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www.chenmoore.com

11/16/2017

SENT VIA E-MAIL
lcwalker@rivierabch.com

Leighton Walker
City of Riviera Beach Utility District
600 W. Blue Heron
Riviera Beach, Florida 33404

**Subject: WTP Performance Review and Evaluation
CMA Proposal Number P17.137.05**

Dear Mr. Walker:

Chen Moore and Associates, Inc. (CMA) is pleased to provide this Scope of Services to evaluate, document existing performance, and prepare a summary of with recommendations for the treatment process systems at the City of Riviera Beach Water Treatment Plant (WTP).

DEFINITIONS

- The "OWNER" is the Riviera Beach Utility District (CRBUD)
- The "CONSULTANT" is Chen Moore and Associates, Inc. (CMA), Carollo Engineers (Carollo), or GAI Gupta and Associates (GAI)

SCOPE OF SERVICES

The scope of services our firm shall provide are as follows:

Task 1 - Review Past and Current Project Documents - The CONSULTANT will review historic plant monthly operating data (for a period not more than 2 years), regulatory permits, and the applicable sections of the Water and Wastewater Masterplan (2013) which will be limited to review of the information necessary to assess the existing treatment facilities as it pertains to the activities contained within the Task Order.

Task 2 - Evaluation of the Process Systems at the CRBUD WTP - The CONSULTANT will perform an evaluation of the existing treatment process systems at the WTP to determine the expected performance of each system. This evaluation includes development of process calculations to identify the expected performance of each treatment process system in terms of intended function (as it pertains to meeting the established permitted regulatory criteria) and capacity, as appropriate. Equipment shop drawings, record drawings, and/or Operations and Maintenance Manuals (if available) or equipment data nameplates will be field verified to document existing performance criteria. The CONSULTANT will assess the ability of each process system to function in compliance with the current operating permit and other applicable industry standard guidance documentation (i.e. Florida Administration Code, etc.). Collection of data from field instruments into the plant control system will be reviewed with respect to applicable F.A.C. requirements and recommendations included for additional data collection and storage as required.

The CONSULTANT shall gather performance data available on the performance of each piece of



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process and process support equipment. In depth interviews with treatment facility staff will be conducted to gain insight on the operational performance of each, as well as, the reliability of the data available. This information will be analyzed and a capacity of each piece of equipment will be estimated. Specific systems to be included are as follows:

1. Well pumping operations
2. Raw water Influent
3. Air scrubbers
4. Lime softening units
5. Filters
6. Transfer and high service pumping
7. Chemicals (alum, lime, chlorine, and ammonia)

Equipment not directly related to identified systems is not included in this assessment effort. Evaluations of power capacity, backup power capacity, or other electrical or power distribution features are not included.

Task 3 - Hydraulic Evaluation of Existing Treatment System - CONSULTANT shall prepare a plant hydraulic profile for the WTP. The hydraulic profile of the facility will depict maximum flow rates for the WTP. Specific subtasks include:

- Compute and prepare a hydraulic profile across the pumping and treatment units.
- Perform field measurements to verify water levels relative to top of structure walls, weirs, or other readily accessible reference points. Measurements will be performed by CONSULTANT without the services of a land survey for relative verification.
- Identify any hydraulic issues and make recommendations for improvements as appropriate.

Task 4 – SCADA System Review – CONSULTANT shall provide site visit to the facility along with client key resources knowledgeable with the SCADA system network infrastructure, hardware and software components, control system application program to assess, identify, and document existing conditions of the entire plantwide SCADA system and remote interconnections and provide recommended alternatives and solutions for improvements.

Task 5 - Security System Review - CONSULTANT shall provide site visit to the facility along with client key resources knowledgeable with the security system network infrastructure, hardware and software components, monitoring and notification application program to assess, identify, and document existing conditions of the entire plantwide security system and any remote monitoring facility and provide recommended alternatives and solutions for security per Homeland Security critical infrastructure vulnerability assessment requirements. The security system will include cameras (IP base fix or PTZ), access control (hard readers, access codes, smart locks, etc.), and computer control/monitoring station.

Task 6 - Technical Memorandum - CONSULTANT shall prepare a technical memo (TM) documenting the results of tasks 1 through 4. Information will be presented in tabular and/or graphic form. The TM will include a summary of water quality challenges, process and hydraulic system conditions, and make recommendations for process enhancements or changes, as well as suggest operational and training courses for operators to increase knowledge and experience as it pertains



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to the challenges identified.

Task 7 - Provide Training Seminars - CONSULTANT shall present up to two separate training seminars by engineers experienced in the specific fields of the water treatment processes at the WTP. An agenda will be prepared with specific topics identified as focus areas during based on the recommendations of Task 2. The agenda will be reviewed with CRBUD staff and finalized two weeks prior to the presentation. Each seminar will include two 3-hour each session (one in the morning and one in the afternoon) to allow for operators in multiple shifts to attend. The session in the afternoon will duplicate the morning session for each seminar.

Task 8 – Security System/SCADA Coordination - CONSULTANT shall meet and coordinate with the SCADA/security system consultant as it pertains to the water treatment facility. Efforts shall include coordination services to allow for the incorporation of water treatment plant system security functions (by security system consultant) to connect to the plant SCADA and electrical system. Two (2) meetings are included with this task.

Task 9 – Reimbursables

This task includes reimbursables such as document reproduction and out-of-state travel.

Deliverables

CONSULTANT will deliver the follow items to the CRBUD:

- Six copies of the draft TM, one electronic PDF copy on CD
- Six copies of the final TM, one electronic PDF copy on CD
- Six copies of Seminar Agendas and Presentation Handouts, one electronic PDF copy on CD

TIME OF PERFORMANCE

All durations below are from the date of receipt of Notice to Proceed from CRBUD:

Task 1 - 30 days

Task 2 - 90 days

Task 3 - 90 days

Task 4 - 90 days

Task 5 – 90 days

Task 6 - Draft TM Submittal 120 days, final TM Submittal 150 days

Task 7 - 180 days, two separate dates to be coordinated with CRBUD staff

Task 8 – 150 days

The above dates are based on receipt of OWNER's review comments within 2 weeks from deliverable submittal dates.



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SCHEDULE AND FEES

Payment for Tasks 1 through 8 shall be on a Lump Sum basis. Amount of progress payments shall be based on CONSULTANT's estimated percent complete of services. Task 9 will be billed at cost.

Total Project Amount = \$155,655.20

See Exhibit A for an hourly breakdown of fees. See Exhibit B for Carollo's subconsultant proposal. See Exhibit C for GAI's proposal.

Should you have any questions, please do not hesitate to contact me at my office at (561) 746-6900, Ext. 1035, my cell phone at (954) 650-7996 or send me an electronic message at sdombrowski@chenmoore.com.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read "S. Dombrowski", with a period at the end.

CHEN MOORE AND ASSOCIATES
Suzanne Dombrowski, P.E.
Senior Engineer and West Palm Beach Office Manager

Attachment(s): Exhibit A (Fee Proposal)
 Exhibit B (Carollo Subconsultant Proposal)
 Exhibit C (GAI Subconsultant Proposal)

EXHIBIT A

Riviera Beach Utility District
Water Treatment Plant Performance Review & Evaluation - Fee Proposal

Chen Moore and Associates, Inc. Project # P17.137.005

	Subconsultant Costs	CMA Senior Project Manager	Total
Hourly Rate		\$175.00	
TASK			
Task 1 - Review Past and Current Project Documents	\$21,187.00	1	\$21,362.00
10% Subconsultant Markup	\$2,118.70		\$2,118.70
Task 1 Total			\$23,480.70
Task 2 - Evaluation of the Process Systems	\$25,488.00	1	\$25,663.00
10% Subconsultant Markup	\$2,548.80		\$2,548.80
Task 2 Total			\$28,211.80
Task 3 - Hydraulic Evaluation of Existing Treatment System	\$10,071.00	1	\$10,246.00
10% Subconsultant Markup	\$1,007.10		\$1,007.10
Task 3 Total			\$11,253.10
Task 4 – SCADA System Review	\$19,500.00	2	\$19,850.00
10% Subconsultant Markup	\$1,950.00		\$1,950.00
Task 4 Total			\$21,800.00
Task 5 - Security System Review	\$16,620.00	2	\$16,970.00
10% Subconsultant Markup	\$2.00		\$2.00
Task 5 Total			\$16,972.00
Task 6 - Technical Memorandum	\$26,167.00	4	\$26,867.00
10% Subconsultant Markup	\$2,616.70		\$2,616.70
Task 6 Total			\$29,483.70
Task 7 - Training Seminars (4 hrs prep/8 hrs each per staff member per seminar)	\$11,311.00		\$11,311.00
10% Subconsultant Markup	\$1,131.10		\$1,131.10
Task 7 Total			\$12,442.10
Task 8 – Security System (2 meetings)	\$5,488.00	1	\$5,663.00
10% Subconsultant Markup	\$548.80		\$548.80
Task 8 Total			\$6,211.80
Task 9 - Reimbursables			
Printing	\$800.00		\$800.00
Travel	\$5,000.00		\$5,000.00
Task 9 Total			\$5,800.00
TOTAL			\$155,655.20

Fee Summary

CMA Direct Fees	\$2,100.00
Carollo Fees	\$64,492.00
GAI Fees	\$71,340.00
Subconsultant Markup	\$11,923.20
Reimbursable Fees	\$5,800.00
Project Total	\$155,655.20

EXHIBIT B

TASK ORDER NO. 02

CHEN-MOORE AND ASSOCIATES
("ENGINEER")

AND

CAROLLO ENGINEERS, INC.
("CONSULTANT")

This Task Order is issued by the ENGINEER and accepted by CONSULTANT pursuant to the mutual promises, covenants and conditions contained in the Agreement between the above named parties dated the _____ day of _____, 20__, in connection with:

City of Riviera Beach Utility District (CRBUD) Consulting Engineering for Water and Wastewater Utility Systems.

(Project)

PURPOSE

The purpose of this Task Order is to: Evaluate, document existing performance, and prepare a summary of with recommendations for the treatment process systems at the City of Riviera Beach Water Treatment Plant (WTP).

CONSULTANT'S SERVICES

Task 1 - Review Past and Current Project Documents - The CONSULTANT will review historic plant monthly operating data (for a period not more than 2 years), regulatory permits, and the applicable sections of the Water and Wastewater Masterplan (2013) which will be limited to review of the information necessary to assess the existing treatment facilities as it pertains to the activities contained within the Task Order.

Task 2 - Evaluation of the Process Systems at the CRBUD WTP - The Consultant will perform an evaluation of the existing treatment process systems at the WTP to determine the expected performance of each system. This evaluation includes development of process calculations to identify the expected performance of each treatment process system in terms of intended function (as it pertains to meeting the established permitted regulatory criteria) and capacity, as appropriate. Equipment shop drawings, record drawings, and/or Operations and Maintenance Manuals (if available) or equipment data nameplates will be field verified to document existing performance criteria. The CONSULTANT will assess the ability of each process system to function in compliance with the current operating permit and other applicable industry standard guidance documentation (i.e. Florida Administration Code, etc.). Collection of data from field instruments into the plant control system will be reviewed with respect to applicable F.A.C. requirements and recommendations included for additional data collection and storage as required.

The CONSULTANT shall gather performance data available on the performance of each piece of process and process support equipment. In depth interviews with treatment facility staff will

be conducted to gain insight on the operational performance of each, as well as, the reliability of the data available. This information will be analyzed and a capacity of each piece of equipment will be estimated. Specific systems to be included are as follows:

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- Compute and prepare a hydraulic profile across the pumping and treatment units.
- Perform field measurements to verify water levels relative to top of structure walls, weirs, or other readily accessible reference points. Measurements will be performed by CONSULTANT without the services of a land survey for relative verification.
- Identify any hydraulic issues and make recommendations for improvements as appropriate.

Task 4 - Technical Memorandum - CONSULTANT shall prepare a technical memo (TM) documenting the results of tasks 1 through 3. Information will be presented in tabular and/or graphic form. The TM will include a summary of water quality challenges, process and hydraulic system conditions, and make recommendations for process enhancements or changes, as well as suggest operational and training courses for operators to increase knowledge and experience as it pertains to the challenges identified.

Task 5 - Provide Training Seminars - CONSULTANT shall present up to two separate training seminars by engineers experienced in the specific fields of the water treatment processes at the WTP. An agenda will be prepared with specific topics identified as focus areas during based on the recommendations of Task 2. The agenda will be reviewed with CRBUD staff and finalized two weeks prior to the presentation. Each seminar will include two 3-hour each sessions (one in the morning and one in the afternoon) to allow for operators in multiple shifts to attend. The session in the afternoon will duplicate the morning session for each seminar.

Task 6 - Security System - CONSULTANT shall meet and coordinate with the CRBUD's designated security system consultant as it pertains to the water treatment facility. Efforts shall include coordination services to allow for the incorporation of water treatment plant system security functions (by security system consultant) to connect to the plant SCADA and electrical system. Security system design shall be by CRBUD's consultant.

Deliverables

CONSULTANT will deliver the follow items to the ENGINEER:

- Six copies of the draft TM, one electronic PDF copy on CD
- Six copies of the final TM, one electronic PDF copy on CD
- Six copies of Seminar Agendas and Presentation Handouts, one electronic PDF copy on CD

TIME OF PERFORMANCE

All durations below are from the date of receipt of Notice to Proceed from ENGINEER:

- Task 1 - 30 days
- Task 2 - 90 days
- Task 3 - 90 days
- Task 4 - Draft TM Submittal 120 days, final TM Submittal 150 days
- Task 5 - 180 days, two separate dates to be coordinated with CRBUD staff
- Task 6 - 150 days

The above dates are based on receipt of OWNER's review comments within 2 weeks from deliverable submittal dates.

PAYMENT

Payment for this Task Order shall be on a Lump Sum basis. Amount of progress payments shall be based on CONSULTANT's estimated percent complete of services.

Lump Sum Total Project Amount = \$65,242.00

EFFECTIVE DATE

This Task Order No. 02 is effective as of the _____ day of _____, 20__.

IN WITNESS WHEREOF, duly authorized representatives of the ENGINEER and of the CONSULTANT have executed this Task Order No. 02 evidencing its issuance by ENGINEER and acceptance by CONSULTANT.

CAROLLO ENGINEERS, INC.
(CONSULTANT)

By: 
Lyle Munce, P.E. - Vice President

By: 
Chris T. Reinbold, P.E. - Associate
Vice President

(ENGINEER)

Accepted this _____ day of _____,
20__

By: _____
Officer

7322 Southwest Freeway, Suite 410, Houston, Texas 77074, Tel: 713-636-2936 Office, 713-636-2987 Fax

Engineering services to provide WTP SCADA and Security assessments per Homeland Security critical infrastructure vulnerability assessment requirements for City of Riviera Beach Utility District

November 16, 2017

Prepared For

CHEN MOORE AND ASSOCIATES

Suzanne Dombrowski, P.E.

Senior Engineer and West Palm Beach Office Manager

West Palm Beach Office:

500 Australian Avenue South, Suite 850

West Palm Beach, FL 33401

From

Gupta & Associates Inc. | Houston

7322 Southwest Freeway Suite 410

Houston, TX 77074

Hoss Forouzan, PE

Senior Vice President, Houston

713-636-2936 Office

832-331-9690 Cell

Riviera Beach Utility District WTP Performance Review and Evaluation

The proposal is developed per our understanding of scope of work provided by Chen Moore and Associates, Inc to provide WTP SCADA and security systems assessment per Homeland Security critical infrastructure vulnerability assessment requirements and perform evaluation to provide mitigation alternatives and recommendation.

A. Scope of Work

Task 1 - Review Past and Current Project Documents - SUB CONSULTANT will review the applicable sections of the Water and Wastewater Masterplan (2013) in reference to SCADA and security components which will be limited to review of the information necessary to assess the existing treatment facilities as it pertains to the activities contained within the Task Order

Task 4 – SCADA System Review – SUB CONSULTANT shall provide site visit to the facility along with client key resources knowledgeable with the SCADA system network infrastructure, hardware and software components, control system application program to assess, identify and record vulnerability measures, and document existing conditions of the entire plantwide SCADA system and remote interconnections and provide recommended alternatives and solutions for improvements.

Task 5 - Security System Review - SUB CONSULTANT shall provide site visit to the facility along with client key resources knowledgeable with the security system network infrastructure, hardware and software components, monitoring and notification application program to assess, identify and record vulnerability measures , and document existing conditions of the entire plantwide security system and any remote monitoring facility and provide recommended alternatives and solutions for security. The security system will include cameras (IP base fix or PTZ), access control (hard readers, access codes, smart locks, etc.), and computer control/monitoring station.

Task 6 - Technical Memorandum -SUB CONSULTANT shall prepare a technical memo (TM) documenting the results of tasks 4 and 5. Information will be presented in tabular and/or graphic form. The TM will include a summary of existing condition finding, alternatives, recommendation and cost associated with SCADA and security system.

Task 9 – Reimbursables traveling and logging expense

This task includes reimbursables such as traveling and logging expense.

B. Engineering Services

1. Conduct/participate for assigned tasks
2. Prepare TM per assigned tasks
3. Attend meetings and conferences

**Riviera Beach Utility District
WTP Performance Review and Evaluation**

C. Engineering Services Fees

Refer to level of effort fee estimate (see attachment) for the total man hours and fees to perform the services.

1. GAI Engineering Services	\$76,340
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Total effort	\$76,340
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The schedule to deliver the final draft and final TM 150 day after NTP authorization.

Thank you for the opportunity to work with you on this project.

Sincerely,



Hoss Forouzan, P.E.
Senior Vice President

City of Riviera Beach Utility District							
Task	Employee	Hoss Forouzan	Larry Reynolds	Cesar Valdez	Daniel Kwong	Total Hours	Total Effort
	Project Role	Project Manager	Project Engineer	Senior CAD	CAD Tech/Admin		
	Hourly Bill Rate	\$255.00	\$210.00	\$90.00	\$75.00		
1	Project Management	44	24		4	72	\$ 16,560
1.1	Prepare meeting notes and status report	16	8			24	\$ 5,760
1.2	Prepare invoices	8			4	12	\$ 2,340
1.3	Perform QA and QC	12	8			20	\$ 4,740
1.4	Coordinate activities with consultants/clients/vendors	8	8			16	\$ 3,720
						0	\$ -
4	SCADA System ACESSment	36	40	8	16	100	\$ 19,500
4.1	Review record drawings, specifications, master plan	8	8		4	20	\$ 4,020
4.2	Site visit and collect field data	8	8			16	\$ 3,720
4.3	Evaluate information and provide alternatives/solutions	16	16	8	8	48	\$ 8,760
4.4	Prepare cost estimate	4	8		4	16	\$ 3,000
						0	\$ -
						0	\$ -
5	Security System ACESSment	28	36	8	16	88	\$ 16,620
5.1	Review record drawings, master plan specifications	8	8		4	20	\$ 4,020
5.2	Site visit and collect field data	8	8			16	\$ 3,720
5.3	Evaluate information and provide alternatives/solutions	8	12	8	8	36	\$ 5,880
5.4	Prepare cost estimate	4	8		4	16	\$ 3,000
						0	\$ -
						0	\$ -
6	Technical Memorandum						
6.1	Prepare draft TM	36	36	8	16	96	\$ 18,660
6.2	Meeting to discuss recommendation	16	16	4		36	\$ 7,800
6.3	Incorporate comments	8	8		8	24	\$ 4,320
6.4	Final TM submittal	12	12	4	8	36	\$ 6,540
						0	\$ -
9	Reimbursables	\$2,500	\$2,500		0		\$ 5,000
9.1	Traveling and lodging	\$2,500	\$2,500				
							\$ -
							\$ -
	Total Basic Services Hours	144	136	24	52	356	\$ 76,340
	Total Basic Services Labor Effort	\$ 36,720	\$ 28,560	\$ 2,160	\$ 3,900		