



WATER · MINERAL · ENERGY

January 29, 2018

Mr. Robert Leible
City of Aurora
44 E. Downer Place
Aurora, IL 60507

Re: Well 26

Mr. Leible:

Well 26 has been inactive since its pump failed due to excessive sand damage on December 23, 2013. Most of the pump components have since been utilized in other Aurora wells.

Layne recommends the installation of a Layne furnished temporary test pump to determine the maximum capacity the well will deliver without transmitting pump damaging sand. Given this data, a new permanent pump will be designed and installed.

If contracted, Layne will perform the work on a time and material basis per the attached Schedule B Work Order Form and will apply the terms and conditions of Layne's Professional Services Agreement (PSA) with the City. The attached Work Order Form lists Layne's standard published rates. The estimates in this letter include the PSA's specified 5% deduct applied toward labor and 10% deduct applied toward special services.

The proposed scope and budget estimate of Phase I are as follows:

Mobilize; determine well's total depth; sand bail up to six days; assemble and install test pump to a depth of 1000' capable of producing up to 1000 GPM; conduct a test to waste up to twenty-four hours to determine maximum capacity at acceptable sand content; remove test pump; submit written report for recommended permanent pump design and cost.

The estimated cost of this Phase 1 scope is:

Sand Bailing, estimate	\$20,000
Test pump inclusive, estimate	<u>\$75,000</u>
Total Phase I Estimate	\$95,000

The City should be made fully aware that projecting an exact schedule to sand bail is difficult as sand bailing progress, preferably to the well's original total depth, is extremely unpredictable.

WATER RESOURCES

Phase II, Design and Install Permanent Pump, requires assumptions in order to resolve a budget estimate prior to obtaining Phase I test data results.

Phase II budget assumptions:

900 GPM, 800' pumping level, 30 psi system pressure

Phase II budget pump design **based upon above assumptions, subject to modification per actual conditions determined by Phase I:**

• Byron Jackson 250 HP, 17", 2300V, Type M motor	\$134, 800
• Byron Jackson 15 stage 11MQH bowl assembly rated for 900 GPM at 870' TDH	\$ 32,300
• 1000' of 8" T&C Line Pipe, SRL (stock)	\$ 47,000
• (2) 8" surge control valves	\$ 2,336
• 1050' of #2/3C, 2.4kV submersible cable	\$ 22,050
• Byron Jackson flat cable motor link	\$ 6,950
• DynoTek Transducer (furnished, Data Manager installed by City)	\$ 7,200
• Airline, banding, other miscellaneous consumables, estimate	\$ 1,500
• Labor and Equipment to handle, install and test, estimate	<u>\$ 40,000</u>

**Budget to furnish and install equipment,
based upon pre Phase I assumptions**

\$300,000

Thank you for the opportunity to present this information. If you have any questions, or if Layne may be of any service, please do not hesitate to contact me.

Layne Christensen Company



William Balluff, P.E.
GLG Business Development Manager



WORK ORDER



Layne Christensen Company

721 W. Illinois Avenue, Aurora, IL 60506; Phone (630) 897-6941
 229 W. Indiana Ave., P.O. Box 489, Beecher, IL 60401; Phone (708) 946-2244

SCHEDULE B

Purchaser: CITY OF AURORA, IL
 Job Location: AURORA WELL #26

SERVICE RATES - EFFECTIVE OCTOBER 1, 2017

	Straight Time		Overtime	Doubletime
	Per Hr.	8 Hr. Day	Per Hr.	Per Hr.
Serviceman w/hand tools	189.00	1512.00	283.50	378.00
Serviceman w/service truck and hand tools, or welder	218.00	1744.00	312.50	407.00
Helper	155.00	1240.00	232.50	310.00
Serviceman and 1 Helper	344.00	2752.00	516.00	688.00
<u>Small Rig or Winch Truck (\$48.00)</u>				
1 Man Crew	237.00	1896.00	331.50	426.00
2 Man Crew	392.00	3136.00	564.00	736.00
3 Man Crew	547.00	4376.00	796.50	1046.00
<u>Middle Rig, Large Hoist or Flatbed Crane (\$64.00)</u>				
1 Man Crew	253.00	2024.00	347.50	442.00
2 Man Crew	408.00	3264.00	580.00	752.00
3 Man Crew	563.00	4504.00	812.50	1062.00
<u>Big Rig, Large Hoist and Poles, or Large Crane (\$105.00)</u>				
1 Man Crew	294.00	2352.00	388.50	483.00
2 Man Crew	449.00	3592.00	621.00	793.00
3 Man Crew	604.00	4832.00	853.50	1103.00
4 Man Crew	759.00	6072.00	1086.00	1413.00
Power Tong Usage, per 8 hour shift		460.00		
<u>Machine Shop/Yard Labor and Equipment</u>				
Machinist and Equipment	182.00	1456.00	264.50	347.00
12" Threading Machine and Operator	208.00	1664.00	290.50	373.00
Serviceman w/hand tools	165.00	1320.00	247.50	330.00
Helper	152.00	1216.00	228.00	304.00
Sandblast Equipment and 2 man crew	365.00	2920.00	523.50	682.00

Mileage: Auto: \$0.55 Pickup: \$0.70 1-Ton:\$1.00 2-1/2 Ton Flatbed: \$2.10 Semi-Tractor: \$2.75

Subsistence-Per Man
 Over 55 miles radius from home office.....\$60.00 + Hotel

REMARKS:

SUBMITTED WITH PROPOSAL OF JANUARY 29, 2018

Work Authorized on Behalf of Purchaser By: _____

Date: _____ Title: _____