Appendix F: Noise Worksheets

Kast Site RAP
Draft EIR
Appendix F, Noise and Vibration Worksheets

F-1 Ambient Noise Data

F-2 Construction Noise Calculations at Off-Site Sensitive Receptor Locations

F-3 Construction Noise Calculations at On-Site Sensitive Receptor Locations

F-4 Haul Truck Noise Levels (L_{eq}) Calculations at Off-Site Sensitive Receiver Locations

F-5 Expedited Implementation Option Off-Site Truck Trip Noise Calculations

F-6 Noise Measurement Results – Excavation Operations at 24612 Neptune Avenue

F-7 Noise Measurement Results – Excavation Operations at 24533 Ravenna Avenue

F-8 75 dBA and 65 dBA Noise Contours

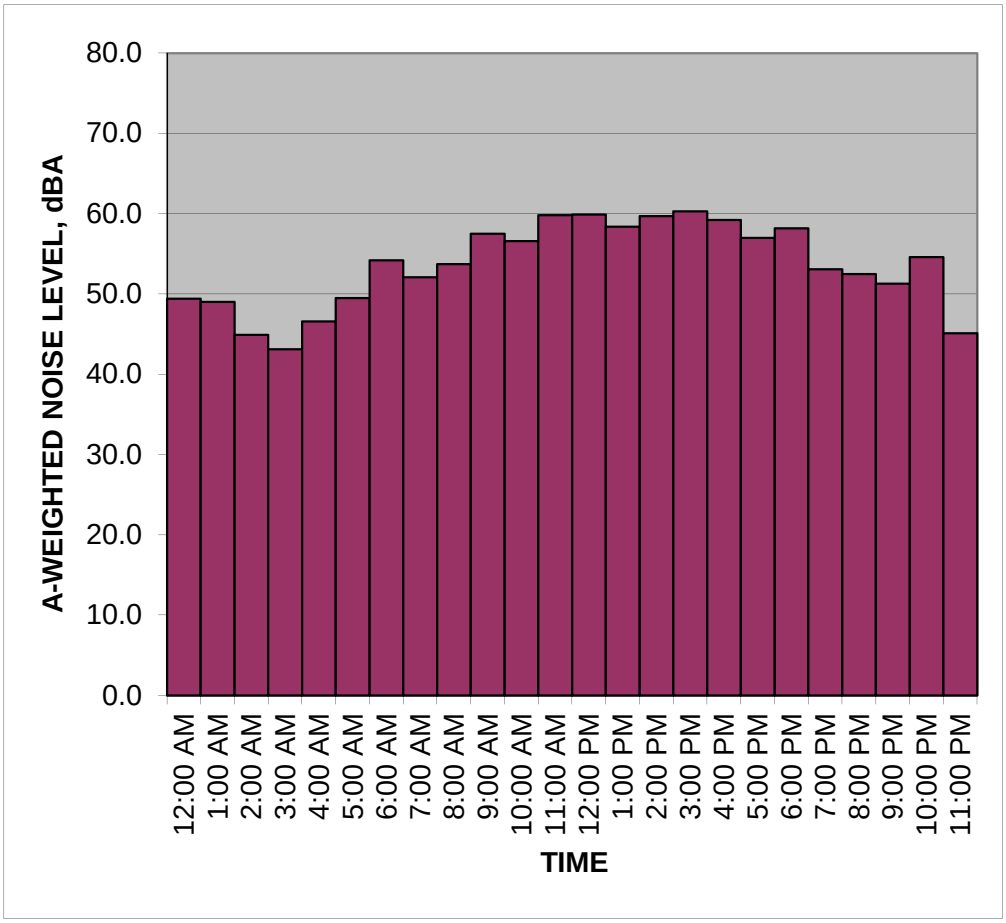
Appendix F-1
Ambient Noise Data

Measured Ambient Noise Levels

Project: Kast RAP
Location: R1 - Along Marbella Avenue
Sources: Ambient

Date: March 26, 2014

TIME	HNL, dB(A)
12:00 AM	49.4
1:00 AM	49.0
2:00 AM	44.9
3:00 AM	43.1
4:00 AM	46.6
5:00 AM	49.5
6:00 AM	54.2
7:00 AM	52.1
8:00 AM	53.7
9:00 AM	57.5
10:00 AM	56.6
11:00 AM	59.8
12:00 PM	59.9
1:00 PM	58.4
2:00 PM	59.7
3:00 PM	60.3
4:00 PM	59.2
5:00 PM	57.0
6:00 PM	58.2
7:00 PM	53.1
8:00 PM	52.5
9:00 PM	51.3
10:00 PM	54.6
11:00 PM	45.1
L_{dn}, dB(A):	58.7



NOTES:

Appendix F-2
Construction Noise Calculations at Off-Site Sensitive Receptor Locations

Project: Kast RAP

Construction Phase: **Phase 3**
Street Trenching

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Backhoe	1	80	40%	450	10
Air Compressor	1	78	50%	450	10
Concrete Saw	1	90	20%	450	10
Generator Sets	1	81	50%	450	10

Receptor: ***R3***

Construction Hour:

12	Hours during daytime (7 am to 7 pm)
0	Hours during evening (7 pm to 10 pm)
0	Hours during nighttime (10 pm to 7 am)

Results:

Lmax: **61**
Leq: **56**

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: Kast RAP

Construction Phase: **Phase 4**
SVE Well Installation

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Auger Drill Rig	1	85	20%	450	10

Receptor: ***R3***

Construction Hour:

12	Hours during daytime (7 am to 7 pm)
0	Hours during evening (7 pm to 10 pm)
0	Hours during nighttime (10 pm to 7 am)

Results:

Lmax: 56
Leq: 49

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: Kast RAP

Construction Phase: **Phase 5**
Street Paving

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Paver	1	77	50%	450	10
Roller	1	80	20%	450	10
Vacuum Street Sweeper	1	82	10%	450	10

Receptor: ***R3***

Construction Hour:

12	Hours during daytime (7 am to 7 pm)
0	Hours during evening (7 pm to 10 pm)
0	Hours during nighttime (10 pm to 7 am)

Results:

Lmax: **53**
Leq: **49**

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: Kast RAP

Construction Phase: **Phase 3**
Street Trenching

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Backhoe	1	80	40%	200	10
Air Compressor	1	78	50%	200	10
Concrete Saw	1	90	20%	200	10
Generator Sets	1	81	50%	200	10

Receptor: ***R4***

Construction Hour:

12	Hours during daytime (7 am to 7 pm)
0	Hours during evening (7 pm to 10 pm)
0	Hours during nighttime (10 pm to 7 am)

Results:

Lmax: **68**
Leq: **63**

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: Kast RAP

Construction Phase: **Phase 4**
SVE Well Installation

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Auger Drill Rig	1	85	20%	110	10

Receptor: ***R4***

Construction Hour:

12	Hours during daytime (7 am to 7 pm)
0	Hours during evening (7 pm to 10 pm)
0	Hours during nighttime (10 pm to 7 am)

Results:

Lmax: **68**
Leq: **61**

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: Kast RAP

Construction Phase: **Phase 5**
Street Paving

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Paver	1	77	50%	200	10
Roller	1	80	20%	200	10
Vacuum Street Sweeper	1	82	10%	200	10

Receptor: ***R4***

Construction Hour:

12	Hours during daytime (7 am to 7 pm)
0	Hours during evening (7 pm to 10 pm)
0	Hours during nighttime (10 pm to 7 am)

Results:

Lmax: **60**
Leq: **56**

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: Kast RAP

Construction Phase: **Phase 3**
Street Trenching

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Backhoe	1	80	40%	110	10
Air Compressor	1	78	50%	110	10
Concrete Saw	1	90	20%	110	10
Generator Sets	1	81	50%	110	10

Receptor: ***R5***

Construction Hour:

12	Hours during daytime (7 am to 7 pm)
0	Hours during evening (7 pm to 10 pm)
0	Hours during nighttime (10 pm to 7 am)

Results:

Lmax: **73**
Leq: **68**

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: Kast RAP

Construction Phase: **Phase 4**
SVE Well Installation

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Auger Drill Rig	1	85	20%	25	16

Receptor: ***R5***

Construction Hour:

9	Hours during daytime (7:30 am to 4:40 pm)
0	Hours during evening (7 pm to 10 pm)
0	Hours during nighttime (10 pm to 7 am)

Results:

Lmax: 75
Leq: 68

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: Kast RAP

Construction Phase: **Phase 5**
Street Paving

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Paver	1	77	50%	110	10
Roller	1	80	20%	110	10
Vacuum Street Sweeper	1	82	10%	110	10

Receptor: ***R5***

Construction Hour:

12	Hours during daytime (7 am to 7 pm)
0	Hours during evening (7 pm to 10 pm)
0	Hours during nighttime (10 pm to 7 am)

Results:

Lmax: **65**
Leq: **61**

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: Kast RAP

Construction Phase: **Phase 3**
Street Trenching

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Backhoe	1	80	40%	250	10
Air Compressor	1	78	50%	250	10
Concrete Saw	1	90	20%	250	10
Generator Sets	1	81	50%	250	10

Receptor: ***R7***

Construction Hour:

12	Hours during daytime (7 am to 7 pm)
0	Hours during evening (7 pm to 10 pm)
0	Hours during nighttime (10 pm to 7 am)

Results:

Lmax: **66**
Leq: **61**

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: Kast RAP

Construction Phase: **Phase 4**
SVE Well Installation

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Auger Drill Rig	1	85	20%	150	5

Receptor: ***R7***

Construction Hour:

12	Hours during daytime (7 am to 7 pm)
0	Hours during evening (7 pm to 10 pm)
0	Hours during nighttime (10 pm to 7 am)

Results:

Lmax: 70
Leq: 63

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: Kast RAP

Construction Phase: **Phase 5**
Street Paving

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Paver	1	77	50%	110	10
Roller	1	80	20%	110	10
Vacuum Street Sweeper	1	82	10%	110	10

Receptor: ***R7***

Construction Hour:

12	Hours during daytime (7 am to 7 pm)
0	Hours during evening (7 pm to 10 pm)
0	Hours during nighttime (10 pm to 7 am)

Results:

Lmax: **65**
Leq: **61**

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: Kast RAP

Construction Phase: **Phase 3**
Street Trenching

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Backhoe	1	80	40%	30	5
Air Compressor	1	78	50%	30	5
Concrete Saw	1	90	20%	30	5
Generator Sets	1	81	50%	30	5

Receptor: ***M1***

Construction Hour:

9	Hours during daytime (7:30 am to 4:40 pm)
0	Hours during evening (7 pm to 10 pm)
0	Hours during nighttime (10 pm to 7 am)

Results:

Lmax: **89**
Leq: **85**

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: Kast RAP

Construction Phase: **Phase 4**
SVE Well Installation

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Auger Drill Rig	1	85	20%	25	16

Receptor: ***M1***

Construction Hour:

9	Hours during daytime (7:30 am to 4:40 pm)
0	Hours during evening (7 pm to 10 pm)
0	Hours during nighttime (10 pm to 7 am)

Results:

Lmax: 75
Leq: 68

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: Kast RAP

Construction Phase: **Phase 5**
Street Paving

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Paver	1	77	50%	30	5
Roller	1	80	20%	30	5
Vacuum Street Sweeper	1	82	10%	30	5

Receptor: ***M1***

Construction Hour:

9	Hours during daytime (7:30 am to 4:40 pm)
0	Hours during evening (7 pm to 10 pm)
0	Hours during nighttime (10 pm to 7 am)

Results:

Lmax: **81**
Leq: **77**

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Appendix F-3
Construction Noise Calculations at On-Site Sensitive Receptor Locations

Kast Site RAP

Residential Remediation Noise Levels Based on the Pilot Studies

Excavation Noise Levels at On-Site Sensitive Receiver Locations

Combined Noise Levels

Receiver Locations	N1	N2	N3
	68	71	77
	62	69	75
	64	67	69
	53	55	58
Combined Noise Levels, dBA, Leq	**70**	**74**	**80**

Receptor Location	N1
Excavation Noise Level Table 8 at location 1 on Neptune Memo	74
Reference Distance	25
Distance to next House	50
	-6
Noise Level at N1	68

Receptor Location	N2
Excavation Noise Level Table 5 at location 4 of Neptune Memo	71
Reference Distance	67
Distance to House Acrosss Street	67
	0
Noise Level at N2	71

Receptor Location	N3
Excavation Noise Level Table 4 at location 2 of Neptune Memo	77
Reference Distance	67
Distance to House Acrosss Street	67
	0
Noise Level at N3	77

Excavation Noise Level Table 8 at location 1 on Neptune Memo	74
Reference Distance	25
Distance to 2nd house	100
	-12
Noise Level at N1	62

Excavation Noise Level Table 5 at location 4 of Neptune Memo	71
Reference Distance	67
Distance to House Across Street from 2nd house	80
	-2
Noise Level at N2	69

Excavation Noise Level Table 4 at location 2 of Neptune Memo	77
Reference Distance	67
Distance to House Across Street from 2nd house	80
	-2
Noise Level at N3	75

Restoration Noise Level Table 5 at location 4 of Neptune Memo	71
Reference Distance	67
Distance to 3rd house	150
	-7
Noise Level at N1	64

Restoration Noise Level Table 5 at location 4 of Neptune Memo	71
Reference Distance	67
Distance to House Across Street from 3rd house	110
	-4
Noise Level at N2	67

Restoration Noise Level Table 5 at location 4 of Neptune Memo	71
Reference Distance	67
Distance to House Across Street from 2nd house	80
	-2
Noise Level at N3	69

Demolition Noise Level Table 2 at location 5a of Neptune Memo	62
Reference Distance	67
Distance to 4th house	200
	-9
Noise Level at N1	53

Demolition Noise Level Table 2 at location 5a of Neptune Memo	62
Reference Distance	67
Distance to House Across Street from 4th house	150
	-7
Noise Level at N2	55

Demolition Noise Level Table 2 at location 5a of Neptune Memo	62
Reference Distance	67
Distance to House Across Street from 3rd house	110
	-4
Noise Level at N3	58

Project: Kast RAP

Construction Phase: **Phase 3**
Street Trenching

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Backhoe	1	80	40%	20	5
Air Compressor	1	78	50%	20	5
Concrete Saw	1	90	20%	20	5
Generator Sets	1	81	50%	20	5

Receptor: ***N1***

Construction Hour:

9	Hours during daytime (7:30 am to 4:40 pm)
0	Hours during evening (7 pm to 10 pm)
0	Hours during nighttime (10 pm to 7 am)

Results:

Lmax: **93**
Leq: **88**

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: Kast RAP

Construction Phase: **Phase 4**
SVE Well Installation

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Auger Drill Rig	1	85	20%	50	0

Receptor: ***N1***

Construction Hour:

12	Hours during daytime (7 am to 7 pm)
0	Hours during evening (7 pm to 10 pm)
0	Hours during nighttime (10 pm to 7 am)

Results:

Lmax: 85
Leq: 78

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: Kast RAP

Construction Phase: **Phase 5**
Street Paving

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Paver	1	77	50%	20	5
Roller	1	80	20%	20	5
Vacuum Street Sweeper	1	82	10%	20	5

Receptor: ***N1***

Construction Hour:

9	Hours during daytime (7:30 am to 4:40 pm)
0	Hours during evening (7 pm to 10 pm)
0	Hours during nighttime (10 pm to 7 am)

Results:

Lmax: **85**
Leq: **81**

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: Kast RAP

Construction Phase: **Phase 3**
Street Trenching

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Backhoe	1	80	40%	20	5
Air Compressor	1	78	50%	20	5
Concrete Saw	1	90	20%	20	5
Generator Sets	1	81	50%	20	5

Receptor: ***N2***

Construction Hour:

9	Hours during daytime (7:30 am to 4:40 pm)
0	Hours during evening (7 pm to 10 pm)
0	Hours during nighttime (10 pm to 7 am)

Results:

Lmax: **93**
Leq: **88**

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: Kast RAP

Construction Phase: **Phase 4**
SVE Well Installation

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Auger Drill Rig	1	85	20%	80	0

Receptor: ***N2***

Construction Hour:

12	Hours during daytime (7 am to 7 pm)
0	Hours during evening (7 pm to 10 pm)
0	Hours during nighttime (10 pm to 7 am)

Results:

Lmax: **81**
Leq: **74**

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: Kast RAP

Construction Phase: **Phase 5**
Street Paving

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Paver	1	77	50%	20	5
Roller	1	80	20%	20	5
Vacuum Street Sweeper	1	82	10%	20	5

Receptor: ***N2***

Construction Hour:

9	Hours during daytime (7:30 am to 4:40 pm)
0	Hours during evening (7 pm to 10 pm)
0	Hours during nighttime (10 pm to 7 am)

Results:

Lmax: **85**
Leq: **81**

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: Kast RAP

Construction Phase: **Phase 3**
Street Trenching

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Backhoe	1	80	40%	20	5
Air Compressor	1	78	50%	20	5
Concrete Saw	1	90	20%	20	5
Generator Sets	1	81	50%	20	5

Receptor: ***N3***

Construction Hour:

9	Hours during daytime (7:30 am to 4:40 pm)
0	Hours during evening (7 pm to 10 pm)
0	Hours during nighttime (10 pm to 7 am)

Results:

Lmax: **93**
Leq: **88**

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: Kast RAP

Construction Phase: **Phase 4**
SVE Well Installation

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Auger Drill Rig	1	85	20%	67	0

Receptor: ***N3***

Construction Hour:

12	Hours during daytime (7 am to 7 pm)
0	Hours during evening (7 pm to 10 pm)
0	Hours during nighttime (10 pm to 7 am)

Results:

Lmax: 82
Leq: 75

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: Kast RAP

Construction Phase: **Phase 5**
Street Paving

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Paver	1	77	50%	20	5
Roller	1	80	20%	20	5
Vacuum Street Sweeper	1	82	10%	20	5

Receptor: ***N3***

Construction Hour:

9	Hours during daytime (7:30 am to 4:40 pm)
0	Hours during evening (7 pm to 10 pm)
0	Hours during nighttime (10 pm to 7 am)

Results:

Lmax: **85**
Leq: **81**

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Appendix F-4
Haul Truck Noise Levels (Leq) Calculations at Off-Site Sensitive Receiver Locations

Project: Kast Site RAP

Existing										
	Speed	**Traffic Volumes**			**Leq**			**CNEL**		
Roadway/Segment	**MPH**	**AM**	**PM**	**ADT**	**ROW**	**25 Feet**	**50 Feet**	**ROW**	**25 Feet**	**50 Feet**
Sepulveda Boulevard, between Figueroa St. and Main St.	40	2015	2224	0	71.5	69.2	67.7	72.7	70.4	68.9
Sepulveda Boulevard, between Main St. and Avalon Blvd	40	1946	2232	0	71.5	69.2	67.7	72.7	70.4	69.0
Sepulveda Boulevard, between Avalon Blvd and Wilmington Ave.	40	1429	1732	0	70.4	68.1	66.6	71.6	69.3	67.9
Figueroa Street n/o Sepulveda Blvd	40	798	973	0	67.9	65.6	64.1	69.1	66.8	65.3
Wilmington Avenue between Sepulveda Blvd and Lomita Blvd	40	1169	1229	0	69.8	67.1	65.5	71.0	68.4	66.7
Future No Project										
	Speed	**Traffic Volumes**			**Leq**			**CNEL**		
Roadway/Segment	**MPH**	**AM**	**PM**	**ADT**	**ROW**	**25 Feet**	**50 Feet**	**ROW**	**25 Feet**	**50 Feet**
Sepulveda Boulevard, between Figueroa St. and Main St.	40	2098	2322	0	71.7	69.4	67.9	72.9	70.6	69.1
Sepulveda Boulevard, between Main St. and Avalon Blvd	40	2028	2329	0	71.7	69.4	67.9	72.9	70.6	69.1
Sepulveda Boulevard, between Avalon Blvd and Wilmington Ave.	40	1445	1812	0	70.6	68.3	66.8	71.8	69.5	68.0
Figueroa Street n/o Sepulveda Blvd	40	1000	1124	0	68.5	66.2	64.8	69.7	67.5	66.0
Wilmington Avenue between Sepulveda Blvd and Lomita Blvd	40	1241	1327	0	70.1	67.5	65.8	71.4	68.7	67.1
Future With Project										
	Speed	**Traffic Volumes**			**Leq**			**CNEL**		
Roadway/Segment	**MPH**	**AM**	**PM**	**ADT**	**ROW**	**25 Feet**	**50 Feet**	**ROW**	**25 Feet**	**50 Feet**
Sepulveda Boulevard, between Figueroa St. and Main St.	40	2140	2364	0	71.7	69.5	68.0	73.0	70.7	69.2
Sepulveda Boulevard, between Main St. and Avalon Blvd	40	2067	2332	0	71.7	69.4	67.9	72.9	70.6	69.1
Sepulveda Boulevard, between Avalon Blvd and Wilmington Ave.	40	1493	1812	0	70.6	68.3	66.8	71.8	69.5	68.0
Figueroa Street n/o Sepulveda Blvd	40	1000	1124	0	68.5	66.2	64.8	69.7	67.5	66.0
Wilmington Avenue between Sepulveda Blvd and Lomita Blvd	40	1245	1304	0	70.1	67.4	65.8	71.3	68.6	67.0

CNEL

Summary	**25 ft. from ROW**		**At ROW**	
Roadway/Segment	**Project Increment**	**Cumulative Increment**	**Project Increment**	**Cumulative Increment**
Sepulveda Boulevard, between Figueroa St. and Main St.	0.1	0.3	0.1	0.3
Sepulveda Boulevard, between Main St. and Avalon Blvd	0.0	0.2	0.0	0.2
Sepulveda Boulevard, between Avalon Blvd and Wilmington Ave.	0.0	0.2	0.0	0.2
Figueroa Street n/o Sepulveda Blvd	0.0	0.7	0.0	0.6
Wilmington Avenue between Sepulveda Blvd and Lomita Blvd	-0.1	0.2	-0.1	0.3

	% of ADT			
Vehicle Type	**Day**	**Eve**	**Night**	**Sub total**
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

Project: Kast Site RAP

Existing										
	Speed	**Traffic Volumes**			**Leq**			**CNEL**		
Roadway/Segment	**MPH**	**AM**	**PM**	**ADT**	**ROW**	**25 Feet**	**50 Feet**	**ROW**	**25 Feet**	**50 Feet**
Lomita Boulevard w/o Main St.	40	2075	2239	0	71.5	69.2	67.8	72.7	70.5	69.0
Lomita Boulevard between Main St. and Neptune Ave.	40	2119	1986	0	71.3	69.0	67.5	72.5	70.2	68.7
Lomita Boulevard between Neptune Ave. and Lagoon Ave.	40	2129	1896	0	71.3	69.0	67.5	72.5	70.2	68.7
Lomita Boulevard between Lagoon Ave. and Avalon Blvd	40	2148	1896	0	71.3	69.1	67.6	72.5	70.3	68.8
Lomita Boulevard between Avalon Blvd and Wilmington Ave	40	1434	1249	0	69.6	67.3	65.8	70.8	68.5	67.0
Future No Project										
	Speed	**Traffic Volumes**			**Leq**			**CNEL**		
Roadway/Segment	**MPH**	**AM**	**PM**	**ADT**	**ROW**	**25 Feet**	**50 Feet**	**ROW**	**25 Feet**	**50 Feet**
Lomita Boulevard w/o Main St.	40	2168	2348	0	71.7	69.4	68.0	72.9	70.7	69.2
Lomita Boulevard between Main St. and Neptune Ave.	40	2213	2085	0	71.5	69.2	67.7	72.7	70.4	68.9
Lomita Boulevard between Neptune Ave. and Lagoon Ave.	40	2224	1993	0	71.5	69.2	67.7	72.7	70.4	68.9
Lomita Boulevard between Lagoon Ave. and Avalon Blvd	40	2243	1993	0	71.5	69.2	67.8	72.7	70.5	69.0
Lomita Boulevard between Avalon Blvd and Wilmington Ave	40	1503	1322	0	69.8	67.5	66.0	71.0	68.7	67.2
Future With Project										
	Speed	**Traffic Volumes**			**Leq**			**CNEL**		
Roadway/Segment	**MPH**	**AM**	**PM**	**ADT**	**ROW**	**25 Feet**	**50 Feet**	**ROW**	**25 Feet**	**50 Feet**
Lomita Boulevard w/o Main St.	40	2168	2348	0	71.7	69.4	68.0	72.9	70.7	69.2
Lomita Boulevard between Main St. and Neptune Ave.	40	2216	2124	0	71.5	69.2	67.7	72.7	70.4	68.9
Lomita Boulevard between Neptune Ave. and Lagoon Ave.	40	2259	2006	0	71.5	69.3	67.8	72.8	70.5	69.0
Lomita Boulevard between Lagoon Ave. and Avalon Blvd	40	2286	2000	0	71.6	69.3	67.8	72.8	70.5	69.1
Lomita Boulevard between Avalon Blvd and Wilmington Ave	40	1507	1299	0	69.8	67.5	66.0	71.0	68.7	67.2

CNEL

Summary	**25 ft. from ROW**		**At ROW**	
Roadway/Segment	**Project Increment**	**Cumulative Increment**	**Project Increment**	**Cumulative Increment**
Lomita Boulevard w/o Main St.	0.0	0.2	0.0	0.2
Lomita Boulevard between Main St. and Neptune Ave.	0.0	0.2	0.0	0.2
Lomita Boulevard between Neptune Ave. and Lagoon Ave.	0.1	0.3	0.1	0.3
Lomita Boulevard between Lagoon Ave. and Avalon Blvd	0.0	0.2	0.1	0.3
Lomita Boulevard between Avalon Blvd and Wilmington Ave	0.0	0.2	0.0	0.2

	% of ADT			
Vehicle Type	**Day**	**Eve**	**Night**	**Sub total**
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

Project: Kast Site RAP

Existing										
	Speed	**Traffic Volumes**			**Leq**			**CNEL**		
Roadway/Segment	**MPH**	**AM**	**PM**	**ADT**	**ROW**	**25 Feet**	**50 Feet**	**ROW**	**25 Feet**	**50 Feet**
Main Street between Sepulveda Blvd and Lomita Blvd	40	1381	1487	0	70.6	68.0	66.3	71.9	69.2	67.5
Neptune Avenue n/o Lomita Blvd	30	158	154	0	59.1	56.2	54.4	60.4	57.4	55.6
Lagoon Ave n/o Lomita Blvd	30	43	57	0	54.7	51.7	50.0	55.9	52.9	51.2
Avalon Boulevard between Sepulveda Blvd and Lomita Blvd	40	1315	1522	0	70.7	68.1	66.4	72.0	69.3	67.6
0	0			0	-	-	-	-	-	-
Future No Project										
	Speed	**Traffic Volumes**			**Leq**			**CNEL**		
Roadway/Segment	**MPH**	**AM**	**PM**	**ADT**	**ROW**	**25 Feet**	**50 Feet**	**ROW**	**25 Feet**	**50 Feet**
Main Street between Sepulveda Blvd and Lomita Blvd	40	1429	1865	0	71.6	69.0	67.3	72.8	70.2	68.5
Neptune Avenue n/o Lomita Blvd	30	164	159	0	59.3	56.3	54.6	60.5	57.5	55.8
Lagoon Ave n/o Lomita Blvd	30	44	59	0	54.9	51.9	50.1	56.1	53.1	51.3
Avalon Boulevard between Sepulveda Blvd and Lomita Blvd	40	1605	2127	0	72.2	69.5	67.9	73.4	70.7	69.1
0	0			0	-	-	-	-	-	-
Future With Project										
	Speed	**Traffic Volumes**			**Leq**			**CNEL**		
Roadway/Segment	**MPH**	**AM**	**PM**	**ADT**	**ROW**	**25 Feet**	**50 Feet**	**ROW**	**25 Feet**	**50 Feet**
Main Street between Sepulveda Blvd and Lomita Blvd	40	1432	1904	0	71.7	69.0	67.4	72.9	70.3	68.6
Neptune Avenue n/o Lomita Blvd	30	164	159	0	59.3	56.3	54.6	60.5	57.5	55.8
Lagoon Ave n/o Lomita Blvd	30	44	59	0	54.9	51.9	50.1	56.1	53.1	51.3
Avalon Boulevard between Sepulveda Blvd and Lomita Blvd	40	1634	2130	0	72.2	69.5	67.9	73.4	70.7	69.1
0	0			0	-	-	-	-	-	-

CNEL

Summary	**25 ft. from ROW**		**At ROW**	
Roadway/Segment	**Project Increment**	**Cumulative Increment**	**Project Increment**	**Cumulative Increment**
Main Street between Sepulveda Blvd and Lomita Blvd	0.1	1.1	0.1	1.0
Neptune Avenue n/o Lomita Blvd	0.0	0.1	0.0	0.1
Lagoon Ave n/o Lomita Blvd	0.0	0.2	0.0	0.2
Avalon Boulevard between Sepulveda Blvd and Lomita Blvd	0.0	1.4	0.0	1.4
0	-	-	-	-

	% of ADT			
Vehicle Type	**Day**	**Eve**	**Night**	**Sub total**
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

Project: Kast Site RAP

Existing										
	Speed	**Traffic Volumes**			**Leq**			**CNEL**		
Roadway/Segment	**MPH**	**AM**	**PM**	**ADT**	**ROW**	**25 Feet**	**50 Feet**	**ROW**	**25 Feet**	**50 Feet**
Sepulveda Boulevard, between Figueroa St. and Main St.	40	2015	2224	0	71.5	69.2	67.7	72.7	70.4	68.9
Sepulveda Boulevard, between Main St. and Avalon Blvd	40	1946	2232	0	71.5	69.2	67.7	72.7	70.4	69.0
Sepulveda Boulevard, between Avalon Blvd and Wilmington Ave.	40	1429	1732	0	70.4	68.1	66.6	71.6	69.3	67.9
Figueroa Street n/o Sepulveda Blvd	40	798	973	0	67.9	65.6	64.1	69.1	66.8	65.3
Wilmington Avenue between Sepulveda Blvd and Lomita Blvd	40	1169	1229	0	69.8	67.1	65.5	71.0	68.4	66.7
Future No Project										
	Speed	**Traffic Volumes**			**Leq**			**CNEL**		
Roadway/Segment	**MPH**	**AM**	**PM**	**ADT**	**ROW**	**25 Feet**	**50 Feet**	**ROW**	**25 Feet**	**50 Feet**
Sepulveda Boulevard, between Figueroa St. and Main St.	40	2057	2266	0	71.6	69.3	67.8	72.8	70.5	69.0
Sepulveda Boulevard, between Main St. and Avalon Blvd	40	1985	2235	0	71.5	69.2	67.7	72.7	70.4	69.0
Sepulveda Boulevard, between Avalon Blvd and Wilmington Ave.	40	1429	1732	0	70.4	68.1	66.6	71.6	69.3	67.9
Figueroa Street n/o Sepulveda Blvd	40	798	973	0	67.9	65.6	64.1	69.1	66.8	65.3
Wilmington Avenue between Sepulveda Blvd and Lomita Blvd	40	1173	1233	0	69.8	67.2	65.5	71.0	68.4	66.7
Future With Project										
	Speed	**Traffic Volumes**			**Leq**			**CNEL**		
Roadway/Segment	**MPH**	**AM**	**PM**	**ADT**	**ROW**	**25 Feet**	**50 Feet**	**ROW**	**25 Feet**	**50 Feet**
Sepulveda Boulevard, between Figueroa St. and Main St.	40	2140	2364	0	71.7	69.5	68.0	73.0	70.7	69.2
Sepulveda Boulevard, between Main St. and Avalon Blvd	40	2067	2332	0	71.7	69.4	67.9	72.9	70.6	69.1
Sepulveda Boulevard, between Avalon Blvd and Wilmington Ave.	40	1493	1812	0	70.6	68.3	66.8	71.8	69.5	68.0
Figueroa Street n/o Sepulveda Blvd	40	1000	1124	0	68.5	66.2	64.8	69.7	67.5	66.0
Wilmington Avenue between Sepulveda Blvd and Lomita Blvd	40	1245	1304	0	70.1	67.4	65.8	71.3	68.6	67.0

CNEL

Summary	**25 ft. from ROW**		**At ROW**	
Roadway/Segment	**Project Increment**	**Cumulative Increment**	**Project Increment**	**Cumulative Increment**
Sepulveda Boulevard, between Figueroa St. and Main St.	0.1	0.3	0.1	0.3
Sepulveda Boulevard, between Main St. and Avalon Blvd	0.0	0.2	0.0	0.2
Sepulveda Boulevard, between Avalon Blvd and Wilmington Ave.	0.0	0.2	0.0	0.2
Figueroa Street n/o Sepulveda Blvd	0.0	0.7	0.0	0.6
Wilmington Avenue between Sepulveda Blvd and Lomita Blvd	0.0	0.2	0.0	0.3

	% of ADT			
Vehicle Type	**Day**	**Eve**	**Night**	**Sub total**
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

Project: Kast Site RAP

Existing										
	Speed	**Traffic Volumes**			**Leq**			**CNEL**		
Roadway/Segment	**MPH**	**AM**	**PM**	**ADT**	**ROW**	**25 Feet**	**50 Feet**	**ROW**	**25 Feet**	**50 Feet**
Lomita Boulevard w/o Main St.	40	2075	2239	0	71.5	69.2	67.8	72.7	70.5	69.0
Lomita Boulevard between Main St. and Neptune Ave.	40	2119	1986	0	71.3	69.0	67.5	72.5	70.2	68.7
Lomita Boulevard between Neptune Ave. and Lagoon Ave.	40	2129	1896	0	71.3	69.0	67.5	72.5	70.2	68.7
Lomita Boulevard between Lagoon Ave. and Avalon Blvd	40	2148	1896	0	71.3	69.1	67.6	72.5	70.3	68.8
Lomita Boulevard between Avalon Blvd and Wilmington Ave	40	1434	1249	0	69.6	67.3	65.8	70.8	68.5	67.0
Future No Project										
	Speed	**Traffic Volumes**			**Leq**			**CNEL**		
Roadway/Segment	**MPH**	**AM**	**PM**	**ADT**	**ROW**	**25 Feet**	**50 Feet**	**ROW**	**25 Feet**	**50 Feet**
Lomita Boulevard w/o Main St.	40	2075	2239	0	71.5	69.2	67.8	72.7	70.5	69.0
Lomita Boulevard between Main St. and Neptune Ave.	40	2122	2025	0	71.3	69.0	67.5	72.5	70.2	68.7
Lomita Boulevard between Neptune Ave. and Lagoon Ave.	40	2164	1909	0	71.4	69.1	67.6	72.6	70.3	68.8
Lomita Boulevard between Lagoon Ave. and Avalon Blvd	40	2191	1903	0	71.4	69.1	67.7	72.6	70.4	68.9
Lomita Boulevard between Avalon Blvd and Wilmington Ave	40	1438	1253	0	69.6	67.3	65.8	70.8	68.5	67.0
Future With Project										
	Speed	**Traffic Volumes**			**Leq**			**CNEL**		
Roadway/Segment	**MPH**	**AM**	**PM**	**ADT**	**ROW**	**25 Feet**	**50 Feet**	**ROW**	**25 Feet**	**50 Feet**
Lomita Boulevard w/o Main St.	40	2168	2348	0	71.7	69.4	68.0	72.9	70.7	69.2
Lomita Boulevard between Main St. and Neptune Ave.	40	2216	2124	0	71.5	69.2	67.7	72.7	70.4	68.9
Lomita Boulevard between Neptune Ave. and Lagoon Ave.	40	2259	2006	0	71.5	69.3	67.8	72.8	70.5	69.0
Lomita Boulevard between Lagoon Ave. and Avalon Blvd	40	2286	2000	0	71.6	69.3	67.8	72.8	70.5	69.1
Lomita Boulevard between Avalon Blvd and Wilmington Ave	40	1507	1299	0	69.8	67.5	66.0	71.0	68.7	67.2

CNEL

Summary	**25 ft. from ROW**		**At ROW**	
Roadway/Segment	**Project Increment**	**Cumulative Increment**	**Project Increment**	**Cumulative Increment**
Lomita Boulevard w/o Main St.	0.0	0.2	0.0	0.2
Lomita Boulevard between Main St. and Neptune Ave.	0.0	0.2	0.0	0.2
Lomita Boulevard between Neptune Ave. and Lagoon Ave.	0.1	0.3	0.1	0.3
Lomita Boulevard between Lagoon Ave. and Avalon Blvd	0.1	0.2	0.1	0.3
Lomita Boulevard between Avalon Blvd and Wilmington Ave	0.0	0.2	0.0	0.2

	% of ADT			
Vehicle Type	**Day**	**Eve**	**Night**	**Sub total**
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

Project: Kast Site RAP

Existing										
	Speed	**Traffic Volumes**			**Leq**			**CNEL**		
Roadway/Segment	**MPH**	**AM**	**PM**	**ADT**	**ROW**	**25 Feet**	**50 Feet**	**ROW**	**25 Feet**	**50 Feet**
Main Street between Sepulveda Blvd and Lomita Blvd	40	1381	1487	0	70.6	68.0	66.3	71.9	69.2	67.5
Neptune Avenue n/o Lomita Blvd	30	158	154	0	59.1	56.2	54.4	60.4	57.4	55.6
Lagoon Ave n/o Lomita Blvd	30	43	57	0	54.7	51.7	50.0	55.9	52.9	51.2
Avalon Boulevard between Sepulveda Blvd and Lomita Blvd	40	1315	1522	0	70.7	68.1	66.4	72.0	69.3	67.6
0	0			0	-	-	-	-	-	-
Existing With Project										
	Speed	**Traffic Volumes**			**Leq**			**CNEL**		
Roadway/Segment	**MPH**	**AM**	**PM**	**ADT**	**ROW**	**25 Feet**	**50 Feet**	**ROW**	**25 Feet**	**50 Feet**
Main Street between Sepulveda Blvd and Lomita Blvd	40	1384	1526	0	70.7	68.1	66.4	72.0	69.3	67.7
Neptune Avenue n/o Lomita Blvd	30	158	154	0	59.1	56.2	54.4	60.4	57.4	55.6
Lagoon Ave n/o Lomita Blvd	30	43	57	0	54.7	51.7	50.0	55.9	52.9	51.2
Avalon Boulevard between Sepulveda Blvd and Lomita Blvd	40	1354	1525	0	70.7	68.1	66.4	72.0	69.3	67.7
0	0			0	-	-	-	-	-	-
Future With Project										
	Speed	**Traffic Volumes**			**Leq**			**CNEL**		
Roadway/Segment	**MPH**	**AM**	**PM**	**ADT**	**ROW**	**25 Feet**	**50 Feet**	**ROW**	**25 Feet**	**50 Feet**
Main Street between Sepulveda Blvd and Lomita Blvd	40	1432	1904	0	71.7	69.0	67.4	72.9	70.3	68.6
Neptune Avenue n/o Lomita Blvd	30	164	159	0	59.3	56.3	54.6	60.5	57.5	55.8
Lagoon Ave n/o Lomita Blvd	30	44	59	0	54.9	51.9	50.1	56.1	53.1	51.3
Avalon Boulevard between Sepulveda Blvd and Lomita Blvd	40	1634	2130	0	72.2	69.5	67.9	73.4	70.7	69.1
0	0			0	-	-	-	-	-	-

CNEL

Summary	**25 ft. from ROW**		**At ROW**	
Roadway/Segment	**Project Increment**	**Cumulative Increment**	**Project Increment**	**Cumulative Increment**
Main Street between Sepulveda Blvd and Lomita Blvd	0.1	1.1	0.1	1.0
Neptune Avenue n/o Lomita Blvd	0.0	0.1	0.0	0.1
Lagoon Ave n/o Lomita Blvd	0.0	0.2	0.0	0.2
Avalon Boulevard between Sepulveda Blvd and Lomita Blvd	0.0	1.4	0.0	1.4
0	-	-	-	-

	% of ADT			
Vehicle Type	**Day**	**Eve**	**Night**	**Sub total**
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

Appendix F-5
Expedited Implementation Option
Off-Site Truck Trip Noise Calculations

Expedited Implementation Option Off-Site Truck Trip Noise									
	Traffic Volumes			Leq			CNEL		
Roadway/Segment	AM	PM	ADT	ROW	25 Feet	50 Feet	ROW	25 Feet	50 Feet
Sepulveda Boulevard, between Figueroa St. and Main St.			151	62.2	60.0	58.5	59.2	57.0	55.5
Lomita Boulevard between Main Street and Neptune Avenue			151	62.2	60.0	58.5	59.2	57.0	55.5
Main Street between Sepulveda Blvd and Lomita Blvd			151	63.1	60.5	58.8	60.1	57.5	55.8
Neptune Avenue n/o Lomita Blvd			151	64.1	61.2	59.4	61.1	58.2	56.4
0			0	-	-	-	-	-	-
Future No Project									
	Traffic Volumes			Leq			CNEL		
Roadway/Segment	AM	PM	ADT	ROW	25 Feet	50 Feet	ROW	25 Feet	50 Feet
Sepulveda Boulevard, between Figueroa St. and Main St.			0	-	-	-	-	-	-
Lomita Boulevard between Main Street and Neptune Avenue			0	-	-	-	-	-	-
Main Street between Sepulveda Blvd and Lomita Blvd			0	-	-	-	-	-	-
Neptune Avenue n/o Lomita Blvd			0	-	-	-	-	-	-
0			0	-	-	-	-	-	-
Future With Project									
	Traffic Volumes			Leq			CNEL		
Roadway/Segment	AM	PM	ADT	ROW	25 Feet	50 Feet	ROW	25 Feet	50 Feet
Sepulveda Boulevard, between Figueroa St. and Main St.			0	-	-	-	-	-	-
Lomita Boulevard between Main Street and Neptune Avenue			0	-	-	-	-	-	-
Main Street between Sepulveda Blvd and Lomita Blvd			0	-	-	-	-	-	-
Neptune Avenue n/o Lomita Blvd			0	-	-	-	-	-	-
0			0	-	-	-	-	-	-

	CNEL			
Summary	25 ft. from ROW		At ROW	
Roadway/Segment	Project Increment	Cumulative Increment	Project Increment	Cumulative Increment
Sepulveda Boulevard, between Figueroa St. and Main St.	-	-	-	-
Lomita Boulevard between Main Street and Neptune Avenue	-	-	-	-
Main Street between Sepulveda Blvd and Lomita Blvd	-	-	-	-
Neptune Avenue n/o Lomita Blvd	-	-	-	-
0	-	-	-	-

Appendix F-6
Noise Measurement Results –
Excavation Operations at 24612 Neptune Avenue

Technical Memorandum

Date: December 13, 2012

To: Roy Patterson

From: Ron Reeves

Subject: **Noise Measurement Results –Excavation Operations 24612 Neptune Avenue (November 5, 2012 – November 12, 2012)**

Noise measurements were conducted from November 5-14, 2012 during excavation pilot test operations in the vicinity of 24612 Neptune Avenue to assess the potential noise impacts from mobile and stationary construction equipment on the surrounding community. Noise measurement data were recorded at seven representative locations, which included the front of each residential structure adjacent to the excavation site as shown in **Figure 1**. All measurements were conducted using a Brüel & Kjær Model 2250 Sound Level Meter (SLM). The Model 2250 is a modern fourth generation Type 1 SLM. Accuracy of the SLM was verified before and after monitoring and was within specifications. Instrument calibration is traceable to the National Institute of Standards and Technology.

Figure 1: Noise Measurement Sites

Ambient Noise Levels

The existing environment along Neptune Avenue in the Carousel tract included ambient noise sources such as dogs barking, music, residents backing out of their driveways, etc. and transportation sources such as vehicular traffic, aircraft over flights, and trains passing by along the rail line north of the tract. Short-term (20-30 minute) ambient noise measurements were conducted during four days near the excavation site (24612 Neptune Avenue) prior to the commencement of excavation operations between November 5, 2012 and November 12, 2012, as shown in **Table 1**. The purpose of these measurements was to quantify existing noise levels. The ambient noise levels along Neptune Avenue ranged from 50 to 54 dBA L_{eq}. The maximum noise level ranged from 69 to 80 dBA. Maximum noise levels during the ambient noise measurements were due to vehicular traffic. The absolute maximum noise level, 80 dBA, was due to a school bus traveling south along Neptune Avenue. This value is highlighted in **Table 1** as exceeding the City of Carson Noise Ordinance. Furthermore, a street sweeper was observed (not recorded) to have a noise level of 86 dBA while traveling south along Neptune Avenue.

Table 1: Ambient Noise Measurement Results

Date	Start Time	End Time	Duration	L_{eq}	L_{max} (75 dBA)	$L_{1.7}$ (65 dBA)	$L_{8.3}$ (60 dBA)	L_{25} (55 dBA)	L_{50} (50 dBA)
11/5/2012	7:41	8:02	0:21	53	72	62	54	49	48
11/7/2012	7:22	7:58	0:36	54	**80**	62	55	47	42
11/8/2012	7:36	8:01	0:25	54	71	65	58	52	47
11/12/2012	7:17	7:47	0:30	50	69	58	52	49	48

Operational Noise Levels

During excavation, acoustical attenuation blankets 12 feet in height were installed on the north and south sides of the excavation site and around the perimeter of the driveway to reduce community noise exposure from the generator and water buffalo (trailer) located on the driveway, as seen on **Figure 1**. The only construction equipment not shielded by sound attenuation was a single generator that was placed adjacent to the curb on the east side of the street south of the excavation site, dump trucks arriving and departing from excavation site, and concrete trucks delivering slurry. The 12-foot high attenuation panels were installed from November 5-9 and were removed November 12, 2012. Removal of the panels was necessitated due to the need to excavate in the vicinity of the panel support structure. Additional excavation, adjacent to the property boundary, was conducted without noise attenuation.

Tables 2 through 8 below present the excavation noise measurement data and observations made from November 5-14, 2012. Noise measurements were conducted during all excavation and related activities. **Tables 2 through 8** list the L_{eq}, L percentiles, Time Above 75 dBA, and noise sources/comments for each measurement. The noise levels highlighted in bold indicate an exceedance of the L_{max} or L percentile values specified in the City of Carson Noise Ordinance.

The first day of pilot excavation on November 5, 2012 consisted of site setup (i.e. installing attenuation blankets, offloading excavator, generators and water buffalo etc.) and initial grubbing of the site. Noise measurement results for these activities are shown in **Table 2.**

Activities occurring November 6-12, 2012, consisted of soil excavation, slab demolition (including the use of a hydraulic breaker attachment on the excavator to break up the existing slab), dump trucks arriving and departing to transport excavated soil, and concrete trucks delivering slurry. The noise measurement results from these activities are shown in **Tables 3 through 6**.

The loudest noise sources during excavation activities were the air brakes and backup alarms from dump trucks as they arrive and depart from the site, the excavator shaking its bucket as it transferred soil and when it dropped concrete into the dump truck, and when the concrete truck revved its engine to deliver concrete to backfill the lower part of the excavations. From November 12-14, 2012, activities consisted of delivering fill soil to the site and soil compaction. The loudest noise sources during these activities consisted of bucket shaking from the excavator, backup alarms on dump trucks, air brakes and reverberations from the bed of the dump truck as it dumped soil, results can be found in **Tables 6 through 8**.

Table 2: Excavation Noise Measurements and Observations at 24612 Neptune Avenue November 5, 2012

Site	Start Time	End Time	Duration (hh:mm)	L_{eq}	L_{max} (75 dBA)	$L_{1.7}$ (65 dBA)	$L_{8.3}$ (60 dBA)	L_{25} (55 dBA)	L_{50} (50 dBA)	Time Above 75 dBA (Sec.)	Noise Sources/Comments
1	10:12	10:32	0:20	59	**81**	**70**	**61**	53	48	2	Generator inside enclosure running
5a	13:35	13:37	0:02	62	71	**71**	**66**	**65**	**51**	0	Excavator operating and generator running
1	13:42	14:14	0:32	61	**84**	**68**	**64**	61	**56**	5	Excavator operating and generator running
5a	14:17	14:27	0:10	60	74	**69**	**63**	59	**57**	0	Some Excavation, site setup

Table 3: Excavation Noise Measurements and Observations at 24612 Neptune Avenue November 6, 2012

Site	Start Time	End Time	Duration (hh:mm)	L_{eq}	L_{max} (75 dBA)	$L_{1.7}$ (65 dBA)	$L_{8.3}$ (60 dBA)	L_{25} (55 dBA)	L_{50} (50 dBA)	Time Above 75 dBA (Sec.)	Noise Sources/Comments
1	13:28	13:59	0:31	62	72	**67**	**65**	62	**62**	0	Excavator, conveyor belt, generators
4	14:07	14:15	0:08	59	67	**65**	**62**	60	**58**	0	Excavator, conveyor belt, generators
3	14:16	14:27	0:11	65	**78**	**71**	**67**	**65**	**63**	2	Excavator, conveyor belt, generators, dump truck
1	14:30	14:34	0:04	64	69	**68**	**66**	**65**	**64**	0	Excavator, conveyor belt, generators
3	14:47	14:54	0:07	64	74	**69**	**66**	64	**63**	0	Excavator, conveyor belt, generators
2	14:55	15:15	0:20	64	74	**68**	**67**	**66**	**63**	0	Excavator, conveyor belt, generators
4	15:19	15:29	0:10	61	74	**69**	**66**	61	**59**	0	Excavator, conveyor belt, generators
3	15:39	15:43	0:04	60	69	**65**	**62**	61	**59**	0	Excavator, conveyor belt, generators
1	15:48	16:09	0:21	60	**77**	**67**	**66**	60	**54**	1	Excavator, conveyor belt, generators

Table 4: Excavation Noise Measurements and Observations at 24612 Neptune Avenue
November 7, 2012

Site	Start Time	End Time	Duration (hh:mm)	L_{eq}	L_{max} (75 dBA)	$L_{1.7}$ (65 dBA)	$L_{8.3}$ (60 dBA)	L_{25} (55 dBA)	L_{50} (50 dBA)	Time Above 75 dBA (Sec.)	Noise Sources/Comments
1	8:05	8:29	0:24	59	72	**65**	**63**	60	**58**	0	Excavator running, site prep.
2	8:32	8:35	0:03	58	60	60	59	59	**58**	0	Generator running, noise barrier flap was opened for ventilation
3	8:37	8:51	0:14	60	65	63	**61**	60	**59**	0	Generators and excavator running, bottom flap of noise barrier open
5a	8:52	9:22	0:30	67	**84**	**77**	**71**	64	**63**	70	Generator and excavator running, dump truck (backup alarm/air brakes)
1	9:31	10:03	0:32	65	71	**68**	**67**	**67**	**65**	0	Generator and excavator running
3	10:06	10:36	0:30	62	**75**	**67**	**66**	62	**61**	1	Dump truck (backup alarm/air brakes), generator running
4	10:38	11:08	0:30	62	**82**	**68**	**63**	62	**61**	3	Dump truck (backup alarm/air brakes), generator running
2	11:12	11:42	0:30	66	**82**	**71**	**68**	**66**	**65**	12	Dump truck (backup alarm/air brakes), generator running, excavator operating (shaking bucket)
1	11:43	12:16	0:33	66	**79**	**71**	**68**	**67**	**66**	12	Generator running, excavator operating (shaking bucket, scratching concrete slab)
1	12:20	12:30	0:10	69	**80**	**74**	**72**	**71**	**68**	4	Generator running, excavator breaking slab with hydraulic hammer (scratching concrete)
5	12:32	12:42	0:10	66	**76**	**68**	**67**	**66**	**66**	1	Generator running, excavator dumping concrete into back of dump truck
1	12:43	13:05	0:22	63	**75**	**70**	**66**	63	**62**	2	Generator running, excavator operating (bucket hit side of truck)
4	13:06	13:21	0:15	64	**80**	**70**	**67**	64	**63**	3	Generator running, excavator operating , dump truck parking (air brakes and backup alarm)
2	13:21	13:31	0:10	67	**80**	**72**	**71**	**68**	**65**	1	Generator running, excavator breaking slab with hydraulic hammer, dump truck parking (air brakes and backup alarm)
3	13:32	13:39	0:07	64	68	**67**	**66**	**65**	**63**	0	Generator running, excavator breaking up slab, dump truck idling
4	13:39	13:49	0:10	64	70	**68**	**67**	**65**	**63**	0	Generator running, excavator breaking up slab, dump truck idling
5a	13:48	13:54	0:06	64	69	**67**	**65**	64	**64**	0	Generator running, excavator breaking up slab, dump truck idling
1	13:58	14:28	0:30	67	**85**	**71**	**69**	**67**	**67**	6	Generator running, excavator operating and dumping soil and concrete into dump truck, scratching concrete, dump truck idling

Site	Start Time	End Time	Duration (hh:mm)	L_{eq}	L_{max} (75 dBA)	$L_{1.7}$ (65 dBA)	$L_{8.3}$ (60 dBA)	L_{25} (55 dBA)	L_{50} (50 dBA)	Time Above 75 dBA (Sec.)	Noise Sources/Comments
2	14:29	14:41	0:12	65	**79**	**71**	**66**	**65**	**63**	6	Generator running, excavator breaking up slab with hydraulic hammer, dump truck idling
3	14:42	15:01	0:19	66	**79**	**72**	**69**	**67**	**62**	7	Generator running, excavator operating, concrete truck arrives (air brakes, backup alarms)
4	15:01	15:11	0:10	71	**80**	**78**	**75**	**71**	**69**	55	Generator running, excavator idling, concrete truck backing (air brakes, hissing, backup alarm)
1	15:13	15:23	0:10	72	**84**	**77**	**75**	**72**	**70**	76	Generator running, excavator idling, concrete truck backing (air brakes, hissing, backup alarm)
2	15:31	15:48	0:17	77	**88**	**87**	**87**	**77**	**73**	304	Generator running, excavator idling, concrete truck backing (air brakes, hissing, backup alarm), concrete truck revs up engine
3	15:55	16:11	0:16	69	**79**	**76**	**74**	**71**	**65**	58	Generator running, excavator idling, concrete truck backing (air brakes, hissing, backup alarm), concrete truck revs up engine
4	16:11	16:26	0:15	66	**85**	**72**	**68**	**66**	**65**	6	Generator running, excavator idling, concrete truck backing (air brakes, hissing, backup alarm), concrete truck revs up engine

Table 5: Excavation noise measurements and observations at 24612 Neptune Avenue
November 8, 2012

Site	Start Time	End Time	Duration (hh:mm)	L_{eq}	L_{max} (75 dBA)	$L_{1.7}$ (65 dBA)	$L_{8.3}$ (60 dBA)	L_{25} (55 dBA)	L_{50} (50 dBA)	Time Above 75 dBA (Sec.)	Noise Sources/Comments
1	8:09	8:41	0:32	65	**76**	**69**	**66**	**65**	**65**	3	Generator running, excavator operating (shaking bucket), dump truck parking
2	8:42	9:09	0:27	62	70	**66**	**65**	63	**62**	0	Generator running, excavator operating, dump truck parked
3	9:10	9:40	0:30	63	**81**	**71**	**66**	62	**59**	10	Generator running, excavator operating, dump trucks depart and arrive (backup alarm, air brakes)
4	9:41	10:12	0:31	59	74	63	**61**	60	**59**	0	Generator running, excavator operating, dump truck parked
5b	10:13	10:23	0:10	56	67	64	57	56	**55**	0	Generator running, excavator operating, dump truck parked
1	10:24	10:41	0:17	66	**76**	**73**	**68**	**66**	**65**	4	Generator running, excavator operating (scratching concrete slab)
2	10:42	10:48	0:06	65	72	**68**	**67**	**66**	**65**	0	Generator running, excavator breaking up slab (hydraulic hammer)
3	10:48	11:18	0:30	62	71	**67**	**66**	63	**61**	0	Generator running, excavator breaking up slab (hydraulic hammer)
2	11:20	11:50	0:30	63	**81**	**68**	**65**	63	**61**	2	Generator running, excavator operating (shaking bucket), dump truck parking
4	11:51	12:21	0:30	63	**77**	**68**	**63**	62	**61**	9	Generator running, excavator operating (shaking bucket), dump truck noise (backup alarm, air brakes)
5a	12:24	12:39	0:15	67	**81**	**76**	**68**	**66**	**65**	24	Generator running, excavator operating, dump truck noise (backup alarm, air brakes)
4	12:40	12:51	0:11	63	68	**66**	**65**	63	**62**	0	Generator running, excavator breaking up slab (hydraulic hammer)
5a	12:51	13:15	0:24	66	**80**	**73**	**67**	**66**	**64**	17	Generator running, excavator operating, dump truck backing (air brakes, backup alarm)
1	13:15	13:45	0:30	66	**76**	**72**	**68**	**67**	**66**	9	Generator running, excavator operating and breaking up concrete (dumping concrete into dump truck), low flying helicopter, dump truck idling
2	13:48	14:00	0:12	68	**76**	**74**	**72**	**68**	**66**	9	Generator running, excavator breaking up slab on west side of trench (hydraulic hammer)
1	14:01	14:13	0:12	65	70	**68**	**67**	**66**	**65**	0	Generator running, excavator moving broken up concrete on bottom of trench

Site	Start Time	End Time	Duration (hh:mm)	L_{eq}	L_{max} (75 dBA)	$L_{1.7}$ (65 dBA)	$L_{8.3}$ (60 dBA)	L_{25} (55 dBA)	L_{50} (50 dBA)	Time Above 75 dBA (Sec.)	Noise Sources/Comments
3	14:14	14:26	0:12	67	71	**69**	**68**	**67**	**67**	0	Generator running, Excavator operating
2	14:29	14:59	0:30	65	**84**	**70**	**67**	**65**	**64**	4	Generator running, Excavator operating, dump truck backing (air brakes, backup alarm)
4	15:00	16:21	1:21	71	**85**	**80**	**75**	**69**	**62**	395	Generator running, excavator idling, concrete trucks dump slurry (air brakes, hissing, engine rev up)

Table 6: Excavation noise measurements and observations at 24612 Neptune Avenue
November 9, 2012

Site	Start Time	End Time	Duration (hh:mm)	L_{eq}	L_{max} (75 dBA)	$L_{1.7}$ (65 dBA)	$L_{8.3}$ (60 dBA)	L_{25} (55 dBA)	L_{50} (50 dBA)	Time Above 75 dBA (Sec.)	Noise Sources/Comments
1	7:33	8:03	0:30	65	**77**	**70**	**67**	**66**	**64**	6	Generator running, excavator operating (bucket shaking), dump truck parking (air brakes, backup alarm)
2	8:04	8:34	0:30	65	**81**	**69**	**68**	**65**	**63**	3	Generator running, excavator operating (bucket shaking, dropping concrete), dump truck parking (air brakes, backup alarm)
3	8:35	9:07	0:32	64	**79**	**71**	**66**	63	**61**	12	Generator running, excavator operating (bucket shaking, dropping concrete), dump truck parking (air brakes, backup alarm)
1	9:08	9:39	0:31	69	**76**	**74**	**71**	**69**	**68**	11	Generator running, excavator breaking up slab (hydraulic hammer), excavator operating (bucket shaking, dropping concrete, scratching slab), dump truck parking (air brakes, backup alarm)
6	9:46	9:56	0:10	59	70	**65**	**62**	59	**58**	0	Generator running, excavator operating, back yard filled with a variety of different types of wind charms
7	9:56	10:07	0:11	60	73	**67**	**62**	60	**58**	0	Generator running, excavator operating, back yard filled with a variety of different types of wind charms
4	10:12	10:39	0:27	64	**83**	**71**	**67**	63	**62**	6	Generator running, excavator idling, dump truck parking (air brakes, backup alarm)
5	11:07	11:23	0:16	66	73	**70**	**69**	**67**	**66**	0	Generator running, excavator operating, dump truck idling
5	11:23	11:42	0:19	68	**78**	**70**	**69**	**68**	**68**	1	Generator running, excavator operating (dropped concrete), dump truck idling
1	11:43	11:51	0:08	69	**81**	**76**	**71**	**70**	**69**	10	Generator running, excavator operating (bucket shaking), dump truck idling
5	11:52	12:31	0:39	63	**79**	**68**	**66**	**65**	**59**	9	Generator running, excavator idling, dump truck drives away (hissing, air brakes, backup alarm)
2	12:32	13:07	0:35	64	**77**	**72**	**67**	64	**61**	7	Generator running, excavator operating, loud music from 24618 Neptune
4	13:08	13:38	0:30	70	**81**	**78**	**76**	**71**	**66**	221	Generator running, excavator idling, concrete truck delivering slurry (hissing, air brakes, engine revving up)
3	13:39	13:47	0:08	70	**80**	**77**	**74**	**72**	**68**	36	Generator running, excavator idling, concrete truck delivering slurry (hissing, air brakes, engine revving up)
5a	13:48	14:15	0:27	75	**88**	**84**	**82**	**72**	**69**	264	Generator running, excavator idling, concrete truck delivering slurry (hissing, air brakes, engine revving up)
1	14:16	14:26	0:10	58	**79**	63	59	57	**55**	1	Generator running, excavator idling

Table 7: Excavation noise measurements and observations at 24612 Neptune Avenue November 12, 2012

Site	Start Time	End Time	Duration (hh:mm)	L_{eq}	L_{max} (75 dBA)	$L_{1.7}$ (65 dBA)	$L_{8.3}$ (60 dBA)	L_{25} (55 dBA)	L_{50} (50 dBA)	Time Above 75 dBA (Sec.)	Noise Sources/Comments
1	7:56	8:28	0:32	64	74	**68**	**66**	**65**	**64**	0	Generator running, excavator operating (bucket scratching concrete slab)
2	8:29	8:56	0:27	64	**78**	**69**	**66**	64	**63**	2	Generator running, excavator operating (shaking bucket)
3	8:57	9:28	0:31	65	73	**69**	**67**	**66**	**64**	0	Generator running, excavator operating, water truck arrives, moved barriers on the south side of site back about a foot
1	9:28	9:58	0:30	71	**78**	**73**	**72**	**72**	**70**	6	Generator running, excavator operating, water truck moves to a different location (air brakes, backup alarm)
4	9:59	10:30	0:31	67	**75**	**71**	**70**	**70**	**65**	2	Generator running, excavator operating, water truck idling, dump truck arrives (air brakes, backup alarm)
5b	10:30	10:40	0:10	62	74	**72**	**67**	61	**57**	0	Generator running, excavator idling, water truck leaving (backup alarm, hydraulic brakes, dump truck arrives (air brakes, backup alarm)
1	10:41	10:57	0:16	68	**76**	**71**	**69**	**68**	**68**	2	Generator running, excavator operating (shaking bucket), dump truck leaves
2	10:57	11:27	0:30	67	**78**	**71**	**69**	**67**	**66**	7	Generator running, excavator operating (shaking bucket), dump truck arrives (air brakes, backup alarm), noise barriers on the south side of enclosure removed
3	11:28	11:59	0:31	60	**77**	**70**	**61**	58	**56**	3	Excavator idling, dump truck arrived (backup alarm, air brakes)
1	12:00	12:30	0:30	74	**88**	**81**	**77**	**75**	**73**	620	Generator running, excavator operating (shaking bucket), dump truck arrives with fill soil (air brakes, backup alarm), noise barriers on the south side of site removed
1	12:30	13:00	0:30	73	**90**	**80**	**77**	**73**	**72**	289	Generator running, excavator operating (shaking bucket), dump truck dumps soil into excavation (loud vibrations), noise barriers on the south side of site removed
1	13:00	13:30	0:30	70	**85**	**78**	**74**	**71**	**63**	81	Generator running, excavator leveling soil, dump truck departs, noise barriers on the south side of site removed
1	13:30	14:00	0:30	64	**84**	**72**	**65**	62	**62**	11	Generator running, excavator leveling soil, noise barriers on the south side of site removed
1	14:00	14:30	0:30	72	**82**	**77**	**76**	**74**	**72**	322	Generator running, excavator leveling soil, noise barriers on the south side of site removed

Site	Start Time	End Time	Duration (hh:mm)	L_{eq}	L_{max} (75 dBA)	$L_{1.7}$ (65 dBA)	$L_{8.3}$ (60 dBA)	L_{25} (55 dBA)	L_{50} (50 dBA)	Time Above 75 dBA (Sec.)	Noise Sources/Comments
1	14:30	14:47	0:17	62	74	64	**63**	62	**62**	0	Excavator idling, generator off, fencing off site, noise barriers on the south side of site removed

Table 8: Excavation noise measurements and observations at 24612 Neptune Avenue November 14, 2012

Site	Start Time	End Time	Duration (hh:mm)	L_{eq}	L_{max} (75 dBA)	$L_{1.7}$ (65 dBA)	$L_{8.3}$ (60 dBA)	L_{25} (55 dBA)	L_{50} (50 dBA)	Time Above 75 dBA (Sec.)	Noise Sources/Comments
1	9:32	10:02	0:30	74	**87**	**81**	**77**	**75**	**72**	484	Dump truck arrives dumps fill soil and departs (backup alarm, air brakes), excavator levels out soil (backup alarm, shaking bucket, wheel noise)
1	10:02	10:32	0:30	73	**84**	**80**	**78**	**75**	**70**	583	Excavator idling, walker compacting soil, water buffalo running
1	10:32	11:02	0:30	73	**91**	**79**	**76**	**73**	**71**	275	Walker compacting soil, dump truck dumps soil (air brakes, backup alarm, loud vibrations), excavator leveling soil (backup alarm, shaking bucket, wheel noise)
1	11:02	11:32	0:30	70	**82**	**78**	**75**	**71**	**68**	162	Excavator leveling soil (backup alarm, shaking bucket, wheel noise), dump truck arrives and dumps soil (backup alarm, air brakes, water buffalo running
1	11:32	12:02	0:30	73	**86**	**80**	**77**	**74**	**71**	385	Excavator leveling soil (backup alarm, shaking bucket, wheel noise), dump truck arrives and idles (backup alarm, air brakes)
1	12:02	12:32	0:30	75	**85**	**82**	**80**	**76**	**70**	640	Walker compacting soil, dump truck dumps soil (air brakes, backup alarm), excavator leveling soil (backup alarm, shaking bucket, wheel noise)
1	12:32	13:02	0:30	74	**91**	**81**	**77**	**74**	**72**	398	Generator running, walker compacting soil, dump truck dumps soil (air brakes backup alarm, loud vibration), excavator leveling soil (backup alarm, shaking bucket, wheel noise), water buffalo running
1	13:02	13:32	0:30	74	**86**	**82**	**78**	**75**	**72**	495	Generator running, excavator leveling soil (backup alarm, shaking bucket, wheel noise)
1	13:32	14:02	0:30	74	**93**	**80**	**77**	**75**	**73**	488	Generator running, dump truck dumps soil (air brakes, backup alarm, loud vibration), excavator leveling soil (backup alarm, shaking bucket, wheel

Site	Start Time	End Time	Duration (hh:mm)	L_{eq}	L_{max} (75 dBA)	$L_{1.7}$ (65 dBA)	$L_{8.3}$ (60 dBA)	L_{25} (55 dBA)	L_{50} (50 dBA)	Time Above 75 dBA (Sec.)	Noise Sources/Comments
											noise), water buffalo running
1	14:02	14:32	0:30	73	**85**	**80**	**76**	**74**	**72a**	345	Generator running, excavator leveling soil (backup alarm, shaking bucket, wheel noise)

Note: All noise barriers removed from site during all noise measurements

Equipment calibration records, Field Measurement Data Sheets and documentary photographs are available upon request. If you have any questions or comments, do not hesitate to contact either myself or Stanley Armstrong.

Best regards,

Ron Reeves

Ron Reeves, INCE
URS Corporation
Acoustics and Noise Control

Appendix F-7

Noise Measurement Results –
Excavation Operations at 24533 Ravenna Avenue

URS

Technical Memorandum

Date: January 15, 2013

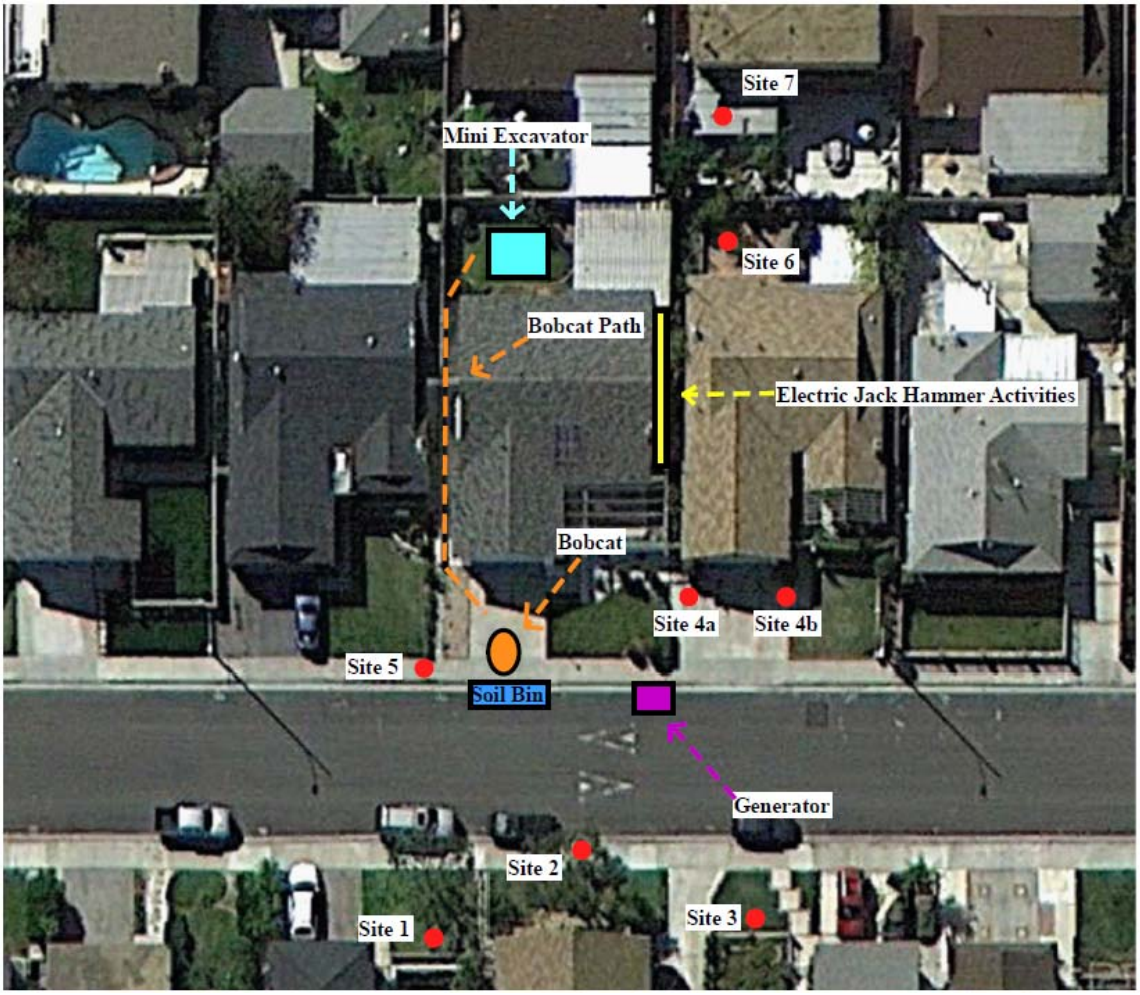
To: Roy Patterson

From: Ron Reeves

Subject: **Noise Measurement Results –Excavation Operations 24533 Ravenna Avenue (December 5, 2012)**

Environmental noise measurements were conducted December 5, 2012 during Excavation Pilot operations in the vicinity of 24553 Ravenna Avenue, Carson, CA to assess the potential noise impacts from mobile and stationary construction equipment on the surrounding community. Noise measurement data were recorded at eight representative locations. These locations included six front yard locations and two rear yard locations of residential properties adjacent to the excavation site as shown on **Figure 1**. All measurements were conducted using a Brüel & Kjær Model 2250 Sound Level Meter (SLM). The Brüel & Kjær Model 2250 is a modern fourth generation Type 1 SLM. Instrument calibration is traceable to the National Institute of Standards and Technology. The SLM was field calibrated before and after monitoring and calibrated within specifications.

Figure 1: Noise Measurement Sites



Ambient Noise Levels

The existing environment along Ravenna Avenue in the community of Carousel include noise sources common to residential community environments such as dogs barking, residents playing music, residents backing out of their drive ways, etc. and transportation sources such as vehicular traffic, aircraft over-flights, and train traffic on the railroad right-of-way north of the Carousel community. Two short-term ambient noise measurements were conducted near the excavation site (24533 Ravenna Avenue) prior to the commencement of excavation operations. These measurements were conducted July 10, 2012 and September 21, 2012. A summary of the measurement data is shown in **Table 1**.

Table 1: Ambient Noise Measurement Results (24533 Ravenna Avenue)

Date	Start Time	End Time	Duration	L_{eq}	L_{max}	$L_{1.7}$	$L_{8.3}$	L_{25}	L_{50}
7/10/2012	7:55	8:10	0:15	48	66	55	51	45	43
9/21/2012	8:02	8:32	0:30	52	68	62	55	47	44

The ambient noise level along Ravenna Avenue during the periods of ambient noise measurements ranged from 48 to 52 dBA L_{eq}. The maximum noise level ranged from 66 to 68 dBA. School busses in the Carousel area have also have been recorded at 80 dBA in past ambient noise measurements along Neptune Avenue. Furthermore, a street sweeper was observed (not recorded) to have a noise level of 86 dBA while traveling south along Neptune Avenue during excavation at 24612 Neptune Avenue.

Operational Noise Levels

Excavation activities at the single-family residence located at 24533 Ravenna Avenue on December 5, 2012 were conducted in the back yard in addition to the northern side of the rear portion of the side yard, as seen on **Figure 1**. A mini-excavator was used to excavate portions of the backyard. A bobcat was used to transport excavated material from the backyard to the front of the driveway and transfer the excavated material into a roll-off soil bin. A delivery truck was used to pick up and drop off the soil bins. Noise generated by the delivery truck consisted of backup alarm noise, hydraulic brake noise, and the truck dropping and lifting the soil bins. A generator was located in front of the residence on Ravenna Avenue. This generator was used to power an electric jack hammer that was used to loosen soil for hand excavation along the northern side of the rear portion of the side yard.

Table 2 presents the noise measurement data and observations made during excavation activities at 24533 Ravenna Avenue. The table lists the L_{eq}[1], L percentiles, Time Above 75 dBA and noise sources/comments for each measurement. The noise levels highlighted in bold indicate an exceedance of the City of Carson Noise Ordinance. The loudest noise sources during excavation activities were the air brakes and back up alarms from dump trucks as they arrived and departed from the site, electric jack hammering, the bobcat traveling to and from the back yard, and metal-on-metal noise as the bobcat dropped material into the soil bin.

Table 2. Excavation Noise Measurement Results (24533 Ravenna Avenue)
December 5, 2012

Excavation Activities

- Generator operating continuously on Ravenna Avenue (powered the electric jack hammer)
- Loosening soil via electric jack hammer on northern side of the rear portion of the side yard
- Truck delivering and picking up soil bins (engine, backup alarm, hydraulics/air brakes, metal rollers-on-metal noise)
- Excavation of rear yard via mini excavator
- Bobcat depositing material into soil bin and replacing soil in backyard
- Site cleanup

Site	Start Time	End Time	Duration (hh:mm)	L_{eq}	L_{max} (75 dBA)	$L_{1.7}$ (65 dBA)	$L_{8.3}$ (60 dBA)	L_{25} (55 dBA)	L_{50} (50 dBA)	Time Above 75 dBA (Sec.)	Noise Sources/Comments
1	8:35	9:06	0:31	62	**79**	**67**	**65**	**62**	**59**	1	Truck that dropped off soil bin leaves; generator running; electric jack hammer operating; bobcat going to and from backyard occasionally to dispose of soil in bin
2	9:10	9:40	0:30	62	72	**67**	**65**	**63**	**61**	0	Excavator, bobcat, electric jack hammer, generator
3	9:53	10:14	0:21	60	71	**69**	**62**	**60**	**59**	0	Jack hammer activity from down the street. Brief sawing of wood/board on driveway. Electric jack hammer, generator, excavator.
7	10:38	11:00	0:32	59	70	**66**	**63**	**60**	**57**	0	Excavator, bobcat, electric jack hammer, generator
4a	12:05	12:40	0:35	67	**84**	**73**	**70**	**68**	**66**	9	Excavator, bobcat, electric jack hammer, generator. Truck arrives shortly after 12:30 to drop off soil bin (beeping, metal-on-metal noise, air brakes).
4b	12:41	12:57	0:16	70	**84**	**78**	**74**	**71**	**67**	43	Excavator, bobcat, electric jack hammer, generator. Truck picks up soil bin (beeping, metal-on-metal noise, air brakes).
5	13:02	13:25	0:23	71	**83**	**78**	**76**	**72**	**66**	163	Mostly bobcat noise going to and from backyard to soil bin at front of driveway. Approximately 15 feet away from bobcat. Some generator and electric jack hammer noise.
6	13:29	14:01	0:32	58	68	62	**60**	**59**	**57**	0	Mostly excavator and bobcat noise. Electric jack hammer was not in operation
2	14:08	14:25	0:17	62	**81**	**67**	**64**	**62**	**60**	4	Excavator, bobcat, electric jack hammer, generator

Excavation Activities

- Generator operating continuously on Ravenna Avenue (powered the electric jack hammer)
- Loosening soil via electric jack hammer on northern side of the rear portion of the side yard
- Truck delivering and picking up soil bins (engine, backup alarm, hydraulics/air brakes, metal rollers-on-metal noise)
- Excavation of rear yard via mini excavator
- Bobcat depositing material into soil bin and replacing soil in backyard
- Site cleanup

Site	Start Time	End Time	Duration (hh:mm)	L_{eq}	L_{max} (75 dBA)	$L_{1.7}$ (65 dBA)	$L_{8.3}$ (60 dBA)	L_{25} (55 dBA)	L_{50} (50 dBA)	Time Above 75 dBA (Sec.)	Noise Sources/Comments
5	14:28	14:40	0:12	64	**76**	**67**	**66**	**64**	**63**	1	Mostly bobcat noise
1	14:48	15:15	0:27	58	72	**65**	**62**	**58**	**54**	0	Site cleanup and bobcat replacing soil in backyard; generator running

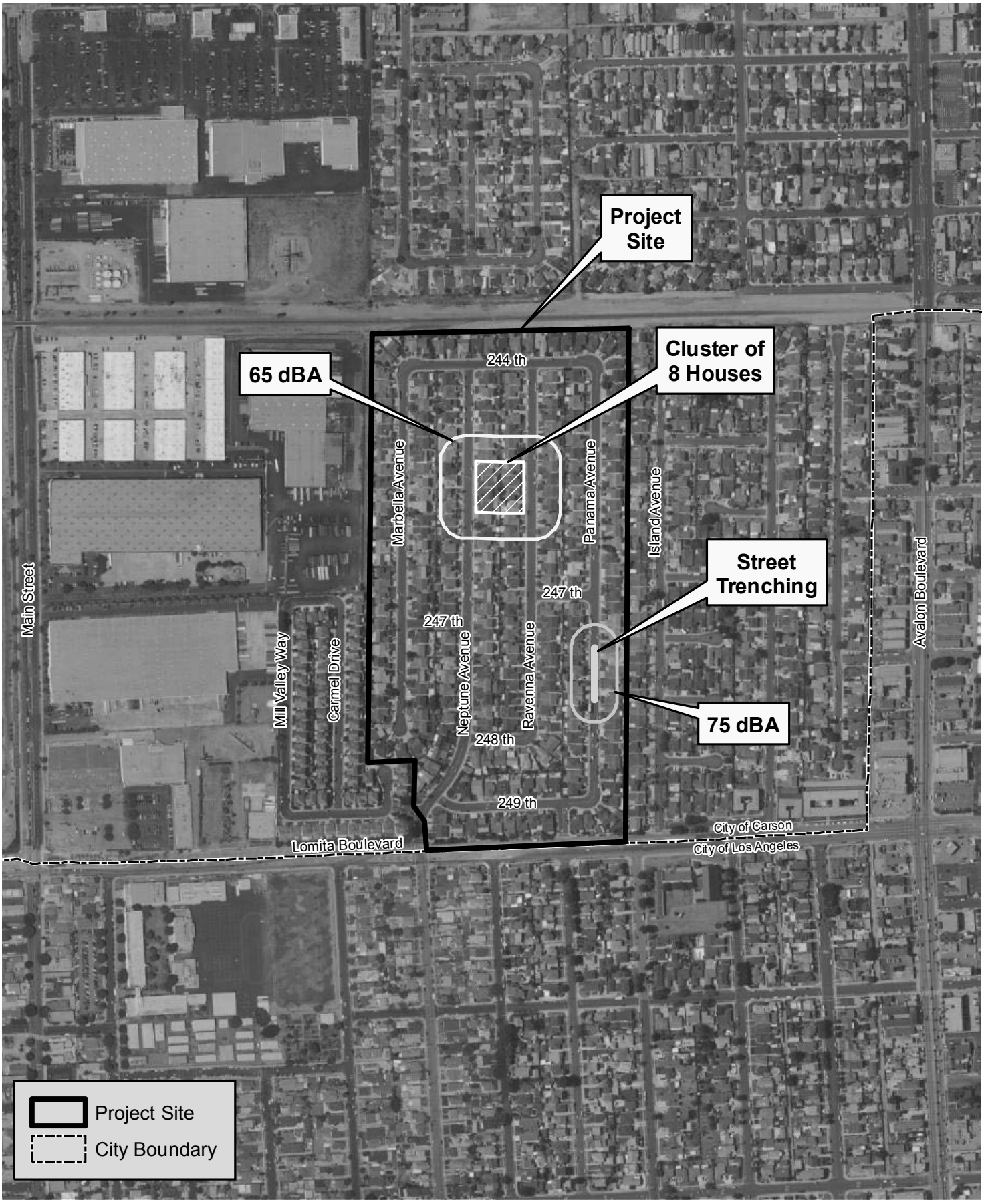
Equipment calibration records, Field Measurement Data Sheets and documentary photographs are available upon request. If you have any questions or comments, do not hesitate to contact either myself or Ryan McMullan.

Best regards,

Ron Reeves

Ron Reeves, INCE
URS Corporation
Acoustics and Noise Control

Appendix F-8
75 dBA and 65 dBA Noise Contours



65 dBA, Leq and 75 dBA Leq, Noise Contours

Former Kast Property Tank Farm Site Remediation Project

Source: Microsoft, 2010; PCR Services Corporation, 2014.