

SECTION 32 14 40
STONE PAVING (GRANITE BLOCK)

PART 1 GENERAL

1.01 REFERENCE STANDARDS

- A. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2022.
- B. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar; 2018.
- C. ASTM C150/C150M - Standard Specification for Portland Cement; 2022.
- D. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2019a, with Editorial Revision.
- E. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.
- F. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants; 2023.
- G. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Asphalt Types); 2023.
- H. ASTM D1752 - Standard Specification for Preformed Sponge Rubber, Cork, and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction; 2018 (Reapproved 2023).

1.02 SECTION INCLUDES

- A. Pavers and curbs
- B. Sand bed and sand joint filler.
- C. Mortar bed.

1.03 RELATED REQUIREMENTS

- A. Section 31 22 00 - Grading: Preparation of subsoil for pavers.
- B. Section 31 22 00 - Grading: Pavement substrate.
- C. Section 32 12 16 - Asphalt Paving: Pavement subbase.
- D. Section 32 13 13 - Concrete Paving: Subbase for pavers.
- E. Section 32 13 13 - Concrete Paving: Pavement subbase.

1.04 REFERENCE STANDARDS

- A. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2013.
- B. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar; 2011.
- C. ASTM C150/C150M - Standard Specification for Portland Cement; 2012.
- D. ASTM C270 - Standard Specification for Mortar For Unit Masonry; 2012.
- E. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2014.
- F. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants; 2002 (Reapproved 2013).
- G. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types); 2004 (Reapproved 2013).
- H. ASTM D1752 - Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction; 2004a (Reapproved 2013).

1.05 SUBMITTALS

- A. See Section 01 33 00 - Submittal Procedures, for submittal procedures.
- B. Product Data: Provide characteristics of paver unit, dimensions, special shapes, and setting materials.
- C. Shop Drawings: Indicate layout of pavers and curbs, dimensions of paved areas, elevations, and affected adjacent construction.
- D. Samples: Submit two samples of each paver and curb size, illustrating style, size, color range and surface texture of units being provided.
- E. Maintenance Materials: Provide the following for NYCHA's use in maintenance of project.
 - 1. See Section 01 60 00 - Product Requirements, for additional provisions.
 - 2. Extra Pavers: 10 of each type and size.

1.06 FIELD CONDITIONS

- A. Maintain cementitious materials and substrate surface to a minimum of 50 degrees Fahrenheit prior to, during, and 48 hours after completion of work.
- B. At end of working day or during rainy weather, cover work exposed to weather with waterproof coverings, securely anchored.

PART 2 PRODUCTS

2.01 PAVER MATERIALS

- A. Granite Block Pavers shall be new or used, clean, standard paving blocks. Blocks shall be fairly rectangular in shape and shall be between seven (7") inches and twelve (12") inches in length, four (4") inches to five (5") inches in width; and three (3") inches to five (5") inches in depth. The blocks shall be cut so that opposite faces will be approximately parallel and adjoining faces approximately at right angles to each other. Blocks shall be so dressed that they may be laid with one (1") inch joints. All blocks shall have one reasonably smooth split head.
- B. Geotextile shall conform to Standard Specifications 33 46 26 – Stormwater Membrane Filtration

2.02 SAND BED MATERIALS

- A. Sand for Base: Clean washed bank sand containing maximum of 30 percent particle size of No. 10 0.08 inch sieve. Sand may be rejected if it contains more than ten percent (10%) by weight of loam and silt.
- B. Sand for Joints: Clean washed fine sand shall be sharp concrete sand approximately thirty per cent 1/8" particles, free from organic material.

2.03 MORTAR AND GROUT MATERIALS

- A. Portland Cement: ASTM C150/150M Type I, white color.
- B. Sand: ASTM C144; sharp, clean, screened sand free of injurious amounts of organic material.
- C. Water: Potable, not detrimental to mix.

2.04 ACCESSORIES

- A. Welded Wire Reinforcement: ASTM A1064/A1064M; 2 x 2, 16/16 wire (50 x 50, 1.5/1.5 wire); galvanized steel.
- B. Mortar Bed Joint Filler: Preformed compressible strip complying with ASTM D1751 or D1752, or closed-cell non-absorbent compressible polyethylene or polymer foam in sheet form; thickness as required to form joint of indicated width; intended to remain in joint to allow moderate movement.
- C. Sealant: ASTM C920, self-leveling or nonsag polyurethane or silyl-terminated polyether/polyurethane (STPE/STPU) sealant explicitly approved by manufacturer for traffic exposure without being recessed below the top of substrate surface.
 - 1. Color: Concrete gray.

- D. Backer Rod: ASTM C1330, closed-cell polyethylene, 25 to 33 percent larger in diameter than joint width.
- E. Permanent steel curbing/edging if called for on the Drawings shall be as manufactured by Border Concepts, Charlotte, NC, Telephone 1.800.845.3343, local Rep is Avanti Industries, Inc., phone 718.406.4116, attn: Anglea or approved equal. It shall be 1/4 inch thick by five (5) inches wide and furnished in 16-foot long sections with slots pressed out along the length and at the ends. The ends shall be shaped to allow interlocking of adjoining sections. The curbing/edging shall be installed flush with the finished surface of the asphalt paving and staked securely in place with tapered steel stakes 12 inches long. Stakes shall be set through the slots in the curbing/edging and driven in place flush with top of curbing/edging.

2.05 MIXES

- A. Mortar Bed: ASTM C270, Type S, using the Proportion Specification.
- B. Joint Grout: Portland cement mix conforming to the following:
 1. Compressive Strength (28 day): 3000 psi.
 2. Slump: 1 to 2 inches (25 to 50 mm).
 3. Air Entrainment: 5 to 7 percent.
 4. Color Admixture: In accordance with manufacturer's instructions.
- C. Add admixtures in accordance with manufacturer's instructions.
- D. Thoroughly mix ingredients in quantities needed for immediate use.
- E. Use within two hours after mixing. Do not re-temper.

2.06 FABRICATION

- A. Fabrication Tolerances For Stone Units: Within 1/8 inch of actual dimensions.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that substrate is level, smooth, capable of supporting pavers and imposed loads, and ready to receive work of this section.
- B. Verify gradients and elevations of substrate are correct.

3.02 INSTALLATION - SAND SETTING BED

- A. Spread sand evenly over prepared substrate to a maximum thickness of 1-1/2 inch.
- B. Dampen and roller compact sand to level and even surface. The sand cushion shall be compacted by being rolled with a roller weighing one hundred fifty pounds (150 lbs.) per foot of width or by tamping, as directed by the Engineer.
- C. Screed and scarify top 1/2 inch of sand.
- D. Place paver units in pattern indicated on drawings, from straight reference edge.
- E. Sprinkle sand over surface, sweep into joints and moisten. Recover with additional sand until firm joints are achieved. Remove excess sand.
- F. Tamp and level paver units with mechanical vibrator until units are firmly bedded, level, and to correct elevation and gradients.

3.03 INSTALLATION - MORTAR SETTING BED

- A. Locate control and expansion joints directly above joints in structural base and where indicated on drawings; use joint filler to form full depth joint before laying mortar bed.
 1. Control Joints: 1/2 inch wide.
 2. Expansion Joints: 1/2 inch wide.
- B. Set paver units in full mortar bed of minimum 1 inch thickness, to support pavers over full bearing surface.
- C. Place reinforcement at mid-height of bed thickness.

- D. Place paver units in herringbone pattern, from straight reference edge.
- E. Place half units, special shaped units, and curbs at edges and interruptions. Machine saw partial units.
- F. Maintain uniform joint width of 3/8 inch between pavers, and at abutting vertical surfaces and protrusions. To accommodate grout, rake out joints 1/4 to 3/8 inch (6 to 9 mm) deep.
- G. Keep control and expansion joints free of grout, for sealant installation.
- H. Fill joints with grout; pack and work into voids; neatly tool surface to concave joint. Wet cure.
- I. Seal control and expansion joints with sealant, in accordance with sealant manufacturer's instructions; use joint filler, backer rod, and or bond breaker tape to achieve width-to-depth ratio recommended by sealant manufacturer.
- J. Joint Finish: The joints for the outer rows of the paving area shall be completely filled with a cement grout mixture of one part Portland Cement and two parts sand. The grout shall be firmly packed in the joints between blocks. Sand joints shall be used in the inner rows of the paving area, and shall be filled with cushion sand. Immediately after the joints are filled, the pavement shall be swept clean. The finished surface shall be free of all cement stain and excess grout, and shall be acceptable to the Engineer.
- K. The joints in tree pit areas shall be filled with sand cement in the outer rows of the tree pit area, and the remaining inner rows shall be filled with base sand in accordance with NYC Parks, standard details for trees. The sand shall be firmly packed in the joints between blocks. Immediately after the joints are filled, the pavement shall be swept clean.

3.04 CLEANING

- A. Do not clean pavers until pavers and mortar are dry.
- B. Clean soiled surfaces using cleaning solution. Do not harm pavers, joint materials, or adjacent surfaces.
- C. Use non-metallic tools in cleaning operations.
- D. Rinse surfaces with clean water.
- E. Broom clean paving surfaces. Dispose of excess sand.

3.05 PROTECTION

- A. Do not permit traffic over sealant joints until sealant is fully cured.
- B. Do not permit traffic over unprotected paver surface.
- C. Protect paver surface with sheets of plywood.

END OF SECTION 32 14 40