

PALM BEACH COUNTY
BOARD OF COUNTY COMMISSIONERS
AGENDA ITEM SUMMARY

Meeting Date:	July 12, 2016	Consent <input checked="" type="checkbox"/>	Regular <input type="checkbox"/>
		Public Hearing <input type="checkbox"/>	

Department: Water Utilities Department

I. EXECUTIVE BRIEF


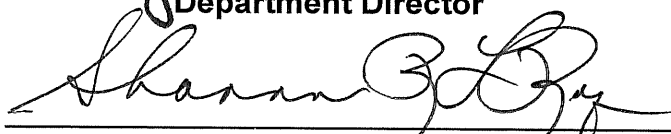
Motion and Title: Staff recommends motion to approve: Work Authorization No. 2 with Cardinal Contractors, Inc. for the TR04 – Water Treatment Plant (WTP) No. 8 Rotary Drum Vacuum Filter and High Service Pumps Replacement Project (Project) in the amount of \$1,822,500.

Summary: On March 10, 2015, the Board of County Commissioners (BCC) approved the Optimization and Improvements Design-Build Contract with Cardinal Contractors, Inc. (R2015-0316). Work Authorization No. 2 provides for the replacement of the rotary drum vacuum filter and High Service Pumps #3 and #4 at WTP No. 8. The rotary drum vacuum filter for lime sludge will be replaced with upgraded materials to increase sustainability. The high service pumps will be replaced to increase capacity and improve energy efficiency. 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. Work Authorization No. 2 includes 66.83% overall participation. The cumulative SBE participation, including Work Authorization No. 2 is 48.84% overall. Cardinal Contractors, Inc. is a Palm Beach County company. This Project is included in the FY16 Capital Improvement Plan adopted by the BCC. (WUD Project No. 16-043) District 2 (MJ)

Background and Justification: On March 10, 2015, the BCC approved the Contract for Optimization and Improvements Design-Build Contract with Cardinal Contractors, Inc. (R2015-0316). This work is necessary to maintain the integrity and reliability of the aging systems at WTP No. 8. Cardinal Contractors, Inc. will provide builders risk insurance prior to commencement of construction.

Attachments:

- 1. Location Map
- 2. Two (2) Original Work Authorization No. 2

Recommended By:		6-20-16
	Department Director	Date
Approved By:		7-8-16
	Assistant County Administrator	Date

II. FISCAL IMPACT ANALYSIS

A. Five Year Summary of Fiscal Impact:

Fiscal Years	2016	2017	2018	2019	2020
Capital Expenditures	\$1,822,500	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	\$1,822,500	0	0	0	0
# ADDITIONAL FTE POSITIONS (Cumulative)	0	0	0	0	0

Budget Account No.: Fund 4011 Dept 721 Unit W001 Object 6541

Is Item Included in Current Budget? Yes X No

Reporting Category N/A

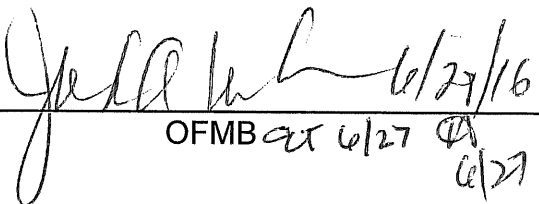
B. Recommended Sources of Funds/Summary of Fiscal Impact:


The project will be funded by Water Utility Department user fees.

C. Department Fiscal Review: Selma M. Vest

III. REVIEW COMMENTS

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

 6/27/16
OFMB 6/27/16


Contract Development and Control
7/6/16 for

B. Legal Sufficiency:

 7/7/16
Assistant County Attorney

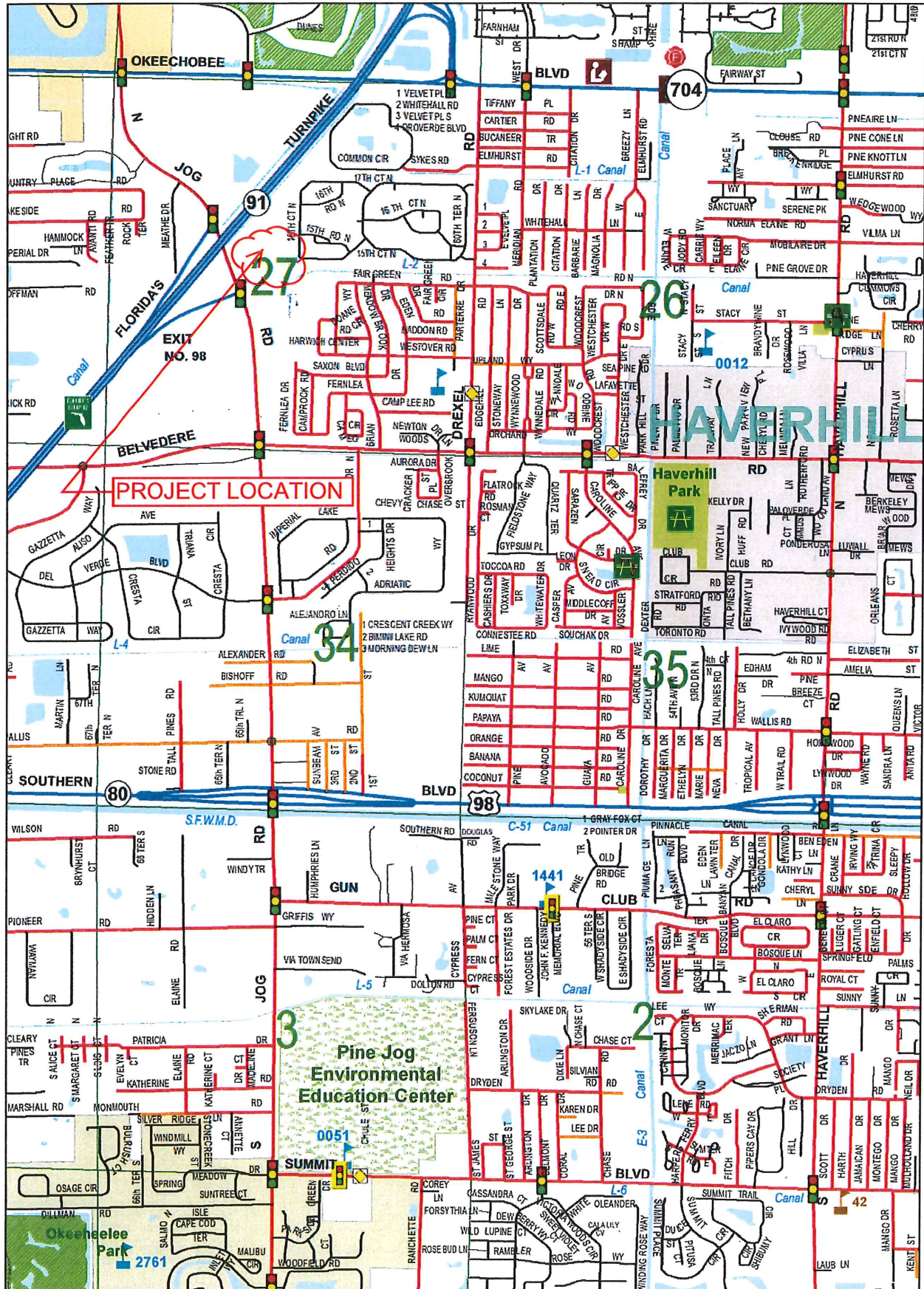
C. Other Department Review:

Department Director

TWP
43

TWP
43

TWP
44



19

20

21

WORK AUTHORIZATION NO. 2
Palm Beach County Water Utilities Department
Optimization and Improvements Design Build Contract Project

Project No. WUD 16-043

Districts: 2

Budget Line Item No. 4011-721-W001-6541

Project Title: TR04 – WTP#8 Rotary Drum Vacuum Filter and High Service Pumps Replacement

THIS AUTHORIZATION No. 02 to the Contract (R2015-0316) for Optimization and Improvements Design Build Contract Project No. WUD 14-071 dated March 10, 2015, by and between Palm Beach County and the Design Build Entity, for the Design-Build Services of this Work Authorization. The Contract provides for 26% SBE participation overall. This Work Authorization includes 66.83% overall participation. The cumulative proposed SBE participation, including this authorization is 48.84% overall.

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:

Substantial Construction Completion 400 Calendar Days after receipt of notice to proceed.

Final Construction Completion 65 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

\$1,822,500.00, 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. 2

Project No. WUD 16-043

Project Title: TR04 – WTP#8 Rotary Drum Vacuum Filter and High Service Pumps 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

Palm Beach County,
Board of County Commissioners

ATTEST:

Signed: _____

Signed: _____
Mary Lou Berger, Mayor

Typed Name: _____
Deputy Clerk

_____ Date

JCS

Approved as to Form and Legal Sufficiency

Signed: _____

Typed Name: _____
County Attorney

DESIGN-BUILD ENTITY: _____

ATTEST:

Angela Halton
Witness

ANGELA HALTON
OFFICE MANAGER
(Name and Title)

Don Patrick
(Signature)

DON PATRICK
PRESIDENT
(Name and Title)

5/4/2016
Date



RESOLUTION OF THE BOARD OF DIRECTORS OF
CARDINAL CONTRACTORS, INC.

DATED April 18, 2016


The undersigned, the duly elected and acting Secretary of Cardinal Contractors, Inc. (the "Company"), does hereby certify that the following is a full, true and correct copy of a resolution duly adopted by the Board of Directors of the Company on April 18, 2016; said resolution has not been modified or rescinded since its adoption and is in full force as of the date hereof;

BE IT RESOLVED that the following individuals are the approved slate of officers of Cardinal Contractors, Inc. and each is authorized and has the power to bind the Company by entering in any contract or by executing any instrument in the name of and on behalf of the Company, and such authority is general and not confined to specific instances, and shall continue until modified by resolution;

Harold (Don) D. Patrick	President
Richard Holt	Vice President
John M. Perisich	Exec. Vice President/General Counsel/Secretary
Blanche Arceneaux	Chief Financial Officer
Eric Macek	Vice President
Mike Brandao	Vice President

BE IT FURTHER RESOLVED that the following individuals are the approved slate of directors of Cardinal Contractors, Inc.

David King	Director
Harold (Don) D. Patrick	Director
Richard Holt	Director
John M. Perisich	Director
Pete Moerbeek	Director



John M. Perisich
Secretary

LIST OF ATTACHMENTS

**WORK AUTHORIZATION NO. 2
Palm Beach County Water Utilities Department
Optimization and Improvements Design Build Contract Project**

TR04 – WTP#8 Rotary Drum Vacuum Filter and High Service Pumps Replacement

ATTACHMENT – A	Scope of Work
ATTACHMENT – B	Rate for Liquidated Damages
ATTACHMENT – C	Public Construction Bond (Not applicable < \$200,000)
ATTACHMENT – D	Form of Guarantee (Not applicable < \$200,000)
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	Supporting Documentation

ATTACHMENT A

WORK AUTHORIZATION NO. 2 Palm Beach County Water Utilities Department Optimization and Improvements Design Build Contract Project

SCOPE OF WORK FOR

TR04 – WTP#8 Rotary Drum Vacuum Filter and High Service Pumps Replacement

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, R2015-0316 (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.

This Work Authorization encompasses various process and facility improvements to Water Treatment Plant No. 8. Work includes the replacement of the existing Rotary Drum Vacuum Filter and High Service Pumps #3 and #4 including appurtenances and accessories, as detailed herein.

SCOPE OF SERVICES

DESIGN-BUILD ENTITY shall perform the Scope of Services in accordance with the Design-Build Criteria Package and as further described herein:

Task 1 – Data Collection and Surveys

1. Receive NTP for Design
2. Review as-built drawings and specifications.
3. Coordinate with existing plant SCADA, confirming available I/O.
4. Conduct field surveys for use in the design.

Task 2 – 60% Design

1. Design that accommodates the replacement of the existing rotary drum vacuum filter for lime sludge including seal water piping, filtrate pump, vacuum pumps and receiver supports and anchoring to existing foundation slab, including any ladders and walkways.
 2. Determine electrical requirements.
 3. Determine instrumentation requirements (Remote monitoring will be provided, remote control will not.).
 4. Provide a new control panel for both vacuum filter and vacuum pump.
 5. Provide new MCC buckets for all new pumps and motors and soft starter for vacuum pump.
 6. Provide Allen-Bradley Powerflex VFD, no equal.
-

7. Use rigid aluminum electrical conduits and SCH80 PVC for underground conduit applications.
8. Prepare 60% design drawings and specifications.
9. Structural design criteria will require analysis and calculations to confirm that existing structural supports are adequate for the new equipment.
10. Provide six (6) full-size sets of plans and specifications to be submitted for PBCWUD review at the 60% design.
11. Submit for FDEP permit with engineering report.

Task 3 - 90% Design

1. Provide written response to 60% design comments.
2. Provide 90% design drawings and specifications.
3. Provide six (6) sets of plans and specifications to be submitted for PBCWUD review at the 90% design.

Task 4 - 100% Design

1. Provide written response to 90% design comments
2. Prepare 100% design drawings, specifications and Health Department permit application with signed and sealed plans.
3. Provide signed and sealed drawings and related applications for all of the PBC Building permit related disciplines (e.g. electrical, mechanical, etc.).
4. Provide CAD files and PDF files.
5. Provide six (6) sets of plans and specifications.

Task 5 – Pre-Construction Services

4. Pre-Construction Meeting.
5. Shop drawing review and approval.

Task 6 – Construction Services

1. Demolition of the vacuum filter and accessory skid.
 2. Install one new rotary drum vacuum filter.
 3. Replace the existing filtrate pump, vacuum pump, silencer and receiver with new skid mounted units on the first floor with new rigid aluminum conduit and wire and provide new reinforced concrete equipment pad.
 4. Provide new rigid aluminum electrical conduits and relays to connect to the existing conveyor system.
 5. Replace the two existing (15) hp Moyno sludge return solids pumps with two Owner furnished Seepex (20hp) pumps.
 6. Wiring, breakers and disconnects shall be replaced to accommodate new 20hp sludge pumps.
 7. Install Owner furnished new High Service Pump #3 and High Service Pump #4.
 8. Replace two existing motorized check valves including supports and conduit with two Owner furnished APCO slanted disk check valves.
 9. Provide new lighting on the Second Floor of the Vacuum Filter Building.
 10. Start up, training and testing.
-

Task 7 – Project Close Out

1. Restore all areas and improvements disturbed by the work to a condition that matches or exceeds its pre-construction condition (except as related to Sod, Irrigation or Landscaping).
2. Coordinate preparation of final As-Built drawings.
3. Coordinate and provide all required final certifications.
4. Obtain all final inspections and close out all permits. When possible, provide computer print-out from permitting agency evidencing permits have been properly closed.
5. Prepare project close-out documentation package, including signed-off permits, As-Built drawings and photographs.

SUBMITTALS

DESIGN-BUILD ENTITY submittals shall include the following:

1. Demolition Plan
 2. Shutdown Plan
 3. Commissioning Plan for startup and testing activities
 4. Drawings, Specifications and Calculations
 - a. 60%
 - b. 90%
 - c. 100%
 5. Shop Drawings
 - a. rotary drum vacuum filter system
 - b. starters
 - c. VFDs
 - d. PLCs
 - e. Pipe and valves
 6. O&M Manual
 - a. Certificate of Proper Installation (COPI)
 7. Spare Parts and Tools
 - a. Vacuum Filter System ONLY
 8. Schedules
 - a. Baseline Schedule
 - b. Initial 30-day Plan of Operation
 - c. Four week Look Ahead Schedules
 - d. Monthly schedule updates
 - e. Installation Plan for rotary drum vacuum filter
 9. Permits
 10. As-Built Drawings
 11. Warranty
 12. Closeout Documents
-

ASSUMPTIONS:

Division 1 General Conditions

1. The local authority having jurisdiction is Palm Beach County, Florida.
2. The project will be permitted under the 2010 Florida Building Code with all amendments as of the date of the design criteria document.
3. Sales tax is 6% on all materials, equipment and any services required to be taxed in accordance with the State of Florida Department of Revenue. Design-Build Entity shall be entitled to additional compensation associated with the increase of the sales tax rate during the project.
4. Approved civil and equipment layout plans (and sections) to be used as structural backgrounds will be provided electronically as dwg (AutoCad) files, by PBCWUD.
5. PBCWUD will make available existing Record Drawings of the WTP No. 8 in PDF and AutoCAD format.
6. Any planning and zoning issues (including required landscaping) will be addressed by PBCWUD.
7. Structural specifications will be provided on the plans
8. 3 week maximum turnaround time by PBCWUD.
9. SCADA/HMI programming is not included, but PLC from vendor will be programmed to run equipment.
10. Design Duration (Tasks 1-5): 180 days
11. Permitting Duration: 90 days
12. As work areas are completed, Owner shall issue partial substantial completion certificates as well as punch lists for the areas. Warranty period shall commence at the time of startup completion or when the work is available for beneficial use.

Division 2 Earthwork

1. Trench restoration per PBC standard. Asphalt overlay excluded.
2. Restoration of Sod, Landscaping and/or Irrigation are specifically excluded from this Work Authorization
3. Demolition notes:
 - a. Removal and replacement of Roof Opening is included. Re-roofing, supply and replacement of angles, clips, brackets, hardware of any kind to re-install the cover for the Roof Opening is specifically excluded.
 - b. Removal of the following concrete pads:
 - i. 2nd Floor concrete pier for receiver tank.
 - ii. 1st Floor miscellaneous abandoned pad below sludge pump disconnects.
 - iii. 1st Floor sludge pump pads (2)
 - c. Patching of concrete with polymer based non shrink grout (non epoxy type).
 - d. Replacement of floor coatings is not included.
 - e. Shutdown of Vacuum Filter system shall be limited to the following:
 - i. (1) 30 day shutdown for the replacement of the vacuum filter system
 - ii. (1) 3 day shutdown for the re-installation of the platform, handrail, stairs and toekick.
 - iii. (1) alternating shutdown of sludge feed pump for replacement

Division 3 Concrete

1. Proposal based on 4000psi standard concrete mix design without admixtures, temperature control, etc.
2. Concrete cylinder testing is included.

Division 4 Masonry

- None

Division 5 Metals

1. The platform at the existing Vacuum Filter shall be modified and re-installed with new columns, handrail and toe kick.

Division 6 Wood and plastics

1. Temporary access platform shall be provided for access to the Vacuum Filter Control Panel during startup and initial operation. A secondary shut down shall be required to complete the platform work identified in "Division 5 Metals."

Division 7 Thermal and moisture protection

- None

Division 8 Doors & Windows

- None

Division 9 Finishes

1. Painting of new PVC and Ductile Iron pipe at the Vacuum Filter Building is included. Owner shall confirm color coding requirements during submittal phase.
2. Labeling of new piping at the Vacuum Filter Building is included. Owner shall provide naming convention for piping.
3. Painting and Labeling of High Service Pump and associated new piping is EXCLUDED.

Division 10 Special Building Construction

- None

Division 11 Process Equipment

1. Spare parts for Vacuum Filter System are included.
2. Adder for PLC in Control Panel included
3. Adder for 316L SS Construction included
4. Adder for VFD is included
5. Manufacturer's services (WESTECH) are included as follows:
 - a. Initial Commissioning: 1 trip, 4 day
 - b. Additional Startup/Training: 2 trip, 2 days
6. Installation of quantity (2) Owner Furnished 20hp Seepex Sludge Feed Pumps.
7. Startup services, alignment, leveling, spare parts and training for the Sludge Feed pumps are NOT a part of this work authorization.
8. Installation of Owner Furnished High Service Pumps #3 and #4 utilizing Owner's OH crane.
9. Startup services, alignment, leveling, spare parts and training for the High Service pumps are NOT a part of this work authorization.
10. Disinfection is limited to work at the High Service Pumps. Bacteriological sampling and testing shall be performed by PBCWUD per scope discussions.
11. Vacuum Filter Accessory Skid shall be located in the NW area of the first floor of the Vacuum Filter Building.

Division 12 Special Construction

- None

Division 13 Instrumentation & Controls

1. Instrumentation is limited to the following:
 - a. Ultrasonic Tank Level Sensor
 - b. Drum RPM Readout
 - c. Ultrasonic Flow Meter (Drum Feed)
 - d. Seal Water Solenoid on Vacuum Filter Accessory Skid
 - e. Water Solenoid at Drum Filter
 - f. Water Control Valve at Drum Filter
 - g. Seal Water Solenoid at Sludge Feed Pump
 - h. Connection of Owner Furnished Temperature Switch at Sludge Feed Pump
 - i. Installation of Owner Furnished or Existing Gauges at High Service Pumps
 - j. Fiber Optic connection from New Vacuum Filter Control Panel (2nd Floor) to Existing F/O patch panel in MCC Room (2nd Floor)

Division 14 Conveying systems

- None (SYSTEM IS EXISTING; NO CHANGES)
-

Division 15 Mechanical Systems

1. Vacuum Filter Building:
 - a. Replacement of sludge feed DIP from 1st floor penetration to connection at Vacuum Filter.
 - b. New Schedule 10 316L SS Vacuum Piping from Accessory Skid to Drum/Vacuum Filter.
 - c. 80 LF of New 316L SS threaded SCH 40 HP Water from existing line at wall to Vacuum Filter Unit.
 - d. New Pipe Supports for Sludge Feed Piping. Re-use threaded rod/connections to double tees.
 - e. Total of 100 LF New PVC process piping on 2nd Floor for connections to Vacuum Filter Unit sizes vary from 1" – 3".
 - f. New 6" Filtrate Piping Inside of Building only.
2. High Service Pumps #3 and 4:
 - a. Furnish and install new piping from existing 90 bend to each Owner furnished pump.
 - b. Utilize existing spool pieces where possible. Furnish and install new 316ss nuts, bolts and gaskets on discharge pipe and at pump connection.
 - c. Furnish and install new support under new Owner furnished check valve.
 - d. Replacement or repair of floor tiles is excluded.

Division 16 Electrical Systems

1. Electrical Coordination study is excluded from this Work Authorization.
2. Replacement of Breakers, Wiring and Disconnects for the Sludge Feed Pumps is included.
3. As part of this Work Authorization, the Design-Build Entity will evaluate a modification of scope consisting of the following:
 - a. Partial or Total replacement of MCC 2A and 2B in the Vacuum Filter Building 2nd Floor.
 - b. Following the evaluation, a report/proposal to modify scope will be presented with recommendations.

COMPENSATION

Compensation for this Work Authorization shall not exceed the Guaranteed Maximum Price of **\$1,822,500.00**.

SBE PARTICIPATION

As described in General Provisions Section A.3 of the Contract, 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. 2
Palm Beach County Water Utilities Department
Optimization and Improvements Design Build Contract Project**

TR04 – WTP#8 Rotary Drum Vacuum Filter and High Service Pumps Replacement

Rates for Liquidated Damages

Substantial Construction Completion **400** Calendar Days after receipt of executed Work Authorization and notice to proceed.

Final Construction Completion **65** 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.



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

May 5, 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 #82440892 / 929630794

Project: TR04 – WTP#8 Rotary Drum Vacuum Filter and High Service Pumps Replacement

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 complete the bond when the contract for the referenced project has been approved.

Please email a copy of the executed contract and confirm the bond date as soon as available.

Federal Insurance Company & Western Surety Company

Debbie L. Welsh,
Attorney-in-Fact

/dlw

ATTACHMENT C

WORK AUTHORIZATION NO. 2

Palm Beach County Water Utilities Department

Water, Wastewater & Reclaimed Water Services Design-Build Contract

PUBLIC CONSTRUCTION BOND

BOND NUMBER: Federal Insurance Company #82440892 / Western Surety Company #929630794

BOND AMOUNT: \$1,822,500.00

CONTRACT AMOUNT: \$1,822,500.00

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

SURETY'S ADDRESS: Federal Insurance Company, Attn: Surety Dept., 15 Mountain View Road,
Warren, NJ 07058 - Telephone No. (908) 903-3493
Western Surety Company, Attn: Surety Dept., 333 S. Wabash Ave.,
Chicago, IL 60604 - Telephone No. (877) 672-6115

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 the replacement of the existing Rotary Drum Vacuum Filter, and the Replacement of High Service Pumps #3 and 4.

PROJECT LOCATION: Water Treatment Plant No. 8

LEGAL DESCRIPTION: PCN 00-42-43-27-05-004-0053

Address: 1500 North Jog Road
West Palm Beach, FL 33417

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 \$1,822,500.00

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: TR04 – WTP#8 Rotary Drum Vacuum Filter and High Service Pumps Replacement
Project No.: WUD 16-043
Project Description: Work includes the replacement of the existing Rotary Drum Vacuum Filter, and the Replacement of High Service Pumps #3 and 4.
Project Location: Water Treatment Plant No. 8
1500 N. Jog Road, West Palm Beach, FL 33417
PCN 00-42-43-27-05-004-0053

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 TR04 – WTP#8 Rotary Drum Vacuum Filter and High Service Pumps 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.

Mary Lou Odum
Witness

Mary Lou Odum
Print name

Magdalena R. Wolfe
Witness

Magdalena R. Wolfe
Print name

Cardinal Contractors, Inc.

Principal Michael Brandao (Seal)

Print name - MICHAEL BRANDAO

VICE PRESIDENT
Title

Federal Insurance Company & Western Surety Company

Surety Debbie L. Welsh (Seal)

Print name - Debbie L. Welsh

Attorney-in-Fact
Title

Agent: M.B. McGowan & Associates Insurance Agency, Inc.
7250 Redwood Blvd., Suite 110
Novato, CA 94945
Telephone No. (415) 892-1080

ATTACHMENT D

WORK AUTHORIZATION NO. 2

Palm Beach County Water Utilities Department

Water, Wastewater & Reclaimed Water Services Design-Build Contract

FORM OF GUARANTEE

Bond Nos: 82440892 / 929630794

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

We the undersigned hereby guarantee that the Project Name : TR04 – WTP#8 Rotary Drum Vacuum Filter and High Service Pumps Replacement Project No.: WUD 16-043, 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 MICHAEL BRANDAO
(Signature) (Printed Name)

Federal Insurance Company & Western Surety Company (Seal)
(Surety)
By: Debbie L. Welsh 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 and Donna L. Welsh 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 **15th** day of **May, 2014**.

Dawn M. Chloros

Dawn M. Chloros, Assistant Secretary

David B. Norris, Jr.

David B. Norris, Jr., Vice President



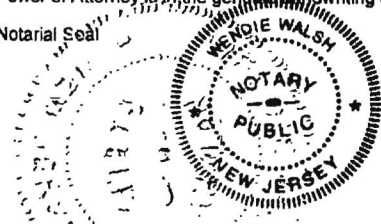
STATE OF NEW JERSEY

ss.

County of Somerset

On this **15th** day of **May, 2014** 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



WENDIE WALSH
Notary Public, State of New Jersey
No. 0054504
Commission Expires April 18, 2018

Wendie Walsh
Notary Public

CERTIFICATION

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

"All powers of attorney for and on behalf of the Company may and shall be executed in the name and on behalf of the Company, either by the Chairman or the President or a Vice President or an Assistant Vice President, jointly with the Secretary or an Assistant Secretary, under their respective designations. The signature of such officers may be engraved, printed or lithographed. The signature of each of the following officers: Chairman, President, any Vice President, any Assistant Vice President, any Secretary, any Assistant Secretary and the seal of the Company may be affixed by facsimile to any power of attorney or to any certificate relating thereto appointing Assistant Secretaries or Attorneys-in-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such power of attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding upon the Company with respect to any bond or undertaking to which it is attached."

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

- the foregoing extract of the By-Laws of the Companies is true and correct,
- 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 American Samoa, Guam, Puerto Rico, and each of the Provinces of Canada except Prince Edward Island; and
- 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
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 18th day of June, 2015.



WESTERN SURETY COMPANY

Paul T. Bruflat, Vice President

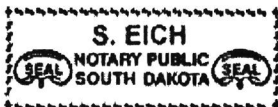
State of South Dakota
County of Minnehaha

} ss

On this 18th 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

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

ATTACHMENT E

WORK AUTHORIZATION NO. 2
Palm Beach County Water Utilities Department
Optimization and Improvements Design Build Contract Project

TR04 – WTP#8 Rotary Drum Vacuum Filter and High Service Pumps Replacement

Work Authorization Cost Schedule

(Provide breakdown of materials, labor and subcontractors)

Description	Quantity	Unit	Unt Price	Extended Cost	Markup	Extended Price
Div 1 - General Requirements						
Labor with burden (list by title)						
Construction Manager	128.00	Hours	\$ 152.00	\$ 19,456.00	20%	\$ 23,347.00
Project Manager II	568.00	Hours	\$ 83.00	\$ 47,144.00	20%	\$ 56,572.00
Laborer/Journeyman	206.65	Hours	\$ 32.00	\$ 6,612.80	20%	\$ 7,935.00
Superintendent	608.00	Hours	\$ 72.00	\$ 43,776.00	20%	\$ 52,531.00
Assistant PM	48.00	Hours	\$ 43.00	\$ 2,064.00	20%	\$ 2,476.00
Division 1 LABOR:						\$ 142,861.00
Material with tax (Attach Quotes*)						
Office Supplies	12.00	Months	\$ 75.00	\$ 900.00	15%	\$ 1,035.00
Mobilization/Hauling	1.00	Lump	\$ 4,240.00	\$ 4,240.00	15%	\$ 4,876.00
Insurance	0.12%	PCT	\$ 1,849,723.00	\$ 2,219.67	0%	\$ 2,219.00
Plans	1.00	Lump	\$ 1,125.00	\$ 1,125.00	15%	\$ 1,293.00
Misc. Punchout	1.00	Lump	\$ 830.00	\$ 830.00	15%	\$ 954.00
Safety Supplies	1.00	Lump	\$ 1,250.00	\$ 1,250.00	15%	\$ 1,437.00
Small Tools & Supplies	1.00	Lump	\$ 5,222.06	\$ 5,222.06	15%	\$ 6,005.00
Elec. Lockout/Tagout	1.00	Lump	\$ 37.10	\$ 37.10	15%	\$ 42.00
Division 1 MATERIAL:						\$ 17,861.00
Equipment						
Dumpsters	1.50	Months	\$ 700.00	\$ 1,050.00	10%	\$ 1,155.00
Toilets	3.00	Months	\$ 200.00	\$ 600.00	10%	\$ 660.00
Industrial Forklift 1.5T	1.00	Month	\$ 2,236.85	\$ 2,236.85	10%	\$ 2,460.00
Storage Trailer - Frieight	1.00	EA	\$ 530.00	\$ 530.00	10%	\$ 583.00
Storage Trailer - Rent/Cost Allocation	6.00	Month	\$ 100.00	\$ 600.00	10%	\$ 660.00
Forklift-4.5T Lull	2.00	Month	\$ 2,812.93	\$ 5,625.86	10%	\$ 6,188.00
Scaffolding Equipment	1.00	Lump	\$ 1,272.00	\$ 1,272.00	10%	\$ 1,399.00
Division 1 EQUIPMENT:						\$ 13,105.00
Sub-Contracts (Attach Quotes*)						
Photos & Videos	6.00	Months	\$ 260.00	\$ 1,560.00	10%	\$ 1,716.00
UPS/Shipping/Courrier	6.00	Months	\$ 64.95	\$ 389.70	10%	\$ 428.00
Sodding for Laydown/Trailer	0.00	SF	\$ -	\$ -	10%	\$ -
Division 1 SUBCONTRACTS:						\$ 2,144.00
Division 1 TOTAL:						\$ 175,971.00
Div 2 - Site Utilities						
Division 2 TOTAL:						\$ -
Div 3 - Concrete						
Division 3 TOTAL:						\$ -
Div 4 - Masonry						
Division 4 TOTAL:						\$ -
Div 5 - Metals						
Division 5 TOTAL:						\$ -
Div 6 - Wood and Plastics						
Labor with burden (list by title)						
Laborer/Journeyman	32.00	Hours	\$ 32.00	\$ 1,024.00	20%	\$ 1,228.00
Foreman	16.00	Hours	\$ 42.00	\$ 672.00	20%	\$ 806.00
Division 6 LABOR:						\$ 2,034.00
Material with tax (Attach Quotes*)						
Temp. Access Platform - Lumber	1.00	Lump	\$ 694.30	\$ 694.30	15%	\$ 798.00
Division 6 MATERIAL:						\$ 798.00
Division 6 TOTAL:						\$ 2,832.00
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	43.50	Hours	\$ 32.00	\$ 1,392.00	20%	\$ 1,670.00
Foreman	30.25	Hours	\$ 42.00	\$ 1,270.50	20%	\$ 1,524.00
Division 9 LABOR:						\$ 3,194.00
Material with tax (Attach Quotes*)						
Painting Materials (Sludge Pipe)	1.00	Lump	\$ 906.83	\$ 906.83	15%	\$ 1,042.00
Painting Materials (2nd Floor PVC Pipe)	1.00	Lump	\$ 265.00	\$ 265.00	15%	\$ 304.00
Pipe Labels (Sludge Pipe)	1.00	Lump	\$ 405.45	\$ 405.45	15%	\$ 466.00

Pipe Labels (2nd Floor PVC Pipe)	1.00	Lump	\$	360.40	\$	360.40	15%	\$	414.00	
Division 9 MATERIAL:									\$	2,226.00
Division 9 TOTAL:									\$	5,420.00
Div 10 - Special Construction										
Labor with burden (list by title)										
	0.00	Hours		\$	-		20%	\$	-	
Division 10 LABOR:									\$	-
Material with tax (Attach Quotes*)										
	0.00	Lump		\$	-		15%	\$	-	
Division 10 MATERIAL:									\$	-
Equipment										
	0.00	Lump		\$	-		10%	\$	-	
Division 10 EQUIPMENT:									\$	-
Sub-Contracts (Attach Quotes*)										
	0.00	SF		\$	-		10%	\$	-	
Division 10 SUBCONTRACTS:									\$	-
Division 10 TOTAL:									\$	-
Div 11 - Equipment										
Labor with burden (list by title)										
Laborer/Journeyman	333.33	Hours	\$	32.00	\$	10,666.56	20%	\$	12,799.00	
Laborer/Journeyman (OT)	22.22	Hours	\$	48.00	\$	1,066.66	20%	\$	1,279.00	
Foreman	206.67	Hours	\$	42.00	\$	8,680.14	20%	\$	10,416.00	
Foreman (OT)	12.71	Hours	\$	63.00	\$	800.81	20%	\$	960.00	
Division 11 LABOR:									\$	25,454.00
Material with tax (Attach Quotes*)										
Misc Anchor Bolts (Vac Filt)	1.00	Lump	\$	457.92	\$	457.92	15%	\$	526.00	
Misc Anchor Bolts (Sludge Pumps)	1.00	Lump	\$	101.76	\$	101.76	15%	\$	117.00	
Division 11 MATERIAL:									\$	643.00
Equipment										
	0.00		\$	-	\$	-	10%	\$	-	
Division 11 EQUIPMENT:									\$	-
Sub-Contracts (Attach Quotes*)										
Demo, Furnish, Install Vacuum Filter, Railing / Metals / Concrete pads&supports	1.00	Lump	\$	873,430.00	\$	873,430.00	10%	\$	960,773.00	
Division 11 SUBCONTRACTS:									\$	960,773.00
Division 11 TOTAL:									\$	986,870.00
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/Journeyman	473.60	Hours	\$	32.00	\$	15,155.33	20%	\$	18,186.00	
Laborer/Journeyman (OT)	23.68	Hours	\$	48.00	\$	1,136.65	20%	\$	1,363.00	
Foreman	200.33	Hours	\$	42.00	\$	8,413.86	20%	\$	10,096.00	
Foreman (OT)	18.01	Hours	\$	63.00	\$	1,134.63	20%	\$	1,361.00	
Division 15 LABOR:									\$	31,006.00
Material with tax (Attach Quotes*)										
316SS Clevis Hangers (Sludge Pump Piping)	1.00	Lump	\$	2,318.86	\$	2,318.86	15%	\$	2,666.00	
Misc. Supports (Sludge Pump Piping)	1.00	Lump	\$	689.00	\$	689.00	15%	\$	792.00	
Pipe, Fittings, Valves & App. (Sludge Pump)	1.00	Lump	\$	50,111.69	\$	50,111.69	15%	\$	57,628.00	
Pipe, Fittings, Valves, & App. (Filtrate)	1.00	Lump	\$	19,996.72	\$	19,996.72	15%	\$	22,996.00	
Anchor Bolts (HSPS Pipe Stanchions)	1.00	Lump	\$	42.40	\$	42.40	15%	\$	48.00	
Epoxy (HSPS Pipe Stanchions)	1.00	Lump	\$	53.00	\$	53.00	15%	\$	60.00	
316SS Pipe Supports (HSPS Pipe Stanchions)	1.00	Lump	\$	816.20	\$	816.20	15%	\$	938.00	
Dismantling Joints (HSPS 3 & 4)	4.00	Each	\$	201.40	\$	805.60	15%	\$	926.00	
Pipe Supports (HSPS 3 & 4)	2.00	Each	\$	408.00	\$	816.00	15%	\$	938.00	
DI Pipe, Fittings, Valves, & App. (HSPS 3 & 4)	1.00	Lump	\$	5,060.86	\$	5,060.86	15%	\$	5,819.00	
316SS Nuts & Bolts (HSPS DIP Connections)	1.00	Lump	\$	2,785.68	\$	2,785.68	15%	\$	3,203.00	
316SS Seal Water Tubing (HSPS 3 & 4)	1.00	Lump	\$	392.20	\$	392.20	15%	\$	451.00	
Division 15 MATERIALS:									\$	96,465.00
Equipment										
Electric Scissor Lift - 28'	1.00	Lump	\$	5,019.09	\$	5,019.09	10%	\$	5,521.00	
Quick Entry Equipment (Seal Water Pipe)	1.00	Lump	\$	895.00	\$	895.00	10%	\$	984.00	
Division 15 EQUIPMENT:									\$	6,505.00
Sub-Contracts (Attach Quotes)										
Welder (Skid to Filter SS Piping)	1.00	Lump	\$	2,400.00	\$	2,400.00	10%	\$	2,640.00	
Install HS Pumps 3 & 4	1.00	Lump	\$	16,000.00	\$	16,000.00	10%	\$	17,600.00	
Division 15 SUBCONTRACTS:									\$	20,240.00

Division 15 TOTAL:								\$	154,216.00
Div. 16 - Electrical									
<i>Labor with burden (list by title)</i>									
	0.00	Hours	\$	-	\$	-	20%	\$	-
<i>Material with tax (Attach Quotes*)</i>								\$	-
<i>Equipment</i>								\$	-
	1.00	Lump	\$	-	\$	-	10%	\$	-
<i>Sub-Contracts (Attach Quotes)</i>								\$	-
Electrician	1.00	Lump	\$	249,961.00	\$	249,961.00	10%	\$	274,957.00
Division 16 SUBCONTRACTS:								\$	274,957.00
Division 16 TOTAL:								\$	274,957.00
Div. 17 - Instrumentation & Controls									
<i>Labor with burden (list by title)</i>									
Laborer/Journeyman	120.00	Hours	\$	32.00	\$	3,840.00	20%	\$	4,608.00
Foreman	40.00	Hours	\$	42.00	\$	1,680.00	20%	\$	2,016.00
<i>Material with tax (Attach Quotes*)</i>								\$	6,624.00
Fiber Optic Cable & Termination	1.00	Lump	\$	2,544.00	\$	2,544.00	15%	\$	2,925.00
	0.00	Lump	\$	-	\$	-	15%	\$	-
<i>Equipment</i>								\$	2,925.00
Instrumentation & Controls	0.00	Lump	\$	-	\$	-	10%	\$	-
<i>Sub-Contracts (Attach Quotes)</i>								\$	-
	1.00	Lump	\$	-	\$	-	10%	\$	-
Division 17 SUBCONTRACTS:								\$	-
Division 17 TOTAL:								\$	9,549.00
Total Divisions 1 to 16								\$	1,609,815.00
Bonds and Guarantee								\$	18,040.00
Builders Risk Insurance								\$	5,883.00
Total Construction								\$	1,633,738.00
Total Engineering								\$	188,762.00
Total Design-Build								\$	1,822,500.00

Work Authorization No. 2

[illegible]

ATTACHMENT F

**WORK AUTHORIZATION NO. 2
Palm Beach County Water Utilities Department
Optimization and Improvements Design Build Contract Project**

TR04 – WTP#8 Rotary Drum Vacuum Filter and High Service Pumps Replacement

SBE Schedules 1 and 2

SCHEDULE 1
LIST OF PROPOSED SBE-M/WBE PARTICIPATION

PROJECT NAME OR BID NAME: TR04 - WTP#8 Rotary Drum Vacuum Filter and High Service Pumps Replacement PROJECT NO. OR BID NO.: WUD 16-043
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.:954-587-0563
BID OPENING DATE: n/a USER DEPARTMENT: Water Utilities Department

THIS DOCUMENT IS TO BE COMPLETED BY THE PRIME CONTRACTOR AND SUBMITTED 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.

(Check one or both Categories)			DOLLAR AMOUNT AND/OR PERCENTAGE OF WORK				
Name, Address and Phone Number	M/WBE	SBE	Black	Hispanic	Women	Caucasian	Other (Please Specify)
	Minority Business	Small Business					
ALAN GERWIG & ASSOCIATES, INC. 12798 W. FOREST HILL BLVD, SUITE 201 WELLINGTON, FL 33414 (561) 792-9000	<input type="checkbox"/>	<input checked="" type="checkbox"/>				\$36,760.00	
BEARING POINT CONSTRUCTION, INC. 1615 S. CONGRESS AVENUE, DELRAY BEACH, FL 33445 (561) 900-3699	<input type="checkbox"/>	<input checked="" type="checkbox"/>				\$889,430.00	
ELECTRON CORP OF SOUTH FLORIDA 6421 WINDING LAKE DR JUPITER, FL 33458 (561) 718-7679	<input type="checkbox"/>	<input checked="" type="checkbox"/>				\$249,961.00	

(Please use additional sheets if necessary)

Total

Total Bid Price \$

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: SIGNATURE ON TOTALS PAGE

Signature

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.

SCHEDULE 1
LIST OF PROPOSED SBE-M/WBE PARTICIPATION

PROJECT NAME OR BID NAME: TR04 - WTP#8 Rotary Drum Vacuum Filter and High Service Pumps Replacement
PROJECT NO. OR BID NO.: WUD 16-043
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.:954-587-0563
BID OPENING DATE: n/a USER DEPARTMENT: Water Utilities Department

THIS DOCUMENT IS TO BE COMPLETED BY THE PRIME CONTRACTOR AND SUBMITTED 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.

Table with 7 columns: Name, Address and Phone Number, M/WBE (Minority Business), SBE (Small Business), DOLLAR AMOUNT AND/OR PERCENTAGE OF WORK (Black, Hispanic, Women, Caucasian, Other). Includes entry for Hillers Electrical Engineering, Inc. with a total of \$41,953.66.

(Please use additional sheets if necessary)
Total \$41,953.66
Total Bid Price \$1,822,500.00
Total SBE-M/WBE Participation Dollar Amount and/or Percentage of Work \$ 1,218,104.66
I hereby certify that the above information accurate to the best of my knowledge: [Signature] Division 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.

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 16-043 PROJECT NAME: TR04 / WTP#8 Rotary Drum Vacuum Filter and HSP 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 X Minority Business Enterprise _____

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

Date of Palm Beach County Certification: 12/28/15 - 12/27/18

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
<u>1</u>	<u>Structural Engineering</u>	<u>1 LS</u>	<u>\$36,760</u>	<u>\$36,760</u>

at the following price or percentage \$ \$36,760 (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 & Associates, Inc.

Print name of
SBE-M/WBE Company

By: _____

(Signature)

Alan Gerwig, PE, President

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

Date: April 26, 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 16-043 PROJECT NAME: TR04 / WTP#8 Rotary Drum Vacuum Filter and High Service Pump Replacements

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 X Minority Business Enterprise _____

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

Date of Palm Beach County Certification: 150000003353
DATED: 9/1/2015

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	HIGH SERVICE PUMP REPLACEMENT	2 / EA	8,000.00	16,000.00
2	VACUUM FILTER EQUIPMENT	1 / LS	756,371.00	756,371.00
3	DEMO / CONCRETE / SET EQUIP&PLATFORM	1 / LS	112,059.00	112,059.00
4	OPTIONAL 3 RAIL HAND RAIL SYSTEM	1 / LS	5,000.00	5,000.00

at the following price or percentage \$ 889,430.00 (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.

Bearing Point Construction, Inc.
Print name of
SBE-M/WBE Company

By: [Signature]
(Signature)
Justin Randolph President
Print name/title of person executing on behalf
of SBE-M/WBE

Date: 5/2/16

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 16-043 PROJECT NAME: TR04 / WTP#8 Rotary Drum Vacuum Filter and HSP 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 X Minority Business Enterprise X
Black Hispanic X Women Caucasian Other (Please Specify)

Date of Palm Beach County Certification: 10/17/2015

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
<u> 1 </u>	<u>Electrical Design Services</u>	<u> 1 </u>	<u>\$41,953.66</u>	<u>\$41,953.66</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

at the following price or percentage \$41,953.66 (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: 4/25/2016

WORK AUTHORIZATION NO. 2
Palm Beach County Water Utilities Department
Optimization and Improvements Design Build Contract Project

AUTHORIZATION STATUS REPORT

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	pending	\$1,822,500.00		16-043	31501-5002
	Total		\$3,809,131.64			
	WA's					
Total			\$3,809,131.64			

ATTACHMENT H

WORK AUTHORIZATION NO. 2
Palm Beach County Water Utilities Department
Optimization and Improvements Design Build Contract Project

TR04 – WTP#8 Rotary Drum Vacuum Filter and High Service Pumps Replacement

AUTHORIZATION STATUS REPORT

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

WORK AUTHORIZATION NO. 2

	Total	SBE
Current Proposal		
Value of Consultant Service Authorization	\$0.00	
Value of Work Authorization	<u>\$1,822,500.00</u>	
Value of Consultant Service & Work Authorizations	\$1,822,500.00	
Value of SBE Letters of Intent	\$1,218,104.66	\$1,218,104.66
Actual Percentage	66.83%	66.83%
Signed / Approved Authorizations		
Value of Consultant Service Authorizations	\$0.00	
Value of Work Authorizations	<u>\$1,986,631.64</u>	
Value of Consultant Service & Work Authorizations	\$1,986,631.64	
Total Value of SBE Signed Subcontracts	\$642,353.60	\$642,353.60
Actual Percentage	32.33%	32.33%
Signed / Approved Authorizations plus Current Proposal		
Value of Consultant Service Authorizations	\$0.00	
Value of Work Authorizations	<u>\$3,809,131.64</u>	
Value of Consultant Service & Work Authorizations	\$3,809,131.64	
Total Value of Subcontracts & Letters of Intent	\$1,860,458.26	\$1,860,458.26
Actual Percentage	48.84%	48.84%
GOAL	26.00%	

WORK AUTHORIZATION NO. 2
Palm Beach County Water Utilities Department
Optimization and Improvements Design Build Contract Project

LOCATION MAP



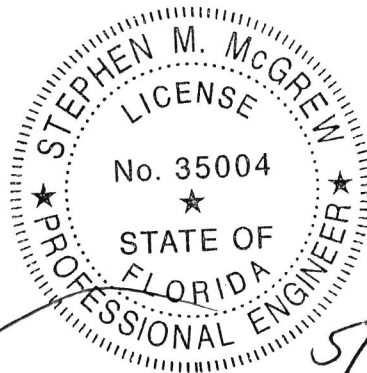
ATTACHMENT J

**WORK AUTHORIZATION NO. 2
Palm Beach County Water Utilities Department
Optimization and Improvements Design Build Contract Project**

TR04 – WTP#8 Rotary Drum Vacuum Filter and High Service Pumps Replacement

Design-Build Criteria

**Design-Build Criteria
TR04 - Water Treatment Plant No. 8
Rotary Drum Vacuum Filter and
High Service Pumps Replacement
Project No. WUD 16-043**



5/4/2016

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

Date

**Design Build Criteria
TR04 - Water Treatment Plant No. 8
Rotary Drum Vacuum Filter and
High Service Pumps Replacement
Project No. WUD 16-043**

PART 1 GENERAL REQUIREMENTS

1.1 Overview Information

- 1.1.1. Location: Water Treatment Plant No. 8 (WTP 8), 1500 North Jog Road, West Palm Beach, FL 33417, PCN 00-42-43-27-05-004-0053.
- 1.1.2. Survey information concerning the site: Survey of the property was completed on January 2014 (WUD 13-0730) by Brown and Phillips and is available upon request.
- 1.1.3. Interior space requirements: This project is related to equipment in existing buildings.
- 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: \$1,900,000.
- 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. Procurement of large lead time equipment shall start after 60% design.
 - 1.1.7.2. 90% Design Completion 120 days after receipt of executed Work Authorization and notice to proceed with design.
 - 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 400 Calendar Days after receipt of executed Work Authorization and notice to proceed with construction.
- 1.1.7.5. Final Construction Completion 65 Calendar Days after Substantial Construction Completion.
- 1.1.7.6. Liquidated damages for design and construction 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.
 - 1.1.8.4. PLC programming work complete (Owner will develop HMI SCADA screens on IFIX.).
- 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 at the former Meadowbrook Utilities site south of the L-2 Canal. The staging area will be shared with at least one other known construction contractor, R.J. Sullivan Corp., performing work for the Owner at this facility.

- 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 this facility. The "WUD Water Treatment Plant #8 Filter Building Renovations Project No. 14467.01", "Disaster Recovery and Mitigation Services Project No. 16-019" and the "Water Treatment Plant No. 8 Anion Exchange System WUD Project No. 13-022" project by RJ Sullivan are three other projects anticipated to be in active construction at the site at the same time.
- 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.
- 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 Summary of Work

The proposed work to be performed by the Design-Build Entity generally includes furnishing and installing materials, labor, equipment and expertise including all necessary tools, supervision, and services required to construct, test, and startup the proposed work to: Replace the rotary drum vacuum filter for lime sludge including seal water piping, filtrate pump, vacuum pumps and receiver; and install Owner furnished High Service Pump # 3 and High Service Pump #4. The Design-Build Criteria for the proposed work to be performed is further described below.

1.3 Design-Build Criteria

The following design-build criteria shall be used.

- 1.3.1. Rotary Drum Vacuum Filter Replacement
 - 1.3.1.1. Schedule: Replacement of the existing Eimco 10 ft by 10 ft rotary drum vacuum filter and associated components constructed in 1983 requires the lime sludge to be

discharged to the existing on-site disposal pond which has 30 days storage capacity. The Design-Build Entity shall begin installation of this system after all system components have been delivered and the Owner has lowered pond levels. Expedited installation is required and is anticipated to require the Design-Build Entity to extend normal work hours and work on weekends. This work requires close coordination with the Owner. A specific detailed plan of anticipated daily work activities required to complete construction and perform commissioning, startup and testing activities shall be submitted to the Owner for review and approval at least 60 days prior to commencing any of these work activities.

- 1.3.1.2. Demolition: The Vacuum Filter Building has a removable roof section to allow a crane to remove the existing 10 ft by 10 ft Eimco rotary drum vacuum filter. Palm Beach County Facilities has a project to re-roof the building and improvements to the exterior which require coordination with their contractor. The Design-Build Entity shall remove the existing rotary drum vacuum filter including the elevated platform with stairs, filtrate pump, vacuum pump, filter control panel, vacuum receiver and associated piping from the thickened sludge Moyno pumps from the first floor to the second floor, including drains and seal water. The Design-Build Entity shall remove and legally dispose all equipment, piping, concrete supports and related demolition debris. The demolition and subsequent installation of new equipment shall provide a smooth surface free of tripping hazards.
- 1.3.1.3. Construction: The Design-Build Entity shall furnish and install one new rotary drum vacuum filter on the second floor of the Vacuum Filter Building. Depending upon the rotary drum vacuum filter selected, an elevated platform may be required with access from at least two locations including stairs, kickplate and handrails. Portions of the existing elevated platform as identified by the Design-Build Entity licensed engineer may be reused. The rotary drum vacuum filter shall process 3,300 lbs (dry weight) of lime (thickened calcium carbonate) sludge per million gallons of treated water. The rated capacity of WTP 8 is 30 MGD and the design average flow for this project is 20 MGD. The rotary drum vacuum filter shall have a minimum capacity of 13,200 lbs/hour of dry weight lime sludge, thereby allowing the sludge volume associated

with the average WTP 8 flow rate to be dried in a typical 7 hour work shift, during each day of a typical 5 day work week. This allows a total of 1 hour for startup and shutdown each day under normal operation. Typical feed solids rates for lime sludge dewatering are 10-30% solids with an average loading rate of 10-40 lb/h-ft² resulting in finished cake solids are 50-65% solids. The top values of these ranges are dependent on sludge with high lime doses and low magnesium hydroxide content. Following are additional requirements:

- 1.3.1.3.1. Rotary vacuum filter drum and other wetted parts shall be 316L SS.
- 1.3.1.3.2. The rotary vacuum filter drum deck and filter tank shall be 316L SS.
- 1.3.1.3.3. The rotary drum vacuum filter shall be manufactured by Eimco, WesTech or approved equal.
- 1.3.1.3.4. The Vacuum Filter Building was constructed in 1983. The Design-Build Entity shall confirm the existing second floor can support the weight and movement of the new rotary drum vacuum filter. Structural analysis and calculations shall be performed and submitted to the Owner demonstrating the loads and forces generated by the new rotating equipment will not require structural modifications to the existing structure. If the structure of the building requires modification, the cost shall be paid by a supplement to this Work Authorization.
- 1.3.1.3.5. Provide two spare vacuum filter drum belts and all spare parts, as recommended by the manufacturer.
- 1.3.1.3.6. The vacuum pump shall be capable of operating continuously with a vacuum head of 20 inches HG.
- 1.3.1.3.7. The vacuum receiver shall be 316L SS and be designed for a minimum vacuum of 28 inches HG. Since this may be larger than the existing one, Design-Build Entity shall confirm dimensional requirements to complete appropriate installation given physical layout of equipment.

- 1.3.1.3.8. Provide all new seal water piping to the equipment, as required by the manufacturer.
 - 1.3.1.3.9. Provide new electrical conduit and wiring. Provide all necessary modifications to existing electrical switchgear and breakers, if the new equipment has different horsepower and electrical loading than the existing equipment. Electrical conduit shall be rigid aluminum and shall be installed without tripping hazards and supported with 316 SS unistrut supports. Overhead conduit shall have proper supports with minimum 7'-0" clearance above the floor.
 - 1.3.1.3.10. All new and reused floor penetrations shall be properly sealed to prevent 2nd floor wash down water from dripping onto the first floor.
 - 1.3.1.3.11. Provide manufacturer's on-site representation for initial commissioning, startup and training for a minimum of 2 days.
 - 1.3.1.3.12. The manufacturer shall certify the installation of the vacuum filter and all system components and Design-Build Entity shall provide Certificates of Proper Installation to Owner prior to commencing any Commissioning related activities.
- 1.3.1.4. Replace the existing filtrate pump, vacuum pump, silencer and receiver with new skid mounted units on the first floor with new rigid aluminum conduit and wire and provide new reinforced concrete equipment pad. The existing filtrate pump is currently on the second floor. Install new vacuum pump, filtrate pump and drain piping. Additional floor penetrations are required for relocation of the equipment. The electrical equipment shall remain on the first floor.
- 1.3.1.5. Replace the two existing Moyno sludge return solids pumps with two Owner furnished Seepex pumps. Suction piping shall be modified as required to connect new pumps and new discharge piping shall be furnished and installed. To purge the system prior to daily shutdowns, new flushing system piping to discharge to the existing sludge thickener shall be furnished and installed on the suction and discharge. Relocate the existing sludge pump

/ conveyor control panel. New breakers, buckets and disconnects will be provided since motor size was increased from 15 hp to 20 hp. Owner will use manufacturer services to perform commissioning support activities.

- 1.3.1.6. Electrical: Provide new MCC buckets for all new pumps and motors. Provide soft starter for vacuum filter pump and constant speed starter for filtrate pump. Provide Allen-Bradley Powerflex variable frequency drives (VFD) in existing MCC. Provide new local disconnects at all motors. Provide new rigid aluminum electrical conduits with 316 SS unistrut supports and relays to connect to the existing conveyor system. Should the existing conveyor system cease operation due to shutdown, failure or safety cord activation, the rotary drum vacuum filter operation shall also shutdown through electrical relay connections.
- 1.3.1.7. Lighting: Provide new lighting and associated conduit, wire and control switches on the Second Floor of the Vacuum Filter Building.
- 1.3.1.8. Controls: Provide new controls and NEMA 4X 316SS control panels, using relay logic not PLC, as recommended by the manufacturer. Provide one combined new control panel with a Compactlogix 1769-L33ER PLC for both vacuum filter and vacuum pump. Provide new flow meter, level sensor and other controls for proper operation as recommended by the manufacturer. At a minimum, alarms for overheating, overtorque, overspeed, discharge high pressure switch, shutdown, failure, safety cord operation and emergency stop shall be included. An interlock with the existing conveyor system shall also be established. Any required SCADA / HMI programming to integrate the new equipment with the plant-wide SCADA will be performed by the Owner.
- 1.3.1.9. Startup, Testing, Commissioning and Training: Design-Build Entity shall provide on-site support services from manufacturer's representative for a minimum of 5 days. Anticipated training by manufacturer's representative shall be held at commissioning, 6 months after commissioning and 11 months after commissioning.

1.3.1.10. Transfer Warranty and Operation & Maintenance Manuals to Owner. Conduct Owner/Operator training as needed.

1.3.2. High Service Pump #3 and #4 Replacement

1.3.2.1. Install Owner furnished new High Service Pump #3 and High Service Pump #4.

1.3.2.2. Furnish and install two custom measured flanged ductile iron spool pieces on pump discharge for proper fit-up similar to installation of adjacent high service pumps.

1.3.2.3. Remove two existing motorized check valves including supports, Limitorque actuators, and conduit and wire back to the breakers.

1.3.2.4. Install two Owner furnished APCO slanted disk check valves.

1.3.2.5. Re-use existing discharge high pressure switch, 300 Hp motor and provide all electrical connections.

1.3.2.6. Owner will use manufacturer services to perform laser alignment of shaft and commissioning support.

1.3.2.7. Furnish and install all flange accessories, including but not limited to, gaskets, nuts and bolts.

1.3.2.8. Reconnect seal water for each pump.

1.3.2.9. Remove and re-install existing air release valves.

1.3.2.10. Reconfigure piping supports similar to High Service Pump #6.

1.3.2.11. Do not use Owner's overhead bridge crane without permission.

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

1.3.2.13. Painting of new pumps and related accessories will be by Owner.

1.4 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. Two Seepex sludge return solids pumps

1.4.2. High Service Pump #3 and #4

1.4.3. APCO slanted disk check valves for High Service Pump # 3 and #4.

The Owner will provide manufacturer's commissioning support for the above Owner furnished equipment. The Design-Build Entity shall coordinate its commissioning schedule needs with the Owner a minimum of 30 days before it is anticipated to be required.

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, chemicals, 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.

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. Stanchions, pipe supports, equipment bases, braces, unistrut and straps shall be 316 stainless steel or aluminum. Dissimilar metal protection 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

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 start up 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 start up 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

**WORK AUTHORIZATION NO. 2
Palm Beach County Water Utilities Department
Optimization and Improvements Design Build Contract Project**

TR04 – WTP#8 Rotary Drum Vacuum Filter and High Service Pumps Replacement

SUPPORTING DOCUMENTATION

Palm Beach County Water Utilities Department
WA#2: TR04 - WTP#8 ROTARY VACUUM FILTER, LIME SLAKER, DIESEL FUEL TANK AND HSP REPLACEMENT
WUD 16-043

Cardinal Contractors, Inc. Vendor Cost Summary

Bid Item	Vendor/Sub	Vendor/Sub2	Vendor/Sub3	Comments
Electrical Subcontractor	CR Dunn - no bid	Electron - \$249,961	Energy Efficient - \$312,257	
HSPS Installation	Bearing Point - 16,000	none	none	Materials furnished by Cardinal, Cardinal assist in installation with working foreman
Rotary Drum Vacuum Filter - F&I includes demolition, crane service and metal platform modifications and 5k adder for 3 rail system	Bearing Point / Westech - \$873,430	none	none	No equal available on equipment. Subcontractor part of a composite crew team with Cardinal to perform work in 30 day shutdown period sharing equipment and resources. Subcontractor furnishes Equipment and performs Demo, Concrete and Setting of new Equipment.
Engineering	CGA - \$188,762.00			CGA part of DB Entity
Vacuum Filter Bldg Piping (Sludge Feed, HP Water, Seal Water, PVC Process, 316 Vacuum)	Avem - \$89,286.13	Ferguson - \$50,111.69	McDade - \$59,360	
Filtrate Piping	Avem - included above	Ferguson - \$18,864.82	McDade - \$19,307.61	
High Service Pump Piping	Avem - included above	Ferguson - \$5,060.86	McDade - \$3,978.00*	

Bearing Point is a Local SBE that Cardinal has partnered with for the Supply and Installation of the Equipment. Because of the short shutdown, the partnership allows for additional manpower and resources. Cardinal will work side by side with Bearing Point to perform the work during the shutdowns. The partnership is mutually beneficial and allows for a large participation opportunity for work that would normally be self performed by Cardinal.

Avem	Ferguson	McDade
89,286.13	50,111.69	59,360.00
incl	18,864.82	19,307.60
incl	5,060.68	3,978.00
89,286.13	74,037.19	82,645.60

PRELIMINARY DESIGN AND CONSTRUCTION SCHEDULE

General Conditions

- 1 NTP
- Mobilization
- Substantial Completion
- Punchout & Closeout Documentation
- Final Completion

Procurement and Engineering

- Subcontracts and PO's
- Prepare and Submit Piping & Equipment
- Review and Approval (14 CGA/14 PBC)
- Deliver HSP Pipe, Fittings and Acc.
- Prepare and submit sludge pump layout drawings
- Review and Approval of piping and layout
- Deliver Piping and valves
- Prepare and Submit Vacuum Filter System
- Review and approval of Vacuum Filter System
- Fabricate and Deliver Vacuum Filter System
- Prepare Design Documetns
- Permitting

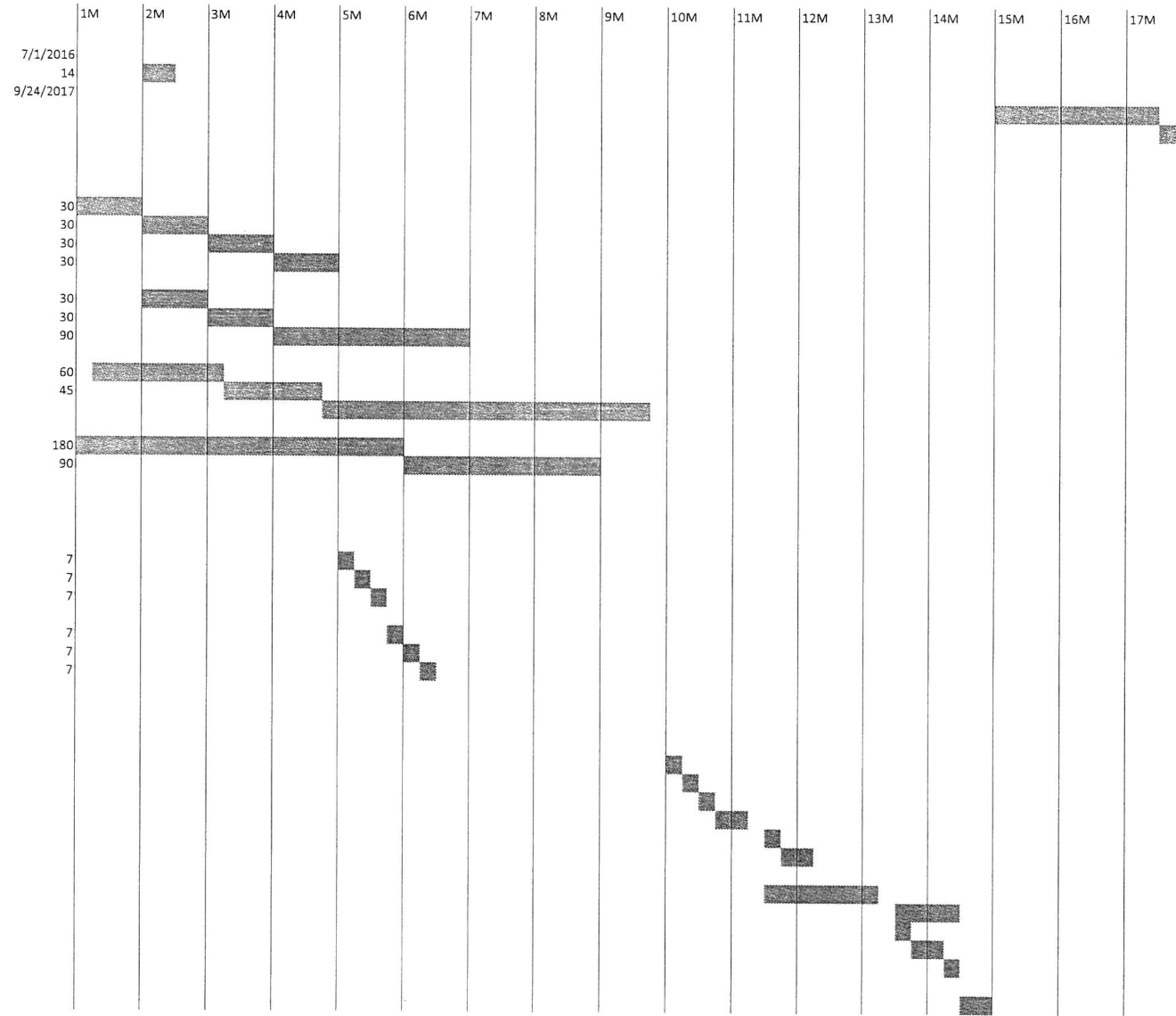
Construction Activities

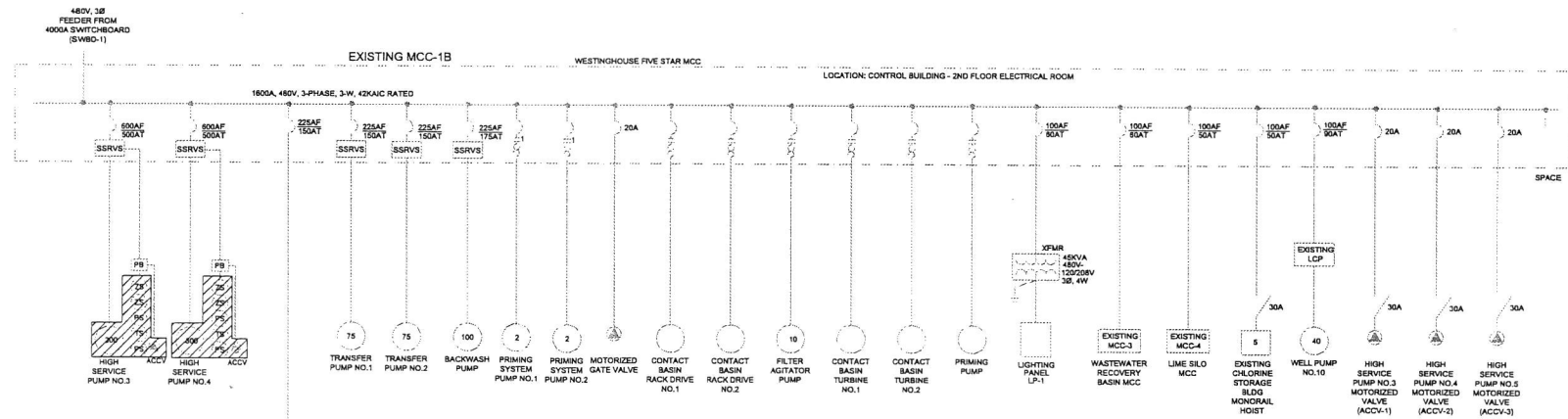
High Service Pumps

- High Service Pump (first) coordination/shutdown
- High Service Pump (first) installation
- Alignment and Startup by OWNER
- High Service Pump (second) coordination/shutdown
- High Service Pump (second) installation
- Alignment and Startup by OWNER

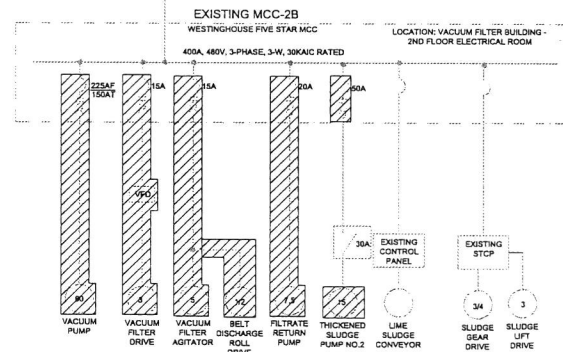
Vacuum Filter Building

- Set new Vacuum Pump Accessory Skid
- Core Penetrations and Install new piping through floor
- Isolate 1 sludge pump, demo piping, pump, base.
- Install and connect new pump and piping
- Isolate 2nd sludge pump, demo piping, pump, base.
- Install and connect new pump and piping
- Set new CP and install Conduits, MCC Mounted VFD shutdown
- Demo existing system
- Install new system
- Startup and Testing
- Install final platform, handrail, etc.

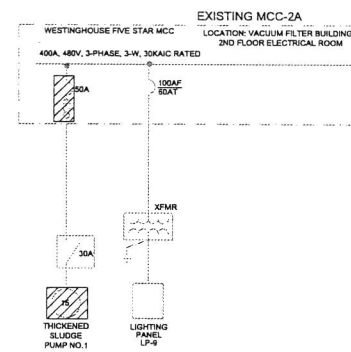




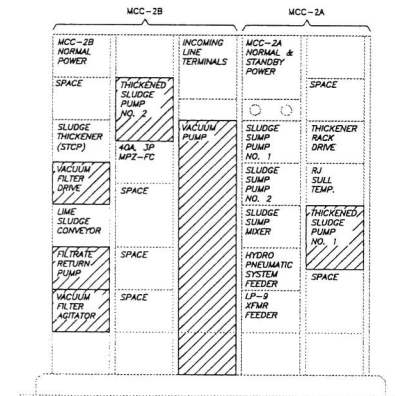
EXISTING MCC-1B ONE LINE DIAGRAM - DEMOLITION
NOT TO SCALE



MCC-2B ONE LINE DIAGRAM - DEMOLITION
NOT TO SCALE



PARTIAL MCC-2A ONE LINE DIAGRAM - DEMOLITION
NOT TO SCALE



EXISTING MCC-2A AND MCC-2B ELEVATION
NOT TO SCALE

File Name: E:\PROJECTS\WUD\G03 - WTP8 Vacuum Filter Improvements - 11.dwg (Plotted by: Win, Date: Wednesday, April 06, 2016 4:51:32 PM)

NO	DATE	REVISION	BY	NO	DATE	REVISION	BY
1	3/22/16	DESIGNED	TW				
2	3/22/16	CHECKED	SFC				
3	3/22/16	ISSUED FOR	DATE				



Calvin, Giordano & Associates, Inc.
EXCEPTIONAL SOLUTIONS
800 5th Ave, Suite 100, Fort Lauderdale, Florida 33304
Phone: 954.527.7878 • Fax: 954.527.8877
Certificate of Authorization 514

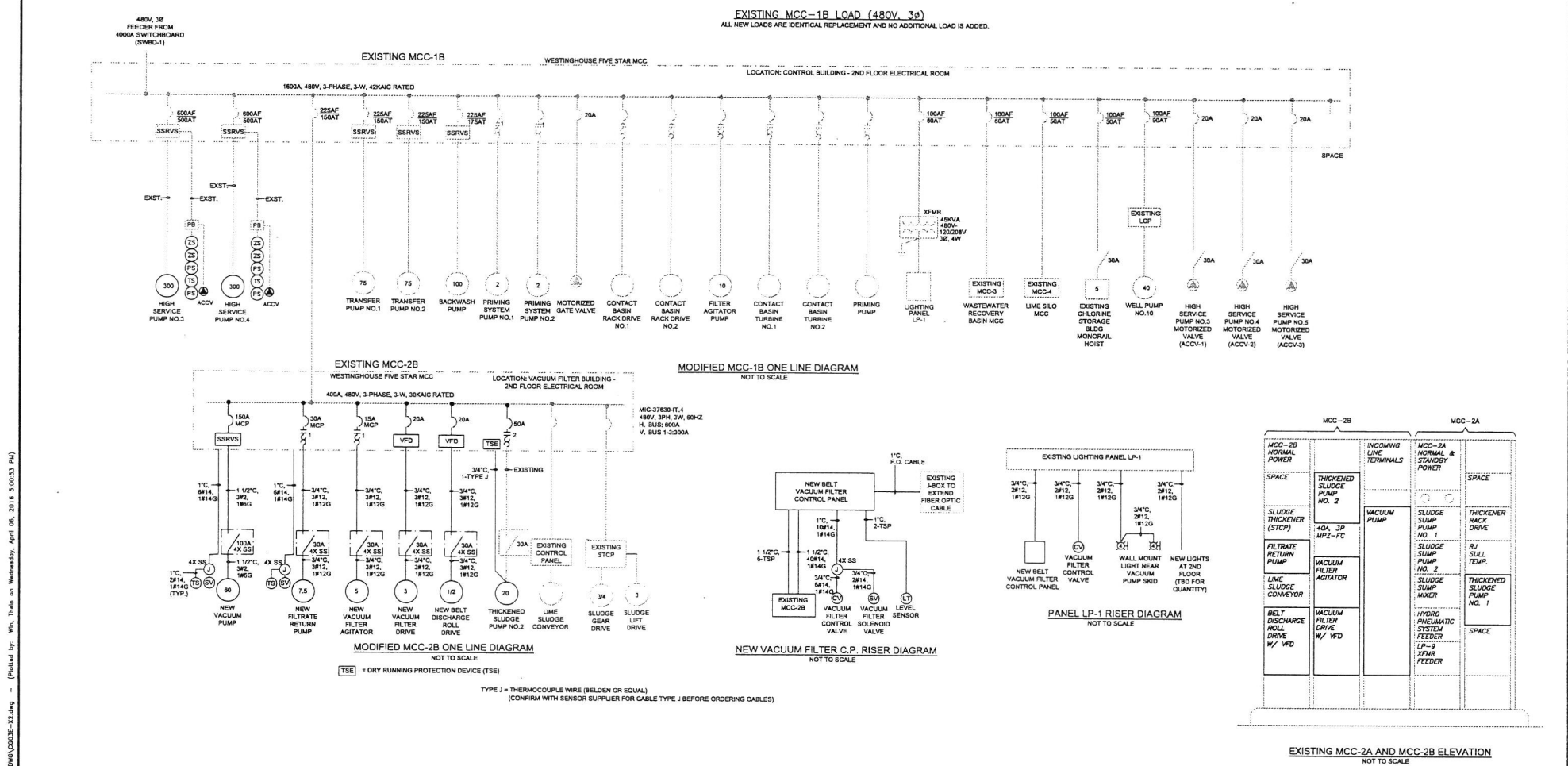
PBC WTP-8 VACUUM FILTER IMPROVEMENTS
PALM BEACH COUNTY, FLORIDA
PAHOKEE, FLORIDA

MCC-1B AND 2B ONE LINE -
DEMOLITION

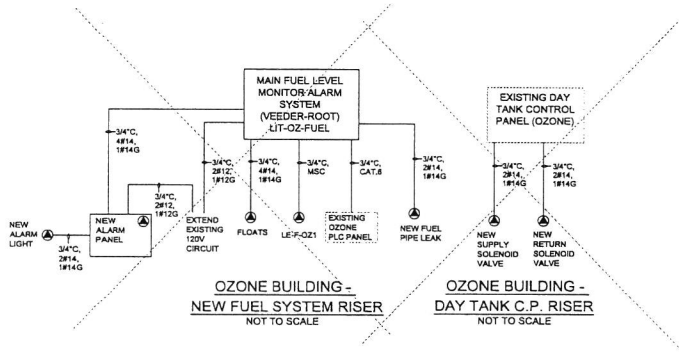
PRELIMINARY
PAUL F. MILLER, P.E.
STATE OF FLORIDA PROFESSIONAL ENGINEER
LICENSE NO. 41022
DATE: 10/27/16

HILLERS ELECTRICAL
ENGINEERING, INC.
23257 STATE ROAD 7, SUITE 100
BOCA RATON, FLORIDA 33438
(561) 451-1145
(561) 451-4888 FAX
LICENSE NO. 13 0008677

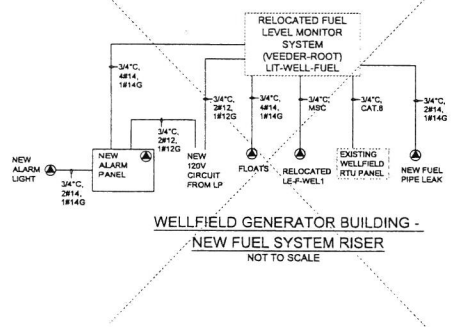
SCALE: AS SHOWN
PROJECT NO: 11-4418-000
PURPOSE OF THIS SET: FOR CONSTRUCTION
SHEET: 7
E-X1
OF 0X SHEETS



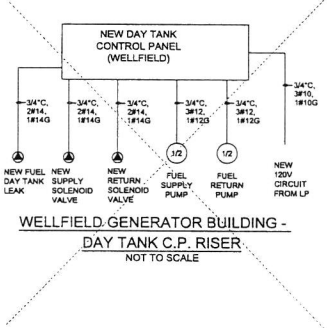
File Name: C:\PROJECTS\CO-0003 - WTP8 Vacuum Filter (WFS)\CO-0003-02.dwg - (Plotted by: WFS, Thru on Wednesday, April 06, 2016 5:00:53 PM)



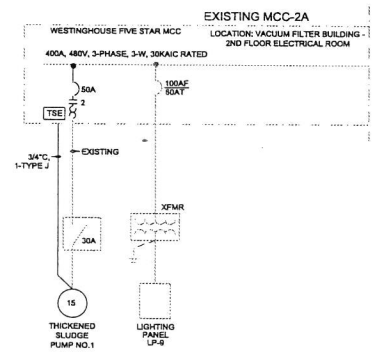
OZONE BUILDING -
DAY TANK C.P. RISER
NOT TO SCALE



WELLFIELD GENERATOR BUILDING -
NEW FUEL SYSTEM RISER
NOT TO SCALE



WELLFIELD GENERATOR BUILDING -
DAY TANK C.P. RISER
NOT TO SCALE




PARTIAL MCC-2A ONE LINE DIAGRAM - DEMOLITION
NOT TO SCALE

TSE = DRY RUNNING PROTECTION DEVICE (TSE)
TYPE J = THERMOCOUPLE WIRE (Belden or Equal)
(CONFIRM WITH SENSOR SUPPLIER FOR CABLE TYPE J BEFORE ORDERING CABLES)

File Name: E:\PROJECTS\WUD\WUD-16-043 - WTP8 Vacuum Filter Improvements.dwg - (Plotted by: Wm. Train on Wednesday, April 06, 2017 5:01:28 PM)

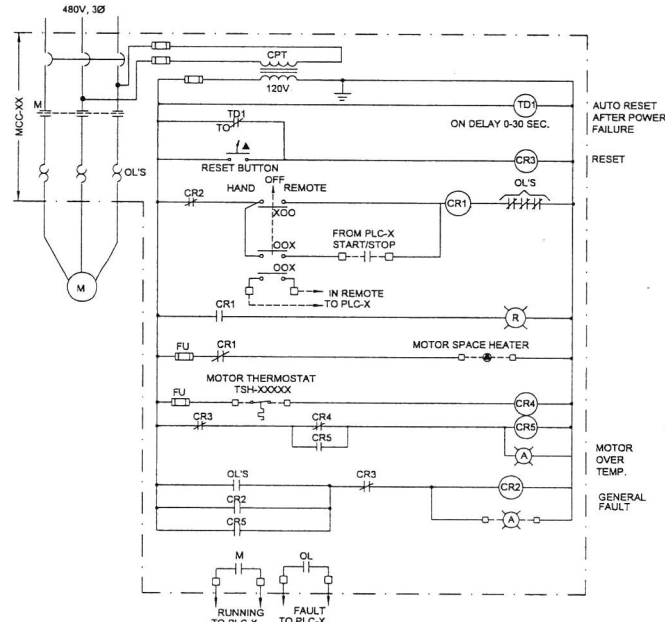
DESIGNED	TW	DATE	3/22/16
CHECKED	SPC	DATE	3/22/16
ISSUED FOR		DATE	3/22/16



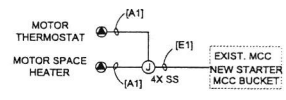
Calvin, Giordano & Associates, Inc.
EXCEPTIONAL SOLUTIONS
885 S.W. 14th, 5th Floor, Fort Lauderdale, Florida 33316
Phone: 954.523.7788 • Fax: 954.523.8857
Certificate of Authorization 514

PBC WTP-8 VACUUM FILTER IMPROVEMENTS PALM BEACH COUNTY, FLORIDA PAHOKEE, FLORIDA	MISCELLANEOUS RISER DIAGRAMS	PRELIMINARY PAUL F. MILLER, P.E. STATE OF FLORIDA PROFESSIONAL ENGINEER LICENSE NO. 41022 DATE: 1/22/16	SCALE AS SHOWN PROJECT NO.: 11-4118-000 PURPOSE OF THIS SET FOR CONSTRUCTION	SHEET: 7 E-X4 OF XX SHEETS
---	-------------------------------------	--	---	--

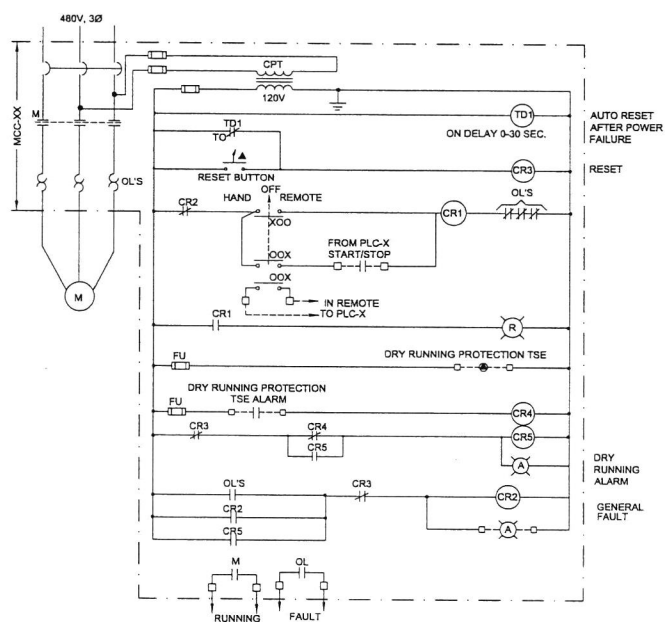
HILLERS ELECTRICAL
ENGINEERING, INC.
53557 STATE ROAD 7, SUITE 100
BOCA RATON, FLORIDA 33428
(561) 451-4140
(561) 451-4145 FAX
LICENSE NO. LB 000477



TYPICAL NEMA NON-REVERSING STARTER CONTROL SCHEMATIC
NOT TO SCALE



TYPICAL NON-REVERSING STARTER RISER
NOT TO SCALE



SLUDGE PUMP NO.X STARTER CONTROL SCHEMATIC
NOT TO SCALE
X = 1, 2

File Name: E:\PROJECTS\CO\2023 - WTP8 Vacuum Filter\WUD\2023E-16.dwg - (Plotted by: W. Th. in Wednesday, April 06, 2016 5:15:18 PM)

NO	DATE	REVISION	BY	NO	DATE	REVISION	BY



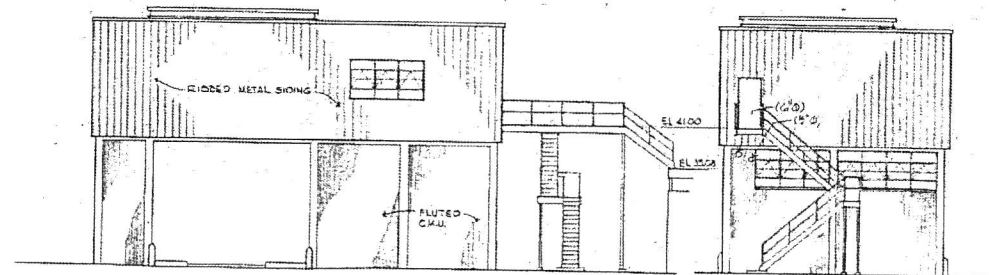
Calvin, Giordano & Associates, Inc.
EXCEPTIONAL SOLUTIONS
3825 Star Drive, Suite 102, Fort Lauderdale, Florida 33308
Phone: 561.453.7878 • Fax: 561.453.7877
Certificate of Authorization 514

PBC WTP-8 VACUUM FILTER IMPROVEMENTS
PALM BEACH COUNTY, FLORIDA
PAHOKEE, FLORIDA

SCHEMATIC DIAGRAMS - SHEET 2

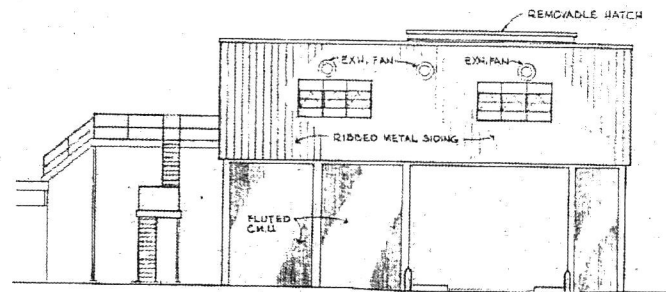
PRELIMINARY
PAUL F. HILLERS, P.E.
STATE OF FLORIDA PROFESSIONAL ENGINEER
LICENSE NO. 11922
DATE: 10/2/16

HILLERS ELECTRICAL
ENGINEERING, INC.
23257 STATE ROAD 7, SUITE 100
BOCA RATON, FLORIDA 33428
(561) 461-8166
(561) 461-0866 FAX
LICENSE NO. 18 0006877
SCALE: AS SHOWN
PROJECT NO: 11-4418.002
PURPOSE OF THIS SET: FOR CONSTRUCTION
SHEET: 7
E-X8
OF XX SHEETS

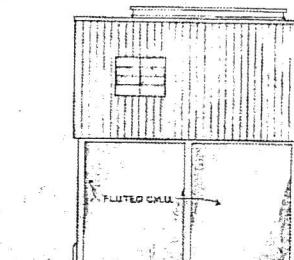


SOUTH ELEVATION
SCALE: 1/8" = 1'-0"

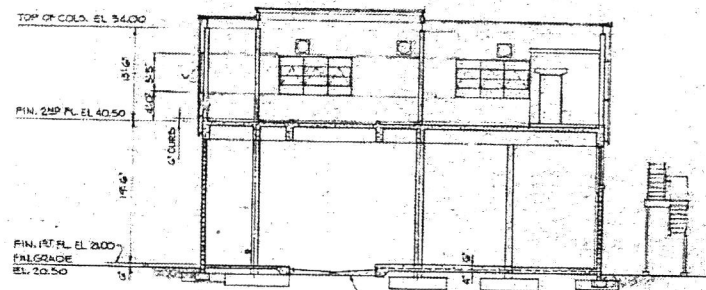
EAST ELEVATION
SCALE: 1/8" = 1'-0"



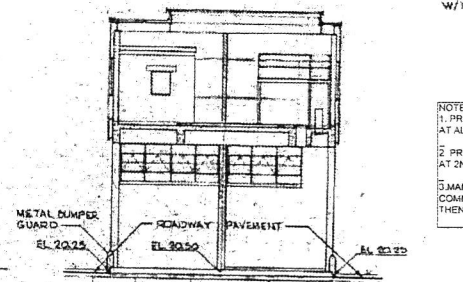
NORTH ELEVATION
SCALE: 1/8" = 1'-0"



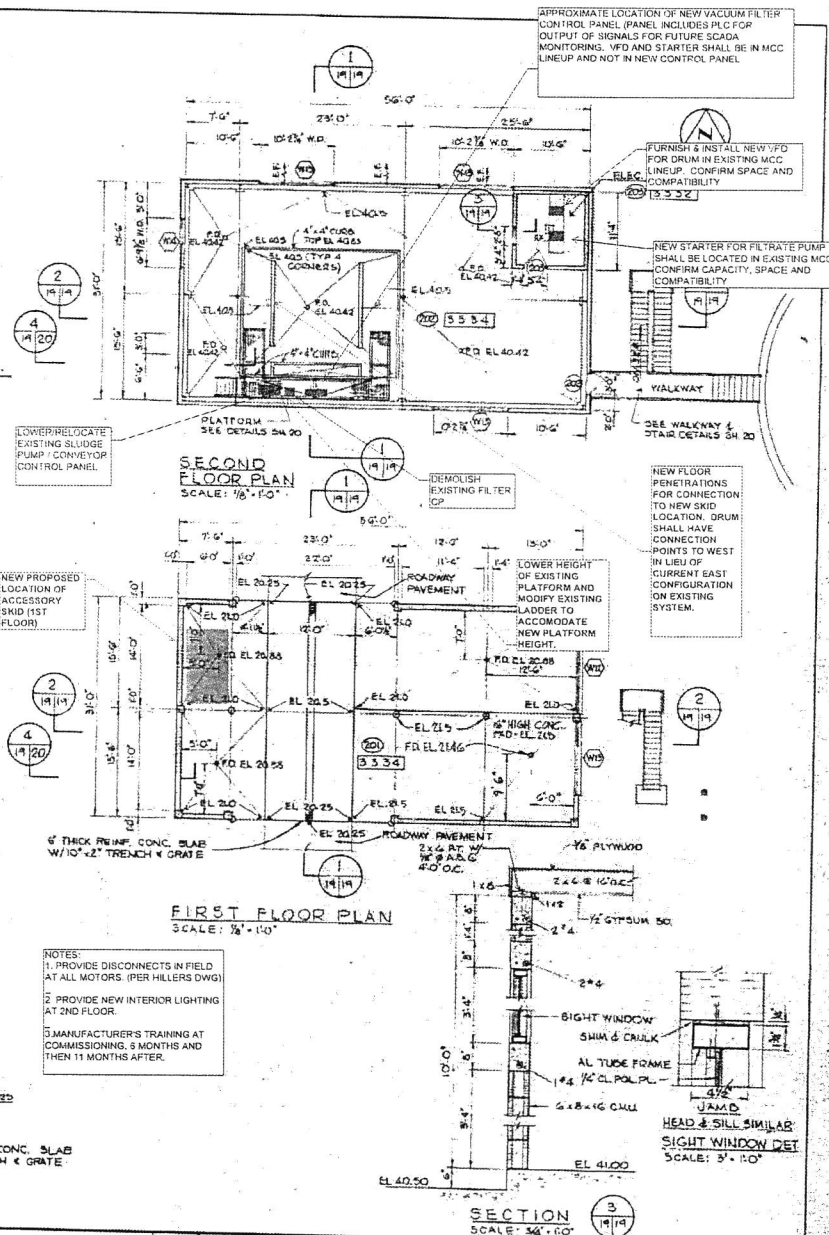
WEST ELEVATION
SCALE: 1/8" = 1'-0"



SECTION 2
SCALE: 1/8" = 1'-0"



SECTION 1
SCALE: 1/8" = 1'-0"



RUSSELL & AXON, INCORPORATED
ENGINEERS
DELRAY BEACH, FLORIDA

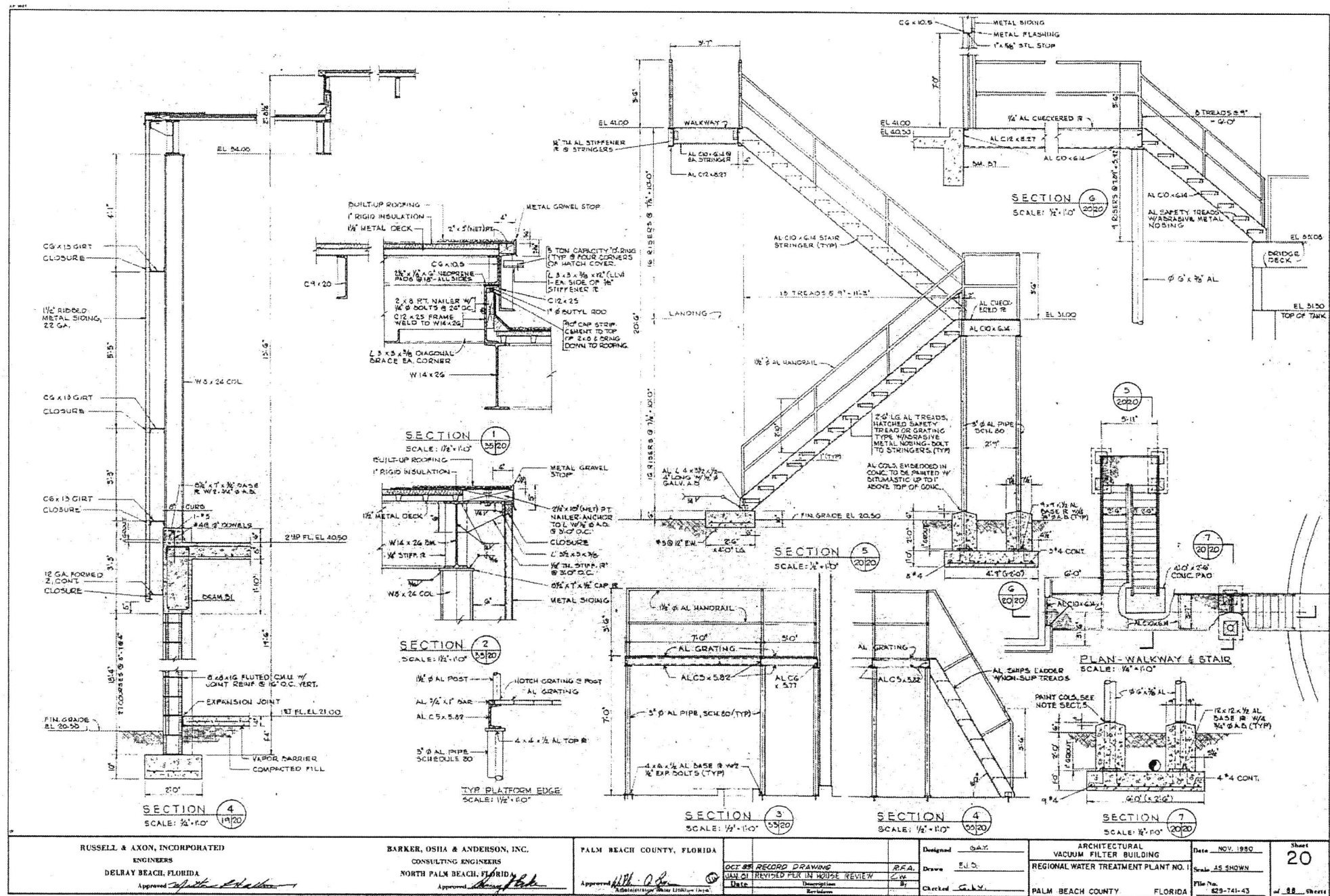
BARKER, OSHA & ANDERSON, INC.
CONSULTING ENGINEERS
NORTH PALM BEACH, FLORIDA

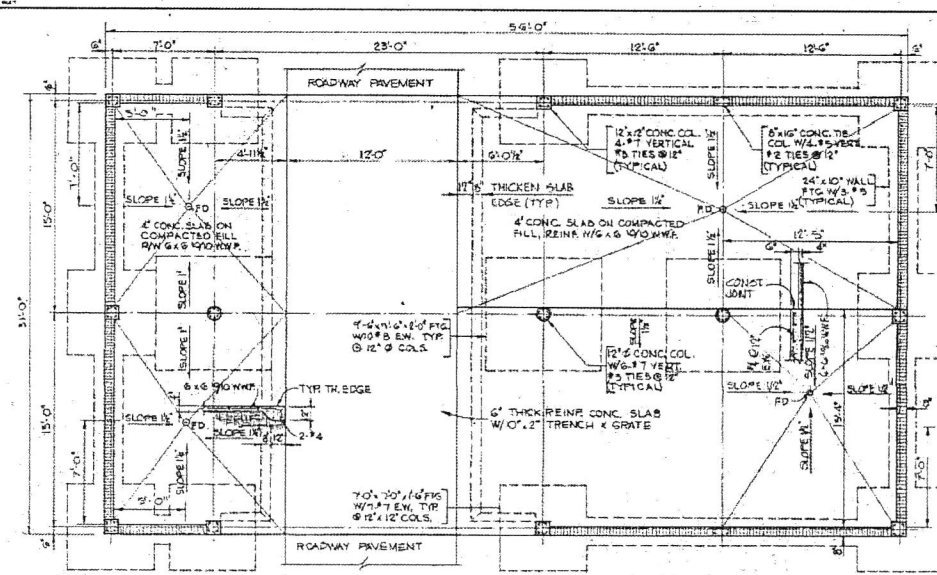
PALM BEACH COUNTY, FLORIDA

DESIGNED	G.A.Y.
DRAWN	F.J.D.
CHECKED	G.A.Y.

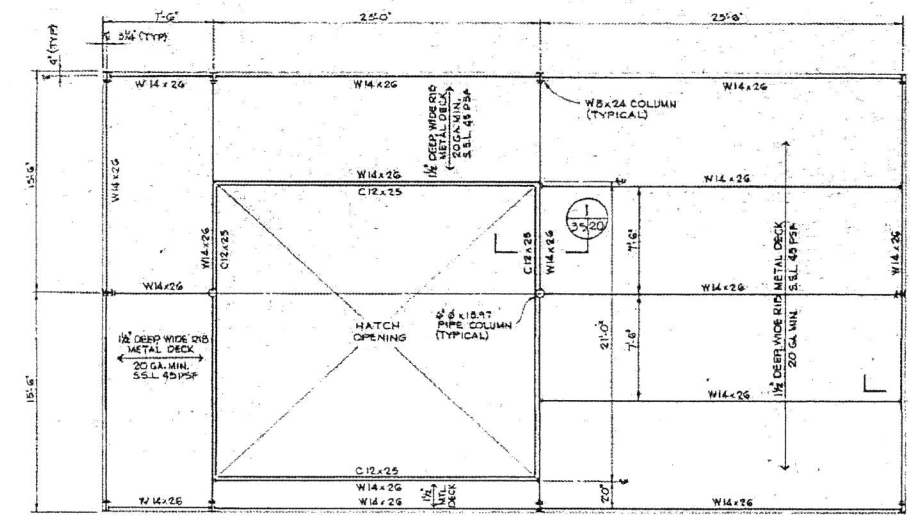
ARCHITECTURAL VACUUM FILTER BUILDING
REGIONAL WATER TREATMENT PLANT NO. 1
PALM BEACH COUNTY FLORIDA

Date	NOV 1980
Scale	AS SHOWN
File No.	629-741-43
Sheet	19



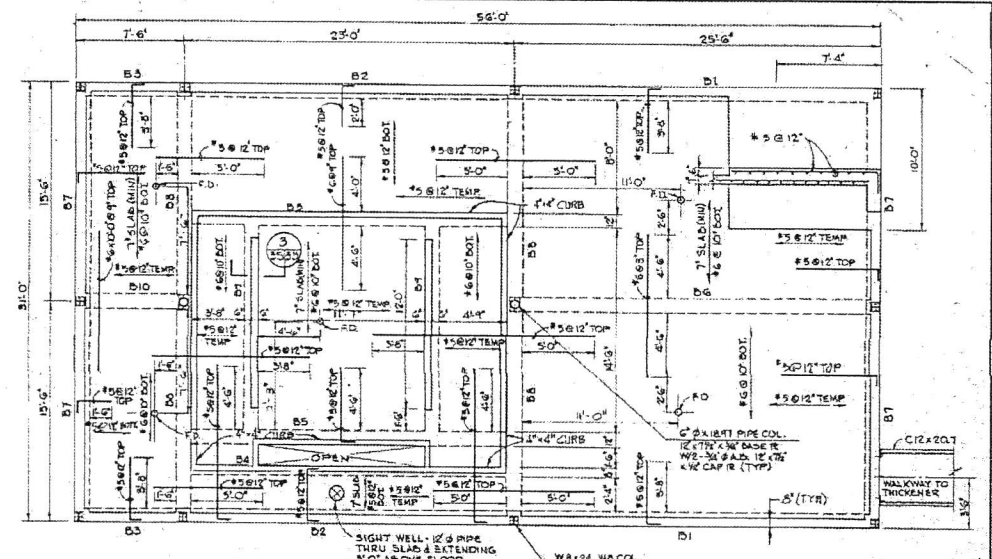


FOUNDATION & FIRST FLOOR SLAB PLAN
SCALE: 1/4" = 1'-0"



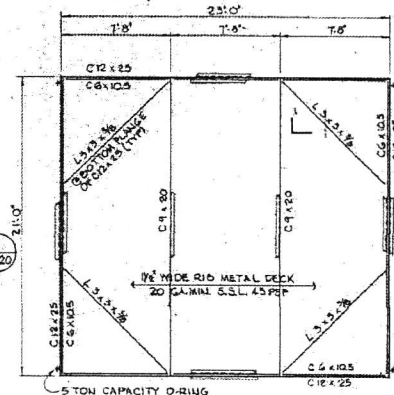
ROOF FRAMING PLAN
SCALE: 1/4" = 1'-0"

NOTES: 1. PROVIDE STIFF (R² (W²W)) AT ENDS & QUARTER POINTS OF ALL W² & C² SECTIONS, INCLUDING HATCH COVER.



SECOND FLOOR FRAMING PLAN (T² SLABS THRUOUT)
SCALE: 1/4" = 1'-0"

NOTE: SLAB THICKNESS VARIES FROM 8" AT HIGH POINTS (EL. 42.5) TO 7" AT FLUOR DRAINS (EL. 42.2). SEE S.H. 11 FOR SLOPES.

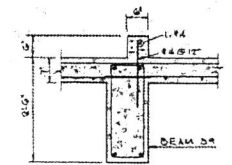


HATCH COVER PLAN
SCALE: 1/4" = 1'-0"

NOTES: 1. THE HATCH COVER DIMENSIONS SHOWN ARE 9' DIMENSIONS OF MAIN ROOF MEMBERS (W14x26 & C12x25) NOT SHOWN FOR CLARITY.

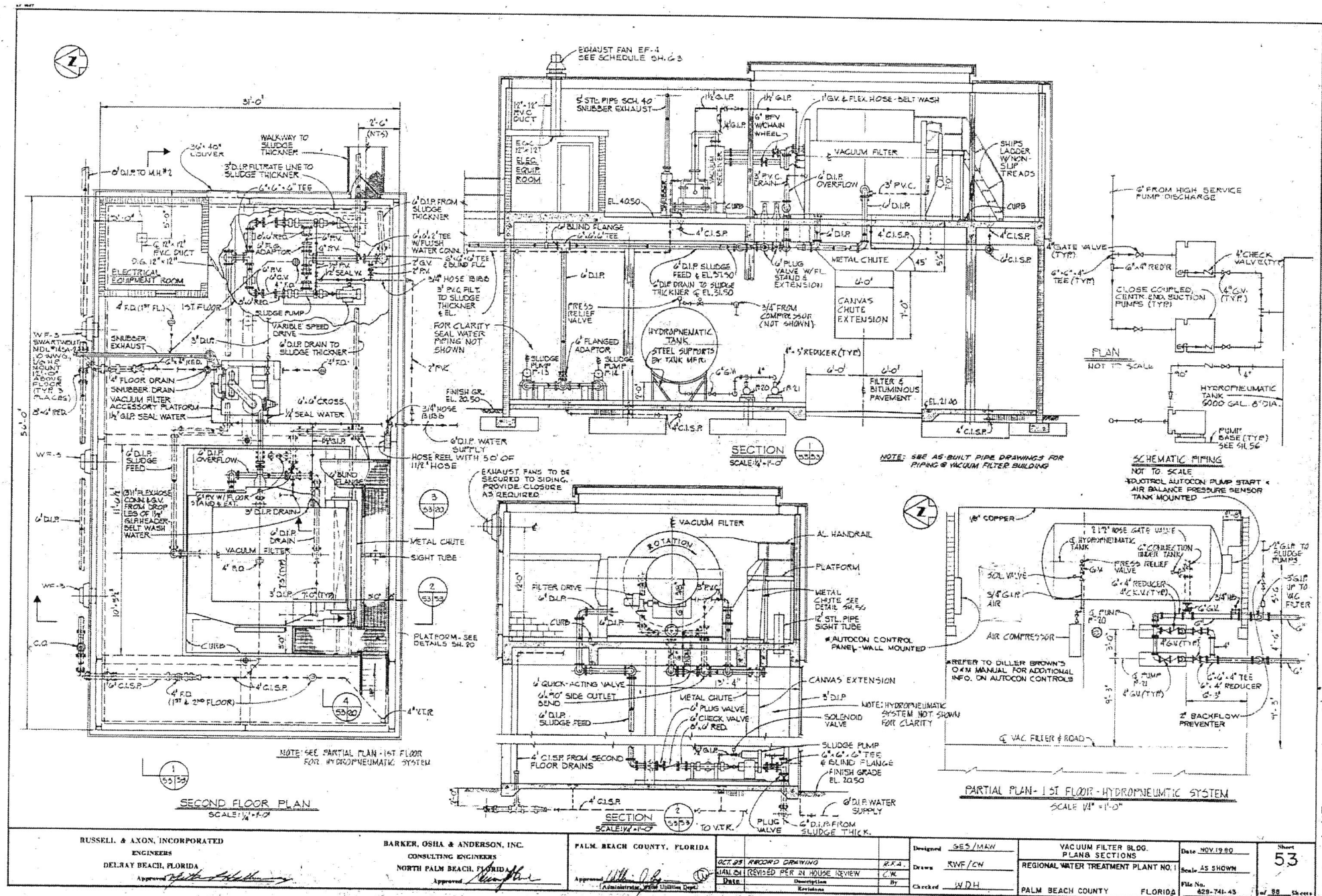
BEAM SCHEDULE				
BEAM MARK	SIZE	REINFORCEMENT	#3 STIRRUPS	REMARKS
B1	12'x30'	2-5	2-5	30" THRUOUT
B2	12'x30'	2-5	2-10	6@12" BAL. @ 24"
B3	12'x30'	2-5	2-5	30" THRUOUT
B4	8'x30'	2-5	2-5	6@12" BAL. @ 18"
B5	12'x30'	2-4+2-5	2-4+2-5	16@8" BAL. @ 12"
B6	12'x30'	2-5	2-5	6@12" BAL. @ 24"
B7	12'x30'	2-7	2-5	6@12" BAL. @ 24"
B8	12'x30'	3-10	2-11	6" THRUOUT
B9	12'x30'	2-7	2-5	12" THRUOUT
B10	12'x30'	2-5	2-5	12" THRUOUT

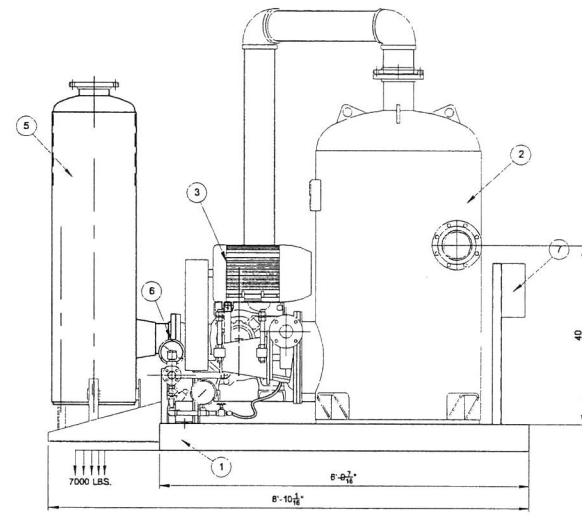
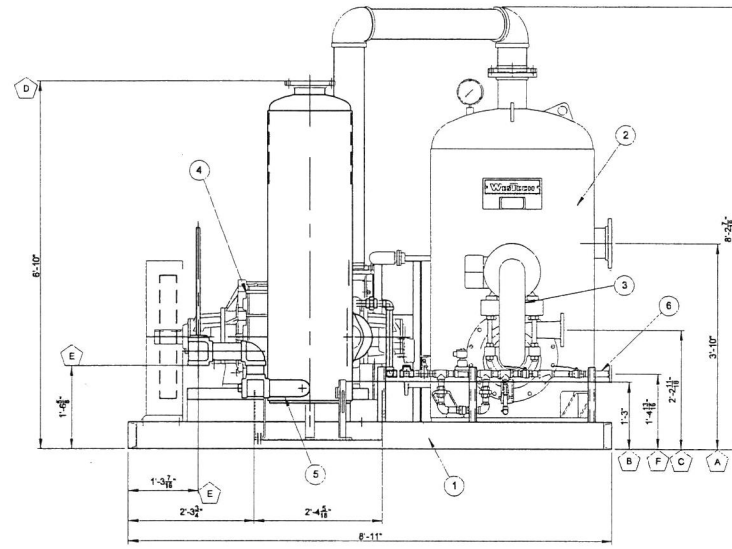
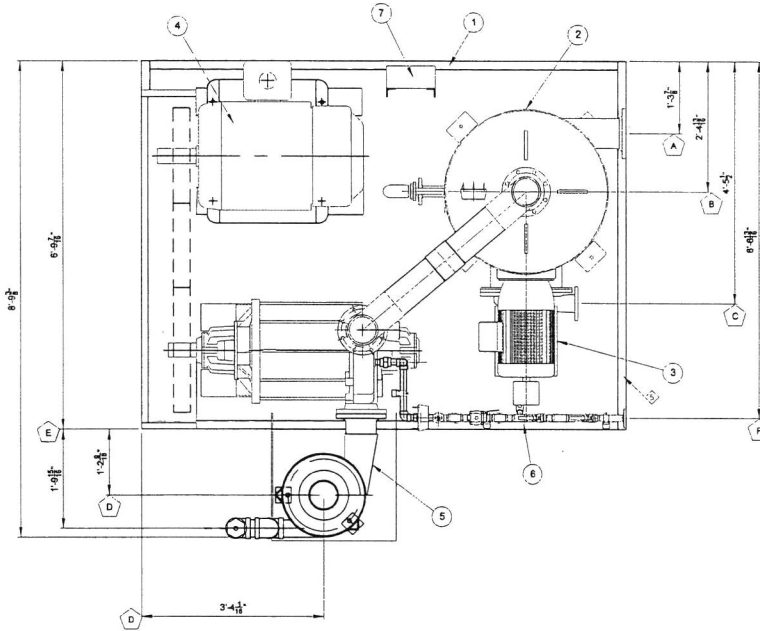
NOTE: TOP REIN. OF CONTINUOUS BEAMS SHALL BE SPLICED AT MIDSPAN & BOTTOM REIN. SHALL BE SPLICED AT SUPPORTS.



SECTION 3
SCALE: 1/4" = 1'-0"

RUSSELL & AXON, INCORPORATED ENGINEERS DELRAY BEACH, FLORIDA Approved: <i>[Signature]</i>		BARKER, OSHA & ANDERSON, INC. CONSULTING ENGINEERS NORTH PALM BEACH, FLORIDA Approved: <i>[Signature]</i>		PALM BEACH COUNTY, FLORIDA OCT 24 RECORD DRAWING 11/11/81 REVISED PER IN HOUSE REVIEW Approved: <i>[Signature]</i> Description: <i>[Signature]</i>		Designed: M.H. Drawn: F.D. Checked: J.T.S.		VACUUM FILTER BLDG. STRUCTURAL REGIONAL WATER TREATMENT PLANT NO. 1 PALM BEACH COUNTY, FLORIDA		Date: NOV. 1980 Scale: AS SHOWN File No.: 62-9741-45 Sheet: 35 of 38	
--	--	--	--	--	--	--	--	---	--	---	--





ITEM	DESCRIPTION/REMARKS
1	SKID, EPOXY COATED STEEL CONSTRUCTION
2	FILTRATE RECEIVER, 38" I.D. x 60" STRAIGHT SIDE, 304L CONSTRUCTION
3	FILTRATE PUMP AND MOTOR, 3x9 PUMP WITH A 7.5 HP MOTOR
4	VACUUM PUMP AND MOTOR, RATED FOR 200 ACFM WITH A 60 HP MOTOR
5	VACUUM PUMP SILENCER/SEPARATOR, STL CONSTRUCTION
6	SEAL WATER PIPING
7	JUNCTION BOX

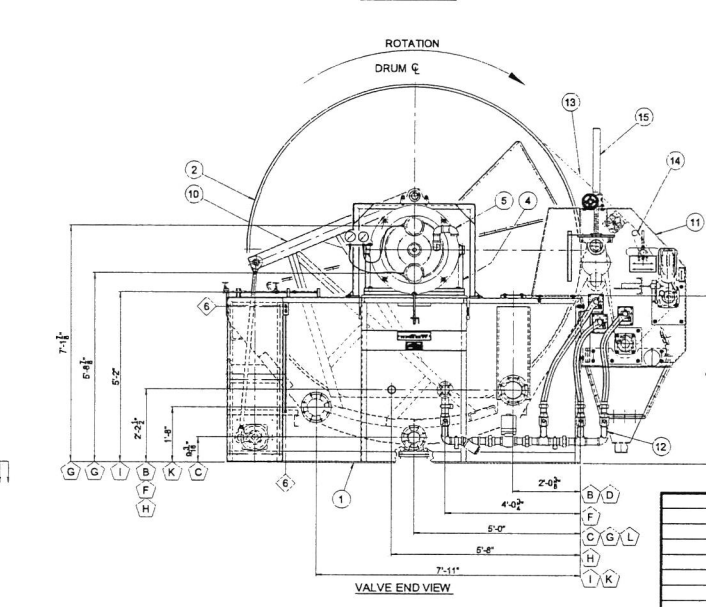
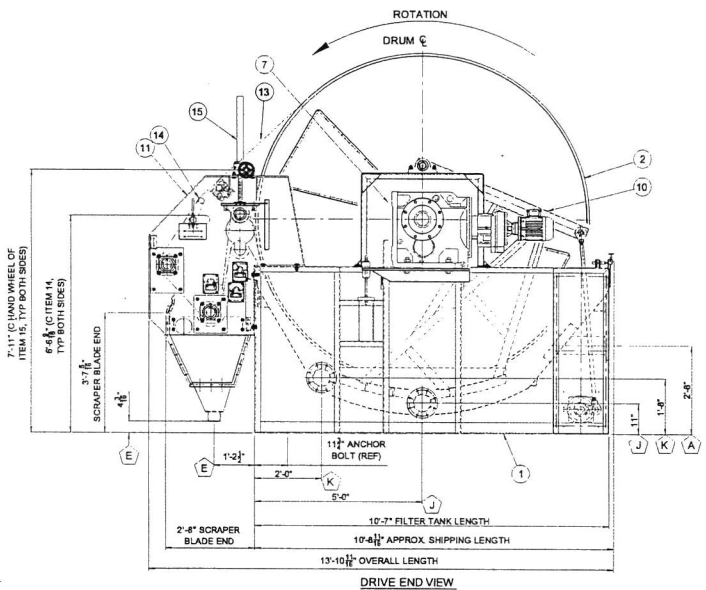
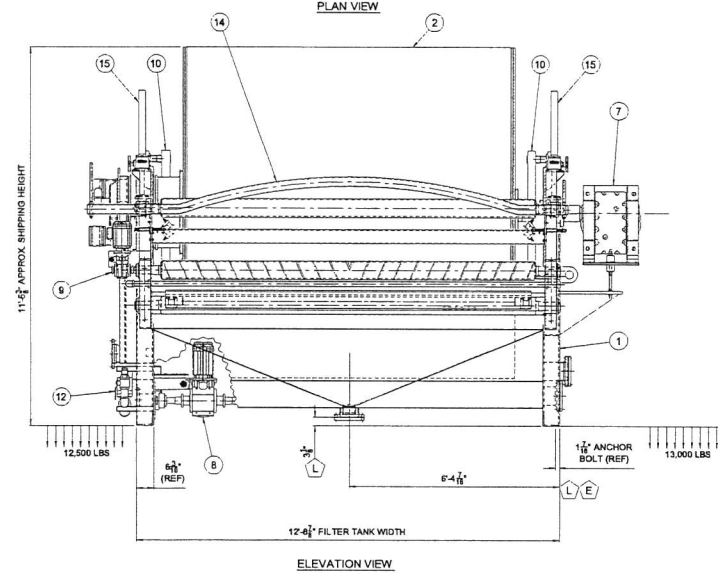
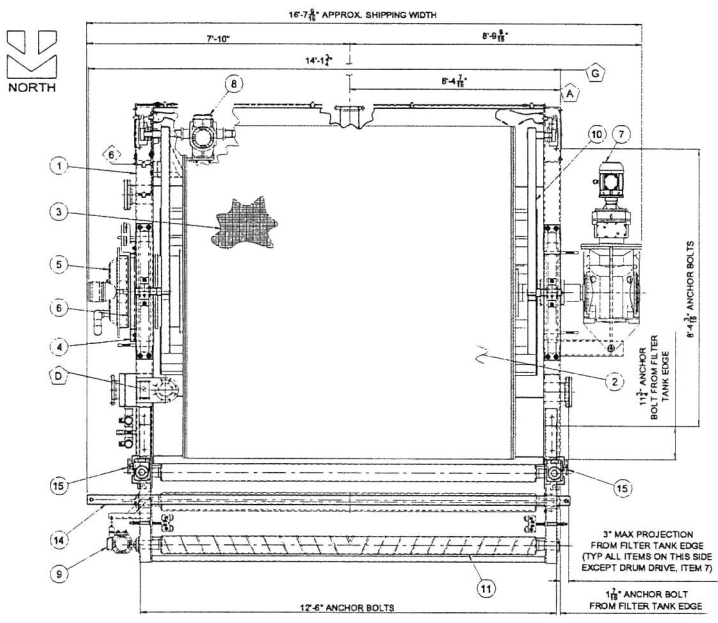
CONNECTION SUMMARY			
ITEM	DESCRIPTION	TYPE	SIZE
A	FILTRATE RECEIVER INLET	#150 FLANGE	6"
B	FILTRATE RECEIVER DRAIN	#150 FLANGE	2"
C	FILTRATE PUMP OUTLET	#150 FLANGE	3"
D	VACUUM PUMP SILENCER/SEPARATOR TOP GAS OUTLET	#150 FLANGE	6"
E	VACUUM PUMP SILENCER/SEPARATOR DRAIN	NPT	3"
F	SEAL WATER PIPING INLET	150# FLANGE	1"

NOTES

1. FOLLOW THE LISTED WESTECH REFERENCE DOCUMENTS EXCEPT AS NOTED ON THIS DRAWING.
2. A SWING CHECK VALVE MUST BE ATTACHED TO THE DISCHARGE FLANGE ON THE FILTRATE PUMP TO PROTECT THE PUMP FROM DAMAGE DURING OPERATION. THIS VALVE IS NOT PROVIDED BY WESTECH.
3. ALL FLANGE DRILLING AND O.D. TO CONFORM TO 150 LB ANSI, HOLES TO STRADDLE CENTERLINES.
4. ALL INTERCONNECTING PIPING TO BE SUPPORTED INDEPENDENT OF SKID.
5. ANCHOR BOLT LOCATIONS TO FOLLOW WITH RECEIPT OF ORDER.

PREPARED FOR PALM BEACH COUNTY WTP #8, FL			
ENGINEER			
CONTRACTOR			
PO/CONTRACT NUMBER			
Westech			
THIS DRAWING IS PROPERTY OF WESTECH ENGINEERING, INC. AND IS TRANSMITTED TO YOU FOR YOUR USE ONLY. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF WESTECH ENGINEERING, INC.			
TITLE GENERAL ARRANGEMENT VACUUM PUMP SKID			
DESIGNER	CHECKER	APPROVER	DATE
JAZZ	JCH		
DOCUMENT NUMBER			SHEET
1430101-0113			1 OF 1
			REV
			-

REV	REVISION DESCRIPTION	ECN	DESIGNER	APPROVER	DATE	REFERENCE DOCUMENTS
-----	----------------------	-----	----------	----------	------	---------------------



ITEM	DESCRIPTION/REMARKS
1	FILTER TANK - 3/16" THICK STEEL RUBBER LINED, WITH OVERFLOW BOX AND ADJUSTABLE WEIR PLATES FOR 20-37% SUBMERGENCE
2	DRUM - 3/16" THICK 304LSS CONST., WITH (4) TRAPEZOID MANHOLES (2) EACH END SPACED 180", 2 1/2" SCH. 40 INTERNAL PIPING
3	SNAP-IN POLY P GRIDS - 316LSS WING TYPE DIVISION STRIPS AND END RINGS WITH NEOP. STRIPS FOR (2) COMPARTMENTS
4	VALVE END TRUNNION BEARING - WITH RENEWABLE LINER
5	VALVE BODY - 316LSS, WITH MOVEABLE 316LSS BRIDGE BLOCKS AND (2) VACUUM GAUGES
6	VALVE WEAR PLATE - RENEWABLE, UHMW-PE CONST.
7	FILTER DRIVE - 3 HP, 480 VOLTS, 3 PH, 60 Hz, OUTPUT SPEED 1750 RPM VFD CONTROLLED
8	AGITATOR DRIVE - EURODRIVE 5 HP, 480 VOLTS, 3 PH, 60 Hz
9	BELT DISCHARGE ROLL DRIVE - 1/2 HP, 480 VOLTS, 3 PH, 60 Hz, VFD CONTROLLED
10	AGITATOR ARCS AND RAKES - 304LSS CONST.
11	DISCHARGE ASSEMBLY - 304LSS CONST., 6" DIA. PIPE, TAKE-UP, PERFORATED RETURN, AND RAISED HELIX DISCHARGE ROLL(S)
12	SPRAY HEADER - 2" SCH. 40, 304LSS CONST. WITH Y-STRAINER, SOLENOID VALVE AND CONTROL VALVES
13	FILTER CLOTH
14	DEMOONING BAR - 304LSS CONST., 3" SCH. 40
15	TAKE-UP ROLL SCREW JACK - WORM GEAR TYPE, 14" TRAVEL

CONNECTION SUMMARY					
POINT	QTY	TYPE	DESCRIPTION	SIZE	PROJ.
A	1	150# FLG	FILTER FEED	6"	0"
B	1	150# FLG	OVERFLOW	6"	8 7/8"
C	1	150# FLG	FILTER DRAIN	4"	0"
D	1	150# FLG	LEVEL SENSOR CONNECTION	4"	0"
E	3	150# FLG	DISCHARGE TROUGH DRAIN	4"	N/A
F	1	150# FLG	CLOTH & ROLL SPRAY HEADER	2"	6 7/8"
G	2	PIPE	FILTER VALVE	6"	16 3/4"
H	1	NPT	FILTER TANK FLUSH (WITH PLUG)	2"	0"
I	1	NPT	PIP EDGE WASH	1/4"	3/16"
J	1	150# FLG	FILTER TANK CLEAN OUT (CENTER)	6"	0"
K	2	150# FLG	FILTER TANK CLEAN OUT (OTHER)	6"	3"
L	1	150# FLG	FILTER TANK CLEAN OUT (UNDER)	6"	3 9/16"

- NOTES:
- ALL FLANGED DRILLING AND OUTSIDE DIAMETERS CONFORM TO 150# ANSI STANDARDS WITH HOLES TO STRADDLE CENTERLINES.
 - ALL PIPING CONNECTIONS ON EQUIPMENTS MUST BE SUPPORTED INDEPENDENTLY.
 - FOR SURFACE PAINTING SPECIFICATIONS WORK WITH DRAWING 101, AND 102.
 - FILTER TANK CAPACITY @ 37% SUBMERGENCE = APPROX. 550 GALLONS.
 - EMPTY WEIGHT OF FILTER, 25,500 LBS.
 - THE CONNECTION SUMMARY COLUMN "PROJ." REPRESENTS THE PROJECTION OF THE CONNECTION POINT PAST THE EDGE OF THE FILTER TANK, AND DOES NOT INCLUDE ANY BLIND FLANGES THAT ARE PROVIDED.
 - GREASE TUBING FOR REMOTE LUBRICATION OF THE AGITATOR SHAFT BEARINGS IS FURNISHED BY WESTECH AND WILL BE LOCATED AT THIS AREA.
 - THIS DRAWING REPRESENTS VACUUM FILTER 1, TAG NO: M-51-3.
 - THIS EQUIPMENT IS PART OF THE PHASE 2 DELIVERY.
 - PROJECTION OF THE SPRAY HEADER IS ADJUSTABLE.

PREPARED FOR: Palm Beach County WTP, FL

ENGINEER:

CONTRACTOR:

FOR CONTRACT NUMBER:

Westech

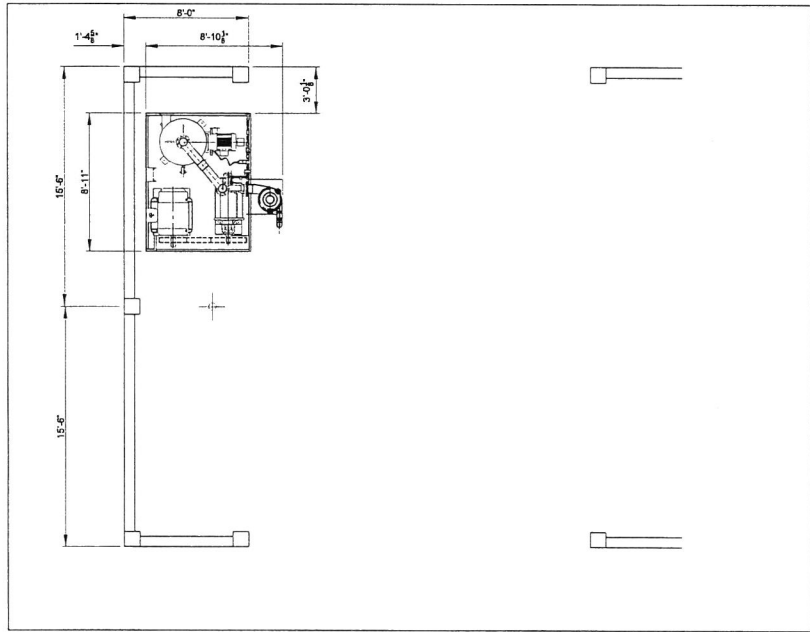
THIS DRAWING IS PROPERTY OF WESTECH ENGINEERING, INC. AND IS NOT TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, WITHOUT THE WRITTEN PERMISSION OF WESTECH ENGINEERING, INC.

TITLE: GENERAL ARRANGEMENT
BELT DISCHARGE DRUM FILTER
10'-0" DIAMETER X 10'-0" FACE

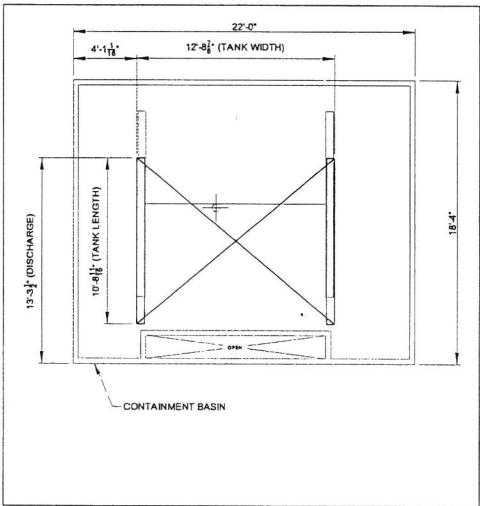
DESIGNER	CHECKER	APPROVER	DATE
JAGS			

DOCUMENT NUMBER	SHEET	REV
1430101-0111	1 OF 1	-

REV	REVISION DESCRIPTION	EON	DESIGNER	APPROVER	DATE
-----	----------------------	-----	----------	----------	------



VACUUM PUMP SKID BUILDING LAYOUT



DRUM FILTER BUILDING LAYOUT

- NOTES**
1. FOLLOW THE LISTED WESTECH REFERENCE DOCUMENTS EXCEPT AS NOTED ON THIS DRAWING.
 2. ANCHOR LOCATIONS FOR WESTECH SUPPLIED EQUIPMENT TO FOLLOW AFTER RECEIPT OF PURCHASE ORDER.

PREPARED FOR				PALM BEACH COUNTY, WTP #8, FL			
ENGINEER							
CONTRACTOR							
PO/CONTRACT NUMBER							
Westech							
<small>THIS DRAWING IS PROPERTY OF WESTECH ENGINEERING, INC. AND IS LOANED TO YOU FOR YOUR USE ONLY. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF WESTECH ENGINEERING, INC.</small>							
TITLE							
BUILDING LAYOUT							
DRUM FILTER AND VACUUM PUMP SKID							
DESIGNER	CHECKER	APPROVER	DATE				
JAS	JOE						
DOCUMENT NUMBER						SHEET	REV
1430101-0114						1 OF 1	-

REV	REVISION DESCRIPTION	EON	DESIGNER	APPROVER	DATE	REFERENCE DOCUMENTS



FEI-POMPANO BEACH WW #125
1950 NW 18TH STREET
POMPANO BEACH, FL 33069-1394

Deliver To: jason.mueller@ferguson.com
From: Jason Mueller
Comments:

15:17:51 APR 06 2016

FEI-POMPANO BEACH, FL WW #125
Price Quotation
Phone : 954-973-8100
Fax : 954-917-3134

Page # 1

Bid No.....: B300441
Bid Date.....: 04/06/16
Quoted By.: JM

Cust 954-587-0520
Terms.....: NET 10TH PROX

Customer: CARDINAL CONTRACTORS INC
10405 TECHNOLOGY TERR
LAKEWOOD RANCH, FL 34211

Ship To: CARDINAL CONTRACTORS INC
10405 TECHNOLOGY TERR
LAKEWOOD RANCH, FL 34211

Cust PO#....:

Job Name: PBC DC PROJECT

Item	Description	Quantity	Net Price	UM	Total
	HIGH SERVICE PUMP 3&4 *****				
SP-FFP14271.8	14"X27-1/8" FXF CL/PC PIPE	2	662.000	EA	1324.00
SP-FFP14155.8	14"X15-5/8 FXF CL/PC PIPE	2	569.400	EA	1138.80
FNWNBGS61NEF814	14 316SS 150# NEOP FF 1/8 FLG PKG	8	250.000	EA	2000.00
FNWNBGS61NEF816	16 316SS 150# NEOP FF 1/8 FLG PKG	2	257.700	EA	515.40
	SUBTOTAL				4978.20

	SLUDGE PUMP SUCTION & DISCHARGE PIPING *****				
K106LWX	8 FLG L&W CHK VLV	2	1966.000	EA	3932.00
D118FGX	8 CI FLG N/LUBE PLUG VLV W/GEAR	8	1194.700	EA	9557.60
FTP4X	8 DI 125# FLG P-401 TEE	4	600.600	EA	2402.40
F9P4X	8 DI 125# FLG P-401 90 BEND	7	456.500	EA	3195.50
BFX	8 DI C110 125# BLND FLG	2	120.800	EA	241.60
FTP4X	8 DI 125# FLG P-401 TEE	1	600.600	EA	600.60
TAPBFP4XK	8X2 DI P-401 125# TAP BLND FLG	1	331.100	EA	331.10
FNWNBGS61NEF8X	8 316SS 150# NEOP FF 1/8 FLG PKG	2	55.000	EA	110.00
	SUBTOTAL				20370.80

	DIP PIPE SPOOLS *****				
SP-FFELPX14	8" X 14' FLG X FLG EPOX PIPE	1	265.800	EA	265.80
SP-FFELPX38	8X38" FXF P-401 PIPE	1	415.500	EA	415.50



15:17:51 APR 06 2016

Phone : 954-973-8100

Fax : 954-917-3134

Reference No: B300441

Item	Description	Quantity	Net Price	UM	Total
FFPELXG	8X1'0 FLGXFLG EPOX DI SPL	2	265.800	EA	531.60
FFPELXK	8X2'0 FLGXFLG EPOX DI SPL	1	340.600	EA	340.60
FFPELXM	8X3'0 FLGXFLG EPOX DI SPL	2	415.500	EA	831.00
FFPELX13	8X13'0 FLGXFLG EPOX DI SPL	1	1091.600	EA	1091.60
FFPELX17	8X17'0 FLGXFLG EPOX DI SPL	2	1372.400	EA	2744.80
FFPELXS	8X5'0 FLGXFLG EPOX DI SPL	1	565.300	EA	565.30
FFPELX10	8X10'0 FLGXFLG EPOX DI SPL	1	939.700	EA	939.70
	SUBTOTAL				7725.90

	FILTER OVERFLOW				

FFPELXX	8X8'0 FLGXFLG EPOX DI SPL	4	789.900	EA	3159.60
F9P4X	8 DI 125# FLG P-401 90 BEND	5	456.500	EA	2282.50
FTP4X	8 DI 125# FLG P-401 TEE	1	600.600	EA	600.60
	SUBTOTAL				6042.70

	SKID TO DRUM PIPING				

FFPELXX	8X8'0 FLGXFLG EPOX DI SPL	4	846.600	EA	3386.40
	SUBTOTAL				3386.40

	SEAL WATER (316SS)				

IS6LRFTFK	2 SS 316L 150# RF THRD FLG	1	21.400	EA	21.40
FNW200AK	2 SS 1000# THRD 2PC FP BV LL	2	153.200	EA	306.40
DS46NKU	2X6 S40 316/L WLD NIP TBE	10	13.500	EA	135.00
IS6CTUK	2 SS 316 150# THRD UNION	3	19.800	EA	59.40
IS6CTTK	2 SS 316 150# THRD TEE	1	16.600	EA	16.60
IS6CTS9K	2 SS 316 150# THRD ST 90 ELL	2	15.800	EA	31.60
IS6L3TUG	1 SS 316L 3000# THRD UNION	5	24.200	EA	121.00
IS6CT9G	1 SS 316 150# THRD 90 ELL	11	4.000	EA	44.00
IS6CTTG	1 SS 316 150# THRD TEE	1	4.600	EA	4.60
IS6CTTKG	2X1 SS 316 150# THRD TEE	1	50.000	EA	50.00
IS6CTBKG	2X1 SS 316 150# THRD BUSH	1	7.700	EA	7.70
WLF25AUBZ3G	LF 1 WTR PRV	1	2000.000	EA	2000.00
IS6CTBGD	1X1/2 SS 316 150# THRD BUSH	2	2.400	EA	4.80
IS6CTTD	1/2 SS 316 150# THRD TEE	4	2.500	EA	10.00
FNW200AD	1/2 SS 1000# THRD 2PC FP BV LL	6	27.400	EA	164.40



FEI-POMPANO BEACH, FL WW #125

Price Quotation

Page # 3

15:17:51 APR 06 2016

Phone : 954-973-8100

Fax : 954-917-3134

Reference No: B300441

Item	Description	Quantity	Net Price	UM	Total
IS6CT9D	1/2 SS 316 150# THRD 90 ELL	6	2.000	EA	12.00
IS6CTUD	1/2 SS 316 150# THRD UNION	4	4.700	EA	18.80
BS820AF	1/2 FIP X 1/2 FIP X 20 SS FCT CONN	2	60.000	EA	120.00
DS6BSTCSP114DB	1/2X1/4 SS 316 150# THRD COUP	2	67.200	EA	134.40
GSP46LD	1/2 SS S40 316L A312 WELD PIPE	20	2.700	FT	54.00
GSP44LG	1 SS S40 304L A312 WELD PIPE	40	3.400	FT	136.00
GSP44LK	2 SS S40 304L A312 WELD PIPE	20	6.800	FT	136.00
	SUBTOTAL				3588.10

	2ND FLOOR PVC				

P80BD	1/2 X 20 FT PVC S80 BE PIPE	40	35.800	C	14.32
P80BG	1 X 20 FT PVC S80 BE PIPE	40	80.400	C	32.16
P80BJ	1-1/2 X 20 FT PVC S80 BE PIPE	40	123.600	C	49.44
P80BM	3 X 20 FT PVC S80 BE PIPE	20	355.700	C	71.14
P80S9D	1/2 PVC S80 SXS 90 ELL	12	0.693	EA	8.32
P80S9G	1 PVC S80 SXS 90 ELL	12	1.500	EA	18.00
P80S9J	1-1/2 PVC S80 SXS 90 ELL	12	2.100	EA	25.20
P80S9M	3 PVC S80 SXS 90 ELL	12	6.500	EA	78.00
	SUBTOTAL				296.58

	2ND FLOOR 316SS				

DSP46LJ	1-1/2 SS S40 316L A312 WELD PIPE	105	7.600	FT	798.00
IS6CT9J	1-1/2 SS 316 150# THRD 90 ELL	15	5.900	EA	88.50
	SUBTOTAL				886.50

Net Total:	\$47275.18
Tax:	\$2836.54
Freight:	\$0.00
Total:	\$50111.72

Quoted prices are based upon receipt of the total quantity for immediate shipment (48 hours). SHIPMENTS BEYOND 48 HOURS SHALL BE AT THE PRICE IN EFFECT AT TIME OF SHIPMENT UNLESS NOTED OTHERWISE. Seller not responsible for delays, lack of product or increase of pricing due to causes beyond our control, and/or based upon Local, State and Federal laws governing type of products that can be sold or put into commerce. This quote is offered contingent upon the buyer's acceptance of Seller's terms and conditions, which are incorporated by reference and found either following this document, or on the web at http://wolseleyna.com/terms_conditionsSale.html. Govt Buyers: All items are open market unless noted otherwise.

LEAD LAW WARNING: It is illegal to install products that are not "lead free" in accordance with US Federal or other applicable law in potable water systems anticipated for human consumption. Products with *NP in the description are NOT lead free and can only be installed in non-potable applications. Buyer is solely responsible for product selection.



FEI-POMPANO BEACH WW #125
1950 NW 18TH STREET
POMPANO BEACH, FL 33069-1394

Deliver To: gary.morgan2@ferguson.com
From: Gary Morgan
Comments:

14:58:04 APR 25 2016

FEI-POMPANO BEACH, FL WW #125

Price Quotation
Phone : 954-973-8100
Fax : 954-917-3134

Page # 1

Bid No.....: B302051
Bid Date.....: 04/25/16
Quoted By.: GM

Cust 954-587-0520
Terms.....: NET 10TH PROX

Customer: CARDINAL CONTRACTORS INC
10405 TECHNOLOGY TERR
LAKEWOOD RANCH, FL 34211

Ship To: CARDINAL CONTRACTORS INC
10405 TECHNOLOGY TERR
LAKEWOOD RANCH, FL 34211

Cust PO#...: DESIGN BUILD

Job Name: PBC WTP #8

Item	Description	Quantity	Net Price	UM	Total
	PER CUSTOMER LIST, FIELD VERIFY ALL ----				
FFPP4UX	6X8'0 FLGXFLG P-401 BT DI SPL	3	541.300	EA	1623.90
F9P4U	6 DI 125# FLG P-401 90 BEND	3	254.700	EA	764.10
FFPP4UM	6X3'0 FLGXFLG P-401 BT DI SPL	2	276.300	EA	552.60
SP-FS09P4U	6" FLG SIDE OUTLET 90 P401	1	484.000	EA	484.00
FFPP4US	6X5'0 FLGXFLG P-401 BT DI SPL	2	386.300	EA	772.60
D118FGU	6 CI FLG N/LUBE PLUG VLV W/GEAR	1	804.600	EA	804.60
FTP4U	6 DI 125# FLG P-401 TEE	1	325.400	EA	325.40
TAPBFP4UK	6X2 DI P-401 125# TAP BLND FLG	2	185.400	EA	370.80
IS6CTBKJ	2X1-1/2 SS 316 150# THRD BUSH	1	6.200	EA	6.20
FCROSSP4U	6 DI 125# FLG P-401 CRS	1	408.000	EA	408.00
BFP4U	6 DI P-401 125# BLND FLG	1	173.400	EA	173.40
FFPP4U20	6X20'0 FLGXFLG P-401 BT DI SPL	7	1180.000	EA	8260.00
FYP4U	6 DI 125# FLG P-401 WYE	1	368.000	EA	368.00
FFPELU06	6X0'6 FLGXFLG EPOX DI SPL	1	170.000	EA	170.00
AFC2506FFOL	6 FLG RW DI OL GATE VLV	2	580.000	EA	1160.00
FFPP4UU	6X6'0 FLGXFLG P-401 BT DI SPL	2	435.000	EA	870.00
F4P4U	6 DI 125# FLG P-401 45 BEND	2	218.800	EA	437.60
FFPP4UG6	6X1'6 FLGXFLG P-401 BT DI SPL	1	198.800	EA	198.80
	SUBTOTAL				17750.00

	MISC AS/IF NEEDED --				
PSTORGSKITKIT316U	6 FF TORUSEAL GSKT KIT 316	1	47.000	EA	47.00
	SUBTOTAL				47.00
Net Total:					\$17797.00
Tax:					\$1067.83
Freight:					\$0.00



FEI-POMPANO BEACH, FL WW #125

Price Quotation

Page # 2

14:58:04 APR 25 2016

Phone : 954-973-8100

Fax : 954-917-3134

Reference No: B302051

Total: \$18864.83

Quoted prices are based upon receipt of the total quantity for immediate shipment (48 hours). SHIPMENTS BEYOND 48 HOURS SHALL BE AT THE PRICE IN EFFECT AT TIME OF SHIPMENT UNLESS NOTED OTHERWISE. Seller not responsible for delays, lack of product or increase of pricing due to causes beyond our control, and/or based upon Local, State and Federal laws governing type of products that can be sold or put into commerce. This quote is offered contingent upon the buyer's acceptance of Seller's terms and conditions, which are incorporated by reference and found either following this document, or on the web at http://wolseleyna.com/terms_conditionsSale.html. Govt Buyers: All items are open market unless noted otherwise.

LEAD LAW WARNING: It is illegal to install products that are not "lead free" in accordance with US Federal or other applicable law in potable water systems anticipated for human consumption. Products with *NP in the description are NOT lead free and can only be installed in non-potable applications. Buyer is solely responsible for product selection.



FEI-POMPANO BEACH WW #125
1950 NW 18TH STREET
POMPANO BEACH, FL 33069-1394

Deliver To: jason.mueller@ferguson.com

From: Jason Mueller

Comments:

08:22:37 APR 01 2016

FEI-POMPANO BEACH, FL WW #125

Price Quotation

Page # 1

Phone : 954-973-8100

Fax : 954-917-3134

Bid No.....: B300016

Bid Date.....: 04/01/16

Quoted By.: JM

Cust 954-587-0520

Terms.....: NET 10TH PROX

Customer: CARDINAL CONTRACTORS INC
10405 TECHNOLOGY TERR
LAKEWOOD RANCH, FL 34211

Ship To: CARDINAL CONTRACTORS INC
10405 TECHNOLOGY TERR
LAKEWOOD RANCH, FL 34211

Cust PO#....:

Job Name: PBC DB PROJECT

Item	Description	Quantity	Net Price	UM	Total
SP-FFP1427-1/8	14X27-1/8" FXF CL/PC PIPE	2	664.000	EA	1328.00
SP-FFP1415-5/8	14X15-5/8 FXF CL/PC PIPE	2	577.200	EA	1154.40
FNWNBGS61NEF814	14 316SS 150# NEOP FF 1/8 FLG PKG	8	250.000	EA	2000.00
FNWNBGS61NEF816	16 316SS 150# NEOP FF 1/8 FLG PKG	1	292.000	EA	292.00

Net Total: \$4774.40

Tax: \$286.46

Freight: \$0.00

Total: \$5060.86

Quoted prices are based upon receipt of the total quantity for immediate shipment (48 hours). SHIPMENTS BEYOND 48 HOURS SHALL BE AT THE PRICE IN EFFECT AT TIME OF SHIPMENT UNLESS NOTED OTHERWISE. Seller not responsible for delays, lack of product or increase of pricing due to causes beyond our control, and/or based upon Local, State and Federal laws governing type of products that can be sold or put into commerce. This quote is offered contingent upon the buyer's acceptance of Seller's terms and conditions, which are incorporated by reference and found either following this document, or on the web at http://wolseley.com/terms_conditionsSale.html.
Govt Buyers: All items are open market unless noted otherwise.

LEAD LAW WARNING: It is illegal to install products that are not "lead free" in accordance with US Federal or other applicable law in potable water systems anticipated for human consumption. Products with *NP in the description are NOT lead free and can only be installed in non-potable applications. Buyer is solely responsible for product selection.



BEARING POINT CONSTRUCTION, INC

1615 S. Congress Avenue, Delray Beach 33445. Tel. 561.900.3699

Cardinal Contractors

Date: 5/2/2016

5365 Stirling Road

Ft. Lauderdale, FL 33314

Attn: Michael Brandao

Re: Plant 8 Rotary Drum Vacuum Filter, Lime Slaker, Diesel Fuel Tank And High Service Pump Replacement Project No. WUD 16-043

Dear Michael,

We appreciate the opportunity to provide this proposal to Cardinal Contractors for the work described below.

We propose to perform the following scope of work:

High Service Pumps #3 And #4

1. Demolition of existing High Service Pumps and associated piping and valves necessary to install new.
2. Installation of new pumps, slanted check valves and associated piping.
3. New supports for slanted check valves.
4. Demolition of (2) unused existing concrete supports.

All for the sum of: \$16,000.00

Vacuum Filter Building

1. Removal and reinstallation of removable roof section.
2. Demolition of existing Vacuum Filter equipment including filtrate pump, vacuum pump, vacuum receiver and associated piping.
3. Demolition of Moyno Pumps and piping.
4. Demolition of old concrete supports.
5. Demolition of platform including stairs, handrail and supports.
6. New concrete pads and supports at Seepex pumps, first floor pump skid and vacuum filter equipment.
7. New floor penetrations as necessary.
8. Install new Rotary Drum Vacuum Filter.
9. Install new skid mounted filtrate pump, vacuum pump and silencer.
10. Modify and reinstall existing platform at new height. New handrail, kick plate and access stairs to be provided and installed.
11. Coordination with Palm Beach County roofing vendor.



12. Equipment to be supplied as follows:

- (1) WesTech Vacuum Filter System
- PLC Controller
- VFD Upgrade
- Upgrade wetted parts to 316L SS
- Startup

Equipment Only: \$756,371.00

All for the sum of: \$868,430.00

Alt for 3 rail handrail: \$5,000.00

TOTAL OF ALL SECTIONS: \$889,430.00

Proposal Exclusions:

1. Excavation, backfill, fill, compaction and subgrade grading. (BPC will provide minor hand grading of prepared subgrade by others)
2. Dewatering or earth shoring.
3. Changes to sales tax rate. (Included at 6%)
4. Permanent materials not specified as included.
5. Paint, protective coatings, damp-proofing, waterproofing, roofing, etc.
6. Epoxy flooring.
7. Electrical work and instrumentation work.
8. Roofing
9. Any work necessary to seal and watertight the Vacuum Filter Building after reinstallation of removable roof section.
10. Concrete work for: pipe encasements, electrical duct-banks, piping thrust blocks, sidewalks, driveways, electrical manholes & hand holes, precast structures or any concrete items not included above.
11. Temporary water, power or sanitation.
12. Dumpsters, debris hauling or dumpster fees.
13. Equipment grouting or structure grouting/lean fill.
14. Site security.
15. Site dust control and erosion control.
16. Permits and testing.
17. Caulking, sealants or semi rigid joint filler.
18. Structural Engineering or design (formwork design is included).
19. Temperature control, or temperature monitoring of concrete.
20. Polished concrete surfaces or floor hardeners.
21. Hydraulic testing or facility/structure disinfection.
22. Bacteriological Testing.
23. Architectural trades or finishes except as may be included above.
24. Concrete testing costs or fees.
25. Masonry work.
26. Precast or Prestressed concrete work of any kind.
27. Floor patching.



28. Bypass piping or pumping.
29. Yard pipe or storm drainage piping.

Proposal Assumptions and Clarifications:

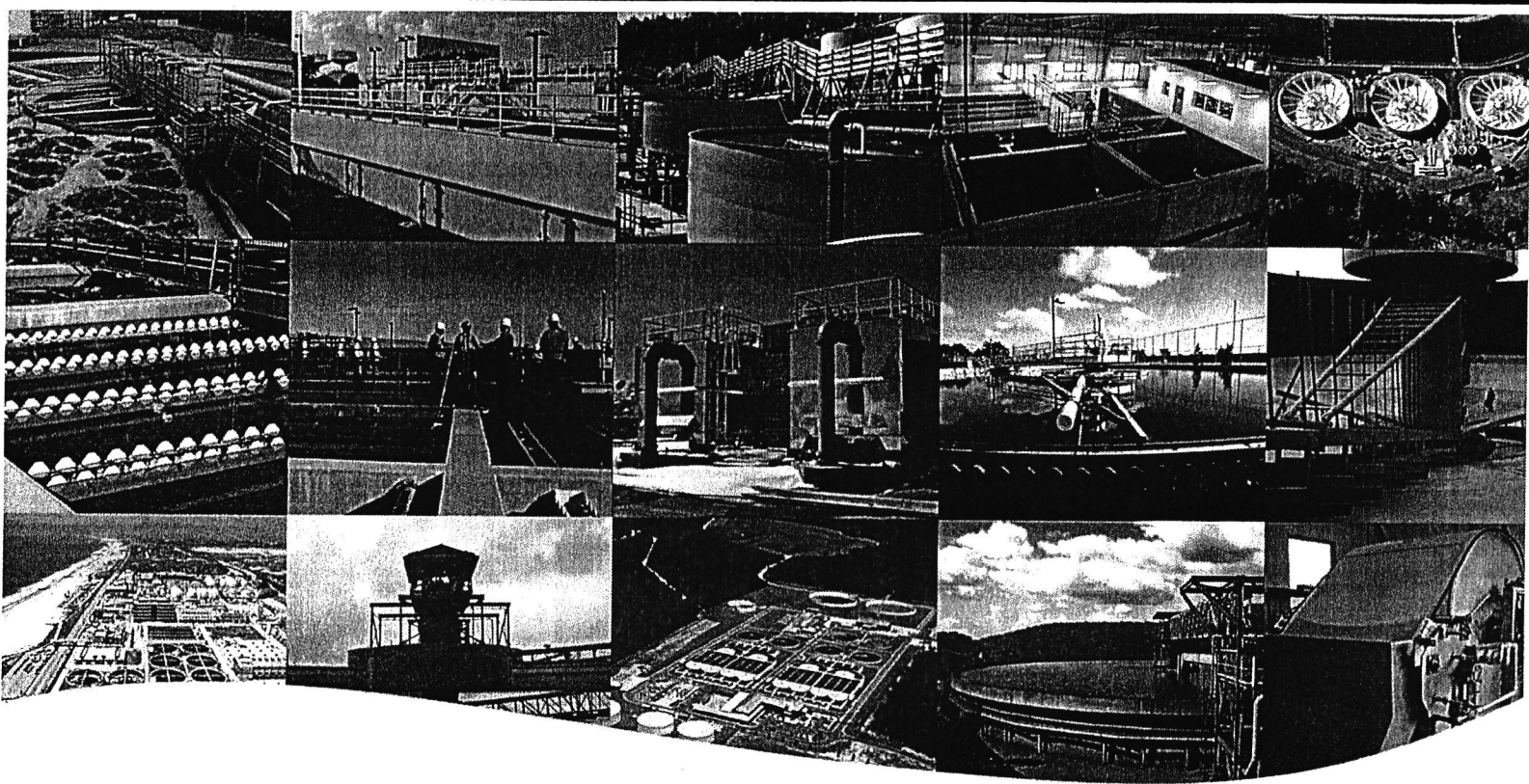
1. Bearing Point Construction (BPC) will supply all tools, hoisting, equipment and safety necessary for completion of the above scope of work.
2. Bearing Point will supply the following equipment and permeant materials:
 - (1) 10' X 10' WesTech Rotary Drum Filter and PLC Controller per attached proposal 1430101 Dated March 4, 2016
 - Rebar and concrete for new pads and supports.
 - Handrail, Kick plate and access stairs for reinstalled platform.
3. Removable roof section to be lifted from existing pick points at each corner.
4. Unloading of equipment supplied by BPC is included. BPC assumes there is adequate onsite storage for this equipment until installed.
5. BPC assumes equipment can be stored outside without additional protection until installed.
6. Assume conditioned storage areas required for any control panels or electrical components for supplied equipment will be provided by PBC.
7. Assume Cardinal Contractors will provide continuous and un-interrupted access to the work once construction commences at each work area.
8. Bearing Point Construction (BPC) will require progress payments to be paid within (15) days of invoicing.
9. BPC will require no more than 5% retainage be held and final retainage be paid within (30) days of BPC scope of work being complete.
10. BPC will require mutual agreement on contract terms and conditions as well as a mutually agreed upon construction schedule.
11. Assume Cardinal Contractors will provide and maintain control points and benchmark elevations.
12. Assume Cardinal Contractors will provide and maintain construction water and sufficient power, current, outlets and maintenance within 100 feet of each structure.
13. Assume Cardinal Contractors will provide and maintain sufficient laydown area and level crane access immediately adjacent the Vacuum Filter Building.
14. Assume Cardinal Contractors will designate a single location for concrete washouts. Maintenance and restoration of washout area by others. Waste concrete to be deposited in dumpsters provided by others.

Sincerely,

Justin Randolph- President

Bearing Point Construction, Inc

(305) 906-0694



Palm Beach County System 8 WTP

Florida

Engineer

Cardinal Contractors, Inc.

Furnished by

Ryan Spanton

rspanton@westech-inc.com

Represented by

John Mushinsky

Moss-Kelley, Inc.

Coral Springs, Florida

(954) 755-2092

jmm@mosskelley.com

WESTECH

WesTech Opportunity Number: 1430101

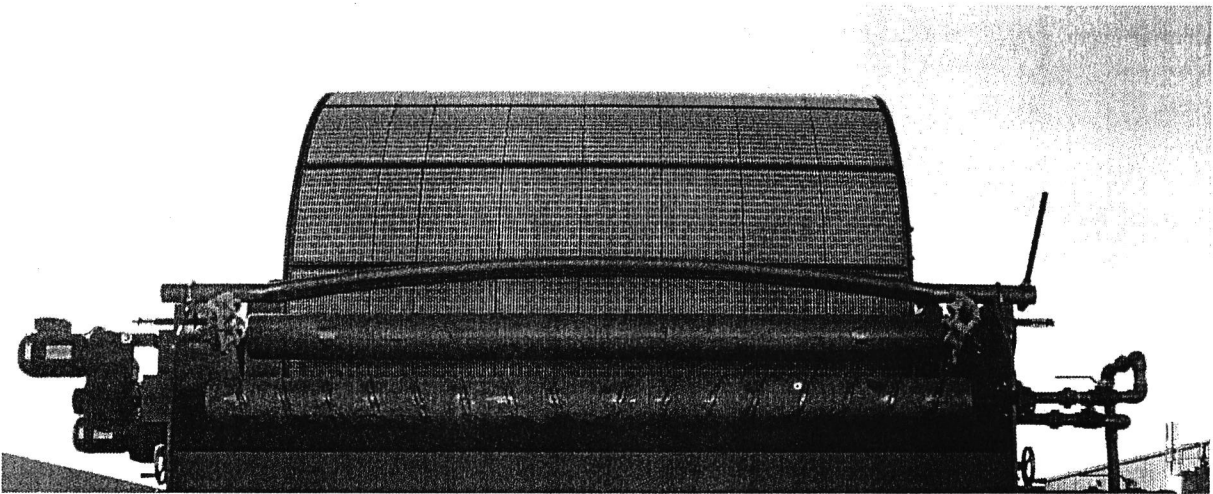
Friday, March 04, 2016

Drum Filter with Belt Discharge Mechanism

The WesTech Rotary Drum Filter is designed to be one of the most durable and strong performing drum filters, backed by over 30 years of experience. WesTech strives to provide continual engineering and sales support for every drum filter manufactured by WesTech or by our competitors with services from retrofitting existing units to providing spare parts.

Our drum filter is driven by a shaft mounted gear reducer assisted by a variable speed drive. The motor for the drive is mounted directly on the gearbox, eliminating the need for guards, chains and sprockets. This design allows for a safer and quieter operation of the drum filter.

The slurry in the vat is agitated by a counter-balanced agitator so that the only load on the agitator drive is induced by the slurry. All rotating joints for the agitator are fitted with anti-friction ball bearings. These bearings do not have sleeves, which can cause wear and create "knocking" as the agitator operates. Parts for bearing replacement are widely available and reduce the lead time for replacement. The agitator drive is a helical gear type with its motor mounted directly on the gear box allowing the slurry agitation to happen in a quiet and efficient manner.



Photograph: Drum Filter: With Belt Discharge Mechanism

WESTECH

Item A – One (1) Drum Filter (10ft Dia. x 10ft Face) Belt Discharge with Accessory Equipment

Rotary Drum Filter Overview		
Description	Dimension / Capacity / Units	Material / Comments
Number of Filters	1 each	Wet: 304L / Dry: Epoxy Coated Steel
Drum Filter Size/Mod #	10' Dia. x 10' Face	FRV14A
Filtration Area	310 ft²	
Discharge Mechanism	Belt Discharge	
Cloth	Fits 10'x 10' Drum	Polypropylene
Application	Lime Softening Sludge	Dewatering
Feed Solids*	10-30 wt % Typical	Unknown
Design Loading Rate*	Unknown	Unknown Operating Hours
Filtration Rate*	10-40 lbs/hr/ft² Typical	Unknown

*Slurry testing is recommended to verify equipment selection.

Summary of Utility Requirements		
Description	Capacity / Units	Additional Info
Drum Filter		
Filter Drive Motor	3 hp	460 V/ 3 Phase/ 60 Hz
Agitator Drive Motor	5 hp	460 V/ 3 Phase/ 60 Hz
Belt Discharge Roll Drive	1/2 hp	460 V/ 3 Phase/ 60 Hz
Cloth Wash Water	60 gpm	Continuous at 80-100 psig
Vacuum Pump / Receiver Skid		
Vacuum Pump Motor	60 hp	460 V/ 3 Phase/ 60 Hz
Filtrate Pump Motor	7.5 hp	460 V/ 3 Phase/ 60 Hz
Vacuum/Filtrate Pump Seal Water	12-18 gpm	Continuous

Budget Dimensions and Weight		
Description	Dimensions L x W x H (inches)	Weight (lbs)
Drum Filter	200 x 156 x 138	25,500
Vacuum Pump / Receiver Skid	108 x 84 x 99	7,000

Option A-1 316-SS vs. 304-SS Wetted Parts

WESTECH



Summary List of Scope of Supply

- Wetted Parts fabricated from 304L stainless steel.
- Non-Wetted Parts from A36 carbon steel with SSPC-SP10 blast and epoxy paint.
- Drum, Tank, Agitator, and Belt Discharge Mechanism
- Ultrasonic Tank Level Sensor / Drum RPM Readout / Ultrasonic Flow Meter (Drum Feed)
- Bearings, Bushings, Couplings and Gaskets
- Filter Cloth with PIP Edge
- Drum Drive & Motor
- Agitator Reducer, Coupling & Motor
- Vacuum Pump / Receiver Skid (Epoxy Coated Steel)
- Vacuum Pump (CI), Separator Silencer (Steel) & Motor
- Vacuum Receiver
- Filtrate Pump (CI) & Motor
- Control Panel for Drum Operation

Raised walkways need only be three (3) to four (4) feet high. The drum tank is only 5 feet tall from its base. Walkways are not included in this proposal. It easier to build the walkways after the filter has been installed and connected to the existing piping and discharge chute.

Option B - One (1) PLC Controller

The PLC controls will be housed in a single NEMA 4X, wall-mount, 304 stainless steel enclosure with painted steel back panel, and mounting feet. The control panel will be provided with door mounted receptacle / data port, power on light, off/on switch, quick stop pushbutton and a 10” color touch screen. Internal to the control panel will be an Allen Bradley CompactLogix PLC, Ethernet switch, 24 VDC power supply, power distribution blocks, circuit breakers, control relays, terminal blocks and other supporting hardware.

The control panel is wired to accept a single 120VAC, 1 phase, 60 Hertz power feed from the purchaser. A 20 amp circuit breaker is provided for short circuit protection. All wiring for field connections will be brought to a terminal strip. All interconnecting wiring is to be by others.

Option B-1 – One (1) VFD Upgrade – Drive Sync

Synchronizing drum drive with the discharge roll drive is normally accomplished by adjusting each motor separately. This manual method is included in this proposal. The discharge roll should rotate about 5% faster than the drum. Linking both motors to the same VFD will not work because each motor has different gear ratios.

Auto synchronizing would require upgrading each VFD and allowing the discharge roll motor to follow the drum drive speed.



Clarification and Exceptions

- Slurry testing is strongly recommended to verify equipment selection.
- Any item not listed above to be furnished by others.
- Freight is Ex Works, Salt Lake City, Utah

This proposal has been reviewed and is approved for issue by Arlin Allred on March 4, 2016.

WESTECH



Pricing

Proposal Name: Palm Beach County System 8 WTP
Proposal Number: 1430101

1. Bidder's Contact Information

Company Name	WesTech Engineering, Inc.
Contact Name	Ryan Spanton
Phone	801.265.1000
Email	rspanton@westech-inc.com
Address: Number/Street	3665 S West Temple
Address: City, State, Zip	Salt Lake City, UT 84115

2. Pricing

Currency		US Dollars
A	(1) 10' dia. x 10' face Drum Filter Belt Discharge with Accessory Equipment	\$605,000
A-1	Adder to Make Wetted Parts from 316L SS	\$48,000
B	Adder for PLC Controller	\$31,500
B-1	Adder for VFD Upgrade	Discharge Roll / Drun Roll Synch \$ 6000
Field Service		
Daily Rate		\$960.00

Prices do not include field service unless noted, but it is available at the daily rate plus expenses. The customer will be charged for a minimum of three days for time at the jobsite. Travel will be billed at the daily rate. Any canceled charges due to the customer's request will be added to the invoice. The greater of visa procurement time or a two week notice is required prior to trip departure date.

Taxes (sales, use, VAT, IVA, IGV, duties, fees, import, etc.) Not Included

3. Payment Terms

Submittal Approval	15%
Release for Fabrication	35%
Net 30 days from Shipment	50%

4. Schedule

Submittals, after PO receipt	6 to 8 weeks
Ready to Ship, after Submittal approval	16 to 20 weeks

WESTECH

Terms & Conditions: This proposal, including all terms and conditions contained herein, shall become part of any resulting contract or purchase order. Changes to any terms and conditions, including but not limited to submittal and shipment days, payment terms, and escalation clause shall be negotiated at order placement, otherwise the proposal terms and conditions contained herein shall apply.

Freight: Prices quoted are **F.O.B. shipping point** with freight allowed to a readily accessible location nearest to jobsite. All claims for damage or loss in shipment shall be initiated by purchaser.

Paint: If your equipment has paint included in the price, please take note to the following. Primer paints are designed to provide only a minimal protection from the time of application (usually for a period not to exceed 30 days). Therefore, it is imperative that the finish coat be applied within 30 days of shipment on all shop primed surfaces. Without the protection of the final coatings, primer degradation may occur after this period, which in turn may require renewed surface preparation and coating. If it is impractical or impossible to coat primed surfaces within the suggested time frame, WesTech strongly recommends the supply of bare metal, with surface preparation and coating performed in the field. All field surface preparation, field paint, touch-up, and repair to shop painted surfaces are not by WesTech.

WESTECH



Electron Corp of South Fla.

Electrical Contractor

127 RENAISSANCE CIRCLE Jupiter, FL 33458

Tel. (561) 744-1388 Fax (561) 744-5777

April 25, 2016

WTP # 8

Vacuum Filter Improvements

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

1. Furnish & install in MCC # 2A & B, 1 - 7.5 HP Combination Starter(Filter Return Pump), 1 - 5 HP Combination Starters(Filter Agitator Pump), 2 - 20 HP Combination Starters(Thickened Sludge Pump), 1 - 150 Amp Breaker (Vacuum Pump), 1 - 3HP VFD (Vacuum Filter Drive) & 1 - 1.5HP VFD (Belt Roll Drive)
2. Furnish & install conduit & wire to new switch gear devices listed above, 5 - pumps, 2 - Temp. Switches, 1 - level transmitters, 3 - Solenoid Valves, 2 - Control Valves, & control panels for power and controls wiring;
3. Install control panels furnished by others ;
4. Furnish & install new lighting on second floor of building;
5. Start-up services;

Base Bid \$ 249,961.00

Alt Change to Aluminum Deduct \$ 4,100.00

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

A handwritten signature in dark ink, consisting of a stylized 'A' followed by a horizontal line.

Albert Laessig

President

ALAN GERWIG & ASSOCIATES								
BUDGET SUMMARY								
Task Number	Company: Alan Gerwig & Associates, Inc.	Labor Classification and Hourly Rate						
		Senior Project Manager	Senior Engineer	Project Engineer	CADD Technician	Secretarial	Total Labor	Total Cost per Task
	Task Description							
	WTP8 Rotary Vacuum Filter and HSP Replacement							
	Task 1 - Data Collection and Survey	7	7				14	2,080
	Task 2 - 60% Design	35	65	52			152	19,860
	Task 3 - 90% Design	9	10	11			30	3,960
	Task 4 - 100% Design	2	9	8			19	2,390
	Task 5 - Pre-Construction Services		4	11			15	1,750
	Task 6 - Construction Services	5	15	26			46	5,720
	Task 7 - Project Close Out	1	3	4			8	1,000
	Subtotal Task 1 thru Task 6	59	113	112	0	0	36,760	36,760
	Labor Subtotal Hours	0	0	0	0	0	284	
	Labor Raw Costs	\$57	\$44	\$40	\$29	\$21		
	Labor Multiplier	2.87	2.87	2.87	2.87	2.87		
	Labor SubTotal	\$ -	\$ -	\$ -	\$ -	\$ -		
	Labor Total	\$ 9,756	\$ 14,152	\$ 12,852	\$ -	\$ -	\$ 36,760	
	Subcontract Total						0	
	Project Total						\$ 36,760	

HILLERS ELECTRICAL ENGINEERS								
BUDGET SUMMARY								
Task Number		Labor Classification and Hourly Rate						
		Project Manager	Project Engineer	Engineer	Construction Coordinator	Secretarial	Total Labor	Total Cost per Task
	Task Description							
	WTP8 Rotary Vacuum Filter, Lime Slaker, Diesel Fuel Tank and HSP Replacement							
	Task 1 - Data Collection and Survey	2	4		0		6	\$1,044.68
	Task 2 - 60% Design	6	40		0		46	\$7,473.48
	Task 3 - 90% Design	4	52		4		60	\$9,367.68
	Task 4 - 100% Design	4	40		4		48	\$7,507.92
	Task 5 - Pre-Construction Services	2	8		4		14	\$2,123.80
	Task 6 - Construction Services	6	40		48		94	\$12,983.88
	Task 7 - Project Close Out	1	8		0		9	\$1,452.22
	Subtotal Task 1 thru Task 6	25	192		60	0	\$41,953.66	\$41,953.66
	Labor Subtotal Hours	25	192	0	60	0	277	
	Labor Raw Costs	\$74	\$54	\$40	\$40	\$22		
	Labor Multiplier	2.87	2.87	2.87	2.87	2.87		
	Labor SubTotal	\$ -	\$ -	\$ -	\$ -	\$ -		
	Labor Total	\$ 5,309.50	\$ 29,756.16	\$ -	\$ 6,888.00	\$ -	\$ 41,953.66	
	Subcontract Total						0	
	Project Total						\$ 41,953.66	