Date: 12/7/2021

To: Prospective Proposers

Subject: Addendum No. 3
Specification Modifications

This addendum forms part of the proposal and contract documents and modifies the original solicitation documents dated 10/13/2021. Acknowledge receipt of this addendum in the space provided below. FAILURE TO DO SO MAY SUBJECT OFFEROR TO DISQUALIFICATION.

Contract Document Modifications:

1. None.

Specification Modifications:

2. Specification 11225 – Clarifier Mechanisms (included with Addendum No. 3)

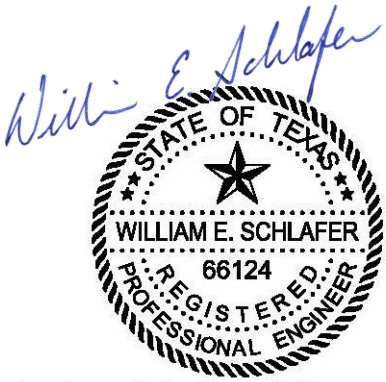
Drawing Modifications:

3. None.

Questions:

4. None.

END OF ADDENDUM NO. 3



12/7/2021

Lockwood, Andrews & Newnam, Inc.
Texas Registered Engineering Firm F-2614

I hereby certify receipt of this addendum and have incorporated its information or changes in preparation of my submittal.

_____	_____
Authorized Signature	**Date**
_____	_____
Printed Name	**Company Name**

A COPY OF THE ADDENDUM MUST BE SIGNED & RETURNED WITH YOUR PROPOSAL!

SECTION 11225

CLARIFIER MECHANISMS

PART 1 - G E N E R A L

1.1 SECTION INCLUDES

This section includes the requirements for the provision of all supervision, labor, materials, tools, equipment and related items to furnish, install and place in operation two (2) 30-foot diameter, bridge mounted secondary clarifiers CL-401 and CL-402 of the scraper plow collector type, as shown on the drawings and described herein.

1.2 SUBMITTALS

A. Provide submittals in accordance with the Section 01300 – Submittals. Provide complete descriptive data and fabrication and installation drawings, including but not limited to structural calculations, product data, drive AGMA compliance, controls, accessories and related information.

B. Shop Drawings. Submit shop drawings and product data as specified in Section 01300 - Submittals. This will include, but is not limited to, product data for motors.

C. Manufacturer's Report. Upon completion of installation, a service engineer employed by the manufacturer will provide the Owner with a written report of start-up, set points and calibrations. Final settings will be reviewed. Submit in accordance with the requirements in Section 01655 – Starting of Systems.

D. Design Certification. The manufacturer shall submit a written report, signed and sealed by registered Professional Engineer, certifying that all drives and other designs, such as structural, have been performed using sound engineering judgment and according to good engineering practice.

1.3 WARANTY

Clarifier Mechanism shall be warranted as specified in Section 01700 – Contract Closeout.

1.4 REFERENCE STANDARDS

A. ASTM A-36 American Society of Testing Materials – Structural Steel Specifications

B. ASTM A-325 American Society of Testing Materials – Fastener Specifications

C. ASTM F593 American Society of Testing Materials – Bolt Specifications

D. ASTM A-48 American Society of Testing Materials – Cast Iron Specifications

E. ASTM A-536 American Society of Testing Materials – Cast Iron Specifications

F. AISI 4142 American Iron and Steel Institute – Heat Treated Steel Specifications

G. AGMA American Gear Manufacturers' Association – Gear Ratings

H. AWS American Welding Society - Current Standards

I. AFBMA Anti-friction Bearing Manufacturers' Association – Bearing Life Specifications

J. ASTM A283C American Society of Testing Materials – Steel Plate Specifications

K. NEMA National Electrical Manufacturer's Association – Motor Design Standards and Standards for Control Enclosures

1.5 OPERATION AND MAINTENANCE

A. Operation and Maintenance Manuals. Provide operation and maintenance manuals in accordance with provisions of Section 01300 – Submittals, Section 01661- Instruction of Operation and Maintenance Personnel, and section 01730 – Operations and Maintenance Data.

1.6 STORAGE

Store the equipment and accessories on-site prior to installation in accordance with the manufacturer's recommendations and the requirements of Section 01600 – Materials and Equipment. Provide the Owner's Representative with the supplier's recommended storage instructions.

PART 2 - P R O D U C T S

2.1 DESIGN CRITERIA

A. Design Parameters.

a. See the attached Clarifier Data Sheet for Clarifier Design Parameters

b. Clarifier Launder: Launder trough depth - * See contract drawings

* Information to be confirmed by manufacturer.

2.2 Acceptable Manufacturers

A. Provide equipment from one of the following acceptable manufacturers.

1. McNish - Walker Process Equipment.
2. WesTech Engineering, Inc.
3. Ovivo
4. Evoqua

2.3 QUALITY ASSURANCE

A. Manufacturer's Qualifications. The scraper plow collector type secondary clarifiers to be furnished under this section of the specifications shall be manufactured by an equipment manufacturer who has furnished similar scraper plow clarifiers of the same design in a similar size or larger for a minimum of ten (10) installations.

2.4 PRODUCT DESCRIPTION

A. Components.

1. Provide two (2) scraper plow collector type secondary clarifier components for installation in two (2) concrete settling tanks, 30-foot diameter having 14-foot side water depth, 2-foot of freeboard. The tank floor shall have a 1-inch:12-inch slope. Each clarifier shall include the following:

a. Drive assembly, complete with necessary primary and secondary gear reduction units, motor, and overload protection.

b. Sludge removal truss arms with scrapers which move sludge toward a central sludge collection hopper.

c. Influent feed well and supports.

d. Bridge and walkway.

e. Surface skimmer, scum box, flush valve assembly.

f. Anchor bolts and attachments.

g. Effluent trough (launder), weirs, scum baffles, and eddy current baffle (Stamford baffle), in accordance with the manufacturer's recommendations and the requirements of Section 11281 – Weirs and Baffles.

B. Operation.

1. Scraper Plow Collector Type Clarifiers

a. The sludge collector mechanism shall utilize a center drive mounted from the bridge. The center drive shall support and rotate the two sludge rake arms, and the feedwell. The sludge rake

arms shall be stainless-steel truss construction with stainless-steel scraper blades and adjustable stainless-steel squeegees. These scraper blades shall convey settled sludge to a central sludge withdrawal hopper. The rake speed shall be sufficient to transport the necessary volume of sludge to the sludge outlet, but shall not resuspend settled solids.

2.5 DRIVE ASSEMBLY

A. General Description. The drive mechanism shall be completely factory assembled and shall consist of a solid or split internal main gear, turntable, pinion, secondary speed reducer, support base, drive unit bearing, and an overload protection device. The drive shall be mounted from the bridge and support the entire rotating load of the mechanism.

B. Design Parameters.

1. Clarifiers

a. The clarifier drive unit shall be designed for the running torque value specified and confirmed by manufacturer. The drive main bearing shall be designed for the total rotating mechanism loads with a minimum L-10 life of 50 years. The drive gear shall be designed to a minimum AGMA 5 rating when rated in accordance with AGMA 2001-C95.

b. All gearing shall be designed per AGMA standard 2001-C95 for strength and surface durability, based on a life of 175,000 hours. The design running torque rating of the drive gearing shall be based on the smaller of the two values determined from the above AGMA standard.

c. The main internal gear shall be forged of alloy hardened steel or ASTM A 536 grade 80-55-06 ductile iron. The pinion shall be heat treated alloy steel. All speed reducers shall be fully enclosed and running in grease or oil. The support base for the drive shall be of welded steel or ASTM A 48 Class 40 cast iron to assure rigidity. Oil and dust shields shall be provided. Worm gear of cast alloy bronze is also acceptable

d. The drive bearing shall include a forged steel precision gear/bearing set, with fully contoured raceways hardened to a minimum 58-60 Rc or bearing balls with 4150 strip linear heat treated to minimum hardness of 43-46 Rockwell. The drive shall be designed so that the balls can be easily replaced independent of the main gear and without removing the access walkway.

e. The main gear and pinion shall be oil lubricated. Lubrication fittings shall be readily accessible from the access bridge. Gear and bearing housings must be fitted with oil level sight glasses. Condensate drains shall be provided in the main gear housing.

f. The center drive shall be provided with connections for the center torque shaft.

g. Speed Reducing Unit.

1) The primary gear reducer shall be of either worm/worm gear, planetary, helical or cycloidal design and shall be C-face or integrally mounted to the electric motor.

2) The main ring gear of cycloidal drives shall be made of high carbon chromium bearing steel and be fixed to the drive casing. An eccentric bearing on the high speed shaft shall roll cycloidal discs of the same material around the internal circumference of this main ring gear. The lobes of the cycloidal disc shall engage successively with pins in the fixed ring gear. The movement of the cycloid discs shall be transmitted then by pins to the low speed shaft.

3) The speed reducer helical gearing shall be manufactured to AGMA standards. The speed reducer shall have a service factor of 1.40 (AGMA Class II)

4) The reducers shall be fitted with radial and thrust bearings of proper size for all mechanism loads and run in a totally submerged oil bath or be grease lubricated.

2. Overload Protection.

a. The drive unit shall be equipped with an electro-mechanical overload control device actuated by thrust from the worm shaft. The pointer shall provide a visual reading of the relative main gear output torque on a 0 to 100 percent graduated scale readable from walkway. The 100 percent reading shall equal the 100 percent drive rating. The control device shall also activate an alarm switch for warning of impending overload, a motor cutout switch for overload protection and a back-up safety motor cutout switch for back up overload protection. . The respective switches in the overload control device shall be factory calibrated and set to the following settings:

1) Alarm - 40% of scale.

2) Motor cutout - 85% of scale.

3) Back-up motor cutout or slip clutch - 100% of scale.

b. All drive control components shall be mounted in a waterproof enclosure of powder coated aluminum or stainless steel with a gasket sealed, removable cover. The pointer shall be covered with a clear plastic enclosure and shall be above the platform surface for visibility from the platform. Amperage sensing devices, devices with exposed linkage connections, or devices which react to rotational movement of an intermediate reduction unit are not acceptable.

3. Motor.

a. The motor shall be TEFC, "Severe Duty Classification for Hostile Environments," 1.15 service factor, NEMA Design B in accordance with Section 16222 – AC Electric Motors 100 HP and Below. The motor shall be designed for continuous operation in humid outdoor conditions. The power supply to the equipment shall be 460 Volt, 3 phase, 60 hertz.

b. Contractor shall provide an elapsed run time meter for the motor. The elapsed run time meter shall be 6-digit, non-resettable and sealed against dirt and moisture, 120 VAC, with indication of motor run time in hours with 1/10 hour increments.

2.6 CENTER DRIVE, INFLUENT WELL AND BRIDGE

A. Structural Members.

1. Structural steel shall conform to AISI 316/316L dual certified. stainless-steel pipe used for structural members shall conform to ASTM A312. All stainless-steel parts which are continuously or intermittently in contact with liquids shall have a minimum thickness of 1/4 inch. Connections shall be shop welded or field bolted. Field welding will not be permitted, except for the bridge splice.

2. All structural members shall be designed such that the stresses on the net section and the overall deflection of any member shall not exceed the allowable stresses and deflection as listed under AISC specifications for "Design, Fabrication, and Erection of Structural Steel for Buildings." The stress and deflection calculations for these members shall be based on the uniform distribution of the AGMA rated torque of the drive mechanism applied at the panel points of one support truss. The equipment manufacturer shall submit a written report, by a registered Professional Engineer, certifying that all stress and deflection calculations (with input data and shop drawings) have been performed using sound engineering judgment and according to good engineering practice.

3. Fabricated assemblies shall be shipped in the largest sections permitted by carrier regulations, properly match-marked for ease of erection.

B. Welding.

1. The equipment manufacturer's shop welding procedures, welders and welding operators shall be qualified and certified in accordance with the requirement of AWS D1.1, Welding in Building Construction, of the American Welding Society.

2. The equipment manufacturer's shop drawings shall clearly show complete information regarding location, type, size and length of all welds in accordance with Standard Welding Symbols, AWS A2.0 of the American Welding Society. Special conditions shall be fully explained by notes or details.

3. The Contractor's welding procedures, welders and welding operators shall be qualified and certified in accordance with the requirements of AWS D1.1, Welding in Building Construction, of the American Welding Society.

C. Center Drive Platform.

1. A center drive platform shall be provided which allows a minimum of 24-inch clearance outside the center drive components. It shall consist of 1/4-inch aluminum nonskid checkered plate with necessary stiffeners and supports, and be connected to the walkway by means that ensure dielectric isolation. The entire platform shall be surrounded by handrails 42 inches high of double-row 1-1/2 inch diameter horizontal aluminum pipe with 1/4" x 4" high kickplates. The center drive platform shall be 8-feet by 8-feet minimum.

D. Influent Feedwell.

1. The influent feedwell shall be fabricated of 3/16-inch stainless steel plate sections with bolted connections and 1/4-inch structural stainless steel trim angles top and bottom for shape and rigidity. The well shall diffuse the flow into the tank at a uniform flow-through velocity (well dimension shall be, at minimum, 10-foot diameter by 4-foot depth). Ports shall be cut into the influent well to permit the escape of entrapped scum for the clarifier. Ports shall be baffled to prevent short circuiting to the effluent weir. The feedwell shall be supported from the center shaft or from the bridge.

E. Rake Arms.

1. Each arm shall be designed to withstand 150 percent of the design running torque of the drive without over-stressing the members. Loading to develop the torque shall be considered as uniform loads applied to each arm individually.

F. Bridge.

1. An all-welded structural stainless steel access bridge, of truss or beam construction, shall extend beyond the clarifier and provide a bridge to the outer aeration basin tank walls and support the center drive. The bridge shall include a center drive platform and be designed to support, in addition to the dead load, a live load of 50 pounds per square foot, with a deflection not exceeding 1/360 of the span. A 3-foot-wide walkway, with 1-1/4″ I-bar aluminum grating between the beams, shall be provided.

2. The walkway shall be diagonally braced against lateral movement, and provided with handrails 42″ high, of double-row 1-1/2″ diameter horizontal aluminum pipe, and 1/4″ x 4″ high kickplates on both sides. Walkway trusses may serve as handrailing if the top chord is 3′-6″' above the walking surface. Use isolation kits for handrail when connecting dissimilar metals.

2.7 SLUDGE REMOVAL SYSTEM

A. Scraper Plow Collector Type Clarifiers

1. Sludge Rake Arms and Scraper Blades.

a. The mechanism shall include two sludge rake arms of stainless steel truss construction with stainless steel scraper blades and adjustable stainless steel squeegees. Squeegees shall be fastened to the rake blades with stainless steel fasteners.

b. Scraper blades shall be designed for sufficient sludge transport capacity to handle the design solids loading rate.

c. Blades shall be properly sized to ensure complete raking of the bottom twice per revolution and to convey settled sludge to the sludge withdrawal hopper.

d. The rake speed shall be sufficient to transport the necessary volume of sludge to the sludge outlet, but shall not re-suspend settled sludge.

2.8 CLARIFIER SKIMMER/SCUM BOX

A. General Description. A "full surface" skimmer shall be furnished consisting of a stationary scum baffle, rotating scum blade and skimming assembly, and scum box. The rotating scum skimmer shall include a vertical

stainless steel plate skimmer blade supported by vertical stainless steel members extending up from the rake arms. The blade shall extend tangentially from the influent feedwell to the hinged scum skimmer assembly at the tank periphery.

B. Stationary Scum Baffle. The stationary scum baffle shall be designed to trap scum as the scum blade rotates and direct the trapped scum out toward the scum box. The scum baffle shall consist of 12" deep fiberglass sections with support brackets as described in Section 11281 – Weirs and Baffles. The baffle sections shall be curved and fastened to the launder wall with adjustable support brackets, stainless steel fasteners, and anchor bolts.

C. Scum Skimmer Assembly. A hinged scum skimmer assembly shall be mounted on the outer end of the skimmer device. The hinged scum skimmer assembly shall be designed to form a pocket for trapping the scum. The hinged arrangement shall ensure continual contact and proper alignment between wiper blade, scum baffle, and ramp as the blade travels up the ramp. The wiper blade shall have a wearing strip on its outer end which contacts the scum baffle and a neoprene strip on its lower and inner edge. The neoprene wipers shall be a minimum 1/4-inch thickness. The scum is trapped as the wiper blade meets the ramp and is raised up the ramp to be dumped into the scum box for disposal.

D. Scum Box. The scum box shall be 4 feet wide, supported from the tank wall and connected to the scum withdrawal piping. It shall be made of ¼ inch thick welded stainless-steel plate to serve as an integral section of the tank's scum baffle. The assembly shall have a scum trough, vertical steel sides, and a sloping ramp. A flexible connector shall be provided for connection to the scum withdrawal piping in the tank wall.

E. Scum Flushing System. Provide a 1 ½ ” nozzle, pipe and ball valve on the scum box side accessible from the walkway. The location shall be submerged and be operated manually on the secondary clarifiers. On the clarifiers, the valve shall actuate at every pass of the of the scum skimmer over the scum box allowing sufficient delay after the deposits of solids before flushing begins. Delay and flush duration shall be adjustable. The valve shall use mechanical or hydraulic means without the use of electrical or pneumatic motors or switches.

2.9 EFFLUENT REMOVAL

A. Launder.

1. A fiberglass rectangular effluent trough shall be provided around the perimeter of the tank as described in Section 11281 – Weirs and Baffles. A dropout box shall be provided integral to the trough at one point for collection and discharge of the clarified effluent.

B. Weir. An adjustable weir shall be provided around the periphery of the tank at the water surface for removal of clarified effluent. The weir shall consist of 9" deep fiberglass sections with 2 ½ -inch deep, 90-degree V-notches on 6-inch centers as described in Section 11281 – Weirs and Baffles.

2.10 APPURTENANCES

A. Anchorage. The equipment manufacturer shall furnish all anchor bolts, nuts and associated fasteners. These items shall be of Type 316 stainless steel construction with isolation kits. The manufacturer shall furnish anchor bolt templates and related instructions.

B. Painting. Protective finishes shall be of the type specified in Section 09928 – Protective Coatings for Wastewater Systems. Painting shall not be required for stainless-steel components.

C. Launder covers. Launder covers shall be provided as specified in Section 11280 – Launder Covers.

2.11 CONTROL PANEL

A. The manufacturer shall supply a local NEMA 4X type 316 stainless steel control panel, in accordance with Section 13413 – Control Panels, for the clarifier. Configure the control panel in accordance with any applicable control diagrams in the drawings.

B. Provide conduit and wiring between control panel, motors and all field devices in accordance with applicable sections of Division 16.

2.12 CLARIFIER OPERATION

A. Provide clarifier operation in accordance with Section 13405 – Control System Operation.

PART 3 - E X E C U T I O N

3.1 DELIVERY AND STORAGE

A. Deliver, handle, store and protect all equipment in accordance with the requirements of Section 01600 – Materials and Equipment.

B. Deliver, handle, store and protect all equipment in accordance with manufacturer/supplier recommendations and/or instructions.

3.2 FACTORY TEST AND CERTIFICATION

A. All equipment to be supplied as specified herein shall be tested at the factory for correct operation. Field tests for all equipment shall be made over the component's complete operating range, from shutoff to maximum capacity. Results of all performance tests, as well as all data taken at the time of testing, shall be submitted for Owner and Owner's Representative review.

3.3 CORROSION PROTECTION

A. Shop-prime all non-stainless steel metal surfaces to allow for protective coating by Contractor.

B. Provide isolation kits where dissimilar metals would otherwise be in direct contact leading to galvanic corrosion.

C. Contractor shall be responsible for coating metal surfaces with protective coating as specified in Section 09928 – Protective Coatings.

3.4 INSTALLATION

A. Installation of the clarifier mechanisms is a part of this contract. Assemble and install the clarifier mechanisms/sludge collectors in the proposed clarifier basins in accordance with the manufacturer's instructions.

B. Contractor shall be responsible for installing all components as shown in the plans and in accordance with the manufacturer's working drawings after the drawings have been reviewed by the Owner's Representative, and the manufacturer's standard installation requirements.

C. After the equipment is installed, the alignment and installation shall be checked and approved by the factory representative in the presence of the Owner's Representative. The installation shall be rechecked and approved by the factory representative in the presence of the Owner's Representative after alignment and bolt tightening is complete.

D. Grout all foundation bolts after approval of the installation by the Owner's Representative. Two (2) inches of bonded concrete topping shall be swept on the basin bottoms using the sludge collector. Such grouting shall be done in strict accordance with the manufacturer's instructions. Provide all necessary lubricants.

E. The Contractor shall be responsible for the installation and connection of all associated control wiring between the control panel, equipment and/or Owner-required monitoring locations.

3.5 INSPECTION AND TESTING

A. Equipment shall be completely assembled, installed, painted, and approved by both the manufacturer's factory representative and the Owner's representative. The equipment manufacturer shall provide a factory-trained representative to inspect the equipment installation, supervise mechanical adjustments, conduct start-up, and supervise torque testing of the equipment. The manufacturer will submit to the Owner's Representative a written report certifying that the equipment has been satisfactorily installed, lubricated, and is ready for operation. The time and travel will be as required by the Contractor and will be in addition to the specified time for training of Owner's operating personnel.

B. Following installation approval, equipment shall be placed in operation under the supervision of manufacturer's factory representative. Manufacturer's factory representative shall subsequently provide written certification of proper equipment installation and operation to Owner and Engineer.

C. Torque Tests.

1. The equipment supplier shall perform on site field torque tests on the units to verify the design of both the drives and the mechanism. Tests shall provide proof of running torque capability and shall also verify the operation of the warning and overload shutdown systems.

2. The entire sludge collector mechanisms shall be statically load tested by individually loading each clarifier arm with 150 percent of the specified design running torque. The test shall verify the torque overload control device settings for alarm and motor cutout. Each arm shall be individually anchored, and the load measured to demonstrate the arm's, shaft, and drive unit's ability to withstand the specified torque. Sketches and calculations shall be submitted illustrating how the torque will be applied prior to the test taking place.

D. Operational Test.

1. The mechanism shall be operated in a dry tank for a minimum of 6 continuous hours before flow is allowed to enter the system. There shall be no binding, jerky or unusual motion exhibited during this run-in period. Motor amperage shall be checked at least hourly for any unusual or higher than normal figures. After the unit has successfully passed this initial test, flow shall be introduced into the tank and the same 6-hour observation test run. If the unit should fail under any of these conditions, the test shall be halted and the problem corrected. If, after several attempts, the unit does not successfully pass the field test, the faulty portion of the equipment shall be replaced at no additional cost to the Owner, and the test rerun.

3.6 START-UP AND TRAINING

A. Perform equipment start-up in accordance with the requirements of Section 01655 - Starting Systems.

B. Provide field instruction/training regarding equipment operation in accordance with the requirements of Section 01661, Instruction of Operation and Maintenance Personnel.

C. The equipment manufacturer shall provide a factory-trained representative to inspect the equipment installation, supervise mechanical adjustments, conduct start-up, and supervise torque testing of the equipment. The manufacturer will submit to the Owner's Representative a written report certifying that the equipment has been satisfactorily installed, lubricated, and is ready for operation. The time and travel will be as required by the Contractor and will be in addition to the specified time for training of Owner's operating personnel.

Clarifier Mechanism Data Sheet

Project: Pirates Beach WWTP

Service Tag Number: CL-401 and 402
Name: Clarifier #1 and #2
Manufacturer: WesTech Engineering; McNish - Walker Process Equipment; Ovivo - Eimco; Evoqua - Envirex; or approved equal

Service Conditions	
Liquid:	Mixed Liquor
Suspended Solids Concentration:	1,500 to 4,500 mg/L
Clarifier Overflow Rate (per clarifier):	Design – 0.25 MGD (147 gpm) Two hour peak – 521 gpm (0.75 MGD) With one clarifier out of service, design flow will double. A Clarifier is not intended to be taken out of service during peak flow events.
Maximum Clarifier Underflow Rate:	400 gal/(day-sq ft) per TCEQ 217 rules
Expected Underflow rate (each clarifier):	35 to 99 gal/min (70 to 200 gpd/ft2) each clarifier.
Continuous Torque Rating (per ANSI/AGMA 2001-D04) for 20-year life (ft-lbs): 80,000*	
Expected Underflow Concentration:	7,500 – 12,000 mg/L (approximate)
Fluid Temperature (degrees Fahrenheit);	Max 85 Min 55
Clarifier Location:	□ Indoor □ Heated Min Temp: 10 deg F Altitude: 5 ft ■ Outdoor ■ Unheated Max Temp: 115 deg F □ Closed Top ■ Open Top Max Temp: 115 deg F
Electrical Code Classification: Unclassified	

Design	
Clarifier Dimensions:	30 ft dia. 14 ft SWD, 2.0 ft FRBD, floor slope: 1:12*
Clarifier Type:	Bridge mounted secondary clarifiers of the scraper plow collector type
Center Column Diameter:	N/A*
Scum Box Width:	4 ft*
Motor (max):	1.0 HP*
Energy Dissipation into Feedwell:	N/A
Bridge:	Required: Shall Extend to Edge of Aeration Basin Walls as Shown on S2101. Approx. 102 LF
Sludge Rake Arms:	2*
Scum Flushing System:	Required

Drive Motor Specifications:	
Manufacturer:	*
Enclosure:	TEFC
Rated HP:	1.0 HP*
RPM:	1800*
Frame:	*
Phase/Hz/Volts: 3/60/460	

Weights and Measurements:
Total Mechanism Weight: * lbs

Other Details and Information: Include scum removal equipment. Launders, launder covers, weirs, baffles, and scum equipment to be internally mounted to straight sidewalls.

* Vendor Confirmed or Supplied Information.

END OF SECTION