APPENDIX A

AIR QUALITY and NOISE STUDY

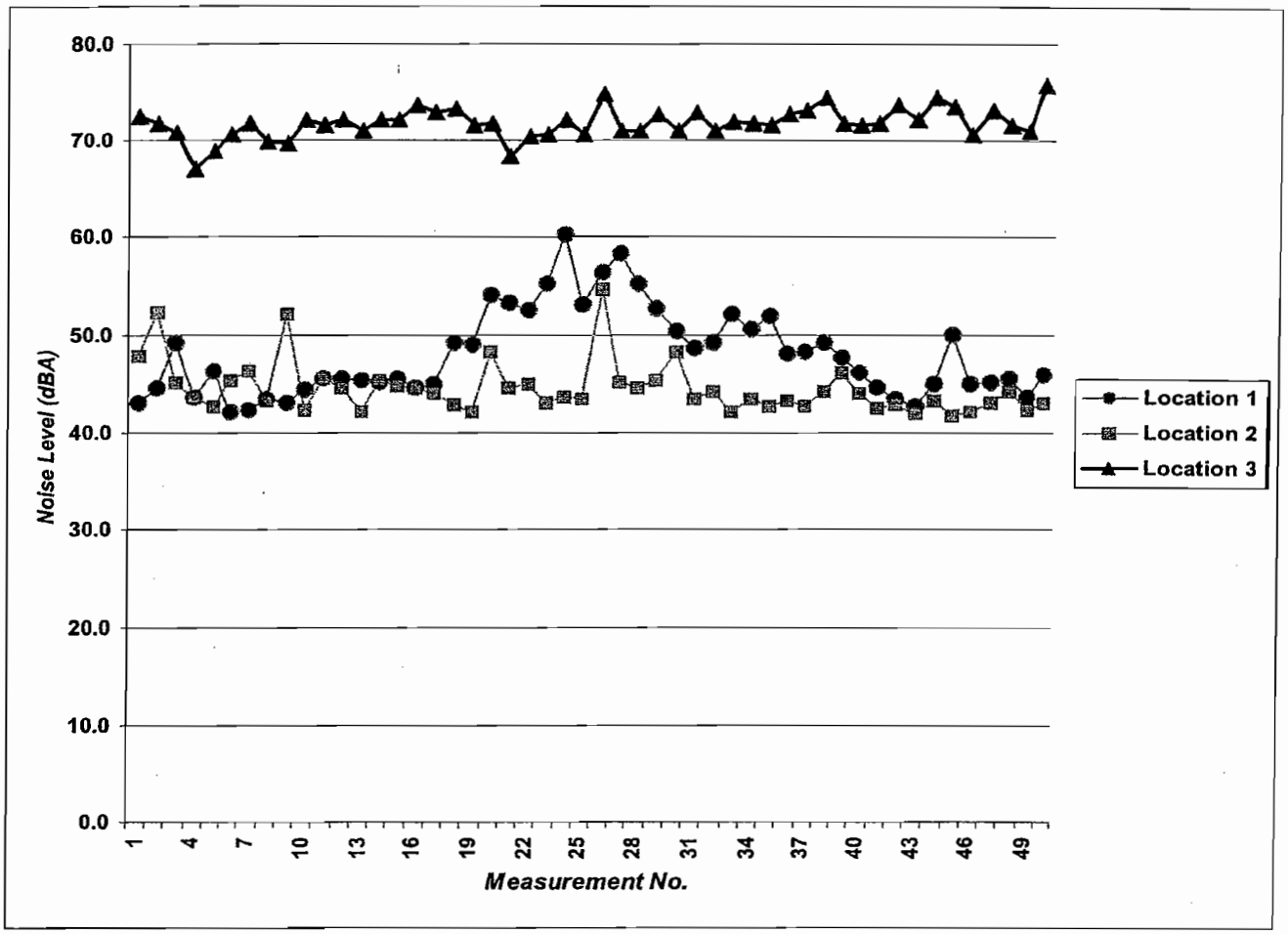
Table 1 - Noise Measurement Results

No.	Site #1	Site #2	Site #3	Site #4
1	43.0	47.9	72.5	0.0
2	44.6	52.4	71.7	0.0
3	49.3	45.1	70.7	0.0
4	43.6	43.6	67.0	0.0
5	46.3	42.6	68.8	0.0
6	42.1	45.3	70.6	0.0
7	42.3	46.4	71.7	0.0
8	43.5	43.3	69.9	0.0
9	43.0	52.1	69.6	0.0
10	44.4	42.3	72.2	0.0
11	45.6	45.6	71.6	0.0
12	45.6	44.7	72.2	0.0
13	45.3	42.2	71.0	0.0
14	45.2	45.3	72.1	0.0
15	45.5	44.9	72.2	0.0
16	44.6	44.7	73.6	0.0
17	45.0	44.0	72.9	0.0
18	49.3	42.8	73.3	0.0
19	49.1	42.1	71.6	0.0
20	54.1	48.3	71.8	0.0
21	53.3	44.6	68.3	0.0
22	52.5	45.0	70.3	0.0
23	55.2	43.1	70.5	0.0
24	60.1	43.6	72.1	0.0
25	53.1	43.5	70.5	0.0
26	56.3	54.7	74.8	0.0
27	58.2	45.2	70.9	0.0
28	55.2	44.7	70.9	0.0
29	52.6	45.3	72.7	0.0
30	50.3	48.3	71.0	0.0
31	48.7	43.4	72.8	0.0
32	49.2	44.2	71.0	0.0
33	52.1	42.1	72.0	0.0
34	50.6	43.5	71.7	0.0
35	51.9	42.6	71.6	0.0
36	48.1	43.3	72.7	0.0
37	48.2	42.6	73.1	0.0
38	49.2	44.3	74.4	0.0
39	47.6	46.1	71.8	0.0
40	46.1	44.1	71.6	0.0
41	44.7	42.5	71.8	0.0
42	43.5	42.8	73.6	0.0
43	42.7	42.0	72.1	0.0
44	45.0	43.3	74.4	0.0
45	50.0	41.7	73.4	0.0
46	45.0	42.1	70.6	0.0
47	45.2	43.0	73.1	0.0
48	45.6	44.3	71.5	0.0
49	43.7	42.4	70.9	0.0
50	45.9	43.0	75.7	0.0
Average	48.0	44.5	71.8	0.0

	Site #1	Site #2	Site #3	Site #4
5%	60.1	54.7	70.6	0.0
	58.2	52.4	75.7	0.0
10%	56.3	52.1	74.8	0.0
	55.2	48.3	74.4	0.0
	55.2	48.3	74.4	0.0
50%	54.1	47.9	73.6	0.0
	53.3	46.4	73.6	0.0
	53.1	46.1	73.4	0.0
	52.6	45.6	73.3	0.0
	52.5	45.3	73.1	0.0
	52.1	45.3	73.1	0.0
	51.9	45.3	72.9	0.0
	50.6	45.2	72.8	0.0
	50.3	45.1	72.7	0.0
	50.0	45.0	72.7	0.0
	49.3	44.9	72.5	0.0
	49.3	44.7	72.2	0.0
	49.2	44.7	72.2	0.0
	49.2	44.7	72.2	0.0
	49.1	44.6	72.1	0.0
	48.7	44.3	72.1	0.0
	48.2	44.3	72.1	0.0
	48.1	44.2	72.0	0.0
	47.6	44.1	71.8	0.0
	46.3	44.0	71.8	0.0
90%	46.1	43.6	71.8	0.0
	45.9	43.6	71.7	0.0
	45.6	43.5	71.7	0.0
	45.6	43.5	71.7	0.0
	45.6	43.4	71.6	0.0
	45.5	43.3	71.6	0.0
	45.3	43.3	71.6	0.0
	45.2	43.3	71.6	0.0
	45.2	43.1	71.5	0.0
	45.0	43.0	71.0	0.0
	45.0	43.0	71.0	0.0
	45.0	42.8	71.0	0.0
	44.7	42.8	70.9	0.0
	44.6	42.6	70.9	0.0
	44.6	42.6	70.9	0.0
	44.4	42.6	70.7	0.0
	43.7	42.5	70.6	0.0
	43.6	42.4	70.5	0.0
	43.5	42.3	70.5	0.0
	43.5	42.2	70.3	0.0
95%	43.0	42.1	69.9	0.0
	43.0	42.1	69.6	0.0
	42.7	42.1	68.8	0.0
	42.3	42.0	68.3	0.0
	42.1	41.7	67.0	0.0

	Site #1	Site #2	Site #3	Site #4
Minimum Noise Level	42.1	41.7	67.0	0.0
Maximum Noise Level	60.1	54.7	70.6	0.0

Exhibit 1 Noise Measurement Results



Overview of Air Quality Analysis

This memorandum also considers the short-term (construction) emissions and the long-term (operational) emissions associated with the potential development that will consist of 70 single-family units. For purposes of analysis, the total disturbed land area was assumed to be 35-acres. Short-term airborne emissions will occur during the various development phases and include the following:

- Activities related to land clearance, grading, and excavation will result in fugitive dust emissions;
- Equipment emissions associated with the use of construction equipment during site preparation and construction will be generated (the construction equipment is generally diesel-powered, resulting in high levels of nitrogen oxide [NO_x] and particulate emissions); and,

- Mobile emissions will be generated by delivery vehicles and workers traveling to and from the construction site.

Long-term emissions refer to those air quality impacts that will occur once the homes are occupied, and these impacts will continue over the operational life of the development. The long-term air quality impacts associated with the proposed project includes the following:

- Mobile emissions associated with vehicular traffic;
- On-site stationary emissions related to various activities; and
- Off-site stationary emissions associated with the generation of energy (natural gas and electrical).

Short-term (Construction Emissions)

To evaluate the proposed project's potential short-term and long–term air quality impacts, a computer model developed for the California Air Resources Board. The computer model, *Urbemis 2002*, is a Windows® based program that calculates to the short-term and long-term emissions for various land uses. Various development assumptions (independent variables) must be identified before the program can determine potential emissions. The characteristics of short-term impacts will be dependent on the nature and extent of activities being undertaken as part of future construction activities. For purposes of this analysis, the computer model considered construction-related impacts for the following phases: land clearance and grading; and building construction.

Assumptions used in the calculation of projected construction emissions included the duration of a particular activity, the site area being graded, the number of units, the number of construction employees, and the types of equipment typically used. The results of the analysis are indicated in Table 2.

Table 2 Construction Emissions (Lbs./Day)

Activity	ROG	NO_x	CO	PM_{10}	SO_x
Site Grading	36.34	256.86	289.26	44.76	0.01
Building Construction	286.62	0.26	6.82	0.10	–
Thresholds	75	100	550	150	150

ROG = reactive organic gasses
NO_x = nitrogen oxide
CO = carbon monoxide
PM_{10} = particulates 10 microns in size or less

Source: URBEMIS 7G, 2005.

As indicated in Table 2, *maximum worse case* construction emissions related to reactive organic gases (ROG) may exceed acceptable thresholds as set by the SCAQMD. The construction activities may generate ROG. The daily threshold limit of ROG is 55 pounds per day. This projected emissions figure does not assume any mitigation of the use of low emission coatings. The ROG emissions are related to the coatings that are used in the finishing phases of construction. These pollutants are precursors to ozone formation. This is important in that the SCAB is currently non-attainment for ozone. To address the potential impacts from architectural coatings, the SCAQMD has promulgated Rule Number 1113 as a means to control volatile organic compound emissions that include ROG. Adherence to SCAQMD Rule No. 1113 will ensure that ROG emissions are less than significant. As a result, the ROG emissions can be reduced to levels that are less than significant by using these low emission architectural coatings.[1] Another short-term impact will be related to the generation of fugitive dust, especially PM_{10} during land clearance and grading activities. The PM_{10} is associated with soil disturbance during grading and excavation activities. The total estimated daily PM_{10} emissions are projected to be approximately 102 pounds while the SCAQMD threshold is 150 pound per day. The watering of the soils (refer to the mitigation measures identified in Section 3.4) would reduce the PM_{10} emissions by as much as 50%.

Long Term Emissions

Long-term emissions will be associated with the vehicle trips generated by future development and the use of electricity and natural gas for energy and other activities (referred to as area-wide emissions). The analysis of long-term operational impacts related to vehicle trips used the same computer model referred to previously The computer model requires the knowledge of a number of independent variables to ascertain project emissions, such as trip generation rates, development characteristics, and opening year of operation.[2] The projected long-term emissions are summarized in Table 3.

Table 3 Estimated Long-Term Emissions (lbs/day)

Source	ROG	NO_x	CO	PM_{10}
Area-wide Emissions	3.59	0.89	1.23	Negl.
Mobile Emissions	8.88	9.57	109.52	7.59
Total Emissions	12.47	10.46	110.75	7.59
Thresholds	**550**	**55**	**150**	**100**

ROG = reactive organic gasses
NO_x = nitrogen oxide
CO = carbon monoxide
PM_{10} = particulates 10 microns in size or less

Source: URBEMIS 7G, 2005.

[1] The ROG emissions are quite high when considering the relatively small size of the project. However, the figures were taken from a worse case analysis reflecting the results of the California Air Resources Board's (CARB) computer model.

[2] California Air Resources Board. URBEMIS 7G. 2001

The long-term emissions from future development will generate daily emissions that will not exceed the SCAQMD's thresholds, as indicated in Table 3. According to the analysis, the long-term mobile and stationary emissions projected for the new development will be below SCAQMD significance thresholds (refer to Table 3). As indicated in Table 3, the actual daily increase in operational emissions will be 12.47 pounds of ROG, 10.46 pounds of NO_x, 110.75 pounds of CO, and 7.59 pounds of PM_{10}. As a result, the operational (long-term) air quality impacts are considered to be less than significant.

Conclusions

The following standard conditions will be required as a means to reduce short-term air quality impacts below the thresholds considered to be a significant adverse impact:

- To minimize dust and particulate matter generation during construction and site preparation activities, SCAQMD Rule 403 shall be adhered to, which requires regular watering of exposed soils during earth moving operations.
- All trucks hauling debris removed during clearance and grading operations must be covered.
- The contractor will be required to maintain construction equipment in tune to reduce heavy equipment emissions. The contractor will be required to use low emission architectural coatings approved by the SCAQMD pursuant to Rule No. 1113.

Long-term (operational) emissions will be below the thresholds considered to be a significant adverse impact. As a result, no specific mitigation will be required to reduce operational emissions.