PIN DETAIL

ADDED:
3-3-2-1 Transition Detail

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 6D 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 footprint 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 A36 or ASTM A709 Grade 36. Nondestructive testing of welds shall not be required. At the Contractor's option, a ⅜" diameter hole may be provided at the bottom of the Connection Pin, as shown, for the installation of a vandal resistance bolt.

7. CONNECTION PIN INSTALLATION: Initially set Barrier Units by using a 3⅝" 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 6D (except as shown on Sheet 5). Barrier Units shall not be used unconnected.

8. DELINEATION: Mount Barrier Delineators on top of Barrier Units that are used as traffic barriers along travel ways in work zones. Space the Barrier Delineators 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 between 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) (F&I) (Type K), LF. 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), LF. The Contractor shall furnish Barrier Units except when the Plans stipulate 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 on the Plans, the Barrier Units shall become the property of the Contractor and shall be removed from the site prior to acceptance of 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 panels per splice (One panel per side) of Class B (10 Gauge), or Four panels per splice (Two nested panels 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 as shown so as to provide a smooth shape transition between the Type K Barrier and the adjacent traffic railing. A low slump is desirable for concrete by hand methods. Cure 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.

All Sheets: 102-110

CHANGED NOTES

RENUMBERED ALL
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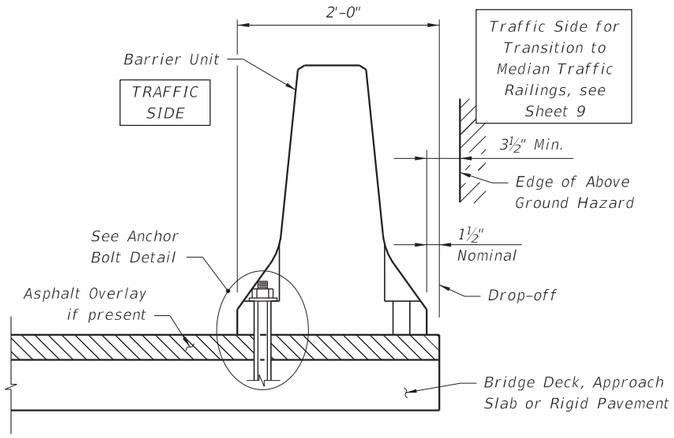
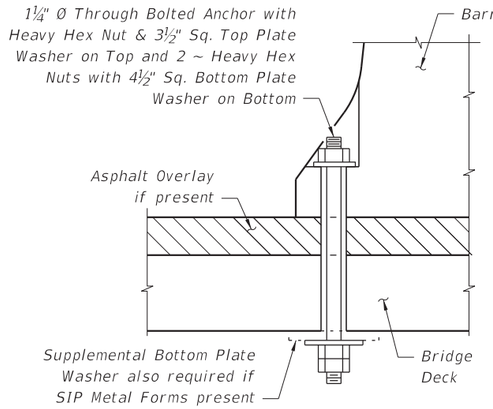
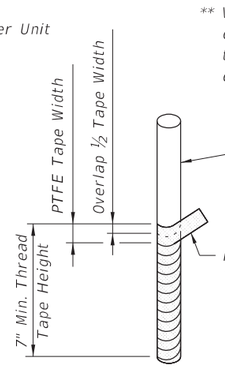
LAST REVISION	REVISION	DESCRIPTION:	FDOT		INDEX NO.	SHEET NO.
~~11/01/16~~		All Sheets: 11/01/17	FY 2017-18 DESIGN STANDARDS	TYPE K TEMPORARY CONCRETE BARRIER SYSTEM	~~414~~	~~4 of 15~~



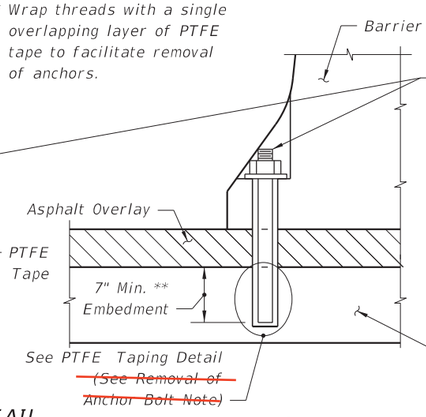
TYPICAL SECTION (~~BRIDGE DECK SHOWN, APPROACH SLAB OR RIGID PAVEMENT SIMILAR; INSTALLATION ADJACENT TO DROP-OFF SHOWN, MEDIAN TRANSITION INSTALLATION SIMILAR~~)



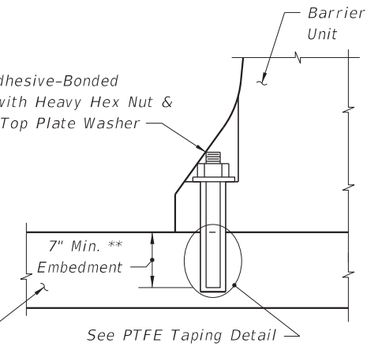
THROUGH BOLTED ANCHOR ~~INSTALLATION ON BRIDGE DECK~~



PTFE TAPING DETAIL



WITH ASPHALT OVERLAY



WITHOUT ASPHALT OVERLAY

ADHESIVE BONDED ANCHOR INSTALLATION ON BRIDGE DECK, APPROACH SLAB OR RIGID PAVEMENT

~~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 down 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 F 1554 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 ½". Snug tighten the Nuts on the Anchor Bolts. For through bolted installations, snug tighten the double Nuts on the underside of the deck against each other to minimize the potential for loosening.

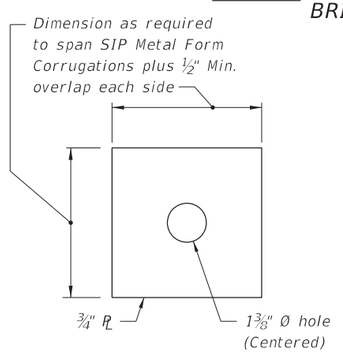
CHANGED NOTES

Omit one (1) Anchor Bolt within a single Barrier Un[illegible] 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.

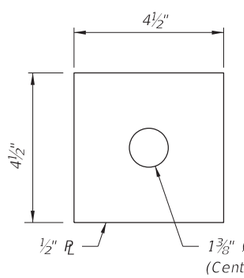
Omit one (1) Anchor Bolt within a single Barrier Unit as shown in the Treatment at Bridge Deck Expansion Joint Schematic if the Barrier Unit straddles a bridge deck expansion joint. The adjacent Barrier Units must each be installed with the standard three (3) Anchor Bolts.

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. Remove the test Anchor Bolts after testing as directed by the Engineer.

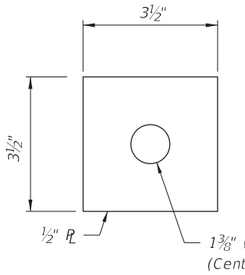
REMOVAL OF ANCHOR BOLTS: Upon removal or relocation of Barrier Units, remove all Anchor Bolts and completely fill the remaining holes in bridge decks, approach slabs and roadway rigid pavements that are to remain with Magnesium Ammonium Phosphate Concrete in accordance with Specification Section 930 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.



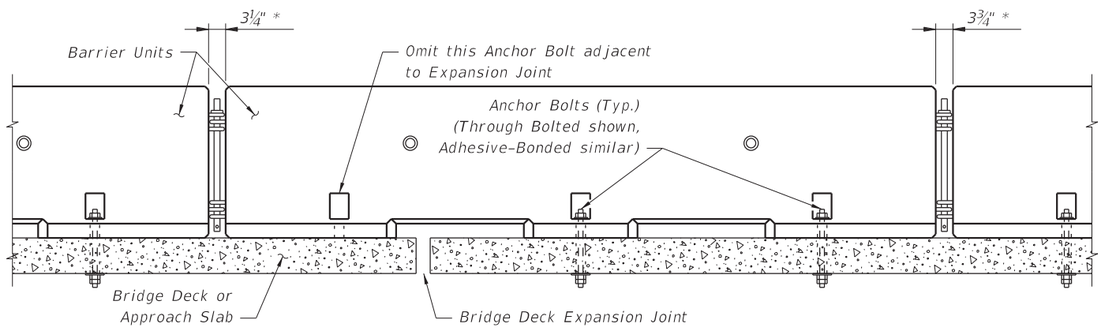
SUPPLEMENTAL BOTTOM PLATE WASHER DETAIL



BOTTOM PLATE WASHER DETAIL



TOP PLATE WASHER DETAIL



* To accommodate movement at Expansion Joint, set Barrier Units with 3¾" gap at locations shown.

TREATMENT AT BRIDGE DECK EXPANSION JOINT SCHEMATIC

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BOLTED DOWN BRIDGE, APPROACH SLAB, ROADWAY AND TRANSITION INSTALLATIONS

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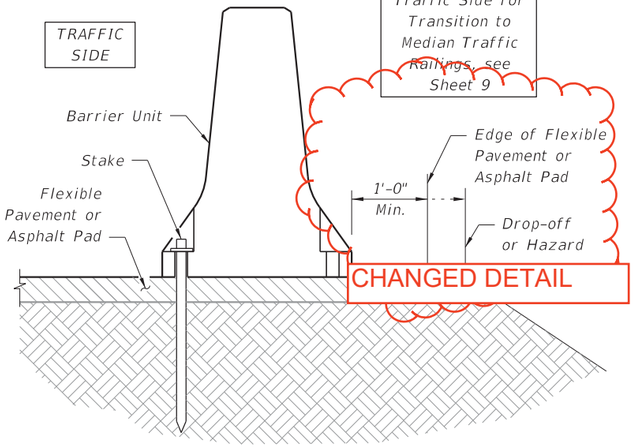
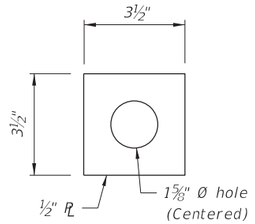
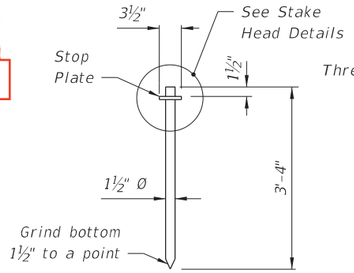


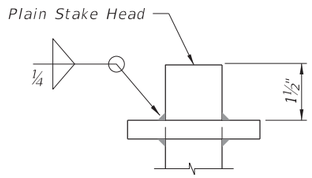
TYPICAL SECTION (INSTALLATION ADJACENT TO DROP-OFF SHOWN, MEDIAN TRANSITION INSTALLATION SIMILAR)



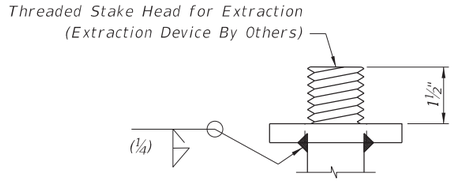
STOP PLATE DETAIL



STAKE DETAIL



PLAIN STAKE HEAD DETAIL



OPTIONAL EXTRACTION STAKE HEAD DETAIL

NOTES FOR STAKED DOWN ROADWAY AND TRANSITION INSTALLATIONS:

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) ANSI/AWS D1.1 (current edition). Weld metal shall be E60XX or E70XX. Nondestructive testing of welds is not required.

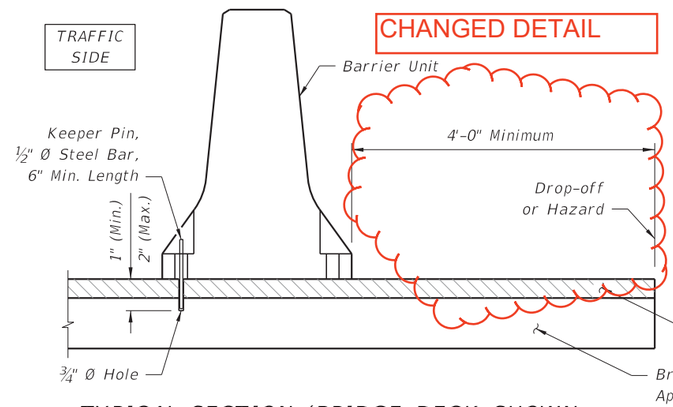
Install three (3) Stakes on the traffic side of the Barrier Units as shown, except for Transition Installations. For the number and positions of stakes required in Transition Installations see Sheets 4, 5 and 6 and Index No. 415. Install Stakes so that the Stop Plate is snug against the bottom of the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

STAKED DOWN ROADWAY AND TRANSITION INSTALLATIONS



TYPICAL SECTION (BRIDGE DECK SHOWN, APPROACH SLAB SIMILAR)

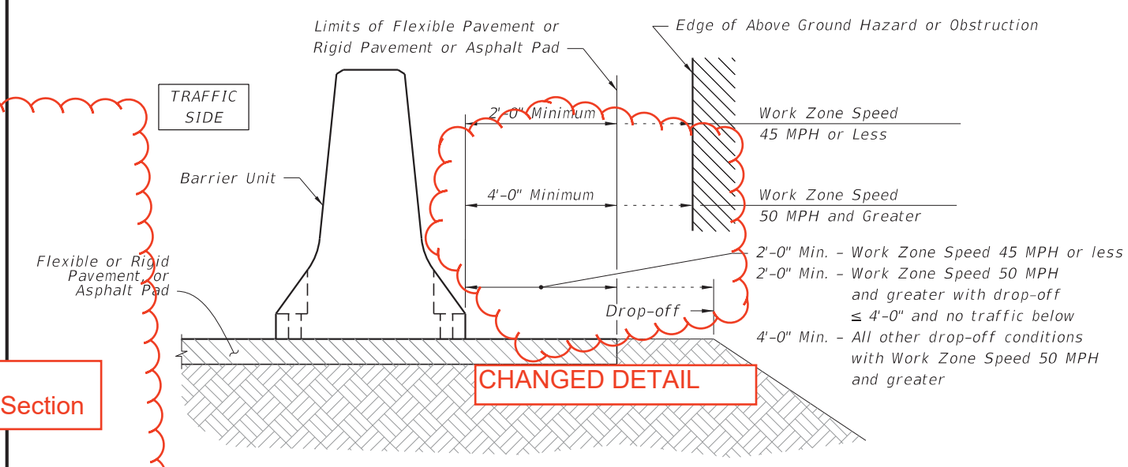
NOTES FOR FREE STANDING BRIDGE OR APPROACH SLAB INSTALLATIONS:

KEEPER PINS: Keeper Pins shall be ½" 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.

FREESTANDING BRIDGE OR APPROACH SLAB INSTALLATIONS

ADDED: Typical Median Section



TYPICAL SECTION

NOTES FOR FREE STANDING ROADWAY INSTALLATION:

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

CHANGED NOTES

FREESTANDING ROADWAY INSTALLATION

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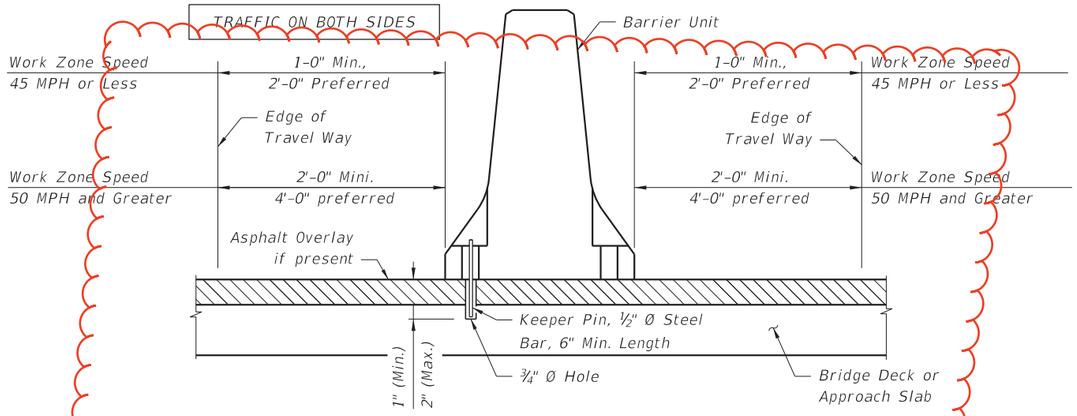


TYPICAL SECTION

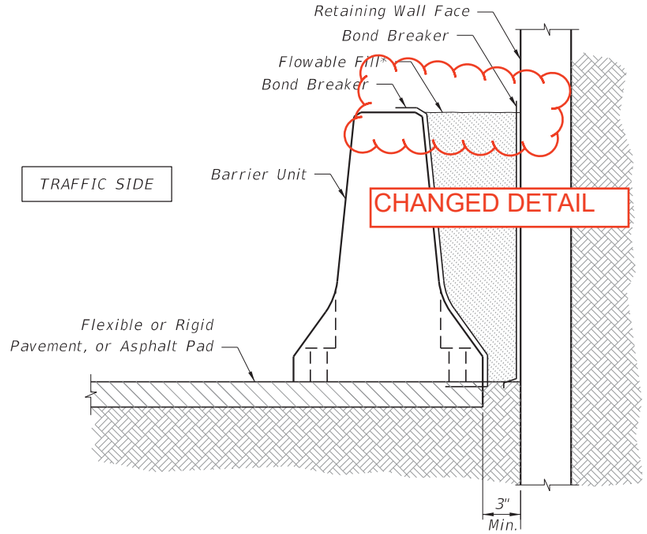
NOTES FOR FREESTANDING MEDIAN INSTALLATION:

MOVED TO SHEET 3
CHANGED DETAIL
AND NOTES

KEEPER PINS: Required for Bridge Decks only, Keeper Pins s…el bar in accordance with ASTM A 36 or ASTM A 709 Grade 36. As directed by the Engineer in order …ation of the Barrier Units, install one (1) Keeper Pin per Barrier Unit as shown. Alternate Keeper Pin … 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.

FREESTANDING MEDIAN INSTALLATION

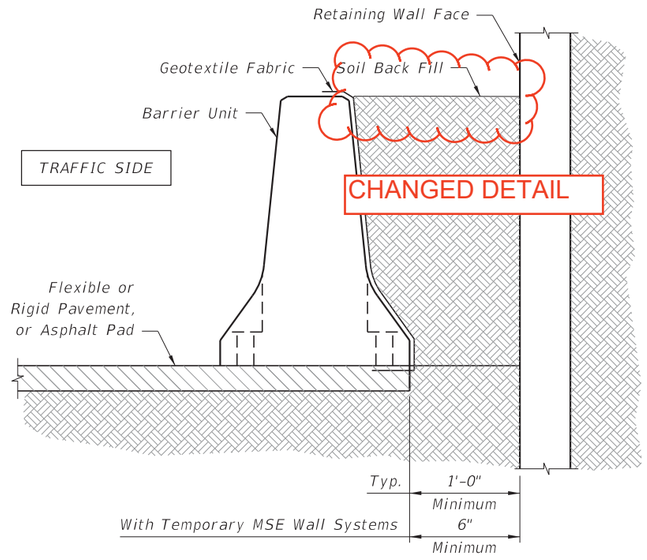
(Bridge Deck Shown, Approach Slab, Asphalt Pad, Flexible or Rigid Pavement Similar)



TYPICAL SECTION
ADJACENT TO RETAINING WALL WITH FLOWABLE FILL BACK FILL

*FLOWABLE FILL: Provide Flowable Fill in accordance with Specification Section 121.

FLOWABLE FILL BACK FILL ROADWAY INSTALLATIONS

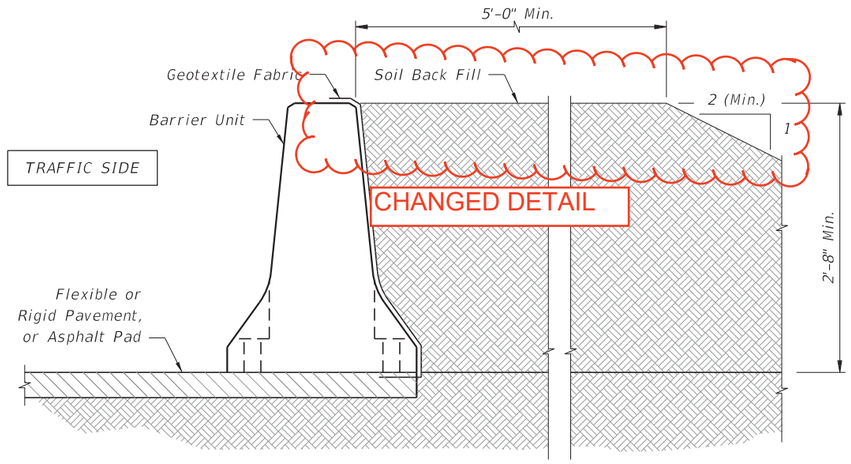


TYPICAL SECTION
ADJACENT TO RETAINING WALL WITH SOIL BACK FILL

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.



TYPICAL SECTION
WITH SOIL BACK FILL

SOIL BACK FILLED ROADWAY INSTALLATIONS

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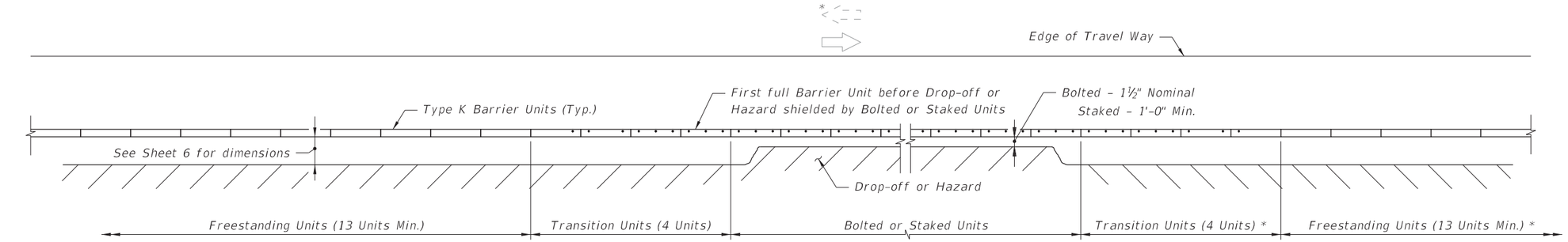
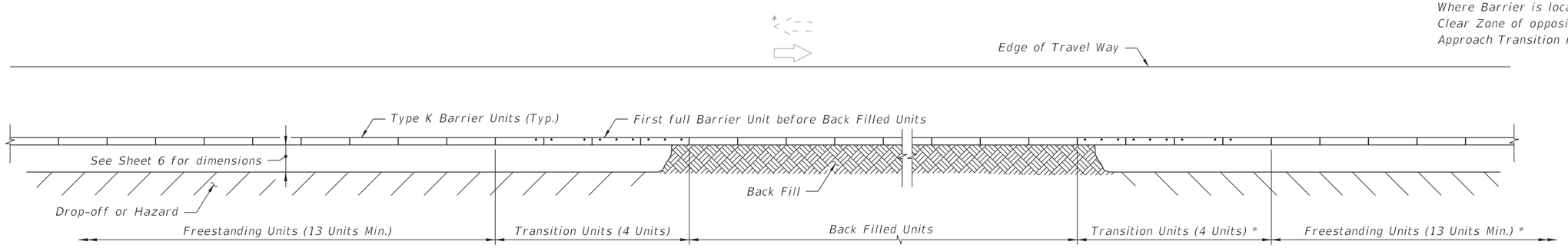
~~11/01/16~~					~~414~~	~~7 of 15~~

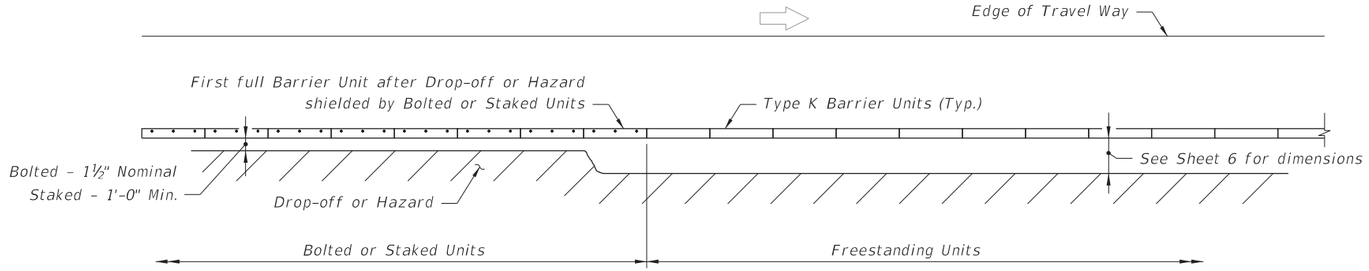


APPROACH TRANSITION FROM FREESTANDING TO BOLTED OR STAKED DOWN TYPE K TEMPORARY CONCRETE BARRIERS

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



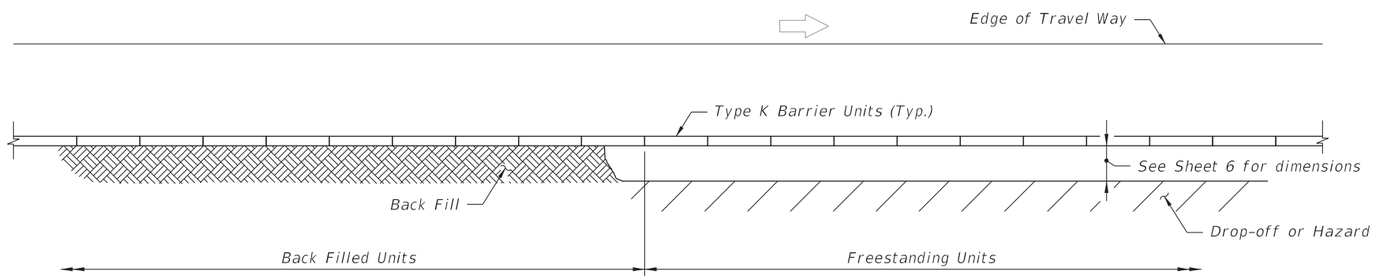
APPROACH TRANSITION FROM FREESTANDING TO BACK FILLED TYPE K TEMPORARY CONCRETE BARRIERS



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

LEGEND:

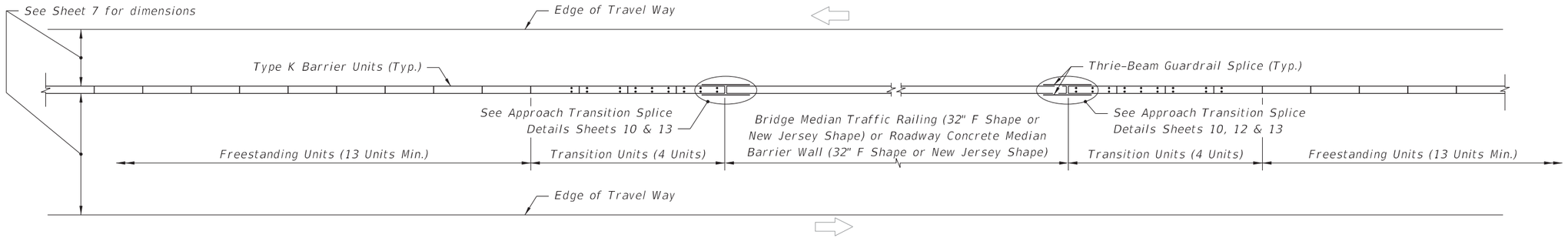
Dot indicates number and position of Bolts or Stakes



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

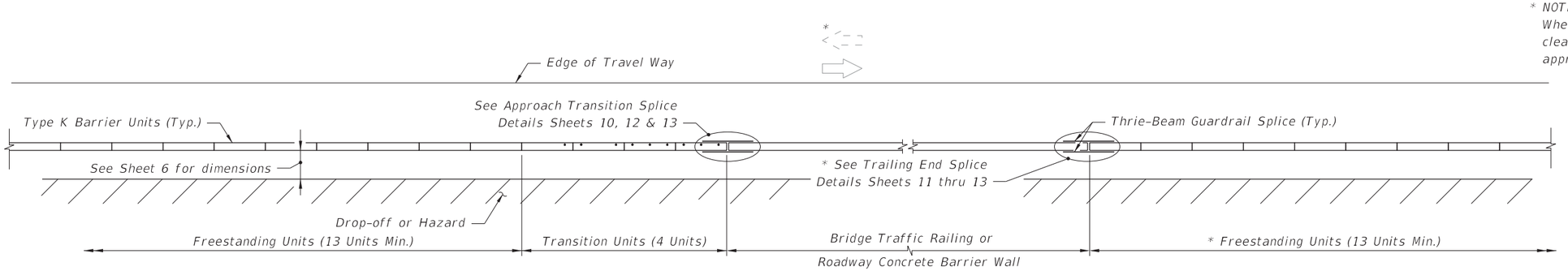
10/24/2016 9:40:28 AM

LAST REVISION	REVISION	DESCRIPTION:	FDOT FY 2017-18 DESIGN STANDARDS	TYPE K TEMPORARY CONCRETE BARRIER SYSTEM	INDEX NO.	SHEET NO.
~~07/01/07~~					~~414~~	~~8 of 15~~

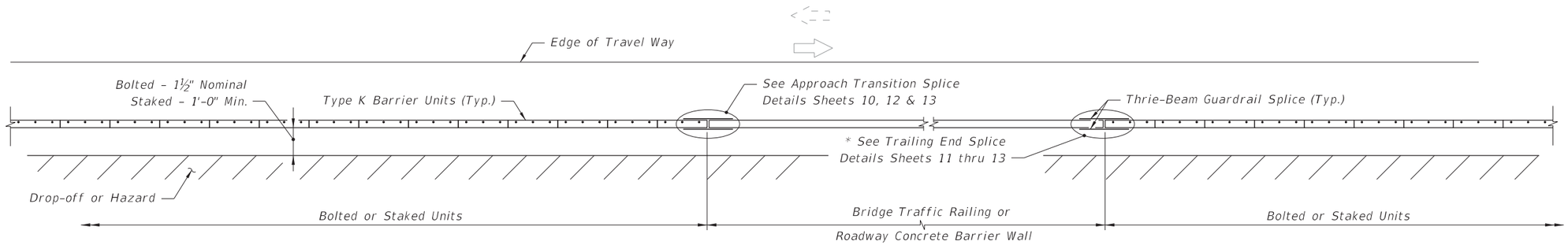


TRANSITION FROM FREESTANDING TYPE K TEMPORARY CONCRETE BARRIERS TO BRIDGE MEDIAN TRAFFIC RAILING OR ROADWAY MEDIAN CONCRETE BARRIER WALL

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

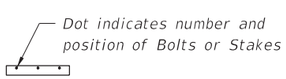


TRANSITION FROM FREESTANDING TYPE K TEMPORARY CONCRETE BARRIERS TO BRIDGE TRAFFIC RAILING OR ROADWAY CONCRETE BARRIER WALL



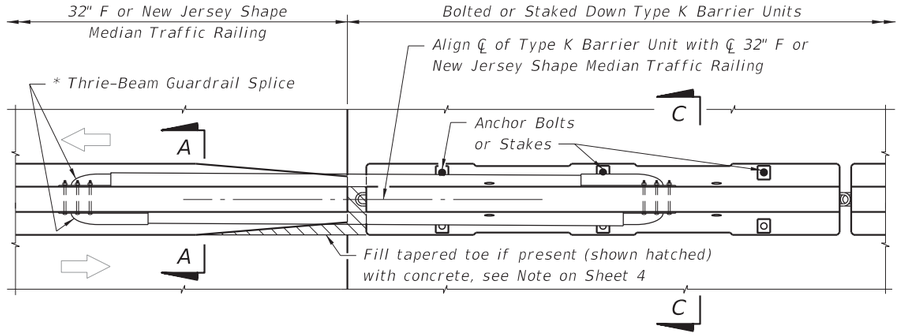
TRANSITION FROM BOLTED OR STAKED DOWN TYPE K TEMPORARY CONCRETE BARRIERS TO BRIDGE TRAFFIC RAILING OR ROADWAY CONCRETE BARRIER WALL

LEGEND:

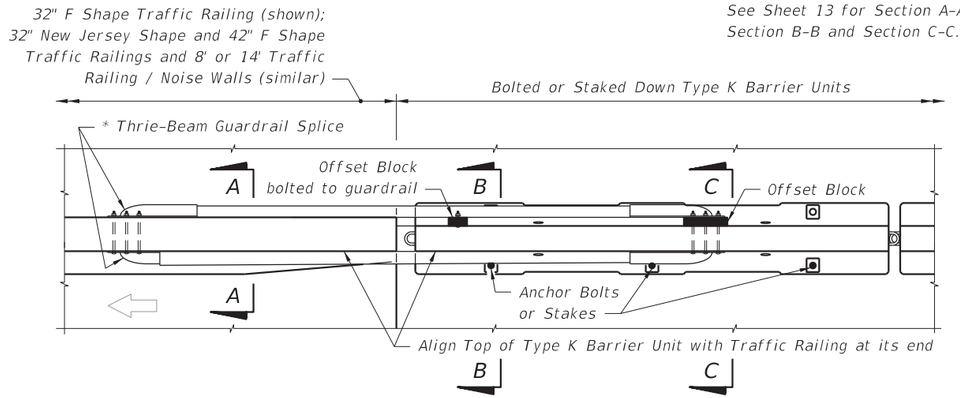


10/24/2016 9:40:31 AM

LAST REVISION	REVISION	DESCRIPTION:	FDOT FY 2017-18 DESIGN STANDARDS	TYPE K TEMPORARY CONCRETE BARRIER SYSTEM	INDEX NO.	SHEET NO.
~~07/01/13~~					~~414~~	~~9 of 15~~

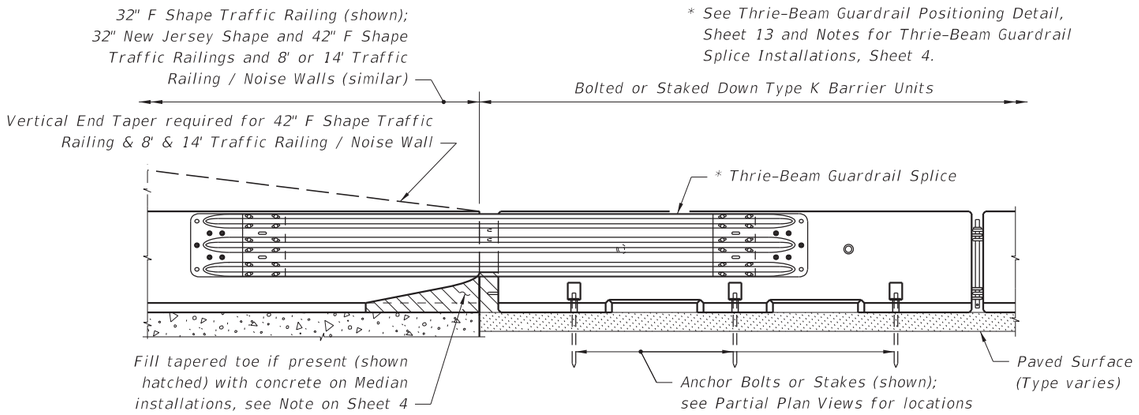


PARTIAL PLAN VIEW AT MEDIAN TRAFFIC RAILING



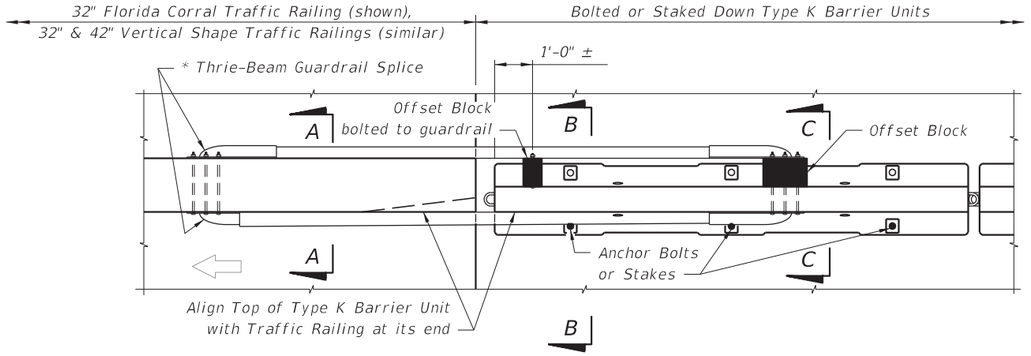
Cross References:
See Sheet 13 for Section A-A,
Section B-B and Section C-C.

PARTIAL PLAN VIEW AT SHOULDER TRAFFIC RAILING



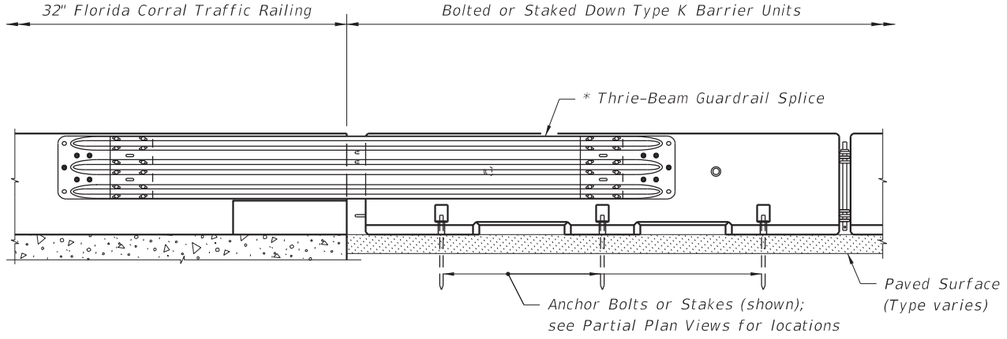
PARTIAL ELEVATION VIEW

APPROACH TRANSITION SPLICE DETAIL
FOR F AND NEW JERSEY SHAPE TRAFFIC RAILINGS AND 8' & 14' TRAFFIC RAILING / NOISE WALLS (CONCRETE BARRIER WALL SIMILAR)

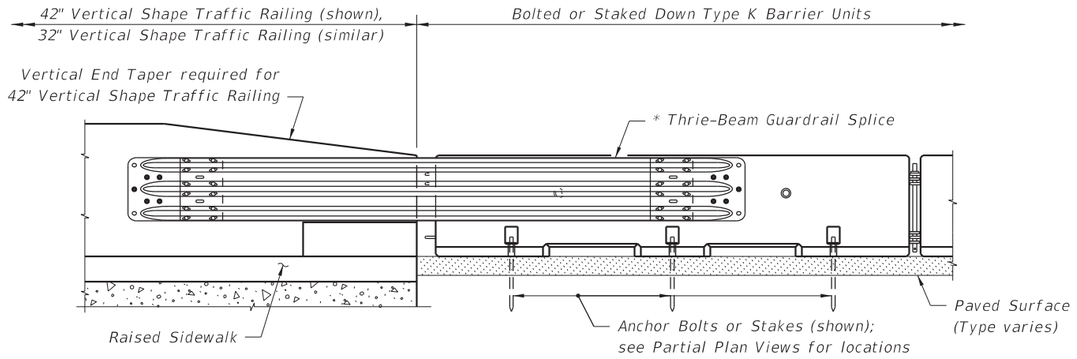


PARTIAL PLAN VIEW

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



PARTIAL ELEVATION VIEW - FLORIDA CORRAL TRAFFIC RAILING



PARTIAL ELEVATION VIEW - VERTICAL SHAPE TRAFFIC RAILINGS

APPROACH TRANSITION SPLICE DETAIL
FOR FLORIDA CORRAL AND VERTICAL SHAPE TRAFFIC RAILINGS

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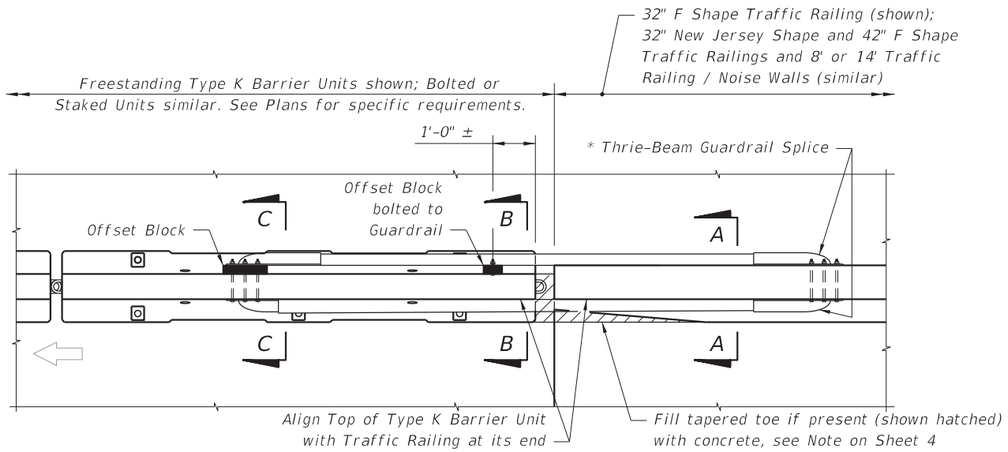
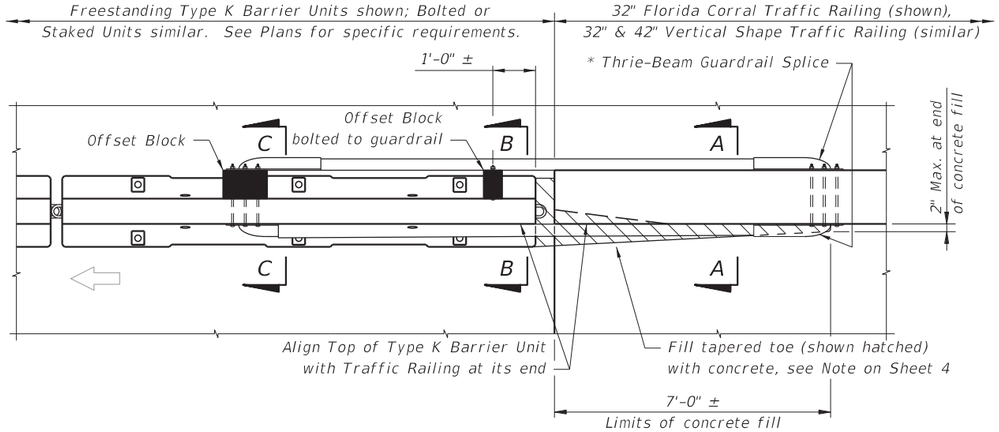
LAST REVISION	REVISION	DESCRIPTION:	FDOT FY 2017-18 DESIGN STANDARDS	TYPE K TEMPORARY CONCRETE BARRIER SYSTEM	INDEX NO.	SHEET NO.
~~07/01/13~~					~~414~~	~~10 of 15~~

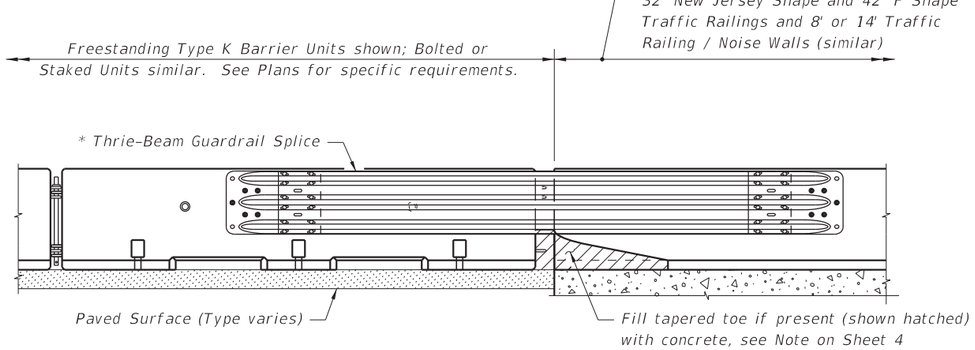


PARTIAL PLAN VIEW



PARTIAL PLAN VIEW

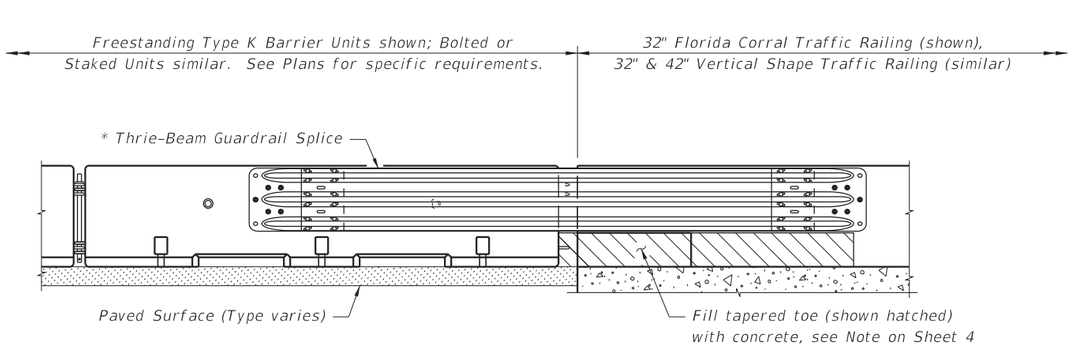
* See Thrie-Beam Guardrail Positioning Detail, Sheet 13 and Notes for Thrie-Beam Guardrail Splice Installations, Sheet 4.



PARTIAL ELEVATION VIEW

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

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



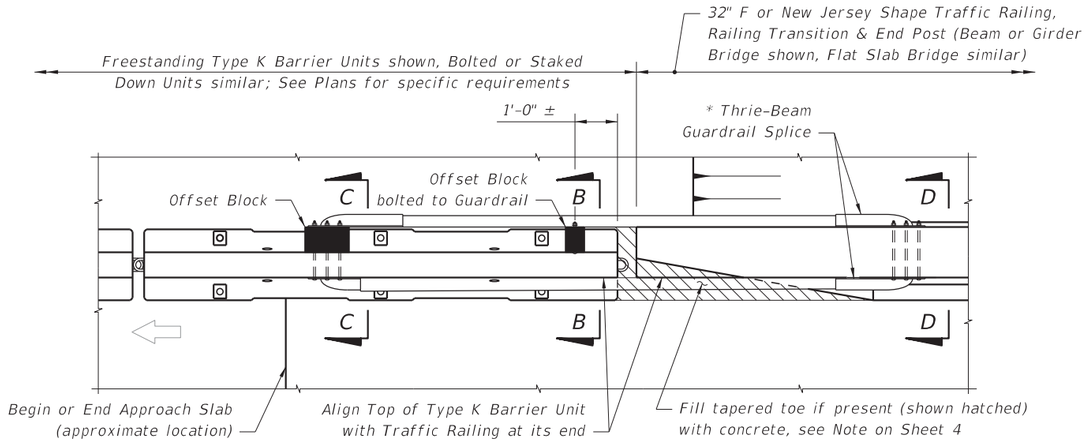
PARTIAL ELEVATION VIEW

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

TRAILING END SPLICE DETAIL
FOR FLORIDA CORRAL AND VERTICAL SHAPE TRAFFIC RAILINGS

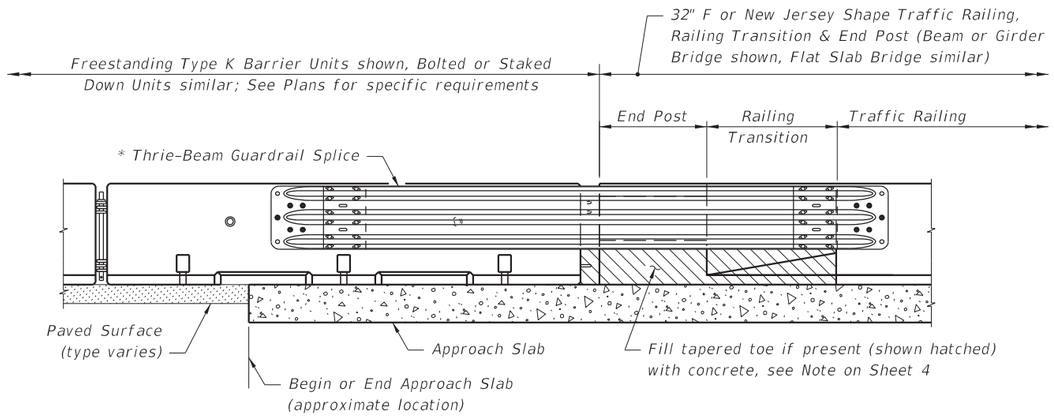
10/24/2016 9:40:37 AM

LAST REVISION	REVISION	DESCRIPTION:	FDOT FY 2017-18 DESIGN STANDARDS	TYPE K TEMPORARY CONCRETE BARRIER SYSTEM	INDEX NO.	SHEET NO.
~~07/01/13~~					~~414~~	~~11 of 15~~



PARTIAL PLAN VIEW

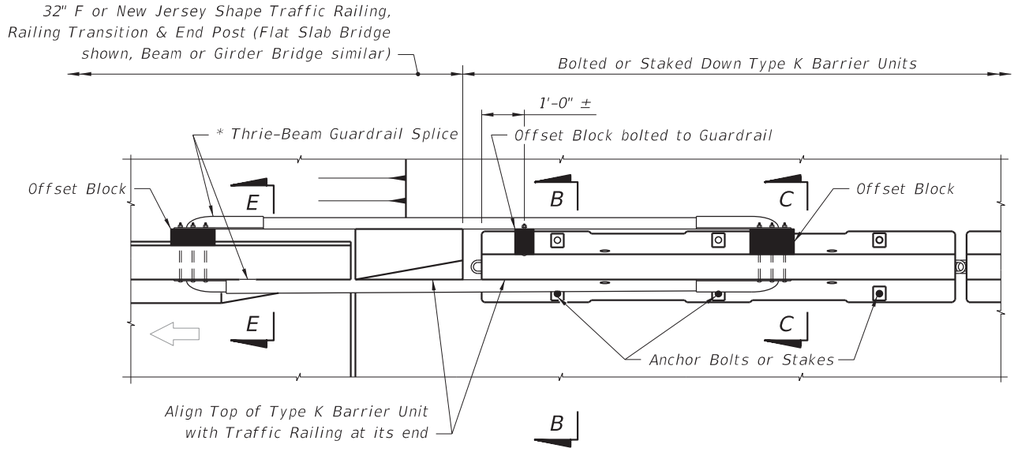
* See Thrie-Beam Guardrail Positioning Detail, Sheet 13 and Notes for Thrie-Beam Guardrail Splice Installations, Sheet 4.



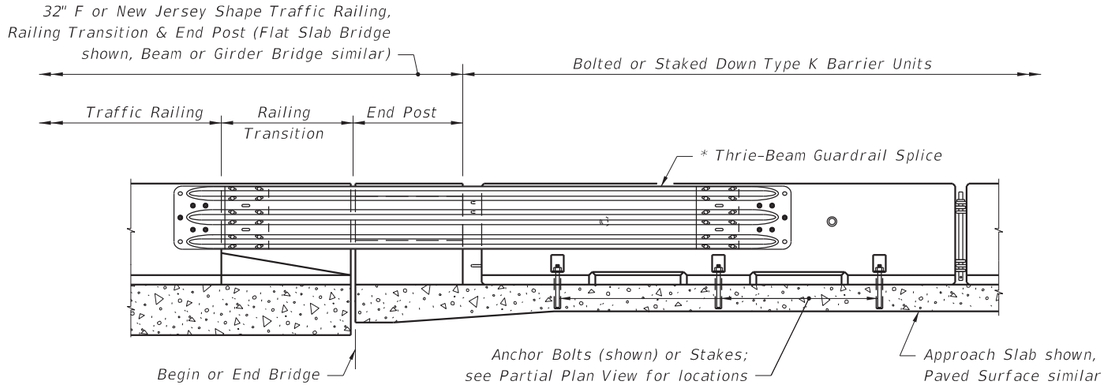
PARTIAL ELEVATION VIEW

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

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



PARTIAL PLAN VIEW



PARTIAL ELEVATION VIEW

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

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

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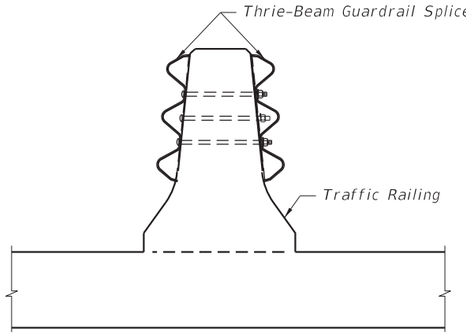
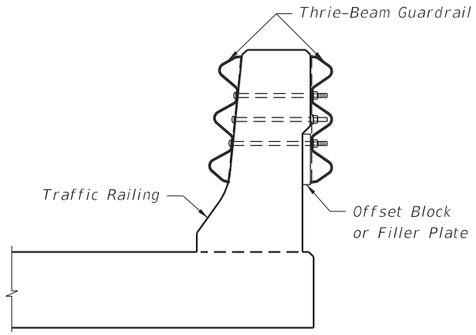
10/24/2016 9:40:43 AM

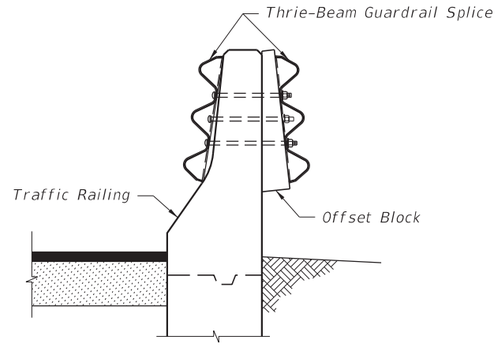
LAST REVISION	REVISION	DESCRIPTION:	FDOT FY 2017-18 DESIGN STANDARDS	TYPE K TEMPORARY CONCRETE BARRIER SYSTEM	INDEX NO.	SHEET NO.
~~07/01/07~~					~~414~~	~~12 of 15~~



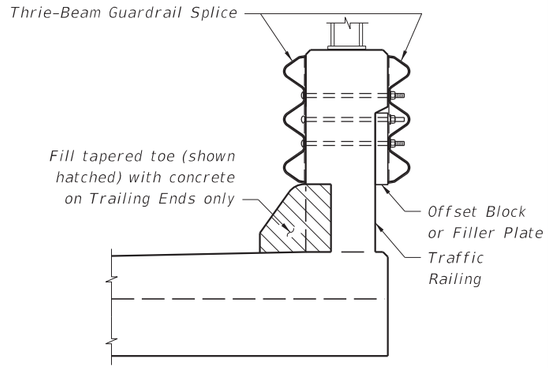
SECTION A-A
32" F Shape Median Traffic Railing (shown), Median Concrete Barrier Wall (similar)



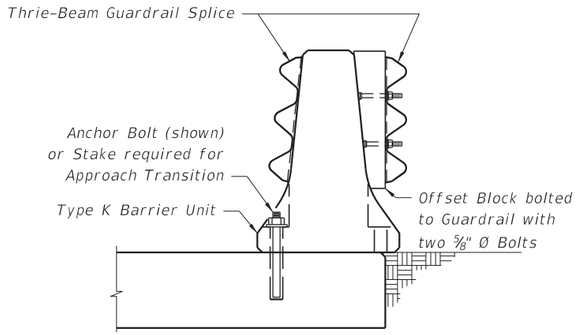
SECTION A-A
32" F Shape Traffic Railing (shown), 42" Traffic Railing and 8' & 14' Traffic Railing / Noise Walls (similar)



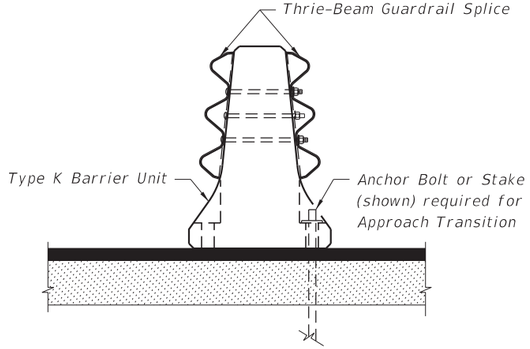
SECTION A-A
32" New Jersey Shape Concrete Barrier Wall (shown), 32" New Jersey Shape Traffic Railing & other Narrow Traffic Railings (similar)



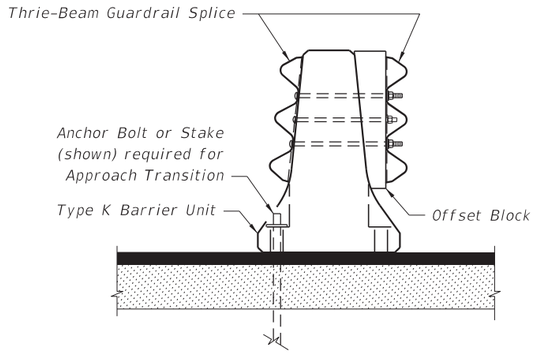
SECTION A-A
32" & 42" Vertical Shape Traffic Railing (shown), Florida Corral Traffic Railing (similar)



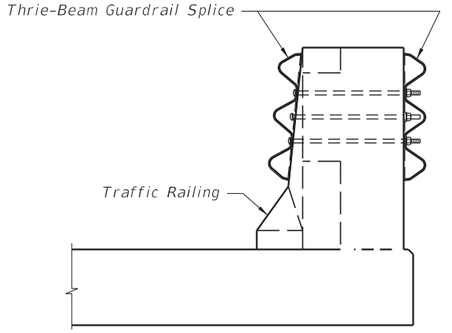
SECTION B-B
Adjacent to Shoulder Traffic Railings



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

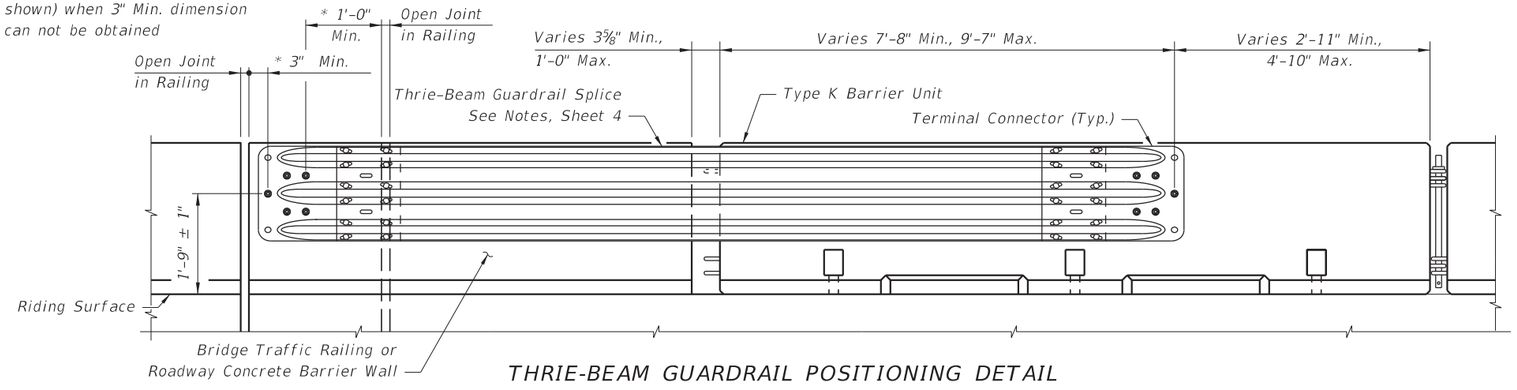


SECTION C-C
Adjacent to Shoulder Traffic Railings

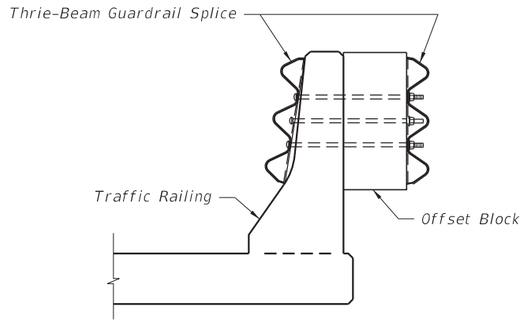


SECTION D-D
32" F or New Jersey Shape Traffic Railing, Railing Transition & End Post

* Shift Thrie-Beam Guardrail Splice beyond Open Joint 1'-0" Min. (as shown) when 3" Min. dimension can not be obtained



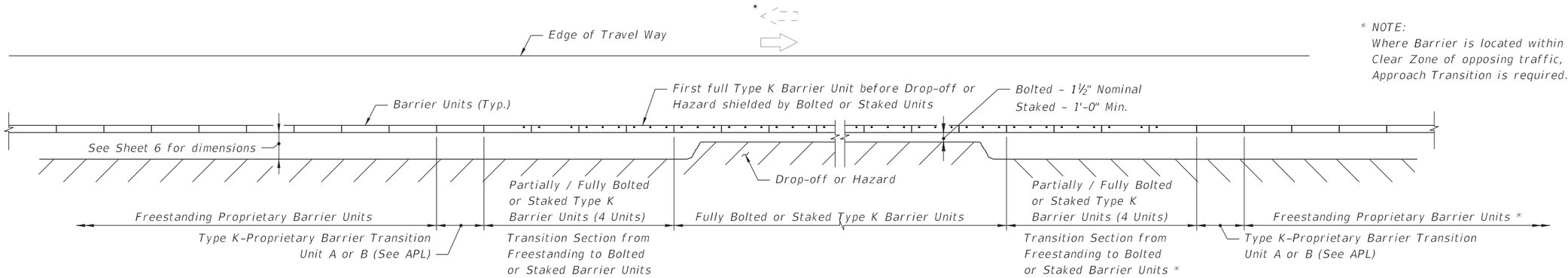
THRIE-BEAM GUARDRAIL POSITIONING DETAIL



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

10/24/2016 9:40:45 AM

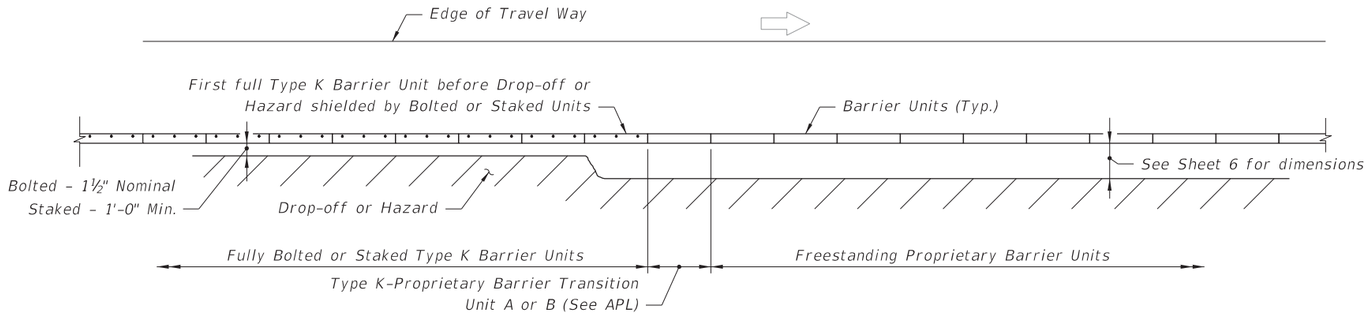
LAST REVISION	REVISION	DESCRIPTION:	FDOT FY 2017-18 DESIGN STANDARDS	TYPE K TEMPORARY CONCRETE BARRIER SYSTEM	INDEX NO.	SHEET NO.
~~07/01/13~~					~~414~~	~~13 of 15~~



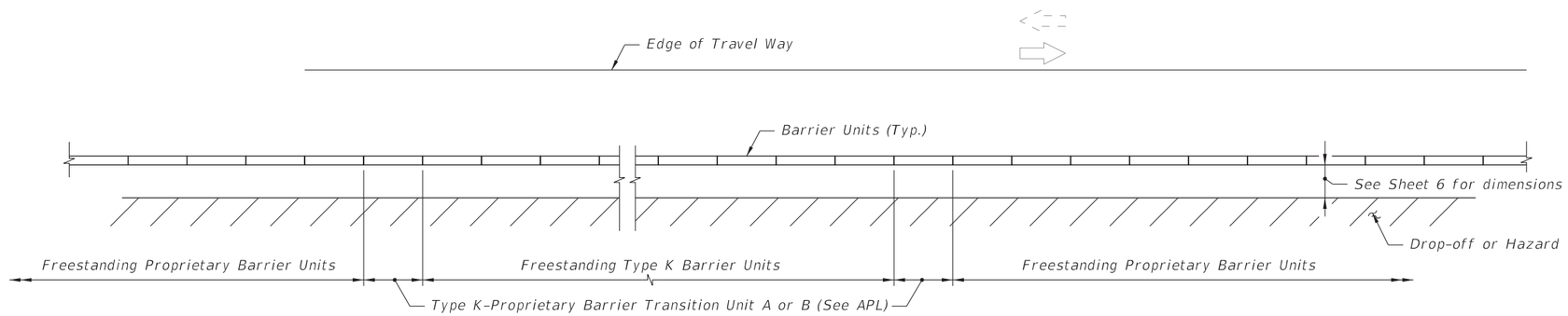
* NOTE:
Where Barrier is located within Clear Zone of opposing traffic, Approach Transition is required.

APPROACH TRANSITION FROM FREESTANDING PROPRIETARY TEMPORARY BARRIERS TO BOLTED OR STAKED DOWN TYPE K TEMPORARY CONCRETE BARRIERS

LEGEND:



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



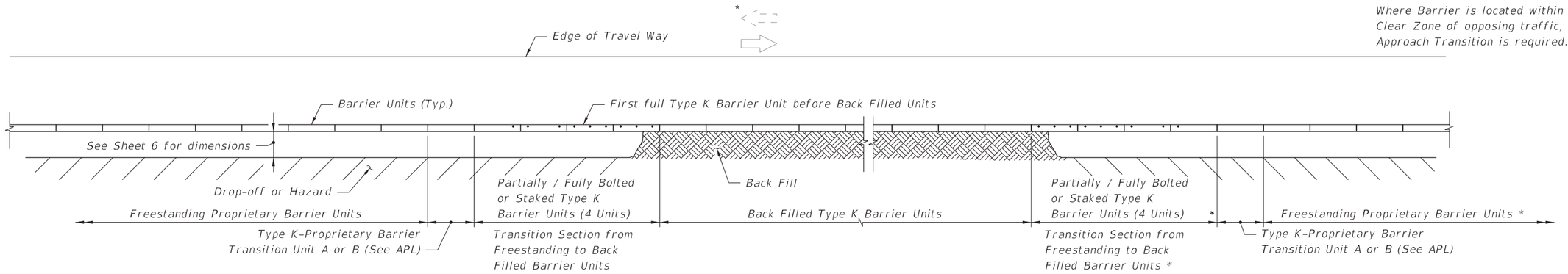
APPROACH AND TRAILING END TRANSITIONS FROM FREESTANDING TYPE K TEMPORARY CONCRETE BARRIERS TO FREESTANDING PROPRIETARY TEMPORARY BARRIERS

TYPE K-PROPRIETARY TEMPORARY CONCRETE BARRIER TRANSITIONS

10/24/2016 9:40:47 AM

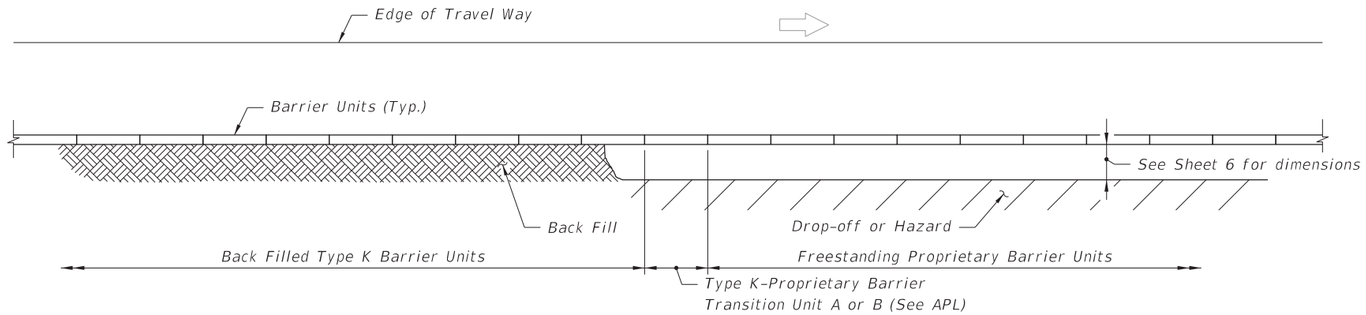
LAST REVISION	REVISION	DESCRIPTION:				
~~07/01/07~~			FDOT FY 2017-18 DESIGN STANDARDS	TYPE K TEMPORARY CONCRETE BARRIER SYSTEM	INDEX NO. ~~414~~	SHEET NO. ~~14 of 15~~

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

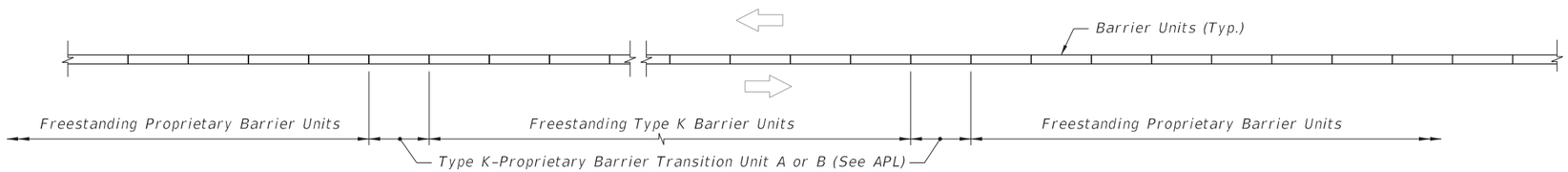


APPROACH TRANSITION FROM FREESTANDING PROPRIETARY TEMPORARY BARRIERS TO BACK FILLED TYPE K TEMPORARY CONCRETE BARRIERS

LEGEND:



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

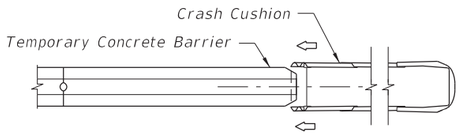


MEDIAN APPROACH AND TRAILING END TRANSITIONS FROM FREESTANDING TYPE K TEMPORARY CONCRETE BARRIERS TO FREESTANDING PROPRIETARY TEMPORARY BARRIERS

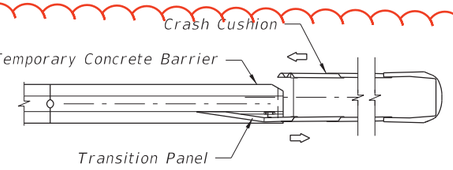
10/24/2016 9:40:50 AM

TYPE K-PROPRIETARY TEMPORARY CONCRETE BARRIER TRANSITIONS

LAST REVISION 07/01/07	REVISION DESCRIPTION:	FDOT FY 2017-18 DESIGN STANDARDS	TYPE K TEMPORARY CONCRETE BARRIER SYSTEM	INDEX NO. 414	SHEET NO. 15 of 15

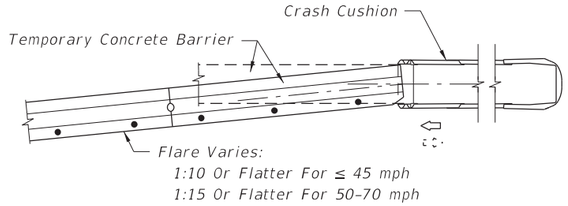


UNIDIRECTIONAL -
SEPARATED TRAFFIC

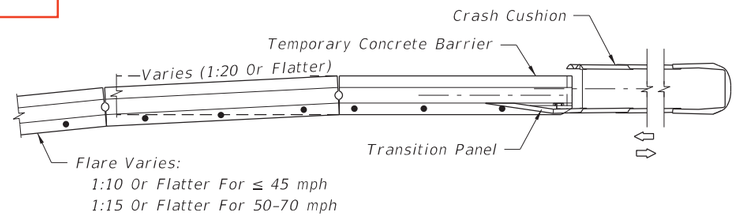


BIDIRECTIONAL -
SEPARATED TRAFFIC

CHANGED DETAIL



TWO-WAY TRAFFIC WITH CRASH CUSHION LOCATED OUTSIDE
OPPOSING LANE CLEAR ZONE OR ONE-WAY TRAFFIC



TWO-WAY TRAFFIC WITH CRASH CUSHION LOCATED
WITHIN OPPOSING LANE CLEAR ZONE

SHOULDER - RIGHT OR LEFT (RIGHT SIDE SHOWN)

END TREATMENT WHEN SHIELDED BY A CRASH CUSHION

NOTES FOR END SHIELDING

1. Redirective crash cushions are the principal (standard) device to be used for shielding approach ends of temporary concrete barriers. The contractor has the option to construct any of the redirective crash cushions listed on the Approved Products List at "102 Temporary Crash Cushion", subject to the uses and limitations described on their respective drawings. The last four Temporary Concrete Barrier units abutting crash cushions must be anchored to a paved surface in accordance with Design Standards Index 414.

2. Temporary redirective crash cushions shall be installed in accordance with the manufacturer's specifications and recommendations. Temporary crash cushions can be either new or functionally sound used devices. Performance of intended function is the only condition for acceptance, whether the crash cushion is new, used, refurbished, purchased, leased, rented, on loan, shared between projects, or made up of mixed new and used components.

3. Temporary Crash Cushions shall not be bolted down 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. Gating crash cushions shall be used where bolting is not allowed.

4. Assemble and install Crash Cushions according to the limitations noted on the Approved Products List (APL) webpage, the manufacturer's specifications, and the applicable crash cushion drawings posted on the APL.

5. Optional temporary redirective crash cushions are to be paid for per locations under the contract unit price for Crash Cushion (Redirective Option) (Temporary), LO.

6. A yellow Type I Object Marker shall be centered 3' in front of the crash cushion nose. Mounting hardware shall be in conformance with Section 993 of the Standard Specifications for Road and Bridge Construction.

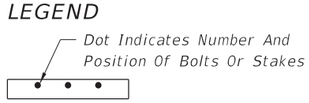
   As an option, the contractor may install reflective sheeting on the nose of the crash cushion. The sheeting to be used must be solid yellow, Type III or better and must be a product listed on the Department's Approved Products List (APL). The sheeting to be applied to the nose of the crash cushion shall be a minimum of 360 square inches with a minimum height of 15 inches.

7. Equipment, stockpile material, etc., shall not be placed behind the crash cushion.

8. When subjected to reverse direction hits, construct Transition Panels from Temporary Concrete Barrier to Crash Cushions; for additional details refer to the applicable crash cushion drawings on the APL.

9. Galvanize metallic components to meet the requirements for Steel Guardrail, Section 967 of the Standard Specifications for Road and Bridge Construction.

LEGEND



Type K Temporary
Concrete Barrier System

SHIELDING ENDS WITH RE[illegible]SHIONS (REDIRECTIVE OPTION)

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9:45:16 AM
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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 precast plant meeting the requirements of Specification Section 105.

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 $2\frac{3}{4}$" 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 $\frac{1}{8}$" 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 4A and 5B.

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 Assemblies 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 521. 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 K1
- Fabricator's name or symbol
- Date of manufacture (day, month and year)

CHANGED NOTES

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.

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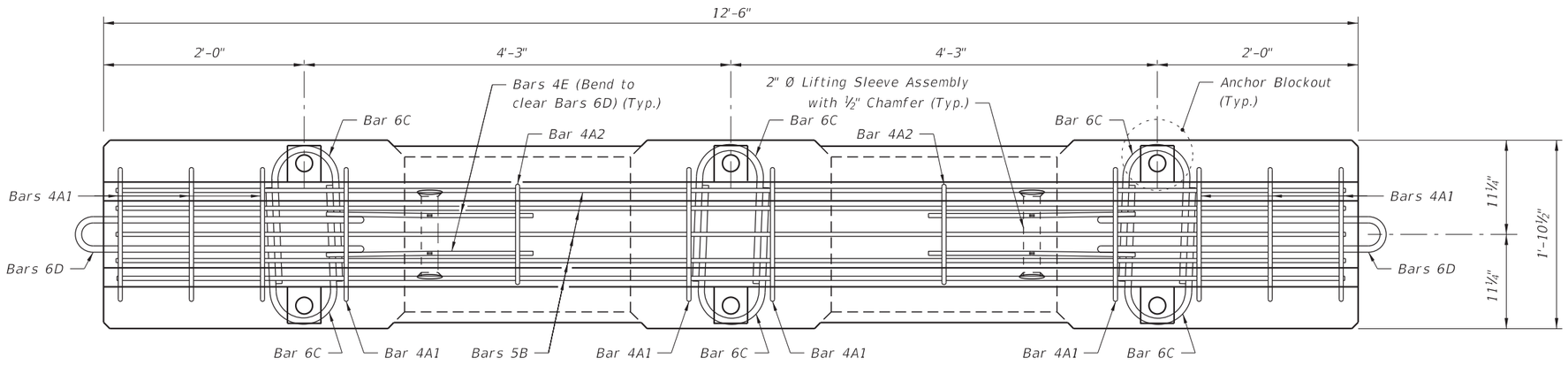
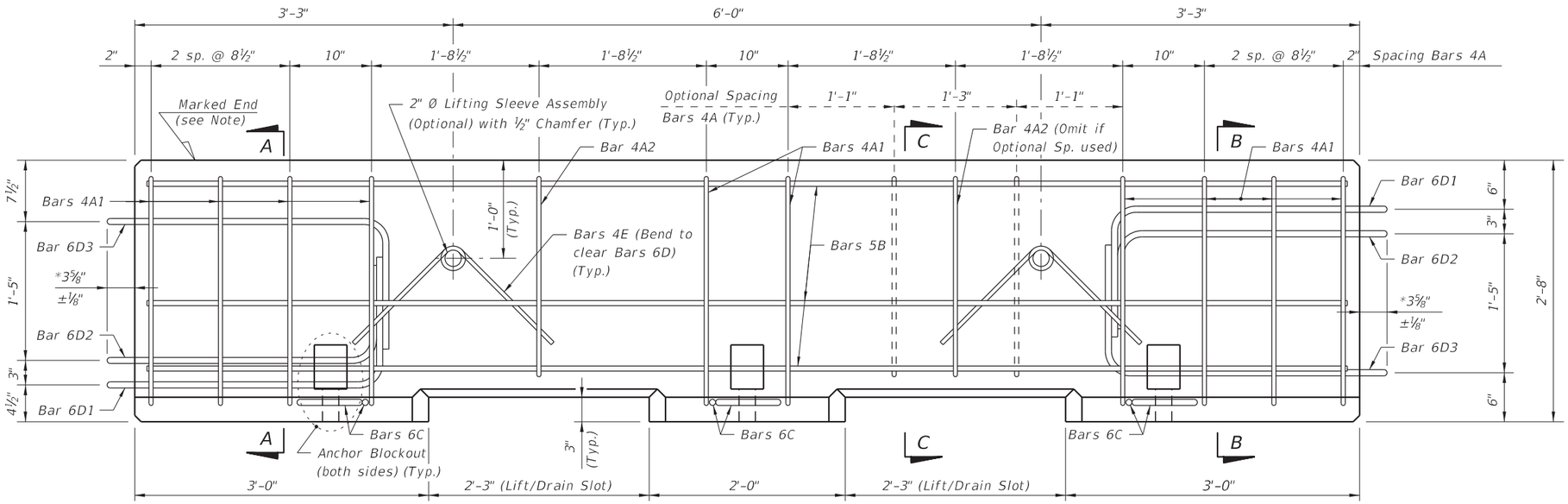
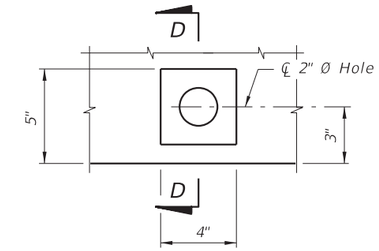


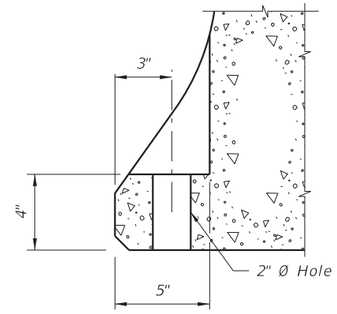
PLAN VIEW



ELEVATION VIEW

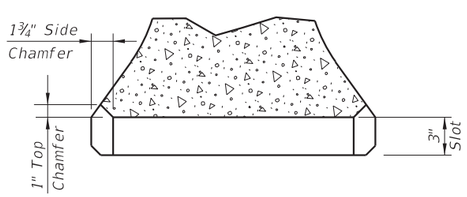


ANCHOR BLOCKOUT DETAIL



SECTION D-D
(Reinforcement not shown for clarity)

* Measured from end of Barrier Unit to outside edge of Bars 6D.

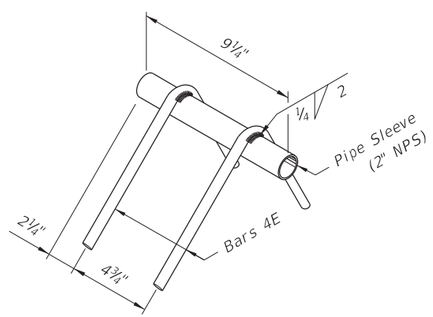


SECTION THRU LIFT/DRAIN SLOT

ESTIMATED TEMPORARY CONCRETE BARRIER QUANTITIES		
ITEM	UNIT	QUANTITY
Concrete	CY	1.29
Reinforcing Steel	LB	218

The above quantities are for one Barrier Unit.

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



LIFTING SLEEVE
ASSEMBLY DETAIL (OPTIONAL)

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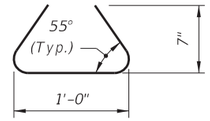
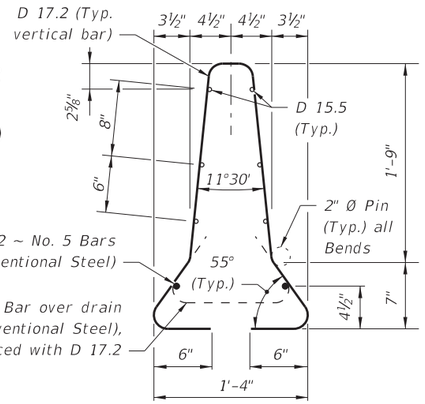
ALTERNATE REINFORCING STEEL DETAIL
WELDED WIRE REINFORCEMENT

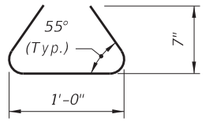


NO. 4 DRAIN BAR OVER DRAIN SLOTS (CONVENTIONAL STEEL)

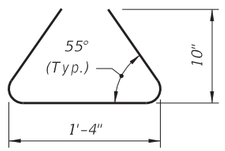


NOTES:
Place 2 ~ No. 5 Bars (12'-3" long) in bottom of Welded Wire Reinforcement cage as shown.
D 17.2 spacing shall match spacings for Bars 4A shown in Elevation View, Sheet 2. Field trim D 17.2 to clear drain slots by 2".

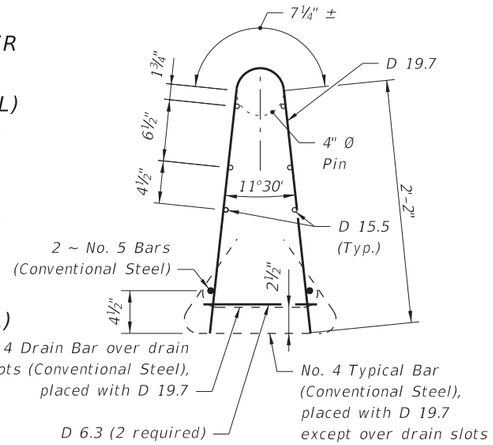
CONFIGURATION ONE



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



NO. 4 TYPICAL BAR (CONVENTIONAL STEEL)



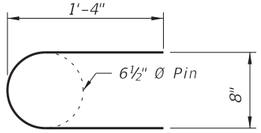
NOTES:
Place 2 ~ No. 5 Bars (12'-3" long) tied to D 19.7 inside of bottom Welded Wire Reinforcement cage as shown.
D 19.7 spacing shall match spacings for Bars 4A shown in Elevation View, Sheet 2. Field trim D 19.7 to clear drain slots by 2".

CONFIGURATION TWO

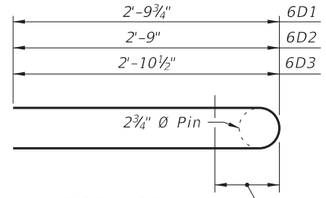
CONVENTIONAL REINFORCING STEEL BENDING DIAGRAMS

BILL OF REINFORCING STEEL

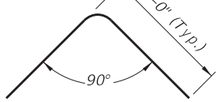
MARK	SIZE	NUMBER	LENGTH
A1	4	10	6'-1"
A2	4	2	5'-5"
B	5	5	12'-3" (Straight)
C	6	6	3'-1"
D1	6	2	8'-4"
D2	6	2	7'-6"
D3	6	2	8'-6"
E	4	4	2'-0"



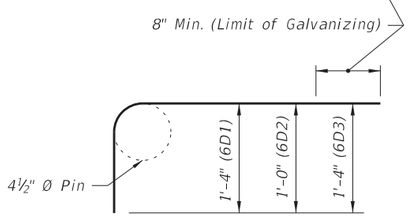
BAR 6C



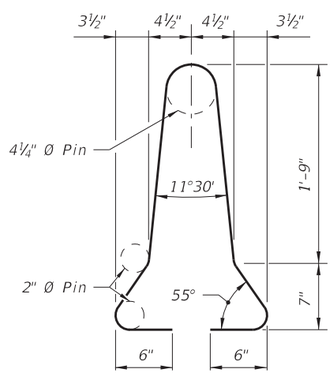
TOP VIEW
BARS 6D1, 6D2 & 6D3



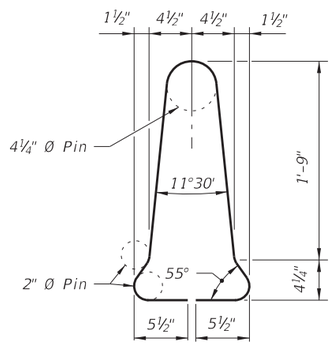
BAR 4E



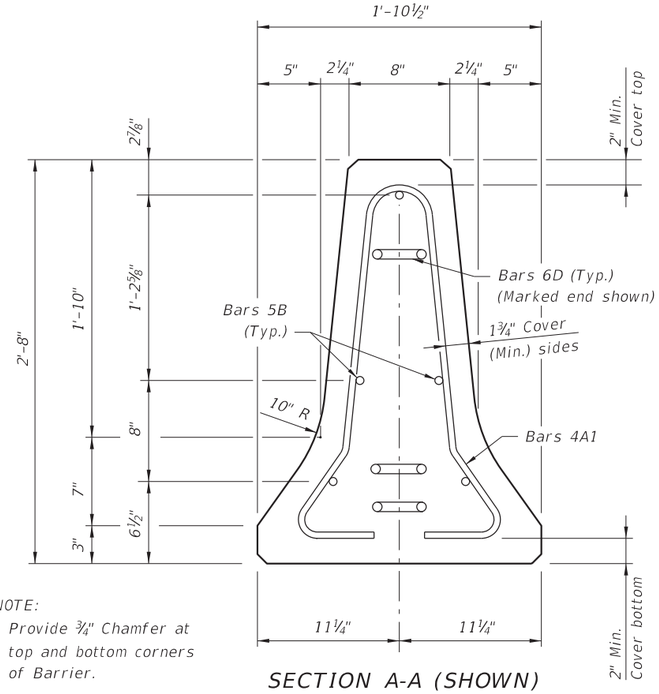
SIDE VIEW
BARS 6D1, 6D2 & 6D3



STIRRUP BAR 4A1

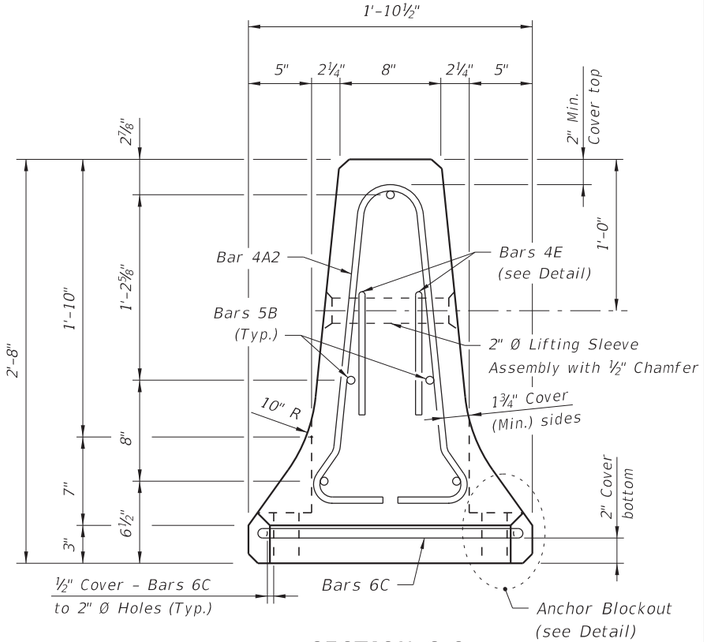


STIRRUP BAR 4A2



NOTE:
Provide ¾" Chamfer at top and bottom corners of Barrier.

SECTION A-A (SHOWN)
(SECTION B-B SIMILAR)



SECTION C-C
(Bars 6D not shown for clarity)

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10/24/2016 9:40:10 AM

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GENERAL NOTES:

1. Meet the requirements of Index 102-100.

2. For fabrication details see Sheets 15 thru 17.

3. HANDLING: Do not lift or move the Barrier Units by using Bars 6D that extend from the ends of the units. Approximate weight of one unit equals 2.7 tons.

4. CONNECTION PIN ASSEMBLY: Use steel for Connection Pin and Top Plate assemblies in accordance with ASTM A36 or ASTM A709 Grade 36. Nondestructive testing of welds is not required. At the Contractor's option, a $\frac{3}{8}$" diameter hole may be provided at the bottom of the Connection Pin, as shown, for the installation of a vandal resistance bolt.

5. CONNECTION PIN INSTALLATION: Initially set Barrier Units by using a $3\frac{5}{8}$" 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 6D (except as shown on Sheet 2). Do not use Barrier Units unconnected.

6. REUSE OF CONNECTION PINS AND STAKES: Connection pins and stakes may be reused if they have the structural integrity of new pins.

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

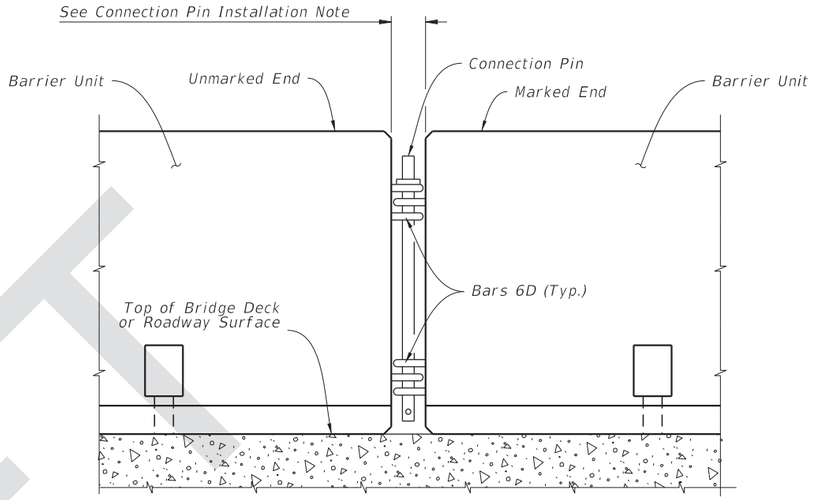
8. Type K Anchored to Free-Standing transitions: Use the 3-3-2-1 Anchorage Transition Detail when transitioning Free-Standing and Anchored Units or when connecting Free-Standing runs to Crash Cushions, as shown in this Index.

NOTES FOR THRIE-BEAM GUARDRAIL SPLICE INSTALLATIONS:

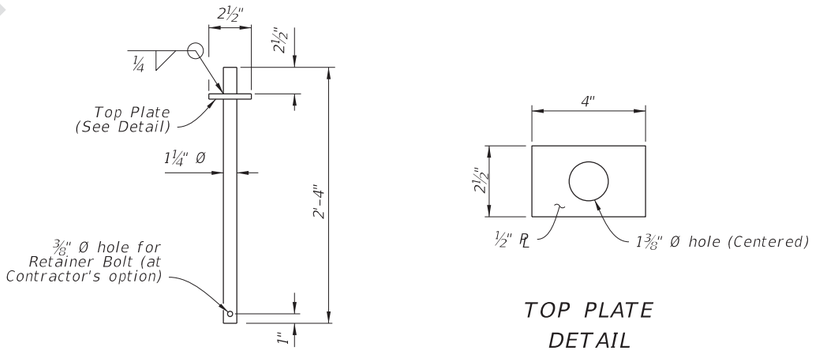
1. THRIE-BEAM GUARDRAIL: Provide Thrie-Beam Guardrail for splices meeting the requirements of specification 967 and as follows: Two panels per splice (One panel per side) of Class B (10 Gauge), or Four panels per splice (Two nested panels per side) of Class A (12 Gauge). Use a 12'-6" guardrail panel. Provide and install all other associated metallic guardrail components (Terminal Connectors, Shoulder Bolts, Hex Bolts and Nuts, Filler Plates, etc.) in accordance with Index 536-001. 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.

2. GUARDRAIL OFFSET BLOCKS: Provide and install timber Offset Blocks meeting the requirements of Specification 967. 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 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 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 the 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.



DETAIL OF CONNECTION BETWEEN BARRIER UNITS

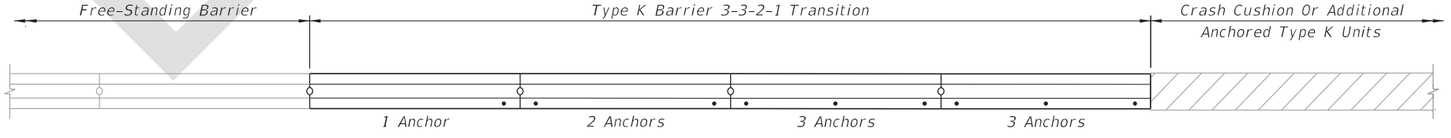


TOP PLATE DETAIL

CONNECTION PIN DETAIL

LEGEND:

Dot indicates number and position of Bolts or Stakes



3-3-2-1 ANCHORAGE TRANSITION DETAIL

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8/29/2017

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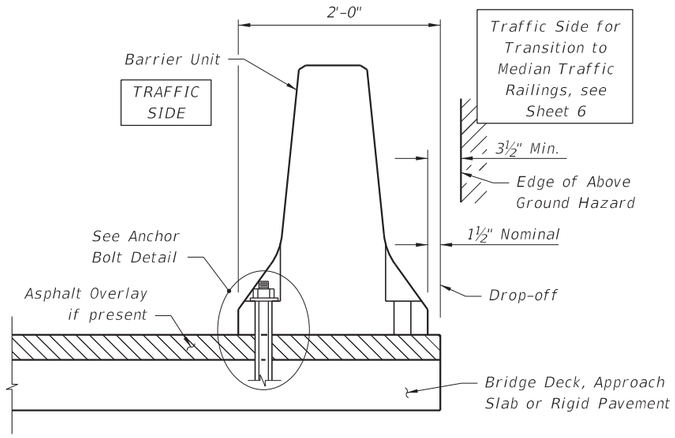
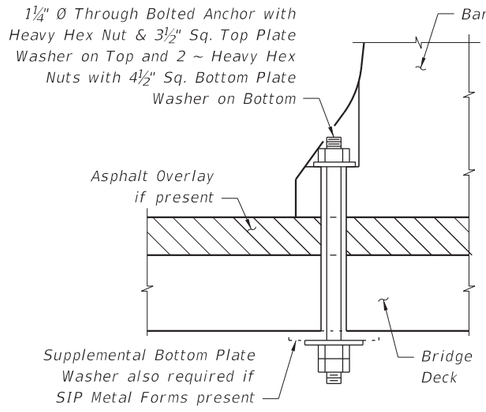
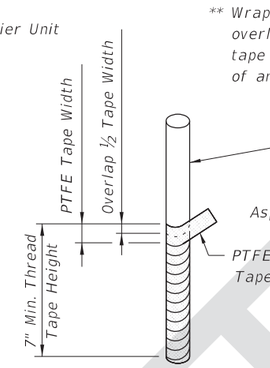


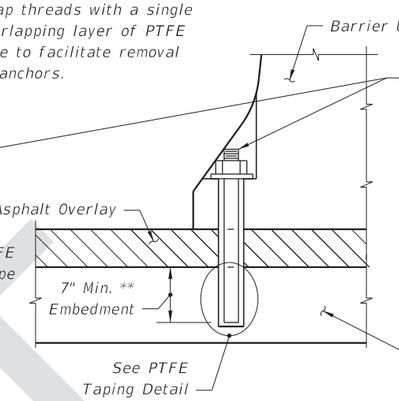
TYPICAL SECTION



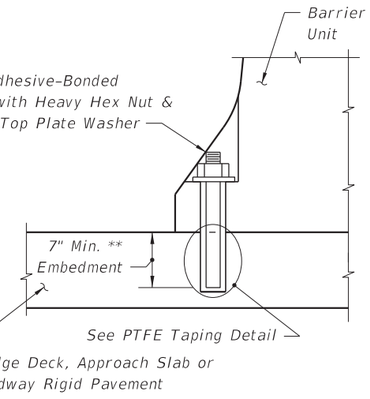
THROUGH BOLTED ANCHOR



PTFE TAPING DETAIL



WITH ASPHALT OVERLAY



WITHOUT ASPHALT OVERLAY

ADHESIVE BONDED ANCHOR INSTALLATION

NOTES FOR BOLTED INSTALLATIONS:

Bridge deck shown, approach slab or rigid pavement similar; installation adjacent to drop-off shown, median transition installation similar.

LIMITATION OF USE: This installation technique can only be used on rigid pavement and concrete bridge decks as shown. 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.

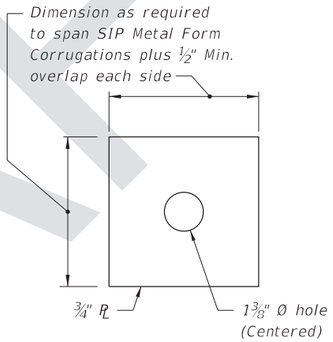
ANCHOR BOLTS, NUTS AND WASHERS: When using Adhesive-Bonded Anchor Bolts, use fully threaded rods in accordance with ASTM F 1554 Grade 36. Install Anchor Bolts for through bolting in accordance with ASTM A 307 or ASTM F 1554 Grade 36. Install nuts in accordance with ASTM A 563 or ASTM A 194. Install Flat Washers in accordance with ASTM F 436 and Plate Washers 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 102-100. 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 ½". Snug tighten the Nuts on the Anchor Bolts. For through bolted installations, snug tighten the double Nuts on the underside of the deck against each other to minimize the potential for loosening.

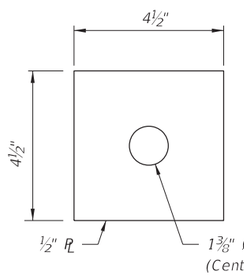
Omit one (1) Anchor Bolt within a single Barrier Unit if a conflict exists between the Anchor Bolt location and a bridge deck expansion joint or drain. The adjacent Barrier Units must each be installed with the standard three (3) Anchor Bolts.

Omit one (1) Anchor Bolt within a single Barrier Unit as shown in the Treatment at Bridge Deck Expansion Joint Schematic if the Barrier Unit straddles a bridge deck expansion joint. The adjacent Barrier Units must each be installed with the standard three (3) Anchor Bolts.

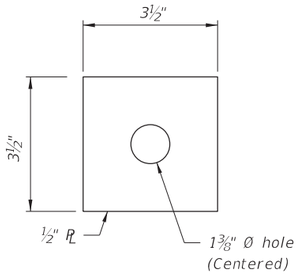
ADHESIVE-BONDING MATERIAL SYSTEMS: When using Adhesive Bonding Material Systems for Anchor Bolts, Use Type HSHV in accordance with Specification 937 and installed them in accordance with Specification 416. Prior to installation of the Barrier Units in the Plan location(s), install a demonstration Barrier Unit using the proposed production installation method, at a location approved by the Engineer. In lieu of the production test requirements of Specification 416, 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. Remove the test Anchor Bolts after testing as directed by the Engineer.



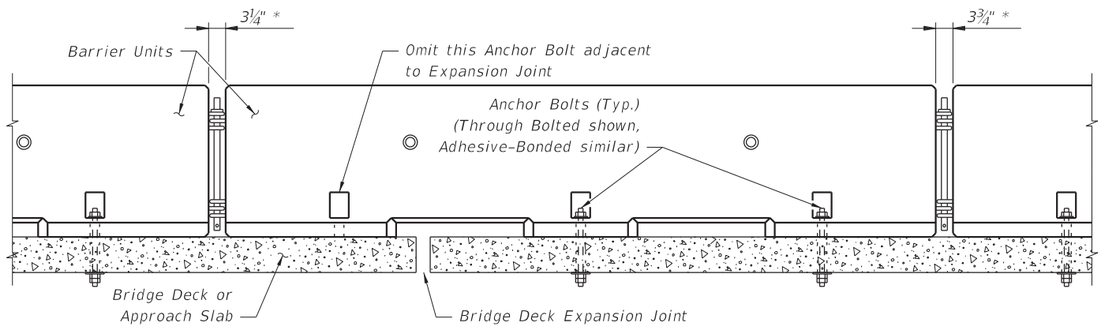
SUPPLEMENTAL BOTTOM PLATE WASHER DETAIL



BOTTOM PLATE WASHER DETAIL



TOP PLATE WASHER DETAIL



* To accommodate movement at Expansion Joint, set Barrier Units with 3¾" gap at locations shown.

TREATMENT AT BRIDGE DECK EXPANSION JOINT SCHEMATIC

ANCHORED INSTALLATIONS - BOLTED

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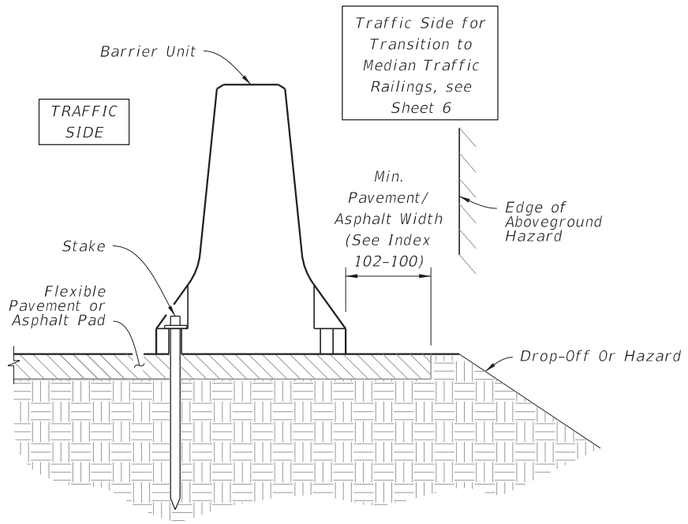
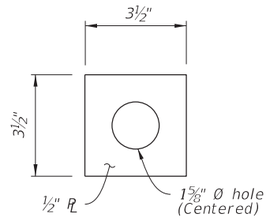
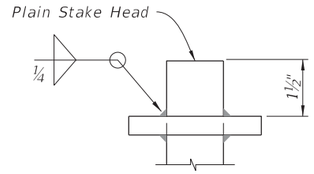
8/29/2017



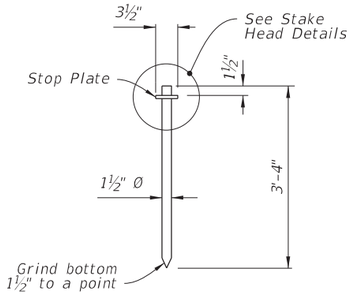
TYPICAL SECTION



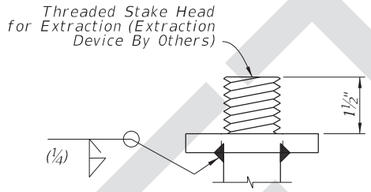
STOP PLATE DETAIL



PLAIN STAKE HEAD DETAIL



STAKE DETAIL



OPTIONAL EXTRACTION STAKE HEAD DETAIL

NOTES FOR STAKED INSTALLATIONS:

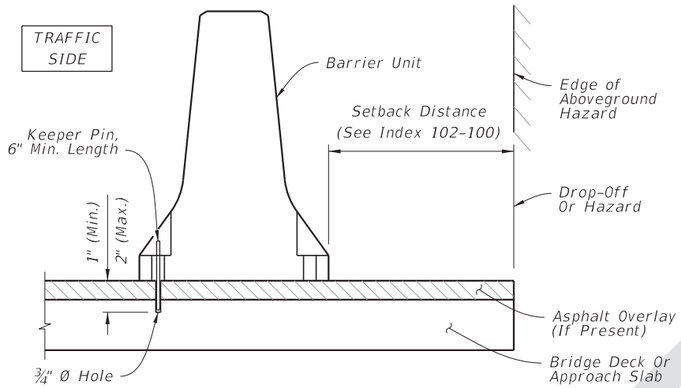
LIMITATION OF USE: This installation technique can only be used on flexible pavement or an Asphalt Pad as shown. Stakes must not be installed on both sides of the Barrier Units.

STAKES: Provide steel for Stake assemblies in accordance with ASTM A 36 or ASTM A 709 Grade 36. Weld in accordance with the American Welding Society Structural Welding Code (Steel) ANSI/AWS D1.1 (current edition). Welding metal are 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 102-100. Install Stakes so that the Stop Plate is snug against the bottom of the Anchor Blockout.

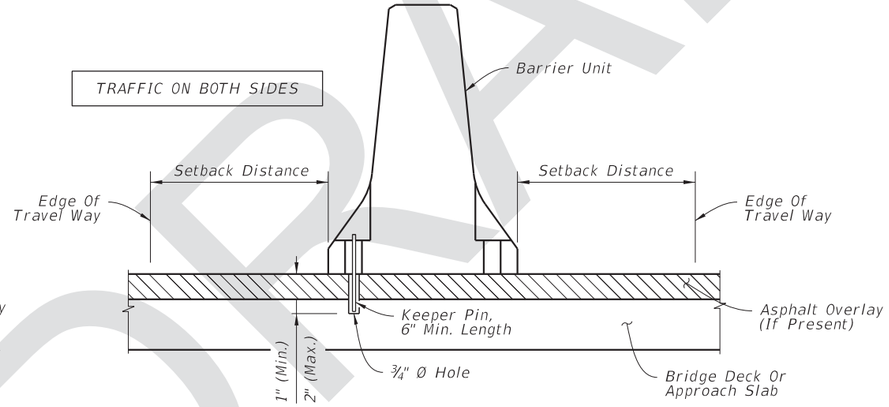
BURIED UTILITIES: Prior to installation of Stakes verify locations of all adjacent buried utilities, drainage structures, pipes, etc. If conflicts between Stake locations and buried elements exist, a maximum of two (2) Stakes within a single Barrier Unit may be omitted if the adjacent Barrier Units are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

ANCHORED INSTALLATIONS - STAKED

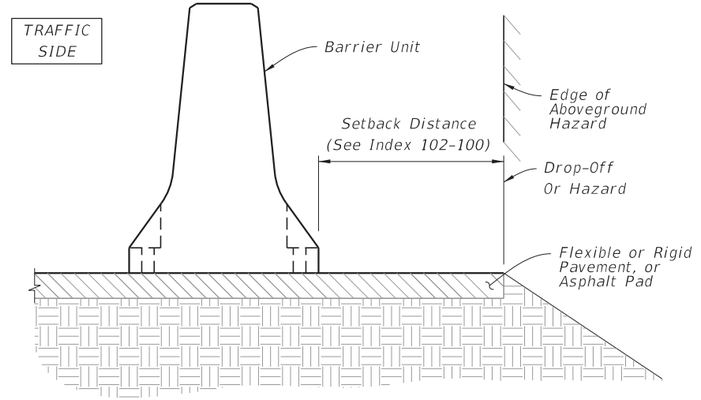


(Bridge Deck Shown, Approach Slab Similar)

TYPICAL BRIDGE SECTION



TYPICAL MEDIAN SECTION



TYPICAL ROADWAY SECTION

NOTES FOR FREE-STANDING INSTALLATION:

1. For Bridge Decks only, use Keeper Pins that are ½" diameter, smooth steel bar in accordance with ASTM A36 or ASTM A709 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.

2. If traffic is on both sides of the Barrier (i.e. Median Installation), alternate Keeper Pin locations from side to side of Barrier Units along the length of the installation. If traffic is on oly one side of the barrier intall kepper pins on the traffic side as shown.

3. Do not drill into or otherwise damage bridge deck expansion joints or drains.

FREE-STANDING INSTALLATION

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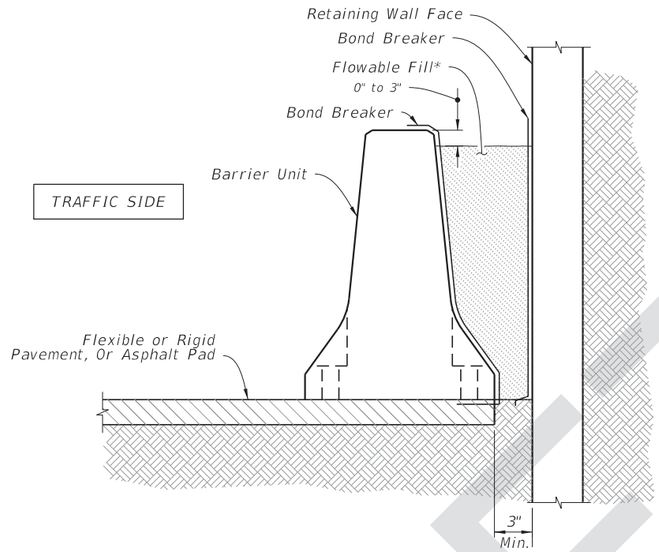
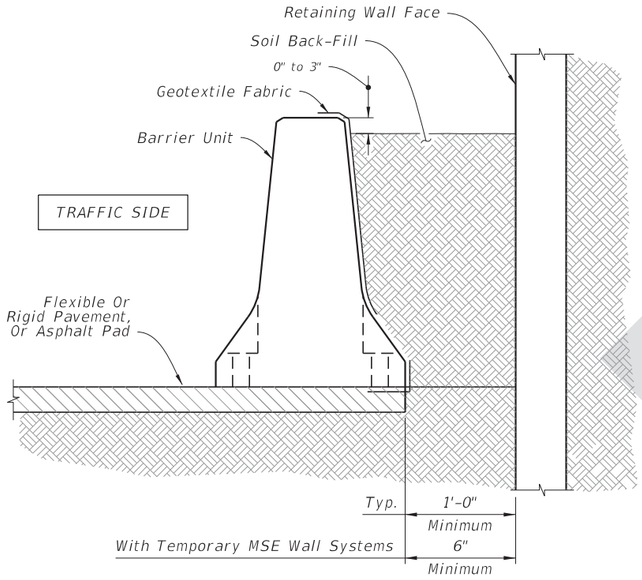
11/01/17			FDOT FY 2018-19 STANDARD PLANS	TYPE K TEMPORARY CONCRETE BARRIER SYSTEM	INDEX 102-110	SHEET 3 of 17



TYPICAL SECTION
ADJACENT TO RETAINING WALL WITH FLOWABLE FILL BACK-FILL
**FLOWABLE FILL: Provide Excavatable Flowable Fill in accordance with Specification 121.*

FLOWABLE FILL BACK-FILL ROADSIDE INSTALLATIONS

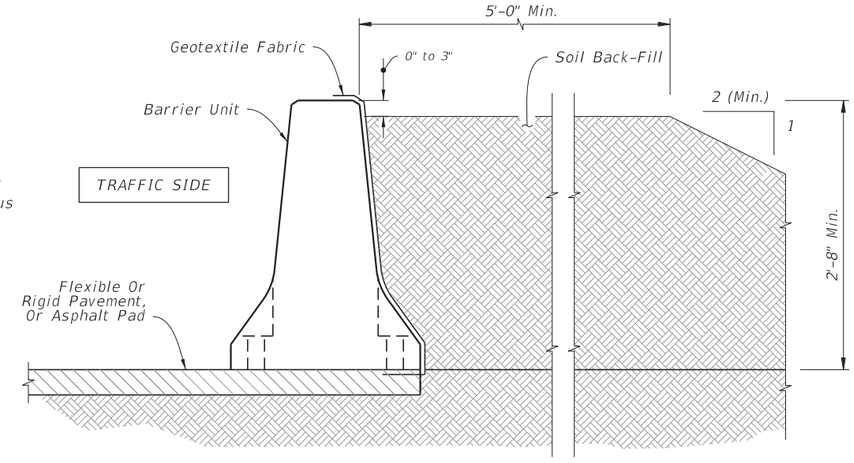


TYPICAL SECTION
ADJACENT TO RETAINING WALL WITH SOIL BACK-FILL

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 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.



TYPICAL SECTION
WITH SOIL BACK-FILL

SOIL BACK-FILLED ROADSIDE INSTALLATIONS

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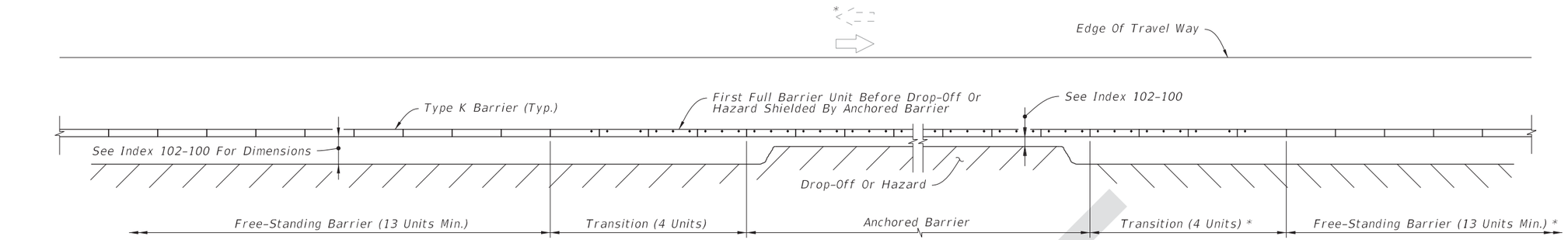
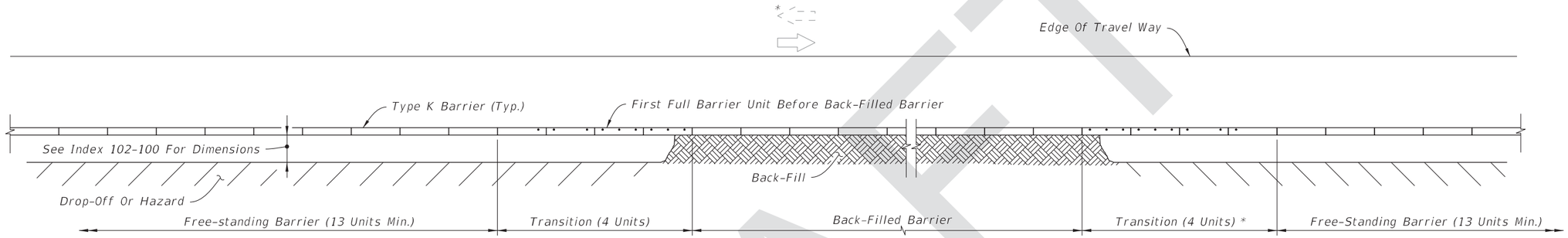
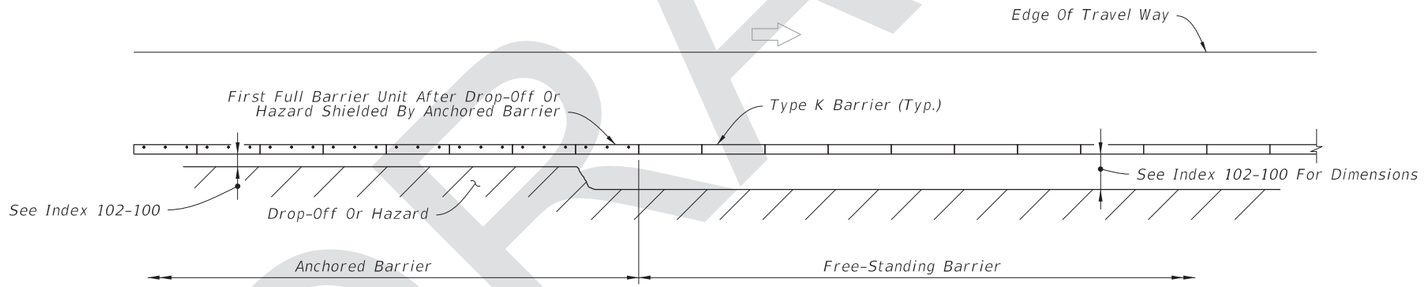
LAST REVISION	REVISION	DESCRIPTION:	FDOT FY 2018-19 STANDARD PLANS	TYPE K TEMPORARY CONCRETE BARRIER SYSTEM	INDEX	SHEET
11/01/17					102-110	4 of 17



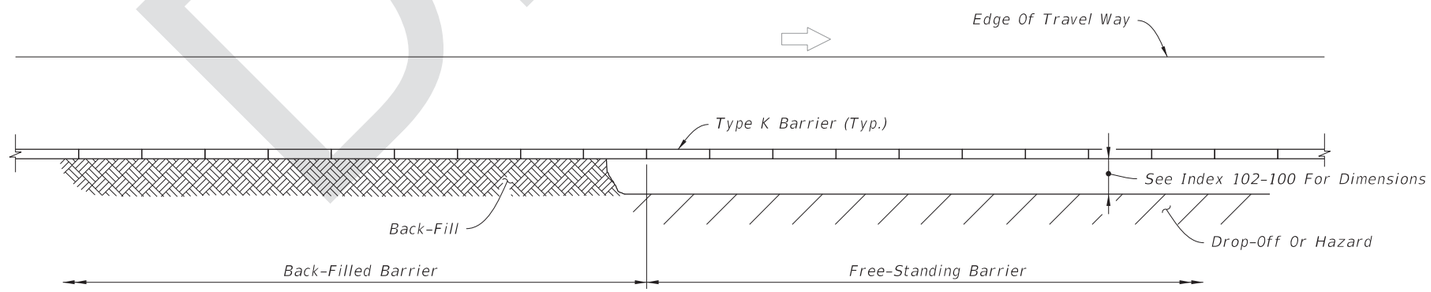
APPROACH TRANSITION FROM FREE-STANDING TO ANCHORED TYPE K TEMPORARY CONCRETE BARRIERS



APPROACH TRANSITION FROM FREE-STANDING TO BACK-FILLED TYPE K TEMPORARY CONCRETE BARRIERS



TRAILING END TRANSITION FROM ANCHORED TO FREE-STANDING TYPE K TEMPORARY CONCRETE BARRIERS



TRAILING END TRANSITION FROM BACK-FILLED TO FREE-STANDING TYPE K TEMPORARY CONCRETE BARRIERS

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

LEGEND:

Dot indicates number and position of Bolts or Stakes

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8/29/2017

LAST REVISION	REVISION	DESCRIPTION:	FDOT	FY 2018-19 STANDARD PLANS	TYPE K TEMPORARY CONCRETE BARRIER SYSTEM	INDEX	SHEET
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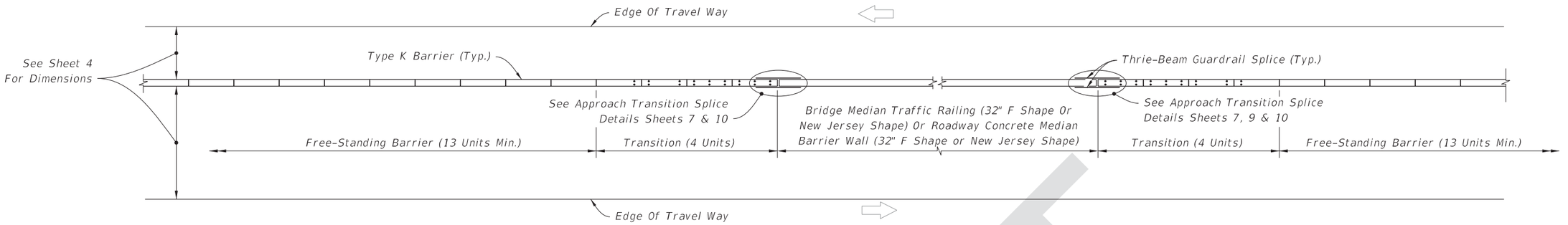
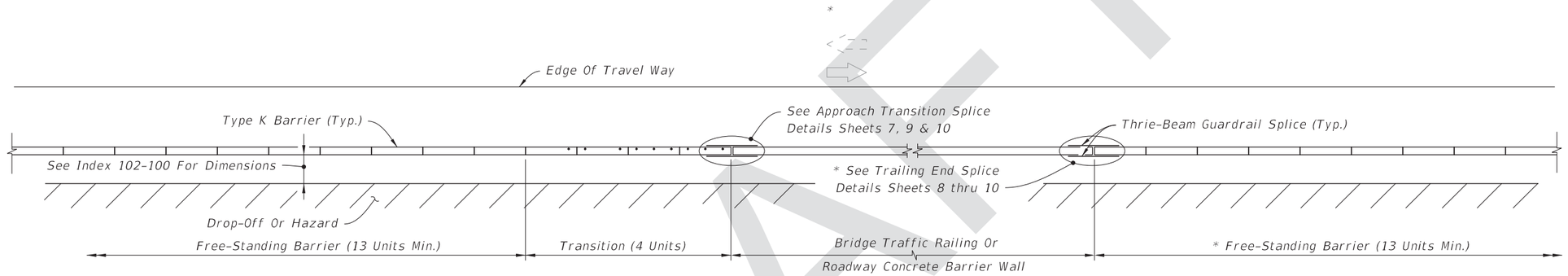
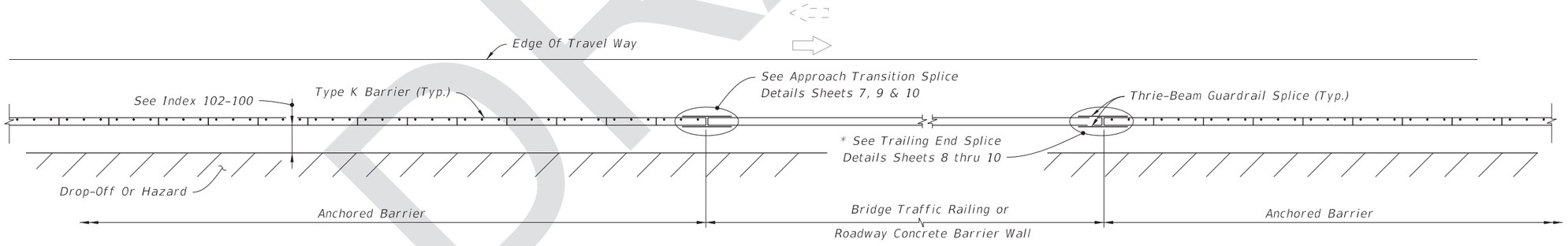


TRANSITION FROM FREE-STANDING TYPE K TEMPORARY CONCRETE BARRIERS TO BRIDGE MEDIAN TRAFFIC RAILING OR ROADWAY MEDIAN CONCRETE BARRIER WALL



TRANSITION FROM FREE-STANDING TYPE K TEMPORARY CONCRETE BARRIERS TO BRIDGE TRAFFIC RAILING OR ROADWAY CONCRETE BARRIER WALL



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

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

LEGEND:
Dot indicates number and position of Bolts or Stakes

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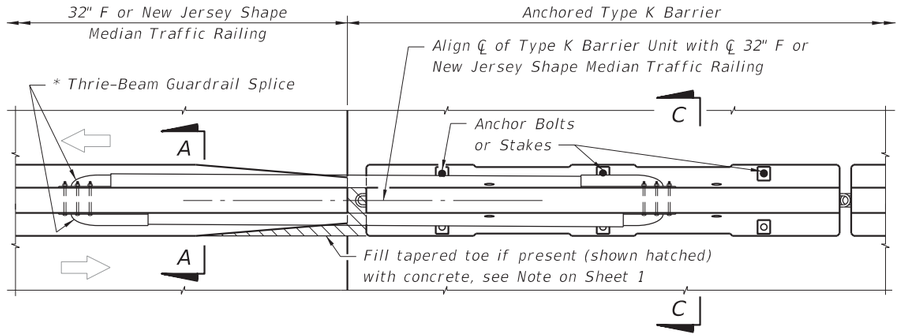
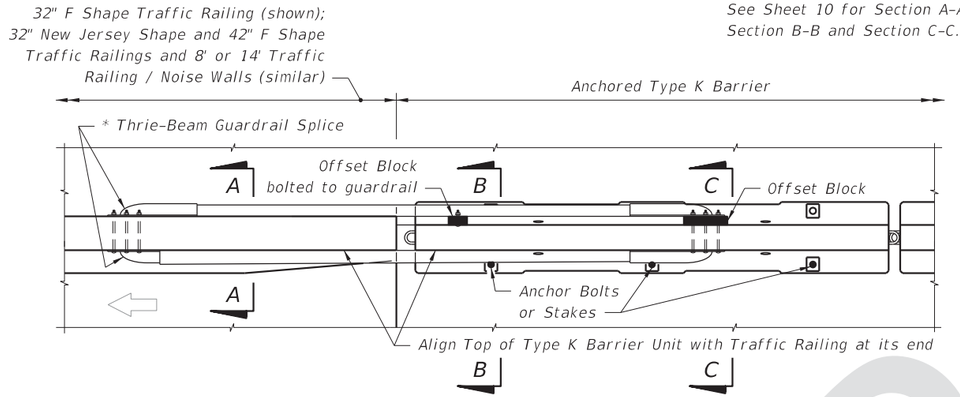
LAST REVISION	REVISION	DESCRIPTION:				
11/01/17			FDOT FY 2018-19 STANDARD PLANS	TYPE K TEMPORARY CONCRETE BARRIER SYSTEM	INDEX 102-110	SHEET 6 of 17

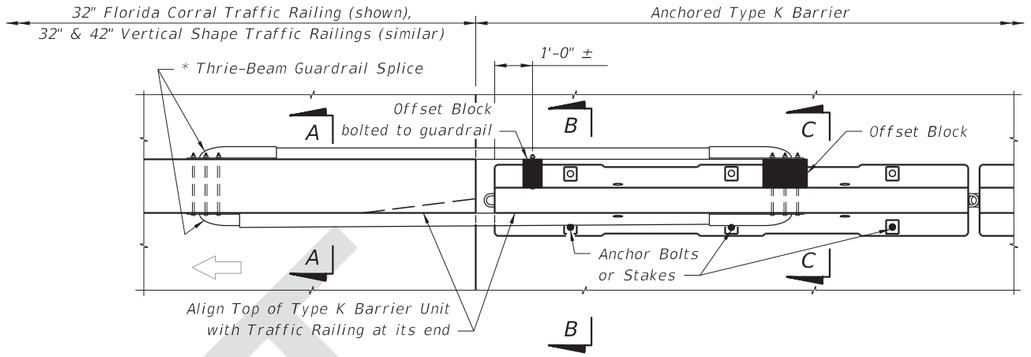


PARTIAL PLAN VIEW AT MEDIAN TRAFFIC RAILING

Cross References:
See Sheet 10 for Section A-A,
Section B-B and Section C-C.

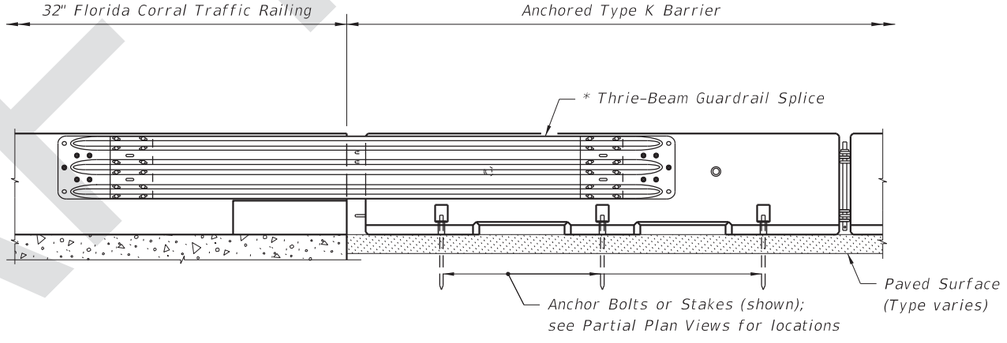


PARTIAL PLAN VIEW AT SHOULDER TRAFFIC RAILING

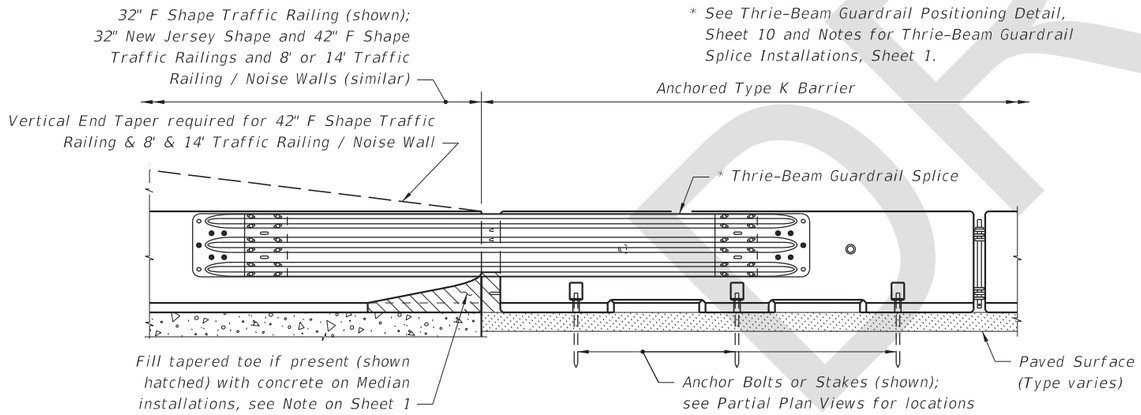


PARTIAL PLAN VIEW

Cross References:
See Sheet 10 for Section A-A,
Section B-B and Section C-C.

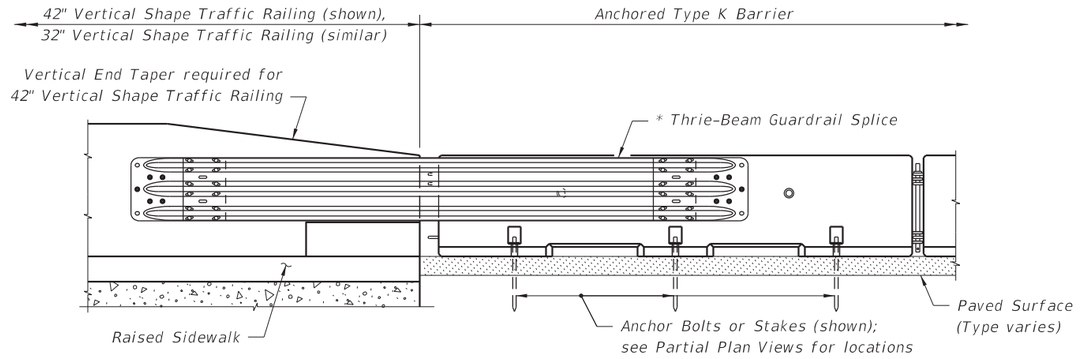


PARTIAL ELEVATION VIEW - FLORIDA CORRAL TRAFFIC RAILING



PARTIAL ELEVATION VIEW

APPROACH TRANSITION SPLICE DETAIL
FOR F AND NEW JERSEY SHAPE TRAFFIC RAILINGS AND 8' & 14' TRAFFIC RAILING / NOISE WALLS (CONCRETE BARRIER WALL SIMILAR)



PARTIAL ELEVATION VIEW - VERTICAL SHAPE TRAFFIC RAILINGS

APPROACH TRANSITION SPLICE DETAIL
FOR FLORIDA CORRAL AND VERTICAL SHAPE TRAFFIC RAILINGS

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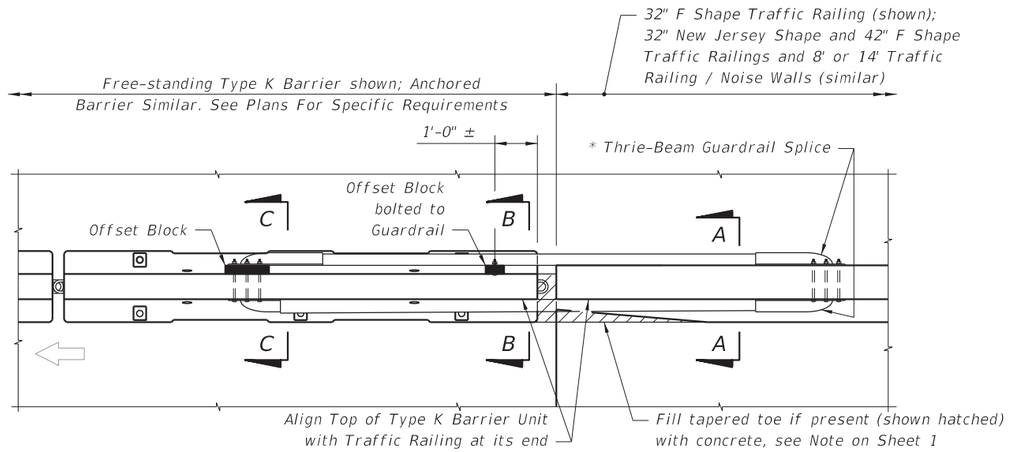
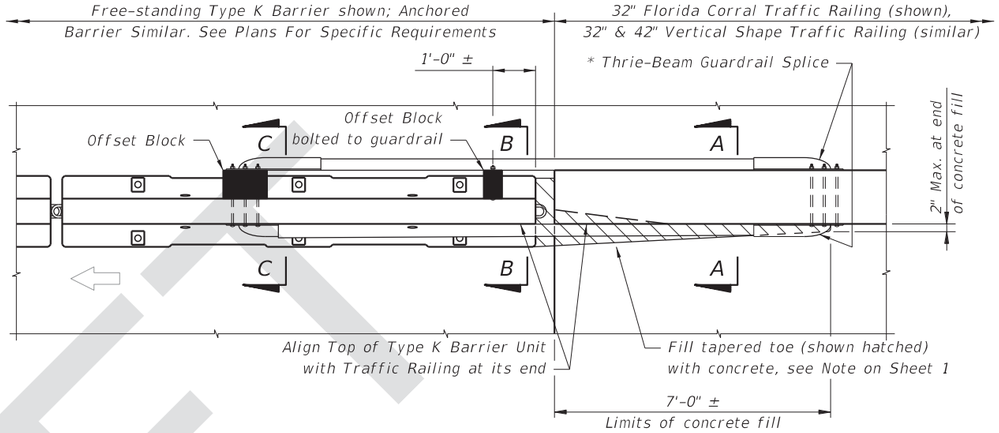
LAST REVISION 11/01/17	REVISION	DESCRIPTION:	FDOT FY 2018-19 STANDARD PLANS	TYPE K TEMPORARY CONCRETE BARRIER SYSTEM	INDEX 102-110	SHEET 7 of 17

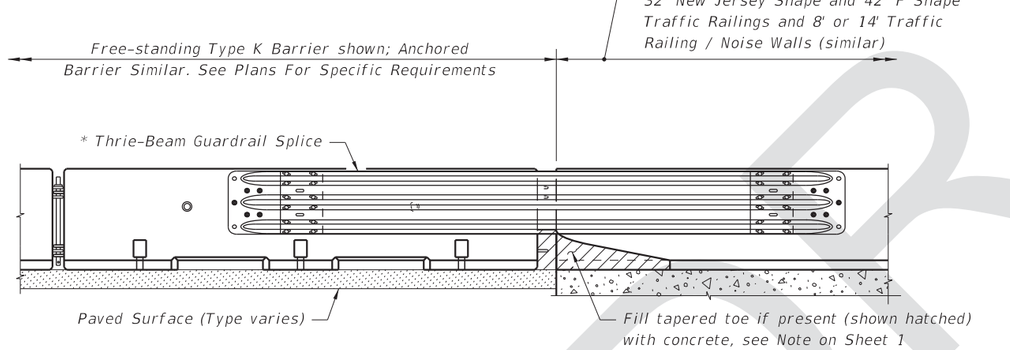


PARTIAL PLAN VIEW



PARTIAL PLAN VIEW

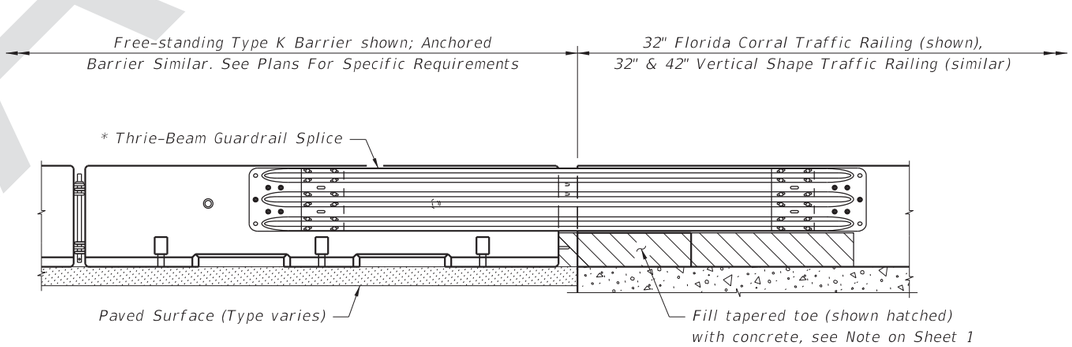
* See Thrie-Beam Guardrail Positioning Detail, Sheet 10 and Notes for Thrie-Beam Guardrail Splice Installations, Sheet 1.



PARTIAL ELEVATION VIEW

Cross References:
See Sheet 10 for Section A-A,
Section B-B and Section C-C.

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

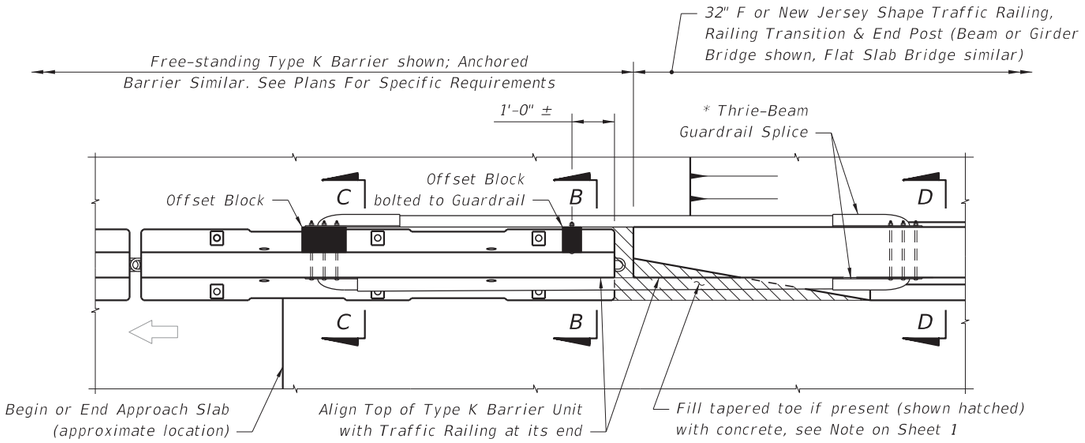


PARTIAL ELEVATION VIEW

Cross References:
See Sheet 10 for Section A-A,
Section B-B and Section C-C.

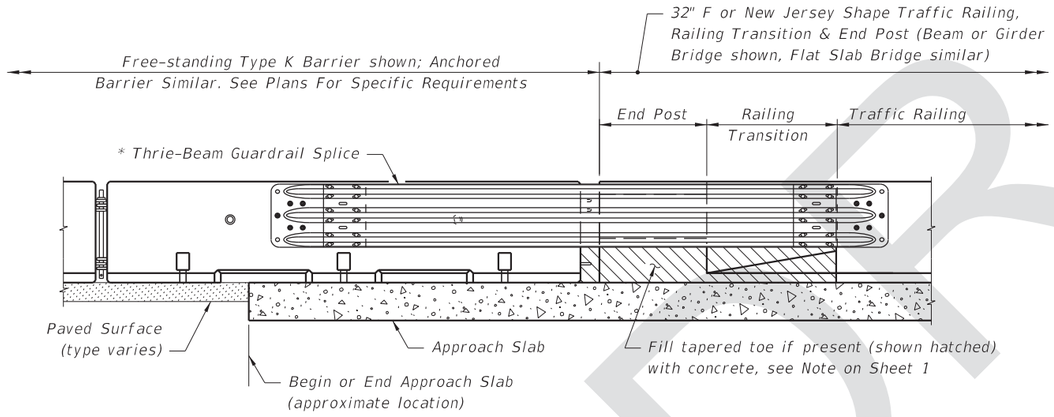
TRAILING END SPLICE DETAIL
FOR FLORIDA CORRAL AND VERTICAL SHAPE TRAFFIC RAILINGS

8:50:09 AM
8/29/2017



PARTIAL PLAN VIEW

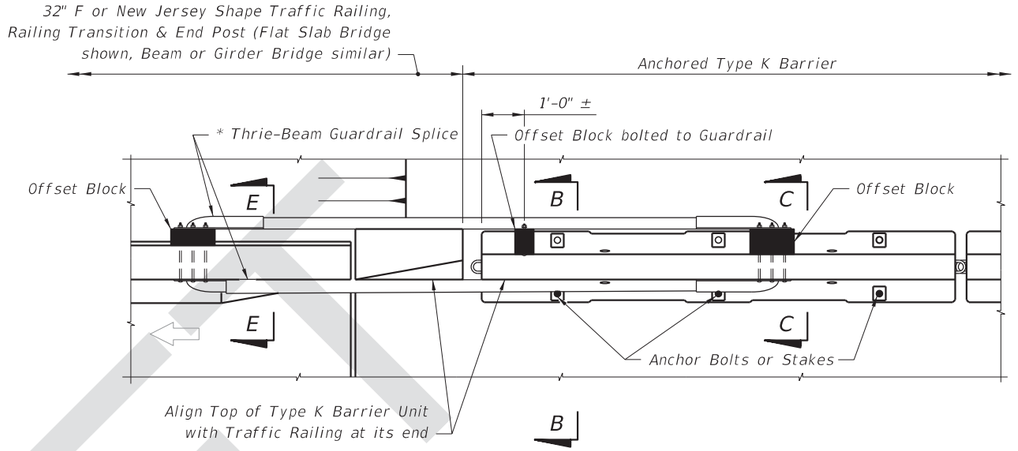
* See Thrie-Beam Guardrail Positioning Detail, Sheet 10 and Notes for Thrie-Beam Guardrail Splice Installations, Sheet 1.



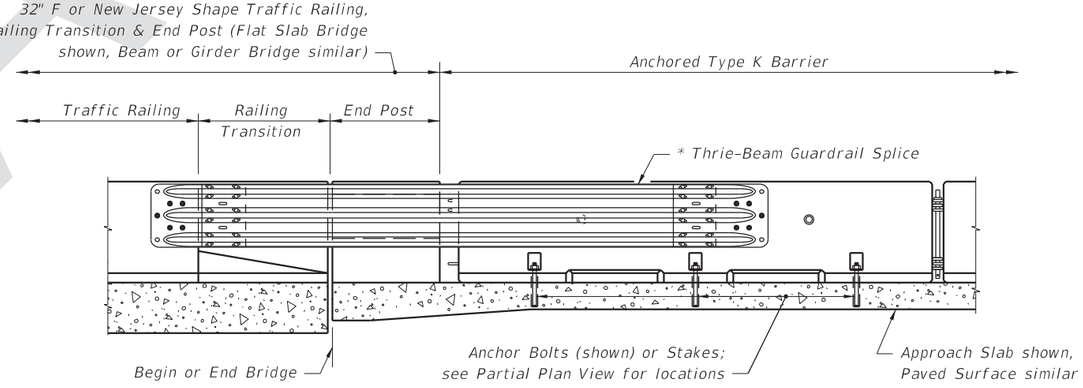
PARTIAL ELEVATION VIEW

Cross References:
See Sheet 10 for Section B-B,
Section C-C and Section D-D.

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



PARTIAL PLAN VIEW



PARTIAL ELEVATION VIEW

Cross References:
See Sheet 10 for Section B-B,
Section C-C and Section E-E.

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

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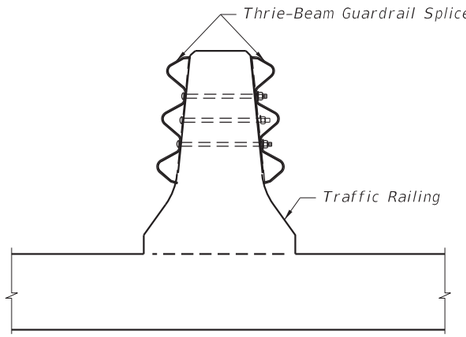
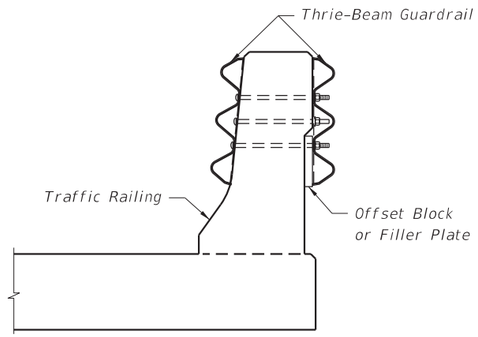
8/29/2017

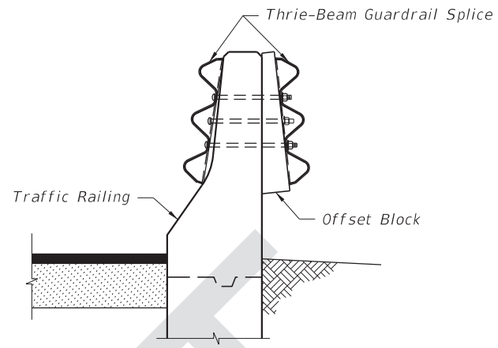
LAST REVISION 11/01/17	REVISION	DESCRIPTION:	FDOT FY 2018-19 STANDARD PLANS	TYPE K TEMPORARY CONCRETE BARRIER SYSTEM	INDEX 102-110	SHEET 9 of 17



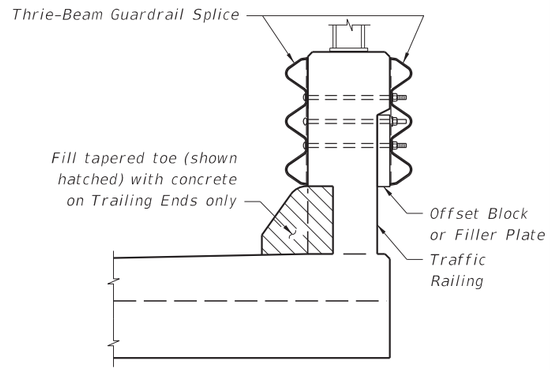
SECTION A-A
32" F Shape Median Traffic Railing (shown), Median Concrete Barrier Wall (similar)



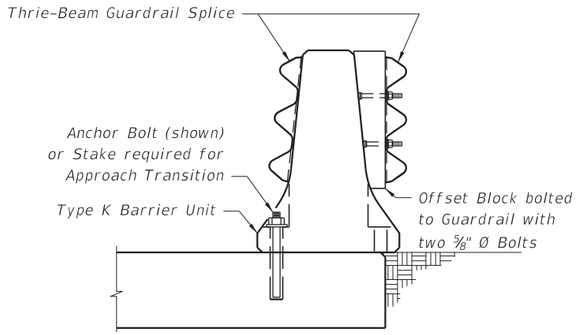
SECTION A-A
32" F Shape Traffic Railing (shown), 42" Traffic Railing and 8' & 14' Traffic Railing / Noise Walls (similar)



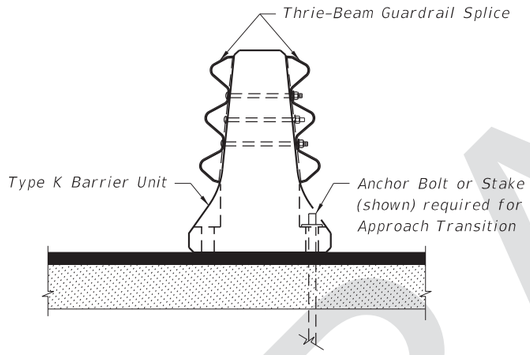
SECTION A-A
32" New Jersey Shape Concrete Barrier Wall (shown), 32" New Jersey Shape Traffic Railing & other Narrow Traffic Railings (similar)



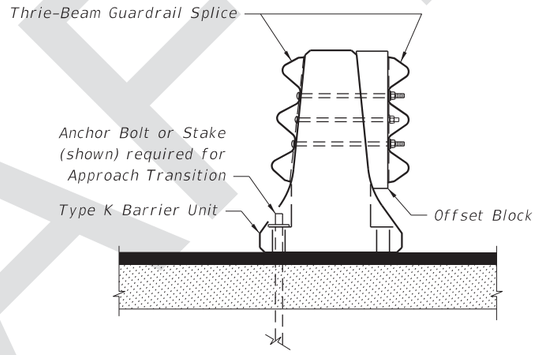
SECTION A-A
32" & 42" Vertical Shape Traffic Railing (shown), Florida Corral Traffic Railing (similar)



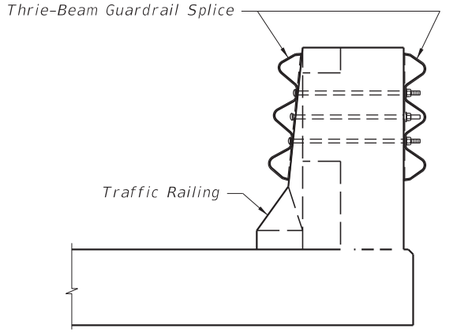
SECTION B-B
Adjacent to Shoulder Traffic Railings



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

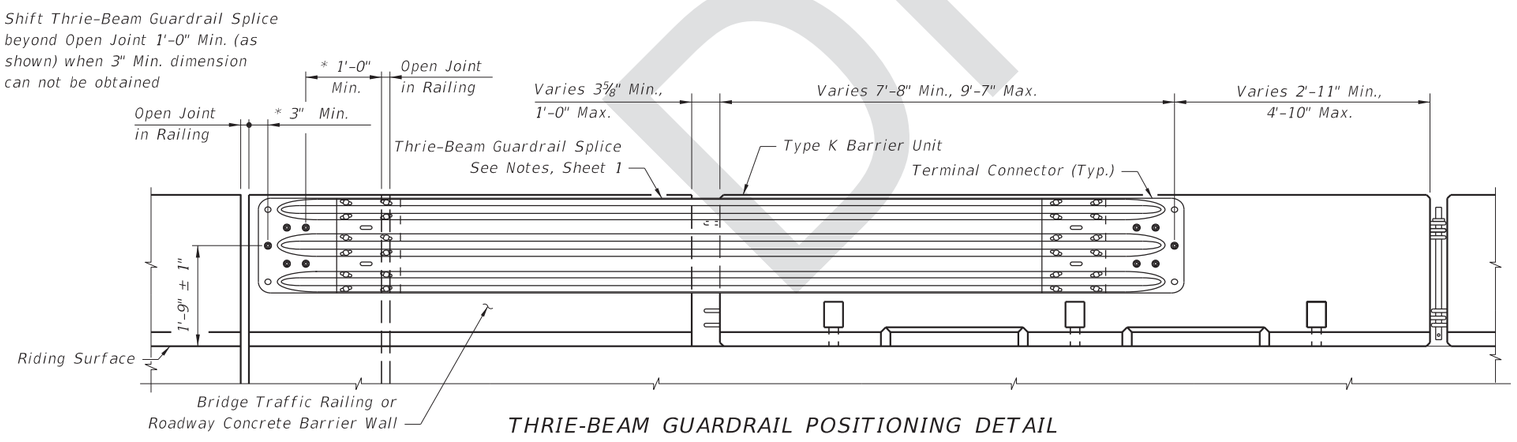


SECTION C-C
Adjacent to Shoulder Traffic Railings

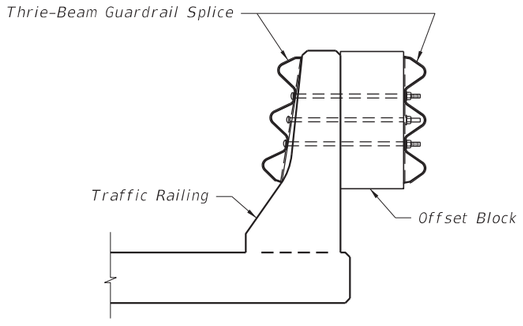


SECTION D-D
32" F or New Jersey Shape Traffic Railing, Railing Transition & End Post

* Shift Thrie-Beam Guardrail Splice beyond Open Joint 1'-0" Min. (as shown) when 3" Min. dimension can not be obtained



THRIE-BEAM GUARDRAIL POSITIONING DETAIL



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

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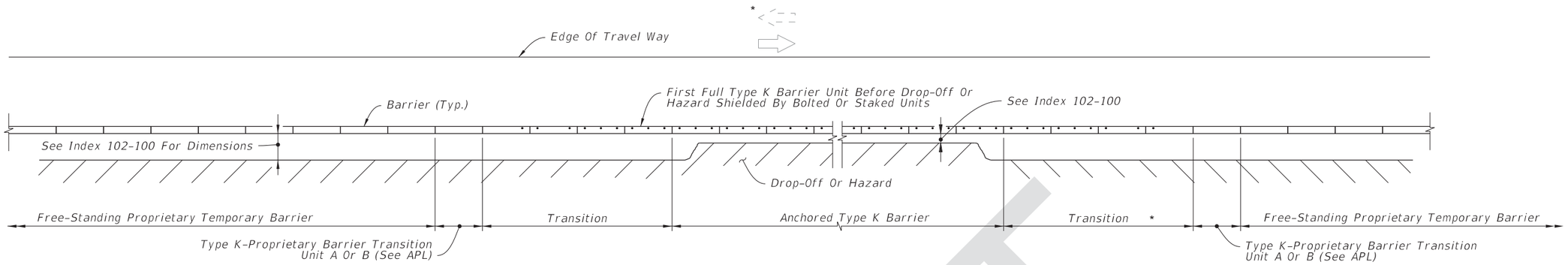
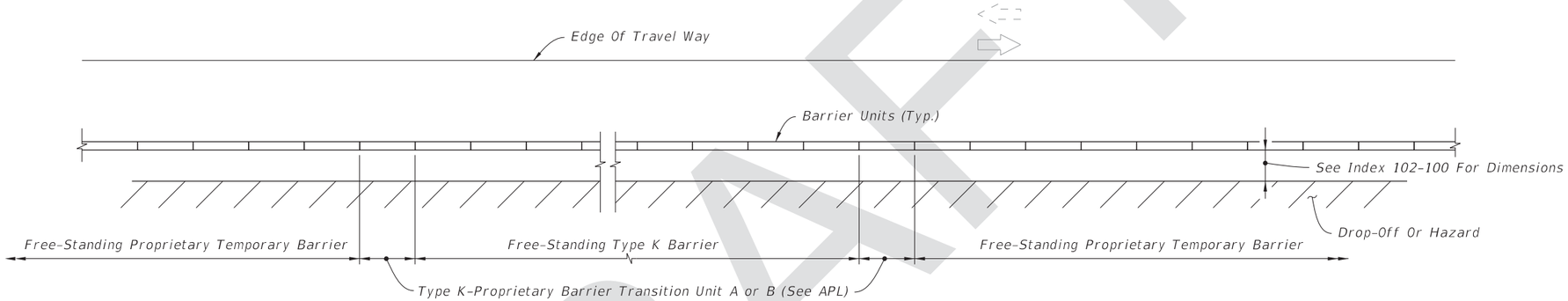
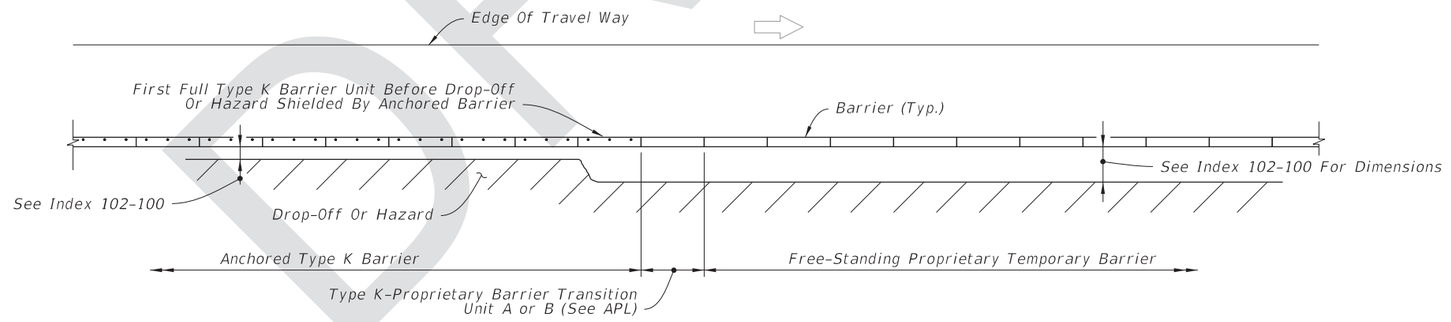


APPROACH TRANSITION FROM FREE-STANDING PROPRIETARY TEMPORARY BARRIERS TO ANCHORED TYPE K TEMPORARY CONCRETE BARRIERS



APPROACH AND TRAILING END TRANSITIONS FROM FREE-STANDING TYPE K TEMPORARY CONCRETE BARRIERS TO FREE-STANDING PROPRIETARY TEMPORARY BARRIERS



TRAILING END TRANSITION FROM ANCHORED TYPE K TEMPORARY CONCRETE BARRIERS TO FREE-STANDING PROPRIETARY TEMPORARY BARRIERS

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

LEGEND:

Dot indicates number and position of Bolts or Stakes

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TYPE K-PROPRIETARY TEMPORARY CONCRETE BARRIER TRANSITIONS

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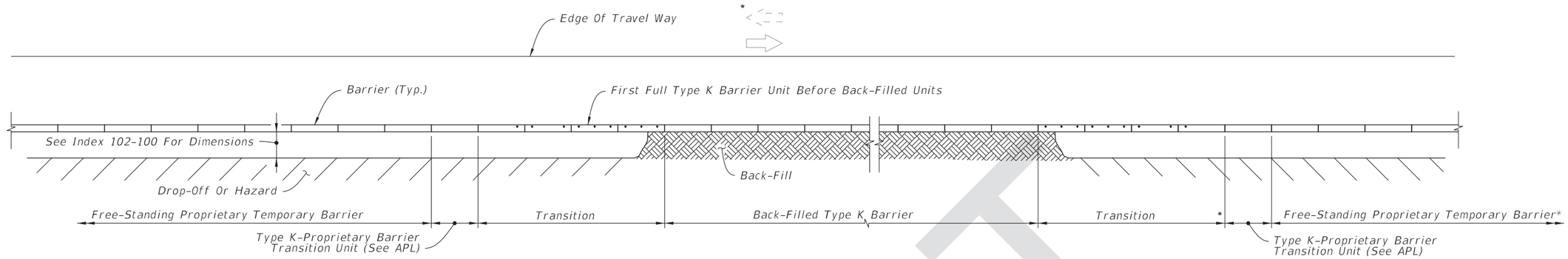
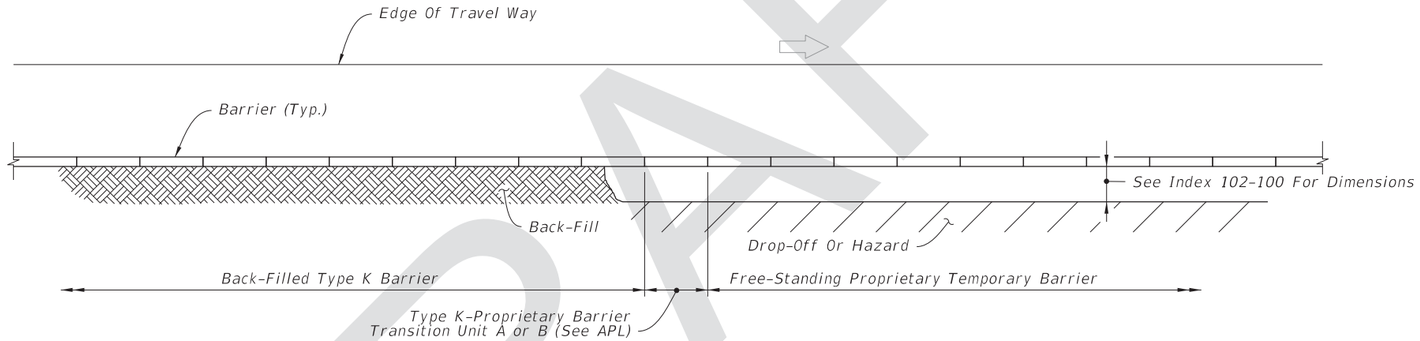
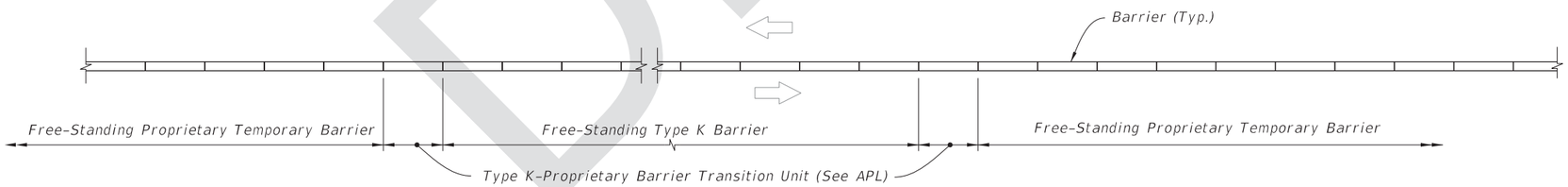


APPROACH TRANSITION FROM FREE-STANDING PROPRIETARY TEMPORARY BARRIERS TO BACK-FILLED TYPE K TEMPORARY CONCRETE BARRIERS



TRAILING END TRANSITION FROM BACK-FILLED TYPE K TEMPORARY CONCRETE BARRIERS TO FREE-STANDING PROPRIETARY TEMPORARY BARRIERS

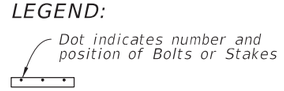


MEDIAN APPROACH AND TRAILING END TRANSITIONS FROM FREE-STANDING TYPE K TEMPORARY CONCRETE BARRIERS TO FREE-STANDING PROPRIETARY TEMPORARY BARRIERS

NOTE:

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

LEGEND:



TYPE K-PROPRIETARY TEMPORARY CONCRETE BARRIER TRANSITIONS

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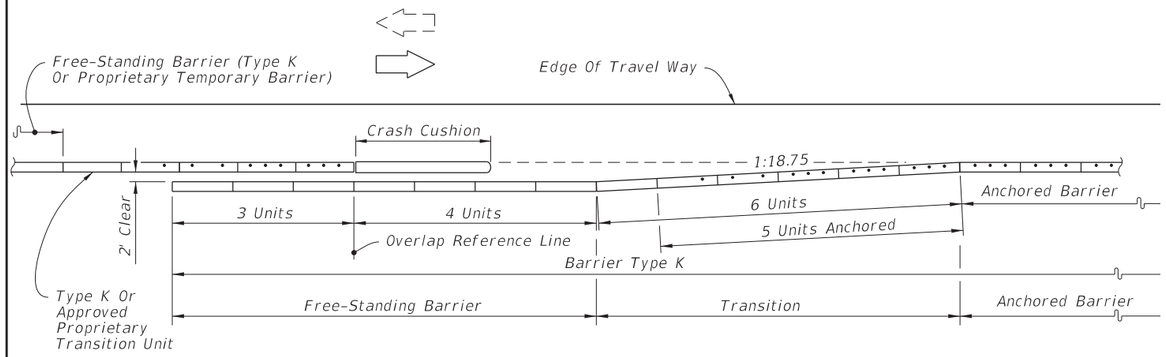
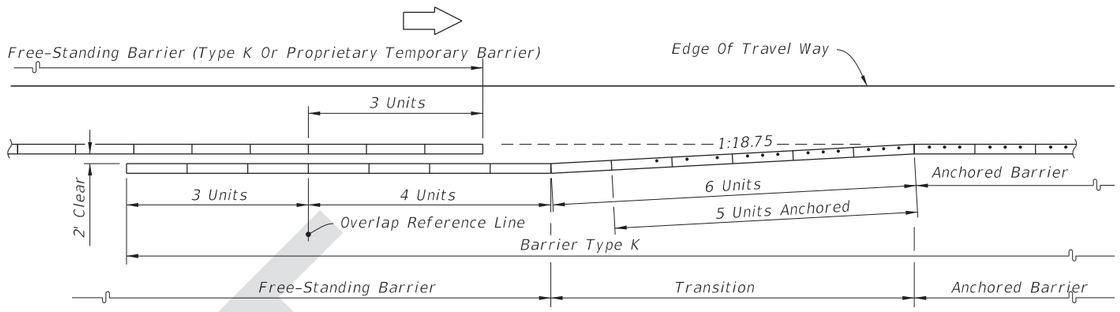
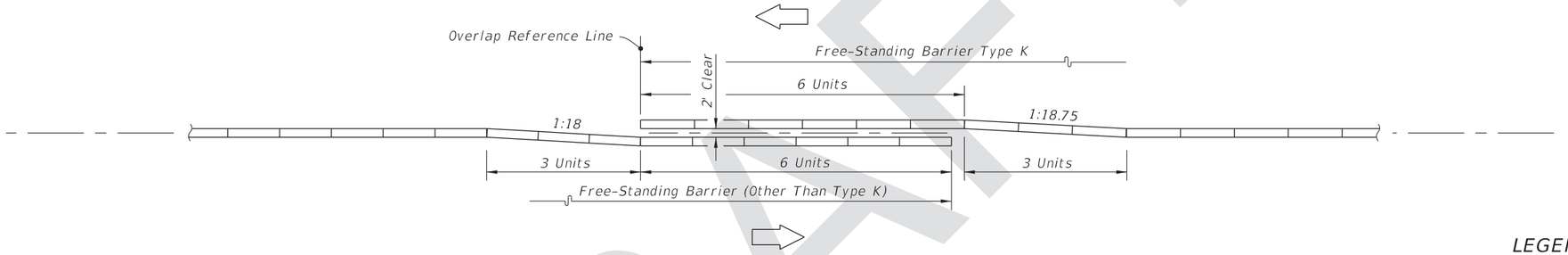
LAST REVISION 11/01/17	REVISION	DESCRIPTION:	FDOT FY 2018-19 STANDARD PLANS	TYPE K TEMPORARY CONCRETE BARRIER SYSTEM	INDEX 102-110	SHEET 12 of 17



APPROACH SHOULDER BARRIER ON UNDIVIDED FACILITIES



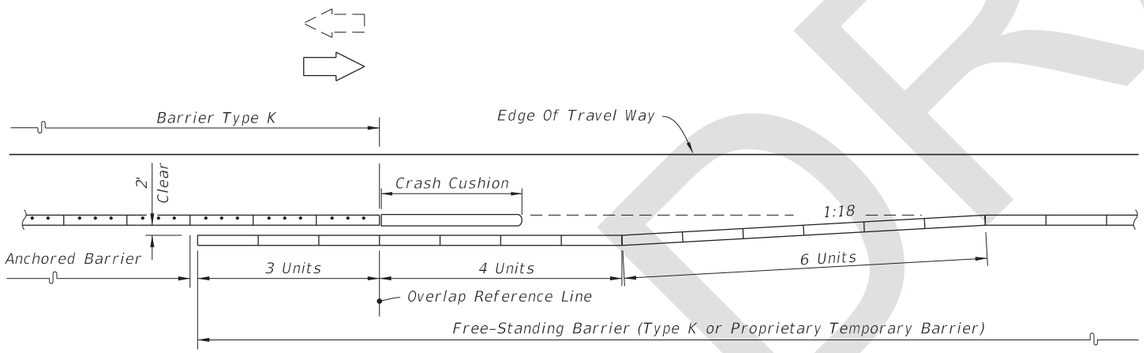
APPROACH SHOULDER BARRIER ON DIVIDED FACILITIES



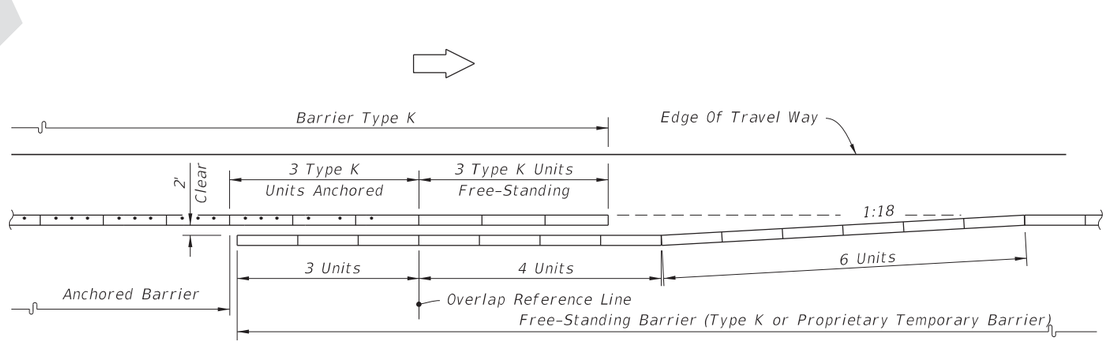
INTERIOR MEDIAN BARRIER

LEGEND

Dot Indicates Number And Position Of Bolts Or Stakes



DEPARTURE (TRAILING) SHOULDER BARRIER ON UNDIVIDED FACILITIES
(BARRIER TYPE K ON BRIDGES AND APPROACH SLABS)



DEPARTURE (TRAILING) SHOULDER BARRIER ON DIVIDED FACILITIES
(BARRIER TYPE K ON BRIDGES AND APPROACH SLABS)

CONTINUATION OF BARRIER • FROM OTHER TYPE BARRIERS TO BARRIER TYPE K

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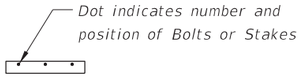
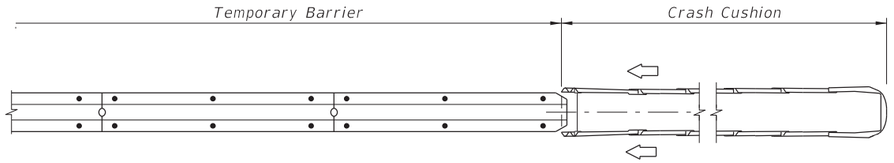
NOTE:

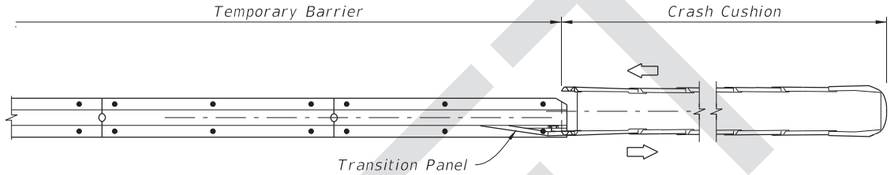
When subjected to reverse direction hits, construct Transition Panels from Temporary Barrier to Crash Cushions; for additional details refer to the applicable crash cushion drawings on the APL.

LEGEND:

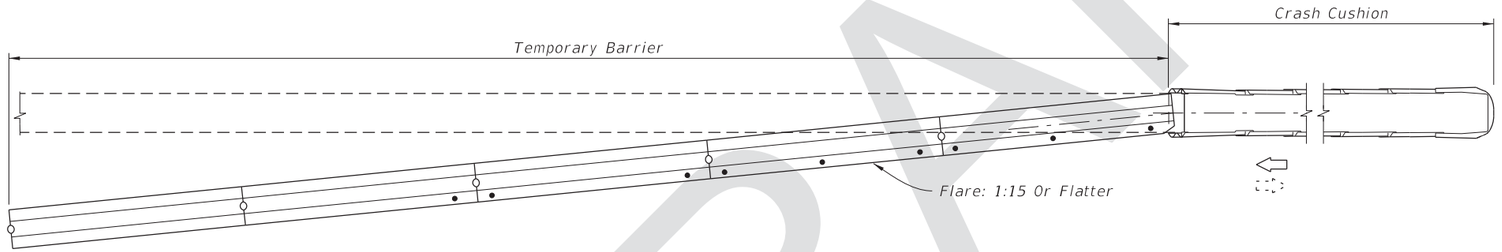




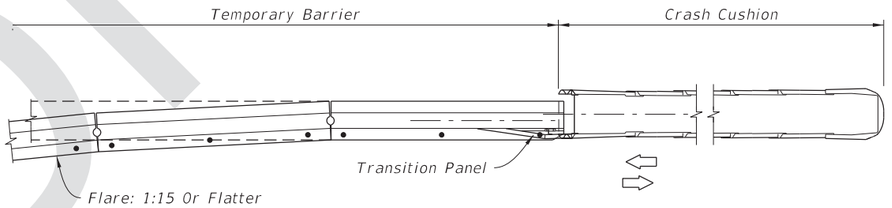
UNIDIRECTIONAL - SEPARATED TRAFFIC



BIDIRECTIONAL - SEPARATED TRAFFIC



TWO-WAY TRAFFIC WITH CRASH CUSHION LOCATED
OUTSIDE OPPOSING LANE CLEAR ZONE OR ONE-WAY TRAFFIC



TWO-WAY TRAFFIC WITH CRASH CUSHION LOCATED WITHIN OPPOSING LANE CLEAR ZONE

END TREATMENT WHEN SHIELDED BY A CRASH CUSHION

SHOULDER - RIGHT OR LEFT (RIGHT SIDE SHOWN)

SHIELDING ENDS WITH REDIRECTIVE CRASH CUSHIONS (REDIRECTIVE OPTION)

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FABRICATION NOTES:

In order to maintain crashworthiness of the Barrier 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.

FABRICATOR PREQUALIFICATIONS:

A. The Concrete Plant that meets the requirements;
a. Specifications 450 for prestressed concrete
b. Specification 105 for precast.

CONCRETE:

A. Construct Barrier Units with Class IV concrete in accordance with Specification 346.
B. Specification 346-10.2 through 346-10.4 are not applicable.
C. Barrier Units represented by concrete acceptance strength tests which fall below 5000 psi will be rejected.

REINFORCING STEEL:

A. Use only steel reinforcing that meet ASTM A 615, Grade 60, with the exception of Bars 6D1, 6D2 and 6D3.
B. Bars 6D1, 6D2 and 6D3 use steel reinforing that meets ASTM A 706, with the exception that a 2¾" diameter pin must be used for the 180 degree bend test.
C. After steel reinforcing fabrication, hot dip galvanized in accordance with Specification 962 or coated with a cold galvanizing compound in accordance with Specification 562, all or part of Bars 6D.
D. At the Fabricator's option, the entire length of Bars 6D may be galvanized or coated.
E. The minimum limit of galvanizing or coating is shown in the Bending Diagrams.
F. Install Bars 6D within ½" of the plan dimensions.
G. Correct placement of Bars 6D is critical for proper fit up and performance of individual Barrier Units.
H. At the option of the Fabricator, Deformed Welded Wire Fabric in accordance with Specification Section 931 and the details shown on Sheet 15 may be utilized in lieu of Bars 4A and 5B.
I. All dimensions in the Bending Diagrams are out to out.
J. Install all reinforcing steel with a 2" minimum cover, except as noted.

LIFTING SLEEVE ASSEMBLY:

A. Inclusion of the Lifting Sleeve Assemblies is optional.
B. Use steel in accordance with ASTM A 53 for the Pipe Sleeve.
C. Hot-dip galvanize the Lifting Sleeve Assemblies after their fabrication in accordance with the Specifications.

SURFACE FINISH:

A. Construct Barrier Units in accordance with Specification Sections 400 and 521.
B. Finish the top and sides of the Barrier Units with a General Surface Finish.
C. Finish the bottom of the Barrier Units to a dense uniform surface by floating in lieu of the General Surface Finish.
D. Use stationary metal forms or stationary timber forms with a form liner.

MARKING:

A. 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.
B. Ink stamps are not allowed.
C. Permanently mark with the following information:
- Type K1
- Fabricator's name or symbol
- Date of manufacture (day, month and year)

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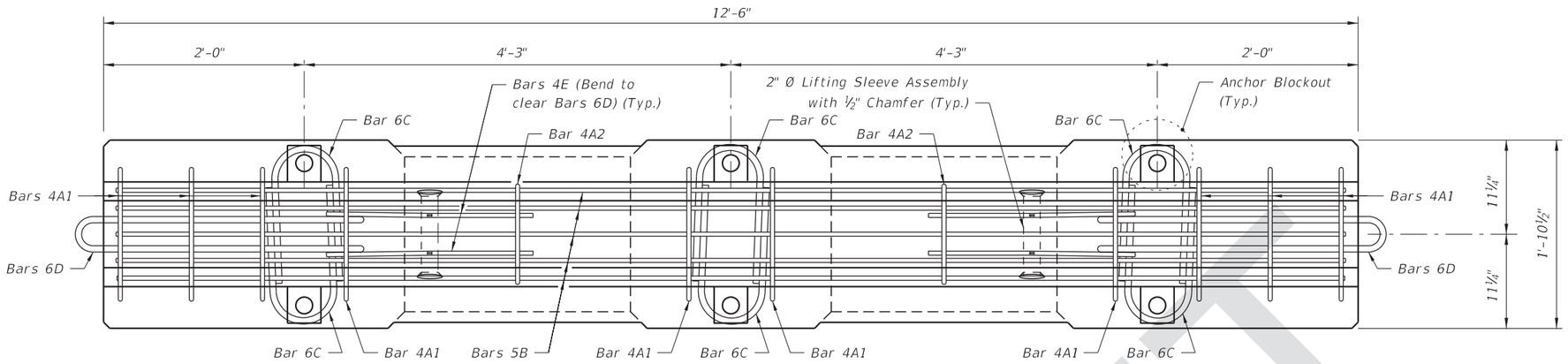
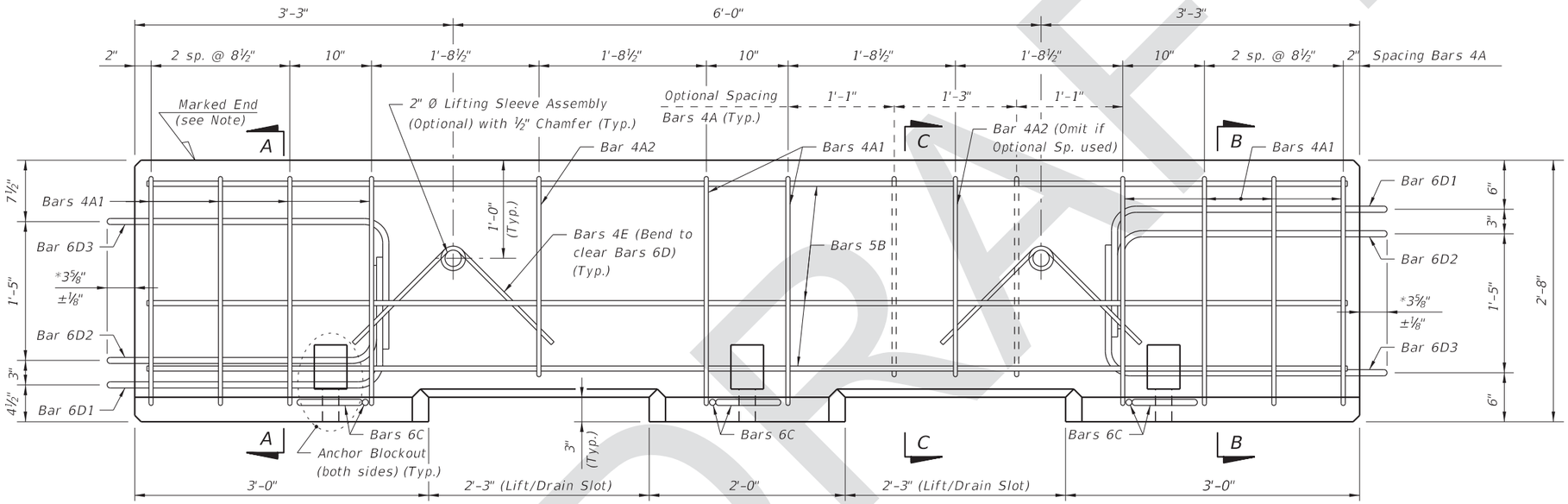
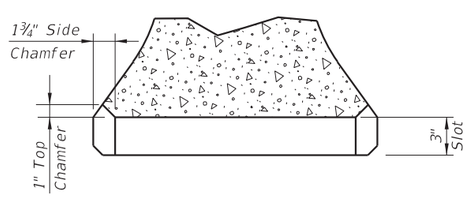


PLAN VIEW



ELEVATION VIEW

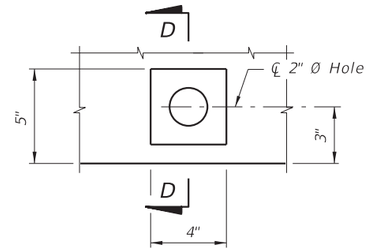


SECTION THRU LIFT/DRAIN SLOT

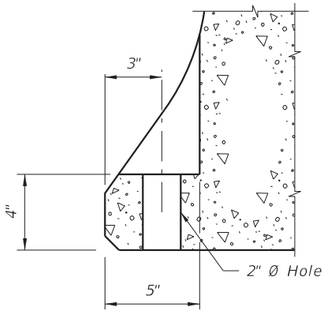
ESTIMATED TEMPORARY CONCRETE BARRIER QUANTITIES		
ITEM	UNIT	QUANTITY
Concrete	CY	1.29
Reinforcing Steel	LB	218

The above quantities are for one Barrier Unit.

Cross References:
For Section A-A, Section B-B and Section C-C see Sheet 16.

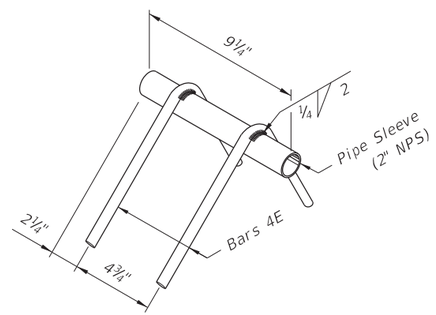


ANCHOR BLOCKOUT DETAIL



SECTION D-D
(Reinforcement not shown for clarity)

* Measured from end of Barrier Unit to outside edge of Bars 6D.



LIFTING SLEEVE
ASSEMBLY DETAIL (OPTIONAL)

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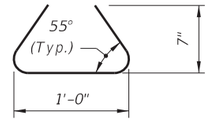
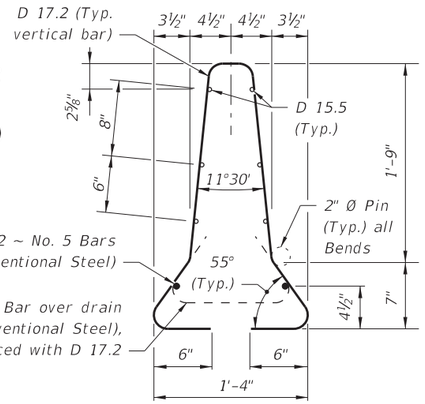
ALTERNATE REINFORCING STEEL DETAIL
WELDED WIRE REINFORCEMENT

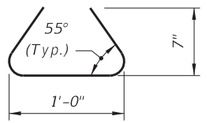


NO. 4 DRAIN BAR OVER DRAIN SLOTS (CONVENTIONAL STEEL)

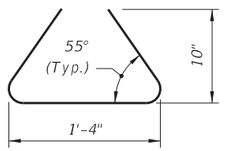


NOTES:
Place 2 ~ No. 5 Bars (12'-3" long) in bottom of Welded Wire Reinforcement cage as shown.
Match D17.2 spacing to Bars 4A in the Elevation View, Sheet 15.
Field trim D17.2 to clear drain slot by 2".

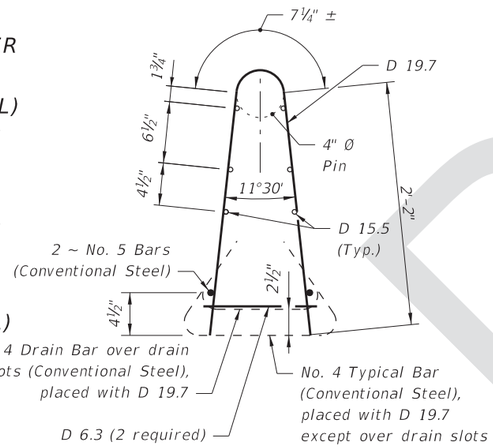
CONFIGURATION ONE



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



NO. 4 TYPICAL BAR (CONVENTIONAL STEEL)



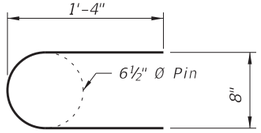
NOTES:
Place 2 ~ No. 5 Bars (12'-3" long) tied to D 19.7 inside of bottom Welded Wire Reinforcement cage as shown.
Match D19.7 spacing to Bars 4A in the Elevation View, Sheet 15.
Field trim D19.7 to clear drain slot by 2".

CONFIGURATION TWO

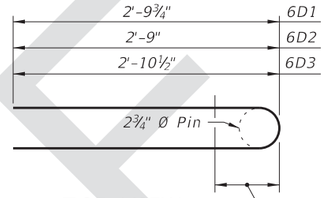
CONVENTIONAL REINFORCING STEEL BENDING DIAGRAMS

BILL OF REINFORCING STEEL

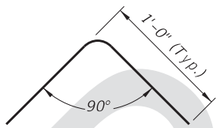
MARK	SIZE	NUMBER	LENGTH
A1	4	10	6'-1"
A2	4	2	5'-5"
B	5	5	12'-3" (Straight)
C	6	6	3'-1"
D1	6	2	8'-4"
D2	6	2	7'-6"
D3	6	2	8'-6"
E	4	4	2'-0"



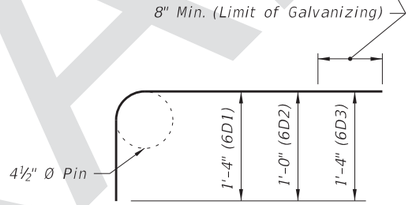
BAR 6C



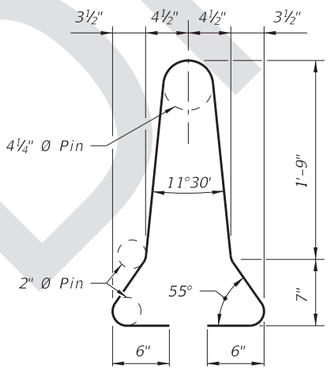
TOP VIEW
BARS 6D1, 6D2 & 6D3



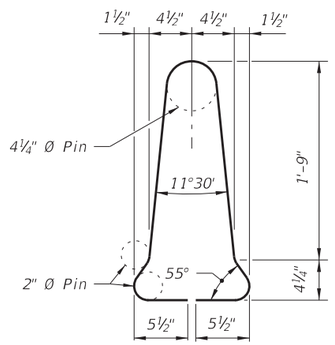
BAR 4E



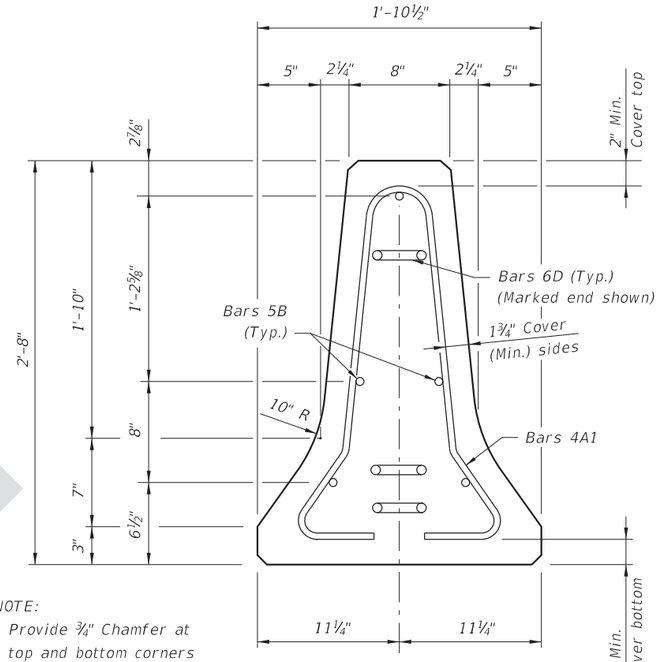
SIDE VIEW
BARS 6D1, 6D2 & 6D3



STIRRUP BAR 4A1

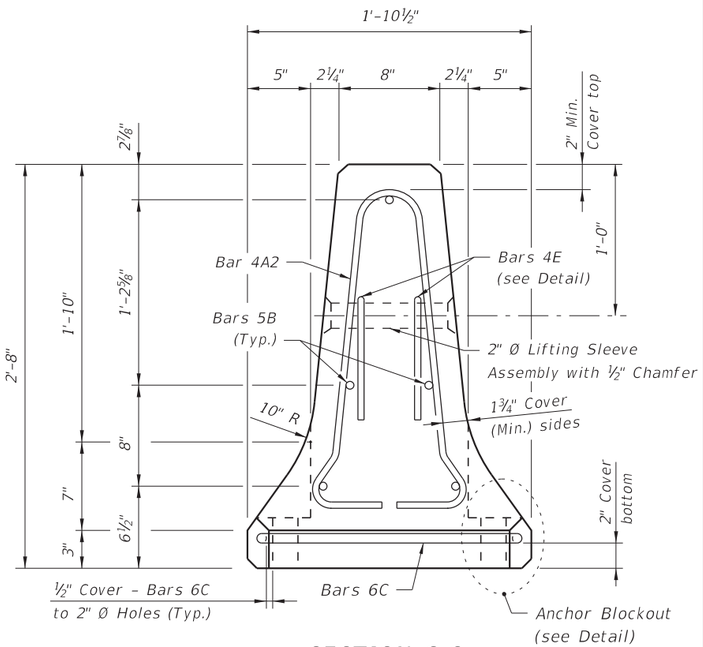


STIRRUP BAR 4A2



NOTE:
Provide ¾" Chamfer at top and bottom corners of Barrier.

SECTION A-A (SHOWN)
(SECTION B-B SIMILAR)



SECTION C-C
(Bars 6D not shown for clarity)

8:50:13 AM
8/29/2017

LAST REVISION	REVISION	DESCRIPTION:	FDOT	FY 2018-19 STANDARD PLANS	TYPE K TEMPORARY CONCRETE BARRIER SYSTEM	INDEX	SHEET
11/01/17						102-110	17 of 17