FOUNDER'S RIDGE LIGHT INDUSTRIAL PROJECT

SITE NOISE STUDY

Submitted to:

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DOCUMENT INFORMATION

FILE:	Founders Ridge Light Industrial Site Noise Study
PROJECT #:	21-7839
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SIGNED:

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I. INTRODUCTION / EXECUTIVE SUMMARY

This report presents the results of the environmental noise study conducted for the warehouse operation of the Founder's Ridge project. The proposed site is located within the Old Fort Lake Business Tech Park (BTP) portion of the City of Dupont. It is bounded by a golf course to the north and west, by the Old Fort Lake trail to the west, by mixed-use properties to the east, and by Old Fort Lake Business Tech Park properties to the southeast. The proposed project consists of four warehouse buildings with public roads leading to each of the warehouses and to potential future properties to the north and west of the project site. The purpose of the study is to document the extent of impact of noise from truck traffic and loading operation associated with the site to the surrounding properties within the City of Dupont. Noise levels from the site were predicted to the receiving properties and compared to the exterior sound level limits established by applicable code requirements.

Noise levels from truck / loading operations at the proposed site are predicted to the surrounding industrial properties and nearest commercial and residential properties.

See Appendix I for descriptions and definitions of acoustical terminology used in this report.

The following figure presents the proposed Founder's Ridge project site.

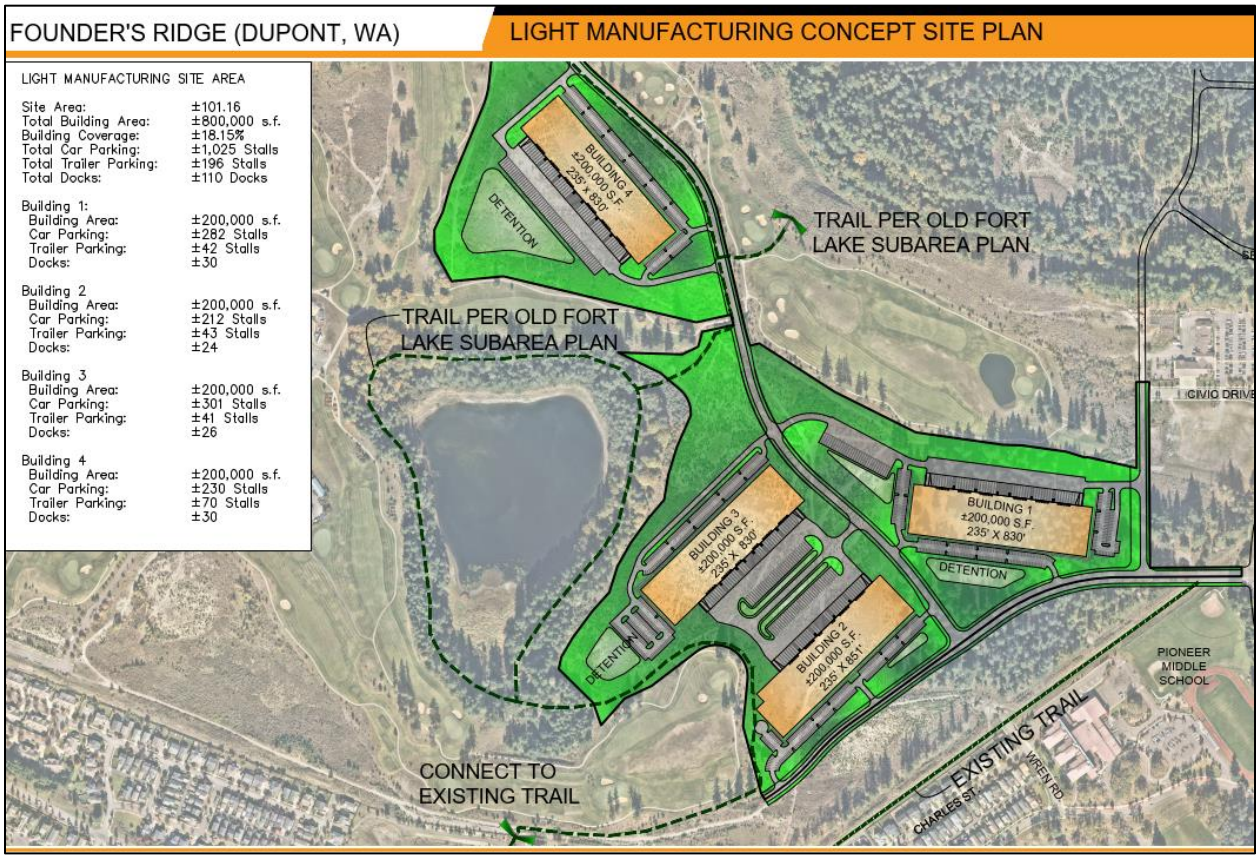

Figure 1: Founder's Ridge Site Plan

II. PROJECT SITE AND ZONING

The project site is located within the City of Dupont within the Old Fort Lake Business and Technology Park Subarea. According to the City of Dupont, the project site and nearest adjacent properties and noise sensitive properties are currently zoned along with EDNA classification as follows:

Table 1: Site and Surrounding Properties Zoning

Property	Zoning (Focus Area)	EDNA Classification
Project Site	BTP	Class C
Old Fort Lake Trail	OS	Class A
Sequalitchew Creek Trail	OS	Class A
Pioneer Middle School	R-5	Class A
South of BTP Area	R-5 / R-12	Class A
East Mixed Use	MXD	Class B
Southeast	BTP	Class C
Golf Course	BTP	Class C

The following figures present the zoning of the proposed site and surrounding properties within the City of Dupont:

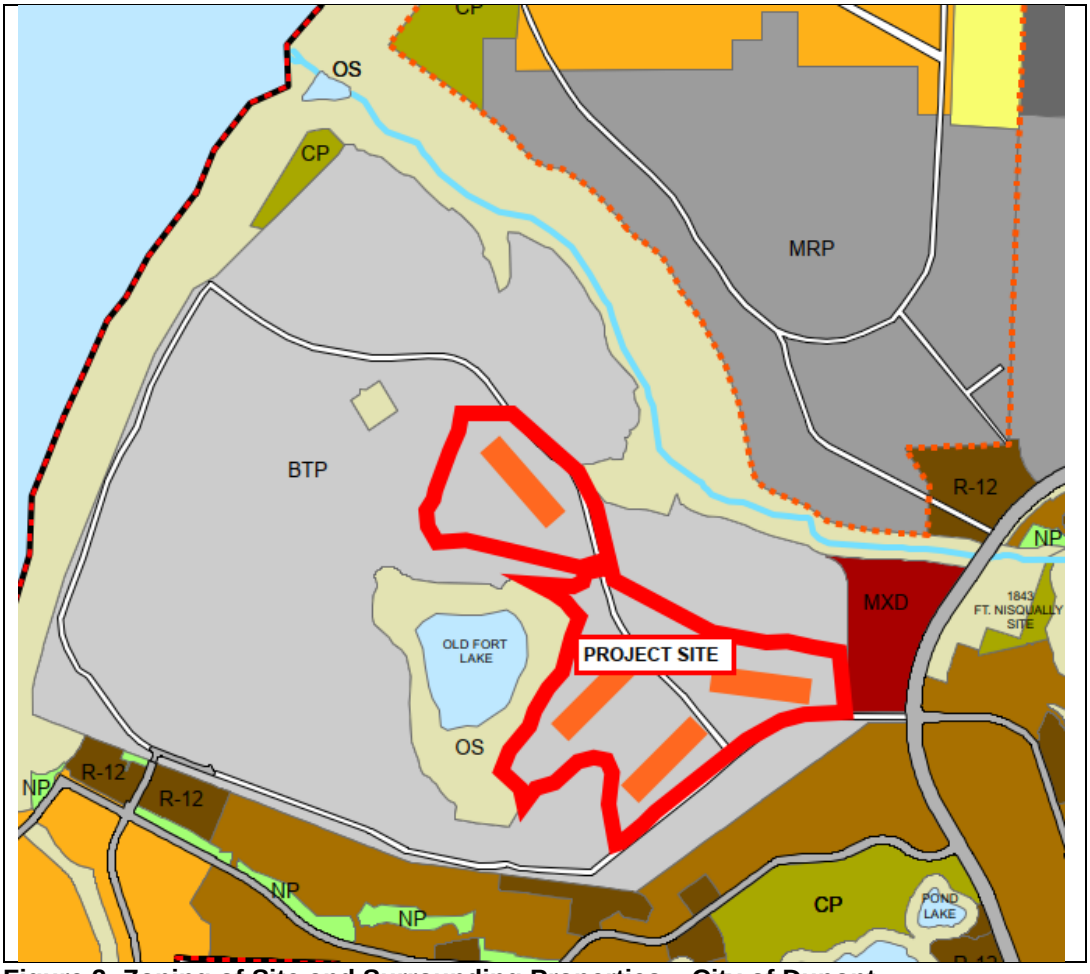

Figure 2: Zoning of Site and Surrounding Properties – City of Dupont

III. IMPACT REGULATIONS AND CRITERIA

The project site is located within the City of Dupont zoning jurisdiction. The City of Dupont limits noise between properties as follows:

City of Dupont 9.09.040

(a) No person shall cause or permit noise to intrude into the property of another person which noise exceeds the maximum permissible noise levels set forth below in this section.

(b) The noise limitations established are as set forth in Washington Administrative Code (WAC) Chapter 173-60-040 and the following table. EDNA means Environmental Designation for Noise Abatement. EDNA's are broken down into the following classes:

Class A EDNA--residential areas

Class B EDNA--commercial areas

Class C EDNA--industrial areas

(c) EDNA's are designated by the map[2] in appendix "A" of the ordinance codified in this chapter.

(d) The noise limitations established are as set forth in the following table after any applicable adjustments provided for herein are applied:

EDNA OF NOISE SOURCE	EDNA OF RECEIVING PROPERTY		
	CLASS A	CLASS B	CLASS C
CLASS A (Residential Use)	55 dBA	57 dBA	60 dBA
CLASS B (Commercial Use)	57	60	65
CLASS C (Industrial Use)	60	65	70

Between the hours of 10:00 pm and 7:00 am the noise limits in the table above are to be reduced by 10 dBA for receiving properties within Class A EDNAs.

During any single hour in the evening or daytime the noise limits in the table above may be exceeded for any receiving property by the following:

1. 5 dBA for a total of 15 minutes (25%) in any one-hour period.
2. 10 dBA for a total of 5 minutes (8%) in any one-hour period.
3. 15 dBA for a total of 1.5 minutes (2.5%) in any one-hour period.

The following are the noise limits at the surrounding properties based on the City of Dupont Municipal Code standards for each EDNA of the receiving property:

Class A EDNA Receiver: Noise is limited to 60 dBA during daytime hours. During nighttime hours, between the hours of 10 p.m. and 7 a.m., the maximum permissible sound level is decreased by 10 decibels.

Class B EDNA Receiver: Noise is limited to 65 dBA at all hours of the day.

Class C EDNA Receiver: Noise is limited to 70 dBA at all hours of the day.

Additionally, during any one-hour period the noise limits may be exceeded for any receiving property by the following:

- 5 dBA for a total of 15 minutes in any one-hour period.
- 10 dBA for a total of 5 minutes in any one-hour period.
- 15 dBA for a total of 1.5 minutes in any one-hour period.

Since the truck and loading dock operations will occur during daytime and nighttime hours, they must not exceed the nighttime hourly noise limits at the Class A EDNA receiving properties.

Medium duration events, which are not expected to occur for a duration of 15-minutes in an hour, are subject to the 5 dBA allowable exceedance to the hourly limit.

Short-term events, which are not expected to occur for a duration of 1.5-minutes in an hour, are subject to the 15 dBA allowable exceedance to the hourly limit.

Ambient Conditions

Existing ambient noise levels were measured on site between March 30 and March 31, 2021 with a Svantek 971 type 1 sound level meter. The following table presents a summary of the hourly noise levels during daytime and nighttime hours:

Table 2: Measured Ambient Noise Levels

Time Period	Hourly Sound Level Range, dBA Leq
Daytime (7 AM – 10 PM)	43 – 53
Nighttime (10 PM – 7 AM)	41 – 57

Please refer to the appendix for more information regarding the site noise measurements.

IV. SITE OPERATIONS

Site Description:

The proposed site has the following elements:

- The proposed site consists of a total of four buildings which will be used for warehousing.
- Locations of operations
    - The trucks will enter each of the warehouse building properties on proposed public roads starting at the Center Drive and Palisade Boulevard.
        - One leg of the proposed roads will extend from the intersection to the warehouse building properties and traverse along the southeast property line of buildings 1 and 2.
            - Southeast of this public road is an Old Fort Lake BTP Property. Past that property lies residential properties.
        - Another leg of the proposed roads will traverse from the southeast proposed road along the east property line of building 1 to Civic Drive.
            - East of this public road are the mixed use zoned properties currently in use by a public works building, the police office and city hall.
        - Another leg of the proposed roads will traverse on the west side of the building 1 property line, and along the east sides of buildings 2, 3, and 4 which will have access to the Old Fort Lake trail, which ties into Sequalitchew Creek trail, and is proposed to extend north towards Puget Sound to allow access to future properties north of the golf course.
            - To the north and east of this public road is a portion of the golf course. Past that towards the northeast is the Sequalitchew Creek Trail.
    - Each building has loading docks and trailer stalls on one side of the building.
        - Building 1 loading dock is on the north side of the building.
        - Building 2 loading dock is on the northwest side of the building.
        - Building 3 loading dock is on the southeast side of the building.
        - Building 4 loading dock is on the southwest side of the building.
    - There are loading ramps on either side of the loading docks.
        - These will be used for small deliveries, such as from UPS.
    - There is small vehicle (personal vehicles) parking along most of the non-loading dock portions of the each of the buildings.
- Hours of operation are assumed to be 24/7 but will depend ultimately on the tenant.
- Noises associated with the site related to truck and loading dock activity would typically include truck transit, startup and idling, air brakes, backup beepers, and loading activities.
    - Truck maneuvering noise will be located within the truck maneuvering areas.
    - All other truck noise will be located within the loading dock and truck stall areas.

Noise Source Areas and Receiving Property Distances

Trucks will enter each of the building properties from the proposed public roads stemming off of the Center Drive and Palisade Boulevard intersection, and will load/unload at the loading docks. Once the loading / unloading process is complete, the trucks would then exit the building properties through the proposed public roads. No trucks will be maneuvering through the small parking lots designed for personal vehicles. Loading docks and truck stalls for each building are shaded in red, and truck maneuvering areas at each building are shaded in blue in Figure 3 on the following page.

The following table presents a summary of the receiving properties and the distance from the nearest noise source location at each building to each receiving property. Receiver locations at each property were selected that are predicted to have the most noise exposure from the site. Receiver locations are shown in Figure 3 on the following page.

Table 3: Receiving Location Distances

ID	Receiving Property	Noise Source Location	Building 1 Distance	Building 2 Distance	Building 3 Distance	Building 4 Distance
R1	**Old Fort Lake Trail (Class A)**	Maneuvering	600 ft	1,100 ft	1,100 ft	250 ft
		Docks / Stalls	800 ft	1,200 ft	1,000 ft	500 ft
R2	**Sequalitchew Creek Trail (Class A)**	Maneuvering	1,200 ft	1,500 ft	1,500 ft	1,100 ft
		Docks / Stalls	1,200 ft	1,600 ft	1,800 ft	1,500 ft
R3	**Pioneer Middle School (Class A)**	Maneuvering	800 ft	1,300 ft	1,300 ft	2,600 ft
		Docks / Stalls	750 ft	1,200 ft	1,500 ft	3,000 ft
R4	**South Residential (Class A)**	Maneuvering	2,000 ft	1,000 ft	1,000 ft	2,600 ft
		Docks / Stalls	2,000 ft	1,000 ft	1,100 ft	2,800 ft
R5	**East Mixed Use (Class B)**	Maneuvering	100 ft	1,400 ft	1,400 ft	2,300 ft
		Docks / Stalls	350 ft	1,400 ft	1,700 ft	2,700 ft
R6	**SE Old Fort Lake BTP (Class C)**	Maneuvering	700 ft	850 ft	850 ft	2,200 ft
		Docks / Stalls	700 ft	700 ft	1,000 ft	2,500 ft
R7	**Golf Course (Class C)**	Maneuvering	2,000 ft	2,500 ft	2,500 ft	125 ft
		Docks / Stalls	2,200 ft	2,400 ft	2,600 ft	200 ft
R8	**Golf Course (Class C)**	Maneuvering	130 ft	500 ft	500 ft	1,100 ft
		Docks / Stalls	175 ft	600 ft	750 ft	1,500 ft
R9	**Golf Course (Class C)**	Maneuvering	1,200 ft	125 ft	125 ft	1,800 ft
		Docks / Stalls	1,100 ft	250 ft	250 ft	1,900 ft
R10	**Golf Course (Class C)**	Maneuvering	1,000 ft	1,600 ft	1,600 ft	115 ft
		Docks / Stalls	1,200 ft	1,400 ft	1,700 ft	150 ft

The following figure presents a plan of the site indicating the loading docks and truck maneuvering area.

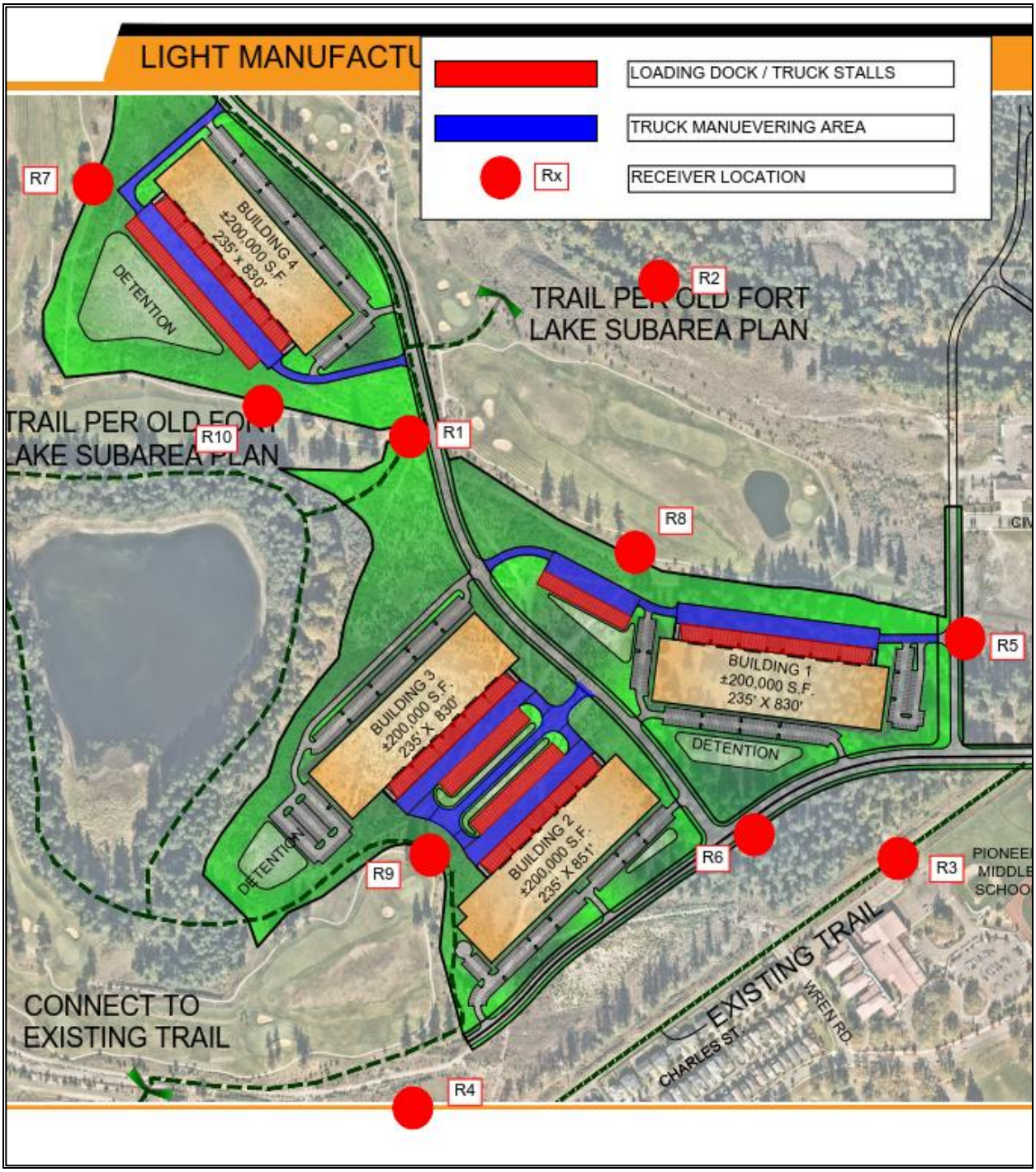

Figure 3: Site Plan w/ Source and Receiver Locations

Truck Traffic

Gibson Traffic Consultants has provided truck numbers based on conversations that were conducted with the City Consultant. The truck numbers are based off of 10% for the Manufacturing and 8% for General Light Industrial. This results in 316 Average Daily Truck trips with the following breakdown:

Table 4: Peak Trips per Hour Overall

Time Range	Peak Trips per Hour
Between 7 – 9 AM	49 Trucks
Between 4 – 6 PM	51 Trucks

Gibson Traffic Consultants indicated that the number of trucks at each of the 4 buildings will have an approximately equivalent distribution for each building. The following table presents the peak truck trips per hour at each of the four buildings:

Table 5: Peak Truck Trips per Hour

Building	Size	PM Peak Trips per Hour
Building 1	200,000 sq. ft.	13 Trucks
Building 2	200,000 sq. ft.	13 Trucks
Building 3	200,000 sq. ft.	13 Trucks
Building 4	200,000 sq. ft.	13 Trucks

As shown in the table above, the peak number of trucks per hour at each of the buildings is predicted to be 13 trucks at each of the buildings.

Source Sound Levels

The following is a summary of typical noise levels generated by activity associated with the site:

Table 6: Source Sound Levels

Truck Events	Noise Level[3]
Truck Transit [1]	75 dBA at 25 feet
Truck idling [1]	72 dBA at 25 feet
Truck engine starting[1]	74 dBA at 25 feet
Roller door opening/closing [2]	65 dBA at 25 feet
Air brakes [2]	65 – 75 dBA at 25 feet
Pallet dragged and dropped [2]	75 dBA at 25 feet
Pallet jack rolling into truck, hitting bumps, etc. [2]	60 dBA at 25 feet

1. These events occur for approximately 1 minute.
2. These events occur for short durations, a few seconds or less in duration.
3. Sound pressure level, dB re 20 µPa

Truck transit consists of a truck pulling into the site, traveling to the loading dock, and backing into the dock door. The loading dock will have rubberized bumpers, and the truck hitting the loading dock is included in the source noise level. Truck transit events where trucks pass closest to receiving properties will last up to 30 seconds.

Truck idling occurs just after entering a loading bay and prior to leaving a truck bay. Signage and other means of minimizing truck idling will be provided to prevent longer idle durations. Trucks idling will typically occur for between one and five minutes, with a total duration of less than 15 minutes during a one-hour period.

Loading activities, which include forklifts, pallet jacks, and moving pallets and materials, will occur within the warehouse and truck cargo area which will contain the noise to within the warehouse and truck cargo area. Warehouse doors are assumed to be closed except where a truck is loading. Backup beepers would be installed on forklifts which will be operating within the warehouse.

Backup beepers are warning devices and are therefore exempt under City of Dupont Municipal Code 9.09.050 (d) (4) such that they are not operating continuously for more than five minutes.

Trucks will not be using backup beepers. The area where the trucks will be backing into the loading dock is not an active pedestrian working area, where backup beepers are not required.

Truck transit on the site, trucks idling, truck engines starting, and truck air brakes will be the primary exterior noise sources at the site.

Truck transit events where trucks pass closest to receiving properties will last for up to 30 seconds. Trucks idling are assumed to idle for no more than a few minutes before transit or after parking, less than a total of 15 minutes during a one-hour period. Air brakes associated with truck activity are essentially instantaneous or last no more than a few seconds and would last less than a total of 1.5 minutes during a one-hour period.

V. PREDICTED SOUND LEVELS

The following sections provide the predicted sound levels from truck events to the nearest receiving properties. Truck events include trucks in transit, trucks idling, engine start, and application of air brakes.

The following is a summary of typical noise levels generated by truck activity:

Table 7: Source Noise Levels and Durations

Truck Condition / Source	dBA @ 25'	Event Duration
Truck Transit (10 – 25 mph)	75	30 seconds
Truck Idle	72	1 – 5 minutes
Truck Engine Start	74	(few seconds)
Air Brakes	75	1 second or less

Loading activities will occur within the warehouse and truck cargo area which will contain the noise to within the warehouse and truck cargo area. Warehouse doors will be closed when a truck is not at the respective loading dock.

Noise levels were predicted based on distance attenuation. Noise reduction due to intervening elements, such as earth berms, barrier walls, and buildings were accounted for in the calculations. Where the proposed warehouse building is located between the noise source locations and the receiving properties, the building will block noise from the noise sources to the receiving properties and will act as a noise barrier.

Distances from each source to the receiving properties were based on the closest possible source location to the nearest receiving properties. Truck engine starts, idling, and air brakes are assumed to occur at a loading dock where a truck will be parked. Truck transit occurs within the truck maneuvering area.

Noise levels were evaluated to the nearest Class A EDNA properties including the Old Fort Lake Trail, the Sequalitchew Creek Trail, Pioneer Middle School, and the residential properties to the south; the nearest Class B EDNA properties including the mixed use properties to the east; and the nearest Class C EDNA properties to the north, east, south, and west.

Predicted Noise Levels – Truck Transit

The following section presents the predicted noise levels from the truck transit events to each of the receiving properties and compared to the hourly code limit.

R1 – Old Fort Lake Trail (Class A)

The following table presents a summary of predicted noise levels at location R1 along the Old Fort Lake Trail receiving property line from truck transit. Distance to the receiving property was determined from the closest portion of the maneuvering area to the receiving property for a truck in transit on the site.

Table 8: Predicted Noise Levels @ R1 – Old Fort Lake Trail – Truck Transit

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)	Event Duration (s)	SEL[3]	Events per Hour	Hourly Leq at Rcvr.[4]
Bldg. 1	75	25 ft	600 ft	-28	-0	**47**	30	62	13	**38**
Bldg. 2	75	25 ft	1,100 ft	-33	-0	**42**	30	57	13	**32**
Bldg. 3	75	25 ft	1,100 ft	-33	-0	**42**	30	57	13	**32**
Bldg. 4	75	25 ft	250 ft	-20	-0	**55**	30	70	13	**45**
									Total Combined Sound Pressure Level >>>	**46**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier
3. SEL = (Lp, r)+10*LOG(Event Duration (s))
4. Hourly Leq at Receiver = (SEL)+10*LOG(Events per Hour)-10*LOG(3600)

As shown in the table above, the predicted noise level from the truck transit on the site will be within the 60 dBA daytime and 50 dBA nighttime hourly code limit.

Additionally, the predicted noise levels from the truck transit are within or below the range of ambient noise levels measured at the site.

R2 – Sequalitchew Creek Trail (Class A)

The following table presents a summary of predicted noise levels at location R2 along the Sequalitchew Creek Trail from truck transit. Distance to the receiving property was determined from the closest portion of the maneuvering area to the receiving property for a truck in transit on the site.

Table 9: Predicted Noise Levels @ R2 – Sequalitchew Creek Trail – Truck Transit

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)	Event Duration (s)	SEL[3]	Events per Hour	Hourly Leq at Rcvr.[4]
Bldg. 1	75	25 ft	1,200 ft	-34	-0	**41**	30	56	13	**32**
Bldg. 2	75	25 ft	1,500 ft	-36	-0	**39**	30	54	13	**30**
Bldg. 3	75	25 ft	1,500 ft	-36	-0	**39**	30	54	13	**30**
Bldg. 4	75	25 ft	1,10 ft	-33	-0	**42**	30	57	13	**32**
Total Combined Sound Pressure Level >>>										**37**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier
3. SEL = (Lp, r)+10*LOG(Event Duration (s))
4. Hourly Leq at Receiver = (SEL)+10*LOG(Events per Hour)-10*LOG(3600)

As shown in the table above, the predicted noise level from the truck transit on the site will be within the 60 dBA daytime and 50 dBA nighttime hourly code limit.

Additionally, the predicted noise levels from the truck transit are within or below the range of ambient noise levels measured at the site.

R3 – Pioneer Middle School (Class A)

The following table presents a summary of predicted noise levels at location R3 along the Pioneer Middle School receiving property line from truck transit. Distance to the receiving property was determined from the closest portion of the maneuvering area to the receiving property for a truck in transit on the site.

Table 10: Predicted Noise Levels @ R3 – Pioneer Middle School – Truck Transit

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)	Event Duration (s)	SEL[3]	Events per Hour	Hourly Leq at Rcvr.[4]
Bldg. 1	75	25 ft	800 ft	-30	-0	**45**	30	60	13	**35**
Bldg. 2	75	25 ft	1,300 ft	-34	-0	**41**	30	55	13	**31**
Bldg. 3	75	25 ft	1,300 ft	-34	-0	**41**	30	55	13	**31**
Bldg. 4	75	25 ft	2,600 ft	-40	-4	**31**	30	45	13	**21**
Total Combined Sound Pressure Level >>>										**38**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier
3. SEL = (Lp, r)+10*LOG(Event Duration (s))
4. Hourly Leq at Receiver = (SEL)+10*LOG(Events per Hour)-10*LOG(3600)

As shown in the table above, the predicted noise level from the truck transit on the site will be within the 60 dBA daytime and 50 dBA nighttime hourly code limit.

Additionally, the predicted noise levels from the truck transit are within or below the range of ambient noise levels measured at the site.

R4 – South Residential Properties (Class A)

The following table presents a summary of predicted noise levels at location R4 along the one of the property lines of the south residential receiving properties from truck transit. Distance to the receiving property was determined from the closest portion of the maneuvering area to the receiving property for a truck in transit on the site.

Table 11: Predicted Noise Levels @ R4 – South Residential – Truck Transit

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)	Event Duration (s)	SEL[3]	Events per Hour	Hourly Leq at Rcvr.[4]
Bldg. 1	75	25 ft	2,000 ft	-38	-0	**37**	30	52	13	**27**
Bldg. 2	75	25 ft	1,000 ft	-32	-0	**43**	30	58	13	**33**
Bldg. 3	75	25 ft	1,000 ft	-32	-0	**43**	30	58	13	**33**
Bldg. 4	75	25 ft	2,600 ft	-40	-4	**31**	30	45	13	**21**
Total Combined Sound Pressure Level >>>										**37**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier
3. SEL = (Lp, r)+10*LOG(Event Duration (s))
4. Hourly Leq at Receiver = (SEL)+10*LOG(Events per Hour)-10*LOG(3600)

As shown in the table above, the predicted noise level from the truck transit on the site will be within the 60 dBA daytime and 50 dBA nighttime hourly code limit.

Additionally, the predicted noise levels from the truck transit are within or below the range of ambient noise levels measured at the site.

R5 – East Mixed Use (Class B)

The following table presents a summary of predicted noise levels at location R5 along the east mixed use receiving property line from truck transit. Distance to the receiving property was determined from the closest portion of the maneuvering area to the receiving property for a truck in transit on the site.

Table 12: Predicted Noise Levels @ R5 – East Mixed Use – Truck Transit

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)	Event Duration (s)	SEL[3]	Events per Hour	Hourly Leq at Rcvr.[4]
Bldg. 1	75	25 ft	100 ft	-12	-0	**63**	30	78	13	**53**
Bldg. 2	75	25 ft	1,400 ft	-35	-6	**34**	30	49	13	**24**
Bldg. 3	75	25 ft	1,400 ft	-35	-6	**34**	30	49	13	**24**
Bldg. 4	75	25 ft	2,300 ft	-39	-0	**36**	30	50	13	**26**
Total Combined Sound Pressure Level >>>										**53**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier
3. SEL = (Lp, r)+10*LOG(Event Duration (s))
4. Hourly Leq at Receiver = (SEL)+10*LOG(Events per Hour)-10*LOG(3600)

As shown in the table above, the predicted noise level from the truck transit on the site will be within the 65 dBA hourly code limit.

Additionally, the predicted noise levels from the truck transit are within or below the range of ambient noise levels measured at the site.

R6 – Southeast Old Fort Lake BTP (Class C)

The following table presents a summary of predicted noise levels at location R6 along the southeast Old Fort Lake Business Technical Park receiving property line from truck transit. Distance to the receiving property was determined from the closest portion of the maneuvering area to the receiving property for a truck in transit on the site.

Table 13: Predicted Noise Levels @ R6 – SE Old Fort Lake BTP – Truck Transit

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)	Event Duration (s)	SEL[3]	Events per Hour	Hourly Leq at Rcvr.[4]
Bldg. 1	75	25 ft	700 ft	-29	-9	**37**	30	52	13	**27**
Bldg. 2	75	25 ft	850 ft	-31	-0	**44**	30	59	13	**35**
Bldg. 3	75	25 ft	850 ft	-31	-0	**44**	30	59	13	**35**
Bldg. 4	75	25 ft	2,200 ft	-39	-0	**36**	30	51	13	**26**
Total Combined Sound Pressure Level >>>										**38**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier
3. SEL = (Lp, r)+10*LOG(Event Duration (s))
4. Hourly Leq at Receiver = (SEL)+10*LOG(Events per Hour)-10*LOG(3600)

As shown in the table above, the predicted noise level from the truck transit on the site will be within the 70 dBA hourly code limit.

Additionally, the predicted noise levels from the truck transit are within or below the range of ambient noise levels measured at the site.

R7 – Golf Course (Class C)

The following table presents a summary of predicted noise levels at location R7 along the golf course property line from truck transit. Distance to the receiving property was determined from the closest portion of the maneuvering area to the receiving property for a truck in transit on the site.

Table 14: Predicted Noise Levels @ R7 – Golf Course – Truck Transit

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)	Event Duration (s)	SEL[3]	Events per Hour	Hourly Leq at Rcvr.[4]
Bldg. 1	75	25 ft	2,000 ft	-38	-0	**37**	30	52	13	**27**
Bldg. 2	75	25 ft	2,500 ft	-40	-0	**35**	30	50	13	**25**
Bldg. 3	75	25 ft	2,500 ft	-40	-0	**35**	30	50	13	**25**
Bldg. 4	75	25 ft	125 ft	-14	-0	**61**	30	76	13	**51**
Total Combined Sound Pressure Level >>>										**51**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier
3. SEL = (Lp, r)+10*LOG(Event Duration (s))
4. Hourly Leq at Receiver = (SEL)+10*LOG(Events per Hour)-10*LOG(3600)

As shown in the table above, the predicted noise level from the truck transit on the site will be within the 70 dBA hourly code limit.

Additionally, the predicted noise levels from the truck transit are within or below the range of ambient noise levels measured at the site.

R8 – Golf Course (Class C)

The following table presents a summary of predicted noise levels at location R8 along the golf course property line from truck transit. Distance to the receiving property was determined from the closest portion of the maneuvering area to the receiving property for a truck in transit on the site.

Table 15: Predicted Noise Levels @ R8 – Golf Course – Truck Transit

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)	Event Duration (s)	SEL[3]	Events per Hour	Hourly Leq at Rcvr.[4]
Bldg. 1	75	25 ft	130 ft	-14	-0	**61**	30	75	13	**51**
Bldg. 2	75	25 ft	500 ft	-26	-0	**49**	30	64	13	**39**
Bldg. 3	75	25 ft	500 ft	-26	-0	**49**	30	64	13	**39**
Bldg. 4	75	25 ft	1,100 ft	-33	-0	**42**	30	57	13	**32**
Total Combined Sound Pressure Level >>>										**52**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier
3. SEL = (Lp, r)+10*LOG(Event Duration (s))
4. Hourly Leq at Receiver = (SEL)+10*LOG(Events per Hour)-10*LOG(3600)

As shown in the table above, the predicted noise level from the truck transit on the site will be within the 70 dBA hourly code limit.

Additionally, the predicted noise levels from the truck transit are within or below the range of ambient noise levels measured at the site.

R9 – Golf Course (Class C)

The following table presents a summary of predicted noise levels at location R9 along the golf course property line from truck transit. Distance to the receiving property was determined from the closest portion of the maneuvering area to the receiving property for a truck in transit on the site.

Table 16: Predicted Noise Levels @ R9 – Golf Course – Truck Transit

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)	Event Duration (s)	SEL[3]	Events per Hour	Hourly Leq at Rcvr.[4]
Bldg. 1	75	25 ft	1,200 ft	-34	-0	**41**	30	56	13	**32**
Bldg. 2	75	25 ft	125 ft	-14	-0	**61**	30	76	13	**51**
Bldg. 3	75	25 ft	125 ft	-14	-0	**61**	30	76	13	**51**
Bldg. 4	75	25 ft	1,800 ft	-37	-6	**32**	30	47	13	**23**
Total Combined Sound Pressure Level >>>										**54**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier
3. SEL = (Lp, r)+10*LOG(Event Duration (s))
4. Hourly Leq at Receiver = (SEL)+10*LOG(Events per Hour)-10*LOG(3600)

As shown in the table above, the predicted noise level from the truck transit on the site will be within the 70 dBA hourly code limit.

Additionally, the predicted noise levels from the truck transit are within or below the range of ambient noise levels measured at the site.

R10 – Golf Course (Class C)

The following table presents a summary of predicted noise levels at location R10 along the golf course property line from truck transit. Distance to the receiving property was determined from the closest portion of the maneuvering area to the receiving property for a truck in transit on the site.

Table 17: Predicted Noise Levels @ R10 – Golf Course – Truck Transit

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)	Event Duration (s)	SEL[3]	Events per Hour	Hourly Leq at Rcvr.[4]
Bldg. 1	75	25 ft	1,000 ft	-32	-0	**43**	30	58	13	**33**
Bldg. 2	75	25 ft	1,600 ft	-36	-0	**36**	30	54	13	**29**
Bldg. 3	75	25 ft	1,600 ft	-36	-0	**36**	30	54	13	**29**
Bldg. 4	75	25 ft	115 ft	-13	-0	**62**	30	77	13	**52**
Total Combined Sound Pressure Level >>>										**52**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier
3. SEL = (Lp, r)+10*LOG(Event Duration (s))
4. Hourly Leq at Receiver = (SEL)+10*LOG(Events per Hour)-10*LOG(3600)

As shown in the table above, the predicted noise level from the truck transit on the site will be within the 70 dBA hourly code limit.

Additionally, the predicted noise levels from the truck transit are within or below the range of ambient noise levels measured at the site.

Predicted Noise Levels – Truck Idling

The following sections present the predicted noise levels from truck idling events to each of the receiving properties with the proposed mitigation. Trucks idling are predicted for a truck idling at the loading dock nearest the receiving property and compared to the 15-minute code limit.

The following table presents a summary of predicted noise levels at the nearest receiving property lines from the truck idling. Distance to the receiving property was determined from a truck parked at one of the loading docks nearest to the property.

R1 – Old Fort Lake Trail (Class A)

The following table presents a summary of predicted noise levels at location R1 along the Old Fort Lake Trail receiving property line from trucks idling. Distance to the receiving property was determined from a truck parked at one of the loading docks nearest to the property.

Table 18: Predicted Noise Levels @ R1 – Old Fort Lake Trail – Truck Idling

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	72	25 ft	800 ft	-30	-0	**42**
Bldg. 2	72	25 ft	1,200 ft	-34	-11	**28**
Bldg. 3	72	25 ft	1,000 ft	-32	-7	**33**
Bldg. 4	72	25 ft	500 ft	-26	-0	**46**
Total Combined Sound Pressure Level >>>						**48**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier

As shown in the table above, the predicted noise level from the truck idling on the site will be within the 65 dBA daytime and 55 dBA nighttime 15-minute code limit.

Additionally, the predicted noise levels from the truck idling are within or below the range of ambient noise levels measured at the site.

R2 – Sequalitchew Creek Trail (Class A)

The following table presents a summary of predicted noise levels at location R2 along the Sequalitchew Creek Trail from trucks idling. Distance to the receiving property was determined from a truck parked at one of the loading docks nearest to the property.

Table 19: Predicted Noise Levels @ R2 – Sequalitchew Creek Trail – Truck Idling

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	72	25 ft	1,200 ft	-34	-0	**38**
Bldg. 2	72	25 ft	1,600 ft	-36	-0	**36**
Bldg. 3	72	25 ft	1,800 ft	-37	-0	**35**
Bldg. 4	72	25 ft	1,500 ft	-36	-10	**26**
Total Combined Sound Pressure Level >>>						**42**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier

As shown in the table above, the predicted noise level from the truck idling on the site will be within the 65 dBA daytime and 55 dBA nighttime 15-minute code limit.

Additionally, the predicted noise levels from the truck idling are within or below the range of ambient noise levels measured at the site.

R3 – Pioneer Middle School (Class A)

The following table presents a summary of predicted noise levels at location R3 along the Pioneer Middle School receiving property line from trucks idling. Distance to the receiving property was determined from a truck parked at one of the loading docks nearest to the property.

Table 20: Predicted Noise Levels @ R3 – Pioneer Middle School – Truck Idling

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	72	25 ft	750 ft	-30	-11	**32**
Bldg. 2	72	25 ft	1,200 ft	-34	-11	**28**
Bldg. 3	72	25 ft	1,500 ft	-36	-6	**31**
Bldg. 4	72	25 ft	3,000 ft	-42	-4	**26**
Total Combined Sound Pressure Level >>>						**36**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier

As shown in the table above, the predicted noise level from the truck idling on the site will be within the 65 dBA daytime and 55 dBA nighttime 15-minute code limit.

Additionally, the predicted noise levels from the truck idling are within or below the range of ambient noise levels measured at the site.

R4 – South Residential Properties (Class A)

The following table presents a summary of predicted noise levels at location R4 along the one of the property lines of the south residential receiving properties from trucks idling. Distance to the receiving property was determined from a truck parked at one of the loading docks nearest to the property.

Table 21: Predicted Noise Levels @ R4 – South Residential – Truck Idling

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	72	25 ft	2,000 ft	-38	-0	**34**
Bldg. 2	72	25 ft	1,000 ft	-32	-0	**40**
Bldg. 3	72	25 ft	1,100 ft	-33	-0	**39**
Bldg. 4	72	25 ft	2,800 ft	-41	-4	**27**
Total Combined Sound Pressure Level >>>						**43**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier

As shown in the table above, the predicted noise level from the truck idling on the site will be within the 65 dBA daytime and 55 dBA nighttime 15-minute code limit.

Additionally, the predicted noise levels from the truck idling are within or below the range of ambient noise levels measured at the site.

R5 – East Mixed Use (Class B)

The following table presents a summary of predicted noise levels at location R5 along the east mixed use receiving property line from trucks idling. Distance to the receiving property was determined from a truck parked at one of the loading docks nearest to the property.

Table 22: Predicted Noise Levels @ R5 – East Mixed Use – Truck Idling

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	72	25 ft	350 ft	-23	-0	**49**
Bldg. 2	72	25 ft	1,400 ft	-35	-7	**30**
Bldg. 3	72	25 ft	1,700 ft	-37	5	**30**
Bldg. 4	72	25 ft	2,700 ft	-41	-0	**31**
Total Combined Sound Pressure Level >>>						**49**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier

As shown in the table above, the predicted noise level from the truck idling on the site will be within the 70 dBA 15-minute code limit.

Additionally, the predicted noise levels from the truck idling are within or below the range of ambient noise levels measured at the site.

R6 – Southeast Old Fort Lake BTP (Class C)

The following table presents a summary of predicted noise levels at location R6 along the southeast Old Fort Lake Business Technical Park receiving property line from trucks idling. Distance to the receiving property was determined from a truck parked at one of the loading docks nearest to the property.

Table 23: Predicted Noise Levels @ R6 – SE Old Fort Lake BTP – Truck Idling

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	72	25 ft	700 ft	-29	-11	**32**
Bldg. 2	72	25 ft	700 ft	-29	-0	**43**
Bldg. 3	72	25 ft	1,000 ft	-32	-0	**40**
Bldg. 4	72	25 ft	2,500 ft	-40	-0	**32**
Total Combined Sound Pressure Level >>>						**45**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier

As shown in the table above, the predicted noise level from the truck idling on the site will be within the 75 dBA 15-minute code limit.

Additionally, the predicted noise levels from the truck idling are within or below the range of ambient noise levels measured at the site.

R7 – Golf Course (Class C)

The following table presents a summary of predicted noise levels at location R7 along the golf course property line from trucks idling. Distance to the receiving property was determined from a truck parked at one of the loading docks nearest to the property.

Table 24: Predicted Noise Levels @ R7 – Golf Course – Truck Idling

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	72	25 ft	2,200 ft	-39	-0	**33**
Bldg. 2	72	25 ft	2,400 ft	-40	-10	**22**
Bldg. 3	72	25 ft	2,600 ft	-40	-5	**26**
Bldg. 4	72	25 ft	200 ft	-18	-0	**54**
Total Combined Sound Pressure Level >>>						**54**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier

As shown in the table above, the predicted noise level from the truck idling on the site will be within the 75 dBA 15-minute code limit.

Additionally, the predicted noise levels from the truck idling are within or below the range of ambient noise levels measured at the site.

R8 – Golf Course (Class C)

The following table presents a summary of predicted noise levels at location R8 along the golf course property line from trucks idling. Distance to the receiving property was determined from a truck parked at one of the loading docks nearest to the property.

Table 25: Predicted Noise Levels @ R8 – Golf Course – Truck Idling

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	72	25 ft	175 ft	-17	-0	**55**
Bldg. 2	72	25 ft	600 ft	-28	-0	**44**
Bldg. 3	72	25 ft	750 ft	-30	-0	**42**
Bldg. 4	72	25 ft	1,500 ft	-36	-0	**36**
Total Combined Sound Pressure Level >>>						**56**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier

As shown in the table above, the predicted noise level from the truck idling on the site will be within the 75 dBA 15-minute code limit.

Additionally, the predicted noise levels from the truck idling are within or below the range of ambient noise levels measured at the site.

R9 – Golf Course (Class C)

The following table presents a summary of predicted noise levels at location R9 along the golf course property line from trucks idling. Distance to the receiving property was determined from a truck parked at one of the loading docks nearest to the property.

Table 26: Predicted Noise Levels @ R9 – Golf Course – Truck Idling

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	72	25 ft	1,100 ft	-33	-0	**39**
Bldg. 2	72	25 ft	250 ft	-20	-0	**52**
Bldg. 3	72	25 ft	250 ft	-20	-0	**52**
Bldg. 4	72	25 ft	1,900 ft	-38	-10	**24**
Total Combined Sound Pressure Level >>>						**55**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier

As shown in the table above, the predicted noise level from the truck idling on the site will be within the 75 dBA 15-minute code limit.

Additionally, the predicted noise levels from the truck idling are within or below the range of ambient noise levels measured at the site.

R10 – Golf Course (Class C)

The following table presents a summary of predicted noise levels at location R10 along the golf course property line from trucks idling. Distance to the receiving property was determined from a truck parked at one of the loading docks nearest to the property.

Table 27: Predicted Noise Levels @ R10 – Golf Course – Truck Idling

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	72	25 ft	1,200 ft	-34	-0	**38**
Bldg. 2	72	25 ft	1,400 ft	-35	-0	**37**
Bldg. 3	72	25 ft	1,700 ft	-37	-0	**35**
Bldg. 4	72	25 ft	150 ft	-16	-0	**56**
Total Combined Sound Pressure Level >>>						**57**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier

As shown in the table above, the predicted noise level from the truck idling on the site will be within the 75 dBA 15-minute code limit.

Additionally, the predicted noise levels from the truck idling are within or below the range of ambient noise levels measured at the site.

Predicted Noise Levels – Engine Start

The following sections present the predicted noise levels from the engine start events to each of the receiving properties. These events have a short duration and are therefore compared to the 1.5-minute code limit.

R1 – Old Fort Lake Trail (Class A)

The following table presents a summary of predicted noise levels at location R1 along the Old Fort Lake Trail receiving property line from truck engine starts. Distance to the receiving property was determined from a truck parked at one of the loading docks nearest to the property.

Table 28: Predicted Noise Levels @ R1 – Old Fort Lake Trail – Engine Start

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	74	25 ft	800 ft	-30	-0	**44**
Bldg. 2	74	25 ft	1,200 ft	-34	-11	**30**
Bldg. 3	74	25 ft	1,000 ft	-32	-7	**35**
Bldg. 4	74	25 ft	500 ft	-26	-0	**48**
Total Combined Sound Pressure Level >>>						**50**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier

As shown in the table above, the predicted noise level from the truck engine starts on the site will be within the 75 dBA daytime and 65 dBA nighttime 1.5-minute code limit.

Additionally, the predicted noise levels from the truck engine starts are within or below the range of ambient noise levels measured at the site.

R2 – Sequalitchew Creek Trail (Class A)

The following table presents a summary of predicted noise levels at location R2 along the Sequalitchew Creek Trail from truck engine starts. Distance to the receiving property was determined from a truck parked at one of the loading docks nearest to the property.

Table 29: Predicted Noise Levels @ R2 – Sequalitchew Creek Trail – Engine Start

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	74	25 ft	1,200 ft	-34	-0	**40**
Bldg. 2	74	25 ft	1,600 ft	-36	-0	**38**
Bldg. 3	74	25 ft	1,800 ft	-37	-0	**37**
Bldg. 4	74	25 ft	1,500 ft	-36	-10	**28**
Total Combined Sound Pressure Level >>>						**44**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier

As shown in the table above, the predicted noise level from the truck engine starts on the site will be within the 75 dBA daytime and 65 dBA nighttime 1.5-minute code limit.

Additionally, the predicted noise levels from the truck engine starts are within or below the range of ambient noise levels measured at the site.

R3 – Pioneer Middle School (Class A)

The following table presents a summary of predicted noise levels at location R3 along the Pioneer Middle School receiving property line from truck engine starts. Distance to the receiving property was determined from a truck parked at one of the loading docks nearest to the property.

Table 30: Predicted Noise Levels @ R3 – Pioneer Middle School – Engine Start

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	74	25 ft	750 ft	-30	-11	**34**
Bldg. 2	74	25 ft	1,200 ft	-34	-11	**30**
Bldg. 3	74	25 ft	1,500 ft	-36	-6	**33**
Bldg. 4	74	25 ft	3,000 ft	-42	-4	**28**
Total Combined Sound Pressure Level >>>						**38**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier

As shown in the table above, the predicted noise level from the truck engine starts on the site will be within the 75 dBA daytime and 65 dBA nighttime 1.5-minute code limit.

Additionally, the predicted noise levels from the truck engine starts are within or below the range of ambient noise levels measured at the site.

R4 – South Residential Properties (Class A)

The following table presents a summary of predicted noise levels at location R4 along the one of the property lines of the south residential receiving properties from truck engine starts. Distance to the receiving property was determined from a truck parked at one of the loading docks nearest to the property.

Table 31: Predicted Noise Levels @ R4 – South Residential – Engine Start

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	74	25 ft	2,000 ft	-38	-0	**36**
Bldg. 2	74	25 ft	1,000 ft	-32	-0	**42**
Bldg. 3	74	25 ft	1,100 ft	-33	-0	**41**
Bldg. 4	74	25 ft	2,800 ft	-41	-4	**29**
Total Combined Sound Pressure Level >>>						**45**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier

As shown in the table above, the predicted noise level from the truck engine starts on the site will be within the 75 dBA daytime and 65 dBA nighttime 1.5-minute code limit.

Additionally, the predicted noise levels from the truck engine starts are within or below the range of ambient noise levels measured at the site.

R5 – East Mixed Use (Class B)

The following table presents a summary of predicted noise levels at location R5 along the east mixed use receiving property line from truck engine starts. Distance to the receiving property was determined from a truck parked at one of the loading docks nearest to the property.

Table 32: Predicted Noise Levels @ R5 – East Mixed Use – Engine Start

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	74	25 ft	350 ft	-23	-0	**51**
Bldg. 2	74	25 ft	1,400 ft	-35	-7	**32**
Bldg. 3	74	25 ft	1,700 ft	-37	5	**32**
Bldg. 4	74	25 ft	2,700 ft	-41	-0	**33**
Total Combined Sound Pressure Level >>>						**51**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier

As shown in the table above, the predicted noise level from the truck engine starts on the site will be within the 80 dBA 1.5-minute code limit.

Additionally, the predicted noise levels from the truck engine starts are within or below the range of ambient noise levels measured at the site.

R6 – Southeast Old Fort Lake BTP (Class C)

The following table presents a summary of predicted noise levels at location R6 along the southeast Old Fort Lake Business Technical Park receiving property line from truck engine starts. Distance to the receiving property was determined from a truck parked at one of the loading docks nearest to the property.

Table 33: Predicted Noise Levels @ R6 – SE Old Fort Lake BTP – Engine Start

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	74	25 ft	700 ft	-29	-11	**34**
Bldg. 2	74	25 ft	700 ft	-29	-0	**45**
Bldg. 3	74	25 ft	1,000 ft	-32	-0	**42**
Bldg. 4	74	25 ft	2,500 ft	-40	-0	**34**
Total Combined Sound Pressure Level >>>						**47**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier

As shown in the table above, the predicted noise level from the truck engine starts on the site will be within the 85 dBA 1.5-minute code limit.

Additionally, the predicted noise levels from the truck engine starts are within or below the range of ambient noise levels measured at the site.

R7 – Golf Course (Class C)

The following table presents a summary of predicted noise levels at location R7 along the golf course property line from trucks idling. Distance to the receiving property was determined from a truck parked at one of the loading docks nearest to the property.

Table 34: Predicted Noise Levels @ R7 – Golf Course – Engine Start

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	74	25 ft	2,200 ft	-39	-0	**35**
Bldg. 2	74	25 ft	2,400 ft	-40	-10	**24**
Bldg. 3	74	25 ft	2,600 ft	-40	-5	**28**
Bldg. 4	74	25 ft	200 ft	-18	-0	**56**
Total Combined Sound Pressure Level >>>						**56**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier

As shown in the table above, the predicted noise level from the truck engine starts on the site will be within the 85 dBA 1.5-minute code limit.

Additionally, the predicted noise levels from the truck engine starts are within or below the range of ambient noise levels measured at the site.

R8 – Golf Course (Class C)

The following table presents a summary of predicted noise levels at location R8 along the golf course property line from truck engine starts. Distance to the receiving property was determined from a truck parked at one of the loading docks nearest to the property.

Table 35: Predicted Noise Levels @ R8 – Golf Course – Engine Start

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	74	25 ft	175 ft	-17	-0	**57**
Bldg. 2	74	25 ft	600 ft	-28	-0	**46**
Bldg. 3	74	25 ft	750 ft	-30	-0	**44**
Bldg. 4	74	25 ft	1,500 ft	-36	-0	**38**
Total Combined Sound Pressure Level >>>						**58**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier

As shown in the table above, the predicted noise level from the truck engine starts on the site will be within the 85 dBA 1.5-minute code limit.

Additionally, the predicted noise levels from the truck engine starts are within or below the range of ambient noise levels measured at the site.

R9 – Golf Course (Class C)

The following table presents a summary of predicted noise levels at location R9 along the golf course property line from truck engine starts. Distance to the receiving property was determined from the closest portion of the maneuvering area to the receiving property for a truck in transit on the site.

Table 36: Predicted Noise Levels @ R9 – Golf Course – Engine Start

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	74	25 ft	1,100 ft	-33	-0	**41**
Bldg. 2	74	25 ft	250 ft	-20	-0	**54**
Bldg. 3	74	25 ft	250 ft	-20	-0	**54**
Bldg. 4	74	25 ft	1,900 ft	-38	-10	**26**
Total Combined Sound Pressure Level >>>						**57**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier

As shown in the table above, the predicted noise level from the truck engine starts on the site will be within the 85 dBA 1.5-minute code limit.

Additionally, the predicted noise levels from the truck engine starts are within or below the range of ambient noise levels measured at the site.

R10 – Golf Course (Class C)

The following table presents a summary of predicted noise levels at location R10 along the golf course property line from truck engine starts. Distance to the receiving property was determined from a truck parked at one of the loading docks nearest to the property.

Table 37: Predicted Noise Levels @ R10 – Golf Course – Engine Start

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	74	25 ft	1,200 ft	-34	-0	**40**
Bldg. 2	74	25 ft	1,400 ft	-35	-0	**39**
Bldg. 3	74	25 ft	1,700 ft	-37	-0	**37**
Bldg. 4	74	25 ft	150 ft	-16	-0	**58**
Total Combined Sound Pressure Level >>>						**59**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier

As shown in the table above, the predicted noise level from the truck engine starts on the site will be within the 85 dBA 1.5-minute code limit.

Additionally, the predicted noise levels from the truck engine starts are within or below the range of ambient noise levels measured at the site.

Predicted Noise Levels – Air Brakes

The following sections present the predicted noise levels from the air brake events to each of the receiving properties. These events have a short duration and are therefore compared to the 1.5-minute code limit.

R1 – Old Fort Lake Trail (Class A)

The following table presents a summary of predicted noise levels at location R1 along the Old Fort Lake Trail receiving property line from air brake noise. Distance to the receiving property was determined from a truck parked at one of the loading docks nearest to the property.

Table 38: Predicted Noise Levels @ R1 – Old Fort Lake Trail – Air Brakes

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	75	25 ft	800 ft	-30	-0	**45**
Bldg. 2	75	25 ft	1,200 ft	-34	-11	**31**
Bldg. 3	75	25 ft	1,000 ft	-32	-7	**36**
Bldg. 4	75	25 ft	500 ft	-26	-0	**49**
Total Combined Sound Pressure Level >>>						**51**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier

As shown in the table above, the predicted noise level from the truck air brakes on the site will be within the 75 dBA daytime and 65 dBA nighttime 1.5-minute code limit.

Additionally, the predicted noise levels from the truck air brakes are within or below the range of ambient noise levels measured at the site.

R2 – Sequalitchew Creek Trail (Class A)

The following table presents a summary of predicted noise levels at location R2 along the Sequalitchew Creek Trail from air brake noise. Distance to the receiving property was determined from a truck parked at one of the loading docks nearest to the property.

Table 39: Predicted Noise Levels @ R2 – Sequalitchew Creek Trail – Air Brakes

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	75	25 ft	1,200 ft	-34	-0	**41**
Bldg. 2	75	25 ft	1,600 ft	-36	-0	**39**
Bldg. 3	75	25 ft	1,800 ft	-37	-0	**38**
Bldg. 4	75	25 ft	1,500 ft	-36	-10	**29**
Total Combined Sound Pressure Level >>>						**45**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier attenuation due to intervening building or barrier

As shown in the table above, the predicted noise level from the truck air brakes on the site will be within the 75 dBA daytime and 65 dBA nighttime 1.5-minute code limit.

Additionally, the predicted noise levels from the truck air brakes are within or below the range of ambient noise levels measured at the site.

R3 – Pioneer Middle School (Class A)

The following table presents a summary of predicted noise levels at location R3 along the Pioneer Middle School receiving property line from air brake noise. Distance to the receiving property was determined from a truck parked at one of the loading docks nearest to the property.

Table 40: Predicted Noise Levels @ R3 – Pioneer Middle School – Air Brakes

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	75	25 ft	750 ft	-30	-11	**35**
Bldg. 2	75	25 ft	1,200 ft	-34	-11	**31**
Bldg. 3	75	25 ft	1,500 ft	-36	-6	**34**
Bldg. 4	75	25 ft	3,000 ft	-42	-4	**29**
Total Combined Sound Pressure Level >>>						**39**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier Attenuation due to Intervening Building or Barrier

As shown in the table above, the predicted noise level from the truck air brakes on the site will be within the 75 dBA daytime and 65 dBA nighttime 1.5-minute code limit.

Additionally, the predicted noise levels from the truck air brakes are within or below the range of ambient noise levels measured at the site.

R4 – South Residential Properties (Class A)

The following table presents a summary of predicted noise levels at location R4 along the one of the property lines of the south residential receiving properties from air brake noise. Distance to the receiving property was determined from a truck parked at one of the loading docks nearest to the property.

Table 41: Predicted Noise Levels @ R4 – South Residential – Air Brakes

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	75	25 ft	2,000 ft	-38	-0	**37**
Bldg. 2	75	25 ft	1,000 ft	-32	-0	**43**
Bldg. 3	75	25 ft	1,100 ft	-33	-0	**42**
Bldg. 4	75	25 ft	2,800 ft	-41	-4	**30**
Total Combined Sound Pressure Level >>>						**46**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier Attenuation due to Intervening Building or Barrier

As shown in the table above, the predicted noise level from the truck air brakes on the site will be within the 75 dBA daytime and 65 dBA nighttime 1.5-minute code limit.

Additionally, the predicted noise levels from the truck air brakes are within or below the range of ambient noise levels measured at the site.

R5 – East Mixed Use (Class B)

The following table presents a summary of predicted noise levels at location R5 along the east mixed use receiving property line from air brake noise. Distance to the receiving property was determined from a truck parked at one of the loading docks nearest to the property.

Table 42: Predicted Noise Levels @ R5 – East Mixed Use – Air Brakes

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	75	25 ft	350 ft	-23	-0	**52**
Bldg. 2	75	25 ft	1,400 ft	-35	-7	**33**
Bldg. 3	75	25 ft	1,700 ft	-37	5	**33**
Bldg. 4	75	25 ft	2,700 ft	-41	-0	**34**
Total Combined Sound Pressure Level >>>						**52**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier Attenuation due to Intervening Building or Barrier

As shown in the table above, the predicted noise level from the truck air brakes on the site will be within the 80 dBA 1.5-minute code limit.

Additionally, the predicted noise levels from the truck air brakes are within or below the range of ambient noise levels measured at the site.

R6 – Southeast Old Fort Lake BTP (Class C)

The following table presents a summary of predicted noise levels at location R6 along the southeast Old Fort Lake Business Technical Park receiving property line from air brake noise. Distance to the receiving property was determined from a truck parked at one of the loading docks nearest to the property.

Table 43: Predicted Noise Levels @ R6 – SE Old Fort Lake BTP – Air Brakes

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	75	25 ft	700 ft	-29	-11	**35**
Bldg. 2	75	25 ft	700 ft	-29	-0	**46**
Bldg. 3	75	25 ft	1,000 ft	-32	-0	**43**
Bldg. 4	75	25 ft	2,500 ft	-40	-0	**35**
Total Combined Sound Pressure Level >>>						**48**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier Attenuation due to Intervening Building or Barrier

As shown in the table above, the predicted noise level from the truck air brakes on the site will be within the 85 dBA 1.5-minute code limit.

Additionally, the predicted noise levels from the truck air brakes are within or below the range of ambient noise levels measured at the site.

R7 – Golf Course (Class C)

The following table presents a summary of predicted noise levels at location R7 along the golf course property line from air brake noise. Distance to the receiving property was determined from a truck parked at one of the loading docks nearest to the property.

Table 44: Predicted Noise Levels @ R7 – Golf Course – Air Brakes

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	75	25 ft	2,200 ft	-39	-0	**36**
Bldg. 2	75	25 ft	2,400 ft	-40	-10	**25**
Bldg. 3	75	25 ft	2,600 ft	-40	-5	**29**
Bldg. 4	75	25 ft	200 ft	-18	-0	**57**
Total Combined Sound Pressure Level >>>						**57**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier Attenuation due to Intervening Building or Barrier

As shown in the table above, the predicted noise level from the truck air brakes on the site will be within the 85 dBA 1.5-minute code limit.

Additionally, the predicted noise levels from the truck air brakes are within or below the range of ambient noise levels measured at the site.

R8 – Golf Course (Class C)

The following table presents a summary of predicted noise levels at location R8 along the golf course property line from air brake noise. Distance to the receiving property was determined from a truck parked at one of the loading docks nearest to the property.

Table 45: Predicted Noise Levels @ R8 – Golf Course – Air Brakes

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	75	25 ft	175 ft	-17	-0	**58**
Bldg. 2	75	25 ft	600 ft	-28	-0	**47**
Bldg. 3	75	25 ft	750 ft	-30	-0	**45**
Bldg. 4	75	25 ft	1,500 ft	-36	-0	**39**
Total Combined Sound Pressure Level >>>						**59**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier Attenuation due to Intervening Building or Barrier

As shown in the table above, the predicted noise level from the truck air brakes on the site will be within the 85 dBA 1.5-minute code limit.

Additionally, the predicted noise levels from the truck air brakes are within or below the range of ambient noise levels measured at the site.

R9 – Golf Course (Class C)

The following table presents a summary of predicted noise levels at location R9 along the golf course property line from air brake noise. Distance to the receiving property was determined from the closest portion of the maneuvering area to the receiving property for a truck in transit on the site.

Table 46: Predicted Noise Levels @ R9 – Golf Course – Air Brakes

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	75	25 ft	1,100 ft	-33	-0	**42**
Bldg. 2	75	25 ft	250 ft	-20	-0	**55**
Bldg. 3	75	25 ft	250 ft	-20	-0	**55**
Bldg. 4	75	25 ft	1,900 ft	-38	-10	**27**
Total Combined Sound Pressure Level >>>						**58**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier Attenuation due to Intervening Building or Barrier

As shown in the table above, the predicted noise level from the truck air brakes on the site will be within the 85 dBA 1.5-minute code limit.

Additionally, the predicted noise levels from the truck air brakes are within or below the range of ambient noise levels measured at the site.

R10 – Golf Course (Class C)

The following table presents a summary of predicted noise levels at location R10 along the golf course property line from air brake noise. Distance to the receiving property was determined from a truck parked at one of the loading docks nearest to the property.

Table 47: Predicted Noise Levels @ R10 – Golf Course – Air Brakes

Source	Lp, s (dBA)	Ref. Dist.	Rcvr. Dist.	Distance Atten.[1]	Barrier Atten.[2]	Lp, r (dBA)
Bldg. 1	75	25 ft	1,200 ft	-34	-0	**41**
Bldg. 2	75	25 ft	1,400 ft	-35	-0	**40**
Bldg. 3	75	25 ft	1,700 ft	-37	-0	**38**
Bldg. 4	75	25 ft	150 ft	-16	-0	**59**
Total Combined Sound Pressure Level >>>						**60**

1. Distance Attenuation Factor = -10*LOG(Q)+20*LOG(R2/R1)
2. Barrier Attenuation due to Intervening Building or Barrier

As shown in the table above, the predicted noise level from the truck air brakes on the site will be within the 85 dBA 1.5-minute code limit.

Additionally, the predicted noise levels from the truck air brakes are within or below the range of ambient noise levels measured at the site.

VI. SUMMARY

This report has provided the results of the site noise study from the proposed Founder's Ridge project to the neighboring properties. Predicted noise levels were compared and evaluated relative to the City of Dupont Municipal Code section for maximum permissible sound levels. The results of the study show that the truck activity during peak hours will meet the code limits (both during daytime and nighttime hours) at the nearest receiving properties.

Please contact us if you have questions or need further information.

APPENDIX I: ACOUSTICAL DESCRIPTORS

Sound is measured as sound level in units of decibels, dB. The human ear responds differently to sounds at different frequencies. This is demonstrated by the fact that we hear higher pitched sounds more easily than lower ones of the same magnitude. To compensate for the different "loudness" as perceived by humans, a standard weighting curve is applied to measured sound levels. The weighting curve represents the frequency response of the human ear and is labeled as dBA ("A" weighted decibels).

People normally experience sound levels between 30 and 90 dBA, depending on their activities. Locations near highways or urban arterials may be 70 dBA, whereas quiet rural areas may be 40 dBA.

Each 10 dB increase in sound level corresponds to a tenfold increase of sound energy, but is judged by a listener as only a doubling of loudness. The smallest changes in sound level considered just noticeable are about 2 to 3 dBA.

Sound levels from two or more sources are combined logarithmically, not by adding the levels arithmetically. When two levels are combined, the louder level predominates, and the combined level is the louder level plus 0 to 3 dBA. Some examples: 50 dBA combined with 50 dBA is 53 dBA; 50 dBA combined with 40 dBA results in 50.4 dBA, which is rounded off to 50 dBA since fractions of a dB are negligible from the point of view of perception of environmental noise.

When measuring noise that is fluctuating over time, it is common practice to use a descriptor called equivalent A-weighted sound level, Leq. The Leq is that constant sound level in dBA which contains the same amount of sound energy over a given time period as the measured fluctuating noise. The Leq is often determined for one-hour time periods.

Another descriptor is the Lmax. The Lmax is the highest instantaneous sound level for a given sound event or time period. Similarly, Lmin is the lowest instantaneous sound level for a given sound event or time period.

APPENDIX II: ACOUSTICAL MEASUREMENTS

Hourly monitoring of noise levels at the site were conducted on the east portion of the lot with one Svantek 971 type 1 sound level meter. The monitor was set to record noise levels over a 24 hour period from 12:00 AM on March 31 to 12:00 AM on April 2, 2021. The following figure presents the locations of each of the measurements.

Figure 4: Ambient Measurement Location (via Google Maps)

The following charts present the results of the monitoring at locations M1 and M2:

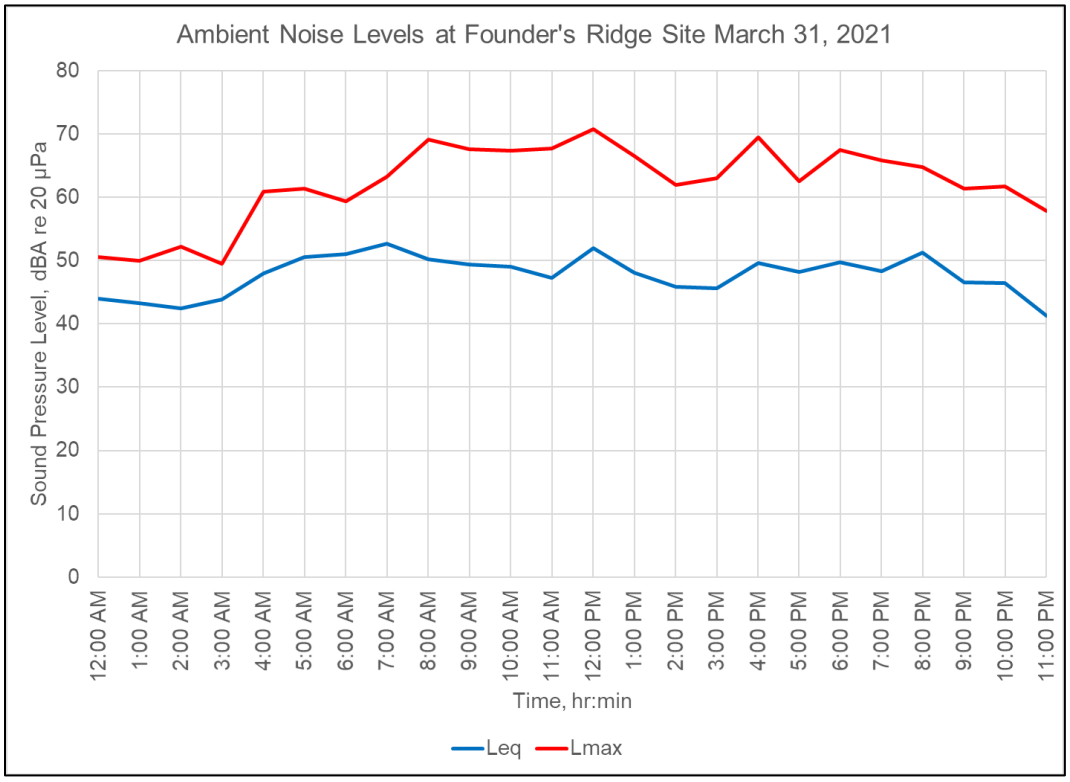

Figure 5: Hourly Ambient Noise Levels – March 31, 2021

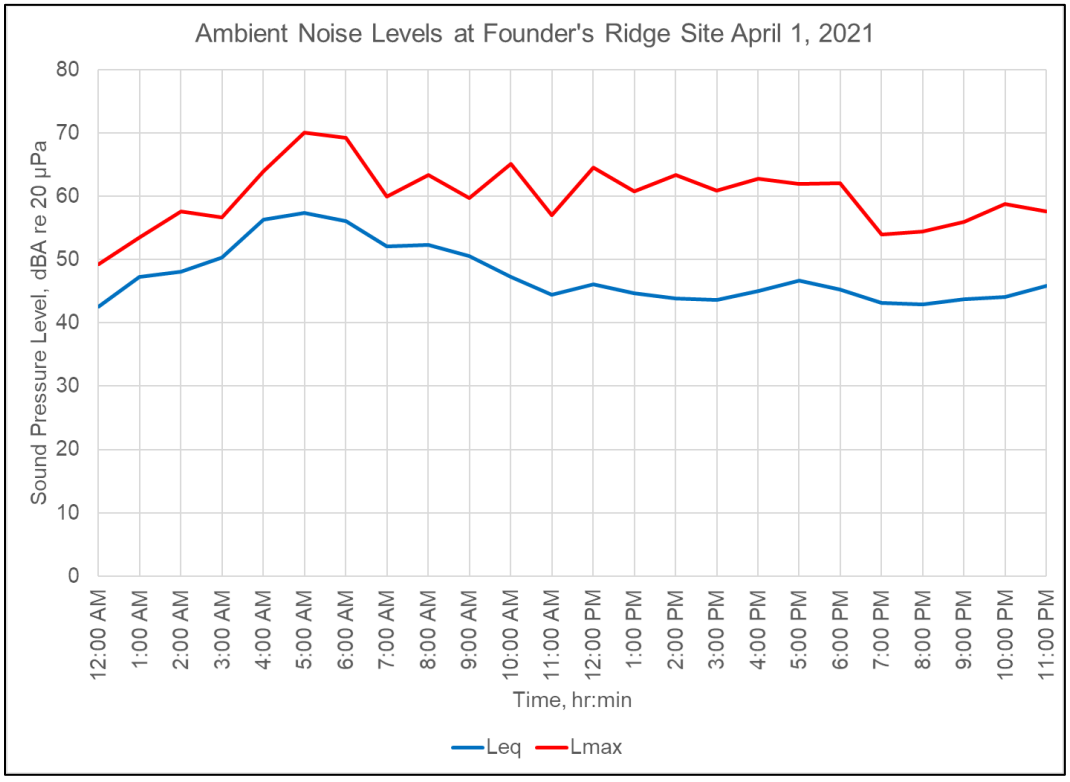

Figure 6: Hourly Ambient Noise Levels – April 1, 2021