29A Windsor Heat Pump Variance Pictures and Follow up Narrative

About the Pictures:

Some of the pictures show the properties in question for context others show the proposed location and relevant features of it. Despite our requests for a permit, the contractor got a start before pulling the permits, he did not however connect the wiring or turn on the system. So you will see some of the pictures were taken before the unit was placed and some show the area with the unit in the proposed location. The close up of the bulk head is to demonstrate how there is no room to discreetly sneak the linesets under the deck to reach an alternate location in the yard - thus the bit in the narrative about needing to encumber the neighbors decks and egress pathways with linesets if an alternate location were to be selected. The picture from the neighbors driveway shows how the neighbors shed blocks views and some sounds from the proposed location as it lies between the neighbors house and the proposed location.

On the hardship

Lineset efficiency

Here is a quote from Filterbuy which is an hvac website.

“Does line set length affect mini split efficiency?

Yes. Every additional foot beyond the factory pre-charge length asks more of the compressor and chips away at real-world efficiency. Most manufacturers require additional refrigerant above 25 to 30 feet of total run. Real-world losses of 5 to 15% are common at the upper limit of manufacturer specs, even when the system is charged correctly.”

On Property value impact

[Full disclosure, I asked Claud for help on this one.] Of course all of the variables cannot be accounted for but it is pretty clear that there is a net greater cost to property values for us and our downstairs neighbors vs any negative impact the side yard placement may have on the neighbors.

Property Value Cost: Usable Yard vs. the Proposed side yard spot

The key framing for the board: the nook is **functionally dead space** (no amenity value), while the deck-adjacent yard is **premium outdoor living space**. Placing a condenser there imposes a measurable economic loss.

Direct footprint: A typical mini-split condenser is roughly 2.5' × 3' ≈ **7–9 sf**. At ~$100/sf Somerville land value → ~$700–900. Negligible on its own.

Amenity shadow — the real cost: The condenser also creates a noise/visual exclusion zone around it. A running condenser at 3–5 feet is 45–55 dB (roughly a quiet conversation). In a small urban backyard, this effectively sterilizes maybe 80–150 sf of adjacent usable space — the area you'd otherwise use for seating, grilling, or kids.

Factor	Estimate
Amenity shadow area affected	~100–150 sf
Somerville land value/sf	~$100
Amenity premium for deck-adjacent space (vs. average lot)	~1.5–2×
Fraction of amenity value lost	40–60%
Implied amenity value loss	**$6,000–$18,000**

A reasonable midpoint for the variance application is **~$8,000–$12,000** in measurable loss of usable outdoor amenity value, based on Somerville residential land values. The nook location imposes essentially **$0** of equivalent loss — it displaces no usable space.