

**Memorandum**

To: Curtis Hawk, City Manager  
From: Michael Barnes, Public Works Director  
Date: February 11, 2013  
Subject: Design Proposal for Repair/Replacement of Electrical System at Levee

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**Council Action Requested:**

Approve the design proposal from Allan Plummer & Associates (APA) for the repair/replacement of the electrical system at the Levee Pump Station in the not to exceed amount of \$44,900.00 as described in the Scope of Work.

**Background Information:**

Included in the city's maintenance responsibilities with the Corp of Engineers city staff maintains the operation of the Levee Pump Station. Each month PW staff checks both pumps at the levee by operating each pump for a 30 second period. In December 2012 the crew turned the pumps on and operated the pumps as they do each month. In January 2013 the same procedure was followed but the pumps would not stay on. Staff called a qualified electrical company, Shermco Inc., to inspect the electrical system and repair the problem. Shermco electricians found that the circuit breakers were defaulting to the off position because the breakers had "gummed up" and would not remain in position. The electricians finally cleaned the breakers enough allowing the pumps to operate. During Shermco's inspection and repair of the electrical system they suggested to the city that the electrical system may need a more detailed review of the system because of its age and possible not being able to replace parts. The levee electrical system was installed in the late 1960's (about 1969) at the same time the levee was constructed. To staff's knowledge the electrical system has not had any maintenance since it was installed. Shermco electricians indicated that the existing circuit breakers probably would need to be rebuilt or replaced at a minimum and gave the city a quote of \$15,000.00 to perform an inspection of the electrical system but stated in their quote the inspection would only recommend what equipment needed replacement. Due to the possible many unknowns of the electrical system and the high probability of the cost exceeding \$50,000.00, staff decided the best course of action would be to select a professional electrical engineer to prepare plans and specifications and bid the project. Because of Alan Plummer Associates (APA) design expertise in designing the electrical equipment for the proposed lift station, staff selected APA to prepare and submit a proposal to design, coordinate and inspect the repair or replacement of the electrical system at the Levee Pump Station.

In general, the proposal defines the process APA will use in the design of plans and specifications for the electrical system at the levee. APA will request from area electrical companies to inspect the electrical system and make recommendations to the consultant as to what needs to be repaired and/or replaced. After a recommendation from the engineer has been presented and approved by staff and council, the engineer will prepare plans and specifications to be approved by council for bidding.

Attached is the proposal, which includes the Scope of Work and Budget for Basic Engineering Services from APA in the amount of \$44,900.00. The total cost is a not to exceed amount for the scope of work described. Funding for this expenditure will come from the Drainage Utility Fund (DUF). It is recommended to make an amendment to 2012-2013 DUF #51170-69 in the amount of \$44,900.00.

A representative from APA will be at the meeting to review and discuss the proposal in detail. Therefore, please on the council's agenda for February 19, 2013 to discuss and take action on the proposal from APA. Please contact me if you have any questions.

**Source of Funding:** Drainage Utility Fund

**Board/Citizen Input:**

**Attachments:** Alan Plummer & Associates Design Proposal

**Staff Contact:**

Michael H. Barnes, P.E., Public Works Director  
817-616-3835 [mbarnes@richlandhills.com](mailto:mbarnes@richlandhills.com)

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**Exhibit A****Scope of Engineering Services**

After execution of the AGREEMENT, the ENGINEERING SERVICES shall be initiated and the ENGINEER shall complete the following Scope of Services:

**A. Project Management/Coordination:**

ENGINEER will provide project management activities to properly plan the work, sequence, manage, coordinate, schedule, and monitor the scope tasks and completion of the tasks. These tasks shall include the following:

- 1) Prepare a project management plan including scope, budget, schedule, communication, project team, and file organization. It is estimated that the design schedule will be approximately 8 weeks.
- 2) Provide monthly status updates to the OWNER describing and showing the percent complete for scope tasks and the issues, budget status, and schedule.
- 3) Coordinate, prepare, and review monthly invoices for payment.
- 4) Attend the following two (2) meetings with OWNER over the length of the PROJECT:
- 5) Prepare a letter request for proposals from up to three (3) firms to provide routine maintenance and component testing of the existing storm water pump station switchgear. The purpose of the proposal is to provide a service company to provide necessary maintenance on the switchgear, test to components and provide recommendation and cost to prolong the life and reliability of the gear. Cost up to \$6,900 has been included in the engineering proposal fee.
- 6) Attend the following two (2) meetings with OWNER over the length of the PROJECT:
  - a) A Project Initiation Meeting will be held to review the project's scope and schedule and initiate the project. At this meeting the determination will be made to either rehab the existing electrical switchgear or replacement with new equipment. Discussion will be held that will include probable construction cost, schedule and pros/cons of the two alternates. During the meeting, the ENGINEER shall receive from the OWNER, any and all pertinent construction plans, maps, and historical data that will help the ENGINEER in the PROJECT.
  - b) A Preliminary Design Plans and Specifications Review Meeting will be held to review the design either rehab the existing electrical switchgear or replacement with new equipment. Changes requested by OWNER, after receipt of comments, may require additional compensation and may be requested by ENGINEER as an Additional Services.
- 6) Preliminary Design Plans:
  - a) The ENGINEER will either prepare rehabilitation plans for the existing electrical gear that includes; purchase of 2.4kv magna-blast circuit breaker, developing contract documents for replacement of components or replacement of apparatus, testing and calibration of equipment and modifications to SCADA system to allow for remote starting of pumps for monthly testing to remove personnel from Arc-Flash hazard. Or, at the

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**EXHIBIT A**

- direction of the owner to prepare contract documents for replacement of electrical switchgear, located in the existing footprint to the existing switchgear. The new switchgear will be provided with remote testing equipment, allowing the personnel to test the gear at a distance beyond the Arc-Flash Zone. Attached are the existing and proposed one-line diagrams. If replacement of the gear is selected, it is assumed that the existing conduits will be utilized, and new feeders will be pulled.
- b) The ENGINEER will conduct an internal Quality Control (QC) meeting that is to be held prior to submitting preliminary design plans to OWNER. The QC meeting will involve participation by senior staff members from the ENGINEER.
  - c) The ENGINEER shall deliver two (2) sets of full-size (22"x34") preliminary design plans to OWNER for review including a preliminary opinion of probable construction cost.
- 7) Final Design Plans & Specifications:
- a) The ENGINEER shall prepare final design plans and specifications to incorporate OWNER's preliminary design plan comments. The ENGINEER will conduct an internal Quality Control (QC) meeting that is to be held prior to submitting final design plans and specifications to the OWNER. The QC meeting will involve participation by senior staff members from the ENGINEER.
  - b) The ENGINEER shall deliver two (2) sets of full-size (22"x34") final design plans and two (2) sets of specifications to OWNER for review including an opinion of probable construction cost.
- 8) Final Construction Plans and Specifications for Bidding Purposes:
- a) Following OWNER approval of the final design plans and specifications, the ENGINEER shall prepare and submit two (2) sets of final full-size (22"x34") plans, specifications, and contract documents for bidding purposes. Each sheet shall be sealed, dated, and signed by the ENGINEER. The ENGINEER shall submit a final opinion of probable construction cost with the final plans. The ENGINEER's construction costs will be based on materials and labor prices prevailing at the time of preparation, without consideration of inflationary increases in cost. The ENGINEER does not warrant the accuracy of the opinion of probable construction cost.

**B. Bid Phase Services:**

- 1) The ENGINEER will copy and distribute bid documents of the final approved and dated plans and final specifications and contract documents for the modifications to the storm water pump station including any addendums to potential bidders. Distribution of plans shall be 11"x17", bound with the specifications. If PROJECT is separated into more than one bid and/or construction phase, additional compensation may be requested as an Additional Service.
- 2) ENGINEER shall attend and assist in conducting one (1) pre-bid conference.
- 3) The ENGINEER shall assist the OWNER during the bid phase including preparation of addenda for plan-holders and responses to questions by prospective bidders.
- 4) ENGINEER shall attend and assist in conducting one (1) bid opening conference.
- 5) The ENGINEER shall develop bid tabulations and make a recommendation for award.

**C. Construction Administration Services:**

**EXHIBIT A**

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- 1) The ENGINEER will conform contract documents for signature with Contractor.
- 2) Assist the OWNER in conducting one (1) preconstruction meeting with the contractor.
- 3) The ENGINEER will provide necessary interpretations and clarifications of contract documents and respond to Requests for Information (RFI) specifically related to those portions of the Contract Documents designed by the ENGINEER. ENGINEER will respond to up to five (5) RFIs. The OWNER will review and approve monthly and final estimates for payment from the contractor.
- 4) Review samples, catalog data, schedules, shop drawings, laboratory, shop and mill test reports or material and equipment and other data which the contractor submits. The ENGINEER will review up to five (5) shop drawings and other submittals. This review is for the benefit of the OWNER and covers only general compliance with the information given by the construction contract documents. It does not relieve the contractor of any responsibility such as dimensions to be confirmed and correlated at the job site, appropriate safety measures to protect workers and the public, or the necessity to construct a complete and workable facility in accordance with the construction contract documents.
- 5) The ENGINEER shall be, in the first instance, the interpreter of the requirements of the construction contract documents and the impartial judge of the performance thereunder by both the OWNER and the contractor. At the written request of the OWNER, the ENGINEER will be required to make certain interpretations of the contract documents. These interpretations shall be in the form of written recommendations and conclusions sent to the appointed representative of the OWNER. In the event a design change is made during construction with the approval of OWNER and ENGINEER, the ENGINEER will prepare up to two (2) change orders and or work change directives.
- 6) The ENGINEER will make periodic visits to the construction site if requested by the OWNER to become familiar with the progress and quality of the construction work and determine if the results of the construction work are in accordance with the drawings and the specifications. Visit the site two (2) times during the duration of the construction phase which includes a final walkthrough of the project for conformance with the design concept of the project and compliance with the construction contract documents.
  - a) The ENGINEER shall not be responsible for the contractor's failure to execute the work in accordance with the construction contract. However, if the ENGINEER observes construction conditions not in conformance with construction contract documents, ENGINEER shall notify OWNER of non conformed items.
  - b) The ENGINEER shall not be responsible for the acts or omissions of the contractor, or any Subcontractors, or any of the contractor's or Subcontractor's agents or employees, or any other persons performing any of the work on the project, except those employees, agents, and Sub Consultants of the ENGINEER.
- 7) The ENGINEER will make two (2) additional periodic visits to the construction site if requested by the OWNER to monitor progress and quality of the construction work and determine if the results of the construction work are in accordance with the, codes, standards, drawings and the specifications.
- 8) One "As-Built" set of drawings will be received from contractor by OWNER, reviewed by OWNER for completeness, provided to the ENGINEER, and will provide basis for

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**EXHIBIT A**

ENGINEER's preparation of record drawing set. The ENGINEER will prepare record drawings and submit two (2) sets of final full-size (22"x34"), two (2) sets of half-size (11"x17") and one (1) digital set of plans on PDF format.

**Additional Services not included in the existing Scope of Services** – OWNER and ENGINEER agree that the following services are beyond the Scope of Services described in the tasks above. However, ENGINEER can provide these services, if needed, upon the OWNER's written request. Any additional amounts paid to the ENGINEER as a result of any material change to the Scope of the Project shall be agreed upon in writing by both parties before the services are performed. These additional services include the following:

- Services related to development of the CITY's project financing and/or budget.
- Services related to disputes over pre-qualification, bid protests, bid rejection and re-bidding of the contract for construction.
- Construction management and inspection services
- Performance of materials testing or specialty testing services.
- Services necessary due to the default of the Contractor.
- Services related to damages caused by fire, flood, earthquake or other acts of God.
- Services related to warranty claims, enforcement and inspection after final completion.
- Services to support, prepare, document, bring, defend, or assist in litigation undertaken or defended by the CITY.
- Performance of miscellaneous and supplemental services related to the project as requested by the CITY.
- Structural, HVAC, Mechanical or Survey Design Services.
- Coordination with any local, state or federal agencies related to the modifications to the storm water pump station.

**City of Richland Hills  
Storm Water Pump Station  
Basic Engineering Services  
1733-001-02**

Level 2 (Phase) No. and Description <i>Level 3 (Task) No. and Description</i>	Principal (hrs)	Sr. Proj Mgr (hrs)	Proj Mgr (hrs)	Proj Engr (hrs)	EIT (hrs)	Technician (hrs)	Clerical (hrs)	QC (hrs)	Total Labor		Percent of Total Fee
									Hours	Fee (\$\$\$)	
<b>Basic Engineering Services</b>	<b>7</b>	<b>78</b>	<b>10</b>	<b>0</b>	<b>110</b>	<b>12</b>	<b>16</b>	<b>8</b>	<b>241</b>	<b>\$ 35,330</b>	<b>100.0%</b>
<b>A Project Management/Coordination</b>	<b>2</b>	<b>14</b>	<b>6</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>33</b>	<b>\$ 5,430</b>	<b>15.4%</b>
1 Prepare a Project Management Plan	2	2	0	0			1		5	\$ 970	2.7%
2 Provide Monthly Status Update		2	0	0					2	\$ 420	1.2%
3 Coordinate, Prepare, & Review Monthly Invoices		2	0	0					2	\$ 420	1.2%
4 Attend Two (2) Meetings									0	\$ -	0.0%
Project Initiation Meeting		5	3		5		1		14	\$ 2,125	6.0%
90% Final Plan/Specs Review Meeting		3	3		3		1		10	\$ 1,495	4.2%
									0	\$ -	0.0%
<b>B Storm Water Pump Station</b>	<b>4</b>	<b>18</b>	<b>4</b>	<b>0</b>	<b>60</b>	<b>12</b>	<b>6</b>	<b>8</b>	<b>112</b>	<b>\$ 15,100</b>	<b>42.7%</b>
1 Construction Plans & Specifications (90%)	2	12	2	0	36	12	3	4	71	\$ 9,470	26.8%
2 Finalize Plans/Specifications for Bid (100%)	2	6	2	0	24	0	3	4	41	\$ 5,630	15.9%
						0			0	\$ -	0.0%
						0		0	0	\$ -	0.0%
<b>E Bid Phase Assistance</b>	<b>1</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>30</b>	<b>\$ 4,300</b>	<b>12.2%</b>
1 Distribute Plans to Contractors					2		4		6	\$ 490	1.4%
2 Prepare/Attend One (1) Pre-Bid Meeting		4							4	\$ 840	2.4%
3 Respond to Bidder's Inquiries		2			4				6	\$ 840	2.4%
4 Prepare Addendums as Required		2			4		2		8	\$ 980	2.8%
5 Prepare/Attend One (1) Bid Opening		2							2	\$ 420	1.2%
6 Prepare Tabs/References/Recommendation	1	2					1		4	\$ 730	2.1%
<b>F Construction Phase Assistance</b>	<b>0</b>	<b>34</b>	<b>0</b>	<b>0</b>	<b>32</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>66</b>	<b>\$ 10,500</b>	<b>29.7%</b>
1 Conform Contract Plans/Specifications		1			4				5	\$ 630	1.8%
2 Prepare/Attend One (1) Pre-Construction Meeting		6			6				12	\$ 1,890	5.3%
3 Respond to up to Five (5) RFIs		4			6				10	\$ 1,470	4.2%
4 Review up to Ten (10) Shop Drawings		4			6				10	\$ 1,470	4.2%
5 Prepare/Respond up to Two (2) CO/FO		4			6				10	\$ 1,470	4.2%
6 Conduct two (2) Site Visits & Final Walk-Thru		6							6	\$ 1,260	3.6%
7 Prepare Record Drawings		1			4				5	\$ 630	1.8%
8 Conduct two (2) Additional Trips		8							8	\$ 1,680	4.8%
<b>TOTAL LABOR</b>											
Total Labor Hours	7	78	10	0	110	12	16	8	241		
Total Labor Amount										\$ 35,330	100.0%
Labor Rates per Hour	\$240	\$210	\$160	\$125	\$105	\$110	\$70	\$210			
Total Amounts by Labor Category	\$ 1,680	\$ 16,380	\$ 1,600	\$ -	\$ 11,550	\$ 1,320	\$ 1,120	\$ 1,680		\$ 35,330	
Labor Category Percent of Total Labor	4.8%	46.4%	4.5%	0.0%	32.7%	3.7%	3.2%	4.8%			100.0%

<b>TOTAL EXPENSES (see breakdown below)</b>		
Total Subconsultants		\$ 7,590
Total Reimbursables		\$ 1,980
Total Expenses		\$ 9,570
<b>GRAND TOTAL - Basic Engineering Services</b>		<b>\$ 44,900</b>

**SUBCONSULTANT EXPENSES (PHASE D)**

Code	Description	Budget (\$\$)	Markup	Fee (\$\$\$)
CA	Architect Consultant	\$ -	1.10	\$ -
CC	Civil Engr Consultant	\$ -	1.10	\$ -
CE	Shermo Testing	\$ 6,900	1.10	\$ 7,590
CG	Geotechnical Consultant (Task 2)	\$ -	1.10	\$ -
CM	Mechanical Consultant	\$ -	1.10	\$ -
CO	Subsurface Utility Consultant (Task 3)	\$ -	1.10	\$ -
CS	Structural Consultant	\$ -	1.10	\$ -
CY	Surveying Consultant (Task 1)	\$ -	1.10	\$ -
C1		\$ -	1.10	\$ -
C2		\$ -	1.10	\$ -
C3		\$ -	1.10	\$ -
C4		\$ -	1.10	\$ -
C5		\$ -	1.10	\$ -
C6		\$ -	1.10	\$ -
<b>TOTAL SUBCONSULTANT EXPENSES</b>		<b>\$ 6,900</b>		<b>\$ 7,590</b>

**REIMBURSABLE EXPENSES (PHASE D - TASK 4)**

Code	Description	Budget (\$\$)	Markup	Fee (\$\$\$)
RA	Laboratory Analysis	\$ -	1.10	\$ -
RC	Computer	\$ -	1.10	\$ -
RH	Historical	\$ -	1.10	\$ -
RI	In-House Reproduction	\$ -	1.10	\$ -
RL	Long Distance Telephone	\$ -	1.10	\$ -
RM	Employee Mileage	\$ 300	1.10	\$ 330
RO	Other Expenses	\$ -	1.10	\$ -
RP	Purchased Services	\$ -	1.10	\$ -
RR	Reproduction	\$ 1,500	1.10	\$ 1,650
RS	Shipping, Delivery, Postage	\$ -	1.10	\$ -
RT	Travel, Meals, Lodging	\$ -	1.10	\$ -
RU	Telecommunications	\$ -	1.00	\$ -
R1		\$ -	1.10	\$ -
R2		\$ -	1.10	\$ -
<b>TOTAL REIMBURSABLE EXPENSES</b>		<b>\$ 1,800</b>		<b>\$ 1,980</b>