

Lift Station Operation, Maintenance and Replacement Cost Estimate

Exhibit A							
Cedar Lane Lift Station							
The Engineering Report provided by the developer will include sufficient information to allow the City of Norman to calculate the approximate cost to operate, maintain and replace capital equipment for the life of the proposed lift station. This information shall include the following at a minimum:							
Proposed Lift Station Sewer Service Area including expected number and type of residential units as well as the number of acres of other zoning classifications such as commercial, institutional, industrial, etc. If applicable, a phasing plan shall be submitted. Calculate estimated population equivalent to be served by the lift station (include total population and breakout by phases, if applicable.)							
Estimated average daily wastewater flow (ADF) in gallons per day (GPD) and peak hourly flow in GPD utilizing generally accepted standards for per capita ADF or other data acceptable to the City of Norman.							
	Parcel SA1 Cedar Lane	Parcel Future Comm Lots	TOTAL				
	<u>Lots</u>	<u>Lots</u>					
	213	1					
Population Equivalent Per Category	2.55						
Estimated Population	543						
Per Capita average daily wastewater flow (ADF)	100						
Calculated average daily flow	54,315	90,240	144,555				
Peaking Factor	4.0	4.0					
Estimated peak hourly flow in GPD	217,260	360,960	578,220				
Estimated peak hourly flow in GPM	151	251	402				
Drawings showing the location of the proposed lift station, force main and access roadways. Include sufficient data to allow the pump static head to be determined).							
HP = ((GPM) x (TDH)) / ((3960) x (0.50)) where pump efficiency is assumed to be 50% (unless otherwise approved). Check if pump of estimated GPM and TDH is available; adjust HP as required.							
	<u>GPM</u>	<u>TDH</u>	<u>Efficiency</u>	<u>HP</u>			
	440	65	50%	14.44			
Estimate average annual electrical cost							
1. Pump time (hours per day) = ((ADF in GPD) x 24) / (1440 x (Pump Capacity in GPM))							
	<u>ADF</u>	<u>Pumping Capacity</u>	<u>Pumping Hours/day</u>				
	289,110	440	10.95				
2. kilowatt-hours (kWh) = (HP) x 0.746 x (pump time in hours per day) x 365							
	<u>HP</u>	<u>Hours/Day</u>	<u>Kwh Per Day</u>	<u>Kwh Per Year</u>			
	14.44	10.95	118.00	43,072			
3. Annual Electrical Cost = kWh per year x \$0.08 kWh							
	<u>Kwh Per Year</u>	<u>Cost per Kwh</u>	<u>Cost per Year</u>				
	43,072	\$0.08	\$3,445.73				
Estimate annual lift station and force main OM&R cost. Provide approximate cost for lift station and appurtenances. Include wetwell, pumps, discharge piping and valves, electrical controls, flow metering, force main quick-connect coupling, valve vault, fittings and valves, fencing, all weather access road, force main, air release valves and vaults, etc. Assume annual replacement cost is 5% of original construction cost.							
Annual OM&R Cost = 0.05 x Capital Cost							
	<u>Lift Station Cost</u>	<u>Force Main Length</u>	<u>12" Force Main Per Foot</u>	<u>Force Main Cost</u>	<u>Total Cost</u>	<u>Annual Cost</u>	
	\$600,000.00	15,200	\$40.00	\$608,000	\$1,208,000	\$60,400	
Calculate Total Monthly OM&R Cost: Monthly OM&R Cost = (Annual Electrical Cost + Annual OM&R Cost) / 12							
	<u>Electrical Cost</u>	<u>Emer Gen Maint Cost</u>	<u>OM&R Cost</u>	<u>Total Annual Cost</u>	<u>Total Monthly Cost</u>		
	\$3,445.73	\$2,700.00	\$60,400.00	\$66,545.73	\$5,545.48		
Calculate Lift Station Fee: The fee will be calculated on a residential lot basis as well as a per capita basis to accommodate other zoning classifications such as commercial, institutional, industrial, etc.							
Monthly Per Capita Fee = ((Monthly OM&R Cost) x Per Capita ADF) / ((ADF) x 30.417 days per month)							
Monthly Residential Fee = where the number of persons per household is the same as was assumed in the Engineering Report.							
	<u>Total Annual Monthly</u>	<u>Monthly Cost Per</u>	<u>Monthly Cost Per</u>	<u>Monthly Comm Cost Portion (per lot determined in future)</u>			
	<u>Cost</u>	<u>Person</u>	<u>Household</u>				
Original Agreement Rate	\$5,545.48	\$3.84	\$9.74	\$3,461.82			