Appendix D
Noise Modeling

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Steve Rogers Acoustics

Phillips 66 Santa Maria Refining Facility
Nipomo, CA

Community Ambient and Rail Spur Noise Study

February 3, 2014

Prepared for:

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By:

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Steve Rogers
Principal

Background & Purpose

In response to public comments on the Draft EIR prepared by MRS for the proposed Rail Spur Extension project at the Santa Maria Refinery, Steve Rogers Acoustics has been retained to study two specific aspects of the existing noise environment:

1. Confirm existing ambient noise levels at those residential land uses closest to the project site.
2. Confirm source noise levels during train movements on the existing rail spur at the Refinery.

Acoustical Terminology

The acoustical descriptors used in this report are explained in Table 1:

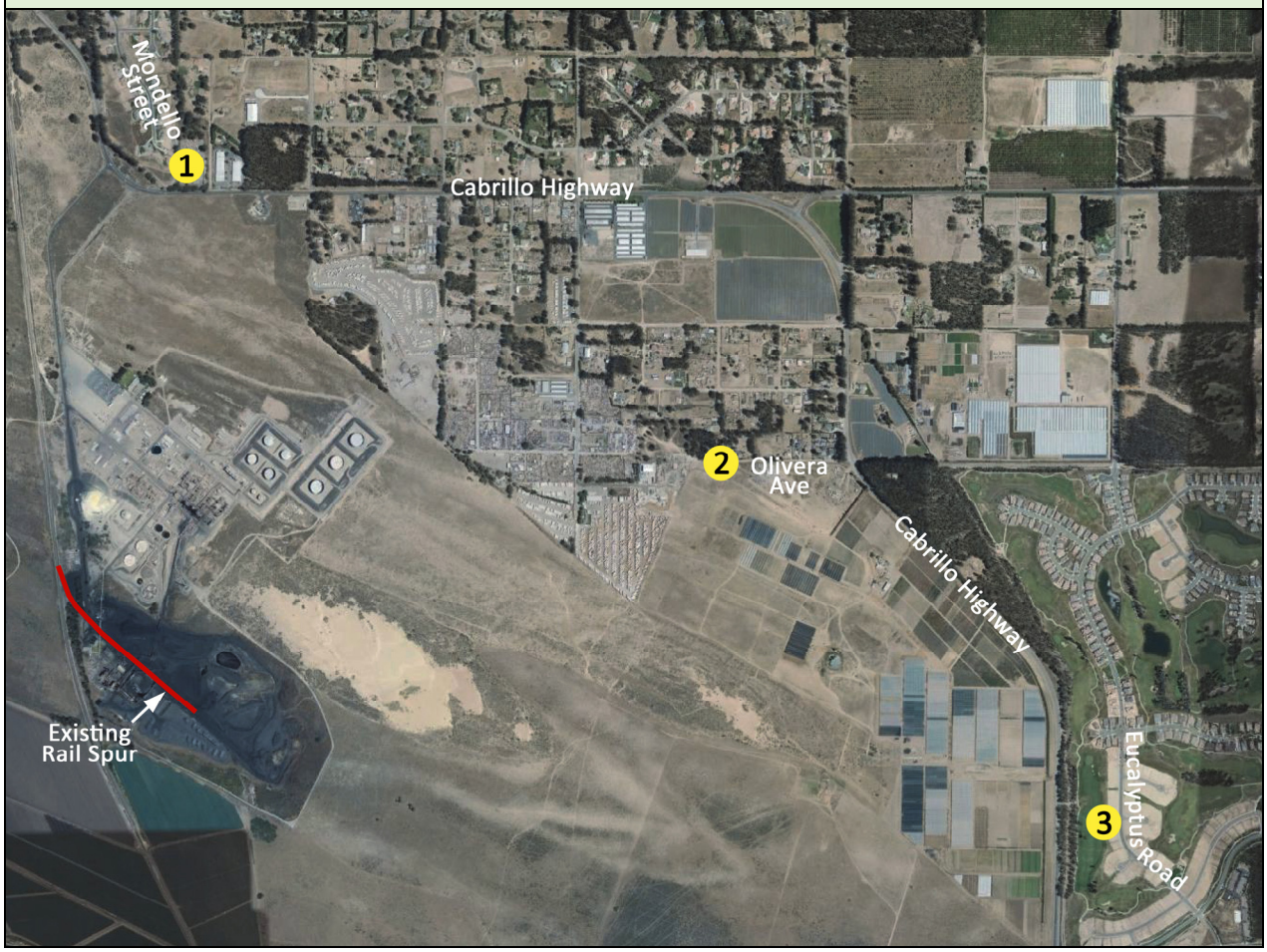
Table 1: Acoustical Descriptors	
dB	Human perception of loudness is logarithmic rather than linear. For this reason, sound level is usually measured on a logarithmic decibel (dB) scale. A change of 10 dB equates to a perceived as a doubling (or halving) of loudness, while a change of 3 dB is generally considered to be just perceptible.
dBA	A-weighting is the application of a frequency-weighted scale designed to reflect the response of the human auditory system, in which low frequencies are attenuated, while mid and high frequencies are emphasized. A-weighted sound levels are expressed as dBA.
L_{eq}	The Equivalent Noise Level (L_{eq}) is an energy-average of noise levels over a stated period of time. L_{eq} is the basic unit of environmental noise assessment in the United States.
CNEL	Community Noise Equivalent Level (CNEL) is an average of the hourly A-weighted L_{eq} values measured over the course of a 24-hour period, with adjustments applied during the evening (7PM - 10PM) and nighttime hours (10PM - 7AM) to reflect increased sensitivity to noise during those periods. Use of CNEL as a descriptor of ambient noise levels is consistent with the Noise Element of the County of San Luis Obispo General Plan.

Community Noise Level Survey

To confirm ambient noise levels in the vicinity of the Refinery, long-term noise monitors were installed at three locations, selected to represent sensitive residential land uses, as shown in Figure 1 and described in Table 2:

Table 2: Long-Term Noise Monitoring Locations	
Location 1	On the roof of one of the storage unit buildings at Mesa Vu Storage, 2490 Willow Rd. This location was selected because of its proximity to the homes on is very close to the homes on Mondella Street.
Location 2	At the intersection of Olivera Avenue and Los Reyes Avenue.
Location 3	In the back yard of 1918 Eucalyptus Road, overlooking the golf course and Cabrillo Highway.

Figure 1: South-Facing View Showing Location of the 24-hour Noise Monitor



Noise levels at these three locations were monitored continuously from the afternoon of January 27 to the evening of January 29, 2014. At Location 3, continuous audio was recorded simultaneously with the noise measurements, to assist with source identification. Results of the long-term noise monitoring are summarized in Table 3. Noise histograms from each Location for the entire monitoring period are provided in the Appendix.

Table 3: Summary of Long-Term Noise Monitoring Results

Location		Minimum Measured L_{eq} (dBA)			CNEL
		Daytime (7AM - 7PM)	Evening (7PM - 10PM)	Nighttime (10PM - 7AM)	
1	Mesa Vu Storage *Adjacent to Mondella Street*	59.7	56.3	49.3	64.8
2	Olivera Ave & Los Reyes Ave	43.2	41.0	40.2	55.2
3	1918 Eucalyptus Road	48.7	46.5	38.6	54.1

Traffic on the Cabrillo Highway was the dominant source of noise at Locations 1 and 3. Highway traffic was also a significant noise source at Location 2, together with nearby light industrial uses, which appear to contribute to the measured noise levels both day and night.

Train Noise Measurements at the Existing Rail Spur

Noise measurements were made adjacent to the existing rail spur tracks on the morning of January 29, 2014. The measurement microphone was set up on a tripod at a distance of 25-feet from the rail spur tracks (see Figure 2) and noise measurements were made during the following sequence of events, which took approximately 30-minutes:

Figure 2: Noise Measurement Setup at the Rail Spur

- 17 full rail cars were pushed onto the spur by a pair of locomotive engines located on the mainline tracks; we estimated the speed of the train to be 5 mph. The full cars connected to the locomotives cars were then coupled to another 17 rail cars full of coke waiting at the end of the spur.
- The locomotive engines pulled all 34 of the full rail cars along the spur and out onto the mainline tracks; we estimated the speed of the train to be 5 mph.
- Once on the mainline, the full cars were decoupled from the locomotive engines and 17 empty cars were connected in their place.
- The two locomotive engines then pushed the 17 empty cars off the mainline tracks and along to the end of the spur, which required the engines to pass the noise measurement location. We estimated the speed of the train to be 5 mph.
- The locomotive engines were decoupled from the empty cars and reversed back along the spur - at approximately 5 mph, before stopping right in front of the measurement microphone.
- The engines idled briefly and the horn was sounded - for the purposes of the noise measurement only; under normal circumstances, the horn would almost never be sounded while the train is on the refinery property.
- The engines accelerated from a stop to approximately 5 mph and left the refinery along the spur, to be reconnected with the full coke cars waiting on the mainline tracks.

Noise levels measured at the rail spur for each individual train/engine activity are summarized in Table 4, together with the total Equivalent Noise Level (Leq) for the entire sequence.

Since the train horn would typically not be sounded on the refinery property, the Leq for the sequence has also been calculated without the contribution of the horn.

Table 4: Train Noise Levels Measured on the Existing Rail Spur			
Event	Start Time	Measurement Duration (mins)	Equivalent Noise Level (L_{eq}) at 25-feet (dBA)
17 full coke cars being pushed onto the spur	9:18 AM	1:22	76.4
Full cars coming to a stop and being coupled to waiting cars	9:20 AM	0:41	76.6
34 full coke cars being pulled out of refinery along the spur	9:26 AM	1:33	79.0
17 empty cars plus two locomotive engines passing along the spur	9:38 AM	2:49	80.3
Locomotive engines (no cars) approach and stop	9:45 AM	1:00	75.2
Locomotive idle and sound horn (not typical)	9:47 AM	0:25	94.5
Locomotive engines moving out along the spur	9:48 AM	0:25	82.6
Entire sequence	9:18 AM	29:48	78.3
Entire sequence (excluding horn)	9:18 AM	29:43	74.1

Impact of Existing Rail Spur Activity

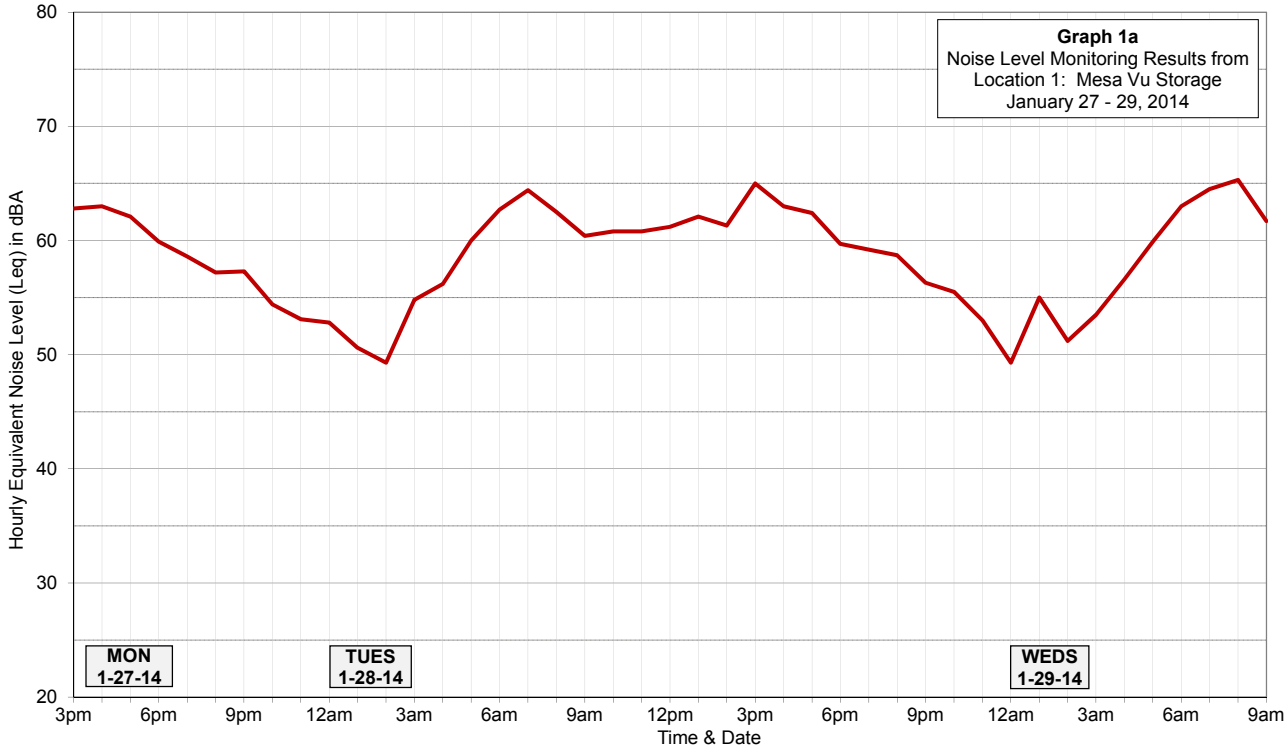
Combining the highest noise levels measured for the locomotive engines and cars at the spur and applying distance and terrain losses provides an estimate of the worst case spur train noise levels received at each of the three noise monitoring locations. These estimates are shown in Table 5, together with the minimum 1-hour ambient daytime Leq at each location for comparison.

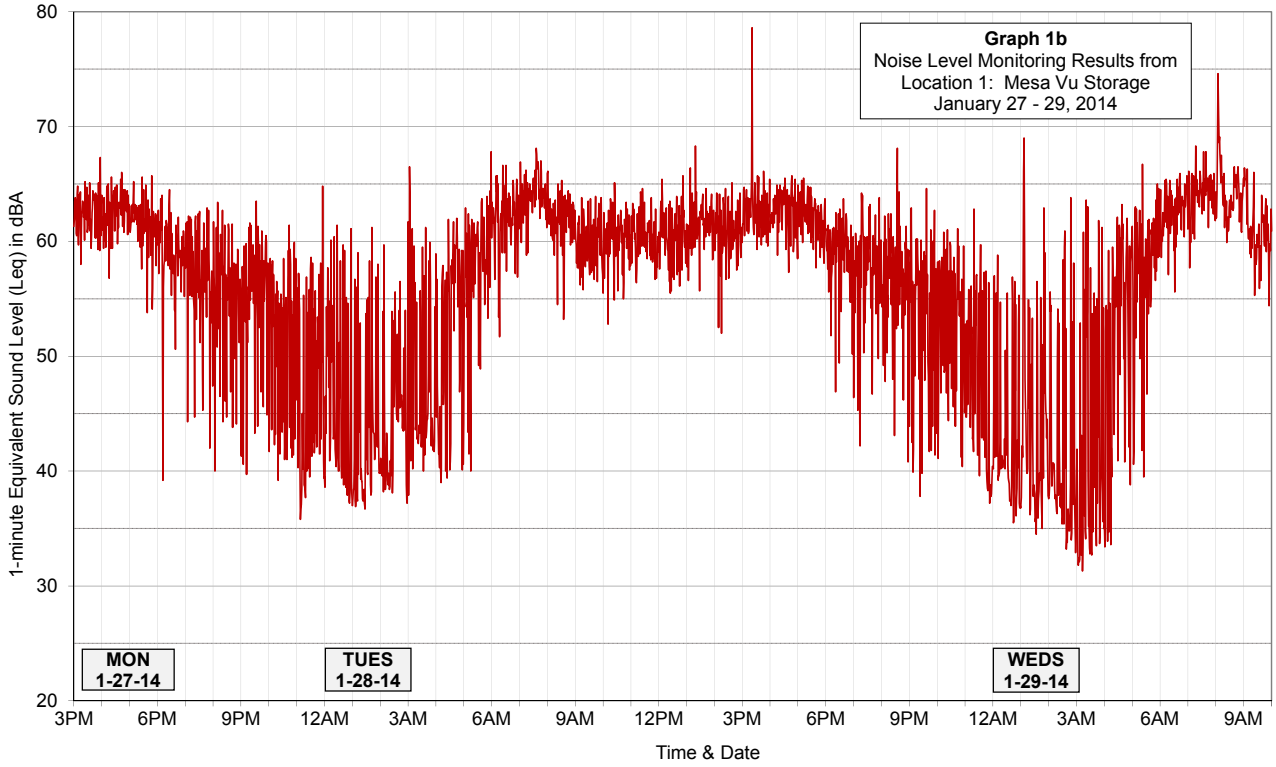
Table 5: Estimated Worst-Case Noise Levels from the Existing Rail Spur				
Receiver Location		Distance from Spur (feet)	Minimum Ambient Hourly L_{eq} (Daytime)	Estimated Train Noise Level (dBA, L_{eq})
1	Mesa Vu Storage *Adjacent to Mondella Street*	4,600	59.7	39.1
2	Olivera Ave & Los Reyes Ave	6,400	43.2	31.3
3	1918 Eucalyptus Road	10,000	48.7	32.4

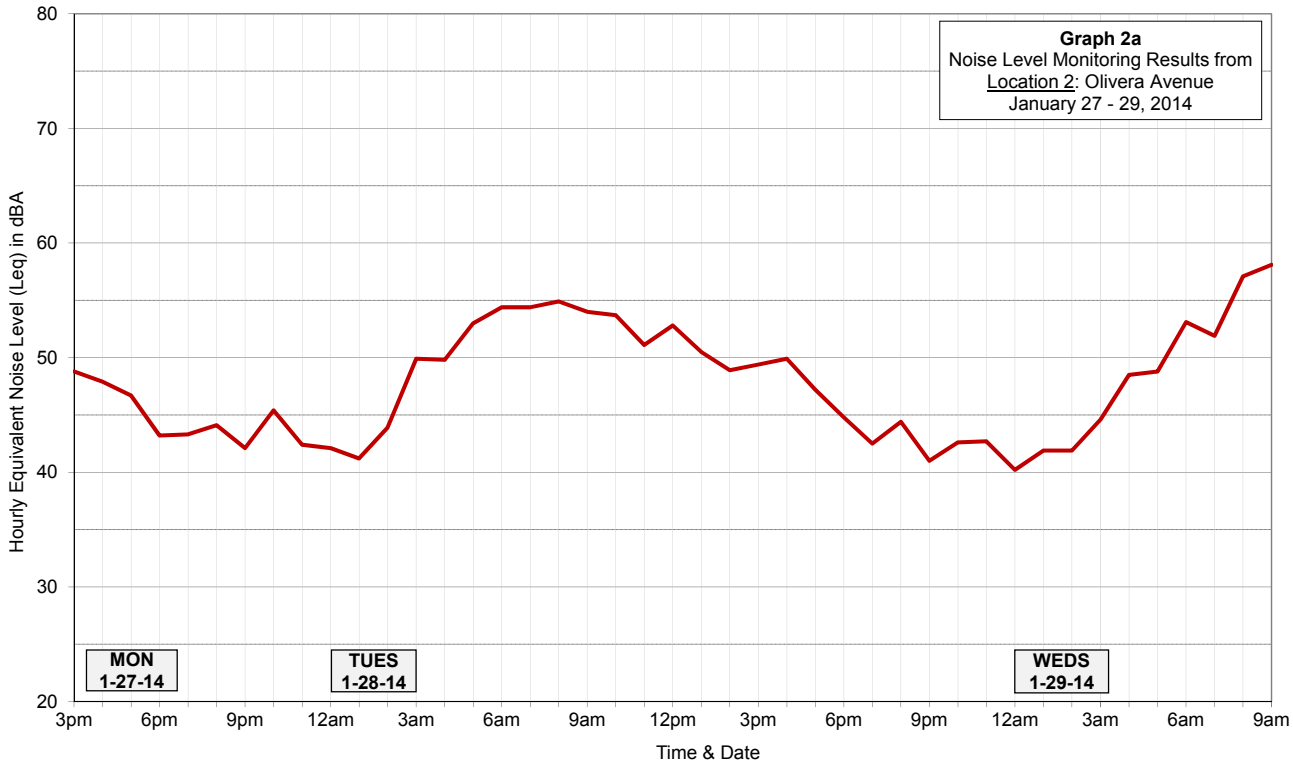
In each case, the estimated train noise level from the spur is more than 10 dBA below the daytime ambient noise levels, which indicates that activity on the existing rail spur (which occurs only during the daytime) is inaudible. This conclusion is supported by review of the audio recordings made at 1918 Eucalyptus Road in which no discernable train noise could be heard.

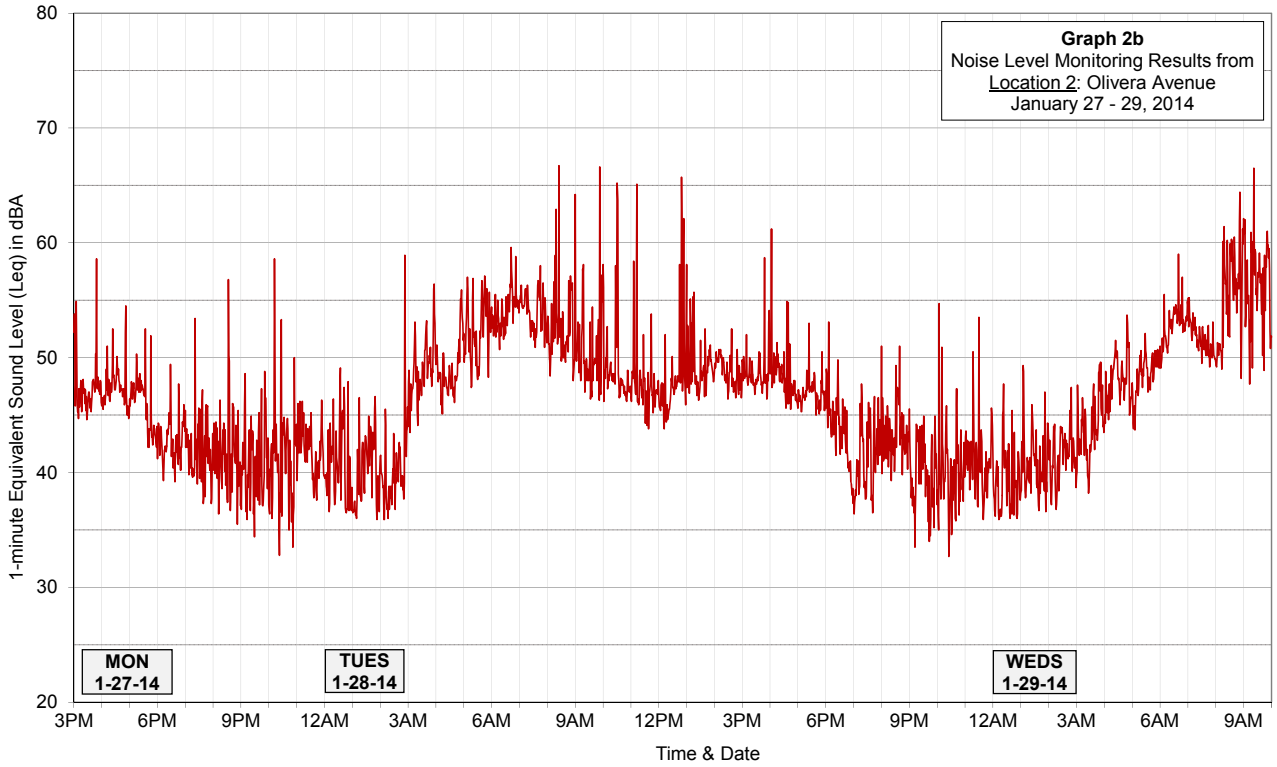
d:\projects\mrs\phillips nipomo\report 1

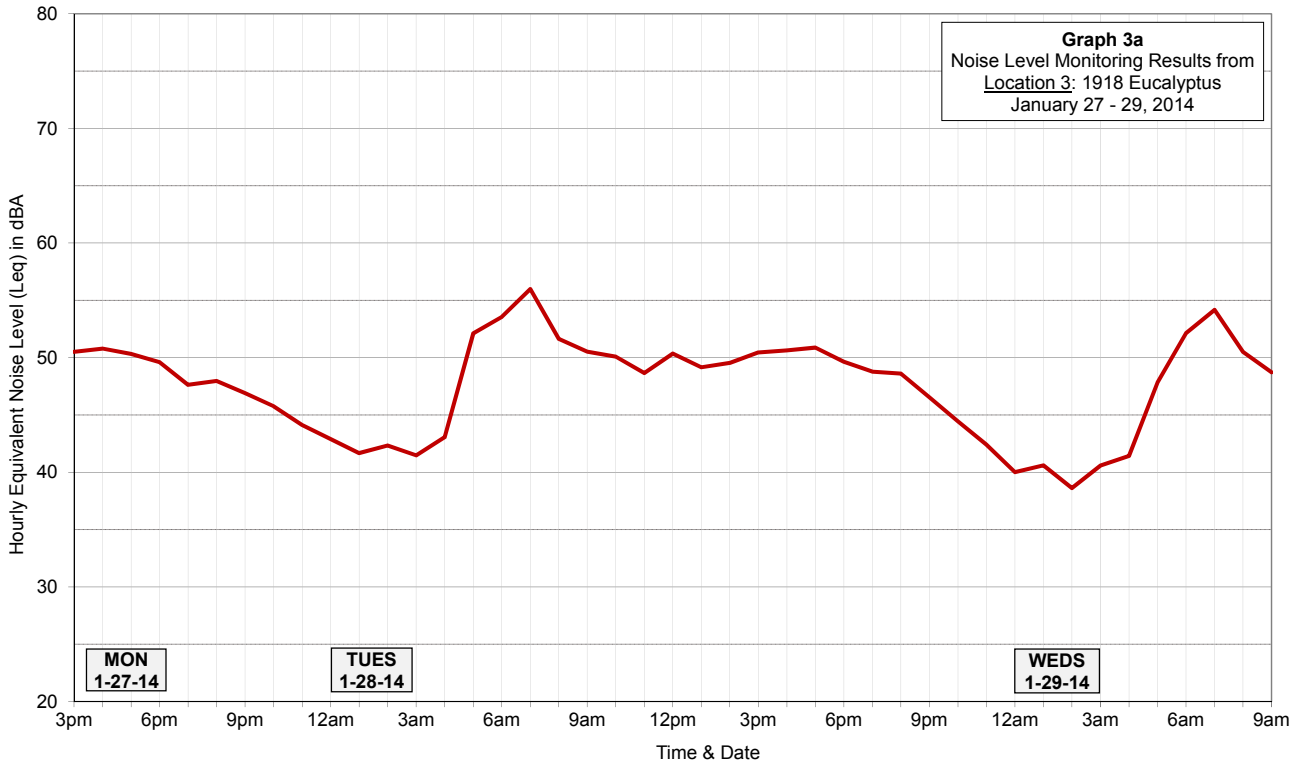
Appendix:
Noise Level Histograms

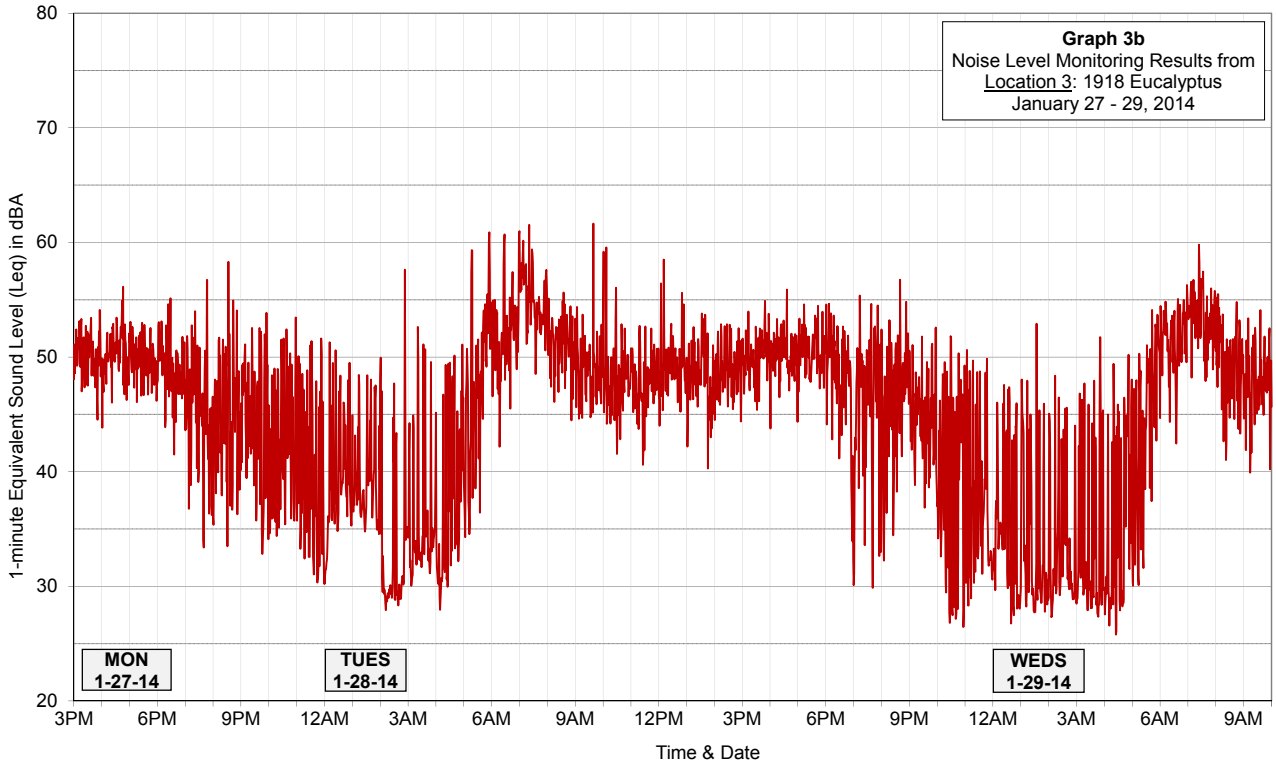





Graph 2a
Noise Level Monitoring Results from
Location 2: Olivera Avenue
January 27 - 29, 2014
Hourly Equivalent Noise Level (Leq) in dBA
80
70
60
50
40
30
20
MON
1-27-14
TUES
1-28-14
WEDS
1-29-14
3pm
6pm
9pm
12am
3am
6am
9am
12pm
3pm
6pm
9pm
12am
3am
6am
9am
Time & Date


Graph 2b
Noise Level Monitoring Results from
Location 2: Olivera Avenue
January 27 - 29, 2014
1-minute Equivalent Sound Level (Leq) in dBA
80
70
60
50
40
30
20
MON
1-27-14
TUES
1-28-14
WEDS
1-29-14
3PM
6PM
9PM
12AM
3AM
6AM
9AM
12PM
3PM
6PM
9PM
12AM
3AM
6AM
9AM
Time & Date


Graph 3a
Noise Level Monitoring Results from
Location 3: 1918 Eucalyptus
January 27 - 29, 2014
Hourly Equivalent Noise Level (Leq) in dBA
80
70
60
50
40
30
20
MON
1-27-14
TUES
1-28-14
WEDS
1-29-14
3pm
6pm
9pm
12am
3am
6am
9am
12pm
3pm
6pm
9pm
12am
3am
6am
9am
Time & Date


Graph 3b
Noise Level Monitoring Results from
Location 3: 1918 Eucalyptus
January 27 - 29, 2014
1-minute Equivalent Sound Level (Leq) in dBA
80
70
60
50
40
30
20
MON
1-27-14
TUES
1-28-14
WEDS
1-29-14
3PM
6PM
9PM
12AM
3AM
6AM
9AM
12PM
3PM
6PM
9PM
12AM
3AM
6AM
9AM
Time & Date

Phillips Rail Spur Project
- "Proposed Project"

Project description

Project title:	Phillips Rail Spur Project
Engineer:	
Customer:	
Description:	

Run description

Calculation:	Single Point Sound
Title:	Proposed Project
Run file:	Noname.runx
Result number:	10
Calculation start:	10/14/2013 4:23:15 PM
Calculation end:	10/14/2013 4:23:17 PM
Calculation time:	00:01:386 [m:s:ms]
No. of points:	21
No. of calculated points:	21
Kernel version:	9/30/2009 (RKernel7.dll)

Run parameters

Reflection order	1
Search radius	5000
Weighting:	dB(A)
Tolerance:	0.01 dB

Standards:

Industry:	ISO 9613-2 : 1996		
Air absorption:	ISO 9613		
Limitation of screening loss:			
	single/multiple	20 dB /25 dB	
Calculation with side screening			
Environment:			
	Air pressure	1013.25 mbar	
	rel. Humidity	70 %	
	Temperature	10 °C	
	Meteo. Corr. C0(7-19h)[dB]=0.0; C0(19-23h)[dB]=0.0; C0(23-7h)[dB]=0.0;		
VDI-Parameters for diffraction			
	C1=3 C2=20		
Dissection parameters:			
	Distance to diameter factor	2	
	Minimal Distance [m]	1 m	
	Max. Difference GND+Diffraction		1 dB
	Max. No. of Iterations	4	

SoundPlan Run Proposed Project with Conservative Pump Level and Line Sources to Tail End
hourly Leq Peak
baseline updated with SR data for Olivera, Louise lane, Trilogy

Name	Leq dB(A) max Hour night	Leq dB(A) max Hour Day	Project CNEL	Baseline: Night	Baseline: Day	Baseline Location	Combined Noise Level: Night	Nightime Noise Level increase, dBA	5dBA Increase Over?	Combined Noise Level: Day	Daytime Noise Level increase, dBA	Noise Sensitive Land Use	Above Noise Element 45 dBA NIghttime?	Above Noise Element 50 dBA Daytime?	Daytime Baseline > 50 and increase < 1dba?
Ag Area	52.57	52.57	56.5	43.6	43.6	Oso Flaco (1)	53.1	9.5		53.1	9.5		NA	NA	-
Gentle Breeze Receptor	37.49	37.49	41.5	43.6	49.3	Monadella St (4)	44.6	1.0	No	49.6	0.3	x	No	No	-
Industrial Residence Receptor	50.96	50.96	55	40.4	49.3	ST Location 3	51.3	10.9		53.2	3.9		NA	NA	-
Lake Receptor	40.37	40.37	44.4	43.6	43.6	Oso Flaco (1)	45.3	1.7		45.3	1.7		NA	NA	-
Louise Lane Receptor	40.83	40.83	45.6	38.6	48.7	Nathan Way (A2)	42.9	4.3	No	49.4	0.7	x	No	No	-
Monadella Receptor	45.41	45.41	49.4	43.6	49.3	Monadella St (4)	47.6	4.0	No	50.8	1.5	x	yes	yes	-
Nathan Way Receptor	41.75	41.75	46.1	40.0	51	Nathan Way (A2)	44.0	4.0	No	51.5	0.5	x	No	yes	ok
Olivera	46.66	46.66	50.7	40.2	43.2	ST Location 3	47.5	7.3	Yes	48.3	5.1	x	yes	No	-
Trilogy Pkwy Receptor	40.91	40.91	45.4	38.6	48.7	Nathan Way (A2)	42.9	4.3	No	49.4	0.7	x	No	No	-
Via Entrade Receptor	40.89	40.89	45.5	45.6	54.5	Highway 1 and Concha (A1)	46.9	1.3		54.7	0.2		NA	NA	-
Winterhaven Receptor	46.37	46.37	50.4	42.0	59.2	Winterhaven (3)	47.7	5.7		59.4	0.2		NA	NA	-

SoundPlan Run with: Mitigated pumps 10db
hourly Leq Peak

Name	Leq dB(A) max Hour night	Leq dB(A) max Hour Day	Project CNEL	Baseline: Night	Baseline: Day	Baseline Location	Combined Noise Level: Night	Nightime Noise Level increase, dBA	5dBA Increase Over?	Combined Noise Level: Day	Daytime Noise Level increase, dBA	Noise Sensitive Land Use	Above Noise Element 45 dBA NIghttime?	Above Noise Element 50 dBA Daytime?	Daytime Baseline > 50 and increase < 1dba?
Ag Area	43.41	43.41	48.3	43.6	43.6	Oso Flaco (1)	46.5	2.9		46.5	2.9		NA	NA	-
Gentle Breeze Receptor	29.09	29.09	33.6	43.6	49.3	Monadella St (4)	43.8	0.2	No	49.3	0.0	x	No	No	-
Industrial Residence Receptor	42.72	42.72	47	40.4	49.3	ST Location 3	44.7	4.3		50.2	0.9		NA	NA	-
Lake Receptor	31.5	31.5	36.4	43.6	43.6	Oso Flaco (1)	43.9	0.3		43.9	0.3		NA	NA	-
Louise Lane Receptor	39.62	39.62	40.4	38.6	48.7	Nathan Way (A2)	42.2	3.6	No	49.2	0.5	x	No	No	-
Monadella Receptor	36.43	36.43	41.4	43.6	49.3	Monadella St (4)	44.4	0.8	No	49.5	0.2	x	No	No	-
Nathan Way Receptor	36.55	36.55	39.3	40.0	51	Nathan Way (A2)	41.6	1.6	No	51.2	0.2	x	No	yes	ok
Olivera	38.91	38.91	42.6	40.2	43.2	ST Location 3	42.6	2.4	No	44.6	1.4	x	No	No	-
Trilogy Pkwy Receptor	37.68	37.68	39.4	38.6	48.7	Nathan Way (A2)	41.2	2.6	No	49.0	0.3	x	No	No	-
Via Entrade Receptor	40.01	40.01	40.6	45.6	54.5	Highway 1 and Concha (A1)	46.7	1.1	No	54.7	0.2		NA	NA	-
Winterhaven Receptor	37.96	37.96	42.3	42.0	59.2	Winterhaven (3)	43.4	1.4		59.2	0.0		NA	NA	-

Phillips Rail Spur Project
- "Proposed Project"

Project description

Project title:	Phillips Rail Spur Project
Engineer:	
Customer:	
Description:	

Run description

Calculation:	Single Point Sound
Title:	Proposed Project
Run file:	Noname.runx
Result number:	10
Calculation start:	6/2/2014 9:42:02 AM
Calculation end:	6/2/2014 9:42:07 AM
Calculation time:	00:02:059 [m:s:ms]
No. of points:	21
No. of calculated points:	21
Kernel version:	9/30/2009 (RKernel7.dll)

Run parameters

Reflection order	1
Search radius	5000
Weighting:	dB(A)
Tolerance:	0.01 dB

Standards:

Industry:	ISO 9613-2 : 1996	
Air absorption:	ISO 9613	
Limitation of screening loss:		
	single/multiple	20 dB /25 dB
Calculation with side screening		
Environment:		
	Air pressure	1013.25 mbar
	rel. Humidity	70 %
	Temperature	10 °C
	Meteo. Corr. C0(7-19h)[dB]=0.0; C0(19-23h)[dB]=0.0; C0(23-7h)[dB]=0.0;	
VDI-Parameters for diffraction		
	C1=3 C2=20	
Dissection parameters:		

Distance to diameter factc2		
Minimal Distance [m]	1 m	
Max. Difference GND+Diffraction		1 dB
Max. No. of Iterations	4	

Assessment: CNEL

Reflection of "own" facade is suppressed

Geometry data

PP Rail.sit	6/2/2014 9:40:30 AM	
- contains:		
Calculation Area.geo	6/1/2014 8:00:12 PM	
Ground attenuation.geo	10/1/2013 10:50:16 AM	
Receptors.geo	10/2/2013 5:10:44 PM	
SNR Boundary.geo	9/27/2013 4:51:36 PM	
Source-locomotive tail end positioning idle pt sources.geo		6/2/2014 9:40:30 AM
Source-pull-in from mainline.geo	6/2/2014 9:40:30 AM	
Source-second train.geo	6/2/2014 9:40:30 AM	
Source-spur track pumping area.geo	6/2/2014 9:40:30 AM	
Source-spur track tail end positioning.geo	6/1/2014 2:40:58 PM	
Source-spur track tail end unloading.geo	6/1/2014 1:55:54 PM	
Source-unloading area equipment.geo	10/2/2013 9:35:58 PM	
rdgmPhillipsRail.dgm	9/28/2013 11:40:32 AM	

Phillips Rail Spur Project
Assessed receiver levels - "Proposed Project"

Name	Ln max hr dB(A)	Leq, max h dB(A)	CNEL dB(A)	
Ag Area	52.57	52.57	56.5	
Gentle Breeze Receptor	37.49	37.49	41.5	
Industrial Residence Receptor	50.96	50.96	55.0	
Lake Receptor	40.37	40.37	44.4	
Louise Lane Receptor	40.83	40.83	45.6	
Monadella Receptor	45.41	45.41	49.4	
Nathan Way Receptor	41.75	41.75	46.1	
Olivera Arcadis-ST Location 3	46.66	46.66	50.7	
Trilogy Pkwy Receptor	40.91	40.91	45.4	
Via Entrade Receptor	40.89	40.89	45.5	
Winterhaven Receptor	46.37	46.37	50.4	
zArcadis-ST Location 2	42.19	42.19	46.3	
zArcadis-ST Location 4	50.80	50.80	54.8	
zFenceline Ag Receptor	65.84	65.84	69.7	
zFenceline2 Ag Receptor	68.10	68.10	72.0	
zFenceline3 Ag Receptor	64.64	64.64	68.5	
zFenceline4 Ag Receptor	60.46	60.46	64.4	
zLocomotive Area Receptor	69.81	69.81	74.3	
zPumping Area Receptor	85.75	85.75	89.6	
zSpur track test N Receptor	71.46	71.46	70.6	
zSpur track test S receptor	77.67	77.67	75.4	

Phillips Rail Spur Project
Hourly sound power level in dB(A) - "Proposed Project"

Source	00-01 AM	01-02 AM	02-03 AM	03-04 AM	04-05 AM	05-06 AM	06-07 AM	07-08 AM	08-09 AM	09-10 AM	10-11 AM	11-12 AM	12-01 PM	01-02 PM	02-03 PM	03-04 PM	04-05 PM	05-06 PM	06-07 PM	07-08 PM	08-09 PM	21-22 PM	10-11 PM	11-12 PM
Locomotive Tail End Idle1	94.3																							
Locomotive Tail End Idle1	94.3																							
Locomotive Tail End Idle2	94.3																							
Locomotive Tail End Idle2	94.3																							
Rail: trail from mainline																								117.6
Rail: Spur to tail second train track		117.8																						
Spur rail west end switching		108.5	108.5	108.5	108.5	108.5	108.5	108.5	108.5															
Locomotive Unloading Idle	97.2	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7															
Locomotive Unloading Idle	97.2	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7															
Rail: Spur Positioning 2 locos loaded	113.8																							
Rail: Spur Positioning loco 1 idle 1 loa	118.2																							
Pump		110.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4														
Pump		110.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4														
Pump		110.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4														
Pump		110.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4														
Pump		110.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4														
Pump		110.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4														
Pump		110.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4														
Pump		110.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4														
Pump		110.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4														
Pump		110.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4														
Pump		110.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4														
Pump		110.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4														
Pump		110.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4														
Pump		110.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4														
Pump		110.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4														
Pump		110.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4														
Pump		110.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4														
Pump		110.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4														
Transformer		96.9	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5														
Transformer		96.9	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5														
Air Compressor		112.1	114.7	114.7	114.7	114.7	114.7	114.7	114.7	114.7														
HVAC		96.9	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5														

Phillips Rail Spur Project
Hourly contribution level in dB(A) - "Proposed Project"

Name	00-01 AM	01-02 AM	02-03 AM	03-04 AM	04-05 AM	05-06 AM	06-07 AM	07-08 AM	08-09 AM	09-10 AM	10-11 AM	11-12 AM	12-01 PM	01-02 PM	02-03 PM	03-04 PM	04-05 PM	05-06 PM	06-07 PM	07-08 PM	08-09 PM	09-10 PM	10-11 PM	11-12 PM	Leq, max h
Name Ag Area	Leq, max h	52.57				dB(A)																			
Locomotive Tail End Idle1	14.3																								
Locomotive Tail End Idle1	14.2																								
Locomotive Tail End Idle2	10.1																								
Locomotive Tail End Idle2	10.1																								
Rail: trail from mainline																								42.5	
Rail: Spur to tail second train track		36.9																							
Spur rail west end switching		34.7	34.7	34.7	34.7	34.7	34.7	34.7	34.7																34.66
Locomotive Unloading Idle	25.0	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6																28.55
Locomotive Unloading Idle	24.5	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0																27.99
Rail: Spur Positioning 2 locos	33.7																								
Rail: Spur Positioning loco 1 idle 1	38.0																								
Pump		36.6	39.6	39.6	39.6	39.6	39.6	39.6	39.6	39.6															39.62
Pump		36.4	39.5	39.5	39.5	39.5	39.5	39.5	39.5	39.5															39.45
Pump		36.3	39.3	39.3	39.3	39.3	39.3	39.3	39.3	39.3															39.32
Pump		36.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2															39.20
Pump		36.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1															39.09
Pump		36.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0															38.98
Pump		35.9	38.9	38.9	38.9	38.9	38.9	38.9	38.9	38.9															38.87
Pump		35.8	38.8	38.8	38.8	38.8	38.8	38.8	38.8	38.8															38.76
Pump		35.6	38.7	38.7	38.7	38.7	38.7	38.7	38.7	38.7															38.66
Pump		35.5	38.5	38.5	38.5	38.5	38.5	38.5	38.5	38.5															38.55
Pump		35.7	38.7	38.7	38.7	38.7	38.7	38.7	38.7	38.7															38.75
Pump		35.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6															38.63
Pump		35.8	38.9	38.9	38.9	38.9	38.9	38.9	38.9	38.9															38.85
Pump		36.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0															38.96
Pump		36.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1															39.07
Pump		36.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2															39.19
Pump		36.3	39.3	39.3	39.3	39.3	39.3	39.3	39.3	39.3															39.30
Pump		36.4	39.4	39.4	39.4	39.4	39.4	39.4	39.4	39.4															39.42
Pump		36.6	39.6	39.6	39.6	39.6	39.6	39.6	39.6	39.6															39.57
Pump		36.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7															39.72
Transformer		22.5	25.1	25.1	25.1	25.1	25.1	25.1	25.1	25.1															25.09
Transformer		22.6	25.2	25.2	25.2	25.2	25.2	25.2	25.2	25.2															25.16

Phillips Rail Spur Project
Hourly contribution level in dB(A) - "Proposed Project"

Name	00-01 AM	01-02 AM	02-03 AM	03-04 AM	04-05 AM	05-06 AM	06-07 AM	07-08 AM	08-09 AM	09-10 AM	10-11 AM	11-12 AM	12-01 PM	01-02 PM	02-03 PM	03-04 PM	04-05 PM	05-06 PM	06-07 PM	07-08 PM	08-09 PM	09-10 PM	10-11 PM	11-12 PM	Leq, max h
Air Compressor		38.4	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0															40.95
HVAC		22.8	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4															25.42
Remaining Sources (best guess)	-	-								-														-	
Name Gentle Breeze Receptor	Leq, max h	37.49				dB(A)																			
Locomotive Tail End Idle1	-3.0																								
Locomotive Tail End Idle1	-3.0																								
Locomotive Tail End Idle2	-5.0																								
Locomotive Tail End Idle2	-5.0																								
Rail: trail from mainline																								29.1	
Rail: Spur to tail second train track		25.4																							
Spur rail west end switching		18.7	18.7	18.7	18.7	18.7	18.7	18.7	18.7																18.67
Locomotive Unloading Idle	12.1	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7																15.65
Locomotive Unloading Idle	11.9	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4																15.43
Rail: Spur Positioning 2 locos	16.5																								
Rail: Spur Positioning loco 1 idle 1	21.0																								
Pump		19.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7															22.75
Pump		19.9	22.9	22.9	22.9	22.9	22.9	22.9	22.9	22.9															22.90
Pump		20.1	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2															23.16
Pump		20.4	23.4	23.4	23.4	23.4	23.4	23.4	23.4	23.4															23.41
Pump		20.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6															23.59
Pump		20.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7															23.74
Pump		21.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3															24.26
Pump		20.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1															23.08
Pump		20.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1															23.09
Pump		22.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5															25.47
Pump		21.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5															24.52
Pump		22.3	25.3	25.3	25.3	25.3	25.3	25.3	25.3	25.3															25.34
Pump		21.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5															24.54
Pump		21.6	24.6	24.6	24.6	24.6	24.6	24.6	24.6	24.6															24.58
Pump		20.9	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0															23.96
Pump		20.8	23.8	23.8	23.8	23.8	23.8	23.8	23.8	23.8															23.79
Pump		20.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6															23.61
Pump		20.4	23.4	23.4	23.4	23.4	23.4	23.4	23.4	23.4															23.38
Pump		20.2	23.3	23.3	23.3	23.3	23.3	23.3	23.3	23.3															23.25

Phillips Rail Spur Project
Hourly contribution level in dB(A) - "Proposed Project"

Name	00-01 AM	01-02 AM	02-03 AM	03-04 AM	04-05 AM	05-06 AM	06-07 AM	07-08 AM	08-09 AM	09-10 AM	10-11 AM	11-12 AM	12-01 PM	01-02 PM	02-03 PM	03-04 PM	04-05 PM	05-06 PM	06-07 PM	07-08 PM	08-09 PM	09-10 PM	10-11 PM	11-12 PM	Leq, max h
Pump		24.7	27.7	27.7	27.7	27.7	27.7	27.7	27.7	27.7															27.73
Transformer		5.7	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3															8.32
Transformer		5.7	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3															8.30
Air Compressor		20.5	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1															23.14
HVAC		5.5	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1															8.12
Remaining Sources (best guess)	-																							-	
Name Industrial Residence	Leq, max h	50.96				dB(A)																			
Locomotive Tail End Idle1	15.7																								
Locomotive Tail End Idle1	15.7																								
Locomotive Tail End Idle2	12.7																								
Locomotive Tail End Idle2	12.8																								
Rail: trail from mainline																								40.2	
Rail: Spur to tail second train track		40.1																							
Spur rail west end switching		32.5	32.5	32.5	32.5	32.5	32.5	32.5	32.5																32.53
Locomotive Unloading Idle	20.6	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1																24.10
Locomotive Unloading Idle	20.8	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3																24.33
Rail: Spur Positioning 2 locos	35.7																								
Rail: Spur Positioning loco 1 idle 1	40.1																								
Pump		34.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4															37.45
Pump		34.5	37.5	37.5	37.5	37.5	37.5	37.5	37.5	37.5															37.48
Pump		34.5	37.5	37.5	37.5	37.5	37.5	37.5	37.5	37.5															37.55
Pump		34.5	37.6	37.6	37.6	37.6	37.6	37.6	37.6	37.6															37.56
Pump		34.6	37.6	37.6	37.6	37.6	37.6	37.6	37.6	37.6															37.60
Pump		34.7	37.7	37.7	37.7	37.7	37.7	37.7	37.7	37.7															37.69
Pump		34.7	37.7	37.7	37.7	37.7	37.7	37.7	37.7	37.7															37.71
Pump		34.7	37.7	37.7	37.7	37.7	37.7	37.7	37.7	37.7															37.73
Pump		34.7	37.7	37.7	37.7	37.7	37.7	37.7	37.7	37.7															37.75
Pump		34.8	37.8	37.8	37.8	37.8	37.8	37.8	37.8	37.8															37.77
Pump		34.6	37.6	37.6	37.6	37.6	37.6	37.6	37.6	37.6															37.60
Pump		34.6	37.6	37.6	37.6	37.6	37.6	37.6	37.6	37.6															37.62
Pump		34.6	37.6	37.6	37.6	37.6	37.6	37.6	37.6	37.6															37.57
Pump		34.5	37.6	37.6	37.6	37.6	37.6	37.6	37.6	37.6															37.55
Pump		34.5	37.5	37.5	37.5	37.5	37.5	37.5	37.5	37.5															37.54
Pump		34.4	37.5	37.5	37.5	37.5	37.5	37.5	37.5	37.5															37.46

Phillips Rail Spur Project
Hourly contribution level in dB(A) - "Proposed Project"

Name	00-01 AM	01-02 AM	02-03 AM	03-04 AM	04-05 AM	05-06 AM	06-07 AM	07-08 AM	08-09 AM	09-10 AM	10-11 AM	11-12 AM	12-01 PM	01-02 PM	02-03 PM	03-04 PM	04-05 PM	05-06 PM	06-07 PM	07-08 PM	08-09 PM	09-10 PM	10-11 PM	11-12 PM	Leq, max h
Pump		34.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4															37.41
Pump		34.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4															37.40
Pump		34.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4															37.36
Pump		34.3	37.3	37.3	37.3	37.3	37.3	37.3	37.3	37.3															37.30
Transformer		21.3	23.9	23.9	23.9	23.9	23.9	23.9	23.9	23.9															23.90
Transformer		21.3	23.9	23.9	23.9	23.9	23.9	23.9	23.9	23.9															23.88
Air Compressor		36.3	38.9	38.9	38.9	38.9	38.9	38.9	38.9	38.9															38.90
HVAC		21.2	23.8	23.8	23.8	23.8	23.8	23.8	23.8	23.8															23.78
Remaining Sources (best guess)	-	-																						-	
Name Lake Receptor	Leq, max h	40.37				dB(A)																			
Locomotive Tail End Idle1	4.8																								
Locomotive Tail End Idle1	4.8																								
Locomotive Tail End Idle2	2.2																								
Locomotive Tail End Idle2	2.2																								
Rail: trail from mainline																								30.4	
Rail: Spur to tail second train track		28.1																							
Spur rail west end switching		22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2																22.25
Locomotive Unloading Idle	11.8	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3																15.26
Locomotive Unloading Idle	11.5	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0																15.00
Rail: Spur Positioning 2 locos	24.1																								
Rail: Spur Positioning loco 1 idle 1	28.5																								
Pump		24.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2															27.22
Pump		24.1	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2															27.16
Pump		24.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1															27.10
Pump		24.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0															27.04
Pump		23.9	26.9	26.9	26.9	26.9	26.9	26.9	26.9	26.9															26.91
Pump		23.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8															26.84
Pump		23.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8															26.80
Pump		23.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7															26.74
Pump		23.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7															26.69
Pump		23.6	26.6	26.6	26.6	26.6	26.6	26.6	26.6	26.6															26.63
Pump		23.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7															26.73
Pump		23.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7															26.68
Pump		23.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8															26.78

Phillips Rail Spur Project
Hourly contribution level in dB(A) - "Proposed Project"

Name	00-01 AM	01-02 AM	02-03 AM	03-04 AM	04-05 AM	05-06 AM	06-07 AM	07-08 AM	08-09 AM	09-10 AM	10-11 AM	11-12 AM	12-01 PM	01-02 PM	02-03 PM	03-04 PM	04-05 PM	05-06 PM	06-07 PM	07-08 PM	08-09 PM	09-10 PM	10-11 PM	11-12 PM	Leq, max h
Pump		23.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8															26.84
Pump		23.9	26.9	26.9	26.9	26.9	26.9	26.9	26.9	26.9															26.89
Pump		23.9	26.9	26.9	26.9	26.9	26.9	26.9	26.9	26.9															26.95
Pump		24.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0															27.00
Pump		24.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1															27.14
Pump		24.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2															27.21
Pump		24.3	27.3	27.3	27.3	27.3	27.3	27.3	27.3	27.3															27.27
Transformer		10.4	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0															12.97
Transformer		10.5	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1															13.05
Air Compressor		26.0	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6															28.58
HVAC		10.6	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2															13.20
Remaining Sources (best guess)		-	-	-	-	-	-	-	-	-															
Name Louise Lane Receptor	Leq, max h	40.83				dB(A)																			
Locomotive Tail End Idle1	12.3																								
Locomotive Tail End Idle1	12.4																								
Locomotive Tail End Idle2	16.7																								
Locomotive Tail End Idle2	16.8																								
Rail: trail from mainline																								35.0	
Rail: Spur to tail second train track		37.8																							37.76
Spur rail west end switching		22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4																22.40
Locomotive Unloading Idle	10.0	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5																13.55
Locomotive Unloading Idle	10.4	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9																13.86
Rail: Spur Positioning 2 locos	33.8																								
Rail: Spur Positioning loco 1 idle 1	38.2																								
Pump		24.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1															24.10
Pump		24.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2															24.17
Pump		24.2	27.3	27.3	27.3	27.3	27.3	27.3	27.3	27.3															24.25
Pump		24.3	27.3	27.3	27.3	27.3	27.3	27.3	27.3	27.3															24.32
Pump		24.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4															24.38
Pump		24.4	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5															24.45
Pump		24.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5															24.51
Pump		24.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6															24.57
Pump		24.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6															24.63
Pump		24.7	27.7	27.7	27.7	27.7	27.7	27.7	27.7	27.7															24.70

Phillips Rail Spur Project
Hourly contribution level in dB(A) - "Proposed Project"

Name	00-01 AM	01-02 AM	02-03 AM	03-04 AM	04-05 AM	05-06 AM	06-07 AM	07-08 AM	08-09 AM	09-10 AM	10-11 AM	11-12 AM	12-01 PM	01-02 PM	02-03 PM	03-04 PM	04-05 PM	05-06 PM	06-07 PM	07-08 PM	08-09 PM	09-10 PM	10-11 PM	11-12 PM	Leq, max h
Pump		24.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6															24.62
Pump		24.7	27.7	27.7	27.7	27.7	27.7	27.7	27.7	27.7															24.68
Pump		24.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6															24.56
Pump		24.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5															24.49
Pump		24.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4															24.43
Pump		24.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4															24.36
Pump		24.3	27.3	27.3	27.3	27.3	27.3	27.3	27.3	27.3															24.30
Pump		24.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2															24.23
Pump		24.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2															24.15
Pump		24.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1															24.08
Transformer		10.9	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5															10.94
Transformer		10.9	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5															10.90
Air Compressor		25.8	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4															25.79
HVAC		10.7	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3															10.71
Remaining Sources (best guess)		-																						-	
Name Monadella Receptor	Leq, max h	45.41				dB(A)																			
Locomotive Tail End Idle1	9.7																								
Locomotive Tail End Idle1	9.7																								
Locomotive Tail End Idle2	6.8																								
Locomotive Tail End Idle2	6.8																								
Rail: trail from mainline																								35.5	
Rail: Spur to tail second train track		32.9																							
Spur rail west end switching		27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1																27.14
Locomotive Unloading Idle	16.8	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3																20.31
Locomotive Unloading Idle	16.5	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0																20.02
Rail: Spur Positioning 2 locos	29.0																								
Rail: Spur Positioning loco 1 idle 1	33.4																								
Pump		29.3	32.3	32.3	32.3	32.3	32.3	32.3	32.3	32.3															32.27
Pump		29.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2															32.20
Pump		29.1	32.1	32.1	32.1	32.1	32.1	32.1	32.1	32.1															32.14
Pump		29.1	32.1	32.1	32.1	32.1	32.1	32.1	32.1	32.1															32.08
Pump		29.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0															32.03
Pump		29.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0															31.97
Pump		28.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9															31.92

Phillips Rail Spur Project
Hourly contribution level in dB(A) - "Proposed Project"

Name	00-01 AM	01-02 AM	02-03 AM	03-04 AM	04-05 AM	05-06 AM	06-07 AM	07-08 AM	08-09 AM	09-10 AM	10-11 AM	11-12 AM	12-01 PM	01-02 PM	02-03 PM	03-04 PM	04-05 PM	05-06 PM	06-07 PM	07-08 PM	08-09 PM	09-10 PM	10-11 PM	11-12 PM	Leq, max h
Pump		28.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9															31.87
Pump		28.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8															31.81
Pump		28.7	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8															31.76
Pump		28.7	31.7	31.7	31.7	31.7	31.7	31.7	31.7	31.7															31.73
Pump		28.7	31.7	31.7	31.7	31.7	31.7	31.7	31.7	31.7															31.68
Pump		28.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8															31.78
Pump		28.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8															31.84
Pump		28.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9															31.89
Pump		28.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9															31.94
Pump		29.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0															31.99
Pump		29.0	32.1	32.1	32.1	32.1	32.1	32.1	32.1	32.1															32.06
Pump		29.1	32.1	32.1	32.1	32.1	32.1	32.1	32.1	32.1															32.12
Pump		29.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2															32.18
Transformer		15.6	18.2	18.2	18.2	18.2	18.2	18.2	18.2	18.2															18.25
Transformer		15.7	18.3	18.3	18.3	18.3	18.3	18.3	18.3	18.3															18.28
Air Compressor		31.2	33.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8															33.80
HVAC		15.8	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4															18.42
Remaining Sources (best guess)										-															
Name Nathan Way Receptor	Leq, max h	41.75				dB(A)																			
Locomotive Tail End Idle1	11.8																								
Locomotive Tail End Idle1	11.8																								
Locomotive Tail End Idle2	10.4																								
Locomotive Tail End Idle2	10.4																								
Rail: trail from mainline																								33.6	
Rail: Spur to tail second train track		35.1																							
Spur rail west end switching		23.4	23.4	23.4	23.4	23.4	23.4	23.4	23.4																23.36
Locomotive Unloading Idle	11.3	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8																14.76
Locomotive Unloading Idle	11.5	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0																15.01
Rail: Spur Positioning 2 locos	30.7																								
Rail: Spur Positioning loco 1 idle 1	35.2																								
Pump		25.1	28.2	28.2	28.2	28.2	28.2	28.2	28.2	28.2															28.15
Pump		25.2	28.2	28.2	28.2	28.2	28.2	28.2	28.2	28.2															28.21
Pump		25.3	28.3	28.3	28.3	28.3	28.3	28.3	28.3	28.3															28.27
Pump		25.3	28.3	28.3	28.3	28.3	28.3	28.3	28.3	28.3															28.32

Phillips Rail Spur Project
Hourly contribution level in dB(A) - "Proposed Project"

Name	00-01 AM	01-02 AM	02-03 AM	03-04 AM	04-05 AM	05-06 AM	06-07 AM	07-08 AM	08-09 AM	09-10 AM	10-11 AM	11-12 AM	12-01 PM	01-02 PM	02-03 PM	03-04 PM	04-05 PM	05-06 PM	06-07 PM	07-08 PM	08-09 PM	09-10 PM	10-11 PM	11-12 PM	Leq, max h
Pump		25.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4															28.37
Pump		25.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4															28.42
Pump		25.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5															28.47
Pump		25.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5															28.52
Pump		25.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6															28.56
Pump		25.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6															28.61
Pump		25.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5															28.50
Pump		25.5	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6															28.55
Pump		25.4	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5															28.46
Pump		25.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4															28.41
Pump		25.3	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4															28.36
Pump		25.3	28.3	28.3	28.3	28.3	28.3	28.3	28.3	28.3															28.31
Pump		25.2	28.3	28.3	28.3	28.3	28.3	28.3	28.3	28.3															28.26
Pump		25.2	28.2	28.2	28.2	28.2	28.2	28.2	28.2	28.2															28.21
Pump		25.1	28.1	28.1	28.1	28.1	28.1	28.1	28.1	28.1															28.15
Pump		25.1	28.1	28.1	28.1	28.1	28.1	28.1	28.1	28.1															28.09
Transformer		12.0	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6															14.56
Transformer		11.9	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5															14.54
Air Compressor		26.9	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5															29.50
HVAC		11.8	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4															14.39
Remaining Sources (best guess)			-	-	-	-	-	-	-	-															
Name Olivera Arcadis-ST Location	Leq, max h	46.66				dB(A)																			
Locomotive Tail End Idle1	9.5																								
Locomotive Tail End Idle1	9.4																								
Locomotive Tail End Idle2	6.4																								
Locomotive Tail End Idle2	6.4																								
Rail: trail from mainline																								35.3	
Rail: Spur to tail second train track		36.6																							
Spur rail west end switching		28.3	28.3	28.3	28.3	28.3	28.3	28.3	28.3																28.28
Locomotive Unloading Idle	16.2	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7																19.70
Locomotive Unloading Idle	16.3	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8																19.84
Rail: Spur Positioning 2 locos	29.9																								
Rail: Spur Positioning loco 1 idle 1	34.4																								
Pump		30.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1															33.12

Phillips Rail Spur Project
Hourly contribution level in dB(A) - "Proposed Project"

Name	00-01 AM	01-02 AM	02-03 AM	03-04 AM	04-05 AM	05-06 AM	06-07 AM	07-08 AM	08-09 AM	09-10 AM	10-11 AM	11-12 AM	12-01 PM	01-02 PM	02-03 PM	03-04 PM	04-05 PM	05-06 PM	06-07 PM	07-08 PM	08-09 PM	09-10 PM	10-11 PM	11-12 PM	Leq, max h
Pump		30.2	33.2	33.2	33.2	33.2	33.2	33.2	33.2	33.2															33.17
Pump		30.2	33.2	33.2	33.2	33.2	33.2	33.2	33.2	33.2															33.22
Pump		30.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3															33.27
Pump		30.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3															33.32
Pump		30.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4															33.37
Pump		30.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4															33.41
Pump		30.4	33.5	33.5	33.5	33.5	33.5	33.5	33.5	33.5															33.46
Pump		30.5	33.5	33.5	33.5	33.5	33.5	33.5	33.5	33.5															33.50
Pump		30.5	33.5	33.5	33.5	33.5	33.5	33.5	33.5	33.5															33.54
Pump		30.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4															33.40
Pump		30.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4															33.44
Pump		30.3	33.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4															33.35
Pump		30.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3															33.31
Pump		30.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3															33.27
Pump		30.2	33.2	33.2	33.2	33.2	33.2	33.2	33.2	33.2															33.22
Pump		30.2	33.2	33.2	33.2	33.2	33.2	33.2	33.2	33.2															33.17
Pump		30.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1															33.13
Pump		30.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1															33.07
Pump		30.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0															33.02
Transformer		17.0	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6															19.56
Transformer		16.9	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5															19.53
Air Compressor		31.5	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1															34.09
HVAC		16.8	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4															19.40
Remaining Sources (best guess)	-	-	-	-	-	-	-	-	-																
Name Trilogy Pkwy Receptor	Leq, max h	40.91				dB(A)																			
Locomotive Tail End Idle1	11.9																								
Locomotive Tail End Idle1	12.0																								
Locomotive Tail End Idle2	14.6																								
Locomotive Tail End Idle2	14.6																								
Rail: trail from mainline																								33.8	
Rail: Spur to tail second train track		36.3																							
Spur rail west end switching		22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5																22.52
Locomotive Unloading Idle	10.2	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.8																13.76
Locomotive Unloading Idle	10.5	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0																14.05

SoundPLAN 7.0

Phillips Rail Spur Project
Hourly contribution level in dB(A) - "Proposed Project"

Name	00-01 AM	01-02 AM	02-03 AM	03-04 AM	04-05 AM	05-06 AM	06-07 AM	07-08 AM	08-09 AM	09-10 AM	10-11 AM	11-12 AM	12-01 PM	01-02 PM	02-03 PM	03-04 PM	04-05 PM	05-06 PM	06-07 PM	07-08 PM	08-09 PM	09-10 PM	10-11 PM	11-12 PM	Leq, max h
Rail: Spur Positioning 2 locos	31.8																								
Rail: Spur Positioning loco 1 idle 1	36.3																								
Pump		24.2	27.3	27.3	27.3	27.3	27.3	27.3	27.3	27.3															27.26
Pump		24.3	27.3	27.3	27.3	27.3	27.3	27.3	27.3	27.3															27.32
Pump		24.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4															27.39
Pump		24.4	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5															27.46
Pump		24.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5															27.52
Pump		24.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6															27.58
Pump		24.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6															27.63
Pump		24.7	27.7	27.7	27.7	27.7	27.7	27.7	27.7	27.7															27.69
Pump		24.7	27.7	27.7	27.7	27.7	27.7	27.7	27.7	27.7															27.75
Pump		24.8	27.8	27.8	27.8	27.8	27.8	27.8	27.8	27.8															27.81
Pump		24.7	27.7	27.7	27.7	27.7	27.7	27.7	27.7	27.7															27.71
Pump		24.8	27.8	27.8	27.8	27.8	27.8	27.8	27.8	27.8															27.77
Pump		24.6	27.7	27.7	27.7	27.7	27.7	27.7	27.7	27.7															27.66
Pump		24.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6															27.60
Pump		24.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5															27.54
Pump		24.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5															27.48
Pump		24.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4															27.42
Pump		24.3	27.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4															27.36
Pump		24.3	27.3	27.3	27.3	27.3	27.3	27.3	27.3	27.3															27.29
Pump		24.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2															27.22
Transformer		11.1	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7															13.67
Transformer		11.0	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6															13.64
Air Compressor		26.0	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6															28.56
HVAC		10.9	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5															13.47
Remaining Sources (best guess)	-																								
Name Via Entrade Receptor	Leq, max h	40.89				dB(A)																			
Locomotive Tail End Idle1	12.2																								
Locomotive Tail End Idle1	12.3																								
Locomotive Tail End Idle2	17.3																								
Locomotive Tail End Idle2	17.4																								
Rail: trail from mainline																								35.0	
Rail: Spur to tail second train track		38.1																							38.13

Phillips Rail Spur Project
Hourly contribution level in dB(A) - "Proposed Project"

Name	00-01 AM	01-02 AM	02-03 AM	03-04 AM	04-05 AM	05-06 AM	06-07 AM	07-08 AM	08-09 AM	09-10 AM	10-11 AM	11-12 AM	12-01 PM	01-02 PM	02-03 PM	03-04 PM	04-05 PM	05-06 PM	06-07 PM	07-08 PM	08-09 PM	09-10 PM	10-11 PM	11-12 PM	Leq, max h
Spur rail west end switching		22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0																22.04
Locomotive Unloading Idle	9.7	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2																13.24
Locomotive Unloading Idle	10.1	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6																13.57
Rail: Spur Positioning 2 locos	34.2																								
Rail: Spur Positioning loco 1 idle 1	38.6																								
Pump		23.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8															23.81
Pump		23.9	26.9	26.9	26.9	26.9	26.9	26.9	26.9	26.9															23.89
Pump		24.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0															23.97
Pump		24.0	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1															24.04
Pump		24.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1															24.11
Pump		24.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2															24.17
Pump		24.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2															24.23
Pump		24.3	27.3	27.3	27.3	27.3	27.3	27.3	27.3	27.3															24.30
Pump		24.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4															24.37
Pump		24.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4															24.44
Pump		24.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4															24.37
Pump		24.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4															24.43
Pump		24.3	27.3	27.3	27.3	27.3	27.3	27.3	27.3	27.3															24.31
Pump		24.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2															24.24
Pump		24.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2															24.17
Pump		24.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1															24.11
Pump		24.0	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1															24.04
Pump		24.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0															23.97
Pump		23.9	26.9	26.9	26.9	26.9	26.9	26.9	26.9	26.9															23.89
Pump		23.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8															23.81
Transformer		10.7	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2															10.65
Transformer		10.6	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2															10.62
Air Compressor		25.5	28.1	28.1	28.1	28.1	28.1	28.1	28.1	28.1															25.50
HVAC		10.4	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0															10.42
Remaining Sources (best guess)																								-	
Name Winterhaven Receptor	Leq, max h	46.37				dB(A)																			
Locomotive Tail End Idle1	11.2																								
Locomotive Tail End Idle1	11.3																								
Locomotive Tail End Idle2	6.8																								

Phillips Rail Spur Project
Hourly contribution level in dB(A) - "Proposed Project"

Name	00-01 AM	01-02 AM	02-03 AM	03-04 AM	04-05 AM	05-06 AM	06-07 AM	07-08 AM	08-09 AM	09-10 AM	10-11 AM	11-12 AM	12-01 PM	01-02 PM	02-03 PM	03-04 PM	04-05 PM	05-06 PM	06-07 PM	07-08 PM	08-09 PM	09-10 PM	10-11 PM	11-12 PM	Leq, max h
Locomotive Tail End Idle2	6.8																								
Rail: trail from mainline																								36.0	
Rail: Spur to tail second train track		34.9																							
Spur rail west end switching		28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5																28.49
Locomotive Unloading Idle	18.2	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7																21.71
Locomotive Unloading Idle	18.0	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5																21.55
Rail: Spur Positioning 2 locos	29.0																								
Rail: Spur Positioning loco 1 idle 1	33.5																								
Pump		30.5	33.5	33.5	33.5	33.5	33.5	33.5	33.5	33.5															33.51
Pump		30.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4															33.45
Pump		30.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4															33.39
Pump		30.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3															33.35
Pump		28.2	31.2	31.2	31.2	31.2	31.2	31.2	31.2	31.2															31.23
Pump		28.3	31.3	31.3	31.3	31.3	31.3	31.3	31.3	31.3															31.34
Pump		28.4	31.4	31.4	31.4	31.4	31.4	31.4	31.4	31.4															31.42
Pump		30.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3															33.30
Pump		30.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3															33.28
Pump		30.2	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3															33.26
Pump		30.2	33.2	33.2	33.2	33.2	33.2	33.2	33.2	33.2															33.23
Pump		30.2	33.2	33.2	33.2	33.2	33.2	33.2	33.2	33.2															33.21
Pump		30.2	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3															33.25
Pump		30.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3															33.27
Pump		30.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3															33.28
Pump		30.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3															33.29
Pump		30.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3															33.32
Pump		30.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4															33.38
Pump		30.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4															33.43
Pump		30.5	33.5	33.5	33.5	33.5	33.5	33.5	33.5	33.5															33.50
Transformer		14.0	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6															16.60
Transformer		13.9	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5															16.49
Air Compressor		29.3	31.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9															31.86
HVAC		13.6	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2															16.24
Remaining Sources (best guess)	-																								
Name zArcadis-ST Location 2	Leq, max h	42.19				dB(A)																			

Phillips Rail Spur Project
Hourly contribution level in dB(A) - "Proposed Project"

Name	00-01 AM	01-02 AM	02-03 AM	03-04 AM	04-05 AM	05-06 AM	06-07 AM	07-08 AM	08-09 AM	09-10 AM	10-11 AM	11-12 AM	12-01 PM	01-02 PM	02-03 PM	03-04 PM	04-05 PM	05-06 PM	06-07 PM	07-08 PM	08-09 PM	09-10 PM	10-11 PM	11-12 PM	Leq, max h
Locomotive Tail End Idle1	4.9																								
Locomotive Tail End Idle1	4.8																								
Locomotive Tail End Idle2	4.6																								
Locomotive Tail End Idle2	4.6																								
Rail: trail from mainline																								31.8	
Rail: Spur to tail second train track		32.9																							
Spur rail west end switching		23.8	23.8	23.8	23.8	23.8	23.8	23.8	23.8																23.80
Locomotive Unloading Idle	11.7	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2																15.24
Locomotive Unloading Idle	11.9	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4																15.43
Rail: Spur Positioning 2 locos	26.8																								
Rail: Spur Positioning loco 1 idle 1	31.2																								
Pump		25.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6															28.60
Pump		25.6	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7															28.66
Pump		25.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7															28.71
Pump		25.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8															28.76
Pump		25.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8															28.81
Pump		25.8	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9															28.86
Pump		25.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9															28.90
Pump		25.9	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0															28.95
Pump		26.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0															29.00
Pump		26.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0															29.04
Pump		25.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9															28.93
Pump		26.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0															28.98
Pump		25.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9															28.88
Pump		25.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8															28.84
Pump		25.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8															28.79
Pump		25.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7															28.75
Pump		25.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7															28.70
Pump		25.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6															28.65
Pump		25.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6															28.59
Pump		25.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5															28.54
Transformer		12.4	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0															15.01
Transformer		12.4	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0															14.99
Air Compressor		27.4	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0															29.96

Phillips Rail Spur Project
Hourly contribution level in dB(A) - "Proposed Project"

Name	00-01 AM	01-02 AM	02-03 AM	03-04 AM	04-05 AM	05-06 AM	06-07 AM	07-08 AM	08-09 AM	09-10 AM	10-11 AM	11-12 AM	12-01 PM	01-02 PM	02-03 PM	03-04 PM	04-05 PM	05-06 PM	06-07 PM	07-08 PM	08-09 PM	09-10 PM	10-11 PM	11-12 PM	Leq, max h
HVAC		12.3	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8															14.85
Remaining Sources (best guess)		-	-	-	-	-	-	-	-	-															
Name zArcadis-ST Location 4	Leq, max h	50.80				dB(A)																			
Locomotive Tail End Idle1	16.7																								
Locomotive Tail End Idle1	16.8																								
Locomotive Tail End Idle2	11.9																								
Locomotive Tail End Idle2	12.0																								
Rail: trail from mainline																								40.4	
Rail: Spur to tail second train track		39.8																							
Spur rail west end switching		32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4																32.37
Locomotive Unloading Idle	20.6	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1																24.15
Locomotive Unloading Idle	20.8	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3																24.32
Rail: Spur Positioning 2 locos	35.7																								
Rail: Spur Positioning loco 1 idle 1	40.1																								
Pump		34.3	37.3	37.3	37.3	37.3	37.3	37.3	37.3	37.3															37.34
Pump		34.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4															37.37
Pump		34.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4															37.40
Pump		34.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4															37.42
Pump		34.4	37.5	37.5	37.5	37.5	37.5	37.5	37.5	37.5															37.46
Pump		34.5	37.5	37.5	37.5	37.5	37.5	37.5	37.5	37.5															37.47
Pump		34.5	37.5	37.5	37.5	37.5	37.5	37.5	37.5	37.5															37.50
Pump		34.5	37.5	37.5	37.5	37.5	37.5	37.5	37.5	37.5															37.52
Pump		34.5	37.6	37.6	37.6	37.6	37.6	37.6	37.6	37.6															37.55
Pump		34.5	37.6	37.6	37.6	37.6	37.6	37.6	37.6	37.6															37.56
Pump		34.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4															37.40
Pump		34.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4															37.41
Pump		34.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4															37.36
Pump		34.3	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4															37.35
Pump		34.3	37.3	37.3	37.3	37.3	37.3	37.3	37.3	37.3															37.32
Pump		34.3	37.3	37.3	37.3	37.3	37.3	37.3	37.3	37.3															37.31
Pump		34.3	37.3	37.3	37.3	37.3	37.3	37.3	37.3	37.3															37.27
Pump		34.2	37.3	37.3	37.3	37.3	37.3	37.3	37.3	37.3															37.26
Pump		34.2	37.2	37.2	37.2	37.2	37.2	37.2	37.2	37.2															37.23
Pump		34.2	37.2	37.2	37.2	37.2	37.2	37.2	37.2	37.2															37.20

Phillips Rail Spur Project
Hourly contribution level in dB(A) - "Proposed Project"

Name	00-01 AM	01-02 AM	02-03 AM	03-04 AM	04-05 AM	05-06 AM	06-07 AM	07-08 AM	08-09 AM	09-10 AM	10-11 AM	11-12 AM	12-01 PM	01-02 PM	02-03 PM	03-04 PM	04-05 PM	05-06 PM	06-07 PM	07-08 PM	08-09 PM	09-10 PM	10-11 PM	11-12 PM	Leq, max h
Transformer		21.2	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7															23.75
Transformer		21.1	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7															23.73
Air Compressor		36.2	38.8	38.8	38.8	38.8	38.8	38.8	38.8	38.8															38.82
HVAC		21.1	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7															23.67
Remaining Sources (best guess)	-	-																							
Name zFenceline Ag Receptor	Leq, max h	65.84				dB(A)																			
Locomotive Tail End Idle1	20.4																								
Locomotive Tail End Idle1	20.3																								
Locomotive Tail End Idle2																									
Locomotive Tail End Idle2																									
Rail: trail from mainline																								53.0	
Rail: Spur to tail second train track		42.8																							
Spur rail west end switching		48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8																48.80
Locomotive Unloading Idle	39.1	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6																42.60
Locomotive Unloading Idle	39.7	43.2	43.2	43.2	43.2	43.2	43.2	43.2	43.2																43.22
Rail: Spur Positioning 2 locos	39.8																								
Rail: Spur Positioning loco 1 idle 1	44.1																								
Pump		50.6	53.6	53.6	53.6	53.6	53.6	53.6	53.6	53.6															53.61
Pump		50.1	53.2	53.2	53.2	53.2	53.2	53.2	53.2	53.2															53.15
Pump		49.8	52.8	52.8	52.8	52.8	52.8	52.8	52.8	52.8															52.79
Pump		49.5	52.5	52.5	52.5	52.5	52.5	52.5	52.5	52.5															52.47
Pump		49.1	52.1	52.1	52.1	52.1	52.1	52.1	52.1	52.1															52.14
Pump		48.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8															51.81
Pump		48.5	51.5	51.5	51.5	51.5	51.5	51.5	51.5	51.5															51.50
Pump		48.2	51.2	51.2	51.2	51.2	51.2	51.2	51.2	51.2															51.17
Pump		47.9	50.9	50.9	50.9	50.9	50.9	50.9	50.9	50.9															50.86
Pump		47.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5															50.54
Pump		48.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1															51.12
Pump		47.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5															50.53
Pump		48.4	51.5	51.5	51.5	51.5	51.5	51.5	51.5	51.5															51.45
Pump		48.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8															51.81
Pump		49.1	52.2	52.2	52.2	52.2	52.2	52.2	52.2	52.2															52.16
Pump		49.5	52.5	52.5	52.5	52.5	52.5	52.5	52.5	52.5															52.53
Pump		49.9	52.9	52.9	52.9	52.9	52.9	52.9	52.9	52.9															52.90

Phillips Rail Spur Project
Hourly contribution level in dB(A) - "Proposed Project"

Name	00-01 AM	01-02 AM	02-03 AM	03-04 AM	04-05 AM	05-06 AM	06-07 AM	07-08 AM	08-09 AM	09-10 AM	10-11 AM	11-12 AM	12-01 PM	01-02 PM	02-03 PM	03-04 PM	04-05 PM	05-06 PM	06-07 PM	07-08 PM	08-09 PM	09-10 PM	10-11 PM	11-12 PM	Leq, max h
Pump		50.2	53.3	53.3	53.3	53.3	53.3	53.3	53.3	53.3															53.26
Pump		50.6	53.7	53.7	53.7	53.7	53.7	53.7	53.7	53.7															53.66
Pump		51.1	54.1	54.1	54.1	54.1	54.1	54.1	54.1	54.1															54.08
Transformer		35.2	37.8	37.8	37.8	37.8	37.8	37.8	37.8	37.8															37.79
Transformer		35.3	37.9	37.9	37.9	37.9	37.9	37.9	37.9	37.9															37.94
Air Compressor		52.2	54.8	54.8	54.8	54.8	54.8	54.8	54.8	54.8															54.80
HVAC		36.0	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6															38.62
Remaining Sources (best guess)	20.5	33.7								-93.2															
Name zFenceline2 Ag Receptor	Leq, max h	68.10				dB(A)																			
Locomotive Tail End Idle1	21.7																								
Locomotive Tail End Idle1	21.6																								
Locomotive Tail End Idle2																									
Locomotive Tail End Idle2																									
Rail: trail from mainline																								53.3	
Rail: Spur to tail second train track		45.2																							
Spur rail west end switching		50.6	50.6	50.6	50.6	50.6	50.6	50.6	50.6																50.57
Locomotive Unloading Idle	37.3	40.8	40.8	40.8	40.8	40.8	40.8	40.8	40.8																40.76
Locomotive Unloading Idle	38.9	42.4	42.4	42.4	42.4	42.4	42.4	42.4	42.4																42.41
Rail: Spur Positioning 2 locos	42.9																								
Rail: Spur Positioning loco 1 idle 1	47.2																								
Pump		52.3	55.4	55.4	55.4	55.4	55.4	55.4	55.4	55.4															55.35
Pump		52.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2															55.19
Pump		52.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0															54.98
Pump		51.7	54.7	54.7	54.7	54.7	54.7	54.7	54.7	54.7															54.75
Pump		51.5	54.5	54.5	54.5	54.5	54.5	54.5	54.5	54.5															54.49
Pump		51.2	54.2	54.2	54.2	54.2	54.2	54.2	54.2	54.2															54.22
Pump		50.9	53.9	53.9	53.9	53.9	53.9	53.9	53.9	53.9															53.94
Pump		50.6	53.6	53.6	53.6	53.6	53.6	53.6	53.6	53.6															53.64
Pump		50.3	53.3	53.3	53.3	53.3	53.3	53.3	53.3	53.3															53.35
Pump		50.0	53.0	53.0	53.0	53.0	53.0	53.0	53.0	53.0															53.04
Pump		50.8	53.9	53.9	53.9	53.9	53.9	53.9	53.9	53.9															53.86
Pump		50.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5															53.50
Pump		51.2	54.2	54.2	54.2	54.2	54.2	54.2	54.2	54.2															54.19
Pump		51.5	54.5	54.5	54.5	54.5	54.5	54.5	54.5	54.5															54.51

Phillips Rail Spur Project
Hourly contribution level in dB(A) - "Proposed Project"

Name	00-01 AM	01-02 AM	02-03 AM	03-04 AM	04-05 AM	05-06 AM	06-07 AM	07-08 AM	08-09 AM	09-10 AM	10-11 AM	11-12 AM	12-01 PM	01-02 PM	02-03 PM	03-04 PM	04-05 PM	05-06 PM	06-07 PM	07-08 PM	08-09 PM	09-10 PM	10-11 PM	11-12 PM	Leq, max h
Pump		51.8	54.8	54.8	54.8	54.8	54.8	54.8	54.8	54.8															54.83
Pump		52.1	55.1	55.1	55.1	55.1	55.1	55.1	55.1	55.1															55.13
Pump		52.4	55.4	55.4	55.4	55.4	55.4	55.4	55.4	55.4															55.44
Pump		52.7	55.7	55.7	55.7	55.7	55.7	55.7	55.7	55.7															55.67
Pump		52.9	55.9	55.9	55.9	55.9	55.9	55.9	55.9	55.9															55.91
Pump		53.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1															56.12
Transformer		37.3	39.9	39.9	39.9	39.9	39.9	39.9	39.9	39.9															39.87
Transformer		37.4	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0															39.97
Air Compressor		53.3	55.9	55.9	55.9	55.9	55.9	55.9	55.9	55.9															55.94
HVAC		37.8	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4															40.36
Remaining Sources (best guess)	21.0	38.2	-90.2	-90.2	-90.2	-90.2	-90.2	-90.2	-90.2	-94.8														-	-90.19
Name zFenceline3 Ag Receptor	Leq, max h	64.64				dB(A)																			
Locomotive Tail End Idle1	22.8																								
Locomotive Tail End Idle1	22.7																								
Locomotive Tail End Idle2																									
Locomotive Tail End Idle2																									
Rail: trail from mainline																								49.7	
Rail: Spur to tail second train track		46.1																							
Spur rail west end switching		45.7	45.7	45.7	45.7	45.7	45.7	45.7	45.7																45.65
Locomotive Unloading Idle	31.8	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3																35.28
Locomotive Unloading Idle	32.8	36.3	36.3	36.3	36.3	36.3	36.3	36.3	36.3																36.30
Rail: Spur Positioning 2 locos	42.6																								
Rail: Spur Positioning loco 1 idle 1	46.9																								
Pump		47.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5															50.50
Pump		47.7	50.7	50.7	50.7	50.7	50.7	50.7	50.7	50.7															50.72
Pump		47.9	50.9	50.9	50.9	50.9	50.9	50.9	50.9	50.9															50.94
Pump		48.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1															51.11
Pump		48.2	51.2	51.2	51.2	51.2	51.2	51.2	51.2	51.2															51.24
Pump		48.4	51.4	51.4	51.4	51.4	51.4	51.4	51.4	51.4															51.37
Pump		48.5	51.5	51.5	51.5	51.5	51.5	51.5	51.5	51.5															51.46
Pump		48.6	51.6	51.6	51.6	51.6	51.6	51.6	51.6	51.6															51.56
Pump		48.6	51.7	51.7	51.7	51.7	51.7	51.7	51.7	51.7															51.66
Pump		48.7	51.7	51.7	51.7	51.7	51.7	51.7	51.7	51.7															51.73
Pump		49.2	52.2	52.2	52.2	52.2	52.2	52.2	52.2	52.2															52.21

Phillips Rail Spur Project
Hourly contribution level in dB(A) - "Proposed Project"

Name	00-01 AM	01-02 AM	02-03 AM	03-04 AM	04-05 AM	05-06 AM	06-07 AM	07-08 AM	08-09 AM	09-10 AM	10-11 AM	11-12 AM	12-01 PM	01-02 PM	02-03 PM	03-04 PM	04-05 PM	05-06 PM	06-07 PM	07-08 PM	08-09 PM	09-10 PM	10-11 PM	11-12 PM	Leq, max h
Pump		44.7	47.7	47.7	47.7	47.7	47.7	47.7	47.7	47.7															47.68
Pump		49.2	52.2	52.2	52.2	52.2	52.2	52.2	52.2	52.2															52.16
Pump		49.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0															52.04
Pump		48.9	51.9	51.9	51.9	51.9	51.9	51.9	51.9	51.9															51.94
Pump		48.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8															51.79
Pump		48.7	51.7	51.7	51.7	51.7	51.7	51.7	51.7	51.7															51.67
Pump		48.4	51.4	51.4	51.4	51.4	51.4	51.4	51.4	51.4															51.44
Pump		48.2	51.2	51.2	51.2	51.2	51.2	51.2	51.2	51.2															51.20
Pump		48.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0															50.97
Transformer		33.8	36.4	36.4	36.4	36.4	36.4	36.4	36.4	36.4															36.40
Transformer		33.7	36.3	36.3	36.3	36.3	36.3	36.3	36.3	36.3															36.32
Air Compressor		48.2	50.8	50.8	50.8	50.8	50.8	50.8	50.8	50.8															50.79
HVAC		33.3	35.9	35.9	35.9	35.9	35.9	35.9	35.9	35.9															35.89
Remaining Sources (best guess)	21.0	34.5	-84.6	-84.6	-84.6	-84.6	-84.6	-84.6	-84.6	-88.4															-84.61
Name zFenceline4 Ag Receptor	Leq, max h	60.46				dB(A)																			
Locomotive Tail End Idle1	24.2																								
Locomotive Tail End Idle1	24.1																								
Locomotive Tail End Idle2																									
Locomotive Tail End Idle2																									
Rail: trail from mainline																								48.6	
Rail: Spur to tail second train track		47.4																							
Spur rail west end switching		42.4	42.4	42.4	42.4	42.4	42.4	42.4	42.4																42.44
Locomotive Unloading Idle	30.3	33.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8																33.79
Locomotive Unloading Idle	31.1	34.6	34.6	34.6	34.6	34.6	34.6	34.6	34.6																34.56
Rail: Spur Positioning 2 locos	43.4																								
Rail: Spur Positioning loco 1 idle 1	47.8																								
Pump		45.4	48.4	48.4	48.4	48.4	48.4	48.4	48.4	48.4															48.39
Pump		45.6	48.6	48.6	48.6	48.6	48.6	48.6	48.6	48.6															48.58
Pump		45.5	48.5	48.5	48.5	48.5	48.5	48.5	48.5	48.5															48.51
Pump		44.3	47.3	47.3	47.3	47.3	47.3	47.3	47.3	47.3															47.32
Pump		43.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3															46.29
Pump		42.6	45.6	45.6	45.6	45.6	45.6	45.6	45.6	45.6															45.62
Pump		42.2	45.2	45.2	45.2	45.2	45.2	45.2	45.2	45.2															45.19
Pump		41.8	44.9	44.9	44.9	44.9	44.9	44.9	44.9	44.9															44.86

Phillips Rail Spur Project
Hourly contribution level in dB(A) - "Proposed Project"

Name	00-01 AM	01-02 AM	02-03 AM	03-04 AM	04-05 AM	05-06 AM	06-07 AM	07-08 AM	08-09 AM	09-10 AM	10-11 AM	11-12 AM	12-01 PM	01-02 PM	02-03 PM	03-04 PM	04-05 PM	05-06 PM	06-07 PM	07-08 PM	08-09 PM	09-10 PM	10-11 PM	11-12 PM	Leq, max h
Pump		41.6	44.6	44.6	44.6	44.6	44.6	44.6	44.6	44.6															44.56
Pump		41.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0															43.97
Pump		42.2	45.2	45.2	45.2	45.2	45.2	45.2	45.2	45.2															45.16
Pump		40.7	43.7	43.7	43.7	43.7	43.7	43.7	43.7	43.7															43.74
Pump		42.5	45.5	45.5	45.5	45.5	45.5	45.5	45.5	45.5															45.49
Pump		42.9	45.9	45.9	45.9	45.9	45.9	45.9	45.9	45.9															45.92
Pump		43.5	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6															46.56
Pump		44.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6															47.64
Pump		46.0	49.0	49.0	49.0	49.0	49.0	49.0	49.0	49.0															49.00
Pump		46.1	49.1	49.1	49.1	49.1	49.1	49.1	49.1	49.1															49.10
Pump		45.9	48.9	48.9	48.9	48.9	48.9	48.9	48.9	48.9															48.88
Pump		45.7	48.7	48.7	48.7	48.7	48.7	48.7	48.7	48.7															48.69
Transformer		28.2	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8															30.82
Transformer		28.5	31.1	31.1	31.1	31.1	31.1	31.1	31.1	31.1															31.11
Air Compressor		46.2	48.8	48.8	48.8	48.8	48.8	48.8	48.8	48.8															48.83
HVAC		30.9	33.5	33.5	33.5	33.5	33.5	33.5	33.5	33.5															33.50
Remaining Sources (best guess)	21.1	30.9								-88.1														-	
Name zLocomotive Area Receptor	Leq, max h	69.81				dB(A)																			
Locomotive Tail End Idle1																									
Locomotive Tail End Idle1																									
Locomotive Tail End Idle2																									
Locomotive Tail End Idle2																									
Rail: trail from mainline																								68.4	
Rail: Spur to tail second train track		45.6																							
Spur rail west end switching		54.5	54.5	54.5	54.5	54.5	54.5	54.5	54.5																54.52
Locomotive Unloading Idle	57.1	60.6	60.6	60.6	60.6	60.6	60.6	60.6	60.6																60.65
Locomotive Unloading Idle	55.9	59.5	59.5	59.5	59.5	59.5	59.5	59.5	59.5																59.46
Rail: Spur Positioning 2 locos	42.0																								
Rail: Spur Positioning loco 1 idle 1	46.5																								
Pump		54.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8															57.78
Pump		53.8	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.8															56.83
Pump		52.9	55.9	55.9	55.9	55.9	55.9	55.9	55.9	55.9															55.93
Pump		52.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2															55.21
Pump		51.6	54.6	54.6	54.6	54.6	54.6	54.6	54.6	54.6															54.58

Phillips Rail Spur Project
Hourly contribution level in dB(A) - "Proposed Project"

Name	00-01 AM	01-02 AM	02-03 AM	03-04 AM	04-05 AM	05-06 AM	06-07 AM	07-08 AM	08-09 AM	09-10 AM	10-11 AM	11-12 AM	12-01 PM	01-02 PM	02-03 PM	03-04 PM	04-05 PM	05-06 PM	06-07 PM	07-08 PM	08-09 PM	09-10 PM	10-11 PM	11-12 PM	Leq, max h
Pump		51.0	54.0	54.0	54.0	54.0	54.0	54.0	54.0	54.0															53.98
Pump		50.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5															53.47
Pump		49.9	52.9	52.9	52.9	52.9	52.9	52.9	52.9	52.9															52.94
Pump		49.5	52.5	52.5	52.5	52.5	52.5	52.5	52.5	52.5															52.49
Pump		49.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0															52.01
Pump		49.4	52.4	52.4	52.4	52.4	52.4	52.4	52.4	52.4															52.42
Pump		48.9	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0															51.95
Pump		49.9	52.9	52.9	52.9	52.9	52.9	52.9	52.9	52.9															52.87
Pump		50.4	53.4	53.4	53.4	53.4	53.4	53.4	53.4	53.4															53.40
Pump		50.9	53.9	53.9	53.9	53.9	53.9	53.9	53.9	53.9															53.90
Pump		51.5	54.5	54.5	54.5	54.5	54.5	54.5	54.5	54.5															54.50
Pump		52.1	55.1	55.1	55.1	55.1	55.1	55.1	55.1	55.1															55.09
Pump		52.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8															55.83
Pump		53.7	56.7	56.7	56.7	56.7	56.7	56.7	56.7	56.7															56.71
Pump		54.6	57.7	57.7	57.7	57.7	57.7	57.7	57.7	57.7															57.66
Transformer		38.1	40.7	40.7	40.7	40.7	40.7	40.7	40.7	40.7															40.69
Transformer		38.4	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0															41.04
Air Compressor		57.7	60.3	60.3	60.3	60.3	60.3	60.3	60.3	60.3															60.29
HVAC		40.3	42.9	42.9	42.9	42.9	42.9	42.9	42.9	42.9															42.90
Remaining Sources (best guess)	31.7	39.8	-88.6	-88.6	-88.6	-88.6	-88.6	-88.6	-88.6															41.1	-88.64
Name zPumping Area Receptor	Leq, max h	85.75				dB(A)																			
Locomotive Tail End Idle1	23.4																								
Locomotive Tail End Idle1																									
Locomotive Tail End Idle2																									
Locomotive Tail End Idle2																									
Rail: trail from mainline																								65.7	
Rail: Spur to tail second train track		49.0																							
Spur rail west end switching		60.6	60.6	60.6	60.6	60.6	60.6	60.6	60.6																60.65
Locomotive Unloading Idle	35.7	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2																39.22
Locomotive Unloading Idle	38.4	41.9	41.9	41.9	41.9	41.9	41.9	41.9	41.9																41.90
Rail: Spur Positioning 2 locos	48.9																								
Rail: Spur Positioning loco 1 idle 1	53.3																								
Pump		59.2	62.2	62.2	62.2	62.2	62.2	62.2	62.2	62.2															62.23
Pump		60.5	63.5	63.5	63.5	63.5	63.5	63.5	63.5	63.5															63.47

Phillips Rail Spur Project
Hourly contribution level in dB(A) - "Proposed Project"

Name	00-01 AM	01-02 AM	02-03 AM	03-04 AM	04-05 AM	05-06 AM	06-07 AM	07-08 AM	08-09 AM	09-10 AM	10-11 AM	11-12 AM	12-01 PM	01-02 PM	02-03 PM	03-04 PM	04-05 PM	05-06 PM	06-07 PM	07-08 PM	08-09 PM	09-10 PM	10-11 PM	11-12 PM	Leq, max h
Pump		62.5	65.6	65.6	65.6	65.6	65.6	65.6	65.6	65.6															65.55
Pump		64.9	67.9	67.9	67.9	67.9	67.9	67.9	67.9	67.9															67.86
Pump		67.7	70.7	70.7	70.7	70.7	70.7	70.7	70.7	70.7															70.69
Pump		71.4	74.4	74.4	74.4	74.4	74.4	74.4	74.4	74.4															74.43
Pump		75.6	78.6	78.6	78.6	78.6	78.6	78.6	78.6	78.6															78.59
Pump		76.6	79.6	79.6	79.6	79.6	79.6	79.6	79.6	79.6															79.57
Pump		73.4	76.4	76.4	76.4	76.4	76.4	76.4	76.4	76.4															76.38
Pump		68.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9															71.94
Pump		68.8	71.8	71.8	71.8	71.8	71.8	71.8	71.8	71.8															71.79
Pump		66.7	69.7	69.7	69.7	69.7	69.7	69.7	69.7	69.7															69.73
Pump		69.7	72.7	72.7	72.7	72.7	72.7	72.7	72.7	72.7															72.72
Pump		69.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9															72.92
Pump		68.3	71.3	71.3	71.3	71.3	71.3	71.3	71.3	71.3															71.28
Pump		66.2	69.2	69.2	69.2	69.2	69.2	69.2	69.2	69.2															69.17
Pump		64.0	67.1	67.1	67.1	67.1	67.1	67.1	67.1	67.1															67.06
Pump		62.2	65.2	65.2	65.2	65.2	65.2	65.2	65.2	65.2															65.19
Pump		60.3	63.3	63.3	63.3	63.3	63.3	63.3	63.3	63.3															63.29
Pump		58.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7															61.70
Transformer		56.8	59.4	59.4	59.4	59.4	59.4	59.4	59.4	59.4															59.41
Transformer		54.2	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.8															56.82
Air Compressor		59.2	61.8	61.8	61.8	61.8	61.8	61.8	61.8	61.8															61.81
HVAC		47.4	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0															49.98
Remaining Sources (best guess)	26.2	56.3	53.0	53.0	53.0	53.0	53.0	53.0	53.0	-82.8														37.1	53.04
Name zSpur track test N Receptor	Leq, max h	71.46				dB(A)																			
Locomotive Tail End Idle1	44.5																								44.46
Locomotive Tail End Idle1	45.6																								45.63
Locomotive Tail End Idle2																									
Locomotive Tail End Idle2																									
Rail: trail from mainline																								69.2	
Rail: Spur to tail second train track		65.8																							
Spur rail west end switching		36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0																
Locomotive Unloading Idle	23.1	26.6	26.6	26.6	26.6	26.6	26.6	26.6	26.6																23.06
Locomotive Unloading Idle	22.8	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3																22.80
Rail: Spur Positioning 2 locos	66.1																								66.08

Phillips Rail Spur Project
Hourly contribution level in dB(A) - "Proposed Project"

Name	00-01 AM	01-02 AM	02-03 AM	03-04 AM	04-05 AM	05-06 AM	06-07 AM	07-08 AM	08-09 AM	09-10 AM	10-11 AM	11-12 AM	12-01 PM	01-02 PM	02-03 PM	03-04 PM	04-05 PM	05-06 PM	06-07 PM	07-08 PM	08-09 PM	09-10 PM	10-11 PM	11-12 PM	Leq, max h
Rail: Spur Positioning loco 1 idle 1	69.9																								69.93
Pump		37.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3															
Pump		37.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5															
Pump		37.6	40.7	40.7	40.7	40.7	40.7	40.7	40.7	40.7															
Pump		37.8	40.8	40.8	40.8	40.8	40.8	40.8	40.8	40.8															
Pump		38.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0															
Pump		38.1	41.2	41.2	41.2	41.2	41.2	41.2	41.2	41.2															
Pump		38.3	41.3	41.3	41.3	41.3	41.3	41.3	41.3	41.3															
Pump		38.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5															
Pump		38.6	41.6	41.6	41.6	41.6	41.6	41.6	41.6	41.6															
Pump		38.8	41.8	41.8	41.8	41.8	41.8	41.8	41.8	41.8															
Pump		38.6	41.6	41.6	41.6	41.6	41.6	41.6	41.6	41.6															
Pump		38.8	41.8	41.8	41.8	41.8	41.8	41.8	41.8	41.8															
Pump		38.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5															
Pump		38.3	41.3	41.3	41.3	41.3	41.3	41.3	41.3	41.3															
Pump		38.1	41.2	41.2	41.2	41.2	41.2	41.2	41.2	41.2															
Pump		38.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0															
Pump		37.8	40.8	40.8	40.8	40.8	40.8	40.8	40.8	40.8															
Pump		37.6	40.6	40.6	40.6	40.6	40.6	40.6	40.6	40.6															
Pump		37.4	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5															
Pump		37.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3															
Transformer		24.5	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0															
Transformer		24.4	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0															
Air Compressor		38.8	41.4	41.4	41.4	41.4	41.4	41.4	41.4	41.4															
HVAC		23.9	26.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5															
Remaining Sources (best guess)	44.5									-														42.5	44.51
Name zSpur track test S receptor	Leq, max h	77.67				dB(A)																			
Locomotive Tail End Idle1	44.6																								
Locomotive Tail End Idle1	45.8																								
Locomotive Tail End Idle2																									
Locomotive Tail End Idle2																									
Rail: trail from mainline																								68.1	
Rail: Spur to tail second train track		77.7																							77.65
Spur rail west end switching		36.1	36.1	36.1	36.1	36.1	36.1	36.1	36.1																36.08

Phillips Rail Spur Project
Hourly contribution level in dB(A) - "Proposed Project"

Name	00-01 AM	01-02 AM	02-03 AM	03-04 AM	04-05 AM	05-06 AM	06-07 AM	07-08 AM	08-09 AM	09-10 AM	10-11 AM	11-12 AM	12-01 PM	01-02 PM	02-03 PM	03-04 PM	04-05 PM	05-06 PM	06-07 PM	07-08 PM	08-09 PM	09-10 PM	10-11 PM	11-12 PM	Leq, max h
Locomotive Unloading Idle	22.1	25.6	25.6	25.6	25.6	25.6	25.6	25.6	25.6																25.62
Locomotive Unloading Idle	22.8	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3																26.33
Rail: Spur Positioning 2 locos	66.3																								
Rail: Spur Positioning loco 1 idle 1	71.3																								
Pump		37.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3															37.28
Pump		37.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5															37.45
Pump		37.6	40.7	40.7	40.7	40.7	40.7	40.7	40.7	40.7															37.65
Pump		37.8	40.8	40.8	40.8	40.8	40.8	40.8	40.8	40.8															37.82
Pump		38.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0															37.98
Pump		38.1	41.2	41.2	41.2	41.2	41.2	41.2	41.2	41.2															38.15
Pump		38.3	41.3	41.3	41.3	41.3	41.3	41.3	41.3	41.3															38.30
Pump		38.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5															38.47
Pump		38.6	41.6	41.6	41.6	41.6	41.6	41.6	41.6	41.6															38.64
Pump		38.8	41.8	41.8	41.8	41.8	41.8	41.8	41.8	41.8															38.81
Pump		38.7	41.7	41.7	41.7	41.7	41.7	41.7	41.7	41.7															38.72
Pump		38.9	41.9	41.9	41.9	41.9	41.9	41.9	41.9	41.9															38.89
Pump		38.6	41.6	41.6	41.6	41.6	41.6	41.6	41.6	41.6															38.56
Pump		38.4	41.4	41.4	41.4	41.4	41.4	41.4	41.4	41.4															38.38
Pump		38.2	41.2	41.2	41.2	41.2	41.2	41.2	41.2	41.2															38.22
Pump		38.0	41.1	41.1	41.1	41.1	41.1	41.1	41.1	41.1															38.04
Pump		37.9	40.9	40.9	40.9	40.9	40.9	40.9	40.9	40.9															37.88
Pump		37.7	40.7	40.7	40.7	40.7	40.7	40.7	40.7	40.7															37.70
Pump		37.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5															37.51
Pump		37.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3															37.32
Transformer		24.4	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0															24.43
Transformer		24.3	26.9	26.9	26.9	26.9	26.9	26.9	26.9	26.9															24.34
Air Compressor		38.8	41.4	41.4	41.4	41.4	41.4	41.4	41.4	41.4															38.76
HVAC		23.9	26.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5															23.90
Remaining Sources (best guess)	45.6	46.5	-	-	-	-	-	-	-	-														40.7	46.49

Phillips Rail Spur Project
- "Proposed Project Mitigated Pumps -10dBA"

Project description

Project title:	Phillips Rail Spur Project
Engineer:	
Customer:	
Description:	

Run description

Calculation:	Single Point Sound
Title:	Proposed Project Mitigated Pumps -10dBA
Run file:	Noname.runx
Result number:	11
Calculation start:	6/2/2014 9:42:08 AM
Calculation end:	6/2/2014 9:42:10 AM
Calculation time:	00:01:591 [m:s:ms]
No. of points:	21
No. of calculated points:	21
Kernel version:	9/30/2009 (RKernel7.dll)

Run parameters

Reflection order	1
Search radius	5000
Weighting:	dB(A)
Tolerance:	0.01 dB

Standards:

Industry:	ISO 9613-2 : 1996		
Air absorption:	ISO 9613		
Limitation of screening loss:			
	single/multiple	20 dB /25 dB	
Calculation with side screening			
Environment:			
	Air pressure	1013.25 mbar	
	rel. Humidity	70 %	
	Temperature	10 °C	
	Meteo. Corr. C0(7-19h)[dB]=0.0; C0(19-23h)[dB]=0.0; C0(23-7h)[dB]=0.0;		
VDI-Parameters for diffraction			
	C1=3 C2=20		
Dissection parameters:			
	Distance to diameter factor	2	
	Minimal Distance [m]	1 m	
	Max. Difference GND+Diffraction		1 dB
	Max. No. of Iterations	4	

Assessment: CNEL

Reflection of "own" facade is suppressed

Geometry data

PP Rail Mitigated Pumps 10dBA.sit 6/1/2014 8:02:30 PM
- contains:

Calculation Area.geo	6/1/2014 8:00:12 PM
Ground attenuation.geo	10/1/2013 10:50:16 AM
Receptors.geo	10/2/2013 5:10:44 PM
SNR Boundary.geo	9/27/2013 4:51:36 PM
Source-locomotive tail end positioning idle pt sources.geo	6/2/2014 9:40:30 AM
Source-pull-in from mainline.geo	6/2/2014 9:40:30 AM
Source-second train.geo	6/2/2014 9:40:30 AM
Source-spur track pumping area.geo	6/2/2014 9:40:30 AM
Source-spur track tail end positioning.geo	6/1/2014 2:40:58 PM
Source-spur track tail end unloading.geo	6/1/2014 1:55:54 PM
Source-unloading area equipment mitigated 10dba.geo	6/1/2014 2:18:04 PM

rdgmPhillipsRail.dgm 9/28/2013 11:40:32 AM

Phillips Rail Spur Project
Assessed receiver levels - "Proposed Project Mitigated Pumps -10dBA"

Name	Ln max hr dB(A)	Leq, max h dB(A)	CNEL dB(A)	
Ag Area	43.41	43.41	48.3	
Gentle Breeze	29.09	29.09	33.6	
Industrial Residence	42.72	42.72	47.0	
Lake Receptor	31.50	31.50	36.4	
Louise Lane Receptor	39.62	39.62	40.4	
Monadella Receptor	36.43	36.43	41.4	
Nathan Way Receptor	36.55	36.55	39.3	
Olivera Arcadis-ST	38.91	38.91	42.6	
Trilogy Pkwy Receptor	37.68	37.68	39.4	
Via Entrade Receptor	40.01	40.01	40.6	
Winterhaven Receptor	37.96	37.96	42.3	
zArcadis-ST Location 2	34.88	34.88	38.4	
zArcadis-ST Location 4	42.53	42.53	46.9	
zFenceline Ag	56.84	56.84	61.1	
zFenceline2 Ag	58.89	58.89	63.1	
zFenceline3 Ag	55.23	55.23	59.5	
zFenceline4 Ag	51.22	51.22	56.1	
zLocomotive Area	68.39	68.39	70.4	
zPumping Area	76.01	76.01	79.9	
zSpur track test N	71.46	71.46	70.4	
zSpur track test S	77.66	77.66	75.4	

Phillips Rail Spur Project
Hourly sound power level in dB(A) - "Proposed Project Mitigated Pumps -10dBA"

Source	00-01 AM	01-02 AM	02-03 AM	03-04 AM	04-05 AM	05-06 AM	06-07 AM	07-08 AM	08-09 AM	09-10 AM	10-11 AM	11-12 AM	12-01 PM	01-02 PM	02-03 PM	03-04 PM	04-05 PM	05-06 PM	06-07 PM	07-08 PM	08-09 PM	21-22 PM	10-11 PM	11-12 PM
Locomotive Tail End Idle1	94.3																							
Locomotive Tail End Idle1	94.3																							
Locomotive Tail End Idle2	94.3																							
Locomotive Tail End Idle2	94.3																							
Rail: trail from mainline																								117.6
Rail: Spur to tail second train track		117.8																						
Spur rail west end switching		108.5	108.5	108.5	108.5	108.5	108.5	108.5	108.5															
Locomotive Unloading Idle	97.2	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7															
Locomotive Unloading Idle	97.2	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7															
Rail: Spur Positioning 2 locos loaded	113.8																							
Rail: Spur Positioning loco 1 idle 1 loa	118.2																							
Pump		100.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4														
Pump		100.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4														
Pump		100.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4														
Pump		100.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4														
Pump		100.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4														
Pump		100.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4														
Pump		100.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4														
Pump		100.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4														
Pump		100.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4														
Pump		100.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4														
Pump		100.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4														
Pump		100.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4														
Pump		100.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4														
Pump		100.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4														
Pump		100.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4														
Pump		100.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4														
Pump		100.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4														
Transformer		96.9	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5														
Transformer		96.9	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5														
Air Compressor		97.1	99.7	99.7	99.7	99.7	99.7	99.7	99.7	99.7														
HVAC		96.9	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5														

Phillips Rail Spur Project
Source Contribution - "Proposed Project Mitigated

*QName	Leq	Ld	Le	Ln
	dB(A)	dB(A)	dB(A)	dB(A)

Name Ag Area Floor 1. Floor	Ld,lim dB(A)	Leq,lim dB(A)	Ld 37.1 dB(A)	Leq 48.3 dB(A)
Locomotive Tail End Idle1	10.49		4.75	
Locomotive Tail End Idle1	10.43		4.69	
Locomotive Tail End Idle2	6.33		0.59	
Locomotive Tail End Idle2	6.30		0.56	
Rail: trail from mainline	38.69		32.95	
Rail: Spur to tail second train track	33.11		27.37	
Spur rail west end switching	38.78	26.88	32.90	
Locomotive Unloading Idle	32.98	20.77	27.10	
Locomotive Unloading Idle	32.42	20.21	26.54	
Rail: Spur Positioning 2 locos loaded	29.88		24.14	
Rail: Spur Positioning loco 1 idle 1 loa	34.23		28.49	
Pump	33.45	23.59	27.48	
Pump	33.27	23.42	27.30	
Pump	33.14	23.29	27.17	
Pump	33.03	23.17	27.06	
Pump	32.91	23.06	26.94	
Pump	32.80	22.95	26.83	
Pump	32.70	22.84	26.72	
Pump	32.58	22.73	26.61	
Pump	32.48	22.63	26.51	
Pump	32.37	22.52	26.40	
Pump	32.57	22.72	26.60	
Pump	32.45	22.60	26.48	
Pump	32.67	22.82	26.70	
Pump	32.79	22.93	26.82	
Pump	32.90	23.04	26.92	
Pump	33.01	23.16	27.04	
Pump	33.13	23.27	27.16	
Pump	33.25	23.39	27.27	
Pump	33.39	23.54	27.42	
Pump	33.54	23.69	27.57	
Transformer	28.96	19.07	22.99	

Phillips Rail Spur Project
Source Contribution - "Proposed Project Mitigated

*QName	Leq dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)
Transformer	29.02	19.13		23.06
Air Compressor	29.78	19.89		23.81
HVAC	29.29	19.40		23.33
Remaining Sources (best guess)				
Name Gentle Breeze Receptor Floor 1. Floor Ld,lim dB(A) Leq,lim dB(A) Ld 22.1 dB(A) Leq 33.6 dB(A)				
Locomotive Tail End Idle1	-6.76			-12.50
Locomotive Tail End Idle1	-6.80			-12.54
Locomotive Tail End Idle2	-8.83			-14.57
Locomotive Tail End Idle2	-8.85			-14.59
Rail: trail from mainline	25.29			19.55
Rail: Spur to tail second train track	21.61			15.87
Spur rail west end switching	22.80	10.89		16.91
Locomotive Unloading Idle	20.08	7.87		14.20
Locomotive Unloading Idle	19.86	7.65		13.98
Rail: Spur Positioning 2 locos loaded	12.68			6.94
Rail: Spur Positioning loco 1 idle 1 loa	17.23			11.49
Pump	16.57	6.72		10.60
Pump	16.72	6.87		10.75
Pump	16.98	7.13		11.01
Pump	17.23	7.38		11.26
Pump	17.42	7.56		11.45
Pump	17.56	7.71		11.59
Pump	18.09	8.23		12.12
Pump	16.90	7.05		10.93
Pump	16.91	7.06		10.94
Pump	19.30	9.44		13.33
Pump	18.34	8.49		12.37
Pump	19.16	9.31		13.19
Pump	18.36	8.51		12.39
Pump	18.40	8.55		12.43
Pump	17.78	7.93		11.81
Pump	17.61	7.76		11.64
Pump	17.43	7.58		11.46

SoundPLAN 7.0

Phillips Rail Spur Project
Source Contribution - "Proposed Project Mitigated

*QName	Leq dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)
Pump	17.20	7.35		11.23
Pump	17.08	7.22		11.11
Pump	21.55	11.70		15.58
Transformer	12.19	2.30		6.22
Transformer	12.17	2.28		6.20
Air Compressor	11.97	2.08		6.00
HVAC	11.99	2.10		6.02
Remaining Sources (best guess)				
Name Industrial Residence Floor 1. Floor	Ld,lim	dB(A)	Leq,lim	dB(A)
Locomotive Tail End Idle1	11.92			6.18
Locomotive Tail End Idle1	11.87			6.12
Locomotive Tail End Idle2	8.93			3.19
Locomotive Tail End Idle2	9.00			3.26
Rail: trail from mainline	36.41			30.67
Rail: Spur to tail second train track	36.27			30.53
Spur rail west end switching	36.65	24.75		30.77
Locomotive Unloading Idle	28.52	16.32		22.65
Locomotive Unloading Idle	28.76	16.55		22.89
Rail: Spur Positioning 2 locos loaded	31.85			26.11
Rail: Spur Positioning loco 1 idle 1 loa	36.32			30.58
Pump	31.27	21.42		25.30
Pump	31.30	21.45		25.33
Pump	31.37	21.52		25.40
Pump	31.38	21.53		25.41
Pump	31.43	21.57		25.46
Pump	31.52	21.66		25.54
Pump	31.53	21.68		25.56
Pump	31.55	21.70		25.58
Pump	31.57	21.72		25.60
Pump	31.59	21.74		25.62
Pump	31.42	21.56		25.45
Pump	31.44	21.59		25.47
Pump	31.39	21.54		25.42

Ld 35.4 dB(A) Leq 47.0 dB(A)

Phillips Rail Spur Project
Source Contribution - "Proposed Project Mitigated

*QName	Leq dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)
Pump	31.38	21.52		25.41
Pump	31.36	21.51		25.39
Pump	31.28	21.43		25.31
Pump	31.23	21.38		25.26
Pump	31.22	21.37		25.25
Pump	31.19	21.33		25.22
Pump	31.12	21.27		25.15
Transformer	27.76	17.87		21.80
Transformer	27.75	17.86		21.78
Air Compressor	27.73	17.84		21.76
HVAC	27.65	17.76		21.68
Remaining Sources (best guess)				
Name Lake Receptor Floor 1. Floor Ld,lim dB(A) Leq,lim dB(A) Ld 24.9 dB(A) Leq 36.4 dB(A)				
Locomotive Tail End Idle1	1.00			-4.74
Locomotive Tail End Idle1	0.97			-4.77
Locomotive Tail End Idle2	-1.60			-7.34
Locomotive Tail End Idle2	-1.62			-7.36
Rail: trail from mainline	26.59			20.85
Rail: Spur to tail second train track	24.27			18.53
Spur rail west end switching	26.37	14.47		20.49
Locomotive Unloading Idle	19.68	7.48		13.81
Locomotive Unloading Idle	19.42	7.22		13.55
Rail: Spur Positioning 2 locos loaded	20.30			14.56
Rail: Spur Positioning loco 1 idle 1 loa	24.70			18.96
Pump	21.04	11.19		15.07
Pump	20.98	11.13		15.01
Pump	20.92	11.07		14.95
Pump	20.86	11.01		14.89
Pump	20.73	10.88		14.76
Pump	20.67	10.81		14.69
Pump	20.62	10.76		14.65
Pump	20.56	10.71		14.59
Pump	20.51	10.66		14.54

Phillips Rail Spur Project
Source Contribution - "Proposed Project Mitigated

*QName	Leq dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)
Pump	20.46	10.60		14.49
Pump	20.56	10.70		14.58
Pump	20.50	10.65		14.53
Pump	20.60	10.75		14.63
Pump	20.66	10.80		14.69
Pump	20.71	10.86		14.74
Pump	20.77	10.92		14.80
Pump	20.82	10.97		14.85
Pump	20.97	11.11		15.00
Pump	21.03	11.18		15.06
Pump	21.10	11.24		15.13
Transformer	16.84	6.95		10.87
Transformer	16.92	7.03		10.95
Air Compressor	17.41	7.52		11.44
HVAC	17.07	7.18		11.10
Remaining Sources (best guess)				
Name Louise Lane Receptor Floor 1. Floor Ld,lim dB(A) Leq,lim dB(A) Ld 25.2 dB(A) Leq 40.4 dB(A)				
Locomotive Tail End Idle1	8.50			2.76
Locomotive Tail End Idle1	8.55			2.81
Locomotive Tail End Idle2	12.94			7.20
Locomotive Tail End Idle2	12.98			7.24
Rail: trail from mainline	31.18			25.44
Rail: Spur to tail second train track	33.95			28.21
Spur rail west end switching	26.52	14.62		20.64
Locomotive Unloading Idle	17.97	5.77		12.10
Locomotive Unloading Idle	18.29	6.08		12.41
Rail: Spur Positioning 2 locos loaded	30.01			24.27
Rail: Spur Positioning loco 1 idle 1 loa	34.40			28.66
Pump	20.93	11.08		14.96
Pump	21.01	11.15		15.03
Pump	21.08	11.23		15.11
Pump	21.15	11.30		15.18
Pump	21.21	11.36		15.24

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Phillips Rail Spur Project
Source Contribution - "Proposed Project Mitigated

*QName	Leq dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)
Pump	21.28	11.43		15.31
Pump	21.34	11.49		15.37
Pump	21.40	11.55		15.43
Pump	21.47	11.61		15.50
Pump	21.53	11.68		15.56
Pump	21.45	11.60		15.48
Pump	21.51	11.66		15.54
Pump	21.39	11.54		15.42
Pump	21.32	11.47		15.35
Pump	21.26	11.41		15.29
Pump	21.19	11.34		15.22
Pump	21.13	11.28		15.16
Pump	21.06	11.21		15.09
Pump	20.98	11.13		15.01
Pump	20.91	11.06		14.94
Transformer	17.40	7.51		11.43
Transformer	17.37	7.48		11.40
Air Compressor	17.22	7.33		11.25
HVAC	17.18	7.29		11.21
Remaining Sources (best guess)				
Name Monadella Receptor Floor 1. Floor	Ld,lim	dB(A)	Leq,lim	dB(A) Ld 29.9 dB(A) Leq 41.4 dB(A)
Locomotive Tail End Idle1	5.94			0.20
Locomotive Tail End Idle1	5.91			0.17
Locomotive Tail End Idle2	3.02			-2.72
Locomotive Tail End Idle2	3.00			-2.74
Rail: trail from mainline	31.65			25.91
Rail: Spur to tail second train track	29.10			23.35
Spur rail west end switching	31.26	19.36		25.38
Locomotive Unloading Idle	24.73	12.53		18.86
Locomotive Unloading Idle	24.45	12.24		18.57
Rail: Spur Positioning 2 locos loaded	25.19			19.45
Rail: Spur Positioning loco 1 idle 1 loa	29.58			23.84
Pump	26.09	16.24		20.12

Phillips Rail Spur Project
Source Contribution - "Proposed Project Mitigated

*QName	Leq dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)
Pump	26.03	16.17		20.05
Pump	25.96	16.11		19.99
Pump	25.90	16.05		19.93
Pump	25.85	16.00		19.88
Pump	25.80	15.94		19.82
Pump	25.75	15.89		19.78
Pump	25.69	15.84		19.72
Pump	25.64	15.78		19.67
Pump	25.58	15.73		19.61
Pump	25.55	15.70		19.58
Pump	25.50	15.65		19.53
Pump	25.60	15.75		19.63
Pump	25.66	15.81		19.69
Pump	25.71	15.86		19.74
Pump	25.77	15.91		19.80
Pump	25.81	15.96		19.84
Pump	25.88	16.03		19.91
Pump	25.95	16.09		19.97
Pump	26.01	16.15		20.04
Transformer	22.12	12.22		16.15
Transformer	22.15	12.26		16.18
Air Compressor	22.62	12.73		16.65
HVAC	22.29	12.40		16.32
Remaining Sources (best guess)				
Name Nathan Way Receptor Floor 1. Floor Ld,lim dB(A) Leq,lim dB(A) Ld 26.2 dB(A) Leq 39.3 dB(A)				
Locomotive Tail End Idle1	7.95			2.21
Locomotive Tail End Idle1	7.98			2.24
Locomotive Tail End Idle2	6.57			0.83
Locomotive Tail End Idle2	6.58			0.84
Rail: trail from mainline	29.79			24.05
Rail: Spur to tail second train track	31.30			25.56
Spur rail west end switching	27.48	15.58		21.60
Locomotive Unloading Idle	19.19	6.98		13.31

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Phillips Rail Spur Project
Source Contribution - "Proposed Project Mitigated

*QName	Leq dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)
Locomotive Unloading Idle	19.43	7.23		13.56
Rail: Spur Positioning 2 locos loaded	26.86			21.12
Rail: Spur Positioning loco 1 idle 1 loa	31.35			25.61
Pump	21.98	12.12		16.00
Pump	22.03	12.18		16.06
Pump	22.09	12.24		16.12
Pump	22.14	12.29		16.17
Pump	22.19	12.34		16.22
Pump	22.24	12.39		16.27
Pump	22.29	12.44		16.32
Pump	22.34	12.49		16.37
Pump	22.39	12.53		16.42
Pump	22.43	12.58		16.46
Pump	22.32	12.47		16.35
Pump	22.37	12.52		16.40
Pump	22.28	12.43		16.31
Pump	22.23	12.38		16.26
Pump	22.18	12.33		16.21
Pump	22.13	12.28		16.16
Pump	22.08	12.23		16.11
Pump	22.03	12.18		16.06
Pump	21.97	12.12		16.00
Pump	21.91	12.06		15.94
Transformer	18.43	8.54		12.46
Transformer	18.41	8.52		12.44
Air Compressor	18.33	8.44		12.36
HVAC	18.26	8.37		12.29
Remaining Sources (best guess)				
Name Olivera Arcadis-ST Location Floor 1. Floor Ld,lim dB(A) Leq,lim dB(A) Ld 31.1 dB(A) Leq 42.6 dB(A)				
Locomotive Tail End Idle1	5.70			-0.04
Locomotive Tail End Idle1	5.63			-0.11
Locomotive Tail End Idle2	2.61			-3.13
Locomotive Tail End Idle2	2.63			-3.11

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Phillips Rail Spur Project
Source Contribution - "Proposed Project Mitigated

*QName	Leq dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)
Rail: trail from mainline	31.53			25.79
Rail: Spur to tail second train track	32.82			27.08
Spur rail west end switching	32.40	20.50		26.52
Locomotive Unloading Idle	24.12	11.91		18.25
Locomotive Unloading Idle	24.26	12.06		18.39
Rail: Spur Positioning 2 locos loaded	26.12			20.37
Rail: Spur Positioning loco 1 idle 1 loa	30.60			24.86
Pump	26.94	17.09		20.97
Pump	26.99	17.14		21.02
Pump	27.05	17.19		21.08
Pump	27.09	17.24		21.12
Pump	27.14	17.29		21.17
Pump	27.19	17.34		21.22
Pump	27.23	17.38		21.26
Pump	27.28	17.43		21.31
Pump	27.32	17.47		21.35
Pump	27.36	17.51		21.39
Pump	27.22	17.37		21.25
Pump	27.26	17.41		21.29
Pump	27.18	17.32		21.21
Pump	27.13	17.28		21.16
Pump	27.09	17.24		21.12
Pump	27.05	17.19		21.07
Pump	27.00	17.14		21.03
Pump	26.95	17.10		20.98
Pump	26.90	17.04		20.93
Pump	26.84	16.99		20.87
Transformer	23.42	13.53		17.46
Transformer	23.40	13.51		17.43
Air Compressor	22.91	13.02		16.95
HVAC	23.27	13.38		17.30
Remaining Sources (best guess)				

Name Trilogy Pkwy Receptor Floor 1. Floor Ld,lim dB(A) Leq,lim dB(A) Ld 25.4 dB(A) Leq 39.4 dB(A)

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Phillips Rail Spur Project
Source Contribution - "Proposed Project Mitigated

*QName	Leq dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)
Locomotive Tail End Idle1	8.14			2.40
Locomotive Tail End Idle1	8.19			2.45
Locomotive Tail End Idle2	10.84			5.10
Locomotive Tail End Idle2	10.84			5.10
Rail: trail from mainline	29.97			24.23
Rail: Spur to tail second train track	32.53			26.79
Spur rail west end switching	26.64	14.74		20.76
Locomotive Unloading Idle	18.18	5.98		12.31
Locomotive Unloading Idle	18.47	6.27		12.60
Rail: Spur Positioning 2 locos loaded	27.99			22.25
Rail: Spur Positioning loco 1 idle 1 loa	32.47			26.73
Pump	21.08	11.23		15.11
Pump	21.15	11.29		15.18
Pump	21.22	11.36		15.25
Pump	21.28	11.43		15.31
Pump	21.34	11.49		15.37
Pump	21.40	11.55		15.43
Pump	21.45	11.60		15.48
Pump	21.51	11.66		15.54
Pump	21.57	11.72		15.60
Pump	21.63	11.78		15.66
Pump	21.53	11.68		15.56
Pump	21.59	11.74		15.62
Pump	21.48	11.63		15.51
Pump	21.42	11.57		15.45
Pump	21.36	11.51		15.39
Pump	21.30	11.45		15.33
Pump	21.24	11.39		15.27
Pump	21.18	11.33		15.21
Pump	21.11	11.26		15.14
Pump	21.04	11.19		15.07
Transformer	17.54	7.65		11.58
Transformer	17.51	7.62		11.54

Phillips Rail Spur Project
Source Contribution - "Proposed Project Mitigated

*QName	Leq dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)
Air Compressor	17.39	7.50		11.42
HVAC	17.34	7.45		11.37
Remaining Sources (best guess)				
Name Via Entrade Receptor Floor 1. Floor Ld,lim dB(A) Leq,lim dB(A) Ld 25.0 dB(A) Leq 40.6 dB(A)				
Locomotive Tail End Idle1	8.44			2.70
Locomotive Tail End Idle1	8.50			2.76
Locomotive Tail End Idle2	13.51			7.77
Locomotive Tail End Idle2	13.56			7.81
Rail: trail from mainline	31.23			25.49
Rail: Spur to tail second train track	34.33			28.59
Spur rail west end switching	26.16	14.26		20.28
Locomotive Unloading Idle	17.67	5.46		11.79
Locomotive Unloading Idle	17.99	5.79		12.12
Rail: Spur Positioning 2 locos loaded	30.40			24.66
Rail: Spur Positioning loco 1 idle 1 loa	34.79			29.05
Pump	20.65	10.79		14.68
Pump	20.72	10.87		14.75
Pump	20.80	10.95		14.83
Pump	20.87	11.02		14.90
Pump	20.94	11.09		14.97
Pump	21.01	11.15		15.03
Pump	21.07	11.21		15.10
Pump	21.13	11.28		15.16
Pump	21.20	11.35		15.23
Pump	21.27	11.42		15.30
Pump	21.20	11.35		15.23
Pump	21.27	11.41		15.30
Pump	21.14	11.29		15.17
Pump	21.07	11.22		15.10
Pump	21.01	11.15		15.04
Pump	20.94	11.08		14.97
Pump	20.87	11.02		14.90
Pump	20.80	10.95		14.83

Phillips Rail Spur Project
Source Contribution - "Proposed Project Mitigated

*QName	Leq dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)
Pump	20.72	10.87		14.75
Pump	20.64	10.79		14.67
Transformer	17.12	7.23		11.15
Transformer	17.08	7.19		11.11
Air Compressor	16.92	7.03		10.95
HVAC	16.89	7.00		10.92
Remaining Sources (best guess)				
Name Winterhaven Receptor Floor 1. Floor Ld,lim dB(A) Leq,lim dB(A) Ld 30.9 dB(A) Leq 42.3 dB(A)				
Locomotive Tail End Idle1	7.45			1.71
Locomotive Tail End Idle1	7.47			1.73
Locomotive Tail End Idle2	2.96			-2.78
Locomotive Tail End Idle2	2.95			-2.79
Rail: trail from mainline	32.16			26.42
Rail: Spur to tail second train track	31.14			25.40
Spur rail west end switching	32.61	20.71		26.73
Locomotive Unloading Idle	26.13	13.93		20.26
Locomotive Unloading Idle	25.97	13.77		20.10
Rail: Spur Positioning 2 locos loaded	25.20			19.46
Rail: Spur Positioning loco 1 idle 1 loa	29.70			23.96
Pump	27.33	17.48		21.36
Pump	27.27	17.42		21.30
Pump	27.22	17.36		21.25
Pump	27.17	17.32		21.20
Pump	25.06	15.20		19.09
Pump	25.16	15.31		19.19
Pump	25.24	15.39		19.27
Pump	27.13	17.27		21.15
Pump	27.11	17.25		21.13
Pump	27.08	17.23		21.11
Pump	27.06	17.20		21.08
Pump	27.03	17.18		21.06
Pump	27.07	17.22		21.10
Pump	27.09	17.24		21.12

Phillips Rail Spur Project
Source Contribution - "Proposed Project Mitigated

*QName	Leq dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)
Pump	27.10	17.25		21.13
Pump	27.11	17.26		21.14
Pump	27.15	17.29		21.18
Pump	27.20	17.34		21.23
Pump	27.25	17.40		21.28
Pump	27.32	17.47		21.35
Transformer	20.47	10.58		14.50
Transformer	20.36	10.47		14.39
Air Compressor	20.68	10.79		14.72
HVAC	20.11	10.22		14.14
Remaining Sources (best guess)				
Name zArcadis-ST Location 2 Floor 1. Floor Ld,lim dB(A) Leq,lim dB(A) Ld 26.6 dB(A) Leq 38.4 dB(A)				
Locomotive Tail End Idle1	1.07			-4.67
Locomotive Tail End Idle1	0.99			-4.75
Locomotive Tail End Idle2	0.81			-4.93
Locomotive Tail End Idle2	0.84			-4.90
Rail: trail from mainline	28.04			22.30
Rail: Spur to tail second train track	29.08			23.34
Spur rail west end switching	27.92	16.02		22.04
Locomotive Unloading Idle	19.67	7.46		13.79
Locomotive Unloading Idle	19.86	7.65		13.99
Rail: Spur Positioning 2 locos loaded	22.98			17.24
Rail: Spur Positioning loco 1 idle 1 loa	27.43			21.69
Pump	22.43	12.57		16.45
Pump	22.48	12.63		16.51
Pump	22.54	12.68		16.56
Pump	22.58	12.73		16.61
Pump	22.63	12.78		16.66
Pump	22.68	12.83		16.71
Pump	22.73	12.87		16.76
Pump	22.77	12.92		16.80
Pump	22.82	12.96		16.85
Pump	22.86	13.01		16.89

Phillips Rail Spur Project
Source Contribution - "Proposed Project Mitigated

*QName	Leq dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)
Pump	22.75	12.90		16.78
Pump	22.80	12.94		16.83
Pump	22.71	12.85		16.74
Pump	22.66	12.81		16.69
Pump	22.62	12.76		16.64
Pump	22.57	12.72		16.60
Pump	22.52	12.67		16.55
Pump	22.47	12.62		16.50
Pump	22.41	12.56		16.44
Pump	22.36	12.51		16.39
Transformer	18.88	8.99		12.91
Transformer	18.85	8.96		12.89
Air Compressor	18.79	8.90		12.82
HVAC	18.72	8.83		12.75
Remaining Sources (best guess)				
Name zArcadis-ST Location 4 Floor 1. Floor	Ld,lim	dB(A)	Leq,lim	dB(A) Ld 35.2 dB(A) Leq 46.9 dB(A)
Locomotive Tail End Idle1	12.95			7.21
Locomotive Tail End Idle1	12.97			7.23
Locomotive Tail End Idle2	8.14			2.40
Locomotive Tail End Idle2	8.16			2.42
Rail: trail from mainline	36.56			30.82
Rail: Spur to tail second train track	36.04			30.30
Spur rail west end switching	36.49	24.59		30.61
Locomotive Unloading Idle	28.57	16.37		22.70
Locomotive Unloading Idle	28.75	16.54		22.87
Rail: Spur Positioning 2 locos loaded	31.88			26.14
Rail: Spur Positioning loco 1 idle 1 loa	36.32			30.58
Pump	31.17	21.31		25.20
Pump	31.19	21.34		25.22
Pump	31.22	21.37		25.25
Pump	31.24	21.39		25.27
Pump	31.28	21.43		25.31
Pump	31.30	21.44		25.32

Phillips Rail Spur Project
Source Contribution - "Proposed Project Mitigated

*QName	Leq dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)
Pump	31.33	21.47		25.36
Pump	31.34	21.49		25.37
Pump	31.38	21.52		25.40
Pump	31.38	21.53		25.41
Pump	31.22	21.37		25.25
Pump	31.23	21.38		25.26
Pump	31.18	21.33		25.21
Pump	31.17	21.32		25.20
Pump	31.15	21.29		25.17
Pump	31.13	21.28		25.16
Pump	31.10	21.24		25.12
Pump	31.08	21.22		25.11
Pump	31.05	21.20		25.08
Pump	31.02	21.17		25.05
Transformer	27.62	17.73		21.65
Transformer	27.60	17.71		21.63
Air Compressor	27.65	17.76		21.68
HVAC	27.54	17.65		21.57
Remaining Sources (best guess)				
Name zFenceline Ag Receptor Floor 1. Floor	Ld,lim dB(A)	Leq,lim dB(A)	Ld 50.5 dB(A)	Leq 61.1 dB(A)
Locomotive Tail End Idle1	16.63		10.89	
Locomotive Tail End Idle1	16.53		10.79	
Locomotive Tail End Idle2				
Locomotive Tail End Idle2				
Rail: trail from mainline	49.19		43.44	
Rail: Spur to tail second train track	39.26		33.52	
Spur rail west end switching	52.92	41.02	47.04	
Locomotive Unloading Idle	47.02	34.82	41.15	
Locomotive Unloading Idle	47.64	35.44	41.77	
Rail: Spur Positioning 2 locos loaded	35.98		30.24	
Rail: Spur Positioning loco 1 idle 1 loa	40.30		34.56	
Pump	47.43	37.58	41.46	
Pump	46.98	37.12	41.00	

Phillips Rail Spur Project
Source Contribution - "Proposed Project Mitigated

*QName	Leq dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)
Pump	46.62	36.76		40.65
Pump	46.29	36.44		40.32
Pump	45.96	36.11		39.99
Pump	45.64	35.78		39.66
Pump	45.33	35.47		39.35
Pump	44.99	35.14		39.02
Pump	44.68	34.83		38.71
Pump	44.36	34.51		38.39
Pump	44.95	35.09		38.97
Pump	44.35	34.50		38.38
Pump	45.27	35.42		39.30
Pump	45.63	35.78		39.66
Pump	45.98	36.13		40.01
Pump	46.35	36.50		40.38
Pump	46.72	36.87		40.75
Pump	47.08	37.23		41.11
Pump	47.48	37.63		41.51
Pump	47.91	38.05		41.93
Transformer	41.66	31.77		35.69
Transformer	41.81	31.92		35.84
Air Compressor	43.62	33.73		37.66
HVAC	42.49	32.60		36.52
Remaining Sources (best guess)	16.70			10.96
Name zFenceline2 Ag Receptor Floor 1. Floor	Ld,lim	dB(A)	Leq,lim	dB(A) Ld 52.6 dB(A) Leq 63.1 dB(A)
Locomotive Tail End Idle1	17.86			12.12
Locomotive Tail End Idle1	17.76			12.02
Locomotive Tail End Idle2				
Locomotive Tail End Idle2				
Rail: trail from mainline	49.53			43.79
Rail: Spur to tail second train track	41.87			36.13
Spur rail west end switching	54.69	42.79		48.81
Locomotive Unloading Idle	45.19	32.98		39.31
Locomotive Unloading Idle	46.83	34.63		40.96

Phillips Rail Spur Project
Source Contribution - "Proposed Project Mitigated

*QName	Leq dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)
Rail: Spur Positioning 2 locos loaded	39.05			33.31
Rail: Spur Positioning loco 1 idle 1 loa	43.39			37.64
Pump	49.18	39.32		43.20
Pump	49.02	39.16		43.04
Pump	48.80	38.95		42.83
Pump	48.57	38.72		42.60
Pump	48.31	38.46		42.34
Pump	48.04	38.19		42.07
Pump	47.76	37.91		41.79
Pump	47.46	37.61		41.49
Pump	47.17	37.32		41.20
Pump	46.86	37.01		40.89
Pump	47.68	37.83		41.71
Pump	47.32	37.47		41.35
Pump	48.01	38.16		42.04
Pump	48.34	38.48		42.36
Pump	48.65	38.80		42.68
Pump	48.96	39.10		42.99
Pump	49.26	39.41		43.29
Pump	49.49	39.64		43.52
Pump	49.73	39.88		43.76
Pump	49.94	40.09		43.97
Transformer	43.74	33.85		37.77
Transformer	43.84	33.95		37.87
Air Compressor	44.77	34.88		38.80
HVAC	44.23	34.34		38.26
Remaining Sources (best guess)	17.22			11.48
Name zFenceline3 Ag Receptor Floor 1. Floor	Ld,lim	dB(A)	Leq,lim	dB(A) Ld 49.0 dB(A) Leq 59.5 dB(A)
Locomotive Tail End Idle1	19.00			13.26
Locomotive Tail End Idle1	18.88			13.14
Locomotive Tail End Idle2				
Locomotive Tail End Idle2				
Rail: trail from mainline	45.94			40.20

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Phillips Rail Spur Project
Source Contribution - "Proposed Project Mitigated

*QName	Leq dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)
Rail: Spur to tail second train track	42.50			36.76
Spur rail west end switching	49.77	37.87		43.89
Locomotive Unloading Idle	39.70	27.50		33.83
Locomotive Unloading Idle	40.72	28.52		34.85
Rail: Spur Positioning 2 locos loaded	38.76			33.02
Rail: Spur Positioning loco 1 idle 1 loa	43.13			37.38
Pump	44.32	34.47		38.35
Pump	44.55	34.69		38.58
Pump	44.76	34.91		38.79
Pump	44.93	35.08		38.96
Pump	45.07	35.21		39.09
Pump	45.19	35.34		39.22
Pump	45.28	35.43		39.31
Pump	45.38	35.53		39.41
Pump	45.48	35.63		39.51
Pump	45.56	35.70		39.59
Pump	46.03	36.18		40.06
Pump	41.50	31.65		35.53
Pump	45.98	36.13		40.01
Pump	45.86	36.01		39.89
Pump	45.76	35.91		39.79
Pump	45.62	35.76		39.64
Pump	45.49	35.64		39.52
Pump	45.27	35.41		39.29
Pump	45.02	35.17		39.05
Pump	44.80	34.94		38.82
Transformer	40.27	30.38		34.31
Transformer	40.19	30.30		34.23
Air Compressor	39.61	29.72		33.64
HVAC	39.76	29.87		33.79
Remaining Sources (best guess)	17.22			11.48
Name zFenceline4 Ag Receptor Floor 1. Floor Ld,lim dB(A) Leq,lim dB(A) Ld 44.9 dB(A) Leq 56.1 dB(A)				
Locomotive Tail End Idle1	20.40			14.66

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Phillips Rail Spur Project
Source Contribution - "Proposed Project Mitigated

*QName	Leq dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)
Locomotive Tail End Idle1	20.27			14.53
Locomotive Tail End Idle2				
Locomotive Tail End Idle2				
Rail: trail from mainline	44.77			39.03
Rail: Spur to tail second train track	43.64			37.90
Spur rail west end switching	46.56	34.66		40.68
Locomotive Unloading Idle	38.22	26.01		32.34
Locomotive Unloading Idle	38.99	26.78		33.12
Rail: Spur Positioning 2 locos loaded	39.63			33.89
Rail: Spur Positioning loco 1 idle 1 loa	44.04			38.30
Pump	42.21	32.36		36.24
Pump	42.40	32.55		36.43
Pump	42.33	32.48		36.36
Pump	41.14	31.29		35.17
Pump	40.11	30.26		34.14
Pump	39.44	29.59		33.47
Pump	39.02	29.16		33.05
Pump	38.68	28.83		32.71
Pump	38.39	28.53		32.42
Pump	37.79	27.94		31.82
Pump	38.99	29.13		33.02
Pump	37.57	27.71		31.59
Pump	39.31	29.46		33.34
Pump	39.74	29.89		33.77
Pump	40.38	30.53		34.41
Pump	41.46	31.61		35.49
Pump	42.83	32.97		36.86
Pump	42.92	33.07		36.95
Pump	42.70	32.85		36.73
Pump	42.52	32.66		36.54
Transformer	34.69	24.80		28.72
Transformer	34.98	25.09		29.01
Air Compressor	37.66	27.77		31.69

Phillips Rail Spur Project
Source Contribution - "Proposed Project Mitigated

*QName	Leq dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)
HVAC	37.37	27.48		31.40
Remaining Sources (best guess)	17.31			11.57
Name zLocomotive Area Receptor Floor 1. Floor Ld,lim dB(A) Leq,lim dB(A) Ld 57.5 dB(A) Leq 70.4 dB(A)				
Locomotive Tail End Idle1				
Locomotive Tail End Idle1				
Locomotive Tail End Idle2				
Locomotive Tail End Idle2				
Rail: trail from mainline	64.58			58.84
Rail: Spur to tail second train track	41.93			36.19
Spur rail west end switching	58.64	46.74		52.76
Locomotive Unloading Idle	65.07	52.87		59.20
Locomotive Unloading Idle	63.88	51.68		58.01
Rail: Spur Positioning 2 locos loaded	38.21			32.47
Rail: Spur Positioning loco 1 idle 1 loa	42.71			36.97
Pump	51.60	41.75		45.63
Pump	50.65	40.80		44.68
Pump	49.75	39.90		43.78
Pump	49.03	39.18		43.06
Pump	48.40	38.55		42.43
Pump	47.81	37.95		41.84
Pump	47.29	37.44		41.32
Pump	46.76	36.91		40.79
Pump	46.32	36.46		40.34
Pump	45.84	35.98		39.86
Pump	46.24	36.39		40.27
Pump	45.77	35.92		39.80
Pump	46.69	36.83		40.72
Pump	47.22	37.37		41.25
Pump	47.72	37.87		41.75
Pump	48.32	38.47		42.35
Pump	48.91	39.06		42.94
Pump	49.65	39.80		43.68
Pump	50.54	40.68		44.57

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Phillips Rail Spur Project
Source Contribution - "Proposed Project Mitigated

*QName	Leq dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)
Pump	51.48	41.62		45.51
Transformer	44.56	34.67		38.59
Transformer	44.91	35.02		38.94
Air Compressor	49.12	39.23		43.15
HVAC	46.77	36.88		40.80
Remaining Sources (best guess)	39.23			33.49
Name zPumping Area Receptor Floor 1. Floor Ld,lim dB(A) Leq,lim dB(A) Ld 69.9 dB(A) Leq 79.9 dB(A)				
Locomotive Tail End Idle1	19.59			13.85
Locomotive Tail End Idle1				
Locomotive Tail End Idle2				
Locomotive Tail End Idle2				
Rail: trail from mainline	61.85			56.11
Rail: Spur to tail second train track	48.54			42.80
Spur rail west end switching	65.25	53.35		59.37
Locomotive Unloading Idle	43.64	31.44		37.77
Locomotive Unloading Idle	46.33	34.12		40.45
Rail: Spur Positioning 2 locos loaded	45.13			39.39
Rail: Spur Positioning loco 1 idle 1 loa	49.51			43.77
Pump	56.05	46.20		50.08
Pump	57.29	47.44		51.32
Pump	59.38	49.52		53.41
Pump	61.68	51.83		55.71
Pump	64.51	54.66		58.54
Pump	68.26	58.40		62.29
Pump	72.41	62.56		66.44
Pump	73.39	63.54		67.42
Pump	70.20	60.35		64.23
Pump	65.76	55.91		59.79
Pump	65.61	55.76		59.64
Pump	63.55	53.70		57.58
Pump	66.55	56.69		60.58
Pump	66.75	56.89		60.78
Pump	65.10	55.24		59.13

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Phillips Rail Spur Project
Source Contribution - "Proposed Project Mitigated

*QName	Leq dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)
Pump	62.99	53.14		57.02
Pump	60.88	51.03		54.91
Pump	59.01	49.16		53.04
Pump	57.11	47.26		51.14
Pump	55.52	45.67		49.55
Transformer	63.28	53.39		57.31
Transformer	60.69	50.80		54.72
Air Compressor	50.64	40.75		44.67
HVAC	53.85	43.96		47.88
Remaining Sources (best guess)	42.59			36.85
Name zSpur track test N Receptor Floor 1. Floor	Ld,lim	dB(A)	Leq,lim	dB(A) Ld 38.9 dB(A) Leq 70.4 dB(A)
Locomotive Tail End Idle1	40.66			34.92
Locomotive Tail End Idle1	41.83			36.09
Locomotive Tail End Idle2				
Locomotive Tail End Idle2				
Rail: trail from mainline	65.35			59.61
Rail: Spur to tail second train track	62.02			56.28
Spur rail west end switching	40.15	28.24		34.26
Locomotive Unloading Idle	30.99	18.78		25.12
Locomotive Unloading Idle	30.73	18.53		24.86
Rail: Spur Positioning 2 locos loaded	62.27			56.53
Rail: Spur Positioning loco 1 idle 1 loa	66.13			60.39
Pump	34.11	24.26		28.14
Pump	34.29	24.44		28.32
Pump	34.48	24.63		28.51
Pump	34.65	24.80		28.68
Pump	34.81	24.96		28.84
Pump	34.98	25.13		29.01
Pump	35.13	25.28		29.16
Pump	35.30	25.45		29.33
Pump	35.47	25.61		29.50
Pump	35.64	25.79		29.67
Pump	35.46	25.61		29.49

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Phillips Rail Spur Project
Source Contribution - "Proposed Project Mitigated

*QName	Leq dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)
Pump	35.63	25.78		29.66
Pump	35.31	25.46		29.34
Pump	35.14	25.28		29.16
Pump	34.98	25.12		29.01
Pump	34.81	24.95		28.83
Pump	34.65	24.79		28.67
Pump	34.47	24.62		28.50
Pump	34.28	24.42		28.31
Pump	34.09	24.24		28.12
Transformer	30.92	21.03		24.95
Transformer	30.83	20.94		24.86
Air Compressor	30.20	20.31		24.23
HVAC	30.38	20.49		24.42
Remaining Sources (best guess)	42.84			37.10
Name zSpur track test S receptor Floor 1. Floor Ld,lim dB(A) Leq,lim dB(A) Ld 38.9 dB(A) Leq 75.4 dB(A)				
Locomotive Tail End Idle1	40.84			35.10
Locomotive Tail End Idle1	42.04			36.30
Locomotive Tail End Idle2				
Locomotive Tail End Idle2				
Rail: trail from mainline	64.30			58.56
Rail: Spur to tail second train track	73.85			68.11
Spur rail west end switching	40.20	28.30		34.32
Locomotive Unloading Idle	30.05	17.84		24.17
Locomotive Unloading Idle	30.75	18.55		24.88
Rail: Spur Positioning 2 locos loaded	62.49			56.75
Rail: Spur Positioning loco 1 idle 1 loa	67.46			61.72
Pump	34.11	24.26		28.14
Pump	34.29	24.43		28.32
Pump	34.48	24.63		28.51
Pump	34.65	24.80		28.68
Pump	34.81	24.96		28.84
Pump	34.98	25.13		29.01
Pump	35.13	25.28		29.16

Phillips Rail Spur Project
Source Contribution - "Proposed Project Mitigated

*QName	Leq dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)
Pump	35.30	25.45		29.33
Pump	35.47	25.62		29.50
Pump	35.65	25.79		29.67
Pump	35.55	25.70		29.58
Pump	35.72	25.87		29.75
Pump	35.39	25.54		29.42
Pump	35.21	25.36		29.24
Pump	35.05	25.20		29.08
Pump	34.88	25.02		28.91
Pump	34.72	24.86		28.74
Pump	34.54	24.68		28.57
Pump	34.34	24.49		28.37
Pump	34.15	24.30		28.18
Transformer	30.90	21.01		24.93
Transformer	30.81	20.92		24.84
Air Compressor	30.18	20.29		24.21
HVAC	30.36	20.47		24.39
Remaining Sources (best guess)	47.38			41.64

SoundPlan Source and Receptor Layout

Receptors are the yellow diamonds. Locations are as listed in the tables.

SoundPlan Source and Receptor Layout: Loading Area and Spur Detail

Sources are the blue dots for point sources and the red lines for line sources. Brown lines are constant elevation lines. Point sources along the rail spur are associated with periods when the train would be stationary and idling.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 9/10/2014
Case Description: Phillips Rail Spur

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Trilogy Residences	Residential	48.7	48.7	38.6

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	7600	0
Grader	No	40	85		7600	0
Grader	No	40	85		7600	0
Dump Truck	No	40		76.5	7600	0
Dump Truck	No	40		76.5	7600	0
Dump Truck	No	40		76.5	7600	0
Dump Truck	No	40		76.5	7600	0
Dump Truck	No	40		76.5	7600	0
Dozer	No	40		81.7	7600	0
Dozer	No	40		81.7	7600	0
Scraper	No	40		83.6	7600	0
Scraper	No	40		83.6	7600	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	37.1	33.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	41.4	37.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	41.4	37.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	32.8	28.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	32.8	28.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	32.8	28.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	32.8	28.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	32.8	28.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	38	34.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	38	34.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	39.9	36	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	39.9	36	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	41.4	44.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Olivera	Residential	43.2	43.2	40.2

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	4900	0
Grader	No	40	85		4900	0
Grader	No	40	85		4900	0
Dump Truck	No	40		76.5	4900	0
Dump Truck	No	40		76.5	4900	0
Dump Truck	No	40		76.5	4900	0
Dump Truck	No	40		76.5	4900	0
Dump Truck	No	40		76.5	4900	0
Dozer	No	40		81.7	4900	0
Dozer	No	40		81.7	4900	0
Scraper	No	40		83.6	4900	0
Scraper	No	40		83.6	4900	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	40.9	36.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	45.2	41.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	45.2	41.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	36.6	32.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	36.6	32.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	36.6	32.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	36.6	32.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	36.6	32.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	41.8	37.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	41.8	37.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	43.8	39.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	43.8	39.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	45.2	48.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Monadella	Residential	49.3	49.3	43.6

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	6700	0
Grader	No	40	85		6700	0
Grader	No	40	85		6700	0
Dump Truck	No	40		76.5	6700	0
Dump Truck	No	40		76.5	6700	0
Dump Truck	No	40		76.5	6700	0
Dump Truck	No	40		76.5	6700	0
Dump Truck	No	40		76.5	6700	0
Dozer	No	40		81.7	6700	0
Dozer	No	40		81.7	6700	0
Scraper	No	40		83.6	6700	0
Scraper	No	40		83.6	6700	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	38.2	34.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	42.5	38.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	42.5	38.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	33.9	29.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	33.9	29.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	33.9	29.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	33.9	29.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	33.9	29.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	39.1	35.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	39.1	35.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	41	37.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	41	37.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	42.5	45.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nathan Way	Residential	51	51	40

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	7000	0
Grader	No	40	85		7000	0
Grader	No	40	85		7000	0
Dump Truck	No	40		76.5	7000	0
Dump Truck	No	40		76.5	7000	0
Dump Truck	No	40		76.5	7000	0
Dump Truck	No	40		76.5	7000	0
Dump Truck	No	40		76.5	7000	0
Dozer	No	40		81.7	7000	0
Dozer	No	40		81.7	7000	0
Scraper	No	40		83.6	7000	0
Scraper	No	40		83.6	7000	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	37.8	33.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	42.1	38.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	42.1	38.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	33.5	29.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	33.5	29.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	33.5	29.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	33.5	29.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	33.5	29.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	38.7	34.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	38.7	34.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	40.7	36.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	40.7	36.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	42.1	45.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Train Noise Calculation Methodology
FTA, Transit Noise and Vib Assessment, Table 6-4
Annual average

	Normal Operations			Outage Operations		
	Baseline	Baseline	Project	Baseline	Baseline	Project
	Pass Train	Freight Train	Freight Train	Pass Train	Freight Train	Freight Train
Parameter	**Inputs**			**Inputs**		
SEL,L,, reference sound level, single locomotive	92	97	97	92	97	97
SEL, C, reference sound level rail cars	82	100	100	82	100	100
SEL, H, reference sound level horns	113	113	113	113	113	113
Ct, train throttle setting, =0 for T<6, 2(T-5) for T>=6	6	6	6	6	6	6
Nlocos, number of locomotives in the train	1	2	3	1	2	3
Ncars, number of cars	6	60	80	6	60	80
K factor, -10 for pass diesel, 0 for DMU, +10 for electric	-10	-10	-10	-10	-10	-10
S, train speed	50	50	50	50	50	50
track type, 5=jointed, 3=embedded track on grade, 4=aerial structure with slab track	3	3	3	3	3	3
Total trains during day (7am-7pm)	3	1	0.68	3	4	0.68
Total trains during eve (7pm-10pm)	2	0.0001	0.17	2	1	0.17
Total trains during night (10pm-7am)	1	1	0.51	1	3	0.51
	Outputs			**Outputs**		
V, volume of trains in number per hour, day	0.25	0.08	0.06	0.25	0.33	0.06
V, volume of trains in number per hour, eve	0.67	0.00	0.06	0.67	0.33	0.06
V, volume of trains in number per hour, night	0.11	0.11	0.06	0.11	0.33	0.06
LeqL(h), locomotives, day	56.4	59.6	59.7	56.4	65.6	59.7
LeqC(h), rail cars, day	51.2	74.4	74.0	51.2	80.4	74.0
LeqH(h), warning horns, day	71.4	66.6	64.9	71.4	72.6	64.9
Leq, hourly, combined without horns	57.5	74.5	74.1	57.5	80.6	74.1
Leq, hourly, combined with horns	71.6	75.2	74.6	71.6	81.2	74.6
LeqL(h), locomotives, eve	60.6	25.6	59.7	60.6	65.6	59.7
LeqC(h), rail cars, eve	55.4	40.4	74.0	55.4	80.4	74.0
LeqH(h), warning horns, eve	75.6	32.6	64.9	75.6	72.6	64.9
Leq, hourly, combined without horns	61.8	40.6	74.1	61.8	80.6	74.1
Leq, hourly, combined with horns	75.8	41.2	74.6	75.8	81.2	74.6
LeqL(h), locomotives, night	52.9	60.9	59.7	52.9	65.6	59.7
LeqC(h), rail cars, night	47.6	75.6	74.0	47.6	80.4	74.0
LeqH(h), warning horns, night	67.9	67.9	64.9	67.9	72.6	64.9
Leq, hourly, combined without horns	54.0	75.8	74.1	54.0	80.6	74.1
Leq, hourly, combined with horns	68.0	76.4	74.6	68.0	81.2	74.6
CNEL, no horns, at 50 feet	62.6	81.9	80.8	62.6	87.2	80.8
CNEL, with horns, at 50 feet	76.6	82.6	81.3	76.6	87.9	81.3
	Combined with baseline			**Combined with baseline**		
	Baseline	**Project**	**Diff**	**Baseline**	**Project**	**Diff**
CNEL, no horns, at 50 feet	82.0	84.4	2.5	87.2	88.1	0.9
CNEL, with horns, at 50 feet	83.6	85.6	2.0	88.2	89.0	0.8
	Combined at distance			**Combined at distance**		
distance to Gentle Breeze receptor, feet	900			900		
	Baseline	Project	Diff	Baseline	Project	Diff
CNEL, no horns, at 50 feet	56.9	59.3	2.5	62.1	63.0	0.9
CNEL, with horns, at 50 feet	58.5	60.5	2.0	63.1	63.9	0.8
	Distance to 60 dBA, feet			**Distance to 60 dBA, feet**		
	Baseline	Project	Diff	Baseline	Project	Diff
no horns	628	834	205	1150	1274	124
horns	754	951	197	1283	1408	125

Train Distribution: assumed even distribution

trains per year	250
Avg trains during day (7am-7pm)	0.68
Avg trains during eve (7pm-10pm)	0.17
Avg trains during night (10pm-7am)	0.51