

Solicitation No.  
VA-101-12-RP-0140  
Project No. 640-424



**Department of  
Veterans Affairs**

## Specifications

**Vol. 1 of 7**

**For: Loop Road and Site Utilities  
Radiology Consolidation  
Parking Structure 2**

**At: VA Medical Center – Palo Alto  
3801 Miranda Avenue  
Palo Alto, California 94304**

Issue:

Open Bids:

Property of Department of Veterans Affairs

Amendment	
No.	Date



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SECTION 051200 - STRUCTURAL STEEL FRAMING  
SECTION 052100 - STEEL JOIST FRAMING  
SECTION 053100 - STEEL DECKING  
SECTION 054000 - COLD-FORMED METAL FRAMING

SECTION 055000 - METAL FABRICATIONS

SECTION 055100 - METAL STAIRS

DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES

SECTION 061000 - ROUGH CARPENTRY

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

SECTION 071352 - MODIFIED BITUMINOUS SHEET WATERPROOFING

SECTION 071800 - TRAFFIC COATINGS

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SECTION 072113 - THERMAL INSULATION

SECTION 072200 - ROOF AND DECK INSULATION

SECTION 072713 - MODIFIED BITUMINOUS SHEET AIR BARRIERS

SECTION 074213.16 - METAL PLATE WALL PANELS

SECTION 075216.13 - STYRENE-BUTADIENE-STYRENE MODIFIED BITUMINOUS MEMBRANE ROOFING,  
COLD-APPLIED

SECTION 076000 - FLASHING AND SHEET METAL

SECTION 078400 - FIRESTOPPING

SECTION 079200 - JOINT SEALANTS

DIVISION 08 - OPENINGS

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

SECTION 084126 - ALL-GLASS STOREFRONTS

SECTION 084229.23 - SLIDING AUTOMATIC ENTRANCES

SECTION 084426.19 - POINT SUPPORTED STRUCTURAL GLASS ASSEMBLIES

SECTION 087100 - DOOR HARDWARE

SECTION 088000 - GLAZING

SECTION 089000 - LOUVERS AND VENTS

DIVISION 09 - FINISHES

SECTION 090600 - SCHEDULE FOR FINISHES

SECTION 092216 - NON-STRUCTURAL METAL FRAMING

SECTION 092400 - PORTLAND CEMENT PLASTERING

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SECTION 096293 - DETECTABLE WARNING FLOOR SURFACING AND PAVEMENT MARKINGS

SECTION 096513 - RESILIENT BASE AND ACCESSORIES

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SECTION 099600 - HIGH-PERFORMANCE COATINGS

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SECTION 101400 - SIGNAGE

SIGNAGE SCHEDULE

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SECTION 104413.13 - FIRE EXTINGUISHER MOUNTING BRACKETS

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DIVISION 11 - EQUIPMENT

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DIVISION 12 - FURNISHINGS

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DIVISION 13 - SPECIAL CONSTRUCTION

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DIVISION 14 - CONVEYING EQUIPMENT

SECTION 142400 - HYDRAULIC ELEVATORS

DIVISION 21 - FIRE SUPPRESSION

SECTION 210511 - COMMON WORK RESULTS FOR FIRE SUPPRESSION

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DIVISION 22 - PLUMBING

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SECTION 221100 - FACILITY WATER DISTRIBUTION

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DIVISION 23 - HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC)

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SECTION 230512 - GENERAL MOTOR REQUIREMENTS FOR HVAC

SECTION 230593 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

SECTION 233100 - HVAC DUCTS AND CASINGS

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SECTION 234000 - HVAC AIR CLEANING DEVICES



SECTION 238100 - DECENTRALIZED UNITARY HVAC EQUIPMENT

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SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS  
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SECTION 260541 - UNDERGROUND ELECTRICAL CONSTRUCTION  
SECTION 260571 - ELECTRICAL SYSTEM PROTECTIVE DEVICE STUDY  
SECTION 260800 - COMMISSIONING OF ELECTRICAL SYSTEMS  
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SECTION 261219 - PAD-MOUNTED, LIQUID-FILLED, MEDIUM-VOLTAGE TRANSFORMERS  
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SECTION 262411 - DISTRIBUTION SWITCHBOARDS  
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DIVISION 27 - COMMUNICATIONS

SECTION 270511 - REQUIREMENTS FOR COMMUNICATIONS INSTALLATIONS  
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DIVISION 31 - EARTHWORK

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DIVISION 32 - EXTERIOR IMPROVEMENTS

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SECTION 321216 - ASPHALT PAVING  
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DIVISION 33 - UTILITIES

SECTION 331000 - WATER UTILITIES  
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**APPENDICES**

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Appendix A - Geotechnical Investigation: Phase 2 Improvements - Packages 1, 2, 3, and 5  
Appendix B - Facilities Protection Plan for Hillview-Porter Regional Program Groundwater Remediation Facilities at the Veterans Administration Hospital Property, Palo Alto, Ca.  
Appendix C - Stormwater Pollution Prevention Plan

- - - E N D - - -

**SECTION 01 00 00**

**GENERAL REQUIREMENTS**

**1.1 GENERAL INTENTION**

- A. General Contractor shall completely prepare site for construction operations, including demolition and removal of existing structures, and furnish all labor and materials and perform work at the VA Palo Alto Health Care System, VA Medical Center, Palo Alto, California, as required by the drawings and specifications. Parking and staging areas are very limited on campus. Contractors will be required to park off-site and transport their employees to and from the VA medical center campus during construction period.

Work as described in the Contract Documents is for the complete delivery of the entire project, consisting of the following, including tie-ins and interfaces:

- Loop road realignment and site utilities including utility tunnels, a cogeneration plant, fuel storage tanks, and a thermal energy storage (TES) tank. Work includes general building construction, clearing and grubbing, site preparation, selective demolition, erosion controls, roads, paving, sidewalks, grading, drainage and sewer, landscaping, site lighting, site finishing, fire suppression systems, mechanical, electrical, telecommunications, abatement of hazardous materials, and associated work per attached plans and specifications.
  - A two-story (basement and first floor), approximately 34,000 GSF (new) and 13,000 GSF (renovation) Radiology Wing Addition to Bldg 100 (main hospital). Work includes general building construction, clearing and grubbing, site preparation, selective demolition, erosion controls, roads, paving, sidewalks, grading, drainage and sewer, landscaping, site lighting, site finishing, fire suppression systems, site utilities, mechanical, electrical, telecommunications, radiation shielding, abatement of hazardous materials, and associated work per attached plans and specifications.
  - The construction of a 750-Car, 5-story (approximately 265,000 GSF), cast-in-place, Parking Structure. Work includes general building construction, clearing and grubbing, site preparation, selective demolition, erosion controls, roads, paving, sidewalks, grading, drainage and sewer, landscaping, site lighting, site finishing, fire suppression systems, site utilities, mechanical, electrical, telecommunications, elevators, abatement of hazardous materials, and associated work per attached plans and specifications.
- B. Visits to the site by Bidders may be made only by appointment with the Resident Engineer's Office at the VA Medical Center, Palo Alto, CA. (650) 493-5000 x69373.

- C. Offices of the SmithGroup, Inc., as Architect-Engineers, will render certain technical services during the design and construction phases. Such services shall be considered as advisory to the Government and shall not be construed as expressing or implying a contractual act of the Government without affirmations by Contracting Officer or his duly authorized representative.
- D. All employees of general contractor and subcontractors shall comply with VA security management program and obtain permission of the VA police, be identified by project and employer, and restricted from unauthorized access.
- E. Prior to commencing work, general contractor shall provide proof that a OSHA certified "competent person" (CP) (29 CFR 1926.20(b)(2)) will maintain a presence at the work site whenever the general or subcontractors are present.
- F. Training:
  - 1. All employees of general contractor or subcontractors shall have the 10-hour or 30-hour OSHA Construction Safety course and other relevant competency training, as determined by RE/COR acting as the Construction Safety Officer with input from the facility Construction Safety Committee.
  - 2. Submit training records of all such employees for approval before the start of work.
- G. Training: VHA Directive 2011-36, Safety and Health during Construction, dated 9/22/2011 in its entirety is made a part of this section

## **1.2 STATEMENT OF BID ITEM(S)**

See CLINS on SOLICITATION, OFFER, AND AWARD (SF 1442) on page 3 of this solicitation.

## **1.3 SPECIFICATIONS AND DRAWINGS FOR CONTRACTOR**

- A. AFTER AWARD OF CONTRACT, two (2) CD's will be provided containing the full set of specifications and construction drawings.

## **1.4 CONSTRUCTION SECURITY REQUIREMENTS**

- A. Security Plan:
  - 1. The security plan defines both physical and administrative security procedures that will remain effective for the entire duration of the project.
  - 2. The General Contractor is responsible for assuring that all sub-contractors working on the project and their employees also comply with these regulations.

B. Security Procedures:

1. General Contractor's employees shall not enter the project site without appropriate badge. They may also be subject to inspection of their personal effects when entering or leaving the project site.
2. For working outside the "regular hours" as defined in the contract, The General Contractor shall give 3 days notice to the Contracting Officer so that security arrangements can be provided for the employees. This notice is separate from any notices required for utility shutdown described later in this section.
3. No photography of VA premises is allowed without written permission of the Contracting Officer.
4. VA reserves the right to close down or shut down the project site and order General Contractor's employees off the premises in the event of a national emergency. The General Contractor may return to the site only with the written approval of the Contracting Officer.

C. Key Control:

1. The General Contractor shall provide duplicate keys and lock combinations to the Resident Engineer for the purpose of security inspections of every area of project including tool boxes and parked machines and take any emergency action.
2. The General Contractor shall turn over all permanent lock cylinders to the VA locksmith for permanent installation. See Section 08 71 00, DOOR HARDWARE and coordinate.

D. Document Control:

1. Before starting any work, the General Contractor/Sub Contractors shall submit an electronic security memorandum describing the approach to following goals and maintaining confidentiality of "sensitive information".
2. The General Contractor is responsible for safekeeping of all drawings, project manual and other project information. This information shall be shared only with those with a specific need to accomplish the project.
3. Certain documents, sketches, videos or photographs and drawings may be marked "Law Enforcement Sensitive" or "Sensitive Unclassified". Secure such information in separate containers and limit the access to only those who will need it for the project. Return the information to the Contracting Officer upon request.
4. These security documents shall not be removed or transmitted from the project site without the written approval of Contracting Officer.
5. All paper waste or electronic media such as CD's and diskettes shall be shredded and destroyed in a manner acceptable to the VA.
6. Notify Contracting Officer and Site Security Officer immediately when there is a loss or compromise of "sensitive information".

7. All electronic information shall be stored in specified location following VA standards and procedures using an Engineering Document Management Software (EDMS).
  - a. Security, access and maintenance of all project drawings, both scanned and electronic shall be performed and tracked through the EDMS system.
  - b. "Sensitive information" including drawings and other documents may be attached to e-mail provided all VA encryption procedures are followed.

E. Motor Vehicle Restrictions

1. Vehicle authorization request shall be required for any vehicle entering the site and such request shall be submitted 24 hours before the date and time of access. Access shall be restricted to picking up and dropping off materials and supplies.
2. **Due to a significant number of on-going major construction projects at the VA Medical Center, Palo Alto, there will be NO PARKING available on the medical center campus for the personal vehicles of the contractor and subcontractor's employees for the duration of this contract. An extremely limited number of contractor owned vehicles will be permitted as necessary for the prosecution of the work.**

1.5 FIRE SAFETY

- A. Applicable Publications: Publications listed below form part of this Article to extent referenced. Publications are referenced in text by basic designations only.
1. American Society for Testing and Materials (ASTM):  
E84-2009.....Surface Burning Characteristics of Building Materials
  2. National Fire Protection Association (NFPA):  
10-2010.....Standard for Portable Fire Extinguishers  
30-2008.....Flammable and Combustible Liquids Code  
51B-2009.....Standard for Fire Prevention During Welding, Cutting and Other Hot Work  
70-2011.....National Electrical Code  
241-2009.....Standard for Safeguarding Construction, Alteration, and Demolition Operations
  3. Occupational Safety and Health Administration (OSHA):  
29 CFR 1926.....Safety and Health Regulations for Construction
- B. Fire Safety Plan: Establish and maintain a fire protection program in accordance with 29 CFR 1926. Prior to start of work, prepare a plan detailing project-specific fire safety measures, including periodic status reports, and submit to Resident Engineer for review for compliance with contract requirements in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES. Prior to any worker for the contractor or subcontractors beginning work, they shall undergo a safety briefing provided by the general

contractor's competent person per OSHA requirements. This briefing shall include information on the construction limits, VAMC safety guidelines, means of egress, break areas, work hours, locations of restrooms, use of VAMC equipment, etc. Documentation shall be provided to the Resident Engineer that individuals have undergone contractor's safety briefing.

- C. Site and Building Access: Maintain free and unobstructed access to facility emergency services and for fire, police and other emergency response forces in accordance with NFPA 241.
- D. Separate temporary facilities, such as trailers, storage sheds, and dumpsters, from existing buildings and new construction by distances in accordance with NFPA 241. For small facilities with less than 6 m (20 feet) exposing overall length, separate by 3m (10 feet).
- E. Temporary Construction Partitions:
  - 1. Install and maintain temporary construction partitions to provide smoke-tight separations between construction areas and adjoining areas. Construct partitions of gypsum board or treated plywood (flame spread rating of 25 or less in accordance with ASTM E84) on both sides of fire retardant treated wood or metal steel studs. Extend the partitions through suspended ceilings to floor slab deck or roof. Seal joints and penetrations. At door openings, install Class C, 3/4 hour fire/smoke rated doors with self-closing devices.
    - a. Refer to Article "Infection Prevention Measures" of this Section for additional requirements, such as, but not limited to infection control and sound transmission.
  - 2. Install two-hour fire-rated temporary construction partitions as shown on drawings to maintain integrity of existing exit stair enclosures, exit passageways, fire-rated enclosures of hazardous areas, horizontal exits, smoke barriers, vertical shafts and openings enclosures.
  - 3. Close openings in smoke barriers and fire-rated construction to maintain fire ratings. Seal penetrations with listed through-penetration firestop materials in accordance with Section 07 84 00, FIRESTOPPING.
- F. Temporary Heating and Electrical: Install, use and maintain installations in accordance with 29 CFR 1926, NFPA 241 and NFPA 70.
- G. Means of Egress: Do not block exiting for occupied buildings, including paths from exits to roads. Minimize disruptions and coordinate with Resident Engineer.
- H. Egress Routes for Construction Workers: Maintain free and unobstructed egress. Inspect daily. Report findings and corrective actions weekly to Resident Engineer.
- I. Fire Extinguishers: Provide and maintain extinguishers in construction areas and temporary storage areas in accordance with 29 CFR 1926, NFPA 241 and NFPA 10.

- J. Flammable and Combustible Liquids: Store, dispense and use liquids in accordance with 29 CFR 1926, NFPA 241 and NFPA 30.
- K. Standpipes: Install and extend standpipes up with each floor in accordance with 29 CFR 1926 and NFPA 241. Do not charge wet standpipes subject to freezing until weather protected.
- L. Sprinklers: Install, test and activate new automatic sprinklers prior removing existing sprinkler.
- M. Existing Fire Protection: Do not impair automatic sprinklers, smoke and heat detection, and fire alarm systems, except for portions immediately under construction, and temporarily for connections. Provide fire watch for impairments more than 4 hours in a 24-hour period. Request interruptions in accordance with Article, OPERATIONS AND STORAGE AREAS, and coordinate with Resident Engineer. All existing or temporary fire protection systems (fire alarms, sprinklers) located in construction areas shall be tested as coordinated with the medical center. Parameters for the testing and results of any tests performed shall be recorded by the medical center and copies provided to the Resident Engineer.
- N. Smoke Detectors: Prevent accidental operation. Remove temporary covers at end of work operations each day. Coordinate with Resident Engineer.
- O. Hot Work: Perform and safeguard hot work operations in accordance with NFPA 241 and NFPA 51B. Coordinate with Resident Engineer. Obtain permits from facility Safety Officer at least 48 hours in advance. Designate contractor's responsible project-site fire prevention program manager, to permit hot work.
- P. Fire Hazard Prevention and Safety Inspections: Inspect entire construction areas weekly. Coordinate with, and report findings and corrective actions weekly to the Resident Engineer.
- Q. Smoking: Smoking is **prohibited** in and adjacent to construction areas inside existing buildings and additions under construction. In separate and detached buildings under construction, smoking is prohibited except in designated smoking rest areas.
- R. Dispose of waste and debris in accordance with NFPA 241. Remove from buildings daily.
- S. Perform other construction, alteration and demolition operations in accordance with 29 CFR 1926.
- T. If required, submit documentation to the Resident Engineer that personnel have been trained in the fire safety aspects of working in areas with impaired structural or compartmentalization features.

#### **1.6 OPERATIONS AND STORAGE AREAS**

- A. Please see FAR 52.236-10; Operations and Storage Areas in Section 4.45-Clauses Incorporated by Reference.



- B. Working space and space available for storing materials shall be as shown on the drawings or as determined by the Resident Engineer.
- C. Workmen are subject to rules of Medical Center applicable to their conduct.
- D. Execute work so as to interfere as little as possible with normal functioning of Medical Center as a whole, including operations of utility services, fire protection systems and any existing equipment, and with work being done by other contractors. Use of equipment and tools that transmit vibrations and noises through the building structure, are not permitted in buildings that are occupied, during construction, jointly by patients or medical personnel, and Contractor's personnel, except as permitted by Resident Engineer where required by limited working space.
  - 1. Do not store materials and equipment in other than assigned areas.
  - 2. Where access by Medical Center personnel to vacated portions of buildings is not required, storage of Contractor's materials and equipment will be permitted subject to fire and safety requirements and with the approval of the Resident Engineer.
- E. Utilities Services: Where necessary to cut existing pipes, electrical wires, conduits, cables, etc., of utility services, or of fire protection systems or communications systems, they shall be cut and capped at suitable places where shown; or, in absence of such indication, where directed by Resident Engineer. All such actions shall be coordinated with the Utility Company involved and the Resident Engineer.
  - 1. Whenever it is required that a connection fee be paid to a public utility provider for new permanent service to the construction project, for such items as water, sewer, electricity, gas or steam, payment of such fee shall be the responsibility of the Government and not the Contractor.
- F. Sequence of Work: To insure such executions, Contractor shall furnish the Resident Engineer with a schedule of approximate dates on which the Contractor intends to accomplish work in each specific area of site, building or portion thereof. In addition, Contractor shall notify the Resident Engineer a minimum of three weeks in advance of the proposed date of starting work in each specific area of site, building or portion thereof. Arrange such dates to insure accomplishment of this work in successive phases mutually agreeable to the Medical Center, Resident Engineer, and Contractor as follows:
  - 1. Building 100 (Main Hospital) will be occupied during the performance of the work for the Radiology Consolidation but immediate areas of alterations will be vacated. Notify the Resident Engineer 30 days in advance of proposed start date for work in these areas.
- G. Contractor shall take all measures and provide all material necessary for protecting existing equipment and property in affected areas of construction against dust and debris, so that equipment and affected areas to be used in the Medical Centers operations will not be hindered. Contractor shall permit access to Department of Veterans Affairs personnel and patients through other construction areas which serve as routes of access to such affected areas and equipment. Coordinate alteration work

in areas occupied by Department of Veterans Affairs so that Medical Center operations will continue during the construction period.

- H. Construction Fence: Before construction operations begin, Contractor shall provide a chain link construction fence, 2.1m (seven feet) minimum height, around the construction area indicated on the drawings or as directed by the Resident Engineer. Provide gates as required for access with necessary hardware, including hasps and padlocks. Fasten fence fabric to terminal posts with tension bands and to line posts and top and bottom rails with tie wires spaced at maximum 375mm (15 inches). Bottom of fences shall extend to 25mm (one inch) above grade. Remove the fence when directed by Resident Engineer.
- I. When a building is turned over to Contractor, Contractor shall accept entire responsibility therefore.
1. Contractor shall maintain a minimum temperature of 4 degrees C (40 degrees F) at all times, except as otherwise specified on the drawings.
  2. Contractor shall maintain in operating condition existing fire protection and alarm equipment. In connection with fire alarm equipment, Contractor shall make arrangements for pre-inspection of site with Fire Department or Company (Department of Veterans Affairs or municipal) whichever will be required to respond to an alarm from Contractor's employee or watchman.
- J. Utilities Services: Maintain existing utility services for at all times. Provide temporary facilities, labor, materials, equipment, connections, and utilities to assure uninterrupted services. Where necessary to cut existing water, steam, gases, sewer or air pipes, or conduits, wires, cables, etc. of utility services or of fire protection systems and communications systems (including telephone), they shall be cut and capped at suitable places where shown; or, in absence of such indication, where directed by Resident Engineer.
1. No utility service such as water, gas, steam, sewers or electricity, or fire protection systems and communications systems may be interrupted without prior approval of Resident Engineer. Electrical work shall be accomplished with all affected circuits or equipment de-energized. When an electrical outage cannot be accomplished, work on any energized circuits or equipment shall not commence without the Medical Center Director's prior knowledge and written approval. Refer to specification Sections 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS, 27 05 11 REQUIREMENTS FOR COMMUNICATIONS INSTALLATIONS and 28 05 11, REQUIREMENTS FOR ELECTRONIC SAFETY AND SECURITY INSTALLATIONS for additional requirements.
  2. Contractor shall submit a request to interrupt any such services to Resident Engineer, in writing, 96 hours in advance of proposed interruption. Request shall state reason, date, exact time of, and approximate duration of such interruption.
  3. Contractor will be advised (in writing) of approval of request, or of which other date and/or time such interruption will cause least inconvenience to operations of the Medical Center. Interruption time approved by Medical Center may occur at other than Contractor's normal working hours.

4. Major interruptions of any system must be requested, in writing, at least 30 calendar days prior to the desired time and shall be performed as directed by the Resident Engineer.
  5. In case of a contract construction emergency, service will be interrupted on approval of Resident Engineer. Such approval will be confirmed in writing as soon as practical.
  6. Whenever it is required that a connection fee be paid to a public utility provider for new permanent service to the construction project, for such items as water, sewer, electricity, gas or steam, payment of such fee shall be the responsibility of the Government and not the Contractor.
- K. Abandoned Lines: All service lines such as wires, cables, conduits, ducts, pipes and the like, and their hangers or supports, which are to be abandoned but are not required to be entirely removed, shall be sealed, capped or plugged. The lines shall not be capped in finished areas, but shall be removed and sealed, capped or plugged in ceilings, within furred spaces, in unfinished areas, or within walls or partitions; so that they are completely behind the finished surfaces.
- L. To minimize interference of construction activities with flow of Medical Center traffic, comply with the following:
1. Keep roads, walks and entrances to grounds, to parking and to occupied areas of buildings clear of construction materials, debris and standing construction equipment and vehicles. Wherever excavation for new utility lines cross existing roads, at least one lane must be open to traffic at all times.
  2. Method and scheduling of required cutting, altering and removal of existing roads, walks and entrances must be approved by the Resident Engineer.
- M. Coordinate the work for this contract with other construction operations as directed by Resident Engineer. This includes the scheduling of traffic and the use of roadways, as specified in Article, USE OF ROADWAYS.

#### **1.7 ALTERATIONS**

- A. Survey: Before any work is started, the Contractor shall make a thorough survey with the Resident Engineer of areas of buildings in which alterations occur and areas which are anticipated routes of access, and furnish a report, signed by both, to the Contracting Officer. This report shall list by rooms and spaces:
1. Existing condition and types of resilient flooring, doors, windows, walls and other surfaces not required to be altered throughout affected areas of buildings.
  2. Existence and conditions of items such as plumbing fixtures and accessories, electrical fixtures, equipment, venetian blinds, shades, etc., required by drawings to be either reused or relocated, or both.
  3. Shall note any discrepancies between drawings and existing conditions at site.

4. Shall designate areas for working space, materials storage and routes of access to areas within buildings where alterations occur and which have been agreed upon by Contractor and Resident Engineer.
- B. Any items required by drawings to be either reused or relocated or both, found during this survey to be nonexistent, or in opinion of Resident Engineer, to be in such condition that their use is impossible or impractical, shall be furnished and/or replaced by Contractor with new items in accordance with specifications which will be furnished by Government. Provided the contract work is changed by reason of this subparagraph B, the contract will be modified accordingly, under provisions of clause entitled "DIFFERING SITE CONDITIONS" (FAR 52.236-2) and "CHANGES" (FAR 52.243-4 and VAAR 852.236-88).
- C. Re-Survey: Thirty days before expected partial or final inspection date, the Contractor and Resident Engineer together shall make a thorough re-survey of the areas of buildings involved. They shall furnish a report on conditions then existing, of resilient flooring, doors, windows, walls and other surfaces as compared with conditions of same as noted in first condition survey report:
  1. Re-survey report shall also list any damage caused by Contractor to such flooring and other surfaces, despite protection measures; and, will form basis for determining extent of repair work required of Contractor to restore damage caused by Contractor's workmen in executing work of this contract.
- D. Protection: Provide the following protective measures:
  1. Maintain existing building in a safe weathertight condition throughout the construction period. Repair damage caused by construction operations. Take precautions to protect the building, its occupants and the public during the construction period.
  2. Wherever existing roof surfaces are disturbed they shall be protected against water infiltration. In case of leaks, they shall be repaired immediately upon discovery.
  3. Temporary protection against damage for portions of existing structures and grounds where work is to be done, materials handled and equipment moved and/or relocated.
  4. Protection of interior of existing structures at all times, from damage, dust and weather inclemency. Wherever work is performed, floor surfaces that are to remain in place shall be adequately protected prior to starting work, and this protection shall be maintained intact until all work in the area is completed.

#### **1.8 INFECTION PREVENTION MEASURES**

- A. Implement the requirements of VAMC's Infection Control Risk Assessment (ICRA) team. ICRA Group may monitor dust in the vicinity of the construction work and require the Contractor to take corrective action immediately if the safe levels are exceeded.
  1. ICRA Group will issue a ICRA Form to Contractor prior to commencement of work. Contractor shall comply with minimum precautions and

procedures indicated in the ICRA Form. ICRA Form shall be kept at the jobsite at all times and be made available to ICRA Group or other inspectors. A sample of ICRA Form is available from ICRA Group.

2. Tuberculosis (TB) screening is required for Contractor, subcontractor, sub-subcontractors, and suppliers' employees working in the Radiology Consolidation project. Provide proof of TB screening satisfactory to ICRA Group prior to commencing work in the area.
- B. Establish and maintain a dust control program as part of the contractor's infection preventive measures in accordance with the guidelines provided by ICRA Group as specified here. Prior to start of work, prepare a plan detailing project-specific dust protection measures, including periodic status reports, and submit to the Resident Engineer and Facility ICRA team for review for compliance with contract requirements in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.
1. All personnel involved in the construction or renovation activity shall be educated and trained in infection prevention measures established by the medical center.
  2. Where construction operations are performed 30 feet or less from any existing building's HVAC intake system, provide air filters as directed by the Resident Engineer and the ICRA Team.
- C. Medical center Infection Control personnel shall monitor for airborne disease (e.g. aspergillosis) as appropriate during construction. A baseline of conditions may be established by the medical center prior to the start of work and periodically during the construction stage to determine impact of construction activities on indoor air quality. In addition:
1. The RE and VAMC Infection Control personnel shall review pressure differential monitoring documentation to verify that pressure differentials in the construction zone and in the patient-care rooms are appropriate for their settings. The requirement for negative air pressure in the construction zone shall depend on the location and type of activity. Upon notification, the contractor shall implement corrective measures to restore proper pressure differentials as needed.
  2. In case of any problem, the medical center, along with assistance from the contractor, shall conduct an environmental assessment to find and eliminate the source.
- D. In general, following preventive measures shall be adopted during construction to keep down dust and prevent mold.
1. Dampen debris to keep down dust and provide temporary construction partitions in existing structures where directed by Resident Engineer. Blank off ducts and diffusers to prevent circulation of dust into occupied areas during construction.

2. Do not perform dust producing tasks within occupied areas without the approval of the Resident Engineer. For construction in any areas that will remain jointly occupied by the medical Center and Contractor's workers, the Contractor shall:
  - a. Provide dust proof one-hour fire-rated temporary drywall construction barriers to completely separate construction from the operational areas of the hospital in order to contain dirt debris and dust. Barriers shall be sealed and made presentable on hospital occupied side. Install a self-closing rated door in a metal frame, commensurate with the partition, to allow worker access. Maintain negative air at all times. A fire retardant polystyrene, 6-mil thick or greater plastic barrier meeting local fire codes may be used where dust control is the only hazard, and an agreement is reached with the Resident Engineer and Medical Center.

Where required by the Resident Engineer or the ICRA Group, install and maintain temporary construction partitions that effectively limit sound transmission constructed the same as partitions tested to meet a minimum sound transmission class of STC 40.
  - b. HEPA filtration is required where the exhaust dust may reenter the breathing zone. Contractor shall verify that construction exhaust to exterior is not reintroduced to the medical center through intake vents, or building openings. Install HEPA (High Efficiency Particulate Accumulator) filter vacuum system rated at 95% capture of 0.3 microns including pollen, mold spores and dust particles. Insure continuous negative air pressures occurring within the work area. HEPA filters should have ASHRAE 85 or other prefilter to extend the useful life of the HEPA. Provide both primary and secondary filtrations units. Exhaust hoses shall be heavy duty, flexible steel reinforced and exhausted so that dust is not reintroduced to the medical center.
  - c. Adhesive Walk-off/Carpet Walk-off Mats, minimum 600mm x 900mm (24" x 36"), shall be used at all interior transitions from the construction area to occupied medical center area. These mats shall be changed as often as required to maintain clean work areas directly outside construction area at all times.
  - d. Vacuum and wet mop all transition areas from construction to the occupied medical center at the end of each workday. Vacuum shall utilize HEPA filtration. Maintain surrounding area frequently. Remove debris as they are created. Transport these outside the construction area in containers with tightly fitting lids.
  - e. The contractor shall not haul debris through patient-care areas without prior approval of the Resident Engineer and the Medical Center. When, approved, debris shall be hauled in enclosed dust proof containers or wrapped in plastic and sealed with duct tape. No sharp objects should be allowed to cut through the plastic. Wipe down the exterior of the containers with a damp rag to remove dust. All equipment, tools, material, etc. transported through occupied areas shall be made free from dust and moisture by vacuuming and wipe down.
  - f. Using a HEPA vacuum, clean inside the barrier and vacuum ceiling tile prior to replacement. Any ceiling access panels opened for

investigation beyond sealed areas shall be sealed immediately when unattended.

- g. There shall be no standing water during construction. This includes water in equipment drip pans and open containers within the construction areas. All accidental spills must be cleaned up and dried within 12 hours. Remove and dispose of porous materials that remain damp for more than 72 hours.
- h. At completion, remove construction barriers and ceiling protection carefully, outside of normal work hours. Vacuum and clean all surfaces free of dust after the removal.

E. Final Cleanup:

- 1. Upon completion of project, or as work progresses, remove all construction debris from above ceiling, vertical shafts and utility chases that have been part of the construction.
- 2. Perform HEPA vacuum cleaning of all surfaces in the construction area. This includes walls, ceilings, cabinets, furniture (built-in or free standing), partitions, flooring, etc.
- 3. All new air ducts shall be cleaned prior to final inspection.

**1.9 DISPOSAL AND RETENTION**

A. Materials and equipment accruing from work removed and from demolition of buildings or structures, or parts thereof, shall be disposed of as follows:

- 1. Reserved items which are to remain property of the Government are identified by attached tags or noted on drawings as items to be stored. Items that remain property of the Government shall be removed or dislodged from present locations in such a manner as to prevent damage which would be detrimental to re-installation and reuse. Store such items where directed by Resident Engineer.
- 2. Items not reserved shall become property of the Contractor and be removed by Contractor from the Medical Center.
- 3. Items of portable equipment and furnishings located in rooms and spaces in which work is to be done under this contract shall remain the property of the Government. When rooms and spaces are vacated by the Department of Veterans Affairs during the alteration period, such items which are NOT required by drawings and specifications to be either relocated or reused will be removed by the Government in advance of work to avoid interfering with Contractor's operation.

**1.10 PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS**

A. Please see Section 4.45 of this solicitation: FAR 52.236-9 Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements.

- B. Refer to Section 01 57 19, TEMPORARY ENVIRONMENTAL CONTROLS, for additional requirements on protecting vegetation, soils and the environment. Refer to Articles, "Alterations", "Restoration", and "Operations and Storage Areas" for additional instructions concerning repair of damage to structures and site improvements.

- C. Refer to FAR clause 52.236-7, "Permits and Responsibilities," which is included in General Conditions. A National Pollutant Discharge Elimination System (NPDES) permit is required for this project. The Contractor is considered an "operator" under the permit and has extensive responsibility for compliance with permit requirements. VA will make the permit application available at the medical center office. The apparent low bidder, contractor and affected subcontractors shall furnish all information and certifications that are required to comply with the permit process and permit requirements. Many of the permit requirements will be satisfied by completing construction as shown and specified. Some requirements involve the Contractor's method of operations and operations planning and the Contractor is responsible for employing best management practices. The affected activities often include, but are not limited to the following:

- Designating areas for equipment maintenance and repair;
- Providing waste receptacles at convenient locations and provide regular collection of wastes;
- Locating equipment wash down areas on site, and provide appropriate control of wash-waters;
- Providing protected storage areas for chemicals, paints, solvents, fertilizers, and other potentially toxic materials; and
- Providing adequately maintained sanitary facilities.

#### **1.11 RESTORATION**

- A. Remove, cut, alter, replace, patch and repair existing work as necessary to install new work. Except as otherwise shown or specified, do not cut, alter or remove any structural work, and do not disturb any ducts, plumbing, steam, gas, or electric work without approval of the Resident Engineer. Existing work to be altered or extended and that is found to be defective in any way, shall be reported to the Resident Engineer before it is disturbed. Materials and workmanship used in restoring work, shall conform in type and quality to that of original existing construction, except as otherwise shown or specified.
- B. Upon completion of contract, deliver work complete and undamaged. Existing work (walls, ceilings, partitions, floors, mechanical and electrical work, lawns, paving, roads, walks, etc.) disturbed or removed as a result of performing required new work, shall be patched, repaired, reinstalled, or replaced with new work, and refinished and left in as good condition as existed before commencing work.
- C. At Contractor's own expense, Contractor shall immediately restore to service and repair any damage caused by Contractor's workmen to existing piping and conduits, wires, cables, etc., of utility services or of fire protection systems and communications systems (including telephone) which are indicated on drawings and which are not scheduled for discontinuance or abandonment.



- D. Expense of repairs to such utilities and systems not shown on drawings or locations of which are unknown will be covered by adjustment to contract time and price in accordance with clause entitled "CHANGES" (FAR 52.243-4 and VAAR 852.236-88) and "DIFFERING SITE CONDITIONS" (FAR 52.236-2) of Section 00 72 00, GENERAL CONDITIONS.

#### **1.12 PHYSICAL DATA**

- A. Please see FAR 52.236-4; Physical Data included in Section 4.15 of this solicitation.
- B. Subsurface conditions have been developed by core borings and test pits. Logs of subsurface exploration are shown diagrammatically on drawings.
- C. A copy of the soil report will be made available for inspection by bidders. The soils report shall be considered part of the contract documents.
- D. Government does not guarantee that other materials will not be encountered nor that proportions, conditions or character of several materials will not vary from those indicated by explorations. Bidders are expected to examine site of work and logs of borings; and, after investigation, decide for themselves character of materials and make their bids accordingly. Upon proper application to Department of Veterans Affairs, bidders will be permitted to make subsurface explorations of their own at site.

#### **1.13 PROFESSIONAL SURVEYING SERVICES**

A registered professional land surveyor or registered civil engineer whose services are retained and paid for by the Contractor shall perform services specified herein and in other specification sections. The Contractor shall certify that the land surveyor or civil engineer is not one who is a regular employee of the Contractor, and that the land surveyor or civil engineer has no financial interest in this contract.

#### **1.14 LAYOUT OF WORK**

- A. Please see Section 4.45 of this solicitation for FAR 52.236-17; Layout of Work.
- B. Establish and plainly mark center lines for each building and/or addition to each existing building, and such other lines and grades that are reasonably necessary to properly assure that location, orientation, and elevations established for each such structure and/or addition, roads, or parking lots, are in accordance with lines and elevations shown on contract drawings.
- C. Following completion of general mass excavation and before any other permanent work is performed, establish and plainly mark (through use of appropriate batter boards or other means) sufficient additional survey control points or system of points as may be necessary to assure proper alignment, orientation, and grade of all major features of work. Survey shall include, but not be limited to, location of lines and grades of footings, exterior walls, center lines of columns in both directions, major utilities and elevations of floor slabs:

1. Such additional survey control points or system of points thus established shall be checked and certified by a registered land surveyor or registered civil engineer. Furnish such certification to the Resident Engineer before any work (such as footings, floor slabs, columns, walls, utilities and other major controlling features) is placed.
- D. During progress of work, and particularly as work progresses from floor to floor, Contractor shall have line grades and plumbness of all major form work checked and certified by a registered land surveyor or registered civil engineer as meeting requirements of contract drawings. Furnish such certification to the Resident Engineer before any major items of concrete work are placed. In addition, Contractor shall also furnish to the Resident Engineer certificates from a registered land surveyor or registered civil engineer that the following work is complete in every respect as required by contract drawings.
  1. Lines of each building and/or addition.
  2. Elevations of bottoms of footings and tops of floors of each building and/or addition.
  3. Lines and elevations of sewers and of all outside distribution systems.
  4. Lines of elevations of all swales and interment areas.
  5. Lines and elevations of roads, streets and parking lots.
- E. Whenever changes from contract drawings are made in line or grading requiring certificates, record such changes on a reproducible drawing bearing the registered land surveyor or registered civil engineer seal, and forward these drawings upon completion of work to Resident Engineer.
- F. The Contractor shall perform the surveying and layout work of this and other articles and specifications in accordance with the provisions of Article "Professional Surveying Services".

#### **1.15 AS-BUILT DRAWINGS**

- A. The contractor shall maintain two full size sets of as-built drawings which will be kept current during construction of the project, to include all contract changes, modifications and clarifications.
- B. All variations shall be shown in the same general detail as used in the contract drawings. To insure compliance, as-built drawings shall be made available for the Resident Engineer's review, as often as requested.
- C. Contractor shall deliver two approved completed sets of as-built drawings to the Resident Engineer within 15 calendar days after each completed phase and after the acceptance of the project by the Resident Engineer.
- D. Paragraphs A, B, & C shall also apply to all shop drawings.

**1.16 USE OF ROADWAYS**

- A. For hauling, use only established public roads and roads on Medical Center and, when authorized by the Resident Engineer, such temporary roads which are necessary in the performance of contract work. Temporary roads shall be constructed by the Contractor at Contractor's expense. When necessary to cross curbing, sidewalks, or similar construction, they must be protected by well-constructed bridges.
- B. When new permanent roads are to be a part of this contract, Contractor may construct them immediately for use to facilitate building operations. These roads may be used by all who have business thereon within zone of building operations.
- C. When certain buildings (or parts of certain buildings) are required to be completed in advance of general date of completion, all roads leading thereto must be completed and available for use at time set for completion of such buildings or parts thereof.

**1.17 TEMPORARY USE OF MECHANICAL AND ELECTRICAL EQUIPMENT**

- A. Use of new installed mechanical and electrical equipment to provide heat, ventilation, plumbing, light and power will be permitted subject to compliance with the following provisions:
  - 1. Permission to use each unit or system must be given by Resident Engineer. If the equipment is not installed and maintained in accordance with the following provisions, the Resident Engineer will withdraw permission for use of the equipment.
  - 2. Electrical installations used by the equipment shall be completed in accordance with the drawings and specifications to prevent damage to the equipment and the electrical systems, i.e. transformers, relays, circuit breakers, fuses, conductors, motor controllers and their overload elements shall be properly sized, coordinated and adjusted. Voltage supplied to each item of equipment shall be verified to be correct and it shall be determined that motors are not overloaded. The electrical equipment shall be thoroughly cleaned before using it and again immediately before final inspection including vacuum cleaning and wiping clean interior and exterior surfaces.
  - 3. Units shall be properly lubricated, balanced, and aligned. Vibrations must be eliminated.
  - 4. Automatic temperature control systems for preheat coils shall function properly and all safety controls shall function to prevent coil freeze-up damage.
  - 5. The air filtering system utilized shall be that which is designed for the system when complete, and all filter elements shall be replaced at completion of construction and prior to testing and balancing of system.
  - 6. All components of heat production and distribution system, metering equipment, condensate returns, and other auxiliary facilities used in temporary service shall be cleaned prior to use; maintained to

prevent corrosion internally and externally during use; and cleaned, maintained and inspected prior to acceptance by the Government.

- B. Prior to final inspection, the equipment or parts used which show wear and tear beyond normal, shall be replaced with identical replacements, at no additional cost to the Government.
- C. This paragraph shall not reduce the requirements of the mechanical and electrical specifications sections.

#### **1.18 TEMPORARY USE OF EXISTING ELEVATORS**

- A. Use of existing elevators for handling building materials and Contractor's personnel will be permitted subject to following provisions:
  - 1. Contractor makes all arrangements with the Resident Engineer for use of elevators. The Resident Engineer will ascertain that elevators are in proper condition. Contractor may use elevators in Bldg. 2 designated by the Resident Engineer. Times when the elevators can be used will be determined by the Resident Engineer.
  - 2. Contractor covers and provides maximum protection of following elevator components:
    - a. Entrance jambs, heads soffits and threshold plates.
    - b. Entrance columns, canopy, return panels and inside surfaces of car enclosure walls.
    - c. Finish flooring.
  - 3. Government will accept hoisting ropes of elevator and rope of each speed governor if they are worn under normal operation. However, if these ropes are damaged by action of foreign matter such as sand, lime, grit, stones, etc., during temporary use, they shall be removed and replaced by new hoisting ropes.
  - 4. If brake lining of elevators are excessively worn or damaged during temporary use, they shall be removed and replaced by new brake lining.
  - 5. All parts of main controller, starter, relay panel, selector, etc., worn or damaged during temporary use shall be removed and replaced with new parts, if recommended by elevator inspector after elevator is released by Contractor.
  - 6. Place elevator in condition equal, less normal wear, to that existing at time it was placed in service of Contractor as approved by Contracting Officer.

#### **1.19 TEMPORARY USE OF NEW ELEVATORS**

- A. The Contractor and his personnel shall be permitted use of new elevator(s) subject to the following provisions:
  - 1. Contractor shall make arrangements with the Resident Engineer for use of elevator(s). Contractor may obtain elevator(s) for exclusive use.
  - 2. Prior to the use of elevator(s), the Contractor shall have the elevator(s) inspected and accepted by an ASME accredited, certified

elevator safety inspector. The acceptance report shall be submitted to the Resident Engineer.

3. Submit to the Resident Engineer the schedule and procedures for maintaining equipment. Indicate the day or days of the week and total hours required for maintenance. A report shall be submitted to the Resident Engineer monthly indicating the type of maintenance conducted, hours used, and any repairs made to the elevator(s).
4. The Contractor shall be responsible for enforcing the maintenance procedures.
5. During temporary use of elevator(s) all repairs, equipment replacement and cost of maintenance shall be the responsibility of the Contractor.
6. Personnel for operating elevator(s) shall not be provided by the Department of Veterans Affairs.
7. Contractor shall cover and provide maximum protection of the entire elevator(s) installation.
8. The Contractor shall arrange for the elevator company to perform operation of the elevator(s) so that an ASME accredited, certified elevator safety inspector can evaluate the equipment. The Contractor shall be responsible for any costs of the elevator company.
9. All elevator(s) parts worn or damaged during temporary use shall be removed and replaced with new parts. This shall be determined by an ASME accredited certified elevator safety inspector after temporary use and before acceptance by the Government. Submit report to the Resident Engineer for approval.
10. Elevator shall be tested as required by the testing section of the elevator(s) specifications before acceptance by the Department of Veterans Affairs.

#### **1.20 TEMPORARY TOILETS**

- A. Provide where directed, (for use of all Contractor's workmen) ample temporary sanitary toilet accommodations with suitable sewer and water connections; or, when approved by Resident Engineer, provide suitable dry closets where directed. Keep such places clean and free from flies, and all connections and appliances connected therewith are to be removed prior to completion of contract, and premises left perfectly clean.

#### **1.21 AVAILABILITY AND USE OF UTILITY SERVICES**

- A. The Government shall make all reasonably required amounts of utilities available to the Contractor from existing outlets and supplies, as specified in the contract. The amount to be paid by the Contractor for chargeable electrical services shall be the prevailing rates charged to the Government. The Contractor shall carefully conserve any utilities furnished without charge.
- B. The Contractor, at Contractor's expense and in a workmanlike manner satisfactory to the Contracting Officer, shall install and maintain all necessary temporary connections and distribution lines, and all meters

required to measure the amount of electricity used for the purpose of determining charges. Before final acceptance of the work by the Government, the Contractor shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.

- C. Contractor shall install meters at Contractor's expense and furnish the Medical Center a monthly record of the Contractor's usage of electricity as hereinafter specified.
- D. Heat: Furnish temporary heat necessary to prevent injury to work and materials through dampness and cold. Use of open salamanders or any temporary heating devices which may be fire hazards or may smoke and damage finished work, will not be permitted. Maintain minimum temperatures as specified for various materials:
  - 1. Obtain heat by connecting to Medical Center heating distribution system.
    - a. Steam is available at no cost to Contractor.
- E. Electricity (for Construction and Testing): Furnish all temporary electric services.
  - 1. Obtain electricity by connecting to the Medical Center electrical distribution system. The Contractor shall meter and pay for electricity required for electric cranes and hoisting devices, electrical welding devices and any electrical heating devices providing temporary heat. Electricity for all other uses is available at no cost to the Contractor.
- F. Water (for Construction and Testing): Furnish temporary water service.
  - 1. Obtain water by connecting to the Medical Center water distribution system. Provide reduced pressure backflow preventer at each connection. Water is available at no cost to the Contractor.
  - 2. Maintain connections, pipe, fittings and fixtures and conserve water-use so none is wasted. Failure to stop leakage or other wastes will be cause for revocation (at Resident Engineer's discretion) of use of water from Medical Center's system.
- G. Steam: Furnish steam system for testing required in various sections of specifications.
  - 1. Obtain steam for testing by connecting to the Medical Center steam distribution system. Steam is available at no cost to the Contractor.
  - 2. Maintain connections, pipe, fittings and fixtures and conserve steam-use so none is wasted. Failure to stop leakage or other waste will be cause for revocation (at Resident Engineer's discretion), of use of steam from the Medical Center's system.
- H. Fuel: Natural and LP gas and burner fuel oil required for boiler cleaning, normal initial boiler-burner setup and adjusting, and for performing the specified boiler tests will be furnished by the Government. Fuel required for prolonged boiler-burner setup, adjustments, or modifications due to improper design or operation of boiler, burner, or control devices shall be furnished by the Contractor at Contractor's expense.

#### **1.22 NEW TELEPHONE AND WIRELESS NETWORK EQUIPMENT**

The contractor shall coordinate with the work of installation of telephone and wireless internet equipment by others. This work shall be completed before the building is turned over to VA.

#### **1.23 TESTS**

- A. Pre-test mechanical and electrical equipment and systems and make corrections required for proper operation of such systems before requesting final tests. Final test will not be conducted unless pre-tested.
- B. Conduct final tests required in various sections of specifications in presence of an authorized representative of the Contracting Officer. Contractor shall furnish all labor, materials, equipment, instruments, and forms, to conduct and record such tests.
- C. Mechanical and electrical systems shall be balanced, controlled and coordinated. A system is defined as the entire complex which must be coordinated to work together during normal operation to produce results for which the system is designed. For example, air conditioning supply air is only one part of entire system which provides comfort conditions for a building. Other related components are return air, exhaust air, steam, chilled water, refrigerant, hot water, controls and electricity, etc. Another example of a complex which involves several components of different disciplines is a boiler installation. Efficient and acceptable boiler operation depends upon the coordination and proper operation of fuel, combustion air, controls, steam, feedwater, condensate and other related components.
- D. All related components as defined above shall be functioning when any system component is tested. Tests shall be completed within a reasonably short period of time during which operating and environmental conditions remain reasonably constant.
- E. Individual test result of any component, where required, will only be accepted when submitted with the test results of related components and of the entire system.

#### **1.24 INSTRUCTIONS**

- A. Contractor shall furnish Maintenance and Operating manuals and verbal instructions when required by the various sections of the specifications and as hereinafter specified.
- B. Manuals: Maintenance and operating manuals (four copies each) for each separate piece of equipment shall be delivered to the Resident Engineer coincidental with the delivery of the equipment to the job site. Manuals shall be complete, detailed guides for the maintenance and operation of equipment. They shall include complete information necessary for starting, adjusting, maintaining in continuous operation for long periods of time and dismantling and reassembling of the complete units and sub-assembly components. Manuals shall include an index covering all component parts clearly cross-referenced to diagrams and illustrations. Illustrations

shall include "exploded" views showing and identifying each separate item. Emphasis shall be placed on the use of special tools and instruments. The function of each piece of equipment, component, accessory and control shall be clearly and thoroughly explained. All necessary precautions for the operation of the equipment and the reason for each precaution shall be clearly set forth. Manuals must reference the exact model, style and size of the piece of equipment and system being furnished. Manuals referencing equipment similar to but of a different model, style, and size than that furnished will not be accepted.

- C. Instructions: Contractor shall provide qualified, factory-trained manufacturers' representatives to give detailed instructions to assigned Department of Veterans Affairs personnel in the operation and complete maintenance for each piece of equipment. All such training will be at the job site. These requirements are more specifically detailed in the various technical sections. Instructions for different items of equipment that are component parts of a complete system, shall be given in an integrated, progressive manner. All instructors for every piece of component equipment in a system shall be available until instructions for all items included in the system have been completed. This is to assure proper instruction in the operation of inter-related systems. All instruction periods shall be at such times as scheduled by the Resident Engineer and shall be considered concluded only when the Resident Engineer is satisfied in regard to complete and thorough coverage. The Department of Veterans Affairs reserves the right to request the removal of, and substitution for, any instructor who, in the opinion of the Resident Engineer, does not demonstrate sufficient qualifications in accordance with requirements for instructors above.

#### **1.25 GOVERNMENT-FURNISHED PROPERTY**

- A. The Government shall deliver to the Contractor, the Government-furnished property shown on the Schedule and or drawings.
- B. Equipment furnished by Government to be installed by Contractor will be furnished to Contractor at the Medical Center.
- C. Storage space for equipment will be provided by the Government and the Contractor shall be prepared to unload and store such equipment therein upon its receipt at the Medical Center.
- D. Notify Contracting Officer in writing, 60 days in advance, of date on which Contractor will be prepared to receive equipment furnished by Government. Arrangements will then be made by the Government for delivery of equipment.
1. Immediately upon delivery of equipment, Contractor shall arrange for a joint inspection thereof with a representative of the Government. At such time the Contractor shall acknowledge receipt of equipment described, make notations, and immediately furnish the Government representative with a written statement as to its condition or shortages.
  2. Contractor thereafter is responsible for such equipment until such time as acceptance of contract work is made by the Government.



- E. Equipment furnished by the Government will be delivered in a partially assembled (knock down) condition in accordance with existing standard commercial practices, complete with all fittings, fastenings, and appliances necessary for connections to respective services installed under contract. All fittings and appliances (i.e., couplings, ells, tees, nipples, piping, conduits, cables, and the like) necessary to make the connection between the Government furnished equipment item and the utility stub-up shall be furnished and installed by the contractor at no additional cost to the Government.
- F. Completely assemble and install the Government furnished equipment in place ready for proper operation in accordance with specifications and drawings.
- G. Furnish supervision of installation of equipment at construction site by qualified factory trained technicians regularly employed by the equipment manufacturer.

#### **1.26 RELOCATED EQUIPMENT ITEMS**

- A. Contractor shall disconnect, dismantle as necessary, remove and reinstall in new location, all existing equipment and items indicated on the drawings or specifications or otherwise shown to be relocated by the Contractor.
- B. Perform relocation of such equipment or items at such times and in such a manner as directed by the Resident Engineer.
- C. Suitably cap existing service lines, such as steam, condensate return, water, drain, gas, air, vacuum and/or electrical, whenever such lines are disconnected from equipment to be relocated. Remove abandoned lines in finished areas and cap as specified herein before under paragraph "Abandoned Lines".
- D. Provide all mechanical and electrical service connections, fittings, fastenings and any other materials necessary for assembly and installation of relocated equipment; and leave such equipment in proper operating condition.
- E. All service lines such as noted above for relocated equipment shall be in place at point of relocation ready for use before any existing equipment is disconnected. Make relocated existing equipment ready for operation or use immediately after reinstallation.

#### **1.27 CONSTRUCTION SIGN**

- A. Provide a Construction Sign where directed by the Resident Engineer. All wood members shall be of framing lumber. Cover sign frame with 0.7 mm (24 gage) galvanized sheet steel nailed securely around edges and on all bearings. Provide three 100 by 100 mm (4 inch by 4 inch) posts (or equivalent round posts) set 1200 mm (four feet) into ground. Set bottom of sign level at 900 mm (three feet) above ground and secure to posts with through bolts. Make posts full height of sign. Brace posts with 50 x 100 mm (two by four inch) material as directed.

- B. Paint all surfaces of sign and posts two coats of white gloss paint. Border and letters shall be of black gloss paint, except project title which shall be blue gloss paint.
- C. Maintain sign and remove it when directed by the Resident Engineer.
- D. Detail Drawing of construction sign showing required legend and other characteristics of the sign are to be acquired at <http://www.va.gov/facmgt/standard/details.asp>. Standard detail SD01000-01.

#### **1.28 SAFETY SIGN**

- A. Provide a Safety Sign where directed by Resident Engineer. Face of sign shall be 19 mm (3/4 inch) thick exterior grade plywood. Provide two 100 mm by 100 mm (four by four inch) posts extending full height of sign and 900 mm (three feet) into ground. Set bottom of sign level at 1200 mm (four feet) above ground.
- B. Paint all surfaces of Safety Sign and posts with one prime coat and two coats of white gloss paint. Letters and design shall be painted with gloss paint of colors noted.
- C. Maintain sign and remove it when directed by Resident Engineer.
- D. Detail Drawing Number 45 of safety sign showing required legend and other characteristics of the sign are to be acquired at <http://www.va.gov/facmgt/standard/details.asp>. Standard detail SD01000-02.
- E. Post the number of accident free days on a daily basis.

#### **1.29 PHOTOGRAPHIC DOCUMENTATION**

- A. During the construction period through completion, provide photographic documentation of construction progress and at selected milestones including electronic indexing, navigation, storage and remote access to the documentation, as per these specifications. The commercial photographer or the subcontractor used for this work shall meet the following qualifications:
  - 1. Demonstrable minimum experience of three (3) years in operation providing documentation and advanced indexing/navigation systems including a representative portfolio of construction projects of similar type, size, duration and complexity as the Project.
  - 2. Demonstrable ability to service projects throughout North America, which shall be demonstrated by a representative portfolio of active projects of similar type, size, duration and complexity as the Project.
- B. Photographic documentation elements:
  - 1. Each digital image shall be taken with a professional grade camera with minimum size of 6 megapixels (MP) capable of producing 200x250mm

(8 x 10 inch) prints with a minimum of 2272 x 1704 pixels and 400x500mm  
(16 x 20 inch) prints with a minimum 2592 x 1944 pixels.

2. Indexing and navigation system shall utilize actual AUTOCAD construction drawings, making such drawings interactive on an on-line interface. For all documentation referenced herein, indexing and navigation must be organized by both time (date-stamped) and location throughout the project.
3. Documentation shall combine indexing and navigation system with inspection-grade digital photography designed to capture actual conditions throughout construction and at critical milestones. Documentation shall be accessible on-line through use of an internet connection. Documentation shall allow for secure multiple-user access, simultaneously, on-line.
4. Before construction, the building pad, adjacent streets, roadways, parkways, driveways, curbs, sidewalks, landscaping, adjacent utilities and adjacent structures surrounding the building pad and site shall be documented. Overlapping photographic techniques shall be used to insure maximum coverage. Indexing and navigation accomplished through interactive architectural drawings. If site work or pad preparation is extensive, this documentation may be required immediately before construction and at several pre-determined intervals before building work commences.
5. Construction progress for all trades shall be tracked at pre-determined intervals, but not less than once every thirty (30) calendar days ("Progressions"). Progression documentation shall track both the exterior and interior construction of the building. Exterior Progressions shall track 360 degrees around the site and each building. Interior Progressions shall track interior improvements beginning when stud work commences and continuing until Project completion.
6. As-built condition of pre-slab utilities and site utilities shall be documented prior to pouring slabs, placing concrete and/or backfilling. This process shall include all underground and in-slab utilities within the building(s) envelope(s) and utility runs in the immediate vicinity of the building(s) envelope(s). This may also include utilities enclosed in slab-on-deck in multi-story buildings. Overlapping photographic techniques shall be used to insure maximum coverage. Indexing and navigation accomplished through interactive site utility plans.
7. As-built conditions of mechanical, electrical, plumbing and all other systems shall be documented post-inspection and pre-insulation, sheet rock or dry wall installation. This process shall include all finished systems located in the walls and ceilings of all buildings at the Project. Overlapping photographic techniques shall be used to insure maximum coverage. Indexing and navigation accomplished through interactive architectural drawings.
8. As-built conditions of exterior skin and elevations shall be documented with an increased concentration of digital photographs as directed by the Resident Engineer in order to capture pre-determined focal points, such as waterproofing, window flashing, radiused steel work, architectural or Exterior Insulation and Finish Systems (EIFS)

detailing. Overlapping photographic techniques shall be used to insure maximum coverage. Indexing and navigation accomplished through interactive elevations or elevation details.

9. As-built finished conditions of the interior of each building including floors, ceilings and walls shall be documented at certificate of occupancy or equivalent, or just prior to occupancy, or both, as directed by the Resident Engineer. Overlapping photographic techniques shall be used to insure maximum coverage. Indexing and navigation accomplished through interactive architectural drawings.
10. Miscellaneous events that occur during any Contractor site visit, or events captured by the Department of Veterans Affairs independently, shall be dated, labeled and inserted into a Section in the navigation structure entitled "Slideshows," allowing this information to be stored in the same "place" as the formal scope.
11. Customizable project-specific digital photographic documentation of other details or milestones. Indexing and navigation accomplished through interactive architectural plans.
12. Monthly (29 max) exterior progressions (360 degrees around the project) and slideshows (all elevations and building envelope). The slideshows allow for the inclusion of Department of Veterans Affairs pictures, aerial photographs, and timely images which do not fit into any regular monthly photopath.
13. Weekly (21 Max) Site Progressions - Photographic documentation capturing the project at different stages of construction. These progressions shall capture underground utilities, excavation, grading, backfill, landscaping and road construction throughout the duration of the project.
14. Regular (8 max) interior progressions of all walls of the entire project to begin at time of substantial framed or as directed by the Resident Engineer through to completion.
15. Detailed Exact-Built of all Slabs for all project slab pours just prior to placing concrete or as directed by the Resident Engineer.
16. Detailed Interior exact built overlapping photos of the entire building to include documentation of all mechanical, electrical and plumbing systems in every wall and ceiling, to be conducted after rough-ins are complete, just prior to insulation and or drywall, or as directed by Resident Engineer.
17. Finished detailed Interior exact built overlapping photos of all walls, ceilings, and floors to be scheduled by Resident Engineer prior to occupancy.
18. In event a greater or lesser number of images than specified above are required by the Resident Engineer, adjustment in contract price will be made in accordance with clause entitled "CHANGES" (FAR 52.243-4 and VAAR 852.236-88).

- C. Images shall be taken by a commercial photographer and must show distinctly, at as large a scale as possible, all parts of work embraced in the picture.

- D. Coordination of photo shoots is accomplished through Resident Engineer. Contractor shall also attend construction team meetings as necessary. Contractor's operations team shall provide regular updates regarding the status of the documentation, including photo shoots concluded, the availability of new Progressions or Exact-Builts viewable on-line and anticipated future shoot dates.
- E. Contractor shall provide all on-line domain/web hosting, security measures, and redundant server back-up of the documentation.
- F. Contractor shall provide technical support related to using the system or service.
- G. Upon completion of the project, final copies of the documentation (the "Permanent Record") with the indexing and navigation system embedded (and active) shall be provided in an electronic media format, typically a DVD or external hard-drive. Permanent Record shall have Building Information Modeling (BIM) interface capabilities. On-line access terminates upon delivery of the Permanent Record.

#### **1.30 FINAL ELEVATION DIGITAL IMAGES**

- A. A minimum of four (4) images of each elevation shall be taken with a minimum 6 MP camera, by a professional photographer with different settings to allow the Resident Engineer to select the image to be printed. All images are provided to the RE on a CD.
- B. Photographs shall be taken upon completion, including landscaping. They shall be taken on a clear sunny day to obtain sufficient detail to show depth and to provide clear, sharp pictures. Pictures shall be 400 mm x 500 mm (16 by 20 inches), printed on regular weight paper, matte finish archival grade photographic paper and produced by a RA4 process from the digital image with a minimum 300 PPI. Identifying data shall be carried on label affixed to back of photograph without damage to photograph and shall be similar to that provided for final construction photographs.
- C. Furnish six (6) 400 mm x 500 mm (16 by 20 inch) color prints of the following buildings constructed under this project (elevations as selected by the RE from the images taken above). Photographs shall be artistically composed showing full front elevations. All images shall become property of the Government. Each of the selected six prints shall be place in a frame with a minimum of 2 inches of appropriate matting as a border. Provide a selection of a minimum of 3 different frames from which the SRE will select one style to frame all six prints. Photographs with frames shall be delivered to the Resident Engineer in boxes suitable for shipping.
  - 1. Loop Road and Utilities
  - 2. Radiation Consolidation
  - 3. 750-Car Parking Structure.

#### **1.31 ARCHEOLOGICAL MONITORING OF CULTURAL RESOURCES AND HISTORIC PRESERVATION**

- A. Potential for encountering cultural resources during ground disturbances activities, exist in the Project site. Ground disturbances activities

include, but not limited to, mechanical excavation such as by excavators, trenching machines, mechanical augers, grading, ground compaction, and boring, excavation by hand tools, as well as indirect ground-disturbance such as the removal of paved surfaces.

- B. The General Contractor shall retain a Project Archeologist, who is a professional archaeologist and meets the Secretary of the Interior's Standards for Cultural resource management work. The Project Archeologist shall, as a minimum, do the following:
1. Develop an archaeological monitoring plan for ground disturbing activities.
  2. Develop written guidelines for ground-disturbing activities.
  3. Train Contractor's and subcontractor's personnel, and maintain records listing which personnel have undergone training.
  4. Be on call to evaluate possible cultural and historic resources uncovered.
- C. If subsurface cultural resources are encountered, all work in the vicinity of the find shall be temporarily halted and the Resident Engineer shall immediately be informed. The Project Archaeologist shall assess the significance of the find, and may determine that further testing is required to determine the significance of the find. Any evaluation plan drafted by the Project Archaeologist shall first be approved by Department of Veteran Affairs (DVA), Federal Preservation Officer (FPO), and State Historical Preservation Office (SHPO). If evaluation of the resource determines that the resource is an historic property, further mitigative action may be needed.
- D. If human remains are unearthed during construction, State Health and Safety Code Section 7050.50 requires that no further disturbance shall occur until the County Coroner has made the necessary findings as to the origin and disposition of the remains pursuant to Public Resources Code Section 5097.98. Upon discovery of any human remains, the archaeological monitor shall have authority to halt all project related ground disturbing activity within 100 feet of the find. The DVA police shall be notified immediately. The County Coroner shall be informed immediately pursuant to state law. Within two working days the County Coroner shall determine if the human remains are Native American. If the County Coroner determines the remains are of Native American origin, the Native American Heritage Commission (NAHC) and the FPO shall be informed within 24 hours. The Project Archaeologist and DVA shall consult closely with the Most Likely Descendent, determined by the NAHC (if any), regarding treatment of Native American human remains. If the NAHC is unable to identify the Most Likely Descendent, or the Most Likely Descendent identified fails to make a recommendation, DVA shall contact the NAHC regarding the appropriate treatment of the human remains, which may include reintering the human remains and items associated with Native American burials with appropriate dignity on the property in a location not subject to further subsurface disturbance.

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**SECTION 01 31 00**

**PROJECT MANAGEMENT AND COORDINATION**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. This section includes certain administrative provisions for managing and coordinating construction operations, including but not limited to the following:
1. General project coordination.
  2. Coordination drawings.
  3. Conservation.
  4. Administrative and supervisory personnel.
  5. Conferences and meetings.
  6. Requests for Information (RFIs).
  7. Utility service interruptions.
  8. Cleaning and protection.
- B. Comply with Veterans Affairs Palo Alto Health Care System (VAPAHCS) Rules of the Station for requirements affecting project management and coordination of the Work. Where there are conflicting requirements between VAPAHCS Rules of the Station and the Contract Documents, the more stringent provisions shall apply, unless directed otherwise by the Resident Engineer.

**1.2 GENERAL PROJECT COORDINATION**

- A. Coordination of Trades: Coordinate construction operations included in the various sections of the Specifications to provide an efficient and orderly installation of each part of the Work. Coordinate construction operations included under different sections of the Specifications that depend on each other for proper installation, connection or operation.
1. Schedule construction operations in the sequence required to obtain the best results where the installation of one part of the Work depends on installation of other components before or after that part.
  2. Coordinate installation of different components to provide maximum accessibility for required maintenance, service, testing and repair.
  3. Accommodate items scheduled for later installation.
- B. Notification: Where necessary, prepare and distribute memoranda to each party involved, outlining special procedures required for coordination. When applicable, include notices, reports and meeting minutes as part of the memoranda.

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

1. Preparation of schedules.
2. Installation and removal of temporary facilities.
3. Delivery and processing of submittals.
4. Progress meetings.
5. Project closeout activities.

### **1.3 COORDINATION DRAWINGS**

- A. Prepare coordination drawings where careful coordination is needed for installation of products and materials fabricated by separate entities, and prepare coordination drawings where limited space availability necessitates maximum utilization of the space for efficient installation of different components.
1. Show the relationship of components shown on separate shop drawings.
  2. Indicate required installation sequences.
  3. Provide vertical and horizontal dimensions necessary to locate each component and avoid conflicts within the space.
  4. Comply with shop drawing requirements for sheet size and submittal methods specified in Section 01 33 23 "Shop Drawings, Product Data, and Samples."
- B. Refer to Division 21 "Fire Suppression," Division 22 "Plumbing," Division 23 "Heating, Ventilating, and Air Conditioning," Division 25 "Integrated Automation," Division 26 "Electrical," Division 27 "Communications," and Division 28 "Electronic Safety and Security" for specific coordination drawing requirements for mechanical and electrical installations.
- C. Provide coordination drawings for equipment and system installations in mechanical and electrical rooms and spaces where two or more entities will provide the work and separate shop drawings are insufficient to show coordination.

### **1.4 CONSERVATION**

- A. Consider conservation of energy, water and materials in the conduct of construction operation.
1. Salvage materials and equipment involved in the performance of, but not incorporated into, the Work, Refer to Section 01 74 19 "Construction Waste Management."
- B. Energy Conservation Plan: Develop a program to minimize use of energy. Program shall minimally include the following:
1. Designation of an energy conservation officer.



2. Identification of energy conservation measures to reduce energy usage.
  3. Establishment of energy usage goals for the project.
  4. Means for enforcing energy conservation measures.
- C. Implementation of Energy Conservation Plan: Contractor's energy conservation officer shall provide on-site instruction of workers in the methods to conserve energy, and shall manage the process for the duration of the Contract.
1. Contractor shall initiate the plan by issuing notices to the parties of the project, installation of meters or other instruments to record usage where practical, and other measures to encourage energy conservation.
  2. The energy conservation officer shall report monthly, in writing, the measures taken to effect energy conservation, records or estimates of usage and savings, and other points of interest. Copies of each report shall be distributed to each significant party of the project, including the Contracting Officer.
- D. Waste Management Plan: Refer to Section 01 74 19 "Construction Waste Management."

#### **1.5 ADMINISTRATIVE AND SUPERVISORY PERSONNEL**

- A. In addition to the Project superintendent, the Contractor shall provide other administrative and supervisory personnel as required for proper performance of the Work.
- B. Project Coordinator: Provide a full-time project coordinator, experienced in the administration and supervision of building construction, including mechanical and electrical work. The project coordinator shall be authorized to act as the coordinator of construction activities, including but not limited to the following:
1. Scheduling and sequencing of Work.
  2. Sharing access to work spaces.
  3. Installations.
  4. Protection of work.
  5. Cutting and patching.
  6. Selections for compatibility.
  7. Preparation of coordination of drawings.
  8. Inspection and tests.
  9. Temporary services and facilities.
- C. Mechanical and Electrical Coordinator: Provide a full-time mechanical and electrical coordinator, experienced in the coordination of mechanical and electrical construction of the types required for the project, and experienced in coordination of mechanical and electrical construction with

other operations. The mechanical and electrical coordinator shall be licensed to practice as a professional engineer in the location of the project, and shall be authorized to act as the coordinator for mechanical and electrical activities, including but not limited to the following:

1. Scheduling and sequencing of mechanical and electrical activities.
  2. Sharing access to mechanical and electrical work spaces.
  3. Integration of mechanical and electrical work into limited spaces available for mechanical and electrical installations.
  4. Protection of mechanical and electrical work.
  5. Cutting and patching for mechanical and electrical work.
  6. Tolerances for mechanical and electrical work.
  7. Preparation of mechanical and electrical coordination drawings.
  8. Mechanical and electrical inspections and tests.
  9. Utilization of mechanical and electrical temporary services and facilities.
- D. Safety and Health Officer: Provide a safety and health officer whose duties shall consist of developing and implementing safety and health programs specified in Section 01 00 00 "General Requirements."
- E. Energy Conservation Officer: Provide an energy conservation officer whose duties shall consist of developing and implementing a program for minimizing use of energy on the site.
- F. Waste Management Coordinator: Provide a waste management coordinator whose duties shall consist of developing and implementing a program for maximizing recycling of waste. Refer to Section 01 74 19 "Construction Waste Management."

#### **1.6 CONFERENCES AND MEETINGS**

- A. Preconstruction Conference: The Contracting Officer shall schedule a preconstruction conference before starting construction at a time and place to be determined by the Contracting Officer. Conference shall review responsibilities and personnel assignments.
1. Attendees: Participants at the conference shall be familiar with the project, shall be authorized to conclude matters relating to the Work, and shall minimally include representatives of the following parties:
    - a. Contracting Officer.
    - b. Resident Engineer.
    - c. Architect.
    - d. Major design consultants.
    - e. Contractor.
    - f. Major subcontractors.
    - g. Major suppliers.

- h. Other concerned parties.
- 2. Agenda: Subjects for discussion shall include items of significance that could effect progress, including but not limited to the following:
  - a. Tentative construction schedule.
  - b. Critical work sequencing.
  - c. Designation of responsible personnel.
  - d. Procedures for processing field decisions and Change Orders.
  - e. Procedures for processing Applications for Payment.
  - f. Distribution of Contract Documents.
  - g. Submittal of Shop Drawings, Product Data, and Samples.
  - h. Preparation of Record Documents.
  - i. Use of the premises.
  - j. Parking availability.
  - k. Office, work, and storage areas.
  - l. Equipment deliveries and priorities.
  - m. Safety procedures.
  - n. First aid.
  - o. Security.
  - p. Infection control risk assessment.
  - q. Housekeeping and progress cleaning.
  - r. Working hours.
- 3. Reporting: No later than 3 calendar days after the conference, the Contractor shall distribute minutes of the conference to each party present and to other concerned parties, including the Contracting Officer.
- B. Preinstallation Conferences: The Contractor shall conduct a preinstallation conference at the Project Site before each construction activity that requires coordination with other construction.
  - 1. Attendees: In addition to the Contractor's representative, the installer and representatives of manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend. Prior to conferences, advise the Contracting Officer's representative of scheduled conference dates.
  - 2. Agenda: Review the progress of other construction activities and preparations for the particular activity under consideration at each preinstallation conference, including requirements for the following.
    - a. Contract Documents.
    - b. Options.
    - c. Related Change Orders, including accepted Value Engineering proposals.

- d. Purchases.
  - e. Deliveries.
  - f. Submittals.
  - g. Review of mockups.
  - h. Possible conflicts.
  - i. Compatibility problems.
  - j. Time schedules.
  - k. Weather limitations.
  - l. Manufacturer's recommendations.
  - m. Warranty requirements.
  - n. Compatibility of materials.
  - o. Acceptability of substrates.
  - p. Temporary facilities and controls.
  - q. Space and access limitations.
  - r. Governing regulations.
  - s. Safety.
  - t. Testing and inspecting requirements.
  - u. Required performance results.
  - v. Protection.
- 3. Reporting: Record significant discussions and agreements and disagreements of each conference. No later than 3 calendar days after each conference, the Contractor shall distribute minutes of the conference to each party present and to other concerned parties, including the Contracting Officer.
  - 4. Do not proceed with the installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to the performance of the work, and reconvene the conference at the earliest feasible date.
- C. Progress Meetings: The Contracting Officer's Representative shall conduct progress meetings at the Project Site at regular intervals. Dates of meetings shall be coordinated with preparation of the payment request.
- 1. Attendees: In addition to the Contractor's and Contracting Officer's representatives, each subcontractor, supplier, or other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.
  - 2. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the status of the Project.
    - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead

or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to insure that current and subsequent activities will be completed within the Contract Time.

- b. Review the present and future needs of each entity present, including but not limited to the following:

- 1) Interface requirements.
- 2) Time.
- 3) Sequences of operations.
- 4) Status of submittals.
- 5) Deliveries.
- 6) Off-site fabrication.
- 7) Access.
- 8) Site utilization.
- 9) Temporary facilities and controls.
- 10) Hours of work.
- 11) Hazards and risks.
- 12) Housekeeping and progress cleaning.
- 13) Quality and work standards.
- 14) Change Orders.
- 15) Documentation of information for payment requests.
- 16) Updating of Record Documents.

3. Reporting: No later than 3 calendar days after each meeting, the Contractor shall distribute minutes of the meeting to each party present and to other concerned parties, including the Contracting Officer. Include a brief summary, in narrative form, of progress since the previous meeting and report.
4. Schedule Updating: The Contractor shall revise the Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. The revised schedule shall be issued concurrently with the report of each meeting.

- D. Coordination Meetings: The Contractor shall conduct project coordination meetings at regular intervals, to verify detailed coordination procedures for the upcoming construction operations in order to avoid potential problems and misunderstandings.

1. Frequency of Meetings: Weekly.
2. Attendees: In addition to the Contractor's and Contracting Officer's representatives, each subcontractor, supplier or other entity involved in coordination or planning construction activities shall be represented. All participants shall be authorized to conclude matters relating to the Work.
3. Agenda: Review the plans and requirements of each entity present, including but not limited to the subjects listed for Progress Meetings.

4. Reporting: No later than 3 calendar days after each meeting, the Contractor shall distribute minutes of meeting to each party present and to other concerned parties, including the Contracting Officer.

#### **1.7 UTILITY SERVICE INTERRUPTIONS**

- A. Utility Service Interruption Plan: Contractor shall submit a utility service interruption plan for the project. Plan shall include dates and times of each scheduled interruption, with estimated period of outage, list of existing equipment that will be affected by the interruption, proposed sequence of equipment shut-down and start-up, and responsible personnel.
  1. Keep interruptions and periods of interruption to a minimum.
  2. Schedule interruptions during times when the facility is unoccupied.
  3. Plan must be approved in writing by the Resident Engineer and the Contracting Officer or the Contracting Officer's representative. If not approved, consult with the Resident Engineer, and revise and resubmit the plan until approved.
- B. Coordination of Interruptions: Sufficiently in advance of each scheduled utility interruption, the Contractor shall issue a notice to all affected parties, confirming each provision of the interruption, or canceling and rescheduling. Coordinate with the Resident Engineer and Contracting Officer's representative, and confirm that the responsible personnel are prepared to execute the shut-down and start-up of affected existing equipment, prior to each interruption.
  1. Refer to Section 01 00 00 "General Requirements" and to VAPAHCS Rules of the Station for utility service interruption requirements.

#### **1.8 SUBMITTALS**

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Coordination Drawings: Comply with the shop drawing requirements specified in Section 01 33 23 "Shop Drawings, Product Data, and Samples."
- C. Energy Conservation: Within 15 calendar days after commencement of construction, submit the energy conservation plan, followed by monthly implementation reports.
- D. Waste Management: Within 15 calendar days after commencement of construction, submit the waste management plan, followed by monthly implementation reports.
- E. Staff Names: Within 15 calendar days after commencement of construction, submit a list of principal staff assignments, including the superintendent and other primary personnel at the Project site. Identify individuals by name, duties and responsibilities, home address, and business and home telephone numbers.
  1. Post copies of this list in the project meeting room, temporary field office and at each temporary telephone location.

- F. Conference and Meeting Minutes: Within times specified for reporting, distribute minutes to concerned parties.
- G. Utility Service Interruptions: No later than 15 calendar days prior to the first planned interruption, submit the utility service interruption plan, followed by confirmed scheduled shut-down notices at least 3 calendar days prior to each interruption.

#### **1.9 REQUESTS FOR INFORMATION (RFIs)**

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
  - 1. RFIs submitted by entities other than the Contractor will be returned with no response.
  - 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
  - 1. Project name.
  - 2. Project number.
  - 3. Date.
  - 4. Name of Contractor.
  - 5. Name of Architect.
  - 6. RFI number, numbered sequentially.
  - 7. RFI subject.
  - 8. Specification Section number and title and related paragraphs, as appropriate.
  - 9. Drawing number and detail references, as appropriate.
  - 10. Field dimensions and conditions, as appropriate.
  - 11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
  - 12. Contractor's signature.
  - 13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
    - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- C. RFI Forms: AIA Document G716 or software-generated form with substantially the same content as indicated above, acceptable to Resident Engineer.

- D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI requiring only the Architect's review; and fourteen days for each RFI requiring the Architect's and Architect's consultant's review. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.
1. The following Contractor-generated RFIs will be returned without action:
    - a. Requests for approval of submittals.
    - b. Requests for approval of substitutions.
    - c. Requests for approval of Contractor's means and methods.
    - d. Requests for coordination information already indicated in the Contract Documents.
    - e. Requests for adjustments in the Contract Time or the Contract Sum.
    - f. Requests for interpretation of Architect's actions on submittals.
    - g. Incomplete RFIs or inaccurately prepared RFIs.
  2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
- E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Use CSI Log Form 13.2B. or use software log that is part of Project Web site.
- F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.

**PART 2 - PRODUCTS (Not applicable)**

**PART 3 - EXECUTION**

**3.1 GENERAL COORDINATION PROVISIONS**

- A. Inspection of Conditions: Prior to installations, require the installer of each major component to inspect both the substrate and conditions under which work is to be performed.
1. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.
  2. Coordinate temporary enclosures with required inspections and tests to minimize the necessity of uncovering completed construction for that purpose.
- B. Construction in Progress: Keep construction in progress, and adjoining materials in place, clean during handling and installation. Apply protective coverings where required for protection from damage or deterioration.



- C. Completed Construction: Clean completed construction, and provide maintenance, as frequently as necessary to prevent damage or soiling or other deterioration through the remainder of the construction period. Adjust and lubricate operable components as necessary to assure operability without damage.
- D. Limiting Exposures: Supervise construction operations to prevent exposure of any part of construction, completed or in progress, to harmful, dangerous, damaging or otherwise deleterious conditions during the construction period. Such conditions include but are not limited to the following:
1. Excessive static or dynamic loading.
  2. Excessive internal or external pressures.
  3. Excessively high or low temperatures.
  4. Thermal shock.
  5. Excessively high or low humidity.
  6. Pollution and air contamination.
  7. Excessive vibration and noise.
  8. Water or ice.
  9. Chemicals and solvents.
  10. Light.
  11. Radiation.
  12. Puncture.
  13. Abrasion.
  14. Heavy traffic.
  15. Soiling, staining, and corrosion.
  16. Bacteria.
  17. Rodent and insect infestation.
  18. Combustion.
  19. Electrical current.
  20. High-speed operation.
  21. Improper lubrication.
  22. Unusual wear or other misuse.
  23. Contact between incompatible materials.
  24. Destructive testing.
  25. Misalignment.
  26. Excessive weathering.
  27. Unprotected storage.
  28. Improper shipping or handling.

29. Theft or vandalism.

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**SECTION 01 32 16.13**

**NETWORK ANALYSIS SCHEDULES**

**PART 1 - GENERAL**

**1.1 DESCRIPTION:**

- A. The Contractor shall develop a Network Analysis System (NAS) plan and schedule demonstrating fulfillment of the contract requirements, shall keep the network up-to-date in accordance with the requirements of this section and shall utilize the plan for scheduling, coordinating and monitoring work under this contract (including submittals processing and approval, and all activities of subcontractors, equipment vendors and suppliers). Conventional Critical Path Method (CPM) Precedence Diagramming Method (PDM) technique will be utilized to satisfy both time and cost applications. All schedule data and reports required under this specification section shall be based upon regular total float, not relative total float schedules.

**1.2 CONTRACTOR'S REPRESENTATIVE:**

- A. The Contractor shall designate an authorized representative in the firm who will be responsible for the preparation of the network diagram, review and report progress of the project with and to the Contracting Officer's representative.
- B. The Contractor's representative shall have direct project control and complete authority to act on behalf of the Contractor in fulfilling the requirements of this specification section and such authority shall not be interrupted throughout the duration of the project.

**1.3 CONTRACTOR'S CONSULTANT:**

- A. To prepare the network diagram, and compact disk(s), which reflects the Contractor's project plan, the Contractor shall engage an independent CPM consultant who is skilled in the time and cost application of scheduling using (PDM) network techniques for construction projects, the cost of which is included in the Contractor's bid. This consultant shall not have any financial or business ties to the Contractor, and shall not be an affiliate or subsidiary company of the Contractor, and shall not be employed by an affiliate or subsidiary company of the Contractor.
- B. (i) Prior to engaging a consultant, and within 10 calendar days after award of the contract, the Contractor shall submit to the Contracting Officer:
  - 1. The name and address of the proposed consultant.

2. Sufficient information to show that the proposed consultant has the qualifications to meet the requirements specified in the preceding paragraph.
  3. A list of prior construction projects, along with selected PDM network diagram samples on current projects which the proposed consultant has performed complete project scheduling services. These network diagram samples must show complete project planning for a project of similar size and scope as covered under this contract.
- C. The Contracting Officer has the right to approve or disapprove employment of the proposed consultant, and will notify the Contractor of the VA decision within seven calendar days from receipt of information. In case of disapproval, the Contractor shall resubmit another consultant within 10 calendar days for renewed consideration. The Contractor must have their CPM Consultant approved prior to (i) submitting any diagram.

#### **1.4 COMPUTER PRODUCED SCHEDULES**

- A. The contractor shall provide to the VA, Senior Resident Engineer and CPM Schedule Analyst, monthly computer processing of all computer-produced time/cost schedules and reports generated from monthly project updates. This monthly computer service will include: three copies of up to five different reports (inclusive of all pages) available within the user defined reports of Primavera (P3 or P6) to the contracting officer's representative; a hard copy listing of all project schedule changes, and associated data, made at the update and an electronic file of this data in Primavera (P3 or P6) batch format; and the resulting monthly updated schedule in a compressed electronic file in Primavera (P3 or P6), (PDM) format. These must be submitted with and substantively support the contractor's monthly payment request and the signed lookahead report. The resident engineer shall identify the five different report formats that the contractor shall provide based upon the monthly schedule updates.
- B. The contractor is responsible for the correctness and timeliness of the computer-produced reports. The Contractor is also responsible for the accurate and timely submittal of the updated project schedule and all CPM data necessary to produce the computer reports and payment request that is specified.
- C. The VA shall report errors in computer-produced reports to the Contractor's representative within ten calendar days from receipt of reports. The Contractor will reprocess the computer-produced reports and associated compact disk(s), when requested by the Contracting Officer's representative, to correct errors which affect the payment and schedule for the project.

**1.5 THE COMPLETE PROJECT NETWORK DIAGRAM SUBMITTAL**

- A. Within 45 calendar days (60 calendar days on projects over \$50,000,000) after receipt of Notice to Proceed, the Contractor shall submit for the Contracting Officer's review; three blue line copies of the complete network diagram on sheets of paper 765 x 1070 mm (30 x 42 inches) and an electronic file in a compressed Primavera (P3 or P6), (PDM) format. The submittal shall also include three copies of a computer-produced activity/event ID schedule showing project duration; phase completion dates; and other data, including event cost. Each activity/event on the computer-produced schedule shall contain as a minimum, but not limited to, activity/event ID, duration, predecessor and successor relationships, trade code, area code, description, budget amount, early start date, early finish date, late start date, late finish date and total float. Work activity/event relationships shall be restricted to finish-to-start and start-to-start without lead or lag constraints. The lead or lag for the SS relationships may only be allowed in limited basis if justified in writing and must be approved by the Contracting Officer. Activity/event date constraints, not required by the contract, will not be accepted unless submitted to and approved by the Contracting Officer. The contractor shall make a separate written detailed request to the Contracting Officer identifying these date constraints and secure the Contracting Officer's written approval before incorporating them into the network diagram. The Contracting Officer's separate approval of the network diagram shall not excuse the contractor of this requirement. Logic events (non-work) will be permitted where necessary to reflect proper logic among work events, but must have a zero duration. The complete working network diagram shall reflect the Contractor's approach to scheduling the complete project. **The final network diagram in its original form shall contain no contract changes or delays which may have been incurred during the final network diagram development period and shall reflect the entire contract duration as defined in the bid documents.** These changes/delays shall be entered at the first update after the final network diagram has been approved. The Contractor should provide their requests for time and supporting time extension analysis for contract time as a result of contract changes/delays, after this update, and in accordance with Article, ADJUSTMENT OF CONTRACT COMPLETION.
- B. Construction Phasing: Refer to Section 01 00 00, GENERAL REQUIREMENTS, Article "Operations and Storage Areas" for construction phasing plan requirements and approval.
1. Modify network diagram to incorporate the Construction Phasing Plan as approved by the Resident Engineer.
- C. Within 30 calendar days after receipt of the complete project network diagram, the Contracting Officer or his representative, will do one or both of the following:
1. Notify the Contractor concerning his actions, opinions, and objections.

2. A meeting with the Contractor at or near the job site for joint review, correction or adjustment of the proposed plan will be scheduled if required. Within 14 calendar days after the joint review, the Contractor shall revise and shall submit three blue line copies of the revised network diagram, three copies of the revised computer-produced activity/event ID schedule and a revised electronic file as specified by the Contracting Officer. The revised submission will be reviewed by the Contracting Officer and, if found to be as previously agreed upon, will be approved.
- D. The approved baseline network diagram schedule and the corresponding computer-produced schedule(s) shall constitute the approved baseline schedule until subsequently revised in accordance with the requirements of this section.

#### **1.6 WORK ACTIVITY/EVENT COST DATA**

- A. The Contractor shall cost load all work activities/events except procurement activities. The cost loading shall reflect the appropriate level of effort of the work activities/events. The cumulative amount of all cost loaded work activities/events (including alternates) shall equal the total contract price. Prorate overhead, profit and general conditions on all work activities/events for the entire project length. The contractor shall generate from this information cash flow curves indicating graphically the total percentage of work activity/event dollar value scheduled to be in place on early finish, late finish. These cash flow curves will be used by the Contracting Officer to assist him in determining approval or disapproval of the cost loading. In the event of disapproval, the Contractor shall revise and resubmit in accordance with Article, THE COMPLETE PROJECT NETWORK DIAGRAM SUBMITTAL. Negative work activity/event cost data will not be acceptable, except on VA issued contract changes.
- B. The Contractor shall cost load work activities/events for guarantee period services, test, balance and adjust various systems in accordance with the provisions in the FAR 52.232 - 5 (PAYMENTS UNDER FIXED-PRICE CONSTRUCTION), Article, and VAAR 852.236 - 83 (PAYMENTS UNDER FIXED-PRICE CONSTRUCTION).
- C. In accordance with Article PERFORMANCE OF WORK BY THE CONTRACTOR in FAR 52.236 - 1 and VAAR 852.236 - 72, the Contractor shall submit, simultaneously with the cost per work activity/event of the construction schedule required by this Section, a responsibility code for all activities/events of the project for which the Contractor's forces will perform the work.
- D. The Contractor shall cost load work activities/events for ASBESTOS ABATEMENT. The sum of asbestos abatement work activity/event costs shall equal the value of the asbestos bid item in the Contractors' bid.

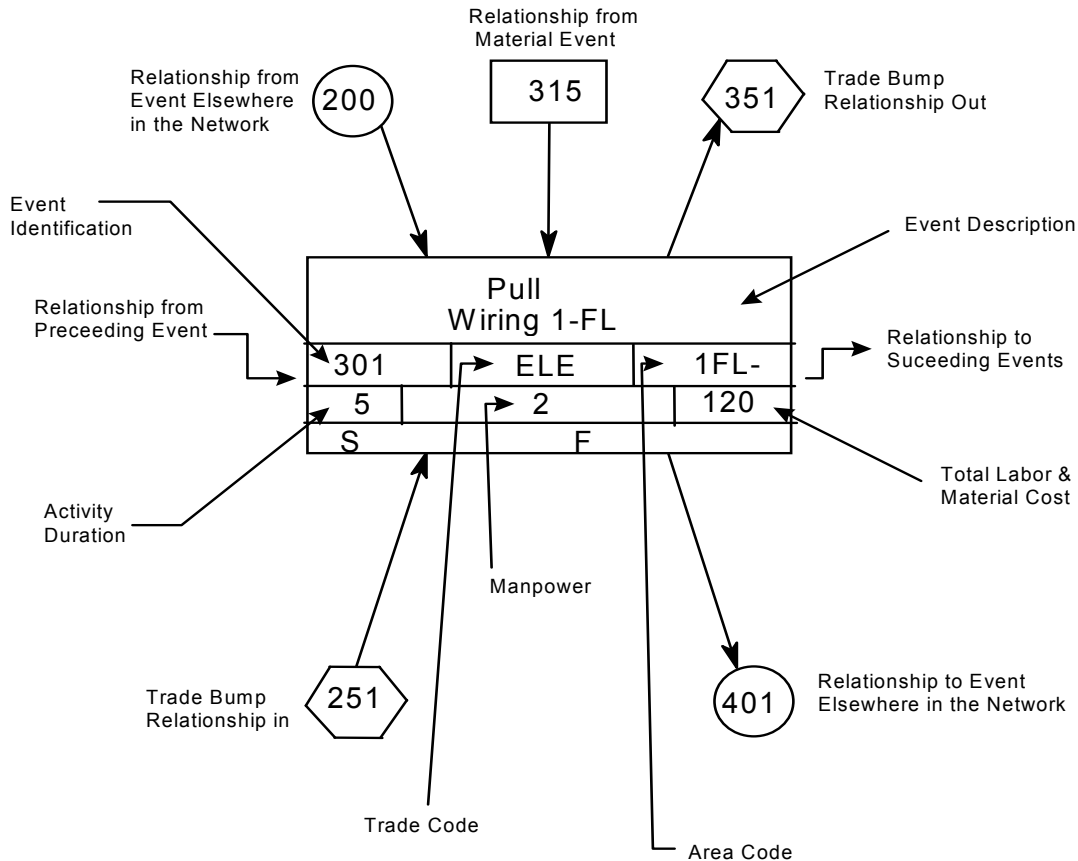
- E. The Contractor shall cost load work activities/events for all BID ITEMS. The sum of the cost loading for each bid item work activities/events shall equal the value of the item in the Contractors' bid.
- F. Work activities/events for Contractor bond shall have a trade code and area code of BOND.

#### **1.7 NETWORK DIAGRAM REQUIREMENTS**

- A. Show on the network diagram the sequence and interdependence of work activities/events required for complete performance of all items of work. In preparing the network diagram, the Contractor shall:
  - 1. Exercise sufficient care to produce a clear, legible and accurate network diagram, refer to the drawing, CPM-1 (Sample CPM Network). Computer plotted network diagrams shall legibly display and plot all information required by the VA CPM activity/event legend or the computer plotted network diagram will not be acceptable. If the computer plotted network diagram is not found acceptable by the contracting officer's representative, then the network diagram will need to be hand drafted and meet legibility requirements. Group activities related to specific physical areas of the project, on the network diagram for ease of understanding and simplification. Provide a key plan on each network diagram sheet showing the project area associated with the work activities/events shown on that sheet.
  - 2. Show the following on each work activity/event:
    - a. Activity/Event ID number.
    - b. Concise description of the work represented by the activity/event. (35 characters or less including spaces preferred).
    - c. Performance responsibility or trade code (five alpha characters or less): GEN, MECH, ELEC, CARP, PLAST, or other acceptable abbreviations.
    - d. Duration (in work days.)
    - e. Cost (in accordance with Article, ACTIVITY/EVENT COST DATA of this section and less than \$9,999,999 per activity).
    - f. Work location or area code (five characters or less), descriptive of the area involved.
    - g. Manpower required (average number of men per day).
    - h. The SYMBOL LEGEND format shown below and on the drawing, CPM-1 (Sample CPM Network) is mandatory and shall be followed in preparing final network diagrams.

## SYMBOL LEGEND

Show Network Diagram page number location(s) for all incoming/outgoing node connector(s).



3. Show activities/events as:
  - a. Contractor's time required for submittal of shop drawings, templates, fabrication, delivery and similar pre-construction work.
  - b. Contracting Officer's and Architect-Engineer's review and approval of shop drawings, equipment schedules, samples, template, or similar items.
  - c. Interruption of VA Medical Center utilities, delivery of Government furnished equipment, and rough-in drawings, project phasing and any other specification requirements.
  - d. Test, balance and adjust various systems and pieces of equipment, maintenance and operation manuals, instructions and preventive maintenance tasks.



- e. **Commissioning Activities** - Based upon the project specific Commissioning plan and the specification section 01 91 00, the contractor shall include in the **Day 1 CPM Diagram all the systems commissioning activities (see systems covered in Division 7, 8, 21, 22, 23, 26, 28, 31 and others as specified)** such as start up, Pre-functional check list, Pre - test, individual component and system level Functional test, Operator's training, O.& M. Manuals etc. (including any deficiency correction and re-testing). **The majority of commissioning activities should be completed as part of the normal construction schedule and finalized prior to the construction contract completion date.** To this end, it is imperative that the Commissioning Agent and the Contractor collaborate to integrate commissioning activities into the Contractor's overall construction schedule. All commissioning activities shall be cost loaded as required in the earlier paragraphs.
- f. The Commissioning Plan will identify critical commissioning activities and associated construction/start up tasks that must precede these activities to allow for successful execution of the commissioning activities. In order to coordinate these activities with the construction schedule, a **Commissioning Duration Schedule** should be provided by the Commissioning Agent to the VA RE and the Contractor to provide a rational basis for integration of commissioning into the Day 1 diagram and the construction schedule. The Commissioning Duration Schedule should include the following information:
- 1) Description of Commissioning Activity
  - 2) Prerequisite Construction Tasks Required to Execute the Cx Activity
  - 3) Elapsed Time Duration of Each Activity
  - 4) Documentation Associated with Each Task/Document Responsibility
- g. Once the duration schedule is delivered to the Contractor, the Commissioning Agent will collaborate with the Contractor to integrate all commissioning activities into the fixed duration construction schedule in accordance with VA NAS requirements for scheduling the project.
- h. VA inspection and acceptance activity/event with a minimum duration of five work days at the end of each phase and immediately preceding any VA move activity/event required by the contract phasing for that phase. Schedule these activities/events so that only one phase is scheduled for completion within the same 30 consecutive calendar day period (except for those phases immediately preceding the final acceptance). Maintain this scheduling condition throughout the length of the contract unless waived by the Contracting Officer's representative in writing.

- i. Bid items other than the Base Bid (ITEM 1) and Asbestos Abatement item shall have trade codes corresponding to the appropriate bid item number (e.g., ITM 3, ITM 4 and other items).
  4. Show not only the activities/events for actual construction work for each trade category of the project, but also trade relationships to indicate the movement of trades from one area, floor, or building, to another area, floor, or building, for at least five trades who are performing major work under this contract.
  5. Break up the work into activities/events of a duration no longer than 20 work days each, except as to non-construction activities/events (i.e., procurement of materials, delivery of equipment, concrete and asphalt curing) and any other activities/events for which the Contracting Officer may approve the showing of a longer duration. The duration for VA approval of any required submittal, shop drawing, or other submittals shall not be less than 20 work days. Refer to drawing CPM-1 for VA approval activities/events which will require minimum duration longer than 20 workdays. The construction time as determined by the CPM schedule from early start to late finish for any sub-phase, phase or the entire project shall not exceed the contract time(s) specified or shown.
  6. Describe work activities/events clearly, so the work is readily identifiable for assessment of completion. Activities/events labeled "start," "continue," or "completion," are not specific and will not be allowed. Lead and lag time activities will not be acceptable.
  7. Uniquely number each activity/event with numbers ranging from 1 to 99998 only. The network diagram should be generally numbered in such a way to reflect either discipline, phase or location of the work.
- B. Submit the following supporting data in addition to the network diagram, activity/event ID schedule and electronic file (s). Failure of the Contractor to include this data will delay the review of the submittal until the Contracting Officer is in receipt of the missing data:
1. The proposed number of working days per week.
  2. The holidays to be observed during the life of the contract (by day, month, and year).
  3. The planned number of shifts per day.
  4. The number of hours per shift.
  5. List the major construction equipment to be used on the site, describing how each piece relates to and will be used in support of the submitted network diagram work activities/events.

6. Provide a typed, doubled spaced, description, at least one page in length, of the plan and your approach to constructing the project.
- C. To the extent that the network diagram or any revised network diagram shows anything not jointly agreed upon, it shall not be deemed to have been approved by the Contracting Officer. Failure to include any element of work required for the performance of this contract shall not excuse the Contractor from completing all work required within any applicable completion date of each phase regardless of the Contracting Officer's approval of the network diagram.
- D. Compact Disk Requirements and CPM Activity/Event Record  
Specifications: Submit to the VA (Senior resident Engineer and CPM Schedule Analyst) an electronic file(s) containing one file of the data required to produce a Primavera (P3 or P6), (PDM) produced schedule, reflecting all the activities/events of the complete project network diagram being submitted.

#### **1.8 PAYMENT TO THE CONTRACTOR:**

- A. Monthly, the contractor shall submit the AIA application and certificate for payment documents G702 & G703 reflecting updated schedule activities and cost data in accordance with the provisions of the following Article, PAYMENT AND PROGRESS REPORTING, as the basis upon which progress payments will be made pursuant to Article FAR 52.232 - 5 (PAYMENTS UNDER FIXED-PRICE CONSTRUCTION), and VAAR 852.236 - 83(PAYMENTS UNDER FIXED-PRICE CONSTRUCTION). The Contractor is entitled to a monthly progress payment upon approval of estimates as determined from the currently approved updated computer-produced calendar-dated schedule unless, in special situations, the Contracting Officer permits an exception to this requirement. Monthly payment requests shall include: three copies of up to five different reports (inclusive of all pages) available within the user defined reports of Primavera (P3 or P6), (PDM) to the contracting officer's representative; a listing of all project schedule changes, and associated data, made at the update; and an electronic file (s) of the resulting monthly updated schedule in a compressed Primavera (P3 or P6), (PDM) format. These must be submitted with and substantively support the contractor's monthly application and certificate for payment request documents.
- B. When the Contractor fails or refuses to furnish to the Contracting Officer the information and the associated updated Primavera (P3 or P6), (PDM) schedule in electronic format, which, in the sole judgment of the Contracting Officer, is necessary for processing the monthly progress payment, the Contractor shall not be deemed to have provided an estimate and supporting schedule data upon which progress payment may be made.

## **1.9 PAYMENT AND PROGRESS REPORTING**

- A. Monthly job site progress meetings shall be held on dates mutually agreed to by the Contracting Officer (or Contracting Officer's representative) and the Contractor. Contractor and the CPM consultant will be required to attend all monthly progress meetings. Presence of Subcontractors during progress meeting is optional unless required by the Contracting Officer (or Contracting Officer's representative). The Contractor shall update the project schedule and all other data required by this section shall be accurately filled in and completed prior to the monthly progress meeting. The Contractor shall provide this information to the Contracting Officer or the VA representative in completed form three work days in advance of the progress meeting. Job progress will be reviewed to verify:
1. Actual start and/or finish dates for updated/completed activities/events.
  2. Remaining duration, required to complete each activity/event started, or scheduled to start, but not completed.
  3. Logic, time and cost data for change orders, and supplemental agreements that are to be incorporated into the network diagram and computer-produced schedules. Changes in activity/event sequence and duration which have been made pursuant to the provisions of following Article, ADJUSTMENT OF CONTRACT COMPLETION.
  4. Percentage for completed and partially completed activities/events.
  5. Logic and duration revisions required by this section of the specifications.
  6. Activity/event duration and percent complete shall be updated independently.
- B. The Contractor shall submit a narrative report as a part of his monthly review and update, in a form agreed upon by the Contractor and the Contracting Officer. The narrative report shall include a description of problem areas; current and anticipated delaying factors and their estimated impact on performance of other activities/events and completion dates; and an explanation of corrective action taken or proposed. This report is in addition to the daily reports pursuant to the provisions of Article, DAILY REPORT OF WORKERS AND MATERIALS in the GENERAL CONDITIONS.
- C. After completion of the joint review and the Contracting Officer's approval of all entries, the contractor will generate an updated computer-produced calendar-dated schedule and supply the Contracting Officer's representative with reports in accordance with the Article, COMPUTER PRODUCED SCHEDULES, specified.

- D. After completing the monthly schedule update, the contractor's scheduling consultant shall rerun all current period contract change(s) against the prior approved monthly project schedule. The analysis shall only include original workday durations and schedule logic agreed upon by the contractor and resident engineer for the contract change(s). When there is a disagreement on logic and/or durations, the consultant shall use the schedule logic and/or durations provided and approved by the resident engineer. After each rerun update, the resulting electronic project schedule data file shall be appropriately identified and submitted to the VA in accordance to the requirements listed in articles 1.4 and 1.7. This electronic submission is separate from the regular monthly project schedule update requirements and shall be submitted to the resident engineer within fourteen (14) calendar days of completing the regular schedule update. **Before inserting the contract changes durations, care must be taken to ensure that only the original durations will be used for the analysis, not the reported durations after progress. In addition, once the final network diagram is approved, the contractor must recreate all manual progress payment updates on this approved network diagram and associated reruns for contract changes in each of these update periods as outlined above for regular update periods. This will require detailed record keeping for each of the manual progress payment updates.**
- E. After VA acceptance and approval of the final network diagram, and after each monthly update, the contractor shall submit to the Contracting Officer three blue line copies of a revised complete network diagram showing all completed and partially completed activities/events, contract changes and logic changes made on the intervening updates or at the first update on the final diagram. The Contracting Officer may elect to have the contractor do this on a less frequent basis, but it shall be done on a quarterly basis as a minimum.
- F. Following approval of the CPM schedule, the VA, the General Contractor, its approved CPM Consultant, RE office representatives, and all subcontractors needed, as determined by the SRE, shall meet to discuss the monthly updated schedule. The main emphasis shall be to address work activities to avoid slippage of project schedule and to identify any necessary actions required to maintain project schedule during the reporting period. The Government representatives and the Contractor should conclude the meeting with a clear understanding of those work and administrative actions necessary to maintain project schedule status during the reporting period. This schedule coordination meeting will occur after each monthly project schedule update meeting utilizing the resulting schedule reports from that schedule update. If the project is behind schedule, discussions should include ways to prevent further slippage as well as ways to improve the project schedule status, when appropriate.

**1.10 RESPONSIBILITY FOR COMPLETION**

- A. Whenever it becomes apparent from the current monthly progress review meeting or the monthly computer-produced calendar-dated schedule that phasing or contract completion dates will not be met, the Contractor shall execute some or all of the following remedial actions:
1. Increase construction manpower in such quantities and crafts as necessary to eliminate the backlog of work.
  2. Increase the number of working hours per shift, shifts per working day, working days per week, the amount of construction equipment, or any combination of the foregoing to eliminate the backlog of work.
  3. Reschedule the work in conformance with the specification requirements.
- B. Prior to proceeding with any of the above actions, the Contractor shall notify and obtain approval from the Contracting Officer for the proposed schedule changes. If such actions are approved, the CPM revisions shall be incorporated by the Contractor into the network diagram before the next update, at no additional cost to the Government.

**1.11 CHANGES TO NETWORK DIAGRAM AND SCHEDULE**

- A. Within 30 calendar days after VA acceptance and approval of any updated computer-produced schedule, the Contractor will submit a revised network diagram, the associated compact disk(s), and a list of any activity/event changes including predecessors and successors for any of the following reasons:
1. Delay in completion of any activity/event or group of activities/events, indicate an extension of the project completion by 20 working days or 10 percent of the remaining project duration, whichever is less. Such delays which may be involved with contract changes, strikes, unusual weather, and other delays will not relieve the Contractor from the requirements specified unless the conditions are shown on the CPM as the direct cause for delaying the project beyond the acceptable limits.
  2. Delays in submittals, or deliveries, or work stoppage are encountered which make rescheduling of the work necessary.
  3. The schedule does not represent the actual prosecution and progress of the project.
  4. When there is, or has been, a substantial revision to the activity/event costs of the network diagram regardless of the cause for these revisions.
- B. CPM revisions made under this paragraph which affect the previously approved computer-produced schedules for Government furnished

equipment, vacating of areas by the VA Medical Center, contract phase(s) and sub phase(s), utilities furnished by the Government to the Contractor, or any other previously contracted item, must be furnished in writing to the Contracting Officer for approval.

- C. Contracting Officer's approval for the revised network diagram and all relevant data is contingent upon compliance with all other paragraphs of this section and any other previous agreements by the Contracting Officer or the VA representative.
- D. The cost of revisions to the network diagram resulting from contract changes will be included in the proposal for changes in work as specified in Article, FAR 52.243 -4 (CHANGES), VAAR 852.236 - 88 (CHANGES - SUPPLEMENTS), and will be based on the complexity of the revision or contract change, man hours expended in analyzing the change, and the total cost of the change.
- E. The cost of revisions to the network diagram not resulting from contract changes is the responsibility of the Contractor.

#### **1.12 ADJUSTMENT OF CONTRACT COMPLETION**

- A. The contract completion time will be adjusted only for causes specified in this contract. Request for an extension of the contract completion date by the Contractor shall be supported with a justification, CPM data and supporting evidence as the Contracting Officer may deem necessary for determination as to whether or not the Contractor is entitled to an extension of time under the provisions of the contract. Submission of proof based on revised activity/event logic, durations (in work days) and costs is obligatory to any approvals. The schedule must clearly display that the Contractor has used, in full, all the float time available for the work involved in this request. The Contracting Officer's determination as to the total number of days of contract extension will be based upon the current computer-produced calendar-dated schedule for the time period in question and all other relevant information.
- B. Actual delays in activities/events which, according to the computer-produced calendar-dated schedule, do not affect the extended and predicted contract completion dates shown by the critical path in the network, will not be the basis for a change to the contract completion date. The Contracting Officer will within a reasonable time after receipt of such justification and supporting evidence, review the facts and advise the Contractor in writing of the Contracting Officer's decision.
- C. The Contractor shall submit each request for a change in the contract completion date to the Contracting Officer in accordance with the provisions specified under Article, FAR 52.243 -4 (CHANGES), VAAR 852.236 - 88 (CHANGES - SUPPLEMENTS). The Contractor shall include, as a part of each change order proposal, a sketch showing all CPM logic

revisions, duration (in work days) changes, and cost changes, for work in question and its relationship to other activities on the approved network diagram.

- D. All delays due to non-work activities/events such as RFI's, WEATHER, STRIKES, and similar non-work activities/events shall be analyzed on a month by month basis.

#### **1.13 CONSTRUCTION SCHEDULE RISK ANALYSIS / MITIGATION PLAN**

- A. Schedule Risk Analysis - The contractor shall conduct the statistical schedule risk analysis based on the above detailed construction activities in the Day 1 approved diagram, identifying major schedule risk areas and recommended risk mitigation plans as outlined below.
- B. The risk analysis shall be conducted by a person or firm skilled in the statistical method of schedule risk analysis based on the (PDM) network techniques for major construction projects, preferably in the major health care related projects. The cost of this service shall be included in the Contractor's proposal.
- C. The Contracting Officer has the right to approve or disapprove the Person or firm designated to perform the risk analysis.

#### **1.14 RISK ANALYSIS FORMAT / REQUIREMENTS / SUBMITTALS**

- A. Risk Analysis Software / Format - Within 45 calendar days (60 calendar days on projects over \$50,000,000) after receipt of Notice to Proceed, the Contractor shall submit for the Contracting Officer's review; a Risk Analysis software to be utilized, the method of performing the analysis, the format of presenting the data and the reports for VA approval.
- B. Conduct Risk Analysis / Submittals - Based on the approved software / format, the consultant shall perform statistical risk analysis on the detailed approved Day 1 diagram. The contractor shall review and utilize any previous Risk analysis performed by the A/E of record based on the "semi-detailed" (yet at an overall level) construction logic and schedule to ensure the continuity of previous schedule risk analysis. The contractor's project manager and Superintendent shall identify the major schedule risk areas and possible risk mitigation strategy/plan and record it in a narrative format, with electronic file submission to the VA. The risk analysis exercise shall be performed or updated at least on a quarterly basis or as directed by the VA Contracting officer.
- C. The submittal shall include three copies of a computer-produced risk analysis results, predicting the various meaningful probability curves of achieving the contract schedules. It shall also include a detailed narrative list of all major and minor potential and specific schedule and cost risk areas, and a contractor's recommendations of mitigating



the identified risks which must be addressed by the VA Project and  
Resident engineer teams to maintain the contract schedule.

- - - E N D - - -



**SECTION 01 33 23**

**SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES**

**PART 1 - GENERAL**

- 1.1 Refer to Articles titled SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION (FAR52.236-21) and, SPECIAL NOTES (VAAR 852.236-91), in GENERAL CONDITIONS.
- 1.2 For the purposes of this contract, samples, Submit for approval, all of the items specifically mentioned under the separate sections of the previously referenced requirements. The following text refers to all items collectively as SUBMITTALS.
- 1.3 Proposed Product List and Submittal Schedule: Within 15 days of Notice to Proceed, submit the following:
  - A. Submit a complete List of Proposed Products for all items mentioned under the separate sections of the specifications Division 02 through 34. Arrange the list by specification section number. Include in the list, the specification section number, paragraph number, name of manufacturer, trade name, and model number.
  - B. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. The duration for VA approval of any required submittal, shop drawing, or other submittals shall not be less than 20 work days. Refer to drawing CPM-1 for VA approval activities/events which will require minimum duration longer than 20 workdays. Coordinate submittal schedule with all construction activities in accordance with Section 01 32 16.13 "Network Analysis Schedules."
- 1.4 Submit for approval, in accordance with the Submittal Schedule, all of the items specifically mentioned under the separate sections of the specification, with information sufficient to evidence full compliance with contract requirements. Materials, fabricated articles and the like to be installed in permanent work shall equal those of approved submittals. After an item has been approved, no substitution, change in brand or make will be permitted unless the following conditions are satisfied:
  - A. Extensive revisions to the Contract Documents are not required.
  - B. Proposed changes are in keeping with the general intent of the Contract Documents.
  - C. The request is timely, fully documented, and properly submitted.

- D. The specified product or method of construction cannot be provided within the Contract Time. The Contracting Officer will not consider the request if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.
  - E. Item delivered has been rejected and substitution of a suitable item is an urgent necessity.
  - F. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
  - G. The specified product or method of construction cannot be provided in a manner that is compatible with other materials and where the Contractor certifies that the substitution will overcome the incompatibility.
  - H. The specified product or method of construction cannot be coordinated with other materials and where the Contractor certifies that the proposed substitution can be coordinated.
  - I. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provides the required warranty.
  - J. Other conditions become apparent which indicates approval of such substitute item to be in best interest of the Government.
- 1.5 Forward submittals in sufficient time to permit proper consideration and approval action by Government. Time submission to assure adequate lead time for procurement of contract - required items. Delays attributable to untimely and rejected submittals.
- A. Submittal Requirements:
- 1. Place a permanent label or title block on each submittal item for identification.
  - 2. Indicate name of firm or entity that prepared each submittal on label or title block.
  - 3. Provide a space approximately 150 by 200 mm (6 by 8 inches) on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
  - 4. Include the following information for processing and recording action taken:
    - a. Project name.
    - b. Date.
    - c. VA Project Number.
    - d. Name of Architect.
    - e. Name of Contractor.
    - f. Name of subcontractor.

- g. Name of supplier.
  - h. Name of manufacturer.
  - i. Submittal number or other unique identifier, including revision identifier.
    - 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).
  - j. Number and title of appropriate Specification Section.
  - k. Drawing number and detail references, as appropriate.
  - l. Location(s) where product is to be installed, as appropriate.
  - m. Other necessary identification.
- 1.6 Submittals will be reviewed for compliance with contract requirements by Architect-Engineer, and action thereon will be taken by Resident Engineer on behalf of the Contracting Officer.
- 1.7 The Government reserves the right to require additional submittals, whether or not particularly mentioned in this contract. If additional submittals beyond those required by the contract are furnished pursuant to request therefor by Contracting Officer, adjustment in contract price and time will be made in accordance with Articles titled CHANGES (FAR 52.243-4) and CHANGES - SUPPLEMENT (VAAR 852.236-88) of the GENERAL CONDITIONS.
- 1.8 Schedules called for in specifications and shown on shop drawings shall be submitted for use and information of Department of Veterans Affairs and Architect-Engineer. However, the Contractor shall assume responsibility for coordinating and verifying schedules. The Contracting Officer and Architect-Engineer assumes no responsibility for checking schedules or layout drawings for exact sizes, exact numbers and detailed positioning of items.
- 1.9 Submittals must be submitted by Contractor only and shipped prepaid. Contracting Officer assumes no responsibility for checking quantities or exact numbers included in such submittals.
- A. Submit samples required by Section 09 06 00, SCHEDULE FOR FINISHES, in quadruplicate. Submit samples required in other sections in single units unless otherwise specified. Submit shop drawings, schedules, manufacturers' literature and data, and certificates in quadruplicate, except where a greater number is specified.
  - B. Submittals will receive consideration only when covered by a transmittal letter signed by Contractor. Letter shall be sent via first class mail and shall contain the list of items, name of Medical Center, name of Contractor, contract number, applicable specification paragraph numbers, applicable drawing numbers (and other information required for exact identification of location for each item), manufacturer and brand, ASTM or Federal Specification Number (if any) and such additional information as may be required by specifications for particular item being furnished. In addition,

catalogs shall be marked to indicate specific items submitted for approval.

1. A copy of letter must be enclosed with items, and any items received without identification letter will be considered "unclaimed goods" and held for a limited time only.
  2. Each sample, certificate, manufacturers' literature and data shall be labeled to indicate the name and location of the Medical Center, name of Contractor, manufacturer, brand, contract number and ASTM or Federal Specification Number as applicable and location(s) on project.
  3. Required certificates shall be signed by an authorized representative of manufacturer or supplier of material, and by Contractor.
- C. In addition to complying with the applicable requirements specified in preceding Article 1.9, samples which are required to have Laboratory Tests (those preceded by symbol "LT" under the separate sections of the specification shall be tested, at the expense of Contractor, in a commercial laboratory approved by Contracting Officer.
1. Laboratory shall furnish Contracting Officer with a certificate stating that it is fully equipped and qualified to perform intended work, is fully acquainted with specification requirements and intended use of materials and is an independent establishment in no way connected with organization of Contractor or with manufacturer or supplier of materials to be tested.
  2. Certificates shall also set forth a list of comparable projects upon which laboratory has performed similar functions during past five years.
  3. Samples and laboratory tests shall be sent directly to approved commercial testing laboratory.
  4. Contractor shall send a copy of transmittal letter to both Resident Engineer and to Architect-Engineer simultaneously with submission of material to a commercial testing laboratory.
  5. Contractor shall forward a copy of transmittal letter to Resident Engineer simultaneously with submission to a commercial testing laboratory.
  6. Laboratory test reports shall be sent directly to Resident Engineer for appropriate action.
  7. Laboratory reports shall list contract specification test requirements and a comparative list of the laboratory test results. When tests show that the material meets specification requirements, the laboratory shall so certify on test report.
  8. Laboratory test reports shall also include a recommendation for approval or disapproval of tested item.
- D. If submittal samples have been disapproved, resubmit new samples as soon as possible after notification of disapproval. Such new samples shall be marked "Resubmitted Sample" in addition to containing other

previously specified information required on label and in transmittal letter.

- E. Approved samples will be kept on file by the Resident Engineer at the site until completion of contract, at which time such samples will be delivered to Contractor as Contractor's property. Where noted in technical sections of specifications, approved samples in good condition may be used in their proper locations in contract work. At completion of contract, samples that are not approved will be returned to Contractor only upon request and at Contractor's expense. Such request should be made prior to completion of the contract. Disapproved samples that are not requested for return by Contractor will be discarded after completion of contract.
- F. Submittal drawings (shop, erection or setting drawings) and schedules, required for work of various trades, shall be checked before submission by technically qualified employees of Contractor for accuracy, completeness and compliance with contract requirements. These drawings and schedules shall be stamped and signed by Contractor certifying to such check.
1. For each drawing required, submit one legible photographic paper or vellum reproducible.
  2. Reproducible shall be full size.
  3. Each drawing shall have marked thereon, proper descriptive title, including Medical Center location, project number, manufacturer's number, reference to contract drawing number, detail Section Number, and Specification Section Number.
  4. A space 120 mm by 125 mm (4-3/4 by 5 inches) shall be reserved on each drawing to accommodate approval or disapproval stamp.
  5. Submit drawings, ROLLED WITHIN A MAILING TUBE, fully protected for shipment.
  6. One reproducible print of approved or disapproved shop drawings will be forwarded to Contractor.
  7. When work is directly related and involves more than one trade, shop drawings shall be submitted to Architect-Engineer under one cover.
- 1.10 Contractor shall not be relieved of responsibility for any deviation from the requirements of the Contract Documents by Contracting Officer's approval of shop drawings, manufacturer's data, or samples unless Contractor has specifically informed the Contracting Officer in writing of such deviation at the time of submission and the Contracting Officer has given approval to the specific deviation. Contractor shall not be relieved from responsibility for errors or omissions in the shop drawings, manufacturer's data, or samples by Contracting Officer's or its representative's review.
- 1.11 Samples (except laboratory samples), shop drawings, test reports, certificates and manufacturers' literature and data, shall be submitted for approval to

SmithGroup, Inc,  
301 Battery St., 7th Floor  
San Francisco, CA 94111  
Attn: Ahmad Jahrhomi / Jon Gherga

- 1.12 At the time of transmittal to the Architect-Engineer, the Contractor shall also send a copy of the complete submittal directly to the Resident Engineer.

**PART 2 - PRODUCTS (Not used)**

**PART 3 - EXECUTION (Not used)**

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**SECTION 01 42 19**

**REFERENCE STANDARDS**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. This section specifies the availability and source of references and standards specified in the project manual under paragraphs APPLICABLE PUBLICATIONS and/or shown on the drawings.

**1.2 AVAILABILITY OF SPECIFICATIONS LISTED IN THE GSA INDEX OF FEDERAL SPECIFICATIONS, STANDARDS AND COMMERCIAL ITEM DESCRIPTIONS FPMR PART 101-29 (FAR 52.211-1) (AUG 1998)**

- A. The GSA Index of Federal Specifications, Standards and Commercial Item Descriptions, FPMR Part 101-29 and copies of specifications, standards, and commercial item descriptions cited in the solicitation may be obtained for a fee by submitting a request to - GSA Federal Supply Service, Specifications Section, Suite 8100, 470 East L'Enfant Plaza, SW, Washington, DC 20407, Telephone (202) 619-8925, Facsimile (202) 619-8978.
- B. If the General Services Administration, Department of Agriculture, or Department of Veterans Affairs issued this solicitation, a single copy of specifications, standards, and commercial item descriptions cited in this solicitation may be obtained free of charge by submitting a request to the addressee in paragraph (a) of this provision. Additional copies will be issued for a fee.

**1.3 AVAILABILITY FOR EXAMINATION OF SPECIFICATIONS NOT LISTED IN THE GSA INDEX OF FEDERAL SPECIFICATIONS, STANDARDS AND COMMERCIAL ITEM descriptions (FAR 52.211-4) (JUN 1988)**

- A. The specifications and standards cited in this solicitation can be examined at the following location:
1. DEPARTMENT OF VETERANS AFFAIRS,  
Office of Construction & Facilities Management  
Facilities Quality Service (00CFM1A)  
425 Eye Street N.W, (sixth floor)  
Washington, DC 20001  
Telephone Numbers: (202) 632-5249 or (202) 632-5178  
Between 9:00 AM - 3:00 PM

**1.4 AVAILABILITY OF SPECIFICATIONS NOT LISTED IN THE GSA INDEX OF FEDERAL SPECIFICATIONS, STANDARDS AND COMMERCIAL ITEM DESCRIPTIONS (FAR 52.211-3) (JUN 1988)**

- A. The specifications cited in this solicitation may be obtained from the associations or organizations listed below.

AA Aluminum Association Inc.  
<http://www.aluminum.org>

AABC Associated Air Balance Council  
<http://www.aabchq.com>

AAMA American Architectural Manufacturer's Association  
<http://www.aamanet.org>

AAN American Nursery and Landscape Association  
<http://www.anla.org>

AASHTO American Association of State Highway and Transportation Officials  
<http://www.aashto.org>

AATCC American Association of Textile Chemists and Colorists  
<http://www.aatcc.org>

ACGIH American Conference of Governmental Industrial Hygienists  
<http://www.acgih.org>

ACI American Concrete Institute  
<http://www.aci-int.net>

ACPA American Concrete Pipe Association  
<http://www.concrete-pipe.org>

ACPPA American Concrete Pressure Pipe Association  
<http://www.acppa.org>

ADC Air Diffusion Council  
<http://flexibleduct.org>

AGA American Gas Association  
<http://www.aga.org>

AGC Associated General Contractors of America  
<http://www.agc.org>

AGMA American Gear Manufacturers Association, Inc.  
<http://www.agma.org>

AHAM Association of Home Appliance Manufacturers  
<http://www.aham.org>

AISC American Institute of Steel Construction  
<http://www.aisc.org>

AISI American Iron and Steel Institute  
<http://www.steel.org>

AITC American Institute of Timber Construction  
<http://www.aitc-glulam.org>

AMCA Air Movement and Control Association, Inc.  
<http://www.amca.org>

ANLA American Nursery & Landscape Association  
<http://www.anla.org>

ANSI American National Standards Institute, Inc.  
<http://www.ansi.org>

APA The Engineered Wood Association  
<http://www.apawood.org>

ARI Air-Conditioning and Refrigeration Institute  
<http://www.ari.org>

ASAE American Society of Agricultural Engineers  
<http://www.asae.org>

ASCE American Society of Civil Engineers  
<http://www.asce.org>

ASHRAE American Society of Heating, Refrigerating, and  
Air-Conditioning Engineers  
<http://www.ashrae.org>

ASME American Society of Mechanical Engineers  
<http://www.asme.org>

ASSE American Society of Sanitary Engineering  
<http://www.asse-plumbing.org>

ASTM American Society for Testing and Materials  
<http://www.astm.org>

AWI Architectural Woodwork Institute  
<http://www.awinet.org>

AWS American Welding Society  
<http://www.aws.org>

AWWA American Water Works Association  
<http://www.awwa.org>

BHMA Builders Hardware Manufacturers Association  
<http://www.buildershardware.com>

BIA Brick Institute of America  
<http://www.bia.org>

CAGI Compressed Air and Gas Institute  
<http://www.cagi.org>

CGA Compressed Gas Association, Inc.  
<http://www.cganet.com>

CI The Chlorine Institute, Inc.  
<http://www.chlorineinstitute.org>

CISCA Ceilings and Interior Systems Construction Association  
<http://www.cisca.org>

CISPI Cast Iron Soil Pipe Institute  
<http://www.cispi.org>

CLFMI Chain Link Fence Manufacturers Institute  
<http://www.chainlinkinfo.org>

CPMB Concrete Plant Manufacturers Bureau  
<http://www.cpmc.org>

CRA California Redwood Association  
<http://www.calredwood.org>

CRSI Concrete Reinforcing Steel Institute  
<http://www.crsi.org>

CTI Cooling Technology Institute  
<http://www.cti.org>

DHI Door and Hardware Institute  
<http://www.dhi.org>

EGSA Electrical Generating Systems Association  
<http://www.egsa.org>

EEI Edison Electric Institute  
<http://www.eei.org>

EPA Environmental Protection Agency  
<http://www.epa.gov>

ETL ETL Testing Laboratories, Inc.  
<http://www.etl.com>

FAA Federal Aviation Administration  
<http://www.faa.gov>

FCC Federal Communications Commission  
<http://www.fcc.gov>

FPS The Forest Products Society  
<http://www.forestprod.org>

GANA Glass Association of North America  
<http://www.cssinfo.com/info/gana.html/>

FM Factory Mutual Insurance  
<http://www.fmglobal.com>

GA Gypsum Association  
<http://www.gypsum.org>

GSA General Services Administration  
<http://www.gsa.gov>

HI Hydraulic Institute  
<http://www.pumps.org>

HPVA Hardwood Plywood & Veneer Association  
<http://www.hpva.org>

ICBO International Conference of Building Officials  
<http://www.icbo.org>

ICEA Insulated Cable Engineers Association Inc.  
<http://www.icea.net>

ICAC Institute of Clean Air Companies  
<http://www.icac.com>

IEEE Institute of Electrical and Electronics Engineers  
<http://www.ieee.org>

IMSA International Municipal Signal Association  
<http://www.imsasafety.org>

IPCEA Insulated Power Cable Engineers Association

NBMA Metal Buildings Manufacturers Association  
<http://www.mbma.com>

MSS Manufacturers Standardization Society of the Valve and Fittings  
Industry Inc.  
<http://www.mss-hq.com>

NAAMM National Association of Architectural Metal Manufacturers  
<http://www.naamm.org>

NAPHCC Plumbing-Heating-Cooling Contractors Association  
<http://www.phccweb.org>

NBS National Bureau of Standards  
See - NIST

NBBPVI National Board of Boiler and Pressure Vessel Inspectors  
<http://www.nationboard.org>

NEC National Electric Code  
See - NFPA National Fire Protection Association

NEMA National Electrical Manufacturers Association  
<http://www.nema.org>

NFPA National Fire Protection Association  
<http://www.nfpa.org>

NHLA National Hardwood Lumber Association  
<http://www.natlhardwood.org>

NIH National Institute of Health  
<http://www.nih.gov>

NIST National Institute of Standards and Technology  
<http://www.nist.gov>

NLMA Northeastern Lumber Manufacturers Association, Inc.  
<http://www.nelma.org>

NPA National Particleboard Association  
18928 Premiere Court  
Gaithersburg, MD 20879  
(301) 670-0604

NSF National Sanitation Foundation  
<http://www.nsf.org>

NWWDA Window and Door Manufacturers Association  
<http://www.nwwda.org>

OSHA Occupational Safety and Health Administration  
Department of Labor  
<http://www.osha.gov>

PCA Portland Cement Association  
<http://www.portcement.org>

PCI Precast Prestressed Concrete Institute  
<http://www.pci.org>

PPI The Plastic Pipe Institute  
<http://www.plasticpipe.org>

PEI Porcelain Enamel Institute, Inc.  
<http://www.porcelainenamel.com>

PTI Post-Tensioning Institute  
<http://www.post-tensioning.org>

RFCI The Resilient Floor Covering Institute  
<http://www.rfci.com>

RIS Redwood Inspection Service  
See - CRA

RMA Rubber Manufacturers Association, Inc.  
<http://www.rma.org>

SCMA Southern Cypress Manufacturers Association  
<http://www.cypressinfo.org>

SDI Steel Door Institute  
<http://www.steeldoor.org>

IGMA Insulating Glass Manufacturers Alliance  
<http://www.igmaonline.org>

SJI Steel Joist Institute  
<http://www.steeljoist.org>

SMACNA Sheet Metal and Air-Conditioning Contractors  
National Association, Inc.  
<http://www.smacna.org>

SSPC The Society for Protective Coatings  
<http://www.sspc.org>

STI Steel Tank Institute  
<http://www.steeltank.com>

SWI Steel Window Institute  
<http://www.steelwindows.com>

TCA Tile Council of America, Inc.  
<http://www.tileusa.com>

TEMA Tubular Exchange Manufacturers Association  
<http://www.tema.org>

TPI Truss Plate Institute, Inc.  
583 D'Onofrio Drive; Suite 200  
Madison, WI 53719  
(608) 833-5900

UBC The Uniform Building Code  
See ICBO

UL Underwriters' Laboratories Incorporated  
<http://www.ul.com>

ULC Underwriters' Laboratories of Canada  
<http://www.ulc.ca>

WCLIB West Coast Lumber Inspection Bureau  
6980 SW Varns Road, P.O. Box 23145  
Portland, OR 97223  
(503) 639-0651

WRCLA Western Red Cedar Lumber Association  
P.O. Box 120786  
New Brighton, MN 55112  
(612) 633-4334

VA Medical Center, Palo Alto, California Proj. No. 640-424  
Centers for Ambulatory Care, Polytrauma & Blind Rehabilitation  
Loop Road and Site Utilities, Radiology Consolidation, Parking Structure 2

WWPA Western Wood Products Association  
<http://www.wwpa.org>

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**SECTION 01 57 19**

**TEMPORARY ENVIRONMENTAL CONTROLS**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. This section specifies the control of environmental pollution and damage that the Contractor must consider for air, water, and land resources. It includes management of visual aesthetics, air quality, noise, solid waste, radiant energy, and radioactive materials, as well as other pollutants and resources encountered or generated by the Contractor. The Contractor is obligated to consider specified control measures with the costs included within the various contract items of work.
- B. Environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents which:
  - 1. Adversely effect human health or welfare,
  - 2. Unfavorably alter ecological balances of importance to human life,
  - 3. Effect other species of importance to humankind, or;
  - 4. Degrade the utility of the environment for aesthetic, cultural, and historical purposes.
- C. Definitions of Pollutants:
  - 1. Chemical Waste: Petroleum products, bituminous materials, salts, acids, alkalis, herbicides, pesticides, organic chemicals, and inorganic wastes.
  - 2. Debris: Combustible and noncombustible wastes, such as leaves, tree trimmings, ashes, and waste materials resulting from construction or maintenance and repair work.
  - 3. Sediment: Soil and other debris that has been eroded and transported by runoff water.
  - 4. Solid Waste: Rubbish, debris, garbage, and other discarded solid materials resulting from industrial, commercial, and agricultural operations and from community activities.
  - 5. Surface Discharge: The term "Surface Discharge" implies that the water is discharged with possible sheeting action and subsequent soil erosion may occur. Waters that are surface discharged may terminate in drainage ditches, storm sewers, creeks, and/or "water of the United States" and would require a permit to discharge water from the governing agency.
  - 6. Rubbish: Combustible and noncombustible wastes such as paper, boxes, glass and crockery, metal and lumber scrap, tin cans, and bones.

7. Sanitary Wastes:
  - a. Sewage: Domestic sanitary sewage and human and animal waste.
  - b. Garbage: Refuse and scraps resulting from preparation, cooking, dispensing, and consumption of food.
8. Air Emissions: The term air emissions includes construction operations emissions regulated and controlled by the Bay Area Air Quality Management District (BAAQMD), including emissions from construction equipment, applied coatings, and dust.
9. Hazardous Materials: Any material that is regulated as a hazardous material in accordance with 49 CFR 173, requires a Material Safety Data Sheet (MSDS) in accordance with 29 CFR 1910.1200, or which during end use, treatment, handling, storage, transportation or disposal meets or has components which meet or have the potential to meet the definition of a Hazardous Waste in accordance with 40 CFR 261 and Title 22 CCR, Section 66261.3 et seq. Hazardous materials include pesticides, biocides, and carcinogens as listed by recognized authorities, such as the Environmental Protection Agency (EPA) and the International Agency for Research on Cancer (IARC).
10. Hazardous Waste: As defined in 40 CFR 261 and Title 22 California Code of Regulations, Section 66261.3 et seq.
11. Contaminated Soil: Excavation and earthmoving soil that has been contaminated with hazardous materials.
12. Noise Pollution: Measured sound levels generated by construction activities exceeding thresholds specified in this Section.

## **1.2 QUALITY CONTROL**

- A. Establish and maintain quality control for the environmental protection of all items set forth herein.
- B. Record on daily reports any problems in complying with laws, regulations, and ordinances. Note any corrective action taken.

## **1.3 REFERENCES**

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.
- B. U.S. National Archives and Records Administration (NARA):
  1. 33 CFR 328 Definitions

## **1.4 SUBMITTALS**

- A. In accordance with Section, 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES, furnish the following:
  1. Environmental Protection Plan: After the contract is awarded and prior to the commencement of the work, the Contractor shall meet with the Resident Engineer to discuss the proposed Environmental

Protection Plan and to develop mutual understanding relative to details of environmental protection. Not more than 20 days after the meeting, the Contractor shall prepare and submit to the Resident Engineer and the Contracting Officer for approval, a written and/or graphic Environmental Protection Plan including, but not limited to, the following:

- a. Name(s) of person(s) within the Contractor's organization who is (are) responsible for ensuring adherence to the Environmental Protection Plan.
- b. Name(s) and qualifications of person(s) responsible for manifesting hazardous waste to be removed from the site.
- c. Name(s) and qualifications of person(s) responsible for training the Contractor's environmental protection personnel.
- d. Description of the Contractor's environmental protection personnel training program.
- e. A list of Federal, State, and local laws, regulations, and permits concerning environmental protection, pollution control, noise control and abatement that are applicable to the Contractor's proposed operations and the requirements imposed by those laws, regulations, and permits.
- f. Methods for protection of features to be preserved within authorized work areas including trees, shrubs, vines, grasses, ground cover, landscape features, air and water quality, fish and wildlife, soil, historical, and archeological and cultural resources.
- g. Procedures to provide the environmental protection that comply with the applicable laws and regulations, and additional controls and limitations indicated in the Contract Documents. Integrate "mitigation actions" as identified in the Project Environmental Assessment Describe the procedures to correct pollution of the environment due to accident, natural causes, or failure to follow the procedures as described in the Environmental Protection Plan.
- h. Permits, licenses, and the location of the solid waste disposal area.
- i. Drawings showing locations of any proposed temporary excavations or embankments for haul roads, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials. Include as part of an Erosion Control Plan approved by the District Office of the U.S. Soil Conservation Service and the Department of Veterans Affairs.
- j. Environmental Monitoring Plans for the job site including land, water, air, and noise.
- k. Work Area Plan showing the proposed activity in each portion of the area and identifying the areas of limited use or nonuse. Plan should include measures for marking the limits of use areas. This plan may be incorporated within the Erosion Control Plan.

- B. Approval of the Contractor's Environmental Protection Plan will not relieve the Contractor of responsibility for adequate and continued control of pollutants and other environmental protection measures,

whether specifically addressed in the plan or failed to be addressed in the plan.

## **1.5 PROTECTION OF ENVIRONMENTAL RESOURCES**

- A. Protect environmental resources within the project boundaries and those affected outside the limits of permanent work during the entire period of this contract. Confine activities to areas defined by the specifications and drawings.
- B. Protection of Land Resources: Prior to construction, identify all land resources to be preserved within the work area. Do not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, top soil, and land forms without permission from the Resident Engineer. Do not fasten or attach ropes, cables, or guys to trees for anchorage unless specifically authorized, or where special emergency use is permitted.
  - 1. Work Area Limits: Prior to any construction, mark the areas that require work to be performed under this contract. Mark or fence isolated areas within the general work area that are to be saved and protected. Protect monuments, works of art, and markers before construction operations begin. Convey to all personnel the purpose of marking and protecting all necessary objects.
  - 2. Protection of Landscape: Protect trees, shrubs, vines, grasses, land forms, and other landscape features shown on the drawings to be preserved by marking, fencing, or using any other approved techniques.
    - a. Box and protect from damage existing trees and shrubs to remain on the construction site.
    - b. Immediately repair all damage to existing trees and shrubs by trimming, cleaning, and painting with antiseptic tree paint.
    - c. Do not store building materials or perform construction activities closer to existing trees or shrubs than the farthest extension of their limbs.
  - 3. Reduction of Exposure of Unprotected Erodible Soils: Plan and conduct earthwork to minimize the duration of exposure of unprotected soils. Clear areas in reasonably sized increments only as needed to use. Form earthwork to final grade as shown. Immediately protect side slopes and back slopes upon completion of rough grading.
  - 4. Temporary Protection of Disturbed Areas: Construct diversion ditches, benches, and berms to retard and divert runoff from the construction site to protected drainage areas approved under paragraph 208 of the Clean Water Act.
    - a. Sediment Basins: Trap sediment from construction areas in temporary or permanent sediment basins that accommodate the runoff as indicated in the Storm Water Pollution and Prevention Plan. After each storm, pump the basins dry and remove the accumulated sediment. Control overflow/drainage with paved weirs or by vertical overflow pipes, draining from the surface.

- b. Reuse or conserve the collected topsoil sediment as directed by the Resident Engineer. Topsoil use and requirements are specified in Section 31 20 00, EARTH MOVING.
  - c. Institute effluent quality monitoring programs as required by Federal, State, and local environmental agencies.
- 5. Erosion and Sedimentation Control Devices: The erosion and sediment controls selected and maintained by the Contractor shall be such that water quality standards are not violated as a result of the Contractor's activities. Construct or install all temporary and permanent erosion and sedimentation control features shown on the Environmental Protection Plan. Maintain temporary erosion and sediment control measures such as berms, dikes, drains, sedimentation basins, grassing, and mulching, until permanent drainage and erosion control facilities are completed and operative.
- 6. Manage borrow areas on Government property to minimize erosion and to prevent sediment from entering nearby water courses or lakes.
- 7. Manage and control spoil areas on Government property to limit spoil to areas shown on the Environmental Protection Plan and prevent erosion of soil or sediment from entering nearby water courses or lakes.
- 8. Protect adjacent areas from despoilment by temporary excavations and embankments.
- 9. Handle and dispose of solid wastes in such a manner that will prevent contamination of the environment. Place solid wastes (excluding clearing debris) in containers that are emptied on a regular schedule. Transport all solid waste off Government property and dispose of waste in compliance with Federal, State, and local requirements.
- 10. Store chemical waste away from the work areas in corrosion resistant containers and dispose of waste in accordance with Federal, State, and local regulations.
- 11. Hazardous Wastes: Separate hazardous wastes from all other debris. Remove and handle all hazardous materials in accordance with Federal, State and local regulations and contract requirements.
- 12. Contaminated Soil: Handle, haul, and dispose of contaminated soil in accordance with the requirements of the Contract Documents.
- 13. Handle discarded materials other than those included in the solid waste category as directed by the Resident Engineer.
- C. Protection of Water Resources: Keep construction activities under surveillance, management, and control to avoid pollution of surface and ground waters and sewer systems. Implement management techniques to control water pollution by the listed construction activities that are included in this contract.
  - 1. Washing and Curing Water: Do not allow wastewater directly derived from construction activities to enter water areas.

Collect and place wastewater in retention ponds allowing the suspended material to settle, the pollutants to separate, or the water to evaporate.

2. Control movement of materials and equipment at stream crossings during construction to prevent violation of water pollution control standards of the Federal, State, or local government.
  3. Monitor water areas affected by construction.
- D. Protection of Fish and Wildlife Resources: Keep construction activities under surveillance, management, and control to minimize interference with, disturbance of, or damage to fish and wildlife. Prior to beginning construction operations, list species that require specific attention along with measures for their protection.
- E. Protection of Air Resources: Keep construction activities under surveillance, management, and control to minimize pollution of air resources. Burning is not permitted on the job site. Keep activities, equipment, processes, and work operated or performed, in strict accordance with the State of California, Bay Area Air Quality Management District (BAAQMD) Regulations and Federal emission and performance laws and standards. Maintain ambient air quality standards set by the Environmental Protection Agency, for those construction operations and activities specified.
1. Particulates: Control dust particles, aerosols, and gaseous by-products from all construction activities, including exhaust fumes from construction vehicles and equipment, processing, and preparation of materials (such as from asphaltic batch plants) at all times, including weekends, holidays, and hours when work is not in progress.
  2. Particulates Control: Maintain all excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, spoil areas, borrow areas, and all other work areas within or outside the project boundaries free from particulates which would cause a hazard or a nuisance. Sprinklering, chemical treatment of an approved type, light bituminous treatment, baghouse, scrubbers, electrostatic precipitators, or other methods are permitted to control particulates in the work area.
  3. Hydrocarbons and Carbon Monoxide: Control monoxide emissions from equipment to Federal and State allowable limits, and additional limits as may be defined in these documents.
  4. Odors: Control odors of construction activities and prevent obnoxious odors from occurring.
- F. Reduction of Noise: Minimize noise using every action possible. Perform noise-producing work in less sensitive hours of the day or week as directed by the Resident Engineer. Maintain noise-produced work at or below the decibel levels and within the time periods specified.
1. Perform construction activities involving repetitive, high-level impact noise only between 7:00 a.m. and 4:30 p.m. unless otherwise permitted by local ordinance or the Resident Engineer.

Refer to VA Palo Alto Health Care System (VAPAHCS) Rules of the Station. Repetitive impact noise on the property shall not exceed the following dB limitations:

Time Duration of Impact Noise	Sound Level in dB
More than 12 minutes in any hour	70
Less than 30 seconds of any hour	85
Less than three minutes of any hour	80
Less than 12 minutes of any hour	75

2. Provide sound-deadening devices on equipment and take noise abatement measures that are necessary to comply with the requirements of this contract, consisting of, but not limited to, the following:

- a. Maintain maximum permissible construction equipment noise levels at 15 m (50 feet) (dBA):

EARTHMOVING		MATERIALS HANDLING	
FRONT LOADERS	75	CONCRETE MIXERS	75
BACKHOES	75	CONCRETE PUMPS	75
DOZERS	75	CRANES	75
TRACTORS	75	DERRICKS IMPACT	75
SCRAPERS	80	PILE DRIVERS	95
GRADERS	75	JACK HAMMERS	75
TRUCKS	75	ROCK DRILLS	80
PAVERS, STATIONARY	80	PNEUMATIC TOOLS	80
PUMPS	75	BLASTING	--
GENERATORS	75	SAWS	75
COMPRESSORS	75	VIBRATORS	75

- b. Use shields or other physical barriers to restrict noise transmission.
- c. Provide soundproof housings or enclosures for noise-producing machinery.
- d. Use efficient silencers on equipment air intakes.
- e. Use efficient intake and exhaust mufflers on internal combustion engines that are maintained so equipment performs below noise levels specified.
- f. Line hoppers and storage bins with sound deadening material.
- g. Conduct truck loading, unloading, and hauling operations so that noise is kept to a minimum.
3. Measure sound level for noise exposure due to the construction at least once every five successive working days while work is being performed above 55 dB(A) noise level. Measure noise exposure at the property line or 15 m (50 feet) from the noise source, whichever is greater. Measure the sound levels on the A weighing network of a General Purpose sound level meter at slow response. To minimize the effect of reflective sound waves at buildings, take measurements at 900 to 1800 mm (three to six feet) in front of any building face. Submit the recorded information to the Resident Engineer noting any problems and the alternatives for mitigating actions.

4. Sound Reduction and Monitoring at Interior Spaces:

- a. Sound Level Meter (SLM) and Data Logger: Before comencing with the Work for Radiology Consolidation Project, provide sound level meters with data logger.
  - 1) Quantity and Location: Provide 20 SLMs at locations as directed by the Resident Engineer.
  - 2) Minimum requirements for SLM/Data Logger:
    - a) Applicable Standards: IEC 651/804 and ANSI S1.4 dType 2, dBA and dBC.
    - b) Frequency Range: 31 Hz to 8000 Hz.
    - c) Dynamic Range: 37 to 105 dBA.
    - d) Frequency Weighting: A and C.
    - e) Response time: Fast and Slow
    - f) Digital display.
    - g) Noise level threshold alarm.
    - h) Data logging for up to 10 continuous days.
    - i) Built-in universal serial bus (USB) connection including datalogging software.
  - 3) Continuously monitor sound levels and submit data log weekly to Project Engineer for the duration of the Work for the Radiology Consolidation Project, unless otherwise directed by the Resident Engineer.
- b. Sound Reduction at Glazed Openings: Provide temporary additional glazing at locations shown on the Drawings using 12 mm (1/2 inch) thick clear polycarbonate sheets appropriately attached as required to stay firmly in place for the construction duration and removed prior to completion. Existing finish shall be maintained or repaired and refinished to match existing condition after removal of temporary additional glazing. Submit detailed shop drawings of fastening systems based on field survey and measurements to Resident Engineer for approval.

G. Restoration of Damaged Property: If any direct or indirect damage is done to public or private property resulting from any act, omission, neglect, or misconduct, the Contractor shall restore the damaged property to a condition equal to that existing before the damage at no additional cost to the Government. Repair, rebuild, or restore property as directed or make good such damage in an acceptable manner.

H. Final Clean-up: On completion of project and after removal of all debris, rubbish, and temporary construction, Contractor shall leave the construction area in a clean condition satisfactory to the Resident Engineer. Cleaning shall include off the station disposal of all items and materials not required to be salvaged, as well as all debris and rubbish resulting from demolition and new work operations.

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**SECTION 01 58 16**

**TEMPORARY INTERIOR AND EXTERIOR SIGNAGE**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. This section specifies temporary interior and exterior signs.

**1.2 SUBMITTALS**

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. At least 30 days before site mobilization, and before any construction sequencing which will affect access, egress, accessible route, traffic flow, and safety, submit a Temporary Signage Plan to the Resident Engineer for approval.

**PART 2 - PRODUCTS**

**2.1 TEMPORARY SIGNS - GENERAL**

- A. Provide directional and safety signs as required to inform VAPAHCS employees, patients, visitors, the public, and construction personnel of construction activities that affect access, egress routes, accessible route, traffic flow, and safety warnings.
1. Informational and Directional Signs.
    - a. Type, size, and content (written and graphic) shall be as directed by the Resident Engineer.
    - b. Provide size and quantity of signs as directed and coordinated with the Resident Engineer, not to exceed the following:
      - 1) Exterior Signage:
        - a) 125 - 11 inches by 17 inches.
        - b) 75 - 18 inches by 24 inches.
        - c) 7 - 48 inches by 96 inches.
      - 2) Interior Signage:
        - a) 125 - 4 inches by 12 inches.
        - b) 120 - 11 inches by 17 inches.
        - c) 30 - 24 inches by 36 inches.
  2. Accessibility Signs:
    - a. Provide type, size, and quantity as required in accordance with the American with Disabilities Act and Architectural Barriers Act (ADA/ABA) Accessibility Guidelines.

3. Temporary Vehicular Traffic Signs:
  - a. Provide type, size, and quantity as required in accordance with California Manual on Uniform Traffic Control Devices (MUTCD) - Temporary Traffic Control, 2012 Edition.
4. Safety Signs:
  - a. Provide type, size, and quantity as required in accordance with OSHA regulations conforming to ANSI Z535.2.

B. Maintain temporary signs and remove it when directed by Resident Engineer.

## **2.2 TEMPORARY INTERIOR SIGNS**

- A. Fabricate from 50 Kg (110 pound) mat finish white paper.
- B. Mounting: Surface mounted to wall or door with two-face tape, hook-and-loop tape, magnetic tape, or cable ties as appropriate.

## **2.3 TEMPORARY EXTERIOR SIGNS**

- A. Wood Signs:
  1. Fabricate from 19 mm (3/4 inch) thick exterior grade plywood. Provide 100 mm by 100 mm (4 inch by 4 inch) post(s) extending the full length of the sign and 900 mm (3 feet) into the ground. Alternatively, temporary exterior signs may be mounted on solid surfaces, and on temporary construction fences when approved by the Resident Engineer.
  2. Paint all surfaces of temporary exterior signs and posts with one prime coat and two coats of white gloss paint. Letters and design shall painted with gloss paint.
- B. Aluminum Sheet Signs:
  1. Fabricate from 1.60 mm (0.063 inch) thick aluminum sheet and plate, ASTM B209, alloy and temper; shop painted background with painted or computer-cut adhesive-backed vinyl letters and graphics.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- A. Install temporary signs at locations indicated in Temporary Signage Plan approved by the Resident Engineer.
- B. Install accessible signs where the accessible path of travel is diverted or changed.
- C. Install temporary traffic control signs in accordance with California MUTCD.
- D. Install safety signs in accordance with OSHA regulations.

- E. Install temporary exterior signs on firmly planted wood posts or alternatively on solid surfaces or temporary construction fence when approved by the Resident Engineer.
  - 1. Use fasteners and anchors to positively attach temporary signs to its substrate. Where installation over temporary construction fence is approved by the Resident Engineer, cable ties or heavy-guage galvanized tie wires may be used.
- F. Install temporary interior signs with mounting method as appropriate to firmly hold the temporary signs without damaging the substrate's existing finish; and as approved by the Resident Engineer.
- G. Replace missing, damaged, or illegible signs.

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**SECTION 01 60 00**

**PRODUCT REQUIREMENTS**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. This Section includes administrative and procedural requirements governing the Contractor's selection of products for use in the Project, including manufacturers' warranties.
- B. Products are items obtained for incorporating into the Work. The term "product" includes the terms "material," "equipment," "system," and similar terms that are self-explanatory and have well-recognized meanings in the construction industry.
- C. Substitutions: Submit a complete list of products proposed to be used in accordance with Section 01 33 23 "Shop Drawings, Product Data, and Samples." After an item has been approved, no change in brand or make will be permitted unless conditions stated in Section 01 33 23 are satisfied.
- D. Warranties: The Work is subject to the terms of the Article "Warranty of Construction", FAR clause 52.246-21. Standard and special warranties required by the individual sections of the Specifications shall provide guarantees in terms of time limits or rights of the Government in addition to those contained in the Contract Documents.

**1.2 SUBMITTALS**

- A. Submittals shall comply with the requirements of the Section 01 33 23 "Shop Drawings, Product Data, and Samples" and the individual sections specifying the work.
- B. Substitution requests, when conditions stated in Section 01 33 23 are satisfied, shall be submitted as follows:
  - 1. Submit 3 copies of each request for substitution.
  - 2. Identify the product or the fabrication or installation method to be replaced in each request. Include related specification section and Drawing numbers.
  - 3. Provide complete documentation including but not limited to the following information, as appropriate:
    - a. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by others that will be necessary to accommodate the proposed substitution.
    - b. A detailed comparison of the significant qualities of the proposed substitution with those of the Work specified.

- Significant qualities may include performance, weight, size, durability and visual effect.
- c. Test reports and manufacturer's certifications substantiating performance of the proposed substitution.
  - d. Product data and drawings, including descriptions of products and fabrication and installation procedures.
  - e. Samples, where applicable or requested.
  - f. A statement indicating the substitution's effect on the Contractor's Construction Schedule compared to the schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall Contract Time.
  - g. Cost information, including a proposal of the net change, if any, in the Contract price.
  - h. The Contractor's certification that the proposed substitution conforms to requirements in the Contract Documents in every respect and is appropriate for the applications indicated.
4. Contracting Officer's Action: If necessary, the Contracting Officer will request additional information or documentation for evaluation. The Contracting Officer will notify the Contractor of acceptance or rejection of the substitution within 20 days of receipt of request or seven days of receipt of additional information, whichever is later. Acceptance will be in the form of a change order in accordance with the Article title "Changes" (FAR 52.243-4) and "Contract Changes - Supplement" (VAAR 852.236-88).
- C. Submit written warranties to the Contracting Officer prior to the date for Project Completion, unless an earlier time of submission is specified elsewhere in the Contract Documents or requested by the Contracting Officer. When a designated portion of the Work is completed and occupied or used by the Government, by a separate agreement with the Contractor during the construction period, submit properly executed warranties within 15 days after completion of that designated portion of the Work.
- 1. When the Contract Documents require the Contractor, or the Contractor and a subcontractor, supplier or manufacturer to execute a special warranty, provide a written document that contains the appropriate terms and identification, executed by the required parties.
  - 2. Refer to Division 02 through 34 sections for specific content requirements and particular requirements for submitting special warranties.

### **1.3 QUALITY ASSURANCE**

- A. Source Limitations: To the fullest extent possible, provide products of the same kind from a single source. Equipment of the same function shall be manufactured by the same entity, unless otherwise indicated.
- B. Compatibility of Options: When the Contractor is given the option of selecting between 2 or more products for use on the Project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.

- C. Labels and nameplates: Except for required labels and operating data, do not attach or imprint manufacturer's or producer's nameplates or trademarks on surfaces of products that will be exposed to view in occupied spaces or on the exterior.
1. Labels: Locate required product labels and stamps on concealed surfaces or, where required for observation after installation, on accessible surfaces that are not conspicuous.
  2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate nameplate on an easily accessible surface that is inconspicuous in occupied spaces. The nameplate shall contain the following information:
    - a. Name of product manufacturer.
    - b. Model and serial numbers.
    - c. Operating data such as capacity, speed and ratings.
  3. Protection: Labels and nameplates shall be protected from defacement and other damage during the remainder of the Work.

#### **1.4 PRODUCT DELIVERY, STORAGE AND HANDLING**

- A. Deliver, store and handle products according to the manufacturer's recommendations, using means and methods that will prevent damage, deterioration and loss, including theft.
1. Schedule product delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.
  2. Coordinate delivery with installation time to provide minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other losses.
  3. Deliver products to the site in an undamaged condition, in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.
  4. Inspect products upon delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
  5. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.
  6. Store heavy materials away from the Project structure in a manner that will not endanger the supporting construction.
  7. Store products subject to damage by the elements above ground, under cover in a weather-tight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

## **PART 2 - PRODUCTS**

### **2.1 PRODUCT COMPLIANCE AND REQUIREMENTS**

- A. Provide products that are new, unless stated otherwise, complete with accessories, trim, finish, safety guards, devices and other items needed for a complete installation and the intended use and effect. Where specified and available, provide standard products of types that have been produced and used successfully in similar situations on other projects.
- B. Product Selection Procedures: The Contract Documents, including the Construction Contract Clauses, govern product selection. Requirements for product selection include the following:
  - 1. Descriptive Requirements: Where Specifications describe a product or assembly, listing exact characteristics required, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements.
  - 2. Performance Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements and are recommended by the manufacturer for the application indicated. Manufacturer's recommendations may be contained in published product literature or by the manufacturer's certification of performance.
  - 3. Prescriptive Requirements: Where Specifications require products that are produced using specified ingredients and components, including specific requirements for mixing, fabricating, curing, finishing, testing and similar operations in the manufacturing process, provide products produced in accordance with the prescriptive requirements that otherwise comply with Contract requirements.
  - 4. Codes, Standards and Regulations: Where Specifications require compliance with an imposed code, standard or regulation; select a product that complies with the codes, standards or regulations specified.
  - 5. Visual Matching: Where Specifications require matching an established Sample, the Contracting Officer's Representative's decision will be final on whether a proposed product matches satisfactorily. Where no product available within the specified category matches satisfactorily and complies with other specified requirements, comply with provisions concerning "substitutions" for selections of a matching product in another product category.
  - 6. Visual Selection: Where specified product requirements include the phrase "as selected from manufacturer's standard colors, patterns, textures ..." or a similar phrase, select a product and manufacturer that complies with other specified requirements. The Contracting Officer's Representative will select the color, pattern and texture from the manufacturer's product line.



## **2.2 SUBSTITUTIONS**

- A. Conditions: The Contracting Officer will receive and consider the Contractor's request for substitution only when the conditions stated in Section 01 33 23 "Shop Drawings, Product Data, and Samples" are satisfied. If the conditions are not satisfied, the Contracting Officer will return the requests without action except to record noncompliance with these requirements.
- B. The Contractor's submittal and the Contracting Officer's Representative's acceptance of Shop Drawings, Product Data, or Samples for construction activities not complying with Contract Documents do not constitute an acceptable or valid request for substitution, nor do they constitute approval.

## **2.3 WARRANTY REQUIREMENTS**

- A. Related Damages and Losses: When correcting failed or damaged warranted construction, remove and replace construction that has been damaged as a result of such failure or must be removed and replaced to provide access for correction of warranted construction.
- B. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of the Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work.
- D. Rejection of Warranties: The Contracting Officer reserves the right to reject warranties and to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
- E. Where the Contract Documents require a special warranty, or similar commitment for the Work or part of the Work, the Contracting Officer reserves the right to refuse to accept the Work in behalf of the Government until the Contractor presents evidence that entities required to countersign such commitments are willing to do so.

## **PART 3 - EXECUTION (Not Applicable)**

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**SECTION 01 70 00**

**EXECUTION REQUIREMENTS**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. This section includes certain general procedural requirements governing the Contractor's execution of the Work, including, but not limited to laying out the work, general installation of products, cutting and patching, correction of defective work, and cleaning.
- B. Substitutions: Changes in methods of construction required by the Contract Documents proposed by the Contractor after award of the Contract shall comply with the procedures and conditions specified for Substitutions in Section 01 60 00 "Product Requirements".
- C. Comply with Veterans Affairs Palo Alto Health Care System (VAPAHCS) Rules of the Station for requirements affecting the execution of the Work. Where there are conflicting requirements between VAPAHCS Rules of the Station and the Contract Documents, the more stringent provisions shall apply, unless otherwise directed by the Resident Engineer.

**1.2 SUBMITTALS**

- A. Surveyor Qualification Statement: Submit for review a statement attesting to previous experience from the land surveyor or professional engineer engaged to lay out the Work. Include list of completed projects, with project names and addresses, and names and addresses of architects and owners.
- B. Certificates: Submit a certificate signed by the land surveyor or professional engineer certifying that the location and elevation of improvements comply with requirements indicated.
- C. Final Property Survey: Submit 10 copies of the final property survey. Submit an electronic copy of the property survey in portable document format (pdf) conforming to ISO 32000-1:2008.
- D. Cutting and Patching Plan: Submit plan describing procedures at least 14 days prior to the time cutting and patching will be performed. Include the following information:
  - 1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
  - 2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
  - 3. Products: List products to be used for patching and firms or entities that will perform patching work.

4. Dates: Indicate when cutting and patching will be performed.
5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.
  - a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.
- E. Field Correction Requests: Immediately upon discovery of the need to deviate from requirements of the Contract Documents, submit a field correction request to the Contracting Officer's Representative for review. Include a detailed description of the problem encountered, together with recommended changes and detailing the reasons for deviating from the Contract Documents.
- F. Manufacturer's Field Services Submissions: Where product manufacturers are required by the individual sections of the Specifications to provide qualified personnel to observe conditions of surfaces or other project conditions, installation or workmanship, start up or adjustment of equipment, tests or other activities, and to initiate instructions when necessary, the following shall be submitted to the Contracting Officer's Representative:
  1. Qualifications: For approval, submit qualifications of observer at least 30 calendar days in advance of scheduled activities.
  2. Report: For information, submit report of activities and findings within 15 calendar days after the successful execution of the specified work. Include logs and other documented data where applicable.

### **1.3 QUALITY ASSURANCE**

- A. Surveyor Qualifications: Engage a land surveyor or registered civil engineer registered in the state of California, to perform required land-surveying services.
- B. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.
- C. Workmanship Standards: Initiate and maintain procedures to ensure personnel performing the work are skilled and knowledgeable in the methods and craftsmanship needed to produce the required levels of workmanship in the completed work. Remove and replace work that does not comply with workmanship specified and standards recognized in the construction industry for the applications indicated. Remove and replace work damaged or deteriorated by faulty workmanship or replacement of other work.
  1. Manufacturer's Instructions: Where installations include manufactured products, comply with manufacturer's applicable installation instructions and recommendations to the extent that

those instructions and recommendations are more explicit or stringent than requirements contained in the Contract Documents.

2. **Specialists:** Where the individual sections of the specifications require specialists to perform the work, comply with the requirements specified in the Construction Contract Clauses. The assignment of a specialist shall not relieve the Contractor from complying with applicable regulations, union jurisdictional settlements or similar conventions, and the final responsibility for fulfillment of the entire requirements remains with the Contractor.
3. **Minimum Quality and Quantity:** The quality level or quantity shown or specified shall be the minimum required for the work. Except as otherwise indicated, the actual work shall comply exactly with that minimum or may be superior to that minimum within limits acceptable to the Contracting Officer's Representative. Specified numeric values are either minimums or maximums as indicated or as appropriate for the context of the requirements.

## **PART 2 - PRODUCTS (Not Applicable)**

## **PART 3 - EXECUTION**

### **3.1 LAYING OUT THE WORK**

- A. **Identification:** The Government will identify existing benchmarks, control points, and property line corner stakes.
- B. **Reference Points:** Locate existing permanent benchmarks, control points and similar reference points before beginning Work. Preserve and protect permanent benchmarks and control points during construction operations.
  1. Do not change or relocate existing benchmarks or control points without prior written approval of the Contracting Officer's Representative. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate benchmarks or control points to the Contracting Officer's Representative before proceeding.
  2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original control points.
- C. Before proceeding to lay out the Work, verify layout information shown on the Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered notify the Contracting Officer's Representative promptly.
- D. Establish and maintain a minimum of 2 permanent benchmarks on the site, referenced to data established by survey control points.
  1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.

2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
  3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Make the log available for reference by the Contracting Officer's Representative.
- F. Existing Utilities and Equipment: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction.
1. Prior to construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping.
  2. Furnish location data for work related to the Project which must be performed by public utilities serving the Project site.
- G. Layout the Work using accepted surveying practices.
1. Establish benchmarks and markers to set lines and levels at each story of construction and elsewhere as needed to locate each element of the Project.
  2. Establish dimensions within tolerances indicated.
  3. Inform installers of lines and levels to which they must conform.
  4. Check the location, level and plumb of every major element as the work progresses.
  5. Notify the Contracting Officer's Representative when deviations from required lines and levels exceed allowable tolerances.

### **3.2 EXAMINATION**

- A. Examine applicable substrates and conditions under which the Work will be performed before starting construction operations.
- B. If unsafe or otherwise unsatisfactory conditions are encountered take corrective action before proceeding.

### **3.3 PREPARATION**

- A. Site Improvements: Locate and lay out site improvements, including pavements, stakes for grading, fill and topsoil placement, utility slopes, and invert elevations.
- B. Building Lines and Levels: Locate and lay out batter boards for structures, building foundations, column grids and locations, floor levels, and control lines and levels required for mechanical and electrical work.

- C. Existing Utilities: Furnish information necessary to adjust, move, or relocate existing structures, utility poles, lines, services, or other appurtenances located in or affected by construction. Coordinate with local authorities having jurisdiction.
- D. Take field measurements as required to fit the Work properly. Recheck measurements before installing each product.
- E. Verify space requirements of items shown diagrammatically on Drawings.

### **3.4 INSTALLATION**

- A. Locate the Work and components of the Work accurately.
  - 1. Make vertical work plumb and horizontal work level.
  - 2. Where space is limited, install components to maximize space available for maintenance and to maximize ease of removal for replacement.
  - 3. Conceal pipes, ducts, and wiring in finished areas.
- B. Install products at the time and under conditions that will produce satisfactory results.
  - 1. Maintain temperature, humidity and other weather controls for best performance.
  - 2. Isolate units of noncompatible work to prevent deterioration.
- C. Conduct construction operations so that no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- D. Tools and Equipment: Do not use tools or equipment that produce harmful levels of noise.
- E. Anchors and Fasteners: Provide anchors and fasteners as required to withstand stresses, vibration and physical distortion. Anchor each component securely in place, accurately located and aligned with other Work.
  - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by the Contracting Officer's Representative.
  - 2. Allow for building movement, including thermal expansion and contraction.
- F. Joints: Make like joints of uniform width within contiguous surfaces. Where joint locations in exposed work are not indicated, arrange joints for a uniform and balanced visual effect.
- G. Adjust operating components for proper operation without binding.
- H. Final Property Survey: Prepare a final property survey showing the significant real property features of the Project. Include on the survey

a certification, signed by the surveyor, that principal metes, bounds, lines, and levels of the Project are accurately positioned as shown on the survey.

### **3.5 CUTTING AND PATCHING**

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
  - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of work to be cut.
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- E. Adjacent Occupied Areas: Where interference with use of adjoining areas, including transmission of noise or vibration; or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 01 00 00 "General Requirements."
- F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.
- G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction, and transmit noise and vibration to adjoining occupied spaces. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
  - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  - 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  - 4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.



5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
  6. Proceed with patching after construction operations requiring cutting are complete.
- H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
  2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
    - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    - b. Restore damaged pipe covering to its original condition.
  3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
    - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
  4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
  5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

### **3.6 CORRECTION OF DEFECTIVE WORK**

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.
- B. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and proper adjustment of operating equipment.

- C. Restore permanent facilities used during construction to their specified condition.
- D. Remove and replace damaged surfaces that are exposed to view if the surfaces cannot be repaired without visible evidence of repair.
- E. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired to operate properly.
- F. Remove and replace chipped, scratched or broken surfaces.

### **3.7 CLEANING**

- A. Maintain the project work areas free of waste material and debris.
- B. Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the work.
  - 1. Remove liquid spills promptly.
  - 2. Where dust would impair proper execution of the work, broom- or vacuum-clean the entire work area.
- C. Keep installed work clean. Clean installed surfaces in accordance with the recommendations of the manufacturer or fabricator of the product installed, using only the cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and will not damage exposed surfaces.
- D. Remove debris from concealed spaces prior to enclosing the space.
- E. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at the time of project completion.

### **3.8 PROTECTION**

- A. Protect installed work from soiling and damage.
- B. Protective Coverings: Provide appropriate protective coverings for work that might be damaged by subsequent operations. Maintain protective coverings in place until project completion.

- - - E N D - - -

**SECTION 01 74 19**

**CONSTRUCTION WASTE MANAGEMENT**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. This section specifies The requirements for the management of non-hazardous building construction and demolition waste.
- B. Waste disposal in landfills shall be minimized to the greatest extent possible. Of the inevitable waste that is generated, as much of the waste material as economically feasible shall be salvaged, recycled or reused.
- C. Contractor shall use all reasonable means to divert construction and demolition waste from landfills and incinerators, and facilitate their salvage and recycle not limited to the following:
  - 1. Waste Management Plan development and implementation.
  - 2. Techniques to minimize waste generation.
  - 3. Sorting and separating of waste materials.
  - 4. Salvage of existing materials and items for reuse or resale.
  - 5. Recycling of materials that cannot be reused or sold.
- D. At a minimum the following waste categories shall be diverted from landfills:
  - 1. Soil.
  - 2. Inerts (eg, concrete, masonry and asphalt).
  - 3. Clean dimensional wood and palette wood.
  - 4. Green waste (biodegradable landscaping materials).
  - 5. Engineered wood products (plywood, particle board and I-joists, etc).
  - 6. Metal products (eg, steel, wire, beverage containers, etc).
  - 7. Cardboard, paper and packaging.
  - 8. Bitumen roofing materials.
  - 9. Plastics (eg, ABS, PVC).
  - 10. Carpet and/or pad.
  - 11. Gypsum board.
  - 12. Insulation.
  - 13. Paint.

**1.2 RELATED WORK**

- A. Section 02 41 00, DEMOLITION.

- B. Section 01 00 00, GENERAL REQUIREMENTS.
- C. Lead Paint: Section 02 83 33.13, LEAD BASED PAINT REMOVAL AND DISPOSAL.

### **1.3 QUALITY ASSURANCE**

- A. Contractor shall practice efficient waste management when sizing, cutting and installing building products. Processes shall be employed to ensure the generation of as little waste as possible. Construction /Demolition waste includes products of the following:
  - 1. Excess or unusable construction materials.
  - 2. Packaging used for construction products.
  - 3. Poor planning and/or layout.
  - 4. Construction error.
  - 5. Over ordering.
  - 6. Weather damage.
  - 7. Contamination.
  - 8. Mishandling.
  - 9. Breakage.
- B. Establish and maintain the management of non-hazardous building construction and demolition waste set forth herein. Conduct a site assessment to estimate the types of materials that will be generated by demolition and construction.
- C. Contractor shall develop and implement procedures to reuse and recycle new materials to a minimum of 75 percent.
- D. Contractor shall be responsible for implementation of any special programs involving rebates or similar incentives related to recycling. Any revenues or savings obtained from salvage or recycling shall accrue to the contractor.
- E. Contractor shall provide all demolition, removal and legal disposal of materials. Contractor shall ensure that facilities used for recycling, reuse and disposal shall be permitted for the intended use to the extent required by local, state, federal regulations. The Whole Building Design Guide website <http://www.wbdg.org> provides a Construction Waste Management Database that Contractor shall provide on-site instructions and supervision of separation, handling, construction projects.
- F. Contractor shall assign a specific area to facilitate separation of materials for reuse, salvage, recycling, and return. Such areas are to be kept neat and clean and clearly marked in order to avoid contamination or mixing of materials.
- G. Contractor shall provide on-site instructions and supervision of separation, handling, salvaging, recycling, reuse and return methods to be used by all parties during waste generating stages.

- H. Record on daily reports any problems in complying with laws, regulations and ordinances with corrective action taken.

#### **1.4 TERMINOLOGY**

- A. Class III Landfill: A landfill that accepts non-hazardous resources such as household, commercial and industrial waste resulting from construction, remodeling, repair and demolition operations.
- B. Clean: Untreated and unpainted; uncontaminated with adhesives, oils, solvents, mastics and like products.
- C. Construction and Demolition Waste: Includes all non-hazardous resources resulting from construction, remodeling, alterations, repair and demolition operations.
- D. Dismantle: The process of parting out a building in such a way as to preserve the usefulness of its materials and components.
- E. Disposal: Acceptance of solid wastes at a legally operating facility for the purpose of land filling (includes Class III landfills and inert fills).
- F. Hazardous Materials: Any material that is regulated as a hazardous material in accordance with 49 CFR Part 173, requires a Material Safety Data Sheet (MSDS) in accordance with 29 CFR Part 1910.1200, or which during end use, treatment, handling, storage, transportation or disposal meets or has components which meet or have the potential to meet the definition of a Hazardous Waste in accordance with 40 CFR Part 261 and Title 22 California Code of Regulations (CCR), Section 66261.3. Hazardous materials include pesticides, biocides, and carcinogens as listed by recognized authorities, such as the Environmental Protection Agency (EPA) and the International Agency for Research on Cancer (IARC).
- G. Hazardous Waste: As defined in 40 CFR Part 261 and Title 22 CCR, Section 66261.3.
- H. Inert Backfill Site: A location, other than inert fill or other disposal facility, to which inert materials are taken for the purpose of filling an excavation, shoring or other soil engineering operation.
- I. Inert Fill: A facility that can legally accept inert waste, such as asphalt and concrete exclusively for the purpose of disposal.
- J. Inert Solids/Inert Waste: Non-liquid solid resources including, but not limited to, soil and concrete that does not contain hazardous waste or soluble pollutants at concentrations in excess of water-quality objectives established by a regional water board, and does not contain significant quantities of decomposable solid resources.
- K. Mixed Debris: Loads that include commingled recyclable and non-recyclable materials generated at the construction site.
- L. Mixed Debris Recycling Facility: A solid resource processing facility that accepts loads of mixed construction and demolition debris for the purpose

of recovering re-usable and recyclable materials and disposing non-recyclable materials.

- M. Permitted Waste Hauler: A company that holds a valid permit to collect and transport solid wastes from individuals or businesses for the purpose of recycling or disposal.
- N. Recycling: The process of sorting, cleansing, treating, and reconstituting materials for the purpose of using the altered form in the manufacture of a new product. Recycling does not include burning, incinerating or thermally destroying solid waste.
  - 1. On-site Recycling - Materials that are sorted and processed on site for use in an altered state in the work, i.e. concrete crushed for use as a sub-base in paving.
  - 2. Off-site Recycling - Materials hauled to a location and used in an altered form in the manufacture of new products.
- O. Recycling Facility: An operation that can legally accept materials for the purpose of processing the materials into an altered form for the manufacture of new products. Depending on the types of materials accepted and operating procedures, a recycling facility may or may not be required to have a solid waste facilities permit or be regulated by the local enforcement agency.
- P. Reuse: Materials that are recovered for use in the same form, on-site or off-site.
- Q. Return: To give back reusable items or unused products to vendors for credit.
- R. Salvage: To remove waste materials from the site for resale or re-use by a third party.
- S. Source-Separated Materials: Materials that are sorted by type at the site for the purpose of reuse and recycling.
- T. Solid Waste: Materials that have been designated as non-recyclable and are discarded for the purposes of disposal.
- U. Transfer Station: A facility that can legally accept solid waste for the purpose of temporarily storing the materials for re-loading onto other trucks and transporting them to a landfill for disposal, or recovering some materials for re-use or recycling.

#### **1.5 SUBMITTALS**

- A. In accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, and SAMPLES, furnish the following:
- B. Prepare and submit to the Resident Engineer a waste management plan according to ASTM E 1609 and requirements of this Section. Distinguish between demolition and construction waste. Indicated quantities by weight or volume, but use same units of measure throughout waste management plan. The plan shall include, but not be limited to, the following information:

1. Procedures to be used for waste identification and management.
2. Techniques to be used to minimize waste generation.
3. Analysis of the estimated job site waste to be generated:
  - a. List of each material and quantity to be salvaged, reused, recycled.
  - b. List of each material and quantity proposed to be taken to a landfill.
4. Detailed description of the Means/Methods to be used for material handling.
  - a. On site: Material separation, storage, protection where applicable.
  - b. Off site: Transportation means and destination. Include list of materials.
    - 1) Description of materials to be site-separated and self-hauled to designated facilities.
    - 2) Description of mixed materials to be collected by designated waste haulers and removed from the site.
  - c. The names and locations of mixed debris reuse and recycling facilities or sites.
  - d. The names and locations of trash disposal landfill facilities or sites.
  - e. Documentation that the facilities or sites are approved to receive the materials.
5. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit report. Use Form CW-7 for construction waste and Form CWM-8 for demolition waste, included at the end of this Section.
6. Construction and Demolition Waste Identification and Reporting:
  - a. Waste Identification: Indicate anticipated types and quantities of demolition, site-clearing and construction waste generated by the Work. Use Form CW-1 for construction waste and Form CWM-2 for demolition waste, included at the end of this Section. Include estimated quantities and assumptions for estimates.
  - b. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Use Form CWM-3 for construction waste and Form CWM-4 for demolition waste, included at the end of this Section. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
    - 1) Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
    - 2) Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
    - 3) If applicable, list local charitable organizations (such as the Habitat for Humanity) in "Salvaged Materials for Donation" Subparagraph below.

- 4) Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
  - 5) Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
  - 6) Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
  - 7) Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location where materials separation will be performed.
- c. Cost/Revenue Analysis: Indicate total cost of waste disposal as if there was no waste management plan and net additional cost or net savings resulting from implementing waste management plan. Use Form CWM-5 for construction waste and Form CWM-6 for demolition waste, included at the end of this Section. Include the following:
- 1) Total quantity of waste.
  - 2) Estimated cost of disposal (cost per unit). Include hauling and tipping fees and cost of collection containers for each type of waste.
  - 3) Total cost of disposal (with no waste management).
  - 4) Revenue from salvaged materials.
  - 5) Revenue from recycled materials.
  - 6) Savings in hauling and tipping fees by donating materials.
  - 7) Savings in hauling and tipping fees that are avoided.
  - 8) Handling and transportation costs. Include cost of collection containers for each type of waste.
  - 9) Net additional cost or net savings from waste management plan.
- C. Designated Manager responsible for instructing personnel, supervising, documenting and administer over meetings relevant to the Waste Management Plan.
- D. Monthly summary of construction and demolition debris diversion and disposal, quantifying all materials generated at the work site and disposed of or diverted from disposal through recycling.

## 1.6 APPLICABLE PUBLICATIONS

- A. Publications listed below form a part of this specification to the extent referenced. Publications are referenced by the basic designation only. In the event that criteria requirements conflict, the most stringent requirements shall be met.
- B. U.S. Green Building Council (USGBC):
1. LEED Green Building Rating System for New Construction



## **1.7 RECORDS**

- A. Maintain records to document the quantity of waste generated; the quantity of waste diverted through sale, reuse, or recycling; and the quantity of waste disposed by landfill or incineration. Records shall be kept in accordance with the LEED Reference Guide and LEED Template.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. List of each material and quantity to be salvaged, recycled, reused.
- B. List of each material and quantity proposed to be taken to a landfill.
- C. Material tracking data: Receiving parties, dates removed, transportation costs, weight tickets, tipping fees, manifests, invoices, net total costs or savings.

## **PART 3 - EXECUTION**

### **3.1 COLLECTION**

- A. Provide all necessary containers, bins and storage areas to facilitate effective waste management.
- B. Clearly identify containers, bins and storage areas so that recyclable materials are separated from trash and can be transported to respective recycling facility for processing.
- C. Hazardous wastes shall be separated, stored, disposed of according to local, state, federal regulations.

### **3.2 DISPOSAL**

- A. Contractor shall be responsible for transporting and disposing of materials that cannot be delivered to a source-separated or mixed materials recycling facility to a transfer station or disposal facility that can accept the materials in accordance with state and federal regulations.
- B. Construction or demolition materials with no practical reuse or that cannot be salvaged or recycled shall be disposed of at a landfill or incinerator.

### **3.3 REPORT**

- A. With each application for progress payment, submit a summary of construction and demolition debris diversion and disposal including beginning and ending dates of period covered.
- B. Quantify all materials diverted from landfill disposal through salvage or recycling during the period with the receiving parties, dates removed,

transportation costs, weight tickets, manifests, invoices. Include the net total costs or savings for each salvaged or recycled material.

- C. Quantify all materials disposed of during the period with the receiving parties, dates removed, transportation costs, weight tickets, tipping fees, manifests, invoices. Include the net total costs for each disposal.

### **3.4 ATTACHMENTS**

- A. Form CWM-1 for construction waste identification.
- B. Form CWM-2 for demolition waste identification.
- C. Form CWM-3 for construction waste reduction work plan.
- D. Form CWM-4 for demolition waste reduction work plan.
- E. Form CWM-5 cost/revenue analysis of construction waste reduction work plan.
- F. Form CWM-6 cost/revenue analysis of demolition waste reduction work plan.
- G. Form CWM-7 for construction waste
- H. Form CWM-8 for demolition waste.

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FORM CWM-1: CONSTRUCTION WASTE IDENTIFICATION							
MATERIAL CATEGORY	GENERATION POINT	EST. QUANTITY OF MATERIALS RECEIVED* (A)	EST. WASTE - % (B)	TOTAL EST. QUANTITY OF WASTE* (C = A x B)	EST. VOLUME CY (CM)	EST. WEIGHT TONS (TONNES)	REMARKS AND ASSUMPTIONS
Packaging: Cardboard							
Packaging: Boxes							
Packaging: Plastic Sheet or Film							
Packaging: Polystyrene							
Packaging: Pallets or Skids							
Packaging: Crates							
Packaging: Paint Cans							
Packaging: Plastic Pails							
Site-Clearing Waste							
Masonry or CMU							
Lumber: Cut-Offs							
Lumber: Warped Pieces							
Plywood or OSB (scraps)							
Wood Forms							
Wood Waste Chutes							
Wood Trim (cut-offs)							
Metals							
Insulation							
Roofing							
Joint Sealant Tubes							
Gypsum Board (scraps)							
Carpet and Pad (scraps)							
Piping							
Electrical Conduit							
Other:							

\* Insert units of measure.

<b>FORM CWM-2: DEMOLITION WASTE IDENTIFICATION</b>				
<b>MATERIAL DESCRIPTION</b>	<b>EST. QUANTITY</b>	<b>EST. VOLUME CY (CM)</b>	<b>EST. WEIGHT TONS (TONNES)</b>	<b>REMARKS AND ASSUMPTIONS</b>
Asphaltic Concrete Paving				
Concrete				
Brick				
CMU				
Lumber				
Plywood and OSB				
Wood Paneling				
Wood Trim				
Miscellaneous Metals				
Structural Steel				
Rough Hardware				
Insulation				
Roofing				
Doors and Frames				
Door Hardware				
Windows				
Glazing				
Acoustical Tile				
Carpet				
Carpet Pad				
Demountable Partitions				
Equipment				
Cabinets				
Plumbing Fixtures				
Piping				
Piping Supports and Hangers				
Valves				
Sprinklers				
Mechanical Equipment				
Electrical Conduit				
Copper Wiring				
Light Fixtures				
Lamps				
Lighting Ballasts				
Electrical Devices				
Switchgear and Panelboards				
Transformers				
Other:				

<b>FORM CWM-3: CONSTRUCTION WASTE REDUCTION WORK PLAN</b>						
<b>MATERIAL CATEGORY</b>	<b>GENERATION POINT</b>	<b>TOTAL EST. QUANTITY OF WASTE TONS (TONNES)</b>	<b>DISPOSAL METHOD AND QUANTITY</b>			<b>HANDLING AND TRANSPORTION PROCEDURES</b>
			<b>EST. AMOUNT SALVAGED TONS (TONNES)</b>	<b>EST. AMOUNT RECYCLED TONS (TONNES)</b>	<b>EST. AMOUNT DISPOSED TO LANDFILL TONS (TONNES)</b>	
Packaging: Cardboard						
Packaging: Boxes						
Packaging: Plastic Sheet or Film						
Packaging: Polystyrene						
Packaging: Pallets or Skids						
Packaging: Crates						
Packaging: Paint Cans						
Packaging: Plastic Pails						
Site-Clearing Waste						
Masonry or CMU						
Lumber: Cut-Offs						
Lumber: Warped Pieces						
Plywood or OSB (scraps)						
Wood Forms						
Wood Waste Chutes						
Wood Trim (cut-offs)						
Metals						
Insulation						
Roofing						
Joint Sealant Tubes						
Gypsum Board (scraps)						
Carpet and Pad (scraps)						
Piping						
Electrical Conduit						
Other:						

<b>FORM CWM-4: DEMOLITION WASTE REDUCTION WORK PLAN</b>						
<b>MATERIAL CATEGORY</b>	<b>GENERATION POINT</b>	<b>TOTAL EST. QUANTITY OF WASTE TONS (TONNES)</b>	<b>DISPOSAL METHOD AND QUANTITY</b>			<b>HANDLING AND TRANSPORTION PROCEDURES</b>
			<b>EST. AMOUNT SALVAGED TONS (TONNES)</b>	<b>EST. AMOUNT RECYCLED TONS (TONNES)</b>	<b>EST. AMOUNT DISPOSED TO LANDFILL TONS (TONNES)</b>	
Asphaltic Concrete Paving						
Concrete						
Brick						
CMU						
Lumber						
Plywood and OSB						
Wood Paneling						
Wood Trim						
Miscellaneous Metals						
Structural Steel						
Rough Hardware						
Insulation						
Roofing						
Doors and Frames						
Door Hardware						
Windows						
Glazing						
Acoustical Tile						
Carpet						
Carpet Pad						
Demountable Partitions						
Equipment						
Cabinets						
Plumbing Fixtures						
Piping						
Supports and Hangers						
Valves						
Sprinklers						
Mechanical Equipment						
Electrical Conduit						
Copper Wiring						
Light Fixtures						
Lamps						
Lighting Ballasts						
Electrical Devices						
Switchgear and Panelboards						
Transformers						
Other:						

<b>FORM CWM-5: COST/REVENUE ANALYSIS OF CONSTRUCTION WASTE REDUCTION WORK PLAN</b>								
<b>MATERIALS</b>	<b>TOTAL QUANTITY OF MATERIALS (VOL. OR WEIGHT) (A)</b>	<b>EST. COST OF DISPOSAL (B)</b>	<b>TOTAL EST. COST OF DISPOSAL (C = A x B)</b>	<b>REVENUE FROM SALVAGED MATERIALS (D)</b>	<b>REVENUE FROM RECYCLED MATERIALS (E)</b>	<b>LANDFILL TIPPING FEES AVOIDED (F)</b>	<b>HANDLING AND TRANSPORTATION COSTS AVOIDED (G)</b>	<b>NET COST SAVINGS OF WORK PLAN (H = D+E+F+G)</b>
Packaging: Cardboard								
Packaging: Boxes								
Packaging: Plastic Sheet or Film								
Packaging: Polystyrene								
Packaging: Pallets or Skids								
Packaging: Crates								
Packaging: Paint Cans								
Packaging: Plastic Pails								
Site-Clearing Waste								
Masonry or CMU								
Lumber: Cut-Offs								
Lumber: Warped Pieces								
Plywood or OSB (scraps)								
Wood Forms								
Wood Waste Chutes								
Wood Trim (cut-offs)								
Metals								
Insulation								
Roofing								
Joint Sealant Tubes								
Gypsum Board (scraps)								
Carpet and Pad (scraps)								
Piping								
Electrical Conduit								
Other:								

<b>FORM CWM-6: COST/REVENUE ANALYSIS OF DEMOLITION WASTE REDUCTION WORK PLAN</b>								
<b>MATERIALS</b>	<b>TOTAL QUANTITY OF MATERIALS (VOL. OR WEIGHT) (A)</b>	<b>EST. COST OF DISPOSAL (B)</b>	<b>TOTAL EST. COST OF DISPOSAL (C = A x B)</b>	<b>REVENUE FROM SALVAGED MATERIALS (D)</b>	<b>REVENUE FROM RECYCLED MATERIALS (E)</b>	<b>LANDFILL TIPPING FEES AVOIDED (F)</b>	<b>HANDLING AND TRANSPORTATION COSTS AVOIDED (G)</b>	<b>NET COST SAVINGS OF WORK PLAN (H = D+E+F+G)</b>
Asphaltic Concrete Paving								
Concrete								
Brick								
CMU								
Lumber								
Plywood and OSB								
Wood Paneling								
Wood Trim								
Miscellaneous Metals								
Structural Steel								
Rough Hardware								
Insulation								
Roofing								
Doors and Frames								
Door Hardware								
Windows								
Glazing								
Acoustical Tile								
Carpet								
Carpet Pad								
Demountable Partitions								
Equipment								
Cabinets								
Plumbing Fixtures								
Piping								
Supports and Hangers								
Valves								
Sprinklers								
Mech. Equipment								
Electrical Conduit								
Copper Wiring								
Light Fixtures								
Lamps								
Lighting Ballasts								
Electrical Devices								
Switchgear and Panelboards								
Transformers								
Other:								



FORM CWM-7: CONSTRUCTION WASTE REDUCTION PROGRESS REPORT								
MATERIAL CATEGORY	GENERATION POINT	TOTAL QUANTITY OF WASTE TONS (TONNES) (A)	QUANTITY OF WASTE SALVAGED		QUANTITY OF WASTE RECYCLED		TOTAL QUANTITY OF WASTE RECOVERED TONS (TONNES) (D = B + C)	TOTAL QUANTITY OF WASTE RECOVERED % (D / A x 100)
			ESTIMATED TONS (TONNES)	ACTUAL TONS (TONNES) (B)	ESTIMATED TONS (TONNES)	ACTUAL TONS (TONNES) (C)		
Packaging: Cardboard								
Packaging: Boxes								
Packaging: Plastic Sheet or Film								
Packaging: Polystyrene								
Packaging: Pallets or Skids								
Packaging: Crates								
Packaging: Paint Cans								
Packaging: Plastic Pails								
Site-Clearing Waste								
Masonry or CMU								
Lumber: Cut-Offs								
Lumber: Warped Pieces								
Plywood or OSB (scraps)								
Wood Forms								
Wood Waste Chutes								
Wood Trim (cut-offs)								
Metals								
Insulation								
Roofing								
Joint Sealant Tubes								
Gypsum Board (scraps)								
Carpet and Pad (scraps)								
Piping								
Electrical Conduit								
Other:								

FORM CWM-8: DEMOLITION WASTE REDUCTION PROGRESS REPORT								
MATERIAL CATEGORY	GENERATION POINT	TOTAL QUANTITY OF WASTE TONS (TONNES) (A)	QUANTITY OF WASTE SALVAGED		QUANTITY OF WASTE RECYCLED		TOTAL QUANTITY OF WASTE RECOVERED TONS (TONNES) (D = B + C)	TOTAL QUANTITY OF WASTE RECOVERED % (D / A x 100)
			ESTIMATED TONS (TONNES)	ACTUAL TONS (TONNES) (B)	ESTIMATED TONS (TONNES)	ACTUAL TONS (TONNES) (C)		
Asphaltic Concrete Paving								
Concrete								
Brick								
CMU								
Lumber								
Plywood and OSB								
Wood Paneling								
Wood Trim								
Miscellaneous Metals								
Structural Steel								
Rough Hardware								
Insulation								
Roofing								
Doors and Frames								
Door Hardware								
Windows								
Glazing								
Acoustical Tile								
Carpet								
Carpet Pad								
Demountable Partitions								
Equipment								
Cabinets								
Plumbing Fixtures								
Piping								
Supports and Hangers								
Valves								
Sprinklers								
Mechanical Equipment								
Electrical Conduit								
Copper Wiring								
Light Fixtures								
Lamps								
Lighting Ballasts								
Electrical Devices								
Switchgear and Panelboards								
Transformers								
Other:								

**SECTION 01 77 00**

**CLOSEOUT PROCEDURES**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. This Section includes administrative and procedural requirements for Contract closeout including, but not limited to, the following:
  - 1. Inspection procedures.
  - 2. Project record document submittal.
  - 3. Operation and maintenance manual submittal.
  - 4. Final cleaning.
- B. Closeout requirements for specific construction activities are included in the individual sections in Divisions 02 through 34.
- C. Substantial Completion is defined as that state when the Contractor has complied with the Contract requirements, except for minor deviations, and the project is sufficiently complete and capable of being occupied and used by the Government for the intended purpose.

**1.2 SUBSTANTIAL COMPLETION**

- A. Preliminary Procedures: Before requesting inspection for Substantial Completion, complete the following.
  - 1. Provide supporting documentation for completion as indicated elsewhere in the Contract Documents and a statement showing an accounting of changes to the Contract Sum.
  - 2. Submit a list to the Contracting Officer, of incomplete items, the value of incomplete construction, and reasons the Work is not complete.
  - 3. Obtain and submit releases enabling the Government unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
  - 4. Submit operation and maintenance manuals, final project photographs, damage or settlement survey, and utility lines survey.
  - 5. Make final changover of permanent locks and transmit keys to the Contracting Officer's Representative. Advise the Government user personnel of changeover in security provisions.
  - 6. Complete startup testing of systems and instruction of the Government operation and maintenance personnel. Discontinue and remove temporary facilities from the site, along with mockups, construction tools, and similar elements.

- B. Inspection Procedures: On receipt of a request for inspection, the Contracting Officer's Representative will either proceed with inspection or advise the Contractor of unfilled requirements. The Contracting Officer will notify the Contractor of Substantial Completion following the inspection or advise the Contractor of construction that must be completed or corrected before Substantial Completion.
1. The Contracting Officer's Representative will repeat the inspection when requested and when assured that the Work is substantially complete.
  2. Results of the completed inspection will form the basis of the requirements for Final Acceptance.

### **1.3 FINAL ACCEPTANCE**

- A. Preliminary Procedures: Before requesting reinspection for Final Acceptance, complete the following:
1. Submit final payment request with releases and supporting documentation not previously submitted and accepted.
  2. Submit an updated final statement, accounting for final additional changes to the Contract price.
  3. Submit a certified copy of the previous Substantial Completion inspection list of items to be completed or corrected. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance, and shall be endorsed and dated by the Contractor.
  4. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.
  5. Submit record documents and similar final record information.
  6. Deliver tools, spare parts, extra stock and similar items.
  7. Complete final clean-up requirements including touch-up painting of marred surfaces.
  8. Submit final meter readings for utilities, a measured record of stored fuel, and similar data as of the date when the Government took possession of and assumed responsibility for corresponding elements of the work.
- B. Reinspection Procedure: The Contracting Officer's Representative will reinspect the Work upon receipt of notice from the Contractor that the Work, including inspection list items from earlier inspections, has been completed, except for items whose completion is delayed under circumstances acceptable to the Contracting Officer.
1. Upon completion of reinspection, the Contracting officer will notify the Contractor of Final Acceptance or will advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled and are required for Final Acceptance.
  2. If necessary, reinspection will be repeated.

#### **1.4 RECORD DOCUMENT SUBMITTALS**

- A. Do not use record documents for construction purposes. Protect record documents from deterioration and loss in a secure, fire-resistant location. Provide access to record documents for the Contracting Officer's Representative's reference during normal working hours.
- B. Record Drawings: Maintain two full size, clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark the drawing that is most capable of showing conditions fully and accurately. Where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
  - 1. Mark record sets with red erasable pencil. Use other colors to distinguish between variations in separate categories of the Work.
  - 2. Mark new information not shown on Contract Drawings or Shop Drawings.
  - 3. Note related Change Order numbers where applicable.
  - 4. Organize record drawing sheets into manageable sets. Bind sets with durable-paper cover sheets. Print suitable titles, dates, and other identification on the cover of each set.
- C. Record Specifications: Maintain one complete copy of the Specifications with addenda. Include one copy of other written construction documents, such as Change Orders and modifications issued in printed form during construction.
  - 1. Mark these documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications.
  - 2. Give particular attention to substitutions and selection of options, and information about concealed construction that cannot otherwise be readily determined later by direct observation.
  - 3. Note related record drawing information and Product Data.
- D. Record Product Data: Maintain one copy of each Product Data submittal. Note related Change Orders and markup of Record Drawings and Specifications.
  - 1. Mark these documents to show significant variations in actual Work performed in comparison with information submitted. Include variations in products delivered to the site and from the manufacturer's installation instructions and recommendations.
  - 2. Give particular attention to concealed products and portions of the Work that cannot otherwise be readily determined later by direct observation.
- E. Record Samples: Immediately prior to Substantial Completion, the Contractor shall meet with the Contracting Officer's Representative at the

Project site to determine which samples are to be transmitted to the Government for record purposes. Comply with the Contracting Officer's instructions regarding delivery to the Government's Sample storage area.

- F. Miscellaneous Record Submittals: Refer to other Specification sections for requirements for miscellaneous record keeping and submittals in connection with actual performance of the Work. Place miscellaneous records in good order. Identify records properly and bind or otherwise organize to allow for use and reference.

## **1.5 OPERATION AND MAINTENANCE MANUALS**

- A. Organize operation and maintenance data in suitable sets of manageable size. Bind properly indexed data in individual, heavy-duty, 2-inch (51 mm), 3-ring, vinyl-covered binders, with pocket folders for folded sheet information. Mark appropriate identification on front and spine of each binder. Include the following types of information.
1. Emergency instructions.
  2. Spare parts lists.
  3. Copies of warranties.
  4. Wiring diagrams.
  5. Recommended Aturn-around@ cycles.
  6. Inspection procedures.
  7. Shop Drawings and Product Data.
  8. Fixture lamping schedule.
- B. Submit an electronic copy of the operations and maintenance manuals in portable document format (pdf) conforming to ISO 32000-1:2008.

## **1.6 UTILITY LINES SURVEY**

- A. Provide an accurately dimensioned survey showing location and elevation of all utility lines, including valves, connections and changes in direction, as installed under the Contract within property lines and outside of building walls. 1. Points where utility lines leave buildings shall be dimensioned from building corners.
1. Points where utility lines cross property lines shall be dimensioned from lot monuments.
  2. Survey shall be drawn to scale and provided on a mylar transparency.

**PART 2 - PRODUCTS (Not Applicable)**

**PART 3 - EXECUTION**

**3.1 CLOSEOUT PROCEDURES**

- A. Operation and Maintenance Instructions: Arrange for each Installer of equipment that requires regular maintenance to meet with the Government's personnel to provide instruction in proper operation and maintenance. Provide instruction by manufacturer's representatives if installers are not experienced in operation and maintenance procedures. Include a detailed review of the following:
1. Maintenance manuals.
  2. Record documents.
  3. Spare parts and materials.
  4. Tools.
  5. Lubricants.
  6. Fuels.
  7. Identification systems.
  8. Control sequences.
  9. Hazards.
  10. Cleaning.
  11. Warranties and bonds.
  12. Maintenance agreements and similar continuing commitments.
- B. As part of instruction for operating equipment, demonstrate the following procedures:
1. Startup.
  2. Shutdown.
  3. Emergency operations.
  4. Noise and vibration adjustments.
  5. Safety procedures.
  6. Economy and efficiency adjustments.
  7. Effective energy utilization.

**3.2 FINAL CLEANING**

- A. Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial cleaning and maintenance program. Comply with manufacturer's instructions.

1. Complete the following cleaning operations before requesting inspection for Final Acceptance.
  - a. Remove labels that are not permanent labels.
  - b. Clean transparent materials, including mirrors and glass in doors and windows. Removing glazing compounds and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.
  - c. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films, and similar foreign substances. Restore reflective surfaces to their original condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.
  - d. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps. Clean the site, including landscape development areas, of rubbish, litter and other foreign substances. Sweep paved areas broom clean, and remove stains, spills, and other foreign deposits. Rake grounds that are neither paved nor planted to a smooth, even-textured surface.
- B. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid the Project of rodents, insects, and other pests.
- C. Removal of Protection: Remove temporary protection and facilities installed for the protection of the Work during construction.
- D. Compliance: Comply with the regulations of authorities having jurisdiction and with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Government property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from the site and dispose of it lawfully.
- E. Remaining Materials: Extra materials of value, that remain after completion of associated work, become Government property. Dispose of these materials as directed by the Contracting Officer's Representative.

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