Chapter 04

MAINTENANCE OF TRAFFIC (MOT)
TEMPORARY PRECAST SINGLE FACE F-TYPE CONCRETE BARRIER

**GENERAL NOTES**

Concrete: All concrete shall conform to Mix. No. 6 (4500 psi).

Welded Steel Wire Fabric: All wire fabric shall be 6 x 6 - W2.3 x W2.3.

Reinforcing Steel: Reinforcing steel shall conform to ASTM A 615 Grade 60.

Structural Steel: All structural steel conform to ASTM A 709 Grade 36 or better.

Anchor Bolts: All anchor bolts shall be ASTM A 325 unless otherwise specified on details.

Connector Loop: 3/4" galvanized or stainless steel rod. Stainless steel rods shall conform to ASTM A 307, Grade A. Nuts shall conform to ASTM A 563, Grade DH or DH3 or ASTM A 94, Grade 2H. Washers shall conform to ASTM F 436. The connector pin, nuts and washers shall be galvanized in conformance with ASTM A 153.

Other Connector Devices: Contractor may use any other connection devices between barrier sections in lieu of the pin and loop, provided they appear on S.H.A. standard plates and have written approval of Chief Engineer.

Temporary Shield: When specified on the Plans, a shield shall be connected to the temporary precast concrete barrier. The shield shall be designed, furnished, and installed by the Contractor. The height of the shield shall be 6 ft - 6 in. above the roadway surface, and shall have no cracks or openings through which material or debris can pass. The shield will not be measured but the cost will be incidental to the pertinent Temporary Concrete Traffic Barrier for Maintenance of Traffic item.

**METHODS OF ANCHORAGE CONNECTION TO CONCRETE DECKS**

**EXISTING BRIDGE DECK TO BE REMOVED.**

Holes for anchor bolts in existing bridge deck shall be drilled. Use 1/4" bolts with 5 1/2" x 5 1/2" x 3/4" square washer under existing deck slab, as shown. Bolts shall be of sufficient length that when nut is tight, all the threads of the nut are engaged. Provide Type 'A' plain washer SAE N (narrow) for each 1/4" bolt at connection plate.

**EXISTING BRIDGE DECK TO REMAIN.**

Holes for anchor bolts in existing bridge deck shall be cored. Use 1/4" bolts with 5 1/2" x 5 1/2" x 3/4" square washer under existing deck slab, as shown. Bolts shall be of sufficient length that when nut is tight, all the threads of the nut are engaged. Provide Type 'A' plain washer SAE N (narrow) for each 1/4" bolt at connection plate. The Contractor is alerted that as little damage as possible shall be done to the existing reinforcement steel. Therefore, the Contractor shall locate the reinforcement steel and space the bolts to miss the reinforcement steel, all as directed by the Engineer. Fill all cored holes with epoxy grout after barrier is removed. (See below for grout composition).

**NEW BRIDGE DECK**

1/4" bolt to be placed in an epoxy coated open coil anchor insert (cast in slab) having a minimum working load tension strength of 16,000 lb and shear strength of 13,000 lb with a minimum 7/8" length. Coil to be tapped for a 1/4" N.A. thread bolt. No insert shall be longer than slab depth minus 1". Provide Type 'A' plain washer SAE N (narrow) for each 1/4" bolt at connection plate. Fill all inserts with epoxy grout after barrier is removed. (See below for grout composition).

The option to use bolts in drilled holes in lieu of the coiled insert is no longer allowed.

**GROUT COMPOSITION**

Any areas of bridge decks, to remain in place, damaged as a result of anchoring temporary concrete barriers (anchor holes, etc.) shall be repaired to the satisfaction of the Engineer using an epoxy grout conforming to 902.11(d).
Notes:
1. One connector pin shall be furnished with each barrier. The cost of the connector pin shall be incidental to the item precast temporary concrete barrier.
2. All barriers shall have "T350" imprinted on top end of barrier. Imprint shall have a minimum depth of 1/4" and a minimum height of 2".
Place reflectors full length of barrier see Specifications.

6 x 6 - W2.9 x W2.9 WWF folded into U shape

2 - #4 bars (11'-4" long) placed as shown

Connector Loops

-6" x 6"-W2.9 x W2.9 Welded Wire Fabric

SECTION B-B

SECTION C-C

END VIEW

Scale: 1/2" = 1'-0"

REINFORCING STEEL DETAILS

Scale: 1/2" = 1'-0"

PLAN

(Connector pin not shown)

ELEVATION

JOINT DETAILS

Scale: 1/2" = 1'-0"

DETAIL NO. MOT-101 SHEET 3 OF 4
Maximum 1 1/2'' hole diameter.

**CONNECTION DETAIL**

**SCALE:** \( \frac{3}{4}'' = 1'-0'' \)

**CONNECTOR PIN**

- Threaded 1 3/8''
- \( \frac{1}{4}'' \phi \) steel rod.
- \( \frac{1}{4}'' \phi \) threaded rod.
- Tack Weld nut when threaded rod is used.
- \( \frac{1}{2}'' \times 2\frac{1}{2}'' \) Steel Washers
- \( \frac{1}{4}'' \) Heavy Hex Nuts
- Threaded 3'' Min.

**CONNECTOR LOOP**

- \( \frac{3}{4}'' \phi \) steel rod.
- 7/8'' R.
- Approximate 1/2'' gap for barrier reinforcement.

**PLAN**

- 1'-6''
- 6''
- 1 1/4''
- 1 3/8'' x 2 1/2'' Steel Washers
- 1 1/4'' Heavy Hex Nuts

**ELEVATION**

- 4''
- 4''
- 55°

**DETAIL NO.** 1.0

**VERSION** 1.0

**DATE:** 10/21/2013

**STATE OF MARYLAND**

**DEPARTMENT OF TRANSPORTATION**

**STATE HIGHWAY ADMINISTRATION**

**OFFICE OF STRUCTURES**

**MAINTENANCE OF TRAFFIC**

**FAC E F-TYPE CONCRETE BARRIER**

**TEMPORARY PRECAST SINGLE**

**Epoxy coated open coil insert tapped for N.C. 1 1/4'' bolt min. working load tension 16,000#, shear strength 13,000#.**

- 1 1/4'' hex. head bolt with standard washer and 1 5/16'' x 3'' slotted hole in connection plate along length of barrier.

- \( \frac{1}{2}'' \times 3'' \) slotted holes in connection plate, perpendicular to face of barrier.

- 5 1/2'' x 5 1/2'' x 3/4'' Sq. washer with 1 5/16'' hole for existing deck. See notes on sheet 1 of 4 for attachment to new decks.

- \( \frac{1}{2}'' \phi \) bolt, hex. nut and standard washer 1 5/16'' hole in washer.
- Maximum 1/2'' hole diameter.

- \( \frac{3}{4}'' \phi \) rod.
- Approximate 1/2'' gap for barrier reinforcement.

- \( \frac{1}{2}'' \times 3'' \) x 6'' welded to \( \frac{1}{6}'' \times 6'' \times 6 1/2'' \) or create all from one plate.
GENERAL NOTES

Concrete: All concrete shall conform to Mix No. 6 (4500 psi).
Welded Steel Wire Fabric: All wire fabric shall be 6 x 6 - W2.9 x W2.9.
Reinforcing Steel: Reinforcing steel shall conform to ASTM A 615 Grade 60,
Structural Steel: All structural steel conform to ASTM A 709 Grade 36 or better.
Anchor Bolts: All anchor bolts shall be ASTM A 325 unless otherwise specified on details.
Connector Loop: 3/4" galvanized or stainless steel rod. Stainless steel rods shall conform to ASTM A 276 for the type specified, galvanizing shall conform to ASTM A 153.
Connector Pin: The 3/4" x 25" connector pin shall be a threaded rod or bolt conforming to ASTM A 307, Grade A. Nuts shall conform to ASTM A 563, Grade DH or DH3 or ASTM A 94, Grade 2H. Washers shall conform to ASTM F 436. The connector pin, nuts and washers shall be galvanized in conformance with ASTM A 153.
Other Connector Devices: Contractor may use any other connection devices between barrier sections in lieu of the pin and loop, provided they appear on S.H.A. standard plates and have written approval of Chief Engineer.

METHODS OF ANCHORAGE CONNECTION TO CONCRETE DECKS

EXISTING BRIDGE DECK TO BE REMOVED.
Holes for anchor bolts in existing bridge deck shall be drilled. Use 1/4" bolts with 5/2" x 5/2" x 3/4" square washer under existing deck slab, as shown. Bolts shall be of sufficient length that when nut is tight, all the threads of the nut are engaged. Provide Type 'A' plain washer SAE N (narrow) for each 1/4" bolt at connection plate.

EXISTING BRIDGE DECK TO REMAIN.
Holes for anchor bolts in existing bridge deck shall be cored. Use 1/4" bolts with 5/2" x 5/2" x 3/4" square washer under existing deck slab, as shown. Bolts shall be of sufficient length that when nut is tight, all the threads of the nut are engaged. Provide Type 'A' plain washer SAE N (narrow) for each 1/4" bolt at connection plate. The Contractor is alerted that as little damage as possible shall be done to the existing reinforcement steel. Therefore, the Contractor shall locate the reinforcement steel and space the bolts to miss the reinforcement steel, all as directed by the Engineer. Fill all cored holes with epoxy grout after barrier is removed. (See below for grout composition).

NEW BRIDGE DECK
1/4" bolt to be placed in an epoxy coated open coil anchor insert (cast in slab) having a minimum working load tension strength of 16 000 lb and shear strength of 13 000 lb with a minimum 7/2" length. Coil to be tapped for a 1/4" N.C. thread bolt. No insert shall be longer than slab depth minus 1". Provide Type 'A' plain washer SAE N (narrow) for each 1/4" bolt at connection plate. Fill all inserts with epoxy grout after barrier is removed. (See below for grout composition).

The option to use bolts in drilled holes in lieu of the coiled insert is no longer allowed.

GROUT COMPOSITION
Any areas of bridge decks, to remain in place, damaged as a result of anchoring temporary concrete barriers (anchor holes, etc.) shall be repaired to the satisfaction of the Engineer using an epoxy grout conforming to 902.11(d).
Notes:
1. One connector pin shall be furnished with each barrier. The cost of the connector pin shall be incidental to the item precast temporary concrete barrier.
2. All barriers shall have "T350" imprinted on top end of barrier. Imprint shall have a minimum depth of 1/4" and a minimum height of 2".

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES
TEMPORARY PRECAST DOUBLE FACE F-TYPE CONCRETE BARRIER
MOT-102
10/21/2013
**REINFORCING STEEL DETAILS**

**SECTION B-B**

**SECTION C-C**

**END VIEW**

Scale: $\frac{1}{2}'' = 1'-0''$

**REINFORCING STEEL DETAILS**

Scale: $\frac{1}{2}'' = 1'-0''$

**PLAN**

(Connector pin not shown)

**ELEVATION**

**JOINT DETAILS**

Scale: $\frac{1}{2}'' = 1'-0''$

**STATE OF MARYLAND**

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**TEMPORARY PRECAST DOUBLE FACE F-TYPE CONCRETE BARRIER**

**DETAIL NO.** MOT-102

**SHEET 3 OF 4**
**CONNECTION DETAIL**

**SCALE:** $\frac{1}{4}'' = 1'-0''$

- **1 3/8'' x 2 1/2'' Steel Washers**
- **1 1/4'' Heavy Hex. Nuts**
- **Threaded 1 1/2''**
- **Threaded 3'' Min.**

**CONNECTOR PIN**

**SCALE:** None

- **Epoxy coated open coil insert**, tapped for N.C. 1 1/4'' bolt min.
- **Working load tension 16,000#, shear strength 13,000#.**
- **1 1/4'' hex. head bolt with standard washer and 1 5/16'' x 3'' slotted hole in connection plate along length of barrier.**

**CONNECTOR LOOP**

**SCALE:** None

- **4 1/4'' x 3'' x 5 1/2'' x 6'' welded to 6'' x 6 1/2'' x 5/16'' or create all from one plate.**
- **1 5/16'' x 3'' slotted holes in connection plate, perpendicular to face of barrier.**
- **5 1/2'' x 5 1/2'' x 5/16'' Sq. washer with 1 5/16'' hole for existing deck. See notes on sheet 1 of 4 for attachment to new decks.**
- **1 3/4'' hole in washer.**
- **Maximum 1/2'' hole diameter.**

**APPROVAL**

**STATE OF MARYLAND**
**DEPARTMENT OF TRANSPORTATION**
**STATE HIGHWAY ADMINISTRATION**
**OFFICE OF STRUCTURES**

**DATE:** 10/21/2013

**VERSION**

**1.0**

**DETAIL NO.** MOT-102

**SHEET 4 OF 4**
Notes:
1. Existing structure shown in dashed lines.
2. This detail is only required where A dimension is 2'-6” or greater.
3. This detail can be used for maximum stringer spacing of 10' and maximum diaphragm spacing of 25'.
4. All structural steel to be ASTM A 709 Grade 36 or better.
5. All bolts to be 3/8” x ASTM A-325 and holes to be 3/8”.
6. Member sizes and connections shown are minimums, Engineer shall design.

All bolts to be 7/8” ASTM A-325 and holes to be drilled not burned.
Notes:
1. Type III Barricade shall conform to NCHRP Report 350 and the MUTCD except that all barricades to close structures shall be 12 ft. long by 6 ft. high.

2. Striping shall be reflectorized alternate orange and white colors. Right (R) barricade shown. (L) barricade shall have stripes sloping in opposite direction. If barricades are to be used close road, striping shall be reflectorized alternate white and red colors.

3. Barricade shall be lighted if required by location.

4. Type III Barricades shall be selected from the Preapproved List maintained by the Office of Materials and Technology. Procedures for adding products to the prequalified list may be obtained from the Office of Materials and Technology.

5. If signing is attached to the movable barricade, the signs shall be placed so that no more than 1/3 of the reflective surface of the barricade shall be covered.
ELEVATION - ROAD CLOSED, TRAFFIC DIRECTED TO LEFT

Scale: \( \frac{3}{16}'' = 1' - 0'' \)

ELEVATION - ROAD CLOSED, TRAFFIC DIRECTED TO RIGHT

Scale: \( \frac{3}{16}'' = 1' - 0'' \)

ELEVATION - ROAD CLOSED, TRAFFIC DIRECTED TO EITHER SIDE

Scale: \( \frac{3}{16}'' = 1' - 0'' \)

ELEVATION - ROAD CLOSED USING WHITE AND RED STRIPES

Scale: \( \frac{3}{16}'' = 1' - 0'' \)