

# Ulbrich Heights Community Geothermal Project

## Progress Updates

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## Test Borehole Update

One test borehole was drilled in the central lawn at Ulbrich Heights on February 12, 2024, by CT Wells, contracted by UConn.

The tests conducted will help us determine how much heat we can put in and take out of the ground with our networked system and confirmed the location is viable for drilling.

Findings from the test borehole will help the team model and design the community geothermal heating and cooling system.



# Test Borehole Update

Drilling rig pre-levelling



U-tube being put into borehole



Drilling test borehole



Borehole after grouting



Insulated tubing and testing trailer



Drilling pond holding water and dirt



Borehole after cleanup

# Test Borehole Update

## Test Borehole Process

February 12

CT Wells drilled a test borehole to 506 ft.



February 14

CT Wells completed grouting of borehole, which then sat for 5 days to reach



February 20-21

CT Wells conducted thermal conductivity testing.



March 5

The project team received test results from CT Wells.

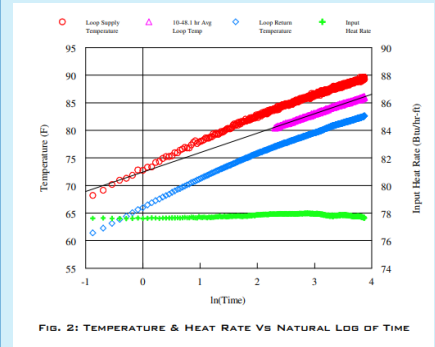


FIG. 2: TEMPERATURE & HEAT RATE VS NATURAL LOG OF TIME

# Test Borehole Update

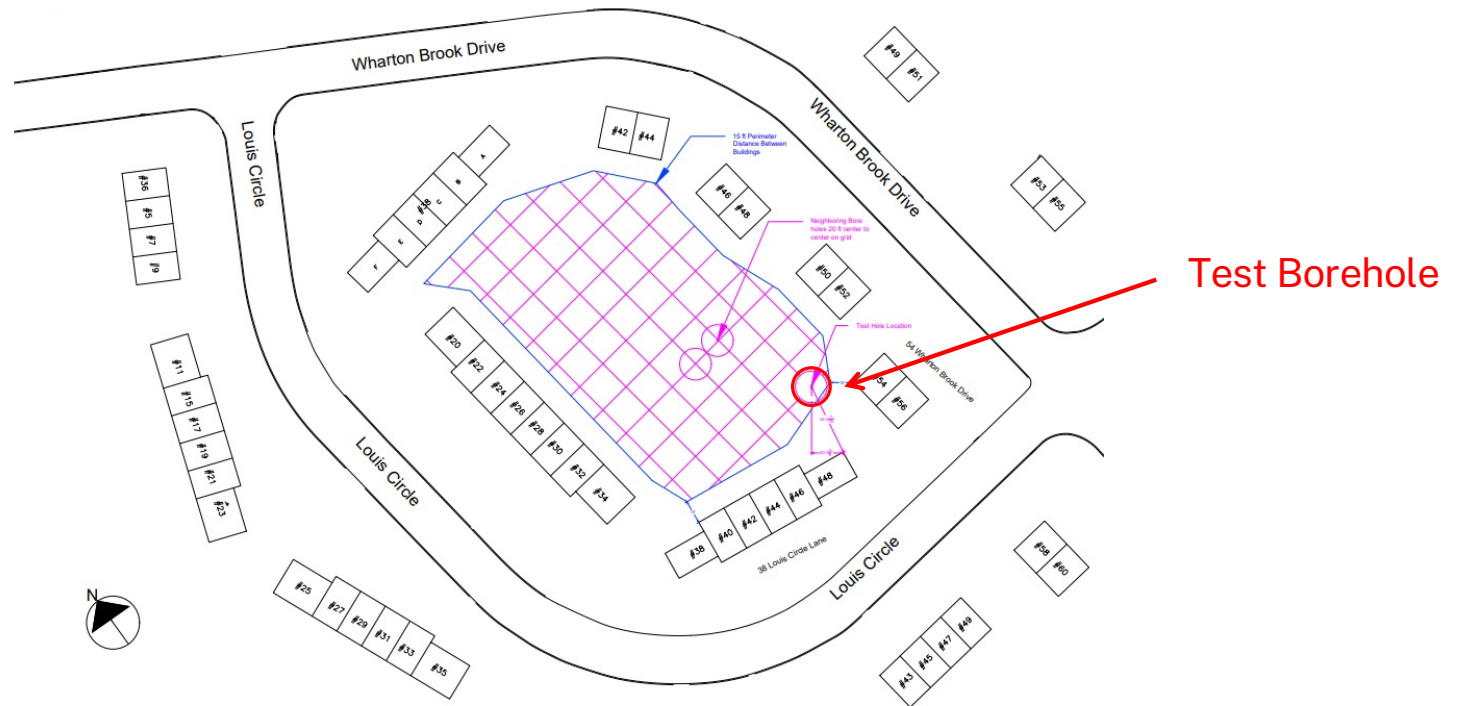
## Coffee & Donut Community Event



The project team held a community event with coffee and donuts while the testing trailer was on site on March 20, 2024.

# Test Borehole Update

## Test Borehole Location



# Test Borehole Update

## Testing Results and Next Steps

Testing found that the undisturbed temperature of the ground 450ft deep at Ulbrich Heights is 54.5-55.4°F. Thermal conductivity was found to be 1.76 Btu/h·ft·°F and diffusivity was 1.36 ft<sup>2</sup>/day.

The central lawn can potentially hold up to 84 boreholes. Based on test results, the project team can optimize how many boreholes are needed to provide geothermal heating and cooling to Ulbrich Heights.

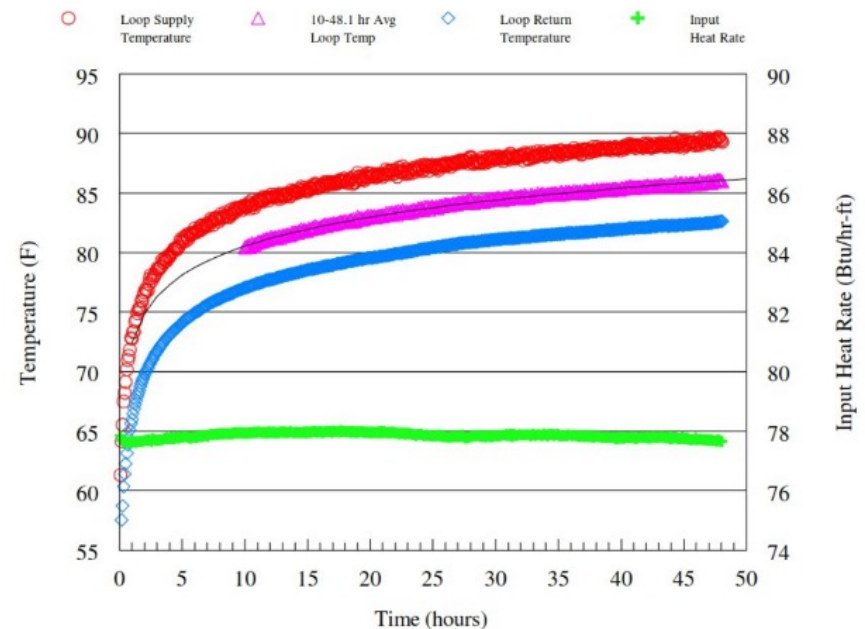


FIG. 1: TEMPERATURE & HEAT RATE DATA VS TIME

## Test Borehole Update

### Next Steps

The project team is using the test borehole data to model and design the geothermal system. A report with three conceptual models of the system was submitted to DOE on March 30, 2024.

- 1) Providing geothermal heating and cooling to half of Ulbrich Heights units.
- 2) Providing geothermal heating and cooling to all Ulbrich Heights units.
- 3) Exploring the use of buffer storage and ambient loops.

The project team will work with Wallingford Housing Authority, tenants, and the broader community to determine the best design option for Ulbrich Heights. Stay tuned for public input opportunities!



## **QUESTIONS OR COMMENTS?**

Contact the project team at [ulbrichgeothermal@neep.org](mailto:ulbrichgeothermal@neep.org)

Project website:

<https://portal.ct.gov/DEEP/Energy/Ulbrich-Heights-Community-Geothermal-Project>