City of Grand Island

Tuesday, June 28, 2011
Council Session

Item G11

#2011-155 - Approving Award Amendment #2 for Engineering Services for Aeration Basin Improvements at the Wastewater Treatment Plant

Staff Contact: John Collins, Public Works Director

Council Agenda Memo

From: John Collins, Public Works Director

Meeting: June 28, 2011

Subject: Approving Award Amendment Number 2 for Engineering Services for Aeration Basin Improvements at the Wastewater Treatment Plant

Item #'s: G-11

Presenter(s): John Collins, Public Works Director

Background

The Aeration Basin constructed in a 1995 plant improvement project included the addition of four (4) aeration basins, a recycle channel, a blower building, and three (3) spiral lift pumps.

On August 5, 2009, the City of Grand Island invited proposals for engineering services for Aeration Basin Improvements at the Wastewater Treatment Plant and on September 1, 2009 proposals were received, reviewed and evaluated in accordance with established criteria. Black & Veatch Corporation of Kansas City, Missouri submitted a proposal in accordance with the terms of the Request for Proposals with a maximum amount of $384,000.00 which the City Council approved on October 13, 2009.

On August 24, 2010, the City Council approved Amendment Number 1 to the agreement for consulting services on the Aeration Basin Project. Amendment Number 1 included blower capacity evaluations and design memorandum resubmittal to the NDEQ based on JBS's construction of expanded industrial waste treatment facilities, inclusion of mixer capacity in ongoing improvements in nitrate treatment, allowance for alternate blower manufactures to the bidding documents, and the addition of standard operation procedure manual, bidding phase services, construction phase services, resident inspection, start-up warranty commissioning to the scope of work. Amendment Number 1 added $611,000.00 in consulting services for a maximum not to exceed amount of $995,000.00.

On February 24, 2011, a mechanical gearbox bearing failure on Spiral Lift Pump No. 3 resulted in damage to the gearbox housing, including associated mechanical drive couplings, and structural anchor bolts.

On March 16, 2011, the wastewater staff presented to administration replacement and alternate pumping options.

On May 3, 2011, proposals were received by consulting firms Black & Veatch of Kansas City Missouri, and HDR Engineering of Omaha Nebraska to evaluate options to repair, replace, or use an alternative pumping option.

On May 12, 2011, a workshop was concluded with Black & Veatch of Kansas City, Missouri to overview planning with staff and administration.

On May 31, 2011, at a cost of $7,200.00 Black & Veatch of Kansas City Missouri prepared a technical memorandum titled "Screw Pump Replacement Evaluation". In this evaluation, consideration was given to future hydraulic capacity, replacement options, constructability, construction costs, energy consumption, and overall life cycle costs. The recommendation was to repair the existing spiral lift pump and provide similar repair in others for a continued useful life cycle of ten (10) to twenty (20) years. At the end of the life cycle, it was recommended that the present spiral life pumps be replaced with smaller units of the same type.

Discussion

Amendment Number 2 to the Agreement for consulting services on the Aeration Basin Project shall provide consulting engineering services required to repair the existing spiral lift pumps. The scope of work shall include:

a. Finalize scope of repair and prepare technical documents.
b. Conduct structural inspections and preform design.
c. Prepare conceptual internal recycle layout design.
d. Prepare construction change order documents.
e. Construction phase services.
f. Project administration and management.

The City staff and administration has negotiated the services at $ 35,770.25 being fair and reasonable for the scope of work listed. These costs are available within the current contract maximum not to exceed as a result of previous tasks being completed under the allowable billing limits, therefore, no increase in the contract amount is required to implement this amendment.

The City staff and administration recommends procurement allowance for the Spiral Lift Pump Repair Improvement Project to be negotiated with Oakview dck Construction, the onsite contractor for the Aeration Basin Improvement Project, and be implemented as a change order once costs have been submitted and approved by the Council.

Alternatives

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

1. Move to approve a resolution awarding the bid and authorizing the Mayor to execute Amendment Number 2 with Black and Veatch of Kansas City, Missouri.
2. Refer the issue to a Committee.
3. Postpone the issue to future date.
4. Take no action on the issue.

Recommendation

The City Administration recommends that the Council approve Amendment Number 2 to the professional services agreement with Black & Veatch for the consulting engineering services on the Aeration Basin Project.

Sample Motion

Move to approve Amendment Number 2 with Black & Veatch for engineering services associated with the repair and rehabilitation of the existing spiral lift pumps.

BLACK & VEATCH CORPORATION

TECHNICAL MEMORANDUM – Screw Pump Replacement Evaluation

Grand Island, Nebraska
Wastewater Treatment Plant

B&V Project 163132.0358
B&V File B-1.1
June 22, 2011

To: John Henderson, City of Grand Island

From: Gary Schnettgoecke and Ted Stolinski, Black & Veatch

1. Project Description

The Grand Island Wastewater Treatment Plant uses Archimedes type screw pumps to lift water from the Primary Clarifiers to the Aeration Basins. The pumps are located in a facility referred to as the Mixed Liquor Pump Station. Currently, the basins re-circulate effluent (i.e., mixed liquor) back to the front of the screw pumps using an external channel. The pump station is equipped with three screw pumps with space for a fourth. Currently Screw Pump No. 3 is out of service because of a gearbox and bearing failure. The purpose of this evaluation is to investigate whether to repair the existing pump or replace the pump with a pump(s) of another type. In addition, possible future modifications to implement internal aeration basin recycle flow needs to be considered when repairing or replacing the equipment as flows would be significantly reduced to the Mixed Liquor Pump Station.

2. Background

The existing screw pumps were manufactured by Zimpro and installed in 1995. The pumping units are 84-inch diameter open type screws with an effective lift of approximately 12 feet from the operating wetwell level to the spill point of the screw pump channel. Each screw pump is rated for 33 mgd for an installed capacity of 99 mgd and a firm capacity of 66 mgd.

Currently, mixed liquor recycle rates are as high as 300 percent. The existing screw pumps therefore pump a combination of primary clarifier effluent and recycle flow. In the future, the aeration basins may be converted to internal recycle and the screw pump station inflow will be significantly reduced.

Current and future hydraulic loading to the plant and to the screw pumps, with external recycle in the basins, are indicated in Table 1.

Table 1 – Hydraulic Loading with External Recycle in Basins (Note 1)				
	To Plant		To Screw Pumps	
	Current	2029 Projected	Current	2029 Projected
Minimum Flow, mgd	5.0 (Note 2)	NA	20.0 (Notes 2,4)	NA
Avg. Daily Flow, mgd	11.4 (Note 3)	16.0 (Note 3)	45.6 (Note 4)	64.0 (Note 4)
Peak Hour Flow, mgd	35.0 (Note 3)	39.5 (Note 3)	66.0 (Note 5)	66.0 (Note 5)

1. Includes flow from JBS (approx 3 mgd)
2. Estimated from data provided by City May 2011
3. Taken from the Final Design Report, Primary Clarifier Mechanism Replacement project, prepared by Black & Veatch August 4, 2009, Tables 2-2 (2009 Projected Flows) and 2-3 (2029 Projected Flows)
4. Equals flow to plant plus external recycle flow in the basins (3 times plant flow).
5. Recycle is not implemented during peak flows. Flow shown is the firm capacity of the existing screw pumps

The hydraulic loading to the screw pumps, if internal recycle in the basins is implemented in the future, would essentially be the same as those flows to the plant as indicated in Table 1.

The existing broken screw pump could be repaired to restore the current firm capacity of 66 mgd or could be replaced with two alternative type pumps (utilizing the empty bay) for a total capacity of 30 mgd and a firm capacity of 63 mgd. In the future, the two existing screw pumps could be replaced with pumps rated for 15 mgd for a total firm capacity of 45 mgd and an installed capacity of 60 mgd to meet the hydraulic requirements for future internal recycle in the basins. Larger pumps could be installed if internal recycle was not implemented to meet future flows noted in Table 1. For this evaluation, 15 mgd pumps will be used.

3. Discussion of Preliminary Repair/Replacement Options

The existing screw pumps have been operational for approximately 16 years. Normal operation is to run two screw pumps 24 hours per day, 7 days a week. Pumps are rotated monthly. Screw pumps by nature are variable capacity pumps and two pumps can handle the diurnal flow without a problem. Relatively speaking, for the short lift, these are low stressed units and should have a useful service life of 30 years or more. Per discussion with the City, the screws themselves are in good condition and have presented no problems. The gear boxes of the existing units have back-stops to prevent reverse rotation when the pumps are shut down. The back-stops are externally mounted on the gear boxes. The back-stops are problematic as the oil cannot be changed. The original pumps were installed with units where the oil could be changed. The City is currently getting about 3 month's life out of the back-stops. Back-stop repair is estimated to be $3,000 for each failure as reported by the City. Externally mounted back-stops are more susceptible to failure than internal back-stops. On many gear reducers, the back-stop can be converted from externally mounted to internally mounted which would improve the life of the back-stops. Consideration will be given to modifying the existing gear boxes.

There are several options to be investigated:

1. Repair the existing broken 84-inch screw pump. Pump station will be over-rated in the future if internal recycle is implemented, but the screw pumps are capable of handling the reduced flow.
2. Replace the broken 84-inch screw pump with a smaller screw pump rated for 15 mgd. Install a second smaller screw pump in the adjacent empty bay.
3. Replace the broken 84-inch screw pump with a smaller enclosed screw pump rated for 15 mgd. Install a second smaller screw pump in the adjacent empty bay.
4. Install a 15 mgd submersible wastewater pump in the bay of the broken screw pump and install a second pump in the adjacent empty bay.
5. Install a 15 mgd vertical turbine solids handling (VTSH) pump in the bay of the broken screw pump and install a second pump in the adjacent empty bay.

For Options 2 through 5, the remaining two 84-inch screw pumps would be replaced as they wear out, 10 to 20 years from now.

3.1. Option 1 – Repair Existing Screw Pumps

When the existing screw pump broke, an internal bearing failure in the gear box resulted in damaging the gearbox and shearing off the upper screw pump bearing from the concrete base. Bolts were sheared off below the level of the concrete, but no concrete damage is evident. To restore the screw pump to active service would require repair or replacement of the existing gear box and new anchor bolts and baseplate for the screw pump upper bearing.

Three screw pumps of common design would keep operation of the pump station simple with limited or no process controls and a continuation of the current practice of leaving two pumps running. In the future if internal recycle flow is implemented, one pump could be base loaded most of the time and a second pump started only during wet weather. The only major problem with the existing screw pumps is the back-stop. If these problems could be resolved, the existing screw pumps could provide many more years of suitable service.

3.2. Option 2 – Replace with Smaller Open Screw Pumps

The existing screw pump could be removed and replaced in its entirety with a new open screw pump design rated for 15 mgd. A second pump would be provided in the empty bay and the pump station firm pumping capacity would be 63 mgd. When the existing pumps are no longer viable they can be replaced with similar pumps for a firm capacity of 45 mgd.

The diameter of the new screw pumps would be 66 inches. New smaller motors and gearboxes would be provided. New units would be specified with improved back-stop and couplings to minimize the current maintenance requirements. Since the new screws are smaller diameter, the screw troughs would need to be re-shaped for the smaller diameter. Efficiency and operating cost would be similar to the existing pumps.

3.3. Option 3 – Replace with Smaller Enclosed Screw Pumps

Enclosed screw pumps have the torque tube on the outside and instead of a submerged journal bearing at the bottom of the screw, they are provided with a large bearing ring around the torque tube with trunion supports.

The trunion supports must be kept dry and out of the water. Because of the short setting of the pump, location of the lower bearing and trunion is much higher than normal and would have to be a special design.

The enclosed screw pump is optimal at a 45 degree installation. However the existing screw trough is 30 degrees. This makes the screw much longer than normal for this capacity and lift.

3.4. Option 4 - Replace with Submersible Wastewater Pumps

Submersible wastewater pumps are common in the industry and in many cases can be an economical alternative to screw pumps. Because of the low head of this application and the high flow (15 mgd), there was limited selection available. Pumping units that met this hydraulic conditions were either too large to fit in the existing wetwell or were operating to the extreme right of the pump curve at low efficiency. Equipment cost is the lowest for this type, so this option was pursued even though it is not the most energy efficient type. Pumping units are proposed to be of the removable type with guiderails. However since each pump can be isolated in each wetwell, the pump could be skid mounted and anchored to the floor.

The operating level of the existing wetwells with the screw pumps is approximately 4.75 feet. The minimum submergence to prevent vortexing is approximately 4 feet. This is insufficient operating range to control the pumps in parallel with the existing screw pumps. In order to be a viable option, the existing wetwell needs to be deepened to provide an additional 18 inches of operating depth. Because of the size of the units, the deepened area will consume most of the floor of the wetwell and would pose structural challenges for construction.

Submersible pumps are frequently used in wastewater, but because they have non-pressurized seals between the pump and motor and are exposed to corrosion both inside and out, they have a relatively short pumping unit life. While a screw pump could be expected to have a service life of 30 years, the expected service life of a submersible pump is only 7 to 10 years.

Pumping units are relatively large for the wetwell and will not meet the hydraulic institute standards for wetwell design. However entrance velocities are low and the pump is confined within its own pump bay. With proper baffling, the pumps should perform acceptably.

3.5. Option 5 – Replace with Vertical Turbine Solids Handling Pumps

These units are built by Fairbanks Morse and would be a sole-source procurement. They are essentially a non-clog style waste water impeller built into a modified vertical turbine water pump arrangement. They are designed specifically for wastewater and have a long dependable service life. For this application where the dynamics are low, a service life of 30 years is not unreasonable.

These pumps also have problems with submergence and would require the existing wetwell floor to be deepened. Because the footprint of the pump is relatively small compared to a submersible pump, adequate submergence can be provided by sinking a 48-inch diameter hole into the existing wetwell floor. The pumps would be supported by a new platform built on the walls. Floor modifications for this option are less complex and more easily constructed than the submersible pump option.

4. Constructability

This section covers the constructability issues for each of the options.

Option 1 – Repair Existing Screw Pumps. This option would require the replacement of the existing bearing base plate with a new bearing plate large enough to allow new holes to be cored through the existing concrete bearing support. A new second plate would be placed on the underside of the concrete support and bolted at both plates. This would allow easier replacement of the bolts if they happened to fail again. Adding the plate on the underside of the concrete support will require some sort of temporary work surface as the channel below this area will be full of water during construction. Assessment of the location of the existing concrete reinforcing should be performed to prevent coring through the existing reinforcing and compromising the strength of the slab.

Option 2 – Replace with Smaller Open Screw Pumps. This option will require the same bearing base plate replacement as with Option 1 but will also require the demolition and removal of the existing screw pump. In addition, the smaller screw diameter will require additional grouting to match the new diameter.

Option 3 – Replace with Smaller Enclosed Screw Pumps. This option will require the same bearing base plate replacement as with Option 1 but will also require the demolition and removal to the existing screw pump. In addition, the bays and wetwell area will require significant modifications to accommodate the angle of the screw pump (38 or 40 degrees) and trunion supports. The current installation is 30 degrees.

Option 4 - Replace with Submersible Wastewater Pumps. This option will require the demolition and removal of the existing screw pump. Because the submersible pump needs additional submergence, a 7 foot by 8 foot opening will need to be cut through the existing bottom slab near the base of the existing screw pump. The large size may be difficult to accommodate structurally as the opening will take up most of the space from wall to wall. The area will need to be dewatered to be able to cut through the bottom slab. The submersible pumps will require a walkway from pump bay wall to pump bay wall.

Option 5 – Replace with Vertical Turbine Solids Handling Pumps. This option will require the demolition and removal of the existing screw pump. The vertical pumps will require additional submergence. This could be provided by cutting a circular hole in the bottom of the pump bay slab and inserting a steel can approximately 8 feet below the bottom slab. The area will have to be dewatered to install the can. A steel casing may be needed to excavate in the sand underneath the bottom slab. The ability to adequately dewater to the required elevation without damage to existing structures must be determined before proceeding with this option. The vertical pumps will require a concrete beam and slab support be constructed from pump bay wall to pump bay wall.

5. Estimated Operating Costs for Preliminary Options

Each option was evaluated to determine its energy consumption. A summary of the energy consumption is shown in Tables 2 and 3 for Average Daily and Peak Flow conditions, respectively (tables included at the end of this memorandum).

Screw pumps (whether open or enclosed) are variable capacity pumps and the pumping capacity is related to the depth of water in the wetwell. To evaluate the power required, wetwell operating depth was selected based on the pumping rate of the unit at the selected design condition. The discharge of the screw pumps is over the invert of the screw channel top. In addition, the screw pump has to lift the water higher than this invert. This is shown as a loss in the tables.

The submersible pumps and VTSH pumps require maximum amount of submergence. For this evaluation, the pumps were considered to operate in parallel with existing screw pumps. The existing screw pumps operating level was selected as the design wetwell for the pump. In the future should the existing screw pumps be replaced, the design wetwell level because of submergence issues will still basically be the same. Since both the submersible and VTSH pumps are located in the wetwell, 24-inch diameter pipe is required to convey the water up the trough into the discharge flume. The hydraulic losses associated with this pipe are accounted for. For purposes of this evaluation, it is assumed there are no valves and the water discharges freely into the flume. A drop pipe can be provided to minimize turbulence and aeration. With the addition of a check valve, it might be possible to discharge below the flume operating level and utilize a siphon to recover some energy.

Budgetary quotes for an enclosed screw pump were 2 to 3 times that of an open screw pump. Although the motor input power (in kWs) for an enclosed screw pump is the lowest of all the pump types, its capital cost and angle of installation does not make this type of pump an attractive option for this application. Of the three other options, the VTSH pump requires the least kWs to operate. This is primarily because there is an efficient pump selection that fits this application. The submersible pumps require the most energy primarily because there isn't a good selection at the required flow and head.

A summary of the motor input power and yearly power cost at the average daily flow for the different pump types is presented in Table 4. There is no significant difference in power costs for the options.

Table 4 – Estimated Energy Consumption and Cost (at Avg. Daily Flow)		
	Motor Input Power, kW	**Yearly Cost**
Open Screw Pump	37.0	$17,840
Enclosed Screw Pump	31.1	$14,980
Submersible Wastewater Pump	39.0	$18,780
Vertical Turbine Solids Handling Pump	31.7	$15,270

6. Estimated Capital Costs for Preliminary Options

Capital costs for each preliminary option were determined by soliciting budgetary quotes from pump suppliers and estimating the required demolition, installation, concrete, electrical, and other related costs.

First, the cost for repair of the existing pump and the cost of a single pump replacement was assessed. These costs are shown in Table 5. The budgetary pump purchase cost for Options 2 through 5 are also included in Table 5 for reference. Cost assumptions include:

- 40% was applied to the pump cost for installation.
- Broken screw pump is demolished and removed (Options 2 through 5)
- Costs for adjustable frequency drives and necessary electrical work are included for Options 4 and 5.
- A contingency of 35% is used.
- No engineering costs are included.

Table 5 – Estimated Capital Costs (One Pump)		
Option	**Pump Cost**	**Total Cost**
1 – Repair Existing Screw Pump	--	$94,800
2 – Replace with Smaller Open Screw Pump	$119,500	$532,600
3 – Replace with Smaller Enclosed Screw Pump	$445,000	$1,298,000
4 - Replace with Submersible Wastewater Pump	$150,000	$798,000
5 - Replace with Vertical Turbine Solids Handling Pump	$235,000	$1,033,600

Some observations:

1. Due to the cost for an enclosed screw pump and the necessary work to modify the channel for a 38 or 45 degree angle installation angle for this type of pump, it will no longer be retained.
2. The cost to create additional volume in the existing wetwells for the submersible pumps has been included (Option 4); however, it does not appear feasible to construct.

If additional volume was created by constructing a new addition on the south side, the cost would be similar to Option 5. In addition, the service life of a submersible pump is about one-third the life of a VTSH or screw pump and it requires the most eneregy. For these reasons, this option is not attractive for this application.

3. Repairing the existing pump (Option 1) will continue to provide a firm capacity of 66 mgd. For the other options to provide a similar firm capacity, two pumps would need to be installed and operated in conjunction with the other two existing screw pumps (63 mgd). The second pump would be installed in the empty bay.

The cost for installing two pumps for Options 2, 4, and 5 are included in Table 6. The same cost assumptions noted above apply, except no existing screw pump demolition and removal is needed since the empty bay is utilized for the second pump.

Table 6 – Estimated Capital Costs (Two Pumps)

Option	Pump Cost	Total Cost
2 – Replace with Smaller Open Screw Pumps	$239,000	$890,300
4 - Replace with Submersible Wastewater Pumps	$300,000	$1,403,700
5 - Replace with Vertical Turbine Solids Handling Pumps	$470,000	$1,768,100

7. Recommendation

Based on the estimated cost to repair the broken screw pump compared to the installation of alternative pumps, it is recommended that the City repair the pump and utilize the existing screw pumps until their full useful life is realized, 10 - 20 years from now. The existing 84-inch screw pumps could be replaced as they wear out with smaller open screw pumps (66-inch) which would be the least costly to install, if internal recycle in the basins is implemented in the future. The estimated cost to implement internal recycle is $1.2 million.

This recommendation is based, in part, on improving the life of the back-stops. Black & Veatch will continue to pursue a resolution.

Grand Island Nebraska - Screw Pump Replacement
June 22, 2011

Table 2 - Energy Comparison at Average Daily Flow				
Option	Open Screw Pump	Enclosed Screw Pump	Submersible Pump	Vertical Turbine Solids Handling (VTSH) Pump
Design Flow, mgd	11.4	11.4	11.4	11.4
Design Wetwell Level, feet	1832.90	1832.90	1834.76	1834.76
Discharge Elevation, feet	1846.64	1846.74	1848.64	1848.64
Losses, feet	1.30	1.50	0.81	0.81
Total Dynamic Pumping Head, feet	15.04	15.34	14.69	14.69
Total Work Done, bhp	30.1	30.7	29.4	29.4
Pump Efficiency, percent	70%	85%	68%	80%
Pump Shaft Power, bhp	43.0	36.1	43.2	36.7
Gear Box Efficiency, percent	95%	95%	---	---
Belt Drive	97%	97%	---	---
Motor Output Shaft Power, bhp	46.6	39.2	43.2	36.7
Motor Nameplate Rating, hp	60.0	50.0	60.0	60.0
Motor Efficiency, percent	94%	94%	88%	92%
AFD Efficiency, percent	---	---	94%	94%
Motor Input Power, kW	37.0	31.1	39.0	31.7
Yearly Power Cost, $	$17,837	$14,982	$18,780	$15,269

Table 3 - Efficiency Comparison at Peak Flow				
	Open Screw Pump	Enclosed Screw Pump	Submersible Pump	Vertical Turbine Solids Handling (VTSH) Pump
Design Flow, mgd	15.0	15.0	15.0	15.0
Design Wetwell Level, feet	1834.76	1834.76	1834.76	1834.76
Discharge Elevation, feet	1846.64	1846.74	1848.64	1848.64
Losses, feet	2.31	2.30	1.54	1.54
Total Dynamic Pumping Head, feet	14.19	14.28	15.42	15.42
Total Work Done, bhp	37.4	37.6	40.6	40.6
Pump Efficiency, percent	70%	85%	59%	80%
Pump Shaft Power, bhp	53.4	44.2	68.8	50.7
Gear Box Efficiency, percent	95%	95%	---	---
Belt Drive	97%	97%	---	---
Motor Output Shaft Power, bhp	57.9	48.0	68.8	50.7
Motor Nameplate Rating, hp	60.0	50.0	60.0	60.0
Motor Efficiency, percent	94%	94%	89%	94%
AFD Efficiency, percent	---	---	97%	97%
Motor Input Power, kW	46.0	38.1	59.5	41.5

RESOLUTION 2011-155

WHEREAS, the City of Grand Island Wastewater Division requires engineering services in Spiral Screw Pump Repair; and

WHEREAS, on May 3, 2011 proposals were received, reviewed and evaluated; and

WHEREAS, Black & Veatch Corporation of Kansas City, Missouri submitted a proposal with the work performed at actual costs with a maximum amount of $7,200.00; and

WHEREAS, Black & Veatch Corporation of Kansas City, Missouri prepared technical memorandum titled "Screw Pump Replacement Evaluation"; and

WHEREAS, Black & Veatch Corporation of Kansas City, Missouri recommendation in repair of the existing spiral lift pump and provide similar repair in others for a continued useful life; and

WHEREAS, City staff recommends continuing consulting engineer scope of work in final construction document services; and

WHEREAS, City staff has negotiated with Black & Veatch Corporation of Kansas City, Missouri in final construction document services at $35,770.25 being fair and reasonable; and

NOW, THEREFORE, BE IT RESOLVED BY THE MAYOR AND COUNCIL OF THE CITY OF GRAND ISLAND, NEBRASKA, that the Amendment Number 2 of Black & Veatch Corporation of Kansas City, Missouri for engineering services for Aeration Basin Improvements at the Wastewater Treatment Plant is hereby approved.

BE IT FURTHER RESOLVED, that the Mayor is hereby authorized and directed to execute Amendment Number 2 on behalf of the City of Grand Island.

BE IT FURTHER RESOLVED, that City staff is hereby authorized and directed to negotiate contractual change in work with contracting firm Oakview dck Construction.

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Adopted by the City Council of the City of Grand Island, Nebraska, June 28, 2011.

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Jay Vavricek, Mayor

Attest:

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RaNae Edwards, City Clerk

Approved as to Form ¤ ___________	
June 22, 2011 ¤ City Attorney	