

REQUEST FOR PROPOSALS

Issue Date: March 10, 2011

RFP #2-11Title: A/E SERVICES FOR DAM BREAK INUNDATION ZONE MAPPING AND
ENGINEERING SERVICES

Project Code: 199-17587-002 (K48)

Commodity Code: PROFESSIONAL SERVICES

Issuing Agency & Address: Commonwealth of Virginia
Department of Conservation and Recreation
Design and Construction Section
101 N. 14th Street
Monroe Building, 11th Floor
Richmond, VA 23219

Location of Work: Statewide, Virginia

Period of Contract: Single project services

All inquiries for information should be directed to:

Daniel C. Cox, Capital Outlay Project Manager, Telephone No. (804) 786-7966

IF PROPOSALS ARE MAILED, SEND DIRECTLY TO ISSUING AGENCY SHOWN ABOVE. IF PROPOSALS ARE HAND DELIVERED, DELIVER TO: Department of Conservation & Recreation, Design and Construction Section, 101 N. 14th Street, Monroe Building, 11th Floor, Richmond, VA 23219.

Sealed proposals for furnishing the services described herein will be received until 4:00 P.M. local time on Wednesday, April 13, 2011. Proposals must reach the above address by the deadline stated.

In compliance with this Request For Proposals, which includes the attached Table of Contents and all provisions and appendices attached and referenced therein, and subject to all the terms and conditions set forth herein, the undersigned offers and agrees to furnish the services described in the RFP cited above and submit this signed proposal which includes this completed and signed page, the completed and signed Forms AE-1, AE-2, AE-3, AE-4, AE-5 and AE-6 and other data as required by the RFP. It is understood that this proposal and the scope of services may be modified, by mutual agreement in subsequent negotiations.

Name and Address of Proposer:

Date:

By:

(Signature in Ink)

Typed Name:

 Zip:

Title:

FEIN/SSN #

Telephone No: ()

PRE-PROPOSAL CONFERENCE: A pre-proposal conference will not be held.

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NOTE: Electronic copies of A/E Data Forms (AE-1 through AE-6) and of the "Small Businesses and Businesses Owned by Women & Minorities" forms are available for download at the following website: <http://forms.dgs.virginia.gov/>.

eVA BUSINESS-TO-GOVERNMENT VENDOR REGISTRATION: The eVA Internet electronic procurement solution, web site portal <http://www.eva.virginia.gov/>, streamlines and automates government purchasing activities in the Commonwealth. The portal is the gateway for vendors to conduct business with state agencies and public bodies. All vendors desiring to provide goods and/or services to the Commonwealth shall be registered in eVA. The offeror must have registered in eVA prior to the deadline for submission of responses to this RFP to be eligible for the award of this contract for architectural/engineering services. Either Basic or Premium Registration may be selected. In addition to the annual eVA Registration Fee, vendors must agree to pay a Supplier Transaction Fee for each order/contract. Refer to the eVA Billing and Payment Portal <http://www.eva.virginia.gov/billing> for the current eVA Fee Schedule.

I. APPLICABILITY OF THE A/E MANUAL

The Commonwealth of Virginia Construction and Professional Services Manual – 2004 Edition, Chapters 1 through 10 (the A/E Manual) shall apply to the contract awarded pursuant to this RFP and is incorporated by reference herein in its entirety.

Proposer's attention is directed to Chapter 2, Definitions, for definitions of terms used in this RFP. The terms "Agency" and "Owner" are used interchangeably in the material referenced in this RFP and mean the public body issuing this solicitation for services and with whom the successful A/E Proposer will enter into an agreement. For purposes of clarity and uniformity in this RFP, only the term "Agency" will be used herein.

Proposer's attention is also directed to Chapter 3, General Terms and Conditions for Professional Service Contracts.

II. PURPOSE

The intent of this RFP is to solicit proposals for the purposes of entering into contracts through competitive negotiations for the professional services of an Architectural/Engineering firm, authorized to do business in the Commonwealth of Virginia, with experience performing dam break inundation zone mapping engineering assistance.

The A/E shall provide professional services for the project described in Part V of this RFP consistent with the A/E Manual, as revised, and latest directives issued by the Division of Engineering and Buildings concerning construction and professional services for new and renovated State buildings.

III. BACKGROUND

Pursuant to adoption of the new Virginia Impoundment Structures Regulations by the Division of Dam Safety, the Agency is engaged in the procurement of engineering services for the performance of dam break inundation studies of all regulated dams owned by the Virginia Soil and Water Conservation Districts (SWCD).

The Agency intends to procure engineering services for the remaining twenty-eight (28) Soil and Water Conservation District dams requiring inundation studies.

IV. INFORMATION AVAILABLE

Maintenance reports, current operational certificates and as-built drawings for each dam will be available through each participating Soil and Water Conservation District.

V. SCOPE OF SERVICES

The Agency's documents indicated in Section IV above describe the program, siting, appearance, aesthetics, functional arrangement, and level of quality desired by the Agency.

The selected A/E shall furnish all expertise, labor and resources for complete design and construction period services for the project in accordance with the requirements of the A/E Manual. The following generally highlights the services that the A/E will be required to perform:

- A. Field Investigation: The consultant will visit the site along with Agency and SWCD representatives to ascertain the location of the dam as it relates to upstream and downstream hydrology. All primary and secondary roads and bridges downstream of the dam will be investigated. Any residence that may be in an inundation zone directly below the dam will be noted for later investigation.
- B. Field Survey: The consultant will provide field survey as required to supplement available mapping. Based upon review of the site and review of the modeling requirements, the following dam information and x-sections will be required.
1. Dam profiles from natural ground to natural ground.
 2. Dam x-sections at the widest point from water surface to toe of dam.
 3. Emergency spillway profiles from water surface to top of discharge point.
 4. Invert of outlet pipes and toe drains.
 5. X-sections at road crossings to include:
 - a. 100' +/- upstream of roadway.
 - b. Toe of slope upstream and downstream of roadway.
 - c. High side or centerline profile of traveled surface.
 - d. A minimum of three x-sections and sketches of downstream bridges.
- C. Dam Inundation Zone Data Collection: The consultant will conduct a watershed assessment of the upstream and downstream drainage areas and collect field data required for hydraulic analysis and flood routing. The information obtained from field assessment will be used to:
1. Determine field survey locations.
 2. Verify drainage areas and flow paths.
 3. Verify the presence or absence of structures that may be located within the inundation zones.
- This data will be used in conjunction with mapping obtained from various sources such as USGS Topographic quad maps and GIS mapping provided by the Virginia Geographic Information Network.
- D. Hydrologic and Hydraulic Analysis: A dam break analysis using an approved hydrologic/hydraulic computer model shall be conducted. The modeling effort must conform to the intended use of the chosen computer model. Mixing the criteria of one procedure, listed in 4VAC50-20-320 (Acceptable design procedures and references) with criteria from another procedure, unless otherwise mentioned, is prohibited. Some computer models that are acceptable include HEC-1, HEC-HMS, HEC-RAS and the NWS Dambreak. Other computer models may be used if approved by the Division of Dam Safety and Floodplain Management prior to submitting the results to the Agency Regional Engineer. Present and planned land-use in the dam break inundation zones for which a development plan has been officially approved by the locality shall be considered when conducting the dam break analysis.

The consultant will develop a hydrologic model for the contributing watershed to each of the dams. The discharges generated from these watershed models will be routed through existing outlet structures to evaluate non-breach discharges and the associated water surface elevations within each impoundment. The hydrologic model will also include an analysis for each watershed that contributes flow within the inundation zone and for any

watershed that contributes flow to the downstream channel that may affect upstream water surface elevations.

- E. Breach Analysis: Based on survey and field data, breach model parameter values will be developed in order to generate breach discharges and create inflow hydrographs for downstream routing. Specific breach parameters values, such as failure time, will be optimized. Once these parameters are established, breach analysis will be performed as per Dam Safety Regulations.

As a minimum, the following shall be reflected using an approved hydrologic/hydraulic computer model:

1. Sunny day dam break with the starting water surface elevation at the normal or typical water surface elevation of the impounding structure. Dam failure during the required spillway design flood. An overtopping failure shall be modeled if the emergency spillway is unable to pass the spillway design flood without overtopping the crest of the dam. A piping failure shall be modeled if the emergency spillway has enough capacity to pass the required spillway design flood without overtopping the crest of the dam.
 2. Routing the spillway design flood through the dam without any failure.
 3. Dam failure during the Probable Maximum Flood.
- F. Mapping and Inundation Limits: Topographic information that shows at a minimum ten-foot contour elevations shall be used to develop the hydrologic/hydraulic computer model downstream of the dam. The dam owner's engineer must develop reliable cross sections to input into the computer model. If adequate topographic information is not available, the dam owner must provide an alternative method for identifying potential damage locations that must be approved by the Agency Regional Engineer, prior to initiating the evaluation. Topography may be a component of the submitted inundation map; however, map clutter must be avoided. If the topography is not submitted on the inundation map, a copy of the topographical information used shall be submitted with the engineering analysis and paper copies of all hydrologic and hydraulic computer model runs to the Regional Engineer.

The owner's engineer shall use sanctioned engineering criteria and sound professional judgment for the worst case storm conditions in the selection of:

1. Dam failure parameters.
2. Rainfall distributions.
3. Flood routing procedures and coefficients.
4. Use of available topography and supporting field surveys.
5. Development of SCS Curve Numbers.
6. Development of spillway rating curves and area-capacity curves.
7. Determination of the Time of Concentration and/or lag time.
8. Other steps used during the modeling and analysis of flood conditions in the watershed and downstream of the impounding structure.

The judgments and the engineering criteria used by the dam owner's engineer shall be reviewed and approved by the Agency Regional Engineer for appropriateness. The Agency Regional Engineer will provide specific guidance and/or recommendations via

written correspondence to the dam owner should the judgments or the use of the engineering criteria be determined to be inappropriate.

The computer model shall be extended to a point downstream of the impounding structure where the water surface elevations of the spillway design flood with and without dam failure converge to within one foot of each other or to a point at which the Probable Maximum Flood with a dam failure creates a possible damage to a structure, whichever is the farthest downstream.

The map lines delineating the inundation areas shall be drawn in such thickness (solid, dashed or dotted lines in black) to identify the inundation limits as the main feature of the map. The lines shall not obliterate the location of houses or features which are shown as being inundated. Identify the appropriate scale and show the north arrow on each map sheet.

Inundation maps may have color in the background and shall be at a scale where impacted structures downstream may be clearly seen. Avoid color-coding of the inundation lines since the maps will often be copied on black and white reproduction equipment. If the inundation area is too large to be shown on one map, an index map shall be included which shows the full extent of the inundation area and the outline of the detailed maps with an identifier for each map sheet. Impacted structures (homes, businesses, roads, utilities, etc.) shall be clearly shown and if cross-hatching is used it must not obscure the structures. Inundation maps shall not be produced in a size larger than 11" by 17" and the final size must be folded to a size of 8-1/2" by 11". The inundation maps shall be submitted to the Agency Regional Engineer electronically in a Windows compatible image format and as a set of paper maps. Acceptable digital image formats consist of JPEG, TIF, BMP, GIF, PNG, or EMF files. Adobe software constructed PDFs are also acceptable. Image resolution should be sufficient to view and read the necessary information noted above.

A narrative describing the accuracy and limitation of the information supplied on the inundation maps shall be provided to the Agency Regional Engineer. Since local officials are likely to use the maps for evacuation purposes, the following note shall be attached to each map: "Mapping of flooded areas and flood wave travel times are approximate. Timing and extent of actual inundation may differ from the information presented on this map."

- G. Hazard Classification: The consultant will develop the Hazard Classification for each impounding structure from the results of the Hydrologic and Hydraulic Analysis and field survey information. This classification will establish the required Spillway Design Flood (SDF) for each dam in Table 1 of the Regulations. The determination/verification of the hazard classification is the key factor in determining the complexity of the Breach analysis, Incremental Damage Assessment (IDA) and the limits of inundation mapping.

The hazard potential classification shall be proposed by the dam owner and shall be subject to reclassification by the Virginia Soil and Water Conservation Board, upon review of the information submitted by the dam owner and the owner's engineer and any pertinent information regarding potential impacts downstream of the dam caused by a failure of the dam.

- H. Incremental Damage Analysis: The consultant will perform an Incremental Damage Analysis (IDA) to possibly reduce the required Spillway Design Flood (SDF) based on the results of the Hazard Classification and the Breach Analysis. The analysis will determine if the required SDF can be reduced. If the IDA reduces the required SDF then the Breach Analysis task will be repeated with the new SDF value. The results from this analysis will be documented and included in a separate report. In the event the IDA is not applicable, or flood waters great enough to negate an IDA, the engineer shall state so in the inundation report.
- I. Inundation Report: The consultant will provide a written report providing a summary of the findings. The report will be presented in a three-ring binder complete with inundation mapping and selective supporting calculations. The report will include the results of the breach analysis and all of the parameters discussed above. A CD of the report, complete with reproducible inundation maps shall be submitted with each report.
- J. Other types of professional services of a nature consistent with the intent of the RFP.

VI. POLICY ON SMALL BUSINESSES AND BUSINESSES OWNED BY WOMEN AND MINORITIES

It is the policy of the Commonwealth of Virginia to contribute to the establishment, preservation and strengthening of small businesses and businesses owned by women and minorities and to encourage their participation in state procurement activities. The Commonwealth encourages contractors to provide for the participation of small businesses and businesses owned by women and minorities through partnerships, joint ventures, subcontracts, or other contractual opportunities. Submission of a report of past efforts to utilize the goods and services of such businesses required with any proposal for A/E services where the total A/E contract amount may exceed \$100,000. Proposer must provide information on its past utilization of Small, Women, and Minority Owned disadvantaged businesses, and must also state any plans to utilize such businesses and the manner in which they may be utilized under this Contract. Electronic copies of the "Small Businesses and Businesses Owned by Women & Minorities" Data Forms are available for download at the <http://forms.dgs.virginia.gov> website.

VII. PROPOSAL REQUIREMENTS

- A. Proposals shall be signed by an authorized representative of the A/E. By submitting a proposal, the proposer certifies that all information provided in response to this RFP is true and accurate. Failure to provide information required by this RFP will ultimately result in rejection of the proposal.
- B. Proposals should be prepared simply and economically, providing a straightforward, concise description of the A/E's capabilities for satisfying the requirements of the RFP. Emphasis should be on completeness and clarity of content.
- C. The Respondent's proposal shall include: the completed and signed RFP cover page 1; the completed and signed Forms AE-1, AE-2, AE-3, AE-4, AE-5 and AE-6; and the completed "Small Businesses and Businesses Owned by Women & Minorities" Data. One (1) manually signed original and three (3) copies of the proposal shall be submitted to the Agency. Each copy of the proposal shall be bound in a single volume where practical.

- D. All documentation submitted with the proposal shall be included in that single bound volume. Elaborate brochures and other representations beyond those sufficient for presenting a complete and effective proposal are neither required nor desired.
- E. Any information thought to be relevant, but not specifically applicable to the enumerated scope of Work, may be provided as an appendix to the proposal. If publications are supplied by the proposer to respond to a requirement, the response should include reference to the document number and page number. Publications provided without such reference will not be considered relevant to the RFP.
- F. To reduce the effort and expense of responding to RFP's, provide uniformity in the type of information requested, and enhance the review and evaluation process, the standard Forms AE-1 through AE-6, ARCHITECTURAL/ENGINEERING FIRM DATA, shall be used by A/E's responding to State agency RFP's.
- G. Descriptions of these forms and instructions for completing the forms are included in the A/E Manual. Hard copies of Forms AE-1, AE-2, AE-3, AE-4, AE-5 and AE-6 may be found in Appendix B of the Manual. Electronic copies of the "Small Businesses and Businesses Owned by Women & Minorities" Data Forms are available for download at the <http://forms.dgs.virginia.gov> website.

VIII. EVALUATION AND AWARD OF CONTRACTS

- A. Evaluation Criteria: Proposals shall be evaluated by the Agency using the following criteria:
 - 1. Expertise, experience, and qualifications of the A/E's personnel in each discipline that may provide services relevant to the RFP.
 - 2. Expertise, experience and qualifications of any special consultants proposed.
 - 3. Geographic location of the A/E's office where work will be performed in relation to the project location(s).
 - 4. A/E's plan to respond to requests for services and ability to complete any Project Orders in a timely manner.
 - 5. Expertise and past experience of the A/E in providing services on other Term Contracts or on projects of similar size, scope and features as those required for the Scope of Services on this RFP.
 - 6. A/E's experience in providing similar services including a demonstrated working knowledge of the State's Dam Safety Regulations.
 - 7. Use of small businesses and businesses owned by women and minorities as consultants, subcontractors, suppliers or support services.
 - 8. Size of the firm relative to the size of the project(s).
 - 9. Financial Responsibility as evidenced by the A/E carrying Professional Liability Insurance.
 - 10. Generally, the selection committee will consider the A/E's overall suitability to provide the services for the Term Contract within the time, budget and operational constraints that may be present, and the comments and/or recommendations of the A/E's previous clients, references and others.
- B. Award of Contract: After evaluation of the Proposals received in response to the RFP, the Agency shall engage in individual discussions and interviews with two or more proposers deemed fully qualified, responsible and suitable on the basis of initial

responses, and with professional competence to provide the required services. Repetitive informal interviews are permitted. Proposers shall be encouraged to elaborate on their qualifications, performance data, and staff expertise relevant to the proposed contract. Proposers may also propose alternate concepts or methodology. Proprietary information from competing proposers (including any data on estimated man-hours or rates and the plan for accomplishing the scope of work) will not be disclosed to the public or to competitors, provided such information is duly marked as "Proprietary Information" by the Proposer and the designation is justified as required by Section 2.2-4342, Code of Virginia, as revised. At the conclusion of the informal interviews and on the basis of evaluation factors set forth in Section VIII and the information provided and developed in the selection process to this point, the Agency shall rank, in the order of preference, the interviewed proposers whose professional qualifications and proposed services are deemed most meritorious. Negotiations shall then be conducted with the Proposer ranked first. If a contract satisfactory and advantageous to the Agency can be negotiated at a fee considered fair and reasonable, the award shall be made to that Proposer. Otherwise, negotiations with the Proposer ranked first shall be formally terminated and negotiations conducted with the Proposer ranked second, and so on, until such a contract can be negotiated at a fair and reasonable fee. Should the Agency determine in writing and in its sole discretion that only one Proposer is fully qualified, or that one offer is clearly more highly qualified and suitable than the others under consideration, a contract may be negotiated and awarded to that Proposer.

The Agency recognizes that dam break inundation zone mapping and engineering services is an extremely specialized task. The Agency intends to award up to four contracts for dam break inundation zone mapping for the dams listed in Attachment A. However, the Agency will go through the evaluation and selection of A/E firms one time, but award up to four contracts after interviews. This process is intended to streamline the selection process and to impose a smaller burden on the firms selected for interview.

IX. FEES

The fee for services shall be negotiated on a lump sum basis considering the Scope of Services required, the estimated man-hours required for each level/discipline and the typical labor rates for the various skill levels required for the work. The Memorandum of Understanding prepared by the Agency will document the negotiated acceptable labor rates for the various levels/disciplines and these rates will be used for any hourly rate work of the A/E that is authorized by the Agency.

X. ATTACHMENTS

Attachment A includes a list of dams scheduled for study.

ATTACHMENT A

<u>SWCD</u>	<u>Name</u>	<u>Inventory No.</u>
Blue Ridge	Upper Blackwater River #6	06701
	Marrowbone Creek #1	08908
Culpepper	Mountain Run #18	04706
	Beautiful Run #2A	11302
	Beautiful Run #4	11303
	Beautiful Run #6	11305
	Beautiful Run #7	11306
	Beautiful Run #10	11307
	Beautiful Run #1B	11309
Hanover-Caroline	South Anna River #52B	08502
Headwaters	Upper North River #77	01507
	South River #4	01511
	South River #11	01512
	South River #24	01513
Lord Fairfax	Town of Woodstock Dam	17104
Peter Francisco	Slate River #7	02936
Piedmont	Bush River #5	14739
	Bush River #6	14740
	Bush River #4B	14741
Shenandoah Valley	Lower North River #22B	16504
Thomas Jefferson	Little River #4	10902
	South Anna River #5	10926
	South Anna River #7	10905
	Little River #1	10924
	South Anna River #3	10931
	South Anna River #4	10932
	South Anna River #6B	10933
	South Anna River #23	10935