

## **321440 STONE PAVING, STEPS, WALLS AND BENCH**

### **PART 1 - GENERAL**

#### **1.1 DESCRIPTION**

- A. Provide stone paving, steps, walls and bench as shown on the Drawings and specified herein. The work includes:
  - 1. Supplying and placing sand setting bed for paving stones.
  - 2. Supplying and installing paving stones in quality, shape, thickness and color as specified and shown on drawings.
  - 3. Supplying and placing mortar setting bed for steps.
  - 4. Supplying and installing stone slab steps in quality, shape, thickness and color as specified and shown on drawings.
  - 5. Supplying stone wall veneer in quality, shape, thickness and color as specified and shown on drawings.
  - 6. Supplying and installing stone bench in quality, shape, thickness and color as specified and shown on drawings.
  
- B. Related work:
  - 1. Section 313000 – Earthwork
  - 2. Section 321100 – Base Courses
  - 3. Division 3 – Concrete
  - 4. Division 4 - Masonry

#### **1.2 QUALITY ASSURANCE**

- A. Comply with Section 02000 requirements.
  
- B. Materials and methods of construction shall comply with the standards of the American Society for Testing Materials, (ASTM).
  
- C. Installation: Performed only by skilled workers with experience installing specified product in specified pattern on a complete project of comparable scale and quality.
  
- D. Sample panels: Provide sample panels of paving and wall veneer for approval by the Landscape Architect, using materials and patterns indicated for project work. The sample area may be a portion of the project work, but must pass approval before continuing paving work. Provide an area of not smaller than thirty (30) square feet. Correct and rebuild sample panels until Landscape Architect's acceptance of the work. Subsequent work must match approved sample area for methods, color, texture and workmanship.
  
- E. Do not change source of materials during the course of this work.

#### **1.3 SUBMITTALS**

- A. Shop Drawings: Provide shop drawings to the Landscape Architect for approval prior to ordering materials.

1. Shop Drawing shall show all stone pieces, identified by number and related to their locations in the construction drawings.
  2. All drawings shall include dimensions of all stone units; and shall indicate details, fasteners connections, joints, finishes, and adjacent work.
- B. Samples: Deliver to job site a representative stone sample (min. 12" x 2'-0") for each element in the design (i.e., pavers, step, wall veneer). Landscape Architect and Owner will review for color, texture, finish, and general condition.
1. Samples that do not meet approval shall be replaced until approval is met.
- C. If applicable, submit manufacturer's product data and installation instructions for stone units.
- D. Submit manufacturer's certification that paving units comply with specified material and physical requirements.
- E. Submit approximately one gallon of sand to be swept into paving joints.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Protect paving units from damage, chipping, and soiling during delivery and storage. Store off the ground on pallets or wood platforms, or as per approved industry standards.
- B. Store loose granular materials in a well drained area on a solid surface to prevent mixing with foreign materials. Cover loose granular materials in inclement weather to prevent saturation.

#### 1.5 PROJECT CONDITIONS

- A. Review installation procedures and coordinate paving work with other work affected by the unit paving work.
- B. Cold weather:
  1. Do not use frozen materials or materials mixed or coated with ice or frost.
  2. Do not build on frozen work or wet, saturated or muddy subgrade. Remove and replace paving damaged by frost or freezing.
- C. Protect partially completed paving against weather damage when work is not in progress.
- D. Provide temporary barricades and warning lights as required for protection of project work and public safety.
- E. Protect adjacent work from damage, soiling, or staining during paving operations.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS / MANUFACTURERS

- A. All stone pavers shall be granite of the following two types:
  1. Freshwater Pearl
  2. Woodbury Gray

Finish shall be flamed. Refer to drawings for unit paver dimensions. Stone to be supplied by Freshwater Stone, 4 Upper Falls Road, P.O. Box 15, Orland, Maine 04472, (207) 469-6331, [info@freshwaterstone.com](mailto:info@freshwaterstone.com), or approve equal.

- B. All stone steps, wall veneer, and bench shall be Freshwater Pearl granite from the same source as the pavers.
- C. Granite, sand and subbase materials shall be regionally extracted and fabricated.
- D. Sand setting bed: Provide hard, durable, clean, washed natural sand aggregate.
- E. Mortar setting bed: Provide mortar in accordance with ASTM C 270.
- F. Concrete shall be as indicated on the drawings and specified in Division 3 - Concrete.
- G. Subbase as indicated on the drawings and specified in Section 02300 - Earthwork.
- H. **Anti-Graffiti Sealant for the stone walls shall be STONETECH Bulletproof Sealer from Laticrete (formerly DuPont) applied per manufacturer recommendations.**

### PART 3 - EXECUTION

#### 3.1 INSPECTION

- A. Examine installation conditions. Do not start stone work until unsatisfactory conditions are corrected.
- B. Do not use paving units with chips, cracks, voids, discolorations, or other visible defects.
- C. Cut paving units with motor-driven saw equipped with a diamond blade designed to cut masonry with clean, sharp unchipped edges. Cut units as required to provide pattern shown and to fit adjoining work neatly. Use full units without cutting wherever possible. Where cutting is required, use the largest size units possible. Avoid the use of small pieces of pavers or large joint spaces, except as indicated on the Drawings.

#### 3.2 PREPARATION

- A. Compaction of soil backfills and fills
  - 1. Place backfill and fill soil materials in layers not more than 6 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
  - 2. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
  - 3. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 698:
  - 4. Under granite pavers, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill soil material at 95 percent.
- B. Field quality control

1. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:
  - a) Determine prior to placement of fill that site has been prepared in compliance with requirements.
  - b) Determine that fill material and maximum lift thickness comply with requirements.
  - c) Determine, at the required frequency, that in-place density of compacted fill complies with requirements.
2. Testing Agency: Owner will engage a qualified geotechnical engineering testing agency to perform tests and inspections.
3. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.
4. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:
5. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 25 sq. ft. or less of paved area or building slab, but in no case fewer than three tests.
6. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

### 3.3 INSTALLATION: SAND SETTING BED

- A. Place units at the locations and grades indicated on the drawings so that they are plumb, level, and in alignment on prepared base. Use care in moving units to avoid scratching, chipping, or gouging the surfaces. Adjust elevation of units by shimming with fine gravel
- B. Joints: All joints shall be square and true, to the dimensions indicated on the drawings.
- C. Spread sand evenly over prepared substrate to maximum thickness of 1 inch.
- D. Dampen and roller compact sand to level and even surface.
- E. Screed and scarify top 1/2 inch of sand.
- F. Place paver units in pattern shown on plans from straight reference edge.
- G. Sprinkle sand over surface, sweep into joints and moisten. Recover with additional sand until firm joints are achieved. Remove excess sand.
- H. Tamp and level paver units with mechanical vibrator until units are firmly bedded, level, and to correct elevation and gradients.
- I. Recover with additional sand, sweep into joints and remove excess sand.

- J. Clean completed paved area, leaving a surface free of all mortar, jointing or other foreign materials.
- K. Protect work area and bedding course from damage until covered with paver units. Protect completed paving against damage throughout construction.

#### 3.4 CLEANING

- A. Remove and replace paving units that are broken, chipped, stained, or otherwise damaged as directed by the Landscape Architect. Provide and install new matching pavers as specified, and eliminate evidence of replacement.
- 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.
- F. Perform cleaning during installation of work and upon completion of the work. Remove from site all excess materials, debris, and equipment. Repair damage resulting from unit paving operations.

#### 3.5 STOCKPILE

- A. Contractor shall provide Owner with ten (10) additional pavers and five (5) additional veneer units. Stone shall be carefully stockpiled as per manufacturer's recommendation storage facility designated by the Owner for use as replacements as needed.
- B. **END OF SECTION 321440**