



**Addendum #1**

Date: July 18, 2024

**Project**

- a. Title: NMAH – Improve Site Drainage and Flood Protection
- b. Location: National Museum of American History
- c. SF Project No: 1803118

**Include the following items as Addendum #1 to the contract:**

**1. Specification Division 015639**

See following pages.

**Note that this specification section is referenced in the bid set, but was not included in the specification package.**

**END OF SCOPE OF WORK**



# Smithsonian Gardens

## SG SPECIFICATIONS

### SECTION 01 5639 – SITE PROTECTION

26.1. Tree Protection: The following procedures shall be followed for any project taking place on Smithsonian Institution grounds when any tree may be impacted.

26.1.1 Prior to any work taking place or vehicles and equipment being brought on site, the Contractor shall meet with the Smithsonian Gardens (SG) Arborist, Landscape Architect, and other appropriate staff to discuss and plan for tree protection measures.

26.1.2 The project site shall be defined, and all trees that may be impacted identified.

A. Where proposed utility work and connections cross roadways into adjacent SG property, the project site will include tree protection within the adjacent property if deemed necessary by the Smithsonian Gardens Arborist and/or other qualified SG staff.

26.1.3 For every tree that may be impacted, the Critical Root Zone (CRZ) shall be identified. The CRZ shall be determined by the following method:

A. Measure the diameter of the tree at breast height (4.5 feet above grade), and for every inch of diameter, measure a distance of 1.5 feet from the trunk. The area inside this circle is the CRZ.

26.1.4 The following activities shall **NOT** take place in the CRZ, unless specified in a written tree protection plan pre-approved by SG:

- A. Stockpiling of materials, soil, mulch, or debris.
- B. Parking or driving of equipment or vehicles.
- C. Compaction of soil from any activity, including the placement of vehicles, materials, equipment, or outriggers.
- D. Trenching, tunneling, grade changing, or removing soil.
- E. Cutting, tearing, or grubbing of tree roots.
- F. Wounding trees in any way.
- G. Changing the site drainage.

- H. Dumping or spraying gasoline, oil, dirty water, or any chemical or material that can damage a tree.
  - I. Using trees as backstops, winch supports, or anchors.
  - J. Attaching anything to trees, including, but not limited to, signage, nails, screws, spikes, ropes, and wires.
- 26.1.5 Once the CRZ's have been identified, fencing shall be erected on the edge of the CRZ to prevent any activities from taking place in those zones. Fencing can consist of minimum 48" height (72" preferred) chain link or welded wire fence with steel posts set into the ground. Refer to Smithsonian Gardens standard Tree Protection Fence Detail. Alterations to or deviations from this detail shall be pre-approved by SG through the COTR. Orange construction fencing should NOT be used without advance approval of SG arborist.
- Warning signs shall be placed on each CRZ fence, be a minimum size of 8.5 x 11 inches, and state the following: "TREE PROTECTION ZONE. This fence shall not be removed." Removal of fences, even temporarily, to allow deliveries or equipment access is not allowed without the prior approval of the Smithsonian Gardens Arborist or other qualified SG staff.
- 26.1.6 In the event that it is impossible to complete a project without some activity in a CRZ, a written tree protection plan pre-approved by SG shall be implemented. Tree protection plan requirements may include impact avoidance, root protection groundcover, air excavation and root pruning, supplemental watering, chemical applications, branch pruning and/or tiebacks, and/or any number of other industry standard tree protection methods generally reviewed in the *Managing Trees During Construction Best Management Practices* manual (Fite and Smiley 2016) and other literature reviewing tree care industry standard tree protection practices.
- A. Boring of utilities under protected root zones shall be required in circumstances where it is not possible to trench around a CRZ. Refer to Smithsonian Gardens standard Tree Protection Utility Boring Detail.
- 26.1.7 During the project, project activities shall not physically impact the tree or delineated CRZ, unless described in tree protection plan pre-approved by SG. The impacted trees shall also be closely monitored for signs of shock or stress. Any decline in tree condition that is noted by the Contractor shall be immediately reported to the SG Arborist or other staff. The Contractor shall be prepared to provide temporary water to irrigate.
- 26.1.8 Upon completion of the project, all trees within the project area will be inspected by the SG Arborist and/or other qualified SG staff for any signs of tree damage, soil compaction, and/or other negative impacts to the site. If any issues are found, the Contractor shall be responsible for remediation activities including, but not limited to,

root zone invigoration/air spading, liquid fertilization/bio-stimulant injections, root pruning, branch pruning, bark tracing, and/or supplemental watering.

26.1.9 If a tree is found by the SG staff to be irreversibly damaged, the Contractor will be required to proceed with one of the following as determined by the SG staff: either to install a replacement tree of matching size, quality, and variety, using a contractor designated by SG or to reimburse for the cost of the tree as set forth in the *Guide for Plant Appraisal, 10<sup>th</sup> Edition*, using the Direct Cost Method. If an acceptable tree is not available, the Contractor will be required to pay damages to SG for the value of the damaged tree in accordance with the guidelines set forth in the *Guide for Plant Appraisal, 10<sup>th</sup> Edition*, using the Trunk Formula Method.

26.2 Flora Protection: The Contractor is expressly prohibited from collecting plant materials on Smithsonian property.

26.3 Soil, Turf and Planting Bed Protection: Vehicular traffic or parking on turf areas or on planting beds is not permitted without prior approval of the Smithsonian Gardens through the COTR. If turf areas or planting beds must be crossed by vehicles, beds bridging is required. The Contractor shall meet with the Smithsonian Gardens (SG) Arborist, Landscape Architect, and other appropriate staff to discuss required protection measures. The scope of work and types of vehicles or machinery being used will determine the selection of the following techniques. Install any underlayment or drainage for these protection measures as directed by the associated standard details.

- A. ¾' Temporary Plywood Matting – used in zones of low vehicle traffic, including lighter weight vehicles (lulls, skid steer loaders, or equivalent) where the duration of use does not exceed three days. Refer to Smithsonian Gardens standard Temporary Soil Protection – Plywood Matting Detail.
- B. Rigid Plastic Decking (Geoterra Mats include underlying layer (e.g., Rigid Plastic Decking (Geoterra Mats) Over Geocomposite Drain Layer) – used in main circulation zones with high vehicle traffic, including wheeled vehicles or machinery of H20-rated loading or greater; and where sensitive and newly installed soil is located. Refer to Smithsonian Gardens standard Soil Protection – Geoterra Mats Detail.
- C. Timber Mats – used in zones of high vehicle traffic, where heavy (H20-rated loading) vehicles and machinery are entering or exiting the project site; and where sensitive and newly installed soil is located. Refer to Smithsonian Gardens standard Soil Protection – Timber Mats Detail.

26.3.1 The Contractor shall be responsible to ensure that no soil disturbance, compaction, or other damages will occur from construction traffic or other construction activities. Any such disturbance, compaction, and/or damage shall be repaired by the Contractor at no additional expense to Smithsonian Gardens.

26.3.2 Repair and re-establish grades where turf and bed surfaces have become eroded, rutted, or compacted. Scarify, or, if directed by the COTR or other appropriate SG staff, remove and replace soil (with approved soil material) to the depth as directed.

26.3.3 Any soil area that becomes compacted to a density greater than 85 proctor density (or 300 lbs per sq ft) and/or the determined maximum by the COTR or SG staff shall be dug up and reinstalled. Surface tilling shall not be considered adequate to reduce over-compaction at levels 6" or greater below finish grade.

26.4 If a generator is placed on the turf, Smithsonian Gardens must have approved its placement. Generator shall be placed on anti-compactor boards. The generator must be placed in a drip containment basin.

26.5 Where aerial work is being performed above shrub/planting beds, the Contractor shall protect them with an approved protective framework installed at least 300 mm above the tops of the plant materials. The Contractor shall submit the proposed method of protection to the COTR and Smithsonian Gardens for approval. Trees and shrubs shall only be tied back with the approval of the COTR and Smithsonian Gardens.

A. Trees in proximity to construction equipment with moving arms at heights above standard protection fencing shall have their trunks protected. Refer to Smithsonian Gardens standard Trunk Protection Detail.

B. Once work is complete, all fallen debris within a 10' radius of scaffolding shall be removed from the surface of the soil and any plants beneath. The Contractor shall utilize magnetic sweepers and metal detectors to remove any fallen metal debris and construction materials.

26.6 Irrigation Protection: Smithsonian Gardens should be notified immediately, should any damage occur to existing irrigation systems during construction. Any damage to the existing irrigation systems during construction shall be repaired by the Contractor within two calendar days from when the damage occurred. All repairs to the irrigation system shall be made by a certified irrigation contractor to work on Rain Bird Maxicom computer controlled irrigation systems. Certification is required.

26.6.2 Damaged piping shall be replaced using approved materials per section Division Two, "Site Work, Irrigation Systems".

26.6.3 The Contractor shall bear all costs for repairs to the damaged irrigation system. Where the low voltage control wiring is damaged due to construction then said wiring shall be replaced from the zone valve to controller. No splicing will be permitted.

26.6.4 Mainlines damaged during the construction process shall be replaced with an identification wire from valve to controller.

26.6.5 All damaged irrigation piping shall be cleared of debris prior to making the permit connections.

26.7 Replacement Plants: The Contractor shall bear all costs for replacement of damaged plant materials. Replacement plant materials shall meet the criteria established by the Smithsonian Gardens. Any plant material destroyed and/or damaged by the Contractor during construction shall be replaced with like genus and species of the same size, at no additional cost to the Smithsonian.

26.8 Replacement Turf: Turf areas damaged during construction shall be repaired by the Contractor according to Smithsonian Gardens Lawns and Grasses Specifications (329200). Replacement turf shall be sod, not seed. Contractor shall request a copy of Lawns and Grasses Specifications prior to commencing repair. Specifications include roto-tilling a minimum depth of 6 inches, backfilled with sandy-loam topsoil. Prior to installing sod, contractor shall obtain Smithsonian Gardens acceptance of finish grading. Sod shall be certified sod, non-netted and a minimum of one year old. Sod shall be 90:10, consisting of a minimum of three varieties tall fescues and one Kentucky Bluegrass. Smithsonian Gardens through the COTR must approve the source of the sod. Following installation, sod shall be rolled by hand with a water roller to ensure contact with subgrade, eliminate air pockets, and form a smooth surface. The Contractor shall bear all costs for these repairs. Suggested sources are:

1. Oakwood Sod Farm, Inc.  
29307 Waller Road  
Delmar, MD 21875  
Phone: (410) 896-4009  
Toll-Free: (800)379-8488

2. Collins Wharf Sod  
25361 Collins Wharf Rd  
Eden, MD 21822  
Phone 410-334-6676  
Fax 410-749-3815  
[cwsod@collinswharfsod.com](mailto:cwsod@collinswharfsod.com)

3. Summit Hall Sod Farm  
21300 River Road  
Poolesville, MD 20837-9114  
Phone: 301-948-2900  
Fax: 301-349-2668

26.9 Replacement Soil: Planting soil damaged by compaction or removed during construction shall be repaired or replaced. All removed soil shall be stored on site, protected properly, and used for replacement. Any replacement soil brought from off-site shall match the existing soil texture. Smithsonian Gardens, through the COTR, must approve the source of any replacement soil before procuring and transporting the soil to the site.

26.10 Compacted Soil: Planting soil damaged by compaction during construction shall be repaired or replaced. Before the Contractor concludes their Work (at time of Substantial Completion or Final Review), they must notify the Smithsonian Gardens, through the COTR, to check for compaction. If compaction has occurred, the Smithsonian COTR will direct the

Contractor to the proper remediation process and details based on the depth of compaction found to be present.

26.11 Artifacts and Furniture Collection Pieces: Smithsonian Gardens requires (5) working day notice should any of the artifacts or furniture collection need to be removed to facilitate construction. Any artifacts or furniture collection piece damaged during the construction process must be replaced prior to final payment.

26.12 Trash and Debris Removal: The Contractor shall be responsible for the daily removal of trash and construction debris from turf and flower/shrub beds within the limits of construction.

26.13 Scaffolding: Any construction scaffolding on turf and planted beds must be coordinated with the Smithsonian Gardens through the COTR to ensure that its installation will not damage or destroy existing plant materials or turf area or interfere with daily maintenance of the grounds. Trees may be tied back to permit erection of scaffolding, no more than 4 feet if possible. The tying back must be performed by a certified Arborist with the approval of Smithsonian Gardens and the COTR. Where scaffolding is necessary to facilitate construction, Smithsonian Gardens requires a three (3) workday notice for said work.

26.14 Haupt Garden: Due to structural weight limits, vehicular traffic is permitted inside the Smithsonian's Enid A. Haupt Garden only with prior approval by the COTR and Smithsonian Gardens.

26.15 Fauna Protection: The Contractor is prohibited from hunting, collecting, or feeding animals on Smithsonian property. All food and food wrapping brought on the premises must be properly disposed of in approved containers which are secured from animals.