Overview

The US Army Combat Capabilities Development Command Soldier Center (CCDC-SC) in Natick, MA plans to award a single or multiple contract(s) to clothing design/cut/sew supplier(s) to produce 300 experimental cold wet weather waterproof hardshell jackets and trousers in six sizes with a receipt date no later than 7 DEC 2020 for a Winter 2021 limited user evaluation (LUE). The Government has detailed technical illustrations and digital patterns of the clothing items based on past evaluations. Although all submissions are welcome, the focus of this effort is to reduce weight and bulk, maintain water impermeability, and increase overall garment breathability through novel manufacturing approaches.

Requirements

The experimental CTAPS jacket and trousers shall be fabricated to reduce weight and bulk, maintain water impermeability, and increase overall garment breathability using the ECWCS GEN III Level 6 Jacket and Trouser (GL-PD-06-06D & GL-PD 06-17D) as a comparative baseline.

Responses

To respond to this solicitation, the Government will furnish detailed technical illustrations depicting designs and a Bill of Materials (BOM) which includes required fabrics and findings. In addition, the Government shall furnish electronic patterns in base size Medium Regular for proposal costing purposes only. Interested supplier’s proposal shall quote on the garments as designed without changes with unit price and delivery terms. Proposals shall include estimated labor and material costs. The quote may also include a quote for a second design which proposes modifications to the Government design to enhance performance and ease of use, ease of manufacturing with rationale, pricing and delivery terms.

Due to critical requirements the base materials for all the clothing items CANNOT be changed. See detailed illustrations and BOM in respective clothing item spreadsheet for this SOW. The contractor shall identify the risks to meeting the delivery schedule and how they will mitigate the risks. No detailed performance specification will be furnished so the Government shall rely on suppliers to fabricate the garments based upon their experience in construction of military field and/or combat garments and utilize their best commercial production and inspection practices.

During the first 10 business days of the solicitation period, interested suppliers can view the baseline cold weather system and/or a government designed mock-up of this garment via a government approved video conference by appointment for a maximum of 1 hour. Government patterns shall be provided in electronic format in a recent Gerber AccuMark version. For contractors without access to compatible AccuMark CAD and/or plotting capabilities is recommended to utilize a 2nd party Pattern Service for pattern conversion and/or plotting. The Government owns all data rights from this effort.
Testing of Samples

Before contract award, interested suppliers will be required to submit supporting data and provide the Government with sample swatches to the below test list using production materials and findings listed on the BOM demonstrating proposed seaming technologies for physical testing by the Government. Interested suppliers will not be compensated for test swatches before award. Test methods used to evaluate physical performance include the following:

**Property: Seam strength**
- 5 seamed specimens per proposed technology method warp and weft per ASTM1683(section 8)
- Seam strength will be evaluated compared to current ECWCS L6 seam strength of stitched and waterproof seam sealed. Threshold: Maintain at least 60% of current ECWCS L6 stitched seam strength. Objective: to have 75% of seam strength of current ECWCS L6 stitched seam retained.

**Property: Hydrostatic Resistance**
- Method: ASTM D751 Standard Test Methods for Coated Fabrics – Hydrostatic Resistance Procedure B, Procedure 2 shall be utilized to determine if the seams are resistant to leakage at a fixed hydrostatic head pressure of 50 centimeters for three (3) minutes. The hydrostatic pressure shall be applied to the outside or face of the garment. Leakage is defined as the appearance of water at three (3) or more different places or the continuous flow of water through the material or seams at one (1) or more different places within the 4-1/2 inch diameter test area.
- Hydrostatic Resistance will be evaluated for “no leakage”.

**Property: Physical surface appearance**
- Specification: MIL-PRF-32142 - Cloth, Waterproof and Moisture Vapor Permeable - Section 4.4.4.2
- Samples required are before and after 5 hour wash.
- Modification: Instead of 96 hours of continuous wash, reduce hours to 5 hours.
- Modification: Instead of 14” full width fabric sample, sample shall be constructed with proposed seam technology for length of 30” flanked by a 12” fabric piece on each side. Samples will be evaluated for delamination of seam and/or seam tape with no areas longer or wider than 1/8 to include edges of seam tape.

Evaluation of Samples and Prototypes
The intention of this program is to identify materials and manufacturing methods that substantially improve on the performance of the legacy cold/wet weather layer in order to identify trade space for future garments. Therefore the performance of all textile samples and garment prototypes will be compared against the baseline ECWCS GEN III Level 6 Jacket and Trouser (GL-PD-06-06D & GL-PD 06-17D). Submissions will be evaluated in two stage gate phases.

- Phase 1 will evaluate physical characteristics of materials and construction methods via standard laboratory tests according to the methods above. Candidates that demonstrate performance increases over the baseline in all areas will move on to Phase 2.
- Phase 2 will evaluate prototype garments in relevant cold weather field environments. Criteria will be based on field durability, Soldier acceptance, and compatibility with other Soldier equipment and operations.
Evaluation of Quote Responses

Submissions will be evaluated for Programmatic and Technical content.

1. **Programmatic review** will be conducted by Government Subject Matter Experts and by AFFOA Program Managers according to the following criteria:
   a. Ability to meet delivery date.
   b. Delivery risks identified and mitigation strategy.
   c. Berry Amendment and Buy America Act compliance.
   d. Ability to provide pre-production sample swatches for testing and evaluation pre-contract award.
   e. Potential for Product Scale up and large scale manufacturing (domestic only).

2. **Technical review** will be conducted by Government Subject Matter Experts according to the following criteria:
   a. Ability to meet critical requirements of the system.
   b. Inspection processes and any relevant quality certifications the supplier may have.
   c. Material and labor costs.
   d. Physical testing results of new manufacturing technologies.

**Scope of Work (Post-award)**

1. **PATTERN REVIEW:** The Contractor will review the Government furnished patterns to determine if any clarifications are needed at the Design Review after award. The Contractor will make all pattern adjustments over the duration of the contract, if needed, but only after approved in Design Review. All recommendations should be provided for the design review via the manufacturability report (template provided by the Government.) Approved changes made to patterns must be must be supplied back to the gov’t in the same electronic format as received from the Government (hard copies of the pattern in base size) used for production are also being requested.

2. **DESIGN REVIEW:** A Design Review will be conducted via telecom within 5 days of contract award. The Government and Contractor shall review the proposed garment design, provide clarification, as required, and finalize approach.
   **Note:** before the contract award, The Government may make minor changes to the final designs and patterns of the jacket and trousers based on new feedback from a winter 2020 field evaluation. Changes may include minor modifications for fit, zipper lengths, changing hoods to stowable or removable hoods, and other minor changes. Interested supplier will have the opportunity to revise the estimated labor and material costs based on these changes.

3. **MOCK UP GARMENT SAMPLES:** While the contractor orders and waits for materials and findings for production, the contractor shall fabricate a sample of the jacket and trouser, using surrogate or sample materials, based upon the patterns and design agreed upon in the Design Review. The mock up sample shall be furnished to the Government within 2 weeks after contract award including shipper and tracking number. Based upon the contractor’s experience
making the sample, they can propose minor modifications to facilitate manufacturing without a cost, price or schedule increase, via the manufacturability report. The Government has 10 business days to review the samples, discuss findings in a telecom and approve the sample configuration for production. The Government shall return the approved sample to the contractor with a tag citing any exceptions via overnight shipment. If time and need permits, a second sample fabrication can be executed, if beneficial.

4. **PRE-PRODUCTION SAMPLES:** The contractor shall make two (2) pre-production samples in Size Medium Regular (MR) and one (1) pre-production samples in sizes SR, ML, LR, LL, and XLR. The pre-production must be made in the selected test item fabrics, however, different color fabrics can be used if they are the only ones available while the actual fabric order for fabrication is ongoing. The contractor will annotate any adjustments they may have made to facilitate production which differ from the inspected mock up sample. The contractor shall ship the pre-production samples to the Government Point of Contact and furnish tracking number information. The Government will approve or identify improvements within 10 business days. The Government will retain one (1) MR pre-production sample and overnight ship the remaining samples to the contractor tagged with approval and clarification as reference. At the end of the contract, all pre-production reference samples will be delivered to the Government.

5. **PRODUCTION:** The contractor shall supply personnel and equipment to fabricate 300 each of the experimental clothing system, in the size tariff listed below using best commercial fabrication and quality practices to minimize defects that cause failure in the military field use.

<table>
<thead>
<tr>
<th>Size</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Regular (SR)</td>
<td>27</td>
</tr>
<tr>
<td>Medium Regular (MR)</td>
<td>117</td>
</tr>
<tr>
<td>Medium Long (ML)</td>
<td>24</td>
</tr>
<tr>
<td>Large Regular (LR)</td>
<td>99</td>
</tr>
<tr>
<td>Large Long (LL)</td>
<td>21</td>
</tr>
<tr>
<td>XLarge Regular (XLR)</td>
<td>12</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>300</strong></td>
</tr>
</tbody>
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6. **LABELING:** The contractor shall label each garment which shall include CTAPS Item Description (See Spreadsheet, Year, Size, and Contract Number). The label shall be positioned at the center back of the top item neckline and center back of the trouser waist band and shall not cause wearer discomfort and shall be durable to 20 launderings.

7. **INSPECTION:** The contractor shall conduct quality inspection which includes 100% finish garment quality inspection and make any repairs necessary to prevent latent defects causing failure in military field use. The Government reserves the right to participate in the contractor’s end item inspection at their location. The contractor shall furnish the Government the finished garment dimensions they record, their quality inspection record and repair record. The contractor shall provide the Government a list of proposed changes via a manufacturability report (using the Government provided template) to improve manufacturability based upon
their experience fabricating the 300 clothing sets. The Government will consider proposed changes if the items proceed for further development.

8. PACKING/SHIPMENT: CTAPS Clothing items shall be boxed and marked separately and ship to the following locations with a 7 Dec 2020 delivery date. Cartons containing mixed sizes are permitted provided they are clearly marked on the exterior. The clothing items shall be individually packaged inside plastic bags for protection during shipment and storage. Current shipment locations have not been determined, however they will likely be to the states of Alaska, upstate New York, Washington State, Vermont, and potentially the country of Norway.

<table>
<thead>
<tr>
<th>Location</th>
<th>Total Quantity</th>
</tr>
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<tbody>
<tr>
<td>TBD</td>
<td>290</td>
</tr>
<tr>
<td>10 General Greene Ave.</td>
<td>10</td>
</tr>
<tr>
<td>Natick, MA 01760</td>
<td></td>
</tr>
</tbody>
</table>

9. PATTERNS: The contractor shall furnish the Government with the nest of patterns used in production in recent Gerber Accumark Version electronic format and paper print out of each size.

10. MATERIALS: The contractor shall furnish the Government with 10 yards of the fabric and enough seam samples that would consume up to 8 yards of fabric for further physical testing.

The fabric may be sent during anytime during the manufacturing process, though preferably as soon as available. The contractor and the entire supply chain are required to adhere to the Berry Amendment.

11. PROJECTED COST: At the end of the fabrication effort, the contractor shall delineate what they expect is a fair and reasonable price to produce and deliver the item on a large scale. Note that this is a separate cost estimate than the original quote for prototypes. The volume scale should consider production starting at 5,000 units/year followed by increments of 5k up to 20,000 units/year. The total unit cost shall be broken down into material and labor costs. The contractor shall include recommendations for cost reduction if and where applicable. Please note that this is not an obligation from the Government for future contracts.