VOLUME 1 OF 2

FORT SUMTER NATIONAL HISTORICAL PARK

PMIS No. 316098

REPLACE HVAC SYSTEMS AT
LIBERTY SQUARE VISITOR EDUCATION CENTER

DIVISION 1
CONSTRUCTION SPECIFICATIONS

Prepared for:

FORT SUMTER NATIONAL HISTORICAL PARK
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NATIONAL PARK SERVICE
INTERIOR REGION 2
SOUTH ATLANTIC GULF
EAST MAJOR AQUISTION BUYING OFFICE

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CONTRACT PRICE SCHEDULE

SOLICITATION NUMBER:

PARK - PMIS: FOSU – 316098

DEVELOPED AREA: Fort Sumter National Historical Park

PROJECT TITLE: Replace HVAC Systems at Liberty Square Visitor Education Center

Notice: Refer to FAR Clause 52.217-5, Evaluation of Options, as prescribed in FAR 17. Offerors are required to submit, a minimum, an offer that conforms to the solicitation documents with pricing for Base line items and all option line items. Failure to do so may render the proposal unacceptable. On lump-sum line items, provide the total price only. For all unit-priced line items, provide the unit price and the extended total price. If no specific line item exists for a portion of the work, include the costs in a related item. In case of error in calculation of extended prices, the unit price governs. In case of error in summation, the total of the corrected amounts govern. Round totals and extended prices to whole dollars. The Government reserves the right to award any or no options at or after the time of award. At the option of the Government, the period for exercise of options at the proposed prices shall extend 180 calendar days from the date of award. Pricing will be evaluated based on what is determined to be the best value to the Government. Options may be exercised in any combination, order, or grouping deemed in the judgment of the Contracting Officer to offer the best value to the Government.

CONTRACT LINE-ITEM NUMBER (CLIN)	CONTRACT LINE ITEM (CLI) TITLE	QUANTITY	UNIT OF MEASURE	UNIT PRICE	TOTAL PRICE
1	Replace HVAC Systems	1	LS		$ -
TOTAL BASE PRICE (Contract Line-Item Number 1)----------					$ -
TOTAL PROPOSED PRICE - BASE (Contract Line-Item Numbers 1) ----------					$ -

END OF SECTION

DIVISION 01

GENERAL REQUIREMENTS

SECTION 01 11 00

SUMMARY OF WORK

PART 1 – GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Work covered by the Contract Documents.
2. Work phases.
3. Contractor use of the site.
4. Public use of the site.
5. Buildings.
6. Work Restrictions.
7. Special Construction Requirements.
8. Work under other contracts.
9. Government Furnished Materials.
10. Occupancy requirements for buildings.
11. Additional Reports.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Location: This project is located in Charleston, South Carolina, within Fort Sumter and Fort Moultrie National Historic Park, Project site is located at 340 Concord St, Charleston, SC 29401.

B. The work consists of the following:

1. The purpose of this project is to upgrade the existing HVAC systems at Liberty Square Visitor Education Center. The upgrade will replace all major components of the existing HVAC system with all upgraded components capable of conditioning and dehumidifying the space. The new system will also provide the following:
   i. Replace all duct work that, through inspection and evaluation by the Contractor, is found to be not suitable for reuse and will reuse,
   ii. All existing ductwork that is, through inspection and evaluation by the Contractor found to be in good working order.

C. The project will be constructed under a single prime contract.

D. Project Contacts:

1. Contracting Officer (CO): edward_dingle@nps.gov W:404-507-5747 C:404-430-9684; Interior Region 2, South Atlantic Gulf.
2. Contracting Officer's Representative (COR): william_reilly@nps.gov C:803-394-4284
3. Park Maintenance Supervisor: TBD

1.3 WORK PHASES

A. General: Contractor shall have use of the site for construction operations. Limit the use of premises to areas within the Contract limits indicated. Do not disturb portions of the Project site beyond areas in which the Work is indicated.

1. Limits: Confine construction operations within the designated perimeter of the site as specifically delineated on the construction drawings.
2. Utilities to support construction activities by the contractor:
   a. Power: The contractor may use power from existing facilities while working directly on the facilities. Acceptable uses are for equipment associated with the direct construction of the project. The objective of allowing the contractor to utilize power at facilities is to limit the use of portable generators when possible, to reduce noise and greenhouse gases (carbon footprint of the project).

B. Storage of Materials: Confine storage of materials within the areas as described and delineated on the construction drawings.

1. Storage of materials will need to be done off-site as the facility does not have room. The contractor will need to provide a staging area off-site to allow for just in time delivery of all items.

C. Preservation of Natural Features:

1. All equipment shall be power washed and inspected before being off-loaded to ensure it is free of non-native weeds and/or seeds. Vehicles, tools, boots, and other personal protective equipment shall be inspected for and cleaned of weed seeds or mud that could harbor weed seed before entering the Park. In addition, sources of imported rock, sand, gravel, and soil shall be inspected for invasive non-native plants, weeds, and/or seeds. The Contractor shall submit a list of proposed sources, end-use, and temporary storage requirements for imported material, 30 calendar days before delivery. The material must not be stockpiled at the quarry for more than 1 week after washing. If material comes from older stockpiles, the quarry must be certified weed-free by a qualified weed inspector designated by NPS. The weed inspector should receive 14 days' notice that an inspection is needed. Imported material shall be free of non-native weeds and/or seeds. Imported material shall be shipped directly from the source to the Park without intermediary storage or staging. Shipping vessels shall be covered, if necessary, to prevent spillage or blowing of their contents while in transit.
2. Prevent damage to natural surroundings. Restore damaged areas, repairing or replacing damaged trees and plants, at no additional expense to the Government.
3. Provide temporary barriers to protect existing trees and plants and root zones.
4. Do not remove, injure, or destroy trees or other plants without prior approval.
5. Do not fasten ropes, cables, or guys to existing trees.
6. Erosion control measures will follow the approved UPPP.

D. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to Government, Government employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

1. Schedule deliveries to minimize the use of driveways and entrances.

2. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

E. Hauling Restrictions: Comply with all legal load restrictions in the hauling of materials. Load restrictions on park roads are identical to the state load restrictions with such additional regulations as may be imposed by the Park Superintendent. Information regarding rules and regulations for vehicular traffic on park roads may be obtained from the Office of the Park Superintendent. A special permit will not relieve the Contractor of liability for damage that may result from the moving of equipment. It is the contractor's responsibility that following bridge load limits are not exceeded.

1.4 CONTRACTOR USE OF SITE

A. General: The contractor shall have full use of site for construction operations during the construction period. The contractor's use of the site is limited only by the Government's right to perform work or to retain other contractors on portions of the Project.

B. Site Access: The contractor shall access the project site from Calhoun Steet and Concord Street, Charleston, SC. The contractor shall not drive vehicles off-road or access non-project areas without permission from the contracting officer or park superintendent. The contractor shall also furnish a list of personnel with phone contact information.

C. Construction Time Period: Timing of work shall be coordinated with the Contracting Officer and follow the approved Contractor's work schedule.

D. No Smoking Policy: Smoking is prohibited inside or outside within 25 feet of any buildings. This applies to existing buildings, buildings under construction, and buildings under renovation. Discarding tobacco products or debris anywhere other than into designated tobacco receptacles is considered littering and subject to fines.

E. Staging and Storage: There is no on-site storage of supplies and equipment other than small tools. Contractor will be responsible to provide off site storage and delivery from offsite storage to site. Just in time delivery of equipment and supplies from the offsite storage to the site will be required.

F. Driveways and Entrances: Keep driveways, areas specifically designated by the Contracting Officer, and entrances serving premises clear and available to Government, Government employees, user groups, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

1. Schedule deliveries to minimize the use of driveways and entrances.
2. Schedule deliveries to minimize space and time requirements for the storage of materials and equipment on-site.

G. Preservation of Natural Features:

1. Prevent damage to natural surroundings. Restore damaged areas, repairing or replacing damaged trees and plants, at no additional expense to the Government.
2. Provide temporary barriers to protect existing trees and plants and root zones.

3. Do not remove, injure, or destroy trees or other plants without prior approval. Consult with Contracting Officer and remove agreed-on roots and branches that interfere with construction.
4. Do not fasten ropes, cables, or guys to existing trees.
5. Carefully supervise excavating, grading, filling, and other construction operations near trees to prevent damage.
6. Prevent damage to natural surroundings or historic features such as buildings and other structures that remain in the area near construction work zones.

H. Construction Camp: The establishment of a camp within the Park is not permitted.

I. Refer also to Section 01 11 40 Work Restrictions and Section 01 50 00 Temporary Facilities & Controls.

1.5 GOVERNMENT-FURNISHED ITEMS

A. The Government may furnish products and materials for incorporation into the work.

1. The government will arrange and pay for the delivery of government-furnished items to the project site based on the contractor's approved construction schedule.
2. After delivery, the government will inspect delivered items for damage. If items are damaged, defective, or missing, the government will arrange for a replacement.
3. The contractor is responsible for receiving, unloading, and handling government-furnished items at the project site for use in the work.
4. The contractor is responsible for protecting government-furnished items during storage, handling, and work, including damage from exposure to the elements.
5. If government-furnished items are damaged as a result of the contractor's operations, the contractor shall repair or replace the items in kind.

1.6 PUBLIC USE OF THE SITE

A. General: All construction work including any or all related construction activities shall enable employees to conduct their daily activities with minimal impact and or disruption. The contractor shall coordinate all construction work including any or all related construction activities at least 72 hours in advance that have potential for impacts upon the facility operations with the Contracting Officer to avoid potential negative impacts to Liberty Square Visitor Education Center area activities. Temporary closures may be permitted upon specific written approval of the contracting officer.

1.7 BUILDINGS

A. Existing Buildings

1. Partial Government Occupancy: Cooperate with Government staff and visitors during construction operations to minimize conflicts and facilitate Government usage. Perform the Work so as not to interfere with the Government's staff and visitors' operations. Maintain existing exits, unless otherwise indicated.

a. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from the Contracting Officer.

1.8 SPECIAL CONSTRUCTION REQUIREMENTS

A. Limited Access: This site does have very limited access. The contractor shall coordinate the scheduling of construction activities regarding limited access to the site with the Contracting Officer before and during construction.

1.9 REFERENCE DOCUMENTS/REPORTS

A. General: The following reference documents/reports are available upon request to supplement the information specified in the contract documents:

1. None.

1.9 OCCUPANCY REQUIREMENTS FOR BUILDINGS. (Not Used)

1.10 WORK UNDER OTHER CONTRACTS. (Not Used)

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 11 40

WORK RESTRICTIONS

PART 1 – GENERAL

1.1 PARK REGULATIONS

A. General: The Contractor must comply with the following rules and conditions:

1. Ensure personnel (contractors or subcontractors) working in the park become familiar with and obey all park regulations, wear hard hats in designated areas, and do not enter any restricted areas unless required to do so and until cleared for such entry.
2. Ensure equipment is conspicuously marked for identification.
3. The Contractor shall restrict employees/representatives to the worksite and control travel directly to and from the worksite.
4. Restore all traffic/parking/security signs and markings, including space numbers, designations, and lines, to their original form if such signs/markings are defaced or deleted during construction/repair.
5. Control and provide security of Contractor-owned equipment and materials at the worksite. Report immediately missing/lost/stolen property to the park dispatch/law enforcement rangers the contact information can be obtained from the park main number for Fort Sumter and Fort Moultrie (843) 883-9123.
6. Vehicles associated with the Contractor shall be waived the entrance fee upon entering in a marked company vehicle or by providing the names of employees entering in a personal vehicle(s). Please note that the entrance fee is waived only to report directly to a specific work location. Any deviation for recreational purposes is subject to payment of required entrance fees.
   a. The contractor will provide the Contracting Officer with a listing of its subcontractors and their associated vehicles and employees entering the park daily.
   b. Contractor will provide the Contracting Officer with a listing of anticipated deliveries for each week.
7. Vehicles/Heavy Equipment:
   a. Rules of the Road: All vehicles and heavy equipment will comply with posted traffic regulations, including speed limits and double-yellow center lane markings. Vehicles and heavy equipment shall take every safe opportunity to use paved roadside pullouts to allow faster-moving traffic to pass. Failure to comply with traffic regulations will result in a citation being issued to the driver.
   b. Vehicle Parking: Vehicles are not permitted within long-term or overnight parking along park roads or in associated overlooks/pullouts. Vehicles and heavy equipment will be permitted at designated parking areas only or as established at the preconstruction meeting.
   c. Vehicle Exhaust: All vehicles will be properly maintained to ensure that the exhaust produced is within legal limits. Effects of excessive vehicle exhaust may be subject to enforcement of State and Federal laws regarding emissions as well as those regarding threatened and endangered species.
   d. Spills: The contractor shall be responsible for any cleanup efforts required by 40 CFR and all applicable state environmental quality laws regarding disposal and cleanup of hazardous/industrial wastes. The contractor must immediately notify the Contracting Officer of spills.

e. Commercial Vehicle Safety Inspections: The Contractor, employees, contractors, and subcontractors shall fully cooperate regarding safety inspections of commercial vehicles within the Park. Commercial vehicle safety inspections are conducted unannounced for employee and visitor safety. Vehicles are checked for safety and mechanical deficiencies and compliance with current state and federal laws and regulations. Driver licenses and medical certificates are also checked.

f. DOT Compliance: All vehicles are to be compliant with all DOT requirements including but not limited to a driver with appropriate license class, medical examiner card as appropriate with license class, carrying 3 triangles or 3 flares, mounted fire extinguisher, and valid DOT safety sticker.

g. Slow Vehicles: The Contractor is to notify the Contracting Officer of slow vehicles that may cause traffic delays or extended traffic lines. Slow vehicles are requested to enter the Park AFTER 2:00 p.m. and exit the Park BEFORE sunset.

h. Oversized Vehicles: Oversized vehicles are defined as vehicles where the width of the vehicle or load exceeds one lane (i.e., beyond the centerline of the paved road). Oversized vehicles must not exceed the clearances along the road corridor. Oversized vehicles will require an escort and drivers must avoid driving on the edges of the Park road. The Contractor is to notify the Contracting Officer of oversized vehicles, scheduled dates and estimated arrival times at the park entrance, and the identity of who is escorting the vehicle (e.g., police, contractor, etc.). Oversized vehicles are requested to enter the Park AFTER 2:00 p.m. and exit the Park BEFORE sunset.

i. Road Work: The contractor shall provide adequate traffic control, including flaggers on either side of any work performed on the road. Any workers on or near the road must wear highly visible, bright clothing. (See Section 01 50 00 for additional details).

j. Law Enforcement: Law enforcement rangers will intervene if they perceive any unsafe or unlawful activity. The contractor must immediately comply with any instructions issued by a park law enforcement ranger.

k. Road & Weight Restrictions: All vehicle load, weight, and size limitations, as established by State law, apply to vehicles operated on the Park road (36 CFR § 4.11). Comply with all legal load restrictions in the hauling of materials. Load restrictions on Park roads are identical to the state load restrictions with such additional regulations as may be imposed by the Park Superintendent. Information regarding rules and regulations for vehicular traffic on Park roads may be obtained from the Office of the Park Superintendent. A special permit will not relieve the Contractor of liability for damage which may result from the moving of equipment.

8. Emergency Medical and Accident Reporting:

a. The Contractor or subcontractor shall contact Park Dispatch for any medical emergency or traffic accident occurring within the Park.

Emergency number: Dial 911 as needed.
Park Dispatch: (843) 883-3123

b. Park Dispatch is called so that the entrance station will be prepared should any emergency vehicles (e.g. ambulance) need to enter the Park and so that any available Emergency Medical Services personnel in the Park might respond until the ambulance arrives.

c. The Contractor or subcontractor is required to report ANY personal injury and/or property damage incident occurring within the park. This report must be made to a Law Enforcement Ranger at the first available opportunity before leaving the Park:

Park Dispatch: (843) 883-3123

B. Site Access

1. The contractor shall access the project site from Concord St. The contractor shall not drive vehicles off-road or access non-project areas without permission from the Contracting Officer or park superintendent. The contractor shall also furnish a list of personnel with phone contact information.

2. The park at this location is extremely restricted in available parking and all constructions vehicles will need to be parked off site.

3. Delivery of equipment and material will need to be well coordinated with the COR 5 days before it arrives at the site. The Unloading area is extremely limited, and all items will need to be delivered to the site the day they are to be installed. The contractor will need to maintain an off-site staging area to store all items prior to shipping them to the site.

1.2 RESOURCE PROTECTION

A. General: The park is committed to protecting natural and cultural resources found within the park and adjacent lands. The Contractor must comply with the following rules and conditions:

1. Invasive Species: The introduction of non-native invasive species can threaten rare and endangered species or can create new populations of non-native species not traditionally found in the park. The contractor is required to inform personnel, subcontractors, and vendors to thoroughly clean all vehicles, equipment, tools, supplies, and materials before packing/loading. The park requires and will perform inspections to ensure non-transport of non-native species BEFORE arriving at the park entrance. Contact the resource staff directly (843) 883-3123 at least 3 days in advance of park entry to arrange for an inspection(s) at the loading dock or point of origin.
2. Endangered Species: Endangered species are protected by Federal law. Obey all park regulations. Drivers must obey all traffic laws and keep an eye out for animals on or alongside the road. Contact park dispatch at (843) 883-3123 immediately if the animal is hit or injured or will not move off of the road.
3. Archaeological Resources: Archaeological resources are physical pieces of evidence of past human activity, including evidence of the effects of that activity on the environment. Archaeological resources are found above and below the ground and underwater. The contractor shall appoint an archaeological monitor during all ground-disturbing activities in archaeologically sensitive areas. If the monitor discovers resources, the contractor shall stop work or relocate work to a non-sensitive area and contact the Contracting Officer immediately. Archaeological resources typically found in the park or at the project site will be discussed further at the preconstruction meeting.

4. Soundscape / Noise: The contractor shall minimize noise levels at the project site to protect the soundscape of the park. Perform noise-producing work in less sensitive hours of the day or week or as directed by the Contracting Officer.

1.3 WORK RESTRICTIONS

A. On-Site Work Hours: Work shall be generally performed during the hours of 7:30 AM to 4:00 PM, Monday through Friday, except when otherwise indicated.

1. Weekend Hours: Same as On-Site Work Hours
2. Early Morning Hours: Same as On-Site Work Hours

B. Existing Utilities

1. Existing Utilities: Notify the Contracting Officer and utility companies of proposed locations and times for excavation.
2. The contractor shall be responsible for locating and preventing damage to known utilities. If damage occurs, repair utility at no additional expense to the Government.
3. If damage occurs to an unknown utility, repair utility. An equitable adjustment will be made per the Changes clause of the contract.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Government or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Contracting Officer not less than 3 days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Contracting Officer's written permission.
3. Hours for Utility Shutdowns: The existing utility systems may be non-operational, when required, upon specific approval of the Contracting Officer for a maximum of 4 consecutive hours. Shutdowns shall be scheduled to occur midday (e.g. 10 am – 2 pm) and mid-week (Tuesday – Thursday), if possible.

D. No Smoking Policy: Smoking is prohibited inside or outside within 25 feet of any buildings in the park. This applies to existing buildings, buildings under construction, and buildings under renovation. Discarding tobacco products or debris anywhere other than into designated tobacco receptacles is considered littering and subject to fines.

END OF SECTION

SECTION 01 26 00

CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. The work of this section consists of administrative and procedural requirements for contract modifications.

1.2 DEFINITIONS AND ALLOWANCES

A. Home Office Overhead: Those costs incurred in support of all of a contractor's projects and not attributable to a specific job. The cost of home office overhead is only allowed as a percentage of all direct work excluding profit. The following items represent allowable home office overhead costs identified in Part 31 of the Federal Acquisition Regulation (FAR):

1. Rent
2. Utilities
3. Furnishings
4. Office equipment
5. Executive and management staff not exclusively assigned to the project
6. Support, accounting, and administrative staff
7. Preparation of cost proposals, estimating, and schedule analyses connected with Modifications
8. Estimating and preconstruction services
9. Mortgage costs
10. Real estate and corporate taxes
11. Automobile maintenance and travel costs for home office personnel
12. Home office insurances i.e., structure, automotive, umbrella, flood, etc.
13. Depreciation of equipment and other assets
14. Home office supplies (paper, staples, etc.)
15. Legal services
16. Accounting and data processing
17. Professional fees/registration

B. General Conditions (Field Office Overhead): Management and administrative costs incurred on-site for the designated project. Costs associated with the preparation of modifications will not be allowed. The costs for these items are to be included only in the general conditions of the modification estimate. Only in the case of a contract time extension are additional general conditions included in modifications. The following items, if applicable, are considered allowable costs for calculating General Conditions:

1. Contracting Officer, Contracting Officer Representative
2. Superintendent, Assistant Superintendent
3. Quality Control, Safety Officer, Environmental Manager, etc.

4. Engineers
5. Travel, lodging, and per diem (as established by Federal Travel Regulations)
6. Scheduling
7. Field Office Trailers and associated temporary utilities
8. Field office supplies
    a. Mailing and couriers
    b. Reproduction costs
    c. Storage
    d. Phones
    e. Computers
    f. Copiers
9. Personal vehicles i.e. Superintendent Pickup trucks

C. General Requirements: These are costs directly associated with the project and are necessary to perform the actual work of the modification. These costs shall be shown as direct costs in the estimate. The following items, if applicable, are considered allowable costs:

1. Hoisting
2. Material handling
3. Temporary fencing
4. Port-a-lets
5. Trash removal, dumpsters
6. Barricades
7. Small tools
8. Safety supplies
9. Scaffolding
10. Daily cleaning
11. Traffic control
12. Temporary signage
13. Temporary heating and power

D. Personnel Costs: Costs included in the modification must only be for General Conditions, staff and workers present and working on the project site. Modification costs for salaried workers are only allowed within the structure of a 40-hour week and no overtime or holiday pay will be allowed.

1. Worker Hourly Rates are costs directly associated with the individual worker and consist of the following:
    a. Base Rate: This is the hourly rate paid directly to the worker
    b. Labor Burden: Employer payments of all applicable burdens, this includes insurance and taxes that the business must pay on behalf of the worker to government entities and educational forums, such as:
        1) Social Security
        2) Medicare
        3) Workers Comp – Policy and company calculation to be made available.
        4) FUTA – Cap Rate and percentage to be proportionally allocated over one year.
        5) SUTA – Cap Rate and percentage to be proportionally allocated over one year.
        6) Union agreement costs – Other costs required under an enforceable collective bargaining agreement.

c. Fringe Benefits: Various non-wage compensations provided to employees such as:
   1) Health Care Insurance Premiums
   2) Cell Phone
   3) Clothing
   4) 401K and Pensions
   5) Vehicle allowances
   6) Gas allowance
   7) Life insurance premiums
   8) Disability insurance
   9) Other Fringe Benefits required under an enforceable collective bargaining agreement

E. Bonuses or Deferred Compensation: No Bonus or Deferred Compensation will be allowed within any components of pricing including Home Office Overhead, General Conditions, General Requirements, Hourly Worker Rates, or the direct costs of work.

F. General Liability Insurance: An insurance policy that protects the contractor from claims resulting from bodily injury or property damage to a third party. Include this as a separate line item within all modification proposals and provide a current insurance quote upon request.

G. Performance and Payment Bonds: A performance bond is a surety bond issued by an insurance company or bank to guarantee the satisfactory completion of a project. The Payment Bond guarantees that the contractor will pay the labor and material costs they have incurred. Banks and Insurance companies charge a premium for each project based on a sliding scale which relates to the size of the project. Include this as a separate line item in modification proposals and provide current company bonding rates upon request.

H. Builder's Risk Insurance: This covers the contractor's loss due to fire, high winds, or other natural forces. This is not reimbursed by the National Park Service (NPS) and shall not be included in modification proposals.

1.3 MODIFICATION PROPOSAL PRICING REQUIREMENTS

A. General:

1. Your proposal must be received in the format and within the time frame specified in the Request for Proposal letter. Costs or delays resulting from the failure of the contractor to submit within the time frame specified will not be compensable.
2. The proposal must be detailed with itemized lists of equipment, materials, labor, production rates, overhead, profit, and bond markup for each item. Labor costs must be itemized by craft and hourly rate, including Fringe Benefits and Labor, Burden. If the costs of Fringe Benefits and Labor Burden are not itemized, it is assumed that they are included in the hourly rate shown, or the contractor is not requesting reimbursement. The contractor may utilize the government provided Contractor Estimate Form or their form, provided that it contains the same information and level of detail as the Government provided form.

3. Requests for extensions of contract time as a result of this change must be justified with a Time Impact Analysis (TIA). Refer to Division 01 Specification, "Construction Schedule", for time impact analysis requirements. TIA and associated costs must be received with the proposal by the date shown within the Request for Proposal letter. The contractor's failure to submit within the specified time frame will be construed as the Contractor waiving the right for additional time and no time extension will be allowed.
4. All supporting documentation used to justify the proposed modification will be made available to the Contracting Officer upon request.
5. The contractor must review and approve all subcontractor/supplier pricing in detail for proper format, scope, production rates, and pricing before submission to the NPS. All delay costs associated with not reviewing and approving subcontractor/supplier pricing will be borne by the Contractor.
6. All pricing and production rates within the estimate must be based on fair and reasonable pricing and cannot include a built-in contingency.

B. Labor:

1. The contractor shall estimate the cost of labor by itemizing each craft involved, indicating worker hourly rate (base rate + labor burden + fringe benefits) for each, and itemizing the hours required for each craft that will be directly engaged in modification work. Any work proposed that will require overtime work or premium pay shall be itemized separately. All rates shall be following the Davis-Bacon Act as incorporated herein. Labor Burden may include payroll taxes, Social Security, unemployment insurances, workers compensation insurance, FICA, FUTA, and other direct costs resulting from Federal, State, or local laws.
2. Itemize labor costs for equipment operators separate from equipment costs.
3. The labor cost for foremen shall only be costs for related work required for the modification.

C. Materials:

1. The estimated cost for materials shall include quotes from multiple sources. Material prices must include all applicable fees and credits, including but not limited to, sales tax, freight and delivery charges, and tax rebates.
2. No markup shall be applied to any material provided by the NPS.

D. Equipment:

1. Equipment used for the project must be appropriately sized for the work being performed.
2. Do not include costs for "miscellaneous tools and equipment", in your proposal for a replacement value of $500 or less. Costs shown over $500 must be broken out separately.
3. Regardless of ownership, the rates to be used in determining equipment rental costs shall be the lowest cost from one of the following sources:
   a. U.S. Army Corps of Engineers, Ownership and Operating Expense Schedule (use the latest edition and applicable region)
   b. Construction Blue Book
   c. Local equipment rental rates, documented by actual invoice charges, or itemized vendor quotes.

4. The estimated rental rates shall include the cost of all fuel, oil, lubrication, supplies, small tools, necessary attachments, ground engaging components, tires & tracks, routine repairs and maintenance (cost of a major overhaul is not included), depreciation, storage, insurance, and all incidentals. Mobilization, if applicable, may be included for equipment solely used on the modification work but must be listed separately.
5. Estimate the full rate for equipment only for the duration that the equipment will be utilized to accomplish the work of the modification.
6. Standby unit rates used are to be following paragraph 1.3, D, 2, above. If the US Army Corp of Engineers is utilized, then their standby rates prevail. If Bluebook or local equipment pricing is accepted, then 1/2 of the equipment costs minus any operating costs will be accepted.
7. If the equipment is in standby mode due solely to a documented NPS delay, the established standby rate shall apply from the first day of the delay.
8. Equipment that is not used and on the job site for up to five consecutive days may be classified at standby rates, provided that the equipment is or has been used solely to perform work on the modification and will be necessary to complete additional modification work. Equipment that is still on the job site but not in use after five consecutive days will not be considered in the modification pricing.
9. Requests for compensation for equipment stand by time must be justified, documented, and itemized separately.
10. The estimated timeframe (daily, weekly, monthly) for use of the equipment must reflect the lowest cost to the Government.

E. Establishment and Application of Overhead and Profit Percentages:

1. Home Office Overhead and Profit (OH&P) shall be applied to direct costs only. Profit shall not be applied to overhead amounts; and overhead shall not be applied to profit. Home office overhead shall contain only allowable, allocable, and reasonable costs per the contract documents and FAR Part 31. Profit percentages are based on risk factors found in the FAR Part 31which have been applied to the specific type of work included in this project. The following percentages establish the maximum allowable markups (OH&P) for contractor self-performed work:

   Overhead……10%

   Profit……..10%
2. The total aggregate limit of markup (OH&P) for contractors and subcontractors on modification work shall not exceed 20%. The NPS will not be responsible for the allocation of percentages between contractors and subcontractors.
3. If contractors form a partnership, then the partnership may only receive home office overhead and profit in the same amount as an individual contractor (refer to par 1.3, E,1 above). It is the responsibility of the partners to decide on the division of revenue.
4. Combined Increases and Decreases: On proposals involving both increases and decreases in the Contract Price, the overhead and profit mark-ups are required on the net increases and deducted on net decreases.
5. At no time can profit be calculated on Overhead or itself, it must be calculated on direct costs of work only.

PART 2 - PRODUCTS (not used)

PART 3 - EXECUTION (not used)

END OF SECTION

SECTION 01 27 00

DEFINITION OF CONTRACT PRICE ITEMS

PART 1 – GENERAL

1.1 SUMMARY

A. This section intends to explain, in general, what is and what is not included in a contract line item, and the limits or cut-off points where one item ends, and another begins.

B. If no contract line item exists for a portion of the work, include the costs in a related item.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 LIST OF CONTRACT LINE ITEMS

A. Contract Price Item No.1 – Replace HVAC Systems.

1. This price item consists of furnishing all materials, equipment, and labor for the removal of existing systems and installation of the New HVAC system(s) as described on the drawings and in the technical specifications.
2. No separate measurement will be made.
3. Payment will be made at the contract unit price Lump Sum.

3.2 LIST OF CONTRACT BID OPTIONS (Section Not Used)

END OF SECTION

SECTION 01 31 00

PROJECT MANAGEMENT & COORDINATION

PART 1 – GENERAL

1.1 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. Construction Coordination.
2. Coordination Drawings.
3. Submittals
4. Requests for Information (RFIs).
5. Project meetings.
6. Environmental Coordination.

B. Related Requirements:

1. Section 01 32 16 “Construction Schedule” for preparing and submitting the Contractor’s construction schedule.
2. Section 01 73 40 “Execution” for procedures for coordinating general installation and field-engineering services, including the establishment of benchmarks and control points.
3. Section 01 77 00 “Closeout Procedures” for coordinating closeout of the Contract.

1.2 CONSTRUCTION COORDINATION

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure the efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, which depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in the sequence required to obtain the best results where installation of one part of the Work depends on the installation of other components, before or after its installation.
2. Coordinate the installation of different components with other Contractors to ensure maximum accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.
4. Where availability of space is limited, coordinate the installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required, notices, reports, and a list of attendees at meetings.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's Construction Schedule.
2. Preparation of the Schedule of Values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Pre-installation conferences.
7. Project closeout activities.
8. Commissioning activities.

1.3 SUBMITTALS

A. Division 01 documents: The following items shall be submitted a minimum of 1 week before the Preconstruction Conference. Contracting Officer will notify the Contractor of the tentative date for the Pre-Construction Conference.

1. The letter designating Project Superintendent.
2. Construction Schedule.
3. A comprehensive breakdown of the Schedule of Values.
4. Accident Prevention Plan.
5. A list of Subcontractors for this project.
6. Written statements from subcontractors certifying compliance with applicable labor standard clauses.
7. Satisfactory evidence of liability insurance coverage and workman’s compensation for the Contactor and all subcontractors.
8. Waste Management Plan.
9. Quality Control Plan.
10. Storm Water Pollution Prevention Plan.
11. Indoor Air Quality (IAQ) Management Plan.
12. Contractors Commissioning Plan.
13. List of Required Construction Permits. Include the following information for each permit:
    a. Name of Permit.
    b. The Agency(ies) with Jurisdiction issuing the permit.
    c. Information required from the Government to complete the permit application.

B. All items listed must be provided to the Contracting Officer before the Pre-Construction Conference is held. If all of these documents have not been received one week before the scheduled Pre-Construction Conference date, the conference will be canceled, Notice to Proceed will not be issued, and the Contracting Officer will consider other contractual remedies. Work shall not commence until written Notice to Proceed has been issued

1.4 REQUESTS FOR INFORMATION (RFIs)

A. General: On discovery of the need for additional information or interpretation of the Contract Documents, the Contractor shall prepare and submit an RFI utilizing the form designated by the Contracting Officer (CO).

1. Contracting Officer will not respond to RFIs submitted by other entities controlled by the Contractor.
2. Coordinate and submit RFIs in a prompt manner to avoid delays in the work.

B. Content of the RFI: Include a detailed, legible description of the item needing information or interpretation and the following:

1. RFI number numbered sequentially.
2. Date.
3. RFI subject.
4. Specification Section number and title and related paragraphs, as appropriate.
5. Drawing number and detail references, as appropriate.
6. Contractor's suggested resolution. If the Contractor's suggested resolution impacts the Contract Time or the Contract Sum, the Contractor shall state impact in the RFI Contractor’s signature.
7. Requested date for response.
8. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
   a. Include dimensions, thicknesses, and details of affected materials, assemblies, and attachments on the attached sketches.

C. Contracting Officer’s Action: Contracting Officer will review each RFI, determine the action required, and respond. Contracting Officer will determine the critical nature of each RFI and issue a response accordingly.

1. The following are not considered to be RFIs and will receive no action:
   a. Requests for approval of submittals.
   b. Requests for approval of substitutions.
   c. Requests for approval of the Contractor's means and methods.
   d. Requests for coordination information already indicated in the Contract Documents.
   e. Requests for adjustments in the Contract Time or the Contract Sum.
   f. Requests for interpretation of the Architect's actions on submittals.
   g. Incomplete RFIs or inaccurately prepared RFIs.

2. Contracting Officer's action may include a request for additional information, in which case time for response will date from the time of receipt of additional information.

3. Contracting Officer's action on RFIs may result in the need for a change to the Contract Time or the Contract Sum. All contract changes will be processed following the terms and conditions of the contract.

1.5 PROJECT WEB SITE (NOT USED)

1.6 PROJECT MEETINGS

A. Preconstruction Conference: Before the start of construction, the Contracting Officer will arrange an on-site meeting with the Contractor. The meeting agenda will include the following as a minimum:

1. Roles & Responsibilities/ Lines of Authority.
2. Park rules and regulations.
3. Jobsite Safety.
4. Resolution of comments on required Division 01 documents.
5. Coordination of Subcontractors.
6. Labor law application.
7. Modifications.
8. Payments to Contractor.
9. Payroll reports.
10. Contract time.
11. Liquidated damages.
12. Contractor Performance Evaluation.
13. Display of required posters.
14. Notice to proceed.
15. Correspondence procedures.
16. Acceptance/rejection of work.
17. Progress meetings.
18. Submittal procedures.
19. NPS Final Accessibility Inspection.
20. Environmental requirements.
21. As-constructed drawings/operation and maintenance (O&M) manuals.
22. Saturday, Sunday, holiday, and night work.
23. Reference materials.
24. Value engineering.

B. Progress Meetings: The Contracting Officer will schedule weekly meetings with the Contractor.

1. Attendees: In addition to Government Representatives, each Contractor, Subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with the Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. The meeting agenda will include the following:
   a. Approval of minutes of previous meetings.
   b. Submittal status.
   c. Review of off-site fabrication and delivery schedules.
   d. Requests for information (RFI) and other issues.
   e. Modifications.
   f. Work in progress and projected.
   g. Status of required inspections (Special Inspections, Accessibility, etc.)
   h. Inspections of work in progress and projected (Special inspections,

i. Construction Schedule update (provide updated CPM).
j. Status of Project Record Drawings and O&M manuals.
k. Other business relating to work.

C. Pre-installation Conferences: Conduct a pre-installation conference at the Project site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise CO of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
   a. Contract Documents.
   b. Options.
   c. Related RFIs.
   d. Related Change Orders.
   e. Purchases.
   f. Deliveries.
   g. Submittals.
   h. Possible conflicts.
   i. Compatibility requirements.
   j. Time schedules.
   k. Weather limitations.
   l. Manufacturer's written instructions.
   m. Warranty requirements.
   n. Compatibility of materials.
   o. Acceptability of substrates.
   p. Temporary facilities and controls.
   q. Space and access limitations.
   r. Regulations of authorities having jurisdiction.
   s. Testing and inspecting requirements.
   t. Installation procedures.
   u. Coordination with other work.
   v. Required performance results.
   w. Protection of adjacent work.
   x. Protection of construction and personnel.
3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and other parties requiring information.
5. Do not proceed with the installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to the performance of the Work and reconvene the conference at the earliest feasible date.

1.7 ENVIRONMENTAL COORDINATION

A. Contractor’s Environmental Manager: Designate an on-site party responsible for overseeing the Contractor’s conformance to environmental goals for the project and implementing procedures for environmental protection.

1. Qualifications: Minimum 3 years Construction experience on projects of similar size and scope; with environmental procedures similar to those of this project; [familiarity with Environmental Management Systems (EMSs) such as ISO 14001]; must be familiar with environmental regulations applicable to construction operations.
2. Responsibilities: Responsibilities shall include:
   a. Compliance with applicable Federal, State, and local environmental regulations, including maintaining required documentation.
   b. Implementation of the Waste Management Plan (WMP).
   c. Implementation of the Indoor Air Quality (IAQ) Management Plan.
   d. Implementation of the Storm Water Pollution Prevention Plan (SWPPP).
   e. Present an overview of environmental issues and summarize site-specific procedures relating to management plans at the Preconstruction conference.
   f. Training for Contractor personnel per their position requirements.
   g. Monitoring and documentation of environmental procedures.

B. Perform project quality control following requirements specified in Related Sections, including:

1. Quality Requirements.
2. Regulatory Requirements.
3. Indoor Air Quality (IAQ) Management.
4. Noise & Acoustics Management.
5. Temporary Storm Water Pollution Prevention Environmental Management.
6. Construction Waste Management.

C. Contractor's Environmental Training Program: The contractor shall provide environmental training for workers performing work on the project site. Training shall include the following:

1. Overview of environmental issues related to the building industry.
2. Overview of environmental issues related to the Project.
3. Review of site-specific procedures and management plans:
   a. Construction Waste Management.
   b. Indoor Air Quality (IAQ) Management.
   c. Noise & Acoustics Management.
   d. Temporary Storm Water Pollution Prevention.
4. Pollution Prevention (P2) practices: Submit evidence of P2 training, participation in P2 programs, and familiarity with P2 practices.
5. Compliance with environmental regulations: As specified in Regulatory Requirements. Submit Contractor 40 CFR employee training records upon request of the Contracting Officer.

D. Provide documentation for environmental procedures as specified herein and following approved Waste Management Plan, IAQ Management Plan, and Storm Water Pollution Prevention Plan.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

REQUEST FOR INFORMATION # __

Project:

Contract No.: Date:

To:

cc:

From:

Subject:

Please provide the following information or clarification:

Response required by ___________

Date:

To:

From:

Subject:

SECTION 01 32 16

CONSTRUCTION SCHEDULE

PART 1 – GENERAL

1.1 SUMMARY

A. This Section consists of Construction Schedule requirements including but not limited to the following:

1. Schedule of Values
2. Construction Schedule Requirements.
3. Construction Schedule Updates
4. Time Impact Analysis.

B. Purpose: The purpose of the Construction Schedule is to ensure adequate planning, coordination, scheduling, and reporting during the execution of the work by the Contractor. The Construction Schedule will assist the Contractor and Contracting Officer in monitoring the progress of the work, evaluating proposed changes, and processing the Contractor's monthly progress payment.

1.2 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
2. Predecessor Activity: An activity that precedes another activity in the network.
3. Successor Activity: An activity that follows another activity in the network.

B. Cost Loading: The allocation of the Schedule of Values for the completion of activity as scheduled. The sum of costs for all activities must equal the total Contract Sum unless otherwise approved by the Contracting Officer.

C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of the Project.

D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall project duration and contains no float.

E. Float: The measure of leeway in starting and completing an activity.

1. Float: Float is not for the exclusive use or benefit of either the Government or the Contractor but is jointly owned.

2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

F. Resource Loading: The allocation of manpower and equipment necessary for the completion of activity as scheduled.

G. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.

1.3 SUBMITTALS

A. Electronic Copies: All schedules and reports submitted shall be in PDF file format sent via email to the Contracting Officer.

B. Schedule of Values: After the contract award and before the Pre-Construction conference submit a schedule of dollar values based on the Contract Price Schedule.

C. Construction Baseline Schedule: After the contract award and before the Pre-Construction conference, submit a baseline schedule, large enough to show the entire schedule for the entire construction period.

D. Construction Schedule Updates: On or before the 7th day preceding the progress payment request date, submit estimates of the percent completion of each scheduled activity, and necessary supporting data. Provide electronic copies.

E. Construction Schedule Revisions and Time Impact Analysis: For each Construction Schedule revision, submit electronic copies of a Time Impact Analysis. Each Time Impact Analysis shall include a Fragmentary Network (Fragnet), incorporated into the currently accepted Construction Schedule, demonstrating how the Contractor proposes to incorporate a modification, change, delay, or Contractor request.

1.4 QUALITY ASSURANCE

A. The Contractor shall meet with the Contracting Officer on the day of the preconstruction conference to go over the following:

1. Review software limitations, content, and format for reports.
2. Verify the availability of qualified personnel needed to develop and update schedule.
3. Discuss constraints, including phasing, work stages, interim milestones, and partial Government occupancy.
4. Review availability of Government-furnished products.
5. Review schedule for work of separate Government contracts.
6. Review the time required for review of submittals and re-submittals.
7. Review requirements for tests and inspections by independent testing and inspecting agencies.
8. Review the time required for completion and startup procedures.

9. Review and finalize a list of construction activities to be included in the schedule.
10. Review baseline schedule comments, resolve issues, and progress on incorporating them
11. Review procedures for updating schedule.
12. Discuss reporting requirements and establish a protocol for naming and transmitting electronic schedules.

B. Contractor's Schedule Representative: Before or at the preconstruction conference, designate an authorized representative to be responsible for the preparation and maintenance of the Construction Schedule. The authorized representative will be responsible for preparing the Baseline Schedule, all required updates, revisions, Time Impact Analyses, and preparation of reports.

1.5 COORDINATION

A. Coordinate the preparation and processing of schedules and reports with the performance of construction activities and with scheduling and reporting of separate Contractors.

B. Coordinate Construction Baseline Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.

1. In developing the Construction Baseline Schedule, ensure that the Subcontractor’s work at all tiers, as well as the prime Contractor’s work, is included and coordinated.
2. Secure time commitments for performing critical elements of the Work from parties involved.
3. Coordinate each construction activity in the network with other activities and schedule them in the proper sequence.

PART 2 - PRODUCTS

2.1 SCHEDULE OF VALUES

A. Breakdown each lump-sum item into component work activities used in the schedule, for which progress payments may be requested. The work activities broken out within the schedule of values shall be integrated into and made a logical part of the construction baseline schedule submitted under this specification. The total costs for the component work activities shall equal the contract price for that lump-sum item. The Contracting Officer may request data to verify the accuracy of dollar values. Include mobilization, general condition costs, overhead, and profit in the total dollar value of unit price items and the component work activities for each lump-sum item. Do not include mobilization, general condition costs, overhead, or profit as a separate item.

B. Do not break down unit price items. Use only the contract price for unit price items.

C. The total cost of all items shall equal the contract price. The Schedule of Values will form the basis for progress payments.

D. An acceptable Schedule of Values shall be agreed upon by the Contractor and Contracting Officer before the first progress payment is processed.

2.2 CONSTRUCTION SCHEDULE REQUIREMENTS

A. Construction Baseline Schedule: Prepare the Construction Baseline Schedule using a computerized, resource-loaded, time-scaled CPM network analysis diagram for the Work.

1. Develop and finalize Construction Baseline Schedule so it can be accepted for use no later than 30 days after the date established for the Notice of Award.
   a. Failure to include any work item required for the performance of this Contract shall not excuse the Contractor from completing all work within applicable completion dates, regardless of government acceptance of the schedule.
2. Establish procedures for monitoring and updating Construction Baseline Schedule and for reporting progress. Coordinate procedures with progress meetings and payment request dates.

B. Construction Baseline Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the preliminary CPM network diagram, prepare a skeleton network to identify probable critical paths.

1. Activities: Indicate the estimated duration, sequence requirements, and relationship of each activity with other activities.
2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
4. The Construction Baseline Schedule as developed shall show the sequence and interdependence of activities required for the complete performance of the work. Ensure all work sequences are logical and the Construction Baseline Schedule shows a coordinated plan of the work.
5. Resource loading of each activity shall include all personnel by labor category and equipment type and capacity proposed to complete the activity in the duration shown.
6. Consider seasonal weather conditions in planning and scheduling all work influenced by high and low ambient temperatures, wind, or precipitation to ensure completion of all work within the contract time.
7. Time Frame: Proposed duration assigned to each activity shall be the Contractor's best estimate of the time required to complete the activity considering the scope and resources planned for the activity.
   a. An early finish date may be shown but the late finish date must be the same as the last day of the contract period. An early completion schedule must contain the following:
      1) Insert an activity titled “Project Float” as a successor to the last activity in the early project completion schedule network.
      2) Add a milestone titled “Contract End Date” as a successor to the activity “Project Float.”
      3) Add duration to the activity “Project Float” as required so the milestone “Contract End Date” equals the last day of the Contract Period.
   b. The contract completion date shall not be changed by submission of a schedule that shows an early completion date.
   c. The Contractor shall limit the use of lead or lag durations between scheduled activities.

d. Project Calendars: Develop and incorporate the following calendars:
   1) Administrative Calendar: Include a calendar that is based on a 7 day week to be used on any activities that are based on calendar days. Apply this calendar to administrative tasks or any other tasks that are not affected by non-working days (Federal Holidays, weather, etc.).
   2) Project Calendar: Include a calendar that is based on the planned work week for the project. Include Federal Holidays, weekends, and any other non-work days indicated in the contract documents. Apply this calendar to activities which are not anticipated to be affected by the weather.
   3) Weather Calendar: Utilize the Project Calendar and show anticipated normal downtime related to weather as a non-working time. Weather days shall be based on data for the local area from a reliable source like the National Oceanic and Atmospheric Administration (NOAA), National Park Service records, or source acceptable to the Contracting Officer. Apply this calendar to activities that are anticipated to be affected by the weather.

e. Activity Duration: Define activities so no activity is longer than 15 days, except for non-construction activities including mobilization, shop drawings, and submittals, fabrication, and delivery of materials and equipment.

f. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 calendar days, as separate activities in the schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.

g. Submittal Review Time: Include review and re-submittal times indicated. Coordinate submittal review times in Construction Baseline Schedule

h. Startup and Testing Time: Include not less than 2 days for startup and testing.

i. Substantial Completion: Allow time for Government administrative procedures necessary for certification of Substantial Completion. (For more information, refer to Division 01 Section 01 77 00 “Closeout Procedures”)

8. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule and show how the sequence of the Work is affected.
   a. Phasing: Arrange a list of activities on schedule by phase.
   b. Work under More Than One Contract: Include a separate activity for each contract.
   c. Work Restrictions: Show the effect of the following items on the schedule:
      1) Coordination with existing construction.
      2) Limitations of continued occupancies.
      3) Uninterruptible services.
      4) Use of premises restrictions.
      5) Provisions for future construction.
      6) Seasonal variations.
      7) Environmental control.
   d. Work Stages: Indicate important stages of construction for each major portion of the Work.
      1) Subcontract awards.
      2) Submittals.
      3) Purchases.
      4) Fabrication.

5) Sample testing.
6) Deliveries.
7) Installation.
8) Tests and inspections.
9) Adjusting.
10) Curing.

9. Milestones: Include milestones indicated in the Contract Documents in the schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and the following interim milestones:
   a. Trenching; pipe installation with backfill and compaction.
   b. Booster Pump, Equalization – Chlorine Contact Tank and associated water quality equipment.
   c. Disinfection of piping; testing/startup.
   d. Training.

C. Joint Review, Revision, and Acceptance:

1. Within 7 calendar days of receipt of the Contractor's proposed Construction Baseline Schedule, the Contracting Officer and Contractor shall meet for joint review, correction, or adjustment of the initial Construction Baseline Schedule. Any areas which, in the opinion of the Contracting Officer, conflict with timely completion of the project shall be subject to revision by the Contractor.
2. Within 7 calendar days after the joint review between the Contractor and Contracting Officer, the Contractor shall revise and resubmit the Construction Baseline Schedule per agreements reached during the joint review.
3. In the event the Contractor fails to define any element of work, activity, or logic, and the Contracting Officer review does not detect this omission or error, such omission or error, when discovered by the Contractor or Contracting Officer, shall be corrected by the Contractor within seven calendar days and shall not affect the contract period.
4. Upon acceptance of the Construction Baseline Schedule by the Contracting Officer, save the schedule as a baseline, and update every month. The construction schedule update will be used to evaluate the Contractor's monthly applications for payment based upon information developed at the monthly Construction Schedule update meeting.

D. Recovery Schedule: When periodic schedule update indicates the Work is 14 or more calendar days behind the current accepted schedule, a separate recovery schedule indicating means by which the Contractor intends to regain compliance with the schedule must also be submitted. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance and date by which recovery will be accomplished.

E. Computer Software: Prepare schedules using a program that has been developed specifically to manage construction schedules.

1. Use Microsoft Project.
2. The Contractor shall provide the Contracting Officer a licensed copy of the software used to create the Construction Baseline Schedule and a software reference manual. The software and reference manual will be returned to the Contractor at Contract completion.

PART 3 - EXECUTION

3.1 CONSTRUCTION SCHEDULE UPDATES

A. Progress Meeting Updates: Provide updated schedule information before each weekly progress meeting.

1. Issue updated schedule concurrently with the report of each such meeting. Incorporate construction progress into the currently accepted schedule promptly.

B. Monthly Schedule Updates:

1. General: Update the Construction Schedule every month to reflect actual construction progress and activities throughout the entire contract period and until the project's substantial completion. The status date of each schedule update shall be the 7th day preceding the progress payment request date.
2. Procedure: The Contractor shall meet with the Contracting Officer each month at a Construction Schedule update meeting to review actual progress made through the status date of the Construction Schedule update, including dates activities were started and/or completed and the percentage of work completed on each activity started and/or completed.
3. Reports: Concurrent with making revisions to schedule prepare tabulated reports showing the following:
   a. Identification of activities that have changed.
   b. Changes in early and late start dates.
   c. Changes in early and late finish dates.
   d. Changes in activity durations in workdays.
   e. Changes in the critical path.
   f. Changes in total float or slack time.
   g. Changes in the Contract Time.
4. Narrative: The report shall include a brief description of the actual progress made during the update period; actual and potential delaying activities; any impediments to progress; issues related to inclement weather; progress toward established milestones and project float. The report shall include a brief description of the work anticipated to be performed in the next month. Any minor revisions to the schedule should be identified so they can be evaluated and accepted or rejected.
   a. As the Work progresses, indicate the Actual Completion percentage for each activity.
   b. If the schedule update shows a late finish date after the contract completion date, at a minimum, include the following in the narrative with your submission:
   c. Any known delays.
   d. Actions that will be taken to get back on schedule.
   e. Pending modifications.
   f. Impediments or constraints affecting progress
5. Progress Payments: The monthly updating of the currently accepted Construction Schedule shall be an integral part of the process upon which progress payments will be made under this contract. If the Contractor fails to provide schedule updates or revisions, then a portion of the monthly payment may be retained until such corrections have been made.

C. Distribution: Distribute copies of the accepted schedule to the Contracting Officer, Contracting Officers Representative, Construction Management Representative, Subcontractors, testing and inspecting agencies, and other parties identified by the Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.
2. When revisions are made, distribute updated schedules to the same parties and post them in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in the performance of construction activities.

D. Construction Schedule Revisions:

1. Required Revisions: If, as a result of the monthly schedule update, it appears the currently accepted Construction Schedule no longer represents the actual prosecution and progress of the work, the Contracting Officer will request, and the Contractor shall submit, a revision to the Construction Schedule. The Contractor may also request reasonable revisions to the currently accepted Construction Schedule in the event the Contractor's planning for the work is revised. If the Contractor desires to make changes, the Contractor shall notify the Contracting Officer in writing, stating the reason for the proposed revision. Accepted revisions will be incorporated into the currently accepted Construction Schedule for the next monthly scheduled update.
2. Procedure: If a revision to the currently accepted Construction Schedule is contemplated, the Contractor or Contracting Officer shall so advise the other in writing at least seven calendar days before the next monthly scheduled update meeting, describing the revision and reasons for the revision. Government-requested revisions will be presented in writing to the Contractor, who shall respond in writing within 7 calendar days.
3. Reports: Concurrent with making revisions to schedule prepare tabulated reports showing the following:
   a. Identification of activities that have changed.
   b. Changes in early and late start dates.
   c. Changes in early and late finish dates.
   d. Changes in activity durations in workdays.
   e. Changes in the critical path.
   f. Changes in total float or slack time.

3.2 TIME IMPACT ANALYSIS FOR CONTRACT MODIFICATIONS CHANGES DELAYS AND CONTRACTOR REQUESTS:

A. Requirements: When contract modifications or changes are initiated, delays are experienced, or the Contractor desires to revise the currently accepted Construction Schedule, the Contractor shall submit to the Contracting Officer a written time impact analysis illustrating the influence of each modification, change, delay, or Contractor request on the contract time.

B. Time Extensions: Activity delays, which result in projecting a late completion date, shall not automatically mean that an extension of the contract time is warranted or due to the Contractor. It is possible that a modification, change, or delay will not affect existing critical path activities or cause noncritical activities to become critical. A modification, change, or delay may result in only absorbing a part of the available total float that may exist within an activity chain of the Schedule, thereby not causing any effect on the contract time. Time extensions will be granted following the terms of the contract.

C. Extension of the contract time will be granted only to the extent the equitable time adjustments to the activity or activities affected by the modification, change, or delay exceeds the total (positive or zero) float available on a particular activity.

D. Procedure: Each time impact analysis shall be submitted within the period stated in a request for proposal, or the period designated under the clauses entitled Changes or Default. In cases where the Contractor does not submit a written request for extension of time and a time impact analysis within the designated time, it is mutually agreed that the particular modification, change, delay, or Contractor request does not require an extension of the contract time. Upon acceptance, the time impact analysis shall be incorporated into the currently accepted Construction Schedule at the next monthly scheduled update.

E. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall Construction Schedule.

END OF SECTION

SECTION 01 32 33

PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for the following:

1. Existing Condition images.
2. Periodic construction images.

B. See Division 01 Section 01 77 00 "Closeout Procedures" for a complete listing of closeout documents.

C. See Division 01 Section 01 79 00 "Demonstration & Training" for submitting a video of the demonstration of equipment and training of NPS personnel.

1.2 SUBMITTALS

A. Construction Images: Submit images electronically within 7 days of taking the image. Include the following for each:

1. Include date and number (sequentially number all images) in the filename.
2. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
3. Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

B. Closeout: Submit a complete set of digital image electronic files as a Project Record Document. Submit on either a Compact Disc (CD) or Digital Video Disc (DVD).

1. Provide an index as a separate file on the Disc. List each image as a file name with number, date, and time. Include a description and or vantage point image was taken.
2. Submit images that have the same aspect ratio as the sensor, un-cropped.

PART 2 - PRODUCTS

2.1 FORMAT REQUIREMENTS

A. Media: CD-R Archival Gold or DVD-R Archival Gold

B. Media Labels: Archival CD/DVD labeling markers, archival labels, or direct print CD

C. Images: Provide RGB color images in JPEG format. The minimum sensor size of 8 megapixels, and at an image resolution of not less than 3200 by 2400 pixels.

PART 3 - EXECUTION

3.1 CONSTRUCTION IMAGES

A. General: Take digital images using the maximum range of depth of field, and that is in focus, to clearly show the Work. Images with blurry or out-of-focus areas will not be accepted.

1. Maintain index with each set of Construction images that identifies the number, date, and description for each.
2. Maintain one set of images accessible in the field office at the Project site, available at all times for reference.

B. Existing Condition Images: Before commencement of starting construction, take color digital images of the Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by the Contracting Officer.

1. Flag excavation areas and/or construction limits before recording construction images.
2. Take a minimum of 8 separate images to show existing conditions adjacent to the property before starting the Work.
3. Take a minimum of 8 separate images of existing buildings either on or adjoining property to accurately record physical conditions at the start of construction.

C. Periodic Construction Images: Take a minimum of 12 color digital images weekly and submit each month just before submitting each Application for Payment. Select vantage points to show the status of construction and progress since the last images were taken.

D. Additional Images: Contracting Officer may issue requests for additional images, in addition to periodic Construction images specified.

1. 3 days' notice will be given, where feasible.
2. In emergencies, take additional images within 24 hours of the request.
3. Circumstances that could require additional images include, but are not limited to, the following:
   a. Immediate follow-up when on-site events result in construction damage or losses.
   b. Images to be taken at fabrication locations away from the Project site.
   c. Substantial Completion of a major phase or component of the Work.
   d. Extra record images at the time of final acceptance.

END OF SECTION

SECTION 01 33 23

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information that requires Government's responsive action.

B. Informational Submittals: Written information that does not require the Government's responsive action. Submittals may be rejected for not complying with the requirements.

1.3 GENERAL SUBMITTAL PROCEDURES

A. Coordination: Coordinate preparation and processing of submittals with the performance of construction activities. Review them for legibility, accuracy, completeness, and compliance with Contract Documents.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of the need to review submittals concurrently for coordination.
   a. Contracting Officer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

B. Submittal List: A submittal list has been attached to the end of this Specification Section. The intent is to provide an overall summary of submittal requirements and not a comprehensive list. The requirements of the individual Specification Sections, terms, and conditions of the contract still apply regardless of what is shown on the submittal list.

C. Processing Time: Allow enough time for submittal review, including time for re-submittals, as follows. Time for review shall commence on the Contracting Officer's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including re-submittals.

1. Action Submittals
   a. Initial Review: Allow 30 days for the initial review of each submittal. Allow additional time if coordination with subsequent submittals is required.
   b. Re-submittal Review: Allow 30 days for review of each re-submittal.

2. Informational Submittals
   a. Review: Allow 10 days for review of each submittal.

D. Approved Equals:

1. For each item proposed as an "approved equal," submit supporting data, including:
   a. Drawings and samples as appropriate.
   b. Comparison of the characteristics of the proposed item with that specified.
   c. Changes are required in other elements of the work because of the substitution.
   d. Name, address, and telephone number of the vendor.
   e. Manufacturer's literature regarding installation, operation, and maintenance, including schematics for electrical and hydraulic systems, lubrication requirements, and parts lists. Describe the availability of maintenance service and state sources of replacement materials.
2. A request for approval constitutes a representation that Contractor:
   a. Has investigated the proposed item and determined that it is equal or superior in all respects to that specified.
   b. Will provide the same warranties for the proposed item as for the item specified.
   c. Has determined that the proposed item is compatible with interfacing items.
   d. Will coordinate the installation of an approved item and make all changes required in other elements of the work because of the substitution.
   e. Waives all claims for additional expenses that may be incurred as a result of the substitution.

E. Additional Copies: Unless additional copies are required for final submittal, and unless Contracting Officer observes non-compliance with provisions in the Contract Documents, initial submittal may serve as a final submittal.

1. Additional copies submitted for maintenance manuals will not be marked with the action taken and will be returned.

F. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Contracting Officer will return without review, submittals received from sources other than the Contractor.

1. CM-16 Transmittal Form: All material submittals shall be transmitted using National Park Service form CM-16. (This form can be downloaded from the Workflows website at http://www.nps.gov/dscw/con_subreview21.htm.) No action will be taken on a material submittal item unless accompanied by the transmittal form.
2. Documents required in division 1 are to be delivered under a separate cover letter. Do not use the CM-16 Transmittal form for these documents.

G. Identification: Place a permanent label 1"x 4" on each submittal for identification.

1. Include the following information on the label for processing and recording action taken:
   a. Project name, Park, PMIS number, Contract number.
   b. Date.
   c. Submittal number or another unique identifier, including a revision identifier.
      1) Submittal numbers shall be a sequential number (e.g., 001). Re-submittals shall include an alphabetic suffix after another decimal point (e.g., 001.A).

H. Re-submittals: Make re-submittals in the same form and number of copies as an initial submittal.

1. Note the date and content of the previous submittal.
2. Note date and content of revision in label or title block and indicate the extent of revision.
3. Re-submit submittals until they are marked “APPROVED” or “APPROVED WITH NOTATIONS.”

I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for the performance of construction activities. Show distribution on transmittal forms.

J. Use for Construction: Use only final submittals with a mark indicating “APPROVED” or “APPROVED WITH NOTATIONS.”

1.4 CONTRACTOR’S USE OF CAD FILES

A. General: At the Contractor’s written request, copies of CAD files will be provided to the Contractor for Contractor’s use in connection with the Project, subject to the following conditions:

1. Files will be provided as-is.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

A. General: Prepare and submit Action Submittals required by individual Specification Sections.

1. Contracting Officer reserves the right to require submittals in addition to those called for in individual sections.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:
   a. Manufacturer’s written recommendations.
   b. Manufacturer’s product specifications.
   c. Manufacturer’s installation instructions: When Contract Documents require compliance with manufacturer’s printed instructions, provide one complete set of instructions to the Contracting Officer and keep another complete set of instructions at the project site until substantial completion.
   d. Manufacturer’s catalog cuts: Submit only pertinent pages; mark each copy of standard printed data to identify specific products proposed for use.
   e. Wiring diagrams showing factory-installed wiring.

f. Printed performance curves.
g. The operational range of diagrams.
h. Compliance with specified referenced standards.
i. Testing by the recognized testing agency.

4. Number of Copies: Submit electronic copies of Product Data, unless otherwise indicated. The Contracting Officer will return 1 electronic copy with notation. Retain copy as a Project Record Document.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data. Contractor to provide updated CAD drawings.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
   a. Dimensions.
   b. Identification of products.
   c. Fabrication and installation drawings.
   d. Roughing-in and setting diagrams.
   e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
   f. Shop-work manufacturing instructions.
   g. Templates and patterns.
   h. Schedules.
   i. Notation of coordination requirements.
   j. Notation of dimensions established by field measurement.
   k. The relationship to adjoining construction is indicated.
   l. Seal and signature of a professional engineer if specified.
   m. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 x 11 inches but no larger than 30 x 40 inches.
3. Number of Copies: Submit electronic copies of each submittal. Contracting Officer will return 1 electronic copy with notation.

D. Samples: Submit Samples for review of the kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Attach label on the unexposed side of Samples that includes the following:
   a. Generic description of Sample.
   b. Product name and name of the manufacturer.
   c. Sample source.
   d. Submittal Number and title of the appropriate Specification Section.
3. Disposition: Maintain sets of approved Samples at the Project site, available for quality-control comparisons throughout construction activity. Sample sets may be used to determine the final acceptance of construction associated with each set.

4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
    a. Number of Samples: Submit 2 full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from the manufacturer's product line. Contracting Officer will return submittal with options selected.
5. Samples for Verification: Submit full-size units or Samples of the size indicated, prepared from the same material to be used for the Work, cured and finished in the manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
    a. Number of Samples: Submit 4 sets of Samples. Contracting Officer will retain three Sample sets; the remainder will be returned.

E. Construction Materials: The Contractor is encouraged to submit for approval products made out of recycled or environmentally responsible material. Every effort will be made by the National Park Service to approve these materials.

2.2 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by other Specifications Sections.

1. Number of Copies: Submit electronic copies of each submittal, unless otherwise indicated. Contracting Officer will not return copies.
2. Certificates and Certifications: Provide a notarized statement that includes the signature of the entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

B. Coordination Drawings: Comply with the requirements specified in Section 01 31 00 "Project Management & Coordination."

C. Contractors Construction Schedule: Comply with the requirements specified in Section 01 32 16 "Construction Schedule."

D. Accident Prevention Plan: Comply with the requirements specified in Section 01 35 23 "Safety Requirements."

E. Schedule of Values: Comply with the requirements specified in Section 01 32 16 "Construction Schedule."

F. Waste Recycling Plan: Comply with the requirements specified in Section 01 74 19 "Construction Waste Management & Disposal."

G. Quality Control Plan: Comply with the requirements specified in Section 01 40 00 "Quality Requirements."

H. Storm Water Pollution Prevention Plan: Comply with the requirements specified in Section 01 57 23 “Temporary Stormwater Pollution Control.”

I. Qualification Data: Prepare written information that demonstrates the capabilities and experience of a firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

J. Installer Certificates: Prepare written statements on manufacturer’s letterhead certifying that Installer complies with the requirements in the Contract Documents and, where required, is authorized by the manufacturer for this specific Project.

K. Manufacturer Certificates: Prepare written statements on manufacturer’s letterhead certifying that the manufacturer complies with the requirements in the Contract Documents. Include evidence of manufacturing experience where required.

L. Product Certificates: Prepare written statements on the manufacturer’s letterhead certifying that the product complies with the requirements in the Contract Documents.

M. Material Certificates: Prepare written statements on the manufacturer’s letterhead certifying that material complies with the requirements in the Contract Documents.

N. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency’s standard form, indicating and interpreting test results of material for compliance with the requirements in the Contract Documents.

O. Product Test Reports: Prepare written reports indicating the current product produced by the manufacturer complies with the requirements in the Contract Documents. Base reports on the evaluation of tests performed by the manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

P. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.

Q. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency’s standard form, indicating and interpreting results of tests performed before installation of the product, for compliance with performance requirements in the Contract Documents.

R. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency’s standard form, indicating and interpreting results of compatibility tests performed before installation of the product. Include written recommendations for primers and substrate preparation needed for adhesion.

S. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency’s standard form, indicating and interpreting results of field tests performed either during the installation of the product or after the product is installed in its final location, for compliance with the requirements in the Contract Documents.

T. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with the requirements specified in Section 01 78 23 "Operation & Maintenance Data."

U. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include a list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of the software, if any, used for calculations. Include page numbers.

V. Manufacturer's Instructions: Prepare written or published information that documents the manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include the name of the product and name, address, and telephone number of the manufacturer.

W. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:

1. Statement on condition of substrates and their acceptability for installation of the product.
2. Summary of installation procedures being followed, whether they comply with the requirements and, if not, what corrective action was taken.
3. Results of operational and other tests and a statement of whether observed performance complies with the requirements.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Review each submittal and check for coordination with other Work of the Contract and compliance with the Contract Documents. Note corrections and field dimensions.

3.2 CONTRACTING OFFICER'S ACTION

A. General: Submittals will be returned disapproved without technical review if identification information is missing, not filled in, or if placed on the back of the submittal; an incorrect number or format of submittals is provided; the transmittal form is incorrectly filled out; submittals are not coordinated, or submittals do not show evidence of Contractor's approval.

1. Any work is done or orders for materials or services placed before approval shall be at the Contractor's own risk.

B. Action Submittals: Contracting Officer will review each submittal, make marks to indicate corrections or modifications required, and return one copy. Contracting Officer will annotate the CM-16 Transmittal Form indicating the action taken, as follows:

1. The returned submittal will be marked in one of three ways as defined below:
   a. APPROVED: Acceptable with no corrections.

b. APPROVED WITH NOTATIONS: Minor corrections or clarifications required. All comments are clear and no further review is required. The Contractor shall address all review comments when proceeding with the work.

c. DISAPPROVED - RESUBMIT: Rejected as not following the contract or as requiring major corrections or clarifications. The Contracting Officer will identify the reasons for disapproval. The Contractor shall revise and resubmit with changes identified.

C. Informational Submittals: Contracting Officer will review each submittal and will not return it or will reject and return one copy if it does not comply with the requirements. Contracting Officer will forward each submittal to the appropriate party.

D. Partial submittals are not acceptable, will be considered non-responsive, and will be returned without review.

END OF SECTION

CM-16 TRANSMITTAL FORM - NATIONAL PARK SERVICE

Park:	PMIS No.:	Project:	Contract No.:	Date:	Transmittal No.: Sheet: 1 of:
Contractor:		Subcontractor / Supplier:			

Action Submittal	Informational Submittal	Item No.	Specification Section No.	Paragraph No.	Description of Item (Size, Type, Name, Manufacturer, Use, Etc.)	No. of Copies Submitted	Contributes to meeting LEED and/or Fed Sust. Req.	Meets Buy American Act Req.	Alternate Materials Proposed	NPS ACTION: Action Submittal: No. of Copies Returned	Approved	Approved with Notations	Disapproved - Resubmit	NPS ACTION: Informational Submittal: Accept	Reject

Contractor's Signature		Recommended by:	
Title:	Date:	I hereby certify that this submittal has been reviewed for accuracy, completeness, and compliance with contract requirements (FAR 52.236-21)	Title: Date:
Review Comments:			Action by:
			Title: Date:
			Approval of this submittal is subject to the provisions of the contract drawings and specifications. This action is for general concurrence only and the government is not responsible for errors or omissions
Date Received:	Distribution: 1 copy each: CMR Interim, A/E, DSC, Contr.	Date To Contractor:	r03/10

CM-16 TRANSMITTAL FORM CONTINUATION - NATIONAL PARK SERVICE

Park:	PMIS No.:	Project:	Contract No.:	Date:	Transmittal No.: Sheet: of:
Contractor:		Subcontractor / Supplier:			

										NPS ACTION					
										Action Submittal				Informational Submittal	
Action Submittal	Informational Submittal	Item No.	Specification Section No.	Paragraph No.	Description of Item (Size, Type, Name, Manufacturer, Use, Etc.)	No. of Copies Submitted	Contributes to meeting LEED and/or Fed Sust. Req.	Meets Buy American Act Req.	Alternate Materials Proposed	No. of Copies Returned	Approved	Approved with Notations	Disapproved - Resubmit	Accept	Reject

Review Comments

r03/10

SECTION 01 35 13.22

ARCHEOLOGICAL PROTECTION

PART 1 - GENERAL

1.1 SUMMARY

A. The work of this section consists of protecting archeological resources contained in soil deposits. No archaeologically sensitive areas have been identified within the proposed project area, and archaeological monitoring is not anticipated. However, the Contractor shall provide two weeks' notice before beginning trenching or excavation so that an archaeologist can be available, if interested. If unknown archaeological resources are discovered during construction, work in that location shall stop until the resources are properly recorded and evaluated; measures should be taken to avoid further resource impacts or to mitigate their loss or disturbance.

1.2 DEFINITIONS

A. Archeological Resources: Archeological resources are the physical pieces of evidence of past human activity, including evidence of the effects of that activity on the environment. Archeological resources represent both prehistoric and historic periods. They are found above and below the ground and under the water.

B. Archeologically Sensitive Areas: Areas that have the potential to contain significant (National Register eligible) archeological resources. If National Register eligible or listed archeological resources could not be avoided, an appropriate mitigation strategy would be developed in consultation with the state historic preservation officer and, if necessary, associated American Indian tribes.

C. Non-sensitive Areas: Areas with little, if any, potential of containing significant (National Register eligible) archeological resources.

D. Archeological Monitor: Representative of the Government designated to oversee construction activities that could disturb archeological resources.

E. Archeological Resources Protection Act (ARPA) of 1979 (P.L. 96-95; 93 Stat. 712): defines archeological resources as any material remains of past human life or activities that are of archeological interest and at least 100 years old; Section 4 of the statute describes the requirements that must be met before Federal authorities can issue a permit to excavate or remove any archeological resource on Federal or Indian lands; the curatorial requirements of artifacts and other materials excavated or removed.

PART 2 – PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 BARRICADES

A. Comply with requirements specified in Division 01 Section “Temporary Facilities & Controls.”

3.2 OBSERVATION

A. If interested, Archeological Monitor will observe all ground-disturbing site work, including the construction of temporary facilities, from a safe location mutually agreed on by the Contractor and Monitor. As new ground is broken, the Monitor will examine excavated materials, using construction layout centerline and perimeter staking as a reference point to record locations of findings.

3.3 DISCOVERY OF RESOURCES

A. If Archeological Monitor discovers resources, immediate relocation of the work to a non-sensitive area may be required to allow Monitor to identify and document resources and, if necessary, develop an appropriate mitigation plan. While Archeological Monitor is documenting resources in sensitive areas, the Contractor shall relocate work to non-sensitive areas where monitoring is not normally required.

B. If resources are discovered while Archeological Monitor is absent, stop work immediately and report the discovery to the Contracting Officer.

3.4 WORK STOPPAGE

A. The Contractor shall plan, schedule, and execute the work to prevent stoppages at one area from stopping all work at the construction site

END OF SECTION

SECTION 01 35 23

SAFETY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. General: This section includes establishing an effective accident prevention program and providing a safe environment for all personnel and visitors.

1.2 SUBMITTALS

A. Accident Prevention Plan: After the contract award and before the Pre-Construction conference, submit for review an Accident Prevention Plan. The Contracting Officer will review the proposed Plan. If the plan requires any revisions or corrections, the Contractor shall resubmit the Plan within 10 days. No progress payments will be made until the Plan is accepted.

1.3 QUALITY ASSURANCE

A. Comply with contract clauses entitled "Accident Prevention" and "Permits and Responsibilities." In case of conflicts between Federal, State, and local safety and health requirements, the most stringent shall apply. Equipment or tools not meeting OSHA requirements will not be allowed on the project sites. Failure to comply with the requirements of this section and related sections may result in the suspension of work.

B. All work plans must be outlined and kept on site and coordinated with Park Staff. This includes safety, security, and QC plans. All work shall comply with Federal plans pertaining to COVID.

C. Qualifications of Employees:

1. All employees must be physically qualified and able to perform their assigned duties safely.
2. Do not allow employees to perform work whose ability or alertness is impaired because of prescription or illegal drug use, fatigue, illness, intoxication, or other conditions that may expose themselves or others to injury.
3. Operators of vehicles, hoisting equipment, and hazardous plant equipment shall be able to understand signs, signals, and operating instructions, and be fully capable of operating such equipment. Provide operating instructions for all equipment. Newly hired operators shall be individually tested by an experienced operator or supervisor to determine if they are capable of safely operating equipment.

1.4 ACCIDENT REPORTING

A. Reportable Accidents: A project reportable accident is defined as death, occupational disease, traumatic injury to employees or the public, fires, and property damage by accident more than $100. Notify Contracting Officer immediately in the event of a reportable accident. Within 7 days of a reportable accident, fill out and forward to Contracting Officer an Accident/Property Damage Report (Form CM-22). The form may be obtained from the Contracting Officer.

PART 2 - PRODUCTS

2.1 ACCIDENT PREVENTION PLAN

A. The Plan shall be written to comply with OSHA and project requirements (a generic plan is not acceptable) including but not limited to the following:

1. Name of the responsible supervisor to carry out the program.
2. Weekly and monthly safety meetings.
3. First aid procedures.
4. Outline of each phase of the work, the hazards associated with each major phase, and the methods proposed to provide for property protection and safety of the public, National Park Service personnel, and Contractor's employees. Identify the work included in each phase.
5. Training, both initial and continuing.
6. Planning for possible emergencies, such as floods, fires, cave-ins, slides, explosions, power outages, and windstorms. Such planning shall take into consideration the nature of construction, site conditions, and the degree of exposure of persons and property.

2.2 FIRST AID FACILITIES

A. Provide adequate facilities for the number of employees and the hazards associated with the types of ongoing construction work at the site.

2.3 PERSONNEL PROTECTIVE EQUIPMENT

A. Meet requirements of applicable ANSI standards.

PART 3 - EXECUTION

3.1 EMERGENCY INSTRUCTIONS

A. Post telephone numbers and reporting instructions for an ambulance, physician, hospital, fire department, and police in conspicuous locations at the worksite.

3.2 FIRE AND LIFE SAFETY

A. Comply with the requirements of NFPA 241 (Standard for Safeguarding Construction, Alteration, and Demolition Operations).

B. Store hazardous materials following manufacturers and OSHA recommendations. Maintain readily available, on-site, MSDS for each chemical.

1. Immediately report all spills of hazardous materials to the park.
2. Maintain a spill emergency response kit.

3.3 PROTECTIVE EQUIPMENT

A. Inspect personal protective equipment daily and maintain it in a serviceable condition. Clean, sanitize, and repair personal items, as appropriate, before issuing them to another individual.

B. Inspect and maintain other protective equipment and devices before use and periodically to ensure safe operation.

3.4 SAFETY MEETINGS

A. As a minimum, conduct weekly 15-minute "toolbox" safety meetings. These meetings shall be conducted by a foreman or supervisor and attended by all construction personnel at the worksite. Topics need to coincide with work scheduled for the following week. Document and submit meeting minutes to the Contracting Officer within 1 day after the meeting.

B. Conduct monthly safety meetings for all levels of supervision. Meetings shall be attended by all contractors and subcontractors performing work on the site. Notify the Contracting Officer of meeting dates and times. These meetings shall be used to review the effectiveness of the Contractor's safety effort, to resolve current health and safety problems, to provide a forum for planning safe construction activities, and for updating the Accident Prevention Plan. The Contracting Officers Representative will attend the meeting and enter the results of the meetings into the daily log.

3.5 HARD HATS AND PROTECTIVE EQUIPMENT AREAS

A. A hard hat area shall be designated by the Contractor. The hard hat area shall be posted by the Contractor in a manner satisfactory to the Contracting Officer.

B. It is the Contractor's responsibility to require all those working on or visiting the site to wear hard hats and other necessary personal protective equipment at all times. As a minimum, provide 6 six hard hats for use by visitors.

3.6 TRAINING

A. First Aid: Provide adequate training to sufficient personnel to ensure prompt and efficient first aid.

B. Hazardous Material: Train and instruct each employee exposed to hazardous material in safe and approved methods of handling and storage. Hazardous materials are defined as explosive, flammable, poisonous, corrosive, oxidizing, irritating, or otherwise harmful substances that could cause death or injury.

END OF SECTION

SECTION 01 40 00

QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve the Contractor of responsibility for compliance with the Contract Document requirements. The quality of all work shall be the responsibility of the Contractor.

1. Specified tests, inspections, and related actions do not limit the Contractor's other quality assurance and control procedures that facilitate compliance with the Contract Document requirements.

C. See Divisions 02 through 49 Sections for specific test and inspection requirements.

1.2 DEFINITIONS

A. Quality Assurance Services: Activities, actions, and procedures performed before and during the execution of the work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality Control Services: Tests, inspections, procedures, and related actions during and after the execution of the work to evaluate those actual products incorporated into the work and completed construction comply with requirements.

C. Preconstruction Testing: Tests and inspections that are performed specifically for the project before products and materials are incorporated into the work to verify performance or compliance with specified criteria.

D. Product Testing: Tests and inspections that are performed by a Nationally Recognized Testing Laboratory (NRTL), a National Voluntary Laboratory Accreditation Program (NVLAP), or a testing agency qualified to conduct product testing, to establish product performance and compliance with industry standards.

E. Source Quality Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.

F. Field Quality Control Testing: Tests and inspections that are performed on-site for installation of the work and completed work.

G. Testing Agency or Laboratory: An entity engaged to perform specific tests, inspections, or both. The testing laboratory shall mean the same as a testing agency.

H. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Using a term such as “carpentry” does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as “carpenter.” It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.

1.3 CONFLICTING REQUIREMENTS

A. Reference Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but equal, to Contracting Officer for a decision before proceeding.

B. Minimum Quality Levels: The quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to the Contracting Officer for a decision before proceeding.

1.4 SUBMITTALS

A. Quality Control Plan:

1. After the contract award and before the Pre-Construction conference, submit for approval a written Contractor Quality Control (CQC) plan.
2. If the plan requires any revisions or corrections, the Contractor shall resubmit the plan within 10 days.
3. The Government reserves the right to require changes in the plan during the contract period as necessary to obtain the quality specified.
4. No change in the approved plan may be made without written concurrence by the Contracting Officer.

B. Qualification Data: For testing agencies specified in the “Quality Assurance” Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

C. Contractor's Quality Control Daily Reports: Submit showing all inspections and tests on the first workday following the date covered by the report. Quality Control Supervisor shall utilize the forms attached at the end of this Section.

D. Test Reports:

1. Test reports shall be completed by the person performing the test.
2. Submit Daily Test Information Sheets with Quality Control Daily Reports.
3. Submit failing test results and proposed remedial actions within four hours of noted deficiency.
4. Submit 3 copies of complete test results no later than 1 calendar day after the test was performed.

E. Off-Site Inspection Reports: Submit before shipment.

F. If the CQC plan and Quality Control Daily Reports are not submitted as specified, the Contracting Officer may retain all payments until such time a plan is accepted and implemented or may retain payments for work completed on days there are no Quality Control Daily Reports.

G. Permits, Licenses, and Certificates: For NPS records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on the performance of the work.

1.5 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Contractors Quality Control Staff:

1. The Contractor's designated Quality Control Supervisor shall be on the project site whenever contract work is in progress.
2. The Contractor's job supervisory staff may be used to assist the Quality Control Supervisor supplemented, as necessary, by additional certified testing technicians.

C. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

D. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

E. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

F. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and where required by Contract, is acceptable to the Contracting Officer.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
3. All measuring devices, laboratory equipment, and instruments shall be calibrated at established intervals against certified standards following NIST requirements. Upon request, measuring and testing devices shall be made available for use by the Government for verification tests.

G. Factory-Authorized Service Representative Qualifications: An authorized representative of a manufacturer who is trained and approved by the manufacturer to inspect the installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

1.6 QUALITY CONTROL

A. The Contractor is responsible for all testing and inspections, including Structural Tests and Special Inspections (STSI), as identified in the Statement of Structural Tests and Special Inspections (STSI) (see attached). Inspect and test work as needed to ensure that the quality of materials, workmanship, construction, finish, and functional performance comply with applicable specifications, drawings, and those required by the Building Code.

1. Engage a qualified testing agency to perform these quality-control services.
2. Submit the appropriate report for each quality-control service.
3. Testing and inspecting requested by the Contractor and not required by the Contract Documents are the Contractor's responsibility.
4. The Contracting Officer may designate test locations.

B. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing.

C. Re-testing/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and re-inspecting, for construction that replaced work that failed to comply with the Contract Documents.

D. Testing Agency Responsibilities: Cooperate with NPS and Contractor in the performance of duties. Provide qualified personnel to perform required tests and inspections

1. Notify the Contracting Officer and Contractor promptly of irregularities or deficiencies observed in the work during the performance of its services.
2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit 3 copies of the certified written report of each test, inspection, and similar quality-control service through the Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the work.

E. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by the testing agency.
7. Security and protection for samples and for testing and inspecting equipment at the Project site.

F. Coordination: Coordinate sequence of activities to accommodate required quality assurance and control services with a minimum of delay and to avoid the necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

PART 2 - PRODUCTS

2.1 QUALITY CONTROL PLAN

A. The Quality Control Plan shall include:

1. A list of personnel responsible for quality control and assigned duties. Include each person's qualifications.
2. A copy of a letter of direction to the Contractor's Quality Control Supervisor outlining assigned duties.
3. Names, qualifications, and descriptions of laboratories to perform sampling and testing, and samples of proposed report forms.
4. Methods of performing, documenting, and enforcing quality control of all work.
5. Methods of monitoring and controlling environmental pollution and contamination as required by regulations and laws.

PART 3 - EXECUTION

3.1 OFF-SITE CONTROL

A. Items that are fabricated or assembled off-site shall be inspected for quality control at the place of fabrication.

3.2 ON-SITE CONTROL

A. Notification:

1. Notify the Contracting Officer a minimum of 48 hours in advance of the preparatory phase meeting.
2. Notify the Contracting Officer a minimum of 24 hours in advance of the initial and follow-up phases.

B. Preparatory Phase: Perform before beginning each feature of work.

1. Review control submittal requirements with personnel directly responsible for quality assurance and quantity control of the work. As a minimum, the Contractor's Quality Control Supervisor and the foreman responsible for the feature of work shall be in attendance.
2. Review all applicable specifications sections and drawings related to the feature of work.
3. Ensure that copies of all referenced standards related to sampling, testing, and execution for the feature of work are available on site.
4. Ensure that provisions have been made for field control testing.
5. Examine the work area to ensure that all preliminary work has been completed.
6. Verify all field dimensions and advise the Contracting Officer of discrepancies with contract documents.
7. Ensure that necessary equipment and materials are at the project site and that they comply with approved shop drawings and submittals.
8. Document all preparatory phase activities and discussions on the Contractor's Quality Control Daily Report.

C. Initial Phase:

1. As soon as work begins, inspect and test a representative portion of a particular feature of work for quality of workmanship.
2. Review control testing procedures to ensure compliance with contract requirements.
3. Document all initial phase activities and discussions on the Contractor's Quality Control Daily Report. The exact location of the initial phase shall be indicated for future reference and comparison with follow-up phases.

D. Follow-Up Phase: Inspect and test as work progresses to ensure compliance with contract requirements until completion of work.

E. Additional Preparatory and Initial Phases: Additional preparatory and initial phases may be required on the same feature of work for the following reasons:

1. The quality of on-going work is unacceptable.
2. Changes occur in the applicable quality control staff, on-site production supervision, or work crew.
3. Work on a particular feature of work is resumed after a substantial period of inactivity.

3.3 DOCUMENTATION

A. Maintain Quality Control Daily Reports, Daily Test Report Information Sheets, and Accessibility Inspection Reports (attached) of quality control activities and tests.

B. Quality Control Daily Reports may not be substituted for other written reports required under clauses of the contract, such as Disputes, Differing Site Conditions, or Changes.

3.4 ENFORCEMENT

A. The Contractor shall stop work on any item or feature pending satisfactory correction of any deficiency noted by the quality control staff or the Contracting Officer.

3.5 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction, and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are the Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

CONTRACTOR'S QUALITY CONTROL DAILY REPORT

REPORT NO. _____ SHEET 1 OF _____

PROJECT				CONTRACT NO.	DATE
PARK				CONTRACTOR'S REPRESENTATIVE ON THE JOB	
WEATHER (Rain, Snow, Cloudy, Windy, etc.)	RAINFALL Inches	TEMPERATURE MAX.	TEMPERATURE MIN.	GROUND CONDITIONS (Dry, Damp, Wet, Frozen, etc.)	

1. PRIME CONTRACTOR

NO. EMPLOYEES BY JOB CATEGORIES	Hours	HEAVY EQUIPMENT ON JOB	NO. UNITS	HRS. WORKING YES	NO	Comments

WORK PERFORMED BY PRIME CONTRACTOR:

MATERIALS DELIVERED	OFFICIAL VISITORS TO SITE

2A. SUBCONTRACTOR, _____: (If more than one subcontractor use copies of following page.)

NO. EMPLOYEES BY JOB CATEGORIES	Hours	HEAVY EQUIPMENT ON JOB	NO. UNITS	HRS. WORKING YES	NO	Comments

WORK PERFORMED BY SUBCONTRACTOR:

3. SPECIFIC INSPECTIONS: (Inspections performed, results, and corrective actions)

4. TESTING: ☐1 Check if any testing was performed today. (Complete and attach Test Report Information Sheets.)
Type and Location of Testing: _____

5. VERBAL INSTRUCTION RECEIVED FROM GOVERNMENT ON CONSTRUCTION DEFICIENCIES OR RE-TESTING REQUIRED:

6. REMARKS:

7. CERTIFICATION:
I certify that the above report is complete and correct and that I, or my authorized representative, have inspected all work performed this day by the prime contractor and each subcontractor and determined that all materials, equipment, and workmanship are in strict compliance with the plans and specifications except as may be noted above.

_____
Contractor's Quality Control Representative

SUBCONTRACTOR WORK CONTINUED:	CONTRACT NO.	REPORT NO. _____ SHEET _____ OF _____

2 SUBCONTRACTOR,

NO. EMPLOYEES BY JOB CATEGORIES	Hours	HEAVY EQUIPMENT ON JOB	NO. UNITS	HRS. WORKING		
				YES	NO	Comments

WORK PERFORMED BY SUBCONTRACTOR:

2 SUBCONTRACTOR,

NO. EMPLOYEES BY JOB CATEGORIES	Hours	HEAVY EQUIPMENT ON JOB	NO. UNITS	HRS. WORKING		
				YES	NO	Comments

WORK PERFORMED BY SUBCONTRACTOR:

2 SUBCONTRACTOR,

NO. EMPLOYEES BY JOB CATEGORIES	Hours	HEAVY EQUIPMENT ON JOB	NO. UNITS	HRS. WORKING		
				YES	NO	Comments

WORK PERFORMED BY SUBCONTRACTOR:

2 SUBCONTRACTOR,

NO. EMPLOYEES BY JOB CATEGORIES	Hours	HEAVY EQUIPMENT ON JOB	NO. UNITS	HRS. WORKING		
				YES	NO	Comments

WORK PERFORMED BY SUBCONTRACTOR:

DAILY TEST REPORT INFORMATION SHEET

CONTRACT NO._____ REPORT NO. _____

SHEET _____ OF _____

1. Individual Making Inspection or Test:	
2. Testing Laboratory; Name:	Phone #:
Address:	
3. Description of Work and Test Method:	
4. Location of Samples and Tests or Inspections:	
5. Specification Section:	
6. Inspection or Test Data:	
7. Test Results and Interpretations of Test Results:	
8. Comments or Professional Opinion About Compliance of Inspected Work or Tested Work with contract Document Requirements:	
9. Recommendations:	
10. Corrective Actions Taken:	

CERTIFICATION:
I certify that the above testing report is complete and correct and that all testing performed on this day for this contract is in strict compliance with the plans and specifications except as noted above.

_____
Signature of Inspector

SECTION 01 42 00

REFERENCES

PART 1 - GENERAL

1.1 ENVIRONMENTAL DEFINITIONS

A. Definitions pertaining to sustainable development: As defined in ASTM E2114 and as specified herein.

B. Biobased Materials: As defined in the Farm Security and Rural Investment Act, for purposes of federal procurement of biobased products, "biobased" means a "commercial or industrial product (other than food or feed) that is composed, in whole or in significant part, of biological products or renewable domestic agricultural materials (including plant, animal, and marine materials) or forestry materials." Biobased materials also include fuels, chemicals, building materials, or electric power or heat produced from biomass as defined by The Biomass Research and Development Act of 2000.

1. Biobased Content: The amount of biobased carbon in the material or product as a percentage of weight (mass) of the total organic carbon in the material or product.

C. Chain-of-Custody: Process whereby a product or material is maintained under the physical possession or control during its entire life cycle.

D. Deconstruction: Disassembly of buildings to recover materials.

E. DFE (Design for the Environment): A technique that includes elements of resource conservation and pollution prevention as applied in various product sectors. A technique that incorporates approaches that are part of a product (or assembly) concept, need, and design. Considerations involve material selection, material, and energy efficiency, reuse, maintainability, and design for disassembly and recyclability. Refer to ISO Guide 64 for additional clarification.

F. Environmentally preferable products: Products and services that have a lesser or reduced effect on the environment in comparison to conventional products and services. Refer to EPA's Final Guidance on Environmentally Preferable Purchasing at http://www.epa.gov/epp/guidance/finalguidancetoc.htm.

G. Non-Renewable Resource: A resource that exists in a fixed amount that cannot be replenished on a human time scale. Non-renewable resources have the potential for renewal only by geological, physical, and chemical processes taking place over millions of years. Examples include iron ore, coal, and oil.

H. Perpetual Resource: A resource that is virtually inexhaustible on a human time scale. Examples include solar energy, tidal energy, and wind energy.

I. Recycled Content Materials: Products that contain pre-consumer or post-consumer materials as all or part of their feedstock. The recycled content claim shall be consistent with the Federal Trade Commission (FTC) Guide for the Use of Environmental Marketing Claims.

J. Renewable Resource: A resource that is grown, naturally replenished, or cleansed, at a rate that exceeds the depletion of the usable supply of that resource. A renewable resource can be exhausted if improperly managed. However, a renewable resource can last indefinitely with proper stewardship. Examples include trees in forests, grasses in grasslands, and fertile soil.

1.2 QUALITY ASSURANCE

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of the date of the Contract Documents, unless otherwise indicated.

C. Conflicting Requirements: Where compliance with two or more standards is specified, and the standards may establish different or conflicting requirements for minimum quantities or quality levels comply with the most stringent requirement. Refer uncertainties and requirements that are different, but equal, to Contracting Officer for a decision before proceeding.

1.3 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of the date of the Contract Documents unless otherwise indicated.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.4 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Thomson Gale's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."

B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

AA	Aluminum Association (The) www.aluminum.org	(703) 358-2960
AABC	Associated Air Balance Council www.aabchq.com	(202) 737-0202
AAMA	American Architectural Manufacturers Association www.aamanet.org	(847) 303-5664
AASHTO	American Association of State Highway & Transportation Officials www.transportation.org	(202) 624-5800
AATCC	American Association of Textile Chemists & Colorists www.aatcc.org	(919) 549-8141
ABAA	Air Barrier Association of America www.airbarrier.org	(866) 956-5888
ABMA	American Bearing Manufacturers Association www.abma-dc.org	(202) 367-1155
ACI	American Concrete Institute www.concrete.org	(248) 848-3700
ACPA	American Concrete Pipe Association www.concrete-pipe.org	(972) 506-7216
AEIC	Association of Edison Illuminating Companies, Inc. (The) www.aeic.org	(205) 257-2530
AF&PA	American Forest & Paper Association www.afandpa.org	(800) 878-8878 (202) 463-2700
AGA	American Gas Association www.aga.org	(202) 824-7000
AHAM	Association of Home Appliance Manufacturers www.aham.org	(202) 872-5955
AHRI	Air-Conditioning, Heating, & Refrigeration Institute, The www.ahrinet.org	(703) 524-8800
AI	Asphalt Institute www.asphaltinstitute.org	(859) 288-4960
AIA	American Institute of Architects (The) www.aia.org	(800) 242-3837 (202) 626-7300

AISC	American Institute of Steel Construction www.aisc.org	(800) 644-2400 (312) 670-2400
AISI	American Iron & Steel Institute www.steel.org	(202) 452-7100
AITC	American Institute of Timber Construction www.aitc-glulam.org	(303) 792-9559
ALSC	American Lumber Standard Committee, Incorporated www.alsc.org	(301) 972-1700
AMCA	Air Movement & Control Association International, Inc. www.amca.org	(847) 394-0150
ANSI	American National Standards Institute www.ansi.org	(202) 293-8020
AOSA	Association of Official Seed Analysts, Inc. www.aosaseed.com	(405) 780-7372
APA	APA - The Engineered Wood Association www.apawood.org	(253) 565-6600
APA	Architectural Precast Association www.archprecast.org	(239) 454-6989
API	American Petroleum Institute www.api.org	(202) 682-8000
ARI	Air-Conditioning & Refrigeration Institute www.ari.org	(703) 524-8800
ARMA	Asphalt Roofing Manufacturers Association www.asphaltroofing.org	(202) 207-0917
ASCE	American Society of Civil Engineers www.asce.org	(800) 548-2723 (703) 295-6300
ASCE/SEI	American Society of Civil Engineers/Structural Engineering Institute (See ASCE)	
ASHRAE	American Society of Heating, Refrigerating & Air-Conditioning Engineers www.ashrae.org	(800) 527-4723 (404) 636-8400
ASME	ASME International (American Society of Mechanical Engineers International) www.asme.org	(800) 843-2763 (973) 882-1170

ASSE	American Society of Sanitary Engineering www.asse-plumbing.org	(440) 835-3040
ASTM	ASTM International (American Society for Testing and Materials International) www.astm.org	(610) 832-9500
ATIS	Alliance for Telecommunications Industry Solutions www.atis.org	(202) 628-6380
AWCMA	American Window Covering Manufacturers Association (Now WCMA)	
AWCI	Association of the Wall & Ceiling Industry www.awci.org	(703) 534-8300
AWI	Architectural Woodwork Institute www.awinet.org	(571) 323-3636
AWPA	American Wood Protection Association (Formerly: American Wood Preservers' Association) www.awpa.com	(205) 733-4077
AWS	American Welding Society www.aws.org	(800) 443-9353 (305) 443-9353
AWWA	American Water Works Association www.awwa.org	(800) 926-7337 (303) 794-7711
BHMA	Builders Hardware Manufacturers Association www.buildershardware.com	(212) 297-2122
BIA	Brick Industry Association (The) www.bia.org	(703) 620-0010
BICSI	BICSI, Inc. www.bicsi.org	(800) 242-7405 (813) 979-1991
BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International) www.bifma.com	(616) 285-3963
BISSC	Baking Industry Sanitation Standards Committee www.bissc.org	(866) 342-4772
CCC	Carpet Cushion Council www.carpetcushion.org	(610) 527-3880
CDA	Copper Development Association www.copper.org	(800) 232-3282 (212) 251-7200

CEA	Canadian Electricity Association www.canelect.ca	(613) 230-9263
CEA	Consumer Electronics Association www.ce.org	(866) 858-1555 (703) 907-7600
CFFA	Chemical Fabrics & Film Association, Inc. www.chemicalfabricsandfilm.com	(216) 241-7333
CGA	Compressed Gas Association www.cganet.com	(703) 788-2700
CIMA	Cellulose Insulation Manufacturers Association www.cellulose.org	(888) 881-2462 (937) 222-2462
CISCA	Ceilings & Interior Systems Construction Association www.cisca.org	(630) 584-1919
CISPI	Cast Iron Soil Pipe Institute www.cispi.org	(423) 892-0137
CLFMI	Chain Link Fence Manufacturers Institute www.chainlinkinfo.org	(301) 596-2583
CPA	Composite Panel Association www.pbmdf.com	 (703) 724-1128
CRI	Carpet & Rug Institute (The) www.carpet-rug.com	(800) 882-8846 (706) 278-3176
CRRC	Cool Roof Rating Council www.coolroofs.org	(866) 465-2523 (510) 485-7175
CRSI	Concrete Reinforcing Steel Institute www.crsi.org	(847) 517-1200 (800) 328-6306
CRSMCA	Carolinas Roofing and Sheet Metal Contractors Association https://crsmca.org/	(704) 556-1228
CRRC	Cool Roof Rating Council www.coolroofs.org	(866) 465-2523 (510) 485-7175
CSA	Canadian Standards Association www.csa.ca	(800) 463-6727 (416) 747-4000
CSA	CSA International (Formerly: IAS - International Approval Services) www.csa-international.org	(866) 797-4272 (416) 747-4000
CSI	Construction Specifications Institute (The) www.csinet.org	(800) 689-2900 (703) 684-0300

CSSB	Cedar Shake & Shingle Bureau www.cedarbureau.org	(604) 820-7700
CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute) www.cti.org	(281) 583-4087
DHI	Door & Hardware Institute www.dhi.org	(703) 222-2010
ECA	Electrical Components Association www.ec-central.org	(703)907-8024
EIA	Electronic Industries Alliance www.eia.org	(703) 907-7500
EIMA	EIFS Industry Members Association www.eima.com	(800) 294-3462 (770) 968-7945
EJCDC	Engineers Joint Contract Documents Committee http://content.asce.org/ejcdc/	(703) 295-6000
EJMA	Expansion Joint Manufacturers Association, Inc. www.ejma.org	(914) 332-0040
ESD	ESD Association (Electrostatic Discharge Association) www.esda.org	(315) 339-6937
ETL SEMCO	Intertek ETL SEMCO (Formerly: ITS - Intertek Testing Service NA) www.intertek-etlsemko.com	(800) 967-5352
FIBA	Federation Internationale de Basketball (The International Basketball Federation) www.fiba.com	41 22 545 00 00
FIVB	Federation Internationale de Volleyball (The International Volleyball Federation) www.fivb.ch	41 21 345 35 35
FM Approvals	FM Approvals LLC www.fmglobal.com	(781) 762-4300
FM Global	FM Global (Formerly: FMG - FM Global) www.fmglobal.com	(401) 275-3000
FSA	Fluid Sealing Association www.fluidsealing.com	(610) 971-4850

FSC	Forest Stewardship Council www.fsc.org	49 228 367 66 0
GA	Gypsum Association www.gypsum.org	(301) 277-8686
GANA	Glass Association of North America www.glasswebsite.com	(785) 271-0208
GRI	(Part of GSI)	
GS	Green Seal www.greenseal.org	(202) 872-6400
GSI	Geosynthetic Institute www.geosynthetic-institute.org	(610) 522-8440
HI	Hydronics Institute www.gamanet.org	(908) 464-8200
HI/GAMA	Hydronics Institute/Gas Appliance Manufacturers Association Division of Air-Conditioning, Heating, and Refrigeration Institute (AHRI) www.ahrinet.org	(908) 464-8200
HMMA	Hollow Metal Manufacturers Association (Part of NAAMM)	
HPVA	Hardwood Plywood & Veneer Association www.hpva.org	(703) 435-2900
HPW	H. P. White Laboratory, Inc. www.hpwhite.com	(410) 838-6550
IAPSC	International Association of Professional Security Consultants www.iapsc.org	(515) 282-8192
ICBO	International Conference of Building Officials www.iccsafe.org	(888) 422-7233
ICEA	Insulated Cable Engineers Association, Inc. www.icea.net	(770) 830-0369
ICRI	International Concrete Repair Institute, Inc. www.icri.org	(847) 827-0830
ICPA	International Cast Polymer Association www.icpa-hq.org	(703) 525-0320
IEC	International Electrotechnical Commission www.iec.ch	41 22 919 02 11

IEEE	Institute of Electrical & Electronics Engineers, Inc. (The) www.ieee.org	(212) 419-7900
IES	Illuminating Engineering Society of North America www.iesna.org	(703) 525-0320
IEST	Institute of Environmental Sciences and Technology www.iest.org	(847) 255-1561
IGMA	Insulating Glass Manufacturers Alliance www.igmaonline.org	(613) 233-1510
ILI	Indiana Limestone Institute of America, Inc. www.iliai.com	(812) 275-4426
ISA	Instrumentation, Systems, & Automation Society, The www.isa.org	(919) 549-8411
ISO	International Organization for Standardization www.iso.ch	41 22 749 01 11
ISSFA	International Solid Surface Fabricators Association www.issfa.net	(877) 464-7732 (801) 341-7360
ITS	Intertek Testing Service NA (Now ETL SEMCO)	
ITU	International Telecommunication Union www.itu.int/home	41 22 730 51 11
KCMA	Kitchen Cabinet Manufacturers Association www.kcma.org	(703) 264-1690
LGSEA	Light Gauge Steel Engineers Association www.arcat.com	(202) 263-4488
LMA	Laminating Materials Association (Now part of CPA)	
LPI	Lightning Protection Institute www.lightning.org	(800) 488-6864
MBMA	Metal Building Manufacturers Association www.mbma.com	(216) 241-7333
MCA	Metal Construction Association www.metalconstruction.org	(847) 375-4718
MFMA	Maple Flooring Manufacturers Association, Inc. www.maplefloor.org	(888) 480-9138

MFMA	Metal Framing Manufacturers Association, Inc. www.metalframingmfg.org	(312) 644-6610
MH	Material Handling (Now MHIA)	
MHIA	Material Handling Industry of America www.mhia.org	(800) 345-1815 (704) 676-1190
MIA	Marble Institute of America www.marble-institute.com	(440) 250-9222
MPI	Master Painters Institute www.paintinfo.com	(888) 674-8937 (604) 298-7578
MSS	Manufacturers Standardization Society of The Valve & Fittings Industry Inc. www.mss-hq.com	(703) 281-6613
NAAMM	National Association of Architectural Metal Manufacturers www.naamm.org	(630) 942-6591
NACE	NACE International (National Association of Corrosion Engineers International) www.nace.org	(800) 797-6223 (281) 228-6200
NADCA	National Air Duct Cleaners Association www.nadca.com	(202) 737-2926
NAGWS	National Association for Girls & Women in Sport www.aahperd.org/nagws/	(800) 213-7193, ext. 453
NAIMA	North American Insulation Manufacturers Association www.naima.org	(703) 684-0084
NBGQA	National Building Granite Quarries Association, Inc. www.nbgqa.com	(800) 557-2848
NCAA	National Collegiate Athletic Association (The) www.ncaa.org	(317) 917-6222
NCMA	National Concrete Masonry Association www.ncma.org	(703) 713-1900
NCTA	National Cable & Telecommunications Association www.ncta.com	(202) 222-2300
NEBB	National Environmental Balancing Bureau www.nebb.org	(301) 977-3698

NECA	National Electrical Contractors Association www.necanet.org	(301) 657-3110
NeLMA	Northeastern Lumber Manufacturers' Association www.nelma.org	(207) 829-6901
NEMA	National Electrical Manufacturers Association www.nema.org	(703) 841-3200
NETA	InterNational Electrical Testing Association www.netaworld.org	(888) 300-6382 (269) 488-6382
NFHS	National Federation of State High School Associations www.nfhs.org	(317) 972-6900
NFPA	NFPA (National Fire Protection Association) www.nfpa.org	(800) 344-3555 (617) 770-3000
NFRC	National Fenestration Rating Council www.nfrc.org	(301) 589-1776
NGA	National Glass Association www.glass.org	(866) 342-5642 (703) 442-4890
NHLA	National Hardwood Lumber Association www.natlhardwood.org	(800) 933-0318 (901) 377-1818
NLGA	National Lumber Grades Authority www.nlga.org	(604) 524-2393
NOFMA	NOFMA: The Wood Flooring Manufacturers Association (Formerly: National Oak Flooring Manufacturers Association) www.nofma.org	(901) 526-5016
NOMMA	National Ornamental & Miscellaneous Metals Association www.nomma.org	(888) 516-8585
NRCA	National Roofing Contractors Association www.nrca.net	(800) 323-9545 (847) 299-9070
NRMCA	National Ready Mixed Concrete Association www.nrmca.org	(888) 846-7622 (301) 587-1400
NSF	NSF International (National Sanitation Foundation International) www.nsf.org	(800) 673-6275 (734) 769-8010
NSSGA	National Stone, Sand & Gravel Association www.nssga.org	(800) 342-1415 (703) 525-8788

NTMA	National Terrazzo & Mosaic Association, Inc. (The) www.ntma.com	(800) 323-9736 (540) 751-0930
NWFA	National Wood Flooring Association www.nwfa.org	(800) 422-4556 (636) 519-9663
PCI	Precast/Prestressed Concrete Institute www.pci.org	(312) 786-0300
PDI	Plumbing & Drainage Institute www.pdionline.org	(800) 589-8956 (978) 557-0720
PGI	PVC Geomembrane Institute http://pgi-tp.cee.uiuc.edu	(217) 333-3929
PPI	Plastic Pipe Institute http://www.plasticpipe.org/	(469) 499-1044
PTI	Post-Tensioning Institute www.post-tensioning.org	(248) 848-3180
RCSC	Research Council on Structural Connections www.boltcouncil.org	
RFCI	Resilient Floor Covering Institute www.rfci.com	 (706) 882-3833
RIS	Redwood Inspection Service www.redwoodinspection.com	 (925) 935-1499
SAE	SAE International www.sae.org	(877) 606-7323 (724) 776-4841
SCAQMD	South Coast Air Quality Management District www.aqmd.com	(909) 396-2000
SCTE	Society of Cable Telecommunications Engineers www.scte.org	(800) 542-5040 (610) 363-6888
SDI	Steel Deck Institute www.sdi.org	(847) 458-4647
SDI	Steel Door Institute www.steeldoor.org	(440) 899-0010
SEFA	Scientific Equipment & Furniture Association www.sefalabs.com	(877) 294-5424 (516) 294-5424
SEI/ASCE	Structural Engineering Institute/American Society of Civil Engineers (See ASCE)	

SIA	Security Industry Association www.siaonline.org	(866) 817-8888 (703) 683-2075
SJI	Steel Joist Institute www.steeljoist.org	(843) 626-1995
SMA	Screen Manufacturers Association www.smacentral.org	(561) 533-0991
SMACNA	Sheet Metal & Air Conditioning Contractors' National Association www.smacna.org	(703) 803-2980
SMPTE	Society of Motion Picture & Television Engineers www.smpte.org	(914) 761-1100
SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division) www.sprayfoam.org	(800) 523-6154
SPIB	Southern Pine Inspection Bureau (The) www.spib.org	(850) 434-2611
SPRI	Single Ply Roofing Industry www.spri.org	(781) 647-7026
SSINA	Specialty Steel Industry of North America www.ssina.com	(800) 982-0355 (202) 342-8630
SSPC	SSPC: The Society for Protective Coatings www.sspc.org	(877) 281-7772 (412) 281-2331
STI	Steel Tank Institute www.steeltank.com	(847) 438-8265
SWI	Steel Window Institute www.steelwindows.com	(216) 241-7333
SWPA	Submersible Wastewater Pump Association www.swpa.org	(847) 681-1868
TCA	Tilt-Up Concrete Association www.tilt-up.org	(319) 895-6911
TCNA	Tile Council of North America, Inc. www.tileusa.com	(864) 646-8453
TEMA	Tubular Exchanger Manufacturers Association www.tema.org	(914) 332-0040

TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance www.tiaonline.org	(703) 907-7700
TMS	The Masonry Society www.masonrysociety.org	(303) 939-9700
TPI	Truss Plate Institute, Inc. www.tpinst.org	(703) 683-1010
TPI	Turfgrass Producers International www.turfgrasssod.org	(800) 405-8873 (847) 649-5555
TRI	Tile Roofing Institute www.tileroofing.org	(312) 670-4177
UL	Underwriters Laboratories Inc. www.ul.com	(877) 854-3577 (847) 272-8800
UNI	Uni-Bell PVC Pipe Association www.uni-bell.org	(972) 243-3902
USAV	USA Volleyball www.usavolleyball.org	(888) 786-5539 (719) 228-6800
USGBC	U.S. Green Building Council www.usgbc.org	(800) 795-1747
USITT	United States Institute for Theatre Technology, Inc. www.usitt.org	(800) 938-7488 (315) 463-6463
WASTEC	Waste Equipment Technology Association www.wastec.org	(800) 424-2869 (202) 244-4700
WCLIB	West Coast Lumber Inspection Bureau www.wclib.org	(800) 283-1486 (503) 639-0651
WCMA	Window Covering Manufacturers Association www.wcmanet.org	(212) 297-2122
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window & Door Association) www.wdma.com	(800) 223-2301 (312) 321-6802
WI	Woodwork Institute (Formerly: WIC - Woodwork Institute of California) www.wicnet.org	(916) 372-9943
WMMPA	Wood Molding & Millwork Producers Association www.wmmpa.com	(800) 550-7889 (530) 661-9591

WSRCA	Western States Roofing Contractors Association www.wsrca.com	(800) 725-0333 (650) 570-5441
WWPA	Western Wood Products Association www.wwpa.org	(503) 224-3930

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

DIN	Deutsches Institut fur Normung e.V. www.din.de	49 30 2601-0
IAPMO	International Association of Plumbing & Mechanical Officials www.iapmo.org	(909) 472-4100
ICC	International Code Council www.iccsafe.org	(888) 422-7233
ICC-ES	ICC Evaluation Service, Inc. www.icc-es.org	(800) 423-6587 (562) 699-0543

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

ADAAG	Americans with Disabilities Act (ADA) Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings & Facilities Available from U.S. Access Board www.access-board.gov	(800) 872-2253 (202) 272-0080
COE	Army Corps of Engineers www.usace.army.mil	(202) 761-0011
CPSC	Consumer Product Safety Commission www.cpsc.gov	(800) 638-2772 (301) 504-7923
DOC	Department of Commerce www.commerce.gov	(202) 482-2000
DOD	Department of Defense http://dodssp.daps.dla.mil	(215) 697-6257
DOJ	Department of Justice www.justice.gov	(202) 514-2000
DOE	Department of Energy www.energy.gov	(202) 586-9220

EPA	Environmental Protection Agency www.epa.gov	(202) 272-0167
FAA	Federal Aviation Administration www.faa.gov	(866) 835-5322
FCC	Federal Communications Commission www.fcc.gov	(888) 225-5322
FDA	Food & Drug Administration www.fda.gov	(888) 463-6332
GSA	General Services Administration www.gsa.gov	(800) 488-3111
HUD	Department of Housing & Urban Development www.hud.gov	(202) 708-1112
LBL	Lawrence Berkeley National Laboratory www.lbl.gov	(510) 486-4000
NCHRP	National Cooperative Highway Research Program (See TRB)	
NIST	National Institute of Standards & Technology www.nist.gov	(301) 975-6478
OSHA	Occupational Safety & Health Administration www.osha.gov	(800) 321-6742 (202) 693-1999
PBS	Public Buildings Service (See GSA)	
PHS	Office of Public Health & Science http://www.hhs.gov/ophs/	(202) 690-7694
RUS	Rural Utilities Service (See USDA)	(202) 720-9540
SD	State Department www.state.gov	(202) 647-4000
TRB	Transportation Research Board http://gulliver.trb.org	(202) 334-2934
USDA	Department of Agriculture www.usda.gov	(202) 720-2791
USP	U.S. Pharmacopeia www.usp.org	(800) 227-8772

USPS	Postal Service www.usps.com	(202) 268-2000

E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

ADAABAAG	Americans with Disabilities Act, Architectural Barriers Act, Accessibility Guidelines www.access-board.gov	(202) 272-0080
CFR	Code of Federal Regulations Available from Government Printing Office www.gpoaccess.gov/cfr/index.html	(866) 512-1800 (202) 512-1800
DOD	Department of Defense Military Specifications & Standards Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil	(215) 697-2664
DSCC	Defense Supply Center Columbus (See FS)	
FED-STD	Federal Standard (See FS)	
FS	Federal Specification Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil/	(215) 697-2664
	Available from Defense Standardization Program www.dsp.dla.mil	
	Available from General Services Administration www.gsa.gov	(202) 619-8925
	Available from National Institute of Building Sciences www.wbdg.org/ccb	(202) 289-7800
FTMS	Federal Test Method Standard (See FS)	
MIL	(See MILSPEC)	
MIL-STD	(See MILSPEC)	
MILSPEC	Military Specification & Standards Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil	(215) 697-2664

UFAS	Uniform Federal Accessibility Standards Available from Access Board www.access-board.gov	(800) 872-2253 (202) 272-0080

F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

SCDA	South Carolina Department of Agriculture https://agriculture.sc.gov/	(803) 734-2210

1.5 ENVIRONMENTAL REFERENCE STANDARDS

A. American Forest and Paper Association:

1. Sustainable Forestry Initiative

B. American Society of Heating Refrigerating and Air Conditioning Engineers (ASHRAE):

1. ASHRAE 52.2, Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size
2. ASHRAE 55, Thermal Environmental Conditions for Human Occupancy
3. ASHRAE 62.1, Ventilation for Acceptable Indoor Air Quality
4. ASHRAE 62.2, Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings
5. ASHRAE/IESNA 90.1, Energy Standard for Buildings, Except Low-Rise Residential Buildings
6. ASHRAE 90.2, Energy Efficient Design of Low-Rise Residential Buildings

C. American Association of State Highway and Transportation Officials (AASHTO):

1. AASHTO M288 Geotextile Specification for Highway Applications
2. MP009-06 Standard Specification for Compost for Erosion/Sediment Control (Filter Berms and Filter Socks)
3. MP010-03 Standard Specification for Compost for Erosion/Sediment Control (Compost Blankets)

D. American Society for Testing and Materials International (ASTM):

1. A478 Standard Specification for Chromium-Nickel Stainless Steel Weaving and Knitting Wire
2. A580/A580M Standard Specification for Stainless Steel Wire
3. A653/A653M Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
4. B813 Standard Specification for Liquid and Paste Fluxes for Soldering of Copper and Copper Alloy Tube
5. C1240 Standard Specification for Silica Fume Used in Cementitious Mixtures

6. C128 Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Fine Aggregate
7. C131 Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
8. C1319 Standard Specification for Concrete Grid Paving Units
9. C1338 Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings
10. C136 Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
11. C1371 Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers
12. C1386 Standard Specification for Precast Autoclaved AERATED Concrete (PAAC) Wall Construction Units
13. C1483 Standard Specification for Exterior Solar Radiation Control Coatings on Buildings
14. C1549 Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer
15. C1601 Standard Test Method for Field Determination of Water Penetration of Masonry Wall Surfaces
16. C289 Standard Test Method for Potential Alkali-Silica Reactivity of Aggregates (Chemical Method)
17. C311 Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use as a Mineral Admixture in Portland-Cement Concrete
18. C33 Standard Specification for Concrete Aggregates
19. C593 Standard Specification for Fly Ash and Other Pozzolans for Use With Lime
20. C595 Standard Specification for Blended Hydraulic Cements
21. C618 Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete
22. C67 Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile
23. C739 Standard Specification for Cellulosic Fiber (Wood-Base) Loose-Fill Thermal Insulation
24. C936 Standard Specification for Interlocking Concrete Paver Units
25. C989 Standard Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars
26. D1435 Standard Practice for Outdoor Weathering of Plastics
27. D1557 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3(2,700 kN-m/m3))
28. D1972 Standard Practice for Generic Marking of Plastic Products
29. D198 Standard Test Methods of Static Tests of Lumber in Structural Sizes
30. D2103 Standard Specification for Polyethylene Film and Sheeting
31. D217 Standard Test Methods for Cone Penetration of Lubricating Grease
32. D2369 Standard Test Method for Volatile Content of Coatings
33. D3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
34. D3786 Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method
35. D3792 Standard Test Method for Water Content of Coatings by Direct Injection Into a Gas Chromatograph
36. D3864 Standard Guide for Continual On-Line Monitoring Systems for Water Analysis
37. D3960 Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings
38. D4017 Standard Test Method for Water in Paints and Paint Materials by Karl Fischer Method

39. D4263 Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method
40. D4444 Standard Test Methods for Use and Calibration of Hand-Held Moisture Meters
41. D4491 Standard Test Methods for Water Permeability of Geotextiles by Permittivity
42. D4552 Standard Practice for Classifying Hot-Mix Recycling Agents
43. D4632 Standard Test Method for Grab Breaking Load and Elongation of Geotextiles
44. D4716 Test Method for Determining the (In-plane) Flow Rate per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head
45. D4833 Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Product
46. D4840 Standard Guide for Sampling Chain-of-Custody Procedures
47. D4887 Standard Test Method for Preparation of Viscosity Blends for Hot Recycled Bituminous Materials
48. D5106 Standard Specification for Steel Slag Aggregates for Bituminous Paving Mixtures
49. D5116 Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions from Indoor Materials/Products
50. D5199 Standard Test Method for Measuring the Nominal Thickness of Geosynthetics
51. D5261 Standard Test Method for Measuring Mass per Unit Area of Geotextiles
52. D5268 Standard Specification for Topsoil Used for Landscaping Purposes
53. D5359 Standard Specification for Glass Cullet Recovered from Waste for Use in Manufacture of Glass Fiber
54. D5505 Standard Practice for Classifying Emulsified Recycling Agents
55. D5509 Standard Practice for Exposing Plastics to a Simulated Compost Environment
56. D5512 Standard Practice for Exposing Plastics to a Simulated Compost Environment Using an Externally Heated Reactor
57. D5539 Standard Specification for Seed Starter Mix
58. D5957 Standard Guide for Flood Testing Horizontal Waterproofing Installations
59. D5603 Standard Classification for Rubber Compounding Materials—Recycled Vulcanizate Particulate Rubber
60. D5663 Standard Guide for Validating Recycled Content in Packaging Paper and Paperboard
61. D5759 Standard Guide for Characterization of Coal Fly Ash and Clean Coal Combustion Fly Ash for Potential Uses
62. D5792 Standard Practice for Generation of Environmental Data Related to Waste Management Activities: Development of Data Quality Objectives
63. D5834 Standard Guide for Source Reduction Reuse, Recycling, and Disposal of Solid and Corrugated Fiberboard (Cardboard)
64. D5851 Standard Guide for Planning and Implementing a Water Monitoring Program
65. D5852 Standard Test Method for Erodibility Determination of Soil in the Field or in the Laboratory by the Jet Index Method
66. D6002 Standard Guide for Assessing the Compostability of Environmentally Degradable Plastics
67. D6006 Standard Guide for Assessing Biodegradability of Hydraulic Fluid
68. D6007 Standard Test Method for Determining Formaldehyde Concentration in Air from Wood Products Using a Small Scale Chamber
69. D6046 Standard Classification of Hydraulic Fluids for Environmental Impact
70. D6081 Standard Practice for Aquatic Toxicity Testing of Lubricants: Sample Preparation and Results Interpretation
71. D6108 Standard Test Method for Compressive Properties of Plastic Lumber and Shapes
72. D6109 Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastic Lumber

73. D6112 Standard Test Methods for Compressive and Flexural creep and Creep-Rupture of Plastic Lumber and Shapes
74. D6117 Standard Test Methods for Mechanical Fasteners In Plastic Lumber and Shapes
75. D6155 Standard Specification for Nontraditional Coarse Aggregates for Bituminous Paving Mixtures
76. D6245 Standard Guide for Using Indoor Carbon Dioxide Concentrations to Evaluate Indoor Air Quality and Ventilation
77. D6261 Standard Specification for Extruded and Compression Molded Basic Shapes Made from Thermoplastic Polyester (TPES)
78. D6262 Standard Specification for Extruded, Compression Molded, and Injection Molded Basic Shapes of Poly(aryl ether ketone) (PAEK)
79. D6270 Standard Practice for Use of Scrap Tires in Civil Engineering Applications
80. D6329 Standard Guide for Developing Methodology for Evaluating the Ability of Indoor Materials to Support Microbial Growth Using Static Environmental Chambers
81. D6330 Standard Practice for Determination of Volatile Organic Compounds (Excluding Formaldehyde) Emissions from Wood-Based Panels Using Small Environmental Chambers Under Defined Test Conditions
82. D6345 Standard Guide for Selection of Methods for Active, Integrative Sampling of Volatile Organic Compounds in Air
83. D6400 Standard Specification for Compostable Plastics
84. D6435 Standard Test Method for Shear Properties of Plastic Lumber and Plastic Lumber Shapes
85. D6629 Standard Guide for Selection of Methods for Estimating Soil Loss by Erosion
86. D6662 Standard Specification for Polyolefin-Based Plastic Lumber Decking Boards
87. D6712 Standard Specification for Ultra-High-Molecular-Weight Polyethylene (UHMW-PE) Solid Plastic Shapes
88. D6886 Standard Test Method for Speciation of the Volatile Organic Compounds (VOCs) in Low VOC Content Waterborne Air-Dry Coatings by Gas Chromatography
89. D692 Standard Specification for Coarse Aggregate for Bituminous Paving Mixtures
90. D696 Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30°C and 30°C With a Vitreous Silica Dilatometer
91. D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3))
92. D7186 Standard Practice for Quality Assurance Observation of Roof Construction and Repair
93. E1021 Standard Test Methods for Measuring Spectral Response of Photovoltaic Cells
94. E1038 Standard Test Method for Determining Resistance of Photovoltaic Modules to Hail by Impact with Propelled Ice Balls
95. E1039 Standard Test Method for Calibration of Silicon Non-Concentrator Photovoltaic Primary Reference Cells Under Global Irradiation
96. E1040 Standard Specification for Physical Characteristics of Nonconcentrator Terrestrial Photovoltaic Reference Cells
97. E1105 Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform or Cyclic Static Air Pressure Difference
98. E1171 Standard Test Method for Photovoltaic Modules in Cyclic Temperature and Humidity Environments
99. E1333 Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates from Wood Products Under Defined Test Conditions Using a Large Chamber

100. E1362 Standard Test Method for Calibration of Non-Concentrator Photovoltaic Secondary Reference Cells
101. E1433 Standard Guide for Selection of Standards on Environmental Acoustics
102. E1462 Standard Test Methods for Insulation Integrity and Ground Path Continuity of Photovoltaic Modules
103. E1596 Standard Test Methods for Solar Radiation Weathering of Photovoltaic Modules
104. E1597 Standard Test Method for Saltwater Pressure Immersion and Temperature Testing of Photovoltaic Modules for Marine Environments
105. E1609 Standard Guide for Development and Implementation of a Pollution Prevention Program
106. E1686 Standard Guide for Selection of Environmental Noise Measurements and Criteria
107. E1690 Standard Test Method for Determination of Ethanol Extractives in Biomass
108. E1721 Standard Test Method for Determination of Acid-Insoluble Residue in Biomass
109. E1755 Standard Test Method for Ash in Biomass
110. E1758 Standard Test Method for Determination of Carbohydrates in Biomass by High-Performance Liquid Chromatography
111. E1780 Standard Guide for Measuring Outdoor Sound Received from a Nearby Fixed Source
112. E1799 Standard Practice for Visual Inspections of Photovoltaic Modules
113. E1802 Standard Test Methods for Wet Insulation Integrity Testing of Photovoltaic Modules
114. E1821 Standard Test Method for Determination of Carbohydrates in Biomass by Gas Chromatography
115. E1827 Standard Test Methods for Determining Airtightness of Buildings Using an Orifice Blower Door
116. E1830 Standard Test Methods for Determining Mechanical Integrity of Photovoltaic Modules
117. E1861 Standard Guide for Use of Coal Combustion By-Products in Structural Fills
118. E1918 Standard Test Method for Measuring Solar Reflectance of Horizontal and Low-Sloped Surfaces in the Field
119. E1971 Standard Guide for Stewardship for the Cleaning of Commercial and Institutional Buildings
120. E1980 Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces
121. E1991 Standard Guide for Environmental Life Cycle Assessment of Building Materials/Products
122. E2047 Standard Test Method for Wet Insulation Integrity Testing of Photovoltaic Arrays
123. E2114 Standard Terminology for Sustainability Relative to the Performance of Buildings
124. E2128 Standard Guide for Evaluating Water Leakage of Building Walls
125. E2129 Standard Practice for Data Collection for Sustainability Assessment of Building Products
126. E2397 Standard Practice for Determination of Dead Loads and Live Loads associated with Green Roof Systems
127. E2398 Standard Test Method for Water Capture and Media Retention of Geocomposite Drain Layers for Green Roof Systems
128. E2399 Standard Test Method for Maximum Media Density for Dead Load Analysis of Green Roof Systems
129. E2400 Standard Guide for Selection, Installation, and Maintenance of Plants for Green Roof Systems
130. E241 Standard Guide for Limiting Water-Induced Damage to Buildings
131. E2432 Standard Guide for General Principles of Sustainability Relative to Buildings
132. E408 Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection-Meter Techniques

133. E413 Standard Classification for Rating Sound Insulation
134. E477 Standard Test Method for Measuring Acoustical and Airflow Performance of Duct Liner Materials and Prefabricated Silencers
135. E648 Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source
136. E683 Standard Practice for Installation and Service of Solar Space Heating Systems for One- and Two-Family Dwellings
137. E779 Standard Test Method for Determining Air Leakage Rate by Fan Pressurization
138. E781 Standard Practice for Evaluating Absorptive Solar Receiver Materials When Exposed to Conditions Simulating Stagnation in Solar Collectors With Cover Plates
139. E782 Standard Practice for Exposure of Cover Materials for Solar Collectors to Natural Weathering Under Conditions Simulating Operational Mode
140. E823 Standard Practice for Nonoperational Exposure and Inspection of a Solar Collector
141. E881 Standard Practice for Exposure of Solar Collector Cover Materials to Natural Weathering Under Conditions Simulating Stagnation Mode
142. E90 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
143. E903 Standard Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres
144. E948 Standard Test Method for Electrical Performance of Photovoltaic Cells Using Reference Cells Under Simulated Sunlight
145. F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
146. F2034 Standard Specification for Sheet Linoleum Floor Covering
147. F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes

E. Bat Conservation International:

1. Bat Approved Bat Houses

F. Carpet and Rug Institute

1. Green Label Testing Programs
2. Green Label Plus Testing Programs

G. Center for Resource Solutions

1. Green-e program

H. EPA:

1. Comprehensive Procurement Guidelines
2. ENERGY STAR
3. Environmentally Preferable Purchasing Program Final Guidance
4. GreenScapes program
5. Heat Island Initiative
6. Indoor Air Quality Building Education and Assessment Model (I-BEAM)
7. National Environmental Performance Track
8. Pollution Prevention (P2)

9. Product Stewardship Program
10. Significant New Alternatives Policy (SNAP) Program

I. Federal Trade Commission:

1. Guide for the Use of Environmental Marketing Claims

J. Forest Stewardship Council:

1. Chain-Of-Custody
2. Forest Management

K. Green Building Initiative (GBI):

1. Green Globes – US

L. Green Seal:

1. GC-03 Anti-Corrosive Paints
2. GC-12 Occupancy Sensors
3. GC-13 Split-Ductless Air-Source Heat Pumps
4. GS-05 Compact Fluorescent Lamps
5. GS-11 Paints
6. GS-13 Windows
7. GS-14 Window Films
8. GS-31 Electric Chillers
9. GS-32 Photovoltaic Modules
10. GS-36 Commercial Adhesives
11. GS-37 Industrial & Institutional Cleaners

M. International Iron and Steel Institute:

1. CO2 Breakthrough Program

N. International Organization of Standardization:

1. Guide 64; Guide for Inclusion of Environmental Aspects in Product Standards
2. 9660 Information processing -- Volume and file structure of CD-ROM for information interchange
3. 14001 Environmental management systems – Specification with guidance for use
4. 14004 Environmental Management Systems – General Guidelines on Principles, Systems and Supporting Techniques
5. 14020 Environmental labels and declarations – General principles
6. 14024 Environmental labels and declarations – Type I environmental labeling - Principles and procedures
7. 14040 Environmental management – Life cycle assessment – Principles and framework

O. National Association of Home Builders:

1. Advanced Framing Techniques: Optimum Value Engineering

P. National Institute of Building Sciences:

1. MOIST program for the transfer of heat and moisture
2. Whole Building Design Guide

Q. National Institute of Standards and Technology:

1. BEES (Building for Environmental and Economic Sustainability) Lifecycle Decision Support Tool

R. Sheet Metal and Air Conditioning Contractors' National Association:

1. IAQ Guidelines for Occupied Buildings Under Construction

S. Southcoast Air Quality Management District:

1. 1168 Adhesive And Sealant Applications

T. US Composting Council:

1.6 SEAL OF TESTING ASSURANCE PROGRAM

A. US Department of Agriculture:

1. Biobased Products – Definitions and Descriptions

B. US Green Building Council:

1. LEED™ 2009 Green Building Rating System

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES & CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. This section includes requirements for temporary utilities, support facilities, and security and protection facilities.

1.2 DEFINITIONS

A. Permanent Enclosure: As determined by Contracting Officer, permanent or temporary roofing is complete, insulated, and weathertight; exterior walls are insulated and weathertight, and all openings are closed with permanent construction or substantial temporary closures.

1.3 USE CHARGES

A. General: Cost or use charges for temporary facilities shall be included in the Contract Sum as required.

B. Water Service: Potable water service is available from facilities at or near the project site for use on the contract. Provide all connections and extensions of services with proper backflow prevention devices in compliance with AWWA standards and local regulations. Water will be provided by NPS at no cost to the contractor. Water conservation is encouraged.

C. Electric Power Service: Commercial power is available from facilities at or near the project site for use on the contract on site. The contractor may make a connection, meter, and pay for costs.

D. Sanitary Facilities: Restrooms are not available at the site. The contractor shall supply 12 properly ventilated, weather-proof, lockable, portable toilets and wash stations. The contractor shall properly pump/empty these toilets regularly and keep the toilet and wash station clean so as not to attract insects/animals. Portable toilet and wash station is to be stationed at the staging area.

E. Contractor shall provide trash services for the duration of the construction process.

1.4 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Environmental Protection: Provide environmental protection as required by authorities having jurisdiction and as indicated in the Contract Documents. Coordinate with the requirements of the following:

1. Regulatory Requirements.

2. Noise & Acoustics Management.
3. Environmental Management.
4. Construction Waste Management.

C. Accessible Temporary Egress: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ABAAS Accessibility Guidelines.

1.5 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for the operation, maintenance, and protection of each permanent service during its use as a construction facility before NPS acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Temporary materials may be new or used but must be adequate in capacity for the required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards.

B. Pavement: Not Used. (see section 3.3.B)

C. Chain-Link Fencing: Minimum 2-inch (50 mm), 0.148-inch- (3.76 mm-) thick, galvanized steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized steel pipe posts; minimum 2-3/8 inch- (60 mm-) OD line posts and 2-7/8 inch- (73 mm-) OD corner and pull posts, with 1-5/8-inch- (42 mm-) OD top rails and galvanized barbed-wire top strand.

D. Portable Chain-Link Fencing: Minimum 2-inch (50 mm), 9 gage, galvanized steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized steel pipe posts; minimum 2-3/8 inch- (60 mm-) OD line posts and 2-7/8 inch- (73 mm-) OD corner and pull posts, with 1-5/8 inch- (42 mm-) OD top and bottom rails. Provide concrete or galvanized steel bases for supporting posts.

E. Safety Barrier Fence: Orange plastic fence, minimum height, four (4) feet.

F. Barrier Tape: Yellow tape Imprinted with "CAUTION: CONSTRUCTION AREA," manufactured by Reef Industries, Inc., Houston, Texas, or approved equal.

G. Wood Enclosure Fence: Plywood, 6 feet (1.8 m) high, framed with four 2"x4" (50-by-100 mm) rails, with preservative-treated wood posts spaced not more than 8 feet (2.4 m) apart.

H. Lumber and Plywood: Not Used.

2.2 TEMPORARY FACILITIES

A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.

B. Storage and Fabrication Sheds: Offsite Temporary weather tight sheds or other covered facilities for storage of materials subject to weather damage. The number and size of structures shall be subject to Contracting Officer's approval.

C. Toilets: Contractor to supply sufficiently lighted and ventilated toilet facilities in weatherproof, sight proof, handicap accessible, sturdy enclosures with privacy locks.

1. Provide separate toilet facilities for men and women.

2.3 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

B. HVAC Equipment: Unless Contracting Officer authorizes the use of a permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.

1. The use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
2. Heating Units: Listed and labeled for the type of fuel being consumed by a testing agency acceptable to authorities having jurisdiction, and marked for the intended use.
3. Permanent HVAC System: If the Owner authorizes the use of a permanent HVAC system for temporary use during construction, provide a filter with MERV of 8 at each return air grille in the system and remove at end of construction.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Locate facilities where they will serve the Project adequately and result in minimum interference with the performance of the Work. Relocate and modify facilities as required by the progress of the Work.

1. Locate facilities to limit site disturbance and as directed by the Contracting Officer.

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.

1. Arrange with the utility company, NPS, and existing users for the time when service can be interrupted, if necessary, to make connections for temporary services.

B. Potable water for construction is available at the immediate site.

C. Water is available and will be provided by the Park. The contractor shall submit an estimate of the amount of water needed for the entire project duration. Facilities must be cleaned and maintained in a condition acceptable to the NPS. At Substantial Completion, restore these facilities to the condition existing before initial use.

D. Heating and/or Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not harm completed installations or elements being installed.

1. Provide and maintain adequate approved facilities, as required for safety and construction requirements, during the progress of the work. Provide ample clearance around stoves and heaters and all chimney and vent connections to prevent the ignition of combustible material.

E. Electric Power Service: Provide an electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.

1. Install electric power service overhead, unless otherwise indicated.

F. Lighting: Night lighting will not be allowed.

G. Telephone Service: No telephone service is available on site for the Contractor's use.

1. Cell phone service may be available on-site, depending on the service provider.

3.3 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Provide incombustible construction for offices, shops, and sheds located within the construction area or within 50 feet of building lines. Comply with NFPA 241.

2. Maintain support facilities until near Substantial Completion. Remove structures, equipment, and furnishings, and terminate services after the punch list is 100% completed or when directed by Contracting Officer. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Contracting Officer.

B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas within construction limits indicated on Drawings.

1. Provide dust-control treatment that is nonpolluting and non-tracking. Reapply treatment as required to minimize dust.

C. Traffic Controls: Erect and maintain barricades, lights, danger signals, and warning signs following Manual on Uniform Traffic Control Devices (MUTCD), the latest edition.

1. Protect existing site improvements to remain including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.
3. Illuminate barricades and obstructions at night; keep safety lights burning from sunset to sunrise.
4. Adequately barricade and post open cuts in or adjacent to thoroughfares.
5. Protect pedestrian traffic by guardrails or fences.
6. When pedestrian traffic is detoured onto a roadway, provide temporary walkways with protection as required at ends and overhead. For walkways, use lumber running parallel to the direction of traffic movement and provide ramps at changes of elevation.
7. Cover pipes, hoses, and power lines crossing sidewalks and walkways with troughs using beveled edge boards.
8. Install Barrier Tape where directed by the Contracting Officer. Keep a minimum of 2 rolls on-site at all times

D. Parking: There is no on site parking that will be available for the construction staff other than loading and unloading, this is restricted to the duration of the activity. All parking will be in the parking garage near the project site. The contractor will be responsible for all fees and restrictions imposed by the parking garage.

E. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.

1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties nor endanger permanent Work or temporary facilities.
2. Remove snow and ice as required to minimize accumulations.

F. Project Identification and Temporary Signs: Provide Project identification and other signs. Fence, barricade or otherwise block off the immediate work area to prevent unauthorized entry.

1. Provide temporary, directional signs for construction personnel and visitors.
2. Maintain and touchup signs so they are legible at all times.
3. Erect and maintain sufficient detour signs at road closures and along detour routes.

G. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction.

H. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

I. Temporary Stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate.

J. Temporary Use of Permanent Stairs: Cover finished permanent stairs with a protective covering of plywood or similar material so finishes will be undamaged at the time of acceptance.

K. Contractor to provide temporary restroom facilities for staff and gests (12) restrooms one of which is ADA compliant for each sex. Thes shall be supplied any time that the building is restricted in any way this includes when the AC system is not completely functioning.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

B. Cleaning of Equipment: The Contractor shall ensure that before moving on to the Project Area, all equipment is free of soil, seeds, vegetative matter, or other debris that could contain or hold seeds. Ensure that all equipment has been pressure washed and is free of exotic species before the start-up of operations and moving of equipment to Project Area. Equipment shall be considered free of soil, seeds, and other debris when a visual inspection does not disclose such material. Disassembly of equipment components or specialized inspection tools is not required.

C. Temporary Erosion and Sedimentation Control: Refer to Section 01 57 23 “Under-An-Acre Pollution Prevention.”

D. Tree and Plant Protection: Refer to Section 01 11 00 “Summary of Work.”

E. Pest Control: Follow NPS requirements and practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so the Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using environmentally safe materials.

F. Site Enclosure Fence: When excavation begins, furnish, and install chain link fencing or approved equivalent in a manner that will prevent people and animals from easily entering the site except by entrance gates.

1. Extent of Fence: As required to enclose the entire Project site or portion determined sufficient to accommodate construction operations.
2. Locate vehicular gates to avoid interference with traffic on public thoroughfares.
3. Locate pedestrian entrance gates as required to provide controlled personnel entry.
4. Maintain security by limiting the number of keys and restricting distribution to authorized personnel. Provide the Contracting Officer with 1 set of keys.

G. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.

H. Barricades, Warning Signs, and Lights: Comply with requirements of MUTCD, latest edition for erecting structurally adequate barricades, including warning signs and lighting.

I. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.

1. Responsible Person: A capable and qualified person shall be placed in charge of fire protection. The responsibilities shall include locating and maintaining fire protective equipment and establishing and maintaining safe torch cutting and welding procedures.
2. Smoking: Smoking within buildings or temporary storage sheds is prohibited.
3. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of NPS. Check with Park; many require "burn permits" for welding.
4. Develop and supervise an overall fire-prevention and -protection program for personnel at the Project site. Review needs with the local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
5. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.
6. Hazard Control: Take all necessary precautions to prevent fire during construction. Do not store flammable or combustible liquids in existing buildings. Provide adequate ventilation during the use of volatile or noxious substances.
   a. Spark Arresters: Equip all gasoline or diesel-powered equipment used during periods of potential fire hazards or in potential forest and grass fire locations with spark arresters approved by the USDA Forest Service.
      1) Written determinations of periods and areas of potential fire hazard will be issued by Contracting Officer.
   b. Buildings: Furnish a minimum of one extinguisher for each 1,500 square feet of area or major fraction thereof.
      1) Travel distance from any workstation to the nearest extinguisher shall not exceed 75 feet.
   c. Vehicles and Equipment: Provide one extinguisher for each vehicle or piece of equipment.
   d. Service and Refueling Areas: Locate areas a minimum of 50 feet from buildings. Shut down equipment before refueling.

3.5 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in the use of temporary facilities. To minimize waste and abuse, limit the availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

C. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid the possibility of damage.

D. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

E. Termination and Removal: Remove each temporary facility when the need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with a temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

F. Materials and facilities that constitute temporary facilities are the property of the Contractor. NPS reserves the right to take possession of Project identification signs.

G. At Substantial Completion, clean and renovate permanent facilities used during the construction period.

END OF SECTION

SECTION 01 57 19.11

INDOOR AIR QUALITY MANAGEMENT

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes:

1. Special requirements for Indoor Air Quality (IAQ) management during construction operations.
   a. Control of emissions during construction.
   b. Moisture control during construction.
2. Procedures for testing baseline IAQ. Baseline IAQ requirements specify maximum indoor pollutant concentrations for acceptance of the facility.

1.2 DEFINITIONS

A. Definitions about sustainable development: As defined in ASTM E2114.

B. Adequate ventilation: Ventilation, including air circulation and air changes, required to cure materials, dissipate humidity, and prevent the accumulation of particulates, dust, fumes, vapors, or gases.

C. Hazardous Materials: Any material that is regulated as a hazardous material following 49 CFR 173, requires a Material Safety Data Sheet (MSDS) following 29 CFR 1910.1200, or which during end-use, treatment, handling, storage, transportation, or disposal meets or has components which meet or have the potential to meet the definition of a Hazardous Waste following 40 CFR 261. Throughout this specification, hazardous material includes hazardous chemicals.

1. Hazardous materials include pesticides, biocides, and carcinogens as listed by recognized authorities, such as the Environmental Protection Agency (EPA) and the International Agency for Research on Cancer (IARC).

D. Indoor Air Quality (IAQ): The composition and characteristics of the air in an enclosed space that affects the occupants of that space. The indoor air quality of space refers to the relative quality of air in a building concerning contaminants and hazards and is determined by the level of indoor air pollution and other characteristics of the air, including those that impact thermal comforts such as air temperature, relative humidity, and airspeed.

E. Interior final finishes: Materials and products that will be exposed to interior occupied spaces; including flooring, wall covering, finish carpentry, and ceilings.

F. Packaged dry products: Materials and products that are installed in dry form and are delivered to the site in manufacturer's packaging; including carpets, resilient flooring, ceiling tiles, and insulation.

G. Wet products: Materials and products installed in wet form, including paints, sealants, adhesives, special coatings, and other materials that require curing.

1.3 SUBMITTALS

A. Indoor Air Quality (IAQ) Management Plan: After award and before the Pre-construction conference, prepare and submit an IAQ Management Plan including, but not limited to, the following:

1. Procedures for control of emissions during construction.
   a. Identify potential sources of odor and dust.
   b. Identify construction activities likely to produce odor or dust.
   c. Identify areas of project potentially affected, especially occupied areas.
   d. Evaluate potential problems by severity and describe methods of control.
   e. Describe construction ventilation to be provided, including type and duration of ventilation, use of permanent HVAC systems, types of filters, and schedule for replacement of filters.
   f. Describe cleaning and dust control procedures.
   g. Describe coordination with commissioning procedures.
2. Revise and resubmit Plan as required by the Contracting Officer.
   a. Approval of the Contractor's Plan will not relieve the Contractor of responsibility for compliance with applicable environmental regulations.

B. Product Data:

1. Safety Data Sheets (formerly Material Safety Data Sheets): Submit SDSs for inclusion in Operation and Maintenance Manual for the following products.
   a. Adhesives.
   b. Caulking and sealants.
   c. Insulating materials.
   d. Paint.
   e. Lubricants.
   f. Cleaning products.

PART 2 - PRODUCTS (Not Used)

PART 3 – EXECUTION

3.1 IAQ MANAGEMENT - EMISSIONS CONTROL

A. During construction operations, follow the recommendations in SMACNA IAQ Guidelines for Occupied Buildings Under Construction.

B. HVAC Protection:

1. Seal return registers during construction operations.

2. Provide temporary exhaust during construction operations.
3. To the greatest extent possible, isolate and/or shut down the return side of the HVAC system during construction. When the ventilation system must be operational during construction activities, provide temporary filters at all air inlets (returns) and all locations for filters prescribed in the design.
4. The contractor shall bear the cost of cleaning required due to failure to protect ducts and equipment from construction dust.

C. Source Control: Provide low and zero VOC materials as specified.

D. Pathway Interruption: Isolate areas of work as necessary to prevent contamination of clean or occupied spaces. Provide pressure differentials and/or physical barriers to protect clean or occupied spaces.

E. Housekeeping: During construction, maintain the project and building products and systems to prevent contamination of building spaces.

F. Temporary Ventilation: For materials/products that generally require ventilation for off-gassing, provide an ACH (air changes per hour) of 1.5 or more and as follows:

1. Provide a minimum of 48-hour pre-ventilation of packaged dry products before installation. Remove from packaging and ventilate in a secure, dry, well-ventilated space free from strong contaminant sources and residues. Provide a temperature range of 60 degrees F minimum to 90 degrees F maximum continuously during the ventilation period. Do not ventilate within limits of Work unless otherwise approved by the Contracting Officer.
2. Provide adequate ventilation during and after the installation of interior wet products and interior final finishes.
3. Provide filtration media with a Minimum Efficiency Reporting Value (MERV) of 8 as determined by ASHRAE 52.2 during construction and a MERV as described in the construction documents during NPS occupancy. Coordinate with work of Division 23, Heating Ventilating & Air Conditioning (HVAC).

G. Scheduling: Schedule construction operations involving wet products before packaged dry products to the greatest extent possible.

3.2 IAQ MANAGEMENT - MOISTURE CONTROL

A. Housekeeping:

1. Keep materials dry. Protect stored on-site and installed absorptive materials from moisture damage.
2. Verify that installed materials and products are dry before sealing and weatherproofing the building envelope.
3. Store interior absorptive materials only after the building envelope is sealed and weatherproofed.

B. Inspections: Document and report results of inspections; state whether or not inspections indicate satisfactory conditions.

1. Examine materials for dampness as they arrive. If acceptable to Contracting Officer, dry damp materials completely before installation; otherwise, reject materials that arrive damp.
2. Examine materials for mold as they arrive and reject materials that arrive contaminated with mold.
3. Inspect stored and installed absorptive materials regularly for dampness and mold growth. Inspect weekly.
   a. Where stored on-site or installed absorptive materials become wet, notify Contracting Officer. Inspect for damage. If acceptable to the Contracting Officer, dry completely before closing in assemblies; otherwise, remove (per the Waste Management Plan) and replace it with new materials.
4. Weatherproofing: Inspect moisture control materials as they are being installed. Include the following:
   a. Air barrier: Verify air barrier is installed without punctures and/or other damage. Verify the air barrier is sealed completely.
   b. Flashing: Verify the correct shingling of the flashing for the roof, walls, windows, doors, and other penetrations.
   c. Vapor Barrier: Verify that the vapor barrier is installed per the contract documents.
   d. Insulation layer: Verify insulation is installed without voids.
   e. Roofing: Per ASTM D7186 Standard Practice for Quality Assurance Observation of Roof Construction and Repair
5. Plumbing: Verify a satisfactory pressure test of pipes and drains is performed before closing in and insulating lines.
6. HVAC: Inspect the HVAC system as specified in Section on Commissioning. And, inspect HVAC to verify:
   a. Condensate pans are sloped and plumbed correctly;
   b. Access panels are installed to allow for inspection and cleaning of coils and ductwork downstream of coils;
   c. Ductwork and return plenums are air-sealed;
   d. Duct insulation is installed and sealed; and
   e. Chilled water line and refrigerant line insulation are installed and sealed.]

C. Testing for Moisture Content: Test moisture content of porous materials and absorptive materials to ensure that they are dry before sealing them into an assembly. Document and report the results of testing. Where tests are not satisfactory, dry materials, and retest. If satisfactory results cannot be obtained with a retest, remove and replace it with new materials.

END OF SECTION

SECTION 01 57 19.12

NOISE & ACOUSTICS MANAGEMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Special requirements for noise and acoustics management during construction operations.

1.2 DEFINITIONS

A. Ambient noise level: The total noise associated with a given environment, being usually a composite of normal or existing sounds from all sources near and far, excluding the noise source at issue.

B. Daytime: The hours from 7 A.M. to 9 P.M. on weekdays and 9 A.M. to 9 P.M. on weekends and holidays.

C. Nighttime: All non-daytime hours.

D. Property line: The real or imaginary line along the ground surface and its vertical extension, which separates real property owned or controlled by 1 person from contiguous real property owned or controlled by another person or from any public right-of-way or any public space.

E. Receiving noise area: Any real property where people live or work and where noise is heard, excluding the project or source area.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 NOISE MANAGEMENT

A. Noise Control: Perform construction operations to minimize noise. Perform noise-producing work in less sensitive hours of the day or week as directed by the Contracting Officer.

B. Repetitive and/or intermittent, high-level noise: Permitted only during Daytime.

1. Do not exceed the following dB(A) limitations at fifty (50) feet:

Sound Level in dB(A)	Time Duration of Impact Noise
70	More than 12 minutes in an hour
80	More than 3 minutes in an hour

2. Maximum permissible construction equipment noise levels at fifty (50) feet:

EARTHMOVING	dB(A)	MATERIALS HANDLING	dB(A)
Front Loaders	75	Concrete Mixers	75
Backhoes	75	Concrete Pumps	75
Dozers	75	Cranes	75
Tractors	75	Derricks Impact	75
Scrapers	80	Pile Drivers	95
Graders	75	Jack Hammers	75
Trucks	75	Rock Drills	80
Pavers, Stationary	80	Pneumatic Tools	80
Pumps	75	Saws	75
Generators	75	Vibrators	75
Compressors	75		

C. Ambient Noise:

1. Maximum noise levels (dB) for receiving noise area at the property line shall be as follows:

   a. Residential receiving area — Daytime: 65 dB; Nighttime: 45 dB

   b. Commercial/Industrial receiving area — Daytime: 67 dB; Nighttime: 65 dB

2. In the event the existing local ambient noise level exceeds the maximum allowable receiving noise level (dB), the receiving noise level maximum for construction operations shall be adjusted as follows:
   a. Residential receiving area: Maximum 3 additional dB above the local ambient as measured at the property line.
   b. Commercial/Industrial receiving area: Maximum 5 additional dB above the local ambient as measured at the property line.

3.2 FIELD QUALITY CONTROL

A. Continual noise monitoring will not be required, but the Contractor must be generally aware of and work to minimize the noise levels they are generating due to the proximity of housing in the vicinity. Assess potential effects of construction noise on facility occupants per ASTM E1686 and as follows:

1. Ambient noise measurement: Measure at the property line at a height of at least 4 feet above the immediately surrounding surface. Average the ambient noise level for at least 15 minutes.
2. Ambient noise measurement at urban sites: Conduct during morning peak traffic hour between 7 A.M. and 9 A.M. and afternoon peak traffic hour between 4 P.M. and 6 P.M. Also, conduct a 24-hour measurement at the proposed project site to document the noise pattern throughout the day. Adjust and weight for seasonal and climatic variations.

B. Monitor noise produced from construction operations following ASTM E1780.

END OF SECTION

SECTION 01 57 23

TEMPORARY STORMWATER POLLUTION CONTROL

PART 1 - GENERAL

1.1 SUMMARY

A. NPS Standards and Guidelines require that water quality be protected at all times to ensure compliance with the Organic Act. The Contractor shall prepare an Under-An-Acre Pollution Prevention Plan (UPPP) for each project resulting in less than 1 acre of soil disturbance or not otherwise subject to the requirements of the NPDES program. The UPPP template (https://www.nps.gov/dscw/upload/UnderAnAcre-UPPP_Template_3-30-16.docx) and guidelines (https://www.nps.gov/dscw/upload/UnderAnAcre-UPPP_Guideline_3-30-16_AF_120417.pdf) are available online for download.

B. The work of this section consists of implementing measures to Temporary Storm Water Pollution during construction activities in conformance with NPS guidance for UPPPs.

1.2 DEFINITIONS

A. Environmental Pollution and Damage: The presence of chemical, physical, or biological elements or agents that adversely affect human health or welfare; unfavorably alter ecological balances; or degrade the utility of the environment for aesthetic, cultural, or historical purposes.

B. UPPP: Developed and implemented pollution prevention plan (including stormwater management measures, if needed) to protect the environment from pollutants on construction projects with less than one acre of disturbance in conformance with NPS guidelines.

1.3 SUBMITTALS

A. After the contract award and before the pre-construction conference, prepare and submit:

1. A UPPP in conformance with NPS guidelines and adherence to all applicable construction stormwater management practices.

B. Inspection Schedule: Submit schedule for inspection and monitoring of all pollution prevention measures.

C. Erosion Control Products: Submit manufacturer's product information and installation recommendations for silt fence, filter fabric, erosion control blanket, straw bales, and any other materials proposed for use on this project.

1.4 QUALITY ASSURANCE

A. The Contractor shall prepare and submit a plan to the Contracting Officer (CO) for review and concurrence.

B. Orientation Meeting: The Contractor shall be responsible for arranging and conducting a Pollution Prevention meeting/briefing to inform all parties scheduled to be on-site during the project of the measures to be implemented for proper pollution prevention and control (may be included as part of the Pre-Construction Meeting).

1. Installation of silt fences, storm drain protection, and all other forms of pollution prevention controls shall not begin until after this meeting has occurred.

C. Pollution Prevention Manager: The Contractor shall designate the Pollution Prevention Manager who will be responsible for the implementation, inspection, maintenance, and amendments to the approved plan.

1. The Pollution Prevention Manager shall be familiar with UPPP procedures and Best Management Practices (BMPs) and shall ensure that emergency procedures and the plan are updated as needed and available for inspection.
2. When changes in the approved plan are required, the Pollution Prevention Manager shall prepare and certify an amendment and submit it to the CO for review and concurrence.

PART 2 - PRODUCTS

2.1 UNDER-AN-ACRE POLLUTION PREVENTION PLAN:

A. Provide a UPPP which conforms to all NPS requirements (utilize UPPP template) and include the following information and forms:

1. Responsible Parties
2. General Information: Project Scope, Project Details, Site Information, and Spill Prevention.
3. Standards and Constraints
4. Project Scheduling
5. Known Data on Soil and Fill
6. Activities with the Potential to Generate Sediment
7. Activities and Materials with the Potential to Pollute Storm Water
8. Management and Reporting BMPs
9. Waste Management BMPs
10. Non-Storm Water Pollution Control BMPs
11. Soil Stabilization BMPs
12. Sediment Control BMPs
13. Other Pollution Control BMPs
14. References
15. Preparer's Certification
16. Appendices: Contact Information, Pollution Prevention Control Map, or Sheet(s), Standard Installation Specifications for each BMP, and Blank forms.

PART 3 - EXECUTION

3.1 ENVIRONMENTAL PROTECTION

A. Protection of Natural Resources: Comply with applicable regulations and these specifications. Preserve the natural resources within the project boundaries and outside the limits of work performed under this Contract in their existing condition or restore to an equivalent or improved condition as approved by the CO.

B. Construction Zone: Arrange construction activities to minimize pollution (i.e., erosion, trash, etc.) to the maximum practical extent.

1. Clearing, excavation, and grading shall be limited to those areas of the project site necessary for construction. Minimize the area exposed and unprotected.
2. Clearly mark and delineate the limits of work activities.
3. Equipment shall not be allowed to operate outside the limits of work or to disturb existing vegetation.
4. Excavation and grading shall be completed during the dry season to the maximum extent possible
5. The material should be stored away from locations where water is present to the greatest extent practicable.

3.2 UNDER-AN-ACRE POLLUTION PREVENTION PLAN

A. Review and Acceptance: The Contractor and the CO will jointly review the draft Plan and agree to any needed revisions. The Contractor shall incorporate all revisions, sign, and submit the final Plan to the CO. The final Plan will be the document enforced on the project.

1. The accepted Plan will describe and ensure implementation of the practices which will be used to reduce the pollutants in stormwater discharges.
2. The Contractor shall maintain a current copy of the Plan and all associated records and forms at the job site throughout the project.
3. The Plan shall be available at all times for public inspection and the inspection and use of the CO.
4. Approval of the Contractor’s Plan will not relieve the Contractor of responsibility for compliance with applicable environmental regulations.

B. Implementation: Implement the Plan as required throughout the construction period and maintain all erosion control elements in proper working order.

1. Do not perform clearing and grubbing or earthwork until the Plan has been implemented.

3.3 SITE INSPECTIONS AND PLAN REVISIONS

A. Inspections: The Contractor and the CO will perform a weekly inspection of the site.

1. The inspection shall include disturbed areas that have not been completely stabilized, areas used for storage of materials, locations where vehicles enter or exit the site, and all other erosion and sediment controls that are included in the Plan.

2. Inspections shall be documented.
3. The inspection forms shall be retained onsite in the Plan notebook throughout the construction period.

B. Plan Revisions: It may be necessary to revise the Plan during construction to make necessary improvements, revisions, or to respond to unforeseen conditions noted during construction or site inspections.

1. The Plan shall specify the mechanism whereby revisions may be proposed by the Contractor or the CO.
2. The Contractor and the CO will jointly review each revision to the Plan before changes are incorporated and implemented. The Contractor will then provide a revised copy of the Plan to the CO.
3. Accepted modifications will be implemented within 7 calendar days following the date of the inspection when deficiencies or necessary corrections are first noted.

C. Negligence: Provide additional temporary erosion and pollution controls made necessary by the Contractor's errors or negligence at no additional cost to the Government.

3.4 EROSION CONTROL MEASURES

A. Erosion control measures shall consist of all BMPs for stormwater discharges, including but not limited to silt fencing, barrier protectors, straw bales, temporary soil retention blankets, excelsior drainage filters, sediment traps, and berms.

B. Berms and excelsior drainage filters shall be used to form sediment traps and to control run-on and run-off into other areas, including creeks, streams, marshes, access roads, well areas, and the staging areas.

C. Erosion control measures shall be used to contain only direct precipitation in the construction zone. The contained water shall be allowed to percolate into the ground or drain slowly through the drainage filter sediment traps.

D. Earthen sediment traps or holding ponds shall not be used unless accepted by the CO.

E. Reduce runoff velocity as well as direct surface runoff around and away from all fuel containment, storage, and borrow areas.

F. Divert surface runoff around and away from the cut and fill slopes.

G. Place drainage filters around all catch basins to create sediment traps to control run-off from the construction area.

H. Excess water used for dust control shall be contained within the demolition areas by the erosion control measures.

I. The Contractor shall prevent the deposition of materials onto paved areas. The Contractor shall inspect the paved areas for deposited materials weekly and remove the materials immediately.

J. Furnish, install, maintain, and operate necessary control measures and other equipment necessary to prevent erosion as described in the approved UPPP.

K. Before the work begins, sufficient equipment shall be available on the site to assure that the operation and adequacy of the erosion control system can be maintained.

3.5 MAINTENANCE OF TEMPORARY FACILITIES

A. Ensure erosion and sediment control structures remain effective throughout excavation and grading operations. Relocate structures as necessary.

B. Inspect control structures after each significant rainfall. Promptly repair breaches that occur.

C. The Contractor shall remove entrapped sediment from behind the excelsior drainage filter after each storm.

3.6 REPORTING

A. If a discharge occurs or if the project receives a written notice or order from any regulatory agency, the Contractor will immediately notify the CO and will file a written report to the AHJ within 7 days of the discharge event, notice, or order. Corrective measures shall be implemented immediately following the discharge, notice, or order. The report to the AHJ shall contain the following items at a minimum:

1. The date, time, location, nature of the operation, and type of discharge, including the cause or nature of the notice or order.
2. The BMPs deployed before the discharge event, or before receiving the notice or order.
3. The date of deployment and type of BMPs deployed after the discharge event, or after receiving the notice or order, including additional BMPs installed or planned to reduce or prevent re-occurrence.
4. An implementation and maintenance schedule for any affected BMPs.

3.7 SEDIMENT DISPOSAL

A. Sediment excavated from temporary sediment control structures shall be disposed on the site with general fill, or with topsoil. Sediment shall be allowed to dry out as required before reuse.

B. The contractor shall place the sediment removed from traps and other structures where it will not enter a storm drain or watercourse and where it will not immediately reenter the basin.

3.8 REMOVAL OF TEMPORARY POLLUTION CONTROL MEASURES

A. All temporary control measures shall be removed with permission of the CO within 20 working days after final acceptance of the project, and/or once grading is completed, and slopes have stabilized.

END OF SECTION

SECTION 01 67 00

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for the selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and environmental requirements.

1.2 DEFINITIONS

A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by the manufacturer's product name, including make or model number or other designation shown or listed in the manufacturer's published product literature that is current as of the date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

C. Definitions pertaining to sustainable development: As defined in ASTM E2114.

D. Biobased Materials: As defined in the Farm Security and Rural Investment Act, for purposes of Federal procurement of biobased products, “biobased” means a “commercial or industrial product (other than food or feed) that is composed, in whole or in significant part, of biological products or renewable domestic agricultural materials (including plant, animal, and marine materials) or forestry materials.” Biobased materials also include fuels, chemicals, building materials, or electric power or heat produced from biomass as defined by The Biomass Research and Development Act of 2000.

1. Biobased content: The amount of biobased carbon in the material or product as a percentage of weight (mass) of the total organic carbon in the material or product.

E. Chain-of-Custody: Process whereby a product or material is maintained under the physical possession or control during its entire life cycle.

F. Environmentally preferable products: Products and services that have a lesser or reduced effect on the environment in comparison to conventional products and services. Refer to EPA's Final Guidance on Environmentally Preferable Purchasing for more information http://www.epa.gov/epp/guidance/finalguidancetoc.htm.

G. Stewardship: Responsible use and management of resources in support of sustainability.

H. Sustainability: The maintenance of ecosystem components and functions for future generations.

1. Recycled Content Materials: Products that contain pre-consumer or post-consumer materials as all or part of their feedstock. A recycled content claim shall be consistent with ISO 140001 Standard for the Use of Environmental Marketing Claims.
2. Rapidly Renewable Material: Material made from plants that are typically harvested within a ten-year cycle.
3. Regional Materials: Materials that are manufactured and extracted, harvested, or recovered within a radius of 500 miles from the Project location.

1.3 SUBMITTALS

A. Record Submittals as specified in – Sustainable Design Close-Out Documentation, submit the following:

1. Affirmative Procurement Reporting Form. Submit on form in Appendix A of this Section, or similar form as approved by the Contracting Officer.
2. Submit environmental data per Table 1 of ASTM E2129 for and of the following products used on this project:
   a. Finish Carpentry
   b. Plastic Fabrications
   c. Building Insulation
   d. Roofing
   e. Joint Sealers
   f. Wood & Plastic Doors
   g. Windows
   h. Gypsum Board
   i. Resilient Flooring
   j. Wall Coverings
   k. Paints & Coatings
   l. Toilet Compartments
   m. Furnishings & Accessories
   n. Plumbing fixtures and equipment.
   o. HVAC equipment
   p. Lighting equipment
   q. Pumps

3. Safety Data Sheets (SDS): For each product required by OSHA to have an SDS, submit an SDS. SDS shall be prepared within the previous 5 years. Include information for SDS Sections 1 – 16 following ANSI Z400.1 and as follows:
   a. Section 1: Identification.
   b. Section 2: Hazards Identification.
   c. Section 3: Composition/Information on Ingredients.
   d. Section 4: First Aid Measures.
   e. Section 5: Fire Fighting Measures.
   f. Section 6: Accidental Release Measures.
   g. Section 7: Handling and Storage.
   h. Section 8: Exposure Controls/Person Protection.
   i. Section 9: Physical and Chemical Properties.
   j. Section 10: Stability and Reactivity Data.
   k. Section 11: Toxicological Information. Include data used to determine the hazards cited in Section 3. Identify acute data, carcinogenicity, reproductive effects, and target organ effects.
   l. Section 12: Ecological Information. Include data regarding environmental impacts during raw materials acquisition, manufacture, and use. Include data regarding environmental impacts in the event of an accidental release.
   m. Section 13: Disposal Considerations. Include data regarding the proper disposal of the chemical. Include information regarding recycling and reuse. Indicate whether or not the product is considered to be "hazardous waste" according to the US EPA Hazardous Waste Regulations 40 CFR 261.
   n. Section 14: Transportation Information. Identify hazard class for shipping.
   o. Section 15: Regulatory Information. Identify federal, state, and local regulations applicable to the material.
   p. Section 16: Other Information. Include additional information relative to recycled content, biobased content, and other information regarding environmental and health impacts. Identify the date SDS was prepared.
4. Chain Of Custody: Submit chain-of-custody documentation for sustainable forestry for the following products:
   a. Rough Carpentry
   b. Finish Carpentry
   c. Wood Doors
   d. Windows
   e. Wood Flooring
   f. Furnishings & Accessories

1.4 QUALITY ASSURANCE

A. Compatibility of Options: If the Contractor is given the option of selecting between two or more products for use on the Project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at the Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to the Project site in an undamaged condition in the manufacturer's original sealed container or other packaging systems, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
5. The contractor is encouraged to obtain materials in biodegradable or recyclable/reusable packaging which uses the minimum amount of packaging possible.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, undercover in a weather-tight enclosure above ground, with ventilation adequate to prevent condensation.
4. Store cementitious products and materials on elevated platforms.
5. Store foam plastic from exposure to sunlight, except to the extent necessary for the period of installation and concealment.
6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
7. Protect stored products from damage and liquids from freezing.
8. Store loose granular materials in a well-drained area on solid surfaces to prevent mixing with foreign matter.

1.6 PACKAGING

A. Where Contractor has the option to provide one of the listed products or equal, preference shall be given to products with minimal packaging and easily recyclable packaging as defined in ASTM D5834.

B. Maximize the use of source reduction and recycling procedures outlined in ASTM D5834.

C. Provide a minimum of 45% post-consumer recycled content and a minimum of 100% recovered fiber content of industrial paperboard following EPA’s Comprehensive Procurement Guidelines and ASTM D5663.

D. Provide a minimum of fifteen percent (15%) post-consumer recycled content and a minimum of ten percent (10%) recovered fiber content of carrier board following EPA’s Comprehensive Procurement Guidelines and ASTM D5663.

E. Provide a minimum of 20% post-consumer recycled content and a minimum of 40% recovered fiber content of brown papers (e.g., wrapping papers and bags) following EPA’s Comprehensive Procurement Guidelines and ASTM D5663.

1.7 ENVIRONMENTALLY PREFERABLE PRODUCTS

A. Provide environmentally preferable products to the greatest extent possible.

1. To the greatest extent possible, provide products and materials that have a lesser or reduced effect on the environment considering raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, and/or disposal of the product.
2. Eliminate the use of ozone-depleting compounds during and after construction where alternative environmentally preferable products are available, consistent with either the Montreal Protocol and Title VI of the Clean Air Act Amendments of 1990, or equivalent overall air quality benefits that take into account life cycle impacts.
3. Use products meeting or exceeding EPA's recycled content recommendations for EPA-designated products. Use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 10% based on the cost of the total value of the materials in the project.

1.8 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of obligations under the requirements of the Contract Documents.

1. Manufacturer's Warranty: Preprinted written warranty published by the individual manufacturer for a particular product and specifically endorsed by the manufacturer to the Owner.
2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend the time limit provided by the manufacturer's warranty or to provide more rights for the Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.
3. Refer to Divisions 02 through 49 Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that is new at the time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Government reserves the right to limit the selection to products with warranties, not in conflict with the requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Contracting Officer will make a selection.
5. Where products are accompanied by the term "match sample," the sample to be matched is Governments.
6. Descriptive, performance and reference standard requirements in the Specifications establish "salient characteristics" of products.

B. Product Selection Procedures:

1. Product: Where Specifications name a single product and manufacturer, provide the named product that complies with requirements or approved equal.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements or approved equal.
3. Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements or approved equal.
4. Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements or approved equal.
5. Available Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
6. Available Manufacturers: Where Specifications include a list of manufacturers, provide a product by one of the manufacturers listed, or an unnamed manufacturer, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
7. Product Options: Where Specifications indicate that sizes, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide the specified product, system, or approved equal.
8. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers, or approved equal. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named.

9. Visual Matching Specification: Where Specifications require matching an established Sample, select a product that complies with requirements and matches Architect's sample. The contracting Officers decision will be final on whether a proposed product matches.
    a. If no product available within specified category matches and complies with other specified requirements, comply with provisions in Part 2 "Product Substitutions" Article for the proposal of product.
10. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures," or a similar phrase, select a product that complies with other specified requirements.
    a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or a similar phrase, the Contracting Officer will select color, pattern, density, or texture from the manufacturer's product line that does not include premium items.
    b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or a similar phrase, the Contracting Officer will select color, pattern, density, or texture from the manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

A. Conditions: Contracting Officer will consider the Contractor's request for a comparable product when the following conditions are satisfied. If the following conditions are not satisfied, the Contracting Officer will return requests without action, except to record non-compliance with these requirements:

1. Evidence that the proposed product does not require revisions to the Contract Documents that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of the proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that the proposed product provides a specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION

3.1 PROTECTION AFTER INSTALLATION

A. Provide adequate coverings as necessary to protect installed materials from damage resulting from natural elements, traffic, and subsequent construction. Remove when no longer needed.

END OF SECTION

SECTION 01 73 40

EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes general procedural requirements governing the execution of the Work including, but not limited to, the following:

1. Coordination with utility service providers.
2. Construction layout.
3. Field engineering and surveying.
4. General installation of products.
5. Quantity Surveys.
6. Progress cleaning.
7. Starting and adjusting.
8. Protection of installed construction.
9. Correction of the Work.

1.2 SUBMITTALS

A. Landfill Receipts: Submit a copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

B. Quantity Surveys: Submit 2 copies showing quantities of work performed and actual construction completed and in place.

1.3 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in the jurisdiction where the Project is located and who is experienced in providing land-surveying services of the kind indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed.

1. Before beginning site work, investigate and verify the existence and location of underground utilities and other construction affecting the Work.
2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
3. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
4. Furnish location data for work related to projects that must be performed by public utilities serving the Project site.

B. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
3. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 COORDINATION WITH UTILITY SERVICE PROVIDERS

A. Coordination with Utility Service Providers: Contact the following Utility Service providers, sufficiently in advance to avoid delaying the work, to coordinate your portion of the work, testing requirements, inspections, etc.

1. Electrical: Service Contact: Contact NPS Contracting Officer to coordinate Electrical service requirements.
   a. Construction Contractor Responsibilities: The contractor is responsible for the coordination of the necessary permits, inspections, approvals, and timing of electrical connections as required.
2. Water Service Contact: Contact NPS Contracting Officer to coordinate Water service requirements.
   a. Construction Contractor Responsibilities: The contractor is responsible for the coordination of the necessary permits, inspections, approvals, and timing of water connections as required.
3. Wastewater Service Contact: Contact NPS Contracting Officer to coordinate Wastewater service requirements.
   a. Construction Contractor Responsibilities: The contractor is responsible for the coordination of the necessary permits, inspections, approvals, and timing of wastewater connections as required.
4. Telephone Service Contact: Contact NPS Contracting Officer to coordinate Telephone service requirements.
   a. Construction Contractor Responsibilities: The contractor is responsible for the coordination of the necessary permits, inspections, approvals, and timing of telephone connections as required.

3.3 PREPARATION

A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of the Contractor, submit a request for information to the Contracting Officer per Division 01 Specification 01 31 00 "Project Management & Coordination."

3.4 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to layout the Work, verify layout information shown on Drawings, with the existing benchmarks. If discrepancies are discovered, notify the Contracting Officer promptly.

B. General: Engage a qualified professional to lay out the Work using accepted surveying practices.

1. Establish benchmarks and control points to set lines and levels of construction and elsewhere as needed to locate each element of the Project.
2. Establish dimensions within the tolerances indicated. Do not scale Drawings to obtain the required dimensions.
3. Inform installers of lines and levels to which they must comply.
4. Check the location, level, and plumb, of every major element as the Work progresses.
5. Notify the Contracting Officer when deviations from required lines and levels exceed allowable tolerances.

C. Site Improvements: Locate and layout site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.

D. Building Lines and Levels: Locate and layout control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from 2 or more locations.

E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by NPS.

3.5 FIELD ENGINEERING

A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations. Controls that are destroyed by the Contractor will be replaced by the Contractor at their expense.

1. Existing Monuments: All benchmarks, land corners, and triangulation points, established by other surveys, existing within the construction area shall be preserved. If existing monuments interfere with the work, secure written permission before removing them.

B. Benchmarks: Establish and maintain a minimum of 2 permanent benchmarks on the Project site, referenced to data established by survey control points. Comply with NPS requirements for the type and size of the benchmark.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.

3.6 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading above that expected during normal conditions of occupancy.

E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory-prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located, and aligned with other portions of the Work.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by the Contracting Officer.

2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate the installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to the Project site in time for installation.

H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

J. Quantity surveys: Shall be conducted, and the data derived from these surveys shall be used in computing the quantities of work performed and the actual construction completed and in place.

1. The Contractor shall conduct the original and final surveys and surveys for any periods for which progress payments are requested. All these surveys shall be conducted under the direction of a representative of the Contracting Officer unless the Contracting Officer waives this requirement in a specific instance. The Government shall make such computations as are necessary to determine the quantities of work performed or finally in place. The Contractor shall make the computations based on the surveys for any periods for which progress payments are requested.
2. Promptly upon completing a survey, the Contractor shall furnish the originals of all field notes and all other records relating to the survey or the layout of the work to the Contracting Officer, who shall use them as necessary to determine the number of progress payments. The Contractor shall retain copies of all such material furnished to the Contracting Officer.

3.7 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for the removal of combustible waste materials and debris.
2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 degrees F (27 deg C).
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain a Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for the proper execution of the Work.

1. Remove liquid spills promptly.

2. Where dust would impair proper execution of the Work, broom-clean, or vacuum the entire work area, as appropriate.
3. The contractor shall provide progress cleaning that minimizes sources of food, water, and harborage available to pests.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of the manufacturer or fabricator of the product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

1. Utilize non-toxic cleaning materials and methods.
   a. Comply with GS 37 for general purpose cleaning and bathroom cleaning.
   b. Use natural cleaning materials where feasible. Natural cleaning materials include:
      1) Abrasive cleaners: substitute 1/2 lemon dipped in borax.
      2) Ammonia: substitute vinegar, salt and water mixture, or baking soda and water.
      3) Disinfectants: substitute 1/2 cup borax in a gallon water.
      4) Drain cleaners: substitute 1/4 cup baking soda and 1/4 cup vinegar in boiling water.
      5) Upholstery cleaners: substitute dry cornstarch.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at the time of Substantial Completion.

G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to assure that no part of the construction completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

K. Final Cleaning: At the completion of Work, remove all remaining waste materials, rubbish, tools, equipment, machinery, and surplus materials, and clean all exposed surfaces; leave Project clean and ready for occupancy.

1. Provide final cleaning following ASTM E1971.

3.8 STARTING AND ADJUSTING

A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace them with new units, and retest.

B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.

C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 01 Section “Quality Requirements.”

3.9 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.10 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 01 Section “Cutting & Patching.”

1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

B. Restore permanent facilities used during construction to their specified condition.

C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION

SECTION 01 74 19

CONSTRUCTION WASTE MANAGEMENT & DISPOSAL

PART 1 – GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for the following:

1. Salvaging non-hazardous demolition and construction waste.
2. Recycling non-hazardous demolition and construction waste.
3. Disposing of non-hazardous demolition and construction waste.

1.2 DEFINITIONS

A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building and site improvement materials resulting from the demolition or selective demolition operations.

C. Solid Waste: Garbage, debris, sludge, or other discharged material (except hazardous waste) including solid, liquid, semisolid, or contained gaseous materials resulting from domestic, industrial, commercial, mining, or agricultural operations.

D. Debris: Non-hazardous solid waste generated during the construction, demolition, or renovation of a structure which exceeds 2-1/2 inches (60 mm) particle size that is: a manufactured object; plant or animal matter; or natural geologic material (e.g. cobbles and boulders). A mixture of debris and other material such as soil or sludge is also subject to regulation as debris if the mixture is comprised primarily of debris by volume, based on visual inspection.

E. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

F. Environmental Pollution and Damage: The presence of chemical, physical, or biological elements or agents that adversely affect human health or welfare; unfavorably alter ecological balances; or degrade the utility of the environment for aesthetic, cultural, or historical purposes.

G. Garbage: Refuse and scraps resulting from the preparation, cooking, dispensing, and consumption of food.

H. Hazardous Materials: Any material that is regulated as a hazardous material per 49 CFR 173, requires a Safety Data Sheet (SDS) following 29 CFR 1910.1200, or which during end-use, treatment, handling, storage, transportation, or disposal meets or has components which meet or have the potential to meet the definition of a Hazardous Waste per 40 CFR 261.

I. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

J. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

1.3 PERFORMANCE REQUIREMENTS

A. General: This project shall minimize the creation of construction, deconstruction, and demolition waste to protect and restore natural habitat and resources. Factors that contribute to waste such as over packaging, improper storage, ordering error, poor planning, breakage, mishandling, and contamination shall be minimized. A Waste Management Plan shall be developed to ensure that the existing site and building materials are reused, salvaged, or recycled. Waste disposal in landfills shall be minimized.

B. Salvage/Recycle Requirements: Develop a waste management plan that results in end-of-project rates for salvage/recycling of 50% by weight of total waste generated by the Work. Government goal is to salvage and recycle as much non-hazardous demolition and construction waste as possible including the following materials: The following waste categories, at a minimum, shall be diverted from a landfill:

1. Land clearing debris (chipped debris can be used on-site for mulch or erosion control)
2. Clean dimensional wood, palettes
3. Plywood, OSB, and particleboard
4. Concrete (can be ground and used for fill on site)
5. Asphaltic concrete (can be ground and used for fill on site)
6. Cardboard, paper, packaging, newsprint
7. Metals (from banding, stud trim, piping, rebar, roofing, other trim, steel, iron, galvanized sheet steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze)
8. Gypsum drywall—unpainted
9. Non-hazardous paint and paint cans
10. Beverage containers: Aluminum, glass, and plastic containers
11. Insulation
12. Ceiling grid and tiles
13. Ductwork
14. Wiring
15. Other mixed construction and demolition waste as appropriate

C. If any waste materials encountered during the deconstruction/demolition or construction phase are found to contain lead, asbestos, PCBs, (such as fluorescent lamp ballasts), or other harmful substances, they are to be handled and removed following local, state, and federal laws and requirements concerning hazardous waste.

D. Existing items and material to be removed during the deconstruction/demolition phase shall be reused in the construction phase of the Project. Items that cannot be reused shall be recycled. Items considered for reuse must be in refurbishable condition and must meet the quality standards outlined in these specifications. The Contractor shall ensure that the quality of the item(s) in question will meet or exceed accepted industry or trade standards for first-quality commercial-grade application. During construction, deconstruction, or demolition the Contracting Officer may designate other objects or materials for reuse.

1.4 SUBMITTALS

A. Waste Management Plan: After awarding the contract and before the scheduled Pre-Construction Conference, the Contractor shall submit a draft Waste Management Plan to the Contracting Officer for approval. Submit electronic copies of the plan. Revise and resubmit Plan as required by the Contracting Officer. Approval of the Contractor's Plan will not relieve the Contractor of responsibility for compliance with applicable environmental regulations.

B. Progress Documentation: Supplemental to the Waste Management Plan, document solid waste disposal, diversion, and cost/revenue analysis and submit a completed worksheet every month. Use Appendix A - Project Waste Management Plan Worksheet, and report totals to date for all column headings. Use Appendix B for solid waste volume to weight conversions.

C. Waste Reduction Calculations: Before the request for Substantial Completion, submit electronic copies of calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.

D. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether the organization is tax-exempt.

E. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether the organization is tax-exempt.

F. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

G. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

H. Qualification Data: For Waste Management Coordinator.

I. Statement of Refrigerant Recovery: Signed by the refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include the name and address of the technician and date refrigerant was recovered.

J. Progress payment requirements:

1. With each payment application, submit an updated Project Waste Management Plan worksheet for solid waste disposal and diversion.
2. With each Application for Payment, submit manifests, weight tickets, receipts, and invoices specifically identifying the Project and waste material.

K. Closeout Submittals

1. With Closeout Submittals, submit a summary of the Project Waste Management Plan worksheet for solid waste disposal and diversion. Submit on form in Appendix A of this Section.

1.5 QUALITY ASSURANCE

A. Waste Management Coordinator Qualifications: Experienced firm, with a record of successful waste management coordination of projects with similar requirements, that employs a LEED™-Accredited Professional, certified by the USGBC, as waste management coordinator. The waste management coordinator may also serve as a LEED™ coordinator.

B. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.

C. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

D. Waste Management Meeting: Conduct separate meetings or cover in the Pre-Construction Conference and comply with requirements in Division 01 Section 01 31 00 "Project Management & Coordination." Review methods and procedures related to waste management including, but not limited to, the following:

1. Review and discuss waste management plan including responsibilities of Waste Management Coordinator.
2. Review requirements for documenting quantities of each type of waste and its disposition.
3. Review and finalize procedures for materials separation and verify the availability of containers and bins needed to avoid delays.
4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
5. Review waste management requirements for each trade.

PART 2 - PRODUCTS

2.1 WASTE MANAGEMENT PLAN

A. General: Develop plan consisting of waste identification and waste reduction work plan. Include separate sections in the plan for demolition and construction waste. Indicate quantities by weight or volume but use the same units of measure throughout the waste management plan.

B. Waste Identification: Indicate anticipated types and quantities of demolition, site clearing, and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.

C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, the total quantity of each type of waste, the quantity for each means of recovery, and handling and transportation procedures.

1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.

2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include a list of their names, addresses, and telephone numbers.
3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include a list of their names, addresses, and telephone numbers.
4. Recycled Materials: Include a list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
5. Disposed Materials: Indicate how and where materials will be disposed of. Include the name, address, and telephone number of each landfill and incinerator facility.
6. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on the Project site where materials separation will be located.

D. Cost/Revenue Analysis: Indicate the total cost of waste disposal as if there was no waste management plan and net additional cost or net savings resulting from implementing a waste management plan. Include the following:

1. Landfill tip fees/ton
2. If diverted, tip fee savings from landfill diversion
3. Costs of recycling, salvage, or reuse
4. Revenue from recycling, salvage, or reuse
5. Total cost or savings from diversion (Calculate by using tip fee savings and subtracting costs of recycling or adding revenue from recycling)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Implement a waste management plan as approved by the Contracting Officer. Provide handling, containers, storage, signage, transportation, and other items as required to implement a waste management plan during the entire duration of the Contract.

B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting the status of the waste management work plan. The coordinator shall be present at the Project site full-time for the duration of the Project.

C. The Contractor shall establish contacts with local recycling and reuse companies to set up the lines of responsibility. The contractor shall be responsible for coordinating with these companies in terms of identifying materials, pickup schedules, and standard quality for recycled materials.

D. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at the Project site.

1. Distribute a waste management plan to everyone concerned within 3 days of submittal return.
2. Distribute a waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.

E. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways and other adjacent occupied and used facilities.

F. Separation facilities:

1. The Contractor shall designate and the Contracting Officer shall approve a specific area or areas to facilitate separation of materials for potential reuse, salvage, recycling, and return.
2. Waste and recycling bins are to be placed near each other, and close to the point of waste generation but out of the traffic pattern.
3. Recycling and waste bin areas are to be kept neat and clean and marked to avoid co-mingling of materials.
4. Bins shall be protected during non-working hours from off-site contamination.
5. The garbage dumpsters should be checked periodically to monitor recyclables being thrown away or if there are undocumented materials that could be recycled.

G. Materials handling procedures: Materials to be recycled shall be protected from contamination and shall be handled, stored, and transported in a manner that meets the requirements set by the designated facilities for acceptance. Establish a defined area for the operations of each trade, especially woodcutting so that off-cuts will be kept in one area and can be sorted by dimension for future reuse.

3.2 SALVAGING DEMOLITION WASTE

A. Salvaged Items for Reuse in the Work:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify the contents of containers.
3. Store items in a secure area until installation.
4. Protect items from damage during transport and storage.
5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.

B. Salvaged Items for Sale and Donation: Not permitted on Project site.

C. Salvaged Items for Governments Use:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify the contents of containers.
3. Store items in a secure area until delivery to Government.
4. Transport items to storage area designated by Government.
5. Protect items from damage during transport and storage.

3.3 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

A. General: Recycle paper and beverage containers used by on-site workers.

B. Recycling Receivers and Processors: The list below is provided for information only; available recycling receivers and processors include, but are not limited to, the following:

1. Not Used.

C. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to the Contractor.

D. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at the Project site to the maximum extent practical.

1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from the Project site. Include a list of acceptable and unacceptable materials at each container and bin.
   a. Inspect containers and bins for contamination and remove contaminated materials if found.
2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
3. Stockpile materials away from the construction area. Do not store within the drip line of remaining trees.
4. Store components off the ground and protect from the weather.
5. Remove recyclable waste off government property and transport to a recycling receiver or processor.

3.4 RECYCLING DEMOLITION WASTE

A. Asphaltic Concrete Paving: Break up and transport paving to the asphalt-recycling facility.

B. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.

C. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.

D. Metals: Separate metals by type.

1. Structural Steel: Stack members according to size, type of member, and length.
2. Remove and dispose of bolts, nuts, washers, and other rough hardware.

E. Asphalt Shingle Roofing: Separate organic and glass-fiber asphalt shingles and felts. Remove and dispose of nails, staples, and accessories.

F. Gypsum Board: Stack large clean pieces on wood pallets and store them in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.

G. Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location.

1. The separate suspension system, trim, and other metals from panels and tile and sort with other metals.

H. Equipment: Drain tanks, piping, and fixtures. Seal openings with caps or plugs. Protect equipment from exposure to weather.

I. Plumbing Fixtures: Separate by type and size.

J. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves, sprinklers, and other components by type and size.

K. Lighting Fixtures: Separate lamps by type and protect from breakage.

L. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panel boards, circuit breakers, and other devices by type.

M. Conduit: Reduce conduit to straight lengths and store by type and size.

N. Electronic Products: Ensure that all non-usable electronic products are reused, donated, sold, or recycled using environmentally sound management practices at end of life.

3.5 RECYCLING CONSTRUCTION WASTE

A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
2. Polystyrene Packaging: Separate and bag materials.
3. Pallets: As much as possible, require deliveries using pallets to remove pallets from the Project site. For pallets that remain on-site, break down pallets into component wood pieces, and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Site-Clearing Wastes: Chip brush, branches, and trees at the landfill facility.

C. Wood Materials:

1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

D. Gypsum Board: Stack large clean pieces on wood pallets and store them in a dry location.

1. Clean Gypsum Board: Grind scraps of clean gypsum board using a small mobile chipper or hammer mill. Screen out paper after grinding.

3.6 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from the Project site, and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn waste materials.

C. Disposal: Transport waste materials off government property and legally dispose of them.

END OF SECTION

Appendix A. Waste Management Plan Checklist

- ☐ **Analyze project waste**
  - ☐ Estimate types and quantities of waste the project will generate at different stages
- ☐ **Check to see what can be recycled/reused onsite (wood, soil, rock, concrete, etc.)**
- ☐ **Decide how you will recycle**
  - ☐ Can you arrange the job site to accommodate several containers?
  - ☐ Do you have the equipment to self-haul?
  - ☐ How often might you need your containers picked- up?
- ☐ **Research recycling options**
  - ☐ Check out the Construction Recycling Directory
  - ☐ Call recyclers and ask them:
    - ☐ What materials do you accept?
    - ☐ Is co-mingled recycling available?
    - ☐ What are my collection options & costs?
    - ☐ If I self-haul, can I drop off, and if so, what about tipping fees?
    - ☐ Do you provide receipts to track recyclables?
    - ☐ Do you set up and provide training?
- ☐ **Decide what you will recycle at the jobsite**
- ☐ **Determine your costs**
  - ☐ Compare the cost of disposing waste with the cost of recycling
- ☐ **Write out the waste management plan**
  - ☐ Which materials will be salvaged or reused on site
  - ☐ Which materials will be recycled
  - ☐ How materials will get to the recycler
  - ☐ Names of responsible crew member/team
  - ☐ Your projected savings
- ☐ **Set up and monitor**
  - ☐ Clearly designate recycling bins
  - ☐ Post list of what is recyclable and what is not
  - ☐ Keep bins close to where waste is generated but not in traffic pattern
  - ☐ Provide hauler and crew with site plan
  - ☐ Check recycling bins daily for contamination
  - ☐ Keep dumpsters closed to discourage use by wildlife
  - ☐ Check garbage dumpsters daily for misplaced recyclables
  - ☐ Call for pick-up before boxes are full
  - ☐ Require quantity and cost tickets to track results and savings

- **Make your program work**
  - Start early: Incorporate a recycling program from the start to guarantee success
  - Communicate your waste management plans to crews, subs and suppliers as they come on-site
  - Include recycling requirements in all subcontracts and purchase orders
  - Post quantities of materials reused and recycled
  - Track your savings
  - Encourage suggestions from supervisors and crew
  - Reward employees
  - Make use of available resources and directories

Resources:
https://www.cra-recycle.org/resources/
http://earth911.com/recycling/

For additional information contact:

https://scdhec.gov/environment/recycling-waste-reduction/where-recycle-locally/charleston-county-recycling-locations

https://www.charlestoncounty.org/departments/environmental-management/index.php

Appendix A. SAMPLE WASTE MANAGEMENT PLAN

Company:

Project:

Designated Recycling Coordinator:

Waste Management Goals:

- ☐ This project will recycle or salvage for reuse ___% [e.g. 75%] by weight of the waste generated on-site.

Communication Plan:

_____

_____

_____

_____

_____

Expected Project Waste, Disposal, and Handling:
The following charts identify waste materials expected on this project, their disposal method, and handling procedures.

Deconstruction/Demolition Phase

Material	Quantity	Disposal Method	Handling Procedure

Construction Phase

Material	Quantity	Disposal Method	Handling Procedure

Appendix B: SAMPLE SUMMARY OF SOLID WASTE DISPOSAL AND DIVERSION

Project Name: _____ Project Number: _____

Contractor Name: _____ License Number: _____

Contractor Address: _____

Materials Disposed:

Solid Waste Material	**Date Material Disposed**	**Amount Disposed** (indicate ton or cubic yard)	**Municipal Solid Waste Facility** (name, address, & phone number)	**Comments** (if disposed, state why not diverted)

Materials Diverted:

Recycled Material	**Date Material Diverted**	**Amount Diverted** (indicate ton or cubic yard)	**Recycling Facility** (name, address, & phone number)	**Comments**

Hazardous Waste (not included in diversion rate)	**Date Material Disposed**	**Amount Disposed** (ton or cubic yard)	**Haz Waste Facility** (name, address, & phone number)	**Comments**

Signature: _____ Date: _____

*See Appendix B for Standard Solid Waste Volume to Weight Conversions

01 74 19 - Appendix B

STANDARD SOLID WASTE CONVERSIONS

The following sections provide conversions for solid waste and recyclable materials. Section 1 provides formulas to convert solid waste volume (cubic yards) into tons. Section 2 includes conversion factors to estimate the volume and weight of a number of solid waste and recyclable materials.

1. To convert cubic yards to tons:

A: For un-compacted trash, to convert the units of cubic yards into tons, using the standard density of trash value of 250 pounds per cubic yard:

Using "X" cubic yards, multiply by 250 pounds per cubic yard, divide by 2000 pounds per ton, to obtain value in tons.

$$\text{"X" cubic yards} \times 250 \frac{\textit{pounds}}{\textit{cubic yard}} \div \frac{1 \ \textit{ton}}{2000 \ \textit{pounds}} = _____ \ \textit{tons}$$

This equals:

$$\text{"X" cubic yards} \times 0.125 \frac{\textit{tons}}{\textit{cubic yard}} = _____ \ \textit{tons}$$

In this case, 8 cubic yards = one ton.

B: To determine your own density value for un-compacted trash (instead of using the standard value of 250 pounds per cubic yard), using a 32 gallon trash can:

(1) Weigh the trash can both filled and empty (use a full 32 gallon trash can filled with trash roughly level to the top);
(2) Subtract the empty weight from the filled weight to get the weight of trash (filled weight – empty weight = weight of trash);
(3) Use the formula, using "Y" your weight of trash (pounds), divided by 0.15 cubic yards per 32 gallon trash can, to obtain your value in pounds per cubic yard; which equals:

$$\text{"Y"} \frac{\text{pounds}}{\textit{32 gallon can}} / 0.15 \frac{\textit{cubic yards}}{\text{32 gallon can}} = _____ \ \frac{\textit{pounds s}}{\text{cubic yard}}$$

(4) Substitute this value for the 250 pounds per cubic yard value in Method A above.

This would be the more accurate measure of your park's specific waste.

C: For compacted trash, to convert cubic yards into tons:

To use a compaction ratio, multiply the appropriate ratio times the un-compacted trash weight in Formula A to obtain the compacted trash weight.

$$\text{"X"} \ \textit{cubic yards} \times \frac{3}{1} \ \text{(compaction ratio)} \times 250 \frac{\textit{pounds}}{\textit{cubic yard}} \times \frac{1 \ \textit{ton}}{2000 \ \textit{pounds}} = _____ \ \textit{tons}$$

Typical compaction ratios for trash:

3:1 (typical)
4:1 (higher-compaction vehicles)

If you or your hauler don't know the compacting ratio, the typical values for compacted trash are 500 to 1000 lbs./cubic yard, average 700 lbs./cubic yard. **Use 700 lbs. per cubic yard if you don't have more accurate records.**

For compacted trash, 0.4 is used instead of 0.125 in Formula A:

$$\text{“X” } \textit{cubic yards} \times 0.4 \frac{\textit{tons}}{\textit{cubic yard}} = _____ \textit{ tons}$$

D: To convert container size to cubic yards for un-compacted waste:

If you don't have size and weight information on your specific containers, then these typical values can be used:

1 cubic yard = 202 gallons
32 gallon can = 0.15 cubic yards
60 gallon tote = 0.30 cubic yards
90 gallon tote = 0.45 cubic yards

2. EPA's Standard Volume-to-Weight Conversion Factors

Category	Recyclable Materials (u/c = uncompacted/ compacted & baled)	Volume	Estimated Waste (in pounds)
FOOD SCRAPS[A]	Food scraps, solid and liquid fats	55-gal drum	412
GLASS	Bottles[B]		
	Whole Bottles	1 yd3	500-700
	Semi-crushed Crushed (mechanically)	1 yd3	1,000-1,800
	Uncrushed to manually broken	1 yd3	1,800-2,700
		55-gal drum	300
	Refillable Whole Bottles[C]		
	Refillable beer bottles	1 case = 24 bottles	10-14
	Refillable soft drink bottles	1 case = 24 bottles	12-22
	8 oz glass container	1 case = 24 bottles	12
LEAD-ACID BATTERIES	Car[D]	1 battery	39.4 lb
	Truck[E]	1 battery	53.3 lb lead and plastic
			9.5 lb lead and plastic
	Motorcycle[E]	1 battery	

Category	Recyclable Materials (u/c = uncompacted/ compacted & baled)	Volume	Estimated Waste (in pounds)
METALS	Aluminum Cans[F]		
	Whole		
	Compacted (manually)	1 yd3	50-75
	Uncompacted	1 yd3	250-430
		1 full grocery bag	1.5
	Ferrous (tin coated steel cans) [G]	1 case = 24 cans	0.9
	Whole		
	Flattened	1 yd3	150
	Whole	1 yd3	850
	Major Appliances[E]	1 case = 6 cans	22
	Air conditioners (room)		
	Dishwashers	1 unit	64.2
	Dryers (clothes)	1 unit	92
	Freezers	1 unit	130
	Microwave ovens	1 unit	193
	Refrigerators	1 unit	50
	Ranges	1 unit	181.1
	Washers (clothes)	1 unit	267
	Water heaters	1 unit	177
		1 unit	131
PAPER	Newspaper[F]		
	Uncompacted	1 yd3	360-505
	Compacted/baled	1 yd3	720-1,000
	12 in. stack	-	35
	Old Corrugated Containers[F]		
	Uncompacted	1 yd3	50-150 (300)
	Compacted	1 yd3	300-500
	Baled	1 yd3	700-1,100
	Computer Paper[F]		
	Uncompacted	1 yd3	655
	Compacted/baled	1 yd3	1,310
	1 case	2,800 sheets	42
	White Ledger[F]		
	Stacked (u/c)	1 yd3	375-465/755-925
	Crumpled (u/c)	1 yd3	110-205/325
	Ream of 20# bond; 8.5”x11”	1 ream = 500 sheets	5
	Ream of 20# bond; 8.5”x14”	1 ream = 500 sheets	6.4
	White ledger pads	1 case = 72 pads	38
	Tab Cards[F]		
	Uncompacted	1 yd3	605
	Compacted/baled	1 yd3	1,215-1,350
	Miscellaneous Paper		
	Yellow legal pads[F]	1 case = 72 pads	38
	Colored message pads[F]	1 carton = 144 pads	22
	Telephone directories[H]	1 yd3	250
	Mixed Ledger/Office Paper[F]		
	Flat (u/c)	1 yd3	380/755
	Crumpled (u/c)	1 yd3	110-205/610

Category	Recyclable Materials (u/c = uncompacted/ compacted & baled)	Volume	Estimated Waste (in pounds)
PLASTIC[J]	PET (Soda Bottles)		
	Whole bottles (uncompacted)	1 yd^3	30-40
	Whole bottles (compacted)	1 yd^3	515
	Whole bottles (uncompacted)	gaylord	40-53
	Baled	30” x 62”	500-550
	Granulated	semiload	30,000
	Granulated	gaylord	700-750
	8 bottles (2 L size)	16 L	1
	HDPE (Dairy)		
	Whole (uncompacted)	1 yd^3	24
	Whole (compacted)	1 yd^3	270
	Baled	32” x 60”	400-500
	HDPE (Mixed)		
	Baled	32” x 60”	900
	Granulated	gaylord	800-1,000
	Granulated	semiload	42,000
	Other Plastic		
	Uncompacted	1 yd^3	50
	Compacted/baled	1 yd^3	400-700
	Mixed PET and HDPE (Dairy)		
	Whole	1 yd^3	32
	Film		
	Baled	semiload	50
	Baled	30” x 42” x 48”	400-700
TEXTILES[H]	Mixed Textiles	1 yd^3	175
TIRES	Car Tires		
	Whole tire[E]	1 tire	21
	Crumb rubber[K]	1 tire	12
	Truck Tires		
	Whole tire[E]	1 tire	70
	Crumb rubber[K]	1 tire	60
WOOD	Wood chips[L]	1 yd^3	725
	Pallets[F]	-	30-100 (40 avg)
YARD TRIMMINGS[F]	Grass Clippings		
	Uncompacted	1 yd^3	350-450
	Compacted	1 yd^3	550-1,500
	Leaves		
	Uncompacted	1 yd^3	200-250
	Compacted	1 yd^3	300-450
	Vacuumed	1 yd^3	350
FURNISHINGS[E]	Foam rubber mattress	1 mattress	55
MUNICIPAL SOLID WASTE[M]	Residential waste (uncompacted at curb)	1 yd^3	150-300
	Commercial-industrial waste (uncompacted)	1 yd^3	300-600
	MSW (compacted in truck)	1 yd^3	500-1,000
	MSW (landfill density)	1 yd^3	750-1,250

A. Information obtained from Washington State.
B. Draft National Recycling Coalition Measurement Standards and Reporting Guidelines presented to NRC membership. October 31, 1989.
C. Personal communication with a representative from Allwaste. November 6, 1995.
D. Battery Council International. 1995. 1994 National Recycling Rate Study.
E. U.S. EPA. 1995. Methodology for Characterization of Municipal Solid Waste in the United States: 1994 Update. EPA530-R-96-001. Washington, DC.
F. U.S. EPA. 1993. Business Guide for Reducing Solid Waste. EPA530-K-92-004. Washington, DC.
G. Personal communication with a representative from the Steel Recycling Institute. November 1, 1995.
H. Information obtained from Massachusetts State.
I. Information obtained from New Jersey and New York States.
J. Personal communication with a representative from the American Plastics Council. November 2, 1995.
K. Personal communication with a representative from the Scrap Tire Management Council. November 6, 1995.
L. Information obtained from Northeast Forest Products, Martin Mulch Company, and the Solid Waste Association of North America.
M. Solid Waste Association of North America, Manager of Landfill Operations Training and Certification Course. January 1989.
N. Information obtained from New Jersey and New York States.

SECTION 01 77 00

CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Project Record Drawings.
2. Closeout Submittals.
3. Substantial Completion and Final Inspection.
4. Final Acceptance of the Work.
5. Warranties.
6. Final Acceptance of the work.

1.2 PROJECT RECORD DRAWINGS

A. Maintain one complete full-size set of contract drawings and one full-size set of vendor-supplied drawings. Mark changes, deletions, and additions using National Park Service drafting standards to show actual construction conditions. Show additions in red, deletions in green and special instructions in blue.

B. Keep record drawings current. Make record drawings available to the Contracting Officer for inspection at the time of monthly progress payment requests. If project record drawings are not current, the Contracting Officer may retain an appropriate amount of the progress payment.

C. On completion of the total project, submit complete record drawings. Include all shop drawings, sketches, and additional drawings that are to be included in the final set, with clear instructions showing the location of these drawings.

1.3 CLOSEOUT SUBMITTALS

A. A list of closeout requirements has been attached at the end of the Division 01 Specifications for your convenience. The intent is to provide an overall summary of requirements and not a comprehensive list. The terms and conditions of the contract still require you to satisfy the requirements of the individual specification sections regardless of what is shown on the list. Submit the following before requesting a final inspection:

1. Submit 2 copies of the operation and maintenance manual with a preventative maintenance schedule, product cut sheets, specific warranties, guarantees, workmanship bonds, final certifications, and similar documents
2. Submit NPS required forms for occupancy, Fire Sprinkler/Alarm acceptance, and any other similar forms or certificates.

3. Submit Project Record Documents, operation and maintenance manuals, final completion construction digital images recorded on CD-R or DVD-R with index and descriptions, and similar final record information.
4. Environmental Record Documents: As specified in Division 01 and as follows:
   a. Affirmative Procurement Reporting Form: As specified in Section 01 67 00 - Environmental Requirements for Products.
   b. Environmental Product Data: As specified in Section 01 67 00 - Environmental Requirements for Products.
   c. LCA Data: As specified in Section 01 67 00 - Environmental Requirements for Products.
   d. Chain-of-Custody Data: As specified in Section 01 67 00 - Environmental Requirements for Products.
   e. Final Summary of Solid Waste Disposal and Diversion: As specified in Section 01 74 19 – "Construction Waste Management & Disposal."
5. Posted Operating Instructions: As specified in the individual sections. Furnish operating instructions attached to or posted adjacent to equipment. Include wiring diagrams, control diagrams, control sequence, start-up, adjustment, operation, lubrication, shut-down, safety precautions, procedures in the event of equipment failure, and other items of instruction recommended by the manufacturer.
6. Deliver tools, spare parts, extra materials, and similar items to the location designated by the Contracting Officer. Label with the manufacturer's name and model number where applicable.
   a. Special Tools: One set of special tools required to operate, adjust, dismantle, or repair equipment. Special tools are those not normally found in possession of mechanics or maintenance personnel.
7. Keys and Keying Schedule: Submit all keys including duplicates. Wire all keys for each lock securely together. Tag and plainly mark with lock number, equipment identification, panel or switch number, and indicate the location, such as building and room name or number.
8. Make final changeover of permanent locks and deliver keys to Contracting Officer. Advise Park personnel of changeover in security provisions.
9. Submit approved pre-functional checklists and functional performance testing reports from the commissioning documentation.
10. Submit the test and balance report.
11. Terminate and remove temporary facilities from the Project site, along with mockups, construction tools, and similar elements.
12. Complete final cleaning requirements, including touchup painting.
13. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
14. Instruct NPS personnel in operation, adjustment, and maintenance of products, equipment, and systems.

1.4 SUBSTANTIAL COMPLETION AND FINAL INSPECTION

A. When the project, or designated portion of the project, is substantially complete, request in writing a final inspection. Upon receipt of the written request that the project is substantially complete, the Contracting Officer will proceed with inspection within 10 days of receipt of the request or will advise the Contractor of items that prevent the project from being designated as substantially complete.

B. If following final inspection, the work is determined to be substantially complete, the Contracting Officer will prepare a Punch List to be corrected before final acceptance and issue a Letter of Substantial Completion. The contractor shall complete the work described on the Punch List within 30calendar days, as weather permits. If the Contractor fails to complete the work within this time frame, the Contracting Officer may either replace or correct the work with an appropriate reduction in the contract price or charge for re-inspection costs following the Inspection of Construction clause of the contract.

C. If, following final inspection, the work is not determined to be substantially complete; Contracting Officer will notify the Contractor in writing. After completing work, the Contractor shall request a new final inspection. All re-inspection costs may be charged against the Contractor following the Inspection of Construction clause of the contract.

1.5 FINAL ACCEPTANCE OF THE WORK

A. Before requesting inspection for verification of completion of all outstanding items:

1. Exceptions to this are required seasonal and approved deferred testing.

B. After all deficiencies have been corrected, a Letter of Final Acceptance will be issued.

1.6 WARRANTIES

A. Submittal Time: Submit written warranties on request of the Contracting Officer for designated portions of the Work where the commencement of warranties other than the date of Substantial Completion is indicated.

B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of the Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide a bookmarked table of contents at the beginning of the document.

C. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. See Division 01 Specification Section 01 73 40 “Execution” for information on cleaning agents.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for the entire project or a portion of Project:
   a. The clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
   b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
   c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
   d. Remove tools, construction equipment, machinery, and surplus material from the Project site.
   e. Remove snow and ice to provide safe access to the building.
   f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
   g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
   h. Sweep concrete floors broom clean in unoccupied spaces.
   i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
   j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care, not to scratch surfaces.
   k. Remove labels that are not permanent.
   l. Touch up and otherwise repair and restore marred exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
      1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.

m. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
n. Replace parts subject to unusual operating conditions.
o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
q. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
r. Leave Project clean and ready for occupancy.

C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid the Project of rodents, insects, and other pests. Prepare a report.

D. Waste Disposal: Comply with requirements of Division 01 Section, 01 74 19 "Construction Waste Management & Disposal."

END OF SECTION

SECTION 01 78 23

OPERATION & MAINTENANCE DATA

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

1. Manuals, General.
2. Emergency manuals.
3. Operation manuals for systems, subsystems, and equipment.
4. Maintenance manuals for the care and maintenance of products, materials, systems, and equipment.

B. See Divisions 02 through 48 Sections for additional operation and maintenance manual requirements for the Work in those Sections.

1.2 SUBMITTALS

A. Manual: Submit electronic copies of each manual in draft form at least 15 days before final inspection. Contracting Officer will return the copy with comments within 15 days of receipt.

B. Format: Submit operations and maintenance manuals in the following format:

1. PDF electronic file. Assemble each manual into a composite electronically indexed file. Submit one digital media acceptable to the Contracting Officer.
   a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.
   b. Enable inserted reviewer comments on draft submittals.
2. Correct or modify each manual to comply with Contracting Officers' comments. Submit 4 copies of each corrected manual within 15 days of receipt of Contracting Officers' comments.

1.3 QUALITY ASSURANCE

A. Coordinate with Division 01 Section on Commissioning. The Commissioning Agent shall review the Operation and Maintenance Manuals for systems that were commissioned.

PART 2 - PRODUCTS

2.1 MANUALS, GENERAL

A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain a title page, table of contents, and manual contents.

B. Title Page: Enclose the title page in a transparent plastic sleeve. Include the following information:

1. Project Title.
2. Location.
3. Park.
4. Contract Number.
5. Prime Contractors Name and Address.
6. Date of Substantial Completion.
7. Binder Volume number.

C. Table of Contents: List each product included in the manual, identified by product name, indexed to the content of the volume, and cross-referenced to the Specification Section number in Project Manual.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by the system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

1. Binders: White, commercial quality, hardback, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic window sleeve on front and spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
   a. Cover Sheet: Identify each binder on front and spine, with the project title, location, park, contract number, prime contractor's name and address, date of substantial completion, and binder volume number. Insert cover sheet into a clear plastic view pocket in the front of the binder. Insert sheet into clear plastic view pocket on the spine with the title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume numbers for multiple-volume sets.
2. Data: Fill binders to no more than 75 percent capacity. Punch holes shall not obscure any data. When the contents of a single tabbed section cover more than 1 item, provide colored paper sheets to separate the data for each item.
   a. Manufacturers' Data: Provide originals for color or copyrighted data. Black and white data may be originals or clean, good quality reproductions. Copies produced by facsimile transmission and sheets with stamps, such as submittal approval stamps, will not be acceptable. Include only sheets that apply to items installed; cross out inapplicable data.
   b. Equipment Data Sheet: Data, using the form at the end of this section.
   c. Schedules: Schedules reflecting final, as-installed conditions.
   d. Data that is poorly reproduced or in any way illegible will be rejected.
3. Dividers: Divider sheets with Mylar-reinforced edges and pre-printed numbered tabs aligned with numbers and title lines on the index sheet. Include a typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.

4. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
   a. If oversize drawings are necessary, fold drawings to the same size as text pages and use as foldouts.
   b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in the rear of the manual. At appropriate locations in the manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.2 OPERATION AND MAINTENANCE MANUALS

A. Operation Requirements

1. Content: In addition to requirements in this Section, including operation data required in individual Specification Sections and equipment descriptions, operating standards, operating procedures, operating logs, wiring and control diagrams, and license requirements.
2. Descriptions: Include the following:
   a. Product name and model number.
   b. Manufacturer's name.
   c. Equipment identification with a serial number of each component.
   d. Equipment function.
   e. Operating characteristics.
   f. Limiting conditions.
   g. Performance curves.
   h. Engineering data and tests.
   i. Complete nomenclature and number of replacement parts.
3. Operating Procedures: Include start-up, break-in, and control procedures; stopping and normal shutdown instructions; routine, normal, seasonal, and weekend operating instructions; and required sequences for electric or electronic systems.
4. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
5. Piped Systems: Diagram piping as installed and identify color-coding where required for identification.

B. Maintenance Requirements for Systems and Equipment

1. Content: For each system, sub-system, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, and equipment data sheets as described below.
2. Source Information: List each system, subsystem, and piece of equipment included in the manual identified by product name and arranged to match the manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in the Project Manual.

3. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including maintenance instructions, drawings, and diagrams for maintenance, the nomenclature of parts and components, and recommended spare parts for each part or piece of equipment:
4. Maintenance Procedures: Include test and inspection instructions, troubleshooting guide, disassembly instructions, and adjusting instructions and demonstration and training videotape if available, that detail essential maintenance and environmental procedures.
5. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
6. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
7. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect the validity of warranties or bonds.

2.3 PRODUCT MAINTENANCE MANUAL

A. Content: Organize the manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B. Source Information: List each product included in the manual identified by product name and arranged to match the manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in the Project Manual.

C. Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.
4. Material and chemical composition.
5. Reordering information for specially manufactured products.

D. Environmental Requirements

1. Identify environmentally preferable products incorporated into the Project. Include: product model; manufacturer’s name, address, phone, and website; and local technical representative, if any
   a. Verify that plastic products to be incorporated into the Project are labeled per ASTM D1972. Where products are not labeled, provide product data indicating polymeric information in the Operation and Maintenance Manual.
      1) Type 1: Polyethylene Terephthalate (PET, PETE)
      2) Type 2: High-Density Polyethylene (HDPE).
      3) Type 3: Vinyl (Polyvinyl Chloride or PVC).
      4) Type 4: Low-Density Polyethylene (LDPE).
      5) Type 5: Polypropylene (PP).
      6) Type 6: Polystyrene (PS).

7) Type 7: Other. Use of this code indicates that the package in question is made with a resin other than the six listed above, or is made of more than one resin listed above, and used in a multi-layer combination.

b. Describe maintenance procedures associated with environmentally preferable materials and systems. Provide cleaning recommendations following ASTM E1971 and the approved Integrated Pest Management (IPM) plan.

1) Include potential environmental impacts of recommended maintenance procedures and materials.

2) Include potential indoor air quality impacts of the recommended maintenance procedures and materials.

3) Where the proposed maintenance procedures incorporate composting of plastics, assess the potential effect of each type of plastic to be included on the composting process following ASTM D5509 or ASTM D6002

c. Material Safety Data Sheets: Include MSDSs as specified.

2. Develop environmental management programs for the facility as follows:

a. Waste management program: Develop following ASTM E1609. Maximize the use of source reduction and recycling procedures outlined in ASTM D5834.

b. IAQ management program: Provide for evaluation of indoor Carbon Dioxide concentrations following ASTM D6245. Provide for evaluation of VOCs (volatile organic compounds) in indoor air following ASTM D6345

c. Water management program: Develop a water monitoring program for surface and groundwater on the project site following ASTM D5851 and consistent with the water management program utilized during construction operations.

E. Maintenance Procedures: Include manufacturer's written recommendations and inspection procedures, types of cleaning agents, methods of cleaning, schedule for cleaning and maintenance, and repair instructions.

F. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

G. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect the validity of warranties or bonds.

2.4 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B. Source Information: List each system, subsystem, and piece of equipment included in the manual, identified by product name, and arranged to match the manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each part or piece of equipment:

1. Standard maintenance instructions and bulletins.
2. Drawings, diagrams, and instructions are required for maintenance, including disassembly and component removal, replacement, and assembly.
3. Identification and nomenclature of parts and components.
4. List of items recommended to be stocked as spare parts.

D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:

1. Test and inspection instructions.
2. Troubleshooting guide.
3. Precautions against improper maintenance.
4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
5. Aligning, adjusting, and checking instructions.
6. Demonstration and training video recording, if available.

E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.

F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

G. Maintenance Service Contracts: Include copies of maintenance agreements with the name and telephone number of the service agent.

H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect the validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

PART 3 – EXECUTION

3.1 GENERAL

A. At the start of the project, begin accumulating operation and maintenance data, and initiate an index. Install and index all data in binders within 30 days after delivery of items. As custom written data and test results are produced, add them to the operation and maintenance data file.

B. A list of Operation and Maintenance requirements has been attached at the end of the Division 01 Specifications for your convenience. The intent is to provide an overall summary of requirements and not a comprehensive list. The terms and conditions of the contract still require you to satisfy the requirements of the individual specification sections regardless of what is shown on the list.

C. Keep operation and maintenance data current. Make operation and maintenance binders available to the Contracting Officer for inspection at the time of monthly progress payment requests. If operation and maintenance binders are not current the Contracting Officer may retain an appropriate amount of the progress payment.

3.2 MANUAL PREPARATION

A. Manual Types

1. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by NPS operating personnel for types of emergencies indicated.
2. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
3. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

B. Manual Contents: Including but not limited to:

1. Manufacturers' Data: Where manuals contain manufacturers' standard printed data include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
2. Equipment Data Sheets: For each item of equipment included in the operation and maintenance data, provide an Equipment Data Sheet using the form at the end of this section. For equipment consisting of a driven machine and a driver (for example, a pump and a motor), the equipment data shall cover both the driven machine and the driver. For similar type equipment (for example, multiple exhaust fans of the same model and type), provide a single equipment data sheet with an attached schedule listing the individual equipment items.

C. Comply with Division 01 Section 01 77 00 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION

EQUIPMENT DATA SHEET	
Equipment Item: _____ Designation: _____ Function: _____ Location: _____ Project: _____ Model No.: _____ Serial No.: _____	
Manufacturer Address and Phone:	Supplier Address and Phone:
Preventive Maintenance Tasks:	
Nameplate Data:	
Spare Parts Furnished and Other Information:	

SECTION 01 79 00

DEMONSTRATION & TRAINING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for instructing NPS personnel, including the following:

1. Demonstration of operation of systems, subsystems, and equipment.
2. Training in operation and maintenance of systems, subsystems, and equipment, including environmental considerations.
3. Demonstration and training video.

B. See Divisions 02 through 49 Sections for specific requirements for demonstration and training for products in those Sections.

1.2 GENERAL REQUIREMENTS

A. The intent is to provide an overall summary of requirements and not a comprehensive list. The terms and conditions of the contract still require you to satisfy the requirements of the individual specification sections regardless of what is shown on the list.

1.3 SUBMITTALS

A. Instruction Program: Submit electronic copies of the outline of the instructional program for demonstration and training, including a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objectives and outline for each training module.

1. For each training session, the Contractor shall submit for approval a proposed outline of the subjects to be covered. The training shall not be conducted until the outline is approved.

B. Demonstration and Training Video: Submit 2 copies of each DVD for all training sessions within 7 days of the end of each training module.

1. Label each DVD with the date of demonstration or training, the instructor's name, and provide an index of the contents. The index shall list the start and end time of each subject covered during the training session. The sequence of the training subjects shall follow the sequence listed in the approved training outline or as actually conducted.

1.4 QUALITY ASSURANCE

A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.

B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Division 01 Section 01 40 00 "Quality Requirements," experienced in operation and maintenance procedures and training.

C. Coordinate content of training modules with the content of approved emergency, operation, and maintenance manuals. Do not submit an instruction program until operation and maintenance data has been reviewed and approved by the Contracting Officer.

PART 2 – PRODUCTS

2.1 INSTRUCTION PROGRAM

A. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections.

B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, including instruction for the following:

1. Basis of System Design, Operational Requirements, and Criteria: Include system and equipment descriptions, operating standards, regulatory requirements, equipment function, operating characteristics, limiting conditions, and performance curves.
2. Documentation: Review emergency, operations, and maintenance manuals; Project Record Documents; identification systems; warranties and bonds; and maintenance service agreements.
3. Emergencies: Include instructions on stopping; shutdown instructions; operating instructions for conditions outside normal operating limits; instructions on the meaning of warnings, trouble indications, and error messages; and required sequences for electric or electronic systems.
4. Operations: Include startup, break-in, control, and safety procedures; stopping and normal shutdown instructions; routine, normal, seasonal, and weekend operating instructions; operating procedures for emergencies and equipment failure; and required sequences for electric or electronic systems.
5. Adjustments: Include alignments and checking, noise, vibration, economy, and efficiency adjustments.
6. Troubleshooting: Include diagnostic instructions and test and inspection procedures.
7. Maintenance: Include inspection procedures, types of cleaning agents, methods of cleaning, procedures for preventive and routine maintenance, and instruction on the use of special tools.
8. Repairs: Include diagnosis, repair, and disassembly instructions; instructions for identifying parts; and review of spare parts needed for operation and maintenance.

PART 3 – EXECUTION

3.1 INSTRUCTION

A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between the Contractor and Contracting Officer for the number of participants, instruction times, and location.

B. Engage qualified instructors to instruct NPS personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

C. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires a seasonal operation, provide similar instruction at the start of each season.

1. Schedule training with NPS through the Contracting Officer with at least 7 days' advance notice.
2. Conduct training sessions after the equipment or system has been accepted and turned over to the Government. Coordinate with commissioning requirements.
3. Individual sections specify the duration of the training required. If no duration is listed, provide training of sufficient duration to adequately cover the subjects.

END OF SECTION

SECTION 01 81 13

SUSTAINABLE DESIGN REQUIREMENTS FOR NON-LEED ™ PROJECTS

PART 1 – GENERAL

1.1 SUMMARY

A. This section includes general requirements and procedures for compliance with the Federal Sustainability requirements. This project is not seeking LEED™ certification but shall comply with the applicable Federal Sustainability requirements. These requirements include laws (Executive Orders and regulations), management policies, building codes and standards, Federal directives, and NPS guidelines.

B. Many of the Federal requirements can be achieved only through the intelligent and integrated design of the project and are beyond the control of the Contractor. However, certain requirements relating to the products and procedures used for construction. Therefore, the full cooperation of the Contractor and subcontractors is essential to successful compliance with the Federal requirements.

C. Contractors shall familiarize themselves with the relevant requirements and provide the necessary information and instruction to all subcontractors and installers.

D. Related Sections:

1. See Divisions 01 through 49 Sections for sustainability requirements specific to the work of each of these Sections.

1.2 DEFINITIONS

A. Chain-of-Custody Certificates: Certificates signed by manufacturers certifying that wood used to make products was obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship." Certificates shall include evidence that the manufacturer is certified for a chain of custody by an FSC-accredited certification body.

B. LEED™: Leadership in Energy & Environmental Design. A sustainability rating system developed by the United States Green Building Council.

C. Rapidly Renewable Materials: Materials made from plants that are typically harvested within a 10 year or shorter cycle. Rapidly renewable materials include products made from bamboo, cotton, flax, jute, straw, sunflower seed hulls, vegetable oils, or wool.

D. Recycled Content: The recycled content value of a material assembly shall be determined by weight.

1. "Post-consumer" material is defined as waste material generated by households or by commercial, industrial, and institutional facilities in their role as end-users of the product, which can no longer be used for its intended purpose.
2. "Pre-consumer" material is defined as material diverted from the waste stream during the manufacturing process. Excluded is the reutilization of materials such as rework, regrind, or scrap generated in a process and capable of being reclaimed within the same process that generated it.

E. Biopreferred Products: Commercial or industrial products (other than food or feed) that are composed in whole, or significant part, of biological products, renewable agricultural materials (including plant, animal, and marine materials), or forestry materials and includes biobased intermediate ingredients or feedstocks.

1.3 FEDERAL SUSTAINABILITY DOCUMENTATION SUBMITTALS

A. Most of the Federal sustainability documentation submittals are aggregations of submittals already required in relevant technical specifications. They are mentioned here to ensure that they are collected and organized together to efficiently document compliance with sustainability requirements.

B. Provide preliminary submittals to NPS indicating how the following Federal requirements will be met:

1. Recycled Content: List of specified/proposed materials with recycled content. Indicate cost, post-consumer recycled content, and pre-consumer recycled content for each product having recycled content.
2. Certified Wood: Product data and/or chain-of-custody certificates for products containing certified wood. Include a statement indicating the cost for each certified wood product.
3. Low Emitting Materials – Adhesives and Sealants: Product data for adhesives and sealants used inside the weatherproofing system indicating VOC content of each product used. Indicate VOC content in g/L calculated according to 40 CFR 59, Subpart D.
4. Low Emitting Materials – Paints and Coatings: Product data for paints and coatings used inside the weatherproofing system indicating chemical composition and VOC content of each product used. Indicate VOC content in g/L calculated according to 40 CFR 59, Subpart D.
5. Low Emitting Materials - Flooring: Product data for products containing composite wood or agrifiber products or wood glues indicating that they do not contain urea-formaldehyde resin.
6. Biopreferred Products: Provide a list of all bio-based products used on this project.

PART 2 – PRODUCTS

2.1 RECYCLED CONTENT OF MATERIALS

A. Recycled Content: Provide building materials with recycled content such that post-consumer recycled content plus one-half of pre-consumer recycled content constitutes a minimum of 10% of the cost of materials used for the Project.

1. The cost of the post-consumer recycled content of an item shall be determined by dividing the weight of post-consumer recycled content in the item by the total weight of the item and multiplying by the cost of the item.
2. The cost of pre-consumer recycled content of an item shall be determined by dividing the weight of pre-consumer recycled content in the item by the total weight of the item and multiplying by the cost of the item.
3. Do not include mechanical and electrical components and specialty items such as elevators and equipment in the calculation.

2.2 BIOPREFERRED PRODUCTS

A. Bio-based products found the USDA Biopreferred Products list (http://www.biopreferred.gov/) shall be used where applicable to this project.

2.3 LOW-EMITTING MATERIALS

A. For applications that are inside the weatherproofing system, use adhesives and sealants that comply with the VOC content limits in specification Divisions 2-49.

B. For field applications that are inside the weatherproofing system, use paints and coatings that comply with the VOC content limits in specification Divisions 2-49.

C. Do not use composite wood or agrifiber products or adhesives that contain urea-formaldehyde resin.

PART 3 - EXECUTION

3.1 MEASUREMENT AND VERIFICATION

A. Coordinate with Divisions 2-49 for project requirements regarding the installation of building-level metering equipment to measure energy, water, and electric usage.

3.2 INDOOR-AIR-QUALITY MANAGEMENT

A. Coordinate with Section 01 57 19.11 “Indoor Air Quality Management” for managing indoor air quality during construction and before occupancy.

END OF SECTION

SECTION 01 91 13

GENERAL COMMISSIONING REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. The work included under this section includes a complete and thorough investigation of equipment and systems indicated in Part 3 of this section. To ensure proper installation and operation of components and systems, the Contractor shall perform commissioning as described herein and collaborate with the commissioning authority to accomplish the tasks and goals of commissioning. Systems to be evaluated include but are not limited to the following:

1. Section 23 08 00 - Commissioning of HVAC

C. The NPS personnel, Architect/Engineer, and Commissioning Authority are not responsible for construction means, methods, job safety, or management function related to commissioning on the job site.

D. Related Sections:

1. 01 31 00 – Project Management & Coordination
2. 01 40 00 – Quality Requirements
3. 01 57 19.11 – Indoor Air Quality (IAQ) Management
4. 01 78 23 – Operation & Maintenance Data
5. 01 79 00 – Demonstration & Training

1.2 DEFINITIONS

A. Basis of Design (BoD): The basis of design is the documentation, from the designer, of the primary thought processes and assumptions behind design decisions. The basis of design describes the systems, components, conditions, and methods used in the design.

B. Commissioning Authority (CxA): The Government's designated representative(s) to plan, review, advise, witness, and evaluate the commissioning process of the contractor.

C. Construction Checklist: A form used by the contractor to verify that appropriate components are on-site, ready for installation, correctly installed, and functional.

D. Contractor's Commissioning Representative (CCxR): The Contractor's designated individual to coordinate, manage, and execute the commissioning processes of the contracting organizations, and collaborate with the CxA.

E. Contractor's Commissioning Plan (CCxP): A plan that provides the structure, schedule, and coordination planning for the commissioning process proposed specifically for this project. The CCxP includes personnel, activities, and a description of the infrastructure, and a list of all instruments and logging devices that will be used during Commissioning.

F. Deficiency: A condition in the installation or function of a component, piece of equipment, or system that is not in compliance with the Contract Documents, does not perform properly or is not complying with the Basis of Design.

G. Functional Performance Test (FPT): Test of the dynamic function and operation of equipment and systems using manual (direct observation) or monitoring methods. Functional testing is the dynamic testing of systems (rather than just components) under full operation (e.g., the chiller pump is tested interactively with the chiller functions to see if the pump ramps up and down to maintain the differential pressure setpoint). Systems are tested under various modes, such as during low cooling or heating loads, high loads, component failures, unoccupied, varying outside air temperatures, fire alarm, power failure, etc. The systems are run through all the control system's sequences of operation and components are verified to be responding as the sequences state. Traditional air or water test and balancing (TAB) is not functional performance testing, in the commissioning sense of the word. TAB's primary work is setting up the system flows, and pressures as specified, while functional testing is verifying that which has already been set up. The Commissioning Authority (CxA) develops the sequentially written functional test procedure forms and oversees and documents the actual testing, which is performed by the installing contractor or vendor. The CCxR creates worksheets from these forms which include procedures required to accommodate actual equipment, means, and methods used in the project. Functional Performance Tests are performed after pre-functional checklists and startups are complete.

H. Manual Test: Using hand-held instruments, control system readouts or direct observation to verify performance (contrasted to analyzing electronically monitored data taken over time to make the "observation.")

I. Monitoring: The recording of parameters (flow, current, status, pressure, etc.) of equipment operation using data loggers or the trending capabilities of control systems.

J. Pre-functional Checklist: A list of items to inspect and elementary component tests to conduct to verify the proper installation of equipment, provided by the CxA to the contractor. Pre-functional checklists are primarily static inspections and procedures to prepare the equipment or system for initial operation (e.g., belt tension, oil levels ok, labels affixed, gages in place, sensors calibrated, etc.). However, some pre-functional checklist items entail simple testing of the function of a component, a piece of equipment, or system (such as measuring the voltage imbalance on a three-phase pump motor of a chiller system). The word "pre-functional" refers to "before" functional testing. Pre-functional checklists augment the inspection and are combined with the equipment manufacturer's start-up checklist.

K. Seasonal Performance Tests: Functional Performance Tests that are deferred until the system(s) will experience seasonal conditions closer to their design conditions.

L. Systems Manual: A system-focused composite document that includes the operational manual, maintenance manual, and additional information of use to the Government during the Occupancy and Operation Phase.

1.3 COMMISSIONING TEAM

A. Members Appointed by Contractor(s): Individuals, each having the authority to act on behalf of the entity he or she represents, explicitly organized to implement the commissioning process through coordinated action.

1. CxA: The Commissioning Authority. In the case of this project, it is anticipated that the CxA will be the PWTS manufacturer's trained representative.
2. CCxR: The Contractor's Commissioning Representative. The CCxR shall be approved by the Contracting Officer (CO) and satisfy as many of the following requirements as possible:
   a. Certified in Commissioning by a nationally accredited organization.
   b. Past commissioning experience.
   c. Knowledge of national codes.
   d. Experience in design and control strategy optimization.
   e. Specific experience with specialty systems relative to the particular facility type.
3. CQC Supervisor: Contractor's quality control supervisor
4. Other Representatives: May include Project superintendents, installers, suppliers, and specialists.

B. Members Appointed by Contracting Officer (CO):

1. Representatives of the facility user and operation and maintenance personnel.
2. Architect and engineering design professionals.

1.4 CONTRACTOR'S RESPONSIBILITIES

A. Contractor shall assign representatives with expertise and authority to act on its behalf and shall schedule them to participate in and perform commissioning process activities including, but not limited to, the following:

1. Perform commissioning tests, as required by the technical specifications with oversight and acceptance of CxA. Evaluate performance deficiencies identified in test reports and, in collaboration with the entity responsible for system and equipment installation, recommend corrective action.
2. Record and resolve commissioning issues in cooperation with the CxA.
3. Integrate and coordinate commissioning process activities with the overall project schedule.
4. Coordinate with the CxA in the review and acceptance of the commissioning process test procedures as described in the contract documents.
5. Complete commissioning process test procedures.
6. Provide maintenance orientation and inspection for systems, assemblies, equipment, and components based on contract requirements.
7. Provide Contractor's Commissioning Plan and documentation required by the CxA for final commissioning documentation.
8. Provide measuring instruments and logging devices to record test data and provide data acquisition equipment to record data for the complete range of testing for the required test period.

1.5 COMMISSIONING DOCUMENTATION

A. Provide the following information:

1. Review of systems manual, submittals, documents, and other commissioning reports.
2. Identification of installed systems, assemblies, equipment, and components including design changes that occurred during the construction phase.
3. Contractor's Commissioning Plan including Process activities and schedule for completing construction checklists and manufacturer's pre-start and startup checklists for systems, assemblies, equipment, and components to be verified and tested.
4. Test and inspection reports and certificates.
5. Corrective action documents.
6. Testing, adjusting, and balancing reports.

1.6 SUBMITTALS

A. Contractor's Commissioning Representative Qualifications.

B. Contractor's Commissioning Plan: Submit within 30 calendar days of notice to proceed.

C. Deficiency Report and Resolution Record: Document items of non-compliance in materials, installation, or operation. Document the results from start-up/pre-functional checklists, functional performance testing, and short-term diagnostic monitoring. Include details of the components or systems found to be non-compliant with the drawings and specifications. Identify adjustments and alterations required to correct the system operation and identify who is responsible for making the corrective changes.

D. Closeout Documentation

1. Closeout documents for commissioned equipment and systems shall be submitted before the functional performance testing. These include, but are not necessarily limited to:
   a. Record Documents and Drawings
   b. Start-up certificates for all commissioned equipment with start-up requirements.
   c. Systems Manual
   d. Include TAB, startup, and Control System check-out reports.
2. O&M Submittals (refer to requirements of technical specifications)

PART 2 – PRODUCTS

2.1 TEST EQUIPMENT

A. Instrumentation shall meet the following standards:

1. Be of sufficient quality and accuracy to test and measure system performance within the tolerances required to determine adequate performance.
2. Be calibrated on the manufacturer's recommended intervals with calibration tags permanently affixed to the instrument being used.
3. Be maintained in good repair and operating condition throughout use on this project.

B. All standard testing equipment required to perform startup and initial checkout and required functional performance testing shall be provided by the Contractor for the equipment being tested.

C. All required commissioning equipment (sensors, transducers, data loggers, etc.) not integral to the systems or equipment installed will be provided by the Contractors Commissioning Representative and shall not become the property of the Government.

2.2 FUNCTIONAL PERFORMANCE WORKSHEETS:

A. Functional Performance Test forms consist of the test procedures and expected results of the testing witnessed by the Commissioning Authority.

B. The contractor shall review and coordinate the forms, customizing them to reflect project-specific worksheets, accounting for the contractor's means, methods, and materials.

PART 3 - EXECUTION

3.1 COMMISSIONING PROCESS

A. The following activities outline the general commissioning tasks (requiring development, execution, etc.) and order in which they occur. Specific Commissioning requirements are found in the technical specifications.

1. Contractor's Commissioning Plan.
2. Start-Up/Pre-Functional Checklists.
3. Functional Performance Testing.
4. Deficiency Report and Resolution Record.
5. Operation and Maintenance Documentation.
6. Operations and Maintenance Training.
7. Deferred testing.

3.2 CONTRACTOR'S COMMISSIONING PLAN

A. Commissioning Plan: Develop a commissioning plan to identify how commissioning activities will be integrated into general construction and trade activities. The commissioning plan shall identify how commissioning responsibilities are distributed. This plan intends to evoke questions, expose issues, and resolve issues with input from the entire commissioning team early in construction.

1. Identify who will be responsible for producing the various procedures, reports, CO notifications, and forms.
2. Include the commissioning tasks and activities in the overall project schedule.
3. List and describe each test/acceptance procedure.

3.3 START-UP/PRE-FUNCTIONAL CHECKLISTS

A. Start-Up/Pre-Functional Checklists: Complete pre-functional checklists before startup. The checklist shall help verify that the systems are complete and operational so that the functional performance testing can be scheduled.

1. Verify equipment installed is what was approved on the Submittal.
2. Manufacturer's start-up checklists and other technical documentation guidelines may be used as the basis for pre-functional checklists.

3.4 FUNCTIONAL PERFORMANCE TESTING

A. Functional Performance Testing: Test procedures shall fully describe system configuration and steps required for each test; procedures shall be appropriately documented so that another party can repeat the tests with virtually identical results.

1. Test Methods: Functional performance testing and verification may be achieved by direct manipulation of system inputs (i.e. heating or cooling sensors), manipulation of system inputs with the automation system (i.e. software override of sensor inputs), trend logs of system inputs, and outputs using the automation system, or short-term monitoring of system inputs and outputs using standalone data loggers. A combination of methods may be required to completely test the complete sequence of operations. The Commissioning Authority shall determine which method or combination of methods is most appropriate.
2. Setup: Each test procedure shall be performed under conditions that simulate normal operating conditions as closely as possible. Where equipment requires integral safety devices to stop/prevent equipment operation unless minimum safety standards or conditions are met, functional performance test procedures shall demonstrate the actual performance of safety shutoffs in real or closely-simulated conditions of failure.
3. Sampling: Multiple identical pieces of non-life-safety or non-critical equipment may be functionally tested using a sampling strategy. If, after three attempts at testing the specified sample percentage, failures are still present, then all remaining units shall be tested at the Contractors' expense.

B. Coordinate, execute, and record the results of the functional performance testing.

1. Coordinate retesting as necessary until satisfactory performance is verified.
2. Verify the intended operation of individual components and system interactions under various conditions and modes of operation.

3.5 DEFICIENCY REPORT AND RESOLUTION RECORD

A. Deficiency Report and Resolution Record: Document items of non-compliance in materials, installation, or operation.

B. Non-Conformance. Non-conformance and deficiencies observed shall be addressed immediately. Notify responsible parties and provide recommended actions to correct deficiencies.

1. Corrections of minor deficiencies identified may be made during the tests at the discretion of the Commissioning Authority. In such cases, the deficiency and resolution shall be documented in the procedure form.
2. For identified deficiencies:
   a. If there is no dispute on the deficiency and the responsibility to correct it:
      1) The CxA documents the deficiency and the adjustments or alterations required to correct it. The contractor corrects the deficiency and notifies the CxA that the equipment is ready to be retested.
      2) The CCxR reschedules the test and the test is repeated until satisfactory performance is achieved.
   b. If there is a dispute about a deficiency or who is responsible:
      1) The deficiency is documented by the CxA on the non-compliance form and a copy is given to the CCxR.
      2) Resolutions are made at the lowest management level possible. Additional parties are brought into the discussions as needed. The contractor shall have responsibility for resolving construction deficiencies. If a design revision is deemed necessary and approved by the Contracting Officer, the Architect/Engineer shall have responsibility for providing design revision. The Commissioning Authority documents the resolution process.
      3) Once the interpretation and resolution have been decided, the appropriate party corrects the deficiency and notifies the CxA that the equipment is ready to be retested. The CCxR reschedules the test and the test is repeated until satisfactory performance is achieved.
3. Cost of Retesting: Costs for retesting shall be charged to the Contractor.

3.6 OPERATIONS AND MAINTENANCE TRAINING

A. Training: Coordinate and execute the training programs with the CxA.

1. Stress and enhance the importance of system interactions, troubleshooting, and long-term preventive maintenance and operation programs.

3.7 DEFERRED TESTING

A. Unforeseen Deferred Tests: If a test cannot be completed, the functional testing may be delayed upon recommendation of the CxA and the approval of the Contracting Officer. These tests are conducted in the same manner as the seasonal tests, as soon as possible.

B. Seasonal Testing;

1. Schedule, coordinate, execute, and document additional testing for seasonal variation in operations and control strategies during the appropriate season to verify the performance of the HVAC system and controls. Complete testing during the warranty period to fully test all sequences of operation.
2. Update O&M manuals and Project Record Drawings as necessary due to the testing.

END OF SECTION

SUBMITTAL LIST

Park Acronym/Project Management Information System (PMIS) Number: **FOSU 316098**

Project Title: **REPLACE HVAC SYSTEMS AT LIBERTY SQUARE VISITOR EDUCATION CENTER**

SUBMITTAL			REQUIREMENTS (Indicate with **X**)							
			INFORMATIONAL				ACTION			
SPECIFICATION SECTION	PARAGRAPH NUMBER	DESCRIPTION	CERTIFICATIONS OR LABORATORY TESTS	REPORTS OR CALCULATIONS OR PLAN	MANUFACTURER DATA AND INSTRUCTIONS	OTHER	SAMPLES	SHOP DRAWINGS	MANUFACTURER DATA AND INSTRUCTIONS	OTHER
DIVISION 1 SPECIFICATIONS										
01 31 00	Project Management & Coordination									
	1.3.A	Division 1 Documents		X						
	1.4.A	General: RFI		X						
01 32 16	Construction Progress Schedule									
	1.3.B	Schedule of Values		X						
	1.3.C	Construction Baseline Schedule				X				
	1.3.D	Construction Schedule updates				X				
	1.3.E	Construction Schedule Revisions and Time Impact Analysis				X				
	1.4.B	Contractor's Schedule Representative				X				
01 32 33	Photographic Documentation									
	1.2.A	Construction Images		X						
01 35 23	Safety Requirements									
	1.2.A	Accident Prevention Plan		X						
01 40 00	Quality Requirements									
	1.4.A	Quality Control Plan		X						
	1.4.B	Qualification Data	X							
	1.4.C	Contractor's Quality Control Daily Reports		X						
	1.4.D	Test Reports		X						
	1.4.E	Off-Site Inspection Reports		X						
	1.4.G	Permits, Licenses, and Certificates	X							
	1.6.A.2	Quality Control Service Reports		X						
	1.6.D.4	Certified written test reports, inspections and other Quality Control services.		X						X
01 57 19.11	Indoor Air Quality Management									
	1.3.A	Indoor Air Quality (IAQ) Management Plan		X						
	1.3.B	Product Data			X				X	
01 57 23	Temporary Storm Water Pollution Control									
	1.3.A	UPPP Plan		X						
	1.3.B	Inspection Schedule				X				
	1.3.C	Erosion Control Manufacturer's Product Information			X					X
	1.4.A	Quality Assurance Plan		X						
	1.4.C	Pollution Control Manager Designee					X			
01 67 00	Product Requirements									
	1.3.A.1	Affirmative Procurement Reporting Form		X						
	1.3.A.2	Environmental Data			X				X	
	1.3.A.3	SDS - Safety Data Sheets (formerly MSDS)			X				X	
	1.3.A.4	Chain-of-Custody Documentation			X				X	
	1.8.B	Special Warranties			X				X	

SUBMITTAL LIST

Park Acronym/Project Management Information System (PMIS) Number: **FOSU 316098**

Project Title: **REPLACE HVAC SYSTEMS AT LIBERTY SQUARE VISITOR EDUCATION CENTER**

SUBMITTAL			REQUIREMENTS (Indicate with **X**)							
			INFORMATIONAL				ACTION			
SPECIFICATION SECTION	PARAGRAPH NUMBER	DESCRIPTION	CERTIFICATIONS OR LABORATORY TESTS	REPORTS OR CALCULATIONS OR PLAN	MANUFACTURER DATA AND INSTRUCTIONS	OTHER	SAMPLES	SHOP DRAWINGS	MANUFACTURER DATA AND INSTRUCTIONS	OTHER
01 73 40	Execution									
	1.2.A	Landfill Receipts	X							
	1.2.B	Quantity Surveys		X						
01 74 19	Construction Waste Management & Disposal									
	1.4.A	Waste Management Plan								
	1.4.B	Progress Documentation		X						
	1.4.C	Waste Reduction Calculations		X						
	1.4.D	Records of Donations		X						
	1.4.E	Records of Sales		X						
	1.4.F	Recycling and Processing Facility Records		X						
	1.4.G	Landfill and Incinerator Disposal Records		X						
	1.4.H	Qualification Data		X						
	1.4.I	Statement of Refrigerant Recovery				X				
	1.4.J	Progress Payment		X		X				
01 77 00	Closeout Procedures									
	1.3.A	Closeout documents	X	X	X				X	
	1.6	Warranties			X					
01 79 00	Demonstration and Training									
	1.3.A	Instruction Program Outline		X						
	1.3.B	Demonstration and Training Video		X		X				
01 81 13	Sustainable Design Requirements for Non-LEED Projects									
	1.3.B.1	Recycled Content List		X						
	1.3.B.2	Certified Wood Product Data			X					
	1.3.B.3	Low Emitting Materials - Adhesives and Sealants Product Data			X				X	
	1.3.B.4	Low Emitting Materials - Paints and Coatings Product Data			X				X	
	1.3.B.5	Low Emitting Materials - Flooring Product Data			X				X	
	1.3.B.6	Biopreferred Product List		X						
01 91 13	General Commissioning Requirements									
	1.6.A	Contractor's Commissioning Representative Qualification	X							
	1.6.B	Contractor's Commissioning Plan		X						
	1.6.C	Deficiency Report and Resolution Record		X						
	1.6.D	Closeout Documentation		X						
DIVISION 2-49 SPECIFICATIONS										
02 41 00	Demolition & Abandonment									
	1.2.B.1	Permit for transportation and disposal of debris								X
	1.2.B.2	Proposed method and schedule		X						
05 12 00	Structural Framing									
	1.3.B	Shop Drawings						X		
	1.3.C	Welding Procedure Specifications		X						
	1.3.D	Welder Performance Qualification Records	X							
	1.3.E	Welders' Certificates	X							

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	1.3.F	Manufacturer's Certificate	X		X				X	
	1.3.G	Product Data			X				X	
	1.3.H	Mill Test Reports		X						
	1.4.D	Fabricator Qualifications	X							
	1.5.B.2	Testing Procedures, Qualifications and Rports	X	X						
05 14 00	Louvers & Vents									
	1.4.B	Product Data			X				X	
	1.4.C	Shop Drawings						X		
	1.4.D	Samples					X			
05 50 00	Metal Fabrications									
	1.2.A	Product Data			X				X	
	1.2.B	Shop Drawings						X		
07 84 00	Firestopping									
	1.4.A.1	Shop Drawings						X		
	1.4.A.3	Product Data			X				X	
	1.4.A.4	Test Reports		X						
	1.4.A.5	Certificates	X							
	1.4.A.6	Inspector Qualifications	X							
	1.4.A.8	Installer Qualifications								
07 90 00	Joint Sealers									
	1.3.B	Low Emitting Materials			X				X	
	1.3.C	Product Data			X				X	
09 29 00	Gypsum Board Assembly									
	1.2.A	Product Data			X				X	
09 51 10	Suspended Acoustical Ceilings									
	1.2.A	Product Data			X				X	
	1.2.B	Samples					X			
09 90 00	Painting and Coatings									
	1.4.A	Paint Draw Down Sample					X			
23 01 30.51	HVAC Air Duct Cleaning									
	1.2.D	Records of Experience	X							
	1.2.E.3	Material Safetry Data Sheets			X				X	
23 01 60.71	Refrigerant Recovery/Recycling									
	1.4.A	Recovery Equipment and Procedure Data		X	X				X	
23 05 00	Common Work Results for HVAC									
	1.4.B	Product Data			X				X	
	1.4.C	Shop Drawings						X		
	1.4.D	Coordination Drawings						X		
	1.4.F	Lateral Force Anchorage		X						
	1.4.G	Record Documents				X				X
23 05 23	General Duty Valves for HVAC Piping									
	1.4.A	Product Data			X				X	

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23 05 29	Hangers and Supports for HVAC Piping and Equipment									
	1.5.A	Product Data			X				X	
	1.5.B	Shop Drawings						X		

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	1.5.C	Delegated-Design		X						
	1.5.D	Welding Certificates	X							
23 05 33	Heat Tracing for HVAC Piping									
	1.3.A	Product Data			X				X	
	1.3.B	Shop Drawings						X		
	1.3.C	Testing Instructions and Reporting Form		X	X				X	
	1.4.A	Field Quality Control Reports		X						
23 05 48	Vibration and Seismic Controls for HVAC Piping and Equipment									
	1.3.B	Product Data			X				X	
	1.3.C	Shop Drawings						X		
23 05 53	Identification for HVAC Piping and Equipment									
	1.3.A	Product Data			X				X	
	1.3.B	Samples					X			
	1.3.C	Equipment Label Schedule		X						
	1.3.D	Valve Numbering Scheme		X						
	1.3.E	Valve Schedule		X						
23 05 93	Testing, Adjusting and Balancing for HVAC									
	1.4.A	LEED Submittal			X					
	1.4.B	Qualification Data	X							
	1.4.C	Contract Document Examination Report		X						
	1.4.D	Strategies and Procedure Plan		X						
	1.4.E	Certified TAB Report		X						
	1.4.F	Sample Report Form		X						
	1.4.G	Instrument Calibration Reports		X						
23 07 00	HVAC Insulation									
	1.3.A	Product Data			X				X	
	1.3.B	Shop Drawings						X		
	1.3.C	Samples					X			
	1.3.D	Qualification Data	X							
	1.3.E	Material Test Report		X						
	1.3.F	Field Quality Control Report		X						
23 07 13	Ductwork Insulation									
	1.4.B	Product Data			X				X	
23 07 19	HVAC Piping Insulation									
	1.3.A	Product Data			X				X	
	1.3.B	Shop Drawings						X		
	1.4.A	LEED Submittal			X					

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23 08 00	Commissioning of HVAC									
	1.5.B	Commissioning Plan		X						
	1.5.C	Functional Performance Tests (FPT)		X						
23 09 13	Instrumentation and Control Devices for HVAC									
	1.5.A.1	Product Data			X				X	
23 09 23	Direct Digital Contol System for HVAC									
	1.3.A	System Schematic Diagram		X						
	1.3.E	Bill of Materials and Catalog Data			X				X	
	1.3.F	Trunk Cable Schematic						X		
	1.3.G	Connected Data Points List		X						
	1.3.H	Catalog Data			X				X	
	1.4.B	Shop Drawings						X		
	1.4.D	Controls Systems Commissioning				X				
23 11 23	Facility Natural Gas Piping									
	1.4.C	Manufacturer's Literature and Data			X				X	
	1.4.D	Shop Drawings						X		
	1.4.F	System Readiness Checklists				X				X
	1.4.G	Training Plans		X						
23 21 13	Hydronic Piping									
	1.3.A	Product Data			X				X	
	1.4.A	Qualification Data	X							
	1.4.B	Welding Certificates	X							
	1.4.C	Field Quality Control Reports		X						
23 21 16	Hydronic Piping Specialties									
	1.3.A	Product Data			X				X	
23 21 23	Hydronic Pumps									
	1.4.C	Manufacturer's Literature and Data			X				X	
	1.4.D	Characteristic Curves			X				X	
	1.4.F	System Readiness Checklists				X				X
	1.4.G	Training Plans		X						
23 25 00	HVAC Water Treatment									
	1.4.B	Product Data			X				X	
	1.4.C	Water Analysis Verficiation	X							
	1.4.D	Materials Safety Data Sheet			X				X	
23 31 00	HVAC Ducts and Casings									
	1.4.C	Product Data			X				X	
	1.4.E	System Readiness Checklist		X						
	1.4.F	Training Plans and Instructor Qualifications	X	X						
	1.6.A	Manufacturer's Literature and Data			X				X	
	1.6.C	As-Built Drawings						X		
	1.6.D	Certification Documentation	X							

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SPECIFICATION SECTION	PARAGRAPH NUMBER	DESCRIPTION	CERTIFICATIONS OR LABORATORY TESTS	REPORTS OR CALCULATIONS OR PLAN	MANUFACTURER DATA AND INSTRUCTIONS	OTHER	SAMPLES	SHOP DRAWINGS	MANUFACTURER DATA AND INSTRUCTIONS	OTHER
23 31 13	Metal Ducts									
	1.4.A	Product Data			X				X	
	1.4.B	Shop Drawings						X		
	1.4.C	Delegated Design		X						
	1.4.D	Coordination Drawings		X				X		
	1.4.E	Welding Certificates	X							
	1.4.F	Field Quality Control Reports		X						
23 31 13.19	Metal Duct Fittings									
	1.3.C	Shop Drawings						X		
	1.3.D	Product Data			X				X	
23 33 00	Air Duct Accessories									
	1.3.A	Product Data			X				X	
	1.3.B	LEED Submittal			X					
	1.3.C	Shop Drawings						X		
	1.3.D	Coordination Drawings		X				X		
	1.3.E	Source Quality Control Reports		X						
23 34 23	HVAC Power Ventilators									
	1.4.A	Product Data			X				X	
	1.4.B	Shop Drawings						X		
	1.4.C	Coordination Drawings		X				X		
	1.4.D	Field Quality Control Test Reports		X						
23 36 16	Variable Air Volume Units									
	1.5.A	Product Data			X				X	
	1.5.B	Sound Performance Data		X						
23 37 00	Air Outlet and Inlets									
	1.3.B	Shop Drawings						X		
	1.3.C	Product Data			X				X	
23 51 23	Gas Vents									
	1.4.B	Product Data			X				X	
	1.4.C	Verification Samples					X			
	1.4.D	Shop Drawings						X		
23 52 16	Condensing Boilers									
	1.02.A	Product Data			X				X	
	1.02.B	Efficiency Curves			X				X	
	1.02.C	Pressure Drop Curve			X				X	
	1.02.E	Source Quality Control Test Reports		X						
	1.02.F	Field Quality Control Test Reports		X						
	1.02.I.A	ASME Stamp Certification and Report	X	X						
23 64 16.13	Air Cooled Centrifugal Water Chillers									
	1.04.A	Shop Drawings						X		

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23 73 00	Indoor Central-Station Air Handling Units									
	1.4.B	Product Data			X				X	
23 84 16	Mechanical Dehuumidification Units									
	1.3	General Product Data and Certifications	X		X				X	
26 05 00	Common Work Results for Electrical									
	1.3.B	Shop Drawings						X		
26 05 19	Low Voltage Electrical Power Conductors and Cables									
	1.4.A	Product Data			X				X	
	1.4.B	Field Quality Control Test Reports		X						
26 05 23	Control Voltage Electrical Cables									
	1.3.A	Product Data			X				X	
	1.3.B	Field Quality Control Reports		X						
26 05 26	Grounding and Bonding for Electrical Systems									
	1.3.A	Product Data			X				X	
26 05 29	Hangers and Supports for Electrical Systems									
	1.5.B	Product Data			X				X	
26 05 33	Raceways and Boxes for Electrical Systems									
	1.4.A	Product Data			X				X	
	1.4.B	Shop Drawings						X		
26 05 48	Vibration and Seismic Requirements for Electrical Systems									
	1.5.A	Product Data			X				X	
	1.5.B	Coordination Drawings						X		
	1.5.C	Welding Certificates	X							
	1.5.D	Qualification Data	X							
	1.5.E	Field Quality Control Test Reports		X						
26 05 53	Identification for Electrical Systems									
	1.3.A	Product Data			X				X	
26 27 26	Wiring Devices									
	1.4.A	Product Data			X				X	
	1.4.B	Shop Drawings						X		
	1.4.C	Samples					X			
	1.4.D	Field Quality Control Test Reports		X						
26 28 13	Fuses									
	1.3.A	Product Data			X				X	
26 28 16	Enclosed Switches and Circuit Breakers									
	1.4.A	Product Data			X				X	
	1.4.B	Shop Drawings						X		
26 29 23	Variable Frequency Motor Controllers									
	1.5.A	Product Data			X				X	
	1.5.B	Shop Drawings						X		
	1.5.C	Product Certificates			X				X	

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	1.5.D	Source Quality Control Reports		X						
	1.5.F	Load-Current and Overload-Relay Heater List		X						
	1.5.G	Load-Current and List of Settings of Adjustable Overload Relays		X						
31 22 19	Finish Grading									
	1.3.A	Quality Control / Assurance	X							
31 23 00	Excavation and Fill									
	1.3.B.1	Sheeting and Shoring Plan		X						
	1.3.B.2	Potholing Report		X						
	1.3.A.3	Samples and Test Results	X				X			
31 23 33.20	Restoration of Surfaces									
	1.3.A	Schedule of Restoration Operations		X		X				
31 25 00	Soil Erosion & Sediment Control									
	1.3.B	Quality Assurance / Control Plan		X						
32 11 23	Aggregate Base Course									
	1.3.B	Commercail Source Certification	X							
	1.3.C	Independent Testing Report and Certification	X	X						
	1.3.D	Independent Testing Laboratory Qualifiaction				X				
	1.3.E	Independent Field Testing Service Qualifiaction				X				
	1.3.F	Quality Control Submittals				X				

Closeout and Operation & Maintenance (O&M) Requirements FOSU - 316098

National Park Service (NPS) - Denver Service Center (DSC) | 1-8-2023

Topic	Specification Section	Requirement	Submittal Date	Completed	Received by Park
Project Record	01 32 33.1.2.B	Complete set of digital image electronic files as a Project Record Document			
	01 77 00.1.3.A.3	Project Record Documents			
System and Training	01 77 00.1.3.A.14	Instruct NPS personnel - O&M & adjustment of all products, equipment, & systems			
	01 79 00.1.3.B	Demonstration and Training Videos			
	23 11 23.1.4.G	Training Plans			
	23 21 23.1.4.G	Training Plans			
	23 31 00.1.4.F	Training Plans and Instructor Qualifications			
	23 36 16.1.6.B	Documentation, Testing and Training of Operation and Maintenance Personell			
Tools, Spare Parts, Equipment	01 77 00.1.3.A.6	Provide Special tools			
	09 51 10.1.5.A	Furnish Extra Materials			
	23 21 16.1.5.A	Provide: flowmeter, probes, hoses, flow charts, and carrying case			
	23 33 00.1.5.A	Furnish Extra Materials			
	26 28 13.1.7.A	Furnish Extra Materials			
	26 28 16.1.8.A	Furnish Extra Materials			
Extra Stock	01 77 00.1.3.A.6	Deliver spare parts, extra materials, etc.			
Reports	01 40 00.1.4.D	Test Reports			
	01 74 19.1.4.K	Project Waste Management Solid Waste Disposal Worksheet			
	01 77 00.1.3.A.2	NPS required forms for occupancy, Fire Sprinkler/Alarm acceptance, and any other similar forms or certificates			
	01 77 00.1.3.A.4	Environmental Record Documents			
	01 77 00.1.3.A.9	Pre-functional checklists and functional performance testing reports			
	01 77 00.1.3.A.10	Test and balance report			
	01 91 13.1.6.D.1	Closeout documents (record documents & drawings), O & M data, & LEED documents			
	05 12 00.1.3.H	Mill Test Reports			
	23 05 33.1.4.A	Field Quality Control Reports			
	23 05 33.1.5.B	System Test Report			
	23 05 93.3.10	Testing and Balancing Final Report			
	23 33 00.1.3.E	Source Quality Control Reports			
	23 34 23.1.4.D	Field Quality Control Test Reports			
	23 52 16.1.02.I.A	ASME Stamp Certification and Report			
	26 05 19.1.4.B	Field Quality Control Test Reports			
	26 05 23.1.3.B	Field Quality Control Reports			
	26 05 48.1.5.E	Field Quality Control Test Reports			
	26 27 26.1.4.D	Field Quality Control Test Reports			
	26 29 23.1.5.D	Source Quality Control Reports			
	32 11 23.1.3.C	Independent Testing Report and Certification			
Keys & Keying Schedule	01 77 00.1.3.A.7	Keys and Keying Schedule			
O&M Data	01 77 00.1.3.A.1	Operation and Maintenance Manual			
	01 77 00.1.6	Warranties, guarantees, workmanship bonds, final certifications, and similar documents			
	01 77 00.1.3.A.5	Posted Operating Instructions			
	01 78 23.1.2	Digital and Hard Copies of O&M Manuals			
	01 78 23.2.2.B.7	Warranties and Bonds			
	01 78 23.2.3.G	Warranties and Bonds			
	01 78 23.2.4.H	Warranties and Bonds			
	07 90 00.1.7.A	Guarantee Including Warranty			
	23 05 00.1.4.E	Operation and Maintenance Data			
	23 05 33.1.4.B	Sample Warranty			
	23 05 33.1.5.A	Operation and Maintenance Data			
	23 05 48.1.3.D	Operation and Maintenance Data			
	23 05 53.2.1.D	Equipment Label Schedule			
	23 09 13.1.5.A.3	Operating and Maintenance Manuals			
	23 09 23.1.4.A	Operation and Maintenance Manuals			
	23 09 23.1.4.C	Operation and Maintenance Data			
	23 11 23.1.4.E	Operation and Maintenance Manuals			
	23 21 23.1.4.E	Operating and Maintenance Manuals			
	23 21 23.1.6.B	Operation and Maintenance Data			
	23 25 00.1.4.E	Maintenance and Operating Instructions			
	23 31 00.1.4.D	Operating and Maintenance Manuals			
	23 31 00.1.6.B	Operation and Maintenance Data			
	23 33 00.1.3.F	Operation and Maintenance Data			
	23 34 23.1.4.E	Operation and Maintenance Data			
	23 51 23.1.4.B.6	Product Warranty			
	23 52 16.1.02.G	Operation and Maintenance Data			
	23 52 16.1.02.H	Warranty			
	23 64 16.13.1.03.C	Warranty			
	23 64 16.13.1.03.D	Maintenance Service			
	26 05 00.1.7.A	Maintenance and Operating Instructions			
	26 05 00.1.8.A	Warranties			
	26 05 23.1.3.C	Maintenance Data			
	26 27 26.1.4.E	Operation and Maintenance Data			
	26 28 13.1.3.B	Operation and Maintenance Data			
	26 28 16.1.4.C	Operation and Maintenance Data			
	26 29 23.1.5.E	Operation and Maintenance Data			
	26 29 23.1.10.A	Warranty			