New Business #10

COUNTY AGENDA REQUEST

Department:	Water System	Presenter(s):	Water System Director Lee Pope
Meeting Date:	June 12, 2014	Type of Request:	New Business

Wording for the Agenda:

Consideration of the Water System's recommendation to approve the Professional Services Task Order (Task 1) from CH2M Hill, in the amount of $370,000.00, for design services of capital improvements at the Crosstown Water Treatment Plant.

Background/History/Details:

The Crosstown Water Treatment Plant is a conventional water treatment facility that is owned and operated by the Fayette County Water System. In response to a recent sanitary survey conducted by the Georgia Environmental Protection Division (EPD), CH2M Hill worked with the County to develop a capital improvement plan to address deficiencies noted during the sanitary survey. Significant areas noted for immediate improvement in the capital improvement plan for the Crosstown Water Treatment Plant were 1) the rehabilitation of granular media filters, 2) the replacement of the chlorine dioxide generation system, and 3) the addition of a new powdered activation carbon storage and feed system. The proposed task order will allow CH2M Hill to assist the County in performing design related services for the following:

Replacement of the existing chlorine dioxide generation system, and addition of two chemical storage tanks
Replacement of filter control valves, actuators, rate of flow controllers and portions of the filter effluent piping
Replacement of the existing filter media, underdrains, and subsurface was system
Modification of the existing lime silo system

See attached Task Order and Capital Plan (Exhibit A) for additional information.

What action are you seeking from the Board of Commissioners?

Approval of the Water System's recommendation to approve the Professional Services Task Order (Task 1) from CH2M Hill, in the amount of $370,000.00, for improvements at the Crosstown Water Treatment Plant.

If this item requires funding, please describe:

Funds are available from the MIEX bond proceeds.

Has this request been considered within the past two years?	No	If so, when?	
Is Audio-Visual Equipment Required for this Request?*	No	Backup Provided with Request?	Yes

**** All audio-visual material must be submitted to the County Clerk's Office no later than 48 hours prior to the meeting. It is also your department's responsibility to ensure all third-party audio-visual material is submitted at least 48 hours in advance.***

Approved by Finance	Yes	Reviewed by Legal	
Approved by Purchasing	Yes	County Clerk's Approval	Yes
Administrator's Approval			

Staff Notes:

These improvements address the Consent Order and provide the foundation for the water treatment plant optimization plan associated with the sanitary survey conducted by the Georgia Environmental Protection Division.

Fayette County Water System

Professional Services Task Order: Crosstown WTP Improvements

Background

The Crosstown Water Treatment Plant (WTP) was originally constructed in 1985, with a subsequent expansion occurring in 1991. The Crosstown WTP has a permitted treatment capacity of 13.5 million gallons per day (mgd) and is owned and operated by the Fayette County Water System (the County). The plant is a conventional water treatment facility equipped with sludge thickening. The major treatment processes include rapid mixing, flocculation, sedimentation, filtration, fluoridation, chemical corrosion control, and disinfection. In response to a recent sanitary survey conducted by the Georgia Environmental Protection Division (GA EPD), CH2M HILL worked with the County to develop a capital improvement plan to address deficiencies noted during the sanitary survey. Significant areas noted for immediate improvement in the capital improvement plan for the Crosstown WTP were the rehabilitation of the granular media filters, the replacement of the chlorine dioxide generation system, and the addition of a new powdered activation carbon storage and feed system.

This proposed task order will allow CH2M HILL to assist the County in performing design related services for these first three improvements at the Crosstown WTP. The work will include the production of final contract documents (design and technical specifications) for the improvements to be incorporated into the overall plant infrastructure.

SCOPE OF SERVICES

Task 1 – Preliminary and Detailed Services Design

CH2M HILL will perform the appropriate detailed design tasks pertaining to the preparation of the construction drawings and specifications for the following improvements at the Crosstown WTP:

- Replacement of the existing chlorine dioxide generation system with a Purate®-based chlorine dioxide generation system and the addition of two new chemical storage tanks (Purate® and sulfuric acid)
- Replacement of all filter control valves, actuators, rate of flow controllers, and portions of the filter effluent piping, as needed, to accommodate new filter control valves, actuators, and rate of flow controllers
- Replacement of the existing filter media, Leopold IMS Cap ® type and Wheeler bottom underdrains, and subsurface wash system with new stainless steel underdrains, filter media, and air scour backwash system
- Modification of the existing lime silo system to accommodate a new powdered activated carbon storage and feed system at both the Crosstown WTP and the South Fayette WTP

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It is anticipated that the detailed design will be completed with two major milestones – 30 percent and 90 percent – for review by CH2M HILL and the County.

The 30 percent design effort will culminate with CH2M HILL's preparation of a preliminary design report that will serve as the guiding document for the subsequent detailed design of the improvements at the Crosstown WTP. Design criteria will be developed for the chemical feed system improvements and filter rehabilitation, and this information will be presented in the report. The 30 percent design submittal will include preliminary drawings and sketches showing the recommended improvements to the infrastructure at the Crosstown WTP. Layouts for the filter modifications and chemical feed improvements and consideration for construction sequencing will be prepared as part of the creation of the 30 percent design deliverable. Preliminary process and instrumentation diagrams (P&IDs) will be prepared for the chemical feed system and filter improvements. In addition, an overall electrical one-line diagram for the facility will be prepared to demonstrate the impact of the proposed improvements on the electrical infrastructure. A preliminary construction cost estimate (+30%/-15%) will be developed at the end of the preliminary design phase for all of the improvements identified in order to prioritize the improvements to match the capital funding available for construction. Five (5) copies of this preliminary engineering report will be submitted to the County for review.

At the 90 percent design milestone, CH2M HILL will provide the County with six (6) half-sized copies (11-inch x 17-inch) of the design documents for review. A construction cost estimate (+10%/-15%) will be developed at the end of the 90 percent design phase to identify the probable construction costs associated with the improvements included in the overall project. Following completion of the fix-up of the 90-percent design documents, CH2M HILL will finalize the 100 percent design documents that will serve as the basis for the bidding process based upon internal review comments, as well as the comments from the County.

Two design review meetings will be conducted by CH2M HILL with the County to review design progress during the course of the detailed design. The meetings will be held at the Crosstown WTP and will coincide with the submittal of 30-percent, 60-percent, and 90-percent design drawings.

Assumptions

The following assumptions are included in Task 1:

- It is assumed that the design package will consist of approximately 70 design drawings and associated technical specifications.
- The County will provide CH2M HILL with record drawings in an electronic format (either PDF or CAD files) to serve as the basis for the design.
- CH2M HILL will not provide any permitting, bid phase, or construction support services as part of this Professional Services Assignment. This support can be provided as an Additional Service.
- This scope of services does not include the upgrade or replacement of any other facilities or components other than those described.

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- No surveying or geotechnical evaluations are included in this Professional Services Assignment. It is assumed that the existing record drawings for the Crosstown and South Fayette WTP will provide the necessary information to support any design needs.
- It is assumed that the County will complete its review of deliverables at the 30, 60, and 90 percent milestones within one week of submission by CH2M HILL.

Deliverables

The following deliverables are included in Task 1:

- 30 and 90 percent design deliverables for County review, including drawings and specifications

SCHEDULE

CH2M HILL will begin work under this Professional Services Assignment when authorized by the County. CH2M HILL will complete each task associated with the Scope of Services within sixteen (16) weeks of receipt of Notice to Proceed.

COMPENSATION

Compensation for the work in this professional services assignment will be based on a lump sum fee of $370,000. The compensation was determined using the previously agreed upon rates associated with CH2M HILL's Engineer of Record contract with the County and the following breakdown of hours per job classification.

Labor Category	Hours	Rate ($/hr)	Total Price
Engineer 5	591	$115	$67,965
Designer/Lead Technician	1,163	$88	$102,344
Clerical	270	$55	$14,850
Senior Consultant/Technologist	627	$180	$112,860
Senior Engineering Manager	203	$160	$32,480
Engineering Manager	42	$135	$5,670
Engineer 1	176	$84	$14,784
Engineer 2	155	$100	$15,500
Total Labor Costs	**3,227**		**$366,453**
Other Direct Costs			**$3,547**
TOTAL			**$370,000**

See - Please write-up for BoC Approval

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Approved by:

Fayette County	CH2M HILL
Date:_____	Date:_____
_____	_____
Steve Rapson County Manager	Stuart Jeffcoat, PhD, PE Business Vice President

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Exhibit A

Crosstown WTP

ID #	Recommended Improvement	Category	Priority	In-House
10A	Filter modifications: Replace all filter underdrains	Treatment	Critical	$850,000
10B	Filter modifications: Replace all filter media	Treatment	Critical	$200,000
10C	Filter modifications: Replace all filter valves with electric actuated valves	Treatment	Critical	$650,000
10D	Filter modifications: Add blower and air scour to each of the filters	Treatment	Critical	$450,000
10E	Filter modifications: Replace filter control system with new PLC based system and integrate into SCADA	Treatment	Critical	$250,000
12B	Chemical Modifications: Demolish existing chlorine dioxide system and install a new chlorine dioxide system in the same room.	Chemical	Critical	$375,000
12C	Chemical Modifications: Install new liquid lime system with feeds to both raw and post and demolish existing lime systems.	Chemical	Critical	$650,000
12H	Chemical Modifications: Install new sodium or potassium permanganate system in chemical building.	Chemical	Critical	$195,000
2	Replace raw water sample pipe from raw water metering pit to operation's building	Treatment	High	$6,000
4	Add streaming current meter to raw water splitter box.	Raw Water	High	$24,000
6	Add pH meter to raw water meter vault	Raw Water	High	$18,000

Crosstown WTP - Continued

9A	Sedimentation Basin Modifications: Demolish the divider wall (curtains)	Treatment	High	$16,000
9B	Sedimentation Basin Modifications: Replace the Trac-Vac systems with MRI Hoseless Sludge Collection System	Treatment	High	$40,000
9C	Sedimentation Basin Modifications: MRI Equipment	Treatment	High	$490,000
9D	Sedimentation Basin Modifications: Adjust outlet weir heights as required	Treatment	High	$4,000
12F	Chemical Modifications: Integrate alum tank levels into SCADA	Chemical	High	$45,000
12G	Chemical Modifications: Replace alum pumps and integrate new pumps into SCADA	Chemical	High	$10,000
13	Modify solids decant return system to return flow to opposite side or raw water reservoir than the local raw water pump station.	Solids	High	$85,000
27a	Add THM online Analyzers in Lab at each plant	Treatment	High	$45,000
12A	Chemical Modifications: Install powder activated carbon system with silo; capable of doing raw water and on top of filters.	Chemical	Medium	$195,000
29	New roof for the filter building and HVAC modifications	Other	Medium	$100,000

Subtotal	**$4,698,000**

South Fayette County WTP

ID #	Recommended Improvement	Category	Priority	In-House
19B	Chemical Modifications: Install liquid lime system and demlish existing lime system	Chemical	Critical	$500,000
23	Flint River Pump Station: Add flow meter	Raw Water	High	$15,000
24	Lake Horton Pump Station: Add flow meter	Raw Water	High	$15,000
26	Lake Peachtree: Add flow meter	Raw Water	High	$15,000
27b	Add THM online Analyzers in Lab at each plant	Treatment	High	$45,000
19C	Chemical Modifications: Replace existing carbon system with new PAC system with silo	Chemical	High	$195,000
25	Add flow meter at RW pump station	Raw Water	High	$15,000
19D	Chemical Modifications: Add ability to dose chlorine on top of the filters	Chemical	Medium	$1,000
19G	Chemical Modifications: Replace and relocate the existing potassium permanganate system	Chemical	Medium	$2,000
99	Lake Horton Raw Water Pump Actuators	Raw Water	High	$175,000

Subtotal	**$978,000**

Grand Total	**$5,676,000**