Historic Preservation Training Center

PROJECT MANUAL

PMIS #351014
Install Masonry Barrier Wall at Independence Mall

Independence National Historical Park

June 2026

4.A.1.2
Submitted by:
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Table of Contents

Division 1 General Conditions
01 10 00 Summary
01 30 00 Administrative Requirements
01 33 23 Shop Drawings, Product Data and Samples
01 35 29 Protection of Existing Vegetation, Site Features, and Utilities
01 35 70 Cultural Resource Protection
01 35 91 Historic Treatment Procedures
01 45 00 Quality Control
01 50 00 Temporary Facilities and Controls
01 55 26 Traffic Control
01 57 19 Environmental Protection
01 74 19 Construction Waste Management and Disposal
01 77 00 Closeout Procedures
01 78 23 Operation and Maintenance Data

Division 3 Concrete
03 30 00 Cast-in-Place Concrete

Division 4 Masonry
04 20 00 Unit Masonry
04 70 00 Cut Stone

Division 7 Thermal and Moisture Protection
07 90 00 Joint Sealants

Division 31 Site Work
31 20 00 Excavation and Backfill
32 92 23 Turf Restoration and Irrigation Repair

SUMMARY

PROJECT: Masonry Barrier Wall
LOCATION: Southeast Corner of 6th and Market Street, Independence National Historical Park
PMIS/PKG No.: 351014
OWNER: National Park Service
PREPARED FOR: United States Department of the Interior, National Park Service, Historic Preservation Training Center (HPTC)

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions, and Division 01 Specification Sections, apply to this Section.
B. Requirements specified in Division 01 Sections are complementary to requirements contained herein.

1.2 SUMMARY OF WORK

A. The Work consists of construction of a new masonry barrier wall and related site Improvements at SE corner of 6th and Market Street site within Independence National Historical Park, Philadelphia, Pennsylvania.
B. Work generally includes, but is not necessarily limited to:
1. Mobilization and demobilization.
2. Protection of visitors, staff, historic resources, and adjacent improvements.
3. Layout and field verification of existing conditions.
4. Selective demolition and removal as indicated.
5. Salvage, protection, storage, and reinstallation of designated items.
6. Excavation, grading, and preparation of subgrades.
7. Construction of reinforced masonry barrier wall.
8. Concrete foundations and related structural work.
9. Installation of associated site elements and appurtenances.
10. Site restoration and repair of disturbed areas.
11. Cleaning and final acceptance activities.

C. Contractor shall furnish all labor, materials, equipment, supervision, transportation, permits, and incidentals necessary to complete the Work indicated on the Drawings and specified herein.

1.3 PROJECT INFORMATION

A. Project Name: Barrier Masonry Wall.
B. Site Location: SE corner of 6th and Market Street, Independence National Historical Park, Philadelphia, Pennsylvania.

C. Jurisdiction:
1. United States Department of the Interior (DOI).
2. National Park Service (NPS).
3. Historic Preservation Training Center (HPTC).

D. The project site is located within a nationally significant historic property and shall be treated accordingly throughout construction operations. Historic resources shall be protected from damage.

1.4 CONTRACT DESCRIPTION

A. Work shall be performed under a single prime construction contract.
B. The Contractor shall coordinate all activities required to complete the Work and maintain continuous progress throughout the Contract period.

1.5 OWNER OCCUPANCY

A. Independence National Historical Park will remain operational during construction.
B. Public access to portions of the site may continue during construction activities.
C. Contractor shall:
1. Conduct operations to minimize interference with park operations.
2. Maintain safe pedestrian circulation at all times.
3. Coordinate temporary closures with the Contracting Officer's Representative (COR).
4. Provide barriers, signage, and protective measures necessary to protect visitors and staff.

1.6 CONTRACTOR USE OF PREMISES

A. Limit use of premises to areas indicated and approved by the COR.
B. Confine construction operations to areas necessary for performance of the Work.
C. Do not unreasonably encumber the site with materials or equipment.
D. Storage locations, staging areas, and construction access routes shall be subject to approval by the COR.
E. Protect existing facilities, utilities, landscape features, paving, monuments, furnishings, and historic resources.
F. Any damage caused by Contractor operations shall be repaired or replaced at no additional cost to the Government.

1.7 HISTORIC RESOURCE PROTECTION

A. The project is located within a historic park environment and requires special protection measures.
B. Existing historic materials, features, finishes, and site elements identified to remain shall be protected throughout the duration of the Work.
C. Contractor shall employ methods consistent with preservation practices and requirements established by the National Park Service.

D. Historic treatment terminology used in the Contract Documents shall have the meanings indicated on the Drawings, including but not limited to:
1. Repair.
2. Restore.
3. Retain.
4. Salvage.
5. Replicate.
6. Reproduce.
7. Consolidate.
8. Stabilize.

E. Removal and salvage operations shall be performed using methods that prevent damage to historic materials and adjacent surfaces.

1.8 WORK SEQUENCE

A. General Sequence:
1. Conduct preconstruction documentation.
2. Establish site protection measures.
3. Verify existing conditions and dimensions.
4. Perform removals and salvage operations.
5. Complete excavation and foundation work.
6. Construct masonry barrier wall.
7. Complete associated site restoration.
8. Perform final cleaning and closeout activities.

B. Coordinate sequencing to maintain public safety and park operations.

1.9 FIELD VERIFICATION

A. Contractor shall verify dimensions, elevations, utility locations, and existing conditions prior to commencing Work.
B. Notify the COR immediately of discrepancies, conflicts, or conditions differing from those indicated in the Contract Documents.
C. Do not proceed with affected work until direction is received from the COR.

1.10 CODES AND STANDARDS

A. Comply with applicable federal, state, and local requirements.
B. In accordance with National Park Service policy, comply with:
1. International Code Council (ICC) family of codes and adopted appendices.
2. National Electrical Code (NFPA 70).
3. The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings (2017)
4. Applicable accessibility requirements.
5. Applicable life-safety requirements.

1.11 SPECIFIED ELSEWHERE

A. Related Division 01 Sections include, but are not limited to:
- 01 20 00 – Price and Payment Procedures
- 01 29 00 – Payment Procedures
- 01 31 00 – Project Management and Coordination
- 01 32 00 – Construction Progress Documentation
- 01 33 00 – Submittal Procedures
- 01 35 70 – Cultural Resource Protection
- 01 50 00 – Temporary Facilities and Controls
- 01 55 26 – Traffic Control
- 01 57 19 – Environmental Controls
- 01 74 19 – Construction Waste Management and Disposal
- 01 77 00 – Closeout Procedures
- 01 78 23 – Operation and Maintenance Data

PART 2 – PRODUCTS

2.1 MATERIALS

A. Not Used.

PART 3 – EXECUTION

3.1 GENERAL

A. Execute Work in accordance with Contract Documents.
B. Maintain safe conditions for visitors, Government personnel, and construction workers.
C. Coordinate activities with the COR.
D. Protect existing facilities and historic resources throughout construction.
E. Restore damaged areas resulting from construction activities to conditions equal to or better than those existing before construction.

3.2 CLEANING

A. Keep project site free of accumulations of waste materials and debris.
B. Remove waste materials from the site at regular intervals.
C. Upon completion, leave the project site in a clean, orderly condition acceptable to the Government.

END OF SECTION 01 10 00

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes:
1. Administrative requirements for management and execution of the Work.
2. Coordination procedures.
3. Project meetings.
4. Requests for Information (RFIs).
5. Construction progress documentation.
6. Submittal scheduling and tracking.
7. Contractor communications.
8. Electronic document management.
9. Record document administration.
10. Coordination with National Park Service operations and visitors.

B. Related Requirements:
1. Section 01 11 00 – Summary of Work.
2. Section 01 33 23 – Shop Drawings, Product Data, and Samples.
3. Section 01 35 70 – Cultural Resource Protection.
4. Section 01 45 00 – Quality Control.
5. Section 01 77 00 – Closeout Procedures.

1.2 REFERENCES

A. Federal Acquisition Regulation (FAR).
B. Department of Interior Acquisition Regulations (DIAR).
C. National Park Service Director's Orders and Reference Manuals applicable to construction activities.
D. National Park Service Historic Preservation Training Center Standards.
E. Latest adopted National Park Service building code requirements. Drawings indicate adoption of current ICC family of codes and NFPA 70.

1.3 DEFINITIONS

A. CO – Contracting Officer.
B. COR – Contracting Officer's Representative.
C. A/E – Architect/Engineer.
D. Government – United States Department of the Interior, National Park Service.
E. RFI – Request for Information.
F. Submittal – Information submitted for Government review.
G. Working Day – Calendar day excluding Federal holidays and weather-related shutdowns authorized by the Contracting Officer.

1.4 ADMINISTRATIVE AUTHORITY

A. The Contracting Officer is the only Government official authorized to modify the Contract.
B. The COR shall administer day-to-day project activities but is not authorized to change Contract requirements, Contract amount, or Contract time.
C. Contractor shall direct all official correspondence through the Contracting Officer unless otherwise directed.

1.5 PROJECT COORDINATION

A. Coordinate all construction operations, subcontractors, suppliers, testing agencies, and Government-furnished activities.
B. Coordinate work to minimize interference with:
1. National Park Service operations.
2. Park visitors.
3. Adjacent facilities.
4. Historic resources.
5. Emergency access routes.

C. Verify existing conditions before commencing Work.
D. Field verify dimensions and conditions prior to fabrication and installation. Drawing notes require verification of dimensions and conditions before proceeding with Work.
E. Notify COR immediately of discrepancies, conflicts, or concealed conditions.

1.6 PRECONSTRUCTION DOCUMENTS

A. Submit the following within 15 calendar days after Notice to Proceed:
1. Project directory.
2. Submittal register.
3. Preliminary construction schedule.
4. Quality Control Plan.
5. Site logistics plan.
6. Health and Safety Plan.
7. Cultural Resource Protection Plan.
8. Emergency contact list.
9. Temporary facilities plan.
10. Environmental protection plan.
11. Site Specific Accident Prevention Plan
12. Activity Hazard Analyses
13. Erosion and Sediment Control Plan
14. Traffic Control Plan

1.7 ELECTRONIC COMMUNICATIONS

A. Electronic communications are the preferred method of project correspondence.

B. Contractor shall maintain current email addresses for project personnel.
C. Electronic files shall be submitted in Adobe PDF format unless otherwise specified.
D. Maintain organized electronic files accessible upon request.

1.8 REQUESTS FOR INFORMATION

A. Submit RFIs using a sequential numbering system.
B. RFIs shall include:
1. Project name and contract number.
2. Drawing and specification references.
3. Detailed description of issue.
4. Contractor's recommended resolution.
5. Schedule impact assessment.
C. Contractor shall review Contract Documents before submitting RFIs.
D. RFIs requesting interpretation of clearly indicated requirements may be returned without action.
E. Allow minimum 10 calendar days for Government response unless otherwise approved.

1.9 RECORD DOCUMENTS

A. Maintain one complete set of record documents at the project site.
B. Record documents shall include:
1. Contract drawings.
2. Specifications.
3. Modifications.
4. ASIs.
5. RFIs.
6. Approved submittals.
7. Field changes.
C. Record actual field conditions as Work progresses.
D. Update record documents weekly.

1.10 CONTRACTOR SUPERVISION

A. Provide a competent superintendent onsite whenever Work is in progress.
B. Superintendent shall:
1. Speak and read English fluently.
2. Be authorized to act on behalf of Contractor.
3. Attend project meetings.
4. Coordinate subcontractors.
5. Maintain daily project records.

1.11 HISTORIC PRESERVATION COORDINATION

A. Work occurs within a historic National Park Service property. Contractor shall coordinate activities to protect historic resources and comply with project preservation requirements. Drawing notes define preservation treatment terms and requirements for protection of historic resources.
B. Historic materials identified to remain shall be protected from damage throughout construction.
C. Salvaged historic materials shall be carefully removed, labeled, stored, and protected.
D. Notify COR immediately if previously unknown historic features or materials are encountered.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

3.1 PRECONSTRUCTION CONFERENCE

A. Government will schedule a preconstruction conference after contract award.
B. Attendance Required:
1. Contracting Officer.
2. COR.
3. Contractor Project Manager.
4. Superintendent.
5. Major subcontractors.
6. Quality Control Manager.

C. Agenda:
1. Contract administration procedures.
2. Schedule requirements.
3. Safety requirements.
4. Cultural resource protection requirements.
5. Site access procedures.
6. Security requirements.
7. Submittal procedures.
8. Quality control procedures.
9. Environmental protection requirements.
10. Communication protocols.

3.2 PROJECT MEETINGS

A. Conduct weekly progress meetings unless otherwise directed.
B. Contractor shall prepare and distribute meeting minutes within three working days.

C. Meeting topics shall include:
1. Work completed.
2. Upcoming activities.
3. Schedule status.
4. Submittal status.
5. RFI status.
6. Safety issues.
7. Quality control issues.
8. Historic preservation concerns.
9. Visitor impact concerns.
10. Potential delays.

3.3 DAILY REPORTS

A. Maintain daily construction reports.
B. Include:
1. Weather conditions.
2. Workforce counts.
3. Equipment onsite.
4. Work performed.
5. Visitors and inspections.
6. Safety incidents.
7. Delays.
8. Deliveries.
9. Historic resource observations.

C. Submit reports weekly upon request.

3.4 SITE COORDINATION

A. Layout work in field with COR prior to beginning affected work as required by project drawing notes.
B. Verify existing conditions before installation.
C. Coordinate utility interruptions with Government a minimum of 14 days in advance.
D. Maintain emergency access at all times.

3.5 NONCOMPLIANCE

A. Correct administrative deficiencies identified by the Government at no additional cost.
B. Failure to maintain required documentation may result in withholding of progress payments as permitted by the Contract.

3.6 CLOSEOUT ADMINISTRATION

A. Prior to final inspection submit:
1. Updated record documents.

2. Warranty documentation.
3. Operations and maintenance data.
4. Training documentation.
5. Closeout submittals required by Division 01.
6.

B. Administrative requirements remain in effect until final acceptance of the Work.

END OF SECTION 01 30 00

PART 1 – GENERAL

1.1 SUMMARY

A. This Section establishes administrative and procedural requirements for preparation, submission, review, approval, distribution, and maintenance of Shop Drawings, Product Data, Samples, mockups, and related submittals required for the Work.
B. Requirements of this Section apply to all subcontractors, suppliers, fabricators, manufacturers, consultants, and entities furnishing products or performing work under this Contract.
C. Coordinate requirements of this Section with all technical specification sections requiring submittals.

1.2 REFERENCES

A. Applicable requirements include:
1. Contract Drawings.
2. Contract Clauses.
3. National Park Service Construction Requirements.
4. Applicable ICC Codes adopted by the National Park Service.
5. Other referenced standards identified within individual specification sections.

1.3 DEFINITIONS

A. Shop Drawings: Drawings, diagrams, schedules, illustrations, performance charts, fabrication drawings, setting diagrams, erection drawings, templates, and similar data prepared specifically for the Work.
B. Product Data: Manufacturer's standard printed information describing products, materials, equipment, systems, fabrication methods, installation requirements, capacities, dimensions, and operating characteristics.
C. Samples: Physical examples illustrating materials, equipment, workmanship, finishes, colors, textures, and functional characteristics.
D. Mockups: Full-size assemblies demonstrating aesthetic effects, workmanship, interfaces, and installation procedures.
E. Record Submittal: Approved submittal maintained at the project site for reference and record purposes.

1.4 SUBMITTAL REQUIREMENTS

A. Submit required Shop Drawings, Product Data, Samples, mockups, test reports, certifications, and other submittals sufficiently in advance of construction activities to allow adequate review time.
B. No portion of the Work requiring submittal review shall commence until the applicable submittal has been reviewed and returned by the Government.
C. Review of submittals does not relieve the Contractor of responsibility for:

1. Dimensions.
2. Quantities.
3. Coordination.
4. Means and methods.
5. Construction techniques.
6. Safety requirements.
7. Compliance with Contract requirements.

D. Verify field conditions and dimensions prior to preparation of submittals.

1.5 SUBMITTAL SCHEDULE

A. Within 15 calendar days after Notice to Proceed, submit a comprehensive Submittal Schedule.

B. Include:

1. Specification section number.
2. Submittal description.
3. Subcontractor.
4. Supplier.
5. Required submission date.
6. Required review period.
7. Procurement lead times.
8. Fabrication duration.
9. Delivery dates.

C. Update schedule monthly or as directed by the Contracting Officer's Representative (COR).

1.6 ELECTRONIC SUBMITTALS

A. Submit electronic files in PDF format unless otherwise specified.

B. Electronic files shall:

1. Be searchable.
2. Be properly indexed.
3. Include specification section references.
4. Include revision tracking.
5. Be suitable for electronic archival.

C. File names shall include:

1. Project Number.
2. Specification Section.
3. Submittal Type.
4. Sequential Submittal Number.

1.7 CONTRACTOR REVIEW

A. Prior to submission, review all submittals for:

1. Compliance with Contract Documents.

2. Dimensions and field measurements.
3. Coordination with related work.
4. Fabrication requirements.
5. Installation requirements.

B. Contractor's review stamp shall certify that review has been completed.
C. Submittals lacking Contractor review stamp will be returned without action.

1.8 CONTRACTOR'S REVIEW STAMP

A. Include the following information on each submittal:
1. Project name.
2. PMIS/Package Number.
3. Specification section.
4. Submittal number.
5. Date reviewed.
6. Contractor certification statement.
7. Signature of authorized reviewer.

B. Certification Statement:
"The Contractor has reviewed and approved this submittal, verified field measurements, coordinated related work, and determined compliance with Contract requirements."

1.9 GOVERNMENT REVIEW

A. Government review is for general conformance with Contract requirements only.
B. Government review shall not:
1. Relieve Contractor of responsibility for errors.
2. Authorize deviations not specifically approved.
3. Relieve Contractor from coordination responsibilities.
4. Relieve Contractor of compliance with Contract requirements.

C. Review designations may include:
1. Approved.
2. Approved as Noted.
3. Revise and Resubmit.
4. Rejected.
5. Returned for Information Only.

1.10 DEVIATIONS

A. Clearly identify all proposed deviations from Contract requirements.
B. Failure to identify deviations constitutes Contractor certification that submittal complies with Contract requirements.
C. Government review does not approve unidentified deviations.

1.11 HISTORIC PRESERVATION REQUIREMENTS

A. For work affecting historic resources, provide additional documentation demonstrating compliance with preservation requirements.
B. Submittals affecting historic fabric shall include:
1. Existing condition photographs.
2. Product compatibility information.
3. Installation procedures.
4. Reversibility information where applicable.
5. Protection measures.
6. Conservation recommendations.
C. Historic treatment terminology shall be consistent with project requirements for repair, restoration, replacement, replication, salvage, and preservation work.

1.12 CLOSEOUT SUBMITTALS

A. Submit final approved copies of all Shop Drawings and Product Data for record purposes.
B. Include:
1. As-built revisions.
2. Operation and maintenance information.
3. Warranties.
4. Certifications.
5. Final approved product selections.

PART 2 – PRODUCTS

2.1 GENERAL

A. Materials submitted shall be those proposed for incorporation into the Work.
B. Product substitutions shall comply with Division 01 requirements.

2.2 SHOP DRAWINGS

A. Provide complete fabrication and installation information.
B. Include:
1. Dimensions.
2. Materials.
3. Finishes.
4. Connections.
5. Reinforcement.
6. Interfaces with adjacent construction.
7. Field verification dimensions.
8. Applicable code references.

2.3 PRODUCT DATA
A. Submit manufacturer's current literature.
B. Include:
1. Product identification.
2. Manufacturer information.
3. Performance characteristics.
4. Installation instructions.
5. Maintenance requirements.
6. Sustainability information when required.

2.4 SAMPLES
A. Submit Samples illustrating full range of characteristics required.
B. Samples shall accurately represent:
1. Color.
2. Texture.
3. Pattern.
4. Finish.
5. Material quality.
C. Approved Samples establish quality standards for incorporated Work.

2.5 MOCKUPS
A. Provide mockups where specified.
B. Mockups may include:
1. Masonry assemblies.
2. Joint treatments.
3. Historic restoration work.
4. Surface finishes.
5. Interface conditions.
C. Approved mockups become quality standards for Work.

PART 3 – EXECUTION

3.1 SUBMISSION PROCEDURES

A. Submit complete packages.
B. Partial submissions may be rejected.
C. Sequence submissions to prevent delays to construction progress.

3.2 RESUBMISSIONS

A. Revise and resubmit as required.
B. Clearly identify changes from previous submissions.
C. Cloud revisions and provide written explanation of changes.

3.3 DISTRIBUTION

A. Following review, distribute copies to:
1. Field superintendent.
2. Subcontractors.
3. Suppliers.
4. Fabricators.
5. Installers.
6. Quality control personnel.

B. Maintain current reviewed copies at the project site.

3.4 RECORD FILES

A. Maintain complete record of:
1. Submitted documents.
2. Review comments.
3. Resubmissions.
4. Final approved versions.

B. Make records available to the COR upon request.

3.5 NONCONFORMING SUBMITTALS

A. Materials ordered, fabricated, or installed before completion of required review are at Contractor's risk.
B. Remove and replace nonconforming work at no additional cost to the Government.

3.6 FINAL ACCEPTANCE

A. Final acceptance of submittals does not constitute acceptance of Work not in compliance with Contract requirements.
B. Contractor remains responsible for complete compliance with the Contract Documents.

END OF SECTION 01 33 23

PART 1 – GENERAL

1.1 SUMMARY

A. Work of this Section includes all labor, materials, equipment, measures, temporary protections, and monitoring required to protect:
1. Existing vegetation, including trees, shrubs, turf, and ground covers.
2. Historic site features, including walks, walls, paving, fences, monuments, markers, site furnishings, and landscape structures.
3. Existing buildings and architectural elements within and adjacent to the work area.
4. Existing utilities, including buried, surface, and overhead systems.

B. Protect all elements designated **to remain** in the contract drawings or identified by the COR or the government.
C. Any existing element damaged by the Contractor shall be repaired or replaced at no cost to the government and to the satisfaction of the COR.

1.2 RELATED SECTIONS

A. Section 31 20 00 – Earthwork.
B. Section 32 90 00 – Irrigation and Turf Restoration.

1.3 REFERENCES

A. ANSI A300 – Standards for Tree Care Operations.
B. ANSI Z133 – Safety Requirements for Arboricultural Operations.
C. Local utility marking, excavation, and “Call Before You Dig” requirements.
D. Municipal tree protection regulations (if applicable).

1.4 SUBMITTALS

A. Protection Plan:
1. Identify proposed fencing, barriers, root-zone protection, and utility avoidance measures.
2. Show construction access, staging, equipment paths, and material stockpile locations.
3. Identify any areas requiring ground protection mats.

B. Tree Protection Measures:
1. Product data for temporary fencing, mulch, or aeration mats.

C. Photographic Documentation:
1. Pre-construction photos of all vegetation, site features, and adjacent building elements.
2. Post-construction photos prior to demobilization.

D. Utility Coordination:
1. Documentation of utility locating and coordination with local utility companies.

1.5 QUALITY ASSURANCE

A. Contractor shall assign personnel trained in protecting vegetation, structures, and utilities during construction.
B. Arborist: A Certified Arborist (ISA) shall oversee any work within the Tree Protection Zone (TPZ) and advise on root protection and pruning.
C. Compliance with all applicable laws, standards, and local tree protection ordinances.

1.6 FIELD CONDITIONS

A. Contractor shall verify conditions related to vegetation, buildings, and utilities prior to beginning work.
B. Adjust work sequence as required to maintain continuous protection.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Tree Protection Fencing:
    1. 6-foot minimum height chain-link fence, anchored securely.
B. Ground Protection Mats:
    1. Reusable composite construction mats or equivalent capable of supporting expected loads without rutting the lawn or damaging the paving.
C. Mulch for Root Protection:
    1.Organic hardwood-chip mulch, 3–4 inches deep.
D. Temporary Barriers for Buildings and Features:
    1.Exterior-grade plywood, rigid foam, or impact-resistant sheeting.
    2. Soft, non-abrasive padding where needed to avoid damage to historic finishes.
E. Utility Protection Materials:
    1. Trench plates, conduit, warning tape, and marking flags as required.

PART 3 – EXECUTION

3.1 GENERAL PROTECTION REQUIREMENTS

A. Provide continuous protection of all existing vegetation, features, buildings, and utilities throughout construction.
B. Limit construction access, vehicle movement, and material storage to areas approved in the Protection Plan.
C. Do not attach temporary construction elements to trees, fences, or historic structures.

3.2 PROTECTION OF EXISTING VEGETATION

A. Tree Protection Zones (TPZ):
1.Install fencing at the dripline or as directed by the Architect/Arborist.
2. No excavation, vehicle traffic, material storage, mixing of materials, or grade changes within TPZ.
B. Root Protection:
1. If root disturbance is unavoidable, prune roots cleanly under supervision of an ISA Certified Arborist.
2. Backfill promptly and irrigate to prevent desiccation.
C. Above-Ground Protection:
1. Protect trunks, branches, and canopy from mechanical damage.
2. Prune limbs only when approved by the COR.
D. Temporary Irrigation:
1. Provide supplemental irrigation if normal water supply is disrupted.

3.3 PROTECTION OF EXISTING SITE FEATURES

A. Protect paving, walls, fences, signage, furnishings, monuments, and other site features from impact, vibration, and equipment damage.
B. Use hand methods near fragile or historic features unless otherwise approved.
C. Erect barriers or padding around features at risk of mechanical damage.

3.4 PROTECTION OF EXISTING BUILDINGS

A. Protect façades, windows, doors, trim, masonry, and other exposed architectural features from dust, debris, vibration, and impact.
B. Install temporary plywood sheathing or barriers where construction occurs adjacent to historic materials.
C. Monitor vibration as required to prevent cracking or displacement of historic masonry or finishes.

3.5 PROTECTION OF EXISTING UTILITIES

A. Call for utility locating prior to excavation.
B. Protect all utilities from damage; hand-dig within 24 inches of marked lines.
C. Provide temporary support for utilities where excavation undermines existing lines.
D. Immediately notify Owner of any damage; repair at Contractor’s expense.

3.6 MONITORING AND MAINTENANCE

A. Maintain all protective measures in good condition throughout construction.
B. Replace damaged or missing fencing or barriers immediately.
C. Inspect protected areas weekly and after major weather events.

3.7 CLEANING AND REPAIR

A. Remove protective measures only when directed by COR.
B. Repair or restore all damaged vegetation, site features, buildings, or utilities to original condition or better at no cost to the government.
C. Perform final cleanup of site.

END OF SECTION 01 35 29

PART 1 – GENERAL

1.1 SUMMARY

A. This Section specifies requirements for the protection, preservation, and treatment of cultural resources during execution of the Work.
B. Cultural resources include, but are not limited to:
1. Historic buildings, structures, sites, objects, and landscapes.
2. Archaeological resources.
3. Historic masonry, paving, site furnishings, monuments, and memorial elements.
4. Historic fabric adjacent to construction activities.
5. Cultural landscape features.
6. Previously unidentified archaeological deposits or artifacts discovered during construction.

C. The intent of this Section is to prevent damage to cultural resources and ensure compliance with:
1. National Historic Preservation Act (NHPA), as amended.
2. Archaeological Resources Protection Act (ARPA).
3. National Environmental Policy Act (NEPA).
4. Secretary of the Interior's Standards for the Treatment of Historic Properties.
5. National Park Service Cultural Resource Management Guidelines.
6. Applicable Programmatic Agreements and Memoranda of Agreement associated with the Project.

D. Requirements of this Section apply to all subcontractors, suppliers, consultants, and personnel entering the project site.

1.2 RELATED SECTIONS

A. Section 01 11 00 – Summary of Work.
B. Section 01 31 19 – Project Meetings.
C. Section 01 32 16 – Construction Progress Schedule.
D. Section 01 33 00 – Submittal Procedures.
E. Section 01 35 29 – Health, Safety, and Emergency Response Procedures.
F. Section 01 50 00 – Temporary Facilities and Controls.
G. Section 01 55 26 – Traffic Control.
H. Section 01 57 19 – Temporary Environmental Controls.
I. Section 02 41 19 – Selective Demolition.
J. Historic preservation and restoration specification sections.

1.3 DEFINITIONS

A. Cultural Resource: A district, site, structure, building, object, landscape feature, archaeological deposit, or traditional cultural property having historical, architectural, archaeological, engineering, or cultural significance.

B. Historic Fabric: Existing materials, finishes, workmanship, and features contributing to the significance of a historic resource.
C. Archaeological Resource: Material remains of past human life or activities protected under federal law.
D. Qualified Cultural Resource Specialist: Individual meeting Secretary of the Interior Professional Qualification Standards applicable to the discipline involved.
E. Discovery: Unanticipated encounter with archaeological materials, human remains, artifacts, cultural features, or previously undocumented historic resources.
F. Area of Potential Effect (APE): Geographic area where construction activities may affect cultural resources.

1.4 REFERENCES

A. National Historic Preservation Act (54 USC 300101 et seq.).
B. Archaeological Resources Protection Act (16 USC 470aa-mm).
C. Native American Graves Protection and Repatriation Act (NAGPRA).
D. National Environmental Policy Act.
E. Secretary of the Interior's Standards for the Treatment of Historic Properties.
F. Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation.
G. NPS Director's Order 28: Cultural Resource Management.
H. NPS Cultural Resource Management Guideline.
I. NPS Museum Handbook.
J. Applicable State Historic Preservation Office (SHPO) requirements.

1.5 SUBMITTALS

A. Cultural Resource Protection Plan
Submit within 15 calendar days after Notice to Proceed.
Include:
1. Site protection measures.
2. Limits of disturbance.
3. Access routes.
4. Equipment restrictions.
5. Vibration control procedures.
6. Worker training procedures.
7. Archaeological discovery procedures.
8. Emergency notification procedures.
9. Documentation requirements.
10. Site monitoring procedures.

B. Protection Drawings
Submit drawings indicating:
1. Protection fencing.
2. Staging areas.
3. Material storage areas.

4. Construction access routes.
5. Historic resources to remain.
6. Areas prohibited from disturbance.

C. Personnel Qualifications

Submit qualifications for:

1. Archaeologists.
2. Architectural conservators.
3. Historic preservation specialists.
4. Cultural resource monitors.

D. Preconstruction Documentation

Submit photographs documenting existing conditions of resources adjacent to the Work.

E. Daily Monitoring Reports

When monitoring is required, submit reports weekly.

1.6 QUALITY ASSURANCE

A. Conduct all work affecting cultural resources under the direction of personnel meeting Secretary of the Interior Professional Qualification Standards.

B. Contractor shall provide cultural resource awareness training for all personnel before beginning Work.

C. Training shall include:

1. Significance of the resource.
2. Protection requirements.
3. Restricted activities.
4. Discovery procedures.
5. Reporting requirements.
6. Consequences of non-compliance.

D. Maintain attendance records.

1.7 PRECONSTRUCTION CONFERENCE

A. Conduct a Cultural Resource Protection Meeting before any site disturbance.

B. Attendees shall include:

1. Contracting Officer.
2. Contracting Officer's Representative (COR).
3. Contractor.
4. Superintendent.
5. Site Foreman.
6. Cultural Resource Specialist.
7. Historic Preservation Representative.

C. Review:

1. Protection measures.
2. Construction sequencing.
3. Monitoring requirements.
4. Emergency procedures.

5. Discovery procedures.
6. Restricted work areas.

1.8 SITE ACCESS RESTRICTIONS

A. Access only areas designated by the COR.
B. Vehicles shall remain on approved routes.
C. Do not enter protected areas without written authorization.
D. Parking, storage, and staging shall occur only in approved locations.
E. Do not place equipment or materials against historic structures, walls, trees, monuments, or archaeological features.

1.9 CULTURAL RESOURCE MONITORING

A. Government may require monitoring during:
1. Excavation.
2. Demolition.
3. Utility installation.
4. Site grading.
5. Foundation work.
6. Other activities identified by the COR.

B. Stop work immediately when directed by monitor or COR.
C. Cooperate fully with monitoring personnel.

1.10 DISCOVERY OF CULTURAL RESOURCES

A. Upon discovery of archaeological materials, artifacts, features, or previously unidentified cultural resources:
1. Stop work within 50 feet (15 m) of discovery.
2. Protect area from disturbance.
3. Notify COR immediately.
4. Do not remove materials.
5. Do not photograph or collect artifacts unless directed.

B. Resume work only upon written authorization.

1.11 DISCOVERY OF HUMAN REMAINS

A. If human remains or funerary objects are discovered:
1. Stop work immediately.
2. Secure the area.
3. Notify COR.
4. Notify law enforcement if required.
5. Preserve remains in place.

B. Do not resume work until authorized by the Government.

1.12 PROJECT CONDITIONS

A. Historic materials are irreplaceable.
B. Contractor is responsible for damage caused by operations.
C. Repair or replacement of damaged resources shall be performed at no additional cost to the Government.
D. Government determination regarding adequacy of repairs shall be final.

PART 2 – PRODUCTS

2.1 GENERAL

A. Materials used for protection shall not damage historic fabric.
B. Materials shall be reversible and removable without leaving residue.

2.2 PROTECTION FENCING

A. Minimum 6-foot-high chain-link fence or approved equivalent.
B. Brightly visible warning signage.
C. Secure against unauthorized entry.

2.3 PROTECTIVE COVERINGSA. Non-staining geotextiles.

A. Breathable protective fabrics.
B. Plywood protection panels.
C. Impact-resistant barriers.
D. Materials shall not trap moisture against historic surfaces.

2.4 VIBRATION MONITORING EQUIPMENT

A. Calibrated monitoring equipment capable of recording peak particle velocity.
B. Equipment shall be installed where directed.

2.5 TEMPORARY SHORING AND BRACING

A. Designed by a licensed Professional Engineer.
B. Shall avoid damage to historic materials.
C. Attachment to historic fabric prohibited unless approved.

PART 3 – EXECUTION

3.1 EXAMINATION
A. Verify existing conditions before beginning work.
B. Document conditions with photographs.
C. Notify COR of discrepancies.

3.2 RESOURCE IDENTIFICATION
A. Locate and identify protected resources before mobilization.
B. Clearly mark limits of disturbance.
C. Install fencing and protection before construction activities begin.

3.3 PROTECTION OF HISTORIC FEATURES

A. Protect historic resources from:
1. Impact.
2. Vibration.
3. Dust.
4. Water intrusion.
5. Staining.
6. Abrasion.
7. Theft.
8. Vandalism.

B. Maintain protection continuously throughout construction.

3.4 DUST CONTROL

A. Prevent dust accumulation on historic surfaces.
B. Use methods that avoid damage from water or chemicals.
C. Clean affected surfaces immediately when directed.

3.5 VIBRATION CONTROL

A. Conduct operations to prevent damage to historic resources.
B. Modify construction methods if vibration thresholds are exceeded.
C. Suspend operations when directed by COR.

3.6 EXCAVATION ACTIVITIES

A. Excavate only within approved limits.
B. Hand excavation may be required adjacent to cultural resources.
C. Use caution near known archaeological areas.

3.7 PROHIBITED ACTIVITIES

Do not:
A. Disturb areas outside approved limits.

B. Collect artifacts.
C. Use historic resources for support.
D. Attach temporary items to historic fabric.
E. Store materials within protected areas.
F. Remove cultural materials without authorization.

3.8 DAMAGE TO CULTURAL RESOURCES

A. Report damage immediately.
B. Submit written incident report within 24 hours.
C. Report shall include:
1. Description of damage.
2. Cause.
3. Corrective measures.
4. Proposed repairs.
D. Repairs shall be performed only after Government approval.

3.9 RESTORATION

A. Restore disturbed areas to preconstruction condition unless otherwise indicated.
B. Remove temporary protection after completion of work.
C. Repair damage resulting from Contractor activities.

3.10 CLOSEOUT REQUIREMENTS

A. Remove temporary barriers, fencing, and protection materials.
B. Submit final cultural resource protection report documenting:
1. Monitoring activities.
2. Discoveries.
3. Incidents.
4. Repairs.
5. Final condition assessment.
C. Obtain Government acceptance before final completion.

END OF SECTION 01 35 70

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes requirements for protection, treatment, repair, restoration, stabilization, dismantling, salvage, storage, and reinstallation of historic materials, features, spaces, and character-defining elements affected by the Work.
B. Work includes procedures and requirements governing all activities that may impact historic fabric, archaeological resources, cultural landscapes, historic structures, historic site features, and associated materials.
C. This Section applies to all Contractors, subcontractors, consultants, suppliers, and personnel working on the Project.
D. The Project is located within the boundaries of Independence National Historical Park and involves work associated with the historic SE corner of 6th and Market Street site and associated masonry features. The drawings identify the project as a National Park Service Historic Preservation Training Center project.

1.2 RELATED REQUIREMENTS

A. Section 01 33 00 – Submittal Procedures.
B. Section 01 35 70 – Cultural Resource Protection.
C. Section 01 45 00 – Quality Control.
D. Section 01 50 00 – Temporary Facilities and Controls.
E. Section 01 73 29 – Cutting and Patching.
F. Sections specifying preservation, restoration, masonry repair, wood repair, metal restoration, and conservation work.

1.3 REFERENCES

A. Secretary of the Interior's Standards for the Treatment of Historic Properties.
B. National Park Service Preservation Briefs.
C. National Park Service Director's Order 28 – Cultural Resource Management.
D. National Park Service Management Policies.
E. International Building Code as adopted by the National Park Service.
F. Applicable State Historic Preservation Office requirements.
G. Project drawings and contract documents.

1.3 DEFINITIONS

A. Historic treatment terminology shall conform to National Park Service usage. Drawing notes establish the following definitions for this Project:
1. Consolidate: Strengthen loose or deteriorated materials in place.
2. Dismantle: Carefully disassemble or detach a historic item from a surface, or a non-historic item from a historic surface, using methods that prevent damage.

3. Existing to Remain: Existing items that are not to be removed except as required to perform the Work.
4. Historic: Spaces, surfaces, materials, finishes, and appearance determined by the Architect to be significant.
5. Match: Blend with adjacent construction without visible difference in material, detail, texture, finish, or appearance.
6. Remove: Take down or detach a non-historic item using methods that prevent damage to adjacent historic fabric.
7. Repair: Correct damage while retaining existing materials and employing the least amount of new material possible.
8. Replace: Remove and install a duplicate item using the original as the pattern.
9. Replicate: Reproduce in exact detail, material, and finish.
10. Reproduce: Fabricate a new item accurate in detail to the original.
11. Restore: Consolidate, reproduce, repair, and refinish as required.
12. Retain: Keep existing items in place.
13. Reversible: Treatment that can be removed in the future without damage to historic fabric.
14. Salvage: Label, protect, and store items for reinstallation.
15. Stabilize: Reinforce deteriorated materials while maintaining existing form.
16. Strip: Remove finish to base material.

B. Character-Defining Feature: Historic material, space, finish, detail, workmanship, or feature that contributes to the significance of a historic property.
C. Historic Fabric: Original or significant existing materials, assemblies, finishes, and workmanship.

1.4 HISTORIC TREATMENT PRINCIPLES

A. Preserve and protect historic materials in place whenever possible.
B. Repair rather than replace deteriorated historic materials.
C. Replace only when repair is not feasible and replacement is approved.
D. Limit removal of historic material to the minimum required for construction.
E. Ensure new work is compatible with historic materials and reversible whenever feasible.
F. Employ the gentlest means possible to accomplish the Work.
G. Avoid unnecessary loss of historic fabric.

1.5 SUBMITTALS

A. Historic Treatment Plan
Submit a comprehensive Historic Treatment Plan not less than 30 days before beginning Work affecting historic materials.
Include:
1. Existing condition documentation.
2. Protection measures.
3. Sequencing work.
4. Means and methods.

5. Dismantling procedures.
6. Repair procedures.
7. Cleaning procedures.
8. Temporary stabilization methods.
9. Storage methods.
10. Reinstallation procedures.
11. Emergency response procedures.
12. Quality-control procedures.

B. Qualifications

Submit resumes and experience records for:

1. Project Superintendent.
2. Historic Preservation Specialist.
3. Craftsperson's performing preservation work.
4. Conservators, if required.

C. Documentation

1. Existing-condition photographs.
2. Annotated drawings.
3. Condition assessment reports.
4. Daily treatment logs.
5. Repair records.

D. Mockups

1. Submit mockup procedures and acceptance criteria.

1.6 QUALITY ASSURANCE

A. Historic treatment work shall be performed by firms experienced with historic preservation projects of similar scope and complexity.
B. Superintendent shall remain on site whenever historic treatment activities are underway.
C. Employ personnel skilled in preservation trades applicable to the work.
D. Conduct preconstruction conference specifically addressing historic treatment requirements.
E. Contracting Officer's Representative (COR), and Government preservation personnel shall review proposed treatment methods before implementation.

1.7 PREINSTALLATION MEETINGS

A. Conduct a Historic Treatment Conference before beginning work.
B. Review:

1. Character-defining features.
2. Protection requirements.
3. Work sequencing.
4. Access limitations.
5. Emergency procedures.
6. Documentation requirements.
7. Approval procedures.

1.8 DOCUMENTATION

A. Photograph existing conditions before beginning work.
B. Photograph concealed conditions discovered during work.
C. Photograph completed repairs.
D. Maintain daily records documenting:
1. Areas worked.
2. Procedures performed.
3. Materials used.
4. Weather conditions.
5. Personnel performing work.
6. Unanticipated conditions.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Store salvaged historic materials in secure, dry locations.
B. Label materials to allow accurate reinstallation.
C. Protect materials from moisture, ultraviolet exposure, theft, contamination, and physical damage.
D. Historic items designated for salvage shall be removed using gentle methods and protected for reinstallation.

1.10 PROJECT CONDITIONS

A. Existing historic materials indicated to remain shall be protected throughout the project duration.
B. Damage caused by Contractor operations shall be repaired at no additional cost to the Government.
C. Immediately report unforeseen historic conditions to the COR.
D. Stop work in affected areas until direction is received.

PART 2 – PRODUCTS

2.1 GENERAL

A. Materials used in historic treatment work shall be compatible with adjacent historic materials.
B. Materials shall not accelerate deterioration of existing historic fabric.
C. Products shall be reversible where practical.
D. Use materials matching historic materials in composition, appearance, texture, color, and performance characteristics unless otherwise approved.

2.2 PROTECTION MATERIALS

A. Polyethylene sheeting.
B. Breathable protective coverings.
C. Non-staining padding.
D. Temporary barriers.
E. Dust-control materials.
F. Temporary weather protection systems.

2.3 REPAIR MATERIALS

A. Materials for repairs shall match existing historic materials unless otherwise approved.
B. Patching, consolidation, and stabilization materials shall be compatible with substrate materials.
C. Epoxies, consolidants, and chemical treatments shall require Government approval prior to use.

2.4 IDENTIFICATION MATERIALS

A. Durable tags.
B. Non-staining labels.
C. Documentation forms.
D. Storage inventory systems.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Verify existing conditions before beginning work.
B. Document discrepancies and unexpected conditions.
C. Do not proceed until conditions are reviewed and accepted.

3.2 PROTECTION

A. Protect historic materials from:
1. Impact.
2. Vibration.
3. Water infiltration.
4. Staining.
5. Dust.
6. Abrasion.
7. Unauthorized access.

B. Install temporary barriers as required.
C. Protect adjacent surfaces during all operations.

3.3 GENERAL HISTORIC TREATMENT REQUIREMENTS

A. Employ the least invasive treatment necessary.
B. Use hand methods where feasible.
C. Avoid destructive investigative procedures unless approved.
D. Perform work in a manner that preserves evidence of historic workmanship.
E. Retain maximum amount of historic fabric.

3.4 DISMANTLING

A. Carefully dismantle designated materials.
B. Mark and catalog components.
C. Protect adjoining materials.
D. Prevent breakage and loss.
E. Store salvaged materials for reuse.

3.5 SALVAGE

A. Salvage materials indicated for reuse.
B. Maintain inventory of salvaged items.
C. Store items in secure locations.
D. Reinstall salvaged materials in original locations unless otherwise directed.

3.6 REPAIR

A. Repair rather than replace whenever feasible.
B. Match existing workmanship.
C. Remove only deteriorated portions necessary to complete repairs.
D. Incorporate new material only as required.

3.7 REPLACEMENT

A. Replace only materials approved for replacement.
B. Match existing in:
   1. Size.
   2. Profile.
   3. Material.
   4. Texture.
   5. Finish.
   6. Appearance.
C. Replacement work shall be indistinguishable from adjacent historic work upon completion.

3.8 CLEANING

A. Use the gentlest means possible.
B. Test cleaning methods before proceeding.
C. Obtain approval of test areas.
D. Do not use abrasive cleaning methods unless specifically approved.
E. Prevent damage to adjacent materials.

3.9 STABILIZATION

A. Stabilize deteriorated historic materials immediately upon discovery if failure could occur.
B. Temporary stabilization shall remain until permanent repairs are completed.
C. Stabilization methods shall not damage historic fabric.

3.10 FIELD QUALITY CONTROL

A. Government may reject work not conforming to approved treatment procedures.
B. Remove and replace unacceptable work at no cost to the Government.
C. Maintain inspection access throughout construction.

3.11 CLOSEOUT

A. Submit final photographic documentation.
B. Submit treatment logs.
C. Submit repair records.
D. Submit salvage inventory.
E. Submit maintenance recommendations.
F. Remove temporary protection after acceptance of work.

END OF SECTION 01 35 91

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for quality control, quality assurance, inspections, testing services, documentation, and corrective actions required for the Work.
B. Quality control requirements apply to all work performed under this Contract, including work of subcontractors, suppliers, fabricators, and testing laboratories.
C. The Contractor shall establish and maintain a documented Quality Control (QC) program to ensure compliance with Contract Documents, applicable codes, National Park Service (NPS) requirements, and preservation standards.
D. The project is located within the boundaries of the Independence National Historical Park adjacent to the historic resource at the Southeast Corner of 6th and Market Street, and shall be executed in accordance with National Park Service historic preservation requirements.

1.2 RELATED REQUIREMENTS

A. Section 01 33 00 – Submittal Procedures.
B. Section 01 35 70 – Cultural Resource Protection.
C. Section 01 42 00 – References.
D. Section 01 50 00 – Temporary Facilities and Controls.
E. Section 01 73 00 – Execution.
F. Section 01 77 00 – Closeout Procedures.

1.3 REFERENCES

A. Comply with the latest edition of the following unless otherwise specified:
1. ASTM International Standards.
2. International Building Code (IBC).
3. International Existing Building Code (IEBC).
4. International Fire Code (IFC).
5. National Electrical Code (NFPA 70).
6. National Park Service Director's Orders.
7. The Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings (2017)

B. The National Park Service has adopted the ICC family of codes and NFPA 70 as nationally recognized codes.

1.4 DEFINITIONS

A. Quality Assurance (QA): Activities performed by the Government to verify Contractor compliance with Contract requirements.

B. Quality Control (QC): Activities performed by the Contractor to ensure work conforms to Contract Documents.
C. Deficiency: Any work, material, equipment, procedure, or documentation that does not comply with Contract requirements.
D. Testing Agency: Independent testing laboratory meeting ASTM E329 requirements and acceptable to the Contracting Officer.
E. Three-Phase Control System:
1. Preparatory Phase.
2. Initial Phase.
3. Follow-Up Phase.

1.5 CONTRACTOR QUALITY CONTROL PROGRAM

A. Develop, implement, and maintain a Quality Control Program throughout the duration of the Contract.
B. Quality Control Program shall include:
1. Organization chart.
2. Names and qualifications of QC personnel.
3. Inspection procedures.
4. Testing procedures.
5. Deficiency tracking procedures.
6. Documentation and reporting procedures.
7. Coordination procedures with subcontractors.
8. Historic preservation protection procedures.
C. Submit Quality Control Plan within 15 calendar days after Notice to Proceed and prior to commencement of construction activities.
D. Work shall not begin until the Quality Control Plan has been reviewed and accepted by the Contracting Officer.

1.6 QUALITY CONTROL PERSONNEL

A. Designate a full-time Quality Control Manager (QCM).
B. Quality Control Manager shall:
1. Be employed by the Contractor.
2. Have authority to stop work.
3. Report directly to Contractor management.
4. Be present on site whenever construction activities are underway.
5. Have a minimum of five years of construction quality control experience on projects of similar size and complexity.
C. Alternate Quality Control Manager:
1. Designate an alternate qualified individual.
2. Alternate shall assume all responsibilities in absence of the QCM.
D. Additional specialists shall be provided as necessary for:
1. Masonry work.
2. Historic preservation work.

3. Structural work.
4. Testing and inspection activities.

1.7 PRECONSTRUCTION QUALITY CONTROL MEETING

A. Conduct a Quality Control Meeting prior to commencement of work.
B. Attendees shall include:
1. Contracting Officer's Representative (COR).
2. Contractor Superintendent.
3. Quality Control Manager.
4. Major subcontractors.
5. Testing laboratory representatives.
6. Historic preservation specialists, when applicable.

C. Review:
1. Quality Control Plan.
2. Submittal requirements.
3. Testing requirements.
4. Historic preservation requirements.
5. Documentation procedures.
6. Deficiency correction procedures.
7.

1.8 THREE-PHASE QUALITY CONTROL SYSTEM

A. Preparatory Phase
Conduct preparatory meetings before beginning each definable feature of work.
Review:
1. Contract requirements.
2. Approved submittals.
3. Applicable standards.
4. Safety requirements.
5. Historic preservation requirements.
6. Testing requirements.
7. Protection measures.

B. Initial Phase
Conduct initial inspection when representative work is installed.
Verify:
1. Materials conform to approved submittals.
2. Workmanship meets specifications.
3. Construction methods are acceptable.
4. Preservation requirements are understood.

C. Follow-Up Phase
Perform daily inspections to ensure continued compliance.
Document:
1. Deficiencies.
2. Corrective actions.

3. Testing results.
4. Inspection observations.

1.9 SUBMITTALS

A. Submit under Section 01 33 00.
B. Quality Control Plan.
C. Quality Control Personnel Qualifications.
D. Testing Laboratory Qualifications.
E. Inspection Reports.
F. Daily Quality Control Reports.
G. Deficiency Logs.
H. Corrective Action Reports.
I. Test Results.
J. Final Quality Control Certification.

1.10 TESTING LABORATORY REQUIREMENTS

A. Laboratories shall be independent of the Contractor.
B. Laboratories shall:
1. Be accredited for testing performed.
2. Employ qualified personnel.
3. Use calibrated equipment.
4. Provide certified reports.
C. Notify COR a minimum of 48 hours prior to required testing.
D. Retesting required due to nonconforming work shall be at Contractor expense.

1.11 MOCKUPS

A. Construct mockups where specified.
B. Obtain Government acceptance before proceeding with related work.
C. Approved mockups may remain as part of completed construction if acceptable.
D. Historic masonry mockups shall demonstrate:
1. Materials.
2. Joint profiles.
3. Tooling methods.
4. Color matching.
5. Cleaning methods.

1.12 DOCUMENTATION

A. Maintain quality control records on site.
B. Daily Quality Control Reports shall include:
1. Date.
2. Weather conditions.
3. Workforce.

4. Work activities.
5. Inspections performed.
6. Tests conducted.
7. Deficiencies identified.
8. Corrective actions taken.
9. Visitor inspections.
10. Historic resource protection observations.

C. Submit reports electronically within 24 hours.

1.13 DEFICIENCY MANAGEMENT

A. Record all deficiencies.
B. Track corrective actions through completion.
C. Include:
1. Description.
2. Location.
3. Date identified.
4. Responsible party.
5. Required correction.
6. Completion date.

D. Work shall not proceed where deficiencies affect subsequent work.

1.14 HISTORIC PRESERVATION QUALITY REQUIREMENTS

A. Because work occurs within a historic National Park Service resource, all activities affecting historic materials shall be continuously monitored for compliance with preservation requirements.
B. Verify compliance with approved treatment methods for:
1. Salvage.
2. Repair.
3. Replacement.
4. Replication.
5. Restoration.
6. Stabilization.

C. Immediately notify the COR upon discovery of:
1. Previously unidentified historic materials.
2. Hidden conditions affecting historic fabric.
3. Unanticipated deterioration.
4. Potential archaeological resources.

D. Suspend affected work until direction is received.

1.15 FINAL QUALITY CONTROL CERTIFICATION

A. Prior to final acceptance, submit certification signed by Contractor and Quality Control Manager stating:

1. All work has been inspected.
2. Required testing has been completed.
3. Deficiencies have been corrected.
4. Work complies with Contract requirements.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Quality control materials shall consist of forms, logs, reports, testing devices, and monitoring equipment necessary to administer the Quality Control Program.
B. Testing equipment shall be calibrated and maintained in accordance with manufacturer recommendations.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Verify field conditions before beginning work.
B. Confirm dimensions and existing conditions prior to installation. The drawings require field verification of dimensions and conditions before construction proceeds.
C. Report discrepancies immediately to the COR.

3.2 INSPECTION REQUIREMENTS

A. Inspect all work prior to concealment.
B. Verify:
   1. Materials.
   2. Dimensions.
   3. Alignment.
   4. Workmanship.
   5. Compliance with approved submittals.
C. Document inspection results.

3.3 TESTING

A. Perform specified testing.
B. Schedule testing to avoid delays.
C. Provide access and assistance to testing personnel.
D. Remove and replace nonconforming work.

3.4 CORRECTIVE ACTIONS

A. Correct nonconforming work promptly.
B. Reinspect corrected work.
C. Retest as required.
D. Costs associated with corrective actions shall be borne by Contractor.

3.5 PROTECTION OF COMPLETED WORK

A. Protect completed and partially completed work from damage.
B. Repair damage at no additional cost to the Government.
C. Existing features designated to remain shall be protected throughout construction.

3.6 CLOSEOUT

A. Submit final quality control documentation.
B. Submit testing reports.
C. Submit deficiency log showing all items closed.
D. Submit final certification.
E. Obtain final acceptance from the Government.

END OF SECTION 01 45 00

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes requirements for furnishing, installing, maintaining, operating, and removing temporary facilities and controls required for performance of the Work.
B. Temporary facilities and controls include, but are not limited to:
1. Temporary utilities.
2. Temporary water service and distribution.
3. Temporary electric power and lighting.
4. Temporary communications.
5. Temporary sanitary facilities.
6. Temporary barriers and enclosures.
7. Tree, landscape, and site protection.
8. Pedestrian and visitor protection.
9. Historic resource protection.
10. Dust, noise, vibration, and erosion control.
11. Pollution prevention measures.
12. Temporary signage.
13. Fire protection.
14. Security and site access control.
15. Waste collection and disposal.
16. Environmental protection measures.
17. Temporary traffic and pedestrian routing.

C. The Work is located within a National Park Service unit open to visitors. Conduct operations to minimize disruption to park operations, visitors, adjacent facilities, and historic resources.

1.2 RELATED REQUIREMENTS

A. Section 01 11 00 – Summary of Work.
B. Section 01 33 00 – Submittal Procedures.
C. Section 01 35 70 – Cultural Resource Protection.
D. Section 01 55 26 – Traffic Control.
E. Section 01 57 19 – Temporary Environmental Controls.
F. Section 01 74 19 – Construction Waste Management and Disposal.
G. Section 01 77 00 – Closeout Procedures.

1.3 REFERENCES

A. Comply with current editions of the following:
1. OSHA 29 CFR 1926.
2. EPA regulations.
3. NFPA 10.
4. NFPA 70.

5. ICC Family of Codes as adopted by the National Park Service.
6. National Park Service Director's Orders and Reference Manuals.
7. Applicable state and local regulations.

1.4 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00:
1. Temporary Facilities and Controls Plan.
2. Site Logistics Plan.
3. Visitor Protection Plan.
4. Temporary Utility Plan.
5. Dust Control Plan.
6. Noise and Vibration Control Plan.
7. Fire Prevention Plan.
8. Emergency Response Plan.
9. Temporary Signage Plan.
10. Security Plan.
11. Stormwater and Erosion Control Plan.
12. Temporary Fencing Layout.

B. Submit plans not less than 15 calendar days before beginning construction activities.

1.4 QUALITY ASSURANCE

A. Temporary facilities and controls shall be installed and maintained by qualified personnel experienced in similar work.

B. Maintain temporary facilities in safe, neat, and serviceable condition throughout the Contract period.

C. Coordinate all temporary facilities and controls with the Contracting Officer's Representative (COR).

1.5 PROJECT CONDITIONS

A. The project is located within a historic National Park Service property. Protect existing historic structures, features, landscapes, archeological resources, and adjacent improvements from damage.

B. Existing facilities designated to remain shall be protected throughout construction. Damage shall be repaired or replaced at no additional cost to the Government.

C. Coordinate site activities with NPS operations and visitor use.

D. Maintain emergency access routes at all times.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Provide new materials suitable for intended use.

B. Reuse of salvaged temporary materials is permitted when in good condition and approved by the COR.

2.2 TEMPORARY FENCING

A. Chain-link fencing:
1. Minimum 6 feet high.
2. Galvanized steel posts and fabric.
3. Lockable gates.
4. Windscreen where required.

B. Fence panels shall be securely anchored to prevent movement.

2.3 BARRIERS

A. Pedestrian barriers:
1. Steel barricades.
2. Water-filled barriers.
3. Temporary railings.

B. Provide ADA-compliant pedestrian routing around work areas.

2.4 TEMPORARY SIGNAGE

A. Provide weather-resistant signs identifying:
1. Construction limits.
2. Restricted access areas.
3. Visitor detours.
4. Safety hazards.
5. Emergency contact information.

B. Signage shall be professional in appearance and approved by the COR before installation.

2.5 DUST CONTROL MATERIALS

A. Potable water for dust suppression.
B. Environmentally acceptable dust palliatives when approved by the COR.
C. Tarpaulins and covers for stockpiles.

2.6 FIRE PROTECTION EQUIPMENT

A. Portable fire extinguishers meeting NFPA requirements.
B. Fire extinguishers shall be maintained and inspected throughout construction.

2.7 TEMPORARY LIGHTING

A. Provide sufficient lighting for safe construction operations.
B. Lighting shall not create nuisance glare to visitors or adjacent properties.

2.8 SANITARY FACILITIES

A. Portable toilets:
   1. Self-contained units.
   2. Serviced regularly.
   3. Located only in approved areas.
B. Maintain sanitary facilities in clean condition.

PART 3 – EXECUTION

3.1 GENERAL

A. Establish temporary facilities and controls before commencing construction operations.
B. Maintain facilities and controls throughout the duration of the Work.
C. Remove temporary facilities upon completion unless otherwise directed.

3.2 SITE ACCESS AND SECURITY

A. Limit construction activities to approved work areas.
B. Prevent unauthorized access to the site.
C. Secure tools, materials, and equipment during non-working hours.
D. Coordinate access requirements with park personnel.

3.3 PROTECTION OF VISITORS

A. Maintain safe public access around construction areas.
B. Separate visitors from construction operations using barriers and fencing.
C. Clearly mark pedestrian detours.
D. Immediately correct unsafe conditions.

3.4 PROTECTION OF HISTORIC RESOURCES

A. Protect historic structures, masonry, paving, monuments, landscapes, and cultural resources from damage.
B. Do not attach temporary facilities to historic fabric unless specifically approved.
C. Prevent staining, vibration damage, abrasion, and impact damage to historic materials.
D. Report any accidental damage immediately to the COR.
E. Suspend work if previously unidentified historic or archeological resources are encountered and notify the COR immediately.

3.5 DUST CONTROL

A. Prevent migration of dust beyond construction limits.
B. Apply water as necessary to exposed surfaces.

C. Cover debris and haul vehicles.
D. Clean adjacent paved surfaces daily.

3.6 NOISE AND VIBRATION CONTROL

A. Perform operations to minimize noise impacts on visitors and park operations.
B. Use equipment equipped with functioning mufflers.
C. Limit unnecessary idling.
D. Schedule high-noise activities with COR approval.
E. Monitor vibration-producing activities adjacent to historic resources.

3.7 ENVIRONMENTAL PROTECTION

A. Prevent discharge of pollutants into storm drains, waterways, or adjacent properties.
B. Store fuels and chemicals in secure areas with secondary containment.
C. Immediately clean spills and report significant releases.
D. Comply with approved environmental protection plans.

3.8 WASTE MANAGEMENT

A. Collect waste daily.
B. Provide covered containers.
C. Remove waste from the site at regular intervals.
D. Dispose of waste in accordance with federal, state, and local regulations.

3.9 FIRE PREVENTION

A. Maintain fire extinguishers within construction areas.
B. Prohibit open burning.
C. Store flammable materials in approved containers.
D. Maintain clear access for emergency responders.

3.10 TEMPORARY UTILITIES

A. Coordinate utility connections with the Government.
B. Pay all costs associated with temporary utility use unless otherwise specified.
C. Prevent interruption of existing utility services.

3.11 RESTORATION

A. Remove temporary facilities, controls, debris, and surplus materials upon completion of the Work.
B. Restore disturbed areas to original condition or better.
C. Repair damage caused by construction operations at no additional cost to the Government.
D. Obtain COR acceptance before final demobilization.

END OF SECTION 01 50 00

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes requirements for furnishing, installing, maintaining, modifying, and removing temporary traffic control measures required for construction operations.
B. Work includes:
1. Pedestrian traffic control.
2. Vehicular traffic control.
3. Temporary barriers and channelization devices.
4. Temporary signs and warning devices.
5. Construction access control.
6. Temporary sidewalk closures and detours.
7. Temporary lane closures when approved.
8. Protection of visitors, employees, contractors, and adjacent properties.
9. Flagging operations.
10. Maintenance of emergency access routes.
11. Removal of temporary traffic control devices upon completion of work.

C. Traffic control shall be provided whenever construction operations affect:
1. Public streets.
2. Park roads.
3. Sidewalks.
4. Crosswalks.
5. Accessible routes.
6. Visitor circulation paths.
7. Service and emergency vehicle access.

1.2 REFERENCES

Comply with the latest edition of the following unless otherwise indicated:

A. Federal Highway Administration (FHWA):
1. Manual on Uniform Traffic Control Devices (MUTCD).

B. Occupational Safety and Health Administration (OSHA):
1. 29 CFR 1926.
2. Subpart G – Signs, Signals, and Barricades.

C. Americans with Disabilities Act (ADA):
1. ADA Standards for Accessible Design.

D. U.S. Access Board:
1. Public Rights-of-Way Accessibility Guidelines (PROWAG), where applicable.

E. National Park Service Requirements.
F. State and local traffic control regulations.
G. Philadelphia Streets Department requirements.
H. Pennsylvania Department of Transportation (PennDOT) Publication 213, Temporary Traffic Control Guidelines.

1.3 SUBMITTALS

A. Traffic Control Plan

Submit a site-specific Traffic Control Plan (TCP) at least 21 calendar days prior to beginning work.

Include:

1. Narrative description of traffic impacts.
2. Sequence of construction activities.
3. Pedestrian routing plans.
4. Accessible route maintenance plan.
5. Vehicle detour plans.
6. Emergency access provisions.
7. Flagging procedures.
8. Temporary signage layout.
9. Barricade locations.
10. Construction vehicle ingress and egress routes.
11. Hours of work.
12. Contact information for responsible personnel.

B. Shop Drawings

Submit:

1. Traffic control device layouts.
2. Temporary barrier details.
3. Pedestrian protection details.
4. Temporary fencing details.
5. Detour signage details.

C. Certifications

1. Provide documentation that traffic control personnel are trained and qualified in accordance with applicable MUTCD requirements.

D. Daily Inspection Reports

1.Submit copies of daily traffic control inspections upon request.

1.3 QUALITY ASSURANCE

A. Traffic control operations shall comply with:

1. MUTCD requirements.
2. OSHA requirements.
3. State and local regulations.
4. NPS safety requirements.

B. Traffic Control Supervisor:

1. Designate one competent person responsible for traffic control activities.
2. Supervisor shall have documented experience in temporary traffic control operations.

C. Flaggers:

1. Shall be trained in accordance with MUTCD requirements.
2. Shall wear high-visibility apparel meeting ANSI/ISEA standards.

1.4 COORDINATION

A. Coordinate all traffic control activities with the Contracting Officer's Representative (COR).
B. Notify the COR at least 72 hours before implementing traffic pattern changes.
C. Coordinate with:
1. National Park Service.
2. Local emergency responders.
3. Adjacent facility operators.
4. Utility companies when applicable.
D. No roadway, sidewalk, or pathway closures shall occur without written approval.

1.5 PUBLIC ACCESS REQUIREMENTS

A. Maintain public access to facilities, buildings, and visitor areas throughout construction.
B. Maintain continuous emergency access at all times.
C. Provide safe alternate pedestrian routes whenever existing routes are obstructed.
D. Accessible routes shall remain compliant with ADA requirements.
E. Construction operations shall minimize disruption to visitors and park operations.

1.6 HISTORIC RESOURCE PROTECTION

A. Traffic control measures shall not damage historic structures, paving, landscapes, archeological resources, or cultural features.
B. Do not anchor, fasten, or attach temporary devices to historic resources without written approval.
C. Protect adjacent historic fabric from impacts associated with traffic control installations.
D. Coordinate all work with cultural resource protection requirements.

PART 2 – PRODUCTS

2.1 GENERAL

A. Provide new or like-new traffic control devices.
B. Devices shall conform to MUTCD requirements.
C. Damaged or deteriorated devices shall be removed immediately and replaced.

2.2 TRAFFIC SIGNS

A. Temporary signs shall be:
1. MUTCD compliant.
2. Retroreflective.
3. Appropriate for anticipated traffic conditions.
4.

B. Signs may include:
1. Road Work Ahead.
2. Sidewalk Closed.
3. Pedestrian Detour.
4. Construction Entrance.
5. Flagger Ahead.
6. Authorized Personnel Only.
7. Other signs required by approved Traffic Control Plan.

2.3 CHANNELIZING DEVICES

Provide as required:
A. Cones.
B. Drums.
C. Delineators.
D. Vertical panels.
E. Tubular markers.
F. Barricades.

2.4 TEMPORARY BARRIERS

A. Use temporary barriers where needed to separate the public from construction activities.
B. Barriers shall:
1. Remain stable under anticipated loads.
2. Resist displacement by wind.
3. Be highly visible.
4. Include reflective markings where required.

2.5 PEDESTRIAN PROTECTION

A. Provide temporary pedestrian barriers separating visitors from work areas.
B. Temporary pedestrian routes shall:
1. Be clearly marked.
2. Be accessible.
3. Be free of tripping hazards.
4. Be maintained in safe condition at all times.
C. Temporary ramps shall comply with ADA requirements.

2.6 TEMPORARY FENCING

A. Fencing shall be minimum 6 feet high unless otherwise approved.
B. Provide lockable gates at construction access points.
C. Fence fabric shall be securely attached to posts and frames.
D. Install screening where directed by the COR.

2.7 HIGH-VISIBILITY APPAREL

Provide apparel meeting current ANSI/ISEA standards for workers exposed to traffic.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Verify site conditions before installation.
B. Identify conflicts with existing operations, visitor circulation, and emergency access routes.
C. Notify the COR of conditions requiring modification of the approved Traffic Control Plan.

3.2 INSTALLATION

A. Install traffic control devices before commencing operations affecting traffic.
B. Install devices in accordance with:
   1. Approved Traffic Control Plan.
   2. MUTCD requirements.
   3. Manufacturer recommendations.
C. Maintain clear visibility of all traffic control devices.
D. Install devices to withstand anticipated environmental conditions.

3.3 PEDESTRIAN TRAFFIC CONTROL

A. Maintain safe pedestrian movement at all times.
B. Separate pedestrians from active work zones.
C. Provide detours when required.
D. Clearly identify accessible routes.
E. Maintain access to:
   1. Building entrances.
   2. Visitor facilities.
   3. Emergency exits.
   4. Accessible entrances.

3.4 VEHICULAR TRAFFIC CONTROL

A. Schedule deliveries to minimize disruption.
B. Restrict construction vehicle movements to approved routes.
C. Use flaggers where required.
D. Prevent backing movements in public areas whenever practical.
E. Provide spotters when construction vehicles operate near pedestrian areas.

3.5 MAINTENANCE

A. Inspect traffic control devices daily.
B. Immediately correct deficiencies.
C. Replace damaged devices promptly.
D. Maintain signs in clean, legible condition.
E. Maintain pedestrian and vehicular routes free of debris.

3.6 EMERGENCY ACCESS

A. Maintain emergency vehicle access at all times.
B. Remove or relocate traffic control devices immediately upon direction of emergency personnel.
C. Notify the COR immediately of any incident affecting emergency access.

3.7 ADVERSE WEATHER

A. Inspect traffic control devices following:
1. High winds.
2. Heavy rain.
3. Snow events.
4. Other severe weather.

B. Restore displaced devices immediately.

3.8 REMOVAL

A. Remove temporary traffic control devices when no longer required.
B. Remove temporary signs, barriers, fencing, and associated materials.
C. Restore affected areas to original condition.
D. Repair damage caused by traffic control operations at no additional cost to the Government.

3.9 CLEANING

A. Remove debris associated with traffic control operations daily.
B. Leave project site clean and safe upon completion of work.

END OF SECTION 01 55 26

PART 1 – GENERAL

1.1 SUMMARY

A. This Section specifies requirements for environmental protection, pollution prevention, and preservation of natural, cultural, and historic resources during construction activities at the SE corner of 6th and Market Street Barrier Masonry Wall Project, located within Independence National Historical Park.

B. Work includes protection of:

1. Air quality.
2. Surface water and groundwater.
3. Soil resources.
4. Vegetation and wildlife.
5. Historic and cultural resources.
6. Adjacent facilities and visitor-use areas.
7. Public health and safety.
8. Noise-sensitive environments.
9. Waste management and pollution prevention activities.

C. Environmental protection requirements apply to all Contractor operations, subcontractors, suppliers, and visitors to the project site.

1.2 RELATED SECTIONS

A. Section 01 33 00 – Submittal Procedures.
B. Section 01 35 70 – Cultural Resource Protection.
C. Section 01 50 00 – Temporary Facilities and Controls.
D. Section 01 55 26 – Traffic Control.
E. Section 01 74 19 – Construction Waste Management and Disposal.
F. Section 01 77 00 – Closeout Procedures.

1.3 REFERENCES

A. Comply with the latest editions of the following:

1. National Environmental Policy Act (NEPA).
2. Clean Air Act (CAA).
3. Clean Water Act (CWA).
4. Resource Conservation and Recovery Act (RCRA).
5. Federal Water Pollution Control Act.
6. National Historic Preservation Act (NHPA).
7. Endangered Species Act (ESA).
8. Executive Order 14057 – Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability.
9. NPS Director's Order 77 – Natural Resource Protection.
10. NPS Director's Order 28 – Cultural Resource Management.
11. NPS Director's Order 50C – Public Risk Management Program.

12. EPA Construction General Permit requirements, where applicable.
13. State and local environmental regulations.

B. Comply with National Park Service environmental policies and resource protection requirements.

1.4 DEFINITIONS

A. Pollution: Contamination of air, water, soil, or cultural resources by construction activities.
B. Hazardous Material: Material regulated by federal, state, or local environmental laws.
C. Spill: Any unauthorized release of liquid or solid pollutants.
D. Environmentally Sensitive Area: Areas designated by the Contracting Officer Representative (COR) as requiring special protection.
E. Cultural Resource: Historic structures, archeological resources, cultural landscapes, and associated features protected under federal law.

1.5 SUBMITTALS

A. Environmental Protection Plan (EPP)
Submit within 15 calendar days after Notice to Proceed.
Include:

1. Site environmental management procedures.
2. Pollution prevention measures.
3. Dust control procedures.
4. Erosion and sediment control measures.
5. Spill prevention and response procedures.
6. Waste management procedures.
7. Hazardous material handling procedures.
8. Noise control measures.
9. Protection measures for historic resources.
10. Emergency contacts and reporting procedures.
11. Environmental inspection forms.

B. Spill Prevention and Response Plan
Include:

1. Storage locations.
2. Secondary containment details.
3. Emergency response procedures.
4. Notification requirements.
5. Cleanup methods.

C. Waste Management Plan
Submit in accordance with Section 01 74 19.
D. Environmental Incident Reports
Submit within 24 hours of occurrence.
E. Environmental Inspection Reports
Submit weekly.

1.6 QUALITY ASSURANCE

A. Designate an Environmental Protection Coordinator (EPC) responsible for implementation of this Section.
B. Environmental Protection Coordinator shall:
1. Be present during major construction activities.
2. Conduct weekly environmental inspections.
3. Maintain environmental records.
4. Coordinate corrective actions.
5. Serve as point of contact with the COR.

C. Train all personnel regarding environmental protection requirements before beginning work.

1.7 ENVIRONMENTAL COMPLIANCE

A. Conduct operations in compliance with federal, state, local, and National Park Service environmental requirements.
B. Correct violations immediately at no additional cost to the Government.
C. Environmental compliance does not relieve Contractor from responsibility for damages caused by its operations.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Use environmentally preferable products whenever practicable.
B. Use biodegradable cleaning materials where approved.
C. Provide absorbent materials and spill response kits suitable for anticipated contaminants.
D. Provide covered waste containers.
E. Use low-emission fuels and equipment where available.

2.2 EROSION AND SEDIMENT CONTROL MATERIALS

A. Silt fence.
B. Filter socks.
C. Inlet protection devices.
D. Stabilized construction entrances.
E. Temporary seeding materials where required.
F. Other measures approved in the Environmental Protection Plan.

PART 3 – EXECUTION

3.1 GENERAL REQUIREMENTS

A. Conduct operations to minimize adverse environmental impacts.
B. Limit disturbance to areas designated for construction.
C. Protect public areas, visitors, and adjacent facilities from environmental impacts.
D. Maintain work areas in a clean condition.

3.2 PROTECTION OF HISTORIC AND CULTURAL RESOURCES

A. The project is located within a nationally significant historic property. Protect all historic features, structures, landscapes, and adjacent resources from damage.
B. Construction activities shall not damage:
1. Historic masonry.
2. Historic paving.
3. Archeological resources.
4. Interpretive features.
5. Cultural landscape elements.

C. Immediately stop work and notify the COR if previously unknown archeological, cultural, or historic resources are encountered.
D. Do not remove or disturb cultural resources unless specifically authorized by Contract Documents.

3.3 AIR POLLUTION CONTROL

A. Prevent dust from becoming airborne.
B. Apply water or approved dust suppressants as necessary.
C. Cover trucks transporting soil or debris.
D. Remove accumulated dust from paved surfaces.
E. Do not use methods that create excessive airborne particulate matter.
F. Comply with local air quality regulations.

3.4 NOISE CONTROL

A. Maintain noise levels at the lowest practical level.
B. Use equipment equipped with functioning mufflers.
C. Limit unnecessary idling.
D. Restrict particularly noisy operations to approved work hours.
E. Immediately repair malfunctioning equipment creating excessive noise.

3.5 WATER POLLUTION CONTROL

A. Prevent discharge of pollutants into storm drains, waterways, or groundwater.
B. Maintain erosion and sediment controls throughout construction.

C. Inspect controls after storm events.
D. Prevent concrete washout from entering drainage systems.
E. Provide designated washout areas.
F. Remove accumulated sediment as necessary.

3.6 SOIL PROTECTION

A. Limit excavation and grading to approved areas.
B. Prevent soil compaction outside work limits.
C. Stabilize disturbed soils as soon as practical.
D. Prevent tracking of sediment onto public roadways.

3.7 HAZARDOUS MATERIALS MANAGEMENT

A. Store fuels, oils, solvents, paints, and chemicals in designated areas.
B. Provide secondary containment for liquid materials.
C. Maintain Safety Data Sheets (SDS) onsite.
D. Dispose of hazardous materials in accordance with applicable regulations.
E. Do not discharge hazardous materials to the environment.

3.8 SPILL PREVENTION AND RESPONSE

A. Maintain spill response equipment onsite at all times.
B. Stop, contain, and clean spills immediately.
C. Notify the COR immediately upon discovery of a spill.
D. Submit written incident report within 24 hours.
E. Restore affected areas at no cost to the Government.

3.9 WASTE MANAGEMENT

A. Minimize waste generation.
B. Segregate recyclable materials.
C. Remove waste regularly.
D. Do not bury waste onsite.
E. Do not burn waste onsite.
F. Dispose of waste at approved facilities.

3.10 PROTECTION OF VEGETATION
A. Protect existing trees, shrubs, and vegetation designated to remain.
B. Do not store materials beneath tree canopies.
C. Prevent damage from equipment operations.
D. Repair or replace damaged vegetation as directed by the COR.

3.11 EQUIPMENT MAINTENANCE

A. Maintain equipment in good operating condition.
B. Repair fluid leaks immediately.
C. Refueling shall occur only in approved locations.
D. Provide absorbent materials during refueling operations.

3.12 ENVIRONMENTAL INSPECTIONS

A. Perform weekly inspections.
B. Document findings and corrective actions.
C. Submit reports to the COR.
D. Correct deficiencies within 24 hours unless otherwise approved.

3.13 RESTORATION

A. Restore disturbed areas to preconstruction condition unless otherwise indicated.
B. Remove temporary environmental protection measures upon completion of work.
C. Dispose of removed materials legally.
D. Repair environmental damage resulting from Contractor operations at no additional cost to the Government.

END OF SECTION 01 57 19

National Park Service (NPS)
Historic Preservation Training Center (HPTC)
Independence National Historical Park – Masonry Barrier Wall Project

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes:
1. Administrative and procedural requirements for construction waste management.
2. Salvaging, recycling, reuse, and disposal of construction and demolition debris.
3. Documentation and reporting requirements.
4. Waste handling procedures associated with work at a historic property.
5. Diversion of construction waste from landfills to the maximum extent practical.

B. Related Requirements:
1. Section 01 11 00 – Summary of Work.
2. Section 01 33 23 – Submittal Procedures.
3. Section 01 35 70 – Cultural Resource Protection.
4. Section 01 50 00 – Temporary Facilities and Controls.

1.2 REFERENCES

Comply with the latest editions of the following:

A. U.S. Environmental Protection Agency (EPA):
1. Resource Conservation and Recovery Act (RCRA).
2. Comprehensive Procurement Guidelines (CPG).

B. National Park Service (NPS) Sustainable Operations and Climate Resilience Program.

C. Executive Orders and Federal Sustainability Requirements applicable at time of contract award.

D. Applicable Federal, State, and Local waste management regulations.

1.3 DEFINITIONS

A. Construction Waste: Building materials, packaging, debris, and rubble resulting from construction, renovation, repair, or demolition operations.

B. Diversion Rate: Percentage by weight of waste diverted from landfill disposal through reuse, salvage, recycling, or donation.

C. Recycling: Recovery and reprocessing of waste materials for use in manufacturing new products.

D. Salvage: Recovery of materials or components for reuse on the Project or elsewhere.

E. Source Separation: Segregation of waste materials at the point of generation.

1.4 PERFORMANCE REQUIREMENTS

A. Divert a minimum of 75 percent by weight of total nonhazardous construction and demolition waste from landfills.
B. Maximize reuse and recycling of materials generated by construction activities.
C. Salvage materials designated on drawings or specified elsewhere for reuse or return to the Government.
D. Conduct waste management operations in a manner that protects historic resources and park visitors.
E. Comply with all requirements for handling and disposition of historic materials identified for salvage. Historic treatment terminology and preservation requirements indicated in the Contract Documents shall govern salvage operations.

1.5 SUBMITTALS

A. Construction Waste Management Plan
Submit within 15 calendar days after Notice to Proceed.
Include:
1. Estimated quantities of waste by material type.
2. Proposed methods of collection, storage, transport, recycling, salvage, and disposal.
3. Names and locations of recycling and disposal facilities.
4. Diversion goals and calculations.
5. Procedures for preventing contamination of recyclable materials.
6. Methods for handling historic materials designated for salvage.
7. Waste hauling schedule.

B. Waste Diversion Reports
Submit monthly.
Include:
1. Quantities generated by material type.
2. Quantities recycled.
3. Quantities salvaged.
4. Quantities disposed.
5. Diversion percentage achieved.
6. Weight tickets and receipts.

C. Final Waste Management Report
Submit before final payment.
Include:
1. Summary of all waste streams.
2. Total quantities generated.
3. Total quantities diverted.
4. Diversion rate calculations.
5. Copies of all supporting documentation.

1.6 QUALITY ASSURANCE

A. Employ only licensed transporters and disposal facilities authorized to receive materials generated by the Work.
B. Ensure recycling facilities are legally permitted to process materials received.
C. Maintain documentation demonstrating compliance with applicable regulations.

1.7 REGULATORY REQUIREMENTS

A. Comply with Federal, Commonwealth of Pennsylvania, City of Philadelphia, and local jurisdiction requirements governing transportation, recycling, and disposal of waste.
B. Handle hazardous materials in accordance with applicable regulations and Contract requirements.
C. Do not dispose of waste within National Park Service property except at locations specifically approved by the Contracting Officer.

1.8 PROJECT CONDITIONS

A. Coordinate waste removal operations to avoid interference with park operations and visitor access.
B. Prevent migration of dust, debris, and litter beyond work limits.
C. Protect existing historic features and adjacent resources during waste handling operations.

PART 2 – PRODUCTS

2.1 MATERIALS FOR WASTE MANAGEMENT

A. Provide containers, bins, roll-off boxes, and storage areas suitable for segregation of waste materials.
B. Clearly label containers indicating material type and destination.
C. Provide covered containers when necessary to prevent moisture contamination.

2.2 RECYCLABLE MATERIALS

Recycle materials to the maximum extent practical, including:
A. Concrete.
B. Masonry.
C. Asphalt.
D. Metals.
E. Cardboard and paper products.
F. Wood.
G. Plastics.
H. Glass.
I. Packaging materials.

2.3 NONRECYCLABLE MATERIALS

Dispose of non-recyclable materials at legally permitted facilities.

2.4 HAZARDOUS MATERIALS

A. Handle hazardous waste under applicable Federal and State regulations.
B. Do not mix hazardous waste with nonhazardous construction debris.
C. Store hazardous materials in approved containers pending removal.

PART 3 – EXECUTION

3.1 GENERAL

A. Implement approved Construction Waste Management Plan throughout the duration of the Project.
B. Use source separation whenever practical.
C. Maintain site in a clean and orderly condition.

3.2 WASTE MANAGEMENT PROCEDURES

A. Salvage
1. Carefully remove items designated for salvage.
2. Protect salvaged materials from damage.
3. Store salvaged materials in secure, weather-protected locations.
4. Label salvaged materials for identification and reinstallation where required.

B. Recycling
1. Separate recyclable materials from mixed waste.
2. Prevent contamination by food waste, soil, or other unsuitable materials.
3. Deliver recyclable materials to approved recycling facilities.

C. Disposal
1. Remove waste from the site at regular intervals.
2. Transport waste in covered vehicles when necessary to prevent spillage.
3. Dispose of materials only at authorized facilities.

3.3 HISTORIC RESOURCE PROTECTION

A. Conduct waste removal activities using methods that prevent damage to historic structures, masonry, paving, landscapes, and cultural resources.
B. Materials identified for salvage shall be removed using gentle methods consistent with preservation requirements indicated in the Contract Documents.
C. Immediately report damage to historic resources to the Contracting Officer.
D. Repair damage caused by Contractor operations at no additional cost to the Government.

3.4 FIELD QUALITY CONTROL

A. Maintain records of waste quantities generated, recycled, salvaged, and disposed.
B. Make records available for Government review upon request.
C. Correct deficiencies identified by the Contracting Officer.

3.5 CLEANING

A. Remove accumulated waste materials from the Project site on a routine basis.
B. Upon completion of Work:
1. Remove all waste containers.
2. Remove temporary storage areas.
3. Leave the site clean and free of debris.
4. Submit Final Waste Management Report.

3.6 CLOSEOUT REQUIREMENTS

A. Final acceptance will not be granted until required waste management documentation has been submitted and approved.
B. Demonstrate achievement of specified diversion goals or provide written justification when goals cannot be met due to project-specific conditions.

END OF SECTION 01 74 19

PART 1 – GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for project closeout, final acceptance, transfer of responsibility to the Government, and completion of all contractual obligations.
B. Closeout procedures include, but are not limited to:
1. Substantial Completion.
2. Final Completion.
3. Correction of deficient work.
4. Final cleaning.
5. Record documents.
6. Operations and maintenance information.
7. Warranties and guarantees.
8. Spare materials and maintenance stock.
9. Training requirements.
10. Final inspections.
11. Property turnover.
12. Project closeout documentation.

C. Coordinate closeout activities with Contracting Officer (CO), Contracting Officer's Representative (COR), park staff, and other Government representatives.
D. Perform closeout activities in accordance with NPS requirements for historic properties and cultural resources. The project is located within a historic National Park Service unit, and work shall be completed in a manner that protects historic resources.

1.2 RELATED SECTIONS

A. Section 01 11 00 – Summary of Work.
B. Section 01 33 00 – Submittal Procedures.
C. Section 01 35 70 – Cultural Resource Protection.
D. Section 01 45 00 – Quality Control.
E. Section 01 74 19 – Construction Waste Management and Disposal.
F. Individual technical specification sections requiring warranties, testing, inspections, training, and record documentation.

1.3 REFERENCES

A. Federal Acquisition Regulation (FAR).
B. National Park Service Construction Specifications Institute (CSI) Guide Specifications.
C. NPS Design Standards.
D. ICC Family of Codes as adopted by the National Park Service.

1.4 DEFINITIONS

A. Substantial Completion
The stage in project progress when the Work is sufficiently complete in accordance with the Contract Documents so the Government can occupy or utilize the Work for its intended purpose.
B. Final Completion
Completion of all contract requirements, including correction of deficiencies, submission of required documentation, and acceptance by the Government.
C. Punch List
List of incomplete or unsatisfactory items identified during inspections that must be corrected prior to final acceptance.

1.5 CLOSEOUT SUBMITTALS

Submit the following prior to requesting Final Completion:
A. Project Record Documents
1. Record Drawings.
2. Record Specifications.
3. Approved submittal log.
4. Requests for Information log.
5. Change order log.

B. Operation and Maintenance Data
Submit complete O&M manuals including:
1. Product data.
2. Maintenance procedures.
3. Cleaning recommendations.
4. Manufacturer contact information.
5. Warranty information.

C. Warranty Documentation
1. Contractor warranty.
2. Manufacturer warranties.
3. Special warranties required by technical sections.
4. Warranty commencement dates.

D. Certifications
Submit:
1. Test reports.
2. Inspection reports.
3. Manufacturer certifications.
4. Material certifications.
5. Code compliance certifications.

E. Training Documentation
1. Attendance records.

2. Training materials.
3. Video recordings if required.

1.6 RECORD DOCUMENTS

A. Maintain one complete set of Contract Documents at the project site.
B. Record actual installation conditions throughout construction.
C. Include:
1. Deviations from Contract Documents.
2. Field changes.
3. Concealed utilities discovered during construction.
4. Approved modifications.
5. Product substitutions.
D. Record documents shall be neat, legible, and suitable for incorporation into Government records.
E. Submit electronic files in PDF format and native CAD format when required by the Contract.

1.7 WARRANTIES

A. Assemble warranty documents into a single indexed package.
B. Include:
1. Contractor's warranty.
2. Manufacturer warranties.
3. Equipment warranties.
4. Extended service agreements.
C. Warranty period shall begin upon Final Acceptance unless otherwise specified.
D. Correct warranty deficiencies promptly upon notification by the Government.

1.8 SPARE MATERIALS

A. Deliver spare materials, extra stock, maintenance products, and attic stock required by individual specification sections.
B. Clearly label all materials.
C. Deliver materials to location designated by the COR.
D. Obtain written receipt documenting delivery.

1.9 TRAINING

A. Provide operational and maintenance training for Government personnel as specified.
B. Schedule training at least 14 calendar days in advance.
C. Provide qualified instructors familiar with installed systems.
D. Submit training agenda and materials before conducting sessions.

PART 2 – PRODUCTS

2.1 MATERIALS FOR CLOSEOUT DOCUMENTATION

A. Binders

Three-ring hard-cover binders with title sheets identifying:

1. Project name.
2. Contract number.
3. Park unit.
4. Contractor name.
5. Date.

B. Electronic Media

Provide documentation electronically on Government-approved media.

C. Record Drawing Files

1. PDF files.
2. Native CAD files when required.
3. Organized directory structure approved by the Government.

PART 3 – EXECUTION

3.1 PRELIMINARY CLOSEOUT REVIEW

A. Prior to requesting Substantial Completion:

1. Inspect Work.
2. Correct deficiencies.
3. Complete testing.
4. Complete startup activities.
5. Complete cleaning.

B. Submit written notice that Work is ready for Government inspection.

3.2 SUBSTANTIAL COMPLETION INSPECTION

A. Request inspection in writing.

B. Government will inspect Work and prepare a punch list of deficiencies.

C. Correct punch-list items within the period established by the Contracting Officer.

D. Re-inspections resulting from incomplete corrective work may be charged to the Contractor when permitted by contract provisions.

3.3 FINAL CLEANING

A. Remove:

1. Construction debris.
2. Temporary facilities.
3. Unused materials.

4. Equipment.
5. Waste materials.

B. Clean all exposed surfaces.
C. Leave site in condition acceptable to the Government.
D. Historic materials and adjacent resources shall be cleaned using methods that prevent damage to historic fabric.

3.4 FINAL INSPECTION

A. Submit written request for Final Inspection after:
1. Completion of punch-list items.
2. Submission of closeout documents.
3. Completion of training.
4. Delivery of spare materials.
5. Final cleaning.

B. Government will perform Final Inspection.
C. Correct deficiencies identified during Final Inspection before acceptance.

3.5 PROPERTY TURNOVER

A. Deliver keys, access devices, and Government-furnished property documentation.
B. Transfer maintenance materials and spare parts.
C. Transfer operation manuals and warranties.
D. Provide signed inventory of items transferred to the Government.

3.6 FINAL ACCEPTANCE

A. Final Acceptance will occur when:
1. Work is complete.
2. Contract requirements have been satisfied.
3. Required documentation has been submitted.
4. Deficiencies have been corrected.
5. Government determines Work is acceptable.

B. Final payment will be processed in accordance with contract requirements following Final Acceptance.

3.7 POST-ACCEPTANCE WARRANTY OBLIGATIONS

A. Respond to warranty service requests within the time specified by the Contract.
B. Investigate reported defects promptly.
C. Correct defective work at no additional cost to the Government.
D. Restore damaged adjacent work resulting from corrective actions.

END OF SECTION 01 77 00

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for preparation, submission, review, and delivery of Operation and Maintenance (O&M) Data for equipment, systems, materials, and products incorporated into the Work.
B. O&M Data shall provide information necessary for National Park Service personnel to safely operate, maintain, troubleshoot, repair, and replace building systems and components.
C. Related Requirements:
1. Section 01 33 23 – Submittal Procedures.
2. Individual technical specification sections requiring specific O&M documentation.

1.2 REFERENCES

A. Comply with the latest editions of the following unless otherwise indicated:
1. Construction Specifications Institute (CSI):
   - Project Resource Manual (PRM).
2. National Park Service (NPS) Design and Construction Standards.
3. National Archives and Records Administration (NARA) requirements for records management where applicable.

1.3 DEFINITIONS

A. Operation and Maintenance Data: Documentation describing operation, maintenance, troubleshooting, adjustment, repair, replacement, and servicing requirements for products and systems.
B. O&M Manual: Organized compilation of operation and maintenance data assembled into electronic and hard-copy formats.
C. Manufacturer's Literature: Printed or electronic information prepared by the manufacturer describing products and equipment furnished under the Contract.

1.4 SUBMITTAL REQUIREMENTS

A. Submit O&M Data in accordance with Section 01 33 00.
B. Submit preliminary O&M Data not less than 60 calendar days before Substantial Completion.
C. Submit final O&M Data not later than 15 calendar days prior to Final Inspection.
D. O&M Data shall be complete, project-specific, and reviewed by the Contractor prior to submission.
E. Incomplete, generic, or improperly organized submissions will be returned without review.
F. Acceptance of O&M Data is required prior to Final Payment.

1.5 FORMAT REQUIREMENTS

A. Electronic Format
1. Submit searchable PDF files.
2. Files shall be OCR searchable.
3. Individual files shall not exceed 100 MB unless approved by the Contracting Officer's Representative (COR).
4. Organize files according to specification section numbers.
5. Provide bookmarked table of contents.
6. Include hyperlinks between table of contents and individual sections.

B. Hard-Copy Format
1. Provide three bound copies unless otherwise indicated.
2. Use durable three-ring binders.
3. Binder covers shall identify:
   a. Project title.
   b. PMIS number.
   c. Contract number.
   d. Project location.
   e. Contractor name.
   f. Date of submission.

C. Organization
Arrange manuals in the following order:
1. Title Page.
2. Table of Contents.
3. Directory of Suppliers and Manufacturers.
4. Product Warranties.
5. Equipment Data.
6. System Operating Instructions.
7. Preventive Maintenance Requirements.
8. Troubleshooting Guides.
9. Recommended Spare Parts Lists.
10. Testing and Balancing Reports.
11. Commissioning Documentation.
12. Record Drawings Reference Information.

1.6 CONTENT REQUIREMENTS

A. General
Provide information specifically applicable to products installed under this Contract.

B. Product Data
Include:
1. Manufacturer's name and address.
2. Product model numbers.
3. Serial numbers.
4. Product capacities.

5. Performance characteristics.
6. Installation instructions.
7. Operating limitations.

C. Operating Instructions

Provide:

1. Startup procedures.
2. Normal operating procedures.
3. Emergency operating procedures.
4. Shutdown procedures.
5. Seasonal operating instructions.
6. Energy conservation recommendations.
7. Safety precautions.

D. Maintenance Instructions

Provide:

1. Preventive maintenance schedules.
2. Lubrication requirements.
3. Inspection procedures.
4. Cleaning methods.
5. Adjustment procedures.
6. Calibration procedures.
7. Repair procedures.
8. Replacement procedures.

E. Troubleshooting Information

Include:

1. System malfunctions.
2. Probable causes.
3. Corrective actions.
4. Diagnostic procedures.

F. Spare Parts Information

Include:

1. Recommended spare parts inventory.
2. Manufacturer's part numbers.
3. Sources of supply.
4. Anticipated replacement intervals.

1.7 EQUIPMENT AND SYSTEMS REQUIRING O&M DATA

Provide O&M Data for all equipment and systems furnished under the Contract, including but not limited to:

A. Mechanical systems.
B. Electrical systems.
C. Plumbing systems.
D. Fire protection systems.
E. Site lighting systems.
F. Security systems.

G. Communications systems.
H. Specialty equipment.
I. Doors and hardware.
J. Roofing systems.
K. Waterproofing systems.
L. Masonry assemblies.
M. Historic preservation materials and treatments.
N. Site furnishings and accessories.
O. Any equipment requiring maintenance, inspection, adjustment, calibration, or replacement.

For this historic preservation project at SE corner of 6th and Market Street within Independence National Historical Park, O&M documentation shall specifically address maintenance procedures for historic masonry materials, treatments, and preservation-sensitive work.

1.8 TRAINING DOCUMENTATION

A. Where training is specified, include:
1. Training agendas.
2. Attendance records.
3. Training presentation materials.
4. Audio-visual recordings when required.
5. Training handouts.

B. Include summary of training provided and recommendations for future training.

1.9 WARRANTIES

A. Include copies of all warranties and guarantees.
B. Organize warranties by specification section.
C. Include:
1. Warranty start date.
2. Warranty duration.
3. Contact information.
4. Procedures for obtaining warranty service.

1.10 REVIEW AND ACCEPTANCE

A. Government review of O&M Data does not relieve Contractor of responsibility for completeness and accuracy.
B. Correct deficiencies identified during review and resubmit within 14 calendar days.
C. Final acceptance shall occur only after all required information has been provided and approved.

PART 2 – PRODUCTS

2.1 MATERIALS

Not Used.

PART 3 – EXECUTION

3.1 PREPARATION

A. Collect and assemble O&M information throughout construction.
B. Do not defer preparation of manuals until project completion.
C. Verify all equipment information against installed conditions.

3.2 MANUAL ASSEMBLY

A. Assemble manuals in accordance with approved format requirements.
B. Remove information not applicable to installed products.
C. Clearly identify selected options where manufacturers provide multiple configurations.
D. Insert project-specific data sheets where necessary.

3.3 QUALITY CONTROL

A. Contractor shall review all O&M Data for accuracy and completeness prior to submission.
B. Certify that submitted information reflects actual installed equipment and systems.
C. Ensure consistency with Record Documents and approved submittals.

3.4 FINAL DELIVERY
A. Deliver approved O&M manuals prior to Final Inspection.
B. Provide electronic copies on Government-approved digital media or approved electronic transfer platform.
C. Deliver hard-copy manuals to the Contracting Officer's Representative.
D. Final payment will not be processed until required O&M Data has been accepted.

END OF SECTION 01 78 23

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes cast-in-place concrete for:
1. Continuous and isolated footings supporting a masonry site wall.
2. Integrated reinforcing steel, including dowels for CMU wall construction.

B. Related Sections:
1. 04 20 00 - Unit Masonry.
2. 04 72 00 – Cut Stone.
3. 07 90 00 – Joint Sealants.
4. 31 20 00 – Earthwork.

1.2 REFERENCES

A. ACI 301 – Specifications for Structural Concrete.
B. ACI 318 – Building Code Requirements for Structural Concrete.
C. ACI 315 – Details and Detailing of Concrete Reinforcement.
D. ASTM C31 - Concrete test cylinders.
E. ASTM C33 – Concrete Aggregates.
F. ASTM C94 – Ready-Mixed Concrete.
G. ASTM C150 – Portland Cement.
H. ASTM C260 – Air-Entraining Admixtures.
I. ASTM C494 – Chemical Admixtures.
J. ASTM A615/A706 – Deformed Steel Reinforcement.
K. National Park Service - Applicable site and subsurface protection standards.
L. ASTM C31 – Preparing, curing and testing concrete test cylinders.

1.3 SUBMITTALS

A. Product Data:
1. Cement, admixtures, reinforcement, curing materials.

B. Concrete Design Mixes:
1. Proposed mix designs indicating compressive strength, water-cement ratio, slump, air content, and admixtures.

C. Reinforcing Steel:
1. Certified mill test reports.
2. Shop drawings showing bar sizes, spacing, laps, hooks, dowels, and placement details.

D. Field Quality Reports:
1. Concrete compressive strength tests, slump tests, and air content tests.

E. Testing Agency:
1. The general contractor shall propose an independent testing agency and submit their credentials for the CO’s review and approval.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Personnel with a minimum 5 years experience with structural footings for federal and historic site projects.
B. Pre-Installation Conference: Review footing geometry, reinforcing placement, dowel alignment, excavation conditions, and protection measures.
C. Codes: Comply with ACI 301 and ACI 318.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Reinforcing: Keep off the ground; protect from mud, oil, and excessive rust.
B. Concrete: Use ready-mixed concrete delivered in accordance with ASTM C94.

1.5 PROJECT CONDITIONS

A. Do not place concrete on frozen ground or during freezing weather unless approved by the COR and complying with ACI 306 cold-weather requirements.
B. Protect excavations and adjacent historic surfaces from water, erosion, and equipment.

PART 2 – PRODUCTS

2.1 CONCRETE MATERIALS

A. Cement: ASTM C150, Type I/II.
B. Aggregates: ASTM C33, normal weight.
C. Water: Clean, potable.
D. Air-Entraining Admixture: ASTM C260.
E. Chemical Admixtures: ASTM C494; use only as approved by COR.

2.2 REINFORCING STEEL

A. Bars: ASTM A615 or A706, Grade 60, deformed.
B. Ties, Chairs, and Spacers: Plastic or galvanized steel suitable for contact with soil and concrete.
C. Bar Supports: Sized to maintain required cover (minimum 3 inches at footings).
D. Mechanical Splices (if used): ASTM A1034; manufacturer’s recommended installation.

2.3 CONCRETE MIXES

A. Footings.
1. Minimum compressive strength: 3000 psi at 28 days (unless otherwise shown).
2. Maximum water–cement ratio: 0.50.
3. Slump: 3 to 5 inches at point of placement.
4. Air Content: 5–7 percent for exterior exposure.

B. Deliver ready-mixed concrete in accordance with ASTM C94.

2.4 ACCESSORIES

A. Curing Materials: ASTM C309 curing compound or wet-curing materials.
B. Joint Materials: Bituminous or pre-molded filler.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Verify excavation dimensions, elevations, and bearing conditions.
B. Confirm no standing water in excavation and no unconsolidated soil.

3.2 PREPARATION

A. Compact subgrade to required bearing capacity.
B. Remove debris, organic matter, and loose material.
C. Provide horizontal and vertical reinforcing per contract drawings.
D. Ensure reinforcement is clean, properly tied, supported, and spaced.

3.3 REINFORCING INSTALLATION

A. Place reinforcing steel per ACI 315 and contract drawings.
B. Provide minimum 3 inches of concrete cover at bottom and sides of footings.
C. Tie bars securely to prevent movement during concrete placement.
D. Install dowels and hooks for CMU wall at locations indicated; verify alignment before placement.
E. Lap splices in compliance with ACI 318.
F. Do not use tack welding unless specifically indicated and bars are weldable grade.

3.4 CONCRETE PLACEMENT

A. Place concrete continuously to avoid cold joints.
B. Consolidate with internal vibration; avoid segregation.
C. Do not add water to concrete at the site.
D. Maintain reinforcement position during placement.

3.5 FINISHING

A. Strike off and float top surfaces to provide even bearing surface for masonry.
B. Hold tolerances indicated on contract drawings.

3.6 CURING

A. Cure concrete for a minimum of 7 days using approved methods.
B. Protect from precipitation, freezing, and rapid drying.

3.7 FIELD QUALITY CONTROL

A. Perform slump, temperature, and air tests on each batch at placement.
B. Cast compressive strength test cylinders daily.
1. Prepare and cure concrete test cylinders in accordance with ASTM C31.
2. Provide a minimum of four test cylinders per set.
a. One set of cylinders for each day's placement.
3. Two tested at 7 days.
4. Two tested at 28 days.
C. Testing laboratory shall perform compressive strength tests per ASTM C39.
D. Concrete not meeting specified compressive strength shall be evaluated and remediated as directed by the CO at no additional cost to the government.
E. Testing laboratory shall provide written reports of all break results, slump, temperature, and air tests within 24 hours of testing.

3.8 PROTECTION

A. Protect footings from construction loads until design strength is achieved.
B. Prevent damage to adjacent historic pavements and site features.

END OF SECTION 03 30 00

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes exterior unit masonry for low site wall with maximum height 36 inches, comprising:
1. Reinforced, fully grouted 8-inch CMU backup above grade.
2. 6 & 8 inch CMU below grade supporting brick veneer.
3. Face brick veneer, ties/anchors, flashing, and weeps.
4. Mortar and grout, joint reinforcement, and accessories.

B. Related Sections:
1. 03 30 00 – Cast-in-Place Concrete.
2. 04 72 00 – Cut Stone.
3. 07 90 00 – Joint Sealants.
4. 31 20 00 - Excavation and Backfill

1.2 REFERENCES

A. TMS 402/602 – Building Code Requirements and Specification for Masonry Structures.
B. ASTM C90 – Loadbearing CMU.
C. ASTM C140 – Sampling and Testing CMU.
D. ASTM C270 – Mortar for Unit Masonry.
E. ASTM C1714 – Preblended Mortar.
F. ASTM C476 – Grout for Masonry.
G. ASTM C1019 – Compressive Strength of Grout.
H. ASTM C780 – Preconstruction and Construction Evaluation of Mortars.
I. ASTM C216 – Facing Brick (Grade SW).
J. ASTM A1064 – Steel Wire for Masonry Joint Reinforcement and Anchors.
K. ASTM A153 – Zinc Coating (Hot-Dip Galvanized) on Iron and Steel Hardware.
L. ASTM A276 / A240 – Stainless steel bars/sheet (Type 304/316) for ties/flashings.
M. Brick Industry Association (BIA) Tech Notes – Cleaning, flashing/weeps (informational).

1.3 SUBMITTALS

A. Product Data: CMU, brick units, mortar and grout mixes, reinforcement, joint reinforcement, ties/anchors, flashing/weeps, cavity drainage materials.
B. Design Mixes:
1. Mortar: proportions/type(s).
2. Grout: mix proportions and slump.

C. Shop Drawings: Masonry layout, reinforcement locations, bond patterns, veneer tie spacing, flashing details, weep locations, cap interface.
D. Samples:
1. Brick: full-size units (minimum 3) showing color/texture range.
2. Mortar color chips.
3. Flashing sample (12 in) and weep devices.

E. Mockup:
1. One 2’-8” × 4’-0” panel showing CMU backup, brick veneer, ties, flashing/weeps, mortar joint tooling, and stone cap interface.
2. COR approved mockup sets standard for workmanship, mortar color, joint profile, and cleaning.

F. Quality Assurance: Certificates of compliance for CMU (ASTM C90), brick (ASTM C216 Grade SW), ties/anchors/coatings, and stainless steel composition.

G. Testing Agency:
1. The general contractor shall propose an independent testing agency and submit their credentials for the CO’s review and approval.

1.4 QUALITY ASSURANCE

A. Masonry Contractor and personnel: Minimum 5 years experience with public/historic site work; supervisory personnel present during installation.
B. Codes/Standards: Comply with TMS 402/602 and applicable local building code.
C. Protection of Historic Resources: Conduct work to avoid damage to adjacent pavements, features, landscaping, and archaeological resources; coordinate access and staging with the OC.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store units on pallets, covered, off ground; protect from moisture, staining, and chipping.
B. Keep ties, joint reinforcement, and accessories clean and dry; protect galvanizing and stainless surfaces from contamination.

1.6 PROJECT CONDITIONS

A. Weather Limitations: Execute cold-/hot-weather masonry, with CO’s approval, per TMS 602.
B. Do not lay masonry on surfaces with standing water or frozen substrates.
C. Prevent water accumulation in CMU cells prior to grouting.

PART 2 – PRODUCTS

2.1 CMU BACKUP

A. Units: ASTM C90, normal weight, nominal 8 in (backup above and below grade) and 6 in (below grade veneer support).
B. Appearance: Smooth faces units suitable for full grout fill.
C. Grout: ASTM C476, fine or coarse; slump 8–11 in for complete consolidation.
D. Reinforcing Bars in CMU: ASTM A615 or A706, Grade 60; sizes per contract drawings.

E. Joint Reinforcement (CMU): Ladder-type per ASTM A1064; 0.1483" side and cross rod diameter. Exterior exposure: hot-dip galvanized per ASTM A153 or stainless-steel Type 304/316.

2.2 BRICK VENEER

A. Brick: Molded brick that conforms to ASTM C216 specifications. Grade: SW, Type: FBS. Color and texture to match COR's sample. Size: Modular (3 5/8" bed depth x 2 ¼" height x 7 5/8" length).
   1. Basis of design: Glen Gery, Cushwa Series, distributed by Diener Brick Co., Park Avenue & Cuthbert Blvd., Collingswood, NJ, 08108. 610-742-8687 Email: mikejr@dienerbrick.com or government approved equal.

B. Ties/Anchors for Veneer:
   1. Adjustable veneer anchors with triangle tie meeting ASTM A1064; exterior: stainless steel Type 304/316 or hot-dip galvanized to ASTM A153 Class B.
   2. Provide seismic clip/limit if required by code.
   3. Minimum tie density: maximum spacing 16 in horizontal and 16 in vertical; within 12 in of openings and edges provide ties at 8 in vertical.

2.3 MORTAR

A. Mortar: ASTM C270 or ASTM C1714 (preblended).
   1. Type S for CMU backup and below-grade work.
   2. Type N for brick veneer above grade.

B. Pigments: Mineral or synthetic meeting ASTM C979; uniform color; do not exceed manufacturer's dosage limits.

C. Water: Clean, potable.

D. Match color of existing adjacent brick mortar.

2.4 GROUT

A. Grout Materials:
   1. Comply with ASTM C476.
   2. Use fine grout for 6-inch CMU; use coarse or fine grout for 8-inch CMU as permitted.

B. Grout Properties:
   1. Minimum compressive strength: 2,000 psi at 28 days.
   2. Slump: 8 to 11 inches for proper consolidation (per TMS 602).
   3. Aggregate size appropriate for cell width and reinforcement clearance.

C. Admixtures:
   1. Chemical admixtures allowed only with COR approval; must be compatible with cementitious materials.
   2. No antifreeze admixtures allowed.

D. Water: Clean, potable.

E. Pre-Blended Grout (optional):
   1. Preblended, bagged grout meeting ASTM C476 and proportioned by manufacturer.

2. Do not use site-blended sand/cement mixes in lieu of premixes unless fully tested.

2.5 WEEPS, AND CAVITY DRAINAGE

A. Cavity Drainage: 3/8 in diameter cotton cord above mortar cant; maintain clear air space.
C. Weeps: 3/8 in diameter cotton cords at 24 in o.c. in head joints above mortar cant; do not block weeps with mortar.

2.6 BITUMINOUS DAMP-PROOFING
A. Material: Cold-applied asphaltic damp-proofing compound complying with:
1. ASTM D1187 – Asphalt-Based Emulsions for Damp-Proofing, or
2. ASTM D1227 – Asphalt Emulsions for Damp-Proofing and Waterproofing.
B. Type: Brush-, roller-, or spray-grade asphalt emulsion formulated for use on masonry and concrete.
C. VOC Compliance: Conform to local, state, and federal regulations applicable within Philadelphia region.
D. Accessories:
1. Primer (where required by manufacturer).
2. Reinforcing fabric for transitions, cracks, or irregular surfaces.
E. Color: Black.

2.7 MISCELLANEOUS MATERIALS

A. Preformed Control-Joint Inserts (CMU): Rubber “T” type per TMS 602.
B. Bond Breakers: 30# building felt.
C. Cleaning Materials: Non-acidic, proprietary masonry cleaners approved by the COR; no muriatic acids or harsh salts; comply with brick manufacturer’s recommendations.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Verify concrete footings are in correct location/elevation, true to line, and have installed dowels as shown.
B. Confirm substrate bearing and drainage conditions; remove water and debris.

3.2 PREPARATION
A. Layout coursing to minimize cuts; align control joints, veneer joints, and cap joints as indicated in the contract drawings.
B. Coordinate flashing terminations at grade transitions and at cap units.

3.3 CMU BACKUP – INSTALLATION

A. Lay CMU in running bond unless otherwise noted; full bed and head joints; butter ends;

do not furrow bed joints.
B. Reinforcement: Place vertical and horizontal reinforcement per contract drawings; maintain required clear cover; tie securely.
C. Grouting:
1. Fully grout all cells of 8 in CMU above grade; grout 6 in CMU below grade where supporting veneer/cap loads or where indicated.
2. Consolidate grout with mechanical vibration; reconsolidate after water loss.
D. Control Joints: Install at spacing indicated; if not indicated, locate per TMS recommendations considering wall length, height, and openings.

3.4 GROUTING OF CMU

A. Preparation:
1. Clean cells free of mortar fins, debris, wire ties, and loosened material.
2. Dampen CMU units before grouting; do not saturate or leave standing water.
3. Ensure reinforcement is properly tied and centered with required clear cover.
B. Grout Lifts and Pour Height:
1. Maximum pour height per lift: 5 feet, unless a higher lift is permitted by TMS 602 and mockup testing.
2. Consolidate each lift using mechanical vibration.
3. Reconsolidate the lift after initial water loss (typically 5–10 minutes).
C. Consolidation:
1. Consolidate at time of placement using internal vibrator.
2. Reconsolidate after water has been absorbed to eliminate voids.
D. Cell Filling Requirements:
1. Fully grout all 8-inch CMU backup wall cells from footing to top of wall.
2. Fully grout 6-inch CMU below grade where supporting veneer and cap loads or where indicated.
3. Confirm alignment of vertical bars within cells before placing grout.
E. Lift Stop and Cold Joints:
1. If grouting must stop mid-lift, form grout stop using stiffened grout method.
2. Roughen and clean grout surfaces at cold joints before next lift.
F. Grout Testing:
1. Grout compressive strength tests per ASTM C1019.
2. Minimum one test set per wall section per day, or for every 5 cubic yards of grout, whichever is greater.
3. Test sets to include:
a. Two specimens at 7 days.
b. Two specimens at 28 days.
4. Replace grout not meeting required strengths.

3.5 BITUMINOUS DAMP-PROOFING APPLICATION

A. Locations:
1. Apply damp-proofing to top of footing and over all exposed surfaces of CMU back-up.

2. Apply damp-proofing to top of footing after CMU is set.

B. Surface Preparation:
1. Ensure concrete and CMU surfaces are clean, dry, sound, and free of dust, laitance, efflorescence, and loose mortar.
2. Fill voids, honeycombs, or surface defects with cementitious patching compound; allow to cure.
3. Remove projections or mortar fins.
4. Apply primer where required by manufacturer.

C. Application – Top of Footing:
1. Apply one continuous coat at manufacturer's recommended coverage rate (typically 1.5–2.0 gallons per 100 sq ft).
2. Do not allow coating thickness to interfere with CMU bearing.
3. Extend coating up adjacent CMU surface at least 2 inches for continuity.

D. Application – CMU Back-Up:
1. Apply uniform coating with no pinholes, skips, or thin areas.
2. Extend coating from the top of footing to all exposed surfaces of CMU back-up as illustrated in the contract drawings.
3. At transitions, embed reinforcing fabric in a heavy coat of damp-proofing as recommended.
4. Apply second coat if required for uniform coverage as judged by the COR.

E. Protection and Curing:
1. Protect coated surfaces from rain, freezing, and contamination until cured.
2. Protect from backfill damage using drainage board or rigid insulation where indicated.
3. Do not backfill until material is fully cured.

F. Field Quality Control:
1. COR may inspect damp-proofed surfaces prior to brick veneer installation.
2. Repair damaged, blistered, or uncoated areas prior to covering.

3.6 BRICK VENEER – INSTALLATION

A. Cavity: Provide clear air space between veneer and backup as illustrated in the contract drawings.

B. Weeps: 3/8 in diameter cotton cord above mortar cant. Provide weeps at 24 in o.c.

C. Ties:
1. Space and install adjustable veneer anchors on 16 in centers both horizontal and vertical. Anchor to CMU backup; ensure ties are embedded minimum 1-1/2 in in veneer mortar joints.
2. At openings/edges, increase tie density as specified; place within 12 in of edges.

D. Mortar Joints: 3/8 in nominal; tool to a uniform concave profile; keep joints dense and weather-tight.

E. Bond: Flemish

3.7 INTERFACE WITH STONE CAP

A. Set cap units under Section 04 72 00; provide uniform bearing over CMU backup.

B. Provide stainless steel anchor rods as indicated in the contract drawings.

3.8 TOLERANCES

A. Comply with TMS 602 for plumb, level, alignment, and joint thickness.
B. Maintain consistent coursing and bond patterns; variations not to exceed code limits.

3.9 FIELD QUALITY CONTROL

A. Mortar Evaluation: Perform field tests per ASTM C780 when requested by COR to confirm proportions and consistency.
B. Grout Compressive Strength: ASTM C1019; minimum one set per day of grouting or per 5 cubic yards, whichever is greater; meet specified strengths.
C. Inspection: Provide access for special inspections where required by code; correct work not conforming to specifications at no cost to the government.

3.10 CLEANING AND PROTECTION

A. Keep cavities clear of mortar droppings.
B. Clean brick per manufacturer's recommendations; use only COR approved non-acidic cleaners; test small, inconspicuous area before full application; protect adjacent historic surfaces from run-off and abrasion.
C. Protect completed masonry from precipitation, staining, and construction traffic until acceptance.

3.11 COLD- AND HOT-WEATHER MASONRY

A. With COR's approval, execute procedures per TMS 602 for cold weather (mix temperatures, wind breaks, protection/curing) and hot weather (shade, fogging, mortar temperature limits).
B. Do not lay masonry on frozen units or with frozen mortar.

END OF SECTION 04 20 00

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes furnishing and installing cut Chelmsford Granite cap units for the masonry site wall at Independence National Historical Park.
B. Work includes:
1. Quarrying, fabrication, and finishing of granite cap stones.
2. Anchorage, bedding, shims, setting materials, and sealant joints.
3. Field cutting and fitting as required.
C. Related Sections:
1. 03 30 00 – Cast-in-Place Concrete.
2. 04 20 00 – Unit Masonry.
3. 07 90 00 – Joint Sealants.
4. 31 20 00 - Excavation and Backfill

1.2 REFERENCES

A. ASTM C97 – Absorption and Bulk Specific Gravity of Dimension Stone.
B. ASTM C99 – Modulus of Rupture of Dimension Stone.
C. ASTM C170 – Compressive Strength of Dimension Stone.
D. ASTM C615 – Standard Specification for Granite Dimension Stone.
E. ASTM C119 – Terminology Relating to Dimension Stone.
F. ASTM C1242 – Standard Guide for Selection, Design, and Installation of Dimension Stone Anchoring Systems.

1.3 SUBMITTALS

A. Product Data: Stone source, quarry location, physical properties, finishing process.
B. Shop Drawings:
1. Cap unit layout, jointing, dimensions, profiles, drip edges, slopes, tolerances.
C. Samples:
1. Minimum 6" × 8" samples showing full color and texture range.
2. Mockup may be used as sample upon approval.
D. Certificates:
1. Stone supplier’s certification of compliance with ASTM C615.
2. Petrographic test data.

1.4 QUALITY ASSURANCE

A. Stone Supplier Qualifications:
1. Minimum 5 years’ experience quarrying and fabricating granite for exterior architectural applications.
B. Installer Qualifications:

1. Skilled masons with a minimum of 5 years' experience in historic and public-site stone installation.

C. Mockup:
1. Coordinate with mock-up requirements in Section 04 20 00 Unit Masonry.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver stone on pallets or in crates; clearly mark units with identification numbers.
B. Store on level supports; protect edges from chipping; cover to prevent staining.

1.6 PROJECT CONDITIONS

A. Do not install stone when freezing temperatures, precipitation, or high heat prevent proper bedding and curing.
B. Protect adjacent materials, features and improvements during handling and installation.

PART 2 – PRODUCTS

2.1 STONE MATERIAL

A. Stone Type: Basis of design: Chelmsford Granite as produced by Fletcher Granite Co., Chelmsford, MA and supplied by Vickery Stone Co., 101 W Chester Pike, Ste. 2B, Havertown, PA 19083, Tel: 610-449-8900, Fax: 610-449-0772 or government approved equal.
1. Color: Medium gray with fine uniform grain; slight mica flecking typical.
2. Finish: Thermal (flamed) finish unless otherwise indicated.
3. Source: Chelmsford, Massachusetts region, or geologically equivalent granite meeting project aesthetic and physical requirements as judged by the COR.

B. Physical Properties (minimum):
1. Compressive Strength: 19,000 psi per ASTM C170.
2. Modulus of Rupture: 1,500 psi per ASTM C99.
3. Absorption: Maximum 0.40 percent per ASTM C97.
4. Density: Minimum 165 lb/ft^3.

2.2 CAP STONE FABRICATION

A. Dimensions:
1. Thickness, width, and length as shown on the contract drawings.
2. Provide full-depth units sized to bear uniformly on masonry backup.

B. Edges:
1. All edges eased.

C. Drip Edge:
1. Continuous 1/2" wide × 1/2" deep continuous drip kerf along underside of the low edge.

D. Tolerances:
   1. Length ±1/8".
   2. Width ±1/8".
   3. Thickness ±1/16".
   4. Face warp not to exceed 1/16".

2.3 SETTING MATERIALS

A. Mortar for Bedding: Type N mortar meeting ASTM C270.
B. Sealant: At expansion joints, non-staining, UV-resistant sealant per Section 07 90 00.
C. Shims: Non-corrosive stainless steel or plastic; no wood or ferrous metals.
D. Cleaners: Non-acidic, non-abrasive cleaners approved by stone supplier.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Verify stone units match COR's approved samples for color and finish.
B. Verify masonry below is plumb, level, and ready to receive cap units.

3.2 PREPARATION

A. Clean bearing surfaces of debris, laitance, dust, and loose mortar.
B. Pre-fit units dry to ensure proper alignment and jointing.
C. Protect CMU and brick veneer from staining during installation.

3.3 INSTALLATION

A. Bedding:
   1. Set cap stones in full, even bed of Type N mortar.
   2. Use non-corrosive shims where needed to maintain slope and alignment.
B. Alignment:
   1. Maintain uniform overhang on exposed faces of wall.
   2. Maintain even joint widths as shown (typically 1/4").
C. Slope:
   1. Slope cap stones away from wall face minimum 1/4" per foot for drainage.
D. Joints:
   1. Tool mortar joints to match masonry joints unless shown otherwise.
   2. Where sealant joints are indicated, leave joints open and install backer rod and sealant per Section 07 90 00.
E. Drip Edges:
   1. Ensure drip kerfs are continuous and unobstructed.
   2. Position kerf to break water flow and prevent staining.

3.4 FIELD CUTTING

A. Cut only with wet saws equipped for stone; maintain factory finish profiles on cut edges where exposed.
B. Do not hammer-cut or split granite for exposed surfaces.

3.5 CLEANING AND PROTECTION

A. Clean granite using approved non-acidic, non-abrasive cleaners; rinse thoroughly.
B. Protect installed work from impact, mortar droppings, staining, and construction traffic.
C. Cover caps until construction is complete and accepted.

END OF SECTION 04 72 00

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes materials and installation of joint backer rod and sealant for:
   1. Expansion joints in masonry site wall and granite cap stones.
B. Related Sections:
   1. 03 30 00 – Cast-in-Place Concrete.
   2. 04 20 00 – Unit Masonry.
   2. 04 72 00 – Cut Stone.
   4. 31 20 00 - Excavation and Backfill

1.2 REFERENCES

A. ASTM C834 – Latex Sealants.
B. ASTM C920 – Elastomeric Joint Sealants.
C. ASTM C1193 – Guide for Use of Joint Sealants.
D. ASTM D5249 – Backer Material for Use with Cold- and Hot-Applied Joint Sealants.

1.3 SUBMITTALS

A. Product Data:
   1. Manufacturer's data sheets for sealant, backer rod, primers, cleaners, and accessory materials.
B. Samples:
   1. One 6-inch cured sample of proposed sealant color(s).
C. Joint Schedule:
   1. Identify all expansion joints, control joints, and sealant interfaces in masonry and at stone caps.

1.4 QUALITY ASSURANCE

A. Installer Qualifications:
   1. Manufacturer-approved installers with at least 5 years of successful exterior sealant experience.
B. Mockup:
   1. Coordinate with mock-up requirements in Section 04 20 00 Unit Masonry.

1.5 PROJECT CONDITIONS

A. Do not install sealants when joint surfaces are wet, frozen, or below manufacturer's minimum installation temperature.
B. Protect adjacent surfaces—especially brick and granite—from primer or sealant staining.

PART 2 – PRODUCTS

2.1 SEALANT MATERIAL

A. Sealant Type:
1. ASTM C920, Type S or M, Grade NS, Class 25 or higher, elastomeric sealant suitable for exterior masonry and stone joints.
    a. Acceptable types:
        • Neutral-cure silicone.

B. Sealant Color:
1. As selected by COR to match or complement masonry and stone.

C. Properties:
1. Non-staining to granite, brick, and CMU.
2. UV-resistant, non-chalking, and non-yellowing.
3. Capable of accommodating movement expected at expansion joints.

2.2 BACKER ROD

A. Material:
1. Closed-cell, non-gassing polyethylene foam backer rod meeting ASTM D5249.
2. Round profile, compressible, compatible with silicone sealants.

B. Size:
1. Diameter sized to allow 25–50% compression in the joint.
2. Provide continuous length of backer rod; no splicing in joints.

C. Functions:
1. Prevent three-sided adhesion.
2. Control sealant depth and geometry.
3. Provide proper hourglass-shaped sealant profile.

2.3 PRIMER

A. Provide primer required by sealant manufacturer based on substrate (brick, granite, CMU).
B. Use only primers specifically recommended for the selected sealant.

2.4 CLEANING MATERIALS

A. Use manufacturer-recommended cleaners for joint preparation; non-staining and non-residual.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Verify joints are clean, dry, uniform, and sized per drawings.
B. Confirm joint surfaces are free from dust, laitance, oils, and curing compounds.

3.2 SURFACE PREPARATION

A. Mask adjacent masonry and granite to prevent staining.
B. Clean joint surfaces using manufacturer-approved methods.
C. Apply primer where required.

3.3 BACKER ROD INSTALLATION

A. Install continuous closed-cell backer rod into joints using blunt tools.
B. Do not puncture, twist, or tear rod.
C. Install to create correct sealant profile:
1. Depth: 1/2 the joint width, except where manufacturer indicates specific geometry.
2. Maintain backer rod at consistent depth for neat joint appearance.

3.4 SEALANT INSTALLATION

A. Apply sealant in accordance with manufacturer's instructions and ASTM C1193.
B. Completely fill joint; avoid voids or entrapped air.
C. Tool sealant to:
1. Achieve smooth finish,
2. Maintain hourglass profile,
3. Ensure adhesion to both joint sides without touching the backer rod.
D. Remove masking immediately after tooling.
E. Protect joints from rain and disturbance until cured.

3.5 CLEANING AND PROTECTION

A. Remove all stains and excess sealant from adjacent surfaces using approved cleaners.
B. Protect completed work from soiling and damage for the remainder of construction.

END OF SECTION 07 90 00

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes earthwork for construction of cast-in-place concrete footings and below-grade wall elements for low masonry site wall, including:
1. Layout verification, trench excavation, and subgrade preparation.
2. Management of unsuitable materials.
3. Dewatering and drainage control in excavations.
4. Backfill, compaction, and grading adjacent to wall.
5. Protection of existing historic features and subsurface resources.

B. Related Sections:
1. 03 30 00 – Cast-in-Place Concrete.
2. 04 20 00 – Unit Masonry.
3. 04 72 00 – Cut Stone.
4. 07 90 00 – Joint Sealants.

1.2 DEFINITIONS

A. Subgrade: Surface exposed after excavation and preparation to receive concrete footing.
B. Structural Fill: Approved, compacted material placed to required density.
C. Unsuitable Materials: Organic soils, debris, frozen materials, saturated or unstable soils.

1.3 SUBMITTALS

A. Product Data:
1. Structural fill and bedding materials, including gradation.
2. Geotextile, compaction test.

B. Action Submittals:
1. Excavation support plan where required.
2. Dewatering plan if groundwater is encountered.

C. Informational Submittals:
1. Compaction test reports.
2. Subgrade approval documentation.

1.4 QUALITY ASSURANCE

A. Perform work in accordance with local codes and accepted earthwork practices.
B. Testing Agency: The general contractor shall propose an independent testing agency and submit their credentials for the CO’s review and approval.
C. Site Protection:
1. Protect adjacent features.

2. Stop work and notify CO if artifacts or unknown conditions are encountered.

1.5 PROJECT CONDITIONS

A. Verify utility locations prior to excavation.
B. Maintain safe access and protect public areas.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Structural Fill: Well-graded granular material, free of organics and debris.
B. Backfill:
1. Use excavated materials only if suitable.
2. Provide imported fill where unsuitable materials are encountered.
C. Bedding Material: Clean sand or fine granular material where required.
D. Geotextile: Nonwoven separation fabric where indicated.

2.2 SOURCE QUALITY CONTROL

A. Provide consistent material from a single source where practical.
B. Do not use frozen, saturated, or contaminated materials.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Verify benchmarks and layout control.
B. Identify and protect adjacent features and improvements.

3.2 PREPARATION

A. Clear and grub only within limit of work.
B. Install erosion and sediment control measures.
C. Remove flagstone pavement as required to facilitate the construction of the masonry site wall.

3.3 EXCAVATION

A. Excavate to required lines and grades.
B. Do not over-excavate.
C. Restore over-excavation with CO approved material.
D. Provide shoring or sloping as required.

3.4 SUBGRADE PREPARATION

A. Remove loose and unsuitable materials.
B. Proof roll and compact subgrade.
C. Do not place concrete until subgrade is firm and approved.

3.5 UNSUITABLE MATERIALS

A. Remove and dispose of unsuitable materials.
B. Replace with compacted structural fill.

3.6 DEWATERING

A. Prevent water from entering excavations.
B. Remove standing water prior to concrete placement.
C. Prevent damage to adjacent structures and soils.

3.7 BACKFILL AND COMPACTION

A. Backfill after concrete has gained sufficient strength.
B. Place in lifts not exceeding 8 inches.
C. Compact as follows:
   1. Structural areas: 95 percent ASTM D698.
   2. Landscape areas: 90 percent ASTM D698.
D. Moisture-condition material prior to compaction.
E. Use hand compaction near wall to prevent displacement.

3.8 GRADING

A. Grade to drain away from wall.
B. Restore disturbed areas.

3.9 FIELD QUALITY CONTROL

A. Perform density testing per ASTM standards.
B. Frequency: Minimum one test per 250 square feet per lift.
C. Recompact and retest failing areas.

3.10 PROTECTION

A. Protect excavations from collapse and water intrusion.
B. Protect adjacent historic features from damage.
C. Repair damage at no cost to the government.

END OF SECTION 31 20 00

PART 1 – GENERAL

1.1 SUMMARY

A. This Section includes restoration of existing irrigation systems and existing turf areas impacted by construction activities **within the project work limits**.
B. Work includes:
1. Protection of existing irrigation infrastructure.
2. Repair or replacement of damaged irrigation piping, heads, valves, controls, and appurtenances.
3. Restoration of turfgrass areas to equal or better condition than pre-construction.
4. Coordination with adjacent landscape features, drainage patterns, and historic site elements.

1.2 RELATED SECTIONS

A. Section 01 35 29 – Protection of Existing Vegetation, Site Features, and Utilities.
B. Section 31 20 00 – Earthwork.

1.2 SUBMITTALS

A. Product Data:
1. Irrigation components: pipe, fittings, heads, valves, wiring, controllers, sleeves, sensors, and related parts.
2. Turfgrass, sod and soil amendments.
3. Mulch (for temporary stabilization).
B. Record Documentation:
1. As-built drawings showing irrigation repairs and restored routing.
2. Valve and head locations.
C. Irrigation Repair Report:
1. List of all repaired or replaced components.
2. Before-and-after photographs.
D. Maintenance Plan:
1. 60-day establishment period requirements for turf.
2. Irrigation scheduling and adjustment plan.

1.4 QUALITY ASSURANCE

A. Irrigation Installer: Minimum 3 years of experience with irrigation service/repair.
B. Turf Installer: Minimum 3 years establishing or restoring lawn areas.
C. Work shall comply with applicable state and municipal water-efficiency codes.

1.5 FIELD CONDITIONS

A. Irrigation repairs shall not begin until all heavy construction operations are completed in the affected area.
B. Turf restoration shall occur when soil temperatures and seasonal conditions are suitable for establishment.
C. Contractor is responsible for maintaining temporary irrigation where needed to keep soil moist until permanent system is restored.

PART 2 – PRODUCTS

2.1 IRRIGATION COMPONENTS

A. Replacement irrigation components shall match existing systems in type, size, material, and performance, including:
1. PVC Class and schedule (typically Class 200 or Schedule 40).
2. Pipe diameters matching existing.
3. Spray heads, rotors, drip emitters, valves, and fittings identical or equivalent to original manufacturer.
4. Wiring and connectors rated for direct burial.
5. Backflow assemblies to match existing type and code requirements.

B. Approved Manufacturers (match existing unless noted otherwise):
1. Rain Bird
2. Hunter
3. Irritrol
4. Toro

C. Sleeves: Schedule 40 PVC or HDPE directional-bore conduit.

2.2 TURF MATERIALS

A. Topsoil:
1. Screened loam, free of debris, roots, subsoil, and contaminants.
2. Minimum 4" depth in restored areas unless otherwise directed.

B. Turfgrass Sod:
1. Match existing species and cultivar.
2. Freshly cut, healthy, weed-free.

D. Soil Amendments:
1. Compost, lime, fertilizer, or sand as recommended by soil test.

2.3 ACCESSORIES

A. Hardwood mulch for temporary erosion control (as required).
B. Temporary irrigation hoses, sprinklers, or hand-watering devices.

PART 3 – EXECUTION

3.1 PROTECTION OF EXISTING SYSTEM

A. Contractor shall locate and flag irrigation components prior to construction.
B. Protect controllers, valves, backflow preventers, and supply lines from damage.
C. Any damage caused by construction shall be repaired at no cost to the government.

3.2 IRRIGATION REPAIR AND RESTORATION

A. Remove damaged components and replace with matching parts.
B. Ensure all joints are watertight; bedding material around pipe shall be free of debris.
C. Adjust heads for correct height relative to finished grade.
D. Set arc, radius, and flow to match pre-construction performance or better.
E. Perform function testing of entire restored zones.
F. Provide Owner with updated irrigation schedule.

3.3 TURF RESTORATION

A. Grading:
    1. Restore grade to pre-construction contours or as directed.
    2.Ensure positive drainage away from structures and to existing yard drains.
B. Soil Preparation:
    1. Loosen soil to 4–6" depth.
    2. Incorporate soil amendments per soil test.
C. Sodding:
    1. Lay sod tightly with staggered joints.
    2. Roll to ensure good root contact.
    3. Water immediately after installation.

3.4 ESTABLISHMENT AND MAINTENANCE

A. Maintain turf for minimum 60 days or until fully established.
B. Water turf as necessary to promote rooting; adjust irrigation seasonally.
C. Repair erosion or thinning areas promptly.
D. First mowing when turf reaches 4".
E. Final acceptance after uniform growth with no bare patches.

END OF SECTION 32 92 23