



QSP ADDENDUM #1

To: All Bidders
From: Rita V. Brousseau, Chief Procurement Officer
Date: May 29, 2024
Re: QSP 2024-8 Geothermal Site Feasibility Study

This Addendum modifies and forms a part of the Bid Set documents dated May 15, 2024.

This Addendum consists of the following: Two (2) typed pages and site map.

Where any items called for in the bid documents are supplemented here, the supplemental requirements shall be considered as added thereto. Where any original item is amended, voided, or superseded here, the other provisions of such items not specifically amended, voided, or superseded shall remain in effect.

THE NUMBER OF THIS ADDENDUM MUST BE ENTERED IN THE APPROPRIATE SPACE PROVIDED ON "GENERAL BID FORM."

This request for quotes has been extended and is now due on Tuesday, June 4, 2024, at 11:00 a.m.

Answers to Bidder's Questions:

1. **Question:** During the site visit the idea of building (a) bore field that could accommodate future end users from UMass Lowell or TMI (was mentioned). Should the FS include study components related to a larger network system or opportunities for expansion beyond the LHA properties?

Answer: The feasibility study may offer a discussion whether expanding into the surrounding area would be practical in such topics as:

- a. What siting options exist for future bore fields;
- b. Explain the current understanding and nature of this technology and benefit of scaling potential. One thought is the potential inclusion of a university, which could facilitate resident engagement beyond the housing authority
- c. Please consider the study to be done in two phases:
 - i. Phase 1 includes the minimum anchor tenants and participants necessary to maximize the thermal efficiencies from diverse loads or "thermal assets" available (approximately 300 tons of load); greater detail is provided at the following link [HEET definition of geothermal networks](#); and



- ii. Phase 2 Option. Analysis with potential expansion into the larger community with the objective of retiring gas use in the area for heating and domestic hot water, and to provide cooling. Considerations could include various rate limiting steps, such as space availability for bore fields. Large thermal prosumers or other thermal assets such as flowing water should be explored for technical and regulatory feasibility. Phase 2 should be priced as a separate option to ensure that it can be covered by the grant budget, or not awarded if it exceeds the grant allocation.

2. **Question:** Similarly, should the FS focus only on the two greenfield buildings LHA is planning, Phase 1 and Phase 2, and LHA owned buildings within the site?

Answer: The feasibility study should include the two greenfield buildings as anchor tenants but should include other buildings too. Think of it as a "community network" in which the LHA would benefit from networking with other buildings due to load-cancelling, but the LHA would potentially serve the network as a "permanent tenant" of the loop to keep the loads stable and predictable as other buildings come on/offline.

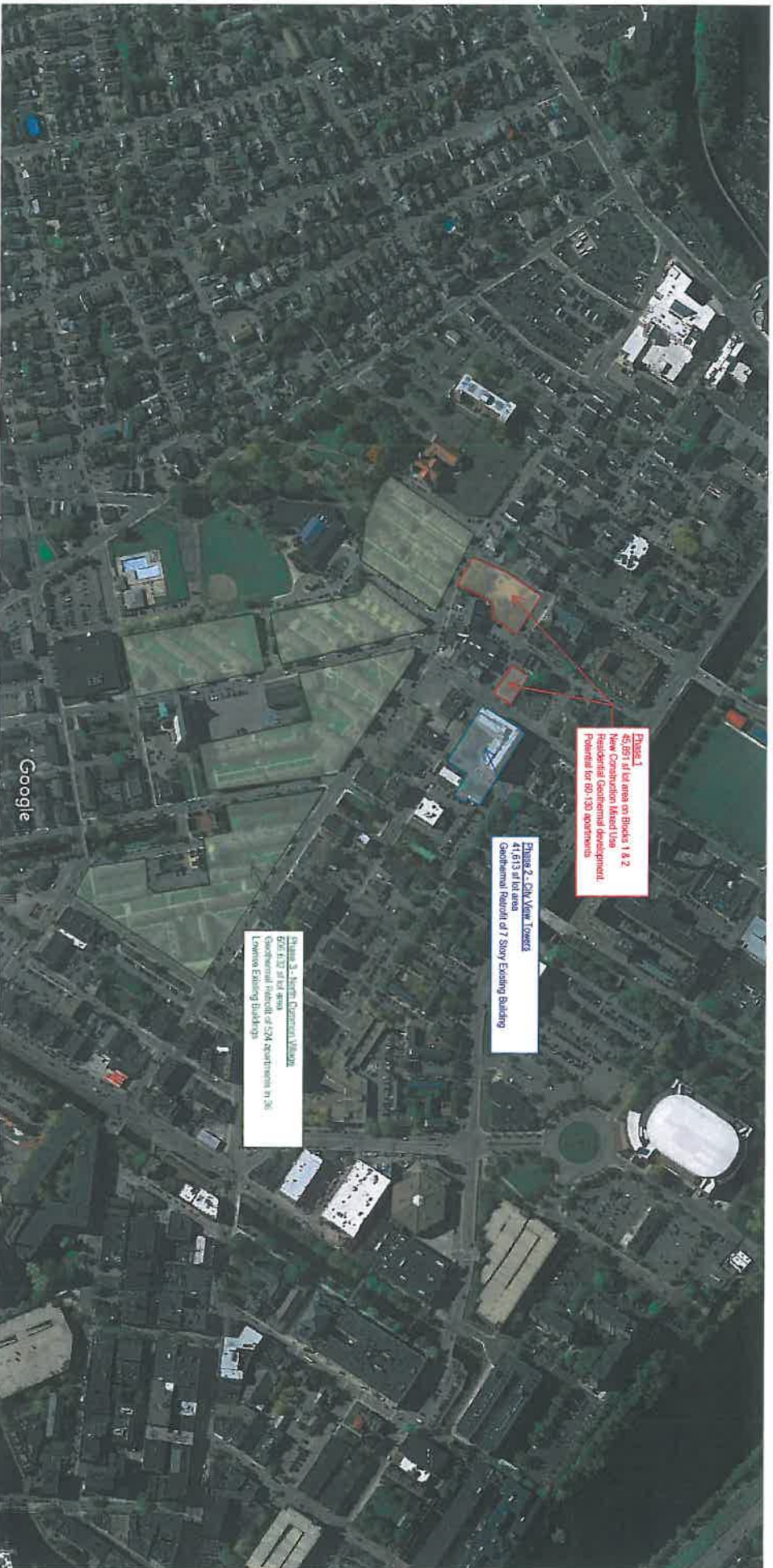
3. **Question:** Geothermal heat pumps are one of many options to decarbonize building stock. Does LHA desire a comparative analysis of geothermal versus air source and electric boilers?

Answer: It would be good to compare a networked GSHP approach against a hybrid-electric approach (with both ASHPs and networked GSHPs), but only if there are challenges to a fully networked approach.

4. **Question:** Under what conditions would geothermal be considered non-feasible? Excessive capital costs?

Answer: We do not want to limit a potential geothermal project based on the limited data we have today and the reality that may exist in 1-2 years when we expect to be in the design phase. To that point, an economic margin used by a utility should be considered for analysis as well as the socio-economic qualitative value without limiting the study or future projects. The LHA understands that a hard ROI could "chill" project conception due to an apparent economic go/no-go model. That said, it is the LHA's understanding that a utility working towards a building demand of no more than 25 BTUs/Square Foot. This guidance is reportedly based on experience with hundreds of projects, and a simple way to view a project quantitatively. In our opinion, both the qualitative and quantitative approaches should be considered, and analyzed according to the awarded firm's own experience, research and expertise.

END OF ADDENDUM #1



Phase 1
42,867 sq ft lot area on Block 1 & 2
New Cambridge Mixed Use
Residential Development
Potential for 60-130 apartments

Phase 2 - City View Towers
41,613 sq ft lot area
Geometric footprint of 7 Story Existing Building

Phase 3 - North Central Village
676,132 sq ft lot area
Geometric footprint of 424 apartments in 26
Lowrise Existing Buildings