

SULTAN CITY COUNCIL

AGENDA ITEM COVER SHEET

ITEM NO: A -5

DATE: March 22, 2007

SUBJECT: Recommended Purchase, Sewer Flow Recorders

CONTACT PERSON: Rick Cisar, Director of Community Development
Jon Stack, P.E., City Engineer

SUMMARY: The issue before the City Council is to authorize the purchase of flow recording equipment for an infiltration and inflow study.

The staff recommendation is to approve purchase of four recorders for \$14,446.00 plus tax.

There is funding available in the City's 2007 sewer fund capital budget. A specific line item for capital equipment will be added to the fund with approval of the budget amendment before the City Council this evening.

Solicitations for flow recording equipment were made in February, 2007. These flow recorders are to support the Inflow and Infiltration Study proposed to be completed by city staff in 2007.

The recorders will record actual sewage flows during low flows, during rain events, during high ground water situations and during winter rain events. This information will identify how much inflow and infiltration is actually happening at four pre-selected locations in the collection system. The recorders are downloaded onto a computer using its software. Graphs are prepared to identify the different components of the sewage flow.

A copy of the detailed scope of work for the I&I Study is attached to this cover sheet. This will explain in more detail how the flow recorders fit into the overall study and how without them the study cannot proceed.

Two bids were received by the City as follows and are attached.

- **Teledyne Isco (Whitney Equipment Company)**

New equipment: Includes four recorders, Flowlink software, communication cable, four each pipe mounting rings, freight allowance, and 5% discount. Total \$16,180.20

Demonstration equipment: Includes four recorders, Flowlink software, communication cable, four each pipe mounting rings, and freight allowance. Total \$14,446.00

One day of setup assistance for the four site locations will be provided for either the new or the demonstration equipment.

Both the new and the demonstration equipment have the same one year warranty.

- **Flo-Tote Company (Bainbridge Associates)**

New equipment: includes four recorders, Flow-Ware software, communication cable, four each pipe mounting bands, freight allowance, and start up and assistance training. Total \$16,640.00

One year warranty.

Costs do not include sales tax.

ALTERNATIVES:

The necessity and in-fact urgency for purchase of the flow recorders and completion of the I&I Study is found in the City's NPDES Permit issued by the State Department of Ecology for the City's sewage treatment plant, which contains the following requirements:

"E. Infiltration and Inflow Evaluation

1. The Permittee shall continue to investigate the sewage collection system to identify areas which have excessive infiltration or inflow. As resources permit, the permittee shall attempt to reduce excessive I&I reaching the wastewater treatment plant.

2. The Permittee shall submit an annual report by May 15 of each year, starting in 2007, summarizing the I&I investigations and correctional activities of the previous calendar year. If possible, an estimate of the amount of I&I reduction achieved should be included in the report. Also include the dry and wet weather flows and average flow to the plant for the year, and an average of these values for several previous years. A report format form is available from Ecology."

The City Engineer has experience with flow-recorders and has reviewed the two different manufacturers literature. They appear to be equal in function and reliability and should be considered on that basis. Whitney Equipment Company is a known company to the City, having provided equipment for the sewage pump station and the water treatment plant. For this project they have quoted both new and demo equipment.

The alternatives available to the City are whether to purchase new Teledyne equipment or save approximately \$1700 by purchasing the Teledyne demo equipment. Whitney Equipment has used the four available recorders in its sales efforts in the industry and they all are in excellent condition.

A do-nothing alternative is of course available. Without the flow recorders no progress can be made on the long term goal of removing excess inflow and infiltration from the sewer collection system.

FISCAL IMPACT:

Funds for the purchase are contained in the Water/Sewer Contingency Fund.

**STAFF
RECOMMENDATION:**

Staff recommendation is to approve purchase of the Teledyne demo equipment available through Whitney Equipment Company for \$14,446.00, plus sales tax. The equipment is encapsulated to operate in a wet manhole environment and should have a good service life.

RECOMMENDED MOTION :

Move to approve purchase of the Teledyne demo equipment available through Whitney Equipment Company for \$14,446.00 plus sales tax.

COUNCIL ACTION:

DATE:

ATTACHMENTS:

- A. I&I Scope of Work
- B. Bids Received

INFILTRATION AND INFLOW STUDY

Prepared by: Jon R. Stack, P.E.;

Synopsis: The Engineering Report, 2006, Brown and Caldwell, has identified rainfall dependent inflow and infiltration (I&I) that is being conveyed to the wastewater treatment plant (WWTP). Currently the City has the above engineer under contract to prepare a design for up-sizing the WWTP. Any excess I&I that can be prevented from entering the collection system will reduce both the required capacity of the new addition to the plant and reduce the treatment costs through treating a lesser quantity. It is proposed to complete an I&I study in-house using a team consisting of the City Engineer, a City employee and our contract inspector, Wayne Lawrence (Wayne will be used when not needed for inspection of the up-coming developer extension projects).

It is expected that this study will take approximately a year. Measurement of the flows in the collection system must be completed during both winter and summer months in order to identify the amount and location of excess I&I over base summer flows.

A portion of the requirements of the City's NPDES Waste Discharge Permit No. WA-002330-2, issued in April, 2006 contains the following:

E. Infiltration and Inflow Evaluation

1. The Permittee shall continue to investigate the sewage collection system to identify areas which have excessive infiltration or inflow (I/I). As resources permit, the permittee shall attempt to reduce excessive I/I reaching the wastewater treatment plant.

2. The permittee shall submit an annual report by May 15 of each year, starting in 2007, summarizing the I/I investigations and correctional activities of the previous calendar year. If possible, an estimate of the amount of I/I reduction achieved should be included in the report. Also include the dry and wet weather flows and average flow to the plant for the year, and an average of these values for several previous years. A report format form is available from Ecology.

Following are details of the work to complete the proposed study:

DRAFT SCOPE OF WORK

1. Extract waste water flow information from the 2006 Engineering Report developed for expansion of the Waste Water Treatment Plant.

2. Review past studies of the sewer collection system for information and recommendations regarding I&I.
3. Extract information regarding the collection system basins from Chapter 5 of the 2006 General Sewer Plan.
4. Install, setup and calibrate continuous flow recording equipment in selected sub-basins. Record flows during periods of dry weather and during periods of wet weather. In-house team with rented recorders.
 - a. Inspect all manholes for general condition and leaks. Prepare a recommended list of repairs to be made. In-house team.
5. Review and refine flow data and develop recommendations for smoke testing and video inspection.
6. Combine the video inspection records, manhole inspections, smoke testing results, and flow monitoring information; identify the corrections that are the most cost effective for I&I removal. Prepare a written document of the findings and recommendations.
7. Based on the above findings and budget approval by the City Council, prepare contract documents to solicit bids for the following work:
 - a. Contractor to complete cleaning and video inspection of selected lines.
 - b. Contractor to provide smoke testing of selected lines.
 - c. Contractor to fix leaks and general repairs to selected manholes.
 - d. Contractor to repair/replace selected sections of the collection system.

PRELIMINARY COST ESTIMATE, Scope items 1 through 6:

Purchase of flow recording equipment: Four units	\$15,700
Drafting and mapping services:	\$ 5,000
Wayne Lawrence for four months	\$36,000
Printing Services	\$ 2,300
Total	\$59,000

I & I STUDY TIME LINE

	Estimated Start Date
1. Council approval of budget for study	February 22, 2007
2. Order flow recorders	March 22, 2007
3. Install flow recorders in selected sewers	April 9, 2007
4. Initiate system manhole inspections	April – July, 2007
5. Develop study outline	April - May, 2007
6. Review 1 st two months flows	June – 2007
7. Identify manholes requiring remedial work	July, 2007
8. Preparation of study to 50% level	August– September, 2007
9. Prepare contracts for line cleaning/video	October, 2007
10. Prepare contracts for smoke testing	October, 2007
11. Prepare contracts for manhole repairs	October, 2007
12. Completion of study to 90% level	October, 2007
13. Prioritize collection system repairs	December, 2007
14. Prepare remedial work cost estimates	February, 2008
14. Develop financing plan for repair program	March, 2008
15. Prepare contracts for repair/replacement of selected sewer mains.	April – May, 2008
16. Completion of flow recording	April, 2008
17. Completion of study and recommendations	June, 2008
18. Repair/replacement construction	May – September, 2008



Bainbridge
Associates, Inc.

QUOTATION

Quotation Number BAI 07-0123-004rev# 1
 For: CITY OF SULTAN
703 FIRST STREET
SULTAN, WA 98294

Date: Monday, March 05, 2007
 Project: I & I FLOW STUDY
 Email: Jon.stack@ci.sultan.wa.us
 Contact: JON STACK
 Telephone: 360-793-2231
 Fax:

Quantity	Part No.	Description	Unit Price	Extended
	Flo-Tote 3	The Flo-Tote "3" for portable installation incorporates an Electromagnetic Velocity Sensor and Pressure Depth Transducer for use in Open Channel applications. It is available with a Portable Flo-Logger (battery powered data logger). The Flo-Logger is submersible and operates on two six- volt batteries. The Flo-Logger requires Flo-Ware software. Instruction manuals included. Applications: Portable flow monitoring in partially full pipes, rectangular channels, or any defined conduit. For use in sewage, water, or any conductive liquid.		
		Sensors-Choose One		
4	Model 3000-1	Flo-Tote 3 w/ 30 ft of Cable	\$955.00	\$3820.00
	Model 3000-2	Flo-Tote 3 w/ 60 feet of Cable	\$1015.00	
	Model 3000-3	Flo-Tote 3 w/ 100 feet of Cable	\$1185.00	
	Model 3000-4	Flo-Tote 3 w/ cable length as needed (maximum length 1000 feet)	\$1095.00 + \$3/ft	
		Logger		
4	Model 1003-10	Flo-Logger-Portable battery powered data logger	\$2695.00	\$10780.00
1	Model T200-120	The Flo-Ware for Windows Software Model T200 is a data management and instrument communication software package. The software package includes an instrument driver, chart reports; text reports; data editing; text report designer; and language designer, site set-up; data collection; real time; calibration, computer interface cable, and manual. Software is provided on CD only. Floppy discs copies can be produced from the CD supplied. Printed copies of manuals can be supplied at additional cost.	\$920.00	\$920.00
4		Spring mounting Bands (size to-be-determined)	\$155.00	\$620.00
1		Start - up Assistance and Training	\$500.00	\$500.00
ALL PRICES ARE IN USD (Start-Up, Freight, Taxes Not Included)			Total	\$16640.00

* NO RETAINAGE'S *
 This quote will be honored for 60 days from above date.

F.O.B. - Frederick, Maryland U.S.A. - Prepay & Add
 Delivery: 2 WEEKS ARO
 Payment Terms: NET 30 DAYS with approved credit, Master & Visa Card accepted.
 Quoted By: S.L. FETTERS

Controls for the Process Industry • Manufacturers Representative

Seattle Office
 P.O. Box 966 Olalla, WA 98359
 (253) 857-7800 • Fax (253) 857-6870
 e-mail: info@bainbridgeassoc.com

Portland Office
 1855 N. 10th Ct., Washougal, WA 98671
 (503) 697-9711 • Fax (503) 697-9970
 e-mail: knavidi@bainbridgeassoc.com

A.2-1

QUOTATION

condition that the terms stated below and on the attached are the exclusive terms and conditions of any resulting transaction.

QUOTATION NUMBER

This document is offered on the express

DATE: 3/7/2007

REFERENCE

Quotation #12830R3

City of Sultan
Jon Stack
319 Main Street
Sultan WA 98294

Phone 360-793-2231 Fax 360-793-3344

PLEASE ADDRESS PURCHASE ORDER TO:

Teledyne Isco
c/o Whitney Equipment Company, Inc.
21222 30th Drive SE Suite 110
Bothell, WA 98021
Phone 425-486-9499 Fax 425-485-7409

NEW EQUIPMENT:

Item	Quantity	Catalog Number	Part Description	Unit Price	Total Price
1	4	682050002	2150 Flow Module with 2191 Battery Module. Includes area/velocity sensor with 10 ft. (3m) level measurement range and 25 ft. (7.6m) cable, 2 battery holders, and carrying handle with suspension strap. Also includes instruction manual and coupon for free Isco Open Channel Flow Measurement Handbook. Requires Flowlink software and computer connect cable (sold separately).	3,645.00	14,580.00
2	1	682540200	Flowlink 5 Software, English language, single license. For retrieving flow, rainfall, parameter and sample data from Isco 2100 Series Modules and 2101 Field Wizard, 4100 Series Flow Loggers, 4200 Series Flow Meters, 6700 Series Samplers, 676 Logging Rain Gauge System, and 581 Rapid Transfer Device. Stores data in a Microsoft Access database and generates a variety of graphs and tables from stored data. Data can also be exported in ASCII format for analysis by programs such as Microsoft Excel, HTML format for viewing in a web browser, and PDF format for viewing in Adobe Reader. Operates on Windows 98, ME, NT, 2000, or XP. Supplied on CD-ROM.	1,876.00	1,876.00
3	1	602004507	RS232 communication cable, 10 ft. (3m). Connects 2100 module to PC with USB connector. Contact the factory for cable lengths up to 50 ft.	200.00	200.00
4	4	68-3200-009	10" mounting ring	65.00	260.00
5	1		5% discount for new equipment		-845.80
6	1	FREIGHT7	Standard Ground Freight Rate (Total Merchandise Value \$12,500.00-\$24,999.99)	110.00	110.00
				TOTAL	\$16,180.20

A2-2

2150 Demonstration Equipment

1	4	682050002	2150 Flow Module with 2191 Battery Module. Includes area/velocity sensor with 10 ft. (3m) level measurement range and 25 ft. (7.6m) cable, 2 battery holders, and carrying handle with suspension strap. Also includes instruction manual and coupon for free Isco Open Channel Flow Measurement Handbook. Requires Flowlink software and computer connect cable (sold separately).	\$3,000.00	\$12,000.00
2	1	682540200	Flowlink 5 Software, English language, single license. For retrieving flow, rainfall, parameter and sample data from Isco 2100 Series Modules and 2101 Field Wizard, 4100 Series Flow Loggers, 4200 Series Flow Meters, 6700 Series Samplers, 676 Logging Rain Gauge System, and 581 Rapid Transfer Device. Stores data in a Microsoft Access database and generates a variety of graphs and tables from stored data. Data can also be exported in ASCII format for analysis by programs such as Microsoft Excel, HTML format for viewing in a web browser, and PDF format for viewing in Adobe Reader. Operates on Windows 98, ME, NT, 2000, or XP. Supplied on CD-ROM.	1876.00	1876.00
3	1	602004507	RS232 communication cable, 10 ft. (3m). Connects 2100 module to PC with USB connector. Contact the factory for cable lengths up to 50 ft.	200.00	200.00
4	4	68-3200-009	10" mounting ring	65.00	260.00
5	1	FREIGHT7	Standard Ground Freight Rate (Total Merchandise Value \$12,500.00-\$24,999.99)	110.00	110.00
				TOTAL	\$14,446.00

One day of setup assistance for the 4 site locations will be provided for either the new or the demonstration equipment. If further assistance is needed when you first download the equipment, I will also be available.

Shipping costs may change if shipping to more than one location. See www.isco.com for anti-boycott statement.

Prices are F.O.B. Factory - Prepaid and Added.
 Charges for expedited or premium transportation shall be for the account of the purchaser.
 Estimated shipment 2 week(s) after receipt of order.
 Prices include packing for domestic shipment.
 Any applicable sales tax is not included unless noted.

These prices are valid for 30 days.

By: _____
 Laura Haggard
 Authorized Representative

**Teledyne
 Isco**

Teledyne Isco, Inc.
 4700 Superior Street
 Lincoln, NE 68504-1398

Phone: (800) 228-4373
 Phone: (402) 464-0231
 FAX: (402) 465-3022

Federal I.D. No.: 47-0461807
 Duns No.: 00-727-4194