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Telephone (856) 235-7170 • Fax (856) 273-9239 • www.erinj.com

June 28, 2019

44000 00

Re: Sewer Plant Valve Maintenance  
Borough of Palmyra

Mr. John Gural, Borough Administrator  
20 West Broad Street  
Borough of Palmyra, NJ 08065

Dear John:

As you are aware from our discussions, the events that occurred several weeks ago that resulted in the overflow of the Equalization Tank (EQ) at the Sewer Plant (Plant) have revealed several issues that remain to be addressed. These issues relate to valves that are not functioning properly and, therefore, are not allowing certain equipment to be isolated for required repairs. While some of these issues can be delayed and incorporated into the 2020 maintenance contract and budget, some cannot without potential serious consequences: meaning another raw sewage overflow and discharge permit noncompliance.

By way of background, the Plant has three (3) sources of influent, all forcemains that direct flow to the EQ Tank. These sources are the Riverfront Pump Station, Korman Pump Station and Berkley Avenue Pump Station. The EQ Tank functions as a storage tank absorbing the high and low flows into the Plant, essentially "equalizing" the flow rate through the subsequent treatment processes allowing them to work at peak efficiency and obtain the permit required discharge limitations. While each forcemain has an EQ Tank bypass valve, proper treatment requires flow through the EQ tank to obtain the equalized flow rate. Flow is pumped from the EQ Tank through a Comminuter and flow meter and then to the Package Plants for treatment. The Flow Meter is used to control the speed of the EQ Pumps to provide the desired equalized flow rate. A Comminuter is a grinder that utilizes stacks of cutters (think circular saw blades) to reduce solids size and homogenize the waste, also improving subsequent treatment.

The Comminuter is thought to have played a role in the overflowing of the EQ Tank a few weeks ago. Over time, the cutters dull and are unable to cut the waste, this reduces flow through the Comminuter and the waste can also bind around the cutters and clog the unit tripping out the motor. This did occur, though it was the non-functioning phone line that ultimately resulted in the overflow as no one was made aware until the overflow occurred. When the Comminuter clogs, and/or trips out, it's an indication that the unit requires service which essentially involves the removal and replacement of the cutter stacks. To facilitate this, the Comminuter has to be bypassed so it can be disassembled. The vault that contains the Comminuter also contains the Flow Meter and a three (3) way valve that directs flow around the Comminuter and Flow Meter, allowing it to be isolated. After using this bypass during the EQ

overflow, the valve will not return to the proper position and it is currently stuck in an "in between" position allowing flow to pass through both directions. This means that the Comminuter is unable to be isolated for service, and the flow to the Flow Meter is not accurate and therefore cannot be used to control the Plant flow rate. Both of these conditions are starting to impact the treatment processes at the Plant.

A Plant shutdown, when flow is allowed to accumulate in the EQ Tank and not pumped forward, was attempted to scope the line to determine the issue with the stuck bypass valve; however, the line could not be isolated. It is believed this was due to two (2) issues. First, it was found that the stops on the EQ bypass valve on the forcemain from the Riverfront Pump Station are not working and this line, which was believed to be isolated, was in reality actually directing flow to the Comminuter. This is issue one (1). The second issue, is that the valves at the top of each Package Plant are no longer functional and allow flow to run back from the Package Plants to the Comminuter. This was partially addressed some years ago when new insertion valves were installed in the lines to each Package Plant. However, these valves do tend to pass some flow, issue two (2).

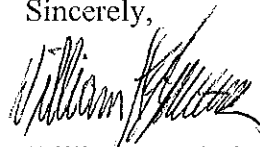
At this point, the Comminuter needs to be serviced and its three (3) way bypass valve needs to be repaired (unstuck) which will require a shutdown of the line between the EQ Tank and the Package Plants. Based on the issues encountered these actions will likely require several days, longer than flow can be controlled with a Plant shutdown. We have looked at what would be required to isolate this line and bypass flow around it so the Plant can keep operating while the repairs are made. Please see the attached plan that outlines the proposed improvements discussed below. We propose piping modifications in the EQ pump room to create a permanent bypass connection on the discharge side of the EQ Pumps. This will allow the existing EQ Pumps (a significant cost savings over renting bypass pumps) to pump flow through temporary hoses to the Package Plants. Additionally, as the connection will be permanent it will remain for future use. We contacted the Borough's current Plant Mechanical Contractor, Municipal Maintenance to provide a cost for this work as well as servicing the Comminuter and clearing any obstruction in the Comminuter three (3) way bypass valve. They provided a cost quote of \$43,510.00, see attached.

In addition to this, it is believed that an additional shutoff valve in front of the Comminuter three (3) way bypass valve is required because of the issue with the Riverfront forcemain EQ bypass valve (Issue 1 discussed above). Currently it is believed that Issue 2 can be dealt with sufficiently to conduct this work, though it is recommended that check valves be installed on each Package Plant discharge in the future (at an estimated cost of about \$6,000 each), but this can be incorporated into the 2020 Plant service contract. As a new valve in front of the Comminuter would be subsurface, and given the water elevations in the area will likely involve ground water issues, we contacted Neri, the Borough's On Call Contractor about installing this valve. Neri provided two options, the first to install a valve assuming the Riverfront forcemain three (3) way EQ bypass valve can be placed in the correct position for a enough of a shutdown that they can perform the work, this cost is \$14,960.00. The second option is to install this valve as an insertion valve (essentially on a live line) that cost being \$25,968.00. Obviously the former is the intent if possible.

It is important to note again that while this situation is not currently an emergency, the lack of any repair work to the existing valve and Comminuter in our opinion will result in a severe issue that cannot be quickly remedied as the underlying plant valve issues will still exist. This coupled with the current situation already having a negative impact on the treatment ability of the Plant, we believe does constitute an emergent situation. Therefore, it is recommended that the Borough issues purchase orders to Neri and Municipal Maintenance for the work based on their existing contracts with the Borough and the specific quotes provided.

If you have any questions or require additional information, please do not hesitate to contact me.

Sincerely,



William H. Kirchner, PE, CME  
Borough Engineer

WHK/ejp

Encl.

cc: Greg Benson, Plant Operator  
Doretha Rita Jackson, Borough Clerk  
Donna Condo, CMFO

**MUNICIPAL  
MAINTENANCE CO.**

1352 Taylors Lane  
Cinnaminson, NJ 08077  
Ph: 856-786-9434  
Fax: 856-786-0642  
www.mmc-nj.com

**Quotation**

DATE 6/5/2019  
Quotation # 42158Q-R1

Bill To:  
William Kirchner, P.E. CME  
Environmental Resolutions, Inc  
815 East Gate Drive, Suite 103  
Mt. Laurel, NJ 08054-3415

Quotation valid until: 7/5/2019  
Terms: Net 30 Days  
Delivery: 5 - 6 weeks

Ph: 856-906-7246  
Fax: 856-273-9239  
Email: wkirchner@erinj.com

Project Name: Valve Installation and Grinder Rebuild at the Palmyra Sewer Plant

Item	Qty	Description	Unit Price	Total Price
1.	1	<b>Perform the following work:</b> • Set up bypass using 8 x 8 x 6 reducing Tee, 8 x 6 reducing 90 degree elbow and 6 inch gate valve that will be left permanently in place. • Provide 6 inch bypass piping with road crossing ramps for 2 weeks • Inspect 3 way plug valves with scope • Supply and install muffin monster cutter cartridge • Break down bypass lines	\$ 43,510.00	\$ 43,510.00
2.	1	<b>If Diesel bypass pump is required:</b> • Provide (1) 6" Godwin critically silenced pump for 2 weeks Daily rate - \$ 388 Weekly rate (3 - 7 days) - \$ 1,164 Monthly rate (3 - 5 weeks) - \$3,492		
<b>Total</b>			<b>\$</b>	<b>43,510.00</b>

**Comments:**

- This quotation does not include any taxes if applicable
- Labor is at prevailing wage rates.
- Fuel for Godwin pump is not included in this quotation

If you have any questions concerning this quotation, please contact:

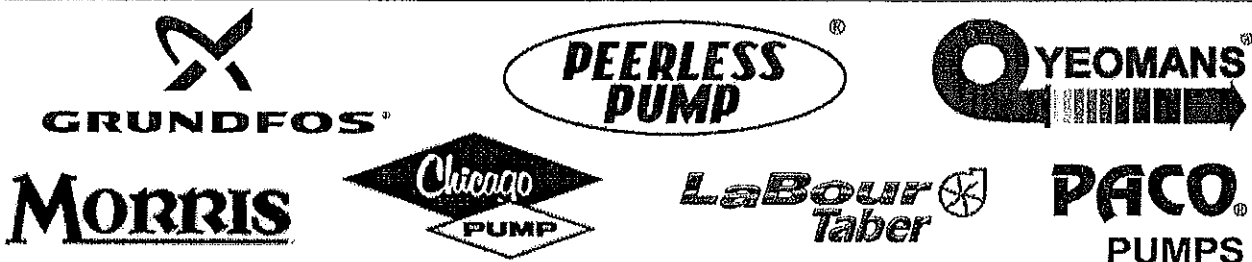
David Guertler

*David Guertler*  
Vice President  
dguertler@mmc-nj.com  
Cell: (856) 296-0683

MMC approval *XDG*

THANK YOU FOR YOUR BUSINESS!

Exclusive Grundfos Water Utility Distributor in New Jersey, Pennsylvania, & Delaware:





Bill Kirchner &lt;wkirchner@erinj.com&gt;

## Palmyra Sewer Treatment Plant

4 messages

neriexc@verizon.net &lt;neriexc@verizon.net&gt;

Fri, Jun 7, 2019 at 3:35 PM

To: wkirchner@erinj.com

Bill,

Below are the two options you requested to install a 12" gate valve.

Option #1:

Excavate and dewater area. Cut in 1 - 12" gate valve with left open.- \$13,110.00 Right open - \$14,960.00.

Option #2:

Excavate and dewater area. Install a 12" valve insertion. - \$24,968.00

Please review and advise. Thanks for the opportunity.

Tony

Anthony L. Neri, President  
Neri's Construction & Rental, Inc.  
849 Clayton Road  
Williamstown, NJ 08094  
(856) 629-2408

Bill Kirchner &lt;wkirchner@erinj.com&gt;

Fri, Jun 7, 2019 at 4:10 PM

To: neriexc@verizon.net

Thanks Tony

We had a seal failure on one of influent pumps this week, so that's been pulled for repair, we need that back before we attempt this, I'll be in touch once I have approvals and a time guestimate.

Bill

**William H. Kirchner, PE, N-2, CME**  
Vice President



Engineers • Planners • Scientists • Surveyors

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