City of Fayetteville, Arkansas
Purchasing Division – Room 306
113 W. Mountain
Fayetteville, AR 72701
Phone: 479.575.8220
TDD (Telecommunication Device for the Deaf): 479.521.1316

INVITATION TO BID

INVITATION TO BID: BID 09-70, Sewer Flow Monitors
DEADLINE: Tuesday, November 24, 2009 at 2:00 PM, Central Standard Time
DELIVERY LOCATION: Room 306 – 113 W. Mountain, Fayetteville, AR 72701
PURCHASING AGENT: Andrea Foren, CPPB, aforen@ci.fayetteville.ar.us, 479.575.8220
DATE OF ISSUE AND ADVERTISEMENT: Friday, November 13, 2009

INVITATION TO BID
BID 09-70, Sewer Flow Monitors

No late bids will be accepted. Bids shall be submitted in sealed envelopes labeled "Bid 09-70, Sewer Flow Monitors" with the name and address of the bidder.

All bids shall be submitted in accordance with the attached City of Fayetteville specifications and bid documents attached hereto. Each bidder is required to fill in every blank and shall supply all information requested; failure to do so may be used as basis of rejection.

The undersigned hereby offers to furnish & deliver the articles or services as specified, at the prices & terms stated herein, and in strict accordance with the specifications and general conditions of bidding, all of which are made a part of this offer. This offer is not subject to withdrawal unless upon mutual written agreement by the Proposer/Bidder and City Purchasing Manager.

Name of Firm: _____

Contact Person: _____ Title: _____

E-Mail: _____ Phone: _____

Business Address: _____

City: _____ State: _____ Zip: _____

Signature: _____ Date: _____

1. All bids shall be submitted in a sealed envelope and must be submitted on forms acquired by the vendor from the City of Fayetteville Purchasing website (www.accessfayetteville.org). Bids with missing pages or missing any requested attachment will be deemed incomplete.

2. The item bid and the bid number shall be stated on the face of the sealed bid envelope.

3. Bids received after the date and time set for receiving bids will not be considered.

4. The City reserves the right to accept or reject any or all bids, waive formalities in the bidding and make a bid award deemed to be in the best interest of the City.

5. The quantities listed are based on the needs of the City and availability of funds at the time bids are posted. The City shall be able to purchase more or less than the quantity indicated subject to availability of funds or change in needs.

6. The bid price shall remain good and firm until project is completed. Payment to the vendor by the City will be made within 30 days following delivery and acceptance in accordance with these specifications and the City's Purchase Order to the vendor. Faster payment is offered through acceptance of Visa.

7. All products delivered shall comply with applicable standards of quality.

8. Any exceptions to the specification requirements of the City of Fayetteville must be noted on the Bid Form.

9. Prices shall include all labor, materials, overhead, profit, insurance, shipping, freight, etc., to cover the furnishing of the items bid. ***Sales tax is not to be included in the bid price***. Applicable Arkansas sales tax laws will apply to this bid, but will not be considered in award of the bid.

10. Each bidder shall state on the face of the bid form the anticipated number of days from the date of receipt of an order for delivery of equipment and installation to the City of Fayetteville. Failure to deliver on or before the time specified in the contract may subject the contractor to payment of damages or other appropriate sanctions.

11. Copy of the warranty shall accompany the bid, and any exceptions to the warranty shall be clearly noted on the bid form. Written warranties shall specify the greater of the manufacturer's standard warranty or the minimum warranty specified herein by the City.

12. Bidders must provide the City with their bids signed by an employee having legal authority to submit bids on behalf of the bidder. The entire cost of preparing and providing responses shall be borne by the bidder.

13. The City reserves the right to request any additional information it deems necessary from any

or all bidders after the submission deadline.

14. The request for bid is not to be construed as an offer, a contract, or a commitment of any kind; nor does it commit the city to pay for any costs incurred by bidder in preparation of bid.

15. If products and/or components other than those described in this bid document are proposed, the bidder must include complete descriptive literature and technical specifications. All requests for additional information must be received within five working days following the request. Each apparent low bid will be reviewed line by line to ensure compliance with specifications prior to recommendation for award.

16. Bids must be received by mail or hand delivery in the ***Purchasing Office, Room 306, 113 W. Mountain St. Fayetteville, AR 72701***, on or before the time of closing listed on the face of the bid. **No bids shall be accepted via e-mail or fax.**

17. The City will not be responsible for misdirected bids. Vendor should call the Purchasing Office at (479) 575-8220 to insure receipt of their bid documents prior to opening time and date listed on the bid form.

18. Items bid must be delivered FOB City of Fayetteville West Side Wastewater Treatment Plant, 15 S. Broyles Road, Fayetteville, AR 72701. Units must be fully assembled, serviced, and ready for operation as delivered unless otherwise specified. No dealer/distributor logo or other identification will be installed other than standard manufacturer name badges and specification plates.

19. Any discrepancy between the specifications and plans should be brought to attention immediately, in writing, to Andrea Foren at aforen@ci.fayetteville.ar.us .

20. Any reference to a particular brand or manufacturer is done in an effort to establish an acceptable level of quality for this project. Brands or manufacturers that are included in bid that are of at least equal quality, size, design, and specification as to what has been specified, will be acceptable for consideration only if approved by the City of Fayetteville Purchasing Division. The City of Fayetteville reserves the right to accept or reject any requested equal.

21. Price bid shall include warranty, including but not limited to parts and labor, at no additional cost to the City of Fayetteville, as specified herein.

22. **NOTE: Any uncertainties shall be brought to the attention to Andrea Foren immediately via telephone (479.575.8220) or e-mail (aforen@ci.fayetteville.ar.us). It is the intent and goal of the City of Fayetteville Purchasing Division to provide bid packets that provide a clear and accurate understanding of the scope of work to be completed and/or goods to be provided. We encourage all interested parties to ask questions to enable all bidders to be on equal bidding terms & documents.**

23. "Pursuant to Arkansas Code Annotated §22-9-203 The City of Fayetteville encourages all *qualified* small, minority and women business enterprises to bid on and receive contracts for goods, services, and construction. Also, City of Fayetteville encourages all general contractors to subcontract portions of their contract to *qualified* small, minority and women business enterprises."

24. The City of Fayetteville shall take ownership of product when products bid arrive undamaged at the specified shipping location.

25. **ANY EXCEPTION TAKEN TO THESE SPECIFICATIONS AND BID DOCUMENTS SHALL BE NOTED ON THESE DOCUMENTS. BIDDERS SHALL NOTE THE DIFFERENCE NEXT TO THE RELATED SPECIFICATION. THE CITY RESERVES THE RIGHT TO ACCEPT OR REJECT EXCEPTIONS TO SPECIFICATIONS.**

1.0 Description

1.1 The City of Fayetteville is requesting sealed bids for the purchase of seventeen (17) sewer flow monitors. The purchase is for equipment and software only. The flow monitors will be installed as part of the City's long term sewer flow monitoring program.

2.0 Flow Monitoring Equipment

2.1 Minimum Flow Monitor Requirements

2.1.1 A flow monitor installed at the sewer manhole location with enough memory to ensure that adequate data at 15 minute intervals can be stored. The data logger shall have a memory of 1Mb or larger and support a circular buffer with the oldest data only being written over once the memory is filled.

2.1.2 The flow monitor model supplied should be able to support single or dual pipe flow measurements with the same electronics and data logger for ease of installation.

2.1.3 The flow monitor shall be able to record in surcharged conditions with no loss in data integrity.

2.1.4 Connectors: U.S. MIL-C-26482 Series 1 Type hard anodized aluminum with interfacial seals and gold plated contacts shall be used for all connections.

2.1.5 Mounting: The equipment shall employ an integral mounting flange on top of canister, with two 3/8" holes to attach to a wall or other metal mounting handle.

2.1.6 All mounting hardware shall be stainless steel and shall include the pipe mounting bands of appropriate size for each site location and pipe configuration as indicated in the Bid Form.

2.1.7 Data Recording Interval: Shall support data recording rates at standard intervals of 1, 2, 2.5, 5, 15 and 30 minutes or 1, 2, 12 or 24 hours.

2.1.8 Memory: The unit shall provide at minimum 1MB non-volatile and 512KB static RAM. Data storage will be minimum 365 days (using a 15-minute sample rate and all sensors configured). Memory shall support a circular buffer with the oldest data only being written over once the memory is filled.

2.1.9 Dual Data Rate: Shall support the configuration of the data logger automatically switching into a faster data sampling and recording interval once a user-defined depth trigger has been exceeded. The data recording interval will return to normal at such time as the depth trigger is no longer exceeded.

2.1.10 Firmware Upgrades: The monitor shall be capable of receiving remote firmware upgrades via wireless or land-line connection or via local serial connection.

2.1.11 Temperature range: The unit shall function within specifications between 0 and 60° C (32 and 140° F).

2.1.12 Clock: Unit shall employ a battery backed crystal controlled real-time clock/calendar.

2.1.13 Self Checking: The monitor shall perform self checks of internal systems and battery voltages. Any values that are outside normal levels shall be annunciated via alarms (if enabled), or via notifications in collected data logs.

2.1.14 Modbus Support: Each monitor shall be capable of serving as a Modbus slave. The polling device (RTU, PLC, etc.) shall initiate a read of the holding registers, and receive a real-time snapshot of all sensor and diagnostic information at the time of the request. The monitor shall support connection using Modbus ASCII or RTU via RS232 connection. All monitors shall support wireless or land-line telemetry concurrently with Modbus communication. Monitors shall be capable of being configured with unique slave addresses.

2.2 Communication

2.2.1 Each monitor shall be delivered with one standard RS232 serial port for local on-site communication with a personal computer. For remote (telemetered) access, each monitor shall be fitted with either an internal land line modem, or with a quad-band (850/900/1850/1900MHz) wireless modem. The wireless modem shall utilize the GSM/GPRS network and use SIM cards provisioned with static IP addresses. The manufacturer's software shall be able to access the monitor via local or wireless connection.

2.2.2 Land line and wireless modems shall be internally mounted in the flow monitor canister and is the preferred hardware configuration, versus an externally wired land line or wireless modems requiring an additional canister.

2.2.3 Wireless Communication Diagnostics: The user shall be able to access the signal strength and battery voltage while on-line with the unit. The unit shall also self-monitor wireless connection quality and perform connection refreshes as required to be ready to service incoming connection requests.

2.2.4 Remote (Telemetered) Data Access: The unit shall continuously be on-line and available to answer in-coming connection requests. Units fitted with wireless modems shall remain connected to the GSM/GPRS network.

2.2.5 Antenna: For wireless configurations, the vendor shall offer a selection of antenna types depending on installation requirements. The selection shall include direct burial road surface

antennas, stub type enclosure antennas, whip type roof mount antennas and high gain unidirectional elements. Connection type shall be SMA.

2.3 Sensors

2.3.1 The monitor shall be capable of connecting to one Doppler velocity and two independent depth sensor (ultrasonic and pressure depth).

2.3.1.1 Ultrasonic Depth Sensor

A. Housing: Sensor shall be constructed of marine grade aluminum/epoxy and have integral flanges for attaching to brackets or to rings using slide-mounts. The sensor shall be fully sealed and capable of withstanding continuous submersion.

B. Mounting: Sensor shall be capable of installation in the pipe, or outside as needed to be positioned above the fluid. Sensor shall support a mounting mechanism that allows for the replacement of the sensor without the removal of the in-pipe installation ring. An optional mount shall also be available for mounting in the manhole or other structure.

C. Range: Shall be able to measure from 0.5 inch to 10 feet from the face of the sensor.

D. Ultrasonic Crystal Frequency: 40 kHz

E. Resolution: 0.02” increments.

F. Accuracy: 0.125”

G. Dead Band: The ultrasonic sensor Dead Band shall be less than 1.0 inch. Multiple transducers in a single sensor or other means shall be employed to achieve <1” Dead Band performance. Sensors that employ passive delay (reflector) methods to reduce Dead Band shall not be considered.

H. Sensor Height: The sensor shall be low-profile. Total height shall be equal to or less than 0.88” to minimize impact on pipe cross section.

I. Connector: The sensor shall be provided with a permanently attached connector suitable for continuous immersion and fitted with U.S. Mil spec gold plated contacts.

J. Drift: None (0.00”)

K. Temperature compensation: Range readings shall be compensated for changes of the speed of sound in air. Sensor temperature readings must be available to user for both diagnostic as well as logging purposes.

L. Cable Length: Shall support a standard cable length of 35 feet and be capable of extended lengths of up to 300 feet.

M. Measurement Technique: Shall measure the elapsed time between the transmission of the ultrasonic signal and the return echo. Measurements shall be repeated automatically and a statistical analysis shall be performed of the return echoes to determine and discard false or multiple echoes. Digital signal processing shall be used to detect the true water surface return. The results shall be averaged into an averaged elapsed time. The distance between the transmitter and the water surface shall be automatically calculated and the final range of measurement shall be stored in the data logger memory.

N. Sensor Validation: Ultrasonic sensor readings shall be checked at the monitor level by comparing readings from each ultrasonic depth sensor against its past performance and against the expected depth vs velocity relationship.

O. Filtering: Shall support advanced software filtering to help compensate for adverse monitoring conditions such as surcharge, waves, foam and acoustical and electrical noise.

P. Quality: Each ultrasonic readings stored in memory shall have an associated quality reading stored also. The quality shall range from 0% (poor) to 100% (no problems).

2.3.1.2 Pressure Depth Sensor

A. Sensor Type: Shall be a Gauge type transducer and measure the difference between atmospheric and water height pressure.

B. Size: Sensor shall be hydrodynamic to minimize flow disruption. Sensor height not to exceed 1.2”.

C. Range: Options for 0.0 to 5.0, 15.0 and 30.0 psi shall be available.

D. Resolution: 0.025% of full scale.

E. Accuracy: 0.25% of full scale.

F. Cable Length: Shall support a standard cable length of 40 feet and support an extended cable length up to 300 feet.

G. Connector: The sensor shall be provided with a permanently attached connector suitable for continuous immersion and fitted with U.S. Mil spec gold plated contacts.

H. The pressure depth sensor will not be used as a primary depth measuring device and will only be used as a backup to ultrasonic depth and/or to measure the depth of surcharge in a manhole.

I. Self Checks: During free-flow conditions, the pressure sensor shall automatically check itself against the Ultrasonic depth sensor. These self checks shall occur at least once daily.

2.3.1.3 Velocity Sensor

A. Sensor type: The velocity sensor shall be of the ultrasonic Doppler type. The sensor shall transmit ultrasonic signals throughout the entire flow cross-section. Electro-magnetic type (point velocity) will not be acceptable.

B. Housing: Solid machined PVC/ epoxy.

C. Size: Sensor shall be very low profile. Height shall not exceed 0.5” to minimize flow disruption.

D. Range: -20.0 to +20 feet per second (fps)

E. Resolution: 0.04 fps

F. Accuracy: +/-0.8% Full Scale – 0.0 to 5.0 fps; +/- 1.2% Full Scale – 5.0 to 10.0 fps; +/- 2.8% Full Scale – 10.0 to 20.0 fps.

G. Flow Direction: The velocity sensor shall be capable of measuring flow in both forward and reverse directions.

H. Cable Length: Shall support a standard cable length of 40 feet and support an extended cable length up to 300 feet.

I. Connector: The sensor shall be provided with a permanently attached connector suitable for continuous immersion and fitted with U.S. Mil spec gold plated contacts.

2.4 Warranty

2.4.1 All equipment specified shall be guaranteed for a period of one (1) year from the date of delivery. The warranty shall cover all defects in material and workmanship.

3.0 Software

3.1 General

3.1.1 Software shall be developed by an ISO9001 certified company.

3.1.2 Software shall operate on a Microsoft® Windows XP platform.

3.1.3 Software shall use Microsoft® Dial-Up Networking software for communications with data logger. Windows XP (sp2) compatible or higher.

3.1.4 The software system shall have the ability, at a minimum, to display and export data for each site in the following formats:

3.1.4.1 Hydrograph: Shall have the capability to display a time series graph of multiple data types with the ability to segment data based on intervals (e.g. "weekly") over the user specified time period;

3.1.4.2 Scattergraph: Shall have the capability to display a depth to velocity graph for the specified time period with the ability to select a data point to see the actual value for that data point;

3.1.4.3 Tabular: Shall have the capability to display data in both tables for viewing and a CSV format for download shall be available.

3.2 Telemetry

3.2.1 The software shall have the capability of remotely communicating with the equipment specified.

3.3 Training and Support

3.3.1 The supplier shall provide training on the use of the software to the City of Fayetteville.

3.3.2 The supplier shall provide telephone support to the City of Fayetteville using personnel experienced in troubleshooting problems with the specified software.

NOTE: ANY EXCEPTION TAKEN TO THESE SPECIFICATIONS AND BID DOCUMENTS SHALL BE NOTED ON THESE DOCUMENTS. BIDDERS SHALL NOTE THE DIFFERENCE NEXT TO THE RELATED SPECIFICATION. THE CITY RESERVES THE RIGHT TO ACCEPT OR REJECT EXCEPTIONS TO SPECIFICATIONS.

The following details are hereby provided as further information to bidders. **Line items reference the same item as presented in the bid form**.

Line Item	Location	Pipe Diameter(s) (inches)	Channels	Power	Communication
001	2000 Sunshine Rd	15	Single	External	Modbus and land-line modem
002	2081 County Rd 877	24	Single	External	Modbus and land-line modem
003	WL-4, Hamestring LS	48	Single	External	Modbus and land-line modem
004	Quality Lane	36	Single	External	Modbus and land-line modem
005	North Street	24	Single	External	Modbus and land-line modem
006	3600 N Gregg Ave	15 & 16	Dual	External	Modbus and land-line modem
007	3770 N Mall Ave	30	Single	External	Modbus and land-line modem
008	2911 N Crossover Rd	12 & 18	Single	External	Modbus and land-line modem
009	3016 Summer Shade Dr	18	Single	External	Modbus and land-line modem
010	Noland Gate	24 & 24	Dual	External	Modbus and land-line modem
011	Noland 42	42	Single	External	Modbus and land-line modem
012	Noland 36	36	Single	External	Modbus and land-line modem
013	Mally Wagnon LS, Include 50' of extra cable for each sensor	18	Single	External	Modbus and land-line modem
014	Hannah's	30 & 42	Dual	External	Modbus and land-line modem
015	LS-12, Farmington LS	21	Single	External	Modbus and land-line modem
016	WL-3, Porter	24	Single	External	Modbus and land-line modem
017	Hannah's #2	30	Single	External	Modbus and land-line modem

***GUARANTEED DELIVERY DATE: _____**

F.O.B. Fayetteville West Side Wastewater Treatment Plant, 15 South Broyles Road, Fayetteville, AR 72701

Line Item	Location	Pipe Diameter(s) (inches)	Channels	Bid Price
001	2000 Sunshine Rd	15	Single	$ _____
002	2081 County Rd 877	24	Single	$ _____
003	WL-4, Hamestring LS	48	Single	$ _____
004	Quality Lane	36	Single	$ _____
005	North Street	24	Single	$ _____
006	3600 N Gregg Ave	15 & 16	Dual	$ _____
007	3770 N Mall Ave	30	Single	$ _____
008	2911 N Crossover Rd	12 & 18	Single	$ _____
009	3016 Summer Shade Dr	18	Single	$ _____
010	Noland Gate	24 & 24	Dual	$ _____
011	Noland 42	42	Single	$ _____
012	Noland 36	36	Single	$ _____
013	Mally Wagnon LS, Include 50' of extra cable for each sensor	18	Single	$ _____
014	Hannah's	30 & 42	Dual	$ _____
015	LS-12, Farmington LS	21	Single	$ _____
016	WL-3, Porter	24	Single	$ _____
017	Hannah's #2	30	Single	$ _____

Please Specify for Unit(s) Bid:

***MANUFACTURER: _____ MODEL: _____**

TOTAL BID PRICE: $ _____
(Sum of Items 1-17)

EXECUTION OF BID -
Bidders are requested to indicate by check mark or "Yes/No" on each line of the Technical Specifications the compliance of the item bid. Actual specification of any deficient item must be noted on the bid sheet or separate attachment. If specifications of item bid differ from provided literature, deviation must be documented and certified by the manufacturer as a regular production option.

Upon signing this Bid, the bidder certifies that:

1. **He/she has read and agrees to the requirements set forth in this proposal, including specifications, terms, standard conditions, and any pertinent information regarding the articles being bid on.**
2. **Unless otherwise noted and explained, the unit bid and listed meets or exceeds all of these requirements as specified by The City of Fayetteville.**
3. **The Bidder can and will comply with all specifications and requirements for delivery, documentation and support as specified herein.**

Unsigned bids will be rejected. Items marked * are mandatory for consideration.

***NAME OF FIRM: _____**
Purchase Order/Payments shall be issued to this name

***BUSINESS ADDRESS: _____**

***CITY: _____ *STATE: _____ *ZIP: _____**

***PHONE: _____ FAX: _____**

***E-MAIL: _____**

***BY: (PRINTED NAME) _____**

***AUTHORIZED SIGNATURE: _____**

***TITLE: _____**

City of Fayetteville
Bid 09-68, Fine Band Screen – equipment only
Statement of No Bid (submit if applicable)

In order to assist the Purchasing Division of Fayetteville in evaluating and improving our solicitation process, we are asking for completion of this form and returning via fax or e-mail. By submitting this form, it will assist us in evaluating all response, improving our bid solicitation process, and to maintain a positive relationship with our vendors.

We, the undersigned, have declined to bid for the following reason(s):

1. _____ We do not offer this service/product
2. _____ Our schedule would not permit us to perform
3. _____ Unable to meet specifications
4. _____ Insufficient time to respond to the Invitation to Bid
5. _____ We are unable to meet bond requirements
6. _____ Other (Explain)

*NAME OF FIRM: _____

*BUSINESS ADDRESS: _____

*CITY:_____ *STATE:_____ *ZIP: _____

*PHONE:_____ FAX: _____

*E-MAIL ADDRESS: _____

*BY :(PRINTED NAME) _____

*AUTHORIZED SIGNATURE: _____

*TITLE: _____ *DATE: _____

*PLEASE LIST OTHER COMMENTS BELOW:

*Please note: We appreciate your feedback on this form and are very interested in your reason for not bidding. Please do not hesitate to contact us at 479-575-8220 if you have questions, comments, or concerns regarding these bid documents.