

EXHIBIT E

Feasibility Study

1. Description of company, its objectives, and area proposed to be served.

Holtgrewe Farms Water Company LLC. (hereinafter "Applicant") was incorporated on February 22, 2010 with the purpose of operating and/or supervising a water system for the Holtgrewe Farms Subdivision. The area proposed to be served is limited to the Holtgrewe Farms Subdivision, a 47 lot subdivision located in an unincorporated portion of Franklin County, Missouri (part of the SE 1/4 of the SE 1/4, Sec. 20, and part of the SW 1/4 of the SW 1/4, Sec. 21, Township 44N, Range 1W, of the 5th P.M.). See Exhibit C for a map of the proposed service area, Exhibit D for a legal description of the Holtgrewe Farms Subdivision and the Report and Specifications for the Holtgrewe Farms Subdivision prepared by Wunderlich Surveying & Engineering, Inc. attached hereto as **Item 1**.

2. Plan or Plat showing total proposed system and detailed estimate of costs.

A Site Improvement Plan for the Holtgrewe Farms Subdivision is attached hereto as **Item 2**. Said plan sets forth the proposed system, specifically the proposed site of the well and well house on a north eastern area of the subdivision, contiguous with lots 2 and 3, the water line(s) throughout the subdivision and all other water line appurtenances.

The entire cost of the feasibility study, and the engineering and construction of the proposed water system will be paid by the subdivision developer, Holtgrewe Farms LLC, lending the necessary funds for the water system to the Applicant at a rate to be determined. An estimate of costs is as follows:

Water Distribution System			
4" Main	3840 ft.	\$11.00/ft.	\$42,300.00
Water Service	47 ea	\$293.00/ea	\$13,800.00
4" Gate Valves W/ Valve Boxes	10 ea	\$670.00/ea	\$6,700.00
4" x 4" Tee	5 ea	\$200.00/ea	\$1,000.00
4" to 2" Reducer	2 ea	\$180.00/ea	\$360.00
4" 45 Degree Bend	9 ea	\$220.00/ea	\$2,000.00
Flush Hydrant	2 ea	\$700.00/ea	\$1,400.00
SUBTOTAL			\$67,560.00
Water Service			
Well Drilling/Casing	1 ea	\$32,700/ea	\$32,700.00
Well Pump	1 ea	\$2,700/ea	\$2,700.00
Storage Tank	1 ea	\$22,000/ea	\$22,000.00
Pressure Tank	1 ea	\$8,000/ea	\$8,000.00
Booster Pump	2 ea	\$4,000/ea	\$8,000.00
SUBTOTAL			\$73,400.00
Well House			
Structure	384 SF	\$36/SF	\$13,900.00
TOTAL			<u>\$154,900</u>

3. Description of existing facilities (if any) and detailed costs.

There are currently no existing facilities.

4. Description of proposed facilities to be constructed immediately and estimate of costs.

The proposed system will consist of a ground water well, a 12,600 gallon ground water storage tank, a 7.5 hp booster pump, and a 1,078 gallon pressure tank operating through the 50/70 psi pressure range. The distribution piping will consist of approximately 3,840 lineal feet of 4-inch SDR 21 class 200 PVC pipe. This system is not intended to provide fire flow, therefore only flush hydrants will be provided at the end of the lines and at high points in the system to allow flushing of the lines when required.

Ground Water Well:

A request was made to Missouri Department of Natural Resources, Division of Geology and Land Survey concerning a casing depth letter for a community well. A copy of this letter has been included with this report. DNR~DGLS estimated the casing depth to be 350-feet below the existing ground elevation. It was recommended that a pilot hole be constructed to the total depth of the well. DNR~DGLS requires the well driller to send samples of the cuttings to their office to determine the exact casing depth for the proposed well.

At the total drill depth of 600 feet, the well should yield 90+ gallons per minute (gpm) of water. The proposed yield from the well will be 37 gpm. In the future a larger well pump can be added to increase the capacity of the well if required. The difference between the maximum hour demand and the proposed pumping rate will be absorbed by the ground water storage tank.

After consulting a local well driller, it was decided to use 6-inch well casing, with a 5-hp pump set at approximately 300-350-feet. This was based on the casing depth letter and the well driller's knowledge of other wells in this area. Based on other wells in the area, the well driller expects that the static water level will be about 250-feet down. Final depth of the well pump will be determined after the well shaft is drilled and a draw down test has been performed.

The discharge for the pump will be 2-inch in diameter. The discharge piping will have two inline check valves. The first valve will be spaced approximately 25-feet above the pump, and the second will be placed approximately 175-feet above the pump. The well discharge will connect to the well house piping just above the sanitary split ring seal, and it will terminate with a 2-inch tee connection. The run of the tee shall be plugged. The 1.5-inch diameter screened vent pipe and the electrical connection for the submersible motor can enter through the side of the well casing or through the top of the sanitary split ring seal. The sanitary split ring seal will require a depth gauge.

Well House:

The well will discharge into a 12,600-gallon surface storage tank. This tank was sized assuming 47 homes with 3.5 persons per home at average daily flow of 100 gallons per person per day. Holtgrewe Farms currently has 47 residential building lots. According to the Design Guide for Community Water Systems, the maximum hourly demand is $12(\# \text{ of homes})^{0.515}$. The maximum hourly demand is 87 gpm. The estimated yield for the well pump is ± 37 gpm for a pump depth and static water level of 300-feet.

The surface ground storage tank will be 12-foot in diameter and a total of 15-feet tall. The tank will be equipped with both exterior and interior ladders for access. The ground storage tank will have 2-24-inch diameter man accesses. A 4-inch diameter overflow pipe shall be attached to the tank and be equipped with a flap valve on the end of the screened pipe. A screened 4-inch vent shall be supplied on the top of the tank,

and a 4-inch drain plug shall be located at the bottom of the tank. A 2-inch inlet line shall be run into the tank as shown on the plans. A 3-inch outlet pipe will discharge from the tank as shown on the plans. The elevation of the water in the tank will be controlled with an Ametek black/white level controller. The controller will cycle the well through the on/off cycles. The tank will be provided with 2-feet of drawdown under normal conditions. The ground storage tank will have a total drawdown of 4.24-feet during the maximum hour event. It will take the well pump 2.34 hours to fill the ground storage tank.

A 7.5-hp booster pump will be connected to the 3-inch discharge line from the ground storage tank. The booster pump shall be capable of providing 87 gallons per minute of flow at 70 psi. This flow is greater than the max. hour demand which is 68.5 gallons per minute. The flow from the booster pump will discharge into the pressure tank. The control for the booster pump will be a Square D pressure switch set for the 50/70 psi range.

The pressure tank was sized assuming two minutes of flow from the largest supplying pump. In this case the booster pump at 87 gpm will require 174 gallons of available storage. Using the charts provided in the draft guidelines provided by Mo-DNR, a 1,078 gallon pressure tank will be required. The supplied chart yielded the usable volume of the tank at 192.4 gallons, the water seal at 359.3 gallons and the air cushion at 526.3 gallons.

An oil-less air compressor will control the air cushion. This compressor is designed for use on hydro-pneumatic pressure tanks. This air compressor will provide the make up air that will be absorbed in the water of the pressure tank. The pressure tank will be equipped with an 80 psi pressure release valve. The pressure vessel shall meet ASME boiler codes, NSF Standard 61, and AWWA D100 guidelines

The well house will be standard wood frame construction. The interior of the well house will be sheeted with 1/2-inch treated plywood. The plywood shall be painted to owner choice of color. 4-inch floor drains will be provided incase of a leak. A 4-kw wall mounted heater will be provided for heat during the winter months. Chlorine disinfection is not intended at this time. A room will be constructed to house the chlorine equipment if it becomes necessary to disinfect in the future.

Distribution System:

The distribution system shall consist of 4-inch SDR 35 Class 200 PVC pipe. Because the pressure tank will be operating through the 50-70 psi pressure range, the distribution system should not be below 35 psi at any part of the proposed system. At the lowest point in the proposed distribution system the high pressure will be approximately 95 psi. The homes built in these areas will require a pressure reducing valve located inside the home.

The distribution system was analyzed assuming the equation $Q = 12(N)^{0.515}$ where N is the number of connections drawing on the line. WaterCAD, a program developed by Haestad Methods, was used to perform the calculations. This program employs the Hazen-Williams Method to determine the flow through the pipes. These calculations have been included showing the calculated flows, pipe head losses, and node pressures for the system at the 50, 60, and 70 psi pressure ranges.

An estimate of costs is as follows:

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Water Service

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SUBTOTAL			\$73,400.00

Well House

Structure	384 SF	\$36/SF	\$13,900.00
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TOTAL **\$154,900**

5. Description of additional facilities proposed to be constructed in each of the next three years and estimate of costs.

Following the initial construction, the proposed water system will have the necessary facilities and infrastructure to provide sufficient capacity for at least the initial three years of operation.

6. Type of existing dwelling units, population, and actual water used, if applicable.

There are currently no existing dwelling units in the subdivision.

7. Type of dwelling units, population estimated to be added in each of the next three years and estimates of water usage.

The proposed water system will primarily serve the Holtgrewe Farms Subdivision, a 47 lot residential subdivision that will consist of single-family homes constructed one per lot. Obviously the size of each family will vary greatly among the residents of the subdivision but a conservative estimate based on 3.5 members in a family would result in a population of 165. Best estimates for build-out of the subdivision is as follows:

2010 – Year One	7 Homes
2011 – Year Two	17 Homes
2012 – Year Three	27 Homes
2013 – Year Four	37 Homes
2014 – Year Five	47 Homes

The estimated usage is about 4,000 to 6,000 gallons of water per month per household.

8. Proposed rates, connection fees, and other charges (also existing rates and charges if any).

\$28.00 per month minimum for 3,000 gallons of water.
\$1.61 per 500 gallons after minimum.

\$1,600 water connection fee per meter.

\$75.00 deposit will be required prior to connection. This deposit will be refunded when the system is disconnected minus any outstanding water debts owed to the district.

\$50.00 reconnection charge.

There are no current customers therefore there are currently no existing rates or charges.

9. Statement of current income from existing facilities.

There are no existing facilities therefore there is no current statement of income.

10. Detailed estimate of income per year for each of the next three years from water sales and other proposed charges, or from sewer service charges.

See **Item 3**-Missouri Public Water System Financial Capacity Worksheets attached hereto as **Item 3**.

11. Statement of operating expenses in connection with existing facilities, if any.

There are no existing facilities therefore there is no current statement of operating expenses.

12. Detailed estimate of operating expenses for each of the next three years.

See **Item 3**-Missouri Public Water System Financial Capacity Worksheets attached hereto as **Item 3**.

13. Plans for financing and proposed capital structure of the company.

The entire cost of the feasibility study, and the engineering and construction of the proposed water system will be paid by the subdivision developer, Holtgrewe Farms LLC, lending the necessary funds for the water system to the Applicant at a rate to be determined.

14. Plans for the protection of the financial integrity of the utility during the development years.

Anthony Bequette, owner of Holtgrewe Farms LLC., (the subdivision developer) and owner of Applicant, understand the proposed water system will probably not be profitable during the development years and have personally guaranteed the loan with private investors.

15. Name of the professional operator and his/her qualifications, or operation-management firm to be responsible for operation and maintenance of the facilities.

Mr. Bob Wideman
Wideman Well Drilling
7419 HWY 47, STE. A
Union, MO 63084
(636)-583-8880

16. Name of the person or management firm to be responsible for managing the utility's business activities, and contact person for customer inquiries.

Mr. Anthony Bequette
109 North Oak Street
Union, MO 63084
(636)-583-4311

17. Copy of proposed management contracts.

There are currently no proposed management contracts.