

**ENGINEERING AND RELATED SERVICES  
JANUARY 23, 2009**

**STATE PROJECT NO. 700-33-0112  
FEDERAL AID PROJECT NO. BR-3308(503)  
I-20 MISSISSIPPI RIVER BRIDGE AT VICKSBURG  
GEOTECHNICAL DESIGN  
ROUTE I-20  
MADISON PARISH**

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 submittal.** One Prime-Consultant/Sub-Consultant(s) (Consultant/Team) will be selected for this Contract.

**Project Manager** – Mr. Ching Tsai may be reached at (225) 379-1843.

**PROJECT DESCRIPTION**

The Consultant will provide a comprehensive review of past slope stability evaluations and recommendations, and evaluate the need for additional geotechnical data and field monitoring. The development of a full slope stabilization design and construction remediation strategy and provide construction support for the bluff instability and geotechnical movements affecting the existing I-20 Mississippi River Bridge in Vicksburg will also be a deliverable.

**SCOPE OF SERVICES**

The selected Consultant will be required to provide some or all of the following services:

- The Consultant will provide an independent comprehensive review and assessment of the past geotechnical analyses and conceptual slope stabilization recommendations. The selected Consultant will review and assess all information collected from past geotechnical monitoring studies, evaluate the adequacy of the geotechnical analyses and the effectiveness of the recommended repair methods. The Consultant will also evaluate the need for additional data collection and monitoring schemes, if required. The Consultant will work closely with the Louisiana Department of Transportation (LADOTD) and the Mississippi Department of Transportation (MDOT) and any other entities that may have a vested interest in the remediation. The Consultant is expected to meet with both LADOTD and MDOT periodically during the initial review process, during the design tasks, and during the

construction of the remediation activities. Post construction monitoring will also require periodic meetings and/or phone/teleconferences.

- The Consultant will evaluate technical feasibility and cost associated with the slope stabilization methods.
- The Consultant will provide design calculations, drawings and special provisions required for construction bid documents.
- The Consultant will provide a series of reports and presentations as each task is completed.
- The Consultant will provide final drawings to be used as construction plans, final specifications and any other documentation required for the project to be let by the LADOTD.
- The Consultant will provide construction quality control and assurance plans.
- The Consultant will provide support during construction.
- The Consultant will provide post-construction monitoring for two years.

Based on historical data and past movements of the US 80 highway and railroad bridges the bluff instability may cause significant movements that occur over a very short period of time and without much advance notice. Because of this uncertainty of the timing and scale of future movements and the need to provide for the safety of the traveling public, several factors should be considered when determining priorities for implementing the subject scope of work:

- The I-20 Bridge in Vicksburg is a major east/west transportation link in that region of the country. Available detours will present significant time delay and safety issues.
- The highly unusual nature and size of the instability will require a team with knowledge and skills at a National level as well as individuals with intimate knowledge of the local geology and experience dealing with Mississippi River bluff terrain.
- Investigating and documenting a permanent solution cannot be developed on short notice but should be finalized as soon as possible due to the uncertainty of future movements. The team will be required to use the existing geotechnical data to identify and recommend criteria for the final design.
- Similar instabilities have had a history of progressively developing reduced safety factors with time as continued movements further weaken the materials at the critical depths.
- Slides of this type and complexity will continue to move and are NOT self-healing.

### **Contract Tasks**

The Consultant's proposal will address the scope, timing, duration and cost of each of the defined tasks which follow. All work will be coordinated with and through DOTD.

Task 1: A field site investigation will be required to understand the extent and complexity of the problem. The selected Consultant will conduct a comprehensive review of all project information including existing reports. Based on the review, the Consultant will prepare an executive type briefing report to address significant findings and comments on all previously proposed conceptual solutions. The Consultant will develop a proposed final action plan and schedule for the slope stabilization design. The previous work on this project suggests that the instability is 3 dimensional in nature and has multiple potential slip planes. The movement north of the I-20 Bridge has a resultant direction which is skewed toward the I-20 Bridge alignment. All work proposed and approved should consider these variables and their influence on the final solution.

Task 2: The Consultant will continue to monitor, summarize and interpret all currently operational geotechnical instrumentation installed under the prior contract. Currently installed geotechnical instrumentation damaged or otherwise rendered unusable will be replaced in a location as near as practical to the damaged instrument by the Consultant in order to achieve continuity of the data collected thus far. The final action plan in Task 1 should address the need for the replacement of existing instrumentation, the need for new and additional instrument types and locations and the potential for automating the data collection process. The proposal should address the frequency of readings, suggested threshold values for warning system triggering, and details of the warning systems. It is anticipated that some of the instruments, including the warning system will need to be operational until 36 months following the completion of the selected remedial measures.

Task 3: Based on the findings of the Task 1 review, it is anticipated that additional index and engineering property testing may be required to develop a recommended permanent solution. The approved subsurface investigation and testing plan will be performed by the Consultant.

Task 4: Based on the information obtained in Tasks 1-3, the Consultant will conduct a comprehensive evaluation of the site's stability. Both limit equilibrium and deformation based analysis will be addressed for both 2 and 3 dimensional slope behavior. The study will consider potential cross sections both parallel and skewed to the bridge as indicated by the direction of the deformation measurements. Cross sections, both north and south of the I-20 bridge alignment will be evaluated to assess the limits of the current instability and any proposed slope stabilization measures. The objective of the permanent solution is to affect a long-term minimum safety factor of 1.5 after implementation of the remedial measures for all potential slip planes.

Task 5: The Consultant will evaluate the conceptual remedial measures provided by the previous reports and any measure derived from Tasks 1-4 as being a potential proven solution. Assess the potential application of all proven remedial measures. Develop a "short list" of potential design solutions based on their long term effectiveness, constructability, and cost efficiency as applied to this specific project.

The recommendations will address the advantages, disadvantages and risk associated with each recommended solution. The analysis should specifically address considerations of how to reliably achieve a design life of the solution of greater than 50 years with minimal maintenance. A risk assessment for all technically feasible solutions should be included in the evaluation. Estimates of cost shall be based on a comprehensive study of all potential cost considerations, including initial construction, construction monitoring, contingencies, maintenance and required long-term monitoring.

Task 6: The Consultant will develop a draft and final report which documents all work performed within Tasks 1-5. The report will contain a concise executive summary which presents substantial findings and recommendations. The report's section on potential remedial measures will contain comprehensive information such that the owner can make an informed decision regarding the "best" permanent solution based on risk, performance, constructability and costs.

Task 7: Once the owner has determined the most technically feasibly and cost effective solution to remediate the bluff instability, the Consultant will produce a set of construction plans, specifications and bid documents. The plans and specifications will conform to LADOTD standards and include design details that are suitable for construction. This task also includes the development of construction quality control and assurance plans. It is anticipated that the Consultant will assist the owner during the bidding process to answer RFI's, attend preconstruction meetings, and provide consultation during construction.

Task 8: Throughout the completion of this work, it is anticipated that a number of one-day project briefings and meetings will be required. All meetings and briefings will be at or near the project site in Vicksburg or at an alternate location deemed accessible to all parties. The Consultant will be expected to prepare an agenda and briefing materials for the events as requested by the owner. The Consultant's principal investigator and/or key project staff will be required to attend all briefings and meetings. The Consultant will also conduct meetings with the adjacent landowners and coordinate the input from the interested parties.

Task 9: The Consultant will secure all permits related to repair construction.

Task 10: During Construction, the Consultant will provide technical support and respond to information requests from the contractor. The Consultant will also provide quality assurance testing during construction and prepare a final construction report documenting the compliance of the design.

Task 11: The Consultant will monitor the slope and bridge behavior two years after construction. Immediate action will be taken by the Consultant, if significant movement is developed or the behavior of the bridge and slope system does not meet the design expectation.

## **ADDITIONAL SERVICES**

The scope of services, compensation and contract time for future engineering services will be established by Supplemental Agreement(s) for the following:

- Stage 5: Construction, Part I: Construction Support

All additional Sub-Consultants required to perform these services are subject to approval as per RS 48:290.D prior to execution of the supplemental agreement.

## **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
2. DOTD Location and Survey Manual
3. DOTD Roadway Design Procedures and Details
4. DOTD Hydraulics Manual
5. DOTD Standard Specifications for Roads and Bridges
6. Manual of Uniform Traffic Control Devices
7. DOTD Traffic Signal Design Manual
8. National Environmental Policy Act (NEPA)
9. National Electric Safety Code
10. National Electric Code (NFPA 70)
11. DOTD Environmental Impact Procedures (Vols. I-III)
12. Policy on Geometric Design of Highways and Streets
13. Construction Contract Administration Manual
14. Materials Sampling Manual
15. DOTD Bridge Design Manual
16. Consultant Contract Services Manual
17. Geotechnical Engineering Services Document
18. Bridge Inspectors Reference Manual
19. DOTD Stage 1 Manual of Standard Practice

## **COMPENSATION**

Compensation for the required services rendered in connection with this Contract will be negotiated work-hours using DOTD established billable rates 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/travelguide.pdf>. Vehicle rental rates will require prior approval from the DOTD Project Manager.

## ITEMS TO BE PROVIDED BY DOTD

DOTD will provide the following information to the Consultant:

1. M&M/BCD Interim Report (October 23, 2003)
2. M&M/BCD Final Report (May 9, 2006)
3. Topographical and Hydrographical Survey (February 1, 2008)
4. BCD Instrumentation Report (July 7, 2008)
5. BCD Additional Slope Stability Report
6. Results from data collection for repaired inclinometers, new piezometers, structural monitoring from the supplemental contract. (Web based)
7. Plan set from structural remediation let in (June, 2008 – S.P. No. 451-09-0023)

## CONTRACT TIME AND NOTICE TO PROCEED

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 **1095 calendar days**. The delivery schedule for all project deliverables shall be established by the Project Manager.

An Initial Review Report should be completed within three months of receiving the aforementioned documents. An executive briefing to DOTD, MDOT, and FHWA shall be conducted to present the review and proposed action plan and schedule after submitting the Initial Review Report. Any recommendations for the additional subsurface investigation and testing plan shall also be included. A Final Draft report is expected to be completed within one year after contract award. The Final Draft Report shall include slope stability analyses, recommendations and cost estimates for slope stabilization schemes. This report will be reviewed by DOTD, MDOT, and FHWA. Once the Final Draft Report is approved, a final report shall be issued within three months. Construction plans, specifications, bid documents, and construction quality control and assurance plans shall be developed after the final report is approved within a time frame of nine months. The Consultant shall be available to DOTD on an as needed basis as there may be a need for more than one executive briefing throughout the duration of the Contract. The schedule time for this contract is 36 months and may be extended until construction is completed and the remediation measures are evaluated.

### Deliverables

- 1) **Initial Review Report**
- 2) **Executive Briefing**
- 3) **Action Plan and Schedule**
- 4) **Subsurface Investigation and Testing Plan**
- 5) **Final Draft Report**
- 6) **Construction Plans, Specifications, Bid Documents, Construction Quality Control and Assurance Plans.**

## **ELECTRONIC DELIVERABLES**

The Consultant hereby agrees to produce electronic deliverables in conformance with “DOTD Software and Deliverable Standards for Electronic Plans” as outlined at [http://www.dotd.louisiana.gov/highways/project\\_devel/design/electronic\\_standards\\_disclaimer.asp](http://www.dotd.louisiana.gov/highways/project_devel/design/electronic_standards_disclaimer.asp). The Consultant shall download and apply the latest CAD standards. The Consultant hereby agrees to install incremental updates to software and CAD standards as instructed by the Project Manager. Such updates will not have a significant impact on the development time or delivery date for project plans, or require the Consultant to purchase additional software. Prior to proceeding with plan development, the Consultant shall contact the Project Manager for any special instructions regarding updates to standards or project-specific requirements if this information has not already been provided.

In the event that any electronic standard conflicts with written documentation, including DOTD plan-development manuals, the electronic standard typically governs. The Consultant is responsible for contacting the Project Manager should questions arise.

Plan deliveries shall be made on CD or DVD media and labeled with media-compatible indelible ink on separate lines as follows:

State Project Number

“Final Plans Submittal”, “60% ACP Submittal” (or other milestone)

“Electronic Deliverables”

Consultant Firm Name

The CD/DVD shall be delivered with a signed cover letter that includes, among the formalities, a deliverable “hash” code that is documented in a report generated by the ControlCAD Indexer Submittal tool. The hash code is used to verify that the CD is authentic. At any stage of the plan development process, the Project Manager may require plan delivery by other methods including, but not limited to, upload to the DOTD ProjectWise repository.

The prime Consultant is responsible for ensuring that Sub-Consultants are prepared to produce electronic deliverables in conformance with DOTD electronic standards for plans.

## **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.

## MINIMUM PERSONNEL REQUIREMENTS

Due to the significance of the structure and complex nature of the instability, the selected team will be responsible for the successful planning and implementation of all project tasks. The following requirements must be met at the time of submittal:

1. At least one Principal of the Prime-Consultant must be a Professional Engineer registered in the State of Louisiana and the State of Mississippi.
2. At least one Principal or a responsible member of the Prime-Consultant must be a Professional Civil Engineer registered in the State of Louisiana and the State of Mississippi.
3. The Prime-Consultant must also employ on a full time basis, a minimum of one Registered Professional Civil Engineer, specializing in Geotechnical Engineering, with at least five years experience in slope stabilization and soil improvement, and a corresponding support staff.
4. The Prime-Consultant must also employ on a full-time basis, or through the use of a Sub-Consultant(s), one Registered Professional Engineer in the State of Mississippi and the State of Louisiana or able to achieve registration prior to contract signing, with national recognition and with a minimum of ten years of experience in slope stabilization. This professional shall demonstrate knowledge and experience in the evaluation, analysis and remediation of similar slope instabilities (both magnitude and complexity). Experience in remediation should address all potentially proposed solutions including solutions which include structural design components. Analysis experience and knowledge should address complex soil mechanics behavior and complex slope stability analysis by both back analysis and solution modeling, including 3-D failure behavior.

The submittal should show that the team meets the following requirements:

- demonstrate knowledge and experience in complex slope repair remediation along the Mississippi River Bluff and in similar geological conditions;
- demonstrate knowledge and experience in subsurface investigation and geotechnical material property testing in complex access situations similar to the project conditions;
- demonstrate knowledge and experience in the design, installation, reading, and interpretation of instrumentation, including automated and web based real time evaluation. This experience should include warning systems;
- have the ability to generate plans, specifications and bid documents that conform to LADOTD standards for construction letting; and

Note: Due to the significance of the structure and complex nature of the instability, the selected team will be responsible for the successful planning and implementation of all project tasks. The team shall have one project manager available for this project throughout the entire project duration. This manager may be used to meet the licensing requirements for the principal or the Civil Engineer, specializing in Geotechnical Engineering.

## 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, weighting factor of 5;
6. Location where the work will be performed, weighting factor of 4.\*

\* A weighting factor of 4 will be assigned to all proposers.

\*\*The Geotechnical Design (GD) performance rating will be used for this project.

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. Then the rating will be multiplied by the corresponding weighting factor. The firm's ratings in each category will then be added to arrive at the Consultant's final rating.

If Sub-Consultants are used, 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.

DOTD's Consultant Evaluation Committee will be responsible for performing the above described evaluation, and presenting 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.

## 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. 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 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 will submit semi-annual labor rate information, when requested by DOTD.

The selected Consultant 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 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](http://www.dotd.louisiana.gov)), will not be considered for this project.

### **SUBMITTAL REQUIREMENTS**

One original (**stamped original**) and four 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 State Project No. **700-33-0112**, and will be submitted **prior to 3:00 p.m. CST on Monday, February 9, 2009**, by hand delivery or mail, addressed to:

Department of Transportation and Development  
Attn.: Mrs. Dawn G. Picard, P. E.  
Consultant Contract Services Administrator  
1201 Capitol Access Road, **Room 405-T**  
Baton Rouge, LA 70802-4438 or  
Post Office Box 94245  
Baton Rouge, Louisiana 70804-9245  
Telephone: (225) 379-1989

## **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.