

**DIVISION 12****CONCRETE CURB AND GUTTER AND SIDEWALK****Section 12.01 GENERAL:**

This section covers installation of curb and gutter, sidewalk, cross gutter, drive approaches handicap ramps and curb returns. All improvements shall be constructed to the dimensions and thickness shown on the Standard Drawings.

**Section 12.02 CONCRETE:**

Concrete shall be Class AA(AE) and shall meet all of the requirements of Division 8, Portland Cement Concrete. Under no condition shall the water cement ratio exceed 0.53.

**Section 12.03 GRADE:**

After construction, gutters shall be checked by flowing water. The Public Works Representative/Public Works Representative/Engineer shall be present during the flow test. Removing concrete and replacing to the correct grade shall repair any high spots or depressions (which exceed 0.02 feet). (Minimum flow line grade shall be 0.5 percent.)

**Section 12.04 FORMS:**

All forms shall be steel, except at curves with a radius smaller than 200 feet. They shall be of a size to match the sections shown on the Drawings. Forms shall be held firmly in place with stakes or other approved means and shall be true to line and grade.

All forms shall be clean and coated with a light oil to prevent the concrete from adhering to them. Clamps, spreaders and braces shall be used where required to insure rigidity in the forms.

Forms shall not vary from vertical grade by more than 0.02 feet and from horizontal alignment by more than 0.05 feet. All forms shall have smooth even lines in both the horizontal and vertical plane.

Forms for curved sections shall be so constructed and placed that the finish surface of walls and edge of sidewalks, curbs and gutters will not deviate from the arc of the curve.

**Section 12.05 SUBGRADE PREPARATION:**

The developer/Developer/Contractor shall grade to the line and grade approved by the City. No concrete shall be placed without approved cut sheets. The sub-grade shall be properly shaped to conform with the cross section shown on the Standard Drawings, graded and compacted. Compaction shall meet the requirements of Division 7 Earthwork.

All excess material excavated by the Developer/Developer/Contractor shall be removed from the site. Removal of the excavated material shall be done before or immediately after the concrete is placed. The Developer/Developer/Contractor shall maintain adequate barricades and other devices to protect the public until excavated material is removed.

Placement of concrete on unsuitable materials shall not be permitted. The subgrade surface shall have a 4-inch roadbase foundation as shown on the Standard Drawings. Immediately prior to the placing of concrete, the subgrade shall be compacted using a mechanical foot compactor, with compaction being at least ninety-six percent (96%) density.

**Section 12.06 CONSTRUCTION OF CURB, GUTTER AND SIDEWALK:**

Curb and gutter to be installed with bituminous asphalt cement pavement shall have contraction joints placed every 10 feet by use of 1/8-inch steel template of the exact cross section of the curb and gutter. Remove the templates as the concrete takes initial set. Cut the joint 1-1/2 inches deep when using the slip form method to place the concrete. Use 1/2-inch thick, pre-molded, expansion joint filler at curb and gutter radii, where the curb and gutter abuts a solid object and at intervals not to exceed 50 feet, unless otherwise specified by the Public Works Representative/Engineer.

Joints in sidewalk, when placed separately and adjacent to the curb shall match the contraction and expansion joints in the curb and gutter as well as where the sidewalk abuts a solid object. Sidewalks not placed adjacent the curb shall have contraction joints set at an interval equal to the width of the sidewalk but not to exceed 10-feet. The joints shall be approximately 3/16 inch wide and approximately one-half of the total slab thickness in depth. Expansion joints shall be 1/2-inch thick, shall be placed every 50 feet, adjoins existing sidewalks, or abuts a solid object.

Material for 1/2-inch expansion joints shall be as specified in AASHTO M-153 and AASHTO M-213, and shall be installed with its top approximately 1/4-inch below the concrete surface.

After the concrete placed for a sidewalk has been brought to the established grade and screeded, it shall be float finished, edged and then given a light broom finish. In no case shall dry cement or a mixture of dry cement and sand be sprinkled on the surface to absorb moisture or hasten hardening. Surface edges of all slabs shall be rounded to a radius of 1/2 inch.

After concrete has been placed in curb and gutter forms, it shall be consolidated so as to insure a thorough mixture, eliminate air pockets, and create uniform, smooth sides. As the concrete takes its initial set the forms shall be removed and all exposed surfaces shall be float finished, edged and broomed lightly. The curb and gutter shall be constructed to the dimensions shown in the Standard Drawings.

The top and face of the curb and also the top of the apron on combination curb and gutter must be finished true to line and grade and without any noticeable irregularities of surface. No portion of the surface or face of the curb and gutter shall depart more than 1/4 inch from a straight edge ten feet in length, placed on the curb parallel to the street center line nor shall any part of the exposed surface present a wavy appearance.

**Section 12.07 CONCRETE CURB WALL:**

Concrete curb wall shall be Class AA(AE) and shall meet all of the requirements of Division 8, Portland Cement Concrete.

Reinforcing steel shall meet the requirements of Division 9, Reinforcing Steel.

Excavation for and backfill around the curb walls shall meet all the requirements of Division 7, Earthwork.

The curb walls shall be constructed to the dimensions and grades shown on the Standard Drawings or improvement drawings or as determined by the Public Works Representative/Engineer.

**Section 12.08 6-INCH CONCRETE DRIVE APPROACH:**

The concrete to be used for the drive approach shall be Class AA(AE) and shall meet the requirements of Division 8, Portland Cement Concrete.

When the location of a residential driveway is known, it shall be a minimum of six (6) inches thick. On commercial sites the drive approach shall be a minimum of six (6) inches thick. They shall be constructed to the dimensions shown on the Standard Drawings. The concrete shall be finished as described above for sidewalks.

The driveways shall have a compacted 4-inch untreated base course under them.

**Section 12.09 AMERICAN DISABILITIES ACCESSIBILITY STANDARDS IN PUBLIC STREET RIGHT-OF-WAYS:**

This section sets guidelines for accessibility to places of public accommodation and commercial facilities by individuals with disabilities. These guidelines are to be applied during the design, construction, and alteration of street construction or public buildings. The construction of curb ramps and drive approaches shall conform to the Standard Drawings.

**Sub-section A. Curb Ramp Location:**

Curb ramps complying with Section 12.05 shall be provided wherever an accessible route crosses a curb.

**Sub-section B. Curb Ramp Slope:**

Slope of curb ramps shall be the least possible slope. The maximum slope of a ramp in new construction shall be 1:12. The maximum rise for any run shall be thirty (30) inches. Transitions from ramps to walks, gutters, or streets shall be flush and free of abrupt changes. Maximum slopes of adjoining gutters, road surface immediately adjacent to the curb ramp, or accessible route shall not exceed 1:20.

**Sub-section C. Curb Ramp Width:**

The minimum width of a curb ramp shall be thirty-six (36) inches, exclusive of flared sides.

**Sub-section D. Curb Ramp Surface:**

Surface of curb ramps shall be stable, firm, and slip resistant.

**Sub-section E. Sides of Curb Ramps:**

If a curb ramp is located where pedestrians must walk across the ramp, or where it is not protected by hand rails or guardrails, it shall have flared sides: the maximum slope of the flare shall be 1:12 (see Standard Drawings). Curb ramps with returned curbs may be used where pedestrians would not normally walk across the ramp.

**Sub-section E. Built up Curb Ramps:**

Built-up curb ramps shall be located so that they do not project into vehicular traffic lanes.

**Sub-section G. Obstructions:**

Curb ramps shall be located or protected to prevent their obstruction by parked vehicles.

**Sub-section H. Location of Marked Crossings:**

Curb ramps at marked crossings shall be wholly contained within the markings, excluding any flared sides.

**Sub-section I. Diagonal Curb Ramps:**

If diagonal (or corner type) curb ramps have returned curbs or other well defined edges, such edges shall be parallel to the direction of pedestrian flow. The bottom of diagonal curb ramps shall have a forty-eight (48) inch minimum clear space. If diagonal curb ramps are provided at marked crossings, the forty-eight (48) inch clear space shall be within the markings. If diagonal curb ramps have flared sides, they shall also have at least a twenty-four (24) inch long segment of straight curb located on each side of the curb ramp and within the marked crossing.

**Sub-section J. Islands:**

Any raised islands in crossing shall be cut through level with the street or have curb ramps at both sides and a level area at least forty-eight (48) inches long between the curb ramp in the part of the island intersected by the crossing.

**Section 12.10 LANDSCAPE RESTORATION:**

Areas of new construction that cover or disturb existing landscaped areas with fills and cuts or areas disturbed by construction of retaining walls shall have the landscape restored. Areas that have lawn or flower beds shall be restored including sprinkling systems that might be damaged or relocated because of construction. Lawn covered or removed shall be replaced by sod.

The topsoil shall be fertile, sandy loam topsoil, obtained from well-drained areas. It shall be without admixture of subsoil or slag and shall be free of stones, lumps, sticks, plants or their roots, toxic substances or other extraneous matter that may be harmful to plant growth and would interfere with future maintenance. Topsoil pH range shall be 5.3 to 6.0.