Agenda Item **# 3K-6**

PALM BEACH COUNTY
BOARD OF COUNTY COMMISSIONERS
AGENDA ITEM SUMMARY

Meeting Date:	**September 27, 2016**	**Consent [X]** **Public Hearing [ ]**	**Regular [ ]**
Department:	**Water Utilities Department**		

I. EXECUTIVE BRIEF

Motion and Title: Staff recommends motion to approve: Work Authorization (WA) No. 4 with Cardinal Contractors, Inc., for the TR09 – Water Treatment Plant (WTP) Nos. 2, 3 and 9 Sodium Hypochlorite and Salt Storage/Brine Maker Replacement Project (Project) in the amount of $1,983,686.50.

Summary: On March 10, 2015, the Board of County Commissioners (BCC) approved the Optimization and Improvements Design-Build Contract (Contract) with Cardinal Contractors, Inc. (R2015-0316). WA No. 4 is necessary to provide for replacement of sodium hypochlorite tanks used for water disinfection and installation of salt storage/brine makers used for regeneration of anion exchange media. The Small Business Enterprise (SBE) participation goal established by the SBE Ordinance (R2002-0064) is 15% overall. The Contract with Cardinal Contractors, Inc. provides for SBE participation of 26% overall. WA No. 4 includes 6.81% overall participation. The cumulative SBE participation, including WA No. 4, is 34.45% overall. Cardinal Contractors, Inc. is a Palm Beach County company. The Project is included in the FY16 Capital Improvement Plan adopted by the BCC. (WUD Project No. 16-064) Districts 2 and 5 (MJ)

Background and Justification: The Project is necessary to maintain the integrity and reliability of the aging hypochlorite tanks used for disinfection and to increase capacity of salt storage for anion exchange water treatment. Cardinal Contractors, Inc. will provide builders risk insurance prior to commencement of construction.

Attachments:

1. Location Maps
2. Two (2) Original Work Authorization No. 4

Recommended By: Jim Stiles — 9-15-16
Department Director — **Date**

Approved By: Shannon R. LaRocque — 9-22-16
Assistant County Administrator — **Date**

II. FISCAL IMPACT ANALYSIS

A. Five Year Summary of Fiscal Impact:

Fiscal Years	2017	2018	2019	2020	2021
Capital Expenditures	$1,983,687	0	0	0	0
External Revenues	0	0	0	0	0
Program Income (County)	0	0	0	0	0
In-Kind Match County	0	0	0	0	0
NET FISCAL IMPACT	$1,983,687	0	0	0	0
# ADDITIONAL FTE POSITIONS (Cumulative)	0	0	0	0	0

Budget Account No.: Fund 4011 Dept 721 Unit W003 Object 6541

Is Item Included in Current Budget? Yes X No ____

Reporting Category **N/A**

B. Recommended Sources of Funds/Summary of Fiscal Impact:

One (1) time expenditure from user fees, connection fees, and balance brought forward.

C. Department Fiscal Review: Debra M West

III. REVIEW COMMENTS

A. OFMB Fiscal and/or Contract Development and Control Comments:

9/12/16
OFMB 9/09 9/9

9/15/16
Contract Development and Control
9/15

B. Legal Sufficiency:

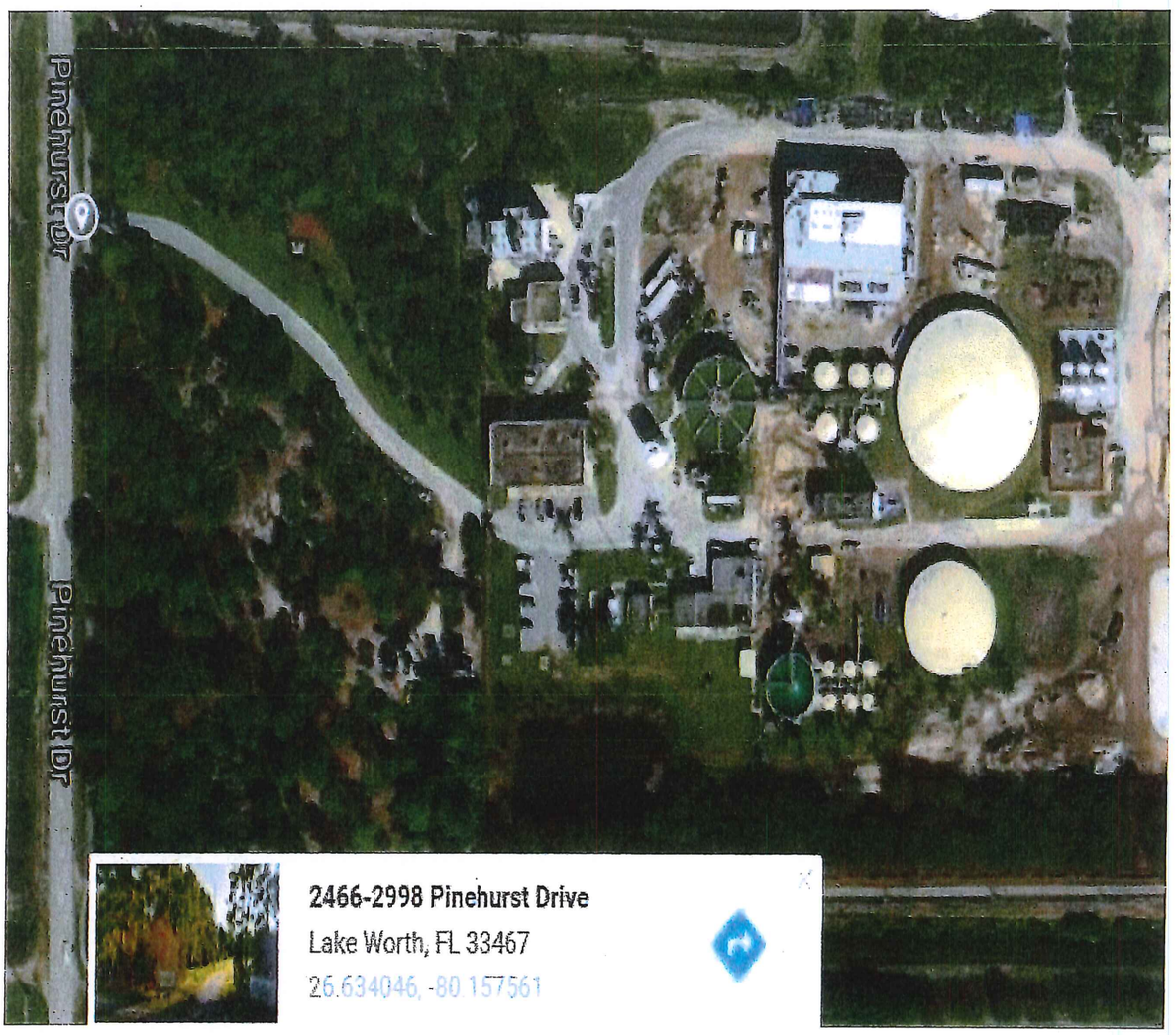
9/16/16
Assistant County Attorney

C. Other Department Review:

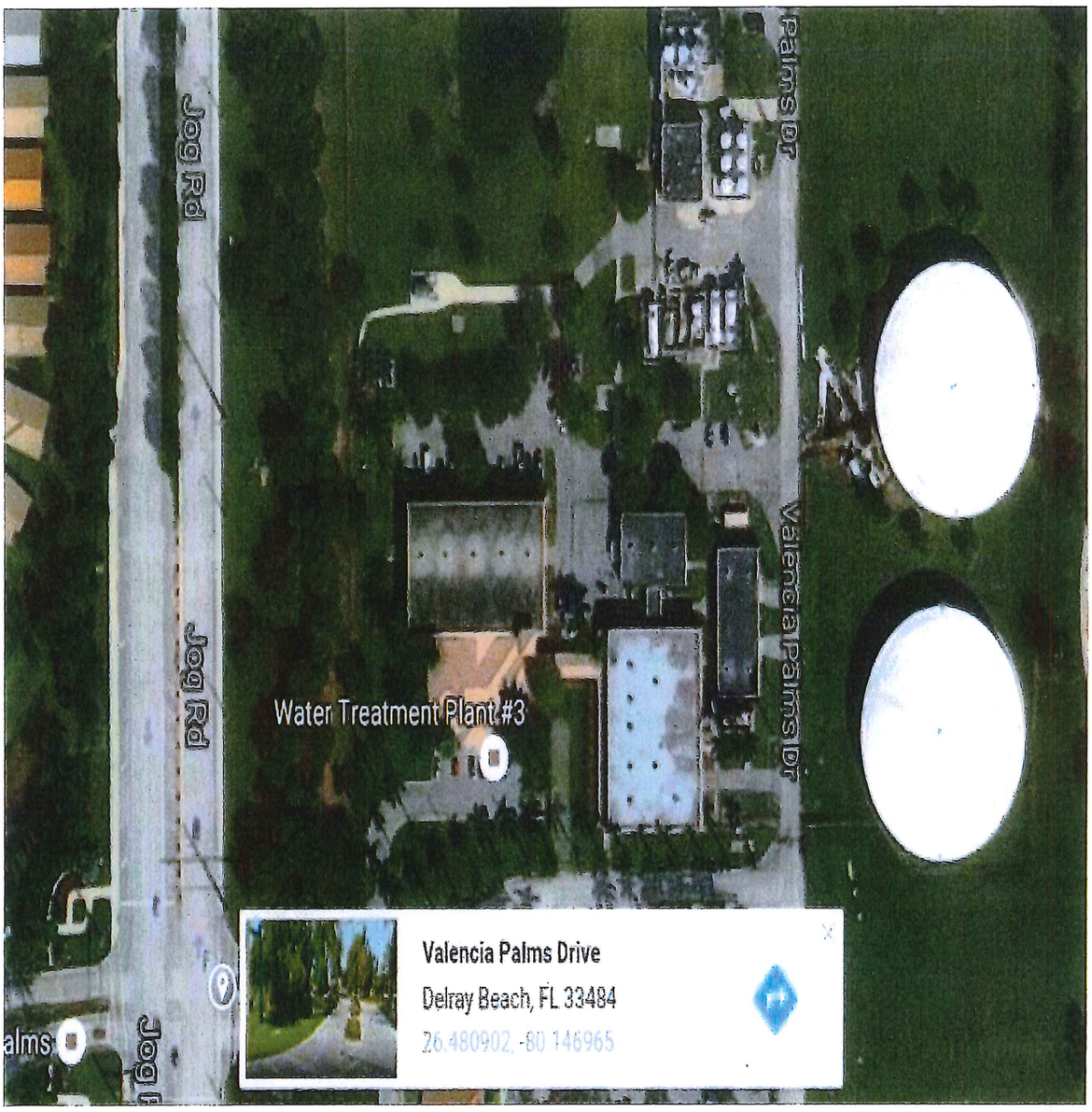
Department Director

This summary is not to be used as a basis for payment.

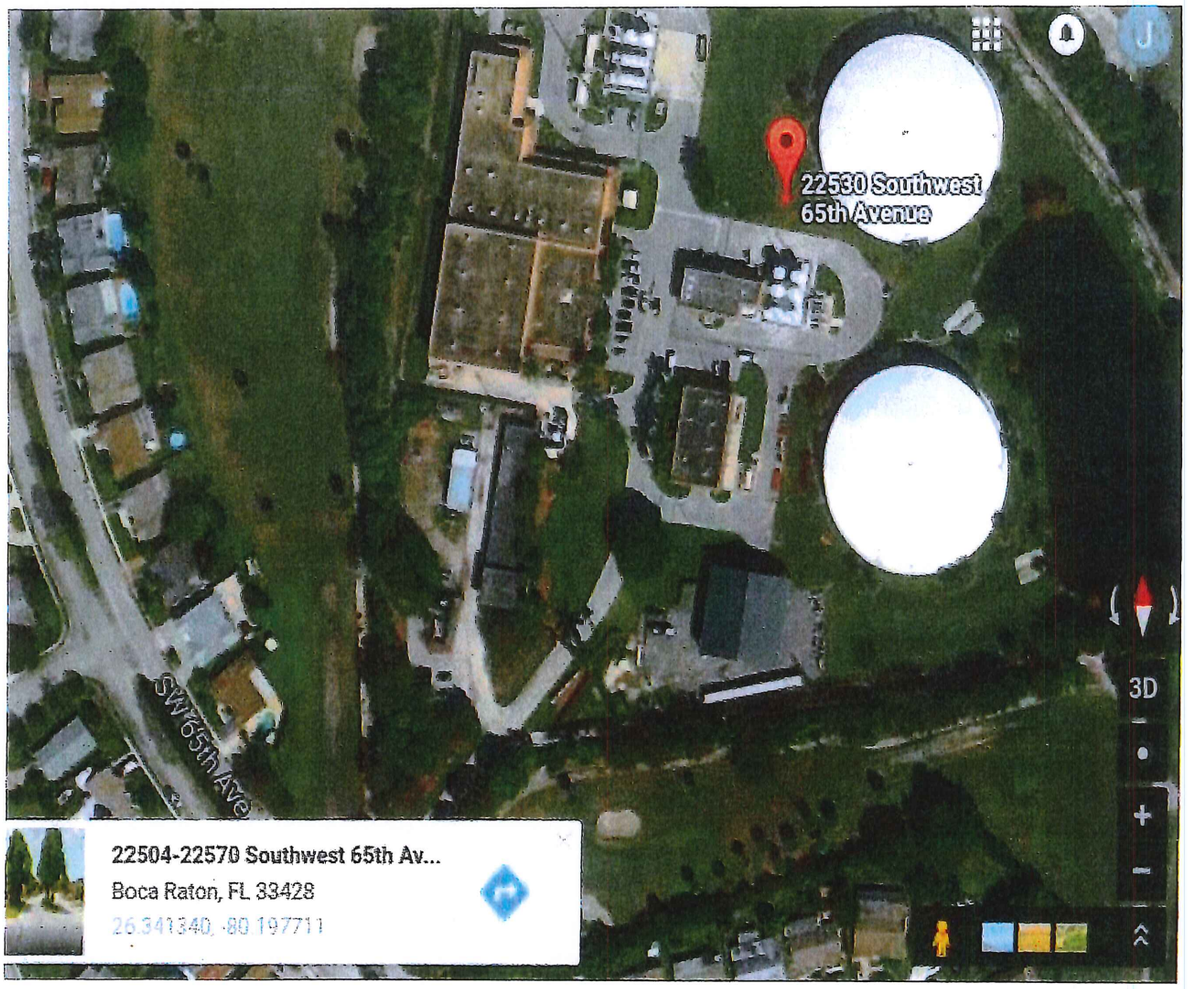
ATTACHMENT 1 – WTP 2



ATTACHMENT 1 – WTP 3



ATTACHMENT 1 – WTP 9



WORK AUTHORIZATION NO. 4
Palm Beach County Water Utilities Department
Optimization and Improvements Design-Build Contract Project

Project No. WUD 16-064 Package TR09
Districts: 2 and 5
Budget Line Item No. 4011-721-W003-6541
Project Title: Water Treatment Plant No. 2,3 and 9 Sodium Hypochlorite and Salt Storage / Brinemaker Replacement.

THIS AUTHORIZATION No. 04 to the *Contract for Optimization and Improvements Design-Build Contract*, Project No. WUD 14-071 dated March 10, 2015 (R2015-0316), by and between Palm Beach County and the Design-Build Entity as assigned to Cardinal Contractors, Inc., is for the Design-Build Services of this Work Authorization. The Contract provides for 26% SBE participation overall. This Work Authorization includes 6.81% overall participation. The cumulative proposed SBE participation, including this authorization is 34.45% overall. Additional authorization will be utilized to meet or exceed the stated overall participation goal.

1. DESIGN-BUILD ENTITY: Cardinal Contractors, Inc.

2. ADDRESS: 560 Village Blvd., Suite 340, West Palm Beach, FL 33409

3. Description of Services (Scope of Work) to be provided by the Design-Build Entity:

   See **ATTACHMENT A**.

4. Services completed by the Design-Build Entity to date:

   See **ATTACHMENT G**.

5. Design-Build Entity shall begin work promptly or deliver ordered materials within the following calendar days from the approval date of the Work Authorization:

   90% Design Completion (Permit Drawings) 120 days after notice to proceed.

   Permitting complete 180 days after notice to proceed.

   Substantial Construction Completion 360 Calendar Days after receipt of notice to proceed.

   Final Construction Completion 60 Calendar Days after Substantial Construction Completion

   Liquidated damages will apply as follows:
   $1000 per day past substantial completion date.
   $500 per day past final completion date.
   (For Liquidated Damages Rates see ATTACHMENT B)

The parties hereby agree and acknowledge that County's actual damages in the event of delay would be difficult or impossible to ascertain and that the foregoing liquidated damages amount represents a liquidated sum of damages agreed upon by the parties as a measure of damages in the event of such delay and not as a penalty.

6. The Contract Price or Guaranteed Maximum Price, as applicable, to be paid to the Design-Build Entity for providing the requested services in accordance with the Contract shall be $1,983,686.50, subject to adjustment in accordance with the terms of the Contract. The listed value does not include an Owner's Allowance.

7. EXCEPT AS HEREBY AMENDED, CHANGED OR MODIFIED, all other terms, conditions and obligations of the Contract dated March 10, 2015 remain in full force and effect.

WORK AUTHORIZATION NO. 4

Project No. **WUD 16-064**

Project Title: **TR09 Water Treatment Plant No. 2, 3 and 9 Sodium Hypochlorite and Salt Storage/Brinemaker Replacement**

IN WITNESS WHEREOF, this Authorization is accepted, subject to the terms, conditions and obligations of the aforementioned Contract.

PALM BEACH COUNTY, A POLITICAL SUBDIVISION OF THE STATE OF FLORIDA

Sharon R. Bock, Clerk & Comptroller,
Palm Beach County

ATTEST:

Signed:_____

Typed Name: _____
Deputy Clerk

Palm Beach County,
Board of County Commissioners

Signed:_____
Mary Lou Berger, Mayor

_____
Date

JCS

Approved as to Form and Legal Sufficiency

Signed: _____

Typed Name: _____
County Attorney

DESIGN-BUILD ENTITY: _____

ATTEST:

John P. Elder
Witness

John P. Elder Project Mngr
(Name and Title)

Michael Brandao
(Signature)

Michael Brandao, Vice President
(Name and Title)

August 19, 2016
Date

LIST OF ATTACHMENTS

WORK AUTHORIZATION NO. 4
Palm Beach County Water Utilities Department
Optimization and Improvements Design-Build Contract Project

ATTACHMENT – A	Scope of Work
ATTACHMENT – B	Rate for Liquidated Damages
ATTACHMENT – C	Public Construction Bond
ATTACHMENT – D	Form of Guarantee
ATTACHMENT – E	Work Authorization Cost Schedule
ATTACHMENT – F	SBE Schedule 1 and Schedule 2
ATTACHMENT – G	Authorization Status Report - Summary and Status of Authorizations
ATTACHMENT – H	Authorization Status Report - Summary of SBE/Minority Business Tracking
ATTACHMENT – I	Location Map
ATTACHMENT – J	Design-Build Criteria
ATTACHMENT – K	Vendor Quotes

ATTACHMENT A

WORK AUTHORIZATION NO. 4
Palm Beach County Water Utilities Department
Optimization and Improvements Design-Build Contract Project

SCOPE OF WORK
FOR

Water Treatment Plants No. 2, 3 and 9.

INTRODUCTION

Palm Beach County (County) entered into an agreement entitled Optimization and Improvements Design-Build Contract - Palm Beach County Water Utilities Department Project No. WUD 14-071 (CONTRACT) with Cardinal Contractors, Inc. (DESIGN-BUILD ENTITY) to provide design-build services for various general activities on the Optimization and Improvements Design-Build Contract dated March 10, 2015. This Work Authorization will be performed under that CONTRACT.

Please note: The work in this Authorization #4 carries the standard 1 year repair or replacement that may prove to be defective in the workmanship or materials for a period of one year from the date of substantial completion. It must be noted that the 5 year warranty referenced in the documents is for the Sodium Hypochlorite tanks only and will be through a separate warranty directly between the County and the tank manufacturer.

SCOPE OF SERVICES

Design-Build Entity shall perform the Scope of Services as described herein:

Task 1 – Data Collection and Survey

1. Receive NTP for Design.
2. Review As-Built drawings.
3. Conduct 3 field visits (one per plant).

Task 2 – 60% Plans

1. Prepare 60% Drawings and Specifications.
2. Deliver three full size, and three half size, drawing sets of plans and specifications for PBCWUD review.
3. Conduct 3 field visits. (one per plant)

Task 3 – 90% Plans (Permit Set)

1. Provide written response to 60% design comments.
2. Conduct 3 field visits. (one per plant)
3. Revise drawings from 60% comments.
4. Provide review cycle to confirm all 60% comments were incorporated/addressed in the 90% plan set.

Task 5 – Pre-Construction Services

1. Support Permitting review cycle by addressing comments.
2. Attend 1 Permit review meeting.

3. Attend 1 Pre-Construction Meeting.
4. Shop drawing review and approval.
5. O&M manual review and approval.
6. Forward all shop drawings, product data submittals and O&M manuals to PBC for review and comment.

Task 6 – Construction Services

1. Construction activities: 18 engineering site visits (1/month for 6 months for 3 sites).
2. Start up, testing and owner training: 6 engineering site visits (2 per plant x 3 plants).

Task 7 – Project Close Out

1. Coordinate preparation of final As-Built Drawings.
2. Coordinate and provide all required final certifications.
3. Obtain all final inspections and close out all permits. When possible, provide computer print-out from permitting agency evidencing permits have been properly closed.
4. Prepare project close-out documents package, including signed-off permits, As-Built drawings, and photographs.
5. 1 site visit per plant x 3 plants.

Division 1 General Conditions

A. Project durations based on the following:
    1) 90% Design (Permit Drawings) completed: 120 days after NTP.
    2) Permitting completed: 180 days after NTP.
    3) Substantial completion: 360 days after NTP.
    4) Final Completion: 420 days after NTP.
B. Scope of work includes engineering services as performed by CGA.
    1) The complete mechanical, electrical, structural, and process designs as it pertain to the new construction items: piping, supports, tank removal and replacement.
    2) We assume that the instrumentation associated with the existing tanks to be replaced is in working order. The ultrasonic flowmeters at each Sodium Hypochlorite tank will be disconnected and re-installed in the top flange of the new tanks and re-connected by the electrician. Engineering associated with replacement instruments is not included.
    3) Architectural renderings are not required and not included in this proposal.
    4) Wetland mitigation or delineation is not required and not included in this proposal.
    5) The project is a plant rehabilitation project with equipment replacement.
    6) Surveying and site plan approval for building department are excluded.
    7) Electrical design and final piping connections will be finalized during construction by re-using existing piping with minor modifications. New flexible connections will be installed at fill lines to each Hypochlorite tank. Existing conduits will be reinstalled with similar routing which will be determined in the field.
C. Proposal based on the absence of lead paint and asbestos. If asbestos and/or lead paint surveys are required, they will be provided by PBCWUD.
D. At this time, we do not anticipate geotechnical reports will be required. PBCWUD provide geotechnical reports in the area if required for design and/or construction.
E. Proposal based on connecting to existing plant power for temporary power for construction. We have not included any utility fees for water, sewer or power.
F. Work associated with the existing concrete coating system inside of the containment areas is EXCLUDED according to the Design – Build criteria.
G. Replacement of existing piping and valves or conduits including the smaller 10,000 gallon sodium Hypochlorite tank and smaller 47 ton Brinemaker tank are Excluded from the work authorization due to budgetary constraints.
H. Removal, disposal, or handling of hazardous or contaminated waste is specifically excluded from the scope of this project and the proposal.
I. Costs for a public construction bond are included.
J. We exclude any independent testing or inspections for any other purposes than those stated below.
    1) We include independent tank inspections as performed by Richard Patterson
    2) We include one (2 day) trip to the Tank Manufacturer for the Owner.

K. Permitting fees to be paid by PBCWUD. We include efforts and the plans to obtain building permits only.
L. O&M manuals for the contractor supplied equipment are included.

M. PBCWUD will make available all existing Record Drawings of Water Treatment Plant No.2, 3 and 9 in PDF and AutoCAD format (if originally provided in AutoCAD format).

Division 2 Earthwork

A. We do not anticipate major disturbance of any sodded areas, therefore, we exclude costs associated with replacement, maintenance or watering of the grass or landscaping items unless the disturbance is specifically caused by Cardinal Contractors.
B. We have excluded landscaping, site berms etc.

Division 3 Concrete

A. None required.

Division 4 Masonry

A. None required.

Division 5 Metals

A. Tank ladders / cages and safety climbs at ladders are included. Cardinal excludes the safety harnesses, belts or devices that the County will use with the safety climb rails.

Division 6 Wood and plastics

A. None required.

Division 7 Thermal and moisture protection

A. None required.

Division 8 Doors & Windows

A. None required.

Division 9 Finishes

A. Painting of concrete / equipment and tankage is excluded.
B. Existing PVC pipes and valves within the containment area will be painted as required.
C. Color selections for all materials will be from manufacturer's standards. We excluded any costs for special order colors.

Division 10 Special Building Construction

A. Not required.

Division 11 Process Equipment

A.

Division 12 Special Construction

A. We exclude salt and or sodium hypochlorite chemicals for start-up or operation.

Division 13 Instrumentation/Special Construction

We include the removal and re-installation of the ultrasonic level sensors (supplied by Owner). We do not include start up, programming or calibration for the Owner provided equipment.

Division 14 Conveying systems

A. Not required.

Division 15 Mechanical Systems

A. Piping systems
    1) Specific shutdowns for the Sodium Hypochlorite and Brine systems will be required by the County for Contractor work. Cardinal will look to the County to open and or close valves and to

take specific measures to insure that the proper sequences of shutdown and recommissioning of the tanks are consistent with the requirements of daily plant operations.

2) Cardinal will provide minor piping connections in cooperation with the County as required inside the chemical containment area(s) to maintain the temporary flow of sodium hypochlorite / brine as required during construction.
3) The removal and replacement of (12) each 20,000 gallon sodium hypochlorite tanks with safety ladders are included. Tanks will be installed on the existing concrete pads on a layer of felt.
4) The removal and replacement of (3) each 85.5 ton salt saturated brine makers with safety ladders and bottom gravel are included. Tanks will be installed on the existing concrete pads on a layer of felt.
5) Wind load design and the required stainless steel anchor bolts are included for each tank.
6) We exclude the purchase or loading / unloading of sodium hypochlorite and or brine.
7) Replacement of any piping, valves and supports within the containment area is excluded. Cardinal will re-use and re-connect existing piping to the new tanks.
8) Minor pipe replacement will be performed to make the existing piping fit the new tankage.
9) New flexible connections will be furnished and installed on the tank effluent pipes at each of the sodium hypochlorite tank by cutting them in to the existing piping.
10) Existing grounding / lightning protection cables will be removed from the existing tanks and reinstalled on the new tankage but Cardinal will not be responsible for the testing of the grounding / lightning protection cables.
11) Any work to the existing blowers and or instrumentation within the confines of the retaining area is excluded.
12) All permit fees are by the Owner.
13) Each of the 15 tanks will be hydro tested for leakage and will be internally disinfected.

14) An independent inspector will be hired to periodically inspect the tank construction at the sodium hypochlorite tank manufacturer and produce quality progress reports and or a list of deficiencies that need corrected.

Division 16 Electrical Systems

A. We exclude any stand-by power, utility fees, and usage charges for permanent or temporary power..
B. Electrical demolition of abandoned conduits or the installation of new electrical conduits is not quantified or considered in the electrical pricing.

COMPENSATION

Compensation for this Work Authorization shall not exceed the Guaranteed Maximum Price of $1,983,686.50

SBE PARTICIPATION

As described in the Contract (R2015-0316), SBE participation is included in ATTACHMENT F under this Authorization. The attached Schedule 1 defines the SBE applied to this Authorization/Contract and Schedule 2 establishes the SBE contribution from each subcontractor (Letter of Intent to perform as an SBE).

ATTACHMENT B

WORK AUTHORIZATION NO. 4
Palm Beach County Water Utilities Department
Optimization and Improvements Design-Build Contract Project

Rates for Liquidated Damages

Substantial Construction Completion 360 Calendar Days after receipt of executed Work Authorization and notice to proceed.

Final Construction Completion 60 Calendar Days after Substantial Construction Completion

Liquidated damages will apply as follows:
$1000 per day past substantial completion date.
$500 per day past final completion date.

The parties hereby agree and acknowledge that County's actual damages in the event of delay would be difficult or impossible to ascertain and that the foregoing liquidated damages amount represents a liquidated sum of damages agreed upon by the parties as a measure of damages in the event of such delay and not as a penalty.

ATTACHMENT C

3 original bonds executed

WORK AUTHORIZATION NO. 4

Palm Beach County Water Utilities Department

Water, Wastewater & Reclaimed Water Services Design-Build Contract

PUBLIC CONSTRUCTION BOND

BOND NUMBER: Federal Insurance Company #82440916 / Western Surety Company #929635433

BOND AMOUNT: $1,983,686.50

CONTRACT AMOUNT: $ 1,983,686.50

CONTRACTOR'S NAME: Cardinal Contractors, Inc.

CONTRACTOR'S ADDRESS: 10405 Technology Terrace
Lakewood Ranch, FL 34211

CONTRACTOR'S PHONE: (941) 377-8555

SURETY COMPANY: Federal Insurance Company & Western Surety Company
Tel: Federal: (908) 903-3493 / Western: (877) 672-6115

SURETY'S ADDRESS: Federal Insurance Company, Attn: Surety Dept., 15 Mountain View Rd., Warren, NJ 07059
Western Surety Company, Attn: Surety Dept., 333 S. Wabash Ave., Chicago, IL 60604

Agent Name & Address: M.B. McGowan & Associates Insurance Agency, Inc., 7250 Redwood Blvd., Ste. 110, Novato, CA 94945 / Tel: (415) 892-1080

OWNER'S NAME: PALM BEACH COUNTY

OWNER'S ADDRESS: 8100 Forest Hill Boulevard (P. O. Box 16097)
West Palm Beach, FL 33413

OWNER'S PHONE: (561) 493-6000

DESCRIPTION OF WORK: Work includes improvements to Plants # 2,3 and 9 Sodium Hypochlorite and Brine Makers.

PROJECT LOCATION: Water Treatment Plant No. 2, 3 and 9.

LEGAL DESCRIPTION: PCN 00-42-44-16-00-000-5030 Address: 2956 Pinehurst Drive; West Palm Beach Florida 33467
PCN 00-42-46-10-00-000-1020 Address: 13026 Jog Road; Delray Beach, Florida 33446
PCN 00-42-43-27-05-081-0380 Address: 22438 SW 7TH Ave; Boca Raton, Florida 33433

CHUBB

CHUBB GROUP OF INSURANCE COMPANIES

15 Mountain View Road, Warren, NJ 07059
Phone: (908) 903-3493 / Facsimile: (908) 903-3656

CO-SURETY WITH: C N A SURETY / WESTERN SURETY COMPANY

333 S. Wabash Avenue, Chicago, IL 60604
Phone: (312) 822-5000 / Facsimile: (312) 755-7276

August 11, 2016

Palm Beach County Board of County Commissioners
8100 Forest Hill Boulevard (P.O. Box 16097)
West Palm Beach, FL 33413

Re: Surety Authorization
Bond #82440916 / 929635433
Project: Water Treatment Plant No. 2, 3 and 9 Sodium Hypochlorite and Salt Storage/Brinemaker Replacement / Project No. WUD 16-064

To Whom It May Concern:

Federal Insurance Company and Western Surety Company, as co-sureties for our principal, Cardinal Contractors, Inc., hereby authorize ***Palm Beach County Board of County Commissioners*** to date the bonds and power of attorney's when the contract for the referenced project has been approved. Authorization is also given to date Attachment D Form of Guarantee

Please email a copy of the executed contract and confirm the bond date as soon as available. Also email a copy of the dated Attachment D Form of Guarantee when available.

Federal Insurance Company & Western Surety Company

Debbie L. Welsh,
Attorney-in-Fact

Bond Nos: 82440916 / 929635433

PUBLIC CONSTRUCTION BOND

This Bond is issued in favor of the County conditioned on the full and faithful performance of the Contract.

KNOW ALL MEN BY THESE PRESENTS: that Contractor and Surety, are held and firmly bound unto

Palm Beach County Board of County Commissioners
301 N. Olive Avenue
West Palm Beach, Florida 33401

as Obligee, herein called County, for the use and benefit of claimant as herein below defined, in the amount of

Dollars $1,983,686.50

for the payment whereof Principal and Surety bind themselves, their heirs, personal representatives, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

Principal has by written agreement dated _____, 2016, entered into a contract with the County for

Project Name:	Water Treatment Plant No. 2,3 and 9 Sodium Hypochlorite and Salt Storage/Brinemaker Replacement
Project No.:	WUD 16-064
Project Description:	Work includes the replacement of 12 Sodiumhypochlorite and 3 Brinemaker tanks.
Project Location:	

Plant # 2 PCN 00-42-44-16-00-000-5030 Address: 2956 Pinehurst Drive; West Palm Beach Florida 33467
Plant #3 PCN 00-42-46-10-00-000-1020 Address: 13026 Jog Road; Delray Beach, Florida 33446
Plant #9 PCN 00-42-43-27-05-081-0380 Address: 22438 SW 7TH Ave; Boca Raton, Florida 33433

in accordance with Design Criteria Drawings and Specifications prepared by

Name of Design Firm:	Palm Beach County Water Utilities Department
Location of Firm:	8100 Forest Hill Blvd.
Phone:	(561) 493-6000
Fax:	(561) 493-6008

which contract is by reference made a part hereof in its entirety, and is hereinafter referred to as the Contract.

THE CONDITION OF THIS BOND is that if Principal:

1. Performs the contract dated _____, 2016, between Principal and County for the design and construction of Water Treatment Plant No. 2,3 and 9 Sodium Hypochlorite and Salt Storage/Brinemaker Replacement, the contract being made a part of this bond by reference, at the times and in the manner prescribed in the contract; and

2. Promptly makes payments to all claimants, as defined in Section 255.05, Florida Statutes, supplying Principal with labor, materials, or supplies, used directly or indirectly by Principal in the prosecution of the work provided for in the contract; and

3. Pays County all losses, damages (including liquidated damages), expenses, costs, and attorneys' fees, including appellate proceedings, that County sustains because of a default by Principal under the contract; and

4. Performs the guarantee of all work and materials furnished under the contract for the time specified in the contract, then this bond is void; otherwise it remains in full force.

5. Any changes in or under the contract documents and compliance or noncompliance with any formalities connected with the contract or the changes does not affect Surety's obligation under this bond and Surety waives notice of such changes.

6. The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of construction liens which may be filed of record against said improvement, whether or not claim for the amount of such lien be presented under and against the bond.

7. Principal and Surety expressly acknowledge that any and all provisions relating to consequential, delay and liquidated damages contained in the contract are expressly covered by and made a part of this Performance, Labor and Material Payment Bond. Principal and Surety acknowledge that any such provisions lie within their obligations and within the policy coverage's and limitations of this instrument.

8. Section 255.05, Florida Statutes, as amended, together with all notice and time provisions contained therein, is incorporated herein, by reference, in its entirety. Any action instituted by a claimant under this bond for payment must be in accordance with the notice and time limitation provisions in Section 255.05(2), Florida Statutes. This instrument regardless of its form, shall be construed and deemed a statutory bond issued in accordance with Section 255.05, Florida Statutes.

9. Any action brought under this instrument shall be brought in the state court of competent jurisdiction in Palm Beach County, Florida and not elsewhere.

Witness

Eric Macck
Print name

Witness

Donna J. Frowd
Print name

Cardinal Contractors, Inc.
Principal (Seal)

Print name - MICHAEL BRANDAO

VICE PRESIDENT
Title

Federal Insurance Company & Western Surety Company
Surety (Seal)

Print name - Debbie L. Welsh

Attorney-in-Fact
Title

Chubb Surety

POWER OF ATTORNEY

Federal Insurance Company
Vigilant Insurance Company
Pacific Indemnity Company

Attn: Surety Department
15 Mountain View Road
Warren, NJ 07059

Know All by These Presents, That **FEDERAL INSURANCE COMPANY,** an Indiana corporation, **VIGILANT INSURANCE COMPANY,** a New York corporation, and **PACIFIC INDEMNITY COMPANY,** a Wisconsin corporation, do each hereby constitute and appoint **Donna J. Frowd, Michael Brophy McGowan, Susan J. McGowan, Debbie L. Welsh, Donna L. Welsh, Benjamin Wolfe and Magdalena R. Wolfe of Novato, California** ----------

each as their true and lawful Attorney- in- Fact to execute under such designation in their names and to affix their corporate seals to and deliver for and on their behalf as surety thereon or otherwise, bonds and undertakings and other writings obligatory in the nature thereof (other than bail bonds) given or executed in the course of business, and any instruments amending or altering the same, and consents to the modification or alteration of any instrument referred to in said bonds or obligations.

In Witness Whereof, said **FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY,** and **PACIFIC INDEMNITY COMPANY** have each executed and attested these presents and affixed their corporate seals on this **2nd** day of **May, 2016.**

Dawn M. Chloros, Assistant Secretary

David B. Norris, Jr., Vice President

STATE OF NEW JERSEY
ss.
County of Somerset

On this **2nd** day of **May, 2016** before me, a Notary Public of New Jersey, personally came Dawn M. Chloros, to me known to be Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY, the companies which executed the foregoing Power of Attorney, and the said Dawn M. Chloros, being by me duly sworn, did depose and say that she is Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY and knows the corporate seals thereof, that the seals affixed to the foregoing Power of Attorney are such corporate seals and were thereto affixed by authority of the By- Laws of said Companies; and that she signed said Power of Attorney as Assistant Secretary of said Companies by like authority; and that she is acquainted with David B. Norris, Jr., and knows him to be Vice President of said Companies; and that the signature of David B. Norris, Jr., subscribed to said Power of Attorney is in the genuine handwriting of David B. Norris, Jr., and was thereto subscribed by authority of said By- Laws and in deponent's presence.

Notarial Seal

KATHERINE J. ADELAAR
NOTARY PUBLIC OF NEW JERSEY
No. 2316685
Commission Expires July 16, 2019

Notary Public

CERTIFICATION

Extract from the By- Laws of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY:

"Except as otherwise provided in these By-Laws or by law or as otherwise directed by the Board of Directors, the President or any Vice President shall be authorized to execute and deliver, in the name and on behalf of the Corporation, all agreements, bonds, contracts, deeds, mortgages, and other instruments, either for the Corporation's own account or in a fiduciary or other capacity, and the seal of the Corporation, if appropriate, shall be affixed thereto by any of such officers or the Secretary or an Assistant Secretary. The Board of Directors, the President or any Vice President designated by the Board of Directors may authorize any other officer, employee or agent to execute and deliver, in the name and on behalf of the Corporation, agreements, bonds, contracts, deeds, mortgages, and other instruments, either for the Corporation's own account or in a fiduciary or other capacity, and, if appropriate, to affix the seal of the Corporation thereto. The grant of such authority by the Board or any such officer may be general or confined to specific instances."

I, Dawn M. Chloros, Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY (the "Companies") do hereby certify that

(i) the foregoing extract of the By- Laws of the Companies is true and correct,
(ii) the Companies are duly licensed and authorized to transact surety business in all 50 of the United States of America and the District of Columbia and are authorized by the U.S. Treasury Department; further, Federal and Vigilant are licensed in the U.S. Virgin Islands, and Federal is licensed in Guam, Puerto Rico, and each of the Provinces of Canada except Prince Edward Island; and
(iii) the foregoing Power of Attorney is true, correct and in full force and effect.

Given under my hand and seals of said Companies at Warren, NJ this August 11, 2016

Dawn M. Chloros, Assistant Secretary

IN THE EVENT YOU WISH TO NOTIFY US OF A CLAIM, VERIFY THE AUTHENTICITY OF THIS BOND OR NOTIFY US OF ANY OTHER MATTER, PLEASE CONTACT US AT ADDRESS LISTED ABOVE, OR BY Telephone (908) 903- 3493 Fax (908) 903- 3656 e-mail: surety@chubb.com

Western Surety Company

POWER OF ATTORNEY APPOINTING INDIVIDUAL ATTORNEY-IN-FACT

Know All Men By These Presents, That WESTERN SURETY COMPANY, a South Dakota corporation, is a duly organized and existing corporation having its principal office in the City of Sioux Falls, and State of South Dakota, and that it does by virtue of the signature and seal herein affixed hereby make, constitute and appoint

Michael Brophy Mc Gowan, Susan J Mc Gowan, Donna L Welsh, Donna J Frowd, Debbie L Welsh, Benjamin Wolfe, Individually

of Novato, CA, its true and lawful Attorney(s)-in-Fact with full power and authority hereby conferred to sign, seal and execute for and on its behalf bonds, undertakings and other obligatory instruments of similar nature

- In Unlimited Amounts -

and to bind it thereby as fully and to the same extent as if such instruments were signed by a duly authorized officer of the corporation and all the acts of said Attorney, pursuant to the authority hereby given, are hereby ratified and confirmed.

This Power of Attorney is made and executed pursuant to and by authority of the By-Law printed on the reverse hereof, duly adopted, as indicated, by the shareholders of the corporation.

In Witness Whereof, WESTERN SURETY COMPANY has caused these presents to be signed by its Vice President and its corporate seal to be hereto affixed on this 22nd day of January, 2016.

WESTERN SURETY COMPANY

Paul T. Bruflat, Vice President

State of South Dakota
County of Minnehaha } ss

On this 22nd day of January, 2016, before me personally came Paul T. Bruflat, to me known, who, being by me duly sworn, did depose and say: that he resides in the City of Sioux Falls, State of South Dakota; that he is the Vice President of WESTERN SURETY COMPANY described in and which executed the above instrument; that he knows the seal of said corporation; that the seal affixed to the said instrument is such corporate seal; that it was so affixed pursuant to authority given by the Board of Directors of said corporation and that he signed his name thereto pursuant to like authority, and acknowledges same to be the act and deed of said corporation.

My commission expires
June 23, 2021

J. MOHR
NOTARY PUBLIC
SOUTH DAKOTA

J. Mohr, Notary Public

CERTIFICATE

I, L. Nelson, Assistant Secretary of WESTERN SURETY COMPANY do hereby certify that the Power of Attorney hereinabove set forth is still in force, and further certify that the By-Law of the corporation printed on the reverse hereof is still in force. In testimony whereof I have hereunto subscribed my name and affixed the seal of the said corporation this 11th day of August, 2016.

WESTERN SURETY COMPANY

L. Nelson, Assistant Secretary

Form F4280-7-2012

Authorizing By-Law

ADOPTED BY THE SHAREHOLDERS OF WESTERN SURETY COMPANY

This Power of Attorney is made and executed pursuant to and by authority of the following By-Law duly adopted by the shareholders of the Company.

Section 7. All bonds, policies, undertakings, Powers of Attorney, or other obligations of the corporation shall be executed in the corporate name of the Company by the President, Secretary, and Assistant Secretary, Treasurer, or any Vice President, or by such other officers as the Board of Directors may authorize. The President, any Vice President, Secretary, any Assistant Secretary, or the Treasurer may appoint Attorneys in Fact or agents who shall have authority to issue bonds, policies, or undertakings in the name of the Company. The corporate seal is not necessary for the validity of any bonds, policies, undertakings, Powers of Attorney or other obligations of the corporation. The signature of any such officer and the corporate seal may be printed by facsimile.

ATTACHMENT D

Bond Nos: Federal - 82440916
Western - 929635433

WORK AUTHORIZATION NO. 4

Palm Beach County Water Utilities Department

Water, Wastewater & Reclaimed Water Services Design-Build Contract

FORM OF GUARANTEE

GUARANTEE FOR (Contractor and Surety Name) Cardinal Contractors, Inc.
Federal Insurance Company & Western Surety Company

We the undersigned hereby guarantee that the Project Name : TR09 Water Treatment Plant No. 2, 3 and 9 Sodium Hypochlorite and Salt Storage/Brinemaker Replacement Project No.: WUD 16-064 , Palm Beach County, Florida, will be constructed and bonded, in accordance with the plans and specifications; that the work constructed will fulfill the requirements of the guaranties included in the Contract Documents. We agree to repair or replace any or all of our work, together with any work of others which may be damaged in so doing, that may prove to be defective in the workmanship or materials within a period of one year from the date of Substantial Completion of all of the above named work by the County of Palm Beach, State of Florida, without any expense whatsoever to said County of Palm Beach, ordinary wear and tear and unusual abuse or neglect excepted by the County. When correction work is started, it shall be carried through to completion.

In the event of our failure to acknowledge notice, and commence corrections of defective work within five (5) calendar days after being notified in writing by the Board of County Commissioners, Palm Beach County, Florida, we, collectively or separately, do hereby authorize Palm Beach County to proceed to have said defects repaired and made good at our expense and we will honor and pay the costs and charges therefore upon demand.

DATED _____
(notice of completion filing date)

SEAL AND NOTARIAL ACKNOWLEDGMENT OF SURETY

Cardinal Contractors, Inc. (Seal)
(Contractor)

By: _____ MICHAEL BRANDAO, VP
(Signature) (Printed Name)

Federal Insurance Company
& Western Surety Company (Seal)
(Surety)

By: _____ Debbie L. Welsh, Attorney-in-Fact
(Signature) (Printed Name)

Chubb Surety

POWER OF ATTORNEY

Federal Insurance Company
Vigilant Insurance Company
Pacific Indemnity Company

Attn: Surety Department
15 Mountain View Road
Warren, NJ 07059

Know **All** by **These Presents**, That **FEDERAL INSURANCE COMPANY**, an Indiana corporation, **VIGILANT INSURANCE COMPANY**, a New York corporation, and **PACIFIC INDEMNITY COMPANY**, a Wisconsin corporation, do each hereby constitute and appoint **Donna J. Frowd, Michael Brophy McGowan, Susan J. McGowan, Debbie L. Welsh, Donna L. Welsh, Benjamin Wolfe** and **Magdalena R. Wolfe of Novato, California** ----------

each as their true and lawful Attorney- in- Fact to execute under such designation in their names and to affix their corporate seals to and deliver for and on their behalf as surety thereon or otherwise, bonds and undertakings and other writings obligatory in the nature thereof (other than bail bonds) given or executed in the course of business, and any instruments amending or altering the same, and consents to the modification or alteration of any instrument referred to in said bonds or obligations.

In **Witness Whereof**, said **FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY**, and **PACIFIC INDEMNITY COMPANY** have each executed and attested these presents and affixed their corporate seals on this **2nd** day of **May, 2016.**

Dawn M. Chloros, Assistant Secretary

David B. Norris, Jr., Vice President

STATE OF NEW JERSEY

ss.

County of Somerset

On this **2nd** day of **May, 2016** before me, a Notary Public of New Jersey, personally came Dawn M. Chloros, to me known to be Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY, the companies which executed the foregoing Power of Attorney, and the said Dawn M. Chloros, being by me duly sworn, did depose and say that she is Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY and knows the corporate seals thereof, that the seals affixed to the foregoing Power of Attorney are such corporate seals and were thereto affixed by authority of the By- Laws of said Companies; and that she signed said Power of Attorney as Assistant Secretary of said Companies by like authority; and that she is acquainted with David B. Norris, Jr., and knows him to be Vice President of said Companies; and that the signature of David B. Norris, Jr., subscribed to said Power of Attorney is in the genuine handwriting of David B. Norris, Jr., and was thereto subscribed by authority of said By- Laws and in deponent's presence.

Notarial Seal

KATHERINE J. ADELAAR
NOTARY PUBLIC OF NEW JERSEY
No. 2316685
Commission Expires July 16, 2019

Notary Public

CERTIFICATION

Extract from the By- Laws of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY:

"Except as otherwise provided in these By-Laws or by law or as otherwise directed by the Board of Directors, the President or any Vice President shall be authorized to execute and deliver, in the name and on behalf of the Corporation, all agreements, bonds, contracts, deeds, mortgages, and other instruments, either for the Corporation's own account or in a fiduciary or other capacity, and the seal of the Corporation, if appropriate, shall be affixed thereto by any of such officers or the Secretary or an Assistant Secretary. The Board of Directors, the President or any Vice President designated by the Board of Directors may authorize any other officer, employee or agent to execute and deliver, in the name and on behalf of the Corporation, agreements, bonds, contracts, deeds, mortgages, and other instruments, either for the Corporation's own account or in a fiduciary or other capacity, and, if appropriate, to affix the seal of the Corporation thereto. The grant of such authority by the Board or any such officer may be general or confined to specific instances."

I, Dawn M. Chloros, Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY (the "Companies") do hereby certify that

(i) the foregoing extract of the By- Laws of the Companies is true and correct,
(ii) the Companies are duly licensed and authorized to transact surety business in all 50 of the United States of America and the District of Columbia and are authorized by the U.S. Treasury Department; further, Federal and Vigilant are licensed in the U.S. Virgin Islands, and Federal is licensed in Guam, Puerto Rico, and each of the Provinces of Canada except Prince Edward Island; and
(iii) the foregoing Power of Attorney is true, correct and in full force and effect.

Given under my hand and seals of said Companies at Warren, NJ this 2016

Dawn M. Chloros, Assistant Secretary

IN THE EVENT YOU WISH TO NOTIFY US OF A CLAIM, VERIFY THE AUTHENTICITY OF THIS BOND OR NOTIFY US OF ANY OTHER MATTER, PLEASE CONTACT US AT ADDRESS LISTED ABOVE, OR BY Telephone (908) 903- 3493 Fax (908) 903- 3656 e-mail: surety@chubb.com

Western Surety Company

POWER OF ATTORNEY APPOINTING INDIVIDUAL ATTORNEY-IN-FACT

Know All Men By These Presents, That WESTERN SURETY COMPANY, a South Dakota corporation, is a duly organized and existing corporation having its principal office in the City of Sioux Falls, and State of South Dakota, and that it does by virtue of the signature and seal herein affixed hereby make, constitute and appoint

Michael Brophy Mc Gowan, Susan J Mc Gowan, Donna L Welsh, Donna J Frowd, Debbie L Welsh, Individually

of Novato, CA, its true and lawful Attorney(s)-in-Fact with full power and authority hereby conferred to sign, seal and execute for and on its behalf bonds, undertakings and other obligatory instruments of similar nature

- In Unlimited Amounts -

and to bind it thereby as fully and to the same extent as if such instruments were signed by a duly authorized officer of the corporation and all the acts of said Attorney, pursuant to the authority hereby given, are hereby ratified and confirmed.

This Power of Attorney is made and executed pursuant to and by authority of the By-Law printed on the reverse hereof, duly adopted, as indicated, by the shareholders of the corporation.

In Witness Whereof, WESTERN SURETY COMPANY has caused these presents to be signed by its Vice President and its corporate seal to be hereto affixed on this 24th day of June, 2015.

WESTERN SURETY COMPANY

Paul T. Bruflat, Vice President

State of South Dakota
County of Minnehaha } ss

On this 24th day of June, 2015, before me personally came Paul T. Bruflat, to me known, who, being by me duly sworn, did depose and say: that he resides in the City of Sioux Falls, State of South Dakota; that he is the Vice President of WESTERN SURETY COMPANY described in and which executed the above instrument; that he knows the seal of said corporation; that the seal affixed to the said instrument is such corporate seal; that it was so affixed pursuant to authority given by the Board of Directors of said corporation and that he signed his name thereto pursuant to like authority, and acknowledges same to be the act and deed of said corporation.

My commission expires
February 12, 2021

S. EICH
NOTARY PUBLIC
SOUTH DAKOTA

S. Eich, Notary Public

CERTIFICATE

I, L. Nelson, Assistant Secretary of WESTERN SURETY COMPANY do hereby certify that the Power of Attorney hereinabove set forth is still in force, and further certify that the By-Law of the corporation printed on the reverse hereof is still in force. In testimony whereof I have hereunto subscribed my name and affixed the seal of the said corporation this _____ day of _____, 2016.

WESTERN SURETY COMPANY

L. Nelson, Assistant Secretary

Form F4280-7-2012

Authorizing By-Law

ADOPTED BY THE SHAREHOLDERS OF WESTERN SURETY COMPANY

This Power of Attorney is made and executed pursuant to and by authority of the following By-Law duly adopted by the shareholders of the Company.

Section 7. All bonds, policies, undertakings, Powers of Attorney, or other obligations of the corporation shall be executed in the corporate name of the Company by the President, Secretary, and Assistant Secretary, Treasurer, or any Vice President, or by such other officers as the Board of Directors may authorize. The President, any Vice President, Secretary, any Assistant Secretary, or the Treasurer may appoint Attorneys in Fact or agents who shall have authority to issue bonds, policies, or undertakings in the name of the Company. The corporate seal is not necessary for the validity of any bonds, policies, undertakings, Powers of Attorney or other obligations of the corporation. The signature of any such officer and the corporate seal may be printed by facsimile.

ATTACHMENT E

WORK AUTHORIZATION NO. 4
Palm Beach County Water Utilities Department
Optimization and Improvements Design-Build Contract Project

Work Authorization Cost Schedule

(Provide breakdown of materials, labor and subcontractors)

Design-Build Takeoff Worksheet
Project Name: WTP #2,3 and 9 Sodium Hypochlorite / Brine Replacement
Project No.: WUD 16-064
August 18,2016

Description	Quantity	Unit	Unt Price	Extended Cost	Markup	Extended Price
Div 1 - General Requirements						
Construction Manager (1/3)	433.00	Hours	$ 152.00	$ 65,816.00	20%	$ 78,979.00
Project Manager II	0.00	Hours	$ 83.00	$ -	20%	$ -
Estimator	0.00	Hours	$ 81.00	$ -	20%	$ -
Laborer/Journeyman	0.00	Hours	$ 32.00	$ -	20%	$ -
Foreman	0.00	Hours	$ 43.00	$ -	20%	$ -
Superintendent	975.00	Hours	$ 72.00	$ 70,200.00	20%	$ 84,240.00
Assistant PM	0.00	Hours	$ 43.00	$ -	20%	$ -
				Division 1 LABOR:		**$ 163,219.00**
Material with tax						
Office Supplies	7.50	Months	$ 75.00	$ 562.50	15%	$ 646.00
Mob/Demob Hauling Equipment	3.00	Lump	$ 3,500.00	$ 10,500.00	15%	$ 12,075.00
Plans/Printing	1.00	Lump	$ 1,165.00	$ 1,165.00	15%	$ 1,339.00
Punchlist	1.00	Lump	$ 2,170.00	$ 2,170.00	15%	$ 2,495.00
Safety	1.00	Lump	$ 1,250.00	$ 1,250.00	15%	$ 1,437.00
Small Tools & Supplies	3.00	Lump	$ 2,500.00	$ 7,500.00	15%	$ 8,625.00
Ice & Water Cups	6.00	Lump	$ 125.00	$ 750.00	15%	$ 862.00
Office Trailers	1.00	Lump	$ 7,500.00	$ 7,500.00	15%	$ 8,625.00
Storage Trailers	1.00	Lump	$ 6,000.00	$ 6,000.00	15%	$ 6,900.00
Insurances	1.00	Lump	$ 3,120.00	$ 3,120.00	15%	$ 3,588.00
				Division 1 MATERIAL:		**$ 46,592.00**
Equipment						
CRANE for Sodium Hyp	6.00	EA	$ 2,000.00	$ 12,000.00	10%	$ 13,200.00
Crane for Brine	4.00	Lump	$ 2,000.00	$ 8,000.00	10%	$ 8,800.00
Articulating Lift	7.00	Month	$ 1,500.00	$ 10,500.00	10%	$ 11,550.00
				Division 1 EQUIPMENT:		**$ 33,550.00**
Additional Equipment required						
Dumpsters	7.50	Months	$ 700.00	$ 5,250.00	10%	$ 5,775.00
Photos & Videos	7.50	Months	$ 260.00	$ 1,950.00	10%	$ 2,145.00
Sanitary Facilities	7.50	Months	$ 200.00	$ 1,500.00	10%	$ 1,650.00
Courier	7.50	Months	$ 50.00	$ 375.00	10%	$ 412.00
Permits (by Owner)	1.00	Lump	$ -	$ -	10%	$ -
				Division 1 SUBCONTRACTS:		**$ 9,982.00**
				Division 1 TOTAL:		**$ 253,343.00**
Div 2 - Site Utilities						
Labor with burden (list by title)						
Remove / Replace Lightning Cables (Laborer / Journeyman)	384.00	Hours	$ 32.00	$ 12,288.00	20%	$ 14,745.00
Demo Tanks	720.00	Hours	$ 32.00	$ 23,040.00	20%	$ 27,648.00
				Division 2 LABOR:		**$ 42,393.00**
Material with tax						
Sodding where disrupted by equip	4500.00	SF	$ 1.00	$ 4,500.00	10%	$ 4,950.00
				Division 2 MATERIAL:		**$ 4,950.00**
Equipment						
NONE	0.00	Lump	$ -	$ -	10%	$ -
				Division 2 EQUIPMENT:		**$ -**
Sub-Contracts (Attach Quotes)*						
NONE	0.00	Lump	$ -	$ -	10%	$ -
				Division 2 SUBCONTRACTS:		**$ -**
				Division 2 TOTAL:		**$ 47,343.00**
Div 3 - Concrete						
Minor Modifications to Equipment Pads (Laborer / Journeyman)	91.69	Hours	$ 32.00	$ 2,934.08	20%	$ 3,520.00
				Division 3 TOTAL:		**$ 3,520.00**
Div 4 - Masonry						
				Division 4 TOTAL:		**$ -**
Div 5 - Metals						
Labor with burden (list by title)						
Laborer/Journeyman Tank Ladders & Mag Guages	$ 1,200.00	Hours	$ 32.00	$ 38,400.00	20%	$ 46,080.00
Foreman	$ 256.00	Hours	$ 43.00	$ 11,008.00	20%	$ 13,209.00
				Division 5 LABOR:		**$ 59,289.00**
Material with tax (Attach Quotes)*						
Ladders & Site Guages shipped loose for installation	0.00	Lump	$ -	$ -	15%	$ -
supplied by manufacturer installed by contractor	0.00	Lump	$ -	$ -	15%	$ -
				Division 5 MATERIAL:		**$ -**
Equipment						
Lift Shown Above	0.00	Lump	$ -	$ -	10%	$ -
				Division 5 EQUIPMENT:		**$ -**
				Division 5 TOTAL:		**$ 59,289.00**
Div 6 - Wood and Plastics						
				Division 6 TOTAL:		**$ -**

Div 7 - Thermal and Moisture Protection							
						Division 7 TOTAL:	$ -
Div 8 - Windows and Doors							
						Division 8 TOTAL:	$ -
Div 9 - Finishes							
Labor with burden (list by title)							
Laborer/Journeyman	0.00	Hours	$ -	$ -	20%	$	-
Foreman	0.00	Hours	$ -	$ -	20%	$	-
					Division 9 LABOR:	$	-
Material with tax (Attach Quotes)*							
Coating Repair - Prime & Finish (by extra if required)	0.00	SF	$ -	$ -	15%	$	-
					Division 9 MATERIAL:	$	-
Equipment							
Coating Repair - Quick Entry Equipment	0.00	Lump	$ -	$ -	10%	$	-
					Division 9 EQUIPMENT:	$	-
Sub-Contracts (Attach Quotes)*							
Painting Sub (Interior Piping)	1.00	Lump	$ 55,000.00	$ 55,000.00	10%	$	60,500.00
					Division 9 SUBCONTRACTS:	$	**60,500.00**
					Division 9 TOTAL:	$	**60,500.00**
Div 10 - Special Construction							
					Division 10 TOTAL:	$	-
Div 11 - Equipment							
Labor with burden (list by title)							
Laborer/Journeyman For Tank Removal & Replacement at multiple plants	1500.00	Hours	$ 32.00	$ 48,000.00	20%	$	57,600.00
Foreman	188.00	Hours	$ 43.00	$ 8,084.00	20%	$	9,700.00
					Division 11 LABOR:	$	**67,300.00**
Material with tax (Attach Quotes)*							
	0.00	Lump	$ -	$ -	15%	$	-
	0.00	Lump	$ -	$ -	15%	$	-
	0.00	Lump	$ -	$ -	15%	$	-
					Division 11 MATERIAL:	$	-
Equipment							
	0.00	Lump	$ -	$ -	10%	$	-
					Division 11 EQUIPMENT:	$	-
Sub-Contracts (Attach Quotes)*							
				$ -	10%	$	-
					Division 11 SUBCONTRACTS:	$	-
					Division 11 TOTAL:	$	**67,300.00**
Div 12 - Furnishings							
					Division 12 TOTAL:	$	-
Div 13 - Special Construction							
					Division 13 TOTAL:	$	-
Div 14 - Conveying Systems							
					Division 14 TOTAL:	$	-
Div. 15 - Mechanical							
Labor with burden (list by title)							
Laborer/(disconnect + re-connect)+ (Temp Piping + Manifold)	1102.00	Hours	$ 32.00	$ 35,264.00	20%	$	42,316.00
Foreman	914.00	Hours	$ 43.00	$ 39,302.00	20%	$	47,162.00
					Division 15 LABOR:	$	**89,478.00**
Material with tax (Attach Quotes)*							
Sodium Hypo Tanks EQUIPMENT	1.00	LUMP	$ 794,850.00	$ 794,850.00	15%	$	914,077.00
Brine Tanks NOW INCLUDES GRAVEL BASE	1.00	LUMP	$ 245,920.00	$ 245,920.00	15%	$	282,808.00
					Division 15 MATERIALS:	$	**1,196,885.00**
Equipment							
LIFT Shown Above	1.00	Lump	$ -	$ -	10%	$	-
					Division 15 EQUIPMENT:	$	-
Sub-Contracts (Attach Quotes)							
NONE	0.00	Lump	$ -	$ -	10%	$	-
	0.00	Hours	$ -	$ -	10%	$	-
					Division 15 SUBCONTRACTS:	$	-
					Division 15 TOTAL:	$	**1,286,363.00**
Div. 16 - Electrical							
Labor with burden (list by title)							
ELECTRICIAN	0.00	Lump		$ -	10%	$	-
					Division 16 LABOR:	$	-
Material with tax (Attach Quotes)*							
					Division 16 MATERIALS:	$	-
Equipment							
	0.00	Lump	$ -	$ -	10%	$	-
					Division 16 EQUIPMENT:	$	-

Sub-Contracts (Attach Quotes)							
Electrician	1.00	Lump	$ 22,000.00	$ 22,000.00	10%	$	24,200.00
				Division 16 SUBCONTRACTS:		$	**24,200.00**
				Division 16 TOTAL:		$	**24,200.00**
Div. 17 - Instrumentation & Controls							
				Division 17 TOTAL:		$	-

Total Divisions 1 to 16	$	**1,801,858.00**
Bonds and Guarantee	$	**18,040.00**
Builders Risk Insurance	$	**5,882.64**
Total Construction	$	**1,825,780.64**
Total Engineering	$	**157,905.86**
Total Design-Build	$	**1,983,686.50**

Engineering Fees
Project Name: WTP #3 CIP System Improvements
Project No.: WUD 14-072
Work Authorization No.

Task Number	Task Description	Associate, Engineering (VI)	Director, Engineering (V)	Project Manager (IV)	Project Engineer (III)	Engineer (II)	CADD Technician (Engineering)	CADD Technician (Surveying)	Senior Registered Surveyor	Registered Surveyor	Survey Crew	Soft Dig (per hole)	Utility Locates (per hour)	Subconsultant	Subtotal
1	Data Collection	0	0	50	12	0	0	0	0	0	0	0	0	$ 8,329.20	$9,060.00
2	60% Design	0	4	110	14	0	0	0	0	0	0	0	0	$ 16,384.12	$19,020.00
3	90% Design	0	8	72	12	8	0	0	0	0	0	0	0	$ 5,134.04	$14,640.00
4	100% Design	0	0	90	22	8	4	4	0	0	0	0	0	$ 3,832.30	$18,000.00
5	Pre-Construction Services	0	0	74	12	4	3	0	0	0	0	0	0	$ 3,000.00	$13,385.00
6	Construction Services	0	0	80	12	4	3	3	0	0	0	0	0	$ 18,486.52	$14,570.00
7	Project Close-Out	0	0	54	14	10	0	0	0	0	0	0	0	$ 3,044.68	$11,020.00
	Labor Subtotal Hours	0	12	530	98	34	10	7	0	0	0	0	0		$99,695.00
	Labor Raw Costs	$63.33	$58.33	$50.00	$43.33	$36.67	$31.67	$31.67	$48.33	$43.33	$45.00	$160.00	$68.33		
	Labor Multiplier	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		
	Labor with Mutiplier	$190.00	$175.00	$150.00	$130.00	$110.00	$95.00	$95.00	$145.00	$130.00	$135.00	$480.00	$205.00		
	Labor Total	$0.00	$2,100.00	$79,500.00	$12,740.00	$3,740.00	$950.00	$665.00	$0.00	$0.00	$0.00	$0.00	$0.00		$99,695.00
	Subconsultant Total													$58,210.86	$58,210.86
	Subtotal Labor + Subconsultant														$157,905.86
	Reimbursable Expenses														$0.00
	Total Engineering Fees														$157,905.86

Subconsultant List	Amount
Hillers (Electrical)	$29,210.86
AGA (Structural)	$29,000.00
Dron's Video (1 per month for 6 months)	$0.00
Subconsultant Total	$58,210.86

ATTACHMENT F

SBE Schedules 1 and 2

SCHEDULE 1
LIST OF PROPOSED SBE-M/WBE PARTICIPATION

PROJECT NAME OR BID NAME: Water Treatment Plant No. 3 Membrane Cleaning, Clearwell and Sand Strainer Improvements **PROJECT NO. OR BID NO.:** WUD 16-064

NAME OF PRIME BIDDER: Cardinal Contractors, Inc. **ADDRESS:** 560 Village Boulevard, Suite 340, West Palm Beach, Florida 33409
CONTACT PERSON: Michael Brandao **PHONE NO.:**561-809-1285 **FAX NO.:**954-587-6653

BID OPENING DATE: n/a **USER DEPARTMENT:** Water Utilities Department

THIS DOCUMENT IS TO BE COMPLETED BY THE PRIME CONTRACTOR AND SUMBITTED WITH BID PACKET. PLEASE LIST THE NAME, CONTACT INFORMATION AND DOLLAR AMOUNT AND/OR PERCENTAGE OF WORK TO BE COMPLETED BY ALL SBE -M/WBE's ON THIS PROJECT. *IF THE PRIME IS AN SBE-M/WBE, PLEASE ALSO LIST THE NAME, CONTACT INFORMATION AND DOLLAR AMOUNT AND/OR PERCENTAGE OF WORK TO BE COMPLETED BY THE PRIME ON THIS PROJECT.* **THE PRIME AFFIRMS THAT IT WILL MONITOR THE SBES LISTED TO ENSURE THE SBES PERFORM THE WORK WITH ITS OWN WORKFORCE.**

Name, Address and Phone Number	(Check one or both Categories) M/WBE: Minority Business	(Check one or both Categories) SBE: Small Business	DOLLAR AMOUNT AND/OR PERCENTAGE OF WORK: Black	Hispanic	Women	Caucasian	Other (Please Specify)
ALAN GERWIG & ASSOCIATES, INC. 12798 W. FOREST HILL BLVD, SUITE 201 WELLINGTON, FL 33414 (561) 792-9000	☐	☒				$29,000.00	
HILLERS ELECTRICAL ENGINEERING, INC. 23257 STATE RD 7, SUITE 100 BOCA RATON, FL 33428 (561) 451-9165	☐	☒		$29,210.86			
ELECTRON CORP OF SOUTH FLORIDA 6421 WINDING LAKE DRIVE JUPITER, FL 33458 (561) 718-7679	☐	☒				$22,000.00	
(Please use additional sheets if necessary)		**Total**					

Total Bid Price $1,983,686.50 **Total SBE-M/WBE Participation Dollar Amount and/or Percentage of Work** $ total on next page .

I hereby certify that the above information accurate to the best of my knowledge: John P. Elder (Signature) CARDINAL CONT. (Title) PROJECT MANAGER

NOTE:
1. **The amount listed on this form for a SBE-M/WBE Prime or Subcontractor must be supported by price or percentage listed on the signed Schedule 2 or signed proposal in order to be counted toward goal attainment.**
2. **Firms may be certified by Palm Beach County as an SBE and/or M/WBE. If firms are certified as both an SBE and M/WBE, please indicate the dollar amount and/or percentage under the appropriate category.**
3. **M/WBE information is being collected for tracking purposes only.**

SCHEDULE 1
LIST OF PROPOSED SBE-M/WBE PARTICIPATION

PROJECT NAME OR BID NAME: Water Treatment Plant No. 3 Membrane Cleaning, Clearwell and Sand Strainer Improvements **ROJECT NO. OR BID NO.:** WUD 16-064

NAME OF PRIME BIDDER: Cardinal Contractors, Inc. **ADDRESS:** 560 Village Boulevard, Suite 340, West Palm Beach, Florida 33409
CONTACT PERSON: Michael Brandao **PHONE NO.:**561-809-1285 **FAX NO.:**954-587-6653

BID OPENING DATE: n/a **USER DEPARTMENT:** Water Utilities Department

THIS DOCUMENT IS TO BE COMPLETED BY THE PRIME CONTRACTOR AND SUMBITTED WITH BID PACKET. PLEASE LIST THE NAME, CONTACT INFORMATION AND DOLLAR AMOUNT AND/OR PERCENTAGE OF WORK TO BE COMPLETED BY ALL SBE -M/WBE's ON THIS PROJECT. ***IF THE PRIME IS AN SBE-M/WBE, PLEASE ALSO LIST THE NAME, CONTACT INFORMATION AND DOLLAR AMOUNT AND/OR PERCENTAGE OF WORK TO BE COMPLETED BY THE PRIME ON THIS PROJECT.*** **THE PRIME AFFIRMS THAT IT WILL MONITOR THE SBES LISTED TO ENSURE THE SBES PERFORM THE WORK WITH ITS OWN WORKFORCE.**

Name, Address and Phone Number	(Check one or both Categories) M/WBE: Minority Business	(Check one or both Categories) SBE: Small Business	DOLLAR AMOUNT AND/OR PERCENTAGE OF WORK: Black	Hispanic	Women	Caucasian	Other (Please Specify)
Bearing Point Construction, Inc. 1615 S. Congress Ave Delray Beach, Florida 33445 (516) 900-3699	☐	☒				$55,000.00	
	☐	☒					
	☐	☒					
(Please use additional sheets if necessary)		**Total**		$29,210.86		$106,000 .00	

Total Bid Price $1,983,686.50 **Total SBE-M/WBE Participation Dollar Amount and/or Percentage of Work** $ 135,210.86

I hereby certify that the above information accurate to the best of my knowledge: John P. Elder (Signature) CARDINAL CONT. ~~Vice President~~ PROJECT MANAGER (Title)

NOTE:
1. **The amount listed on this form for a SBE-M/WBE Prime or Subcontractor must be supported by price or percentage listed on the signed Schedule 2 or signed proposal in order to be counted toward goal attainment.**
2. **Firms may be certified by Palm Beach County as an SBE and/or M/WBE. If firms are certified as both an SBE and M/WBE, please indicate the dollar amount and/or percentage under the appropriate category.**
3. **M/WBE information is being collected for tracking purposes only.**

OSBA SCHEDULE 2
LETTER OF INTENT TO PERFORM AS AN SBE-M/WBE

This document must be completed by ALL SBE-M/WBE's and submitted with this bid packet. Specify in detail, the particular work items to be performed and the dollar amount and/or percentage for each work item. SBE credit will only be given for items which the SBE-M/WBE's is certified to perform. Failure to properly complete Schedule 2 will result in your SBE participation not being counted.

PROJECT NUMBER: WUD 16-064 PROJECT NAME: WTP No. 2,3 & 9 Sodium Chlorite & Salt Storage / Brinemaker Replacement.

TO: Cardinal Contractors, Inc.
(Name of Prime Bidder)

The undersigned is certified by Palm Beach County as a - (check one or more, as applicable):

Small Business Enterprise ✓ Minority Business Enterprise _____

Black _____ Hispanic ✓ Women _____ Caucasian _____ Other (Please Specify) _____

Date of Palm Beach County Certification: _____

The undersigned is prepared to perform the following described work in connection with the above project. Additional Sheets May Be Used As Necessary

Line Item/ Lot No.	Item Description	Qty/Units	Unit Price	Total Price/ Percentage
1	ELECTRICAL DESIGN	1 LS	$29,210.86	$29,210.86

at the following price or percentage $ 29,210.86 (SBE Prime or Subcontractor's Quote)

and will enter into a formal agreement for work with you contingent upon your execution of a contract with Palm Beach County.

If undersigned intends to sub-subcontract any portion of this job to a certified SBE-M/WBE or a non-SBE subcontractor, please list the name of that subcontractor and the amount below.

Price or Percentage _____

The Prime affirms that it will monitor the **SBE-M/WBE** listed to ensure the **SBE-M/WBE** perform the work with their own work force. The undersigned **SBE-M/WBE** Prime or **SBE-M/WBE** subcontractor affirms that it has the resources necessary to perform the work listed without subcontracting to a non-certified SBE or any other certified SBE subcontractors except as noted above.

The undersigned subcontractor understands that the provision of this form to Prime Bidder does not prevent Subcontractor from providing quotations to other bidders.

Hillers Electrical Engineering, Inc.
Print name of
SBE-M/WBE Company

By: _____
(Signature)

Paul Hillers, President
Print name/title of person executing on behalf of **SBE-M/WBE**

Date: 8/16/2016

OSBA SCHEDULE 2
LETTER OF INTENT TO PERFORM AS AN SBE-M/WBE

This document must be completed by ALL SBE-M/WBE's and submitted with this bid packet. Specify in detail, the particular work items to be performed and the dollar amount and/or percentage for each work item. SBE credit will only be given for items which the SBE-M/WBE's is certified to perform. Failure to properly complete Schedule 2 will result in your SBE participation not being counted.

PROJECT NUMBER: WUD 16-064 PROJECT NAME: WTP No. 2,3 & 9 Sodium Chlorite & Salt Storage / Brinemaker Replacement.

TO: Cardinal Contractors, Inc.
(Name of Prime Bidder)

The undersigned is certified by Palm Beach County as a - (check one or more, as applicable):

Small Business Enterprise ✓ Minority Business Enterprise _____

Black _____ Hispanic _____ Women _____ Caucasian ✓ Other (Please Specify) _____

Date of Palm Beach County Certification: _____

The undersigned is prepared to perform the following described work in connection with the above project. Additional Sheets May Be Used As Necessary

Line Item/ Lot No.	Item Description	Qty/Units	Unit Price	Total Price/ Percentage
1	STRUCTURAL DESIGN	1 LS	$29,000.00	$29,000.00

at the following price or percentage $ 29,000.00 (SBE Prime or Subcontractor's Quote)

and will enter into a formal agreement for work with you contingent upon your execution of a contract with Palm Beach County.

If undersigned intends to sub-subcontract any portion of this job to a certified SBE-M/WBE or a non-SBE subcontractor, please list the name of that subcontractor and the amount below.

Price or Percentage _____

The Prime affirms that it will monitor the **SBE-M/WBE** listed to ensure the **SBE-M/WBE** perform the work with their own work force. The undersigned **SBE-M/WBE** Prime or **SBE-M/WBE** subcontractor affirms that it has the resources necessary to perform the work listed without subcontracting to a non-certified SBE or any other certified SBE subcontractors except as noted above.

The undersigned subcontractor understands that the provision of this form to Prime Bidder does not prevent Subcontractor from providing quotations to other bidders.

Alan Gerwig & Assoc. Inc.
Print name of
SBE-M/WBE Company

By: _____
(Signature)

Alan Gerwig Pres
Print name/title of person executing on behalf
of **SBE-M/WBE**

Date: 8/11/16

OSBA SCHEDULE 2
LETTER OF INTENT TO PERFORM AS AN SBE-M/WBE

This document must be completed by ALL SBE-M/WBE's and submitted with this bid packet. Specify in detail, the particular work items to be performed and the dollar amount and/or percentage for each work item. SBE credit will only be given for items which the SBE-M/WBE's is certified to perform. Failure to properly complete Schedule 2 will result in your SBE participation not being counted.

PROJECT NUMBER: WUD 16-064 PROJECT NAME: WTP No.2,3 & 9 Sodium Hypochlorite & Salt Storage / Brinemaker Replacement.

TO: Cardinal Contractors, Inc.
(Name of Prime Bidder)

The undersigned is certified by Palm Beach County as a - (check one or more, as applicable):

Small Business Enterprise ✓ Minority Business Enterprise _____

Black _____ Hispanic _____ Women _____ Caucasian _____ Other (Please Specify) _____

Date of Palm Beach County Certification: 9/1/15

The undersigned is prepared to perform the following described work in connection with the above project. Additional Sheets May Be Used As Necessary

Line Item/ Lot No.	Item Description	Qty/Units	Unit Price	Total Price/ Percentage
1	Painting / Coatings	1 LS	$55,000	$55,000

at the following price or percentage $_____ (SBE Prime or Subcontractor's Quote)

and will enter into a formal agreement for work with you contingent upon your execution of a contract with Palm Beach County.

If undersigned intends to sub-subcontract any portion of this job to a certified SBE-M/WBE or a non-SBE subcontractor, please list the name of that subcontractor and the amount below.

Price or Percentage _____

The Prime affirms that it will monitor the SBE-M/WBE listed to ensure the **SBE-M/WBE** perform the work with their own work force. The undersigned **SBE-M/WBE** Prime or SBE-M/WBE subcontractor affirms that it has the resources necessary to perform the work listed without subcontracting to a non-certified SBE or any other certified SBE subcontractors except as noted above.

The undersigned subcontractor understands that the provision of this form to Prime Bidder does not prevent Subcontractor from providing quotations to other bidders.

BEARING POINT
Print name of
SBE-M/WBE Company

By: _____
(Signature)

Justin Randolph
Print name/title of person executing on behalf of **SBE-M/WBE**

Date: 8/18/16

OSBA SCHEDULE 2
LETTER OF INTENT TO PERFORM AS AN SBE-M/WBE

This document must be completed by ALL SBE-M/WBE's and submitted with this bid packet. Specify in detail, the particular work items to be performed and the dollar amount and/or percentage for each work item. SBE credit will only be given for items which the SBE-M/WBE's is certified to perform. Failure to properly complete Schedule 2 will result in your SBE participation not being counted.

PROJECT NUMBER: WUD 16-064 PROJECT NAME: WTP No. 2,3 & 9 Sodium Chlorite & Salt Storage / Brinemaker Replacement.

TO: Cardinal Contractors, Inc.
(Name of Prime Bidder)

The undersigned is certified by Palm Beach County as a - (check one or more, as applicable):

Small Business Enterprise ✓ Minority Business Enterprise _____

Black _____ Hispanic _____ Women _____ Caucasian ✓ Other (Please Specify) _____

Date of Palm Beach County Certification: _____

The undersigned is prepared to perform the following described work in connection with the above project. Additional Sheets May Be Used As Necessary

Line Item/ Lot No.	Item Description	Qty/Units	Unit Price	Total Price/ Percentage
1	ELECTRICAL SUBCONTRACTOR	1 LS	$22,000.00	$22,000.00

at the following price or percentage $ 22,000.00 (SBE Prime or Subcontractor's Quote)

and will enter into a formal agreement for work with you contingent upon your execution of a contract with Palm Beach County.

If undersigned intends to sub-subcontract any portion of this job to a certified SBE-M/WBE or a non-SBE subcontractor, please list the name of that subcontractor and the amount below.

Price or Percentage _____

The Prime affirms that it will monitor the **SBE-M/WBE** listed to ensure the **SBE-M/WBE** perform the work with their own work force. The undersigned **SBE-M/WBE** Prime or **SBE-M/WBE** subcontractor affirms that it has the resources necessary to perform the work listed without subcontracting to a non-certified SBE or any other certified SBE subcontractors except as noted above.

The undersigned subcontractor understands that the provision of this form to Prime Bidder does not prevent Subcontractor from providing quotations to other bidders.

Electron Corp of South Florida
Print name of
SBE-M/WBE Company

By: _____
(Signature)

Albert Hessig President
Print name/title of person executing on behalf
of **SBE-M/WBE**

Date: 8/14/14

ATTACHMENT G

AUTHORIZATION STATUS REPORT

SUMMARY AND STATUS OF
REQUESTS FOR AUTHORIZATIONS

Auth. No.	Description	Status	Project Total Amount	Date Approved	WUD No. Assigned	DB Entity Project No.
	CONSULTANT SERVICE AUTHORIZATIONS					
	Total CSA's		$0.00			
	WORK AUTHORIZATIONS					
WA-1	GL03 Pahokee WWTP Improvements	approved	$1,977,954.58	4/22/2015	15-010	31501-5001
WA-1	GL03 Pahokee WWTP Improvements, Supplement #1 Headworks Influent Pipe Relocation and Misc Modifications	approved	$8,677.06	3/7/2016	15-010	31501-5001-CO1
WA-2	TR04 WTP#8 Rotary Drum Vacuum Filter and High Service Pumps Replacement	approved	$1,822,500.00	7/12/2016	16-043	31501-5002
WA-3	Water Treatment Plant No. 3 Membrane Cleaning, Clearwell and Sand Strainer Improvements	pending	$1,986,241.00		14-072	31501-5003
WA-4	Water Treatment Plant N0. 2,3 and 9Sodium Hypochlorite Tank and Salt Storage / Brine Maker Replacement .	Pending	$1,983686.50		16-064	31501-5004
	Total WA's		$7,779,059.14			
	Total		**$7,779,059.14**			

ATTACHMENT H

AUTHORIZATION STATUS REPORT

SUMMARY OF
SBE / MINORITY BUSINESS TRACKING SYSTEM
Consultant Services Authorizations and Work Authorizations

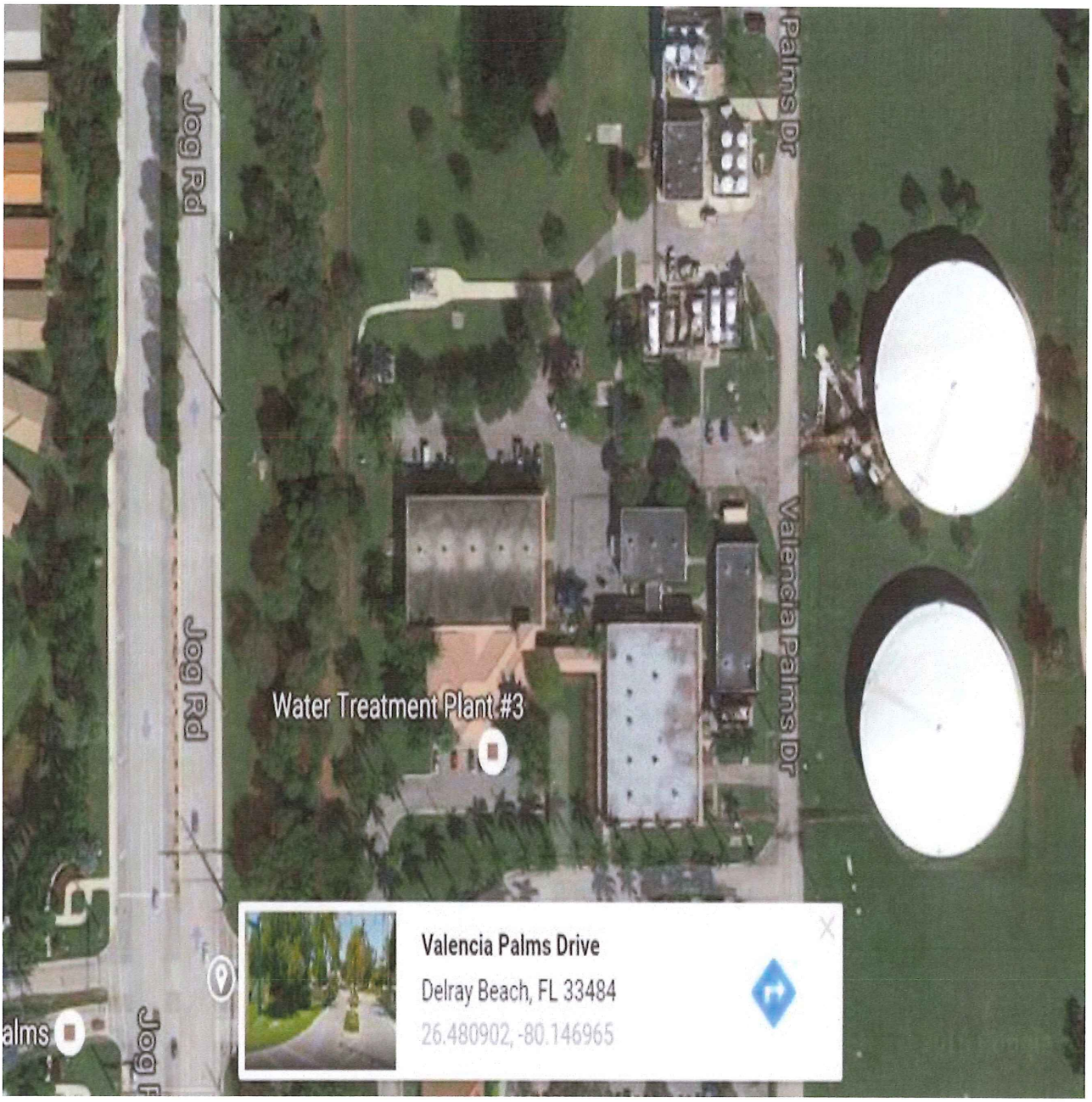
WORK AUTHORIZATION NO. 4

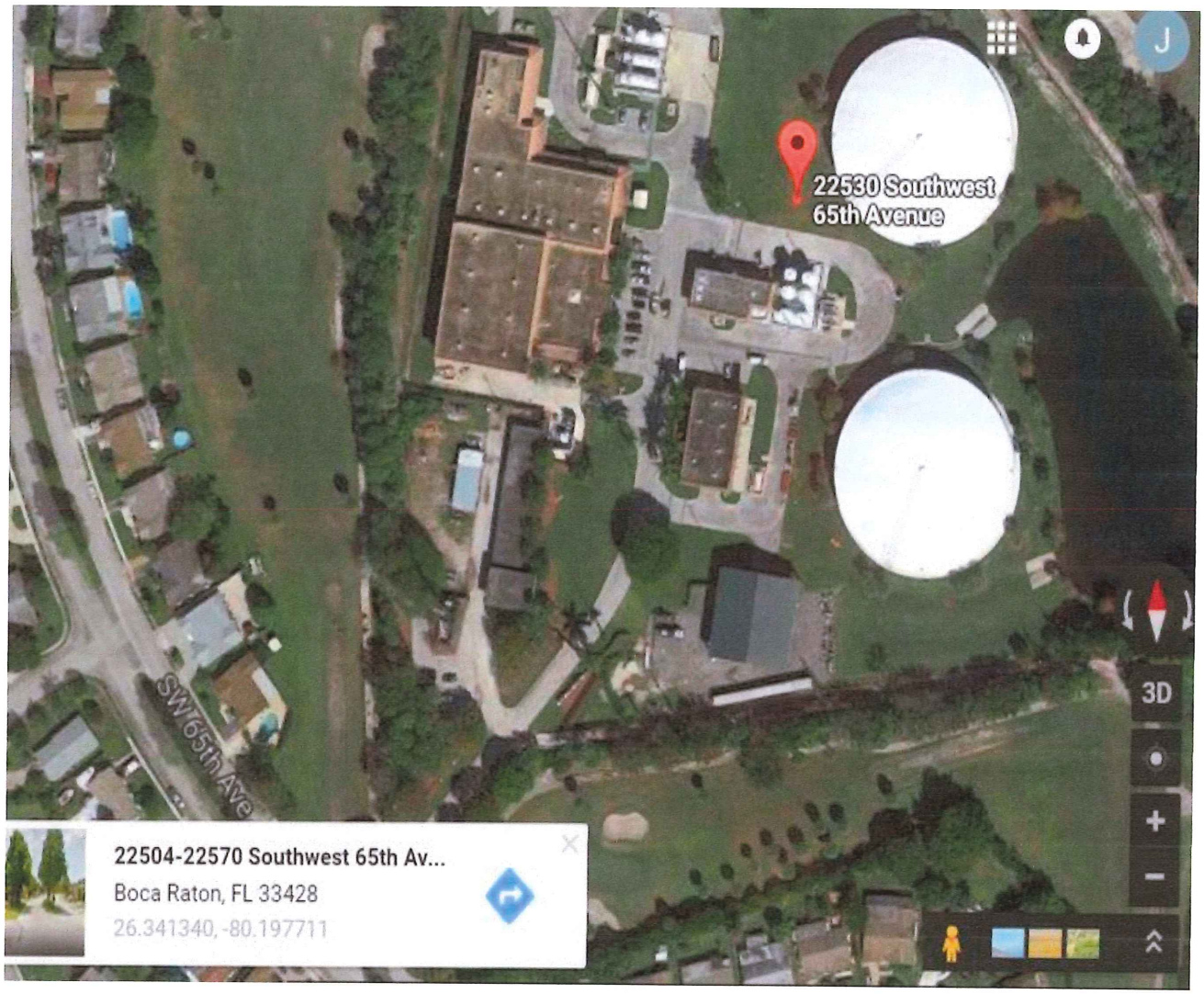
		Total	SBE
Current Proposal			
	Value of Consultant Service Authorization	$0.00	
	Value of Work Authorization	$1,983,686.50	
	Value of Consultant Service & Work Authorizations	$1,983,686.50	
	Value of SBE Letters of Intent	$135,210.86	$135,210.86
	Actual Percentage	6.81%	6.81%
Signed / Approved Authorizations			
	Value of Consultant Service Authorizations	$0.00	
	Value of Work Authorizations	$3,809,131.64	
	Value of Consultant Service & Work Authorizations	$3,809,131.64	
	Total Value of SBE Signed Subcontracts	$1,860,458.26	$1,860,458.26
	Actual Percentage	48.84%	48.84%
Signed / Approved Authorizations plus Current Proposal			
	Value of Consultant Service Authorizations	$0.00	
	Value of Work Authorizations	$5,792,818.14	
	Value of Consultant Service & Work Authorizations	$5,792,818.14	
	Total Value of Subcontracts & Letters of Intent	$1,995,669.12	$1,995,669.12
	Actual Percentage	34.45%	34.45%
GOAL		**26.00%**	

ATTACHMENT I

LOCATION MAP


Pinehurst Dr
Pinehurst Dr
2466-2998 Pinehurst Drive
Lake Worth, FL 33467
26.634046, -80.157561


Palms Dr
Jog Rd
Jog Rd
Valencia Palms Dr
Water Treatment Plant #3
Valencia Palms Drive
Delray Beach, FL 33484
26.480902, -80.146965


22530 Southwest
65th Avenue
SW 65th Ave
3D
22504-22570 Southwest 65th Av...
Boca Raton, FL 33428
26.341340, -80.197711

ATTACHMENT J

Design-Build Criteria
Water Treatment Plant No. 2, 3 and 9
Sodium Hypochlorite Tank
And Salt Storage/Brine Maker Replacement
Project No. WUD 16-064
PACKAGE TR09

Stephen McGrew, P.E., DBIA **Date**
Palm Beach County Water Utilities
8100 Forest Hill Blvd.
West Palm Beach, FL 33413

Design-Build Criteria
Water Treatment Plant No. 2, 3 and 9
Sodium Hypochlorite Tank and
Salt Storage/Brine Maker Replacement
Project No. WUD 16-064
PACKAGE TR09

PART 1 GENERAL REQUIREMENTS

1.1 Overview Information

1.1.1. Location:
   a. Water Treatment Plant No. 2 (WTP 2), 2956 Pinehurst Drive, West Palm Beach, FL 33467, PCN 00-42-44-16-00-000-5030;
   b. Water Treatment Plant No. 3 (WTP 3), 13026 Jog Road, Delray Beach, FL 33446, PCN 00-42-46-10-00-000-1020;
   c. Water Treatment Plant No. 9 (WTP 9), 22438 SW 7TH Ave, Boca Raton, FL 33433, PCN 00-42-43-27-05-081-0380;

1.1.2. Survey information concerning the site: Survey of these properties are available upon request.

1.1.3. Interior space requirements: Not applicable the construction is which exterior chemical containment areas.

1.1.4. Material quality standards: Adhere to current version of Palm Beach County Water Utility Department (PBCWUD) Minimum Design Standards and Approved Materials List.

1.1.5. Schematic layouts: none

1.1.6. Cost or budget estimates: $2,000,000.

1.1.7. Design and construction milestones:

1.1.7.1. 60% Design Completion 90 days after receipt of executed Work Authorization and notice to proceed with design. Provide preliminary shop drawings for procurement of tanks.

1.1.7.2. 90% Design Completion 120 days after receipt of executed Work Authorization and notice to proceed with design. Provide final shop drawings for procurement of tanks.

1.1.7.3. 100% Design Completion 180 days after receipt of executed Work Authorization and notice to proceed with design.

1.1.7.4. Substantial Construction Completion 360 Calendar Days after receipt of executed Work Authorization and notice to proceed with construction.

1.1.7.5. Final Construction Completion 60 Calendar Days after Substantial Construction Completion.

1.1.7.6. Liquidated damages will apply as follows:

1.1.7.6.1. $1,000 per day past substantial completion date.
1.1.7.6.2. $500 per day past final completion date.

1.1.8. The following items must be complete (at a minimum) to achieve substantial completion:

1.1.8.1. All existing systems in place and operating as intended.
1.1.8.2. Commissioning and Testing of all new equipment completed.
1.1.8.3. Technical Manuals have been delivered to the Owner and equipment training is completed.

1.1.9. Site development requirements: Not Applicable.

1.1.10. Provisions for utilities: Refer to Sections 1.6 Utility Services, 1.10 Underground Utilities and 3.3 Trenching, Excavation and Backfill for Design-Build Entity requirements.

1.1.11. Storm water retention and disposal: Provide siltation barriers for all existing storm drainage catch basins impacted by construction activities.

1.1.12. Parking requirements: Only current Palm Beach County security badge holders can park inside the plant gate. Do not disrupt traffic flow for chemical deliveries. Project material deliveries shall be between 7:00 AM to 3:00 PM Monday through Friday excluding public holidays.

1.1.13. Staging Area: Staging areas will be near the existing chemical containment areas inside the WTP sites.

1.1.14. Coordination: Design-Build Entity will need to coordinate its work activities with the Owner and other construction contractors performing work activities at the various WTP sites.

1.1.15. A shutdown plan, developed in conjunction with the Owner must be prepared by the Design-Build Entity for any planned plant or process shutdowns shall be submitted to the Owner for review and approval at least 30 days prior to commencing any of these work activities.

a. Design-Builder shall maintain a minimum of one (1) bulk (12.5%) and one (1) dilution (0.8%) tank at WTP 2, 3 and 9 and provide temporary piping and/or hoses as necessary to maintain adequate flow of hypochlorite at all times. Any hypochlorite leaks or flow from cut piping or removed tanks caused by the Design-Builder shall be contained and cleaned thoroughly by the Design-Builder.

b. Design-Builder shall maintain a minimum of two (2) salt storage/brine makers at WTP 2 and provide temporary piping and/or hoses as necessary to maintain adequate flow of brine at all times.

1.1.16. Reference Documents: The following documents shall be used to develop signed and sealed Construction Documents.

1.1.16.1. Palm Beach County Water Utility Department (PBCWUD) General Electrical Design Requirements
1.1.16.2. Palm Beach County Water Utility Department (PBCWUD) Minimum Design Standards
1.1.16.3. Palm Beach County Water Utility Department (PBCWUD) Approved Materials List

1.2 Design-Build Criteria

The following design-build criteria shall be used.

A. GENERAL

1. Demolish Existing and associated piping and install (12) Sodium Hypochlorite Storage Tanks and three (3) Saturator/Brine Makers for outdoor use for at the Water Treatment Plant locations indicated in the Tank Location Table. An independent inspection shall be performed by the Design-Builder's authorized inspector on the tank during various stages of fabrication. The independent inspector shall have at least 5 years of experience in inspecting fiberglass tanks.

2. Wherein this document designates "or equal" the Design-Builder shall prepare a recommendation for final determination by the Owner.
3. Provide separate plan sets for each of the three WTP's. Tank designs and drawings shall be signed and sealed by a Florida Professional Engineer for wind load calculations as per ASCE 7-10. Calculations shall include:
    a. Tank shell/heads.
    b. Hold down lug analysis.
    c. Operating loads.
    d. Environmental loading such as wind/seismic.
    e. Lifting lug analysis.
    f. Anti-buoyancy design based upon containment wall height with tank empty using specific gravity for 12.5% sodium hypochlorite leak in containment.
4. Tanks **including anchors and tie-downs** shall be designed to withstand wind loads of 186 MPH (exposure C); shall comply with seismic loads: 2012 IBC/ASCE 71-0 Ss=0.049g SI=0.025G; shall comply with Design Code: ASTM D3299.
5. All materials that are metal (brackets, bolts, vent screens, anchors, tie downs etc.) shall be 316 Stainless Steel (SS). Anchor bolts shall be either titanium or 316 SS (Design-Builders option). The existing leveling pads may have minimal reinforcement and the Design-Builder shall be responsible to determine the embedment depth and provide necessary modifications. All stainless steel nuts shall have fluoropolymer to prevent galling. The anchor bolts shall be protected from corrosion due to hypochlorite spills.
6. Sodium Hypochlorite and Salt Saturator/Brine Makers shall comply with one or more of the FAC 62-555.320(3)(b)1 as indicated below (a. to d.):
    a. NSF International Standard 61 as adopted in Rule 62-555.335, F.A.C.;
    b. NSF International Standard 42, 44, 53, 55, 58, or 62 as adopted in Rule 62-555.335, F.A.C.;
    c. Section 6 of NSF International Standard 14 as adopted in Rule 62555.335, F.A.C.; or
    d. The Food and Drug Administration's regulations for indirect food additives as contained in the April 1, 2002, revision of 21 CFR Parts 174 through 189, which are incorporated herein by reference.
7. Tanks shall be cylindrical, atmosphere pressure and temperature rated, designed for the intended specific gravity and intended use. All Sodium hypochlorite tanks shall be designed for minimum 0.8% and a maximum 15.0% sodium hypochlorite concentration with a pH between 12.5 to 13. Salt Saturator/Brine Maker tanks shall be designed for the weight of salt and saturated salt solution. WTP's 2, 3 and 9 currently dilute the 12.5% sodium

hypochlorite to 0.8% solution but may change to pumping 12.5% solution in the future. Sodium Hypochlorite and Salt Saturator/Brine Makers shall be designed for industry standard off-loading procedures using compressed air of 15 to 25 psi and the manufacturer shall appropriately size the tank vents. All tanks shall have 316 SS lifting lugs.

8. Tanks shall have inlet and outlets orientated in the existing configurations except as approved by the Owner. The orientations of the electrical conduit, sight glass, overflow, ladder and manways shall be verified with the Owner prior to approval of the shop drawings with the intent to optimize safety when entering the containment area.
9. Lifting Lugs
    a. Lifting lugs shall be 316 SS.
    b. There shall be a minimum of three lugs on the tank. The lugs shall be located at the top of the tank, 120 degrees apart. Lugs shall be designed to carry the load of the tank with a safety factor of 2 applied.
    c. A 316 SS tailing lug may be placed on the bottom of the side shell.
10. Valves shall be Spears Schedule 80 True Union Industrial Ball Valve with FKM gaskets, locking handle, socket weld ends and bleed hole to relieve gas pressure build-up or approved equal PVC true union ball valves with FKM or Viton o-rings. Tank drain valves shall be flanged. Piping valves maybe reused at the tank connection and the Design-Builder shall provide new gaskets on the tank side suitable for bulk (12.5%) hypochlorite.
11. Provide flexible bellows style (or similar) expansion joints or suitable for bulk hypochlorite (12.5%) at all tanks and at tanks containment wall to provide for thermal expansion, contraction and/or settlement.
12. The Design-Builder may reuse existing overflow pipes, aluminum ladders and cages.
13. Provide Safety Climb fall arrest system for all tanks.
14. Provide OSHA tank hazard labels identifying chemicals.
15. Provide Nameplate on all tanks to be FRP encapsulated and contain the following:
    a. Fabricators name
    b. Capacity in gallons
    c. Design temperature
    d. Design specific gravity
    e. pH
    f. Resin
    g. Tank identification No.

h. Tank Name

i. Date of Manufacture

j. Manufacturers name

k. Surfacing veil

l. Name of Design-Builder's independent inspector

16. Reference specifications, standards and codes When 2 or more of the above regulations are applicable; the more stringent requirement shall be met.

A. ASTM C 581 Practice for Determining Chemical Resistance of Thermosetting Resins Used in Glass Fiber Reinforced Structures, Intended for Liquid Service

B. ASTM D 638 Test Method for Tensile Properties of Plastics

C. ASTM D 695 Test Method for Compressive Properties of Rigid Plastics

D. ASTM D 790 Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials

E. ASTM D 883 Definitions of Terms Relating to Plastics

F. ASTM D 2563 Recommended Practice for Classifying Visual Defects in Glass-Reinforced Plastic Laminate Parts

G. ASTM D 2583 Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor

H. ASTM D 2584 Test Method for Ignition Loss of Cured Reinforced Resins

I. ASTM D 4097 Contact-Molded Glass-Fiber-Reinforced Thermoset Resin Chemical-Resistant Tanks

17. Shop Drawings prior to fabrication: Include detailed and certified design calculations by a registered engineer, bill of materials listing components, resins, catalysts, promoters, ultraviolet light absorbers, agents, reinforcing materials, etc., with manufacturer's name, trade and identification marks. The

laminate sequence used for tanks must either be attached to or included on drawings used by the fabricator's shop personnel.

a. Dimensions including anchor bolt layouts.

b. Nozzle schedule including size, mark, thickness, and rating.

c. Details of clips and lugs for ladders, stairs, platforms, hold down lugs, pipe brackets, and anchor bolts as integral parts of the tank. Pipe supports shall be spaced maximum 5-feet on centers.

d. Maximum design specific gravity.

e. Equipment weight, empty and filled.

f. Specifications for supplied bolting, gaskets, and accessory items.

g. Dimensioned general arrangement of tank and accessories (including Joint locations, knuckles, nozzle schedule, nozzle projections, orientations, and support).

h. Operating/Design pressures and temperatures.

i. Tank Capacity: measured to the bottom invert of overflow (top of straight shell when overflow not required) in gallons.

j. Joint configuration details

k. Hold down and lifting lug details.

l. Wind and seismic anchorage calculations: quantity, sizing, and reaction loads.

m. Fabricator's Quality Control Test Plan: A detailed listing of activities associated with the fabrication, inspection requirements, and testing of the tank

n. Fabricator's tolerance drawing.

o. Tolerance on nominal internal diameter including out-of-roundness, shall be *+/-1%.*

p. Tolerance on overall tank height shall not exceed +/- 0.50".

18. Submittals Prior to Shipment

a. Certified Design Calculations.

b. Certified for Fabrication Drawings.

c. Installation, operation, and handling instructions.

d. Test data reports indicating that the specimen/properties tested in accordance with the standard have been met.

e. Performance affidavit signed by an officer (VP minimum) signifying vessel design and fabrication conforms to this specification in every way.

19. Shipping of Tanks:

a. Before shipping, the tank shall be thoroughly cleaned inside and outside. Water free moisture, grease, marking compounds, mold release compound, dust, glass fibers, and all other foreign material shall be removed from the tank.

b. Tank shall be packed in a manner that provides for a safe and undamaged condition when transported to the Buyer.

c. Internal and external parts and piping shall be suitable supported to prevent damage during transport.

d. Tanks shall be shipped on padded saddle or suitable skid.

e. Flanges shall be covered prior to shipment.

f. All loose components shall be crated and marked with Job no.

g. Regardless of mode of transportation, firmly fasten and pad components to prevent shifting of load or flexing of components while in transit.

h. Do not ship tank until Design-Builder has reviewed and approved the Fabricator's Design Report.

20. After Shipment:

a. Design-Builder shall be responsible to unload and store tanks in appropriate staging area until installation.

21. Tank Maximum Allowable Visual Defects (see attached Table 1):

Table 1	**Maximum Allowable Visual Defects**	
Visual Defect	**Corrosion Liner**	**Structural & Finish Layers**
Air Bubbles - Bubbles trapped within, on or between plies. (.015" dia. Or larger). Not to be confused with froth.	None allowed between veil and anti-wicking barrier (test with pencil point). Max. 1/16" dia. 2 per square inch averaged over a 1 foot square area. In no case more than 4 per square inch.	Practically achievable but not larger than 1/4" dia. Total combined area of all air bubbles not to exceed 10 square inches per square yard for laminates up to 1/2" thick and increase proportionally for thicker laminates. In no case more than 4 bubbles per square inch.
Blisters - Rounded surface elevations resembling a human skin blister.	Max. 1/8" dia. Must not be breakable with a sharp point.	Max. 1/4" dia. Must not be breakable with a sharp point.
Burned Areas - Dark discoloration and distortion of the laminate from excessive curing temperature.	None allowed.	Never in more than one ply and not to exceed 16 square inches in any vessel. Discoloration only never delamination or decomposition.

Chips - Small pieces broken off an edge or surface of the laminate.	None Allowed.	1/8" dia. 1 per square yard. 1/16" deep.
Cracks - Fine cracks at or under the surface of the laminate.	None allowed.	25% of circumference only.
Crazing - Fine cracks at or under the surface of the laminate.	None allowed.	1" dia. 1 per square yard. 1/64" deep.
Delamination - Separation of the layers of material in a laminate.	None allowed.	None allowed.
Dry Spots - Area of surface where the reinforcement has not been wetted with resin. Not to be confused with glinting.	None allowed.	None allowed.
Edge Delamination - Separation of the reinforcement layers at the edge of the laminate.	None allowed.	None allowed.
Foreign Inclusions - Anything other than raw material components (visible with naked eye).	1" in size, 3 per square foot	1" in size, 3 per square foot
Pits - Small craters in the surface of the laminate.	1/16" dia. 2 per square yard. 1/32" deep.	1/8" dia. 4 per square yard. 1/16" deep.
Scratches - Shallow marks or grooves caused by mishandling the laminate.	None allowed.	1/32" deep. 6" long.
Wrinkles - Linear abrupt changes in surface plane due to overlap in reinforcing layer, irregular mold surface, or wrinkled release film resulting in a resin rich area that could be easily chipped. Waviness is allowed provided it does not result in resin rich area.	1/8" but must not decrease the laminate thickness below allowable.	N/A

22. Installation:

a. Provide tar paper, felt or neoprene pads under tanks as recommended by the tank manufacturer.

b. Provide any necessary improvements to existing leveling pads as the new tanks may have additional anchors and for the removal of existing anchors.

c. If the Containment Coating under the existing tanks is damaged or missing it shall be repaired by the Design-Builder by a Work Supplement.

d. Paint exposed sodium hypochlorite pipe yellow and brine piping grey including fill piping, outlet piping and overflow piping. Use schedule 80

PVC piping and mount new piping with FRP unistrut and 316 SS bolts. Supports shall be properly spaced to prevent visible sagging of piping.

e. Design-Builder shall conduct hydrostatic leak test with tanks full (to invert of overflow pipe) of clean water. Allow water to stand 24 hours to verify no leakage.

f. Provide 2 days bacteriological testing to satisfy Health Department requirements.

B. WARRANTY

1. Fully warrant all items furnished hereunder against defect in materials and/or workmanship for a period of **five (5) years** from date of delivery and acceptance by Palm Beach County, with exception of the 316 stainless steel (SS), nuts, bolts, and washers. Should any defect in materials or workmanship, excepting ordinary wear and tear, appear during the above stated warranty period repair or replace same at no cost to Palm Beach County.

C. QUALIFICATIONS OF TANK FABRICATOR AND CERTIFICATION

1. **Tank fabricator shall have either FRPI (Fiberglass Reinforced Plastic Institute) SP9000 Laminating Process Certification or ASME RTP-1 Certification.**

D. TECHNICAL REQUIREMENTS

1. SODIUM HYPOCHLORITE STORAGE TANK

a. GENERAL CONSTRUCTION REQUIREMENTS

(1) Centrifugal casting of the Sodium Hypochlorite Tanks is not allowed.

(2) The filament wound tanks shall be designed and fabricated in accordance with the ASTM Specification D3299-10 (Filament-wound glass-fiber reinforced thermoset resin chemical-resistant tanks) unless otherwise stated herein

(3) A white pigmented exterior gel coating 5-10 mils with UV inhibitors shall be provided on all sodium hypochlorite storage tanks. The laminate comprising the structural (bottom, cylindrical shell, top head) shall consist of a corrosion-resistant barrier comprised of an inner surface, interior layer, and structural layer.

(4) Tank bottom shall be integral with the bottom tank shell.

(5) The lower seven (7) feet of the tank shell and bottom head shall be a combination of filament winding and hand layup or hand layup, with no bottom to shell joint or through bottom hole for mandrel support allowed. Chop spray may be substituted for hand layup in both integral laminating methods allowed.

(6) No patched or repaired hole in the center of the tank bottom resulting from tooling or fixture support.

(7) Combined minimum thickness of the inner surface and interior layer shall be 100 mils (0.100-inches} or greater.

(8) Completed tanks shall be post cured with dry heat in accordance with the Derakane 411 or approved equal.

(9) Any internal repairs or rework shall be completed prior to post curing.

(10) If repairs are made following post cure, an additional post cure cycle will be required.

(11) Bottom configuration shall be seamless integral flat with no bottom side-wall seam.

(12) Top configuration shall be ASME dome top with 250 lb. loading on any 4" x 4" area.

(13) Shall include ladders and/or handrails with safety cage (see Fittings and Accessories).

(14) Shall allow FRPI tanks with SP9000 Laminating Process Certification, SP9100 Laminate Certification or ASME RTP-1.

b. **FIBERGLASS**

(1) **Chopped strand mat shall be commercial grade Boron free ECR glass.**

(2) All tanks reinforcement shall be woven roving and shall be in accordance with ASTM Specification.

(3) The inner surface layer exposed to the corrosive environment shall be followed with an interior layer composed of resin and reinforced with only chopped glass-fiber strands applied to a minimum thickness of 86 mils (0.086-inches).

(4) Glass content of the inner surface and interior layer combine shall be 27% ± 5% by weight.

(5) Subsequent reinforcement shall be continuous-strand roving needed to satisfy the design requirements. Glass content of this filament-wound structural layer shall be 50 to 80% by weight. Only those constructions evaluated for design properties shall be used.

(6) Subsequent reinforcement shall be comprised of 1.5 oz/ft^2 chopped strand mat or equivalent weight of chopped roving and such additional number of alternating plies of 24 oz/yd2 woven roving to a thickness as required to meet the physical properties that are used for the design.

(7) Each successive ply or pass of reinforcement shall be well rolled prior to the application of additional reinforcement.

(8) Where woven rovings are used, chopped strand glass reinforcement shall be used as alternating and final layers.

(9) All woven roving and chopped strand shall be overlapped.

(10) Laps in subsequent layers shall be staggered at least 2.25 inches from laps in the preceding layer.

C. RESIN

(1) Resin used shall be Derakane 411or approved equal that have been evaluated in a laminate test in accordance with ASTM C-581 in Sodium Hypochlorite service comparable to the intended service and recommended for this service by the resin manufacturer.

(2) The Derakane 411 or approved equal resins shall not contain pigments, dyes, colorants or fillers.

(3) The Derakane 411 or approved equal resins shall contain a thixotropic agent that does not interfere with visual inspection of laminate quality, may only be added for viscosity. But not to be used in the inner corrosion barrier, interior layers, interior secondary layers, and interior top coats.

(4) The resin pastes used to fill crevices shall contain thixotropic agents. All areas shall be covered with a full corrosion-resistant barrier laminate.

(5) The inner surface exposed to the chemical environment shall be a resin rich 20 mil (0.020-inch) thick layer.

(6) Resins used in these layers shall be Derakane 411 or approved equal incorporating a BPO/DMA cure system as recommended by the manufacturer. No substitutes shall be allowed under this contract.

(7) The degree of cure shall be such as to exhibit a Barcol hardness on the inner surface of at least 90% of the resin manufacturer's minimum specified hardness for the cured laminate.

(8) Resins used in the structural layer shall be the same as the Derakane 411 or approved equal used in the inner surface and interior layers, except BPO/DMA cure system is not required. Generic types of resins or general purpose resins shall NOT be used.

(9) All interior overlays of nozzles, man-ways and other internal accessories shall incorporate the BPO/DMA cured resin.

d. VEIL

(1) Inner corrosion barrier inner surface shall be reinforced with 2 ply C-Glass veil or approved equal.

e. FITTINGS AND ACCESSORIES

(1) All tank outlets shall be flanged. Threaded fittings shall not be used in the Sodium Hypochlorite service. All flanged nozzles shall be of hand lay-up construction with the pipe stub molded integrally with **3/8" thick**

coned gusseted flanges. Compression molded or cemented on flanges, are prohibited. **(No outsourcing of FRP components).** The resin used for the inner surface and interior layer of flanged stubs shall be the BPO/DMA cured resin system.

(2) Provide tank flanged inlet piping to top shell with brackets and connect to existing fill piping.

(3) Provide tank flanged outlet (no internal elbow).

(4) Provide magnetic flag indictor sight gauge with level measurement gradations (no glass) with top and bottom isolation valves at tank and support brackets. Materials shall be suitable for bulk (12.5%) sodium hypochlorite.

(5) Provide overflow pipe with supports adequately sized to prevent over pressurization during filling. Provide tee on top with riser and 180° elbow to vent with 316 SS insect screen. Provide elbow with support at bottom to prevent splashing into containment and to direct away from the tank pad.

(6) Provide tank drain with valve and internal drain pipe with 90° bend to approximately 1"-2" from tank floor.

(7) Provide adequate vent pipes with 180° elbow and 316 SS insect screen. Provide vents for forced air intake and exhaust to remove hydrogen gas. Connect tanks to blowers at Water Treatment Plant No. 9 reusing existing piping and provide all necessary piping adjustments for final connection.

(8) Top and side manways.

(a) All closed top tanks shall be provided with a minimum 24 inch diameter flanged top man-way with hinged cover with securing bolts.

(b) All tanks with a straight shell height greater than 12 feet shall be provided with a minimum 30 inch diameter flanged side man-way with bolted cover. Bolted man-ways shall be provided with 1/4 inch thick full-face Viton gaskets and 316 SS bolting. Man-way stub flange and cover shall be hand lay-up construction with the inner surface and interior layer using the BPO/DMA cured resin system.

(8) Liquid Level Control System – Level control for sodium hypochlorite shall be through the use of ultrasonic level transducers. Provide flanged outlet on the top of the sodium hypochlorite tanks and install Owner furnished level transducers. Each tank shall have mounting brackets for electrical conduit.

(9) Floor Mount Access Ladder with Walk-Through Cage with Return - meeting or exceeding all OSHA requirements, constructed of fiberglass. Provide aluminum ladder with safety rail system for use with safety

harness. FRP cage systems to be pigmented OSHA safety yellow with ultraviolet (UV) inhibitor additives.

2. SALT SATURATOR/BRINE MAKERS

a. **Tank Dimensions and usage:**

(1) 85.5 Ton Capacity - 12' diameter x 21' - 6" OAH high (19' - 2" straight shell) HP Briner Salt Dissolver System which would handle a full 25 ton salt delivery. The FRP vessel has a nominal liquid capacity of 16,100 gallons, a total salt capacity of 85.5 tons and a dry salt storage capacity of 70 tons and capable of producing 35 gallons of brine per minute continuously. The tanks shall be suitable for solar salt and for brine draw of 50 gpm or higher.

b. **Structural Tank Requirements:**

(1) The laminate comprising the structural tank (bottom, cylindrical shell, top head) shall consist of a corrosion-resistant barrier comprised of an inner surface, interior layer, and a structural layer. The tank bottom shall be integral with the bottom tank shell. No tank bottom attachment joint or seam inside or outside is allowed within the first 7'-0" of the tank elevation. No patched or repaired hole in the center of the tank bottom resulting from tooling support is allowed.

(2) Inner Surface - The inner surface exposed to the chemical environment shall be a resin rich 0.010 inches thick, reinforced with 1 ply of "C"-Glass "Chemical" surface mat.

(3) Interior Layer - The inner surface layer exposed to the corrosive environment shall be followed with a layer composed of resin, reinforced only with noncontiguous glass-fiber strands applied to a minimum thickness of 0.090 inches. The combined thickness of the inner surface and interior layer shall be a minimum of 0.100 inches thick.

(4) Glass content of the inner surface and interior layer combined shall be 27% + 5% by weight.

(5) Resin used in these layers shall be Polyester incorporating a MEKP cure system as recommended by the manufacturer.

(6) The degree of cure shall be such as to exhibit a Barcol hardness on the inner surface of at least 90% of the resin manufacturer's minimum specified hardness for the cured laminate.

c. **Structural Layer:**

(1) Filament Wound Structural Layer - Subsequent reinforcement shall be continuous-strand roving needed to satisfy the design requirements. Glass content of this filament-wound structural layer shall be 50 to 80%

by weight. Only those constructions evaluated for design properties shall be used.

(2) Subsequent reinforcement shall be comprised of 1.5 oz/ft^2 chopped strand mat or equivalent weight of chopped roving, or shall be comprised of chopped strand mat or chopped roving and such additional number of alternating plies of 24 oz/yd^2 woven roving to a thickness as required to meet the physical properties that are used for the design. Each successive ply or pass of reinforcement shall be well rolled prior to the application of additional reinforcement. Where woven rovings are used, chopped strand glass reinforcement shall be used as alternating and final layers. All woven roving and chopped strand shall be overlapped. Laps in subsequent layers shall be staggered at least 2.25 inches from laps in the preceding layer.

(3) Resin used in the structural layer shall be the same as used in the inner surface and interior layers. General-purpose resins shall not be used.

d. Materials:

(1) Tanks shall be filament wound or contact molded conforming to the following appropriate ASTM industry specifications.

(a) Filament Wound Tanks shall be designed and fabricated in accordance with ASTM Specification D3299 (most current edition), "Filament-Wound Glass-Fiber-Reinforced Thermoset Resin Chemical-Resistant Tanks".

(b) Resin - The resin used shall be Co Resin 75 Polyester or equal, corrosion resistant polyester that has been evaluated in a laminate by test in accordance with ASTM C-581 in Brine service comparable to the intended service by the resin manufacturer.

(2) The tank manufacturer shall strictly adhere to the resin manufacturer's recommendations for surface veil materials and resin cure systems requirements. NO EXCEPTIONS ALLOWED.

(3) The resin shall contain no pigments, dyes, colorants, or fillers except as follows:

(a) A Thixotropic agent that does not interfere with visual inspection of laminate quality may only be added for viscosity control in resins that are not to be used in the inner corrosion barrier, interior layers, interior secondary layers, and interior top coats.

(b) Resin pastes used to fill crevices may contain Thixotropic agents provided that all such areas are subsequently covered with a full corrosion-resistant barrier laminate.

(c) A white pigmented exterior gel coating 5-10 mils with UV inhibitors shall be provided on all brine storage tanks.

e. Reinforcement:

(1) Chopped Strand Mat - Chopped strand mat shall be constructed from commercial grade Boron free ECR or E-glass strands bonded together using a binder. The strands should be treated with a sizing that is chemically compatible with the resin system used.

(2) Continuous Roving - Continuous roving shall be commercial-grade Boron free ECR or E-glass fiber with a sizing that is chemically compatible with the resin system used.

(3) Continuous roving for chopping in spray-up process shall be principally silane finished with as little chrome compounds as practical to achieve chopper performance while maintaining visual laminate clarity requirements.

(4) Woven Roving - Woven roving shall be in accordance with ASTM Specification.

f. Fittings and **Manway Construction:**

(1) **Manways** - All closed top tanks shall be provided with a minimum 24 inch diameter flanged manway with bolted cover. **All tanks shall be provided with a 30-inch diameter flanged side manway with bolted cover.** Bolted manways shall be provided with 1/4 inch thick full-face Viton gaskets and Stainless Steel bolting. Manway stub flange and cover shall be hand lay-up construction with the inner surface and interior layer using the MEKP cured resin system. **Flanged Nozzles** - All flanged nozzles shall be of hand lay-up construction with the pipe stub molded integrally with the pipe flange. Compression molded or cemented on flanges is prohibited. The resin used for the inner surface and interior layer of flanged stubs shall be the MEKP cured resin system. Nozzles 4 inch diameter and smaller shall be gusseted conically or with plate gussets as required.

(2) Installation of all manways and flanged nozzles shall be the flush-type per ASTMD3299 or D4097.

(3) All interior overlays of nozzles, manways, and other internal accessories shall incorporate the MEKP cured resin system required for this chemical service.

g. The brine makers are to be equipped with the following operational components as needed for a completely automated self-contained brine making system:

(1) Brine Collection System - including six (6) lateral brine headers, internal connecting assemblies and external pipe nipple and 2" flanged Ball Valve.

(2) 4" Pneumatic Delivery Piping - including 180° 316 SS schedule 10 bend flanged one end, Straight 316 SS pipe with flange and quick disconnect truck coupling, flanged connecting assembly, 316 SS coupling and support pipe with clamps.

(3) Brine Suction Break & Overflow Assembly - including a shut-off ball valve, a 12' -0"± 5" vertical 2" clear standpipe assembly, air vent assembly with over-flow, with required internal connecting assemblies and 316 SS clamps and vessel brackets.

(4) Pneumatic Dust Suppression System - containing an external polyester dust bag connecting to an 8" pipe..

(5) Water Distribution System - including a continuous inlet water header constructed of schedule 80 PVC piping and supported by fiberglass support brackets, inlet water assembly, and external shut off ball valve, strainer, check valve, strainer, connecting nipples and 110 volt solenoid valve.

(6) Liquid Level Control System - an automated level indicator which operates from liquid head pressure using a pressure transducer system. Set points and alarms to be pre-programmed for High-high, Low-low alarms and operating level. Provide 316 SS NEMA IV enclosure for electrical components.

(7) Salt level indicator. Provide opaque vertical stripes 180° apart with gradations to indicate level of salt. Design-Builder may provide alternate system for determining salt level.

(8) Floor Mount Access Ladder with Walk-Through Cage with Return - meeting or exceeding all OSHA requirements, constructed of fiberglass. Provide aluminum ladder with safety rail system for use with safety harness. FRP cage systems to be pigmented OSHA safety yellow with ultraviolet (UV) inhibitor additives.

(9) Top FRP Handrail Assembly - A full perimeter FRP handrail assembly pigmented OSHA safety yellow with ultraviolet (UV) inhibitor additives. As required by OSHA a 42" high FRP skirting with a 3" wide top rail for comfort and rigidity. Railing is fixed to a lower top tank ring enclosing the entire top surface area for safety. Top rail also includes an access entry from ladder, drain holes and assembly holes along with all mounting hardware.

(10) Stainless Steel Hardware - Includes all stainless steel 316 bolts, nuts and washers for assembly, along with Viton gaskets for all pipe flanges and tank openings and blank flange for side port, bottom drain.

(11) Gravel Filter Bed - A 12" washed and graded filter media consisting of three different layers of quartz rocks. Gravel shall contain less than 1% Calcium Carbonate, Calcium or Magnesium compounds which will dissolve in low or high PH liquids.

TANK LOCATIONS

SODIUM HYPOCHLORITE STORAGE TANKS

Quantity: (12) Tank Capacity - 20,000 Gallons

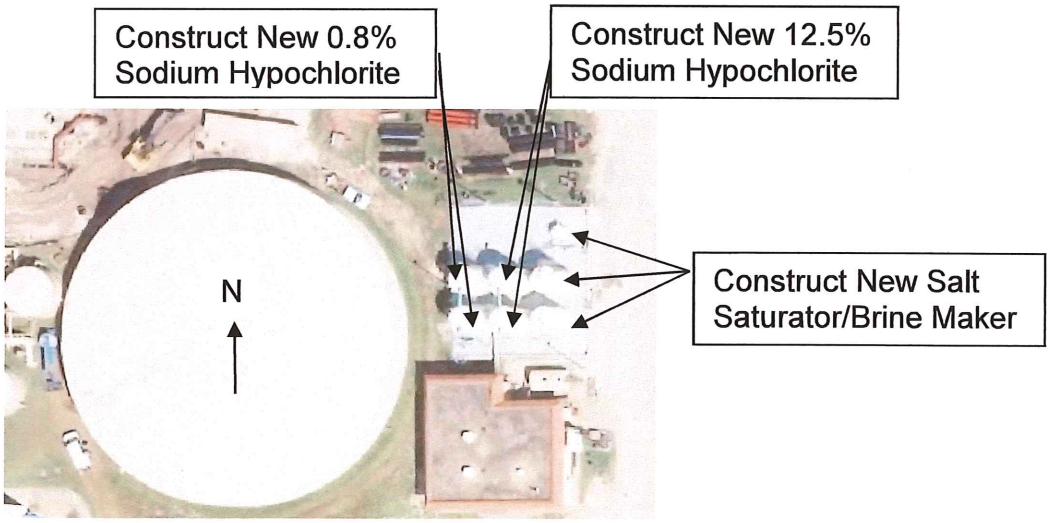
LOCATION SITE	QUANTITY	TANK CAPACITY
Water Treatment Plant #2 2956 Pinehurst Drive West Palm Beach, FL 33467 Patti Brock (561) 493-6260	4	20,000 Gallons 12' inside diameter 25' 6" high sidewall
Water Treatment Plant #3 13026 Jog Road Delray Beach, FL 33446 Dennis Ford (561) 638-5080	4	20,000 Gallons 12' inside diameter 25' 6" high sidewall
Water Treatment Plant #9 22438 SW 7th Street Boca Raton, FL 33433 Thomas Dineen (561) 381-5352	4	20,000 Gallons 12' inside diameter 25' 6" high sidewall

SALT SATURATOR/BRINE MAKERS

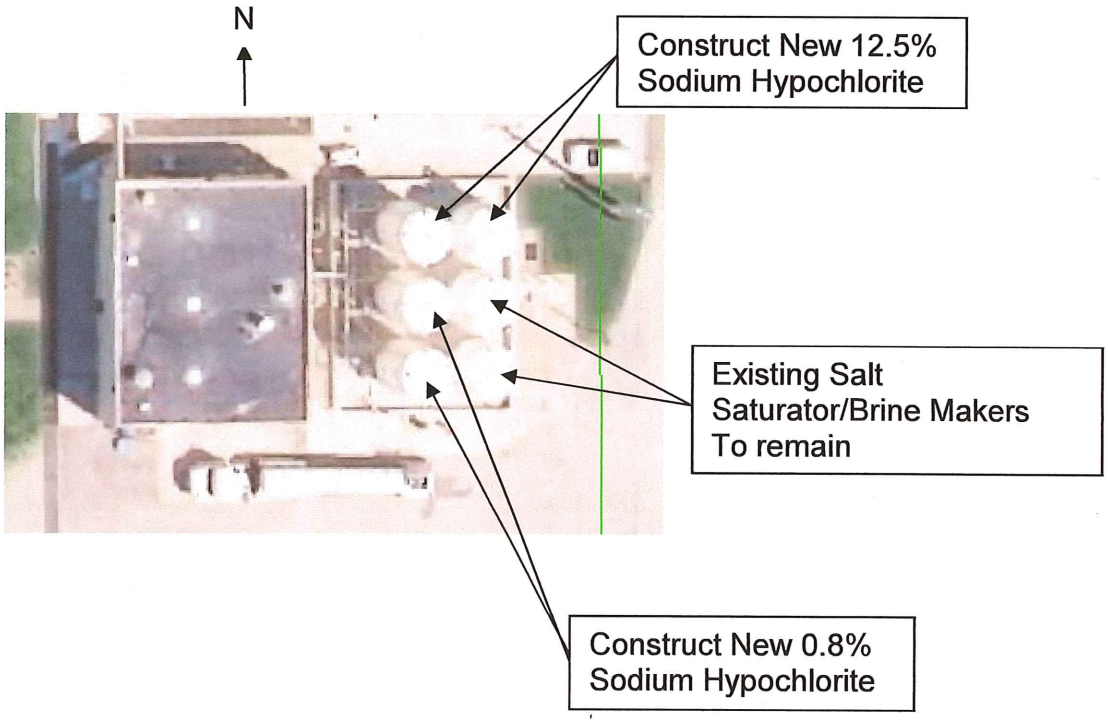
Quantity: (3) Tank Capacity - 85.5 Tons of Salt Quantity

LOCATION SITE	QUANTITY	TANK CAPACITY
Water Treatment Plant #2 2956 Pinehurst Drive West Palm Beach, FL 33467 Patti Brock (561) 493-6260	3	85.5 Tons 12' diameter 21' 6" height

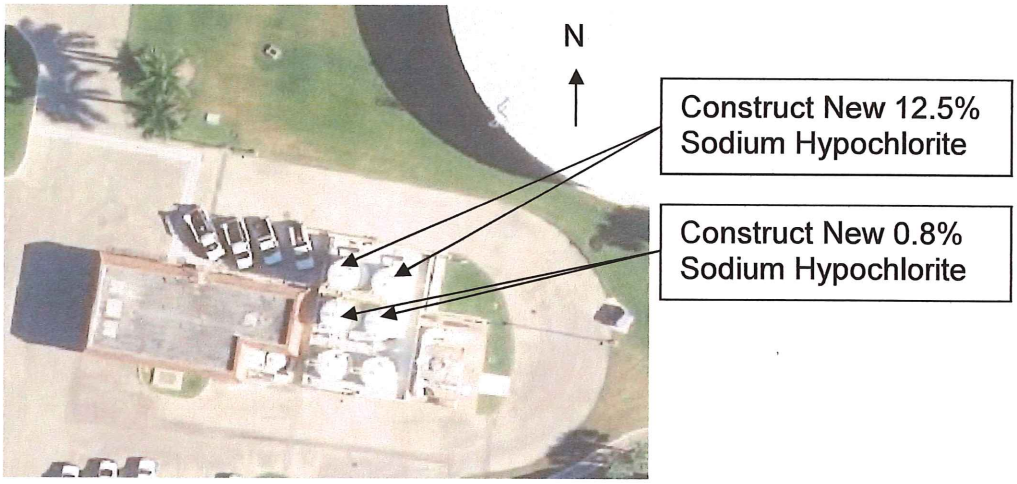
WTP 2 Proposed Tank Locations



WTP 3 Proposed Tank Locations



WTP 9 Proposed Tank Locations



1.3 Owner Furnished Equipment

The following equipment will be furnished to the Design-Build Entity by the Owner for installation, startup and testing.

1.4.1. Level transducers for twelve (12) sodium hypochlorite tanks.

1.5 Permits and Fees

It shall be the Design-Build Entity's responsibility to secure all permits required to complete the work under this contract. The Design-Build Entity shall be responsible for all inspections and requirements to close-out the completed permits. The Owner will pay all permit fees. The Design-Build Entity shall be responsible for all Business tax fees for work within Palm Beach County or Municipalities.

1.6 Utility Services

The Design-Build Entity shall obtain the necessary utility services by making application for the services and paying such fees and charges required by the utility companies, including construction water meters, if required.

1.7 Tests

The Design-Build Entity shall pay for all required tests. Water required for pressure/leakage tests shall be furnished by the Owner.

1.8 Site elevations, Lines, and Grades

Where the dimensions and locations of existing pipe and utilities are of critical importance in the installation or connection of proposed work, the Design-Build Entity shall verify such dimensions and locations in the field prior to the fabrication of any materials or equipment, which is dependent on the correctness of such information. The Design-Build Entity shall employ a land surveyor registered in the State of Florida. The Design-Build Entity shall locate and protect survey control and reference points. The Design-Build Entity shall be responsible to establish elevations, lines, and levels, utilizing recognized engineering survey practices. The Design-Build Entity shall provide all labor, instruments and stakes, templates, and other materials necessary for marking and maintaining all lines and grades. The Design-Build Entity shall submit a copy of as-built drawings signed/sealed by the land surveyor that the elevations and locations of the work in Florida State plane coordinates are in conformance with the contract documents and will reference geodetic datum NAD83. All elevations shall refer to North American Vertical Datum of 1988 (NAVD88) and include conversion from National Geodetic Vertical Datum of 1929 (NGVD29) as required.

1.9 Work Area

The Design-Build Entity shall confine his activities to the site(s) designated by Owner for the work or staging areas for materials storage. All debris, materials, pipe, and miscellaneous waste products from the proposed work shall be removed from the Project Site as soon as possible. They shall be disposed of in accordance with applicable federal, state, and local regulations. The Design-Build Entity shall be responsible for determining these regulations and shall bear all costs or retain any profit associated with disposal of these items.

The Design-Build Entity shall protect their work. When required to complete the work, the Design-Build Entity shall maintain of suitable lighting to maintain a safe working environment. Work performed outside of the established working hours requires the permission from the Owner. The Design-Build Entity shall also comply with all laws or ordinances covering the protection of such work and the safety measures to be employed therein. The Design-Build Entity shall carry out his work so as not to deny access to private property. All utility access manholes, valves, and fire hydrants shall be kept accessible at all times. No trenches or holes near walkways, in roadways or road shoulders are to be left open during night hours without the permission of the Owner, and proper protection. The Design-Build Entity is responsible for the security of their work, equipment, and material at all times.

Design-Build Entity shall be responsible for keeping all work areas clear of construction debris and perform daily housekeeping activities to maintain a safe working environment for existing plant personnel.

1.10 Underground Utilities

All water pipes, storm drains, force mains, gas or other pipe, telephone or power cables or conduits, and all other obstructions, whether or not shown, shall be temporarily removed from or supported across pipeline excavations. Before disconnecting any pipes or cables, the Design-Build Entity shall obtain permission from the Owner, or shall make suitable arrangements for their disconnection by the Owner. The Design-Build Entity shall be responsible for any damage to any such pipes, conduits or cables, and shall restore them to service promptly as soon as the work has progressed past the point involved. Approximate locations of known water, sanitary, drainage, power, and telephone installations along route of new pipelines or in vicinity of the work are shown on as-built drawings, but must be verified in the field by the Design-Build Entity. The Design-Build Entity shall uncover these pipes, ducts, cables, and other buried infrastructure, carefully, by hand, to verify location and depth of cover. Any discrepancies or differences found shall be brought to the attention of the Owner in order that necessary changes may be made. Where

fences, walls, or other man made obstructions exist illegally in the public right-of-way, the Owner will have them removed upon adequate prior notice by the Design-Build Entity.

The Design-Build Entity shall notify "SUNSHINE STATE" at 1 (800)-432 4770 at least forty-eight (48) hours prior to performing any excavating activities. Evidence of such notice shall be furnished to the Owner prior to excavating. Design-Build Entity is responsible for all utility locates within the project site and will provide an independent locate service for all PBC WUD buried pipelines and electrical.

Design of all underground water, wastewater, and reclaimed water shall comply with the Palm Beach County Water Utilities Minimum Engineering Standards (latest edition), General Electrical Design Requirements, Palm Beach County Wellfield Protection Ordinance, Environmental Control Rule 1 (wastewater), Environmental Control Rule II (water), and applicable provisions of the Florida Administrative Code. Design submittal requirements shall be in accordance with the Palm Beach County Water Utilities Design Manual.

1.11 Maintenance of Operations

The Design-Build Entity's activities or any partial plant shutdowns shall minimize disruption to the treatment facilities and conveyance. The Design-Build Entity shall schedule and perform the proposed work in a manner such that the Owner can keep the existing treatment and conveyance facilities in continuous dependable operation. Operation of all existing valves, gates and equipment shall be performed by Owner.

1.12 Plant Shutdowns

Owner shall approve all plant shutdowns. If, in the opinion of Owner, a shutdown is not required in order for the Design-Build Entity to perform the proposed work, the Design-Build Entity shall use alternative methods to accomplish the work. All shutdowns shall be coordinated with and scheduled at times suitable to Owner. Owner shall be provided a minimum of 7 days' notice of Design-Build Entity's need for any system or partial system shutdown. Additional notice may be required for certain shutdowns.

1.13 Project Coordination

Design-Build Entity shall be solely responsible for coordination of all of the proposed work. He shall supervise, direct and cooperate fully with all sub-contractors, manufacturers, fabricators, suppliers, distributors, installers, testing agencies, and all others whose services, materials or equipment are required to ensure completion of the proposed work within the contract time.

Design-Build Entity shall cooperate with and coordinate his work with the work of any other contractor, utility service company, or Owner's employees performing additional work related to the project at the site. Design-Build Entity shall not be responsible for damage done by other contractors on site who are not under the Design-Build Entity's jurisdiction except where such loss or damage is caused by the negligence of Design-Build Entity. Design-Build Entity shall also coordinate his work with the work of others to assure compliance with schedules.

Design-Build Entity shall attend and participate in all project coordination or progress meetings and report on the progress of all work and compliance with schedules. The Design-Build Entity shall provide and maintain a project representative of his organization at the site at all times during performance of the work who may be reached at any time while work is in progress.

1.14 Project CPM Schedule

Design-Build Entity must prepare and maintain a project schedule using Primavera P6 software (P6) and the Critical Path Method (CPM) of scheduling. The following outlines the minimum schedule requirements. The schedule must be updated each month at a minimum and will be reviewed by the Owner to determine design and construction progress.

1.14.1 Design Schedules

The Design-Build Entity shall develop a detailed design schedule reflecting work elements at a package level by discipline. An estimate of the construction duration and staging be developed and linkages to other work packages will be clearly indicated. It will be updated at least monthly and at a minimum, milestones shall be depicted for:

- Notice-to-Proceed
- 60 percent submittal
- 90 percent submittal
- Each required permitting submittal

1.14.2 Construction Schedules

The basics of the construction schedule submittals are outlined below.

1.14.2.1 Baseline Requirement: The Construction Schedule shall use P6 and follow the Critical Path Method of scheduling, and shall reflect how the Design-Build Entity will build the project. The schedule shall show the duration of each activity so that the Project Manager can accurately monitor

the progress of the work. Schedule activities must be consistent with work items listed in the Schedule of Values and be cost-loaded such that schedule updates provide an independent check on the amounts shown in the Design-Build Entity's monthly progress payment request.

Additionally, the schedule will address the logic of construction activities, including any work constraints due to:

- Operational or permit requirements
- Special requirements of the technical specifications
- Standard construction practices
- Safety of the work place
- Manpower loading and availability
- Key Resource or Materials quantity loading

1.14.2.2 Initial Construction Schedule Submittals: The Design-Build Entity shall be required to submit two schedule documents at the pre-construction conference. These are:

- The Plan of Operation for the initial 30-day period of the contract
- An initial draft of the P6 Baseline CPM schedule

The Project Managers for the Owner and the Design-Build Entity shall meet to review and discuss the 30-day plan of operation and Baseline CPM schedule shortly after submittal to the Owner's Project Manager. The Owner Project Manager's review and comment on the schedules will be limited to conformance with the sequencing and milestone requirements in the Contract Documents. The Design-Build Entity shall be required to make corrections to the schedules necessary to comply with the requirements and adjust the schedules to incorporate any missing information requested by the Owner's Project Manager. Key elements of the schedule reviews will include:

- Production rates for reasonableness
- Appropriate level of detail
- Satisfaction of contractual constraints
- Accurately reflecting submittals, procurements, training and start-up tasks
- Conforms with approved schedule of values

- Complies with industry scheduling practices
- Schedule risk and critical path discussion

The Plan of Operation depicts accomplishment of the Contractor's early execution activities (e.g. mobilization, permit acquisition, submittals necessary for early material and equipment procurement, submittals necessary for long lead equipment procurement, CPM submittals, initial site work and other submittals and activities required in the first 30 days).

1.14.2.3 Construction Schedule: The P6 Baseline schedule will be included in all subsequent schedule updates and will be the basis for measuring progress and performance. Schedule updates and other reporting requirements will be detailed in the schedule specifications. The construction schedule will provide information on major construction milestones and allow for quantity tracking. Related interface activities pertinent to facilities start-up and commissioning will also be shown. The associated Schedule of Values will delineate information related to quantity unit rate reporting, labor wage rates, bulk materials pricing and other costing/pricing information as requested. Specific schedules (e.g., Installation Plan for rotary drum vacuum filter and related equipment, 90 days to Completion, 4-week look-ahead) shall be provided.

The Project Manager's review of the schedule is to ensure basic compliance with requirements and reasonableness of plan, and does not constitute an approval of the approach or direction relative to means and methods of construction.

The Contractor's Progress Schedule, at a minimum, shall identify significant interim milestones that relate to the Project's Summary Schedule, in addition to:

- Notice-to-Proceed
- Mobilization
- Weather Days Allowance
- Contract Float
- Substantial Completion
- Commissioning: Startup and Testing and Training
- Final Completion

1.14.3 Schedule Updates

On a regular basis, and not less than monthly, summary schedules should be updated to track and monitor progress of activities, completion of contract deliverables, interim milestone achievement, start and completion dates, and other related aspects of scheduling. Additionally, any approved changes to the scope of work will be reflected in the schedules.

Progress is monitored by comparing monthly work accomplished against both the baseline plan, and the progress of work from the prior month. Starting with the first month of status updating, progress for all projects will be measured against the baseline for start and finish dates, scheduled progress and cash flow, along with analysis for changes in logic and activities durations.

1.15 TECHNICAL MANUAL

1.15.1 The Design-Build Entity shall submit technical operation and maintenance information for each item of mechanical, electrical, and instrumentation equipment in an organized manner in the Technical Manual. It shall be written so that it can be used and understood by the Owner's operation and maintenance staff. The Technical Manual shall use a legible and reproducible format consisting of manufacturer's data, neatly typed text, and drawings.

1.15.2 The Technical Manual shall be subdivided first by specification section number; second, by equipment item; and last, by "Category." The following "Categories" shall be addressed (as applicable):

1.15.2.1. Category 1 - Equipment Summary

1.15.2.1.1 Summary: A table shall indicate the equipment name, equipment number, and process area in which the equipment is installed.

1.15.2.1.2 Form: The Design-Build Entity will supply a blank Equipment Summary Form for mechanical, electrical, and instrumentation equipment in the WORK for review and approval by the Owner. The Design-Build Entity shall fill in the relevant information on the form for each item of equipment and include it in Part 1. The Design-Build Entity shall designate any items on the form that are not applicable to that particular item of equipment with an "N/A".

1.15.2.2 Category 2 - Operational Procedures

1.15.2.2.1 Procedures: Manufacturer-recommended procedures on the following shall be included in Part 2:

- Installation
- Adjustment
- Startup
- Location of controls, special tools, equipment required, or related instrumentation needed for operation
- Operation procedures
- Load changes
- Calibration
- Shutdown
- Troubleshooting
- Disassembly
- Reassembly
- Realignment
- Testing to determine performance efficiency
- Tabulation of proper settings for pressure relief valves, low and high pressure switches, and other protection devices
- List of all electrical relay settings including alarm and contact settings
- Detailed test procedures to determine performance efficiency of equipment
- Detail and requirements of connection for power, water, waste, control, etc.
- Rating curves for pumps, compressors, and similar units

1.15.2.3 Category 3 - Preventive Maintenance Procedures

1.15.2.3.1 Procedures: Preventive maintenance procedures shall include manufacturer-recommended procedures to be performed on a periodic basis, both by removing and replacing the equipment or component, and by maintaining the equipment in place.

1.15.2.3.2 Schedules: Recommended frequency of preventive maintenance procedures shall be

included. Lubrication schedules, including lubricant SAE grade, type, and temperature ranges, shall be covered.

1.15.2.4 Category 4 - Parts List

1.15.2.4.1 Parts List: A complete parts list shall be furnished, including a generic description and manufacturer's identification number for each part. Addresses and telephone numbers of the nearest supplier and parts warehouse shall be included.

1.15.2.4.2 Spare Parts: A list of spare parts that the manufacturer recommends be maintained by the Owner in inventory shall be furnished. The spare parts list shall include a current list price of each spare part. Each manufacturer or supplier shall indicate the name, address, and telephone number of its nearest outlet of spare parts to assist the Owner in ordering.

1.15.2.4.3 Drawings: Cross-sectional or exploded view drawings shall accompany the parts list. Part numbers shall appear on the drawings with arrows to the corresponding part.

1.15.2.5 Category 5 - Wiring Diagrams

1.15.2.5.1 Diagrams: Category 5 shall include complete internal and connection wiring diagrams for electrical equipment items.

1.15.2.6 Category 6 - Shop Drawings

1.15.2.6.1 Drawings: This category includes approved shop or fabrication drawings with Owner comments and corrections incorporated, complete with dimensions.

1.15.2.7 Category 7 – Safety

1.15.2.7.1 Procedures: This category describes the safety precautions to be taken when operating and maintaining the equipment or working near it.

1.15.2.8 Category 8 - Documentation:

1.15.2.8.1 Equipment warranties, affidavits, certifications, calibrations, laboratory test results, etc. required by the Technical Specifications shall be placed in this

category.

1.15.3 Format

1.15.3.1 Each Technical Manual shall consist of one or more volumes, each of which shall be bound in standard size, three-ring, hardcover binders suitable for bookshelf storage. Binder ring size shall not exceed 2-1/2 inches. Each binder shall be labeled on the spine and cover with project name, Owner's project number, specification section number, equipment name, and equipment identification number. Each Binder shall contain its own detailed table of contents at the front, plus a summary level table of contents for the other binders in a multi-binder set.

1.15.3.2 Documents in binders shall be 3-hole punched, no text shall be punched out, and pages larger than 8-1/2 by 11 shall be folded to 8-1/2 by 11. Any information in the Technical Manual that does not pertain to the particular item of equipment used for this WORK shall be crossed out.

1.15.4 Review Process

1.15.4.1 The Design-Build Entity shall furnish three draft Technical Manuals for each Specification Section that requires a Technical Manual. The Owner will retain two copies and will return one copy to the Design-Build Entity with review comments.

1.15.4.2 The Design-Build Entity shall incorporate comments into the draft Technical Manual and submit three identical copies of the final Technical Manual for acceptance. In addition, once the final Technical Manual has been accepted, it shall be OCR scanned (text searchable) and submitted on CD-ROM in Adobe Acrobat Portable Document Format (PDF). Blank pages shall be removed from the electronic version of the Technical Manual and pages shall be rotated for best viewing orientation. The table of contents shall list chapters, sections, drawings, figures, tables, etc. in the Technical Manual and shall be electronically linked to the associated item. Electronic bookmarks shall be provided for chapters, sections, drawings, figures, tables, etc. as well.

1.15.5 Schedule

1.15.5.1 WORK under this Contract involves start-up and commissioning of equipment. Technical Manuals shall be complete for each piece of equipment prior to training of the Owner's personnel. Except where indicated otherwise, manuals shall be submitted for review in final form a minimum of 30 days prior to startup commissioning for the associated piece of equipment. Discrepancies found by the Owner shall be corrected within 30 Days from the date of written notification by the Owner.

1.15.5.2 Manuals that are incomplete or unacceptable at the schedule criterion above will constitute sufficient justification for the Owner to retain an amount up to 2% from any monies due the Design-Build Entity.

1.16 RECORD DRAWINGS

The Design-Build Entity shall maintain one set of Drawings at the Site for the preparation of record drawings. On these, it shall mark every project condition, location, configuration, and any other change or deviation which may differ from the Contract Drawings at the time of award, including buried or concealed construction and utility features that are revealed during the course of construction. Special attention shall be given to recording the horizontal and vertical location of buried utilities that differ from the locations indicated, or that were not indicated on the Contract Drawings. Said record drawings shall be supplemented by any detailed sketches as necessary or as Design-Build Entity is directed, to fully indicate the WORK as actually constructed. These record drawings are the Design-Build Entity's representation of as-built conditions, shall include revisions made by addenda and change orders, and shall be maintained up-to-date during the progress of the WORK. Red ink shall be used for alterations and notes. Notes shall identify relevant Change Orders by number and date.

PART 2 ACCEPTANCE TEST REQUIREMENTS

The Design-Build Entity shall be responsible for coordinating and completing all commissioning activities including but not limited to the overall system startup and testing. The Design-Build Entity shall coordinate with the Owner and is responsible for providing all labor, equipment, and materials for conducting commissioning activities including but not limited to individual systems startup and testing.

2.1 Starting and Placing Equipment in Operation

Design-Build Entity shall initially start-up and place all installed equipment into successful operation according to manufacturer's written instructions and as instructed by manufacturer's field representative. Design-Build Entity shall provide all material, labor, tools, equipment, lubricants, and expendables required to complete start-up. No system or subsystem shall be started up for continuous operation unless all components of that system or subsystem, including instrumentation, have been tested and proven to be operable as required for proposed work.

General system startup activities are anticipated to include but not be limited to cleaning; removing temporary protective coatings; flushing and replacing greases and lubricants as required by manufacturers; lubrication; checking shaft and coupling alignments and resetting where required; checking and setting motor, pump and other equipment rotation, safety interlocks, and belt tensions; checking and correcting if necessary leveling plates, grout, bearing plates, anchor bolts, fasteners and alignment of piping which may put stress on equipment; performing any adjustments; providing chemicals and lubricants and all other required operating fluids; providing fuel, electricity, water, filters; and, other expendables required for startup of equipment.

Owner will provide sufficient personnel to assist Design-Build Entity in the start-up, but the prime responsibility for proper mechanical operation shall belong to Design-Build Entity. Manufacturer's representatives shall be present during initial start-up and operation. Owner will assume responsibility for operation of the equipment upon completion of start-up and placing equipment in operation. Owner shall provide all chemicals (salt and sodium hypochlorite) for startup and operation.

2.2 Minimum Start-Up Requirements

2.2.1. The Design-Build Entity shall perform the following engine generator pre-start up checklist in accordance with manufacturer guidelines: Generator set equipment installation/mounting, engine oil level, engine coolant system level, engine radiator shroud installation, day tank fuel level (if applicable), fuel system installation, mechanical and electrical connections, battery installation, battery voltage, battery charger operations and installation, engine sensors and controls, all equipment interface interconnects, interface wiring with new main switchboard, remote annunciation/communication interface wiring, exhaust system installation and connections and all other fluids. Checklist is not limited to items listed above, others shall be performed as required by manufacturer.

2.2.2. The Design-Build Entity shall check each electrical control circuit to assure that operation complies with regulations and requirements of proposed work and to provide desired performance.

2.2.3. The Design-Build Entity shall inspect for cleanliness, and clean and remove all foreign materials, verify alignment, replace defective bearings and those, which run rough or noisy, and grease as necessary in accordance with manufacturer's recommendations.

2.2.4. After system has been placed in operation the Design-Build Entity shall clean strainers, drives, pockets, orifices, valve seats and headers in fluid system to assure freedom from foreign materials. He shall remove rust, scale and foreign materials from equipment and renew defaced surfaces. All visible leakage shall be repaired.

2.2.5. The Design-Build Entity shall vent gasses trapped in any part of systems and verify that liquids are drained from all parts of gas or air systems.

2.2.6. The Design-Build Entity shall adjust tension in V-belt drives, and adjust varipitch sheaves and drives for proper equipment speed, adjust drives for alignment of sheaves and V-belts, and clean and remove foreign materials before starting operation.

2.2.7. The Design-Build Entity shall check each motor for comparison to amperage nameplate value and correct conditions which produce excessive current flow and exist due to equipment malfunction.

2.2.8. The Design-Build Entity shall check glands and seals for cleanliness and adjustment before running pump; inspect shaft sleeves for scoring; inspect mechanical faces, chambers, and seal rings, and replace if defective; and verify that piping system is free of dirt and scale before circulating liquid through the pump.

2.2.9. The Design-Build Entity shall inspect both hand and automatic control valves, clean bonnets and stems; tighten packing glands to assure no leakage, but permit valve stems to operate without galling; replace packing on any valve that continues to leak; remove and repair bonnets that leak; and coat packing gland threads and valve stems with a surface preparation of "Moly-Cote" or "Fel-Pro" after cleaning. The Design-Build Entity shall verify that control valve seats are free from foreign material and are properly positioned for intended service.

2.2.10. System start-up and operational testing procedures shall not be limited to those specified herein. Others shall be performed as required to prove that the system functions and performs as described and required by this Design-Build Criteria Package.

2.3 Equipment Startup and Performance Testing

2.3.1. The Design-Build Entity shall be responsible for performance testing during startup of all mechanical, electrical equipment and systems.

2.3.2. Provide a testing plan setting forth the sequence in which all testing work required for the proposed upgrades will be implemented.

2.3.3. Documentation of the results of all equipment and system tests shall be submitted to the Owner. Provide calibration tags for all Design-Build Entity furnished and installed equipment certifying the date of calibration.

2.3.4. The Design-Build Entity shall also be responsible for providing a Certificate of Proper Installation (COPI) for all equipment. COPIs will be provided to the Owner or the Owner's Representative prior to commencing any commissioning, startup and testing activities. COPIs will be included in the Technical Manual.

2.4 Instruction of Operations and Maintenance Personnel

Training shall be provided prior to turning over the operation of the new generator, main switchboard and A/C units to the Owner. No system, unit process or any piece of equipment shall be started up for continuous operation without the approved operation and maintenance manuals being turned over to the Owner.

Design-Build Entity shall provide services of manufacturer's operation and maintenance training specialists to instruct Owner's personnel in recommended operation and maintenance procedures for products and equipment. Manufacturer's representative shall provide a combination of classroom and field training activities. All training shall be conducted at the site, unless otherwise stated in the Specifications. Owner reserves the right to videotape training sessions.

Training of Owner's personnel shall commence only after acceptable preliminary operation and maintenance data has been provided and, equipment has been started and placed into operation, equipment and system startup and performance testing has been completed. The Design-Build Entity shall provide written documentation and checklists outlining important training items, and provide spreadsheets needed to document new processes for input by operators.

PART 3 TECHNICAL REQUIREMENTS

3.1 Plant Site / Civil Requirements

The Design-Build Entity shall be responsible for becoming completely familiar with the site conditions in connection with developing the final site plan including all site investigations. If analysis of subsurface conditions, geotechnical conditions, and soil borings are required to complete the work, it shall be the responsibility of the Design-Build Entity to perform this work.

3.2 Demolitions and Equipment Removal

Design-Build Entity shall be responsible for all labor, materials, equipment, and incidentals required for demolitions and pay for all disposal fees. Design-Build Entity shall not start removals without the permission of the Owner. At least 48 hours prior to commencement of any demolition activities, the Design-Build Entity shall advise the Owner, in writing, of the proposed schedule.

Design-Build Entity shall carry out operations so as to avoid interference with Owner's operations and work in the existing facilities. Design-Build Entity shall perform all demolition and removal work so as not to interfere with the use and safe passage to and from adjacent structures and shall prevent damage or injury to structures, occupants, and adjacent features, which might result from falling debris or other causes. Design-Build Entity shall erect and maintain barriers, lights, sidewalk sheds, and other necessary protective devices. The Design-Build Entity is responsible for repairing damage to the Owner's property or facilities, caused by the Design-Build Entity's activities.

Design-Build Entity shall not bring explosives on site or use explosives without written consent of authorities having jurisdiction. Design-Build Entity shall use water sprinkling, temporary enclosures, and other suitable methods for dust control within the lowest practical level in compliance with governing regulations.

Surfaces of walls, floors, ceilings, or other areas, which are exposed by any of the removals, and which will remain as architecturally finished surfaces shall be repaired and re-finished by Design-Build Entity with the same or matching materials as the existing adjacent surface. Adjacent structures, facilities, and improvements impacted by dust, dirt, and debris caused by demolition operations shall be cleaned and returned to pre-construction conditions.

Where piping that is to be removed passes through existing walls, the piping shall be cut off and properly capped on each side of the wall. When underground piping is to be altered or removed, the remaining piping shall be properly capped. Abandoned underground piping may be left in place and grouted under major structures/roadways, unless it interferes with the

work. Any changes to potable water piping work shall be made in conformance with all applicable codes and under the same requirements as other underground piping.

All materials and equipment removed from existing work shall become the property of Design-Build Entity, except for those which Owner has identified and marked for their use. All materials and equipment marked by the Owner for its use shall be carefully removed by Design-Build Entity so as not to be damaged, and shall be cleaned and stored in a protected location specified by the Owner. Design-Build Entity shall dispose of all demolition materials, equipment, debris, and all other items not marked by the Owner, off the work site and in conformance with all existing applicable laws and regulations. Upon completion of the work, all materials, equipment, waste, and debris of every sort shall be removed and premises shall be left, clean, neat, and orderly.

3.3 Trenching, Excavation and Backfill

The Design Build Entity will adhere to all OSHA and PBC regulations when performing all excavating activities, including but not limited to cabling system and generator pad. Written documentation shall be provided indicating compliance with Florida Trench Safety Act.

All remaining spoil piles shall be removed from site.

Design-Build Entity shall furnish all labor, materials, equipment and incidentals required to perform all excavating, backfilling and disposing of earth materials required for the purpose of constructing structures, conduits, pipelines, grading, and other facilities required to complete the work in every respect.

Design-Build Entity shall be solely responsible for designing, installing, operating and maintaining whatever system is required to satisfactorily accomplish all necessary sheeting, bracing, protection, underpinning and dewatering.

Design-Build Entity shall be responsible for all field test data and shall submit to Owner copies of all test reports from his testing laboratory.

Design-Build Entity shall perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction. Design-Build Entity shall obtain all necessary permits including but not limited to work in roads and rights of way. Design-Build Entity shall also obtain permits as required by local, state and federal agencies for discharging water from excavations.

The use of explosives will not be permitted.

Data on subsurface conditions will be made available by Owner for the convenience of Design-Build Entity. The reports are not intended as a representation or warranty of continuity of such conditions between soil borings. Owner will not be responsible for interpretations or conclusions drawn by Design-Build Entity. Additional test borings and other exploratory operations may be made by Design-Build Entity at no cost to Owner.

Drawings from existing records showing certain surface and underground structures adjacent to the work will be made available by Owner. It is not guaranteed to be correct or complete and is shown for the convenience of the Design-Build Entity. Design-Build Entity shall explore ahead of the required excavation to determine the exact location of all structures. They shall be supported and protected from damage by the Design-Build Entity. If they are broken or damaged, they shall be restored immediately by the Design-Build Entity at its expense.

Design-Build Entity shall locate existing underground utilities in the areas of work. If utilities are to remain in place, Design-Build Entity shall provide adequate means of protection during earthwork operations. If uncharted or incorrectly charted piping or other utilities are encountered during excavation, Design-Build Entity shall consult the Owner immediately for directions as to procedure. Design-Build Entity shall cooperate with Owner and utility companies in keeping respective services and facilities in operation. Design-Build Entity shall repair damaged utilities to the satisfaction of Owner.

Design-Build Entity shall not interrupt existing utilities serving facilities occupied and used by Owner or others, except when permitted in writing by Owner and then only after acceptable temporary utility services have been provided.

3.4 Cast-In-Place Concrete

Where required for wall penetrations, pipe supports, and other repair or replacements required to complete the work, the Design-Build Entity shall be responsible for providing concrete consisting of portland cement, fine and coarse aggregate, water, and approved admixtures; then combined, mixed, transported, placed, finished and cured to accommodate the proposed work. All admixtures, curing compounds, and related products used in concrete or the curing and repair of concrete, which can contact

potable water, shall be certified as conforming to the requirements of ANSI/NSF 61 for contact with potable water when in the finished concrete.

3.5 Miscellaneous Metals

All metals shall be non-ferrous except of steel reinforcing and as approved by the Owner. All bolt, nuts and washers shall be 316 stainless steel and the nuts shall be coated to prevent galling. All anchor bolts shall be 316 stainless steel, provide additional pricing for titanium anchor bolts. Stanchions, pipe supports, equipment bases, braces, unistrut and straps shall be 316 stainless steel or aluminum. Dissimilar metal protection shall be shall be provided through use of appropriate dielectric materials where required.

3.6 Painting and Coating

Design-Build Entity shall provide all labor, materials, tools, equipment, and incidentals as required to furnish and apply coating systems for surface preparation and coating of all new and existing interior and exterior surfaces identified as part of the work. Manufacturer's recommendations including surface preparation, cure times, application thickness, application method, applicability of selected paintings and coatings for their intended use shall be strictly followed. Items to be coated shall include but not be limited to walls, floors, piping, equipment, supports and other pertinent accessory items or area damaged by construction activity.

Owner's approval shall be required for all components of the surface preparation, selection of colors, and paint system application before the start of proposed work.

Color-coding of pipelines, valves, equipment and ducts shall comply with applicable standards of ANSI A13.1, ANSI Z535.1, and 40 CFR 1910.144. Finish coats of paint for pipelines and equipment shall be coded in basic colors. Colors shall be brilliant, distinctive shades matching safety and pipeline colors per ANSI Z535.1, Recommended Standards for Water Works; Recommended Standards for Wastewater Facilities, color specifications for safety colors and other primary colors.

Provide pipe labels with flow arrows at each change in direction, tees (all sides) and every 20 feet of straight run.

3.7 Valves and Piping Requirements

The Design-Build Entity is responsible for the final sizing and selection of all equipment, pipe, supports, and associated materials. The Design-Build Entity shall conform to the current version of the Palm Beach County Water Utilities Minimum Design Standards and Approved Materials List.

At a minimum, the following information shall be submitted to the Owner for review and approval prior to installation:

- Detailed drawings and manufacturer's data for valves, pipe, fittings, gaskets, harnessing, supports, bolt kits, couplings, and all other pertinent materials required to complete the work.;
- Certificates of compliance with applicable referenced standards and any provisions for valves, pipe, joints, fittings, coatings, linings, sleeves, gaskets, harnessing, and all other appurtenances;
- Field pressure testing;
- Flushing and disinfection plans; and
- Signed and sealed calculations for pipe support systems.

Materials shall be delivered to the site to ensure uninterrupted progress of the work. Pipe, fittings, valves and associated other materials shall be handled carefully with approved handling devices. Materials shall be stored on heavy wood blocking or platforms so they are not in contact with the ground. Delivered materials shall be inspected for cracked, gouged, chipped, dented or other damage to the packaging or materials. If such damage is found, damaged materials shall be rejected and immediately removed from the site. If in the process of manufacture, transportation, storage or handling, any valves, pipe, fittings, or associated other materials are damaged, such material shall be rejected and replaced at the Design-Build Entity's expense.

Pipe interiors shall be kept completely free from dirt and foreign matter. All pipe shall be installed in strict accordance with the manufacturer's instructions and recommendations. When pipe must be cut to fit in the field, the work shall be performed using tools and equipment specifically designed for cutting the pipe, so as to avoid damage to the pipe and to leave a smooth end. Improperly cut and/or fitted pipe will be rejected and replaced at the Design-Build Entity's expense.

The manufacturer's field representative shall certify the installations observed were satisfactorily completed and all installation crews were familiar with the proper methods and procedures for the pipeline installation.

3.8 Electrical Requirements

3.8.1 Basic Requirements

Design-Build Entity shall design and provide all labor, materials, equipment and incidentals to complete the electrical work. All systems shall be properly grounded. Exterior systems shall have lightning protection.

3.8.2 Codes

Material and equipment shall be installed in accordance with the current standards and recommendations of the National Electrical Code, the National Electrical Safety Code, and with local codes, which apply. Where discrepancies arise between codes, the most restrictive regulation shall apply.

3.8.3 Area Classifications

3.8.3.1. Wet Locations: The following areas shall be considered wet locations:

3.8.3.1.1. All outdoor areas.

3.8.3.1.2. All indoor areas below grade unless otherwise specified.

3.8.3.1.3. Materials, equipment and incidentals in areas identified as wet locations shall meet NEC and NEMA requirements for wet locations. Enclosures shall meet NEMA 4 requirements as a minimum. Conduits shall be terminated at enclosures with watertight, threaded hubs.

3.8.3.2. Corrosive Locations

All chemical storage and pumping areas or rooms. Materials, equipment and incidentals in areas identified as corrosive shall meet NEC and NEMA requirements for corrosive locations. Conduit systems shall be PVC and enclosures shall meet NEMA 4X requirements. Conduits shall be terminated at enclosures with watertight hubs. Independent supports shall be 316 stainless steel struts.

3.8.4 Electrical Equipment

All new electrical equipment shall be capable of operating successfully at full-rated load, without failure, with an ambient outside air temperature of 0 degrees F to 122 degrees F and an elevation of 400 feet (MSL). All electrical devices and equipment shall have

ratings based on 75 degrees C terminations. All electrical equipment enclosures at a minimum shall meet NEMA 12 requirements.

3.8.5 Schematic Diagrams

Schematic diagrams shall be prepared by the Design-Build Entity to act as guidance in fulfilling the operational intent of the conceptual documents. It shall be the Design-Build Entity's responsibility to meet all safety and electrical codes, and to provide all equipment, appurtenances and specialty items required to provide for complete and operable systems. Review of control schemes submitted by Design-Build Entity shall not relieve Design-Build Entity of their contractual responsibility to provide complete and successfully operating systems.

3.8.6 Raceway Systems

Design-Build Entity shall furnish and install conduit and fittings to form complete, coordinated and grounded raceway systems. Design-Build Entity shall provide for the proper installation of all conduits for each system.

3.8.6.1. Rigid aluminum conduit for exposed indoor conduit runs in non-corrosive areas and rigid aluminum at all other sites.
3.8.6.2. PVC Schedule 80 for individual conduit runs direct buried in earth.
3.8.6.3. Schedule 40 PVC for conduit runs embedded in or under structural concrete slabs or in concrete ductbanks (all sites).
3.8.6.4. PVC Schedule 80 conduit for exposed indoor and outdoor runs in corrosive areas.
3.8.6.5. Flexible conduit for connections to motors and equipment.

3.8.7 Inspections, Testing and Adjustments

Accompany the normal installation tests with inspections to demonstrate to the satisfaction of the required jurisdictional authorities the following:

3.8.7.1. Connections: All circuits are properly connected in accordance with the drawings and applicable approved shop drawings.
3.8.7.2. Operation: All circuits and devices are operable.
3.8.7.3. Identification: All conductors are properly identified at each terminal.

Test each electrical circuit after permanent cables are in place to demonstrate that the circuit and connected equipment perform satisfactorily and that they are free from improper grounds and short circuits. Individually test 600-volt cables for insulation resistance between phases and from each phase to ground. Test after cables are installed and before they are put in service with a Megger whose rating is suitable for the tested circuit. Tests shall meet with the applicable specifications of ICEA S 66 524 and NEMA WC7 1971. The insulation resistance for any given conductor shall not be less than 1 megohm for 600 volt and less service. Any cable not meeting this value or which fails when tested under full load conditions shall be replaced with a new cable for the full length. Megger testing reports shall be submitted and included in the Technical Manual.

Test shielded instrumentation cable shields with an ohmmeter for continuity along the full length of the cable and for shield continuity to ground. Connect shielded instrumentation cables to a calibrated 4-20 milliamp DC signal transmitter and receiver. Test at 4, 12, and 20 milliamp transmitter settings.

Test the completed ground systems for continuity and for resistance to ground using an electrical ground resistance tester. Ground system resistance must be less than 5 ohms. Add up to two additional rods, spaced at 20 feet minimum from other electrodes, until resistance is less than 5 ohms.

Operate all starters, circuit breakers and associated equipment to demonstrate suitability and compliance with Specifications and reference standards, except for short circuit interrupting rating or other inherent design features covered by shop tests. Test all motors for direction of rotation and reverse connections if necessary. Check control circuits to determine that operation and sequence are correct and adjust limit switches, pressure switches, float switches, timers and other devices to give proper operation.

Each generator shall be tested under normal plant load for 24 hours without failure or shutdown to confirm fuel systems are working as required.

3.9 Instrumentation and Control Requirements (Salt Saturator/Brine Makers only)

3.9.1. General

Design-Build Entity shall provide all labor, materials, equipment and incidentals as shown, specified and required to furnish, install, calibrate, test, start-up and place in satisfactory operation a complete and operating system for proposed work, including programming of the PLC, SCADA, and all required wire terminations. Tag number, equipment number, and description shall match the Owners numbering convention standards.

3.9.2. Calibration, Start-Up and Testing

Field verify the calibration and performance of each instrument prior to start-up of the associated equipment, and document on a separate sheet for each.

3.9.3. System Check-Out and Start-Up Responsibilities

Design-Build Entity shall retain the services of a single system supplier to supervise and/or perform check out and startup of all system components. As part of these services, the system supplier shall coordinate and include check-out and start-up for those equipment items not manufactured or provided by him. The services of an authorized manufacturer's representative to check the equipment installation and place the equipment in operation may be required. The manufacturer's representative shall be thoroughly knowledgeable about the installation, operation and maintenance of the equipment.

Check and approve the installation of all instrumentation and control system components and all cable and wiring connections between the various system components prior to placing the various processes and equipment into operation. Conduct a complete system checkout and adjustment, including calibration of all instruments, tuning of control loops, checking operation functions, and testing of final control actions. When there are future operational functions included in this work, they should be included in the system checkout. All problems encountered shall be promptly corrected to prevent any delays in startup of the various unit processes.

System supplier shall provide all test equipment necessary to perform the testing during system checkout and start up. Design-Build Entity and system supplier shall be responsible for initial operation of monitoring and control system and shall make any required changes, adjustment or replacements for operation, monitoring and control of the various processes and equipment necessary to perform the functions intended.

Design-Build Entity shall furnish to the Owner certified calibration reports for field instruments and panel mounted devices specified in this Section as soon as calibration is completed. Design-Build Entity shall furnish Owner an installation inspection report certifying that all equipment has been installed correctly and is operating properly. The report shall be signed by authorized representatives of both Design-Build Entity and the system supplier.

3.9.4. Instrumentation and Control System Field Test

Following the plant monitoring and control system checkout and initial operation, system supplier, under the supervision of the Design-Build Entity, shall perform a complete system test to verify that all equipment and programmed software is operating properly as a fully integrated system, and that the intended monitoring and control functions are fully implemented and operational. Any defects or problems found during the test shall be corrected by system supplier, and then retested to demonstrate proper operation. Following demonstration of all system functions, the plant monitoring and control system including field sensors/transducers and instruments, and telemetry system shall be running and fully operational for a continuous 72 hour period.

3.9.5. Control Panels and Enclosures

Control panels located inside control or electrical room areas shall be NEMA 12 rated unless differently noted on drawings. All others shall be stainless steel or non-metallic NEMA 4 except in corrosive areas, which shall be NEMA 4X. Provide panel ventilation or air conditioning if required by ambient conditions. Use pan type construction for doors. Door widths shall not exceed 36-inches. Exterior panel with displays shall face north. Exterior control panels shall be 316 stainless steel with powder coated white epoxy exterior finish.

3.9.6. Surge Protection

Surge protection shall be provided to protect all electronic instrumentation from surges propagating along the signal, telephone, and power supply lines. Locate the suppression device as close as possible to the load device. The protection systems shall be such that the protection level shall not interfere with normal operation, but shall be lower than the instrument surge withstand level, and be maintenance free and self-restoring. Instruments shall be housed in suitable metallic cases, properly grounded. Ground wires for all surge protectors shall be connected to a good earth ground and where

practical each ground wire run individually and insulated from each other.

PART 4 SUBMITTALS

4.1 Design-Build Entity submittals shall include but not be limited to:

- 4.1.1. Utility Locate Plan
- 4.1.2. Demolition Plan
- 4.1.3. Shutdown Plan
- 4.1.4. Commissioning Plan for startup and testing activities
- 4.1.5. Drawings and Calculations
  - 4.1.6.1. 60%
  - 4.1.6.2. 90%
  - 4.1.6.3. 100%
- 4.1.6. Shop Drawings (including, but not limited to, rotary drum vacuum filter, platform, stairs, handrail, instruments, motors, starters, VFDs, PLCs, pipe, valves, etc.)
- 4.1.7. Technical Manual
  - 4.1.10.1. Certificate of Proper Installation (COPI)
  - 4.1.10.2. Testing reports (e.g. megger testing)
  - 4.1.10.3. UL Certification Reports
- 4.1.8. Spare Parts and Tools
- 4.1.9. 90-day Operating Supplies
- 4.1.10. Schedules
  - 4.1.15.1. Baseline Schedule
  - 4.1.15.2. Initial 30-day Plan of Operation
  - 4.1.15.3. Four week Look Ahead Schedules
  - 4.1.15.4. Minimum monthly schedule updates
  - 4.1.15.5. Installation Plan for rotary drum vacuum filter
  - 4.1.15.6. 90-days to Completion Schedule
- 4.1.11. Permits
- 4.1.12. As-Built Drawings
- 4.1.13. Warranty
- 4.1.14. Closeout Documents

ATTACHMENT K

SUPPORTING DOCUMENTATION

Augusta Fiberglass®
ASME Accredited • Fiberglass Industrial Equipment

86 Lake Cynthia Road • Blackville, South Carolina, 29817 • (803) 284-2246 • FX (803) 284-2309 • www.augustafiberglass.com

August 8, 2016

Cardinal Contractors
5365 Sterling Road
Ft. Lauderdale, FL 33314
ATTENTION: JOHN ELDER
E-MAIL: jelder@prim.com

Phone: 937-369-5866

Subject: Quotation
AFC REF #81604 Revision #3 (1607-26) DR

AUGUSTA FIBERGLASS® is pleased to furnish this quotation per your request.

DESCRIPTION OF QUOTE:
AFC'S QUOTATION IS CONDITIONED UPON THE ATTACHED AUGUSTA FIBERGLASS COMMERCIAL TERMS AND CONDITIONS.

SCOPE OF WORK: WATER TREATMENT PLANT #2

Four (4) FRP 20,000 Gallon Sodium Hypochlorite Storage Tanks, 12' I.D. x 25'-6" Straight Shell Height with Flat Bottom, Dome Top.

Fabrication: Hand lay-up per NBS PS 15-69, Contact Molded per ASTM D 4097-01 and Filament Wound per ASTM D 3299-10

Resin: Derakane 411 or equal

Nozzles, etc.:
2 – 2" Flanged Nozzles
4 – 4" Flanged Nozzles
2 – 6" Flanged Nozzles
1 – 6" V-Vent
1 – 3" Siphon Drain
1 – 6" FRP Down Pipe 25' Long
1 – 24" Top Manway (with hinge and cover; 316 stainless steel bolts and viton gasket provided for this fitting)
1 – 30" Side Manway (with cover; 316 stainless steel bolts and viton gasket provided for this fitting)
3 – 316 Stainless Steel Lifting Lugs
10 – 316 Stainless Steel Hold Down Lugs
Plywood Blinds for Shipment

Price (Each).....$31,906.00 x 4 = $127,624.00

AFC will fabricate items shown above at its Blackville South Carolina facility or its facility in Ocean Springs, Mississippi at Augusta Fiberglass' option.

Estimated Freight to Water Treatment Plant #2, West Palm Beach, FL is $20,925.00 and subject to change depending on final nozzle orientation and projections.

SCOPE OF WORK: WATER TREATMENT PLANT #3

Four (4) FRP 20,000 Gallon Sodium Hypochlorite Storage Tanks, 12' I.D. x 25'-6" Straight Shell Height with Flat Bottom, Dome Top.

Fabrication: Hand lay-up per NBS PS 15-69, Contact Molded per ASTM D 4097-01 and Filament Wound per ASTM D 3299-10

Resin: Derakane 411 or equal

Nozzles, etc.:
2 – 2" Flanged Nozzles
4 – 4" Flanged Nozzles
2 – 6" Flanged Nozzles
1 – 6" V-Vent
1 – 3" Siphon Drain
1 – 6" FRP Down Pipe 25' Long
1 – 24" Top Manway (with hinge and cover; 316 stainless steel bolts and viton gasket provided for this fitting)
1 – 30" Side Manway (with cover; 316 stainless steel bolts and viton gasket provided for this fitting)
3 – 316 Stainless Steel Lifting Lugs
10 – 316 Stainless Steel Hold Down Lugs
Plywood Blinds for Shipment

Price (Each).....$31,906.00 x 4 = $127,624.00

AFC will fabricate items shown above at its Blackville South Carolina facility or its facility in Ocean Springs, Mississippi at Augusta Fiberglass' option.

Estimated Freight to Water Treatment Plant #3, Delray Beach, FL is $21,790.00 and subject to change depending on final nozzle orientation and projections.

SCOPE OF WORK: WATER TREATMENT PLANT #9

Four (4) FRP 20,000 Gallon Sodium Hypochlorite Storage Tanks, 12' I.D. x 25'-6" Straight Shell Height with Flat Bottom, Dome Top.

Fabrication: Hand lay-up per NBS PS 15-69, Contact Molded per ASTM D 4097-01 and Filament Wound per ASTM D 3299-10

Resin: Derakane 411 or equal

Nozzles, etc.:
2 – 2" Flanged Nozzles
4 – 4" Flanged Nozzles

Nozzles Con't:
2 – 6" Flanged Nozzles
1 – 6" V-Vent
1 – 3" Siphon Drain
1 – 6" FRP Down Pipe 25' Long
1 – 24" Top Manway (with hinge and cover; 316 stainless steel bolts and viton gasket provided for this fitting)
1 – 30" Side Manway (with cover; 316 stainless steel bolts and viton gasket provided for this fitting)
3 – 316 Stainless Steel Lifting Lugs
10 – 316 Stainless Steel Hold Down Lugs
Plywood Blinds for Shipment

Price (Each).....$31,906.00 x 4 = $127,624.00

AFC will fabricate items shown above at its Blackville South Carolina facility or its facility in Ocean Springs, Mississippi at Augusta Fiberglass' option.

Estimated Freight to Water Treatment Plant #9, Boca Raton, FL is $21,395.00 and subject to change depending on final nozzle orientation and projections.

AUGUSTA FIBERGLASS			AUGUSTA FIBERGLASS		CARTER VERPLANCK
AUGUSTA FIBERGLASS					
TANKS 1 THROUGH 4	$ 127,624.00		MATERIAL	$681,228.00	$232,000.00
TANKS 5 THROUGH 8	$ 127,624.00		TAX	$ 40,873.68	$ 13,920.00
TANKS 9 THROUGH 12	$ 127,624.00		FREIGHT	$ 64,110.00	
MFG REP ON SITE x (3 trips x 2 days each)	$ 17,700.00		INSPECTIC	$ 8,638.32	
NO SEEM ADD	$ 57,600.00		TOTAL	$794,850.00	$245,920.00
LEVEL GUAGES ADD	$ 93,600.00				
LADDERS ADD	$ 111,276.00				
SAFETY RAILS ADD	$ 18,180.00				
CARTER VERPLANCK					
BRINE TANKS	$ 218,500.00				
LADDERS AT BRINE	$ 13,500.00				
		TAXABLE AMOUNT			
TAX 6%	$ 54,793.68	$ 913,228.00			
INSPECTIONS	$ 8,638.32				
FREIGHT	$ 64,110.00				
TOTAL FOR EQUIPMENT ITEMS HYPO + BRINE ---->	$ 1,040,770.00				

OPTION #1: For a manufacturer's representative on-site add $4,225.00 per every one day visit and add $1,675.00 per every consecutive day required during the same mobilization.

OPTION #4: For the tanks to have no seam below 7'-0" as per the specifications add $4,800.00 per tank.

- If this option is not chosen Augusta Fiberglass is willing to offer a 3 year warranty from date of shipment. Seam will be 9" from the bottom.

OPTION #5: For a magnetic level gauge add $7,800.00 per tank. ABB/K-TEK KM265.
PN: KM26S.SS6.SW2.FE.FE.X.B2.P053.R21.X.P053.M1G.B.FLT01

OPTION #7: For Aluminum Caged Ladder on tanks 12' ID x 25'-6" Straight Shell Height add $9,273.00 per tank.

OPTION #12: For a Safety Rail System, one (1) system, one (1) trolley and one (1) harness add $1,515.00 per tank, 25'-6" Straight Shell Height Tanks

NOTES:

1. 316 Stainless Steel Bolts and Viton Gasket provided for manways only.
2. All fabrication, inspection and tolerances to be upheld to the referenced above industry standard specifications.
3. It is the customer's responsibility to verify the nozzle schedule.
4. The brine tanks have not been included in this quotation. More information must be submitted on the requirements of these tanks prior to quotation.
5. A Florida PE stamp has been included for calculations and final drawings only.
6. **Augusta Fiberglass has not included any safety climb devices in our quotation. If these are required please submit detailed specifications for a pricing/design revision.**

7. Clarifications / Exceptions to Specification section TR09 16-064:
   - 1.1.7.6 – Liquidated damages should be deleted from the Augusta Fiberglass scope of requirement.
   - 1.2.A.1 – Independent inspector should be hired and paid for by others however should be mutually agreed upon by Augusta Fiberglass
   - 1.2.A.3.F – Hold down lugs only have been designed for buoyancy of 2'-6".
   - 1.2.A.5 – Anchor bolt supply and design shall be by others.
   - 1.2.A.7 – It is the customer's responsibility to properly size the vent to ensure thanks remain at atmospheric pressure at all times.
   - 1.2.A.9.C – No tailing lugs have been provided.
   - 1.2.A.10 – All valves shall be provided by others.
   - 1.2.A.11 – Hazard labels shall be provided by others. Augusta Fiberglass can provide FRP brackets for these labels if sizing is submitted. A pricing revision will be submitted following this information.
   - 1.2.A.14.A – Augusta Fiberglass drawings will show the locations of the hold down lugs. However anchor bolt layouts will not be provided.
   - 1.2.A.15.E – Augusta Fiberglass can state the tanks will conform with the specifications with the clarifications and exceptions as stated on this quotation.
   - 1.2.A.19.A – Roofing felt, if required, shall be by others. Augusta Fiberglass does not recommend installing tanks on a pad that deflects.
   - 1.2.B.1 – Warranty will be as per the attached terms and conditions.
   - 1.2.D.1.A.4&5 – Augusta fiberglass will fabricate the tank shell, top and bottom separately and join them with secondary bonding as per ASME RTP-1. There will be a seam below 7' on the tank shell.
   - 1.2.D.1.A.11 - Augusta fiberglass will fabricate the tank shell, top and bottom separately and join them with secondary bonding as per ASME RTP-1. There will be a seam below 7' on the tank shell.
   - 1.2.D.1.E.4 – Magnetic flag indicator sight gauges shall be provided by others. Augusta Fiberglass can provide these items if a manufacture and model number is submitted. A pricing/design revision will be submitted following this information.
   - 1.2.D.1.E.8 – Liquid level control system shall be provided by others. Augusta Fiberglass can provide these items if a manufacture and model number is submitted. A pricing/design revision will be submitted following this information.

8. Design Conditions:

Temperature	Ambient			
Pressure	Atmospheric			
Seismic Zone	Ss: 0.049	S1: 0.025	I: 1.0	Site Class: D
Wind Zone	186 MPH	I: 1.0		
Specific Gravity	1.26			
Contents	15% Sodium Hypochlorite			

TERMS OF PAYMENT: Net 30 days from date of invoice.
- 25% after first submission of shop approval drawing to customer
- Balance invoiced as items become ready for shipment

A finance charge of 1 ½% per month (18% APR) will be assessed on any balance not paid within 30 days of the invoice date. If it is necessary to place the account into collection proceedings, purchaser shall be responsible for all collection costs including witness's and attorney's fees.

ANY MATERIALS OR FABRICATION NOT LISTED ON OUR QUOTE WILL NOT BE FURNISHED AT THIS PRICE.

PRICE IS F.O.B. POINT OF SHIPMENT
NO TAXES ARE INCLUDED
PRICES WILL BE FIRM FOR 30 DAYS

SCHEDULE:

Drawings: 2 – 3 weeks for approval drawings ARO

Fabrication: 12 – 14 weeks after customer's release of full fabrication drawings

Delivery to be confirmed upon receipt of approved drawings and release for fabrication. Please call if delivery is not acceptable. We will store the completed vessels at our facility for no additional charge for a period of two weeks, after which you will be responsible for a charge of 1 ½% of the purchase order value per month for each tank which remains in storage. Stored vessels will be invoiced, and payment is required, in accordance with the terms above.

CONTACT INFORMATION:

Thank you for allowing Augusta Fiberglass to provide you with the attached quotation.

If you have any questions or would like to place an order, please call us at 1-800-527-1572. Ask to speak with someone in the sales department and they will assist you in moving your project forward. We are here from 8:00am – 5:00pm (EST), Monday through Friday.

Thanks again and we look forward to hearing from you.

DR/bhp

AUGUSTA FIBERGLASS® TERMS AND CONDITIONS

1. **The prices quoted are expressly conditioned upon the terms and conditions in this document. The terms hereinafter stated supersede all other terms, understandings and customs inconsistent with this document.**

   A. The prices quoted will be effective for a period of thirty (30) days from the date of this quotation. If Augusta Fiberglass (hereinafter "AFC") receives Purchaser's acceptance after the expiration date, the quoted prices, and such acceptance shall only be binding upon AFC by AFC's written confirmation of such prices.

   B. Prices for undelivered portions of continuing installment orders are subject to change whenever AFC's costs are affected by Federal or State legislation, changes in costs of raw materials and/or labor rates, together with applicable overhead for such costs.

2. **AFC warrants that the goods provided shall be free of defects in its design (if provided by AFC), material and workmanship for a period of one year from the date of shipment.**

   THE WARRANTY SET FORTH ABOVE IS THE EXCLUSIVE REMEDY, THE EXCLUSIVE WARRANTY, AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED BY LAW OR TRADE USAGE, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. AFC IS NOT LIABLE FOR DEFECTS OR DAMAGE DUE TO NEGLIGENCE (OTHER THAN THAT OF THE SELLER), ACCIDENT, ABUSE, IMPROPER INSTALLATION (OTHER THAT BY AFC) IMPROPER OPERATION, OR MAINTENANCE, OR ABNORMAL CONDITIONS.

   AFC SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES. AFC'S TOTAL WARRANTY LIABILITY IS LIMITED TO THE REPAIR OR REPLACEMENT OF THE GOODS AT AFC'S DISCRETION. AFC SHALL NOT BE RESPONSIBLE FOR COSTS IN EXCESS OF THE PURCHASE PRICE. THIS WARRANTY SHALL ONLY APPLY TO GOODS LOCATED/USED IN THE CONTINENTAL UNITED STATES.

3. AFC shall not be responsible for errors, or defects in the work on account of plans, designs, specifications or drawings furnished by the Purchaser. AFC's quotation is based upon reliance in the accuracy of data supplied by Purchaser.

4. AFC will not recognize claims or make allowances for replacement of materials or correction of AFC's error unless AFC is given notice in writing of such defect at least 10 days prior to the Purchaser incurring any cost or expense on account thereof.

5. AFC shall not be considered in default in the performance of its obligations hereunder if such performance of its obligations is prevented or delayed by an Act of God, Outbreak of Hostilities, War, Revolution, Civil Commotion, Riot, Epidemic, Wind, Flood, Earthquake, any Law Order, Proclamation, Regulation, or Ordinance of any Government or subdivision of Government, delay in delivery of materials, delay of subcontractors, or any other cause, whether similar or different from those listed, which are beyond the reasonable control of the party affected.

6. All goods shall be subject to normal manufacturing variations of Seller and its raw materials supplies such as are recognized in the reinforced plastics industry.

7. In the event of a dispute arising from the manufacture, sale, delivery, or performance of a purchase order and any amendments or additions thereto issued pursuant to the attached bid and any amendments or additions thereto, jurisdiction and venue for such dispute is exclusively vested in the Court of Common Pleas, Barnwell County, South Carolina, and construed exclusively in accordance with the laws of the State of South Carolina.

8. Quotations and sales are F.O.B. Point of Shipment unless otherwise expressly stipulated.

Augusta Fiberglass®

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Augusta Fiberglass has been a world leader in the design, fabrication, and erection of Fiberglass related products since its inception in 1974. We are an industry leader when it comes to quality, precision craftsmanship, and customer service and are one of only nine distinguished **ASME RTP-1 certified fabricators** in the world. Our product and service offerings include:

- **Tanks**
- **Process equipment**
- **Scrubber Vessels**
- **Stacks, Stack liners**
- **Piping and Ductwork**
- **FRP field fabrication**
- **Field Services**

Our production personnel have the capability to fabricate tanks and other fiberglass vessels of virtually any size or shape to meet your project requirements, either at your plant site or shipped from our facility in Blackville, South Carolina. We also have a sister company, **B&D Plastics**, that specializes in **Dual Laminate Fiberglass** equipment like tanks, scrubber vessels, stacks, pipes and ductwork – located in Ocean Springs, MS. To complement our tank portfolio, we offer industrial grade polyethylene day and storage tanks to complete your storage needs.

Augusta Fiberglass is a full service provider with experienced field engineers and trained field technicians ready to support your projects with the following field services:

- **Emergency response service**
- **Field Fabrication or Installations**
- **Scheduled and Unscheduled Shutdowns**
- **Routine Maintenance and General Repairs**
- **Field Modification**

B&D® PLASTICS LLC CUSTOM DUAL-LAMINATE FABRICATION

Please visit our web sites at www.augustafiberglass.com and www.bdplastics.com for a complete description of our full line of products and service capabilities. Or contact us directly at 800-527-1572.

CARTER | VERPLANCK
4910 W. CYPRESS STREET | Phone: 813.287.0709
TAMPA, FLORIDA 33607 | Fax: 813.282.8216
www.carterverplanck.com

Quote

To: **Cardinal Contractors, Inc.**
John Elder

August 4, 2016
Rev 5

Attn: **Palm Beach County**
Plas-Tanks FRP Tanks
And Bryneer Systems

WE ARE PLEASED TO QUOTE YOU ON THE FOLLOWING MATERIAL FOR ACCEPTANCE WITHIN 30 DAYS

As the Florida Representative for Plas-Tanks, Carter VerPlanck is proud to provide the quote for the as specified and presented below:

I. Equipment to be Provided

A. Water Treatment Plant No. 2 – Three (3) 85.5 ton Byrneer Systems.

II. Quantity Three (3) 85.5 Ton Bryneer System

A. Plas-Tanks filament wound reinforced thermoset plastic vessel, manufactured in accordance with Specification ASTM-D-3299-10.The inner surface and interior layers are included in the structural wall calculation, inner corrosion liner is fabricated with isophthalic polyester resin reinforced with 1 Ply 'C' Glass surface veil and backed with chop strand fiberglass laminate to a full 100 mils. Balance of laminate fabricated to full wall thickness with the same resin as above. Exterior surface finished with a white gelcoat.

B. Vessels are to be: Flat bottom w/2'-0" uplift anti-buoyancy design, dish top, with an inside diameter of 12'-0", a straight shell height of 19-2" and a nominal capacity of 85.5 tons.

C. Vessels are to have the following accessories:

1. Tie down lugs; 316 stainless steel
2. Lifting channels; 316 stainless steel
3. One (1) – 4" conically gusseted flanged nozzle with 4" diameter 316 stainless steel schedule 40 salt unloading pipe with ¾" water injection port, 4" aluminum Kamlock coupling and cap
4. Fiberglass clips will be furnished to support the pipe off the vessel wall
5. One (1) – 2" conically gusseted flanged nozzle brine outlet with internal brine plenum with slotted PVC filter pipe
6. One (1) – 2" conically gusseted flanged nozzle with PVC water distribution ring
7. One (1) – 8" elbow vent with PVC vent extension, clips to attach to vessel wall, polyester dust bag, rubber connection boot.
8. One (1) – 2" conically gusseted flanged nozzle; drain
9. One (1) – 2" conically gusseted flanged nozzle; overflow w/exterior piping & supports
10. One (1) – 24" top flanged manway w/cover, neoprene sponge gasket, spring loaded for emergency

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Quote

To: **Cardinal Contractors, Inc.**
John Elder

August 4, 2016
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Attn: **Palm Beach County**
Plas-Tanks FRP Tanks
And Bryneer Systems

WE ARE PLEASED TO QUOTE YOU ON THE FOLLOWING MATERIAL FOR ACCEPTANCE WITHIN 30 DAYS

pressure relief, pressure on salt delivery will be approximately 15 psi.
11. One (1) – 30" side flanged manway w/cover, santoprene gasket, & 316 stainless steel fasteners.
12. FRP ladder w/safety cage & top perimeter FRP skirt handrail assembly
13. P.E. Calculations
14. Post Cure
15. NSF61 Certified and Registered
16. Corrosion resistant nameplate
17. Quartz Rock Filter Bed (Quartz Rock to be provided. Contractor to install.)

D. Digital brine level controller and pressure transmitter with Asco 1 1/4" normally closed solenoid valve to be mounted by customer in the water inlet line (in lieu of specified due to our NSF61 Certification).

E. Vessel is to be designed for storage of Sodium Chloride Brine, specific gravity 1.2, ambient temperature, atmospheric pressure, 186 mph winds, seismic conditions in accordance with IBC 2015, outdoor installation.

F. Installation inspection and start-up by PlasTanks certified personnel.

III. Warranty

A. The Bryneer System will be provided with PlasTanks full Five (5) Year Warranty from Date of Delivery and Acceptance

IV. Items not included unless specified herein

A. Off-loading at jobsite, any labor or tools for Assembly or Installation, Field operation, Field performance testing
B. Suction or Discharge piping, mechanical couplings, supports, tie rods, leveling screws, fittings, etc.
C. Air relief valves / Vacuum valves / Isolation valves, etc.
D. Vibration isolation equipment
E. Seal water or drain accessories such as flow indicators, pressure reducing valves, Y strainers, fittings
F. Seismic Analysis
G. Gauges, T cocks, templates or accessories
H. Any Type of Controls, VFDs, Instrumentation, MCCs, Starters, Power Factor Correction Capacitors, Panels, cable, wiring, conduits, temperature or vibration probes, remote controls, or any auxiliary electrical

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Quote

To: **Cardinal Contractors, Inc.**
John Elder

August 4, 2016
Rev 5

Attn: **Palm Beach County**
Plas-Tanks FRP Tanks
And Bryneer Systems

WE ARE PLEASED TO QUOTE YOU ON THE FOLLOWING MATERIAL FOR ACCEPTANCE WITHIN 30 DAYS

equipment extraneous to the pump motors

I. Standard tools or tool chests, lubricants, grease fitting extensions or guns

J. Field painting, touch-up paint supply

IV. Coordination Notes/Comments:

A. In regards to the dust collection system, water distribution system and lever controls for the brinemaker, to maintain the NSF 61 Certification for the PlasTanks Bryneer, the standard arrangement has been quoted for these items. This provides the functionality that the Bryneer required for these systems. PlasTanks is willing to modify these per PBC direction once a better understanding of the requirements of the specification has been completed. However, specific questions submitted to PBC were not addressed prior to this proposal. PlasTanks will need to cross check any changes to ensure the NSF 61 Certification has not been compromised.

Quote for Bryneer Systems with Fabricator's RPT-1 Certification (Part 1 C.1)

$ 218,500.00
NET LOT PLUS TAX

ADDERS:

1) Aluminum Ladders and Accessories - $4,500.00 Per Vessel

Price includes freight prepaid and added. Unloading by Contractor. The freight estimate (above) was determined at the time that the quotation was originally prepared. Dimensions provided to the carrier are based on average height, length, and width values for vessel(s) of the size(s) quoted. Should orientation of fittings/accessories or fuel cost increases over time affect a higher freight cost at time of shipment, we reserve the right to adjust the freight cost to reflect this increase. Sales Tax is not included.

Delivery Time Frames:

Byrneer System
Submittals: Approximately 2 to 3 weeks
Equipment: Approximately 10 to 16 weeks
Delivery schedule to be confirmed after receipt of drawing approval

CARTER | VERPLANCK
4910 W. CYPRESS STREET | Phone: 813.287.0709
TAMPA, FLORIDA 33607 | Fax: 813.282.8216
www.carterverplanck.com

Quote

To: **Cardinal Contractors, Inc.**
John Elder

August 4, 2016
Rev 5

Attn: **Palm Beach County**
Plas-Tanks FRP Tanks
And Bryneer Systems

WE ARE PLEASED TO QUOTE YOU ON THE FOLLOWING MATERIAL FOR ACCEPTANCE WITHIN 30 DAYS

Please Note:

1. We *do not include sales tax,* pressure gauges, wire cable, conduit, piping, installation, hook-up, field testing, control panels or any other accessories or other ancillary items which are not specifically called out in this scope of supply.
2. Under no circumstances will Carter & VerPlanck, Inc. or its suppliers be liable for any incidental, consequential, liquidated, special or late delivery damages whatsoever.
3. Payment terms are 100% net 30 days from delivery with approved credit. Our prices based upon *no retainage.*
4. Pricing is based upon Carter & VerPlanck, Inc. and the manufacturer's Standard Terms and Conditions of Sales. Copies of these documents are attached herewith for your review and reference. *No other terms or conditions of sale will apply unless accepted in writing by an officer of the company.*

TERMS: 100% Net 30 days after invoice date

-WITH CREDIT APPROVAL

QUOTATION DOES NOT INCLUDE ANY SALES OR USE TAX
PAYABLE UNDER ANY STATE OF FEDERAL STATUE

CARTER & VERPLANCK, INC.

BY *Tyler J. Tedcastle, P.E.*

AUGUSTA FIBERGLASS	
AUGUSTA FIBERGLASS	
TANKS 1 THROUGH 4	$ 127,624.00
TANKS 5 THROUGH 8	$ 127,624.00
TANKS 9 THROUGH 12	$ 127,624.00
MFG REP ON SITE x (3 trips x 2 days each)	$ 17,700.00
NO SEEM ADD	$ 57,600.00
LEVEL GUAGES ADD	$ 93,600.00
LADDERS ADD	$ 111,276.00
SAFETY RAILS ADD	$ 18,180.00
CARTER VERPLANCK	
BRINE TANKS	$ 218,500.00
LADDERS AT BRINE	$ 13,500.00
TAX 6%	$ 54,793.68
INSPECTIONS	$ 8,638.32
FREIGHT	$ 64,110.00
TOTAL FOR EQUIPMENT ITEMS HYPO + BRINE ---->	$ 1,040,770.00

TAXABLE AMOUNT
$ 913,228.00

AUGUSTA FIBERGLASS		CARTER VERPLANCK
MATERIAL	$ 681,228.00	$ 232,000.00
TAX	$ 40,873.68	$ 13,920.00
FREIGHT	$ 64,110.00	
INSPECTIC	$ 8,638.32	
TOTAL	$ 794,850.00	$ 245,920.00

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TERMS & CONDITIONS OF SALE

1) Neither Carter & VerPlanck, Inc. nor the manufacturer(s) will be liable for damages of any kind, whether direct, consequential, incidental, and special or liquidated.

2) The quoted price may include systems or components from more than one vendor. Carter & VerPlanck, Inc., will provide separate prices for individual systems or components upon request, although the total price of all items quoted may vary as a result.

3) Price does not include any gauges, gauge cocks, tools, lubricants, installation, spare parts, start-up service or other items not specifically called out herein.

4) Price does not include any motor starters, controls, or power factor correction devices other than as specifically called out herein.

5) THE WARRANTY EXTENDED BY THE MANUFACTURER(S) IS IN LIEU OF ALL OTHER OBLIGATIONS, LIABILITIES OR WARRANTIES OF MERCHANTABILITY, FITNESS OR OTHERWISE, EITHER EXPRESS OR IMPLIED, BY FACT OR BY LAW, AND STATES OUR ENTIRE AND EXCLUSIVE LIABILITY AND BUYER'S EXCLUSIVE REMEDY FOR ANY CLAIM OF DAMAGES IN CONNECTION WITH THE SALE OR FURNISHING OF GOODS OR PARTS, THEIR DESIGN, SUITABILITY FOR USE, INSTALLATION OR OPERATION. WE FURTHER SPECIFICALLY EXCLUDE ANY EXPRESS OR IMPLIED WARRANTIES REFERENCE UNDER FLORIDA STATUTE #718.203. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

6) **NOT INCLUDED:** Unless specifically set forth in the scope of the quotation, this offer **does not** include:
- start-up assistance or field services
- interconnecting wiring and/or conduit
- Installation labor
- Installation supervision
- Motor control equipment
- Motor starters or contactors
- Power distribution equipment
- Miscellaneous mechanical and mounting hardware

7) **FREIGHT:**
A) All prices are F.O.B. factory or suppliers' shipping point with freight prepaid and included to the jobsite.
B) Title and Risk of Loss passes to CONSIGNEE AT SHIPPING POINT.
SELLER prepays freight charges.
SELLER bears freight charges.
CONSIGNEE must file claims for loss or damage, (if any).
C) Seller will not consider any claim for damage or shortage unless it is noted on the bill of lading at time of receipt. It is the responsibility of the CONSIGNEE to verify that all items contained on the bill of lading are received prior to accepting shipment.

8) **TAXES:**
The prices quoted are exclusive of, and Purchaser shall pay and make all returns for, any Federal, State, or local sales, use, transfer, or similar taxes applicable to the equipment and material once the same have been delivered as provided herein.

9) **VALIDITY OF PRICING:**
The prices stated herein are contingent upon receipt of a firm order, or letter of intent, in an acceptable form from Purchaser within 30 days from the date of this offer, and Purchaser's willingness to accept delivery when the factory is prepared to ship. If a responsive firm order is not received by the above date, Seller shall have the right to withdraw this quotation and to revise the prices and shipping dates provided herein.

10) **PAYMENT TERMS:**

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Seller's payment terms are that all invoices are due and payable within thirty (30) days of the date thereof with approved credit. Interest on the unpaid balance at the rate of 11/2% per month, or the maximum permitted by law, whichever is less will be added to all outstanding invoices which are not paid within 30 days. **Our price is based on no retainage.**

11) **DELIVERY:**
The shipping dates provided herein are based on Seller's current information as to availability of material and components and our best estimate as to dates on which we will be able to ship. These dates are subject to revision or postponement because of unavailability of material and components or because of events beyond our control.

If Purchaser requests postponement of previously agreed to shipping date(s), Seller may invoice the Purchaser, or then require payment for all of such equipment and material as is then ready for shipment; and, from and after the date that such equipment and material or any portion thereof is ready for shipment, any expenses or other charges incurred by Seller in regards to the same shall be at Purchaser's expense and Purchaser shall promptly pay any invoice rendered by Seller in regard thereto.

12) **SERVICE:**
No start-up assistance or field services are included unless specifically called out in our offering. If so included, the Seller will furnish Field Service Engineer(s) as described in our proposal, at the time of start-up, to inspect the completed system, to advice in regard to placing the system in initial operation and to instruct operating personnel on the proper use of the equipment and material. The proper installation, start-up and operation of the system and any further changes to be made in the system, responsibility for servicing, and all labor costs thereof, shall be the responsibility, under the control and at the risk of the Purchaser. At the time start-up service is requested we ask you to be **completely** prepared, including where and as appropriate, the availability of power, water, flow, access, etc. so that start-up may proceed as anticipated. Any return trips to the site or additional time required as a result of failure to be so prepared, will be charged to the customer at the prevailing demand service rate.

If service additional to that provided for therein is required, Seller, if available, shall furnish at the expense of the Purchaser, competent service engineers at Seller's then prevailing rates, plus travel and living expenses, to assist in additional service in regard to the equipment and material or in regard to equipment furnished by Purchaser. All charges in connection with such service shall be billed by the Seller and shall be due and bear interest at the Company's normal payment terms unless Seller shall require other payment terms and conditions.

13) **GENERAL:**
The descriptions, terms and conditions contained in this Proposal and the terms and conditions contained in the Manufacturer's Standard Terms attached hereto, which are incorporated herein by reference, constitute the quotation of the Seller. To the extent that the descriptions, terms and conditions contained in the Proposal are inconsistent with the Manufacturer's Standard Terms, the Manufacturer's Standard Terms are modified by this Description.

14) No order shall be deemed accepted by the Manufacturer until the Purchaser is notified of its acceptance by the Manufacturer. Carter & VerPlanck, Inc., is not an agent or employee of the Manufacturer(s) and is not authorized to accept orders in its (their) behalf.

15) Any suit or proceeding brought by Purchaser to enforce this agreement, to resolve any dispute over its terms, or to sue for damages for its breach shall be brought only in a state or federal court of appropriate jurisdiction in Hillsborough County, Florida. Purchaser expressly waives any objection that venue in Hillsborough County is inconvenient or improper.

16) In any suit or proceeding brought to enforce this agreement, to resolve any dispute over its terms, or to sue for damages for its breach, the prevailing party shall recover a reasonable attorneys' fee in addition to costs of suit.

Electron Corp of South Fla.
Electrical Contractor
127 RENAISSANCE CIRCLE Jupiter, FL 33458
Tel. (561) 744-1388 Fax (561) 744-5777

August 14, 2016

PB County Water Plant

2, 3 & 9 Project WUD 16-064

Electron Corp. of South Florida Proposes to Furnish and install the following sections complete with the exceptions as listed:

1. Reinstall wiring to level transducers at 12 sodium hypochlorite tanks;
2. Reinstall wiring for 3 brine tank liquid level pressure transducers;

Bid $ 22,000.00

Please feel free to call me should you have any questions.

Albert Laessig

President

Engineering Fees
Project Name: WTP #3 CIP System Improvements
Project No.: WUD 14-072
Work Authorization No.

Task Number	Task Description	Associate, Engineering (VI)	Director, Engineering (V)	Project Manager (IV)	Project Engineer (III)	Engineer (II)	CADD Technician (Enginering)	CADD Technician (Surveying)	Senior Registered Surveyor	Registered Surveyor	Survey Crew	Soft Dig (per hole)	Utility Locates (per hour)	Subconsultant	Subtotal
1	Data Collection	0	0	50	12	0	0	0	0	0	0	0	0	$ 8,329.20	$9,060.00
2	60% Design	0	4	110	14	0	0	0	0	0	0	0	0	$ 16,384.12	$19,020.00
3	90% Design	0	8	72	12	8	0	0	0	0	0	0	0	$ 5,134.04	$14,640.00
4	100% Design	0	0	90	22	8	4	4	0	0	0	0	0	$ 3,832.30	$18,000.00
5	Pre-Construction Services	0	0	74	12	4	3	0	0	0	0	0	0	$ 3,000.00	$13,385.00
6	Construction Services	0	0	80	12	4	3	3	0	0	0	0	0	$ 18,486.52	$14,570.00
7	Project Close-Out	0	0	54	14	10	0	0	0	0	0	0	0	$ 3,044.68	$11,020.00
	Labor Subtotal Hours	0	12	530	98	34	10	7	0	0	0	0	0		$99,695.00
	Labor Raw Costs	$63.33	$58.33	$50.00	$43.33	$36.67	$31.67	$31.67	$48.33	$43.33	$45.00	$160.00	$68.33		
	Labor Multiplier	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		
	Labor with Mutiplier	$190.00	$175.00	$150.00	$130.00	$110.00	$95.00	$95.00	$145.00	$130.00	$135.00	$480.00	$205.00		
	Labor Total	$0.00	$2,100.00	$79,500.00	$12,740.00	$3,740.00	$950.00	$665.00	$0.00	$0.00	$0.00	$0.00	$0.00		$99,695.00
	Subconsultant Total													$58,210.86	$58,210.86
	Subtotal Labor + Subconsultant														$157,905.86
	Reimbursable Expenses														$0.00
	Total Engineering Fees														$157,905.86

Subconsultant List	Amount
Hillers (Electrical)	$29,210.86
AGA (Structural)	$29,000.00
Dron's Video (1 per month for 6 months)	$0.00
Subconsultant Total	$58,210.86

BEARING POINT
CONSTRUCTION, INC CGC1520776

1615 S. Congress Avenue, Delray Beach 33445. Tel. 305-906-0694

John Elder

Date: 8/18/2016

Cardinal Contractors

RE: Palm Beach County Plan 2, 3 and 9 Sodium Hypochlorite Containment Pipe Painting

We propose to perform the following scope of work:

Sodium Hypochlorite Containment Piping Painting

1. Pressure Clean Piping.
2. Paint Piping With Approved Coating.

Excluded:

1. Structures not included above

All for the sum of: $55,000.00

Sincerely,

Justin Randolph

Bearing Point Construction, Inc

305-906-0694