

July 27, 2021

Mr. Peter Kulmaticki
JD Pierce Company, Inc
2222 Main Street, Ste 100
Irvine, CA 92612

Subject: TTM 38107 – Noise Review Letter – San Jacinto, CA

Dear Mr. Kulmaticki:

MD Acoustics, LLC (MD) is pleased to submit this letter as part of the noise assessment for the proposed TTM 38107 project located west of Sanderson Avenue, San Jacinto, CA. The project proposes the construction of approximately 215 single-family buildings on an approximately 38.15-acres. Exhibit A provides the location map and Exhibit B provides the project site plan. A glossary of acoustical terms is located in Appendix A.

1.0 Local Acoustical Requirements

The City of San Jacinto outlines their noise regulations and standards within the Noise Element from the General Plan and the Noise Ordinance from the Municipal Code

Applicable policies and standards governing environmental noise in the City are set forth in the General Plan Noise Element. Table N-1 of the San Jacinto Noise Element outlines the interior and exterior noise standards for community noise environments. According to Table N-1 single family residential noise limits are 45 dBA CNEL interior and 65 dBA CNEL exterior.

2.0 Evaluation Procedure

2.1 FHWA Traffic Noise Calculator

Traffic noise from vehicular traffic was projected using a computer program that replicates the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108). The FHWA model arrives at the predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). Roadway volumes and percentages correspond to the project's traffic impact counts as prepared by TJW Engineering and roadway classification. The referenced traffic data was applied to the model and is in Appendix B. The following outlines the key adjustments made to the REMEL for the roadway inputs:

- Roadway classification – (e.g. freeway, major arterial, arterial, secondary, collector, etc),
- Roadway Active Width – (distance between the center of the outer most travel lanes on each side of the roadway)
- Average Daily Traffic Volumes (ADT), Travel Speeds, Percentages of automobiles, medium trucks and heavy trucks
- Roadway grade and angle of view
- Site Conditions (e.g. soft vs. hard)
- Percentage of total ADT which flows each hour through-out a 24-hour period

Exhibit A
Location Map



3.0 Findings

3.1 Exterior Traffic Noise Levels

Traffic noise from the local roadway network was evaluated and compared to the City's Exterior Noise Standard. Per the City's Exterior Noise Standard (Table N-1 from the City's General Plan, Noise Element), single-family residential noise limit is 65 dBA CNEL. With the incorporation of a 6-foot tall wall the exterior level will be 64.5 dBA CNEL on the first floor and 70.4 dBA CNEL on the second floor. The exterior level at the backyard will comply with the City's 65 dBA CNEL limit. Exhibit C illustrates the approximate location of the wall. The wall must be placed on-top of slope or pad grade (whichever is higher). Appendix B provides the traffic noise calculation output.

3.2 Interior Traffic Noise Levels

The future interior noise level was calculated for the sensitive receptor locations using a typical "windows open" and "windows closed" condition. A "windows open" condition assumes 12 dBA of noise attenuation from the exterior noise level. A "windows closed" condition assumes 20 dBA of noise attenuation from the exterior noise level. Table 1 indicates the first and second floor interior noise levels for the project site.

Table 1: Future Interior Noise Levels (dBA CNEL)

Location	Roadway Noise Source	Exterior Facade Study Location	Noise Level at Building Facade	Interior Noise Reduction Required to Meet Interior Noise Standard of 45 dBA CNEL	Interior Noise Level w/ Typical Residential Windows (STC≥ 25)		STC Rating for Windows Facing Subject Roadway ³
					Window Open ¹	Windows Closed ²	
1st Row Units Along Sanderson Ave	Sanderson Ave	1st Floor	65	20	53	45	28
		2nd Floor	70	25	58	45	28
Notes: 1. A minimum of 12 dBA noise reduction is assumed with a "windows open" condition. 2. Assumes "windows closed" condition. 3. Indicates the required STC rating to meet the interior noise standard.							

As shown in Table 1, the interior noise level will range from 53 to 58 dBA CNEL with the windows open and 45 dBA CNEL with the windows closed.

To meet the City's interior 45 dBA CNEL standard a "windows closed" condition is required. The windows and sliding glass doors directly facing Sanderson Ave will require a minimum STC rating of 28 or higher for all 1st row residential units directly adjacent to Sanderson Avenue. A "windows closed" condition simply means that in order to achieve a 45 dBA CNEL interior noise level, the windows must be closed and does not mean the windows must be fixed.

4.0 Summary of Recommendations

The following provides the recommendations for the project:

1. A minimum 6-foot tall wall should be placed in between Sanderson Avenue and the lots directly adjacent to said roadway. Wall should be placed on top of slope or pad (whichever is higher).

2. The windows and sliding glass doors directly facing Sanderson Ave will require a minimum STC rating of 28 or higher for all 1st row residential units directly adjacent to Sanderson Avenue.

5.0 Conclusions

MD has evaluated the future traffic noise for the TTM 38107 Single-Family Development project located in San Jacinto, CA. The study shows that a 6-foot tall wall is required along Sanderson Avenue (in between the lots and the street) and STC-28 windows or higher is required for lots directly adjacent to said street. MD is pleased to provide this noise assessment. If you have any questions regarding this analysis, call us at (805) 791-7983.

Sincerely,
MD Acoustics, LLC

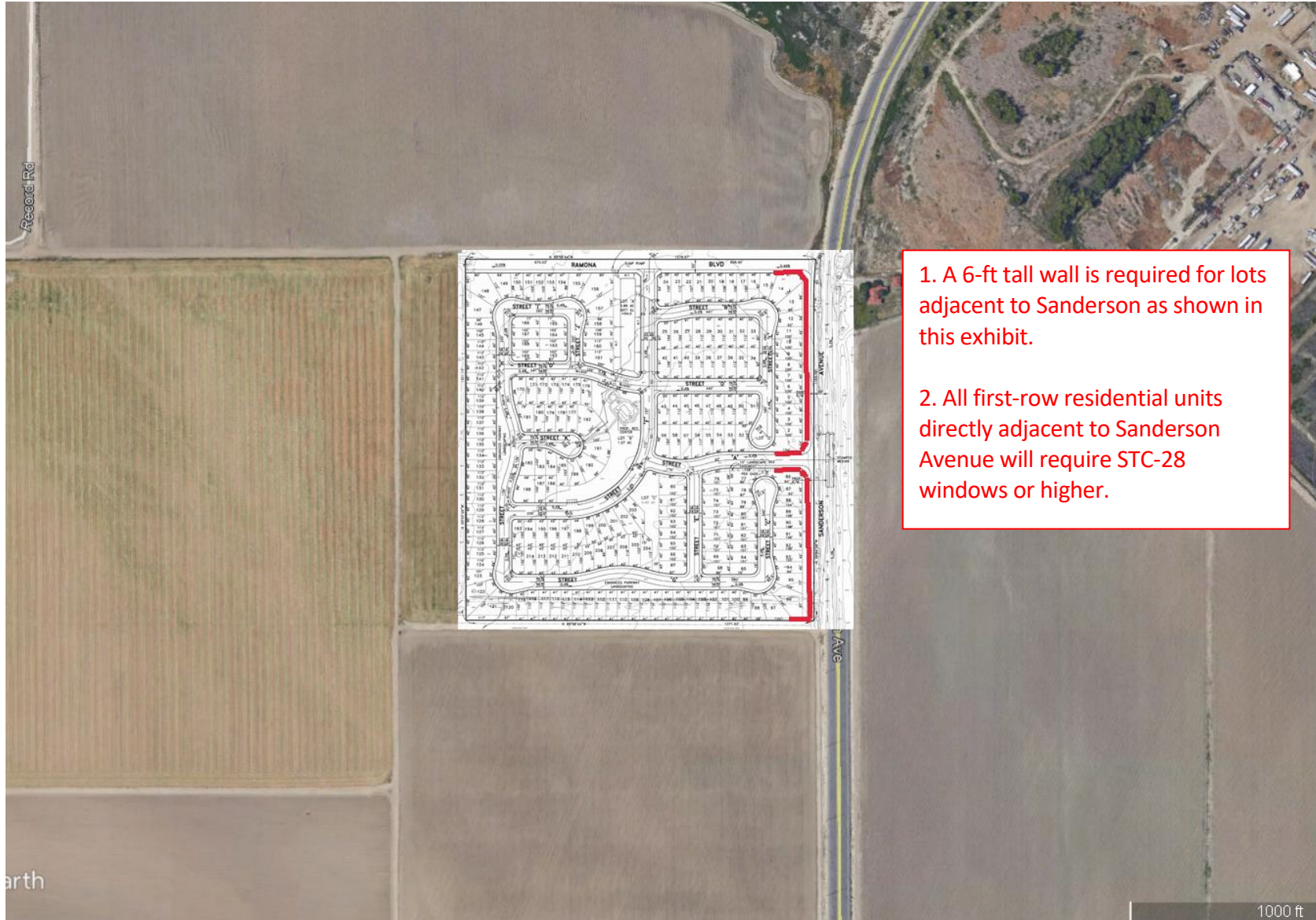


Mike Dickerson, INCE
Principal



Robert Pearson
Acoustical Consultant

Exhibit C
Noise Reduction Recommendations



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...".

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.

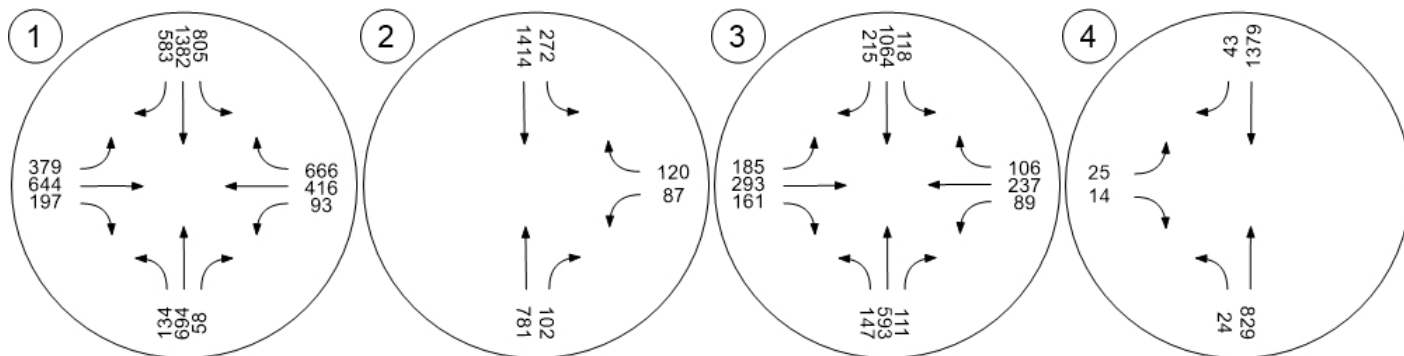
Appendix B

Traffic Data and Calcs

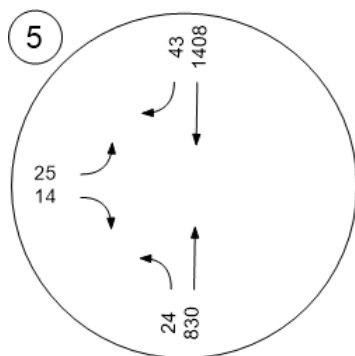
Traffic Volume - Future Total Volume



Sanderson Ave/Ramona Exp Sanderson Ave/Ramona Blvd Sanderson Ave/Cottonwood Sanderson Ave/South Project



Sanderson Ave/North Project



FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

PROJECT:	TTM 30943 (APN 431-020-007)	JOB #:	1922-06-02
ROADWAY:	SANDERSON AVE	DATE:	25-Jun-21
LOCATION:	LOT 9 - 1ST FLOOR	ENGINEER:	M. Dickerson

NOISE INPUT DATA

ROADWAY CONDITIONS	RECEIVER INPUT DATA
ADT = 21,100 SPEED = 55 PK HR % = 10 NEAR LANE/FAR LANE DIST 0 ROAD ELEVATION = 0.0 GRADE = 1.0 % PK HR VOL = 2,110	RECEIVER DISTANCE = 98 DIST C/L TO WALL = 88 RECEIVER HEIGHT = 5.0 WALL DISTANCE FROM RECEIVER = 10 PAD ELEVATION = 0.5 ROADWAY VIEW: LF ANGLE= -90 RT ANGLE= 90 DF ANGLE= 180

SITE CONDITIONS	WALL INFORMATION
AUTOMOBILES = 10 MEDIUM TRUCKS = 10 HEAVY TRUCKS = 10 (10 = HARD SITE, 15 = SOFT SITE)	HTH WALL= 6.0 AMBIENT= 0.0 BARRIER = 0 (0 = WALL, 1 = BERM)

VEHICLE MIX DATA					MISC. VEHICLE INFO			
VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY	VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	0.775	0.129	0.096	0.9742	AUTOMOBILES	2.0	98.16	--
MEDIUM TRUCKS	0.848	0.049	0.103	0.0184	MEDIUM TRUCKS	4.0	98.09	--
HEAVY TRUCKS	0.865	0.027	0.108	0.0074	HEAVY TRUCKS	8.0	98.06	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	70.1	68.2	66.5	60.4	69.0	69.7
MEDIUM TRUCKS	60.0	58.5	52.2	50.6	59.1	59.3
HEAVY TRUCKS	60.0	58.6	49.6	50.8	59.2	59.3
NOISE LEVELS (dBA)	70.9	69.1	66.7	61.3	69.9	70.4

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	64.1	62.2	60.5	54.4	63.0	63.7
MEDIUM TRUCKS	54.3	52.8	46.5	44.9	53.4	53.6
HEAVY TRUCKS	54.7	53.3	44.3	45.5	53.9	54.0
NOISE LEVELS (dBA)	65.0	63.2	60.8	55.4	63.9	64.5

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	107	339	1073	3393
LDN	95	300	948	2999

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

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ROADWAY:	SANDERSON AVE	DATE:	25-Jun-21
LOCATION:	LOT 9 - 2ND FLOOR	ENGINEER:	M. Dickerson

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AUTOMOBILES	70.1	68.2	66.4	60.4	69.0	69.6
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NOISE LEVELS (dBA)	70.9	69.1	66.7	61.2	69.8	70.4

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	107	337	1065	3369
LDN	94	298	942	2977