ENGINEERING AND RELATED SERVICES
FEBRUARY 25, 2011

PURCHASE ORDER NO. 2000005739
ACOUSTIC SURVEY, UNDERWATER AND STRUCTURAL INSPECTIONS OF
STATE MAINTAINED DAMS
STATEWIDE

Under Authority granted by Title 48 of Louisiana Revised Statutes, the Louisiana Department of Transportation and Development (DOTD) hereby issues a Request for Qualification Statements (RFQ) on Standard Form 24-102 (SF 24-102), “Professional Engineering and Related Services”, revised January 2003, from Consulting Firms (Consultant) to provide engineering and related services. **All requirements of Louisiana Professional Engineering and Land Surveying (LAPELS) Board must be met at the time of contract execution.** One Prime-Consultant/Sub-Consultant(s) will be selected for this Contract.

The DOTD Dam Safety and Water Resources Unit is responsible for regulating, evaluating, maintaining, operating and monitoring dams throughout the state to prevent and correct potential hazards to downstream life and property (R.S. 38:21-28). DOTD operates and maintains the dam, water control structures, gates, spillway and related appurtenances on 20 state constructed reservoirs to the extent deemed necessary to ensure that the man-made impoundment structure and the attendant water-control devices are functioning to design capabilities. Most of these were constructed more than 40 years ago and are in need of critical repairs.

**Project Manager** – Zahir “Bo” Bolourchi, P.E.

All inquiries concerning this advertisement should be sent in writing to Debbie. Guest@LA.gov.

**PROJECT DESCRIPTION**

The Project as covered by this Contract shall consist of providing all necessary engineering and related services required for the inspections for five state-maintained dams.

**SCOPE OF SERVICES**

The services to be performed for this Project include four elements: 1) underwater acoustic surveying and land surveying; 2) underwater inspection by divers and/or robotic equipment, 3) specialized structural engineering inspection and evaluation; and 4) project management.
A. UNDERWATER ACOUSTIC SURVEYING AND LAND SURVEYING

The scope of work consists of providing highly specialized high definition acoustic surveys of open water areas beneath and adjacent to dams, standard land surveys and the preparation of a Survey Report. It is anticipated that the majority of the work will be covered under this element.

Acoustic Surveying Equipment Requirements

The acoustic equipment shall be a multi axis, steer beam imaging and profiling remote sensing system as manufactured by Kongsberg-Mesotech, Ltd, or DOTD approved equivalent. All acoustic data shall be correlated to a Real Time Kinematic (RTK) GPS positioning system and adjusted for vessel motion in heading, pitch and role.

- Utilize underwater acoustic imaging system to scan the underwater vertical faces of the dam structure on each side.
- Scan the water bottom out to 500’ from the dam vertical faces both in the lake and downstream.
- Investigate any sink holes observed or abnormalities with in close proximity of the acoustic inspection.
- Perform profile scans across any abnormalities to determine and map relief.
- Perform bathymetric profile survey of the water bottom through both the lake side and downstream side approaches to the dam structure.
- Perform profile scans of any observed sink holes or cavities, access permitting.
- If a dam gallery is encountered and found to be flooded or partially flooded, the flooded portion will be examined using the underwater acoustic imaging and profiling system, access permitting, and again imaging the vertical and horizontal faces and profiling abnormalities as dictated by the imaging results.

High Definition Scan

Perform High Definition Scan (HDS) of concrete dam structure above water line at the time of survey. On site control monumented with three permanent deep rod bench marks for 3D stability. Features of the dam structure shall be gathered using HDS techniques with survey data relative to Louisiana state plane coordinate system, North Zone, in US survey feet.

- HDS will be used to complement traditional surveying services to provide a 3D point cloud of data along the project corridor. Provide a surface model for design and hydraulic/structural analysis. The submittal will include a 3D model of the concrete dam structure along with traditional topographic map.
• HDS scanning shall be performed for the entire length of the dam structure. Concrete and steel features will be included in the scan data.

**Horizontal Control**

• Perform reconnaissance for, recover, and verify National Geodetic Survey (NGS) primary horizontal control (NAD 83) monuments within the vicinity of the project for datum check and qualification.
• Establish on site, in a secure location, three (3) permanent deep rod monuments (DRM) set to refusal.
• Compare and or constrain static GPS results obtained from the DRM to NGS monuments and results obtained through the On-line Positioning User Service (OPUS) maintained by the National Geodetic Survey.
• Set secondary horizontal traverse control at intervals not to exceed 1,000 feet for the project length.
• This effort includes: researching control data, GPS mission planning, data processing, traverse computations, field note reduction, and crew supervision.

**Vertical Control**

• Perform reconnaissance for, recover, and verify primary vertical control (NAVD88, 2004.65).
• Use differential leveling and or GPS techniques to establish vertical control on the project DRM and temporary benchmarks (TBM’s).
• Set TBM’s of a stable setting, set at intervals not to exceed 1000 feet for the project length.

**Deliverables**

The Consultant shall provide to DOTD an electronic and hard copy of the Survey Report describing the survey methodology employed in the field, including but not limited to, control, any calibrations, equipment used, a summary of all anomalies located, etc. Maps shall be stamped and signed by a surveyor licensed in the State of Louisiana, under whose direction the work was performed. The survey report should contain the following:

• The results of the field survey and location of all anomalies.
• A set of drawings including a plan view showing all survey lines and transects, anomalies, and table listing coordinates of each anomaly.
• Sheets showing all cross sectional diagrams.
• A hard copy of the data sets.
• A copy of the field notebook records.
The drawing files shall be in MicroStation 2004, Version 8 (*.dgn) format. The plan view(s) shall be overlain in the Lambert Conformal Conic Projection, Louisiana State Plane Coordinate System South Zone, NAD83. Also include a table with benchmark locations (in State Plane and Geographic coordinates) and elevations (NAVD88) on which the survey is based. Show the state project name and number on all drawings.

The Consultant shall provide digital copies of the following electronic files (on separate CD disks):

- Complete Survey Report in pdf format.
- One full set of all survey drawings at a one to one scale in MicroStation 2004 and pdf formats.
- All data sets listing all points with horizontal coordinates (northing, easting), corresponding elevations including all stations, PI’s, survey transects and break lines and feature codes. Features shall be shown as break lines or cells and labeled in the drawing. This file listing shall be stored in a comma delimited ASCII format.
- Topographical and bathymetrical map drawing of upstream and downstream of any water control structure in MicroStation and pdf formats.

B. UNDERWATER DAM INSPECTION

Both underwater and above water inspections of the dam shall be performed. In addition to the gate inspection, underwater inspection services to investigate any acoustically observed holes/anomalies indentified in the acoustic survey are required.

A general condition survey of 100% of the surface area both above and below the waterline on the upstream and downstream sides of each dam structure shall be performed.

Inspections

The Consultant shall assemble a team of professionals with exceptional experience and qualifications in the underwater inspection and evaluation of all gates and water conveying structures. The work shall include a visual inspection of all gates, both above and below the waterline, verify alignment of gate stems, stem guides, and actuators, inspect gates and frames for any damage, previous repairs, corrosion of steel surfaces, jacking/anchor bolts, thrust blocks, thrust block nuts, wedges, concrete anchors, and other components.

The Consultant will provide a self contained dive vessel, dive inspection crew, and inspection apparatus to effect further investigation of any acoustically observed holes near the dam. The Consultant will probe any designated holes and
correlated features on both the upstream and downstream side of the dam. The inspection diver will determine the depth of any open holes and if there is any sediment backfill occurring. Where applicable, the Consultant personnel will investigate the areas inside any dam gallery for evidence of sediment deposits adjacent to any observed holes. The Consultant will also provide and inject dye (red approved for potable water) into the upstream holes for the purpose of evaluating leakage downstream.

Video and Still Photography Inspection observations will be obtained by utilizing surface supplied divers with video and two-way voice communications. The Contractor will also include Remotely Operated Vehicle (ROV) at each site in the event an area is deemed impractical for diving. Both mediums will incorporate a high-resolution color digital video camera and will allow topside personnel to simultaneously view the inspections. The recorded information will also include; permanent video overlay annotation of the structure number, location, date, defect numbering to correspond with database; voice recordings of the diver; and inspection personnel giving details and measurements of findings.

The diver’s video camera will be a low light fixed focused helmet mounted system incorporating a minimum 550 lines of resolution. Two helmet lights with a minimum of 500 watts of output will be utilized. The lights will be positioned and adjusted to compensate for the possible light absorbing effect of suspended particulate in the water. Refraction of light will cause the iris of the camera to close and reduce the field of view and quality of image. The camera lighting will be tested and adjusted, if necessary at each inspection location to assure the best imagery is obtained. This is critical in enabling proper condition assessment and comparison during re-inspections of suspect and damaged areas.

A. 'Level I' general inspection and “swim-by” by the diver or imaging by sonar to generate a general visual assessment of the condition of the exposed areas of the gates, guides, seals, adjacent concrete surfaces, and tailrace toe. This phase of the inspection is designed to identify and locate any major damage or deterioration. Structure cleaning would not be required for this portion of the inspection.

B. 'Level II' detailed investigation of selected areas of each location to identify signs of deterioration, such as corrosion, loss of section, missing or damage steel components, concrete spalling, exposed reinforcement, structural damage, scouring, undermining, or any other sign or indication of a compromised structural integrity. To perform this phase of the inspection the structures must be cleaned of biofouling or corrosion or other surface adherents that would obscure the identification of structural issues. Additional data such as; Ultrasonic thickness, pit depth, and coating thickness (if applicable) measurements of critical components would be obtained. All information would be recorded and presented in a database format along with visual description of the observation provided on digital video and still images.
Field Recordings and Data Processing

The Consultant shall provide a high tech video recorder which incorporates a 1 GHz host processor board with Wavelet compression capability to document all underwater inspections. This will allow all images to be downloaded and viewed on a computer for viewing or annotation and also for emailing of video clips. The video recording equipment should also allow obtaining high quality still images. This enhanced detail will be very beneficial during analysis and evaluation of potential defects during post process and during future inspections. Typical video inspections produce hours of raw video tape, observer logs, and readouts from associated instruments and sensors. The Consultant’s data collection system will consolidate logs, instrument readings, video images, and more into a single database. Defects will be numbered and their images stored as digital computer file that will be linked with all other inspection data. Historical data and video images can then be quickly recalled for comparison with the current conditions.

The Consultant shall have the ability to obtain data and to make proper assessments during real time data collection. Suspect areas will be reviewed during post processing video and still imagery with interpretations will be shared with the DOTD before draft and final reports are submitted. Reports shall include recommendations for repairs, maintenance, and operation procedures for any gate.

Gate Cleaning

All gates and associated hardware shall be thoroughly cleaned using appropriate above and below water equipment.

Deliverables

The Consultant shall submit a draft Underwater Inspection Report to the DOTD within 10 working days after the completion of field operations. The final report shall be submitted to the DOTD within 5 working days after receipt of comments.

C. STRUCTURAL INSPECTION AND DAM EVALUATION

As part of the on-going operation and maintenance of the dams under its jurisdiction, the DOTD desires to have its dams inspected by a qualified independent consultant. The independent consultant as used herein refers to the lead dam safety engineer who will have overall responsibility for the structural inspection. Representative experience submitted to qualify for selection shall include the experience of the independent consultant and any other staff that may be required.

The scope of work consists of performing consulting engineering services which include reviewing reports, structural inspections of dams, recommending any required maintenance and/or repairs, and preparing Dam Evaluation Reports.
**Inspection**

Prior to the field inspection, inspection reports, instrumentation records, project modifications, drawings, and other available information shall be reviewed.

A field inspection of the project shall be conducted. The inspection shall include all accessible features of the project, including embankments, concrete sections, spillways, galleries, and intakes. Particular attention should be given to detecting evidence of leakage, erosion, seepage, instability, undue settlement, displacement, tilting, cracking, deterioration, and improper function of drains and relief wells. The adequacy and quality of maintenance and operating procedures as they pertain to the safety of the dam and operation of the control facilities should also be assessed.

Photographs and drawings should be freely used to record conditions in order to supplement and support written descriptions.

The field inspection should include review of the following:

- Concrete structures including concrete surfaces, structural cracking, movement – horizontal and vertical alignment, junctions and tie-ins with abutments and/or embankments, drains – foundation, joint, and face drains, water passages, seepage or leakage, monolith joints, construction joints, foundations, etc.

- Embankment structures including settlement, slope stability, seepage, drainage systems, slope protection, etc.

- Spillway structures including control gates and operating machinery, unlined spillways, approach and outlet channels, stilling basin and energy dissipation, etc.

- Outlet works including intake structure, operating and emergency control gates, conduits, water passages, etc.

- Drawdown facilities including safety and performance instrumentation, reservoir, downstream channel, operation and maintenance features, etc.

**Deliverables**

The Consultant shall submit a draft Dam Evaluation Report to DOTD within 20 working days after the completion of all field operations. The final report shall be submitted to DOTD within 10 working days after receipt of comments.
The report will encompass information learned from the pre-inspection review, will report the results of the field inspection, and provide recommendations on any required maintenance and/or repairs. The content of the report should include, but is not be limited to, the following:

- Executive Summary (Significant Findings)
- Description of Project Features
- Summary of Construction History, Operations, and Modifications
- Geologic and Seismic Considerations
- Instrumentation
- Field Inspection
- Structural Stability
- Spillway Adequacy
- Adequacy of Maintenance and Methods of Operations
- Conclusions
- Recommendations
- Certification

D. PROJECT MANAGEMENT

The Prime Consultant’s Project Manager will provide coordination and oversight of the inspections and cost management. The Project Manager shall have experience in projects requiring earthen fill placement, rip rap placement, pressure grouting voids beneath concrete structures such as sills, concrete patch work, repair and replacement of construction joint seals, repair of metal gratings and other steel structures, gate and hardware replacement, painting, etc.

Deliverables

The Prime Consultant shall provide detailed weekly progress reports that include details of invoicing. Also, the Prime Consultant will provide four hard copies and four electronic copies of the final report for each dam. The final report will combine the acoustic surveying report, underwater inspection report, structural inspection and evaluation report, and all recommended maintenance and/or repairs proposed. The final report will contain an executive summary of the inspections and a section combining all of the findings (and/or recommendations) from each of the three reports. The drawing files shall be in MicroStation 2004, Version 8 (*.dgn) format and a complete document provided in pdf format.

REFERENCES

All services and documents will meet the standard requirements as to format and content of the DOTD; and will be prepared in accordance with the latest applicable editions, supplements and revisions of the following:

1. AASHTO Standards, ASTM Standards or DOTD Test Procedures
Compensation for the required services rendered in connection with this Contract will be negotiated work-hours using DOTD established billable rates/unit costs for the actual time spent on the project, with a maximum limitation.

All travel related expenses will be compensated under direct expenses, and will be in accordance with Louisiana Office of State Travel regulations found at: http://www.doa.louisiana.gov/osp/travel/travelpolicy.htm Vehicle rental rates will require prior approval from the DOTD Project Manager.

Within 15 calendar days of notification of selection, a kick-off meeting will be held with the selected Consultant/Team and appropriate DOTD personnel. The selected Consultant/Team will be required to submit a proposal within 30 calendar days following the notification of selection. All negotiations must be completed within 60 calendar days following the notification of selection.

Contract Time

The Consultant shall proceed with the services specified herein after the execution of this Contract and upon written Notice-To-Proceed from the DOTD. The overall contract time to complete this project is estimated to be **180 calendar days**. The delivery schedule for all project deliverables shall be established by the Project Manager.
MINIMUM PERSONNEL REQUIREMENTS

The following requirements must be met at the time of submittal:

1. At least one Principle of the Prime-Consultant must be a Professional Civil Engineer registered in the State of Louisiana

2. At least one Principle or a responsible member of the Prime-Consultant must be a Professional Civil Engineer registered in the State of Louisiana, with a minimum of a Masters degree in Civil Engineering from an ABET accredited engineering program, and have a minimum of ten years experience in responsible charge of the design and inspection of dams.

3. The Prime-Consultant must also employ on a full time basis, a minimum of one Hydrographer with at least five years experience in hydrographic surveying; including two years of technical supervision of surveying, and two years of field experience. The Hydrographer must be well versed in undertaking hydrographic surveys as related to inshore environments using the latest state-of-the-art equipment. Certification as a Hydrographer by the American Congress on Surveying and Mapping (ACSM) is preferred.

4. The Prime-Consultant must also employ on a full time basis a Project Manager with three years of project management experience in areas related to construction, dams, levees, water resources or related field.

5. The Prime-Consultant must also employ on a full-time basis, or through the use of a Sub-Consultant(s):
   a) One complete dive team meeting or exceeding the Association of Diving Contractors (ADC) Consensus Standards for Commercial Diving Operations; which consists of two divers and a tender, one of the divers being the job site diver supervisor. All divers and tenders must be ADC certified as demonstrated with appropriate ADC Certification Cards. Suitable equipment to complete the work and communication equipment for prompt voice contact between the dive team and the DOTD point of contact on the site must also be provided by the Consultant.
   b) One Professional Engineer registered in the State of Louisiana with a minimum of 10 years of experience in the analysis, design, inspection, and evaluation of dams. Shall demonstrate experience working in the State of Louisiana and knowledge of the DOTD’s Dam Safety Rules and Regulations.

Certifications of Compliance must be submitted with and made part of the Consultants Standard Form 24-102 for all Personnel Requirements listed herein.
QUALITY CONTROL/QUALITY ASSURANCE

The DOTD requires the Consultant to develop a Quality Control/Quality Assurance program or adopt DOTD's program; in order to provide a mechanism by which all construction plans can be subject to a systematic and consistent review. Consultant's must ensure quality and adhere to established design policies, procedures, standards and guidelines in the preparation and review of all design products. The DOTD shall provide limited input and technical assistance to the Consultant. The Consultant's plans shall meet or exceed DOTD's Construction Plans Quality Control / Quality Assurance Manual and EDSM No. Volume I. 1.1.24 on Plan Quality. The Consultant shall transmit plans with a DOTD Quality Control/Quality Assurance Checklist, Documentation Manual for Project Delivery, and a certification that the plans meet the DOTD's quality standards.

EVALUATION CRITERIA

The general criteria to be used by DOTD (when applicable) in evaluating responses for the selection of a Consultant to perform these services are:

1. Consultant’s firm experience on similar projects, weighting factor of 3;
2. Consultant’s personnel experience on similar projects, weighting factor of 4;
3. Consultant’s firm size as related to the estimated project cost, weighting factor of 3; *
4. Consultant’s past performance on similar DOTD projects, weighting factor of 6;
5. Consultant’s current work load with DOTD, weighting factor of 5;
6. Location where the work will be performed, weighting factor of 4; **

*All respondents will receive no less than a 2 in this category
** All respondents will receive a 4 in this category

Complexity Level (specialty/complex)

Consultants will be evaluated as indicated in Items 1- 6. The evaluation will be by means of a point-based rating system. Each of the above criteria will receive a rating on a scale of 0-4. The rating will then be multiplied by the corresponding weighting factor. The firm’s rating in each category will then be added to arrive at the Consultant’s final rating.

If Sub-Consultants are used, the Prime Consultant must perform a minimum of 51% of the work for the overall project. Each member of the Consultant/Team will be evaluated on their part of the contract, proportional to the amount of their work. The individual team member ratings will then be added to arrive at the Consultant/Team rating.

Communication Protocol

DOTD’s Project Evaluation Team will be responsible for performing the above described evaluation, and will present a short-list of the three (if three are qualified) highest rated Consultants to the Secretary of the DOTD. The Secretary will make the final selection. Below are the proposed Team members. DOTD may substitute for any reason provided the members meet the requirements of R.S. 48:291.
1. Debbie L. Guest – Ex officio
2. Zahir “Bo” Bolourchi – Project Manager
3. Larry Ardoin
4. Gary Eldridge
5. Doug Taylor
6. Stephen Tassin

Rules of Contact (Title 48 Engineering and Related Services)

These rules are designed to promote a fair, unbiased, legally defensible selection process. The LA DOTD is the single source of information regarding the Contract selection. The following rules of contact will apply during the Contract selection process and will commence on the date of advertisement and cease at the contract execution of the selected firm. Contact includes face-to-face, telephone, facsimile, Electronic-mail (E-mail), or formal written communications. Any contact determined to be improper, at the sole discretion of the LA DOTD, may result in the rejection of the submittal (SF 24-102):

A. The Consultant shall correspond with the LA DOTD regarding this advertisement only through the LA DOTD Consultant Contracts Services Administrator;
B. The Consultant, nor any other party on behalf of the Consultant, shall not contact any LA DOTD employees, including but not limited to, department heads; members of the evaluation teams; and any official who may participate in the decision to award the contract resulting from this advertisement except through the process identified above. Contact between Consultant organizations and LA DOTD employees is allowed during LA DOTD sponsored one-on-one meetings;
C. Any communication determined to be improper, at the sole discretion of the LA DOTD, may result in the rejection of submittal, at the sole discretion of the LA DOTD;
D. Any official information regarding the project will be disseminated from the LA DOTD’S designated representative on the LA DOTD website. Any official correspondence will be in writing;
E. The LA DOTD will not be responsible for any verbal exchange or any other information or exchange that occurs outside the official process specified herein.

By submission of a response to this RFQ, the Consultant agrees to the communication protocol herein.

CONTRACT REQUIREMENTS

The selected Consultant will be required to execute the contract within 10 days after receipt of the contract.
INSURANCE - During the term of this contract, the Consultant will carry professional liability insurance in the amount of $1,000,000. The Prime-Consultant may require the Sub-Consultant(s) to carry professional liability insurance. This insurance will be written on a “claims-made” basis. Prior to executing the contract, the Consultant will provide a Certificate of Insurance to DOTD showing evidence of such professional liability insurance.

AUDIT - The selected Consultant/Team will allow the DOTD Audit Section to perform an annual overhead audit of their books, or provide an independent Certified Public Accountant (CPA) audited overhead rate. This rate must be developed using Federal Acquisition Regulations (FAR) and guidelines provided by the DOTD Audit Section. In addition, the Consultant/Team will submit semi-annual labor rate information, when requested by DOTD.

The selected Consultant/Team will maintain an approved Project Cost System, and segregate direct from indirect cost in their General Ledger. Pre-award and post audits, as well as interim audits, may be required. For audit purposes, the selected Consultant/Team will maintain accounting records for a minimum of five years after final contract payment.

Any Consultant currently under contract with the DOTD and who has not met all the audit requirements documented in the manual and/or notices posted on the DOTD Consultant Contract Services Website (www.dotd.louisiana.gov), will not be considered for this project.

SUBMITTAL REQUIREMENTS

One original (stamped “original”) and five copies of the SF 24-102 must be submitted to DOTD. All submittals must be in accordance with the requirements of this advertisement and the Consultant Contract Services Manual. Any Consultant/Team failing to submit any of the information required on the SF 24-102, or providing inaccurate information on the SF 24-102, will be considered non-responsive.

Any Sub-Consultants to be used, including Disadvantaged Business Enterprises (DBE), in performance of this Contract, must also submit a SF 24-102, which is completely filled out and contains all information pertinent to the work to be performed.

The Sub-Consultant’s SF 24-102 must be firmly bound to the Consultant’s SF 24-102. In Section 9, the Consultant’s SF 24-102 must describe the work elements to be performed by the Sub-Consultant(s), and state the approximate percentage of each work element to be subcontracted to each Sub-Consultant.

Name(s) of the Consultant/Team listed on the SF 24-102, must precisely match the name(s) filed with the Louisiana Secretary of State, Corporation Division, and the Louisiana State Board of Registration for Professional Engineers and Land Surveyors.
The SF 24-102 will be identified with Purchase Order No. 2000005739, and will be submitted prior to 3:00 p.m. CST on Tuesday, March 15, 2011, by hand delivery or mail, addressed to:

Department of Transportation and Development  
Attn.: Ms. Debra L. Guest, P.E.  
Contracts Administrator  
1201 Capitol Access Road, Room 405-T  
Baton Rouge, LA 70802-4438 or  
Telephone: (225) 379-1889

REVISIONS TO THE RFQ

DOTD reserves the right to revise any part of the RFQ by issuing an addendum to the RFQ at any time. Issuance of this RFQ in no way constitutes a commitment by DOTD to award a contract. DOTD reserves the right to accept or reject, in whole or part, all Qualification Statements submitted, and/or cancel this announcement if it is determined to be in DOTD’s best interest. All materials submitted in response to this announcement become the property of DOTD, and selection or rejection of a submittal does not affect this right. DOTD also reserves the right, at its sole discretion, to waive administrative informalities contained in the RFQ.