

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

This 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 shown.

**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 6-8.

**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 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 971. 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 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 ASTM A 497 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.

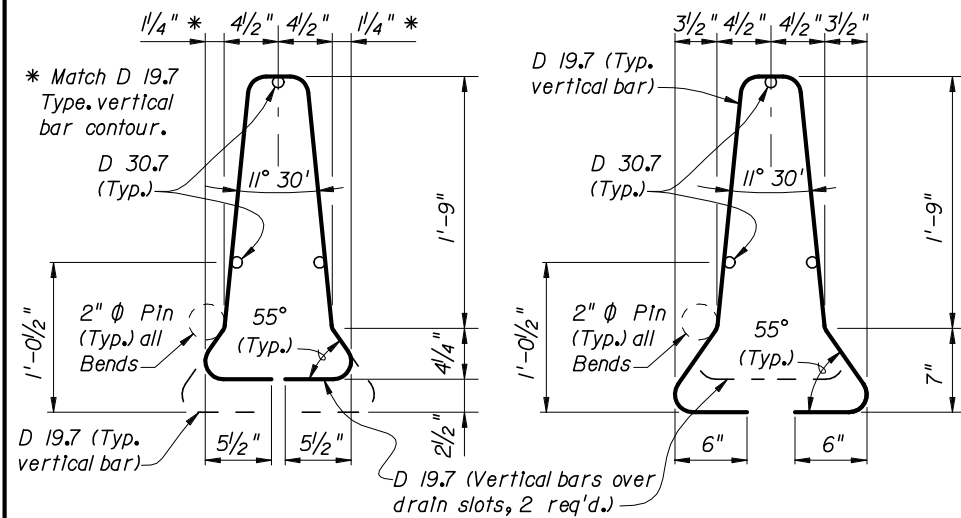
**MARKING:** Permanently mark the top left end of each Barrier Unit by the use of an embedded and anchored metallic plate with letters and figures a minimum of 0.5" tall. Ink stamps are not allowed. Permanently mark with the following information:

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

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

**ALTERNATE DESIGN:** Manufacturers seeking approval of proprietary concrete barrier systems for inclusion on the Qualified Products List as pre-approved alternate designs must submit application along with design documentation showing the barrier system is crash tested to NCHRP Report 350 Test Level 3 criteria, is accepted by FHWA for use as a temporary concrete barrier in the configurations shown herein, is a minimum of 2'-8" tall, has transitions and connections comparable to the standard design and has permanent deflections due to TL-3 crash test impacts not to exceed 3'-9" in freestanding configuration, 3.5" in bolted down configuration and 1'-0" in staked down configuration.

**ALTERNATE REINFORCING STEEL (WELDED WIRE FABRIC) DETAILS**



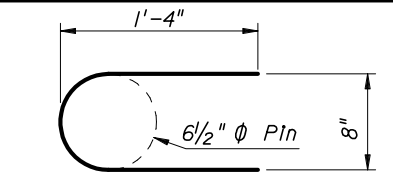
**NOTES:**  
Place 2 ~ Bars D 30.7 (12'-2" long) in Bottom of WWF cage.  
See Section A-A for location.  
D 19.7 spacing shall match spacings for Bars 4A shown in Elevation View, Sheet 1.

**CONFIGURATION ONE**

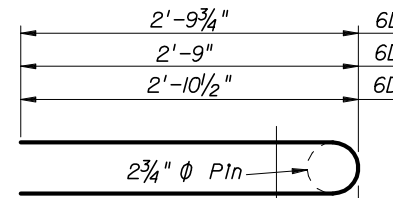
**CONVENTIONAL REINFORCING STEEL BENDING DIAGRAMS**

**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"

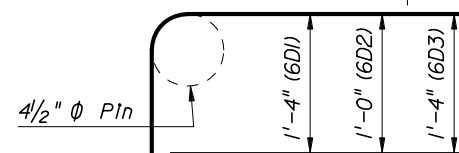


**BAR 6C**

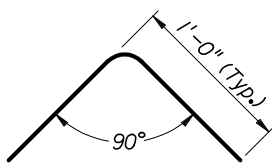


**TOP VIEW BARS 6D1, 6D2 & 6D3**

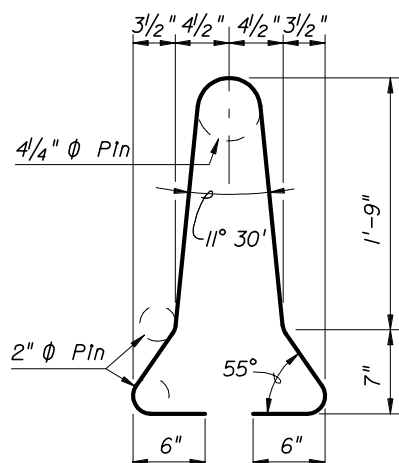
8" Min. (Limit of Galvanizing)



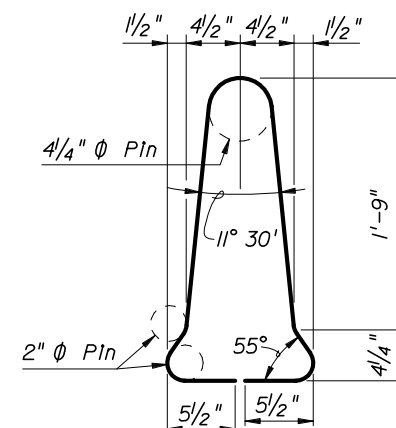
**SIDE VIEW BARS 6D1, 6D2 & 6D3**



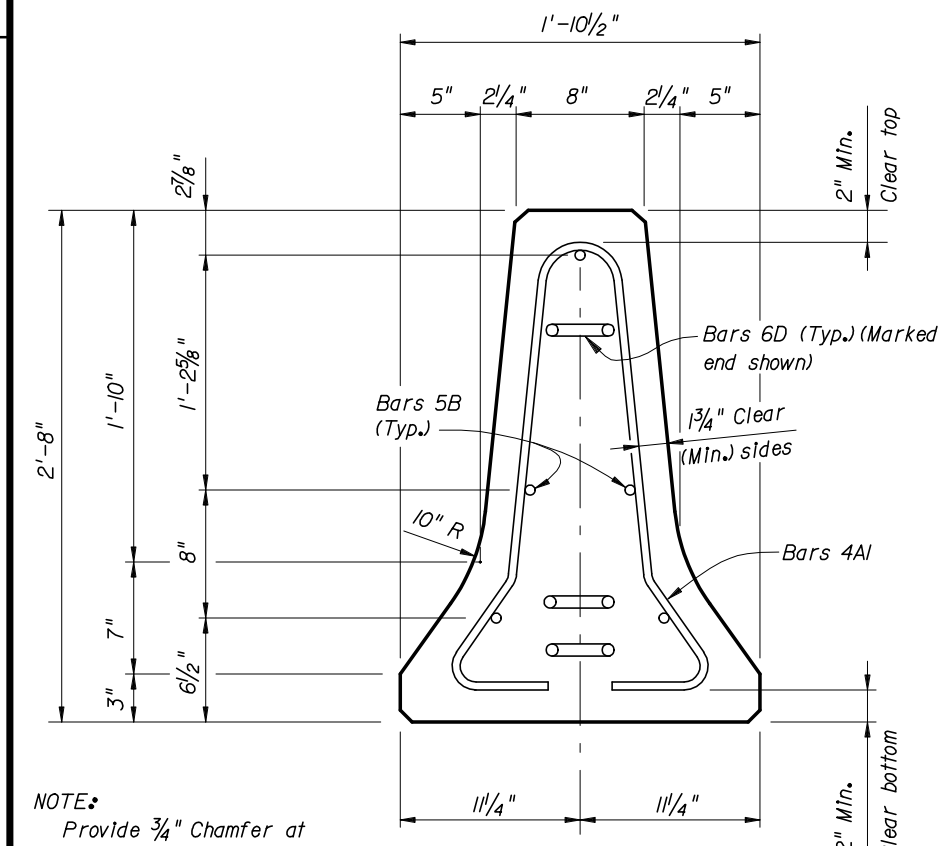
**BAR 4E**



**STIRRUP BAR 4A1**

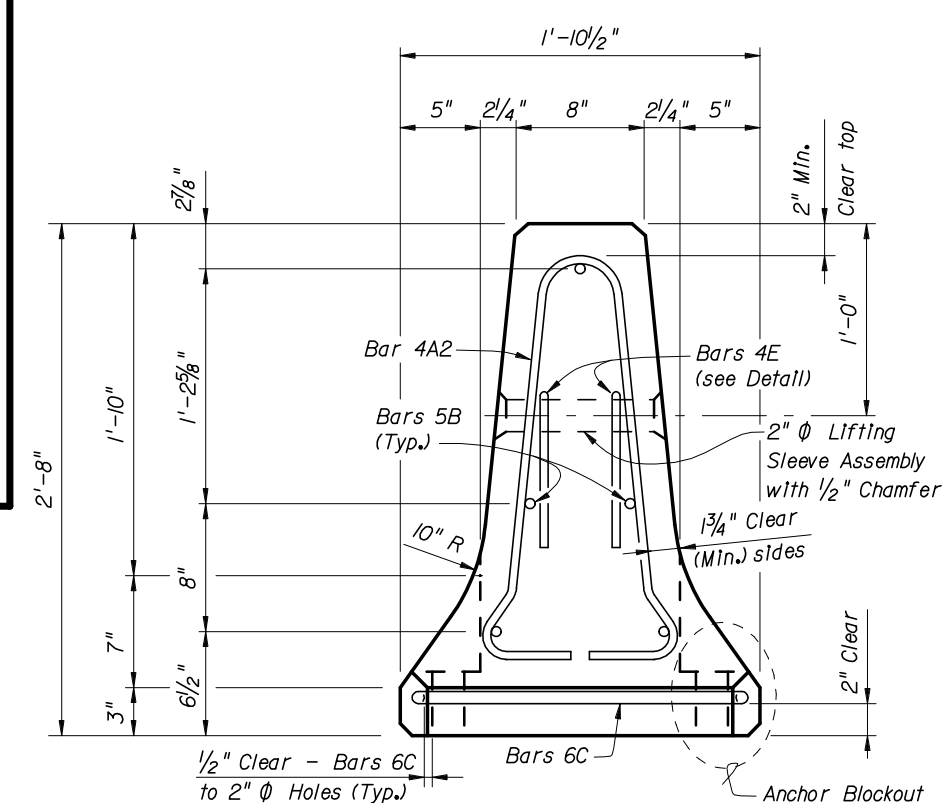


**STIRRUP BAR 4A2**

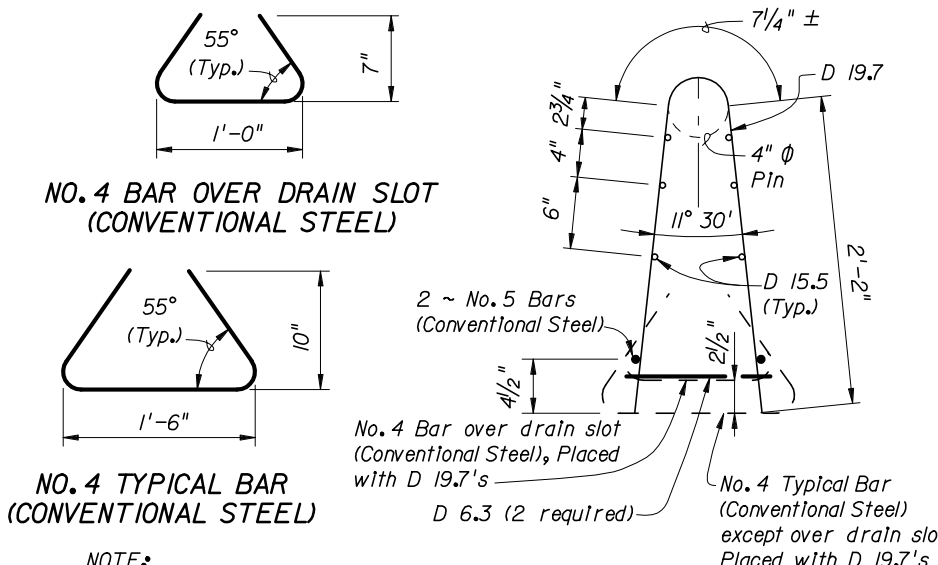


**NOTE:**  
Provide 3/4" Chamfer at top and bottom corners of Railing.

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



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

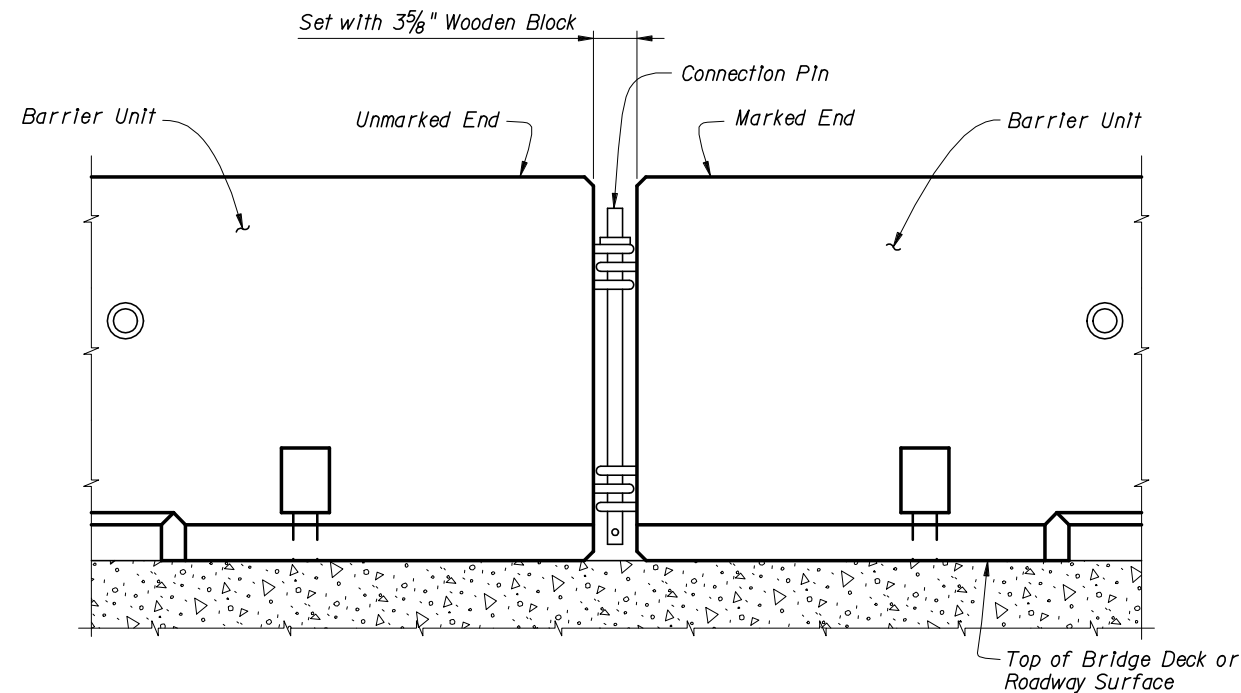


**CONFIGURATION TWO**

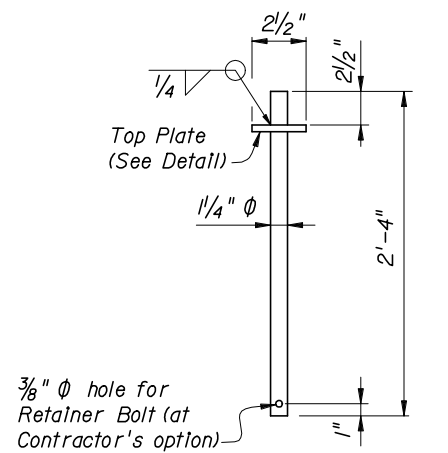
**ESTIMATED TEMPORARY CONCRETE BARRIER QUANTITIES**

ITEM	UNIT	QUANTITY
Concrete	C.Y.	1.29
Reinforcing Steel	LB.	218

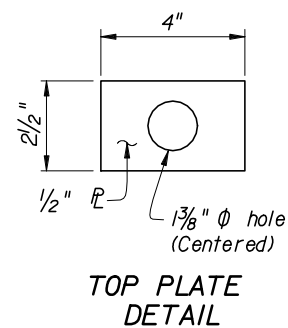
The above quantities are for one Barrier Unit.



DETAIL OF CONNECTION BETWEEN BARRIER UNITS



CONNECTION PIN DETAIL



TOP PLATE DETAIL

NOTES FOR ALL INSTALLATIONS:

**LIMITATION OF USE:** This Temporary Concrete Barrier 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 show with a cross slope of 1:10 or flatter.

**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.

**SURFACE PREPARATION:** Except as shown for the Back Filled Roadway Installations, remove all 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.

**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 3/8" diameter hole may be provided at the bottom of the Connection Pin, as shown, for the installation of a vandal resistance bolt.

**INSTALLATION:** Set Barrier Units by using a 3 5/8" wooden block between ends of adjacent units. Install Connection Pins between adjacent Barrier Units as shown. Barrier Units shall not be used unconnected.

**DELINEATION:** Mount Type C Steady-Burn Lights on top of Barrier Units that are used as traffic barriers along travel ways in work zones. Space the lights at 50' centers in transitions, 100' centers on curves and 200' centers on tangent alignments. Refer to "Warning Lights" on Index No. 600 for additional information.

**REUSE OF UNITS:** Barrier Units may be reused provided they have the structural integrity and surface qualities of new units. Do not use Barrier Units without Marking Plates.

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

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

**TRANSITIONS:** Transitions are required between freestanding, bolted down, staked down and back filled Type K Barrier Installations, see Sheet 7 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.

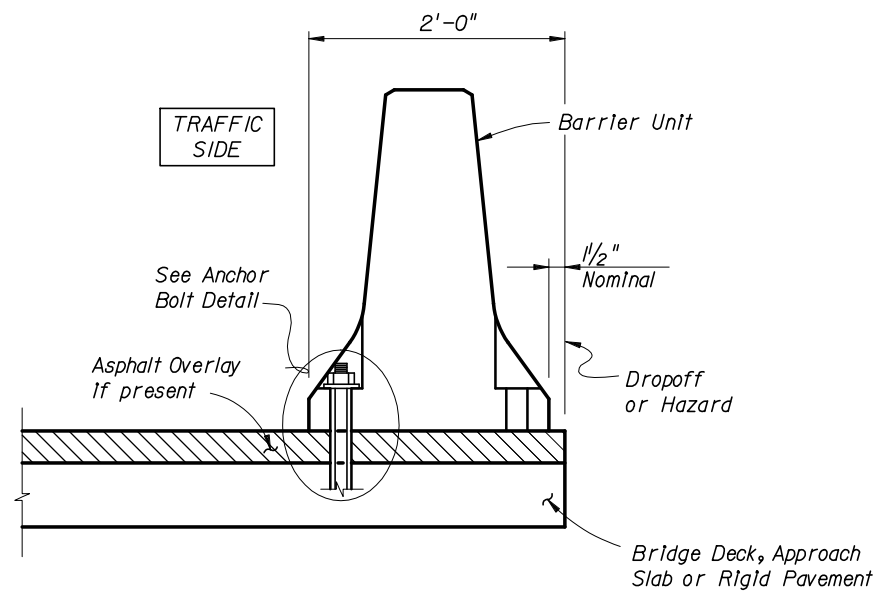
**PAYMENT:** Barrier Units for work zone traffic control and other temporary applications shall be paid for under the contract unit price for Barrier Wall (Temporary) (F&I) (Type K), LF. Any relocation of the Barrier Units required for the project shall be paid for under the contract unit price for Barrier Wall (Temporary) (Relocate) (Type K), LF. Type C Steady-Burn Lights shall be paid for under the contract unit price for Lights (Temp. Barrier Wall Mount) (Type C, Steady Burn), ED. 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.



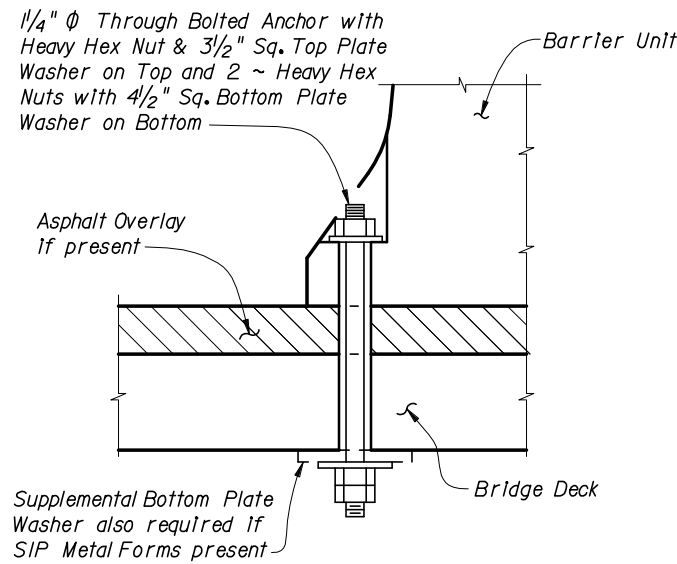
2006 FDOT Design Standards

TYPE K TEMPORARY CONCRETE BARRIER

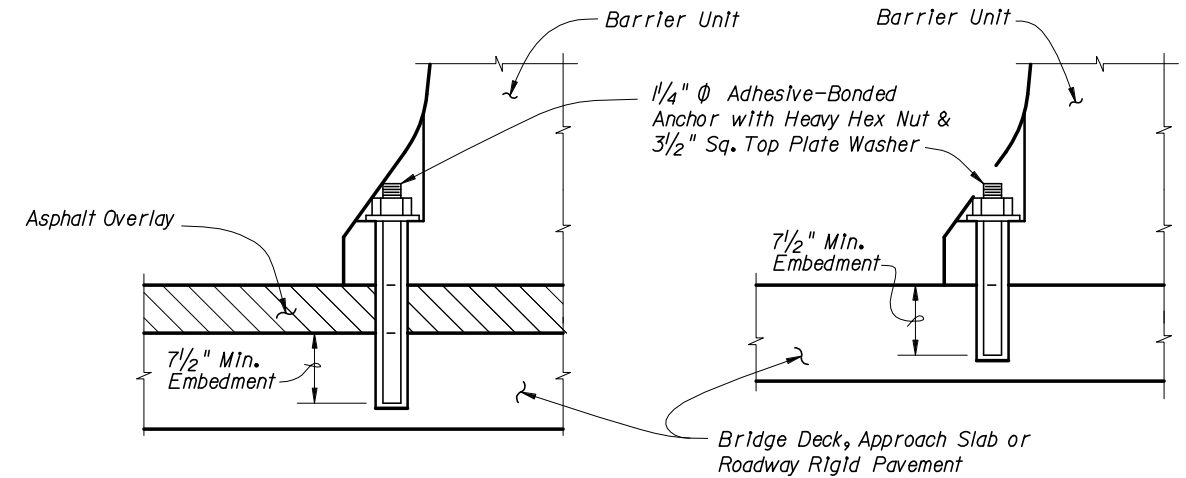
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**TYPICAL SECTION  
(BRIDGE DECK SHOWN, APPROACH SLAB  
OR RIGID PAVEMENT SIMILAR)**



**THROUGH BOLTED ANCHOR  
INSTALLATION ON BRIDGE DECK**



**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.

**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 of Anchor Bolts required in Transition Installations see Sheet 7 and Index No. 415. Drilling through deck reinforcing steel to install Anchor Bolts is permitted. Unless otherwise shown in the Plans, at the Contractor's option Barrier Units may be installed by through bolting (where geometrically possible) or by the use of Adhesive-Bonded Anchor Bolts. Do not drill into or otherwise damage the tops of supporting beams or girders, bridge deck expansion joints or drains. Install Anchor Bolts and Nuts so that the maximum extension beyond the face of the Barrier Units is 1/2". 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.

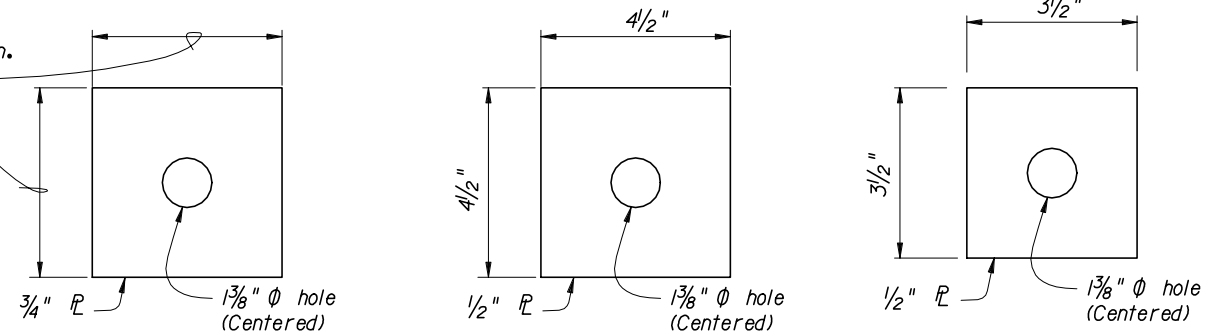
Omit one (1) Anchor Bolt within a single Barrier Unit if a conflict exists between the Anchor Bolt location and a bridge deck expansion joint or drain. The adjacent Barrier Units must each be installed with the standard three (3) Anchor Bolts.

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:** 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 I 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.

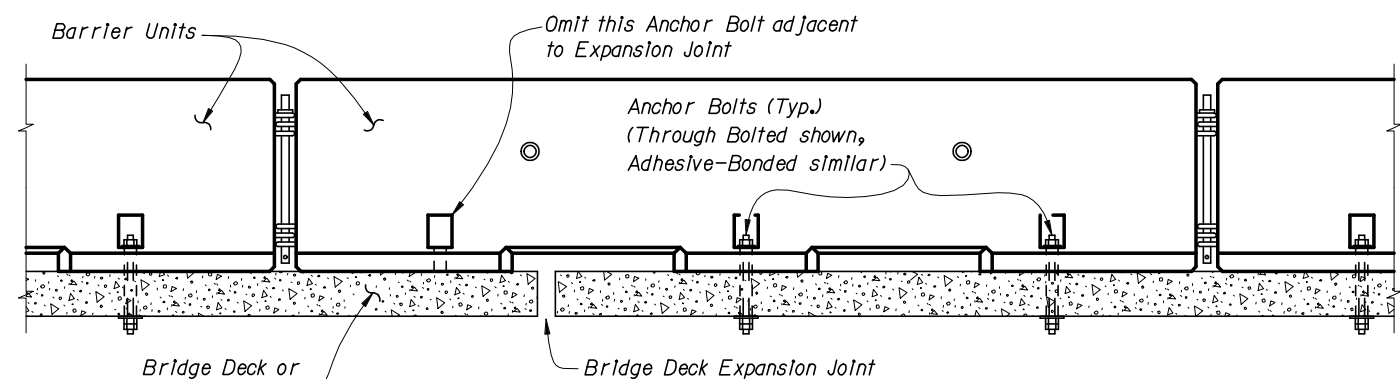
Dimension as required to span SIP Metal Form Corrugations plus 1/2" Min. overlap each side



**SUPPLEMENTAL BOTTOM  
PLATE WASHER DETAIL**

**BOTTOM PLATE  
WASHER DETAIL**

**TOP PLATE  
WASHER DETAIL**



**TREATMENT AT BRIDGE DECK EXPANSION JOINT SCHEMATIC**

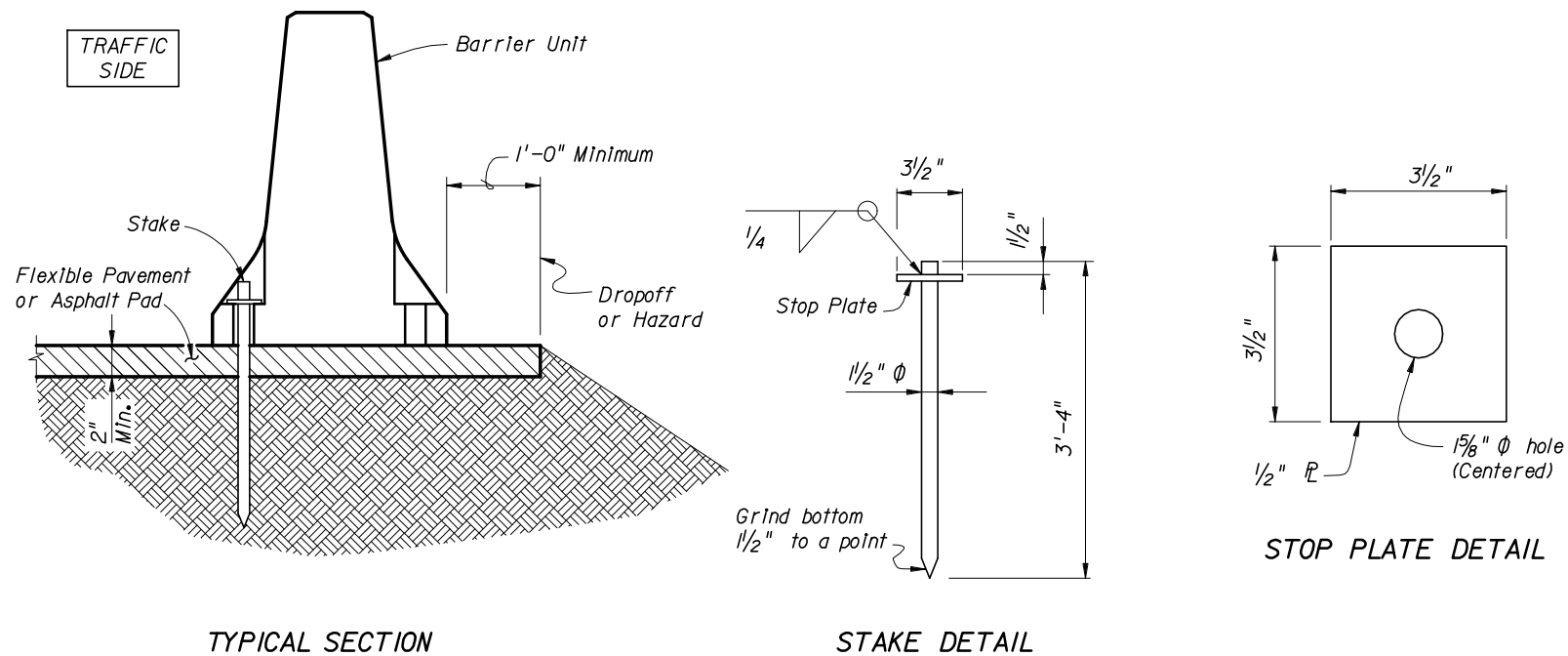
**BOLTED DOWN BRIDGE, APPROACH SLAB, ROADWAY AND TRANSITION INSTALLATIONS**



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**TYPE K TEMPORARY CONCRETE BARRIER**

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**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.

**ASPHALT PAD:** Where existing flexible pavement is not present, construct the 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.

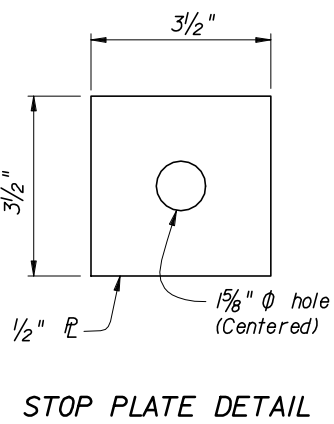
**STAKES:** Provide steel for Stake assemblies in accordance with ASTM A 36 or ASTM A 709 Grade 36. All welding shall be in accordance with the American Welding Society Structural Welding Code (Steel) ANSI/AWS D1.1 (current edition). Weld metal shall be E60XX or E70XX. Nondestructive testing of welds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

Install three (3) Stakes on the traffic side of the Barrier Units as shown, except for Transition Installations. For the number of stakes required in Transition Installations see Sheet 7 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.

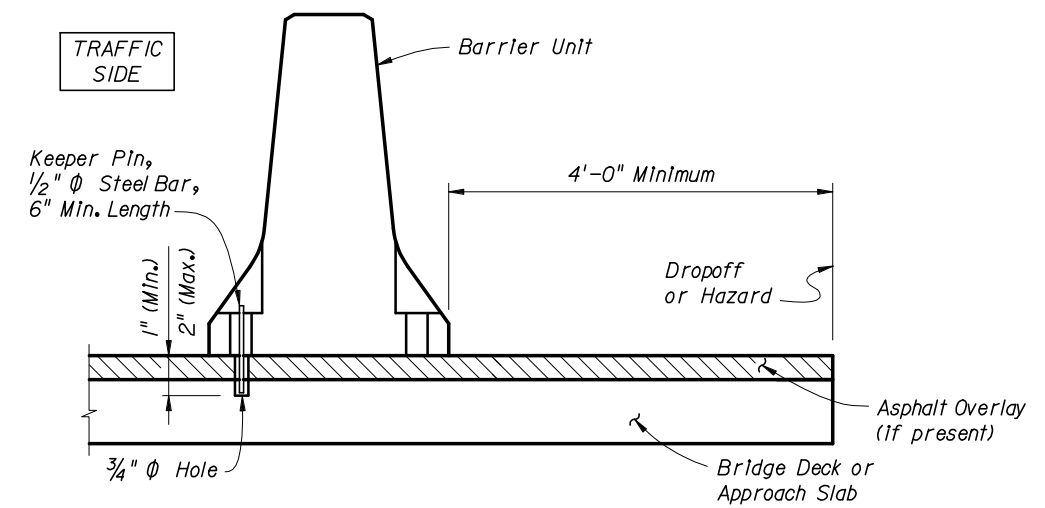
**REMOVAL OF STAKES:** Upon removal or relocation of Barrier Units, completely remove all Stakes and completely fill the remaining holes in flexible pavement that is to remain with hot or cold patch asphalt material.

**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)**



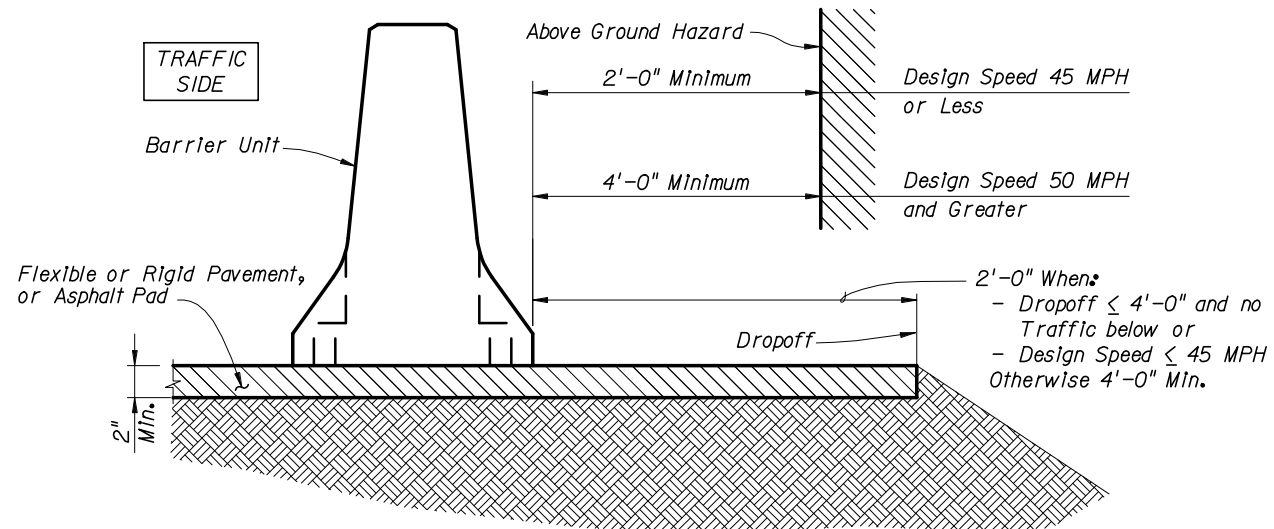
**NOTES FOR FREE STANDING BRIDGE OR APPROACH SLAB INSTALLATIONS:**

**KEEPER PINS:** Keeper Pins shall be 1/2" diameter, smooth steel bar in accordance with ASTM A 36 or ASTM A 709 Grade 36.

As directed by the Engineer in order to limit vibration induced translation of the Barrier Units, install one (1) Keeper Pin per Barrier Unit on the traffic side of the Barrier Units as shown. Do not drill into or otherwise damage bridge deck expansion joints or drains.

**REMOVAL OF KEEPER PINS:** Upon removal or relocation of Barrier Units, remove all Keeper Pins and completely fill the remaining holes in bridge decks and approach slabs that are to remain with Magnesium Ammonium Phosphate Concrete in accordance with Specification Section 930 or with an Epoxy Resin Compound, Type I 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**



**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.

**ASPHALT PAD:** Where existing pavement is not present, construct the 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.

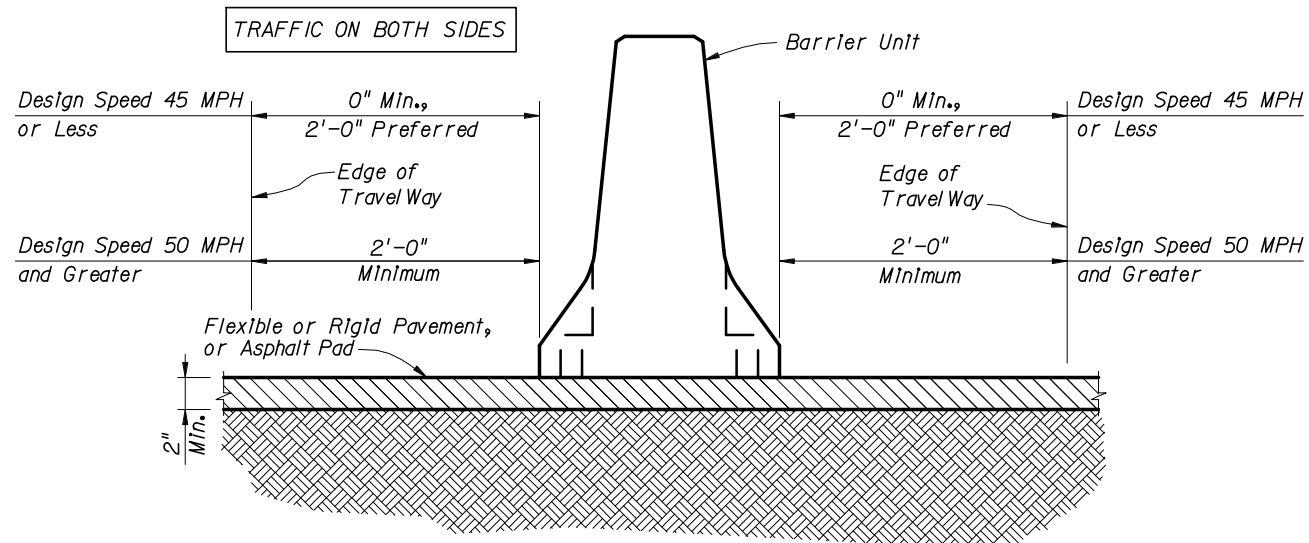
**FREESTANDING ROADWAY INSTALLATION**



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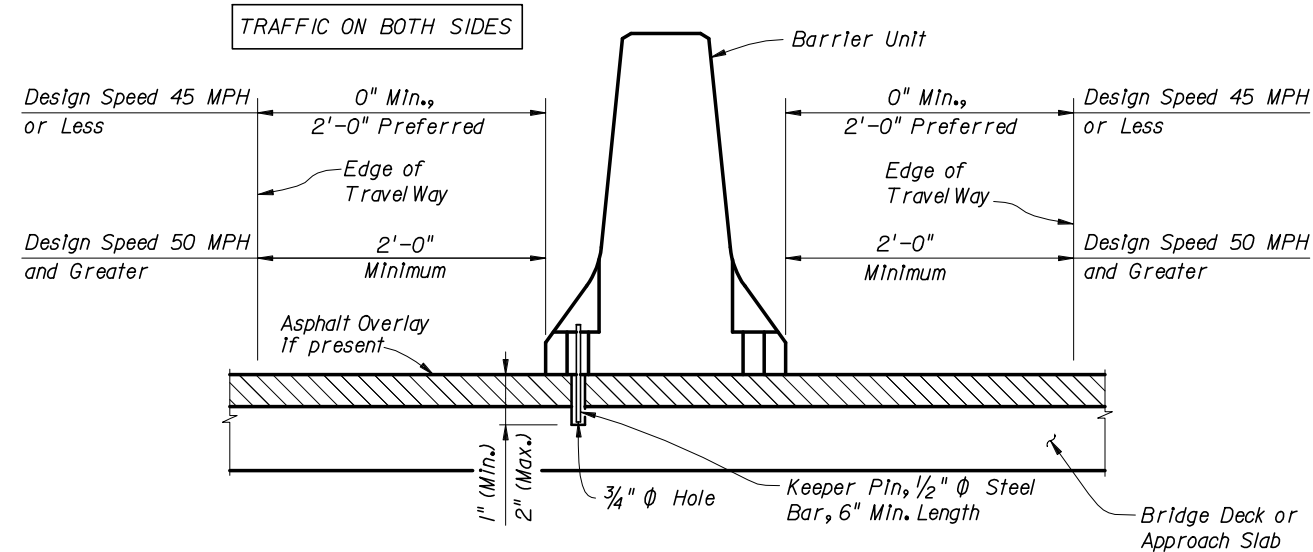
TYPICAL SECTION

NOTES FOR FREE STANDING ROADWAY MEDIAN INSTALLATION:

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

ASPHALT PAD: Where existing pavement is not present, construct the 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.

==== FREESTANDING ROADWAY MEDIAN INSTALLATION ====



TYPICAL SECTION

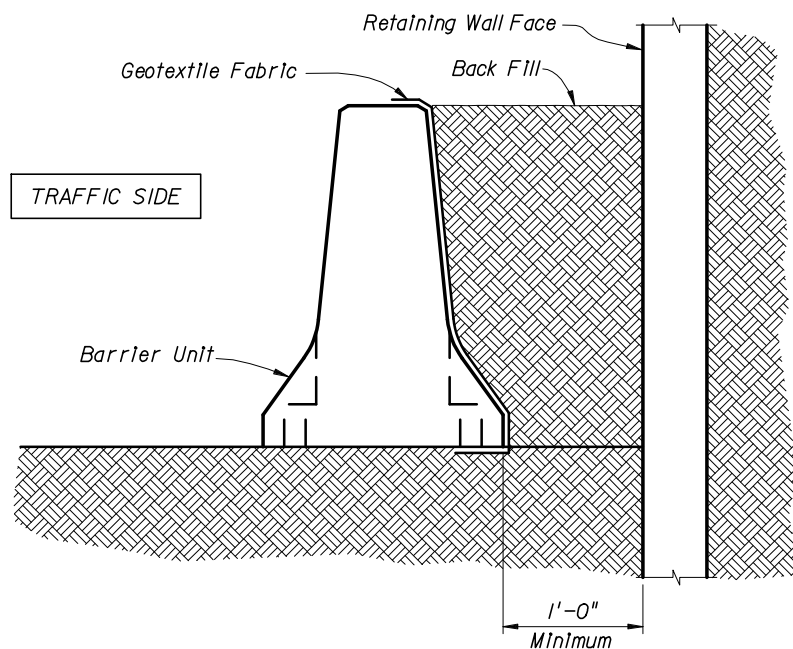
NOTES FOR FREE STANDING BRIDGE OR APPROACH SLAB MEDIAN INSTALLATION:

KEEPER PINS: Keeper Pins shall be 1/2" diameter, smooth steel bar in accordance with ASTM A 36 or ASTM A 709 Grade 36.

As directed by the Engineer in order to limit vibration induced translation of the Barrier Units, install one (1) Keeper Pin per Barrier Unit as shown. Alternate Keeper Pin locations from side to side of Barrier Units along the length of the installation. Do not drill into or otherwise damage bridge deck expansion joints or drains.

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 I 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 MEDIAN INSTALLATION ====



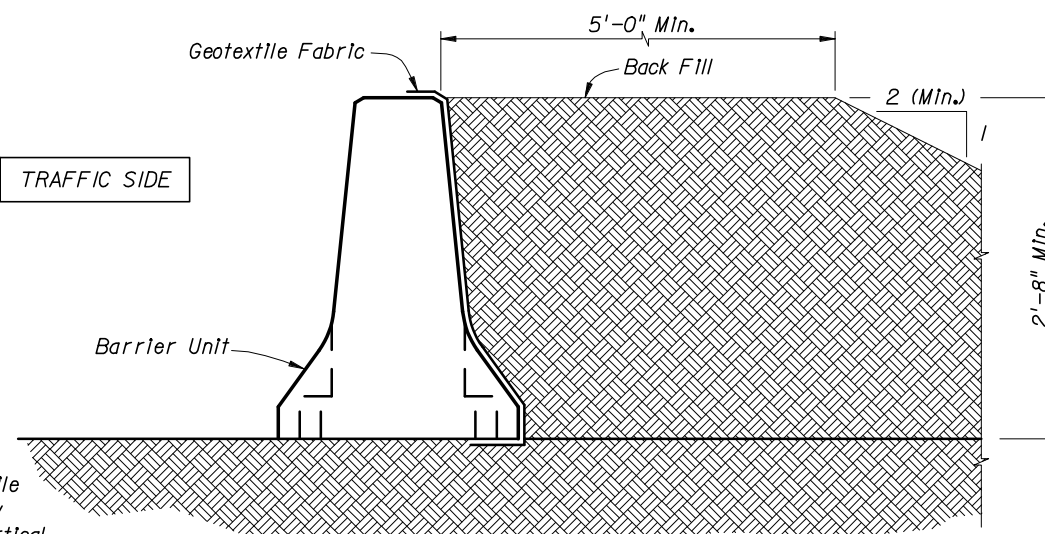
TYPICAL SECTION  
ADJACENT TO RETAINING WALL

NOTES FOR BACK FILLED ROADWAY INSTALLATIONS:

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 Index No. 199 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.

==== BACK FILLED ROADWAY INSTALLATIONS ====



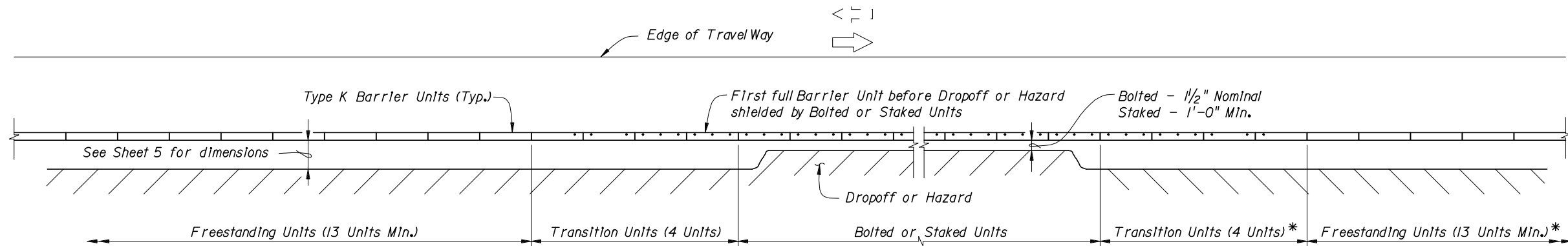
TYPICAL SECTION



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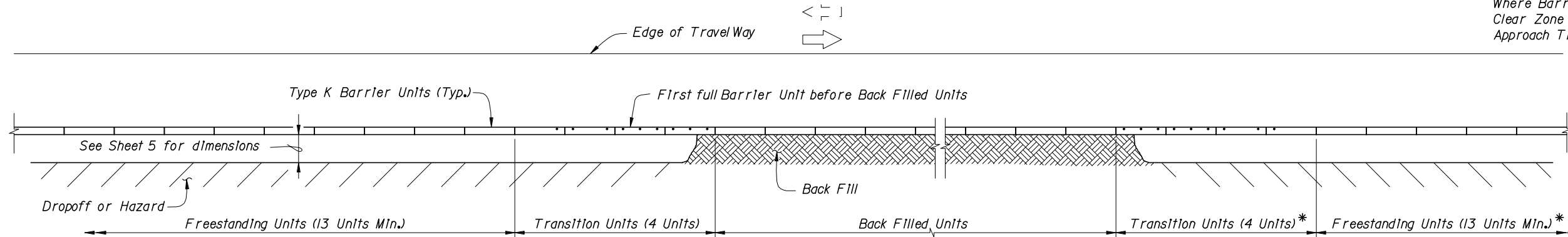
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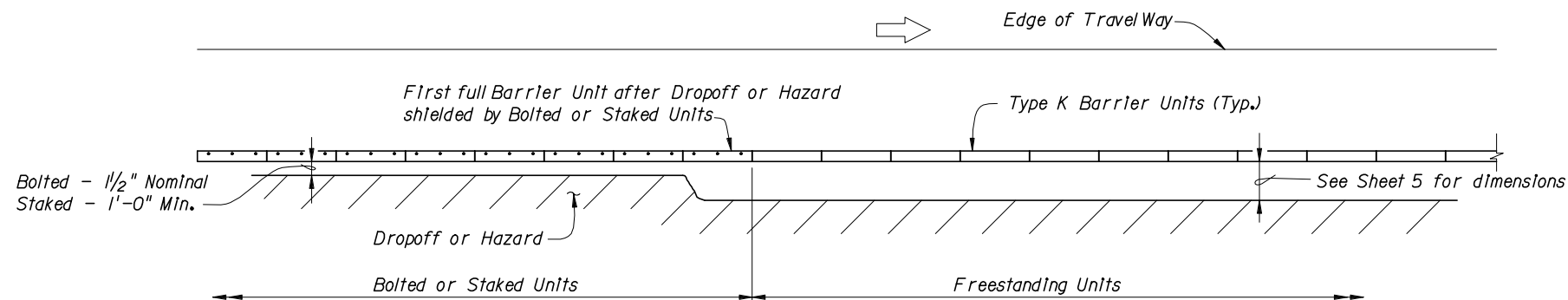


APPROACH TRANSITION FROM FREESTANDING TO BOLTED OR STAKED DOWN TYPE K TEMPORARY CONCRETE BARRIERS

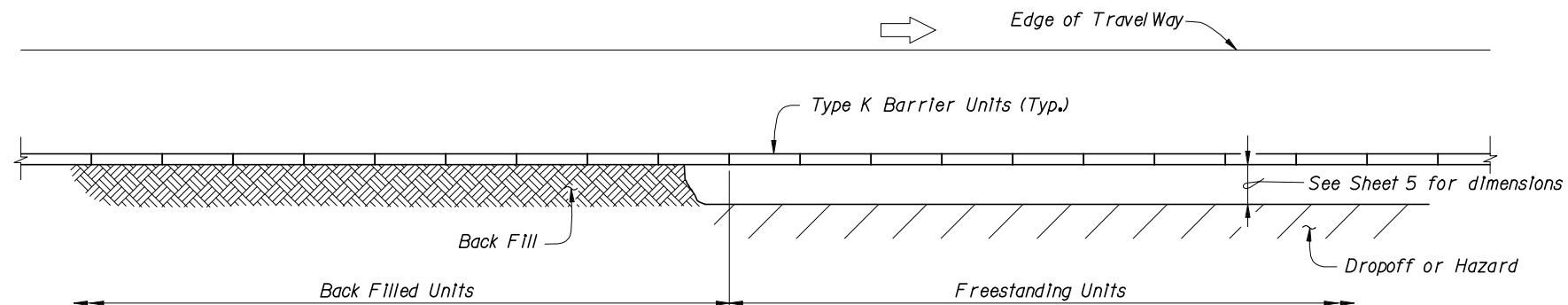
\*NOTE:  
Where Barrier is located within Clear Zone of opposing traffic, Approach Transition is required.



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

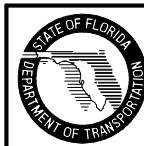


TRAILING END TRANSITION FROM BOLTED OR STAKED DOWN TO FREESTANDING TYPE K TEMPORARY CONCRETE BARRIERS



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

LEGEND:  
Dot indicates number and position of Bolts or Stakes



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