
SECTION 02775 - SIDEWALKS

All work and materials shall conform to the Drawings and MDOT SECTION 608 – SIDEWALKS with the following modifications and additions:

MODIFICATIONS:

PART 1 GENERAL

1.01 SUMMARY: This work shall consist of the construction of cement concrete sidewalks and driveways on a crushed gravel base, and unpaved and/or bituminous paved tree wells in accordance with these specifications and in reasonably close conformity with the lines and grades and shown on the plans.

This work shall consist of the construction of brick sidewalks and driveways on bituminous concrete base in accordance with these specifications and in reasonably close conformity with the lines and grades as shown on the plans.

This work shall consist of the construction of concrete paver sidewalks and driveways on bituminous concrete base in accordance with these specifications and in reasonably close conformity with the lines and grades as shown on the plans.

This work shall consist of the construction of bituminous concrete sidewalks and driveways in accordance with these specifications and in reasonably close conformity to the lines and grades as shown on the plans.

This work shall include the construction of sidewalk ramps at locations as shown on the plans and shall be in accordance with the sidewalk ramp typical details, with Section 608 of these Specifications and with the current Americans with Disabilities Act requirements.

PART 2 PRODUCTS

2.01 CEMENT CONCRETE: Materials shall conform to the requirements of the various subsections of the specifications listed below:

- A. Portland Cement Concrete shall conform to the requirements of Section 502 of the Standard Specifications for Structural Concrete, Class "A"
- B. Preformed Expansion Joint Filler shall conform to the requirements of subsection 705.01 of the Standard Specifications.
- C. Welded Steel Wire Fabric shall be 6" x 6" mesh with No.10 wire and shall conform to the requirements of AASHTO designation M55, Welded Steel Wire Fabric for Concrete Reinforcement.
- D. Colored Additives for Pigment Dyed/Colored Concrete:
 - 1. Manufacturer:
 - a. L.M. SCOFIELD COMPANY, Douglasville, Georgia (800) 800-9900; Davis Colors manufactured by Davis Colors (800) 356-4848; or approved equal.
 - 2. Materials:
 - a. Admixture shall be a colored, water-reducing, admixture containing no calcium chloride with coloring agents that are limeproof and UV resistant.
 - b. Colored admixture shall conform to the following:

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- 1) ASTM C979 - Standard Specification for Pigments for Integrally Colored Concrete.
 - 2) ASTM C494 – Standard Specification for Chemical Admixtures for Concrete
 - 3) AASHTO M194 – Chemical Admixtures
- E. Curing Compound for Pigment Dyed/Colored Concrete: Curing compound shall comply with ASTM C309 and be approved by color additive manufacturer for use with colored concrete.
- F. Sealants: Joint sealants shall be color-matched to the concrete and specially formulated for high-performance in pedestrian and vehicular traffic areas.
1. Manufacturer:
 - a. L.M. SCOFIELD COMPANY, Douglasville, Georgia (800) 800-9900; Davis Colors manufactured by Davis Colors (800) 356-4848; or approved equal.
 2. Materials:
 - a. LITHOSEAL™ Trafficalk-3G™ as manufactured by the L.M. SCOFIELD COMPANY, Douglasville, Georgia; W-1000 Clear Cure & Seal and/or Color Seal II tinted to match colored concrete by Davis Colors; or approved equal.
- G. SUBMITTALS: The CONTRACTOR shall comply with the following provisions
- A. Product Data: Submit manufacturer's product data, with complete general and specific installation instructions, recommendations, and limitations for:
 1. Color additives.
 2. Curing compounds.
 3. Sealants.
 - B. Samples:
 1. Samples for Color Selection by RESIDENT: Submit color additive manufacturer's color chart and/or sample chip set; indicate color additive number and required dosage rate.
 - C. Colored Concrete Mock-Up:
 1. Provide 4' by 4' full-scale mock-up at least one month before start of other concrete work to allow concrete to cure before observation.
 2. Demonstrate methods of obtaining consistent visual appearance, including each forming and finishing condition required on Project using materials, workmanship, joint treatment, form ties, curing method, and patching techniques to be used throughout Project.
 3. Retain samples of cements, sands, aggregates, and color additives used in mock-up for comparison with materials used in remaining Work.
 4. Accepted mock-up provides visual standard for work of Section.
- 2.02 BRICK: Materials shall conform to the requirements of the various subsections of the specifications listed below:
- A. Used Brick: The CONTRACTOR shall salvage existing bricks from the project area as specified in Section 203 of the Supplemental Specifications. The RESIDENT shall have full authority in the choice of brick to be disposed of. The discarded brick shall become the property of the City and shall be delivered by the Contractor to an approved City stockyard as directed by the RESIDENT.
 - B. New Brick: Conform to the various subsections of the specifications listed below.
Brick -Brick shall conform to requirements of ASTM Standard Specifications for Building Brick (made of clay or shale) Designation C62-66 for Grade SW with the following modifications:
 - a. The absorption limits shall be from 8 to 12 per cent for the average of 5 bricks.

- b. The compressive strength shall not be less than 8000 pounds per square inch (psi)
 - c. The modulus of rupture shall not be less than 1000 pounds per square inch (psi).
 - d. The bricks shall be No.1, wire cut type for paving. Bricks shall be of standard size (2-1/4" x 3-3/4" x 8") with permissible variations not to exceed 1/16" in depth, 1/8" in width or 1/4" in length. Bricks shall be as manufactured by the Morin Brick Co. of Danville, Maine or an approved equal.
- C. All base courses and joints shall conform to the applicable subsections of Division 700 of the Standard Specifications.

2.03 CONCRETE PAVERS

- A. Concrete Masonry Paving Units: Provide full depth concrete paving bricks "Plaza Brick" as manufactured by Transpave, Inc, or approved equal.
- B. General specifications are per ASTM C-216.
 - 1. Size: Nominal 4" x 8" x 2 3/8" thick.
 - 2. Color: Standard Colors TBD by Resident. 2 colors are required.
- C. SUBMITTALS: The CONTRACTOR shall comply with the following provisions
 - a. Prior to ordering the pavers, submit samples in whole straps to show color range

2.04 TRUNCATED DOME PAVERS

- A. Truncated Dome Concrete Paving Units: Provide full depth concrete truncated dome paving blocks as manufactured by Hanover Pavers, Inc, or approved equal.
- B. General specifications are per ASTM C-216.
 - 1. Size: Nominal 12" x 12" x 2 3/8" thick.
 - 2. Color: Standard Colors TBD by Resident.

2.05 BITUMINOUS CONCRETE:

- A. MATERIALS: Material for bituminous concrete base courses and surface courses for sidewalks and driveways shall conform to the requirements of Section 403 of the Standard Specifications for Hot Bituminous Pavement, Grading "B" and Grading "C" respectively. Crushed gravel base shall conform to the requirements of Section 304 of these specifications for Aggregate Base Course -Crushed, Type "A".

PART 3 EXECUTION

3.01 PORTLAND CEMENT CONCRETE

- a. Subgrade: The subgrade shall be shaped parallel to the proposed surface of the walks and drives and shall be thoroughly compacted. All depressions occurring shall be filled with suitable material and again compacted until the surface is smooth and hard.
- b. Foundation: After the subgrade has been prepared, a foundation of crushed gravel -Type "A" shall be placed upon it. After being compacted thoroughly, the gravel base shall be eight inches (8") thick for sidewalks, ten inches (10") thick for driveways, and parallel to the proposed finished surfaces.

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- c. Forms: Side and transverse forms shall be smooth, free from warp, of sufficient strength to resist springing out of shape, and of a depth to conform to the thickness of the proposed walks and drives.
 - d. Reinforcing: Welded wire fabric shall be placed 2 inches above the crushed gravel, and 2 inches from all finished edges, expansion joints and curbs. All fabric joints shall be overlapped a minimum of 1 foot and be properly tied.
 - e. Placing Concrete: The foundation shall be thoroughly moistened immediately prior to the placing of the concrete. The proportioning, mixing and placing of the concrete shall be in accordance with the requirements of Section 502 -Structural \ Concrete.
 - f. Finishing: The surface shall be finished to produce a broomlike pattern. No plastering of the surface with mortar will be permitted. The finish shall result in a surface of uniform texture and uniform color. All outside edges of the slab and all joints shall be rounded with a 1/4" radius edging tool.
 - g. Joints: Slabs shall be placed alternately in lengths not to exceed 30 feet or as directed and shall be separated by an expansion joint of preformed expansion filler 1/2 inch in thickness. The sidewalk surface shall be scored into block units of not more than 40 square feet as directed. The depth of the scoring shall be at least one quarter of the thickness of the slabs. When a concrete sidewalk is constructed adjacent to a building, retaining wall or other fixed structure, a 1/4-inch thick preformed joint filler shall be used between the slab and the structure.
 - h. Curing: Concrete shall be cured for at least 72 hours. During the curing period, all traffic, both pedestrian and vehicular, shall be excluded. Vehicular traffic shall be excluded for such additional time as field conditions may require.
 - i. Restoring Disturbed Sidewalks: The Contractor shall restore all cement concrete sidewalks disturbed by construction operations to the conditions that existed prior to construction. The thickness of the slab shall be equal to or greater than the existing. Welded steel wire fabric shall be required for all sections greater than three feet (3') in length or width.
 - j. A 12" bituminous strip shall be placed at the gutter line on all concrete driveways as a transition between driveway and street.

3.02 BRICK

- a. Subgrade: The subgrade for the sidewalks and driveways shall be shaped parallel to the proposed surface of the walks and drives and shall be thoroughly compacted. All depressions occurring shall be filled with a suitable material and again compacted until the surface is smooth and hard.
- b. Foundation: After the subgrade has been prepared, a foundation of crushed gravel shall be placed upon it. After being thoroughly compacted, the foundation shall have a thick-ness as shown on the plans and typical details and shall be parallel to the proposed surface of the work.
- c. Bituminous Base: A layer of hot bituminous pavement grading "B" shall be spread upon the properly prepared crushed gravel. After being thoroughly compacted, the bituminous base course shall have a minimum thickness of two (2") inches and shall be parallel to the proposed finish grade.
- d. Sand-Cement Base: A layer of sand-cement base course material one (1") inch in thickness shall be spread upon the properly prepared bituminous base course.. The course shall be thoroughly compacted and present a hard smooth surface parallel to the proposed finished slope and grade of the walks and drives. The ratio shall be six (6) parts of washed mortar sand to one (1) part Portland Cement.
- e. Brick Placement: After the sand base course has been properly prepared, the brick shall be placed in the pattern shown on the plans and typical details. The brick shall be placed as closely together as possible and the sand joints between the brick shall be no wider than that allowed by the natural texture of the brick itself. NO OPEN JOINTS WILL BE ALLOWED. Brick shall be saw cut to fit spaces requiring less than a whole brick. No cut brick shall be less than two (2") inches in length. A journeyman brick mason shall supervise all brick placement.

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- f. After the bricks are carefully set upon the properly prepared sand-cement base, a plank or heavy sheet of plywood covering several course of brick shall be placed upon the bricks and carefully rammed with a heavy hammer until the bricks reach a firm, unyielding bed and present a surface of the proper slope and grade. Any divergence from line and grade shall be corrected by taking up and relaying the bricks. After the ramming of the bricks, a sufficient amount of sand-cement shall be spread over the surface and thoroughly swept or raked so as to fill the joints. All surplus sand-cement remaining on the sidewalk and driveway after the joints have been properly filled, shall be carefully removed by sweeping. Care shall be taken to avoid raking out the joints during removal of excess sand-cement. A final application of sand only shall be spread on the sidewalk. The application of sand shall then be removed by sweeping while the aforementioned precautions are being exercised.
 - g. A 12" wide bituminous strip shall be placed at the gutter line and at the back edge of the brick driveway as a transition between the brick and adjoining surfaces.

3.03 CONCRETE PAVER

- a. Base: Contractor shall inspect and verify that aggregate base and bituminous binder course for all work covered in this Section has been placed and compacted in the amounts specified in the Drawings and Specifications. Commencement of work by the Contractor signifies acceptance of base conditions. Any deviations or abnormalities in base preparation are to be reported to the Resident immediately.
- b. Sand-Cement Setting Bed
 - 1. Place and screed setting bed to grades and lines as required. Thickness after paver installation to be no less than 3/4" and no greater than 1 1/2".
 - 2. Do not use water saturated or frozen sand.
 - 3. Do not use setting bed to compensate for improperly installed or compacted base or for making up any unevenness or irregularity in the base course surface as this will show through to the finished surface of the pavers over time.
 - 4. Do not walk on or otherwise disturb screeded setting bed surface prior to paver installation.
- c. Pavers
 - 1. Set pavers hand tight using specified colors, shapes and textures in patterns and configurations shown. Trim and cut pavers as required using a motor driven masonry saw with a blade design specifically for the cutting of paving units. Only the minimum number of cuts will be used. Small pieces used to create what could have been a larger, uncut whole will not be accepted.
 - 2. A typical spacing of 1/16" is to be maintained between pavers. Gaps between pavers and adjoining objects of greater than 3/8" to be filled with sand. Joints greater than 3/8" are not allowed, and pavers shall be cut as required to meet this requirement.
 - 3. After pavers are set, vibrate into place with a plate vibrator capable of 3,000 to 5,000 pounds centrifugal compaction force and operating at a frequency of 80 to 90 hertz. Two passes in opposing directions (at right angles) minimum to be made with vibrator.
 - 4. Sweep joints with dry sand, and vibrate (lightly water when sand/cement used). Repeat process to fill joints. Damp sand may be spread over paver surface and allowed to dry before filling joints.
 - 5. Do not compact closer than 3' to an unrestrained paver edge.
 - 6. All work must be compacted up to 3' from stopping point by the end of each work day. Cover and protect setting bed and uncompacted pavers until resumption of work.

d. Tolerances

1. Unless specified otherwise, finished surface elevations are not to deviate more than 1/4" under 10' long straight edge in any direction.
2. Surface elevation of pavers are to be 1/8" to 1/4" above adjoining curbs, inlets, walks, etc. (and may be 1/8" to 1/4" above final grades in general) to allow for characteristic minor settling.

3.04 BITUMINOUS CONCRETE:

- a. Excavation: Excavation shall be made to the required depth and width. The foundation shall be shaped and compacted to a firm even surface conforming to the section shown on the plans and typical details. All soft and yielding material shall be removed and replaced with acceptable material.
- b. Sidewalk Construction: Sidewalks shall be constructed with a two (2") inch course of bituminous pavement Grading "C" laid on a thoroughly compacted six (6") inch deep crushed gravel base.
- c. Driveway Construction: Driveways shall be constructed with a one (1 ") inch course of bituminous pavement, Grading "C" over a two (2") inch course of Grading "B". The crushed gravel base shall be ten (10") inches deep and thoroughly compacted.
- d. Placing Bituminous Material: Bituminous material shall be placed on the compacted base course in two courses, one base and one surface, so as to give the required depth when rolled. Compaction shall be accomplished by means of a power roller having a minimum total weight of 2,000 pounds with a minimum of 65 pounds per inch of width of the drive roll or by satisfactory power vibratory compaction equipment. In areas inaccessible to other equipment, hand tamping will be permitted. In any case the bituminous material shall be uniformly compacted.

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