CONTRACT FOR SYSTEM HARDENING AND RELIABILITY IMPROVEMENT WORK ORDER NO. 2 Main Substation 26.4kV BUS Insulator Replacement Project

THIS WORK ORDER for System Hardening and Reliability Improvements ("Work Order" hereafter) is made on , between the City of Lake Worth Beach, a Florida municipal corporation located at 7 North Dixie Highway, Lake Worth, Florida 33460 ("City") and <u>Hooper</u> <u>Corp.</u>, a Florida corporation ("Contractor").

1.0 <u>Project Description</u>:

The City desires the Contractor to provide all goods, services, materials and equipment identified herein related to the System Hardening and Reliability Improvements project generally described as: <u>Main Substation 26.4kV BUS Insulator Replacement</u> (the "Project"). The Project is more specifically described in the proposal prepared by <u>The Hooper Corp.</u>, dated <u>January 25, 2022</u> and plans prepared by City of Lake Worth Beach and are incorporated herein by reference.

2.0 <u>Scope</u>

Under this Work Order, the Contractor will provide the City of Lake Worth with construction services for the Project as specified in the **Contactor's proposal attached hereto** and incorporated herein as Exhibit "1".

3.0 Schedule and Liquidated Damages

Substantial completion of all services and work under this Work Order shall be within <u>60</u> calendar days from the Effective Date of this Work Order. Final completion of all services and work (and all punch-list items (if any)) under this Work Order shall be within <u>80</u> calendar days from the Effective Date of this Work Order. The Effective Date of this Work Order is the date following the parties' execution of this Work Order and the City's delivery of a Notice to Proceed to the Contractor via e-mail, facsimile or other form of delivery as documented by the City. Substantial completion occurs when the services and work has progressed to the point where, in the opinion of the City, the work is sufficiently complete in accordance with the Contract Documents and this Work Order, so that the Project can be utilized for the purposes for which it is intended. Final completion occurs when all services and work (including punch-list items) has been completed and the project becomes fully operational and accepted by the City.

Liquidated Damages. The City and Contractor recognize that time is of the essence under this Work Order and the Contract Documents, and that the City will suffer financial loss if the services and work described in this Work Order and the Contract Documents are not completed within the times specified in this Work Order. The City and Contractor recognize, agree and acknowledge that it would be impractical and extremely difficult to ascertain and fix the actual damages that the City would suffer in the event Contractor neglects, refuses, or otherwise fails to complete the services and work within the time specified. Accordingly, instead of requiring any such proof, the City and Contractor agree that as liquidated damages for delay (but not as a penalty) Contractor shall pay the City

<u>100</u> dollars (\$100 .00) for each day that expires after the time specified in this Work Order.

4.0 <u>Compensation</u>

This Work Order is issued for a not to exceed amount of <u>\$275,000.00</u>. The attached proposal identifies all costs and expenses included in the lump sum, not to exceed amount.

The following Direct Purchases are to be made under this Work Order by the City: <u>Insulators, hook-</u><u>stick disconnects, motor –operators and switches</u>.

5.0 <u>Project Manager</u>

The Project Manager for the Contractor is <u>Omar Delgado</u>, phone: <u>1-407-319-9951</u>; email: <u>odelgado@hoopercorp.com</u> and, the Project Manager for the City is <u>David Martyniuk</u>, phone: <u>561-586-1629</u>; email: <u>Dmartynuik@lakeworthbeachfl.gov</u>

6.0 <u>Progress Meetings</u>

The Contractor shall schedule periodic progress review meetings with the City Project Manager as necessary but every 30 days as a minimum.

7.0 <u>Contractor's Representations</u>

In order to induce the City to enter into this Work Order, the Contractor makes the following representations:

7.1 Contractor has familiarized itself with the nature and extent of the Contract Documents including this Work Order, work, site, locality, and all local conditions and laws and regulations that in any manner may affect cost, progress, performance or furnishing of the work.

7.2 Contractor has obtained at his/her own expense and carefully studied, or assumes responsibility for obtaining and carefully studying, soil investigations, explorations, and test reports which pertain to the subsurface conditions at or contiguous to the site or otherwise may affect the cost, progress, performance or furnishing of the work as Contractor considers necessary for the performance or furnishing of the work at the stated work order price within the Work Order stated time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of the RFP; and no additional examinations, investigations, explorations, tests, reports, studies or similar information or data are or is deemed necessary by Contractor for such purposes.

7.3 Contractor has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the accurate location of said Underground Facilities. No additional examinations, investigations, explorations, tests, reports, studies or similar information or data in respect of said Underground Facilities are or is deemed necessary by the Contractor in order to perform and furnish the work under this Work Order price, within the Work Order time and in accordance with the other terms and conditions of the Contract Documents.

7.4 Contractor has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.

7.5 Contractor has given the City's Contract Administrator written notice of all conflicts, errors or discrepancies that he or she has discovered in the Contract Documents and the written resolution thereof by City or its designee is acceptable to the Contractor.

8.0 <u>Warranty</u>

Warranty. The Contractor warrants and guarantees to the City that all services and work provided under this Work Order will be in accordance with this Work Order and the other Contract Documents. The Contractor warrants that (a) all materials and parts supplied under this Work Order shall be free from defects for one (1) year from the final completion of all work (unless a longer manufacturer warranty applies): (b) all services and work performed under this Work Order will be free from defects for one (1) year from the final completion of all work and the project shall be fully operational without unreasonable downtime or failures; and (c) that the services and work will conform to the requirements of the Contract Documents. If, at any time prior to the expiration of the one (I) year warranty period, the City discovers any failure or breach of the Contractor's warranties or the Contractor discovers any failure or breach of the Contractor's warranties, the Contractor will, upon written notice from City or of its own accord, at the Contractor's sole cost and expense, promptly correct such failure or breach (which corrective action must include, without limitation, any necessary removal, disassembly, reinstallation, repair, replacement, reassembly, retesting, and/or re-inspection of any part or portion of the work and any other property damaged or affected by such failure, breach, or corrective action). The Contractor will remedy any such failure or breach so, to the extent possible, to avoid unnecessary disruptions to the operations of City or its systems. In the event the Contractor fails to initiate and diligently pursue corrective action within five (5) days of the Contractor's receipt of the City's notice or the Contractor's discovery of the same, the City may undertake such corrective action at the Contractor's expense.

7.0 <u>Authorization</u>

This Work Order is pursuant to the System Hardening and Reliability Improvements Contract for between the City of Lake Worth and the Contractor, dated <u>May 15, 2018</u> ("Contract" hereafter). If there are any conflicts between the terms and conditions of this Work Order and the Contract, the terms and conditions of the Contract shall prevail.

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IN WITNESS WHEREOF, the parties hereto have made and executed this Work Order to the System Hardening and Reliability Improvements Agreement on the day and year first above written.

CITY OF LAKE WORTH BEACH, FLORIDA

By: _____

Betty Resch, Mayor

ATTEST:

By:

Melissa Ann Coyne, CMC, City Clerk

APPROVED AS TO FORM AND LEGAL SUFFICIENCY:

APPROVED FOR FINANCIAL SUFFICIENCY

By: ______ Glen J. Torcivia, City Attorney

Bruce T. Miller, Financial Services Director

By:



Hooper Corp.

Print Name: <u>G. Jacob Davie</u>

Title: Vice President



My Commission Expires: 2/1/2023

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EXHIBIT "1" Contractors Proposal



January 25, 2022

Warner Patterson Transmission and Substation Engineering City of Lake Worth Beach 1900 2nd Ave North Lake Worth, FL 33461 Office: 561-586-1629

E-Mail: Warner Patterson wpatterson@LakeWorthBeachfl.gov

RE: Main Substation 26.4kV Bus Insulator Replacement

We are pleased to submit our **NOT TO EXCEED** quotation in the amount of **Two Hundred Seventy Five Thousand Dollars (\$ 275,000.00)**, to provide the required materials, labor and equipment for the replacement of Insulators and Switches at the Main Substation for the above referenced projects based on the information provided.

Our quotation is based on the following Scope:

• Main Substation 26.4kV Bus Insulator Replacement Scope of Work Rev. 5 /17/2022

Work can start immediately upon receipt of authorization to proceed.

Thank you for the opportunity of quoting this project for you. If you have any questions or comments regarding this quotation do not hesitate to contact me.

Best regards,

Omar Delgado Project Manager Electrical Power Division - Florida





Main Substation 26.4kV Bus Insulator Replacement

Scope of Work

<u>Rev. 5</u>

<u>2/17/2022</u>

Requested by:

David Martyniuk Substation Engineer | Electric Utilities Department City of Lake Worth Beach 1900 2nd Ave North Lake Worth, FL 33461 Office: 561-586-1629 Mobile: 561-800-7248 Email: dmartyniuk@lakeworthbeachfl.gov www.lakeworthbeachfl.gov

Overview:

This proposal is for the modification & separation of the East and West bus, the replacement of old insulators & old disconnect switches, the installation of animal protection, and the installation of motor operated bus switches. Installing the motor operated switches at the start of the project will allow for segmenting the bus to eliminate the need for energized bus modifications. Working in proximity of energized bus will be required. Cover up will be needed. Lake Worth Beach Electric Utility would like a price to complete work as scoped herein on a per unit bases. Maximum fault current 7.6kA. The bus is protected by overcurrent relaying with 60 cycle delay. Differential protection is not present.

Project will be completed in steps. The steps are listed and illustrated in this document below.



Figure 1: Existing One Line of the 26.4kV bus.



Figure 2: Aerial Image of Main yard substation. Red indicating the 26.4kV bus area.

All phasing shall be made to LWBEU phasing standard.

- Buses running north to south, the east most phase is Phase A and the west most phase is Phase C.
- Buses running east to west, the north most phase is Phase A and the south most phase is Phase C.



Figure 3: Structural Bus Layout (East)(West)



Figure 4: View from North side of structure, example of bus insulators to be replaced



Figure 5: Example of disconnect switches to be replaced

Step 1: West Bus Motor Operated Switch Installation

The West bus will be deenergized by LWBEU, see Figure 6.

Contractor to install complete switch and motor assemblies at the two segmenting sections of the north (R7) and south (R15) of the West Bus, see Figure 6. See Figures 7, 8, & 9 for illustrations of complete switch and motor assembly installation. Installation will require modification and removal of existing bus, insulators, & switches. Bus modifications will be performed in proximity to the energized East bus. Cover up will be needed. Motors for the switches will not have power available and will need to be cranked open and closed manually.



Figure 6: West Bus Sectionalizing Switch Addition



Figure 7: Main Bus



Figure 8: Bus 1 East & West Switches



Figure 9: Bus 2 East & West Switches

Step 2: East Bus Motor Operated Switch Installation

LWBEU will energize the West and return it to service. LWBEU will deenergize the East bus, see Figure 10.

Contractor to install complete switch and motor assemblies at the two segmenting sections of the north (R7) and south (R15) of the East Bus, see Figure 10. See Figures 7, 8, & 9 for illustrations of complete switch and motor assembly. Installation will require modification and removal of existing bus and insulators. Bus modifications will be performed in proximity to the energized West bus. Cover up will be needed. Motors for the switches will not have power available and will need to be cranked open and closed manually.



Figure 10: East Bus Sectionalizing Switch Addition

Step 3: North Bus Segmentation, Northwest & Northeast

The northeast and northwest bus portions will be segmented and de-energized by LWBEU, see Figure 11. This step will require a power plant outage. A minimum of one week of notice is required.

- Contractor to remove E19 from East bus and connect E19 to West bus. E19 will become W19, see Figure 12.
- Contractor will replace bus insulators and disconnect switches between sections R1 R7, see Figure 10. W20 & E10 disconnect switches will not be replaced.



• Contractor to install animal protection on all disconnect switches.

Figure 11: 26kV Bus North Segmentation



Figure 12: Represents completion of Step 3

Step 4: Center Bus Segmentation, Central West & Central East

The Central bus portion will be segmented and deenergized by LWBEU, see Figure 13. This step will require a power plant outage. A minimum of one week of notice is required. Due to loading limitation, work will be prioritized in order to place the Central West bus back to an energized state ahead of the Central East bus. To reiterate, this step is highly dependent on system loading conditions. Contract will need to be flexible, i.e. willing to work during the night when load is low.

- Contractor to cut and remove the bus connecting W05 to West bus.
- Contractor will cut and remove crossover bus connection between breakers W16 & E06 to obtain separation, see Figure 13. & Figure 14.
- Contractor to cut and remove the bus connecting E14 to East bus.
- Contractor to connect E14 to West bus. E14 will become W14. see Figure 14.
- Contractor will replace West bus insulators and disconnect switches between sections R7 R15, see Figure 10.
 W17 disconnect switches will not be replaced.



Figure 13: Center 26kV Bus Section Segmentation



Figure 14: Represents completion of Steps 4 & 5

Step 5: Center East Bus Segmentation

The Central West bus portion will be energized and returned to service by LWBEU. The Central East Bus will remain segmented and deenergized, see Figure 15. Cover up may be needed.

- Contractor to connect W05 to East bus. W05 will become E05, see Figure 14.
- Contractor to connect E06 to East bus, see Figure 14.
- Contractor will replace East bus insulators and disconnect switches between sections R7 R15, see Figure 10. E07 disconnect switches will not be replaced.
- Contractor to install animal protection on all Central disconnect switches.



Figure 15: Center West 26kV Bus Segmentation

Step 6: South East Segmentation

The South East bus portion will be segmented and deenergized by LWBEU, see Figure 16. This step will require a power plant outage. A minimum of one week of notice is required.

- Contractor to cut and remove bus connecting E12 to East bus, see Figure 17.
- Contractor will replace all East bus insulators and disconnect switches between sections R15 R21, see Figure 10.
- Contractor to install animal protection on all East bus disconnect switches.



Figure 16: South East 26kV Bus Segmentation



Figure 17: Represents completion after Steps 6 & 7

Step 7: South West Segmentation

The South West bus portion will be segmented and deenergized by LWBEU, see Figure 18.

- Contractor to connect E12 to West bus. E12 will become W12, see Figure 17.
- Contractor will replace West bus insulators and disconnect switches between sections R15 R21, see Figure 10. W11 & E01 disconnect switches will not be replaced.
- Contractor to install animal protection on all West bus disconnect switches.



Figure 18: South West 26kV Bus Segmentation

LWBEU Supplied Material

• <u>35kV Bus Insulator</u>

Maclean Catalog #NPP20XG13S



- <u>34.5kV, 1200A, Disconnect Switch with mounting Bracket</u>
 <u>Closvaland Price Style# C102A220C11</u>
 - Cleaveland Price Style# C102A230G11





<u>Type-C2 Motor operated Assembly</u>
 O Cleaveland Price Group #G001



<u>34.5kV, 2000A, Vertical Breaker Disconnect Switch, Type V2-c</u>

Cleaveland Price Group #G16



Contractor Supplied Material

Contractor will be responsible for all installation tools and materials not listed as LWBEU Supplied Material this includes but not limited to; nuts, bolts, washers, spacers, standoffs, bus connectors, cable, etc.