

Appendix H

Noise Analysis Attachments

APPENDIX H-1

Field Noise Data Sheets

FIELD NOISE MEASUREMENT DATA

PROJECT	3175 BALL ROAD APARTMENTS		PROJECT #	9289-0003
SITE ID			OBSERVER(S)	PETE VITAR
SITE ADDRESS			START DATE	4/23/19
START TIME	4/23/19	END DATE	4/23/19	END TIME

METEOROLOGICAL CONDITIONS

TEMP 68 F HUMIDITY 65 % R.H. WIND CALM LIGHT MODERATE
 WINDSPD 0 MPH DIR. N NE S SE S SW W NW VARIABLE STEADY GUSTY
 SKY SUNNY CLEAR OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS

MEAS. INSTRUMENT PICCOLLO SLM-3 TYPE 1 2 SERIAL # 140317004
 CALIBRATOR BSWA CA 114 SERIAL # 480151
 CALIBRATION CHECK PRE-TEST dBA SPL POST-TEST dBA SPL WINDSCRN YES

SETTINGS A-WTD SLOW FAST FRONTAL RANDOM ANSI OTHER:

REC. # 57-1 BEGIN 10:38 END 10:53 Leq 71.6 Lmax 83.5 Lmin 60.0 L90 L50 L10 OTHER (SPECIFY METRIC)

COMMENTS

READING TAKEN AT PROJECT SITE (VACANT LOT) AT 3175 W. BALL ROAD. METER WAS LOCATED APPROX 20' FROM PROPERTY LINE ON BALL ROAD APPROX 20' FROM PROPERTY LINE ON WESTERN AVE; PRIMARY NOISE SOURCE IS TRAFFIC ON BALL ROAD & ON WESTERN AVE.; TRAFFIC COUNT IS FOR BALL ROAD

SOURCE INFO AND TRAFFIC COUNTS

PRIMARY NOISE SOURCE

ROADWAY TYPE: ASPHALT

TRAFFIC AIRCRAFT

RAIL

INDUSTRIAL

OTHER: 31' TO BALL ROAD EOP

TRAFFIC COUNT DURATION: 15 MIN SPEED

COUNT 1
(OR RDWY 1)

DIRECTION	NB/EB	SB/WB	NB/EB	SB/WB
AUTOS	<u>276</u>			
MED TRKS	<u>1</u>			
HVY TRKS	<u>1</u>			
BUSES	<u>1</u>			
MOTRCLS	<u>1</u>			

IF COUNTING
BOTH
DIRECTIONS
AS ONE,
CHECK HERE

COUNT 2
(OR RDWY 2)

NB/EB	SB/WB	NB/EB	SB/WB

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE

POSTED SPEED LIMIT SIGNS SAY:

40 MPH ON BALL ROAD / 40 MPH ON WESTERN AVE

OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT RUSTLING LEAVES DIST. BARKING DOGS BIRDS DIST. INDUSTRIAL

DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING DIST. TRAFFIC (LIST RDWYS BELOW) DISTD GARDENERS/LANDSCAPING NOISE

OTHER:

DESCRIPTION / SKETCH

TERRAIN HARD SOFT MIXED FLAT OTHER:

PHOTOS 41257; 4258; 4259; 4260; 4261; 4262; 4263

OTHER COMMENTS / SKETCH



FIELD NOISE MEASUREMENT DATA

PROJECT	3175 BALL ROAD APARTMENTS		PROJECT #	9289-0003	
SITE ID			OBSERVER(S)	PETE VITAR	
SITE ADDRESS					
START DATE	4/23/19	END DATE	4/23/19		
START TIME		END TIME			

METEOROLOGICAL CONDITIONS

TEMP 70 F HUMIDITY 62 % R.H. WIND CALM LIGHT MODERATE
 WINDSPD MPH DIR. N NE S SE S SW W NW VARIABLE STEADY GUSTY
 SKY SUNNY CLEAR OVERCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS

MEAS. INSTRUMENT PICCOLO SLM-3 TYPE 1 2 SERIAL # 140317004
 CALIBRATOR B SWA CA 119 SERIAL # 480151
 CALIBRATION CHECK PRE-TEST dBA SPL POST-TEST dBA SPL WINDSCRN YES

SETTINGS A-WTD SLOW FAST FRONTAL RANDOM ANSI OTHER:

REC. # 3-4 BEGIN 11:03 END 11:18 Leq 70.5 Lmax 85.2 Lmin 55.3 L90 L50 L10 OTHER (SPECIFY METRIC)

COMMENTS

READING TAKEN IN FRONT OF 920 S. WESTMAN AVE (RESIDENTIAL);
PRIMARY NOISE SOURCE IS TRAFFIC ON WESTMAN AVE;

SOURCE INFO AND TRAFFIC COUNTS

PRIMARY NOISE SOURCE

ROADWAY TYPE: ASPHALT

TRAFFIC

AIRCRAFT

RAIL

INDUSTRIAL

OTHER: 18'TRAFFIC COUNT DURATION: 15 MIN

SPEED

MIN SPEED

COUNT 1
(OR RDWY 1)

DIRECTION	NB/EB	SB/WB	NB/EB	SB/WB
AUTOS	<u>193</u>			
MED TRKS	<u>3</u>			
HVY TRKS	<u>0</u>			
BUSES	<u>1</u>			
MOTRCLS	<u>0</u>			

IF COUNTING
BOTH
DIRECTIONS
AS ONE,
CHECK HERE

COUNT 2
(OR RDWY 2)

DIRECTION	NB/EB	SB/WB	NB/EB	SB/WB

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE

POSTED SPEED LIMIT SIGNS SAY: 40 MPH

OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT RUSTLING LEAVES DIST. BARKING DOGS BIRDS DIST. INDUSTRIAL
 DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING DIST. TRAFFIC (LIST RDWYS BELOW) DISTD GARDENERS/LANDSCAPING NOISE
 OTHER:

DESCRIPTION / SKETCH

TERRAIN HARD SOFT MIXED FLAT OTHER: PHOTOS 4265; 4266; 4267; 4268

OTHER COMMENTS / SKETCH



FIELD NOISE MEASUREMENT DATA

PROJECT	<u>3175 BALL ROAD APARTMENTS</u>		PROJECT #	<u>9289.0003</u>
SITE ID			OBSERVER(S)	<u>PETE VITAR</u>
SITE ADDRESS			START DATE	<u>4/23/19</u>
START TIME	<u>4/23/19</u>	END DATE	<u>4/23/19</u>	END TIME

METEOROLOGICAL CONDITIONS

TEMP 70 F HUMIDITY 62 % R.H. WIND CALM LIGHT MODERATE
 WINDSPD MPH DIR. N NE S SE S SW W NW VARIABLE STEADY GUSTY
 SKY SUNNY CLEAR OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS

MEAS. INSTRUMENT PICCOLO SCM-3 TYPE 1 2 SERIAL # 140317004
 CALIBRATOR BSWA CA 114 SERIAL # 480157
 CALIBRATION CHECK PRE-TEST _____ dBA SPL POST-TEST _____ dBA SPL WINDSCRN YES

SETTINGS A-WTD SLOW FAST FRONTAL RANDOM ANSI OTHER: _____

REC. # 6-7 BEGIN 11:37 END 11:52 Leq 71.5 Lmax 84.7 Lmin 54.0 L90 _____ L50 _____ L10 _____ OTHER (SPECIFY METRIC _____)

COMMENTS

READING TAKEN IN FRONT OF 3161 W. BALL ROAD (RESIDENTIAL);
PRIMARY NOISE SOURCE IS TRAFFIC ON BALL ROAD;

SOURCE INFO AND TRAFFIC COUNTS

PRIMARY NOISE SOURCE TRAFFIC AIRCRAFT RAIL INDUSTRIAL OTHER: _____
 ROADWAY TYPE: ASPHALT DIST. TO RDWY C/L OR EOP: 16'
 TRAFFIC COUNT DURATION: 15 MIN SPEED MIN SPEED

COUNT 1 (OR RDWY 1)	DIRECTION	NB/EB		SB/WB		IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE	COUNT 2 (OR RDWY 2)	NB/EB		SB/WB	
		NB/EB	SB/WB	NB/EB	SB/WB			NB/EB	SB/WB		
AUTOS	<u>252</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>
MED TRKS	<u>3</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>
HVY TRKS	<u>1</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>
BUSES	<u>1</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>
MOTRCLS	<u>0</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE

POSTED SPEED LIMIT SIGNS SAY: 40 MPH

OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT RUSTLING LEAVES DIST. BARKING DOGS BIRDS DIST. INDUSTRIAL
 DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING DIST. TRAFFIC (LIST RDWYS BELOW) DIST. GARDENERS/LANDSCAPING NOISE
 OTHER: _____

DESCRIPTION / SKETCH

TERRAIN HARD SOFT MIXED FLAT OTHER: _____

PHOTOS 4270; 4271; 4272; 4273

OTHER COMMENTS / SKETCH _____



START TIME 11:17 END TIME 11:45

METEOROLOGICAL CONDITIONS
TEMP 73 F HUMIDITY 56 % R.H. WIND CALM LIGHT MODERATE
WINDSPD 0 MPH DIR. N NE S SE S SW W NW VARIABLE STEADY GUSTY
SKY SUNNY CLEAR OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS
MEAS. INSTRUMENT PICCOLLO SLM-3 TYPE 1 2 SERIAL # 140317004
CALIBRATOR 135WA CA 114 SERIAL # 480151
CALIBRATION CHECK PRE-TEST _____ dBA SPL POST-TEST _____ dBA SPL WINDSCRN YES

SETTINGS A-WTD SLOW FAST FRONTAL RANDOM ANSI OTHER: _____

REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC)
4 8-9	12:02	12:17	70.6	81.7	56.6				

COMMENTS
READING TAKEN IN FRONT OF 3207 W. BALL ROAD (RESIDENTIAL);
PRIMARY NOISE SOURCE IS TRAFFIC ON BALL ROAD;

SOURCE INFO AND TRAFFIC COUNTS

PRIMARY NOISE SOURCE

ROADWAY TYPE: ASPH

TRAFFIC

AIRCRAFT

RAIL

INDUSTRIAL

OTHER: 30'

DIST. TO RDWY C/L OR EOP: 30'

TRAFFIC COUNT DURATION: 15 MIN

SPEED

COUNT 1
(OR RDWY 1)

DIRECTION

NB/EB

SB/WB

NB/EB

SB/WB

AUTOS

284

MED TRKS

3

HVY TRKS

1

BUSES

2

MOTRCLS

2

IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE

☒

COUNT 2
(OR RDWY 2)

NB/EB

SB/WB

NB/EB

SB/WB

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE

POSTED SPEED LIMIT SIGNS SAY: 40 MPH

OTHER NOISE SOURCES (BACKGROUND):

DIST. AIRCRAFT

RUSTLING LEAVES

DIST. BARKING DOGS

BIRDS

DIST. INDUSTRIAL


DIST. KIDS PLAYING

DIST. CONVRSTNS / YELLING

DIST. TRAFFIC (LIST RDWYS BELOW)

DISTD GARDENERS/LANDSCAPING NOISE

OTHER: _____

DESCRIPTION / SKETCH											
TERRAIN		HARD		SOFT		MIXED		FLAT		OTHER:	
PHOTOS		4275; 4276; 4277; 4278; 4279;									
OTHER COMMENTS / SKETCH											
											

APPENDIX H-2
Construction Noise Modeling
Input and Output

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 6/10/2019
Case Description: 3175 Ball Road Apartments - Demolition

		----- Receptor #1 -----					
		Baselines (dBA)					
Description	Land Use	Daytime	Evening	Night			
Nearest Residences - N	Residential	65	60	55			
		Equipment					
				Spec	Actual	Receptor	Estimated
		Impact		Lmax	Lmax	Distance	Shielding
Description		Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Concrete Saw		No	20		89.6	20	0
Dozer		No	40		81.7	25	0
Backhoe		No	40		77.6	30	0
Tractor		No	40	84		25	0
		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day	Evening		
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		97.5	90.5	N/A	N/A	N/A	N/A
Dozer		87.7	83.7	N/A	N/A	N/A	N/A
Backhoe		82	78	N/A	N/A	N/A	N/A
Tractor		90	86	N/A	N/A	N/A	N/A
	Total	97.5	92.6	N/A	N/A	N/A	N/A
*Calculated Lmax is the Loudest value.							

		Baselines (dBA)			---- Receptor #2 ----		
Description	Land Use	Daytime	Evening	Night			
Nearest Residences - N typically	Residential	65	60	55			
		Equipment					
				Spec	Actual	Receptor	Estimated
		Impact		Lmax	Lmax	Distance	Shielding
Description		Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Concrete Saw		No	20		89.6	50	0
Dozer		No	40		81.7	50	0
Backhoe		No	40		77.6	50	0
Tractor		No	40	84		50	0
		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day	Evening		
		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		89.6	82.6	N/A	N/A	N/A	N/A
Dozer		81.7	77.7	N/A	N/A	N/A	N/A
Backhoe		77.6	73.6	N/A	N/A	N/A	N/A
Tractor		84	80	N/A	N/A	N/A	N/A
	Total	89.6	85.6	N/A	N/A	N/A	N/A
*Calculated Lmax is the Loudest value.							

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 6/10/2019

Case Description:

3175 Ball Road Apartments - Site Preparation

		---- Receptor #1 ----					
		Baselines (dBA)					
Description	Land Use	Daytime	Evening	Night			
Nearest Residences - N	Residential	65	60	55			
		Equipment					
		Impact		Spec	Actual	Receptor	Estimated
Description		Device	Usage(%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Grader		No	40	85		20	0
Tractor		No	40	84		25	0
		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day	Evening		
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader		93		89 N/A	N/A	N/A	N/A
Tractor		90		86 N/A	N/A	N/A	N/A
	Total	93	90.8	N/A	N/A	N/A	N/A
*Calculated Lmax is the Loudest value.							

		---- Receptor #2 ----					
		Baselines (dBA)					
Description	Land Use	Daytime	Evening	Night			
Nearest Residences - N typically	Residential	65	60	55			
		Equipment					
		Impact		Spec	Actual	Receptor	Estimated
Description		Device	Usage(%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Grader		No	40	85		50	0
Tractor		No	40	84		50	0
		Results					
		Calculated (dBA)			Noise Limits (dBA)		
				Day	Evening		
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader		85		81	N/A	N/A	N/A
Tractor		84		80	N/A	N/A	N/A
	Total	85	83.6	N/A	N/A	N/A	N/A
*Calculated Lmax is the Loudest value.							

Roadway Construction Noise Model (RCNM),Version 1.1

Report date:

6/10/2019

Case Description:

3175 Ball Road Apartments - Grade Prep

		---- Receptor #1 ----					
		Baselines (dBA)					
Description	Land Use	Daytime	Evening	Night			
Nearest Residences - N	Residential	65	60	55			
		Equipment					
		Impact	Spec	Actual	Receptor	Estimated	
Description		Device	Usage(%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Concrete Saw		No	20	89.6	20	0	
Dozer		No	40	81.7	25	0	
Front End Loader		No	40	79.1	30	0	

Backhoe	No	40	77.6	30	0
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		Results					
		Calculated (dBA)			Noise Limits (dBA)		
				Day	Evening		
		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Equipment							
Concrete Saw		97.5	90.5	N/A	N/A	N/A	N/A
Dozer		87.7	83.7	N/A	N/A	N/A	N/A
Front End Loader		83.5	79.6	N/A	N/A	N/A	N/A
Backhoe		82	78	N/A	N/A	N/A	N/A
	Total	97.5	91.8	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

		---- Receptor #2 ----		
		Baselines (dBA)		
		Daytime	Evening	Night
Description	Land Use			
Nearest Residences - N typically	Residential	65	60	55

			Equipment			
	Impact		Spec	Actual	Receptor	Estimated
Description	Device	Usage(%)	Lmax	Lmax	Distance	Shielding
			(dBA)	(dBA)	(feet)	(dBA)
Concrete Saw	No	20		89.6	50	0
Dozer	No	40		81.7	50	0
Front End Loader	No	40		79.1	50	0
Backhoe	No	40		77.6	50	0

		Results					
		Calculated (dBA)			Noise Limits (dBA)		
				Day	Evening		
		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Equipment							
Concrete Saw		89.6	82.6	N/A	N/A	N/A	N/A
Dozer		81.7	77.7	N/A	N/A	N/A	N/A
Front End Loader		79.1	75.1	N/A	N/A	N/A	N/A
Backhoe		77.6	73.6	N/A	N/A	N/A	N/A
	Total	89.6	84.7	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 6/10/2019
Case Description: 3175 Ball Road Apartments - Building Construction

		---- Receptor #1 ----		
		Baselines (dBA)		
		Daytime	Evening	Night
Description	Land Use			
Nearest Residences - N	Residential	65	60	55

			Equipment			
			Spec	Actual	Receptor	Estimated
Impact			Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Crane	No	16		80.6	20	0
Man Lift	No	20		74.7	25	0
Man Lift	No	20		74.7	30	0
Tractor	No	40	84		25	0
Backhoe	No	40		77.6	30	0

		Results					
		Calculated (dBA)			Noise Limits (dBA)		

Equipment	*Lmax	Leq	Day		Evening	
			Lmax	Leq	Lmax	Leq
Crane	88.5	80.6	N/A	N/A	N/A	N/A
Man Lift	80.7	73.7	N/A	N/A	N/A	N/A
Man Lift	79.1	72.1	N/A	N/A	N/A	N/A
Tractor	90	86	N/A	N/A	N/A	N/A
Backhoe	82	78	N/A	N/A	N/A	N/A
Total	90	87.9	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Residences - N typically	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Crane	No	16		80.6	50	0
Man Lift	No	20		74.7	50	0
Man Lift	No	20		74.7	50	0
Tractor	No	40	84		50	0
Backhoe	No	40		77.6	50	0

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)		Lmax	Leq
	*Lmax	Leq	Day	Evening		
Crane	80.6	72.6	N/A	N/A	N/A	N/A
Man Lift	74.7	67.7	N/A	N/A	N/A	N/A
Man Lift	74.7	67.7	N/A	N/A	N/A	N/A
Tractor	84	80	N/A	N/A	N/A	N/A
Backhoe	77.6	73.6	N/A	N/A	N/A	N/A
Total	84	81.9	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 6/10/2019
Case Description: 3175 Ball Road Apartments - Paving

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Residences - N	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Concrete Mixer Truck	No	40		78.8	20	0
Paver	No	50		77.2	25	0
Roller	No	20		80	30	0
Backhoe	No	40		77.6	30	0

Results

Calculated (dBA)	Noise Limits (dBA)	
	Day	Evening

Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Mixer Truck		86.8	82.8	N/A	N/A	N/A	N/A
Paver		83.2	80.2	N/A	N/A	N/A	N/A
Roller		84.4	77.4	N/A	N/A	N/A	N/A
Backhoe		82	78	N/A	N/A	N/A	N/A
	Total	86.8	86.2	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Residences - N typically	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment			Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	
Concrete Mixer Truck	No	40		78.8	50	0
Paver	No	50		77.2	50	0
Roller	No	20		80	50	0
Backhoe	No	40		77.6	50	0

Equipment		Results		Noise Limits (dBA)		
		Calculated (dBA)	Day	Evening	Lmax	Leq
Concrete Mixer Truck		*Lmax 78.8	Leq 74.8	N/A	N/A	N/A
Paver		77.2	74.2	N/A	N/A	N/A
Roller		80	73	N/A	N/A	N/A
Backhoe		77.6	73.6	N/A	N/A	N/A
	Total	80	80	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 6/10/2019
Case Description: 3175 Ball Road Apartments - Architectural Coatings

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Residences - N	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment			Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	
Compressor (air)	No	40		77.7	20	0

Equipment		Results		Noise Limits (dBA)		
		Calculated (dBA)	Day	Evening	Lmax	Leq
Compressor (air)		*Lmax 85.6	Leq 81.6	N/A	N/A	N/A
	Total	85.6	81.6	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night

Nearest Residences - N typically		Residential	65	60	55		
Description	Equipment	Device	Usage(%)	Equipment Spec		Receptor Distance (feet)	Estimated Shielding (dBA)
				Lmax	Actual Lmax		
				(dBA)	(dBA)		
Compressor (air)		No	40		77.7	50	0
Results							
Equipment	Compressor (air)	Calculated (dBA)		Noise Limits (dBA)			
		*Lmax	Leq	Day		Evening	
				Lmax	Leq	Lmax	Leq
		77.7	73.7	N/A	N/A	N/A	N/A
		77.7	73.7	N/A	N/A	N/A	N/A
		*Calculated Lmax is the Loudest value.					
		Total					

APPENDIX H-3

Traffic Noise Modeling

Input and Output

INPUT: ROADWAYS
9289.0003

Dudek					3 April 2020						
MG					TNM 2.5						
INPUT: ROADWAYS PROJECT/CONTRACT: 9289.0003 RUN: Ball Road Apartments Project - Existing Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA											
Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control				Segment
				X	Y	Z	Control	Speed	Percent	Pvmt	On
							Device	Constraint	Vehicles	Type	Struct?
									Affected		
	ft			ft	ft	ft		mph	%		
Western Avenue -south of Ball Road	55.0	point3	3	1,000.0	100.0	100.00				Average	
		point4	4	1,000.0	1,000.0	100.00					
Western Avenue -north of Ball Road	55.0	point5	5	1,000.0	1,010.0	100.00				Average	
		point6	6	1,000.0	2,000.0	100.00					
Ball Road - west of Western Ave	80.0	point7	7	10.0	1,000.0	100.00				Average	
		point8	8	990.0	1,000.0	100.00					
Ball Road - east of Western Ave	80.0	point9	9	1,010.0	1,000.0	100.00				Average	
		point10	10	2,000.0	1,000.0	100.00					

INPUT: TRAFFIC FOR LAeq1h Percentages
9289.0003

Dudek													
MG													
INPUT: TRAFFIC FOR LAeq1h Percentages													
PROJECT/CONTRACT:	9289.0003												
RUN:	Ball Road Apartments Project - Existing												
Roadway	Points												
Name	Name	No.	Segment										
			Total	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			Volume	P	S	P	S	P	S	P	S	P	S
			veh/hr	%	mph	%	mph	%	mph	%	mph	%	mph
Western Avenue -south of Ball Road	point3	3	2305	97	40	2	40	1	40	0	0	0	0
	point4	4											
Western Avenue -north of Ball Road	point5	5	2565	97	40	2	40	1	40	0	0	0	0
	point6	6											
Ball Road - west of Western Ave	point7	7	2269	97	40	2	40	1	40	0	0	0	0
	point8	8											
Ball Road - east of Western Ave	point9	9	2003	97	40	2	40	1	40	0	0	0	0
	point10	10											

INPUT: RECEIVERS
9289.0003

Dudek						3 April 2020					
MG						TNM 2.5					
INPUT: RECEIVERS											
PROJECT/CONTRACT:		9289.0003									
RUN:		Ball Road Apartments Project - Existing									
Receiver											
Name	No.	#DUs	Coordinates (ground)			Height	Input Sound Levels and Criteria				Active
			X	Y	Z	above	Existing	Impact Criteria		NR	in
						Ground	LAeq1h	LAeq1h	Sub'l	Goal	Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
ST1	2	1	1,070.7	1,081.8	100.00	5.00	0.00	66	10.0	8.0	Y
ST2	3	1	1,054.9	1,226.7	100.00	5.00	0.00	66	10.0	8.0	Y
ST3	6	1	1,304.1	1,070.2	100.00	5.00	0.00	66	10.0	8.0	Y
ST4	9	1	775.0	1,083.6	100.00	5.00	0.00	66	10.0	8.0	Y
M1	11	1	1,074.5	852.6	100.00	5.00	0.00	66	10.0	8.0	Y

INPUT: BARRIERS

9289.0003

Dudek					3 April 2020														
MG					TNM 2.5														
INPUT: BARRIERS																			
PROJECT/CONTRACT:	9289.0003																		
RUN:	Ball Road Apartments Project - Existing																		
Barrier																			
Name	Type	Height		If Wall	If Berm			Add'tnl	Name	No.	Coordinates (bottom)			Height	Segment				
		Min	Max	\$ per	\$ per	Top	Run:Rise	\$ per			X	Y	Z	at	Seg Ht	Perturbs	On	Important	
				Unit	Unit	Width		Unit						Point	Inc- #Up	#Dn	Struct?	Reflec-	
				Area	Vol.			Length							ment			tions?	
		ft	ft	\$/sq ft	\$/cu yd	ft	ft:ft	\$/ft			ft	ft	ft	ft	ft				
Barrier1	W	0.00	99.99	0.00				0.00	point1	1	1,378.5	1,074.1	100.00	20.00	0.00	0	0		
									point2	2	1,140.9	1,075.5	100.00	20.00	0.00	0	0		
									point7	7	1,140.2	1,212.2	100.00	20.00	0.00	0	0		
									point8	8	1,063.3	1,210.4	100.00	20.00	0.00	0	0		
									point3	3	1,063.7	1,429.0	100.00	20.00					
Barrier2	W	0.00	99.99	0.00				0.00	point4	4	652.9	1,086.9	100.00	20.00	0.00	0	0		
									point5	5	936.3	1,086.9	100.00	20.00	0.00	0	0		
									point6	6	936.3	1,433.3	100.00	20.00					
Barrier3	W	0.00	99.99	0.00				0.00	point9	9	657.2	935.2	100.00	20.00	0.00	0	0		
									point10	10	909.1	935.2	100.00	20.00	0.00	0	0		
									point11	11	907.6	613.2	100.00	20.00					
Barrier4	W	0.00	99.99	0.00				0.00	point12	12	1,082.3	613.2	100.00	20.00	0.00	0	0		
									point13	13	1,082.3	941.0	100.00	20.00	0.00	0	0		
									point14	14	1,425.8	941.0	100.00	20.00					

RESULTS: SOUND LEVELS
9289.0003

Dudek												
MG												
RESULTS: SOUND LEVELS												
PROJECT/CONTRACT:		9289.0003										
RUN:		Ball Road Apartments Project - Existing										
BARRIER DESIGN:		INPUT HEIGHTS										
ATMOSPHERICS:		68 deg F, 50% RH										
Receiver												
Name	No.	#DUs	Existing	No Barrier					With Barrier			
			LAeq1h	LAeq1h		Increase over existing	Type	Calculated	Noise Reduction			
				Calculated	Crit'n	Calculated	Crit'n	Impact	LAeq1h	Calculated	Goal	Calculated
							Sub'l Inc					minus
												Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
ST1	2	1	0.0	70.4	66	70.4	10	Snd Lvl	70.4	0.0	8	-8.0
ST2	3	1	0.0	69.6	66	69.6	10	Snd Lvl	69.6	0.0	8	-8.0
ST3	6	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0
ST4	9	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0
M1	11	1	0.0	68.3	66	68.3	10	Snd Lvl	68.3	0.0	8	-8.0
Dwelling Units		# DUs	Noise Reduction									
			Min	Avg	Max							
			dB	dB	dB							
All Selected		5	0.0	0.0	0.0							
All Impacted		5	0.0	0.0	0.0							
All that meet NR Goal		0	0.0	0.0	0.0							

INPUT: ROADWAYS
9289.0003

Dudek					3 April 2020						
MG					TNM 2.5						
INPUT: ROADWAYS PROJECT/CONTRACT: 9289.0003 RUN: Ball Road Apartments Project - Exis w Prj											
Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA											
Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control				Segment
				X	Y	Z	Control	Speed	Percent	Pvmt	On
							Device	Constraint	Vehicles	Type	Struct?
									Affected		
	ft			ft	ft	ft		mph	%		
Western Avenue -south of Ball Road	55.0	point3	3	1,000.0	100.0	100.00				Average	
		point4	4	1,000.0	1,000.0	100.00					
Western Avenue -north of Ball Road	55.0	point5	5	1,000.0	1,010.0	100.00				Average	
		point6	6	1,000.0	2,000.0	100.00					
Ball Road - west of Western Ave	80.0	point7	7	10.0	1,000.0	100.00				Average	
		point8	8	990.0	1,000.0	100.00					
Ball Road - east of Western Ave	80.0	point9	9	1,010.0	1,000.0	100.00				Average	
		point10	10	2,000.0	1,000.0	100.00					

INPUT: TRAFFIC FOR LAeq1h Percentages
9289.0003

Dudek													
MG													
INPUT: TRAFFIC FOR LAeq1h Percentages													
PROJECT/CONTRACT:	9289.0003												
RUN:	Ball Road Apartments Project - Exis w Prj												
Roadway	Points												
Name	Name	No.	Segment										
			Total	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			Volume	P	S	P	S	P	S	P	S	P	S
			veh/hr	%	mph	%	mph	%	mph	%	mph	%	mph
Western Avenue -south of Ball Road	point3	3	2321	97	40	2	40	1	40	0	0	0	0
	point4	4											
Western Avenue -north of Ball Road	point5	5	2581	97	40	2	40	1	40	0	0	0	0
	point6	6											
Ball Road - west of Western Ave	point7	7	2291	97	40	2	40	1	40	0	0	0	0
	point8	8											
Ball Road - east of Western Ave	point9	9	2052	97	40	2	40	1	40	0	0	0	0
	point10	10											

INPUT: RECEIVERS
9289.0003

Dudek						3 April 2020					
MG						TNM 2.5					
INPUT: RECEIVERS											
PROJECT/CONTRACT:		9289.0003									
RUN:		Ball Road Apartments Project - Exis w Prj									
Receiver											
Name	No.	#DUs	Coordinates (ground)			Height	Input Sound Levels and Criteria				Active
			X	Y	Z	above	Existing	Impact Criteria		NR	in
						Ground	LAeq1h	LAeq1h	Sub'I	Goal	Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
ST1	2	1	1,070.7	1,081.8	100.00	5.00	0.00	66	10.0	8.0	Y
ST2	3	1	1,054.9	1,226.7	100.00	5.00	0.00	66	10.0	8.0	Y
ST3	6	1	1,304.1	1,070.2	100.00	5.00	0.00	66	10.0	8.0	Y
ST4	9	1	775.0	1,083.6	100.00	5.00	0.00	66	10.0	8.0	Y
M1	11	1	1,074.5	852.6	100.00	5.00	0.00	66	10.0	8.0	Y
M2a - Prpsd Resi Unit - west side 1st flr	13	1	1,059.7	1,112.5	100.00	10.00	0.00	66	10.0	8.0	Y
M2b - Prpsd Resi Unit - west side 2nd flr	14	1	1,059.7	1,112.5	100.00	20.00	0.00	66	10.0	8.0	Y
M3a - Prpsd Resi Unit - south side 1st flr	17	1	1,097.3	1,074.0	100.00	10.00	0.00	66	10.0	8.0	Y
M3b - Prpsd Resi Unit - south side 2nd fl	18	1	1,097.3	1,074.0	100.00	20.00	0.00	66	10.0	8.0	Y
M4 - Interior courtyard	20	1	1,093.4	1,124.3	100.00	5.00	0.00	66	10.0	8.0	Y

INPUT: BARRIERS

9289.0003

Dudek					3 April 2020														
MG					TNM 2.5														
INPUT: BARRIERS																			
PROJECT/CONTRACT:	9289.0003																		
RUN:	Ball Road Apartments Project - Exis w Prj																		
Barrier																			
Name	Type	Height		If Wall	If Berm			Add'tnl	Name	No.	Coordinates (bottom)		Height	Segment					
		Min	Max	\$ per	\$ per	Top	Run:Rise	\$ per			X	Y	Z	at	Seg Ht	Perturbs	On	Important	
				Unit	Unit	Width		Unit						Point	Inc- #Up	#Dn	Struct?	Reflec-	
				Area	Vol.			Length							ment			tions?	
		ft	ft	\$/sq ft	\$/cu yd	ft	ft:ft	\$/ft			ft	ft	ft	ft	ft				
Barrier1	W	0.00	99.99	0.00				0.00	point1	1	1,378.5	1,074.1	100.00	20.00	0.00	0	0		
									point2	2	1,140.9	1,075.5	100.00	20.00	0.00	0	0		
									point7	7	1,140.2	1,212.2	100.00	20.00	0.00	0	0		
									point8	8	1,063.3	1,210.4	100.00	20.00	0.00	0	0		
									point3	3	1,063.7	1,429.0	100.00	20.00					
Barrier2	W	0.00	99.99	0.00				0.00	point4	4	652.9	1,086.9	100.00	20.00	0.00	0	0		
									point5	5	936.3	1,086.9	100.00	20.00	0.00	0	0		
									point6	6	936.3	1,433.3	100.00	20.00					
Barrier3	W	0.00	99.99	0.00				0.00	point9	9	657.2	935.2	100.00	20.00	0.00	0	0		
									point10	10	909.1	935.2	100.00	20.00	0.00	0	0		
									point11	11	907.6	613.2	100.00	20.00					
Barrier4	W	0.00	99.99	0.00				0.00	point12	12	1,082.3	613.2	100.00	20.00	0.00	0	0		
									point13	13	1,082.3	941.0	100.00	20.00	0.00	0	0		
									point14	14	1,425.8	941.0	100.00	20.00					
Proposed Project	W	0.00	99.99	0.00				0.00	point15	15	1,063.4	1,190.5	100.00	35.00	0.00	0	0		
									point16	16	1,062.5	1,096.6	100.00	35.00	0.00	0	0		
									point17	17	1,083.2	1,074.9	100.00	35.00	0.00	0	0		
									point18	18	1,126.4	1,074.9	100.00	35.00					
Barrier6	W	0.00	99.99	0.00				0.00	point19	19	1,126.4	1,074.9	100.00	0.00	0.00	0	0		
									point20	20	1,126.4	1,190.8	100.00	0.00	0.00	0	0		
									point21	21	1,063.4	1,190.5	100.00	0.00					
Barrier7	W	0.00	99.99	0.00				0.00	point22	22	1,087.5	1,159.4	100.00	35.00	0.00	0	0		
									point23	23	1,087.2	1,106.5	100.00	35.00	0.00	0	0		
									point24	24	1,103.5	1,106.5	100.00	35.00	0.00	0	0		
									point25	25	1,104.1	1,161.2	100.00	35.00	0.00	0	0		
									point26	26	1,086.0	1,161.3	100.00	35.00					

RESULTS: SOUND LEVELS
9289.0003

Dudek												
MG												
RESULTS: SOUND LEVELS												
PROJECT/CONTRACT:		9289.0003										
RUN:		Ball Road Apartments Project - Exis w Prj										
BARRIER DESIGN:		INPUT HEIGHTS										
ATMOSPHERICS:		68 deg F, 50% RH										
Receiver												
Name	No.	#DUs	Existing	No Barrier					With Barrier			
			LAeq1h	LAeq1h		Increase over existing		Type	Calculated	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n	Impact	LAeq1h	Calculated	Goal	Calculated
							Sub'l Inc					minus
												Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
ST1	2	1	0.0	69.9	66	69.9	10	Snd Lvl	69.9	0.0	8	-8.0
ST2	3	1	0.0	69.6	66	69.6	10	Snd Lvl	69.6	0.0	8	-8.0
ST3	6	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0
ST4	9	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0
M1	11	1	0.0	68.3	66	68.3	10	Snd Lvl	68.3	0.0	8	-8.0
M2a - Prpsd Resi Unit - west side 1st flr	13	1	0.0	70.1	66	70.1	10	Snd Lvl	70.1	0.0	8	-8.0
M2b - Prpsd Resi Unit - west side 2nd flr	14	1	0.0	69.9	66	69.9	10	Snd Lvl	69.9	0.0	8	-8.0
M3a - Prpsd Resi Unit - south side 1st flr	17	1	0.0	68.9	66	68.9	10	Snd Lvl	68.9	0.0	8	-8.0
M3b - Prpsd Resi Unit - south side 2nd flr	18	1	0.0	68.9	66	68.9	10	Snd Lvl	68.9	0.0	8	-8.0
M4 - Interior courtyard	20	1	0.0	40.1	66	40.1	10	----	40.1	0.0	8	-8.0
Dwelling Units		# DUs	Noise Reduction									
			Min	Avg	Max							
			dB	dB	dB							
All Selected		10	0.0	0.0	0.0							
All Impacted		9	0.0	0.0	0.0							
All that meet NR Goal		0	0.0	0.0	0.0							

INPUT: ROADWAYS
9289.0003

Dudek					3 April 2020						
MG					TNM 2.5						
INPUT: ROADWAYS PROJECT/CONTRACT: 9289.0003 RUN: Ball Road Apts - Future wo Proj Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA											
Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control				Segment
				X	Y	Z	Control	Speed	Percent	Pvmt	On
							Device	Constraint	Vehicles	Type	Struct?
									Affected		
	ft			ft	ft	ft		mph	%		
Western Avenue -south of Ball Road	55.0	point3	3	1,000.0	100.0	100.00				Average	
		point4	4	1,000.0	1,000.0	100.00					
Western Avenue -north of Ball Road	55.0	point5	5	1,000.0	1,010.0	100.00				Average	
		point6	6	1,000.0	2,000.0	100.00					
Ball Road - west of Western Ave	80.0	point7	7	10.0	1,000.0	100.00				Average	
		point8	8	990.0	1,000.0	100.00					
Ball Road - east of Western Ave	80.0	point9	9	1,010.0	1,000.0	100.00				Average	
		point10	10	2,000.0	1,000.0	100.00					

INPUT: TRAFFIC FOR LAeq1h Percentages

9289.0003

Dudek													
MG													
INPUT: TRAFFIC FOR LAeq1h Percentages													
PROJECT/CONTRACT:	9289.0003												
RUN:	Ball Road Apts - Future wo Proj												
Roadway	Points												
Name	Name	No.	Segment										
			Total	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			Volume	P	S	P	S	P	S	P	S	P	S
			veh/hr	%	mph	%	mph	%	mph	%	mph	%	mph
Western Avenue -south of Ball Road	point3	3	2830	97	40	2	40	1	40	0	0	0	0
	point4	4											
Western Avenue -north of Ball Road	point5	5	2640	97	40	2	40	1	40	0	0	0	0
	point6	6											
Ball Road - west of Western Ave	point7	7	2210	97	40	2	40	1	40	0	0	0	0
	point8	8											
Ball Road - east of Western Ave	point9	9	2500	97	40	2	40	1	40	0	0	0	0
	point10	10											

INPUT: RECEIVERS
9289.0003

Dudek						3 April 2020					
MG						TNM 2.5					
INPUT: RECEIVERS											
PROJECT/CONTRACT:		9289.0003									
RUN:		Ball Road Apts - Future wo Proj									
Receiver											
Name	No.	#DUs	Coordinates (ground)			Height	Input Sound Levels and Criteria				Active
			X	Y	Z	above	Existing	Impact Criteria		NR	in
						Ground	LAeq1h	LAeq1h	Sub'I	Goal	Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
ST1	2	1	1,070.7	1,081.8	100.00	5.00	0.00	66	10.0	8.0	Y
ST2	3	1	1,054.9	1,226.7	100.00	5.00	0.00	66	10.0	8.0	Y
ST3	6	1	1,304.1	1,070.2	100.00	5.00	0.00	66	10.0	8.0	Y
ST4	9	1	775.0	1,083.6	100.00	5.00	0.00	66	10.0	8.0	Y
M1	11	1	1,074.5	852.6	100.00	5.00	0.00	66	10.0	8.0	Y

INPUT: BARRIERS

9289.0003

Dudek					3 April 2020														
MG					TNM 2.5														
INPUT: BARRIERS																			
PROJECT/CONTRACT:	9289.0003																		
RUN:	Ball Road Apts - Future wo Proj																		
Barrier																			
Name	Type	Height		If Wall	If Berm			Add'tnl	Name	No.	Coordinates (bottom)			Height	Segment				
		Min	Max	\$ per	\$ per	Top	Run:Rise	\$ per			X	Y	Z	at	Seg Ht	Perturbs	On	Important	
				Unit	Unit	Width		Unit						Point	Inc- #Up	#Dn	Struct?	Reflec-	
				Area	Vol.			Length							ment			tions?	
		ft	ft	\$/sq ft	\$/cu yd	ft	ft:ft	\$/ft			ft	ft	ft	ft	ft				
Barrier1	W	0.00	99.99	0.00				0.00	point1	1	1,378.5	1,074.1	100.00	20.00	0.00	0	0		
									point2	2	1,140.9	1,075.5	100.00	20.00	0.00	0	0		
									point7	7	1,140.2	1,212.2	100.00	20.00	0.00	0	0		
									point8	8	1,063.3	1,210.4	100.00	20.00	0.00	0	0		
									point3	3	1,063.7	1,429.0	100.00	20.00					
Barrier2	W	0.00	99.99	0.00				0.00	point4	4	652.9	1,086.9	100.00	20.00	0.00	0	0		
									point5	5	936.3	1,086.9	100.00	20.00	0.00	0	0		
									point6	6	936.3	1,433.3	100.00	20.00					
Barrier3	W	0.00	99.99	0.00				0.00	point9	9	657.2	935.2	100.00	20.00	0.00	0	0		
									point10	10	909.1	935.2	100.00	20.00	0.00	0	0		
									point11	11	907.6	613.2	100.00	20.00					
Barrier4	W	0.00	99.99	0.00				0.00	point12	12	1,082.3	613.2	100.00	20.00	0.00	0	0		
									point13	13	1,082.3	941.0	100.00	20.00	0.00	0	0		
									point14	14	1,425.8	941.0	100.00	20.00					

RESULTS: SOUND LEVELS
9289.0003

Dudek												
MG												
RESULTS: SOUND LEVELS												
PROJECT/CONTRACT:												
RUN:												
BARRIER DESIGN:												
ATMOSPHERICS:												
Receiver												
Name	No.	#DUs	Existing	No Barrier					With Barrier			
			LAeq1h	LAeq1h		Increase over existing		Type	Calculated	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n	Impact	LAeq1h	Calculated	Goal	Calculated
							Sub'l Inc					minus
												Goal
			dB	dB	dB	dB	dB		dB	dB	dB	dB
ST1	2	1	0.0	70.9	66	70.9	10	Snd Lvl	70.9	0.0	8	-8.0
ST2	3	1	0.0	69.8	66	69.8	10	Snd Lvl	69.8	0.0	8	-8.0
ST3	6	1	0.0	68.3	66	68.3	10	Snd Lvl	68.3	0.0	8	-8.0
ST4	9	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0
M1	11	1	0.0	69.0	66	69.0	10	Snd Lvl	69.0	0.0	8	-8.0
Dwelling Units		# DUs	Noise Reduction									
			Min	Avg	Max							
			dB	dB	dB							
All Selected		5	0.0	0.0	0.0							
All Impacted		5	0.0	0.0	0.0							
All that meet NR Goal		0	0.0	0.0	0.0							

INPUT: ROADWAYS

9289.0003

Dudek					3 April 2020						
MG					TNM 2.5						
INPUT: ROADWAYS PROJECT/CONTRACT: 9289.0003 RUN: Ball Road Apts - Fut w Prj											
Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA											
Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control			Segment	
				X	Y	Z	Control	Speed	Percent	Pvmt	On
							Device	Constraint	Vehicles	Type	Struct?
									Affected		
	ft			ft	ft	ft		mph	%		
Western Avenue -south of Ball Road	55.0	point3	3	1,000.0	100.0	100.00				Average	
		point4	4	1,000.0	1,000.0	100.00					
Western Avenue -north of Ball Road	55.0	point5	5	1,000.0	1,010.0	100.00				Average	
		point6	6	1,000.0	2,000.0	100.00					
Ball Road - west of Western Ave	80.0	point7	7	10.0	1,000.0	100.00				Average	
		point8	8	990.0	1,000.0	100.00					
Ball Road - east of Western Ave	80.0	point9	9	1,010.0	1,000.0	100.00				Average	
		point10	10	2,000.0	1,000.0	100.00					

INPUT: TRAFFIC FOR LAeq1h Percentages

9289.0003

Dudek													
MG													
INPUT: TRAFFIC FOR LAeq1h Percentages													
PROJECT/CONTRACT:	9289.0003												
RUN:	Ball Road Apts - Fut w Prj												
Roadway	Points												
Name	Name	No.	Segment										
			Total	Autos	MTrucks		HTrucks		Buses		Motorcycles		
			Volume	P	S	P	S	P	S	P	S	P	S
			veh/hr	%	mph	%	mph	%	mph	%	mph	%	mph
Western Avenue -south of Ball Road	point3	3	2832	97	40	2	40	1	40	0	0	0	0
	point4	4											
Western Avenue -north of Ball Road	point5	5	2642	97	40	2	40	1	40	0	0	0	0
	point6	6											
Ball Road - west of Western Ave	point7	7	2212	97	40	2	40	1	40	0	0	0	0
	point8	8											
Ball Road - east of Western Ave	point9	9	2502	97	40	2	40	1	40	0	0	0	0
	point10	10											

INPUT: RECEIVERS
9289.0003

Dudek											
MG											
INPUT: RECEIVERS											
PROJECT/CONTRACT:	9289.0003										
RUN:	Ball Road Apts - Fut w Prj										
Receiver											
Name	No.	#DUs	Coordinates (ground)			Height	Input Sound Levels and Criteria				Active
			X	Y	Z	above	Existing	Impact Criteria		NR	in
						Ground	L _{Aeq} 1h	L _{Aeq} 1h	Sub'l	Goal	Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
ST1	2	1	1,070.7	1,081.8	100.00	5.00	0.00	66	10.0	8.0	Y
ST2	3	1	1,054.9	1,226.7	100.00	5.00	0.00	66	10.0	8.0	Y
ST3	6	1	1,304.1	1,070.2	100.00	5.00	0.00	66	10.0	8.0	Y
ST4	9	1	775.0	1,083.6	100.00	5.00	0.00	66	10.0	8.0	Y
M1	11	1	1,074.5	852.6	100.00	5.00	0.00	66	10.0	8.0	Y
M2a - Prpsd Resi Unit - west side 1st flr	13	1	1,059.7	1,112.5	100.00	10.00	0.00	66	10.0	8.0	Y
M2b - Prpsd Resi Unit - west side 2nd flr	14	1	1,059.7	1,112.5	100.00	20.00	0.00	66	10.0	8.0	Y
M3a - Prpsd Resi Unit - south side 1st flr	15	1	1,097.3	1,074.0	100.00	10.00	0.00	66	10.0	8.0	Y
M3b - Prpsd Resi Unit - south side 2nd fl	16	1	1,097.3	1,074.0	100.00	20.00	0.00	66	10.0	8.0	Y
M4a - Prpsd Resi Unit - north side 1st flr	17	1	1,075.9	1,192.7	100.00	10.00	0.00	66	10.0	8.0	Y
M4b - Prpsd Resi Unit - north side 2nd flr	19	1	1,075.9	1,192.7	100.00	20.00	0.00	66	10.0	8.0	Y
M5a - Prpsd Resi Unit - south side 1st flr	20	1	1,127.7	1,083.6	100.00	10.00	0.00	66	10.0	8.0	Y
M5b - Prpsd Resi Unit - south side 2nd fl	21	1	1,127.7	1,083.6	100.00	20.00	0.00	66	10.0	8.0	Y
M6 - Interior courtyard	22	1	1,093.4	1,124.3	100.00	5.00	0.00	66	10.0	8.0	Y

INPUT: BARRIERS

9289.0003

Dudek					3 April 2020														
MG					TNM 2.5														
INPUT: BARRIERS																			
PROJECT/CONTRACT:	9289.0003																		
RUN:	Ball Road Apts - Fut w Prj																		
Barrier																			
Name	Type	Height		If Wall	If Berm			Add'tnl	Name	No.	Coordinates (bottom)			Height	Segment				
		Min	Max	\$ per	\$ per	Top	Run:Rise	\$ per			X	Y	Z	at	Seg Ht	Perturbs	On	Important	
				Unit	Unit	Width		Unit						Point	Inc-	#Up	#Dn	Struct?	Reflec-
				Area	Vol.			Length							ment			tions?	
		ft	ft	\$/sq ft	\$/cu yd	ft	ft:ft	\$/ft			ft	ft	ft	ft	ft				
Barrier1	W	0.00	99.99	0.00				0.00	point1	1	1,378.5	1,074.1	100.00	35.00	0.00	0	0		
									point2	2	1,140.9	1,075.5	100.00	35.00	0.00	0	0		
									point7	7	1,140.2	1,212.2	100.00	35.00	0.00	0	0		
									point8	8	1,063.3	1,210.4	100.00	35.00	0.00	0	0		
									point3	3	1,063.7	1,429.0	100.00	35.00					
Barrier2	W	0.00	99.99	0.00				0.00	point4	4	652.9	1,086.9	100.00	20.00	0.00	0	0		
									point5	5	936.3	1,086.9	100.00	20.00	0.00	0	0		
									point6	6	936.3	1,433.3	100.00	20.00					
Barrier3	W	0.00	99.99	0.00				0.00	point9	9	657.2	935.2	100.00	20.00	0.00	0	0		
									point10	10	909.1	935.2	100.00	20.00	0.00	0	0		
									point11	11	907.6	613.2	100.00	20.00					
Barrier4	W	0.00	99.99	0.00				0.00	point12	12	1,082.3	613.2	100.00	20.00	0.00	0	0		
									point13	13	1,082.3	941.0	100.00	20.00	0.00	0	0		
									point14	14	1,425.8	941.0	100.00	20.00					
Proposed Project	W	0.00	99.99	0.00				0.00	point15	15	1,063.4	1,190.5	100.00	35.00	0.00	0	0		
									point16	16	1,062.5	1,096.6	100.00	35.00	0.00	0	0		
									point17	17	1,083.2	1,074.9	100.00	35.00	0.00	0	0		
									point18	18	1,126.4	1,074.9	100.00	35.00					
Barrier6	W	0.00	99.99	0.00				0.00	point19	19	1,126.4	1,074.9	100.00	35.00	0.00	0	0		
									point20	20	1,126.4	1,190.8	100.00	35.00	0.00	0	0		
									point21	21	1,063.4	1,190.5	100.00	35.00					
Barrier7	W	0.00	99.99	0.00				0.00	point22	22	1,087.5	1,159.4	100.00	35.00	0.00	0	0		
									point23	23	1,087.2	1,106.5	100.00	35.00	0.00	0	0		
									point24	24	1,103.5	1,106.5	100.00	35.00	0.00	0	0		
									point25	25	1,104.1	1,161.2	100.00	35.00	0.00	0	0		
									point26	26	1,086.0	1,161.3	100.00	35.00					

RESULTS: SOUND LEVELS

9289.0003

Dudek												
MG												
RESULTS: SOUND LEVELS												
PROJECT/CONTRACT:		9289.0003										
RUN:		Ball Road Apts - Fut w Prj										
BARRIER DESIGN:		INPUT HEIGHTS										
ATMOSPHERICS:		68 deg F, 50% RH										
Receiver												
Name	No.	#DUs	Existing	No Barrier					With Barrier			
			LAeq1h	LAeq1h		Increase over existing	Type	Calculated	Noise Reduction			
				Calculated	Crit'n	Calculated	Crit'n	Impact	LAeq1h	Calculated	Goal	Calculated
							Sub'l Inc					minus
												Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
ST1	2	1	0.0	70.3	66	70.3	10	Snd Lvl	70.3	0.0	8	-8.0
ST2	3	1	0.0	69.7	66	69.7	10	Snd Lvl	69.7	0.0	8	-8.0
ST3	6	1	0.0	68.3	66	68.3	10	Snd Lvl	68.3	0.0	8	-8.0
ST4	9	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0
M1	11	1	0.0	69.1	66	69.1	10	Snd Lvl	69.1	0.0	8	-8.0
M2a - Prpsd Resi Unit - west side 1st flr	13	1	0.0	70.3	66	70.3	10	Snd Lvl	70.3	0.0	8	-8.0
M2b - Prpsd Resi Unit - west side 2nd flr	14	1	0.0	70.2	66	70.2	10	Snd Lvl	70.2	0.0	8	-8.0
M3a - Prpsd Resi Unit - south side 1st flr	15	1	0.0	69.5	66	69.5	10	Snd Lvl	69.5	0.0	8	-8.0
M3b - Prpsd Resi Unit - south side 2nd flr	16	1	0.0	69.6	66	69.6	10	Snd Lvl	69.6	0.0	8	-8.0
M4a - Prpsd Resi Unit - north side 1st flr	17	1	0.0	64.3	66	64.3	10	----	64.3	0.0	8	-8.0
M4b - Prpsd Resi Unit - north side 2nd flr	19	1	0.0	64.1	66	64.1	10	----	64.1	0.0	8	-8.0
M5a - Prpsd Resi Unit - south side 1st flr	20	1	0.0	63.8	66	63.8	10	----	63.8	0.0	8	-8.0
M5b - Prpsd Resi Unit - south side 2nd flr	21	1	0.0	64.0	66	64.0	10	----	64.0	0.0	8	-8.0
M6 - Interior courtyard	22	1	0.0	35.4	66	35.4	10	----	35.4	0.0	8	-8.0
Dwelling Units		# DUs	Noise Reduction									
			Min	Avg	Max							
			dB	dB	dB							
All Selected		14	0.0	0.0	0.0							
All Impacted		9	0.0	0.0	0.0							
All that meet NR Goal		0	0.0	0.0	0.0							