

ITEM 609 CURBING, CONCRETE MEDIANS, AND TRAFFIC ISLANDS**609.01 Description****609.02 Materials****609.03 Stone Curb****609.04 Cast-in-Place Concrete Curb and Combination Curb and Gutter****609.05 Asphalt Concrete Curb****609.06 Concrete Median and Traffic Island****609.07 Method of Measurement****609.08 Basis of Payment**

609.01 Description. This work consists of furnishing and constructing curb, combination curb and gutter, medians, and traffic islands. This work also consists of excavating, backfilling, furnishing and installing joint materials, and disposing of surplus excavation and discarded materials according to Item 203.

609.02 Materials. Furnish materials conforming to:

Concrete, Class C.....	499
Expansion joint material	705.03
Aggregate base.....	304, 703.04
Preformed filler.....	705.03
Tie bar steel, epoxy coated	709.00, 709.01, 709.03, 709.05
Coated dowel bars.....	709.13

For 609.03 Stone Curb furnish the best quality of Berea or Amherst gray sandstone, or sandstone of equal quality.

Furnish asphalt concrete curb conforming to a 448 intermediate course, designed for medium traffic, using a PG 64-22 Set the fine aggregate content at the maximum allowed under 448 intermediate. Provided the Contractor meets the composition requirements, the Contractor may add mineral filler conforming to 703.07. Add the mineral filler using a method approved by the Laboratory. Provide asphalt concrete meeting the mix composition requirements of Item 448, with the fine aggregate content set at the maximum permitted under the applicable composition tables. Use the same type of mix as specified for the surface course on the project. Furnish Granite Curb with straight face per Supplemental Specification 1552 to match existing granite curbs, produced in random lengths of not less than 36 inches (900mm) from granite complying with ASTM C615. Ensure the curb face is sawed and flamed, with a sawed and flamed top. Include all labor, materials, equipment and incidentals necessary for construction in the unit cost of Item 609 Granite Curb.

609.03 Stone Curb.

A. Cutting and Dressing. Ensure that 95 percent of all straight curb pieces are at least 5 feet (1.5 m) long, with no pieces less than 42 inches (1.1 m). The Contractor may use a piece as short as 30 inches (0.8 m) for closure. For curves with a radius of 50 feet (15 m) or greater, the Contractor may use radially jointed straight curb pieces between 36 and 42 inches (0.9 and 1.1 m) long. For curves and corners with a radius of less than 50 feet (15 m), use pieces a minimum of 36 inches (0.9 m) long, and dress, joint, and set pieces to the radii specified. For all curves and corners, use curb sections that are approximately uniform in length.

609.04

Dress all curb to a straight edge on top and on the exposed face and ends to a depth of at least 6 inches (150 mm) below the gutter elevation. Dress the ends at right angles to the face for straight curb and radially for curb on curves. Do not allow slack or hollow joints. Do not leave any projections after dressing the ends of any curb section that exceed 1/8 inch (3 mm) from the plane of the end of that section. Cut the edge next to the gutter to a 3-inch (75 mm) radius and dress the top to a 1/4-inch (6 mm) bevel rising from the exposed face. Use a pitching tool on the edge at the back to hand dress curb to the specified width.

B. Setting. Set the curb on a thoroughly compacted subgrade and with a 1 in 20 batter from the vertical backward from the gutter. If the subgrade consists of clay soils or soils of a character that do not allow free drainage, place a minimum 3-inch (75 mm) thick firm bed of porous material as a foundation for the curb. Use a heavy rammer to settle the curb into place. Place and compact a minimum 4-inch (100 mm) wide porous backfill behind the curb to within 6 inches (150 mm) of the top. Bring the balance of the backfill to the level of the top of the curb for a distance of 2 feet (0.6 m) behind the curb with soil or other acceptable material. Thoroughly tamp the backing in layers not exceeding 6 inches (150 mm) in thickness, loose measurement, with an approved tamper or rammer. Perform as much of the backfilling and tamping as is consistent with alignment of the curb at the time the stone is first set. Set circular curb in plastic concrete 6 inches (150 mm) thick as shown on the plans. Extend concrete the width of the curb plus 6 inches (150 mm) behind the curb, and bring concrete up behind the curb to within 4 inches (100 mm) of the top.

C. Joints. Set curbs such that below the dressed portions the space between ends of adjacent sections of curbing is not less than 1/8 inch (3 mm) at any point and not more than 4 inches (100 mm). Cushion the joints between the dressed portions of adjacent sections of curbing with 1/8-inch (3 mm) thick expansion joint material. Trim expansion joint material flush with the curbing on all edges.

If placing sandstone curb after placing pavement, fill remaining joints with dry sand to within 2 inches (50 mm) of the surface of the pavement, and fill to the pavement surface with asphalt concrete. Take care in filling this joint so that no asphalt concrete comes in contact with the exposed surface of the curb.

D. Reusing Existing as New Curb. If specifically allowed by the plans, and to the extent available, use acceptable stone curb sections removed under Item 202 instead of furnishing new stone curb. Use salvaged curb at locations designated by the Engineer. Place all salvaged sections of curb continuously without interspersing salvaged and new curb sections. Haul and store salvaged curb as necessary. Cut, dress, set, and install joints in salvaged curbs according to the requirements for new curbs.

609.04 Cast-in-Place Concrete Curb and Combination Curb and Gutter.

A. Forms and Joints. Use approved steel forms for curbs. Securely brace and hold forms to the line and grade shown on the plans. The Contractor may use approved flexible forms of steel or wood to construct the radius of a circular curb 200 feet (60 m) or less. Use flexible steel or an approved grade of plywood not less than 1/4-inch (6.4 mm) nominal thickness for curves with radii of 25 feet (7.6 m) or less; an approved grade of wood not less than 1-inch (25 mm) nominal thickness for curves with radii of 25 to 200 feet (7.6 to 61 m); and rigid steel for straight line and curves with radii greater

and Combination Curb and Gutter.

than 200 feet (61 m). Immediately before placing concrete, clean the inner surface of the forms and coat this surface with release agent.

Where curb and combination curb and gutter is not constructed integral with, or tied to, the base or pavement, construct 1/4-inch (6 mm) wide contraction joints at 10-foot (3 m) intervals using steel separator plates, a grooving tool, or a saw according to Item 451. For combination curb and gutter, construct the joint to an average depth of 2 inches (50 mm) or more. For curb, construct the joint to an average depth of one-fifth or more of the curb height. When joints are made by the use of grooving tool or by sawing, use a 1/2-inch (12.7 mm) expansion joint strip the depth of the curb and gutter at the beginning and end of curves which radius is less than 200 feet (61 m) and at the end of each day's operation. Where expansion joints occur in the abutting pavement, and end of curves which radius is less than 200 feet (61m), and at the end of each day's operation, separate the section being placed with 1-inch (25 mm) 705.03 preformed filler.

Where the curb is integral with, or tied to, the base or pavement, construct the same type of joints as used in the pavement. Space joints identically with the joints in the base or pavement.

Leave curb forms in place until their removal will not crack, shatter, or otherwise injure the concrete. Do not seal transverse joints in cast-in-place concrete curb and combination curb and gutter.

If curbs are to later serve as a support for a finishing machine in the placing of a surface course, align supporting edges so that the distance between the curbs is within 1/2 inch (13 mm) from that specified.

B. Placing. Place concrete in forms prepared as described above, and vibrate the concrete to eliminate all voids.

Place concrete for curb that is integral with the concrete base or pavement while the base or pavement concrete is plastic. Where the presence of the finishing equipment on the forms at the end of the day's run prevents completing the curb, install No. 5 (No. 16M) tie bars vertically in the pavement at 1-foot (0.3 m) intervals and in a line 3 inches (75 mm) inside of and parallel to the pavement edge. Install these tie bars to within 1 1/2 inches (38 mm) of the subgrade or subbase and 2 inches (50 mm) above the concrete base or pavement surface. Water cure this horizontal construction joint between the concrete base or pavement and the curb, or membrane cure the concrete base or pavement and remove the membrane before placing the curb. Immediately before placing the concrete curb, brush mortar (consisting of one part cement to two parts sand with enough water to form a workable mortar) into the surface area of the hardened concrete pavement or base where the curb is to be placed. Do not allow the mortar to dry before placing the curb on top of it.

C. Slip-Form Placement. The Contractor may use a self-propelled machine to place concrete curb or curb and gutter. Force the concrete through a mold of the proper cross-section to obtain the proper density and cross-section. If using a track, set and secure the track on which the machine operates to the exact line and grade given by the Engineer. Use concrete of a consistency that provides the desired shape and remains as placed without slumping of the vertical faces.

609.05

1. The curb shall not vary by more than ¼ inch (6.4 mm) from the proposed typical section.
2. The curb shall have a surface variation not to exceed 1/4 inch (6.4 mm) in a 10-foot (3.0 m) length.
3. Place 1/2-inch (12.7 mm) construction joint material for the full depth of curbing whenever it becomes necessary to suspend the work for 30 minutes or more. Replace sections of curb exceeding the above tolerances or failing to meet other curb requirements specified herein at no cost to the City prior to placing the base, finished pavement or Asphalt Concrete, whichever is applicable.

D. Finishing. Without adding extra mortar, float the top of the curb to thoroughly compact the concrete and produce a smooth and even surface. Round the edges of the curb using a tool specially designed for this purpose. Immediately after removing the forms, rub the exposed face of the curb with a float to eliminate unnecessary tool marks. Provide a finished surface free of irregularities and waves, and uniform in texture.

Construct an approved opening through the curb at the elevation of the gutter, where a roof drain outlet pipe is encountered, which shall be made and finished at the same time as the curb and gutter is constructed.

Mark the top of curb to indicate location of water services (W) or water mains (M).

E. Protection. Cure concrete according to Item 451.

609.05 Asphalt Concrete Curb. Use one of the following methods, or other method approved by the Engineer, to furnish and place an asphalt concrete curb of the required cross-section.

A. Method A. After completing the surface course, paint or spray only the area to be occupied by the asphalt concrete curb with asphalt material conforming to 407.02. Apply the asphalt material at the rate of 0.15 gallon per square yard (0.7 L/m²). Place the curb with a hand-operated or self-propelled machine consisting of a hopper and power-driven screw, which forces the material through an extrusion tube. Force the material through a die attached to the end of the extrusion tube to obtain the proper density and cross-section.

B. Method B. As an independent operation preceding the final rolling of the asphalt concrete surface course that the curb is placed, place loose asphalt concrete of sufficient height and shape by hand methods using suitable templates or by other means to produce the specified cross-section. Compact the loose asphalt concrete using a hand-operated mechanical vibrating tamper equipped with a compacting shoe of such shape that will produce the specified final cross-section dimensions of the curb.

609.06 Concrete Median and Traffic Island.

A. Forms and Joints. Securely brace and hold approved steel forms to the line and grade shown on the plans. Use approved flexible forms according to Item 609.04.

Where medians and traffic islands are not anchored to the pavement, construct contraction joints at 10-foot (3 m) intervals using steel separator plates, a grooving tool, or saw according to Item 451. Construct the joint using steel separator plates, a

grooving tool, or saw according to Item 451. Construct the joint to a minimum depth of 2 inches (50 mm).

Where, as shown on the plans, the medians or traffic islands are anchored to the pavement, construct the same type of joints in the median or traffic island as used in the pavement. Space the joints identically with the joints in the pavement.

Leave forms in place according to Item 609.04.

B. Placing. Before placing a concrete median or traffic island on subgrade, sprinkle the subgrade with water until thoroughly moistened at times and in a manner directed by the Engineer.

Place the concrete in forms prepared as described above, and vibrate the concrete to eliminate all voids.

C. Slip-Form Placement. The Contractor may use a self-propelled machine to place medians and traffic islands. Force the concrete through a mold of the proper cross-section to obtain the proper density and cross-section. If using a track, set and secure the track on which the machine operates to the exact line and grade given by the Engineer. Use concrete of a consistency that provides the desired shape and remains as placed without slumping of the faces.

D. Finishing. Without adding extra mortar, finish the top of the median or traffic island to a broom texture. Round the edges using a tool specially designed for this purpose. Immediately after removing the forms, rub the exposed faces with a float to eliminate unnecessary tool marks. Provide a finished surface free of irregularities and waves, and a uniform texture.

E. Protection. Cure concrete according to Item 451.

609.07 Method of Measurement. The City will measure Sandstone Curb, Curb, Combination Curb and Gutter, Asphalt Concrete Curb and Granite Curb by the number of feet (meters) complete in place, measured along the front face of the curb section.

The City will measure Concrete Traffic Island and Concrete Median by the number of square yards (square meters) or the number of cubic yards (cubic meters) complete in place.

609.08 Basis of Payment. The City will pay for accepted quantities at the contract prices as follows:

Item	Unit	Description
609	Foot (Meter)	Sandstone Curb
609	Foot (Meter)	Curb, Straight 18"
609	Foot (Meter)	Combination Curb and Gutter, Type ____
609	Foot (Meter)	Asphalt Concrete Curb, Type ____
609	Foot(Meter)	Granite Curb
609	Square Yard or Cubic Yard (Square Meter or Cubic Meter)	Concrete Traffic Island
609	Square Yard Cubic Yard	Concrete Median

609.08

(Square Meter or
Cubic Meter)