MEMORANDUM

DATE: January 4, 2018

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SUBJECT: 75 Hayden Avenue, Lexington, MA
Background Sound Measurement Protocol Inquiry

On January 2, 2018, you sent an e-mail with the following three questions posed by the Town of Lexington Site Review Team.

1. How [are] we [to] understand the 'Existing Conditions' of site.

   The notion of existing conditions is clear when a new facility is constructed in an area not influenced by an existing facility. This is not the case for the 75 Hayden Avenue project, where there are several similar existing facilities nearby. However, the background sound level over the project area is generally dominated by Routes 2 and 128 traffic sound.

   Nevertheless, escalation of the background, i.e. sound produced by a new facility adding to the background already produced by existing facilities, is a potential concern. In our previous work in the project area, most facility sound was produced by ventilation and process cooling systems that would be in low demand with cold outdoor temperatures. Hence, commencing Protocol measurements at this time would take advantage of lower existing facility sound levels in the project area.

   Shown below is Figure 1 of the Sound Measurement and Analysis Protocol dated November 3, 2017 prepared by this firm. It identifies three proposed measurement locations: SM1, SM2, and SM3. SM2 and SM3 are the closest sensitive receptors to the proposed 75 Hayden Avenue project. During measurements, observations will be made to ascertain whether any existing facility is contributing sound to the background at any of the three sound monitoring locations.

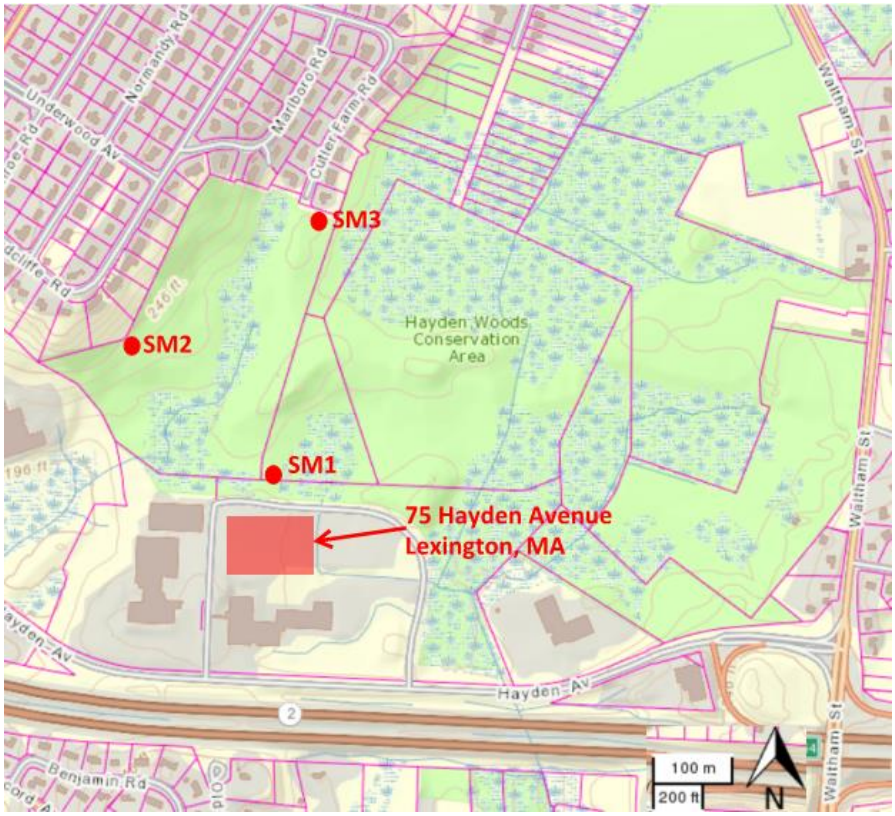

Figure 1. Area plan showing building location, nearest residences, and proposed sound monitoring locations SM1, SM2, and SM3 75 Hayden Avenue, Lexington, MA

2. How the above informs our Baseline.

   SM2 and SM3 are the two closest residential locations. The baseline used to protect these and other residential locations along Radcliffe, Marlboro, and Cutler Farm roads will be the lowest measured hourly 90th percentile A-weighted sound levels ($LAF_{90,1\text{-}hr}$). If Cavanaugh Tocci observations in the field suggest that other existing facilities substantially contribute to the measured background sound level, i.e. the baseline, at SM2 and SM3, then it would make additional measurements to determine any adjustments that should be made to the baseline it measured to eliminate these contributions.

3. Fundamentally, that the new design will be held to meeting the Town Ordinance.

   The permitted 75 Hayden Avenue facility sound level at the nearest residences would not exceed the lowest background measured in accordance with the Chapter 80 By-Law plus 10 decibels, and would not produce a pure tone condition.