

## Specifications

Completion of Installation of Driveway Pavers  
at  
SABINE HILL STATE HISTORIC SITE  
2328 West G Street  
Elizabethton, TN 37643

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Tennessee Historical Commission  
Major Maintenance Work Program

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*THIS SECTION IS FROM THE ORIGINAL CAPITAL PROJECT AND  
CONTAINS INFORMATION TO COMPLETE PAVING PORTION OF THIS  
PROJECT.*

### **DRAWINGS**

AS1                              ARCHITECTURAL SITE PLAN AND DETAILS  
*THIS SHEET IS FROM THE ORIGINAL CAPITAL PROJECT  
AND CONTAINS INFORMATION TO COMPLETE THE PAVING PORTION OF  
THIS PROJECT.*

SECTION 01100  
SUMMARY OF WORK

PART 1-GENERAL

1.01.1 SCOPE OF WORK

- A. Sabine Hill is a nationally important historic site. As such, the Contractor, his/her subcontractors and vendors shall take the upmost care to protect the structure and its contents. In general, the Contractor shall take all necessary precautions to protect all historic building materials to eliminate damage to those materials.
- B. Requirements of the Work are contained in the Contract Documents, and include cross references herein to published information, which is not necessarily bound therewith.
- C. The Work of this Contract shall include the furnishing of all labor, equipment, materials, tools, construction equipment and machinery, storage, transportation, insurance, taxes, superintendence, coordination, and miscellaneous services required for the construction and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated into the Work. All Work shall be performed in strict accordance with the Contract Documents.
- D. General Verbal Summary: Without force and effect on requirements of the Contract Documents, the description of the Work can be summarized as follows:
  - I. Completion of installation of porous unit paving between two previously installed sections
    - a. Removal of excess gravel from site, currently marked as gravel on plan
    - b. Installation of porous unit paving in accordance with detail on drawing and from porous unit paving at entrance to porous unit paving at parking lot.
    - c. Installation to appear as seamless as possible, as if all installed at the same time.
      - i. Product must match existing
      - ii. Same manufacturer: Belgard Aqua-Bric
      - iii. Same color: Fossil
      - iv. Same size
      - v. Same laying pattern: 90 degree herringbone
- E. The general requirements of the Work are contained in the attached Specification sections.
- F. Work is to begin immediately upon award and be completed within 30 days.

1.02 QUALITY ASSURANCE

- A. Any work must be performed by a qualified contractor, his employees and subcontractors.

1.03 OWNER'S AND SITE REPRESENTATIVES

- A. Owner's Representative

1. The Owner's Representative for this project will be the Sycamore Shoals State Historic Area Park Manager. The Owner's Representative is responsible for the administration of this contract, including responses to contractor questions and other issues requiring resolution during the course of the project.

B. Historic Site Representative

1. The Historic Site Representative will be single person designated at the site to represent the site for the duration of the project.
2. The Historic Site Representative will be responsible for monitoring the progress of the work with respect to the contractor's care and protection of the historic structures during the course of the contractor's operations as well as contractor's access to and use of portions of the site or the site's facilities.
3. The Historic Site Representative will coordinate site interpretation and activities with the needs of the contractor for access to various parts of the site during the course of the project.
4. The Historic Site Representative will be responsible for communicating any questions or issues arising during the course of the project.

1.04 CONTRACTOR USE OF PREMISES

- A. Coordinate use of the premises with the Historic Site Representative. Access to site, site facilities, utilities, parking, materials storage, etc., shall be coordinated with the Historic Site Representative.
- B. Do not unreasonably encumber the site during the execution of the Work of this Contract. The work will be done in such a manner that will not hinder in any way the day-to-day operations of the site. Coordinate work schedule and use of premises (parking, utilities, etc.) with Historic Site Director. The site will remain open to the public and may have special events or other activities that may affect the Contractor's work schedule. Within ten days of receipt of order, the Historic Site Representative will provide a list of days or times when work should not take place.
- C. Contractor and his employees to wear appropriate clothing and act in an appropriate manner toward staff and visitors.
- D. Assume full responsibility for the protection and safekeeping of products stored on the premises.
- E. All tools shall be stored and used in a secure manner. Walkways and footpaths shall be clear of debris, rubble, and tools when the work is not underway and at the end of each work day.
- F. Contractor shall be responsible for installation/maintenance of his own telephone communications for use of Contractor and subcontractors.

1.05 SITE INSPECTION

- A. The Contractor acknowledges that he has satisfied himself as to the nature and location of the Work, the general and local conditions, particularly those bearing upon transportation, disposal, handling, and storage of materials, availability of labor, water, electric power, roads, uncertainties of weather, ground water table or similar physical conditions at the site, the conformation and condition of the ground, the character of equipment and facilities needed prior to and during the prosecution of the Work and all other matters which can in any way affect the Work of the cost thereof under this Contract.

#### 1.06 REQUIREMENTS FOR NEW AND EXISTING CONSTRUCTION

- A. Protect the existing buildings from wind, storms, cold/heat, water and dust damage of any sort. Provide all equipment and enclosures to maintain this protection and keep the building interior free of water and dust during the life of the Contract.
- B. Provide all shoring and bracing required to maintain the integrity and the safety of the existing structure and for the proper execution of the Work.
- C. Exercise the utmost care to protect all existing utility lines from damage during the progress of Work.
- D. Any portion of the existing building or existing utility services not included as part of this Contract or any portion of the Work damaged because of failure to provide the protection required shall be removed and replaced with historically appropriate matching materials and construction at the Contractor's expense. This Work shall be accomplished subject to the approval of the Owner's Representative.

#### 1.07 REPLACEMENT AND REPAIR OF ANY STRUCTURES THAT HAVE BEEN DESTROYED IN THE PROGRESS OF THE WORK

- A. The premises will be occupied during the entire construction period and the site's normal operations will be conducted by site personnel. The greatest of attention and care shall be administered in the handling of the visiting public.
- B. Cooperate with the Historic Site Representative in scheduling of operations to minimize conflict and to facilitate site usage.
- C. Special Events: The sites may during the course of the Work have scheduled special events that will result in the Contractor being required to suspend operations for a specific period of time. The Historic Site Representative is responsible for providing the Contractor with a schedule of events within one week of the Contractor receiving Receipt of Order. The schedule may be modified by the Historic Site Representative only when the Contractor has been given one week notice of such schedule change.

#### 1.08 HISTORICAL SIGNIFICANCE

- A. The Contractor is to be aware that the existing structures and sites are of significant historical importance and all work shall be performed with due care and awareness by the Contractor's personnel and subcontractors. No cutting or removal of existing materials or surfaces shall be performed that are not specifically detailed or called for as part of the Work. Conduct of the Contractor's personnel and subcontractors while on the site shall respect the rights of the

visiting public. The Historic Site Representative or Owner's Representative retains the right to request removal of any of Contractor's personnel or subcontractors for any reason.

END OF SECTION 01100

SECTION 01145  
CUTTING AND PATCHING

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

- A. Drawing and general provisions of Contract, including other Division -1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements for cutting and patching.
- B. Demolition of selected portions of the building for alterations is included elsewhere in the Contract Documents.

1.03 QUALITY ASSURANCE

- A. Visual Requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces, in a manner that would, in the Owner's Representative's opinion, reduce the building's aesthetic qualities, or result in visual evidence of cutting and patching. Remove and replace Work cut and patched in a visually unsatisfactory manner.
  - 1. Retain a recognized and specialized installer or fabricator to cut and patch the following categories of exposed Work:
    - a. Existing porous unit pavers.
  - 2. Approval by the Owner's Representative to proceed with cutting and patching does not waive the Owner's Representative's right to later require complete removal and replacement of a part of the Work found to be unsatisfactory.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Use materials that are identical to existing materials. If identical materials are not available or cannot be used where exposed surfaces are involved, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials whose installed performance will equal or surpass that of existing materials. Where identical materials are not available, submit proposed substitutes to the Owner's Representative for approval.

PART 3 – EXECUTION

3.01 INSPECTION

- A. Before cutting existing surfaces, examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed. Take corrective action before proceeding, if unsafe or unsatisfactory conditions are encountered.

3.02 PREPARATION

- A. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations.
- B. Take all precautions necessary to avoid cutting existing pipe, conduit or ductwork serving the building, but scheduled to be removed or relocated until provisions have been made to bypass them.

### 3.03 PERFORMANCE

- A. General: Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.
  - 1. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.
- B. Cutting: Cut existing construction using methods least likely to damage elements to be retained or adjoining construction.
  - 1. In general, where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots neatly to size required with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  - 2. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
- C. Patching: Patch will durable seams that are as invisible as possible. Comply with specified tolerances.
  - 1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.
  - 2. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
  - 3. Where patching occurs in a smooth painted surface, extend final paint coat over entire unbroken area containing the patch, after the patched area has received primer and second coat.

END OF SECTION 01145

SECTION 01520  
CONSTRUCTION FACILITIES AND TEMPORARY FACILITIES

PART 1- GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. Specific administrative and procedural minimum actions are specified in this Section as extensions of provisions in the General Conditions and other Contract Documents. These requirements have been included for the special purposes as indicated. Nothing in this Section is intended to limit types and amounts of temporary work required and no omission for this Section will be recognized as an indication by the Owner's Representative that such temporary activity is NOT required for the successful completion of the Work and compliance with the requirements of the contract Documents.

1.02 QUALITY ASSURANCE

- A. In addition to compliance with governing regulations and rules/recommendations of franchised utility companies, comply with specific requirements indicated and applicable local industry standards for construction work.

1.03 JOB CONDITIONS

- A. Establish and initiate use of each temporary facility at that time first reasonably required for proper performance of the Work. Terminate use and remove facilities at the earliest reasonable time, when no longer needed or when permanent facilities have, with authorized use, replaced the need.
- B. Install, operate, maintain and protect temporary facilities in a manner and at locations that will be safe, non-hazardous, sanitary and protective of persons and property and free of deleterious effects.

PART 2 – PRODUCTS

2.01 TEMPORARY UTILITY SERVICES

- A. Temporary services required include, not by way of limitation, telephone and any other services needed by the Contractor. Comply with service companies' recommendations on materials and methods, or engage service companies to install services. Locate and relocate services (as necessary) to minimize interference with construction and site visitation operations.
- B. Materials shall be new and shall be adequate for the purposes intended and shall not create unsafe conditions nor violate requirements of applicable codes.
- C. Water: Non-potable water shall be acceptable for industrial, cleaning and fire fighting purposes only
- D. Enclosures: Furnish, install and maintain for the duration of construction all required scaffolds, tarpaulins, barricades, canopies, warning signs, steps, bridges, platforms, and other temporary

construction necessary for proper completion of the Work in compliance with all pertinent safety and other regulations.

E. Ventilation

1. Prevent hazardous accumulations of dust, fumes, mists, vapors, or gases in areas occupied during construction.
2. Provide adequate ventilation during installation of materials for dispersal of humidity and ventilation of temporary sanitary facilities.

F. Access Provisions

1. Provide ramps, stairs, ladders and similar temporary access elements as reasonably required to perform the Work and facilitate its inspection during installation. Comply with reasonable requests of governing authorities performing inspections.

G. Access Roads and Parking Areas

1. When feasible, use permanent roads and paving as temporary roadways and paved construction areas.
2. Repair damage caused by construction activities to finish paving course after possibility of damage from construction operations has passed.
3. Locations of temporary roadways shall be approved by the Historic Site Representative. Damage to grounds to be repaired in appropriate manner.

- H. Site Operations: The sites will be open to visitors during the sites' regularly scheduled operating hours during the course of construction. Contractor shall work with the sites to provide a safe access to the building for visitors.

2.02 SECURITY/PROTECTION PROVISIONS

- A. The types of temporary security and protection provisions required include, but not by way of limitation:

1. Barricades.
2. Personnel security program (theft protection).
3. Warning signs/lights.
4. Environmental protection.
5. Building lock up.

- B. Provide facilities and services as necessary to effectively protect project from losses and persons from injury during the course of construction.

C. Fire Protection

1. Smoking is prohibited on site.

2.03 HISTORIC SITE PROVISIONS

- A. Provide all general services as may be reasonably required for proficient performance of the Work and accommodation of personnel at the site including Owner's Representative and Historic Site personnel. Discontinue and remove temporary support facilities and make incidental similar use of permanent work of the Project only when and in manner authorized by the Owner's Representative and, if not otherwise indicated, immediately before the time of Substantial

Completion. Locate temporary support facilities for the convenience of the users and for minimum interference with construction activities.

## 2.04 HISTORIC SITE PROVISIONS

- A. Historic site will make available the following facilities and services:
  - 1. Sites for construction facilities, staging and construction personnel parking. This area is to be limited so as to cause the least amount of disruption to the site. Closed storage for new materials or for materials to be reused will not be available.
  - 2. Access to electrical and water connections.

## PART 3 – EXECUTION

### 3.01 REMOVAL

- A. Maintain all temporary facilities and controls as long as needed for the safe and proper completion of the Work. Remove all such temporary facilities and controls as rapidly as the progress of the Work will permit.

### 3.02 CLEANING DURING CONSTRUCTION

- A. Hazards Control
  - 1. Store volatile wastes in covered metal containers and remove from premises daily. Prevent accumulation of wastes, which create hazardous conditions. Provide adequate ventilation during use of volatile or noxious substances. Conduct cleaning and disposal operations to comply with local ordinances, state laws and anti-pollution laws.
    - a. Do not burn or bury rubbish and waste materials on project site.
    - b. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
    - c. Do not dispose of wastes into streams or waterways.
- B. Care shall be taken by all workmen not to mark, soil, or otherwise deface finished surfaces. In the event that any finished surface becomes defaced in any way by mechanics or workmen, the contractor responsible shall clean and restore such surfaces to their original condition.
- C. Handle materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights.
- D. Schedule cleaning operations so that dust and other contaminants resulting from the cleaning process will not fall on wet, newly painted surfaces.
- E. Temporarily place waste materials, debris and rubbish in appropriate containers. Remove these materials from the site and legally dispose of at public or private dumping areas off property. Daily removal will not be required, but unsightly accumulation of waste, debris and rubbish is not acceptable. Sites are to be clean and free of debris at completion of the work at each respective site.

END OF SECTION 015200

**SECTION 01710  
FINAL CLEANING**

**PART 1-GENERAL**

- 1.01 At completion of the Work complete the following to leave the Project clean and ready for acceptance or occupancy:
- A. In preparation for Substantial Completion or occupancy, conduct final inspection of sight-exposed interior and exterior surfaces and of concealed spaces.
  - B. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from sight-exposed interior and exterior finished surfaces; polish surfaces so designated to shine finish.
  - C. Repair, patch, and touch-up marred surfaces to specified finish to match adjacent surfaces.
  - D. Broom clean paved surfaces; rake clean other surfaces of grounds.
  - E. Recleaning will not be required after the work has been inspected unless later operations of the Contractor, in the opinion of the Owner's Representative make recleaning of certain portions necessary.

**END OF SECTION**

## SECTION 321443 - POROUS UNIT PAVING

### PART 1 - GENERAL

#### 1.1 SUMMARY

##### A. Section Includes:

1. Solid concrete pavers with openings between pavers filled with aggregate.
2. Aggregate setting bed for pavers.
3. Edge restraints.

#### 1.2 ACTION SUBMITTALS

##### A. Product Data: For materials other than aggregates.

##### B. State Sustainability Submittals:

1. Product Certificates, reference Credit MR 5: For products and materials required to comply with requirements for regional materials, certificates indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include statement indicating distance to Project, cost for each regional material, and fraction by weight that is considered regional.

##### C. Sieve Analyses: For aggregate materials, according to ASTM C 136.

##### D. Samples:

1. Full-size units of each type of unit paver indicated.
2. Exposed edge restraints.
3. Aggregate fill.
4. Aggregate setting bed materials.

#### 1.3 QUALITY ASSURANCE

##### A. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 CONCRETE UNIT PAVERS

- A. Regional Materials: Pavers shall be manufactured within 500 miles (800 km) of Project site from aggregates and cement that have been extracted, harvested, or recovered, as well as manufactured, within 500 miles (800 km) of Project site.
- B. Solid Concrete Pavers for Porous Paving: Solid interlocking paving units of shapes that provide openings between units, complying with ASTM C 936/C 936M, resistant to freezing and thawing when tested according to ASTM C 67, and made from normal-weight aggregates.
  - 1. Products: Subject to compliance with requirements, provide one of the following available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Aqua Roc by Belgard
    - b. AquaPave by Red River Hardscapes
    - c. Approved Equal.
  - 1. Color: As selected by Architect from manufacturer's full range.

### 2.2 ACCESSORIES

- A. Edge restraints to be concrete flush curbs complying with section 321313 and as shown on the Drawings.

### 2.3 AGGREGATE SETTING-BED MATERIALS

- A. Regional Materials: Aggregate and soil shall be extracted, harvested, or recovered, as well as manufactured, within 500 miles (800 km) of Project site.
- B. Graded Aggregate for Subbase: comply with paver manufacturers recommendations.
- C. Graded Aggregate for Base Course: comply with paver manufacturers recommendations.
- D. Sand for Leveling Course: comply with paver manufacturers recommendations.
- E. Graded Aggregate for Leveling Course: Sound crushed stone or gravel complying with ASTM D 448 for Size No. 8.
- F. Drainage Geotextile: Nonwoven needle-punched geotextile, manufactured for subsurface drainage applications, made from polyolefins or polyesters; with elongation greater than 50 percent; complying with AASHTO M 288 and the following, measured according to test methods referenced:
  - 1. Survivability: Class 2; AASHTO M 288.

2. Apparent Opening Size: No. 40 (0.425-mm) sieve, maximum; ASTM D 4751.
3. Permittivity: 0.5 per second, minimum; ASTM D 4491.

## 2.4 FILL MATERIALS

- A. Aggregate Fill for Porous Paving: Graded, sound crushed stone or gravel complying with ASTM D 448 for Size No. 8.
  1. Color: Match Architect's sample.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Do not use unit pavers with chips, cracks, voids, discolorations, and other defects that might be structurally unsound or visible in finished work.
- B. Cut unit pavers with motor-driven masonry saw equipment to provide clean, sharp, unchipped edges. Cut units to provide pattern indicated and to fit adjoining work neatly. Use full units without cutting where possible. Hammer cutting is not acceptable.
- C. Tolerances:
  1. Variation in Plane between Adjacent Units (Lipping): Do not exceed 1/16-inch (1.5-mm) unit-to-unit offset from flush.
  2. Variation from Level or Indicated Slope: Do not exceed 1/8 inch in 24 inches (3 mm in 600 mm) and 1/4 inch in 10 feet (6 mm in 3 m) or a maximum of 1/2 inch (13 mm).
  3. Variations must comply with ADA 2010 standards.
- D. Provide edge restraints as indicated. Install edge restraints before placing unit pavers.

### 3.2 SETTING-BED INSTALLATION

- A. Installation shall comply with Manufacturer's recommendations.
- B. Compact subgrade uniformly to at least 95 percent of ASTM D 698 ASTM D 1557 laboratory density.
- C. Place drainage geotextile over prepared subgrade, overlapping ends and edges at least 12 inches (300 mm).
- D. Place aggregate subbase and base, compact by tamping with plate vibrator, and screed to depth indicated.
- E. Place aggregate subbase and base, compact to 100 percent of ASTM D 1557 maximum laboratory density, and screed to depth indicated.

- F. Place drainage geotextile over compacted subbase, overlapping ends and edges at least 12 inches (300 mm).
- G. Place drainage geotextile over compacted base course, overlapping ends and edges at least 12 inches (300 mm).
- H. Place leveling course and screed to a thickness of 2 to 2-1/2 inches (50 to 64 mm), taking care that moisture content remains constant and density is loose and constant until pavers are set and compacted.

### 3.3 PAVER INSTALLATION

- A. Installation shall comply with Manufacturer's recommendations.
- B. Set unit pavers on leveling course, being careful not to disturb leveling base. If pavers have lugs or spacer bars to control spacing, place pavers hand tight against lugs or spacer bars. If pavers do not have lugs or spacer bars, place pavers with a 1/16-inch- (1.6-mm-) minimum and 1/8-inch- (3.2-mm-) maximum joint width.
- C. Compact pavers into leveling course with a low-amplitude plate vibrator capable of a 3500- to 5000-lbf (16- to 22-kN) compaction force at 80 to 90 Hz.
- D. Place graded aggregate fill immediately after vibrating pavers into leveling course. Spread and screed aggregate fill level with tops of pavers.
- E. As work progresses, remove and replace pavers that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Provide new units to match adjoining units and install in same manner as original units, with same joint treatment and with no evidence of replacement.

END OF SECTION 321443