

COUNCIL ACTION FORM

SUBJECT: BASIN LINER REPLACEMENT AND WPC FACILITY BIOSOLIDS DISPOSAL OPERATIONS CHANGE ORDERS

BACKGROUND:

On September 11, 2012, City Council awarded a contract to Ames Trenching and Excavating of Ames, Iowa in the amount of \$109,500 to repair the synthetic liners on two equalization (EQ) basins and one biosolids holding basin. The identified repairs were above the water line around the perimeter of the basins.

Once the cleaning of the basins was under way (necessary to facilitate the repairs), it was discovered that there were major liner failures located in the bottom of the basins. **The basins are rendered unusable until the integrity of the liner can be restored; and the City's consulting engineer on this project has recommended complete replacement of the liners on an emergency basis.** A copy of that recommendation is attached.

These replacements need to be initiated immediately for several reasons. One function of the EQ basins is to be able to isolate untreatable flows such as high pH or color, both of which have been experienced in recent history. Without the ability to do this, these conditions could substantially degrade the biological process on which the plant depends for proper treatment for several weeks. Regarding the biosolids basin, land application can only occur during small windows in the spring and fall seasons. During the rest of the year the basin is needed to store the solids. We are entering the winter season and need the biosolids basin back in service to store solids until springtime.

The liner replacement is temperature-dependent. Welding the seams of the liner cannot occur below temperatures of 25° F. There is also concern regarding frozen ground and being able to perform the necessary grading to support the synthetic liners.

In order to perform the necessary repairs, the basins require complete removal of all liquid and any remaining solids. These solids are handled as biosolids and must be disposed of in the same manner as the routine biosolids by land application. On June 12, 2012, City Council awarded a contract to Nutri-Ject Systems, Inc. of Hudson, Iowa in the amount of \$48,974.66 to complete the third year of a three-year biosolids disposal operation at the Water Pollution Control Facility. Staff has determined that Nutri-Ject Systems can cost-effectively perform this emergency work in conjunction with the regular biosolids disposal operations that are occurring concurrent to the liner repair activity.

A change in contract scope is necessary for both Ames Trenching and Nutri-Ject to complete the necessary work. Staff is still working with both contractors to obtain firm pricing. Staff intends to provide these details prior to Tuesday night's Council meeting.

Current cost estimates for this work are shown below, followed by funding sources identified for these unanticipated expenses.

Estimate for Liner Replacement

	\$98,818		
EQ Basin Replacement	each	\$197,636	Est
Sludge Basin Replacement		\$109,054	Est
Additional Engineering		\$7,000	Firm
Dewatering			
	Nutri-Ject Activities	\$46,000	Est
	Ames Trenching Activities	\$1,800	Est
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		\$361,490	
Contingency 20%		\$72,298	
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Total Estimated Expenses		\$433,788	

Funding Sources

Current Ames Trenching Contract Net	\$108,672
Savings on WPC Raw Water Pump Station Painting Project	\$68,000
Savings on Motor Control Center #1 Project	\$25,000
Biosolids Application Funding Available in Operating Budget	\$51,000
Savings from previous years' sewer rehabilitation CIP*	\$181,116
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Total Available Funding	\$433,788

*Approximately \$450,000 in previous years' sanitary sewer rehabilitation CIP funding has been carried forward to cover the costs of emergency sewer repair and replacement. Although \$250,000 of that amount was recently earmarked for replacement of the Douglas Avenue sewer, the balance is available to help cover the cost of these emergency liner replacements.

ALTERNATIVES:

1. Approve the following contract change orders and budget amendments.
 - a. Authorize staff to negotiate a change order with Ames Trenching at an estimated amount of \$370,188 total contract price.
 - b. Authorize staff to negotiate a change order add with Nutri-Ject at an estimated amount of \$55,200.
 - c. Authorize staff to execute a change order add with FOX Engineering of \$7,000 for additional design and inspection services.
 - d. Authorize budget amendments as described in the table above.

2. Do not authorize the contract changes or budget adjustments specified above. The basins with damaged liners would thus not be returned to service.

MANAGER'S RECOMMENDED ACTION:

The emergency situation with the equalization basins is the result of unforeseen conditions that could not be discovered earlier in the process due to the residuals deposited on the bottom of the basins that needed to be removed to expose these areas. **Replacement of the liners is paramount to successful operation of the plant, as well as preventing a discharge to the receiving stream that would be in violation of our NPDES permit. Funding has been identified to support moving forward on an emergency basis with the changed project scope.**

Therefore, it is the recommendation of the City Manager that the City Council approve Alternative No. 1, thereby approving contract change orders with Ames Trenching, Nutri-Ject, and FOX Engineering and authorizing the redirection of funds as described above.



November 19, 2012

Steven Duvall, Assistant Director
Ames Water & Pollution Control Department
300 E. 5th St., Building 1
Ames, Iowa 50010

**Re: Flow EQ Liner Repair
Ames WPCP**


Dear Mr. Duvall:

We are writing today to recommend that the City pursue emergency replacement of the liners for the two Flow Equalization basins and one sludge storage lagoon at the Ames Water Pollution Control Plant. These basin liners were investigated about 1-1/2 years ago to look at repairing the damages and extend the life of the membranes. However, since that time extensive additional damage has occurred to the liners and they are currently not serviceable. The City also recently had all three basins cleaned to determine the liner condition in the bottom of the lagoons. During this process over the last several weeks it was found that several tears in the liner are present in the bottom of the sludge storage lagoon and the west Flow EQ basin. Because of the condition of these liners, it would not be acceptable to IDNR to place waste material back in these leaking basins.

In our meeting today with you, Jim McElvogue and other city staff it was apparent that the city must be able to have serviceable sludge storage and Flow EQ facilities. Staff indicated that the Flow EQ facilities are most critical as they may be needed to protect against industrial flow components that could be detrimental to the plant as well as maintain peak flow volumes. One basin can be used on a temporary basis while the liners are replaced. It was also reported that the city does not have other existing sludge storage facilities and any biosolids production will need to be land applied on a continual basis without the storage lagoon facility. This will be difficult given the impending winter conditions and land application will be near impossible later this winter. Therefore the sludge storage liner also needs replacement to provide storage through the winter and meet IDNR's sludge storage requirements of six months.

We recommend that the City initiate emergency procedures to replace the liners in all three basins rather than proceed with our current project of repairing these liners. These liners are original with the plant construction and are past their usable life. In order to operate the plant consistent with IDNR regulations these facilities will need to be available for operations. We are providing recommendations on material types and installation procedures under separate cover. Please contact us with any other questions.

Respectfully submitted,
FOX Engineering Associates, Inc.


Keith L. Hobson, P.E., BCEE
Principal

cc: Jim McElvogue