

Proposed Project for Application to the Kansas Department of Commerce and Housing for a Community Development Block Grant and to the Kansas Department of Health and Environment for the Kansas Public Water Supply Revolving Loan Fund.

Applicant: City of Russell
Phase 1. New raw water transmission line to parallel the existing transmission line from the Pfeifer well field
Phase 2. Water supply treatment facility incorporating membrane process
Contact Person: Arlyn Unrein, Public Works Director
Address: City of Russell
P.O. Box 112
133 W 8th Street
Russell, KS 67665
Phone: 785-483-6311

Sent to the Kansas Geological Survey for environmental review.

Agency Review Comments:

Phase 1. Any short-term adverse impacts during construction of the new water transmission line should be offset by the long-term benefits of the improvements to the raw water supply system.

Phase 2. The actual treatment facility plans should wait until the cities of Russell and Hays develop final plans for their additional water supplies. There have been many options that have been investigated, including ground water in the Dakota aquifer in Russell County, ground water from Circle K Ranch near the Arkansas River in Edwards County, saline ground water from the Smoky Hill alluvial aquifer in Russell County, and saline Wilson Lake water. Ongoing and future examination of other potential supplies, such as transmission lines from Kanopolis Reservoir in cooperation with Hays and rural water districts and purchase of water rights to ground water from the alluvial aquifers of Big Creek and the Smoky Hill River (upstream of where the ground water and the river water become saline) could provide water that is fresher than some of the other sources proposed in the past. This would have a substantial impact on the type of treatment facility actually needed.

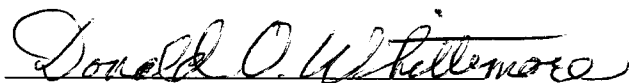
Recommended Action for Phase 1, new transmission line (a separate review request should be prepared for Phase 2)

- ☒ Clearance of project should be granted
☐ Clearance of project should not be granted
☐ Clearance of project should be delayed until the issues or questions have been clarified
☐ Clearance of project should not be delayed, but the applicant (in the application) should address or clarify the questions or concerns indicated above

Donald O. Whittemore
Reviewer's Name

Geohydrology Section, Kansas Geological Survey
Division/Agency

Date


Reviewer's Signature

[9/2003]

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September 29, 2003

Kansas Geological Survey
University of Kansas
1930 Constant Ave., Campus West
Lawrence, KS 66047

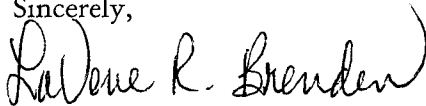
Re: City of Russell, Kansas, KPWSLF Project No. 2362
Project No.: 12684.001

The City of Russell is preparing an application to the Kansas Department of Health and Environment for a loan from the Kansas Public Water Supply Loan Fund. The Water Transmission and Treatment Needs Project is proposed to be completed in two phases, the first being the raw water transmission line and the second being additions to the City's Water Treatment Facility.

We would appreciate your review of the enclosed project description and location. We request that you provide any comments you may have within the next 30 days. A project review form is enclosed for your use.

Please contact either Arlyn Unrein, Public Works Director, at Russell (785 - 483 - 6311) or me if you have any questions concerning the project.

Sincerely,



LaVene R. Brenden, P.E.

cc: City of Russell
Amy Griffey, NWKSPDC

Enclosure

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City of Russell, Kansas
Water Transmission and Treatment Needs

ENVIRONMENTAL REVIEW REQUEST
September 2003

The City of Russell needs additional water treatment plant capacity to reliably meet current peak day water demands and to provide for future projected demands. In order to deliver a sufficient quantity of raw water to the treatment facility, improvements must also be made to the raw water transmission lines from the City's remote sources. The project is proposed to be completed in two phases, the first being the transmission line. Phase 2 will be construction of additional treatment capacity once the raw water supply is assured.

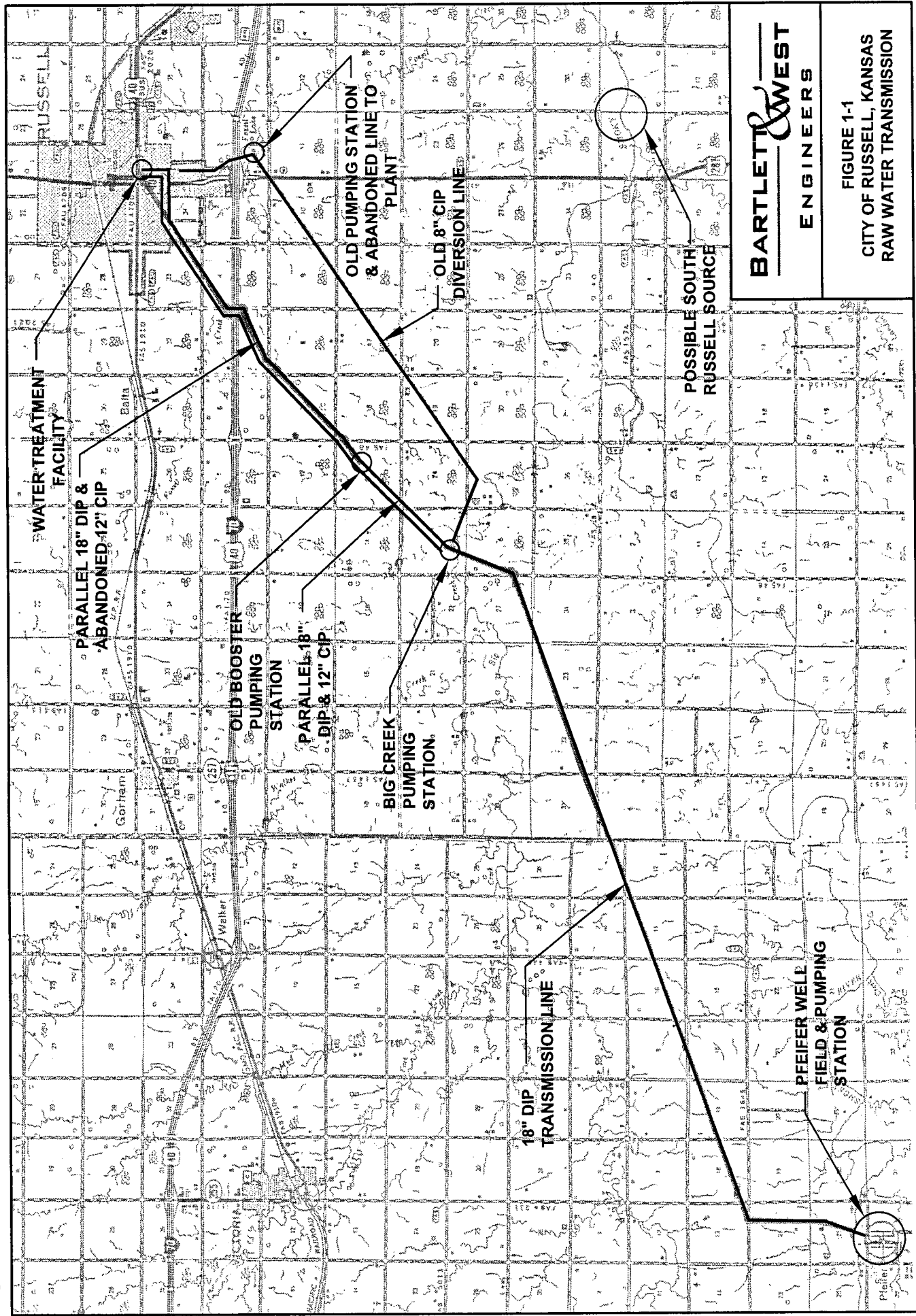
Figure 1-1 from the City's Preliminary Engineering Report shows the relative locations of the proposed improvements. The new, 16-inch raw water transmission line will parallel the existing 18-inch transmission line from the Pfeifer well field beginning at the Big Creek Pumping Station to the Water Treatment Facility, a distance of about 8 miles. The project will traverse primarily cultivated agricultural land and will be constructed in existing easements.

The new transmission line provides several benefits and improvements to the overall water system:

- It separates the surface water supply water (Big Creek) from the ground water supply (Pfeifer well field) allowing consideration of additional treatment technologies as well as providing the potential for more efficient treatment through the existing water treatment facility that will remain in service.
- It provides an emergency backup line to the more dependable Pfeifer well field from the Big Creek Pumping Station to the Water Treatment Facility.
- The pumping energy demands at the Big Creek Pumping Station will be reduced approximately 25% because of the new, larger diameter, PVC pipe.

The Phase 1 transmission line project is estimated to cost \$1,485,000. The City is applying for a Community Development Block Grant (\$400,000) to assist in paying for the project. The remainder of the project costs will be funded by a combination of local funds and KDHE's State Revolving Loan Fund.

The Phase 2 Treatment Facility project is planned to incorporate a membrane process (Reverse Osmosis or Electrodialysis Reversal) to treat the existing ground water supply but also to be able to treat other potentially available, lower quality ground waters. The membrane treated ground water will be blended with treated surface water from the existing Treatment Facility before distribution to the users. Reject water from the membrane process treating Pfeifer well field water will be directed to the sanitary sewer system for storage and treatment in the City's wastewater lagoon system.



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FIGURE 1-1
CITY OF RUSSELL, KANSAS
RAW WATER TRANSMISSION

The new Treatment Facility is proposed to be located adjacent to the City's existing facility as shown in Figure 4-3 from the City's Preliminary Engineering Report. The estimated project cost for the Treatment Facility is \$5,142,000. The project will add up to 1500 gpm (2.2 MGD) in treatment capacity.

The current average monthly residential bill is about \$36. The cost impacts to the average 6,500 gallon per month user are calculated based upon a current 1 million gallon per day average daily use in the City. With a CDBG grant and utilizing other available grant monies, the average user could realize a \$0.52 per month increase to pay the debt service for the parallel transmission line. The Water Treatment Facility impacts could be in the \$9 per month range if the entire project is paid for from user charges. The infusion of other revenue sources would reduce the impacts.

