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**WORK AUTHORIZATION # CM2096-WA06
NASSAU COUNTY
BOARD OF COUNTY COMMISSIONERS
RFQ/BID NO. NC13-033**

Consultant:	S2L, Incorporated
Contract Number:	CM2096
Contact Name:	Sam Levin, P.E.
Contact Number:	407-475-9163
Email:	Slevin@s2Li.com

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CURRENT WORK AUTHORIZATION			
Project Short Title: Preparation of Technical Bidding Documents for a Flare Station Blower Replacement Landfill Gas Collection and Control System West Nassau Class I Landfill			
		CONTRACT OVERVIEW	
Date Submitted	08/21/2014	Total of Previous Authorizations	\$336,273.11
Amount	\$25,925.39	This Work Authorization	\$25,925.39
Scheduled Completion	210 days from NTP	Current Contract Total	\$362,198.50

This Work Authorization is to the AGREEMENT between Nassau County and the Consultant known as the Continuing Contract for Professional Engineering Services – Solid Waste Landfills and Other Related Ancillary Facilities for Nassau County, Florida, dated April 16, 2014. The services to be provided under this Work Authorization are as follows:

ARTICLE 1. Services Described as:

S2Li will provide engineering and consulting services to prepare design drawings and specifications for a Flare Station Blower Replacement at the West Nassau Landfill. These services will include process mechanical and control details necessary for bidding and construction, in accordance with the scope of services, attached hereto as Attachment "A".

ARTICLE 2. Time Schedule

S2Li anticipates that the design services will be provided over a 60-day period and bidding/construction administration services will be provided over a 150-day period, for a total of 210 days.

ARTICLE 3. Budget

The cost estimate to conduct the Work as described in the Scope of Services is \$25,925.39. A detailed breakdown for each tasks with the estimated labor hours and expense are included in the Exhibit 1 of Attachment "A".

Article 4. Other Provisions

The Services covered by this Work Authorization will be performed in accordance with the provisions set forth in the AGREEMENT referenced above and any of its attachments and schedules. Additional terms or contract provisions whether submitted purposely or


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inadvertently, shall have no force or effect. This Work Authorization will become a part of the referenced AGREEMENT when executed by both parties.

In presenting this Work Authorization, Consultant agrees that:


Unless detailed herein, all drawings, data, electronic files and other information required for this Work Authorization has been accepted by Consultant. Specifically, all electronic files have been reviewed and accepted for the purposes of this Work assignment. Any additional information, including detailed scope of services are attached.

AGREED TO BY:

BY: 
Print Name: Samuel B. Levin
Title: President
Date: September 11, 2014

RECOMMENDED AND APPROVED BY NASSAU COUNTY:

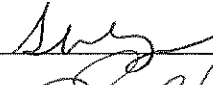
Director of Public Works:



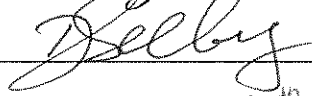
Contract Management

Charlotte Young

Office of Management and Budget



County Manager:

 9/24/14

APPROVED by the BOARD OF COUNTY COMMISSIONERS (designee), the 24th day of September, 2014

ACCOUNT NO.: 70362534-563000 Flare
(CIP project 14/15)
S 9/22/14

Scope of Services

Preparation of Technical Bidding Documents for a Flare Station Blower Replacement

Landfill Gas Collection and Control System West Nassau Class I Landfill

County Contract Number: CM2096-WA06
S2Li Project Number: 14-558

Nassau County owns, operates, and maintains a 2,000 cubic feet per minute (cfm) blower/flare station at the West Nassau Landfill (Landfill). This station is used to collect and burn gas generated from the waste in the Landfill as required by the Federal Title V and New Source Performance Standards (NSPS) regulations. Because of the age of the blower and operational issues from low gas flow conditions, the blower and ancillary components require replacement.

The County has asked S2L, Incorporated (S2Li) to prepare the design and technical bidding documents for use by the County in soliciting bids from interested contractors to install a new, smaller blower and perform other ancillary improvements. S2Li has been also asked to assist in the review of the bids, and periodic observation during the construction process, testing, and startup demonstration of the new blower and related instrumentation and controls.

Background

In 2000, the County had a study conducted to investigate the source of groundwater contamination on the western side of the landfill and landfill gas related constituents within perimeter landfill gas probes. The results of the investigation concluded that landfill gas emanating from the adjacent waste-filled area was the cause in both cases. In August 2000, a Contamination Assessment Plan (CAP) was prepared that included the design of an initial landfill gas collection and control system (LFGCCS). The initial phase of the LFGCCS was constructed in late 2001 and early 2002 with the installation of a number of gas extraction wells and a blower/flare station. The system became operational in February 2002. Additional extraction wells were installed at the Landfill in 2005 in order to comply with Title V/NSPS standards.

The flow from gas extraction wells is delivered to the blower/flare station for thermal destruction. The blower/flare station consists of a mist eliminator, blower, utility flare, and other controls such as automatic controls, valves, flame traps, oxygen sensor, flow meter, sample ports, condensate traps, piping, and other appurtenances. The blower provides a vacuum to withdraw landfill gas from the collection system and supply the extracted landfill gas to the flare for combustion. The existing blower/flare station is designed to process up to 2,000 cfm of gas flow.

The 2,000 cfm blower/flare station was sized large enough to manage landfill gas through the landfill permitted capacity which was expected to be filled up by 2017. However, in October 2009, the County stopped accepting waste for disposal at the Landfill short of it permitted capacity. The Landfill was eventually closed (covered and sealed) in accordance to state regulations with an official State-certified closure in March 2013. Landfill gas flows rates to the blower flare station were around 900 to 1,000 cfm

in 2009 well under the design capacity of the blower. Since that time, landfill gas collection rates have slowly decreased. Currently, flows rates have been measured as low as 575 cfm in the cooler/dryer season of the year, peaking at up to 850 cfm for the wetter/warmer season of the year. Because of the age of the waste in the Landfill, gas generation models project that gas production will continue to decrease as the waste deposits continue to age. These lower flows have been verified in the field, beginning with the shutdown of low gas production wells in the older sections of the Landfill, and a decreasing amount of gas being collected from a majority of the remaining wells.

Recently, County staff has observed slight vibrations and noise from the blower /flare station when flow rates dropped below 600 cfm. Field tests demonstrated that if the flow drops below 550 cfm, the system would shutter and undergo extreme vibration. If not remedied, this could lead to equipment damage and shutdown. Low flow concerns at this station were later confirmed by the blower/flare station manufacturer. This past spring, the internal casing was inspected by the blower/flare station manufacturer. The manufacturer observed signs of pitting on the internal wall of the blower casing, which is a sign of age, and which also could be attributed to low flow conditions. The manufacturer recommended that the blower should be replaced in lieu of any future major repairs, such as bearings replacement.

Because the blower/flare station is: 1) oversized for the current and projected future gas generation rates, 2) having operational issues due to low flow conditions, and 3) showing signs of potential mechanical failure, the County has decided that a new, smaller blower is required to manage future lower gas flows.

The County has requested S2Li to do the following:

1. After investigation of improvement options, develop a design for a new blower system and controls;
2. Develop piping modifications, as necessary, for the new blower;
3. Provide minor modifications as necessary to incorporate the new system into the existing control system;
4. Provide technical documents to the County for use in a solicitation process;
5. Provide assistance during the bidding process; and
6. Provide limited construction observation and startup demonstration services.

This Work Authorization will provide for the preparation of design, technical bidding documents and limited construction phase services for a new, smaller blower system at the West Nassau Landfill flare station. Under the scope of services for this Work Authorization, S2Li and its team of subconsultants (collectively known as the S2Li Team) will perform the following:

Scope of Services

Task 1 – Design Phase Services

S2Li Team will provide engineering and consulting services to prepare design drawings and specifications which will include process mechanical and control details necessary for bidding and construction.

1.1 Field Measurements and Data Gathering. S2Li Team will obtain field and design information from the County. One site visit is included in this Task.

1.2 System Evaluation. As part of the design, S2Li Team will identify (to a limited extent) improvement options and recommendations, including modifications to the existing system and the need to change

the piping size and configuration between the blower and the flare. This information will be presented in a brief letter report for review and comment by the County to developing the design drawings.

1.3 **Designs Drawings**. Based on the System Evaluation letter report, S2Li Team will prepare mechanical design drawings as necessary for bidding and construction. It is intended that the drawings and details will address:

- Demolition of the existing blower system;
- Installation of a new blower system with a variable frequency drive motor;
- Piping and connection details; and
- Control panel/PLC and integration with the existing control/monitoring systems.

1.4 **Specifications**. S2Li Team will develop technical specifications for the blower system, PLC/control panel including functional descriptions for programming by the Contractor/Subcontractor.

1.5 **Draft and Final Documents**. Draft design documents will be provided for review by the County at approximately the 80% to 90% completion level. Comments will be incorporated into the Final Design documents.

Task 2 – Bidding Assistance Phase Services

S2Li Team will provide services under this task to respond to questions from potential bidders related to clarification of design concepts and obtaining quotes from suppliers. Additionally, S2Li Team will review the bids and provide the County with S2Li Team's recommendation for the lowest, qualified, responsible bidder.

Task 3 – Construction Phase Services

S2Li Team will assist with review of shop drawings, responding to design clarifications, conduct site visits and prepare record drawings.

3.1 **FDEP Notification**. S2Li Team will notify FDEP of the scheduled dates for the facility shutdown and anticipated startup period.

3.2 **Shop Drawings/Substitutions**. S2Li Team will review shop drawings and other data for conformance with the design concept and Contract Documents. The review of approximately four submittals is included in this task.

3.3 **Interpretations and Clarifications**. When requested in writing, S2Li Team will provide necessary interpretations and clarifications of the Contract Documents. To the extent possible, information will be based on existing documents and will utilize 8½ inches x 11 inches sketches and written descriptions. The fee estimate is based on three Requests for Information.

3.4 **Observation**. S2Li Team will conduct an on-site inspection during installation of the new equipment and at the completion of the installation to develop a deficiency list ("Punch List").

3.5 **Record Drawings**. S2Li Team will prepare record drawings based on as-built drawings provided by the contractor.

Task 4 – Startup Demonstration and Operations Verification

After final completion of construction, S2Li Team will assist County personnel with:

- 1) Confirmation of Punch List items completion; and
- 2) System start-up and verification of operational controls and equipment.

Project Schedule

It is anticipated that the design services described above will be provided over a 60 day period and bidding/construction administration services will be provided over a 150 day period for a total of 210 days. This assumes no delays in the bidding process or contractor delays which are beyond the S2Li Team's control.

Cost Estimate

The cost estimate to conduct the Work as described in the above listed Scope of Services is \$25,925.39. A detailed breakdown for each task in conjunction with the estimated labor hours and expenses are included in the attached Exhibit 1 with S2Li subconsultant's information provided on Attachment 1 of Exhibit 1. Costs will be on a time and material basis. The County will be notified when the overall project budget is nearing its limit.

Work Authorization Assumptions

- Since this is a replacement project (i.e. maintenance), electrical engineering services are not anticipated. Electrical work associated with replacement of the blower and controls in accordance with current electrical code will be the responsibility of the contractor and electrical subcontractor. If system-wide upgrades are required for code compliance, the services of an electrical engineer may be provided as an additional service.
- Structural or geotechnical engineering services are not anticipated and are not included in the scope of services.
- The existing operator interface screen and PLC can be modified by the contractor to accommodate the new blower and variable frequency drive.
- No pre-bid conference requiring the S2Li Team's attendance.
- No regulatory permitting is required.
- It is anticipated that the Contractor will shutdown the flare station to make the necessary improvements during a seven day period assuming no weather delays or instrumentation interfacing issues. The on-site construction period may be greater to allow for mobilization/demobilization of equipment, work preparation, and cleanup.
- The County will fill out appropriate Startup, Shutdown, Malfunction Plan forms documenting the flare station shutdown and startup period. Forms are required for the flare station if the shutdown is longer than one hour and for the collection system if the shutdown is longer than five days.
- No rental flare station is required to be obtained, installed, operated, maintained and removed by the Contractor during the flare station shutdown period.
- If the County rebids the project, S2Li Team will be required to provide a new review of bids and recommendation to the County. These services can be provided as an additional service.

- Due to the reduction of the size of the blower and resulting vacuum, the landfill wellfield may require adjustment or retuning. These services are not provided within this work authorization. The adjustments or retuning can be provided under existing work authorization services.
- Nassau County Purchasing Department will provide front end bidding documents and conduct bidding.
- Review of approximately four shop drawing submittals.
- One site visit during construction and one site visit during startup/verification testing.
- Although none are expected, the County is assumed to pay for any application fees.

September 9, 2014

EXHIBIT 1

S2Li No. 14-558
 County No. CM2096-WA06

Total Project Costs
 S2Li Fee Estimate

Preparation of Technical Bidding Documents
 Flare Station Blower Replacement
 West Nassau Class I Landfill
 Nassau County, Florida

LABOR		LABOR CATEGORY AND RATE							TOTAL HOURS	SUBTOTAL LABOR
		Project Dir./ Principal	Regional Manager/ QC Officer	Principal Engineer	Senior Engineer	Associate Engineer	CAD Technician	Office Manager		
TASK	DESCRIPTION	\$225.00	\$208.88	\$171.38	\$122.51	\$47.47	\$47.47	\$68.46		
1	Design Phase Services	2	16	0	4	4	0	2	28	\$4,608.92
2	Bidding Assistance Phase Services	0	8	0	0	0	0	1	9	\$1,739.50
3	Construction Phase Services	1	8	0	8	0	0	2	19	\$3,013.04
4	Startup Demonstration & Operations Verification	0	8	0	0	0	0	1	9	\$1,739.50
SUBTOTALS:		3	40	0	12	4	0	6	65	\$11,100.96

EXPENSES		Field Vehicle (\$90/day)	Lab Testing (est.)	Equipment Rental (est.)	Parts (est.)	PRW Group, LLC. (see Attachment 1)				SUBTOTAL EXPENSES
TASK	DESCRIPTION									
1	Design Phase Services	\$ 90.00	\$ -	\$ -	\$ -	\$ -	\$9,461.49			\$ 9,551.49
2	Bidding Assistance Phase Services	\$ -	\$ -	\$ -	\$ -	\$ -	\$1,114.34			\$ 1,114.34
3	Construction Phase Services	\$ 90.00	\$ -	\$ -	\$ -	\$ -	\$2,211.90			\$ 2,301.90
4	Startup Demonstration & Operations Verification	\$ 90.00	\$ -	\$ -	\$ -	\$ -	\$1,766.70			\$ 1,856.70
SUBTOTALS:		\$ 270.00	\$ -	\$ -	\$ -	\$ -	\$14,554.43	\$0	\$0	\$ 14,824.43

COST SUMMARY				
TASK	DESCRIPTION	SUBTOTAL S2Li LABOR	SUBTOTAL EXPENSES including Subconsultants	TASK TOTAL
1	Design Phase Services	\$ 4,608.92	\$ 9,551.49	\$ 14,160.41
2	Bidding Assistance Phase Services	\$ 1,739.50	\$ 1,114.34	\$ 2,853.84
3	Construction Phase Services	\$ 3,013.04	\$ 2,301.90	\$ 5,314.94
4	Startup Demonstration & Operations Verification	\$ 1,739.50	\$ 1,856.70	\$ 3,596.20
TOTALS		\$ 11,100.96	\$ 14,824.43	\$ 25,925.39

September 9, 2014

**Preparation of Technical Bidding Documents
Flare Station Blower Replacement
West Nassau Class I Landfill
Nassau County, Florida**

S2Li No. 14-558
County No. CM2096-WA06

Attachment 1 - PRW Group, LLC. Fee Estimate - Subconsultant

LABOR		LABOR CATEGORY AND RATE							TOTAL HOURS	SUBTOTAL LABOR
		Project Manager \$133.38	CADD/ Technician I \$59.48					Admin. Assistance \$38.07		
TASK	DESCRIPTION									
1	Design Phase Services	48	48					3	99	\$9,371.49
2	Bidding Assistance Phase Services	6	4					2	12	\$1,114.34
3	Construction Phase Services	14	3					2	19	\$2,121.90
4	Startup Demonstration & Operations Verification	12	0					2	14	\$1,676.70
	SUBTOTALS:	80	55					9	144	\$14,284.43

EXPENSES		Field Vehicle (\$90/day)	Lab Testing (est.)	Equipment Rental (est.)	Parts (est.)			Subcontractors (est.)			SUBTOTAL EXPENSES
TASK	DESCRIPTION										
1	Design Phase Services	\$ 90	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -			\$ 90
2	Bidding Assistance Phase Services	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -			\$ -
3	Construction Phase Services	\$ 90	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -			\$ 90
4	Startup Demonstration & Operations Verification	\$ 90	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -			\$ 90
	SUBTOTALS:	\$ 270	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -			\$ 270
TOTAL											\$14,554.43