

MEMORANDUM

**TO: RIVANNA WATER & SEWER AUTHORITY
BOARD OF DIRECTORS**

FROM: JENNIFER WHITAKER, CHIEF ENGINEER

REVIEWED BY: THOMAS L. FREDERICK, EXECUTIVE DIRECTOR

**SUBJECT: RECOMMENDATION OF EXPERT PANEL FOR RAGGED
MOUNTAIN DAM**

DATE: FEBRUARY 23, 2009

At the November joint meeting among the Rivanna Water and Sewer Authority (RWSA) Board of Directors, the Albemarle County Service Authority (ACSA) Board of Directors, Charlottesville City Council, and the Albemarle County Board of Supervisors, RWSA staff were instructed to hire a panel of experts to review design assumptions, geotechnical data, cost factors, and other aspects of design work for the new Ragged Mountain Dam. On December 30, 2008 RWSA received proposals from 15 dam design and construction experts. From among these the staffs of RWSA, ACSA, and the City have collaborated in vetting and selecting three experts to comprise the Independent Technical Review Team (ITRT). These individuals are: Paul C. Rizzo, Ph.D., P.E., of Paul C. Rizzo Associates, Donald A. Bruce, Ph.D., C.Eng., L.G., L.E.G., of Geosystems, L.P., working under the corporate umbrella of Isherwood Associates, and Daniel L. Johnson, P.E., of GEI Consultants, Inc. These individuals are very highly respected in the dam design and construction industries, and each has substantial experience with design and construction of roller compacted concrete (RCC) dams and other dam types. Each has participated on technical review boards for dams.

The ITRT will meet at RWSA Administrative offices for up to three (3) workshops. Their formal contract scope will be to:

- 1.) Review and make recommendations concerning geotechnical and geophysical exploration reports for the proposed dam and the I-64 embankment;
- 2.) Review preliminary design recommendations of Gannett Fleming for the proposed dam and I-64 embankment and the September 2008 report by Schnabel Engineering on the proposed dam, to include proposed foundation depth of the dam and extent of proposed "core walls";
- 3.) Provide recommendations to the Rivanna Water and Sewer Authority (RWSA) to include its opinion on the most cost effective means of building a structurally stable dam with settlement and seepage within acceptable limits, which will comply with all regulatory requirements, and which will provide the requisite reservoir storage volume;
- 4.) If it is determined that additional geotechnical or geophysical study is necessary, the ITRT shall provide recommendations on the scope of the additional field investigations.

As the work of the ITRT proceeds, it will be necessary for one of the members to serve as chairperson of the team. The chair will be selected by RWSA staff in consultation with the ITRT

team members. The company who employs the chair will be expected to provide clerical services for preparing and distributing documents which are generated by the ITRT. The chair may also be expected to be in attendance at the RWSA Board of Directors meeting when the ITRT Report is presented, and may assist the staff with public information provided during the process. The services of the chairperson is budgeted separately in the table below.

To support the deliberations of the ITRT, it will be necessary to have Gannett Fleming and Schnabel Engineers provide the ITRT members with information and responses to questions regarding the issues before the ITRT. Gannett Fleming, as design engineer, will meet with the ITRT to provide explanations of design assumptions and concepts behind the design as it presently stands. Schnabel, as the engineers who conducted a limited review of geo-technical and geophysical data this past fall, will likewise meet with the ITRT to explain their thoughts concerning the foundation exploration and their comments on Gannett’s tentative conclusions. Fees for these services are also included in the budget below. RWSA will direct these services toward the assurance that these firms are responsive to the needs of the ITRT.

As staff discussed the issues on which RWSA needs expert opinions, it was suggested by ITRT members that a separate professional cost estimator be engaged once recommendations of the ITRT are nearing completion. Cost estimating is a specialty that requires skills that are not identical to the knowledge and skills required to design dams. The members of the ITRT have been selected due to their substantial level of expertise in the specific areas of design which are in question, rather than for their qualifications as cost estimators. Staff will obtain recommendations from the ITRT concerning individuals they consider to be leading experts in cost estimating, and the ITRT will assist with writing a scope of work for the formal revised cost estimate. As the Cost Estimator is preparing his estimate, the ITRT will provide input into the cost estimating process.

A separate contract with the individual participants in the Independent Technical Review Team process will be implemented. The table below shows proposed fees which have been negotiated with each of the selected ITRT proposed members and with Gannett Fleming and Schnabel, as well as staff estimates for the cost for a professional independent construction cost estimate, an estimate for additional services of the chairperson, and contingency for any of the contracts to be used only as necessary.

One possible contingency that has not been included yet could be significant: additional drilling and geophysical services. This will not be reasonable to estimate until the ITRT makes its recommendations; consequently, separate Board action may be needed for this item.

ITRT CONTRACT COSTS

<u>Company</u>	<u>Proposed Fee</u>
Paul C. Rizzo Associates	\$50,320
Isherwood Assoc. (Geosystems, L.P.)	\$49,715
GEI Consultants, Inc.	\$50,020
Gannett Fleming, Inc.	\$19,800
Schnabel Engineering Associates, Inc.	\$19,200
ITRT Chairperson (estimated – NTE*)	\$25,000
Professional Cost Estimator (estimated – NTE*)	<u>\$20,000</u>
Total	\$234,055
Contingency for all contracts	<u>\$30,000</u>
Total with Contingency	\$264,055

*NTE = Not to Exceed

Recommended Board Action

Staff requests authorization for the Executive Director to enter into contracts with selected members of the Independent Technical Review Team and with Gannett Fleming and Schnabel Engineers in the amounts listed above. Staff further requests authorization for the Executive Director to enter into a separate agreement with one of the ITRT members, as work of the ITRT proceeds, to serve as chairperson of the ITRT.

Staff also requests that the Executive Director be authorized, once the ITRT has recommended a course of action and design parameters have been established, to engage the services of an independent professional cost estimator to prepare a formal detailed construction cost estimate for the dam.

Our final request is that the Executive Director be authorized to amend as necessary any of the contracts included in this authorization to carry out the work of the ITRT, only as needed, up to a fixed total dollar limit of \$30,000 for all contracts.