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SECTION 129310

GRANITE SITE FURNISHINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Granite benches
2. Granite tables
3. Granite planters
4. Granite bollards
5. Granite vehicular barricades

- B. Related Sections:
 - 1. Division 03 Section "Cast-in-Place Concrete" for installation of anchor bolts cast in concrete.

1.2 REFERENCES

- A. ASTM C 119-04: Terminology Relating to Dimension Stone
- B. ASTM C 170-90 (1999): Test Method for Compressive Strength of Dimension Stone
- C. ASTM C 615-03: Specification for Granite Dimension Stone
- D. ASTM C 880-98: Test Method for Flexural Strength of Dimensional Stone

1.3 DEFINITIONS

- A. Definitions contained in ASTM C 119 apply to this Section.

1.4 SUBMITTALS

- A. Product Data: For each stone type and each manufactured product shown on Drawings or specified.
 - 1. For each stone variety used on Project, include physical property data.
- B. Shop Drawings: Show fabrication and installation details for stone:
 - 1. Include dimensions and profiles of stone units.
- C. Samples: Submit samples for each stone type required, exhibiting the full range of color characteristics expected.
 - 1. Submit a minimum of 2 each, 12 inches x 12 inches in size, in each color and finish specified.
 - 2. In the case of more variegated stones, color photos shall be submitted in addition to the number of samples to show the full range of color and markings to be expected.
 - 3. Mortar Samples: Full range of exposed color and texture.
 - 4. Sealant Samples: For each type and color of joint sealant required.
- D. Preliminary Test Reports: Submit test reports for proposed stones prior to final stone selection. Preliminary test reports shall be indicative of the stone to be proposed for the project.
 - 1. Testing of production stone is required in addition to preliminary test reports.
- E. Certification: Submit a letter of certification from the stone fabricator, stating the material being furnished is the specified material and there are sufficient reserves available to supply the project and furnish replacements if needed.
 - 1. Qualification Data: Submit qualification data indicated under Quality Assurance for the following:
 - a. **[Installer]**
 - b. **[Fabricator]**

- F. Material Test Reports: From a qualified independent testing agency, provide reports for each stone type.
- G. Cold-Weather Procedures: Detailed description of methods, materials, and equipment.

1.5 QUALITY ASSURANCE

- A. Source Limitations for Stone: Obtain each stone variety from a single quarry.
- B. Installer Qualifications: Engage experienced installer that has completed stone installation similar in material, design, and extent to that indicated for the project.
- C. Fabricator Qualifications: Engage experienced fabricator that has completed stone fabrication similar in material, design, and extent to that indicated for the project.
- D. Preconstruction Stone Testing: Engage an independent testing agency to perform the following testing for each stone variety:
 - 1. Furnish test specimens that are representative of materials.
 - 2. Physical Property Tests: ASTM standards specified for stone type.
 - 3. Flexural Strength Tests: ASTM C 880
- E. Visual Mockup: Provide full sized mock-up of the approved stone or stones in the approved finishes, erected at a site agreed to by the Architect, Contractor, and the Fabricator. The approved mock-up shall become the standard for the project.
 - 1. Build mockup of **[typical exterior stone] [areas as shown on Drawings]**.
 - 2. Size: **[insert size of visual mockup]**
 - 3. Color consistency: demonstrate color consistency with mockup; color range shall not exceed range of color established by samples.
 - 4. Included typical components and anchors.
 - 5. Include sealant joints installed as required by Division 07 Section "Joint Sealants."
 - 6. Mockup may become part of the completed Work if approved at time of Substantial Completion.

PART 2 - PRODUCTS

2.1 STONE SOURCE

- A. Varieties and Source: Subject to compliance with requirements, provide stone from the following source:
 - 1. Granite Source: Coldspring
- B. Each color of stone shall come from a single quarry, with sufficient reserves to satisfy the requirements of the project. The granite supplier shall have the capabilities to cut and finish the stone without delaying the project.
- C. Stone Source Examination: Make quarried blocks available for examination by Architect.

2.2 STONE MATERIAL

- A. Granite: ASTM C 615.
- B. Cut stone from one block or contiguous, matched blocks in which natural markings occur.

2.3 MORTAR MATERIALS

- A. Portland Cement: ASTM C 150, Type I or Type II, except Type III may be used for cold-weather construction.
- B. Hydrated Lime: ASTM C 207.
- C. Portland Cement-Lime Mix: ASTM C 150, Type I or Type III, and ASTM C 207.
- D. Aggregate: ASTM C 144.
- E. Mortar Pigments: Natural and synthetic iron oxides. Use only pigments with a record of satisfactory performance in mortar and containing no carbon black.
- F. Water: Potable.
- G. Nonshrink, Nonmetallic Grout: ASTM C 1107; recommended in writing by manufacturer, for exterior applications.

2.4 ANCHORS AND FASTENERS

- A. Anchor Material: Stainless steel, ASTM A 666, Type 304
- B. Dowels and Pins Material: Stainless steel, ASTM A 276, Type 304

2.5 STONE BENCHES

- A. Granite Benches:
 - 1. Stone Variety: **[Insert stone variety]** by Coldspring.
 - 2. Finish:
 - a. [Polished]
 - b. [Honed]
 - c. [Diamond 8]
 - d. [Thermal]
 - e. [Diamond 10].
 - 3. Thickness: Not less than the following:
 - a. [13/16 inch (+1/8" -1/16")] [20 mm]
 - b. [1-3/16 inches (+1/8" -1/16")] [30 mm]
 - c. [1-5/8 inches (+1/8" -1/16")] [41 mm]
 - d. [2 inches (+1/8" -1/16")] [51 mm]

B. Bench Tops:

1. Nominal Thickness: [**1-1/2 inches (40 mm)**] [**2 inches (50 mm)**].
2. Edge: [**Straight, slightly eased at corners**] [**As shown on Drawings**].
3. Corner Detail: [**Square, slightly eased**] [**As shown on Drawings**].
4. Bottom Surface Finish: [**Smooth**].

C. Bench Pedestals:

1. Nominal Thickness: [**4 inches (100 mm)**].
2. Edge: [**Straight, slightly eased at corners**] [**As shown on Drawings**].

2.6 STONE TABLES

A. Granite Table:

1. Stone Variety: [**Insert stone variety**] by Coldspring.
2. Finish:
 - a. [Polished]
 - b. [Honed]
 - c. [Diamond 8]
 - d. [Thermal]
 - e. [Diamond 10].

3. Thickness: Not less than the following:

- a. [13/16 inch (+1/8" -1/16")] [20 mm]
- b. [1-3/16 inches (+1/8" -1/16")] [30 mm]
- c. [1-5/8 inches (+1/8" -1/16")] [41 mm]
- d. [2 inches (+1/8" -1/16")] [51 mm]

B. Table Tops:

1. Nominal Thickness:

- a. [13/16 inch (+1/8" -1/16")] [20 mm]
- b. [1-3/16 inches (+1/8" -1/16")] [30 mm]
- c. [1-5/8 inches (+1/8" -1/16")] [41 mm]
- d. [2 inches (+1/8" -1/16")] [51 mm]

2. Edge: [**Straight, slightly eased at corners**] [**As shown on Drawings**].
3. Corner Detail: [**Square, slightly eased**] [**As shown on Drawings**].
4. Bottom Surface Finish: [**Smooth**].

C. Table Pedestals:

1. Nominal Thickness: [**4 inches (100 mm)**].
2. Edge: [**Straight, slightly eased at corners**] [**As shown on Drawings**].

2.7 PLANTERS

A. Granite Planters:

1. Stone Variety: [**Insert stone variety**] by Coldspring.
2. Finish:

- a. [Polished]
- b. [Honed]
- c. [Diamond 8]
- d. [Thermal]
- e. [Diamond 10].

3. Thickness: Not less than the following:

- a. [13/16 inch (+1/8" -1/16")] [20 mm]
- b. [1-3/16 inches (+1/8" -1/16")] [30 mm]
- c. [1-5/8 inches (+1/8" -1/16")] [41 mm]
- d. [2 inches (+1/8" -1/16")] [51 mm]

B. Planter Size and Shape: Shown on Drawings.

C. Inner Container:

1. [Galvanized steel sheet]
2. [Rigid plastic]
3. [Container with drain holes].

D. Installation Method: Freestanding.

2.8 BOLLARDS

A. Granite Bollards:

1. Stone Variety: [**Insert stone variety**] by Coldspring.
2. Finish:

- a. [Polished]
- b. [Honed]
- c. [Diamond 8]
- d. [Thermal]
- e. [Diamond 10].

3. Thickness: Not less than the following:

- a. [13/16 inch (+1/8" -1/16")] [20 mm]
- b. [1-3/16 inches (+1/8" -1/16")] [30 mm]
- c. [1-5/8 inches (+1/8" -1/16")] [41 mm]
- d. [2 inches (+1/8" -1/16")] [51 mm]

B. Size and Shape: Shown on Drawings.

2.9 VEHICULAR BARRICADES

A. Granite Vehicular Barricades:

1. Stone Variety: [**Insert stone variety**] by Coldspring.
2. Finish:

- a. [Polished]
- b. [Honed]
- c. [Diamond 8]
- d. [Thermal]

- e. [Diamond 10].
- 3. Thickness: Not less than the following:
 - a. [13/16 inch (+1/8" -1/16")] [20 mm]
 - b. [1-3/16 inches (+1/8" -1/16")] [30 mm]
 - c. [1-5/8 inches (+1/8" -1/16")] [41 mm]
 - d. [2 inches (+1/8" -1/16")] [51 mm]
- B. Size and Shape: Shown on Drawings.

2.10 STONE FABRICATION

- A. Fabricate stone per requirements, as shown on Drawings, and as follows:
 - 1. Granite Fabrication: Comply with NSI – Dimensional Stone Design Manual
- B. Arrises: Remove the sharp edge from arrises to slightly blunt edge and to reduce chipping of the finished edge.
- C. Fabricate stone to maintain minimum clearance of **1 inch** between backs of stone units and surfaces behind stone.
- D. Dress joints straight and at 90 degree angle to face. Shape beds to fit supports.
- E. Anchor Provision: Cut and drill sink provisions and holes in stone for anchors, fasteners, supports, and lifting devices as indicated or needed to set stone in place.
 - 1. Allow room for expansion of the anchoring devices where necessary.
- F. Finish exposed faces and edges of stone, [**except sawed reveals**], to comply with requirements indicated for finish and to match final samples and mockups.
- G. Joint Width: Cut stone to produce uniform joints [**3/8 inch**] [**as shown on Drawings**].
- H. Provide reveals, reglets, openings, and similar features as required to accommodate adjacent work.
- A. Fabricate molded work, including washes and drips, to produce uniform stone shapes, with precisely formed arrises slightly eased, and matching profile at joints between units.
- I. Inspect finished stone units at fabrication plant. Replace defective units.
- J. Stone Fabrication Tolerances:
 - 1. Stone thickness 2 inches or less: Plus or minus 1/16 inch of the nominal thickness shown.
 - 2. Stone thicknesses greater than 2 inches: Plus or minus 1/8 inch of the nominal thickness.
 - 3. Overall face size: Plus or minus 1/16 inch in both height and width
 - 4. Out of square: Plus or minus 1/16 inch difference of diagonals.

2.11 INSCRIPTIONS AND DECORATIVE SURFACES

- A. Carve and cut inscriptions according to Shop Drawings.
- B. Abrasively etch inscriptions according to Shop Drawings.
- C. Laser etch inscriptions according to Shop Drawings.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions for compliance with requirements for correct and level finished grade, mounting surfaces and other conditions affecting performance.
 - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Comply with manufacturer's written installation instructions. Complete field assembly of site furnishings where required.
- B. Install site furnishings level, plumb, true, and located at locations shown on Drawings.

3.3 CLEANING

- A. After completing site furnishing installation, inspect components. Remove spots, dirt, and debris. Repair damaged finishes to match original finish or replace component.

END OF SECTION