

Civil Design Consultants, Inc.

Civil and Environmental Engineers

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January 29, 2020

Teresa Audesirk
Deerwood Service Company
PO Box 881546
Steamboat Springs, CO 80488

Re: Deerwood Well Improvements – Explanation of Project Costs

Dear Teresa,

The final engineer's cost estimate for the current Deerwood Well Improvements project is \$233,000, of which about \$94,000 has already been paid. Additionally, we have prepared a preliminary cost estimate for the rehabilitation of the existing DP-4 well, which totals \$59,000. The combined estimated cost for these projects is therefore \$292,000 (see attached cost estimates) and please note that these are CDC's best estimates at this point in time, but actual project costs may vary. I recognize that the final engineer's estimate is approximately \$100,000 higher than the preliminary estimate, which was generated in February 2019, prior to the design effort. Therefore, I just wanted to provide a brief explanation of the cost basis as well as the need for completing the proposed project in full.

Additional Project Scope:

The biggest contributing factor for this increase in project cost is due to additional project scope. Accurately assessing the full scope of a project during the conceptual and preliminary design phases is often very difficult. The recommended scope of the project grew once CDC was able to assess the current conditions and identify the critical needs of the water system. My favorite analogy for this phenomenon is remodeling your kitchen... you think you're just going in there to replace some old cabinets that are falling apart but then you realize it makes a lot of sense to just get it all done (countertops, flooring, appliances) at the same time. Before you know it, you've got a brand-new kitchen that you weren't necessarily planning on, but you've saved time and money by doing all the work simultaneously. Whether you're remodeling a home or improving a municipal water system, there's significant long-term cost saving associated with taking a proactive approach vs a reactive approach.

Increased Construction Cost and Reduced Contractor Availability:

Construction costs are based on market conditions, material costs and contractor availability. Construction costs have been steadily rising, particularly over the past 5-6 years we've seen a significant increase in contractor bid pricing along with a decline in contractor availability. This project, along with

many others in the Steamboat area, has been impacted by both of these factors. Additionally, limited contractor availability has now pushed the project into cold weather working conditions, which has further inflated costs. The revised cost estimate includes a contingency for cold weather construction as well as a 15% overall contingency for unforeseen costs and challenges during construction.

Additional Engineering Services:

As the scope of the overall project has increased so has the scope of engineering services. The total engineering work for this project is estimated to cost approximately \$75,000, the majority of which has already been completed and paid for. This work includes concept development, engineering design, preparation of construction drawings and specifications, State of Colorado design submittals, well permitting, construction engineering services and coordination of various consultants and contractors to complete the work. Various additional services have also been requested by DSC in order to help facilitate the successful completion of the project. Some of these additional work items have included coordination with YVEA to relocate power to the well house, site survey measurements, coordination with the landowner on which the well is located, field staking and coordinating with the drilling contractor to ensure that proper location, yield, and well construction were achieved.

Emergency Services:

Although not directly connected to the cost of the current project, recent emergency services have reduced DSC's capital reserves. This past summer DSC incurred large costs resulting from emergency response services provided by Raindrop Water and others due to failure of the existing well pump. After speaking with Tyler Andrew (Raindrop Water) I understand that this recent pump failure was very likely due to sediment entering the well via the corroded steel well casing. The high cost of emergency repairs (which have not contributed to any water system improvements) underscores the need to proceed with the full scope of the proposed improvements. This project will provide source water redundancy, updated material and equipment, and improved operational control. The result will greatly reduce the risk of future water supply outages.

Regards,



Matt Mielke, Professional Engineer (PE)
Civil Design Consultants, Inc.

Deerwood Well Improvements

1/10/2020

Item #	Item Description	Unit	Qty	Unit Price	Ext. Price	Comments
Aztec Well Drilling					\$ 47,300	
1	5" Well, 478ft Depth (Aztec)	LS	1	\$ 6,500	\$ 43,300	Aztec Invoice 12/30/19
2	Settling Basin for Cuttings discharge (Ed's Excavating)	LS	1	\$ 4,000	\$ 4,000	CDC Estimate based on recent and similar projects
Well pump and piping					\$ 76,150	*** Waiting for Tyler/Ed's Excavating Quote to Confirm Final Costs
3	Mob/Demob/Site Work/General	%	10	\$ 7,000	\$ 7,000	~10% Base Cost
4	Cold Weather Construction Allowance	%	10	\$ 7,000	\$ 7,000	~10% Base Cost
5	Well Pump/Motor/Install and Testing	ea.	1	\$ 13,000	\$ 13,000	Denver Industrial Pumps, Inc. Quote (\$8675) x 1.5x install
6	Baker Monitor Weld-On Pitless Adapter	ea.	1	\$ 2,800	\$ 2,800	Baker Monitor Quote (\$1398.14) x 2x install
7	3" PVC drop pipe	LF	430	\$ 15	\$ 6,450	CDC Estimate based on recent and similar projects
8	4" Dry Tie Connection	LS	1	\$ 5,000	\$ 5,000	CDC Estimate based on recent and similar projects
9	Demo / disposal of existing 4" DIP	LS	1	\$ 1,000	\$ 1,000	CDC Estimate based on recent and similar projects
10	4" PVC	LF	70	\$ 70	\$ 4,900	CDC Estimate based on recent and similar projects
11	4" GV / box / riser	ea.	2	\$ 1,500	\$ 3,000	CDC Estimate based on recent and similar projects
12	Blowoff Hydrant Assembly	LS	1	\$ 6,000	\$ 6,000	CDC Estimate based on recent and similar projects
13	Meter Vault (5' Manhole / Ring & Cover, 2.5" Mag Meter, Fittings)	LS	1	\$ 16,000	\$ 16,000	CDC Estimate based on recent and similar projects
14	1" PVC / Install of continuous level sensor	LS	1	\$ 2,000	\$ 2,000	CDC Estimate based on recent and similar projects
15	Electrical conduit / LB and wall penetration	LS	1	\$ 2,000	\$ 2,000	CDC Estimate based on recent and similar projects
WQ					\$ 2,300	
16	WQ Sampling (Colorado Analytical Lab)	LS	1	\$ 2,300	\$ 2,300	Colorado Analytical Quote
Electrical & Controls					\$ 15,900	
17	VFD/Level Sensor/Breaker/Low Temp (Browns Hill)	EA	1	\$ 10,400	\$ 10,400	Browns Hill Quote 1/10/20
18	Electrical connections to new VFD (Electrician)	LS	1	\$ 2,000	\$ 2,000	CDC Estimate based on recent and similar projects
19	Autodialer Improvements (+1x digital, +2x analog)	EA	1	\$ 3,500	\$ 3,500	CDC Estimate based on recent and similar projects
Subtotal					\$ 141,650	
Design & Construction Engineering					\$ 69,500	
CDC Design					\$ 26,000	
Resource Engineering - well design and permitting					\$ 20,000	
Browns Hill Engineering & Controls - E& C Design					\$ 3,500	
CDC - Staking, Construction, Additional Services					\$ 20,000	
Contingency (15%)					\$ 21,247	
Project Total					\$ 232,397	

Deerwood Well Improvements
Preliminary (Budgetary) Estimate for DP-4 Rehab
1/16/2020

Item #	Item Description	Unit	Qty	Unit Price	Ext. Price	Comments
					\$ 27,520	
Well Casing / Well Pump						*** Assume existing drop pipe to be reused (Otherwise ADD \$7,000)
1	Mob/Demob/Site Work/Planning/General	%	10	\$ 3,000	\$ 3,000	~10% Base Cost
2	Well Pump/Motor/Install and Testing	ea.	1	\$ 13,000	\$ 13,000	Denver Industrial Pumps, Inc. Quote (\$8675) x 1.5x install
3	Pitless Adapter Modifications	ea.	1	\$ 1,000	\$ 1,000	CDC Estimate based on recent and similar projects
4	5" ID PVC casing (blank)	LF	260	\$ 12	\$ 3,120	Aztec 2019 Cost
5	5" ID PVC casing (perf)	LF	200	\$ 14	\$ 2,800	Aztec 2019 Cost
6	#8-12 Sand Pack + Labor	LF	460	\$ 10	\$ 4,600	CDC Estimate based on recent and similar projects
					\$ 19,500	
Electrical & Controls						
7	VFD/Level Sensor/Breaker	EA	1	\$ 11,000	\$ 11,000	Browns Hill Quote 1/10/20 + Level Sensor Install
8	Electrical connection to new VFD	LS	1	\$ 2,000	\$ 2,000	CDC Estimate based on recent and similar projects
9	Automated Pump Controls Improvements	LS	1	\$ 3,000	\$ 3,000	CDC Estimate based on recent and similar projects
10	Autodialer Improvements (+1x digital, +3x analog)	EA	1	\$ 3,500	\$ 3,500	CDC Estimate based on recent and similar projects
Subtotal					\$ 47,020	
Design & Construction Engineering					\$ 5,000	
Contingency (15%)					\$ 7,053	
Project Total					\$ 59,073	