Appendix E

Noise Attachments

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Appendix E-1

Field Noise Data Sheets

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DUDEK

FIELD NOISE MEASUREMENT DATA

PROJECT: OATHWAY - WHITTRAM WAREHOUSE PROJECT #: 13071
SITE ID:
SITE ADDRESS:
OBSERVER(S): PETE VITAR
START DATE: 10/28/20 END DATE: 10/29/20
START TIME: END TIME:

METEOROLOGICAL CONDITIONS
TEMP: 62 F HUMIDITY: 23 % R.H. WIND: (CALM) LIGHT MODERATE
WINDSPD: MPH DIR. N NE E 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 #: 14031604
CALIBRATOR: ISSWA CA 114 SERIAL #: 490151
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
ST1 1-2	9:35	9:50	68.2	88.4	55.2				

COMMENTS: READING TAKEN NEAR NORTHEAST CORNER OF WHITTRAM AVE & ALMOND AVE; PRIMARY NOISE SOURCE IS TRAFFIC ON WHITTRAM AVE; SECONDARY IS SOME SPORADIC CONSTRUCTION NOISE IN DISTANCE; SOME TRAFFIC ON ALMOND AVE;

SOURCE INFO AND TRAFFIC COUNTS
PRIMARY NOISE SOURCE: (TRAFFIC) AIRCRAFT RAIL INDUSTRIAL OTHER:
ROADWAY TYPE: ASPHALT DIST. TO RDWY C/L OR EOP: 60 TO C/L OF WHITTRAM AVE
TRAFFIC COUNT DURATION: 15 MIN SPEED ____ MIN SPEED

	DIRECTION	NB/EB	SB/WB	NB/EB	SB/WB
COUNT 1 (OR RDWY #1)	AUTOS	49			
	MED TRKS	2			
	HVY TRKS	13			
	BUSES	0			
	MOTRCLS	0			

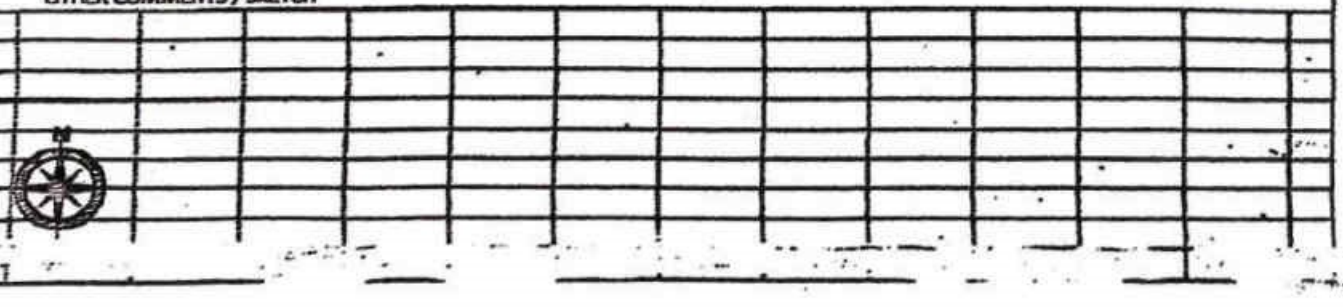
IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE

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:

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: 9176; 9177; 9178; 9179
OTHER COMMENTS / SKETCH



DUDEK

FIELD NOISE MEASUREMENT DATA

PROJECT: DARMONT - WHITTIER WAREHOUSE PROJECT #: 13071
SITE ID:
SITE ADDRESS:
OBSERVER(S): PETE VITAR
START DATE: 10/28/20 END DATE: 10/29/20
START TIME: END TIME:

METEOROLOGICAL CONDITIONS
TEMP: 62 F HUMIDITY: 23 % 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 #: 14031604
CALIBRATOR: ISSWA CA 114 SERIAL #: 990151
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
(ST2) 3-4	10:02	10:17	63.2	84.1	52.2				

COMMENTS
READING TAKEN AT NORTHWEST CORNER OF MOBILE HOME PARK AT 14224 WHITTIER AVE; PRIMARY NOISE SOURCE IS TRAFFIC ON WHITTIER AVE; SECONDARY IS TRUCK IDLE NOISE ACROSS STREET AT METALS YARD; SPORADIC CONSTRUCTION NOISE IN DISTANCE

SOURCE INFO AND TRAFFIC COUNTS
PRIMARY NOISE SOURCE: (TRAFFIC) AIRCRAFT RAIL INDUSTRIAL OTHER:
ROADWAY TYPE: ASPHALT DIST. TO RDWY C/L OR EOP: APX 60' FROM C/L ON WHITTIER AVE
TRAFFIC COUNT DURATION: 15 MIN SPEED ____ MIN

COUNT 1 (OR RDWY 1) DIRECTION	NB/EB	SB/WB	NB/EB SPEED	SB/WB SPEED
AUTOS	46			
MED TRKS	7			
HVY TRKS	14			
BUSES	0			
MOTRCLS	0			

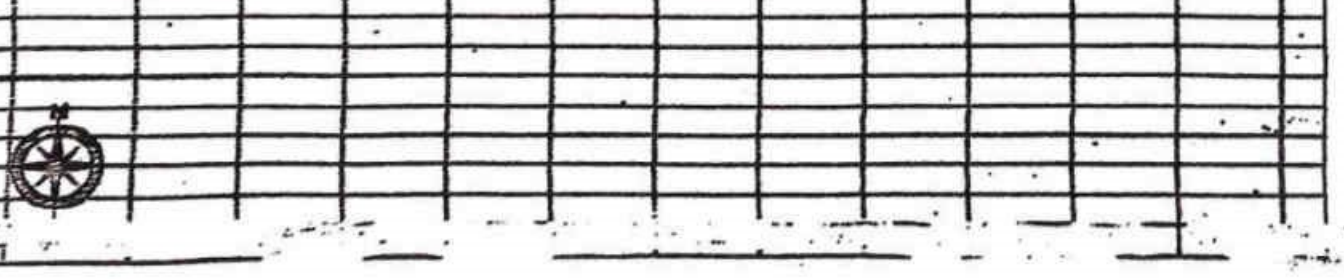
IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE

COUNT 2 (OR RDWY 2)	NB/EB	SB/WB	NB/EB SPEED	SB/WB SPEED

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE
POSTED SPEED LIMIT SIGNS SAY:

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: 9181; 9182; 9183; 9184
OTHER COMMENTS / SKETCH



DUDEK

FIELD NOISE MEASUREMENT DATA

PROJECT: DAIMLER - WHITTIER WAREHOUSE PROJECT #: 13071
SITE ID:
SITE ADDRESS: OBSERVER(S): PETE VITAR
START DATE: 10/28/20 END DATE: 10/29/20
START TIME: END TIME:

METEOROLOGICAL CONDITIONS
TEMP: 67 F HUMIDITY: 20 % R.H. WIND: (CALM) LIGHT MODERATE
WINDSPD: MPH DIR. N NE E SE S SW W NW VARIABLE STEADY GUSTY
SKY: (SUNNY) (CLEAR) OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS
MEAS. INSTRUMENT: PICCOLO SLM-3 TYPE 1 2 SERIAL #: 140317084
CALIBRATOR: ISSWA CA 114 SERIAL #: 490151
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
(ST3) 5-6	10:34	16:49	57.0	69.8	52.1				

COMMENTS: READING TAKEN AT NORTH END OF TENNIS COURTS AT KAISER PANT, ALONG CALIFORNIA STEEL WAY; PRIMARY TRAFFIC SOURCE IS TRAFFIC TO THE EAST ON CHERRY AVE; SOME DISTANT INDUSTRIAL NOISE;

SOURCE INFO AND TRAFFIC COUNTS
PRIMARY NOISE SOURCE: (TRAFFIC) AIRCRAFT RAIL INDUSTRIAL OTHER:
ROADWAY TYPE: ASPHALT DIST. TO RDWY (C/L) OR EOP: APX 100' TO C/L OF CALIFORNIA STEEL WAY
TRAFFIC COUNT DURATION: 15 MIN SPEED ____ MIN

	DIRECTION	NB/EB	SB/WB	NB/EB	SB/WB
COUNT 1 (OR RDWY 1)	AUTOS	4			
	MED TRKS	1			
	HVY TRKS	0			
	BUSES	0			
	MOTRCLS	0			

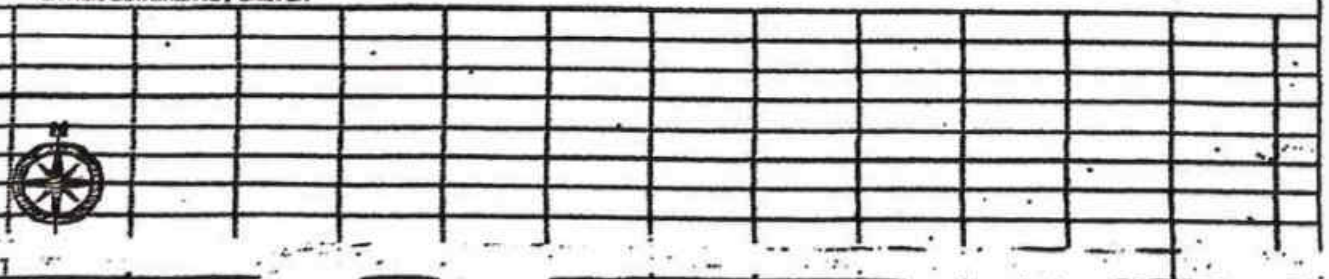
IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE ✓

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:

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: 9186; 9187; 9188; 9189; 9190
OTHER COMMENTS / SKETCH



DUDEK

FIELD NOISE MEASUREMENT DATA

PROJECT OAKMONT - WHITTRAM WAREHOUSE PROJECT # 13071
SITE ID
SITE ADDRESS OBSERVER(S) PETE VITAR
START DATE 10/28/20 END DATE 10/29/20
START TIME END TIME

METEOROLOGICAL CONDITIONS
TEMP 70 F HUMIDITY 15 % 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 SLM-3 TYPE 1 2 SERIAL # 140317004
CALIBRATOR ISSWA CA 114 SERIAL # 990151
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
(ST4) 7-8	11:09	11:24	63.9	84.4	51.3				

COMMENTS
PRIMARY NOISE SOURCE IS TRAFFIC ON CHERRY AVE; READING TAKEN IN PARKING LOT AREA OF MOBILE HOME PARK, IN LINE WITH RESIDENCE CLOSEST TO CHERRY AVE;

SOURCE INFO AND TRAFFIC COUNTS
PRIMARY NOISE SOURCE (TRAFFIC) AIRCRAFT RAIL INDUSTRIAL OTHER:
ROADWAY TYPE: ASPHALT DIST. TO RDWY C/L OR (EOP): APX 80' TO EOP ON CHERRY AVE

TRAFFIC COUNT DURATION: 15 MIN SPEED

COUNT 1 (OR RDWY 1)

DIRECTION	NB/EB	SB/WB	NB/EB	SB/WB
AUTOS	242			
MED TRKS	13			
HVY TRKS	14			
BUSES	0			
MOTRCLS	2			

IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE ✓

COUNT 2 (OR RDWY 2) ___ MIN SPEED

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

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE
POSTED SPEED LIMIT SIGNS SAY:

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 9193; 9194; 9195; 9196
OTHER COMMENTS / SKETCH

DUDEK

FIELD NOISE MEASUREMENT DATA

PROJECT OAKMONT - WHITTRAM WAREHOUSE PROJECT # 13071
SITE ID
SITE ADDRESS OBSERVER(S) PETE VITAR
START DATE 10/28/20 END DATE 10/29/20
START TIME END TIME

METEOROLOGICAL CONDITIONS
TEMP 73 F HUMIDITY 15 % R.H. WIND (CALM) LIGHT MODERATE
WINDSPD MPH DIR. N NE E SE S SW W NW VARIABLE STEADY GUSTY
SKY (SUNNY) (CLEAR) OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS
MEAS. INSTRUMENT PICCOLO SLM-3 TYPE 1 2 SERIAL # 140317604
CALIBRATOR ISWA CA 114 SERIAL # 990151
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
(STS) 9-10	11:43	11:58	64.9	86.3	56.3				

COMMENTS
READING TAKEN AT SOUTHEAST CORNER OF ETIWANDA AVE & CHESTNUT AVE ACROSS CHESTNUT AVE FROM 12914 CHESTNUT AVE; PRIMARY NOISE SOURCE IS TRAFFIC ON ETIWANDA AVE;

SOURCE INFO AND TRAFFIC COUNTS
PRIMARY NOISE SOURCE (TRAFFIC) AIRCRAFT RAIL INDUSTRIAL OTHER:
ROADWAY TYPE: ASPHALT DIST. TO RDWY C/L OR EOP: APX 65' FROM C/L OF ETIWANDA AVE

TRAFFIC COUNT DURATION: 15 MIN

COUNT 1 (OR RDWY 1)	DIRECTION	NB/EB	SB/WB	NB/EB SPEED	SB/WB SPEED
	AUTOS	143			
	MED TRKS	3			
	HVY TRKS	21			
	BUSES	0			
	MOTRCLS	6			

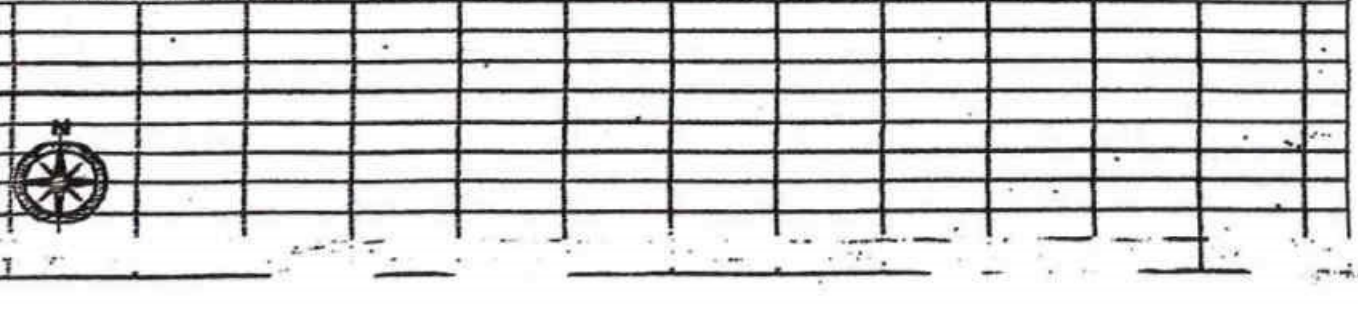
IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE ✓

COUNT 2 (OR RDWY 2)	NB/EB	SB/WB	NB/EB SPEED	SB/WB SPEED

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE
POSTED SPEED LIMIT SIGNS SAY:

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 9198; 9199; 9200; 9201
OTHER COMMENTS / SKETCH



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Appendix E-2

Construction Noise Modeling Inputs and Outputs

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Roadway Construction Noise Model (RCNM),Version 1

Report date: 1/7/2021
Case Description: Demolition

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residences to the north	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	100	0
Excavator	No	40		80.7	120	0
Dozer	No	40		81.7	130	0
Excavator	No	40		80.7	150	0
Dozer	No	40		81.7	150	0
Excavator	No	40		80.7	150	0

		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		83.6	76.6	N/A	N/A	N/A	N/A
Excavator		73.1	69.1	N/A	N/A	N/A	N/A
Dozer		73.4	69.4	N/A	N/A	N/A	N/A
Excavator		71.2	67.2	N/A	N/A	N/A	N/A
Dozer		72.1	68.1	N/A	N/A	N/A	N/A
Excavator		71.2	67.2	N/A	N/A	N/A	N/A
	Total	83.6	79	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residences to the northwe	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	180	0
Excavator	No	40		80.7	200	0
Dozer	No	40		81.7	220	0

Excavator		No	40	80.7	230	0
Dozer		No	40	81.7	240	0
Excavator		No	40	80.7	240	0

Results

		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		78.5	71.5	N/A	N/A	N/A	N/A
Excavator		68.7	64.7	N/A	N/A	N/A	N/A
Dozer		68.8	64.8	N/A	N/A	N/A	N/A
Excavator		67.5	63.5	N/A	N/A	N/A	N/A
Dozer		68	64.1	N/A	N/A	N/A	N/A
Excavator		67.1	63.1	N/A	N/A	N/A	N/A
	Total	78.5	74.3	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Resis to north ac. center	Residential	65	60	55

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	300	0
Excavator	No	40		80.7	300	0
Dozer	No	40		81.7	300	0
Excavator	No	40		80.7	300	0
Dozer	No	40		81.7	300	0
Excavator	No	40		80.7	300	0

Results

		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		74	67	N/A	N/A	N/A	N/A
Excavator		65.1	61.2	N/A	N/A	N/A	N/A
Dozer		66.1	62.1	N/A	N/A	N/A	N/A
Excavator		65.1	61.2	N/A	N/A	N/A	N/A
Dozer		66.1	62.1	N/A	N/A	N/A	N/A
Excavator		65.1	61.2	N/A	N/A	N/A	N/A
	Total	74	70.9	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Resis to northwest ac. cen	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	400	0
Excavator	No	40		80.7	400	0
Dozer	No	40		81.7	400	0
Excavator	No	40		80.7	400	0
Dozer	No	40		81.7	400	0
Excavator	No	40		80.7	400	0

		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		71.5	64.5	N/A	N/A	N/A	N/A
Excavator		62.6	58.7	N/A	N/A	N/A	N/A
Dozer		63.6	59.6	N/A	N/A	N/A	N/A
Excavator		62.6	58.7	N/A	N/A	N/A	N/A
Dozer		63.6	59.6	N/A	N/A	N/A	N/A
Excavator		62.6	58.7	N/A	N/A	N/A	N/A
	Total	71.5	68.4	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1

Report date: 1/7/2021
Case Description: Site Preparation

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residences to the north	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	100	0
Backhoe	No	40		77.6	120	0
Dozer	No	40		81.7	130	0

Front End Loader	No	40		79.1	150	0
Dozer	No	40		81.7	150	0
Tractor	No	40	84		150	0
Backhoe	No	40		77.6	150	0

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	75.6	71.7	N/A	N/A	N/A	N/A
Backhoe	70	66	N/A	N/A	N/A	N/A
Dozer	73.4	69.4	N/A	N/A	N/A	N/A
Front End Loader	69.6	65.6	N/A	N/A	N/A	N/A
Dozer	72.1	68.1	N/A	N/A	N/A	N/A
Tractor	74.5	70.5	N/A	N/A	N/A	N/A
Backhoe	68	64	N/A	N/A	N/A	N/A
Total	75.6	77.1	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residences to the northw	Residential	65	60	55

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	180	0
Backhoe	No	40		77.6	200	0
Dozer	No	40		81.7	220	0
Front End Loader	No	40		79.1	230	0
Dozer	No	40		81.7	240	0
Tractor	No	40	84		250	0
Backhoe	No	40		77.6	250	0

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	70.5	66.6	N/A	N/A	N/A	N/A
Backhoe	65.5	61.5	N/A	N/A	N/A	N/A
Dozer	68.8	64.8	N/A	N/A	N/A	N/A
Front End Loader	65.9	61.9	N/A	N/A	N/A	N/A
Dozer	68	64.1	N/A	N/A	N/A	N/A
Tractor	70	66	N/A	N/A	N/A	N/A
Backhoe	63.6	59.6	N/A	N/A	N/A	N/A

	Total	70.5	72.6	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Resis to north ac. center	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	300	0
Backhoe	No	40		77.6	300	0
Dozer	No	40		81.7	300	0
Front End Loader	No	40		79.1	300	0
Dozer	No	40		81.7	300	0
Tractor	No	40	84		300	0
Backhoe	No	40		77.6	300	0

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	66.1	62.1	N/A	N/A	N/A	N/A
Backhoe	62	58	N/A	N/A	N/A	N/A
Dozer	66.1	62.1	N/A	N/A	N/A	N/A
Front End Loader	63.5	59.6	N/A	N/A	N/A	N/A
Dozer	66.1	62.1	N/A	N/A	N/A	N/A
Tractor	68.4	64.5	N/A	N/A	N/A	N/A
Backhoe	62	58	N/A	N/A	N/A	N/A
Total	68.4	69.9	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Resis to northwest ac. cen	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	400	0
Backhoe	No	40		77.6	400	0
Dozer	No	40		81.7	400	0
Front End Loader	No	40		79.1	400	0

Dozer	No	40		81.7	400	0
Tractor	No	40	84		400	0
Backhoe	No	40		77.6	400	0

			Results			
	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	63.6	59.6	N/A	N/A	N/A	N/A
Backhoe	59.5	55.5	N/A	N/A	N/A	N/A
Dozer	63.6	59.6	N/A	N/A	N/A	N/A
Front End Loader	61	57.1	N/A	N/A	N/A	N/A
Dozer	63.6	59.6	N/A	N/A	N/A	N/A
Tractor	65.9	62	N/A	N/A	N/A	N/A
Backhoe	59.5	55.5	N/A	N/A	N/A	N/A
Total	65.9	67.4	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1

Report date: 1/7/2021
Case Description: Grading

			---- Receptor #1 ----		
	Baselines (dBA)				
Description	Land Use	Daytime	Evening	Night	
Residences to the north	Residential	65	60	55	

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Excavator	No	40		80.7	100	0
Grader	No	40	85		120	0
Dozer	No	40		81.7	140	0
Front End Loader	No	40		79.1	150	0
Tractor	No	40	84		150	0
Backhoe	No	40		77.6	150	0

			Results			
	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	74.7	70.7	N/A	N/A	N/A	N/A
Grader	77.4	73.4	N/A	N/A	N/A	N/A

Dozer		72.7	68.7	N/A	N/A	N/A	N/A
Front End Loader		69.6	65.6	N/A	N/A	N/A	N/A
Tractor		74.5	70.5	N/A	N/A	N/A	N/A
Backhoe		68	64	N/A	N/A	N/A	N/A
	Total	77.4	77.7	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residences to the northwe	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	180	0
Grader	No	40	85		200	0
Dozer	No	40		81.7	220	0
Front End Loader	No	40		79.1	240	0
Tractor	No	40	84		250	0
Backhoe	No	40		77.6	250	0

	Calculated (dBA)		Results Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	69.6	65.6	N/A	N/A	N/A	N/A
Grader	73	69	N/A	N/A	N/A	N/A
Dozer	68.8	64.8	N/A	N/A	N/A	N/A
Front End Loader	65.5	61.5	N/A	N/A	N/A	N/A
Tractor	70	66	N/A	N/A	N/A	N/A
Backhoe	63.6	59.6	N/A	N/A	N/A	N/A
Total	73	73.2	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Resis to north ac. center	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	300	0
Grader	No	40	85		300	0

Dozer	No	40		81.7	300	0
Front End Loader	No	40		79.1	300	0
Tractor	No	40	84		300	0
Backhoe	No	40		77.6	300	0

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	65.1	61.2	N/A	N/A	N/A	N/A
Grader	69.4	65.5	N/A	N/A	N/A	N/A
Dozer	66.1	62.1	N/A	N/A	N/A	N/A
Front End Loader	63.5	59.6	N/A	N/A	N/A	N/A
Tractor	68.4	64.5	N/A	N/A	N/A	N/A
Backhoe	62	58	N/A	N/A	N/A	N/A
Total	69.4	70.3	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Resis to northwest ac. cen	Residential	65	60	55

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	400	0
Grader	No	40	85		400	0
Dozer	No	40		81.7	400	0
Front End Loader	No	40		79.1	400	0
Tractor	No	40	84		400	0
Backhoe	No	40		77.6	400	0

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	62.6	58.7	N/A	N/A	N/A	N/A
Grader	66.9	63	N/A	N/A	N/A	N/A
Dozer	63.6	59.6	N/A	N/A	N/A	N/A
Front End Loader	61	57.1	N/A	N/A	N/A	N/A
Tractor	65.9	62	N/A	N/A	N/A	N/A
Backhoe	59.5	55.5	N/A	N/A	N/A	N/A
Total	66.9	67.8	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1

Report date: 1/7/2021
Case Description: Bldg Construction

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residences to the north	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	120	0
Man Lift	No	20		74.7	140	0
Man Lift	No	20		74.7	160	0
Man Lift	No	20		74.7	180	0
Generator	No	50		80.6	180	0
Tractor	No	40	84		180	0
Backhoe	No	40		77.6	180	0
Front End Loader	No	40		79.1	200	0
Welder / Torch	No	40		74	200	0

Equipment	Calculated (dBA) *Lmax	Leq	Results Day Lmax	Noise Limits (dBA) Day Leq	Evening Lmax	Evening Leq
Crane	72.9	65	N/A	N/A	N/A	N/A
Man Lift	65.8	58.8	N/A	N/A	N/A	N/A
Man Lift	64.6	57.6	N/A	N/A	N/A	N/A
Man Lift	63.6	56.6	N/A	N/A	N/A	N/A
Generator	69.5	66.5	N/A	N/A	N/A	N/A
Tractor	72.9	68.9	N/A	N/A	N/A	N/A
Backhoe	66.4	62.5	N/A	N/A	N/A	N/A
Front End Loader	67.1	63.1	N/A	N/A	N/A	N/A
Welder / Torch	62	58	N/A	N/A	N/A	N/A
Total	72.9	73.3	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residences to the northwe	Residential	65	60	55

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	230	0
Man Lift	No	20		74.7	240	0
Man Lift	No	20		74.7	250	0
Man Lift	No	20		74.7	260	0
Generator	No	50		80.6	260	0
Tractor	No	40	84		280	0
Backhoe	No	40		77.6	280	0
Front End Loader	No	40		79.1	300	0
Welder / Torch	No	40		74	300	0

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	67.3	59.3	N/A	N/A	N/A	N/A
Man Lift	61.1	54.1	N/A	N/A	N/A	N/A
Man Lift	60.7	53.7	N/A	N/A	N/A	N/A
Man Lift	60.4	53.4	N/A	N/A	N/A	N/A
Generator	66.3	63.3	N/A	N/A	N/A	N/A
Tractor	69	65.1	N/A	N/A	N/A	N/A
Backhoe	62.6	58.6	N/A	N/A	N/A	N/A
Front End Loader	63.5	59.6	N/A	N/A	N/A	N/A
Welder / Torch	58.4	54.5	N/A	N/A	N/A	N/A
Total	69	69.5	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Resis to north ac. center	Residential	65	60	55

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	340	0
Man Lift	No	20		74.7	340	0
Man Lift	No	20		74.7	340	0
Man Lift	No	20		74.7	340	0
Generator	No	50		80.6	340	0
Tractor	No	40	84		340	0
Backhoe	No	40		77.6	340	0

Front End Loader	No	40		79.1	340	0
Welder / Torch	No	40		74	340	0

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	63.9	55.9	N/A	N/A	N/A	N/A
Man Lift	58	51.1	N/A	N/A	N/A	N/A
Man Lift	58	51.1	N/A	N/A	N/A	N/A
Man Lift	58	51.1	N/A	N/A	N/A	N/A
Generator	64	61	N/A	N/A	N/A	N/A
Tractor	67.3	63.4	N/A	N/A	N/A	N/A
Backhoe	60.9	56.9	N/A	N/A	N/A	N/A
Front End Loader	62.5	58.5	N/A	N/A	N/A	N/A
Welder / Torch	57.3	53.4	N/A	N/A	N/A	N/A
Total	67.3	67.5	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Resis to northwest ac. cen	Residential	65	60	55

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	450	0
Man Lift	No	20		74.7	450	0
Man Lift	No	20		74.7	450	0
Man Lift	No	20		74.7	450	0
Generator	No	50		80.6	450	0
Tractor	No	40	84		450	0
Backhoe	No	40		77.6	450	0
Front End Loader	No	40		79.1	450	0
Welder / Torch	No	40		74	450	0

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	61.5	53.5	N/A	N/A	N/A	N/A
Man Lift	55.6	48.6	N/A	N/A	N/A	N/A
Man Lift	55.6	48.6	N/A	N/A	N/A	N/A
Man Lift	55.6	48.6	N/A	N/A	N/A	N/A
Generator	61.5	58.5	N/A	N/A	N/A	N/A

Tractor		64.9	60.9	N/A	N/A	N/A	N/A
Backhoe		58.5	54.5	N/A	N/A	N/A	N/A
Front End Loader		60	56	N/A	N/A	N/A	N/A
Welder / Torch		54.9	50.9	N/A	N/A	N/A	N/A
	Total	64.9	65.1	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1

Report date: 1/7/2021
Case Description: Paving

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residences to the north	Residential	65	60	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Paver	No	50		77.2	120	0
Concrete Mixer Truck	No	40		78.8	130	0
Roller	No	20		80	140	0
Paver	No	50		77.2	160	0
Concrete Pump Truck	No	20		81.4	160	0
Roller	No	20		80	160	0

			Results			
	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	69.6	66.6	N/A	N/A	N/A	N/A
Concrete Mixer Truck	70.5	66.5	N/A	N/A	N/A	N/A
Roller	71.1	64.1	N/A	N/A	N/A	N/A
Paver	67.1	64.1	N/A	N/A	N/A	N/A
Concrete Pump Truck	71.3	64.3	N/A	N/A	N/A	N/A
Roller	69.9	62.9	N/A	N/A	N/A	N/A
Total	71.3	72.8	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night

Residences to the northw	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	200	0
Concrete Mixer Truck	No	40		78.8	220	0
Roller	No	20		80	230	0
Paver	No	50		77.2	240	0
Concrete Pump Truck	No	20		81.4	240	0
Roller	No	20		80	240	0

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	65.2	62.2	N/A	N/A	N/A	N/A
Concrete Mixer Truck	65.9	62	N/A	N/A	N/A	N/A
Roller	66.7	59.8	N/A	N/A	N/A	N/A
Paver	63.6	60.6	N/A	N/A	N/A	N/A
Concrete Pump Truck	67.8	60.8	N/A	N/A	N/A	N/A
Roller	66.4	59.4	N/A	N/A	N/A	N/A
Total	67.8	68.7	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Resis to north ac. center	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	320	0
Concrete Mixer Truck	No	40		78.8	320	0
Roller	No	20		80	320	0
Paver	No	50		77.2	320	0
Concrete Pump Truck	No	20		81.4	320	0
Roller	No	20		80	320	0

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	61.1	58.1	N/A	N/A	N/A	N/A

Concrete Mixer Truck		62.7	58.7	N/A	N/A	N/A	N/A
Roller		63.9	56.9	N/A	N/A	N/A	N/A
Paver		61.1	58.1	N/A	N/A	N/A	N/A
Concrete Pump Truck		65.3	58.3	N/A	N/A	N/A	N/A
Roller		63.9	56.9	N/A	N/A	N/A	N/A
	Total	65.3	65.7	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Resis to northwest ac. cen	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	440	0
Concrete Mixer Truck	No	40		78.8	440	0
Roller	No	20		80	440	0
Paver	No	50		77.2	440	0
Concrete Pump Truck	No	20		81.4	440	0
Roller	No	20		80	440	0

	Calculated (dBA)		Results Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	58.3	55.3	N/A	N/A	N/A	N/A
Concrete Mixer Truck	59.9	55.9	N/A	N/A	N/A	N/A
Roller	61.1	54.1	N/A	N/A	N/A	N/A
Paver	58.3	55.3	N/A	N/A	N/A	N/A
Concrete Pump Truck	62.5	55.5	N/A	N/A	N/A	N/A
Roller	61.1	54.1	N/A	N/A	N/A	N/A
Total	62.5	62.9	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Report date: 1/7/2021
Case Description: Architectural Coating

---- Receptor #1 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residences to the north	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	120	0

Results

Equipment	Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq
Compressor (air)	70.1	66.1	N/A	N/A	N/A	N/A
Total	70.1	66.1	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residences to the northwe	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	200	0

Results

Equipment	Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq
Compressor (air)	65.6	61.6	N/A	N/A	N/A	N/A
Total	65.6	61.6	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Resis to north ac. center	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	350	0

Results

		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		60.8	56.8	N/A	N/A	N/A	N/A
	Total	60.8	56.8	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Resis to northwest ac. cen	Residential	65	60	55

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	450	0

Results

		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		58.6	54.6	N/A	N/A	N/A	N/A
	Total	58.6	54.6	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Appendix E-3

Equipment Specifications and Noise Calculations

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TECHNICAL GUIDE

R-410A
ZE/ZF/ZR/XN/XP SERIES
3 - 6 TON
60 Hertz

Description

YORK® ZE/ZF/ZR/XN/XP Series units are convertible single package high efficiency rooftops with a common roof curb for the 3, 4, 5 and 6 Ton sizes (ZE, ZR, XN, XP not available in 6 Ton). Although the units are primarily designed for curb mounting on a roof, they can also be slab-mounted at ground level or set on steel beams above a finished roof.

All ZE/ZF/ZR/XN/XP Series units are self-contained and assembled on rigid full perimeter base rails allowing for overhead rigging. Every unit is completely charged, wired, piped and tested at the factory to provide a quick and easy field installation.

All models (including those with an economizer) are convertible between bottom and horizontal duct connections.

ZE/ZF/ZR Series units are available in the following configurations: cooling only, cooling with electric heat, and cooling with one or two stage gas heat. Electric heaters are available as factory-installed option or field installed accessory.

XN/XP Series units are available in the following configurations: cooling and heating only and cooling and heating with electric heat.

Tested in accordance with:

DESIGN CERTIFIED

C SA US

CERTIFIED

AHRI CERTIFIED www.ahridirectory.org Unitary Small AC AHRI Standard 210/240

AHRI CERTIFIED www.ahridirectory.org Unitary Small HP AHRI Standard 210/240

Sound Performance

ZF/ZR/XP Indoor Sound Power Levels

Size (Tons)	CFM	ESP (IWG)	Blower		Sound Power, dB (10^{-12}) Watts							
					Sound Rating[1] dB (A)	Octave Band Centerline Frequency (Hz)						
			RPM	BHP		63	125	250	500	1000	2000	4000	8000
036 (3.0)	1200	0.2	630	0.41	63	82	77	59	50	43	42	40	45
048 (4.0)	1600	0.2	791	0.54	72	95	84	58	54	46	44	45	44
060 (5.0)	2000	0.2	840	0.67	62	84	71	58	53	50	49	49	49
072 (6.0)	2200	0.3	920	1.45	76	61	71	68	67	72	66	61	54

1. These values have been accessed using a model of sound propagation from a point source into the hemispheric/free field. The dBA values provided are to be used for reference only. Calculation of dBA values cover matters of system design and the fan manufacture has no way of knowing the details of each system. This constitutes an exception to any specification or guarantee requiring a dBA value of sound data in any other form than sound power level ratings.

ZE/ZF/ZR Outdoor Sound Power Levels

Size (Tons)	Sound Rating[1] dB (A)	Octave Band Centerline Frequency (Hz)							
		63	125	250	500	1000	2000	4000	8000
036 (3.0)	81	87.5	86.0	81.0	77.0	75.0	69.5	65.5	70.5
048 (4.0)	80	84.5	81.0	80.0	78.0	75.0	70.0	67.0	70.5
060 (5.0)	82	86.5	87.5	81.5	77.5	75.0	71.5	68.0	70.5
072 (6.0)	83	-	84.0	85.0	79.0	80.0	72.0	67.5	62.5

1. Rated in accordance with AHRI 270 standard.

XN/XP Outdoor Sound Power Levels

Size (Tons)	Sound Rating[1] dB (A)	Octave Band Centerline Frequency (Hz)							
		63	125	250	500	1000	2000	4000	8000
036 (3.0)	76	83.5	84.5	76.5	72.0	68.0	66.0	60.0	56.0
048 (4.0)	80	85.0	83.0	81.0	77.5	75.5	71.5	67.5	61.5
060 (5.0)	80	86.0	84.0	81.0	77.0	75.5	71.0	66.5	60.5

1. Rated in accordance with AHRI 270 standard.

MECHANICAL EQUIPMENT NOISE LEVEL

Input:

Equipment Locations / Source Noise Data

Site	X	Y	Elev. At Roof or Ground	Source Height	LwA Single Source	Number of Units	Sound Level at 50 feet Total	Equip. Location Site / Number
Bldg 1 NW Corr	125	270	36.5	3	80	1	48	Bldg 1 NW Corne York ZF-048
Bldg 1 NE Corn	643	270	36.5	3	80	1	48	Bldg 1 NE Corne York ZF-048

Frequency (in Hz) 500

Receivers at P.L. and Vicinity				Applicable Standard	Building Elevation	Roof Elevation
ST1	650	408	0	45	0	36.5
ST2	5	408	0	45		
E1	847	270	0	70		
W1	31	270	0	70		

Output:

Location: E1 847 270 0 Applicable Standard 70

Source Coordinates				Receiver Coordinates		Location-Equipment	Leq (h) at 50' (dBA)	Receiver Elevation (feet)	Source Elevation (feet)	Source to Receiver (feet)	Source to Barrier (feet)	Receiver to Barrier (feet)	Barrier (base) (feet)	Barrier Height (feet)	Fresnel No. at 500 Hz	Barrier Attenuation (dBA)	Leq w/o Barrier (dBA)	Leq w/Barrier (dBA)
Equip Site	X	Y	Z	X	Y													
Bldg 1 NW C	125	270	36.5	847	270	York ZF-048	48	5	39.5	722	643	79	36.5	2.8	5.63	21	25	5
Bldg 1 NE Cc	643	270	36.5	847	270	York ZF-048	48	5	39.5	204	25	179	36.5	2.8	0.32	10	36	26
																TOTAL Leq:	36	26
																	Without Barrier	With Barrier/ Parapet

MECHANICAL EQUIPMENT NOISE LEVEL

Input:

Equipment Locations / Source Noise Data

Site	X	Y	Elev. At Roof or Ground	Source Height	LwA Single Source	Number of Units	Sound Level at 50 feet Total	Equip. Location Site / Number
Bldg 1 NW Corr	125	270	36.5	3	80	1	48	Bldg 1 NW Corne York ZF-048
Bldg 1 NE Corn	643	270	36.5	3	80	1	48	Bldg 1 NE Corne York ZF-048

Frequency (in Hz) 500

Receivers at P.L. and Vicinity	X	Y	Building Elevation	Applicable Standard	Roof Elevation
			0		36.5
ST1	650	408	0	45	
ST2	5	408	0	45	
E1	847	270	0	70	
W1	31	270	0	70	

Output:

Location: W1 31 270 0 Applicable Standard 70

Source Coordinates				Receiver Coordinates		Location-Equipment	Leq (h) at 50' (dBA)	Receiver Elevation (feet)	Source Elevation (feet)	Source to Receiver (feet)	Source to Barrier (feet)	Receiver to Barrier (feet)	Barrier (base) (feet)	Barrier Height (feet)	Fresnel No. at 500 Hz	Barrier Attenuation (dBA)	Leq w/o Barrier (dBA)	Leq w/Barrier (dBA)
Equip Site	X	Y	Z	X	Y													
Bldg 1 NW C	125	270	36.5	31	270	York ZF-048	48	5	39.5	94	25	69	36.5	2.8	1.72	16	43	27
Bldg 1 NE Cc	643	270	36.5	31	270	York ZF-048	48	5	39.5	612	643	-31	36.5	2.8	68.09	31	27	7
																TOTAL Leq:	43	27
																	Without Barrier	With Barrier/ Parapet

MECHANICAL EQUIPMENT NOISE LEVEL

Input:

Equipment Locations / Source Noise Data

Site	X	Y	Elev. At Roof or Ground	Source Height	LwA Single Source	Number of Units	Sound Level at 50 feet Total	Equip. Location Site / Number
Bldg 1 NW Corr	125	270	36.5	3	80	1	48	Bldg 1 NW Corne York ZF-048
Bldg 1 NE Corn	643	270	36.5	3	80	1	48	Bldg 1 NE Corne York ZF-048

Frequency (in Hz) 500

Receivers at P.L. and Vicinity				Applicable Standard	Building Elevation	Roof Elevation
ST1	650	408	0	45	0	36.5
ST2	5	408	0	45		
E1	847	270	0	70		
W1	31	270	0	70		

Output:

Location: ST1 650 408 0 Applicable Standard 45

Source Coordinates				Receiver Coordinates		Location-Equipment	Leq (h) at 50' (dBA)	Receiver Elevation (feet)	Source Elevation (feet)	Source to Receiver (feet)	Source to Barrier (feet)	Receiver to Barrier (feet)	Barrier (base) (feet)	Barrier Height (feet)	Fresnel No. at 500 Hz	Barrier Attenuation (dBA)	Leq w/o Barrier (dBA)	Leq w/Barrier (dBA)
Equip Site	X	Y	Z	X	Y													
Bldg 1 NW C	125	270	36.5	650	408	York ZF-048	48	5	39.5	543	25	518	36.5	2.8	0.04	6	28	22
Bldg 1 NE Cc	643	270	36.5	650	408	York ZF-048	48	5	39.5	138	25	113	36.5	2.8	0.75	13	39	27
																TOTAL Leq:	40	28
																	Without Barrier	With Barrier/ Parapet

MECHANICAL EQUIPMENT NOISE LEVEL

Input:

Equipment Locations / Source Noise Data

Site	X	Y	Elev. At Roof or Ground	Source Height	LwA Single Source	Number of Units	Sound Level at 50 feet Total	Equip. Location Site / Number	Frequency (in Hz)	500
Bldg 1 NW Corn	125	270	36.5	3	80	2	51	Bldg 1 NW Corne	York ZF-048	
Bldg 1 NE Corn	643	270	36.5	3	80	2	51	Bldg 1 NE Corne	York ZF-048	

Receivers at P.L. and Vicinity				Applicable Standard	Building Elevation	Roof Elevation
					0	36.5
ST1	650	408	0	45		
ST2	5	408	0	45		
E1	847	270	0	70		
W1	31	270	0	70		

Output:

Location: ST2 5 408 0 Applicable Standard 45

Source Coordinates				Receiver Coordinates		Location-Equipment	Leq (h) at 50' (dBA)	Receiver Elevation (feet)	Source Elevation (feet)	Source to Receiver (feet)	Source to Barrier (feet)	Receiver to Barrier (feet)	Barrier (base) (feet)	Barrier Height (feet)	Fresnel No. at 500 Hz	Barrier Attenuation (dBA)	Leq w/o Barrier (dBA)	Leq w/Barrier (dBA)
Equip Site	X	Y	Z	X	Y													
Bldg 1 NW C	125	270	36.5	5	408	York ZF-048	51	5	39.5	183	25	158	36.5	2.8	0.41	10	40	30
Bldg 1 NE Co	643	270	36.5	5	408	York ZF-048	51	5	39.5	653	25	628	36.5	2.8	0.02	5	29	24
																TOTAL Leq:	40	31
																	Without Barrier	With Barrier/ Parapet

RAY-TRACE PROGRAM (FOR A POINT-SOURCE)

Uses the Equation: $(A_{e4})_{point}=20*\log[(2*pi*N)^{1/2}/\tanh(2*pi*N)^{1/2}]+5dB$

(Ref. Pg.174, Noise and Vibration Control, L.L. Beranek Editor, 1971 Ed.

Project: Oakmont Whittram Warehouse Project
Date: 1/\7/20
By: MG

Please Enter: Using English (E) units or Metric (M) units ? E

Ray Trace Number/Description	Source-Receiver Distance (ft. or m)	Source Base Elev. (ft. or m)	Source Height above Ground (ft. or m)	Receiver Base Elev. (ft. or m)	Receiver Height above Ground (ft. or m)	Horizontal Barrier Dist. (in ref. to source) (ft. or m)	Barrier Base Elev. (ft. or m)	Barrier Height (ft. or m)	Dominant Freq.(Hz)	Source-Rcvr Straight-Line Dist. (ft. or m)	Source-Top-of-Barrier Dist. (ft. or m)	Receiver-Top-of-Barrier Dist. (ft. or m)	Lambda	N_{max}	$AE_{(barriers)}$ (dB)
1. Source -Truck Noise at N & E. PL	200.0	0.0	10.0	0.0	5.0	40.0	0.0	**8.0**	500.0	200.1	40.0	160.0	2.3	0.0	**5.2**
1. Source -Truck Noise at Residences to the N	430.0	0.0	10.0	0.0	5.0	25.0	0.0	**25.0**	500.0	430.0	29.2	405.5	2.3	4.1	**19.1**
1. Source -Truck Noise at Residences to the NW	550.0	0.0	10.0	0.0	5.0	25.0	0.0	**25.0**	500.0	550.0	29.2	525.4	2.3	4.0	**19.0**