



**COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF GENERAL SERVICES**

**SPECIFICATIONS**

**Rubber Dam Bladders (Bags)**

**Invitation for Bid No. 6100040651**

**12/02/2016**



**IFB# 6100040651**  
**Rubber Dam Bladders (Bags)**  
**For Department of Conservation and Natural Resources**

**I. GENERAL REQUIREMENTS**

- A. SCOPE:** This Invitation for Bid (IFB) issued by the Pennsylvania Department of General Services (DGS) on behalf of the Pennsylvania Department of Conservation and Natural Resources (DCNR) will cover DCNR's requirements for Rubber Dam Bladders (bags). The Specifications include the design and manufacture of two (2) Rubber Dam Bags, internal air distribution tubing, rubber repair supplies and tools for delivery to Shikellamy State Park, Sunbury, Pennsylvania. The existing rubber dam bags to be replaced, Bags #1 and #7, were installed in 1985 and were manufactured by Bridgestone Tire and Rubber Company. The new rubber dam bags shall be compatible in design, construction, quality and operation to the Bridgestone rubber dam bags. In addition to this Specification document, the following documents are incorporated as exhibits and made part of this Specification:

- Exhibit 1 Lot 1 Initial Reverse Auction Bid Sheet
- Exhibit 2 Reverse Auction Package
  - Attachment A, Intent to Participate Form
  - Attachment B, Final Reverse Auction Bid Sheet
- Exhibit 3 Reciprocal Limitations Act Requirements (GSPUR-89)

This IFB is comprised of a single lot which encompasses multiple line items. Bidders must bid on all line items within the lot to be considered for award. The specific line items contained in the lot are identified on Exhibit 1, Initial Reverse Auction Bid Sheet. See additional instructions on Exhibit 1.

The Commonwealth, as part of this solicitation, will be utilizing a reverse auction to secure competitive market pricing while maintaining or improving quality. All responsive and responsible bidders will qualify for the reverse auction. Specific information regarding the reverse auction is contained in the Reverse Auction Package, which is attached as Exhibit 2. In order to participate in the reverse auction, Suppliers must agree to the terms and conditions contained with the Reverse Auction Package, including but not limited to, individual supplier training provided by the DGS.

- B. BIDDING INFORMATION:** Pricing will consist of four components: 1) the Initial Reverse Auction Bid Sheet submitted in response to the IFB (Exhibit 1 to these Specifications); 2) extended total lot price entered in the SRM auction platform; 3) the Reverse Auction; and 4) the Final Reverse Auction Bid Sheet (Attachment B to the Reverse Auction Package).

The following documents are required to be completed and returned with your bid. Bids may be rejected for failure to return the required documents.

- Attachment A to the Reverse Auction Package – Intent to Participate Form
- Exhibit 2, Initial Reverse Auction Bid Sheet in Excel® Format; do not provide in .pdf format.
- Exhibit 3, Reciprocal Limitations Act Requirements (GSPUR-89); completed.

- C. METHOD OF AWARD:** The Department of General Services (DGS) will award to the Bidder who, as a result of the Auction, offers the lowest, total price per lot (extended price). The Supplier who, as a result of the Auction, offers the lowest price will be awarded a contract.

- D. PRE-BID SITE VISIT:** A pre-bid site visit will be held at Shikellamy State Park on Tuesday, November 22, 2016, at 10:00 am. The purpose of this meeting is to allow bidders to view the delivery area and site to and to acquaint themselves with the existing conditions, activity involved, and to provide opportunity for clarification of the IFB. Bidders may ask questions at the conference. The Pre-

Bid meeting is for information only. Any answers furnished during the conference will not be official until they have been verified, in writing, by the Issuing Office. All questions and written answers will be posted on the Department of General Services' (DGS) website, eMarketplace, and with the bid in the PA Supplier Portal as an addendum to the IFB. Attendance at the Pre-bid meeting is optional.

**\*\*NOTE: All parties attending the pre-bid site visit are required to meet at the Shikellamy State Park Office to sign in and will proceed to the site as a group.**

**E. DELIVERY:**

1. The work under this Contract will take place in August and September of 2017, typically when the Susquehanna River is at low flow.
2. Contractor must deliver the rubber dam bags no later than August 15, 2017, no delivery can occur prior to August 08, 2017.
3. Contractor must contact John Clifford, Park Manager, or designee, at (570) 988-5557 prior to delivery to make arrangements.
4. Actual delivery costs must be documented and submitted with invoices at the time of payment. The Commonwealth will only reimburse the awarded Contractor for actual delivery costs.

**F. SERVICE REQUIREMENTS: To be eligible for this Contract, the Contractor shall:**

1. Meet all requirements of this Specification and its Exhibits.
2. Verify and confirm all site dimensions, elevations and details, as needed, prior to fabrication and manufacture of the rubber dam bags. Provide field survey, if required.
3. Fabricate and manufacture rubber dam bags for the replacement of bags #1 and #7 at the existing rubber dam at Shikellamy State Park, Sunbury, Pennsylvania.
4. Submit shop drawings, catalog cuts, and manufacturer's certifications for the products specified in these specifications.
5. Supply an Installation Manual prior to the commencement of the installation.
6. Supply an Operating Manual prior to the commissioning of the new rubber dam bags.

**G. MOBILIZATION/DEMOBILIZATION REQUIREMENTS: Mobilization and Demobilization shall include all associated costs, including travel and subsistence, to mobilize and demobilize the Contractor's Installation Advisor, materials and tools to and from the installation site. The Contractor shall be reimbursed for the Installation Advisor's travel, lodging and subsistence expenses in accordance with the Commonwealth's Management Directive (MD) 230.10. Travel and subsistence compensation will only pertain to travel and expenses incurred during the performance of services associated with the Mobilization and Demobilization portion of the Contract. The MD 230.10 can be found at the following link: [http://www.oa.pa.gov/Policies/md/Documents/230\\_10.pdf](http://www.oa.pa.gov/Policies/md/Documents/230_10.pdf). All Travel and subsistence reimbursement costs shall be documented and the appropriate receipts and invoices provided to the DCNR for reimbursement.**

**1. Mobilization:**

- a) Contractor shall arrange for delivery of the rubber dam bags including, all essential equipment, materials and supplies, necessary for installation. The method, placement and storage of materials and supplies shall be approved in advance by the Park Manager, or designee; arrangements must be confirmed in writing. The DCNR shall have the responsibility for unloading and storing the supplied equipment once delivered to Shikellamy State Park or to a designated storage area within a 25 mile radius of Shikellamy State Park.
- b) Contractor shall be responsible for all aspects of delivery including transportation, permits, expenses, etc.
- c) Contractor must provide an experienced Installation Advisor to be on-site during complete installation and initial inflation and deflation of the rubber dam bags. Attendance shall be sufficient such that the manufacturer can warrant the rubber dam bags once installed.
- d) Installation will be completed by personnel, with prior installation experience, from the Pennsylvania Department of Conservation and Natural Resources, Shikellamy State Park. The Contractor's Installation Advisor shall assist and direct during the installation and testing of the rubber dam bags.

**2. Demobilization:**

- a) The installed rubber bags shall be inflated and deflated before being accepted by the DCNR. The dam bags shall have no significant water or air leakage.
- b) Contractor must remove from the site all equipment and excess materials or supplies when installation is complete. The method of work and placement and storage of materials and supplies shall be approved in advance by the Park Manager, or designee.

**H. STORAGE REQUIREMENTS:** To be eligible for this Contract, the Contractor shall:

- 1. Store the rubber dam bags at a secure location free from damage or destruction. Should the rubber dam bags become damaged or marred while in storage at the Contractor's facility the DCNR will not be liable for damages or payment of product.
- 2. Storage will be required due to unforeseen weather or water conditions preventing installation or causing a delay in the installation schedule; in extreme conditions (i.e. high water), storage could be up to August 2018.
- 3. If required to store the rubber dam bags the Contractor will be permitted to charge a storage fee as per the pricing structure submitted with the Contractor's bid/auction.

**I. QUALITY ASSURANCE:** All work and the execution of same shall be completed in a first class, workmanlike manner and shall conform to the best building practice.

**J. STANDARDS AND REGULATIONS:**

- 1. Nothing contained in these specifications or shown on the drawings shall be interpreted to be in conflict with any standards, local codes, ordinances or regulations governing the installation of the class of work specified herein.

2. The entire installation shall conform to all pertinent codes and regulations; local, municipal, county and state authorities; and, other regulatory bodies having jurisdiction over this class of work.
3. All materials and equipment shall bear stamps or seals of the NFPA, ASME, AMCA, NEMA and other industry regulating groups, where applicable.

**K. PRODUCTS:**

1. **Materials and Equipment:** All equipment or apparatus of any one system must be the product of one manufacturer, or equivalent products of a number of manufacturers which are suitable for use in a unified or assembled system. The products shall be compatible in design, construction, quality and operation to the Bridgestone rubber dam bags currently in use by the DCNR, Shikellamy State Park, for bags #1 and #7.
2. **Performance of Equipment:** All materials, equipment and appurtenances of any kind shown on the drawings, hereinafter specified, or required for the completion of the work in accordance with the intent of these specifications, shall be completely satisfactory and acceptable as regards to operation, performance and capacity.
3. **Acceptance:** Any materials, equipment or appurtenances, the operation, capacity or performance of which does not comply with the requirements of the drawings or specifications, or which is damaged prior to acceptance by the Commonwealth, will be held to be defective materials, equipment and/or appurtenances, or put in proper and acceptable working order, satisfactory to the Commonwealth, without additional cost to the Commonwealth.

**L. INQUIRIES: Direct all questions concerning this bid to the Commodity Specialist named below:**

Nicole Moyer, Commodity Specialist  
Department of General Services  
Bureau of Procurement  
555 Walnut Street, 6<sup>th</sup> Floor  
Harrisburg PA 17101-1914  
(717) 346-3273 (Phone)  
(717) 783-6241 (Fax)  
[nicomoyer@pa.gov](mailto:nicomoyer@pa.gov)

**II. RUBBER DAM BLADDER (BAGS) SPECIFICATIONS**

**A. PRODUCTS:**

**1. General Design Criteria:**

- a) The rubber dam shall be inflatable with air and designed for installation on the existing concrete dam foundation. The dam shall operate within the temperature range and shall support the loads from the height of water as specified in the technical specifications. The dam shall be designed to operate in a fully inflated or partially deflated position for extended periods of overtopping without experiencing wear. The dam shall be designed such that when deflated the fabric does not present bulges or high points which may be subject to damage.
- b) The rubber dam crest shall be 8 feet above the concrete dam foundation.
- c) The length of the rubber dam shall extend between the crest abutments and piers. The length of the rubber bag (Bag #1) between the east dam abutment wall and the centerline of Pier #1 is approximately 300 feet. The length of rubber bag (Bag #7) between the centerline of Pier #6 and the west dam abutment wall is approximately 175 feet. The manufacturer may provide excess length for margin at their discretion.

<b>BAG #1 AND BAG #7: EXISTING DATA</b>				
<b>Location</b>	<b>Existing Bag/Year</b>	<b>Existing Thickness</b>	<b>Height</b>	<b>Length</b>
Bag # 1	Bridgestone - 1985	13.4 mm	8'	300'-East Abutment Wall to centerline of Pier 1
Bag #7	Bridgestone - 1985	13.4 mm	8'	175' - centerline of Pier 6 to West Abutment Wall

**2. Design Conditions:**

- a) The inflatable fabric shall use air as the only inflating medium.
- b) Normal operating water surface above dam foundation is 8 feet.
- c) Normal operating water surface height above the dam foundation before bladder starts to deflate is 8.25 feet.
- d) Ambient temperature range is 105°F to 0°F.
- e) The bag shall be designed to be anchored to the dam concrete foundation using existing anchor bolts and clamping plates. Fabric shall be suitable for use with a single anchor/clamping line.
- f) The rubber dam bladder bags shall be designed to attach to the existing piping system. Existing connection hardware will be reused in the replacement bladders.
- g) The rubber dam bladders shall be designed for a minimum factor of safety of 10 for normal operating conditions.

**B. MATERIALS:**

- 1. Materials shall be new, of high and consistent quality, free from defects and imperfections, and shall conform to the below following material properties and specifications.
- 2. The rubber dam bladder shall be at a minimum three to four ply nylon reinforced rubber. Ozone and ultraviolet protection shall be made integral with the rubber fabric by the addition

of Ethylene Propylene Diene Monomer (EPDM). Rubber outer layer shall be 100% EPDM. Optimal nominal fabric thickness shall be 13.4 millimeters (similar to the Bridgestone bags being replaced).

3. The fabricated bladder shall be tested and conform to the following minimum physical properties:
  - a) Tensile Strength (in watercourse direction): > 400 kg/cm
  - b) Tensile Strength (in longitudinal direction): > 400 kg/cm
4. Protective Outer Rubber Compound: EPDM (Ethylene Propylene Diene Monomer) compounded.
5. Physical Properties of Rubber Materials:
  - a) Initial Strength:
    - 1) Tensile Breaking Point (TB): > 15 MPa.
    - 2) Elongation at Breaking (EB): > 400%.
  - b) Heat Aging Test (100°C for 4 days):
    - 1) Tensile Breaking Point (TB): > 10 MPa.
    - 2) Elongation at Breaking (EB): > 300%.
  - c) Ozone Test (100 pphm, 40°C, 96 hours, under 50% elongation):
    - 1) Observation Outcome: No cracking.
  - d) Cold Test:
    - 1) Brittling Temperature: < -45°C.
  - e) Hot Water - Resistance Test (70°C for 4 days):
    - 1) Volume Change: < 20%.
  - f) Abrasion - Resistance Test (Abrasion Test (Disc H18) with load weight 1,000 gr - 1,000 rotations):
    - 1) Abrasive Volume: ≤ 0.5 ml.
6. Fabric shall meet the following requirements:
  - a) Tolerances: The thickness of the rubber gates shall be uniform plus or minus 15%. Jointed sections of the rubber gates shall be of the same thickness as the parent fabric.
  - b) Manufacturing: The rubber fabric shall be fully vulcanized using a high pressure/heat vulcanized method. Manufacturing of the rubber fabric shall not be subcontracted to other parties.
  - c) Joints: Joints or overlaps in the fabric shall be in the longitudinal direction. The fabric shall be continuous in the hoop or circumferential direction.
7. The rubber bags shall be manufactured such that an integral fin structure shall be integrated into the bag body, and shall be characterized with continuous reinforcing layers across the base of the fin. Fin structures that are cold-welded onto the bag body after the manufacturing process will not be accepted.
8. Internal air distribution hoses shall be supplied by the manufacturer. The details of this equipment shall be documented in the bid.
9. A complete standard repair kit and instructions shall be supplied by the manufacturer or Contractor.
10. An anti-abrasion layer on the concrete dam foundation slab will not be required.

**C. QUALITY ASSURANCE:**

- 1.** Except as herein specified, the manufacture of materials and fabrication of the rubber dam bladders shall be governed by the following codes and standards:
  - a)** ISO 34-1: Rubber, Vulcanized or Thermoplastic - Determination of Tear Strength - Part 1; Trouser, Angle and Crescent Test Piece.
  - b)** ISO-37: Rubber, Vulcanized or Thermoplastic - Determination of Tensile Stress - Strain Properties.
  - c)** ISO 188: Rubber, Vulcanized or Thermoplastic - Accelerated Aging and Heat Resistance Tests.
  - d)** ISO 252: Conveyor Belts - Adhesion Between Constitutive Elements.
  - e)** ISO 283-1: Textile Conveyor Belts - Full Thickness Tensile Strength, Elongation at Break and Elongation at Reference Load.
  - f)** ISO 812: Rubber, Vulcanized or Thermoplastic - Determination of Low-Temperature Brittleness.
  - g)** ISO 815: Rubber, Vulcanized or Thermoplastic - Determination of Compression Set.
  - h)** ISO 868: Determination of Indentation Hardness by Means of a Durometer (Shore Hardness).
  - i)** ISO 1183-1: Methods for Determining the Density of Non-Cellular Plastics.
  - j)** ISO 1431-1: Resistance to Ozone Cracking - Part 1: Static and Dynamic Strain Testing.
  - k)** ISO 1817: Rubber, Vulcanized or Thermoplastic - Determination of the Effect of Liquids.
  - l)** ISO 2285: Rubber, Vulcanized or Thermoplastic - Determination of Tension Set Under Constant Elongation and of Tension Set, Elongation and Creep Under Constant Tensile Load.
  - m)** ISO 4649: Rubber, Vulcanized or Thermoplastic - Determination of Abrasion Resistance Using a Rotating Cylindrical Drum Device.
  - n)** American Society of Testing and Materials (ASTM).



### III. DRAWINGS, PRODUCT DATA, AND SAMPLES REQUIREMENTS

A. **DRAWINGS:** No approval, written or verbal, on any drawings, descriptive data or samples of such material, equipment and/or appurtenances shall relieve the awarded Contractor of their responsibility to turn over to the Commonwealth in perfect working order the required products and in complete conformance with the drawings and specifications.

1. “As-Built” Drawings: Will be required if any alterations need to be made during the bag installation. If installation happens as initially outlined, the drawings will not be required. As the work progresses, the awarded Contractor shall record on one set of plans and specifications all changes, deviations, or alterations made to the original design. At the final inspection, the awarded Contractor shall turn the “As-Built” set of drawings and specifications over to the DCNR, Shikellamy State Park.
2. Shop Drawings: The awarded Contractor shall provide shop drawings of the proposed materials and rubber dam bags. Final design and shop drawings are to be submitted to and approved by the Agency prior to actual manufacturing.
  - a) The awarded Contractor shall provide design calculations showing compliance with the design criteria listed in these Specifications, including factor of safety prior to actual manufacturing.
  - b) Scale and Measurements: Make shop drawings accurately to a scale sufficiently large to show all pertinent aspects of the item and its method of connection to the Work.
  - c) Review comments of the DCNR will be shown on one (1) copy of the prints when it is returned to the Contractor.

B. **SUBMITTALS:** All submittals must be created as specified, and revised and resubmitted as necessary, to establish compliance with the Specifications or as otherwise requested by the Agency. A minimum of five (5) copies of each submittal shall be required by the DCNR; one (1) will be returned to the awarded Contractor.

#### 1. Identification of Submittals:

- a) Consecutively number all transmittals #1, #2, #3, etc. Number each submittal item, within the transmittal grouping. On at least the first page of each submittal, and elsewhere as required for positive identification, show the submittal number in which the item was included.
- b) When material is resubmitted for any reason, transmit under a new letter of transmittal and with a new transmittal number. The new transmittal number shall carry a subsequent alphabetical suffix (i.e. resubmission of item 1 shall be submitted as item 1A).
- c) Accompany each submission with a letter of transmittal showing all information required for identification and checking.

#### 2. Coordination of Submittals:

- a) Prior to each submittal, carefully review and coordinate all aspects of each item being submitted. Verify that each item, and the submittal for it, conforms in all respects with the specified requirements.
- b) The awarded Contractor shall certify that this coordination has been made, by affixing the Contractor’s stamp and/or signature to each submittal.

3. **Grouping of Submittals:** Unless otherwise specified, make submittals in groups containing all associated items to assure that information is available for checking each item when it is received.
  4. **Timing of Submittals**
    - a) Make submittals far enough in advance of scheduled installation date to provide sufficient time for reviews, for securing necessary approvals, for possible revisions and resubmissions, and for placing orders and securing delivery.
    - b) In scheduling, allow at least ten (10) working days for review by the DCNR following receipt of the submittal.
- C. **PRODUCT DATA (CATALOG CUTS):** Where contents of submitted literature from manufacturer include data not pertinent to the submittal, clearly indicate which portions of the contents are being submitted for review.
- D. **SAMPLES:** Provide sample or samples identical to the precise article proposed to be provided.
1. Size of samples shall be as follows:
    - a) Sheet or Similar Materials - 12" x 12".
    - b) Linear or Similar Materials - 12" long x full width.
  2. **Colors and Patterns:** Unless the precise color pattern is specifically called out in the contract documents, and whenever a choice of color or pattern is available in the specified products, submit accurate color and pattern charts to the DCNR for selection.