

**Hollandia Dairy CUP Modification
Technical Appendices**

**Appendix G
Noise Analysis**

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January 21, 2021

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Subject: Noise evaluation for the Hollandia Dairy Modernization - City of San Marcos

The firm of Ldn Consulting is pleased to submit the following noise analysis for the proposed Hollandia Dairy Modernization project located on the northeast corner of E. Mission Road/Mulberry Drive in the City of San Marcos. The purpose of the noise evaluation is to determine the estimated noise levels from the proposed project and recommend reduction measures, if needed, for compliance with the City of San Marcos Noise standards.

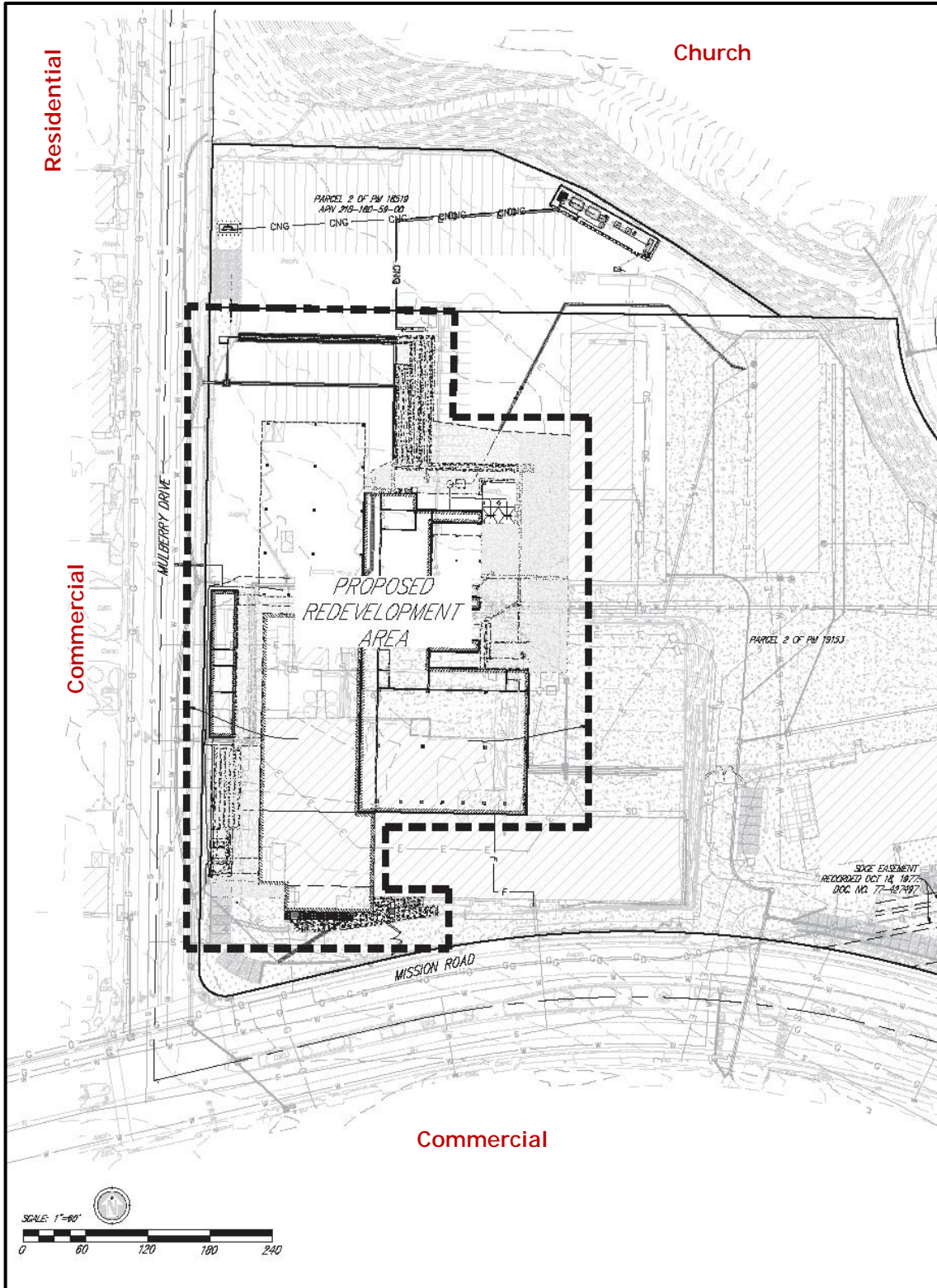
Site Development Plan

This upgraded facility will maintain the existing quantities of product intake and productions and will keep Hollandia Dairy in compliance with all the current food processing facility requirements and provide for the future success of the company. Building expansion is necessary to bring the dairy into compliance with federal dairy operating regulations which in part require more space between equipment.

The development plan would be over two phases and would demolish 27,372 Square Feet (SF) of existing facilities and then construct 76,127 SF of upgraded facilities. This is necessary to ensure that the current plant operations are not interrupted by the construction of the new facility. The phasing will allow the new creamery and central plant to be fully tested, placed into operation and vetted prior to demolition of the current plant. Also, as part of this project, during grading operations, a combined import of 5,400 Cubic Yards (CY) is required. The effective zone of the project area is roughly 4.75 acres in size.

The replacement facility will contain a new processing plant, office space, maintenance building, employee space, restrooms, unoccupied space which houses mechanical equipment, and a new cover over the milk crate wash racks. Rather than receive several shipments of pre-formed plastic containers and storing those, new building space will also house a molder eliminating plastic deliveries by truck. Processing equipment totals 7 machines, which will be replaced on a one-to-one basis as older machines become obsolete. A site development plan is shown below in Figure 1.

Figure 1: Proposed Project Site Development Plan



The surrounding land uses included both commercial and residential to the west, commercial (church) to the north, east (school) and south across Mission Road. A compressed natural gas (CNG) fueling station was recently approved for the project site under a separate action and is considered to be a baseline condition in this analysis.

Construction Noise Standards

The City of San Marcos Municipal Code addresses the limits grading, extraction and construction activities between 7:00 a.m. and 4:30 p.m. Monday through Friday and no grading, extraction or construction is allowed on the weekends or holidays. The City's Municipal Code does not set noise limits on construction activities. Commonly, the City has utilized the County of San Diego's Noise Ordinance noise limit average of 75 dBA Leq 8-hour (over an 8-hour period) for other projects.

Construction Noise

Construction noise represents a short-term impact on the ambient noise levels. Noise generated by construction equipment typically includes haul trucks, water trucks, graders, dozers, loaders and scrapers can reach relatively high levels. Grading activities typically represent one of the highest potential sources for noise impacts. The most effective method of controlling construction noise is through local control of construction hours and by limiting the hours of construction to normal weekday working hours.

Using a point-source noise prediction model, calculations of the expected construction noise impacts were completed. The essential model input data for these performance equations include the source levels of each type of equipment, relative source to receiver horizontal and vertical separations, the amount of time the equipment is operating in a given day, also referred to as the duty-cycle and any transmission loss from topography or barriers.

Demolition Activities Noise Findings

Not all the equipment will operate continuously over an 8-hour period, the equipment will be utilized on an as-needed basis depending on the demolition activities are required. As an example: a saw will be used to weaken some of the structural components of the structure and then the excavator would be utilized to demo that section of the structure. The excavator or a loader will then be used to place the debris into the haul trucks. Noise levels from the demolition activities can reach short-term peak noise levels in excess of 90 dBA but will decay rapidly. This is due to the fact that once the equipment knocks down a portion of the building the debris needs to be removed, sorted

and inspected. Based on empirical data gathered during the monitoring of a similar project, the worst-case hourly noise level was found to be 80.8 dBA Leq at an average distance of 25 feet for demolition activities (Source: Aztec Court Noise Monitoring – San Diego, Ldn Consulting 2012). At an average distance of 50 feet, the noise level from the demolition activities would be 74.8 dBA. The average distance from the demolition activities is anticipated to vary between 25 feet and 175 feet from the adjacent property lines. Given this, the noise levels will comply with the average 75 dBA Leq 8-hour threshold at the property lines.

Grading Activities Noise Findings

The grading activities will consist of the preparation of internal roadways, parking and the finished pads. The grading equipment will be spread out over the project site from distances near the occupied property lines to distances of 150 feet or more away. Based upon the site plan the majority of the grading operations, on average, will occur more than 75 feet from the property lines. This means that most of the time the average distance from all the equipment to the nearest property line is 75 feet. As can be seen in Table 1, at an average distance of 75 feet from the construction activities to the nearest property line would result in a noise attenuation of -3.5 dBA without shielding.

Table 1: Construction Noise Levels

Equipment Type	Quantity Used	Source @ 50 Feet (dBA)	Cumulative Noise Level @ 50 Feet (dBA)
Tractor/Backhoe	1	72	72.0
Loader/Grader	1	73	73.0
Roller/Compactor	1	74	74.0
Cumulative Level			77.8
Distance to Nearest Sensitive Use or Property Line			75
Noise Reduction due to distance at the Property Line			-3.5
Property Line Noise Level			74.3

Given this, the noise levels will comply with the 75 dBA Leq 8-hour standard at the property lines. Therefore, no impacts are anticipated, and no mitigation is required during construction of the proposed Project. Additionally, all equipment should be properly fitted with mufflers and all staging and maintenance should be conducted as far away for the existing residence as possible.

Operational Noise Standards

The City noise regulations that apply to the Project are found in Chapter 20.300 Site Planning and General Development Standards of the San Marcos Municipal Code. These regulations aim to prohibit unnecessary, excessive, and annoying noises from all sources, as certain noise levels are detrimental to the health and welfare of individuals. The standards of this section and of Chapter 10.24 (Noise) of the Municipal Code apply to all land uses in all Zones unless otherwise specified. No person shall create or allow the creation of exterior noise that causes the noise level to exceed the noise standards established by Table 20.300-4 (provided below in Table 2).

Table 2: Sound Level Limits

Zone	Allowable Noise Level (dBA Leq) Measured from the Property Line
Single-Family Residential (A, R-1, R-2) ^{1,2}	
7 a.m. to 10 p.m. (daytime)	60
10 p.m. to 7 a.m. (overnight)	50
Multifamily Residential (R-3) ^{1,2}	
7 a.m. to 10 p.m. (daytime)	65
10 p.m. to 7 a.m. (overnight)	55
Commercial (C, O-P, SR) ³	
7 a.m. to 10 p.m. (daytime)	65
10 p.m. to 7 a.m. (overnight)	55
Industrial	
7 a.m. to 10 p.m. (daytime)	65
10 p.m. to 7 a.m. (overnight)	60
1. For single-family detached dwelling units, the "exterior noise level" is defined as the noise level measured at an outdoor living area which adjoins and is on the same lot as the dwelling, and which contains at least the following minimum net lot area: (i) for lots less than 4,000 square feet in area, the exterior area shall include 400 square feet, (ii) for lots between 4,000 square feet to 10 acres in area, the exterior area shall include 10 percent of the lot area; (iii) for lots over 10 acres in area, the exterior area shall include 1 acre.	
2. For all other residential land uses, "exterior noise level" is defined as noise measured at exterior areas which are provided for private or group usable open space purposes. "Private Usable Open Space" is defined as usable open space intended for use of occupants of one dwelling unit, normally including yards, decks, and balconies. When the noise limit for Private Usable Open Space cannot be met, then a Group Usable Open Space that meets the exterior noise level standard shall be provided. "Group Usable Open Space" is defined as usable open space intended for common use by occupants of a development, either privately owned and maintained or dedicated to a public agency, normally including swimming pools, recreation courts, patios, open landscaped areas, and greenbelts with pedestrian walkways and equestrian and bicycle trails, but not including off-street parking and loading areas or driveways.	
3. For non-residential noise sensitive land uses, exterior noise level is defined as noise measured at the exterior area provided for public use.	

The City Ordinance limits noise generation in commercial/and multi-family zones to 65 dB Leq (one-hour average) between the hours of 7 am and 10 pm and 55 dB Leq between the hours of 10 pm and 7 am as measured at the project property line as shown above in Table 2. Per the

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City of San Marcos General Plan Noise Element (GPNE), noise standards for commercial, multi-family, and mixed-use land uses are the same, and are higher than single-family residential areas because they reflect a more urban environment (GPNE, pg. 7-10). Higher thresholds are permitted due to the integrated mix of residential and commercial activity and their usual location near major arterials (GPNE, pg. 7-9). The project site is designated Commercial with adjacent uses directly surrounding the project site designated as commercial and a multi-family residential use to the northwest.

Operational Noise

Operations at the existing Hollandia Dairy would remain the same with the approval of the project. The modernization project is necessary for the Hollandia Dairy to meet current regulations with respect to equipment separation. Vehicular trips, employment and input/output or operational hours would not change based on this project. Since the proposed project would not be expected to modify existing operations and would replace some older equipment with newer equipment (i.e., mechanical ventilation) the project would not increase onsite noise levels or offsite noise levels. Given this, operational noise impacts would be less than significant.

If you have any questions, please do not hesitate to contact me directly at (760) 473-1253 or by email at jlouden@ldnconsulting.net.

Sincerely, Ldn Consulting



Jeremy Loudon, Principal