CITY OF TAMPA

Bob Buckhorn, Mayor **CONTRACT ADMINISTRATION DEPARTMENT**

David L. Vaughn, AIA, Director

ADDENDUM NO.2
DATE: July 11, 2014

Contract: 14-C-00009; Krause Pump Station Rehabilitation.

Bidders on the above referenced project are hereby notified that the following addendum is made to the Contract Documents. BIDS TO BE SUBMITTED SHALL CONFORM TO THIS NOTICE.

Item 1: I-1.05 of the Instructions to Bidders, revise the time for completion to be 630 days.

Item 2: Replace Workmanship and Materials Section 24 Painting, with the attached Section 24 Painting.

Item 3: Add the attached Section 40 70 10 Field Instruments and ABB Standardization Certificate.

Item 4: Sheet I-2, Proposed Annunciator Riser Diagram and Partial Equipment Back Panel Layout - Clarification: The 7" Maple System HMI part number HMI5070TH (Ethernet communication) is an acceptable alternative to the 7" Maple System HMI part number HMI5070NH.

Item 5: Replace plan sheets M-4 and M-7 with the attached plan sheets M-4 and M-7.

Item 6: Delete plan sheets S-36 and S-37.

Item 7: Add the following note 19 to plan sheet G-1:

19. Contractor shall pressure wash all existing walls and ceilings within the pump room and the wet well to remove all loose paint and debris from the walls. Contractor shall contain all paint debris and prevent from entering the sewer system and dispose of properly. Contractor shall paint all interior walls of the pump room below elevation +7.54 (lower level), in accordance with the specifications. Refer to plan sheet S-7 for cleaning and coating of the steel roof framing.

Item 8: Add the following note 8 to plan sheet G-6:

8. Maintain access to the City parking lot under the Crosstown Expressway Authority during construction. Bypass pipe can either be buried across entrance located under the asphalt pavement of Ashley St. or the concrete driveway and partially placed with a steel ramp across for car access as shown on detail plan sheet G-9. After removal of the bypass pumping system, restore trench backfill compacted to at least 98 percent of the modified proctor maximum dry density (ASTM D-1557). Replace asphalt in accordance with the typical paving detail on plan sheet G-9 or pour 8" concrete reinforced slab for driveway, depending on location chosen by the Contractor and approved by the Engineer. Reinforce 8-inch slab with two mats (top and bottom) of #5 Bars @ 12" on center each way.

Item 9: Clarification: Written authorization to remove the top slabs for the bypass manholes / junction chambers will be provided. Refer to plan sheet G-7 for replacement requirements.

All other provisions of the Contract Documents and Specifications not in conflict with this Addendum shall remain in full force and effect.

Questions are to be e-mailed to Contract Administration@tampagov.net.

Jim Greiner

Jim Greiner, P.E., Contract Management Supervisor

SECTION 24 - PAINTING

W-24.01 General

Painting includes furnishing all labor, materials, and services to paint all structures and equipment specified and required to complete the work, including, but not limited to, the following: preparation of surfaces; field painting of existing and proposed structures, piping, conduit, ductwork and equipment as specified, and the marking of existing piping and electrical conduit. The work shall include furnishing samples of paints and color charts.

Paint and other materials shall be of the type and quality of the manufacturer on which the coating schedule is based. All coats of paint for any particular surface and thinners used shall be from the same manufacturer. The treatment of the surface to be painted and the application of paint shall be in accordance with the instructions of the manufacturer and as approved by the Engineer. The colors of paints shall be as approved by the Engineer. Specimens, approximately 8 by 10 inches in size, shall be prepared and submitted to the Engineer. The minimum number of specimen custom mixed colors submitted shall be 6 not including color coding colors. Only paint of approved manufacturers shall be delivered and stored at the site.

All painting shall be in accordance with the schedules included in this specification. A supplementary schedule of paint products shall be submitted, with mil thickness, to cover all paint applied. The schedule shall be in accordance with the recommendations of the manufacturer of the paint. The total mil thickness of all coatings shall be not less than the schedule included in this section.

W-24.02 Delivery and Storage

Paints, stains, varnish, or ingredients of paints to be mixed on the job shall be prepared, packed and labeled, and guaranteed by an approved manufacturer. All material shall be delivered to the site in original, unbroken containers.

The manner of and place for storing the painting materials at the site shall be as approved by the Engineer. The storage space shall be kept clean at all times. Every precaution shall be taken to eliminate fire hazards.

W-24.03 Surface Preparation

Prior to painting, all surfaces shall be prepared and cleaned in strict accordance with the paint manufacturer's recommendations and as directed by the Engineer. Surfaces shall be dry before any paint is applied. Special surface preparation work shall be as directed by the manufacturer of the paint specified to be applied to the surface.

Metal Surfaces:

This includes all exterior and interior steel surfaces and all nonferrous metals. This applies to structural and miscellaneous steel, motors, designated housings and protective guards, piping, valves, stairs, and in general, all surfaces to be painted as designated in these specifications.

All surfaces shall be cleaned in accordance with Steel Structures Painting Council standards SSPC - SP10 Solvent Cleaning for removal of grease and oil. This standard allows for pressure washing, detergent cleaning, etc. Additional rust, loose paint, loose mill scale, etc., shall be removed in accordance with SSPC - SP2 Hand Tool Cleaning or SSPC - SP3 Power Tool Cleaning. All welds, beads, blisters or protuberances, other than identification markings shall be ground smooth. Pits and dents shall be filled with a suitable product as approved by the Engineer, and other imperfections shall be removed. Painted edges shall be sanded smooth with adjacent bare metal surfaces.

Where aluminum surfaces come in contact with incompatible metals, lime, mortar, concrete or other masonry materials, these areas shall be given two coats of asphalt varnish conforming to Fed. Spec. TT-V-51F.

Concrete and Wood Surfaces:

Surface preparation of all exterior concrete and wood surfaces shall be pressure washed to remove cobwebs, dirt, dust, and other surface contaminations. Mildew shall be treated with a 22% chlorine solution or otherwise by mixing equal parts solution bleach and water to the affected area. Loose paint and other defects shall be removed by hand; brushing, sanding, chipping or other hand tools or by power; brushes, impact tools, grinders, sanders or other power tools or by any combination thereof. Painted edges shall be sanded smooth to match adjacent bare surfaces.

All interior concrete and wood surfaces including ceilings, walls, and floors shall be cleaned similar to SSPC - SP1 Solvent Cleaning standards. Loose paint and other defects shall be removed by hand; brushing, sanding, scraping, chipping or other hand tools or by power; brushes, impact tools, grinders, sanders or other power tools or by any combination thereof. Painted edges shall be sanded smooth to match adjacent bare surfaces.

Priming shall be performed with Porter Acri-Pro 100, 100% Acrylic, or equal. First and second coats shall be performed with Porter Acri-Shield, 100% Acrylic, or equal. Concrete, concrete masonry, and wood shall be thoroughly dry prior to painting."

W-24.04 Coatings

All paints and similar materials shall be mixed in galvanized iron pans or pails or other approved containers of adequate capacity. All paint shall be stirred thoroughly before being taken from the containers, shall be kept stirred while using, and all ready-mixed paint shall be applied exactly as received from the manufacturer without addition of any kind of drier or thinner, except as specified or as permitted or directed by the Engineer. Successive coats of paint shall be tinted to make various coats easily distinguishable. Undercoats of paint shall be tinted to the approximate shade of the final coat of paint. The paint shall be a minimum temperature of 60 degrees F before application.

Only skilled painters shall be used on the work, and specialists shall be employed where required. Paint shall be applied by brush, roller, or sprayer in accordance with the manufacturer's recommendation. Finished surfaces shall not show brush marks or other irregularities. Top and bottom edges of doors shall be painted. Undercoats on hollow metal work shall be thoroughly and uniformly sanded with No. 00 sandpaper or equal abrasive to remove all surface defects and provide a smooth, even surface.

Painting shall be a continuous and orderly operation to facilitate adequate inspection. All paint application methods shall be in accordance with the instructions of the paint manufacturer and as approved by the Engineer. Access panels, pipes, pipe covering, ducts, and other building appurtenances built into or adjoining walls to be painted shall be painted the same color as adjacent walls, unless otherwise directed by the Engineer. Hardware and accessories, fixtures, and similar items placed prior to painting shall be removed or protected during painting and replaced on completion of painting. All wall surfaces to be concealed by equipment shall be painted before installation of the equipment.

Areas under and adjacent to painted work shall be fully protected at all times and dripped or splattered paint shall be promptly removed. Painting shall not be done when the temperature is below 60 degrees F, or in dust-laden air, or until moisture on the surface has completely disappeared. If necessary, sufficient heating and ventilation shall be provided to keep the atmosphere and all surfaces to be painted dry and warm until each coat of paint has hardened. Any painting found defective shall be removed and repainted or touched up as directed by the Engineer.

Coatings must be allowed to cure before being recoated or placed into service. Drying time requirements recommended by the manufacturer should be followed exactly.

The final colors shall be as selected by the Engineer from the manufacturer's color charts.

Coverage shall be complete. When color on undercoats shows through the final coat of paint, the work shall be covered by additional coats until the paint is of uniform color and appearance and coverage is complete, at no additional cost.

Rooms or areas being painted shall be supplied with sufficient temporary ventilation during painting operations to keep the atmosphere safe from harmful or dangerous fumes and harmful dust levels for personnel.

All application tools and equipment shall be in good working order and suitable for proper applications. It shall be the Contractor's responsibility to ensure that no paint mist or spatter falls or blows to other objects, vehicles, equipment, buildings, etc.

Coating Schedule:

All painting shall be in accordance with the following schedule. The number of coats shall not be less than the number shown on the schedule.

COATING SCHEDULE					
			Coats		
Surfaces	**SHOP COAT**	**Primer**	**1ST**	**2ND**	**3RD**
Aluminum	A		B	C	
Copper Piping			K	K	
Electrical Conduit	A		B	C	
Steel Pipe, Valves, and Fittings	A		B	C	
Galvanized Steel	A		B	C	
Ductile Iron Pipe, Valves, and Fittings	A		B	C	
Miscellaneous Steel and Ironwork	A		B	C	
Machinery, Interior, and Nonsubmerged		A	B	C	
Exterior Concrete or Masonry		D	E	E	

The designations in the following list are given solely for the purpose of indicating the type and quality of materials desired. Approved equivalent material of other manufacturers may be substituted. All coats of paint for any particular surface shall be from the same manufacturer.

ALPHABETICAL DESIGNATIONS OF PRODUCTS		
Symbol	**Product Name and Number**	**Minimum Dry Film Thickness Mils per Coat**
A	Tnemec N-140 Pota Pox Epoxy	4.0 – 6.0
B	Tnemec Series 446 Perma-Shield	5.0 - 7.0
C	(Above Grade) Tnemec 1074U Endurashield (Below Grade/Interior) Tnemec Series 446 Perma-Shield	4.0 - 6.0 7.0 – 9.0
D	Porter Acri-Pro 100, 100% Acrylic	1.2
E	Porter Acri-Shield, 100% Acrylic	1.4
K	International Protective Coatings Intergard 475	5.0

W-24.05 Safety

The Contractor shall be responsible for exercising all necessary precautions to ensure that no accidents or damage to personnel, equipment, or buildings shall occur. The Contractor shall further determine any special operations which could influence the safe workmanship of his personnel with respect to electrical, mechanical, or chemical fumes or fire hazard situations.

When painting in confined areas or otherwise in areas where explosive fumes or gases need to be ventilated, the Contractor shall use suction type fans designated specifically for the safe removal of explosive fumes or gases, and all equipment involved shall meet all OSHA (Occupational Safety Hazard Act) requirements and MSHA (Mine Safety and Health Administration) approved. The Contractor shall be responsible in all respects for the safe conduct of his personnel when using any of the rigging or equipment involved in the accomplishment of the work specified herein.

W-24.06 Cleaning

The Contractor shall touch up and restore any damaged finish. Paint or other finishes spilled, splashed, or splattered shall be removed from all surfaces. Care shall be taken not to mar any surface finish or item being cleaned.

* * *

SECTION 40 70 10

FIELD INSTRUMENTS

PART 1 GENERAL

1.1 SUMMARY

A. Scope:

1. Provide all labor, materials, equipment and incidentals as shown, specified and required to furnish, install, calibrate, test, adjust and place into satisfactory operation all primary sensors and field instruments furnished under this Section.

2. Install all in-line flow elements and provide taps in the process piping systems for installation of other flow, pressure, level and temperature sensing instrumentation.

3. Drawings and specifications illustrate and specify functional and general construction requirements of the sensors and field instruments and do not necessarily show or specify all components, wiring, piping and accessories required to make a completely integrated system. Provide all components, piping, wiring, accessories and labor required for a complete, workable and integrated system.

B. Instruments Furnished Under Other Sections

1. Certain field instruments are specified to be included with the equipment furnished by the vendor under other specification sections. These instruments shall generally meet the requirements specified in this section where applicable.

2. Instruments furnished by other equipment vendors/manufacturers are not included in the schedule at the end of this section but are generally shown on the P&IDs.

C. Coordination: Coordinate the installation of all items specified herein and required to ensure the complete and proper interfacing of all the components and systems.

D. Related Section:

Section 23 05 00 - Electrical Power and Auxiliaries

1.2 QUALITY ASSURANCE

A. Comply with the requirements of Section 23 05 00, Electrical Power and Auxiliaries.

B. Acceptable Manufacturers:

1. Furnish primary sensors and field instruments by the named manufacturers or equal equipment by other manufacturers, unless a letter of standardization is provided by the City for the use of named manufacturer without substitution.

2. The named manufacturers have been specified to establish the standard of quality and performance of the equipment to be supplied.

3. Obtain all sensors and field instruments of a given type from the same manufacturer.

4. The primary sensors and field devices shall be interchangeable with similar function existing primary sensors and field devices to minimize spare parts inventory.

C. Manufacturer's Responsibilities and Services:

1. Provide all materials and work necessary for complete and fully functional systems.

2. Provide instrumentation and control components as well as system integration. Provide all mounting hardware and supports. Work shall include panel mounting and the completion of all wiring terminations within control panels.

3. Coordinate work with all electrical, mechanical, and structural work furnished in this contract.

4. Ensure proper interface between PLC, network systems and equipment furnished in this contract.

5. Install, make final connections, adjust, test, start-up systems per manufacturer's instructions and recommendations.

1.3 SUBMITTALS

A. General: Provide submittals as specified in the Specific Provisions and as required below. Submit documents as follows:

1. Provide cover sheet on each submittal with the following information:

a. Project Title, Location and Owner

b. Submittal Title

c. Submittal Order (First Submittal, Resubmittal Number, etc.)

2. Organize and divide documents, using tagged dividers, into logical divisions.

3. Provide index sheets.

4. Minimum drawing size: 8-1/2 by 11 inches. Put drawings, larger than 11 by 17 inches, in three-hole plastic pockets.

5. Type all text.

6. Do not submit faxed documents.

B. Action Submittals

1. Product Data: Submit manufacturer's official and published product data, specifications, and installation recommendations for each item.

2. Shop Drawings: Submit shop drawings as per the Specific Provisions, and as required below. Include the following information in each submittal:

a. Instrument index, including tag number, description, location, and calibrated range for each instrument.

b. Individual instrument specification sheet, including manufacturer's name and complete catalog number.

c. PLC Input and Output drawings, containing, but not limited to, the following information:

(1) Instrument tag numbers

(2) Individual component locations

(3) Actual equipment wiring terminal designations, point to point wiring, and cable shield terminations

(4) Wire type, size and identification number

(5) Signal types (e.g., 120 volts, 4-20 mA, pulse frequency)

(6) Contact orientations (e.g., normally open, normally closed)

(7) Equipment grounding requirements

(8) Signal boosters, interposing relays, optical isolators, and shunt resistors.

C. Information Submittals (for Owner information, not for approval)

1. Test Reports: Submit all loop field calibration reports.

2. Manufacturer's Instructions: Submit manufacturer published installation manuals for each instrument.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

A. General: Deliver, store, and handle all products and materials as specified in the Specific Provisions.

B. Primary sensors and field instruments shall not be delivered to the site until all product information and system shop drawings for the sensors and instruments have been approved.

C. Acceptance at Site: Inspect all materials and equipment against approved shop drawings at time of delivery. Immediately return for replacement or repair any equipment or materials damaged or not meeting requirements of approved shop drawings.

D. Storage and Protection: Label all equipment and materials after they have been inspected. Store all equipment and materials in dry, covered, ventilated location. Protect from harm in accordance with manufacturer's recommendations. Protect all equipment and instruments specified from moisture.

1.5 IDENTIFICATION TAGS

A. All sensors and field instruments shall have an identification tag meeting the following requirements:

1. Tag numbers for sensors and field instruments shall be as listed on the Drawings as the equipment number.

2. The identifying tag number shall be permanently etched or embossed onto a stainless steel tag which shall be fastened to the device housing with stainless steel rivets or self-tapping screws of appropriate size.

3. Where neither of the above fastenings can be accomplished, tags shall be permanently attached to the device by a circlet of 1/16-inch diameter stainless steel wire rope.

4. All sensors and field instruments mounted on or within panels shall have the stainless steel identification tag installed so that the numbers are easily visible to service personnel.

1.6 SPARE PARTS:

A. Provide the following spare parts:

1. One complete bubbler level transmitter system package including spare air filter, air flow regulator, purgemeter and transmitter.

2. One spare magmeter flow converter.

PART 2 PRODUCTS

2.1 GENERAL:

A. Provide components to operate on 120 volt, single phase, 60 Hertz electrical power unless otherwise shown on the plans or specified.

B. Provide two-wire transmitter power supplies as required.

C. Provide fuses and switches for equipment as recommended by the instrument manufacturer.

D. Provide contacts with a minimum rating of 10 amperes at 120 volts, 60 Hertz, for control of motor operated or electrically operated equipment. Provide contacts for low level analog signal switching of the gold bifurcated, cross bar type.

E. Provide 4-20 mA dc analog output signals for all process transmitters.

F. Where interposing relays are required to provide proper contact rating from devices interfacing to the PLC's, install the relays in the PLC cabinet. Reference Section 26 36 33.

G. Furnish all necessary accessories for installation, including, but not limited to, mounting brackets, floor stands and hardware.

H. Provide tool kits and test equipment, as recommended by the manufacturer, necessary for assembling, calibrating and maintaining equipment.

2.2 MAGNETIC FLOW METER

A. Flow Elements

1. Electromagnetic type with pulsed dc coil excitation for zero stability. Suitable for aqueous solutions with minimum conductivity of 50 micro ohms/cm. Insensitive to changes in fluid viscosity and density.

2. Flanged body design for 150 pound ANSI flanged pipe connections.

3. Sensor flow tube material: stainless steel with hard elastomer (hard rubber) liner.

4. Provide meter with Type 316 stainless steel electrodes.

5. Enclosure classification: NEMA 6P / IP68 suitable for continuous submergence and permanent direct buried service.

6. Provide meter electrodes equipped for electrolysis AC burn off for electrode coating removal. This feature must be available to be performed above ground in buried service meters.

7. Electrical terminal boxes for flow sensors located in underground vaults or direct buried, shall be backfilled with non-setting transparent potting material after installation of meter field wiring.

8. Hydraulically calibrate each meter at a flow facility against a master meter or other device which is traceable to the United States NIST. Submit certified calibration data and a calibration curve substantiating the stated accuracy. Submit information regarding the location of the flow facility and procedure being used to calibrate the meter.

9. Provide each meter with stainless steel grounding rings. Grounding electrodes alone will not be acceptable.

10. Meter accuracy: ±0.5 percent of actual flow rate for a range of 10 to 100 percent of maximum calibrated flow. Guarantee accuracy with no more than five pipe diameters of straight pipe run upstream from the meter.

11. Manufacturer: The flow meter system, including the flow elements and remote signal converter (transmitter) shall be manufactured by ABB Ltd., Model FEW325.900.H.1.S.4.C1.B.1.A.1.A.6G.3.B.3.A.1.JK.1M5.V3.CWM 36-inch ABB Watermaster Electromagnetic Flowmeter with Remote Electronics and 36-inch Grounding Rings. A letter of standardization for the meter manufacturer has been included in the Contract documents and no other manufacturer will be considered.

B. Signal Converter (remote mounted):

1. Smart “Hart” protocol.

2. Provide remote mounted flow transmitter/converter, microprocessor based. Provide transmitter with integral LCD display of flow rate.

3. Provide input of configuration data, stored in EEPROM memory without need for battery backup.

4. Provide manufacturer supplied cables between the flow element and remote mounted signal converter. Contractor shall determine the length of cable necessary to connect the buried meter to the transmitter mounted in the pump station. A splice in the cable is not acceptable.

5. Outputs:

   a. 4-20 mA into 0-600 ohm load linearly proportional to flow, calibrated as scheduled.

   b. 24-volt dc scaled pulse totalizer output, 150 mA minimum, calibrated 100 gallons per pulse to drive a remote interposing relay for PLC input. Pulse width of 100 milliseconds.

6. Accuracy: ±0.5 percent of actual flow over 10:1 flow range.

7. Provide input span adjustment from 1.5-30 feet per second at full scale flow. Meters requiring circuit or component changes to effect calibration changes will not be acceptable.

8. Operating ambient temperature: -4 to 140 degrees F.

9. Enclosure classification: NEMA 4X suitable for wall mount

10. Power requirement: 120 volts, 60 Hertz.

2.3 BUBBLER LEVEL TRANSMITTERS

A. Provide air bubbler-type level transmitter components assembled in a separate bubbler control panel, complete with air pressure regulators, constant differential relays, pneumatic tubing, valves and pressure transmitter as shown.

B. Air Filter: Provide coalescing air filter for moisture and particulate removal. Provide ½" NPT air connections, Grade 6 filter element, auto drain and DPI indicator. Provide Parker model HN2S-6QUW or equal.

C. Pressure Regulator: Provide air supply filter-regulator with 0-120 psi output range adjustment, 3-micron filter with self-relieving design. Provide Siemens Model 91-HF or equal.

D. Constant Differential Relays: Provide a constant differential relay for each bubbler to maintain a constant volumetric flow rate of bubbler air to the liquid level bubbler downtube. Provide integral needle valve to adjust the air flow rate. Design the differential relay to ensure a constant volumetric rate of flow, regardless of variations in the process or supply pressure. Provide integral purgemeter (rotameter) to indicate the air flow. Indicator to have a scale suitable for 0-2.5 scfh air flow. Provide Siemens Model 62-VA or equal.

E. Level Gauges:

   1. Provide bronze bourdon tube actuated, 4 ½ -inch size, phenolic case with glass or clear plastic window.

2. Scale: 0-15 psi / 0-34 feet combination gauge

3. Accuracy: 0.5 percent of range (Grade 2A per ANSI B40.1)

4. Manufacturer: Ashcroft, Weksler, US Gauge or equal.

F. Stainless Steel Tubing: Fully annealed, type 304 seamless meeting ASTM A269 with stainless steel compression type fittings.

G. Tubing Valves: instrument grade, ball type shutoff. Stainless steel construction.

H. Level Transmitter:

1. Differential capacitance cell type. Two-wire, 4-20 mA output signal. Loop powered from 24 volts dc nominal. Output load impedance of at least 550 ohms.

2. Microprocessor based "smart" electronics. HART protocol compatible.

3. Accuracy: +\- 0.10 percent of calibrated span.

4. Span and zero continuously adjustable, either locally or through a hand-held digital interface.

5. NEMA 4 housing. Suitable for operation over ambient temperature range of 20-120 degrees F.

6. Ceramic or stainless steel wetted parts. Stainless steel bleed and drain fittings. All metal external parts.

7. Integral 4-digit LCD output indicator graduated 0-100 percent. Provide integral mounting bracket suitable for wall or pipestand mounting.

8. ½-inch NPT process connections.

9. Manufacturer: Yokogawa EJA430 or equal

PART 3 EXECUTION

3.1 ERECTION, INSTALLATION AND APPLICATION

A. General

1. Follow the recommendations of the manufacturer for installation of each field instrument. The Contractor shall be responsible for any problem resulting from any deviation from the manufacturer's installation instructions.

2. Mount all transmitters vertically, with the integral indicators facing front or sides. For pipe mounted instruments, provide sufficient clearance to permit 360° access to the units.

3. Seal all conduit and wiring entries into all instruments installed below ground or in vaults with non-setting transparent potting material. Seals shall be water tight, suitable for submergence in 30 feet of water.

B. Magnetic Flowmeter Installation

1. Install flow element with suitable length of interconnect cable to ensure no cable joints are buried.

2. Make certain the meter serial number and product code are recorded and given to the Owner prior to reassembly of the top slabs of the meter vault.

3.2 FIELD QUALITY CONTROL

A. Manufacturers Field Service

1. Secure the services of factory personnel for instrument start-up and calibration. Calibrate each instrument, including its complete instrument loop. Indication at remote receiving instruments, including any SCADA system operator interface screens, shall be equal to readings at local transmitter indicators.

2. Provide written loop-calibration report for each instrument loop, which shall include, but not limited to the following:

a. Date and time the final calibration was completed.

b. Weather conditions at the time the final calibration was performed.

c. Comparison of readings at the local transmitters with readings at the remote receiving instruments.

d. Verification of operation of all contact outputs, including those at the receiving instruments.

e. Description of method of calibration.

f. Provide a table showing calculated and measured values at 0%, 25%, 50%, 75%, and 100%.

g. Names and signatures of factory personnel performing calibration.

h. Names and signatures of Owner representative witnessing calibration process.

3.3 INSTRUMENT SCHEDULE

Flow Meter

Type:	Magnetic
Pipe Size:	36-inch
Operating range:	4,000-45,000 gpm
Calibration:	0-65 MGD (0-45,138 gpm)
Location:	Flow element in Pump Station Discharge Force Main – in meter vault on Ashley Street
Comment:	Transmitter located remotely in pump station

Wet Well Bubbler Level Transmitters (Downstream Channel, Influent Channel, Upstream Channel)

Number of Units:	Three
Type:	Bubbler
Calibration:	0-16 feet
Location:	Bubbler circuits and transmitters in new bubbler panel. Connect to new bubbler downtubes as shown.
Comment:	Bottom of bubbler tube 6” inches above the finished floor elevation at respective location (varies per location).

END OF SECTION

STANDARDIZATION
CERTIFICATE OF CONDITIONS AND CIRCUMSTANCES

The purpose of this form is communicate the conditions and circumstances to standardize on a particular manufacturer of equipment.

Item/Equipment Required: Electromagnetic Flow meter

Name of Manufacturer: ABB

Conditions and circumstances for the single source, please be specific:
The Wastewater Department owns, operates and maintains several electromagnetic flow meters at pumping stations throughout our service area and at the treatment plant. Accurate and reliable flow information from these meters is critical for the proper monitoring and operation of our pumping stations and treatment plant.

After several years of using a variety of meter manufacturers for products and services, the Department has determined that ABB Electromagnetic flow meters are more reliable and easier to maintain than other brands. This is currently the only Electromagnetic flow meter that incorporates computer calibration traceability electronics. Standardizing to ABB Electromagnetic flow meters will provide reliability, manage and significantly reduce the required inventory of spare parts, improve calibration efforts and enable the Department to consult with a local representative for technical assistance.

Requesting Department Director's Signature: OK

Date of Request: 3/1/11

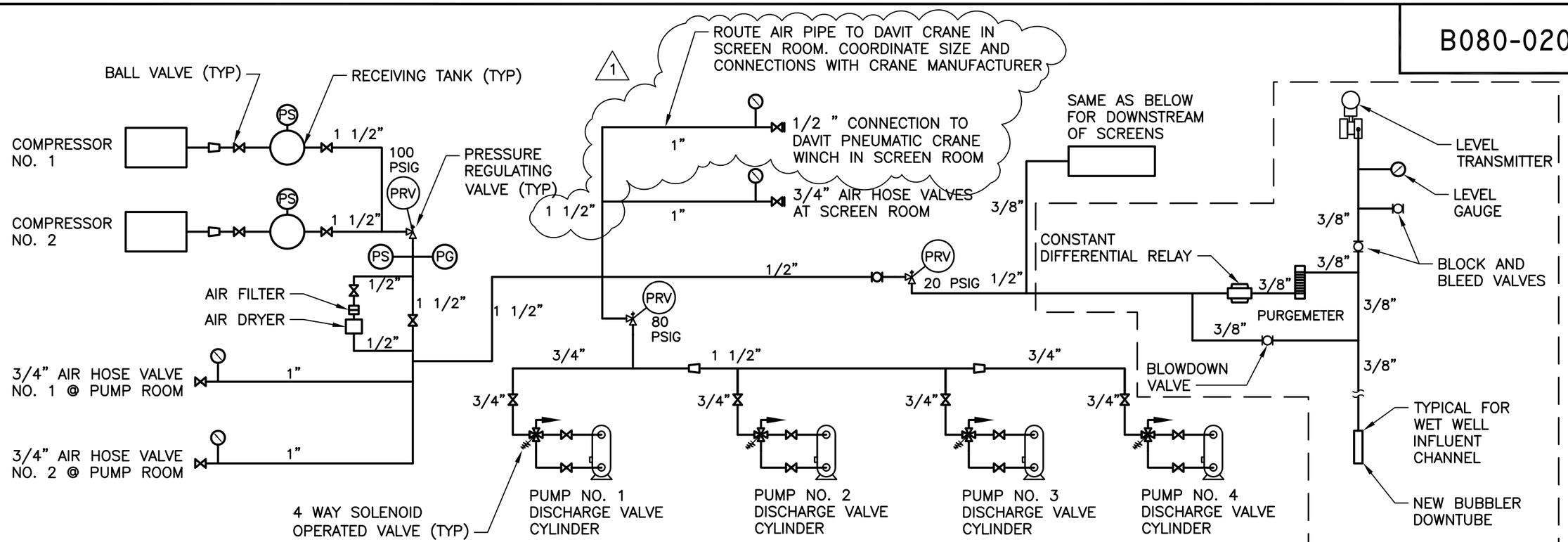
Requisition Number: **Buyer Name:**

Purchasing Department Action:

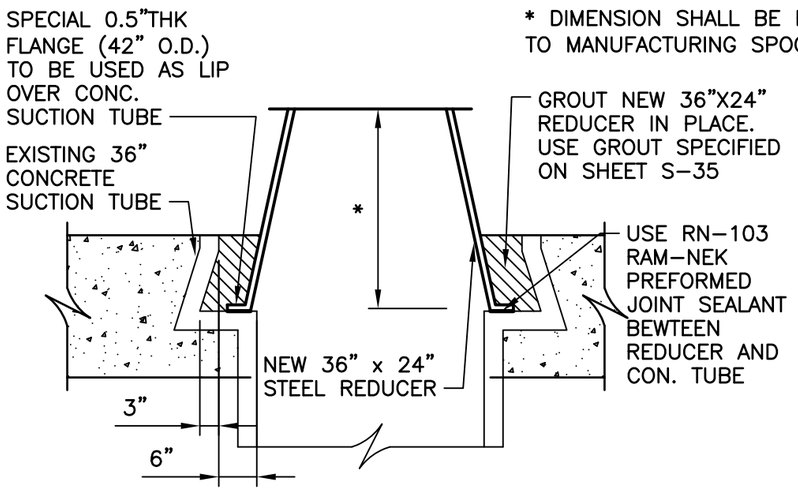
Signature:

Date: 3-8-2011

B080-020

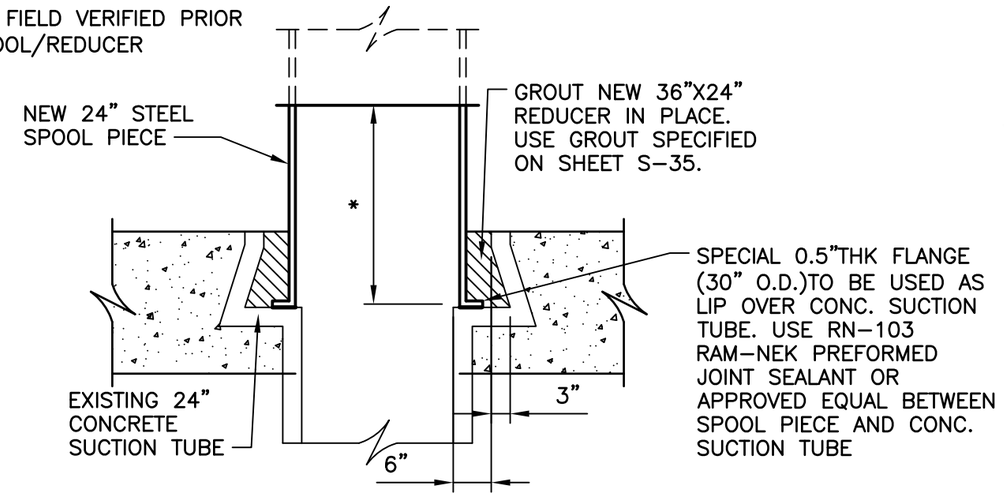


NEW AIR PIPING SCHEMATIC DIAGRAM



NEW SUCTION TUBE DETAIL FOR PUMPS 1, 2 & 3

NOT TO SCALE



NEW SUCTION TUBE DETAIL FOR PUMP 4

NOT TO SCALE

NOTES:

1. REFER TO SPECIFICATIONS FOR APPROVED PIPE HANGER SYSTEMS. INSTALL NUMBER OF PIPE HANGERS AS REQUIRED. QUANTITY AND SPACING OF HANGER SHALL BE AS RECOMMENDED BY MANUFACTURER.

GREELEY AND HANSEN
1715 N. WESTSHORE BLVD., STE. 464
TAMPA, FLORIDA 33607
CERTIFICATE OF AUTHORIZATION NO. 37

P.E. NAME: FREDDY J. BETANCOURT P.E. NO. 68072

P.E. NAME:_____
DATE:_____

Engineering Design Technologies Corp.
P.O. Box 152403
Tampa, FL 33684-2403
813.289.8080
813.282.9184 FAX
engineering@edt1.com
Certificate of Authorization Number: 4795

CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

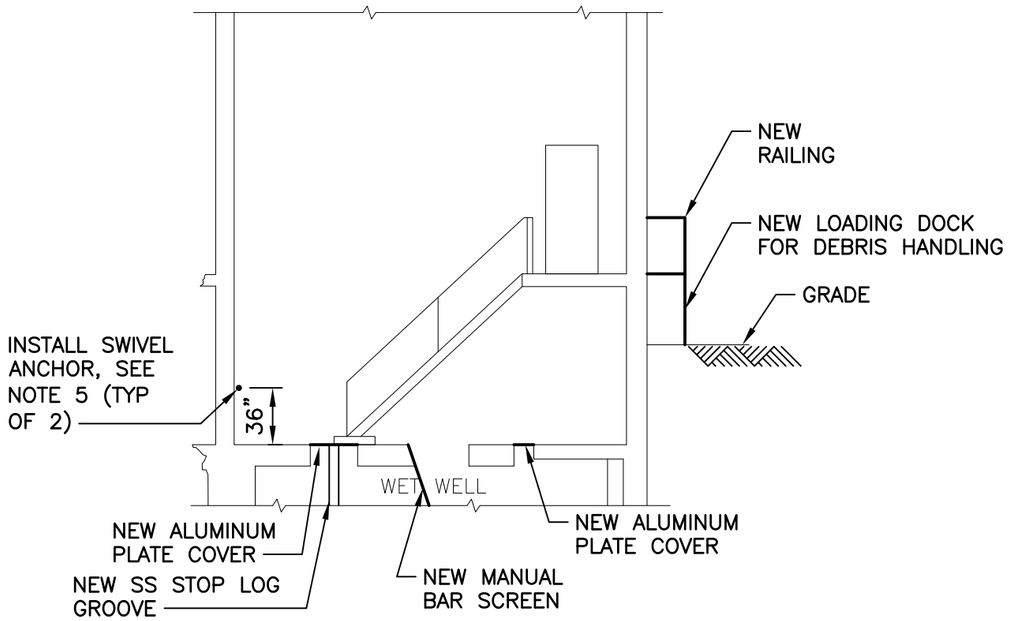
NEW AIR PIPING DIAGRAMS AND NEW SUCTION TUBE DETAILS

NO.	DATE	REVISIONS
1	7/3/14	REVISED EQUIP AND NOTES

DRAWN: J. WHITE
DESIGN: FJB
QC: DCH
DATE: 07/03/14

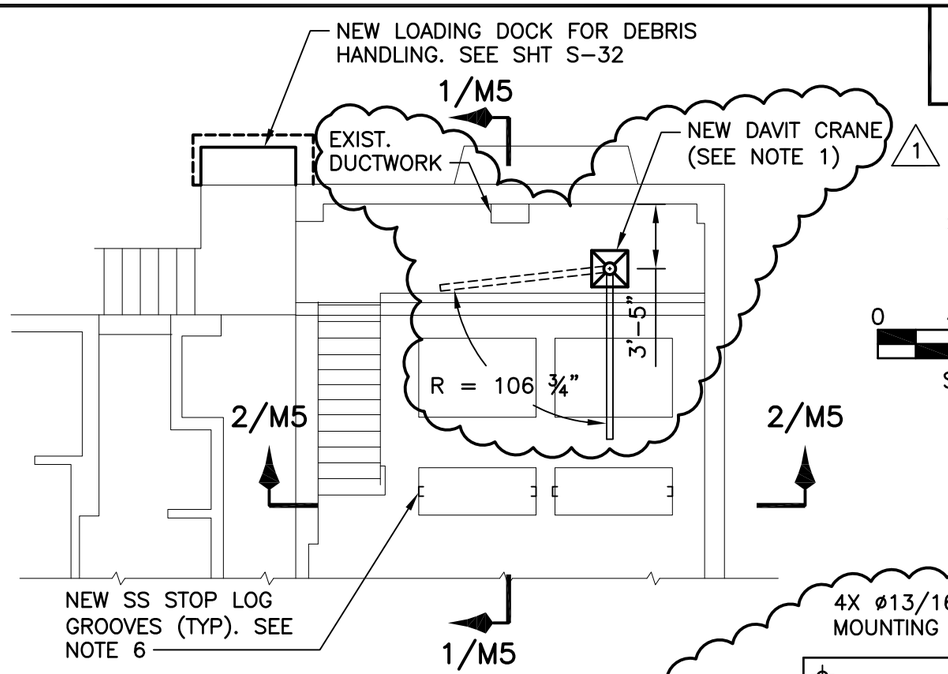
SHEET M-4

B080-023



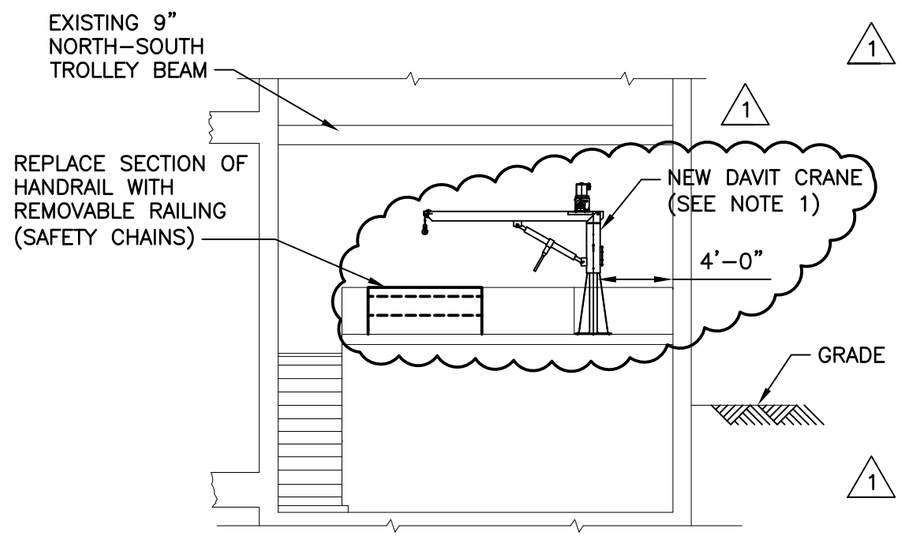
SECTION 1/M5

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



PLAN/SCREEN ROOM

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

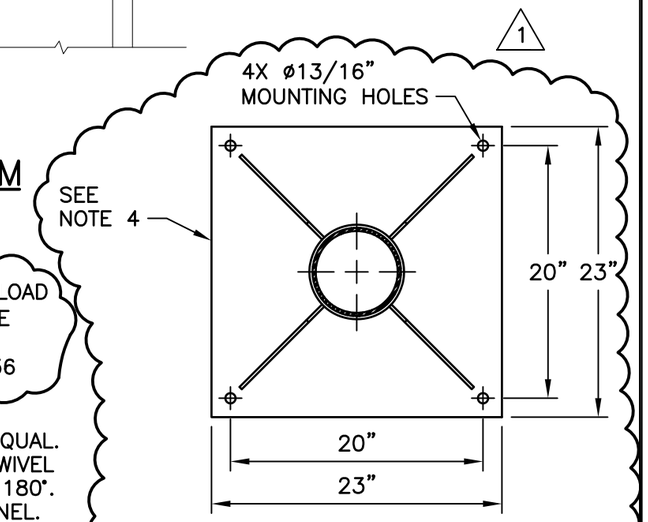


SECTION 2/M5

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

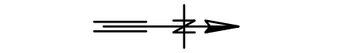
NOTES:

1. INSTALL NEW THERN SERIES 572 DAVIT CRANE (MIN. 1,700 LB LOAD RATING) TO INCLUDE PNEUMATIC WINCH – 572E3PN, ADJUSTABLE SCREW JACK SJ2, PNEUMATIC CONTROLS – 477PN – CNTRL, PNEUMATIC WINCH HOSES – 477PN-HS6, AND A MINIMUM OF 36 FEET OF 5/16" DIA. 304 STAINLESS STEEL WIRE.
2. INSTALL TO 5K HYBRID MEGA SWIVEL ANCHORS OR APPROVED EQUAL. INSTALL ANCHORS IN CONCRETE WALL FOR FALL PROTECTION. SWIVEL ANCHORS SHALL BE CAPABLE OF ROTATING 360° AND FLIPPING 180°. LOCATION OF ANCHORS TO BE COORDINATED WITH CITY PERSONNEL.
3. SECURE SS STOP LOG GROOVES TO EXISTING CHANNEL WALLS WITH HILTI COUNTERSUNK STAINLESS STEEL SS316L KWIK BOLT 3 ANCHORS (C3/8X4) SPACED AT 4 INCHES ON CENTER. INSTALL ANCHORS PER MANUFACTURER'S RECOMMENDATIONS. PRE-DRILL WALL SURFACE MOUNTED STAINLESS STEEL STOP LOG CHANNEL TO ACCOMMODATE COUNTERSUNK ANCHOR HEAD. ANCHORS ARE DESIGNED FOR WATER DEPTH OF 20 FEET MAXIMUM.
4. ANCHOR USING ¾" DIAMETER HILTI RODS (AISI GRADE 304/316 STAINLESS STEEL) OR APPROVED EQUAL. EMBED RODS 8-3/4" FROM TOP OF FINISHED SLAB. ADHERE RODS WITH HILTI HIT-RE 500 EPOXY. INSTALL RODS AND EPOXY PER MANUFACTURER. ASSUME SLAB TO BE 8-INCHES THICK WITH 2-INCHES CONCRETE TOPPING.



CRANE BASE PLATE DETAIL

NOT TO SCALE



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P.E. NAME: FREDDY J. BETANCOURT P.E. NO. 68072

P.E. NAME: _____

DATE: _____

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

SCREEN AREA
SECTIONS AND DETAILS FOR
DEBRIS REMOVAL EQUIPMENT

NO.	DATE	REVISIONS
1	7/3/14	REVISED EQUIP AND NOTES

DRAWN: J.WHITE
DESIGN: FJB
QC: DCH
DATE: 07/03/14

SHEET M-7