DECK REPAIR TYPE 1

** Type 1 repair is to be rarely used.**

** DECK REPAIR TYPE 2 **

1. Deck repair type 2 or type 3 may be required within the area of a deck repair type 1.

** DECK REPAIR TYPE 3 **

1. 2. Deck repair type 3 may be required within the area of a deck repair type 2.

### DECK REPAIR TYPE 1 NOTES:

1. Bridge deck with a single layer of reinforcement and single row. No beams.
2. Deck repair type 2 or type 3 may be required within the area of a deck repair type 1.

### DECK REPAIR TYPE 2 NOTES:

1. Deck repair type 2 may be required within the area of a deck repair type 2.

### DECK REPAIR TYPE 3 NOTES:

1. Bridge deck with a single layer of reinforcement and single row. No beams.

### GENERAL NOTES:

- Provide materials and workmanship in accordance with BC-736M.
- Provide reinforcement bars conforming to the requirements of Section 1032 of Pub. 408.
- Provide lap splice lengths and embedment lengths in accordance with Section 1042.
- Clean all existing reinforcement bars to be retained with a pipe brush or wire brush. Treatment and cost with an approved bonding agent per District Engineering. Check the bonding agent with the engineer.
- Provide epoxy coated bars as required. Provide the transition entirely on the bridge approach slab.
- Use Type 2 or Type 3 repairs in most situations. Use Type 1 repairs in rare situations.
- Exercise caution not to damage metal forms (if present) and bridge beams. Remove deteriorated concrete.
- Deck repair type 1 is to be rarely used.
- Deck repair type 2 is used in most situations.

### COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION

**STANDARD REINFORCED CONCRETE REPAIR BRIDGE DECKS**

- Provide materials and workmanship in accordance with BC-736M.
- Provide reinforcement bars conforming to the requirements of Section 1032 of Pub. 408.
- Provide lap splice lengths and embedment lengths in accordance with Section 1042.
- Clean all existing reinforcement bars to be retained with a pipe brush or wire brush. Treatment and cost with an approved bonding agent per District Engineering. Check the bonding agent with the engineer.
- Provide epoxy coated bars as required. Provide the transition entirely on the bridge approach slab.
- Use Type 2 or Type 3 repairs in most situations. Use Type 1 repairs in rare situations.
- Exercise caution not to damage metal forms (if present) and bridge beams. Remove deteriorated concrete.
- **Deck repair type 1 is to be rarely used.**
- **Deck repair type 2 is used in most situations.**

### DECK REPAIRS AND LATEX MODIFIED CONCRETE OVERLAY

**DETAILS FOR LATEX MODIFIED CONCRETE OVERLAY**

**REFERENCE DRAWINGS**

- BC-736M
- BC-783M

### LEGEND

- **Change 1**
- **Change 2**

### COMMONWEALTH OF PENNSYLVANIA

**BUREAU OF PROJECT DELIVERY**

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**STANDARD REINFORCED CONCRETE REPAIR BRIDGE DECKS**

- Provide materials and workmanship in accordance with BC-736M.
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- Provide epoxy coated bars as required. Provide the transition entirely on the bridge approach slab.
- Use Type 2 or Type 3 repairs in most situations. Use Type 1 repairs in rare situations.
- Exercise caution not to damage metal forms (if present) and bridge beams. Remove deteriorated concrete.
- **Deck repair type 1 is to be rarely used.**
- **Deck repair type 2 is used in most situations.**

### COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION

**STANDARD REINFORCED CONCRETE REPAIR BRIDGE DECKS**

- Provide materials and workmanship in accordance with BC-736M.
- Provide reinforcement bars conforming to the requirements of Section 1032 of Pub. 408.
- Provide lap splice lengths and embedment lengths in accordance with Section 1042.
- Clean all existing reinforcement bars to be retained with a pipe brush or wire brush. Treatment and cost with an approved bonding agent per District Engineering. Check the bonding agent with the engineer.
- Provide epoxy coated bars as required. Provide the transition entirely on the bridge approach slab.
- Use Type 2 or Type 3 repairs in most situations. Use Type 1 repairs in rare situations.
- Exercise caution not to damage metal forms (if present) and bridge beams. Remove deteriorated concrete.
- **Deck repair type 1 is to be rarely used.**
- **Deck repair type 2 is used in most situations.**
CONCRETE REPAIR TYPE 2A NOTES:
1. Square off deteriorated concrete to sound concrete with a SAWCUT of 1" minimum but not to the depth of the reinforcement steel.
2. Remove all loose and delaminated concrete to provide a sound bond between existing concrete and new concrete.
3. If deteriorated concrete extends beyond the primary reinforcement, remove the concrete to at least 1" below the reinforcement.
4. Use an epoxy bonding compound between the existing and new concrete.
5. Wire mesh may be substituted for new reinforcement if determined to achieve a depth of 1" minimum.
6. Clean existing reinforcement by mechanical means.
7. New reinforcement may be epoxy coated.
8. Concrete repair type 2A are payable as concrete repairs type 2.

LEGEND
- Remove deteriorated concrete.

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DEPARTMENT OF TRANSPORTATION
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REINFORCED CONCRETE REPAIR TYPE 2A NOTES

1. Square off deteriorated concrete to sound concrete with a SAWCUT of 1" minimum but not to the depth of the reinforcement steel.
2. Remove all loose and delaminated concrete to provide a sound bond between existing concrete and new concrete.
3. If deteriorated concrete extends beyond the primary reinforcement, remove the concrete to at least 1" below the reinforcement.
4. Use an epoxy bonding compound between the existing and new concrete.
5. Wire mesh may be substituted for new reinforcement if determined to achieve a depth of 1" minimum.
6. Clean existing reinforcement by mechanical means.
7. New reinforcement may be epoxy coated.
8. Concrete repair type 2A are payable as concrete repairs type 2.
RECOMMENDED CONCRETE REPAIR
PRESTRESSED CONCRETE BEAM NOTES:
1. REMOVE ALL LOOSE AND DELAMINATED CONCRETE TO PROVIDE A SOUND BOND BETWEEN EXISTING CONCRETE AND REPAIR MATERIAL. LIMIT REMOVAL TO A MINIMUM OF 1/4" BEYOND THE VISIBLE DEFORMED CONCRETE TO EXPOSE SOUND CONCRETE.
2. REMOVE DELAMINATED CONCRETE UP TO AND ALONG THE PRESTRESSING STRANDS OR REINFORCEMENT. DO NOT REMOVE PRESTRESSING STRANDS DURING CONCRETE REMOVAL. USE SURFACE PREPARATION EQUIPMENT IN ACCORDANCE WITH SECTION 1040.3(c) OF PUBLICATION 408. SAW CUTS OR PNEUMATIC HAMMERS MUST NOT EXCEED A NOMINAL 11/2"-ROUND DIAMETER.
3. SQUARE OFF DETERIORATED CONCRETE TO SOUND CONCRETE WITH A SAW CUT OR GRINDER. DEPTH OF CUT IS A MINIMUM OF 1/4", BUT NOT TO EXCEED 5/8" OR THE DEPTH OF THE DETERIORATION, Whichever is shallower.
4. CLEAN ALL EXISTING REINFORCEMENT BKAS TO BE REMOVED AND PRESTRESSING BARS TO BE RETAINED. USE SURFACE PREPARATION EQUIPMENT IN ACCORDANCE WITH SECTION 1040.3(c) OF PUBLICATION 408. USE AUDIBLE VIBRATORS TO ENSURE A CLEAN SURFACE.
5. PROVIDE A SOUND CONCRETE SURFACE WITH EXPOSED AGGREGATE WITH A MINIMUM SURFACE PROFILES OF 1/8" OR AS REQUIRED BY REPAIR MATERIAL MANUFACTURER’S RECOMMENDATIONS.
6. DRILL AND INSERT 3/8" DIAMETER GALVANIZED STEEL EXPANSION ANCHOR PINS ON 4" CENTERS FOR REPAIR AREAS WITH DEPTHS GREATER THAN 6" DEEP WHEN PRESTRESSING BARS ARE NOT REQUIRED. PLACE EXPANSION ANCHORS IN A PLANE OR CLEAR SPACING BETWEEN PRESTRESSING STRANDS. USE SEPARATE BORING FOR EACH EXPANSION ANCHOR PINK.
7. APPLY MECHANICAL ANCHORAGE USING GALVANIZED 4"x4"-W8xW8 MIN. WELDED WIRE FABRIC TIED TO EXISTING REINFORCEMENT WHEN CORROSION IS GREATER THAN 3" IN Any Direction. PROVIDE 1" CLEAR DISTANCE TO LIMIT OF REMOVAL.
8. AREA TO BE REPAIRED MUST BE CLEAN, SAWN AND FREE OF CONTAMINANTS PRIOR TO APPLICATION OF BONDING AGENT. APPLY BONDING AGENT IN ACCORDANCE WITH PUBLICATION 408, SECTION 1001.3(P)4 AND SECTION 1001.3(P)5, AS REQUIRED.
9. REPAIR CRACKS IN EXISTING CONCRETE AFTER REMOVING DETERIORATED CONCRETE AND BEFORE CONSTRUCTING CONCRETE REPAIR. USE EPOXY INJECTION CRACK REPAIR IN THE VISIBLE DETERIORATED AREA TO EXPOSE SOUND CONCRETE. COAT EXISTING CONCRETE WITH APPROVED INJECTION MATERIALS.
10. APPLY AN APPROVED BONDING AGENT, AS LISTED IN BULLETIN 15, AS REQUIRED BY THE MANUFACTURER’S INSTRUCTIONS. EXPRESSLY STATE THAT A BONDING AGENT IS NOT REQUIRED.
11. APPLY A RAPID HARDENING CONCRETE PATCHING MATERIAL FROM A MANUFACTURER LISTED IN BULLETIN 15, AS REQUIRED BY MANUFACTURER’S INSTRUCTIONS. PROVIDE 1/8" MINIMUM BEYOND THE LIMIT OF REMOVAL TO ENSURE CORRECT PLACEMENT OF REPAIR MATERIAL.
12. APPLY REPAIR MATERIAL THAT HAS A COMPRESSIVE STRENGTH EQUAL TO OR GREATER THAN THAT OF THE ORIGINAL CONCRETE (IF KNOWN), BUT NOT LESS THAN 4,500 PSI AT 7 AND 28 DAYS, RESPECTIVELY.
13. CURE REPAIR MATERIAL IN ACCORDANCE WITH MANUFACTURER’S RECOMMENDATIONS FOR A MINIMUM 24 HOURS, ENSURE ADHESION IS PROPERLY ESTABLISHED ALONG THE REINFORCEMENT, WHICHEVER IS SMALLER.
14. PROVIDE REPAIR MATERIAL WITH MINIMUM 200 PSI BOND STRENGTH TO THE EXISTING CONCRETE AS TESTED IN ACCORDANCE WITH ASTM D4541 PULL-OFF TEST.
15. A CONCRETE BLISTER MAY BE USED FOR AREAS WITH EXISTING REINFORCEMENT HAVING CHAPMAN COVER OF 4" MINIMUM FOR CONCRETE PLACEMENT IN FORMS. REFER TO SECTION 4, SHEET 2. DO NOT REDUCE VERTICAL UNDERCLEARANCE WITHOUT DIRECT BUREAU OF PROJECT DELIVERY APPROVAL.
16. FOR ADJACENT BOX BEAMS, APPLY 1/2" JOINT MATERIAL BETWEEN BEAMS AND PUMP CONCRETE INTO FORM THROUGH VENTS AT BOTTOM PLACING BARS. PROVIDE 1" VENTS AT TOP OF BEAM VENTS.
17. APPLY AN APPROVED PENETRATING SEALER AFTER REPAIR MATERIAL HAS CURED IN ACCORDANCE WITH MANUFACTURER’S INSTRUCTIONS.
18. APPLY CONCRETE REPAIR TYPE 2 TO CONCRETE DIAPHRAGMS AS NEEDED. SEE SHEET 2 FOR REQUIREMENTS.
19. FOR GENERAL NOTES, SEE SHEET 1.

LEGEND
- REMOVE DETERIORATED CONCRETE.

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STANDARD
REINFORCED CONCRETE REPAIR
PRESTRESSED CONCRETE BEAM