



REPORT TO MAYOR AND CITY COUNCIL

AGENDA ITEM

TO: THE HONORABLE MAYOR
AND CITY COUNCIL

DATE: May 4, 2010

SUBJECT: Sewer Trunk Pipeline lining Project (CIP # 07-31), Approve Plans and Specification and Authorize Bid Advertisement

Report in brief

In 1963 when the Water Pollution Control Facility was moved from Road 102 between Kentucky and Beamer to the Pond Treatment System south of I-5 and east of Road 103, the 36-inch sewer conveyance from the old plant to the new facility was constructed from Reinforced Concrete Pipe (RCP) south of Main Street. When the Water Pollution Control Facility was upgraded in 1982, a new 48-inch RCP line was constructed that combined flows from the 36-inch RCP Beamer Trunk Line and the 36-inch Vitrified Clay Pipe (VCP) Kentucky Trunk. As part of the City Sanitary Sewer Management Plan, a Closed Circuit Television (CCTV) inspection of the line was conducted and severe corrosion of the approximately 7,000 feet of RCP line was discovered. This damage was caused by the hydrogen sulfide gas generated in the biological process in the collection system. This project consists of lining the 36-inch RCP Beamer Trunk Line and the 48-inch RCP Beamer/Kentucky Sewer Trunk with the most cost effective slip lining product. The estimated construction cost is \$2.5M plus \$300,000 for project management & construction management. Total estimated project cost is \$2.8M.

Staff recommends that the City Council approve plans and specifications and authorize bid advertisement for the Sewer Pipeline lining project.

Background

As part of the City of Woodland's permit for the Wastewater collection system, the periodic inspection of the pipelines became part of the management plan. Inspection has helped staff identify problems and begin to develop a system for identification and prioritization of Capital repair projects in the collection system. In the past, capital repair of the collection system was coupled with street rehabilitation projects. The City has approximately 360 miles of sewer line ranging in age from over 100 years to the newest installation in Spring Lake. The pipe line materials range from laterals constructed from tar and paper (Orangeburg) to ductile iron in shallow street areas.

One material that has shown to be a problem is concrete sewer pipe. The problems stems from the biological formation of sulfuric acid corroding the concrete matrix and forming soluble gypsum from the Portland cement. The CCTV inspection program identified this section of pipe as having a severe corrosion problem as well as infiltration of groundwater of about 200 gallons per minute (gpm) or 280,000 gallons per day (gpd). Either one of these problems would warrant repair of this pipeline. The risk of this sewer pipe collapsing by the City's storm water outlet is of paramount importance and the large infiltration volume significantly increases the flow arriving at the sewage treatment plant. The photos from the CCTV inspection video illustrate the problem.

Photo 1. Concrete Corrosion and Exposure of Aggregate and Steel



Note the exposed gravel and the rusted steel reinforcement in this photo. The steel cage is located near the center of the concrete pipe wall. This shows that about a 3-inch thickness of material (about the same height of this picture) has been already been eroded away. As you can imagine, this is a very serious reduction in the strength of the pipe.

Photo 2. Infiltration of Groundwater



The "squirting" water is located at most joints along the 7,000 feet of pipeline. This is due to the sulfuric acid eroding the joint area and the high groundwater table forcing water into the pipeline. Note the water is 'jetting' into the pipe, not just dripping or flowing through the cracks. This indicates there is a great deal of water pressure pressing on the already weakened pipeline wall.

Discussion

The repair of the 7,000 feet of RCP sewer is an economic use of repair funds because the City will receive a better price due to the size of project. It is large enough to interest the larger contractors in today's economic environment. This work will also reduce the long term risk for failure along the entire length of the pipeline and reduce the impacts and risks associated with multiple contracts if the length of repair was reduced and multiple contracts were awarded.

It is important to proceed with this work as soon as possible in order to reduce the risk of pipeline failure.

The California Environmental Quality Act determination for this project is Categorically Exempt based on Article 19. A Class 2 project consists of replacement or reconstruction of existing structures and facilities. (Guidelines §15302).

Fiscal Impact

This project is funded by the sewer enterprise fund from Capital Budget project 07-31. Available budget for FY 2010 is \$2.8M; the total estimated cost of the project is approximately \$2.8M. Once bids are received, staff will come back to Council with actual bid costs for authorization to award the contract, which could require modifications to the scale of the project to fit within budget.

Public Contact

Posting of the Council Agenda

Alternative Courses of Action

1. Approve plans and specifications and authorize bid advertisement for the Sewer Trunk Pipeline lining project.
2. Do not approve plans and specification and authorize bid advertisement and give directions to staff for changes to be made for the project.

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Recommendation for Action

Staff recommends that City Council select Option #1 and approve plans and specifications and authorize bid advertisement.

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