SECTION 01 11 00

SUMMARY OF WORK

08/15

PART 1 GENERAL

1.1 SUBMITTALS

Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals Salvage Plan

1.2 WORK COVERED BY CONTRACT DOCUMENTS

1.2.1 Project Description

The work includes full demolition of B13140, Thor Dormitory Building, and all incidental related work as described in the Performance Work Statement (PWS).

1.2.2 Location

The work is located at the Vandenberg Space Force Base, approximately as indicated. The exact location will be shown by the Contracting Officer.

1.3 OCCUPANCY OF PREMISES

Building(s) will not be occupied during performance of work under this Contract. If needed, occupancy notifications will be posted in a prominent location in the work area.

Before work starts, arrange with the Contracting Officer a sequence of procedures, means of access, space required for storage of materials and equipment, and use of approaches, corridors, and stairways.

1.4 EXISTING WORK

In addition to "FAR 52.236-9, Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements":

a. Remove or alter existing work in such a manner as to prevent injury or damage to any portions of the existing work which remain.

b. Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as approved by the Contracting Officer. At the completion of operations, existing work must be in a condition equal to or better than that which existed before new work started.

1.5 LOCATION OF UNDERGROUND UTILITIES

Obtain AF Form 103 permits prior to start of excavation and comply with Installation requirements for locating and marking underground utilities. Contact local utility locating service a minimum of 48 hours prior to excavating, to mark utilities, and within sufficient time

required if work occurs on a Monday or after a Holiday. Verify existing utility locations indicated on contract drawings, within area of work.

1.5.1 Notification Prior to Excavation

Notify the Contracting Officer at least 5 days prior to starting excavation work.

1.6 SALVAGE MATERIAL AND EQUIPMENT

Items designated by the Contracting Officer to be salvaged remain the property of the Government. Segregate, itemize, deliver and off-load the salvaged property at the Government designated storage area located within 20 miles from the construction site.

Provide a Salvage Plan, listing material and equipment to be salvaged, and their storage location. Maintain property control records for material or equipment designated as salvage. Use a system of property control that is approved by the Contracting Officer. Store and protect salvaged materials and equipment until disposition by the Contracting Officer.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- END OF SECTION –

SECTION 01 14 00

WORK RESTRICTIONS

11/22, CHG 5: 05/25

PART 1 GENERAL

1.1 SUBMITTALS

Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals List of Contact Personnel; Personnel List; Vehicle List

1.2 SPECIAL SCHEDULING REQUIREMENTS

Permission to interrupt any Activity roads, or utility service must be requested in writing a minimum of 15 calendar days prior to the desired date of interruption.

1.3 CONTRACTOR ACCESS AND USE OF PREMISES

1.3.1 Activity Regulations

Ensure that Contractor personnel employed on the Activity become familiar with and obey Activity regulations including safety, fire, traffic and security regulations. Keep within the limits of the work and avenues of ingress and egress. Wear appropriate personal protective equipment (PPE) in designated areas. Do not enter any restricted areas unless required to do so and until cleared for such entry. Ensure all Contractor equipment, including delivery vehicles, are clearly identified with their company name.

a. Subcontractors and Personnel Contacts: Provide a list of contact personnel of the Contractor and subcontractors including addresses and telephone numbers for use in the event of an emergency. As changes occur and additional information becomes available, correct and change the information contained in previous lists.

b. Identification Badges and Installation Access: Application for and use of badges will be as directed. Furnish a completed EMPLOYMENT ELIGIBILITY VERIFICATION (DHS FORM I-9) form for all personnel requesting badges. This form is available at http://www.uscis.gov/portal/site/uscis by searching or selecting Employment Verification (Form I-9). Immediately report instances of lost or stolen badges to the Contracting Officer. Personnel must be able to meet REAL ID Act of 2005 requirements to obtain access to base.

c. No Smoking Policy: Smoking is prohibited within and outside of all buildings on installation, except in designated smoking areas. This applies to existing buildings, buildings under construction and buildings under renovation. Discarding tobacco materials other than into designated tobacco receptacles is considered littering and is subject to fines. The Contracting Officer will identify designated smoking areas.

1.3.1 Working Hours

Regular working hours must remain between 7:30 a.m. and 4:30 p.m., unless requested in advance and authorized by the CO, Monday through Friday, excluding Federal holidays. If the Contractor desires to work during periods other than listed, they shall make their request to the Contracting Officer 3-workdays in advance. If the Government inspection forces are not required or such forces are reasonable available, the Contracting Officer may authorize the Contractor to perform work during periods other than normal duty hours/days; however if Government inspectors are required to perform in excess of their normal duty hours/days solely for the benefit of the Contractor, actual cost of inspection at overtime rates will be charged to the Contractor. These adjustments to the Contract price may be made periodically as directed by the Contracting Officer. Contractor personnel must provide 4SLS/MAF, 5- 4352, 3 days' notice prior to the requested day of entry to the SLC-4 complex.

1.3.2 Base Exercises

Work during Vandenberg Space Force Base launches may be slowed down or shut down completely. The contractor's progress schedule shall represent delays due to Framelight periods. The most common work stoppage is a “Framelight” period. Work is restricted in designated areas beginning 48 hours prior to scheduled liftoff and up to 24 hours “post liftoff”.

Framelights may be extended due to weather and/or mission needs with little to no notification prior to their expected release date and time. In addition, the Government may combine multiple missions into longer Framelight periods beyond the common duration. During any Framelight period, we suspend all high voltage switching and any excavation within 15 feet of underground utilities unless a site-specific waiver is obtained.

The Government anticipates approximately one (1) Framelight period every 10-13 days, but the operations tempo may increase or decrease in any given month. All costs associated with mandatory work stoppages and Framelight periods for the duration of the project must be included in the bid price. The Contractor is responsible for researching and planning Framelight periods during the entire duration of its proposed schedule. No additional compensation or extension to the Contract performance period will be given as a result of an average of quantity of work stoppages.

The Contractor may be required to, without advance notice, move work to an alternate location (if possible). The Contractor shall be prepared to increase or decrease their work forces with appropriate trades to perform work in the relocated work areas at no additional cost to the Government.

The Contractor shall notify the Contracting Officer and 30th CES Project Manager in writing by the close of the next business day when a mandatory work stoppage occurs for recording purposes. Otherwise, the work stoppage will not be credited to the Contractor.

1.3.3 Utility Cutovers and Interruptions

a. Schedule all utility outages and secure approval of these outages from the CO at least five workdays in advance of the outage.

b. Ensure that new utility lines are complete, except for the connection, before interrupting existing service.

c. Any project involving contact with connection to or demolition of any water or sewer systems must contact both American Water and 30CES/CEO to coordinate efforts. Typically, all work on these systems must be performed by American Water as system owner. All American Water standards shall be followed, and all requirements shall be met, with compliance documented through the 30 CES PM and CO.

American Water (805) 734-0043

30CES/CEOER (805) 606-0739

d. Utilities directly required to complete the Contract will be provided, if available, to the Contractor without charge unless indicated otherwise. Any temporary connections or lines that are required shall be installed, maintained, and removed by the Contractor at their own expense and in a manner satisfactory to the 30CES PM and 30CES/CEO. Before any temporary connections are made, the contractor shall obtain approval from the Utility Shop (30CES/CEOIU, (805) 606-5885) for gas, water and sewer connections and Exterior Electric (30CES/CEOIE, (805) 606-2241) for electrical connections. Contractor shall remove all temporary utilities before final acceptance.

e. Any excessive usage or abuse of base provided utilities may result in revocation of this privilege at the CO or 30CES PM’s discretion with written notification. Any further utility costs after the date of revocation will be solely the contractor’s responsibility to obtain and pay for.

1.4 SECURITY REQUIREMENTS

The Contractor shall obtain all passes, badges, decals, or other identification media required for security clearance to areas where work is expected to be performed. Obtain vehicle and individual identification media at the Pass and Registration Section, 30 SFS/S5SP, Building 11777, (805) 606-1853. Identification media shall be surrendered to the Pass and Registration Section upon termination of the Contract, or termination of an individual’s employment

with the Contractor. The Contractor must notify the CO when all Identification Media is surrendered before final payment is issued.

If work is to be performed in a restricted controlled area, the Contractor must comply with the entry control policies of that area. The Contractor and their employees are required to have at least a National Agency Check. In the event the Contractor cannot provide personnel able to comply with entry requirements, they may be terminated in accordance with the terms and conditions of the contract. It is the Contractor's responsibility to coordinate with the appropriate security officials/area owner at each construction site at least 5 workdays prior to start of Contract performance. For information on security services, contact personnel Security Section, SLD30/IP, (805) 605-0766.

1.4.1 Personnel List

Submit for approval, at least 15 days prior to the desired date of entry, an original alphabetical list of personnel who require entry into Government property to perform work on the project. Personnel must be able to meet REAL ID Act of 2005 requirements to obtain access to base. Furnish for each person:

a. Name

b. Date and place of birth

c. Citizenship

d. Home address

e. Social security number

f. Current pass expiration date

g. Naturalization or Alien Registration number

1.4.2 Personnel EAL Submittal

When work is in a secure location, a second personnel list in the form of an EAL will be required to be submitted by the contractor. The EAL format will be provided by the government. Documents Acceptable for Proof of Citizenship:

a. Birth registration card

b. Certificate of live birth, birth certificate

c. Certificate of Naturalization

d. Certificate of registration

e. DD-214 (Must Cite Birthplace)

f. DD Form 4 (Contract for Enlistment and Must Cite Birthplace)

g. DD 1966 (Application for Enlistment)

h. Military discharge papers (must cite birthplace)

i. Delayed birth certificate

j. Hawaii certificate of foreign birth

k. Hospital birth certificate

l. Marriage license certificate

m. Merchant marine certificate

n. Military officer ID card

o. Notification of birth registration

p. USA passport

1.4.3 Pass Denial

The following is a list of causes for Barment and Installation Pass Denial:

a. Is known to be or reasonably suspected of being a terrorist or belongs to an organization with known terrorism links/support.

b. Is individual's name appears on any Federal or State agency's watch list or hit list for criminal behavior or terrorist activity.

c. The individual has knowingly and willfully engaged in acts or activities designed to overthrow the U.S. Government by force.

d. The individual has an active warrant.

e. The individual is barred by another DoD Installation/Activity.

f. The individual has any conviction for espionage, sabotage, treason, terrorism, or murder.

g. The individual has been convicted of a firearms or explosive violation.

h. The individual has been convicted of sexual assault, armed robbery, rape, child molestation, child pornography, trafficking in humans, drug possession with intent to sell, or drug distribution.

i. Has a felony conviction within the last 10 years.

j. Persons with an arrest for the above offenses, but where no disposition is listed on the criminal history report, will be required to provide legal documents showing disposition. If the disposition or severity is dismissed, not filed or adjudicated, the pass may be issued. If the disposition or severity is guilty or not provided, the pass will be denied.

k. Any situation not covered in paragraphs a-j that is deemed to have a potential detrimental impact on good order or discipline may be grounds for pass denial.

1.4.4 Base Pass Rebuttal

Base pass denial exceptions may be approved on a case-by-case basis by the 30 SFS/CC, 30 MSG/CC, 30 MSG/CD, 30 SLD/CC or 30 SLD/CV. Request for reconsideration/rebuttal, individuals denied a base pass may present factors in extenuation, mitigation or defense to the 30 SFS Police Services office in a letter of rebuttal. The 30 SFS/S3 superintendent will coordinate and staff the rebuttal package through the 30 SFS/CC, 30 SLD/JA and to the 30 MSG/CC or 30 MSG/CD, who will determine the final disposition on the individual's request for a base pass. When all rebuttal actions are complete, the package will be forwarded to 30 SFS/S3L for disposition and filing.

1.4.5 After Contract Completion

Ensure the return of contractor passes, restricted area badges (RABs), Line Badges and Common Access Cards (CACs) from contractors upon completion of the contract or when individual contract employees are no longer authorized to have them. The contracting officer will ensure these media items are turned over to personnel at the issuing office.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- END OF SECTION –

SECTION 01 20 00.00 20

PRICE AND PAYMENT PROCEDURES

11/11

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

Not Applicable

U.S. ARMY CORPS OF ENGINEERS (USACE)

EP-1110-1-8 (2009) Construction Equipment Ownership and Operating Expense Schedule

1.2 SUBMITTALS

Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals Schedule of Prices

1.3 SCHEDULE OF PRICES

1.3.1 Data Required

This contract requires the use of a cost-loaded Network Analysis Schedule (NAS). The information required for the Schedule of Prices will be entered as an integral part of the Network Analysis Schedule. Within 15 calendar days of notice of award, prepare and deliver to the Contracting Officer a Schedule of Prices (construction contract) as directed by the Contracting Officer. Provide a detailed breakdown of the contract price, giving quantities for each of the various kinds of work, unit prices, and extended prices. Costs shall be summarized and totals provided for each construction category.

1.3.2 Payment Schedule Instructions

Payments will not be made until the Schedule of Prices has been submitted to and accepted by the Contracting Officer. The Schedule of Prices must be fully developed with detailed construction line items. The complete design and construction Schedule of Prices must be submitted and accepted prior to starting construction work.

a. Primary Facilities Cost Breakdown: Identify the cost for site work and include incidental work to the five ft line. Identify costs for the building(s) and include work out to the five ft line. Work to the five ft line shall include construction encompassed within a theoretical line five ft from the face of exterior walls and shall include attendant construction, such as pad mounted HVAC cooling equipment, cooling towers, and transformers placed beyond the 5 ft line.

b. Supporting Facilities Cost Breakdown: Defined as site work, including incidental work, outside the five foot line.

1.3.3 Real Property Assets

The Government will provide the Draft DD Form 1354, Transfer and Acceptance of Military Real Property filled in with the appropriate Real Property Unique Identifiers (RPUID) and related construction Category Codes to summarize the designed real property assets that apply to this contract.

The Contractor shall meet with the Contracting Officer and the Real Property Accounting Officer during the Pre-Construction Meeting and the Project Closeout Meetings to modify and include any necessary changes to the DD Form 1354. The Contractor shall provide the Interim DD Form 1354 that uses the appropriate division of the RPUIDs/ Category Codes to represent the final constructed facility and include all associated cost. Coordinate the Contractor's Price and Payment structure with the structure of the RPUIDs/ Category Codes.

Divide detailed asset breakdown into the RPUIDs and related construction Category Codes and populate associated costs which represent all aspects of the work. Where assets diverge into multiple RPUID/ Category Codes, divide the asset and provide the proportion of the assets in each RPUID/ Category Code. Assets and related RPUID/ Category Codes may be modified by the Contracting Officer as necessary during course of the work.

Coordinate identification and proportion of these assets with the Government Real Property Accounting Officer.

Cost data accumulated under this section is required in the preparation of DD Form 1354.

1.3.4 Schedule Requirements for HVAC TAB

The field work Section 23 05 93 TESTING, ADJUSTING, AND BALANCING FOR HVAC shall be broken down in the Schedule of Prices and in the Construction Progress Documentation by separate line items which reflect measurable deliverables. Specific payment percentages for each line item shall be determined on a case-by-case basis for each contract. The line items shall be as follows:

a. Approval of Design Review Report: The TABS Agency is required to conduct a review of the project plans and specifications to identify any feature, or the lack thereof, that would preclude successful testing and balancing of the project HVAC systems. The resulting findings shall be submitted to the Government to allow correction of the design. The progress payment shall be issued after review and approval of the report.

b. Approval of the pre-field engineering report: The TABS Agency submits a report which outlines the scope of field work. The report shall contain details of what systems will be tested, procedures to be used, sample report forms for reporting test results and a quality control checklist of work items that must be completed before TABS field work commences.

c. Season I field work: Incremental payments are issued as the TABS field work progresses. The TABS Agency mobilizes to the project site and executes the field work as outlined in the pre-field engineering report. The HVAC water and air systems are balanced, and operational data shall be collected for one seasonal condition (either summer or winter depending on project timing).

d. Approval of Season I report: On completion of the Season I field work, the data is compiled into a report and submitted to the Government. The report is reviewed, and approved, after ensuring compliance with the pre-field engineering report scope of work.

e. Completion of Season I field QA check: Contract QC and Government representatives meet the TABS Agency at the jobsite to retest portions of the systems reported in the Season I report. The purpose of these tests are to validate the accuracy and completeness of the previously submitted Season I report.

f. Approval of Season II report: The TABS Agency completes all Season II field work, which is normally comprised mainly of taking heat transfer temperature readings, in the season opposite of that under which Season I performance data was compiled. This data shall be compiled into a report and submitted to the Government. On completion of submittal review to ensure compliance with the pre-field engineering report scope, progress payment is issued. Progress payment is less than that issued for the Season I report since most of the water and air balancing work effort is completed under Season I.

1.4 CONTRACT MODIFICATIONS

In conjunction with the Contract Clause "DFARS 252.236-7000, Modification Proposals-Price Breakdown," and where actual ownership and operating costs of construction equipment cannot be determined from Contractor accounting records, equipment use rates shall be based upon the applicable provisions of the EP-1110-1-8.

1.5 CONTRACTOR'S INVOICE AND CONTRACT PERFORMANCE STATEMENT

1.5.1 Content of Invoice

Requests for payment will be processed in accordance with the Contract Clause FAR 52.232-27, Prompt Payment Construction Contracts and FAR

52.232-5, Payments Under Fixed-Price Construction Contracts. The requests for payment shall include the documents listed below.

a. The Contractor's invoice, showing in summary form, the basis for arriving at the amount of the invoice. Form shall include certification by Contractor and Quality Control (QC) Manager.

b. Updated Project Schedule and reports required by the contract.

c. Contractor Safety Self Evaluation Checklist.

d. Other supporting documents as requested.

e. Updated copy of submittal register.

f. Solid Waste Disposal Report

g. Certified Payrolls

h. Invoices not completed in accordance with contract requirements will be returned to the Contractor for correction of the deficiencies.

1.5.2 Submission of Invoices

If DFARS Clause 5252.232-7006 is included in the contract, provide the documents listed in paragraph CONTENT OF INVOICE in their entirety as attachments in Wide Area Workflow (WAWF) for each invoice submitted. The maximum size of each WAWF attachment is two megabytes, but there are no limits on the number of attachments. If a document cannot be attached in WAWF due to system or size restriction, provide it as instructed by the Contracting Officer.

1.5.3 Final Invoice

a. A final invoice shall be accompanied by the certification required by DFARS 252.247.7023 TRANSPORTATION OF SUPPLIES BY SEA, and the

Contractor's Final Release. If the Contractor is incorporated, the Final Release shall contain the corporate seal. An officer of the corporation shall sign, and the corporate secretary shall certify the Final Release.

b. For final invoices being submitted via WAWF, the original Contractor's Final Release Form and required certification of Transportation of Supplies by Sea must be provided directly to the respective Contracting Officer prior to submission of the final invoice. Once receipt of the original Final Release Form and required certification of Transportation of Supplies by Sea has been confirmed by the Contracting Officer, the Contractor shall then submit final invoice and attach a copy of the Final Release Form and required certification of Transportation of Supplies by Sea in WAWF.

c. Final invoices not accompanied by the Contractor's Final Release and required certification of Transportation of Supplies by Sea will be considered incomplete and will be returned to the Contractor.

1.6 PAYMENTS TO THE CONTRACTOR

Payments will be made on submission of itemized requests by the Contractor which comply with the requirements of this section and will be subject to reduction for overpayments or increase for underpayments made on previous payments to the Contractor.

1.6.1 Obligation of Government Payments

The obligation of the Government to make payments required under the provisions of this contract will, at the discretion of the Contracting Officer, be subject to reductions and suspensions permitted under the FAR and agency regulations including the following in accordance with FAR 32.503-6:

a. Reasonable deductions due to defects in material or workmanship;

b. Claims which the Government may have against the Contractor under or in connection with this contract;

c. Unless otherwise adjusted, repayment to the Government upon demand for overpayments made to the Contractor

1.6.2 Payment for Onsite and Offsite Materials

Progress payments may be made to the contractor for materials delivered on the site, for materials stored off construction sites, or materials that are in transit to the construction sites under the following conditions:

a. FAR 52.232-5(b) Payments Under Fixed Price Construction Contracts.

b. Materials delivered on the site but not installed, including completed preparatory work, and off-site materials to be considered for progress payment shall be major high cost, long lead, special order, or specialty items, not susceptible to deterioration or physical damage in storage or in transit to the construction site. Examples of materials acceptable for payment consideration include, but are not limited to, structural steel, non-magnetic steel, non-magnetic aggregate, equipment, machinery, large pipe and fittings, precast/prestressed concrete products, plastic lumber (e.g., fender piles/curbs), transformers, CT cabinets, generators, and high-voltage electrical cable. Materials not acceptable for payment include consumable materials such as nails, fasteners, conduits, gypsum board, glass, insulation, and wall coverings.

c. Materials to be considered for progress payment prior to installation shall be specifically and separately identified in the Contractor's estimates of work submitted for the Contracting Officer's approval in accordance with the Schedule of Prices requirement of this contract. Requests for progress payment consideration for such items shall be supported by documents establishing their value and that the title requirements of the clause at FAR 52.232-5 have been met.

d. Materials are adequately insured and protected from theft and exposure.

e. Provide a written consent from the surety company with each payment request for offsite materials.

f. Materials to be considered for progress payments prior to installation shall be stored either in Hawaii, Guam, Puerto Rico, or the Continental United States. Other locations are subject to written approval by the Contracting Officer.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- END OF SECTION –

SECTION 01 32 01.00 10

PROJECT SCHEDULE

08/23, CHG 1: 08/24

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AACE INTERNATIONAL (AACE)	
AACE 29R-03	(2011) Forensic Schedule Analysis
AACE 52R-06	(2006) Time Impact Analysis - As Applied in Construction
AACE 84R-13	(2015) Planning and Accounting for Adverse Weather
AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)	
ASCE 67-17	(2017) Schedule Delay Analysis
U.S. ARMY CORPS OF ENGINEERS (USACE)	
ER 1-1-11	(2017) Administration – Project Schedules

1.2 SUBMITTALS

Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Project Scheduler Qualifications; G

Preliminary Project Schedule; G

Initial Project Schedule; G

Periodic Schedule Update; G

1.3 PROJECT SCHEDULER QUALIFICATIONS

Designate an authorized representative to be responsible for the preparation of the schedule and all required updating and production of reports. The authorized representative must have a minimum of 2-year's experience scheduling construction projects similar in size and nature to this project with scheduling software that meets the requirements of this specification. Representatives must have a comprehensive knowledge of CPM scheduling principles and application.

PART 2 PRODUCTS

2.1 SOFTWARE

The scheduling software utilized to produce and update the schedules required herein must be capable of meeting all requirements of this specification.

2.1.1 Contractor Software

Scheduling software used by the contractor must be commercially available from the software vendor for purchase with vendor software support agreements available. The software routine used to create the required sdef file must be created and supported by the software manufacturer.

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

Prepare for approval a Cost Loaded Project Schedule, as specified herein, pursuant to FAR Clause 52.236-15, SCHEDULE FOR CONSTRUCTION CONTRACTS. Show in the schedule the proposed sequence to perform the work and dates contemplated for starting and completing all scheduled activities. The scheduling of the entire project is required. The scheduling of the design and construction project is the responsibility of the Contractor. Designers, Subcontractors, suppliers, and Contractor management personnel must actively participate in developing and maintaining an accurate Project Schedule.

Provide a schedule that is forward planning as well as a project monitoring tool. Use the Critical Path Method (CPM) of network calculation to generate all Project Schedules. Prepare each Project Schedule using the Precedence Diagram Method (PDM).

3.1.1 Scheduling Expectations Kickoff Meeting (SEKO)

In conjunction with the post award conference or pre-construction conference the Government and the Contractor will hold a separate and distinct Scheduling Expectations Kickoff Meeting (SEKO). The intent of this meeting is for the Government to review with the contractor the requirements of the scheduling specification, communicate the Government's expectations regarding the schedule development and management, and answer any questions regarding the schedule development and management, and answer any questions the Contractor may have regarding the schedule requirements.

3.2 BASIS FOR PAYMENT AND COST LOADING

The schedule is the basis for determining contract earnings during each update period and therefore the amount of each progress payment. The aggregate value of all activities coded to a contract CLIN must equal the value of the CLIN.

3.2.1 Activity Cost Loading

Activity cost loading must be reasonable and without front-end loading. Activities with negative cost loading are not allowed. Provide additional documentation to demonstrate reasonableness if requested by the Contracting Officer

3.2.2 Cost Loading of Submittals

No costs are to be assigned to activities for the preparation, review, or approval of submittals, except as described under paragraph COST LOADING OF CLOSEOUT ACTIVITIES, paragraph AS-BUILT Drawings, design submittals, and paragraph O&M Manuals.

3.2.3 Withholdings/Payment Rejection

Failure to meet the requirements of this specification may result in the disapproval of the preliminary, initial, or periodic schedule updates and subsequent rejection of payment requests until compliance is met.

In the event that the CO directs schedule revisions and those revisions have not been included in subsequent Project Schedule revisions or updates, the Contracting Officer may withhold 10 percent of pay request amount from each payment period until revisions to the project schedule have been made.

3.3 PROJECT SCHEDULE DETAILED REQUIREMENTS

3.3.1 Level of Detail Required

Develop the Cost Loaded Project Schedule to the appropriate level of detail to address major milestones and to allow for satisfactory project planning and execution. Failure to develop the Project Schedule to an appropriate level of detail will result in its disapproval. The Contracting Officer will consider, but is not limited to, the following characteristics and requirements to determine the appropriate level of detail:

3.3.2 Activity Durations

Reasonable activity durations are those that allow the progress of ongoing activities to be accurately determined between update periods. Less than 2 percent of all non-procurement activities may have Original Durations (OD) greater than 20 workdays or 30 calendar days.

3.3.3 Design and Permit Activities

Include design and permit activities with the necessary conferences and follow-up actions and design package submission dates. Include the design schedule in the project schedule, showing the sequence of events involve in carrying out the project design tasks within the specific contract period. Provide a detailed level of scheduling sufficient to identify all major design tasks, including those that control the flow of work. Also include review and correction periods associated with each item.

3.3.4 Procurement Activities

Include activities associated with the critical submittals and their approvals, procurement, fabrication, and delivery of long lead materials, equipment, fabricated assemblies, and supplies. Long lead procurement activities are those with an anticipated procurement sequence of over 90 calendar days.

3.3.5 Mandatory Tasks

Include the following activities/tasks in the initial project schedule and all updates.

a. Submission, review and acceptance of SD-01 Preconstruction Submittals (individual activity for each).

b. Submission of mechanical/electrical/information systems layout drawings.

c. Long procurement activities

d. Submission and approval of O & M manuals.

e. Submission and approval of as-built drawings.

f. Submission and approval of DD1354 data and installed equipment lists.

g. Performance Verification testing.

h. Other systems testing, if required.

i. Contractor's pre-final inspection.

j. Correction of punch list from Contractor's pre-final inspection.

k. Government's pre-final inspection.

l. Correction of punch list from Government's pre-final inspection.

m. Final inspection.

n. Submission, review and acceptance of features requiring design completion Submission, review and acceptance of design packages.

3.3.6 Government Activities

Show Government and other agency activities that could impact progress. These activities include, but are not limited to: approvals, acceptance, design reviews, environmental permit approvals by State regulators, inspections, utility tie-in, Government Furnished Equipment (GFE) and Notice to Proceed (NTP) for phasing requirements.

3.3.7 Standard Activity Coding Dictionary

Use the activity coding structure defined in the Standard Data Exchange Format (SDEF) in ER 1-1-11. This exact structure is mandatory. Develop and assign all Activity Codes to activities as detailed herein.

The SDEF format is as follows:

Field	Activity Code	Length	Description
1	WRKP	3	Workers per day
2	RESP	4	Responsible Party
3	Area	4	Area of Work
4	MODF	6	Modification Number
5	BIDI	6	Bid Item (CLIN)
6	PHAS	2	Phase of work
7	CATW	1	Category of Work
8	FOW	20	Feature of work*
Some systems require that Feature of Work values be placed in several activity code fields. The notation shown is for Primavera P6. Refer to the specific software guidelines with respect to the Feature of Work field requirements.			

a. Workers Per Day (WRKP): Assign Workers per Day for all field construction or direct work activities, if directed by the Contracting Officer. Workers per day is based on the average number of workers expected each day to perform a task for the duration of that activity.

b. Responsible Party Coding (RESP): Assign responsibility code for all activities to the Prime Contractors, Subcontractor(s) or Government agency(ies) responsible for performing the activity.

1) Activities coded with a Government Responsibility code include, but are not limited to: Government approvals, Government Design Reviews, environmental permit approvals by State regulators, Government Furnished Property/Equipment (GFP) and Notice to Proceed (NTP) for phasing requirements.

2) Activities cannot have more than one Responsibility Code. Examples of acceptable activity code values are: DOR (for designer of record); ELEC (for the electrical subcontractor); MECH (for the mechanical subcontractor); and GOVT (for Government)

c. Area of Work Coding (AREA): Assign Work Area code to activities based upon the work area in which the activity occurs. Define work areas based on resource constraints or space constraints that would preclude a resource, such as a particular trade or craft work crew from working in more than one work area at a time due to restraints on resources or space. Examples of Work Area Coding include different areas within a floor of a building, different floors within a building, and different buildings within a complex of buildings. Activities cannot have more than one Work Area Code.

d. Modification Number (MODF): Assign a Modification Number Code to any activity or sequence of activities added to the schedule because of a Contract Modification, when approved by Contracting Officer. Key all Code values to the Government's modification numbering system. An activity can have only one Modification number code.

e. Bid Item Coding (BIDI): Assign a Bid Item Code to all activities using the Contract Line-item Number (CLIN) to which the activity belongs, even when an activity is not cost- loaded. An activity can have only one BIDI Code.

f. Phase of Work Coding (PHAS): Assign Phase of Work Code to all activities. Examples of Phases of Work are design phase, procurement phase and construction phase. Each activity can have only one Phase of Work code.

1) Code proposed fast-track design and construction phases proposed to allow filtering and organizing the schedule by fast-track design and construction packages.

2) If the contract specifies phasing with separately defined performance periods, identify a Phase Code to allow filtering and organizing the schedule accordingly.

g. Category of Work Coding (CATW): Assign a Category of Work Code to all activities. Category of Work Codes include, but are not limited to design, design submittal, design reviews, review conferences, permits, construction submittal, procurement, fabrication, weather sensitive installation, non-weather sensitive installation, start-up, and testing activities. Each activity can have no more than one Category of Work Code.

h. Feature of Work Coding (FOW): Assign a Feature of Work Code to appropriate activities based on the Definable Feature of Work to which the activity belongs based on the approved QC plan. Definable Feature of Work is defined in Section 01 45 00 QUALITY CONTROL. An activity can have only one Feature of Work Code.

3.3.8 Contract Milestones and Constraints

Milestone activities are to be used for significant project events including, but not limited to, project phasing, project start and end activities, or interim completion dates. The use of artificial float constraints such as "zero free float" or "zero total float" are prohibited.

Mandatory constraints that ignore or affect network logic are prohibited. No constrained dates are allowed in the schedule other than those specified herein. Submit additional constraints to the Contracting Officer for approval on a case-by-case basis.

a. Project Start Date Milestone and Constraint

The first activity in the project schedule must be a start milestone titled "NTP Acknowledged," which must have a "Start On" constraint date equal to the date that the NTP is acknowledged.

b. End Project Finish Milestone and Constraint

The last activity in the schedule must be a finish milestone titled "End Project."

Constrain the project schedule to the Contract Completion Date in such a way that if the schedule calculates an early finish, then the float calculation for "End Project" milestone reflects positive float on the longest path. If the project schedule calculates a late finish, then the "End Project" milestone float calculation reflects negative float on the longest path. The Government is under no obligation to accelerate Government activities to support a Contractor's early completion.

c. Interim Completion Dates and Constraints

Constrain contractually specified interim completion dates to show negative float when the calculated late finish date of the last activity in that phase is later than the specified interim completion date.

1) Start Phase

Use a start milestone as the first activity for a project phase. Call the start milestone "Start Phase X" where "X" refers to the phase of work.

2) End Phase

Use a finish milestone as the last activity for a project phase. Call the finish milestone "End Phase X" where "X" refers to the phase of work.

3.3.9 Calendars

Schedule activities on a Calendar to which the activity logically belongs. Develop calendars to accommodate any contract defined work period such as a 7-day calendar for Government Acceptance activities, concrete cure times, etc. Develop the default Calendar to match the physical work plan with non-work periods identified including weekends and holidays. Develop Seasonal Calendar(s) and assign to seasonally affected activities as applicable.

If an activity is weather sensitive, it should be assigned to a calendar showing non-workdays on a monthly basis, with the non-workdays selected at random across the weeks of the calendar, using the anticipated days provided in the contract clause TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER. Assign non-workdays over a seven-day week as weather records are compiled on seven-day weeks, which may cause some of the weather-related non-workdays to fall on weekends.

3.3.10 Open Ended Logic

Only two open ended activities are allowed: the first activity "NTP Acknowledged" may have no predecessor logic, and the last activity -"End Project" may have no successor logic.

Predecessor open ended logic may be allowed in a time impact analyses upon the Contracting Officer's approval.

3.3.11 Default Progress Data Disallowed

Actual Start and Finish dates must not automatically update with default mechanisms included in the scheduling software. Updates of the percentage complete and the remaining duration of any activity must be independent functions. Disable program features that calculate one of these parameters from the other. Activity Actual Start (AS) and Actual Finish (AF) dates assigned during the updating process must match those dates provided in the Contractor Quality Control Reports. Failure to document the AS and AF dates in the Daily Quality Control report will result in disapproval of the Contractor's schedule.

3.3.12 Out-of-Sequence Progress

Activities that have progressed before all preceding logic has been satisfied (Out-of-Sequence Progress) will be allowed only on a case-by-case basis subject to approval by the Contracting Officer. Propose logic corrections to eliminate out of sequence progress or justify not changing the sequencing for approval prior to submitting an updated project

schedule. Address out of sequence progress or logic changes in the Narrative Report and in the periodic schedule update meetings.

3.3.13 Added and Deleted Activities

Do not delete activities from the project schedule or add new activities to the schedule without approval from the Contracting Officer. Activity ID and description changes are considered new activities and cannot be changed without Contracting Officer approval.

3.3.14 Original Durations

Activity Original Durations (OD) must be reasonable to perform the work item. OD changes are prohibited unless justification is provided and approved by the Contracting Officer.

3.3.15 Leads, Lags, and Start to Finish Relationships

Lags must be reasonable as determined by the Government and not used in place of realistic original durations, must not be in place to artificially absorb float, or to replace proper schedule logic.

a. Leads (negative lags) are prohibited.

b. Start to Finish (SF) relationships are prohibited.

3.3.16 Retained Logic

Schedule calculations must retain the logic between predecessors and successors ("retained logic" mode) even when the successor activity(s) starts and the predecessor activity(s) has not finished (out-of-sequence progress). Software features that in effect cut the tie between predecessor and successor activities when the successor has started and the predecessor logic is not satisfied ("progress override") are not allowed.

3.3.17 Percent Complete

Update the percentage complete for each activity started, based on the realistic assessment of earned value. Activities which are complete but for remaining minor punch list work and which do not restrain the initiation of successor activities may be declared 100 percent complete to allow for proper schedule management.

3.3.18 Remaining Duration

Update the remaining duration for each activity based on the number of estimated workdays it will take to complete the activity. Remaining duration may not mathematically correlate with percentage found under paragraph entitled Percent Complete.

3.3.19 Cost Loading of Closeout Activities

Cost load the “Correction of punch list from Government pre-final inspection” activity(ies) not less than 1 percent of the present contract value. Activity(ies) may be declared 100 percent complete upon the Government’s verification of completion and correction of all punch list work identified during the Government per-final inspections(s)

a. As-Built Drawings

If there is no separate contract line item (CLIN) for as-built drawings, cost load the “Submission and approval of as-built drawings” activity not less than $35,000 or 1 percent of the present contract value, whichever is greater, up to $200,000. Activity will be declared 100 percent complete upon the Government’s Approval.

b. O&M Manuals

Cost load the "Submission and approval of O&M Manuals" activity not less than $20,000. Activity will be declared 100 percent complete upon the Government's approval of all O&M Manuals.

3.3.20 Early Completion Schedule and the Right to Finish Early

An Early Completion Schedule is an Initial Project Schedule (IPS) that indicates all scope of the required contract work will be completed before the contractually required completion date.

a. No IPS indicating an Early Completion will be accepted without being fully resource-loaded (including crew sizes and man hours) and the Government agreeing that the schedule is reasonable and achievable.

b. The Government is under no obligation to accelerate work items it is responsible for to ensure that the early completion is met nor is it responsible to modify incremental funding (if applicable) for the project to meet the contractor's accelerated work.

3.4 PROJECT SCHEDULE SUBMISSIONS

Provide the submissions as described below. The data CD/DVD, reports, and network diagrams required for each submission are contained in paragraph SUBMISSION REQUIREMENTS. If the Contractor fails or refuses to furnish the information and schedule updates as set forth herein, then the Contractor will be deemed not to have provided an estimate upon which a progress payment can be made.

Review comments made by the Government on the schedule(s) do not relieve the Contractor from compliance with requirements of the Contract Documents.

3.4.1 Preliminary Project Schedule Submission

Within 10 calendar days after the NTP is acknowledged submit the Preliminary Project Schedule defining the planned operations detailed for the first 90 calendar days for approval. The approved Preliminary Project Schedule will be used for payment purposes not to exceed 90 calendar days after NTP. Coast load the Preliminary Project Schedule to balance the contract award CLINS shown on the Price Schedule. The Preliminary Project Schedule may be summary in nature for the remaining performance period. It must be early start and late finish constrained and logically tied as specified. The Preliminary Project Schedule forms the basis for the Initial Project Schedule specified herein and must include all of the required plan and program preparations, submissions and approvals identified in the contract (for example, Quality Control Plan, Safety Plan, and Environmental Protection Plan) as well as design activities, planned submissions of all early design packages, permitting activities, design review conference activities, and other non-construction activities intended to occur within the first 90 calendar days. Government acceptance of the associated design package(s) and all other specified Program and Plan approvals must occur prior to any planned construction activities. Activity code any activities that are summary in nature after the first 90 calendar days with Bid Item (CLIN) code (BIDI), Responsibility Code (RESP) and Feature of Work code (FOW).

3.4.2 Initial Project Schedule Submission

Submit the Initial Project Schedule for approval within 42 calendar days after notice to proceed is issued. The schedule must demonstrate a reasonable and realistic sequence of activities which represent all work through the entire contract performance period. In the design-build schedule, include detailed design and permitting activities, including but not limited to identification of individual design packages, design submission, reviews and conferences; permit submissions and any required Government actions; and long lead item acquisition prior to design completion. Also cover in the initial design-build schedule for the entire construction effort with as much detail as is known at the time but, as a minimum, include all construction start and completion milestones, and detailed construction activities through the dry-in, including all activity coding and cost loading. Include the remaining construction, including cost loading, but it may be scheduled summary in nature. As the design proceeds and design packages are developed, fully detail the remaining

construction activities concurrent with the monthly schedule updating process. Constrain construction activities by Government acceptance of associated designs.

When the design is complete, incorporate into the then approved schedule update all remaining detailed construction activities that are planned to occur after the dry-in milestone. No payment will be made for work items not fully detailed in the project schedule.

3.4.3 Design Package Schedule Submission

With each design package submitted to the Government, submit a “fragnet” schedule extracted from the then current Preliminary, Initial or Updated schedule which covers the activities associated with that Design Package including construction, procurement and permitting activities.

3.4.4 Periodic Schedule Updates

Update the Project Schedule on a regular basis, monthly at a minimum. Provide a draft Periodic Schedule Update for review at the schedule update meetings as prescribed in the paragraph PERIODIC SCHEDULE UPDATE MEETINGS. These updates will enable the Government to assess Contractor's progress. Update the schedule to include detailed construction activities as the design progresses, but not later than the submission of the final un-reviewed design submission for each separate design package. The Contracting Officer may require submission of detailed schedule activities for any distinct construction that is started prior to submission of a final design submission if such activity is authorized.

a. Update information including Actual Start Dates (AS), Actual Finish Dates (AF), Remaining Durations (RD), and Percent Complete is subject to the approval of the Government at the meeting.

b. AS and AF dates must match the date(s) reported on the Contractor's Quality Control Report for an activity start or finish.

3.5 SUBMISSION REQUIREMENTS

Submit the following items for the Preliminary Schedule, Initial Schedule, and every Periodic Schedule Update throughout the life of the project:

3.5.1 Electronic Scheduling Data

Provide electronic scheduling data containing the current project schedule and all previously submitted schedules in the format of the scheduling software. Also include the Narrative Report and all required Schedule Reports. The electronic file is to identify the type of schedule (Preliminary, Initial, Update), full contract number, Data Date, and schedule file name. Each schedule must have a unique file name and use project specific settings. The file naming convention is to be determined at SEKO meeting.

3.5.2 Narrative Report

Provide a Narrative Report with each schedule submission. The Schedule Narrative Report is a "stand alone" report in PDF or Word format. Title the report "Schedule Narrative Report". Show the Report date, schedule name, and contract number on the first page. Indicate who is responsible for the schedule update and narrative report. Provide a brief description of the Project Scope. The Narrative Report is expected to communicate to the Government the thorough analysis of the schedule output and the plans to compensate for problems, either current or potential, which are revealed through that analysis. Include the following information at a minimum in the Narrative Report:

a. Identify and discuss the work scheduled to start in the next update period.

b. Describe activities along the critical path in addition to activities on the next float path after the critical path.

c. Describe current and anticipated problem areas, delaying factors and their impact, and an explanation of corrective actions taken or required to be taken. Identify the party responsible for delay, if applicable.

d. Identify and explain why activities, based on their calculated late dates, should have either started or finished during the update period but did not.

e. Identify and discuss all schedule changes by activity ID and activity name including what specifically was changed and why the change was needed. Include at a minimum new and deleted activities, logic changes, duration changes, calendar changes, lag changes, resource changes, and actual start and finish date changes.

f. Identify and discuss out-of-sequence work.

g. If the longest path changes from a monthly update to the next, provide an explanation of the factors driving the change.

h. Respond to USACE Schedule Review Comments from the previous update(s).

3.5.3 Schedule Reports

The format, filtering, organizing and sorting for each schedule report will be as directed by the Contracting Officer. Typically, reports contain Activity Numbers, Activity Description, Original Duration, Remaining Duration, Early Start Date, Early Finish Date, Late Start Date, Late Finish Date, Total Float, Actual Start Date, Actual Finish Date, and Percent Complete. Provide the reports electronically in .pdf format. Provide the reports electronically in .pdf format. The following lists typical reports that will be requested:

3.5.3.1 Activity Report

List of all activities sorted according to activity number.

3.5.3.2 Logic Report

List of detailed predecessor and successor activities for every activity in ascending order by activity number.

3.5.3.3 Total Float Report

A list of all incomplete activities sorted in ascending order of total float. List activities which have the same amount of total float in ascending order of Early Start Dates. Do not show completed activities on this report.

3.5.3.4 Schedule Log

Provide a Scheduling/Leveling Report generated from the current project schedule being submitted.

3.5.3.5 Earnings Report by CLIN

A compilation of the Total Earnings on the project from the NTP to the data date, which reflects the earnings of activities based on the agreements made in the schedule update meeting defined herein. Provided a complete schedule update has been furnished, this report serves as the basis of determining progress payments. Group activities by CLIN number and sort by activity number. Provide a total CLIN percent earned value, CLIN percent complete, and project percent complete. The printed report must contain the following for each activity: the Activity Number, Activity Description, Original Budgeted Amount, Earnings to Date, Earnings this period, Total Quantity, Quantity to Date, and Percent Complete (based on cost).

3.5.3.6 Scheduling and Leveling Report

Provide a Scheduling/Leveling Report generated from the current project schedule being submitted.

3.5.4 Network Diagram

The Network Diagram is required for the Preliminary, Initial and Periodic Updates. Depict and display the order and interdependence of activities and the sequence in which the work is to be accomplished. The Contracting Officer will use, but is not limited to, the following conditions to review compliance with this paragraph:

3.5.4.1 Continuous Flow

Show a continuous flow from left to right with no arrows from right to left. Show the activity number, description, duration, and estimated earned value on the diagram.

3.5.4.2 Project Milestone Dates

Show dates on the diagram for start of project, any contract required interim completion dates, and contract completion dates.

3.5.4.3 Critical Path

Show all activities on the critical path. The critical path is defined as the longest path.

3.6 PERIODIC SCHEDULE UPDATE

3.6.1 Periodic Schedule Update Meetings

Conduct periodic schedule update meetings for the purpose of reviewing the proposed Periodic Schedule Update, Narrative Report, Schedule Reports, and progress payment. Conduct meetings at least monthly within five days of the proposed schedule data date. Provide a computer with the scheduling software loaded and a projector which allows all meeting participants to view the proposed schedule during the meeting. The Contractor's authorized scheduler must organize, group, sort, filter, perform schedule revisions as needed, and review functions as requested by the Contractor and/or Government. The Contractor scheduler must attend in person unless virtual attendance is approved by Contracting Officer. The meeting is a working interactive exchange which allows the Government and Contractor the opportunity to review the updated schedule on a real-time and interactive basis. The meeting will last no longer than 8 hours. Submit schedule file and narrative to the Government a minimum of two workdays in advance of the meeting. The Contractor's Project Manager must attend the meeting with the authorized representative of the Contracting Officer. Superintendents, foremen and major subcontractors must attend the meeting as required to discuss the project schedule and work. Following the schedule update meeting, make corrections to the schedule and resubmit, following the required schedule naming convention. Include only those changes approved by the Government in the schedule review meeting. Only approved schedules may be used to generate invoices for payment.

3.6.2 Update Submission Following Progress Meeting

Submit the complete Periodic Schedule Update of the Project Schedule containing all approved progress, revisions, and adjustments, pursuant to paragraph SUBMISSION REQUIREMENTS not later than 4 workdays after the periodic schedule update meeting

3.7 WEEKLY PROGRESS MEETINGS

Conduct a weekly meeting with the Government (or as otherwise mutually agreed to) between the meetings described in paragraph entitled PERIODIC SCHEDULE UPDATE MEETINGS for the purpose of jointly reviewing the actual progress of the project as compared to the as planned progress and to review planned activities for the upcoming two weeks. Use the current approved schedule update for the purposes of this meeting and for the production and review of reports. At the weekly progress meeting, address the status of RFIs, RFPs and Submittals.

3.8 REQUESTS FOR TIME EXTENSIONS

ASCE 67-17 provides delay analysis guidelines. If there is a conflict between the contract and guidance provided in ASCE 67-17, the contract will govern. Provide a justification of delay to the Contracting Officer in accordance with the contract provisions and clauses for approval within 10 days of a delay occurring. Also prepare a time impact analysis for each Government request for proposal (RFP) to justify time extensions.

3.8.1 Justification of Delay

Provide a description of the event(s) that caused the delay and/or impact to the work. As part of the description, identify all schedule activities impacted. Show that the event that caused the delay/impact was the responsibility of the Government. Provide a time impact analysis that demonstrates the effects of the delay or impact on the project completion date or interim completion date(s). Evaluate multiple impacts chronologically; each with its own justification of delay. With multiple impacts consider any concurrency of delay. A time extension and the schedule fragnet becomes part of the project schedule and all future schedule updates upon approval by the Contracting Officer.

3.8.2 Time Impact Analysis (Prospective Analysis)

Prepare a time impact analysis for approval by the Contracting Officer based on industry standard AACE 52R-06. Utilize a copy of the last approved schedule prior to the first day of the impact or delay for the time impact analysis. If Contracting Officer determines the time frame between the last approved schedule and the first day of impact is too great, prepare an interim updated schedule to perform the time impact analysis. Unless approved by the Contracting Officer, no other changes may be incorporated into the schedule being used to justify the time impact.

3.8.3 Forensic Schedule Analysis (Retrospective Analysis)

Prepare an analysis for approval by the Contracting Officer based on industry standard AACE 29R-03.

3.8.4 Fragmentary Network (Fragnet)

Prepare a proposed fragnet for time impact analysis consisting of a sequence of new activities that are proposed to be added to the project schedule to demonstrate the influence of the delay or impact to the project's contractual dates. Clearly show how the proposed fragnet is to be tied into the project schedule including all predecessors and successors to the fragnet activities. The proposed fragnet must be approved by the Contracting Officer prior to incorporation into the project schedule.

3.8.5 Time Extension

The Contracting Officer must approve the Justification of Delay including the time impact analysis before a time extension will be granted. No time extension will be granted unless the delay consumes all available Project Float and extends the projected finish date ("End Project" milestone) beyond the Contract Completion Date. The time extension will be in calendar days.

Actual delays that are found to be caused by the Contractor's own actions, which result in a calculated schedule delay will not be a cause for an extension to the performance period, completion date, or any interim milestone date.

3.9 FAILURE TO ACHIEVE PROGRESS

Should the progress fall behind the approved project schedule for reasons other than those that are excusable within the terms of the contract, the Contracting Officer may require provision of a written recovery plan for approval. The plan must detail how progress will be made to include which activities will be accelerated by adding additional crews, longer work hours, extra workdays, etc.

3.9.1 Artificially Improving Progress

Artificially improving progress by means such as, but not limited to, revising the schedule logic, modifying or adding constraints, shortening activity durations, or changing calendars in the project schedule is prohibited. Indicate assumptions made and the basis for any logic, constraint, duration and calendar changes used in the creation of the recovery plan. Any additional resources, manpower, or daily and weekly work hour changes proposed in the recovery plan must be evident at the work site and documented in the daily report along with the Schedule Narrative Report.

3.9.2 Failure to Perform

Failure to perform work and maintain progress in accordance with the supplemental recovery plan may result in an interim and final unsatisfactory performance rating and/or may result in corrective action directed by the Contracting Officer pursuant to FAR 52.236-15 Schedules for Construction Contracts, FAR 52.249-10 Default (Fixed-Price Construction), and other contract provisions.

3.9.3 Recovery Schedule

Should the Contracting Officer find it necessary, submit a recovery schedule pursuant to FAR 52.236-15 Schedules for Construction Contracts.

3.10 OWNERSHIP OF FLOAT

Except for the provision given in the paragraph IMPACT TO EARLY COMPLETION SCHEDULE, float available in the schedule, at any time, may not be considered for the exclusive use of either the Government or the Contractor including activity and/or project float. Activity float is the number of workdays that an activity can be delayed without causing a delay to the "End Project" finish milestone. Project float (if applicable) is the number of workdays between the projected early finish and the contract completion date milestone.

-- END OF SECTION –

SECTION 01 33 00

SUBMITTAL PROCEDURES

08/18, CHG 4; 02/21

PART 1 GENERAL

1.1 DEFINITIONS

1.1.1 Submittal Descriptions (SD)

Submittals requirements are specified in the technical sections. Submittals are identified by Submittal Description (SD) numbers and titles as follows:

SD-01 Preconstruction Submittals

Submittals which are required prior to Certificates of insurance Certificate of Insurance

Surety bonds

List of proposed Subcontractors List of proposed products

Construction progress schedule Network Analysis Schedule (NAS) Submittal register

Schedule of prices or Earned Value Report Accident Prevention Plan

Health and safety plan Work plan

Quality Control(QC) plan

Environmental protection plan [Explosive Safety Submission ESS Work Plan]

SD-02 Shop Drawings

Drawings, diagrams and schedules specifically prepared to illustrate some portion of the work.

Diagrams and instructions from a manufacturer or fabricator for use in producing the product and as aids to the Contractor for integrating the product or system into the project.

Drawings prepared by or for the Contractor to show how multiple systems and interdisciplinary work will be coordinated.

SD-03 Product Data

Catalog cuts, illustrations, schedules, diagrams, performance charts, instructions and brochures illustrating size, physical appearance and other characteristics of materials, systems or equipment for some portion of the work.

Samples of warranty language when the contract requires extended product warranties.

SD-04 Samples

Fabricated or unfabricated physical examples of materials, equipment or workmanship that illustrate functional and aesthetic characteristics of a material or product and establish standards by which the work can be judged.

Color samples from the manufacturer's standard line (or custom color samples if specified) to be used in selecting or approving colors for the project.

Field samples and mock-ups constructed on the project site establish standards by which the ensuring work can be judged. Includes assemblies or portions of assemblies which are to be incorporated into the project and those which will be removed at conclusion of the work.

SD-05 Design Data

Design calculations, mix designs, analyses or other data pertaining to a part of work.

Design submittals, design substantiation submittals and extensions of design submittals.

SD-06 Test Reports

Report signed by authorized official of testing laboratory that a material, product or system identical to the material, product or system to be provided has been tested in accord with specified requirements. Unless specified in another section, testing must have been within three years of date of contract award for the project.

Report which includes findings of a test required to be performed by the Contractor on an actual portion of the work or prototype prepared for the project before shipment to job site.

Report which includes finding of a test made at the job site or on sample taken from the job site, on portion of work during or after installation.

Investigation reports. Daily logs and checklists.

Final acceptance test and operational test procedure.

SD-07 Certificates

Statements printed on the manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that the product, system, or material meets specification requirements. Must be dated after award of project contract and clearly name the project.

Document required of Contractor, or of a manufacturer, supplier, installer or Subcontractor through Contractor. The purpose of the document is to further promote the orderly progression of a portion of the work by documenting procedures, acceptability of methods, or personnel qualifications.

Confined space entry permits.

Text of posted operating instructions.

SD-08 Manufacturer's Instructions

Preprinted material describing installation of a product, system or material, including special notices and (MSDS)concerning impedances, hazards and safety precautions.

SD-09 Manufacturer's Field Reports

Documentation of the testing and verification actions taken by manufacturer's representative at the job site, in the vicinity of the job site, or on a sample taken from the job site, on a portion of the work, during or after installation, to confirm compliance with manufacturer's standards or instructions. The documentation must be signed by an authorized official of a testing laboratory or agency and state the test results; and indicate whether the material, product, or system has passed or failed the test.

Factory test reports.

SD-10 Operation and Maintenance Data

Data that is furnished by the manufacturer, or the system provider, to the equipment operating and maintenance personnel, including manufacturer's help and product line documentation necessary to maintain and install equipment.

This data is needed by operating and maintenance personnel for the safe and efficient operation, maintenance and repair of the item.

This data is intended to be incorporated in an operations and maintenance manual or control system.

SD-11 Closeout Submittals

Documentation to record compliance with technical or administrative requirements or to establish an administrative mechanism.

Submittals required for Guiding Principle Validation (GPV) or Third-Party Certification (TPC).

Special requirements necessary to properly close out a construction contract. For example, Record Drawings and as-built drawings. Also, submittal requirements necessary to properly close out a major phase of construction on a multi-phase contract.

1.1.1 Submittal Information

The Contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Each submittal is to be complete and in sufficient detail to allow ready determination of compliance with contract requirements.

Units of weights and measures used on all submittals are to be the same as those used in contract drawings.

1.1.2 Project Type

The Contractor's Quality Control (CQC) Manager are to check and approve all items before submittal and stamp, sign, and date indicating action taken. Proposed deviations from the contract requirements are to be clearly identified. Include within submittals items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals.

The Contractor and the Designer of Record (DOR), if applicable, are to check and approve all items before submittal and stamp, sign, and date indicating action taken. Proposed deviations from the contract requirements are to be clearly identified. Include within submittals items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive

literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals.

1.1.3 Submission of Submittals

Schedule and provide submittals requiring Government approval before acquiring the material or equipment covered thereby. Pick up and dispose of samples not incorporated into the work in accordance with manufacturer's Safety Data Sheets (SDS) and in compliance with existing laws and regulations.

1.1.4 Approving Authority

Office or designated person authorized to approve submittal.

1.1.5 Work

As used in this section, on- and off-site construction required by contract documents, including labor necessary to produce submittals, construction, materials, products, equipment, and systems incorporated or to be incorporated in such construction.

1.2 SUBMITTALS

Submit the following in accordance with this section.

SD-01 Preconstruction Submittals Submittal Register; G

1.3 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

1.3.1 Government Approved

Within the terms of the Contract Clause SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION, they are considered to be "shop drawings."

1.3.2 Design-Build Submittal Classifications

1.3.2.1 Designer of Record Approved (DA)

Designer of Record (DOR) approval is required for extensions of design; critical materials; any variations from the Solicitation, the Accepted Proposal, or the completed design; equipment whose compatibility with the entire system must be checked; and other items as designated by the Contracting Officer. Provide the Government with the number of copies designated hereinafter of all DOR approved submittals. The Government may review any or all Designer of Record approved submittals for conformance with the Solicitation, the Accepted Proposal, and the completed design. The Government will review all submittals designated as varying from the Solicitation or Accepted Proposal, as described below. Provide design submittals in accordance with Section 01 33 16.00 10 DESIGN DATA (DESIGN AFTER AWARD). Generally, list design submittals under SD-05 Design Data.

1.3.2.2 Government Conformance Review of Design (CR)

The Government will review all intermediate and final design submittals for conformance with the technical requirements of the Solicitation. Section 01 33 16.00 10 DESIGN DATA (DESIGN AFTER AWARD) covers the design submittal and review process in detail. Review will be only for conformance with the applicable codes, standards, and contract requirements. Design data includes the design documents described in Section 01 33 16.00 10 DESIGN DATA (DESIGN AFTER AWARD).

1.3.2.3 Designer of Record Approved/Government Conformance Review (DA/CR)

1.3.2.3.1 Variations from the Accepted Design DOR approval and the Government's concurrence are required for any proposed variation from the accepted design that still complies with the contract before the Contractor is authorized to proceed with material acquisition or installation. If necessary to facilitate the project schedule, before official submission to the Government, the Contractor and the DOR may discuss with the Contracting Officer's Representative a submittal proposing a variation. However, the Government reserves the right to review the submittal before providing an opinion. In any case, the Government will not formally agree to or provide a preliminary opinion on any variation without the DOR's approval or recommended approval. The Government reserves the right to reject any design, variation that may affect furniture, furnishings, equipment selections, or operational decisions that were made, based on the reviewed and concurred design

1.3.2.3.2 Substitutions

1.3.2.3.3 Unless prohibited or otherwise provided for elsewhere in the contract, where the Accepted Proposal named products, systems, materials or equipment by manufacturer, brand name, model number, or other specific identification, and the Contractor desires to substitute a manufacturer or model after award, submit a requested substitution for Government concurrence. Include substantiation, through identifying information and the DOR's approval, that the substitute meets the contract requirements and that it is equal in function, performance, quality, and salient features to that in the accepted contract proposal. If the contract otherwise prohibits substitutions of equal named products, systems, materials or equipment by manufacturer, brand name, model number or other specific identification, the request is considered a "variation" to the contract. Variations are discussed below in paragraphs: "DESIGNER OF RECORD APPROVED/GOVERNMENT APPROVED" and VARIATIONS.

1.3.2.3.4 Designer of Record Approved/Government Approved (DA/GA)

In addition to the above-stated requirements for proposed variations to the accepted design, both DOR and Government Approval and, where applicable, a contract modification are required before the Contractor is authorized to proceed with material acquisition or installation for any proposed variation to the contract (the Solicitation or the Accepted Proposal), that constitutes a change to the contract terms. The Government reserves the right to accept or reject any such proposed variation.

1.4 PREPARATION

1.4.1 Identifying Submittals

The Contractor’s Quality Control Manager must prepare, review and stamp submittals, including those provided by a subcontractor, before submittal to the Government.

Identifying submittals, except sample installations and sample panels, with the following information permanently adhered to or noted on each separate component of each submittal and noted on transmittal form. Mark each copy of each submittal identically, with the following:

a. Project Title and Location

b. Construction Contract Number

c. Dates of the drawings and revisions

d. Name, address, and telephone number of Subcontractor, supplier, manufacturer, and any other Subcontractor associated with the submittal.

e. Section number of the specification by which submittal is required.

f. Submittal description (SD) number of each component of submittal.

g. For a resubmission, add "R" and numerical suffix on submittal description. For example, submittal 18R1, to indicate resubmission.

h. Product identification and location in project.

1.4.2 Source Drawings for Shop Drawings

The entire set of Source Drawing files (DWG) will not be provided to the Contractor. Only those requested by the Contractor to prepare shop drawings may be provided. Request the specific Drawing Number only for the preparation of Shop Drawings. These drawings may only be provided after award.

1.4.2.1 Terms and Conditions

Data contained on these electronic files must not be used for any purpose other than as a convenience in the preparation of construction data for the referenced project. Any other use or reuse shall be at the sole risk of the Contractor and without liability or legal exposure to the Government.

The Contractor must make no claim and waives to the fullest extent permitted by law, any claim or cause of action of any nature against the Government, its agents or sub consultants that may arise out of or in connection with the use of these electronic files. The Contractor must, to the fullest extent permitted by law, indemnify and hold the Government harmless against all damages, liabilities or costs, including reasonable attorney's fees and defense costs, arising out of or resulting from the use of these electronic files.

These electronic Source Drawing files are not construction documents. Differences may exist between the Source Drawing files and the corresponding construction documents. The Government makes no representation regarding the accuracy or completeness of the electronic Source Drawing files, nor does it make representation to the compatibility of these files with the Contractor hardware or software. In the event that a conflict arises between the signed and sealed construction documents prepared by the Government and the furnished Source Drawing files, the signed and sealed construction documents govern. The Contractor is responsible for determining if any conflict exists. Use of these Source Drawing files does not relieve the Contractor of duty to fully comply with the contract documents, including and without limitation, the need to check, confirm and coordinate the work of all contractors for the project. If the Contractor uses, duplicates or modifies these electronic Source Drawing files for use in producing construction data related to this contract, remove all previous indicia of ownership (seals, logos, signatures, initials and dates).

1.4.3 Electronic File Format

Provide submittals in electronic format, with the exception of material samples required for SD-04 Samples items. Compile the submittal file as a single, complete document, to include the Transmittal Form described within. Name the electronic submittal file specifically according to its contents, coordinate the file naming convention with the Contracting Officer. Electronic files must be of sufficient quality that all information is legible. Use PDF as the electronic format, unless otherwise specified or directed by the Contracting Officer. Generate PDF files from original documents with bookmarks so that the text included in the PDF file is both searchable and can be copied. If documents are scanned, Optical Character Resolution (OCR) routines are required. Index and bookmark files exceeding 30 pages to allow efficient navigation of the file. When required, the electronic file must include a valid electronic signature, or scan of a signature.

Email electronic submittal documents smaller than 5MB to an email address as directed by the Contracting Officer. Provide electronic documents over 5MB on an optical disc, or through an electronic file sharing system such as the

DoD SAFE Website. Request a DoD SAFE Link from the Contracting Officer. Provide hard copies of submittals when requested by the Contracting Officer. Up to 5 additional hard copies of any submittal may be requested at the discretion of the Contracting Officer, at no additional cost to the Government.

1.4.4 Transmittal Form

Use the AF Form 3000 Material Submittal Approval for submitting both Government-approved and information-only submittals. Submit in accordance with the instructions on the form. These forms will be furnished to the contractor. Properly complete this form by filling out all the heading blank spaces and identifying each item submitted. Exercise special care to ensure proper listing of the specification paragraph and sheet number of the contract drawings pertinent to the data submitted for each item.

1.5 QUANTITY OF SUBMITTALS

1.5.1 Number of Samples SD-04 Samples

a. Submit one sample, or one set of samples, showing range of variation of each required item. One approved sample or set of samples will be retained by approving authority and one will be returned to Contractor.

b. Submit one sample panel or provide one sample installation where directed. Include components listed in technical section or as directed.

c. Submit one sample installation, where directed.

d. Submit one sample of non-solid materials.

1.6 INFORMATION ONLY SUBMITTALS

Normally submittals for information only will not be returned. Approval of the Contracting Officer is not required on information only submittals.

The Government reserves the right to require the Contractor to resubmit any item found not to comply with the contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications; will not prevent the Contracting Officer from requiring removal and replacement of nonconforming material incorporated in the work; and does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or for check testing by the Government in those instances where the technical specifications so prescribe.

1.7 SUBMITTAL REGISTER

Prepare and maintain submittal register AF Form 66, as the work progresses. A submittal register showing items of equipment and materials for which submittals are required by the specifications is provided as an attachment. Thereafter, the Contractor is to track all submittals by maintaining a complete list, including completion of all data columns, including dates on which submittals are received and returned by the Government.

1.7.1 Copies Delivered to the Government

Deliver one copy of submittal register updated by Contractor to Government with each invoice request.

1.8 VARIATIONS

Variations from contract requirements require Government approval pursuant to contract Clause FAR 52.236-21 and will be considered where advantageous to Government.

1.8.1 Considering Variations

Discussion with Contracting Officer prior to submission will help ensure functional and quality requirements are met and minimize rejections and re- submittals.

Specifically point out variations from contract requirements in transmittal letters. Failure to point out deviations may result in the Government requiring rejection and removal of such work at no additional cost to the Government.

1.8.2 Proposing Variations

When proposing variation, deliver written request to the Contracting Officer, with documentation of the nature and features of the variation and why the variation is desirable and beneficial to Government. In addition to documentation required for variation, include the submittals required for the item. Clearly mark the proposed variation in all documentation.

1.8.3 Warranting that Variations are Compatible

When delivering a variation for approval, Contractor, including its Designer(s) of Record, warrants that this contract has been reviewed to establish that the variation, if incorporated, will be compatible with other elements of work.

1.8.4 Review Schedule Extension

In addition to normal submittal review period, a period of 10 working days will be allowed for consideration by the Government of submittals with variations.

1.9 SCHEDULING

Schedule and submit concurrently submittals covering component items forming a system or items that are interrelated. Include certifications to be submitted with the pertinent drawings at the same time. No delay damages or time extensions will be allowed for time lost in late submittals.

a. Coordinate scheduling, sequencing, preparing and processing of submittals with performance of work so that work will not be delayed by submittal processing. Allow for potential resubmittal of requirements.

b. Submittals called for by the contract documents will be listed on the register. If a submittal is called for but does not pertain to the contract work, the Contractor is to include the submittal in the register and annotate it "N/A" with a brief explanation. Approval by the Contracting Officer does not relieve the Contractor of supplying submittals required by the contract documents but which have been omitted from the register or marked "N/A."

c. Re-submit register and annotate monthly by the Contractor with actual submission and approval dates. When all items on the register have been fully approved, no further re-submittal is required.

d. Carefully control procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register."

1.10 GOVERNMENT APPROVING AUTHORITY

When approving authority is Contracting Officer, the Government will:

a. Note date on which submittal was received.

b. Review submittals for approval within fourteen (14) days and only for conformance with project design concepts and compliance with contract documents.

c. Identify returned submittals with one of the actions defined in paragraph REVIEW NOTATIONS and with markings appropriate for action indicated.

Upon completion of review of submittals requiring Government approval, stamp and date submittals.

1.11 DISAPPROVED SUBMITTALS

Make corrections required by the Contracting Officer within fourteen (14) days of receipt of disapproved submittal. If the Contractor considers any correction or notation on the returned submittals to constitute a change to the contract drawings or specifications; notice as required under the FAR clause entitled CHANGES, is to be given to the Contracting Officer.

Contractor is responsible for the dimensions and design of connection details and construction of work. Failure to point out deviations may result in the Government requiring rejection and removal of such work at the Contractor's expense.

If changes are necessary to submittals, make such revisions and submission of the submittals in accordance with the procedures above. No item of work requiring a submittal change is to be accomplished until the changed submittals are approved.

1.12 APPROVED SUBMITTALS

Approval of submittals which do not conform to the contract shall not be construed as a change to the contract. The Contracting Officer's approval or acceptance of submittals is not to be construed as a complete check, and indicates only that the general method of construction, materials, detailing, and other information are satisfactory and the design, general method of construction, materials, detailing, and other information appear to meet the Solicitation and Accepted Proposal. Approval or acceptance will not relieve the Contractor of responsibility for any error which may exist, as the Contractor under the Contractor Quality Control (CQC) requirements of this contract is responsible for.

After submittals have been approved or accepted by the Contracting Officer, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

1.13 APPROVED SAMPLES

Approval of a sample is only for the characteristics or use named in such approval and is not be construed to change or modify any contract requirements. Before submitting samples, the Contractor to assure that the materials or equipment will be available in quantities required in the project. No change or substitution will be permitted after a sample has been approved.

Match the approved samples for materials and equipment incorporated in the work. If requested, approved samples, including those which may be damaged in testing, will be returned to the Contractor, at his expense, upon completion of the contract. Samples not approved will also be returned to the Contractor at its expense, if requested.

Failure of any materials to pass the specified tests will be sufficient cause for refusal to consider, under this contract, any further samples of the same brand or make of that material. Government reserves the right to disapprove of any material or equipment which previously has proved unsatisfactory in service.

Samples of various materials or equipment delivered on the site or in place may be taken by the Contracting Officer for testing. Samples failing to meet contract requirements will automatically void previous approvals.

Contractor to replace such materials or equipment to meet contract requirements.

Approval of the Contractor's samples by the Contracting Officer does not relieve the Contractor of his responsibilities under the contract.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- END OF SECTION –

SECTION 01 35 26

GOVERNMENTAL SAFETY REQUIREMENTS

05/24, CHG 1: 05/25

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN SOCIETY OF SAFETY Professionals (ASSP/)	
ASSE/SAFE A10.34	(2001; R 2012) Protection of the Public on or Adjacent to Construction Sites
ASSE/SAFE A10.44	(2014) Control of Energy Sources (Lockout/Tagout) for Construction and Demolition Operations
ASSE/SAFE Z244.1	(2003; R 2014) Control of Hazardous Energy Lockout/Tagout and Alternative Methods
ASSE/SAFE Z359.0	(2012) Definitions and Nomenclature Used for Fall Protection and Fall Arrest
ASSE/SAFE Z359.1	(2007) Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components
ASSE/SAFE Z359.11	(2014) Safety Requirements for Full Body Harnesses
ASSE/SAFE Z359.12	(2009) Connecting Components for Personal Fall Arrest Systems
ASSE/SAFE Z359.13	(2013) Personal Energy Absorbers and Energy Absorbing Lanyards
ASSE/SAFE Z359.14	(2014) Safety Requirements for Self-Retracting Devices for Personal Fall Arrest and Rescue Systems
ASSE/SAFE Z359.15	(2014) Safety Requirements for Single Anchor Lifelines and Fall Arresters for Personal Fall Arrest Systems
ASSE/SAFE Z359.2	(2007) Minimum Requirements for a Comprehensive Managed Fall Protection Program
ASSE/SAFE Z359.3	(2007) Safety Requirements for Positioning and Travel Restraint Systems

ASSE/SAFE Z359.4	(2013) Safety Requirements for Assisted-Rescue and Self-Rescue Systems, Subsystems and Components
ASSE/SAFE Z359.6	(2009) Specifications and Design Requirements for Active Fall Protection Systems
ASSE/SAFE Z359.7	(2011) Qualification and Verification Testing of Fall Protection Products

ASME INTERNATIONAL (ASME)	
ASME B30.20	(2013; INT Oct 2010 - May 2012) Below-the-Hook Lifting Devices
ASME B30.22	(2016) Articulating Boom Cranes
ASME B30.26	(2015; INT Jun 2010 - Jun 2014) Rigging Hardware
ASME B30.3	(2016) Tower Cranes
ASME B30.5	(2014) Mobile and Locomotive Cranes
ASME B30.8	(2015) Floating Cranes and Floating Derricks
ASME B30.9	(2014; INT Feb 2011 - Nov 2013) Slings

ASTM INTERNATIONAL (ASTM)	
ASTM F855	(2020) Standard Specifications for Temporary Protective Grounds to Be Used on De-energized Electric Power Lines and Equipment

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)	
IEEE 1048	(2003) Guide for Protective Grounding of Power Lines
IEEE C2	(2017) National Electrical Safety Code

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)	
NFPA 10	(2013) Standard for Portable Fire Extinguishers
NFPA 241	(2013; Errata 2015) Standard for Safeguarding Construction, Alteration, and Demolition Operations
NFPA 51B	(2014) Standard for Fire Prevention During Welding, Cutting, and Other Hot Work
NFPA 70	(2017) National Electrical Code
NFPA 70E	(2015; ERTA 1 2015) Standard for Electrical Safety in the Workplace

U.S. ARMY CORPS OF ENGINEERS (USACE)	
EM 385-1-1	(2014) Safety and Health Requirements Manual

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)	
10 CFR 20	Standards for Protection Against Radiation
29 CFR 1910	Occupational Safety and Health Standards
29 CFR 1910.146	Permit-required Confined Spaces
29 CFR 1910.147	Control of Hazardous Energy (Lock Out/Tag Out)
29 CFR 1910.333	Selection and Use of Work Practices
29 CFR 1915	Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment
29 CFR 1915.89	Control of Hazardous Energy (Lockout/Tags-Plus)
29 CFR 1926	Safety and Health Regulations for Construction
29 CFR 1926.1400	Cranes and Derricks in Construction
29 CFR 1926.16	Rules of Construction
29 CFR 1926.500	Fall Protection
49 CFR 173	Shippers - General Requirements for Shipments and Packagings
CPL 2.100	(1995) Application of the Permit-Required Confined Spaces (PRCS) Standards, 29 CFR 1910.146

1.1 DEFINITIONS

1.1.1 Competent Person (CP)

The CP is a person designated in writing, who, through training, knowledge and experience, is capable of identifying, evaluating, and addressing existing and predictable hazards in the working environment or working conditions that are dangerous to personnel, and who has authorization to take prompt corrective measures with regards to such hazards.

1.1.2 Competent Person, Confined Space

The CP, Confined Space, is a person meeting the competent person requirements as defined EM 385-1-1 Appendix Q, with thorough knowledge of OSHA's Confined Space Standard, 29 CFR 1910.146, and designated in writing to be responsible for the immediate supervision, implementation and monitoring of the confined space program, who through training, knowledge and experience in confined space entry is capable of identifying, evaluating and addressing existing and potential confined space hazards and, who has the authority to take prompt corrective measures with regard to such hazards.

1.1.3 Competent Person, Cranes and Rigging

The CP, Cranes and Rigging, as defined in EM 385-1-1 Appendix Q, is a person meeting the competent person, who has been designated in writing to be responsible for the immediate supervision, implementation and monitoring of the Crane and Rigging Program, who through training, knowledge and experience in crane and rigging is capable of identifying, evaluating and addressing existing and potential hazards and, who has the authority to take prompt corrective measures with regard to such hazards.

1.1.4 Competent Person, Excavation/Trenching

A CP, Excavation/Trenching, is a person meeting the competent person requirements as defined in EM 385-1-1 Appendix Q and 29 CFR 1926, who has been designated in writing to be responsible for the immediate supervision, implementation and monitoring of the excavation/trenching program, who through training, knowledge and experience in excavation/trenching is capable of identifying, evaluating and addressing existing and potential hazards and, who has the authority to take prompt corrective measures with regard to such hazards.

1.1.5 Competent Person, Fall Protection

The CP, Fall Protection, is a person meeting the competent person requirements as defined in EM 385-1-1 Appendix Q and in accordance with ASSE/SAFE Z359.0, who has been designated in writing by the employer to be responsible for immediate supervising, implementing and monitoring of the fall protection program, who through training, knowledge and experience in fall protection and rescue systems and equipment, is capable of identifying, evaluating and addressing existing and potential fall hazards and, who has the authority to take prompt corrective measures with regard to such hazards.

1.1.6 Competent Person, Scaffolding

The CP, Scaffolding is a person meeting the competent person requirements in EM 385-1-1 Appendix Q and designated in writing by the employer to be responsible for immediate supervising, implementing and monitoring of the scaffolding program. The CP for Scaffolding has enough training, knowledge and experience in scaffolding to correctly identify, evaluate and address existing and potential hazards and also has the authority to take prompt corrective measures with regard to these hazards. CP qualifications must be documented and include experience on the specific scaffolding systems/types being used, assessment of the base material that the scaffold will be erected upon,

load calculations for materials and personnel, and erection and dismantling. The CP for scaffolding must have a documented, minimum of 8-hours of scaffold training to include training on the specific type of scaffold being used (e.g. mast-climbing, adjustable, tubular frame), in accordance with EM 385-1-1 Section 22.B.02.

1.1.7 Competent Person (CP) Trainer

A competent person trainer as defined in EM 385-1-1 Appendix Q, who is qualified in the material presented, and who possesses a working knowledge of applicable technical regulations, standards, equipment and systems related to the subject matter on which they are training Competent Persons. A competent person trainer must be familiar with the typical hazards and the equipment used in the industry they are instructing. The training provided by the competent person trainer must be appropriate to that specific industry. The competent person trainer must evaluate the knowledge and skills of the competent persons as part of the training process.

1.1.8 High Risk Activities

High Risk Activities are activities that involve work at heights, crane and rigging, excavations and trenching, scaffolding, electrical work, and confined space entry.

1.1.9 High Visibility Accident

A High Visibility Accident is any mishap which may generate publicity or high visibility.

1.1.10 Load Handling Equipment (LHE)

LHE is a term used to describe cranes, hoists and all other hoisting equipment (hoisting equipment means equipment, including crane, derricks, hoists and power operated equipment used with rigging to raise, lower or horizontally move a load).

1.1.11 Medical Treatment

Medical Treatment is treatment administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does not include first aid treatment even through provided by a physician or registered personnel.

1.1.12 Near Miss

A Near Miss is a mishap resulting in no personal injury and zero property damage, but given a shift in time or position, damage or injury may have occurred (e.g., a worker falls off a scaffold and is not injured; a crane swings around to move the load and narrowly misses a parked vehicle).

1.1.13 Operating Envelope

The Operating Envelope is the area surrounding any crane or load handling equipment. Inside this "envelope" is the crane, the operator, riggers and crane walkers, other personnel involved in the operation, rigging gear between the hook, the load, the crane's supporting structure (i.e. ground or rail), the load's rigging path, the lift and rigging procedure.

1.1.14 Qualified Person (QP).

The QP is a person designated in writing, who, by possession of a recognized degree, certificate, or professional standing, or extensive knowledge, training, and experience, has successfully demonstrated their ability to solve or resolve problems related to the subject matter, the work, or the project.

1.1.15 Qualified Person, Fall Protection (QP for FP)

A QP for FP is a person meeting the requirements of EM 385-1-1 Appendix Q, and ASSE/SAFE Z359.0, with a recognized degree or professional certificate and with extensive knowledge, training and experience in the fall protection and rescue field who is capable of designing, analyzing, and evaluating and specifying fall protection and rescue systems.

1.1.16 Recordable Injuries or Illnesses

Recordable Injuries or Illnesses are any work-related injury or illness that results in:

a. Death, regardless of the time between the injury and death, or the length of the illness;

b. Days away from work (any time lost after day of injury/illness onset);

c. Restricted work;

d. Transfer to another job;

e. Medical treatment beyond first aid;

f. Loss of consciousness; or

A significant injury or illness diagnosed by a physician or other licensed health care professional, even if it did not result in (a) through (f) above.

1.1.17 Government Property and Equipment

Interpret "USACE" property and equipment specified in USACE EM 385-1-1 as Government property and equipment.

1.1.18 Load Handling Equipment (LHE) Accident or Load Handling Equipment Mishap

A LHE accident occurs when any one or more of the eight elements in the operating envelope fails to perform correctly during operation, including operation during maintenance or testing resulting in personnel injury or death; material or equipment damage; dropped load; derailment; two- blocking; overload; or collision, including unplanned contact between the load, crane, or other objects. A dropped load, derailment, two-blocking, overload and collision are considered accidents, even though no material damage or injury occurs. A component failure (e.g., motor burnout, gear tooth failure, bearing failure) is not considered an accident solely due to material or equipment damage unless the component failure results in damage to other components (e.g., dropped boom, dropped load, or roll over).

Document any mishap that meets the criteria described in the Contractor Significant Incident Report (CSIR)

1.1.19 Site Safety and Health Officer (SSHO)

A Contractor Employee that is responsible for overseeing and ensuring implementation of the prime Contractor's Safety and Occupational Health (SOH) program according to the Contract, EM 385-1-1, applicable federal, state, and local requirements.

1.2 SUBMITTALS

Government Acceptance or Approval does not remove responsibility from the Contractors for their actions or liability.

Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals Accident Prevention Plan (APP); G

Final IAQ Management Plan; S

Indoor Air Quality (IAQ) Management Plan; G

SD-06 Test Reports

Monthly Exposure Reports Notifications and Reports Accident Reports; G

LHE Inspection Reports SD-07 Certificates

Crane Operators/Riggers Standard Lift Plan; G Critical Lift Plan ; G Activity Hazard Analysis (AHA) Confined

Space Entry Permit Hot Work Permit

Certificate of Compliance

License Certificates

Radiography Operation Planning Work Sheet; G

Portable Gauge Operations Planning Worksheet; G

1.3 REGULATORY REQUIREMENTS

In addition to the detailed requirements included in the provisions of this contract, comply with the most recent edition of USACE EM 385-1-1, and the following federal, state, and local laws, ordinances, criteria, rules and regulations. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting work.

Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements govern.

1.4 MONTHLY EXPOSURE REPORTS

Provide a Monthly Exposure Report by the fifth day of each month for the previous month. This report is a compilation of employee hours worked each month for all site workers, both Prime and subcontractor. Failure to submit the report may result in retention of up to 10% of the progress payment.

1.5 SITE QUALIFICATIONS, DUTIES, AND MEETINGS

1.5.1 Personnel Qualifications

1.5.1.1 Site Safety and Health Officer (SSHO)

Provide an SSHO that meets the requirements of EM 385-1-1 Section 1. The SSHO must ensure that the requirements of 29 CFR 1926.16 are met for the project. Provide a Safety oversight team that includes a minimum of one (1) person at each project site to function as the Site Safety and Health Officer (SSHO). The SSHO or an equally qualified Alternate SSHO must be at the work site at all times to implement and administer the Contractor's safety program and government-accepted Accident Prevention Plan. The SSHO and Alternate SSHO must have the required training, experience, and qualifications in accordance with EM 385-1-1 Section 01.A.17, and all associated sub-paragraphs.

If the SSHO is off-site for a period longer than 24 hours, an equally- qualified alternate SSHO must be provided and must fulfill the same roles and responsibilities as the primary SSHO. When the SSHO is temporarily (up to 24 hours) off-site, a Designated Representative (DR), as identified in the AHA may be used in lieu of an Alternate SSHO, and must be on the project site at all times when work is being performed. Note that the DR is a collateral duty safety position, with safety duties in addition to their full-time occupation.

1.5.1.2 Contractor Quality Control (QC) Manager:

The Contractor Quality Control Manager should be independent of the SSHO and Site Superintendent.

1.5.1.3 Competent Person Qualifications

Provide Competent Persons in accordance with EM 385-1-1, Appendix Q and herein. Competent Persons for high risk activities include confined space, cranes and rigging, excavation/trenching, fall protection, and electrical work. The CP for these activities must be designated in writing and meet the requirements for the specific activity (i.e. competent person, fall protection).

The Competent Person identified in the Contractor's Safety and Health Program and accepted Accident Prevention Plan must be on-site at all times when the work that presents the hazards associated with their professional expertise is being performed. Provide the credentials of the Competent Persons(s) to the Contracting Officer for information in consultation with the Safety Office.

1.5.1.3.1 Competent Person for Confined Space Entry

Provide a Confined Space (CP) Competent Person who meets the requirements of EM 385-1-1, Appendix Q, and herein. The CP for Confined Space Entry must supervise the entry into each confined space.

1.5.1.3.2 Competent Person for Scaffolding

Provide a Competent Person for Scaffolding who meets the requirements of EM 385-1-1, Section 22.B.02 and herein.

1.5.1.3.3 Competent Person for Fall Protection

Provide a Competent Person for Fall Protection who meets the requirements of EM 385-1-1, Section 21.C.04 and herein.

1.5.1.4 Crane Operators/Riggers

Provide Operators meeting the requirements in EM 385-1-1, Section 15.B for Riggers and Section 16.B for Crane Operators. In addition, for mobile cranes with Original Equipment Manufacturer (OEM) rated capacities of 50,000 pounds or greater, designate crane operators qualified by a source that qualifies crane operators (i.e., union, a government agency, or an organization that tests and qualifies crane operators). Provide proof of current qualifications.

1.5.2 Personnel Duties

1.5.2.1 Duties of the Site Safety and Health Officer (SSHO) The SSHO must:

a. Conduct daily safety and health inspections.

b. Conduct mishap investigations and complete required accident reports. Report mishaps and near misses.

c. Use and maintain OSHA's Form 300 to log work-related injuries and illnesses occurring on the project site for Prime Contractors and subcontractors and make available to the Contracting Officer upon request. Post and maintain the Form 300A on the site Safety Bulletin Board.

d. Maintain applicable safety reference material on the job site.

e. Attend the pre-construction conference, pre-work meetings including preparatory meetings, and periodic in-progress meetings.

f. Review the APP and AHAs for compliance with EM 385-1-1, and approve, sign, implement and enforce them.

g. Establish a Safety and Occupational Health (SOH) Deficiency Tracking System that lists and monitors outstanding deficiencies until resolution.

h. Ensure subcontractor compliance with safety and health requirements.

i. Maintain a list of hazardous chemicals on site and their material Safety Data Sheets (SDS).

Superintendent, QC Manager, and SSHO are subject to dismissal if the above duties are not being effectively carried out. If Superintendent, QC Manager, or SSHO are dismissed, project work will be stopped and will not be allowed to resume until a suitable replacement is approved and the above duties are again being effectively carried out.

1.5.3 Meetings

1.5.3.1 Preconstruction Conference

a. Contractor representatives who have a responsibility or significant role in accident prevention on the project must attend the preconstruction conference. This includes the project superintendent, Site Safety and Occupational Health officer, quality control manager, or any other assigned safety and health professionals who participated in the development of the APP (including the Activity Hazard Analyses (AHAs) and special plans, programs and procedures associated with it).

b. Discuss the details of the submitted APP to include incorporated plans, programs, procedures and a listing of anticipated AHAs that will be developed and implemented during the performance of the contract. This list of proposed AHAs will be reviewed at the conference and an agreement will be reached between the Contractor and the Contracting Officer as to which phases will require an analysis. In addition, establish a schedule for the preparation, submittal, and Government review of AHAs to preclude project delays.

c. Deficiencies in the submitted APP, identified during the Contracting Officer's review, must be corrected, and the APP re-submitted for review prior to the start of construction. Work is not permitted to begin work until an APP is established that is acceptable to the Contracting Officer.

1.5.3.2 Safety Meetings

Conduct safety meetings to review past activities, plan for new or changed operations, review pertinent aspects of appropriate AHA (by trade), establish safe working procedures for anticipated hazards, and provide pertinent Safety and Occupational Health (SOH) training and motivation. Conduct meetings at least once a month for all supervisors on the project location. The SSHO, supervisors, foremen, or CDSOs must conduct meetings at least once a week for the trade workers. Document meeting minutes to include the date, persons in attendance, subjects discussed, and names of individual(s) who conducted the meeting. Maintain documentation on-site and furnish copies to the Contracting Officer on request. Notify the Contracting Officer of all scheduled meetings 7 calendar days in advance.

1.6 ACCIDENT PREVENTION PLAN (APP)

A qualified person must prepare the written site-specific APP. Prepare the APP in accordance with the format and requirements of EM 385-1-1, Appendix A, and as supplemented herein. Cover all paragraph and subparagraph elements in EM 385-1-1, Appendix A. The APP must be job-specific and address any unusual or unique aspects of the project or activity for which it is written. The APP must interface with the Contractor's overall safety and health program referenced in the APP in the applicable APP element and made site-specific. Describe the methods to evaluate past safety performance of potential subcontractors in the selection process. Also, describe innovative methods used to ensure and monitor safe work practices of subcontractors. The Government considers the Prime Contractor to be the "controlling authority" for all work site safety and health of the subcontractors. Contractors are responsible for informing their subcontractors of the safety provisions under the terms of the contract and the penalties for noncompliance, coordinating the work to prevent one craft from interfering with or creating hazardous working conditions for other crafts, and inspecting subcontractor operations to ensure that accident prevention responsibilities are being carried out. The APP must be signed by an officer of the firm (Prime Contractor senior person), the individual preparing the APP, the on-site superintendent, the designated SSHO, the Contractor Quality Control Manager, and any designated Certified Safety Professional (CSP) or Certified Health Physicist (CIH). The SSHO must provide and maintain the APP and a log of signatures by each subcontractor foreman, attesting that they have read and understand the APP, and make the APP and log available on-site to the Contracting Officer. If English is not the foreman's primary language, the Prime Contractor must provide an interpreter.

Submit the APP to the Contracting Officer 15 calendar days prior to the date of the preconstruction conference for acceptance. Work cannot proceed without an accepted APP. Once reviewed and accepted by the Contracting Officer, the APP and attachments will be enforced as part of the contract. Disregarding the provisions of this contract or the accepted APP is cause for stopping of work, at the discretion of the Contracting Officer, until the matter has been rectified. Continuously review and amend the APP, as necessary, throughout the life of the contract. Changes to the accepted APP must be made with the knowledge and concurrence of the Contracting Officer, project superintendent, SSHO and Quality Control Manager.

Incorporate unusual or high-hazard activities not identified in the original APP as they are discovered. Should any severe hazard exposure (i.e. imminent danger) become evident, stop work in the area, secure the area, and develop a plan to remove the exposure and control the hazard. Notify the Contracting Officer within 24 hours of discovery. Eliminate and remove the hazard. In the interim, take all necessary action to restore and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public (as defined by ASSE/SAFE A10.34), and the environment.

1.6.1 Names and Qualifications

Provide plans in accordance with the requirements outlined in Appendix A of EM 385-1-1, including the following:

a. Names and qualifications (resumes including education, training, experience and certifications) of site safety and health personnel designated to perform work on this project to include the designated Site Safety and Health Officer and other competent and qualified personnel to be used. Specify the duties of each position.

b. Qualifications of competent and of qualified persons. As a minimum, designate and submit qualifications of competent persons for each of the following major areas: excavation; scaffolding; fall protection; hazardous energy; confined space; health hazard recognition, evaluation and control of chemical, physical and biological agents; and personal protective equipment and clothing to include selection, use and maintenance.

1.6.2 Plans

Provide plans in the APP in accordance with the requirements outlined in Appendix A of EM 385-1-1, including the following:

1.6.2.1 Confined Space Entry Plan

Develop a confined or enclosed space entry plan in accordance with
EM 385-1-1, applicable OSHA standards 29 CFR 1910, 29 CFR 1915, and 29 CFR 1926, OSHA Directive CPL 2.100, and any other federal, state and local regulatory requirements identified in this contract. Identify the qualified person's name and qualifications, training, and experience.

Delineate the qualified person's authority to direct work stoppage in the event of hazardous conditions. Include procedure for rescue by contractor personnel and coordination with emergency responders. (If there is no confined space work, include a statement that no confined space work exists and none will be created.)

1.6.2.2 Standard Lift Plan (SLP)

Plan lifts to avoid situations where the operator cannot maintain safe control of the lift. Prepare a written SLP in accordance with EM 385-1-1, Section 16.A.03, using Form 16-2 for every lift or series of lifts (if duty cycle or routine lifts are being performed). The SLP must be developed, reviewed and accepted by all personnel involved in the lift in conjunction with the associated AHA. Signature on the AHA constitutes acceptance of the plan. Maintain the SLP on the LHE for the current lift(s) being made. Maintain historical SLPs for a minimum of 3 months.

1.6.2.3 Critical Lift Plan - Crane or Load Handling Equipment

Provide a Critical Lift Plan as required by EM 385-1-1, Section 16.H.01, using Form 16-3. Critical lifts require detailed planning and additional or unusual safety precautions. Develop and submit a critical lift plan to the Contracting Officer 30 calendar days prior to critical lift. Comply with load testing requirements in accordance with EM 385-1-1, Section 16.F.03.

In addition to the requirements of EM 385-1-1, Section 16.H.02, the critical lift plan must include the following:

a. For lifts of personnel, demonstrate compliance with the requirements of
29 CFR 1926.1400 and EM 385-1-1, Section 16.T.

b. Multi-purpose machines, material handling equipment, and construction equipment used to lift loads that are suspended by rigging gear, require proof of authorization from the machine OEM that the machine is capable of making lifts of loads suspended by rigging equipment. Demonstrate that the operator is properly trained and that the equipment is properly configured to make such lifts and is equipped with a load chart.

1.6.2.4 Fall Protection and Prevention (FP&P) Plan

The plan must comply with the requirements of EM 385-1-1, Section 21.D and ASSE/SAFE Z359.2, be site specific, and address all fall hazards in the workplace and during different phases of construction. Address how to protect and prevent workers from falling to lower levels when they are exposed to fall hazards above 6 feet. A competent person or qualified person for fall protection must prepare and sign the plan documentation.

Include fall protection and prevention systems, equipment and methods employed for every phase of work, roles and responsibilities, assisted rescue, self-rescue and evacuation procedures, training requirements, and monitoring methods. Review and revise, as necessary, the Fall Protection and Prevention Plan documentation as conditions change, but at a minimum every six months, for lengthy projects, reflecting any changes during the course of construction due to changes in personnel, equipment, systems or work habits. Keep and maintain the accepted Fall Protection and Prevention Plan documentation at the job site for the duration of the project.

Include the Fall Protection and Prevention Plan documentation in the Accident Prevention Plan (APP).

1.6.2.5 Rescue and Evacuation Plan

Provide a Rescue and Evacuation Plan in accordance with EM 385-1-1 Section
21.N and ASSE/SAFE Z359.2 and include in the FP&P Plan and as part of the APP. Include a detailed discussion of the following: methods of rescue; methods of self-rescue; equipment used; training requirement; specialized training for the rescuers; procedures for requesting rescue and medical assistance; and transportation routes to a medical facility.

1.6.2.6 Hazardous Energy Control Program (HECP)

Develop a HECP in accordance with EM 385-1-1 Section 12, 29 CFR 1910.147, 29 CFR 1910.333, 29 CFR 1915.89, ASSE/SAFE Z244.1, and ASSE/SAFE A10.44.
Submit this HECP as part of the Accident Prevention Plan (APP). Conduct a preparatory meeting and inspection with all effected personnel to coordinate all HECP activities. Document this meeting and inspection in accordance with EM 385-1-1, Section 12.A.02. Ensure that each employee is familiar with and complies with these procedures.

1.6.2.7 Excavation Plan

Identify the safety and health aspects of excavation and provide and prepare the plan in accordance with EM 385-1-1, Section 25.A and Section 31 00 00 EARTHWORK.

1.7 ACTIVITY HAZARD ANALYSIS (AHA)

Before beginning each activity, task or Definable Feature of Work (DFOW) involving a type of work presenting hazards not experienced in previous project operations, or where a new work crew or subcontractor is to perform the work, the Contractor(s) performing that work activity must prepare an AHA. AHAs must be developed by the Prime Contractor, subcontractor, or supplier performing the work, and provided for Prime Contractor review and approval before submitting to the Contracting Officer. AHAs must be signed by the SSHO, Superintendent, QC Manager and the subcontractor Foreman performing the work. Format the AHA in accordance with EM 385-1-1, Section

1 or as directed by the Contracting Officer. Submit the AHA for review at least 15working days prior to the start of each activity task, or DFOW. The Government reserves the right to require the Contractor to revise and resubmit the AHA if it fails to effectively identify the work sequences, specific anticipated hazards, site conditions, equipment, materials, personnel and the control measures to be implemented.

AHAs must identify competent persons required for phases involving high risk activities, including confined entry, crane and rigging, excavations, trenching, electrical work, fall protection, and scaffolding.

1.7.1 AHA Management

Review the AHA list periodically (at least monthly) at the Contractor supervisory safety meeting, and update as necessary when procedures, scheduling, or hazards change. Use the AHA during daily inspections by the SSHO to ensure the implementation and effectiveness of the required safety and health controls for that work activity.

1.7.2 AHA Signature Log

Each employee performing work as part of an activity, task or DFOW must review the AHA for that work and sign a signature log specifically maintained for that AHA prior to starting work on that activity. The SSHO must maintain a signature log on site for every AHA. Provide employees whose primary language is other than English, with an interpreter to ensure a clear understanding of the AHA and its contents.

1.8 DISPLAY OF SAFETY INFORMATION

1.8.1 Safety Bulletin Board

Within three calendar days after commencement of work, erect a safety bulletin board at the job site. Where size, duration, or logistics of project do not facilitate a bulletin board, an alternative method, acceptable to the Contracting Officer, that is accessible and includes all mandatory information for employee and visitor review, may be deemed as meeting the requirement for a bulletin board. Include and maintain information on safety bulletin board as required by EM 385-1-1, Section

01.A.07. Additional items required to be posted include:

a. Confined space entry permit.

b. Hot work permit.

1.8.2 Safety and Occupational Health (SOH) Deficiency Tracking System

Establish a SOH deficiency tracking system that lists and monitors the status of SOH deficiencies in chronological order. Use the tracking system to evaluate the effectiveness of the APP. A monthly evaluation of the data must be discussed in the QC or SOH meeting with everyone on the project.

The list must be posted on the project bulletin board and updated daily, and provide the following information:

a. Date deficiency identified;

b. Description of deficiency;

c. Name of person responsible for correcting deficiency;

d. Projected resolution date;

e. Date actually resolved.

1.9 SITE SAFETY REFERENCE MATERIALS

Maintain safety-related references applicable to the project, including those listed in paragraph REFERENCES. Maintain applicable equipment manufacturer's manuals.

1.10 EMERGENCY MEDICAL TREATMENT

Contractors must arrange for their own emergency medical treatment. Government has no responsibility to provide emergency medical treatment.

1.11 NOTIFICATIONS and REPORTS

1.11.1 Mishap Notification

Notify the Contracting Officer as soon as practical, but no more than twenty-four hours, after any mishaps, including recordable accidents, incidents, and near misses, as defined in EM 385-1-1 Appendix Q, any report of injury, illness, load handling equipment (LHE) or rigging mishaps, or any property damage. The Contractor is responsible for obtaining appropriate medical and emergency assistance and for notifying fire, law enforcement, and regulatory agencies. Immediate reporting is required for electrical mishaps, to include Arc Flash; shock; uncontrolled release of hazardous energy (includes electrical and non-electrical); load handling equipment or rigging; fall from height (any level other than same surface); and underwater diving. These mishaps must be investigated in depth to identify all causes and to recommend hazard control measures.

Within notification include Contractor name; contract title; type of contract; name of activity, installation or location where accident occurred; date and time of accident; names of personnel injured; extent of property damage, if any; extent of injury, if known, and brief description of accident (for example, type of construction equipment used and PPE used). Preserve the conditions and evidence on the accident site until the Government investigation team arrives on-site and Government investigation is conducted. Assist and cooperate fully with the Government's investigation(s) of any mishap.

1.11.2 Accident Reports

a. Conduct an accident investigation for recordable injuries and illnesses, property damage, and near misses as defined in EM 385-1-1, to establish the root cause(s) of the accident. The Contracting Officer will provide copies of any required or special forms.

b. Near Misses: Near miss reports are considered positive and proactive Contractor safety management actions.

c. Conduct an accident investigation for any load handling equipment accident (including rigging gear accidents) to establish the root cause(s) of the accident. Complete the LHE Accident Report (Crane and Rigging Gear) form and provide the report to the Contracting Officer within 30 calendar days of the accident. Do not proceed with crane operations until cause is determined and corrective actions have been implemented to the satisfaction of the Contracting Officer. The Contracting Officer will provide a blank copy of the accident report form.

1.11.3 LHE Inspection Reports

Submit LHE inspection reports required in accordance with EM 385-1-1 and as specified herein with Daily Reports of Inspections.

1.11.4 Certificate of Compliance and Pre-lift Plan/Checklist for LHE and Rigging

Provide a FORM 16-1 Certificate of Compliance for LHE entering an activity under this contract and in accordance with EM 385-1-1. Post certifications on the crane.

Develop a Standard Lift Plan (SLP) in accordance with EM 385-1-1, Section 16.H.03 using Form 16-2 Standard Pre-Lift Crane Plan/Checklist for each lift planned. Submit SLP to the Contracting Officer for approval within 15 calendar days in advance of planned lift.

1.12 HOT WORK

1.12.1 Permit and Personnel Requirements

Submit and obtain a written permit prior to performing "Hot Work" (i.e. welding or cutting) or operating other flame-producing/spark producing devices, from the Fire Department. A permit is required from the Explosives Safety Office for work in and around where explosives are processed, stored, or handled. CONTRACTORS ARE REQUIRED TO MEET ALL CRITERIA BEFORE A PERMIT IS ISSUED. Provide at least two 20-pound 4A:20 BC rated extinguishers for normal "Hot Work". The extinguishers must be current inspection tagged and contain an approved safety pin and tamper resistant seal. It is also mandatory to have a designated FIRE WATCH for any "Hot Work" done at this activity. The Fire Watch must be trained in accordance with NFPA 51B and remain on-site for a minimum of one hour after completion of the task or as specified on the hot work permit.

When starting work in the facility, require personnel to familiarize themselves with the location of the nearest fire alarm boxes and place in memory the emergency Fire Department phone number. REPORT ANY FIRE, NO MATTER HOW SMALL, TO THE RESPONSIBLE FIRE DEPARTMENT IMMEDIATELY.

1.13 CONFINED SPACE ENTRY REQUIREMENTS.

Confined space entry must comply with Section 34 of EM 385-1-1, OSHA 29 CFR 1926, OSHA 29 CFR 1910, OSHA 29 CFR 1910.146, and OSHA Directive CPL 2.100. Any potential for a hazard in the confined space requires a permit system to be used.

1.13.1 Entry Procedures

Prohibit entry into a confined space by personnel for any purpose, including hot work, until the qualified person has conducted appropriate tests to ensure the confined or enclosed space is safe for the work intended and that all potential hazards are controlled or eliminated and documented. Comply with EM 385-1-1, Section 34 for entry procedures.

Hazards pertaining to the space must be reviewed with each employee during review of the AHA.

1.13.2 Forced Air Ventilation

Forced air ventilation is required for all confined space entry operations and the minimum air exchange requirements must be maintained to ensure exposure to any hazardous atmosphere is kept below its action level.

1.13.3 Sewer Wet Wells

Sewer wet wells require continuous atmosphere monitoring with audible alarm for toxic gas detection.

1.13.4 Rescue Procedures and Coordination with Local Emergency Responders

Develop and implement an on-site rescue and recovery plan and procedures. The rescue plan must not rely on local emergency responders for rescue from a confined space.

1.14 SEVERE STORM PLAN

In the event of a severe storm warning, the Contractor must:

a. Secure outside equipment and materials and place materials that could be damaged in protected areas.

b. Check surrounding area, including roof, for loose material, equipment, debris, and other objects that could be blown away or against existing facilities.

c. Ensure that temporary erosion controls are adequate.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 CONSTRUCTION AND OTHER WORK

Comply with EM 385-1-1, NFPA 70, NFPA 70E, NFPA 241, the APP, the AHA,
Federal and State OSHA regulations, and other related submittals and activity fire and safety regulations. The most stringent standard prevails.

PPE is governed in all areas by the nature of the work the employee is performing. Use personal hearing protection at all times in designated noise hazardous areas or when performing noise hazardous tasks. Safety glasses must be worn or carried/available on each person. Mandatory PPE includes:

a. Hard Hat

b. Long Pants

c. Appropriate Safety Shoes

d. Appropriate Class Reflective Vests

3.1.1 Worksite Communication

Employees working alone in a remote location or away from other workers must be provided with an effective means of emergency communications (i.e., cellular phone, two-way radios, land-line telephones or other acceptable means). The selected communication must be readily available (easily within the immediate reach) of the employee and must be tested prior to the start of work to verify that it effectively operates in the area/environment. An employee check-in/check-out communication procedure must be developed to ensure employee safety.

3.1.2 Hazardous Material Exclusions

Notwithstanding any other hazardous material used in this contract, radioactive materials or instruments capable of producing ionizing/non- ionizing radiation (with the exception of radioactive material and devices used in accordance with EM 385-1-1 such as nuclear density meters for compaction testing and laboratory equipment with radioactive sources) as well as materials which contain asbestos, mercury or polychlorinated biphenyls, di-isocyanates, lead-based paint, and hexavalent chromium, are prohibited. The Contracting Officer, upon written request by the Contractor,

may consider exceptions to the use of any of the above excluded materials. Low mercury lamps used within fluorescent lighting fixtures are allowed as an exception without further Contracting Officer approval.

Notify the Radiation Safety Officer (RSO) prior to excepted items of radioactive material and devices being brought on base.

3.1.3 **Unforeseen** Hazardous Material

Contract documents identify materials such as PCB, lead paint, and friable and non-friable asbestos and other OSHA regulated chemicals (i.e. 29 CFR Part 1910.1000). If material(s) that may be hazardous to human health upon disturbance are encountered during construction operations, stop that portion of work and notify the Contracting Officer immediately. Within 15 calendar days the Government will determine if the material is hazardous.

If material is not hazardous or poses no danger, the Government will direct the Contractor to proceed without change. If material is hazardous and handling of the material is necessary to accomplish the work, the Government will issue a modification pursuant to FAR 52.243-4, "Changes" and FAR 52.236-2, "Differing Site Conditions."

3.2 PRE-OUTAGE COORDINATION MEETING

Apply for utility outages at least 15 days in advance. As a minimum, the request must include the location of the outage, utilities being affected, duration of outage and any necessary sketches. Special requirements for electrical outage requests are contained elsewhere in this specification section. Once approved, and prior to beginning work on the utility system requiring shut down, attend a pre-outage coordination meeting with the Contracting Officer to review the scope of work and the lock-out/tag-out procedures for worker protection. No work will be performed on energized electrical circuits unless proof is provided that no other means exist.

3.3 CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT)

Provide and operate a Hazardous Energy Control Program (HECP) in accordance with EM 385-1-1 Section 12, 29 CFR 1910.333, 29 CFR 1915.89, and paragraph HAZARDOUS ENERGY CONTROL PROGRAM (HECP).

3.4 FALL PROTECTION PROGRAM

Establish a fall protection program, for the protection of all employees exposed to fall hazards. Within the program include company policy, identify roles and responsibilities, education and training requirements, fall hazard identification, prevention and control measures, inspection, storage, care and maintenance of fall protection equipment and rescue and evacuation procedures in accordance with ASSE/SAFE Z359.2 and EM 385-1-1, Sections 21.A and 21.D.

3.4.1 Training

Institute a fall protection training program. As part of the Fall Protection Program, provide training for each employee who might be exposed to fall hazards. Provide training by a competent person for fall protection in accordance with EM 385-1-1, Section 21.C. Document training and practical application of the competent person in accordance with EM 385-1-1, Section 21.C.04 and ASSE/SAFE Z359.2 in the AHA.

3.4.2 Fall Protection Equipment and Systems

Enforce use of personal fall protection equipment and systems designated (to include fall arrest, restraint, and positioning) for each specific work activity in the Site-Specific Fall Protection and Prevention Plan and AHA at all times when an employee is exposed to a fall hazard. Protect employees from fall hazards as specified in EM 385-1-1, Section 21.

Provide personal fall protection equipment, systems, subsystems, and components that comply with EM 385-1-1 Section 21.I, 29 CFR 1926.500 Subpart M,ASSE/SAFE Z359.0, ASSE/SAFE Z359.1, ASSE/SAFE Z359.2, ASSE/SAFE Z359.3, ASSE/SAFE Z359.4, ASSE/SAFE Z359.6, ASSE/SAFE Z359.7, ASSE/SAFE Z359.11, ASSE/SAFE Z359.12, ASSE/SAFE Z359.13, ASSE/SAFE Z359.14, and ASSE/SAFE Z359.15.

3.4.2.1 Additional Personal Fall Protection

In addition to the required fall protection systems, other protection such as safety skiffs, personal floatation devices, and life rings, are required when working above or next to water in accordance with EM 385-1-1, Sections 21.O through 21.O.06. Personal fall protection systems and equipment are required when working from an articulating or extendible boom, swing stages, or suspended platform. In addition, personal fall protection systems are required when operating other equipment such as scissor lifts. The need for tying-off in such equipment is to prevent ejection of the employee from the equipment during raising, lowering, travel, or while performing work.

3.4.2.2 Personal Fall Protection Harnesses

Only a full-body harness with a shock-absorbing lanyard or self-retracting lanyard is an acceptable personal fall arrest body support device. The use of body belts is not acceptable. Harnesses must have a fall arrest attachment affixed to the body support (usually a Dorsal D-ring) and specifically designated for attachment to the rest of the system. Snap hooks and carabiners must be self-closing and self-locking, capable of being opened only by at least two consecutive deliberate actions and have a minimum gate strength of 3,600 lbs in all directions. Use webbing, straps, and ropes made of synthetic fiber. The maximum free fall distance when using fall arrest equipment must not exceed 6 feet, unless the proper energy absorbing lanyard is used. Always take into consideration the total fall distance and any swinging of the worker (pendulum-like motion), that can occur during a fall, when attaching a person to a fall arrest system.

All full body harnesses must be equipped with Suspension Trauma Preventers such as stirrups, relief steps, or similar in order to provide short-term relief from the effects of orthostatic intolerance in accordance with EM 385-1-1, Section 21.I.06.

3.4.3 Fall Protection for Roofing Work

Implement fall protection controls based on the type of roof being constructed and work being performed. Evaluate the roof area to be accessed for its structural integrity including weight-bearing capabilities for the projected loading.

a. Low Sloped Roofs:

(1) For work within 6 feet of an edge, on a roof having a slope less than or equal to 4:12 (vertical to horizontal), protect personnel from falling by use of personal fall arrest/restraint systems, guardrails, or safety nets. A safety monitoring system is not adequate fall protection and is not authorized. Provide in accordance with 29 CFR 1926.500.

(2) For work greater than 6 feet from an edge, erect and install warning lines in accordance with 29 CFR 1926.500 and EM 385-1-1, Section L.

b. Steep-Sloped Roofs: Work on a roof having a slope greater than 4:12 (vertical to horizontal) requires a personal fall arrest system, guardrails with toe-boards, or safety nets. This requirement also applies to residential or housing type construction.

3.4.4 Horizontal Lifelines (HLL)

Provide HLL in accordance with EM 385-1-1, Section 21.I.08.d.2. Commercially manufactured horizontal lifelines (HLL) must be designed, installed, certified and used, under the supervision of a qualified person, for fall protection as part of a complete fall arrest system which maintains a safety factor of 2 (29 CFR 1926.500). The competent person for fall protection may (if deemed appropriate by the qualified person) supervise the assembly, disassembly, use and inspection of the HLL system under the direction of the qualified person. Locally manufactured HLLs are not acceptable unless they are custom designed for limited or site-specific applications by a Registered Professional Engineer who is qualified in designing HLL systems.

3.4.5 Guardrails and Safety Nets

Design, install and use guardrails and safety nets in accordance with EM 385-1-1, Section 21.F.01 and 29 CFR 1926 Subpart M.

3.4.6 Rescue and Evacuation Plan and Procedures

When personal fall arrest systems are used, ensure that the mishap victim can self-rescue or can be rescued promptly should a fall occur. Prepare a Rescue and Evacuation Plan and include a detailed discussion of the following: methods of rescue; methods of self-rescue or assisted-rescue; equipment used; training requirement; specialized training for the rescuers; procedures for requesting rescue and medical assistance; and transportation routes to a medical facility. Include the Rescue and Evacuation Plan within the Activity Hazard Analysis (AHA) for the phase of work, in the Fall Protection and Prevention (FP&P) Plan, and the Accident Prevention Plan (APP). The plan must comply with the requirements of EM 385-1-1, ASSE/SAFE Z359.2, and ASSE/SAFE Z359.4.

3.5 WORK PLATFORMS

3.5.1 Scaffolding

Provide employees with a safe means of access to the work area on the scaffold. Climbing of any scaffold braces or supports not specifically designed for access is prohibited. Comply with the following requirements:

a. Scaffold platforms greater than 20 feet in height must be accessed by use of a scaffold stair system.

b. Ladders commonly provided by scaffold system manufacturers are prohibited for accessing scaffold platforms greater than 20 feet maximum in height.

c. An adequate gate is required.

d. Employees performing scaffold erection and dismantling must be qualified.

e. Scaffold must be capable of supporting at least four times the maximum intended load or without appropriate fall protection as delineated in the accepted fall protection and prevention plan.

f. Stationary scaffolds must be attached to structural building components to safeguard against tipping forward or backward.

g. Special care must be given to ensure scaffold systems are not overloaded.

h. Side brackets used to extend scaffold platforms on self-supported scaffold systems for the storage of material are prohibited. The first tie-in must be at the height equal to 4 times the width of the smallest dimension of the scaffold base.

i. Scaffolding other than suspended types must bear on base plates upon wood mudsills (2 in x 10 in x 8 in minimum) or other adequate firm foundation.

j. Scaffold or work platform erectors must have fall protection during the erection and dismantling of scaffolding or work platforms that are more than 6 feet.

k. Delineate fall protection requirements when working above 6 feet or above dangerous operations in the Fall Protection and Prevention (FP&P) Plan and Activity Hazard Analysis (AHA) for the phase of work.

3.5.2 Elevated Aerial Work Platforms (AWPs)

Workers must be anchored to the basket or bucket in accordance with manufacturer's specifications and instructions (anchoring to the boom may only be used when allowed by the manufacturer and permitted by the CP).

Lanyards used must be sufficiently short to prohibit workers from climbing out of basket. The climbing of rails is prohibited. Lanyards with built- in shock absorbers are acceptable. Self-retracting devices are not acceptable. Tying off to an adjacent pole or structure is not permitted unless a safe device for 100 percent tie-off is used for the transfer.

Use of AWPs must be operated, inspected, and maintained as specified in the operating manual for the equipment and delineated in the AHA. Operators of AWPs must be designated as qualified operators by the Prime Contractor.

Maintain proof of qualifications on site for review and include in the AHA.

3.6 EQUIPMENT

3.6.1 Material Handling Equipment (MHE)

a. Material handling equipment such as forklifts must not be modified with work platform attachments for supporting employees unless specifically delineated in the manufacturer's printed operating instructions. Material handling equipment fitted with personnel work platform attachments are prohibited from traveling or positioning while personnel are working on the platform.

b. The use of hooks on equipment for lifting of material must be in accordance with manufacturer's printed instructions. Material Handling Equipment Operators must be trained in accordance with OSHA 29 CFR 1910, Subpart N.

c. Operators of forklifts or power industrial trucks must be licensed in accordance with OSHA.

3.6.2 Load Handling Equipment (LHE)

a. Equip cranes and derricks as specified in EM 385-1-1, Section 16.

b. Notify the Contracting Officer 15 working days in advance of any LHE entering the activity, in accordance with EM 385-1-1, Section 16.A.02, so that necessary quality assurance spot checks can be coordinated. Contractor's operator must remain with the crane during the spot check. Rigging gear must comply with OSHA, ASME B30.9 Standards safety standards.

c. Comply with the LHE manufacturer's specifications and limitations for erection and operation of cranes and hoists used in support of the work. Perform erection under the supervision of a designated person (as defined in ASME B30.5). Perform all testing in accordance with the manufacturer's recommended procedures.

d. Comply with ASME B30.5 for mobile and locomotive cranes, ASME B30.22 for articulating boom cranes, ASME B30.3 for construction tower cranes, ASME B30.8 for floating cranes and floating derricks, ASME B30.9 for slings, ASME B30.20 for below the hook lifting devices and ASME B30.26 for rigging hardware.

e. Under no circumstance must a Contractor make a lift at or above 90 percent of the cranes rated capacity in any configuration.

f. When operating in the vicinity of overhead transmission lines, operators and riggers must be alert to this special hazard and follow the requirements of EM 385-1-1 Section 11, and ASME B30.5 or ASME B30.22 as applicable.

g. Do not use crane suspended personnel work platforms (baskets) unless the Contractor proves that using any other access to the work location would provide a greater hazard to the workers or is impossible. Do not lift personnel with a line hoist or friction crane. Additionally, submit a specific AHA for this work to the Contracting Officer. Ensure the activity and AHA are thoroughly reviewed by all involved personnel.

h. Inspect, maintain, and recharge portable fire extinguishers as specified in NFPA 10, Standard for Portable Fire Extinguishers.

i. All employees must keep clear of loads about to be lifted and of suspended loads.

j. Use cribbing when performing lifts on outriggers.

k. The crane hook/block must be positioned directly over the load. Side loading of the crane is prohibited.

l. A physical barricade must be positioned to prevent personnel access where accessible areas of the LHE's rotating superstructure poses a risk of striking, pinching or crushing personnel.

m. Maintain inspection records in accordance by EM 385-1-1, Section 16.D, including shift, monthly, and annual inspections, the signature of the person performing the inspection, and the serial number or other identifier of the LHE that was inspected. Records must be available for review by the Contracting Officer.

n. Maintain written reports of operational and load testing in accordance with EM 385-1-1, Section 16.F, listing the load test procedures used along with any repairs or alterations performed on the LHE. Reports must be available for review by the Contracting Officer.

o. Certify that all LHE operators have been trained in proper use of all safety devices (e.g. anti-two block devices).

p. Take steps to ensure that wind speed does not contribute to loss of control of the load during lifting operations. At wind speeds greater than 20 mph, the operator, rigger and lift supervisor must cease all crane operations, evaluate conditions and determine if the lift may proceed. Base the determination to proceed or not on wind calculations per the manufacturer and a reduction in LHE rated capacity if applicable. Include this maximum wind speed determination as part of the activity hazard analysis plan for that operation.

3.6.3 Machinery and Mechanized Equipment

a. Proof of qualifications for operator must be kept on the project site for review.

b. Manufacturer specifications or owner's manual for the equipment must be on-site and reviewed for additional safety precautions or requirements that are sometimes not identified by OSHA or USACE EM 385-1-1. Incorporate such additional safety precautions or requirements into the AHAs.

3.6.4 USE OF EXPLOSIVES

Explosives must not be used or brought to the project site without prior written approval from the Contracting Officer. Such approval does not relieve the Contractor of responsibility for injury to persons or for damage to property due to blasting operations.

Storage of explosives, when permitted on Government property, must be only where directed and in approved storage facilities. These facilities must be kept locked at all times except for inspection, delivery, and withdrawal of explosives.

3.7 EXCAVATIONS

Soil classification must be performed by a competent person in accordance with 29 CFR 1926 and EM 385-1-1.

3.7.1 Utility Locations

Provide a third party, independent, private utility locating company to positively identify underground utilities in the work area in addition to any station locating service and coordinated with the station utility department.

3.7.2 Utility Location Verification

Physically verify underground utility locations, including utility depth, by hand digging using wood or fiberglass handled tools when any adjacent construction work is expected to come within 3 feet of the underground system.

3.7.3 Utilities Within and Under Concrete, Bituminous Asphalt, and Other Impervious Surfaces

Utilities located within and under concrete slabs or pier structures, bridges, parking areas, and the like, are extremely difficult to identify. Whenever contract work involves chipping, saw cutting, or core drilling through concrete, bituminous asphalt or other impervious surfaces, the existing utility location must be coordinated with station utility departments in addition to location and depth verification by a third party, independent, private locating company. The third party, independent, private locating company must locate utility depth by use of Ground Penetrating Radar (GPR), X-ray, bore scope, or ultrasound prior to the start of demolition and construction. Outages to isolate utility systems must be used in circumstances where utilities are unable to be positively identified. The use of historical drawings does not alleviate the Contractor from meeting this requirement.

3.8 ELECTRICAL

Perform electrical work in accordance with EM 385-1-1, Appendix A, Sections 11 and 12.

3.8.1 Conduct of Electrical Work

As delineated in EM 385-1-1, electrical work is to be conducted in a de-energized state unless there is no alternative method for accomplishing the work. In those cases, obtain an energized work permit from the Contracting Officer. The energized work permit application must be accompanied by the AHA and a summary of why the equipment/circuit needs to be worked energized. Underground electrical spaces must be certified safe for entry before entering to conduct work. Cables that will be cut must be positively identified and de-energized prior to performing each cut.

Attach temporary grounds in accordance with ASTM F855 and IEEE 1048. Perform all high voltage cable cutting remotely using hydraulic cutting tool. When racking in or live switching of circuit breakers, no additional person other than the switch operator is allowed in the space during the actual operation. Plan so that work near energized parts is minimized to the fullest extent possible. Use of electrical outages clear of any energized electrical sources is the preferred method.

When working in energized substations, only qualified electrical workers are permitted to enter. When work requires work near energized circuits as defined by NFPA 70, high voltage personnel must use personal protective equipment that includes, as a minimum, electrical hard hat, safety shoes, insulating gloves and electrical arc flash protection for personnel as required by NFPA 70E. Insulating blankets, hearing protection, and switching suits may also be required, depending on the specific job and as delineated in the Contractor's AHA. Ensure that each employee is familiar with and complies with these procedures and 29 CFR 1910.147.

3.8.2 Qualifications

Electrical work must be performed by QP personnel with verifiable credentials who are familiar with applicable code requirements. Verifiable credentials consist of State, National and Local Certifications or Licenses that a Master or Journeyman Electrician may hold, depending on work being performed, and must be identified in the appropriate AHA. Journeyman/Apprentice ratio must be in accordance with State, Local requirements applicable to where work is being performed.

3.8.3 Arc Flash

Conduct a hazard analysis/arc flash hazard analysis whenever work on or near energized parts greater than 50 volts is necessary, in accordance with NFPA 70E.

All personnel entering the identified arc flash protection boundary must be QPs and properly trained in NFPA 70E requirements and procedures. Unless permitted by NFPA 70E, no Unqualified Person is permitted to approach nearer than the Limited Approach Boundary of energized conductors and circuit parts. Training must be administered by an electrically qualified source and documented.

3.8.4 Grounding

Ground electrical circuits, equipment and enclosures in accordance with NFPA 70 and IEEE C2 to provide a permanent, continuous and effective path to ground unless otherwise noted by EM 385-1-1.

Check grounding circuits to ensure that the circuit between the ground and a grounded power conductor has a resistance low enough to permit sufficient current flow to allow the fuse or circuit breaker to interrupt the current.

3.8.5 Testing

Temporary electrical distribution systems and devices must be inspected, tested and found acceptable for Ground-Fault Circuit Interrupter (GFCI) protection, polarity, ground continuity, and ground resistance before initial use, before use after modification and at least monthly. Monthly inspections and tests must be maintained for each temporary electrical distribution system and signed by the electrical CP or QP.

-- END OF SECTION –

SECTION 01 45 00.00

QUALITY CONTROL

08/23, CHG 2: 05/25

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)	
ASTM D3740	(2019) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM E329	(2023) Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction
ASTM C1077	(2024) Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
ASTM D3666	(2016) Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials
ASTM E90	(2023) Standard Test method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
ASTM E543	(2021) Standard Specification for Agencies Performing Non-Destructive Testing

U.S. ARMY CORPS OF ENGINEERS (USACE)	
EM 385-1-1	(2024) Safety – Safety and Occupational Health (SOH) Requirements
ER 1110-3-12	(2021) Military Engineering and Design Quality Management

U.S. Department of Defense (DOD)	
FC 1-300-09N	(2024) Navy and Marine Corps Design

1.1 PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program. Include all associated costs in the applicable Bid or Pricing Schedule item.

1.2 SUBMITTALS

Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Contractor Quality Control (CQC) Plan; G
Additional Requirements for Design Quality Control (DQC) Plan; G

SD-05 Design Data

Design Quality Control; G Discipline Specific Checklists; G
Design Quality Control Documentation; G

SD-06 Test Reports Verification Statement

SD-07 Certificates

Certificates of Readiness; G

1.3 GENERAL REQUIREMENTS

Establish and maintain an effective quality control (QC) system that complies with FAR 52.246-12 Inspection of Construction. QC is comprised of plans, procedures, and organization necessary to produce an end product that complies with the Contract requirements. The QC system covers all design and construction operations, both onsite and offsite, and must be keyed to the proposed design and construction sequence. The Quality Control Manager, Superintendent, Site Safety Health Officer (SSHO), and all on- site supervisors are responsible for the quality of work and are subject to removal by the CO for non-compliance with the quality requirements specified in the Contract. The Quality Control Manager must maintain a physical presence at the worksite at all times and is the primary individual responsible for all quality control.

1.4 QUALITY CONTROL (QC) PROGRAM REQUIREMENTS

Establish and maintain a QC program as described in this section. The QC program consists of a QC organization, QC Plan, QC Plan Meeting(s), a Coordination and Mutual Understanding Meeting, QC meetings, three phases of control, submittal review and approval, testing, completion inspections, QC certifications, and documentation necessary to provide materials, equipment, workmanship, fabrication, construction and operations that comply with the requirements of this contract. The QC program must cover on-site and off-site work and be keyed to the work sequence. No construction work or testing may be performed unless the QC Manager is on the work site. The QC Manager must report to an officer of the firm and not be subordinate to the Project Superintendent or the Project Manager. The QC Manager, Project Superintendent and Project Manager must work together effectively. Although

the QC Manager is the primary individual responsible for quality control, all individuals will be held responsible for the quality of work on the job.

1.4.1 Meeting

1.4.1.1 Quality Control Plan Meeting

Prior to submission of the QC Plan, the Contractor may request a meeting with the Contracting Officer to discuss the QC Plan requirements of this Contract.

The Purpose of this meeting is to develop mutual understanding of the QC Plan requirements prior to plan development and submission and to agree on the Contractor's list of Definable Feature of Work (DFOW).

1.4.1.2 Coordination and Mutual Understanding Meeting

After the Preconstruction Conference, Post Award Conference, before start of design or construction, and prior to acceptance by the Government of the CQC Plan, meet with the Contracting Officer and discuss the Contractor's quality control system. During the meeting, a mutual understanding of the system details must be developed, including the forms for recording CQC operations, design activities, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of the Contractor's management and control with the Government's Quality Assurance.

Minutes of the meeting will be prepared by the QC Manager and signed by the Contractor, the Architect/Engineer (A/E), and the Government. Provide a copy of the signed minutes to all attendees. At a minimum the Coordination and Mutual Understanding meeting must be repeated when a new QC Manager is appointed. There can be other occasions when subsequent conferences will be called by either party to reconfirm mutual understandings or address deficiencies in the CQC system or procedures which can require corrective action by the Contractor.

1.4.1.2.1 Purpose

The purpose of this meeting is to develop a mutual understanding of the QC details, including documentation, administration for on-site and off-site work, design intent, environmental requirements and procedures, coordination of activities to be performed, and the coordination of the Contractor's management, production, and QC personnel. At the meeting, the Contractor must explain in detail how three phases of control will be implemented for each DFOW, as well as how each DFOW will be affected by each management plan or requirement as listed below:

a Waste Management Plan
b Procedures for noise and acoustics management
c Environmental Protection Plan
d Environmental regulatory requirements

1.4.1.3 Quality Control (QC) Meetings

After the start of construction, conduct weekly QC meetings led by the QC Manager at the work site with the Project Superintendent and other personnel as necessary. The QC Manager is to prepare the minutes of the meeting and provide a copy to the Contracting officer within 2 working days after the meeting. The CO may attend these meetings. As a minimum, accomplish the following at each meeting:

a Review the minutes of the previous meeting,
b Review the schedule and the status of work and deficiencies/rework. Review the most current approved schedule and the status of work and deficiencies/rework/
c Review the status of submittals and Request for Information (RFIs)

d Review the work to be accomplished in the next 3 weeks and all documentation required for that work

e Review Testing Plan and Log including status of tests performed since last QC Meeting

f Resolve QC and production problems. Discuss status of pending change orders
g Address items that may require revising the QC Plan
h Review Accident prevention Plan (APP) and effectiveness of the safety program
i Review environmental requirements and procedures
j Review Environmental management Plan
k Review Waste Management Plan
l Review the status of training completion

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 CONTRACTOR QUALITY CONTROL (CQC) PLAN

Submit no later than 30 days after Contract Award, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause titled "Inspection of Construction." The Government will consider an interim plan for the first 30 days of operation. Design and Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional work. Design Work is not permitted to start prior to approval of a Design Quality Control Plan.

3.1.1 Content of the CQC Plan

Include, as a minimum, the following to cover all operations, both onsite and offsite, including:

a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff will implement the three-phase control system for all aspects of the work specified.

b. An organizational chart showing the quality control organization with individual names and job titles and lines of authority up to an executive of the company at the home office.

c. The name, qualifications (in resume format including position titles and durations for qualifying experiences), duties, responsibilities, and authorities of each person in the QC organization. Include the Construction Quality Management (CQM) for Contractor's course certification for the QC personnel as required.

d. Duties, responsibility and authority of each person in the QC organization.

e. A copy of the letter to the CQC Manager, Alternate QC Manager, and Design Quality Control Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC Manager, including authority to stop work which is not in compliance

with the Contract. Letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities will be issued by the CQC Manager. Furnish copies of these letters to the Contracting Officer.

f. Procedures for scheduling, reviewing, certifying, and managing submittals including those of subcontractors, designers of record, consultants, architect-engineers (AE), offsite fabricators, suppliers, and purchasing agents. Provide the name(s) of person(s) in the QC organization authorized to review and certify submittals prior to approval. Provide the initial submittal register. These procedures must be in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.

g. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. (Laboratory facilities approved by the Contracting Officer are required to be used.)

h. Testing Plan and Log that includes the tests required, associated features of work required, referenced by the specification paragraph number requiring the test, the frequency, and the person responsible for each test

i. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.

j. Procedures to complete design and construction deficiencies from identification through acceptable corrective action. Establish verification procedures that identified deficiencies have been corrected. This phase is performed prior to beginning work on each definable feature of work, after all required plans, documents, materials ae approved, and after copies are at the worksite.

k. Reporting procedures, including proposed reporting formats.

l. Procedures for submitting and reviewing design changes/variations prior to submission to the Contracting Officer.

m. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and is identified by different trades or disciplines, or it is work by the same trade in a different environment. Although each section of the specifications can generally be considered as a definable feature of work, there are frequently more than one definable feature under a particular section. Provide separate DFOWs in the Network Analysis Schedule for each design development stage and submittal package. This list will be agreed upon during the coordination and mutual understanding meeting.

n. Procedures for performing and tracking the three phases of control: Identify procedures used to ensure the three phases of control to manage the quality of this project. For each DFOW, a Preparatory and Initial phase checklist will be filled out during the Preparatory and Initial phase meetings. Conduct the Preparatory and Initial Phases and meetings with a view towards obtaining quality construction by planning ahead and identifying potential problems for each DFOW.

o. Procedures for identifying and documenting the completion inspection process. Include in these procedures the responsible party for punch out inspection, pre-final inspection, and final acceptance inspection.

p. Procedures for coordinating and documenting the training of personnel required by the Contract

q. Procedures for coordinating, tracking and documenting all certifications required for entities such as subcontractors, testing laboratories, suppliers, and personnel. The QC Manager will ensure that certifications are current, appropriate for the work being performed, and will not lapse during any period of the Contract that the work is being performed.

3.1.2 Additional Requirements for Design Quality Control (DQC) Plan

The following additional requirements apply to the DQC Plan

a Submit and maintain a DQC Plan as an effective quality control program which assures that all services required by this Contract are performed and provided in a manner that meets professional architectural and engineering quality standards. As a minimum, all documents must be technically reviewed by competent, independent reviewers identified in the DQC Plan. The same element that produced the product may not perform the Design Quality Control Review. Correct errors and deficiencies in the design documents prior to submitting them to the Government.

b Include the design schedule in the master project schedule, showing the sequence of events involved in carrying out the project design tasks within the specific Contract period. Schedule must include sufficient detail to identify all major design tasks, including those that control the flow of work. Include review and correction periods associated with each item. Schedule must be a forward planning as well as a project monitoring tool. The schedule reflects calendar days and not dates for each activity. If the schedule is changed, submit a revised schedule reflecting the change within 7 calendar days

c Include in the DQC Plan the discipline-specific checklists to be used during the design and quality control of each submittal. Submit at each design phase as part of the project documentation these completed discipline-specific checklists. ER 1110-3-12 provides some useful information in developing checklists.

d Implement the DQC Plan by a Design Quality Control Manager who has the responsibility of being cognizant of and assuring that all documents on the project have been coordinated and who coordinates work with and reports to the Contracting Officer via the QC Manager. Notify the Contracting Officer, in writing, of the name of the individual and the name of an alternate person assigned to the position

e Provide Quality Control Documentation procedures such as QC review sets and QC comments to demonstrate that cross checking of all engineering disciple's design drawings and specifications has taken place. The QC review documentation must exhibit a checking process of the design documents for completeness, accuracy, and constructability

3.1.3 Acceptance of Plan

Acceptance of the Contractor's plan or interim plan applicable to the particular feature of work to be started, and Design Quality Control Plan is required prior to the start of design and construction. Work outside of the accepted interim plan will not be permitted to begin until acceptance of the CQC Plan or another interim plan containing the additional work.

f Acceptance is conditional and will be predicated on satisfactory performance during the project. The Government reserves the right to require the Contractor to make changes to the Contractor Quality Control (CQC) Plan and DQC Plan, and operations including removal of personnel, as necessary, to obtain the quality specified. All QC and DQC organization personnel are subject to acceptance by the Contracting Officer. The Contracting Officer may require the removal of any individual for non-compliance with quality requirements specified in the Contract.

3.1.4 Notification of Changes

After acceptance of the CQC Plan, notify the Contracting Officer in writing of any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

3.2 COORDINATION MEETING

After the NTP and prior to acceptance by the Government of the CQC Plan, meet with the Contracting Officer and discuss the Contractor's quality control system. Submit the CQC Plan a minimum of 10 calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details must be developed, including the forms for recording the CQC, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting will be prepared by the Contractor, signed by both the Contractor and the Contracting Officer and will become a part of the contract file. There can be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which can require corrective action by the Contractor.

3.3 QUALITY CONTROL ORGANIZATION

3.3.1 Personnel Requirements

The requirements for the CQC organization are a Site Safety and Health Officer (SSHO), QC Manager, a Design Quality Manager, and sufficient number of additional qualified personnel to ensure safety and Contract compliance. Personnel identified in the technical provisions as requiring specialized skills to ensure the required work is being performed properly will also be included as part of the CQC organization. The Contractor's CQC staff always maintains a presence at the site during progress of the work and have complete authority and responsibility to take any action necessary to ensure Contract compliance. The CQC staff will be subject to acceptance by the Contracting Officer. Provide adequate office space, filing systems and other resources as necessary to maintain an effective and fully functional CQC organization. Promptly complete and furnish all letters, material submittals, shop drawing submittals, schedules and all other project documentation to the CQC organization. The CQC organization is responsible to always maintain these documents and records at the site, except as otherwise acceptable to the Contracting Officer.

3.3.2 Quality Control (QC) Manger

Identify as CQC Manager an individual within the onsite work organization that is responsible for overall management of CQC and has the authority to act in all CQC matters for the Contractor. The CQC Manager is required to be a graduate engineer, graduate architect, or a graduate of construction management, with a minimum of 4 years construction experience on construction similar to this Contract. This CQC Manager is on the site at all times during construction and is employed by the prime Contractor. The CQC Manager is assigned as CQC Manager and is the manager of all QC activities. The QC Manager is responsible for managing and coordinating the three phases of control, documentation, and any other inspection and testing personnel required by this Contract. Identify, in the plan, an alternate to serve in the event of the CQC Manager's absence. The requirements for the alternate are the same as the Manager.

3.3.3 Additional Requirement

In addition to the above experience and education requirements, the Contractor Quality Control (CQC) Manager and Alternate CQC

Managers are required to have completed the Construction Quality Management (CQM) for Contractors course. If the CQC Manager does not have a current certification, obtain the CQM for Contractors course certification within

90 days of award. This course is periodically offered by the Naval Facilities Engineering Command and the Army Corps of Engineers. Contact the Contracting Officer for information on the next scheduled class.

The Construction Quality Management Training certificate expires after 5 years. If the CQC System Manager's certificate has expired, retake the course to remain current.

3.3.4 Organizational Changes

Always maintain the CQC staff at full strength. When it is necessary to make changes to the CQC staff, revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

3.3.5 Design Quality Control Manager

The DQC Manager must be a member of the QC organization, must coordinate action with the QC Manager, and must not be subordinate to the Project Superintendent or Project Manager. The DQC Manager may also act as CxC if all CxC qualifications are met.

a A minimum of 5 years' experience as a design Architect or Engineer on similar size and type designs/or design-build contracts. Provide education, experience, and management capabilities on similar size type contracts.

b Registered professional engineer or architect with an active registration. Provide proof of registration as part of the resume submittal package.

c Complete USACE course "Construction Quality Management (CQM) for Contractors."

d Responsible for the design integrity, professional design standards, and all design services required.

e Be responsible for the development of the design portion of the QC Plan, incorporation and maintenance of the approved Design Schedule, and the preparation of DQC reports and minutes of all design meetings.

f Participate in the Post Award Kick-off, all design planning meetings, design presentations, partnering, and QC meetings.

g Implement the DQC plan and must remain on staff involved with the project until completion of the project.

3.3.6 Designer of Record Qualifications

The DOR must be a registered design professional, retained by the Prime Contractor, responsible for the overall design and review of submittal documents prepared by others. The DOR is registered or licensed to practice their respective design profession as defined by the statutory requirements of the professional registration laws in the state in which the design professional works. The DOR cannot serve as the DQC Manager.

3.3.7 [Fire Protection QC Specialist (FPQC)

Provide a Fire Protection Quality Control Specialist (FPQC) within the QC organization to perform quality control related activities as specified herein on fire protection and life safety systems installed under this contract

3.3.7.1 Qualifications

The FPQC must have the following qualifications

a. Be a registered Professional Engineer (P.E.) licensed by a Licensing Board in the United States, the District of Columbia, Guam or Puerto Rico, having passed the National Council of Examiners for Engineering and Surveying (NCEES) examination specifically in the discipline of Fire Protection Engineering.

b. Have a minimum of 5 years of Fire Protection Engineering experience on projects of similar relevance and complexity to the fire protection work specified under this Contract.

c. Other than the contractual obligations with the Prime Contractor, the FPQC must have no other business relationship (i.e., employee, owner, partner, operating officer, distributor, salesman, technical representative, family relationship, or financial investment) with the Prime Contractor or subcontractors

d. Be employed by an independent engineering firm or company or be the Fire Protection Engineer on the Prime Contractor's Design-Build team. The firm may identify multiple, to a maximum of five, licensed Fire Protection Engineers for the performance of the duties under this Contract but must submit the names and qualifications for Government approval for all individuals identified prior to them performing any work under this Contract. These individuals may not be substituted without prior approval from the Contracting Officer

3.3.7.1.1 Responsibilities FPQC duties and responsibilities:

a. Assist in the development of the QC Plan including the Testing Plan and Log and executing the three phases of control for work involving the installation and testing of fire protection and life safety systems as an extension of the QC Manager.

b. Participate in project QC Meetings. Participate in Preparatory and Initial Phase meetings and perform and Follow-up inspections for work involving the installation and testing of fire protection and life safety systems

c. Review and certify that all submittals pertaining to fire protection and life safety systems are complete and accurate prior to submission to the Government for surveillance approval. Forward each submittal reviewed by the FPQC to the Government for surveillance within 10 working days of FPQC certification. The FPQC Specialist is responsible for ensuring submittals are complete and accurate and all corrections have been made prior to submission to the Government. The Government reserves the right to reject any submittal that has not first been reviewed and certified by the FPQC and so marked, in writing, attesting to such review and completeness of the submittal

d. The Government reserves the right to reject any submittal or construction that is not in compliance to Contract. Government reviews do not relieve the Contractor responsibility for providing adequate quality control measures and do not constitute or imply acceptance of Contract variation.

e. Perform construction surveillance in accordance with the Schedule of Fire Protection System Inspections. Construction surveillance includes but is not limited to performing periodic on-site inspections during construction at specified milestones, performing a pre-final inspection of installed systems and witnessing functional testing; and participating in and documenting in an on-site final acceptance inspection of fire protection and life safety systems with the Government FPE

f. Document inspection results on a PFQC report prepared each day inspections are performed. The report must include a description of the visual inspection or observation performed, a written summary of findings, a conclusion no compliance with the Contract documents, and signature of the FPQC specialist.]

3.4 SUBMITTALS AND DELIVERABLES

Submittals, if needed, must comply with the requirements in Section 01 33 00SUBMITTAL PROCEDURES. The CQC organization is responsible for certifying that all submittals and deliverables are in compliance with the contract requirements. When Section 01 91 00.15 TOTAL BUILDING COMMISSIONING are included in the contract, the submittals required by those sections have to be coordinated with Section 01 33 00 SUBMITTAL PROCEDURES to ensure adequate time is allowed for each type of submittal required.

3.5 CONTROL

The CQC is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. At least three phases of control are required to be conducted by the CQC System Manager for each definable feature of the construction work as follows:

3.5.1 Preparatory Phase

This phase is performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase includes:

a. A review of each paragraph of applicable specifications, reference codes, and standards. Make available during the preparatory inspection a copy of those sections of referenced codes and standards applicable to that portion of the work to be accomplished in the field. Maintain and make available in the field for use by Government personnel until final acceptance of the work.

b. Review of the Contract drawings.

c. Check to assure that all materials and/or equipment have been tested, submitted, and approved.

d. Review of provisions that have been made to provide required control inspection and testing.

e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the Contract.

f. Examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.

g. Review of the appropriate activity hazard analysis to ensure safety requirements are met.

h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.

i. Check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.

j. Discussion of the initial control phase.

k. The Government needs to be notified at least 48 hours in advance of beginning the preparatory control phase. Include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. Document the results of the preparatory phase actions by separate minutes prepared by the CQC System Manager and attach to the daily CQC report. Instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.5.2 Initial Phase

This phase is accomplished at the beginning of a definable feature of work. Accomplish the following:

a. Check work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.

b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing are in compliance with the contract.

c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.

d. Resolve all differences.

e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.

f. The Government needs to be notified at least 48 hours in advance of beginning the initial phase for definable feature of work. Prepare separate minutes of this phase by the CQC System Manager and attach to the daily CQC report. Indicate the exact location of the initial phase for definable feature of work for future reference and comparison with follow-up phases.

g. The initial phase for each definable feature of work is repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

3.5.3 Follow-up Phase

Perform daily checks to ensure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. Record the checks in the CQC documentation. Conduct final follow-up checks and correct all deficiencies prior to the start of additional features of work which may be affected by the deficient work. Do not build upon nor conceal non-conforming work.

3.5.4 Additional Preparatory and Initial Phases

Conduct additional preparatory and initial phases on the same definable features of work if: the quality of on-going work is unacceptable; if there are changes in the applicable CQC staff, onsite production supervision or work crew; if work on a definable feature is resumed after a substantial period of inactivity; or if other problems develop.

3.5.5 Deficiency/Rework Items List

The QC Manager must maintain a list of work that does not comply with the Contract, identifying what items need to be corrected, the activity ID number associated with the item, the date the item was originally discovered, the date the item will be corrected by, and the date the item was corrected. The QC Manager reviews the list at each weekly QC Meeting:

a. There is no requirement to report a deficiency/rework item that is corrected the same day it is discovered.

b. No successor task may be advanced beyond the preparatory phase meeting until all deficiencies/rework items have been cleared by the QC Manager and concurred with by the Contracting Officer. This must be confirmed as part of the Preparatory Phase activities.

c. Attach a copy of the "Deficiency/Rework Items List" to the last daily CQC Report of each month.

d. The Contractor is responsible for including those items identified by the Contracting Officer.

e. All deficiencies/rework items must be confirmed as corrected by the QC Manager, and concurred by the Contracting Officer, prior to commencement of any completion inspections per paragraph COMPLETION INSPECTIONS unless specifically exempted by the Contracting Officer.

f. Non-Compliance with these requirements is grounds for removal in accordance with paragraph ACCEPTANCE OF THE QUALITY CONTROL (QC) and DESIGN QUALITY CONTROL (DQC) PLAN. g. All delays, concurrent or related to failure to manage, monitor, control, and correct deficiencies/rework items are entirely the responsibility of the Contractor and cannot be made the subject, or any component of any request for additional time or compensation.

3.6 TESTS

3.6.1 Testing Procedure

Perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements. Upon request, furnish to the Government duplicate samples of test specimens for possible testing by the Government. Testing includes operation and/or acceptance tests when specified. Procure the services of a Corps of Engineers approved testing laboratory or establish an approved testing laboratory at the project site. Perform the following activities and record and provide the following data:

a. Verify that testing procedures comply with contract requirements.

b. Verify that facilities and testing equipment are available and comply with testing standards.

c. Check test instrument calibration data against certified standards.

d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.

e. Record results of all tests taken, both passing and failing on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test. If approved by the Contracting Officer, actual test reports are submitted later with reference to the test number and date taken. Provide an information copy of tests performed by an offsite or commercial test facility directly to the Contracting Officer. Failure to submit timely test reports as stated results in nonpayment for related work performed and disapproval of the test facility for this Contract.

3.6.2 Testing Laboratories

The listing of validated testing laboratories is available at: http://www.erdc.usace.army.mil/Media/Fact-Sheets/Fact-Sheet-Article- View/Article/476661/

3.6.2.1 Capability Check

The Government reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel is required to meet criteria detailed in ASTM D3740 and ASTM E329.

3.6.2.2 Capability Recheck

If the selected laboratory fails the capability check, the Contractor will be assessed a charge of the cost of the recheck to reimburse the Government for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the Contract amount due the Contractor.

3.6.3 Onsite Laboratory

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests, and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

3.7 COMPLETION INSPECTION

3.7.1 Punch-Out Inspection

Conduct an inspection of the work by the CQC System Manager near the end of the work, or any increment of the work established by a time stated in the SPECIAL CONTRACT REQUIREMENTS Clause, "Commencement, Prosecution, and Completion of Work", or by the specifications. Prepare and include in the CQC documentation a punch list of items which do not conform to the approved drawings and specifications, as required by paragraph DOCUMENTATION. Include within the list of deficiencies the estimated date by which the deficiencies will be corrected. Make a second inspection with the CQC Manager or staff to ascertain that all deficiencies have been corrected. Once this is accomplished, notify the Government that the facility is ready for the Government Pre-Final inspection.

3.7.2 Pre-Final Inspection

The Government will perform the pre-final inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final Punch List may be developed as a result of this inspection. Ensure that all items on this list have been corrected before notifying the Government, so that a Final Inspection with the customer can be scheduled. Correct any items noted on the Pre-Final Inspection in a timely manner. These inspections and any deficiency corrections required by this paragraph need to be accomplished within the time slated for completion of the entire work or any particular increment of the work if the project is divided into increments by separate completion dates.

3.7.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative is required to be in attendance at the final acceptance inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups, and major commands can also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final Inspection. Notify the Contracting Officer at least 14 days prior to the final acceptance inspection and include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the Contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the Contract clause titled "Inspection of Construction".

3.8 DOCUMENTATION

Maintain current records providing factual evidence that required quality control activities and/or tests have been performed. Include in these records the work of subcontractors and suppliers on an acceptable form that includes, as a minimum, the following information:

a. The name and area of responsibility of the Contractor/Subcontractor.

b. Operating plant/equipment with hours worked, idle, or down for repair.

c. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.

d. Test and/or control activities performed with results and references to specifications/drawings requirements. Identify the control phase (Preparatory, Initial, Follow-up). List of deficiencies noted, along with corrective action.

e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.

f. Submittals and deliverables reviewed, with Contract reference, by whom, and action taken.

g. Offsite surveillance activities, including actions taken.

h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.

i. Instructions given/received and conflicts in plans and/or specifications.

j. Verification Statement.

k. Provide documentation of design quality control activities. For independent design reviews, provide, as a minimum, identification of the Design Quality Control Review team and their review comments, responses and the record of resolution of the comments.

Indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. Cover both conforming and deficient features and include a statement that equipment and materials incorporated in the work and workmanship comply with the Contract. Furnish the original and one copy of these records in report form to the Government the first day after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, prepare and submit one report for every 7 days of no-work and on the last day of a no-work period. All calendar days need to be accounted for throughout the life of the contract. The first report following a day of no work will be for that day only. Reports need to be signed and dated by the Contractor Quality Control (CQC) Manager. Include copies of test reports and copies of reports prepared by all subordinate quality control personnel within the CQC System Manager Report.

3.8.1 As-Built Drawings

The QC Manager must ensure the as-built drawings, required by Section 01 78 00 CLOSEOUT SUBMITTALS are kept current on a daily basis and marked to show deviations which have been made from the Contract drawings. The as-built drawings document commences with the QC Manager ensuring all amendments, or changes to the Contract prior to Contract award are accurately noted in the initial document set creating the accurate baseline of the Contract prior to any work starting. Ensure each deviation has been identified with the appropriate modifying documentation (e.g., PC No., Modification No., Request for Information No.). The QC Manager must initial each revision. Upon completion of work, the QC Manager will furnish a certificate attesting to the accuracy of the as-built drawings prior to submission to the Contracting Officer.

3.9 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. Take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, will be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer can issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders will be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

-- END OF SECTION –

SECTION 01 50 00

TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS

11/20, CHG 3: 08/24

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN WATER WORKS ASSOCIATION (AWWA)	
AWWA C511	(2017; R 2021) Standard for Reduced-Pressure Principle Backflow Prevention Assembly

U.S. ARMY CORPS OF ENGINEERS (USACE)	
EM 385-1-1	(2024) Safety – Safety and Occupational Health (SOH) Requirements

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)	
NFPA 241	(2022) Standard for Safeguarding Construction, Alteration, and Demolition Operations
NFPA 70	(2023; Errata 1 2024; TIA 241) National Electrical Code

U.S. FEDERAL AVIATION ADMINISTRATION (FAA)	
FAA AC 70/7460-1	(2007; Rev K) Obstruction Marking and Lighting

U.S. FEDERAL HIGHWAY ADMINISTRATION (FHWA)	
MUTCD	(2023) Manual on Uniform Traffic Control Devices

1.2 SUBMITTALS

Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals Construction Site Plan; G Traffic Control Plan; G Haul Road Plan; G

SD-03 Product Data Backflow Preventers; G

SD-06 Test Reports

Backflow Preventer Tests SD-07 Certificates

Backflow Tester Certification

Backflow Preventers Certificate of Full Approval

1.3 CONSTRUCTION SITE PLAN

Prior to the start of work, submit a site plan showing the locations and dimensions of temporary facilities (including layouts and details, equipment and material storage area (onsite and offsite), and access and haul routes, avenues of ingress/egress to the fenced area and details of the fence installation. Identify any areas which may have to be graveled to prevent the tracking of mud. Indicate if the use of a supplemental or other staging area is desired. Show locations of safety and construction fences, site trailers, construction entrances, trash dumpsters, temporary sanitary facilities, and worker parking areas.

1.4 BACKFLOW PREVENTERS CERTIFICATE

Certificate of Full Approval from FCCCHR List, University of Southern California, attesting that the design, size and make of each backflow preventer has satisfactorily passed the complete sequence of performance testing and evaluation for the respective level of approval. Certificate of Provisional Approval will not be acceptable.

1.4.1 Backflow Tester Certificate

Prior to testing, submit to the Contracting Officer certification issued by the State or local regulatory agency attesting that the backflow tester has successfully completed a certification course sponsored by the regulatory agency. Tester must not be affiliated with any company participating in any other phase of this Contract.

1.4.2 Backflow Prevention Training Certificate

Submit a certificate recognized by the State or local authority that states the Contractor has completed at least 10 hours of training in backflow preventer installations. The certificate must be current.

PART 2 PRODUCTS

2.1 TEMPORARY SIGNAGE

2.1.1 Bulletin Board

Immediately upon beginning of work, provide a weatherproof glass-covered bulletin board not less than 36 by 48 inches in size for displaying the Equal Employment Opportunity poster, a copy of the wage decision contained in the contract, Wage Rate Information poster, Safety and Health Information as required by EM 385-1-1 and other information approved by the Contracting Officer. Coordinate requirements herein with 01 35 26 GOVERNMENTAL SAFETY REQUIREMENTS. Locate the bulletin board at the project site in a conspicuous place easily accessible to all employees, and in location as approved by the CO.

2.1.2 Project and Safety Signs

The requirements for the signs, their content, and location are as specified in Section 01 58 00 PROJECT IDENTIFICATION. Erect signs within 15 days after receipt of the notice to proceed if required by Contracting Officer. Correct the data required by the safety sign daily, with light colored metallic or non-metallic numerals.

2.1.3 Warning Signs

Post temporary signs, tags, and labels to give workers and the public adequate warning and caution of construction hazards according to the EM 385-1-1. Attach signs to the perimeter fencing every 150 feet warning the public of the presence of construction hazards. Signs must require unauthorized persons to keep out of the construction site. Correct the data required by safety signs daily. Post signs at all point of entry designating the construction site as a hard hat area.

2.2 TEMPORARY TRAFFIC CONTROL

2.2.1 Haul Roads

Construct access and haul roads necessary for proper prosecution of the work under this contract in accordance with EM 385-1-1. Construct with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic are to be avoided. Provide necessary lighting, signs, barricades, and distinctive markings for the safe movement of traffic. The method of dust control, although optional, must be adequate to ensure safe operation at all times. Submit haul road plan for approval. Location, grade, width, and alignment of construction and hauling roads are subject to approval by the Contracting Officer. Lighting must be adequate to ensure full and clear visibility for full width of haul road and work areas during any night work operations.

2.2.2 Barricades

Erect and maintain temporary barricades to limit public access to hazardous areas. Whenever safe public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic barricades will be required. Securely place barricades clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

2.2.3 Fencing

Provide fencing along the construction site at all open excavations and tunnels to control access by unauthorized people. Contracting Officer reserves the right to dictate fencing type.

a. The safety fencing must be a high visibility orange colored, high density polyethylene grid or approved equal, a minimum of 48 inches high and maximum mesh size of 2 inches, supported and tightly secured to steel posts located on maximum 10-foot centers, constructed at the approved location. Install fencing to be able to restrain a force of at least 250 pounds against it. All fencing must meet the requirements of EM 385-1-1. Remove the fence upon completion and acceptance of the work.

b. Temporary post-driven fencing must be galvanized chain link fencing [6][8] feet high and tightly secured to galvanized steel posts driven below grade. Fence posts must be located on minimum 10-foot centers. Posts may be set in various surfaces such as sand, soil, asphalt or concrete as necessary. Chain link fencing must remain rigid and taut with a minimum of 200 pounds of force exerted on it from any direction with less than 4 inches of deflection. Completely remove fencing and posts at the completion of construction and restore surfaces disturbed or damaged to its original condition. Locate and identify underground utilities prior to setting fence posts. Equip fence with a lockable gate. Gate must remain locked when construction personnel are not present.

2.2.4 Temporary Wiring

Provide temporary wiring in accordance with NFPA 241, EM 385-1-1, and NFPA 70. Include monthly inspection of all equipment and apparatus.

2.2.5 Backflow Preventers

Reduced pressure principle type conforming to the applicable requirements AWWA C511. Provide backflow preventers complete with 150-pound flanged cast iron mounted gate valve and strainer, 304 stainless steel, internal parts. The make, model/design, and size of backflow preventers to be installed must be included in the latest edition of the List of Approved Backflow Prevention Assemblies issued by the FCCCHR List and be accompanied by a Certificate of Full Approval from FCCCHR List. After installation conduct Backflow Preventer Tests and provide test reports verifying that the installation meets the FCCCHR Manual Standards.

PART 3 EXECUTION

3.1 EMPLOYEE PARKING

Contractor employees will park privately owned vehicles in an area designated by the Contracting Officer. This area will be within reasonable walking distance of the construction site. Contractor employee parking must not interfere with existing and established parking requirements of the government installation.

3.2 TEMPORARY BULLETIN BOARD

Locate the bulletin board at the project site in a conspicuous place easily accessible to all employees, as approved by the Contracting Officer.

3.3 AVAILABILITY AND USE OF UTILITY SERVICES

3.3.1 Temporary Utilities

Provide temporary utilities required for construction. Materials may be new or used, must be adequate for the required usage, not create unsafe conditions, and not violate applicable codes and standards.

3.3.2 Sanitation

Provide and maintain within the construction area minimum field-type sanitary facilities approved by the Contracting Officer and periodically empty waste into a municipal, district, or station sanitary sewage system, or remove waste to a commercial facility. Obtain approval from the system owner prior to discharge into any municipal, district, or commercial sanitary sewer system. Any penalties and / or fines associated with improper discharge will be the responsibility of the Contractor. Coordinate with the Contracting Officer and follow station regulations and procedures when discharging into the station sanitary sewer system. Maintain these conveniences at all times without nuisance. Include provisions for pest control and elimination of odors. Government toilet facilities will not be available to Contractor's personnel.

3.3.3 Telephone

Make arrangements and pay all costs for telephone facilities desired.

3.3.4 Obstruction Lighting of Cranes

Provide a minimum of 2 aviation red or high intensity white obstruction lights on temporary structures (including cranes) over 100 feet above ground level. Light construction and installation must comply with FAA AC 70/7460-1. Lights must be operational during periods of reduced visibility, darkness, and as directed by the Contracting Officer.

Coordinate with Base Operations prior to crane delivery.

3.3.5 Fire Protection

Provide temporary fire protection equipment for the protection of personnel and property during construction. Remove debris and flammable materials weekly to minimize potential hazards.

3.4 TRAFFIC PROVISIONS

3.4.1 Maintenance of Traffic

Conduct operations in a manner that will not close any thoroughfare or interfere in any way with traffic on railways or highways except with written permission of the Contracting Officer at least 15 calendar days prior to the proposed modification date and provide a Traffic Control Plan detailing the proposed controls to traffic movement for approval.

The plan must be in accordance with State and local regulations and the MUTCD, Part VI. Contractor shall coordinate traffic control with 30 SFS and SLD Safety prior to execution. Contractor may move oversized and slow-moving vehicles to the worksite provided requirements of the highway authority have been met.

a. Conduct work so as to minimize obstruction of traffic and maintain traffic on at least half of the roadway width at all times. Obtain approval from the Contracting Officer prior to starting any activity that will obstruct traffic.

b. Provide, erect, and maintain, at contractors' expense, lights, barriers, signals, passageways, detours, and other items, that may be required by the Life Safety Signage, overhead protection authority having jurisdiction.

3.4.2 Protection of Traffic

Maintain and protect traffic on all affected roads during the construction period except as otherwise specifically directed by the Contracting Officer. Measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, placing of lights around and in front of equipment the work, and the erection and maintenance of adequate warning, danger, and direction signs, will be as required by the State and local authorities having jurisdiction. Protect the traveling public from damage to person and property. Minimize the interference with public traffic on roads selected for hauling material to and from the site. Investigate the adequacy of existing roads and their allowable load limit. Contractor is responsible for the repair of any damage to roads caused by construction operations.

3.4.3 Dust Control

Dust control methods and procedures must be approved by the Contracting Officer. Treat dust abatement on access roads with applications of calcium chloride, water sprinklers, or similar methods or treatment.

3.5 CLEANUP

Remove construction debris, waste materials, packaging material and the like from the work site daily. Any dirt or mud which is tracked onto paved or surfaced roadways must be cleaned away. Store any salvageable materials resulting from demolition activities within the fenced area described above or at the supplemental storage area. Neatly stack stored materials not in trailers, whether new or salvaged.

-- END OF SECTION –

DIVISION 01 - GENERAL REQUIREMENTS SECTION 01 57 20

ENVIRONMENTAL PROTECTION

(Last Update: 22 May 2023)

TABLE OF CONTENTS

1.1 REFERENCES

1.1.1 U.S. Air Force (USAF) / U.S. Space Force (USSF)

1.1.2 California Code of Regulations (CCR) and State of California

1.1.3 U.S. Government

1.1.4 U.S. Army Corps of Engineers (USACE)

1.1.5 U.S. National Archives and Records Administration (NARA)

1.2 DEFINITIONS

1.2.1 Chemical Waste

1.2.2 Contractor Generated Hazardous Waste

1.2.3 Environmental Pollution and Damage

1.2.4 Environmental Protection

1.2.5 Garbage

1.2.6 Hazardous Debris

1.2.7 Hazardous Materials

1.2.8 Hazardous Waste

1.2.9 Land Application for Discharge Water

1.2.10 Oily Waste

1.2.11 Ozone Depleting Substance (ODS)

1.2.12 Pesticide

1.2.13 Pests

1.2.14 Regulated Waste

1.2.15 Sediment

1.2.16 Solid Waste

1.2.17 Surface Discharge

1.2.18 Universal Waste

1.2.19 Waste Hazardous Material (WHM)

1.2.20 Waters of the United States

1.2.21 Wetlands

1.3 SUBMITTALS

1.4 ENVIRONMENTAL REQUIREMENTS

1.4.1 Conformance with the Environmental Management System

1.5 QUALITY ASSURANCE

1.5.1 Preconstruction Survey

1.5.2 Regulatory Notifications

1.5.3 Environmental Brief

1.5.4 Environmental Manager

1.5.5 Contractor 40 CFR Employee Training Records

PART 2 **PRODUCTS**

PART 3 **EXECUTION**

3.1 ENVIRONMENTAL COMPLIANCE REQUIREMENTS

3.1.1 General

3.1.2 Environmental Coordination

3.1.3 Environmental Planning

3.1.4 Environmental Audits/Inspections

3.1.5 Notices of Violation (NOV)

3.2 LICENCES AND PERMITS

3.3 PROTECTION OF NATURAL RESOURCES

3.3.1 General

3.3.2 Notification

3.3.3 Encountering Natural Resources

3.3.4 Nesting Sites

3.3.5 Disturbance of Plants

3.3.6 Oak Tree Cutting

3.3.7 Contractor Equipment/Vehicles

3.3.8 Wetland/Riparian Protection Matting

3.3.9 Erosion and Sediment Control Measures

3.3.9.1 Erosion Control

3.3.1.2 Sediment Control

3.4 HISTORICAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES MANAGEMENT

3.4.1 General

3.4.2 Historic Preservation Manager

3.4.3 Cultural Resources

3.4.4 Avoidance and Mitigation

3.4.5 Inadvertent Discovery of Cultural Resources

3.5 SOLID WASTE MANAGEMENT PLAN

3.5.1 Solid Waste Management Reports

3.5.2 Control and Management of Solid Wastes

3.6 WHM/HW MATERIALS PROHIBITION

3.7 HAZARDOUS MATERIAL MANAGEMENT

3.7.1 Asbestos Management

3.7.2 Polychlorinated Biphenyls (PCBs) Management

3.7.3 Radioactive or Radionuclides Materials Management

3.7.4 Lead Based Paint (LBP) Management

3.8 PETROLEUM PRODUCTS AND REFUELING

3.8.1 Oily and Hazardous Substances

3.8.2 Inadvertent Discovery of Petroleum Contaminated Soil or Hazardous Wastes

3.9 FUEL TANKS

3.10 RELEASES/SPILLS OF OIL AND HAZARDOUS SUBSTANCES

3.11 CONTROL AND MANAGEMENT OF HAZARDOUS WASTES

3.11.1 Facility Hazardous Waste Generator Status

3.11.2 Regulated Waste Storage/Satellite Accumulation/90 Day Storage Areas

3.11.3 Class I [and II] ODS Prohibition

3.11.3.1 Universal Waste/e-Waste Management

3.12 WATER RESOURCES AND WATER QUALITY REQUIREMENTS

3.12.1 Surface and Ground Water

3.12.2 Storm Water

3.12.2.1 Storm Water Best Management Practices

3.12.2.2 Construction General Permit Requirements

3.12.3 Post-Construction Storm Water

3.12.4 Domestic Wastewater

3.12.5 Industrial Wastewater

3.12.6 Miscellaneous Wastewater

3.12.7 Drinking Water

3.13 AIR QUALITY REQUIREMENTS

3.13.1 Demolition, Site Clearing, Grading, Excavation, Backfilling, and Trenching

3.13.2 Asphalt Paving

3.13.3 Coating, Painting, Adhering, and Sealing

3.13.4 Abrasive Blasting and Corrosion Control

3.13.5 Use of Portable Equipment Powered by Internal Combustion Engines

3.13.6 Gasoline/E-85 Storage Tanks

3.13.7 Operation of Vandenberg Owned Permitted Equipment

3.13.8 Installation of Boilers, Hot Water Heaters, Furnaces, Process Heaters, and Internal Combustion Engines

3.13.9 Refrigerant in HVAC and Other Cooling Systems

3.13.10 Sulphur Hexafluoride (SF6) and Other Gas-Insulated Power-Line Equipment

3.13.11 Halon Containing Fire Suppression Systems

3.14 ABOVEGROUND STORAGE TANKS (AST) MANAGEMENT

3.15 UNDERGROUND STORAGE TANKS (UST) MANAGEMENT

3.15.1 **SOIL CONTAMINATION MANAGEMENT**

3.16 LANDSCAPING REQUIREMENTS

3.17 GREEN PROCUREMENT PROGRAM (GPP)

3.18 ENERGY USAGE MANAGEMENT

3.19 INSTALLATION RESTORATION PROGRAM (IRP) AND MILTARY MUNITIONS RESPONSE PROGRAM (MMRP)

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only. Unless otherwise noted, the latest published version and/or revision shall be used.

1.1.1 United States Air Force (USAF) / United States Space Force (USSF)

a. AFI 23-201, Fuels Management

b. AFMAN 32-1053, Pest Management Program

c. DAFMAN 32-1067, Water and Fuel Systems

d. AFMAN 32-7003, Environmental Conservation

e. AFMAN 32-7002, Environmental Compliance and Pollution Prevention

f. AFMAN 40-201, Radioactive Materials (RAM) Management

g. 30 SWI 32-702, Environmental Management Air Emission Inventories

h. 30 SW Plan 32-1002, Lead-Based Paint Management Plan

i. Vandenberg Air Force Base Environmental Program Guide – Asbestos Management Guide, October 2014.

j. Delta 30 10-2, Installation Emergency Management Plan

k. Vandenberg SFB Spill Prevention Control and Countermeasure Plan

l. Vandenberg SFB Integrated Solid Waste Management Plan

m. 30 SW Plan 32-7043-A, Hazardous Waste Management Plan

n. 30 SW Plan 32-7043-E, Recoverable and Waste Petroleum Products Management Plan

o. 30 SW Plan 32-7080, Green Procurement Program Plan

p. Integrated Natural Resources Management Plan for Vandenberg AFB, Plan Period 2021

q. 30 SWI 32-7001, Conservation Management and Enforcement

r. Integrated Cultural Resources Management Plan for Vandenberg SFB, Plan Period 2015-2020

s. Vandenberg AFB Energy Management Plan

t. Vandenberg AFB Installation Facilities Standards

u. Vandenberg AFB Landscaping Guidelines

v. HQ AFSPC CEI Policy Ltrr P01009, Tracking and Reporting Solid Waste Disposal and Diversions (30 Apr 01)

w. California Storm Water BMP Handbook for Construction, Development, and Industrial and Commercial (2019, California Stormwater Quality Association)

x. Vandenberg AFB Post-Construction Storm Water Standards (2014).

1.1.2 California Code of Regulations (CCR) and State of California

a. 8 CCR, Chapter 3.22, Subchapter 2 ..... Article 2.6 Asbestos Consultants and Site Surveillance Technicians, §341.15 Certification of Asbestos Consultants and Site Surveillance Technicians

b. 8 CCR, Chapter 4, Subchapter 4 ..... Article 4 Dusts, Fumes, Mists, Vapors, and Gases, §1529 Asbestos

c. 17 CCR, Division 1, Chapter 8 ..... Accreditation, Certification, and Work Practices for Lead-Based Paint and Lead Hazards

d. 19 CCR, Division 2, Chapter 4.5 ..... California Accidental Release

Prevention (CalARP) Program

e. 22 CCR, Chapters 10-20 ..... §66260-66270, Hazardous Waste Regulation

f. California Coastal Act ..... Public Resources Code, Division 20

g. California Assembly Bill AB 939 ..... California Integrated Waste Management Act of 1989

h. California Assembly Bill AB 32 ..... California Global Warming Solutions Act

i. Santa Barbara County Air Pollution Control District (SBCAPCD) Rules and Regulations (https://www.ourair.org/current-rules-and-regulations/)

j. California Air Resources Board (CARB) Rules and Regulations (https://ww2.arb.ca.gov/)

k. California Water Codes

l. State Water Resources Control Board (SWRCB) National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, NPDES No. CAS000002; Construction General Permit

m. SWRCB General Permit for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4s), NPDES No. CAS000004; Municipal General Permit or MS4 General Permit

n. SWRCB Waste Discharge Requirements (WDR) Permit for Dredged or Fill Discharges to Waters Deemed by the U.S. Army Corps of Engineers to be Outside of Federal Jurisdiction (General WDRs)

1.1.3 U.S. Government

a. Asbestos Hazard Emergency ..... Public Law 99-519, 15 USC Section 2651 Response Act of 1986 (AHERA)

b. Archaeological Resources Protection Act ..... 16 U.S.C. 470aa through 470mm

c. Clean Air Act ..... 42 U.S.C. §7401 et seq. (1970)

d. Clean Water Act of 1972 ..... 33 U.S.C., §1251 et seq.

e. Rivers and Harbors Act of 1899 ..... 33 U.S.C., §403

f. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 42 USC § 9601 to 9675

g. Government's Green Procurement ..... Section 6002, Federal Procurement of the Resource Program Conservation and Recovery Act (RCRA)

h. Endangered Species Act ..... Public Law 93-205, 35 U.S.C. §1531

i. Energy Policy Act ..... Public Law 109-58

j. Environmental Protection Agency ..... Comprehensive Procurement Guidelines (EPA-CPG)

k. Environmental Protection Agency ..... Toxic Substances Control Act (TSCA)

l. Executive Order 13112 & 13751 ..... Invasive Species

m. Executive Order 11990 ..... Protection of Wetlands

n. Executive Order11988 .....Floodplain Management

o. Executive Order 13150 .....Federal Workforce Transportation

p. Executive Order 13186 .....Responsibilities of Federal Agencies to Protect Migratory Birds

q. Executive Order 13211 .....Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

r. Executive Order 13221 .....Energy Efficient Standby Power Devices

s. Executive Order 14057 .....Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability

t. Marine Mammal Protection Act.....50 CFR Part 218

u. Migratory Bird Treaty Act.....16 U.S.C. 703-712

v. National Historic Preservation Act of 1966 .....54 U.S.C. 3061 et seq.

w. National Environmental Policy Act .....Public Law 91-190

x. Native American Graves Protection.....Public Law 101-601and Repatriation Act of 1990

y. American Indian Religious Freedom Act of 1978.....Public Law 95-341 Act of 1978

z. White House Memorandum, Environmentally and Economically Beneficial Practices on Federal Landscaped Grounds

aa. Energy Independence and Security Act (EISA), Section 438 (2008)

1.1.4 U.S. Army Corps of Engineers (USACE)

a. EM 385-1-1 Safety and Health Requirements Manual (2014)

b. Wetland Manual..... Corps of Engineers Wetlands Delineation Manual Technical Report Y-87-1 (1987)

1.1.5 U.S. National Archives and Records Administration (NARA)

a. 10 CFR 19..... Notices, Instructions and Reports to Workers: Inspection and Investigations

b. 10 CFR 20..... Standards for Protection Against Radiation

c. 10 CFR 36..... Licenses and Radiation Safety Requirements for Irradiators

d. 10 CFR 39..... Licenses and Radiation Safety Requirements for Well Logging

e. 29 CFR 1910..... Occupational Safety and Health Standards

f. 29 CFR 1910.120..... Hazardous Waste Operations and Emergency Response

g. 29 CFR 1926..... Safety and Health Regulations for Construction

h. 33 CFR 328 ..... Definitions of Waters of the United States

i. 40 CFR 61 ..... National Emission Standards for Hazardous Air Pollutants (NESHAP)

j. 40 CFR 68 ..... Chemical Accident Prevention Provisions

k. 40 CFR 82 ..... Protection of Stratospheric Ozone

l. 40 CFR 98 ..... Mandatory Reporting of Greenhouse Gas

m. 40 CFR 112 ..... Oil Pollution Prevention

n. 40 CFR 122.26 ..... Storm Water Discharges (Applicable to State NPDES Programs, see section 123.25)

o. 40 CFR 152-186 ..... Pesticide Programs

p. 40 CFR 190 Environmental Radiation Protection Standards for Nuclear Power Operations

q. 40 CFR 191 ..... Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes

r. 40 CFR 192 ..... Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings

s. 40 CFR 241 ..... Guidelines for Disposal of Solid Waste 40 CFR 243 Guidelines for the Storage and Collection of residential, Commercial, and Institutional Solid Waste

t. 40 CFR 258 ..... Subtitle D Landfill Requirements

u. 40 CFR Parts 260-273 ..... Hazardous Waste Regulations

v. 40 CFR 279 ..... Standards for the Management of Used Oil

w. 40 CFR 280 ..... Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (UST)

x. 40 CFR 300 ..... National Oil and Hazardous Substances Pollution Contingency Plan

y. 40 CFR 302 ..... Designation, Reportable Quantities, and Notification

z. 40 CFR 355 ..... Emergency Planning and Notification

aa. 40 CFR 370 ..... Hazardous Chemical Reporting Community Right-To-Know

bb. 40 CFR 372 ..... Toxic Chemical Release Reporting Community Right-To-Know

cc. 40 CFR 372-Subpart D ..... Specific Toxic Chemical Listings

dd. 40 CFR 761 ..... PCB Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions

ee. 40 CFR 763 ..... Asbestos-Containing Materials in Schools

ff. 49 CFR 171-178 ..... Hazardous Materials Regulations

1.2 DEFINITIONS

1.2.1 Chemical Waste

This includes salts, acids, alkalizes, herbicides, pesticides, and organic chemicals.

1.2.2 Contractor Generated Hazardous Waste

Contractor generated hazardous waste means materials that, if abandoned or disposed of, may meet the definition of a hazardous waste. These waste streams would typically consist of material brought on site by the contractor to execute work but are not fully consumed during construction. Examples include, but are not limited to, excess paint thinners (i.e., methyl ethyl ketone, toluene, etc.), waste thinners, excess paints, excess solvents, waste solvents, excess pesticides, and contaminated pesticide equipment rinse water.

1.2.3 Environmental Pollution and Damage

Environmental pollution and damage is the presence of chemical, physical, or biological elements or agents that adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade the environment aesthetically, culturally, and/or historically.

1.2.4 Environmental Protection

Environmental protection is the prevention/control of pollution and habitat disruption that may occur to the environment during construction. The control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics, noise, solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material; as well as other pollutants.

1.2.5 Garbage

Refuse and scraps resulting from preparation, cooking, dispensing, and consumption of food.

1.2.6 Hazardous Debris

As defined under Solid Waste (Section 2.1.11), debris that contains listed hazardous waste (either on the debris surface or in its interstices, such as pore structure), per 40 CFR 261; or debris that exhibits a characteristic of hazardous waste, per 40 CFR 261.

1.2.7 Hazardous Material

Hazardous material is defined in 49 CFR 171 and listed in 49 CFR 172. Hazardous material is any material that:

a. Is regulated as a hazardous material, per 49 CFR 173; or

b. Requires a Safety Data Sheet (SDS), per 29 CFR 1910.120; or

c. During end use, treatment, handling, packaging, storage, transpiration, or disposal meets, or has components that meet, or have potential to meet the definition of a hazardous waste, as defined by 40 CFR 261 Subparts A, B, C, or D.

Designation of a material by this definition, when separately regulated or controlled by other instructions or directives, does not eliminate the need for adherence to that hazard-specific guidance, which takes precedence over this instruction for "control" purposes. Such material includes ammunition, weapons, explosive actuated devices, propellants, pyrotechnics, chemical and biological warfare materials, medical and pharmaceutical supplies, medical waste and infectious materials, bulk fuels, radioactive materials, and other materials such as asbestos, mercury, and polychlorinated biphenyls (PCBs). Nonetheless, the exposure may incur incident to manufacture, storage, use, and demilitarization of these items.

1.2.8 Hazardous Waste

Any discarded material, liquid, solid, or gas that meets the definition of hazardous material or is designated hazardous waste by the Environmental Protection Agency or State Hazardous Control Authority as defined in 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, 40 CFR 265, 40 CFR 266, 40 CFR 268, 40 CFR 270, 40 CFR 271, 40 CFR 272, 40 CFR 273, 40 CFR 279, and 40 CFR 280.

1.2.9 Land Application for Discharge Water

The term "Land Application" for discharge water implies that the contractor must discharge water at a rate that allows the water to percolate into the soil. No sheeting action, soil erosion, discharge into storm sewers, discharge into defined drainage areas, or discharge into the "Waters of the United States" must occur. The Land Application must be in compliance with all applicable Federal, state, and local laws and regulations.

1.2.10 Oily Waste

Those materials that are, or were, mixed with used oil and have become separated from that used oil. Oily waste also means materials, including wastewater, centrifuge solids, filter residues or sludges, bottom sediments, tank bottoms, and sorbents that come into contact with, and have been contaminated by, used oil and may be appropriately tested and discarded in a manner that is in compliance with other state and local requirements. This definition includes materials such as oily rags, "kitty litter" sorbent clay, and organic sorbent material. These materials may be landfilled provided that:

a. It is not prohibited by state regulations or local ordinances;

b. The amount generated is "de minimus" (a small amount);

c. It is the result of minor leaks or spills resulting from normal process operations; and

d. All free-flowing oil has been removed to the practical extent possible.

Large quantities of this material, generated as a result of a major spill or in lieu of proper maintenance of the processing equipment, are a solid waste. As a solid waste, a hazardous waste determination must be performed prior to disposal. This can be an expensive process; therefore, it is recommended that this type of waste be minimized through good housekeeping practices and employee education.

1.2.11 Ozone Depleting Substance (ODS)

A Class I ODS is defined in Section 602(a) of the Clean Air Act and includes the following chemicals:

- chlorofluorocarbon-11 (CFC-11)
- chlorofluorocarbon-12 (CFC-12)
- chlorofluorocarbon-13 (CFC-13)
- chlorofluorocarbon-111 (CFC-111)
- chlorofluorocarbon-112 (CFC-112)
- chlorofluorocarbon-113 (CFC-113)
- chlorofluorocarbon-114 (CFC-114)
- chlorofluorocarbon-115 (CFC-115)
- chlorofluorocarbon-211 (CFC-211)
- chlorofluorocarbon-212 (CFC-212)
- chlorofluorocarbon-213 (CFC-213)
- chlorofluorocarbon-214 (CFC-214)
- chlorofluorocarbon-215 (CFC-215)
- chlorofluorocarbon-216 (CFC-216)
- chlorofluorocarbon-217 (CFC-217)
- chlorofluorocarbon-500 (CFC-500)
- chlorofluorocarbon-502 (CFC-502)

- chlorofluorocarbon-503 (CFC-503)
- halon-1211
- halon-1301
- halon-2402
- carbon tetrachloride
- methyl bromide
- methyl chloroform

Class II ODS is defined in Section 602(s) of The Clean Air Act and includes the following chemicals:

- hydrochlorofluorocarbon-21 (HCFC-21)
- hydrochlorofluorocarbon-22 (HCFC-22)
- hydrochlorofluorocarbon-31 (HCFC-31)
- hydrochlorofluorocarbon-121 (HCFC-121)
- hydrochlorofluorocarbon-122 (HCFC-122)
- hydrochlorofluorocarbon-123 (HCFC-123)
- hydrochlorofluorocarbon-124 (HCFC-124)
- hydrochlorofluorocarbon-131 (HCFC-131)
- hydrochlorofluorocarbon-132b (HCFC-132b)
- hydrochlorofluorocarbon-133a (HCFC-133a)
- hydrochlorofluorocarbon-141b (HCFC-141b)
- hydrochlorofluorocarbon-142b (HCFC-142b)
- hydrochlorofluorocarbon-221 (HCFC-221)
- hydrochlorofluorocarbon-222 (HCFC-222)
- hydrochlorofluorocarbon-223 (HCFC-223)
- hydrochlorofluorocarbon-224 (HCFC-224)
- hydrochlorofluorocarbon-225ca (HCFC-225ca)
- hydrochlorofluorocarbon-226 (HCFC-226)
- hydrochlorofluorocarbon-231 (HCFC-231)
- hydrochlorofluorocarbon-232 (HCFC-232)
- hydrochlorofluorocarbon-233 (HCFC-233)
- hydrochlorofluorocarbon-234 (HCFC-234)
- hydrochlorofluorocarbon-235 (HCFC-235)
- hydrochlorofluorocarbon-241 (HCFC-241)
- hydrochlorofluorocarbon-242 (HCFC-242)

- hydrochlorofluorocarbon-243 (HCFC-243)
- hydrochlorofluorocarbon-244 (HCFC-244)
- hydrochlorofluorocarbon-251 (HCFC-251)
- hydrochlorofluorocarbon-252 (HCFC-252)
- hydrochlorofluorocarbon-253 (HCFC-253)
- hydrochlorofluorocarbon-261 (HCFC-261)
- hydrochlorofluorocarbon-262 (HCFC-262)
- hydrochlorofluorocarbon-271 (HCFC-271)

1.2.12 Pesticide

Pesticide is defined as any substance, or mixture of substances, intended for preventing, destroying, repelling, or mitigating any pest; or intended for use as a plant regulator, defoliant, or desiccant.

1.2.13 Pests

The term "pests" means arthropods, birds, rodents, nematodes, fungi, bacteria, viruses, algae, snails, marine borers, snakes, weeds, and other organisms (except for human or animal disease- causing organisms) that adversely affect readiness, military operations, or the wellbeing of personnel and animals, attack or damage real property, supplies, equipment, or vegetation, or are otherwise undesirable.

1.2.14 Regulated Waste

Regulated wastes include types of solid waste that have specific additional Federal, state, or local controls for handling, storage, or disposal. These wastes may include designated wastes and biohazardous wastes.

1.2.15 Sediment

Soil and other debris that have eroded and have been transported by runoff water or wind.

1.2.16 Solid Waste

Garbage, refuse, debris, sludge, or other discharged material, including solid, liquid, semisolid, or contained gaseous materials resulting from domestic, industrial, commercial, mining, or agricultural operations. Types of solid waste typically generated at construction sites may include:

a. Green waste: The vegetative matter from landscaping, land clearing, and grubbing, including but not limited to, grass, bushes, scrubs, small trees and saplings, tree stumps, and plant roots. Marketable trees, grasses, and plants that are indicated to remain, be relocated, or be reused are not included.

b. Surplus soil: Excavated soil that is in excess of the volume required for the specific project (including aggregates) intended, but not used, for onsite mixing of concrete, mortars, and paving. Contaminated soil meeting the definition of a designated waste, a hazardous material, or a hazardous waste are not included in this definition.

c. Debris: Non-hazardous solid material generated during the construction, demolition, or renovation of a structure that exceeds 60 mm 2.5-inch particle size that is: a manufactured object; plant or animal matter; or natural geologic material (e.g. cobbles and boulders), broken or removed concrete, masonry, and rock asphalt paving; ceramics; roofing paper and shingles. Inert materials [may] [may not] be reinforced with or contain ferrous wire, rods, accessories, and weldments. 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.

d. Wood: Dimensional and non-dimensional lumber, plywood, chipboard, hardboard. Treated and/or painted wood that meets the definition of lead contaminated or lead based contaminated paint is not included.

e. Scrap Metal: Scrap and excess ferrous and non-ferrous metals such as reinforcing steel, structural shapes, pipe, and wire that are recovered or collected and disposed of as scrap. Scrap metal meeting the definition of hazardous material or hazardous waste is not included.

f. Paint Cans: Metal cans that are empty of paints, solvents, thinners, and adhesives. If allowed by the paint can label, a thin dry film may remain in the can.

g. Recyclables: Materials, equipment, and assemblies such as doors, windows, door and window frames, plumbing fixtures, glazing, and mirrors that are recovered and sold as recyclable. Metal meeting the definition of lead contaminated or lead based paint contaminated [may] [may not] be included as recyclable if sold to a scrap metal company. Paint cans [may] [may not] be included as recyclable if sold to a scrap metal company. Plastics and glass, with CRV ratings are also defined as recyclables.

h. Hazardous Waste: By definition, to be a hazardous waste a material must first meet the definition of a solid waste. Regulated waste, hazardous waste and hazardous debris are special cases of solid waste and they have additional regulatory controls and must be handled separately. They are thus defined separately in this document.

i. Material not regulated as solid waste are nuclear source or byproduct materials regulated under the Federal Atomic Energy Act of 1954, as amended, suspended or dissolved materials in domestic sewage effluent or irrigation return flows or other regulated point source discharges, regulated air emissions, and fluids or wastes associated with natural gas or crude oil exploration or production.

1.2.17 Surface Discharge

The term "Surface Discharge" implies that the water is discharged with possible sheeting action and subsequent soil erosion may occur. Waters that are surface discharged may terminate in drainage ditches, storm sewers, creeks, and/or "Waters of the United States" and would require a permit to discharge water from the governing agency.

1.2.18 Universal Waste

The universal waste regulations, found in 40 CFR 273, streamline collection requirements for certain hazardous wastes in the following categories: batteries, pesticides, mercury-containing equipment (e.g., thermostats), and lamps (e.g., fluorescent bulbs). The rule is designed to reduce hazardous waste in the municipal solid waste (MSW) stream by making it easier for universal waste handlers to collect these items and send them for recycling or proper disposal.

1.2.19 Waters of the United States

All waters that are under the jurisdiction of the Clean Water Act, as defined in 33 CFR 328.

1.2.20 Waste Hazardous Material (WHM)

Any waste material, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may pose a substantial hazard to human health or the environment, and which has been so designated. Used oil not containing any hazardous waste, as defined above, falls under this definition.

1.2.21 Wetlands

Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, and bogs. Official determination of whether an area is classified as a wetland must be done in accordance with all applicable Federal, state, and local laws and regulations.

1.3 SUBMITTALS

The Contractor shall submit the following to 30 CES/CEIE and the Contracting Officer for government review, in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

a. Source Profile Form for boilers/hot water heaters, 30 SW Form 155/156; G, 30 CES/CEIE (Section 3.6).

b. Air Emissions data; G, 30 CES/CEIE (Section 3.6).

c. Boiler Emission Standards and/or source test with applicable compliance certifications data that complies with applicable SBAPCD rule requirements; G, 30 CES/CEIE (Section 3.6).

d. Monthly Hazardous Material (HAZMAT) usage totals; G, 30 CES/CEIE (Section 3.8.c).

e. A Recovered Materials Determination Form (RMDF); G, 30 CES/CEIE (Section 3.18.b).

f. An Estimate of Percentage of Recovered Material Content for EPA-Designated Products; G, 30 CES/CEIE (Section 3.18.d).

g. Monthly Solid Waste Report, to include the weight and quantity of Solid Waste and Construction & Demolition debris both disposed and diverted; G, 30 CES/CEIE (Section 3.5.2.c.8).

h. Industrial Wastewater Characterization Form; G, 30 CES/CEIE (Section 3.12.5)

i. Industrial Wastewater Treatment Plant Processing Request; G, 30 CES/CEIE (Section 3.12.5).

j. Discharge to Grade Characterization Form; G, 30 CES/CEIE (Section 3.12.6).

k. Notice of Intent to comply with the Terms of the General Permit to Discharge Storm Water Associated with Construction Activity; G, 30 CES/CEIE (Section 3.12.2.2).

l. Risk Determination; G, 30 CES/CEIE (Section 3.12.2.2)

m. Storm Water Pollution Prevention Plan (SWPPP) and amendments; G, 30 CES/CEIE (Section 3.12.2.2).

n. Annual Report; G, 30 CES/CEIE (Section 3.12.2.2).

o. Notice of Termination of Coverage (NOT) and NOT Photographs (Section 3.12.2.2).

p. Inspection Reports, Inspection Photographs, Rain Event Action Plans; G, 30 CES/CEIE (Section 3.12.2.2)

q. Ad hoc Reports of Water Quality Sampling Results; G, 30 CES/CEIEC (Section 3.12.2.2)

r. Exceedance Reports; G, 30 CES/CEIE (Section 3.12.2.2)

s. Storm Water Control Plan; G, 30 CES/CEIE (Section 3.12.3)

t. Aboveground Storage Tank (AST) technical information; G, 30 CES/CEIE (Section 3.15.b)

1.4 ENVIRONMENTAL REQUIREMENTS

Comply with Federal, state, and local regulations pertaining to the environment, including water, air, solid waste, hazardous waste and substances, oily substances, and noise pollution.

The contractor may be required to promptly conduct tests and procedures for the purpose of assessing whether construction operations are in compliance with applicable environmental laws. Analytical work shall be done by qualified laboratories; and where required by law, the laboratories shall be certified.

1.4.1 Conformance with the Environmental Management System

The contractor shall perform work under this contract consistent with the policy and objectives identified in the installation's Environmental Management System (EMS). The contractor shall perform work in a manner that conforms to objectives and targets, environmental programs, and operational controls identified by the EMS. The contractor will provide monitoring and measurement information, as necessary, to address environmental performance relative to environmental, energy, and transportation management goals. In the event an EMS nonconformance or environmental noncompliance, associated with the contracted services, tasks, or actions occurs, the contractor shall take corrective and/or preventative actions. In addition, the contractor shall ensure that its employees are aware of their roles and responsibilities under the EMS and how these EMS roles and responsibilities affect work performed under the contract.

The contractor is responsible for ensuring that their employees receive applicable environmental and occupational health and safety training and keep up to date on regulatory required specific training for the type of work to be conducted onsite. All onsite contractor personnel, and their subcontractor personnel, performing tasks that have the potential to cause a significant environmental impact shall be competent on the basis of appropriate education, training, or experience. Upon contract award, the Contracting Officer's Representative will notify the installation's EMS coordinator to arrange for EMS training.

1.5 QUALITY ASSURANCE

1.5.1 Preconstruction Survey

Not used unless directed by the Contracting Officer. Environmental Impact Analysis is conducted via DAF Form 813 for all construction activities.

1.5.2 Regulatory Notifications

The contractor is responsible for all regulatory notification requirements, in accordance with Federal, state, and local regulations. In cases where the USAF/USSF must also provide public notification, such as storm water permitting, the contractor must coordinate with the Contracting Officer. The contractor shall submit copies of all regulatory notifications to the Contracting Officer prior to commencement of work activities. Typically, regulatory notifications must be provided for the following (this listing is not all inclusive): demolition, renovation, NPDES defined site work, remediation of controlled substances (asbestos, hazardous waste, lead paint).

1.5.3 Environmental Brief

Attend an environmental brief to be included in the preconstruction meeting. Provide the following information: types, quantities, and use of hazardous materials that will be brought into the activity; types and quantities of solid waste and/or wastewater that may be generated during the contract. Discuss the results of the Environmental Impact Analysis at this time. Prior to initiating any work on site, meet with the Contracting Officer and activity environmental staff to discuss the proposed Environmental Management Plan. Develop a mutual understanding relative to the details of environmental protection, including measures for protecting natural resources, required reports, required permits, permit requirements, and other measures to be taken.

1.5.4 Environmental Manager

The contractor shall appoint in writing an Environmental Manager for the project site who will be directly responsible for coordinating contractor compliance with Federal, state, local, and station requirements. The Environmental Manager will ensure compliance with Hazardous Waste Program requirements, which include hazardous waste handling, storage, manifesting, and disposal and also ensure that all Hazardous Waste Program requirements are conducted in accordance with installation requirements and applicable laws and regulations. In addition, the Environmental Program Manager will implement the Environmental Management Plan; ensure that all environmental permits are obtained, maintained, and closed out; ensure compliance with Storm Water Program Management requirements; ensure compliance with Hazardous Materials requirements (authorizations, storage, handling, and reporting); and coordinate any remediation of regulated substances (lead, asbestos, PCB transformers).

The Environmental Program Manager can be a collateral position; however the person in this position must be trained to adequately accomplish the following duties: ensure waste segregation and storage compatibility requirements are met; inspect and manage Satellite Accumulation areas; ensure only authorized personnel add wastes to containers; ensure all contractor personnel are trained in 40 CFR requirements in accordance with their position requirements; coordinate removal of waste containers; and maintain the Environmental Records binder and required documentation, including environmental permits compliance and close-out.

1.5.5 Contractor 40 CFR Employee Training Records

The contractor shall prepare and maintain employee training records throughout the term of the contract, meeting applicable 40 CFR requirements. [The Contractor will ensure every employee completes a program of classroom instruction or on-the-job training that teaches them to perform their duties in a way that ensures compliance with Federal, state and local regulatory requirements for RCRA Large Quantity Generator. The contractor will provide a Position Description for each employee, by subcontractor, based on the Davis-Bacon Wage Rate designation or other equivalent method, in which an evaluation of the employee's association with hazardous and regulated waste is completed. The Position Description will include training requirements as defined in 40 CFR 265 for a Large Quantity Generator facility.] The training records will be submitted to the Contracting Officer at the conclusion of the project, unless otherwise directed.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 ENVIRONMENTAL COMPLIANCE REQUIREMENTS

3.1.1 General

Vandenberg SFB contractors and their subcontractors shall comply with the most stringent Federal, state, and local environmental laws, regulations, and Air Force policies, instructions, and plans. The Federal government is not exempt from compliance with environmental regulations. The Contractor shall maintain an awareness of changing environmental regulatory requirements to avoid environmental deficiencies for activities on VSFB.

3.1.2 Environmental Coordination

The 30th Civil Engineer Squadron, Installation Management Flight (30 CES/CEIE) is the single point of contact for coordination with all environmental regulatory agencies. Prior to coordinating with any environmental regulatory agency, the contractor shall obtain approval from 30 CES/CEIE. The contractor shall provide copies of any regulatory agency notification, report, consultation, permit, and/or regulatory document to 30 CES/CEIE. Obtaining and complying with all environmental permits and commitments required by Federal, State, Regional, and local environmental laws and regulations is the contractor's responsibility.

a. The Contractor shall comply with all permit conditions and consultation requirements.

b. The Contractor shall provide all required testing analysis and monitoring.

c. The contractor may obtain VSFB environmental documents and plans from 30 CES/CEIE.

3.1.3 Environmental Planning

The Contractor shall comply with all testing, monitoring, recordkeeping, reporting, mitigation, and protection measure requirements resulting from the National Environmental Policy Act (NEPA), the Environmental Impact Analysis Process (EIAP), and the VSFB 332 process. To initiate NEPA and EIAP, submit a DAF Form 813 to the Environmental Planning Office in 30 CES/CEIEA. Completion of the NEPA and EIAP processes can take between two weeks to one year or more to complete. Early coordination is highly advised.

3.1.4 Environmental Audits/Inspections

The contractor shall support the government with all Federal, state, local, and Air Force environmental inspections, audits, or assessments.

3.1.5 Notices of Violations (NOV)

The contractor shall be liable for any Notices of Violation (NOV), enforcement action, fine, penalty, and/or corrective action imposed by Federal, state, or local environmental regulatory agencies for activities under the contractor’s control. The contractor shall provide verbal notification to 30 CES/CEIE and the Contracting Officer within 24-hours of receiving an NOV, followed by written notification within three working days.

3.2 LICENSES AND PERMITS

****

NOTE: The terms and conditions contained in any permit obtained by the Government must be made a part of the contract. The design must be in accordance with these permits.

For Design-Bid-Build (DBB) projects, establish a list of permits, prepare the permits for review and signature, and obtain approval of all permits prior to bid. In rare occasions it may be permissible to note the anticipated permit approval date in the contract. If this is the case, the contract documents need to clearly define which portion of the work is not to be disturbed by the contractor, and for what time period.

For Design-Build (DB) projects (Request for Proposals) edit the paragraphs below for permits to be obtained.

****

Complying with all environmental permits and commitments required by Federal, state, regional, and local environmental laws and regulations is the contractor's responsibility.

The following existing permits will be followed by the contractor:

a. NPDES Municipal General Permit (Refer to Section 3.12.3); and

b. Lompoc Publicly Owned Treatment Works (POTW) Permit (Permit # I004).

The following permits will be obtained by the contractor via 30 CES/CEIE (if applicable):

a. California Air Resource Board (CARB) Registration and SBCAPCD Permits.

b. Clean Water Act 401/402/404/WDR Permits

The contractor is responsible for conforming to all permit requirements and performing all quality control inspections of the work in progress and submitting notifications and certifications to the applicable regulatory agency via the Contracting Officer.

3.3 PROTECTION OF NATURAL RESOURCES

Preserve the natural resources within the project boundaries and outside the limits of permanent work. Restore to an equivalent or improved condition upon completion of work.

3.3.1 General

The Contractor shall comply with, but not limited to: the National Environmental Policy Act (NEPA); the Endangered Species Act; the Marine Mammal Protection Act, the Migratory Bird Treaty Act, Clean Water Act, Rivers and Harbors Act of 1899, Executive Order 11990, Protection of Wetlands; Executive Order 13112 and 13751, Invasive Species; Executive Order 13186, California Coastal Act of 1976; AFMAN 32-7003, Environmental Conservation; and Vandenberg's Integrated Natural Resources Management Plan. If the work is near streams, lakes, or other waterways, conform to the national permitting requirements of the Clean Water Act. The Contractor shall keep activities under surveillance and control to minimize disturbances and damage to the natural resources on VSFB.

3.3.2 Notification

The Contractor shall immediately notify 30 CES/CEIE, Natural Resources, if the Contractor or their biological monitors suspect the presence and impacts to any federally listed endangered or threatened species or their habitat. Vandenberg SFB currently manages 18 threatened and endangered species, including but not limited to the California red-legged frog, unarmored three- spine stickleback, western snowy plover, California least tern, Vandenberg monkeyflower, Gaviota tarplant, and vernal pool fairy shrimp.

3.3.3 Encountering Natural Resources

The Contractor shall not feed wild animals or cause litter (especially from lunch activities). The Contractor shall stay on established ingress/egress routes and will not travel in unauthorized areas or off-road to avoid disturbing sensitive resources or potentially coming in contact with ticks, hantavirus, wild animals, unstable coastline areas, and unsafe water situations.

3.3.4 Nesting Sites

The Contractor shall immediately notify 30 CES/CEIE of any nesting sites for avian species, nesting sites containing eggs and/or chicks, or roosting birds. If vegetation removal is to take place in nesting bird season, 15 February to 15 August, nesting bird surveys will need to be conducted in accordance with the Migratory Bird Treaty Act. If nesting birds are found, work may be delayed until the young have fledged.

3.3.5 Disturbance of Plants

Contractors shall adhere to requirements stated in the DAF Form 332, DAF Form 813 or Environmental Assessment with respect to disturbance or removal of all plants and trees on VSFB. Mitigation may be required, including restoration with native seed mixes and control weeds for one-year post-construction, to achieve at least the same amount or more of pre- construction native plant cover. Coordinate with CEIEA regarding approval of any mitigation, plantings, seed mix and planting strategy (see Section 3.16). Trees or large shrubs (greater than 6-in dbh) cut and left standing shall be properly pruned with a sharp blade and shall have a clean, smooth cut. No standing tree or large shrub, trunk, branch, or stump shall be left with frays, incisions, or scars. Burton Mesa maritime chaparral disturbance and removal shall be avoided or minimized. Whenever feasible for temporary access and disturbance, keep root systems intact and use Durabase type construction mats for construction vehicles to drive upon. Protective mats shall be removed as soon as practicable.

3.3.6 Oak Tree Cutting

Removal of coast live oak or other oak trees should be avoided. If any oak tree greater than 6- inches in diameter at breast height (dbh) is removed an oak mitigation plan for replacement shall be developed with 5 years of maintenance. Coordinate plan with CEIEA at least one year prior to oak removal for approval. Replacement shall consist of 5-gallon size (minimum) trees obtained from locally occurring saplings or seed stock of 10 for every 6-inch diameter or greater oak tree to be removed or significantly disturbed. Replacement trees will be cared for, maintained, and well established (healthy) for a period of 5 years.

3.3.7 Contractor Equipment/Vehicles

Contact 30CES/CEIEA Natural Resources at least one week prior to site activities for required briefing and inspection of weed seeds on equipment vehicles (dozers, mowers etc.). Equipment vehicles shall be cleaned of weed seeds, dirt, or caked mud prior to use in the project area to prevent the introduction of weeds. Prior to site transport, any skid plates shall be removed and cleaned. Equipment should be cleaned of weed seeds daily especially wheels, undercarriages, and bumpers. Prior to leaving the project area, for vehicles that have caked-on dirt or mud, vehicles shall be cleaned with hand tools such as bristle brushes and brooms at a designated exit area; vehicles may subsequently be washed at the AAFES car wash or approved wash area. For vehicles with dry dusted dirt on vehicles (and no caked-on dirt or mud), prior to leaving the site, if washing and proper water disposal is not available, equipment vehicles may be thoroughly air blasted on site.

3.3.8 Wetland/Riparian Protection Matting

Equipment vehicles should avoid or minimize work in riparian and known wet/ponded areas during the dry season; avoid work in these areas during the wet season. If any equipment and/or vehicles enter the riparian, or known seasonally wet areas, on a regular basis during construction activities, protective matting such as Dura-Base mats that are designed for wetland protection shall be used to cross or to protect moist riparian and known wet/ponded areas. Protective mats shall be removed as soon as practicable.

3.3.9 Erosion and Sediment Control Measures

Refer to Section 3.16, Landscaping and Section 3.12.2, Storm Water Best Management Practices. If soil disturbance is one acre or more, refer to Section 3.12.2.2, Construction General Permit Requirements.

3.3.9.1 Erosion Control

Preserve vegetation to the maximum extent practicable. Plan and conduct earthwork to minimize the duration of exposure of unprotected soils. Provide erosion control for all exposed soil areas upon completion of final grading or as soon as feasible. All non-biodegradable materials shall be removed by the Contractor when no longer needed.

3.3.9.2 Sediment Control

Implement sediment control practices to divert flows from exposed soils, temporarily store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Implement sediment control practices prior to soil disturbance and prior to creating areas with concentrated flow, during the construction process to minimize erosion and sediment laden runoff. Use of hay bales is prohibited. All non-biodegradable materials shall be removed by the Contractor when no longer needed.

3.4 HISTORICAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES MANAGEMENT

General: The Contractor shall, at minimum, comply with 54 U.S.C. 3061 the National Historic Preservation Act of 1966, Archaeological Resources Protection Act of 1979, Native American Graves Protection and Repatriation Act of 1990, American Indian Religious Freedom Act of 1978, State of California Health and Safety Statutes; AFMAN 32-7003, and the Integrated Cultural Resources Management Plan (ICRMP).

Historic Preservation Manager: The Contractor, prior to the commencement of an activity associated with a project that has the potential to disturb a cultural resource as defined below, shall acquire proper authorization from a 30 CES/CEIEA Historic Preservation Manager to ensure that no cultural resources are unintentionally disturbed or any prehistoric or historic artifacts are inappropriately treated or collected. Authorization is often evidenced by the Contractor retaining a signed copy of an AF Form 103, 332, or 813 document on site of the project.

Cultural Resources: Cultural resources include built environment assets such as buildings structures, and objects; and archaeological resources such as sites, features, artifacts, and other human derived items or modifications to the environment. Archaeological resources are further categorized as prehistoric, protohistoric, and historic. Historic items are often easier to identify although their age can be spurious. Typical historic items consist of bottles, cans, coins, buttons, antiques, building foundations, and early military materials. To qualify as "archaeological", the item needs to be at least 50 years. Prehistoric and protohistoric artifacts are usually much older than 50 years. Examples of items include but are not limited to: arrowheads and other flaked stone tools, beads, ornaments, sacred objects such as charm stones, hammerstones, stone bowls, bone tools, human remains, non-human bone, charcoal concentrations, unnatural concentrations of stone, shellfish remains, fossils, and asphaltum. As a general rule, any cultural resource over 50 years of age is protected; the Archaeological Resources Protection Act is triggered for items that are at least 100 years old. If any previously unidentified materials of these types are found individually or in concentrated deposits within the project area, the Contractor shall report these to the onsite CEIE environmental representative archaeological monitor, or a CEIEA Historic Preservation Manager. Cultural resources are not to be collected or disturbed without approval from the onsite archaeological monitor or a Historic Preservation Manager.

Avoidance and Mitigation: The Contractor is responsible, unless otherwise noted, for implementation and all associated costs of any cultural resource avoidance or mitigation measures associated with the approval for the project and its related activities. The requirements for archaeological and historic built environment properties are as follows:

1. Archaeological measures may include, but are not limited to, literature searches, archaeological and/or American Indian monitoring, avoidance of resources employing flagging or fencing to protect resources, preparation of an archaeological treatment plan, archaeological testing, data recovery, analyses of excavated material, producing updated Department of Parks and Recreation 523 archaeological forms, preparing draft and final reports, providing funds for long term curation of recovered items and all field documentation, and development of outreach material for the general public. The Contractor shall coordinate with the Base Archaeologist who will provide Statements of Work for contracted archaeological work that implements project specific required mitigation measures.

2. Historic Built Environment measures may include, but are not limited to, literature searches, development of a historic context, development of a Historic Property Treatment Plan, generating the appropriate level of Historic American Building Survey (HABS) and Historic American Engineering Record (HAER) documentation and associated specialty photography, producing updated Department of Parks and Recreation 523 built environment forms, and development of outreach material for the general public.

Inadvertent Discovery of Cultural Resources: The Contractor shall cease work if undocumented cultural resource items are observed during excavation, grading, or other ground-disturbing activities. Work must be temporarily suspended within 100 feet of the discovery until it has been properly evaluated and secured. In some instances, the Contractor may be directed to protect the immediate discovery area with temporary fencing. The Contractor or their Archaeological Monitor shall immediately report any discovery of previously unidentified cultural resources to the Base Archaeologist.

3.5 SOLID WASTE MANAGEMENT PLAN

Each project shall generate a site-specific Solid Waste Management Plan prior to commencement of work on Vandenberg SFB. The contractor shall provide a copy of this plan to their contracting officer and the 30 CES/CEIEC Solid Waste Manager and include a written notification of the projected quantity of solid waste/debris anticipated to be generated by the project. The contractor shall include in the report all facilities and locations expected to be used for all waste disposal or recycling.

3.5.1 Solid Waste Management Report (monthly)

The Contractor shall submit monthly reports to the contracting officer for the 30 CES/CEO Solid Waste Activity Owner no later than the 5th calendar day after the end of each month. The reports shall contain the weight, type, and quantity of Solid Waste and/or Construction & Demolition (C&D) Debris (mixed solid waste, scrap metal, scrap lumber, inert C&D, non-inert C&D, green waste, mixed paper, soil, wood debris, tires, cardboard) transported off base for recycling, sale, or disposal. Copies of the weight tickets, sales receipts, and disposal certificates shall be included in the submittal when available. The Contractor must identify where each type of material was transported for processing or disposal. Any materials shipped out of state must be annotated.

3.5.2 Control and Management of Solid Wastes

General: The Contractor shall comply with but not limited to: California Integrated Waste Management Act of 1989; California Assembly Bill AB 939; HQ AFSPC CEIE policy Letter P01009, dated 30 April 2001 (Tracking and Reporting Solid Waste Disposal and Diversions); SLD 30 Plans, 32-7043-A, Hazardous Waste Management Plan; 32-7080 and the VSFB Integrated Solid Waste Management Guide.

Generation: The Contractor shall generate the least amount of solid waste possible, maximize pollution prevention processes, and maximize landfill diversion efforts through source reduction, reuse of materials, and recycling. All projects will, at a minimum, be required to divert or recycle at minimum 50% of their solid waste and 54% of their C&D waste.

Segregation: The Contractor shall segregate all divertible, reusable, and recyclable materials including, but not limited to wood, green waste, concrete, asphalt, brick, cardboard, metals, paper, plastics, glass, serviceable items, salvageable items, and clean soils so that these items can be diverted for disposal.

1. Waste generation is inevitable and should be managed in accordance with the Pollution Prevention hierarchy – source reduction, reuse, recycle, treatment, and as a last resort disposal.

2. Unless otherwise specified in contract documents, all demolition or scrap items generated from the project with commodity value are the property of the government, and any revenue generated from reuse, sales or recycling transactions is to be retained by the installation QRP program. Materials that shall be recycled to the maximum extent possible include cardboard, paper, paper packaging, clean wood, pallets, beverage containers, land clearing debris, concrete, bricks, concrete masonry units, asphalt, drywall. carpet and pad, useable paint, asphalt roof shingles, rigid foam, glass, plastics, and metals from banding, stud trim, ductwork, piping, rebar, roofing, steel, iron, galvanized sheet steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze.

Locks, Latches, and Cylinders: Must be salvaged by turning them into the Base Lock Shop, 30 CES/CEOHV, Building 11439, extension 606-5236.

Recycling and Refuse Containers: Containers located outside facilities on VSFB are intended for solid waste and recycling associated with the VSFB mission. Materials that are generated from off-base activities or by activities not associated with the VSFB mission are not acceptable.

Turn-in of Recyclable and Reusable Materials: The contractor shall pre-coordinate the turn-in of all recyclable and reusable items with the Vandenberg Recycling Center (VRC) located in Building 11510. Prior to turn-in, the contractor shall segregate all material to the greatest extent feasible. Consult with VRC staff at (805) 605-0102 or (805) 605-1143 to assess items for correct handling procedures.

The following list contains the primary materials accepted by the VRC:

1. Scrap metal: copper, aluminum, steel, stainless steel, iron, bronze, brass, lead and others, which are contained in items such as wire, cable, pipe, conduit, duct work, beams, siding, roofing, doors, framing, water heaters, remnants, etc.

2. Government-procured Furniture: either serviceable or unserviceable, from areas such as offices, classrooms, waiting areas, or conference rooms.

3. Wood of all types: treated or untreated wood items such as pallets, dimensional lumber, crates, spools, power poles, railroad ties and tree logs (including unusable treated or untreated scrap wood).

The following list contains items that shall be turned into DLA Disposition Services (formerly DRMO) located in building 11510:

1. All accountable equipment items [those listed on a government Customer Authorization/Customer Receipt Listing (CA/CRL, aka, Accountable Equipment List)]

2. Electrical or electronic components, that is, anything powered by electricity or containing electronic circuit cards.

3. Precious metals, such as gold, silver, and platinum (Note: copper is not a precious metal and should be taken to the VRC)

4. Munitions or Strategic Listed Items

5. Military or Aerospace-unique items: those items manufactured/modified specifically for military and/or aerospace use.

Note: The VRC is a separate organization from DLA Disposition Services, so please ensure material is delivered to the correct recipient. If the items are not accepted by the VRC or DLA Disposition Services, then the contractor shall investigate other diversion alternatives prior to recommending items for disposal.

Vandenberg SFB Landfill: The VSFB permitted Class III Municipal Solid Waste (MSW) landfill has ceased the routine acceptance and disposal of MSW and operates at a reduced level of service. Acceptance of any waste generated from contractor related project activities are prohibited. Only preapproved loads, transported by 30 CES personnel, are allowed to utilize the landfill. Contractor generated MSW and recyclables are required to be transported to off-base facilities for disposal and recycling. Contractors are required to submit quarterly reports to their contracting officer and the 30 CES/CEO Solid Waste Activity Owner no later than the fifth calendar day after the end of each month. Each Quarterly report shall contain the total weight, type and quantity of solid waste and/or construction & demolition (C&D) debris (mixed solid waste, scrap metal, scrap lumber, inert C&D, non-inert C&D, green waste, mixed paper, soil, wood debris, tires, cardboard) transported off base for recycling, sale, or disposal. Copies of weight tickets, sales receipts, and disposal certificates shall be included in the submitted report. The Contractor must identify the facility where MSW or recyclables are processed or disposed of. Any materials shipped out of county and/or state must be annotated.

3.6 WHM/HW MATERIALS PROHIBITION

No waste hazardous material or hazardous waste shall be disposed of on government property. No hazardous material shall be brought onto government property that does not directly relate to requirements for the performance of this contract. All hazardous materials must be approved by the Installation's HAZMART prior to bringing on base (See Section 3.8, Hazardous Material Management). The government is not responsible for disposal of Contractor's waste material brought on the job site and not required in the performance of this contract. The intent of this provision is to dispose of that waste identified as waste hazardous material/hazardous waste as defined herein that was generated as part of this contract and existed within the boundary of the Contract limits and SECTION 01 57 19.00 20 Page 26 not brought in from offsite by the Contractor. Incidental materials used to support the contract including, but not limited to aerosol cans, waste paint, cleaning solvents, contaminated brushes, rags, clothing, etc. are the responsibility of the Contractor. The list is illustrative rather than inclusive. The Contractor is not authorized to discharge any materials to sanitary sewer, storm drain, or to the river or conduct waste treatment or disposal on government property without written approval of the Contracting Officer.

3.7 HAZARDOUS MATERIAL MANAGEMENT

General: The Contractor shall comply with, but not limited to: AFMAN 32-7002, Chapter 3, Hazardous Materials Management. Within 2 weeks of contract award, the contractor must contact the Installation Hazardous Materials Program Manager (30 CES/CEIEC) at (805) 606- 2068, (805) 605-3870, or (805) 605-3976 to review hazardous materials authorization procedures.

HazMat Tracking Activity or HAZMART: The contractor shall first obtain approval from the HAZMART for all HAZMAT (including pesticides) usage on VSFB, except for the commodities exempted on the Installation Management Flight approved exemption list. The contractor with access to a government computer must attend applicable training for the installation's hazardous material authorization and tracking processes. The contractor must submit an AF Form 3952, Chemical/Hazardous Material Request Authorization (or an electronic equivalent) with current manufacturer's Safety Data Sheets (SDSs) for all materials purchased outside of the HAZMART supply system. Notify the HAZMART to establish a shop account code and 30 CES/CEIEC, Environmental Support at (805) 606-8438 for authorization and approval process before using any hazardous materials on VSFB. The HAZMART Environmental Support staff will process, review, and approve all submitted HAZMAT once in compliance. All HAZMART registered HAZMAT shall have appropriate bar codes issued and must be attached to each HAZMAT container. Upon contract termination, contractor must remove all excess HAZMAT from the job site and clear or return all unused and issued bar codes to the HAZMART, located in Building 3300. The HAZMART can be reached at (805) 606-8438.

Reporting: The contractor shall provide a monthly hazardous materials usage report with corresponding container's bar code number to the HAZMART Environmental Support to include electronic reporting.

NOTE: Contractors reporting all their monthly hazardous materials usage through the HAZMART should meet the air emissions, Emergency Planning and Community Right-to-Know Act Section 313, Toxic Chemical Release Inventory (TRI), solvent usage, and HAZMAT VSFB database/report requirements.

Pesticides: The Contractor shall comply with but not limited to Clean Water Act, Federal Insecticide, Fungicide, and Rodenticide Act; California Regional Water Quality Control Board permits; HQ AFSPC Policy P01014, dated 24 May 2001 (NPDES permit for Pesticides); AFI 32- 1053, Integrated Pest Management Program, Executive Order 13112, and the base Integrated Pest Management Plan.

1. Contractors using pesticides on VSFB shall obtain approval from the base Pesticide Manager, 30 CES/CEOHP, phone number (805) 606-3235/7596 or (805) 606-5059, 30 CES/CEIEC, Water Resource Manager, and 30 CES/CEIE, Natural Resources Manager prior to using any "pesticide" on VSFB. Pesticides include, but are not limited to, herbicides, fungicides, algaecides, and larvicides. The contractor shall obtain approval from the Government's HAZMART for all pesticide usage by processing an AF Form 3952, Chemical/Hazardous Material Request Authorization, prior to using only DOD-approved pesticides on VSFB.

2. The Contractor shall possess a California pest control license for the type of pesticide work being performed and type of pesticide being applied on VSFB. The Contractor shall obtain any county, local, state, or federal permits required for any pesticide work being done or pesticide materials to be used on VSFB. The Contractor will also obtain a login/password on Integrated Pest Management System (IPMIS) Web (http://web.ipmis- helpdesk.org) where they will record all chemical usage/tasks performed on VSFB. The Contractor shall prepare, maintain, and/or submit to the appropriate agency the required reports and/or records. The Contractor shall provide electronic copies of all licenses and permits to the Pesticide Manager within 10 days of contract award and 10 days after receiving a new license or getting a license renewed.

3. The Contractor shall record, on a daily basis, all pesticide products that are consumed that day. The report shall include the date, location, type of operation; target pest, pesticide used, EPA number, percent concentration, amount of concentrate, amount of finished product, units of measure in square feet, and applicator's initials. This information shall be recorded in IPMIS Web, and VSFB Pesticide Manager notified that the updates have been made by the 5th of each month for the prior month's pesticide applications.

4. The contractor shall keep copies of monthly pesticide usage. Notify VSFB Pesticide Manager when all updates have been completed as well as to the HAZMART. Pesticides do have additional compliance requirements in addition to typical HAZMAT requirements.

5. The contractor shall not apply pesticides in or near water bodies, storm drains or channels.
6. The contractor shall only use DoD approved pesticides on VSFB. If the contractor wants to use a pesticide that is not on the approved list, they will need to fill out an AFCEC NON-STANDARD PESTICIDE APPROVAL FORM 20140101 that can be obtained from VSFB Pest manager. Requests will then be sent to command Entomologist for approval. If pesticide is approved, contractor will be contacted.

Preferred Substitutions: The Contractor shall evaluate all Hazardous Material requisitions for appropriate environmentally preferred substitutions in an effort to reduce or eliminate the associated wastes at the source. These preferred products will be submitted for approval (per paragraph B). In some cases, the proposed products may not require bar-coding or subsequent reporting. Also see Green Procurement Program (GPP requirements, Section 3.14).

1. As applicable to project requirements, the Contractor is required to reduce products that contain materials found on EPA's Priority Chemical Reduction List at http://www.epa.gov/wastemin/chemlist.htm, with immediate emphasis on reducing cadmium, lead, mercury, naphthalene, and polychlorinated biphenyls (PCBs).

2. For cleaners, floor care products, paints and coatings, paper and newsprint, and windows and doors: http://www.greenseal.org/findaproduct/index.cfm

3. For cleaning products: http://www.epa.gov/epp/pubs/products/index.htm

Submittals: The Contractor shall provide the following to the Contracting Officer for any hazardous material activities on VSFB:

1. Monthly Hazardous Material (HAZMAT) quantity usage totals.

2. Upon contract termination, contractor must remove all excess HAZMAT on the job site. Excess hazardous materials must be properly disposed of. Clear or return all unused and issued bar codes to the HAZMART Environmental Support. Contact the HAZMART Environmental Support, at (805) 605-3870 or (805) 605-3976, located in Building 5500, Bay "C", Room 10.

No hazardous material shall be brought onto government property that does not directly relate to requirements for the performance of this contract. Include hazardous material control procedures in the Safety Plan. Address procedures and proper handling of hazardous materials, including the appropriate transportation requirements. Typical materials requiring SDS's and quantity reporting, include but are not limited to oil and latex based painting and caulking products, stains and varnishes, solvents, adhesives, aerosol, petroleum products and asbestos containing material. At the end of the project, provide the Contracting Officer with the maximum quantity of each material that was present at the site at any one time, the dates the material was present, the amount of each material that was used during the project, and how the material was used.

Ensure that hazardous materials are utilized in a manner that will minimize the amount of hazardous waste that is generated. Ensure that all containers of hazardous materials have NFPA labels or their equivalent. Keep copies of the hazardous material SDS's onsite at all times and provide them to the Contracting Officer at the end of the project. Certify that all hazardous materials removed from the site are hazardous materials and do not meet the definition of hazardous waste per 40 CFR 261.

3.7.1 Asbestos Management

The Contractor shall comply with the following regulations.

General:

1. California Health and Safety Code Section 25143.7

2. 40 CFR Part 61 Subpart M (National Emission Standards for Asbestos)

3. Santa Barbara County Air Pollution Control District (SBCAPCD) Rule 1001

4. 40 CFR Part 763, Asbestos-Containing Materials in Schools

5. 29 CFR 1926.1101, Safety and Health Regulations for Construction

6. 8 California Code of Regulations, Subchapter 4, Section 1529, Asbestos

7. 8 California Code of Regulations, Subchapter 2, Section 341.15

8. 22 California Code of Regulations, Sections 66260-66270, Hazardous Waste Regulation

9. 40 CFR Part 260-270, Hazardous Waste Regulations

10. SLD 30 Plan, 32-7043-A, Hazardous Waste Management Plan

11. United States Space Force Integrated Solid Waste Management Plan, Vandenberg Space Force Base

12. Vandenberg Air Force Base Environmental Program Guide – Asbestos Management Guide, October 2014

Asbestos Hazard Response Act (AHERA): Federal and contractor employees that affect asbestos processes in construction shall possess current certification and training in accordance with AHERA described in 40 CFR 763.92 and Appendix C, Asbestos Model Accreditation Plan.

Miscellaneous: The Contractor shall be competent with all relevant asbestos survey observations, results, and findings prior to the start of asbestos activities on VSFB. The government will make every effort to locate and identify all asbestos prior to contract award, however this is not always possible.

1. The Contractor shall make a commitment not to undertake any general construction work or any other activities that would break up, dislodge, or similarly disturb ACM until a licensed asbestos Contractor has been approved.

2. The Contractor shall conduct an asbestos safety conference for construction projects prior to the start of actual work. The asbestos safety conference shall include representatives of the contracting agency, 30 CES/CEIE, the employer, employees, and employee representatives.

3. In the discussion of the Contractor's asbestos safety program, the Contractor shall include, but not limited to: methods, devices, processes, practices, conditions, or activities the Contractor intends to use in providing a safe place of work.

4. The Contractor shall maintain written documentation of topics discussed and persons attending these asbestos safety meetings, and upon request, provide a copy to the Contracting Officer.

5. The Contractor's competent person shall meet the definitions described in both 29 CFR 1926.1101(b) and 29 CFR 1926.32(f). 29 CFR 1926.32(f) defines the competent person as one who is capable of identifying asbestos hazards, capable of controlling the asbestos exposure, and possesses the authority to eliminate exposure to asbestos as specified in 29 CFR 1926.32(f). The Contractor's competent person shall be trained according to the criteria specified in the EPA's Model Accreditation Plan, which is described in 40 CFR 763 for the contractor/supervisor.

Work Plan: The Contractor shall submit, for approval, the Site-Specific Asbestos Work Plan to the 30 CES/CEIE Asbestos Manager prior to the start of any asbestos work on VSFB. The Contractor shall update the Site-Specific Asbestos Work Plan as required. It is a violation of California state law to design and/or provide asbestos abatement specifications and also perform the asbestos abatement associated with the design and/or specification. The Site-Specific Work Plan shall include, at a minimum, the following:

1. Name and contact information of all parties involved with the project, including general contractor, asbestos abatement contractor, and project monitor. The asbestos project design shall be performed by an accredited AHERA Asbestos Abatement Project Designer. The asbestos contractor/supervisor shall be accredited by AHERA.

2. Description of methods and procedures for handling, removal, and disposal of ACM as well as the quantities of ACM to be removed

3. Statement of compliance IAW OSHA regulation 29 CFR 1926.1101 and Title 8 CCR 1529

4. Air monitoring plan (40 CFR 763)

5. Description of engineering controls, equipment staging, containment construction, decontamination units and operational guidelines, clean room, equipment room, negative pressure air flow devices, and containment certification by the project monitor

6. Onsite safety and health plan, training certificates, medical and respiratory fit test records, material safety data sheets, workplace entry and exit procedures, emergency contact list, California OSHA posters, OHSA Notification procedures, entry/exit logs, and air sampling monitoring results

7. Site security plan

8. Emergency contingency plan and contact information

9. Personnel protective equipment list

10. Description of work clearance and final inspection procedures

Encountering ACM: When suspected ACM is encountered during the construction phase, then the Contractor shall immediately cease work and make arrangements for sampling of the material prior to resuming work. The Contractor shall be responsible for identifying suspected ACM encountered during activities that were not previously identified in the asbestos survey. An updated and/or approved site-specific asbestos abatement plan shall be required in this case.

Air monitoring: Required for all VSFB asbestos abatement contracted activities and shall meet the minimum criteria specified in 40 CFR 763, Appendix A. Air monitoring activities will include, at a minimum, a baseline analysis, work area analysis during abatement activities, and outside air monitoring. California Asbestos Consultants/California Site Surveillance Technicians shall be responsible for ensuring compliance of Contractor's asbestos abatement activities.

3.7.2 Polychlorinated Biphenyls (PCB) Management

General: The Contractor shall comply with but not limited to: Toxic Substances Control Act (TSCA), 40 CFR 761 (PCB Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions); and SLD 30 Plan 32-7043-A, Hazardous Waste Management Plan, Appendix 12, Special Topics; AFMAN 32-7002, Chapter 3 Hazardous Materials Management.

PCB Generated on VSFB: The Contractor shall coordinate all PCB waste disposaldocumentation through the base CCAP contract operator prior to PCB waste handling.

Management: The Contractor shall, if required, test all electrical equipment removed for the presence of PCBs or the potential to contain PCBs. The Contractor shall manage the PCB waste or potential PCB waste as a PCB waste until it is determined that the items do not contain PCBs. The Contractor shall pay for testing and laboratory analyses. The Government will make every effort to locate and identify all PCBs prior to contract bid, however, this is not always possible. If positive PCB identification has been made, then the Contractor shall coordinate with

30 CES/CEIE prior to handling any PCB waste or PCB contaminated equipment. All PCB containing waste shall be coordinated and managed through 30 CES/CEIE and the CCAP (NO EXCEPTIONS). Please contact the Hazardous Waste Program Manager at (805) 606-2359 for all projects with PCB containing equipment or waste.

3.7.3 Radioactive or Radionuclides Material Management

General: The Contractor shall comply with, but not limited to: 40 CFR Part 61, 190, 191, and 192; 10 CFR 19; 10 CFR 20; 10 CFR 36; 10 CFR 39; 20 CFR 21; Air Force Instruction (AFI) 40-201, Managing Radioactive Materials In The USAF; 30 SW AFI 40-101, Managing Radioactive Materials; and SLD 30 Plan 32-7043-A, Hazardous Waste Management Plan (especially Appendix 12, Special Topics titled Radioactives/Radionuclides).

Transporting Material onto Base: The Contractor shall contact the Contracting Officer, via the Vandenberg Radiation Safety Officer, 30 MDOS/SGOAB, in order to submit the appropriate documents and permits. They are required at least 30 days prior to bringing the radioactive material or equipment containing radioactive material onto VSFB. Radioactive or Radionuclide materials brought onto VSFB are subject to inspections by the Nuclear Regulatory Commission. The Contractor shall support all regulatory agency inspections on VSFB.

Radioactive Exit Signs: The Contractor shall contact the Vandenberg Radiation Safety Officer, 30 MDOS/SGOAB in order to determine proper disposal requirements of these signs. These exit signs cannot be disposed of in the VSFB landfill or the hazardous waste CCAP. The contractor shall not install any new radioactive exit signs on VSFB.

3.7.4 Lead Based Paint (LBP) Management

General: The Contractor shall comply with, but not limited to: Title 17, CCR, Division 1 Chapter 8, Accreditation, Certification, and Work Practices For Lead-based Paint and Lead hazards; 30 SW Plans, 32-1002, Lead-Based Paint Management Plan; 32-7042, Solid Waste Management Plan; Plan 32-7043-A, Hazardous Waste Management Plan (especially Appendix 12, Special Topics); and Specification Section 02084, Lead based Paint Abatement and Disposal.

Management Plan: The Contractor shall submit the LBP Management Plan for approval to 30 CES/CEIE prior to the start of any LBP work on VSFB.

Encountering LBP: If unspecified LBP is encountered during the construction phase, the Contractor shall cease work and make arrangements for sampling of the material prior to resuming. The Government will make every effort to locate and identify all LBP prior to bidding; however this is not always possible. These materials are often hidden and cannot be discovered until demolition activities begin or after the start of construction activities. The Contractor shall not resume LBP work until the sampled material results are known, and the LBP Management Plan has been submitted, updated, and any compliance actions required or approved by 30 CES/CEIE.

3.8 PETROLEUM PRODUCTS AND REFUELING

Conduct the fueling and lubricating of equipment and motor vehicles in a manner that protects against spills and evaporation. Manage all used oil generated on site in accordance with 40 CFR

279. Determine if any used oil generated while on-site exhibits a characteristic of hazardous waste. Used oil containing 1000 parts per million of solvents will be considered a hazardous waste and disposed of at Contractor's expense. Used oil mixed with hazardous waste will also be considered hazardous waste.

3.8.1 Oily and Hazardous Substances

Prevent oil or hazardous substances from entering the ground, drainage areas, or navigable waters. In accordance with 40 CFR 112, surround all temporary fuel oil or petroleum storage tanks with a temporary berm or containment of sufficient size and strength to contain the contents of the tanks, plus 10 percent freeboard for precipitation. The berm will be impervious to oil for 72 hours and be constructed so that any discharge will not permeate, drain, infiltrate, or otherwise escape before cleanup occurs.

3.8.2 Inadvertent Discovery of Petroleum Contaminated Soil or Hazardous Wastes

If petroleum contaminated soil or suspected hazardous waste is found during construction that was not identified in the contract documents, the contractor shall immediately notify the contracting officer. The contractor shall not disturb this material until authorized by the contracting officer.

3.9 FUEL TANKS

Petroleum products and lubricants required to sustain up to 30 days of construction activity may be kept on site. Storage and refilling practices shall comply with 40 CFR Part 112. Secondary containment shall be provided and be no less than 110 percent of the tank volume plus five inches of freeboard. If a secondary berm is used for containment, then the berm shall be impervious to oil for 72 hours and be constructed so that any discharge will not permeate, drain, infiltrate, or otherwise escape before cleanup occurs. Drip pans are required, and the tanks must be covered during inclement weather.

3.10 RELEASES/SPILLS OF OIL AND HAZARDOUS SUBSTANCES

General: The Contractor shall comply with but not limited to: VSFB Spill Prevention Control and Countermeasure Plan, SLD 30 Plan 32-7043-A, Hazardous Waste Management Plan, 32- 7043-E, Recoverable and Waste Petroleum Products Management Plan, AFMAN 32-7002, Chapter 3 HAZMAT Management, and VSFB 10-2 Installation Emergency Management Plan.

Notification: When the Contractor has a spill or release, then the Contractor shall immediately notify 30 CES/CEIE, (805) 606-1921 / 605-2015, fax (805) 734-1339, the Command Post, (805) 606-9961, and the Contracting Officer.

Based on the Reportable Quantity of the contractor's spill or release, 30 CES/CEIE will determine if an environmental regulatory agency Incident Release Report will need to be prepared and submitted based on the Reportable Quantity of the contractor's spill or release.

Note: If a regulatory agency incident release reporting action is required for the Contractor's spill or release on VSFB, then 30 CES/CEIE is responsible to notify the appropriate regulatory agency within the mandated reporting period.

Reporting: When the Contractor has a spill or release, then the Contractor shall provide a copy of the Community Awareness and Emergency Response (CAER) Hazardous Materials Incident Reporting Form and any other required documentation to 30 CES/CEIE, (805) 606-1921 / 605- 2015, fax (805) 734-1339, for 30 CES/CEIE to provide the appropriate regulatory agency's mandatory reporting. (References: SLD 30 Plan, 32-7043-A, Hazardous Waste Management Plan, Appendix 8; EPP.

Clean-up: The Contractor shall take immediate actions involving hazardous material spill or release to properly contain, clean up, make notifications, and provide final cleanup documentation for their spill or release. When the Contractor is unable to conduct proper cleanup activities for a spill or release, then immediate notification to the government is required. The Government reserves the right to conduct the mandatory clean-up activities until the Contractor is able. All costs incurred by the Government until the Contractor is capable of taking control of the clean-up activities are the sole responsibility of the Contractor.

30 SW 32-7043-A: The contractor is responsible for the characterization and disposal of cleanup materials and/or hazardous waste generated from its spill, release, and cleanup activities. (Reference the SLD 30 Plan, 32-7043-A, Hazardous Waste Management Plan).

1. For generally "large" hazardous waste or hazardous material spills or releases, the Contractor shall comply with but not limited to 30 SW Plan 32-7043-A, Hazardous Waste Management Plan.

2. For generally "small" hazardous waste or hazardous material spills or releases, the Contractor shall comply with but not limited to SLD 30 Plan 32-7043-A, Hazardous Waste Management Plan.

3.11 CONTROL AND MANAGEMENT OF HAZARDOUS WASTES

Minimize the use of hazardous materials and the generation of hazardous waste. Include procedures for pollution prevention/ hazardous waste minimization in the Hazardous Waste Management Section of Environmental Protection Plan Consult with the Installation Pollution Prevention Manager (30 CES/CEIEC) for suggestions and to obtain a copy of the installation's pollution prevention/hazardous waste minimization plan for reference material when preparing this part of the plan. Describe the types of hazardous materials expected to be used in the construction when requesting information.

General: The Contractor shall comply with, but not limited to: Resource Conservation and Recovery Act; 40 CFR Parts 240-299 (Protection of Environment), 49 CFR Parts 171-180 (Transportation), EPA Hazardous Waste Training Modules; Title 22 California Code of Regulations (CCR), Division 4.5 (Environmental Health Standards for Management of Hazardous Waste); the California Hazardous Waste Source Reduction and Management Act of 1989 (Senate Bill 14);VSFB 10-2 Installation Emergency Management Plan, 32-7043-A, Hazardous Waste Management Plan, and DOD Instruction 4000.19, Interservice and Intragovernmental Support.

Hazardous Waste Disposal on VSFB: The Contractor shall manage, track and dispose of all hazardous waste generated on VSFB through the Government contracted and operate Consolidated Collection Accumulation Point (CCAP). The CCAP personnel assist the waste generators with waste stream classification including Land Disposal Restrictions and generate shipping documents and manifests to ensure hazardous waste transportation and disposal regulations are strictly adhered to.

Hazardous Waste Removal from VSFB: The Contractor shall not remove any hazardous waste generated on VSFB without approval from 30 CES/CEIEC or the authorized CCAP representative. Only the 30 CES/CEIEC or the CCAP representative is authorized to sign Uniform Hazardous Waste Manifests. The Contractor shall not sign any of their own Uniform Hazardous Waste Manifests unless they have their own established EPA Generator ID number.

Reimbursement: In accordance with DoD Instruction 4000.19, Interservice and Intragovernmental Support, the Contractor generating hazardous waste may be held responsible for the direct costs and support costs incurred by VSFB to dispose of hazardous wastes that are directly attributable to contract activities. Reimbursement for such costs is subject to conditions specified in the contract-specific support agreement, memorandum of agreement (MOA) or memorandum of understanding (MOU). The decision to seek reimbursement lies with the Government agent and should consider the anticipated expense of billing and disbursing funds.

Miscellaneous: The Contractor is required to provide hazardous waste characterization documentation, including Material Safety Data Sheets, sample requests and product and or process user knowledge for coordination through the CCAP. Coordination is requested prior to waste generation in order for the Government to properly characterize and manage all hazardous waste generated on VSFB.

1. The Contractor is responsible for all costs and management processes associated with the proper site management, Site-Specific Contingency Plan, Spill Control and Cleanup Equipment/Supplies, profiling, accurate waste characterization, temporary site storage areas, containerization, labeling, obtaining drum numbers, transportation to the CCAP facility, and the implementation of source reduction measures prior to waste turn- in. The Contractor is responsible for their hazardous waste management up to and until their waste is delivered and signed over to CCAP personnel via a hazardous waste turn-in sheet.

2. To establish new hazardous waste accumulation sites, waste generators are required to submit an authorization request to 30 CES/CEIEC as required by the SLD 30 Plan 32- 7043-A, Hazardous Waste Management Plan, Appendix 4. The 30 CES/CEIEC Hazardous Waste Program Manager will provide a letter of authorization and conduct a site visit to ensure all waste generation compliance concerns are in practice.

SLD 30 Plan 32-7043-A: The Contractor shall provide a "Certification of Hazardous Waste Compliance" on company letter head to the Contracting Officer for 30 CES/CEIEC indicating that the Contractor shall comply with the SLD 30 Plan 32-7043A, Hazardous Waste Management Plan for all hazardous waste activities. The Contractor is required to include this certification as an Appendix to their Environmental Protection Plan.

1. The Contractor shall understand and comply with the Hazardous Waste Generator's Responsibilities in SLD 30 Plan 32-7043-A, Hazardous Waste Management Plan, Basic Plan.

2. The Contractor shall understand and comply with the Hazardous Waste Site Storage Timelines and criteria in SLD 30 Plan 32-7043-A, Hazardous Waste Management Plan, Appendix 4, Hazardous Waste Accumulation.

3. The Contractor shall understand and comply with the construction procedures in SLD 30 Plan 32-7043-A, Hazardous Waste Management Plan, Appendix 12, Special Topics, "Construction".

4. The Contractor shall have access to and maintain a copy (electronic or hard copy) of the latest SLD 30 Plan 32-7043-A, Hazardous Waste Management Plan, onsite for each hazardous waste accumulation area under the contractor's purview.

Training Requirements: The Contractor shall complete all required hazardous waste training requirements for their hazardous waste site management. This can be completed through

30 CES/CEIEC's training program or the EPA hazardous waste training modules available for site Collection Accumulation Point (CAP)/Satellite Accumulation Point (SAP) managers. If the Contractor uses the EPA training modules for their CAP/SAP hazardous waste training, then the Contractor shall provide a copy of the signed training module completion to 30 CES/CEIEC Hazardous Waste Manager and keep a copy with the Contractor's Environmental Protection Plan or CAP/SAP authorization letter as proof of completed required hazardous waste training. The Contractor shall also attend a one-time training session with the CCAP Contractor to review hazardous waste turn-in procedures. CAP / SAP turn-in training is offered on the third Tuesday of every month. The 30 CES/CEIEC Hazardous Waste Program Manager can make special arrangements for out-of-cycle training.

Identify all construction activities that will generate hazardous waste/debris. Provide a documented waste determination for all resultant waste streams. Hazardous waste/debris will be identified, labeled, handled, stored, and disposed of in accordance with all Federal, State, and local regulations including 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, 40 CFR 265, 40 CFR 266, and 40 CFR 268.

Hazardous waste will also be managed in accordance with the approved Hazardous Waste Management Section of the Environmental Protection Plan. Store hazardous waste in approved containers in accordance with 49 CFR 173 and 49 CFR 178. Hazardous waste generated within the confines of Government facilities will be identified as being generated by the Government. Prior to removal of any hazardous waste from Government property, all hazardous waste manifests must be signed by the Hazardous Waste Program Manager or an appointed representative. No hazardous waste will be brought onto Government property. Provide the Contracting Officer with a copy of waste determination documentation for any solid waste streams that have any potential to be hazardous waste or contain any chemical constituents listed in 40 CFR 372-SUBPART D. For hazardous wastes spills, verbally notify the Contracting Officer immediately.

3.11.1 Facility Hazardous Waste Generator Status

Vandenberg SFB is designated as a Large Quantity Generator. All work conducted within the boundaries of this activity must meet the regulatory requirements of this generator designation. The Contractor will comply with all provisions of Federal, state and local regulatory requirements applicable to this generator status regarding training and storage, handling, and disposal of all construction derived wastes.

3.11.2 Regulated Waste Storage/Satellite Accumulation/90 Day Storage Areas

If the work requires the temporary storage/collection of regulated or hazardous waste, the Contractor will request the establishment of a Regulated Waste Storage Area, a Satellite Accumulation Area, or a 90-Day Storage Area at the point of generation. The Contractor must submit a request in writing to the Contracting Officer providing the following information:

1. Contract Number
2. Contractor Name
3. Haz/Waste or Regulated Waste POC
4. Phone Number
5. Type(s) of Waste
6. Source(s) of Waste
7. Emergency POC(s)
8. Phone Number(s)
9. Location of the Site
10. Site Plan

To establish new hazardous waste accumulation sites, waste generators are required to submit an authorization request to 30 CES/CEIEC as required by the SLD 30 Plan 32-7043-A, Hazardous Waste Management Plan, Appendix 4. The 30 CES/CEIEC Hazardous Waste Program Manager will provide a letter of authorization and conduct a site visit to ensure all waste generation compliance concerns are in practice. Allow 10 working days for processing this request. The designated area where waste is being stored shall be barricaded and a sign identifying as follows: "DANGER - UNAUTHORIZED PERSONNEL KEEP OUT"

3.11.3 Class I [and II] ODS Prohibition

Class I [and II] ODS as defined and identified herein will not be used in the performance of this contract, nor will they be provided as part of the equipment. This prohibition will be considered to prevail over any other provision, specification, drawing, or referenced documents.

Regulations related to the protection of stratosphere ozone may be found in 40 CFR 82. Heating and air conditioning technicians must be certified through an EPA-approved program.

Copies of certifications shall be maintained at the employees' place of business and be carried as a wallet card by the technician, as provided by environmental law. Accidental venting of a refrigerant is a release and shall be reported to the Contracting Officer.

3.11.3.1 Universal Waste and e-Waste Management

Universal waste, including but not limited to some mercury containing building products, such fluorescent lamps, mercury vapor lamps, high pressure sodium lamps, CRTs, batteries, aerosol paint containers, electrical equipment containing PCBs, and consumed electronic devices, shall be managed in accordance with applicable environmental law and installation instructions. Contact 30 CES/CEIEC or refer to the HWMP for additional assistance.

3.12 WATER RESOURCES AND WATER QUALITY REQUIREMENTS

3.12.1 Surface and Groundwater

1. Prevent pollutants (sediment, debris, trash, chemicals and other pollutants) from entering the storm water system, natural surface water drainages or groundwater. There will be no discharge of excavation groundwater to the sanitary sewer, storm drains, or to surface waters. Discharge of hazardous substances will not be permitted under any circumstances. Notify a 30 CES/CEIE, Water Resources Program Manager prior to any planned discharge or threat of discharge into storm drains, stormwater conveyance systems, natural drainages, or surface waters to maintain compliance with Section 402 of the Clean Water Act.

2. Follow all Clean Water Act Section 401 Water Quality Certification and Section 404 Permit requirements for activities that affect Waters of the United States.

3.12.2 Storm Water

3.12.2.1 Storm Water Best Management Practices (BMPs)

Implement and maintain BMPs to effectively prevent sediment, chemicals, or other pollutants from migrating into the storm water system, natural drainages and surface waters. BMPs will include erosion and sediment controls, tracking controls, vehicle and equipment fueling and maintenance, spill prevention and control, solid waste management, liquid waste management, concrete waste management, stockpile management and septic waste management as applicable. BMPs shall be implemented and maintained as described in a current California Stormwater BMP Handbook (California Stormwater Quality Association, CAL-TRANS).

1. Exposed soils remaining upon completion of construction shall be permanently stabilized with vegetation to prevent erosion due to wind and rain. Refer to Section 3.16, Landscaping. When the construction activity is covered by the Construction General Permit refer to Section 3.12.2.2 and the Construction General Permit for Conditions for Termination of Coverage.

2. Netting of permanent fiber rolls (wattles) and erosion control blankets shall be of biodegradable material only.

3. Do not use sandbags as inlet and drainage protection. Use gravel bags, inlet protection devices, inlet covers or absorbents as applicable.

4. Do not use straw bales for sediment control.

3.12.2.2 Construction General Permit Requirements

1. Assist the Government with obtaining coverage under the State Water Resources Control Board NPDES Construction General Permit for activities of one acre or greater of disturbed soil with potential for discharge to Waters of the United States, as determined by the Government. Contact 30 CES/CEIE Water Resources a minimum of one month prior to construction to begin the process.

2. Permit registration documents shall be prepared by a qualified SWPPP Developer, per the Construction General Permit. Standard permit registration documents include a Notice of Intent (NOI), a Risk Determination and a Storm Water Pollution Prevention Plan (SWPPP) or Erosivity Waiver. Additional documents may be required, per the permit.

3. The Contractor shall provide drafts and a final copy of their SWPPP or Erosivity Waiver documents to 30 CES/CEIE Water Resources for review and approval.

4. The Contractor must assist 30 CES/CEIE with electronic filing of Permit Registration documents (NOI, Risk Determination, SWPPP) in the State Water Board's SMARTS website. The Contractor must file the associated annual fee with the SWRCB. The Government will certify and submit the NOI.

5. Implement a SWPPP, including but not limited to BMPs, inspections, water quality sampling and analysis, Ad hoc Reports, Exceedance Reports and Annual Reports, per the Construction General Permit.

Contractor personnel implementing SWPPPs shall:

- Meet Permit requirements for Qualified SWPPP Developers and Practitioners;

- Maintain a current copy of their SWPPP and SWPPP maps at the construction site per the permit requirements and provide a copy of any amendments to

30 CES/CEIE Water Resources and in SMARTS.

- Provide copies of required inspection forms, to 30 CES/CEIE Water Resources.

- <u>Ad hoc Reports (Risk Level 2 and 3)</u>
  - Enter all field sampling results in SMARTS within 15 days of the completion of the precipitation event or within 5 days if the field sampling results demonstrate the exceedance of the pH and turbidity numeric action levels. Notify 30 CES/CEIEC Water Resources when the Ad hoc Report is available for Government submittal.
- <u>Exceedance Report (Risk Level 2 and 3)</u>
  - Prepare and submit to 30 CES/CEIEC Water Resources an Exceedance Report, per the permit requirements, when requested by the Regional Water Board, within 15 days of the request.
- <u>Annual Report</u>
  - The Contractor's Qualified SWPPP Developer shall provide 30 CES/CEIEC Water Resources, an Annual Report in the State Water Board's SMARTS website by 15 August every year that the permit is active (between 1 July of the current year and 30 June of the previous year and for which a Notice of Termination (NOT) has not been submitted). 30 CES/CEIEC certify the Annual Report by the due date of 1 September.
  - The Contractor must pay an annual fee before the end of the billing month every year until the NOT has been approved. This requirement may be waived by the SWRCB upon 30 CES/CEIEC request.
- <u>Notice of Termination of Coverage under the General Construction Storm Water Permit (NOT)</u>
  - The Construction General Permits' Conditions for Termination of Coverage shall be met prior to NOT submittal.
  - Submit the NOT, photos and photo map key of the entire stabilized disturbed soil area to 30 CES/CEIE Water Resources in the State Water Board's SMARTS website for review and approval. The Government will certify the NOT.

Construction General Permit requirements are still enforceable until the NOT is approved by the Regional Water Quality Control Board. Once construction is completed, the Contractor is required to perform storm water inspection monitoring, water quality sampling and BMP maintenance. The Contractor will maintain seeded and planted areas and repair any erosion until vegetation is established and Construction General Permit NOT requirements are met. Begin maintenance immediately after seeding or vegetation has been installed. Inspect the vegetation at least once a week and perform needed maintenance promptly. Water, reseed, mulch and perform other operations as needed to promote plant growth and vigor, establish self-sustaining vegetation and prevent bare spots. The total bare spots shall not exceed 30 percent of the total revegetation area or another percentage established by following the 70 percent cover method.

Bare spots shall not be in areas subject to erosion. Repair erosion in all seeded or planted areas. Eroded areas may need to be filled with amended topsoil and replanted with the same plant species. Maintain the performance of erosion control materials and protect installed areas from traffic.

3.12.3 Post-Construction Storm Water

Vandenberg SFB Post-Construction Storm Water Standards apply to projects that create and/or replace 2,500 square feet (SF) or more of new or replaced impervious surface area within the cantonment areas and projects that create and/or replace 5,000 square feet or more of impervious surface area within the VSFB boundary. If applicable, prepare drafts and a final Storm Water Control Plan during design, for review and approval by 30 CES/CEIE Water Resources.

1. Projects that create and/or replace 2,500 square feet or more square feet of impervious surface will implement one or more of the following site design measures to reduce project site runoff: Preservation of existing vegetation to the maximum extent feasible (minimum requirement); stream setbacks and vegetated buffers (30-foot minimum); improvement and maintenance of soil through soil amendments; tree planting and preservation; rooftop and impervious area disconnection; vegetated swales; green roofs; or equivalent measures.

2. Projects that create and/or replace 5,000 square feet or more of impervious surface shall implement Low Impact Development measures to include: Site Design Measures, Source Control Measures, and Storm Water Retention and Treatment Measures (if applicable). Storm water retention and treatment measures will maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the drainage area or areas with regard to the temperature, rate, volume, and duration of flow. Storm water retention and treatment measures should only be used if the drainage area or areas flows to a natural surface water drainage.

3.12.4 Domestic Wastewater

Sanitary Sewer: VSFB sanitary sewer connections are authorized for discharges of approved domestic wastewater as defined by discharge standards set by the City of Lompoc. Discharge of any wastewater on VSFB, other than routine domestic wastewater, into the sanitary sewer system requires pre-authorization from 30CES/CEIE. Ensure that sanitary sewer lines that are no longer needed are capped, permanently closed, and/or made inert to prevent storm water/groundwater inflow infiltration into the wastewater collection system. Report any sanitary sewer blockages and/or sewer system overflows to 30 CES/CEIE.

Grease Interceptors, Traps, and Oil Water Separators: Grease traps and oil water separators (OWS), must be routinely cleaned and maintained to ensure they are functioning properly. Oil, grease, or oily sludge removed from restaurant traps, interceptors, and OWS units must be removed from base for disposition.

Septic Systems: Septage recovered from routine maintenance or decommissioned septic systems must be disposed of by discharge into a sanitary sewer manhole (approved by 30 CES/CEIE) or an off-base collection point.

3.12.5 Industrial Wastewater

Discharge: Approval from the City of Lompoc, an industrial discharge permit, or waiver from the Regional Water Quality Control Board is required to discharge process or industrial wastewater. 30 CES/CEIE Water Resources coordination and approval is required prior to wastewater disposition.

Treatment: If contract allows generator to dispose of their industrial or process wastewater at the VSFB Industrial Wastewater Treatment Plant (IWTP), 30 CES/CEIE coordination and approval of an IWTP Processing Request is required. Sampling and analysis is required to determine hazardous characteristics. A Sampling Request Form and Industrial Wastewater Characterization Form are required for sampling conducted by the Water Resources consultant. The VSFB IWTP may not be able to accept all industrial or process wastewater.

3.12.6 Miscellaneous Wastewater

30 CES/CEIE coordination and approval is required prior to disposition of wastewater.

1. Discharge to Grade (DTG): A DTG Characterization Form shall be completed and approved by 30 CES/CEIE Water Resources prior to discharge of any low-level contaminated wastewater. Discharge of hazardous substances will not be permitted under any circumstances. A DTG Form may also be required for discharge of other types of wastewater to grade.

2. Aqueous Unknowns: Storm water, non-storm water, groundwater, or wastewater that is collected in any kind of structure or container may need to be analyzed prior to removal and disposition. 30 CES/CEIEC Hazardous Waste or Water Quality coordination and approval is required.

3. Vehicle and Equipment Cleaning: Do not perform vehicle and equipment cleaning onsite using soaps, solvents, degreasers, steam cleaning equipment or equivalent methods. Perform vehicle or equipment cleaning offsite or onsite with water only, in a designated area that will not allow water to enter storm drain inlets, drainage systems or surface waters.

4. Building and Structural Preparation Washing: Pressure washing wastewater, debris and sediment shall be prevented from entering the storm drain system (inlets, drains, gutters) in the cantonment areas or natural surface water drainages. Prior to using any chemical cleaner, an MSDS must be submitted to 30 CES/CEIE in order to determine whether the wastewater must be captured, collected and removed or allowed to discharge to grade. Prior to pressure washing, the paint content of the affected area must be known. If the paint contains hazardous constituents (lead, chromium, zinc, etc.), abatement will be required. If paint content is unknown, representative samples shall be collected.

3.12.7 Drinking Water

Backflow Prevention: Ensure that new or renovated drinking water supply connections and valves are equipped with backflow assemblies to protect Potable water quality from contact with non-potable irrigation system backflows, stagnant water distribution lines, fire suppression system lines, and other backflow sourced cross-contamination. All new or renovated backflow assemblies must be tested and test results submitted to the cross-connection control program manager at the 30th Civil Engineering Utilities Shop.

Cross Connection: All abandoned potable water tanks, distribution lines, hydrants, and drinking water system components must be capped off, removed, permanently closed, or made inert.

Maintained potable lines must be protected against cross-contamination by preventing contact with abandoned line segments or non-potable connections. If necessary, backflow assemblies must be installed to remediate the potential for cross-connections. Ensure all encountered storm sewer lines, sanitary sewer lines, industrial feeder lines, and drinking water distribution lines no longer needed are capped off, removed, permanently closed, or made inert in order to prevent inflow-infiltration issues, cross-connections, and/or health-related hazards.

Non-potable Water: All non-potable water supplies must be clearly identified as non-potable through use of visible markings or signage.

Potable Water Supply – Tanks: New or refurbished water tanks that have recently undergone interior coating maintenance must be VOC water-tested prior to placement into use as a water supply reservoir.

Drinking water treatment and distribution system operation and maintenance is now performed by American Water. Please contact American Water if you have any questions or require coordination on drinking water issues.

3.13 AIR QUALITY REQUIREMENTS

General: The Contractor, and their subcontractors, shall comply with all applicable, but not limited to: Federal and state Clean Air Acts; Santa Barbara County Air Pollution Control District (SBCAPCD) rules and regulations; SBCAPCD Permit To Operate (PTO) or Authority to Construct requirements (ATC); California Air Resources Board (CARB) regulations, standards, controls, and portable equipment registration requirements; any applicable US EPA Best Achievable Control Technology (BACT) standards; AFI 32-7040, Air Quality Compliance;

30 SWI 32-702, Environmental Management Air Emission Inventories; and base Fuel Use Monitoring Plan (FUMP) and Greenhouse Gas (GHG) Monitoring Plan. The contractor/subcontractor shall comply with all the applicable air quality requirements and implement accepted construction best management practices.

Authority to Construct or Permit to Operate: Prior to beginning an activity on VSFB that requires an ATC or PTO, the Contractor will coordinate with 30 CES/CEIEC. ATCs and PTOs are required for the installation of new generators, internal combustion engine powered equipment or devices, and modification or installation of boilers, steam generators, furnaces, process heaters, water heater units, paint spray booths, abrasive blasting booths, gasoline

dispensing facilities, etc. The ATC or PTO approval can take up to 210 days. Due to strict emissions requirements, all equipment or processes requiring a permit must comply with applicable SBCAPCD rules and be approved by 30 CES/CEIEC Air Quality staff prior to procurement.

Violations: The Contractor shall immediately report air permit violations to 30 CES/CEIEC and to the Contracting Officer within 24-hours.

Submittals: The Contractor shall provide the following to the Contracting Officer.

1. Air Emissions data, to include criteria pollutants and greenhouse gases.

2. 30 SW Form 154/155/156/157/158/159, prior to installation of an abrasive blast equipment; boiler hot water heater; internal combustion engine; fuel storage tank; degreaser or solvent cleaning machine; or other emission source.

3. Boiler Emission Certification and/or Source Test with applicable compliance certification data that verifying the equipment to be installed is in compliance with applicable boiler, steam generator, furnace, process heater, and/or water heater regulations. Submittal required prior to purchase and installation.

4. Generator engine specifications indicating compliance with Federal, State and Local regulatory requirements. Submittal required prior to purchase and installation.

5. Any logs, records or reports required by SBCAPCD ATCs and/or PTOs as applicable.

3.13.1 Demolition, Site Clearing, Grading, Excavation, Backfilling, and Trenching

The Contractor shall implement measures to comply with the requirements of SBCAPCD Rule 345, Control of Fugitive Dust from Construction and Demolition Activities. When work involves demolition of load bearing wall or regulated structure; asbestos abatement and/or removal; or work trailer removal from VSFB, the Contractor shall submit the SBCAPCD "Notification for Renovation and Demolition" form to 30 CES/CEIEC for approval and signature a minimum of 15 working days prior to the proposed start date of demolition or trailer removal.

3.13.2 Asphalt Paving

The Contractor shall comply with the VSFB Cutback and Emulsified Asphalt Paving Materials Recordkeeping and Compliance Plan which incorporates the ROC content and recordkeeping requirements specified by SBCAPCD 329, Cutback and Emulsified Asphalt Paving Materials. This plan is only applicable to the use of cutback and emulsified asphalt paving materials as defined in the plan. All asphalt products must be enrolled in the HAZMART.

3.13.3 Coating, Painting, Adhering, and Sealing

The Contractor shall use compliant coatings, as specified in SBCAPCD Rule 323.1, Architectural Coatings; Rule 330, Surface Coating of Metal Parts and Products; Rule 351, Surface Coatings of Wood Products; and Rule 353, Adhesives and Sealants. The contractor must also comply with the operational requirements specified in SBCAPCD Rules. The Contractor shall not dispose of solvents by evaporation. Recordkeeping requirements can be met through enrollment in the HAZMART.

3.13.4 Abrasive Blasting and Corrosion Control

The Contractor shall use CARB approved abrasive blasting media and implement dust control measures in order to prevent the creation of a nuisance dust incident. If the Contractor would like to use a confined abrasive blast cabinet, the Contractor will contact 30 CES/CEIEC for assistance. A permit may be required for a confined abrasive blast cabinet. All blast media must be enrolled in the HAZMART.

3.13.5 Use of Portable Equipment Powered by Internal Combustion Engines

Contractor shall register all portable equipment used for projects on VSFB with a rated brake horsepower of 50 bhp or greater in the California Air Resources Board (CARB) Portable Equipment Registration Program (PERP).

If the equipment is not registered in the CARB PERP, all internal combustion engines (ICEs) greater or equal to the brake horsepower thresholds listed above must be properly permitted by the SBCAPCD for use at various locations within the county.

3.13.6 Gasoline/E-85 Storage Tanks

Contractors shall only use fuel storage tanks with a capacity less than 250 gallons and is only allowed one storage tank for each commodity (no multiple tanks for storing the same commodity). If the Contractor would like to use more than one tank for each commodity or a tank greater than 250 gallons, prior approval is required by 30 CES/CEIEC. The Contractor shall submit a 30 SW Form 157, Source Profiling Form for Fuel Storage Tanks, detailing tank specific information to 30 CES/CEIEC prior to installing the tanks. The Contractor shall report the amount of gasoline and E-85 used to 30 CES/CEIEC at the end of the contract or by 31 Jan for the previous year's activities, whichever occurs first. A 30 SW Form 160, Recordkeeping Form Fuel Storage Tanks, shall be used for reporting fuel usage.

3.13.7 Operation of Vandenberg Owned Permitted Equipment

All Air Force owned permitted equipment operated by the Contractor shall be operated in compliance with the requirements of the PTO. All records required by such permits will be maintained in accordance with the permit and will be provided to 30CES/CEIEC as requested.

3.13.8 Installation of Boilers, Hot Water Heaters, Furnaces, Process Heaters and Internal Combustion Engines

The Contractor shall contact 30 CES/CEIEC prior to procurement to ensure selected boilers, water heaters, furnaces, process heaters and internal combustion engines comply with the most current emission standards, and greenhouse gas regulations.

3.13.9 Refrigerant in HVAC and Other Cooling Systems

General: Refrigerants defined in 40 CFR 42 as Class I or Class II Ozone Depleting Substances (ODS), and/or refrigerants prohibited by California, will not be used in the performance of this contract, nor be provided as part of the equipment. Regulations related to Class I and II ODSs may be found in 40 CFR 82, Protection of Stratospheric Ozone (under Section 608 of the Clean Air Act). The State's most recent refrigerant Rule may be found in the California Code of Regulations, Title 17, Division 3, Chapter 1, Sub-Chapter 10 Climate Change, Article 4.

Installation, Modification, or Removal:

1. The Contractor is required to use non-Ozone Depleting Substance (non-ODS) replacement products found on EPA's Significant New Alternatives Policy (SNAP) at https://www.epa.gov/snap, while also complying with California refrigerant prohibitions.

2. Work on any equipment with refrigerants shall comply with, at a minimum, all requirements of 40 CFR Part 82, Subpart F. Heating and air conditioning technicians must be certified through an EPA-approved program. Copies of certifications shall be maintained at the employees' place of business and be carried as a wallet card by the technician, as provided by environmental law. If work is done on regulated refrigerant systems, the Contractor must also hold a current and active California contractor's license in the C38-Refrigeration Contractor licensing classification, or by an employee of a contractor with these qualifications.

3. Accidental venting of a refrigerant is a release and shall be reported by the Contractor to the Contracting Officer and 30CES/CEIEC.

Submittals:

1. Prior to the start of any refrigerant/refrigerant-equipment activities, the Contractor shall provide the following to the Contracting Officer for approval through 30CES/CEIEC:

   (a) AF Form 103

   (b) Nameplate data, refrigerant capacity, refrigerant type, and equipment location

2. At the end of the contract, or, by 31 Jan for the previous year's activities, whichever occurs first, the Contractor shall report the amount of refrigerant used to 30CES/CEIEC.

3.13.10 Sulphur Hexafluoride (SF6) and Other Gas-Insulated Power-Line Equipment

General: Sulfur Hexafluoride (SF6) gas, as well as any gas with a Global Warming Potential greater than 1, shall not be released into the atmosphere. Gas-insulated equipment, and the transfer and/or evacuation of gas (and associated storage cylinders), must comply with all applicable laws and regulations, to include the current California Code of Regulations, Title 17, Division 3, Chapter 1, Sub-Chapter 10, Article 4, Sub article 3.1.

Installation: Prior to purchase of any gas-containing equipment, the Contractor shall coordinate with 30CES/CEIEC to determine if the equipment will be acceptable, to allow assessment of equipment upon receipt, and to provide all information required for reporting to the State (purchase date, receipt date, type of gas, amount of gas in equipment upon receipt, amount of gas added to equipment and date added, methods used to assess gas amount, etc.).

Bypass: No existing SF6-containing equipment shall be abandoned in place; SF6-containing equipment disconnected from the power grid shall be removed.

Removal:

1. Prior to removal, the Contractor shall coordinate with 30CES/CEIEC to allow assessment of the equipment during removal.

2. Within 30 days of removing the equipment from the power grid, the gas must be properly evacuated. Prior to gas evacuation, the Contractor shall coordinate with 30CES/CEIEC to allow assessment of the evacuation process.

Submittal: Within 14 days of evacuating gas from removed gas-containing equipment, the Contractor shall provide a copy of the Gas Evacuation Report to 30CES/CEIEC. The report must include the following: evacuation company name, technician information, type of gas, date evacuation performed, data-plate information from evacuated equipment, evacuation-equipment used, pressure readings, cylinder identification, cylinder tare and gross weights, and recovered gas end-user information. As needed, the Contractor shall provide evacuation-equipment certifications and calibration records, and evacuation-method records.

3.13.11 Halon Containing Fire Suppression Systems

Halon, a Class I Ozone-Depleting Substance (ODS), will not be used in the performance of this contract, nor be provided as part of the equipment. This prohibition will be considered to prevail over any other provision, specification, drawing, or reference documents. Federal regulations related to Class I and II ODS, and the protection of stratosphere ozone, may be found in 40 CFR 82. The Contractor will contact 30CES/CEIEC, prior to any removal or modification of existing Halon-containing systems.

3.14 ABOVEGROUND STORAGE TANK (AST) MANAGEMENT

General: The Contractor shall comply with, but not limited to: SBCAPCD rules and regulations; AFI 23-204, Organizational Fuel Tanks; AFMAN 32-1067,Water and Fuels Systems; 30 SWI 32-702, Environmental Management Air Emission Inventories; 30 SW Plans, 32-7044, Spill Prevention Control and Countermeasure Plan; 32-7041-A, Wastewater Management Plan; and 32-7043-E, Recoverable and Waste Petroleum Products Management Plan.

Installing, modifying, or removal: The Contractor must provide the following information to 30 CES/CEIE for approval:

1. Contract and/or Civil Engineer project number and emergency point of contact;
2. Time period the AST is expected to be in operational use;
3. Size and type of the AST and type of material to be used in the AST
4. Maps to include site location, include GPS information if available
5. Information on secondary containment (capacity equal to or greater than the tank)
6. Overfill protection features (alarm, automatic shut off system, and fill sump)
7. Access and security of the AST and spill/release cleanup procedures

8. Spill Prevention Plan and Rainwater Release Plan for secondary containment system.

Spill Prevention Control and Countermeasure Plan (SPCC): The Contractor shall provide a site specific SPCC to the Contracting Officer through, 30 CES/CEIE, for any storage tank capacity to be used for activities on VSFB.

1. Containers, tanks, or vessels with capacity of 55 gallons or more must be added to the SPCC Plan. All containers, tanks, and vessels must have secondary containment or double-walled.

2. Construction Sites or Temporary Tank Use: Portable equipment with fuel tank 55 gallons or more must be double-walled or positioned on a secondary containment structure.

3. New Tank Installation or Replacement: Tanks must be double-walled, or a secondary containment structure must be constructed to contain 100 percent of the tank capacity.

4. Piping: Any pipe required to connect the fuel tank to equipment such as a generator will require the installation of an anti-siphon valve.

5. All oil-filled equipment including, but not limited to transformers, transmitters, elevators, cooking oil, mobile towers, hydraulic equipment must be added to the SPCC Plan.

Reporting: The Contractor shall immediately report any release to 30 CES/CEIE. In the event of an emergency dial 911 and evacuate the area. The Contractor will be instructed to fill out a spill report.

Submittals: The Contractor shall provide the following to the Contracting Officer for approval through 30 CES/CEIE prior to the start of any Storage Tank activities on VSFB.

1. AST technical information

2. 30 SW Form 160

3.15 UNDERGROUND STORAGE TANK (UST) MANAGEMENT

General: The Contractor shall comply with, but not limited to: Clean Water Act; Comprehensive Environmental Response, Compensation and Liability Act (CERCLA); California Regional Water Quality Control Board; Santa Barbara County Air Pollution Control District rules and regulations; 30 SWI 32-702, Environmental Management Air Emission Inventories; AFI 23-204, Organizational Fuel Tanks; AFMAN 32-1067, Water and Fuels Systems; 30 SW Plans, 32-7044, Spill Prevention Control and Countermeasure Plan; 32-7041-A, Wastewater Management Plan; and AFMAN 32-7002, Chapter 3.

1. USTs are permitted and must be coordinated before any action occurs.

2. USTs are permitted with the SBCAPCD and the CUPA.

Coordination: Prior to installing, modifying, or removing a UST, the Contractor shall obtain approval from and provide required technical information to 30 CES/CEIE, Storage Tank Manager and Installation Restoration Manager.

3.15.1 SOIL CONTAMINATION MANAGEMENT

General: The Contractor shall comply with but not limited to: Clean Water Act; Resource Conservation and Recovery Act; Comprehensive Environmental Response, Compensation and Liability Act (CERCLA); California Health and Safety Codes; California Regional Water Quality Control Board; and the California Department of Toxic Substances Control.

Encountering Contaminated Soil and USTs: The Contractor shall report to 30 CES/CEIE any unidentified potential or actual contaminated soil, UST, associated UST piping, and oil-based soil beneath storage tanks. The Contractor shall characterize, through sampling, and dispose of the soil or UST and its parts. The Contractor shall provide sample results to prove that the contaminated soil was removed. The Contractor shall obtain government approval prior to backfilling all “clean” excavated areas with clean fill material. The Contractor shall immediately notify the Contracting Officer of this situation. The Contractor shall take the appropriate actions to protect their personnel working around the area identified as potential or actual contaminated soil.

3.16 LANDSCAPING REQUIREMENTS

a. General: The Contractor shall comply with, but not limited to: AFMAN 32-7003, Environmental Conservation; Executive Order 13112; Vandenberg Facility Excellence Standards; and Vandenberg's Base Lands and Grounds Maintenance Management Plan. Refer to Natural Resources Conservation Service (NRCS) Specification for Range Planting 550A sections III, IV, V, and VI.

b. Restoration: The Contractor shall restore all landscape features disturbed during construction activities to the site's original or improved condition, as required.

c. Disturbed soil areas remaining upon completion of construction shall be permanently stabilized with native vegetation to prevent erosion due to wind and rain. When the construction activity is covered by the Construction General Permit refer to Section

3.12.2.2 and the Construction General Permit for Conditions for Termination of Coverage.

d. The Contractor's erosion control designer shall conduct a soil assessment to properly determine the condition of the soil and determine appropriate soil amendments if needed for successful establishment of California native seeds and vegetation.

Soils test will be taken to analyze macro and micronutrients, pH and organic matter content to determine fertilizer and soil amendment needs. Fertilizer and pH modifier shall be added as needed to establish vegetation and ensure its success. Fine grade compost certified by the US Composting Council (USCC), and that has undergone macro and micronutrient testing, may also be used in the proper proportions indicated by the soil testing. Native plants must not be over-fertilized. Seeds will be chosen based on the soils and their endemic species as described in the NRCS Ecological Site Description for the area and as approved by 30 CES/CEIEA. Native plants chosen must also be compatible with the texture, pH, and chemistry of the soil to be planted. Native plant lists and seeding rates will be developed by Contractor and submitted to 30CES/CEIEA for approval.

The soil surface shall be loosened and properly prepared, or topsoil added to a sufficient depth to allow for seed germination. The depth of loose soil is 6 inches at a minimum and up to 1 meter (39 inches) if acceptable to the 30 CES/CEPM Project Manager. Seeding may be conducted by band seeding and fertilizing with grain drill, drilling with special range drills including no-till drills, or by broadcasting using a calibrated broadcast seeder or aircraft with appropriate calibrated machinery designed to evenly distribute seed. If a no-till drill is used, drill directly into existing annual plant community after excess mulch has been removed. If a drill is not used, proper seed bed preparation will be conducted by lightly disking or harrowing to loosen the top 1-inch of soil and broadcast the seed. Sites with compacted surfaces will be disked or ripped 4-16 inches deep prior to seeding to prepare a proper seedbed.

Hydro-seeding is not recommended for slopes of less than 33.33%.

e. In unimproved areas, the seed mix shall be submitted to and approved by

30 CES/CEIEA Natural Resources Section. The seed mix shall include Triticale or other sterile annual grass to serve as a nurse crop and California native vegetation to provide erosion control. The Contractor shall ensure that any local or imported soil used shall be free of weed seeds. If local topsoil is salvaged and re-used, methods to successfully remove weed seeds shall be specified. Local topsoil shall be capable of sustaining healthy plant life. Any imported topsoil shall consist of fertile, friable soil, with similar texture, chemical and organic matter content characteristics of surrounding soil types. It shall be obtained from well-drained arable land and shall be reasonably free from subsoil, refuse, roots, stones larger than one inch in size, noxious seeds, sticks, brush, litter and other deleterious substances. Imported topsoil shall be capable of sustaining healthy plant life.

f. When the hydroseeding method is used, apply certified weed-free wood fiber or straw mulch covering 80% of the soil surface. Paper mulch shall not be used.

g. The Contractor shall adequately water seeded areas to achieve germination and permanent vegetation establishment. Native plants must not be over irrigated. Watering by truck or temporary irrigation system shall not cause erosion or disturb seed application.

h. Vegetation cover may be considered established when it reaches an even minimum height of 6 inches. Please confirm minimum height requirements with 30 CES/CEIE Natural Resources.

i. Begin maintenance immediately after seeding or vegetation has been installed. Inspect the vegetation at least once a week and perform needed maintenance promptly. Water, reseed, mulch and perform other operations necessary to promote plant growth and vigor, establish self-sustaining vegetation and prevent bare soil spots. Bare spots shall not be in areas subject to significant erosion. Repair erosion as soon as possible. Eroded areas may need to be filled with amended topsoil and replanted with the same plant species.

j. Temporary barriers shall be installed to prevent vehicles from damaging seeded areas.

k. Water Efficient Landscaping: Contractor and government shall select drought-tolerant plants.

l. For projects with mitigation or restoration and for areas with temporary vegetation disturbance (e.g. access roads) or erosion repair, weeds shall be controlled for one-year post-construction to achieve at least the same amount or more of pre-construction native plant cover. Provide a report to CEIEA of initial component plant cover. After one year, provide a report with plant list and cover, then coordinate site inspection with CEIEA for approval. Approval is dependent upon amount of native plant cover achieved. Plants shall be watered as necessary without overwatering.

3.17 GREEN PROCUREMENT PROGRAM (GPP)

General: The Contractor shall comply with the Government's Green Procurement Program (GPP), formerly known as Affirmative Procurement (AP), requirements include, but are not limited to: Section 6002, Federal Procurement, of the Resource Conservation and Recovery Act; (RCRA); Executive Order (EO) 13423, Strengthening Federal Environmental, Energy and Transportation Management; EO 13150, Federal Workforce Transportation; EO 13211, Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution or Use; EO 13221, Energy Efficient Standby Power Devices; AFI 32-7080, Compliance Assurance and Pollution Prevention; and 30 SW Plans, 32-7080, Green Procurement Program (GPP) Plan; and 32-7042, Solid Waste Management Plan.

GPP: The Contractor's green procurement program shall use specified Environmental Protection Agency's Comprehensive Procurement Guidelines (EPA-CPG, http://www.epa.gov/cpg/products) materials with recycled and recovered content as the minimum standard. The Contractor shall consider other green materials and products not listed but commonly used in industry outside of the Government as a means of further reducing hazardous waste and solid waste. The Contractor shall ensure these materials and products meet the requirements of the specifications, must not delay the progress of construction, and must not be cost-prohibitive. The Government's Green Procurement programs are mandated to use recycled and recovered materials and products identified in the EPA-CPG. The Contractor shall use the Recovered Materials Determination Form (RMDF) to document the products that fall into the Recycled Content Product categories.

Mandatory Products: Contractors shall use products made from biobased materials, rapidly renewable materials, and certified wood.

Contracts over $100,000: The Contractor, on completion of the contract, shall estimate the percentage of the total recovered material used in contract performance, including, if applicable, the percentage of post-consumer material content, per FAR Clause 52.223-9.

Submittals: The Contractor shall provide the following to the Contracting Officer for any project on VSFB that contains EPA-CPG items.

1. A Recovered Materials Determination Form (RMDF) (paragraph b).
2. An Estimate of Percentage of Recovered Material Content for EPA-Designated Products (paragraph d).

3.18 ENERGY USAGE MANAGEMENT

General: The Contractor shall comply with, but not limited to: the Energy Policy Act (EPACT), along with its amendments to the National Energy Conservation Policy Act, as specified in Subtitle F of EPACT 1992 and EPACT 2005; Executive Order (EO) 13423, Strengthening Federal Environmental, Energy and Transportation Management;

EO 13221, "Energy Efficient Standby Power Devices; 30 SW Plans 32-7080, Green Procurement Program (GPP) Plan; 32- 7042, Solid Waste Management Plan; and the Vandenberg Energy Management Plan.

Optimize Energy Performance: Use Energy-Efficient Products listed under the Energy Star® and the Federal Energy Management Program (FEMP) Energy-Efficient Products lists, including appliances and equipment used in building construction and renovation projects, computers, peripherals, fax machines and Low Stand-by Power items. Also, generating power from renewable resources must also be implemented, as applicable to the program requirements.

Product information and sources of supply are available at the following links:

1. Energy-efficient products and services: Energy Star®, Low Standby Power and Federal Energy Management Program (FEMP) Energy Efficiency

2. Renewable energy sources: DOE Energy Efficiency and Renewable Energy.

3.19 ENVIRONMENTAL RESTORATION PROGRAM

Installation Restoration Program: Department of Defense (DoD)primarily conducts environmental restoration activities in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The DoD began cleaning up contamination in 1975 under the Installation Restoration Program (IRP). The IRP addresses sites or areas where hazardous substances were released or may have been released. Vandenberg SFB has the third largest Environmental Restoration Program in the Air Force with numerous sites undergoing environmental investigation, cleanup and/or closure under CERCLA. Vandenberg SFB's IRP oversees various contractors who assist the Air Force with site investigation, risk characterization, and site cleanup. As such, prior to any work performed at our sites, the contractor must submit an AF Form 332 BCE Work Request or AF Form 813 to the coordinating agencies. Additionally, the AF Form 103 process will be followed for clearance of all sites before work is performed.

The Contractor is responsible for protecting assets such as communications infrastructure, cultural and biological resources, and IRP assets such as remediation systems, monitoring wells, and vapor probes. The contractor is responsible for repair or replacement of any IRP assets damaged during construction. Any change in Land Use from Industrial to Residential MUST be coordinated with Installation Remedial Project Manager prior to any construction or modification of buildings. Per AFI 32-7020, costs for "construction at or near contaminated sites" or projects requesting accelerated IRP actions, are not eligible for Environmental Restoration Account funding and must be funded as part of the construction project. Vandenberg SFB IRP is managed by AFCEC/CZOW Edwards ISS at VSFB. For any IRP related questions, contact the IRP manager at VSFB office located in Building 11432. For any IRP GIS map layers, please contact the 30 CES/CENM GeoBase PM Chief of Spatial Technologies office.

Military Munitions Response Program: Vandenberg SFB began operations in 1941 as Camp Cooke and was home to artillery, infantry, and armor training activities through the mid-1950s. Portions of the installation were designated as firing points, impact areas, or safety fans for various types of weapons. As a result, there is risk of potential unexploded ordnance (UXO) within these designated areas. Contractor personnel performing any work within these areas must submit an AF Form 332 BCE Work Request and coordinate an approved Work Request with Base agencies prior to performing any work. Additionally, the contractor must complete an annual UXO awareness briefing from Weapons Safety whether or not ground disturbing activities will be performed. The UXO awareness briefing is approximately an hour in duration and is usually offered weekly. Ground-disturbing activities in UXO areas usually require the contractor to provide a Level III UXO Technician to first scan the area for UXO, and to avoid any anomalies encountered. Although maps with neatly drawn lines show the boundaries of former weapons training areas, there is potential to encounter UXO outside of those boundaries. The selected remedy for most of the Military Munitions Response Program (MMRP) involves enforcing Land Use Control (LUCs). Prior to initiating digging, clearing, construction, or other intrusive activities that will disturb site soil the contractor will be required to develop and implement a UXO clearance plan.

--- END OF SECTION ---

SECTION 01 74 19

CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT

02/19, CHG 3: 11/21

PART 1 GENERAL

1.1 GOVERNMENT POLICY

Government policy is to apply sound environmental principles in the design, construction and use of facilities. As part of the implementation of that policy: (1) practice efficient waste management when sizing, cutting, and installing products and materials and (2) use all reasonable means to divert construction and demolition waste from landfills and incinerators and to facilitate their recycling or reuse. Divert a minimum of 60 percent by weight of total project solid waste from the landfill.

1.2 MANAGEMENT

Develop a Construction Waste Management Plan and implement a Waste Management Program. Take a pro-active, responsible role in the management of construction and demolition waste and require all subcontractors, vendors, and suppliers to participate in the effort. Construction and demolition waste includes products of demolition or removal, excess or unusable construction materials, packaging materials for construction products, and other materials generated during the construction process but not incorporated into the work. In the management of waste, consider the availability of viable markets, the condition of the material, the ability to provide the material in suitable condition and in a quantity acceptable to available markets, and time constraints imposed by internal project completion mandates. Implement any special programs involving rebates or similar incentives related to recycling of waste. Revenues or other savings obtained for salvage, or recycling accrue to the Contractor.

Appropriately permit firms and facilities used for recycling, reuse, and disposal for the intended use to the extent required by federal, state, and local regulations. Also, provide on-site instruction of appropriate separation, handling, recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the project.

1.3 SUBMITTALS

Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals Construction Waste Management Plan; G

SD-01 Test Reports Quarterly Reports Annual Reports

SD-11 Closeout Submittals

Final Construction Waste Diversion Report Records;

1.4 MEETINGS

Conduct Construction Waste Management meetings. After award of the Contract and prior to commencement of work, schedule and conduct a meeting with the Contracting Officer to discuss the proposed Waste Management Plan and to develop a mutual understanding relative to the details of waste management. The requirements for this meeting may be fulfilled during the coordination and mutual understanding meeting outlined in Section QUALITY CONTROL. At a minimum, discuss environmental and waste management goals and issues at the following additional meetings:

a. Preconstruction/Pre-Demolition meeting.

b. Regular site meetings.

c. Work safety meetings.

1.5 CONSTRUCTION WASTE MANAGEMENT PLAN

Submit a waste management plan within 15 days after notice to proceed and not less than 10 days before the preconstruction meeting. The plan demonstrates how to meet the project waste diversion goal. Also, include the following in the plan:

a. Name of individuals on the Contractor's staff responsible for waste tracking, prevention and management, along with roles and responsibilities on the project.

b. Actions that will be taken to reduce solid waste generation, including coordination with subcontractors to ensure awareness and participation.

c. Description of the regular meetings to be held to address waste management.

d. Description of the specific approaches to be used in recycling/reuse of the various materials generated, including the areas on site and equipment to be used for processing, sorting, and temporary storage of wastes.

e. Characterization, including estimated types and quantities, of the waste to be generated.

f. Name of landfill and/or incinerator to be used and the estimated costs for use, assuming that there would be no salvage or recycling on the project.

g. Identification of local and regional reuse programs, including non- profit organizations such as schools, local housing agencies, and organizations that accept used materials such as materials exchange networks and Habitat for Humanity. Include the name, location, and phone number for each reuse facility to be used, and provide a copy of the permit or license for each facility.

h. List of specific waste materials that will be salvaged for resale, salvaged and reused on the current project, salvaged and stored for reuse on a future project, or recycled. Identify the recycling facilities by name, location, and phone number, including a copy of the permit or license for each facility.

i. Identification of materials that cannot be recycled/reused with an explanation or justification, to be approved by the Contracting Officer.

j. Description of the means by which any waste materials identified in item (h) above will be protected from contamination.

k. Description of the means of transportation of the recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site).

l. Anticipated net cost savings determined by subtracting Contractor program management costs and the cost of disposal from the revenue generated by sale of the materials and the incineration and/or landfill cost avoidance.

Revise and resubmit Plan as required by the Contracting Officer. Approval of Contractor's Plan will not relieve the Contractor of responsibility for compliance with applicable environmental regulations or meeting project cumulative waste diversion requirement. Distribute copies of the Waste Management Plan to each subcontractor, the Quality Control Manager, and the Contracting Officer.

1.6 RECORDS

Maintain records to document the quantity of waste generated; the quantity of waste diverted through sale, reuse, or recycling; and the quantity of waste disposed of by landfill or incineration. Include in the quarterly reports, annual

reports and final reports: the project name, contract information, information for waste generated, diverted and disposed of for the current reporting period and show cumulative totals for the project.

Reports must identify quantities of waste by type and disposal method. Also include in each report, supporting documentation to include manifests, weigh tickets, receipts, and invoices specifically identifying the project and waste material type and weighted sum. Make the records available to the Contracting Officer during construction and deliver a copy of the records to the Contracting Officer upon completion of the construction.

a Quarterly Reports: Provide cumulative reports at the end of each quarter, corresponding with the federal fiscal year. Submit quarterly reports no later than 15 calendar days after the preceding quarter has ended.

b Annual Reports: Provide a cumulative construction waste diversion report annually. Submit annual report no later than 30 days after preceding fourth quarter has ended.

c Final Construction Waste Diversion Report: A final construction waste diversion report is required at the end of the project. Provide Final Construction Waste Diversion Report 60 days prior to the Beneficial Occupancy Date (BOD).

1.7 COLLECTION

Separate, store, protect, and handle at the site identified recyclable and salvageable waste products in a manner that maximizes recyclability and salvageability of identified materials. Provide the necessary containers, bins and storage areas to facilitate effective waste management and clearly and appropriately identify them. Provide materials for barriers and enclosures around recyclable material storage areas which are nonhazardous and recyclable or reusable. Locate out of the way of construction traffic. Provide adequate space for pick-up and delivery and convenience to subcontractors. Recycling and waste bin areas are to be kept neat and clean and handle recyclable materials to prevent contamination of materials from incompatible products and materials. Clean contaminated materials prior to placing in collection containers. Use cleaning materials that are nonhazardous and biodegradable. Handle hazardous waste and hazardous materials in accordance with applicable regulations and coordinate with Section 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS. Separate materials by one of the following methods:

1.7.1 Source Separated Method.

Separate waste products and materials that are recyclable from trash and sorted as described below into appropriately marked separate containers and then transported to the respective recycling facility for further processing. Deliver materials in accordance with recycling or reuse facility requirements (e.g., free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process). Separate materials into the following category types as appropriate to the project waste and to the available recycling and reuse programs in the project area:

a. Land clearing debris.

b. Asphalt.

c. Concrete and masonry.

d. Metal (e.g. banding, stud trim, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized, stainless steel, aluminum, copper, zinc, lead brass, bronze). (1) Ferrous.

(2) Non-ferrous.

e. Wood (nails and staples allowed).

f. Debris.

g. Glass (colored glass allowed).

h. Paper.

(1) Bond.

(2) Newsprint.

(3) Cardboard and paper packaging materials.

i. Plastic.

Type	Description
1	Polyethylene Terephthalate (PET, PETE)
2	High Density Polyethylene (HDPE)
3	Vinyl (Polyvinyl Chloride or PVC)
4	Low Density Polyethylene (LDPE)
5	Polypropylene (PP)
6	Polystyrene (PS)
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.

j. Gypsum.

k. Non-hazardous paint and paint cans.

l. Carpet.

m. Ceiling tiles.

n. Insulation.

o. Beverage containers.

1.7.2 Co-Mingled Method.

Place waste products and recyclable materials into a single container and then transport to a recycling facility where the recyclable materials are sorted and processed.

1.7.3 Other Methods.

Other proposed methods may be used when approved by the Contracting Officer.

1.8 DISPOSAL

Control accumulation of waste materials and trash. Recycle or dispose of collected materials off-site at intervals approved by the Contracting Officer and in compliance with waste management procedures. Except as otherwise specified in other sections of the specifications, dispose of in accordance with the following:

1.8.1 Reuse.

Give first consideration to salvage for reuse since little or no re- processing is necessary for this method, and less pollution is created when items are reused in their original form. Coordinate reuse with the Contracting Officer. Consider sale or donation of waste suitable for reuse.

1.8.2 Recycle.

Recycle waste materials not suitable for reuse but having value as being recyclable. Recycle all fluorescent lamps, HID lamps, and mercury- containing thermostats removed from the site. Arrange for timely pickups from the site or deliveries to recycling facilities in order to prevent contamination of recyclable materials.

1.8.3 Waste.

Dispose of materials with no practical use or economic benefit to waste-to- energy plants where available. As the last choice, dispose of materials at a landfill or incinerator.

1.8.4 Return

Set aside and protect misdelivered and substandard products and materials and return to supplier for credit.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- END OF SECTION --

SECTION 01 78 00

CLOSEOUT SUBMITTALS

05/19, CHG 1: 08/21

PART 1 GENERAL

1.1 DEFINITIONS

1.1.1 Record Drawings

Record, or as-built, drawings are developed and maintained by the Contractor and depict actual conditions, including deviations from the Contract Documents. These deviations and additions may result from coordination required by, but not limited to: contract modifications; official responses to Contractor submitted Requests for Information; direction from the Contracting Officer; designs which are the responsibility of the Contractor, and differing site conditions. Maintain the as-builts throughout construction as red-lined hard copies on site. These files serve as the basis for the creation of the record drawings. As-builts shall be cost loaded into the project schedule.

1.1.2 Record Drawings

The record drawings are the final compilation of actual conditions reflected in the as-built drawings.

1.2 SOURCE DRAWING FILES

Request the full set of electronic drawings, in the source format, for Record Drawing preparation, after award and at least 30 days prior to required use. The Contractor must complete and sign a Vandenberg SFB specific NDA in order to access Vandenberg record drawings.

1.2.1 Terms and Conditions

Data contained on these electronic files must not be used for any purpose other than as a convenience in the preparation of construction data for the referenced project. Any other use or reuse shall be at the sole risk of the Contractor and without liability or legal exposure to the Government.

The Contractor must make no claim and waives to the fullest extent permitted by law, any claim or cause of action of any nature against the Government, its agents or sub consultants that may arise out of or in connection with the use of these electronic files. The Contractor must, to the fullest extent permitted by law, indemnify and hold the Government harmless against all damages, liabilities or costs, including reasonable attorney's fees and defense costs, arising out of or resulting from the use of these electronic files.

These electronic CAD drawing files are not construction documents. Differences may exist between the CAD files and the corresponding construction documents. The Government makes no representation regarding the accuracy or completeness of the electronic CAD files, nor does it make representation to the compatibility of these files with the Contractor hardware or software. In the event that a conflict arises between the signed and sealed construction documents prepared by the Government and the furnished Source drawing files, the signed and sealed construction documents govern. The Contractor is responsible for determining if any conflict exists. Use of these Source Drawing files does not relieve the Contractor of duty to fully comply with the contract documents, including and without limitation, the need to check, confirm and coordinate the work of all contractors for the project. If the Contractor uses, duplicates or modifies these electronic source drawing files for use in producing construction data related to this contract, remove all previous indicia of ownership (seals, logos, signatures, initials and dates).

1.3 SUBMITTALS

Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Warranty Management Plan Warranty Tags

Spare Parts Data

SD-08 Manufacturer's Instructions Posted Instructions

SD-10 Operation and Maintenance Data Operation and Maintenance Manuals; G

SD-11 Closeout Submittals

As-Built Drawings; G Record Drawings; G
As-Built Record of Equipment and Materials Final Approved Shop Drawings
Construction Contract Specifications Certification of EPA Designated Items; G

Interim DD Form 1354; G,
List of Installed Building Equipment Items for DD Form 1354; G

1.4 SPARE PARTS DATA

Submit an electronic copy of the Spare Parts Data list.

a. Indicate manufacturer's name, part number, nomenclature, and stock level required for maintenance and repair. List those items that may be standard to the normal maintenance of the system.

1.5 WARRANTY MANAGEMENT

1.5.1 Warranty Management Plan

Develop a warranty management plan which contains information relevant to FAR 52.246-21 Warranty of Construction. At least 30 days before the planned pre-warranty conference, submit two hard copy sets and an electronic copy of the warranty management plan and two hard copy sets, and an electronic copy of the O & M. Include within the warranty management plan all required actions and documents to ensure that the Government receives all warranties to which it is entitled. The plan must be in narrative form and contain sufficient detail to render it suitable for use by future maintenance and repair personnel, whether tradesmen, or of engineering background, not necessarily familiar with this contract. The term "status" as indicated below must include due date and whether item has been submitted or was accomplished. Warranty information made available during the construction phase must be submitted to the Contracting Officer for approval prior to each monthly pay estimate. Assemble approved information in a binder and turn over to the Government upon acceptance of the work. The construction warranty period will begin on the date of project acceptance and continue for the full product warranty period. A joint 4-month and 9-month warranty inspection will be conducted, measured from time of acceptance, by the Contractor, Contracting Officer and the Customer Representative. Include within the warranty management plan, but not limited to, the following:

a. Roles and responsibilities of all personnel associated with the warranty process, including points of contact and telephone numbers within the organizations of the Contractors, subcontractors, manufacturers or suppliers involved.

b. Furnish with each warranty the name, address, and telephone number of each of the guarantor's representatives nearest to the project location.

c. Listing and status of delivery of all Certificates of Warranty for extended warranty items, to include roofs, HVAC balancing, pumps, motors, transformers, and for all commissioned systems such as fire protection and alarm systems, sprinkler systems, lightning protection systems, etc.

d. A list for each warranted equipment, item, feature of construction or system indicating:

(1) Name of item.
(2) Model and serial numbers.
(3) Location where installed.
(4) Name and phone numbers of manufacturers or suppliers.
(5) Names, addresses and telephone numbers of sources of spare parts.
(6) Warranties and terms of warranty. Include one-year overall warranty of construction, including the starting date of warranty of construction. Items which have extended warranties must be indicated with separate warranty expiration dates.

(7) Cross reference to warranty certificates as applicable.
(8) Starting point and duration of warranty period.
(9) Summary of maintenance procedures required to continue the warranty in force.

(10) Cross-reference to specific pertinent Operation and Maintenance manuals.

(11) Organization, names and phone numbers of persons to call for warranty service.

(12) Typical response time and repair time expected for various warranted equipment.

e. The plans for attendance at the 4- and 9-month post-construction warranty inspections conducted by the Government.

f. Procedure and status of tagging of all equipment covered by extended warranties.

g. Copies of instructions to be posted near selected pieces of equipment where operation is critical for warranty and/or safety reasons.

1.5.2 Performance Bond

The Performance Bond must remain effective throughout the construction period.

a. In the event the Contractor fails to commence and diligently pursue any construction warranty work required, the Contracting Officer will have the work performed by others, and after completion of the work, will charge the remaining construction warranty funds of expenses incurred by the Government while performing the work, including, but not limited to administrative expenses.

b. In the event sufficient funds are not available to cover the construction warranty work performed by the Government at the Contractor's expense, the Contracting Officer will have the right to recoup expenses from the bonding company.

c. Following oral or written notification of required construction warranty repair work, respond in a timely manner. Written verification will follow oral instructions. Failure to respond will be cause for the Contracting Officer to proceed against the Contractor.

1.5.3 Pre-Warranty Conference

Prior to contract completion, and at a time designated by the Contracting Officer, meet with the Contracting Officer to develop a mutual understanding with respect to the requirements of this section.

Communication procedures for Contractor notification of construction warranty defects, priorities with respect to the type of defect, reasonable time required for Contractor response, and other details deemed necessary by the Contracting Officer for the execution of the construction warranty will be established/reviewed at this meeting. In

connection with these requirements and at the time of the Contractor's quality control completion inspection, furnish the name, telephone number and address of a licensed and bonded company which is authorized to initiate and pursue construction warranty work action on behalf of the Contractor. This point of contact will be located within the local service area of the warranted construction, be continuously available, and be responsive to Government inquiry on warranty work action and status. This requirement does not relieve the Contractor of any of its responsibilities in connection with other portions of this provision.

1.5.4 Warranty Tags

At the time of installation, tag each warranted item with a durable, oil and water resistant tag approved by the Contracting Officer. Attach each tag with a copper wire and spray with a silicone waterproof coating. Also, submit two hard copies and an electronic record of the warranty tags showing the layout and design. The date of acceptance and the QC signature must remain blank until the project is accepted for beneficial occupancy.

Show the following information on the tag:

Type of product/material	
Model number	
Serial number	
Contract number	
Warranty period from/to	
Inspector's signature	
Construction Contractor	
Address	
Telephone number	
Warranty contact	
Address	
Telephone number	
Warranty response time priority code	

WARNING - PROJECT PERSONNEL TO PERFORM ONLY OPERATIONAL MAINTENANCE DURING THE WARRANTY PERIOD.

PART 2 PRODUCTS

2.1 CERTIFICATION OF EPA DESIGNATED ITEMS

Submit the Certification of EPA Designated Items as required by FAR 52.223-9 Estimate of Percentage of Recovered Material Content for EPA Designated Items and FAR 52-223-17 Affirmative Procurement of EPA designated items in Service and Construction Contract. Include on the certification for the following information: project name, project number, Contractor name, license number, Contractor address, and certification. The certifications will read as follows and be signed and dated by the Contractor. "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:

a. The product does not meet appropriate performance standards;
b. The product is not available within a reasonable time frame;
c. The product is not available competitively (from two or more sources);
d. The product is only available at an unreasonable price (compared with a comparable non-recycled content product)

Record each product used in the project that has a requirement or option of containing recycled content in accordance with SECTION 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING, noting total price, total value of post-industrial recycled content, total value of post-consumer recycled content, exemptions, and comments. Recycled content values may be determined by weight or volume percent but must be consistent throughout.

PART 3 EXECUTION

3.1 RECORD DRAWINGS

Provide and maintain two black line print copies of the PDF contract drawings for As-Built Drawings. Maintain the as-builts throughout construction as red-lined hard copies on site and red-lined PDF files. Submit As-built drawings 30 days prior to Beneficial Occupancy Date (BOD)

3.1.1 Markup Guidelines

Make comments and markup the drawings complete without reference to letters, memos, or materials that are not part of the As-Built drawing. Show what was changed, how it was changed, where items(s) were relocated and change related details. These working as-built markup prints must be neat, legible and accurate as follows:

a. Use base colors of red, green, and blue. Color code for changes as follows:

(1) Special (Blue) - Items requiring special information, coordination, or special detailing or detailing notes.

(2) Deletions (Red) - Over-strike deleted graphic items (lines), lettering in notes and leaders.

(3) Additions (Green) - Added items, lettering in notes and leaders.

b. Provide a legend.

c. Add and denote any additional equipment or material facilities, service lines, incorporated under As-Built Revisions if not already shown in legend.

d. Use frequent written explanations on markup drawings to describe changes. Do not totally rely on graphic means to convey the revision.

e. Use legible lettering and precise and clear digital values when marking prints. Clarify ambiguities concerning the nature and application of change involved.

f. Wherever a revision is made, also make changes to related section views, details, legend, profiles, plans and elevation views, schedules, notes and call out designations, and mark accordingly to avoid conflicting data on all other sheets.

g. For deletions, cross out all features, data and captions that relate to that revision.

h. For changes on small-scale drawings and in restricted areas, provide large-scale inserts, with leaders to the applicable location.

i. Indicate one of the following when attaching a print or sketch to a markup print:

1) Add an entire drawing to contract drawings

2) Change the contract drawing to show

3) Provided for reference only to further detail the initial design.

j. Incorporate all shop and fabrication drawings into the markup drawings.

3.1.2 As-Built Drawings Content

Submit the working as-built markup drawings for approval prior to submission of each monthly pay estimate. For failure to maintain the working and final record drawings as specified herein, the Contracting Officer will withhold 10 percent of the monthly progress payment until approval of updated drawings. Show on the as-built drawings, but not limited to, the following information:

a. The actual location, kinds and sizes of all sub-surface utility lines. In order that the location of these lines and appurtenances may be determined in the event the surface openings or indicators become covered over or obscured, show by offset dimensions to two permanently fixed surface features the end of each run including each change in direction on the record drawings. Locate valves, splice boxes and similar appurtenances by dimensioning along the utility run from a reference point. Also record the average depth below the surface of each run.

b. The location and dimensions of any changes within the building structure.

c. Layout and schematic drawings of electrical circuits and piping.

d. Correct grade, elevations, cross section, or alignment of roads, earthwork, structures or utilities if any changes were made from contract plans.

e. Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor; including but not limited to shop drawings, fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.

f. The topography, invert elevations and grades of drainage installed or affected as part of the project construction.

g. Changes or Revisions which result from the final inspection.

h. Where contract drawings or specifications present options, show only the option selected for construction on the working as-built markup drawings.

i. Systems designed or enhanced by the Contractor, such as HVAC controls, fire alarm, fire sprinkler, and irrigation systems.

j. Changes in location of equipment and architectural features.

k. Modifications (include within change order price the cost to change working as-built markup drawings to reflect modifications).

l. Actual location of anchors, construction and control joints, etc., in concrete.

m. Unusual or uncharted obstructions that are encountered in the contract work area during construction.

n. Location, extent, thickness, and size of stone protection particularly where it will be normally submerged by water.

3.1.3 Additional Record Drawing Files

If additional drawings are required, prepare them using the specified electronic file format applying the same graphic standards specified for original drawings. The title block and drawing border to be used for any new final record drawings must be identical to that used on the contract drawings. Accomplish additions and corrections to the contract drawings using CAD files. Provide all program files and hardware necessary to prepare final PDF record drawings. The Contracting Officer will review final PDF record drawings for accuracy and return them to the Contractor for required corrections, changes, additions, and deletions.

3.1.4 Record Drawing Submittal

Provide 2 copies of Record Drawings on separate CDs or DVDs 30 days after BOD.

Prepare final record drawings after the completion of each definable phase of work as listed in the Contractor Quality Control Plan (Foundations, Utilities, Structural Steel, etc., as appropriate for the project).

Transfer the changes from the approved working as-built markup drawings to the original electronic CAD drawing files. Modify the as-built CAD drawing files to correctly show the features of the project as-built by bringing the working CAD drawing set into agreement with approved working as-built markup drawings, and adding such additional drawings as may be necessary.

Jointly review the working as-built markup drawings with printouts from working as-built CAD drawing PDF files for accuracy and completeness.

Monthly review of working as-built CAD drawing PDF file printouts must cover all sheets revised since the previous review. These PDF drawing files are part of the permanent records of this project. Any drawings damaged or lost must be satisfactorily replaced at no expense to the Government.

Drawing revisions (include within change order price the cost to change working and final record drawings to reflect revisions) and compliance with the following procedures.

a. Follow directions in the revision for posting descriptive changes.

b. The revision delta size must be 5/16 inch unless the area where the delta is to be placed is crowded. Use a smaller size delta for crowded areas.

c. Place a revision delta at the location of each deletion.

d. For new details or sections which are added to a drawing, place a revision delta by the detail or section title.

e. For minor changes, place a revision delta by the area changed on the drawing (each location).

f. For major changes to a drawing, place a revision delta by the title of the affected plan, section, or detail at each location.

g. For changes to schedules or drawings, place a revision delta either by the schedule heading or by the change in the schedule.

3.1.5 Final Record Drawing Package

Submit the final record PDF and CAD drawings package for the entire project within 20 days of substantial completion of all phases of work. Submit one set of ANSI D size PDF and CAD files on optical disc, read-only memory (ROM), two sets of ANSI D size prints and one set of the approved working record drawings. The package must be complete in all details and identical in form and function to the contract drawing files supplied by the Government.

3.2 OPERATION AND MAINTENANCE MANUALS

Provide project operation and maintenance manuals as specified in Section 01 78 23 OPERATION AND MAINTENANCE MANUALS DATA. Provide electronic copies of the Operation and Maintenance Manual files. Submit to the Contracting Officer for approval within 30 calendar days of the Final Inspection Date (FID). Update and resubmit files for final approval at FID.

3.3 CLEANUP

Leave premises "broom clean." Clean interior and exterior glass surfaces exposed to view; remove temporary labels, stains and foreign substances; polish transparent and glossy surfaces; vacuum carpeted and soft surfaces. Clean equipment and fixtures to a sanitary condition. Replace filters of operating equipment. Clean debris from roofs, gutters, downspouts and drainage systems. Sweep paved areas and rake clean landscaped areas.

Remove waste and surplus materials, rubbish and construction facilities from the site.

3.5 REAL PROPERTY RECORD

Refer to UFC 1-300-08 for instruction on completing the DD FORM 1354. Contact the Contracting Officer for any project specific information necessary to complete the DD FORM 1354.

3.5.1 Interim DD FORM 1354

Near the completion of Project, but a minimum of 60 days prior to final acceptance of the work, complete, and submit an accounting of all installed property with Interim DD Form 1354. Include any additional assets, improvements, and alterations from the Draft DD FORM 1354.

3.5.2 Completed DD FORM 1354

For convenience, a blank fillable PDF DD FORM 1354 may be obtained at the following link:

www.esd.whs.mil/Portals/54/Documents/DD/forms/dd/dd1354.pdf

Submit the completed List of Installed Building Equipment items for DD FORM 1354. Attach this list to the updated DD Form 1354.

-- END OF SECTION --

SECTION 01 78 23

OPERATION AND MAINTENANCE DATA

05/23, CHG 1: 05/25

PART 1 GENERAL

1.1 SUBMITTALS

Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-10 Operation and Maintenance Data

Operation and Maintenance Manual, Final Submittal; O&M Database

Training Plan; Training Outline; Training Content;

SD-11 Closeout Submittals Training Video Recording;

Validation of Training Completion; Record Drawings and Utility Systems; Facility Data Workbook

1.2 OPERATION AND MAINTENANCE DATA

Submit 2 hard copies and an electronic copy of the Operation and Maintenance (O&M) Data for the provided equipment, product, or system, defining the importance of system interactions, troubleshooting, and long- term preventive operation and maintenance. Compile, prepare, and aggregate O&M data to include clarifying and updating the original sequences of operation to as-built conditions. Organize and present information in sufficient detail to clearly explain O&M requirements at the system, equipment, component, and subassembly level. Include an index preceding each submittal. Submit in accordance with this section and Section 01 33 00 SUBMITTAL PROCEDURES.

1.2.1 Package Quality

Documents must be fully legible. Operation and Maintenance data must be consistent with the manufacturer's standard brochures, schematics, printed instructions, general operating procedures, and safety precautions.

1.2.2 Changes to Submittals

Provide manufacturer-originated changes or revisions to submitted data if a component of an item is so affected subsequent to acceptance of the O&M Data. Submit changes, additions, or revisions required by the Contracting Officer for final acceptance of submitted data within 30 calendar days of the notification of this change requirement.

1.3 O&M DATABASE

Develop an editable, electronic spreadsheet based on the equipment in the Operation and Maintenance Manuals that contains the information required to start a preventive maintenance program. As a minimum, provide list of system equipment, location installed, warranty expiration date, manufacturer, model, and serial number.

1.4 OPERATION AND MAINTENANCE MANUAL FORMAT

Assemble data packages into electronic Operation and Maintenance Manuals. Assemble each manual into a composite electronically indexed file using the most current version of Adobe Acrobat or similar software capable of

producing PDF file format. Provide compact disks (CD) or data digital versatile disk (DVD) as appropriate, so that each one contains operation, maintenance and record files, project record documents, and training videos. Include a complete electronically linked operation and maintenance directory. Provide two (2) copies of Operation and Maintenance Manuals in a 3-ring binder.

1.4.1 Organization

Bookmark Product and Drawing Information documents using the current version of CSI Masterformat numbering system and arrange submittals using the specification sections as a structure. Use CSI Masterformat and UFGS numbers along with descriptive bookmarked titles that explain the content of the information that is being bookmarked.

1.4.2 CD or DVD Label and Disk Holder or Case

Provide the following information on the disk label and disk holder or case:

a. Building Number

b. Project Title

c. Activity and Location

d. Construction Contract Number

e. Prepared For: (Contracting Agency)

f. Prepared By: (Name, title, phone number and email address)

g. Include the disk content on the disk label

h. Date

i. Virus scanning program used

1.5 TYPES OF INFORMATION REQUIRED IN O&M DATA PACKAGES

The following are a detailed description of the data package items listed in paragraph SCHEDULE OF OPERATION AND MAINTENANCE DATA PACKAGES.

1.5.1 Operating Instructions

Provide specific instructions, procedures, and illustrations for the following phases of operation for the installed model and features of each system:

1.5.1.1 Safety Precautions and Hazards

List personnel hazards and equipment or product safety precautions for operating conditions. List all residual hazards identified in the Activity Hazard Analysis provided under Section 01 35 26 GOVERNMENT SAFETY REQUIREMENTS. Provide recommended safeguards for each identified hazard.

1.5.1.2 Operator Prestart

Provide procedures required to install, set up, and prepare each system for use.

1.5.1.3 Startup, Shutdown, and Post-Shutdown Procedures

Provide narrative description for Startup, Shutdown and Post-shutdown operating procedures including the control sequence for each procedure.

1.5.1.4 Normal Operations

Provide Control Diagrams with data to explain operation and control of systems and specific equipment. Provide narrative description of Normal Operating Procedures.

1.5.1.5 Emergency Operations

Provide Emergency Procedures for equipment malfunctions to permit a short period of continued operation or to shut down the equipment to prevent further damage to systems and equipment. Provide Emergency Shutdown Instructions for fire, explosion, spills, or other foreseeable contingencies. Provide guidance and procedures for emergency operation of utility systems including required valve positions, valve locations and zones or portions of systems controlled.

1.5.1.6 Operator Service Requirements

Provide instructions for services to be performed by the operator such as lubrication, adjustment, inspection, and recording gauge readings.

1.5.1.7 Environmental Conditions

Provide a list of Environmental Conditions (temperature, humidity, and other relevant data) that are best suited for the operation of each product, component or system. Describe conditions under which the item equipment should not be allowed to run.

1.5.1.8 Operating Log

Provide forms, sample logs, and instructions for maintaining necessary operating records.

1.5.1.9 Requirements for HVAC Control Systems Provide Data Package 5 and the following for control systems:

a. Narrative description on how to perform and apply functions, features, modes, and other operations, including unoccupied operation, seasonal changeover, manual operation, and alarms. Include detailed technical manual for programming and customizing control loops and algorithms.

b. Full as-built sequence of operations.

c. Copies of checkout tests and calibrations performed by the Contractor (not Cx tests).

d. Full points list. Provide a listing of rooms with the following information for each room: (1) Floor

(2) Room number

(3) Room name

(4) Air handler unit ID

(5) Reference drawing number

(6) Air terminal unit tag ID

(7) Heating or cooling valve tag ID

(8) Minimum cfm

(9) Maximum cfm

e. Full print out of all schedules and set points after testing and acceptance of the system.

f. Full as-built print out of software program.

g. Marking of system sensors and thermostats on the as-built floor plan and mechanical drawings with their control system designations.

1.5.2 Preventive Maintenance

Provide the following information for preventive and scheduled maintenance to minimize repairs for the installed model and features of each system.

Include potential environmental and indoor air quality impacts of recommended maintenance procedures and materials.

1.5.2.1 Lubrication Data

Include the following preventive maintenance lubrication data, in addition to instructions for lubrication required under paragraph OPERATOR SERVICE REQUIREMENTS:

a. A table showing recommended lubricants for specific temperature ranges and applications.

b. Charts with a schematic diagram of the equipment showing lubrication points, recommended types and grades of lubricants, and capacities.

c. A Lubrication Schedule showing service interval frequency.

1.5.2.2 Preventive Maintenance Plan, Schedule, and Procedures

Provide manufacturer's schedule for routine preventive maintenance, inspections, condition monitoring (predictive tests) and adjustments required to ensure proper and economical operation and to minimize repairs. Provide instructions stating when the systems should be retested. Provide manufacturers' projection of preventive maintenance workhours on a daily, weekly, monthly, and annual basis including craft requirements by type of craft. For periodic calibrations, provide manufacturers' specified frequency and procedures for each separate operation.

a. Define the anticipated time required to perform each test (workhours), test apparatus, number of personnel identified by responsibility, and a testing validation procedure permitting the record operation capability requirements within the schedule. Provide a remarks column for the testing validation procedure referencing operating limits of time, pressure, temperature, volume, voltage, current, acceleration, velocity, alignment, calibration, adjustments, cleaning, or special system notes. Delineate procedures for preventive maintenance, inspection, adjustment, lubrication and cleaning necessary to minimize repairs.

b. Repair requirements must inform operators how to check out, troubleshoot, repair, and replace components of the system. Include electrical and mechanical schematics and diagrams and diagnostic techniques necessary to enable operation and troubleshooting of the system after acceptance.

1.5.3 Repair

Provide manufacturers' recommended procedures and instructions for correcting problems and making repairs.

1.5.3.1 Troubleshooting Guides and Diagnostic Techniques

Provide step-by-step procedures to promptly isolate the cause of typical malfunctions. Describe clearly why the checkout is performed and what conditions are to be sought. Identify tests or inspections and test equipment required to determine whether parts and equipment may be reused or require replacement.

1.5.3.2 Wiring Diagrams and Control Diagrams

Provide point-to-point drawings of wiring and control circuits including factory-field interfaces. Provide a complete and accurate depiction of the actual job specific wiring and control work. On diagrams, number electrical and electronic wiring and pneumatic control tubing and the terminals for each type, identically to actual installation configuration and numbering.

1.5.3.3 Repair Procedures

Provide instructions and a list of tools required to repair or restore the product or equipment to proper condition or operating standards.

1.5.3.4 Removal and Replacement Instructions

Provide step-by-step procedures and a list of required tools and supplies for removal, replacement, disassembly, and assembly of components, assemblies, subassemblies, accessories, and attachments. Provide tolerances, dimensions, settings and adjustments required. Use a combination of text and illustrations.

1.5.3.5 Spare Parts and Supply Lists

Provide lists of spare parts and supplies required for repair to ensure continued service or operation without unreasonable delays. Special consideration is required for facilities at remote locations. List spare parts and supplies that have a long lead-time to obtain.

1.5.3.6 Repair Workhours

Provide manufacturer's projection of repair workhours including requirements by type of craft. Identify, and tabulate separately, repair that requires the equipment manufacturer to complete or to participate.

1.5.4 Appendices

Provide information required below and information not specified in the preceding paragraphs but pertinent to the maintenance or operation of the product or equipment. Include the following:

1.5.4.1 Product Submittal Data

Provide a copy of SD-03 Product Data submittals documented with the required approval.

1.5.4.2 Manufacturer's Instructions

Provide a copy of SD-08 Manufacturer's Instructions submittals documented with the required approval.

1.5.4.3 O&M Submittal Data

Provide a copy of SD-10 Operation and Maintenance Data submittals documented with the required approval.

1.5.4.4 Parts Identification

Provide identification and coverage for the parts of each component, assembly, subassembly, and accessory of the end items subject to replacement. Include special hardware requirements, such as requirement to use high-strength bolts and nuts. Identify parts by make, model, serial number and source of supply to allow reordering without further identification. Provide clear and legible illustrations, drawings, and exploded views to enable easy identification of the items. When illustrations omit the part numbers and description, both the illustrations and separate listing must show the index, reference, or key number that will cross-reference the illustrated part to the listed part. Group the parts shown in the listings by components, assemblies, and subassemblies in accordance with the manufacturer's standard practice. Parts data may cover more than one model or series of equipment, components, assemblies, subassemblies, attachments, or accessories, such as typically shown in a master parts catalog.

1.5.4.5 Warranty Information

List and explain the various warranties and clearly identify the servicing and technical precautions prescribed by the manufacturers or contract documents in order to keep warranties in force. Include warranty information for primary components of the system. Provide copies of warranties required by Section 01 78 00 CLOSEOUT SUBMITTALS.

1.5.4.6 Extended Warranty Information

List all warranties for products, equipment, components, and sub-components whose duration exceeds one year. For each warranty listed, indicate the applicable specification section, duration, start date, end date, and the point of contact for warranty fulfillment. Also, list or reference the specific operation and maintenance procedures that must be performed to keep the warranty valid. Provide copies of warranties required by Section 01 78 00 CLOSEOUT SUBMITTALS.

1.5.4.7 Personnel Training Requirements

Provide information available from the manufacturers that is needed for use in training designated personnel to properly operate and maintain the equipment and systems.

1.5.4.8 Testing Equipment and Special Tool Information

Include information on test equipment required to perform specified tests and on special tools needed for the operation, maintenance, and repair of components. Provide final set points.

1.5.4.9 Testing and Performance Data

Include completed pre-functional checklists, functional performance test forms, and monitoring reports. Include recommended schedule for retesting and blank test forms. Provide final set points.

1.5.4.10 Field Test Reports

Provide a copy of Field Test Reports (SD-06) submittals documented with the required approval.

1.5.4.11 Contractor Information

Provide a list that includes the name, address, and telephone number of the General Contractor and each Subcontractor who installed the product or equipment, or system. For each item, provide the name address and telephone number of the manufacturer's representative and service organization that can provide replacements that are most convenient to the project site. Provide the name, address, and telephone number of the product, equipment, and system manufacturers.

1.6 SCHEDULE OF OPERATION AND MAINTENANCE DATA PACKAGES

Provide the O&M data packages specified in individual technical sections. The information required in each type of data package follows:

1.6.1 Data Package 1

a. Safety precautions and hazards

b. Cleaning recommendations

c. Maintenance and repair procedures

d. Warranty information

e. Extended warranty information

f. Contractor information

g. Spare parts and supply list

1.6.2 Data Package 2

a. Safety precautions and hazards

b. Normal operations

c. Environmental conditions

d. Lubrication data

e. Preventive maintenance plan, schedule, and procedures

f. Cleaning recommendations

g. Maintenance and repair procedures

h. Removal and replacement instructions

i. Spare parts and supply list

j. Parts identification

k. Warranty information

l. Extended warranty information

m. Contractor information

1.6.3 Data Package 3

a. Safety precautions and hazards

b. Operator prestart

c. Startup, shutdown, and post-shutdown procedures

d. Normal operations

e. Emergency operations

f. Environmental conditions

g. Operating log

h. Lubrication data

i. Preventive maintenance plan, schedule, and procedures

j. Cleaning recommendations

k. Troubleshooting guides and diagnostic techniques

l. Wiring diagrams and control diagrams

m. Maintenance and repair procedures

n. Removal and replacement instructions

o. Spare parts and supply list

p. Product submittal data

q. O&M submittal data

r. Parts identification

s. Warranty information

t. Extended warranty information

u. Testing equipment and special tool information

v. Testing and performance data

w. Contractor information

x. Field test reports

1.6.4 Data Package 4

a. Safety precautions and hazards

b. Operator prestart

c. Startup, shutdown, and post-shutdown procedures

d. Normal Operations

e. Emergency operations

f. Operator service requirements

g. Environmental conditions

h. Operating log

i. Lubrication data

j. Preventative maintenance plan, schedule, and procedures

k. Cleaning recommendations

l. Troubleshooting guides and diagnostic techniques

m. Wiring diagrams and control diagrams

n. Repair procedures

o. Removal and replacement instructions

p. Spare parts and supply list

q. Repair workhours

r. Product submittal data

s. O&M submittal data

t. Parts identification

u. Warranty information

v. Extended warranty information

w. Personnel training requirements

x. Testing equipment and special tool information

y. Testing and performance data

z. Contractor information

aa. Field test reports

1.6.5 Data Package 5

a. Safety precautions and hazards

b. Operator prestart

c. Startup, shutdown, and post-shutdown procedures

d. Normal operations

e. Environmental conditions

f. Preventive maintenance plan, schedule, and procedures

g. Troubleshooting guides and diagnostic techniques

h. Wiring and control diagrams

i. Maintenance and repair procedures

j. Removal and replacement instructions

k. Spare parts and supply list

l. Product submittal data

m. Manufacturer's instructions

n. O&M submittal data

o. Parts identification

p. Testing equipment and special tool information

q. Warranty information

r. Extended warranty information

s. Testing and performance data

t. Contractor information

u. Field test reports

1.7 MEETINGS

To ensure that Operation and Maintenance Manual requirements are met through the duration of the project, organize the following meetings and discuss the following topics:

1.7.1 Post-Award Kickoff Meeting

At a minimum, discuss the following:

a. The requirement for Operation and Maintenance Manuals deliverables under this contract includes coordination meetings
b. Processes and method of gathering Facility Data information during construction
c. Primary roles and responsibilities associated with the development and delivery of the Operation and Maintenance Manuals, and
d. Identify and agree upon a date and attendance list for the meetings described below

1.7.2 Facility Turnover Meeting

Include Operation and Maintenance Manual in Red Zone facility turnover meetings as specified in section 01 30 00, ADMINISTRATIVE REQUIREMENTS

1.8 FACILITY DATA WORKBOOK

Develop an editable, electronic spreadsheet based on the equipment in the Operation and Maintenance Manuals that contains the information required to start a preventive maintenance program. As a minimum, provide Facility Data Workbook as a list of system equipment, location installed, warranty expiration date, manufacturer, model, and serial number.

1.9 OPERATION AND MAINTENANCE MANUAL

Provide a hard copy of the O&M Manual upon completion of the project. Provide tabs for each section and subsection for ease of navigation by the user.

1.10 O&M MANUAL CONTENT

Organize the bookmarked Operation and Maintenance Manual into the following Parts in accordance with ASHRAE GUIDELINE 1.4, and as modified and detailed below. Word template for O&M Manual is available at: www.wbdg.org/dod/ufgs/ufgs-01-78-23

1.10.1 Part 1: Executive Summary

Provide a summary of the information found in the O&M Manual including the purpose of the manual and a description of the manual's organization.

1.10.2 Part 2: Facility Design and Construction

1.10.2.1 General Facility and Systems Description

Provide an overview of the intent for design and use of the facility. Provide a PDF of the Record Drawings prepared in accordance with 01 78 00 CLOSEOUT SUBMITTALS and bookmarked using the sheet title and sheet number. Include uncluttered 28 by 43 mm 11 by 17 inches floor plans with room numbers, type or function of space, and overall facility dimensions on the floor plans. Do not include items such as construction instructions, references, or frame numbers. Detail the overall dimensions of the facility, number of floors, foundation type, expected number of occupants, and facility Category Code list and generally describe all the facility systems and any special building

features (for example, HVAC Controls, Sprinkler Systems, Cranes, Elevators, and Generators). Include photographs marked up and labeled to show key operating components and the overall facility appearance.

1.10.2.2 Basis of Design

Provide a copy of the contract Basis of Design.

1.10.2.3 Contract Documents, RFP, Amendments, and Modifications

Provide the contract construction documents complete, to include specifications, drawings, Request for Proposal, amendments, and modifications.

1.10.2.4 Room Inventory of Real Property and Finishes

Provide a list of installed equipment furnished under this contract. Include all information usually listed on manufacturer's name plate. Include, as applicable, the following information for each piece of equipment installed: description of item, all dimensions, location by room number, model number, serial number, capacity, name and address of manufacturer, name and address of equipment supplier, condition, spare parts list, manufacturer's catalog, and warranty. Real property includes, but is not limited to, floor coverings, wall surfaces, ceiling surfaces, windows, roofing, HVAC filters, plumbing fixtures, and lighting fixtures. Submit the final list 30 days after transfer of the completed facility. Include spatial data defining actual net square meters square footage and data of each room. Also include the room finish schedule including room names and numbers. Include schedules in the construction drawings in the room inventory. Add a column to each schedule to record what was provided by the contractor during construction. Provide a PDF of room inventory. Key the designations to the related area depicted on the contract drawings. List the following data:

RECORD OF DESIGNATED EQUIPMENT AND MATERIALS DATA				
Description	Specification Section	Manufacturer and Catalog, Model, and Serial Number	Composition and Size	Where Used

1.10.3 Part 3: Facilities, Systems, and Assemblies Information

1.10.3.1 Organization

Bookmark information in this section using the current version of ASTM E2166 Uniformat II, UFGS numbers, and document type as outlined in the example below. Bookmark/tab each item to the third level for easy navigation of the manual.

Example as shown in Table below:

Parts and Subpart Numbering
3.1 B20 B2030 Exterior Closure (System)
3.1.1 B2030 Exterior Doors (subsystem)
3.1.1.1 B2030110 Glazed Doors (Component)

3.1.1.1.1 Applicable specifications list in UFGS Format
3.1.1.1.2 Manufacturer’s Operations and Maintenance Data
3.1.1.1.3 Approved Submittal
3.1.1.1.4 Coordination/Shop Drawings
3.1.1.1.5 Sequence of Operation for Operating Equipment
3.1.1.1.6 Testing Equipment Information and Performance Data
3.1.1.1.7 Routine Maintenance Requirements
3.1.1.1.8 Repair Procedures
3.1.1.1.9 Emergency Procedures & Locations of Applicable Controls
3.1.1.1.10 Warranties
3.1.1.1.11 Record Drawings and Utility Systems
3.1.1.1.12 Contractor/Supplies Listing and Contact Information

1.10.3.2 Related Specifications

Reference each specification related to the subsystem in this section, and locate the actual specification section in Part 2 of the O&M Manual. List specifications in table format as shown in the below example.

UFGS Number	Specification Title	Page Spec Begins in Part 2

1.10.3.3 Manufacturer's Operations and Maintenance Data

Provide a copy of all manufacturer specifications and cutsheets. Provide text-searchable, high-quality document files from the manufacturer's online or electronic documentation. Color documents are preferred. Provide documents specific to the product(s) installed under this Contract. Provide identification and coverage for the parts of each component, assembly, subassembly, and accessory of the end items subject to replacement. Provide Uniformat II Level 3 identification for D20, D30, D40 installed equipment.

When possible, do not submit document files containing multiple product catalogs from the same manufacturer, or product data from multiple manufacturers in the same files. Provide documents directly from the manufacturer whenever possible. Do not provide scanned copies of hardcopy documents. Provide identification and coverage for the parts of each component, assembly, subassembly, and accessory of the end items subject to replacement. Include special hardware requirements, such as requirement to use high-strength bolts and nuts. Identify parts by make, model, serial number, and source of supply to allow reordering without further identification. Provide clear and legible illustrations, drawings, and exploded views to enable easy identification of the items. When illustrations omit the part numbers and description, both the illustrations and separate listing must show the index, reference, or key number that will cross- reference the illustrated part to the listed part. Group the parts shown in the listings by

components, assemblies, and subassemblies in accordance with the manufacturer's standard practice. Parts data may cover more than one model or series of equipment, components, assemblies, subassemblies, attachments, or accessories, such as typically shown in a master part catalog.

1.10.3.4 Approved Submittals and Certificates

Provide a copy of all submittals documented with the required approval as applicable for each UFGS specification listed in the table outlined in applicable specifications. Include copies of SD-07 Certificates submittals documented with the required approval, SD-08 Manufacturer's Instructions submittals documented with the required approval, and SD-10 Operation and Maintenance Data submittals documents with the required approval.

1.10.3.5 Approved Coordination/Shop Drawings

Drawings, diagrams and schedules specifically prepared to illustrate some portion of the work. Diagrams and instructions from a manufacturer or fabricator for use in producing the product and as aids to the Contractor for integrating the product or system into the project. Drawings prepared by or for the Contractor to show how multiple systems and interdisciplinary work will be coordinated.

1.10.4 Sequence of Operation for Operating Equipment

Provide record one-line diagrams for each floor, delineating mechanical equipment location within the building. Provide specific instructions, procedures, and illustrations for the following phases of operation for the installed model and features of each system:

1.10.4.1 Safety Precautions and Hazards

List personnel hazards and equipment or product safety precautions for operating conditions. List all residual hazards identified in the Activity Hazard Analysis provided under Section 01 35 26 GOVERNMENTAL SAFETY REQUIREMENTS. Provide recommended safeguards for each identified hazard.

Specify if any certifications or licenses are required to operate the equipment.

1.10.4.2 Operator Prestart

Provide procedures required to install, set up, and prepare each system for use.

1.10.4.3 Startup, Shutdown, and Post-Shutdown Procedures

Provide narrative description for Startup, Shutdown and Post-shutdown operating procedures including the control sequence for each procedure.
1.10.4.4 Normal Operations Provide Control Diagrams with data to explain operation and control of systems and specific equipment. Provide narrative description of Normal Operating Procedures.

1.10.4.5 Emergency Operations

Provide Emergency Procedures for equipment malfunctions to permit a short period of continued operation or to shut down the equipment to prevent further damage to systems and equipment. Provide Emergency Shutdown instructions for fire, explosion, spills, or other foreseeable contingencies. Provide guidance and procedures for emergency operation of utility systems including required valve positions, valve locations and zones or portions of systems controlled.

1.10.4.6 Operator Service Requirements

Provide instructions for services to be performed by the operator such as lubrication, adjustment, inspection, and recording gauge readings.

1.10.4.7 Environmental Conditions

Provide a list of Environmental Conditions (temperature, humidity, and other relevant data) that are best suited for the operation of each product, component or system. Describe conditions under which the item equipment should not be allowed to run.

1.10.4.8 Operating Log

Provide forms, sample logs, and instructions for maintaining necessary operating records.

1.10.4.9 Additional Requirements for Equipment Control Systems Provide Data Package 5 and the following

for all control systems:

a. Provide a narrative description on how to perform and apply functions, features, modes, and other operations, including unoccupied operation, seasonal changeover, manual operation, and alarms. Include detailed technical manual for programming and customizing control loops and algorithms.

b. Submit complete controls equipment schedules, full as-built sequence of operations, wiring and logic diagrams, Input/Output Tables, equipment schedules, copies of checkout tests and calibrations performed by the Contractor (not Cx tests), and all associates information.

c. Full points list. Provide a listing of rooms with the following information for each room:

(1) Floor

(2) Room number

(3) Room name

(4) Air handler unit ID

(5) Reference drawing number

(6) Air terminal unit tag ID

(7) Heating or cooling valve tag ID

(8) Minimum cfm
(9) Maximum cfm

d. Full print out of all schedules and set points after testing and acceptance of the system.

e. Full as-built print out of software program.

f. Marking of system sensors and thermostats on the as-built floor plan and mechanical drawings with their control system designations.

1.10.4.10 Testing Equipment Information and Performance Data

Include information on test equipment required to perform specified tests and on special tools needed for the operation, maintenance, and repair of components. Provide final set points. Include completed pre-functional checklists, functional performance test forms, and monitoring reports.

Include recommended schedule for retesting and blank test forms. Provide final set points.

1.10.5 Routine Maintenance Requirements

1.10.5.1 Preventive Maintenance Plan, Schedule, and Procedures

Provide manufacturer's schedule for routine preventive maintenance, inspections, condition monitoring (predictive tests) and adjustments required to ensure proper and economical operation and to minimize repairs. Provide instructions stating when the systems should be retested. Provide manufacturer's projection of preventive maintenance workhours on a daily, weekly, monthly, and annual basis including requirements by type of activity. For periodic calibrations, provide manufacturers' specified frequency and procedures for each separate operation.

a. Define the anticipated time required to perform each test (workhours), test apparatus, number of personnel identified by responsibility, and a testing validation procedure permitting the record operation capability requirements within the schedule. Provide a remarks column for the testing validation procedure referencing operating limits of time, pressure, temperature, volume, voltage, current, acceleration, velocity, alignment, calibration, adjustments, cleaning, or special system notes. Delineate procedures for preventive maintenance, inspection, adjustment, lubrication and cleaning necessary to minimize repairs.

b. Repair requirements must inform operators how to check out, troubleshoot, repair, and replace components of the system. Include electrical and mechanical schematics and diagrams and diagnostic techniques necessary to enable operation and troubleshooting of the system after acceptance.

1.10.5.2 Lubrication Data

Include the following preventive maintenance lubrication data, in addition to instructions for lubrication required under paragraph OPERATOR SERVICE REQUIREMENTS:

a. A table showing recommended lubricants for specific temperature ranges and applications.

b. Charts with a schematic diagram of the equipment showing lubrication points, recommended types and grades of lubricants, and capacities. Provide procedural instructions for Oil Sampling for all equipment.

c. A Lubrication Schedule showing service interval frequency.

1.10.6 Repair Procedures

Provide instructions and a list of tools required to repair or restore the product or equipment to proper condition or operating standards. Provide manufacturer's recommended procedures and instructions for correcting problems and making repairs for the installed model and features of each system. Include potential environmental and indoor air quality impacts of recommended maintenance procedures and materials. Specify if any certifications or licenses are required to repair the equipment.

1.10.6.1 Troubleshooting Guides and Diagnostic Techniques

Provide step-by-step procedures to promptly isolate the cause of typical malfunctions. Describe clearly why the checkout is performed and what conditions are to be sought. Identify tests or inspections and test equipment required to determine whether parts and equipment may be reused or require replacement.

1.10.6.2 Wiring Diagrams and Control Diagrams

Provide point-to-point drawings of wiring and control circuits including factory-field interfaces. Provide a complete and accurate depiction of the actual job specific wiring and control work. On diagrams, number electrical and electronic wiring and pneumatic control tubing and the terminals for each type, identically to actual installation configuration and numbering.

1.10.6.3 Removal and Replacement Instructions

Provide step-by-step procedures and a list of required specialty tools and supplies for removal, replacement, disassembly, and assembly of components, assemblies, subassemblies, accessories, and attachments. Provide tolerances, dimensions, settings and adjustments required. Use a combination of text and illustrations.

1.10.6.4 Repair Workhours

Provide manufacturer's projection of repair workhours including requirements by type of craft. Identify, and tabulate separately, repair that requires the equipment manufacturer to complete or to participate.

1.10.6.5 Warranty Information

List and explain the various warranties and clearly identify the servicing and technical precautions prescribed by the manufacturers or contract documents in order to keep warranties in force. Identify if replacement of a subassembly, attachment or accessory requires the entire assembly to be replaced. Include warranty information for primary components of the system. Provide copies of warranties required by Section 01 78 00 CLOSEOUT SUBMITTALS.

1.10.6.6 Extended Warranty Information

List all warranties for products, equipment, components, and sub-components whose duration exceeds one year. For each warranty listed, indicate the applicable specification section, duration, start date, end date, and the point of contact for warranty fulfillment. Also, list or reference the specific operation and maintenance procedures that must be performed to keep the warranty valid. Provide copies of warranties required by Section 01 78 00 CLOSEOUT SUBMITTALS.

1.10.6.7 Record Drawings and Utility Systems

The record drawings are the final compilation of actual conditions reflected in the as-built drawings. Provide record drawings as outlined in 01 78 00 CLOSEOUT SUBMITTALS. Using Record Source Drawings, show and document details of the actual installation of the utility systems, annotate and highlight the Operation and Maintenance information. Provide the following drawings at a large enough scale to differentiate designated isolation units from surrounding valves and switches.

1.10.6.8 Personnel Training Requirements

Provide information available from the manufacturers that is needed for use in training designated personnel to properly operate and maintain the equipment and systems.

1.10.6.9 Contractor / Supplier Listing and Contact Information

Provide a list that includes the name, address, telephone number, email and website of the General Contractor and each Subcontractor who installed the product or equipment, or system. For each item, also provide the name address and telephone number of the manufacturer's representative and service organization that can provide replacements most convenient to the project site. Provide the name, address, and telephone number of the product, equipment, and system manufacturers.

1.10.7 Part 4: Facility Operations

1.10.7.1 Completed Facility Operating Plan Provide a plan that documents that procedures for the operation of systems and assemblies in the facility. The systems that should be included in the Operating Plan include, but are not limited to:

a. Electrical systems and equipment

b. Mechanical systems and equipment

c. Fire Protection systems and equipment

d. Control Systems and equipment

e. Architectural and Structural systems, fixtures, structures, and equipment

f. Vertical transportation such as elevators and escalators

1.10.7.2 Testing Equipment and Special Tool Information

Include information on test equipment required to perform specified tests and on special tools needed for the operation, maintenance, and repair of components. Provide final set points.

1.10.7.3 Testing and Performance Data

Include completed pre-functional checklists, functional performance test forms, and monitoring reports. Include recommended schedule for retesting and blank test forms. Provide final set points.

1.10.7.4 Approved Field Test Reports and Manufacturer's Field Reports

Compile and provide approved Field Test Reports (SD-06) and Manufacturer's Field Reports (SD-09) submittals.

1.10.7.5 Maintenance Plans, Procedures, Checklists, Records, and Spare Parts Inventory

1.10.7.5.1 Maintenance Schedules

Include recommended maintenance schedules for systems and equipment.

1.10.7.5.2 Ongoing Commissioning Operational and Maintenance Record Keeping

Include ongoing commissioning and optimization procedures and documentation to monitor and improve the performance of facility systems.

1.10.7.5.3 Janitorial and Cleaning Plans and Procedures

Include a copy of facility cleaning and janitorial plan with procedures and intended chemicals and equipment. Provide environmentally friendly cleaning recommendations in accordance with ASTM E1971.

1.10.7.6 Utility Record Drawings

1.10.7.6.1 Utility Schematic Diagrams

Provide a one-line schematic diagram for each utility system such as power, water, wastewater, and gas/fuel. Schematic diagrams must show from the point where the utility line is connected to the mainline up to the 1.5 meter/ 5-foot connection point to the facility. Indicate location or area designation for route of transmission or distribution lines; locations of duct banks, manholes/handholes or poles; isolation units such as valves and switches; and utility facilities such as pump stations, lift stations, and substations.

1.10.7.6.2 Enlarged Connection and Cutoff Plans

Provide enlarged floor plans and provide information between the 1.5 meter /5-foot utilities connection point and where utilities connect to facility distribution. Enlarge floor plans/elevations of the rooms where the utility enters the building and indicate on these plans the locations of the main interiors and exterior connection and cutoff points for the utilities. Also enlarge floor plans/elevations of the rooms where equipment is located. Include enough

information to enable someone unfamiliar with the facility to locate the connection and cutoff points. Indicate designations such as room number, panel number, circuit breaker, or valve number of each utility and equipment connection and cutoff point, and what that connection and cutoff point controls.

1.10.7.6.2.1 Description of Utility Metering and Monitoring Systems

Provide in narrative format a description of the utility metering and monitoring systems. Include locations, function, and related systems.

1.10.7.6.2.2 Procedures for Tracking Utility Use and Reporting

Procedures for usage reporting and tracking in support of establishing and monitoring utility budgets and costs, and in developing annual energy reports.

1.10.7.6.2.3 One-Line Diagrams and Meter Location of System

Provide one-line diagrams and design drawings that highlight meter locations on the site.

1.10.7.6.3 Spare Parts and Supply Lists

Provide lists of spare parts and supplies required for repair to ensure continued service or operation without unreasonable delays. Special consideration is required for facilities at remote locations. List spare parts and supplies that have a long lead-time to obtain.

1.10.8 Part 5: Training

Provide a copy of training plans used for each type of equipment along with training materials used, arranged in specification sequence. Provide a copy of training records, sign-in sheets, and agendas. Include training and documentation on the updating and continued use of the O&M Manual.

1.10.9 Part 6: Cx Project Report and TAB Report

Provide the final Cx Plan and complete Cx reports with evaluation and testing forms and records for each building system. Include relevant commissioned system assemblies test reports including installers checklists of assemblies. Provide all Cx Progress Reports, issues and resolutions logs with resolution or status of each item, and a list of any open items and seasonal or additional testing required.

1.10.10 Part 7: Regulatory Requirements

Provide information describing regulatory and policies compliance requirements or provide a reference to where it is stored.

1.10.11 Part 8: Permits

Provide information requiring frequently asked questions and associated answers or provide a reference to where it is stored.

1.10.12 Part 9: Operations and Maintenance Manual Approval

Provide a signed document stating that the project O&M Manual has been reviewed and confirming agreement with the approach it presents. Include contact information for the signer for coordination of any future changes.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 TRAINING

Prior to acceptance of the facility by the Contracting Officer for Beneficial Occupancy, provide comprehensive training for the systems and equipment specified in the technical specifications. The training must be targeted for the building maintenance personnel, and applicable building occupants. Instructors must be well-versed in the particular systems that they are presenting. Address aspects of the Operation and Maintenance Manual submitted in accordance with Section 01 78 00 CLOSEOUT SUBMITTALS. Training must include classroom or field lectures based on the system operating requirements. The location of classroom training requires approval by the Contracting Officer.

3.1.1 Training Plan

Submit a written training plan to the Contracting Officer for approval at least 60 calendar days prior to the scheduled training. Training plan must be approved by the Quality Control Manager (QC) prior to forwarding to the Contracting Officer. Also, coordinate the training schedule with the Contracting Officer and QC. Include within the plan the following elements:

a. Equipment included in training

b. Intended audience

c. Location of training

d. Dates of training

e. Objectives

f. Outline of the information to be presented and subjects covered including description

g. Start and finish times and duration of training on each subject

h. Methods (e.g. classroom lecture, video, site walk-through, actual operational demonstrations, written handouts)

i. Instructor names and instructor qualifications for each subject

j. List of texts and other materials to be furnished by the Contractor that are required to support training

k. Description of proposed software to be used for video recording of training sessions.

3.1.2 Training Content

The core of this training must be based on manufacturer's recommendations and the operation and maintenance information. The QC is responsible for overseeing and approving the content and adequacy of the training. Spend 95 percent of the instruction time during the presentation on the OPERATION AND MAINTENANCE DATA. Include the following for each system training presentation:

a. Start-up, normal operation, shutdown, unoccupied operation, seasonal changeover, manual operation, controls set-up and programming, troubleshooting, and alarms.

b. Relevant health and safety issues.

c. Discussion of how the feature or system is environmentally responsive. Advise adjustments and optimizing methods for energy conservation.

d. Design intent.

e. Use of O&M Manual Files.

f. Review of control drawings and schematics.

g. Interactions with other systems.

h. Special maintenance and replacement sources.

i. Tenant interaction issues.

3.1.3 Training Outline

Provide the [Operation and Maintenance Manual Files (Bookmarked PDF)] and a written course outline listing the major and minor topics to be discussed by the instructor on each day of the course to each trainee in the course. Provide the course outline 14 calendar days prior to the training.

3.1.4 Training Video Recording

Record classroom training session(s) on video. Provide the Contracting Officer with two copies of the training session(s) in DVD video recording format. Capture within the recording, in video and audio, the instructors' training presentations including question and answer periods with the attendees. The recording camera(s) must be attended by a person during the recording sessions to assure proper size of exhibits and projections during the recording are visible and readable when viewed as training.

3.1.5 Unresolved Questions from Attendees

If, at the end of the training course, there are questions from attendees that remain unresolved, the instructor must send the answers, in writing, to the Contracting Officer for transmittal to the attendees, and the training video must be modified to include the appropriate clarifications.

3.1.6 Validation of Training Completion

Ensure that each attendee at each training session signs a class roster

daily to confirm Government participation in the training. At the completion of training, submit a signed validation letter that includes a sample record of training for reporting what systems were included in the training, who provided the training, when and where the training was performed, and copies of the signed class rosters. Provide two copies of the validation to the Contracting Officer, and one copy to the Operation and Maintenance Manual Preparer for inclusion into the Manual's documentation.

3.1.7 Quality Control Coordination

Coordinate this training with the QC in accordance with Section 01 45 00 QUALITY CONTROL.

3.2 SUBMITTAL SCHEDULING

3.2.1 Operation and Maintenance Manual, Final Submittal

Submit completed Operation and Maintenance Manual Files (Bookmarked PDF) and two (2) hard copies of the Operation and Maintenance Manuals. The Final Submittal is due at BOD. Any discrepancies discovered during the Government's field verification, must be corrected prior to the Final submission.

-- END OF SECTION –

SECTION 01 78 39

AS-BUILT DRAWINGS

PART 1 GENERAL

Attachments: VSFB_SLD_CAD_2022Template

1.1 DEFINITIONS

The definitions listed below form a part of this specification.

1.1.1 Red-Line Drawings

Contract drawings marked-up during construction to show actual work performed to include necessary sketches, modification drawings, shop drawings and notes.

1.1.2 As-Built Drawings

Professionally finished bond paper drawings and electronic computer aided design (CAD) files developed from the contract drawings that include all of the information from the redline drawings and suitable for half-size reproduction.

1.1.3 Black-Line Drawings

Paper drawings reproduced from electronic CAD files or high-quality reproducible drawings.

1.1.4 Red-Line Drawings

34 inches x 42 inches nominal size drawings with all details visually readable so that half-size plot will fit on 11 inches x 17 inches cut sheets.

1.1.5 Modification Circle

A circle with a horizontal line through the center to identify modification changes on the drawings. The top half will contain the letter "R" with the bottom half containing the modification number, unless directed otherwise. The lettering standard will be 1/8-inch Arial.ttf.

1.1.6 Electronic CAD Files

Electronic CAD files in the version of AutoCAD Civil 3D (.dwg) specified by Contracting Officer in accordance with appropriate CAD standard. The CAD standard will include level on/off status, special characters, line weights, font, and size requirements.

1.1.7 Geographic and Projected Coordinate System

The geographic coordinate system (GCS) for this project is World Geodetic System (WGS) 1984 and the projected coordinate system is WGS 1984 UTM Zone 14N (projection: Traverse Mercator, linear unit: Meter). The horizontal and vertical coordinates for the project shall be in United States Survey Feet.

1.2 SUBMITTALS

Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

50 Percent Preliminary As-Built Drawings

100 Percent Preliminary As-Built Drawings SD-11 Closeout Submittals

1.3 GENERAL REQUIREMENTS

1.3.1 As-Built Drawings

Upon award of this contract, the contractor will request the electronic computer aided design (CAD) files for the awarded contract drawings which the government will provide.

The contractor shall create electronic CAD files in the version of AutoCAD Civil 3D (.dwg) specified by the CO, and full-size Red-Line Drawings showing as-built conditions. This project utilizes the Vandenberg 30CES AutoCAD Standards, based on the National CAD Standards USACE A/E/C, which are to be used on the As-Built Drawings. The contractor shall be responsible for obtaining the relevant CAD Standards in effect at time of contract award.
The contractor shall be responsible for obtaining the required CAD software for their own use. The contractor shall not convert electronic drawing files from one software language to another. The transmittal requirements for the As-Built Drawings shall be shown as activities on the Contractor prepared project schedule.

All changes to the contract drawings shall be shown in the As-Built Drawings. All changes shall be accurately and neatly recorded on the As- Built Drawings using the same symbols, terminology, and general quality as the original set of contract drawings. All changes shall be shown on all drawings that are affected by the change. Changes include actual work performed, deviations resulting from Government responses to Requests for Information or Serial letters, surveys, shop drawings, descriptive changes, sketch changes, and modifications to the contract. Systems designed or enhanced by the contractor such as HVAC control system, fire alarm system, fire sprinkler system, and irrigation sprinkler system shall be shown on the As-Built Drawings. Where contract drawings or specifications allow for options, only the option selected and actually constructed shall be shown on the As-Built Drawings.

1.3.2 Red-Line Drawings

Red-Line Drawings shall be updated throughout the construction phase of a contract showing all changes that will be shown on the final As-Built Drawings. All as-built conditions shall be on the Red-Line Drawings within two days after the work activity is completed. If the Red-Line Drawings are not being updated, incomplete, or inaccurate, the contractor shall be considered to not be making satisfactory progress and funds will be withheld from the progress payments.

The contractor shall have the option to do Red-Line Drawings in either a hardcopy format or an electronic format unless the Contracting Officer does not wish to do the As-Built Drawings electronically, in which case the Contractor shall do the hardcopy option for the completion of Red-Line Drawings.

1.3.3 Electronic Option

The contractor shall make electronic drawings available to the Contracting Officer at all times through a Local Area Network (LAN) or Internet connection. The connection shall have a download transfer rate not less than 10 Megabit/second (~1.250 Megabytes/second) and an upload transfer rate of not less than 1 Megabit/second (~124 kilobytes/second) in order to facilitate the timely access of drawing files. The contractor shall make backups of all the electronic drawings at the close of business on the final day of work each week on a durable digital media such as removable hard-drive, tape drive, or optical disk. Each weekly file system backup shall be preserved over the course of the project and not overwritten with file folders or individual media labeled with the date of backup. The weekly backup media shall be stored in a fireproof and waterproof safe in a locked room of the contractor's office. The

contractor must also provide the Contracting Officer with a DVD containing updated PDF drawings on a monthly basis. All changes to the electronic drawings shall be shown with clouding and in accordance with Vandenberg SFB 30CES CAD Standards.

1.4 GEOGRAPHIC INFORMATION SYSTEM REQUIREMENTS

1.4.1 Geodatabase

The contractor shall provide a DVD containing a SDSFIE/FGDC Georeferenced personal Geodatabase, in accordance with the requirements of this section, unless otherwise directed by the Contracting Officer. It is the Prime contractor's responsibility to ensure all AutoCAD (dwg) files utilize a special reference consistent with Vandenberg GeoBase Office, fully accurate according to the actual conditions, coordinate values for all discovered and installed underground utilities including all relevant survey data used, fully compliant with Vandenberg CAD Standards. Any drawings provided do not relieve the contractor of this responsibility, although they may be used towards this effort. Documents and AutoCAD (dwg) must show all details of the project as constructed, clean of extraneous information and be readable and not cluttered.
For all information outside of the building walls, such as contour lines, utility locations, and the actual building location, the contractor shall provide a personal Geodatabase in .mdb format using the latest version of Spatial Data Standards for Facilities, Infrastructure, and Environment (SDSFIE) as the database structure. Provide a shell database which will define the projection and database structure. The layering standards to be used are the SDSFIE standards. Typically, the development of this database is created with ESRI software, although there is other software that can be used.

In addition, a short read-me file (Word format) shall be added to the DVD explaining the deliverable. This read-me file should include a description of the software used to create the data, projection, and include the attribute tables used.

1.4.2 Global Positioning System (GPS) Requirements

Contract shall follow the below at a minimum, unless directed to follow a more stringent standard by the 30 CES Engineering Drawing Vault, or other contract documents/requirements. If contract dictates official mapping data for the GIO in support of GeoBase, the contractor will follow at a minimum the following for all contracted work, utilizing Earth Science Research Institute (ESRI) software version 10x or most current version, unless noted in other contract documents/requirements.

1.4.2.1 GPS Receiver: To ensure that the appropriate type of GPS receiver is matched to the mapping application, an understanding of receiver capabilities and limitations is required. There are basically three classes of GPS receivers:

Recreational Grade: These devices have an accuracy within five to twenty meters. These GPS receivers usually do not have the ability to "post-process" collected data but usually have the ability to perform real time correction using Wide Area Augmentation System (WAAS). GPS receivers can be used to navigate to a specific area and/or compile uncorrected GPS data, using associated third-party software to convert the collected data directly into GIS supported data formats. Most modern "smart phones/tablets", auto GPS devices, and Garmin GPS devices fall into this category.

Mapping Grade: These have an accuracy from sub-meter to five meters. These GPS receivers have the ability to log raw GPS data, enabling these GPS-collected data to be post-processed utilizing desktop GPS software and allowing locations to be refined or corrected to a higher level of precision than inherent in the raw data. This category of GPS receiver also has the ability to communicate with a base station, store attributes of features, use a data dictionary and upload data from the GPS device to a PC.

Survey or High Accuracy Grade: These include instruments with associated software that can achieve one-centimeter relative accuracy. These are used by land surveyors primarily for boundary, topographic, and geodetic surveys, photogrammetry, and other activities requiring high accuracy. Specialized training is needed to use this equipment.

For all projects, the GPS receivers used must be of Mapping Grade or better. For certain engineering projects (buildings/bridges/surveys), Survey or High Accuracy Grade GPS devices will be required. All GPS devices must:

a) Routinely achieve 60 centimeter or better horizontal accuracy, using either real time or post processed differential corrections.

b) Operate in a 3D mode where the receiver requires signals from a minimum of four satellites to determine a 3D (latitude, longitude, and elevation) location (a fix).

c) Allow the storage of position fixes for features that are being mapped. When mapping point features, the receiver must be able to store position fixes (the minimum number depending on the quality of the receiver) for the feature. The receiver must have enough data storage capacity for a typical day's worth of data collection.

d) Must be user configurable for critical settings, including Dilution of Precision (DOP), Signal to Noise Ratio (SNR), elevation mask, and logging rate.

e) Produce and store data in a format compatible with the ESRI ArcGIS Pro software data used to perform the differential corrections or have the capability to receive real-time corrections from the base station.

1.4.3 Field Data Collection Parameters

To achieve the target accuracy, all collected GPS data must be differentially corrected, either in real time or in a post process step. The following parameters will help to assure that accuracy standards are met:

1.4.3.1 Position Mode: All position fixes must be determined with 7 or more satellites.

1.4.3.2 Elevation Mask: 15 degrees above horizon.

1.4.3.3 Position Dilution of Precision (PDOP) Mask: Max PDOP = 3

1.4.3.4 Signal to Noise Ratio Mask (SNR): If this parameter setting exists, set it to 39.0

1.4.3.5 Minimum Positions: If this parameter setting exists, set it to the manufacturer for point features recommendation that would, at a minimum, allow the GPS data collected to achieve the accuracy standard. Recommend using a minimum of 60 1-second positions. Solutions based on a single fix are not acceptable.

1.4.3.6 Logging Intervals: Intervals for point features will be 1 second. Line and polygon features should be collected as a set of point features that can connected using GIS software.

1.4.3.7 Logging of DOP: If the receiver allows, this parameter setting will be set to allow the logging of DOP data along with position fixes.

Attributing GPS Features, Spatial Data Standard for Facilities, Infrastructure, and Environment (SDSFIE) shall be collected/attributed in the most current version in used by the installation (currently 4.x). During GPS data collection, GPS technicians will collect and attribute GPS features based on the spatial feature in their base station. For example, if a water line is being installed, attributes like pipe size, pipe composition, and pipe designation (Primary vs Secondary) would be required attribution. The contractor is responsible for working with the Vandenberg GeoBase Office for questions on correct, accurate feature attributions.

1.4.4 Processing of GPS Field Data

All GPS data collected for the project must undergo some post processing steps using GPS processing software before the data can be used to generate a GIS layer. The exception to this step is if the GPS device can achieve real time accuracy that meets the 60-centimeter accuracy standard. To ensure accuracy standards are adhered to, the Vandenberg GeoBase office routinely checks GPS locations of engineering, utility, and communications projects for accuracy.

The GPS processing software must be able to download GPS data files from the GPS receiver and perform differential corrections. In addition, it must allow exporting the corrected data to a GIS compatible format (File Geodatabase or Shapefile), in the correct coordinate system. Refer to the section below for specific information on the required coordinate system.

1.4.5 GPS Base Stations for Post Processed Differential Corrections

For post processed differential corrections, several resources exist for GPS base station data in California. The nearest operating base station with the highest integrity rating should be used. The contractor shall be responsible for determining the best base station to use as well as its accuracy.

1.4.6 Output to GIS

As stated previously, the preferred GIS data submittals should be in either ESRI File Geodatabase or Shapefile formats. The GPS processing software must allow for exporting to one of these formats. CAD export files will not be accepted. Refer to the section below for specific information on the required coordinate system.

1.4.7 Elevation Data

If elevation data is required by the project, it will be referenced to the North American Vertical Datum of 1988 (NAVD 88) vertical geodetic datum. Elevations must be generated as orthometric heights (relative to mean sea level) determined using the GEOID99 (Continental US) geoid conversion model. Conversions from other geoid conversion models are not acceptable.

1.4.8 Spatial Reference

All GPS data must be delivered using the installaton Spatial Reference as noted below.

Vandenberg SFB and surrounding local GSUs

Projection: California State Plane

Zone: NAD 1983 2011 State Plane California Zone V 0405
Units: US Foot
Horizontal Datum: North American Datum (NAD) 1983
Vertical Datum: North American Vertical Datum (NAVD) 1988

Pillar Point AFS

Projection: NAD 1983 2011 State Plane California Zone III 0405
Zone: III
Units: US Foot
Horizontal Datum: North American Datum (NAD) 1983
Vertical Datum: North American Vertical Datum (NAVD) 1988

1.4.9 Deliverables

If GPS data collection work is being performed by a contractor, final deliverables will include:

1. All GPS field data files, both uncorrected and corrected versions, must be submitted. If field data was collected in real time differential mode, then there would not be uncorrected files, and only the real time corrected files are necessary. If edits are made to corrected files (i.e., fixes deleted or offset), copies of both edited and unedited are to be submitted.

2. All GPS to GIS export files, using the correct spatial reference detailed in paragraph 1.4.8 Spatial Reference. GIS files must use ESRI File Geodatabase. Shape File format may be accepted on a case-by-case need if requested and approved by the Vandenberg Geospatial Officer (GIO).

3. All GPS processing log files pertaining to post process differential correction and GIS export (if produced).

1.5 PAYMENTS

Payment as directed by contract or the Contracting Officer will be withheld from payment for the creation of As-Built Drawings until Final As-Built Drawings and Geodatabase files are delivered to and accepted as accurate and correct by the Contracting Officer.

1.10 TRANSMITTAL OF AS-BUILT DRAWINGS

1.10.1 Optional As-Built Drawings Sample

The contractor has the option to submit a sample of preliminary As-Built Drawings to the Contracting Officer that will be reviewed for formatting purposes. This submittal shall include five (5) distinct sheets from the project set of drawings. This optional submittal shall contain the following:

1. One (1) DVD containing the following for each sheet:
   a. Electronic AutoCAD files
   b. Individual full-size PDF drawings
   c. One (1) Combined Set of full-size PDF drawings with bookmarks for each sheet

1.10.2 50 Percent Preliminary As-Built Drawings

The 50 Percent Preliminary As-Built Drawings are to be submitted within ten (10) days after 50% physical completion unless otherwise directed by the Contracting Officer. These drawings will be reviewed by the Government for technical content and formatting requirements. The electronic CAD files shall include all changes up to the time 50 Percent Preliminary As-Built Drawings are furnished with "clouding" around the changes. All drawings contained in the complete project set of drawings plus any additional drawings shall be submitted with the 50 Percent Preliminary As-Built Drawings. The 50 Percent Preliminary As-Built Drawings shall be submitted within ten days after unless otherwise directed by the Contracting Officer.

50 Percent Preliminary As-Built Drawings shall include the following:

1. One (1) DVD to the Contracting Officer containing the following:
   a. Electronic CAD files
   b. Individual full-size PDF drawings
   c. Combined Set of full-size PDF drawings with bookmarks for each sheet

2. One set of half-size black-line drawings to the Contracting Officer.

If a resubmittal is required, the contractor shall resubmit within fifteen days after receiving comments back from the government. If the Contractor fails to submit the 50 Percent Preliminary As-Built Drawings by the specified time, the contractor shall be considered to not be making satisfactory progress on the project and funds will be withheld from the progress payments.

1.10.3 100 Percent Preliminary As-Built Drawings

The 100 Percent Preliminary As-Built Drawings include all changes to the drawings as specified. The 100 Percent Preliminary As-Built Drawings will be reviewed for technical content and formatting requirements. Within thirty (30) days after the final inspection, the contractor shall submit

100 Percent Preliminary As-Built Drawings indicating all as-built changes with "clouding" on all the project drawings. All drawings contained in the complete project set of drawings plus any additional drawings shall be submitted with the 100 Percent Preliminary As-Built Drawings. The Contracting Officer may grant the contractor additional time if the contractor is making reasonable progress on the as-builts, in the sole judgement of the Contracting Officer. The contractor shall not submit the Final As-Built Drawings until the 100 Percent Preliminary As-Built Drawings are approved. 100 Percent Preliminary As-Built Drawings shall include the following:

1. One (1) DVD to the Contracting Officer containing the following:
    a. Electronic CAD Files
    b. Individual full-size PDF Drawings
    c. Combined Set of full-size PDF Drawings with bookmarks for each sheet
2. One (1) set of half-size black-line drawings to the Contracting Officer.
3. One (1) set of Red-line drawings to the Contracting Officer for reviewing purposes hardcopy option.

1.10.4 Final As-Built Drawings

The contractor shall produce Final As-Built Drawings without "clouding". The Final As-Built Drawings shall include all changes shown on the 100 Percent Preliminary As-Built Drawings including any additional required changes. All drawings contained in the complete project set of drawings plus any additional drawings shall be submitted with the Final As-Built Drawings. The Final As-Built Drawings shall be submitted no later than 30 days after the 100 Percent Preliminary As-Built Drawing submittal is approved. The Contracting Officer may grant the contractor additional time if the contractor is making reasonable progress on the as-builts. The contractor shall send the following documents to the Contracting Officer:

1. Two (2) DVDs containing the following:
    a. Electronic AutoCAD Files
    b. Individual full-size PDF Drawings
    c. Combined Set of full-size PDF Drawings with bookmarks for each sheet
    d. Geodatabase Files
2. All remaining Red-Line Drawings (hardcopy option)
3. One full-size of bond paper black-line As-built drawings.

All Geodatabase files shall be under a folder titled "Geodatabase".

1.11 AS-BUILT DRAWINGS FORMAT REQUIREMENTS

1.11.1 General Formatting

Preparation of As-Built Drawings shall be in accordance with Vandenberg 30CES CAD Standards requirements and match the level of detail shown on the contract drawings. The Contractor can request Vandenberg CAD Standards orientations if necessary to support compliance for government contracted work. The drawings shall include all the requirements below listed in Vandenberg 30CES AutoCAD Standards and templates along with the following:

1.11.1.1 The drawing index shall be updated when drawings are added.

1.11.1.2 When opened, the view shall be zoomed to fit the border.

1.11.1.3 All files shall refer to a border supplied by the Contracting Officer placed in the layout/sheet model at a scale of 1 at the location (0,0).

1.11.1.4 All unnecessary information outside the border shall be deleted.

1.11.1.5 All files shall be purged/compressed.

1.11.1.6 All drawing reference files (both vector and image) shall be included and bound to the respective drawing.

1.11.1.7 An ASCII text file shall be provided with the following information: the name and phone number of the person we need to contact if we have problems, and the version of the CAD software used to create and/or work on the drawings.

1.11.1.8 Both the DVD case and DVD shall contain the name of the project location, Prime contractor's name, point of contact, phone number, project code, solicitation number, contract number, facilities involved, date of submission, revision number (if applicable), words detailing which submittal it is, and shall be labeled as Controlled Unclassified Information or "CUI". The Final As-builts Drawings shall be titled "As-Built Record Set".

1.11.1.9 The Electronic CAD files and PDF drawings shall be in separate folders on each DVD.

1.11.2 Title Block

All information in the title block shall be filled in and correct. The title block shall include all title block requirements as specified by Vandenberg 30CES AutoCAD Standards.

1.11.3 Modification Changes

All modification changes shall be included in the As-Built Drawings. Modification changes at a minimum shall include all revised and reissued sheets, descriptive changes, sketches, etc. Any modification change that also affects other sheets other than the one referenced with the modification shall also be changed as appropriate. Typically, modification changes can be done by following the descriptive changes included with the modification, but may require additional effort depending on the change and level of detail of the modification change. Modifications shall be posted in accordance with Vandenberg 30CES AutoCAD Standards.

1.11.4 Legends

Symbols, which conflict with those on the original contract legend sheet, shall not be used. Additional symbols, necessary to depict any additional work items, shall be properly identified and added to the legend sheet or supplemental legend. Those projects that do not have legend sheets may use supplemental legends on each sheet where the symbol is shown.

PART 2 PRODUCTS

(NOT APPLICABLE)

PART 3 EXECUTION

3.1 GENERAL

The contractor shall make revisions to, and maintain, the Red-Line and As- Built Drawings to the same level of detail as shown on the original contract drawings. The contractor shall provide any additional full-size drawings as required to display all details. In addition, the Geodatabase files shall be prepared as specified above and submitted in conjunction with the As-Built Drawings.

3.2 SITE WORK

3.2.1 Utilities

The As-Built Drawings shall show all utilities whether active or abandoned and will include all those shown on the original contract drawings or found on-site. The type of utility, location, general direction, size, material make-up and depth shall be shown. The location and description of any utility line or other installations of any kind known to exist within the construction area shall be shown. The location shall include dimensions to permanent features. All new underground utility lines (including electrical power and communications, gas, water, sanitary sewer, storm drains, roof drains and culverts) shall be located during installation. The contractor shall survey pipe invert of gas, water, sanitary sewer, storm drains, roof drains and culverts and top of duct bank of electrical power and communications lines and associated fixtures (valves, manholes, test points, meters, cathodic protection points, tanks, ground points, and all point features along the new utility lines). Storm drains and sanitary sewer lines shall be surveyed where pipes enter manholes and inlets and at 100-foot maximum intervals along the line. The inverts of all clean outs and tees shall be surveyed. Inverts at each end of culverts shall be surveyed. Electrical power, communications, gas and water lines shall be surveyed at all manholes, tees, valves, corners, changes in direction and at intervals along the line which will accurately depict the location of the line in both horizontal and vertical directions (50-foot maximum interval). The horizontal and vertical accuracy shall be that 100% of the points are + 0.25' of their absolute position. New underground utility lines shall be shown as 3-dimensional elements in a Autodesk .dwg file.

3.2.2 Structures

Structures above and below ground shall be shown. The size, material make- up, location, height, and/or depth shall be shown. Manholes shall show rim elevation and invert elevations as applicable. Power poles shall show electrical equipment, guy wires, and voltage rating.

3.2.3 Grades

Grade or alignment of roads, structures, or utilities shall be corrected if any changes were made from the contract drawings. Elevations shall be corrected if changes were made in site grading. If any grades are finalized outside of the respective grades tolerances, that new grade shall be shown on the as-builts.

3.3 STRUCTURAL

3.3.1 Steel/Concrete

Shop drawings that deviate from the contract drawings shall be incorporated in the As-Built Drawings.

3.4 MECHANICAL

3.4.1 Ductwork

Ductwork shall be shown to reflect actual installation and duct size. Ductwork routing changes shall be shown.

3.4.2 Plumbing

Piping and fixtures shall be shown to reflect the type of material, size and the route or location.

3.5 ELECTRICAL

3.5.1 Panels

All contract drawing panel schedules shall be revised to show as-built conditions. Home-run circuit designation on electrical drawings shall accurately correspond to the as-built panel schedules.

3.5.2 Controls

All control diagrams in contract drawings shall be revised to reflect As- Built conditions, and set points.

3.6 CONTRACTOR SHOP DRAWINGS

Contractor shop drawings, which supersede data on the contract plans and/or additional drawings, prepared by the contractor, shall be incorporated into the As-Built Drawings. Design plans prepared by the contractor shall include the designer's name on the As-Built Drawings.

-- END OF SECTION –