SECTION 01 45 00.00 20

QUALITY CONTROL (PWD ME)
6/14

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 in the text by the basic designation only.

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS (ASHRAE)

ASHRAE 52.2	(2012; Errata 2013) Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size

ASTM INTERNATIONAL (ASTM)

ASTM D6245	(2012) Using Indoor Carbon Dioxide Concentrations to Evaluate Indoor Air Quality and Ventilation
ASTM D6345	(2010) Selection of Methods for Active, Integrative Sampling of Volatile Organic Compounds in Air

SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)

ANSI/SMACNA 008	(2007) IAQ Guidelines for Occupied Buildings Under Construction, 2nd Edition

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2008; Errata 1-2010; Changes 1-3 2010; Changes 4-6 2011; Change 7 2012) Safety and Health Requirements Manual

U.S. GREEN BUILDING COUNCIL (USGBC)

LEED GBDC	(2009) LEED Reference Guide for Green Building Design and Construction

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Construction Quality Control (QC) Plan; G

Submit a Construction QC Plan prior to start of construction.

Indoor Air Quality (IAQ) Management Plan; G

Basis of Design and Design Intent

QC Manager Qualifications; G

Commissioning Authority Qualifications; G

QC Specialists Qualifications; G

SD-05 Design Data

Design Review

SD-07 Certificates

CA Resume

1.3 INFORMATION FOR THE CONTRACTING OFFICER

Prior to commencing work on construction, the Contractor can obtain a single copy set of the current report forms from the Contracting Officer. The report forms will consist of the Contractor Production Report, Contractor Production Report (Continuation Sheet), Contractor Quality Control (CQC) Report, (CQC) Report (Continuation Sheet), Preparatory Phase Checklist, Initial Phase Checklist, Rework Items List, and Testing Plan and Log.

Deliver the following to the Contracting Officer during Construction:

a. CQC Report: Mail or hand-carry the original (wet signatures) and one copy by 10:00 AM the next working day after each day that work is performed and for every seven consecutive calendar days of no-work.

b. Contractor Production Report: Submit the report electronically by 10:00 AM the next working day after each day that work is performed and for every seven consecutive calendar days of no-work.

c. Preparatory Phase Checklist: Submit the report electronically in the same manner as the CQC Report for each Preparatory Phase held.

d. Initial Phase Checklist: Submit the report electronically in the same manner as the CQC Report for each Initial Phase held.

e. QC Specialist Reports: Submit the report electronically by 10:00 AM the next working day after each day that work is performed.

f. Field Test Reports: Mail or hand-carry the original within two working days after the test is performed, attached to the original CQC Report and one copy attached to each QC Report copy.

g. Monthly Summary Report of Tests: Submit the report as an electronic attachment to the CQC Report at the end of each month.

h. Testing Plan and Log: Submit the report as an electronic attachment to the CQC Report, at the end of each month. A copy of the final Testing Plan and Log shall be provided to the OMSI preparer for

inclusion into the OMSI documentation.

i. Rework Items List: Submit lists containing new entries daily, in the same manner as the CQC Report.

j. CQC Meeting Minutes: Within two working days after the meeting is held, submit the report as an electronic attachment to the CQC Report.

k. QC Certifications: As required by the paragraph entitled "QC Certifications."

1.4 QC PROGRAM REQUIREMENTS

Establish and maintain a QC program as described in this section. This QC program is a key element in meeting the objectives of NAVFAC Commissioning. 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, and QC certifications and documentation necessary to provide materials, equipment, workmanship, fabrication, construction and operations which 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 Commissioning

Refer to Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS (PWD ME) for project commissioning requirements.

Commissioning (Cx) is a systematic process of ensuring that all building systems meet the requirements and perform interactively according to the Contract. The QC Program is a key to this process by coordinating, verifying and documenting measures to achieve the following objectives:

a. Verify and document that the applicable equipment and systems are installed in accordance with the design intent as expressed through the Contract and according to the manufacturer's recommendations and industry accepted minimum standards.

b. Verify and document that equipment and systems receive complete operational checkout by the installing Contractors.

c. Verify and document proper performance of equipment and systems.

d. Verify that Facility Electronic Operation and Maintenance Support Information (eOMSI) documentation is complete.

e. Verify the Training Plan and training materials are accurate and provide correct instruction and documentation on the critical elements of the products, materials, and systems in the constructed facility. Verify that all identified Government operating personnel are trained.

1.4.2 Acceptance of the Construction Quality Control (QC) Plan

Acceptance of the QC Plan is required prior to the start of construction. The Contracting Officer reserves the right to require changes in the QC Plan and operations as necessary, including removal of personnel, to ensure the specified quality of work. The Contracting Officer reserves the right to interview any member of the QC organization at any time in order to verify the submitted qualifications. All QC 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.

1.4.3 Preliminary Construction Work Authorized Prior to Acceptance

The only construction work that is authorized to proceed prior to the acceptance of the QC Plan is mobilization of storage and office trailers, temporary utilities, and surveying.

1.4.4 Notification of Changes

Notify the Contracting Officer, in writing, of any proposed changes in the QC Plan or changes to the QC organization personnel, a minimum of 10 work days prior to a proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

1.5 QC ORGANIZATION

1.5.1 QC Manager

1.5.1.1 Duties

Provide a QC Manager at the work site to implement and manage the QC program. The QC Manager shall not perform the duties of Project Superintendent nor the duties of Project Manager nor the duties of SSHO. The QC Manager is required to attend the partnering meetings, QC Plan Meetings, Coordination and Mutual Understanding Meeting, conduct the QC meetings, perform the three phases of control, except for those phases of control designated to be performed by QC Specialists, perform submittal review and approval, ensure testing is performed and provide QC certifications and documentation required in this Contract. The QC Manager is responsible for managing and coordinating the three phases of control and documentation performed by the QC Specialists, testing laboratory personnel and any other inspection and testing personnel required by this Contract. The QC Manager is the manager of all QC activities and shall not be the Special Inspector.

1.5.1.2 Qualifications

An individual with a minimum of 10 years combined experience in the following positions: Project Superintendent, QC Manager, Project Manager, Project Engineer or Construction Manager on similar size and type construction contracts which included the major trades that are part of this Contract. The individual must have at least two years experience as a QC Manager. The individual must be familiar with the requirements of EM 385-1-1, and have experience in the areas of hazard identification, safety compliance, and sustainability.

1.5.2 Commissioning Authority

1.5.2.1 Duties

Provide a Commissioning Authority (CA) as key person for the Cx and documentation thereof, who is subordinate to the QC Manager. The CA directs and coordinates Cx activities and submits Cx reports to the Contracting Officer to meet the submittal and reporting requirements of the LEED EA Prerequisite Requirement for Fundamental Commissioning. The CA coordinates the actions of the QC Specialists, Testing Laboratory personnel, eOMSI Preparer, and other inspection and testing personnel required by this Contract for building Cx.

1.5.2.2 Qualifications

The CA must be certified as a commissioning professional by the Association of Energy Engineers (AEE), the Building Commissioning Association (BCA), the National Environmental Balancing Bureau (NEBB), or the University of Wisconsin - Madison (UWM). CA resume is required, providing education, experience and management capabilities on at least two similar size and type contracts. The CA may not have been involved with the project design, construction management, or supervision, and must be with a third-party firm that is not on the design team.

1.5.3 Construction Quality Management Training

In addition to the above experience and education requirements, the QC Manager must have completed the course entitled "Construction Quality Management (CQM) for Contractors." If the QC Manager does not have a current certification, they must 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.

1.5.4 Alternate QC Manager Duties and Qualifications

Designate an alternate for the QC Manager at the work site to serve in the event of the designated QC Manager's absence. The period of absence may not exceed two weeks at one time, and not more than 30 workdays during a calendar year. The qualification requirements for the Alternate QC Manager must be the same as for the QC Manager.

1.5.5 QC Specialists Duties and Qualifications

Provide a separate QC Specialist at the work site for each of the areas of responsibilities, specified in Part 3, Execution, of the technical sections, who shall assist and report to the QC Manager and who will have no duties other than their assigned quality control duties. QC Specialists are required to attend the Coordination and Mutual Understanding Meeting, QC meetings and be physically present at the construction site to perform the three phases of control and prepare documentation for each definable feature of work in their area of responsibility at the frequency specified below.

Qualification/Experience in Area of Responsibility	Area of Responsibility	Frequency
Fiberglass Sheeting Installation Inspector, Licensed Professional Engineer/five years minimum	Fiberglass Sheeting Installation	Minimum two times a week during installation
Concrete Quality Control Manager, Licensed Professional Engineer/five years minimum	Concrete Work	As outlined in Section 03 01 32 CONCRETE REHABILITATION and Section 03 31 29 MARINE CONCRETE, minimum of each placement. Shall also perform preplacement QC inspection checklists.
Coating Inspector, NACE Certified/five years minimum	Painting Work	As outlined in Section 09 97 13.00 40 STEEL COATINGS
Mechanical Inspector, International Code Council (ICC) Certified/five years minimum	HVAC Installation	Minimum two times a week during installation and full time during testing
Electrical Inspector, International Electrical Testing Association (NETA) Certified/five years minimum	Electrical Installation	Minimum two times a week during installation and full time during testing

1.5.6 Underwater QC Team

Provide Underwater QC (UWQC) Team at the work site to perform underwater surveillance and inspection for the Contractor if underwater work is included in this contract. The UWQC Team divers must have current commercial diver's license, with a minimum of five (5) years experience with underwater inspection. The personnel make up of the UWQC team shall comply with EM 385-1-1, OSHA and local requirements for Contract diving operations. Comply with all the applicable safety requirements of EM 385-1-1, OSHA and local requirements for Contract diving operations. The UWQC lead diver must be thoroughly familiar with the design plans and specifications to sufficiently understand the engineering aspects of the underwater construction and to be able to recognize and document potential problem areas such as improperly constructed or defective areas. Provide all necessary equipment to conduct surveillance and inspection services, including diver's equipment, dive boat, communication equipment, and photographic/video equipment. Diver(s) must be equipped to maintain two-way communication with QC personnel during diving operations. Prepare and submit a report including photographs and/or videos with the QC report after each dive. Underwater surveillance and inspection shall be completed at a minimum following: trench excavation, wall hydroblasting, construction joint sealing, and sheet installation. The UWQC Team shall complete all underwater anchor pull tests. The UWQC team shall be trained by and work directly with the independent testing agency while performing above water pull tests. A final inspection shall be performed upon

completion of all work. The UWQC Team must be an independent third party hired directly by the Prime Contractor, and shall have no involvement with the design, preparation of Contract, or installation of work.

1.6 QUALITY CONTROL (QC) PLAN

1.6.1 Construction Quality Control (QC) Plan

1.6.1.1 Requirements

Provide, for acceptance by the Contracting Officer, a Construction QC Plan submitted in a three-ring binder that includes a table of contents, with major sections identified with tabs, with pages numbered sequentially, and that documents the proposed methods and responsibilities for accomplishing commissioning activities during the construction of the project:

a. QC ORGANIZATION: A chart showing the QC organizational structure.

b. NAMES AND QUALIFICATIONS: Names and qualifications, in resume format, for each person in the QC organization. Include the CQ Manager for Contractors course certifications for the QC Manager and Alternate QC Manager as required by the paragraphs entitled "Construction Quality Management Training" and "Alternate QC Manager Duties and Qualifications".

c. DUTIES, RESPONSIBILITY AND AUTHORITY OF QC PERSONNEL: Duties, responsibilities, and authorities of each person in the QC organization.

d. OUTSIDE ORGANIZATIONS: A listing of outside organizations, such as architectural and consulting engineering firms, that will be employed by the Contractor and a description of the services these firms will provide.

e. APPOINTMENT LETTERS: Letters signed by an officer of the firm appointing the QC Manager and Alternate QC Manager and stating that they are responsible for implementing and managing the QC program as described in this Contract. Include in this letter the responsibility of the QC Manager and Alternate QC Manager to implement and manage the three phases of control, and their authority to stop work which is not in compliance with the Contract. Letters of direction are to be issued by the QC Manager to all other QC Specialists outlining their duties, authorities, and responsibilities. Include copies of the letters in the QC Plan.

f. SUBMITTAL PROCEDURES AND INITIAL SUBMITTAL REGISTER: Procedures for reviewing, approving, and managing submittals. Provide the name(s) of the person(s) in the QC organization authorized to review and certify submittals prior to approval. Provide the initial submittal of the Submittal Register as specified in Section 01 33 00 SUBMITTAL PROCEDURES.

g. TESTING LABORATORY INFORMATION: Testing laboratory information required by the paragraphs entitled "Accreditation Requirements", as applicable.

h. TESTING PLAN AND LOG: A Testing Plan and Log that includes the tests required, referenced by the specification paragraph number requiring the test, the frequency, and the person responsible for each test.

Use Government forms to log and track tests.

i. PROCEDURES TO COMPLETE REWORK ITEMS: Procedures to identify, record, track, and complete rework items. Use Government forms to record and track rework items.

j. DOCUMENTATION PROCEDURES: Use Government form.

k. LIST OF DEFINABLE FEATURES: A Definable Feature of Work (DFOW) is a task that is separate and distinct from other tasks and has control requirements and work crews unique to that task. A DFOW is identified by different trades or disciplines and is an item or activity on the construction schedule. Include in the list of DFOWs, but not be limited to, all critical path activities on the NAS. Include all activities for which this specification requires QC Specialists or specialty inspection personnel. Provide separate DFOWs in the Network Analysis Schedule for each design development stage and submittal package.

l. PROCEDURES FOR PERFORMING THE THREE PHASES OF CONTROL: Identify procedures used to ensure the three phases of control to manage the quality on 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.

m. PERSONNEL MATRIX: A personnel matrix showing for each section of the specification who will review and approve submittals, who will perform and document the three phases of control, and who will perform and document the testing.

n. PROCEDURES FOR COMPLETION INSPECTION: 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.

o. TRAINING PROCEDURES AND TRAINING LOG: Procedures for coordinating and documenting the training of personnel required by the Contract.

p. ORGANIZATION AND PERSONNEL CERTIFICATIONS LOG: Procedures for coordinating, tracking and documenting all certifications on subcontractors, testing laboratories, suppliers, personnel, etc. 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.

1.7 QC PLAN MEETINGS

Prior to submission of the QC Plan, the QC Manager will meet with the Contracting Officer to discuss the QC Plan requirements of this Contract. The purpose of this meeting is to develop a mutual understanding of the QC Plan requirements prior to plan development and submission and to agree on the Contractor's list of DFOWs.

1.8 COORDINATION AND MUTUAL UNDERSTANDING MEETING

After submission of the QC Plan, and prior to the start of construction, the QC Manager will meet with the Contracting Officer to present the QC

program required by this Contract. When a new QC Manager is appointed, the coordination and mutual understanding meeting shall be repeated.

1.8.1 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, Cx, 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 will be required to 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. IAQ Management Plan.

c. Procedures for noise and acoustics management.

d. Environmental Protection Plan.

e. Environmental regulatory requirements.

f. Cx Plan.

1.8.2 Coordination of Activities

Coordinate activities included in various sections to assure efficient and orderly installation of each component. Coordinate operations included under different sections that are dependent on each other for proper installation and operation. Schedule construction operations with consideration for indoor air quality as specified in the IAQ Management Plan. Coordinate prefunctional tests and startup testing with Cx.

1.8.3 Attendees

As a minimum, the Contractor's personnel required to attend include an officer of the firm, the Project Manager, Project Superintendent, QC Manager, Alternate QC Manager, QC Specialists, A/E, Commissioning Authority (CA), Environmental Manager, and subcontractor representatives or approved by the approved by the Contracting Officer. Each subcontractor who will be assigned QC responsibilities shall have a principal of the firm at the meeting. Minutes of the meeting will be prepared by the QC Manager and signed by the Contractor, the A/E and the Contracting Officer. Provide a copy of the signed minutes to all attendees and shall be included in the QC Plan.

1.9 QC MEETINGS

After the start of construction, conduct weekly QC meetings by the QC Manager at the work site with the Project Superintendent, QC Specialists, the CA, and the foremen who are performing the work of the DFOWs. The QC Manager is to prepare the minutes of the meeting and provide a copy to the Contracting Officer within two working days after the meeting. The Contracting Officer 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 rework.

c. Review the status of submittals.

d. Review the work to be accomplished in the next two weeks and documentation required.

e. Resolve QC and production problems (RFI, etc.).

f. Address items that may require revising the QC Plan.

g. Review Accident Prevention Plan (APP).

h. Review environmental requirements and procedures.

i. Review Waste Management Plan.

j. Review IAQ Management Plan.

k. Review Environmental Management Plan.

l. Review the status of training completion.

m. Review Cx Plan and progress.

1.10 DESIGN REVIEW AND DOCUMENTATION

1.10.1 Basis of Design and Design Intent

Review the basis of design received from the Contracting Officer and the design intent.

1.10.2 Design Review

Review design documents to verify that each commissioned system meets the design intent relative to functionality, energy performance, water performance, maintainability, sustainability, system cost, indoor environmental quality, and local environmental impacts. Fully document review in written report.

1.10.3 Contract Document Review

Review the Contract documents to verify that Cx is adequately specified, and that each commissioned system is likely to meet the design intent relative to functionality, energy performance, water performance, maintainability, sustainability, system cost, indoor environmental quality, and local environmental impacts.

1.11 THREE PHASES OF CONTROL

Adequately cover both on-site and off-site work with the Three Phases of Control and include the following for each DFOW.

1.11.1 Preparatory Phase

Notify the Contracting Officer at least two work days in advance of each preparatory phase meeting. The meeting will be conducted by the QC Manager and attended by the QC Specialists, the Project Superintendent,

the CA, and the foreman responsible for the DFOW or as approved by the Contracting Officer. When the DFOW will be accomplished by a subcontractor, that subcontractor's foreman shall attend the preparatory phase meeting. Document the results of the preparatory phase actions in the daily Contractor Quality Control Report and in the Preparatory Phase Checklist. Perform the following prior to beginning work on each DFOW:

a. Review each paragraph of the applicable specification sections.

b. Review the Contract drawings.

c. Verify that field measurements are as indicated on construction and/or shop drawings before confirming product orders, in order to minimize waste due to excessive materials.

d. Verify that appropriate shop drawings and submittals for materials and equipment have been submitted and approved. Verify receipt of approved factory test results, when required.

e. Review the testing plan and ensure that provisions have been made to provide the required QC testing.

f. Examine the work area to ensure that the required preliminary work has been completed.

g. Coordinate the schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

h. Arrange for the return of shipping/packaging materials, such as wood pallets, where economically feasible.

i. Examine the required materials, equipment and sample work to ensure that they are on hand and conform to the approved shop drawings and submitted data.

j. Discuss specific controls used and construction methods, construction tolerances, workmanship standards, and the approach that will be used to provide quality construction by planning ahead and identifying potential problems for each DFOW.

k. Review the APP and appropriate Activity Hazard Analysis (AHA) to ensure that applicable safety requirements are met, and that required Material Safety Data Sheets (MSDS) are submitted.

l. Review the Cx Plan and ensure all preliminary work items have been completed and documented.

1.11.2 Initial Phase

Notify the Contracting Officer at least two work days in advance of each initial phase. When construction crews are ready to start work on a DFOW, conduct the initial phase with the QC Specialists, the Project Superintendent, and the foreman responsible for that DFOW. Observe the initial segment of the DFOW to ensure that the work complies with Contract requirements. Document the results of the initial phase in the daily CQC Report and in the Initial Phase Checklist. Repeat the initial phase for each new crew to work on-site, or when acceptable levels of specified quality are not being met. Perform the following for each DFOW:

a. Establish the quality of workmanship required.

b. Resolve conflicts.

c. Ensure that testing is performed by the approved laboratory.

d. Check work procedures for compliance with the APP and the appropriate AHA to ensure that applicable safety requirements are met.

e. Review the Cx Plan and ensure all preparatory work items have been completed and documented.

1.11.3 Follow-Up Phase

Perform the following for on-going work daily, or more frequently as necessary, until the completion of each DFOW and document in the daily CQC Report:

a. Ensure the work is in compliance with Contract requirements.

b. Maintain the quality of workmanship required.

c. Ensure that testing is performed by the approved laboratory.

d. Ensure that rework items are being corrected.

e. Assure manufacturers representatives have performed necessary inspections if required and perform safety inspections.

f. Review the Cx Plan and ensure all work items, testing, and documentation has been completed.

1.11.4 Additional Preparatory and Initial Phases

Conduct additional preparatory and initial phases on the same DFOW if the quality of on-going work is unacceptable, if there are changes in the applicable QC organization, if there are changes in the on-site production supervision or work crew, if work on a DFOW is resumed after substantial period of inactivity, or if other problems develop.

1.11.5 Notification of Three Phases of Control for Off-Site Work

Notify the Contracting Officer at least two weeks prior to the start of the preparatory and initial phases.

1.12 SUBMITTAL REVIEW AND APPROVAL

Procedures for submission, review and approval of submittals are described in Section 01 33 00 SUBMITTAL PROCEDURES.

1.13 TESTING

Except as stated otherwise in the specification sections, perform sampling and testing required under this Contract.

1.13.1 Accreditation Requirements

Construction materials testing laboratories must be accredited by a

laboratory accreditation authority and will be required to submit a copy of the Certificate of Accreditation and Scope of Accreditation. The laboratory's scope of accreditation must include the appropriate ASTM standards (E 329, C 1077, D 3666, D 3740, A 880, E 543) listed in the technical sections of the specifications. Laboratories engaged in Hazardous Materials Testing shall meet the requirements of OSHA and EPA. The policy applies to the specific laboratory performing the actual testing, not just the Corporate Office.

1.13.2 Laboratory Accreditation Authorities

Laboratory Accreditation Authorities include the National Voluntary Laboratory Accreditation Program (NVLAP) administered by the National Institute of Standards and Technology at http://ts.nist.gov/ts/htdocs/210/214/214.htm, the American Association of State Highway and Transportation Officials (AASHTO) program at http://www.transportation.org/aashto/home.nsf/frontpage, International Accreditation Services, Inc. (IAS) at http://www.iasonline.org, U. S. Army Corps of Engineers Materials Testing Center (MTC)at http://www.wes.army.mil/SL/MTC/, the American Association for Laboratory Accreditation (A2LA) program at http://www.a2la.org/, the Washington Association of Building Officials (WABO) at http://www.wabo.org/ (Approval authority for WABO is limited to projects within Washington State), and the Washington Area Council of Engineering Laboratories (WACEL) at http://www.wacel.org/labaccred.html (Approval authority by WACEL is limited to projects within Facilities Engineering Command (FEC) Washington geographical area).

1.13.3 Capability Check

The Contracting Officer retains the right to check laboratory equipment in the proposed laboratory and the laboratory technician's testing procedures, techniques, and other items pertinent to testing, for compliance with the standards set forth in this Contract.

1.13.4 Test Results

Cite applicable Contract requirements, tests or analytical procedures used. Provide actual results and include a statement that the item tested or analyzed conforms or fails to conform to specified requirements. If the item fails to conform, notify the Contracting Officer immediately. Conspicuously stamp the cover sheet for each report in large red letters "CONFORMS" or "DOES NOT CONFORM" to the specification requirements, whichever is applicable. Test results must be signed by a testing laboratory representative authorized to sign certified test reports. Furnish the signed reports, certifications, and other documentation to the Contracting Officer via the QC Manager. Furnish a summary report of field tests at the end of each month, per the paragraph entitled "INFORMATION FOR THE CONTRACTING OFFICER".

1.13.5 Test Reports and Monthly Summary Report of Tests

Furnish the signed reports, certifications, and a summary report of field tests at the end of each month to the Contracting Officer. Attach a copy of the summary report to the last daily Contractor Quality Control Report of each month. Provide a copy of the signed test reports and certifications to the OMSI preparer for inclusion into the OMSI documentation.

1.14 QC CERTIFICATIONS

1.14.1 CQC Report Certification

Contain the following statement within the CQC Report: "On behalf of the Contractor, I certify that this report is complete and correct and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge, except as noted in this report."

1.14.2 Invoice Certification

Furnish a certificate to the Contracting Officer with each payment request, signed by the QC Manager, attesting that as-built drawings are current, coordinated and attesting that the work for which payment is requested, including stored material, is in compliance with Contract requirements.

1.14.3 Completion Certification

Upon completion of work under this Contract, the QC Manager shall furnish a certificate to the Contracting Officer attesting that "the work has been completed, inspected, tested and is in compliance with the Contract." Provide a copy of this final QC Certification for completion to the OMSI preparer for inclusion into the OMSI documentation.

1.15 COMPLETION INSPECTIONS

1.15.1 Punch-Out Inspection

Near the completion of all work or any increment thereof, established by a completion time stated in the Contract Clause entitled "Commencement, Prosecution, and Completion of Work," or stated elsewhere in the specifications, the QC Manager and the CA must conduct an inspection of the work and develop a "punch list" of items which do not conform to the approved drawings, specifications and Contract. Include in the punch list any remaining items on the "Rework Items List", which were not corrected prior to the Punch-Out Inspection. Include within the punch list the estimated date by which the deficiencies will be corrected. Provide a copy of the punch list to the Contracting Officer. The QC Manager, or staff, must make follow-on inspections 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".

1.15.2 Pre-Final Inspection

The Government and QC Manager will perform this inspection to verify that the facility is complete and ready to be occupied. A Government "Pre-Final Punch List" will be documented by the QC Manager as a result of this inspection. The QC Manager will ensure that all items on this list are corrected prior to notifying the Government that a "Final" inspection with the Client can be scheduled. Any items noted on the "Pre-Final" inspection must be corrected in a timely manner and be accomplished before the contract completion date for the work, or any particular increment thereof, if the project is divided into increments by separate completion dates.

1.15.3 Final Acceptance Inspection

Notify the Contracting Officer at least 14 calendar days prior to the date a final acceptance inspection can be held. State within the notice that all items previously identified on the pre-final punch list will be corrected and acceptable, along with any other unfinished Contract work, by the date of the final acceptance inspection. The Contractor must be represented by the QC Manager, the Project Superintendent, the CA, and others deemed necessary. Attendees for the Government will include the Contracting Officer, other FEAD personnel, and personnel representing the Client. 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 entitled "Inspection of Construction."

1.16 DOCUMENTATION

Maintain current and complete records of on-site and off-site QC program operations and activities.

1.16.1 Construction Documentation

Reports are required for each day that work is performed and must be attached to the Contractor Quality Control Report prepared for the same day. Maintain current and complete records of on-site and off-site QC program operations and activities. The forms identified under the paragraph "INFORMATION FOR THE CONTRACTING OFFICER" will be used. Reports are required for each day work is performed. Account for each calendar day throughout the life of the Contract. Every space on the forms must be filled in. Use N/A if nothing can be reported in one of the spaces. The Project Superintendent and the QC Manager must prepare and sign the Contractor Production and CQC Reports, respectively. The reporting of work must be identified by terminology consistent with the construction schedule. In the "remarks" sections of the reports, enter pertinent information including directions received, problems encountered during construction, work progress and delays, conflicts or errors in the drawings or specifications, field changes, safety hazards encountered, instructions given and corrective actions taken, delays encountered and a record of visitors to the work site, quality control problem areas, deviations from the QC Plan, construction deficiencies encountered, meetings held. For each entry in the report(s), identify the Schedule Activity No. that is associated with the entered remark.

1.16.2 Quality Control Validation

Establish and maintain the following in a series of three ring binders. Binders shall be divided and tabbed as shown below. These binders must be readily available to the Contracting Officer during all business hours.

a. All completed Preparatory and Initial Phase Checklists, arranged by specification section.

b. All milestone inspections, arranged by Activity Number.

c. An up-to-date copy of the Testing Plan and Log with supporting field test reports, arranged by specification section.

d. Copies of all contract modifications, arranged in numerical order. Also include documentation that modified work was accomplished.

e. An up-to-date copy of the Rework Items List.

f. Maintain up-to-date copies of all punch lists issued by the QC staff to the Contractor and Sub-Contractors and all punch lists issued by the Government.

g. Commissioning documentation including Cx checklists, schedules, tests, and reports.

1.16.3 Reports from the QC Specialist(s)

Reports are required for each day that work is performed in their area of responsibility. QC Specialist reports shall include the same documentation requirements as the CQC Report for their area of responsibility. QC Specialist reports are to be prepared, signed and dated by the QC Specialists and shall be attached to the CQC Report prepared for the same day.

1.16.4 Testing Plan and Log

As tests are performed, the CA and the QC Manager will record on the "Testing Plan and Log" the date the test was performed and the date the test results were forwarded to the Contracting Officer. Attach a copy of the updated "Testing Plan and Log" to the last daily CQC Report of each month, per the paragraph "INFORMATION FOR THE CONTRACTING OFFICER". Provide a copy of the final "Testing Plan and Log" to the OMSI preparer for inclusion into the OMSI documentation.

1.16.5 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 reworked, the date the item was originally discovered, the date the item will be corrected by, and the date the item was corrected. There is no requirement to report a rework item that is corrected the same day it is discovered. Attach a copy of the "Rework Items List" to the last daily CQC Report of each month. The Contractor is responsible for including those items identified by the Contracting Officer.

1.16.6 As-Built Drawings

The QC Manager is required to ensure the as-built drawings, required by Section 01 78 00.00 22 CLOSEOUT SUBMITTALS (PWD ME) are kept current on a daily basis and marked to show deviations which have been made from the Contract drawings. Ensure each deviation has been identified with the appropriate modifying documentation (e.g. PC No., Modification No., Request for Information No., etc.). The QC Manager or QC Specialist assigned to an area of responsibility 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.

1.17 NOTIFICATION ON NON-COMPLIANCE

The Contracting Officer will notify the Contractor of any detected non-compliance with the Contract. Take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of

notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may 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 for excess costs or damages by the Contractor.

1.18 CONSTRUCTION INDOOR AIR QUALITY (IAQ) MANAGEMENT PLAN

Submit an IAQ Management Plan within 15 days after Contract award and not less than 10 days before the preconstruction meeting. Revise and resubmit the Plan as required by the Contracting Officer. Make copies of the final plan available to all workers on site. Include provisions in the Plan to meet the requirements specified below and to ensure safe, healthy air for construction workers and building occupants.

1.18.1 Requirements During Construction

Provide for evaluation of indoor Carbon Dioxide concentrations in accordance with ASTM D6245. Provide for evaluation of volatile organic compounds (VOCs) in indoor air in accordance with ASTM D6345. Use filters with a Minimum Efficiency Reporting Value (MERV) of 8 in permanently installed air handlers during construction.

1.18.1.1 Control Measures

Meet or exceed the requirements of ANSI/SMACNA 008, Chapter 3, to help minimize contamination of the building from construction activities. The five requirements of this manual which must be adhered to are described below:

a. HVAC protection: Isolate return side of HVAC system from surrounding environment to prevent construction dust and debris from entering the duct work and spaces.

b. Source control: Use low emitting paints and other finishes, sealants, adhesives, and other materials as specified. When available, cleaning products shall have a low VOC content and be non-toxic to minimize building contamination. Utilize cleaning techniques that minimize dust generation. Cycle equipment off when not needed. Prohibit idling motor vehicles where emissions could be drawn into building. Designate receiving/storage areas for incoming material that minimize IAQ impacts.

c. Pathway interruption: When pollutants are generated use strategies such as 100 percent outside air ventilation or erection of physical barriers between work and non-work areas to prevent contamination.

d. Housekeeping: Clean frequently to remove construction dust and debris. Promptly clean up spills. Remove accumulated water and keep work areas dry to discourage the growth of mold and bacteria. Take extra measures when hazardous materials are involved.

e. Scheduling: Control the sequence of construction to minimize the absorption of VOCs by other building materials.

1.18.1.2 Moisture Contamination

a. Remove accumulated water and keep work dry.

b. Use dehumidification to remove moist, humid air from a work area.

c. Do not use combustion heaters or generators inside the building.

d. Protect porous materials from exposure to moisture.

e. Remove and replace items which remain damp for more than a few hours.

1.18.2 Requirements after Construction

After construction ends and prior to occupancy, conduct a building flush-out or test the indoor air contaminant levels. Flush-out must be a minimum two-weeks with MERV-13 filtration media as determined by ASHRAE 52.2at 100 percent outside air, or in accordance with LEED GBDC. Air contamination testing must be consistent with EPA's current Compendium of Methods for the Determination of Air Pollutants in Indoor Air, and with the LEED GBDC. After building flush-out or testing and prior to occupancy, replace filtration media. Filtration media must have a MERV of 13 as determined by ASHRAE 52.2.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 PREPARATION

Designate receiving/storage areas for incoming material to be delivered according to installation schedule and to be placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication. Store and handle materials in a manner as to prevent loss from weather and other damage. Keep materials, products, and accessories covered and off the ground, and store in a dry, secure area. Prevent contact with material that may cause corrosion, discoloration, or staining. Protect all materials and installations from damage by the activities of other trades.

3.2 CRITICAL SUBMITTAL PROCESS

The following submittals require additional steps to ensure a quality process is acheived.

a. Anchor Installation and Testing

b. Concrete Spall Repairs

c. Concrete Placement Plan

d. FRP Design and Installation

e. Joint Repair

f. Main Dewatering Pumps Overhaul

Submit the above listed submittals in accordance with the approriate specification section a minimum of 60 days prior to work for the element commencing. An approved submittal shall be requried 30 days prior to work for the element commencing. A minimum of one week prior to that phase of

the work complete a prepratory meeting. The prepratory meeting shall include at a minimum the prime contractor, subcontractors, testing agencies, suppliers, and design engineers involved in the developement of the submittal and the work to be completed.

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SECTION 01 50 00.00 22

TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS (PWD ME)
06/14

PART 1 GENERAL

1.1 SUMMARY

Requirements of this Section apply to, and are a component of, each section of the specifications.

1.2 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	(1997e1) Standard for Reduced-Pressure Principle Backflow Prevention Assembly

FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH (FCCCHR)

FCCCHR List	(continuously updated) List of Approved Backflow Prevention Assemblies
FCCCHR Manual	(1988e9) Manual of Cross-Connection Control

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 241	(2013) Standard for Safeguarding Construction, Alteration, and Demolition Operations
NFPA 70	(2014; AMD 1 2013; Errata 1 2013; AMD 2 2013; Errata 2 2013; AMD 3 2014; Errata 3 2014) 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	(2000) Manual of Uniform Traffic Control Devices

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Construction site plan; G

Traffic control plan; G

SD-06 Test Reports

Backflow Preventer Tests; G

SD-07 Certificates

Backflow Tester Certification; G

Backflow Preventers Certificate of Full Approval; G

1.4 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 where vehicle track pads will be installed to prevent the tracking of mud onto the pavement outside the project site limits. 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, dewatering system storage tanks and infiltration pits and worker parking areas. Note that worker parking areas may be located at remote locations from the building or project site. Acceptable parking areas shall be coordinated with the Contracting Officer.

1.5 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.

1.5.1 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.

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

2.1.2 Project and Safety Signs

Construct sign with a face sheet of 4- by 8-foot exterior grade plywood, 1/2-inch thick, mounted on a substantial frame of treated lumber. Provide one coat of lead-free alkyd primer paint and two coats of an exterior type white enamel to frame and sign. Erect signs within 15 days after receipt of the notice to proceed. Correct the data required by the safety sign daily, with light colored metallic or non-metallic numerals.

2.2 TEMPORARY TRAFFIC CONTROL

2.2.1 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.

2.2.2 Fencing

Provide fencing along the construction site at all open excavations and tunnels to control access by unauthorized people. Fencing must be installed to be able to restrain a force of at least 250 pounds against it.

2.2.3 Temporary Wiring

Provide temporary wiring in accordance with NFPA 241 and NFPA 70, Article 305-6(b), Assured Equipment Grounding Conductor Program. Include frequent inspection of all equipment and apparatus.

2.2.4 Backflow Preventers

Backflow Preventers shall be reduced pressure principle type conforming to the applicable requirements AWWA C511. Provide backflow preventers complete with 150 pound flanged mounted gate valve, stainless steel or bronze, internal parts. The particular 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. These areas will be within reasonable walking distance of the project site. Contractor employee parking must not interfere with existing and established parking requirements of the Portsmouth Naval Shipyard. Privately-owned vehicles are prohibited from the CIA.

3.2 AVAILABILITY AND USE OF UTILITY SERVICES

3.2.1 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.

3.2.2 Payment for Utility Services

a. Reasonable amounts of the following utilities will be made available to the Contractor without charge.

   Electricity
   Water

b. The Contractor shall pay all costs incurred in connecting, converting, and transferring the utilities to the work. Make connections, including providing backflow-preventing devices on connections to domestic water lines; providing meters; and providing transformers; and make disconnections. The Contractor shall provide the backflow devices as specified above and NAVFAC PWD ME shop personnel will install the backflow preventer. The Contractor shall not operate any Shipyard water system valves. The Contractor shall notify the Contracting Officer a minimum of 15 calendar days prior to the desired date of the installation of the backflow device.

3.2.2 Sanitation

Provide and maintain within the construction area minimum field-type sanitary facilities approved by the Contracting Officer and periodically empty wastes into a municipal, district, or Portsmouth Naval Shipyard 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 Portsmouth Naval Shipyard regulations and procedures when discharging into the Portsmouth Naval Shipyard 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.

3.2.3 Telephone

Make arrangements and pay all costs for telephone facilities desired.

3.2.4 Obstruction Lighting of Cranes

Provide a minimum of two (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.

3.2.5 Fire Protection

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

3.3 TRAFFIC PROVISIONS

3.3.1 Maintenance of Traffic

a. 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 to the Contracting Officer 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 may move oversized and slow-moving vehicles to the worksite provided requirements of the State of Maine Department of Transportation have been met.

b. 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 may obstruct vehicle or pedestrian traffic.

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

3.3.2 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.

3.3.3 Rush Hour Restrictions

Do not interfere with the peak traffic flows preceding and during normal operations without notification to and approval by the Contracting Officer.

3.4 CONTRACTOR'S TEMPORARY FACILITIES

3.4.1 Safety

Protect the integrity of any installed safety systems or personnel safety devices. If entrance into systems serving safety devices is required, the Contractor must obtain prior approval from the Contracting Officer. If it is temporarily necessary to remove or disable personnel safety devices in order to accomplish contract requirements, provide alternative means of protection prior to removing or disabling any permanently installed safety devices or equipment and obtain approval from the Contracting Officer.

3.4.2 Administrative Field Offices

Provide and maintain administrative field office facilities within the construction area at the designated site. Government office and warehouse facilities will not be available to the Contractor's personnel.

3.4.3 Storage Area

Construct a temporary 6 foot high chain link fence around trailers and materials. Include plastic strip inserts, colored green, so that visibility through the fence is obstructed. Fence posts may be driven, in lieu of concrete bases, where soil conditions permit. Do not place or store trailers, materials, or equipment outside the fenced area unless such trailers, materials, or equipment are assigned a separate and distinct storage area by the Contracting Officer away from the vicinity of the construction site but within the installation boundaries. Trailers, equipment, or materials must not be open to public view with the exception of those items which are in support of ongoing work on any given day. Do not stockpile materials outside the fence in preparation for the next day's work. Park mobile equipment, such as tractors, wheeled lifting equipment, cranes, trucks, and like equipment within the fenced area at the end of each work day.

3.4.4 Appearance of Trailers

a. Trailers utilized by the Contractor for administrative or material storage purposes must present a clean and neat exterior appearance and be in a state of good repair. Trailers which, in the opinion of the Contracting Officer, require exterior painting or maintenance will not be allowed on installation property.

b. Paint using suitable paint and maintain the temporary facilities. Failure to do so will be sufficient reason to require their removal.

3.4.5 Maintenance of Storage Area

Keep fencing in a state of good repair and proper alignment. Grassed or unpaved areas, which are not established roadways, will be covered with a layer of gravel as necessary to prevent rutting and the tracking of mud onto paved or established roadways, should the Contractor elect to traverse them with construction equipment or other vehicles; gravel gradation will be at the Contractor's discretion. Mow and maintain grass located within the boundaries of the construction site for the duration of the project. Grass and vegetation along fences, buildings, under trailers, and in areas not accessible to mowers will be edged or trimmed neatly.

3.4.6 Security Provisions

Provide adequate outside security lighting at the Contractor's temporary facilities. The Contractor will be responsible for the security of its own equipment; in addition, the Contractor will notify the appropriate law enforcement agency requesting periodic security checks of the temporary project field office.

3.4.7 Laydown Space

Parking and laydown space on the site is limited to the area shown on the plans. The Contractor shall manage the on-site work including equipment, storage trailers, material, material deliveries to allow the work to be completed within the specified contract duration. This may require the Contractor to locate suitable storage off-site and multiple equipment mobilizations to allow the work to be completed. Equipment or materials not used to complete the work shall be removed from the site. If additional offsite storage; additional mobilization or demobilizations, all these costs shall be included in the base bid.

Failure by the Contractor to plan the work based on the space limitations shall not be the basis for any claim nor an equitable price or contract time adjustment.

3.4.8 Weather Protection of Temporary Facilities and Stored Materials

Take necessary precautions to ensure that roof openings and other critical openings in the temporary facilities are monitored carefully. Take immediate actions required to seal off such openings when rain or other detrimental weather is imminent, and at the end of each workday. Ensure that the openings are completely sealed off to protect materials and equipment in the temporary facilities from damage.

3.4.9 Building and Site Storm Protection

When a warning of gale force winds is issued, take precautions to minimize danger to persons, and protect the work and nearby Government property. Precautions must include, but are not limited to, closing openings; removing loose materials, tools and equipment from exposed locations; and removing or securing scaffolding and other temporary work. Close openings in the work when storms of lesser intensity pose a threat to the work or any nearby Government property.

3.4.9.1 Condition of Readiness

Unless directed otherwise, comply with:

a. Condition FOUR (Sustained winds of 50 knots or greater expected within 72 hours): Normal daily jobsite cleanup and good housekeeping practices. Collect and store in piles or containers scrap lumber, waste material, and rubbish for removal and disposal at the close of each work day. Maintain the construction site including storage areas, free of accumulation of debris. Stack form lumber in neat piles less than 4 feet high. Remove all debris, trash, or objects that could become missile hazards. Contact Contracting Officer for Condition of Readiness (COR) updates and completion of required actions.

b. Condition THREE (Sustained winds of 50 knots or greater expected

within 48 hours): Maintain "Condition FOUR" requirements and commence securing operations necessary for "Condition ONE" which cannot be completed within 18 hours. Cease all routine activities which might interfere with securing operations. Commence securing and stow all gear and portable equipment. Make preparations for securing buildings. Review requirements pertaining to "Condition TWO" and continue action as necessary to attain "Condition THREE" readiness. Contact Contracting Officer for weather and COR updates and completion of required actions.

c. Condition TWO (Sustained winds of 50 knots or greater expected within 24 hours): Curtail or cease routine activities until securing operation is complete. Reinforce or remove form work and scaffolding. Secure machinery, tools, equipment, materials, or remove from the jobsite. Expend every effort to clear all missile hazards and loose equipment from general base areas. Contact Contracting Officer for weather and Condition of Readiness (COR) updates and completion of required actions.

d. Condition ONE. (Sustained winds of 50 knots or greater expected within 12 hours): Secure the jobsite, and leave Government premises.

3.4.10 Temporary Partitions

Provide "No Dust" temporary partitions of wood or metal frame, heavy duty plastic sheathing and negative pressure HEPA filtered ventilation. Provide access door and vestibules as required to prevent dust from escaping the enclosure. Refer to Section 02 41 00 DEMOLITION AND DECONSTRUCTION for additional information and requirements.

3.5 PLANT COMMUNICATION

Whenever the Contractor has the individual elements of its plant so located that operation by normal voice between these elements is not satisfactory, the Contractor must install a satisfactory means of communication, such as telephone or other suitable devices and made available for use by Government personnel.

3.6 TEMPORARY PROJECT SAFETY FENCING

As soon as practicable, but not later than 15 days after the date established for commencement of work, furnish and erect temporary project safety fencing at the work site. The safety fencing must be a high visibility orange colored, high density polyethylene grid or approved equal, a minimum of 48 inches high, supported and tightly secured to steel posts located on maximum 10 foot centers, constructed at the approved location. Maintain the safety fencing during the life of the contract and, upon completion and acceptance of the work, will become the property of the Contractor and be removed from the work site.

3.7 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 within the fenced area described above or at the supplemental storage area any materials resulting from demolition activities which are salvageable. Neatly stacked stored materials not in trailers, whether new or salvaged.

3.8 RESTORATION OF STORAGE AREA

Upon completion of the project remove the bulletin board, signs, barricades, haulroads, and any other temporary products from the site. After removal of trailers, materials, and equipment from within the fenced area, remove the fence that will become the property of the Contractor. Restore to the original or better condition, areas used by the Contractor for the storage of equipment or material, or other use. Gravel used to traverse grassed areas must be removed and the area restored to its original condition, including top soil and seeding as necessary.

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SECTION 01 57 19.00 22

TEMPORARY ENVIRONMENTAL CONTROLS - PORTSMOUTH NAVAL SHIPYARD (PWD ME)
06/14

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. Note: This is not an all inclusive list of publications and other references may be applicable.

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910.120	Hazardous Waste Operations and Emergency Response
40 CFR 112	Oil Pollution Prevention
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
40 CFR 258	Subtitle D Landfill Requirements
40 CFR 260	Hazardous Waste Management System: General
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 262	Standards Applicable to Generators of Hazardous Waste
40 CFR 263	Standards Applicable to Transporters of Hazardous Waste
40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 265	Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 266	Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities
40 CFR 268	Land Disposal Restrictions
40 CFR 270	EPA Administered Permit Programs: The Hazardous Waste Permit Program
40 CFR 272	Approved State Hazardous Waste Management

	Programs
40 CFR 273	Standards For Universal Waste Management
40 CFR 279	Standards for the Management of Used Oil
40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (UST)
40 CFR 300	National Oil and Hazardous Substances Pollution Contingency Plan
40 CFR 355	Emergency Planning and Notification
40 CFR 372-SUBPART D	Specific Toxic Chemical Listings
40 CFR 761	Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
40 CFR 82	Protection of Stratospheric Ozone
49 CFR 171	General Information, Regulations, and Definitions
49 CFR 172	Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements
49 CFR 173	Shippers - General Requirements for Shipments and Packagings
49 CFR 178	Specifications for Packagings

STATE OF MAINE REGULATIONS

The following STATE OF MAINE REGULATIONS are available on the Internet at: http://www.maine.gov/dep/permits.htm

STATE OF MAINE Statutes are available on the internet at http://www.mainelegislature.org/legis/statues/38/title38ch3sec0.html

MAINE DEP AIR BUREAU CHAPTER 101 Visible Emissions Regulations; http://www.maine.gov/dep/air/rules/index.html

MAINE DEP AIR BUREAU CHAPTER 151 Architectural and Industrial Maintenance(AIM) COATINGS; http://www.maine.gov/dep/air/rules/index.html

MAINE DEP 38 MSRA 420-C	Erosion and Sedimentation Control Law and Rules
MAINE DEP 38 MSRA 420-D	Stormwater Management
MAINE 38 MRSA 439-B	Contractors Certified in Erosion Control (Effective January 1, 2013)
MAINE DEP MSRA 481-490	Site Location of Development

MAINE 38 MSRA 850	Identification of Hazardous Waste
MAINE 38 MSRA 851	Standards for Generators of Hazardous Waste
MAINE 38 MSRA 852	Land Disposal Restrictions
MAINE DEPLW0738	Stormwater Management for Maine
MAINE DEPLW0588	Maine Erosion and Sediment Control Best Management Practices
MAINE 88 MRSA 480A-480Z	Natural Resources Protection Act

MAINE DEP AIR BUREAU CHAPTER 159 Control of Volatile Organic Compounds from Adhesives and Sealants; http://www.maine.gov/dep/air/rules/index.html

1.2 DEFINITIONS

1.2.1 Sediment

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

1.2.2 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 re-located, or be re-used are not included.

b. Surplus soil: Existing non-hazardous soil that is in excess of what is required for this work, including aggregates intended, but not used, for on-site mixing of concrete, mortars and paving.

c. Debris: Non-hazardous solid material generated during the construction, demolition, or renovation of a structure which exceeds 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 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: Dimension and non-dimension 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 permitted by the paint can label, a thin dry film may remain in the can. NOTE: Aerosol (paint) cans are Hazardous Wastes and must not be disposed of as solid waste or be considered in any definition of "empty", "paint", or "metal" cans.

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 recyclables.

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

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.

i. Special Waste: "Special waste" means any solid waste generated by sources other than household and typical commercial establishments that exists in such an unusual quantity or in such a chemical or physical state, or any combination thereof, that may disrupt or impair effective waste management or threaten the public health, human safety or the environment and requires special handling, transportation and disposal procedures. Special waste includes, but is not limited to:

(1) Ash;

(2) Industrial and industrial process waste;

(3) Sludge and dewatered septage;

(4) Debris from nonhazardous chemical spills and cleanup of those spills;

(5) Contaminated soils and dredge materials;

(6) Asbestos and asbestos-containing waste;

(7) Sand blast grit and non-liquid paint waste;

(8) High and low pH waste;

(9) Spent filter media residue; and

(10) Shredder residue.

1.2.3 Hazardous Debris

As defined in Solid Waste paragraph, 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.

1.2.4 Chemical Wastes

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

1.2.5 Garbage

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

1.2.6 Hazardous Waste

Any discarded material, liquid, solid, or gas, which 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 Parts 260-273, as applicable.

The Resource Conservation and Recovery Act (RCRA) governs the management of hazardous wastes. There is no continuously updated, comprehensive list of hazardous waste, as hazardous waste identification is a process that involves many steps. By Regulation, to be considered a hazardous waste, a material first must be classified as a solid waste (40 CFR §261.2). If a waste is a solid waste, it must then be determined if it is hazardous waste (§262.11). Wastes are defined as hazardous by EPA if they are specifically named on one of four lists of hazardous wastes located in Subpart D of 40 CFR 261, or if they exhibit one of four characteristics located in Subpart C of Part 261 (characteristic wastes), which are: ignitability, corrosivity, reactivity and toxicity. Generators are responsible for characterizing their waste and must determine whether a waste exhibits a characteristic by either testing or applying knowledge of the hazardous waste characteristic of the waste (§262.11). Hazardous waste controls also apply to Universal Wastes.

1.2.7 Hazardous Materials

Hazardous materials as 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 Material Safety Data Sheet (MSDS) per 29 CFR 1910.120, or

c. During end use, treatment, handling, packaging, storage, transportation, 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 include 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 occur incident to manufacture, storage, use and demilitarization of

these items.

1.2.8 Waste Hazardous Material (WHM)

Any waste material which 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.

1.2.9 Oil or Oily Waste

Oil: Oil of any kind or in any form, including, but not limited to: fats, oils, or greases of animals, fish or marine mammal origin; vegetable oils, including oils from seeds, nuts, fruits, or kernels; and, other oils and greases, including petroleum fuel oil, sludge, synthetic oils, mineral oils, oil refuse or oil mixed with wastes other than dredged oil.

Oily Waste: Those materials which are, or were, mixed with used oil and have become separated from that used oil. Oily wastes also means materials, including wastewaters, centrifuge solids, filter residues or sludges, bottom sediments, tank bottoms, and sorbents which have come into contact with and have been contaminated by, used oil and may be appropriately tested and discarded in a manner which 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 land filled provided that:

a. It is not prohibited in other 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. As this can be an expensive process, it is recommended that this type of waste be minimized through good housekeeping practices and employee education.

1.2.10 Regulated Waste

Those solid waste that have specific additional Federal, State, or local controls for handling, storage, or disposal.

1.2.11 Ozone Depleting Substance (ODS)

Chlorofluorocarbons (CFCs), halons or chlorinated hydrocarbons (such as carbon tetrachloride and methyl chloroform), and hydrochlorofluorocarbon (HCFCs) which have been linked to depletion of the earth's ozone layer are all substances collectively known as ozone depleting substances or ODSs. Class I or Class II ODS substances are defined and listed in the Clean Air Act Section 602 and 40 CFR 82.

1.2.12 Universal Waste

The universal waste regulations 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. These regulations can be found at 40 CFR 273.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Preconstruction Survey; G

Solid Waste Management Plan; G

Regulatory Notifications; G

Environmental Management Plan (EMP); G

Dirt and Dust Control Plan; G

Contractor Hazardous Material Inventory Log; G

Storm Water Management/Erosion and Sedimentation Control Plan; G

SD-06 Test Reports

Laboratory Analysis; G

Disposal Requirements; G

Erosion and Sediment Control Inspection Reports; G

Solid Waste Management Report; G

SD-11 Closeout Submittals

Some of the records listed below are also required as part of other submittals. For the "Records" submittal, maintain on-site a separate three-ring Environmental Records binder and submit at the completion of the project. Make separate parts to the binder corresponding to each of the applicable sub items listed below.

Storm Water Management and Erosion Control Compliance Notebook; G

Waste Determination Documentation; G

Disposal Documentation for Hazardous and Regulated Waste; G

Contractor 40 CFR Employee Training Records; G

Solid Waste Management Report; G

Contractor Hazardous Material Inventory Log; G

Hazardous Waste/Debris Management; G

Regulatory Notifications; G

1.4 ENVIRONMENTAL PROTECTION REQUIREMENTS

Provide and maintain, during the life of the contract, environmental protection as defined herein. Plan for and provide environmental protective measures to control pollution that develops during normal construction practice. Plan for and provide environmental protective measures required to correct conditions that develop during the construction of permanent or temporary environmental features associated with the project. 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 Environmental Compliance Assessment Training and Tracking System (ECATTS)

The QC Manager is responsible for environmental compliance on projects unless an Environmental Manager is named. The QC Manager (and alternative QC Manager) or Environmental Manager shall complete ECATTS training prior to starting respective portions of on-site work under this contract. If personnel changes occur for any of these positions after starting work, replacement personnel shall complete ECATTS training within 14 days of assignment to the project.

Submit an ECATTS certificate of completion for personnel who have completed the required "Environmental Compliance Assessment Training and Tracking System (ECATTS)" training. This training is web-based and can be accessed from any computer with Internet access using the following instructions.

Register for NAVFAC Environmental Compliance Training and Tracking System, by logging on to http://navfac.ecatts.com/. Obtain the password for registration from the Contracting Officer.

This training has been structured to allow Contractor personnel to receive credit under this contract and also to carry forward credit to future contracts. Contractors shall ensure that the QC Manager (and alternate QC Manager) or Environmental Manager review their training plans for new modules or updated training requirements prior to beginning work. Some training modules are tailored for specific State regulatory requirements; therefore, Contractors working in multiple states will be requires to re-take modules tailored to the state where the contract work is being performed.

ECATTS is available for use by all Contractor and subcontractor personnel

associated with this project. These other personnel are encouraged (but not required) to take the training and may do so at their discretion.

1.5 QUALITY ASSURANCE

1.5.1 Preconstruction Survey

Perform a Preconstruction Survey of the project site with the Contracting Officer, and when requested, take photographs showing existing environmental conditions in and adjacent to the site. Submit a report for the record with a copy provided to the Contracting Officer. The Contractor must obtain a camera pass from PNSY security (via Contracting Officer) prior to use of a camera at PNSY. Digital cameras only shall be used. All computer discs shall be turned over to PNSY security (via Contracting Officer) for review and clearance prior to use by the Contractor.

1.5.2 Regulatory Notifications

The Contractor is responsible for preparing all regulatory notification requirements in accordance with Federal, State and local regulations. Regulatory notifications shall be submitted by the Government unless otherwise directed by 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, remediation of controlled substances asbestos, hazardous waste, lead paint.

1.5.3 Environmental Brief

Attend an environmental brief prior to commencing any work on the Shipyard. The brief will be conducted by the Contracting Officer's Representative. The Contractor shall provide the following information: types, quantities, and use of hazardous materials that will be brought onto the activity; types and quantities of wastes/wastewater that may be generated during the contract; types and quantities of oil that will be brought onto the activity; and pollution control measures for spill prevention and control, and any bulk oil storage container information including quantity and type of product stored. Discuss the results of the Preconstruction Survey at this time.

Develop a mutual understanding relative to the details of environmental protection, including measures for protecting natural resources, required reports, required permits, specific permit requirements, and other measures to be taken. Identify additional environmental concerns specific to the site (i.e. historic, archeological and natural resources, Installation Restoration, erosion and sediment control, spill prevention and control, soil management and disposal requirements, etc.).

1.5.4 Environmental Manager

Appoint in writing an Environmental Manager for the project site. The Environmental Manager will be directly responsible for coordinating Contractor compliance with Federal, State, local, and Shipyard requirements. The Environmental Manager cannot perform the duties of the Project Superintendent or the SSHO. The Environmental Manager will ensure compliance with Hazardous Waste Program requirements (including hazardous

waste handling, storage, manifesting, and disposal); 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 (storage, handling, and reporting) requirements; and coordinate any remediation of regulated substances (lead, asbestos, PCB transformers). This 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; implement, inspect and maintain erosion and sediment controls as required by State law; and maintain the Environmental Records binder and required documentation, ensure compliance with all SPCC requirements, not limited to the proper storage of tanks and containers and their secondary containment, inspections, spill procedures, etc. including environmental permits compliance and close-out.

1.5.5 Contractor 40 CFR Employee Training Records

Prepare and maintain employee training records throughout the term of the contract meeting applicable 40 CFR requirements. The Contractor shall 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, evaluating the employee's association with hazardous and regulated wastes. This Position Description will include training requirements as defined in 40 CFR 265 for a Large Quantity Generator facility. Submit these training records to the Contracting Officer at the conclusion of the project, unless otherwise directed.

1.6 SOLID WASTE DISPOSAL PLAN

Provide a Solid Waste Disposal Plan in accordance with Paragraph entitled "Solid Waste Management Plan" in Part 3 of this Section.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

Prior to initiating any work on site, the Contractor shall meet with the Contracting Officer and Shipyard's Environmental Staff (Code 106.3) to discuss the proposed Environmental Management Plan and develop a mutual understanding relative to the details of environmental protection required to be addressed in EMP, including measures for protecting natural resources and other measures to be taken. The Environmental Management Plan shall be submitted in the following format and shall include the elements specified below.

a. Description of the Environmental Management Plan

(1) General overview and purpose

(a) A brief description of each specific plan required by environmental permit or elsewhere in this contract.

(b) The duties and level of authority assigned to the person(s) on the job site that oversee environmental compliance.

(c) A copy of any standard or project specific operating procedures that will be used to effectively manage and protect the environment on the project site.

(d) Communication and training procedures that will be used to convey environmental management requirements to Contractor employees and subcontractors.

(e) Emergency contact information (office phone number, cell phone number, and e-mail address).

(2) General site information including a site plan showing haul routes, stockpile and material laydown and storage areas, dust control, construction trailers locations, sanitary facilities and all other construction facilities required for the work.

(3) A letter signed by an officer of the firm appointing the Environmental Manager and stating that he/she is responsible for managing and implementing the Environmental Program as described in this contract. Include in this letter the Environmental Manager's authority to direct the removal and replacement of non-conforming work.

b. Management of Natural Resources

(1) Land resources

(2) Tree protection

(3) Replacement of damaged landscape features

(4) Temporary construction

(5) Stream crossings

(6) Fish and wildlife resources

(7) Wetland areas

c. Protection of Historical and Archaeological Resources

(1) Objectives

(2) Methods

d. Storm Water Management and Control

(1) Ground cover

(2) Erodible soils

(3) Temporary measures

(a) Mechanical retardation and control runoff

(b) Vegetation and mulch

(4) Effective selection, implementation and maintenance of Best Management practices (BMPs).

e. Protection of the Environment from Waste Derived from Contractor Operations

(1) Control and disposal of solid and sanitary waste.

(2) Control and disposal of hazardous waste (Hazardous Waste Management Section)

This item will consist of the management procedures for all hazardous waste to be generated. The elements of those procedures will coincide with the Activity Hazardous Waste Management Plan will be provided by the Contracting Officer. As a minimum, include the following:

(a) Procedures to be employed to ensure a written waste determination is made for appropriate wastes which are to be generated;

(b) Sampling/analysis plan;

(c) Methods of hazardous waste accumlation/storage (i.e., in tanks and/or containers);

(d) Management procedures for storage, labeling, transportation, and disposal of waste (treatment of waste is not allowed unless specifically noted);

(e) Management procedures and regulatory documentation ensuring disposal of hazardous waste complies with Land Disposal Restrictions (40 CFR 268);

(f) Management procedures for recyclable hazardous materials such as lead-acid batteries, used oil, and the like;

(g) Used oil management procedures in accordance with 40 CFR 279;

(h) Pollution prevention\hazardous waste minimization procedures;

(i) Plans for the disposal of hazardous waste by permitted facilities;

(j) Procedures to be employed to ensure all required employee training records are maintained.

f. Prevention of Releases to the Environment

(1) At a minimum, procedures to prevent releases to the environment will be made available, as well as what notifications to make in the event of a release to the environment.

(2) A Spill Prevention, Control, and Countermeasures (SPCC) Plan is required if work is anticipated to extend beyond 6 months, AND will use bulk oil storage containers 55 gallons or greater, in accordance with 40 CFR 112. All SPCC plans must be approved by Code 106.3. Plans need not be certified by a Professional Engineer but must clearly demonstrate proper management of all tanks and containers on site.

(3) Spill plans should at a minimum include the following:

a) Type of tank or container, quantity stored, type of product stored, location

b) Secondary containment required for tanks/containers 55 gallons or greater; double-wall tanks preferred

c) Tank inspection forms (industry standard, but prefer if they used the Shipyard inspection forms) Records shall be kept for 3 years or for the duration of the project. Tanks shall be inspected monthly.

i) Bulk storage containers (55 gallons or greater require monthly inspection)

ii) Inspection sheet for release of retained storm water from secondary containment.

d) Where spill kits are located

e) If transferring fuel: how often, what type of fuel, and where? The Contractor must coordinate with Code 106.3 prior to transferring any fuel.

f) Who to notify in case of a spill (Central Dispatch, NRC, MEDEP as needed).

g) How to clean up a spill safely and how to properly dispose of spill cleanup waste (call for pickup at B357).

g. Regulatory Notification and Permits

List what notifications and permit applications must be made. Demonstrate that those permits have been obtained by including copies of all applicable, environmental permits.

3.1.1 Environmental Management Plan Review

Within thirty days after the Contract award date, submit the proposed Evironmental Management Plan for further discusion, review, and approval. Commencement of work will not begin until the environmental management plan has been approved by the Navy Environmental Office.

3.1.2 Licenses, State and Federal permits

The approved State and Federal permits for this project may include the following:

1. Costal Zone Management Act

2. MEDEP Site Location of Development Permit Modification (SLDA)
3. Natural Resource Protection Act Permit (NRPA)

Copies of the approved permit(s) are available from the Contracting Officer. The Contractor shall maintain copies of all permits at the project site. The Contractor shall comply with all the terms and conditions of the approved permits.

Where required by the State regulatory authority, the inspections and certifications will be provided through the services of a Professional Engineer (PE), registered in the State of Maine. Where a PE is not required, the individual must be otherwise qualified by other current State licensure, specific training and prior experience (minimum 5 years). As a part of the quality control plan, which is required to be submitted for approval by the quality control section, provide a sub item containing the name, appropriate professional registration or licence number, address, and telephone number of the professionals or other qualified persons who will be performing the inspections and certifications for each permit.

3.2 PROTECTION OF NATURAL RESOURCES

Preserve the natural resources within the project boundaries and outside the limits of permanent work and as specified in the permits issued for the work. Restore to an equivalent or improved condition upon completion of work. Confine construction activities to within the limits of the work indicated or specified.

Do not disturb fish and wildlife. Do not alter water flows or otherwise significantly disturb the native habitat adjacent to the project and critical to the survival of fish and wildlife, except as indicated or specified.

Except in areas to be cleared, do not remove, cut, deface, injure, or destroy trees or shrubs without the Contracting Officer's permission. Do not fasten or attach ropes, cables, or guys to existing nearby trees for anchorages unless authorized by the Contracting Officer. Where such use of attached ropes, cables, or guys is authorized, the Contractor will be responsible for any resultant damage.

Protect existing trees which are to remain and which may be injured, bruised, defaced, or otherwise damaged by construction operations. Remove displaced rocks from uncleared areas. By approved excavation, remove trees with 30 percent or more of their root systems destroyed. Remove trees and other landscape features scarred or damaged by equipment operations, and replace with equivalent, undamaged trees and landscape features. Obtain Contracting Officer's approval before replacement. Tree wound paint shall not be used for tree cuts or stumps.

3.2.1 Erosion and Sediment Control Measures

a. The State of Maine Erosion and Sediment Control Law requires persons undertaking activity involving filling, displacing or exposing soil or other earthen materials to take measures to prevent unreasonable erosion of soil or sediment beyond the project site or into a protected natural resource.

   At the Portsmouth Naval Shipyard, the Piscataqua River, Upper Meade Pond and Lower Meade Pond are protected natural resources under State

Law. Erosion control measures shall be in place before the activity begins, maintained and shall remain in place and functional until the site is permanently stabilized.

Temporary and permanent erosion control measures shall meet, at a minimum, the construction standards presented in the Maine Erosion and Sediment Control Best Management Practices Manual, latest edition. Other techniques may be employed if the Contractor demonstrates to the Contracting Officer that the practice will achieve the required result of no release of sediment per State law.

b. Site work including any filling, excavation, landscaping, and/or other earthwork in excess of one cubic yard of disturbance, shall comply with State of Maine requirements for certification in erosion and sediment control practices within a shoreland zone. A certified individual shall be responsible for management of erosion and sediment control practices at the site each day earth moving activities occur. A certified individual is required to visit the site every day to ensure proper erosion and sediment control practices are followed. As an alternative, the Contractor may choose to contract with a certified individual to supervise the Contractor's work in shoreland areas.

Under the State of Maine's Shoreland Zoning Statutes, the Portsmouth Naval Shipyard is located entirely within the state's Shoreland zone.

c. Storm Water Management/Erosion and Sedimentation Control Plan

(1) The Contractor shall submit a Storm Water Management/Erosion and Sedimentation Control Plan to the Contracting Officer, for review and approval. The Plan shall demonstrate effective selection, implementation and maintenance of Best Management Practices (BMPs) demonstrating compliance with the Shipyard's Maine Pollutant Discharge Elimination System's Multi-Sector General Permit for Stormwater Discharge Associated With Industrial Activity (MSGP) and the State of Maine Erosion and Sediment Control Law for projects in Maine.

The Contractor shall describe and ensure compliance with terms of state general permit for storm water discharge and terms and conditions specified in the approved permits issued for the work.

Provide plan details of chosen temporary erosion and sediment controls to be employed specific to the work site. Provide site plan showing locations for controls. Ensure proposed controls comply with MEDEP approved plans and State regulations.

Submit Storm Water Management and Erosion Control Compliance Notebook at project completion or as directed by the Contracting Officer.

The Plan shall:

(a) Identify potential sources of pollution which may be reasonably expected to affect the quality of storm water discharge from the site.

(b) Describe and ensure implementation of practices which will be used to reduce the pollutants in storm water discharge at the manufacturing, storage and lay down, and construction sites.

(c) Describe and ensure full compliance with State of Maine General Permit - Construction Activity (No. DEPLW0801 latest edition) and permits issued by the MEDEP and ACOE specific to the project.

(d) Describe and ensure compliance with MEDEP over winter stabilization and construction requirements.

(e) Identify inspections and maintenance schedules for Best Management Practices demonstrating compliance with Maine standards. Maintenance procedures shall address regular cleaning of drainage structures and repair of temporary erosion control structures, as well as a final cleaning of all drainage structures and removal and reclamation of temporary erosion and sediment control BMP's upon completion of the project.

(f) Select applicable management practices from Maine Erosion and Sediment Control BMPs. Present construction details for all proposed erosion and sediment controls.

(g) Include documentation that the individual responsible for management of erosion and sediment control practices at the site is certified in accordance with the State of Maine DEP regulations.

(h) Control of Manufactured Concrete Product Waste Plan

3.2.2 Dust Control

Dust control shall meet the requirements of MEDEP Erosion and Sediment Control BMPs. Keep dust down at all times, including during nonworking periods. Sprinkle or treat, with dust suppressants, the soil at the site, haul roads, and other areas disturbed by operations. Dry power brooming will not be permitted. Instead, use vacuuming, wet mopping, wet sweeping, or wet power brooming. Air blowing will be permitted only for cleaning nonparticulate debris such as steel reinforcing bars. Only wet cutting will be permitted for cutting concrete blocks, concrete, and bituminous concrete. Do not unnecessarily shake bags of cement, concrete mortar, or plaster.

When temporary dust control measures are employed, repetitive treatment shall be applied as needed to accomplish control.

Visible emissions from a fugitive emission source (including stockpiles and roadways) shall not exceed an opacity of 20 percent, except for no more than five (5) minutes in any 1-hour period.

3.2.3 Burnoff

Burnoff of the ground cover is not permitted.

3.2.4 Erosion and Sediment Control Inspection Reports

Inspection reports shall be kept on file at the project site and submitted electronically to the Contracting Officer upon request. The State of Maine requires inspections of disturbed and impervious areas, erosion and sediment control measures, areas used for storage that are exposed to precipitation, and locations where vehicles enter or exit the site. Inspections shall be performed at least once per week as well as BEFORE and AFTER a storm event. A storm event is any precipitation event with the potential to create runoff but at a minimum should be every storm

greater than 0.5 inches of precipitation. Inspection reports shall document compliance with State requirements.

3.3 HISTORICAL AND ARCHAEOLOGICAL RESOURCES

Carefully protect in-place and report immediately to the Contracting Officer historical and archaeological items or human skeletal remains discovered in the course of work. Upon discovery, notify the Contracting Officer. Stop work in the immediate area of the discovery until directed by the Contracting Officer to resume work. The Government retains ownership and control over historical and archaeological resources.

If required for the project, a certified Maine Archeologist shall be on site to monitor excavation work. The qualifications of the Archeologist shall be submitted and approved by the Contracting Officer. A site monitoring report prepared by the Archeologist shall be submitted to the Contracting Officer within 21 calendar days of completing site excavation work.

3.4 SOLID WASTE MANAGEMENT PlAN

Provide a written Solid Waste Disposal Plan (SWDP) to the Contracting Officer, of intended licensed disposal sites for Government approval and for submission to State regulatory agencies. At a minimum, the SWDP shall contain, but not be limited to, the following wastes: stumps and grubbings, excess soil, construction debris, demolition debris, household solid waste, special waste, and industrial solid waste. The submission shall contain the name of the disposal facility, address, facility phone number, and the waste type and quantity to be disposed of at the facility.

If waste from the site is taken to a transfer station, identify the facility or facilities at which the waste is ultimately disposed. Government approval for the facility must be obtained prior to transporting wastes off Government property.

Provide to the Contracting Officer written notification of the quantity of solid waste/debris that is anticipated to be generated by construction. Include in the report the locations where various types of waste will be disposed or recycled. Include letters of acceptance or as applicable, submit one copy of a State license showing such agency's approval of the disposal plan before transporting wastes off Government property.

3.4.1 Solid Waste Management Report

Monthly, submit a solid waste disposal report to the Contracting Officer. For each waste, the report shall state the classification (using the definitions provided in this section), amount, location, and name of the business receiving the solid waste.

The Contractor shall include copies of the waste handling facilities' weight tickets, receipts, bills of sale, and other sales documentation. In lieu of sales documentation, the Contractor may submit a statement indicating the disposal location for the solid waste which is signed by an officer of the Contractor firm authorized to legally obligate or bind the firm. The sales documentation or Contractor certification will include the receiver's tax identification number and business, EPA or State registration number, along with the receiver's delivery and business addresses and telephone numbers. For each solid waste retained by the

Contractor for his/her own use, the Contractor shall submit on the solid waste disposal report the information previously described in this paragraph. Prices paid or received will not be reported to the Contracting Officer unless required by other provisions or specifications of this Contract or public law.

3.4.2 Control and Management of Solid Wastes

Pick up solid wastes, and place in covered containers which are regularly emptied. Do not prepare or cook food on the project site. Prevent contamination of the site or other areas when handling and disposing of wastes. At project completion, leave the areas clean. Recycling is encouraged and can be coordinated with the Contracting Officer and the Shipyard Recycling Coordinator. Remove all solid waste (including non-hazardous debris) from Government property and dispose off-site at an approved landfill. Solid waste disposal off-site must comply with most stringent local, State, and Federal requirements including 40 CFR 241, 40 CFR 243, and 40 CFR 258.

Manage spent hazardous material used in construction including, but not limited to, aerosol cans, waste paint, cleaning solvents, contaminated brushes, and used rags, as per environmental law and Shipyard requirements.

3.4.2.1 Dumpsters

Equip dumpsters with a secure cover and paint the standard Shipyard color. Keep cover closed at all times, except when being loaded with trash and debris. Locate dumpsters behind the construction fence or out of the public view. Empty site dumpsters at least once a week or as needed to keep the site free of debris and trash. If necessary, provide 55 gallon trash containers painted the darker Shipyard color to collect debris in the construction site area. Locate the trash containers behind the construction fence or out of the public view. Empty trash containers at least once a day. For large demolitions, large dumpsters without lids are acceptable, but should not have debris higher than the sides before emptying.

3.5 WASTE DETERMINATION DOCUMENTATION

Complete a Waste Determination form (provided at the pre-construction conference) for all Contractor derived wastes to be generated. Base the waste determination upon either a constituent listing from the manufacturer used in conjunction with consideration of the process by which the waste was generated, EPA approved analytical data and/or laboratory analysis (Material Safety Data Sheets (MSDS) by themselves are not adequate). Attach all support documentation to the Waste Determination form. As a minimum, a Waste Determination form must be provided for the following wastes (this listing is not all inclusive): oil and latex based painting and caulking products, solvents, adhesives, aerosols, petroleum products, and all containers of the original materials.

3.6 CONTRACTOR HAZARDOUS MATERIAL INVENTORY LOG

Submit the "Contractor Hazardous Material Inventory Log" (found at: http://www.wbdg.org/ccb/NAVGRAPH/graphtoc.pdf), which provides information required by EPCRA Sections 312 and 313 along with corresponding Material Safety Data Sheets (MSDS) to the Contracting Officer at the start and at the end of construction (30 days from final acceptance), and update no later than January 31 of each calendar year during the life of the

contract. Documentation for any spills/releases, environmental reports or off-site transfers shall be submitted to the Contracting Officer.

3.7 POLLUTION PREVENTION/HAZARDOUS WASTE MINIMIZATION

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 the Environmental Management Plan. Consult with the Shipyard Environmental Office 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. If no written plan exists, obtain information by contacting the Contracting Officer. Describe the types of the hazardous materials expected to be used in the construction when requesting information.

3.8 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.

Incidental materials used to support the contract including, but not limited to, aerosol cans, waste paint, cleaning solvents, contaminated brushes, rags, clothing, etc. may be hazardous wastes and shall be disposed by the Government as described in the Hazardous Waste Management Section. The list is illustrative rather than inclusive. Universal wastes must be managed with controls similar to those for hazardous waste.

The Contractor is not authorized to discharge any materials to sanitary sewer, storm drain, or to the Piscataqua River or conduct waste treatment or disposal on Government property without written approval of the Contracting Officer.

3.9 HAZARDOUS MATERIAL MANAGEMENT

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. Submit a MSDS and estimated quantities to be used for each hazardous material to the Contracting Officer prior to bringing the material on the Shipyard. Typical materials requiring MSDS and quantity reporting include, but are not limited to, oil and latex based painting and caulking products, solvents, adhesives, aerosol, and petroleum products. 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 MSDS for hazardous materials on site 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.

3.10 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 a hazardous waste will also be considered a hazardous waste.

3.10.1 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.

3.10.2 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.

3.11 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 free-board. 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. Drips pans are required and the tanks must be covered during inclement weather.

3.12 RELEASES/SPILLS OF OIL AND HAZARDOUS SUBSTANCES

Exercise due diligence to prevent, contain, and respond to **ALL** spills of hazardous material, hazardous substances, hazardous waste, sewage, regulated gas, petroleum, lubrication oil, and other substances regulated by environmental law. In the event of a spill, take prompt, effective action to stop, contain, curtail, or otherwise limit the amount, duration, and severity of the spill/release. In the event of **ANY** releases of oil and hazardous substances, chemicals, or gases; immediately (within 15 minutes) notify the Shipyard Fire Department and the Shipyard's Command Duty Officer, and the Contracting Officer. If the Contractor's response is inadequate, the Navy may respond. If this should occur, the Contractor will be required to reimburse the Government for spill response assistance and analysis.

The Contractor is responsible for verbal and written notifications as

required by the Federal 40 CFR 355, State, and local regulations and Navy Instructions. Spill response shall be in accordance with 40 CFR 300 and applicable State and local regulations. Contain and clean up these spills without cost to the Government. If Government assistance is requested or required, the Contractor will reimburse the Government for such assistance. Provide copies of the written notification and documentation that a verbal notification was made within 20 days.

Maintain spill cleanup equipment and materials at the work site. Clean up all hazardous and non-hazardous (WHM) waste spills. The Contractor shall reimburse the Government for all material, equipment, and clothing generated during any spill cleanup. The Contractor shall reimburse the Government for all costs incurred including sample analysis materials, equipment, and labor if the Government must initiate its own spill cleanup procedures, for Contractor responsible spills, when:

a. The Contractor has not begun spill cleanup procedure within one hour of spill discovery/occurrence, or

b. If, in the Government's judgment, the Contractor's spill cleanup is not adequately abating life threatening situation and/or is a threat to any body of water or environmentally sensitive areas.

3.13 CONTROL AND MANAGEMENT OF HAZARDOUS WASTES

At the time of the pre construction conference the Contractor will be breifed and provided written information regarding hazardous waste management. The Government will provide technical and oversight assistance in all aspects of hazardous waste management.

3.13.1 General

All hazardous wastes generated within the confines of the Shipyard shall be disposed of by the Government. Accordingly, all hazardous wastes generated by the Contractor to accomplish requirements of this contract shall be considered Government-generated, and shall be disposed of by the Government. Contractor shall not bring hazardous wastes onto Government property. Hazardous wastes shall be handled in compliance with 40 CFR 260-268, 273, 279 and State of Maine MEDEP Regulations Chapter 850 to 855. For hazardous waste spills, the Contractor shall call the Shipyard Fire Department, extension 2333, immediately, then verbally notify the Contracting Officer.

3.13.2 Containers

Contractor shall use only Government-furnished, Government-labeled containers for the packaging of hazardous soils and wastes. Containers will be delivered to the Contractor's work area following receipt and approval of the Management Plan required above.

a. Contractor shall segregate hazardous and non-hazardous soils/wastes. Hazardous soils/wastes shall be placed into containers provided by the Government. Full containers shall be turned over to the Government at Building 357 (Code 106.3). While hazardous soils/wastes are in the control of the Contractor, such hazardous soils/wastes shall be handled in accordance with Shipyard requirements.

b. Notify the Contracting Officer or the designated representative daily to ensure containers of hazardous and universal wastes are secured by

the Government prior to the end of the shift or as arranged and approved by Code 106. All hazardous wastes shall be placed in a Government approved hazardous waste satellite accumulation area or turned over directly to Building 357. Prior to Government acceptance of the containers, the Contractor shall provide the certification required by the "Submittals" paragraph of this Section, and such additional information regarding contents of the containers as may be required by the Government representative for proper classification of the wastes.

3.13.3 Facility Hazardous Waste Generator Status

Portsmouth Naval Shipyard is designated as a Large Quantity Generator. All work conducted within the boundaries of the Shipyard must meet the regulatory requirements of this generator designation. The Contractor shall 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.

3.13.4 Hazardous Waste/Debris Management

Identify all construction activities which will generate hazardous waste/debris and universal wastes. 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 wastes and universal wastes will also be managed in accordance with the approved Hazardous Waste Management Section of the Environmental Protection Plan. Daily worksite accumulation of hazardous wastes and universal wastes shall be 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 Shipyard personnel from the Shipyard Environmental Office. No hazardous waste will be brought onto Government property. Provide to the Contracting Officer 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.

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

If the work requires the temporary storage/collection of regulated or hazardous wastes, 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:

Contract Number _____ Contractor _____

Haz/Waste or Regulated Waste POC _____ Phone Number _____

Type of Waste _____ Source of Waste _____

Emergency POC _____ Phone Number _____

Location of the Site: _____
(Attach Site Plan to the Request)

Attach a waste determination form. Allow ten 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"

3.13.4.2 Sampling and Analysis of HW

a. Waste Sampling

Sample waste in accordance with Navy Environmental Compliance Sampling and Field Testing Procedures Manual, NAVSEA T0300-AZ-PRO-010, 01 April 2013. Each sampled drum or container will be clearly marked with the Contractor's identification number and cross referenced to the chemical analysis performed; sampling shall be in accordance with NAVSHIPY PTSMH INST 5090.8 B.

b. Laboratory Analysis

Follow the analytical procedure and methods in accordance with the EP-SLU-846. The Contractor will provide all analytical results and reports performed to the Contracting Officer, and Code 106.3 Environmental Sampling Project Manager.

All laboratory anlysis for hazardous waste identification must be performed by a laboratory complaint with OPNAVINST 5090.1 Chapter 7-3.3. Proof of compliance must be made available upon request. All analyses provided by laboratories that are not compliant with the stated requirements will be rejected.

c. Analysis Type

Identify waste material/hazardous waste by analyzing for properties that are resonably suspected of the waste. Soil and other materials may require specific analysis for acceptance to a disposal facility - please check with personnel at the HWSF before choosing parameters.

3.13.4.3 Asbestos Certification

Items, components, or materials disturbed by or included in work under this contract may involve asbestos. Other materials in the general area around where work will be performed may contain asbestos. All thermal insulation, in all work areas, should be considered to be asbestos unless positively identified by conspicuous tags or previous laboratory analysis certifying them as asbestos free.

Inadvertent discovery of non-disclosed asbestos that will result in an abatement action requires a change in scope before proceeding. Upon

discovery of asbestos containing material not identified in the contract documents, the Contractor shall immediately stop all work that would generate further damage to the material, evacuate the asbestos exposed area, and notify the Contracting Officer for resolution of the situation prior to resuming normal work activities in the affected area. The Contractor will not remove or perform work on any asbestos containing materials without the prior approval of the Contracting Officer. The Contractor will not engage in any activity, which would remove or damage such materials or cause the generation of fibers from such materials.

Asbestos containing waste shall be managed and disposed of in accordance with applicable evironmental law. Asbestos containing waste shall be manifested and the manifest provided to the Contracting Officer. Disposal of asbestos-containing waste must be coordinated with the Navy.

3.13.4.4 Hazardous Waste Disposal

Control of stored waste, packaging, sampling, analysis, and disposal will be determined by the details in the contract. The requirements for jobs in the following paragraphs will be used as the guidelines for disposal of any hazardous waste generated.

a. Responsibilities for Contractor's Disposal

Contractor responsibilities include any generation of WHM/HW requiring Contractor disposal of solid waste or liquid.

(1) The Contractor agrees to provide all service necessary for the final treatment/disposal of the hazardous material/waste in accordance with all local, State and Federal laws and regulations, and the terms and conditions of the contract within sixty (60) days after the materials have been generated. These services will include all necessary personnel, labor, transportation, packaging, detailed analysis (if required for disposal, and/or transportation, including manifesting or completing waste profile sheets, equipment, and the compilation of all documentation is required).

(2) Contain all waste in accordance with 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 272, 40 CFR 273, 40 CFR 279, 40 CFR 280, and 40 CFR 761.

(3) Obtaining a representative sample of the material generated for each job done to provide waste stream determination.

(4) Analyzing for each sample taken and providing analytical results to the Contracting Officer. Provide two copies of the results.

(5) Determine the DOT proper shipping names for all waste (each container requiring disposal) and will demonstrate how this determination is developed and supported by the sampling and analysis requirements contained herein to the Contracting Officer.

Contractor Disposal Turn-In Requirements

For any waste hazardous materials or hazardous waste generated which requires the Contractor to dispose of, the following conditions must be complied with in order to be acceptable for disposal:

a. Drums compatible with waste contents and drums meet DOT requirements for 49 CFR 173 for transportation of materials.

b. Drums banded to wooden pallets. No more than three (3) 55 gallon drums to a pallet, or two (2) 85 gallon over packs.

c. Band using 1-1/4 inch minimum band on upper third of drum.

d. Recovery materials label (provided by Code 106.321) located in middle of drum, filled out to indicate actual volume of material, name of material manufacturer, other vendor information as available.

e. Always have three (3) to five (5) inches of empty space above volume of material. This space is called 'outage'.

f. Provide disposal documentation for hazardous and regulated waste.

3.13.5 Class I ODS Prohibition

Class I ODS as defined herein 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 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.

3.13.5.1 Universal Waste/e-Waste Management

Universal waste including but not limited to some mercury containing building products such florescent 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.

3.14 DUST CONTROL

Dust control shall meet the requirements of MEDEP Erosion and Sediment Control BMPs. Keep dust down at all times, including during nonworking periods. Sprinkle or treat, with dust suppressants, the soil at the site, haul roads, and other areas disturbed by operations. Dry power brooming will not be permitted. Instead, use vacuuming, wet mopping, wet sweeping, or wet power brooming. Air blowing will be permitted only for cleaning nonparticulate debris such as steel reinforcing bars. Only wet cutting will be permitted for cutting concrete blocks, concrete, and bituminous concrete. Do not unnecessarily shake bags of cement, concrete mortar, or plaster. When temporary dust control measures are employed, repetitive treatment shall be applied as needed to accomplish control. Visible emissions from a fugitive emission source (including stockpiles and roadways) shall not exceed an opacity of 20 percent, except for no more than five (5) minutes in any 1-hour period.

3.14.1 Dirt and Dust Control Plan

Submit truck and material haul routes along with a plan for controlling dirt, debris, and dust on base roadways. As a minimum, identify in the plan the subcontractor and equipment for cleaning along the haul route and measure the reduce dirt, dust, and debris from roadways.

3.15 ABRASIVE AND/OR WET BLASTING

3.15.1 Blasting Operations

(a) Abrasive Blasting

The use of silica sand is prohibited in sandblasting.

Provide tarpaulin drop cloths and windscreens to enclose abrasive blasting operations to confine and collect dust, abrasive, agent, paint chips, and other debris.

Abrasive blasting shall take place in containments with emissions vented through bag house filters and emissions shall be limited to 10% opacity on a six minute block average. The bag houses must be used to control PM emission and operated properly at all times abrasive blasting is being performed.

(b) Wet Blasting

The use of wet blasting requires the capture and proper disposal of all wastes, including the blasting water, associated with the process.

3.15.2 Disposal Requirements

Submit analytical results of the wastes and/or debris generated from blasting operations per paragraph entitled Laboratory Analysis of this section. Hazardous waste generated from blasting operations will be managed in accordance with paragraph entitled "Hazardous Waste\Debris Management" of this section and with the approved HWMP. Concrete wash water and oily waste generated from blasting operations will be disposed of in accordance with the policy outlined in these specifications.

3.16 SPRAY PAINTING

3.16.1 Spray Painting Operations

Spray painting operations shall take place in containment. Emissions from spray painting shall vent through air filters and are limited to 10% opacity on a six minute block average. The air filters are used to control particulate emissions.

3.17 NOISE

Make the maximum use of low-noise emission products, as certified by the EPA or sound deadening enclosures to limit noise within the project site. Blasting or the use of explosives will not be permitted. Confine any operations that may generate excessive noise to the period between 7 a.m. and 5 p.m., Monday through Friday, exclusive of holidays, unless otherwise specified or approved by the Contracting Officer. The maximum permissible sound pressure levels, as measured at the limits of the Navy Property boundry, shall not exceed the maximum noise levels as specified in the

Town of Kittery's Ordinance and all applicable OSHA Regulations.

3.18 MERCURY MATERIALS

Mercury is prohibited in the construction of this facility, unless specified otherwise, and with the exception of mercury vapor lamps and fluorescent lamps. Dumping of mercury-containing materials and devices such as mercury vapor lamps, fluorescent lamps, and mercury switches, in rubbish containers is prohibited. Remove without breaking, pack to prevent breakage, and transport out of the activity in an unbroken condition for disposal as directed. Immediately report to the Shipyard Environmental Office and the Contracting Officer instances of breakage or mercury spillage. Clean mercury spill area to the satisfaction of the Contracting Officer. Cleanup of a mercury spill shall not be recycled and shall be managed as a hazardous waste for disposal.

3.19 CONCRETE WASH WATER

Concrete production and demolition wash water shall be defined as water, pressure washing water, or storm water that has come into contact with concrete demolition debris, cement, uncured concrete, concrete dust or other material of a similar nature generated during construction activities including, but not limited to, concrete demolition, washing down ready-mix trucks, mixers and wheelbarrows, pre casting equipment, forms, manufactured cast concrete sections, tools, concrete areas; masonry cutting operations; cleaning up of split mortar or block fill; hosing away excess materials.

Water or storm water that has come into contact with pre casting equipment, forms, tools, etc which have been subjected to oil based form release agents will be considered an oily waste if a visual inspection indicates any signs of oil residual. Oily wastes shall be collected and disposed of in accordance with Shipyard policy.

3.19.1 Pollution Prevention

Store dry and wet concrete supplies under cover away from drainage areas. Concrete wash water shall not be released to the storm drain system, sewer system, roadways or other uncontained impervious surfaces, or to natural waterways including the Piscataqua River and its tributaries. Contractor shall take all precautions necessary to prevent rainwater or stormwater runoff to come in contact with concrete wash water. Divert clean stormwater and roof runoff from contact with concrete wash water. Contractor shall take all measures necessary to minimize the volume of concrete wash water generated. Contractor shall protect all waterways, catch basins and storm drain structures from potential discharges of concrete wash water. Contractor shall collect and control concrete wash water separately from waste water determined to be oily waste.

3.19.2 On-Shipyard Disposal

Small volumes of concrete wash water generated can be disposed on-site under certain conditions when approved by the Contracting Officer. When approved, small volumes of concrete wash water can be directed onto an area of open soil such as a trench or shallow pit to allow it to be absorbed and neutralized by the soil. The area shall be constantly monitored during filling operations to prevent overflow.

3.19.3 On-Shipyard Containment Structures

Concrete wash water shall be gathered and contained on site for removal and disposal at a facility designed and approved for disposal of concrete wash water. Under no circumstances shall clean water be added to concrete wash water for dilution purposes or any other reason. Containment structures shall be watertight and provide adequate freeboard to contain the wash water, solids, and rainfall to prevent overflow. Cover wash out structures prior to predicted rainfall events to prevent rainfall from entering the containment structure. Ensure that concrete washout containers are watertight and are designed to promote evaporation. Washout shall occur in designated areas only that have been approved by the Contracting Officer Representative.

Inspect all concrete washout facilities daily to determine filled capacity. Remove all materials from containment structures when 75% fill capacity has been reached. Remove liquids or cover structures before predicted rainstorms to prevent overflows and infiltration of rainwater. Inspect structures for holes and tears daily and repair to maintain watertight conditions.

Hardened solids can be removed from containment structures and recycled, reused, or disposed of per regulatory requirements. Liquids remaining in the containment structure shall be vacuumed and disposed of at a facility designated for disposal of concrete wash water.

3.19.4 Off-Shipyard Disposal

Contractor shall provide careful oversight to prevent improper dumping of concrete wash water. Contractor shall ensure companies use proper disposal facilities designated for concrete wash water disposal. The Contractor shall be responsible for any clean up resulting from improper control of concrete wash water.

3.20 DISPOSAL OF CHLORINATED WATER AND DECHLORINATION REQUIREMENTS

Chlorinated water created during disinfection procedures shall not be directly discharged to storm drains or sanitary sewers without prior dechlorination. Chlorinated water shall be neutralized by the controlled addition of a reducing chemical such as sodium thiosulfate, sodium bisulfate, sodium sulfite, sulfur dioxide or ascorbic acid (commonly known as Vitamin C). Dechlorination shall be sufficiently effective to reduce total residual chlorine concentration to existing water system chlorine levels (typically 1.2 to 1.5 mg/l).

-- End of Section --

SECTION 01 62 35

RECYCLED/RECOVERED/BIOBASED MATERIALS
05/13

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.

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

40 CFR 247	Comprehensive Procurement Guideline for Products Containing Recovered Materials
48 CFR 23	Environment, Energy and Water Efficiency, Renewable Energy Technologies, Occupational Safety, and Drug-Free Workplace

1.2 OBJECTIVES

Government procurement policy is to acquire, in a cost effective manner, items containing the highest percentage of recycled, recovered and biobased materials practicable consistent with maintaining a satisfactory level of competition without adversely affecting performance requirements or exposing suppliers' employees to undue hazards from the recovered materials. The Environmental Protection Agency (EPA) and the United Stats Department of Agriculture (USDA)has designated certain items which must contain a specified percent range of recovered or recycled materials. EPA and USDA designated products specified in this contract comply with the stated policy and with the EPA and USDA guidelines. Make all reasonable efforts to use recycled, recovered and biobased materials in providing the EPA and USDA designated products and in otherwise utilizing recycled, recovered and biobased materials in the execution of the work.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Biobased Products; G

1.4 DESIGNATED ITEMS INCORPORATED IN THE WORK

Various sections of the specifications contain requirements for materials that have been designated by EPA and USDA as being products which are or can be made with recovered or recycled, recovered and biobased materials. These items, when incorporated into the work under this contract, shall contain at least the specified percentage of recycled or recovered

materials or biobased unless adequate justification (non-availability) for non-use is provided. When a designated item is specified as an option to a non-designated item, the designated item requirements apply only if the designated item is used in the work.

1.5 PROPOSED ITEMS INCORPORATED IN THE WORK

Products other than those designated by EPA and USDA are still being researched and are being considered for future Comprehensive Procurement Guideline (CPG) and USDA's Federal Procument Preferences (FPP) designations. It is recommended that these items, when incorporated in the work under this contract, contain the highest practicable percentage of recycled, recovered and biobased materials, provided specified requirements are also met.

1.6 LISTED ITEMS USED IN CONDUCT OF THE WORK BUT NOT INCORPORATED IN THE WORK

Many products listed in 40 CFR 247 and 48 CFR 23 have been designated or proposed by EPA and USDA to include recycled, recovered and biobased materials that may be used by the Contractor in performing the work but will not be incorporated into the work. These products include office products, temporary traffic control products, and pallets. It is recommended that these non-construction products, when used in the conduct of the work, contain the highest practicable percentage of recycled, recovered and biobased materials and that these products be recycled when no longer needed.

1.7 BIOPREFERRED FPP

Utilize products and material made from biobased materials to the maximum extent possible without jeopardizing the intended end use or detracting from the overall quality delivered to the end user. All supplies and materials shall be of a type and quality that conform to applicable specifications and standards.

Biobased products that are designated for preferred procurement under USDA’s BioPreferred program must meet the required minimum biobased content. Refer to http://www.biopreferred.gov/ProductCategories.aspx for the product categories and http://www.biopreferred.gov/bioPreferredCatalog/faces/jsp/catalogLanding.jsp for the BioPreferred Catalog. Submit data for the biobased products to include biobased content and source of biobased material; indicating the name of the manufacturer, cost of each material, and the intended use of each of the materials that are to be used in carrying out the requirements of the contract.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01 74 19.00 22

CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT (PWD ME)
06/14

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 the Contractor shall: (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.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Waste Management Plan; G

SD-11 Closeout Submittals

Records

1.3 WASTE MANAGEMENT PLAN

A waste management plan shall be submitted within 15 calendar days after contract award and prior to initiating any site preparation work. The plan shall include the following:

a. Name of individuals on the Contractor's staff responsible for waste prevention and management.

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 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. Actions that will be taken to divert at least 50% of the non-hazardous solid wastes (including waste from construction and demolition

operations) from the waste stream. Report actual diversion rates during construction and demolition.

g. 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.

h. 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.

i. 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. Recycling facilities that will be used shall be identified by name, location, and phone number, including a copy of the permit or license for each facility. Provide percentage of non-hazardous construction and demolition waste materials that have been diverted from the waste stream.

j. Identification of materials that cannot be recycled/reused with an explanation or justification, to be approved by the Contracting Officer.

k. Description of the means by which any waste materials identified in item (i) above will be protected from contamination.

k. 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.

l. 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).

1.4 RECORDS

Records shall be maintained to document the quantity of waste generated; the quantity of waste diverted through sale, reuse, or recycling; and the quantity of waste disposed by landfill or incineration. Quantities may be measured by weight or by volume, but must be consistent throughout. List each type of waste separately noting the disposal or diversion date. Identify the landfill, recycling center, waste processor, or other organization used to process or receive the solid waste. Provide explanations for any waste not recycled or reused. With each application for payment, submit updated documentation for solid waste disposal and diversion, and submit manifests, weight tickets, receipts, and invoices specifically identifying the project and waste material. The records shall be made available to the Contracting Officer during construction, and a copy of the records shall be delivered to the Contracting Officer upon completion of the construction.

1.5 DISPOSAL

Except as otherwise specified in other sections of the specifications,

disposal shall be in accordance with the following:

1.5.1 Reuse

First consideration shall be given 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. Sale or donation of waste suitable for reuse shall be considered. Salvaged materials, other than those specified in other sections to be salvaged and reinstalled, shall not be used in this project.

1.5.2 Recycle

Waste materials not suitable for reuse, but having value as being recyclable, shall be made available for recycling whenever economically feasible.

1.5.3 Waste

Materials with no practical use or economic benefit shall be disposed at a landfill or incinerator.

1.6 Additional Reporting and Recording Requirements

Provide monthly cost and revenue data to the NAVFAC Midlant Integrated Solid Waste Management office. The report shall be submitted by e-mail to: IntegratedSolidWasteManagement@navy.mil no later than the 3rd of each month. Data shall be reported on an excel document provided by the Contracting Officer. Comply with the requirements specified in Appendix 01 74 19-1, "Construction and Demolition Solid Waste Report".

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of section --

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CONSTRUCTION AND DEMOLITION SOLID WASTE REPORT				
SITE:		**Month:**		
Contractor's Company Name:			**Contract #**	
Contractor's POC and Telephone or Email Address:				
Project Description:				
SECTION 1	**Tons**	**Cost**	**Revenue**	**Remarks**
Recycled (tons)				
Concrete(incl: brick & block)				
Wood				
Metal				
Asphalt				
Green waste(clearing debris)				
Dirt				
Sand				
Gravel/Rock				
Mixed				
Misc				
Subtotal - Recycled	**0.00**	**$ -**	**$ -**	
SECTION 2				
Landfilled (tons)				
Concrete(incl: brick & block)				
Wood				
Metal				
Asphalt				
Green Waste(clearing debris)				
General C&D				
Dirt				
Sand				
Gravel/Rock				
Mixed				
Misc				
Subtotal - Landfilled	**0.00**	**$ -**	**$ -**	
Solid Waste (tons)				
Total Solid Waste	**0.00**	**$ -**	**$ -**	

REPORTING DEADLINE IS NO LATER THAN THE 3RD OF EACH MONTH

SECTION 01 75 00

STARTING AND ADJUSTING
05/12

PART 1 GENERAL

1.1 SUMMARY

Requirements of this Section apply to, and are a component part of, each section of the specifications.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Verification of Prior Experience; G

Documentation of Manufacturer's Prior Experience; G

Quality Control Plan; G

Manufacturer's Sample Warranty; G

Operation and Maintenance Data; G

Provide Evidence; G

SD-02 Shop Drawings

Drawings, Diagrams and Schedules; G

Diagrams and Instructions; G

Coordination Drawings; G

SD-03 Product Data

Catalog Cuts; G

Samples of Warranty Language; G

SD-05 Design Data

Design Calculations; G

SD-06 Test Reports

Factory Tests; G

Functional Field Test; G

Final Acceptance Test; G

Test Procedures; G

SD-07 Certificates

Qualification of Manufacturer; G

Qualification of Installer; G

SD-08 Manufacturer's Instructions

Manufacturer's Administrative Requirements; G

Demonstration and Training Information; G

Manufacturer's Procedural Requirements; G

SD-09 Manufacturer's Field Reports

Documentation of the Testing and Verification Actions; G

SD-10 Operation and Maintenance Data

Operation and Maintenance Data; G

Safety and Security Data or Posters; G

Comply with the requirements specified in Section 01 78 23 OPERATION AND MAINTENANCE DATA for O&M Data format. Refer to Section 01 78 24.00 20 FACILITY ELECTRONIC OPERATION AND MAINTENANCE SUPPORT INFORMATION (eOMSI) for additional requirements.

1.2.1 Preconstruction and Pre-Testing Requirements

Deliver equipment and services to meet the requirements and specifications of their respective contract. Ensure all equipment is free of latent manufacturing and installation defects. The Government reserves the option to elect performance of acceptance testing by internal personnel, or a designated third party. Regardless of who performs the acceptance testing, ensure the requirements of acceptance are met.

Submit the following for review and approval prior to the commencement of work and any testing, whether such testing is on site or elsewhere:

a. Verification of prior experience and expertise with similar project scope

b. Documentation of manufacturer's prior experience and expertise with similar project materials and systems

c. Quality control plan

d. Manufacturer's sample warranty and operation and maintenance data, with details regarding start-up procedures

e. Manufacturer's administrative requirements

f. Manufacturer's procedural requirements

g. Demonstration and training information

Submit the following certifications:

a. Provide evidence that products used within this specification are manufactured in the United States.

b. Qualification of manufacturer, including current licenses and insurance.

c. Qualification of installer, including licenses and insurance.

1.2.2 Shop Drawings and Diagrams

Submit the following shop drawings, record drawings, and diagrams as required to correctly execute the installation of the work:

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

b. 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

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

1.2.3 Product and Design Data

Submit all product data and any design calculations, mix designs, analyses or other data pertaining to a part of work to ensure a complete functional installation; including, but not limited to:

a. 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

b. Samples of warranty language when the contract requires extended or no dollar limit product warranties

c. Operation and maintenance data provided by the manufacturer to ensure the safe and efficient operation, maintenance and repair of the system or equipment provided

d. Safety and security data or posters provided by the manufacturer to be posted in a conspicuous visible location for operational and maintenance personnel

1.2.4 Tests Required

Perform tests to verify proper functioning of fire protection, fire suppression, HVAC, compressed air, electrical switchgear, protective relaying, fluid and gas systems, pump/motor combinations, boiler systems, hydraulic and pneumatic control, condition/performance monitoring systems, energy control and monitoring systems, and other assemblies and components that need to be tested as an interrelated whole.

1.2.4.1 Factory Tests

Submit certified copies of required tests performed at the factory to verify proper build. These test results will be used in the "Final Acceptance Test" section to verify no shipping damage and proper installation.

1.2.4.2 Functional Field Test

Perform functional field tests test to verify that the system and components have been properly installed and are functioning properly. Perform test(s) in the presence of the Contracting Officer. Acceptance will be issued when system has performed per other sections and referenced industry standards.

Coordinate and submit documentation of the testing and verification actions taken by manufacturer's representative at 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.

1.2.4.3 Final Acceptance Test

Perform a formal test with full documentation using the approved recording form. Contracting Officer will witness this test and issue a written final acceptance. Provide final test data to the Contracting Officer with a cover letter clearly marked with the system name, date, and the words " Final Test Data - Forward to the Systems Engineer/Condition Monitoring Office/Predictive Testing Group for inclusion in the Maintenance Database."

1.2.4.4 Test Procedures

Submit test procedure and recording forms that document the test steps for approval to the Contracting Officer 21 calendar days prior to the proposed test date. Ensure procedures clearly state step by step instruction to verify system parameters, components, and functions.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01 78 00.00 22

CLOSEOUT SUBMITTALS (PWD ME)
06/14

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 E 1971	(2005) Stewardship for the Cleaning of Commercial and Institutional Buildings

GREEN SEAL (GS)

GS-37	(2000; R 2005) Industrial and Institutional Cleaners

U.S. DEPARTMENT OF DEFENSE (DOD)

UFC 1-300-08	(2009, with Change 2) Criteria for Transfer and Acceptance of DoD Real Property

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

As-Built Record of Equipment and Materials; G

Two (2) paper copies and one pdf copy of the record listing the as-built materials and equipment incorporated into the construction of the project.

Warranty Management Plan; G

One paper and one pdf set of the warranty management plan containing information relevant to the warranty of materials and equipment incorporated into the construction project, including the starting date of warranty of construction. Furnish with each warranty the name, address, and telephone number of each of the guarantor's representatives nearest to the project location.

Warranty Tags; G

Two (2) paper record copies and one pdf copy of the warranty tags showing the layout and design.

Final Cleaning; G

Two (2) copies of the listing of completed final clean-up items.

Spare Parts Data; G

Two (2) paper copies and one pdf copy of the list that indicates manufacturer's name, part number, nomenclature, and stock level recommended for maintenance and repair. List those items that may be standard to the normal maintenance of the system.

SD-08 Manufacturer's Instructions

Preventative Maintenance; G and Condition Monitoring (Predictive Testing); G and Inspection; G schedules with instructions that state when systems should be retested.

Define within the schedule the anticipated length of each test, test apparatus, number of personnel identified by responsibility, and a testing validation procedure permitting the record operation capability requirements. On each test feature; e.g., gpm, rpm, psi, provide a signoff blank for the Contractor and Contracting Officer. Within a remarks column of the testing validation procedure include references to operating limits of time, pressure, temperature, volume, voltage, current, acceleration, velocity, alignment, calibration, adjustments, cleaning, or special system notes. Delineate procedures for preventative maintenance, condition monitoring (predictive testing) and inspection, adjustment, lubrication and cleaning necessary to prevent failure.

Posted Instructions; G

SD-10 Operation and Maintenance Data

Submit Operation and Maintenance Manuals; G in accordance with paragraph entitled, "Operation and Maintenance," of this section. Submit 2 paper copies, and one pdf copy on CD.

Comply with the requirements specified in Section 01 78 23 OPERATION AND MAINTENANCE DATA for O&M Data format. Refer to Section 01 78 24.00 20 FACILITY ELECTRONIC OPERATION AND MAINTENANCE SUPPORT INFORMATION (eOMSI) for additional requirements.

SD-11 Closeout Submittals

Record Drawings; G

Drawings showing final as-built conditions of the project. The final CADD record drawings must consist of one set of electronic CADD drawing files in the specified electronic format saved on a CD, one set of mylar drawings, 2 sets of blue-line prints of the mylars, and one set of the approved working Record drawings.

Certification of EPA Designated Items; G
Interim Form DD1354; G
Checklist for Form DD1354; G
NAVFAC Sustainable & Energy Data Record Card; G

Certification of EPA Designated Items; G
Red Zone Documents per Section 01 30 00; G

1.3 PROJECT RECORD DOCUMENTS

1.3.1 Record Drawings

This paragraph covers Record Drawings complete, as a requirement of the contract. The terms "drawings," "contract drawings," "drawing files," "working as-built record drawings," and "final record drawings" refer to contract drawings (hard copy and CADD) which are revised to be used for final record drawings reflecting current project as-built conditions.

1.3.1.1 Government Furnished Materials

One set of electronic CADD files in the specified software and format of the contract drawings will be provided by the Government at the preconstruction conference for projects requiring Final Record Drawings in CADD format.

1.3.1.2 Working Record and Final Record Drawings

Revise 2 sets of hard copy paper contract drawings by red-line process described herein to reflect the current as-built conditions during the prosecution of the project. The Contractor shall keep the working as-built drawings current and shall keep at least one set available on the jobsite for review at all times. Changes from the contract plans which are made in the work or additional information which might be uncovered in the course of construction must be accurately and neatly recorded as they occur by means of details and notes. After the completion of each definable feature of work as listed in the Contractor Quality Control Plan (Foundations, Utilities, Structural Steel, etc., as appropriate for the project) provide (1) set of working as-built drawings (CADD) in the specified software and format hard copy and electronic to the Contracting Officer. The working as-built drawings, hard copy and (CADD), will be jointly reviewed for accuracy, completeness and format by the Contracting Officer and the Contractor prior to submission of each monthly pay estimate. If the Contractor fails to maintain the working as-built drawings, hard copy and (CADD) as specified herein, the Contracting Officer will deduct from the monthly progress payment an amount representing the estimated cost of maintaining the record drawings. This monthly deduction will continue until an agreement can be reached between the Contracting Officer and the Contractor regarding the accuracy and completeness of updated drawings. Items to be shown on the working as-built drawings, hard copy and (CADD) are, but are not limited to, the following information:

a. The actual location (horizontal and vertical position based on Shipyard datums), 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, as a back-up to the horizontal and vertical position, feature shall also be shown by offset dimensions to two permanently fixed surface features the end of each run including each change in direction. 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 of pipe, fittings, valves, etc.

b. The actual location (horizontal and vertical position based on Shipyard datums), kind and size of any sub-surface feature uncovered not accurately represented on the contract drawings.

c. The location and dimensions of any changes within the building structure.

d. Changes in grade, elevations, cross section, or alignment of roads, earthwork, structures or utilities.

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, 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 modifications which result from the final inspection.

h. Where contract drawings or specifications present options, identify the option selected for construction on the working as-built prints.

i. If borrow material for this project is from sources on Government property, or if Government property is used as a spoil area, furnish a contour map of the final borrow pit/spoil area elevations.

j. Systems designed or enhanced by the Contractor, such as HVAC controls, fire alarm, fire sprinkler, and irrigation systems.

k. Modifications (include within change order price the cost to change working and final record drawings to reflect modifications) and compliance with the following procedures:

(1) Both sets of the hard copy paper contract working as-built drawings must be neat, legible and accurate. Any drawings damaged, lost or corrupted by the Contractor must be satisfactorily replaced by the Contractor at no expense to the Government.

(2) For text deletions/revisions; strikeout existing drawing text with a single line as to not obscure or make the original text unreadable. Place the new text adjacent, clearly annotating the intent of the change.

(3) For line work; strikeout entities with parallel lines drawn at 45 degrees to the object, not to obscure or make the original object unreadable. Place the new object in its correct location and clearly annotate the intent of the change.

(4) Place a Revision Symbol at the location of each modification on the drawing sheet along with descriptive annotations of the revision.

(5) For details, sections or schedules which are added to a drawing sheet, place a Revision Symbol by the detail, section or schedule title.

(6) For major changes to a drawing, place a Revision Symbol by the title of the affected plan, section, or detail at each location.

(7) For changes within schedules, place a Revision Symbol by the change in the schedule.

(8) The Revision Symbol shall be a Delta sized to allow for a capital letter to fit within. The letter shall have a height of not less than 1/8-inch when plotted.

(9) The revision symbol letter shall be consistent for all drawing modifications for each monthly billing cycle. Drawing modifications for the first monthly bill cycle shall be designated as "A" for all modifications throughout the drawing package. The next month's revisions shall be designated as "B" throughout the drawing package, and so on.

1.3.1.3 Drawing Preparation

At project completion, provide 2 sets of the approved hard copy paper contract drawings modified to reflect the final as-built conditions of the project to the Contracting Officer. Modify the contract drawings as necessary to correctly show the features of the project as it has been constructed by bringing the contract drawings into agreement with the second set of approved working as-built drawings. The second set of approved working as-built drawings are also part of the permanent records of this project and must be returned to the Contracting Officer after final approval of the Record Drawings by the Government. Any drawings or drawing files damaged, lost or corrupted by the Contractor must be satisfactorily replaced by the Contractor at no expense to the Government.

1.3.1.4 Computer Aided Design and Drafting (CADD) Drawings

Only employ personnel proficient in the preparation of CADD drawings to modify the contract drawings or prepare any additional drawings sheets required. Modifications, to the Record Drawings must be equal in quality and detail to that of the original contract drawings. Line colors, line weights, lettering, layering conventions, and symbols shall remain consistent throughout the record drawing set, regardless of either as-built or record drawing. The contractor shall modify the original contract drawing files to reflect the construction contract as-built conditions reviewed and accepted by **the Contracting Officer.** Each as-built condition added to a drawing file shall be encapsulated by a closed polygon or "revision cloud. A revision symbol shall be placed outside the "revision cloud" with the appropriate letter designating the revision sequence. The contractor shall annotate in the "revision block" of each drawing file modified as to the type of revisions made to the drawing file. The contract drawings are to be edited to reflect the as-built conditions only. No part of the original drawings shall be deleted, erased or rendered illegible. Parts of the contract drawing found to be in error or modified during construction, shall be over struck using methods described not to obscure the original drawing, and annotations will be added adjacent that clearly explain the modification, including accurate dimensions locating the feature. If additional drawings are required, the drawings shall be prepared 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 shall be identical to that used to create the contract drawings. Modifications, additions and corrections to the

contract drawings shall be made to the electronic AutoCAD file(s). The Contractor shall be furnished with the original contract drawing files in the AutoCAD software format currently in use by PWD-ME. The electronic files shall be supplied on compact disc, (CD). The Contractor shall provide all computer software and hardware necessary to prepare final record drawing set. The Contracting Officer shall review final record drawing set for accuracy and return them to the Contractor for required corrections, changes, additions, and deletions.

a. Provide Record Drawings (CADD) in the following format:

(1) As-built Layering; follow original drawing layer naming conventions followed by "-AB".

(2) Deletions (Cyan) - Over-strike deleted graphic items (lines), lettering in notes and leaders.

(3) Additions (Cyan) - Added items, lettering in notes and leaders.

(4) Special (Cyan) - Items requiring special information, coordination, or special detailing or detailing notes.

(5) The Contractor shall furnish the contract record drawing files in the AutoCAD software format currently in use by PWD-ME.

b. Drawing files modified for as-built condition shall be renamed by adding an underscore and the letters "AB" to the end of the existing file name. Drawing files where no modifications were required shall be renamed by adding an underscore and the letters "RD" to the end of the existing file name.

c. When final revisions have been completed to the record drawing set, add the wording "RECORD DRAWINGS / AS-BUILT CONDITIONS" followed by the name of the Contractor in letters at least 3/16 inch high in the lower left hand corner of the cover sheet drawing. Mark all other contract drawings in the same location and manner as either "Record Drawing" denoting no revisions on the sheet or "As built Drawing" denoting modifications, additions or corrections have been made to the drawing sheet. Modify the revision block to reflect either "record drawing", for no changes or "as built drawing", for changes and date for submittal.

d. Within 20 working days after Government approval of all of the working record drawings for a phase of work, prepare the CADD electronic files for that phase of work and submit for Government review and approval. The Government will promptly return one set of prints annotated with any necessary corrections. Within 10 working days revise the CADD files accordingly at no additional cost and submit one set of final prints for the completed phase of work to the Government.

e. Within 20 working days of substantial completion of all phases of work, submit the final record drawing package for the entire project. Submit one set of electronic files on compact disc, read-only memory (CD-ROM), one set of mylars and one set of the approved working record drawings. They must be complete in all details and identical in form and function to the contract drawing files supplied by the Government. Any transactions or adjustments necessary to accomplish this is the responsibility of the Contractor. The Government reserves the right to reject any drawing files it deems incompatible with the

customer's CADD system. Paper prints, drawing files and storage media submitted will become the property of the Government upon final approval. Failure to submit final record drawing files and marked prints as specified will be cause for withholding any payment due the Contractor under this contract. Approval and acceptance of final record drawings must be accomplished before final payment is made to the Contractor.

1.3.2 As-Built Record of Equipment and Materials

Furnish one copy of preliminary record of equipment and materials used on the project 15 working days prior to final inspection. This preliminary submittal will be reviewed and returned 5 working days after final inspection with Government comments. Submit two sets of final record of equipment and materials 10 working days after final inspection. 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

1.3.3 Final Approved Shop Drawings

Furnish final approved project shop drawings 30 calendar days after transfer of the completed facility.

1.3.4 Construction Contract Specifications

Furnish final record (as-built) construction contract specifications, including modifications thereto, 30 calendar days after transfer of the completed facility.

1.3.5 Real Property Equipment

Furnish a list of installed equipment furnished under this contract. Include all information usually listed on manufacturer's name plate. In the "EQUIPMENT-IN-PLACE LIST" include, as applicable, the following for each piece of equipment installed: description of item, 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. Furnish a draft list at time of transfer. Furnish the final list 30 calendar days after transfer of the completed facility.

1.3.6 Red Zone Documents

Submit red zone documents per Section 01 30 00 ADMINISTRATIVE REQUIREMENTS (PWD ME).

1.4 SPARE PARTS DATA

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.

Supply 2 items of each part for spare parts inventory. Provision of spare parts does not relieve the Contractor of responsibilities listed under the contract guarantee provisions.

1.5 PREVENTATIVE MAINTENANCE

Submit Preventative Maintenance and Condition Monitoring (Predictive Testing) and Inspection schedules with instructions that state when systems should be retested.

Define the anticipated length of each test, test apparatus, number of personnel identified by responsibility, and a testing validation procedure permitting the record operation capability requirements within the schedule. Provide a signoff blank for the Contractor and Contracting Officer for each test feature; e.g., gpm, rpm, psi. Include 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 preventative maintenance, inspection, adjustment, lubrication and cleaning necessary to minimize corrective maintenance and repair.

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.

1.6 CERTIFICATION OF EPA DESIGNATED ITEMS

Submit the Certification of EPA Designated Items as required by FAR 52.223-9, "Certification and Estimate of Percentage of Recovered Material Content for EPA Designated Items". Include on the certification form the following information: project name, project number, Contractor name, license number, Contractor address, and certification. The certification 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:

1) The product does not meet appropriate performance standards;
2) The product is not available within a reasonable time frame;
3) The product is not available competitively (from two or more sources); and
4) The product is only available at an unreasonable price (compared with a comparable non-recycled content product)."

1.7 WARRANTY MANAGEMENT

1.7.1 Warranty Management Plan

Develop a warranty management plan which contains information relevant to the clause Warranty of Construction. At least 30 days before the planned pre-warranty conference, submit the warranty management plan for Government approval. Include within the warranty management plan all required actions and documents to assure 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. 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.

c. 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. 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.

d. The Contractor's plans for attendance at the 4 and 9 month post-construction warranty inspections conducted by the Government.

e. Procedure and status of tagging of all equipment covered by extended warranties.

f. Copies of instructions to be posted near selected pieces of equipment where operation is critical for warranty and/or safety reasons.

1.7.2 Performance Bond

The Contractor's 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 of the Contractor to respond will be cause for the Contracting Officer to proceed against the Contractor.

1.7.3 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.

1.7.4 Warranty Tags

At the time of installation, tag each warranted item with a durable, oil and water resistant tag approved by the Contracting Officer. Attached each tag with a copper wire and spray with a silicone waterproof coating. 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.

a. Type of product/material_____.

b. Model number_____.

c. Serial number_____.

d. Contract number_____.

e. Warranty period_____from_____to_____.

f. Inspector's signature_____.

g. Construction Contractor_____.

Address_____.

Telephone number_____.

h. Warranty contact_____.

Address_____.

Telephone number_____.

i. Warranty response time priority code_____.

j. WARNING - PROJECT PERSONNEL TO PERFORM ONLY OPERATIONAL MAINTENANCE DURING THE WARRANTY PERIOD.

1.8 COMMISSIONING

1.8.1 Building Commissioning

All contract requirements for building commissioning shall be completed prior to contract completion.

1.8.2 HVAC Commissioning

All contract requirements of Section 23 08 00.00 10 Commissioning of HVAC System, must be fully completed, including all testing concurrent with building commissioning. All contract requirements of Section 23 05 93 TESTING, ADJUSTING, AND BALANCING FOR HVAC must be fully completed, including testing and inspection, prior to HVAC commissioning, except as noted otherwise in Section 23 05 93 TESTING, ADJUSTING, AND BALANCING FOR HVAC. The time required to complete all work and testing as prescribed by Sections 23 08 00.00 10 Commissioning of HVAC Systems and 23 05 93 TESTING, ADJUSTING, AND BALANCING FOR HVAC is included in the allotted calendar days for completion.

1.9 OPERATION AND MAINTENANCE MANUALS

Submit 6 copies of the project operation and maintenance manuals 30 calendar days prior to testing the system involved. Update and resubmit data for final approval no later than 30 calendar days prior to contract completion.

Comply with the requirements specified in Section 01 78 23 OPERATION AND MAINTENANCE DATA for O&M Data format. Refer to Section 01 78 24.00 20 FACILITY ELECTRONIC OPERATION AND MAINTENANCE SUPPORT INFORMATION (eOMSI) for additional requirements.

1.9.1 Configuration

Operation and Maintenance Manuals must be consistent with the manufacturer's standard brochures, schematics, printed instructions, general operating procedures, and safety precautions. Bind information in manual format and grouped by technical sections. Test data must be legible and of good quality. Light-sensitive reproduction techniques are acceptable provided finished pages are clear, legible, and not subject to fading. Pages for vendor data and manuals must have 0.3937-inch holes and

be bound in 3-ring, loose-leaf binders. Organize data by separate index and tabbed sheets, in a loose-leaf binder. Binder must lie flat with printed sheets that are easy to read. Caution and warning indications must be clearly labeled.

1.9.2 Training and Instruction

Submit classroom and field instructions in the operation and maintenance of systems equipment where required by the technical provisions. These services must be directed by the Contractor, using the manufacturer's factory-trained personnel or qualified representatives. Contracting Officer will be given 7 calendar days written notice of scheduled instructional services. Instructional materials belonging to the manufacturer or vendor, such as lists, static exhibits, and visual aids, must be made available to the Contracting Officer.

1.10 CLEANUP

Provide final cleaning in accordance with ASTM E 1971 and submit two copies of the listing of completed final clean-up items. Leave premises "broom clean." Comply with GS-37 for general purpose cleaning and bathroom cleaning. Use only nonhazardous cleaning materials, including natural cleaning materials, in the final cleanup. 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 and comply with the Indoor Air Quality (IAQ) Management Plan. 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. Recycle, salvage, and return construction and demolition waste from project in accordance with the Waste Management Plan. Promptly and legally transport and dispose of any trash. Do not burn, bury, or otherwise dispose of trash on the project site.

1.11 REAL PROPERTY RECORD

Near the completion of Project, but a minimum of 60 days prior to final acceptance of the work, complete, update draft DD Form 1354 attached to this section, and submit an accounting of all installed property with Interim Form DD1354 "Transfer and Acceptance of Military Real Property." Include any additional assets/improvements/alterations from the Draft DD Form 1354. Contact the Contracting Officer for any project specific information necessary to complete the DD Form 1354. Refer to UFC 1-300-08 for instruction on completing the DD Form 1354. For information purposes, a blank DD Form 1354 (fill-able) in ADOBE (PDF) may be obtained at the following web site:
http://www.dtic.mil/whs/directives/infomgt/forms/eforms/dd1354.pdf

Submit the completed Checklist for Form DD1354 of Installed Building Equipment items. Attach this list to the updated DD Form 1354.

1.12 NAVFAC SUSTAINABLE & ENERGY DATA RECORD CARD

Within 60 days of the completion of Project, complete an electronic copy of the NAVFAC Sustainable & Energy Data Record Card, and submit to the Contracting Officer. Draft Record card for this project should be available from Designer of Record (DOR) or Contracting Officer.

Instructions and a blank DD Form (fill-able) in ADOBE (PDF) may be obtained at the Whole Building Design Guide web site by navigating: Home > Participating Agencies > Department of Defense (DoD) > NAVFAC Sustainable Development Program > Contract Documents > NAVFAC Sustainable & Energy Data Record Card; or directly at http://www.wbdg.org/pdfs/navfac_sustainable_energy_data_record_card.pdf.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

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SECTION 01 78 23

OPERATION AND MAINTENANCE DATA
07/06

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 E1971	(2005) Stewardship for the Cleaning of Commercial and Institutional Buildings

1.2 SUBMISSION OF OPERATION AND MAINTENANCE DATA

Submit Operation and Maintenance (O&M) Data specifically applicable to this contract and a complete and concise depiction of the provided equipment, product, or system, stressing and enhancing the importance of system interactions, troubleshooting, and long-term preventative maintenance and operation. The subcontractors shall compile and prepare data and deliver to the Contractor prior to the training of Government personnel. The Contractor shall compile and prepare aggregate O&M data including 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.

Coordinate the work of this section with Section 01 78 24.00 20 FACILITY ELECTRONIC OPERATION AND MAINTENANCE SUPPORT INFORMATION (eOMSI).

1.2.1 Package Quality

Documents must be fully legible. Poor quality copies and material with hole punches obliterating the text or drawings will not be accepted.

1.2.2 Package Content

Data package content shall be as shown in the paragraph titled "Schedule of Operation and Maintenance Data Packages." Comply with the data package requirements specified in the individual technical sections, including the content of the packages and addressing each product, component, and system designated for data package submission, except as follows. Commissioned items without a specified data package requirement in the individual technical sections shall use Data Package 3. Commissioned items with a Data Package 1 or 2 requirement shall use instead Data Package 3.

1.2.3 Changes to Submittals

Manufacturer-originated changes or revisions to submitted data shall be furnished by the Contractor if a component of an item is so affected subsequent to acceptance of the O&M Data. Changes, additions, or

revisions required by the Contracting Officer for final acceptance of submitted data, shall be submitted by the Contractor within 30 calendar days of the notification of this change requirement.

1.2.4 Review and Approval

The Contractor's Commissioning Authority (CA) shall review the commissioned systems and equipment submittals for completeness and applicability. The CA shall verify that the systems and equipment provided meet the requirements of the Contract documents and design intent, particularly as they relate to functionality, energy performance, water performance, maintainability, sustainability, system cost, indoor environmental quality, and local environmental impacts. The CA shall communicate deficiencies to the Contracting Officer. Upon a successful review of the corrections, the CA shall recommend approval and acceptance of these O&M manuals to the Contracting Officer. This work shall be in addition to the normal review procedures for O&M data.

1.2.5 O&M Database

Develop a database from the O&M manuals that contains the information required to start a preventative maintenance program.

1.3 TYPES OF INFORMATION REQUIRED IN O&M DATA PACKAGES

1.3.1 Operating Instructions

Include specific instructions, procedures, and illustrations for the following phases of operation for the installed model and features of each system:

1.3.1.1 Safety Precautions

List personnel hazards and equipment or product safety precautions for all operating conditions.

1.3.1.2 Operator Prestart

Include procedures required to install, set up, and prepare each system for use.

1.3.1.3 Startup, Shutdown, and Post-Shutdown Procedures

Provide narrative description for Startup, Shutdown and Post-shutdown operating procedures including the control sequence for each procedure.

1.3.1.4 Normal Operations

Provide narrative description of Normal Operating Procedures. Include Control Diagrams with data to explain operation and control of systems and specific equipment.

1.3.1.5 Emergency Operations

Include 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. Include Emergency Shutdown Instructions for fire, explosion, spills, or other foreseeable contingencies. Provide guidance and procedures for emergency operation of

all utility systems including required valve positions, valve locations and zones or portions of systems controlled.

1.3.1.6 Operator Service Requirements

Include instructions for services to be performed by the operator such as lubrication, adjustment, inspection, and recording gage readings.

1.3.1.7 Environmental Conditions

Include 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.

1.3.2 Preventive Maintenance

Include the following information for preventive and scheduled maintenance to minimize corrective maintenance and repair for the installed model and features of each system. Include potential environmental and indoor air quality impacts of recommended maintenance procedures and materials.

1.3.2.1 Lubrication Data

Include preventative maintenance lubrication data, in addition to instructions for lubrication provided under paragraph titled "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.

1.3.2.2 Preventive Maintenance Plan and Schedule

Include manufacturer's schedule for routine preventive maintenance, inspections, tests and adjustments required to ensure proper and economical operation and to minimize corrective maintenance. Provide manufacturer's projection of preventive maintenance work-hours on a daily, weekly, monthly, and annual basis including craft requirements by type of craft. For periodic calibrations, provide manufacturer's specified frequency and procedures for each separate operation.

1.3.2.3 Cleaning Recommendations

Provide environmentally preferable cleaning recommendations in accordance with ASTM E1971.

1.3.3 Corrective Maintenance (Repair)

Include 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.

1.3.3.1 Troubleshooting Guides and Diagnostic Techniques

Include 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.

1.3.3.2 Wiring Diagrams and Control Diagrams

Wiring diagrams and control diagrams shall be 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.

1.3.3.3 Maintenance and Repair Procedures

Include instructions and a list of tools required to repair or restore the product or equipment to proper condition or operating standards.

1.3.3.4 Removal and Replacement Instructions

Include step-by-step procedures and a list required tools and supplies for removal, replacement, disassembly, and assembly of components, assemblies, subassemblies, accessories, and attachments. Provide tolerances, dimensions, settings and adjustments required. Instructions shall include a combination of text and illustrations.

1.3.3.5 Spare Parts and Supply Lists

Include lists of spare parts and supplies required for maintenance and 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.

1.3.4 Corrective Maintenance Work-Hours

Include manufacturer's projection of corrective maintenance work-hours including requirements by type of craft. Corrective maintenance that requires completion or participation of the equipment manufacturer shall be identified and tabulated separately.

1.3.5 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:

1.3.5.1 Product Submittal Data

Provide a copy of all SD-03 Product Data submittals required in the applicable technical sections.

1.3.5.2 Manufacturer's Instructions

Provide a copy of all SD-08 Manufacturer's Instructions submittals

required in the applicable technical sections.

1.3.5.3 O&M Submittal Data

Provide a copy of all SD-10 Operation and Maintenance Data submittals required in the applicable technical sections.

1.3.5.4 Parts Identification

Provide identification and coverage for all 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 shall show the index, reference, or key number that will cross-reference the illustrated part to the listed part. Parts shown in the listings shall be grouped 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.

1.3.5.5 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 such as the compressor of air conditioning system.

1.3.5.6 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.

1.3.5.7 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.

1.3.5.8 Testing and Performance Data

Include completed prefunctional checklists, functional performance test forms, and monitoring reports. Include recommended schedule for retesting and blank test forms.

1.3.5.9 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, 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.

1.4 TYPES OF INFORMATION REQUIRED IN CONTROLS O&M DATA PACKAGES

Include Data Package 5 and the following for control systems:

a. Narrative description on how to perform and apply all 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 all checkout tests and calibrations performed by the Contractor (not Cx tests).

d. Full points list. A listing of rooms shall be provided 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 and/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. Electronic File:

(1) Assemble each manual into a composite electronically indexed file in PDF format. Provide HDD’s, DVD's or CD's as appropriate, so that each one contains all maintenance and record files, and also the Project Record Documents and Training Videos, of the entire program for this facility.

(2) Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.

(3) Link the index to separate files within the composite of files. Book mark maintenance and record files, that have a Table of Contents, according to the Table of Contents.

h. Marking of all system sensors and thermostats on the as-built floor plan and mechanical drawings with their control system designations.

1.5 SCHEDULE OF OPERATION AND MAINTENANCE DATA PACKAGES

Furnish the O&M data packages specified in individual technical sections. The required information for each O&M data package is as follows:

1.5.1 Data Package 1

a. Safety precautions

b. Cleaning recommendations

c. Maintenance and repair procedures

d. Warranty information

e. Contractor information

f. Spare parts and supply list

1.5.2 Data Package 2

a. Safety precautions

b. Normal operations

c. Environmental conditions

d. Lubrication data

e. Preventive maintenance plan and schedule

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. Contractor information

1.5.3 Data Package 3

a. Safety precautions

b. Operator prestart

c. Startup, shutdown, and post-shutdown procedures

d. Normal operations

e. Emergency operations

f. Environmental conditions

g. Lubrication data

h. Preventive maintenance plan and schedule

i. Cleaning recommendations

j. Troubleshooting guides and diagnostic techniques

k. Wiring diagrams and control diagrams

l. Maintenance and repair procedures

m. Removal and replacement instructions

n. Spare parts and supply list

o. Product submittal data

p. O&M submittal data

q. Parts identification

r. Warranty information

s. Testing equipment and special tool information

t. Testing and performance data

u. Contractor information

1.5.4 Data Package 4

a. Safety precautions

b. Operator prestart

c. Startup, shutdown, and post-shutdown procedures

d. Normal operations

e. Emergency operations

f. Operator service requirements

g. Environmental conditions

h. Lubrication data

i. Preventive maintenance plan and schedule

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. Corrective maintenance man-hours

q. Product submittal data

r. O&M submittal data

s. Parts identification

t. Warranty information

u. Personnel training requirements

v. Testing equipment and special tool information

w. Testing and performance data

x. Contractor information

1.5.5 Data Package 5

a. Safety precautions

b. Operator prestart

c. Start-up, shutdown, and post-shutdown procedures

d. Normal operations

e. Environmental conditions

f. Preventive maintenance plan and schedule

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. Testing and performance data

s. Contractor information

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01 78 24.00 20

FACILITY ELECTRONIC OPERATION AND MAINTENANCE SUPPORT INFORMATION (eOMSI)
08/12

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

This section provides the requirements for electronic operation and maintenance support information (eOMSI). eOMSI contains detailed as-built information describing the efficient, economical, safe operation, maintenance, and repair of the facility. eOMSI is required to be in electronic format divided into the eOMSI Data and eOMSI Document files.

a. Provide eOMSI Data files in the eOMSI Spreadsheet Workbook format that are uploaded by the Government into a Government computerized maintenance management system (CMMS). Maximo is the CMMS that will be used on this project.

b. Provide eOMSI Document files in Portable Document Format (PDF), Computer Assisted Design and Drafting (CADD), and MS Word formats that can be uploaded into a document management system. The eOMSI document information is to be factual, concise, comprehensive, and written to be easily used by maintenance personnel. Descriptive matter and theory must include technical details that are essential for a comprehensive understanding of the operation, maintenance and repair of the system. The eOMSI Preparer shall ensure that the eOMSI reflect changes to systems and equipment, made during construction.

1.2 DEFINITIONS

1.2.1 Component Inventory Management Unit (CIMU)

CIMU is an organization of like-kind real property into manageable maintenance units. CIMU is a building component, group of components or component assemblies, serving a specific purpose in a facility that can be expected to follow a common and predictable lifecycle behavior. This class of non-equipment will include items such as exterior walls, exterior windows, interior finish, and roofs. This class of equipment will include items such as fan coil units, air handling units, lighting, and water closets. CIMUs can include items of installed equipment typically subject to routine scheduled maintenance.

1.2.2 Real Property Inventory Equipment (RPIE)

RPIE is a Government owned or leased individual pieces of equipment, apparatus, or fixture that are essential to the function of the real property (i.e. plumbing, electrical, heating, cooling and elevators). It is physically attached to, integrated into, and built in or on the property. Individual RPIE's can be combined to make a CIMU to facilitate facilities management.

1.2.3 BOTH (Combined CIMU and RPIE)

A BOTH is a stand-alone piece of equipment that can be managed independently and therefore is a Component Inventory Management Unit and a Real Property Installed Equipment. (If a CIMU has a Quantity of "One", it

would be considered a BOTH)

1.2.4 Utility and Energy Management (UEM)

UEM is a part of the Government Public Works (PW) Organization that manages the operation and maintenance of the Base utilities.

1.2.5 Systems

The words "system", "systems", and "equipment", when used in this document refer to as-built systems and equipment.

1.2.6 Computer Assisted Design and Drafting (CADD)

Electronic Computer Assisted Design and Drafting graphic software program that is used to create facility design contract documents.

1.2.7 eOMSI Spreadsheet Workbook

The eOMSI Spreadsheet Workbook is a group of Excel spreadsheets that provide forms, samples, and tools to assist the Contractor in identifying equipment and non-equipment data for the project. Use these Excel spreadsheets to organize and record maintenance data for the project. Use the eOMSI Spreadsheet Workbook in conjunction with this specification section with the file title: "eOMSI_spreadsheet_wkbk_new_constr.xls" located inside the zip file at the following web link: http://www.wbdg.org/ccb/DOD/UFGS_SUPPLEMENTS/UFGS_01_78_24.00_20_eOMSI_spreadsheet.zip

1.2.8 Flat File

The flat file is the blank forms portion of the eOMSI Spreadsheet Workbook used to fill in the equipment and non-equipment data. These flat file forms are Excel templates with column headings that identify required information for equipment and non-equipment. The data placed on the flat file spreadsheets are organized by the Contractor into RPIE, and BOTH maintenance units.

1.2.9 KTR

KTR is an abbreviation for "Contractor."

1.3 ORGANIZATION of eOMSI

Prepare the eOMSI submittals in two components, eOMSI Data Files and eOMSI Document Files.

1.3.1 eOMSI Data Files

Provide facility specific information listed in the DESCRIPTION of WORK of this specification section and divide into Equipment Data and Non-Equipment Data on eOMSI Spreadsheet Workbook / Flat Files. The Government will use the completed eOMSI Spreadsheet Workbook to update information of the CMMS indicated above. The following tabs are included in the eOMSI Spreadsheet Workbook and serve the purpose stated:

a. Flat File - Equipment Data; This spreadsheet provides an organized format for the contractor to fill in required information about dynamic equipment (fans, pumps,…) that is part of the project.

b. Flat File - Non-Equipment Data; This spreadsheet provides an organized format for the Contractor to fill in required information about non-equipment (doors, windows, etc.) that is part of the project.

c. New CONST - RENOVATION Schema; Provides information and instructions to explain the task of completing the Flat File - Equipment Data and Flat File - No-Equipment Data spreadsheets.

d. Facility and UEM Uniformat; Provides a Uniformat division of facility and utility systems and components of the project. This information is used to complete the Master-System-Subsystem portions of the Flat File - Equipment Data and Flat File - Non-Equipment Data spreadsheets.

e. UEM Asset Classification: Provides a list of critical Utility and Energy Management components that must be identified in the Flat File - Equipment Data spreadsheet.

f. Asset Identification List: List of items that require equipment tagging. Tag numbering must be entered in the Equipment Tag Number of the Flat File - Equipment Data spreadsheet.

g. Data Definitions; Provide definitions of terms used on the spreadsheet workbook.

1.3.2 eOMSI Document Files

Provide facility specific information, which was used to construct the project and provide information on operation and maintenance of the facility in a form that can be easily accessed and used. Organize the document files to facilitate storage in an electronic Government document file management system. Arrange the eOMSI Documents files in the following order and identify the document files as follows:

a. Facility Information

b. Primary Systems Information

c. Product and Drawing Information

Cross-referencing within or between the eOMSI Document File parts must be specific.

1.3.3 Order of Precedence of eOMSI Requirements

This specification section takes precedence over the eOMSI Spreadsheet Workbook in the event of conflict between this specification section and the eOMSI Spreadsheet Workbook.

1.3.4 Sources of eOMSI Information

The sources of data needed to prepare the eOMSI include, but are not limited to, the design plans and specifications, field visits, approved construction submittals and manufacturer's catalog data for materials, products, systems, as-built drawings, contract modifications, and construction methods used in this contract. Ensure that the eOMSI reflect changes to systems and equipment made during construction as a result of contract modifications. Collect and input needed information to complete the data and document files.

1.3.5 Unified Facility Guide Specifications (UFGS) Operation and Maintenance Data Packages

Provide information necessary to maintain the equipment and non-equipment of the facility by utilizing the SD-10 Operations and Maintenance Data Packages as defined in Section 01 78 23 OPERATION AND MAINTENANCE DATA. Provide the SD-10 Data Packages required in the individual sections for each product, material, and system used on the project.

1.4 eOMSI MEETINGS

Organize, coordinate, and facilitate the meetings necessary to obtain the information to complete the eOMSI submittal.

1.4.1 eOMSI Start-Up Meeting

During the Pre Construction Meeting, discuss the following;

a. The eOMSI Development Meetings schedules and participants.

b. Processes and methods of gathering of facility eOMSI information during construction.

c. The qualifications of the eOMSI Preparer.

d. The eOMSI Submittals schedule. Place the eOMSI submittal schedule on the construction schedule.

1.4.2 eOMSI Development Meetings

Meet with key personnel to discuss the eOMSI requirements and the deliverables. These are a series of meetings that begin after the Preconstruction Meeting and conclude with the Contractor's first eOMSI submittal. Include the eOMSI Preparer, Commissioning Authority (CA) and the Quality Control Manager to attend these meetings. Also include the Mechanical, Electrical and Fire Protection Sub Contractors as required. The purposes of these meetings are to:

a. Familiarize the Contractor with the Government PW maintenance processes.

b. Provide the Contractor with an understanding of the RPIE, CIMU, and BOTH to organize the facility into these information structures.

c. Obtain the "By KTR Using Government Info" information for the eOMSI Flat File Spreadsheets.

d. Review and identify the electronic format, units of measure, titles, and wording necessary to load the eOMSI data into the designated Government CMMS and eOMSI documents into the Government Document Management System.

e. Review progress of eOMSI development and discuss issues that need to be resolved.

f. Coordinate requirements for eOMSI training.

1.4.3 Field Validation Meetings

Meet with key personnel to determine the accuracy of the eOMSI Data and Documents as described in this specification. Include the Subcontractors as required to verify as-built conditions.

1.4.4 Facility Turnover Meetings

Refer to paragraph FACILITY TURNOVER PLANNING MEETINGS (NAVFAC Red Zone - NRZ) in Section 01 30 00 ADMINISTRATIVE REQUIREMENTS (PWD ME), for eOMSI facility turnover meeting requirements.

1.5 UNITS of MEASURE

Provide eOMSI utilizing the units of measure used in the Government created contract documents.

1.6 QUALIFICATIONS of eOMSI PREPARER

Submit Qualifications of eOMSI Preparer that meet the following:

a. Possess multidiscipline technical knowledge of the operations and maintenance of building systems.

b. Experience with the type of systems that are identified in this specification and capable of augmenting manufacturer's information to clarify operations instructions.

c. Experience preparing detailed Operations and Maintenance Manuals for facilities of equal size and complexity as required by this contract

d. Ability to prepare spreadsheets to be loaded into a CMMS.

e. Experience presenting training and coordinating a team of manufacturer's representatives to provide training of Facility Users and Maintenance Personnel.

1.7 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-07 Certificates

Qualifications of eOMSI Preparer; G

SD-10 Operation and Maintenance Data

Training Plan; G

For each training session; submit dates start and finish times, and locations; outline of the information to be presented; names and qualifications of the presenters; and list of texts and other materials required to support training.

Training Outline; G

Training Content; G

SD-11 Closeout Submittals

eOMSI, Preliminary Submittal; G

eOMSI, 100 percent, Prefinal Submittal; G

eOMSI, Final Submittal; G

Training Video Recording; G

Validation of Training Completion; G

1.8 SUBMITTAL FORMAT

1.8.1 eOMSI Data Files

Provide eOMSI data on compact disks (CD) or data digital versatile disk (DVD) disks in formats that are compatible with used on the project. Provide eOMSI Data information by completing the eOMSI Spreadsheet Workbook / Flat File initial templates:

a. eOMSI Spreadsheet Workbook / Flat File - Equipment Data tab; Provide information to all spreadsheet fields. Obtain the information indicated to be supplied "By KTR using Government info" from the Contracting Officer / Facility Maintenance Specialist (FMS) and fill in this part of the Flat File. Typically identify individual pieces of equipment by RPIE. Group equipment with similar Uniformat classification, design life, install date, remaining service life, and direct condition rating - into manageable CIMUs. Except, when the individual RPIE is complex enough to require its own management planning and in this case the individual RPIE is also a BOTH. Each CIMU shall be greater than $2,500 in value.

b. eOMSI Spreadsheet Workbook / Flat File - Equipment Data tab; Provide information to all spreadsheet fields. Group Non-equipment with similar Uniformat classification, design life, install date, remaining service life, and direct condition rating - into manageable CIMUs. Obtain the information indicated to be supplied "By KTR using Government info" from the Contracting Officer / FMS to complete that portion of the Flat File. Each CIMU shall be greater than $2,500 in value.

1.8.2 eOMSI Document Files

Provide eOMSI document files on CD or data DVD disks using the most current version of Adobe Acrobat or similar software capable of producing PDF files that can be used to upload the files into an electronic Government document management system. Bookmark the PDF files for easy access to the information. Bookmark Facility Information and Primary Systems Information to at least one level lower than the major system. Bookmark Product and Drawing Information documents using the current version of Masterformat and arrange submittals using the specification sections as a structure. Use Masterformat and UFGS numbers along with descriptive bookmarking titles that explain the content of the information that is being bookmarked.

Provide the following information on the compact disk label and disk

holder/ 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 compact disk content on the disk label

h. Date

i. Virus scanning program used

1.9 SUBMITTAL SCHEDULE

Provide the following eOMSI submittals. Scan electronic files of eOMSI Data and eOMSI Documents for malicious viruses using a commercially available scanning program that is routinely updated to identify/remove current virus threats.

1.9.1 eOMSI, Preliminary Submittal

Submit the Preliminary submittal when construction is approximately 50 percent complete;

a. eOMSI Data Files.(Excel)

b. eOMSI Document Files (Bookmarked PDF) that include:

(1) Facility Information

(2) Primary Systems Information

(3) Product and Drawing Information

Provide four electronic copies to the Contracting Officer for approval. Provide the submittal in sufficient detail to allow the Government to substantiate that the data collection, detail of discussion, and information organization of both the data and document files are in accordance with the contract. Include in the submittal, as a minimum, all available Facility Information; all systems of the Primary Systems Information (at least one system to be essentially complete and the remaining systems shall be at least 50 percent complete); and at least two Masterformat divisions of the completed Product Data.

1.9.1.1 Preliminary eOMSI Submittal Review Duration

Allow the Government a minimum of 30 calendar days to review and comment on the submittal, from the time the Government receives the Preliminary eOMSI submittal.

1.9.2 100 percent - Prefinal eOMSI Submittal

Submit four electronically formatted copies of the 100 percent submittal of the eOMSI Data File and eOMSI Document File to the Contracting Officer for approval. The eOMSI, 100 percent, Prefinal Submittal is due 90 calendar days prior to Beneficial Occupancy Date (BOD)/ Placed In Service Date. This submittal shall be a complete, working document that can be used to operate and maintain the facility. Any portion of the submittal that is incomplete or inaccurate will require the entire submittal to be returned for correction. Incorporate all Government requested changes from the Preliminary submittal and the eOMSI Development Meetings comments into the Prefinal submission. Provide the same information required for each eOMSI document file CD/ DVD disk label, on the introductory page of each eOMSI submittal volume. Refer to paragraph titled "eOMSI Document Files" of this section for a list of this required introductory page information.

Submit the Prefinal submittal when construction is 90 percent complete that include;

a. eOMSI Data Files.(Excel)

b. eOMSI Document Files (Bookmarked PDF) that include;

(1) Facility Information

(2) Primary Systems Information

(3) Product and Drawing Information

1.9.2.1 Prefinal eOMSI Submittal Review Duration

Allow the Government a minimum of 30 calendar days to review and approve the submittal, from the time the Government receives the Prefinal eOMSI submittal. If the Prefinal submittal is required to be resubmitted, the Government review of subsequent submittals shall have the same review duration as the first submittal. No extension in project completion date will be granted due to resubmittal.

1.9.3 eOMSI, Final Submittal

Complete the eOMSI Data and Documents and provide Final submittal in Excel and bookmarked PDF format as required in the Prefinal Submittal. Deliver submittals to the Contracting Officer for approval. The Final submittal is due at BOD/ Placed in Service Date. Include all Government requested changes from the Prefinal submittal, Field Validation, and the Project Closeout Meetings to complete the Final submittal.

In addition to the formats stated above, provide four electronic copies of the Final submittal in editable formats. Provide editable eOMSI Document drawing and diagram files in CADD and other editable eOMSI Document files in MS Word or Excel. Refer to Product and Drawing Information below to describe the format of the Record Drawings submission.

1.10 FACILITY SYSTEMS

The project is anticipated to include the following critical systems. Provide eOMSI data, eOMSI documents, and training for all products, materials, and equipment that make up these systems in the final constructed facility, including the following systems:

a. HVAC facility systems (including chillers, boilers, air handling equipment, exhaust fans, fan coil units, VAV boxes, heat recovery wheels, hot and chilled water hydronic systems, control valves, and backflow preventers).

b. Direct Digital Controls/Space Temperature Controls.

c. Electrical systems (including transformers, secondary switchgear, variable frequency drives, and frequency converters).

d. Fire protection systems and fire alarm detection systems.

PART 2 PRODUCTS

2.1 DESCRIPTION OF WORK

2.1.1 eOMSI DATA FILES

Provide the following items of data in a format compatible with the CMMS used on the project. Enter all data in the eOMSI Spreadsheet Workbook / Flat File.

2.1.1.1 Equipment Information

a. Equipment Listing - Provide the following information for each piece of installed equipment and for each applicable item listed on the UEM Asset Classification tab of the eOMSI Spreadsheet Workbook. Enter all information on the Flat File - Equipment Data tab of the eOMSI Spreadsheet Workbook.

(1) Asset_ID

(2) Asset Description

(3) ORG_ID

(4) Site_ID

(5) Building Name

(6) Asset Type

(7) Inventory Category

(8) Location Code

(9) Design Life

(10) FCI

(11) Remaining Service Life

(12) DCR

(13) Work Center

(14) Belongs to (Parent Asset. ID)

(15) Contract number

(16) Task/delivery order number

(17) Drawing reference ID

(18) Location description

(19) Master system Uniformat

(20) System Uniformat

(21) Subsystem Uniformat

(22) Quantity

(23) Install date

(24) Replacement cost

(25) Manufacturer

(26) Model number

(27) Serial number

(28) Manufacturer Warranty end date

(29) Warranty Company Info

(30) Comment (Such as: Required information not to void warranty)

(31) Status Date

(32) Asset Status

(33) UEM Classification ID

(34) UEM Classification Description

(35) Job Plan Code (Preventive Maintenance)

The Job Plan List is provided by NAVFAC to identify applicable Job Plan Codes. If NAVFAC does not have a Job Plan for the equipment used, provide information in paragraph entitled Job Plan for Equipment NOT assigned a NAVFAC Job Plan below.

(36) Equipment Tag Number

b. Job Plan for Equipment NOT assigned a NAVFAC Job Plan - Preventive Maintenance Procedures, and Schedules. If the Government cannot provide a job plan for a specific piece of equipment, provide a detailed Job Plan (Preventive Maintenance Plan) using manufacturer's recommendations and sound engineering practice. Show associated frequencies when job plan is to be performed and include detailed preventive maintenance (PM) procedures such as inspections, tests, adjustments required to ensure proper and economical operation and minimize corrective maintenance. For periodic calibrations, provide manufacturer's specified frequency and procedures for each operation.

Detailed Job Plans include the following:

(1) Safety instructions and precautions,

(2) Including lock out/tag out precautions,

(3) Required skill level,

(4) Number of personnel needed,

(5) Frequency of performing the job plan,

(6) Special tools needed,

(7) Parts needed

(8) Estimated time required to complete the task.

(9) Lubrication schedules indicating types, grades and capacities.

2.1.1.2 Non-Equipment Information

a. Provide the following information for each item of non-equipment. Enter all information on the eOMSI Spreadsheet Workbook - Flat File Non-Equipment Data tab.

(1) Asset ID

(2) Asset Description

(3) ORG_ID

(4) Site_ID

(5) Asset Type

(6) Inventory Category

(7) Design Life

(8) FCI

(9) DCR

(10) Building Name

(11) Location Code

(12) Contract Number

(13) Task/ Delivery Order Number

(14) Drawing Reference _ID

(15) Notes on CIMU Structure

(16) Master System Uniformat

(17) System Uniformat

(18) Subsystem Uniformat

(19) Quantity

(20) Install Date

(21) Remaining Service Life

(22) Replacement Cost

(23) Warranty End Date

(24) Warranty Company Info

(25) Comments (Such as: Required information not to void warranty)

2.1.2 eOMSI DOCUMENT FILES

2.1.2.1 Facility Information

Facility Information includes the following;

a. General Facility and System Description - Describe the function of the facility. 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 listed in the Primary Systems Information 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.

b. Basis of Design - Include the Government furnished Basis of Design that shows the basic design scope of work, assumptions and the original intentions of the DOR. Identify the site utility design goals, objectives, design load limits, assumptions, and system features that are critical to the operation and maintenance of the systems.

c. Safety Hazards - List all residual hazards identified in the Activity Hazard Analysis as prepared by the DOR. Provide recommended safeguards for each identified hazard.

d. Floor Plans - Provide uncluttered, legible 11 by 17 inches floor plans. Include room numbers, type or function of spaces, and overall facility dimensions on the floor plans. Do not include construction instructions, references, frame numbers, etc.

e. Floor Coverings, Wall Surfaces, Ceiling Surfaces - Provide a table that lists by room number (including hallways and common spaces), the type, and area of finish. The table shall include a facility summary of the total area for each type of space and floor, wall, or ceiling finish.

f. Roofing - Provide the total area of each type of roof surface and system. Provide the name of the roofing product and system; manufacturer's, supplier's, and installer's names, addresses, and phone numbers. For each type of roof, provide a recommended inspection, maintenance and repair schedule that details checkpoints,

frequencies, and prohibited practices. List roof structural load limits.

g. Supply Inventory Requirements - Provide a list of maintenance and repair supplies (e.g., spare parts, fuels and lubricants) required to ensure continued operation without unreasonable delays. Identify and list parts and supplies that have long purchase lead times. Give special consideration to facilities at remote locations.

2.1.2.2 Primary Systems

Provide Primary Systems Information for all primary systems listed below. Primary systems information shall address operations, troubleshooting guides and diagnostic techniques, repair, and preventive maintenance.

a. HVAC facility systems

b. Direct digital controls/ space temperature controls

c. Electrical systems

d. Fire protection systems and fire alarm and detection systems

e. Cathodic protection

f. Site civil utilities (including water, wastewater, storm water collection, gas/ fuel, manholes/ hand holes, and pumping, and treatment systems)

g. Site electrical utilities (including communications, distribution, ducts, and manholes/ hand holes)

2.1.2.3 Primary Systems Information

Primary Systems Information requires using a systems approach. This approach requires that consideration be given to the entire system (that is, the interfaces of equipment, connections and material flow within the system). Use Notes, Cautions and Warnings throughout the Primary Systems Information to emphasize important and critical instructions and procedures. Provide the following information for each system:

a. Operation

(1) System Description - Provide a detailed discussion of the system composition and operation. Include technical details that are essential for an understanding of the system.

(2) Start-Up and Shutdown Procedures - Provide step by step instructions to bring systems from static to operational configurations and from operating to shutdown status.

(3) Normal and Emergency Operating Instructions - Provide a discussion of the normal and emergency operation and control of the system. Address operating norms (for example, temperatures, pressures, and flow rates) expected at each zone or phase of the system. Supplement the discussion with control and wiring diagrams and data. Include shutdown instruction for fires, explosions, spill, or other contingencies.

(4) System Flow Diagrams - Provide a flow diagram indicating system liquid, air or gas flow during normal operations. Integrate all system components into the diagram. A compilation of non-integrated, flow diagrams for the individual system components are not acceptable.

(5) Field Test Reports - Provide Field Test Reports (SD-06) that apply to equipment associated with the system. The eOMSI Document Submittal does not require the second season HVAC testing.

(6) Operator Servicing Requirements - Provide instructions for services to be performed by the operator such as lubrication, adjustments, and inspection.

b. Troubleshooting Guides and Diagnostic Techniques

Provide step-by-step procedures for isolating the cause of system malfunctions. The procedures shall clearly state indications or symptoms of trouble; the sequential instructions, including checks and tests to be performed and conditions to be sought, to determine the cause; and remedial measures to bring the equipment and system to operating condition. Identify special test equipment required to perform the procedures. Start the troubleshooting guide at the system level and proceed to a level where detailed manufacturer's troubleshooting procedures for equipment and components can be referenced. Provide clear references to repair procedures included in the manufacturer's Product Data.

c. Repair

Repair Procedures - Provide repair instructions required for restoring equipment to proper operating condition and standards. References must be specific as to location within the eOMSI manuals.

2.1.2.4 Product and Drawing Information

This portion of the eOMSI provides a record of the facility products, materials, equipment, and minimum information necessary to operate the facility. Provide Product and Drawing Information for all systems in the final constructed facility, including the anticipated critical systems identified in this specification section.

a. O&M Data. Include, as a minimum O&M Data, required in the SD-10 Data Packages of the UFGS specifications. Provide the following for each product, material, and system on the project:

(1) Materials

(2) Equipment

(3) Data Sheets

(4) Test Reports

(5) Warranties

(6) Certificates

(7) Shop Drawings

b. Drawings. Provide original CADD drawings or original facility design drawings that have been edited to eliminate unneeded information and highlight eOMSI information in PDF format. Provide the following drawings at a large enough scale to be clear, legible, and able to differentiate designated isolation units from surrounding valves and switches.

(1) Utility Schematic Diagrams - Provide a one line schematic diagram for each utility system such as power, water, wastewater, and gas/ fuel. Schematic diagram must show from the point where the utility line is connected to the mainline up to the five-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.

(2) Enlarged Connection and Cutoff Plans - Provide enlarged floor plans that provide information between the five foot utility 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 locations of the main interior and exterior connection and cutoff points for all 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 the room number, panel number, circuit breaker, valve number, etc., of each utility and equipment connection and cutoff point, and what that connection and cutoff point controls.

c. Equipment Tags. Provide equipment tags for all applicable items listed in eOMSI Spreadsheet Workbook/ Asset Identification List tab. Provide tags that are durable, oil and water-resistant and approved by the Contracting Officer. Attach tag with copper wire and spray with a clear silicone waterproof coating. Place tags on the equipment in a visible location that can be read by an inspector in a standing position. Provide tag information to include: Contract Number, Maximo Equipment Identification Numbers, and Equipment Tag Number that corresponds with the drawing. Only equipment with a value of greater than $2,500 or sized as noted in eOMSI Spreadsheet Workbook/ Asset Identification List tab, shall be tagged.

Provide tags for the items listed below in addition to the items listed in eOMSI Spreadsheet Workbook/ Asset Identification List tab:

(1) Control valves for heating, cooling, gas, fuel, water and wastewater for piping 1 1/2 inches or greater. Main interior and exterior utility cut off valves (no dollar value restriction).

d. Record Drawings. Provide an electronic copy of the Record Drawings for the project in PDF format, bookmarking all drawings using the sheet title and sheet number and CADD format. Provide the Record Drawings on the same electronic media as used for the eOMSI submittal but on separate disks or files to allow simultaneous use of the eOMSI and Record Drawings. Coordinate with requirements of Section

01 78 00.00 22CLOSEOUT SUBMITTALS (PWD ME).

PART 3 EXECUTION

3.1 eOMSI TRAINING

Prior to acceptance of the facility by the Contracting Officer for Beneficial Occupancy/ Placed in Service Date, the eOMSI Preparer must provide a comprehensive project-specific Government personnel training program for the systems and equipment of the facility specified in the technical specifications of this Contract. The trainees must include the Facilities Management Specialist, maintenance staff, and applicable building occupants. Coordinate, schedule, and ensure that training is completed. Instructors shall be well-versed in the particular systems that they are presenting. The eOMSI Preparer shall direct a team of specialist to address all aspects of the eOMSI submittal. The team must include at least a mechanical engineer and an electrical engineer. Provide instruction on site at a location approved 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. Indicate prior approval of the training plan by the Commissioning Authority (CA) on the submittal forwarded to the Contracting Officer. Also, coordinate the training schedule with the Contracting Officer and CA. Include within the plan the following elements:

a. Equipment included in training.

b. Intended audience.

c. Location of training.

d. Objectives.

e. Subjects covered including description.

f. Duration of training on each subject.

g. Methods (classroom lecture, video, site walk-through, actual operational demonstrations, written handouts, etc.).

h. Instructor and instructor qualifications for each subject.

3.1.2 Training Content

The core of this training shall be based on manufacturer's recommendations and the operation and maintenance information defined in Section 01 78 23 OPERATION AND MAINTENANCE DATA. The CA is responsible for overseeing and approving the content and adequacy of the training. The eOMSI Preparer and the CA must interview the Government Facilities Management Specialist and the Contracting Officer to determine the special needs and areas where training will be most valuable. The Contracting Officer and CA must decide how rigorous the training should be for each piece of equipment. The training shall include the following for each Primary System:

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.

In addition to the training requirements above, provide a brief summary of "Facility Information" and a more detailed presentation of, "Primary Systems Information". Spend 95 percent of the instruction time during the presentation on the "Primary Systems Information". Include the following for each Primary system training presentation:

d. Design intent.

e. Use of O&M Manuals.

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

The eOMSI Preparer shall provide each trainee in the course a written course outline, listing the major and minor topics to be discussed by the instructor on each day of the course. Provide the course outline 14 calendar days prior to the training.

3.1.4 Training Video Recording

Provide to the Contracting Officer two copies of the training course in DVD video recording format. Capture within the recording, in video and audio, all instructors' training presentations including question and answer periods with the trainees. Confirm proposed software, used to create the training is compatible with the using activity resources to play the training materials. The recording camera(s) shall 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 Trainees

If, at the end of the training course, there are questions from trainees that remain unresolved, the instructor shall send the answers, in writing, to the Contracting Officer for transmittal to the trainees, and the training video shall 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 all 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 OMSI Preparer for inclusion into the OMSI documentation.

3.1.7 Quality Control Coordination

Coordinate the eOMSI training with the CA in Section 01 45 00.00 20 QUALITY CONTROL (PWD ME).

3.2 FIELD VALIDATION

Perform the field validation at the 100 percent - Prefinal submittal stage. Coordinate with the Contracting Officer to establish the field validation date, to ensure the availability of Government representatives. Validation without Government representative, unless waived, is not acceptable.

The purpose of the validation is to discuss final requirements needed to complete the eOMSI submittals and to conduct field verification. Field validation is used to verify the accuracy and completeness of the eOMSI Data and eOMSI Documents. This includes verifying that the systems and equipment in the eOMSI submittal accurately reflect the as-built conditions; verifying that O&M procedures are appropriate for the systems and equipment that they support; verifying that equipment nomenclature and system configurations are accurate; and confirming correct equipment tagging.

The eOMSI Preparer, Superintendent, Quality Control Manager, and the Design Quality Control Manager/ Commissioning Authority (CA) shall attend the field validation, to verify the accuracy of the eOMSI Submittal. The eOMSI Preparer shall perform the validation, document the results of the field validation and correct the final eOMSI submittal to reflect the changes identified.

-- End of Section --

SECTION 01 91 13

GENERAL COMMISSIONING REQUIREMENTS (PWD ME)
07/13

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 HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS (ASHRAE)

ASHRAE Guideline O (2005) The Commissioning Process

1.2 SCOPE OF COMMISSIONING WORK

a. Commissioning building systems, as described herein and ASHRAE Guideline O.

b. Basis of Design (BOD): BOD documentation is included by reference for information only.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Commissioning Plan; G

SD-11 Closeout Submittals

Interim Commissioning Report; G

Final Commissioning Report; G

1.4 SUMMARY

Section includes general requirements that apply to implementation of commissioning without regard to specific systems, assemblies, or components.

1.4.1 Related Requirements

a. Section 23 08 00.00 10 COMMISSIONING OF HVAC SYSTEMS for commissioning process activities for HVAC&R systems, assemblies, equipment, and components.

1.5 DEFINITIONS

BOD: Basis of Design. A document that records concepts, calculations,

decisions, and product selections used to meet the OPR and to satisfy applicable regulatory requirements, standards, and guidelines. The document includes both narrative descriptions and lists of individual items that support the design process.

CCT: Construction Contracting Team. The team headed by or are under the control of the General Contractor that will construct the project.

Commissioning - Commissioning is a comprehensive and systematic process to verify that the building systems perform as designed to meet the Owner's Project Requirements. Commissioning during the construction, acceptance, and warranty phases is intended to achieve the following specific objectives:

(i) Verify and document that equipment is installed and started per manufacturer's recommendations, industry accepted minimum standards, and the Contract Documents.
(ii) Verify and document that equipment and systems receive complete operational checkout by installing contractors.
(iii) Verify and document equipment and system performance.
(iv) Verify the completeness of operations and maintenance materials.
(v) Ensure that the Government's operating personnel are adequately trained on the operation and maintenance of building equipment.

The commissioning process does not take away from or reduce the responsibility of the system designers or installing Contractors to provide a finished and fully functioning product.

Commissioning Plan: A document developed by the CxA that spells out the organization, schedule, allocation of resources, and documentation requirements of the commissioning process.

CxA: Commissioning Agent: A firm engaged by the Government to manage the commissioning process.

Deficiency - A condition in the installation or function of a component, piece of equipment or system that is not in compliance with the Contract Documents, does not perform properly or is not complying with the Owner's Project Requirements.

Functional Performance Test - Test of the dynamic function and operation of equipment and systems using manual (direct observation) or monitoring methods. Functional testing is the dynamic testing of systems (rather than just components) under full operation (e.g., the chiller pump is tested interactively with the chiller functions to see if the pump ramps up and down to maintain the differential pressure setpoint). Systems are tested under various modes, such as during low cooling or heating loads, high loads, component failures, unoccupied, varying outside air temperatures, fire alarm, power failure, etc. The systems are run through all the control system's sequences of operation and components are verified to be responding as the sequences state. Traditional air or water test and balancing (TAB) is not functional testing, in the commissioning sense of the word. TAB's primary work is setting up the system flows and pressures as specified, while functional testing is verifying that which has already been set up. The Commissioning Agent develops the functional test procedures in a sequential written form, coordinates, oversees and documents the actual testing, which is usually performed by the installing contractor or vendor. Functional Performance Tests are performed after prefunctional checklists and startup are

complete.

Manual Test - Using hand-held instruments, immediate control system readouts or direct observation to verify performance (contrasted to analyzing monitored data taken over time to make the "observation").

Monitoring - The recording of parameters (flow, current, status, pressure, etc.) of equipment operation using dataloggers or the trending capabilities of control systems. Non-Compliance -see Deficiency.

Non-Conformance - see Deficiency.

OPR: Owner's Project Requirements. A document that details the functional requirements of the project and the expectations of how it will be used and operated. These include Project goals, measurable performance criteria, cost considerations, benchmarks, success criteria, and supporting information.

Pre-functional Checklist - A list of items to inspect and elementary component tests to conduct to verify proper installation of equipment, provided by the Commissioning Agent to the contractor. Pre-functional checklists are primarily static inspections and procedures to prepare the equipment or system for initial operation (e.g., belt tension, oil levels OK, labels affixed, gages in place, sensors calibrated, etc.). However, some pre-functional checklist items entail simple testing of the function of a component, a piece of equipment or system (such as measuring the voltage imbalance on a three-phase pump motor of a chiller system). The word "pre-functional" refers to before functional testing. Pre-functional checklists augment and are combined with the manufacturer's start-up checklist.

Seasonal Performance Test - Functional Performance Test that are deferred until the system(s) will experience conditions closer to their design conditions.

Warranty Period - Warranty period for entire project, including equipment components. Warranty begins at Substantial Completion and extends for at least one year, unless specifically noted otherwise in the Contract Documents and accepted submittals.

Systems, Subsystems, Equipment, and Components. Where these terms are used together or separately, they mean both the design as well as the resulting "as-built" systems, subsystems, equipment, and components.

1.6 COMMISSIONING TEAM

Members Appointed by CCT: Individuals, each having the agent to act on behalf of the entity he or she represents, explicitly organized to implement the commissioning process through coordinated action. The commissioning team shall consist of, but not be limited to, representatives of the CCT, including Project Superintendent and subcontractors, installers, suppliers, and specialists deemed appropriate by the CxA, and with the assent of the Government.

1.7 COMMISSIONING PROCESS

Building commissioning activities and documentation includes Fundamental Commissioning services. Commissioning is a multi-disciplined process of verifying accurate design, installation and operation of all building

systems. The commissioning process should begin in the design phase and continues through occupancy and operation. Core areas encompassed in commissioning include:

a. HVAC components and equipment.

b. HVAC System: interaction of cooling, heating, and comfort delivery systems.

c. Lighting fixtures and lighting control systems.

d. Fire alarm system interconnection with the HVAC and lighting control system.

1.7.1 Commissioning Tasks

The following activities outline the commissioning tasks and the general order in which they occur. The Commissioning Agent shall coordinate all activities.

a. Design Review and Documentation

    (1) Construction Document Review

b. Commissioning Scoping Meeting
c. Commissioning Plan
d. Submittals Review
e. Start-Up/Pre-Functional Checklists
f. Functional Performance Testing
g. Short-Term Diagnostic Testing
h. Efficiency Report and Resolution Record
i. Operations and Maintenance Training

    (1) O&M Manual
    (2) Training
    (3) O&M Database

j. Record Documents Review
k. Final Commissioning Report
l. Deferred Testing

    (1) Unforeseen Deferred Tests
    (2) End-of-Warranty Review

1.7.1.1 Commissioning Task Descriptions

Scoping Meeting Minutes - Capture salient elements of discussion, principal hurdles and proposed solutions for each commissioning planning and coordination effort with the Designer of Record and Construction Integrator.

Commissioning Plan - Submit Commissioning Plan within 120 calendar days of authorization to proceed. Update as necessary during the work to reflect the progress on the components and systems. Forward updates to the CCT and Designer of Record in a timely manner.

Commissioning Schedule - Submit Schedule with Commissioning Plan. Update as necessary during the work to reflect the progress on the components and systems. Forward updates to the CCT and Designer of

Record in a timely manner.

Pre-Functional Performance Test Forms - Submit minimum 30 calendar days prior to testing.

Functional Testing Coordination - Equipment shall not be "temporarily" started for commissioning. Functional performance testing shall not begin until pre-functional, start-up and TAB is completed for a given system. The controls system and equipment it controls shall not be functionally tested until all points have been calibrated and pre-functional checklists are completed.

Deficiency Report and Resolution Record - Document items of non-compliance in materials, installation or operation. Document the results from start-up/pre-functional checklists, functional performance testing, and short-term diagnostic monitoring. Include details of the components or systems found to be non-compliant with the drawings and specifications. Identify adjustments and alterations required to correct the system operation, and identify who is responsible for making the corrective changes. Update as necessary during the work to reflect the progress on the components and systems. Forward updates to the CCT and Designer of Record in a timely manner.

Final Commissioning Report: Compile a final Commissioning Report. Summarize all of the tasks, findings, conclusions, and recommendations of the commissioning process. Indicate the actual performance of the building systems in reference to the Owner's Project Requirements and contract documents. Include completed pre-functional inspection checklists, functional performance testing records, diagnostic monitoring results, identified deficiencies, recommendations, and a summary of commissioning activities.

Operation and Maintenance (O&M) Submittals - Training Plan to include:

(i) Dates, start and finish times, and locations; Outline of the information to be presented;
(ii) Names and qualifications of the presenters;
(iii) List of texts and other materials required to support training.

1.7.2 Construction Contractor

1.7.2.1 Construction and Acceptance Phase

a. Facilitate coordination of commissioning work by CxA.

b. Attend commissioning scoping meeting, controls integration meeting and additional meetings, as necessary.

c. Furnish copies of construction documents, addenda, change orders and approved submittals and design drawings related to commissioned equipment to CxA.

d. Ensure Subcontractors execute their commissioning responsibilities according to Project Manual and Commissioning Plan.

e. Coordinate training of Government personnel.

f. Work with Subcontractors to prepare operations and maintenance manuals, according to Project Manual, including updating original

sequences of operation to Record (As-Built) conditions.

g. Develop start-up and checkout plan for commissioned equipment based on manufacturer's recommendations and pre-functional checklists from CxA.

h. Submit start up and check out plan to CxA for review and approval prior to start-up.

1.7.2.2 Warranty Period

a. Ensure execution of required seasonal or deferred functional performance testing.

b. Ensure correction of deficiencies.

c. Make necessary adjustments to operations and maintenance manuals and As-Built Drawings for issues identified during warranty period.

1.7.3 HVAC, Electrical, and Controls

1.7.3.1 Construction and Acceptance Phases

a. Attend commissioning scoping meeting, controls integration meeting and additional meetings.

b. Provide additional requested documentation prior to normal operations and maintenance manual submittals, to CxA for development of start-up and functional testing procedures.

c. Assist in clarification of operation and control of commissioned equipment where Contract Documents, control drawings or equipment documentation is not sufficient for writing detailed testing procedures.

d. Assist to develop start-up and checkout plan for commissioned equipment based on manufacturer's recommendations and pre-functional checklists from CxA.

e. During startup and checkout process, execute pre-functional checklists for commissioned equipment.

(1) Perform and document completed startup and system operational checkout procedures.

f. Resolve master deficiency list items before functional testing, as developed by CxA.

(1) Air Testing, Adjusting, and Balancing to be completed with discrepancies and problems resolved before functional testing.

g. Perform functional performance testing, under direction of CxA, for commissioned equipment. Resolve equipment or system deficiencies and retest as required to verify modified performance. Allow adequate time for training. Coordinate training schedules through the CxA.

h. Prepare operations and maintenance manuals according to Project Manual, including updating original sequences of operation to record conditions.

i. Provide training of the Government's operating personnel.

j. Coordinate with equipment manufacturers to determine requirements to maintain validity of warranties.

1.7.3.2 Warranty Period

a. Execute seasonal or deferred functional performance testing.

b. Correct deficiencies and make necessary adjustments to Operations And Maintenance Manuals and As-Built Drawings for issues identified during warranty period.

1.7.4 Controls Commissioning

Controls Commissioning is included as part of the CCT responsibilities during construction and acceptance phases in addition to those listed, which are:

1.7.4.1 Sequences of Operation Submittals

Temperature controls submittals to include complete and detailed sequences of operation for each piece of equipment, regardless of completeness and clarity of sequences in Specifications and include:

a. Interactions and interlocks with other systems.

b. Written sequences of control for packaged controlled equipment.

c. Sequences of control for modes of operation (Start-up, Normal occupied, Unoccupied, Emergency Shutdown, etc.).

1.7.4.2 As-Built Drawings

As-Built Drawing version of control drawings and sequences of operation to be included in final Controls Operations And Maintenance Manual Submittal in accordance with Section 01 78 00.00 22 CLOSEOUT SUBMITTALS (PWD ME).

1.7.4.3 Certification

Signed and dated certification to CxA and the Government upon completion of control system checkout.

1.7.5 Equipment Suppliers

a. Provide requested submittal data, including detailed start-up procedures and specific responsibilities of the Government to keep warranties in effect.

b. Provide information requested by CxA regarding equipment sequence of operation and testing procedures.

c. Assist in equipment testing per agreements with suppliers.

1.8 CCT'S RESPONSIBILITIES

The CCT shall assign representatives with expertise and an agent to act on its behalf and shall schedule them to participate in and perform commissioning process activities including, but not limited to, the

following:

a. Evaluate performance deficiencies identified in test reports and, in collaboration with entity responsible for system and equipment installation, recommend corrective action.

b. Cooperate with the CxA for resolution of issues recorded in the Issues Log.

c. Attend commissioning team meetings held on a biweekly basis.

d. Coordinate Contractor's testing, inspection, and quality assurance activities with related activities of the CxA.

e. Integrate and coordinate commissioning process activities with construction schedule.

f. Review, accept, and incorporate from construction checklists provided by the CxA.

g. Complete paper construction checklists as Work is completed and provide to the CxA and CMa on a weekly basis.

h. Review and accept commissioning process test procedures provided by the CxA.

i. Complete commissioning process test procedures and provide testing records.

1.9 CxA'S RESPONSIBILITIES

The CxA develops and leads a comprehensive and systematic process to verify that the building systems perform is designed to meet the Owner’s Project Requirements. Commissioning during the construction, acceptance, and warranty phases is intended to achieve the following specific objectives:

a. Verify and document that equipment is installed and started per manufacturer’s recommendations, industry accepted minimum standards, and the Contract Documents.

b. Verify and document that equipment and systems receive complete operational checkout by installing Contractors.

c. Verify and document equipment and system performance.

d. Verify the completeness of operations and maintenance materials.

e. Ensure that the Government’s operating personnel are adequately trained on the operation and maintenance of building equipment.

1.9.1 Specific Responsibilities of The CxA Include:

a. Provide Fundamental Commissioning.

b. Organize and lead the Commissioning Team.

c. Provide Commissioning Plan.

d. Convene commissioning team meetings.

e. Provide project-specific construction checklists and commissioning process test procedures.

f. Prepare and maintain the Issues Log.

g. Prepare and maintain completed Construction Checklist Log.

h. Witness systems, assemblies, equipment, and component startup.

i. Compile test data, inspection reports, and certificates; include them in the systems Manual and Commissioning Process Report.

1.10 COMMISSIONING SCOPE

Commissioning scope includes the following:

Dehumidifiers
Heating coils
Exhaust and supply fans

1.11 COMMISSIONING RESPONSIBILITIES

1.11.1 Construction Contracting Team (CCT)

a. Facilitates commissioning process; ensures the contractor's team performs their responsibilities; and integrates commissioning into construction process and schedule.

(1) Integrates commissioning activities into construction process and schedule.
(2) Ensures Contractor's team executes their responsibilities, including commissioning requirements.
(3) Performs normal review of submittals, management and resolution of Request for Information (RFI's) and tracking of change orders.
(4) Provides adequate accessibility to all mechanical/electrical equipment for maintenance and component replacement or repair.
(5) Ensures that Contractor's team witness start-up tests and pre-functional checklists of equipment and systems.
(6) Verifies readiness for commissioning.
(7) Assists in training of Government personnel.
(8) Assembles and reviews O&M Manuals
(9) Remedies deficiencies identified during testing and commissioning.
(10) Ensures completion of punch list items.
(11) Obtains final inspection approvals.
(12) Warranty period responsibilities.

1.11.2 Demonstrate Proper System Performance

a. Integrates commissioning activities into construction process and schedule.
b. Ensures cooperation and participation of Contractor's team.
c. Ensures participation of major equipment manufacturers in appropriate training and testing activities.
d. Performs start-up, pre-functional checkout and functional performance testing.
e. Conducts appropriate trade system orientation and training.
f. Prepares and submits O & M manuals.

g. Remedies deficiencies identified during testing and commissioning.
h. Ensures completion of punch list items.

1.11.3 Manufacturers Reps/Vendors

a. Provide documentation to facilitate the commissioning work and perform contracted start-up.
b. Provide submittals and appropriate O & M manual sections.
c. Participate in training sessions.
d. Review test procedures developed for the commissioning process.
e. Demonstrate performance of equipment.

PART 2 PRODUCTS

2.1 TEST EQUIPMENT

a. Standard testing equipment required to perform startup and initial checkout and required functional performance testing to be provided by CCT for equipment being tested.

b. Testing equipment to be of sufficient quality and accuracy to test or measure system performance as required by the Specifications.

c. Data-logging equipment or software required to test equipment to be provided by Contractors but shall not become property of the Government.

PART 3 EXECUTION

3.1 DESIGN REVIEW AND DOCUMENTATION

a. Review design documents to verify that each commissioned system meets the Owner's Project Requirements.

b. Review construction documents to verify that commissioning is adequately specified, that each commissioned system can be commissioned and is likely to meet the Owner's Project Requirements.

3.2 COMMISSIONING SCOPE MEETING

a. Schedule, coordinate, and facilitate a scoping meeting to sound out nature of systems that are included within the commissioning effort.

b. Review each building system to be commissioned, including its intended operation, commissioning requirements, and completion and start-up schedules.

c. Establish the scope of work, tasks, schedules, deliverables, and responsibilities for implementation of the Commissioning Plan.

3.3 COMMISSIONING PLAN

a. Develop a commissioning plan to identify how commissioning activities will be integrated into general construction and trade activities.

b. The commissioning plan shall identify how commissioning responsibilities are distributed. The intent of this plan is to evoke questions, expose issues, and resolve them with input from the entire commissioning team before construction begins.

c. Identify who will be responsible for producing the various procedures, reports, Government notifications and forms.

d. Include the commissioning schedule.

e. Describe the test/acceptance procedure.

3.4 SUBMITTAL REVIEWS

Review the Contractor submittals to verify that the material, equipment and systems provided meet the requirements of the Contract Documents and Owner's Project Requirements.

3.5 START-UP / PREFUNCTIONAL INSPECTION CHECKLISTS

The following procedures apply to commissioned equipment.

a. Pre-functional Inspection Checklists shall be developed and completed for major equipment and systems being commissioned. Manufacturer's start-up checklists and other technical documentation guidelines may be used as the basis for pre-functional checklists.

(1) Checklist documents equipment nameplate and characteristics data and confirms as-built status of equipment or system.

(2) Checklists ensure systems are complete and operational, so functional performance testing can be scheduled.

b. Start-Up Plan. Develop detailed start-up plans to verify that the equipment and systems are complete and operational, so that the functional performance testing can be scheduled.

(1) Each start-up item will have a space for the appropriate Contractor to date and initial at time of completion of start-up procedures.

(2) Start-up plans and documentation to be provided to the Government and Design Team for review.

c. Completion of Pre-functional Inspection Checklists and Startup:

(1) CCT assures equipment suppliers schedule startup and checkout with the Government and CxA.

(a) Multiple Units: Sampling strategy may be used according to Commissioning Plan for lower level equipment components (i.e. VAV boxes, reheat coils).

(2) CCT with their Vendors execute startup and provide CxA with signed and dated copy of completed start-up and pre-functional inspection checklists.

(a) Only individuals who have completed or witnessed line item task to make initials or checks on forms.

d. Deficiencies, Non-Conformance and Approval in Checklists and Startup.

(1) CCT to clearly list any items of start-up and pre-functional

procedures not successfully completed at bottom of form or on an attached sheet.

(a) Procedures form and any outstanding deficiencies are provided to CxA within two days of test completion.

3.6 FUNCTIONAL PERFORMANCE TESTING

Following procedures apply to all equipment commissioned and to all commissioning functional performance testing.

3.6.1 Objectives and Scope

a. Demonstrate each system is operating according to documented design intent and Construction Documents.

b. Functional performance testing comprises tests to verify components, equipment, systems, and interfaces between systems operate correctly and includes operating modes, interlocks, control sequences, and responses to emergency conditions.

3.6.2 Execution of Functional Performance Tests

a. Test Methods: Functional performance testing and verification may be achieved by direct manipulation of system inputs (i.e. heating or cooling sensors), manipulation of system inputs with building automation system (i.e. software override of sensor inputs), trend logs of system inputs and outputs using building automation system, or short-term monitoring of system inputs and outputs using stand alone data loggers.

(1) Combination of methods may be required to test complete sequence of operations, subject to Government determination of which method, or combination, is most appropriate.

b. Setup: Each test procedure is performed under conditions that simulate normal operating conditions as closely as possible.

(1) Develop functional performance test procedures for equipment and systems. Identify specific test procedures and forms to verify and document proper operation of each piece of equipment and system. Coordinate test procedures with the contractor for feasibility, safety, equipment and warranty protection. Functional performance test forms shall include the following information:

- System and equipment or component name(s).
- Equipment location and ID number.
- Date.
- Project name.
- Participating parties.
- Instructions for setting up the test, including special cautions, alarm limits, etc.
- Specific step-by-step procedures to execute the test.
- Acceptance criteria of proper performance with a Yes or No check box.
- A section for comments.

(2) Where equipment requires integral safety devices to stop/prevent

equipment operation unless minimum safety standards or conditions are met, functional performance test procedures shall demonstrate the actual performance of safety shutoffs in a real or closely simulated conditions of failure.

(3) Subcontractor executing test provides necessary system modifications to produce specified conditions (flows, pressures, temperatures, etc) necessary to execute test and, at completion of test, returns affected building equipment and systems to their pre-test conditions.

3.6.3 Coordination and Scheduling

CCT provides sufficient notice to the government regarding completion schedule for pre-functional checklists and startup of equipment and systems.

a. The Government schedules functional tests and CCT conducts sequential priorities followed:

(1) Equipment is not "temporarily" started (for heating or cooling), until pre-start checklist items and manufacturer's pre-start procedures are completed and moisture, dust and other environmental and building integrity issues have been addressed.

(2) Functional performance testing does not begin until pre-functional, start-up and Testing, Adjusting and Balancing (TAB) are completed for given system.

3.6.4 Problem Solving

CCT shall resolve, correct and retest deficiencies.

3.7 DOCUMENTATION, NON-CONFORMANCE AND APPROVAL OF TESTS

3.7.1 Non-Conformance

a. Results of functional testing are recorded by the CxA.

(1) Deficiencies identified during verification testing are documented on standard form and reported to the Government and CCT.

(2) Deficiency Report: Includes details of components or systems found to be non-compliant with parameters of test plans.

(3) Report details adjustments or alterations required to correct system operation, and identifies responsible party.

b. Corrections of minor deficiencies identified may be made during tests at discretion of CxA and deficiency and resolution documented on procedure form and record drawings.

c. Make every effort to expedite testing process and minimize unnecessary delays, while not compromising integrity of procedures.

d. Identified deficiency resolution:

(1) No dispute on deficiency and responsibility to correct it if:

(a) CxA documents deficiency and adjustments or alterations required to correct it.
(b) CCT corrects deficiency and notifies CxA that equipment is ready to be retested.
(c) CxA reschedules test and test is acceptable.

(2) Dispute about deficiency or who is responsible:

(a) Deficiency is documented on non-compliance form and copy given to the Government and CCT.
(b) Resolutions are made at lowest management level possible and additional parties are brought into discussions as needed.

Final interpretive authority is with the Government.
Final acceptance authority is with the Government.

(c) CxA documents resolution process.
(d) Once interpretation and resolution have been decided, appropriate party corrects deficiency and notifies CxA that equipment is ready to be retested.
(e) CxA reschedules test and test is repeated until satisfactory performance is achieved.

3.7.2 Cost of Retesting

a. CCT

(1) Responsible for costs to retest pre-functional or functional test, if they are responsible for deficiency.

(2) If not responsible for deficiency, cost recovery for retesting costs to be negotiated with CCT.

b. Time for CxA and the Government to approve any retesting recommended by the CCT because pre-functional checklist or start-up test item, reported to have been successfully completed, but determined during functional testing to be faulty, will be back charged.

3.7.3 Approval

The Government gives final approval on each test.

3.8 INTERIM COMMISSIONING REPORT

Compile interim commissioning report within 30 days of Substantial Completion. Summarize the tasks, findings, conclusions, and recommendations of the commissioning process. Submit interim Commissioning Report to Government.

3.9 DEFERRED TESTING

3.9.1 Unforeseen Deferred Tests

Functional testing that cannot be completed due to building structure, required occupancy condition, or other deficiency may be delayed upon approval of the Government.

a. Tests are conducted in same manner as seasonal tests as soon as possible.

3.9.2 Seasonal Testing

Seasonal variation in operations or control strategies may require additional testing during opposite season to verify performance of HVAC system and controls.

a. During warranty period: Seasonal testing and other deferred testing is completed as required to fully test sequences of operation.

(1) CxA coordinates these activities.

b. Tests are executed and documented, with deficiencies corrected by appropriate.

c. Record final adjustments to OPERATIONS AND MAINTENANCE DOCUMENTATION.

3.9.3 End of Warranty Review

Conduct end of warranty review 30 days prior to the end of the warranty period. Review the current building operation with the facility maintenance staff.

a. The review shall include outstanding issues from original or seasonal testing. Interview facility staff to identify concerns with building operation.

b. Provide suggestions for improvements and assist Government in developing reports or documentation to remedy problems.

c. Update O&M manuals and Record Documents as necessary due to the testing.

3.10 FINAL COMMISSIONING REPORT

a. Final Commissioning Report: Compile final commissioning report. Summarize all of the tasks, findings, conclusions, and recommendations of the commissioning process. Submit Final Commissioning Report to Government.

-- End of Section --

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SECTION 02 41 00

DEMOLITION AND DECONSTRUCTION
05/10

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.

AIR-CONDITIONING, HEATING AND REFRIGERATION INSTITUTE (AHRI)

AHRI Guideline K	(2009) Guideline for Containers for Recovered Non-Flammable Fluorocarbon Refrigerants

AMERICAN SOCIETY OF SAFETY ENGINEERS (ASSE/SAFE)

ASSE/SAFE A10.6	(2006) Safety Requirements for Demolition Operations

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2008; Errata 1-2010; Changes 1-3 2010; Changes 4-6 2011; Change 7 2012) Safety and Health Requirements Manual

U.S. DEFENSE LOGISTICS AGENCY (DLA)

DLA 4145.25	(June 2000) Storage and Handling of Liquefied and Gaseous Compressed Gases and Their Full and Empty Cylinders

U.S. DEPARTMENT OF DEFENSE (DOD)

DOD 4000.25-1-M	(2006) MILSTRIP - Military Standard Requisitioning and Issue Procedures
MIL-STD-129	(2007; Rev P; Change 4 2007) Military Marking for Shipment and Storage

U.S. FEDERAL AVIATION ADMINISTRATION (FAA)

FAA AC 70/7460-1	(2007; Rev K) Obstruction Marking and Lighting

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

40 CFR 61	National Emission Standards for Hazardous Air Pollutants
40 CFR 82	Protection of Stratospheric Ozone
49 CFR 173.301	Shipment of Compressed Gases in Cylinders

and Spherical Pressure Vessels

1.2 PROJECT DESCRIPTION

1.2.1 Demolition/Deconstruction Plan

Prepare a Demolition/Deconstruction Plan and submit proposed salvage, demolition, deconstruction, and removal procedures for approval before work is started. Include in the plan procedures for careful removal and disposition of materials specified to be salvaged, coordination with other work in progress, a disconnection schedule of utility services, a detailed description of methods and equipment to be used for each operation and of the sequence of operations. Identify components and materials to be salvaged for reuse or recycling with reference to paragraph Existing Facilities to be Removed. Append tracking forms for all removed materials indicating type, quantities, condition, destination, and end use. Coordinate with Waste Management Plan. Provide procedures for safe conduct of the work in accordance with EM 385-1-1. Plan shall be approved by Contracting Officer prior to work beginning.

1.2.2 General Requirements

Do not begin demolition or deconstruction until authorization is received from the Contracting Officer. The work of this section is to be performed in a manner that maximizes salvage and recycling of materials. Remove rubbish and debris from the project site; do not allow accumulations inside or outside the building or on the project site. The work includes demolition, deconstruction, salvage of identified items and materials, and removal of resulting rubbish and debris. Remove rubbish and debris from Government property daily, unless otherwise directed. Store materials that cannot be removed daily in areas specified by the Contracting Officer. In the interest of occupational safety and health, perform the work in accordance with EM 385-1-1, Section 23, Demolition, and other applicable Sections.

1.3 ITEMS TO REMAIN IN PLACE

Take necessary precautions to avoid damage to existing items to remain in place, to be reused, or to remain the property of the Government. Repair or replace damaged items as approved by the Contracting Officer. Coordinate the work of this section with all other work indicated. Construct and maintain shoring, bracing, and supports as required. Ensure that structural elements are not overloaded. Increase structural supports or add new supports as may be required as a result of any cutting, removal, deconstruction, or demolition work performed under this contract. Do not overload structural elements or pavements to remain. Provide new supports and reinforcement for existing construction weakened by demolition, deconstruction, or removal work. Repairs, reinforcement, or structural replacement require approval by the Contracting Officer prior to performing such work.

1.3.1 Existing Construction Limits and Protection

Do not disturb existing construction beyond the extent indicated or necessary for installation of new construction. Provide temporary shoring and bracing for support of building components to prevent settlement or other movement. Provide protective measures to control accumulation and migration of debris, dust and dirt in all work areas including any occupied areas adjacent to construction. Remove snow, dust, dirt, and

debris from work areas daily.

1.3.2 Weather Protection

For portions of the pump well to remain, protect pump well interiors and materials and equipment from the weather at all times.

1.3.3 Utility Service

Maintain existing utilities indicated to stay in service and protect against damage during demolition and deconstruction operations. Prior to start of work, utilities serving each area of alteration or removal will be shut off by the Government and disconnected and sealed by the Contractor.

1.3.4 Facilities

Protect electrical and mechanical services and utilities. Where removal of existing utilities and pavement is specified or indicated, provide approved barricades, temporary covering of exposed areas, and temporary services or connections for electrical and mechanical utilities. Floors, roofs, walls, columns, pilasters, and other structural components that are designed and constructed to stand without lateral support or shoring, and are determined to be in stable condition, must remain standing without additional bracing, shoring, or lateral support until demolished or deconstructed, unless directed otherwise by the Contracting Officer. Ensure that no elements determined to be unstable are left unsupported and place and secure bracing, shoring, or lateral supports as may be required as a result of any cutting, removal, deconstruction, or demolition work performed under this contract.

1.4 BURNING

The use of burning at the project site for the disposal of refuse and debris will not be permitted.

1.5 AVAILABILITY OF WORK AREAS

Areas in which the work is to be accomplished will be as directed by the Contracting Officer.

1.6 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Existing Conditions; G

SD-07 Certificates

Demolition/Deconstruction Plan; G

Notification; G

Debris and Dust Control Plan; G

Temporary Protection Plan; G

Temporary Egress Plan; G

SD-11 Closeout Submittals

Receipts

1.7 QUALITY ASSURANCE

Submit timely notification of demolition, deconstruction, and renovation projects to Federal, State, regional, and local authorities in accordance with 40 CFR 61, Subpart M. Notify the State's environmental protection agency and the Contracting Officer in writing 10 working days prior to the commencement of work in accordance with 40 CFR 61, Subpart M. Comply with Federal, State, and local hauling and disposal regulations. In addition to the requirements of the "Contract Clauses," conform to the safety requirements contained in ASSE/SAFE A10.6. Comply with the Environmental Protection Agency requirements specified. Use of explosives will not be permitted.

1.7.1 Exterior Dust and Debris Control

Prevent the spread of dust and debris and avoid the creation of a nuisance or hazard in the surrounding area. Do not use water if it results in hazardous or objectionable conditions such as, but not limited to, ice, flooding, or pollution. Prevent dust and debris from entering occupied portions of the pump well adjacent to work areas to maintain Government operations. Sweep pavements as often as necessary to control the spread of debris and dust.

1.8 PROTECTION

1.8.1 Traffic Control Signs

Where pedestrian and driver safety is endangered in the area of removal work, use traffic barricades with flashing lights. Anchor barricades in a manner to prevent displacement by wind. Notify the Contracting Officer prior to beginning such work.

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 shall comply with FAA AC 70/7460-1. Lights shall be operational during periods of reduced visibility, darkness, and as directed by the Contracting Officer. Maintain the temporary services during the period of construction and remove only after permanent services have been installed and tested and are in operation.

1.8.2 Protection of Personnel

Before, during and after the demolition and deconstruction work continuously evaluate the condition of the structures being demolished and deconstructed and take immediate action to protect all personnel working in and around the project site. No area, section, or component of floors, roofs, walls, columns, pilasters, or other structural element will be allowed to be left standing without sufficient bracing, shoring, or lateral support to prevent collapse or failure while workmen remove debris

or perform other work in the immediate area.

1.8.3 Weather, Debris and Dust and Security Protection

Protect building interior and materials and equipment from the weather and debris and dust at all times. Submit the Debris and Dust Control Plan as described in General Note 11 on Sheet G-003 to the Contracting Officer for approval prior to start of work. Provide security measures as directed by the Contracting Officer. Protect work and materials stored that may be adversely affected by moisture, wind, heat and cold by covering. Store materials off the ground. Submit proposed temporary protection plan to the Contracting Officer for approval prior to the start of work.

1.9 RELOCATIONS

Perform the removal and reinstallation of relocated items as indicated with workmen skilled in the trades involved. Repair or replace items to be relocated which are damaged by the Contractor with new undamaged items as approved by the Contracting Officer.

1.10 EXISTING CONDITIONS

Before beginning any demolition or deconstruction work, survey the site and examine the drawings and specifications to determine the extent of the work. Record existing conditions in the presence of the Contracting Officer showing the condition of structures and other facilities adjacent to areas of alteration or removal. Photographs sized 4 inch will be acceptable as a record of existing conditions. Include in the record the elevation of the top of foundation walls, finish floor elevations, possible conflicting electrical conduits, plumbing lines, alarms systems, the location and extent of existing cracks and other damage and description of surface conditions that exist prior to before starting work. It is the Contractor's responsibility to verify and document all required outages which will be required during the course of work, and to note these outages on the record document. Submit survey results.

1.11 TEMPORARY EGRESS

Submit a Temporary Egress Plan to the Contracting Officer for approval indicating OSHA compliance egress from the Pump Well during work that will restrict the existing egress path.

PART 2 PRODUCTS

2.1 MATERIALS

Materials for patching, filling-in, repairing, and extending work shall be new, and shall be similar in appearance and equal in quality to the material used in the adjoining construction or the removed materials when they were new.

PART 3 EXECUTION

3.1 EXISTING FACILITIES TO BE REMOVED

Inspect and evaluate existing structures onsite for reuse. Existing construction scheduled to be removed for reuse shall be disassembled. Dismantled and removed materials are to be separated, set aside, and prepared as specified, and stored or delivered to a collection point for

reuse, remanufacture, recycling, or other disposal, as specified. Materials shall be designated for reuse onsite whenever possible.

Remove existing items and equipment indicated and specified to be removed by workmen skilled in the trade(s) required. Items and equipment shall be removed completely as required for new work and as directed and approved by the Contracting Officer. The remaining items and equipment shall be left in a condition to accept the new work or shall be repaired or replaced with new as directed and approved by the Contracting Officer. Industry standard debris chutes shall be used to transport removed materials to the ground and into dumpsters.

3.1.1 Structures and Components

Remove existing structures and components as indicated.

3.1.2 Utilities and Related Equipment

3.1.2.1 General Requirements

Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by the Contracting Officer. Do not interrupt existing utilities serving facilities occupied and used by the Government except when approved in writing and then only after temporary utility services have been approved and provided. Do not begin demolition or deconstruction work until all utility disconnections have been made. Shut off and cap utilities for future use, as indicated.

3.1.2.2 Disconnecting Existing Utilities

Remove existing utilities as indicated and uncovered by the work and terminate in a manner conforming to the nationally recognized code covering the specific utility and approved by the Contracting Officer. When utility lines are encountered but are not indicated on the drawings, notify the Contracting Officer prior to further work in that area. Remove meters and related equipment and deliver to a location on the Shipyard in accordance with instructions of the Contracting Officer.

3.1.3 Concrete

Saw concrete along straight lines to a depth of a minimum 2 inch. Make each cut in walls perpendicular to the face and in alignment with the cut in the opposite face. Break out the remainder of the concrete provided that the broken area is concealed in the finished work, and the remaining concrete is sound. At locations where the broken face cannot be concealed, grind smooth or saw cut entirely through the concrete. Salvage removed concrete.

3.1.4 Miscellaneous Metal

Salvage shop-fabricated items such as access doors and frames, steel gratings, metal ladders, and similar items as whole units. Salvage light-gage and cold-formed metal framing, such as steel studs, and similar items. Recycle scrap metal as part of demolition and deconstruction operations. Provide separate containers to collect scrap metal and transport to a scrap metal collection or recycling facility, in accordance with the Waste Management Plan.

3.1.5 Patching

Where removals leave holes and damaged surfaces exposed in the finished work, patch and repair these holes and damaged surfaces to match adjacent finished surfaces, using on-site materials when available. Where new work is to be applied to existing surfaces, perform removals and patching in a manner to produce surfaces suitable for receiving new work. Finished surfaces of patched area shall be flush with the adjacent existing surface and shall match the existing adjacent surface as closely as possible as to texture and finish. Patching shall be as specified and indicated, and shall include:

a. Concrete and Masonry: Completely fill holes and depressions, caused by previous physical damage or left as a result of removals in existing masonry walls to remain, with an approved masonry patching material, applied in accordance with the manufacturer's printed instructions.

3.1.6 Air Conditioning Equipment

Remove air conditioning, refrigeration, and other equipment containing refrigerants without releasing chlorofluorocarbon refrigerants to the atmosphere in accordance with the Clean Air Act Amendment of 1990. Recover all refrigerants prior to removing air conditioning, refrigeration, and other equipment containing refrigerants and dispose of in accordance with the paragraph entitled "Disposal of Ozone Depleting Substance (ODS)." Turn in salvaged Class I ODS refrigerants as specified in paragraph, "Salvaged Materials and Equipment."

3.1.7 Cylinders and Canisters

Remove fire suppression system cylinders and canisters as indicated and dispose of in accordance with the paragraph entitled "Disposal of Ozone Depleting Substance (ODS)."

3.1.8 Mechanical Equipment and Fixtures

Disconnect mechanical hardware at the nearest connection to existing services to remain, unless otherwise noted. Disconnect mechanical equipment and fixtures at fittings. Remove service valves attached to the unit. Salvage each item of equipment and fixtures as a whole unit; listed, indexed, tagged, and stored. Salvage each unit with its normal operating auxiliary equipment. Transport salvaged equipment and fixtures, including motors and machines, to a designated on station storage area as directed by the Contracting Officer, except where items are specifically indicated to be removed and stored by others. Do not remove equipment until approved. Do not offer low-efficiency equipment for reuse; provide to recycling service for disassembly and recycling of parts.

3.1.8.1 Preparation for Storage

Remove water, dirt, dust, and foreign matter from units; tanks, piping and fixtures shall be drained; interiors, if previously used to store flammable, explosive, or other dangerous liquids, shall be steam cleaned. Seal openings with caps, plates, or plugs. Secure motors attached by flexible connections to the unit. Change lubricating systems with the proper oil or grease.

3.1.8.2 Piping

Disconnect piping at unions, flanges and valves, and fittings as required to reduce the pipe into straight lengths for practical storage. Store salvaged piping according to size and type. If the piping that remains can become pressurized due to upstream valve failure, end caps, blind flanges, or other types of plugs or fittings with a pressure gage and bleed valve shall be attached to the open end of the pipe to ensure positive leak control. Carefully dismantle piping that previously contained gas, gasoline, oil, or other dangerous fluids, with precautions taken to prevent injury to persons and property. Store piping outdoors until all fumes and residues are removed. Box prefabricated supports, hangers, plates, valves, and specialty items according to size and type. Wrap sprinkler heads individually in plastic bags before boxing. Classify piping not designated for salvage, or not reusable, as scrap metal.

3.1.8.3 Ducts

Classify removed duct work as scrap metal.

3.1.8.4 Fixtures, Motors and Machines

Remove and salvage fixtures, motors and machines associated with plumbing, heating, air conditioning, refrigeration, and other mechanical system installations. Salvage, box and store auxiliary units and accessories with the main motor and machines. Tag salvaged items for identification, storage, and protection from damage. Classify non-porcelain broken, damaged, or otherwise unserviceable units and not caused to be broken, damaged, or otherwise unserviceable as debris to be disposed of by the Contractor. Salvage and crush porcelain plumbing fixtures unsuitable for reuse.

3.1.9 Electrical Equipment and Fixtures

Salvage motors, motor controllers, and operating and control equipment that are attached to the driven equipment. Salvage wiring systems and components. Box loose items and tag for identification. Disconnect primary, secondary, control, communication, and signal circuits at the point of attachment to their distribution system.

3.1.9.1 Fixtures

Remove and salvage electrical fixtures. Salvage unprotected glassware from the fixture and salvage separately. Salvage incandescent, mercury-vapor, and fluorescent lamps and fluorescent ballasts manufactured prior to 1978, boxed and tagged for identification, and protected from breakage.

3.1.9.2 Electrical Devices

Remove and salvage switches, switchgear, transformers, conductors including wire and nonmetallic sheathed and flexible armored cable, regulators, meters, instruments, plates, circuit breakers, panelboards, outlet boxes, and similar items. Box and tag these items for identification according to type and size.

3.1.9.3 Wiring Ducts or Troughs

Remove and salvage wiring ducts or troughs. Dismantle plug-in ducts and

wiring troughs into unit lengths. Remove plug-in or disconnecting devices from the busway and store separately.

3.1.9.4 Conduit and Miscellaneous Items

Salvage conduit except where embedded in concrete or masonry. Consider corroded, bent, or damaged conduit as scrap metal. Sort straight and undamaged lengths of conduit according to size and type. Classify supports, knobs, tubes, cleats, and straps as debris to be removed and disposed.

3.1.10 Fender System

Remove fender system as indicated on Contract Drawings. Contractor shall protect all utilities to remain in place and temporarily support during construction.

3.1.11 Items With Unique/Regulated Disposal Requirements

Remove and dispose of items with unique or regulated disposal requirements in the manner dictated by law or in the most environmentally responsible manner.

3.2 DISPOSITION OF MATERIAL

3.2.1 Title to Materials

Except for salvaged items specified in related Sections, and for materials or equipment scheduled for salvage, all materials and equipment removed and not reused or salvaged, shall become the property of the Contractor and shall be removed from Government property. Title to materials resulting from demolition and deconstruction, and materials and equipment to be removed, is vested in the Contractor upon approval by the Contracting Officer of the Contractor's demolition, deconstruction, and removal procedures, and authorization by the Contracting Officer to begin demolition and deconstruction. The Government will not be responsible for the condition or loss of, or damage to, such property after contract award. Showing for sale or selling materials and equipment on site is prohibited.

3.2.2 Reuse of Materials and Equipment

Remove and store materials and equipment indicated to be reused or relocated to prevent damage, and reinstall as the work progresses.

3.2.3 Salvaged Materials and Equipment

Remove materials and equipment that are indicated and specified to be removed by the Contractor and that are to remain the property of the Government, and deliver to a storage site, as directed within 2 miles of the work site.

a. Salvage items and material to the maximum extent possible.

b. Store all materials salvaged for the Contractor as approved by the Contracting Officer and remove from Government property before completion of the contract. On site sales of salvaged material is prohibited.

c. Remove salvaged items to remain the property of the Government in a manner to prevent damage, and packed or crated to protect the items from damage while in storage or during shipment. Items damaged during removal or storage must be repaired or replaced to match existing items. Properly identify the contents of containers.

d. Remove historical items in a manner to prevent damage. Deliver the following historical items to the Government for disposition: Corner stones, contents of corner stones, and document boxes wherever located on the site.

e. Remove and capture all Class I ODS refrigerants in accordance with the Clean Air Act Amendment of 1990, and turn in to the Navy as directed by the Contracting Officer.

The Government will remove and capture Class I ODS refrigerants. To view the web site for ODS, link to: https://www.osd.mil/denix/Public/News/DLA/ODS/sect1.html

3.2.4 Disposal of Ozone Depleting Substance (ODS)

Class I and Class II ODS are defined in Section, 602(a) and (b), of The Clean Air Act. Prevent discharge of Class I and Class II ODS to the atmosphere. Place recovered ODS in cylinders meeting AHRI Guideline K suitable for the type ODS (filled to no more than 80 percent capacity) and provide appropriate labeling. Recovered ODS shall be turned over to the Contracting Officer or removed from Government property and disposed of in accordance with 40 CFR 82. Products, equipment and appliances containing ODS in a sealed, self-contained system (e.g. residential refrigerators and window air conditioners) shall be disposed of in accordance with 40 CFR 82. Submit Receipts or bills of lading, as specified. Submit a shipping receipt or bill of lading for all containers of ozone depleting substance (ODS) shipped to the Defense Depot, Richmond, Virginia.

3.2.4.1 Special Instructions

No more than one type of ODS is permitted in each container. A warning/hazardous label shall be applied to the containers in accordance with Department of Transportation regulations. All cylinders including but not limited to fire extinguishers, spheres, or canisters containing an ODS shall have a tag with the following information:

a. Activity name and unit identification code

b. Activity point of contact and phone number

c. Type of ODS and pounds of ODS contained

d. Date of shipment

e. Naval stock number (for information, call (804) 279-4525).

3.2.5 Transportation Guidance

Ship all ODS containers in accordance with MIL-STD-129, DLA 4145.25 (also referenced one of the following: Army Regulation 700-68, Naval Supply Instruction 4440.128C, Marine Corps Order 10330.2C, and Air Force Regulation 67-12), 49 CFR 173.301, and DOD 4000.25-1-M.

3.3 CLEANUP

Remove debris and rubbish from basement and similar excavations. Remove and transport the debris in a manner that prevents spillage on streets or adjacent areas. Apply local regulations regarding hauling and disposal.

3.3.1 Debris and Rubbish

a. Supply adequate chutes, disposal facilities, transportation, labor and covered receptacles for waste, debris and rubbish. One receptacle will be allowed unless additional receptacles are approved by the Contracting Officer, and shall be immediately removed from the site when full. Under no circumstances shall debris be permitted to free fall to the ground. Coordinate size and location of receptacle with indicated contractor laydown and with Contracting Officer.

b. The grounds in the area of the receptacles shall be cleaned prior to moving the receptacle to another location on the project. Disposal shall be offsite in a legal dump intended for that use.

c. Remove and transport debris and rubbish in a manner that will prevent spillage on pavements, streets, or adjacent areas. Transport removed debris to chute or scaling buckets. Clean up spillage from pavements, streets and adjacent areas.

3.3.2 Site Clean-Up

a. Site clean-up shall be complete and to the satisfaction of the Contracting Officer. Site cleanup shall be performed daily.

b. Roof, building (interior and exterior), landscape and pavement areas shall be cleaned of all trash, debris and dirt caused by or associated with the work.

c. Areas and/or existing equipment or materials to remain which are stained, dirtied, discolored or otherwise damaged due to the work shall be cleaned, restored or replaced at no additional cost to the Government.

d. Upon acceptance of demolition, deconstruction, and removals, shoring, reinstallation and rebuilding work, the Contractor shall completely remove all temporary shoring, partitions and other protective items to the satisfaction of the Contracting Officer.

e. Clean up spillage from streets and adjacent areas. Conform to other applicable requirements under Section 01 57 19.00 22 TEMPORARY ENVIRONMENTAL CONTROLS - PORTSMOUTH NAVAL SHIPYARD (PWD ME).

3.4 DISPOSAL OF REMOVED MATERIALS

3.4.1 Regulation of Removed Materials

Dispose of debris, rubbish, scrap, and other nonsalvageable materials resulting from demolition, deconstruction, and removal operations with all applicable Federal, State and local regulations as contractually specified in the Waste Management Plan. Storage of removed materials on the project site is prohibited.

3.4.2 Burning on Government Property

Burning of materials removed from demolished and deconstructed structures will not be permitted on Government property.

3.4.3 Removal from Government Property

Transport waste materials removed from demolished and deconstructed structures, except waste soil, from Government property for legal disposal. Dispose of waste soil as directed.

3.5 REUSE OF SALVAGED ITEMS

Recondition salvaged materials and equipment designated for reuse before installation. Replace items damaged during removal and salvage operations or restore them as necessary to usable condition.

-- End of Section --