

ITEM 16

CEMENT CONCRETE

SIDEWALKS, DRIVEWAYS, MEDIAN PAVEMENT

16.01 SCOPE OF WORK

This work shall consist of constructing sidewalks, driveways, and median pavement, exclusive of sidewalks, driveways, and median pavement that are integrally a part of structures, of Portland Cement Concrete on a prepared subgrade, in accordance with these Specifications and in reasonably close conformity with the lines, grades, and typical cross-sections shown on the Plans or established by the Engineer. It shall, also, include removal of existing sidewalks and driveways as directed by the Engineer.

16.02 MATERIALS

Materials shall meet the requirements of:

Item 3	Concrete
Item 14	Mineral Aggregate Base
Item 25	Preformed Joint Filler

Concrete for sidewalks, driveways, and median pavement shall be Class A Concrete, unless specified otherwise on the contract drawings, meeting all the requirements prescribed in Item 3, "Concrete".

16.03 EQUIPMENT

(a) Forms

Forms shall be of wood, metal, or other suitable material and shall extend for the full depth of the concrete. All forms shall be true to line, free from warp, and of sufficient strength to resist the pressure of the concrete without springing. Curved forms of proper radius shall be used on all radial sections and shall be of a design acceptable to the Engineer. Bracing and staking of forms shall be such that the forms remain in both horizontal and vertical alignment until their removal.

(b) Mixing, Finishing and Transportation

1. Mixers and transportation of equipment shall meet the requirements of Item 3.13.
2. Satisfactory floats, trowels, templates, straightedges, edgers, spades, and tamps shall be furnished. Compaction of subgrade shall be accomplished by any type of tamping or rolling equipment that will produce the desired results.

16.04 CONSTRUCTION REQUIREMENTS

(a) Subgrade Preparation

Subgrade preparation for sidewalks, driveways, and median pavement shall be made to the required depth and to a width that will permit the installation and bracing of the forms. The subgrade shall be shaped and compacted to a firm, even surface in reasonably close conformity with the grade and section on the Plans. All soft and yielding material shall be removed and replaced with acceptable material, which shall then be compacted as directed. The prepared subgrade shall then be brought to true line and grade with a minimum depth of two inches (2") of mineral aggregate base, unless specified otherwise on the drawings, meeting the requirements of Item 14 of these Specifications.

(b) Expansion Joints

1. Unless otherwise indicated on the Plans or directed by the Engineer, premolded expansion joint filler, three-fourths inch (3/4") in thickness, shall be placed at the locations and in line with expansion joints in the adjoining pavement, gutter or curb. When expansion joints are not required or have not been installed in the adjoining pavement or gutter, unless otherwise indicated on the Plans, a three-fourths inch (3/4") premolded expansion joint filler shall be placed at intervals of not over forty feet (40'). All premolded expansion joint filler shall be cut to full width or length of the proposed construction and shall extend to within one-half inch (1/2") of the top or finished surface. All longitudinal expansion joints shall be placed as indicated on the Plans or as directed by the Engineer. All expansion joints shall be true, even, and present a satisfactory appearance.

2. Construction joints shall be formed around all appurtenances, such as manholes, utility poles, etc., extending into and through the sidewalk or median area. Premolded expansion joint filler, one-fourth inch (1/4") thick, shall be installed in these joints. Expansion joint filler of the thickness indicated shall be installed between concrete sidewalks and any fixed structure, such as a building or bridge. One-fourth inch (1/4") thick expansion joint filler shall be installed between concrete curb and median pavement and, unless otherwise specified, between concrete curb and sidewalk. This expansion joint material shall extend for the full depth of the walk or median pavement.

(c) Limitations of Mixing

Limitations on the mixing of concrete shall be as prescribed in Item 3.13.

(d) Mixing and Placing Concrete

Concrete shall be mixed in accordance with the provisions of Item 3.14. Immediately before placing the concrete, the subgrade shall be thoroughly wetted, and the forms given a coating of light oil. Where removed and used again, the forms shall be thoroughly cleaned and oiled each time before using.

(e) Finishing

1. The concrete shall be struck-off with a transverse template resting upon the side forms. After the concrete has been struck-off to the required cross-section, it shall be finished with floats, trowels, and straightedges until the surface requirements have been obtained.

2. When the surface of the concrete is free from water and just before the concrete obtains its initial set, it shall be gone over and finished with a float and swept lightly with a broom in order to produce a sandy texture. The longitudinal surface variations shall be not more than one-fourth inch (1/4") under a twelve-foot (12') straightedge, nor more than one-eighth inch (1/8") on a five-foot (5') transverse section. The surface of the concrete shall be so finished as to drain completely at all times. The edges of the sidewalks, driveways and median pavement shall be carefully finished and rounded with an edging tool having a radius of one-half inch (1/2").

3. The surface of sidewalks shall be divided into blocks by use of a grooving tool. Grooves shall be so placed as to cause expansion joints to be placed at a groove line. The grooves shall be spaced approximately five feet (5') apart, and the blocks shall be rectangular unless otherwise ordered by the Engineer. The grooves shall be cut to a depth of not less than one-half inch (1/2") and not more than one inch (1"). The edges of the grooves shall be edged with an edging tool having a radius of one-fourth inch (1/4"). Grooves shall be placed in median pavement in line with corresponding joints in adjoining construction or as directed by the Engineer.

4. The edges of the concrete at expansion joints shall be rounded with an edging tool having a radius of one-fourth inch (1/4"). All marks caused by the edging shall be removed with a wetted brush or float. The top and ends of expansion joint material shall be cleaned of all concrete, and the expansion joint material shall be so trimmed as to be slightly below the surface of the concrete.

(f) Protection and Curing

1. Forms may be removed at any time that removal will not damage the concrete. No pressure shall be exerted upon the concrete in removing forms.

2. Curing and protection during cold weather shall be performed as provided for under Item 3.15 of these Specifications.

3. Pedestrians will not be allowed upon concrete sidewalks, driveways, or medians until seventy-two (72) hours after finishing concrete, and no vehicles or loads shall be permitted on any sidewalk, driveway, or median until the Engineer has determined that the concrete has attained sufficient strength for such loads.

4. The Contractor shall construct and place such barricades and protection devices as are necessary to keep pedestrians and other traffic off the sidewalk, driveway, or median.

5. Any sidewalk, driveway, or paved median damaged prior to final acceptance of the project shall be repaired, at the Contractor's expense, by removing concrete within groove limits and replacing it with concrete of the type and finish in the original construction.

(g) Backfilling

Immediately after removing the side forms, the spaces along the edges of sidewalk or driveway shall be filled with suitable material. This material shall be placed in layers not exceeding four inches (4") in loose thickness, and compacted until firm and stable.

(h) Final Cleanup

Final cleaning up shall be performed in accordance with the requirements of Special Conditions.

16.05 COMPENSATION (Unit Price Contracts Only)

(a) Method of Measurement

1. Concrete sidewalks and concrete driveways will be measured by the square foot, complete-in-place. The area shall be obtained by surface measurements. Where standard widths are constructed, the measurements shall not exceed the standard widths shown on the Plans, unless on written direction of the Engineer. Concrete sidewalks or each thickness, concrete driveways, and concrete median pavement will be measured separately. Concrete median pavement will be measured by the cubic yard, complete-in-place. The volume shall be obtained from the specified thickness shown on the Plans and surface measurements for width and length.

2. No measurement for payment will be made for incidental excavation, preparing the subgrade, for backfill, or expansion joint materials unless otherwise indicated on the Plans, as these are necessary parts of the construction. No additional payment shall be made for construction of handicap curb ramps located as designated by the Engineer in accordance with Tennessee state law. All mineral aggregate base used for fine grading and subgrade preparation as specified in Item 16.04 shall be included in the unit prices of the various items.

(b) Basis of Payment

The accepted quantities of concrete sidewalk of each thickness and concrete driveway will be paid for at the contract unit price per square foot for the respective items, complete-in-place. The accepted quantities of concrete median pavement will be paid for at the contract unit price per cubic yard complete-in-place.

Payment will be made as follows:

Item No.	Pay Item	Pay Unit
16A	Concrete Sidewalk (4 inches)	Square Foot
16B	Concrete Driveway (6 inches)	Square Foot
16C	Concrete Sidewalk (6 inches)	Square Foot
16M	Concrete Median Pavement	Cubic Yard

END OF DOCUMENT