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Solicitation Addendum

Addendum No.:	2
Solicitation No.:	20-TA003406SAM
Project No.:	6083480
Solicitation Title:	Southeast Water Reclamation Facility Grease Facility Modifications
Addendum Date:	July 21, 2020
Procurement Contact:	Sherri Meier

IFBC No. 20-TA003406SAM is amended as set forth herein. Responses to questions posed by prospective bidders are provided below. This addendum is hereby incorporated in and made a part of IFBC No. 20-TA003406SAM.

REPLACE:

BID ATTACHMENT 2 – CONTRACT DOCUMENTS AND TECHNICAL SPECIFICATIONS, SECTION 11229 – TANK MIXING SYSTEM

Replace Section 11229 – Tank Mixing System with the revised Section 11229 – Tank Mixing System in its entirety attached to this Addendum 2.

REPLACE:

BID ATTACHMENT 2 – CONTRACT DOCUMENTS AND TECHNICAL SPECIFICATIONS, SECTION 13122 – PRE-ENGINEERED METAL BUILDING

Replace Section 13122 – Pre-Engineered Metal Building with the revised Section 13122 – Pre-Engineered Metal Building in its entirety attached to this Addendum 2.

REPLACE:

BID ATTACHMENT 3 – PLANS/DRAWINGS, PLAN SHEETS E-02 ONE-LINE DIAGRAM AND E-03 MCC ELEVATIONS

Replace Plan Sheets E-02 One-Line Diagram and E-03 MCC Elevations issued as a separate attachment to this Addendum 2.

REPLACE:

BID ATTACHMENT 3 – PLANS/DRAWINGS, PLAN SHEETS P-01 NOTES & LEGEND

Replace revised Plan Sheets P-01 Notes & Legend issued as a separate attachment to this Addendum 2.

ADD:

BID ATTACHMENT 4 –TEMP GREASE RECEIVING SYSTEM EXAMPLE

Add Bid Attachment 4 – Temp Grease Receiving System Example issued as a separate attachment to this Addendum 2.

ADD:

BID ATTACHMENT 5 – HYATT SURVEY AS-BUILT RECORD DRAWINGS

Add Bid Attachment 5 – Hyatt Survey As-Built Record Drawings issued as a separate attachment to this Addendum 2.

ADD:

BID ATTACHMENT 6 – CARDNO AS-BUILT RECORD DRAWINGS

Add Bid Attachment 6 – Cardno As-Built Record Drawings issued as a separate attachment to this Addendum 2.

QUESTIONS AND RESPONSES:

Q1. What is the finish that the pre-engineered metal building(s) structures to receive? Our options are grey primer, red primer, unfinished bare steel, or hot dip galvanized primary/G90 galvanized secondary. The specs mention galvanizing, but it's not clear whether the complete structure is galvanized, or which parts are to receive field painting.

R.1 All hot-rolled structural steel and cold formed steel members shall be galvanized per 13122-2.03-F, which includes primary and secondary steel. Specific ASTM standards for galvanizing are listed in 13122-2.01. All galvanized steel shall have a shop primer per 13122-2.02 with field painting per 09900-3.31-4 unless other coating specified in 13122. The roofing and side panels have coating specified in 13122-2.04-D. Refer to updated 13122 Pre-Engineered Metal Building System of the technical specifications.

Q2. Should we assume the LFG Dryer Building has the same eave height and roof structure as the Hot Water Generation Building?

R2. The heights are different for the two buildings. Refer to section 3 on S-03 top of steel columns called on the low side. Higher elevation is for the LFG Dryer Building.

Q3. What is the engineers estimated value for this project?

R3. Engineers estimated opinion of cost is \$3,300,000.00.

Q4. Can we have a copy of the mandatory site visit sign-in sheet?

R4. Sign-in sheet attached to this Addendum.

Q5. Southern Flow, Inc. is requesting to be added to the Control Systems Integrator List as detailed in specification 13300-1.07.

R5. Additional control system integrators are not being considered for this project.

Q6. Paragraph 2.04.C&D: Rockwell C60 is specified with standard hardened cast materials (not SS, if pH is 5 or higher). In this case, CD4MCu, a hardened stainless steel is being used with a Brinell Hardness of 270 Brinell BHN (due to the low pH possible).

R6. Refer to updated 11229 Tank Mixing System of the technical specifications. Design for mixing pumps has been updated to 20 HP. Refer to updated E-02 and E-03 as well as updated specification previously referenced.

Q7. Paragraph 2.06.A: Please let us know if the motors for the chopper pumps must have an explosion proof rating (Cl 1, Div 1 or Cl 1, Div 2) or if TEFC is acceptable.

R7. Hazardous area classifications are shown on the electrical plans. The type of motors and enclosures are covered in Division 11 and 16 of the technical specifications.

Q8. Per Appendix A, Minimum Qualifications; #3 States – Must have possessed a General Contractor License issued by the Florida Department of Business and Professional Regulation for a period of at least five (5) consecutive years since June 30, 2015. License must be current and valid through the Due Date for bids for this IFBC; and

#6 States – Bidder, on the day the bid is submitted, has certified or registered Qualifying Agent, as required by Section 489.119, Florida Statutes, and that Qualifying Agent has been the same Qualifying Agent of Bidder for a period of at least five (5) consecutive years, since June 20, 2015.

We have been licensed since 2012 and switched qualifiers last year. Can this requirement be waived for this project?

R8. No.

Q9. #5 States - Bidder or Bidder's Subcontractor has self-performed, as long as Subcontractor was part of the Bidder's team for the project referenced, Wastewater Facility Installation for at least two (2) projects in the last ten (10) years preceding the date of the bid opening and total contract amount for each project must have been \$500,000.00 or greater and each project included the following components: (i) mechanical equipment installation; (ii) electrical, (iii) instrumentation and controls.

Can this requirement be changed to include WTP projects?

R9. No.

Q10. Can Manatee County extend the bid submission due date for an additional two (2) weeks?

R10. The County does not want to change the bid submission due date at this time.

Q11. Related to bid alternate 1: As we anticipate the temporary screening equipment will be required to be utilized for a very significant length of time, can we assume the County will be responsible for the operation and routine maintenance of the equipment while in service?

R11. The Contractor is responsible for the operation and maintenance of all systems other than the temporary screen. The County will take responsibility for temporary screen operation and maintenance after startup and training by a representative of the screening equipment.

Q12. Related to bid alternate 1: As we anticipate the temporary screening equipment will be required to be utilized for a very significant length of time, can a diagram of the equipment and connections be provided so that we can design a sustainable long-term temp piping configuration?

R12. Refer to "Example Temp Grease Receiving System Layout" sketch attached. The Contractor is responsible for designing and maintaining the system. The Engineer and Owner will review the design per submittals required in technical specifications.

Q13. Related to bid alternate 1: What is the maximum "down time" allowed to transfer the power/water connections from the temporary screen to the permanent screen, or should the contractor plan on piping and powering the unit in a such a fashion that service is not interrupted?

R13. 01030 of the technical specifications states any shutdown of grease screening/receiving will be limited to the hours of 6:00 PM to 7:00 AM. However, with thirty days notice and

coordination with the County and Engineer, up to fourteen days of grease receiving downtime will be allowed only for the transfer of temporary screening to permanent screening operations. Screening equipment commissioning, startup, training, and turnover to County operations shall occur within the fourteen days.

Q14. Related to bid alternate 1: Is the contractor required to pay for the power on the temporary equipment while in service?

R14. The Contractor is responsible for temporary power. Refer to 01510 in technical specifications for requirements on temporary utilities provided during construction.

Q15. Related to bid alternate 1: Is any spill containment required around the temporary screening equipment?

R15. Yes. The Contractor shall provide spill containment for any potential overflow/spill locations at and around the temporary grease receiving system.

Q16. Is the contractor responsible for draining/cleaning of the existing grease storage tanks to allow for the installation of the new tank equipment? Can a quantity of material required to drained/removed and a disposal location be provided?

R16. County will drain down tank as far as possible. Contractor will be responsible for cleaning out the tanks to allow for installation of new equipment. There is an existing concrete pad, with drain, on the plant site that can be used to dispose of material. County staff will mix material with mulch and dispose of in the adjacent landfill (mulch is provided by County).

Q17. Drawing E-07 shows the existing grease tank walls at 12' tall. Drawing M-03 shows the existing grease tank walls at 15' tall? Which dimension should we utilize for our bid?

R17. The existing grease storage tank walls are approximately 15' tall. Refer to attached record drawings for the best available information on existing conditions.

Q18. Specification 09900 – 3.18 requires epoxy coatings on concrete. Please confirm this applies only to new concrete.

R18. Concrete coating is required on new and modified concrete.

Q19. Specification 09900 – 3.16 requires the new Pre-Engineered Metal Buildings to receive a coating over the galvanized finish. Please confirm this specification does not apply to the existing pre-engineered metal building.

R19. This applies to the two new pre-engineered buildings.

Q20. It appears that the Landfill gas blower shown on the drawing I-07, and similar pages does not have a specification section included with the Plans & Specs.

R20. Refer to updated sheet P-01 of the plans attached.

Q21. Can Unison Solutions be listed as an alternate vendor in Section 15715 – Landfill Gas Chiller Drying System?

R21. Refer to updated sheet P-01 of the plans attached.

NOTE: Items that are ~~struck through~~ are deleted. Items that are underlined have been added or changed. All other terms and conditions remain as stated in the IFBC.

END OF ADDENDUM

INSTRUCTIONS:

Receipt of this addendum must be acknowledged as instructed in the solicitation document. Failure to acknowledge receipt of this Addendum may result in the response being deemed non-responsive.

AUTHORIZED FOR RELEASE

SECTION 11229 TANK MIXING SYSTEM

PART 1 GENERAL

1.01 SCOPE

- A. CONTRACTOR shall furnish two (2) complete mixing systems for grease storage tanks. Each mixing system shall consist of mixing nozzles receiving flow from one (1) associated chopper pump. The nozzles shall produce a rotational mixing pattern designed to suspend settling solids, floating organics or both within the tank.
- B. The nozzle design shall consist of Pipe Mounted Assemblies which will mount on to Contractor supplied piping within the tank. Supports or Hangers for the piping shall be provided and installed by the Contractor installing the piping.
- C. The Mixing Manufacturer shall be responsible for determining mixing assembly quantity, location and appropriate nozzle angles. The controls (supplied by others) shall control variable frequency drives (VFDs) in local pump panels (supplied by mixing system vendor) which may be used to modify mixing intensity if feed stocks to the tank(s) change over time.
- D. It is the intent of these Specifications that all equipment called for under this Section shall be supplied by a single vendor.

1.02 RELATED SECTIONS ELSEWHERE

- A. Division 1 - General Requirements
- B. Division 2 - Site Work
- C. Division 9 - Painting
- D. Division 13 - Special Construction
- E. Division 16 - Electrical

1.03 SUBMITTALS

The following information shall be submitted to the Engineer. In accordance with Section 01340, copies of all materials required to establish compliance with this Section. Submittals shall include the following:

- A. Product Data: Include the following:
 - 1. Descriptive literature, brochures, catalogs, cut-sheets and other detailed descriptive material of the equipment.

2. Motor characteristics and performance information.
 3. Gear reducer data including service factor, efficiency, torque rating, and materials.
 4. Parts list including a list of recommended spare parts.
- B. Shop Drawings: Include the following:
1. Manufacturer's installation drawings.
 2. Wiring and schematic diagrams.
- C. Operations and maintenance manual: See Section 01730.
- D. Detailed installation instructions, with clear step-by-step points on the correct mechanical and electrical installation procedures.
- E. Equipment weights and lifting points.
- F. Recommendations for short- and long-term storage.
- G. A copy of the manufacturer's warranty
- H. Failure to include all drawings applicable to the equipment specified in this section will result in rejection of the entire submittal with no further review.
- I. Pump TDH calculations. See 2.03.
- J. CFD information. See 1.04.

1.04 QUALITY ASSURANCE

- A. The contractor shall submit warranties for equipment to be furnished in accordance with this section. The pump warranty shall meet Division 1 requirements which stipulate 3 years from substantial completion. The nozzle warranty shall be a 10-year non-prorated warranty, commencing on substantial completion.
- B. Submit CFD modeling setup and then analysis for Engineer review.
- C. A performance affidavit shall be supplied to the contractor and owner certifying that the system as provided will meet or exceed the performance requirements for the specific application. The affidavit shall also include a statement that tank contents will be evenly mixed within a +/-10% acceptance range for solids content once the tank contents have stabilized.
- D. Alternates shall be pre-approved no less than 30 days prior to the bid date, accompanied by a list of no less than ten (10) reference installations of mixing systems in identical service applications. References shall have been used in continuous service for a period of no less than three (3) years. Only equipment

that is in service at the time of referral shall be considered valid. Telephone numbers and contact names shall be provided for any/all references upon request from the Engineer. Provision of performance bonds or other means of circumventing the above requirements for historical references and verification of past performance in identical applications are not considered an acceptable means of verifying the manufacturers' experience.

- E. The mixing system as outlined for this project shall be the complete responsibility of the approved manufacturer listed. A complete system will be provided including pumps, motors, and mixing assemblies. The contractor unless otherwise required in this specification section, shall supply pump suction and discharge piping to nozzles, piping supports, as well as control panels, variable frequency drives, valves, anchor bolts, pressure gauges and other specialties. All performance and warranty requirements shall be the responsibility of the approved mixing manufacturer.
- F. The Mixing Manufacturer shall be responsible for submitting a Computational Fluid Dynamics (CFD) analysis that will model the flows, fluids and solids specific to the tanks within this specification. The CFD analysis shall demonstrate the contents of the tank be sufficiently mixed with all areas of the tank within 10% of the average for the following parameters: solids concentration, water to grease ratio. The report shall indicate assumptions for properties of water, solids and grease used in the model. Grease shall be assumed to be restaurant waste grease. The manufacturer shall submit a CFD setup report for review by Engineer prior to completion of the results and full report submission. With the report, backup data, including underlying CFD computer files, shall be provided by the mixing system supplier to substantiate the results obtained. Proof of a current "license key" for the software used shall also be furnished.

1. The contents of the tank shall be the following:

- i. 75% grease / 25% water both at 120 deg F
- ii. TSS: 75,000 mg/L (approx. range is 5,000 to 350,000 mg/L TSS in grease)
- iii. Supplemental information will be provided.
- iv. Grease properties: Specific Gravity = 0.9 and Viscosity = 35 cP.

1.05 SPARE PARTS

- A. There shall be a total of one complete spare pump and motor supplied for this project. The spare pump shall be supplied without a base plate such that this spare pump shall mount directly to the existing base plate without modification. Additionally, one set of pump overhaul tools shall be supplied.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Base Bid:
1. Mixing System: Rotamix® as manufactured by Vaughan Co., Inc. or approved equal.

Chopper Pumps shall be manufactured by Vaughan Co., Inc. and are model STHE4T6CS or approved equal.

- B. Equipment of all manufacturers must be in accordance with these specifications and plans. Being named as a manufacturer does not eliminate their responsibility of providing equipment in compliance with the following specification section. Any deviations without sufficient evidence proving equal or superior quality shall be rejected without further review or comment.

2.02 NOZZLE CONSTRUCTION

- A. Nozzle Barrels: Shall be cast polyurethane, with a minimum Durometer A rating of 80, and a long straight taper length of at least 10 inches. Polyurethane barrels shall protect against both abrasive and corrosive wear.
- B. Assembly Fittings (Other than barrels): Shall be glass-lined cast ductile iron, with 150 lb. flange for connection to Contractor installed piping. The glass lining shall have a minimum thickness of .010" and a hardness exceeding 5 on the Mohs scale.
- C. Glass Lining Specifications: Nozzle barrel and fittings shall be lined with a specially formulated internal porcelain coating designed for handling grease in sewage and wastewater treatment plants, and shall be resistant to adherence of grease and crystalline metal salt deposits within these systems. All metal preparation, application and processing will follow the manufacturers recommended procedure.

2.03 SERVICE CONDITIONS

- A. The manufacturer shall confirm the following service conditions:
1. GPM: 1,000
 2. TDH: 36. Submit calculations for Engineer to review.
 3. HP: 20
 4. RPM: 1200

2.04 PUMP CONSTRUCTION

- A. The Vendor shall furnish centrifugal, dry well horizontal chopper pumps and all appurtenances as specified herein. The pump shall be specifically designed to pump and agitate waste solids at heavy consistencies. Materials shall be macerated and conditioned by the pump as an integral part of the pumping action. The pump must have demonstrated the ability to chop through, mix and pump high concentrations of solids such as plastics, heavy rags, grease and hair balls, wood, paper products and stringy materials without plugging, both in tests and field applications.

- D. Casing and Back Pull-Out Adapter Plate: The pump casing shall be of semi-concentric design, with the first half of the circumference being cylindrical beginning after the pump outlet, and the remaining circumference spiraling outward to the 150 lb. flanged centerline discharge. Back pull-out adapter plate shall allow removal of pump components from above the casing, and allow external adjustment of impeller-to-cutter bar clearance. Casing and adapter plate shall be CD4MCu stainless steel with all water passages to be smooth, and free of blowholes and imperfections for good flow characteristics.
- C. Impeller: Shall be semi-open type with pump out vanes to reduce seal area pressure. Chopping and maceration of materials shall be accomplished by the action of the cupped and sharpened leading edges of the impeller blades moving across the cutter bar at the intake openings, with a set clearance between the impeller and cutter bar of .010" to .015". Impeller shall be cast CD4MCu stainless steel case hardened to minimum Brinell Hardness of 270 Brinell BHN and dynamically balanced. The impeller shall be keyed to the shaft and shall have no axial adjustments or set screws required. Open style impellers or impellers without pumpout vanes to reduce seal area pressure are not acceptable for this project.
- D. Cutter Bar: Shall be recessed into the pump bowl, with a funnel shaped inlet opening, and shall extend diametrically across entire pump suction opening. Cutter bar shall be cast CD4MCu stainless steel hardened to minimum Brinell Hardness of 270 Brinell BHN.
- E. Cutter Nut: The impeller shall be secured to the shaft using a special cutter nut, designed to cut stringy materials and prevent binding. The cutter nut shall be CD4MCu stainless steel.
- F. Upper Cutter: Shall be threaded into the back pull-out adapter plate above the impeller, designed to cut against the pump-out vanes and the impeller hub, reducing and removing stringy materials from the mechanical seal area. Upper cutter shall be CD4MCu stainless steel. Pump designs lacking an upper cutter feature to prevent stringy debris from wrapping around the shaft are not acceptable.
- G. Pump Shafting: The pump shaft and impeller shall be supported by ball bearings. Shafting shall be 316 stainless steel, with a minimum diameter of 1.5 inches in order to minimize deflection during solids chopping.
- H. Bearings: Shaft thrust in both directions shall be taken up by two back-to-back mounted single-row angular contact ball bearings. Two single-row radial bearings shall also be provided. Bearings shall be rated with a minimum B10 bearing life of 100,000 hours. For horizontal pumps, bearing isolators shall be included to provide a non-contacting labyrinth type seal for ease of maintenance, additional bearing protection and increased pump life.
- I. Bearing Housing: Shall be ductile cast iron and machined with piloted bearing fits for concentricity of all components. Bearing housing shall have oil bath lubrication

using ISO Gr. 100 turbine oil and a side mounted site glass to provide a permanently lubricated assembly. Viton® double lip seals riding on stainless steel shaft sleeves are to provide sealing at each end of the bearing housing. Horizontal pumps shall have labyrinth type bearing isolators.

- J. Mechanical Seal: Shall be specifically designed to require no seal flush. The mechanical seal shall be made of 316 stainless steel and shall be a cartridge-type mechanical seal with Viton® O-rings and silicon carbide faces. This cartridge seal shall be pre-assembled and pre-tested so that no seal settings or adjustments are required from the installer. Any springs used to push the seal faces together must be shielded from the fluid to be pumped. The cartridge shall also include a 17-4PH, heat-treated seal sleeve and a stainless steel seal gland.
- K. Shaft Coupling: Bearing housing and motor stool design is to provide accurate, self-aligning mounting for a C-flanged electric motor. Pump and motor coupling shall be T.B. Woods Sureflex elastomeric type.
- L. Stainless Steel Nameplates: Shall be attached to the pump and drive motor giving the manufacturer's model and serial number, rated capacity, head, speed and all pertinent data.
- M. Base: Shall be fabricated from 1018 steel.
- N. Pump and nozzle assembly finish shall be SSPC-SP5 sandblasted then prime coated with Tnemec Perma-Shield PL Series 431 Epoxy and finish coated with Tnemec Perma-Shield PL Series 431 Epoxy (for a total minimum thickness of 25-30 MDFT). (Except Motor). The stainless-steel and urethane parts shall not be painted.

2.05 SYSTEM VENTING REQUIREMENTS

- A. A venting system shall be required to vent the pump casing before starting the pump. Venting shall be accomplished by an air release valve. See section 02640.

2.06 MOTOR REQUIREMENTS

- A. Drive motor shall be 15 HP, 1200 RPM, 480 volts, 3 phase, 60 hertz, 1.15 service factor, foot and C-flange mounted, premium efficient enclosure. The motor shall be suitable for inverter duty service and sized for non-overloading conditions. The motor shall also meet the requirements of Division 16.

2.07 CONTROL PANEL

- A. Vendor shall supply local outdoor pump panels for each of the mixing systems with constant torque VFDs. PLCs are not included in these panels. Refer to Divisions 13 - Instrumentation and 16 - Electrical for specifics.
- B. Provide Type 2 surge protection device per Section 16289

PART 3 EXECUTION

3.01 DELIVERY, STORAGE, AND HANDLING OF EQUIPMENT

- A. All equipment shall be shipped and delivered fully assembled, except where partial disassembly is required in order to conform to transportation regulations or for the protection of components.
- B. The Contractor shall be responsible for unloading of the machinery and shall have equipment on-site available at the time of delivery permitting proper hoisting of the equipment.

3.02 FIELD PREPARATION AND PAINTING

- A. Manufacturer shall factory apply a SSPC-SP5 sandblasted finish with 3M™ Scotchkote™ 134 Fusion Bonded Epoxy for total finish of 30 MDFT minimum (except flange faces and motor) for tank mixing assemblies. See 2.04.N for pump finish. The stainless steel and urethane parts shall not be painted.
- B. CONTRACTOR shall coat all stainless steel bolts and nut threads with a non seizing compound prior to final assembly.

3.03 INSTALLATION, START-UP AND OPERATOR TRAINING

- A. Contractor shall verify all dimensions in the field to ensure compliance of equipment dimensions with the drawings. Contractor shall notify Engineer of significant deviations.
- B. Installation of the equipment shall be in strict accordance with the contract documents and the manufacturer's instructions and shop drawings. Manufacturer shall supply anchor bolts for the equipment. Contractors shall install the anchor bolts in accordance with the manufacturer's recommendations
- C. Manufacturer shall furnish the services of a factory-trained Service Engineer for one trip including two (2) 8-hour days to inspect the installation, observe start up, and provide operator training.
 - 1. Equipment shall not be energized, or "bumped" to check the electrical connection for motor rotation without the Service Engineer present.
 - 2. The Service Engineer shall make all necessary adjustments and settings to the controls.
 - 3. The Service Engineer shall demonstrate proper operation of the entire unit.

END OF SECTION

DIVISION 13 - SPECIAL CONSTRUCTION

SECTION 13122 PRE-ENGINEERED METAL BUILDING SYSTEMS

PART 1 GENERAL

1.01 SCOPE

- A. This section covers the work necessary to furnish, install, and erect the pre-engineered metal building components to be provided at the Hot Water Generation Building, LPG Dryer Building and other related components of the types, shapes and weights shown on the drawings. The work shall include all metal parts required for permanent construction of the metal building as well as any temporary bracing used for erection. The buildings are single-story, single-span, rigid-frame-type pre-engineered metal building of the nominal length, width, eave height, and roof pitch indicated on the drawings.
1. Exterior Walls: Field assembled, metal wall panels attached to framing where indicated using exposed fasteners.
 2. Frames: The interior frames are to be designed as rigid frames and the end walls are not intended to be expandable.
 3. Lateral Bracing: X-bracing is not allowed. Portal frames are allowed in the bays indicated on the drawings. Lateral bracing must be configured so that it does not obstruct access to the buildings.
 4. Horizontal Bracing: X-bracing shall be provided as required in the plane of the roof members to transfer wind loads to lateral bracing located on side and end walls.
 5. Roof system: Panel rib roof.
 6. Manufacturer's standard building components and accessories may be used, provided components, accessories, and complete structured conform to design indicated and specified requirements.
- B. ALTERNATIVES: Like items provided hereunder, although for different services, shall be the end products of one manufacturer in order to achieve standardization for, maintenance, spare parts, and manufacturer's service. The use of a manufacturer's name and model or catalog number is for the purpose of establishing the standard of quality and general configuration desired only. Products of other manufacturers will be considered in accordance with applicable portions of this document.

1.02 SYSTEM DESCRIPTION

- A. Design requirements: The Contractor shall comply with the following codes and standards unless specifically directed otherwise:
1. MBMA "Design Practices Manual."

2. AISC "Manual of Steel Construction Allowable Stress Design", Fourteenth Edition.
 3. AISC "Code of Standard Practice for Steel Buildings and Bridges."
 4. AISC "Specifications for Structural Joints Using ASTM A 325 or A 490 Bolts".
 5. AWS D1.1 "Structural Welding Code", Latest Edition.
 6. Florida Building Code (FBC), 2017 Edition.
- B. Performance Requirements: Design, fabricate, and erect the building to withstand loads from winds, gravity, and structural movement, and resist in-service use without failure. Design members to withstand stresses resulting from combinations of loads that produce maximum allowable stresses prescribed in MBMA's "Design Practices Manual."
1. Design Live Loads: Basic design live loads in accordance with Florida Building Code.
 2. Design Dead Loads: Weight of the metal building system. A maximum roof dead load of 5 psf shall be used for wind load combinations and a minimum roof dead load of 20 psf shall be used for gravity load only combinations.
 3. Design Collateral Loads:
 - a. Collateral loads accounting for superimposed loads resulting from mechanical and electrical conveyance equivalent to a uniform applied load of 20 psf.
 4. Design Wind Loads: Basic wind pressures in accordance with FBC and ASCE 7-10 (ASCE 7) and as further defined below.
 - a. Wind Speed: 155 mph (3-second gust), Reference FBC, Figure 1609.3(2)
 - b. Exposure Category C, Reference ASCE 7, Section 26.7.3
 - c. Risk Category III, Reference FBC, Table 1604.5
 - d. Internal Pressure Coefficients (GCpi), Reference ASCE 7, Table 26.11-1
 - Hot Water Generation Building: Open Buildings 0.00
 - LPG Dryer Building: Open Buildings 0.00

1.03 SUBMITTALS

- A. The contractor shall submit the following for review and acceptance:
1. Anchor Bolt Layout: Include plan layout of anchor bolts, recommended anchor bolt diameters, and foundation reactions for all column members two (2) weeks from execution of a Contract with the Owner. Do not proceed with preparation of Shop Drawings or Fabrication prior to acceptance of this information.

2. Structural Calculations: Include design criteria, referenced design codes and standards, structural member calculations and structural connection calculations.
3. Product Data: Include manufacturer's product information for building components and accessories.
4. Shop Drawings: Provide shop drawings for structural framing system, roofing and siding panels, and components and accessories not fully detailed or dimensioned in manufacturer's product data.
 - a. Structural Framing: Furnish erection drawings. Include fabrication and assembly details. Show sidewall, endwall, roof framing.
 - b. Roofing and Siding Panels: Provide panel layouts and details of edge conditions, joints, corners, custom profiles, supports, anchorages, trim, flashings, closures, and special details.
 - c. Sheet Metal Accessories: 1/4-inch-scale layouts and 1-1/2-inch-scale details of downspouts, gutters, and other accessories; show profiles, methods of joining, and anchorages.
5. Certification prepared and signed by a Professional Engineer registered in the State of Florida verifying that structural framing and covering panels meet loading requirements and codes.

1.04 QUALITY ASSURANCE

- A. Design Standards for Structural Framing and Roof and Siding Panels: Design structural members and exterior covering for applicable loads and combinations of loads in accordance with the MBMA's "Design Practices Manual."
 1. Structural Steel: Comply with AISC's "Specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings" for design requirements and allowable stresses.
 2. Light Gage Steel: Comply with AISI's "Specification for the Design of Cold-Formed Steel Structural Members" and "Design of Light Gage Steel Diaphragms" for design requirements and allowable stresses.
 3. Welded Connections: Comply with AWS's "Standard Code for Arc and Gas Welding in Building Construction" for welding procedures.
- B. Installer Qualifications: Engage an experienced Installer who specializes in erection of buildings similar to that required and is certified by the building manufacturer as qualified for erection of the manufacturer's products.
- C. Manufacturer's Qualifications: Provide buildings manufactured by a firm experienced in manufacturing buildings similar to those indicated.
- D. Warranties: Manufacturer's full warranty for all products supplied. At a minimum, the following periods and coverage shall be provided:
 1. Structure: 40-year material and workmanship warranty.

2. Roof and wall panels: 30-year material warranty.
3. Weathertightness: 20-year warranty against roof leaks.

PART 2 PRODUCTS

2.01 METALS

Provide the following:

- A. Hot-Rolled Structural Steel Shapes: ASTM A36 or A529.
- B. Steel Tubing or Pipe: ASTM A500, Grade B, ASTM A501, or ASTM A53.
- C. Steel Members Fabricated from Plate or Bar Stock: ASTM A529, A570, or A572. Provide 42,000-psi minimum yield strength.
- D. Steel Members Fabricated by Cold Forming: ASTM A607, Grade 50.
- E. Cold-Rolled Carbon Steel Sheet: ASTM A366 or ASTM A568.
- F. Hot-Rolled Carbon Steel Sheet: ASTM A568 or ASTM A569.
- G. Structural Quality Zinc-Coated (Galvanized) Steel Sheet: ASTM A446 with G90 coating complying with ASTM A525.
- H. Structural Steel Rolled Members Zinc Coatings (Hot-Dip): ASTM A123.
- I. **Standard Practice for Providing High Quality Zinc Coatings (Hot Dip): ASTM A385).**
- J. Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings: ASTM 780.
- K. Aluminum Coated Steel Sheets: ASTM A463 with T1-40 coating.
- L. Aluminum Sheets: ASTM B209 for Alclad alloy 3003 or 3004 temper required to suit forming operations.
- M. Bolts for Structural Framing: ASTM A307 or ASTM A325 as necessary for design loads and connection details.

2.02 PAINT MATERIALS

Comply with performance requirements of federal specifications indicated.

- A. **System No. 1095-3: Epoxy/High Build Urethane at galvanized steel, Reference specification section 09900, Part 3.16.A. ~~Shop Primer for Galvanized Metal Surfaces: Zinc dust-zinc oxide primer. Comply with FS TT-P-641.~~**

2.03

STRUCTURAL FRAMING

As follows:

- A. Rigid Frames: Factory welded, built-up "I-beam" shape or open-web type consisting of tapered or parallel flange beams and tapered columns with attachment plates, bearing plates, and splice members. Factory drill for field-bolted assembly. Provide length of span and spacing indicated.
- B. Primary Endwall Framing: Provide the following framing members fabricated for field-bolted assembly:
 - 1. Endwall Columns: Built-up factory-welded "I"-shape or cold-formed "C" sections, fabricated from 14-gage (0.0747-inch) steel.
 - 2. Endwall Beams: "C"-shape roll-formed sections fabricated from 16-gage (0.0598-inch) steel.
- C. Secondary Framing: Provide the following:
 - 1. Roof Purlins, Sidewall and Endwall Girts: 16-gage (0.0598-inch) roll-formed steel "C" or "Z" sections. Fabricate purlin spacers from 14-gage (0.0747-inch) cold-formed galvanized steel sections.
 - 2. Eave Struts: Unequal flange 16-gage (0.0598-inch) roll-formed steel "C" sections formed to provide adequate backup for both wall and roof panels.
 - 3. Flange and Sag Bracing: 1-5/8 inch by 1-5/8 inch angles fabricated from 16-gage (0.0598-inch) roll-formed steel.
 - 4. Base or Sill Angles: 14-gage (0.0747-inch) cold-formed galvanized steel sections.
 - 5. Secondary endwall structural members, except columns and beams, shall be fabricated from 14-gage (0.0747-inch) cold-formed galvanized steel.
- D. Wind Bracing: Where x-bracing is employed, comply with ASTM A36 or ASTM A572, Grade D. Locate interior end bay bracing so that it does not obstruct building access.
- E. Bolts: Provide zinc- or cadmium-plated bolts.
 - 1. Extra Materials: Furnish 5 percent excess over required amount of nuts, bolts, screws, washers, and other required fasteners for each building. Pack in cartons labeled to identify contents and store on site where directed.
- F. Galvanized Coating: All rolled structural steel and cold formed steel members shall be galvanized as specified elsewhere.
- G. Field applied finish: As specified elsewhere.

2.04 ROOFING AND SIDING PANELS

As follows:

- A. Face Sheets: Fabricate wall and roof panel face sheets to profile or configuration indicated from minimum 26-gage (0.0179-inch) structural-quality, Grade C, zinc-coated steel sheets.
- B. Purlin Bearing Rib (PBR) Wall Panels:
 - 1. Material:
 - a. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, structural quality, Grade 50, Coating Class AZ55 (Grade 340, Coating Class AZM165) unpainted Galvalume Plus coating.
 - b. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, structural quality, Grade 50, Coating Class AZ50 (Grade 340, Coating Class AZM150), prepainted by the coil-coating process per ASTM A 755/A 755M.
 - 2. Panels:
 - a. Coverage Width: 36 inches.
 - b. Major Rib Spacing: 12 inches.
 - c. Rib Height: 1 ¼ inch.
 - d. Panel Surface: smooth
 - e. Nominal Coated Thickness: 0.022 inch/26 gage, 0.028 inch/24 gage, 0.034 inch/22 gage.
- C. Standing-Seam Roof Panels: Factory-formed panel rib roof panel system designed for mechanical attachment to roof purlins using a concealed clip. Form panels of minimum 26-gage (0.0179-inch), Grade C, zinc-coated steel sheets.
 - 1. Cleats: 24-gage (0.0239-inch), Grade C, zinc-coated steel sheets, factory-caulked, mechanically seamed cleats.
- D. Exterior Finish:
 - 1. Roof Panels: Fluoropolymer two-coat system.
 - 2. Wall Panels: Fluoropolymer two-coat system.
- E. Fasteners: Self-tapping screws, bolts, nuts, self-locking rivets, self-locking bolts, end-welded studs, and other suitable fasteners designed to withstand design loads. Provide metal-backed neoprene washers under heads of fasteners bearing on weather side of panels.
 - 1. Use aluminum or stainless steel fasteners for exterior application and galvanized or cadmium-plated fasteners for interior applications.

2. Space fastenings in vertical and horizontal alignment. Use proper tools to obtain uniform compression for positive seal without rupture of neoprene washer.
3. Provide fastener heads with plastic caps or factory-applied coating matching color of roofing or siding sheets.

2.05 ACCESSORIES

Provide flashings, closers, fillers, expansion joints, ridge covers, fascias, and other accessories formed of the same material and finish as roof and wall panels.

- A. Closure Strips: Closed-cell, self-extinguishing, expanded cellular rubber, flexible closure strips, shaped to match configuration of roofing and siding sheets.
- B. Sealing Tape: Permanently elastic, pressure-sensitive, nonsag, nontoxic, nonstaining 100 percent solids grey polyisobutylene compound tape 1/2 inch wide and 1/8 inch thick with release paper backing.
- C. Joint Sealant: One part elastomeric polyurethane, polysulfide, or silicone rubber sealant.
- D. Fluoropolymer Finish: Shop-applied fluoropolymer finish to galvanized steel roof and wall panels and related trim, and accessory elements. Clean galvanized steel with alkaline compound; treat with zinc phosphate conversion coating; seal with a chromic acid rinse.
 1. Apply 2-coat fluoropolymer coating system to pretreated steel. Coating shall consist of specially formulated inhibitive primer applied to dry film thickness of 0.15 mil to 0.25 mil and fluorocarbon color coat containing not less than 70 percent polyvinylidene fluoride resin by weight applied to a dry film thickness of 0.80 mils to 1.3 mils.
 - a. Color: As selected by the Owner's Representative.

2.06 SHEET METAL ACCESSORIES

Provide coated steel accessories with coated steel roof and wall panels.

2.07 FABRICATION

Design components and field connections required for erection to permit easy assembly and disassembly.

- A. Fabricate components so once assembled, they may be disassembled, repackaged, and reassembled with a minimum amount of labor.
- B. Clearly mark each part of the assembly to correspond with erection drawings, diagrams, and instruction manuals.

2.08 STRUCTURAL FRAMING

Shop-fabricate framing components to indicated size and section with base plates, bearing plates, and other plates required for erection welded in place. Provide holes for anchoring or connections shop-drilled or punched to template dimensions.

- A. Shop Connections: Power-riveted, bolted, or welded shop connections.
- B. Field Connections: Provide bolted field connections.

PART 3 EXECUTION

3.01 INSTALLATION

Installer shall perform installation of the metal building components as follows:

- A. Erection: Erect framing true to line, plumb, level, rigid, and secure. Level baseplates to true even plane with full bearing to supporting structures, set with double-nutted anchor bolts. Use nonshrink grout to obtain uniform bearing and maintain level baseline elevation. Moist-cure grout for 7 days after placement.
- B. Purlins and Girts: Provide rake or gable purlins with tight-fitting closure channels and fascias. Locate and space girts to suit door and window arrangements and heights. Secure purlins and girts to structural framing and hold rigidly to straight line by sag rods.
- C. Bracing: Provide diagonal bracing in roof, between rigid frames and sidewalls where shown on design drawings.
- D. Framed Openings: Provide shapes of design and size to reinforce openings and carry loads and vibrations imposed, including equipment furnished under mechanical and electrical work. Securely attach to building structural frame.
- E. Roofing and Siding: Arrange and nest sidelap joints so prevailing winds blow over, not into, lapped joints. Lap ribbed sheets one full rib corrugation. Apply panels and associated items for neat and weathertight enclosure. Avoid "panel creep" or application not true to line. Protect factory finishes from damage.
 - 1. Field cutting of exterior panels by torch is not permitted.
 - 2. Provide weatherseal under ridge cap. Flash and seal roof panels at eave and rake with rubber, neoprene, or other closures to exclude weather.
- F. Panel Rib Roof Panel System: Fasten panels to purlins with concealed clip. Install clips at each support using self-drilling fasteners.
 - 1. Install tape caulk between panels at end laps.

2. Install factory-caulked cleats at standing-seam joints. Machine-seam cleats to the panels to provide a weathertight joint.
- G. Wall Sheets: Apply elastomeric sealant continuously between metal base channel and concrete and where necessary for waterproofing. Apply sealant and backup in accordance with the sealant manufacturer's recommendations.
1. Align bottom of wall panels and fasten with blind rivets, bolts or self-tapping screws. Fasten flashings, trim around openings, and similar elements with self-tapping screws. Fasten window and door frames with machine screws or bolts. When building height requires two rows of panels at gable ends, align lap of gable panels over wall panels at eave height.
 2. Install screw fasteners with power tools having controlled torque to compress neoprene washer tightly without damage to washer, screw threads, or panels. Install screws in predrilled holes.
 3. Provide weatherproof escutcheons for all exterior wall penetrations.
- H. Sheet Metal Accessories: Install accessories for positive anchorage to building and weathertight mounting.

3.02 CLEANING AND TOUCH-UP

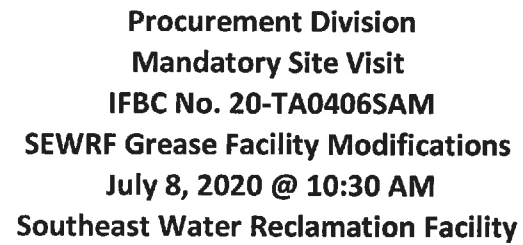
Clean component surfaces. Touch up abrasions, marks, skips, or other defects to shop-primed surfaces with same material as shop primer.

END OF SECTION



Procurement Division
Mandatory Site Visit
IFBC No. 20-TA0406SAM
SEWRF Grease Facility Modifications
July 8, 2020 @ 10:30 AM
Southeast Water Reclamation Facility

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