**SECTION 02771**

# CURBS, GUTTERS, DRIVEWAYS, PEDESTRIAN ACCESS RAMPS, AND PLOWABLE END SECTIONS

## PART 1 GENERAL

### 1.1 SECTION INCLUDES

A. Materials and procedures for constructing curbs, gutter transitions, driveways, pedestrian access ramps, and plowable end sections.

### 1.2 RELATED SECTIONS

A. Section 02061: Select Aggregate

B. Section 02324: Compaction

C. Section 02330: Embankment

D. Section 02776: Concrete Sidewalk, Median Filler, and Flatwork

E. Section 03055: Portland Cement Concrete

F. Section 03152: Concrete Joint Control

G. Section 03211: Reinforcing Steel and Welded Wire

H. Section 03310: Structural Concrete

I. Section 03390: Concrete Curing

J. Section 05120: Structural Steel

### 1.3 ACCEPTANCE

A. Curbs, gutters, driveways, disabled pedestrian ramps and plowable end sections may be accepted at a reduced price when the concrete strength is below that specified.
   1. Price adjustment pay factor following Section 03055.

## PART 2 PRODUCTS

### 2.1 PORTLAND CEMENT CONCRETE

A. Class AA(AE). Refer to Section 03055.

### 2.2 EXPANSION JOINT FILLER

A. Preformed material. Refer to Section 03152.

### 2.3 UNTREATED BASE COURSE

A. Refer to Section 02061.

### 2.4 STEEL

A. Reinforcing: Refer to Section 03211. Deformed billet-steel reinforcing bars as specified.

B. Structural: Refer to Section 05120. As specified or as indicated on the plans.

### 2.5 DETECTABLE WARNING SURFACE

A. Detectable Warning Surface – In-line truncated dome pattern that meets the requirements of GW series Standard Drawings. Provide a color that contrasts visually with the adjoining surfaces (either light-on-dark or dark-on-light). Acceptable products for installation are as follows:

1. Polymer Composite Panel – Polymer Composite, homogenous integral color (UV stable), skid resistant, non-glare finished panel. Use for new construction or retrofit construction.
2. Precast Concrete Panel – High strength concrete with high tensile stainless steel tendons, homogeneous integral color (UV stable), skid resistant panel. Use for new construction, or retrofit construction.

## PART 3 EXECUTION

### 3.1 PREPARATION

A. Construct subgrade to plan elevations following Section 02330.

B. Place and compact fill material and untreated base course. Follow Section 02324.

C. May use a slip form curb and gutter machine.

D. Dampen the untreated base course before placing concrete.

E. Curbs and Gutters: Refer to GW series Standard Drawings.

F. Pedestrian Access Ramp: Refer to GW series Standard Drawings.

G. Plowable End Section: Refer to GW series Standard Drawings.

H. Forms: Refer to Section 02776.

## 3.2 PLACING CONCRETE

A. Furnish materials and construct structural concrete following Section 03310.
   1. Do not use mechanical vibrators.
   2. Hand tamp forms to eliminate honeycomb.
   3. Deposit concrete continuously when using a slip form machine.
   4. Use dowels as shown on the plans when placing curb on existing pavement.

## 3.3 FINISHING CONCRETE

A. Round edges to a ½ inch radius.

B. Use a float to finish the top and front face of the curb and the top of the gutter.

C. Finish the traveled portion of the driveway with a broom finish.

D. Remove form marks or irregularities from finish surfaces.

## 3.4 JOINTS

A. Place joints perpendicular to the subgrade and as shown.

B. Contraction joints:
   1. 1/8 inch to 3/16 thick steel plates.
   2. Space the joints every 10 ft.
   3. Remove the templates as soon as the concrete takes an initial set.
   4. Cut joint 1½ inches deep when using slip form method to place the concrete.

C. Expansion Joints:
   1. Place expansion joint every 30 ft.
   2. Expansion joint not required when using slip form method to place concrete, except at adjacent pavement, curb radius, sidewalk, or structures.
   3. ½ inch thick premolded expansion joint filler.
   4. Place joint filler between the curb and gutter and sidewalk, or structures.

## 3.5 CONCRETE CURING AND PROTECTION

A. Cure the surface. Refer to Section 03390.

B. After curing, seal the surface. Refer to Section 03390.

## 3.6 DETECTABLE WARNING SURFACE

A. Polymer Composite Panel Installation:
   1. Install cast-in-place detectable warning panel directly into the finished plastic concrete surface in accordance with manufacturer recommendations. Provide a smooth transition between the panel and the surrounding concrete surface.
   2. Install surface applied detectable warning panel directly on existing concrete surface in accordance with manufacturers recommendations and installation procedures. Use mechanical fasteners to secure the panel to the existing surface. Caulk a smooth transition bead along beveled panel edge and surrounding concrete surface.

B. Precast Concrete Panel Installation:
   1. Place as shown on drawings. Install per manufacturer recommendations for cast-in-place or thin set method. Provide a smooth transition between the panel and the surrounding concrete surface.

END OF SECTION