

Ordinance No. 08- 46

**AN ORDINANCE APPROVING THE ENGAGEMENT OF QUAD STATE SERVICES, INC. AS CONSULTING ENGINEERS**

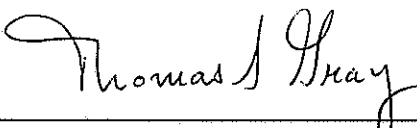
*BE IT ORDAINED BY THE PRESIDENT AND BOARD OF TRUSTEES OF THE VILLAGE OF CHATHAM, SANGAMON COUNTY, ILLINOIS, AS FOLLOWS:*

**SECTION 1:** The engagement of Quad State Services, Inc. d/b/a QSSI as consulting engineers for the Village services in connection with the development of horizontal collector wells and their potential location in the well field for the Village is hereby approved.


**SECTION 2:** The Director of Utilities, in consultation with the Utilities and Public Works Committee, is authorized and directed to engage the services of QSSI, pursuant to a formal engagement agreement, and the proper officers of the Village are authorized and directed to carry out the engagement agreement according to its terms.

**SECTION 3:** This Ordinance is effective immediately.

PASSED this 25<sup>th</sup> day of November, 2008.

  
\_\_\_\_\_  
VILLAGE PRESIDENT

ATTEST:

  
\_\_\_\_\_  
Village Clerk

AYES: S HERR SCHATTEMAN REYNOLDS, M<sup>0</sup>CRATH, KAUNAGH  
NAYS: 0  
PASSED: 11-25-08  
APPROVED: 11-25-08  
ABSENT: 1 Boyle

ORDINANCE CERTIFICATE

STATE OF ILLINOIS            )  
  ) SS.  
COUNTY OF SANGAMON        )

I, the undersigned, do hereby certify that I am the duly qualified and acting Village Clerk of the Village of Chatham, Sangamon County, Illinois.

I do further certify that the ordinance attached hereto is a full, true, and exact copy of Ordinance No. 08-46 adopted by the President and Board of Trustees of said Village on the 25<sup>th</sup> day of November, 2008, said Ordinance being entitled:

**AN ORDINANCE APPROVING THE ENGAGEMENT OF  
QUAD STATE SERVICES, INC. AS CONSULTING ENGINEERS**

I do further certify that prior to the making of this certificate, the said Ordinance was spread at length upon the permanent records of said Village, where it now appears and remains.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of said Village this 25<sup>th</sup> day of November, 2008.



  
Village Clerk

# Quad State Services, Inc.

11368 39th Street • Perry, Kansas 66073-4004 • 785.597.2300 • 785.597.2310 (FAX)

November 18, 2008

Del McCord  
Village of Chatham  
116 East Mulberry Street  
Chatham, IL 62626

RE: Proposal for feasibility, siting, and conceptual design of horizontal collector well

Dear Mr. McCord:

Quad State Services, Inc. (QSSI) is pleased to respond to your proposal request. Our proposed scope of work is to determine the feasibility of and site of a one million gallon per day (mgd) or more horizontal collector well adjacent to the Sangamon River and east of Rochester, Illinois. This proposal also presents a scope of work and estimated costs for the conceptual design of a well capable of the 1 mgd desired yield; and support services during the preparation of a bid document for construction of the well. QSSI will work with the Village's engineers and drilling contractor, but engineering fees and drilling costs are not included in this proposal. A drilling cost estimate is attached to this proposal for your referral and use.

## Team Qualifications

Quad States Services, Inc. (QSSI) is a hydrogeologic consulting firm specializing in the exploration, development, protection, and management of groundwater resources. QSSI is a woman owned business that works with technology-specific associates to bring specialized competence to projects and to meet client objectives.

With over 20 years of experience, QSSI's personnel have been pioneers in the use of innovative well completion techniques to develop groundwater resources under challenging geologic environments. QSSI has the experience to identify and apply the appropriate drilling and well completion technologies, including both innovative and the more traditional approaches, to fit the geologic setting and the specific target aquifer characteristics.

QSSI will team with appropriate individuals and companies with applicable technical expertise to complete and permit the project in an efficient and timely manner. The goal of the team will be to work in a cohesive and effective manner to ensure a successful project.

## Project Background

The Village of Chatham is looking for a 1 mgd raw water supply. It was determined from a previous study by the Illinois State Water Survey that vertical wells can sustain production rates of 200 to 250 gpm and recommended spacing between these wells was 1,500 feet. The prospect of constructing one horizontal collector well for the entire 1 mgd supply is an





attractive option, eliminating the need for purchase of numerous parcels of land to accommodate a vertical wellfield.

## **Project Objectives and Approach**

### ***Phase 1 Background Research***

The first phase will be to collect and review existing boring, pumping test, and stream gauge data and other available hydrogeologic information related to the Sangamon alluvial aquifer. Many sources will be sought including the Illinois Water Survey, the Illinois Department of Transportation (bridge borings), Illinois State Geological Survey (ISGS) resistivity studies, and Village files.

### ***Phase 2 Subsurface Exploration***

A site visit will be conducted to determine plausible well locations and place stakes at prospective test boring/observation well locations. It is desirable to construct horizontal collector wells adjacent to a cutting bank of the river for maximum benefit of recharge from the river.

A total of six observation wells are required for each well site but additional test boring locations may be required to find suitable coarse sand material. It is assumed that no more than nine testholes will be required to site the well. A qualified hydrogeologist will oversee the test drilling and prepare a geologic log from the drill cuttings obtained from each testhole.

The first one to three testholes will be drilled at possible sites identified during the site visit with six additional testholes drilled and completed as observation wells to facilitate the aquifer pumping test and for collection of formation samples. Formation samples will be collected near the bottom of each testhole and analyzed for grainsize distribution. A 12-inch test well capable of pumping 350 gallons per minute (gpm) will be constructed within the array of observation wells.

### ***Phase 3 Aquifer Testing***

The third phase will be to conduct an aquifer test to predict the expected design-yield of a horizontal collector well along with site-specific design details. It is anticipated that one test well and six observation wells (observation wells were installed as part of Phase 2) at the proposed horizontal collector well site. If weather permits, one to two sand points will be installed in the Sangamon Riverbed.

A 4 day constant rate test will be conducted at the prospective horizontal collector well site. Water level data will be collected from the pumping well and each observation well and sandpoint (if installed) using calibrated pressure transducers and computer data logging equipment. Water samples can be collected during the test at the direction of the Village or their engineer, but the costs of any chemical analyses are not included in our fee estimate. A qualified hydrogeologist will set up and oversee the operation and data collection of the aquifer test.



**Phase 4 Wellfield Conceptual Design and Related Services**

QSSI will prepare a project report summarizing all site work, conclusions derived (including estimates of well yield), and recommendations for development of a groundwater source. A cost estimate for the construction and development of a horizontal collector well will be prepared. QSSI will work with the Village's engineer to prepare a bid document for the construction of the wells (engineering costs are not included in this proposal and fee estimate).

**Optional Phase 5 Groundwater Modeling**

An optional fifth phase is to construct, calibrate, and run a groundwater computer model to simulate drawdown impacts, the wellfield's ability to produce the desired yield during normal and drought conditions, and the ratio of river recharge anticipated. The size and complexity of the model cannot be determined at this time, but the model will be built to the detail necessary to answer any questions or predictive scenarios determined jointly with Village personnel. This proposal presents a range of fees to complete this phase.

**Estimated Costs**

Phase 1	Background Information Collection and Review	\$ 3,655.00
Phase 2	Subsurface Exploration	
	Geologic logging and site oversight/management	\$ 10,730.00
Phase 3	Aquifer Testing and Conceptual Design Services	
	Aquifer Pumping Test (4-day constant rate test)	\$ 9,850.00
	Pressure transducer rental/use	\$ 1,715.00
Phase 4	Conceptual Wellfield Design Support Services	
	Wellfield design and report	\$ 8,200.00
	Support during preparation of bid document	\$ 2,000.00
Phase 5	Groundwater Modeling	
	Scope and fee is dependant on Village's needs and expectations. Typical modeling fees range from \$17,000 to \$35,000	

Charges will be on a time and expense basis in accordance with the attached rate schedule. The above estimates will not be exceeded without justification and prior authorization. Any subcontractor costs are subject to 10% markup to account for related administrative and project management costs.

The estimated project costs depend on the number of potential horizontal collector well sites that are investigated.

Village of Chatham

RE: Proposal for feasibility, siting, and conceptual design of horizontal collector well  
11/18/2008; Page 4



### **Schedule**

Phase 1 and Phase 2 activities will be initiated immediately following the kick-off meeting and are projected to take no less than one month to complete. Phase 3 and 4 can be started immediately after completion of Phase 2 and authorization to proceed. Phase 3 and Phase 4 are expected to take an additional month to complete. The above schedule is dependant upon favorable weather conditions and site access. The timing and schedule for the modeling work cannot be predicted without an understanding of the scope and required complexity.

QSSI appreciates this opportunity to work with the Village of Chatham on this interesting project. Please call if you have any questions or require additional information.

Sincerely,

A handwritten signature in cursive script, appearing to read 'Martha Silks', written in black ink.

Martha Silks  
Hydrogeologist/President

## ATTACHMENT A

### 2008 QSSI Rate Schedule

#### Professional Services:

##### Aquifer Evaluation, Data Analysis and Interpretation

Principal professional engineer or hydrogeologist	\$ 95/hour
Senior professional engineer or hydrogeologist	\$ 90/hour
Engineer or Hydrogeologist associate	\$ 85/hour
CADD, graphic support	\$ 65/hour
Technician	\$ 60/hour

##### Field Services

Principal professional engineer or hydrogeologist	\$ 95/hour
Senior professional engineer or hydrogeologist	\$ 90/hour
Engineer or Hydrogeologist associate	\$ 80/hour
Field hydrogeologist	\$ 75/hour

#### Reimbursable Project Expenses:

Project expenses will be charged at cost incurred plus a 10% administration fee.  
Vehicle mileage will be charged at the current IRS rate of \$ 0.495/mile

#### Equipment Rental:

Water level monitoring equipment (per well and not including shipping):

\$30/day      \$180/week      \$800/month

Water quality monitoring equipment (per well and not including shipping):

\$110/day      \$725/week      \$3,000/month

Water sampling equipment:

\$300/day

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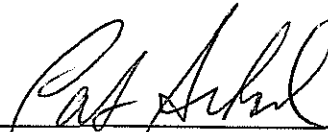
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AYES: 5  
NAYS: 0  
PASSED: 11-25-08  
APPROVED: 11-25-08  
ABSENT: 1 Boyle



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