

MEMORANDUM

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

FROM: RWSA ENGINEERING STAFF

REVIEWED BY: THOMAS L. FREDERICK, EXECUTIVE DIRECTOR

SUBJECT: STATUS REPORT: ON-GOING PROJECTS

DATE: JULY 27, 2010

The following projects are underway; current project status is in **bold** type. This report includes sections on Capital Projects and large maintenance projects.

Ragged Mountain Dam

The Ragged Mountain Dam project is to construct a new dam just downstream of the existing Lower Ragged Mountain Dam. The new structure will provide a normal pool elevation which is approximately 45 feet higher than the current pool elevation, resulting in a useable water storage volume of approximately 2.2 billion gallons. This project serves two primary functions: First, it is a major component of the Community Water Supply Plan, and assures adequate stored water to meet projected demands for the next 50 years as well as significant improvements in water releases to streams in our watershed. In addition, the new structure will allow the decommissioning of the two existing dams which due to safety concerns (inadequate spillway capacity and stability concerns) are currently operating under a “conditional” operating certificate from the Dam Safety Division of the Virginia Department of Conservation and Recreation (DCR), a state agency which operates under the oversight of the Soil and Water Conservation Board (SWCB).

At its August 2007 meeting the Board authorized the Executive Director to negotiate and execute a contract with Gannett Fleming Inc. Design activities completed as part of that contract included: detailed survey of the dam site and surrounding property, bathymetric survey of the existing reservoirs, initial geotechnical investigations (soil and rock borings) and geophysical studies, hydrology and hydraulic analysis and design of the dam, raw water pipeline relocation, and preliminary design of improvements to I-64. Additionally, conversations took place with VDOT on I-64 design requirements and on the use of Reservoir Road for construction access.

Following preliminary analysis of the subsurface findings, and discussions with VDOT, significant questions arose concerning depth of foundation, extent of core walls into the abutments, and requirements for drainage under Interstate 64. To resolve these questions, the Board authorized staff in September 2008 to draft a request for proposal (RFP) to establish an Independent Technical Review Team (ITRT) to evaluate these features as well as the overall design of this project. At the February 23, 2009 Board of Directors meeting, staff was authorized to execute contracts with Paul Rizzo, Dan Johnson, and Donald Bruce to form the ITRT. The ITRT met for a workshop March 10,

11, and 12. The ITRT completed its report on the initial workshop, which includes a number of cost saving approaches to consider for construction of the dam.

At the November 25, 2009 Four Boards meeting, requests were made regarding water conservation, dredging feasibility, and pipeline studies. A water conservation study was developed by the City and ACSA. RWSA staff received proposals from several firms to review the conceptual design of the South Fork Rivanna Reservoir to Ragged Mountain Reservoir pipeline and executed a contract with Wiley/Wilson of Lynchburg, VA dated August 27, 2009 to perform the review. A Dredging Feasibility Study is discussed elsewhere in this report in the section on South Fork Rivanna Reservoir Maintenance Plan.

At the June 2009 Board meeting, staff presented and the Board adopted a recommendation to continue design of the Ragged Mountain Dam with a new consulting engineering firm. At the September, 2009 Board of Directors meeting the Executive Director was authorized to enter into a contract with Schnabel Engineers for preliminary design of the new dam.

Initial borings and geophysics field work were performed at the dam site and at a potential aggregate source area. Following consultation among Schnabel, RWSA staff, and the ITRT, a decision was made to retain the location and alignment for the new dam that had been previously recommended by Gannett Fleming. Further geotechnical and geophysical investigations in potential borrow material areas revealed that there is not enough sound rock at shallow depths to support economical on-site generation of aggregate for the concrete dam. There is, however, a larger quantity of earth materials than initially expected. This led to increased interest in whether an earth-fill dam could be constructed of readily available on-site materials, at less cost than the originally envisioned RCC dam. Discussions among RWSA staff, Schnabel, and the ITRT involved examination of the major issues related to construction of an earth-fill dam and evaluation of the pros and cons of each approach.

Geotechnical and geophysical investigations are complete for preliminary design in areas upstream of the existing dam. Schnabel Engineers have completed (1) an Alternatives Assessment Report comparing the costs and relative benefits of an RCC versus an earth fill dam at the Ragged Mountain site, (2) a Geological/Geotechnical Report and (3) a Preliminary Design and report which includes a detailed cost estimate. The Alternatives Assessment concludes that an earthfill dam has significant benefits over RCC, and costs to construct the earthfill dam will be significantly less than RCC. The conclusion that an earthfill dam is preferable has been discussed with the ITRT, and they concur with the results of the study.

The findings of these studies were presented to the Board at the May 2010 meeting. Additionally, a meeting with the public to discuss the preliminary design for the earth dam was held on June 1, 2010. **In response to public comments, Schnabel has evaluated volume gain due to removing borrow material from the proposed pool area, and they have adjusted total storage for the proposed reservoir based on Schnabel's recommendation for "dead storage". A separate report is included in this Board package discussing their conclusions on these issues.**

Interstate 64 Drainage Design for Ragged Mountain Reservoir

At the November Board of Directors meeting staff was authorized to enter into a contract with Volkert, Inc. to develop concepts and design improvements to the area of Interstate 64 embankment which will be inundated by the new Ragged Mountain reservoir. This portion of design was separated from the scope of work of the new dam design in order to engage a consultant with more

focused capabilities in dealing with VDOT and FHWA issues related to the Interstate highway system. Volkert has chosen to employ Schnabel Engineering Associates as sub-consultant for geotechnical issues.

On January 27, 2010 RWSA staff, Volkert, and Schnabel met with VDOT representatives from the Central, District, and local offices, as well as several FHWA staff members. An in-depth discussion of the issues to be resolved took place, and a framework for proceeding through the design process was laid out. Volkert has been working to address several of the design questions.

Analyses of hydraulic, geotechnical, and structural issues have been completed and have been discussed with VDOT representatives in small, technically focused groups to resolve specific technical issues or questions. The next group discussion, took place on May 17 with VDOT and FHWA, and covered the interpretation of hydraulic and structural findings for assuring that all concerns have been adequately addressed in a cost-effective manner. An additional focus for Volkert has been analysis of the risk of highway accidents involving hazardous materials which could conceivably affect the existing as well as expanded reservoir, and evaluation of appropriate measures to mitigate these risks. An engineering report from Volkert is **under review**.

Comprehensive Sanitary Sewer Interceptor Study

Proposed development, I&I concerns, and infrastructure age in the Urban Service Area has prompted the need for a comprehensive RWSA sanitary sewer interceptor evaluation. This study is examining current and future wet and dry weather flows and flow capacity in most of the interceptor system. Additionally, the study will assist RWSA and its wholesale customers in establishing I&I reduction goals and future capital project needs. In January 2006, RWSA entered into a contract with Greeley & Hansen to perform the study.

The consultants compiled flow metering data throughout the system and developed and calibrated the existing conditions for the sanitary sewer flow model including the dry weather, 1-year, 2-year, 5-year, and 10-year design storm for wet weather events. Significant effort was spent on understanding the response of the system to two large, but fundamentally different storm events. In addition, the consultants evaluated the impacts of existing dry and wet weather flow regimes on existing infrastructure, and have compiled data sources to evaluate the projected sewer capacity needs into the future. The consultants finalized the sewer modeling efforts and completed the future dry and wet weather flow projections.

Following the completion of a calibrated model, RWSA staff has coordinated several meetings with ACSA and City staff with the consultant present to discuss the extent to which the future sewer master plan would rely on goals for inflow and infiltration reduction of the combined regional sewer system with multiple owners, with the balance of wet weather flows to be carried by interceptor pipes, pumping stations, holding basins, and treatment facilities operated by RWSA. The intent of these discussions is an open dialogue toward developing a mutual agreement. Staff of the three agencies continued discussions, additional investigations and model runs from late 2008 until early 2010.

At a March 2010 meeting, a consensus was reached with the City and ACSA staff on several major elements of a completed sewer master plan: (1) the Moores Creek Pump Station will be upgraded to a wet weather peak capacity of between 28 to 30 million gallons per day (mgd); (2) the existing 21-inch Schenks Branch Interceptor will be in the next CIP to be replaced its entire length with a larger 30-inch pipe to carry additional wet weather flow from the City's system; and (3) the highest

priority areas for initiating significant inflow and infiltration reduction would include the Lower Rivanna and Crozet “sewersheds”. RWSA, ACSA and City staff met on March 31, 2010 to discuss the sizing of the Rivanna Pump Station Upgrade and consensus was reached to design to a wet weather capacity of 53 million gallons per day. **Greeley and Hansen has completed a final report based on this consensus and is attending the Board meeting today for a presentation of the final study results.**

Rt. 29 Temporary Pump Station Installation

At the April 2006 meeting, the Board approved a design service contract with Michael Baker, Inc. for the evaluation and preparation of a Preliminary Engineering Report (PER) on improvements to enhance system reliability and provide for future increases in demand for the system served by the North Rivanna Water Treatment Plant (WTP). The initial PER proposed a large diameter pipeline to allow efficient conveyance of water from the primary Urban water system into the North Rivanna system, with a pump station to boost pressures. Following the PER, a corridor study was performed to identify a preferred specific location for the pipeline. During the corridor study several factors were recognized that led to a decision to delay corridor selection: (1) there is a lack of a publicly dedicated corridor within the jurisdictional area between the Wal-Mart area and the Airport except U.S. Highway 29; (2) VDOT will not permit a new pipe within the U.S. Highway 29 right-of-way; (3) privately-owned land in the immediate area could be subject to extensive re-grading depending on future zoning and development decisions; and (4) Albemarle County was considering options to extend the right-of-way of Berkmar Drive, which could become an excellent pipeline alternative. To serve as a back-up until the corridor is selected, providing system redundancy for reliable water service in the North Rivanna system, and to honor a contractual commitment to VDOT to remove the existing 12-inch waterline beneath north-bound lanes of Route 29, a modification to Baker’s scope was authorized at the November 2009 Board of Director’s meeting. This modification to the design scope calls for design of the pipeline abandonment to meet VDOT requirements, and design of fixtures for quickly connecting a trailer-mounted pump to supply water from the Urban pressure band into the North Rivanna system.

The 90% design has been reviewed by RWSA engineering staff. A permit for construction within VDOT right-of-way is being **reviewed by VDOT**. Staff anticipates an August 2010 bid **advertisement**.

Canterbury/Stillhouse Pump Station Replacement

This project is to replace the existing ACSA Canterbury pump station which is located adjacent to Barracks Road and serves the Stillhouse Mountain Tank service area. Areas served include Hessian Hills, Montvue, West Leigh, Meriwether Hills, Colthurst, Albemarle High School, Flordon, and portions of Rio Road, Hydraulic Road, and Woodburn Road. The existing pump station has pumps, electrical components, and control systems which need to be replaced. The site is severely constrained such that rehabilitation or replacement in the existing location is not feasible. Preliminary engineering reviewed several alternative locations for the proposed pump station and identified an initial preferred site. Discussions with the owner indicated an objection to the pump station to be built in the desired site. While not dismissing this site, RWSA and ACSA staffs agreed to explore alternative locations. One alternative site along Woodburn Road (already owned by RWSA) was identified for review and Michael Baker engineers have performed the feasibility study for that site. That study has been reviewed, and the Virginia Department of Health has provided written confirmation that they will accept this modification

of the water system. At the October 2009 meeting the Board authorized the Executive Director to enter into a contract with Michael Baker Engineers to begin design of the project on the Woodburn Road site. The Basis of Design Memorandum has been reviewed by RWSA and ACSA staffs and comments have been discussed with Baker.

Fifty percent design plans have been reviewed by RWSA and ACSA Engineering Departments. Review comments have been sent to Baker for them to incorporate into the 90% design submittal. **This project is under design.**

Moore's Creek WWTP ENR Upgrade

RWSA is required by the Virginia Department of Environmental Quality (DEQ) to upgrade the Moore's Creek WWTP to meet new stringent nutrient removal regulations. In June 2007, the RWSA Water Quality Improvement Fund grant (WQIF) was approved for \$15,612,413. In May and November of 2007 the Board authorized the hiring of Hazen & Sawyer Engineers to provide evaluation, design and bid phase services.

Staff held a community meeting on February 3rd, 2009. The project was advertised for bid on February 19, 2009, and a Pre-Bid Conference was held on March 10, 2009. Bids were opened on March 31st and the apparent low bidder at \$40,319,000 was Adams Robinson Enterprises, Inc. of Dayton, Ohio. The Engineer's estimate of probable cost on this project was \$49,466,000. After bidding, DEQ approved an increase in the WQIF grant to the amount of \$21.5 million. A groundbreaking was held on May 27th with Governor Timothy Kaine as the guest speaker. Notice to Proceed was issued to Adams Robinson Enterprises effective June 1, 2009. Substantial completion is anticipated on November 11, 2012 with final completion on January 11, 2013.

On the South side of the plant the key work items completed during June were: placement of the new main power building; installation of the new main power back up generator; extensive ductbank and electrical work; retrofit work on equalization basin 1; diffuser installation and concrete finishing work in aeration basin number 5; on-going backfilling next to aeration basin 5, and roofing and mechanical installation at the chemical feed building.

On the north side of the plant, work includes: concrete finishing, formwork and rebar installation for the tertiary filters and UV facility; roofing and piping installation at the boiler facility; demolition work at digester No. 5; beginning construction of the new digester cover.

As of June 30, 2010, the project is approximately 53% complete, with 31% of the substantial completion time expired. As such, the contractor is ahead of schedule.

Moore's Creek WWTP Wet Weather Capacity

At the April 2010 Board meeting staff presented preliminary information related to the Comprehensive Sanitary Sewer Study and the impact of wet weather flows on the Moore's Creek WWTP. Prior to the presentation, RWSA asked Hazen and Sawyer, who designed the treatment plant upgrade, to identify the extent to which the plant upgrade currently under contract could handle the peak wet weather flows defined by the Comprehensive Sanitary Sewer Study. Hazen and Sawyer concluded that the peak flow treatment capability needs to be further increased from

37.5 mgd to 45 mgd, and also proposed a slight increase in the capacity of the holding ponds from 15 million gallons to 16.2 million gallons.

Additionally, the City of Charlottesville has a need to replace a collector pipe to alleviate the potential for wet weather sanitary sewer overflows on its system. When the City's project is completed in August 2011, their system will have the design capacity to deliver between 5 to 6 mgd of additional peak flow to RWSA's Moores Creek Pump Station and WWTP. However, the current WWTP construction project completion date is not until November 2012. Hazen and Sawyer has recommended that "interim" capacity could be gained through altering the sequencing of several items currently under construction in combination with completing Phase I activities, as defined below, by August 2011.

The estimated project cost for the Phase I improvements by August 2011 is \$1.6 million, and the estimated project cost for Phase II, extending the WWTP's capability for peak wet weather flow to 45 mgd, is \$5.3 million. The Phase II work is not sensitive to the August 2011 date but would need to be achieved by the time of completion of the upgrades to both the Moores Creek and Rivanna Pump Stations, currently estimated to be the end of 2012. The completion of both phases of this additional work is a sum total of \$6.9 million, or about 14% of the \$48 million currently budgeted as project cost for the work now under construction.

Phase I

- Increase the holding ponds capacity from 15 million gallons to 16.2 million gallons through minor improvements at an effluent weir structure;
- Install a new pipeline to expand the capacity of rate of flow to the holding ponds;
- Increase the transmission rate of flow from the holding ponds back to the WWTP; and
- Provide a 6 mgd engine driven outdoor pump to supplement the exiting pumping capability of the Moores Creek Pump Station until the station is permanently expanded.

Phase II

- Add a fourth secondary clarifier unit (the plant currently has two of these units with a third unit in the current construction contract);
- Further expand the ultraviolet disinfection process to be built in the current construction contract; and
- Evaluate minor influent "headworks" (entrance to the plant) modifications that may be needed to contain the peak flows.

At the April meeting, staff requested and received authorization from the Board for new design services to expand the current construction project at the Moores Creek WWTP to provide for the treatment of additional wet weather peak flow, in the amount of \$461,964.

At the June meeting, the Board authorized (i) a new project entitled "Moores Creek WWTP Wet Weather Capacity" in the amount of \$6.9 million, and (ii) a sole-source contract (via change order) to the Adams Robinson for a new 24-inch force main, metering vault, and 42-inch main relocation in the amount of \$1,339,050 with up to a \$100,000 contingency. Hazen and Sawyer is currently working on the remaining design elements associated with these efforts.

Meadowcreek Sanitary Sewer Interceptor Upgrade

The Meadowcreek Interceptor was placed into service in the mid-1950s and currently serves the northern and eastern portions of City of Charlottesville, bordering County neighborhoods, and the University of Virginia Sports and Arts Precincts. Over the last several years there have been numerous repairs to this line caused by structural degradation and/or stream encroachment. At the January 2007 meeting, the Board adopted the staff recommendation to advance the work on a project to upgrade the sanitary sewer capacity in this drainage area, as flow monitoring indicated that there is little, if any, extra capacity available during peak service conditions within some sections of the Interceptor.

In June 2007 the findings of the Meadowcreek Interceptor Routing Study and Evaluation were presented to the Board. At that meeting the Board endorsed moving forward with a contract to conduct design and permitting of a new, larger pipeline to be built along/within the alignment of the existing pipe.

RWSA staff and the City held an Open House on September 24, 2008, to provide information on the RWSA Meadow Creek Interceptor Upgrade project and the City Meadow Creek Stream Restoration project. Numerous follow-up meetings were conducted throughout the fall with neighborhood and stakeholder groups. In December 2008 and January 2009, RWSA developed and published landscaping plans that were prepared by landscape architects at Williamsburg Environmental Group. RWSA has received very positive feedback on the landscaping plans to provide a re-vegetation plan for the different land use areas in the sewer interceptor easement corridor, in coordination with the City's stream restoration project and including park property. City Parks staff was instrumental in assisting with the landscaping plan development.

The Interceptor project advertised for bid on September 8, 2009. A pre-bid meeting was held on October 6, 2009. The bid opening occurred on November 10th. There were 9 bids received for Contract A ranging from \$5,650,900 to \$10,058,050 (including the Schenks Branch Interceptor work and not including any alternate bid items). Furthermore, there were 9 bids received for Contract B ranging from \$5,187,000 to \$10,950,000 (not including any alternate bid items). Considering that the Engineer's estimates for Contract A and Contract B were \$10,607,875 and \$10,427,850 respectively. At the December 2009 Board Meeting, the Board approved award of the Meadow Creek Interceptor Contracts A and B to Metra Industries of Little Falls, NJ. In addition, the Board authorized a construction administration and inspection services agreement with Greeley and Hansen in conjunction with the construction work.

RWSA executed the Contract Documents and issued the Notice to Proceed for construction to Metra on April 1, 2010. A pre-construction conference was held with Metra, the City, ACSA, Greeley and Hansen, and RWSA on March 26, 2010. Metra has mobilized personnel to the area and set up their project office. **The Contractor has completed surveying in the first areas of work at the old Meadow Creek Wastewater Treatment Plant site off Pen Park Lane and the Locust Grove Neighborhood for Contract A and at the Norfolk Southern railroad crossing and Greenbrier Park for Contract B. The easement boundaries have been delineated and clearing is nearly complete. Heavy equipment has been mobilized to the area and several deliveries of ductile iron pipe have been received. Following the clearing operation, the Contractor is conducting additional geotechnical investigations (test drilling) and establishing erosion and sediment control measures which includes the installation of silt fence. The Contractor has been submitting shop drawings and ordering materials. Work is progressing on the VDOT portion (Meadow Creek Parkway) of the work.**

The contract for the Landscape Restoration project was advertised for bid on April 9, 2010. A mandatory pre-bid meeting was conducted on April 20, 2010. The bid opening occurred on May 11, 2010, and there were 3 bids received ranging from \$144,694.47 to \$225,950.10. At the May 2010 Board meeting, the Board approved award of the Meadow Creek Landscape Restoration Project to Branders Bridge Landscaping of Colonial Heights, Virginia. In addition, the Board authorized a construction administration agreement with Greeley and Hansen for professional landscape architect services to be performed by Williamsburg Environmental Group in conjunction with the landscape restoration work. Notice of Award was issued to Branders Bridge Landscaping on June 11, 2010. **Staff anticipates executing the Contract Documents and issuing the Notice to Proceed in late July 2010.**

Sanitary Sewer Interceptor Rehabilitation

Results from the sewer flow monitoring and modeling under the Comprehensive Sanitary Sewer Study provided awareness to specific I&I concerns in the collection system and resulted in strengthened commitments from the City, ACSA and RWSA to continue I&I abatement programs collaboratively. This project reports specific activities on the RWSA Interceptor system.

In October 2008 proposals were received for professional engineering services to aid in the rehabilitation and repair of the sewer collection system. Two short listed firms were interviewed and staff selected Frazier Engineering, P.A. based on the proposals, interviews, and qualifications. Work Authorization No. 1 with Frazier included locating points of inflow in the Rivanna Interceptor, the assessment of the Schenks Branch Interceptor and aiding in the development of a cleaning, CCTV and lining contract. Work Authorization No. 2 included inspection of manholes along the Rivanna Interceptor and the Albemarle-Berkley Interceptor and the development of a sewer point repair contract. At the April 2009 Board meeting, staff presented a six-month work plan for the Sewer Interceptor Rehabilitation program for the Schenk's Branch, Albemarle-Berkley, and Crozet Interceptors.

Reports for the lower Rivanna Interceptor flow metering, the lower Rivanna Interceptor manhole inspections, the Schenk's Branch Interceptor condition assessment, the Albemarle-Berkley Interceptor manhole inspections and the Crozet Interceptor Manhole inspections have been finalized. **Pre-construction flow metering continues on the Meadow Creek, Moores Creek and Schenk's Branch Interceptors.**

In May, the Board authorized a contract with Linco, Inc. to perform sanitary sewer investigation, repair and rehabilitation work. Staff is continuing to work towards finalizing the contract documents. Linco's first work authorization will involve CCTV investigation and manhole repair activities on the Crozet, Albemarle-Berkeley and Rivanna Interceptors. The Board also authorized the clearing of RWSA's easements along the Crozet Interceptor in order to facilitate Linco's work on that interceptor. Staff is working to prepare the needed documents and notify property owners. The clearing will begin shortly after the property owners are notified.

Moores Creek and Rivanna Sanitary Sewer Pump Station Improvements

The Urban Sewer Service Area (including Charlottesville and a portion of Albemarle County) is split into two regions. The region located to the west includes: Crozet, Boars Head, Fontaine Research Park, 5th Street, Biscuit Run, Jefferson Park Avenue, Scott Stadium, Cherry Avenue and

Valley Road, portions of the UVa Hospital, the Belmont Neighborhood and portions of the Downtown area, which drain to the 30" Moores Creek Interceptor and 36" Moores Creek Relief Interceptor, and eventually to the Moores Creek Pump Station. The region located to the north and east includes: Route 29 North from Ivy Road to near the North Fork of the Rivanna River, the sports and arts precincts of the University of Virginia, areas surrounding Preston Avenue, the areas along and between Rio and McIntire Roads, North Downtown, Pantops, and Woolen Mills, which drains to the 54" and 60" Rivanna Interceptor, and eventually the Rivanna Pump Station.

In 2006 and 2007, a system wide flow monitoring program was completed for RWSA as part of the on-going Comprehensive Sanitary Sewer Study. The flow monitoring indicated that several interceptors experienced significant amounts of inflow and infiltration during wet weather events. While the Comprehensive Sanitary Sewer Interceptor Study is not complete, much of the flow predictions and system modeling efforts are well understood. The Authority is presently working with both the City and Albemarle County Service Authority (ACSA) on development of an inflow and infiltration reduction program. To the extent that wet weather flow will not be eliminated by this reduction program, RWSA will need to include such flow in the upgrade of the Rivanna and Moores Creek Pump Stations. The completion of the pump station upgrades will be coordinated with the completion of the Moores Creek Advanced Wastewater Treatment (AWT) Plant ENR upgrades and the improved treatment process incorporated into the nutrient upgrade design that will permit the facility to treat greater volumes of wet weather flow.

Within this report are references to pump station capacities. It needs to be addressed upfront that pump stations are and must be designed to carry peak flows during wet weather events. It is very common within the industry that pump stations are designed to carry 3 or more times the average treatment capacity of a wastewater system during short, peak periods.

The future firm wet weather pumping capacity of the two influent pump stations was established in consultation with the City and ACSA, with the Moores Creek Pump Station Upgrade to between 28 and 30 million gallons per day (mgd), and the Rivanna Pump Station to a peak wet weather flow rate equivalent to 53 mgd. The consultant will prepare preliminary engineering evaluations to meet these capacity needs and will design the desired upgrades to include provisions for appropriate sized pumps, electrical gear, influent screening, back-up power generation, SCADA control and integration, force main capacity expansion, site and permitting work, as well as architectural, structural and mechanical systems. The work will include permitting and permitting assistance as well as public outreach assistance. The work may also include preparation of bid documents, bidding assistance, construction administration, and inspection services.

Due to differing objectives, the pumping capacity upgrades for the Moores Creek and Rivanna projects will proceed as separately designed, permitted, bid and constructed facilities. The Moores Creek Pump Station upgrade on the RWSA site will proceed as quickly as possible in coordination with needs of the City. The schedule for the upgrade in pumping capacity between the Rivanna Interceptor and WWTP will allow for adequate consideration of neighborhood concerns. The President of the Woolen Mills Neighborhood Association was contacted in February for suggestions regarding the approach for upcoming public outreach, to allow effective communication to continue throughout the design.

Proposals for the Moores Creek & Rivanna Sanitary Sewer Pump Station Improvements Project (RFP 09-06) were received on November 24, 2009. Staff recommended that the Board authorize Hazen and Sawyer to begin on the preliminary investigation and public outreach work which will

lay the foundation for the final design of these projects at the January 2010 Board meeting and it was approved.

Moore's Creek Pump Station upgrades are currently in design as approved by the Board in March 2010. Preliminary investigations related to siting and permitting the new second force main are being finalized and include wetland delineation, geotechnical investigations, and surveying. A submittal of the Joint Permit Application for the work associated with the second force main is anticipated by the end of July. The Final Preliminary Engineering Report was submitted to RWSA on July 9, 2010. A 60% submittal of the plans and specifications for the Moore's Creek Pump Station design is anticipated mid-July for review.

Hazen and Sawyer is still evaluating the Rivanna Pump Station Upgrade preliminary alternatives. A community meeting will be scheduled this Fall with the Woolen Mills neighborhood to present the pump station upgrade alternatives. Based upon the preliminary findings and public input, additional work authorizations for design services will be brought to the Board at a later time.

Community Water Supply Mitigation Plan

RWSA solicited a Request for Proposal for the design of the Community Water Supply Plan stream and wetland mitigation efforts in June of 2007, with RFP's being received in July. At its October 2007 meeting, the Board authorized the Executive Director to execute a contract with VHB. VHB was given Notice to Proceed on both the stream and wetlands efforts in April and May of 2008. Additionally, staff has been working extensively with lease holders on the RWSA owned Buck Mountain Creek property to identify final mitigation concepts and configuration for each impacted parcel. Fencing of a portion of buffer areas along two lease areas and the installation of alternative watering systems have recently been completed under a Virginia Soil and Water Conservation District grant program. 75% cost share payments from Thomas Jefferson Soil and Water Conservation District have been paid to the two leaseholders, and RWSA has processed payment of the remaining 25% to the two leaseholders. Additional coordination with lease holders is ongoing to identify and address how the mitigation plan will affect land use and future leases.

VHB submitted design plans to DEQ and the Corps for the Buck Mountain Stream Restoration and Buffer Enhancement projects on March 3, 2009. Work towards completion of the final mitigation plan is continuing based on DEQ comments received in March 2009. For the Franklin Street/Moore's Creek wetland mitigation site, test pits will be pursued to ensure that all utility conflicts have been identified for a proposed storm sewer pipeline, slight revisions in proposed site grading will be accommodated to preserve a number of existing trees in the planned wetland creation area, and deed restriction language is being reviewed by legal counsel. For the Buck Mountain stream restoration and buffer restoration/enhancement site, draft deed restriction language has been submitted to regulatory agencies for review, compensation credit for final proposed stream restoration and stream buffer planting is being calculated, and the details of the monitoring plan components are being finalized. **Completion of design is anticipated in 2010. Staff is presently working toward a goal of initiating construction of the mitigation sites in 2011.**

South Fork Rivanna Reservoir Dredging Feasibility Study

On June 30, 2008 the chairman of the four political boards (ACSA, City Council, Board of Supervisors and RWSA) met on the issue of South Fork Rivanna Reservoir long-term maintenance. At that meeting an eleven (11) member task force was created and RWSA was asked to postpone the issuance of an RFQ until the task force provided further information to the four boards. Before the Task force convened it was expanded to thirteen (13) members. The first meeting of this Task Force was on August 12th, with the following topics presented: Objective of the Task Force, summary of reservoir status for fishing and other recreational interest, water quality, historical bathymetric surveys, and County land use strategies to reduce sedimentation. A question roundtable for the Task Force members was also conducted.

The Task Force held meetings on September 8th, September 29th and October 13th to hear presentations on potential physical changes to the South Fork Rivanna Reservoir in the absence of maintenance dredging, and to design a public input process for the month of October. On October 9th the Task Force released an online and paper questionnaire to gather public information on the community's expectations for the reservoir. The Task Force has received approximately 300 responses to this questionnaire. In addition, 18 citizens offered comments at a public forum held by the Task Force on October 27, 2008. Members of the Task Force participated in a tour hosted by RWSA of the South Rivanna Water Treatment Plant on November 19th to better understand the complexities of the water treatment process. The Task Force held meetings on November 13th, and November 19th to hear informational presentations on dredging and maintenance needs of the Reservoir. Task Force meetings on December 8th and December 18th were focused on discussing and drafting the final report to the four Boards. The Task Force continued to work through December and into January to produce a report that captures the perspectives of all Task Force members. The final meeting of the Task Force was held on January 26, 2009 and the Task Force approved the final report by a majority vote. RWSA and Albemarle County staff compiled and produced 90 copies of the final report, and the report was released February 11, 2009.

A meeting of the four political boards was held on March 3, 2009 to review and discuss the final report. A bulletized summary of the Task Force recommendations was presented, and all four boards approved the first five of those recommendations, with the first bullet item being amended to add that RWSA seek additional legal advice with respect to the potential legal implications of modifications to the existing permitted water supply plan. In addition, the City Council asked to review a draft RFP written by RWSA for a dredging feasibility study of the entire reservoir, and RWSA's RFP was edited in response to City Council comments.

After some discussion regarding funding between the City Council and ACSA, an RFP for procurement of an engineering firm to carry out the dredging feasibility study was approved by the RWSA Board on May 18 and the RFP was advertised on May 22, 2009 with a proposal deadline of June 17, 2009. Eight proposals were received. A 9-member selection committee, comprised of representatives from the City of Charlottesville, the Albemarle County Service Authority, the Rivanna Water and Sewer Authority, Albemarle County, and two private citizens, met to discuss the proposals and select a short list of candidate firms to interview. On August 3, 2009, the selection committee chose HDR Engineering to be the top-ranked proposer.

At the October Board meeting approval was granted for RWSA to enter into a contract with HDR in the amount of \$343,777. The scope of work includes three phases of work as follow: PHASE I Reservoir Characterization - 1) Wetlands Assessment; 2) Bathymetric Survey & Volume Analysis;

3) Pre-Dredge Survey; 4) Sediment Characterization; and 5) Reservoir Characterization Public Meeting. PHASE II Dredging Alternatives Analysis – 6) Dredging Alternatives Evaluation; 7) Dewatering/Processing Alternatives Evaluation; and 8) Dredging Analysis Public Meeting. PHASE III Dredging Feasibility Summary Report – 9) Summary Report.

Field work for the wetlands assessment, bathymetric survey, pre-dredge survey, and sediment sampling were conducted in December 2009. HDR's reports summarizing their findings on these tasks have been placed on the Dredging Feasibility Study web page, and a public presentation of results of Phase I of the study and discussion of Phase II was held on March 9, 2010.

An authorization to add a Beneficial Use of Sediment Analysis to the Feasibility Study was approved to be added to HDR scope of work at the February 2010 Board of Directors meeting, as funding of this study was approved by City Council in January. Work is proceeding on Phase II of this study, including the added study of possible beneficial uses of sediments.

Phase II work includes a Dredging Alternatives Evaluation, Dewatering/Processing Alternatives Evaluation, and a Public Meeting to discuss results of the study. Several property owners have been contacted by HDR to discuss potential disposal sites. The Dredging Alternatives Report, Dewatering/Placement Alternatives Report, and the Beneficial Reuse Report have been completed and are available on the RWSA website. A public meeting to discuss the results of these reports **took** place at 6:00 pm on June 30, at City Space on the Downtown Mall.

HDR will provide a final report summarizing the results of the study within the next few weeks.