

**ILLINGWORTH & RODKIN, INC.**  
**Acoustics • Air Quality**

1 Willowbrook Court, Suite 120  
Petaluma, CA 94954

## Memo

**Date:** January 18, 2018  
**To:** Carmela Gonzales Pena  
David Langon Construction, Inc.  
**From:** Michael Thill  
Illingworth & Rodkin, Inc.  
**SUBJECT:** 36589 Newark Boulevard Residential Project, Newark, CA –  
Response to City of Newark Comment on Noise Assessment  
(IR Job # 16-205)

---

This memo has been prepared at your request to address Planning Division Comment #10 related to our environmental noise assessment dated May 5, 2017. The City of Newark's comment was as follows:

10. Revise the sound and vibration study to evaluate the recommended height of a sound wall along Newark Boulevard property line. A minimum 8-foot high block wall is to be installed along the property line. This height adjustment could potentially allow the outdoor noise level to meet our standards. Request Illingworth & Rodkin, Inc. to provide an official letter with the noise level outcome with the wall height increased to 8-feet.

The project currently proposes 8-foot noise barriers to shield residential outdoor activity areas from traffic noise. The TNM model created during the initial noise assessment was revised to reflect the change in the barrier design including increased height and the elimination of the open metal fencing elements except for the access gates. The model input was based on the Tentative Map Preliminary Grading, Drainage, & Utility Plan (Sheet C3) dated September 26, 2017 and Construction Details, Preliminary Landscape Plan (Sheet L-4.3) dated December 13, 2017. Similar to the prior analysis, it was assumed that the future noise environment would increase by 3 dBA  $L_{dn}$  because of anticipated future growth, as documented in the General Plan Tune Up Draft Program EIR<sup>1</sup>. In addition to the 8-foot noise barrier scenario requested by the City of Newark, additional modeling runs were completed to calculate noise levels with 6-foot and 7-foot noise barriers in order to inform the decision-making process. The results of the traffic noise modeling conducted for this project are discussed below and are summarized in Table 1. This table identifies the noise modeling receptor and summarizes future noise levels resulting from the ultimate build-out traffic condition.

---

<sup>1</sup> General Plan Tune Up Draft Program EIR for the City of Newark, August 13, 2013.

**TABLE 1 Traffic Noise Modeling Results, dBA L<sub>dn</sub>**

| <b>Receptor</b> | <b>Normally Acceptable Noise Level</b> | <b>Future Noise Level with 6 ft. Noise Barrier</b> | <b>Future Noise Level with 7 ft. Noise Barrier</b> | <b>Future Noise Level with 8 ft. Noise Barrier (Proposed)</b> |
|-----------------|--|--|--|---|
| Unit 1          | 65                                     | 65   | 63   | 62  |
| Unit 2          | 65                                     | 64   | 62   | 61  |
| Unit 3          | 65                                     | 63   | 62   | 61  |
| Unit 4          | 65                                     | 59   | 58   | 58  |
| Unit 5          | 65                                     | 56   | 56   | 56  |
| Unit 6          | 65                                     | 60   | 60   | 60  |

The changes made in the barrier design, particularly the elimination of the open metal fencing elements (with the exception of the access gates) has improved the overall noise reduction provided by the noise barrier. As shown in Table 1, minimum 6-foot noise barriers would be required to just meet the 65 dBA L<sub>dn</sub> “normally acceptable” noise level threshold at outdoor activity areas throughout the site. With 6-foot noise barriers, exterior noise levels would range from 56 to 65 dBA L<sub>dn</sub>. Minimum 7-foot noise barriers would reduce exterior noise levels to range from 56 to 63 dBA L<sub>dn</sub>, and minimum 8-foot noise barriers would further reduce exterior noise levels to range from 56 to 62 dBA L<sub>dn</sub>. The City of Newark’s “normally acceptable” noise level threshold would be achieved at outdoor activity areas of Units 1-6 with noise barriers 6-feet in height or greater under the current design scenario.

**ILLINGWORTH & RODKIN, INC.**  
Acoustics • Air Quality

1 Willowbrook Court, Suite 120  
Petaluma, California 94954

Tel: 707-794-0400  
www.Illingworthrodkin.com

Fax: 707-794-0405  
illro@illingworthrodkin.com

---

May 5, 2017

David Langdon  
David Langdon Construction, Inc.  
3189 Danville Boulevard, Suite 245  
Alamo, CA 94507

VIA E-MAIL: [david@langonconstruction.com](mailto:david@langonconstruction.com)

SUBJECT: **36589 Newark Boulevard Residential Project, Newark, CA –  
Environmental Noise Assessment (I&R Job No. 16-205)**

Dear David:

This letter presents the results of Illingworth & Rodkin Inc.'s (I&R) noise assessment of the six-unit townhome project proposed northwest of the Newark Boulevard/Mayhews Landing Road intersection in Newark, California. This analysis addresses environmental noise attenuation at exterior use areas and within residential interiors in order to meet City noise standards.

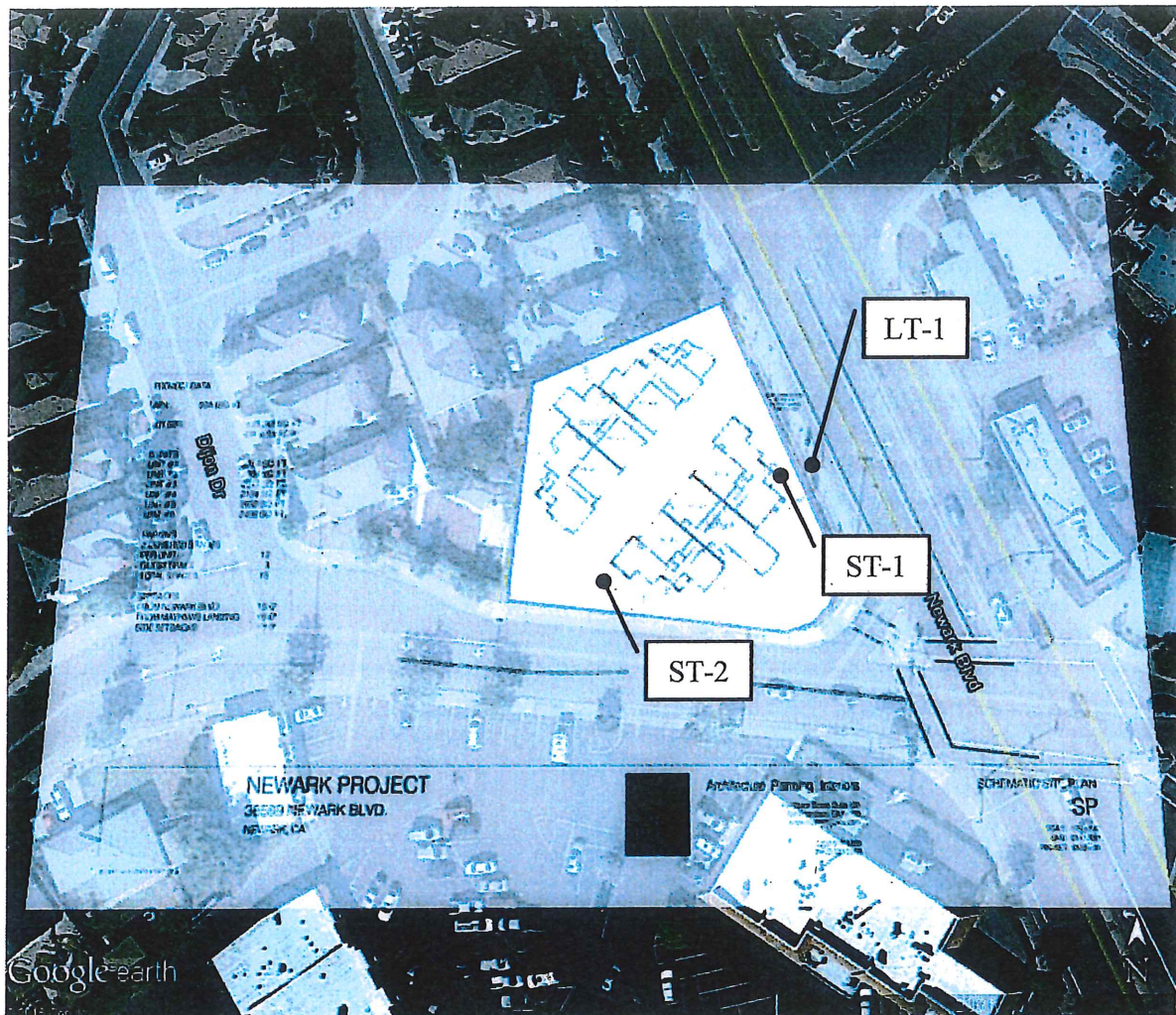
#### **REGULATORY CRITERIA**

The City of Newark General Plan considers multi-family residential land uses “normally acceptable” in noise environments of 65 dBA  $L_{dn}$  or less. The maximum allowable interior noise level, attributable to exterior noise sources, is 45 dBA  $L_{dn}$  for multi-family residential land uses. Where the exterior or interior noise levels would exceed the normally acceptable level, noise control measures are required to achieve noise limits.

#### **EXISTING NOISE EXPOSURE OF PROJECT SITE**

The project site is located at the northwest corner of Newark Boulevard and Mayhews Landing Road. A noise monitoring survey was performed at the site between Thursday, September 22, 2016 and Friday, September 23, 2016. The noise monitoring survey included one long-term (LT) and two short-term (ST) noise measurements, which are shown in Figure 1. The noise environment at the site results primarily from vehicular traffic.

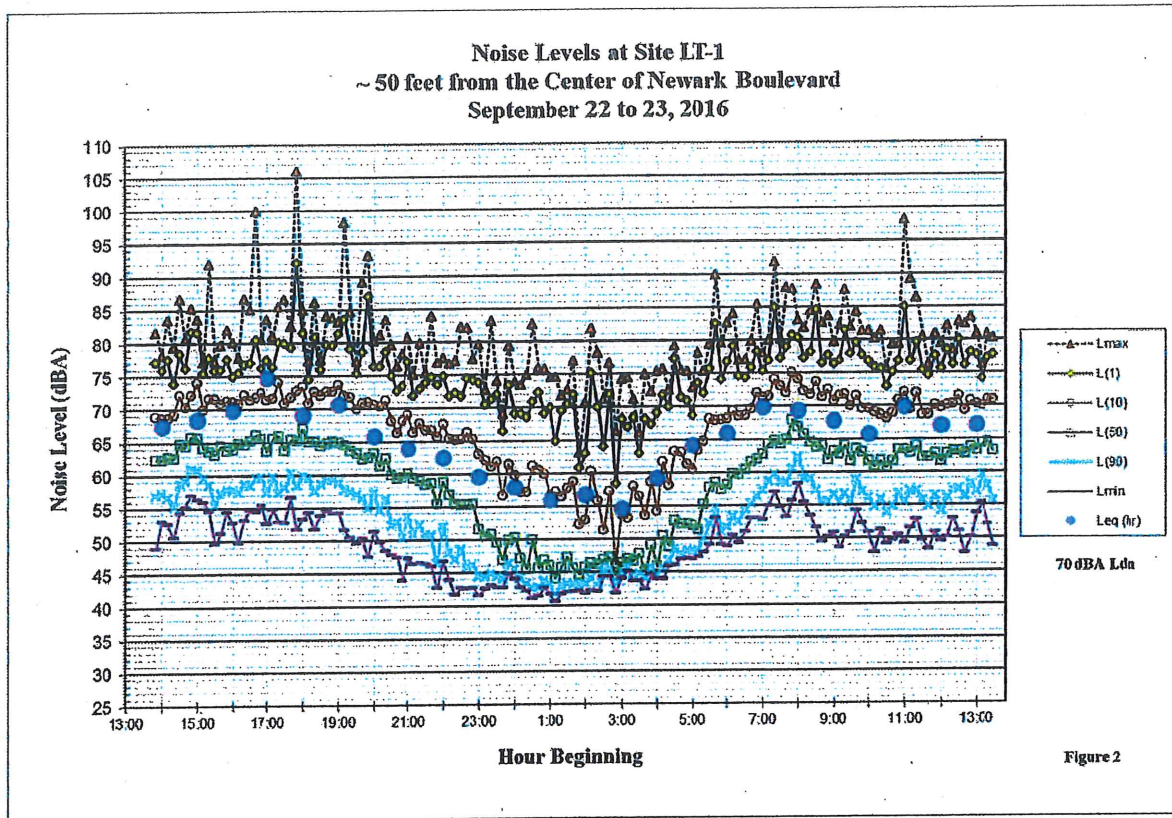
**FIGURE 1 Noise Measurement Locations**



Long-term noise measurement LT-1 was made along the easternmost portion of the project site, approximately 50 feet from the centerline of Newark Boulevard. Hourly average noise levels at this location typically ranged from 64 to 75 dBA  $L_{eq}$  during the day, and from 55 to 66 dBA  $L_{eq}$  at night. The day-night average noise level measured at LT-1 was 70 dBA  $L_{dn}$ . The daily trend in noise levels measured at LT-1 is shown in Figure 2.

Short-term noise measurements, ST-1 and ST-2, were conducted on Thursday, September 22, 2016. As shown in Figure 1, ST-1 was made approximately 80 feet from the center of Newark Boulevard and west of LT-1. The ten-minute average noise level measured at ST-1 was 61 dBA  $L_{eq(10-min)}$ . ST-2 was made approximately 55 feet from the center line of Mayhews Landing Road. The ten-minute average noise level measured at ST-2 was 59. dBA  $L_{eq(10-min)}$ . Short-term measurements from ST-1 and ST-2 are summarized in Table 1.

**FIGURE 2 Noise Levels at Site LT-1**



**TABLE 1 Summary of Short-Term Noise Measurements (dBA)**

| Noise Measurement Location<br>(Date, Time)   | $L_{max}$ | $L_{(1)}$ | $L_{(10)}$ | $L_{(50)}$ | $L_{(90)}$ | $L_{eq(10)}$ |
|--|-----------|-----------|------------|------------|------------|--------------|
| ST-1: 80 feet from the center of Newark Boulevard (9/22/16, 1:50 p.m. - 2:00 p.m.)     | 75        | 70        | 64         | 58         | 53         | 61           |
| ST-2: 50 feet from the center of Mayhews Landing Road (9/22/16, 1:50 p.m. - 2:00 p.m.) | 74        | 67        | 63         | 57         | 52         | 59           |

**NOISE AND LAND USE COMPATIBILITY ASSESSMENT**

*Future Exterior Noise Environment*

The future exterior noise environment at the project site will continue to result primarily from local traffic along Newark Boulevard and Mayhews Landing Road. Future traffic noise levels at residential receptor locations were calculated with FHWA's Traffic Noise Model (TNM v. 2.5). Roadway, barrier, terrain features, and receptor locations were digitized and input into the traffic noise model in a three-dimensional reference coordinate system. The model input was based on the Schematic Site Plan<sup>1</sup> dated March 17, 2017 and Wall Elevations<sup>2</sup> dated March 13, 2017. The

<sup>1</sup> Newark Project, 36589 Newark Blvd., Newark, CA, Hunt Hale Jones, March 17, 2017.

<sup>2</sup> 36589 Newark Blvd., Newark CA, Levesque Design, March 13, 2017.

analysis assumed that the future noise environment would increase by 3 dBA  $L_{dn}$  because of anticipated future growth, as documented in the General Plan Tune Up Draft Program EIR<sup>3</sup>. The results of the traffic noise modeling conducted for this project are discussed below and are summarized in Table 2. This table identifies the noise modeling receptor and summarizes existing and future noise levels resulting from the ultimate build-out traffic condition.

As shown in Table 2, under existing conditions, exterior noise levels at a receptor located within the private outdoor activity area of Units 1-6 are calculated to range from 54 to 64 dBA  $L_{dn}$  assuming the partial shielding provided by the proposed 6-foot noise barrier and residential structures, themselves. Under future conditions, exterior noise levels outside of Units 1-6 are calculated to increase by 3 dBA  $L_{dn}$  and would range from 57 to 67 dBA  $L_{dn}$ . Future exterior noise levels in the private outdoor activity areas of Units 1 and 2 would exceed the 65 dBA  $L_{dn}$  “normally acceptable” noise level threshold by 2 dBA  $L_{dn}$  and would fall within the “conditionally acceptable” noise and land use compatibility designation.

**TABLE 2 Traffic Noise Modeling Results, dBA  $L_{dn}$**

| <b>Receptor</b> | <b>Normally Acceptable Noise Level</b> | <b>Existing Noise Level with Proposed 6 ft. Noise Barrier</b> | <b>Future Noise Level with Proposed 6 ft. Noise Barrier</b> |
|-----------------|--|---|---|
| Unit 1          | 65                                     | 64  | 67  |
| Unit 2          | 65                                     | 64  | 67  |
| Unit 3          | 65                                     | 61  | 64  |
| Unit 4          | 65                                     | 56  | 59  |
| Unit 5          | 65                                     | 54  | 57  |
| Unit 6          | 65                                     | 58  | 61  |

The following available measures should be considered during final design to reduce exterior noise levels to acceptable levels:

- In order to reduce future exterior noise levels to 65 dBA  $L_{dn}$  or less at the outdoor activity areas of Units 1 and 2, redesign the noise barrier to eliminate the metal entry gates and metal fencing panels that are currently proposed because open metal fencing is not a suitable noise barrier. In order to be acoustically effective, the six-foot noise barrier should be constructed solidly over the face and at the base of the barrier (i.e., free of any gaps or cracks) from materials having a minimum surface weight of 3 lbs./sq.ft. Suitable barrier materials include wood (1-inch nominal thickness fence boards), concrete, and masonry blocks.

*Future Interior Noise Environment*

Interior noise levels within new residential units are required to be maintained at or below 45 dBA  $L_{dn}$ . Exterior noise levels at the facades of residences nearest to Newark Boulevard are calculated to range from 70 to 72 dBA  $L_{dn}$ . Facades of residences nearest to Mayhews Landing Road would be exposed to exterior noise levels between 68 and 70 dBA  $L_{dn}$ .

<sup>3</sup> General Plan Tune Up Draft Program EIR for the City of Newark, August 13, 2013.

Calculations were made to estimate the transmission loss provided by the proposed building elements to determine the expected interior noise levels resulting from traffic. Interior noise levels were calculated based on a review of the project's exterior building elevations and floor plans dated March 17, 2017. The relative areas of walls, windows, and doors were input into an acoustical model to calculate interior noise levels within the proposed residential building. The proposed exterior siding types are not called out in the current drawings, but based on project renderings, the analysis assumed that the proposed units would have a 7/8-inch stucco exterior siding. The exterior wood stud framed walls would have cavity insulation and a single layer of gypsum board at the interior face. The sound isolation rating of this exterior wall assembly would be  $STC\ 46^4$ .

Windows and doors were then tested to determine the necessary sound transmission class ratings of these building elements in order to reduce interior noise levels due to traffic to acceptable levels. The calculations showed that windows and doors of Units 1 and 6 should be rated at a minimum of 30 STC in order to reduce traffic noise levels below 45 dBA  $L_{dn}$  with an adequate margin of safety. Windows and doors of Units 2, 3, 4, and 5 should be rated at a minimum of 28 STC. In addition, all six units should be mechanically ventilated by some form of forced-air mechanical ventilation, satisfactory to the local building official, to allow occupants the option of closing the windows and doors to control noise.

The following available measures should be considered during final design to reduce interior noise levels to acceptable levels:

- Provide sound rated windows and doors for proposed residential units. Windows and doors of Units 1 and 6 should be rated at a minimum of 30 STC and Windows and doors of Units 2, 3, 4, and 5 should be rated at a minimum of 28 STC.
- Provide a suitable form of forced-air mechanical ventilation, as determined by the local building official, for units throughout the site, so that windows can be kept closed at the occupant's discretion to control interior noise and achieve the interior noise standards. In our experience, a standard central air conditioning system or a central heating system equipped with a "summer switch", which allows the fan to circulate air without furnace operation, would be sufficient in order to provide a habitable interior environment.



This concludes Illingworth & Rodkin, Inc.'s noise assessment for the six-unit townhome project proposed northwest of the Newark Boulevard/Mayhews Landing Road intersection in Newark, California. Please do not hesitate to call with any questions or concerns.

Sincerely,



Michael S. Thill  
Principal Consultant  
**ILLINGWORTH & RODKIN, INC.**

<sup>4</sup> Based on laboratory test number W-50-71 published by the U.S. National Bureau of Standards.