

RESOLUTION NO. R-127-23

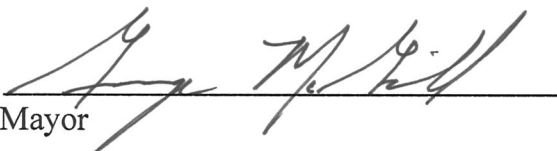
RESOLUTION ACCEPTING THE BID OF INSTRUMENT AND SUPPLY AND  
AUTHORIZING PROCUREMENT OF A SPARE PUMP FOR THE  
MILL CREEK WASTEWATER PUMP STATION

BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE CITY OF FORT  
SMITH, ARKANSAS, that:


The bid of Instrument and Supply in the amount of \$119,993.00 for procurement of a  
spare pump necessary for the Mill Creek Wastewater Pump Station, is hereby accepted.

This Resolution adopted this 11<sup>th</sup> day of July 2023.


APPROVED:

  
\_\_\_\_\_  
Mayor

ATTEST:

  
\_\_\_\_\_  
City Clerk

APPROVED AS TO FORM:

  
\_\_\_\_\_  
npr



## MEMORANDUM

**TO:** Carl E. Geffken, City Administrator  
**CC:** Jeff Dingman, Deputy City Administrator  
**FROM:** Lance A. McAvoy, Director of Water Utilities  
**DATE:** June 26, 2023  
**SUBJECT:** Spare Pump Procurement for Mill Creek Wastewater Pump Station

### SUMMARY

The original Mill Creek Wastewater Pump Station, built in 1965, was replaced in 2016. The new design included a wet well configuration with 5-submersible pumps; 2- dedicated dry weather pumps (Nos. 4 & 5 in Exhibit 1) and 3 wet weather service pumps (Nos. 1, 2 & 3 in Exhibit 1). Dry weather pumps are smaller 8" Model D5435MV Fairbanks Nijhuis whereas the wet weather pumps are larger 16" Model D5731MV Fairbanks Nijhuis. Dry weather flow is typically pumped to the city's P Street Water Reclamation Facility through the 30" force main whereas the wet weather flow is temporarily pumped into a concrete equalization tank located onsite at the Mill Creek Pump Station. The current layout also enables one wet weather service Pump (No. 3) to act as a swing pump allowing flow to either be sent to P Street (dry weather mode) or to the storage tank (wet weather mode) by manipulation of some valves. This allows the swing pump to act as a standby for the dry or wet weather pumps.

Utility maintenance team noticed over time operating in the swing pump configuration results in recurring breakdowns of the swing pump. The last failure report from the vendor examining the pump indicated several repairs were required and restoration costs equivalent to that of purchasing a new pump. Consequently, before proceeding with an expensive new wet weather pump purchase (approx. \$150,000), Hawkins-Weir Engineers, Inc. was engaged to perform an evaluation of current mill creek pump design and sizing. Hawkins-Weir Engineers, Inc. completed hydraulic analysis and established required pump run speeds to ensure system head curves stay in preferred operating regions for both dry and wet weather conditions. Some of the recommendations by Hawkins-Weir Engineers, Inc. have already been implemented in the SCADA. However, preliminary cost estimate to replace the existing swing pump manufacturer from Fairbanks Nijhuis to the recommended Flygt pump is exceedingly costly: approx. \$900,000 for one pump and some actuated valves.

After internal deliberations, in an effort to prevent further costly repairs / replacement, management determined not to utilize the swing pump functioning capability of the station leaving No. 3 location vacant, (without a pump). However, this will impact the availability of an alternative for dry weather pumping conditions in the event of a failure of either of the two dry weather pumps. Also, normally, dry weather pumps operate much longer than wet weather pumps and as such have a higher probability of experiencing maintenance issues.

The table below specifies the approximate annual run time for both pumping conditions in the year 2022:

	<u>Dry Weather Pumps</u>	<u>Wet Weather Pumps</u>
Total 2022 Run Time (in Hours)	7,512	769

Purchasing one shelf spare dry weather pump (rather than replacing a failed wet weather pump), would be the most cost-effective option and will satisfy most pump station requirements at this time. The quote from Instrument & Supply, Inc is included for your review. Instrument & Supply equipment is the sole authorized distributor for the pump manufacturer Fairbanks Nijhuis in Arkansas. As this will be a direct replacement pump, no other pricing information was obtained. The cost for the pump only is \$110,993.00; existing guide rails and accessories will be reused. Funds for this purchase were included in the 2023 Utility Building and Station Maintenance Equipment budget (56260000 – 527200). The pump needs to be purchased prior to July 14th to lock in the current price, a 5% price increase is planned for July 14th.

Please contact me should you or members of the Board have any questions or desire additional information.

### **ATTACHMENTS**

1. [Spare\\_Pump\\_Mill\\_Creek\\_Resolution.pdf](#)
2. [Exhibit Instrument and Supply Quote Mill Creek Dry Weather Pump Replacement.pdf](#)
3. [Exhibit Pump Station 2 Mill Creek Wet Well Plan.pdf](#)

*FISCAL IMPACT:* \$110,993.00  
*BUDGET INFORMATION:* Budgeted / Water Utilities - Building and Station Maintenance Equipment 2023 Operating Budget



Instrument & Supply, Inc.

*P.O. Box 1679, Hot Springs, AR 71902  
141 Technic Circle (71901)  
Phone: 501-262-3282 Fax: 501-262-4847*

June 23, 2023

Mr. Rahul Thukral, P.E.  
Fort Smith Utility Dept.  
801 Carnall Avenue, Ste. 500  
Ft. Smith, AR 72901

**Re: Replacement Pump  
S/N 2402095-0**

Dear Rahul:

Instrument & Supply, Inc. is pleased to quote the following for your review:

One (1) Fairbanks Nijhuis 8", Model 5430, 125 HP, 3 phase vertical solids handling pump.  
Condition: 3472 gpm @ 79' TDH, 1190 rpm,

**Pump Information:**

- Replacement Pump: Fairbanks Nijhuis Replacement
- Replacement Pump Type: Exact Hydraulic and Dimensional Duplicate
- Replacement Pump Serial Number: 2402095-0
- AE Review of Replacement Pump: AE review and approval is required prior to ordering a replacement pump. Pricing may vary upon AE review.
- Selection Criteria: Impeller diameter of 16.25 inch set by user
- Flow: 3472.00 USgpm
- Head: 79.00 Ft
- Impeller Diameter: 16.25 inch
- Impeller Design: TAKE5N
- Pump Speed: 1190 RPM
- Liquid Pumped: Water
- Max Solids Diameter: 5 in
- Pump Configuration: 5430 MV - Basic Pump with Centerline Volute
- Product: 8 inch Model D5435 MV pump; 125 HP, 3 phase motor
- Closed Loop Cooling: No
- Rotation: Clockwise Rotation
- Discharge Position: Discharge Position 1

**Coating:**

- First Coat Color

**Motor:**

- Motor Listing: UL
- Total Motor Cable: 60 Feet of Power and Control Cable Total

**Pump Options:**

- Dynamic Balance: Dynamic Balance
- Sealing: Mechanical Seal with Stainless Steel Sleeve

**Materials of Construction:**

- Pump Material: Standard Fitted
- Casing Material: Cast Iron, A48-CL30

- Impeller Material: Cast Iron, A48-CL30
- Shaft Material: Stainless Steel
- Case Wear Ring Material: Stainless Steel Case Wear Ring, 300-350
- BHN
- Impeller Wear Ring Material: Stainless Steel, A743-CA40, 300-350 BHN
- Impeller Fastener Material: Standard Material

#### **Pump Options:**

- Impeller Type: Standard Two Vane Impeller

#### **Certifications:**

- Documentation Email Address

#### **\*Configuration – Pump Information - Parameters**

- Base/Discharge Elbow: Standard Discharge Elbow - Cast Iron 8" x 10"

#### **\*Lifting Assembly:**

- Intermediate Guide Rail Bracket: Stainless Steel Intermediate Guide
- Bracket for 12" riser pipe size
- Top Guide Rail Bracket: Stainless Steel Top Guide Rail Bracket

#### **Motor:**

- Driver Type: Variable Speed
- Motor Duty: Short Time Duty in Air
- Motor Manufacturer: Fairbanks Nijhuis
- Motor Horsepower: 125 HP
- Motor Frame: 365
- Motor Speed: 1200 RPM
- Motor Phase: 3 Phase
- Motor Frequency: 60 Hz
- Motor Voltage: 460 Volts
- Motor Service Factor: 1.00
- Motor Enclosure: Explosion Proof
- Standard Motor Cable: 25 Feet of Power and Control Cable Included
- Specify Additional Motor Cable Amount: 35 Feet of Extra Power and Control Cable
- Motor Cable: Additional 35 feet of power and control cable
- Inner Motor Sealing: Inner Mechanical Seal, Carbon Rotating Face on Ceramic Stationary Face
- Outer Motor Sealing: Outer Mechanical Seal, Silicon Carbide Rotating Face on Tungsten Carbide Stationary Face
- Motor Insulation: Inverter grade motor insulation, Class F
- 

#### **Coating:**

- Number of Coats (per pump): 1 coat per pump
- Surface Prep: SSPC-SP10, Near White Metal Blast Cleaning
- First Coat: Belzona 1341 - Gray of Blue, Interior of Volute, pump side of lower bearing housing and gland, and exterior of impeller. - C230574 -
- RCLARK - 03.20.2023
- First Coat Color: Special

#### **Weight:**

- Product Weight: 3430 lbs

**User Added Special Options:**

\*Intermediate Bracket is for 14" riser in lieu of 12"

- Impeller to be Ductile Iron Material in lieu of cast iron.
- External coating of pump, motor to be 2 coats of Themec N140 -
- 35GR BLACK - Surface Prep - SSPC-SP10

\$101,364.00 Each  
Taxes \$ 9,629.58  
Total \$110,993.58

Freight allowed.

\* Deduct for omitting the following:

- Base/Discharge Elbow: Standard Discharge Elbow - Cast Iron 8" x 10"
- Intermediate Guide Rail Bracket: Stainless Steel Intermediate Guide
- Bracket for 12" riser pipe size
- Top Guide Rail Bracket: Stainless Steel Top Guide Rail Bracket
- Intermediate Bracket is for 14" riser in lieu of 12"

\$ 8,850.00  
Taxes \$ 840.75  
Total \$ 9,690.75

**TERMS**

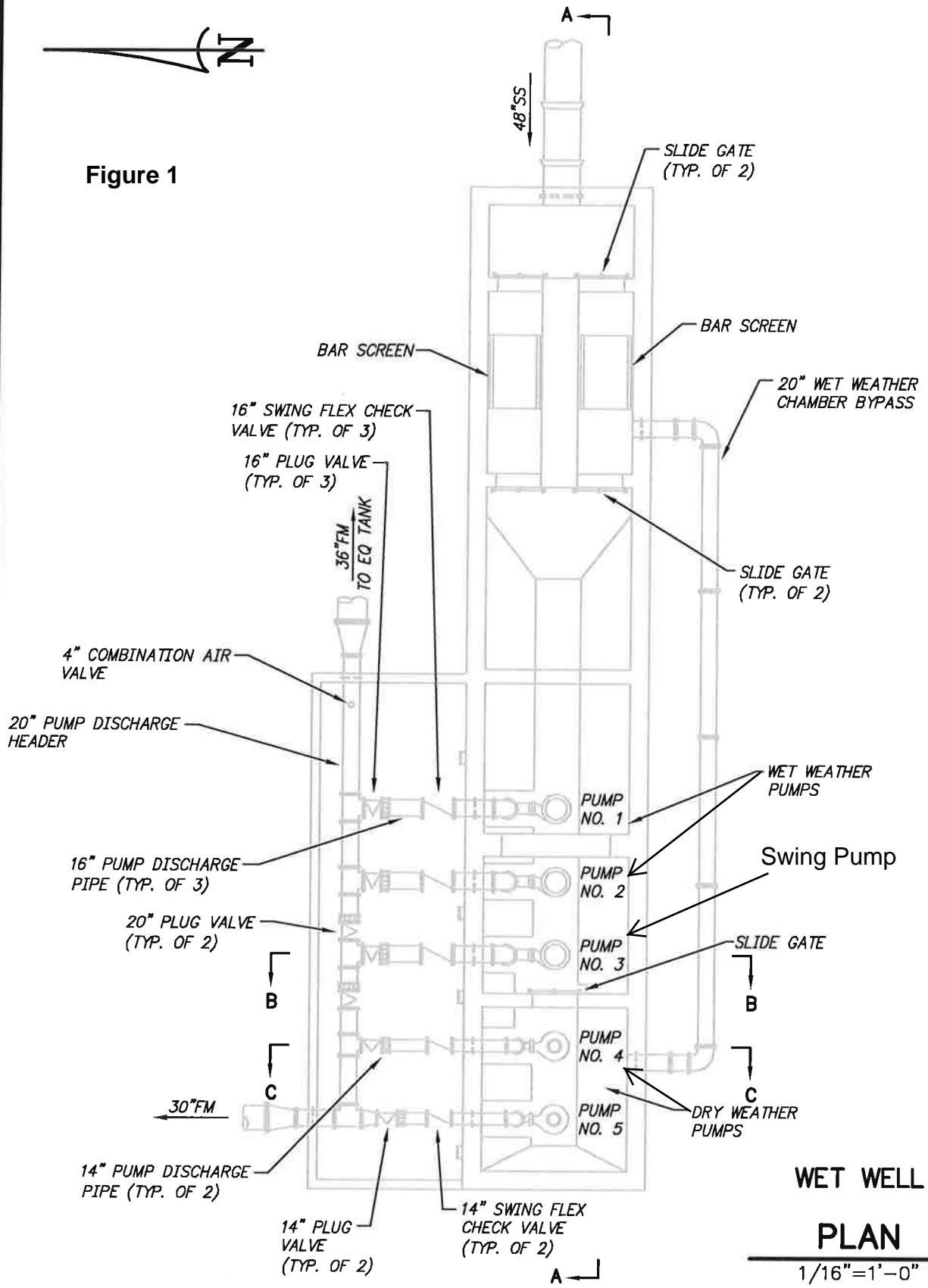
This proposal represents our best interpretation of plans, specifications, or design conditions. It remains the purchaser's responsibility to verify quantities and compliances. Backcharges will not be accepted unless we have been notified in writing prior to work being done. Prices are F.O.B. factory with full freight allowed to jobsite. Applicable sales taxes and installation costs must be added to all quoted prices. Prices are good for 30 days from bid date. Payment terms are Net/30 days. A penalty equal to the maximum allowable interest rate will be applied to overdue accounts.

Sincerely,

Paul T. Selig, P.E.  
Vice-President

PTS/arh

Figure 1



**WET WELL  
PLAN**

1/16" = 1'-0"