CITY COUNCIL COMMUNICATION:

98-195

AGENDA:
MAY 18, 1998

SUBJECT:
PROFESSIONAL SERVICES AGREEMENT TO PROVIDE A STUDY FOR THE GRIT HANDLING FACILITIES PROJECT AT THE WRA REGIONAL WASTEWATER TREATMENT PLANT

TYPE:
RESOLUTION
ORDINANCE
RECEIVE/FILE

SUBMITTED BY:
HAROLD SMITH
CITY ENGINEER

ITEM ____

OFFICE OF THE CITY MANAGER
CITY OF DES MOINES, IOWA

SYNOPSIS –

An agreement has been negotiated with the professional engineering firm of Black & Veatch (a limited liability partnership, P. J. Adam, CEO, 8400 Ward Parkway, PO Box 8405, Kansas City, Missouri, 64114) to provide engineering services for a study to produce information necessary to identify the improvement or replacement components of the grit handling facilities at the WRA Regional Wastewater Treatment Plant. The proposed agreement is a lump sum fee arrangement and provides for professional engineering services for the study phase of the proposed project.

FISCAL IMPACT –

The proposed lump sum fee for such work is $47,000. Funds to support this project will be provided by fund account number 396267 on page 368 of the 1998-99 Capital Improvements Program entitled WRA Regional Wastewater Treatment Plant-General Replacement and Facility Modifications, utilizing funds on hand from the WRA Operating Budget Fiscal Year July 1, 1997 to June 30, 1998 identified on pages 69 and 70.

RECOMMENDATION –

Approval of the proposed Professional Services Agreement with Black & Veatch.

BACKGROUND –

The WRA wastewater reclamation facility is currently treating an average of 41 million gallons of sewage per day. The plant has six tanks equipped with aeration equipment to remove grit from the wastewater as part of the initial treatment process. At the present time the grit collected in the tanks must be

continually removed from each tank on a rotational basis which results in two tanks being out of service at a time. Removing two tanks from service at the same time significantly reduces the overall capacity of the system to handle the plant design flows.

A manually operated overhead gantry crane with a clamshell bucket removes grit from each tank after the water has been drained from the tank. Grit is discharged from the clamshell bucket into bins that are located in the ceiling of the grit structure. The grit is then dropped from the bins onto a belt conveyor which travels horizontally, then rises 24 feet and deposits the grit into a dispensing hopper located in the upper level of the adjacent grit handling building. Grit is stored at this location until it is conveyed by auger to a pug mill for blending with grease, which has been removed from the wastewater by another process, and kiln dust to allow for handling and odor control. The blended material is dropped into a truck and hauled to temporary storage on site until enough material can be accumulated and eventually hauled to the Metro Landfill for final disposal.

On frequent occasion heavy loads of grit and sand are flushed through the City sewer system and into the treatment plant. Often times the heavy grit loads will overload the capacity of the grit handling facilities and cause grit and sand to be washed through the treatment system and ultimately accumulate in the anaerobic digesters. Accumulations of grit and the excess water, needed for washing the added grit through the plant piping system to the digesters to avoid pipe clogging, degrades the anaerobic digestion process operation and reduces the production of gas that could be used for digester heating and in the plant’ s system for generating electricity using the gas as a fuel.

The aging existing gantry crane is susceptible to high winds, ice, and freezing and cannot be used during many normal environmental conditions. The crane has a history of maintenance problems and malfunctions and has not been reliable for year round service. Replacement parts are difficult to obtain and very expensive due to their sole source nature. When the crane has become inoperative because of needed repairs, it is necessary to rent a portable crane at great expense to fill in until the gantry crane is serviceable.

Continual problems resulting from the gantry crane, the

existing conveyance system, and the need to remove two grit tanks from service at once for grit removal has caused this system to be highly labor intensive, with high operation and maintenance costs, and significant safety concerns. This has prompted the need for an evaluation of possible improvements to the grit handling system to improve its reliability and safety as well as reduce operating costs.
