

March 30, 2022

Dish Wireless - SFO
2121 N California Blvd
Walnut Creek, CA 94596
C/O EBC Consulting

Subject: Dish Wireless – SFSFO01189B – Noise Review Letter – Novato, CA

MD Acoustics, LLC (MD) has completed a noise review letter for Dish Wireless – SFSFO01189B project located at 199 San Marin Dr., in Novato, CA 94945. The site plan utilized for the project is located in Exhibit A (page 3 of this report). The project and plans were reviewed from a noise standpoint.

Sheet T-1 from the plans provide the project summary and is as follows: install (6) proposed panel antennas (2 per sector), install proposed jumpers, install (6) proposed rrus (2 per sector), install (3) proposed over voltage protection device (ow) (1 per sector), install proposed cable ladder tray or cable tray, install (3) proposed power and fiber cable, install (1) proposed gps unit, install (1) proposed concrete pad with chain-link fence, install (1) proposed ppc cabinet, install (1) proposed equipment cabinet, install (1) proposed power conduit, install (1) proposed telco conduit, install (1) proposed telco-fiber box, install (1) proposed fiber nid.

1.0 Acoustics Requirements

The City has outlined the noise limit within the City of Novato. Section 19.22.070 from the City's Municipal Code provides the exterior noise limits by zoning district and is provided in Appendix B. As outlined in Section 19.22.070 maximum residential noise levels in may not exceed 60 dBA daytime (6AM-10PM) and 45 dBA nighttime (10PM – 6AM).

Therefore, the project may not exceed the most strict residential noise level of 45 dBA.

2.0 Study Method and Procedure

MD has reviewed the equipment for the proposed project as it relates to noise and has determined that none of the new equipment will be a significant noise producer. All Equipment either makes no noise or will make no more noise than what is already on site.

3.0 Findings

The noise level from the said equipment is below the City's 45 dBA noise limit. Therefore, no additional noise mitigation is required as the project will have the same noise levels before and after installation of the new equipment at the site and surrounding properties.

4.0 Conclusion

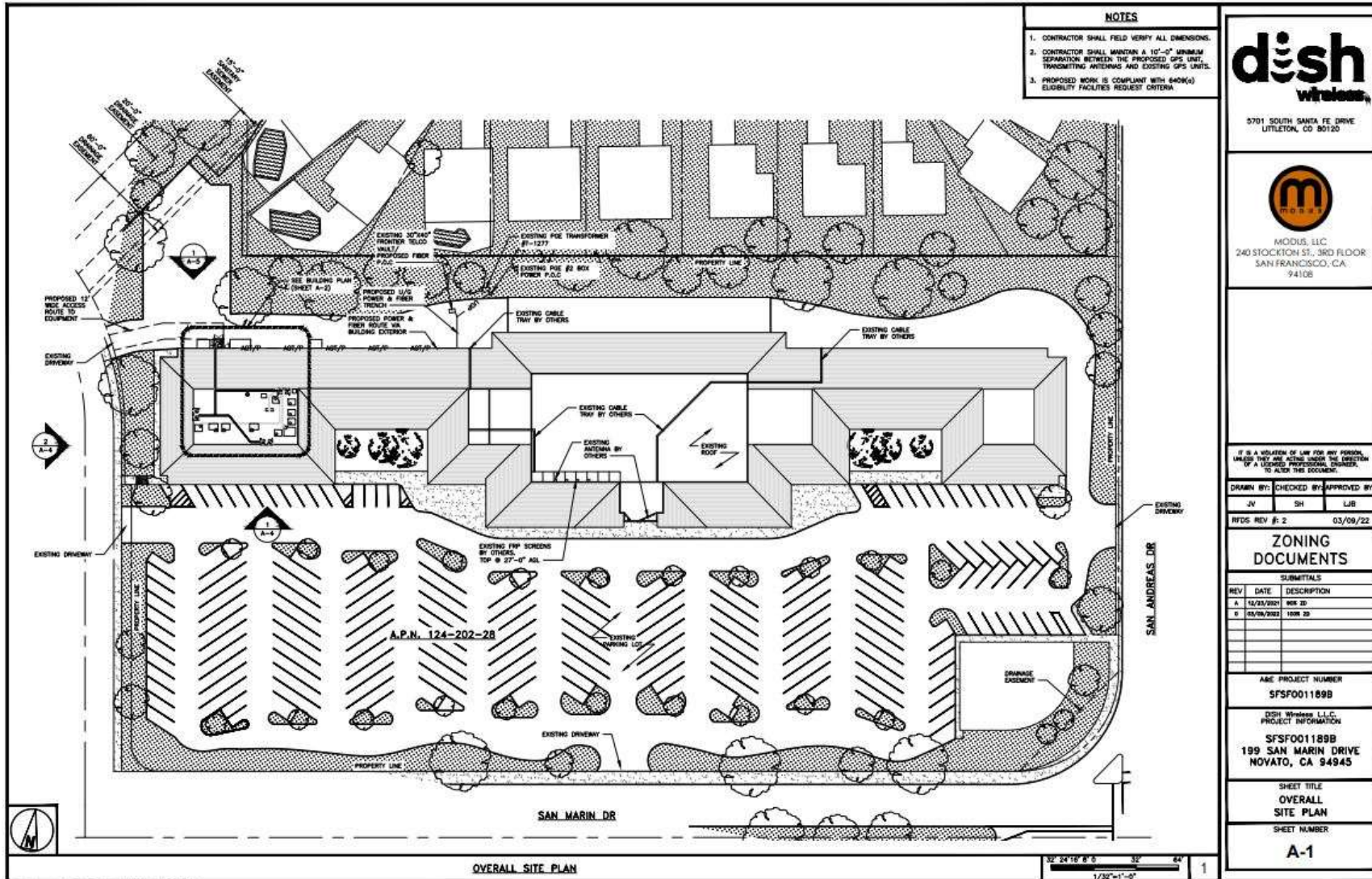
MD is pleased to provide this noise review for this project. The project will comply with the City's applicable noise allowable limits based on the proposed design. If you have any questions regarding this letter, please call our office at (805) 426-4477.

Sincerely,
MD Acoustics, LLC



Robert Pearson
Acoustical Consultant

Exhibit A Site Plan



Appendix A
Glossary of Acoustical Terms

Glossary of Terms

A-Weighted Sound Level: The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear. A numerical method of rating human judgment of loudness.

Ambient or Background Noise Level: The composite of noise from all sources, near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

Decibel (dB): A unit for measuring the amplitude of a sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micro-pascals.

dB(A): A-weighted sound level (see definition above).

Equivalent Sound Level (LEQ): The sound level corresponding to a steady noise level over a given sample period with the same amount of acoustic energy as the actual time varying noise level. The energy average noise level during the sample period.

Field Sound Transmission Class (FSTC): The field sound transmission class (FSTC) rating is used for in situ wall and floor/ceiling sound isolation performance assessment. The standard requires the measurement of sound transmission loss and includes required procedure to show that the FSTC rating, as it has been determined by the test procedure, was not influenced by flanking of sound around the partition intended to be tested. Sound transmission class and FSTC ratings are intended by standard to be equivalent; however, practical experience indicates that FSTC ratings tend to be up to five ratings points less than laboratory-measured STC ratings.

Day-Night Level (LDN or DNL): LDN is the average noise level over a 24-hour period. The noise between the hours of 10PM to 7AM is artificially increased by 10 dB. This noise is weighted to take into account the decrease in community background noise of 10 dB during this period.

Noise: Any unwanted sound or sound which is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying. The State Noise Control Act defines noise as "...excessive undesirable sound...".

Noise Isolation Class (NIC): The noise isolation class (NIC) rating is similar to STC and FSTC. However, the standard STC rating contour is applied to the one-third octave band noise reduction measured in a field situation, rather than the transmission losses measured in the field. No correction to the measured noise reduction data is made to account for partition size, receiving room absorption, or sound flanking. Like the STC and FSTC ratings, the field measured NIC rating of a noise reduction spectrum is equal to the value of the contour crossing at 500 Hz. In the absence of sound flanking, the NIC is generally within five points of the laboratory STC rating for typical building partition constructions. The NIC rating is used to assess the sound isolation performance of in situ partition construction, especially complicated ones that involve

multiple sound transmission paths that are not suited for laboratory testing. The NIC rating is often used in lieu of STC and FSTC.

Normalized Noise Isolation Class (NNIC): The normalized noise isolation class (NNIC) is the same as the NIC rating except the receiving room absorption is normalized to correspond to a 0.5-s reverberation time.

Sound Level (Noise Level): The weighted sound pressure level obtained by use of a sound level meter having a standard frequency-filter for attenuating part of the sound spectrum.

Sound Level Meter: An instrument, including a microphone, an amplifier, an output meter, and frequency weighting networks for the measurement and determination of noise and sound levels.

Sound Transmission Class (STC): To quantify STC, a Transmission Loss (TL) measurement is performed in a laboratory over a range of 16 third-octave bands between 125 – 4,000 Hertz (Hz). The average human voice creates sound within the 125 – 4,000 Hz 1/3rd octave bands.

STC is a single-number rating given to a particular material or assembly. The STC rating measures the ability of a material or an assembly to resist airborne sound transfer over the specified frequencies (see ASTM International Classification E413 and E90). In general, a higher STC rating corresponds with a greater reduction of noise transmitting through a partition.

STC is highly dependent on the construction of the partition. The STC of a partition can be increased by: adding mass, increasing or adding air space, adding absorptive materials within the assembly. The STC rating does not assess low frequency sound transfer (e.g. sounds less than 125 Hz). Special consideration must be given to spaces where the noise transfer concern has lower frequencies than speech, such as mechanical equipment and or/or music. The STC rating is a lab test that does not take into consideration weak points, penetrations, or flanking paths.

Even with a high STC rating, any penetration, air-gap, or “flanking path can seriously degrade the isolation quality of a wall. Flanking paths are the means for sound to transfer from one space to another other than through the wall. Sound can flank over, under, or around a wall. Sound can also travel through common ductwork, plumbing or corridors. Noise will travel between spaces at the weakest points. Typically, there is no reason to spend money or effort to improve the walls until all weak points are controlled first.

Appendix B
City of Novato, CA
Noise Ordinance

19.22.070 - Noise and Construction Hours.

- A. *Applicability.* Uses, activities, and processes shall not generate or emit any noise or sound in excess of the levels provided in Table 3-5 beyond the property line of the parcel on which they are located, except as provided in Subsection B.
- B. *Exceptions.* The following are exempt from the allowable noise level requirements of Table 3-5 as noted:
1. Aerial warning devices that are required by law to protect the health, safety, and welfare of the community;
 2. Emergency vehicle responses and all necessary equipment utilized in responses to a declared state of emergency;
 3. Airport, and railroad operations;
 4. Authorized construction activities, including warming-up or servicing of equipment, and any preparation for construction between 7 a.m. and 6 p.m. on weekdays, and between 10 a.m. and 5 p.m. on Saturdays. No construction is allowed on Sundays or official federal national holidays, except as otherwise authorized herein by the Community Development Director.
 5. Authorized grading activities and equipment operations between 7 a.m. to 6 p.m. weekdays only, when City inspectors are available.
 6. Routine maintenance activities.
 7. Other construction activities as authorized in writing by the Community Development Director.
- C. *Noise Measurement.* Exterior noise levels shall be measured at the property line of the noise source. Noise measurement shall be made with a sound level meter using the "A" weighted scale at slow meter response. Fast meter response shall be used only for an impulsive noise.

Table 3-5
Allowable Exterior Noise Levels

Type of Land Use	Allowable Exterior Levels (1)	
	Time Interval	Maximum Noise Level (2)
Residential (3)	10 p.m. to 6 a.m.	45 dBA
	6 a.m. to 10 p.m.	60 dBA

Commercial (4)	10 p.m. to 6 a.m.	60 dBA
	6 a.m. to 10 p.m.	70 dBA
Industrial or manufacturing (4)	Any time	70 dBA

Notes:

- (1) Each of the noise limits specified in Table 3-5 shall be reduced by 5 dBA for impulse or simple tone noises. If the ambient noise exceeds the resulting standard, the ambient shall be the standard.
- (2) Maximum noise levels shall not be exceeded for an aggregate period of more than three minutes within a one-hour time period or by more than 20 dBA at any time.
- (3) Residential standards apply to sensitive receptors such as schools, hospitals, libraries, group care facilities, and convalescent homes. These uses may require special mitigation.
- (4) Commercial standards apply to Mixed Use Districts.

D. Authorized construction activity and uses established through the discretionary land use permit process may be subject to specific noise conditions of approval and/or mitigation measures that are more restrictive.

(Ord. No. 1576, § 2 (Exh. A, amd.), 10-23-2012)