



## Iowa Department of Transportation

### SPECIAL PROVISIONS FOR STAMPED COLORED PORTLAND CEMENT CONCRETE SIDEWALK

Black Hawk County  
STPN-218-7(218)—2J-07

Effective Date  
March 20, 2012

**THE STANDARD SPECIFICATIONS, SERIES 2009, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.**

#### **090187.01 GENERAL.**

- 1.1 Summary: This work includes the construction of stamped colored PCC sidewalk as shown on the plans. The work shall include all labor, materials, equipment, and transportation required to install and stamp the colored PCC sidewalk. For the coloring materials used, all limitations and recommendations specified by the manufacturer shall be used and adhered to.
- 1.2 Color shall be dark red concrete. Color samples shall be supplied to the Engineer and approved by Engineer prior to use.
- 1.3 Finishing. All surfaces shall be broomed to provide a textured, non-skid surface when completed.
- 1.4 Concrete shall be Class C concrete. Methods of placement and furnishing shall meet requirements of Section 2301, except that hand methods may be used.
- 1.5 Joints in the sidewalk shall match joints in abutting sidewalk.
- 1.6 Concrete color admixture shall be added at the batch plant. All sidewalk on one side of U.S. 218 shall be placed from one batch of concrete.
- 1.7 Thoroughly clean mixer drum to assure absence of contaminates which may affect consistency of color.
- 1.8 Stamp pattern shall be a brick paver style. Available stamp patterns shall be supplied to the Engineer and approved by the Engineer prior to use.

#### **090187.02 QUALITY ASSURANCE.**

- 2.1 Design Criteria: The concrete mix used with pigment added shall meet the requirements of the

manufacturer's recommendations. The aggregate, cement, and integral color shall be from the same source throughout the entire project. The material sources and mix proportions used during the project shall be accurately recorded and furnished to the Engineer at the completion of the project.

2.2 Pigment Requirements: Pigment shall comply with ASTM C 979. Color pigments shall be light fast, wettable, weather resistant, alkali resistant, and free of deleterious fillers and extenders.

### **090187.03 CURING.**

3.1 Fresh stamped concrete shall be protected from premature drying and moisture loss for a total of 7 days using methods that follow the manufacturer's recommendations.

3.2 During periods of high temperatures (above 80°F) low humidity and high winds, Contractor shall provide protection to prevent excessive drying of stamped concrete during placement and curing in accordance with ACI 305R.

3.3 During finishing operation, evaporation-retarding agent may be applied in accordance with manufacturer's recommendations to prevent plastic shrinkage cracking; depending on condition, application of evaporation-retarding agent may be required more than one time during stamped concrete finishing operation. Under no circumstance shall any portion of the evaporation-retarding agent be finished into the concrete surface.

### **090187.04 INTEGRAL (FULL DEPTH) COLOR.**

#### **4.1 Product Description.**

An admixture of special pigments designed to color, beautify, strengthen, and improve the workability of concrete.

#### **4.2 Mix Design.**

The Contractor shall use the lowest slump concrete for the placement and finishing methods being used. Water additions shall be kept to a minimum and total water added to the mix shall be kept as consistent as possible for all concrete. Calcium chloride shall not be allowed.

#### **4.3 Batching and Mixing.**

Mix half of the cement, coarse aggregate, fine aggregate, and water. With mixer running, add the color and mix for at least a minute before adding the balance of the materials. Ensure mixing is between 70 and 90 revolutions. If the pigment is batched from large bags, always use a whole number of bags per truck. Do not batch partial bags. Using a partial bag of color pigments can cause changes in the concrete color. Monitor slump closely during batching. Slump variations often indicate that water content has changed. Changes in water content cause color variations.

#### **4.4 Finishing and Curing Flatwork.**

Do not start finishing stamped colored concrete until the bleed water has evaporated. Finishing too early causes discoloration and a weak, non-durable surface. Use mechanical float or trowel, if possible. The one-way motion of the blades creates a more uniform colored surface than the back and forth motion used in hand finishing. Move edgers in one direction only to produce a more uniform color. Time the pour to avoid having sunlit and shaded area.

#### **4.5 Stamping Concrete.**

Apply pattern according to tool manufacturer's instructions. While concrete is plastic, accurately align mats in sequence and uniformly press into concrete to produce imprint pattern, texture, and depth of imprint as recommended by manufacturer. Touch-up pattern and finish edges with hand tools as necessary.

**090187.05 CLEAR SEAL.**

5.1 Product Description.

A solvent-based concrete sealer formulated with acrylic resins designed for deep penetration shall be used. The sealer shall be approved by the Engineer and shall be compatible with the coloring agent, concrete, and release agent. The sealer shall be resistant to salt-spray, acids, alkali, water, ultraviolet rays, and wet and dry abrasion and shall not fade, discolor, or yellow the color in any fashion.

5.2 Application.

Preparation: Concrete must be at least ten days old. All old paint, oil, and grease must be removed. Most concrete must be etched as a porous surface is required. Etching should be done with a 6 part water to a 1 part Muratic Acid Solution. Extremely hard or polished concrete may require a second application with a stronger solution. Rinse surface thoroughly with plenty of clean water and let dry completely. Spray Application: Use an airless sprayer with a medium tip size and very low pressure. If conditions are windy or extremely hot, adjust technique to avoid "dry spraying" the surface. A second coat should be sprayed after the first coat is dry.

**090187.06 METHOD OF MEASUREMENT.**

The quantity of stamped colored PCC sidewalk constructed with be computed in square yards by the Engineer from measurements of the finished surface. Deductions will not be made for fixtures.

**090187.07 BASIS OF PAYMENT.**

For the area of stamped colored PCC sidewalk, the Contractor will be paid the contract unit price per square yard. This payment shall be full compensation for all equipment, tools, and labor to construct stamped colored PCC sidewalk as specified in the contract documents.