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18 September 2013

Scott Ward
Classic Communities
1068 East Meadow Circle
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Subject: **Classics at San Mateo**
Environmental Noise Study
CSA Project: 13-0491

Dear Scott:

As requested, we have conducted an environmental noise study for the project. The purpose of the study is to determine the noise environment at the proposed site, compare the measured data with applicable standards, and propose mitigation measures as necessary. This report summarizes the results of our study.

PROJECT CRITERIA

California Building Code

California Building Code (Title 24, Chapter 12, Section 1207.11.2) requires that the indoor noise level in new housing not exceed DNL[1] 45 dB where the exterior noise level is greater than DNL 60 dB.

The CBC also states that if windows must be closed to meet the interior standard, the design must include a ventilation or air-conditioning system that includes fresh air to provide a habitable interior environment.

San Mateo Noise Element

The General Plan of San Mateo states that the interior noise standard is consistent with the State requirement for multi-family housing.

Exterior use spaces for residential zoning are considered to be “Normally Acceptable” if less than DNL 60 dB.

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[1] Day-Night Average Sound Level (DNL) – A descriptor established by the U.S. Environmental Protection Agency to represent a 24-hour average noise level with a 10 dB penalty applied to noise occurring during the nighttime hours (10 pm to 7 am) to account for the increased sensitivity of people during sleeping hours.

NOISE ENVIRONMENT

The project is located in San Mateo and is bounded by Tilton Avenue and surrounding residential properties, with one medical office building to the east. The Caltrain tracks are 1,100 feet away. The major noise sources at the project site are traffic on surrounding streets. To quantify the existing noise environment, we conducted two continuous long-term noise measurements at the project site between 12 and 14 September 2013 (see Figure 1 for measurement locations and measured noise levels). The monitors were at a height of 12 feet above grade.

A future traffic analysis was not provided for this project. However, we have added 1 dB to the data in our calculations to account for future traffic increases.[2]

RECOMMENDATIONS

Interior

To meet the Building Code indoor DNL 45 dB requirement, it will be necessary for some of the facades to be sound-rated. We calculated the window and exterior door STC[3] ratings needed to meet the project criterion. These are shown on Figure 2. We used the 8 January 2013 floor plans and elevations for dimensions.

For our calculations, we assumed that the bedrooms will be carpeted and that all other rooms will have hard-surfaced flooring. We also assumed that all residential balconies will have accessible doors with glazing.

The STC ratings recommended are for full window assemblies (glass and frame) rather than just the glass itself. Tested sound-rated assemblies should be used.

For reference, typical one-inch glazing assemblies (two 1/4-inch thick panes with 1/2-inch airspace) achieve an STC rating of 32. Where STC ratings above 33 are required, at least one pane will need to be laminated.

The building code requires that where windows need to be closed to achieve an indoor DNL of 45 dB, an alternative method of supplying fresh air (e.g., mechanical ventilation) must be provided. This applies to the project residences that have sound-rated windows indicated on the figures. This issue should be discussed with the project mechanical engineer.

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[2] The California Department of Transportation assumes a traffic volume increase of three-percent per year, which corresponds to a 1 dB increase in DNL over a ten-year period.

[3] Sound Transmission Class (STC) – A single-number rating standardized by ASTM and used to rate the airborne sound insulation properties of partitions. The STC rating is derived from laboratory measurements of a building element and as such is representative of the maximum sound insulation. Increasing STC ratings correspond to improved airborne noise isolation.

Exterior

The loudest outdoor noise areas are those along Tilton Ave (The Lot 2 and 3 side yards). The expected noise level at these locations is DNL 67 dB. Therefore, 7 dB of noise reduction is required. To achieve this, a six-foot tall fence is needed. The fence must be continuous with no cracks or gaps in its face and have a minimum surface density of three pounds per square foot. Walls as described above will be sufficient to reduce the noise level to DNL 59 dB or less, which is Normally Acceptable.

The courtyard in the center of the site is expected to be DNL 59 dB or less. Therefore, no mitigation is needed.

* * *

This concludes our environmental noise study for the Classics at San Mateo. Should you have any questions, please give us a call.

Sincerely,

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CLASSICS AT SAN MATEO
MEASUREMENT LOCATIONS AND MEASURED DNL

FIGURE 1

CSA # 13-0491

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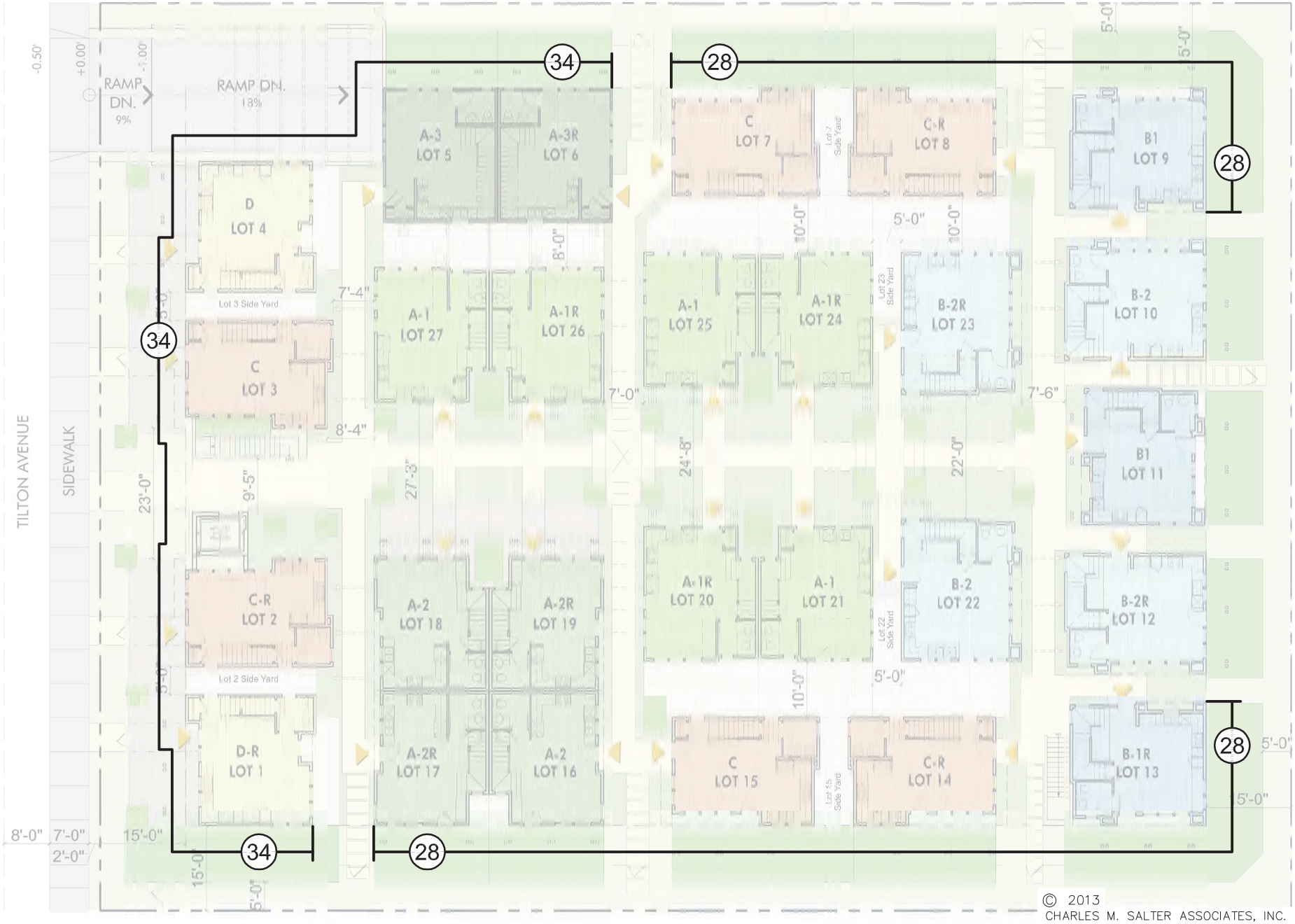

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CLASSICS AT SAN MATEO
MINIMUM RECOMMENDED STC RATINGS FOR WINDOWS AND EXTERIOR DOORS (FLOORS 1 THROUGH 3)

FIGURE 2

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