



*HILLERS ELECTRICAL ENGINEERING, INC.*

November 2, 2018

Ms. Shannon LaRocque, PE  
Utility Director  
Village of Wellington  
12300 Forest Hill Blvd  
Wellington, FL 33414

Subject: Village of Wellington Water Reclamation Facility PLC Replacement Design and Bidding Phase Services

Dear Shannon:

Hillers Electrical Engineering, Inc. (HEE) is pleased to provide the Village of Wellington (Village) this proposal for electrical engineering design services for the above referenced project. The Village's Water Reclamation Facility (WRF) is comprised of obsolete, and near end-of-life, Programmable Logic Controllers (PLCS) that will soon be unsupported by the manufacturer. The Village commissioned HEE to perform a study to determine the feasibility, costs and impacts realized by replacing the PLC platform with modern hardware. Technical Memorandum "Water Reclamation Facility PLC Replacement Study" dated September 6, 2018 analyzed the best approach to replacing the following process controllers to minimize impacts to plant operations and manage associated costs:

- Pretreatment Building (Headworks) – PLC 1
- MCC Room – CP-1
- Aeration Basin No.3 (CP-2000)
- Sludge Drying Facility (CP9005-2)
- Filter Dosing Building (PLC-5000)
- Sludge Dewatering PLC
- Cake Pump PLC (Seepex Control Panel)

PLCS in the locations/panels identified above are to be upgraded to the latest technology offered by Rockwell Automation. Plant operations staff indicates that there is process control logic, and input/output signals, present throughout these locations that remain from abandoned, or eliminated, processes no longer present, or in use, at the plant. Staff desires to remove unused control logic, input/output signals, and abandoned wiring, to the greatest extent practicable, to simplify troubleshooting and maintenance activities associated with the process control system. The

Our scope of services is as described below:

1. Attend Kick-off meeting with Village.
2. Investigate each PLC panel identified above to determine active inputs & outputs. Annotate as-built drawings with field notes to be used as an appendix to the contract documents to assist bidding contractor in preparing a bid.

3. Investigate programming of each PLC listed above for control logic no longer in use. This will also assist with determining active inputs/outputs for each PLC.
4. Develop control strategies for each PLC based upon existing plant O&M manual, discussions with plant operations staff and the analysis of the existing software for each PLC.
5. Determine, to the greatest extent possible, instruments deriving power from the PLC panel and identify as appropriate in the contract documents.
6. Determine, with plant staff input, where local panel mounted operator interface screens are required and determine what information and control interface is required on each.
7. Determine, with Village staff input, an appropriate tagging scheme for the contractor's programmer to follow in performing a re-write of the software for each PLC listed above.
8. Prepare a 50% level-of-completion submittal of drawings, specifications and opinion of probable construction cost for review by the Village.
9. Incorporate comments from 50% level-of-completion review and prepare 90% level-of-completion submittal of drawings, specifications and opinion of probable construction cost for review by the Village.
10. Attend 90% documents review meeting with the Village.
11. Incorporate comments from 90% level-of-completion review and prepare permit submittal of drawings and specifications cost for submittal to the Village Building Department.
12. Attend one (1) review meeting with Village and Building Department, if necessary, to discuss and resolve comments.
13. Incorporate building department comments and submit 100% (final) bid ready documents for bidding purposes.
14. Attend Pre-Bid meeting with the Village.
15. Respond to bidder questions/issue addenda.

Anticipated Drawing List:

Project Cover Sheet (1 sheet)  
Legend and Symbols/General Notes (1 sheet)  
Existing Control System Block Diagram (1 sheet)  
Modified Control System Block Diagram (1 sheet)  
Overall Site Plan (1 sheet)  
Individual plan views for each PLC (7 sheets)  
Riser Diagrams (2 sheets)  
Panel Schedules (1 sheet)  
Details – (2 sheets)

Additional Item to be Included in the Bid Documents:

Annotated PLC Panel As-Built Drawings (7 panels, anticipate 8-10 sheets per panel)

I/O list Per PLC Panel (total of 7)

Existing SCADA HMI displays

Control Strategies

PLC and Panel Specifications

The following is our anticipated project schedule:

Field Research: Duration: 120 days after notice to proceed.

50% document submittal: 60 days after completion of field research.

50% document review: 10 days after 50% document submittal.

90% document submittal: 60 days after 50% document review meeting.

90% document review: 10 days after 90% document submittal.

Permit document submittal: 14 days after 90% document submittal.

100% (Final) Bid documents: 21 days after receipt and clearing of Building Department comments.

**Assumptions:**

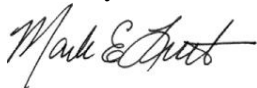
1. Village will furnish all available as-built documents for each of the PLCS/Panels listed in this proposal.
2. The Village does not have any available written control strategies pertinent to each PLC requiring replacement in this project. HEE will analyze the existing programs and conduct discussions with Village operations personnel to generate control strategies as programming guides to the contractor.
3. HEE will not perform any physical modifications to any panel, wiring, or software under this scope of work.
4. Replacement/upgrade approach/constraints described in the contract documents for each PLC/Panel will be as described in the referenced Technical Memorandum.
5. Village will furnish screen shots of HMI displays for process areas controlled by each PLC listed in this proposal for use in assisting to determine active versus inactive input/output signals.
6. An average of seven (7) working days per PLC/Panel is allocated for field verification.

Our Proposed Lump Sum Design Fee is:

\$128,346.00

HEE wishes to thank the Village for the opportunity to assist with this project. Please do not hesitate to call me if you have any questions regarding this proposal or any other related matter.

Sincerely,



Mark E. Luther, PE

MEL/mel

Attachment

**Village of Wellington Utilities WRF PLC Replacement Design**

Village of Wellington Utilities

HILLERS ELECTRICAL ENGINEERING, INC.

Scope Fee Breakdown -Design Services

Date: 11/2/18

| Rate                                      | \$225.00  | \$192.00          | \$153.00 | \$147.00           | \$129.00 | \$90.00            | \$81.00            | \$138.00     | \$78.00        |            |          |                     |                     |
|---|-----------|-------------------|----------|--------------------|----------|--------------------|--------------------|--------------|----------------|------------|----------|---------------------|---------------------|
|   | Principle | Chief             | Project  | Professional       | Lead     |                    | CADD               | Construction | Administrative | Total      | Expenses | SUBTOTAL            | TASK TOTAL          |
| PHASE OF WORK                             | Hours     | Engineer          | Manager  | Engineer           | Engineer | Designer           | Technician         | Coordinator  | Assistant      | Task       | Cost     | Cost                | Cost                |
| <b>Design Phase</b>                       |           |                   |          |                    |          |                    |                    |              |                |            |          |                     | <b>\$124,440.00</b> |
| <b>Kick-off Meeting</b>                   |           |                   |          |                    |          |                    |                    |              |                |            |          |                     |                     |
| Engineering Hours                         |           | 3                 |          | 3                  |          |                    |                    |              |                | 6          |          | <b>\$1,017.00</b>   |                     |
| <b>Control System Research</b>            |           |                   |          |                    |          |                    |                    |              |                |            |          |                     |                     |
| On Site Panel Research                    |           |                   |          | 110                |          | 110                |                    |              |                | 220        |          | <b>\$26,070.00</b>  |                     |
| Program Research                          |           |                   |          | 200                |          |                    |                    |              |                | 200        |          | <b>\$29,400.00</b>  |                     |
| Control Strategy Coordination with Staff  |           |                   |          | 180                |          |                    |                    |              |                | 180        |          | <b>\$26,460.00</b>  |                     |
| <b>50% Document Preparation</b>           |           |                   |          |                    |          |                    |                    |              |                |            |          |                     |                     |
| Engineering Hours                         |           | 15                |          | 60                 |          | 40                 | 60                 |              |                | 175        |          | <b>\$20,160.00</b>  |                     |
| <b>50% Document Review Meeting</b>        |           |                   |          |                    |          |                    |                    |              |                |            |          |                     |                     |
| Engineering Hours                         |           | 3                 |          | 3                  |          |                    |                    |              |                | 6          |          | <b>\$1,017.00</b>   |                     |
| <b>90% Document Preparation</b>           |           |                   |          |                    |          |                    |                    |              |                |            |          |                     |                     |
| Engineering Hours                         |           | 10                |          | 35                 |          | 15                 | 45                 |              |                | 105        |          | <b>\$12,060.00</b>  |                     |
| <b>90% Document Review Meeting</b>        |           |                   |          |                    |          |                    |                    |              |                |            |          |                     |                     |
| Engineering Hours                         |           | 3                 |          | 3                  |          |                    |                    |              |                | 6          |          | <b>\$1,017.00</b>   |                     |
| <b>Permit Documents</b>                   |           |                   |          |                    |          |                    |                    |              |                |            |          |                     |                     |
| Engineering Hours                         |           | 3                 |          | 11                 |          | 15                 | 16                 |              |                | 45         |          | <b>\$4,839.00</b>   |                     |
| <b>Bid Documents</b>                      |           |                   |          |                    |          |                    |                    |              |                |            |          |                     |                     |
| Engineering Hours                         |           | 3                 |          | 8                  |          |                    | 8                  |              |                | 19         |          | <b>\$2,400.00</b>   |                     |
| <b>Bid Phase</b>                          |           |                   |          |                    |          |                    |                    |              |                |            |          |                     | <b>\$3,906.00</b>   |
| Attend Pre-bid Meeting                    |           | 4                 |          |                    |          |                    |                    |              |                | 4          |          | <b>\$768.00</b>     |                     |
| Respond to Bidder Questions/Issue Addenda |           | 6                 |          | 8                  |          |                    | 10                 |              |                | 24         |          | <b>\$3,138.00</b>   |                     |
| <b>Lump Sum Totals</b>                    |           | <b>50</b>         |          | <b>621</b>         |          | <b>180</b>         | <b>139</b>         |              |                | <b>990</b> |          |                     | <b>\$128,346.00</b> |
| <i>Cost by Labor Rate</i>                 |           | <i>\$9,600.00</i> |          | <i>\$91,287.00</i> |          | <i>\$16,200.00</i> | <i>\$11,259.00</i> |              |                |            |          | <b>\$128,346.00</b> |                     |