



## SECTION 216

### REMOVALS FOR BRIDGE STRUCTURES

#### SECTION 216.10 REMOVAL OF BRIDGES

**216.10.1 Description.** This work shall consist of removing and disposing of existing bridge structures as shown on the plans or as directed by the engineer.

**216.10.2 Removal Requirements.** The entire structure, including all substructure units, shall be removed to an elevation 2 feet (600 mm) below the finished ground line or streambed. Any portion of an existing structure below the ground line that interferes with the construction of the new structure shall be removed. Existing structures used for handling temporary traffic shall not be removed until the replacement structure is open to traffic. Notification of demolition shall be made in accordance with Sec 202.40.1.1.

**216.10.3 Method of Measurement.** No measurement will be made for removal of bridges.

**216.10.4 Basis of Payment.** Removal of bridges will be paid for at the contract lump sum price.

#### SECTION 216.20 SCARIFICATION OF BRIDGE DECKS

**216.20.1 Description.** This work shall consist of scarifying the bridge deck to the depth shown on the plans or as directed by the engineer.

**216.20.2 Removal Requirements.** The bridge deck shall be uniformly scarified to the depth as shown on the plans. Excessive tearing of the deck surface shall require immediate correction. Over areas of half-sole repair and full depth repair, the scarified removal depth may be coincidental with the repair removal operation. The scarification shall produce a very rough texture that is acceptable to the engineer as a bondable surface for the new concrete wearing surface or as a starting profile for total surface hydro demolition. The scarifying process shall not produce a polished or slick surface. Any epoxy patches encountered shall be completely removed to sound, natural concrete.

**216.20.3 Method of Measurement.** Final measurement of scarification of bridge decks will not be made except for authorized changes during construction or where appreciable errors are found in the contract quantity. Where required, scarification of the bridge decks will be measured to the nearest square yard (m<sup>2</sup>) based on measurement longitudinally from end of slab to end of slab and transversely from roadway face of curb to roadway face of curb. The revision or correction will be computed and added to or deducted from the contract quantity.

**216.20.4 Basis of Payment.** Scarification of bridge decks will be paid for at the contract unit price.

#### SECTION 216.30 SEAL COAT AND WEARING SURFACE REMOVAL

**216.30.1 Description.** This work shall consist of the complete removal and disposal of the unbonded seal coat, bonded seal coat, asphalt wearing surface or concrete wearing surface from the bridge deck as shown on the plans or as directed by the engineer.

### **216.30.2 Removal Requirements.**

**216.30.2.1** All material and residue shall be removed. Staining will be permitted. The equipment and procedures used for removal shall be such that no damage will be done to the existing concrete deck. Any epoxy patches encountered shall be completely removed to sound, natural concrete. Excessive tearing of the deck surface shall require immediate correction.

**216.30.2.2** When a concrete wearing surface is to be installed, the removal of the wearing surface plus the amount of deck as shown on the plans shall produce a very rough texture that is acceptable to the engineer as a bondable surface for the new concrete wearing surface or as a starting profile for total surface hydro demolition. The removal process shall not produce a polished or slick surface.

**216.30.3 Method of Measurement.** Final measurement of the seal coat and wearing surface removal will not be made except for authorized changes during construction or where appreciable errors are found in the contract quantity. Where required, removal of bonded seal coat, asphalt wearing surface and concrete wearing surface will be measured to the nearest square foot (0.1 m<sup>2</sup>) based on measurement longitudinally from end of slab to end of slab and transversely from roadway face of curb to roadway face of curb. The revision or correction will be computed and added to or deducted from the contract quantity. No measurement will be made for removal of unbonded seal coat.

**216.30.4 Basis of Payment.** Seal coat and wearing surface removal will be paid for at the contract unit price, except that all costs incurred by the contractor while removing the unbonded seal coat will be considered completely covered in the contract unit price for other items.

### **SECTION 216.40 REMOVAL AND STORAGE OF EXISTING BRIDGE RAILS**

**216.40.1 Description.** This work shall consist of disassembling, removing, transporting and storing existing bridge rails at the location specified in the contract documents or as directed by the engineer.

**216.40.2 Storage Requirements.** Storage shall be by stacking in a neat and orderly manner on contractor furnished timbers. The contractor shall notify and make arrangements with the engineer a minimum of 24 hours prior to commencing the storage of these materials. The contractor shall be responsible for damage to or loss of any part, including necessary repair or replacement, until storage has been acceptably completed.

**216.40.3 Method of Measurement.** Final measurement of the removal and storage of existing bridge rails will not be made except for authorized changes during construction or where appreciable errors are found in the contract quantity. Where required, removal and storage of existing bridge rails will be measured to the nearest linear foot (0.5 m) from end of rail to end of rail. The revision or correction will be computed and added to or deducted from the contract quantity.

**216.40.4 Basis of Payment.** Removal and storage of existing bridge rails will be paid for at the contract unit price.

### **SECTION 216.50 REMOVAL OF EXISTING BRIDGE DECKS**

**216.50.1 Description.** This work shall consist of removing and disposing of existing bridge rails, curbs, slab, expansion devices and any other items necessary to reconstruct the bridge deck as shown on the plans or as directed by the engineer.

**216.50.2 Removal Requirements.**

**216.50.2.1** The existing bridge deck shall be removed by methods such that the girders, stringers or floor beams that are to remain in place are not damaged. Any damage to the girders, stringers and floor beams resulting from the contractor's operations shall be repaired or replaced as directed by the engineer, at the contractor's expense. Notification of demolition shall be made in accordance with Sec 202.40.1.1.

**216.50.2.2** The top surface and the sides of the top flanges of existing steel girders, stringers and floor beams exposed by removal of the bridge deck shall be cleaned with a minimum of SSPC-SP-3 surface preparation. The area shall be coated with one coat of gray epoxy-mastic primer (non-aluminum) in accordance with [Sec 1081](#) to produce a dry film thickness of no less than 3 mils (75 µm). The gray epoxy-mastic primer (non-aluminum) shall be compatible with concrete.

**216.50.3 Method of Measurement.** Final measurement of removal of the existing bridge decks will not be made except for authorized changes during construction or where appreciable errors are found in the contract quantity. Where required, removal of the existing bridge decks will be measured to the nearest square foot (0.1 m<sup>2</sup>) based on measurement longitudinally from end of slab to end of slab and transversely from out to out of the bridge deck. The revision or correction will be computed and added to or deducted from the contract quantity.

**216.50.4 Basis of Payment.** Removal of the existing bridge deck will be paid for at the contract unit price.

**SECTION 216.60 PARTIAL REMOVAL OF EXISTING BRIDGE DECKS**

**216.60.1 Description.** This work shall consist of removing and disposing of the existing curbs, rails, slab and any other items necessary to reconstruct the bridge deck as shown on the plans or as directed by the engineer.

**216.60.2 Removal Requirements.**

**216.60.2.1** Concrete shall be removed by conventional hand/mechanical equipment in accordance with [Sec 704](#). A removal line shall be established with the joint sawed to a depth of one inch (25 mm) with a vertical face. In no case shall existing reinforcement be cut or damaged by the sawing operation.

**216.60.2.2** The existing reinforcing steel shall be stripped, cleaned, straightened and extended into or utilized in the new concrete as shown on the plans. Care shall be taken to prevent damage to the reinforcement or the reinforcement bond to the concrete. If any reinforcement is damaged or deteriorated, the engineer shall be notified. Cut or broken bars or bars having 10 percent or more cross sectional area lost shall be spliced 24 diameters on each side of the damage.

**216.60.2.3** The existing bridge deck shall be removed by methods such that the girders, stringers and floor beams that are to remain in place are not damaged. Any damage to the girders, stringers and floor beams resulting from the contractor's operations shall be repaired or replaced as directed by the engineer at the contractor's expense.

**216.60.2.4** The top surface and the sides of the top flanges of existing steel girders, stringers and floor beams exposed by removal of the bridge deck shall be cleaned with a minimum of SSPC-SP-3 surface preparation. This area shall be coated with one coat of gray epoxy-mastic primer (non-aluminum) in accordance with [Sec 1081](#), to produce a dry film thickness of no less than 3 mils (75 µm). The gray epoxy-mastic primer (non-aluminum) shall be compatible with concrete.

**216.60.3 Method of Measurement.** Final measurement of the partial removal of existing bridge decks will not be made except for authorized changes during construction or where appreciable errors are found in the contract quantity. Where required, partial removal of existing bridge decks will be measured to the nearest square foot (0.1 m<sup>2</sup>) based on measurement longitudinally from end of slab to end of slab and transversely from outside edge of the existing slab to the line shown on bridge plans. The revision or correction will be computed and added to or deducted from the contract quantity.

**216.60.4 Basis of Payment.** Partial removal of existing bridge decks will be paid for at the contract unit price.

## **SECTION 216.70 PARTIAL REMOVAL OF CULVERT AND SUBSTRUCTURE CONCRETE**

**216.70.1 Description.** This work shall consist of removing and disposing of existing culvert wings and slab or substructure concrete as shown on the plans or as directed by the engineer.

**216.70.2 Material.** The qualified special mortar shall be in accordance with [Sec 704.2](#).

### **216.70.3 Removal Requirements.**

**216.70.3.1** Any excavation required during the removal of concrete shall be backfilled after the new concrete is poured and cured. Any part of the roadway that is removed or damaged and any part of the remaining structure damaged during the removal of the existing concrete shall be repaired or the material replaced, at the contractor's expense, as directed by the engineer.

**216.70.3.2** Concrete removal shall be in accordance with [Sec 216.60.2.1](#). The concrete to be removed will not be included in the excavation volume. Areas exposed by removal of concrete and not covered by new concrete shall be coated with a qualified special mortar.

**216.70.3.3** Existing reinforcing steel utilized in the new concrete shall be prepared in accordance with [Sec 216.60.2.2](#). Existing reinforcing steel not utilized in the new concrete shall be cut off one inch (25 mm) into the concrete. Any holes outside the limits of new concrete shall be filled with a qualified special mortar.

**216.70.4 Method of Measurement.** No measurement will be made for partial removal of culvert and substructure concrete.

**216.70.5 Basis of Payment.** Partial removal of culvert and substructure concrete will be paid for at the contract lump sum price.

## **SECTION 216.80 CURB REMOVAL**

**216.80.1 Description.** This work shall consist of removing and disposing of existing curbs, rails and end posts as shown on the plans or as directed by the engineer.

**216.80.2 Material.** Qualified special mortar shall be in accordance with [Sec 704.2](#).

### **216.80.3 Removal Requirements.**

**216.80.3.1** Concrete removal shall be in accordance with [Sec 216.60.2.1](#). Areas exposed by removal of concrete and not covered by new concrete shall be coated with a qualified special mortar.

**216.80.3.2** Existing reinforcing steel utilized in the new concrete shall be prepared in accordance with [Sec 216.60.2.2](#). Existing reinforcing steel not utilized in the new concrete and existing rail post bolts shall be cut off one inch (25 mm) into the concrete. Any holes outside the limits of new concrete shall be filled with a qualified special mortar.

**216.80.4 Method of Measurement.** Final measurement of curb removal will not be made except for authorized changes during construction or where appreciable errors are found in the contract quantity. Where required, curb removal will be measured to the nearest linear foot (0.5 m) based on measurement from end of curb to end of curb. The revision or correction will be computed and added to or deducted from the contract quantity.

**216.80.5 Basis of Payment.** Curb removal will be paid for at the contract unit price.

## **SECTION 216.90 REMOVAL OF EXISTING EXPANSION JOINTS AND ADJACENT CONCRETE**

**216.90.1 Description.** This work shall consist of any excavation, backfill, removal and disposal of the existing expansion joint system, curb plates and adjacent concrete as shown on the plans or as directed by the engineer.

**216.90.2 Material.** Qualified special mortar shall be in accordance with [Sec 704.2](#).

### **216.90.3 Removal Requirements.**

**216.90.3.1** Any excavation required during the removal of concrete shall be backfilled after the new concrete is poured and cured. Any part of the roadway that is removed or damaged and any part of the remaining structure that is damaged during the removal of the existing concrete shall be repaired or the material replaced as directed by the engineer at the contractor's expense.

**216.90.3.2** Concrete removal shall be in accordance with [Sec 216.60.2.1](#). The concrete to be removed will not be included in the excavation volume. Areas exposed by removal of concrete and not covered by new concrete shall be coated with a qualified special mortar.

**216.90.3.3** Existing reinforcing steel utilized in the new concrete shall be prepared in accordance with [Sec 216.60.2.2](#). Existing reinforcing steel not utilized in the new concrete shall be cut off one inch (25 mm) into the concrete. Any holes outside the limits of new concrete shall be filled with a qualified special mortar. Any reinforcement that interferes with the installation of the new expansion joint system shall be called to the attention of the engineer and may be shifted, cut or removed as directed by the engineer. Any reinforcing steel removed that was to remain in place shall be replaced with bars of like size and shape, Grade 60 (Grade 420), in accordance with [Sec 706](#) or [Sec 710](#) and spliced 24 bar diameters as directed by the engineer.

**216.90.4 Method of Measurement.** Final measurement of the removal of existing expansion joints and adjacent concrete will not be made except for authorized changes during construction or where appreciable errors are found in the contract quantity. Where required, removal of the existing expansion joint system and adjacent concrete will be measured to the

nearest linear foot (0.5 m) based on measurement from roadway face of curb to roadway face of curb along centerline of the existing joint. The revision or correction will be computed and added to or deducted from the contract quantity. Portions of the joint extending past the roadway face of curbs will not be measured for payment.

**216.90.5 Basis of Payment.** Removal of existing expansion joints and adjacent concrete will be paid for at the contract unit price for each of the items included in the contract.

## **SECTION 216.100 REMOVAL OF EXISTING EXPANSION JOINT SEAL OR SEALANT**

**216.100.1 Description.** This work shall consist of removing and disposing of existing expansion joint seals or sealant, curb plates and any partial removal of concrete as shown on the plans or as directed by the engineer.

**216.100.2 Material.** Qualified special mortar shall be in accordance with [Sec 704.2](#).

### **216.100.3 Removal Requirements.**

**216.100.3.1** Concrete removal shall be in accordance with [Sec 216.60.2.1](#). Areas exposed by removal of concrete and not covered by new concrete shall be coated with a qualified special mortar. Any damage to the remaining structure resulting from the contractor's operations shall be repaired or replaced, at the contractor's expense, as directed by the engineer.

**216.100.3.2** Existing reinforcing steel utilized in the new concrete shall be in accordance with [Sec 216.60.2.2](#). Existing reinforcing steel not utilized in the new concrete shall be cut off one inch (25 mm) into the concrete. Any holes outside the limits of new concrete shall be filled with a qualified special mortar. Any reinforcement that interferes with the installation of the new expansion joint seal or sealant shall be called to the attention of the engineer and may be shifted, cut or removed as directed by the engineer. Any reinforcing steel removed that is to remain in place shall be replaced with bars of like size and shape being Grade 60 (Grade 420).

**216.100.4 Method of Measurement.** Final measurement of removal of existing expansion joint seal or sealant will not be made except for authorized changes during construction or where appreciable errors are found in the contract quantity. Where required, removal of the existing expansion joint seal and sealant will be measured to the nearest linear foot (0.5 m) based on measurement from roadway face of curb to roadway face of curb along centerline of the existing joint. The revision or correction will be computed and added to or deducted from the contract quantity. Portions of the joint extending past the roadway face of curbs will not be measured for payment.

**216.100.5 Basis of Payment.** Removal of existing expansion joint seal or sealant will be paid for at the contract unit price.