



To: Members of Dublin City Council
From: Marsha I. Grigsby, City Manager 
Date: January 22, 2015
Initiated By: Michelle L Crandall, Assistant City Manager
Brian K. Ashford, Facilities Manager
Re: Resolution 09-15 - Accepting the Lowest and Best Bid for the Dublin Community Recreation Center Geothermal Project

Background

On December 23, 2014, two bids were opened for the installation of a geothermal system at the Dublin Community Recreation Center. This project will replace the two large cooling towers that are located in the mechanical courtyard at the Recreation Center (see attached photo) with one small facility that will house the above ground portion of the geothermal system. This enclosure will be located where the cooling tower closest to the building is currently located, shielded behind the wall and large wooden gates of the courtyard.

The purpose of the existing cooling towers is to remove excess heat from the water loop that feeds two HVAC units called "chillers" which provide cooling for most of the Recreation Center. These large tubular chillers are located inside the Recreation Center's mechanical room. In simple terms, water flows into the two chillers which then disperse extremely cold water through pipes throughout the building. Fans blow air over the chilled water to provide cool air to the building. Ultimately the water comes back into the mechanical room at a much warmer temperature. The warmer water is fed out to the cooling towers. The water temperatures are reduced in the towers and then fed back into the cooling system. Unfortunately, a significant amount of water is lost to evaporation in the cooling towers and thus new water must be continuously added to the cooling system.

The geothermal system takes advantage of the huge aquifer that runs underneath Dublin to provide the water needed to operate the chillers and ultimately cool the Recreation Center. Two wells will be dug near the overflow parking lot. One well will serve as a backup though both may be used on extremely hot days. The aquifer water from these wells will be brought into the mechanical courtyard through piping installed underneath the parking lot. Directional boring will be utilized to install the underground pipes, thus the parking lot will not be disturbed.

The aquifer water will pass through heat exchanger plates housed in the mechanical courtyard and then go into a nearby storm drain. The heat exchanger plates will then cool the water that is used in the cooling system that feeds into the chillers. The aquifer water temperature will be raised due to the heat transfer that occurs in the heat exchangers, but will not come into contact with any chemicals or other contaminants.

The geothermal system will significantly reduce water consumption and requires less powerful motors to move water throughout the cooling system. The savings from reduced water consumption and the use of more efficient motors will result in a payback conservatively estimated at nine years. The expected life of the system is a minimum of 25 years.

Impact on Residents and Patrons

The two wells that will be created by this project will pump approximately 300 gallons of water per minute. A test was performed to ensure that the new wells would not negatively impact the City's current well located next to the pond and a neighboring geothermal system owned by a residence located on Post Road. The City hired a well pump contractor to perform a 24 hour test in which the capacity of the City's existing well was increased to simulate the flow that will occur with the geothermal system. The owners of the residential geothermal system graciously allowed our contractor to monitor their well to determine if the aquifer levels changed in any significant manner. The result of the test indicated that the two new wells would not adversely impact any neighboring wells.

The two well systems will be almost entirely underground with approximately one foot extending above ground. This portion of the well systems can be shielded with vegetation.

One cooling tower will remain in operation while this project is performed in late winter and early spring. The one tower will provide sufficient cooling for the Recreation Center as the weather starts to get warmer. The second cooling tower will not be removed until the geothermal system is operational. Apart from fencing off a portion of the grounds area between the sidewalk and the mechanical courtyard where the directional boring machine will be located, there should be minimal impact on patrons entering and utilizing the Dublin Community Recreation Center.

Bid

Because this project involves almost equal amounts of work from several different disciplines (e.g. mechanical, well digging, electrical and directional bore), few bids were anticipated. Fortunately, General Temperature Control, a mechanical firm that has performed work at the Dublin Community Recreation Center in the past, put together a strong team that is quite capable of performing this project. Their bid of \$449,000 is above the amount that was budgeted for the project (\$400,000) but close to our engineering consultant's revised cost estimate of \$440,000. Part of the reason for the additional cost was an added design feature that will enable a mobile cooling tower to be utilized in the unlikely event that both of the geothermal wells fail for an extended period of time. It is anticipated that additional budget funds will be acquired from savings from other capital projects.

Recommendation

Staff recommends approval of Resolution 09-15, accepting the bid submitted by General Temperature Control in the amount of \$449,000 for the installation of a geothermal system at the Dublin Community Recreation Center. The resolution authorizes the City Manager to enter into a contract with General Temperature Control.

RECORD OF RESOLUTIONS

Dayton Legal Blank, Inc., Form No. 30045

Resolution No. 09-15 Passed _____, 20____

A RESOLUTION ACCEPTING THE LOWEST AND BEST BID FOR THE DUBLIN COMMUNITY RECREATION CENTER GEOTHERMAL PROJECT

WHEREAS, formal advertising and competitive bidding procedures have been conducted pursuant to Section 8.04 of the Revised Charter for installing a geothermal system at the Dublin Community Recreation Center; and

WHEREAS, Council has determined that the bid submitted by General Temperature Control in the amount of \$449,000 constitutes the lowest and best bid for the construction work.

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Dublin, State of Ohio, _____ of the elected members concurring, that:

Section 1. The bid submitted by General Temperature Control in the amount of \$449,000 is hereby accepted for the installation of a geothermal system at the Dublin Community Recreation Center.

Section 2. The City Manager is hereby authorized to enter into a contract with General Temperature Control for said project as specified within the bid proposal and the City's bid documents.

Section 3. This Resolution shall take effect immediately upon passage in accordance with Section 4.04(a) of the Revised Charter.

Passed this _____ day of _____, 2015

Mayor – Presiding Officer

Attest:

Clerk of Council



PRATER ENGINEERING ASSOCIATES

6130 Wilcox Road
Dublin, Ohio 43016
Phone: (614) 766-4896 Fax: (614) 766-2354

January 5, 2015

Mr. Brian K. Ashford, Facilities Manager
Facilities Division
City of Dublin
6555 Shier Rings Road
Dublin, Ohio 43016

Reference: Dublin Community Recreation Center
Geothermal Project, PEA-13390
Subject: Bid Summary and Recommendations

Dear Brian,

Bids for this project were received on December 23, 2014, for the single prime contract for this project. The bids followed a pre-bid meeting on December 9, 2014, and an addendum that was issued on December 18, 2014.

Apparent Low bid received is as follows:

Dublin Community Recreation Center, Geothermal Project, Bid Results Summary

<i>Contract</i>	<i>Contractor</i>	<i>Bid Amount</i>	<i>Estimate</i>	<i>% from estimate</i>
Single Prime	General Temperature Control	\$449,000.00	\$440,000.00	+2%

One other bid, from Gutridge Mechanical, was received, in the amount of \$791,000.00.

Prater Engineering contacted the low bidder, and confirmed that the bidder is comfortable with their bid. General Temperature is ready to proceed with the work; our "post-bid meeting" notes from January 5, 2015 are attached. General Temperature Control's bid appears to be responsive and responsible, and should be awarded the contract for work.

We recommend award of the single prime contract to General Temperature Control, for a lump sum contract amount, not including contingency, of \$449,000.00. Please call if you have any questions.

Respectfully submitted,

Prater Engineering Associates, Inc.

John B. Kerr, P.E., LEED^{AP}

COOLING TOWERS TO BE REMOVED



Cooling Tower VS Geothermal System

Cooling Towers

- ▶ Higher Horse Powered Pumps
- ▶ Requires Multiple Fans
- ▶ Require a lot of space
- ▶ High water consumption
- ▶ Noisy

Geothermal System

- ▶ Lower Horse Powered Pumps
- ▶ Fans Not Required
- ▶ Underground
- ▶ Low Water Usage
- ▶ No noise



**City of Dublin
Recreation Center Geothermal Project**

	Bid Results	
General Temperature	\$	449,000.00
Gutridge Plumbing	\$	791,000.00

Proposed Well



Proposed Well



5640

5600
**COMMUNITY
RECREATION
CENTER**



Existing Well



**Coffman
Park**

5800

5598

5596

5868

5677 5687 5697 5707

539

5899