

**SECTION 01 00 00**  
**GENERAL REQUIREMENTS**

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## **SECTION 01 00 00**

### **GENERAL REQUIREMENTS**

#### **1.1 GENERAL INTENTION**

- A. Contractor shall completely prepare site for building operations, including demolition and removal of existing structures, and furnish labor and materials and perform work for the installation of a 12 KV Feeders, Conduits, Manholes and all works required by drawings and specification for installation of 12 KV Defender Lodge Project No. 640-388 at the Veteran Affairs Palo Alto Health Care System (VAPAHCS), Palo Alto Division (PAD), Palo Alto California.
- B. Visits to the site by Bidders may be made only by appointment with Contracting Officer Representative (COR) at the Medical Center Engineering Office.
- C. Offices of Advance Design Consultants, Inc. at 998 Park Avenue, San Jose, California 95126, as Architect-Engineers, will render certain technical services during construction. 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. Before placement and installation of work subject to tests by testing laboratory, retained by the Contractor and approved by the COR, the Contractor shall notify the Contracting Officer Representative "COR" in sufficient time to enable testing laboratory personnel to be present at the site in time for proper taking and testing of specimens and field inspection. Such prior notice shall be not less than three work days unless otherwise designated by the COR.
- E. 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.
- F. Prior to commencing work, general contractor shall provide proof that a OSHA designated "competent person" (CP) (29 CFR 1926.20(b)(2)) will maintain a presence at the work site whenever the general or subcontractors are present.
- G. Training:
  - 1. General contractor and subcontractors shall have at least one (1) competent individual on site at all times, with 30-hour OSHA

Construction Safety course certification, 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.
- H. 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)**

- A. ITEM I, GENERAL CONSTRUCTION: Installation of Pre-Cast Manholes work includes general construction, alterations, trenches, walks, necessary removal of existing structures and construction and certain other item.
- B. ITEM II, Electrical Work: Install new medium voltage (12KV) manholes # 16A and # 16B and ductbank from existing manhole # 9. Work include all labor, material, equipment and supervision to perform the required electrical construction work on this project including:
1. At New Manhole, #16A and #16B Provide and install new medium Voltage Manholes, #16A and #16B, and make the system operational. The installation shall match existing manhole and be in accordance with the attached Specification Section 26 05 13 "Medium Voltage Cables" and applicable NEC Codes and standards.
    - a. Provide and install 8'x14' (inside dimension) -8'deep new precast concrete manholes with minimum 12" x12" sump depression suitable for the installation of 12 KV lines. The vault shall conform to VA's specification section 26 05 41.
    - b. Provide and install new duct bank, 4 of 5" conduits (Scheduled 40, PVC, 3000 PSI per VA duct bank details) from manhole #9 to the NEW manhole #16B, from the NEW manhole #16B to the manhole #16A.
    - c. Provide and install new duct bank, 4 of 5" conduits (Scheduled 40, PVC, 3000 PSI per VA duct bank details) from PMH 16A to South station 2. Contractor shall perform pot hole testing from PMH 16A south station 2 and propose the pathway of new duct bank from PMH 16A to south station 2.
    - d. Provide and install sump pump system inside the vault and make it operational. System includes sump pump, drain pit,

drain pipe, electrical power and control. Connect drain pipe to the nearest storm drain manhole. Power for the sum pump system shall be from the near-by Building (check with VA COR before installation) and shall be on the separate conduit.

- e. Provide and install New dead break 600 A 15 KV rated, 6 ways UL listed J bars (3 for each feeders 2 and 6) with Elbow connectors. Label as F2 and F6.
- f. Provide, install, and connect NEW feeders F2 and F6 (15 KV rated mv-105, 133% EPR listed, UL listed (3# 350Kcml, 1#1/0 GND), class B stranded copper cable for each feeder) F2 and F6 from Manhole #16B to Manhole #16A and to the south station 2.
- g. Provide and install caps/covers for any un-used J-bar termination.
- h. Manhole cover shall be identified as High Voltage 600 Amp.

2. At PMH-16A:

- a. A. Provide and install new duct bank, 4 of 5" conduits (Scheduled 40, PVC, 3000 PSI per VA duct bank details) from manhole #16A to the existing transformer- ME Building.
- b. Disconnect and Remove existing feeders for two existing transformers from the ME Building to the south station 2. Provide, install, and connect New duct bank and NEW feeders F2 and F6 (15 KV rated mv-105, 133% EPR listed, UL listed (3# 350Kcml, 1#1/0 GND), class B stranded copper cable for each feeder) from J-bars in PMH-16A to the existing ONE transformer at ME Building. The ME transformer has 200A bushing inserts. Modify the ME Transformer to accept the new 600A bushing inserts. Provide new elbow connectors to match with new feeder size and new 600A J bars.
- c. Contractors shall size and provide back-up generator with remote alarm indicator feature and (technical support as separate line item in the proposal) for ME-Building during installation of new feeders and connectors to the existing transformer- ME Building. (see attached reference load consumption for feeder F2 and F6).

- d. Provide and install caps/covers for any un-used J-bar termination.
3. At PMH 16B
  - a. Provide and install connections from 600A J bars to 200A J bars. Elbow connectors from feeders in PMH-9 to PMH-16B shall be capped.
4. At PMH-9:
  - a. Replace the existing 4-ways J-bars with New load break 200A- 15 KV rated, 6 ways UL listed J bars (3 for each feeders 2 and 6).
  - b. Provide and install NEW feeders F2 and F6 (15 KV rated mv-105, 133% EPR listed, UL listed (3# 2/0AWG, 1#1/0 GND), class B stranded copper cable for each feeder) from F2 and F6 new J bars at PMH-9 to the F2 and F6 new J bars at the NEW Manhole #16B, with Elbow connectors to be capped off. Label as F2 and F6.
  - c. Provide and install caps/covers for any un-used J-bar termination.
  - d. At the shutdown contractor shall disconnect, secure and isolate the Feeder 3 and Feeder 5 in the basement – electrical room in the Building 7 before performing works in the PMH9 and contractor shall reconnect Feeder 3 and Feeder 5 at the end of the day.
5. Underground Pathway:
  - a. Provide and install new duct bank from manhole #9 to the NEW manhole #16B and from the NEW manhole #16B to the new manhole #16A, from new manhole #16A to the south station 2 and to one existing transformer ME Building per VA standard specifications and applicable NEC Codes and Standards.
  - b. Contractor shall pot hole and verify all reference documents to all existing underground utilities along the travel path. Contractor shall provide actual location of new manholes #16A and #16B, and new pathway from South station 2 to manhole 16A, from manhole #16A to the ME transformer, and to manhole #16B and to manhole #9, and provide trench section details and layout.

- c. Trenching shall occur per VA specifications and applicable NEC Codes and Standards. The path of travel for the new Medium Voltage line shall be on the loop road next to the existing sidewalk along building 7 and MB buildings. Contactor shall perform necessary works to verify underground condition, provide actual location of the medium voltage pathway and traffic plan. Contractor repairs pavement marking as necessary. Any damages on the sidewalk shall be repaired to match existing concrete color.
- 6. Circuit Identification of Feeders: All existing and new feeders covered by this project needs to be identified as follows:
  - a. Feeder Conductor Phase Marking: Using the existing phase color scheme at manhole, apply min 3 rounds of color electrical adhesive tape at each end of all new conductors near the end of the elbow connector. Also apply phase marking tape to existing conductors with missing or deteriorated tape. Perform continuity check before placing phase making tape at the other end of the conductor. Report any phase marking discrepancy for existing conductors to VA maintenance for resolution.
  - b. J Bar Phase Marking: Mark each J bar with feeder # and Phase Example: F4-A, F4-B, F4-C • Feeder Identification Marking: Identify each feeder conductor by installing permanent label on each conductor to clearly indicate the feeder number, phase, feeder size to destination, Example: (F2 ØA 2/0 To PMH-16). Labels shall be permanent durable and rust resistant. Position the tags so they will be easy to read after the fireproofing tape is installed.
- 7. Acceptance checks and Tests:
  - a. Perform all acceptance tests and checks for all new cables shall be tested as listed in section 3.7 of the VA spec 26 05 13 and provide the certified written test report to VA.
  - b. Contractor shall verify and document the phase rotation before the start of the work at secondary side of every building transformer fed by the feeders covered under the scope of this project. Verify phase rotation after the work is completed to ensure that they remain same as before. Report any issues to VA maintenance for resolution.
- 8. Drawings:

- a. Provide site utility drawings to show the manholes, single line drawing from the south station to show the all feeder connection, trench detail layout with asphalt, base rock section, duct bank details, inside manhole details, and traffic control plans in phases.

ALTERNATE NO.1: NONE

ALTERNATE NO. 2: NONE

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

- A. AFTER AWARD OF CONTRACT, electronic files of construction documents, including specifications and drawings, will be furnished by the VA to the contractor.
- B. Additional sets of drawings may be made by the Contractor, at Contractor's expense, from reproducible sepia prints furnished by Issuing Office. Such sepia prints shall be returned to the Issuing Office immediately after printing is completed.

### **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 seven (7) days notice to the Contracting Officer Representative "COR" 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 VAPAHCS Public Affairs 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 COR 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.

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 Representative "COR" upon request.
4. These security documents shall not be removed or transmitted from the project site without the written approval of Contracting Officer Representative "COR".
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 Representative "COR" 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.

## **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  
101-2012 .....Life Safety 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
  4. VHA Directive 2005-007
- 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 "COR" for review for compliance with VHA Directive 2005-007, NFPA 101 and NFPA 241. Prior to beginning work, all employees of the contractor and/or any subcontractors 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. Provide documentation to the "COR" that all construction workers 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 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,  $\frac{3}{4}$  hour fire/smoke rated doors with self-closing devices.
  - 2. Install 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 COR.

- H. Egress Routes for Construction Workers: Maintain free and unobstructed egress. Inspect daily. Report findings and corrective actions weekly COR.
- 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. Additional fire extinguishers may be required in accordance with local medical center's safety policy. Contractor shall confirm and coordinate requirements with the COR.
- J. Flammable and Combustible Liquids: Store, dispense and use liquids in accordance with 29 CFR 1926, NFPA 241 and NFPA 30.
- K. 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.
- L. Smoke Detectors: Prevent accidental operation. Remove temporary covers at end of work operations each day. Coordinate with COR.
- M. Hot Work: Perform and safeguard hot work operations in accordance with NFPA 241 and NFPA 51B. Coordinate with COR. Obtain permits from facility Safety Manager 24 hours in advance. Designate contractor's responsible project-site fire prevention program manager to permit hot work.
- N. Fire Hazard Prevention and Safety Inspections: Inspect entire construction areas weekly. Coordinate with, and report findings and corrective actions weekly to COR.
- O. 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.
- P. Dispose of waste and debris in accordance with Specification 01-74-19 – Construction Waste Management. Remove from buildings daily.
- Q. Perform other construction, alteration and demolition operations in accordance with 29 CFR 1926.
- R. If required, submit documentation to the COR 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. The Contractor shall confine all operations (including storage of materials) on Government premises to areas authorized or approved by the Contracting Officer. The Contractor shall hold and save the Government, its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance.
- B. Temporary buildings (e.g., storage sheds, shops, offices) and utilities may be erected by the Contractor only with the approval of the Contracting Officer and shall be built with labor and materials furnished by the Contractor without expense to the Government. The temporary buildings and utilities shall remain the property of the Contractor and shall be removed by the Contractor at its expense upon completion of the work. With the written consent of the Contracting Officer, the buildings and utilities may be abandoned and need not be removed.
- C. The Contractor shall, under regulations prescribed by the Contracting Officer, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the Contracting Officer. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any Federal, State, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged curbs, sidewalks, or roads.
- D. Working space and space available for storing materials shall be as determined by the COR.
- E. Working space and space available for storing materials shall be as shown on the drawings.
- F. Workmen are subject to rules of Medical Center applicable to their conduct.
- G. 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 others.
  - 1. Do not store materials and equipment in other than assigned areas.
  - 2. Schedule delivery of materials and equipment to immediate construction working areas within buildings in use by Department of Veterans Affairs in quantities sufficient for not more than two work

- days. Provide unobstructed access to Medical Center areas required to remain in operation.
3. 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.
- H. Utilities Services: Where necessary to cut existing pipes, electrical wires, conduits, cables, etc., of utility services, or of fire protection systems or communications systems (except telephone), they shall be cut and capped at suitable places where shown; or, in absence of such indication, where directed by COR. All such actions shall be coordinated with the Utility Company involved:
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.
- I. Phasing: To insure such executions, Contractor shall furnish the COR 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 COR two weeks in advance of the proposed date of starting work in each specific area of site, building or portion thereof.
- J. When an area 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.
  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.
- K. Utilities Services: Maintain existing utility services for Medical Center / 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 COR.

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 COR. 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 COR, in writing, no later than four (4) weeks 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 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, no later than four (4) weeks prior to the desired time and shall be performed as directed by the COR.
  5. In case of a contract construction emergency, service will be interrupted on approval of COR. 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.
- L. 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.

- M. 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.
  - 2. Method and scheduling of required cutting, altering and removal of existing roads, walks and entrances must be approved by the COR.
- N. Coordinate the work for this contract with other construction operations as directed by COR. 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 COR areas of buildings in which alterations occur and areas which are anticipated routes of access, and furnish a report, signed by, to the Contracting Officer. This report shall list by rooms and spaces:
  - 1. Shall note any discrepancies between drawings and existing conditions at site.
  - 2. 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 COR.
- 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 COR, 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 COR 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. Wherever existing roof surfaces are disturbed they shall be protected against water infiltration. In case of leaks, they shall be repaired immediately upon discovery.
  2. 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.
  3. 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.
  - 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.
    1. All personnel involved in the construction or renovation activity shall be educated and trained in infection prevention measures established by the medical center.
- 1.9 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 COR 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.
- B. 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 COR. 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 COR. 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 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 COR and Medical Center.
    - 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 COR 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.
- C. 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.
- D. 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.

#### **1.10 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 noted on drawings 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 COR.
  2. Items not reserved shall become property of the Contractor and be removed by Contractor from 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.
  4. PCB Transformers : The Contractor shall be responsible for disposal of the Polychlorinated Biphenyl (PCB) transformers. The transformers shall be taken out of service and handled in accordance with the procedures of the Environmental Protection Agency (EPA) and the Department of Transportation (DOT) as outlined in Code of Federal Regulation (CFR), Titled 40 and 49 respectively. The EPA's Toxic Substance Control Act (TSCA) Compliance Program Policy Nos. 6-PCB-6 and 6-PCB-7 also apply. Upon removal of PCB transformers for disposal, the "originator" copy of the Uniform Hazardous Waste Manifest (EPA Form 8700-22), along with the Uniform Hazardous Waste Manifest Continuation Sheet (EPA Form 8700-22A) shall be returned to the Contracting Officer who will annotate the contract file and transmit the Manifest to the Medical Center's Chief.
    - a. Copies of the following listed CFR titles may be obtained from the Government Printing Office:

40 CFR 261.....	Identification and Listing of Hazardous Waste
40 CFR 262.....	Standards Applicable to Generators of Hazardous Waste
40 CFR 263.....	Standards Applicable to Transporters of Hazardous Waste
40 CFR 761.....	PCB Manufacturing, Processing, Distribution in Commerce, and use Prohibitions
49 CFR 172.....	Hazardous Material tables and Hazardous Material Communications Regulations
49 CFR 173.....	Shippers - General Requirements for Shipments and Packaging
49 CRR 173.....	Subpart A General
49 CFR 173.....	Subpart B Preparation of Hazardous Material for Transportation
49 CFR 173.....	Subpart J Other Regulated Material; Definitions and Preparation
TSCA.....	Compliance Program Policy Nos. 6-PCB-6 and 6-PCB-7

#### **1.11 PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS**

- A. The Contractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site, which are not to be removed and which do not unreasonably interfere with the work required under this contract. The Contractor shall only remove trees when specifically authorized to do so, and shall avoid damaging vegetation that will remain in place. If any limbs or branches of trees are broken during contract performance, or by the careless operation of equipment, or by workmen, the Contractor shall trim those limbs or branches with a clean cut and paint the cut with a tree-pruning compound as directed by the Contracting Officer.
- B. The Contractor shall protect from damage all existing improvements and utilities at or near the work site and on adjacent property of a third party, the locations of which are made known to or should be known by the Contractor. The Contractor shall repair any damage to those facilities, including those that are the property of a third party, resulting from failure

to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the Contracting Officer may have the necessary work performed and charge the cost to the Contractor.

**(FAR 52.236-9)**

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

**1.12 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 COR.

Existing work to be altered or extended and that is found to be defective in any way, shall be reported to the COR 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).

### **1.13 PHYSICAL DATA**

- A. Data and information furnished or referred to below is for the Contractor's information. The Government shall not be responsible for any interpretation of or conclusion drawn from the data or information by the Contractor.
- B. The indications of physical conditions on the drawings and in the specifications are the result of site investigations by A/E.

#### **(FAR 52.236-4)**

- C. 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.

#### **1.14 PROFESSIONAL SURVEYING SERVICES**

- A. 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.

#### **1.15 LAYOUT OF WORK**

- A. The Contractor shall lay out the work from Government established base lines and bench marks, indicated on the drawings, and shall be responsible for all measurements in connection with the layout. The Contractor shall furnish, at Contractor's own expense, all stakes, templates, platforms, equipment, tools, materials, and labor required to lay out any part of the work. The Contractor shall be responsible for executing the work to the lines and grades that may be established or indicated by the Contracting Officer. The Contractor shall also be responsible for maintaining and preserving all stakes and other marks established by the Contracting Officer until authorized to remove them. If such marks are destroyed by the Contractor or through Contractor's negligence before their removal is authorized, the Contracting Officer may replace them and deduct the expense of the replacement from any amounts due or to become due to the Contractor.
- B. 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".

#### **1.16 AS-BUILT DRAWINGS**

- A. The contractor shall maintain no fewer than two (2) 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. Two (2) completed sets of as-built drawings, as well as electronic copies in PDF format, shall be provided by the contractor to the COR.
- 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 COR's review, as often as requested.
- C. Contractor shall deliver two approved completed sets of as-built drawings to the COR within 15 calendar days after each completed phase and after the acceptance of the project by the COR.
- D. Paragraphs A, B, & C shall also apply to all shop drawings.



### **1.17 USE OF ROADWAYS**

- A. For hauling, use only established public roads and roads on Medical Center property and, when authorized by the COR, 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.

### **1.18 RESIDENT ENGINEER'S FIELD OFFICE (IS NOT REQUIRED)**

### **1.19 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 COR. If the equipment is not installed and maintained in accordance with the following provisions, the COR 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.

#### **1.20 TEMPORARY USE OF EXISTING ELEVATORS (NOT REQUIRED)**

#### **1.21 TEMPORARY USE OF NEW ELEVATORS (NOT REQUIRED)**

#### **1.22 TEMPORARY TOILETS**

- A. Provide where directed, (for use of all Contractor's workmen) ample temporary sanitary toilet accommodations with suitable sewer and water Provisions; or, when approved by COR, 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. Contractor may have for use of Contractor's workmen, such toilet accommodations as may be assigned to Contractor by Medical Center. Contractor shall keep such places clean and be responsible for any damage done thereto by Contractor's workmen. Failure to maintain satisfactory condition in toilets will deprive Contractor of the privilege to use such toilets.

#### **1.23 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.
- E. Electricity (for Construction and Testing): Furnish all temporary electric services.
  - 1. Obtain electricity by connecting to the Medical Center electrical distribution system..
- 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 COR discretion) of use of water from Medical Center's system.
- G. Steam: Not required.
- H. Fuel: Not required

## **1.24 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.

## **1.25 INSTRUCTIONS**

- A. Contractor shall furnish Maintenance and Operating manuals (hard copies and electronic) and verbal instructions when required by the various sections of the specifications and as hereinafter specified.
- B. Manuals: Maintenance and operating manuals and one compact disc (four hard copies and one electronic copy each) for each separate piece of equipment shall be delivered to the COR 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 COR and shall be considered concluded only when the COR 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 COR, does not demonstrate sufficient qualifications in accordance with requirements for instructors above.

## **1.26 GOVERNMENT-FURNISHED PROPERTY**

- A. The Government shall deliver to the Contractor, the Government-furnished property shown on the drawings.
- B. Equipment furnished by Government to be installed by Contractor will be furnished to Contractor at the Medical Center.
- C. Contractor shall be prepared to receive this equipment from Government and store or place such equipment not less than 90 days before Completion Date of project.
- D. 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.
- E. 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.
- F. 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.
- G. Completely assemble and install the Government furnished equipment in place ready for proper operation in accordance with specifications and drawings.
- H. Furnish supervision of installation of equipment at construction site by qualified factory trained technicians regularly employed by the equipment manufacturer.

#### **1.27 RELOCATED EQUIPMENT**

- A. Contractor shall disconnect, dismantle as necessary, remove and reinstall in new location, all existing equipment indicated by symbol "R" 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 COR.
- 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.

## **1.28 PHOTOGRAPHIC DOCUMENTATION**

- A. During the construction period through completion, contractor shall provide digital photographic exhibit of existing site and work performed. Photos shall be transmitted to the COR by DVD in jpeg or tiff image formats, as well as PDF. Each photo's electronic file size shall be a minimum of 300KB with a maximum file size of 1.5MB.
- B. Photos shall document all phases of construction and shall be updated weekly until the project has been completed. Photos shall be submitted each month along with the project invoice for monthly payment.
- 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 COR. 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-Built's 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.

**END OF SECTION 01 00 00**

