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Shutesbury Elementary School — Geothermal Site Visit Summary

Site Visit Date: 5/12/2026 @ 1pm at 23 West Pelham Road, Shutesbury MA

Town of Shutesbury Representatives: Michael DeChiara (Energy and Climate Committee Member, Nate Heard (Chair of the Energy and Climate Action Committee), Stephen Daillmis (Member of the Buildings Committee), and Matt Foster (School Custodian)

1. Site Conditions & Access

- Ample parking available on site; fire hydrants nearby.
- School is closed for the summer, providing favorable window for parking lot drilling and interior mechanical work.
- Parking lot will require repaving following drilling; coordination and cost allocation to be confirmed. The portion of the parking lot impact from geothermal drilling and pipe installation qualifies for the Investment Tax Credits (ITC).

2. Existing Mechanical System

- Two boilers on site; only one operates for buildings heating with one for redundancy (N+1).
- Boilers are reported to be functioning but are at or near end of useful life (EUL).
- One air handling unit (AHU) located in a room adjacent to the boiler room with pipping directly connected.
- Perimeter baseboard heating throughout the building.
- Current system is 2-pipe with no zone control.
- Dedicated mini-split units for cooling the library/computer room and server/IT closet were installed in 2020. Units operate fine but need coil cleaning.
- Heating is distributed through the hot water pipes that run to the air handler and baseboard heaters, where hot air is distributed through ducts.

3. Oil Tank & Environmental Conditions

- Buried oil tank is located outside the expected project area.
- Tank has documented issues: water infiltration inside the tank and active oil leakage.
- No formal remediation completed; affected soils excavated and stored in an on-site container and considered stabilized for now.
- Pipe routing from the oil tank to the mechanical room has not been confirmed and requires further field investigation to not interfere with future geothermal lateral pipes from the borefield to the mechanical room.

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4. Proposed Geothermal Scope

- Preliminary estimate of 20–30 vertical boreholes, sized based on single-boiler operating load.
- Borehole field to be installed in the school parking lot during summer closure.
- Interior mechanical installation to be sequenced concurrently with drilling to optimize schedule and cost.

5. Interior Mechanical — Proposed Approach

Boiler Replacement

- Existing boilers are straightforward candidates for removal and replacement with Water Source Heat Pumps (WSHPs).

Air Handling Unit (AHU)

- Short pipe connection to add cooling capability to the existing AHU.
- Heating coils require replacement to be compatible with low-temperature hydronic water.
- Option for a single coil for both heating and cooling (mode-selectable) or separate coils for heating and cooling.
- If AHU is near EUL, full replacement may be preferred depending on costs.

Perimeter Baseboard Heating

- If existing baseboard heating remains for overnight/freeze-protection purposes, this requires upgrades or replacement to accommodate low-temperature water supply.
- Likely install one valve in the mechanical room to shut off water flow to baseboards when chilled water is being used and additional valves depending on the piping configuration.

6. Open Items & Questions to Resolve

1. Estimating HVAC load with modeling as heating load is larger than cooling even if distribution is extended to additional rooms since the building is unoccupied in summer.
2. Verify pipe routing from buried oil tank to mechanical room.
3. Assess AHU age and condition to determine coil repair vs. full unit replacement.
4. Confirm parking lot repaving coordination and cost responsibility.
5. Confirm current if buried oil container can be emptied and left buried and other compliance considerations.