

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 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 975. 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:

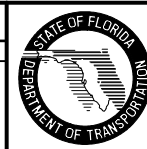
- Type K1
- Fabricator's name or symbol
- Date of manufacture (day, month and year)

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 or steel 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 or steel 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.

REVISIONS

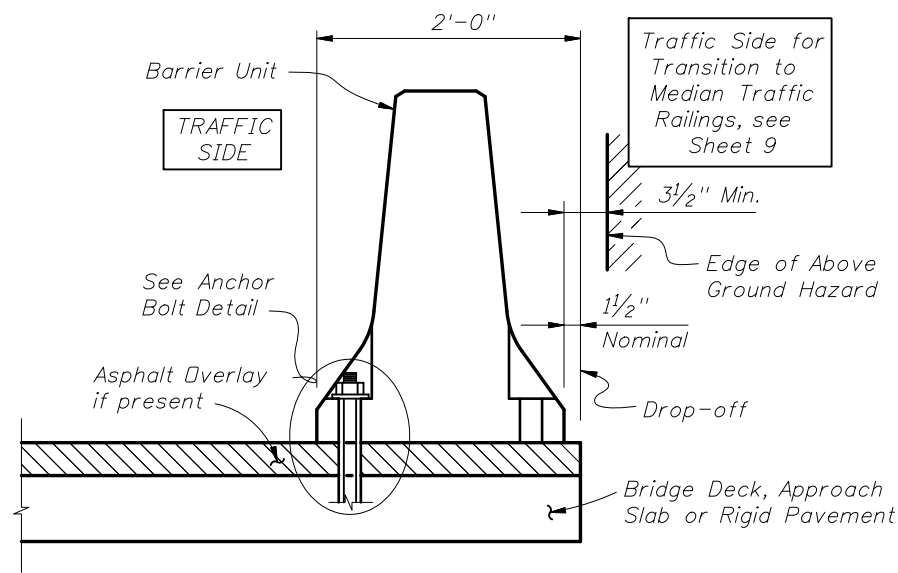
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
01/01/08	SJN	Changed Specification Section 971 to 975 in REINFORCING STEEL note. Added steel barrier option to ALTERNATE DESIGN note.			



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TYPE K TEMPORARY CONCRETE BARRIER SYSTEM

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

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

LIMITATION OF USE: This installation technique can only be used on rigid pavement and concrete bridge decks as shown. Barrier Units shall not be bolted 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.

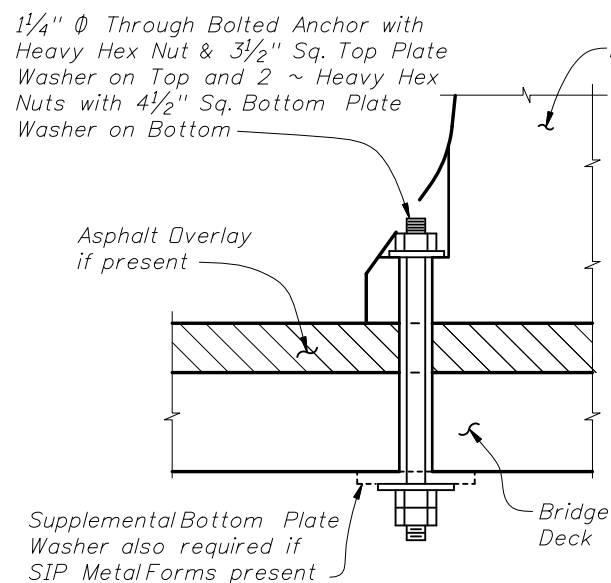
Install three (3) Anchor Bolts per Barrier Unit on the traffic side of the Barrier Units as shown, except for Transition Installations. For the number and positions of Anchor Bolts required in Transition Installations see Sheets 8 and 9 and Index No. 415. Drilling through deck reinforcing steel to install 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 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.

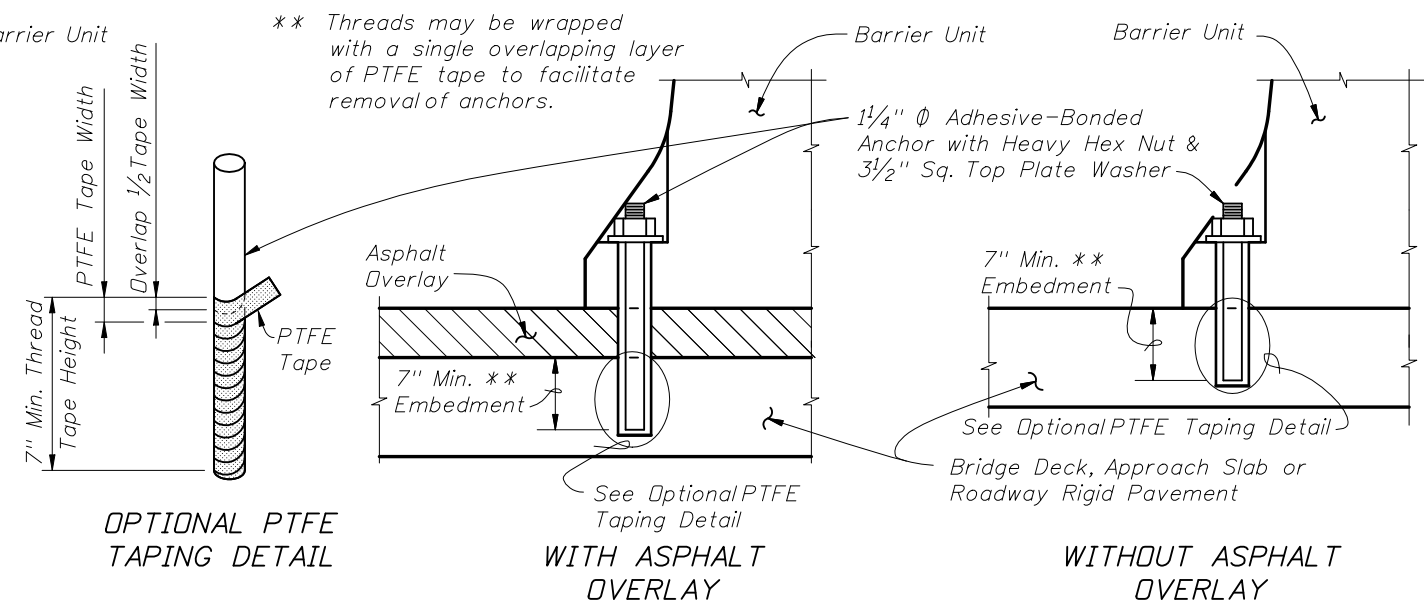
Omit one (1) Anchor Bolt within a single Barrier Unit as shown in the Treatment at Bridge Deck Expansion Joint Schematic if the Barrier Unit straddles a bridge deck expansion joint. The adjacent Barrier Units must each be installed with the standard three (3) Anchor Bolts.

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.

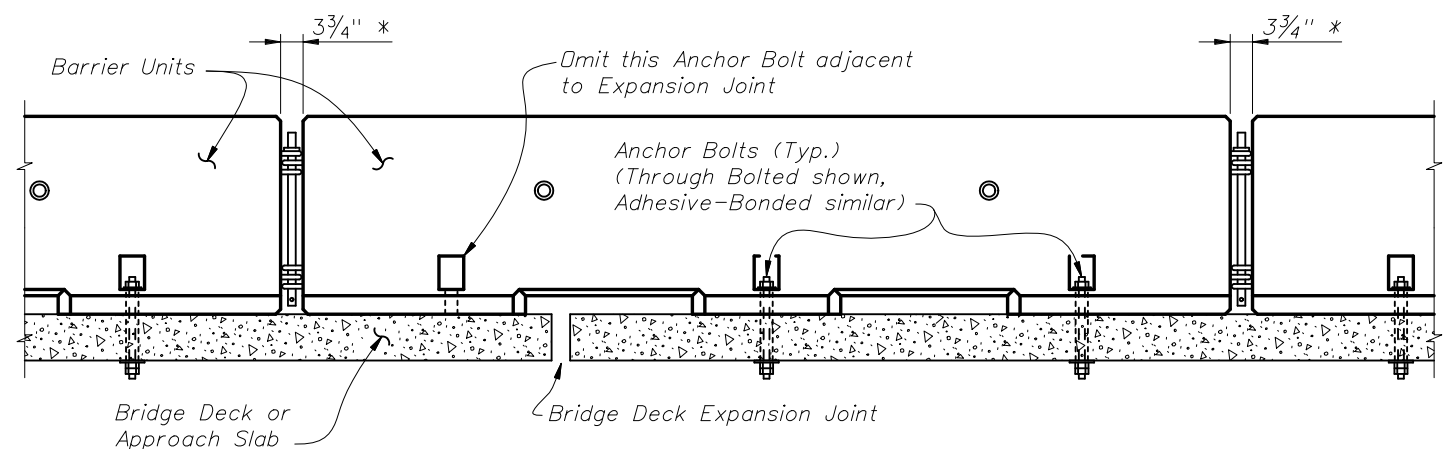
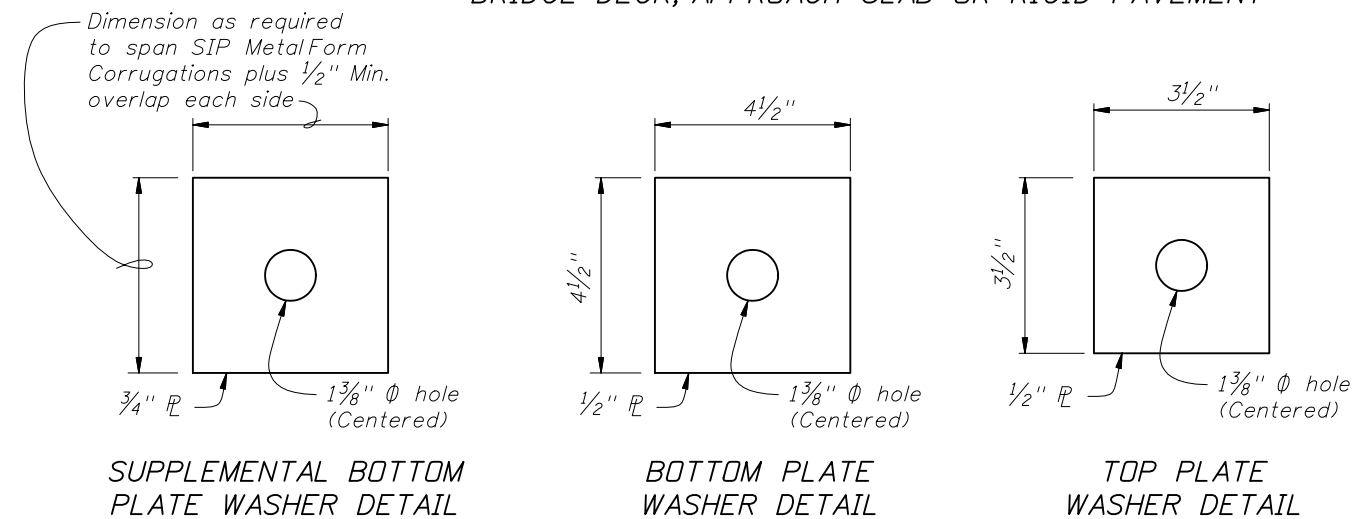
REMOVAL OF ANCHOR BOLTS: Upon removal or relocation of Barrier Units, remove all Anchor Bolts and completely fill the remaining holes in bridge decks, approach slabs and roadway rigid pavements that are to remain with Magnesium Ammonium Phosphate Concrete in accordance with Specification Section 930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



THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK



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

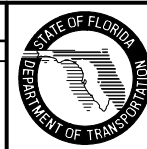


* To accommodate movement at Expansion Joint, set Barrier Units with 3 3/4" gap at locations shown.

TREATMENT AT BRIDGE DECK EXPANSION JOINT SCHEMATIC

BOLTED DOWN BRIDGE, APPROACH SLAB, ROADWAY AND TRANSITION INSTALLATIONS

REVISIONS			
DATE	BY	DESCRIPTION	
01/01/08	SJN	Added OPTIONAL PTFE TAPING DETAIL. Change anchor embedment to 7" Min.	



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