



Memorandum

To: City of Greensboro

From: Hazen and Sawyer

Date: February 28, 2014

*Subject: City of Greensboro
Water Reclamation Facility (WRF) Expansion and Upgrade Project
Sole Source Pre-Purchased Equipment*

Background

The City of Greensboro and the CDM Smith / Hazen and Sawyer Team are designing improvements at the North Buffalo Creek Water Reclamation Facility (NB WRF) and the T.Z. Osborne Water Reclamation Facility (TZO WRF) to consolidate all treatment at the TZO WRF and increase its capacity from 40 million gallons per day (mgd) to 56 mgd. The WRF expansion upgrade will include improvements to all major process areas. The purpose of this memorandum is to provide a description of the blowers that will be pre-purchased as part of the improvements.

Pre-Purchased BNR Process Blowers

BNR Process Blowers

The existing aeration system is provided by a total of four (4) multi-stage, centrifugal blowers. It is recommended that Blowers 3 and 4 be replaced by single-stage, integrally geared, centrifugal blowers to increase the Facility's aeration capacity and improve aeration efficiency to reduce operating costs at the TZO WRF. The proposed blowers are significantly more efficient than the existing multi-stage blowers and are expected to reduce the aeration energy by 15 percent compared to the continued use of the multi-stage centrifugal blowers. The proposed single-stage blowers will be the primary duty blowers, and the remaining multi-stage blowers will be operated during peak loading periods or single-stage blower maintenance. It is recommended that the single-stage blowers manufactured by Siemens (formerly Turblex) be sole sourced due to the following:

- Siemens is the only reputable manufacturer of single-stage centrifugal blowers that has been engaged in and actively supports the North American municipal wastewater market for more than the past three years.
- Siemens has had extensive experience with projects of similar or greater capacity than the Greensboro WRF Expansion and BNR Upgrade Project.
- Multiple US installations of the model proposed for Greensboro.

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The negotiated budget price for two (2) Siemens blowers is \$1,780,000 including freight. This price will be held for 90 days, until May 29, 2014. An additional storage fee of \$600 per month per blower will be added to the base price to store the blowers after they are ready for shipment if the City chooses to delay. Construction is anticipated to commence in the fourth quarter of 2014.

The price compares favorably with similar blowers installed at Nansemond WWTP in Suffolk Virginia, and at Neuse River in Raleigh, North Carolina. The Nansemond blowers were the same model as proposed for TZO and were provided at a cost of \$1,570,000 for two blowers through January 2009. This is a 2.5% increase per year in the blower price. The Neuse River blowers were larger blowers, and cost over \$1,000,000 each in 2007.

The engineer's estimate for two single-stage 1,250 HP blowers delivering 21,650 icfm was \$1,840,000.

Hazen and Sawyer originally investigated negotiating a firm price for the blowers with Siemens to be included in the construction package and purchased by the Contractor; however, Siemens' firm price through January 2015 was \$1,969,700, which is more than 10% higher than the price for the City to pre-purchase the blowers. By pre-purchasing, the City is saving nearly \$200,000.