PAYMENT ITEM NO. 52

PCC SIDEWALKS

PAYMENT ITEM NO. 53

PCC DRIVEWAYS

Description:

Under these items the Contractor shall construct or replace Portland Cement Concrete sidewalks and/or driveways as shown on the plans or as directed by the Engineer.

Materials:

The requirements of the following sections of the current NYSDOT Standard Specifications, Construction and Materials, shall apply unless otherwise indicated in the contract documents:

Portland Cement	701-01
Coarse Aggregates	703-02
Concrete Sand	703-07
Admixtures	711-08
Water	712-01

Concrete for the lower course of two-course sidewalks and driveways shall comply with the requirements for Class A concrete, as defined in the aforementioned NYSDOT Standard Specifications, Table 501-3, "Concrete Mixtures". This concrete shall attain a minimum compressive strength of 3500 psi when tested at twenty-eight (28) days in accordance with ASTM C39-80. The air content of the freshly mixed concrete shall be six (6%), plus or minus one (1%) percent and the slump shall be three and one half (3 -1/2") inches plus or minus one half (1/2) inch.

The mortar topping for the upper course of two-course sidewalks and driveways shall consist of Portland Cement, concrete sand, water, and, if necessary, air-entraining agent. The mixture shall be proportioned to contain one (1) part of Portland Cement to two (2) parts of Concrete Sand. Sufficient water shall be added to obtain proper workability and to yield a twenty-eight (28) day compressive strength of 4000 psi when tested in accordance with ASTM C39-80. The air content of the freshly mixed mortar topping shall be six (6%) percent, plus or minus one (1%) percent and the slump shall be four (4") inches.

Construction Details:

Excavation: Existing deteriorated concrete shall be removed and disposed off the line of work to the satisfaction of the Engineer.

Subgrade: The subgrade shall be that portion of the ground surface directly beneath the sidewalk slab. Up to 3" of subgrade

excavation shall be included in this payment item. The subgrade shall be dressed to a plain surface containing no large stones, roots, sod or rubbish, and shall slope downward toward the roadway one-quarter (1/4") inch per foot laterally, and to such longitudinal grade as may be shown on the plans. After the grading is completed, the surface shall be compacted and, if necessary, all soft or spongy areas shall be removed and replaced with suitable fill material. Fill material shall conform to the requirements of Granular Subbase, as specified in Payment Item No. 47, Run of Crusher and shall be included in this pay item, PI 52 & 53, respectively.

Formwork: Forms shall be of lumber with nominal thickness of two (2") inches, or of steel of equal rigidity and strength. No forms shall be less than five (5") inches in depth for sidewalks or seven (7") inches for driveways and corners. Flexible strips may be used on curves. The forms shall be staked or otherwise held to the established grade of walk. All forms shall be properly cleaned and wood forms shall be thoroughly wetted, and metal forms oiled, before depositing any material against them.

The total thickness of walks shall be five (5") inches and shall consist of a wearing surface course one (1") inch thick placed upon a base course four (4") inches thick. Driveways shall have a total depth of seven (7") inches and shall consist of a wearing course one (1") inch thick placed upon a base course six (6") inches thick.

Contraction (tooled) joints shall be placed between expansion joints at equal intervals not exceeding six (6') feet. These joints shall be formed either by the use of division plates (steel), one-eighth (1/8") inch thick, or by approved methods of cutting a groove in the surface of the finished concrete.

Where the sidewalk line intersects a building, walk, permanent structure or other location as designated by the Engineer, a one-half (1/2") inch, non-extruding pre-molded expansion joint shall be provided, and placed at intervals not exceeding twenty (20') feet in sidewalks.

Expansion joints shall be pre-molded strips of asphaltic felt of the required thickness, as wide as the thickness of the walk, and laid in one piece as long as the full length of the slab.

Expansion joints shall extend from the surface to the subgrade, be at right angles to the sidewalk surface and be constructed prior to placing the concrete.

Expansion joints shall be filled with a one-part, non-priming, self-leveling polyurethane sealant. Approved products include Sonneborn Sonolastic SL 1 or approved equal.

Placing: Concrete shall not be placed upon a dry or dusty subgrade. The subgrade shall be sprinkled or lightly wetted before placing the concrete. No concrete shall be placed on a frozen subgrade or when the temperature is or predicted to be within twenty-four (24) hours, less than forty (40°) degrees Fahrenheit, except with written permission of the Engineer.

Sidewalks and driveways shall be constructed in two courses. The concrete for the base course shall be deposited on the subgrade and thoroughly consolidated with immersion type vibrators. The vibrator shall not come in contact with the forms or the subgrade, nor shall the vibrator be operated longer than four (4) seconds in any one location.

No more than fifty (50') lineal feet of base course shall be placed before starting to place the top course, and the top course of mortar shall be placed within forty-five (45) minutes after the base course is placed and before initial set has occurred.

After the wearing course has been brought to the established grade, it shall be struck off and worked with a float in a manner that will thoroughly consolidate it so that the surface has a true contour. The upper edges of the concrete shall be rounded to a radius of one-quarter (1/4") inch.

When wet spots occur, finishing operations should be delayed until the water either disappears or is removed with a squeegee. If a squeegee is used, cement should not be removed with the water. Under no conditions shall dry cement or sand be used to absorb this moisture or to hasten the hardening.

Curing: Concrete shall be allowed to cure for at least three (3) days before forms are removed. Forms shall be carefully removed from the sidewalk so no edge will be broken, and the area adjacent to the sidewalk shall be immediately refilled to the grade of the new sidewalk.

All walks shall be protected by suitable coverings and shielded from traffic and the elements for at least three (3) days and shall not be open to traffic until the Engineer so directs.

All concrete walks, curbs, and driveways shall be sprayed with

a white pigmented membrane curing compound immediately after finishing. Vapor-proof membranes used for curing will not require wetting. A list of approved membrane curing compounds is included in these contract documents.

The Contractor shall provide protection for all concrete placed in cold weather by covering with straw, tarpaulins, insulated blankets, or other approved material, and/or heated by salamanders, if needed to keep concrete temperatures above forty (40°) degrees Fahrenheit to obtain specified concrete strengths.

Attention of Contractor is called to the following: The work in this contract shall comply with the requirements of the AMERICANS with DISABILITIES ACT of 1990 (ADA). The standard details included have been revised to comply with the ADA. Sections of the ADA Accessibility Guidelines for Buildings and Facilities: Final Guidelines (ADA-AG), and ADA-AG Appendix have been included for further guidance.

Testing: The Contractor shall employ a qualified testing laboratory to perform quality control testing of concrete and mortar used in the construction of sidewalks and driveways.

For each concrete placement of fifty (50) cubic yards or less, one series of compressive strength samples shall be fabricated. A series shall consist of three (3) test cylinders of base concrete and two (2) sets of test cubes of mortar topping. (Note that each set contains three (3) cubes.) One (1) concrete cylinder and one (1) set of mortar cubes shall be tested at seven (7) days, and two (2) cylinders and one (1) set of mortar cubes shall be tested at twenty-eight (28) days. Concrete cylinders shall be fabricated in accordance with ASTM C31-69 (1975), and tested in accordance with ASTM C39-80. Mortar cubes shall be fabricated and tested in accordance with ASTM C109-80. Copies of these tests results shall be given to the Engineer and the cost of this testing shall be borne by the Contractor and included in the bid price per square foot of PCC sidewalks and/or driveways.

Slump tests and air entrainment tests shall be taken on the concrete and mortar as directed by the Engineer in accordance with ACI and ASTM standards.

At the discretion of the City Engineer, core samples may be taken for testing of thickness and compressive strength. The cost of coring and testing of cores shall be borne by the City, and copies of test results shall be made available to the Contractor.

If the average thickness of the concrete sidewalk as determined by the measurements of all cores taken on the work is deficient by more than one-quarter (1/4") inch, a deduction will be made from the contract price per square foot for the sidewalk. The amount of deduction per square foot shall be determined by subtracting from the bid price the percentage of this bid price obtained by multiplying it by the ratio of the square of the actual average depth in inches to the square of the required depth in inches.

Any part of the concrete sidewalk or driveway which is deficient in depth by more than one-half (1/2") inch will not be accepted and no payment will be made for same, and at the option of the City Engineer said sidewalk (or driveway) may be taken up and replaced according to the specification, at the Contractor's expense.

Sections of sidewalk for which core or cylinder or cube tests show the strength to be less than ninety (90%) percent of the compressive strength required will not be accepted and shall be replaced at the Contractor's expense.

NAME PLATE/CONTRACT NUMBER: The contractor, as required by ordinance, shall imprint the concrete work at the beginning, end, corners and every 250 feet, with the contractor's (and sub-contractor's) name, year of construction, and the contract number under which the work is performed. The contractor's imprint numbers shall not be less than two (2) inches nor more than three (3) inches tall. Letters shall be not less than one (1) inch nor more than two (2) inches tall. The contractor shall be restricted from imprinting the contractor's name promiscuously, and shall be guided as to the location of same by the engineer or the inspector on the job. Only work marked as per the specification shall be measured for payment.

PROTECTION OF SURVEY MONUMENTS AND UTILITIES: The contractor shall comply with the requirements of the SUPPLEMENTAL CLAUSES OF GENERAL APPLICATION to protect city survey monuments and various utilities in or adjacent to the line of work.

Period of Maintenance: The Contractor shall remedy, without cost to the City of Syracuse, any defects which may occur during a period of two (2) years from the date of completion and acceptance of work performed under this contract, provided such defects are caused by defective or inferior material and/or workmanship.

Method of Measurement:

Square feet measured in place satisfactory to the Engineer.

Basis of Payment:

Payment shall be made at the price bid per square foot.