

## **SECTION 14 – CONCRETE IMPROVEMENTS**

### **14-1 GENERAL**

Portland cement concrete curb, gutter, sidewalk, driveway approaches, alley approaches and valley gutters shall be constructed complete and in place in accordance with Section 73 of the State Standard Specifications, Plans, standard details and as hereinafter specified. The bid item shall also include the necessary base material.

### **14-2 PORTLAND CEMENT CONCRETE**

Portland Cement Concrete shall be 6 sack Class A concrete in conformance with Section 90 of the State Standard Specifications with a maximum slump of four (4) inches. When the concrete is extruded, 5 1/4 sack concrete may be used.

### **14-3 READY-MIXED CONCRETE**

Ready-mixed concrete shall conform to Section 90 of the State Standard Specifications.

### **14-4 CONSTRUCTION**

Concrete curbs and sidewalks shall conform to the provisions in Section 73 of the State Standard Specifications and these Standard Specifications.

The sub-grade shall be constructed true to grade and cross-section, as shown on the plans or directed by the Engineer. It shall be thoroughly watered and rolled or hand tamped to obtain a relative compaction under the curb and gutter of 95% and the sub-grade under sidewalks shall have a relative compaction of 90% as determined by ASTM 1557.

All soft and spongy material shall be removed to a depth of not less than six inches below sub-grade elevation for curbs, gutters, local depressions and driveways and three inches below for sidewalks and the resulting space filled with earth, sand or gravel then moistened and rolled or tamped to form a firm and solid foundation.

Expansion joints for curb and gutter shall be constructed a minimum of every 90 feet and at the ends of curb returns with weakened plane joints placed every 15 feet.

Expansion joints for sidewalks shall be constructed a minimum of every 45 feet and at the ends of curb returns with weakened plane joints placed every 15 feet.

Expansion joints shall be tooled with a 1/4" maximum radius edger. Weakened plane joints may be made by the use of plastic materials. Plastic weakened plane joint material shall be at least one inch deep, T-shaped 1/16" thick plastic strip, with a minimum 3/4" wide Pull-Top stiffener. This plastic strip shall have suitable anchor to prevent vertical movement. After preliminary troweling, the concrete shall be parted to a depth of approximately 2" with a joint thin metal straight edge. The plastic strip shall then be inserted in the impression so that the upper surface of the pull-top stiffener is

flush with the concrete and pull-top stiffener is immediately peeled off. After the pull-top is removed the concrete shall be floated to fill all voids adjacent to the strip.

During final troweling, the edges at plastic control joints shall be finished to a radius not to exceed 1/8" using a slit jointer tool. The finished joint opening shall not be wider than 1/8" exclusive of radii.

Extruded curb and curb and gutter construction if used shall be in accordance with Section 73 of the State Standard Specifications.

Concrete removal shall conform to the provisions in Section 15 of the State Standard Specifications and these provisions. Where a portion on an existing concrete facility is to be removed, it shall be cut to a minimum depth of 1 1/2 inches with an abrasive type saw at the first scoring line at or outside the planned joint and removed without damage to any portion that is to remain in place. If curbs and gutters cannot be cut off square and neat, the entire curb and gutter shall be removed to the nearest weakened plane or expansion joint. No patching at expansion joints will be permitted.

Adhesives shall not be used in place of dowels.

Park strips along residential streets shall be filled with clean top soil level with the top of curb and sidewalk-and only grass or low growing ground covers may be planted therein, with the following exception: paving brick or paving tile may be placed between the sidewalk and curb. The installation of exposed aggregate concrete, gravel, wooden dividers and asphalt paving within the sidewalk area is prohibited.

If paving brick or paving tile is approved for use in the planter strip, it shall be imbedded over three (3) inches of Portland Cement Concrete, and shall have a surface which is sufficiently abrasive to insure pedestrian safety and convenience. City approval will be limited to the use of brick or tile with standard colors, standard shapes and sizes, to enable future repair and replacement in kind.

Applicants shall furnish the Department of Public Works a sample of the proposed brick or tile for consideration, approval or disapproval. Cement mortar shall consist of 2 parts of washed masonry sand, free of organic material, mixed with 1 part of Portland cement, regular or plastic. About 1/4 part of lime or fire clay may be added, if desired, to improve Workability of the plastic mortar.

All commercial sidewalks shall have provision for trees by the construction of tree wells in accordance with the standard details unless waived by the Engineer in writing.

#### **14-5 DRIVEWAYS**

No driveway approach shall be smaller than 9 feet (12 feet on new construction) or wider than 35 feet measured at the property line. Driveways shall not be closer than 3 feet to the outer most portion of street fixtures (i.e. fire hydrants, electroliers) or to an adjacent property line. Driveways shall be a minimum of 8 feet from a street property line. Not greater than 60% of any frontage shall be constructed with driveway openings measured along the property line.

#### **14-6 FINISH**

1. Curbs - Trowel smooth and finish with a light brush.
2. Sidewalks - Medium sweat finish.
3. Gutters & Valley Gutters - Finish with a medium broom or rubber float.
4. Driveway Approaches - Finish with a medium broom or rubber float, except wings shall be finished with a light broom.

#### **14-7 CURING**

An approved curing compound shall be applied on all surfaces in accordance with Section 90 of the State Standard Specifications. The cost of the curing compound shall be included in the various bid items.

#### **14-8 BACKFILLING**

After removal of forms, the area between the sidewalk and curb shall be cleaned of all surplus concrete and other debris and the area filled with clean earth suitable for planting. No street Work shall start before backfill is placed behind all curbs.

The Contractor shall repair all excavations for gutters and shall backfill and pave with similar surfacing material thoroughly tamped into place and leveled off to meet the existing street surface and the gutter.

If more than 2" cut or fill is required, the Contractor shall construct a slope not steeper than 10:1.

#### **14-9 PROTECTING CONCRETE**

Construction of concrete subject to rain or freezing weather conditions shall be constructed in accordance with Section 90 of the State Standard Specifications.

#### **14-10 ROCK POCKETS**

Immediately upon stripping curb forms and prior to backfill all rock pockets or honeycombs shall be repaired to the satisfaction of the Engineer.

#### **14-11 CLEANING UP**

During the progress of the Work as may be directed by the Engineer and before acceptance and final payment, the Contractor shall remove all surplus earth and other surplus material from the site of the Work and then complete the cleanup by sweeping or washing the street or Work area and leave the whole in a neat and finished condition within two weeks after the concrete Work has been completed.

#### **14-12 PAYMENT**

Payments shall be as specified in the General Conditions.