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A Q U A T I C S

Addendum #4

To:	All Bidders	From:	Ken Moeller
e-mail:		Date:	Tuesday, November 19, 2024
Phone:		Pages:	6 - including this cover page
Re:	Tokay H. S. Swimming Pool Renovation	CC:	

• **Items:** These items are the add alternate list:

- 4.1 Remove the existing Paco 50 HP close-coupled pump and replace it with a new pump. If this scope does not become part of the work, please move the existing pump into the new pump pit and re-install it. Should the District proceed with the pump preplacement as an alternate, the attached specification and pump shall be utilized to replace the existing pump. See the attached catalog cut of the new pump.

END OF ADDENDUM #4



Customer :
Project name : ASC PUMP

Pump Performance Datasheet

Encompass 3.0 - 24.3.4

Item Number / Tags	: 001	Size	: 3801 - 8x10x13.5
Service	:	Stages	: 1
Quantity	: 1	Based on curve number	: 3800_8x10x13.5_1200
Quote number	: 416524	Basic model number	: 8x10x13.5 3800 1800-CL
		Date last saved	: 18 Nov 2024 2:50 PM

Operating Conditions

Flow, rated	: 1,422.0 USgpm
Head, rated (requested)	: 60.00 ft
Head, rated (actual)	: 60.63 ft
Suction pressure, rated / max	: 0.00 / 0.00 psi.g
NPSH available	: Ample
Site Supply Frequency	: 60 Hz

Performance

Speed criteria	: Synchronous
Speed	: 1200 rpm
Impeller dia.	: 12.19 in
Impeller diameter, maximum	: 13.50 in
Impeller diameter, minimum	: 10.00 in
Efficiency	: 77.91 %
PEI (CL)	: 0.91
NPSH required / margin required	: 6.44 / 0.00 ft
nq (imp. eye flow) / S (imp. eye flow)	: 48 / 208 Metric units
Minimum Continuous Stable Flow	: 951.8 USgpm
Head max.	: 69.48 ft
Head rise to shutoff	: 15.79 %
Flow, best eff. point	: 2,067.3 USgpm
Flow ratio, rated / BEP	: 68.78 %
Diameter ratio (rated / max)	: 90.28 %
Head ratio (rated dia / max dia)	: 75.66 %
Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010]	: 1.00 / 1.00 / 1.00 / 1.00
Selection status	: Acceptable

Liquid

Liquid type	: Water
Additional liquid description	:
Solids diameter, max	: 0.00 in
Solids size limit	: 0.34 in
Solids concentration, by volume	: 0.00 %
Temperature	: 68.00 deg F
Fluid density	: 1.000 / 1.000 SG
Viscosity	: 1.00 cP
Vapor pressure, rated	: 0.34 psi.a

Material

Material selected	: Standard
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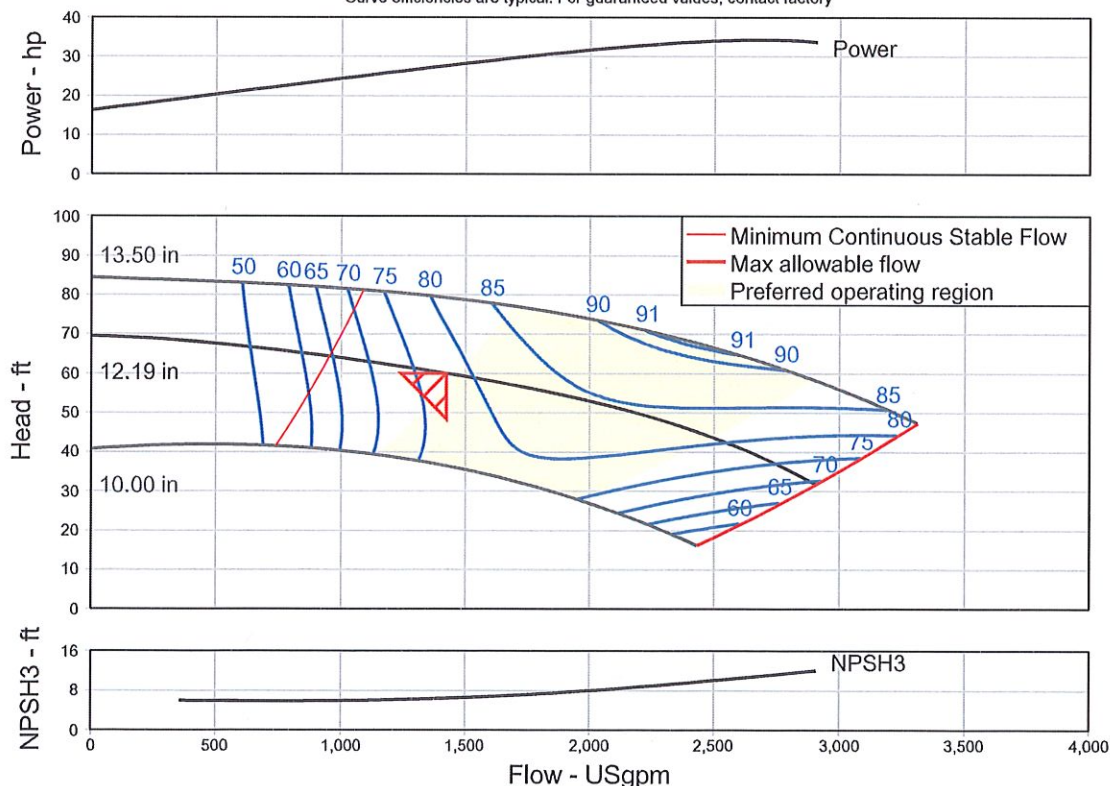
Pressure Data

Maximum working pressure	: 30.07 psi.g
Maximum allowable working pressure	: 175.0 psi.g
Maximum allowable suction pressure	: 175.0 psi.g
Hydrostatic test pressure	: 125.0 psi.g

Driver & Power Data (@Max density)

Driver sizing specification	: Max Power
Margin over specification	: 0.00 %
Service factor	: 1.25
Power, hydraulic	: 21.54 hp
Power, rated	: 27.65 hp
Power, maximum	: 34.28 hp
Motor rating	: 40.00 hp / 29.83 kW

Curve efficiencies are typical. For guaranteed values, contact factory



ASC PUMPING EQUIPMENT, INC - RICHFIELD WI
· WEST BEND, WI

PHONE: · FAX:

CENTRIFUGAL LIQUID PUMPS – HORIZONTAL END SUCTION SPECIFICATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. High Service Pumping Unit of the horizontally mounted, centrifugal, close coupled end suction type. The pumping unit specified in this section is only applicable for the recirculation pump.

1.02 REFERENCES

- A. American Iron and Steel Institute (AISI): Steel Products Manual
- B. American National Standards Institute (ANSI).
- C. American Society for Testing and Materials (ASTM): A48, ASTM A 108, ASTM A 216, ASTM A 276, ASTM A 278, ASTM A 536, ASTM A 743, ASTM A 744
- D. Hydraulic Institute Standards for Centrifugal, Rotary, and Reciprocating Pumps (HI).
- E. National Electrical Manufacturer's Association (NEMA).
- F. National Fire Protection Agency (NFPA). 70, National Electric Code.
- G. International Standards Organization (ISO): Standard 9001.

1.03 SUBMITTALS/PRE-APPROVAL

- A. Shop Drawings:
 - 1. See Sections XXX – Administrative Requirements for submittal procedures.
 - 2. Product technical data including:
 - a. Performance data and curves with flow (gpm), head (FT), horsepower, efficiency, and NPSH requirements.
 - b. Pump motor.
 - c. Bearing supports shafting details and lubrication provisions.
 - d. Pump accessory data.
 - 3. Certifications:
 - a. Certified pump performance curve(s).
 - b. Statement relative to installation and start-up (s).
 - c. Certificate of conformance signed by a company officer stating that materials comply with specifications. The certification shall be on the manufacturer's letterhead.
- B. Operation and Maintenance Manuals:
 - 1. See Sections XXX – Project Closeout for requirements for operation and maintenance manual submittals.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Pump(s) shall be centrifugal horizontal end-suction design and base mounted.
- B. Pump(s) shall be of the back pullout design, single stage, and capable of servicing without disturbing piping connections.

2.02 ACCEPTABLE MANUFACTURERS

- A. The pump (s) specified shall be a model of standard equipment that the manufacturer produces.
- B. The manufacturer shall have at least 15 years of manufacturing experience of such product.
 - 1. Aurora Pump – by ASC Pumping Equipment Inc. 145 West Progress Drive, West Bend, WI 53095

2.03 DESIGN CONDITIONS

- A. All pump(s) shall be approved by NSF 50.
- B. The following have been pre-approved:
 - 1. Aurora Series 3800 Single Stage End Suction (3801-8x10x13.5)

2. Rated at 1,422 GPM
3. 60 TDH
4. 1.200 RPM
5. 40 HP
6. 84.17 percent efficient
7. NPSH 9 ft.
8. Vertical 3801 pump shall be provided with a discharge-reducing elbow by ASC pumping.
9. All wetted surfaces shall receive epoxy coating.
10. Vertical pumps shall be supplied with a 316SS pedestal for vertical mounting.

2.04 MATERIALS

- | | | |
|----|-------------------------|---------------------|
| A. | Casing, Volute Cover: | Ductile Iron |
| B. | Impeller: | 316 SS |
| | 1. Impeller Screw, Key: | 316 Stainless Steel |
| C. | Shaft: | 316 Stainless Steel |
| | 1. Shaft Sleeve: | 316 Stainless Steel |
| D. | Mechanical Seal: | Ceramic, etc. |
| E. | Seals and O-Rings: | Nitrile |

2.05 ACCESSORIES

- A. Provide 316SS Motor and Pump Nameplate with design conditions on each unit per DOE Requirements.
- B. CNC shall engrave the pump nameplate on a 316SS data plate.

2.06 FABRICATION

- A. Suction and Discharge:
 1. Size suction and discharge connections to reduce hydraulic friction losses, turbulence, and pipe noise.
 2. Design for straight-through nut-and-bolt flange connections suction & discharge.
 3. Vertical pumps shall be supplied with a 316SS pedestal for vertical mounting.
- B. Casing:
 1. All suction and discharge ports shall be a flat-faced flange with bolt-through flange connections.
 - a. Flange connections shall be ANSI 125# rated with suction and discharge gauge tapings.
 2. The casing shall have tapped and plugged holes for priming and draining.
 3. The casing bore shall be large enough to allow "back pullout" of the impeller without disturbing the casing or suction and discharge piping.
 4. casing feet shall support the casing to avoid pipe strain.
- C. Impeller:
 1. The impeller shall be of the enclosed type, precision/vacuum cast.
 2. The impeller shall be dynamically balanced.
 3. The impeller will be keyed to the shaft and fastened with a washer, gasket, and cap screw.
 4. It shall be finished all over, the exterior being turned, and the interior finished smooth and cleaned of all burrs, trimmings, and irregularities.
- D. Shaft:
 1. The motor shaft shall be 316SS – preserve mounting in same plane & back pull-out.
 2. The impeller shall be keyed and fastened to the motor shaft.
 3. The motor shaft shall be machined to provide a keyway and drilled and tapped to accept the impeller fastener.
 4. The shaft shall have a maximum deflection of 0.002 inches at the seal face.

- E. Shaft Sleeve:
 - 1. To minimize shaft wear, The pump shaft shall be fitted with a 316SS shaft sleeve.
 - 2. An O-ring seals the sleeve to the impeller hub and positively drives it to the keyway.
 - 3. Mechanical seal. The use of adhesive compounds to fasten the sleeve to the shaft shall not be accepted.
- F. Mechanical Seal
 - 1. Shaft sealing shall be accomplished using a mechanical seal with a Ni-Resist seat, carbon washer, Buna-N elastomers, and stainless-steel metal parts.
- G. Motor:
 - 1. The motor shall be in accordance with the latest NEMA-JM Standards and shall be totally enclosed fan-cooled (TEFC). NEMA –JP configurations shall only be used on large pumps (Aurora 6x8x13.5 & 8x10x13.5).
 - 2. Each motor shall have a sufficient horsepower rating to operate the pump at any point on the pump's head-capacity curve without overloading the motor's nameplate horsepower rating, regardless of service factor.
 - 3. **The motor shall have a service factor of at least 1.15.**
 - 4. The service factor is reserved for variations in voltage and frequency.
 - 5. The motor shall be rated for use on a Variable Frequency Drive (VFD) per NEMA MG1, Part 31
 - 6. Motors shall include the following features:
 - a. Motors shall have 316SS shaft
 - b. Motors shall come equipped with an internal shaft grounding brush.
 - c. Motors Frames 326 and below shall have removable feet to achieve F1, F2, & F0 **field convertible** conduit box position.
 - d. Motor Conduit box shall have NPT threaded entry
 - 7. The pump and motor must be mounted on the same plane and preserve the back-pull-out design. - - **A 316SS MOTORIZER shall be supplied when the pump mounting feet and motor feet do not align in the horizontal configuration.**
- H. Bearings:
 - 1. 100,000 hour life.
- I. 8" diameter to 10" diameter Street "L" epoxy coated inside and out will be required to mate with the pump – verify size with pump supplied and connection to pool piping required.

2.07 PAINTING / COATING

- A. Interior: All Ductile Iron wetted surfaces shall be Scotchkote™, 134 Fusion Bonded, baked on epoxy coating, or approved equal.
- B. Exterior: Prime and coat the exterior of the pump and motor housing with a coating system suitable for the pump's intended environment. In coating selection, consider that the pump should be located outside year-round, even though there is no direct sunlight. It is actually inside in an environment that will be in a high-moisture location that contains chlorine.

2.08 EXAMINATION

- A. The contractor or Manufacturer shall off-load equipment at the installation site using equipment of sufficient size and design to prevent injury or damage.
- B. Immediately after off-loading, the Contractor or Manufacturer shall inspect the complete pump and appurtenances for shipping damage or missing parts.
- C. Validate all pump serial numbers and parts lists with shipping documentation.
- D. Notify the Manufacturer's representative of any unacceptable conditions noted with the shipper or materials delivered.

2.09 ELECTRICAL REQUIREMENTS

- A. Phase, frequency, and voltage are indicated on the Drawings and should be double checked with site conditions and the pump manufacturer. (230/460-60Hz, 93.65/46.82 FLA, 64.1% EFF, service factor of 1.15 @ 208v is 103.554. 40HP at 1,180 RPM – 3 phase)
- B. ASC PUMP wet end, 3801-8x10x13.5 flow rated at 1,422 gpm @ 60ft, TDH, 84.17% efficient NPSH 7.34, 40 HP single stage vertical pump, 208/230v, 3 phase TEFC.

3.01 INSTALLATION

- A. Install, level, align, shim, and lubricate the pump(s) as indicated on the project drawings. Installation must be per the written instructions supplied by the pump manufacturer at the time of delivery.
- B. Suction pipe connections must be vacuum-tight, and fasteners at all pipe connections must be tight. Install pipe with supports and thrust blocks to prevent strain and vibration on pump piping. Install and secure all service lines (level control, air release valve, or pump drain lines) as required.
- C. Check motor and control data plates for compatibility with site voltage. Install and test the station ground before connecting the line voltage to the control panel.
- D. Check all wiring for tight connections before applying electrical power to any motors or control equipment. Verify that protective devices (fuses and circuit breakers) conform to project design documents. Manually operate circuit breakers and switches to ensure operation without binding. Open all circuit breakers and disconnects before connecting utility power. Verify line voltage, phase sequence, and ground before actual start-up.
- E. After all anchor bolts, piping, and control connections are installed, and the grout dam in the pump station base is filled with non-shrink grout.

3.01 OPERATIONAL TEST(S)

- A. Before the District accepts, an operational test of all pumps, drives, and control systems shall be conducted to determine if the installed equipment meets the purpose and intent of the Project Specifications.
- B. Tests shall demonstrate that all equipment is electrically, mechanically, structurally, and otherwise acceptable; safe and in optimum working condition; and conforms to the specified operating characteristics.

3.03 WARRANTY

- A. Provide a 5-year warranty covering material and workmanship.
- B. NSF certified.
- C. Pump and VFD must be started at the same time.

END OF SECTION