VOLUME 1 OF 2

SEQUOIA & KINGS CANYON NATIONAL PARKS

PMIS 317446 (formerly 184085, 246176 & 181622)

REHABILITATE ASH MOUNTAIN AND BUCKEYE WASTEWATER TREATMENT PLANTS

PROJECT SPECIFICATIONS
Division 1 – General Requirements

Prepared for:

Sequoia & Kings Canyon National Parks
Tulare County, California

100% CD DRAFT

April 27, 2022

NATIONAL PARK SERVICE
PACIFIC WEST REGION

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The numbering and lettering of sections and paragraphs in this Project Manual are merely for identification. Sections included are listed in this Table of Contents together with the number of pages in each section. The Contractor shall check their copies of the Project Manual against this Table of Contents and confirm there are no missing pages or completion.

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CONTRACT PRICE SCHEDULE

REHABILITATE ASH MOUNTAIN AND BUCKEYE
WASTEWATER TREATMENT PLANTS

Submit a bid for all items; failure to do so may render the bid non-responsive. On lump sum bid items, provide total price only; on unit price bid items, provide the unit price and the extended amount of bid. If no bid item exists for a portion of the work, include the cost in a relative bid item. In case of an error in the extension of prices, unit price governs. In case of an error in summation, the total of the corrected bid amount governs.

Price award will be made based upon the following equation. The equation that is used will be at the Government's discretion based on available funding at the time of the award.

Equation 1:	Base Price
Equation 2	Base Price + Option 1.
Equation 3	Base Price + Option 1 + Option 2.
Equation 4	Base Price + Option 1 + Option 2 + Option 3.
Equation 5	Base Price + Option 1 + Option 2 + Option 3 + Option 4.
Equation 6	Base Price + Option 1 + Option 2 + Option 3 + Option 4 + Option 5.
Equation 7	Base Price + Option 1 + Option 2 + Option 3 + Option 4 + Option 5 + Option 6.

Description of Project Divisions

Base Price:	Price Items 1 through 28
Bid Option 1:	Price Item 29 – AMWWTF Existing Aeration Tank Conversion to EQ Tank
Bid Option 2:	Price Item 30 – AM Sprayfield Rehabilitation
Bid Option 3:	Price Item 31 – AM Rehabilitate WWTF Existing Service Road
Bid Option 4:	Price Item 32 – AM Sprayfield Monitoring Wells
Bid Option 5:	Price Item 33 – BH Rehabilitation of Existing Housing Road
Bid Option 6:	Price Item 34 – BH Sand Bed Monitoring Wells.

CONTRACT PRICE SCHEDULE

PARK - PMIS: 317446 (formerly 184085, 246176 & 181622)

DEVELOPED AREA: Sequoia & Kings National Park – SEKI AMWWTF & BHWWTF

PROJECT TITLE: Rehabilitate Ash Mountain (AM) And Buckeye Housing (BH) Wastewater Treatment Plants

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 Baseline 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 an error in the calculation of extended prices, the unit price governs. In case of an error in summation, the total of the corrected amount governs. 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 the award. At the option of the Government, the period for the exercise of options at the proposed prices shall extend 180 calendar days from the date of the 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
	ASH MOUNTAIN				
1	AM WWTF Backup Generator	1	Lump-Sum		$
2	AM WWTF Sewer Cleaner Truck Dump Station	1	Lump-Sum		$
3	AM WWTF Control Building	1	Lump-Sum		$
4	AM WWTF Electrical and Control System	1	Lump-Sum		$
5	AM WWTF Existing Oxid. Pond Excavation, Fill & Improvements	1	Lump-Sum		$
6	AM WWTF Headworks	1	Lump-Sum		$
7	AM WWTF New Access Roadway	1	Lump-Sum		$
8	AM WWTF Perimeter Fence Repair and Signage	1	Lump-Sum		$
9	AM WWTF Removal of Old Pretreatment, Tanks, and Buildings	1	Lump-Sum		$
10	AM WWTF Ex. Aeration Tank Conversion to EQ. Tank	1	Lump-Sum		$
11	AM WWTF Install Oxid. Pond #1 Storage Tank (100K)	1	Lump-Sum		$
12	AM Sprayfield Clear and Grub	1	Lump-Sum		$
13	AM Sprayfield Perimeter Fence Repair & Signage	1	Lump-Sum		$

14	AM Sprayfield Rehabilitation	1	Lump-Sum		$
15	AM Rehabilitation of Ex. Lift Station with New Pumps	1	Lump-Sum		$
16	AM RTF Package Treatment System	1	Lump-Sum		$
	BUCKEYE HOUSING				
17	BH WWTF Perimeter Fence Repair and Signage	1	Lump-Sum		$
18	BH WWTF Existing Headworks Rehabilitation	1	Lump-Sum		$
19	BH New Electrical and Control System	1	Lump-Sum		$
20	BH WWTF New Flow Meter	1	Lump-Sum		$
21	BH WWTF New Lift Station	1	Lump-Sum		$
22	BH Rehabilitate WWTF Existing Control Building	1	Lump-Sum		$
23	BH WWTF Infill Lined Lagoon	1	Lump-Sum		$
24	BH WWTF Infill Storage Pond	1	Lump-Sum		$
25	BH New Sand Bed Drainfield	1	Lump-Sum		$
26	BH WWTF Existing Tank Retrofit	1	Lump-Sum		$
	ELECTRICAL SERVICE ALLOWANCE				
27	AM Electrical Service Allowance	1	Lump-Sum		
28	BH Electrical Service Allowance	1	Lump-Sum		
TOTAL BASE PRICE (Contract Line Item Number 1 through 28) ----------					**$**

29	Bid Option 1: AM WWTF Existing Aeration Tank Conversion to Equalization Tank	1	Lump-Sum		$
30	Bid Option 2: AM Sprayfield Rehabilitation	1	Lump-Sum		$
31	Bid Option 3: AM Rehabilitate WWTF Service Road	1	Lump-Sum		$
32	Bid Option 4: AM Sprayfield Monitoring Wells	1	Lump-Sum		$
33	Bid Option 5: BH Rehabilitation of Existing Housing Road	1	Lump-Sum		$
34	Bid Option 6: BH Sand Bed Monitoring Wells	1	Lump-Sum		$
TOTAL PRICE FOR ALL OPTIONS (Contract Line Item Numbers 29 through 34) ---------- ----------					**$**
TOTAL PROPOSED PRICE - BASE PLUS ALL OPTIONS (Contract Line Item Numbers 1 through 34)					**$**
All measurement and payment information is included in Division 01 Specifications Section 01 27 00 - Definition of Contract Line Items.					

END OF SECTION

Letter of Compliance Completion

To: Nicole Mason, Deputy Chief of Maintenance

From: Environmental Protection Specialist THERESA FIORINO Digitally signed by THERESA FIORINO Date: 2022.03.07 10:32:21 -08'00'

Subject: Superintendent approval of Rehabilitate Ash Mountain Wastewater Treatment Plant (PEPC: 100458) (PMIS: 317446) in compliance with federal resource protection laws. For complete compliance information see PEPC Project 100458.

Description of Action (Project Description): This project will rehabilitate the failing wastewater treatment plant at Sequoia and Kings Canyon Park Headquarters at Ash Mountain by replacing the open aeration lagoons with enclosed re-circulating textile filter (RTF) pods which can treat wastewater to a higher standard in a smaller footprint than the existing lagoon treatment. An additional storage tank will be installed in the lagoon footprint to hold treated effluent and a new control building will be constructed to hold upgraded controls. In addition, a short access road down to the RTF pods, storage tank, and new control building will be constructed above the existing lagoons, tied into the existing road, and graded to meet current transportation standards and allow for safe passage for construction equipment and regular daily operations. All existing above ground piping and valves at the existing spray field will be replaced.

SCOPE OF WORK

Limit of Disturbance
Area of disturbance is approximately 65,000 square feet total.

Equipment Replacement
All electrical components, controls, pumps, headworks, and valves will be replaced to meet new system needs.

Treatment System Replacement
- The two existing open treatment lagoons will be partially infilled with approximately 5,000 Cubic Yards (CY) of fill and regraded to a natural contour.
- A perforated pipe underdrain will be installed under and around where each of approximately three enclosed RTFs will be placed to drain water away from the pods; drain water will be fresh (rainwater or groundwater), not contaminated treatment leachate.
- Imported gravel will be poured and leveled for each RTF. The depth installed under each RTF is dependent upon the depth needed to bring the height of the RTF up to 3ft above finished grade. No additional subsurface disturbance will be required to create a leveled surface.
- A crane will be used to place the RTFs on top of the leveled gravel.
- RTFs will be placed in lagoons as they are being infilled so they are at appropriate operating height.

Storage Tank Installation
A 100,000-gallon storage tank will be installed in a similar fashion to the RTFs - partially buried in existing lagoon area with the top of tank approximately 15ft above finished grade. Based on site topography, this will still be out of the line of sight from the main viewshed in the area. The storage tank will be of a color which blends in with the surrounding environment. Two concrete vaults will be installed to house storage tank valves.

Control Building

A new 16'x36' controls building, designed to blend with the historic landscape following specifications outlined by NPS cultural resource specialists, will be constructed within the footprint of the lagoon to house all treatment infrastructure. The specifications are as follows:

- The size, scale, massing, orientation, and roof pitch will be appropriate for the site.
- The building will avoid blocking primary viewsheds and be placed out of site, behind trees or other vegetation.
- The tanks will be located behind the building as much as possible to reduce visibility.
- Existing site conditions, including wooded areas and drops in grade will be used to maximum advantage to limit visibility of the building from the road and Building AM 12.
- Windows will be 2'-8"x3'-4" 1 OVER 1 double hung windows at a similar scale as to what currently exists in the area.
- Windows will be of fiberglass or vinyl with similar profiles.
- The building color pallet will use browns, tans, greys, and green; light colors will be used.

Access Road

- To provide the grade and width needed for safe access of construction equipment and routine operations, a new road will be constructed branching off of the existing road just south of the entrance gate. Its precise location is primarily above the existing lagoons and will be constructed largely with fill in this disturbed location.
- The new road will run north and slope down toward the old treatment ponds, where the new treatment pods and storage tank will be installed.
- Once it is at grade with the new treatment facility, it will have a turn-around loop meeting current transportation standards.
- The new road segment will be approximately 200 feet in length and 20 feet wide.
- The sloped portion of the new road will be paved with asphalt using routine paving methods. Once it is at grade with new treatment facility, it will transition to an all-weather gravel road.
- The existing access road will maintain its current alignment and width. The only modification will be where the new access road ties into it.

IMPORTED MATERIALS

- Materials needed include pumps, pipes, crushed stone, fill, asphalt, concrete, electrical conduit, and wire.
- The lagoons will be infilled with approximately 5,000 CY of imported fill.
- The access road will be constructed using approximately 1,000 CY of imported gravel and fill.

WASTE DISPOSAL

The existing lagoon liners will be deposed of. Old pumps, pipes, wire, and all other mechanical equipment will be removed from the park and recycled if possible. Asphalt will be recycled in the park as possible.

TOOLS and EQUIPMENT

Heavy equipment will be used during implementation including, but not limited to a full-size excavator, mini excavator, asphalt trucks, pavers, concrete trucks, roller, skid steer (bobcat). Major and minor hand tools will be used for various equipment replacement.

ACCESS

A temporary all-weather access road will be constructed from the existing headworks structure down to the edge of the southwestern pond to allow access for the storage tank construction. All access will occur via this road or the existing access road.

See the DD Report 100% Draft Basis of Design Section 3.0 for detailed scope of work. Note: the project does not involve installation of a solar array as included within these designs.

The Superintendent has conditionally approved this project for compliance with the following requirements which have been put in place to protect park resources and visitor experience.

Required Mitigations - For the proposed project actions to be within compliance requirements during construction and/or project implementation, the following mitigations must be adhered to:

- The project leader is responsible for ensuring that the mitigation requirements are followed and that these measures are incorporated into any contracts for this project and implemented by the staff assigned to undertake the work.
- If, for any reason, mitigation measures cannot be accomplished due to budget or timeframe or there is a change in project scope or project leader, the project leader must contact SEKI's Compliance Office before proceeding with the project.
- Once the project is completed, notify the Environmental Protection Specialist assigned to the project.

Air Quality

- Cover all haul trucks carrying construction materials or debris.
- Implement construction best management practices for dust abatement.
- Contact Erik Meyer (erik_meyer@nps.gov) at least two weeks prior to construction so we can inform our air monitoring networks of potential contamination or influence from construction activities.

Assessment of Effect

- In the event that human remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered during project activities, the regulations implementing the Native American Graves Protection and Repatriation Act (43 CFR Part 10) will be followed.
- Should previously unknown historic or prehistoric resources be unearthed during project implementation, work will be halted in the discovery area, the site secured, and SEKI's Cultural Resources Program Manager will be notified. A qualified cultural resource management specialist will examine the area as soon as possible and will follow the procedures of 36 CFR Part 800.13[c].

Health and Human Safety

- Contractors will develop a Safety Plan and a Safety Communications/Transportation Plan and share this with the National Park Service for comment and compliance with park health and safety regulations 30 days prior to any construction activities.
- Entry gate must conform to park standards, e.g. be able to be locked open or closed and have appropriate reflection.

Park Operations & Mgmt – Equipment

- Coordinate with Telecommunications shop on bandwidth and data systems requirements.

Park Operations & Mgmt – GIS

- Provide GPS coordinates of the perimeter of any ecological restoration site to the GIS/ Data Management Office upon project completion.
- Provide coordinates of new or relocated NPS infrastructure to the GIS/ Data Management Office upon project completion. Contact the GIS Coordinator at 559-565-3725 for more information.

- Include coordinates for newly aligned road, building, fence adjustments, and other alterations to the existing footprint.

Park Operations & Mgmt – Fires

- If construction requires the use of spark or flame producing equipment in the summer months, contact the Fire Management Office for a hot work permit.

Rare, Threatened & Endangered Species - Fisher

- Pipes over 3 inches in diameter must be screened to prevent access by small mammals including fisher.

Soundscapes

- Limit project work to the hours of 8am to 6pm.

Vegetation - Exotic Plants

- Pressure wash equipment to remove all dirt and plant parts before entering the park for the first time, paying special attention to undercarriage and grill/radiator; subsequent entries will not require pressure washing unless the vehicle shows signs of mud, plant material, or other substances. Project manager will inspect equipment for compliance prior to entry into the park and reject equipment that is not adequately clean.
- Inspect, remove, and properly dispose of invasive plant seed and plant parts found on clothing, boots, tools, and camping equipment. Disposal consists of removing the seed and plant parts from clothing and equipment at a spot near the infestation or bagging the seeds and plant parts and disposing in bagged garbage.
- Before moving vehicles or equipment to a new job site, visually inspect and clean the vehicles or equipment (including the undercarriage) thoroughly to remove all mud, dirt, and plant parts.
- Imported materials must come from an approved source. Consult with the senior invasive plant ecologist at least a month in advance of project work.
- Do not import topsoil.
- Straw products (i.e. "certified weed-free straw" and other straw products) are not authorized on project work sites due to the high risk of importing non-native plants and seeds. Instead, use an excelsior (aspen fiber) or coir (coconut fiber) product for erosion control, sediment filtration, or other needs.
- Survey for and control invasive non-native vegetation in the project area for one to three years after project activities are completed.

Vegetation – Rare Plants

- Contact Ann Huber (ann_huber@nps.gov) in the spring (Feb to March) prior to construction and grading activities to conduct rare plant surveys.
    - If a special status plant population is found within the area of potential disturbance, the project manager will be consulted to confirm whether direct impacts would result from the action or whether impacts can be avoided.
    - If the action is expected to result in unavoidable direct impacts, mitigation measures may include, but are not limited to, translocation of parent plants, and/or collection and propagation of seeds or seedbank for translocation. Measures may also include post-transplant watering or other actions necessary to promote plant re-establishment.

Vegetation and Soils – Restoration

- Separate and reserve topsoil from areas graded or otherwise disturbed during project implementation.

- Post grading and construction spread topsoil over compacted subsoil layers.
- Reseed disturbed areas with a seed mix provided by park resource staff.
- Coordinate with restoration ecologist on growing and replanting of native blue oak in select areas.

Visitor Use & Experience

- Consult with SEKI's Public Affairs Office at a minimum of 3 weeks prior to project work to allow adequate time for public notification.

Letter of Compliance Completion

To: Nicole Mason, Deputy Chief of Maintenance

From: Environmental Protection Specialist THERESA FIORINO Digitally signed by THERESA FIORINO Date: 2022.03.07 10:36:25 -08'00'

Subject: Superintendent approval of Rehabilitate Buckeye Wastewater Treatment Plant (PEPC: 100542)(PMIS: 317446) in compliance with federal resource protection laws. For complete compliance information see PEPC Project 100542.

Description of Action (Project Description):

This project will rehabilitate the failing wastewater treatment plant at Sequoia and Kings Canyon Park Buckeye Housing Area by replacing the current full scale activated sludge wastewater treatment plant and spray field with a large septic system. The existing buckeye plant basin (building) will be converted by removing the existing equipment and replacing it with a septic tank. All work on the tank will occur inside the existing building. Both existing lagoons, one next to the treatment building and one next to the spray field, will be filled in with imported fill and regraded to a natural contour. The current spray field will be abandoned and the supporting infrastructure including concrete supports and piping will be removed using a variety of heavy equipment. A new, approximately 10,000 sq. foot sand mound disposal field will be constructed within the footprint of an adjacent unused spray field using imported sand, imported gravel, perforated PVC drainpipe, and native soil. The access road to buckeye housing will be re-paved upon project completion.

SCOPE OF WORK

Limit of Disturbance

- Area of disturbance totals approximately 10,000 square feet.

Equipment Replacement

- All electrical components, controls, pumps, headworks, and valves will be replaced to meet new system needs.

Treatment System Replacement

The treatment system will be replaced by completing the following primary actions:

- Convert existing basin structure to a septic tank by removing equipment and completing some minor structural work within the interior.
- Infill two existing storage lagoons with approximately 3,0000 Cubic Yards (CY) imported fill total. Regrade to natural contour.
- Maintain excess earth from recontouring to create level 20-foot area adjacent to the primary lift station to be used for parking.
- Install a new sand mound disposal field in footprint of an adjacent unused spray-field (see Disposal Field Construction below).
- Remove all above ground components of abandoned spray field.

Disposal Field Construction
Approximately 100 CY of native soil will be removed from the abandoned drain field site and reserved. The new sand mound field, consisting of approximately four, 65-foot long, 3-foot-wide raised mounds, will be constructed by laying roughly 2ft of sand and 12 inches of gravel overlay. Perforated 3-4" PVC drainpipe will be installed in the gravel layer and six inches of reserved excavated native soil will be placed on top to naturalize the area (note final dimensions might change slightly depending upon contractor design). Pipes will be screened to keep rodents and other animals out. To the maximum extent practicable, the drain field will be incorporated into the existing topography to appear more natural.

IMPORTED MATERIALS

- Materials include pumps, pipes, crushed stone, fill, asphalt, concrete, electrical conduit, and wire.
- The lagoon will be infilled with approximately 3,000 CY of imported fill.
- The disposal field will be constructed using 450 CY of imported sand and 200 CY of imported gravel as well as piping. Again, approximately 100 CY of native soil will be removed and placed on top of the fill to naturalize the area.

WASTE DISPOSAL
The existing lagoon liners will be deposed of. Old pumps, pipes, wire, and all other mechanical equipment will be removed from the park and recycled if possible. Asphalt will be recycled in the park as possible.

TOOLS and EQUIPMENT
Heavy equipment will be used, including but not limited to a full-size excavator, mini excavator, asphalt trucks, pavers, concrete trucks, roller, and skid steer (bobcat). Major and minor hand tools will be used for various equipment replacement.

ACCESS and STAGING
Access will all occur via the existing road. Staging will occur on a paved area. See map.

SERVICE OUTAGES
None - Service would be maintained throughout construction, and the new system will be capable of servicing the housing area year-round.

See the DD Report 100% Draft Basis of Design Section 4.0 for detailed scope of work. Note: the project does not involve installation of a solar array as proposed within the draft designs.

The Superintendent has conditionally approved this project for compliance with the following requirements which have been put in place to protect park resources and visitor experience.

Required Mitigations - For the proposed project actions to be within compliance requirements during construction and/or project implementation, the following mitigations must be adhered to:

- The project leader is responsible for ensuring that the mitigation requirements are followed and that these measures are incorporated into any contracts for this project and implemented by the staff assigned to undertake the work.
- If, for any reason, mitigation measures cannot be accomplished due to budget or timeframe or there is a change in project scope or project leader, the project leader must contact SEKI's Compliance Office before proceeding with the project.
- Once the project is completed, notify the Environmental Protection Specialist assigned to the project.

Air Quality

- Cover all haul trucks carrying construction materials or debris.

- Implement construction best management practices for dust abatement.

Assessment of Effect – Archaeology

- Should unknown archeological resources be encountered during project implementation, work would be halted in the discovery area, the site secured, and the parks' archeologist notified. The parks' archeologist or a qualified representative will examine the area as soon as possible and will follow the requirements of the NHPA, and any other applicable cultural resource laws, as needed. Work could resume only after an appropriate mitigation strategy is developed in consultation with the California SHPO and after archeological clearances are obtained.

Health and Human Safety

- Contractors will develop a Safety Plan and share this with the National Park Service for comment and compliance with park health and safety regulations 30 days prior to any construction activities.

Park Operations & Mgmt – Communications

- Notify the Sequoia Management Team at least 6 months in advance of project implementation if any impacts to Buckeye Housing, including reduced capacity, are anticipated.
- Notify residents of Buckeye housing of any construction related disturbance a minimum of 3 weeks in advance of project implementation.
- Limit construction hours to 8am -6 pm to avoid impacts to residents of Buckeye housing.
- Minimize construction overlap with Buckeye housing seasonal high occupancy to the maximum extent practicable.
- Coordinate with Telecommunications shop on bandwidth and data systems requirements.

Park Operations & Mgmt – Fires

- If construction requires the use of spark or flame producing equipment in the summer months, contact the Fire Management Office for a hot work permit.

Park Operations & Mgmt - GIS

- Provide GPS coordinates of the perimeter of any ecological restoration site to the GIS/ Data Management Office upon project completion.
    - The coordinates around the pools that are being filled will need to be reported to GIS.
- Provide coordinates of new or relocated NPS infrastructure to the GIS/ Data Management Office upon project completion. Contact the GIS Coordinator at 559-565-3725 for more information.

Rare, Threatened & Endangered Species – Fisher

- Pipes over 3 inches in diameter must be screened to prevent access by small mammals including fisher.

Rare, Threatened & Endangered Species – Surveys

- Please contact Ann Huber (ann_huber@nps.gov) in the spring (Feb to March) prior to construction activities to determine if a rare plant survey is needed.

Soundscapes

- Limit project work to the hours of 8am to 6pm.

Vegetation – Exotic Plants

- Pressure wash equipment to remove all dirt and plant parts before entering the park for the first time, paying special attention to undercarriage and grill/radiator; subsequent entries will not require pressure washing unless the vehicle shows signs of mud, plant material, or other substances. Project manager will

inspect equipment for compliance prior to entry into the park and reject equipment that is not adequately clean.

- Inspect, remove, and properly dispose of invasive plant seed and plant parts found on clothing, boots, tools, and camping equipment. Disposal consists of removing the seed and plant parts from clothing and equipment at a spot near the infestation or bagging the seeds and plant parts and disposing in bagged garbage.
- Before moving vehicles or equipment to a new job site, visually inspect and clean the vehicles or equipment (including the undercarriage) thoroughly to remove all mud, dirt, and plant parts.
- Straw products (i.e. "certified weed-free straw" and other straw products) are not authorized on project work sites due to the high risk of importing non-native plants and seeds. Instead, use an excelsior (aspen fiber) or coir (coconut fiber) product for erosion control, sediment filtration, or other needs.
- Imported materials must come from an approved source. Consult with the senior invasive plant ecologist at least a month in advance of project work.
- Do not import topsoil.
- Survey for and control invasive non-native vegetation in the project area for one to three years after project activities are completed.

Vegetation – Rare Plants

- Contact Ann Huber (ann_huber@nps.gov) in the spring (Feb to March) prior to construction and grading activities to conduct rare plant surveys.
    - If a special status plant population is found within the area of potential disturbance, the project manager will be consulted to confirm whether direct impacts would result from the action or whether impacts can be avoided.
    - If the action is expected to result in unavoidable direct impacts, mitigation measures may include, but are not limited to, translocation of parent plants, and/or collection and propagation of seeds or seedbank for translocation. Measures may also include post-transplant watering or other actions necessary to promote plant re-establishment.

Vegetation and Soils – Restoration

- Separate and reserve topsoil from areas graded or otherwise disturbed during project implementation.
- Post grading and construction spread topsoil over compacted subsoil layers.
- Reseed disturbed areas with a seed mix provided by park resource staff.
- Coordinate with restoration ecologist on growing and replanting of native blue oak in select areas.

Visitor Use & Experience

- Consult with SEKI's Public Affairs Office at a minimum of 3 weeks prior to project work to allow adequate time for public notification.

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. Work under other contracts.
4. Contractor use of premises.
5. Public use of the site.
6. Occupancy requirements for buildings.
7. Work Restrictions.
8. Special Construction Requirements.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Location: Sequoia & Kings Canyon National Parks, Ash Mountain, and Buckeye Housing Wastewater Treatment Plant, approximately 1.5 hours east of Fresno, California. Access to some project sites may be limited in the months of November to June due to snow.

B. Summary of work includes the definition found in Section 01 27 00 Definition of Contract Line Items.

C. Generally, Work consists of the following:

1. Component replacement and/or rehabilitation of specific equipment and related work items at Ash Mountain and Buckeye Housing Wastewater Treatment Plant (AMBHWWTP).
   a. Control building.
   b. Lift station pumps and controls.
   c. Fencing and signage.
   d. Access roads.
   e. Electrical and monitoring systems.
   f. Deteriorated headworks and overflow structures.
   g. Chlorination system.
   h. Deteriorated treatment dosing building.
   i. Disposal fields.
   j. Generator and accessories.
   k. Storage tank.
   l. PV array.

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

E. For any work components wherein, the component specifications are not expressly included in these Contract Documents, the Contractor is to field verify the existing work component and then include each component as 'like in-kind to the exiting work component in the appropriate bid item in the Contract Price Schedule. The Contractor must submit a technical data sheet for the 'like in-kind component specifications to the Contracting Officer for review and approval as part of the submittal requirements.

1.3 WORK PHASES AND SEQUENCING

A. The work shall be conducted to minimize interruptions to the Ash Mountain Wastewater Treatment Plant (AMWWTP) processes. It is anticipated that the Buckeye Wastewater Treatment Plant (BHWWTP) will be shut down during the construction period for this portion of the project. The Contractor is encouraged to plan work items during times when flows at the treatment plants are at their lowest. Typically, the lowest wastewater flows at either facility are observed during the months of October through April.

B. Ash Mountain WWTP: Any and all work within the process basin areas of the Ash Mountain Treatment must be performed following the staging plans for the site construction. In Stage 1, the northeastern storage basin must remain operational for the facility's operation during the construction of the new storage tank in the southwestern basin. Any and all work for improvements to the northeastern basin in Stage 2 construction shall not be started until any and all work of the first stage phase is completed, functional, tested, and brought online for temporary operation until all work is complete for a fully functional wastewater treatment system. Bypass flow will be utilized around existing tanks to be refurbished in Stage 3 of construction either by pumping or use of existing gravity pipelines.

C. The Contractor shall have the flexibility to sequence the construction of the work items at each site within the phasing plan to minimize interference with subsequent work tasks.

D. The Contractor shall work with the CO to identify suitable staging areas for materials and equipment at each treatment plant site. Staging areas for the AMWWTP and BHWWTP and the limits of work are identified in the construction drawings.

1.4 CONTRACTOR USE OF SITE

A. General: Contractor shall have limited use of the site for construction operations. Do not disturb portions of the Project site beyond areas in which the Work is indicated.

1. Limits: Confine construction operations to limit the use of premises to areas of the treatment plant which are identified to be rehabilitated or replaced as indicated.
2. All site disturbances are to be approved by the Contracting Officer.
3. All damage to roads, curbing, sidewalks, etc. shall be restored to pre-construction conditions by the Contractor at no additional cost to the Government. The Contracting Officer will photograph and/or videotape pre-construction conditions at the site
4. Road access to buildings and other facilities must remain open at all times.
5. A sequencing plan for construction at the wastewater treatment plants shall be prepared by the Contractor and approved by the contracting officer to minimize the impact to the park and inconvenience to the public.

6. Wastewater treatment will take place at the treatment facility during construction and will limit work to outages with the parallel system available at the AMWWTP.

B. Storage of Materials: Confine storage of materials and other adjacent salvage storage areas as directed by the Contracting Officer or indicated on the construction documents. The contractor shall return all storage areas to the same condition which they were found at the start of construction.

C. Preservation of Natural Features:

1. All equipment shall be power washed and inspected before entering the Park to ensure it is free of non-native weeds and/or seeds. 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. 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 to prevent spillage or blowing off 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 designated to remain.
4. 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.
5. Do not fasten ropes, cables, or guys to existing trees.
6. Carefully supervise excavating, grading, filling, and other construction operations near trees to prevent damage.
7. Acceptable materials for erosion control blankets and sediment logs include Excelsior or coir fiber products. The use of straw or rice products, including “certified weed-free” products, shall not be permitted. Jute or cotton shall be used as netting in erosion control blankets; no plastic netting products will be allowed in the blankets.

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 the storage of materials and equipment on-site.

E. Construction Camp: The establishment of a camp within the park will not be permitted.

F. 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.

1.5 PUBLIC USE OF SITE

A. The contractor shall at all times conduct his operations to ensure the least inconvenience to the public.

1.6 OCCUPANCY REQUIREMENTS FOR BUILDINGS

A. Existing Buildings

1. Full Government Occupancy: The government will occupy buildings that will be under construction during the entire contract period. Cooperate with the Government during construction operations to minimize conflicts and facilitate Government usage. Perform the Work so as not to interfere with the Government's day-to-day 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.
   b. Maintain an existing building in a weather-tight condition throughout the construction period. Repair damage caused by construction operations. Protect the building and its occupants during the construction period.

1.7 CONDUCT OF OPERATIONS

A. At all times the contractor shall conduct his operations in conformance with the rules and regulations promulgated by the Secretary of the Interior for the National Park Service, and applicable park rules and regulations prescribed by the Park Superintendent.

B. Work on Saturdays, Sundays, Federal holidays, or at night may not be performed without prior consent from the Contracting Officer. Submit requests 48 hours in advance of the work to the Contracting Officer for approval.

C. No signs or advertisements (except those specified herein) shall be displayed on the construction site or within the park unless approved by the Contracting Officer.

1.8 WORK RESTRICTIONS

A. On-Site Work Hours: Work shall be generally performed during normal business working hours of 8:00 a.m. to 4:30 p.m., Monday through Friday, except when otherwise indicated.

B. Work outside these hours may be approved by the Contracting Officer if requested in writing by the Contractor.

1. No holiday work will be permitted without prior approval from the Contracting Officer.
2. Weekend Hours shall be avoided and will only be allowed with written approval from the Contracting Officer.
3. 10-hour workdays may be allowed with written approval from the Contracting Officer.

C. Work Restrictions by Site:

1. Work on the Buckeye Housing WWTP shall occur from November 1 to April 15 when the wastewater treatment plant is out of service.
2. No work in the Ash Mountain WWTP shall occur from Memorial Day to Labor Day (Summer Months) when flow in the plant is highest and all systems are required for normal operation.

D. Existing Utilities

1. 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.
4. Do not interrupt utilities serving facilities occupied by the Park or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
    a. Notify Contracting Officer not less than 72 hours (3 business days) in advance of proposed utility interruptions. Do not proceed with utility interruptions without Contracting Officer's written permission.
    b. Try to limit utility outage time to less than 4 hours unless necessary and the requisite permissions have been obtained.

E. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by the 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 72 hours in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Contracting Officer's written permission.
3. Try to limit the utility outage time to less than 4 hours unless necessary and prior approval has been granted.

F. Throughout the entire construction period, the Contractor shall schedule all work and provide temporary facilities, electrical power and control circuits, and bypass pumping to minimize utility shutdowns. Work shall be scheduled such that interruptions to service (wastewater treatment) are to be completed to maintain facilities operation. Interruptions must be approved by the Contracting Officer and should be limited to no more than 4 hours unless otherwise approved. Refer to 01 11 00 Part 1.9B.

G. Nonsmoking Building: Smoking is not permitted within any Park building or 25 feet of entrances, operable windows, or outdoor air intakes. Smoking will also follow Park fire restrictions which can change throughout the year based upon wildfire risk.

1.9 SPECIAL CONSTRUCTION REQUIREMENTS

A. The contractor shall complete a pre-construction walk-through with the Contracting Officer Representative to verify all utility alignments, building locations, construction access points, etc.

B. The Ash Mountain Wastewater Treatment plant must be kept in service continuously during construction. If a specific process needs to be interrupted for removal and replacement of equipment the Contractor shall provide a written request at least 48 hours in advance of this work so NPS operators can make process modifications to allow for the construction work to occur while the plant remains operational. Included in this written notice is the approximate time it will take to make the required changeover and what steps the Park needs to follow to facilitate the change-over and prevent a service disruption. The Contractor shall take the appropriate actions so that the overall treatment of raw wastewater is not interrupted.

C. Temperatures often drop below freezing during winter as well as during late fall and early spring at the project site. The contractor shall develop a cold-weather storage plan to help schedule appropriately the storage and application of materials according to required minimum temperatures as recommended by the product manufacturers so sensitive equipment can be protected.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 12 00

NATURAL FEATURES PROTECTION

PART 1 - GENERAL

1.1 DESCRIPTION

A. The work of this section consists of the protection of vegetation and native soils to be retained within and adjacent to the perimeter work limits of this project. This section also consists of evaluation processes and mitigation measures in the event of tree damage, casualty, or removal and unauthorized passage outside authorized work limits.

1.2 PLANT CONDITION INVENTORY

A. Before the placement of all fencing, barricades, and tree wrap and any excavation operations, the Contractor and Contracting Officer together shall perform an on-site inventory of trees and other natural features in the entire project site. A print of the contract document site plan will be used to note the placement and condition of existing trees. Previous damage to trees and vegetation shall be noted. This site plan print shall be retained by the Contracting Officer for use during the final walk-through tree assessment scheduled during the project closeout.

PART 2 – PRODUCTS

2.1 TREE TRUNK PROTECTION

A. Four foot high wood-lathe snow fencing.

2.2 WORK LIMITS - CONSTRUCTION ZONE WARNING TAPE

A. Banner Guard construction zone warning tape, imprinted with “CAUTION: CONSTRUCTION AREA”, manufactured by Reed Industries, Inc., Houston, Texas, or approved equal.

2.3 CONSTRUCTION FENCING

A. Four foot high orange plastic mesh construction fencing.

B. Six foot steel posts.

2.4 TREE TRUNK PROTECTION

A. Four foot high wood-lathe snow fencing.

2.5 TEMPORARY BARRICADE

A. Four foot high orange plastic mesh construction fencing.

B. Six foot steel posts.

PART 3 – EXECUTION

3.1 PROTECTION INSTALLATION

A. Provide temporary work limit fencing, tree trunk wrap, and tree barricades to protect existing trees, plants, and critical root zones as directed by the Contracting Officer. Protections shall be in place before any excavation work or heavy equipment is allowed on site.

3.2 CONSTRUCTION FENCING

A. Within the perimeter work limits, protect groups of shrubs and small trees, and undisturbed soils as directed by the Contracting Officer with construction fencing. Firmly anchor fences to the ground a minimum of 2 feet from the nearest plant. Completely and continuously enclose areas of trees and shrubs to be protected with fencing.

3.3 TREE TRUNK PROTECTION

A. For isolated trees up to 4 feet dbh (diameter-breast-height) within the work limits, provide tree trunk protection as directed by the Contracting Officer.

B. Wrap wood lathe snow fencing continuously around the circumference of the trunk from the base to a height of not less than 6 feet. The wrap shall be a minimum of two layers. Fence wrap shall be secured around the trunk by three strands of jute or other natural fiber rope around the top, middle, and bottom of the tree trunk protection. No anchoring or nailing in trees will be allowed.

3.4 PROTECTION MAINTENANCE

A. Only after all tree and plant protection has been installed, and the Contracting Officer has inspected and given written approval of the tree and plant protection, will the Contractor be allowed to begin excavation. All tree and plant protection shall be maintained throughout this project’s duration.

B. If any fencing, barriers, staking or marking, which designates protected areas, limits of demolition, or work limits, is knocked down, moved, or destroyed by the Contractor, the Contractor will immediately move the work operation to another area, wholly or in part, or suspend work operations, until the fence or other protection, is repaired to the Contracting Officer's satisfaction at the Contractor's expense. Time lost due to such a stoppage will not be considered a basis for adjustment of completion date nor additional payment.

C. Parking vehicles and storing materials or supplies shall be confined to areas designated as staging areas on the plans or as specifically approved by the Contracting Officer. Vehicle and material storage activities are strictly prohibited from protected and fenced sensitive soil and vegetation areas.

D. Fastening ropes, cables, or guys to existing trees and disposing of materials including, but not limited to paint, paint thinner, fiberglass materials, fiberglass thinners, concrete or cement residue, washings from cement or concrete mixers, or any other material considered harmful by the Contracting Officer is prohibited anywhere in the project area.

E. Do not remove, injure, or destroy trees or other plants without prior approval of the Contracting Officer. Consult with the Contracting Officer and remove agreed-upon roots and branches that interfere with excavation or pipe placement. All pruning of canopy or cutting of roots will be done under the supervision of the Contracting Officer and shall be done as set forth by the National Arborist Association or the International Society of Arboriculture.

F. If within the critical root zone, excavate with hand tools.

G. At project completion, the Contractor shall remove all protections and be properly disposed of or recycled.

END OF SECTION

SECTION 01 26 01

CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

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

1.2 DEFINITIONS AND ALLOWANCES

A. Home Office Overhead: Costs incurred in support of all of a contractor's projects and not attributable to a specific job. The cost for 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. 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. Project Manager (PM), Assistant Project Manager
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: 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 for calculating General Requirements:

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 physically 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: The hourly rate paid directly to the worker
    b. Labor Burden: Employer payments of all applicable burdens; includes insurance and taxes the business must pay on behalf of the worker to government entities and educational forums, such as:
        1) Social Security
        2) Medicare
        3) Workers Compensation - Policy and company calculation to be made available.
        4) Federal Unemployment Tax Act (FUTA) - Cap Rate and percentage to be proportionally allocated over one year.
        5) State Unemployment Tax Act (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 Contractor from claims resulting from bodily injury or property damage to a third party. Include 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 the Contractor will pay the labor and material costs incurred. Banks and Insurance companies charge a premium for individual projects based on a sliding scale related to the size of the project. Include as a separate line item in modification proposals and provide current company bonding rates upon request.

H. Builder's Risk Insurance: Covers the contractor's loss due to fire, high winds, or other natural forces. 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. The proposal is received in the format and within the time frame specified in the Request for Proposal (RFP) 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 shall 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 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 own form, provided that it contains the same information and level of detail as the Government's form.
3. Requests for extensions of contract time as a result of change must be justified with a Time Impact Analysis (TIA). Refer to Section 01 32 16 "Construction Progress Schedule", for time impact analysis requirements. TIA and associated costs shall 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 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 (CO) upon request.
5. The contractor shall review and approve all subcontractor/supplier pricing in detail for proper format, scope, production rates, and pricing before submission to 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 hours required for each craft directly engaged in modification work. Any work proposed requiring overtime work or premium pay shall be itemized separately. Rates shall be in accordance with the Davis-Bacon Act as incorporated herein. Labor Burden may include payroll taxes, Social Security, unemployment insurances, workers compensation insurance, Federal Insurance Contributions Act (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. Labor costs 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 shall include 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 NPS.

D. Equipment:

1. Equipment used for the project must be appropriately sized for 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 in excess of $500 shall be broken out separately.
3. Regardless of ownership, rates to be used in determining equipment rental costs shall be the lowest cost from one of the following sources:
   a. United States (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. Estimated equipment rates shall include operating costs of all fuel, oil, lubrication, supplies, small tools, necessary attachments, ground engaging components, tires and tracks, routine repairs and maintenance (cost of major repair and overhaul is not allowed per Federal Acquisition Regulation (FAR) 31.105(d)(2)), 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 full rate for equipment only for the duration that equipment will be utilized to accomplish work of the modification.

6. Standby unit rates are used in accordance with paragraphs 1.3, D, 2, above. If the U.S. Army Corp of Engineers is utilized then their standby rates prevail. If Bluebook or local equipment pricing is accepted, then 1/2 of equipment costs minus any operating costs, major repair, and overhaul will be accepted.
7. If equipment is in standby mode due solely to a documented NPS delay, an established standby rate shall apply from the first day of the delay.
8. Equipment not used and on the job site for up to five consecutive days may be classified at standby rates, provided the equipment is or has been used solely to perform work on the modification and will be necessary to complete additional modification work. Equipment 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 FAR Part 31which have been applied to the specific type of work included in this project. Negotiated rates shall not exceed the following percentages for OH&P for contractor self-performed work:

   Overhead……8%
   Profit……...…8%

2. The total aggregate limit of markup (OH&P) for Contractor and Subcontractors on modification work shall not exceed 25%. The NPS will not be responsible for the allocation of percentages between contractors and subcontractors at any tier.
3. If Contractors form a partnership, the partnership may only receive home office overhead and profit in the same amount as an individual Contractor (refer to paragraph 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, overhead and profit mark-ups are required on 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 LINE ITEMS

PART 1 – GENERAL

1.1 SUMMARY

A. The section explains in general, what is and is not included in a contract line item, and limits or cut-off points where one item ends and another begins.

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

PART 2 - PRODUCTS (Not Used)

PART 3 – EXECUTION

3.1 LIST OF CONTRACT LINE ITEMS – BASE BID

A. Contract Line Item No. 01 – Ash Mountain WWTF Backup Generator:

1. This item consists of:
   a. Replacing the existing end-of-life generator with a new unit sized to handle the new treatment system with an enhanced concrete support pad inside the new control building and associated transfer switches, vaporizer, and building air inlet louver.
2. Measurement for payment will be based upon the percentage completion of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

B. Contract Line Item No. 02 – Ash Mountain WWTF Sewer Cleaner Truck Dump Station:

1. This item generally consists of:
   a. Installation of a permanent connection to an inlet manhole to the treatment system inside of the existing fence adjacent to the headworks to allow cleaner trucks to empty their load into the sewer system including replacement of the manhole with a new manhole, ring, and collar.
2. Measurement for payment will be based upon the percentage completion of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

C. Contract Line Item No. 03 – Ash Mountain WWTF Control Building

1. This item generally consists of:
   a. Construct a new insulated control building to house the lab, new generator, and RTF treatment controls with the structure conforming to the historic district architecture.
2. Measurement for payment will be based upon the percentage completion of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

D. Contract Line Item No. 04 – Ash Mountain WWTF Electrical and Control System

1. This item generally consists of:
   a. Installation of the power and controls to operate the new RTF treatment system and bring any replacement equipment up to the current electrical code.
2. Measurement for payment will be based upon the percentage completion of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

E. Contract Line Item No. 05 – Ash Mountain WWTF Existing Oxidation Pond Excavation, Fill, and Improvements

1. This item generally consists of:
   a. Removal of the pond liner and appurtenant structures for the excavation/backfill/regrading and compaction, of the northeastern oxidation pond to enable installation of the new RTF treatment system.
2. Measurement for payment will be based upon the percentage completion of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

F. Contract Line Item No. 06 – Ash Mountain WWTF Headworks

1. This item generally consists of:
   a. Construction of a new headworks structure to replace the existing structure to contain a new grinder for influent wastewater with a screened bypass channel, installation of a new flow measurement flume and ultrasonic flow meter directly downstream of the headworks structure including a wood shed roof structure installed over the new channel to shield the channel from inclement weather and precipitation events. A new power supply will be installed and regrading of the site upon completion along with a new yard hydrant.
2. Measurement for payment will be based upon the percentage completion of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

G. Contract Line Item No. 07 – Ash Mountain WWTF New Access Roadway

1. This item generally consists of:
   a. Installation of a new access road starting at the existing site entrance around the northeastern basin to reach the floor elevation at the southwestern pond including site clearing/grubbing, tree removal, installation of a new runoff culvert, drainage swale, subbase, aggregate base, asphalt surface, and placement of the structural fill using onsite materials and import material hauled in from offsite.
2. Measurement for payment will be based upon the percentage completion of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

H. Contract Line Item No. 08 – Ash Mountain WWTF Perimeter Fence Repair and Signage

1. This item generally consists of:
   a. Installation of new signage around the fenced treatment site and repair of some damaged sections of the 6 ft high chain link fence and installation of a new 16 ft double leaf access gate to the site.
2. Measurement for payment will be based upon the percentage completion of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

I. Contract Line Item No. 9 – Ash Mountain WWTF Removal of Old Pretreatment, Tanks, And Buildings

1. This item consists of:
   a. Disconnection of all power and controls at the headworks, removing all structures and equipment associated with the existing treatment system that is not otherwise needed in the new system.
   b. Removal of the existing 8,000-gallon chlorination tank and capping, removing or abandoning in place all connecting pipelines to and from the tank.
2. Measurement for payment will be based upon the percentage completion of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

J. Contract Line Item No. 10 – Ash Mountain WWTF Existing Aeration Tank Conversion to Equalization Tank

1. This item consists of:
   a. After draining and cleaning the interior of the existing aeration tank, install a new sewer drain pipe, sludge removal pipe, and associated piping with valving and connection manholes to the new pre-anoxic tank and 100K storage tank.
2. Measurement for payment will be based upon the percentage completion of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

K. Contract Line Item No. 11 – Ash Mountain WWTF Install Oxidation Pond #1 Storage Tank (100K)

1. This item consists of:
   a. Demolition of the existing southwestern pond structures, piping and removal of the existing liner, and construction of a new 100,000-gallon Modified ACI 350 concrete storage tank for the temporary storage of treated wastewater during storm events when the spray irrigation field is not allowed to be used per permit requirements, with a regrading of the site around the new tank. Including all new inlet and outlet pipe connections, 36” access manway, overflow, vent, and associated appurtenances.
2. Measurement for payment will be based upon the percentage completion of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

L. Contract Line Item No. 12 – Ash Mountain Sprayfield Clear and Grub.

1. This item generally consists of:
   a. Clearing the grasses and other debris from around the existing alignments of the spray irrigation main header pipeline in preparation for the move of the force main connection to the new system.
2. Measurement for payment will be based upon the percentage completion of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

M. Contract Line Item No. 13 - Ash Mountain Sprayfield Perimeter Fence Repair and Signage

1. This item generally consists of:
   a. Clearing the grasses and other debris from around the existing fence alignment before replacement of the existing 4-wire fence with a new one and installation of new warning signs on the fence around the perimeter of the spray irrigation field.
2. Measurement for payment will be based upon the percentage completion of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

N. Contract Line Item No. 14 – Ash Mountain Sprayfield Rehabilitation

1. This item generally consists of:
   a. Installation of the replacement piping to attach the force main pipe to the north end of the irrigation header from the current south end connection including appropriate fittings and isolation valves to accomplish the switch in location. Pipes will be placed along the ground surface rather than below the ground to minimize ground disturbance.
2. Measurement for payment will be based upon the percentage completion of the lump sum unit price.
3. Payment will be made at the contract square yard price.

O. Contract Line Item No. 15 – Ash Mountain Rehabilitation of Existing Lift Station with New Pumps

1. This item generally consists of:
   a. Removal of all existing piping and the single lift station pump for replacement with a new more efficient, higher capacity duplex vertical centrifugal pump system including replacement/upgrading of other electrical components, lighting, and the vent fan to bring the station up to meet current electrical codes, and the installation of new piping, fittings, and valves to connect to the existing inlet and outlet pipe connections.
2. Measurement for payment will be based upon the percentage completion of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

P. Contract Line Item No. 16 – Ash Mountain RTF Package Treatment System

1. This item generally consists of:
   a. The construction of the concrete pre-anoxic tank, the installation of the modular RTF treatment units, associated piping, valving, and manholes to connect the treatment system to the effluent pipelines to or around the new 100,000-gallon storage tank and the inlet piping from the headworks to the system outlet from the pre-anoxic tank.
   b. Install all electrical connections to the RTF modules and the controls within the new control building to operate the new treatment system.
2. Measurement for payment will be based upon the percentage completion of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

Q. Contract Line Item No. 17 – Buckeye Housing WWTF Perimeter Fence Repair and Signage

1. This item generally consists of:
   a. Clearing the grasses and other debris from around the existing fence alignment before repair of some damaged sections of the existing 6-foot chain-link fence and the installation of new signage around the fenced treatment site.
2. Measurement for payment will be based upon the percentage completion of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

R. Contract Line Item No. 18 – Buckeye Housing WWTF Existing Headworks Rehabilitation

1. This item generally consists of:
   a. Removal of the existing grinder pump in the influent flow channel before the wastewater enters the new treatment septic tank and disconnection of the power to all equipment for the installation of a new grinder pump and concrete inlet control structure with secondary bypass channel and manual clean bar screen.
   b. Remove the existing aeration equipment and electrical controls for the old treatment system.
2. Measurement for payment will be based upon the percentage completion of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

S. Contract Line Item No. 19 - Buckeye Housing New Electrical and Control System

1. This item generally consists of:
   a. Refurbishment and replacement of all electrical connections to the remaining equipment to meet current electrical code and the removal of all other equipment and connections no longer needed with the replacement treatment system.
   b. Install the new electrical control system for the replacement treatment system.
2. Measurement for payment will be based upon the percentage complete of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

T. Contract Line Item No. 20 – Buckeye Housing WWTF New Flow Meter

1. This item generally consists of:
   a. Installation of a new magnetic flow meter and transmitter in the force main downstream of the new pump station in a separate vault with a remote readout attached to the existing treatment building wall.
2. Measurement for payment will be based upon the percentage completion of the lump sum unit price.
3. Payment will be made at the contract square yard price.

U. Contract Line Item No. 21 – Buckeye Housing WWTF New Lift Station

1. This item generally consists of:
   a. Remove the existing lift station and replace it with a new station wet well, valve vault, valves and associated appurtenances, and duplex submersible pumps with guide rails, controls, and associated piping and valving. Connect the new lift station to the control system.
2. Measurement for payment will be based upon the percentage completion of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

V. Contract Line Item No. 22 – Buckeye Housing Rehabilitate WWTF Existing Control Building

1. This item generally consists of:
   a. Rehabilitate the existing control building by replacing damaged siding, and roofing, and replace the entrance door and window in the original portion of the structure with new units compatible with the historic nature of the building.
2. Measurement for payment will be based upon the percentage completion of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

W. Contract Line Item No. 23 – Buckeye Housing WWTF Infill Lined Lagoon

1. This item generally consists of:
   a. Removing the lagoon liner, redirecting the force main to feed the new disposal siphon in the subsurface drain field, removing the chlorination structure, controls, and equipment, and filling in the pond and re-compacting with the material in the existing berm before regrading to match the surrounding topography and re-vegetating. Excess material not needed for regrading will be hauled to Ash Mountain as part of the site fill requirements.
2. Measurement for payment will be based upon the percentage completion of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

X. Contract Line Item No. 24 – Buckeye Housing WWTF Infill Storage Pond

1. This item generally consists of:
   a. Remove any existing piping in the pond area and regrade and recompact the earthen berms around the unlined storage pond not excavated and used as fill material at the Ash Mountain site to match the surrounding topography. Prepare the site for revegetation with native grasses.
2. Measurement for payment will be based upon the percentage completion of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

Y. Contract Line Item No. 25– Buckeye Housing New Sand Bed Drainfield

1. This item generally consists of:
   a. Installing a new subsurface disposal field conforming to the requirements of the Tulare County Local Area Management Plan (LAMP) and their design and installation requirements on the site of the former spray irrigation field.
   b. This will include all of the drain piping, dual dosing siphon, valve vaults, isolation valves, and both the shallow and deep bed monitoring ports.
2. Measurement for payment will be based upon the percentage complete of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

Z. Contract Line Item No. 26 – Buckeye Housing WWTF Existing Tank Retrofit

1. This item generally consists of:
   a. Cleaning of the aeration tank, partial fill with sandy material, compaction, and forming of a new septic tank within the walls of the existing basin including a concrete cover with access hatches, ventilation pipes, and connection to the influent channel and new lift station for the effluent.
2. Measurement for payment will be based upon the percentage completion of the lump sum unit price.
3. Payment will be made at the contract square yard price.

AA Contract Line Item No. 27 – Ash Mountain Electrical Service Allowance

1. This item generally consists of:
   a. Costs associated with the electrical service work by the utility company to service the new treatment system with adequate power.
2. Measurement for payment will be based upon the percentage complete of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

BB Contract Line Item No. 28 – Buckeye Housing Electrical Service Allowance

1. This item generally consists of:
   a. Costs associated with the electrical service work by the utility company to service the new treatment system with adequate power.
2. Measurement for payment will be based upon the percentage complete of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

3.2 LIST OF CONTRACT LINE ITEMS – BID OPTIONS

A. Bid Option No. 1 – Ash Mountain WWTF Aeration Tank Conversion to Equalization Tank

1. This item generally consists of:
   a. Removing the existing aeration system and clarifier mechanism from the tank adjacent to the headworks, core drill tank floor for new sludge drain pipe, installing pipe connections and valving to the 100K storage tank and the Pre Anoxic Tank, internal vertical baffles, and casting a concrete cover with access hatchways and handrails around the perimeter of the new lid to convert the tank into a primary treatment septic tank and equalization basin for the RTF system.
2. Measurement for payment will be based upon the percentage completion of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

B. Bid Option No. 2 – Ash Mountain Sprayfield Rehabilitation

1. This item generally consists of:
   a. Removal of all existing sprayfield piping except the main header line, and the installation of the replacement pipelines, tees with risers, and new sprinkler heads to create the spray irrigation field reconnected to the existing header main pipe. Pipes will be placed on the ground rather than above the ground to minimize future damage from tree branches falling.
2. Measurement for payment will be based upon the percentage completion of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

C. Bid Option No. 3 – Ash Mountain Rehabilitate WWTF Service Road

1. This item generally consists of:
   a. Reconstruct the existing service road from a point at the existing Generals Highway roadway outside the present gated access into the treatment site along the existing road alignment at the top of the northeaster pond to the point near the existing headworks by grinding/pulverizing the existing asphalt, regrading and compacting as the subbase and installing a new 4-inch asphalt pavement layer with pavement markings.
2. Measurement for payment will be based upon the percentage completion of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

D. Bid Option No. 4 – Ash Mountain Sprayfield Monitoring Wells

1. This item generally consists of:
   a. Construct two groundwater monitoring wells, one upgradient of the sprayfield and one downgradient near Generals Highway including a battery-powered peristaltic pump for drawing samples from the wells.
2. Measurement for payment will be based upon the percentage completion of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

E. Bid Option No. 5 – Buckeye Housing Rehabilitation of Existing Housing Road

1. This item generally consists of:
   a. Reconstruct the existing Buckeye Housing employee access roadway by milling the existing surface, spreading, and compacting the material as a new sub-base and re-applying a new 4-inch asphaltic concrete road surface on the site and housing access roadways that are currently in poor condition and subject to further damage from truck traffic into and out of the site during construction at the two pond sites.
2. Measurement for payment will be based upon the percentage complete of the lump sum unit price.
2. Payment will be made at the contract lump sum price.

F. Bid Option No. 6 – Buckeye Housing Sand Bed Monitoring Wells

1. This item generally consists of:
   a. Construct two groundwater monitoring wells, one upgradient of the sand bed and one downgradient near the bottom of the site fence including a peristaltic pump for drawing samples from the wells
2. Measurement for payment will be based upon the percentage completion of the lump sum unit price.
3. Payment will be made at the contract lump sum price.

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. Definitions
2. Construction Coordination.
3. Submittals
4. Coordination Drawings.
5. Requests for Information (RFIs).
6. NPS/DSC SharePoint Project Website.
7. Project meetings.
8. Environmental Coordination.
9. Cultural Resources Coordination.
10. Permits

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.
4. Section 01 91 14 "Total Building Commissioning" for coordinating the work with the Owner’s Commissioning Authority.

1.2 DEFINITIONS

A. Authority Having Jurisdiction (AHJ): An AHJ is an agency that has been granted legal authority over a location, action, or resource. This authority includes the ability to issue a permit or other legal permission document.

B. Construction Permits: These are those permits obtained by the contractor based on means and methods used to execute the work. Construction Permits are issued to the Contractor and not to the National Park Service (NPS).

C. Government Furnished Permits: These are those permits that are obtained by NPS during the design process and provided to the Contractor for compliance with the provisions through construction, (e.g. Caltrans Encroachment Permit). These permits may address impacts to natural resources, construction stormwater, etc.

1.3 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 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 installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.
5. Properly plan construction operations to include permit requirements. Allow enough time to execute permit provisions to maintain a work schedule, site visits, inspections, and reporting deadlines.

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. Permit requirements.
7. Pre-installation conferences.
8. Project closeout activities.

1.4 SUBMITTALS

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

1. 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 Contractor and all subcontractors.
8. Waste Management Plan.
9. Quality Control Plan.
10. Temporary Storm Water Pollution Prevention Plan - (SWPPP).
11. Historic Preservation Treatment Plan.
12. List of Required Construction Permits. Include the following information for each permit:
    a. Name of Permit.
    b. The AHJ issued the permit.
    c. Information is 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, a Notice to Proceed will not be issued, and the Contracting Officer will consider other contractual remedies. Work shall not commence until a written Notice to Proceed has been issued.

1.5 REQUESTS FOR INFORMATION (RFIs)

A. General: Immediately 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 created on the NPS/DSC SharePoint Project website.

1. CO will not respond to RFIs submitted by other entities controlled by the Contractor.
2. Coordinate and submit RFIs promptly 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. Field dimensions and conditions, as appropriate.
7. Contractor's suggested resolution. If the Contractor's suggested resolution impacts the Contract Time or the Contract Sum, the Contractor shall state the impact in the RFI.
8. Contractor's signature.
9. Requested date for response.
10. 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, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

C. RFI Form: Complete the RFI Form on the NPS/DSC SharePoint website as follows:

1. Enter the general information at the top of the form.

2. Under the “Action” section at the bottom of the form, select “Question” then select “CMR” in the drop-down of the “Send to” box.
3. Enter the details of the question and attach related documents.
4. Select “Submit Form” at the bottom of the page.

D. Contracting Officer’s Action: CO will review each RFI, determine the action required, and respond. CO 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 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 Architect's actions on submittals.
   g. Incomplete RFIs or inaccurately prepared RFIs.
2. CO'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. CO'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.

1.6 PROJECT WEBSITE

A. Use the NPS/DSC SharePoint Project website for communication throughout the contract period. The NPS/DSC SharePoint Project website will be used for the following functions:

1. Project directory.
2. Project correspondence.
3. Meeting agendas and minutes.
4. Contract modifications forms and logs.
5. RFI form and processing.
6. Task and issue management.
7. Photo documentation.
8. Baseline schedule, schedule updates, and calendar management.
9. Submittal form and processing.
10. Payment coordination documentation.
11. Drawing and specification document hosting, viewing, and updating.
12. Online document collaboration.
13. Reminder and tracking functions.
14. Archiving functions.
15. Notification of submittal and RFI statuses and current responsible party.
16. Permits and addendums

B. Some documents however are not suitable to be shared using the NPS/DSC SharePoint Project website. Documents containing Personal Identifying Information (PII) (i.e. certified payrolls) shall not be shared using the NPS/DSC SharePoint Project website and shall be coordinated with the SharePoint Project team as appropriate.

C. Submit to the CO a list of all employees who will need access to the website. The users will receive an invitation to register from the Department of Interior (DOI). Once the user is registered on the DOI website, they will be given access to the NPS/DSC SharePoint Project website. For login procedures and other SharePoint information, refer to the Workflows website at http://www.nps.gov/dscw/precon_spproj.htm.

D. All users will be required to have the following software packages:

1. Internet Explorer version 7 or later.
2. Adobe Acrobat Professional (Pro) version 9 or later

1.7 PROJECT MEETINGS

A. Preconstruction Conference: Before the start of construction, 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. Schedule of Values
9. Payments to Contractor.
10. Payroll reports.
11. Contract time.
12. Liquidated damages.
13. Contractor Performance Evaluation.
14. Display of Hotline posters.
15. Notice to proceed.
16. Correspondence procedures.
17. NPS/DSC SharePoint Project website.
18. Acceptance/rejection of work.
19. Progress meetings.
20. Submittal procedures.
21. NPS Final Accessibility Inspection.
22. Environmental requirements.
23. Cultural Resource Requirements (Training)
24. Permit requirements.
25. Coordination with utility provider Southern California Edison (SCE) regarding lead times.
26. As-constructed drawings/operation and maintenance (O&M) manuals.
27. Saturday, Sunday, holiday, and night work.
28. Reference materials.
29. 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 meetings. 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.
        1) Status of required inspections (Special Inspections, Accessibility, etc.)
    g. Inspections of work in progress and projected (Special inspections,
    h. Construction Schedule update (provide updated CPM).
    i. Status of Project Record Drawings and O&M manuals.
    j. Utility provider SCE work order status.
    k. Other business relating to work.
    l. Permit requirements.

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: Installers 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. Utility provider SCE work order status.
    l. Weather limitations.
    m. Manufacturer's written instructions.
    n. Warranty requirements.

o. Compatibility of materials.
p. Acceptability of substrates.
q. Temporary facilities and controls.
r. Space and access limitations.
s. Regulations of authorities having jurisdiction.
t. Testing and inspecting requirements.
u. Installation procedures.
v. Coordination with other work.
w. Required performance results.
x. Protection of adjacent work.
y. 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.

1.8 ENVIRONMENTAL, CULTURAL RESOURCE COORDINATION

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

1. Qualifications: Minimum 3 years of 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 Temporary Storm Water Pollution Prevention Plan - (SWPPP).
   d. Present an overview of environmental issues and summarize site-specific procedures relating to management plans at the Preconstruction conference.
   e. Training for Contractor personnel in accordance with their position requirements.
   f. Monitoring and documentation of environmental procedures.

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

1. Archeological Protection
2. Quality Requirements.
3. Regulatory Requirements.
4. Noise & Acoustics Management.
5. Temporary Storm Water Pollution Prevention Environmental Management.
6. Construction Waste Management.

C. Contractor's Environmental and Cultural Resource Training Program: Contractor shall provide environmental and (cultural resource training – NPS provided) training for workers performing work on the project site. Training shall include the following:

1. Overview of environmental and cultural resource issues related to the building industry.
2. Overview of environmental and cultural resource issues related to the Project.
3. Review of site-specific procedures and management plans:
   a. Archeological Protection
   b. Construction Waste Management.
   c. Noise & Acoustics Management.
   d. Temporary Storm Water Pollution Prevention Plan - (SWPPP).
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 Contracting Officer.

D. Provide documentation for environmental procedures as specified herein and in accordance with the approved Waste Management Plan, and Storm Water Pollution Prevention Plan.

1.9 PERMITS

A. General:

1. Permits and Responsibilities: The Contractor shall, without additional expense to the Government, be responsible for obtaining any necessary licenses and permits and for complying with any Federal, State, and municipal laws, codes, and regulations applicable to the performance of the work. Caltrans will issue a conditional permit after the Contractor applies for a "Double Permit" SWPPP with Caltrans along with a submittal of the SWPPP to Caltrans. The Contractor shall also be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the work.
2. For this contract, the Contractor will not be considered an agent of the Government. Therefore the Contractor will comply with the appropriate federal, state, and local laws.

B. Government Furnished Permits: During the development of the project's design the permits listed below were negotiated and agreed to by the Government. The terms and provisions of these permits shall be adhered to for the duration specified in each permit.

1. Traffic control for all work, including CCTV inspection, shall comply with Caltrans standards (CAMUTC 2012 and Caltrans Standard Plan 2010).
2. The Contractor shall prepare specific wastewater (sewer) bypass pumping and gravity bypass plans for project construction implementation. These plans and related documents shall be submitted to the National Park Service which will, in turn, submit to the state of California Regional Water Quality Control Board for review and approval. The Contractor shall pay for any applicable fees and shall comply with any approval conditions.

C. Potential Permits: The permits listed below were identified during the design process as likely to be required based on typical means and methods of construction. The list is provided to assist the contractor in determining which permits will be required for the contract's chosen means and methods. The list shall not be considered complete, as it is the responsibility of the contractor to determine means and methods and obtain the required permits. **It is the responsibility of the Contractor to obtain all permits required to legally conduct the work.**

1. Electrical Utility Hookup – Southern California Edison SCE
2. Sewer Hookup -- NPS
3. Construction trailer, Utility hookup permit -- Southern California Edison SCE
4. Street Closure (Under NPS Jurisdiction):
   a. Coordinate with NPS regarding all closures of streets.
5. The Contractor shall prepare, coordinate, and process all necessary plans, narratives, and other documents necessary for obtaining construction stormwater permits. These documents shall meet the requirements of Specification 01 57 23 and shall be reviewed by and approved by the NPS. A representative of Sequoia and Kings Canyon National Park will sign the permit application and the Park will hold the permit as Project Owner, but the Contractor shall be responsible for satisfying all permit requirements.
6. MS4 Stormwater Permit -- State Water Resource Control Board
7. Dewatering Permit – State Water Resource Control Board

D. Coordination with AHJ Issuing Permits

1. Coordination: Contact the AHJs as needed and sufficiently in advance to avoid delaying the work: Coordinate meetings, reporting requirements, inspections, or any other requirements.

E. Administrative Procedures:

1. Coordinate scheduling and timing of required administrative provisions of project permit with AHJs, Construction Manager, and Park to avoid conflicts and to ensure the orderly execution of the Work.
2. Supply all needed information to AHJs issuing permits, pay any fees required and provide all material needed to comply with the permit's conditions and provisions.
3. Upload permits to the NPS/DSC SharePoint project website when the permits are obtained.

1.10 UTILITY WORK ORDERS

A. General:

1. Utility SCE Work Orders and Responsibilities: The Contractor shall, without additional expense to the Government, be responsible for contacting, coordinating with, and placing any necessary work orders with SCE regarding the following:
   a. Power Disconnects or reconnects.
      1) SCE requires at least a 3 week notice.
   b. Panel Changes, transformer changes, etc.
      1) SCE requires at least 6 months' advance notice.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

SECTION 01 32 16

CONSTRUCTION PROGRESS SCHEDULE

PART 1 – GENERAL

1.1 SUMMARY

A. The section consists of Construction Schedule requirements including:

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

B. Purpose: The Construction Schedule ensures adequate planning, coordination, scheduling, and reporting during the execution of the work by the Contractor. It shall assist the Contractor and Contracting Officer (CO) in monitoring the progress of the work, evaluating proposed changes, and processing the Contractor's monthly progress payments. It shall include the dates in the contract, phases, milestones, occupancies, holidays, weather considerations, a critical path, and the requirements of this section.

1.2 DEFINITIONS

A. Activity: A discrete part of a project 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 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: Allocation of the Schedule of Values for 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. Critical Path Method (CPM): 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: Longest connected chain of interdependent activities through the network schedule that establishes minimum overall Project duration and contains no float.

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

1. Float: Not for the exclusive use or benefit of the Government or Contractor but is jointly owned.
2. Free Float: The amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
3. Total Float: Measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

F. Resource Loading: Allocation of manpower and equipment necessary for the completion of an 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: Schedules and reports submitted shall be posted on the NPS/DSC management software website in native electronic file formats. The Government's intention is to limit the number of printed reports to those determined by the project team as essential.

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 contract award and before the Pre-Construction conference, submit two paper copies of the baseline schedule, large enough to show the entire schedule for the entire construction period. Utilize Schedule of Values in preparation of Construction Baseline Schedule.

D. Critical Path Method (CPM) Reports: Concurrent with the CPM schedule, submit three paper copies of the following computer-generated reports. For each activity, include activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.

1. Activity Report: List of activities sorted by activity number and then early start date, or actual start date if known.
2. Logic Report: List of predecessor and successor tasks for activities sorted in ascending order by activity number and then early start date, or actual start date if known.
3. Total Float Report: List of activities sorted in ascending order of total float.

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

F. Construction Schedule Revisions and Time Impact Analysis: For each Construction Schedule revision, submit two paper copies of a Time Impact Analysis. Incorporate a Fragmentary Network (Fragnet) into the currently accepted Construction Schedule that demonstrates how the Contractor proposes to incorporate a modification, change, delay, or Contractor request.

1.4 QUALITY ASSURANCE

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

1. Review software limitations, content, and format for reports.
2. Verify the availability of qualified personnel needed to develop and update the schedule.
3. Discuss constraints, including phasing, work stages, area separations, interim milestones, and partial Government occupancy/substantial completions.
4. Review delivery dates for Government-furnished products.
5. Review schedule for work of separate Government contracts.
6. Review time required for review of submittals and re-submittals.
7. Review requirements for tests and inspections by independent testing and inspecting agencies.
8. Review time required for completion and startup procedures.
9. Review and finalize the 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 the schedule.
12. Discuss reporting requirements and establish a protocol for naming and transmitting electronic schedules.

B. Contractor's Schedule Representative: Before the preconstruction conference, designate an authorized representative to be responsible for preparing and maintaining the Construction Schedule. Submit resume outlining qualifications of Scheduler to Contracting Officer for acceptance. Scheduler shall have prepared and maintained at least 5 previous schedules of similar size and complexity similar to this Contract, demonstrating proficiency in using scheduling software. The authorized representative will be responsible for preparing the Baseline Schedule, required updates, revisions, Time Impact Analyses, and reports.

1.5 COORDINATION

A. Coordinate 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 Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.

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

PART 2 – PRODUCTS

2.1 SCHEDULE OF VALUES

A. Break down each lump-sum item into component work activities used in the schedule for which progress payments may be requested. Work activities broken out within the schedule of values shall be integrated into and made a logical part of the construction baseline schedule. Total costs for the component work activities shall equal the contract price for that lump-sum item. 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 and the Construction Schedule.

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, cost and resource-based, time-scaled Critical Path Method 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 work within applicable completion dates, regardless of the Government's 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 a preliminary Critical Path Method network diagram, prepare a skeleton network to identify probable critical paths.

1. Activities: Indicate estimated duration, sequence requirements, and relationship of each activity relative to 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 Critical Path Method schedule within the limitations of the Contract Time.

4. Show sequence and interdependence of activities required for completion of work. Ensure work sequences are logical and Construction Baseline Schedule shows a coordinated plan of the work.
5. Resource loading of each activity shall include 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 work influenced by high and low ambient temperatures, wind, or precipitation to ensure completion of work within 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 shall be the same as the last day of the contract period. An early completion schedule shall contain:
        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 based on a 7-day week to be used on activities based on calendar days. Apply this calendar to administrative tasks or other tasks not affected by non-working days (Federal Holidays, weather, etc.).
        2) Project Calendar: Include a calendar based on the planned work week for the project. Include Federal Holidays, weekends, and non-workdays indicated in contract documents. Apply this calendar to activities not anticipated to be affected by the weather. Be clear when identifying the number of workdays in the workweek.
        3) Weather Calendar: Utilize Project Calendar and show anticipated normal downtime related to weather as 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 Contracting Officer. Apply this calendar to activities anticipated to be affected by the weather.
    e. Activity Duration: Define so no activity is longer than 14 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 long-lead items and major items, requiring a cycle of more than 60 calendar days, as separate activities in the schedule. Procurement cycle activities can include 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 7 days for startup and testing and commissioning activities.

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

8. Constraints: Include constraints and work restrictions indicated in Contract Documents and as follows in the schedule and show how the sequence of 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 on the schedule:
      1) Coordination with existing construction
      2) Limitations of continued occupancies
      3) Uninterruptible services
      4) Partial occupancy before Substantial Completion
      5) Use of premises restrictions
      6) Provisions for future construction
      7) Seasonal variations
      8) 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) Mockups
      5) Fabrication
      6) Sample testing
      7) Deliveries
      8) Installation
      9) Tests and inspections
      10) Adjusting
      11) Curing
      12) Building flush-out.
      13) Building commissioning activities.
9. Milestones: Include milestones indicated in Contract Documents in the schedule, including, but not limited to, Notice to Proceed, Substantial Completion**,** and Final Completion

C. Joint Review, Revision, and Acceptance:

1. Within seven calendar days of receiving the Contractor's proposed Construction Baseline Schedule, Contracting Officer shall review the initial Construction Baseline Schedule.
2. Within seven calendar days after the review, the Contractor shall revise and resubmit Construction Baseline Schedule following comments presented from the 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 Contractor within seven calendar days and shall not affect contract period.
4. Upon acceptance of the Construction Baseline Schedule, Contracting Officer saves the schedule as a baseline and updates it on a monthly basis. The construction schedule update will be used to evaluate the Contractor's monthly applications for payment based on information developed at the monthly Construction Schedule update meeting.

D. Cost Correlation: In the heading of the schedule, provide a cost correlation line, indicating planned and actual costs. On the line, show the dollar volume of Work performed as of the dates used to prepare payment requests.

1. The contractor shall assign a cost to construction activities on Construction Baseline Schedule. Costs shall not be assigned to submittal activities unless specified otherwise but may, with Contracting Officer's approval, be assigned to fabrication and delivery activities. Costs shall be included for testing and commissioning activities, operation and maintenance manuals, punch list activities, Project Record Documents, and demonstration and training (if applicable).
2. Each activity cost shall reflect an accurate value based on the Contract Price Schedule.
3. The total cost assigned to activities shall equal the total Contract Price.

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

F. Computer Software: Prepare schedules using a program developed specifically to manage construction schedules.

1. Use Microsoft Project or Primavera, or other approved equal software. Confirm compatibility with NPS's current operating system.
2. The Contractor shall provide to 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 completion of the Contract.

PART 3 – EXECUTION

3.1 CONSTRUCTION SCHEDULE UPDATES

A. Progress Meeting Updates: Provide a 2-week look-ahead schedule, derived from the currently accepted schedule, before each weekly progress meeting. Utilize a look-ahead schedule to facilitate and take notes on discussions held during progress meetings.

B. Monthly Schedule Updates:

1. General: Update the Construction Schedule on monthly basis to reflect 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: Contractor shall meet with Contracting Officer each month at Construction Schedule update meeting to review progress made through the status date of the Construction Schedule update, including dates activities were started or completed and percentage of work completed on each activity started or completed.

3. Reports: Concurrent schedule revisions, prepare tabulated reports showing:
    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: Report shall include a brief description of actual progress made during the update period; actual and potential delaying activities; impediments to progress; issues related to inclement weather; progress toward established milestones and project float. The report shall include a brief description of work anticipated to be performed in the next month. Minor revisions to the schedule should be identified for evaluation and acceptance or rejection.
5. As Work progresses, indicate the Actual Completion percentage for each activity.
6. If the schedule update shows a late finish date after the contract completion date, include:
    a. Known delays
    b. Actions to get back on schedule
    c. Pending modifications
    d. Impediments or constraints affecting progress
7. Progress Payments: Monthly updating of the currently accepted Construction Schedule shall be an integral part of the process upon which progress payments will be made. If the Contractor fails to provide schedule updates or revisions, a portion of the monthly payment may be retained until corrections have been made.

C. Distribution: Distribute copies of the accepted schedule to Contracting Officer, Contracting Officers Representative, Construction Management Representative, Subcontractors, testing and inspecting agencies, and other parties identified by 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 actual prosecution and progress of the work, Contracting Officer will request, and 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 Contracting Officer in writing, stating the reason for the proposed revision. Accepted revisions shall 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 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 seven calendar days.
3. Reports: Concurrent with making revisions to the schedule prepare tabulated reports showing:
    a. Identification of activities 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 MODIFICATION CHANGE DELAYS AND CONTRACTOR REQUESTS:

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

B. Time Extensions: Activity delays, resulting in a late completion date projection, shall not automatically mean an extension of contract time is warranted or due to the Contractor. It is possible 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 absorbing a part of the available total float that may exist within an activity chain of the Schedule, not causing any effect on contract time. Time extensions will be granted per the terms of the contract.

C. Extension of contract time will be granted only to the extent the equitable time adjustments to 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 time period stated in a request for proposal, or time period designated under the clauses entitled Changes or Default. In cases where the Contractor does not submit a written request for an 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, time impact analysis shall be incorporated into the currently accepted Construction Schedule at the next monthly scheduled update.

E. Contract Modifications: Prepare time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall Construction Schedule for each proposed contract modification concurrent with submission.

END OF SECTION

SECTION 01 32 33

PHOTO DOCUMENTATION

PART 1 – GENERAL

1.1 SUMMARY

A. The section includes administrative and procedural requirements for:

1. Existing condition images
2. Periodic construction images

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

C. See Section 01 79 00 "Demonstration & Training" for submitting videotapes of demonstration of equipment and training of National Park Service (NPS) personnel.

1.2 SUBMITTALS

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

1. Date, time, 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, or modifications using image-editing software.

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

1. Provide index as a separate file on Disc. List each image as a file name with a 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: DVD-R Archival Gold

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

C. Images: Provide sRGB (standard Red Green Blue) color images in JPEG (Joint Photographic Experts Group) format. The minimum sensor size of 8 megapixels, and an image resolution of not less than 3200 by 2400 pixels, and 300 dpi (dots per inch).

PART 3 – EXECUTION

3.1 CONSTRUCTION IMAGES

A. General: Take digital images using the maximum range of depth of field, in-focus, to clearly show the Work. No blurry or out-of-focus areas are accepted.

1. Maintain index with each set of Construction images and identify the number, date, time, and description for each.
2. Maintain 1 set of images accessible in the field office at the Project site available for reference.

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

1. Flag construction limits before recording construction images.
2. Take 8 separate images to show existing conditions adjacent to the property before starting Work.
3. Take 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 12 color, digital images weekly, with timing each month adjusted to coincide with the cutoff date associated with 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.

1. Three days advance, where feasible.
2. In emergencies, take additional images within 24 hours of the request.
3. Additional images include, but are not limited to:
    a. Immediate follow-up when on-site events result in construction damage or losses.
    b. Fabrication locations away from the Project site.
    c. Substantial Completion of a major phase or component of 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. The section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

1.2 DEFINITIONS

A. Action Submittals: Written, graphic information, and physical samples that require Government's responsive action.

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

C. File Transfer Protocol (FTP): Communications protocol that enables the transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users can access files.

D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.3 GENERAL SUBMITTAL PROCEDURES

A. General: Prepare and submit submittals required by individual Specification Sections and in some cases as requested in drawings. Types of submittals are indicated in individual-specific sections.

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

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

1. Coordinate 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 Work so processing will not be delayed because of the need for concurrent review coordination.
   a. Contracting Officer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Submittal List: The submittal list is attached to the end of this Specification Section. The intent is to provide an overall summary of submittal requirements. The requirements of individual Specification Sections and terms and conditions of the Contract still apply regardless of what is shown on the submittal list.

D. Processing Time: Allow time for submittal review, including time for re-submittals, as follows. Time for review shall commence when e-mail notification is received by Contracting Officer (or designee) indicating submittal has been posted on the NPS management software website and is ready for review. When Contracting Officer has completed the review, an e-mail notification will be sent to the Contractor indicating submittal has been processed. No extension of Contract Time will be authorized because of failure to transmit submittals in advance of Work to permit processing, including re-submittals.

1. Action Submittals
   a. Initial Review: Allow 15 days for the initial review of each submittal. Allow additional time if coordination with subsequent submittals is required.
   b. Re-submittal Review: Allow 15 days for review of each re-submittal.
2. Informational submittals
   a. Review: Allow 10 days for review of each submittal.

E. 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 source 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 installation of an approved item and make changes required in other elements of the work because of the substitution.
   e. Waives claims for additional expenses that may be incurred as a result of the substitution.

F. Electronic Submittals: Identify and incorporate the information in each electronic submittal file as follows:

1. Transmittal Form (CM-16): All submittals shall be transmitted using National Park Service Transmittal Form (CM-16). The form can be downloaded from the DSC Workflows website's Submittal Review page and completed on the NPS/DSC management software website. No action will be taken on a submittal item unless accompanied by this Transmittal Form.
   a. Complete the general information at the top of the form.
   b. Provide all required information based on submittal type

c. Attach all related documents.
d. Sign the Contractor section at bottom of the Transmittal Form (CM-16).

2. Physical samples: Complete Transmittal Form (CM-16) on the NPS/DSC management software website as described above. Deliver physical sample to the Contracting Officer (or designee) on-site for processing. All comments and actions will be documented on the Transmittal Form (CM-16) on the NPS/DSC management software website.

G. Identification: Submittal number or other unique identifiers, including revision identifier.

1. Submittal number shall use 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 using the same process used with the initial submittal.

1. Note the date and content of the previous submittal.
2. Note the date and content of revision in the title block on the Transmittal Form (CM-16) and clearly 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, and others as necessary for the performance of construction activities.

J. Use for Construction: Use only final submittals with a mark indicating "APPROVED" or "APPROVED WITH NOTATIONS." Ensure notations have been incorporated and, at a minimum, keep one copy of the final approved submittal on-site for use during construction.

1.4 CONTRACTOR'S USE OF CAD FILES

A. General: At Contractor's written request, copies of CAD (Computer-Aided Design) files will be provided to Contractor for Contractor's use in connection with Project, subject to:

1. Files will be provided as-is.

PART 2 – PRODUCTS

2.1 ACTION SUBMITTALS

A. 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 submittal to show which products and options are applicable.
3. As applicable, include:
   a. Manufacturer's product specifications.

b. 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.
c. Manufacturer's catalog cuts: Submit only pertinent pages; mark each page of standard printed data to identify specific products proposed for use.
d. Wiring diagrams showing factory-installed wiring.
e. Printed performance curves.
f. Operational range diagrams.
g. Compliance with specified referenced standards.
h. Testing by a recognized testing agency.

4. Submit product data in PDF (portable document format) file format before or concurrent with samples.

B. 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 Contract Documents. As applicable, include:
   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. Shopwork manufacturing instructions
   g. Templates and patterns
   h. Schedules
   i. Notation of coordination requirements
   j. Notation of dimensions established by field measurement
   k. Relationship to adjoining construction clearly indicated
   l. Seal and signature of a professional engineer if specified
   m. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring
2. Submit shop drawings as PDF electronic file

C. 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 components as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Complete and post the Transmittal Form (CM-16) on the NPS/DSC management software website for processing and documentation of action on submitted samples.
3. Identification: Attach label on the unexposed side of Samples that includes:
   a. Generic description of Sample
   b. Product name and name of the manufacturer
   c. Sample source
   d. Submittal Number and title of appropriate Specification Section

4. 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.
5. 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 sets 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 with the options selected.
6. 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 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 four sets of Samples. Contracting Officer will retain 3 Sample sets; the remainder will be returned.

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

2.2 INFORMATIONAL SUBMITTALS

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

1. Post informational submittals as PDF electronic files directly to the NPS management software website.
2. Certificates and Certifications: Provide a notarized statement with 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.
3. Informational submittals that do not comply with requirements specified in Contract Documents will be rejected and one copy will be returned.

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

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

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

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

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

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

H. Storm Water Pollution Prevention Plan: Comply with requirements specified in Section 01 57 23 "Temporary Storm Water Pollution Prevention" and stormwater permit requirements identified in Section 01 31 00 "Project Management & Coordination."

I. Indoor Air Quality Management Plan: Comply with requirements specified in Section 01 57 19.11 "Indoor Air Quality Management."

J. Qualification Data: Prepare written information demonstrating capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

K. Welding Certificates: Prepare written certification that welding procedures and personnel comply with Contract Documents. Submit a record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on American Welding Society (AWS) forms. Include names of firms and personnel certified.

L. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying Installer complies with Contract Documents and, where required, is authorized by manufacturer for this specific Project.

M. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying manufacturer complies with Contract Documents. Include evidence of manufacturing experience where required.

N. Product Certificates: Prepare written statements on manufacturer's letterhead certifying product complies with Contract Documents.

O. Material Certificates: Prepare written statements on manufacturer's letterhead certifying material complies with Contract Documents.

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

Q. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in 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.

R. 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.

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

T. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on the 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.

U. Field Test Reports: Prepare reports written by a qualified testing agency, on the 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 requirements in Contract Documents.

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

W. Design Data: Prepare written and graphic information, including performance and design criteria, a 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 the name and version of the software, if any, used for calculations. Include page numbers.

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

Y. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. As applicable, include:

1. Statement on condition of substrates and their acceptability for installation of the product.
2. Summary of installation procedures being followed, compliance with 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.

Z. Permit Compliance Products: Prepare required information for compliance with permit provisions. Products include written notification of project startup, suspension, and completion of work; photo documentation of site conditions; reports; and drawings.

PART 3 – EXECUTION

3.1 CONTRACTOR'S REVIEW

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

3.2 CONTRACTING OFFICER'S ACTION

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

1. Any work 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, generate comments on corrections or modifications required, and indicate appropriate action on the Transmittal Form (CM-16). Submittal will be marked as defined below:

1. APPROVED: Acceptable with no corrections.
2. APPROVED WITH NOTATIONS: Minor corrections or clarifications required. Comments are clear and no further review is required. The contractor shall address review comments when proceeding with the work.
3. DISAPPROVED - RESUBMIT: Rejected as not following the contract or as requiring major corrections or clarifications. Contracting Officer will identify reasons for disapproval. The contractor shall revise and resubmit with changes clearly identified.

C. Informational Submittals: Contracting Officer will review each submittal and will either accept or reject it.

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

END OF SECTION

SECTION 01 35 13.22

ARCHEOLOGICAL PROTECTION

PART 1 - GENERAL

1.1 SUMMARY

A. The section consists of protecting archeological resources contained in soil deposits.

1.2 DEFINITIONS

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

B. Archeologically Sensitive Areas: Areas having 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 state historic preservation officer and, if necessary, associated American Indian tribes.

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

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

E. Archeological Resources Protection Act (ARPA) of 1979 (Public Law (P.L.) 96-95; 93 United States Statutes at Large (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.

1.3 SUBMITTALS

A. Daily Work Schedule: Detail construction work in archeologically sensitive areas. Submit to Contracting Officer (CO) 30 days before the start of ground-disturbing site work.

1.4 QUALITY ASSURANCE

A. At least 2 weeks before on-site ground-disturbing work begins, the Contractor shall meet with Contracting Officer and Archeological Monitor to discuss Daily Work Schedule, equipment, and special methods used in archeologically sensitive areas. The contractor shall ensure the approved Daily Work Schedule is followed throughout construction.

PART 2 – PRODUCTS

2.1 DAILY WORK SCHEDULE

A. A daily Work Schedule is required for work occurring within archeologically sensitive areas. Include all work that is to occur within the area and key the schedule to the drawings to include:

1. Starting and ending dates of ground-disturbing construction.
2. Locations of temporary facilities, such as barriers, field offices, staging areas, sanitary facilities, borrow pits and haul and access roads.
3. Types of construction, such as clearing, topsoil stripping, structure or trench excavation, landscaping, and post-construction clean-up.
4. Methods and equipment used for each type of construction.
5. Plan for relocating work in the event of temporary work stoppages at each archeologically sensitive area.

PART 3 – EXECUTION

3.1 BARRICADES

A. Comply with requirements specified in Section 01 50 00 "Temporary Facilities & Controls."

3.2 ARCHEOLOGICAL INVESTIGATION BY NON-NPS PERSONNEL

A. Cultural Resources Sensitivity Training: Very basic cultural resource recognition training session for employees and subcontractors (including new hires in course of the project) by archeological staff that addresses encountering prehistoric and historic artifacts in trenching and excavation. Training includes a brief talk/show-and-tell by archeological staff as to types of resources/artifacts that may be encountered and what to do/who to notify in case of discovery. The contractor shall submit a completed sign-off sheet documenting that this training has been received by workers performing work in the field.

B. A permit is required for archeological investigations (e.g. excavation, shovel testing, coring, pedestrian survey, underwater archeology, rock art documentation, or other types of reconnaissance including archaeological monitoring of construction) carried out on parklands by non-National Park Service (NPS) personnel, unless carried out under a contract or a cooperative agreement specifically written for archeological investigations. Permits are issued under the Archaeological Resources Protection Act of 1979 (ARPA). The NPS does not issue a permit for archeological investigations carried out by NPS archeologists, or to archeologists working on NPS archeological projects under a contract or cooperative agreement.

C. Applicants should submit a Permit Application (DI Form 1926 (Revision September 2004) Office of Management and Budget (OMB) Number (No.) 1024-0037, approved through 1/31/2008. The Permit Application form is available, in PDF (portable document file) format, to the manager of the park in which they propose to work; or to the regional director, with a copy to the park manager.

3.3 OBSERVATION

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

3.4 DISCOVERY OF RESOURCES

A. If Archeological Monitor discovers resources, immediate relocation of work to a non-sensitive area may be required for the Monitor to identify and document resources and, if necessary, develop an appropriate mitigation plan. While Archeological Monitor is documenting resources in sensitive areas, 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.

3.5 WORK STOPPAGE

A. The contractor shall plan, schedule, and execute 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. The section includes establishing an effective accident prevention program and providing a safe working environment for personnel and visitors.

1.2 SUBMITTALS

A. Accident Prevention Plan (APP): Submit APP after contract award and before Pre-Construction conference. Contracting Officer (CO) will review the proposed APP. If APP requires any revisions or corrections, Contractor shall resubmit Plan within 10 days. No progress payments will be made until the APP is accepted.

1.3 QUALITY ASSURANCE

A. Comply with contract clauses "Accident Prevention" and "Permits and Responsibilities." In case of conflicts between Federal, State, and local safety and health requirements, the most stringent shall apply. Onsite equipment shall meet 29 CFR 1926 (Code of Federal Regulations) (Occupational Safety and Health Administration (OSHA)) requirements. Failure to comply with the requirements of this section and related sections may result in the suspension of work.

B. Site Safety Supervisor:

1. Designate authorized onsite representative for preparation and maintenance of the APP.
2. Shall be responsible for:
    a. Implementation and enforcement of the APP.
    b. Daily safety inspections.
    c. Conducting and documenting weekly and monthly safety meetings.
    d. Review of safety requirements at progress meetings.
    e. Compilation and maintenance of Safety Data Sheets (SDS) and safety reference materials.
    f. Tracking and resolution of safety violations.
    g. Site personnel and visitor compliance with site safety and health requirements and APP.
    h. Investigation and reporting of accidents and injuries.

C. Qualifications of Employees:

1. Physically and able to perform their assigned duties safely.

2. Do not allow employees 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 to perform work.
3. Provide operating instructions for the equipment. Operators of vehicles, hoisting equipment, and hazardous plant equipment shall be able to understand signs, signals, operating instructions, and be fully capable of operating such equipment. Retain copies of operator licenses and certifications onsite.

1.4 ACCIDENT REPORTING

A. Reportable Accidents: Defined as death, occupational disease, and/or traumatic injury to employees or the public; fires; and/or property damage by accident over $100.

1. Notify Contracting Officer immediately in the event of a reportable accident.
2. Fill out and forward an Accident/Property Damage Report Form (CM-22) to Contracting Officer within 7 days of a reportable accident. Obtain the form from Contracting Officer.

1.5 RESOURCES

A. COVID-19 (Coronavirus Disease 2019) information provided below is not intended to provide a complete analysis of requirements for the Contractor and is provided as a courtesy.

1. Coronoavirus.gov
2. Occupational Safety and Health Administration (United States Department of Labor) - COVID-19
3. Center for Disease Control (CDC)
   a. Get the Facts About Coronavirus
   b. What Construction Workers Need to Know about COVID-19
4. Federal Emergency Management Agency (FEMA) - Coronavirus (COVID-19) Response
5. National Park Service (NPS) - NPS Public Health Update

PART 2 – PRODUCTS

2.1 ACCIDENT PREVENTION PLAN (APP)

A. APP shall be written to comply with OSHA and project requirements (generic plan is not acceptable) including but not limited to:

1. Name and qualifications of the supervisor responsible to carry out the program.
2. Weekly and monthly safety meetings shall be documented with topics and attendees.
3. First aid and rescue procedures.
4. Job Hazard Analysis (JHA) for each major phase. List of hazards associated and methods proposed to provide for property protection and safety of the public, National Park Service personnel, and Contractor's employees. Include initial and continuing training.
5. Planning for possible emergencies, as detailed in Article 1.2. Such planning shall take the nature of construction, site conditions, and degree of exposure of persons and property into consideration.

6. Blasting Plan Requirements: No blasting will be required on this project. No plan is necessary.
7. Infectious Disease Preparedness:
    a. Contractors are responsible for their employees' safety and the safety of job site visitors during the performance of this contract. We encourage Contractors to follow guidance from the Department of Labor (DOL), Occupational Safety and Health Administration (OSHA), the Centers for Disease Control and Prevention (CDC), and all other applicable local, city, and state mandates. We encourage Contractors to develop policies for infection prevention and an Infectious Disease Preparedness and Response Plan.
    b. To the extent appropriate, Contractors should include the protective health and safety measures they intend to implement in any accident prevention or safety submittals required under this contract. These plans should contain preventive measures the Contractor intends to follow while performing work on government property as well as responsive and corrective actions to be taken if an employee exhibits symptoms or tests positive for contagion.
    c. Upon contract award, Contractors should communicate with Contracting Officer regarding Contractor decisions and actions to protect the health and safety of workers for the duration of contract performance under which pandemic conditions exist.

2.2 FIRST AID FACILITIES

A. Provide adequate facilities for the number of employees and appropriate to construction hazards.

2.3 PERSONNEL PROTECTIVE EQUIPMENT (PPE)

A. Selection shall conform to OSHA Subpart E.

PART 3 – EXECUTION

3.1 DAILY SAFETY INSPECTIONS

A. Conduct daily safety inspections and maintain daily safety reports which include:

1. Area/operation inspected
2. Date of inspection
3. Identified hazards
4. Corrective actions taken

3.2 EMERGENCY INSTRUCTIONS

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

3.3 FIRE AND LIFE SAFETY

A. Comply with requirements of National Fire Protection Association (NFPA) 241 (Standard for Safeguarding Construction, Alteration, and Demolition Operations).

3.4 HAZARDOUS MATERIALS

A. Hazardous materials: Explosive, flammable, poisonous, corrosive, oxidizing, irritating, or otherwise harmful substances that could cause death or injury.

B. Store hazardous materials following manufacturers and OSHA Subpart D requirements. Maintain Safety Data Sheets (SDS) for each chemical readily available on site.

1. Immediately report spills of hazardous materials to the Park.
2. Maintain a spill emergency response kit.
3. Train employees on how to respond to a spill and use an emergency response kit.

3.5 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.

3.6 SAFETY MEETINGS

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

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

3.7 HARD HATS AND PROTECTIVE EQUIPMENT AREAS

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

B. It is the Contractor's responsibility to require persons working on or visiting the site to wear hard hats and PPE in good repair at all times. As a minimum, maintain 6 hard hats and other APP-required equipment.

3.8 TRAINING

A. First Aid: Provide training to 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.

END OF SECTION

SECTION 01 35 43.13

ENVIRONMENTAL PROCEDURES FOR HAZARDOUS MATERIALS

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Hazardous materials discovery and abatement.

B. References regarding and definition of biological hazards associated with wastewater.

C. Site-specific general conditions.

1.2 DESCRIPTION

A. The work of this section consists of requirements and provisions that apply when the Contractor is conducting the Work and encounters, discovers, or is notified of potential soil or groundwater contamination.

B. If the Contractor discovers unnaturally stained or unnaturally odored materials, including soil and groundwater, or suspects contamination, the Contractor shall immediately contact the Contracting Officer and stop work in the area of suspected contamination.

C. The Contracting Officer (CO) may identify the Contractor areas of potential or suspected contamination. Upon notification, the Contractor shall immediately stop work in the area of suspected contamination.

D. The work in this section includes actions that the Contractor may be directed by the CO to take to determine whether the discovered soil or groundwater with potential contamination described above contains hazardous substances, pollutants, or contaminants that require specific actions before continuing work in that area.

E. The work in this section includes certain specific actions that the Contractor may be directed by the CO to take in response to discovery and confirmation of soil or groundwater contamination to remove or address the contamination.

1.3 REFERENCES

A. Biological hazards in sewage and wastewater treatment plants.

1. Center to Protect Workers' Rights (CPWR)
2. National Center for Infectious Diseases
3. National Institute for Occupational Safety and Health (NIOSH)

1.4 QUALITY ASSURANCE

A. The Contractor shall become generally familiar with current environmental conditions existing at Ash Mountain & Buckeye Housing Sequoia National Park Wastewater Treatment Plants.

B. The Contractor shall ensure that all environmental sampling work is conducted and supervised by individuals and/or a subcontracting firm holding the appropriate and applicable technical and professional credentials and/or licenses required by the State of California as necessary.

C. The Contractor shall ensure that all excavation of potentially contaminated soil or materials is conducted and supervised by individuals and/or a subcontracting firm holding the appropriate and applicable technical and professional credentials and/or licenses required by the State of California as necessary.

D. The Contractor shall ensure that any environmental sampling the contractor conducts follows EPA, California, and American Society of Testing and Materials protocols and guidance.

1.5 DEFINITIONS

A. For definitions of hazardous materials refer to hazardous and toxic materials/substances included in Subparts H and Z of 29 CFR 1910.

B. Biological hazards in sewage and wastewater treatment plants

1. During construction and maintenance of sewage and wastewater plants, workers may be killed by drowning, trench collapses, falls, confined spaces, and exposure to chlorine or hydrogen sulfide gas. Sewage and wastewater contain bacteria, funguses, parasites, and viruses that can cause intestinal, lung, and other infections. If equipment, work practices, and personal protective equipment (PPE) don't protect you from swallowing these agents, you can become ill. During any part of the treatment, transport, or application of sewage sludge, you can be exposed to materials that can cause disease.

1.6 GENERAL CONDITIONS

A. Sequoia National Park (SEKI) Ash Mountain & Buckeye Housing Wastewater Treatment Plant and surrounding area may contain some areas with unknown existing hazardous materials. NPS will provide the Contractor with any available documentation of the site-specific conditions that the Contracting Officer's Representative (COR) is aware of. The following is a general synopsis of the facilities within the SEKI Ash Mountain and Buckeye Housing area:

1. The wastewater facility has water-filled basins and sumps that present a drowning hazard and is classified as confined space areas even when empty.
2. The wastewater facility is treating sewage and dewatering solids and thus is operating during construction.
3. As an operating facility, there are gas detectors to protect against hydrogen sulfide gases evolving from the wastewater liquid.
4. As an operating facility, there are biological hazards in connection with the wastewater liquid, residuals in empty basins, and biosolids.

1.7 SUBMITTALS

A. Hazardous Materials and Waste Work Plan

1. Work Plan Schedule:
   a. The NPS requires completion and approval of a Hazardous Materials and Waste Workplan (HM Workplan) before Contractor mobilization. The Contractor shall submit one electronic and two separately bound copies of these draft HM Workplans and all associated reports, plans, blueprints, specifications, and other submittals to the NPS a minimum of 15 working days before the expected beginning date of site activities. The NPS and regulatory agencies, if applicable, will provide comments upon the draft report. The Contractor shall then supply one electronic and three separately bound copies of these approved final HM Workplans to the NPS 5 calendar days before the expected beginning of site activities.
2. Work Plan Format:
   a. The Contractor shall submit a Hazardous Materials and Waste Workplan (HM Workplan) that describes how environmental media sampling (soil and water), laboratory analyses, contaminated-soil excavation, field decontamination procedures, and reporting will be conducted. The Contractor shall prescribe the methodology and procedure necessary to obtain repeatable, representative, and site-specific data for encountered soil and water contamination. Prescribed sampling strategy shall be commensurate with the level of effort and detail required to accurately characterize conditions encountered and should consider previously available data; sample size; location; timing and spatial factors; field methodology; analytical methods and health and safety goals to delineate appropriate sampling methodology.
      1) The Work Plan shall include:
         a) Table of Contents
         b) A Summary of Provisions or assumptions used for preparing the Work Plan
         c) A Scope of Work describing the procedures and methodologies proposed for:
         d) Storage of excavated contaminated soils
   b. Proposed Equipment Specifications:
   c. Other provisions are generally supplied in work plans of this nature according to standard industry practice for similar projects in similar localities.
   d. Disposal Facility Credentials: The Contractor shall select a disposal site in advance of field activities. For estimating purposes only, the Contractor should assume that contaminated materials will be disposed of at a Class II landfill. The Contractor shall provide to the Contracting Officer, for approval, the credentials from the disposal facility before the initiation of site activities. Credentials include documentation that the facilities are currently permitted by the appropriate state and federal agencies to accept the type of wastes generated from the site activities, proof that there are no outstanding relevant violations against the facility, and a copy of the most recent state and/or federal inspection agency inspection report.
   e. Qualifications of Workers in Contaminated Areas: Name of firm and individuals in that firm that will be conducting work in areas that are discovered and confirmed to have hazardous levels of contamination. This submittal shall include a description of the individual’s and firm's experience at working in areas of contaminated soils and documentation of their OHSA compliant training.
   f. Uniquely and consecutively numbered pages.

3. Record of Transport and Disposal: The Contractor shall provide a record of all transport and disposal to the Government within three days of any contaminated material transport or disposal. This record shall include:
4. The weights/volumes of all materials transported and the dates of transport. All of the corresponding identification information (tare weights, bin number, manifest number, etc.) shall be transcribed on each of the relevant documents.

B. Hazardous Materials and Waste Report:

1. Hazardous Materials Report Schedule
2. Format: The Hazardous Materials and Waste Report shall include:
   a. Table of Contents
   b. Description of all hazardous material storage and disposal locations
   c. Documentation, including certificates of disposal, for all waste disposal
   d. Uniquely and consecutively numbered pages

PART 2 - PRODUCTS (Not Used)

PART 3 – EXECUTION

3.1 GENERAL PRECAUTIONS

A. The Contractor shall be aware that unknown contamination may be encountered while performing the requirements of this contract. Upon discovery of any unnaturally discolored, stained, or odored materials, unnatural objects, or unusual conditions, or become aware of potential contamination, the Contractor shall immediately stop work in the affected area and contact the COR. The Contractor may be required to wait up to 25 calendar days for the Government to preliminarily evaluate the discovery and provide guidance to the Contractor on how to proceed. The contractor shall continue to work in other areas during this time.

B. While trenching or excavating across former or current fuel line crossings or through other potentially contaminated soil areas noted in the field, the Contractor shall properly employ a field screening unit such as a photoionization detector (PID) or approved equivalent to screen for the presence of hydrocarbons when field conditions indicate the existence of possible contamination through observation of staining, notice in a change of soil or fill conditions, or notice of odors. PID screening, or approved equivalent, must occur at a minimum of 10’ intervals.

C. The Government may identify additional areas along the alignment of the Work where potential soil contamination exists and an assessment of the potential contamination needs to be made.

D. The contractor shall identify and post the route to a nearby hospital.

3.2 PROJECT REPORTING

A. Following field activities, the Contractor shall provide a Hazardous Material and Waste Report as section reportable. Should the Contractor not encounter contaminated materials, the Contractor shall state such in a separate letter or as part of the CLOSEOUT SUBMITTALS, Section 01 77 00 PART 1.3. The Contractor shall submit one electronic and two separately bound copies of the draft Hazardous Material and Waste Report. The NPS will review and provide comments on the draft report. Following the NPS review, the Contractor shall make any required report changes and submit three separately bound copies of the Final Draft Hazardous Material and Waste Report.

END OF SECTION

SECTION 01 35 91

HISTORIC PRESERVATION TREATMENT PROCEDURES

PART 1 – GENERAL

1.1 SUMMARY

A. The section includes special procedures for historic treatment on Project including, but not limited to:

1. Definitions
2. Submittals
3. Quality Assurance
4. Storage and protection of existing historic materials
5. Project site conditions
6. Historic Preservation Treatment Plan
7. Protection, General
8. Protection during application of chemicals
9. Protection during use of heat-generating equipment
10. Historic preservation treatment procedures

1.2 DEFINITIONS

A. "Preservation" - To apply measures necessary to sustain existing form, integrity, and materials of historic property. Work may include preliminary measures to protect and stabilize the property.

B. "Rehabilitation" - To make possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features that convey its historical, cultural, or architectural values.

C. "Restoration" - To accurately return form, features, and character of a property to its appearance at a particular period utilizing removal of features from other periods in its history and repair and reconstruction of missing and deteriorated features from the restoration period.

D. "Reconstruction" - To reproduce in exact form and detail, a building, structure, or artifact as it appeared at a specific period in time. Reconstructed elements do not possess historic integrity in their own right since they are not original fabric.

E. "Stabilize" - To apply measures designed to reestablish a weather-resistant enclosure and structural reinforcement of an item or portion of the building while maintaining essential form as it exists at present. This level of intervention is aimed at retarding or arresting adverse impacts to structures.

F. "Protect and Maintain" - To remove deteriorating corrosion, reapply protective coatings, and install protective measures such as temporary guards; to provide the least degree of intervention.

G. "Repair" - To stabilize, consolidate, or conserve; to retain existing materials and features while employing as little new material as possible. Repair includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials. Within restoration, repair also includes the limited replacement in kind, rehabilitation, and reconstruction, with compatible substitute materials for deteriorated or missing parts of features when there are surviving prototypes.

H. "Replace" - To duplicate in its entirety, a historic element or feature by matching its historic pattern, detail, and appearance. Replacement is justified when original or historic elements are damaged beyond repair or are missing. Replacement conditions and methods include:

1. Replacement with Original or Historic Fabric: Includes fabric salvaged from other locations or projects having identical architectural qualities. Duplication of appearance using identical material possessing historical significance.
2. Replacement with New Materials: Includes replacement with new material of like kind (custom fabricated or manufactured). Duplication of appearance using like material.
3. Replacement with Substitute Materials: Includes replacement with a compatible substitute that is frequently contemporary and unlike the historic fabric. Duplication of appearance using modern (non-traditional) material Use of substitute materials is not approved unless matching materials are not available.

I. "Remove" - To demolish or detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.

J. "Remove and Salvage" - To detach items from existing construction and deliver them ready for reuse to Contracting Officer (CO) or designee.

K. "Remove and Reinstall" - To detach items from existing construction, repair and prepare for reuse, and reinstall where indicated.

L. "Existing to Remain" or "Retain" - Existing items of construction not to be removed and not otherwise indicated to be removed and salvaged or removed and reinstalled.

M. "Material in Kind" - Material that closely matches existing materials through comparison of architectural qualities and salient characteristics such as species, cut, color, grain, dimension, profile, thickness, and finish.

1.3 SUBMITTALS

A. Historic Preservation Treatment Plan:

1. After contract award and before the Pre-Construction conference, submit for approval a written Historic Preservation Treatment Plan (HPTP).
2. If the plan requires revisions or corrections, the Contractor shall resubmit the plan within 10 days.
3. No change in the approved plan may be made without written concurrence by Contracting Officer.

B. Alternative Methods and Materials: If alternative methods and materials to those indicated are proposed for any phase of work, provide a written description including evidence of successful use on other, comparable projects, and program of testing to demonstrate effectiveness for use on this Project.

C. Photographs or Videotape: Following Section 01 32 33 "Photographic Documentation," show existing conditions of adjoining construction and site improvements including finish surfaces that might be misconstrued as damage caused by historic treatment operations. Submit before work begins.

1.4 QUALITY ASSURANCE

A. Historic Preservation Treatment Specialist Qualifications: Experienced firms with required certifications and training can demonstrate through the past performance they are qualified to perform this work.

1.5 STORAGE AND PROTECTION OF HISTORIC MATERIALS

A. Removed and Salvaged Historic Materials:

1. Clean salvaged historic items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Contracting Officer.
4. Transport items to the storage area as directed by the Contracting Officer.
5. Protect items from damage during transport and storage.
6. Do not dispose of items removed from existing construction without the prior written consent of the Contracting Officer.

B. Removed and Reinstalled Historic Materials:

1. Clean and repair historic items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make the item functional for use as designed.

C. Existing Historic Materials to Remain: Protect construction indicated to remain against damage and soiling during historic treatment. When permitted by Contracting Officer, items may be removed to a suitable, protected storage location during historic treatment and cleaned and reinstalled in their original locations after historic treatment operations are complete.

D. Storage and Protection: When removed from the existing location, store historic materials within a weather-tight enclosure protected from wetting by rain, snow, or groundwater, and temperature variations. Secure stored materials to protect from theft.

1. Identify removed items with an inconspicuous mark indicating original location.
2. Develop a key plan when many similar items are scheduled for removal and reinstallation.

1.6 PROJECT-SITE CONDITIONS

A. Exterior Cleaning and Repairing:

1. Proceed with work only when forecasted weather conditions are favorable.
   a. Wet Weather: Do not attempt repairs during rainy or foggy weather. Do not apply primer, paint, putty, or epoxy when relative humidity is above 80 percent. Do not remove exterior elements of structures when rain is forecast or in progress.
   b. Do not perform exterior wet work when the air temperature is below 40 degrees Fahrenheit.
   c. Do not begin cleaning, patching, or repairing given the likelihood of frost or freezing.
   d. Do not begin cleaning when either air or surface temperature is below 45 degrees Fahrenheit unless approved means are provided for maintaining 45 degrees Fahrenheit temperature of air and materials during, and for 48 hours subsequent to, cleaning.
2. Perform cleaning and rinsing of the exterior only during daylight hours.

B. National Park Service will occupy portions of the building immediately adjacent to the historic treatment area. Conduct historic treatment so National Park Service operations will not be disrupted. Provide 72 hours' notice to the Contracting Officer of activities that will affect National Park Service operations.

PART 2 - PRODUCTS (Not Used)

PART 3 – EXECUTION

3.1 HISTORIC PRESERVATION TREATMENT PLAN

A. Prepare a written plan for preservation work covering preservation components of the project. The plan shall verify construction strategy and intent is compatible with Department of the Interior’s (DOI) standards for Treatment of Historic Properties, guidelines for Treatment of Cultural Landscapes, and National Park Service management policies for cultural resources. The plan shall satisfy both project scope and resource protection requirements. The plan shall include:

1. An organized list of preservation components of project, systems, and tasks
2. Staging and sequence of work
3. Disassembly and reassembly techniques and steps
4. Equipment and tools required
5. Supplies and materials with manufacturer or supplier identified
6. Skilled trades and crafts required
7. Anticipated testing and analysis of fabric
8. Additional investigations for extents or magnitude of treatments needed
9. Protective measures
10. Seasonal limitations on work
11. Alternative means if primary treatment method is unfeasible
12. Work conducted off-site (Approval from Contracting Officer required before taking resources off-site).

3.2 PROTECTION, GENERAL

A. Comply with manufacturer's written instructions for precautions and effects of products and procedures on adjacent building materials, components, and vegetation.

B. Ensure supervisory personnel is present when work begins and during progress.

C. Temporary Protection of Historic Materials during Construction:

1. Protect existing materials during installation of temporary protections and construction. Do not deface or remove existing materials.
2. Attachments of temporary protection to existing construction shall be approved by Contracting Officer before installation.

D. Protect landscape work adjacent to or within work areas as follows:

1. Provide barriers to protect tree trunks.
2. Bind spreading shrubs.
3. Coverings shall allow plants to breathe. Remove coverings at end of the day. Do not cover plant material with a waterproof membrane for more than 8 hours at a time.
4. Set scaffolding and ladder legs away from plants.

E. Existing Drains: Before the start of work or cleaning operations, test drains and other water removal systems to ensure drains and systems function properly. Notify Contracting Officer immediately of stopped or blocked drains or systems. Do not begin Work of this Section until drains are in working order.

1. Provide a method to prevent solids including stone or mortar residue from entering drains or drain lines. Clean out drains and drain lines blocked or filled because of work performed under this Contract.
2. Protect storm drains from pollutants. Block drains or filters out sediments, allowing only clean water to pass.

3.3 PROTECTION DURING APPLICATION OF CHEMICALS

A. Protect persons, motor vehicles, surrounding surfaces of the building being restored, building site, plants, and surrounding buildings from harm or damage resulting from applications of chemical cleaners and paint removers.

B. Comply with requirements in Section 01 50 00 "Temporary Facilities & Controls."

C. Cover adjacent surfaces with materials proven to resist chemical cleaners selected for Project unless chemicals being used will not damage adjacent surfaces. Use covering materials containing only waterproof, UV (ultraviolet)-resistant adhesives. Apply masking agents to comply with the manufacturer's written instructions. Do not apply a liquid masking agent to painted or porous surfaces. Promptly remove masking to prevent adhesive staining on completion.

D. Do not clean surfaces during winds of sufficient force to spread cleaning solutions to unprotected surfaces.

E. Neutralize and collect alkaline and acid wastes and dispose of them outside park boundaries.

F. Dispose of runoff from chemical operations by legal means and in a manner preventing soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.

3.4 PROTECTION DURING USE OF HEAT-GENERATING EQUIPMENT

A. Comply with following procedures while performing work with heat-generating equipment, including welding, cutting, soldering, brazing, paint removal with heat, and other operations where open flames or implements utilizing heat are used:

1. Obtain Contracting Officer’s approval for operations involving the use of open flame or welding equipment.
    a. The notification shall be given for each occurrence and location of work with heat-generating equipment.
    b. Obtain an appropriate permit from the park as required.
2. As far as practical, use heat-generating equipment in shop areas or outside building.
3. Before work with heat-generating equipment commences, furnish a fire watch (or watches) for location(s) where work is to be performed.
4. Do not perform work with heat-generating equipment in or near rooms or in areas where flammable liquids or explosive vapors are present or thought to be present. Use combustible gas indicator test to ensure the area is safe.
5. Remove and keep the area free of combustibles, including, rubbish, paper, waste, etc., within the area of operations.
    a. If combustible material cannot be removed, provide fireproof blankets to cover such materials.
6. Where possible, furnish and use baffles of metal or gypsum board to prevent spraying of sparks or hot slag into surrounding combustible material.
7. Prevent extension of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roofs, and other openings.
8. Inspect each location of day's work no sooner than 30 minutes after completion of operations to detect hidden or smoldering fires; ensure proper housekeeping is maintained.

B. Where sprinkler protection exists and is functional, maintain without interruption while operations are performed. If operations are performed near-automatic sprinkler heads, shield individual heads temporarily with guards.

3.5 HISTORIC PRESERVATION TREATMENT PROCEDURES

A. The principal aim of preservation work is to halt the process of deterioration and stabilize the item's condition to sustain the integrity of the historic element, feature, or structure being preserved. Cyclic maintenance is often required as well as repair work. Repair is required where specifically indicated. The following procedures shall be followed:

1. Retain as much existing material as possible; repair and consolidate rather than replace.

2. Use additional material or structure to reinforce, strengthen, prop, tie, and support existing material or structure.
3. Use reversible processes wherever possible.
4. Use traditional replacement materials and techniques if possible. New work shall be distinguishable from old work and original materials and techniques.
5. Record repair work during construction with periodic construction photos and daily inspection reporting. Photo documentation is specified in Section 01 32 33 "Photographic Documentation."

B. Prohibit smoking by personnel performing work on or near historic structures.

C. Notify Contracting Officer of visible changes in the integrity of material or components due to environmental causes including biological attack, UV degradation, freezing, or thawing, or due to structural defects including cracks, movement, or distortion.

1. Do not proceed with the work in question until directed by Contracting Officer.

D. Where Work requires existing features to be removed, cleaned, and reinstalled, perform operations without damage to the material itself, to adjacent materials, or substrate.

E. Identify new or replacement materials and features with inconspicuous, permanent marks to distinguish from original materials. Record legend of identification marks and locations of these marks on Record Drawings.

F. When cleaning, match samples of existing materials that have been cleaned and identified for acceptable cleaning levels. Avoid over-cleaning to prevent damage. Use the gentlest methods available. Initiate cleaning using hand cleaning methods before introducing power cleaning methods and equipment.

END OF SECTION

SECTION 01 40 00

QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. The 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 Contract Document requirements. Quality of 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 Contract Document requirements.

C. See Divisions 2 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 execution of the work to evaluate actual products incorporated into the work and completed construction comply with requirements.

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

D. Product Testing: Tests and inspections 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 performed at the source, i.e., plant, mill, factory, or shop.

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

G. Testing Agency or Laboratory: Entity engaged to perform specific tests, inspections, or both. The testing laboratory shall mean the same as the 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 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 the 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 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 before proceeding.

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

1.4 SUBMITTALS

A. Quality Control Plan:

1. After contract award and before the Pre-Construction conference, submit a written Contractor Quality Control (CQC) plan.
2. If the plan requires revisions or corrections, the Contractor shall resubmit the plan within 10 days.
3. Government reserves the right to require changes in 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 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 form of a recent report on inspection of testing agency by a recognized authority.

C. Contractor Quality Control (CQC) Daily Reports: Submit showing inspections and tests on the first workday following the date covered by the report. Quality Control Supervisor shall utilize DSC Forms. Download the form from the website at https://www.nps.gov/dscw/con_cqcdiaries29.htm

1. Review Construction Management Representative (CMR) Daily report if applicable and reconcile any differences before posting.

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 Contractor Quality Control plan and Quality Control Daily Reports are not submitted as specified, Contracting Officer may retain payments until such time plan(s) is/are accepted and implemented, or may retain payments for work completed on days with no Quality Control Daily Reports.

G. Permits, Licenses, and Certificates: For National Park Service (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 work.

1.5 QUALITY ASSURANCE

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

B. Contractors Quality Control Staff:

1. The contractor's Quality Control Supervisor shall be assigned no other duties.
2. Contractor's designated Quality Control Supervisor shall be on the project site whenever contract work is in progress.
3. The contractor's job supervisory staff may be used to assist Quality Control Supervisor supplemented, as necessary, by additional certified testing technicians.

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

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

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

F. Professional Engineer Qualifications: Professional engineer legally qualified to practice in the jurisdiction where Project is located and is experienced in providing engineering services of the kind indicated (including Structural Tests and Special Inspections (STSI)). Engineering services are defined as those performed for installations of system, assembly, or products similar to those indicated for the Project in material, design, and extent.

G. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for activities indicated.

1. Requirement for specialists shall not supersede building codes and regulations governing Work.

H. Testing Agency Qualifications: A Nationally Recognized Testing Laboratory (NRTL), a National Voluntary Laboratory Accreditation Program (NVLAP), or an independent agency with experience and capability to conduct testing and inspecting indicated, according to ASTM E 329; and with additional qualifications specified in individual Sections; and where required by Contract, is acceptable to Contracting Officer.

1. Nationally Recognized Testing Laboratory (NRTL): Nationally recognized testing laboratory according to 29 CFR 1910.7 (Code of Federal Regulations).
2. National Voluntary Laboratory Accreditation Program (NVLAP): Testing agency accredited according to National Institute of Standards and Technology’s (NIST) National Voluntary Laboratory Accreditation Program.
3. Measuring devices, laboratory equipment, and instruments shall be calibrated at established intervals against certified standards following NIST requirements. Measuring and testing devices shall be made available for use by Government for verification tests.

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

1.6 QUALITY CONTROL

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

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

B. Manufacturer's Field Services: Where indicated, engage 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 of 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 Contracting Officer and Contractor promptly of irregularities or deficiencies observed in work during performance of 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, State in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit 3 copies of a certified written report of each test, inspection, and similar quality-control service through the Contractor.
5. Do not release, revoke, alter, or increase Contract Document requirements or approve or accept any portion of 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:

1. Access to Work.
2. Incidental labor and facilities are 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 material mixes that require control by the testing agency.
7. Security and protection for samples and testing and inspecting equipment at the Project site.

F. Coordination: Coordinate sequence of activities to accommodate required quality assurance and control services with minimum delay and to avoid 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. Quality Control Plan shall include:

1. List of personnel responsible for quality control and assigned duties. Include each person's qualifications. Include alternate(s) and qualifications.
2. Copy of letter of direction to Contractor's Quality Control Supervisor(s) outlining assigned duties and authorities designated by principal or owner.

3. Names, qualifications/accreditations, and descriptions of laboratories to perform sampling and testing, and samples of proposed report forms from laboratories.
4. Methods of performing, documenting, and enforcing quality control of work including Contractor report forms and acknowledgment of NPS forms.
5. Methods of monitoring and controlling environmental pollution and contamination as required by regulations and laws.
6. Provisions for substantial completion(s) and final inspection(s) per Contract.

PART 3 - EXECUTION

3.1 OFF-SITE CONTROL

A. Items 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 Contracting Officer at least 48 hours in advance of preparatory phase meeting.
2. Notify Contracting Officer at least 24 hours in advance of 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 foreman responsible for the feature of work shall be in attendance.
2. Review applicable specifications sections and drawings related to the feature of work.
3. Ensure copies of referenced standards related to sampling, testing, and execution for the feature of work are available on site.
4. Ensure provisions have been made for field control testing.
5. Examine work area to ensure preliminary work has been completed.
6. Verify field dimensions and advise the Contracting Officer of discrepancies with contract documents.
7. Ensure necessary equipment and materials are at the project site and they comply with approved shop drawings and submittals.
8. Document preparatory phase activities and discussions on Contractor's Quality Control Daily Report.

C. Initial Phase:

1. As soon as work begins, inspect and test the representative portion of the particular feature of work for quality of workmanship.
2. Review control testing procedures to ensure compliance with contract requirements.
3. Document initial phase activities and discussions on 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. Quality of on-going work is unacceptable.
2. Changes in 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 of quality control activities and tests. (Download from DSC Workflows website > Forms/Templates/Samples/Guidelines page > Construction Forms section [https://www.nps.gov/dscw/publicforms.htm#cf].) Please refer to Appendix A for the form.

B. Quality Control Daily Reports shall 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 deficiency noted by quality control staff or 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 as invisible as possible.
2. Comply with Contract Document requirements for Section 01 73 29 "Cutting & Patching."

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

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

END OF SECTION

APPENDIX A

NPS UNIVERSAL DESIGN AND ACCESSIBILITY SCOPING FORM FOR ABAAS FACILITIES

Use for facilities, buildings (new and existing), parking and drop-off areas, and sites (walks, ramps, plazas, lawns, etc.)

PROJECT & PMIS NO.: Rehabilitate Ash Mountain & Buckeye WWTP. DATE: 8 December 2021
PMIS # 317446

NPS Prepared by: George Murgel, PE, Ph.D., HECO Engineers.**Programs and activities provided at this facility (existing and proposed):**

Site Programs	Amenities	Building Programs	Interpretive Programs
☐ Car Parking	☐ Benches/Seating	☐ Visitor Use Building	☐ Information Desk
☐ Bus Parking	☐ Restrooms	☐ Historic Building	☐ Brochures/Handouts
☐ RV Parking.	☐ Family Restrooms	☐ Maintenance Building	☐ Audiovisual Programs
☐ Employee Parking	☐ Employee Restrooms	☐ Museum	☐ Exhibits
☒ Building Entrance	☐ Public Telephones	☐ Theater	☐ Interactive Exhibits
☐ Drop-off Area	☐ Drinking Fountains	☐ First Aid/ Wellness Room	☐ Large Scale Map
☐ Alt. Transportation	☐ Vending Machines	☐ Information desk	☐ Tactile Map
☐ Bus/Shuttle Stop	☐ Concessions - Food	☐ Visitor Lodging	☐ Guided Tours
☐ Service Area	☐ Concessions - Ticketing	☐ Employee Housing	☐ Educational Programs
☐ Walks	☐ Gift Shop	☐ Conference Room(s)	☐ Museum Objects
☐ Shelters	☐ Bookstore	☐ Office Space	☐ Waysides
☐ Seating/Gathering Space	☐ Trash/Recycling	☐ Kitchen/Break Room	☐ Special Events
☐ Cultural Landscape	☐ Bicycles – racks/rental	☐ Elevator	☐ Self-Guided Walks
☐ Other:	☐ Other:	☐ Other:	☐ Other:
☐	☐	☐	☐
☐	☐	☐	☐

1. **Universal Design:** Universal Design is the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design. Most simply, Universal Design is human-centered design with all users in mind.

The Seven Principles of Universal Design. Project utilizes the seven principles of universal design throughout the design process to provide a facility that is useable by all.

	Yes	No	N/A	
1.	☒	☐	☐	**Principle 1: Equitable Use.** The design is useful and marketable to people with diverse abilities. Is the same means of use provided for all users: identical whenever possible; equivalent when not?
2.	☒	☐	☐	**Principle 2: Flexibility in Use.** Does the design accommodate a wide range of individual preferences and abilities? Is a choice of method provided?
3.	☒	☐	☐	**Principle 3: Simple and Intuitive Use.** Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.
4.	☒	☐	☐	**Principle 4: Perceptible Information.** Does the design communicate necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities?
5.	☒	☐	☐	**Principle 5: Tolerance for Error.** Is there a tolerance for error? Does the design minimize hazards and the adverse consequences of accidental or unintended actions?
6.	☒	☐	☐	**Principle 6: Low Physical Effort**. Does the design require low physical effort? Can the design be used efficiently and comfortably and with a minimum of fatigue?
7.	☒	☐	☐	**Principle 7: Size and Space for Approach and Use.** Is there appropriate size and space provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility. Is there adequate space provided for the use of assistive devices or personal assistance?

2. **DSC Universal Design Best Practice Requirements** (* if requirement cannot be met, describe reason for departure and accommodations provided)

	Yes	No*	N/A	
a)	☒	☐	☐	**Integrated Pedestrian Routes**. Project is designed so that all users follow the same routes through the facility and site. Describe any departure:
b)	☒	☐	☐	**Level Entrance.** Project is designed so the primary entrances (visitor and employee) do not have steps. Staired secondary routes can be included on sloped sites. Describe any departure:
c)	☒	☐	☐	**Covered Entry.** Project provides a covered entry and roof drains away from entry walk and entrance. Describe any departure:
d)	☒	☐	☐	**Close-in parking and drop-off.** Distance from drop-off and closest accessible parking space (car and RV/Bus) to accessible entrance of facility is 200' or less. Describe any departure:
e)	☐	☐	☒	**Power Assist Entrance Doors.** Visitor use buildings provide power assist door openers on main accessible entrances. Describe any departure:
f)	☒	☐	☐	**Accessibility Plans.** Provide accessibility plans to identify project universal design and accessibility goals. Include site plan with all accessible parking and accessible routes with slope requirements; floorplans with accessible features, accessible routes, turning space, maneuvering space and reach ranges shown.

ABAAS Chapter 2: Scoping Requirements

3. **F202 Existing Buildings and Facilities** (Renovations and additions including historic facilities)

	Yes	No	N/A	
a)	☐	☐	☒	**F202.2.1 Accessible Route**. An accessible route is provided from accessible parking spaces (car and bus/RV), accessible drop off; public sidewalks; and public transportation to accessible entrances.
b)	☐	☐	☒	**F202.2.3 Toilet Facilities**. Project provides at least one men's and one women's accessible toilet facility on an accessible route.
c)	☐	☐	☒	**F202.3.1 Prohibited Reduction in Access**. Project does not decrease or have the effect of decreasing the accessibility of a building or facility below the requirements for new construction.
d)	☐	☐	☒	**Entrances to existing facilities.** If Project is a historic building, is the accessible route the same as general public route? If not, does the accessible route rejoin the general route quickly and intuitively?
e)	☐	☐	☒	**Exception**. The only exceptions used for qualified historic buildings and facilities are one accessible route to one accessible entrance (instead of standard 60% of entrances), at least one accessible floor in a multi-story building, and no less than one toilet room for each sex complying with ABAAS 603 or one unisex toilet room.
f)	☐	☐	☒	**SHPO Concurrence.** If any of these exceptions are taken, is there a concurrence memo from the SHPO? ABAAS Advisory F202.5 - These exceptions apply only when the State Historic Preservation Officer agrees that compliance with requirements for the specific element would threaten or destroy the historic significance of the building or facility.

4. **F203 General Exceptions** (facility spaces not required to comply with ABAAS requirements) A project element meets one of these exceptions:

	Yes	No	N/A	
a)	☐	☐	☒	**F203.4 Raised Areas**. Areas raised primarily for purposes of security, life safety, or fire safety, including but not limited to, observation or lookout towers, or fire towers.

b) ☐ ☐ ☒ **F203.5 Limited Access Spaces**. Spaces accessed only by ladders, catwalks, crawl spaces, or very narrow passageways.

c) ☒ ☐ ☐ **F203.6 Machinery Spaces**. Spaces frequented only by service personnel for maintenance, repair, or occasional monitoring. Machinery spaces include, but are not limited to, elevator, mechanical, electrical or communications equipment rooms; piping or equipment catwalks; water or sewage treatment pump rooms and stations; electric substations and transformer vaults; and highway and tunnel utility facilities.

d) ☐ ☐ ☒ **F203.7 Single Occupant Structures**. Single occupant structures accessed only by passageways below grade or elevated above standard curb height, including but not limited to, toll booths that are accessed only by underground tunnels.

5. F205 Operable Parts

Yes No N/A

a) ☒ ☐ ☐ **Hardware.** Door, window, restroom, and furnishing hardware, levers, knobs, openers, etc. can be operated with one hand and do not require tight grasping, pinching, or twisting of the wrist; are designed between 15" minimum and 48" maximum above the finished floor. The force required to operate hardware is 5 pounds maximum.

b) ☒ ☐ ☐ **Operable Parts.** Light switches, electrical outlets, appliance controls, window blind controls, etc. are designed between 15" minimum and 48" maximum above the finished floor. The force required to activate operable parts is 5 pounds maximum.

6. F206 Accessible Routes

Yes No N/A

a) ☒ ☐ ☐ **F206.2.2 Within a Site.** At least one accessible route connects accessible buildings, accessible facilities, accessible elements, and accessible spaces that are on the same site.

b) ☐ ☐ ☒ **F206.2.3 Multi-Story Buildings and Facilities.** At least one accessible route connects each story in multi-story buildings and facilities.

c) ☐ ☐ ☒ **EXCEPTION** used for this project: Where a two-story building or facility has one story with an occupant load of five or fewer persons that does not contain public use space, that story shall not be required to be connected to the story above or below.

d) ☐ ☐ ☒ **EXCEPTION** used for this project: Where exceptions for alterations to qualified historic buildings or facilities are permitted by ABAAS F202.5, an accessible route shall not be required to stories located above or below the accessible story. – note – programmatic access is required for all programs provided on all floors

e) ☐ ☐ ☒ **F206.3 Location.** Accessible routes coincide with or are located in the same area as general circulation paths. Where circulation paths are interior, accessible routes are also interior.

Advisory F206.3 Location. The accessible route must be in the same area as the general circulation path. This means that circulation paths, such as vehicular ways designed for pedestrian traffic, walks, and unpaved paths that are designed to be routinely used by pedestrians must be accessible or have an accessible route nearby. Additionally, accessible vertical interior circulation must be in the same area as stairs and escalators, not isolated in the back of the facility.

f) ☐ ☐ ☒ **F206.4 Entrances.** At least 60 percent of all public entrances and the employee entrance comply with 404, and are on an accessible route complying with ABAAS 402. ***NOTE – NO PUBLIC ENTRANCES AT TREATMENT BUILDING***.

7. F206.5 Doors, Doorways and Gates

Yes No N/A

a) ☒ ☐ ☐ **Clear Floor Space on both sides of accessible doors.** Accessible doors are designed to have adequate clear floor space meeting ABAAS Figure 404.2.4.1.

b) ☒ ☐ ☐ **F206.5.1 Entrances.** Each entrance to a building or facility complying with ABAAS F206.4 has at least one accessible door, doorway, or gate complying with ABAAS 404.

c) ☐ ☐ ☒ **F206.5.2 Rooms and Spaces.** Within a building or facility, at least one door, doorway, or gate serving each accessible room or space is designed to comply with ABAAS 404.

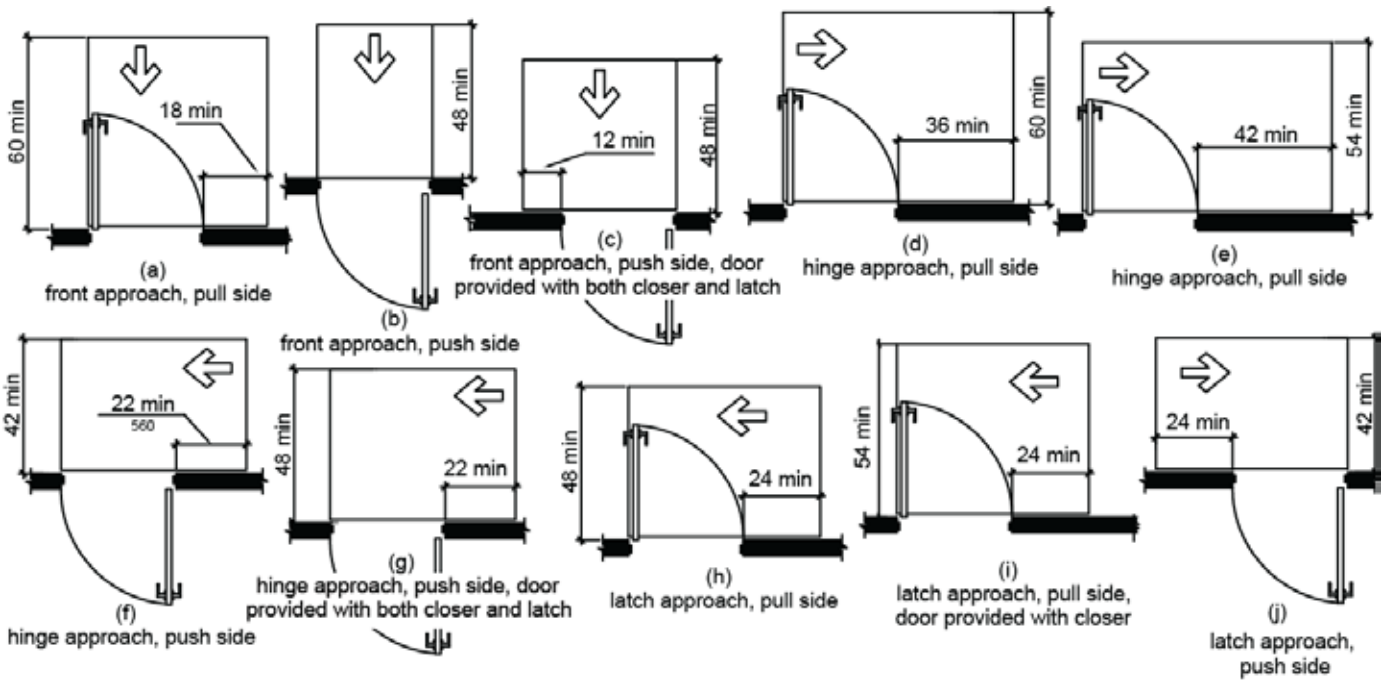

Figure 404.2.4.1 Maneuvering Clearances at Manual Swinging Doors and Gates

8. F207 Accessible Means of Egress

Yes No N/A

a) ☒ ☐ ☐ **F207.1 General.** Means of egress complies with applicable section of the 2009 International Building Code (IBC). The accessible egress route is shown on code plan.

b) ☐ ☐ ☒ **Areas of Refuge.** This project includes areas of refuge complying with 2009 IBC that serve as a part of the accessible means of egress. The accessible egress route is shown on code plan.

c) ☐ ☐ ☒ **F207.2 Platform Lifts**. Standby power is provided for platform lifts that serve as a part of the accessible means of egress.

9. **F208 Parking Spaces** Newly constructed parking facilities shall provide accessible parking spaces in accordance with Table F208.2. Where a parking facility provides separate types of parking spaces (car, recreational vehicle, bus, drop off/unloading, etc.), ABAAS Table F208.2 shall apply to each separate type of parking space provided.

Yes No N/A

a) ☐ ☐ ☒ **Accessible Parking Spaces.** F208.2 Minimum number of accessible parking spaces meets Table F208.2

b) ☐ ☐ ☒ **F208.2.4 Van Parking Spaces**. For every six or fraction of six accessible parking spaces required, at least one is an accessible van parking space complying with ABAAS 502.

c) ☐ ☐ ☒ **F208.3 Location**. Accessible parking spaces are located on the shortest accessible route from parking to an accessible entrance, 200' or less from entrance.

d) ☐ ☐ ☒ **F208.3 Oversized Vehicle Location.** Accessible oversized parking spaces for RV's and buses are located on the shortest accessible route from the oversized vehicle parking facility to an accessible entrance. Accessible spaces are 200' or less from entrance.

e) ☒ ☐ ☐ **F208.3 Employee Parking Location**. Accessible employee parking spaces are located on the shortest accessible route from the employee parking area to an accessible employee entrance. Accessible spaces are 200' or less from entrance.

f) ☐ ☐ ☒ **F208.3 Dispersed Locations**. Where parking serves more than one accessible entrance or program, accessible parking spaces are dispersed and located on the shortest accessible route (200' or less) to the accessible entrances or program.

Table F208.2 Parking Spaces:

Total Number of Parking Spaces Provided in Parking Facility	Minimum Number of Required Accessible Parking Spaces (including van spaces)	Minimum Number of Required Van Accessible Parking Spaces	Minimum Number of Required RV/Bus Accessible Parking Spaces
1 to 25	1	1	1
26 to 50	2	1	2
51 to 75	3	1	3
76 to 100	4	1	4
101 to 150	5	1	5
151 to 200	6	2	6
201 to 300	7	2	7
301 to 400	8	2	8
Total parking spaces provided for this project: 1	# of accessible spaces provided: 1	# of van accessible spaces provided: 0	# of RV/bus accessible spaces provided: 0

10. **F209 Passenger Loading Zones and Bus Stops** Passenger loading zones (Drop-off areas) shall be provided in accordance with F209.

Yes No N/A

a) ☐ ☐ ☒ **503 Passenger Loading Zones.** Passenger loading zones (Drop-off areas) meet the requirements of ABAAS 503, and are 200' or less of primary entrance.

11. F211 Drinking Fountains

Yes No N/A

a) ☐ ☐ ☒ **F211.2 Drinking Fountains**. If provided; at least one has a spout height of 36" max. for wheelchair users; and at least one with a spout height between 38" and 43" for standing persons.

12. F213 Toilet Facilities and Bathing Facilities

Yes No N/A

a) ☐ ☐ ☒ **F213.3.1 Toilet Compartments**. Where toilet compartments are provided, at least one accessible toilet compartment complies with ABAAS 604.8.1. In addition, at least one ambulatory accessible compartment complies with 604.8.2 where six or more toilet compartments are provided, or where the combination of urinals and water closets totals six or more fixtures.

b) ☐ ☐ ☒ **1109.2.1(IBC) Unisex toilet rooms.** In assembly and mercantile occupancies, an accessible unisex toilet room is provided where an aggregate of six or more male and female water closets is required.

c) ☐ ☐ ☒ **F213.3.3 Urinals.** Where more than one urinal is provided, at least one is accessible and meets ABAAS 605.

d) ☐ ☐ ☒ **F213.3.4 Lavatories**. Where lavatories are provided, at least one is accessible and complies with ABAAS 606.

e) ☐ ☐ ☒ **F213.3.5 Mirrors**. Where mirrors are provided, at least one is accessible and complies with ABAAS 603.3.

f) ☐ ☐ ☒ **F213.3.6 Bathing Facilities.** Where bathtubs or showers are provided, at least one accessible bathtub or shower complying with ABAAS 607 or 608 is provided.

g) ☒ ☐ ☐ **Coat hooks and/or Shelves**. Where provided, at least one accessible hook and/or shelf is provided between 40" and 48" above the finish floor in the accessible compartment or room.

13. F215 Fire Alarm Systems

Yes No N/A

a) ☐ ☐ ☒ **F215.2 Public and Common Use Areas**. Alarms in public use areas and common use areas have permanently installed audible and visible alarms complying with ABAAS 702.

b) ☒ ☐ ☐ **F215.3 Employee Work Areas**. Where employee work areas have audible alarm coverage, the wiring system is designed so that visible alarms can be integrated into the system.

c) ☐ ☐ ☒ **F215.4 Transient Lodging**. Guest rooms with communication features required by ABAAS F224.4 have permanently installed audible and visible alarms complying with ABAAS 702.

d) ☐ ☐ ☒ **F215.5 Residential Facilities**. Accessible residences have alarm systems complying with ABAAS 809.5 and 702.

14. F216 Signs

Yes No N/A

a) ☐ ☐ ☒ **F216.2 Designations**. Interior and exterior signs identifying permanent rooms and spaces have raised characters and braille complying with ABAAS 703.1, 703.2, and 703.5. Where pictograms are provided, they comply with 703.6 and have text descriptors with raised characters and braille complying with ABAAS 703.2 and 703.5.

b) ☐ ☐ ☒ **F216.4 Means of Egress**. Signs for means of egress comply with ABAAS F216.4.

c) ☐ ☐ ☒ **F216.4.1 Exit Doors**. Doors at exit passageways, exit discharge, and exit stairways are identified by signs with raised characters and braille complying with ABAAS 703.1, 703.2, and 703.5.

d) ☐ ☐ ☒ **F216.4.2 Areas of Refuge**. Signs required by the 2009 IBC to provide instructions in areas of refuge comply with ABAAS 703.5.

e) ☐ ☐ ☒ **F216.4.3 Directional Signs**. Signs required by the 2009 IBC to provide directions to accessible means of egress comply with ABAAS 703.5.

f) ☐ ☐ ☒ **F216.5 Parking**. Accessible parking spaces have signs complying with ABAAS 502.6

g) ☒ ☐ ☐ **F216.5 Parking**. Exception 1 - Parking area for this project has a total of four or fewer parking spaces, including accessible parking spaces; identification of accessible parking spaces is not required.

h) ☐ ☐ ☒ **F216.6 Entrances**. Where not all entrances are accessible, accessible entrances are identified by the International Symbol of Accessibility (ABAAS 703.7.2.1). Directional signs (ABAAS 703.5) are provided at the non-accessible entrances to the nearest accessible entry.

i) ☐ ☐ ☒ **F216.10 Assistive Listening Systems**. Assembly areas required by ABAAS F219 to provide assistive listening systems have signs informing patrons of the availability of the assistive listening system.

15. F219 Assistive Listening Systems

Yes No N/A

a) ☐ ☐ ☒ **F219.2 Required Systems.** In each assembly area where audio amplification is provided or audible communication is integral to the use of the space, an assistive listening system is provided. Number of receivers meets requirements of ABAAS F219.

16. F221 Assembly Areas and Outdoor Seating Areas

Yes No N/A

a) ☐ ☐ ☒ **F221.1 General**. Assembly areas provide wheelchair spaces, companion seats, and designated aisle seats complying with ABAAS F221 and ABAAS 802. In addition, lawn seating shall comply with ABAAS F221.5.

b) ☐ ☐ ☒ **F221.2.1 Number**. Wheelchair spaces provided comply with figure ABAAS F221.2.1.1

c) ☐ ☐ ☒ **F221.2.2 Integration**. Wheelchair spaces are integrated into the seating plan. Wheelchair spaces cannot be segregated from general seating areas.

d) ☐ ☐ ☒ **F221.2.3 Lines of Sight and Dispersion**. Wheelchair spaces provide lines of sight complying with ABAAS 802.2. Wheelchair spaces provide spectators with choices of seating locations and viewing angles that are substantially equivalent to, or better than, the choices of seating locations and viewing angles available to all other spectators.

e) ☐ ☐ ☒ **F221.2.3.1 Horizontal Dispersion** and F221.2.3.2 **Vertical Dispersion**. Wheelchair spaces are dispersed horizontally and vertically. Dispersion is not required for assembly areas with 300 or fewer seats **if** the wheelchair spaces provide viewing angles that are equivalent to, or better than, the average viewing angle provided in the facility.

f) ☐ ☐ ☒ **F221.3 Companion Seats**. At least one companion seat complying with ABAAS 802.3 is provided for each wheelchair space required by ABAAS F221.2.1.

g) ☐ ☐ ☒ **F221.4 Designated Aisle Seats**. At least 5 percent of the total number of aisle seats provided comply with ABAAS 802.4 (folding armrests and identification) and are the aisle seats located closest to accessible routes.

h) ☐ ☐ ☒ **F221.5 Lawn Seating**. Lawn seating areas and exterior overflow seating areas, where fixed seats are not provided, connect to an accessible route.

i) ☐ ☐ ☒ **F221.1 Exterior Seating Areas**. Site seating areas that accommodate 4 or more persons (2 benches or more) provide integrated wheelchair seating complying with Section ABAAS F221.

F221.2.1.1 Number of Wheelchair Spaces in Assembly Areas:

Number of Seats in Theater or Seating Area (bench length/24")	Minimum Number of Required Wheelchair Spaces	Number of Seats in Exterior Seating Areas (bench length/24")	Minimum Number of Required Wheelchair Spaces
4 to 25	1	4 to 25	1
26 to 50	2	26 to 50	2
51 to 150	4	51 to 150	4
151 to 300	5	151 to 300	5
301 to 500	6	301 to 500	6
Number of seats in assembly area: 0	# of accessible spaces provided: 0	Number of seats in exterior seating area: 0	# of accessible spaces provided: 0

17. F226 Dining Surfaces and Work Surfaces

Yes No N/A

a) ☐ ☐ ☒ **F226.1 General**. Where dining surfaces or work surfaces are provided, at least 5 percent are accessible and comply with ABAAS 902.

b) ☐ ☐ ☒ **F226.2 Dispersion**. Accessible dining surfaces and work surfaces are dispersed throughout the space or facility containing dining surfaces and work surfaces.

18. F229 Windows

Yes No N/A

a) ☐ ☐ ☒ **F229.1 General.** Where glazed openings are provided in accessible rooms or spaces for operation by occupants, at least one window is designed with accessible operable parts complying with ABAAS (Section 309). In accessible rooms or spaces, each glazed opening required by an administrative authority to be operable shall comply with ABAAS 309.

b) ☐ ☐ ☒ **Window Coverings.** Window coverings, blinds, etc. provided in accessible rooms or spaces are designed to be operable at accessible reach ranges (section 308) less than 48" above floor, allow adequate clear floor space for operation and comply with ABAAS 309.

Notes:

SECTION 01 42 00

REFERENCE STANDARDS

PART 1 – GENERAL

1.1 ENVIRONMENTAL DEFINITIONS

A. Definitions about 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: Amount of biobased carbon in the material or product as a percentage of weight (mass) of total organic carbon in the material or product.

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

D. Deconstruction: Disassembly of buildings for purpose of recovering 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 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 International Organization for Standardization (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 Program.

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 Federal Trade Commission (FTC) Guide for Use of Environmental Marketing Claims.

J. Renewable Resource: A resource that is grown, naturally replenished, or cleansed, at a rate that exceeds 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 Contract Documents to the extent referenced. Such standards are made a part of Contract Documents by reference.

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

C. Conflicting Requirements: Where compliance with two or more standards is specified, and 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 (CO) for decision before proceeding.

1.3 INDUSTRY STANDARDS

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

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

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

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 found in Section 01 42 00 Sources for Reference Publications, Unified Facilities Guide Specifications (UFGS) (accessible via Masters website > Downloads section > click on UFGS Master (WBDG Website). Names, telephone numbers, and websites are subject to change and are believed to be accurate and up-to-date as of the date of Contract Documents.

B. 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 websites are subject to change and are believed to be accurate and up-to-date as of the date of Contract Documents.

DIN	Deutsches Institut fur Normung e.V. www.din.de	49 30 2601-3003
IAPMO	International Association of Plumbing and Mechanical Officials www.iapmo.org	(909) 472-4100
ICC	International Code Council www.iccsafe.org	(888) 422-7233
ICC-ES	ICC Evaluation Service, Inc. icc-es.org	(800) 423-6587 (562) 699-0543

C. 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 and websites are subject to change and are believed to be accurate and up-to-date as of the date of Contract Documents.

ABA & ABAAS United States Access Board	Architectural Barriers Act (ABA) Architectural Barriers Act Accessibility Standards (ABAAS) www.access-board.gov
CoE	Army Corps of Engineers www.usace.army.mil
CPSC	Consumer Product Safety Commission www.cpsc.gov
DOC	Department of Commerce www.commerce.gov
DOD	Department of Defense www.defense.gov
DOJ	Department of Justice www.justice.gov
DOE	Department of Energy www.energy.gov
EPA	Environmental Protection Agency www.epa.gov
FAA	Federal Aviation Administration www.faa.gov

FCC	Federal Communications Commission www.fcc.gov
FDA	Food and Drug Administration www.fda.gov
GSA	General Services Administration www.gsa.gov
HUD	Department of Housing and Urban Development www.hud.gov
LBL	Lawrence Berkeley National Laboratory www.lbl.gov
NCHRP	National Cooperative Highway Research Program (See TRB (Transportation Resource Board))
NIST	National Institute of Standards and Technology www.nist.gov
OSHA	Occupational Safety & Health Administration www.osha.gov
PHS	U.S. Department of Health and Human Services www.hhs.gov
RUS	Rural Utilities Service (See USDA (Department of Agriculture))
SD	State Department www.state.gov
TRB	Transportation Research Board www.nationalacademies.org/trb/transportation-research-board
USDA	Department of Agriculture www.usda.gov
USP	U.S. Pharmacopeia www.usp.org
USPS	Postal Service www.usps.com

D. 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 websites are subject to change and are believed to be accurate and up-to-date as of the date of Contract Documents.

ABAAS	Architectural Barriers Act Accessibility Standards www.access-board.gov
CFR	Code of Federal Regulations Available from Government Printing Office www.govinfo.gov/app/collection/cfr
DOD	Department of Defense Military Specifications and Standards Available from Department of Defense Single Stock Point www.dsp.dla.mil/Specs-Standards/
DSCC	Defense Supply Center Columbus (See FS (Federal Specification))
FED-STD	Federal Standard (See FS (Federal Specification))
FS	Federal Specification Available from Department of Defense Single Stock Point www.dsp.dla.mil/Specs-Standards/ Available from General Services Administration www.gsa.gov Available from National Institute of Building Sciences www.nibs.org
FTMS	Federal Test Method Standard (See FS (Federal Specification))
MIL	(See MILSPEC (Military Specification and Standards))
MIL-STD	(See MILSPEC (Military Specification and Standards))
MILSPEC	Military Specification and Standards Available from Department of Defense Single Stock Point www.dsp.dla.mil/Specs-Standards/
UFAS	Uniform Federal Accessibility Standards Available from Access Board www.access-board.gov/guidelines-and-standards/buildings-and-sites/about-the-aba-standards/ufas *(UFAS is **only** for housing projects per Fair Housing Act. See also the Fair Housing Act Design Manual, www.huduser.gov/portal/publications/destech/fairhousing)*

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. 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-foot pound-force per cubic foot (ft-lbf/ft3) (2,700-kilonewton meter per cubic meter (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 & Green Label Plus Testing Programs, carpet-rug.org/testing/green-label-plus

G. Center for Resource Solutions

1. Green-e program

H. Environmental Protection Agency (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 (SMACNA):

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. Seal of Testing Assurance Program

U. US Department of Agriculture:

1. Biobased Products – Definitions and Descriptions

V. US Green Building Council:

1. LEED™ 2009 Green Building Rating System
2. LEED™ v4 (version 4) 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. The section includes requirements for temporary utilities, support facilities, and security and protection facilities. Locations and types of available utilities will be identified and indicated on the drawings for the contractor.

1.2 DEFINITIONS

A. Permanent Enclosure: As determined by Contracting Officer (CO), permanent or temporary roofing is complete, insulated, and weathertight; exterior walls are insulated and weathertight, and 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 from the existing water system is available for use with metering and with payment of use charges. Provide connections and extensions of services as required for construction operations with any additional permit costs.

C. Electric Power Service: Electric power from the existing system is available for use with metering and with payment of use charges. Provide connections and extensions of services as required for construction operations with any additional permit costs.

1.4 QUALITY ASSURANCE

A. Electric Service: Comply with National Electrical Contractors Association (NECA), National Electrical Manufacturers Association (NEMA), and Underwriter Laboratories (UL) standards and regulations for temporary electric service. Install service to comply with National Fire Protection Association (NFPA) 70.

B. Environmental Protection: Provide environmental protection as required by the agency(ies) with jurisdiction and as indicated in Contract Documents. Coordinate with requirements of the following:

1. Regulatory Requirements
2. Indoor Air Quality (IAQ) Management

3. Noise and Acoustics Management
4. Environmental Management
5. Construction Waste Management

C. Accessible Temporary Egress: Comply with applicable provisions in the United States (U.S.) Architectural & Transportation Barriers Compliance Board's Architectural Barriers Act Accessibility Standard (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 incapacity for required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards.

B. Pavement: Comply with Division 32 12 16 on Asphaltic Concrete Pavement.

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

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

E. Safety Barrier Fence: Orange plastic fence, minimum height, 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 millimeters) high, framed with four 2 by 4 inch (50 by 100 millimeters) rails, with preservative-treated wood posts spaced not more than 8 feet (2.4 millimeters) apart.

H. Lumber and Plywood: Comply with requirements in Division 06 10 00 Section on Carpentry.

I. Gypsum Board: Minimum 1/2 inch (12.7 millimeters) thick by 48 inches (1219 millimeters) wide by maximum available lengths; regular-type panels with tapered edges. Comply with ASTM C 36/C 36M.

J. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.

K. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10 mils (0.25-millimeter) minimum thickness, with a flame-spread rating of 15 or less per ASTM E 84 and passing NFPA 701 Test Method 2.

L. Dust-Control Adhesive-Surface Walk-off Mats: Provide mats minimum 36 by 60 inches (914 by 1624 millimeters).

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: 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: 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. Heating, Ventilation, and Air Conditioning (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. 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 the agency(ies) with 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 Minimum Efficiency Reporting Value (MERV) of 8 at each return air grille in the system and remove it 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. Acquire necessary permits.

B. Storm Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.

1. Connect temporary sewers to the Park system as directed by the Contracting Officer.

C. Non-potable water for construction is available from the existing water system for use with metering and with payment of use charges. Provide connections and extensions of services as required for construction operations with any additional permit costs.

D. Potable water is not available on site. Furnish cool, potable water for construction personnel in locations convenient to work stations.

E. Sanitary Facilities: Provide temporary toilets, and wash facilities for use by construction personnel.

1. Place in approved locations secluded from public observation and convenient to work stations. Relocate as work progress requires.
2. Maintain and clean toilet facilities at least weekly.
3. Completely remove sanitary facilities on completion of work.

F. Heating and 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. Use of permanent heating and cooling system will not be allowed without written authorization from Contracting Officer. When the permanent heating and cooling system is approved for use as temporary heating and cooling, pay costs until final acceptance. Permanent heating and cooling systems shall be sufficiently complete, including controls, to permit safe operation.

2. Provide and maintain adequate approved facilities, as required for safety and construction requirements, during the work. Provide ample clearance around stoves, heaters, chimney, and vent connections to prevent ignition of combustible material.
3. Install and maintain temporary filters when air handling equipment is used for temporary heating and cooling. Install new filters before final acceptance in addition to any extra sets of filters required. Clean coils as determined by Contracting Officer.
4. Warranties for equipment used for temporary heating and cooling shall start on the date of Final Acceptance.

G. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not harm completed installations or elements being installed. Coordinate ventilation requirements to produce ambient conditions required and minimize energy consumption.

H. Electric Power Service: Use of existing electric power service will be permitted, as long as the equipment is maintained in a condition acceptable to NPS.

1. When temporary connections are removed, restore existing utility services to their original condition.

I. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating the entire system.

J. Telephone Service: No telephone service is available on site for the Contractor's use. Make arrangements with Telephone Company and pay costs.

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 percent 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.
2. Recondition base after temporary use, including removing contaminated material, regrading, proof-rolling, compacting, and testing.

3. Delay installation of the final course of permanent hot-mix asphalt pavement until immediately before Substantial Completion. Repair hot-mix asphalt base-course pavement before installation of final course according to Division 32 Section "Asphalt Paving."

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

1. Protect existing site improvements to remain including curbs, pavement, and utilities.
2. Maintain access to 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 Contracting Officer. Keep a minimum of two rolls on site.

D. Parking: Provide temporary parking areas for construction personnel.

E. Dewatering Facilities and Drains: Comply with the requirements of the 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 Projects 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 touch up 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 the authority 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. Existing Stair Usage: Use of existing stairs will be permitted, as long as stairs are cleaned and maintained in a condition acceptable to Contracting Officer. At Substantial Completion, restore stairs to the condition existing before initial use.

1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If stairs become damaged, restore damaged areas so no evidence remains of correction work.

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.

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 minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

B. Cleaning of Equipment: The contractor shall ensure before moving on to Project Area, equipment, is free of soil, seeds, vegetative matter, or other debris that could contain or hold seeds. Ensure equipment has been pressure washed and is free of exotic species. Equipment shall be considered free of soil, seeds, and other debris when the 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 "Temporary Storm Water Pollution Prevention".

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

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

F. Site Enclosure Fence: Before construction operations begin, furnish and install chain link fencing to prevent people and animals from easily entering the site except by entrance gates.

1. The extent of Fence: As required to enclose 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 Contracting Officer with one 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 the authority having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

I. Temporary Enclosures: Provide temporary enclosures for the protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

1. Where heating or cooling is needed and permanent enclosure is not complete, insulate temporary enclosures.

J. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by NPS and tenants from fumes and noise.

1. Construct dustproof partitions with gypsum wallboard with joints taped on the occupied side, and fire-retardant plywood on the construction operations side.
2. Construct dustproof partitions with 2 layers of 3-mil (0.07-millimeters) polyethylene sheet on each side. Cover floor with 2 layers of 3-mil (0.07-millimeters) polyethylene sheet, extending sheets 18-inches (460 millimeters) up the sidewalls. Overlap and tape the full length of joints. Cover floor with fire-retardant plywood.
3. Insulate partitions to provide noise protection to occupied areas.
4. Seal joints and perimeter. Equip partitions with dustproof doors and security locks.
5. Protect air-handling equipment.
6. Weatherstrip openings.
7. Provide walk-off mats at each entrance through the temporary partition.

K. 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: Capable and qualified person shall be placed in charge of fire protection. Responsibilities shall include locating and maintaining fire protective equipment and establishing and maintaining safe torch cutting and welding procedures.
2. Tobacco Use, Smoking, and Vaping: 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 and authorities having jurisdiction. Check with Park; many require "burn permits" for welding.
4. Develop and supervise overall fire prevention and -protection program for personnel at 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 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 necessary precautions to prevent fire during construction. Do not store flammable or combustible liquids in historic structures or existing buildings. Provide adequate ventilation during the use of volatile or noxious substances.
7. Spark Arresters: Equip 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 United States Department of Agriculture (USDA) Forest Service.
    a. Written determinations of periods and areas of potential fire hazard will be issued by Contracting Officer.

8. Buildings: Furnish a minimum of one extinguisher for every 1,500 square feet of area or a major fraction thereof.
    a. Travel distance from any workstation to the nearest extinguisher shall not exceed 75 feet.
9. Vehicles and Equipment: Provide one extinguisher on each vehicle or piece of equipment.
10. 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. Minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

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

1. 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 avoid the possibility of damage.

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

D. 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 the temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of the Contractor. NPS reserves the right to take possession of Project identification signs.
2. At Substantial Completion, clean and renovate permanent facilities used during the construction period.

END OF SECTION

SECTION 01 51 00

TEMPORARY SEWER BYPASS PUMPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes

1. Temporary bypass pumping for daily system shutdowns of sewer systems.
2. Temporary bypass pumping for overnight or extended shutdowns of sewer systems.

1.2 REFERENCES

A. Abbreviations and Acronyms

1. ORC Operator in Responsible Charge
2. CO Contracting Officer
3. COR Contracting Officer's Representative
4. SSO Sanitary Sewer Overflow

B. Definitions

1. Daily System Shutdowns: System gravity flows shall be restored daily before the end of regular work hours.
2. Firm Capacity: The pumping capacity of a temporary bypass pumping system with the largest pump out of service.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Coordination

1. Coordinate temporary bypass pumping system testing with COR. Provide a minimum of 3 business days' notice before system testing. Engineer or COR must observe testing for it to be accepted.
2. Coordinate system shutdowns with CO and COR.

B. Sequencing

1. Operate temporary bypass pumping systems following the sequencing and phasing indicated on the Drawings.

C. Scheduling

1. The Project Schedule shall include the sequencing and coordination of maintaining wastewater flow during all phases of construction including but not limited to:
   a. Sewer pump station upgrades and replacements
   b. Drainage, cleaning, and replacement of sewer mains, manholes, and force mains
   c. Trenchless rehabilitation of sewer and force mains
   d. Inspection and testing of new or rehabilitated sewers
   e. Connections to existing sewer mains and force mains

1.4 SUBMITTALS

A. Provide per Section 01 33 00 – Submittal Procedures.

1. Temporary Bypass Pumping Plans designated by type and location.
   a. Provide design plans and calculations for the temporary bypass pump systems shall be completed and stamped by a Professional Engineer and companies licensed to practice engineering in California.
2. System test results and operation logs.
3. Obtain approval of submittals before mobilization of equipment included in the plans.

B. Temporary Bypass Pumping Plan – For Daily System Shutdowns

1. Outline provisions and precautions to be taken to convey and maintain existing wastewater flows during construction.
2. Ensure proper protection of existing facilities, the project area, and surrounding properties from damage due to the discharge of flows.
3. Provide adequate standby equipment available and ready for immediate operation and use in the event of an emergency or breakdown. One standby pump for each size pump utilized shall be located at the mainline flow bypassing locations, ready for use in the event of primary pump failure. In this event, promptly repair or replace the failed equipment.
4. Include the following as a minimum:
   a. Manufacturer’s product data for bypass pumps including sizes, capacities, power requirements, and the number of each size to be on-site including primary, secondary, and spare pumps.
   b. Manufacturer’s product data for bypass piping including make, material, material properties, diameter, thickness, pressure rating, and number to be on site.
   c. Calculations to demonstrate sufficient pump capacity for potential flows.
   d. Method of noise control for pumps, motors, and generators.
   e. Location and method of connection to the existing sewer on each side of the bypass if not provided in the Contract Documents.
   f. Number, size, material, and method of installation of suction and discharge piping, valves (isolation and air release), fittings, and other components for connection to the existing sewer system.
   g. Sewer isolation or plugging method and types of plugs or valves and fittings.
   h. Emergency plan for adverse weather and flooding for various phases of the Work.
   i. Incidental items are required to ensure the proper protection of the facilities.
   j. Traffic Control Plan where roads are impacted.
   k. Plan to divert pedestrian access where sidewalks are impacted.

C. Temporary Bypass Pumping Plan – For System Shutdowns Overnight or for Extended Periods

1. Prepare and submit a project- and site-specific detailed temporary bypass pumping plan that provides detailed descriptions and layout drawings of the proposed temporary bypass pumping system(s). Outline provisions and precautions to be taken by the Contractor to convey and maintain existing wastewater flows during construction.
2. Ensure proper protection of existing facilities, the project area, and surrounding properties from damage due to the discharge of flows.
3. Include the following as a minimum:
    a. Size of pipeline or conveyance system to be bypassed.
    b. Staging areas for pumps.
    c. Manufacturer's product data for temporary bypass pump sizes, capacities, power requirements, and the number of each size to be on-site including primary, secondary, and spare pumps. Provide a method of operation and control, and redundancy sufficient to prevent SSOs.
    d. Provisions for standby power including generator size and location.
    e. Provisions for standby lighting.
    f. Method of noise control for pumps, motors, or generators.
    g. Location and method of connection to the existing sewer on each side of the bypass if not provided in the Contract Documents.
    h. Size and location of manholes or access points for suction and discharge hose or piping.
    i. Plan indicating the location of temporary bypass pumping pipe locations.
    j. Number, size, material, location, and method of installation of suction and discharge piping, valves (isolation and air release), fittings, and connections to the existing sewer system.
    k. For buried piping, typical sections show suction and discharge pipe depth, embedment, select fill, and special backfill.
    l. Thrust and restraint block sizes and locations. Provide details necessary to demonstrate the integrity of restraint of suction and discharge piping including piping and fittings associated with primary and secondary pumping units.
    m. Sewer isolation or plugging method and types of plugs or valves and fittings.
    n. Discharge plan including method of protecting discharge manholes or structures from erosion and other damage.
    o. Access plans to temporary bypass pumping locations are indicated on the drawings.
    p. Heavy equipment required for the installation of pumps, piping, valves, fittings, and other materials.
    q. Temporary pipe supports and anchoring.
    r. Calculations of static lift, friction losses, and flow velocity (pump curves showing pump operating range shall be submitted).
    s. Calculations for selection of temporary bypass pumping pipe size.
    t. Schedule for installation, operation, maintenance, and removal of the temporary bypass pumping system(s).
    u. Emergency plan for adverse weather and flooding for various phases of the Work.
    v. Contractor's plan for providing continuous (24-hour) monitoring of the temporary bypass pumping operation as well as the monitoring persons' qualifications. Additionally, an auto-dialer alarm system shall be provided for loss of the primary pump or high level at the suction location.
    w. Plan for refueling pump sets on demand.
    x. Demonstration of compliance with the requirements and permit conditions specified in the Contract Documents.
    y. Incidental items necessary to ensure proper protection of the facilities.

1.5 QUALITY ASSURANCE

A. Demonstrate, or employ the services of a subcontractor, who can demonstrate that they specialize in the design and operation of temporary sewer bypass pumping systems.

B. Comply with North Carolina OSHA Standards, Underwriter Laboratories, and other authorities having jurisdiction. The temporary bypass pumping system shall meet the requirements of codes and regulatory agencies having jurisdiction.

C. Materials and appurtenances shall be clearly, legibly, and appropriately marked for identification purposes. Marking shall include listing/approval stamp, label, or other marking indicating conformance with specified standards.

D. Perform temporary bypass pumping system testing per Part 3.

PART 2 PRODUCTS

2.1 TEMPORARY SEWER BYPASS PUMPING SYSTEMS FOR SYSTEM SHUTDOWNS EXTENDING OVERNIGHT

A. Pumps shall be fully automatic self-priming units that do not require the use of foot- valves or vacuum pumps in the priming system. Pumps may be electric, or diesel-powered. Diesel-powered pumps shall include critical grade silencing when used in residential settings or areas where excessive noise levels would create a disturbance. Critical grade silencing is not required on redundant bypass pumping.

Silencing Grade	Expected Attenuation (dBA)
Industrial	15 to 20
Residential	20 to 25
Critical	25 to 32
Super Critical	30 to 38
Hospital	35 to 42
Hospital Plus	35 to 50
Extreme	40 to 55
Super Extreme	45 to 60

B. Provide level detection equipment, alarms, drives, controls, fittings, valves, air release valves, fuel tanks, auxiliary fuel tanks, and other components for a reliable stand-alone system. Provide sufficient components for a redundant system.

C. Include 100 percent online pumping redundancy. Include a redundant bypass pump, intake and discharge conduit, and other equipment necessary to provide continuous wastewater flow and prevent the backing up of sewage in the event of primary system failure.

2.2 PERFORMANCE REQUIREMENTS

A. Design, install, operate, and maintain a temporary bypass pumping system to maintain continuous wastewater service to customers of CFPUA. The Contractor shall be responsible for bypass pumping of wastewater as required to prevent backing up of sewage (except as approved by CFPUA) and provide appropriate conditions for proper drainage, inspection, replacement, rehabilitation, testing, or reconnections to existing sewers.

B. Temporary Bypass Pumping System Capacities

Location	Firm Capacity (GPM)

C. Operation

1. Operators
   a. Provide on-site manual oversight by a responsible operator of temporary bypass pumping operations 24 hours per day, 7 days per week when the temporary bypass pumping systems are in operation.
   b. The 24-hour monitoring operator shall be properly trained, experienced, and mechanically qualified so that they can quickly and effectively address potential emergency and non-emergency situations associated with the pumps and temporary bypass pumping system.
2. Controls
   a. Pumps shall operate on redundant control systems and be equipped with an auto-dialer, cellular, or SCADA monitoring and control. Controls shall be set so that the systems do not surcharge and create an SSO in upstream manholes or a backup of wastewater into residential or commercial facilities.
3. Operation Sequences
   a. Comply with operating sequences provided by Engineer and ORC.

PART 3 EXECUTION

3.1 EXAMINATION

A. Inspect the Work area and verify that existing conditions match the conditions depicted on the Drawings. Notify the CO immediately of any discrepancies.

B. System Testing

1. Perform leakage and pressure tests of the temporary bypass pumping discharge piping using clean water before operation. Pressure and leakage tests shall be conducted at 1.5 times the maximum working pressure, based on the approved Temporary Bypass Pumping Plan, for two hours. No leakage is permitted during this test. Provide a leakage and pressure test report that documents start time and pressure, pressure at 15-minute intervals, stop time, end of test pressure, and amount of leakage. The report shall be signed by the Contractor's on-site superintendent and project manager, and the Engineer or CFPUA representative.
2. Demonstrate that the temporary bypass pumping system is in good working order and is sufficiently sized to successfully convey wastewater flows by operating the system in automatic mode for 24 hours before beginning Work.
3. Demonstrate alarms function as designed.
4. Demonstrate backup pumps and systems operate as designed.

3.2 PREPARATION

A. Temporary bypass pumping operations shall not proceed until submittals have been approved.

B. Do not interrupt sewer service without prior approval of CFPUA.

C. Precautions

1. Locate existing utilities in proximity to the temporary bypass pumping system. Install temporary bypass pumping system components to minimize disturbance to existing utilities and follow the Temporary Bypass Pumping System Plan. Costs associated with relocating existing utilities and obtaining approvals shall be borne by the Contractor.
2. During temporary bypass pumping system operation, protect the existing sanitary sewer facilities from damage inflicted by any equipment. The Contractor shall be responsible for physical damage to the existing sanitary sewer facilities caused by human or mechanical failure.

D. Protect existing facilities following Section 01 50 00 – Temporary Facilities and Controls.

3.3 INSTALLATION

A. General

1. Prevent damage to existing structures. Discharge piping to gravity sewer systems shall be designed in such a manner as to prevent discharge from contacting manhole walls or benching. The full discharge shall go into the downstream pipe in a manner to minimize turbulence. It may be necessary to remove manhole cones to provide sufficient space for the bypass piping. The contractor is responsible for any damage to manholes. Repair damaged manholes to pre-construction condition.
2. Make connections to the existing sewer and construct temporary bypass pumping structures only at the access locations indicated on the Drawings.

3. The new sewer may be used by the Contractor to convey the sanitary flows after the new sewer has passed inspection and testing. CFPUA shall approve any temporary connections to the new sewer.
4. Plugging or blocking of sewage flows shall incorporate a primary and secondary plugging device. When plugging or blocking is no longer needed for performance and acceptance of work, it is to be removed in a manner that permits the sewage flow to slowly return to normal without surge and that prevents surcharging or causing other major disturbances downstream. When working inside a manhole or force main in the presence of sewer gases, combustible or oxygen-deficient atmospheres, and confined spaces, the Contractor shall exercise caution and comply with OSHA requirements.
5. Installation of bypass pipelines is prohibited in wetland areas unless specifically indicated or allowed in the Contract Documents. The pipeline must be located off streets (except where streets are shut down and detours or lane shifts are provided) and sidewalks and on the shoulders of the roads or within easements. When the bypass pipeline crosses local streets and private driveways, install temporary road ramps.

B. Steel Pipe shall be installed per manufacturer recommendations. Locking pins shall be placed in couplings.

C. HDPE pipe shall be installed following AWWA M55 “PE Pipe – Design and Installation” and the “Handbook of Polyethylene Pipe” by the Plastics Pipe Institute. The pipe shall be joined by the butt fusion procedure outlined in ASTM F 2620 or PPI TR-33. Fusion joints shall be made in compliance with the pipe or fitting manufacturer’s recommendations. Fusion joints shall be made by qualified fusion technicians per PPI TN-42.

3.4 OPERATION

A. Maintain flows in the existing upstream pumps stations, sewer interceptors, and tributary collector and lateral lines at all times and under all weather conditions except for brief periods when mains and services are disconnected and reconnected. Take actions and precautions necessary to prevent discharge of wastewater during disconnection and reconnection of mains including performing those tasks during off-peak hours or providing additional temporary bypass measures. Interruption of flows that result in the discharge of wastewater will not be permitted.

B. Maintain sewer flow at the work area in a manner that will not cause surcharging of sewers or damage to sewers, and that will protect public and private property from damage and flooding.

C. Anticipate severe weather conditions and increases in peak flows during rain events and design and plan for these accordingly.

D. Immediately notify CFPUA should a sanitary sewer overflow (SSO) occur. Take necessary action to clean up and disinfect the spillage to the satisfaction of CFPUA and other governmental agencies with jurisdiction. If sewage is spilled onto public or private property, wash down, clean up, and disinfect the spillage to the satisfaction of the property owner, utility owner, and governmental regulatory agencies.

E. Overflows from temporary bypass operations shall not be permitted to enter streams or bodies of water. The Contractor shall be solely responsible for paying fines imposed and legal actions taken by state and federal regulatory agencies if overflows occur as a result of the temporary bypass pumping operations. Reimburse CFPUA for any damages, operational costs, fines, and other effects. Immediately remove and dispose of wastewater and waste material spilled during the temporary bypass pumping at his own expense.

F. Make every effort to avoid causing unplanned service outages. CFPUA will investigate service outages resulting from the Contractor's operations. If the investigation determines that the Contractor could have avoided the service outage, then the outage shall result in disciplinary actions including but not limited to reimbursement to the CFPUA for any damages, operational costs, fines, and other effects.

G. Provide pipeline plugs, temporary suction piping, pumps of adequate size to handle peak flow, and temporary discharge piping to ensure that the total flow of the sewer main can be safely diverted around the section of sewer designated for rehabilitation. Do not stop or impede the main flows without prior approval by CFPUA.

H. Temporary bypass pumping systems for system shutdowns extending overnight shall be operated 24 hours per day.

I. Where portions of the Work require that tributary pump stations be taken out of service for prolonged periods, the Contractor shall construct a temporary bypass pumping system for those pump stations that discharge into either the existing piping downstream of the affected area or to a neighboring gravity sewer (as identified by CFPUA) that flows to an unaffected pump station.

J. Temporary road ramps shall be used where necessary to maintain traffic flow following the Traffic Control Plan as required by Section 01 35 00, Special Procedures.

K. Cease bypass pumping operations and return flows to the new or existing sewer when directed by CFPUA.

L. The contractor shall repair, at his own expense, any damage to public or private property caused by his operations.

M. A copy of the CFPUA approved Temporary Bypass Pumping Plan shall be available onsite at all times during temporary bypass pumping operations.

3.5 MONITORING

A. Operators shall perform inspections of the temporary bypass pumping system and operation at a minimum of hourly intervals. Inspections shall include at a minimum:

1. Observation of all components of the temporary bypass system, including all piping and appurtenances, to ensure the system is operating as specified and no leakage or damage is occurring.

2. Observation of the suction and discharge locations of the temporary bypass pumping system, including upstream and downstream sewers, to ensure flow levels are as expected and no surcharging of the sewer or damage is occurring.
3. Verification of adequate fuel supply.

B. Inspections shall be documented in the operation log at the time that the inspection is performed.

3.6 PROTECTION

A. Protect temporary bypass pumping systems from traffic in proximity to system components and vandalism. Repair or replace damaged components immediately.

3.7 MAINTENANCE

A. Ensure that the temporary bypass pumping system is properly maintained in accordance with the Temporary Bypass Pumping Plan and manufacturer recommendations. There shall be no leakage from the temporary bypass pumping system.

B. Sufficient spare parts for pumps and piping shall be kept on site to maintain operation of the redundant system. Immediately replace spare parts that are placed into service.

3.8 DISASSEMBLY AND REMOVAL

A. When bypass operations are complete, bypass piping shall be flushed with fresh water and drained into the wastewater system prior to disassembly. Piping shall be disassembled in a manner to prevent an SSO.

B. Upon completion of the bypass pumping operations, and after the receipt of written permission from CFPUA, the Contractor shall disassemble and remove piping and restore property to pre-construction condition.

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, is required to cure materials, dissipate humidity, and prevent the accumulation of particulates, dust, fumes, vapors, or gases.

C. Hazardous Materials: Any material regulated as a hazardous material following 49 CFR 173 (Code of Federal Regulations), 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): Composition and characteristics of air in an enclosed space that affects 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 impact on thermal comforts such as air temperature, relative humidity, and air speed.

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

F. Packaged dry products: Materials and products installed in the dry form delivered 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 materials that require curing.

1.3 QUALITY ASSURANCE

A. Inspection and Testing Lab Qualifications: Minimum of 5 years of experience in performing types of testing specified herein.

1.4 SUBMITTALS

A. Indoor Air Quality (IAQ) Management Plan: After award and before Pre-construction conference, prepare and submit IAQ Management Plan, including:

1. Procedures for control of emissions during construction.
    a. Identify a schedule for application of interior finishes: Identify each interior finish that generates odors, moisture, or vapors or is susceptible to adsorption of odors and vapors. Indicate air handling zone, sequence of application, and curing times.
    b. Identify potential sources of odor and dust.
    c. Identify construction activities likely to produce odor or dust.
    d. Identify areas of project potentially affected, especially occupied areas.
    e. Evaluate potential problems by severity and describe methods of control.
    f. Describe construction ventilation to be provided, including type and duration of ventilation, use of permanent Heating HVAC systems, types of filters, and schedule for replacement of filters.
    g. Describe cleaning and dust control procedures.
    h. Describe coordination with commissioning procedures.
2. Procedures for moisture control during construction.
    a. Identify porous materials and absorptive materials.
    b. Identify a schedule for inspection of stored and installed porous and absorptive materials.
3. Revise and resubmit Plan as required by Contracting Officer (CO).
    a. Approval of the Contractor’s Plan will not relieve the Contractor of responsibility for compliance with applicable environmental regulations.

B. Product Data:

1. Submit product data for filtration media used during construction and operation. Include Minimum Efficiency Reporting Value (MERV).
2. Material Safety Data Sheets (MSDS): Submit MSDSs for inclusion in the Operation and Maintenance Manual for:
    a. Adhesives
    b. Floor and wall patching/leveling materials
    c. Caulking and sealants
    d. Insulating materials
    e. Fireproofing and fire-stopping
    f. Flooring
    g. Paint

h. Clear finish for wood surfaces
i. Lubricants
j. Cleaning products

C. Inspection and Test Reports:

1. Moisture control inspections
2. Moisture content testing
3. Moisture penetration testing
4. Microbial Growth testing

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 air inlets (returns) and 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 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 minimum 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 Fahrenheit minimum to 90-degree Fahrenheit maximum continuously during the ventilation period. Do not ventilate within limits of Work unless otherwise approved by Contracting Officer.

2. Provide adequate ventilation during and after 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. Coordinate with work of Division 23 (15), Heating Ventilating & Air Conditioning (HVAC).

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

H. Flush-Out: After construction ends, before occupancy, and with all interior finishes installed, perform a building flush-out by supplying a total air volume of 14,000 cubic feet. of outdoor air per square feet of floor area while maintaining an internal temperature of at least 60 degrees Fahrenheit and relative humidity no higher than 60%.

1. Obtain Contracting Officer's concurrence that construction is complete enough before beginning flush-out.
2. If additional construction involving materials that produce particulates or any of specified contaminants is conducted during or after flush-out, then the flush-out process must be restarted.
3. Install new HVAC filtration media in locations identified to have permanent filtration in contract documents after completion of flush-out and before occupancy or further testing.

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 installed materials and products are dry before sealing and weatherproofing the building envelope.
3. Store interior absorptive materials only after the building envelope are 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, and after each rain event.
    a. If stored 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 (following the Waste Management Plan) and replace with new materials.

4. Site drainage: Verify final grades of site work and landscaping drain surface water and groundwater away from the building.
5. Weatherproofing: Inspect moisture control materials as they are being installed. Include:
    a. Air barrier: Verify air barrier is installed without punctures and/or other damage. Verify air barrier is sealed completely.
    b. Flashing: Verify correct shingling of flashing for the roof, walls, windows, doors, and other penetrations.
    c. Vapor Barrier: Verify vapor barrier is installed following Contract documents.
    d. Insulation layer: Verify insulation is installed without voids.
    e. Roofing: Following ASTM D7186 Standard Practice for Quality Assurance Observation of Roof Construction and Repair.
6. Plumbing: Verify satisfactory pressure test of pipes and drains is performed before closing in and insulating lines.
7. 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. Schedule:

1. Schedule work such that absorptive materials, such as porous insulations, paper-faced gypsum board, ceiling tile, and finish flooring, are not installed until they can be protected from rain and construction-related water.
2. Weather-proof as quickly as possible. Schedule installation of moisture-control materials, including but not limited to air barriers, flashing, exterior sealants, and roofing, at the earliest possible time.

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

1. Concrete: Moisture test before finishing flooring application as specified in Division 9:
    a. ASTM D4263 Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method
    b. ASTM F1869 Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
    c. ASTM F2170 Test Method for Determining Relative Humidity in Concrete Floor Slabs Using In Situ Probes]
2. Wood: Moisture test as per ASTM D4444 - Standard Test Methods for Use and Calibration of Hand-Held Moisture Meters; unless otherwise indicated acceptable upper limits for wood products are less than 20% at center of piece; less than 15% at the surface.

E. Testing for Moisture Penetration:

1. Windows: Test as per ASTM E1105 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; unless otherwise indicated, acceptable upper limits are no leakage for 15 minutes.
2. Horizontal Waterproofing (not roofing): Test as per ASTM D5957 Standard Guide for Flood Testing Horizontal Waterproofing Installations; acceptable upper limits are no leakage for 15 minutes.
3. Masonry: Test as per ASTM C1601 Standard Test Method for Field Determination of Water Penetration of Masonry Wall Surfaces; acceptable upper limits are no leakage for 15 minutes.
4. Exterior Walls:
   a. Airtightness of the enclosure test: ASTM E779 Standard Test Method for Determining Air Leakage Rate by Fan Pressurization or ASTM E1827 Standard Test Methods for Determining Airtightness of Buildings Using an Orifice Blower Door; acceptable upper limits are 0.25 CFM/sf or less at 50 Pascal's.
   b. Water Leakage: Review as per ASTM E2128 Standard Guide for Evaluating Water Leakage of Building Walls.

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 deconstruction and 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 one 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 deconstruction and construction operations to minimize noise. Perform noise-producing work in less sensitive hours of the day or week as directed by the Contracting Officer CO).

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

1. Do not exceed the following dB(A) limitations at 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 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 (decibel)) 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
   c. 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:
   d. Residential receiving area: Maximum 3 additional dB above the local ambient as measured at property line.
   e. Commercial/Industrial receiving area: Maximum 5 additional dB above the local ambient as measured at the property line.

3.2 FIELD QUALITY CONTROL

A. Assess potential effects of construction noise on adjacent neighbors and facility occupants following 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 hours between 7 A.M. and 9 A.M. and afternoon peak traffic hours between 4 P.M. and 6 P.M. In addition, 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 PREVENTION

PART 1 – GENERAL

1.1 SUMMARY

A. Federal Regulations for controlling discharges of pollutants (including chemicals, erodible material, and trash) from municipal separate storm sewer systems, construction sites, and industrial activities, were brought under the National Pollution Discharge Elimination System (NPDES) permit process by amendments to the Clean Water Act (CWA), and promulgation of federal stormwater regulations issued by the United States Environmental Protection Agency (USEPA). The USEPA uses the amount of ground disturbance as a measure of a project's potential to generate pollution from erosion. NPDES Phase I regulates discharges from construction sites that disturb 5 acres or more. NPDES Phase II regulations expand existing General Permit requirements under Phase I to include/regulated discharges from construction sites that disturb land equal to or greater than 1 acre and less than 5 acres, known as Small Construction Activity. Construction disturbances 1 acre and above typically require a formal NPDES permit and a formal Stormwater Pollution Prevention Plan (SWPPP) must be submitted to Agency(ies) with Jurisdiction for review and approval.

B. National Park Service (NPS) Standards and Guidelines require water quality to be protected to ensure compliance with 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 requirements of the NPDES program. (UPPP Guideline)

C. The work of this section consists of implementing measures to prevent discharges of pollutants, including temporary stormwater pollution during construction activities, either through compliance with the NPDES permit program or in conformance with NPS guidance for UPPPs.

D. The work of this section consists of implementing measures to Temporary Storm Water Pollution during construction activities, either through compliance with the NPDES permit program; or in conformance with NPS guidance for UPPPs.

1.2 DEFINITIONS

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

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

C. National Pollution Discharge Elimination System (NPDES) Phase I Regulates discharges from construction sites that disturb 5 acres or more.

D. NPDES Phase II: Regulations expand existing General Permit requirements under Phase I to include and regulate discharges from construction sites that disturb land equal to or greater than 1 acre and less than 5 acres, known as Small Construction Activity.

E. Storm Water Pollution Prevention Plan (SWPPP): Developed and implemented stormwater management measures to protect surface water from pollutants during construction activities disturbing an acre or more in compliance with federal, state, and local requirements for permit approval under the NPDES program.

F. UPPP: Developed and implemented a 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 contract award and before the pre-construction conference, prepare and submit:

1. A SWPPP that shows it satisfies Federal and State NPDES permit requirements.

B. Inspection Schedule: Submit schedule for inspection and monitoring of 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 other materials proposed for use on this project.

1.4 QUALITY ASSURANCE

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

B. Orientation Meeting: The contractor shall arrange and conduct an Erosion and Sediment Control meeting/briefing to inform parties, scheduled to be on-site during the project, of measures to be implemented for proper erosion and sediment control (may be included as part of the Pre-Construction Meeting).

1. Installation of silt fences, storm drain protection, and other forms of erosion and sediment control shall not begin until after this meeting has occurred.

C. Orientation Meeting: The contractor shall be responsible for arranging and conducting a Pollution Prevention meeting/briefing to inform parties scheduled to be on-site during the project of 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 other forms of pollution prevention controls shall not begin until after this meeting has occurred.

D. Pollution Prevention Manager: The contractor shall designate Pollution Prevention Manager who will be responsible for 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 emergency procedures and plans are updated as needed and available for inspection.
2. When changes in the approved plan are required, Pollution Prevention Manager shall prepare and certify an amendment and submit it to Contracting Officer for review and concurrence.

E. Pollution Prevention and Erosion Control Manager: Contractor shall designate Pollution Prevention and Erosion Control Manager responsible for implementation, inspection, maintenance, and amendments to the approved plan.

1. The pollution Prevention and Erosion Control Manager shall be familiar with temporary stormwater pollution prevention procedures and Best Management Practices and ensure emergency procedures and plans are updated as needed and available for inspection.
2. When changes in the approved plan are required, Pollution Prevention and Erosion Control Manager shall prepare and certify an amendment and submit it to Contracting Officer for review and concurrence.

PART 2- PRODUCTS

2.1 TEMPORARY STORMWATER POLLUTION PREVENTION PLAN

A. Provide SWPPP that satisfies Federal and State NPDES permit requirements and includes:

1. Site description.
2. Identification and contact information for Pollution Prevention and Erosion Control Manager.
3. Expected sequencing of operations and construction schedule.
4. Weather monitoring procedure.
5. Descriptions and details of Best Management Practices for pollution prevention and erosion controls, including dust control.
6. Pollution prevention and erosion control plans.
7. Controls for other potential onsite stormwater pollutants.
8. Applicable specifications.
9. Maintenance and inspection procedures and forms.
10. Description of potential non-stormwater discharges at the site.
11. Notice of Intent (NOI) form.
12. Notice of Termination (NOT) form.
13. Contractor and Sub-contractor Certification forms.
14. Other record-keeping forms and procedures.
15. Housekeeping Best Management Practices, including vehicle wash-down areas, protection of equipment storage and maintenance areas, and sweeping of roadways related to hauling activities.

PART 3 - EXECUTION

3.1 ENVIRONMENTAL PROTECTION

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

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 limits of work activities on project drawings.
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. Material shall be stored away from locations where water is present to the greatest extent practicable.

3.2 REGULATORY REQUIREMENTS

A. Permits: The contractor shall obtain required NPDES permits resulting in no impacts on scheduled work. The contractor shall account for the possibility of significant lead time in scheduling and executing work.

1. Implement requirements of NPDES permits for erosion control due to stormwater runoff during construction.
2. Implement good housekeeping practices, inspections, and record keeping.
3. Prior to construction, the Contractor and Subcontractors shall sign certifications (included in the plan) that they understand the requirements of the NPDES permit.
4. Subcontractors shall comply with the requirements of NPDES under the supervision of the Contractor.
5. The accepted plan shall comply with the terms and conditions of the EPA permit.

B. Notice of Intent (NOI): The contractor shall file a Notice of Intent and formal SWPPP as required to the Agency(ies) with Jurisdiction.

C. Notice of Termination (NOT): After Substantial Completion of Work, file a Notice of Termination (NOT) with the Agency(ies) with Jurisdiction.

D. Contracting Officer Notification: The contractor shall notify Contracting Officer in writing and by telephone of these events:

1. Erosion and sediment control meeting/briefing.
2. Following the installation of required sediment control structures.

3. Before removal of or modification to sediment control structures.
4. Before removal of sediment control structures.

3.3 TEMPORARY STORMWATER POLLUTION PREVENTION PLAN

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

1. The accepted Plan will describe and ensure the implementation of practices to be used to reduce pollutants in stormwater discharges.
2. The contractor shall maintain a current copy of the Plan and associated records and forms at job sites throughout the duration of the project.
3. The plan shall be available for public inspection and inspection and use by the Contracting Officer.
4. Approval of Contractor's Plan will not relieve Contractor of responsibility for compliance with applicable environmental regulations.

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

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

C. SWPPP (including inspection forms) and data used to complete the NOI shall be provided to Contracting Officer after Substantial Completion of the project.

3.4 SITE INSPECTIONS AND PLAN REVISIONS

A. Inspections: The contractor and Contracting Officer will perform a weekly inspection onsite.

1. The inspection shall include disturbed areas not completely stabilized, areas used for storage of materials, locations where vehicles enter or exit the site, and other erosion and sediment control included in the Plan.
2. Inspections shall be documented.
3. 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 a mechanism whereby revisions may be proposed by the Contractor or Contracting Officer.
2. The contractor and Contracting Officer 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 Contracting Officer.
3. Accepted modifications will be implemented within 7 calendar days following the date of 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 Government.

3.5 HOUSEKEEPING AND SITE MANAGEMENT

A. Store materials onsite in conformance to Federal, state, local, and manufacturer's regulations and specifications. Use Best Management Practices to minimize the risk of materials coming into contact with environmental conditions (i.e. water and wind) that could disperse them.

B. Manage solid waste in conformance to Federal, state, and local regulations. Best Management Practices should be used to minimize the risk of materials coming into contact with environmental conditions (i.e. water and wind) that could disperse them.

C. Include a spill prevention and control plan with provisions placed in SWPPP.

D. Manage hazardous waste (including contaminated soil) in conformance to Federal, state, local, and NPS regulations and guidelines.

3.6 EROSION CONTROL MEASURES

A. Erosion control measures shall consist of Best Management Practices for stormwater discharges, including 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 control run-on and run-off into other areas, including creeks, streams, marshes, access roads, well areas, and staging areas.

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

D. Earthen sediment traps or holding ponds shall not be used unless accepted by Contracting Officer.

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

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

G. Place drainage filters around 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 demolition areas by erosion control measures.

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

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

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

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

3.7 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.

3.8 REPORTING

A. If a discharge occurs or if the project receives written notice or order from the regulatory agency, the Contractor shall immediately notify Contracting Officer and shall file a written report to Agency(ies) with Jurisdiction within 7 days of discharge event, notice, or order. Corrective measures shall be implemented immediately following discharge, notice, or order. The report to the Agency(ies) with Jurisdiction shall contain:

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

3.9 SEDIMENT DISPOSAL

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

B. The contractor shall place 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.

3.10 REMOVAL OF TEMPORARY STORMWATER POLLUTION CONTROL MEASURES

A. Temporary control measures shall be removed with permission of the Contracting Officer within 20 working days after final acceptance of the project, and/or once grading is complete and slopes have stabilized.

END OF SECTION

SECTION 01 67 00

PRODUCT REQUIREMENTS

PART 1 – GENERAL

1.1 SUMMARY

A. The section includes administrative and procedural requirements for the selection of products for use in the 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 Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, current as of the date of 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 demonstrated and approved through submittal process, or where indicated as product substitution, to have 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 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) 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: Amount of biobased carbon in material or product as a percentage of weight (mass) of total organic carbon in material or product.

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

F. Environmentally preferable products: Products and services with lesser or reduced effect on the environment in comparison to conventional products and services. Refer to Environmental Protection Agency's (EPA) Final Guidance on Environmentally Preferable Purchasing for more information.

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

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

1. Recycled Content Materials: Products containing pre-consumer or post-consumer materials as all or part of their feedstock. The recycled content claim shall be consistent with International Organization for Standardization (ISO) 140001 Standard for the Use of Environmental Marketing Claims.
2. Rapidly Renewable Material: Material made from plants typically harvested within a ten-year cycle.
3. Regional Materials: Materials 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:

1. Affirmative Procurement Reporting Form. Submit on form in Appendix A of this Section, or similar form as approved by Contracting Officer (CO).
2. Submit environmental data following Table 1 of ASTM E2129 for these products:
   a. Masonry
   b. Finish Carpentry
   c. Plastic Fabrications
   d. Building Insulation
   e. Roofing
   f. Joint Sealers
   g. Wood & Plastic Doors
   h. Windows
   i. Skylights
   j. Glazed Curtain Wall
   k. Gypsum Board
   l. Tile
   m. Acoustical Ceilings
   n. Resilient Flooring
   o. Carpet
   p. Wall Coverings
   q. Paints & Coatings
   r. Toilet Compartments
   s. Loading Dock Equipment
   t. Office Equipment
   u. Furnishings & Accessories

v. Renewable Energy Equipment
w. Elevators
x. Plumbing fixtures and equipment.
y. HVAC equipment
z. Lighting equipment

3. Safety Data Sheets (formerly Material Safety Data Sheets - MSDS) (SDS): For each product required by OSHA to have an SDS, submit an SDS. SDS shall be prepared within the previous five years. Include information for MSDS Sections 1 to 16 following ANSI Z400.1 and as follows:
   a. Section 1: Chemical Product and Company Identification
   b. Section 2: Composition/Information on Ingredients
   c. Section 3: Hazards Identification
   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. Provide a written description of the process used in evaluating chemical hazards relative to the preparation of the MSDS.
   l. Section 12: Ecological Information. Include data regarding environmental impacts during raw materials acquisition, manufacture, and use. Include data regarding environmental impacts in event of accidental release.
   m. Section 13: Disposal Considerations. Include data regarding 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 United States EPA Hazardous Waste Regulations 40 CFR 261 (Code of Federal Regulations).
   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 MSDS was prepared.
4. Chain of Custody: Submit chain-of-custody documentation for sustainable forestry for these 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 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 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 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 Project site in undamaged condition; in 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 Contract Documents. Ensure products are undamaged and properly protected.
5. Obtain materials in biodegradable or recyclable/reusable packaging which uses the minimum amount of packaging possible.

C. Storage:

1. Allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner to not endanger Project structure.
3. Store products 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 use of source reduction and recycling procedures outlined in ASTM D5834.

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

D. Provide minimum 10 percent post-consumer recycled content and minimum 100 percent recovered fiber content of carrier board in accordance with EPA’s Comprehensive Procurement Guidelines and ASTM D5663.

E. Provide a minimum of 10 percent post-consumer recycled content and a minimum of 10 percent recovered fiber content of brown papers (e.g., wrapping papers and bags) in accordance with 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 with 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 Montreal Protocol and Title VI or 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 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 Contract Documents. Manufacturers' disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of Contract Documents.

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

B. Special Warranties: Prepare written document containing appropriate terms and identification, ready for execution. Submit 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 Specifications, prepare a written document using appropriate form properly executed.
3. Refer to Divisions 2 through 49 Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Section 01 77 00 "Closeout Procedures."

PART 2- PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products to comply with Contract Documents, undamaged and, unless otherwise indicated, 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 produced and used successfully in similar situations on other projects.
3. Government reserves the right to limit the selection of products with warranties not in conflict with the requirements of 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 Specifications establish "salient characteristics" of products.

B. Product Selection Procedures:

1. Product: Where Specifications name single product and manufacturer, provide named product that complies with requirements or approved equal.
2. Manufacturer/Source: Where Specifications name single manufacturer or source, provide the product by name 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 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 product and include a list of manufacturers, provide a 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 based on the product name.

9. Visual Matching Specification: Where Specifications require matching an established Sample, a select product that complies with requirements and matches Architect's sample. Contracting Officers' decisions 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 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 Contractor's request for the comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Contracting Officer will return requests without action, except to record non-compliance with these requirements:

1. Evidence proposed product does not require revisions to Contract Documents, that it is consistent with Contract Documents and will produce indicated results and is compatible with other portions of Work.
2. Detailed comparison of significant qualities of proposed product with those named in Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence 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

AFFIRMATIVE PROCUREMENT REPORTING FORM
Recycled Content Materials & Biobased Content Materials

Project Name: _____ Project Number: _____

Contractor Name: _____ License Number: _____

Contractor Address: _____

Product	Total $ value provided	Total $ value with recycled content Pre-consumer	Total $ value with recycled content Post-consumer	Total $ value with biobased content	Exempted indicate 1,2,3,4	Comments
Hydraulic Mulch (paper-based)						
Hydraulic Mulch (wood-based)						
Compost						
Parking Stops (Concrete w/ fly ash, slag cement, or low cement content)						
Parking Stops (Plastic/Rubber)						
Patio Blocks/Rubber						
Patio Blocks/Plastic						
Playground Surfaces						
Concrete with fly ash						
Concrete with slag cement						
Concrete with low cement content						
Plastic lumber						
Building Insulation						
Rock Wool						
Fiberglass						
Cellulose						
Perlite Comp Board						
Plastic Rigid Foam						
Glass Fiber Reinforced Foam						
Phenolic Rigid Foam						

Product	Total $ value provided	Total $ value with recycled content Pre-consumer	Total $ value with recycled content Post-consumer	Total $ value with biobased content	Exempted indicate 1,2,3,4	Comments
Ceramic Tile						
Resilient Flooring						
Floor Tiles/Rubber						
Floor Tiles/Plastic						
Running Tracks						
Carpet (PET)						
Paint						
Reprocessed Latex Paint White & Light Colors						
Reprocessed Latex Dark Colors						
Consolidated Latex Paint						
Toilet/Shower Partitions (plastic or steel)						
Other						

CERTIFICATION

I hereby certify the information provided herein is accurate and that the requisition/procurement of all materials listed on this form comply with current EPA standards for recycled/recovered materials content.

The following exemptions may apply to the non-procurement of recycled/recovered content materials:

1. The product does not meet appropriate performance standards.
2. The product is not available within a reasonable time frame.
3. The product is not available competitively (from two or more sources).
4. The product is only available at an unreasonable price (compared with a comparable non-recycled content product.)

Signature: _____ Date: _____

END OF AFFIRMATIVE PROCUREMENT REPORTING FORM
Recycled Content Materials & Biobased Content Materials

SECTION 01 73 29

CUTTING & PATCHING

PART 1 – GENERAL

1.1 SUMMARY

A. The section includes procedural requirements for cutting and patching on buildings that do not contain Historic Fabric.

1.2 SUBMITTALS

A. Cutting and Patching Plan: Submit a Plan describing procedures at least 10 days before cutting and patching will be performed, requesting approval to proceed. Include:

1. Extent: Describe cutting and patching, show how performed, and indicate why they cannot be avoided.
2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in the building's appearance and other significant visual elements.
3. Products: List products to be used and firms or entities that will perform Work.
4. Dates: Indicate when cutting and patching will be performed.
5. Utility Services and Mechanical/Electrical Systems: List services/systems that cutting and patching procedures will disturb or affect. List services/systems that will be relocated and those that will be temporarily out of service. Indicate how long services/systems will be disrupted.
6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing the integration of reinforcement with the original structure. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
7. Contracting Officer’s (CO) Approval: Obtain approval of cutting and patching plan before cutting and patching. Approval does not waive the right to later require removal and replacement of unsatisfactory work.

1.3 QUALITY ASSURANCE

A. Leadership in Energy and Environmental Design (LEED™) Requirements for Building Reuse:

1. Credit MR 1.1 and 1.2 (Materials and Resources): Maintain existing building structure (including structural floor and roof decking) and envelope (exterior skin and framing, excluding window assemblies and nonstructural roofing material) not indicated to be removed; do not cut such existing construction beyond indicated limits.
2. Credit MR 1.3 (Materials and Resources): Maintain existing interior nonstructural elements (interior walls, doors, floor coverings, and ceiling systems) not indicated to be removed; do not cut such existing construction beyond indicated limits.

3. Credit MR 1.2 and 1.3 (Materials and Resources): Maintain existing nonshell, nonstructural components (walls, flooring, and ceilings) not indicated to be removed; do not cut such existing construction beyond indicated limits.

B. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.

C. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.

D. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.

E. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Contracting Officer's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

1.4 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 – PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with requirements in Section 01 81 13.13 "Sustainable Design Requirements – LEED™ for New Construction and Major Renovations," Section 01 81 13.16 "Sustainable Design Requirements – LEED™ for Commercial Interiors," Section 01 81 13.19 "Sustainable Design Requirements – LEED™ for Core and Shell Development," and Section 01 81 13.23 "Sustainable Design Requirements – LEED™ for Schools."

B. In-Place Materials: Use materials identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that will match the visual and functional performance of in-place materials when installed.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.

1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with in-place finishes or primers.
2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Temporary Support: Provide temporary support of Work to be cut.

B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations.

C. Adjoining Areas: Avoid interference with the use of adjoining areas or interruption of free passage to adjoining areas.

D. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.

3.3 PERFORMANCE

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time. Complete without delay.

1. Cut in-place construction to provide for the installation of other components or performance of other construction subsequently. Patch as required to restore surfaces to original condition.

B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with the original Installer and original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to the size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from exposed or finished side into concealed surfaces.
3. Concrete and Masonry: Cut using an abrasive saw or a diamond-core drill.

4. Excavating and Backfilling: Comply with requirements in applicable Division 31 Sections where required by cutting and patching operations.
5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
6. Proceed with patching after construction operations cutting are complete.

C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following the performance of other Work. Patch with durable seams as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate the integrity of the installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another. Patch and repair floor and wall surfaces in new space. Provide an even surface of the uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace them with new materials, if necessary, to achieve uniform color and appearance.
4. Ceilings: Patch, repair, or re-hang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weather-tight condition.

D. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials.

END OF SECTION

SECTION 01 73 40

EXECUTION

PART 1 – GENERAL

1.1 SUMMARY

A. The section includes general procedural requirements governing the execution of Work including:

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

1.2 SUBMITTALS

A. Certificates: Submit certificate signed by professional engineer certifying location and elevation of improvements comply with requirements.

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

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

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

1. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
2. Before construction, verify the location and points of connection of utility services.

B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning site work, investigate and verify the existence and location of underground utilities and other construction affecting Work.

1. Before construction, verify location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
2. Furnish location data for work related to Project that must be performed by public utilities serving the Project site.

C. 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 the Contractor's portion of Work, testing requirements, inspections, etc.

1. Electrical: Service Contact: Contact Sangamo Electric Company to coordinate Electrical service requirements.
2. Water Service Contact: Contact National Parks Service to coordinate Water service requirements.
3. Wastewater Service Contact: Contact National Parks Service to coordinate Wastewater service requirements.
4. Telephone Service Contact: Contact National Park Service/AT&T or Verizon Wireless to coordinate Telephone service requirements.

3.3 PREPARATION

A. Field Measurements: Take field measurements as required to fit Work properly. Recheck measurements before installing each product. Where portions of Work are indicated fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying 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 Contractor, submit a request for information to Contracting Officer following Section 01 31 00 "Project Management & Coordination."

3.4 CONSTRUCTION LAYOUT

A. Verification: Verify layout information shown on Drawings, with the existing benchmarks before proceeding to lay out Work. Notify Contracting Officer promptly if discrepancies are discovered.

B. General: Engage a land surveyor to layout Work using accepted surveying practices.

1. Establish benchmarks and control points to set lines of construction and elsewhere as needed to locate each element of the Project.
2. Establish dimensions within 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 location, level, and plumb, of every major element as Work progresses.
5. Notify 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 lay out 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 two 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 log available for review by National Park Service (NPS).

3.5 FIELD ENGINEERING

A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning Work. Preserve and protect permanent benchmarks and control points during construction operations. Controls destroyed by Contractor will be replaced by 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 Work, secure written permission before removing them.

B. Benchmarks: Establish and maintain a minimum of two (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.

C. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and site work.

3.6 INSTALLATION

A. General: Locate Work and components of 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 for 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 over 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 parties involved templates for work specified to be factory-prepared and field installed. Check Shop Drawings of other work to confirm 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 Work.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Contracting Officer.
2. Allow for building movement, thermal expansion, and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors to be embedded in concrete or masonry. Deliver to 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 best visual effect. Fit exposed connections together to form hairline joints.

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

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

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

3.7 PROGRESS CLEANING

A. General: Clean Project site, work areas, and common areas daily. 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 National Fire Protection Association (NFPA) 241 for the removal of combustible waste materials and debris.
2. Do not hold materials for more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 degrees Fahrenheit (27 degrees Celsius).
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of them legally, according to regulations.

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

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

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of 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 manufacturer or fabricator of the product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials not hazardous to health or property and will not damage exposed surfaces.

1. Utilize non-toxic cleaning materials and methods.
   a. Comply with Green Seal Standard (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 of 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 them from damage and deterioration at the time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways.

H. Clean and protect construction in progress and adjoining materials already in place during handling and installation. 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 so that no part of construction completed or in progress, is subject to harmful, dangerous, damaging, or deleterious exposure during the construction period.

K. Final Cleaning: At the completion of Work, remove remaining waste materials, rubbish, tools, equipment, machinery, and surplus materials. Clean exposed surfaces and 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 Section 01 40 00 "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 the time of Substantial Completion.

B. Comply with the 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 Section 01 73 29 "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 a specified condition.

C. Remove and replace damaged surfaces 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 11

CLEANING

PART 1 – GENERAL

1.1 GENERAL

A. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.

B. Store volatile waste in covered metal containers and remove them from premises at the end of each working day.

C. Provide adequate ventilation during the use of volatile or noxious substances. The use of building ventilation systems is not permitted for this purpose.

1.2 RELATED SECTION

A. Section 01 77 00 - Closeout Procedures.

1.3 PROJECT CLEANLINESS

A. Maintain Work in tidy condition, free from accumulation of waste products and debris, other than that caused by Owner or other Contractors.

B. Remove waste materials and debris from the site at the end of each working day. Do not burn waste materials on site.

C. Clear snow and ice from access to the building.

D. Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

E. Provide on-site containers for the collection of waste materials and debris.

F. Clean interior areas before the start of finish work, maintain areas free of dust and other contaminants during finishing operations.

G. Provide adequate ventilation during the use of volatile or noxious substances. The use of building ventilation systems is not permitted for this purpose.

H. Use only cleaning materials recommended by the manufacturer of the surface to be cleaned, and as recommended by the cleaning material manufacturer.

I. Schedule cleaning operations so that resulting dust, debris, and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.4 FINAL CLEANING

A. Refer to General Conditions.

B. When Work is Substantially Performed, remove surplus products, tools, construction machinery, and equipment not required for the performance of remaining Work.

C. Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.

D. When the Work is Completed, remove surplus products, tools, construction machinery, and equipment. Remove waste products and debris other than that caused by the Owner or other Contractors.

E. Remove waste materials from the site at regularly scheduled times or dispose of as directed by the Owner's Representative. Do not burn waste materials on site.

F. Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

G. Leave the work broom clean before the inspection process commences.

H. Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and mechanical and electrical fixtures. Replace broken, scratched, or disfigured glass.

I. Remove stains, spots, marks, and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls, floors, and ceilings.

J. Clean lighting reflectors, lenses, and other lighting surfaces.

K. Vacuum clean and dust building interiors, behind grilles, louvers, and screens.

L. Wax, seal, shampoo, or prepare floor finishes, as recommended by the manufacturer.

M. Inspect finishes, fitments, and equipment and ensure specified workmanship and operation.

N. Broom cleans and washes exterior walls, steps, and surfaces; rake clean other surfaces of grounds.

O. Remove dirt and other disfiguration from exterior surfaces.

P. Clean roofs, gutters, downspouts, and drainage systems. Clean areaways and sunken wells.

Q. Sweep and wash clean paved areas.

R. Clean equipment and fixtures to a sanitary condition; clean or replace filters of mechanical equipment.

S. Remove snow and ice from access to the building.

T. Remove debris and surplus materials from crawl areas and other accessible concealed spaces.

1.5 WASTE MANAGEMENT AND DISPOSAL

A. Separate waste materials following Section 01 74 19 - Construction Waste Management & Disposal.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

END OF SECTION

SECTION 01 74 19

CONSTRUCTION WASTE MANAGEMENT & DISPOSAL

PART 1 – GENERAL

1.1 SUMMARY

A. The section includes administrative and procedural requirements for:

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 construction, demolition, or renovation of a structure that exceeds 2.5 inches (60 millimeters) 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: Presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances; or degrade the utility of environment for aesthetic, cultural, or historical purposes.

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

H. Hazardous Materials: Material regulated as a hazardous material following 49 CFR 173 (Code of Federal Regulations), 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 potential to meet the definition of Hazardous Waste following 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: Project shall minimize the creation of construction, deconstruction, and demolition waste to protect and restore natural habitat and resources. Minimize factors contributing to waste such as over packaging, improper storage, ordering error, poor planning, breakage, mishandling, and contamination. A Waste Management Plan shall be developed to ensure that existing site and building materials are reused, salvaged, or recycled. Minimize waste disposal in landfills.

B. Salvage /Recycle Requirements: Develop a waste management plan resulting in end-of-project rates for salvage/recycling of 20 percent by weight of total waste generated by the Work. 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 (oriented strand board), and particleboard
4. Concrete (can be ground and used for fill on site)
5. Asphaltic concrete (can e 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 waste materials encountered during deconstruction/demolition or construction phase are found to contain lead, asbestos, polychlorinated biphenyls (PCBs), (such as fluorescent lamp ballasts), or other harmful substances, they are to be handled and removed per 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 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 Contracting Officer (CO) may designate other objects or materials for reuse.

E. Salvage/Recycle Requirements: Government goal is to salvage and recycle as much non-hazardous demolition and construction waste as possible including the following materials:

1. Piping and Miscellaneous building materials.

1.4 SUBMITTALS

A. Waste Management Plan: After awarding of the contract and before the scheduled Pre-Construction Conference, the Contractor shall submit a draft Waste Management Plan to Contracting Officer for approval. Submit 3 copies of the plan. Revise and resubmit Plan as required by Contracting Officer. Approval of Contractor's Plan will not relieve Contractor of responsibility for compliance with applicable environmental regulations.

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

C. Waste Reduction Calculations: Before a request for Substantial Completion, submit 3 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 an organization is tax-exempt.

E. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether an 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. LEED™ Submittal: LEED™ letter template for Credit MR 2.1 and 2.2 (Materials and Resources), signed by Contractor, tabulating total waste material, quantities diverted and means by which it is diverted, and a statement that requirements for the credit have been met.

I. Qualification Data: For Waste Management Coordinator.

J. Progress payment requirements:

1. With each Application for payment, 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 USGBC, as waste management coordinator.

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

C. Waste Management Meeting: Conduct separate meetings or cover in Pre-Construction Conference and comply with requirements in Section 01 31 00 "Project Management & Coordination." Review methods and procedures related to waste management including:

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 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 Indicate quantities by weight or volume but use same units of measure throughout 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 a 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 salvaged and reused in Project, describe methods for preparing salvaged materials before incorporation into the Work.
2. Salvaged Materials for Sale: For materials sold to individuals and organizations, include a list of names, addresses, and telephone numbers.
3. Salvaged Materials for Donation: For materials donated to individuals and organizations, include a list of names, addresses, and telephone numbers.
4. Recycled Materials: Include a list of local receivers and processors and the 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 used for separating recyclable waste including sizes of containers, container labeling, and designated location on 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 the waste management plan. Include:

1. Landfill tip fees per 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 the 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 waste management plan as approved by 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 waste management coordinator 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 lines of responsibility. The contractor shall be responsible for coordination 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 waste management plan to everyone concerned within 3 days of submittal return.
2. Distribute waste management plans to entities when they 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 Contracting Officer shall approve specific areas or areas to facilitate separation of materials for potential reuse, salvage, recycling, and return.
2. Place waste and recycling bins near each other, and close to point of waste generation but out of traffic pattern.
3. Keep recycling and waste bin areas neat, clean, and clearly marked to avoid co-mingling of materials.
4. Protect bins during non-working hours from off-site contamination.
5. Check garbage dumpsters periodically for recyclables being thrown away and undocumented materials that could be recycled.

G. Materials handling procedures: Material to be recycled shall be protected from contamination and shall be handled, stored, and transported in a manner that meets requirements set by designated facilities for acceptance. Establish a defined area for operations of each trade, especially woodcutting so off-cuts are 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 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 the use indicated.

B. Salvaged Items for Sale and/or Donation: Not permitted on Project site without approval from the Contracting Officer.

C. Salvaged Items for Governments Use:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Allow for inspection if necessary.
4. Store items in a secure area until delivery to Government.
5. Transport items to storage area designated by Government.
6. 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: A list of recyclers and processors in the area may be available from the Park. The list provided by the Park may not be all-inclusive and will be provided for information only.

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 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 ground and protect them from the weather.
5. Remove recyclable waste from Government property and transport it to recycling receiver or processor.

3.4 RECYCLING DEMOLITION WASTE

A. Asphaltic Concrete Paving: Grind asphalt to a maximum 1-1/2 inch (38 millimeters) size.

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

1. Crush asphaltic concrete paving and screen to comply with requirements in Division 31 Section.

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

1. Pulverize concrete to a maximum 1-1/2 inch (38 millimeters) size.

D. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.

1. Pulverize masonry to a maximum 1-1/2 inch (38 millimeters) size.
2. Clean and stack undamaged, whole masonry units on wood pallets.

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

F. 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.

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

H. 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.

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

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

J. Carpet and Pad: Roll large pieces tightly after removing debris, trash, adhesive, and tack strips.

1. Store clean, dry carpet and pad in closed container or trailer provided by Carpet Reclamation Agency or carpet recycler.

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

L. Plumbing Fixtures: Separate by type and size.

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

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

O. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.

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

Q. Electronic Products: Ensure 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 not containing 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 Project site and legally dispose of in landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials to accumulate on-site.
2. Remove and transport debris in a manner preventing 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

SECTION 01 77 00

CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. The section includes administrative and procedural requirements for contract closeout, including:

1. Project Record Drawings
2. Closeout Submittals
3. Substantial Completion and Final Inspection
4. Permit Closure and Transfer
5. Final Acceptance of the Work
6. Warranties
7. Final Cleaning.

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 (NPS) 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 Contracting Officer (CO) for inspection at the time of monthly progress payment requests. If project record drawings are not current, Contracting Officer may retain an appropriate amount of progress payment.

C. Submit complete record drawings on completion of the total project. Include shop drawings, sketches, and additional drawings 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 1 Specifications for your convenience. The intent is to provide an overall summary of requirements and not a comprehensive list. Terms and conditions of the contract require satisfaction of requirements of individual specification sections regardless of what is shown on the list. Submit the following before requesting a final inspection:

1. Specific warranties, guarantees, workmanship bonds, final certifications, and similar documents.
2. NPS required forms for occupancy, Fire Sprinkler/Alarm acceptance, and other similar forms or certificates.

3. Project Record Documents, operation and maintenance manuals, final completion construction digital images recorded on CD-R (compact disc-recordable) or DVD-R (digital video disc-recordable) with index and descriptions, and similar final record information.
4. Environmental Record Documents: As specified in Divisions 01 and as follows:
    a. IAQ Management Plan: As specified in Section 01 57 19.11 Indoor Air Quality (IAQ) Management.
    b. Product Data for filtration media: As specified in Section 01 57 19.11 Indoor Air Quality (IAQ) Management.
    c. Moisture Control inspections and reports: As specified in Section 01 57 19.11 Indoor Air Quality (IAQ) Management.
    d. Material Safety Data Sheet (MSDS) Data: As specified in Section 01 57 19.11 Indoor Air Quality (IAQ) Management and Section 01 67 00 Product Requirements.
    e. Affirmative Procurement Reporting Form: As specified in Section 01 67 00 Product Requirements.
    f. Environmental Product Data: As specified in Section 01 67 00 Product Requirements.
    g. Life-Cycle Assessment (LCA) Data: As specified in Section 01 67 00 Product Requirements.
    h. Chain-of-Custody Data: As specified in Section 01 67 00 Product Requirements.
    i. Final Summary of Solid Waste Disposal and Diversion: As specified in Section 01 74 19 Construction Waste Management & Disposal.
    j. Commissioning Report: As specified in Section 01 77 00 Closeout Procedures.
5. Posted Operating Instructions: As specified in 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 a location designated by Contracting Officer. Label with 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 the possession of mechanics or maintenance personnel.
7. Keys and Keying Schedule: Submit keys including duplicates. Wire keys for each lock securely together. Tag and mark with lock number, equipment identification, or panel or switch number, and indicate location, 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. Approved pre-functional checklists and functional performance testing report from commissioning documentation.
    a. Equipment start-up requires coordination with the commissioning process. Refer to Section 01 77 00 Equipment shall not be "temporarily" started for commissioning.
10. Test and balance report.
11. Terminate and remove temporary facilities, mockups, construction tools, and similar elements from the Project site, complete final cleaning requirements, including touchup painting.
12. Touch up and repair and restore marred exposed finishes to eliminate visual defects.
13. Instruct NPS personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training videos.

1.4 FINAL INSPECTION, SUBSTANTIAL COMPLETION, AND ACCEPTANCE PROCEDURES

A. Request final inspection in writing when the project or designated portion of the project is substantially complete. Contracting Officer will proceed with an inspection within 10 days of receipt of a written request or will advise the Contractor of items that prevent the project from being substantially complete.

B. If work is determined substantially complete, following final inspection, Contracting Officer will prepare Punch List and issue a Letter of Substantial Completion.

C. If work is not determined substantially complete following final inspection, Contracting Officer will notify the Contractor in writing. The contractor shall request a new final inspection after completing work. Re-inspection costs may be charged against the Contractor following the Inspection of Construction contract clause.

D. The contractor shall complete the Punch List within 30 calendar days, documented weather permitting.

1. Before requesting a final inspection:
    a. Complete commissioning requirements of Section 01 77 00, unless approved in writing by Contracting Officer.

E. If Contractor completes items of work on Punch List and contractually required items, Contracting Officer will issue Letter of final acceptance of work.

F. If the Contractor fails to complete work within the time frame, Contracting Officer may correct the work with an appropriate reduction in the contract price or charge for re-inspection costs per the Inspection of Construction contract clause.

1.5 PERMIT CLOSURE AND TRANSFER

A. When work covered by the permits is complete, create a list of tasks required to close or transfer permits to Park. Submit to Contracting Officer for approval.

B. After substantial completion and Punch List completion, permits shall be closed and documented by Agency(ies) with Jurisdiction for the permit.

C. If responsibility for permits is to be transferred to Park, Park shall be informed of permit provisions completed and responsibilities transferring to Park staff.

1.6 WARRANTIES

A. Submittal Time: Submit written warranties on request of Contracting Officer for designated portions of 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 millimeters) paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify product or installation. Provide a typed description of product or installation, including the name of product and name, address, and telephone number of 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 a complete warranty and bond submittal package into a single indexed electronic PDF (portable document format) file with links enabling navigation to each item. Provide a bookmarked table of contents at beginning of the document.

C. Provide additional copies of each warranty in operation and maintenance manuals.

PART 2 – PRODUCTS

2.1 MATERIALS

A. See Division 1 Specification Section "Execution" for information on cleaning agents.

PART 3 – EXECUTION

3.1 FINAL CLEANING

A. General: Conduct final 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 following cleaning operations before requesting inspection for certification of Substantial Completion for the entire Project or a portion of the 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 smooth, even-textured surfaces.
   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 dirt-free condition, free of stains, films, and foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to 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, soil, or stains remain.
j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and vision-obscuring materials. Replace chipped or broken glass and transparent materials. Polish mirrors and glass.
k. Remove labels that are not permanent.
l. Touch up, 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" (Underwriters Laboratories) 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 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 and noticeably dimmed bulbs, and defective or 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 experienced, licensed exterminators to make a final inspection and rid project of rodents, insects, and other pests. Provide the Government with the report.

D. Waste Disposal: Comply with requirements of 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. The section includes administrative and procedural requirements for preparing operation and maintenance manuals, including:

1. Manuals, general
2. Emergency manuals
3. Operation manuals for systems, subsystems, and equipment
4. Maintenance manuals for care and maintenance of products, materials, and finishes, systems and equipment

B. See Divisions 2 through 49 Sections for additional operation and maintenance manual requirements for Work in those Sections.

1.2 SUBMITTALS

A. Manual: Submit 2 copies of each manual in draft form or one electronic copy at least 15 days before final inspection. Contracting Officer (CO) will return a copy or edit version with comments within 15 days of receipt.

B. Format: Submit operations and maintenance manuals in the following format:

1. PDF (portable document format) electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to 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. Hard copy manual: Following Part 2 of this Section.
3. Correct or modify each manual to comply with Contracting Officers' comments. Submit 4 copies of each corrected manual within 15 days of receipt of the Contracting Officers' comments.

1.3 QUALITY ASSURANCE

A. Coordinate with Section 01 91 14 "Total Building Commissioning." The commissioning Agent shall review Operation and Maintenance Manuals for commissioned systems.

PART 2 – PRODUCTS

2.1 MANUALS, GENERAL

A. Organization: Unless otherwise indicated, organize manual into separate sections for each system and subsystem, and separate sections for each piece of equipment not part of a system. Manual shall contain the title page, table of contents, and manual contents.

B. Title Page: Enclose the title page in a transparent plastic sleeve. Include:

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. Assemble instructions for subsystems, equipment, and components of one system into a single binder if needed.

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 millimeter) paper; with clear plastic window sleeve on front and spine to hold label describing contents and pockets inside covers to hold folded oversize sheets.
    a. Cover Sheet: Identify binders on front and spine, with project title, location, park, contract number, prime contractor's name and address, date of substantial completion, and binder volume number. Insert cover sheet into clear plastic view pocket on the front of the binder. Insert sheet into clear plastic view pocket on 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 of capacity. Punch holes shall not obscure any data. When contents of a single tabbed section cover more than one 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. Include no copies produced by facsimile transmission and sheets with stamps, such as submittal approval stamps. Include only sheets that apply to items installed; cross out inapplicable data.
    b. Vendor Furnished As-Built Drawings: Maximum 24 inch by 36-inch sheets with minimum character or lettering size of 1/8 inch. Reduced-size reproductions may be provided instead of full-size drawings if reproductions are clear and legible. If reduced-size drawings are used, identify them as "REDUCED SIZE" and provide graphic scales, if applicable.

c. Custom Data: Data supplemented by drawings and schematics necessary to describe systems adequately.
d. Equipment Data Sheet: Data, using the form at end of this section.
e. Schedules: Schedules reflecting final, as-installed conditions.
f. Poorly reproduced or illegible data 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 them 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 EMERGENCY MANUALS

A. Content: Organize the manual into a separate section for the type of emergency, emergency instructions, and emergency procedures.

B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component for fire flood gas leak water leak power failure water outage equipment failure, and chemical release or spill.

C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of National Park Service (NPS) operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

D. Emergency Procedures: Include instructions on stopping, shutdown instructions for each type of emergency, operating instructions for conditions outside normal operating limits, and required sequences for electric or electronic systems.

2.3 OPERATION AND MAINTENANCE MANUALS

A. Operation Requirements

1. Content: In addition to requirements in Section, include 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:
   a. Product name and model number
   b. Manufacturer's name

c. Equipment identification with the 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, 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, 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 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 component part or piece of equipment:
4. Maintenance Procedures: Test and inspection instructions, troubleshooting guide, disassembly instructions, and adjusting instructions, detailing essential maintenance and environmental procedures.
5. Maintenance and Service Schedules: 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: 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: Copies of warranties and bonds and lists of circumstances and conditions that affect the validity of warranties or bonds.

2.4 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 Project Manual.

C. Product Information: Include:

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 Project. Include product model; manufacturer’s name, address, phone, and website; and local technical representative.
    a. Verify plastic products to be incorporated into Project are labeled following ASTM D1972. Where products are not labeled, provide product data indicating polymeric information in 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 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 recommended maintenance procedures and materials.
        3) Where proposed maintenance procedures incorporate composting of plastics, assess the potential effect of each type of plastic to be included in composting process following ASTM D5509 or ASTM D6002
    c. Identify take-back programs and appropriate contact information for:
        1) Carpet
        2) Ceiling Tile
        3) Office Equipment
    d. Material Safety Data Sheets (MSDS): Include MSDSs as specified.
2. Develop environmental management programs for the facility as follows:
    a. Waste management program: Develop following ASTM E1609. Maximize use of source reduction and recycling procedures outlined in ASTM D5834.

b. Indoor Air Quality (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 affect the validity of warranties or bonds.

2.5 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 includes the following information for each component or piece of equipment:

1. Standard maintenance instructions and bulletins.
2. Drawings, diagrams, and instructions 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 items detailing 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

E. Maintenance and Service Schedules: Include service and lubrication requirements, a 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 affect the validity of warranties or bonds.

1. Include procedures 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 the index. Install and index data in binders within 30 days after delivery of items. As custom written data and test results are produced, add to operation and maintenance data file.

B. The list of Operation and Maintenance requirements has been attached at end of the Division 1 Specifications for your convenience. The intent is to provide an overall summary of requirements and not a comprehensive list. Terms and conditions of the contract require satisfaction of requirements of 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 Contracting Officer for inspection at the time of monthly progress payment requests. If operation and maintenance binders are not current, 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 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:

1. Manufacturers' Data: Where manuals contain manufacturers' standard printed data include only sheets pertinent to product or component installed. Mark sheet to identify product or component incorporated into Work. If data include more than one item in a tabular format, identify each item using appropriate references from Contract Documents. Identify data applicable to Work and delete references to information not applicable.
2. Custom Written Data: For data not in the manufacturer's standard literature, provide text, drawings, and schematics specifically applicable to installed systems. Include step-by-step descriptions of operating procedures; identification of individual components and their functions; descriptions of how system components relate to one another and operate together to accomplish a common process or function; and sequence of operation for system control circuits. For seasonally operated systems, provide start-up and shutdown instructions.
3. Equipment Data Sheets: For each item of equipment included in operation and maintenance data, provide 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), 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 individual equipment items.
4. Vendor Furnished As-Built Drawings: Provide for each electrical and each mechanical control system.
    a. For each control system, provide control circuit schematic drawings. Identify each wire and terminal block number. Show terminal numbers on control devices. Show control wires and devices remote from the control panel.
    b. For each control panel, provide a general arrangement drawing showing location of each control component and terminal block on the panel front and interior. Include materials list of panel-mounted control components as well as field-installed control components remote from the panel, identifying components, manufacturer, model number, and initial setpoints or sensing ranges of devices where applicable.
    c. For packaged equipment systems, provide general arrangement drawings showing interrelationships of the various items of equipment and components.
    d. In addition to a control wiring schematic, provide a power wiring schematic drawing showing power flow to each motor. Identify each power conductor. Show over-current protection and motor starting devices.

C. Comply with 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 Number: _____ Serial Number: _____

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. The section includes administrative and procedural requirements for instructing National Park Service (NPS) personnel, including:

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 2 through 49 Sections for specific requirements for demonstration and training for products in those Sections.

1.2 GENERAL REQUIREMENTS

A. A list of System Demonstration and Training requirements has been attached at end of Division 1 Specifications for your convenience. The intent is to provide an overall summary of requirements and not a comprehensive list. Terms and conditions of the contract still require satisfaction of requirements of individual specification sections regardless of what is shown on the list.

1.3 SUBMITTALS

A. Instruction Program: Submit 2 copies of the outline of the instructional program for demonstration and training, including the schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objectives and an outline for each training module.

1. For each training session, the Contractor shall submit for approval a proposed outline of subjects to be covered. Training shall not be conducted until the outline is approved.

B. Demonstration and Training Video: Submit two copies of each DVD (digital video disc) for training sessions within seven days of the end of each training module.

1. Label each DVD with the date of demonstration or training, instructor's name, and provide an index of contents. The index shall list the start and end times of each subject covered during the training session. The sequence of training subjects shall follow the sequence listed in the approved training outline or as actually conducted

1.4 QUALITY ASSURANCE

A. Facilitator Qualifications: Firm or individual experienced in training or educating maintenance personnel in training program similar in content and extent for this Project, and whose work has resulted in training or education with a record of successful learning performance.

B. Instructor Qualifications: Factory-authorized service representative, complying with requirements in 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 instruction program until operation and maintenance data has been reviewed and approved by Contracting Officer (CO).

D. 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.

PART 2- PRODUCTS

2.1 INSTRUCTION PROGRAM

A. Program Structure: Develop instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections, and:

1. Environmental Topics
    a. Overview of environmental issues related to the building industry.
    b. Overview of environmental issues related to Project.
    c. Review of site-specific procedures and management plans implemented during construction:
        1) Regulatory Requirements
        2) Indoor Air Quality (IAQ) Management
        3) Noise and Acoustics Management
        4) Environmental Management
        5) Construction Waste Management
    d. Review of site-specific procedures and management plans to be implemented during operation and maintenance.
        1) Include a review of environmentally related aspects of the Operations and Maintenance Manual.
        2) Integrated Pest Management (IPM)

B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that the participant is expected to master. For each module, include instruction for:

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: 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: 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: Alignments and checking, noise, vibration, economy, and efficiency adjustments.
6. Troubleshooting: Diagnostic instructions and test and inspection procedures.
7. Maintenance: 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: 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 qualified facilitator to prepare instruction program and training modules, coordinate instructors, and coordinate between 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 Contracting Officer with at least [seven] days' advance notice.
2. Conduct training sessions after equipment or system has been accepted and turned over to Government. Coordinate with commissioning requirements.
3. Coordinate with Integrated pest management requirements. Refer to specifications section and approved IPM plan.
4. Individual sections specify the duration of training required. If no duration is listed, provide training of sufficient duration to adequately cover subjects.

3.2 DEMONSTRATION AND TRAINING VIDEO

A. General: Engage qualified commercial photographers to record demonstration and training videos. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.

1. At beginning of the training module, record each chart containing the learning objective and lesson outline.

B. Video Format: Digital Video Disc (DVD).

C. Video Recording: Record sessions with high-resolution equipment. The instructor's voice shall be clearly audible and understandable on DVD. Utilize supplemental microphone worn by the instructor.

D. Narration: Describe scenes on video by audio narration by the microphone while the video is recorded. Include a description of items being viewed. Describe vantage point, indicating location, direction (by compass point), and elevation or story of construction.

1. DVDs with poor video or audio quality will be rejected and training recorded again.

END OF SECTION

SECTION 01 81 13

SUSTAINABLE DESIGN REQUIREMENTS FOR NON-LEED™ PROJECTS

PART 1 – GENERAL

1.1 SUMMARY

A. The section includes general requirements and procedures for compliance with Federal Sustainability requirements. This project is not seeking Leadership in Energy & Environmental Design (LEED™) certification but shall comply with applicable Federal Sustainability requirements. Requirements include laws (Executive Orders (EO) and regulations), management policies, building codes and standards, Federal directives, and National Park Service (NPS) guidelines.

B. Many Federal requirements can be achieved only through the intelligent and integrated design of the project and are beyond the control of the Contractor. Certain requirements relate to the products and procedures used for construction, therefore, the full cooperation of the Contractor and Subcontractors is essential to successful compliance with Federal requirements.

C. Contractors shall familiarize themselves with relevant requirements and provide necessary information and instruction to subcontractors and installers.

1. Some requirements involve quantifying percentages by weight; these require careful recordkeeping and reporting by the Contractor.
2. See Denver Service Center (DSC) Workflows Sustainability Standards for a list of Federal Sustainability requirements. Applicable Federal Sustainability requirements are also summarized on the project's NPS Project Sustainability Checklist. The contractor is responsible for ensuring the elements in the NPS Project Sustainability Checklist, identified by the Architect/Engineer (A/E) team, are incorporated into the construction of the project.

D. Related Sections:

1. See Divisions 1 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 wood used to make products were obtained from forests certified by a Forest Stewardship Council (FSC)-accredited certification body to comply with FSC Standard STD-01-001, "FSC Principles and Criteria for Forest Stewardship." Certificates shall include evidence manufacturer is certified for 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 (USGBC).

C. Rapidly Renewable Materials: Materials made from plants 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: Recycled content value of a material assembly shall be determined by weight.

1. "Post-consumer" material: 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 the intended purpose.
2. "Pre-consumer" material: Material diverted from the waste stream during the manufacturing process. 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 is excluded.

E. Biopreferred Products: Commercial or industrial products (other than food or feed) composed in whole, or in 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 Federal sustainability documentation submittals are aggregations of submittals already required in relevant technical specifications. They are mentioned here to ensure 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. Construction Indoor Air Quality (IAQ) Management Plan – During Construction:
    a. Construction indoor-air-quality management plan.
    b. Product data for temporary filtration media.
    c. Product data for filtration media used during occupancy.
    d. Construction Documentation: Six photographs at three different times during the construction period, along with a brief description of the Sheet Metal and Air Conditioning Contractors' National Association (SMACNA) approach employed, documenting the implementation of indoor-air-quality management measures, such as protection of ducts and on-site stored or installed absorptive materials.

4. Low Emitting Materials - Adhesives and Sealants: Product data for adhesives and sealants used inside weatherproofing system indicating Volatile Organic Compound (VOC) content of each product used. Indicate VOC content in g/L (grams per liter) calculated according to 40 CFR 59 Subpart D (Code of Federal Regulations).
5. Low Emitting Materials - Paints and Coatings: Product data for paints and coatings used inside weatherproofing system indicating the chemical composition and VOC content of each product used. Indicate VOC content in g/L calculated according to 40 CFR 59 Subpart D.
6. Low Emitting Materials - Flooring: Product data for products containing composite wood or agrifiber products or wood glues indicating they do not contain urea-formaldehyde resin.
7. Biopreferred Products: Provide a list of bio-based products used on the 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 percent of the cost of materials used for the Project.

1. Determine the cost of post-consumer recycled content 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. Determine the cost of pre-consumer recycled content of an item 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 furniture, mechanical and electrical components, and specialty items such as elevators and equipment in the calculation.

2.2 BIOPREFERRED PRODUCTS

A. Use bio-based products found on the United States Department of Agriculture (USDA) Biopreferred Products list where applicable on the project.

2.3 LOW-EMITTING MATERIALS

A. For applications inside the weatherproofing system, use adhesives and sealants that comply with VOC content limits in Specification Divisions 2 through 49.

B. For field applications inside the weatherproofing system, use paints and coatings that comply with VOC content limits in Specification Divisions 2 through 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 through 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 14

TOTAL BUILDING COMMISSIONING

PART 1 - GENERAL

1.1 SUMMARY

A. This section includes:

1. General requirements for coordinating and scheduling commissioning.
2. Commissioning meetings
3. Commissioning reports
4. Use of test equipment, instrumentation, and tools for commissioning.
5. Construction checklists, including, but not limited to, installation checks, startup, and performance tests.
6. Commissioning tests
7. Adjusting, verifying, and documenting identified systems and assemblies.

B. Work included under this section includes a complete and thorough investigation of equipment and systems indicated in Part 3 of the section. To ensure proper installation and operation of components and systems. The contractor shall perform commissioning as described herein to accomplish the tasks, and goals of commissioning. Systems to be evaluated include but are not limited to:

1. HVAC (Heating, Ventilation, and Air Conditioning) components and equipment.
2. HVAC system: Interaction of cooling, heating, and comfort delivery systems.
3. Building Automation System (BAS): Control hardware and software, sequence of operations, and integration of factory controls with BAS.
4. Lighting Control System and interface with daylighting.
5. Building Envelope (walls, roof, windows, infiltration, etc.)
6. Life Safety Systems (Fire Alarm & Suppression)
7. Electrical and Alternative Energy Systems (propane generator, photovoltaic panels, etc.)
8. Access Control/Security Systems
9. Lightning Protection
10. Wastewater Lift Station Pumps

C. Building commissioning activities and documentation are described in the following reference material: United States Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED™) rating program, American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Guideline 0-2005, The Commissioning Process, and National Institute of Building Sciences (NIBS) Guidelines.

D. National Park Service (NPS) personnel, Green Consultant, and Architect/Engineer are not responsible for construction means, methods, job safety, or management function related to commissioning on job site.

E. Related Sections:

1. 01 31 00 - Project Management & Coordination
2. 01 33 23 - Submittal Procedures
3. 01 40 00 - Quality Requirements
4. 01 57 19.11 - Indoor Air Quality (IAQ) Management
5. 01 57 19.12 - Noise & Acoustics Management
6. 01 77 00 - Closeout Procedures
7. 01 78 23 - Operation & Maintenance Data
8. 01 79 00 - Demonstration & Training
9. 01 81 13 - Sustainable Design Requirements for Non-LEED Projects

1.2 DEFINITIONS

A. Acceptance Criteria: Threshold of acceptable work quality or performance specified for a commissioning activity.

B. Basis-of-Design Document (BoD): Document prepared by the Designer that records concepts, calculations, primary thought processes and assumptions behind design decisions, and product selections used to comply with Owner's Project Requirements and to suit applicable regulatory requirements, standards, and guidelines. The basis of design describes the systems, components, conditions, and methods used in the design.

C. Total Building Commissioning (TBC): Quality-focused process for verifying and documenting that facility, systems, and assemblies are planned, designed, installed, and tested to comply with Owner's Project Requirements. Requirements specified here are limited to construction phase commissioning activities.

D. Construction Checklist: A form used by the Contractor to verify appropriate components are on-site, ready for installation, correctly installed, and functional.

E. 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.

F. Commissioning Authority (CxA): The Government’s designated representative(s) to plan, review, advise, witness, and evaluate the commissioning process of the contractor.

G. 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, a description of the infrastructure, and a list of all instruments and logging devices that will be used during Commissioning.

H. 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.

I. Functional Performance Test (FPT): A 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.

J. 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").

K. Monitoring: The recording of parameters (flow, current, status, pressure, etc.) of equipment operation using data loggers or the trending capabilities of control systems.

L. Owner's Project Requirements: Document originated by Designer that details functional requirements of project and expectations of use and operation, including project goals, measurable performance criteria, cost considerations, benchmarks, success criteria, and supporting information. The document is updated, with input from Contracting Officer (CO) as required as the project is finished.

M. 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 a 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 and are combined with the equipment manufacturer's start-up checklist.

N. Seasonal Performance Tests: Functional Performance Tests are deferred until system(s) will experience seasonal conditions closer to their design conditions.

O. 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 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 (Contractor's Commissioning Representative): CCxR shall be approved by Contracting Officer and satisfy as many of the following requirements as possible:
    a. Certified in Commissioning by a nationally accredited organization (i.e. Associated Air Balance Council (AABC), Association of Energy Engineers (AEE), Building Commissioning Association (BCA), and National Environmental Balancing Bureau (NEBB))
    b. Acted as principal Commissioning Authority where the total building commissioning approach (including building envelope) was used for at least three projects of comparable size, type, and scope.
    c. Technical training in Mechanical, Electrical, and/or fire protection engineering.
    d. Past commissioning experience.
    e. Knowledge of national codes.
    f. Leadership in Energy and Environmental Design (LEED) Accredited Professional.
    g. Experience in energy-efficient design and control strategy optimization.
    h. Specific experience with specialty systems relative to particular facility type (i.e. Federal blast and progressive collapse requirements, security systems, etc.).
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 facility users and operation and maintenance personnel.
2. Architect and engineering design professionals.

1.4 CONTRACTOR'S RESPONSIBILITIES

A. The 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 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. Attend commissioning team meetings held monthly.
4. Integrate and coordinate commissioning process activities with the overall project schedule.
5. Review Construction Checklist attached at end of specification section.
6. Coordinate with the CxA in the review and acceptance of the commissioning process test procedures as described in the contract documents.

7. Complete electronic construction checklists as contract work are completed and provided to Contracting Officer weekly.
8. Complete commissioning process test procedures.
9. Provide maintenance orientation and inspection for systems, assemblies, equipment, and components based on contract requirements.
10. Provide Contractor's Commissioning Plan and documentation required by the CxA for final commissioning documentation.
11. 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. Certificate of readiness certifying systems, subsystems, equipment, and associated controls are ready for testing
5. Test and inspection reports and certificates
6. Corrective action documents
7. Testing, adjusting, and balancing reports

1.6 SUBMITTALS

A. Two-week look-ahead schedules: Schedule showing the next two weeks of commissioning-related construction activity to include completion dates for each element of commissioning documentation for each major system or subsystem as identified in 1.1.B.

B. Certificates of readiness.

C. Contractor's Commissioning Representative Qualifications.

D. Contractor's Commissioning Plan: Submit within 30 calendar days of authorization to proceed.

1. Update as necessary during the work to reflect progress on components and systems.

E. Pre-functional checklists.

F. Owner's project requirements.

G. Functional performance test forms: Submit a minimum of 30 calendar days prior to testing

H. List of test instrumentation, equipment, and monitoring devices. Include:

1. Make, model, serial number, and application for each instrument, equipment, and monitoring device.
2. Brief description of intended use.
3. Calibration record showing:
    a. Calibration agency, including name and contact information
    b. Last date of calibration
    c. Range of values for which calibration is valid
    d. Certification of accuracy
    e. National Institute of Standards and Technology (NIST) traceability certification for calibration equipment.
    f. Due date of the next calibration.

I. Deficiency Report and Resolution Record: Document items of non-compliance in materials, installation, or operation. Document results from start-up/pre-functional checklists, functional performance testing, and short-term diagnostic monitoring. Include details of components or systems found to be non-compliant with drawings and specifications. Identify adjustments and alterations required to correct system operation and identify who is responsible for making corrective changes.

1. Update as necessary during work to reflect progress on components and systems. Submit updated versions monthly.

J. Closeout Documentation

1. Closeout documents for commissioned equipment and systems shall be submitted before 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. Operation and Maintenance (O&M) Submittals (refer to requirements of technical specifications):
    a. Training plan: Include for each training session:
        1) Dates, start and finish times, and locations
        2) Outline of the information to be presented
        3) Names and qualifications of presenters
        4) List of texts and materials required to support training
3. LEED™ Documentation related to commissioning. Format as required by USGBC for submittal under referenced green building rating system, as appropriate.

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 tolerances required to determine adequate performance.

2. Be calibrated on manufacturer's recommended intervals calibration tags permanently affixed to the instrument being used.
3. Be maintained in good repair and operating condition throughout the duration of use on this project.

B. 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 shall be provided by the Contractors Commissioning Representative and shall not become the property of the Government.

2.2 PRE-FUNCTIONAL CHECKLIST:

A. Prepare pre-functional checklists for equipment and systems to be commissioned.

B. Pre-functional checklists shall be complementary to Commissioning Plan and Commissioning Schedule.

2.3 FUNCTIONAL TEST PROCEDURE FORMS

A. Prepare functional test procedure forms for each piece of equipment and each system to be commissioned.

2.4 FUNCTIONAL PERFORMANCE WORKSHEETS

A. Prepare Functional Performance worksheets, consisting of test procedures and expected results of 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.

2.5 REPORT FORMAT AND ORGANIZATION

A. General Format and Organization:

1. Bind report in three-ring binders.
2. Label front cover and spine of each binder with report title, volume number, project name, Contractor's name, and date of the report.
3. Record report on compact disk.
4. Electronic Data: Portable document format (PDF); a single file with outline-organized bookmarks for major and minor tabs and tab contents itemized for specific reports.

B. Commissioning Report:

1. Include a table of contents and an index to each test.
2. Include major tabs for each Specification Section.

3. Include minor tabs for each test.
4. Within each minor tab, include:
    a. Test specification.
    b. Pre-startup reports.
    c. Approved test procedures.
    d. Test data forms completed and signed.
    e. Commissioning issue reports, showing resolution of issues, and documentation related to the resolution of issues about a single test. Group data forms, commissioning issue reports showing resolution of issues, and documentation related to the resolution of issues for each test repetition together within a minor tab, in reverse chronological order (most recent on top).

PART 3 – EXECUTION

3.1 COMMISSIONING PROCESS

A. The following activities outline general commissioning tasks (requiring development, execution, etc.) and the order in which they occur. Specific Commissioning requirements are found in the technical specifications in Section(s) 33 and 40.

1. Commissioning Scoping Meeting
2. Finalize Owner's Project Requirements
3. Contractor's Commissioning Plan
4. Prepare Start-Up/Pre-functional checklists.
5. Prepare functional performance worksheets.
6. Perform Start-Up/Pre-Functional Checks following manufacturer's recommendations and pre-functional checklists.
7. Functional Performance Testing following functional performance worksheets
8. Deficiency Report and Resolution Record
9. Operation and Maintenance Documentation
10. Operations and Maintenance Training
11. Deferred Testing

3.2 TOTAL BUILDING COMMISSIONING (TBC) REQUIREMENTS

A. TBC during construction, acceptance, and warranty phases is intended to achieve the following specific objectives:

1. Verify that systems and equipment meet the Owner's Project Requirements.
2. Verify equipment is what was submitted and approved.
3. Verify and document equipment is installed and started per manufacturer's recommendations, industry-accepted minimum standards, and Contract Documents.
4. Verify and document equipment and systems to receive complete operational checkout by installing contractors.
5. Verify and document equipment capacity and system efficiency.
6. Verify performance of building envelope. Document testing and conformance to Contract Documents.

7. Verify completeness of operations and maintenance materials.
8. Ensure Governments operating personnel are adequately trained on operation and maintenance of building equipment.

3.3 COMMISSIONING SCOPING MEETING

A. Commissioning Scoping Meeting:

1. Schedule, coordinate and facilitate a scoping meeting.
2. Review each building system to be commissioned, including intended operation, commissioning requirements, and completion and start-up schedules.
3. Establish the scope of work, tasks, schedules, deliverables, and responsibilities for the implementation of the Commissioning Plan.
4. Attendance: Commissioning Team members.

3.4 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. The 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 various procedures, reports, Contracting Officer notifications, and forms.
2. Include commissioning tasks and activities in the overall project schedule. Tag individual activities so they can be filtered at later date.
3. List and describe each test/acceptance procedure, including acceptance criteria.

3.5 START-UP/PRE-FUNCTIONAL CHECKLISTS

A. Start-Up/Pre-Functional Checklists: Complete pre-functional checklists before starting up. A checklist shall help verify that systems are complete and operational so that functional performance testing can be scheduled.

1. Verify equipment installed is what was approved on Submittal.
2. Manufacturers' start-up checklists and other technical documentation guidelines may be used as the basis for pre-functional checklists.

3.6 FUNCTIONAL PERFORMANCE TESTING

A. Functional Performance Testing: Test procedures 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 building automation system (i.e. software override of sensor inputs), trend logs of system inputs, and outputs using building 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. CCxR 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, the remaining units shall be tested at the Contractors' expense.

B. Prepare functional performance test procedure forms to accommodate actual installed equipment and systems.

C. Coordinate, execute, and record results of functional performance testing.

1. Coordinate retesting as necessary until satisfactory performance is verified.
2. Verify intended operation of individual components and system interactions under various conditions and modes of operation.

3.7 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 tests at the discretion of CCxR. In such cases, the deficiency and resolution shall be documented on the procedure form.
2. For identified deficiencies:
    a. If no dispute on deficiency and responsibility to correct it:
        1) CxA documents the deficiency and adjustments or alterations required to correct it. The contractor corrects the deficiency and notifies CxA that the equipment is ready to be retested.
        2) CCxR reschedules test and 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 discussions as needed. The contractor shall have responsibility for resolving construction deficiencies. If a design revision is deemed necessary and approved by Contracting Officer, the Architect/Engineer (A/E) shall have responsibility for providing design revision. CCxR documents the resolution process.
3) Once interpretation and resolution have been decided, the appropriate party corrects deficiency and notifies CxA that equipment is ready to be retested. CCxR reschedules test and test is repeated until satisfactory performance is achieved.

3. Cost of Retesting: Costs for retesting shall be charged to the Contractor.

3.8 OPERATIONS AND MAINTENANCE TRAINING

A. Training: Develop Training Plan. Coordinate and execute training programs with CxA.

1. Stress and enhance the importance of system interactions, troubleshooting, and long-term preventive maintenance and operation programs.

3.9 DEFERRED TESTING

A. Unforeseen Deferred Tests: If the test cannot be completed due to building structure, required occupancy condition, or other deficiency, functional testing may be delayed upon recommendation of CxA and 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 sequences of operation.
2. Update O&M manuals and Project Record Drawings as necessary due to testing.

3.10 EQUIPMENT & SYSTEM SCHEDULE

A. Commissioned Equipment and Systems List: Following is a list of systems and equipment to be commissioned organized by the system. It includes the percentage of each category that will undergo testing. The intent is to provide an overall summary of commissioned equipment and systems and not a comprehensive list. Refer to applicable specification sections for more information.

COMMISSIONED EQUIPMENT AND SYSTEMS LIST			
SYSTEM	**EQUIPMENT**	**CC** (Commissioning Coordinator)	**FPT** (Functional Performance Test)

END OF SECTION

Submittal List with Review Estimate Template

National Park Service (NPS) - Denver Service Center (DSC) | 1-27-21

SUBMITTAL LIST

Park Acronym/Project Management Information System (PMIS) Number: **SEKI 317446**

Project Title: **Rehabilitate Ash Mountain & Buckeye Wastewater Treatment Plants**

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						
	1.3.C	List of employees needing website access		X						
	1.4.A	General: RFI		X						
	1.6.C.5	Pollution Prevention (P2) practices		X						
	1.6.C.6	Compliance with environmental regulations		X						
01 32 16	Construction Progress Schedule									
	1.3.B	Schedule of Values		X						
	1.3.C	Construction Baseline Schedule				X				
	1.3.D	CPM Reports		X						
	1.3.E	Construction Schedule updates				X				
	1.3.F	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 13.22	Archeological Protection									
	1.3.A	Daily Work Schedule		X						
01 35 23	Safety Requirements									
	1.2.A	Accident Prevention Plan		X						
	3.6.A	Safety Meeting Minutes		X						
01 35 43.13	Environmental Procedures for Hazardous Materials									
	1.7.A	Hazardous Materials and Waste Work Plan		X						
	1.7.B; 3.2.A	Hazardous Materials and Waste Report		X						
01 35 46	Indoor Air Quality Management									
	1.3.A	Indoor Air Quality (IAQ) Management Plan		X						
	1.3.B.1	Material Safety Data Sheets			X	X			X	
01 35 91	Historic Preservation Treatment Procedures									
	1.3.A	Historic Preservation Treatment Plan		X						
	1.3.B	Alternative Methods and Materials		X						
	1.3.C	Photographs or Videotape				X				X
01 40 00	Quality Requirements									
	1.4.A	Quality Control Plan		X						
	1.4.B	Testing Agency 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							

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	1.6.D	Certified written test reports, inspections and other Quality Control services.		X						X
01 57 19.11	Indoor Air Quality Management									
	1.4.A	Indoor Air Quality (IAQ) Management Plan		X						
	1.4.B	Product Data			X				X	
	1.4.C	Inspection and Test Reports		X						
01 57 23	Under-An-Acre Pollution Prevention									
	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	
01 73 29	Cutting and Patching									
	1.2.A	Cutting and Patching Plan		X						
01 73 40	Execution									
	1.2.A	Certificates	X							
	1.2.B	Landfill Receipts	X							
	1.2.C	Quantity Surveys		X						
01 74 19	Construction Waste Management & Disposal									
				X						
	1.4.A	Project Waste Management Plan Worksheet								
	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	LEED letter template		X						
	1.4.I	Waste Management Coordinator Qualifications				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 78 23	Operation and Maintenance Data									
	1.2.A	Operation and Maintenance Manuals			X				X	
01 79 00	Demonstration and Training									

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	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	Construction Indoor Air Quality (IAQ) Management Plan		X						
	1.3.B.4	Low Emitting Materials - Adhesives and Sealants Product Data			X				X	
	1.3.B.5	Low Emitting Materials - Paints and Coatings Product Data			X				X	
	1.3.B.6	Low Emitting Materials - Flooring Product Data			X				X	
	1.3.B.7	Biopreferred Product List		X						
01 91 14	Total Building Commissioning									
	1.6.A	Two (2) Week look-ahead schedules		X						
	1.6.B	Certificates of Readiness	X							
	1.6.C	Contractor’s Commissioning Representative Qualifications				X				
	1.6.D	Commissioning Plan		X						
	1.6.E	Pre-functional checklists		X						
	1.6.F	Owner’s project requirements				X				
	1.6.G	Functional performance test forms		X						
	1.6.H	List of test instrumentation, equipment, and monitoring devices		X						
	1.6.I	Deficiency Report and Resolution Record		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						
02 41 16	Structure Demolition									
	1.2.B	Schedule of demolition				X				
02 41 19	Selective Demolition									
	1.3.A	Schedule of work and methods				X				
03 11 13	Cast-in-Place Concrete Forms									
	1.3.B	Shop Drawings & Engineering Data						X		
	2.1.B	Expansion/Contraction Joints					X			
03 15 10	Concrete Accessories - Epoxy Anchors									
	1.3.B	Manufacturer’s material specifications			X				X	
	1.3.C	Manufacturer’s technical datasheet			X				X	
	1.3.D	Manufacturer's recommendations for storage and installation			X				X	
03 21 00	Concrete Reinforcing Steel									
	1.3.B	Supplier Certification that steel meets minimum requirements			X				X	
03 30 00	Cast-In-Place Concrete Site Elements									
	1.3.A	Test Results	X							
	1.3.B	Structural Calculations signed and sealed by current PE or SE licensee		X						

SUBMITTAL LIST

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03 31 00	Normal Weight Structural Concrete									
	1.4.B.1	Concrete Mix Design	X							
	1.4.B.2	Delivery Tickets		X						
03 40 00	Precast Concrete Items									
	1.3.A.1	Shop Drawings						X		
	1.3.A.2	Structural Calculations signed and sealed by current PE or SE licensee		X						
	1.3.A.3	Placement Drawings							X	
	1.3.A.4	Anti-buoyancy calculations		X						
	1.3.A.4	Reinforcement Schedule		X						
	1.3.A.7	Manhole lids rated for H-20 Loading			X					
	1.3.A.8	Non-shrink Grout Manufacturer's Data			X					
03 82 13	Concrete Core Drilling									
	1.4.B	Concrete Coring Procedure				X				
	1.4.C	Procedure to repair cut reinforcement				X				
	1.4.D	Core location descriptions with cores to CO					X			
05 05 23.16	Structural Welding									
	1.2.A.1	Welder Quality Assurance Plan				X				
	1.2.A.2	Welder, Welding Operator, and Tacker Qualification				X				
	1.2.A.3	Welding Electrodes and Rods					X			
	1.2.A.4	Nondestructive Testing Weld Inspection Log		X						
05 50 00	Product Data									
	1.3.B	Product Data			X				X	
	1.3.C	Shop Drawings						X		
05 50 16	Miscellaneous Metal for Utilities									
	1.5.B	Product Data			X				X	
05 51 19	Metal Grating Stairs									
	1.2.A	Shop Drawings						X		
05 52 00	Metal Railings									
	1.2.A	Shop Drawings						X		
05 52 13	Pipe and Tube Railings									
	1.2.A	Shop Drawings						X		
05 53 00	Aluminum Grating									
	1.2.A	Shop Drawings						X		
06 10 00	Carpentry									
	1.4.B	Product Data			X				X	
06 17 53	Shop Fabricated Wood Trusses									
	1.4.B	Shop Drawings						X		
	1.4.C	Structural Calculations signed/sealed by current CA PE		X						
	1.4.D	Certificate of Conformance to Codes	X							
06 20 00	Interior Finish Carpentry									
	1.4.B	Low-Emitting Adhesives & Sealant Materials			X				X	

SUBMITTAL LIST

Park Acronym/Project Management Information System (PMIS) Number: **SEKI 317446**

Project Title: **Rehabilitate Ash Mountain & Buckeye Wastewater Treatment Plants**

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
	1.4.C	Finish Wood Samples					X			
07 21 00	Building Insulation (Ash Mtn. Only)									
	1.4.A	Product Data			X				X	
07 25 00	Weather Resistive Barrier System (Ash Mtn. Only)									
	1.4.B	Product Data			X				X	
	1.4.C	Quality Assurance				X				
	1.4.D	Warranty Authorization				X				
07 31 13	Asphalt Shingles									
	1.4.B	Product Data			X				X	
	1.4.C	Samples					X			
	1.4.D	Manufacturers Warranty				X				
	1.4.E	Installer Certification				X				
07 46 46	Fiber-Cement Siding									
	1.3.B	Product Data			X				X	
07 62 00	Sheet Metal Flashing & Trim									
	1.4.B	Product Data			X				X	
	1.4.C	Shop Drawings						X		
	1.4.D	Color Samples for Prefinished Sheet Metal					X			
	1.4.E	Fastener Samples					X			
07 81 00	Firestopping									
	1.3.B	Product Data on Volatile Organic compounds								
	1.3.C	Installer Qualification Data				X				
	1.3.D	Testing Laboratory accreditations	X							
	1.3.E	Manufacturers Literature and Data			X				X	
	1.3.F	Certificates On ability to meet fire ratings	X							
	1.3.G	Manufacturers approval on surfaces, install & applicator	X			X				
07 92 00	Joint Sealers									
	1.3.B.1	Certification Statement of VOC levels of sealants			X				X	
	1.3.B.2	Certification Statement of VOC levels of primers			X				X	
07 95 13	Expansion Joint Cover Assemblies									
	1.5.B	Shop Drawings						X		
08 11 13	Hollow Metal Doors & Frames (Ash Mtn. Only)									
	1.4.A	Product Data			X				X	
	1.4.B	Shop Drawings						X		
	1.4.C	Door Schedule			X				X	
08 14 00	Wood Doors									
	1.3.B	Product Data			X				X	
	1.3.C	Shop Drawings						X		
08 31 00	Access Doors & Panels									
	1.2.A	Product Data			X				X	
	1.2.B	Shop Drawings						X		

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	1.2.C	Warranty				X				
08 54 13	Fiberglass Windows									
	1.4.B	Product Data			X				X	
	1.4.C	Shop Drawings						X		
08 71 00	Door Hardware									
	1.4.B	Finish Hardware Schedule			X				X	
08 80 00	Glazing									
	1.4.B	Product Data			X				X	
	1.4.C	Exterior Insulated Samples					X			
	1.4.D	Single Glazing Samples					X			
08 87 00	Glazing Surface Films									
	1.4.B	Shop Drawings						X		
	1.4.C	Samples					X			
	1.4.D	Operation and Maintenance Data		X					X	
	1.4.E	Mockups					X			
08 90 00	Louvers & Vents									
	1.4.B	Product Data			X				X	
	1.4.C	Shop Drawings						X		
	1.4.D	Sample					X			
09 29 00	Gypsum Board Assembly (Ash Mtn. Only)									
	1.4.B	Product Data			X				X	
09 65 00	Resilient Flooring (Ash Mtn. Only)									
	1.4.B	Samples					X			
09 72 00	Plastic Sheet Wainscots									
	1.4.B	Product Data			X				X	
	1.4.C	Sample					X			
09 90 00	General Paints Concrete Stain & Coatings									
	1.4.B	Product Data			X				X	
	1.4.C	Paint Schedule		X						
	1.4.D	Paint Drawdown Samples					X			
09 96 56	High-Performance Coatings									
	1.4.B	Product Data			X				X	
	1.4.C	Samples					X			
	1.4.D	Schedule				X				
	1.4.E	Manufacturer’s Certificate	X			X				
	1.4.F	Manufacturer’s Instructions			X					
	1.4.G	Quality Assurance Data			X				X	
	1.4.H	Qualifications Statements				X				
10 14 00	Signage									
	1.4.B	Product Data			X				X	
	1.4.C	Shop Drawings						X		

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			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
	1.4.D	Selection Samples					X			
	1.4.E	Verification Samples					X			
10 44 00	Fire Extinguisher and Brackets (Ash Mtn. Only)									
	1.4.B	Product Data			X				X	
12 32 00	Casework (Ash Mtn. Only)									
	1.4.B	Low Emitting Materials					X			
	1.4.C	Product Data			X				X	
	1.4.D	Shop Drawings						X		
	1.4.E	Samples					X			
13 34 18	Post-Frame Building Systems									
	1.3.A	Product Data			X				X	
	1.3.B	Shop Drawings						X		
	1.3.C	Design Data & Calculations		X						
	1.4.E	Color Samples for Selection					X			
22 05 00	Common Work Results for Plumbing									
	1.4.A	Product Data			X				X	
	1.4.B	Welding Certificates	X			X				
22 05 19	Meters & Gauges for Plumbing Piping									
	1.4.A	Manufacturers Literature and Data			X				X	
	1.4.B	Product Data			X				X	
22 05 23	General Duty Valves for Plumbing Piping									
	1.4.A	Product Data for each type of valve indicated			X				X	
22 05 29	Hangers & Supports for Plumbing Piping & Equipment									
	1.5.A	Product Data			X				X	
	1.5.B	Shop Drawings						X		
	1.5.C.1	Detail trapeze hanger fabrication and assembly			X	X		X	X	
	1.5.C.2	Trapeze hanger Design Calculations		X						
	1.5.D	Welding Certificates	X							
22 05 48	Vibration & Seismic Controls for Plumbing Piping & Equipment									
	1.5.A	Product Data			X				X	
	1.5.B.1	Design Calculations		X						
	1.5.B.2	Riser Support Diagrams		X				X		
	1.5.B.3	Vibration Isolation Base Details						X		
	1.5.B.4	Seismic-Restraint Details						X		
	1.5.C	Coordination Drawings						X		
	1.5.D	Welding Certificates	X							
	1.5.E	Qualification Data				X				
	1.5.F	Field quality-control test reports	X							
	1.5.G	Operation and Maintenance Data		X					X	
22 05 53	Identification for Plumbing Piping & Equipment									
	1.3.A	Product Data			X				X	

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			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
	1.3.B	Samples					X			
	1.3.C	Equipment Label Schedule		X						
	1.3.D	Valve Numbering Scheme		X						
	1.3.E	Valve Schedules		X						
22 07 00	Plumbing Insulation									
	1.3.A	Product Data			X				X	
	1.3.B	Shop Drawings								
	1.3.C	Samples					X			
	1.3.D	Installer Qualification Data				X				
	1.3.E	Material Test Report		X						
	1.3.F	Field Quality Control Report		X						
22 11 00	Facility Water Distribution (Ash Mtn. Only)									
	1.3.B	Product Data			X				X	
22 11 19	Domestic Water Piping Specialties									
	1.3.A	Product Data			X				X	
	1.3.B	Shop Drawings						X		
	1.3.C	Field Quality Control Reports		X						
	1.4.E	Operation & Maintenance Data		X					X	
22 13 13	Facility Sanitary Sewers									
	1.4.A	Product Data			X				X	
	1.4.B	Manufacturer’s Certificate	X			X				
	1.4.C	Manufacturer’s Instructions			X					
22 13 16	Sanitary Waste & Vent Piping									
	1.5.A	Product Data			X				X	
	1.5.B	LEED Product Data		X					X	
	1.5.C	Shop Drawings						X		
	1.5.D	Field quality-control inspection and test reports	X	X						
22 40 00	Plumbing Fixtures (Ash Mtn. Only)									
	1.4.A	Product Data			X				X	
	1.4.B	LEED Submittal				X				
	1.4.C	Shop Drawings						X		
	1.4.D	Operations and Maintenance Data		X					X	
	1.4.E	Warranty				X				
23 05 00	Common Work Results for HVAC									
	1.4.A	Product Data			X				X	
	1.4.B	Welding Certificates	X							
23 34 23	HVAC Power Ventilators (Ash Mtn. Only)									
	1.4.A	Product Data			X				X	
	1.4.B	Shop Drawings						X		
	1.4.C	Coordination Drawings						X		
	1.4.D	Certified Factory & Construction Test Reports	X							

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			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
	1.4.E	Operation and Maintenance Manuals		X					X	
23 82 39	Unit Heaters									
	1.4.A	Product Data			X				X	
	1.4.B	LEED Product Data			X				X	
	1.4.C	Shop Drawings						X		
	1.4.D	Coordination Drawings			X				X	
	1.4.E	Samples for Color Selection					X			
	1.4.F	Samples for Verification					X			
	1.4.G	Seismic Certification	X	X		X				
	1.4.H	Field Quality-Control Test Report	X	X						
	1.4.I	Operation & Maintenance Data			X				X	
26 05 00	Common Work Results for Electrical									
	1.4.A	Product Data – Sleeve Seals			X				X	
26 05 19	Low Voltage Electrical Power Conductors & Cables									
	1.4.A	Product Data			X				X	
	1.4.B	Field Quality-Control Test Reports	X	X						X
26 05 26	Grounding & Bonding for Electrical Systems									
	1.3.A	Product Data			X				X	
26 05 29	Hangers & Supports for Electrical Systems									
	1.5.A	Product Data			X				X	
26 05 33	Raceway & Boxes for Electrical Systems									
	1.4.A	Product Data			X				X	
	1.4.B	Shop Drawings						X		
26 05 48	Seismic Requirements for Electrical Systems									
	1.5.A	Product Data		X					X	
	1.5.B	Coordination Drawings						X		
	1.5.C	Welding Certificates	X							X
	1.5.D	Qualification Data		X						X
	1.5.E	Field Quality-Control Test Reports	X	X						
26 05 53	Identification for Electrical Systems									
	1.3.A	Product Data			X				X	
26 22 00	Low-Voltage Transformers									
	1.3.A	Product Data			X				X	
	1.3.B	Shop Drawings						X		
	1.3.C	Seismic Certification	X	X		X				
	1.3.D	Qualification Data - Testing Agency				X				X
	1.3.E	Source Quality Control Test Reports		X						
	1.3.F	Field Quality-Control Test Reports	X	X						
	1.3.G	Operation and Maintenance Data			X				X	
26 24 16	Panel Boards									
	1.3.A	Product Data			X				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
	1.3.B	Shop Drawings						X		
	1.3.C	Field quality-control reports		X						X
	1.3.D	Panelboard schedules				X				
	1.3.E	Operation and Maintenance 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	X						
	1.4.E	Operation and Maintenance Data			X				X	
26 28 13	Fuses									
	1.3.A	Product Data			X				X	
	1.3.B	Operation and Maintenance Data			X				X	
26 28 16	Enclosed Switches & Circuit Breakers									
	1.4.A	Product Data			X				X	
	1.4.B	Shop Drawings						X		
	1.4.C	Operation and Maintenance Data			X				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							
	1.5.D	Source Quality-Control Reports		X						
	1.5.E	Operation and Maintenance Data			X				X	
	1.5.F	Load-current & Overload-Relay Heater List			X				X	
	1.5.G	Load-Current & List Settings of Adjustable Overload Relays			X				X	
26 32 13.16	Propane Drive Generator Sets									
	1.6.A.3	Product Data			X				X	
	1.6.A.4	Shop Drawings						x		
	1.6.A.5	Computer Calculations		X						
	1.6.A.6	Manufacture Qualification/Experience Data			X					X
26 36 23	Automatic Transfer Switches									
	1.5.A	Product Data			X				X	
	1.6.A	Field quality-control reports		X						
	1.6.B.1	Operation and Maintenance Data			X				X	
	1.6.B.3	Field Certifications			X				X	
26 51 00	Interior Lighting									
	1.4.A	Product Data			X				X	
	1.4.B	Product Certificates	X							
	1.4.C	Field quality-control reports		X						
	1.4.D	Operation and Maintenance Data			X				X	
	1.4.E	Warranty			X				X	

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26 56 00	Exterior Lighting									
	1.4.A	Product Data			X				X	
	1.4.B	Field quality-control reports		X						
	1.4.C	Operation and Maintenance Data			X				X	
	1.4.D	Warranty			X				X	
31 10 00	Site Clearing									
	1.2.A	Certifications and Testing	X	X		X				
31 22 19	Finish Grading									
	1.3.A	Quality Control/Assurance	X							
31 23 16.10	Importing Soils & Fill Materials									
	1.3.B	Commercial Source Certification	X							
	1.3.C	Independent Testing Report & Certification	X	X						
	1.3.D	Certification & Gradation Report	X	X						
	1.3.E	Independent Testing Laboratory Qualification		X		X				
	1.3.F	Independent Field Testing Service Qualification		X		X				
31 23 33	Excavation & Fill									
	1.4.B	Sheeting and Shoring Plan		X						
	1.4.C	A written description of barricading, shoring, cribbing, bracing, and sloping precautions		X						
	1.4.D	A written procedure for trench dewatering and disposal of fluidized materials removed		X						
	1.4.E	Potholing Report		X						
	1.4.F	Qualifications of Independent Testing Laboratory		X		X				
	1.4.G	Qualifications of Independent Field Testing Service		X		X				
	1.4.H	Materials Test Results and Certifications	X							
	1.4.I	Field Testing Report		X						
	1.4.J	A written description of materials proposed for imported backfill		X						
	3.1.A.2X	Groundwater Influence Dewatering Procedure		X						
31 23 33.20	Restoration of Surfaces									
	1.3.A	Restoration Operations Schedule		X						
31 25 00	Erosion & Sediment Control									
	1.3.B	Quality Assurance / Control Plan		X						
32 11 23	Aggregate Base Courses									
	1.3.B	Commercial Source Certification	X							
	1.3.C	Independent Testing Report & Certification	X	X						
	1.3.D	Qualifications of Independent Testing Laboratory		X		X				
	1.3.E	Qualifications of Independent Field Testing Service		X		X				
	1.3.F	Quality Control Reports		X					X	
32 12 16	Asphalt Paving									
	1.3.B	Qualifications of Independent Testing Laboratory		X		X				
	1.3.C	Qualifications of Independent Field Testing Service		X		X				

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	1.3.D	Certifications and Laboratory Testing Results	X			X				
33 00 00	Pipe & Pipe Fittings: General Statement									
	1.4.A	Shop Drawings						X		
	1.4.B	Certifications & Testing for Contractor Quality Control	X	X		X				
33 01 30.40	Sewer & Manhole Testing									
	1.3.A	Hydrostatic Testing Report		X						
33 01 30.63	Polyurea Interior Coating (Manholes, Tanks & Vaults)									
	1.3.B.1	Coating Manufacturer Data Sheets			X					
	1.3.B.2.a	Certification of Factory Applicator	X			X				
	1.3.B.2.b	Factory Quality Assurance Manager	X			X				
	1.3.B.3	Polyurea Coating Systems Factory Installed Application Plan		X						
	1.3.B.4	Third-Party Test Results Verifying Properties Of Coating Materials		X						
	1.3.B.5	Factory Applicator's procedures			X				X	
	1.3.B.6	Certification of Factory Applicator	X							
33 05 63	Concrete Vaults and Chambers									
	1.4.A	Shop Drawings						X		
	1.4.B	Certifications signed and sealed by current SE licensee	X	X						
33 08 30	Commissioning of Sanitary Sewerage Utilities									
	1.3.A	Hydrostatic testing test report	X	X		X				
33 31 13	Sanitary Sewer Pipe									
	1.3.A	Sanitary Sewer Pipe Material Certifications	X							
33 33 33	Temporary Sewer Bypass Pumping									
	1.3.A	Bypass Pumping Plan		X						
	1.3.B	Outline for SPPP Development		X						
	1.3.C	Plan to handle existing Wastewater Flows		X						
40 05 19	Ductile Iron Process Pipe									
	1.5.B	Product Data			X				X	
	1.5.C	Shop Drawings						X		
40 61 13	Process Control System - General									
	1.4	Shop Drawings						X		
40 61 21	Process Control System - Testing									
	1.2.B	Functional Test Documentation	X	X		X				
40 66 33	Process Control System - Conductors									
	1.3.A	Product Data			X				X	
	1.3.B	Field quality-control reports		X						
	1.3.C	Operation and Maintenance Data			X				X	
40 43 26	Gauge Pressure Transmitter (Ash Mtn. Only)									
	1.3.A	Product Data			X				X	
46 53 00	Biological Treatment Sytem									
	1.3	Shop Drawings						X		

Closeout and Operation & Maintenance (O&M) Requirements **Template**

National Park Service (NPS) - Denver Service Center (DSC) | 1-27-21

Topic	Specification Section	Requirement	Submittal Date	Completed	Received by Park
Project Record Drawings	01 32 33	Complete set of digital image electronic files as a Project Record Document			
	01 77 00	Final Project Record Documents			
	40 05 19	Record of actual locations of piping, valves, actuators, and other appurtenances, field testing, connections, and centerline elevations			
System and Training	01 77 00	Instruct NPS personnel - O&M & adjustment of all products, equipment, & systems			
Tools Spare Parts Equipment	01 77 00	Provide Special tools			
	26 28 13	One extra fuse for each size and type			
	46 53 00	AX Lateral brush cleaning kit, sheet cleaning wand, field test kit, Cartridge cleaning cradle and brush, scum measuring device, and sludge measuring device			
Extra Stock	01 77 00	Deliver spare parts, extra materials, etc.			
	09 90 00	One (1) Gallon of each color of each coating type			
Reports	01 35 43.13	Hazardous Material & Waste Report or Letter sregarding contaminated materials			
	01 40 00	Test Reports			
	01 74 19	Project Waste Management Solid Waste Disposal Worksheet			
	01 77 00	NPS required forms for occupancy, Fire Sprinkler/Alarm acceptance, and any other similar forms or certificates			
	01 77 00	Environmental Record Documents			
	01 77 00	Pre-functional checklists and functional performance testing reports			
	01 77 00	Test and balance report			
	01 91 14	Closeout documents (record documents & drawings), O & M data, & LEED documents			
	22 11 00	Record of actual locations of valves and equipment			
	26 32 13.16	Field Test Report			
	40 05 19	Record of actual locations of piping, valves, and other appurtenant equipment			
	40 61 13	Functional Test Documentation of Process Controls			
	40 61 21	Provide documentation of all conditions and alarms tested and provided			
Keys & Keying Schedule	01 77 00	Keys and Keying Schedule			
O&M Data Warranties Guarantees	01 77 00	Warranties, guarantees, workmanship bonds, final certifications, and similar documents			
	01 77 00	Posted Operating Instructions			
	01 78 23	Digital and Hard Copies of O&M Manuals			
	26 32 13.16	Digital and Hard Copies of O&M Manuals			
	07 25 00	Weather-Resistive Barrier ten (10) Year Warranty			
	07 31 13	Twenty (20) Year Shingle Warranty			
	07 62 00	Twenty (20) Year Pre-Finished Sheet Steel Warranty			
	07 90 00	Five (5) Year Watertight Warranty			
	08 71 00	Door Hardware Warranties			
	09 96 56	One (1) Year from Date of Application			
	22 05 48	O & M Data			
	22 11 00	O & M Data			
	23 34 23	O & M Data			
	23 82 39	O & M Data			
	26 22 00	O & M Data			
	26 24 16	O & M Data			
	26 24 16	Manufactrer's Five (5) Year Warranty			
	26 27 26	O & M Data			
	26 28 13	O & M Data for Fuses			
	26 28 16	O & M Data for Enclosed Switches & Circuit Breakers			
	26 29 23	Three (3) Years Warranty from Substantial Completion Date			
	26 29 23	O & M Data			
	26 51 00	O & M Data			
	26 51 00	Seven (7) Years Warranty from Substantial Completion Date			
	26 56 00	O & M Data			
	26 56 00	Five (5) Years Warranty from Substantial Completion Date			
	33 01 30.63	Ten (10) Year Performance Limited Warranty			
	40 61 13	O & M Manuals			
	40 66 33	O & M Data			
	46 53 00	Three (3) Years Warranty from System Startup			
	46 53 00	O & M Manuals			