

6.0 PROJECT SPECIFIC REQUIREMENTS JOINT BASE LEWIS-MCCORD (JBLM), WA <VER>(REV 2.1 – 30 APR 2011)</VER>

6.1. GENERAL

The requirements of this paragraph augment the requirements indicated in Paragraphs 3 through 5.

6.2. APPROVED DEVIATIONS

The following are approved deviations from the requirements stated in Paragraphs 3 through 5 that only apply to this project.

None

6.3. SITE PLANNING AND DESIGN

6.3.1. Site Planning Considerations

6.3.1.1. Site Planning, Design, and Construction Objectives: <SITE_GOV>The Government's site development contractor (SDC) is responsible for the site planning, design, and construction of all functional and technical requirements listed in this project, including erosion control measures, underground conduit, piping, sanitary sewer facilities, storm drainage facilities, water mains, fire apparatus, utility service lines and connections (electrical, communications, cable, water, sewer, stormwater, gas, mechanical), etc. outside the building limits of construction. The building's limits of construction are shown on the drawings. <SITE_GOV><SITE_DB> The Contractor is responsible for the site planning, design, and construction of all functional and technical requirements listed in this project, including erosion control measures, underground conduit, piping, sanitary sewer facilities, storm drainage facilities, water mains, fire apparatus, utility service lines and connections (electrical, communications, cable, water, sewer, stormwater, propane/air, gas, mechanical), etc. The site plan shall comply with the Joint Base Lewis McChord (JBLM) Real Property Master Plan (Master Plan), available upon request from the Contracting Officer. <SITE_DB>

6.3.1.2. Sidewalks: Provide 6-foot-wide minimum paved walkways to the entrance(s) of the building, around the building perimeter or all areas within the building complex, including courtyards.

6.3.2. Site Structures and Amenities

6.3.2.1. Site Furniture and Equipment. Provide the following:

- (a) Exterior seating, as shown on the drawings. Fabricate seating and tables of corrosion and rot-resistant materials.
- (b) Bicycle racks at all regularly occupied facilities with rack capacities consistent with LEED credit requirements. Provide individual loop style (inverted "U") bicycle racks anchored in concrete and fabricated from 2-inch diameter powder-coated steel pipe. Place all bike racks outside the unobstructed space per UFC 4-010-1.
- (c) Fencing as indicated on drawings for security or safety barriers. Fencing shall be galvanized, vinyl coated, or aluminum-coated, chain-link with privacy slats.
- (d) Physical barriers, including concrete filled steel pipe bollards and vehicle gates, as required by antiterrorism or traffic control design. Bollards and gates shall not require more than one person to remove or open. Bollards and gates shall have padlocks keyed to accept JBLM master key #750.
- (e) Waste receptacle(s) and recycling receptacle(s), as shown on the drawings. Fabricate waste receptacles of durable, corrosion-resistant materials.
- (f) Flagpoles are required at Brigade and Battalion Headquarters facilities. Provide free-standing poles, 25-feet in height above surrounding ground plane. Flagpoles shall resist a 3-second duration wind gust of 85 mph. Provide brushed natural aluminum, tapered from top to bottom, with 6-inch-diameter aluminum top ball.
- (g) One concrete guidon pedestal for Company flag adjacent to each Company Readiness module.

6.3.3. Site Functional Requirements:

6.3.3.1. Stormwater Management (SWM) Systems.

(a) **<SITE_GOV>** The Government's site development contractor is **<SITE_GOV><SITE_DB>**The Contractor is **<SITE_DB>** responsible for design, development, and installation of all stormwater facilities at their respective sites. **<SITE_DB>**

(b) Fort Lewis (JBLM) has adopted the Washington State Department of Ecology (Ecology) Western Washington Stormwater Management Manual (Ecology stormwater manual). By adoption, JBLM Department of Public Works (PW) is not transferring regulatory compliance of the design process to Washington State. Send all requests for exceptions from or clarifications of the requirements within the Ecology stormwater manual to JBLM PW for consideration. Use the most current version of the stormwater manual as a guide for stormwater designs.

(c) Management of stormwater must be integrated into other project aspects to meet the sustainability goals of the installation as a whole. Design stormwater systems to maintain the hydrologic functions of the site. Consider reusing stormwater on site for irrigation and landscaping. This contributes to the installation's water savings and reuse goals.

(d) Design and size stormwater facilities to accommodate stormwater runoff from all site development surfaces and all runoff from buildings in conformance with the latest adopted edition of the Ecology stormwater manual. Design goals should be to reduce or eliminate offsite stormwater flows and restore the pre-development hydrology of the project area. Designs must meet all of the requirements below.

1. The designs must comply with Section 438 of the Energy Independence and Security Act (EISA).
2. Fence all standing water facilities with side slopes exceeding 3h:1v for safety. Complete all standing water facilities with a minimum of 6 inches of topsoil and plantings appropriate for the pond function.
3. Within housing, commercial, and organizational areas, ponds cannot be constructed with side slope exceeding 3h:1v or deeper than 2.5 feet.
4. All ponds, swales, or other like stormwater features must be vegetated and/or have amended soils added to provide appropriate function.
5. All ponds, swales, or other like stormwater features shall blend with project landscaping to the maximum extent practicable.
6. Storm drain lines and branches within the site shall be polyvinyl chloride (PVC) plastic, ductile-iron, CPEP, or HDPE pipe.
7. Infiltration rates (including topsoil and vegetation), amended or on-site soils mixes, and seed mixtures should all be addressed in the design.
8. Whenever possible, shrub beds, street plants, and similar features shall be used through rain garden type features for stormwater runoff management. **<STORMWATER_1>**

(e) Onsite treatment and infiltration: Use the Ecology stormwater manual and the Low-Impact Development Technical Manual for Puget Sound. Request any exceptions for approval by JBLM PW. However, consider the portions of Section 3.3 of Volume III of the Ecology stormwater manual pertaining to the methods for determining infiltration rates as a recommended guideline. Conduct on-site soil tests in conformance with standard engineering practices and to the satisfaction of JBLM PW. Use the soil tests to determine a short-term infiltration rate. Once determined, apply appropriate factors of safety in conformance with standard engineering practices to the short-term infiltration rate to arrive at a long-term design infiltration rate based on site conditions, in conformance with the designer's professional opinion and discretion, and the approval of JBLM PW, prior to full design. Include detailed information in the design regarding amended soil mixtures, soil depths, vegetation requirements and seed mixtures for all stormwater management features.

1. JBLM prefers stormwater infiltration methods that are small, distributed throughout the project site, and as visually unobtrusive as possible. Preferred methods include elements such as car parks, rain gardens, porous pavement, cisterns, or other low-impact development elements.
2. Use pervious pavements to infiltrate stormwater for parking areas in housing, commercial, and organizational areas that are not subject to industrial activities or high traffic. If there is runoff that the pervious

pavement cannot infiltrate, use car parks or rain gardens to infiltrate this runoff. Car parks shall meet the car park standard for landscape and shading.

3. Use sheet flow runoff to infiltration features to the maximum extent practicable. Consider safety when sheet flowing large amounts of runoff. </STORMWATER_1><STORMWATER_2>

(e) «STORMWATER_LEWIS»<STORMWATER_2>

(f) The use of underground injection control for stormwater management must meet the requirements of Chapter 173-218 of the Washington Administrative Code (WAC) Underground Injection Control (UIC) Program. Submit completed registration forms to the JBLM Stormwater Office for registration with Ecology 65 days prior to any construction of UIC facilities. Obtain registration forms and any further information from the JBLM Environmental Division.

(g) Low-impact development techniques shall comply with the Low Impact Development Technical Guidance Manual for Puget Sound. </SITE_DB>

(h) <SITE_GOV>Stormwater lines shall truncate at a logical point near the building but no closer than 5 feet to the building footprint. Connect building footing drains and roof drain lines where necessary. The SDC and Building Contractor shall coordinate the location of the stormwater extensions, including the roof drain connection locations. Building drains shall conform to the Ecology stormwater manual. Splash blocks require JBLM approval. The Building Contractor shall supply the SDC with the storm line sizes and logical extension points. The SDC will coordinate with the Building Contractor for service locations of downspouts, area drains, covered hardstands, and any surface within 5 feet of the building perimeter that requires stormwater discharges. The Building Contractor shall be responsible for design, development, and installation of all stormwater systems from the building and any drainage surface in and around the building to the perimeter, and shall make connection to stormwater lines as installed by the SDC. </SITE_GOV>

«STORMWATER_MANAGEMENT»

6.3.3.2. Erosion and Sediment Control. Provide appropriate erosion and sediment controls on all construction sites that will have ground disturbance. Proper implementation and maintenance of appropriate best management practices (BMPs) is critical to control any adverse water quality impacts from construction activities adequately. Discharges must not violate the state's surface water quality standards (WAC Chapter 173-201A) and groundwater quality standards (WAC Chapter 173-200).

(a) Volume II, Chapter 4 of the Ecology stormwater manual provides standards and specifications for BMPs that are approved for use on JBLM. Consider other BMPs with proper review and approval by JBLM PW.

(b) Preparation of a site-specific SWPPP is required for all construction activities that will have a land disturbance of one or more acres (or are part of a common plan of development that will disturb an acre or greater). Multiple construction sites under one contract must have an SWPPP prepared if the total land disturbance for all sites is greater than one acre.

(c) Construction sites that will have a land disturbance of one or more acres (or are part of a common plan of development that will disturb an acre or greater) or projects that have multiple construction sites under one contract if the total land disturbance for all sites is greater than one acre, must be covered under the EPA's NPDES CGP (Construction General Permit). See Permit Section 6.16 for details.

<SMALL_SITE_SWPP_REQUIRED>

(d) The government has determined that the site may potentially be a "significant contributor of pollutants" to waters of the state, even though the site is less than one acre. A site-specific SWPPP is required. Use the EPA template. <SMALL_SITE_SWPP_REQUIRED>

6.3.3.3. Vehicular Circulation.

(a) Parking Lot(s). The <SITE_GOV>Site Development Contractor</SITE_GOV><SITE_DB>The Contractor</SITE_DB> will be responsible for parking lots for the facilities. <SITE_DB>POV parking requirements are shown in the Drawings. All POV parking lots shall meet car park standards per the Master Plan. All roadways, driveways and parking lots shall have curb and gutter. </SITE_DB>

(b) Fire Department (Emergency) Vehicle Access

1. All buildings greater than 5,000 square feet, or more than two stories in height, must have at least one means of all-weather ground access to allow emergency vehicles unimpeded access to the building. Pave all-

weather ground access with concrete, asphalt concrete or pavers. Start from the road, and terminate no further than 33 feet from building.

2. Provide residential facilities with all-weather ground access to three sides, with a minimum of two sides having access to sleeping rooms.
3. Provide new facilities four stories or more in height and all new warehouses with suitable all-weather ground access surface for aerial apparatus on a minimum of two sides of the perimeter of the structure.
4. For facilities with fire department connections for sprinkler or standpipe systems provide suitable all-weather ground access surface for pumper apparatus within 150 feet of fire department connections.
5. Provide a minimum width of 20 feet for vehicle access.
6. 100 Ft Aerial Ladder Truck Access:

GVW: 75,500LBS

STABILIZERS: Two (2) sets of extendible, out and down, "H" type stabilizers for stability. The stabilizers will have a spread of 18 feet.

FRONT AXLE: The front axle will be a reverse "I" beam type with inclined king pins. It will be a Meritor™ axle, Model FL-943, with a rated capacity of 21,500 pounds. The turning angle will be 39 degrees to the right and 45 degrees to the left.

WHEELBASE: The wheelbase of the vehicle will be 254".

Ladder truck required for structures with an eave height or top of parapet, 33 feet or more in height.

- a. Provide 28 feet of access parallel and adjacent to the longest side of the structure.
- b. Provide required ladder truck access from the public street to the structure and return back to the public street. All turns associated with ladder truck access shall provide for minimum turning radii of 32 feet on the centerline.
- c. Place the required ladder truck access a minimum distance of 5 feet from the exterior wall, including projections. Additional distance may be required due to ladder climbing angle and the hazard of falling debris from upper stories.
7. Padlock and key bollards, chains or painted curbs used to control fire department access to accept JBLM master key Best 750.
8. Do not place obstructions near fire hydrants, fire department inlet connections, or fire protection system control valves in a manner that would prevent such equipment or fire hydrants from being immediately visible and accessible. REF: National Fire Protection Act (NFPA) 1, Section 13.1.3.
9. Maintain a minimum 36 inches (914mm) of clear space to permit access to and operation of fire protection equipment, fire department inlet connections, and fire protection system control valves. Do not deter or hinder fire department from gaining immediate access to fire protection equipment. REF: NFPA 1, Section 13.1.4.

6.4. SITE ENGINEERING

6.4.1. Existing Topographical Conditions

6.4.1.1. See the Drawings for topographic survey, demolition plan, site layout plan, site utility plan, and site grading plan drawings. Information shown is approximate. A three dimensional digital topographic file is included as part of this RFP. Obtain corrected survey data from any subsequent changes from the time the survey information was obtained to the present. Field verify surface and utility elevations. Use NAVD 88 datum for the vertical datum on all design and as-built submittals and verify that all information relied on for design utilizes NAVD 1988 vertical datum unless otherwise approved by JBLM PW. Locate all horizontal project information utilizing no fewer than two existing monuments tied into state plane coordinates. Provide new, permanent monumentation at all street intersections and section line intersections and provide USACE with state plane coordinates using NAD83 datum (horizontal) and elevation using NAVD 1988 on all installed monuments.

Geospatial data files are available from JBLM PW. Bring any discrepancies which are found in the furnished survey to the immediate attention of the Government for clarification..

6.4.1.2. Site Grading: Provide site grading to facilitate drainage and provide functional building, parking, and laydown areas. Site grading includes clearing and grubbing for access drives, parking lots, and any site development. Protect and preserve mature trees shown on the plans. Provide all foundation, subbase, and building floor slabs, including final grading material and compaction.

6.4.2. Existing Geotechnical conditions: See Appendix A for a preliminary geotechnical report.

6.4.3. Fire Flow Tests See Appendix D for results of fire flow tests to use for proposal purposes in estimating the basis of design for fire flow and domestic water supply requirements and for preparing the proposal cost estimate. Historical tests are not meant for design purposes. After award, coordinate with the Contracting Officer and JBLM Public Works to perform flow tests on the water system at the anticipated points of connection in order to provide up-to-date flow information during the design phase. Contractor shall also utilize sufficient factors of safety during design to account for fluctuation in water flow experienced at JBLM. If actual conditions vary sufficiently from those provided in Appendix D, which are the cause of a change in the design, an equitable adjustment (credit or increase, as appropriate) will be provided pursuant to the contract Changes clause.

Comment [JTH1]: The fire flow test information is supposed to be provided to the proposers to prepare their proposal cost estimate. If the PDT is not going to properly conduct up to date fire flow tests (a very simple procedure), then we will clarify this.

6.4.4. Pavement Engineering and Traffic Estimates:

The <SITE_GOV>Site Development Contractor will <SITE_GOV><SITE_DB>Contractor shall <SITE_DB> be responsible for all roadway improvements and parking lots for the facilities, as shown on the drawings. <SITE_DB>Design procedures and materials shall conform to the applicable criteria. Provide on-street parking, continuous sidewalks, with pedestrian bulb-outs at intersections and planting strips along all streets as required by the Master Plan.

Comment [sdn2]: NOTE TO SPECIFIER: Describe the performance requirements for roadways, parking and other pavements, including classification, vehicle types, loadings, design volume, climatic conditions, frost penetration Zones, etc.

<SITE_PAVEMENT_ENGINEERING_AND_TRAFFIC><SITE_DB>

Comment [JTH3]: Spec Writing Rules: This is not a statement of work for the SDC. It is a statement of work for the design-build contractor's contract. When the government provides something to the contractor we are promising that we or our contractor WILL do something - not that we SHALL do something.

6.4.5. Traffic Signage and Pavement Markings: <SITE_DB>Provide marked bike lanes on all roads per locations identified on the Master Plan. Provide pavement marking paints conforming to the most current version of Federal Specification TT-P-1952 unless otherwise authorized in writing by the JBLM Pollution Prevention Program.<SITE_DB>

6.4.6. Base Utility Information

6.4.6.1. General Utilities: Provide tracer wire directly above non-metallic lines and install marking tape. Exercise care when excavating trenches in the vicinity of trees. Where roots are 4-inches in diameter or greater, excavate the trench by hand and tunnel. When large roots are exposed, wrap them with moist heavy burlap for protection and to prevent drying. Hand trim sides of trenches dug by machines adjacent to trees having roots less than 4-inches in diameter, making a clean cut of the roots. Backfill trenches having exposed tree roots within 24 hours unless adequately protected by moist burlap or canvas. Exercise care to avoid compacting and polluting the soil in the root zone of trees to remain. Exercise care to minimize damage to tree trunks and branches by installing a temporary fence around each tree at its drip line.

(a) Provide meters with equipment to connect to DDC/BAS/UMCS capabilities for monitoring utility use and leak detection by JBLM. Hardwire the meter connections to the DDC/BAS/USMC to the DDC system; the wireless type (called out in Paragraph 5) is not acceptable.

(b) Electrical Service Maps: JBLM Public Works, Exterior Electric Shop owns and operates the electrical distribution system. Point of Contact: Mr. Jose L Solis, Electrical System Manager Engineer, 253-966-0143; and Mr. Ron Cottrill, 253-967-5840.

(c) Telecommunications: The National Enterprise Center (NEC), operates the Army communications system at Fort Lewis. Point of Contact: Mr. Gary Schroeder; 253-967-3870 or the MCA Info Tech PM Specialist, Mr. Michael C. Pope, 253.966.2828.

(d) Security: Coordinate physical security requirements through JBLM Physical Security. Point of Contact: Mr. Criss Christian, 253-966-7153.

(e) Cable TV Service: Comcast provides Cable TV service . Point of Contact: Mr. Terry Britton, Engineering Construction Coordinator, Comcast Cable, 410 Valley Avenue NW, Building C, Puyallup, WA 98371, 253-864-4293. Coordinate with Comcast during the design process.

(f) Qwest provides local telephone service at JBLM. Point of Contact: Ms. Leslie Ferguson, Senior Design Engineer, Qwest Communications, 2410 South 84th Street, Suite 18, Lakewood, WA 98499, 253-597-4033. Coordinate with Qwest during the design process.

(g) Exterior Utility Installation: Install utilities prior to paving, where new utilities cross roads, driveways, and parking lots to be paved under this contract,

(h) Install utilities beneath existing streets, using jacking or boring, as identified on the drawings unless otherwise approved. If open cutting of streets is shown on the drawings or approved, provide a minimum patch width of 15 feet of new pavement..

6.4.6.2. Sanitary Sewer Service

(a) General: To demonstrate the integrity of the installed material and construction procedures, the <SITE_GOV> Site Development Contractor will <SITE_GOV><SITE_DB>the Contractor shall <SITE_DB> conduct final air testing after installation and prior to paving, . Allowable pressure drop shall be as given in ASTM C 924. Make calculations in accordance with the appendix to ASTM C 924. For PVC pipe, the testing shall be in accordance with UBPPA UNI-B-6. Allowable pressure drop shall be as given in UBPPA UNI-B-6. Make calculations in accordance with the appendix to UBPPA UNI-B-6. For ductile iron pipe, the testing shall be in accordance with the applicable requirements of ASTM C 924. The Contractor may be required to retest the system if warranted by the contracting agency. Once the sub-grading is accomplished, all other underground utilities have been installed, the lines have been flushed, cleaned, and air-tested, and the site is ready to be paved, TV system to test for deflection and bellying. The Contractor shall remediate any problem areas to the satisfaction of JBLM PW prior to site paving.

(b) <SITE_DB>Prior to final inspection, test, flush, clean, and remove all debris from all pipelines. Flush a pipeline "cleaning ball" of the proper diameter for each size of pipe through all pipelines prior to final inspection.</SITE_DB><SITE_GOV>Not Used</SITE_GOV>

(c) Before sewer lines are accepted, <SITE_GOV>the SDC will conduct</SITE_GOV><SITE_DB>conduct</SITE_DB> a closed-circuit television inspection, using color video equipment with pan-and-tilt capabilities of the sewer pipe and appurtenances in the presence of the Contracting Officer, and provide two copies of the video media to the Contracting Officer.

(d) <SITE_GOV>The SDC will provide a sanitary sewer lateral to the construction limits noted in the demarcation matrix. The service lateral will truncate at a logical point near the building footprint. The SDC and Contractor shall coordinate the location and depth of the sewer extension to provide the best and most effective sewer service to the building. The Contractor shall supply the SDC with the sewer line sizes and logical extension points to service the building. The Contractor shall connect the building to the line placed by the SDC to the building.</SITE_GOV><SITE_DB>Not Used</SITE_DB>

(e) <SITE_DB>Install</SITE_DB><SITE_GOV>The SDC will install</SITE_GOV> a boot/equipment wash system, adjacent to a building entrance/exit door. <SITE_DB>Discharge the boot wash system to the sanitary sewer system. Site it to minimize rain intrusion, and install an adequate oil/water/grit separator system to prevent direct discharge of non-sanitary waste into the collection system. </SITE_DB>

6.4.6.3. Water Service

(a) **General:** Provide material for and install water system for domestic use and to provide required hydrant flow to meet NFPA 24, NFPA13 and UFC 3-230-02 Operation and Maintenance Water Supply Systems. NFPA 13 requires clearances around the main riser to prevent damage of piping subjected to earthquakes. Provide fire lines of cement-lined, Class 52 ductile-iron pipe water main pipe. For water services other than fire lines, provide PVC C900 or Class 52 DIP. Provide water service appurtenances as required. Do not install utilities under the footprint of a building, other than the building they are designed to serve. Supply a fire-line off the domestic water main with PIV with tamper switch per NFPA 24 standards to supply the building's interior fire suppression system. Terminate fire line(s) at 5 feet from footprint of building. Install the fire riser from 5 feet outside the footprint of the building, including the 90-degree bend and flange. Tap each water service directly from the main serving the building. Fire lines and potable lines shall not share a dead-end main extension.

(b) Pressure test all tapping sleeves and tapping valves prior to making connection to existing mains.

(c) If backflow prevention devices are required for installation on the distribution system, add the following references to the specifications.

- American Water Works Association (AWWA)
- Cross Connection Control Manual (latest edition)
- Cross Connection Control Committee, Pacific Northwest Selection
- WAC 246-290-490, Cross Connection Control

(1) Backflow prevention assemblies shall be approved by the Washington State Department of Health (DOH) for installation in Washington. The most current list of approved assemblies is available from the DOH test reports, showing the name of the manufacturer of the BPA, the manufacturer's serial number, test date, test results, tester's name, and tester's certificate number.

(2) Reduced pressure principle assemblies, double-check valve assemblies, atmospheric (nonpressure) type vacuum breakers, and pressure-type vacuum breakers shall be tested, approved, and listed in accordance with FCCHR-01 and in accordance with DOH standards. Backflow preventers with intermediate atmospheric vent shall conform to ASSE 1012. Reduced pressure principle backflow preventers shall conform to ASSE 1013. Hose connection vacuum breakers shall conform to ASSE 1011. Pipe applied atmospheric-type vacuum breakers shall conform to ASSE 1001. Air gaps in plumbing systems shall conform to ASME A112.1.2. Backflow devices must be approved by DOH for installation in Washington .

(3) All testable backflow prevention assemblies (reduced pressure backflow assembly, double-check valve assembly, and pressure vacuum breaker) shall be tested and a test report form shall be completed, and submitted to the Contracting Officer (to be forwarded to the installation water systems manager). Test procedures and criteria shall be in conformance with recommendations published in AWWA Cross Connection Control Manual, Section 6, Requirements for Equipment Approval and Testing. Fittings in areas shown on the plans for restrained joints shall be mechanical joint fittings with a mechanical joint restraint device. The mechanical joint restraint device shall have a working pressure of at least 250 psi with a minimum safety factor of 2:1.

(d) Install hydrants with 6-inch shutoff gate valves for easy maintenance and service. Fit fire hydrants with 5-inch Storz adapters. Provide hydrants in accordance with UFC 3-600-01 and NFPA 24. At least one hydrant shall be located within 150 feet of the fire department connection. Locate hydrants at least 40 feet from the building to be protected. Where hydrants cannot be located at least 40 feet from the building, locations closer than 40 feet from the building or wall hydrants shall be permitted to be used where approved by the authority having jurisdiction. Locate hydrants between three to seven feet from a paved traffic rated surface. Do not locate hydrants closer than 10 feet to any obstruction or near an entranceway. Install the 5 inch suction connection perpendicular to the nearest roadway. As required, provide protection for fire department connections (FDCs) from vehicular damage.

(e) The flow tests were conducted in the vicinity of the project sites and can be found in Appendix D. Any additional flow testing shall be the responsibility of the Contractor for the Contractor's portion of the development activity. Conduct any additional water flow testing in accordance with NFPA 291, Recommended Practice for Fire-Flow Testing and Marking of Hydrants. Collar the hydrant barrel with one reflective metal backed collars and number to provide pumper operators with an indication of available flow. Classify hydrants in accordance with their rated capacities (at 20 psi residual pressure or other designated value:

Class AA – Light blue - rated capacity of 1,500 gpm or greater (5,680 L/min)
Class A – Green - rated capacity of 1,000 to 1,499 gpm (3,785 to 5,675 L/min)
Class B – Orange – rated capacity of 500 to 999 gpm (1,900 to 3,780 L/min)
Class C – Red – rated capacity of less than 500 gpm (1,900 L/min)

(f) Paint hydrant barrels red for non-potable water/Color Code 11120 and Chrome Yellow for potable water/Color Code 135916.

(g) If not already in place, secure a blue double-sided reflectorized raised pavement marker in the road and organizational parking areas near center line for each hydrant. In addition to collaring, install a metal tag on each hydrant that indicates the hydrant number, with the Global Positioning System (GPS) location. Establish a GPS location for each fire hydrant. This tag will provide a secondary indicator to operator should the marking be removed. Submit hydrant test and installation report to the Contracting Officer (to be forwarded to the installation water systems manager).

(h) All water meters shall be read in US gallons, have frost protection design, have bronze casing and have permanently sealed registers. Register type shall be an encoder-type remote register designed in accordance

with AWWA C707. Supply and install all domestic water meters needed for each project site. Provide water meter with equipment to connect to DDC/BAS/UMCS system for monitoring by JBLM

- (i) Meter boxes shall be concrete with cast-iron lid and cast-iron meter reader lid. Use plastic boxes and lids only in unpaved areas or grass areas not subject to vehicular traffic.
- (j) Demolition of existing water utility systems requires a cut and cap plan to be submitted for approval to JBLM PW Business Operations Integration Division (BOID). This is a prerequisite for any utility outage work requests needed in support of the demolition work
- (k) PW shop support with turn-offs: Notify and schedule with all affected water customers for utility outages. Water system valve work on the operational utility system is restricted to Government personnel only. Contact JBLM PW Utility Division no later than 15 business days prior to the date of outage to schedule support for turnoffs.
- (l) All new water system connections require a water connection permit completed prior to receiving an authorized connection date. Permits are available from the JBLM PW Environmental Division. As part of the permitting process, the Contractor shall be prepared to present flushing, chlorination, and bacteriological testing procedures with JBLM Water Plant personnel (253-967-2527) and the Water Systems Manager with PW BOID. Approved designs are required prior to receiving a connection permit. Modifications prior to connection require additional permit coordination.
- (m) Hydrants for construction work and backflow preventers: Coordinate with PW BOID if hydrant water is needed during construction (including filling trucks). The Contractor will be assigned a hydrant, but the Contractor shall supply an approved backflow device and have it tested installed. If it is removed and reinstalled, it must be retested.

6.4.6.4. GAS SERVICE

- (a) General: Puget Sound Energy (PSE), 888-321-7779, owns and operates the gas distribution system on JBLM. Therefore, local utility standards as determined by PSE for installation of natural gas facilities shall take precedence over any references made in this document to natural gas facilities installation methods, means, and materials. Provide all meters with a pulse meter sensor compatible with the JBLM DDC/BAS/UMCS system for monitoring. Coordinate and contract with PSE for the installation of the natural gas piping up to and including the meter to all facilities at their respective sites. Include the PSE's installation cost, including meter, in the contract price. Provide the meter with equipment to connect to DDC/BAS/UMCS system for monitoring. See Appendix C for exhibit representing the location of the existing natural gas main.
- (b) Gas Line Locations: Anticipated gas line locations are identified in Appendix C of this RFP. Provide protection for gas meters from vehicular damage.
- (c) Propane Fuel Distribution System: JBLM owns and operates the propane-air fuel distribution system. Install the propane facilities with a minimum separation of 36 inches from PSE's natural gas pipe. Connect piping downstream of the building's natural gas meter to the back of sidewalk along the street and cap piping so that connections can be made in the future to the propane-air distribution system. Pipe installers shall be qualified under 49 CFR 192 and submit copies of certification for government approval. Coordinate with utility provider to identify the required color of pipe to distinguish the two facilities.
- (d) Utility Pads: Install all concrete utility pads located outside the building exterior for any mechanical or utility device needed for the building operation and function. Include all necessary piping, wiring, or utility extensions for the device to function as designed. Locate mechanical equipment adjacent to existing or proposed sidewalks (other than sidewalks along public roads). Screen mechanical units on a minimum of three sides. Screening shall consist of landscaping that, when mature, will hide equipment from view or with masonry or other prefinished decorative screen walls consistent with the appearance of the building. Wood fencing, metal siding, or chain link fencing with privacy slats are not acceptable. All utility pads with equipment shall meet antiterrorism/force protection standards.

6.4.7. Cut and Fill

Cut and fill should equal out where possible.

6.4.8. Borrow Material

6.4.8.1. Contractor is authorized to remove and use previously excavated soils stockpiled in the JBLM borrow source pits for JBLM projects only, per the requirements below. Material excavation and removal is not authorized without written approval from the contracting officer. Obtain mined material from licensed and permitted sources off government property. If seeking to utilize borrow pits on JBLM:

- (a) Contact the JBLM Solid Waste and Recycling Program Manager for borrow pit use and activity authorization (253-966-6452).
- (b) Submit a completed JBLM Borrow Source Entry Notification form for the acceptance or removal of soil from borrow source pit. Submit to the JBLM Solid Waste and Recycling Program Manager (253-966-6452) for review and approval. Obtain approval prior to the deposit or removal of any soil from a borrow source pit on JBLM.
- (c) Perform proctor tests on borrow material in accordance with ASTM D 1557.
- (d) Secure training area/range accessibility through the JBLM Directorate of Plans, Training, Mobilization, and Security (DPTMS), Range Control (253-966-5060).
- (e) Secure an installation digging permit (see Appendix S of JBLM Regulation 200-1).
- (f) Return location to same or better condition after operations (smooth contours, remove trash, grade steep slopes).
- (g) Before use of borrow pits on JBLM YTC, activation must be coordinated through PW (Building 810, 509-577-3400) and PW Environmental Division (ED) (Building 810, 509-577-3545), and occur prior to use of the site.

6.4.8.2. Contractor may alternately obtain mined material from licensed and permitted sources off government property.

6.4.8.3. See 6.17.2 for disposal of material.

6.4.9. Haul Routes and Staging Areas

Adhere to the haul route and laydown areas as directed by the Contracting Officer. Laydown areas are shown on drawings in Appendix C. Restore the laydown areas to their original condition after construction is complete.

6.4.10. Clearing and Grubbing:

- (a) Clear and grub all trees and vegetation as shown on plans for construction, but save as many healthy trees as possible. Consider alternatives of the site orientation to preserve existing trees. Unless otherwise noted, hire a qualified tree specialist (International Society of Arboriculture (ISA) certified arborist, urban forester, or horticulturist) to determine the health and safety of trees. Remove any hazardous trees as determined by the tree specialist. Protect trees within the project site limits by a fence around a tree directly under its outermost branch tips. Crown-prune existing trees to be preserved to remove all dead, broken, or crossing branches within the crown of the tree. Accomplish pruning by trained and experienced personnel in accordance with ANSI A300. Remove all flagging, paint, hardware, or other man-made products from trees to remain prior to completion of landscaping. Replace any existing vegetation designated to remain that is damaged during the work under this contract in kind with a minimum 5 feet high, in accordance with Section 01 57 20.00 10, Environmental Protection.
- (b) All timber removed from the project shall remain the property of the Government, unless otherwise indicated or specified. Pile merchantable trees in a neat, limb-free deck for subsequent disposal by the Government. Pile coniferous tree stems separately from deciduous tree stems. A merchantable tree is defined as a tree with a small end diameter of at least 4 inches and 16 feet in length. Cut trees from the stump and limb (flush to the trunk) out to a 4-inch diameter. Top trees at 4-inch diameter and from this point to the top of the tree shall be considered non-merchantable (slash). Whenever possible, do not cut trees into log lengths. If trees are too large to be handled at full length, cut 41-foot logs from the butt end until a manageable length is achieved. Pile tree length logs separately from all shorter material (cut and broken logs). Locate piles as directed by JBLM and Forestry office. Locate piles so as not to interfere with construction work and so they will be accessible at a later date for disposal action. Piles shall be stable and not exceed 8 feet in height.
- (c) To maintain the highest potential cost recovery to the Government, fell and buck trees into preferred lengths prior to removing them from the site for storage. Preferred lengths are as follows: 41 feet-10 inches, 38 feet 10 inches; 36 feet 10 inches; or 32 feet 10 inches. Acceptable lengths include 2-foot multiples less than 32

feet-10 inches down to 16 feet-10 inches. Merchandise all logs down to a 4-inch top. Merchandise log lengths to exclude volume defects.

(d) Remove material and soils to be stripped or grubbed to a depth recommended by the Contractor's geotechnical engineer. Remove tree stumps by grinding to a minimum depth of 18 inches below designed subgrade surface or original ground surface, whichever is lower. If the stump is within the dripline of a tree to be preserved, grind the tree stump to designed subgrade level only. Fill depressions made by grubbing with satisfactory soil unless further excavation or earthwork is necessary. Restore damaged areas not scheduled for clearing/grubbing to their original condition, as acceptable to Contracting Officer. Leave the work site in a clean and sightly condition, free from litter and debris.

6.4.11. Landscaping:

The <SITE_GOV>SDC <SITE_GOV><SITE_DB>Contractor</SITE_DB> is responsible for the landscaping in accordance with UFGS 32 93 00 Exterior Plants «LANDSCAPE_LIMITS» <UEPH>For Barracks only the Building Contractor shall provide landscaping within the building pad construction limit and the SDC will provide the landscaping outside the building pad construction limit.</UEPH>

6.4.11.1. Tree Preservation Plan: Protect and preserve trees noted on the drawings. Provide a Tree Preservation and Protection Plan to the Contracting Officer for approval before any clearing and grading can take place. The Plan shall conform to JBLM's Urban Forest Management requirements included in Appendix AA.

6.4.11.2. Preserve Oregon White Oak trees (*Quercus garryana*) that have a diameter of 6 inches or greater. Replace oak trees that cannot be preserved at the ratio of six new Oregon White Oaks for every one removed. In accordance with the attachment entitled "Attachment for Joint Base Lewis-McChord Oregon White Oak Planting Plan" included in Appendix AB. Contact the Contracting Officer for guidance on locations for planting new oak trees.

6.4.11.3. Existing Plant Materials: Make every effort to preserve and protect existing plant materials, particularly mature trees, as shown on the drawings. Protect the root zone and foliage of materials being retained with temporary fencing. Install temporary fencing as indicated on plans or outside the drip line of trees or plant materials to retain. Where trees and other vegetation must be cleared from a site, mark trees and confirm planned clearing with the Contracting Officer prior to cutting.

6.4.11.4. New Plant Materials: Use only drought tolerant and insect and disease resistant species native to and/or adapted to western Washington. Review Appendix I for lists of acceptable and prohibited plant materials. Provide trees, shrubs, groundcovers and grasses consistent with existing plantings. Minimize the use of turf areas except at required parade and marching areas. Provide soil amendments and fertilizers to ensure successful plant establishment. New plant materials shall meet the following criteria.

- (a) Able to withstand weather extremes likely to occur in any 10-year period without supplemental irrigation or seasonal protection.
- (b) Acclimated to western Washington for a period of one growing season.
- (c) Low-maintenance varieties without significant pruning and thinning requirements.
- (d) Plant trees and shrubs in locations that will avoid contact with buildings, lighting and utilities when mature.
- (e) Shrub beds, street plants, and similar features shall be suited for stormwater runoff management whenever possible. Use the most current version of the *Low Impact Development Technical Guidance Manual for Puget Sound or similar* low impact development (LID) manual for design and specifications.
- (f) Tree planting: Excavate planting holes, with vertical sides and with bottom of excavation slightly raised at center to provide proper drainage. Make excavations at least 2 times wider than rootball spread. Set top of root ball slightly higher than surrounding finish grade. Planting backfill soil mix shall be as follows: 1/4 compost material, 1/4 topsoil and 1/2 soil excavated from planting pit. Stake/guy trees and form watering basin in topsoil around tree. Provide 6 foot diameter mulch ring and base of tree.
- (g) Plant sizes and conditions in accordance with the latest edition of ANSI Z60.1 American Standards for Nursery Stock. Minimum plant sizes are as follows:

1. Deciduous trees: 2-inch caliper

2. Coniferous trees: 6 to 8 feet tall
3. Large shrubs: 3-5 gallon containers
4. Small shrubs: 1-3 gallon containers
5. Perennials and ornamental grasses: 1 gallon container
6. Groundcovers: 1 gallon container
7. Wetland/herbaceous plants: 10 inch tube plug

6.4.11.5. Warranty. Guarantee furnished plant material to be in a vigorous growing condition for a period of 24 months regardless of the contract time period. Replace a plant one time under this guarantee. Transplanting existing plants requires no guarantee.

6.4.11.6. Landscape Design: Provide landscaping schemes that are consistent with the function of the facility, contextually compatible with existing landscape design in the vicinity, and in accord with the sustainable design goals of the project. Provide continuity with existing landscapes, including continuation of adjacent lawns, shrub beds, street tree plantings, and similar features. Provide landscaping over all site areas not covered with buildings, pavement, or other non-vegetative surfacing. Landscape design should provide a professional and natural appearance to all sites while minimizing water consumption and the amount of recurring labor necessary for maintenance. Design shall incorporate the following.

- (a) Conformance with antiterrorism design standards.
- (b) Screening of parking, service areas, and utility equipment from adjacent streets.
- (c) Landforms and practices consistent with minimization of erosion.
- (d) Edging strips to separate lawn areas from shrub beds and 2-foot gravel beds at foundations of buildings.
- (e) Mulch at all tree plantings, shrub and ground cover beds.
- (f) Street and parking lot trees as required by the Master Plan
- (g) Consider Sight Vision Clearance and Sight Distance near intersections. Landscaping shall not obstruct vision or hinder the safety of motorists at intersections and driveways.
- (h) Consider Utilities. Consider overhead power lines or underground utilities.
- (i) Consider drainage. Landscape features shall not obstruct drainage or cause undesirable drainage issues.

6.4.11.7. Irrigation Systems: Use potable water to provide temporary irrigation necessary to maintain plant materials until established. Disconnect temporary irrigation systems used for plant establishment from potable water sources within 18 months of installation. Where captured rainwater, recycled wastewater, recycled greywater, or water treated and conveyed by public agency specifically for non-potable uses is available, permanent irrigation systems are acceptable. No permanent potable water irrigation systems are permitted. Where non-potable systems are used, irrigation system components shall be color-coded purple for reclaimed water.

- (a) Irrigation control shall be automatic, easily programmable for weekly adjustment, and capable of providing separate frequency, time and duration settings for each zone. Locate all controllers in facility electrical rooms in a common wall area. Do not locate irrigation equipment within turf areas to receive foot traffic. Prevent contamination of potable water by irrigation water.
- (b) Design irrigation systems to minimize the risk of damage from freezing. Provide connections at the head end of systems to accommodate seasonal evacuation of water using air pressure. Provide manual drain valves to gravel basins as required for drainage.
- (c) Underground irrigation piping shall be PVC Schedule 40 plastic pipe or polyethylene plastic pipe for drip systems. Sleeve all pipes when crossing hard surfaces or where there is vehicular traffic. Sleeve material shall be PVC Schedule 40 for walk or drive crossings for light to medium weight vehicles and Schedule 80 for heavy truck or tank crossings. Use overhead spray (gear, rotor or rotator) heads at lawn areas and drip emitters, integral dripper lines or overhead spray heads at tree, shrub, and groundcover beds. Drip irrigation may also be considered in conformance with paragraph 6.4.11.7.

Comment [JTH4]: We do not reference the Installation Design Standards (IDG).

Comment [JTH5]: We do not reference the Installation Design Standards (IDG). The DoD ATFP standards are listed in Paragraphs 4 and 5.

(d) Irrigation Capacity: Sufficient to establish landscape plantings with maximum contribution by precipitation equal to the Precipitation Allowance.

1. Precipitation Allowance: 25 percent of normal rainfall, maximum, in any month.
2. Application Rate: On average, apply 1 inch of water per week during establishment period..
3. Irrigation Efficiency: 62.5 percent minimum for overhead irrigation and 92.5 percent minimum for drip or other low volume systems, of applied water actually reaching plants, under normal climatic conditions.
4. Locations of Irrigation Equipment: To provide complete coverage of landscaped area requiring irrigation, without excessive overspray or runoff onto pavements, buildings, or un-irrigated planted areas.
5. Variation in Application Rate at Individual Locations: Head to head coverage or point source distribution varying not more than 25 percent. Use pressure compensating devices to ensure uniform output
6. (Sloped Areas: Prevent drainage out of lower outlets. Adjust programming to avoid runoff.

(e) Irrigation plans and specifications shall identify the materials to be used and the construction methods.

(f) Irrigation plans and specifications shall consider the soil type, slope, and other site characteristics to minimize water waste.

(g) Design the system to minimize free flow conditions in the event of main line damage or other mechanical failures.

(h) The irrigation plans and specifications shall require the system installer to conduct final system testing and adjustments to achieve design specifications prior to final acceptance of the system.

(i) Provide post construction documentation (as-built drawings) and recommended maintenance activities and schedules. Provide the operation schedule, designed precipitation rates, water shut off methods, operational guide for irrigation equipment installed, and any adjustment keys or tools.

6.4.11.8. Water Conservation: All landscape design shall incorporate water conservation consistent with JBLM regulation 11-5 for reduction of water consumption. Provide design consistent with the following:

- (a) Use potable water to provide temporary irrigation necessary to maintain plant materials until established .
- (b) Coordinate irrigation design with plant selection requirements..
- (c) Minimize water usage through appropriate plant selection, soil amendment, efficient irrigation, and mulching.
- (d) Provide irrigation for street trees on separate drip irrigation valved sections from lawn areas.
- (e) Irrigate plants in hydrozones grouped by different water needs for ease of water application..
- (f) Calculate a landscape design's total estimated water use by determining the estimated water use for each hydrozone and adding the estimated water use for all hydrozones together. The sum of all hydrozones is the landscape's total estimated water use. Indicate water use on irrigation plans.
- (g) The evapotranspiration rate for the Puget Sound lowlands region is 14.49 inches per irrigation season.
- (h) Average hydrozone based on relative areas of each, using plant factors as follows::
 - (1) Native Plants: Defined as plants that grow in the wild in natural local climate, or other plants and turf of equivalent climatic endurance requiring no supplementary irrigation; plant factor of 0 (zero).
 - (2) Low Water-Using Plants: Plants proven to be able to survive significant periods without water in the local climate without degradation of appearance; 0.0 to 0.3.
 - (3) Moderate Water-Using Plants: Plants proven to be able to survive periods without water in the local climate but with significant degradation of appearance; 0.4 to 0.6.
 - (4) High water use plants, including flowering plants when in flower: 0.7 to 1.0.
 - (5) Moderate Water-Using Plants: Plants proven to be able to survive periods without water in the local climate but with significant degradation of appearance; 0.8.
 - (6) Flowering Plants, when in Flower: 1.20.

- (7) Area within Drip Line of Trees: 1.0; regardless of other type of planting.
- (8) All irrigated turf grass: 1.0
- (i) Irrigation Efficiency Value: Conventional overhead spray irrigation = 0.625, drip and other low volume irrigation systems = 0.925.

6.4.11.9. Topsoil: Provide topsoil, whether native from the site or imported, for landscaped areas meeting ASTM D 5268; natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles, conforming to USDA classification for Loam or Sandy Loam; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 3/4 inches in any dimension; and free of weeds, roots, and other deleterious materials. Topsoil shall meet the following requirements:

- (a) Topsoil textural particle composition requirements, percentage by mass:
 - 1. Sand (0.05mm to 2.0mm) 30% to 50% of total
 - 2. Silt (0.002mm to 0.05mm) 30% to 50% of total
 - 3. Clay (Less than 0.0023mm) 8% to 20% to total
 - 4. Gravel (Larger than 2.0mm) 5% maximum of total
 - 5. Organic material: 6% to 20% of total
- (b) Saturation extract concentration for boron: less than 1.0.
- (c) PH range of from 6 to 8 (plus 0, minus 0.5).
- (d) . Saturation extract conductivity: less than 4.0 dS/m @ 25 degrees Celsius as determined in a saturation extract.
- (e) Non-soil components: less than 1 percent by volume
- (f) Heavy metal concentrations: below the Washington State Department of Agriculture (WDSA) year load limit.
- (g) Minimal weed seed.
- (h) Perform soil tests of native and imported topsoil to establish chemical, mechanical, and nutrient character. Amend the backfill topsoil mix for landscaped areas for improved plant growth and water holding capacity as indicated by the soil test. Provide sufficient topsoil material for landscape plant establishment, ease of maintenance requirements and longevity of successful landscape design. Provide minimum topsoil depth of 8 inches at all lawn and field grass areas. Provide minimum topsoil depth of 18 inches at all shrub and ground cover beds.

6.4.11.10. Mulch: Place mulch to a minimum depth of 3 inches. Provide standard commercially produced, medium-course, bright bark mulch. Bark shall be of uniform color, free from weeds, seed, sawdust, and splinters and shall not contain resin, tannin, or other compounds detrimental to plant life. All material shall pass a 1-inch mesh screen. Inorganic mulches may be used with Contracting Officer approval.

6.4.11.11. Apply hydromulch using the recommended rate of an organic tackifier. Hydromulch shall be free of weeds and promote germination and seedling establishment. Erosion control blankets shall be used whenever reclaiming slopes greater than 3:1 or along drainage areas where erosion is probable. Do not use bark as hydromulch.

6.4.12. Turf:

6.4.12.1. General: Provide turf areas only where indicated on the plans.

6.4.12.2. New Sod: All sod shall be locally grown and state-certified as classified by applicable state laws and industry standard. Provide soil amendments and fertilizers to ensure successful turf establishment. Establish and maintain a healthy stand of turf.

Comment [JTH6]: This is one performance requirement that you dont want to turn into a prescriptive requirement!! Your proposed language says that if you provide soil amendments and fertilizer, you will ensure successful turf establishment and maintenance. That is prescriptive and it is insufficient.

- (a) Provide sod free of thatch, diseases, nematodes, soil-borne insects, weeds or undesirable plants, stones larger than 1 inch in diameter, woody plant roots, and other material detrimental to a healthy stand of turf.
- (b) Dry moldy, yellow, irregularly shaped, torn or uneven end sod pieces are not acceptable.
- (c) Sod shall be machine cut to a uniform thickness of 1 inch within a tolerance of 0.25 inch, excluding top growth and thatch.
- (d) Measurement for thickness does not include top growth and thatch.
- (e) Use sod anchors for sloped areas as recommended by the sod supplier.

6.4.12.3. Seed Mixes: Provide certificates for each grass seed mixture, stating botanical and common name, percentage by weight, and percentages of purity, germination, and weed seed. Certify that each container of seed delivered is fully labeled in accord with Federal Seed Act and equals or exceeds specification requirements. Deliver seed in standard sealed containers labeled with producer's name and seed analysis, and in accord with US Department of Agriculture Rules and Regulations under Federal Seed Act. Provide soil amendments and fertilizers to ensure successful seed establishment and to maintain a healthy stand..

- (a) Provide seed that does not contain mold or is otherwise damaged.
- (b) Provide seed that does not contain amounts of weed or crop seed greater than 1 percent by weight of the total mixture and free of restricted or prohibited noxious weed seed. Inert matter may not exceed 3 percent by weight of the total mixture.
- (c) Seed mix for general purpose seeding shall be composed of low growing perennial rye grass (approximately 70% by weight) and turf-type fescue grass (approximately 30% by weight) blends or three-way perennial rye grass blends as available from regional seed suppliers.
- (d) Water quality, wetland, and restoration seed mixes as available from regional seed suppliers if required. Ecology and meadow mixes may only be used with Contracting Officer approval prior to installation.
- (e) Seeding for non-irrigated turf areas shall take place in normal weather and temperatures that are appropriate and typical for such work between March 1 and April 15, and September 1 and October 15. Seeding on other dates or during adverse conditions is at the risk of the Contractor.
- (f) Sample the hydroseeding mix at the beginning of each application. Test each to ensure it meets the requirements of this section.

6.5. ARCHITECTURE

6.5.1. General: To the maximum extent possible within the contract cost limitation, the buildings shall conform to the look and feel of the architectural style and shall use the same colors as adjacent facilities as expressed herein ~~<IMCOM_APPROVED>~~ and shall conform with the Master Plan and the Area Development Guide, Where existing buildings do not comply with the Master Plan and Area Design Guide, the buildings shall not conform to adjacent buildings..~~<IMCOM_APPROVED>~~. The Government will evaluate the extent to which the proposal is compatible with the architectural theme expressed in the RFP during the contract or task order competition. The first priority in order of importance is that the design provides comparable building mass, size, height, and configuration compared to the architectural theme expressed herein. The second priority is that design is providing compatible exterior skin appearance based upon façade, architectural character (period or style), exterior detailing, matching nearby and installation material/color pallets, as described herein.

6.5.2. Design

6.5.2.1. Appendix F is provided "For Information Only", to establish the desired site and architectural themes for the area. Appendix F identifies the desired project look and feel based on JBLM's Installation Architectural Theme from existing and proposed adjacent building forms; i.e. building exterior skin, roof lines, delineation of entrances, proportions of fenestration in relation to elevations, shade and shadow effects, materials, textures, exterior color schemes, and organizational layout.

6.5.2.2. The design should address JBLM's identified preferences. Implement these preferences considering the following:

- (a) Achievable within the Construction Contract Cost Limitation (CCL)

- (b) Meets Milestones within Maximum Performance Duration.
- (c) Achieves Full Scope indentified in this Solicitation
- (d) Best Life-Cycle Cost Design
- (e) Meets the Specified Sustainable Design and LEED requirements.
- (f) Complies with Energy Conservation Requirements Specified in this RFP.

6.5.2.3. Priority #1. Visual Compatibility: Facility Massing (Size, Height, Spacing, Architectural Theme, etc.) Exterior Aesthetic Considerations: The buildings massing, exterior functional aesthetics, and character shall create a comprehensive and harmonious blend of design features that are sympathetic to the style and context of the Installation. The Installation's intent for this area is:

«THEME_DESCRIPTION»

6.5.2.4. Priority #2. Architectural Compatibility: Exterior Design Elements (Materials, Style, Construction Details, etc.) Roofs, Exterior Skin, and Windows & Door Fenestrations should promote a visually appealing compatibility with the desired character while not sacrificing the integrity and technical competency of building systems.

6.5.2.5. See Appendix F for exterior colors that apply to Architectural character. The manufacturers and materials referenced are intended to establish color only, and are not intended to limit manufacturers and material selections.

6.5.2.6. Additional architectural requirements:

- (a) Provide permanent fall protection anchors on all roofs in accordance with OSHA requirements for personal fall arrest systems. Provide access to low slope roof areas from the interior of the building, using permanent ladders, stairs, hatches and doors. Access to roofs shall be from mechanical rooms or secured by locking mechanisms on both the interior and exterior sides to prevent unauthorized access.
- (b) Minimum roof slope for low slope roof systems is ¼ inch per foot and 4 inches per foot for steep slope roof systems. (5:12 preferred) ~~4:12 metal~~ Low Slope roof systems may only be used where required in other sections of the RFP. Avoid valleys and complex flashing and complex venting conditions.. Provide roofing installation and gutter design at valleys to prevent water overflowing or overshooting the gutter. Ensure that roof coverings do not restrict water flow at end of valley, and provide baffles, conductor heads and similar elements as needed. Where downspouts from higher roof areas drain onto lower roof areas, provide elbows and extensions to direct outflow away from wall and base flashing. Protect all exterior personnel doors from the weather. Minimum thickness of roofing materials shall be in accordance with standards listed in Paragraph 4, Applicable Criteria.
- (c) Exterior Wall Mockups: Construct a 6 feet wide x6 feet high, full-size representation of the typical physical exterior wall assemblies, including trim and a sample of roofing material in the mock-up wall, that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and qualities of actual materials and execution, and to review construction, coordination, testing, or operation; they are not samples. Approved mockups establish the standard by which the Work will be judged prior to selection of the final colors. Build mockup to verify selections made under sample submittals and to demonstrate aesthetic effects.
- (d) Exterior Insulation and Finish Systems (EIFS), are not acceptable.
- (e) Exposed exterior materials shall not require periodic repainting or refinishing. Materials shall have factory prefinished, integrally colored, or similarly intrinsic weathering finishes. Ferrous metals shall not be exposed to the weather unless prefinished with a protective coating that has a minimum 20-year warranty. Exterior metal siding panels or metal roofing shall not exhibit oil canning. Exterior masonry surfaces shall be provided with a penetrating, breathable masonry sealer.
- (f) Exterior Doors: Entry doors into lobbies and corridors shall be glazed aluminum storefront entry systems. Protect all exterior personnel doors from the weather by recessing, roof overhangs, or canopies.
- (g) Exterior Windows: Provide operable windows with insect screens for all occupied spaces, unless prohibited by security standards or other sections of the Solicitation. Provide power operators only for windows that are not within the normal reach range of personnel. Provide windows in sleeping room with manufacturer's

standard hardware to allow window to be opened for venting while preventing access through the opening from the outside.

(h) Aesthetically integrate the design of alternative energy systems: Solar panels, photo-voltaic panels, wind turbines, and other elements designed to increase energy efficiency into the facility appearance so that they do not appear out of character with the building or as elements added after construction. For example, roof slopes shall align with panel orientation. Show equipment types, sizes, and locations on interim design submittal drawings.

(i) Provide an antenna mount on the roof of all administrative buildings (Company Operations Facilities, Battalion Headquarters and Brigade Headquarters), to include a sleeve for antenna mounting and eyebolts for guy wires secured to the building structure, and a pathway for cable. Coordinate location with Contracting Officer.

(j) Comply with provision applicable standards and with provision of the provisions of ASME 17.1 and with Washington Administrative Code (WAC) 296-96 Elevator Safety Regulations, including inspections and certifications. Coordinate with the Contracting Officer to ensure proper attendance by Elevator Inspector during construction, inspection, and testing periods. Verify all critical construction activities that must be witnessed by the inspector and do not proceed with that portion of the work until the inspector is present. Provide a sump pump for elevators provided with Firefighter's Emergency Operation. The sump pump shall have a capacity to remove a minimum of 3,000 gal/hr per elevator and shall route directly through an oil/water separator to sanitary or storm water sewer in accordance with discharge permits, regulations, and statutes.

«ARCHITECTURE»

6.5.3. Programmable Electronic Key Card Access Systems:

All locking systems shall comply with keyless entry standards. Only communication rooms, mechanical rooms, and electrical rooms shall have a keying lock system with interchangeable cores. Pushbutton actuators for ADA-accessible entrances shall have a keyed on/off switch on the interior side; the Coordinate the location with the Contracting Officer.

6.5.3.1. Key Changing: All locks shall be changeable without disassembly of lock cylinders; acceptable methods include interchangeable removable core cylinders.

6.5.3.2. Control of Lock Cores and Keying: Provide all hardware and construction (temporary) cores required to secure buildings, utility access, and related work throughout the construction period. Provide construction cores with a bright color on their exposed face for ease of identification. During construction, the Contractor shall meet with representatives of the Contracting Officer, PW Lock Shop, and the user to develop a keying schedule. Submit Schedule to Contracting Officer for approval. Provide final keying and combinations as performed by a licensed, bonded locksmith approved by the Contracting Officer. Upon acceptance of the facility for occupancy, replace construction cores with final cores in the presence of the government inspector and a PW locksmith, test each lock for proper operation and deliver any permanent or control keys to the inspector. Prior to core change out, provide the government, by security shipment, with keys tagged with identifying labels in the quantities indicated.

6.5.3.3. Authorized Locksmiths: The following locksmiths are currently approved by the JBLM PW Lock Shop to combinate cores for locksets used in this project. Verify that authorization remains current prior to beginning lock/core related work on this project.

- (a) Bassett Services: POC: Bob Bassett, 2111 Hernlock Ct SE, Lacey, WA 98503 (360) 239-4416
- (b) PD Services Unlimited: POC: Pam Johnson, 9508 356th St. S., McKenna, WA 98558 (360) 359-0811
- (c) Security Unlimited: POC: Mike Pennella, 8205 E. Martin Way #188, Olympia, WA 98516 (360) 351-951-1774 (cell)

6.5.3.4. Cylinders and Cores: Provide cylinders and cores with six-pin tumblers for locks. Cylinders shall be products of one manufacturer, and cores shall be products of one manufacturer. Rim cylinders, mortise cylinders, and knobs of bored locksets shall have interchangeable cores that are compatible with A-2 standard (A-2 system specifications are available at <http://www.lab-lockpins.com/pinsicore.htm>) and that are removable by special control keys. Stamp each interchangeable core with a key control symbol in a concealed place on the core. Cylinders shall be fully compatible with products of the Best Lock Corporation, Arrow Lock Corporation, or Falcon

Comment [JTH7]: After our phone call on 3/16/2011, I still don't understand what this is referring to. We can't screen these from the public view and probably can't screen them from an interior view... Please check again as to the intent of screening these from view. This could involve lots of money and could affect the operational efficiency of solar panel or wind turbines or photo-voltaic panels. What is the cost-benefit of this requirement? I don't think it has been thought through.

Comment [sdn8]: NOTE TO SPECIFIER: For non-UEPH type facilities only. If the installation has information on brand names of existing key card access system, identify here and coordinate with paragraph 3. For UEPH type Facilities NOT USED

Comment [JTH9]: "combinat" is the correct term for combining cores and locksets.

Lock. Submit a core code sheet with the cores. Provide cores master keyed in one system for this project. Provide construction interchangeable cores.

6.5.3.5. Keys: Furnish four keys for each lock core KD (keyed different), and four keys for each set KA (keyed alike) to the PW Lock Shop for control and issuing. In addition to the keys listed above, furnish four additional key blanks per core KA. Stamp each key with appropriate key control symbol and "U.S. Property – Do No Duplicate". Key bows must be stamped with key code line ID (example: LA1223, MPA1223, etc.). All JBLM codes are one to four letters and one to four numbers. Public Works Lock Shop will provide ID information and Master control number to be used in combining cores. Do not place room number on keys.

6.5.3.6. Programmable Pushbutton Locksets: Hardware shall be programmable pushbutton locksets OSI Omnilock "OM500" for all exterior entrance doors, including glazed doors in aluminum store front systems, and KABA "E-plex 5000" for all locking interior doors, except provide standard bored locksets on mechanical, electrical, and telephone rooms. For programmable locks, provide key override and interchangeable cores.

6.5.3.7. Mechanical, Electrical, and Communication Room Doors: Provide standard keyed locksets for these doors. Key mechanical/electrical equipment rooms and rooms dedicated to fire protection equipment for a JBLM master key #750.

6.5.3.8. High Security Doors: Provide doors for vaults, secure document storage rooms, SIPRnet communications rooms, and similar spaces requiring a high level of physical security with locks complying with the requirements contained in the security standards referenced for spaces designated under Functional Area Requirements in paragraph 3. These may include combination locks and other special hardware.

6.5.3.9. FIPS identification card capable proximity card readers: Hard-wire proximity card readers to a central control system, FIPS-capable, and shall be Millennium Entry access control system, manufactured by Millennium Group. Provide these where required elsewhere in the solicitation.

6.5.4. INTERIOR DESIGN

6.5.4.1. Special Signage: The following special signage is required.

- (a) Fire Department Connection: Mount sign on the building above exterior fire department connection. Sign shall be a minimum of 20 by 15 inches, mounted 8 feet above grade, with red text on white background.
- (b) Gas Shutoff: Mount sign on the building above the natural gas meter and valve. Sign shall be a minimum of 20 by 15 inches, mounted 8 feet above grade, with red text on white background.
- (c) Alarm System: Mount sign centered on all doors accessing rooms and spaces protected by alarm systems. Text at top of sign shall be as specified in AR 190-11, Appendix F. Bottom of sign shall have message in Braille.
- (d) Backflow Preventer Test Valve: Mount sign on the building above the backflow preventer test valve. Sign shall be a minimum of 20 by 15 inches, mounted 8 feet above grade, with red text on white background.
- (e) Fire Pump Test Valve: Mount the sign on the building above the fire pump test valve. Sign shall be a minimum of 20 by 15 inches, mounted 8 feet above grade, with red text on white background.
- (f) Fire Alarm Panel Equipment Room: Mount the sign on the door accessing room with text "Fire Alarm", minimum 16 by 2 inch letters, red text on white background.
- (g) Fire Suppression Sprinkler Riser Room: Mount the sign on door accessing room with text "Sprinkler Riser", 16 by 2 inch letters, red text on white background.
- (h) Post conspicuous sign(s), directing the fire department to all fire protection equipment. If fire department connection and/or PIV are located away from facility, stencil/label the building number with reflective 2-inch numbers and paint the valves shall be painted red

6.5.4.2. Handrails: All handrails shall be metal. Wood handrails are not permitted.

6.5.4.3. Floor in entry and circulation areas: Use porcelain tile or resilient tile flooring in high traffic (main circulation) areas of administrative facilities. The use of carpet in high traffic circulation areas is only be permitted at second floor areas where needed for acoustical purposes.

6.5.4.4. Casework: Use plywood substrates for casework.

6.5.4.5. Cook-top surfaces in Barracks: Do not use glass top range surfaces.

6.5.4.6. Fire Extinguishers in Barracks: Do not provide fire extinguisher brackets or cabinets in Barracks with automatic fire suppression systems, except provide cabinets in common cooking areas.

6.5.4.7. Wall and ceiling finish: Gypsum wallboard surfaces shall receive a Level 4 finish, drywall primer and light orange peel or similar finish texture to conceal imperfections; except exposed surfaces in wet locations, which shall receive a Level 5 finish, with drywall primer. Exposed concrete surfaces shall receive a Level 1 finish. Finish in accordance with standards listed in Applicable Criteria. <TEMF>

6.5.4.8. Tanks

(a) Model Motor Pool Product Tanks: Install five 500-gallon product tanks (four for oil and one for antifreeze) in the Fluid Distribution Room.

(b) Waste Storage Tanks details (See paragraph 3.1.3(3) Storage for the requirement: Install the three, 500-gallon storage tanks for used oil, antifreeze and waste fuel just outside the end of the TEMF. Tanks must be UL-142 listed double-walled horizontal above ground steel tank, no taller than 48" and have a rectangular cube shape and must be skid mounted. Include both normal and emergency venting for both Primary and Secondary Tanks. Include gauges for both Primary and Secondary Tanks. Include emergency overfill cut-off for tanks. Include kamlock, dust cover, and drop tube for product removal. Tanks must have proper labeling.

(c) Pneumatic Fluid Recovery System Waste/piping/pump details. See paragraph 3.1.1(2)(c)3 for main requirement. Install wall mounted Air Operated Diaphragm (AOD) pumps on the inside bay wall, adjacent to the Product tanks. Pipe pumps through the wall directly to the waste tanks outside. <TEMF>

6.6. STRUCTURAL DESIGN

6.6.1. Design the facility assuming a ground snow load of 15 psf, Terrain Category C. However, design all roof structures for a minimum uniform roof snow load of 25 psf. An additional 5 psf rain-on-snow surcharge load shall be applicable in accordance with the requirements of ASCE 7.

6.6.2. Design the facility using a basic wind speed of 85 mph.

6.6.3. Design the facility using a Spectral Response Accelerations (SRA) for 0.2 seconds, $S_s=1.202$. SRA for 1.0 second, $S_1=0.380$.

6.6.4. Extend bearing portions of substructure to levels below frostline, not less than 18 inches below grade.

6.6.5. The structural system shall be compatible with building use. For example, do not locate columns in rooms requiring visibility or open space, such as entries, common areas, etc.

6.6.6. Refer to Appendix for additional hardening requirements when required.

6.7. THERMAL PERFORMANCE: No additional requirements. Enhanced thermal envelope may be used to improve energy performance in pursuit of lower energy usage and LEED point(s) and compliance with the guiding principles for high performance and sustainable buildings.

6.8. PLUMBING

6.8.1. PLUMBING FIXTURES: Plumbing fixtures shall include the following.

6.8.1.1. General: Where it is possible and economically feasible to use reclaimed water for such applications as irrigation, clearly label and mark all piping, fittings, equipment, and devices associated with such a system with the color purple.

6.8.1.2. Mop Sink: Provide floor-mount type.

6.8.1.3. CONTROLS: The DDC system shall have the capability of controlling domestic hot water circulation pumps and the temperature of domestic hot water.

6.8.1.4. Motion-activated plumbing fixture valves shall be hard-wired (not battery operated).

6.9. SITE ELECTRICAL AND TELECOMMUNICATIONS SYSTEMS

6.9.1. Site Power

6.9.1.1. General: Electrical power distribution is a 13,800-volt, 3-phase, 3-wire single-point grounded wye system. JBLM has adopted Tacoma Public Utilities (TPU) utility design criteria and construction standards for all power distribution work performed on the Installation. Design and construct in accordance with TPU standards, except for requirements associated with single-point grounding. The "single-point grounding" portion of the JBLM distribution system applies to a single reference point to ground at the substations only. JBLM is, for all intents and purposes, a Delta System, so the neutral conductor shown on the TPU details should be disregarded. Refer to TacomaPower.com for construction details and specifications and to JBLM Exterior Electric Shop at (253) 967-5840 for any questions regarding system requirements. Comply with the most current National Electrical Safety Code (NESC ANSI C-2), NFPA 70 and TPU standards for the Work of this Contract. JBLM standard details are available on <http://designstandards.lewis.army.mil/index1.htm>

(a) Design, furnish, and install a 15kV class distribution system that extends from the existing system, provides power for the facilities in this project, and provides expansion capability for future projects. Coordinate the distribution system expansion with the Public Works Electrical System Manager Engineer and the Exterior Electric Shop.

(b) Demolition: Turn over any existing distribution equipment required to be removed under this contract to the Public Works Exterior Electric Shop. Coordinate turnover with the Exterior Electric Shop Foreman.

(c) Seismic Bracing: Brace or anchor distribution equipment to resist horizontal forces acting in any direction per the site class and seismic use group as defined in the International Building Code and ASCE 7.

(d) System Coordination Study: Provide a coordination study to demonstrate that the equipment selected and system constructed meets the contract requirements for equipment ratings, coordination, and protection. Perform an arc flash study to determine the required personal protection equipment (PPE). Mark panelboards and other electrical equipment that require work when energized with PPE requirements per NFPA 70E Section 130.3(C). A registered professional engineer with demonstrated experience in power system coordination shall perform the study. Start coordination study at the first device located upstream of the equipment to be installed. Coordinate with JBLM PW Exterior Electrical Shop for upstream device information and for system fault currents.

6.9.1.2. Primary Duct Banks: Medium-voltage ducts shall be minimum 4-inch Schedule 40 PVC encased in controlled density fill (CDF) except under roads or paved areas subject to vehicular traffic. Provide Schedule 40 PVC in duct banks under roads or paved areas subject to vehicular traffic, encased in 3000 psi reinforced concrete. A 36-inch minimum burial depth is required to the top of the concrete encasement. Provide a 6-inch wide metallic warning tape above primary duct banks at 12 inches below finished grade. Arrange ducts so that they enter manholes and vaults at the lowest point. Provide at least one spare duct in all medium-voltage duct banks and a pull cord in all empty ducts. Provide bare copper ground conductor in the duct bank encasement and ground the conductor in all vaults. Minimum size is #2 for lateral feeder, #2/0 for lateral main feeder and #4/0 for main feeder.

6.9.1.3. Medium-Voltage Conductors: All medium-voltage conductors shall be 15kV, EPR, CU, 133 percent insulation, with insulation shielding. Main feeders shall be 500kcmil in 5 inch PVC duct with 600-ampere terminations; loop lateral main feeders shall be #4/0 AWG in 4 inch PVC duct with 200-ampere terminations; and lateral feeders to transformers shall be #2 AWG in 4" PVC duct.

(a) Splicing: Where splicing is required, provide 4-way in-vault junction assemblies in an appropriately sized vault, minimum size 7 feet x 7 feet x 6 feet deep, with a double hinged diamond-plate lid. Angle assemblies upward at a 45-degree angle to facilitate above-ground operation. All 200-ampere medium-voltage separable insulated connectors shall be of the load-break type. In-line and T-tap primary splices are not permitted. Provide test points on elbows at junction assemblies, pad-mount transformers and switches.

(b) Fire Taping: Provide fire protective tape on all medium-voltage conductors in manholes and in vaults under transformers, switches, and in-vault junction assemblies.

(c) Labeling: Label all cables by means of fiber, laminated plastic, or nonferrous metal tags indicating the cable type, conductor size, circuit number, circuit voltage, cable destination, and phase identification. coordinate labeling requirements with PV.

(d) Testing: Provide hi-pot and phase testing on all new primary conductors prior to energizing the cables.

6.9.1.4. Manholes and Vaults: Size manholes a minimum of 7 feet x 7 feet x 6 feet deep and comply with minimum cable bending radius requirements according to the current edition of the National Electrical Safety Code (NESC), except manholes with in-vault junctions shall be 7-feet by 7-feet by 6-feet deep. Install manholes at street intersections to facilitate street crossings, and space manholes a maximum of 500 linear feet apart or less as required to minimize pulling tension on the conductors. Provide vaults under all transformers and distribution switches with external man access hatch and with the pad-mount serving as a portion of the lid for the vault. Provide a minimum 6-inch diameter knockout at the bottom of the vault for drainage.

(a) Conductor Installation: Secure conductors to insulators on racks on all four walls of vaults, with secondary conductors mounted at least 8 inches above medium-voltage conductors, looped and racked a minimum of 360 degrees, and arranged in an approved manner that provides safe and rapid access to personnel during installation and maintenance. Conductors shall enter and exit the vault in such a way as to maintain the same direction of rotation, either clockwise or counterclockwise as appropriate.

(b) Vault Penetrations: Properly seal all transformer vault penetrations with waterproof grout to prevent water and moisture from entering the vault. Install ducts installed with the bell end flush with the vault's inside wall surface.

(c) Conduits: Install conduits with secondary conductors above conduits with medium-voltage main feeders.

(d) Testing: Provide DC hi-potential, shield continuity and phase rotation testing on all new primary conductors prior to energizing the cables.

6.9.1.5. Junction Pedestals: Provide junctions above ground or in manholes. Where four-way junctions are installed in manholes, provide manhole with diamond plate, two-section steel covers and set junctions upwards at a 45-degree angle to allow for hook-stick operation from above the manhole. Include insulated-bushing type parking stands adjacent to each separable loadbreak elbow to provide for cable isolation. Above-ground junction pedestals are required where the number of junctions exceeds four.

6.9.1.6. Distribution Switches: Primary distribution switches shall be fused, dead-front, bio-preferred liquid-filled, above-ground, vacuum type. All switch taps shall be switchable and 200A taps shall be fused. Install switches above ground on concrete vaults with external man access door and with the switch pad serving as a portion of the lid for the vault.

6.9.1.7. Padmount Distribution Transformers: Furnish and install liquid-filled, pad-mounted transformers for the facility in the project. Locate transformers to comply with AT/FP requirements. Based on the electrical load of the facility or facilities to be served, determine the KVA capacity and low-voltage rating of the transformer. Install outdoor, medium-voltage transformers on vaults.

(a) Transformer Specifications: Distribution transformers shall be new, loop-feed, with two separate windings per phase and shall be of the less-flammable, liquid-insulated type with bio-based biodegradable dielectric liquid derived from natural esters, complying with IEEE C57.12.00 and IEEE C57.12.21. Use high fire point fluids for indoor/vaults. Transformers shall be dead-front, equipped with oil-immersed bayonet-type overload fuses in series with partial range current-limiting fuses, five primary taps (two-above and two-below nominal), and three two-position load-break switches to permit opening and closing of either side of the loop, and the ability to de-energize the transformer with the loop remaining energized. Permanently attach high-voltage warning signs to each side of the transformer and include transformer KVA rating, secondary voltage and phase information at the front door of the secondary compartment. Provide copper-faced or stainless steel ground connection pads in the high- and

low-voltage compartments, a dial-type thermometer, pressure-relief valve, liquid-level gauge, and drain valve. Provide oil sampling tube on transformers 500kVA and above. Provide removable MOV surge arrestors on the unused side of loop transformers, where applicable, with removable grounds. Where the transformer is used as a feed-through, provide fault indicators. Provide insulated bushing-type parking stands adjacent to each separable load-break elbow to provide for cable isolation. Provide padlock hasps and locks Coordinate lock style and material with the PW Exterior Electrical Shop. Provide bollards for protection in locations vulnerable to vehicular traffic per TPU standards.

(b) Primary Connections: Primary underground-to-overhead conductor connections shall be Burndy WEJTAP, Tyco AMPACT Wedge, or approved equal. Provide mechanical connectors at arrestor grounds.

(c) Distribution Cutouts: Where the existing overhead primary is tapped for service to a padmount transformer, the distribution fused cut-outs shall be of the load-break, silicone type that meets the following criteria: Open outdoor load-break fused cut-out with Type K fuses conforming to NEMA C37.42 with rated amperes to match system requirements. Install silicone rubber insulators, clamshell terminal connectors, NEMA B bracket, 12 kAIC symmetrical fault-interrupting current rating, with solid cap fuse holder.

(d) Secondary Connections: Secondary conductor connections shall be compression type. Provide antioxidant compound where required by code. No penetrations are allowed through the transformer casing.

(e) Transformer Grounding: Provide a buried copper ground ring consisting of four ¾-inch x10-foot ground rods around each transformer pad and ground per NESC for a single-point grounded wye distribution system, with secondary neutral ground isolated from equipment ground and the ground strap removed. Neutral ground shall be 600V insulated copper wire at least 20 feet away from the transformer grounding ring and at least 90 degrees apart from the primary duct bank. Below-grade ground connections shall be of the exothermic type. Refer to JBLM PW for typical detail.

(f) Transformer Pad: Transformers shall sit on a concrete pad sized to serve as a portion of the lid for the vault below the transformer. Pads for all transformers include an external man access into the vault without removing the transformer. Access into the vault shall be through a double-hinged diamond plate lid. Vault for small transformers serving roadway utility loads, such as street lighting and traffic signals, may be 5 feet x 7 feet x 5 feet with padmount that includes external man access. All pads shall extend 6 inches beyond the transformer enclosure.

6.9.1.8. 600-volt Distribution: Provide a 600V underground distribution system from the secondary side of all transformers installed for service to buildings within the scope of this project. Cables shall be copper with 90 degree C insulation and suitable for use in an underground duct system. All secondary duct banks shall be direct-buried Schedule 40 PVC with a minimum of 3 inches of sand above and below ducts, except under roads or paved areas subject to vehicular traffic, and shall contain at least one spare duct. Provide Schedule 40 PVC in duct banks under roads or paved areas subject to vehicular traffic, encased in 3000 psi reinforced concrete. Minimum burial depth shall be 30-inches below finished grade. Provide a 6-inch metallic warning tape above secondary ducts at 12-inches below finished grade. Determine the secondary conductor size, duct size and quantity based on the transformer rating and building service requirements, adjusted for voltage drop. Secondary conductors shall not be larger than 500kcmil Provide galvanized rigid steel (GRS) conduit long-radius elbows and transitions from below to above grade and into buildings, and wrap all GRS conduits below grade to prevent corrosion. Provide compression type-connectors at the transformer secondary and the building service entrance switchboard.

6.9.2. Site Telecommunications

6.9.2.1. General: Government Telecommunications systems (voice/data) consist of the Army-owned telephone system, which provides Army communications, and the Local Area Network (LAN), Qwest Communications for residential and non-Army telephones, and COMCAST cable television. Furnish and install outside plant telecommunications manholes, ducts/conduits, and required distribution cables between identified point of connection and the building's telecommunications entrance facility Coordinate all communications requirements with the JBLM NEC, , specifically with the Plans Branch and the MCA Info Tech Project Manager Specialist and Team Members, through the Contracting Officer. Coordinate and attend inspections by NEC during each phase of construction.

(a) Coordination with Adjacent Construction Projects: Alert the Contracting Officer if coordination with adjacent construction projects is required by the Communications System Contractor.

Comment [JTH10]: I inserted language reviewed and provided by ISEC

6.9.2.2. Telecommunications Manholes:

(a) Telecommunications manholes shall meet existing infrastructure or approved equal, sized and oriented correctly, and shall be installed IAW manufacturer's instructions. Telecommunications manholes shall meet the following minimum criteria:

1. Concrete shall have a minimum compressive strength of 7000 psi at 28 days.
2. Design manholes/vaults to meet an AASHTO H-20 loading.
3. Manholes/vaults shall have galvanized embedded pulling irons in each corner, top and bottom.
4. Manholes/vaults shall have a minimum of four galvanized "C" channels per longitudinal side.
5. Equip manholes/vaults with PVC duct terminators at all points of entry/terminations (Term-a-duct or similar).

(b) Plug all ducts, sub-ducts, and innerducts, whether main or subsidiary runs, using universal screw type duct plugs in telecommunications manholes and hand holes and at building entrances. Foam sealant is not acceptable.

(c) Splice cases shall be of the pre-formed stainless steel type for copper and Tyco or approved equal for fiber splice cases. "Stretch cases" are not allowed. Do not use encapsulating compounds. Flash test using dry nitrogen gas to ensure dry and airtight seals.

(d) Provide Notify NEC at least 48 hours prior to installation of telecommunications manholes and obtain approval on manhole orientation.

(e) Provide grounding and bonding in telecommunications manholes to comply with I3A/TIA/EIA.

(f) Provide labeling per JBLM NEC Standards.

6.9.2.3. Telecommunications Duct Banks. In addition to the requirements of I3A, encase duct banks in concrete in the Cantonment Area of JBLM.

6.9.3. Site Lighting

6.9.3.1. General: Provide exterior lighting appropriate for the building and parking lot functions and to comply with LEED and 10 CFR Part 436 – Federal Procurement of Energy Efficient Products. LED-type function. Provide street lighting (with photoelectric control) on metal poles with grounding system for any new streets and on streets that are modified as part of this project. To the extent possible, street lighting style shall match the type used on the existing streets within the project area, but must be LED type.

(a) Provide exterior induction type parking lot and pedestrian pathway lighting conforming to the applicable criteria Illuminating Engineering Society of North America (IESNA) recommended illumination levels and the state Non-Residential Energy Code. Provide metal poles with pole-mounted, color-corrected, induction or LED luminaires with cut-off feature to minimize light pollution per LEED. Site lighting circuits shall be direct-buried Schedule 40 PVC conduits encased in sand, except where subject to vehicular traffic; those locations shall use Schedule 40 PVC conduits encased in 3000 psi concrete, extended a minimum of 6 feet beyond the roadway or parking area. Provide 24-inch minimum burial depth and 6-inch wide warning tape at 12 inch minimum below finished grade and hand holes. Provide handholes at each lighting pole. Provide site lighting circuits and controls from the adjacent primary facility service. The photoelectric control shall have a manual bypass. Locate control panels in electrical rooms for access by PW. At Lawnmower Storage Buildings and similar locations, provide controls in a lockable NEMA 3R enclosure mounted at the exterior of the building.

(b) Security lighting for boundaries and controlled areas, when applicable, shall meet minimum illumination as indicated in the Security Engineering Technical Manual (SETM) 853, Volume 2.

6.9.4. Site Grounding

6.9.4.1. General: Soil resistivity at JBLM is extremely high, requiring additional measures to be taken in the grounding system design. Submit design drawings and calculations based on soil resistivity data and include measures such as counterpoise systems, buried plates, chemical grounds, and bentonite backfill to achieve the 10-ohm maximum resistance required by I3A for earth electrode subsystems. At a minimum, site grounding shall consist of a counterpoise grid system composed of 3/4-inch x 10-foot minimum copper clad steel ground rods

interconnected by stranded bare #1/0 copper wire. Make connections using exothermic welds below grade for connections to electrical panels, communications system grounds, building steel and static ground points. Exposed ground connections shall be removable pressure type. Grounding and bonding shall comply with Article 250, NFPA 70.

6.10. FACILITY ELECTRICAL AND TELECOMMUNICATIONS SYSTEMS

6.10.1. Power

6.10.1.1. General: Provide at least one exterior door on the ground floor to the main electrical room, sized as appropriate for equipment removal or maintenance..

6.10.1.2. Service Equipment: Provide a service entrance switchboard or main distribution panel in the main electrical room with copper bus, transient voltage surge suppression, fully rated and selectively coordinated with downstream circuit breakers. (Series-rated breakers are not acceptable.)

(a) Provide a meter in the service switchboard that is compatible with the posts post's Java Application Control Engine (JACE)/DDC system. The meter shall measure kilowatt-hour demand averaged over a 15-minute interval, phase voltage, amps, frequency, true power, reactive power, apparent power, and power factor with an accuracy of 1.0 percent minimum. The meter shall include battery backup, on-board data storage for a minimum of 30 days, peak demand recording, time-of-use logging, and remote alarm annunciation for power outage, phase loss, and phase voltage over/under conditions. Provide communications conduit and wiring from the meter to the DDC system in the mechanical room with ANSI/CEA-709.1b protocol (LonWorks) output for communications using standard network variable types (SNVTs) for measured values.

(b) Provide panelboards with copper bus and bolt-on circuit breakers, fully rated and coordinated between downstream and upstream circuit breakers. Locate panelboards and dry-type transformers in electrical rooms only with appropriate ventilation for heat dissipation.

(c) Provide a lighting inverter system that meets the requirements of NFPA 101 for power to exit signs and egress lighting. Inverter shall include battery-operated computer-based self-test/self-diagnostic feature that automatically performs a minimum 30-second test and diagnostic routine at least once every 30 days and indicates failures and alarms. Automatic testing shall also include a yearly test for a minimum of 90 minutes, with failures and alarms indicated. Pass/fail status, test history, and alarm information shall be stored in memory and retrievable from unit display, with provisions for remote alarm indication and condition monitoring. Battery systems shall incorporate maintenance-free lead-acid or lead-calcium batteries. Locate the emergency power source in a dedicated electrical equipment room, readily accessible to maintenance personnel from the exterior of the facility, independent of building occupants.

6.10.2. Telecommunications

6.10.2.1. General:

(a) Horizontal cabling will not exceed 295 feet from telecommunication room to outlet location per I3A Criteria and EIA/TIA standards.

(b) Coordinate with the NEC Plans Branch during the design development process, preferably using mutually agreeable Over the Shoulder Review processes, as discussed in Section 01 33 16, Design After Award..

(c) Provide a cable pull-through in the main NEC telecommunications room to a dedicated room with space on the telephone back board for commercial telephone and cable TV service providers. Qwest and Comcast will furnish and install their entrance cables and make connections to their equipment under separate contract with the Government. Coordinate with these providers and allow them access to perform their work.

(d) The Contractor shall furnish and install interior cables from cable television outlets and from commercial telephone outlets that may be required for the facilities in this project back to the appropriate demarcation point.

(e) Comcast and Qwest will make the connections to their equipment under separate contract with the Government.

(f) Do not use J-hooks.

Comment [JTH11]: Telecommunications I inserted ISEC reviewed and approved language here.

6.10.2.2. Provide a standard I3A/TIA/EIA information outlet on the telephone backboard for connection to the Base EMCS and coordinate the outlet location with JBLM PW.

6.10.2.3. Coordinate the following with NEC:

(a) Telecommunications room equipment layout, grounding and bonding requirements, cable runways, labeling requirements, dedicated and convenience power outlets, backboards, concrete floor anti-static sealant, and air conditioning requirements. Provide backboards on at least three walls in telephone rooms.

(b) Confirm standard administrative outlet configuration and labeling requirements (three CAT 6 cables to provide two data and one voice).

Comment [MR12]: NEC labeling requirements need to be added to this section.

6.10.2.4. Cable test reports. Include the model/serial number of the test equipment, calibration certificate, and name of technician. Hand generated reports are not acceptable.

6.10.2.5. Provide CAT 6 cables that are UL-listed for wet environments where cables are routed in conduits installed inside or below slab-on-grade concrete floors.

6.10.2.6. Where protective distribution systems are required, provide systems by Holocom, Inc. or approved equal. Cable colors shall be blue for data, white for voice, red for SIPRNet, and yellow for JWICS.

6.10.2.7. Seismic Bracing: Brace or anchor equipment to resist horizontal forces acting in any direction per the site class and seismic use group as defined in the IBC.

6.10.2.8. Field Radio Antenna: Coordinate with contracting officer to determine if a field radio antenna is required by the building occupant. If required, provide a 2-inch raceway from the Duty Office (or location designated by the User) to the exterior of the building with a grounding bushing at the interior and a weather head at the exterior and coax cable for a field radio antenna connection. Coordinate installation requirements with the User.

6.10.3. INTRUSION DETECTION

6.10.3.1. General: For applicable facilities per paragraph 3, design and install a complete, fully tested intrusion detection system (IDS), including installation of Government-Furnished Contractor-Installed (GFCI) equipment, all conduits and conductors, drawings, system integration, and all testing.

6.10.3.2. The IDS is an Integrated Commercial Intrusion Detection System II (SAFENET ICIDS II) manufactured by MDI, Inc., 9725 Datapoint Drive, San Antonio, Texas 78229. IDS equipment and devices (RTU's, PPU, BMS, PIR, etc) shall be GFCI devices. Upon receipt of equipment, the contractor shall be responsible for all labor and installation warranty issues associated with installation. Coordinate system requirements with the Directorate of Emergency Services (DES) Physical Security.

6.10.3.3. The IDS shall use Version 6.2.1.6 SAFENET or the latest software or firmware for operating environment, with PB2000 processor, firmware revision 1.51, encrypted, and carried over the installation security VLAN. Upon award and at the time of LAN connection, request from DES Physical Security the correct VLAN to be assigned. System shall be fully compatible with the existing ICIDS II security system. Battery backup shall be provided for a minimum of six hours for all ICIDS components, to include subcomponents that support the communication operation and reporting of alarm events. Every effort should be made to place ESS systems on a generator back-up circuit. All ESS for secret compartmented information facilities are required to be provided with 24-hour back-up and to be connected to the facility emergency generator panel.

6.10.3.4. Work includes updating input points and graphics at the central monitoring station to provide a turnkey system. Contractor shall coordinate with the Government Construction Representative and Directorate of Emergency Services/Physical Security for access to the central monitoring station.

6.10.3.5. To reduce system compatibility problems, the IDS shall be installed by MDI-certified ICIDS II integrator with a minimum of five years of experience installing, integrating, and programming on systems comparable in size to JBLM ICIDS, and with the following clearances and certifications:

- Company TOP SECRET

- SECRET for system administrators, programmers, and supervisors
- CONFIDENTIAL for all others performing work on ICIDS

Provide proof of clearances and certifications to the DES.

6.10.3.6. Security Contractor and USACE project team should coordinate and receive security system design requirements approval for all ESS from DES Physical Security in advance of any pathway or construction effort.

6.10.3.7. Forward all drawings and specifications to the USACE Electrical Division for coordination with DES Physical Security for approval. Emboss seal all drawings and submittal packages, using a unique embossed and raised stamp seal typically with the name of the security (sub)contractor. Drawings are to be limited to not more than three sets. Label copies "Do Not Duplicate, Copy 1, 2, 3 (as applicable)", followed by "Security Sensitive".

6.10.3.8. Provide the contracting officer and DES Physical Security a minimum of two weeks' notice for scheduling the Government's performance verification test (PVT). Complete the Contractor performance test in advance of the Government PVT. Prior to scheduling the PVT, submit Contractor performance test results, substantiating that the system meets contract requirements. DES will perform 72 hours of endurance testing in advance of final acceptance. Representatives of the USACE project team, Contractor, and DES will attend the PVT.

6.11. HEATING, VENTILATING, AND AIR CONDITIONING

6.11.1. The HVAC systems for these facilities shall provide heating, ventilation, and (in some cases) cooling, with a design intended for personnel comfort and cooling of electronic equipment (computer servers, communication equipment, etc.). While select spaces may be air-conditioned as required, whole building air-conditioning is not authorized at JBLM. In addition to Telecommunications Rooms and Telecommunications Equipment Rooms, (including SIPRNET ROOMS, where applicable for specific facility type), the following rooms/areas require air-conditioning: «AIR_CONDITIONED_SPACES». Do not use ozone-depleting refrigerants.

6.11.2. Locate all primary mechanical equipment such as air-handlers, boilers, hot water heaters, pumps, storage tanks, etc., inside a main mechanical room where possible. Unless specifically called for by a standard design in paragraph 3, do not install mechanical equipment on the roof. All equipment shall be of the high-efficiency type and in compliance with ASRAE 90.1.

6.11.3. DESIGN CRITERIA: All equipment and controls shall be integrated and communicate with the existing JBLM Tridium Niagara system via LonMark/LonTalk and/or BACnet communication protocols.

6.11.4. DESIGN REQUIREMENTS

6.11.4.1. Design conditions include the following.

(a) Outdoor Conditions

(Reference: ASHRAE Puget Sound Chapter "Recommended Outdoor Design Temperatures, Washington State," 2nd Edition)

Winter Dry-Bulb (0.6 percent):	24° F
Summer Dry-Bulb:	82° F
Summer Wet-Bulb:	64° F

(b) Indoor Conditions

Winter Dry-Bulb:	68° F
Summer Dry-Bulb:	77° F (air-conditioned spaces only)

(c) Ventilate elevator equipment rooms per IBC and WAC Chapter 296-96.

Comment [sdn13]: NOTE TO SPECIFIER: Identify any rooms/spaces other than Telecommunications Rooms and Telecommunications Equipment Rooms, (including SIPRNET ROOMS, where applicable for specific facility type), that require air-conditioning. Default is NONE.]

6.11.4.2. Have State of Washington inspect boiler and provide certification documentation to the contracting officer's representative.

6.11.4.3. Heat and ventilate the buildings without the use of mechanical cooling. Design system for 100 percent outdoor economizer controls to satisfy building sensible cooling load calculated at an outside air temperature of 55° F using heating and ventilation air handlers. Provide the capability to control outside air to minimum ventilation rates per ASHRAE 62.1-2006, including the use of CO2 sensors and occupancy sensors for demand control ventilation.

6.11.4.4. Telecommunications Rooms and Telecommunications Equipment Rooms, (including SIPRNET ROOMS, where applicable for specific facility type) require cooling. Electrical rooms may require cooling. Perform heat load calculations to include all anticipated heat-producing equipment located within these spaces and provide a temperature control and ventilation system based on manufacturer's recommended data as well as published criteria such as can be found in "ASHRAE Thermal Guidelines for Data Processing Environments." The design for electrical rooms shall use mechanical cooling only if heat load calculations indicate that ventilation (outdoor air) alone cannot maintain recommended room temperature. Where mechanical cooling is required, provide permanently installed units that have the capacity for both heating and cooling to increase efficiency gains and reduce the number of separate systems requiring maintenance. The type of units supplied shall conform to the following order of preference: (1) ground source heat pumps, (2) air source heat pumps, and (3) hybrid natural gas/electric units. Base the choice of system on life-cycle cost effectiveness as determined by Subpart A of 10 CFR 436. The unit can have a backup natural gas component for less than optimal conditions, if needed; the unit should be capable of operating in economizer mode to ventilate the space with outdoor air until the thermostat calls for mechanical cooling. Include exhaust systems all toilet rooms, shower rooms, janitor rooms, kitchens, clothes dryers, and electrical and mechanical rooms. Exhaust toilet rooms per ASHRAE 62.1

6.11.4.5. In the absence of published manufacturer's specifications, provide environmental conditions in accordance with one of the following.

- (a) ANSI T1.304 -1997 Ambient Temperature and Humidity Requirements for Network Equipment in Controlled Environments
- (b) ASHRAE Thermal Guidelines for Data Processing Environments
- (c) Network Equipment Building System (NEBS)
- (d) Telcordia GR-63-CORE

6.11.4.6. Cast iron boilers of any type are not allowed.

6.11.5. DIRECT DIGITAL CONTROL AND ENERGY MANAGEMENT CONTROL SYSTEM: The direct digital control (DDC) and UMCS in Paragraph 6 take precedence over the DDC and UMCS requirements in Paragraph 5 of this SOW. The UMCS uses a Tridium Niagara AX platform that is designed to provide interoperability using LonMark/LonWorks and BACnet compliant controllers.

6.11.5.1. Compatibility: Provide a building DDC system compatible with and remotely programmable and configurable through the (JACE) Network Area Controller (NAC) and the PW Tridium AX system via the existing base-wide IT wide area network (WAN) operated by NEC. The JACE Network Area Controllers (NAC) have been approved by NEC for connection to the WAN/LAN. NEC does not allow routers on their WAN/LAN system.

6.11.5.2. Integration with Base-wide DDC System. The building control system shall integrate with the Tridium system, control the indoor environment, monitor and manage fuel and energy consumption, schedule preventative maintenance, control interior and exterior lighting, monitor water usage and hot water temperatures at tank and at hot water heater, discharge outlet and after the mixing valve; and monitor electrical consumption, monitors packaged equipment controls, and equipment alarms. All motors are to be monitored for actual status using current transmitters.

6.11.5.3. Interface Standards. Provide a LonWorks or BACnet interface for packaged equipment controllers, when necessary for network communication. The DDC system shall be in strict accordance with section 23 09 23 (formerly 15910) as published on the JBLM design standards website (<http://designstandards.lewis.army.mil/index.htm>).

6.11.5.4. LEED Compliance: The DDC system shall have measurement and monitoring capability to provide verification of LEED "Silver" criteria

6.11.5.5. Workstation. Provide a centrally located (usually the mechanical room) workstation for each building's control system to monitor and control each zone setpoint. One DDC system workstation shall be provided for each project in at least one of the project buildings. The workstation shall include one desktop computer, monitor, etc. Performance shall meet current technology standards. Provide web supervisor workstation software, licensed to JBLM/GSA in the "Owner" section. Provide a security workstation cabinet with the following features:

- (a) Locking upper compartment with Plexiglass window providing viewable access to most 20-inch monitors.
- (b) Locking pull-out drawer: Facilitates ergonomic operation of keyboard, mouse, and convenient storage of small supplies; keyboard and supplies can be accessed even while top and bottom compartments are locked.
- (c) Full-size locking bottom doors in front and rear for complete access to equipment and cables; lower compartment features one fixed bottom and one adjustable shelf for desktop or tower style PCs, printer, paper or supplies; louvers in rear provide equipment ventilation.
- (d) Heavy-duty all welded steel top and bottom sections bolt together for easy assembly; Top Level Compartment (internal): 20-3/4" W x 21-1/4" D x 23-1/2" H; Overall Dimensions: 21" W x 22-1/2" D x 59-1/2" H.

6.11.5.6. Monitoring and Alarms. This system shall have alarms identifying when it is outside normal operation from sequence or setpoints. Provide interlock and safety routines that safeguard and prevent progressive damage to equipment due to monitored failures.

6.11.5.7. Remote Access: The system shall be user-programmable and have access from remote locations, multiple layers of secured access to data and program information, and a graphical user interface accessible through any standard web browser without manufacturer's software.

6.11.5.8. Graphical User Interface. The graphical user interface shall allow for hierarchical graphical navigation between systems and provide graphical representations of systems, access to real-time data for systems, the ability to override points in a system, and access to all supervisory monitoring and control functions. Each system display shall distinguish clearly between the following point data types and information: real-time data, user-entered data, overridden or operator-disabled points, devices in alarm (unacknowledged), and out-of-range, bad, or missing data. The software shall allow the user to create, modify, and delete displays and graphic symbols. Configure monitoring and control (M&C) software functionality. Use JBLM standard graphical pages for system graphic displays, including overrides, alarm handling, scheduling, trends for critical values needing long-term or permanent monitoring via trends, and demand limiting.

6.11.5.9. Protection of Wiring. Where wiring external to control panels is exposed to damage, the Contractor shall install all wiring, including low-voltage wiring, in metallic raceways (plenum rated wiring where not exposed to damage). Install wiring without splices between control devices and DDC panels.

6.11.5.10. Grounding. Install instrumentation grounding as necessary to prevent ground loops, noise, and surges from adversely affecting operation of the system.

6.11.5.11. Labeling and Identification. Tag cables and conductor wires at both ends, with the identifier shown on the shop drawings. Identify equipment manufacturer's literature, stating compatibility with JBLM Tridium system and LonMark/LonWorks or BACnet.

6.11.5.12. Demonstration and Performance Verification Test. Demonstrate system communication by downloading programs and configuring programs to controllers over the network from the workstation. Disconnect the network server communication line from the JACEs, ensure all the JACEs continue to perform their local functions and disconnect AC power from JACEs and verify that all control functions of the DDC system continue to operate. Perform a PVT under 100% Government supervision prior to system acceptance. The PVT shall demonstrate that 100% of the system performs as specified, including but not limited to demonstrating that the system correctly performs the sequences of operation.

6.11.5.13. Utility Meter Monitoring. Where natural gas is used, provide a gas meter interface to connect to the DDC/UMCS system for monitoring gas usage. Provide electric and water meter interfaces to connect to the DDC/UMCS system for monitoring electric and water usage.

6.11.5.14. Computers. Provide one notebook computer with performance meeting current technology standards and the latest version of the Tridium AX Supervisor and AX Workbench engineering tool software, licensed to JBLM/GSA in the owner section. All computers shall have the NEC image installed through DPW IT Department before its DDC software is installed and licensed. All desktop computers, monitors, and laptop provided shall be qualified at the Silver level or higher per the Electronic Product Environmental Assessment Tool (EPEAT) (<http://www.epeat.net/PublicSearch.aspx>).

6.11.5.15. Room Temperature Sensors and Thermostats. Room temperature sensors shall have pushbutton occupancy override with duration adjustable in programming. Room temperature sensors shall be user adjustable with setpoint and adjustment span limited through programming at BAS/EMCS front end. Temperature sensors shall have a limited set-point and be adjustable remotely through the BAS/EMCS. Both override time frame and lever adjustment range shall be adjustable through DDC GUI. Thermostats shall not be line voltage. Room temperature sensors shall not have a digital or analog readout indicating current temperature.

6.11.5.16. Additional Software Licenses. Provide M&C software with Web Supervisor license for additional JACEs. Provide M&C software with a license for no less than the quantity of points to support systems being controlled and monitored, plus 10 percent more for expansion. The software shall be expandable in both the number of points and the number of clients supported in order to support system expansion.

6.11.5.17. Additional DDC Controller Capabilities. Provide DDC controllers that have an additional 10% unused inputs and outputs for future expansion.

6.11.5.18. Training. Provide a minimum of 16 hours of training, consisting of 8 hours of classroom and 8 hours of field training at the project site on the installed BAS/DDC/UMCS. Upon completion of this training, each student, using appropriate documentation, shall be able to start the system, operate the system, recover the system after a failure, perform routine maintenance and describe the specific hardware, architecture and operation of the system.

6.12. ENERGY CONSERVATION

6.12.1. Inclusion of Renewable Energy Features. The following renewable energy features have been determined lifecycle cost effective, are included in the project budget and shall be provided:

«RENEWABLE_ENERGY_FEATURES»

6.13. FIRE PROTECTION

6.13.1. FIRE ALARM AND MASS NOTIFICATION. Mass notification shall be fully functional as part of the Monaco D21 fire system. Use installation approved messages provided by JBLM Directorate of Emergency Services (DES), Physical Security Branch. The system shall also connect to the current head-end equipment (CCU) and made fully functional from the remote site located at the JBLM Emergency Operation Command facility.

6.13.2. Fire Alarm Requirements.

6.13.2.1. Install all components of the fire alarm panel, transmitter, and sprinkler system risers at a convenient location with a direct exterior access door acceptable to the authority having jurisdiction for maintenance, inspection, and testing.

6.13.2.2. Do not install components above 72-inches on walls. Maintain a 36-inch clearance around components; Maintain a 36-inch clearance around FDC and BFP intakes/discharges.

6.13.2.3. Wiring on fire alarm system components shall be Class A (Style 7) signaling line circuits (SLC), Class A notification appliance circuits (NAC) and Class A Initiating Device Circuit (IDC). Overhead, underground,

Comment [sdn14]: Indicate here all renewable energy features that are included in project DD1391 and supported by LCCA. Be specific in description of features.

or direct burial cables shall be specifically approved for the purpose. Protect fire alarm wiring that runs underground at both ends with UL listed surge suppressors.

6.13.2.4. Fire alarm systems with 4 or more devices per alarm initiating device zone shall be of the addressable type, except in troop housing where all systems shall be addressable type. Provide all fire alarm panels and associated cabinets with UL listed surge suppressors on incoming AC power.

6.13.2.5. Do not include annunciators in fire alarm system designs unless specifically called for by JBLM Fire Department.

6.13.2.6. Manual pull stations shall be double action type. Stations employing glass rods are not acceptable. Key panels and manual pull stations for a JBLM master key # 211.

6.13.2.7. Provide phenolic resin labels on all fire alarm cabinets to indicate function, as well as, in electrical supply cabinets. Labels shall be red in color with white lettering. Paper or cloth tape labels are not permitted except on wiring.

6.13.2.8. Provide training courses for the operations and maintenance staff. The system maintenance, expansion, and modification training shall consist of on-site and/or off-site class room training as necessary to fully qualify the government operations and maintenance technicians to perform all levels of maintenance, expansions, and modifications to the fire alarm system, hardware, software, and miscellaneous components. This training will include (and turn over to the government) all proprietary licenses, software, and tools to perform the required tasks. Provide all specialized equipment and/or training to program, edit existing program, add or delete devices, etc. as a part of the fire alarm system. Include and pay all costs necessary for two government personnel to attend training, to include airfare, lodging and meals, unless factory training is provided at JBLM.

6.13.2.9. Smoke detectors in addressable systems shall be photoelectric analog type, providing information that the control unit stores in memory, and uses to provide a history of detector stability, and notification at the control unit where sensitivity is outside its acceptable sensitivity range. Smoke detectors in sleeping rooms shall be fully addressable, self resetting (no manual reset required at the FACP) with a sounder base operated from the fire alarms controls panel power and having reverse polarity sounding capability for local and general alarms. Activation of the sleeping room smoke detector will only set off its sounder base for local audible alarm. A general alarm will also activate the sounder base. Upon a local alarm condition the detector shall be non-latching, not require reset at the fire alarm panel after a local alarm, and not cause the transmitter to send an alarm or trouble.

6.13.2.10. All as-built drawings shall show the exact run of conduit, quantity of wires, wire color code, location of every initiating device, signaling device, module, and any major junction boxes or power supplies. The plans will also show loop number and the address of each device or module if the system is addressable.

6.13.2.10.1. When warranty is in effect, the Contractor shall be required to respond (physically go to building in Alarm or Trouble) within 48 hours to an ALARM CONDITION and 72 hours to a TROUBLE CONDITION. Provide warranty management plan in accordance with Section Closeout Submittals..

6.13.3. For dry sprinkler systems, use only beltless and oilless compressors.

6.13.4. Coordinate with JBLM Life Safety System Manager for permit process, design, installation , and acceptance testing requirements for life safety systems

6.13.5. If a fire suppression sprinkler riser is located within a facility and is not in a mechanical room or dedicated fire protection room, the riser shall be installed in a fenced enclosure with access gate and a padlock keyed for a JBLM master key #750 to prevent access by building occupants to valves and controls. Do not locate valves and controls in stairwells.

6.13.6. Provide GE SupraSafe 2HSR or Suprasafe1 (key type: Titan Code C4733) rapid entry key boxes on exterior of building on the left side and within 6 feet of main entry and on interior adjacent to elevators.

6.14. SUSTAINABLE DESIGN

Comment [JTH15]: Note: Conduit for all looped, supervised alarm wiring is an obsolete requirement, which exceeds the UFC and NEC requirements. The next update to the UFGS will eliminate this old requirement. It is expensive and wasteful per the Army AHJ. I deleted the requirement per Bob Diangelo.

Comment [JTH16]: This document is not intended for use on residential family housing projects. I deleted the proposed language.

6.14.1. LEED Rating Tool Version. This project shall be executed using «LEED_VERSION».

Comment [sdn17]: [LEED-NC Version 2.2][LEED-NC Version 3][text block for other to be filled in by specifier]

6.14.2. <ONLY_EXEMPT>LEED Minimum Rating. This project includes no facilities that are required to achieve a specific LEED achievement level. Project shall achieve and document all points required by other portions of the RFP and all points that are feasible, but there is no minimum required LEED achievement level.</ONLY_EXEMPT><NOT_ONLY_EXEMPT> The minimum requirement for this project is to achieve LEED «LEED_MIN» level. Each non-exempt facility (building plus sitework) must achieve this level. In addition to any facilities indicated as exempt in paragraph 3, the following facilities are exempt from the minimum LEED achievement requirement: «SD_EXEMPT_FACILITIES».</NOT_ONLY_EXEMPT>

Comment [sdn18]: [Silver][Gold][Platinum]

6.14.3. <SINGLECO>Credit Validation: LEED registration, compiling of documentation at LEED OnLine and use of the LEED Letter Templates is required. Registration and payment of registration fees will be by the «FEES_PAID_BY». Administration/team management of the online project will be by the «ADMIN_PERFORMED_BY». <USGBC>Validation of credits will be accomplished by the Government. LEED certification of the project by the Contractor is required. The Contractor will obtain LEED certification prior to project closeout. Application, payment of certification of fees and all coordination with USGBC during the certification process will be by the Contractor. GBCI interim review of design phase data is not required by the Government but is recommended. Government validation during project execution does not relieve or modify in any way the Contractor's responsibility to satisfy all requirements for certification as defined by LEED and GBCI. Contractor is not responsible for design phase LEED documentation of any unaltered portion of the design that is accomplished by others. If the project includes unaltered complete design by others, during the certification process Contractor will coordinate all GBCI comments on LEED credits that fall outside Contractor's scope of responsibility with the Government for coordination with the Designer of Record, and Contractor will not be penalized if project fails to achieve certification at the minimum required level due to loss of credits that are the responsibility of others.</USGBC><USGBC_NO>Validation of credits will be accomplished by the Government. LEED certification of the project by the Contractor is not required. The Government may choose to seek LEED certification of the project, in which case the Government will pay certification fees and coordinate with the GBCI and the Contractor will furnish audit data as requested at no additional cost.</USGBC_NO>

Comment [sdn19]: Select paragraph below if the project includes COS standard design buildings and a single contractor is doing all buildings and site work in the project. Edit for either Contractor or Government fees and administration (PDT choice). Registration is required.

</SINGLECO><SITE_BLDGOTHER>Credit Validation: The project is the site work <ADDITIONAL>and building(s)</ADDITIONAL> portion of a multiple contractor Combined Project. LEED registration, compiling of documentation at LEED OnLine and use of the LEED Letter Templates is required. Registration and payment of registration fees will be by the «FEES_PAID_BY». Administration/team management of the online project will be <ADMINGOV>by the Government</ADMINGOV><ADMINSHARED>shared between the Contractor and the Government per Appendix LEED Requirements for Multiple Contractor Combined Projects</ADMINSHARED>. <ADMINCONTRACTOR>Administration/team management of the online project will be by the Contractor per Appendix LEED Requirements for Multiple Contractor Combined Projects. </ADMINCONTRACTOR>Validation of credits will be accomplished by the Government. LEED certification of the project by the Contractor is not required. The Government may choose to seek LEED certification of the project, in which case the Government will pay certification fees and coordinate with GBCI and the Contractor will furnish audit data as requested at no additional cost.</SITE_BLDGOTHER><STDANDSITE>

Comment [sdn20]: Select paragraph below if the project includes the site work for COS standard design buildings by others. Include bracketed text in first sentence as applicable if project also includes standard design and/or non-standard design buildings in addition to site work for COS buildings by others. Registration and fees may be either by Contractor or Government (PDT choice). Administration may be by Government or shared - Contractor administers until construction phase, when Government must take over administration in order to compile and summarize data from the other contractors (PDT choice).

<STDANDSITE>Credit Validation: The project is a standard design building(s) portion of a multiple contractor Combined Project. LEED registration, compiling of documentation at LEED OnLine and use of the LEED Letter Templates is required. Registration and payment of registration fees will be by the «FEES_PAID_BY». Administration/team management of the online project will be by the «ADMIN_PERFORMED_BY». See Appendix LEED Requirements for Multiple Contractor Combined Projects for information about registered standard designs. Validation of credits will be accomplished by the Government. LEED certification of the project by the Contractor is not required. The Government may choose to seek LEED certification of the project, in which case the Government will pay certification fees and coordinate with GBCI and the Contractor will furnish audit data as requested at no additional cost.</STDANDSITE><NSTDMULTI>

Comment [sdn21]: Select paragraph below if the project includes COS standard design building(s) only and site work is by others. If only a single contractor will ever be working on all the projects for a particular standard design, the COS may require the Contractor to register the standard design as part of the initial project and administer the online standard design on all subsequent projects. If multiple contractors will be working on projects for a particular standard design, registration and administration must be by the Government (COS).

<NSTDMULTI>Credit Validation: The project is a non-standard design building(s) portion of a multiple contractor Combined Project. LEED registration, compiling of documentation at LEED OnLine and use of the LEED Letter Templates is required. Registration and payment of registration fees will be by the «FEES_PAID_BY». Administration/team management of the online project will be by the «ADMIN_PERFORMED_BY». Validation of credits will be accomplished by the Government. LEED certification of the project by the Contractor is not required. The Government may choose to seek LEED certification of the project, in which case the Government will pay certification fees and coordinate with GBCI and the Contractor will furnish audit data as requested at no additional cost.</NSTDMULTI><ONLY_EXEMPT>

Comment [sdn22]: Select paragraph below if the project includes non-standard design building(s) only and site work and COS standard design buildings are by others. Edit for either Contractor or Government fees and administration (PDT choice).

<ONLY_EXEMPT>Credit Validation: LEED registration, compiling of documentation at LEED OnLine and use of the LEED Letter Templates is <CREDIT_NO>not required. Contractor has the option to register the project, compiling of documentation at LEED OnLine and use the LEED Letter Templates. In this case, payment of registration fees and administration/team management of the online project will be by the

Comment [sdn23]: Select paragraph below if the project ONLY has exempt facilities and is not required to achieve LEED Silver.

Contractor. </CREDIT_NO><CREDIT>required. Registration and payment of fees will be by the «FEES_PAID_BY». Administration/team management of the online project will be by the «ADMIN_PERFORMED_BY». </CREDIT></ONLY_EXEMPT>

6.14.4. Commissioning: See Appendix M for Owner's Project Requirements document(s).

6.14.5. LEED Credits Coordination. The following information is provided relative to Sustainable Sites and other credits. <MULTI_NOT>

SS Credit 1 Site Selection:

Project site «FARMLAND» considered prime farmland.

<FLOOD1>Project site is five feet or more above 100-year flood elevation.</FLOOD1><FLOOD2>Delineation of 100-year flood elevation is shown on site drawings provided in this CONTRACT.</FLOOD2>

<HABITAT1>Project site contains no habitat for threatened or endangered species.</HABITAT1><HABITAT2>Delineation of threatened or endangered species habitat is shown on site drawings provided in this CONTRACT.</HABITAT2>

<WETLAND1>No portion of project site lies within 100 feet of any water, wetlands or areas of special concern.</WETLAND1><WETLAND2>Delineation of water, wetlands and areas of special concern is shown on site drawings provided in this CONTRACT.</WETLAND2>

Project site «PARKLAND» previously used as public parkland.

SS Credit 2 Development Density & Community Connectivity.

Project site «DENSITY» meets the criteria for this credit.

SS Credit 3 Brownfield Redevelopment.

Project site «BROWN» meets the criteria for this credit.

SS Credit 4.1 Public Transportation Access.

Project site «TRANS» meets the criteria for this credit.

EA Credit 6 Green Power.

35% of the project's electricity «GREEN» will be provided through an Installation renewable energy contract. Do not purchase Renewable Energy Credits (REC's) to earn this credit.

<MULTI_NOT>MR Credit 2 Construction Waste Management.

The Installation <DOESNOT>does not have an on-post recycling facility available for Contractor's use.</DOESNOT><DOES>has an on-post recycling facility.</DOES> <CONTACT_KNOWN>Contact «CONSTRUCTION_WASTE_CONTACT» for information about materials accepted.</CONTACT_KNOWN><LEED3>

Regional Priority Credits (Version 3 only)

The project zip code is «ZIP_CODE».</LEED3>

<MULTIPLE>See LEED Multiple Contractor Responsibilities Table(s) for additional information.</MULTIPLE>

6.14.6. LEED Credit Preferences, Guidance and Resources. See Appendix L LEED Project Credit Guidance for supplemental information relating to individual credits.

Comment [sdn24]: Attach Owner Project Requirements (OPR) document for each climate controlled facility/facility type in the project. Obtain OPR for Standard Designs from COS. Develop OPR for each non-standard facility using USACE template at <http://en.sas.usace.army.mil>. Refer to SOW whenever possible in this document to avoid conflict with SOW.

Comment [sdn25]: If site work and building(s) are by separate contractors, this is a MULTIPLE CONTRACTOR COMBINED PROJECT and you should skip to the MR2 section (edit to indicate whether buildings or site is by others and identify the buildings by others).

6.14.7. ~~<MULTI_NOT>~~Not Used~~<MULTI_NOT>~~~~<MULTIPLE>~~Multiple Contractor Combined Project. When site work and building(s) are accomplished by separate contractors, it is a Multiple Contractor Combined Project for purposes of LEED scoring and documentation. This project is part of a Multiple Contractor Combined Project that includes site work and building(s) accomplished by separate contractors. See Appendix LEED Requirements for Multiple Contractor Combined Projects and Appendix LEED Multiple Contractor Responsibilities Table(s) for special requirements for this project.~~<MULTIPLE>~~

6.14.8. Additional Information

6.14.8.1. JBLM Sustainability Philosophy is to apply systematic considerations of environmental impact, energy use, natural resources, economy, and quality of life so the end result is a quality, high-performance building. Priorities in the order listed below provide guidance on the relative importance of sustainable strategies to JBLM as an aid in design decision. However, additional proven sustainable strategies are encouraged.

- (a) The following are Fort Lewis' eight sustainability goals.
 - (1) Reduce installation stationary source and non-tactical motor vehicle air emissions 85 percent by 2025.
 - (2) Reduce total energy consumption by 30 percent by 2015.
 - (3) Sustain all activities on post using renewable energy sources and generate all electricity on post by 2025.
 - (4) Create sustainable neighborhoods for a livable community that enhances the Puget Sound region.
 - (5) Cycle all material use to achieve zero net waste by 2025.
 - (6) Maintain the ability of JBLM to meet its current and future military missions without compromising the integrity of natural and cultural resources, both on the installation and regionally.
 - (7) Recover all listed and candidate federal species in the South Puget Sound region.
 - (8) Treat all wastewaters to Class A reclaim standards by 2025 to conserve water resources and improve Puget Sound water quality.
- (b) The following priorities support JBLM sustainability goals.
 - (1) Energy savings, including architectural strategies, such as building orientation, daylighting, and building envelope efficiencies.
 - (2) Water savings/reuse.
 - (3) Low-emitting, non-toxic materials.
 - (4) Reusable/recyclable building materials (do not use materials that must be disposed of in a landfill when removed from the building).
 - (5) Tie in to neighborhood sustainability features (e.g., continuance of bike lanes, neighborhood gray water treatment and reuse system, use of neighborhood heat plants).
 - (6) Minimize turf areas/water intensive landscapes; use xeriscaping; use low-impact development strategies for stormwater.
 - (7) Provide operable windows and views for all building occupants.

6.14.8.2. Energy efficiency incentives and rebates through PSE may be available to the Contractor's. Contact PSE energy management engineer to confirm the available rebates and incentive programs that is suited for the project.

6.15. ENVIRONMENTAL

6.15.1. All actions shall comply with JBLM Installation Regulation 200-1 (Environmental Protection and Enhancement) and Section 01 57 20.00 10 (Environmental Protection). Installation Regulation 200-1 is available at <http://designstandards.lewis.army.mil/index1.htm> and Section 01 57 20.00 10 (Environmental Protection).

6.15.2. Emergency Unexploded Ordnance (UXO) Response: If UXO is encountered, immediately stop all activity in the UXO area and clear the area. Immediately contact JBLM EOD professionals to conduct an emergency response. Additionally, immediately contact UXO construction support staff, if present, or call 911 or Military

Comment [sdn26]: If site work and building(s) are accomplished by separate contractors, identify the project as a Combined Project

If site work and building(s) are accomplished by separate contractors, include general instructions on how LEED is handled for Combined Projects (standard text appendix LEED Requirements for Multiple Contractor Combined Projects), (STANDARD APPENDIX "N" IN WIZARD)

If site work and building(s) are accomplished by separate contractors, include LEED Strategy Tables (STANDARD APPENDIX "O" IN WIZARD), which indicate the status of site selection points, establish the number of points each contractor must earn relative to each building, and establish each contractor's requirements for shared building/site points.

If site work and building(s) are by separate contractors, add the MULTIPLE CONTRACTOR COMBINED PROJECT paragraph below.

Comment [sdn27]: Indicate here all project-specific differences from the default assumptions in Appendix L. For Multiple Contractor Combined Projects, describe here the other contacts and buildings in the combined project.

Comment [JTH28]: The UFGS is already in the RFP.

Police. Notify the USACE Contracting Officer's Representative (COR) of the incident, as soon as possible. EOD professionals will determine the threat to human health and the environment and the safety measures required. Do not return to work until EOD or other JBLM safety personnel determine the area is safe to enter. Include procedures for such scenarios with contact numbers in the Health and Safety Plan (HASp) for the fieldwork, per the Washington State Department of Labor and Industries requirements and JBLM Regulation 200-01.

6.15.3. Monitoring wells may be encountered during construction activities. Protect any monitoring wells encountered during construction activities against damage. Repair any monitoring well damaged in any way, at the Contractor's expense. Contact the COR if a monitoring well is encountered. The COR who will contact JBLM Environmental Restoration Program (Point of Contact: James Gillie [253-966-1774]) to determine the disposition of the well

6.15.4. Other environmental issues (i.e., underground storage tanks, transite (asbestos) piping, transformers, etc.) may be encountered during construction activities. Contact the COR if an environmental issue is encountered.

6.15.5. Land Use Controls: Contact the COR to determine if land use controls are in effect at the work area. These may include, but are not limited to, hazardous substances on site, restrictions on construction activities, and/or special worker health and safety requirements.

6.15.6. Hazardous Materials: Coordinate all hazardous materials with and obtain authorization from the JBLM Pollution Prevention Program or JBLM YTC Environmental Compliance prior to use on JBLM YTC. Provide hazardous material inventories, as specified in the documents referenced at 6.15.1, above.

6.15.7. Green Procurement: JBLM requires the purchase, supply, and use of environmentally preferable products and services. The JBLM Guide to Green Procurement for Construction is available for reference in the "Reference Manuals" section of the JBLM design standards webpage (<http://designstandards.lewis.army.mil/index.htm>). Additional information is available from the JBLM Green Procurement Program at 253-966-6466 or LEWISPWGreenProcurement@conus.army.mil.

6.15.8. Environmental Management System (EMS): Contractor shall be familiar with the JBLM environmental policy and shall ensure that this information is considered and incorporated into all projects. Maintain a copy of the policy on site. The installation policy can be found at https://sustainablefortlewis.army.mil/EMS/pdf/FL_EnvironmentalPolicy.pdf. Additional information on the installation EMS can be obtained by contacting the installation EMS coordinator at 253-966-6470.

6.15.9. Waste Procedures.

6.15.9.1. All procedures for solid waste, including hazardous waste, shall comply with the documents referenced at 6.15.1. This includes the submission of a nonhazardous solid waste diversion report to JBLM ED or to JBLM YTC ED. Prior to leaving JBLM, manifest all hazardous waste, as specified in the documents referenced at 6.15.1.

6.15.9.2. Turn in all construction and demolition scrap, in accordance with the latest JBLM Scrap Turn-In Policy Memorandum.

6.15.10. Spill Response (JBLM): Notify the JBLM fire department (dial 911) immediately in the event of a hazardous spill. The first person on scene that identifies the hazard must notify the fire department – this may or may not be the Contractor's designated POC.

6.15.10.1. After notifying the fire department, call JBLM PW Environmental Services (253-967-4786) and the COR.

6.15.10.2. The JBLM ED is responsible for contacting federal, state, and local reporting channels if a reportable quantity is released to the environment.

6.15.10.3. Provide a spill response plan for review by the COR and JBLM ED. List reporting channels, telephone numbers, and the hazardous materials stored on site and include copies of material safety data sheets

for the hazardous materials and a site diagram outlining where the storage sites are located. All supervisors on site shall be trained in the execution of the spill plan. Document all training.

6.15.11. Contractor Generated Spills: Manage, store, dispose, and dispense petroleum products, hazardous materials, and hazardous wastes according to all federal, state, and local regulations (to include JBLM Installation Regulation 200-1).

6.15.11.1. Comply with all Washington State Department of Transportation (WSDOT) requirements associated with hazardous materials/hazardous waste, including proper container marking/labeling and vehicle placarding when transporting hazardous materials/hazardous waste on or off the installation.

6.15.11.2. Obtain Government approval prior to removal of any hazardous waste from the installation. Only an authorized hazardous waste transporter having an EPA Identification Number shall remove the hazardous waste, and the waste shall be recorded on a Uniform Hazardous Waste Manifest (EPA Form 8700-22). An authorized representative of JBLM Environmental Services must sign all hazardous waste manifests prior to removal from JBLM. See documents referenced at 6.15.1 for more information..

6.15.12. SOLID WASTE DIVERSION PRACTICES

6.15.12.1. All construction activities at JBLM shall require at least 60 percent of construction and demolition materials such as excess lumber, roofing, drywall, carpet, piping, cardboard, etc., to be diverted from the landfill.

6.15.12.2. Government policy shall apply sound environmental principles in the design, construction, and use of facilities. As part of the implementation of that policy, the Contractor shall practice efficient waste management when sizing, cutting, and installing products and materials and shall use all reasonable means to divert construction and demolition waste from landfills and incinerators and facilitate their recycling or reuse.

6.15.12.3. Submit a waste management plan in accordance with Contract Section 01 57 20.00 10, Environmental Protection, and prior to initiating any site preparation work. In addition to the requirements in that Section, include the following:

- (a) Description of the specific approaches to be used in recycling/reuse of the various materials generated, including the areas and equipment to be used for processing, sorting, and temporary storage of wastes.
- (b) Characterization, including estimated types and quantities, of the waste to be generated.
- (c) Name of landfill and/or incinerator to be used and the estimated costs for use, assuming no salvage or recycling on the project.
- (d) Identification of local and regional reuse programs, including JBLM programs and non-profit organizations such as schools, local housing agencies, and organizations that accept used materials such as materials exchange networks and Habitat for Humanity.
- (e) List of specific waste materials to be salvaged for resale, salvaged and reused, or recycled. Identify recycling facilities to be used, including those on JBLM.
- (f) Identification of materials that cannot be recycled/reused with an explanation or justification.
- (g) Anticipated net cost savings determined by subtracting Contractor program management costs and the cost of disposal from the revenue generated by sale of the materials and the incineration and/or landfill cost avoidance.

6.15.13. CONTAMINATED SOILS: In the event that abnormalities, discolorations, odors, oil, or other signs of potential contamination by hazardous materials are encountered during excavation, soil borings, or other construction activities, stop work and notify the Government immediately. Coordinate with the JBLM ED Environmental Restoration Program. Follow with written notice within 24 hours, indicating date, time, and location of potential contaminants encountered. In the event contaminated soil is encountered, all field and laboratory technicians must be trained and certified for handling hazardous materials.

6.15.14. HISTORIC PROPERTIES: Stop work immediately and notify the COR and the JBLM Cultural Resources Program Manager if unidentified/unanticipated cultural resources are discovered/found during excavation or other construction activities.

6.16. PERMITS

6.16.1. The Government has obtained no permits/licenses to this project.

6.16.2. The Contractor shall obtain ALL permits/licenses required for this project. Submit permits to the Contracting Officer and PW ED to allow time for review and revisions with ultimate submittal at least 10 days before commencing removal activities. Provide amendments to the permits to the Contracting Officer and ED. The Contractor shall be responsible for determining fee basis and paying all filing fees.

6.16.3. Upon notice to proceed, immediately begin working required permits, and supporting information required by the Government to process permits.

6.16.4. DIG PERMITS. Obtain a dig permit from JBLM DPW (509-577-3407).

6.16.5. Complete all applications for the Clean Air permit and submit to JBLM ED for review. Once reviewed, incorporate changes and forward application and fee to the appropriate agency.

6.16.6. CONSTRUCTION GENERAL PERMIT (CGP): Construction sites that will have a land disturbance of one or more acres (or are part of a common plan of development that will disturb an acre or greater) or have multiple construction sites under one contract if the total land disturbance for all sites is greater than one acre, must be covered under the EPA's NPDES CGP if discharges enter, or have the potential to enter, surface waters of the United States or the JBLM stormwater system, which discharges to United States waters

6.16.6.1. Submit an NOI in accordance with the CGP. Obtain coverage prior to any land-disturbing activities.

6.16.6.2. Prepare a site-specific SWPPP and submit it to JBLM PW; it must be approved prior to submitting the NOI to the EPA. The SWPPP and the CGP must be followed as appropriate until final stabilization has occurred. The SWPPP is a living document and must be updated when site conditions change.

6.16.6.3. To stop permit coverage, submit a Notice of Termination (NOT) to the EPA. Submit a copy of the NOT to PW Stormwater Program.

6.16.6.4. If at any time permit conditions are not being met, contact JBLM PW Stormwater Program within 24 hours.

6.16.7. BORROW PIT AUTHORIZATION. See paragraph 6.4.8.

6.16.8. CRANE PERMITS. Crane Permits are obtained by contacting the Air Traffic Control Branch (253-966-6136). Provide notice of any crane activity at least 35 days prior to use.

6.16.9. TEMPORARY ROAD CLOSURES: Submit a traffic control plan in accordance with the Manual on Uniform Traffic Control Devices to the Contracting Officer for approval of any temporary road closures. After approval, provide 14 calendar days notice to the Government before the closure.

6.16.10. All permit applications must indicate the following address as the building and site owner:
JBLM PW
ATTN: IMNW-PWE
Box 339500 (Building 2012)
Joint Base Lewis-McChord, WA 98433-9500

6.16.11. Additional Required Project Specific Permits:

«PERMITS»

6.17. DEMOLITION

6.17.1. DISPOSAL, RECYCLING AND REUSE OF MATERIALS.: Waste material generated from the project may be recycled or reused on post in designated recycling and reuse areas. Dispose, recycle and reuse all other materials not designated for on post recycling or reuse off post at the Contractor's expense. JBLM recycling and reuse areas for the specified materials are as follows

(a) Sequalitchew Training Area and Center for Environmental Education and Earthworks ("Earthworks"). Materials accepted for recycling purposes are concrete, asphalt, brick, concrete block (if not painted with lead-based paint), rock, land clearing/clearing debris, and excess uncontaminated soil.

(b) Uncontaminated excavated or unsuitable soils are accepted at the following pits subject to availability and direction of JBLM PW, Sequalitchew, Gray Army Airfield Pit, East Gate Pit, and Lincoln Pit. Non-hazardous lead-contaminated soil (top 6 inches from designated areas) is accepted at former Landfill 2 subject to availability and direction from PW.

(c) Submit a "Borrow Source Use and Entry Notification Form" to dispose of uncontaminated soils within JBLM at the designated sites and under the direction of PW.

(d) Coordinate all recycling activities, disposal of materials on JBLM, and obtaining of permit forms through PW, Solid Waste and Recycling Program Manager JBLM PW/ED, ; Phone: (253) 966-6452; cell: (253) 377-1420; fax: (253) 967-9937; e-mail: ron.norton1@us.army.mil.

6.17.2. The Government maintains the right to salvage all materials from the building until the NTP date.

6.17.3. Assume that all demolition buildings will have no salvage value.

6.17.4. Fill depressions caused by the removal of demolished materials such as building pavements, sidewalks, utility lines, and pad, etc., to grade, compact per soil compaction requirements, and slope to drain towards the nearest appropriate structural stormwater management measure.

6.17.5. If fuel-contaminated soils are found during demolition or cut/fill operations, cease work immediately and notify either the Contracting Officer representative or the Contracting Officer for resolution that can include removal of the contaminated soil, filling, and capping area with clean, uncontaminated soil. Coordinate with JBLM ED to ensure proper classification and procedures prior to removal of contaminated soil.

6.17.6. ABANDONED UTILITIES: Locate and remove any abandoned utilities found onsite that may interfere with the site development or building.

«DEMOLITION»

6.18. ADDITIONAL FACILITIES

«ADDITIONAL_FACILITIES»

End of Section 01 10 00<TO>.«TONUM»</TO>