



# City of Grand Island

Tuesday, December 07, 2010

Council Session

## Item G5

**#2010-342 - Approving Award of Construction Contract on  
Project WWTP-2010-3 for Aeration Basin Improvements at the  
Wastewater Treatment Plant**

Staff Contact: Steven P. Riehle, Public Works Director

# **Council Agenda Memo**

**From:** Steven P. Riehle, Public Works Director

**Meeting:** December 7, 2010

**Subject:** Approving Award of Construction Contract on Project WWTP-2010-3 for Aeration Basin Improvements at the Wastewater Treatment Plant

**Item #'s:** G-5

**Presenter(s):** Steven P. Riehle, Public Works Director

## **Background**

The City Council approved an agreement with Black & Veatch Corporation of Kansas City, Missouri on October 13, 2009 for professional consulting engineering services on the Aeration Basin Improvements for the Wastewater Treatment Plant.

The advertisement to bidders for the project for furnishing and installation of Aeration Basin Improvements was published in the Grand Island Daily Independent on October 13, 2010. A mandatory pre-bid meeting was held on October 27, 2010.

### **New Blowers**

The primary purpose of the aeration basin improvements project is to replace existing aeration equipment that is at or near the end of its useful life. Two existing blowers shall be replaced with two high efficiency units that will improve reliability and reduce energy usage and operating costs. The two new blowers shall operate with the two existing blowers to remain in service.

### **Piping Modifications**

In addition to the blowers, the aeration basin piping and aeration equipment is being modified or replaced to optimize process controls and replace aged equipment.

### **Replace Diffusers**

The existing aeration diffusers currently require annual cleaning to prevent high pressure loss and increased energy consumption leading to high operation and maintenance costs. The new diffusers shall reduce both operations and maintenance costs. The new diffusers, along with automated valves and instrumentation, will allow operations staff to optimize aeration basin operations.

### **Project Summary**

With these modifications, the treatment trains shall be able to accommodate the current residential, commercial and industrial loads as well as the future reduced loads from JBS as a result of their decision to build a new facility to further pre-treat their industrial wastewater. Overall, this project will improve reliability, reduce energy usage and operating costs, and provide the plant staff flexibility to meet current and future loading on the secondary treatment process at the wastewater treatment plant. The aeration basin improvements project will provide efficiency within the existing system for ammonia removal. Actual nutrient removal upgrades will follow in future years when permitting requires such treatment within the secondary system.

### **Related Utility Work**

Work on this project will include a new primary transformer on the northeast side of the facility. The new utility transformer shall be sized for a new motor control center with power distribution to serve the aeration basin improvement project utilizing existing building space for the utility equipment. The upgrade shall also serve future planning power requirements for aeration basin recycle, and final clarification. The city utility department will provide the transformer and primary feeder conductors. The service of the utility department for their portion of the work is estimated at \$50,000.00.

## **Discussion**

Three (3) bids were received on November 17, 2010 and reviewed by the City Clerk, City Engineer/Public Works Director, Wastewater Division staff and Consulting Engineers from Black & Veatch Corporation.

Bidder	Oakview dck, LLC	Industrial Process Technology, Inc.	Hawkins Construction Co.
Total Lump Sum Base Bid	\$3,622,300.00	\$3,989,400.00	4,085,000.00
<u>Deductive</u> <u>Alternative A</u> No Modifications to Existing Diffused Aeration System in Oxidic Zone(s)	\$380,860.00	\$495,000.00	\$591,000.00
<u>Deductive</u> <u>Alternative B</u> Partial Modifications to Existing Diffused Aeration System in Oxidic Zone(s)	\$293,682.00	\$409,800.00	\$466,000.00

<u>Deductive</u> <u>Alternative C</u> Substitute base bid blower manufacturer Turblex with elective substitute manufacturer Howden or other approved supplier of Single Stage Centrifugal Blowers	\$135,300.00	\$175,000.00	\$126,000.00
Aeration Basin Solids Cleanout 1,045 cu yd	\$20.00/cu yd	\$55.00/cu yd	\$28.71/cu yd
<b>Recommended Award</b>			
Base Bid	\$3,622,300.00	\$3,989,400.00	4,085,000.00
Minus Deductive Alternative C	\$135,300.00	175,000.00	126,000.00
<b>TOTAL BID</b>	<b>\$3,487,000.00</b>	<b>\$3,814,400.00</b>	<b>\$3,959,000.00</b>

The exception from Oakview dck, LLC of Red Oak, Iowa to provide Eckley Acoustical Panels (Deduct of \$10,300.00) was noted with a recommendation that the exception not be accepted.

Oakview dck, LLC of Red Oak, Iowa submitted a bid in accordance with the terms of the advertisement of bids and plans and specifications and all other statutory requirements contained therein.

### Alternatives

It appears that the Council has the following alternatives concerning the issue at hand. The Council may:

1. Move to approve a resolution.
2. Refer the issue to a Committee.
3. Postpone the issue to future date.
4. Take no action on the issue.

### Recommendation

Public Works staff and Engineering Consultant, Black & Veatch Corporation recommend acceptance of deductive alternative "C" with Howden Water Technology, Inc. The apparent competitive bid savings of \$135,300.00 with the twenty (20) year present worth power consumption additive of \$41,000.00 shows savings of \$94,300.00 in comparison to base bid Turblex, Inc..

The bids for the project including construction engineering services are \$202,000.00 less than what was presented in the wastewater capital improvement program at the November 16, 2010 council study session.

Public Works staff and the engineering firm Black & Veatch Corporation recommend that the Council approve a resolution to award the construction contract and authorize the Mayor to execute a contract with Oakview dck, LLC of Red Oak, Iowa at a lump sum bid of \$3,622,300.00 with selected deductive alternative "C" of \$135,300.00 for a total contractual value of \$3,487,000.00.

Attachments: Recommendation of Award from Engineering Consulting firm Black & Veatch Corporation, dated November 29, 2010

### **Sample Motion**

Move to award the construction contract to Oakview dck, LLC of Red Oak, Iowa for aeration basin improvements at the Wastewater Treatment Plant.

City of Grand Island, NE  
Grand Island WWTP  
Aeration Basin Improvements

B&V Project 163132  
OA Project 010-0363  
B&V File F  
November 29, 2010

Mr. John Henderson  
City Of Grand Island, Nebraska  
Public Works Department  
3013 East Swift Road  
Grand Island, NE 68802-1968

Subject: Recommendation of Award

Dear John:

Bids were received and opened on November 17, 2010 at the Grand Island City Hall, office of the City Clerk, for the construction of the Grand Island WWTP Aeration Basin Improvements project. Bids were received on a lump sum basis for the entire scope of work. The Contractors were asked to submit deductive bid alternatives for three (3) items, and if selected by the City, the value of these alternatives would be subtracted from the lump sum base bid.

In accordance with Article 5.03 of the Bid Form, the project is to be awarded based on the Bid that provides the best overall value to the Owner and may be based on the base bid or the base bid with any of the same combination of bid alternatives. The enclosed bid tabulation summarizes the lump sum base bid prices, bid alternatives, and adjustment unit prices. In addition, the total contract price was calculated for each bidder if any possible combination of deductive bid alternatives were selected by the City.

The low bid was submitted by Oakview DCK, LLC (Oakview) in the amount of \$3,622,300.00. If any combination of bid alternatives were deducted from the lump sum base bids, Oakview's bid would still be the lowest. Three bid submissions made for excellent competition. The difference between the low bid and the high bid was \$462,700 or 12.8%. A difference between bids is to be expected because of the nature of work – a modification and rehabilitation project within an existing site. The final Engineers estimate was \$4,508,000.00. The fact that the bids came in 15.6% lower than the Engineers estimate (on average) is likely a reflection of the number of bidders, high level of project interest by suppliers and subcontractors, available labor resources, and current market conditions. This is similar to what we have been observing in other recent projects and was expected. Based on these discussions, our research and review of the Contract Documents, it appears the total lump sum bids are reasonable for the scope of this project.

If either Bid Alternative A or B is selected, all or portions of the aeration basin diffuser replacement would be deleted from the scope of work. It is important to note that Bid

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B&V File F  
November 29, 2010

Alternative A and B cannot both be selected. Since bids came in under the project budget, and the condition and remaining useful life of the existing ceramic diffusers are largely unknown, Black & Veatch recommends not selecting Bid Alternative A or B. Continuing to use the existing ceramic diffusers will most likely result in more frequent maintenance and repair activities, and therefore Black & Veatch recommends complete diffuser replacement as included in the base bid.

It is our understanding that at this time the City is selecting Bid Alternative C which is the substitution of the base bid blower manufacturer (Turblex) with Howden Water Technology, Inc. Upon review of the blower supplier's qualifications, it was noted that Howden has significantly less experience than Turblex with regard to dissolved oxygen (DO) control systems and hybrid blower system operation. Black & Veatch believes that experience is the key to success with these systems as system tuning, time delays, and deadbands are very important to reduce hunting and provide good controllability. Knowledge of how to set these parameters is only gained by experience with many systems of this type. An integrator with significant DO control experience is essential. Howden has indicated that they would be willing to subcontract the controls aspect of their system to Revere Controls. Black & Veatch has previous experience with Revere Controls in numerous successful projects and would recommend that Howden incorporate their services into this project.

Review of the submitted bidding documents indicated that Oakview submitted a responsive bid. The equipment manufacturers submitted and their proposed subcontractors appear to be acceptable. Oakview included a comment in "Exceptions to the Bid" that they would offer a deduct to the contract price in the amount of \$10,300 if they were allowed to provide "Eckley Acoustical Panels" in lieu of the specified panels. Black & Veatch would need to review shop drawings on the proposed panels before a determination could be made on whether they meet the specification and are suitable for the work. Therefore, Black & Veatch recommends that the award be based on the contractor's base bid and that the alternative panels be reviewed after the award of the contract. If the alternative panels meet the specification, then the contract amount can be reduced by change order.

Based on Oakview's performance on past projects, including the recent Primary Clarifier Mechanism Replacement and others for the City of Lincoln with Black & Veatch and Olsson Associates, it is our opinion that Oakview is qualified to complete this project. As such, we recommend that the City award the contract to Oakview on the basis of the lump sum base bid minus Bid Alternative C for a total Contract Price of \$3,487,000.

If you have any questions or wish to discuss our recommendation further, please contact me at (913) 458-3446 or Derek Cambridge at (913) 458-3465.

Very truly yours,

BLACK & VEATCH CORPORATION

City of Grand Island, NE  
Aeration Basin Improvements

B&V File F  
November 29, 2010

Isaac T. Crabtree  
Project Engineer

Enclosures: Bid Tabulation

cc: Mr. Steve Riehle  
Mr. Roger Scott  
Mr. Dave Ziska

RESOLUTION 2010-342

WHEREAS, Advertisement to Bidders for Project WWTP-2010-3 Aeration Basin Improvements at the Wastewater Treatment Plant was published in the Grand Island Daily Independent on October 13, 2010, and

WHEREAS, on November 17, 2010 bids were received, opened and reviewed; and

WHEREAS, Oakview dck, LLC of Red Oak, Iowa submitted a bid in accordance with the terms of the advertisement of bids, plans and specifications and all other statutory requirements contained therein, with a base bid of \$3,622,300.00

WHEREAS, Public Works Administration recommends acceptance of deductive alternative "C" at \$135,300.00; and

WHEREAS, the base bid sum and any combination of deductive alternatives of the bid for the project is below the engineer estimate of such project; and

NOW, THEREFORE, BE IT RESOLVED BY THE MAYOR AND COUNCIL OF THE CITY OF GRAND ISLAND, NEBRASKA, that the bid of Oakview dck, LLC of Red Oak, Iowa in the amount of \$3,487,000.00 for furnishing materials and services for WWTP-2010-3 Aeration Basin Improvements project at the Wastewater Treatment Plant is hereby approved.

BE IT FURTHER RESOLVED, that the Mayor is hereby authorized and directed to execute such contract on behalf of the City of Grand Island.

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Adopted by the City Council of the City of Grand Island, Nebraska, December 7, 2010.

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Jay Vavricek, Mayor

Attest:

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RaNae Edwards, City Clerk

Approved as to Form    ☐ \_\_\_\_\_  
December 3, 2010       ☐ City Attorney