



**SPECIAL PROVISIONS
FOR
LIMESTONE**

Black Hawk County

Project No.
NHSX-63-6(88)--3H-07

Effective Date
February 19, 2013

THE STANDARD SPECIFICATIONS, SERIES OF 2012, ARE AMENDED BY THE FOLLOWING MODIFICATIONS. THESE ARE SPECIAL PROVISIONS AND SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

122003.01 GENERAL**1.01 Summary:**

- A. Extent of limestone stonework as indicated on the plans including:
 - 1. Providing and installing new Limestone Neighborhood Monuments.

1.02 Quality Assurance:

- A. **Single-Source Responsibility for Stone.** Obtain the limestone from a single quarry with resources to provide materials of consistent quality in appearance and physical properties, including the capacity to cut and finish material without delaying the progress of the work.
- B. **Installer Qualifications.** Engage an experienced Contractor who has completed stone work similar in material, design, and extent to that indicated and that has resulted in construction with a record of successful in-service performance.

1.03 Submittals:

- A. **Product Data.** Submit manufacturer's technical data for limestone, stonework accessories, and other manufactured products required.
- B. **Shop Drawings.** Submit cutting and setting drawings indicating sizes, dimensions, sections and profiles of stones; arrangement and provisions for jointing, supporting, anchoring, and bonding stonework; and details showing relationship with, attachment to, and reception of, related work.
- C. **Text Engraving.** Submit shop drawings which detail the layout of the text to be engraved on each Limestone Neighborhood Marker. Drawings shall include font type and size and shall illustrate the intended layout of the text on the face of the stone. The submittal shall also include a description and product sample of the stain selected for the engraved letters.
- D. **Graffiti Control Products.** Submit manufacturer's technical data for product intended to minimize the affects of graffiti and other environmental factors for review. Product shall provide long-term protection with minimum maintenance required.

1.04 Field Constructed Mock-Up:

- A. Prepare mock-ups for the following types of dimension stonework. Purpose of mock-ups is further verification of selections made for color and finish under sample submittals and establishing standard of quality for aesthetic effects expected in completed work. Build mock-ups to comply with following requirements:
 - 1. Mock-up for limestone work shall consist of the in-place installation of one Limestone Neighborhood Marker as detailed.
 - 2. Notify Engineer one week in advance of the dates and times when the mock-up will be erected.
 - 3. Mock-up will remain in-place (if accepted) and will be held as the standard for judging the remaining stonework.

1.05 Delivery, Storage and Handling:

- A. Deliver masonry materials to project in undamaged condition.
- B. Store and handle stone and related materials to prevent their deterioration or damage due to moisture, temperature changes, contaminants, corrosion, breakage, chipping, or other causes.
- C. Do not use pinch or wrecking bars.
- D. Store stone on wood skids or pallets, covered with non-staining, waterproof membrane. Place and stack skids and stones to distribute weight evenly and to prevent breakage or cracking of stones.

1.06 Project Conditions:

- A. **Protect Stonework During Erection as Follows.** Cover top of walls with non-staining waterproof sheeting at end of each day's work. Cover partially completed structures when work is not in progress. Extend cover a minimum of 24 inches down both sides and hold securely in-place.
- B. Prevent staining of stone from mortar, grout, sealants and other sources. Immediately remove such materials from stone without damage to latter.

1.07 Environmental Requirements:

- A. Maintain materials and ambient air to a minimum 40°F (5°C) prior to, during, and 48 hours after completion of work.
- B. At the end of working day, or during rainy weather, cover exposed stonework with non-staining waterproof coverings, securely anchored.
- C. **Cold Weather Protection.** Comply with the following requirements: Remove ice or snow formed on stonework beds by carefully applying heat until top surface is dry to the touch.

122003.02 MATERIALS, EQUIPMENT AND CONSTRUCTION**2.01 Limestone:**

- A. Provide matched blocks from a single quarry for each type, variety, color and quality of stone required. Extract blocks from a single bed of quarry stratum.
 - 1. Limestone Neighborhood Markers shall be natural bed top, sawed bottom, split-faced four sides. Stone shall be 24 inches H by 36 inches W and shall have 4-foot, 5-foot, and 6-foot lengths as detailed in the plans.
- B. Absorption (ASTM C97): 2.0 - 8.0 percent average.
- C. Bulk Specific Gravity (ASTM C97): 2.0 - 3.0 average.
- D. Density (ASTM C97): 130-160 pounds/cubic foot.
- E. Compressive Strength (ASTM C170): 9,000 psi min.
- F. Modulus of Rupture (ASTM C99): 500 psi min.

- G. Flexural Strength (ASTM C880): 350 psi min.
- H. Type: Buff colored, select grade, with finish and size as defined on plans.

2.02 Stone Fabrication:

- A. **General.** Fabricate stonework in sizes and shapes required to comply with requirements indicated, including details on plans and final shop drawings.
- B. Cut stones to produce pieces of thickness, size and shape indicated or required and within fabrication tolerances recommended by applicable stone association or, if none, stone source, for faces, edges, beds, and backs.
- C. Slope exposed top surfaces of stone for natural wash.
- D. Carefully inspect finished stones at fabrication plant for compliance with requirements relative to qualities of appearance, material, and fabrication; replace defective stones with ones that do comply.
 - 1. Grade and mark stones for overall uniform appearance when assembled in-place. Natural variations in appearance are acceptable if installed stones match range of colors and other appearance characteristics represented in approved samples and field-constructed mock-ups.

2.03 Stain for Engraved Text:

- A. Stain to be applied to letters engraved into limestone is to be of monument quality. Submit color and chemical characteristics to Engineer or Contracting Authority for approval.

2.04 Construction:

- A. General
 - 1. Execute stonework by skilled mechanics, and employ skilled stone fitters at the site to do necessary field cutting as stones are set.
 - 2. **Inspection.** Verify that support work and site conditions are ready to receive work of this Section. Verify that items built-in under other Sections are properly located and sized. Beginning of installation means acceptance of existing conditions and support work.
 - 3. **Preparation.** Establish layout. Protect from disturbance. Clean stone surfaces which have become dirty or stained prior to setting to remove soil, stains and foreign materials. Clean stones by thoroughly scrubbing stones with fiber brushes followed by a thorough drenching with clear water. Use only mild cleaning compounds that contain no caustic or harsh filler or abrasives. Do not use wire brushes or implements which can mark or damage exposed surfaces.
- B. Text Engraving
 - 1. Text (as defined on the plans) is to be engraved into the limestone neighborhood markers prior to their installation on site. Contractor shall submit shop drawings to obtain approval for text layout, font size, font type, and stain prior to commencement of engraving.

2. Lettering is to be performed by an accomplished craftsman and the work is to be in every way first rate, consistent quality, and professionally done. Apply stain to lettering prior to installation of the stone on site.

C. Limestone Installation

1. Install stone in accordance with stone supplier's instructions.
2. Place Limestone Neighborhood Markers on concrete base as per the plans.

D. Graffiti Control

1. Contractor shall provide all materials, labor and equipment to provide all exposed stone with two applications of Graffiti Control.
2. Surface to be sealed must be clean and thoroughly dry. Surface and air temperatures should be at least 50 degrees at time of application and for eight hours following. First application shall be at least 28 days after completion of actual stonework.
3. Application shall be by brush, roller or airless spray; the surface should be flooded to the point of maximum absorption. Coverage will vary from 150 to 400 square feet per gallon under normal weather conditions; coating will dry to touch in 50 minutes and dry hard in four hours. After 24 hours, apply a second coat. Care shall be taken to ensure other finish surfaces and plantings in the area are not coated.

122003.03 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

3.01 Method of Measurement: The Engineer shall measure the number of each type of Limestone Neighborhood Marker (including 5" concrete sidewalk slab over compacted subgrade) that are satisfactorily installed in accordance with the plans and this Special Provision, as required by the contract documents.

3.02 Basis of Payment: Payment: For each Limestone Neighborhood Marker (including 5" concrete sidewalk slab over compacted subgrade) installed and measured for payment, the Contractor shall be paid the contract unit price. This payment shall be full compensation for the limestone installed.

END OF SECTION