

# CITY OF HIGH POINT

## AGENDA ITEM



**Title: Eastside Primary Sludge Pumps  
6 -Inch Penn Valley Double Disc Pumps**

**From:** Terry Houk – Public Services Director  
Derrick Boone – Asst. Director Public Services  
Dawn Molnar- Eastside WWTP Superintendent

**Meeting Date:** May 18, 2020

**Public Hearing:** No

**Advertising Date:** N/A  
**Advertised By:** N/A

**Attachments:** Attachment A – Quote  
Attachment B- Sole Source Letter

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### **PURPOSE:**

Sole source purchase of two 6-inch Penn Valley Double Disc Pumps for the Eastside Wastewater Treatment Plant (WWTP).

### **BACKGROUND:**

The Eastside WWTP has five Peristaltic Primary Sludge Pumps (PSPs). The peristaltic pumps are costly to maintain (approximately \$8000.00 dollars per pump per year) and can no longer handle the increased solids loading coming into the plant. The Eastside WWTP has researched various types of pumps for handling high solids concentrations and have determined that the double disc pump would be most beneficial in pumping the sludge from the primary clarifiers. The double disc pump design requires minimal maintenance and is less expensive to maintain than the peristaltic pump. The Eastside WWTP is currently using the pump on a 60-day trial basis and the pump has performed to all criteria specified by the City, including pumping 5% solids. The current plan is to replace the remaining peristaltic pumps over the next couple of years.

### **BUDGET IMPACT:**

Funds for this project are available in the FY 2019-2020 budget.

### **RECOMMENDATION / ACTION REQUESTED:**

City Council is requested to approve the sole source purchase of two 6-inch Penn Valley Double Disc Pumps for \$64,283.00 to Penn Valley Pump, Co Inc.



Existing Primary Sludge Peristaltic Pumps



6" Penn Valley Double Disc Pump- Installed for trial testing in the Primary Clarifier Building



**Penn Valley Pump Co., Inc.**

998 Easton Road • Warrington, PA 18976

Ph: 215-343-8750 • Fax: 215-343-8753

[www.pennvalleypump.com](http://www.pennvalleypump.com)

April 23, 2020

Dawn Molnar  
City of High Point  
P.O. Box 230  
High Point, NC 27261

Subject: Sole Source Letter

Dear Ms. Molnar.

We confirm that Penn Valley Pump Co. Inc., located at 998 Easton Road, Warrington, PA is the sole manufacturer for the patented Double Disc Pump technology. The pump is a reciprocating positive displacement pump design based on a non-captive, free-disc technology.

We are the only source provider for new equipment, factory authorized spare parts and repairs for such equipment.

The product is manufactured at our facility in Warrington, PA and all spare parts are kept on the shelf for immediate shipment.

We appreciate your consideration of the above. Please feel free to contact me should there be any questions or additional information be required.

Sincerely,  
PENN VALLEY PUMP CO., INC.

Preston Campbell  
Vice President – Sales

Cc: File





The World Leader in Free-Disc  
Pumping Technology



<b>To: Dawn Molnar - Plant Supt</b> <b>City of High Point</b> <b>5898 Riverdale Drive</b> <b>Jamestown, NC 27282</b>	<b>Date: 04/23/2020</b>	<b>Quote No: 13123 Rev 3</b>
	<b>Project: Eastside WWTP</b>	
	<b>Quoted by: Preston Campbell</b>	

Qty	Description	Unit Price	Total Price
	<b>Application: Primary Sludge Transfer, up to 5% solids</b>		
	<b>Duty: 225GPM @ 50ft TDH</b>		
	<b>Suction: Assumed flooded (suction line conditions to be verified)</b>		
2	6" Model 6DDSX107CNU-MK1 Penn Valley Double Disc Pump™ unit: <ul style="list-style-type: none"><li>• 6" ASA/ANSI 150# flanged suction and discharge connections</li><li>• Cast iron housing and neoprene elastomers</li><li>• Maintain-in-place hinged housing design for ease of maintenance</li><li>• Two-piece swan neck design with full port rigid clack valve</li><li>• 10HP, 1160RPM 230-460/3/60 Severe duty, inverter ready motor</li><li>• 225RPM Max pump speed achieved with V-belt and pulley drive</li><li>• Suction and Discharge pulsation dampeners</li><li>• 304SS Welded base with OSHA approved guards and covers</li><li>• Pump and dampeners coated with industrial primer and topcoat</li><li>• Per drawing PVD769 Side motor mount</li></ul>	\$25,900.00	\$51,800.00
2	Custom direct entry suction connection and 6" flanged spool section to match existing piping centerline height.	\$550.00	\$1,100.00
2	4" flanged spool piece with approximately w/ 2.5" offset. (Length and offset to be confirmed by field measurement once pump is installed)	\$475.00	\$950.00
2	Model PVP420VSM Suction vacuum switch assembly consisting of: 1" NPT SS316 sensor with EPDM sleeve, NEMA 4X adjustable switch w/ <u>manual reset</u> , set at 10"Hg and 4" (30"Hg - 30psi) SS gauge. Mounts to top of dampener to provide indication of high vacuum condition. (Must be wired back to controls shut pump down upon high pressure)	\$1,100.00	\$2,200.00
2	Model PVP420PSM Discharge pressure switch assembly consisting of: 1" NPT SS316 sensor with EPDM sleeve, NEMA 4X adjustable switch w/ <u>manual reset</u> , set at 30psi and 4" (0-100psi) SS gauge. Mounts to top of dampener to provide protection against over pressurization. (Must be wired back to controls shut pump down upon high pressure)	\$1,100.00	\$2,200.00
2	GA Ludlow 4" flanged check valves, spring assisted, cast iron body	\$1,254.00	\$2,508.00
2	Days of start-up and training services (one-trip)	\$1,300.00	\$2,600.00
1	Estimated transport to site. Estimated weight of shipment is 3,200 lbs.	\$925.00	\$925.00
	<b>Total:</b>		<b>\$64,283.00</b>



The World Leader in Free-Disc  
Pumping Technology



**Commercial Information:**

1. Shipment is 6 – 8 weeks after receipt of purchase order or approved submittals.
2. Submittals, if required, are 2 – 3 weeks after receipt of purchase order.
3. Freight terms are F.O.B. Factory, Warrington, PA with freight allowed to jobsite.
4. Terms are Net 30 days after receipt of invoice.
5. Quotation is valid for 120 days from date of issue.
6. Warranty is two (2) years from date of shipment for manufacturer's defects in materials and workmanship.

**The following items have not been included:**

- Installation
- Foundations, anchor bolts, grouting and foundation design
- Motor starters, Variable Frequency Drives (VFD's) or Controls



## Design Notes

- **Suction Piping Design:** It is imperative that the application has a properly designed suction piping system based on the hydraulic conditions. The importance of a properly sized system cannot be over emphasized. Most pump operational problems and pump failures are created by improper suction line conditions. The length and diameter of the suction line along with the static suction conditions must be provided to ensure pump(s) are properly sized. The system must be designed for the maximum flow if multiple pumps will operate simultaneously through common suction piping. PVP will run the appropriate calculations and verify the application.
- **Piping:** All piping should be independently supported near the pump so that pipe strain will not be transmitted to the pump. The use of pipe hangers/supports must rigidly support and laterally brace the piping to prevent pipe movement. Adequate support and bracing close the pump is the best method to prevent pipe movement. We do **NOT** recommend the use of flexible connections/expansion joints on the suction and discharge connections of the pump. Our long-term experience has found these items do not reduce vibration, but rather can allow pipe movement since the connections are not rigid. To maximize the pump's "Maintain-in-Place" design the suction flange should be attached rigidly to the suction piping. The use of slip joints and mechanical pipe joining systems (i.e. Victaulic style) is also highly discouraged. These mechanical systems do not provide the same rigid connections as traditional flanged piping systems. These mechanical systems can be difficult to properly brace leading to pipe vibration issues. If mechanical piping joining systems will be used, the engineer, contractor or owner must ensure the manufacturer's installation method for rigid pipe cutting and coupling connections is strictly adhered to.
- **Check Valves:** The use of check valves is required when there are multiple double disc pumps connected to a common discharge line or the pump will be installed on a common discharge line with other styles of pumps. If a check valve is required for the application, we recommend an elastomer "swing-flex" style. The use of spring or weighted styles should be avoided as they can create vibration, create noise and can begin to leak at the shaft protrusion through the housing over time.
- **Low or No Discharge Head:** Very low or no discharge pressure applications (negative head, downhill flow) may require the introduction of artificial head to ensure proper pump operation and prevent siphoning. The creation of artificial head can be achieved by: 1) elevating discharge piping above suction source high liquid level elevation and installing anti-siphon valve, 2) installing a back-pressure valve as provided by PVP or 3) installing mechanically/pneumatically actuated pinch valves. PVP will verify the requirement for these devices based upon a review of the hydraulic conditions at time of quotation generation.
- **Motors:** Our standard motor is a Toshiba EQP Severe Duty NEMA Premium efficiency. This motor is inverter rated and exceeds NEMA MG31 Part 31 and suitable for 20:1 constant torque turndown range. Motor is suitable for Cl 1, Div 2 GRP A, B, C, D/Zone. Other motors and accessories are available such as: thermal overload, space heaters and motor shaft grounding rings.
- **Controls:** The double disc pump can be operated by a motor starter for constant speed applications or a variable frequency drive (VFD) for variable speed applications. If using a motor starter, we recommend a soft-start feature to allow the pump speed to ramp up to maximum operating speed to minimize start-up pressure spikes. This feature is especially important on long suction and/or discharge lines. If using a VFD (recommended option) the unit must be sized as heavy duty for constant torque applications. This may mean the horsepower of the VFD has to be one size larger than the motor size. A drive that is undersized may experience DC bus issues requiring the addition of dynamic braking resistors.
- **Vacuum and Pressure Switch/Gauge:** You will normally find these items are included in our quotation. The vacuum switch provides indication of a potential clogging issue that can be flushed or cleaned before it is too hard to remove. The discharge pressure switch is required (all positive displacement pumps require one) to prevent pump damage due to over pressurization if the pump is operated against a high pressure line, closed valve or clogged line.