EAGLE HARBOR SAND & GRAVEL, INC.

Eagle Harbor Mine

Town of Barre, Orleans County, New York

Noise Impact Assessment

September 1, 2020

Prepared for: New York State Department of Environmental Conservation

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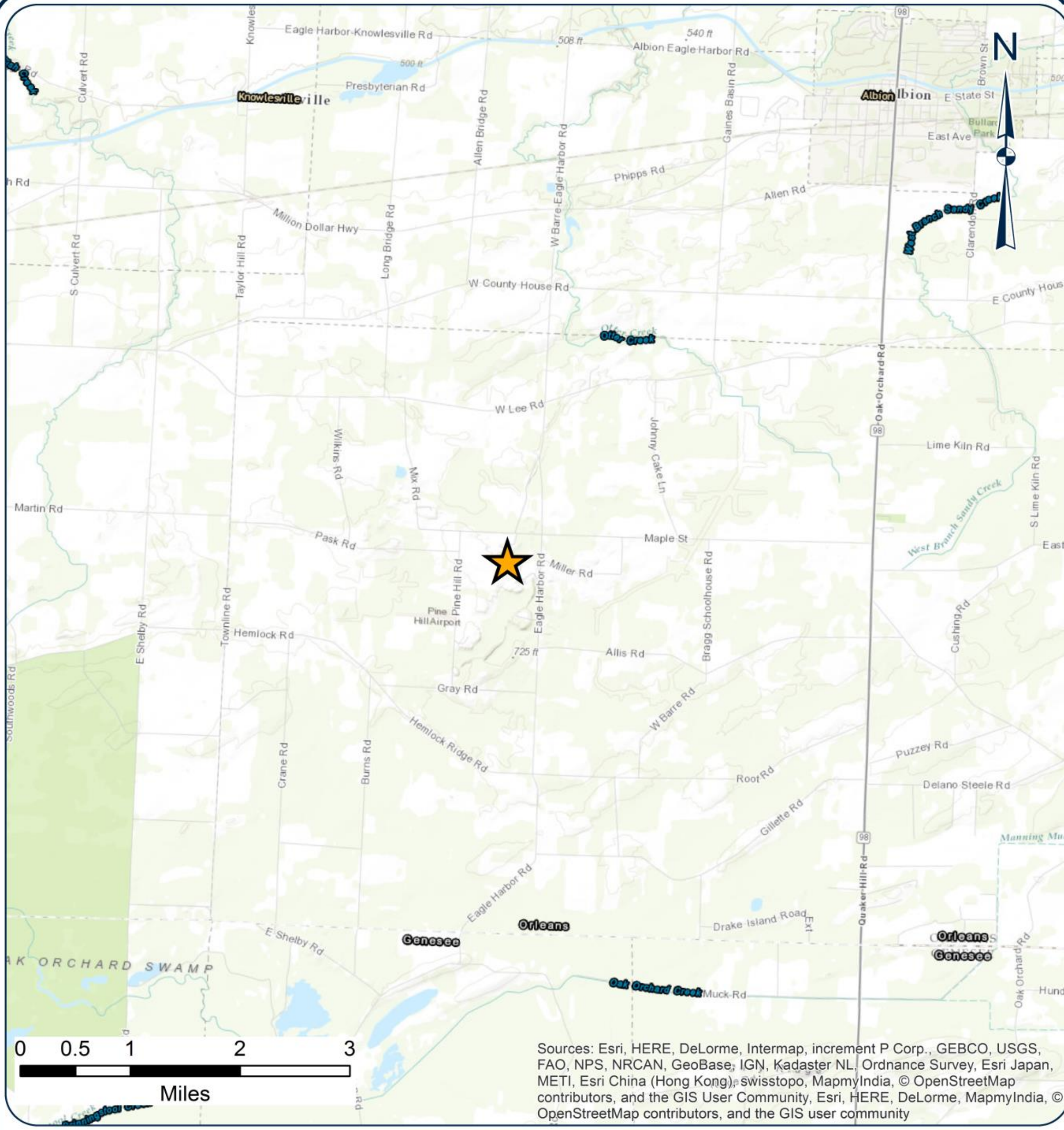
1.0 INTRODUCTION

This report assesses potential noise impacts associated with the Mined Land Reclamation Permit modification at the Eagle Harbor Sand & Gravel, Inc. ('Eagle Harbor' or 'the Applicant') Eagle Harbor Mine located east of Eagle Harbor Road in the Town of Barre, Orleans County, New York (see Figure 1). The applicant is proposing to add consolidated mining as a permitted use within 99.7 acres of the existing 250.6-acre sand and gravel Life of Mine area at the Eagle Harbor Mine.



LOCATION MAP
Eagle Harbor Mine
Eagle Harbor Sand & Gravel, Inc.
Town of Barre, Orleans County, NY

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Figure 1. Location Map

2.0 NOISE BACKGROUND

Noise is defined by the New York State Department of Environmental Conservation's Program Policy: Assessing and Mitigating Noise Impacts as: "...any loud, discordant or disagreeable sound or sounds. More commonly, in the environmental context, noise is defined simply as unwanted sound."

Audible sound is a physical phenomenon that results when a sound source vibrates in the air at frequencies that the human ear can perceive. Sound travels as longitudinal, or compressional, waves through the air or other media that creates a fluctuation in the atmospheric pressure within the propagating media. These fluctuations in pressure are the sounds that are heard by the human ear. Sound is characterized by several variables including sound pressure level and frequency.

2.1 SOUND PRESSURE

Sound pressure describes the loudness, or intensity, of sound and is measured in Pascals (PA) and commonly expressed in decibels (dB) where:

$$\mathbf{dB = 20 \log_{10}(P/P_{ref})}$$

Where: P is the sound pressure in pascals
P_{ref} is the reference sound pressure of $2x10^{-5}$ pascals

The decibel scale is logarithmic because the range of sound intensities that the human ear can detect is so large. Specifically, painful sound is roughly 10 million times greater in sound pressure than the lease audible sound. When expressed logarithmically this range of 10 million pascals equates to a range of approximately 140 decibels. The following table shows sound levels of common noise sources.

Common Sound Levels	
Source	**Sound Level in dB(A)**
Carrier Jet Takeoff @ 50 feet	**140**
Loud Rock Band	**130**
Car Horn @ 3 feet	**120**
Chainsaw	**110**
Lawn Mower @ 3 feet	**100**
Heavy Truck @ 3 feet	**90**
Busy Urban Street	**80**
Automobile @ 50 feet	**70**
Conversation @ 3 feet	**60**
Quiet Residential Area	**50**
Library	**40**
Soft Whisper	**30**
Slight Rustling of Leaves	**20**
Broadcast Studio	**10**
Threshold of Hearing	**0**

Figure 1. Common Sound Levels

2.2 FREQUENCY

Frequency describes the pitch of sound and is measured in cycles per second or hertz (Hz). Frequency is the rate at which a sound source vibrates, or makes the air vibrate. Most sounds are comprised of many different frequencies each with varying intensity.

The range of human hearing is limited to those frequencies between 20 to 20,000 Hz, although it is fairly common for people who are over 25 years of age to not be able to hear frequencies above 15,000 Hz. Sound with frequencies below 20 Hz is referred to as infrasound and sound with frequencies greater than the upper limit of the human hearing range is referred to as ultrasound.

The following figure illustrates the range of common frequencies.

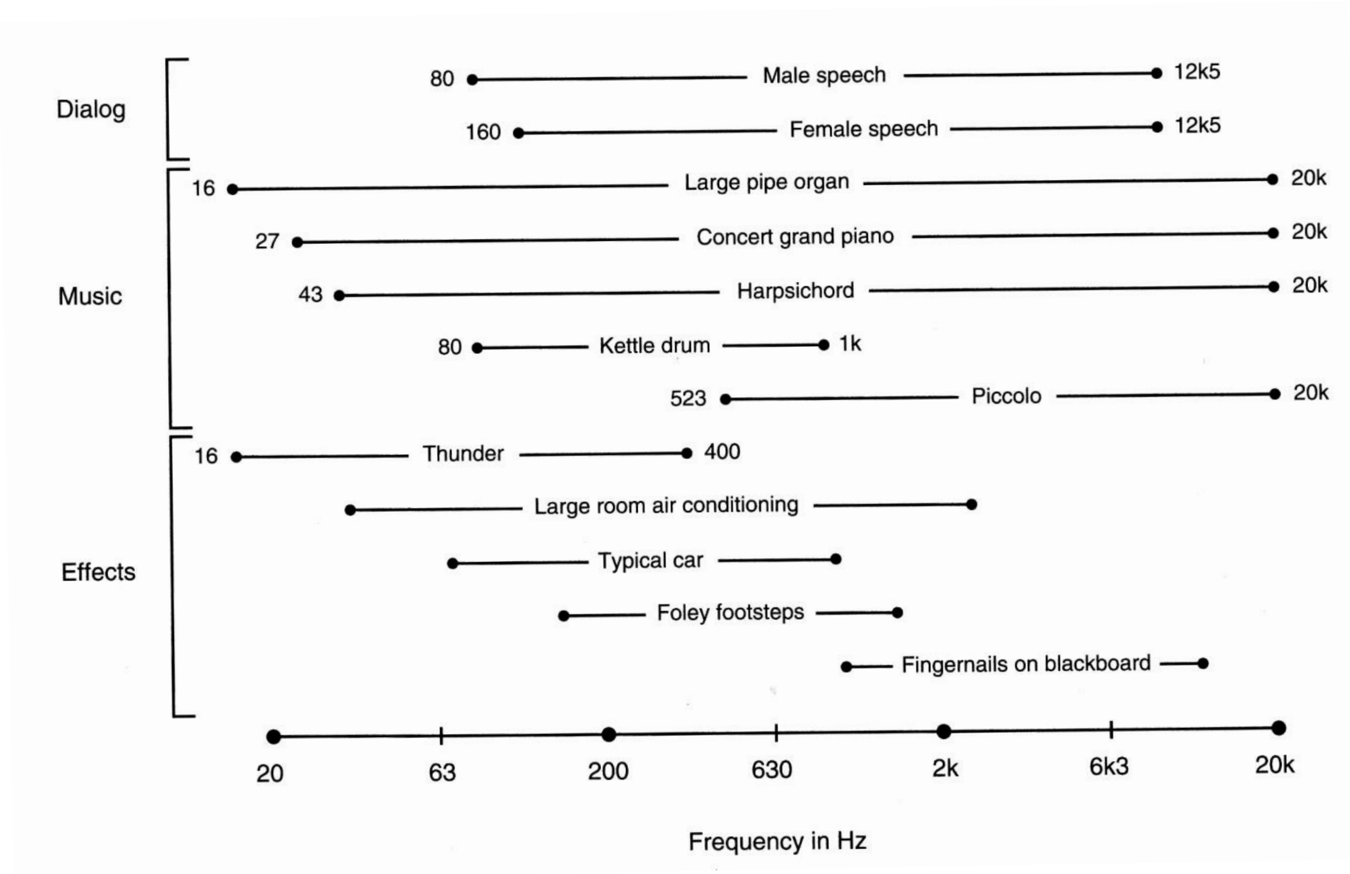


Figure 2. Frequency Range of Common Sounds

The range frequencies that make up sounds dictate how sound reacts with the environment and how we perceive that sound. For example, lower frequency sound, like bass from a car stereo, is affected less by barriers and vegetation than higher frequency sounds. Human hearing, on the other hand, is most sensitive to higher frequency sounds, with the maximum sensitivity at around 2000 Hertz. The human ear sensitivity to frequency gradually falls off at lower and higher frequencies. In order to account for human perception of sound pressure levels at different frequencies, weighting filters are applied when measuring sound. A sound level that has been weighted for the human ear is referred to as the "A-weighted" filter and are denoted as dB(A) or dBA.

To accurately calculate how a noise source at point A will sound at point B, the frequency spectrum that comprises that sound needs to be quantified to determine how that sound interacts with the environment and how it is perceived by the human ear. For environmental assessment purposes, the range of audible frequencies can be divided into 10 groups, referred to as Center Octave Bands. Each center octave band can be further divided into three additional sub-groups called 1/3 Octave Bands. Each octave band consists of a range of frequencies whose upper limit is twice the lower frequency limit.

The following figure illustrates the standard ranges of the Center Octave Bands and the A-weighting adjustment factor for each range.

Center Octave Bands			
Center Octave Band (Hz)	**Lower Frequency Limit (Hz)**	**Upper Frequency Limit (Hz)**	**A- Weighting Adjustment (dB)**
31.5	20.9	41.8	-39.4
63	41.8	83.5	-26.2
125	83.5	167	-16.1
250	167	333	-8.6
500	333	667	-3.2
1000	667	1333	0.0
2000	1333	2666	+1.2
4000	2666	5332	+1.0
8000	5332	10664	-1.1
16000	10664	21328	-6.6

Figure 3. Center Octave Band Frequencies and A-Weighting Adjustment Factors

2.3 Multiple Sound Sources

Sound levels from multiple sources are not added arithmetically because decibels are reported on a logarithmic scale. Sound levels are added logarithmically to calculate the combined sound level. For approximation purposes, two sounds with the same sound level intensity and frequency spectrum will increase the overall sound pressure by approximately 3 dB. Combining noise sources where one sound level intensity is less than another will cause an overall increase of less than 3 dB. Once the difference between two sound levels is 10 dB or more the lower intensity sound adds little to nothing to the overall sound level.

2.4 ATTENUATION

Attenuation is a reduction in force, value, amount or degree. Sound is attenuated by a number of factors including: distance, intervening topography and barriers, atmosphere, soft ground and vegetation. The effectiveness of each type of attenuation is dependent on a number of variables with distance and frequency being two of the most important.

2.4.1 Distance Attenuation

Attenuation of sound over distance follows the inverse-square law which applies when any force or energy is evenly radiated outward from a point source in three-dimensional space. The sound pressure from a spherical wavefront radiating from a point source decreases by 50% (or 6.02 dB) for every doubling of distance.

Distance attenuation is calculated using the following formula:

$$\mathbf{Lp_2 = Lp_1 - 20 \log_{10}(r_2/r_1)}$$ [1]

Where: **Lp_2** is the sound pressure level at the longer distance
Lp_1 is the sound pressure level at shorter (usually the reference) distance
r_2 is the longer distance
r_1 is the shorter (usually the reference) distance

2.4.2 Topographic and Barrier Attenuation

Topography and barriers located between sound sources and the receptors will attenuate sound to varying degrees based on the following formula:

$$\mathbf{N^{0.5} = (2(r_{sb} + r_{br} - d_{sb} - d_{br}) / \lambda)^{0.5}}$$

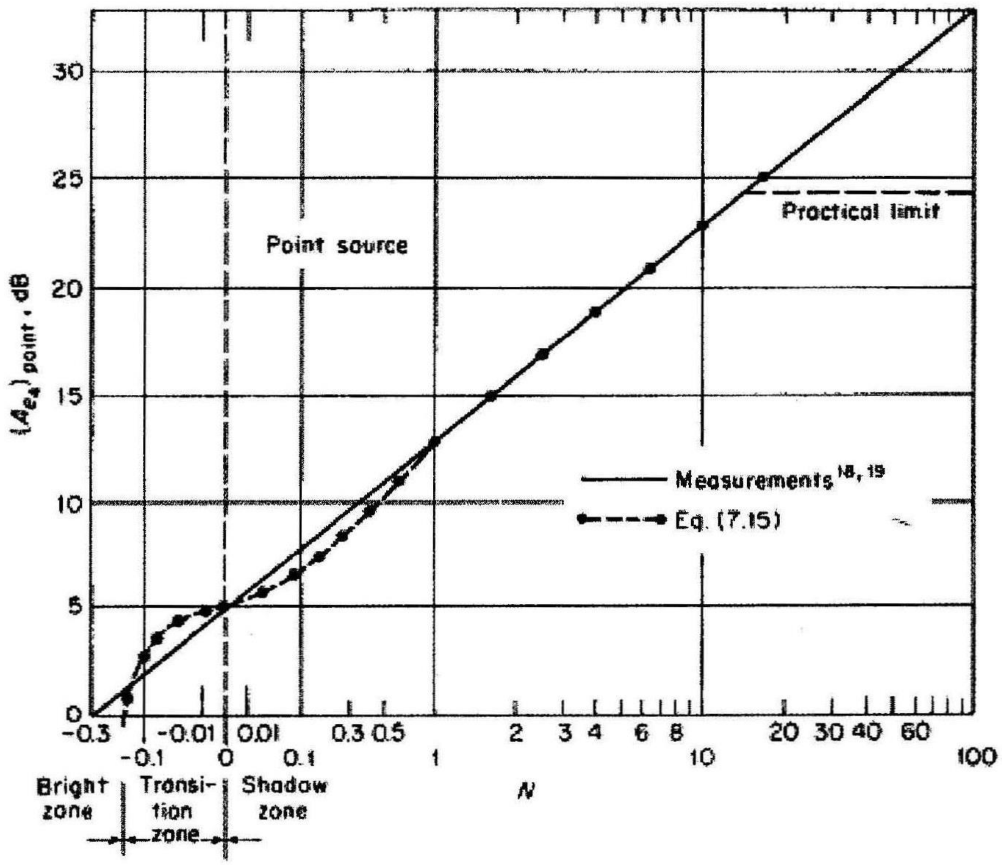
Where: **N** is the Fresnel Number
r_{sb} is the distance from the noise source to the top of the barrier
r_{br} is the distance from the top of the barrier to the receptor
d_{sb} is the straight-line distance from the noise source to the barrier

d_{br} is the straight-line distance from the barrier to the receptor

λ is the wavelength in meters

[1] Noise and Vibration Control Engineering: Principles and Applications, Edited by Leo L. Beranek and Istvan L. Ver, John Wiley & Sons Inc., New York 1992.

With the knowledge of Fresnel Number, the barrier attenuation for a specific frequency can be determined.



From L. Beranek; Noise and Vibration Control, McGraw-Hill, 1971

Figure 4. Barrier Attenuation by Fresnel Number

Transition zone barrier attenuation, identified in the previous figure, was not factored in an effort to be conservative.

As demonstrated on the following figure, barriers and topography attenuate higher frequency sound more effectively than lower frequency sound based on the path length difference.

Path-Length Difference, ft	Insertion Loss, dB — Octave Band Center Frequency, Hz							
	31	63	125	250	500	1000	2000	4000
0.01	5	5	5	5	5	6	7	8
0.02	5	5	5	5	5	6	8	9
0.05	5	5	5	5	6	7	9	10
0.1	5	5	5	6	7	9	11	13
0.2	5	5	6	8	9	11	13	16
0.5	6	7	9	10	12	15	18	20
1.0	7	8	10	12	14	17	20	22
2.0	8	10	12	14	17	20	22	23
5.0	10	12	14	17	20	22	23	24
10.0	12	15	17	20	22	23	24	24
20.0	15	18	20	22	23	24	24	24
50.0	18	20	23	24	24	24	24	24

Figure 5. Approximate Barrier Attenuation as a Function of Path-Length Difference and Frequency

2.4.3 Atmospheric Attenuation

Sound energy is attenuated in air by two major mechanisms:

- Viscous losses due to friction between air molecules, called "classical absorption"
- Relaxational process where sound energy is momentarily absorbed in the air molecules which causes the molecules to vibrate. These molecules then re-radiate sound at a later instant which can partially interfere with the incoming sound.

These mechanisms have been extensively studied, qualified and codified into international standards: ANSI Standard S1.26:1995 or ISO 9613-1:1996. For a standard pressure of one atmosphere, the absorption coefficient can be calculated as a function of frequency f (Hz), temperature T (degrees Kelvin) and humidity (molar concentration of water vapor h (%)) by[2]:

[2] ANSI Standard S1.26:1995

$$\alpha = 869 \times f^2 \left\{ 1.84 \times 10^{-11} \left(\frac{T}{T_0} \right)^{1/2} + \left(\frac{T}{T_0} \right)^{-5/2} \left[0.01275 \frac{e^{-2239.1/T}}{F_{r,O} + f^2 / F_{r,O}} + 0.1068 \frac{e^{-3352/T}}{F_{r,N} + f^2 / F_{r,N}} \right] \right\}$$

$$F_{r,O} = 24 + 4.04 \times 10^4 h \frac{0.02 + h}{0.391 + h} \qquad \text{O}$$

$$F_{r,N} = \left(\frac{T}{T_0} \right)^{-1/2} \left(9 + 280 h \, e^{\left\{ -4.17 \left(\frac{T}{T_0} \right)^{-1/3} - 1 \right\}} \right)$$

$$T_0 = 293.15\,°\text{K} \ \ (20°\text{C})$$

The attenuation due to atmospheric absorption can be calculated using the following formula:

$$A_{abs} = ar/100 \text{ (dB)}$$

Where: **a** is the absorption coefficient (dB/100m)
r is range in meters

The ANSI S1.26 standard uses conservative values of 20 degrees C and 70% relative humidity.

The Noise Impact Assessment did not factor in atmospheric attenuation to keep the calculations conservative.

2.4.4 Ground

If sound is propagating over ground, attenuation will occur due to acoustic energy losses on reflection. These losses will depend on the surface. Smooth, hard surfaces (like water or pavement) will produce little absorption whereas thick grass may result in sound levels being reduced by up to about 10 dB per 100 meters at 2000 Hz[3,4]. High frequencies are generally attenuated more than low frequencies.

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[3] Aylor, *Noise Reduction of Vegetation and Ground,* J. Acoust. Soc. Am. Volume 51, Issue 1B, pp.197-205, January 1972.

[4] Wiener and Keast, "Experimental Study of the Propagation of Sound Over Ground," *Journal of the Acoustical Society of America,* 31, p. 724.

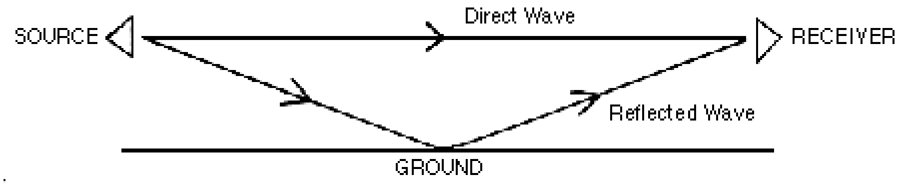

Figure 6. Sound Propagating Over a Surface. Sound Waves Reflecting Off of the Ground Do So at the Angle Of Incidence

The Noise Impact Assessment assumed all surfaces were acoustically hard and no ground attenuation was used to keep the calculations conservative.

2.4.5 Vegetation

Vegetation provides attenuation if it lies between the source of the sound and the receptor. The attenuation from vegetation is generally limited to a maximum reduction of 10 dBA to be conservative.

Attenuation due to wooded areas is calculated using the following formula:

$$A_{woods} = 0.01f^{1/3}r \quad (5)$$

Where: **f** is frequency
r is wooded area thickness

The Noise Impact Assessment did not factor in attenuation from vegetation to keep the calculations conservative.

[5] Noise and Vibration Control Engineering: Principles and Applications, Edited by Leo L. Beranek and Istvan L. Ver, John Wiley & Sons Inc., New York 1992, p.184.

3.0 PROJECT SOUND LEVELS

3.1 PROCEDURE

3.1.1 Receptors

The Eagle Harbor Mine is an active 250+/- acre sand and gravel mine located within a rural agricultural area with few neighbors. As part of this impact assessment, the five closest neighbors in each general direction from the operation were chosen for assessment; they are identified on the enclosed Site Plan Map and are as follows:

R1: Residence N/F of Ernst located approximately 150 feet northwest of the existing Life of Mine.

R2: Residence N/F of Parsons located approximately 150 feet north of the existing Life of Mine.

R3: Residence N/F of Miller located approximately 215 feet east of the existing Life of Mine.

R4: Residence N/F of Babcock located approximately 725 feet southeast of the southeastern corner of the existing Life of Mine.

R5: Residence N/F of Kingdollar located approximately 140 feet west of the existing Life of Mine.

These locations represent the closest receptors in all directions around the mine; sound levels from the Eagle Harbor Mine will be less at other, further away receptors.

3.1.2 Background Sound Levels

Background sound levels (1-hour Leq) were measured at the two locations indicated on the Site Plan Map. The background sound levels are 43.7dBA at Location A and 46.2 dBA at Location B, which is consistent with typical rural background sound levels of approximately 45 dB(A).

3.1.3 Equipment Scenarios

Two separate operating scenarios were modeled for each receptor location using the formulas identified in the previous section and compared to one another for the Noise Impact Assessment:

1. Existing conditions determined/limited by the current mining permit and
2. Proposed conditions

A combination of actual Eagle Harbor equipment and equivalent equipment noise source data from operating mine sites were used in the calculations.

Only the loudest directional sound level readings were used in all of the calculations in an effort to be conservative.

3.1.4 Noise Level Calculations

The following factors were incorporated into the Noise Impact Assessment:

1. All equipment noise sources were modeled from the stack height above the ground;
2. Receptors were modeled 6 feet off of the ground;
3. Temporary stockpiles were not used in the barrier calculations;
4. Only the loudest directional sound level readings for each piece of equipment was used in the calculations in an effort to be conservative,
5. All equipment for each scenario was modeled operating at the same time to be conservative, and
6. Background sound level measurements were not added to the modeled sound levels to be conservative. For example, in a hypothetical scenario, a background sound level of 55 dBA is added to a current sound level of 60 dBA and a proposed sound level of 66.5 dBA. The current sound level would be increased by 1.2 dBA to 61.2 dBA and the proposed sound level would be increased by only 0.3 dBA to 66.8 dBA (a difference of 5.6 dBA vs. 6.5 dBA between current and proposed).

3.2 Existing Site Operations

The Eagle Harbor Mine is a 250.6-acre NYSDEC permitted active sand and gravel mining operation. Permitted activities include mining above and below the water table and sand and gravel processing.

The following table summarizes the sound levels of the typical equipment currently used at the Eagle Harbor Mine.

Equipment	Distance (feet)	Center Octave Band Sound Levels (dB)										Composite dB(A)
		31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1k Hz	2k Hz	4k Hz	8k Hz	16k Hz	
Main Processing Plant	50	93.8	87.7	87.7	83.7	85.6	85.7	82.9	78.8	69.8	58.6	89.8
Loader loading Haul Truck	50	64.8	68.7	68.5	65.0	61.1	73.7	63.1	55.6	48.3	38.5	74.5
Haul Truck	50	73.2	75.8	73.5	69.7	70.3	70.3	69.7	64.0	55.6	47.0	75.2
Plant Loader	50	79.7	84.6	79.0	75.4	73.5	73.1	69.2	62.4	53.5	41.4	77.1
Excavator	50	70.3	80.7	85.6	76.2	70.5	69.5	66.6	64.6	60.9	50.7	75.3

Figure 7. Permitted Equipment Sound Levels

3.2.1 Existing Combined Sound Levels

There are two main sources of mining related noise under the existing conditions: mining sand and gravel and processing/sales of sand and gravel.

Mining consists of digging sand and gravel with an excavator, placing the material into dewatering piles, loading dewatered material into haul trucks by a loader and transporting sand and gravel to the hopper. This scenario was modeled separately for each identified receptor as M1 through M5 at the locations shown on the enclosed Site Plan Map.

Processing occurs at a fixed location in the plant and stockpile area and the noise sources associated with this activity consist of the processing plant and trucks being loaded by the plant loader. This was modeled as Location P at the location shown on the enclosed Site Plan Map.

Existing Noise Scenarios	**Distance (feet)**	**Center Octave Band Sound Levels (dB)**										**Composite dB(A)**
		31.5 Hz	**63 Hz**	**125 Hz**	**250 Hz**	**500 Hz**	**1k Hz**	**2k Hz**	**4k Hz**	**8k Hz**	**16k Hz**	
(M) Mining: Excavator, loader and haul truck	50	75.4	82.1	85.9	77.3	73.7	76.3	72.0	67.6	62.2	52.4	80.0 dB(A)
(P) Processing: Processing plant, loader and dump truck	50	94.0	89.7	88.4	84.4	85.9	86.0	83.1	78.9	69.9	58.7	90.1 dB(A)

Figure 8. Combined Permitted Sound Levels

3.2.2 Existing Conditions Sound Levels at Nearest Receptors

The following table summarizes the results of the noise attenuation calculations for existing conditions. The attenuation calculation data sheets are included in the Appendix.

Existing Sound Level Summary					
	R1	**R2**	**R3**	**R4**	**R5**
Mining Noise - (M1-5)	45.6 dB(A)	68.5 dB(A)	43.4 dB(A)	41.0 dB(A)	57.9 dB(A)
Processing Noise - (P)	53.0 dB(A)	56.0 dB(A)	54.9 dB(A)	58.2 dB(A)	45.1 dB(A)
Total Permitted Sound Level of Operation at Receptor	**53.7 dB(A)**	**68.7 dB(A)**	**55.2 dB(A)**	**58.3 dB(A)**	**58.1 dB(A)**

Figure 9. Existing Sound Level Summary

3.3 PROPOSED SITE OPERATIONS

Under the proposed modification, Eagle Harbor will add consolidated mining as a permitted use within a 100-acre portion of the 250.6-acre existing sand and gravel mining operation. The proposed changes include:

1. Use of a rock drill for drilling blast holes.
2. Use of a portable crushing plant to size the shot rock and transporting the crushed rock to the existing plant via a field conveyor. The processing plant is self-powered with integrated diesel engines.
3. The existing sand and gravel mining equipment (loader, excavator and haul truck) will be used to mine sand and gravel overlying the stone as well as crushed stone. The following table summarize the sound levels of the additional equipment that will be used for consolidated mining at the Eagle Harbor Mine.

New Equipment To Be Added	Distance (feet)	Center Octave Band Sound Levels (dB)										Composite dB(A)
		31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1k Hz	2k Hz	4k Hz	8k Hz	16k Hz	
Rock Drill	50	71.4	76.8	84.2	76.2	74.9	76.2	74.2	69.5	62.8	57.6	80.6 dB(A)
Portable Crushing Plant	50	83.7	86.2	85.7	84.4	80.4	80.8	81.2	77.9	70.1	59.4	86.7 dB(A)

Figure 10. Sound Levels of Additional Equipment Used for Consolidated Mining

3.3.1 Proposed Combined Sound Levels

Under the modification proposal conditions there will be four main sources of noise:

1. Drilling,
2. Loading of shot rock at the face and hauling to the portable plant,
3. Initial processing at the portable plant and
4. Final processing and sales at the current plant and stockpile area.

Drilling will intermittently occur on top of the rock face, above the mine floor. This intermittent noise source was included in the impact assessment to be conservative. Mining at the face includes loading shot rock into haul trucks for transport to the portable processing plant. The portable plant will be located outside of the active quarry excavation area and the crushed stone will be transported to the existing processing plant for sizing and sales. The existing plant will be used to alternately process sand and gravel and crushed shot rock so no change will occur as part of the final processing and sales portion of the assessment.

Consolidated Mining Scenarios	Distance (feet)	Center Octave Band Sound Levels (dB)										Composite dB(A)
		31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1k Hz	2k Hz	4k Hz	8k Hz	16k Hz	
(QE) Quarry Excavation: Operating loader and haul truck hauling material	50	34.2	50.2	58.5	62.3	67.5	75.3	71.8	65.5	55.2	40.9	77.9 dB(A)
(RD) Drilling: Rock drill	50	71.4	76.8	84.2	76.2	74.9	76.2	74.2	69.5	62.8	57.6	80.6 dB(A)
(PCP) Portable Crushing Plant: portable plant being fed	50	83.7	86.2	85.7	84.4	80.4	80.8	81.2	77.9	70.1	59.4	86.7 dB(A)
(P) Processing: Main processing plant, loader and dump truck	50	94.0	89.7	88.4	84.4	85.9	86.0	83.1	78.9	69.9	58.7	90.1 dB(A)

Figure 11. Combined Proposed Sound Levels

3.3.2 Proposed Sound Levels at Nearest Receptors

The following table summarizes the noise attenuation calculations for consolidated mining. Noise attenuation data sheets are included in the Appendix.

Proposed Sound Level Summary					
	R1	**R2**	**R3**	**R4**	**R5**
(QE) Quarry Excavation: portable crusher, loader and haul truck	34.0 dB(A)	33.9 dB(A)	25.4 dB(A)	22.5 dB(A)	30.7 dB(A)
(RD) Drilling: Rock drill	44.7 dB(A)	43.8 dB(A)	31.0 dB(A)	28.3 dB(A)	36.8 dB(A)
(PCP) Portable Crushing Plant	52.3 dB(A)	54.0 dB(A)	42.4 dB(A)	45.9 dB(A)	45.3 dB(A)
(P) Processing: Main processing plant, loader and dump truck	53.0 dB(A)	56.0 dB(A)	54.9 dB(A)	58.2 dB(A)	45.1 dB(A)
Total Sound Level of Operation at Receptor	**56.0 dB(A)**	**58.3 dB(A)**	**55.2 dB(A)**	**58.5 dB(A)**	**48.6 dB(A)**

Figure 13. Proposed Sound Level Summary

4.0 FINDINGS AND IMPACT ASSESSMENT

The following table offers a comparison of worst-case sound levels under current and proposed conditions:

Comparison of Worst-Case Sound Levels at Receptor Locations					
	R1	**R2**	**R3**	**R4**	**R5**
Total Current Potential Sound Level of Operation at Receptor	53.7 dB(A)	68.7 dB(A)	55.2 dB(A)	58.3 dB(A)	58.1 dB(A)
Total Potential Sound Level of Operation at Receptor Under Proposed Scenario	56.0 dB(A)	58.3 dB(A)	55.2 dB(A)	58.5 dB(A)	48.6 dB(A)
Projected Increase Over Current Conditions	+2.7 dB(A)	-9.4 dB(A)	0 dB(A)	+0.2 dB(A)	-9.5 dB(A)

Figure 14. Comparison of Sound Levels from Permitted and Proposed Scenarios

The calculations indicate that potential worst-case sound level increases from consolidated mining activities at all receptors will either be less than current conditions or minimal and within the “unnoticed” to “tolerable” range described in the NYSDEC noise policy.

5.0 MITIGATION MEASURES AND RECOMMENDATIONS

No mitigation measures are necessary as the calculations indicate that potential sound level increases from consolidated mining activities at all receptors will either be less than current operating conditions or minimal and within the “unnoticed” to “tolerable” range described in the NYSDEC noise policy.

Nevertheless, Eagle Harbor proposes to incorporate the following measures to further minimize off-site noise impacts:

- ⚒ *A perimeter berm will be constructed around the edge of the active quarry area. This voluntary mitigation measure will further reduce consolidated mining related noise to all off-site receptors.*

REFERENCES

Aylor, *Noise Reduction of Vegetation and Ground,* J. Acoust. Soc. Am. Volume 51, Issue 1B, pp.197-205, January 1972.

Beranek, Leo L. and IstvanL. Ver, editors, "Noise and Vibration Control Engineering: Principles and Applications, John Wiley & Sons, 1992.

"Assessing and Mitigating Noise", NYSDEC Division of Environmental Permits, issued October 6, 2000, last revised February 2, 2001.

United States Environmental Protection Agency, Protective Noise Levels, Condensed Version of EPA Levels Document, EPA 550/9-79-100, November 1978, Office of Noise Abatement & Control, Washington, D.C.

APPENDIX

SITE PLAN MAP FOR NOISE IMPACT ASSESSMENT

Eagle Harbor Mine

Eagle Harbor Sand & Gravel, Inc

Town of Barre, Orleans County, New York

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Details:
Survey Date: June 5, 2018
Horizontal Scale: 1" = 200'
Datum: Mean Sea Level
USGS Quad: Knowlesville
Contour Interval: 2 feet
Drafted by: Milliman

REVISIONS

Date	Description	By
1/11/18	Update Bedrock Excavation Area	BTM
6/5/18	Topographic Update	BTM
11/13/18	Update for NIA	BTM
9/1/20	Update for NOIA	BTM

LEGEND

Property Line
2' Contour Line
Stream/Edge of Water
Structure
Unpaved Road
Paved Road
680 Reclamation Contour
Top of Graded Stripping Slope
M Permitted Mining Noise Source
P Permitted Processing Plant Noise Source
PCP Proposed Processing Plant Noise Source
HT Proposed Haul Truck Noise Source
RD Proposed Rock Drill Noise Source
CM Proposed Consolidated Mining Noise Source
R3 Receptor Location
BA Background Sound Level Location A: 43.7 dBA
BB Background Sound Level Location B: 46.2 dBA

SCALE

1" = 200'

200 0 200 400 600 800

NOTES

Base Maps & Background Information

1. Life of Mine derived from: Eagle Harbor Sand & Gravel, Inc. Eagle Harbor Mine Site Mining Plan Map by Advanced Environmental Geology, dated: 7/18/2014.
2. Property Lines derived from: Eagle Harbor Sand & Gravel, Inc. Eagle Harbor Mine Site Mining Plan Map by Advanced Environmental Geology, dated: 7/18/2014 and Orleans County Tax Maps.
3. Elevation contours outside of survey area derived from LiDAR dataset provided through NYSGIS Clearinghouse available at http://www.orthos.dhses.ny.gov/.
4. Certain map features outside of survey area digitized from digital high resolution aerial orthophotos provided from the National Aerial Imagery Program (NAIP) and the NYSGIS Clearinghouse.

ACREAGE SUMMARY

Life Of Mine Area: 250.6+/- acres

Bedrock Excavation Area 99.7+/- acres

Fine Sand/Overburden Stripping Area 114.3+/- acres

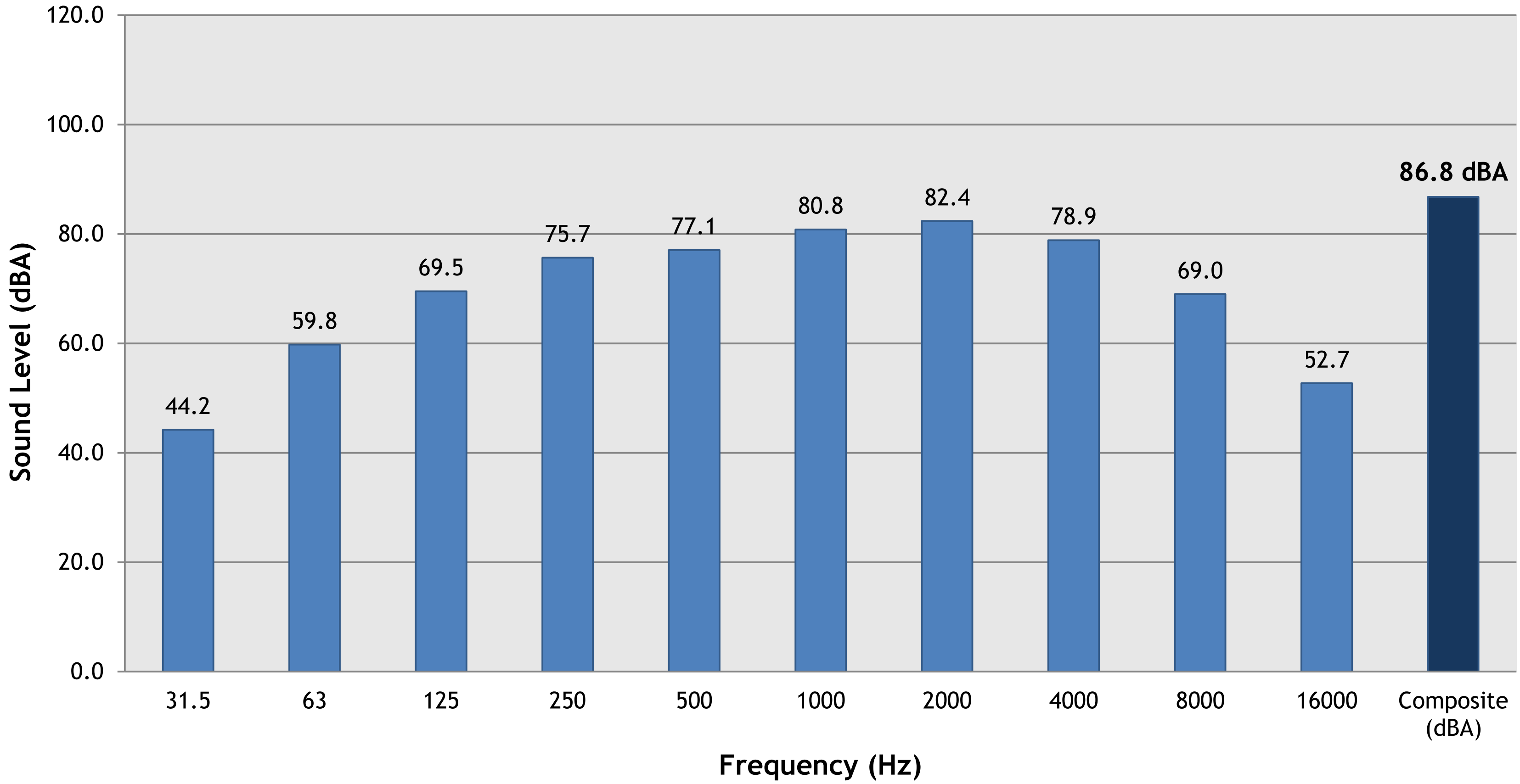
Eagle Harbor
New Quarry

Sand & Gravel Mining

Scenario: M
Receptor: R1

Equipment: CAT 336, CAT 735 and CAT loader

Equipment Octave Band Sound Level (dBA) at 50 Feet



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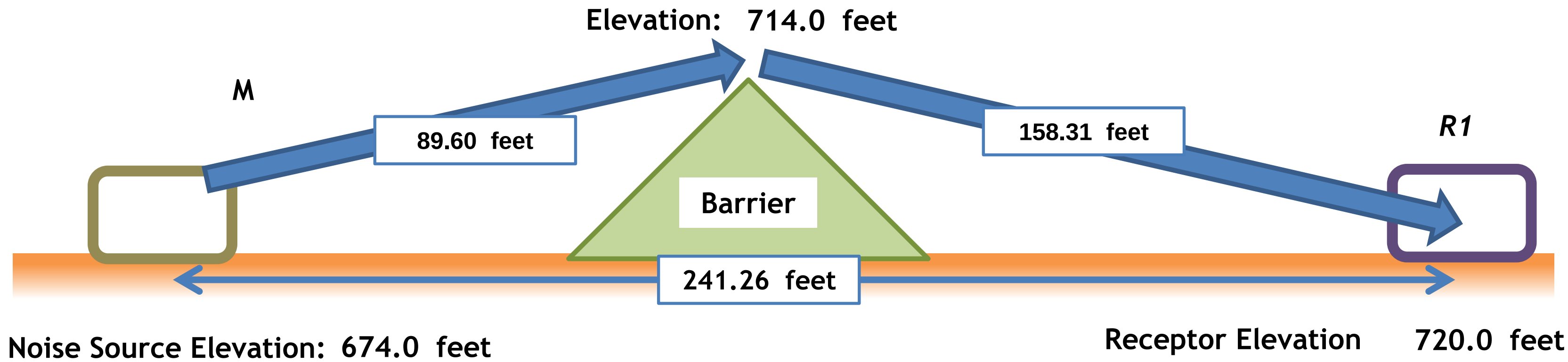
Eagle Harbor
New Quarry

Equipment: CAT 336, CAT 735 and CAT loader

Sand & Gravel Mining

Scenario: M
Receptor: R1

Distance and Barrier Attenuation Inputs



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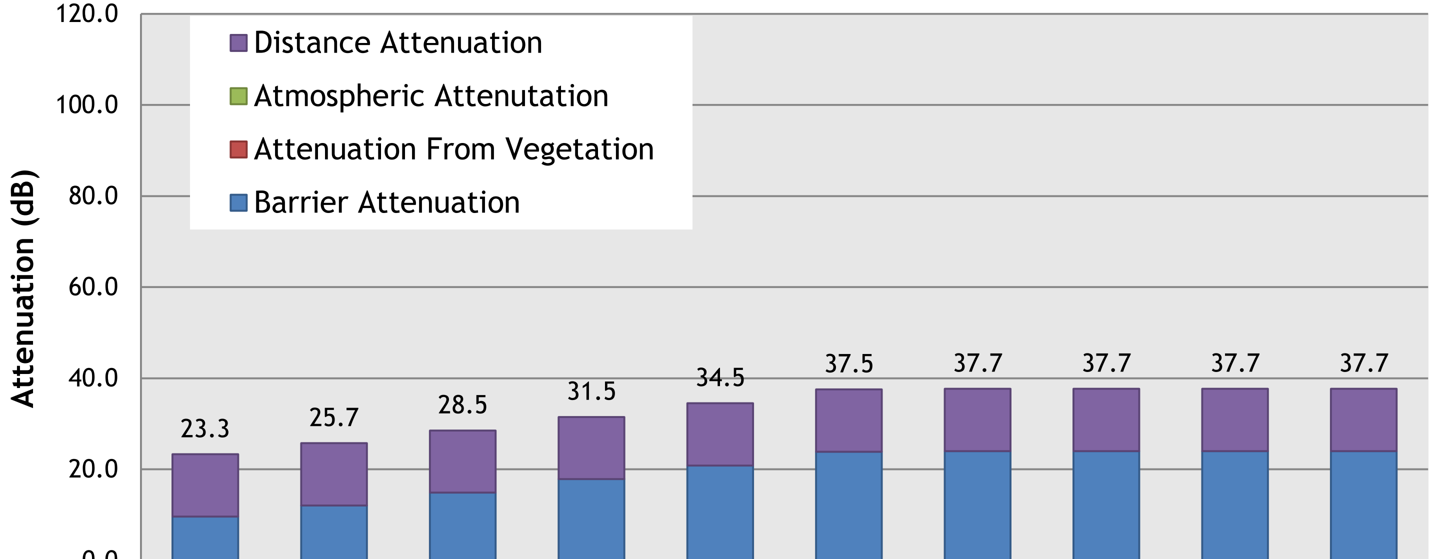
Eagle Harbor
New Quarry
Equipment: CAT 336, CAT 735 and CAT loader

Sand & Gravel Mining

Scenario: M
Receptor: R1

Attenuation By Source

Wooded Area Thickness:
0 feet



Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	23.3	25.7	28.5	31.5	34.5	37.5	37.7	37.7	37.7	37.7
Distance Attenuation	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	9.61	12.06	14.85	17.83	20.84	23.85	24.00	24.00	24.00	24.00

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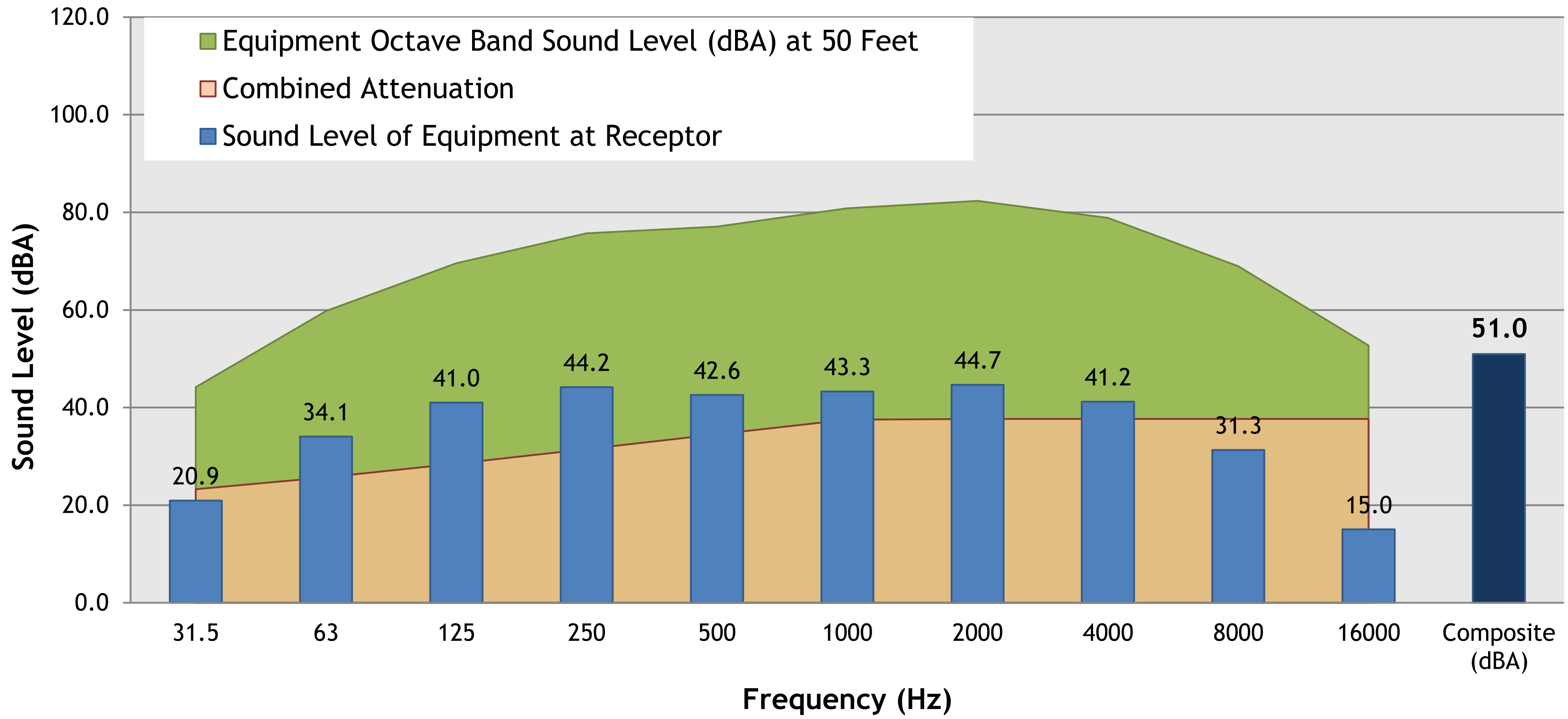
Eagle Harbor
New Quarry

Sand & Gravel Mining

Scenario: M
Receptor: R1

Equipment: CAT 336, CAT 735 and CAT loader

Sound Level Of Equipment At Receptor



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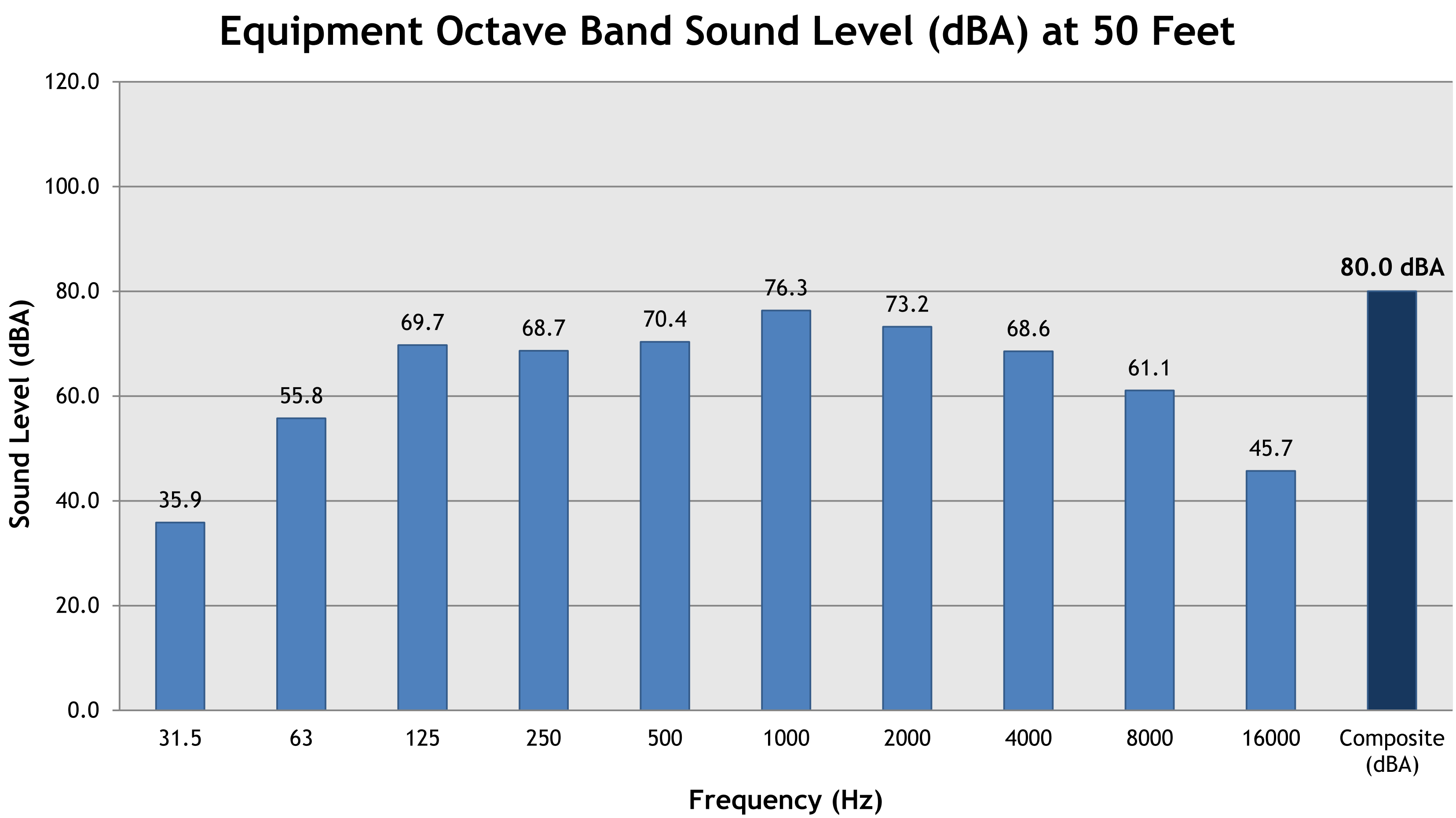
Eagle Harbor
New Quarry

Sand & Gravel Mining

Scenario: M
Receptor: R2

Equipment: CAT 336, CAT 735 & CAT Loader



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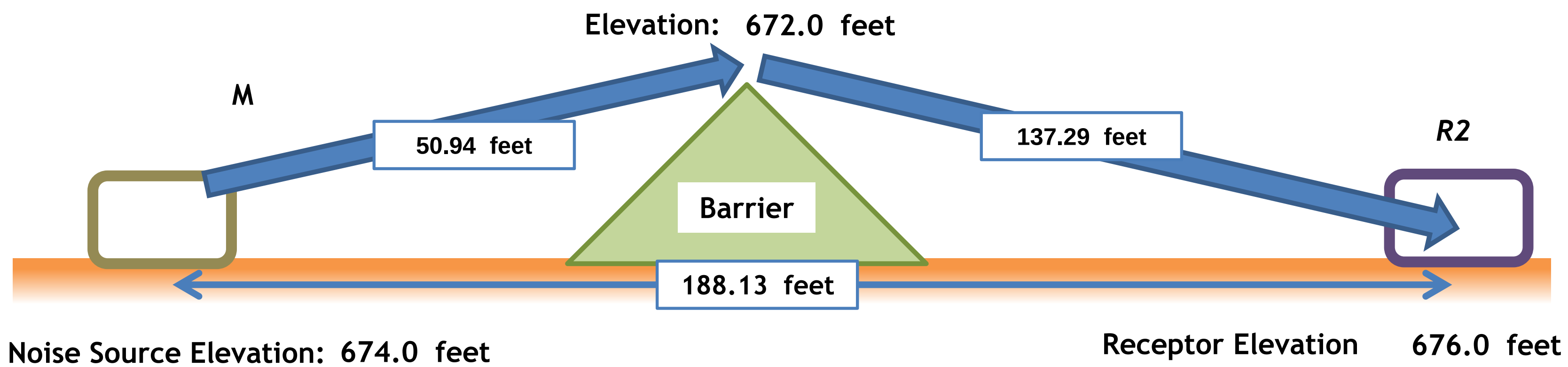
Eagle Harbor
New Quarry
Equipment: CAT 336, CAT 735 & CAT Loader

Sand & Gravel Mining

Scenario: M
Receptor: R2

Distance and Barrier Attenuation Inputs



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Eagle Harbor
New Quarry

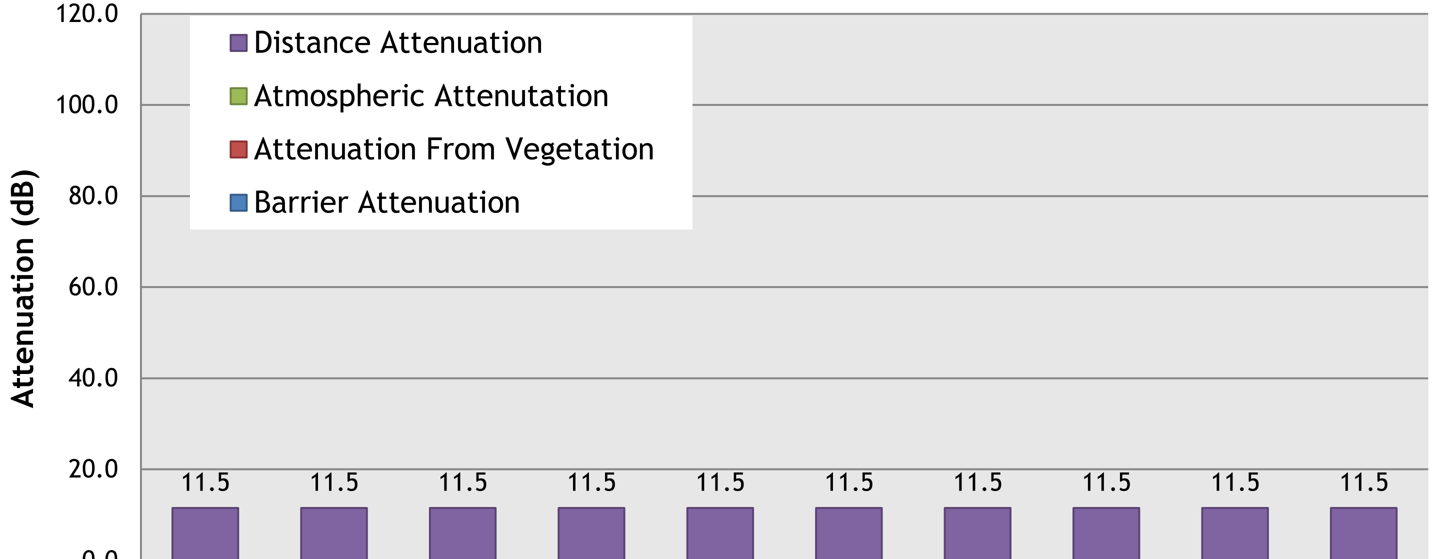
Sand & Gravel Mining

Scenario: M
Receptor: R2

Equipment: CAT 336, CAT 735 & CAT Loader

Attenuation By Source

Wooded Area Thickness: 0 feet



Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5
Distance Attenuation	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

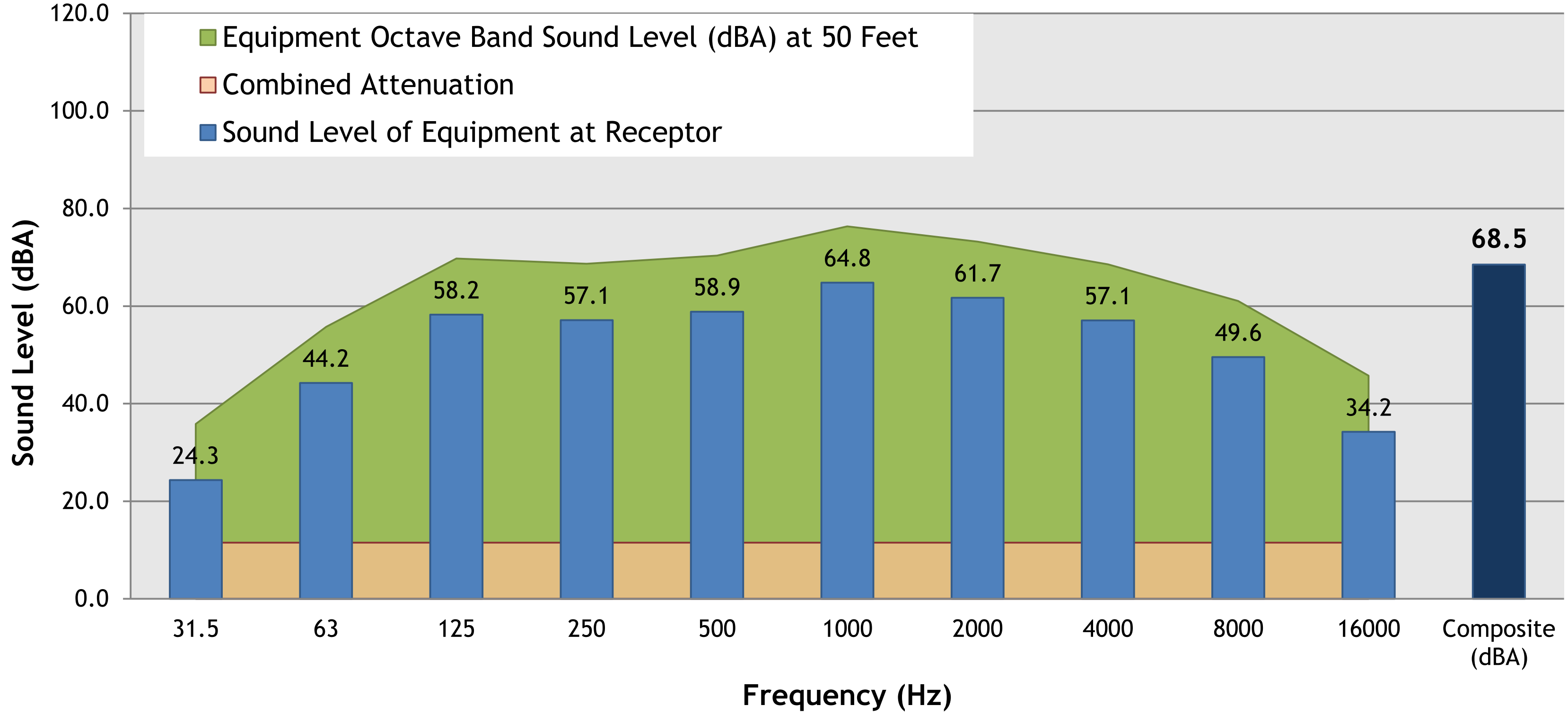
Eagle Harbor
New Quarry

Sand & Gravel Mining

Scenario: M
Receptor: R2

Equipment: CAT 336, CAT 735 & CAT Loader

Sound Level Of Equipment At Receptor



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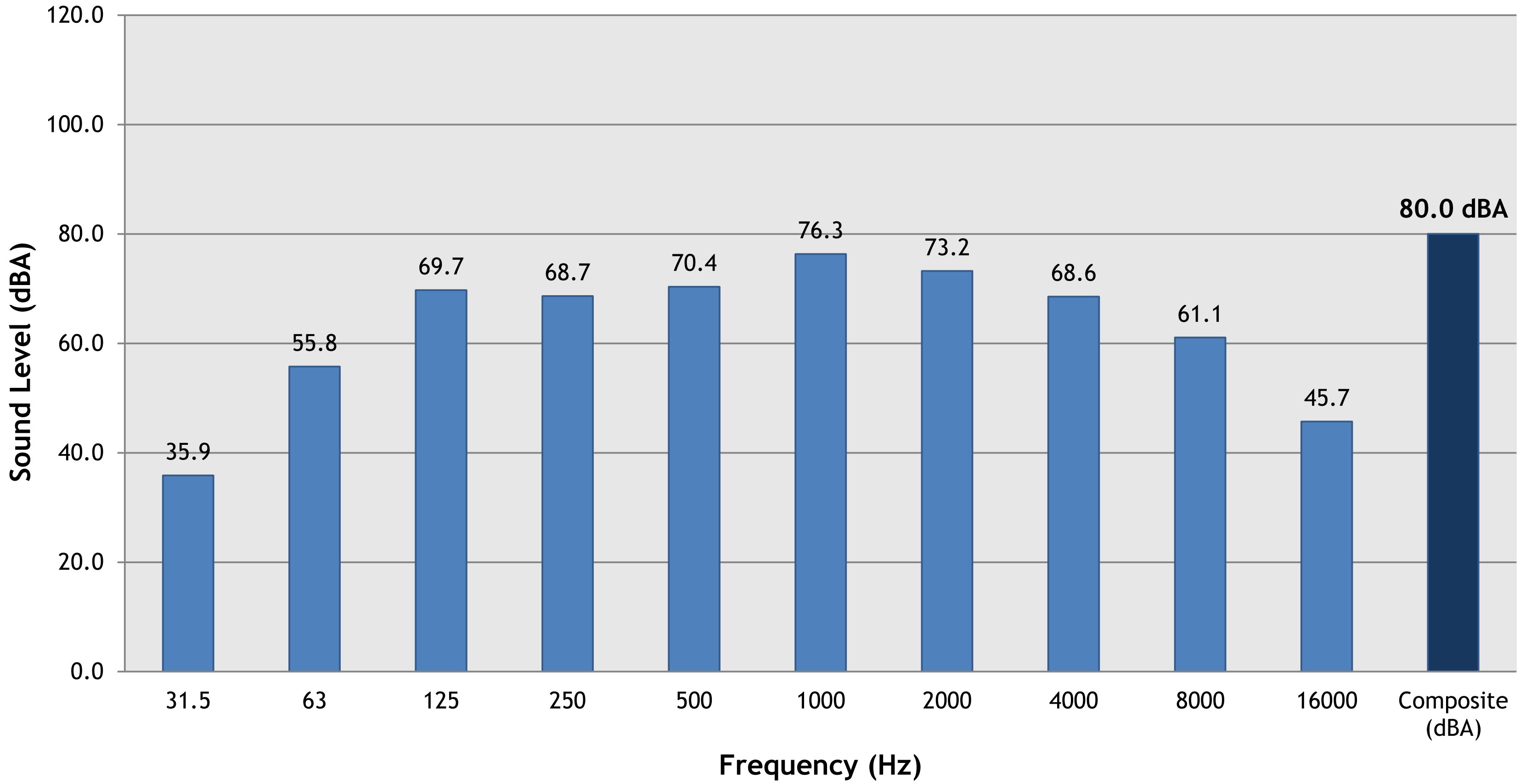
Eagle Harbor
New Quarry

Sand & Gravel Mining

Scenario: M
Receptor: R3

Equipment: CAT 336, CAT 735 and CAT Loader

Equipment Octave Band Sound Level (dBA) at 50 Feet



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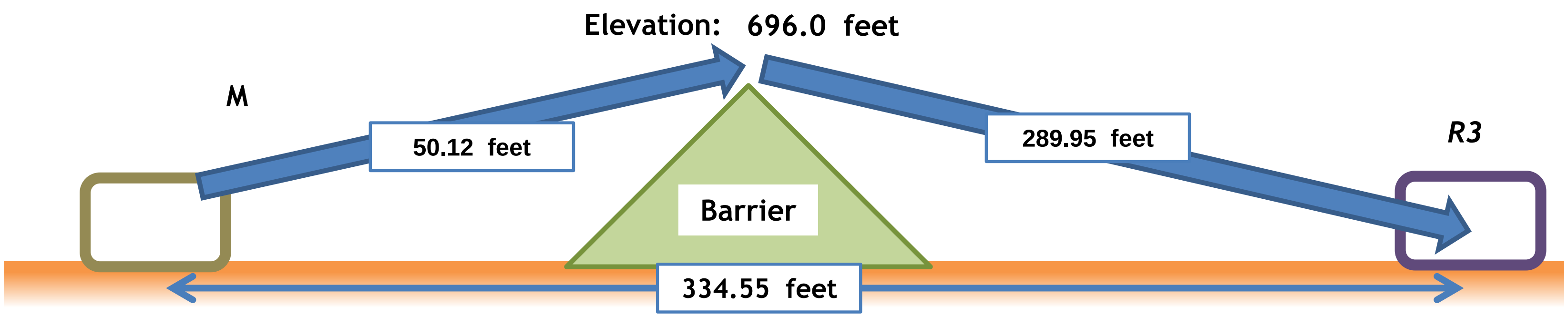
Eagle Harbor
New Quarry

Sand & Gravel Mining

Scenario: M
Receptor: R3

Equipment: CAT 336, CAT 735 and CAT Loader

Distance and Barrier Attenuation Inputs



Noise Source Elevation: 676.0 feet

Receptor Elevation 670.0 feet

Eagle Harbor
New Quarry

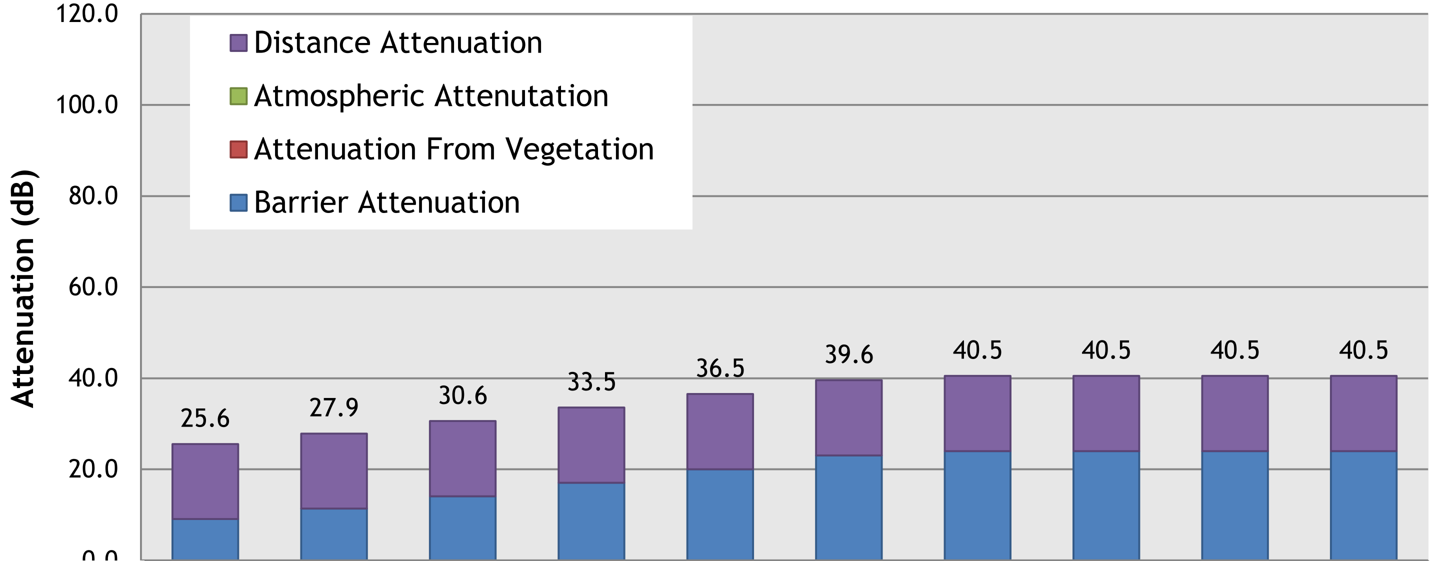
Sand & Gravel Mining

Scenario: M
Receptor: R3

Equipment: CAT 336, CAT 735 and CAT Loader

Attenuation By Source

Wooded Area Thickness:
0 feet



Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	25.6	27.9	30.6	33.5	36.5	39.6	40.5	40.5	40.5	40.5
Distance Attenuation	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	9.05	11.35	14.08	17.03	20.04	23.05	24.00	24.00	24.00	24.00

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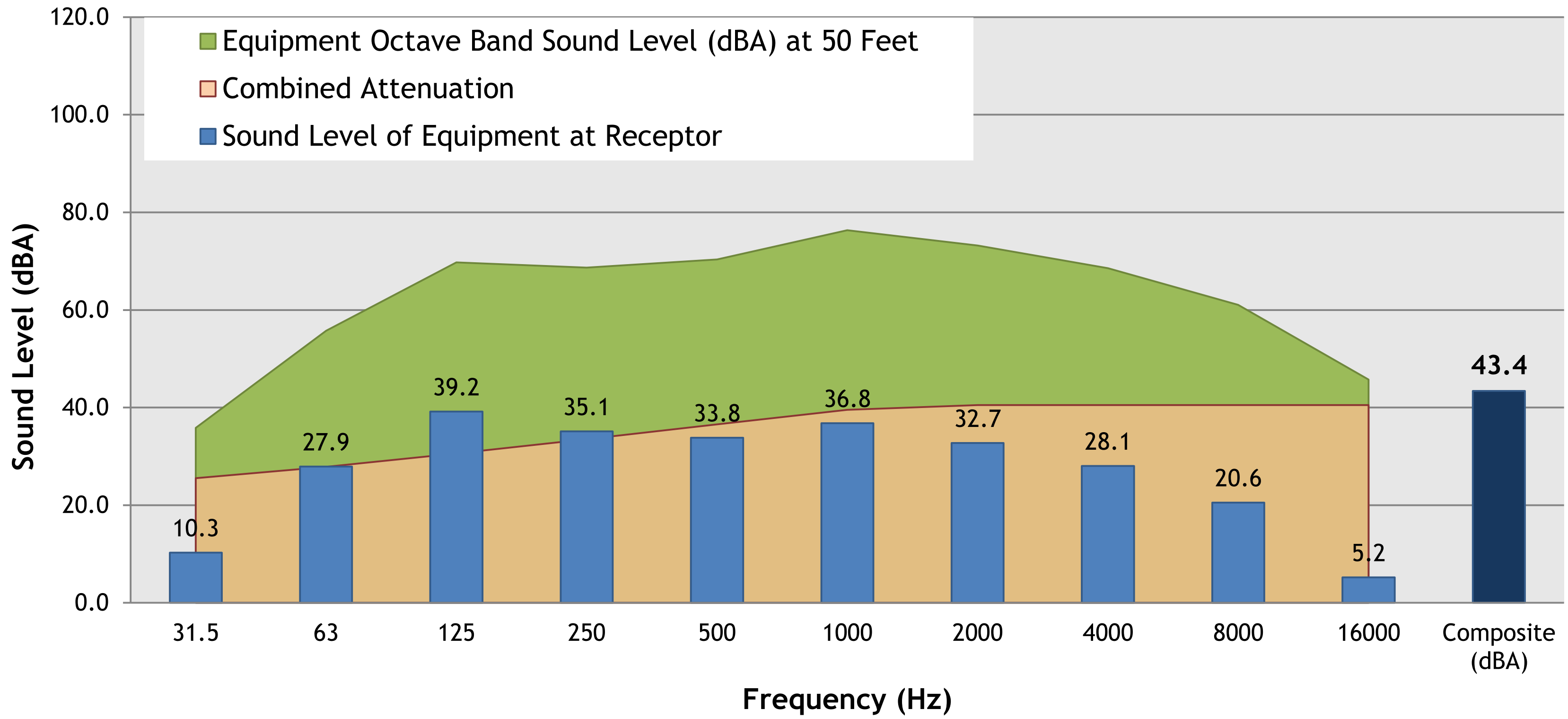
Eagle Harbor
New Quarry

Sand & Gravel Mining

Scenario: M
Receptor: R3

Equipment: CAT 336, CAT 735 and CAT Loader

Sound Level Of Equipment At Receptor



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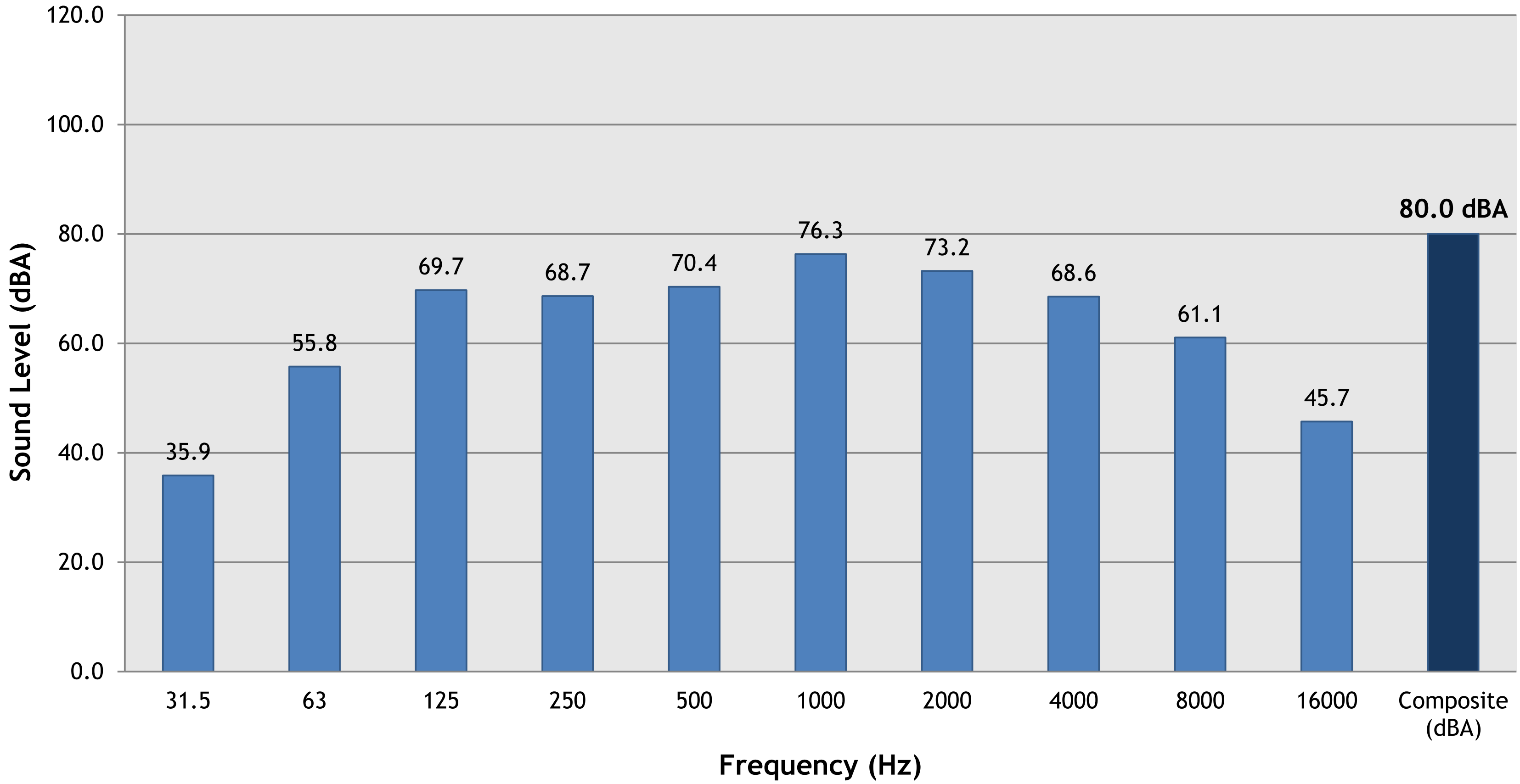
Eagle Harbor
New Quarry

Sand & Gravel Mining

Scenario: M
Receptor: R4

Equipment: CAT 336, CAT 735 & CAT Loader

Equipment Octave Band Sound Level (dBA) at 50 Feet



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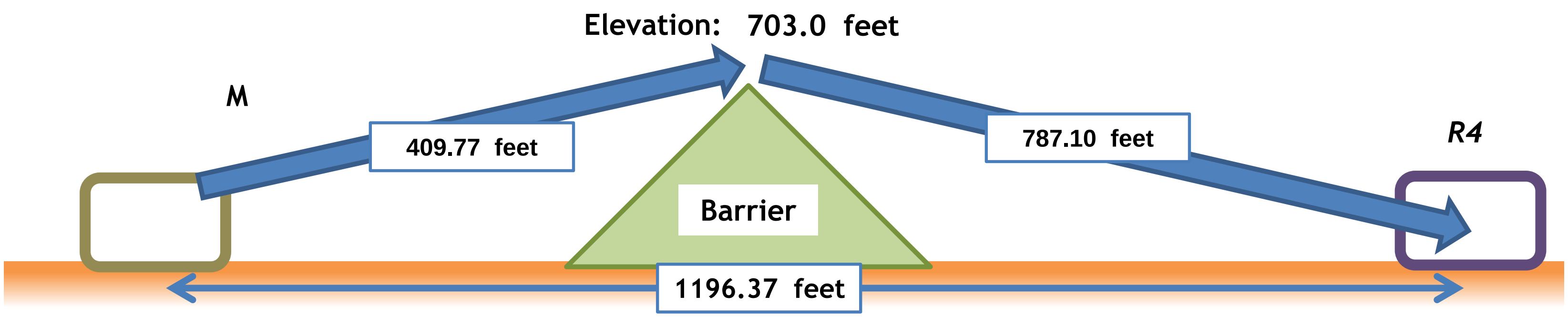
Eagle Harbor
New Quarry
Equipment: CAT 336, CAT 735 & CAT Loader

Sand & Gravel Mining

Scenario: M
Receptor: R4

Distance and Barrier Attenuation Inputs



Noise Source Elevation: 680.0 feet

Receptor Elevation 699.0 feet

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Eagle Harbor
New Quarry

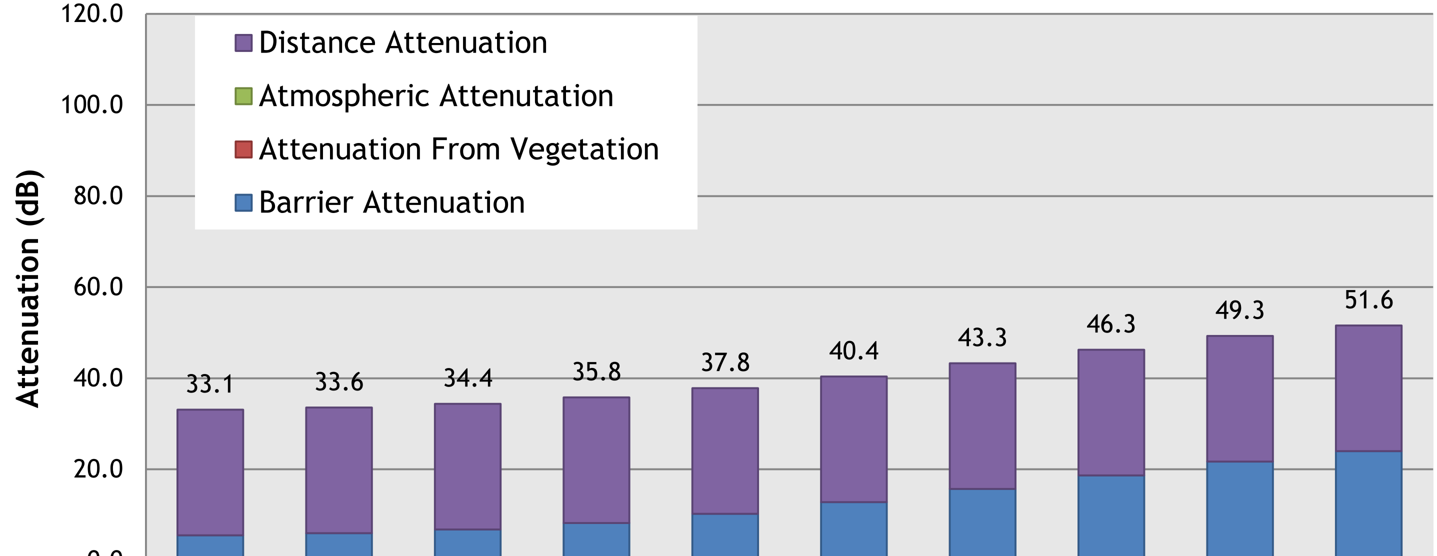
Sand & Gravel Mining

Scenario: M
Receptor: R4

Equipment: CAT 336, CAT 735 & CAT Loader

Attenuation By Source

Wooded Area Thickness:
0 feet



Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	33.1	33.6	34.4	35.8	37.8	40.4	43.3	46.3	49.3	51.6
Distance Attenuation	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	5.51	5.98	6.81	8.20	10.22	12.80	15.69	18.68	21.69	24.00

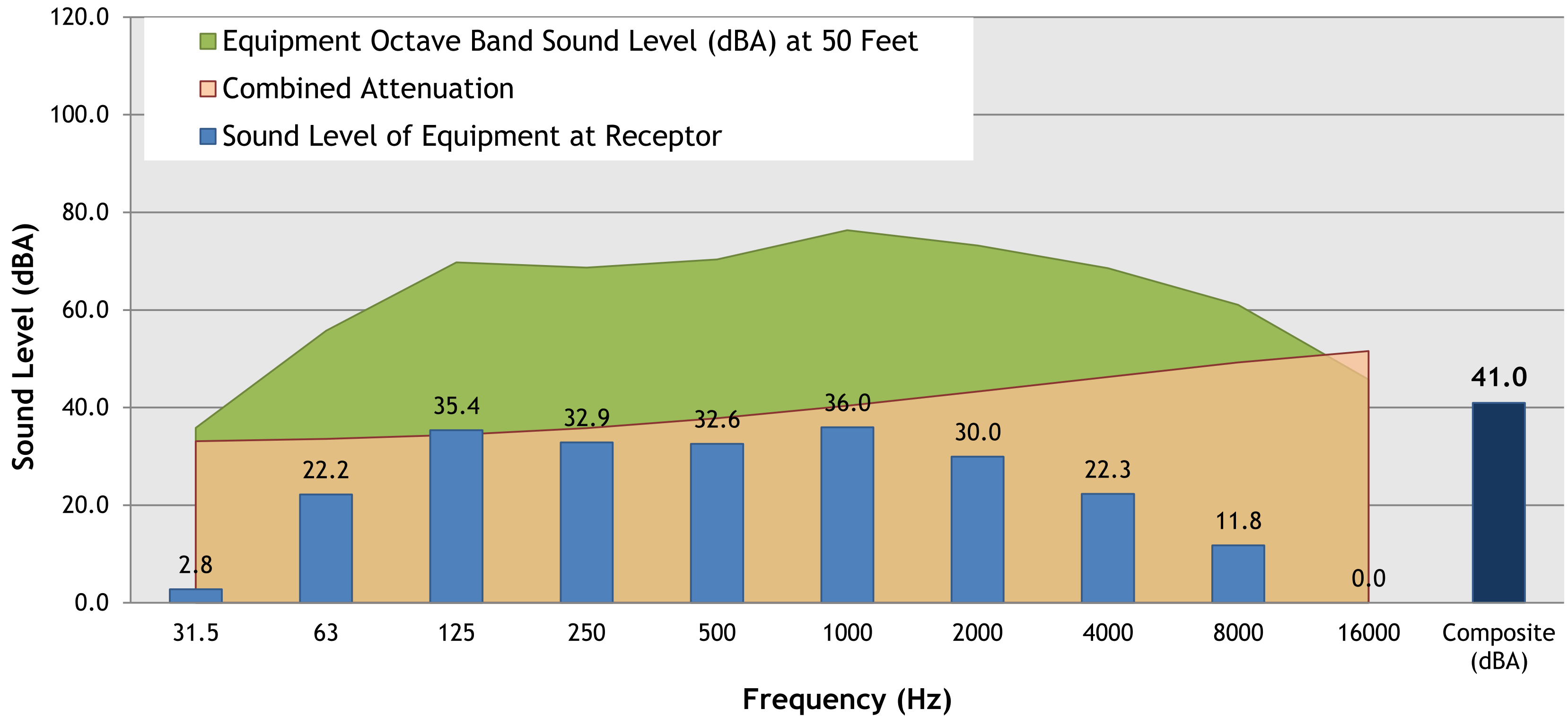
Eagle Harbor
New Quarry

Sand & Gravel Mining

Scenario: M
Receptor: R4

Equipment: CAT 336, CAT 735 & CAT Loader

Sound Level Of Equipment At Receptor



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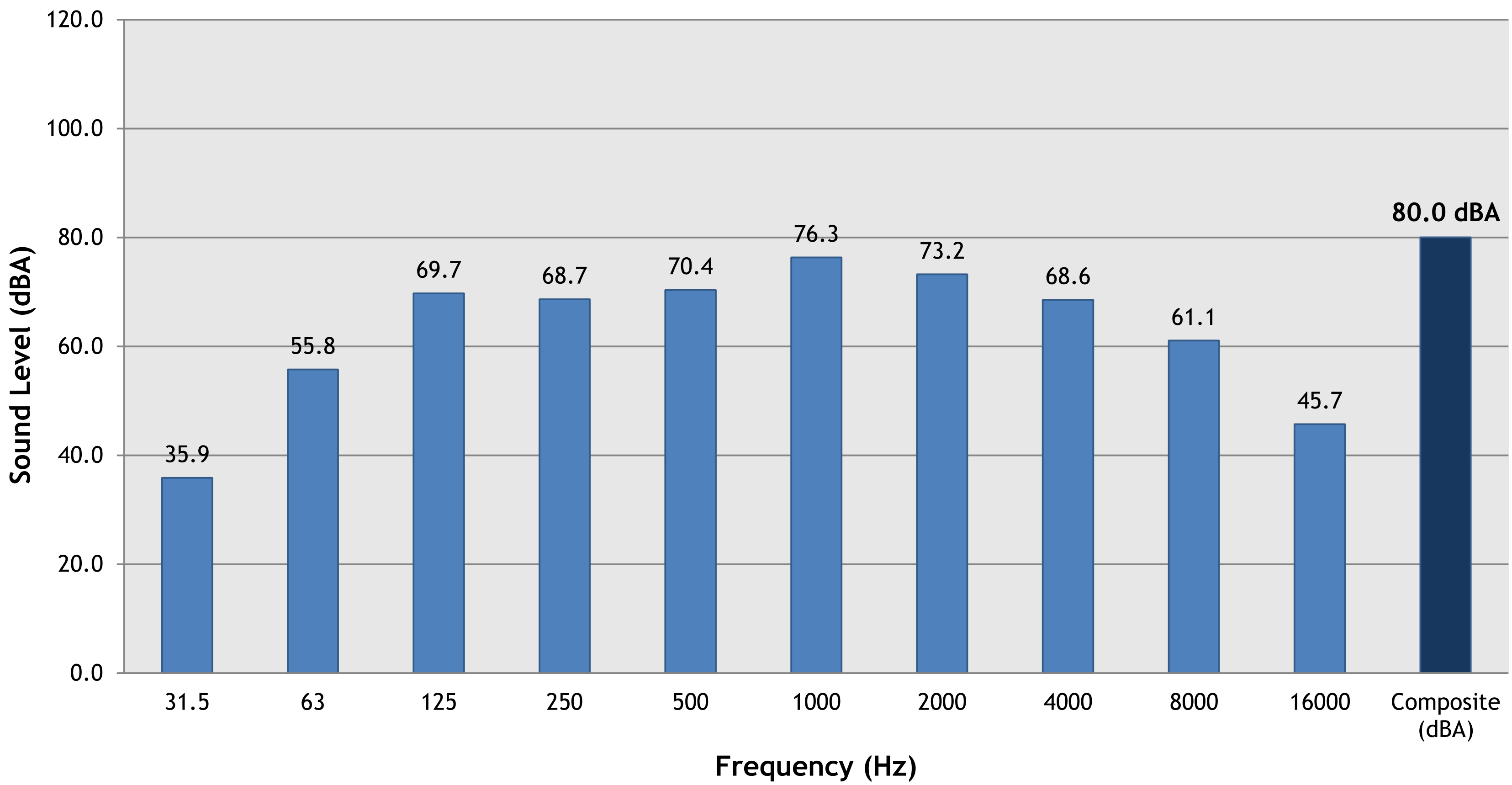
Eagle Harbor
New Quarry

Sand & Gravel Mining

Scenario: M
Receptor: R5

Equipment: CAT 336, CAT 735 & CAT Loader

Equipment Octave Band Sound Level (dBA) at 50 Feet



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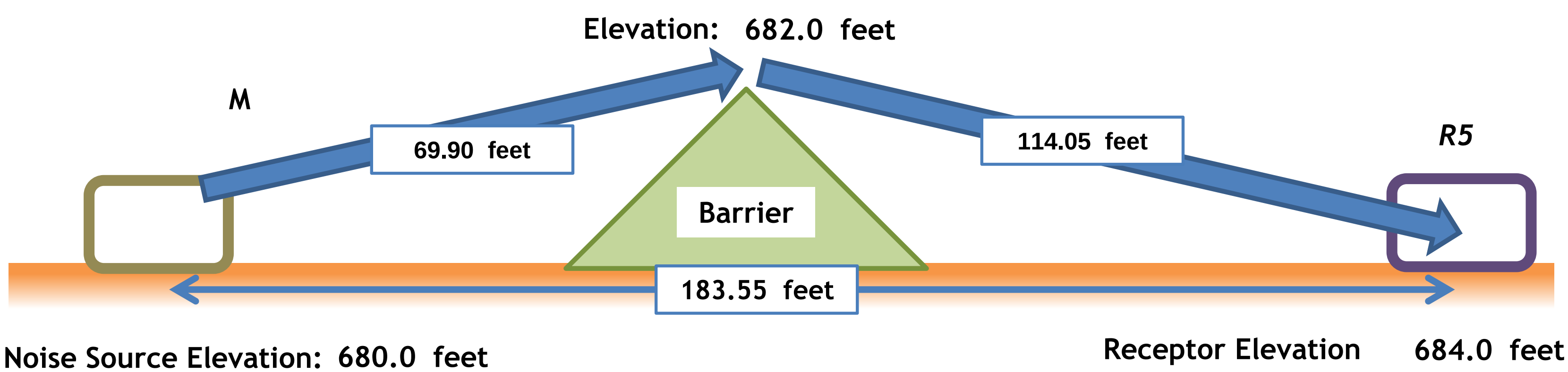
Eagle Harbor
New Quarry

Sand & Gravel Mining

Scenario: M
Receptor: R5

Equipment: CAT 336, CAT 735 & CAT Loader

Distance and Barrier Attenuation Inputs



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Eagle Harbor
New Quarry

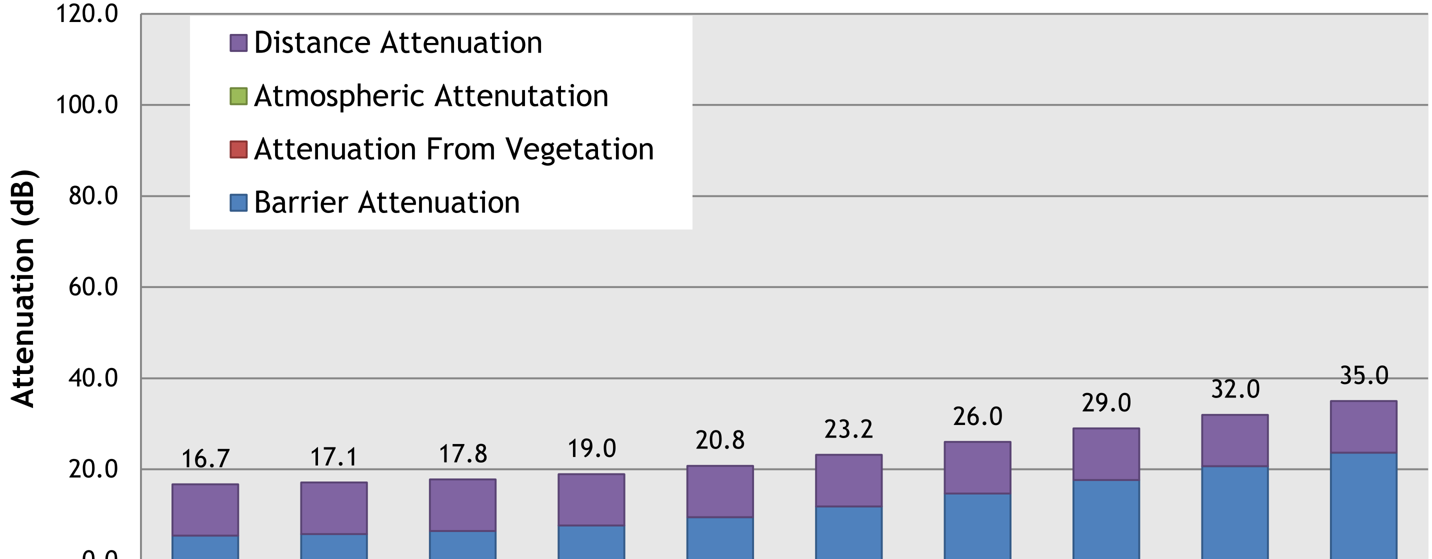
Sand & Gravel Mining

Scenario: M
Receptor: R5

Equipment: CAT 336, CAT 735 & CAT Loader

Attenuation By Source

Wooded Area Thickness:
0 feet



Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	16.7	17.1	17.8	19.0	20.8	23.2	26.0	29.0	32.0	35.0
Distance Attenuation	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	5.41	5.79	6.47	7.65	9.46	11.87	14.69	17.66	20.67	23.68

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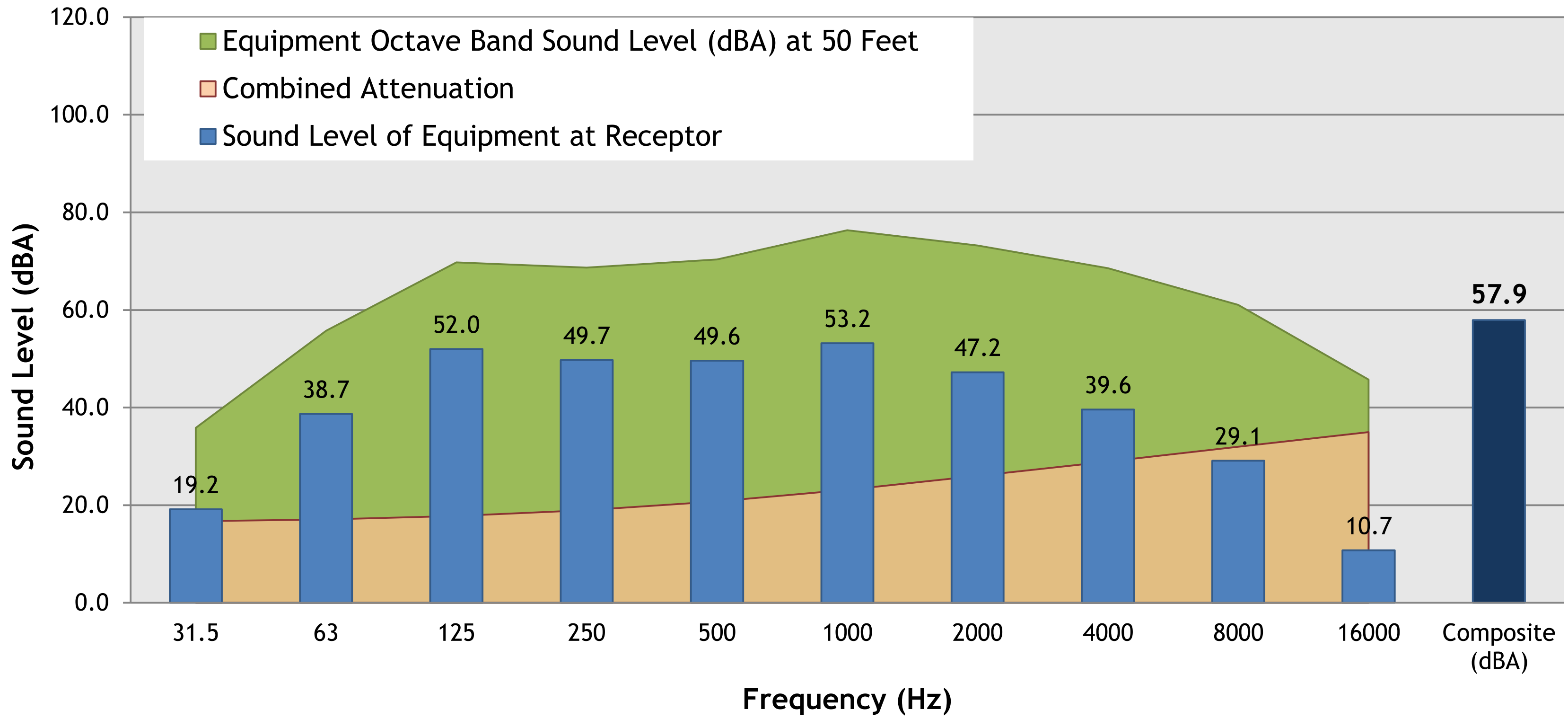
Eagle Harbor
New Quarry

Sand & Gravel Mining

Scenario: M
Receptor: R5

Equipment: CAT 336, CAT 735 & CAT Loader

Sound Level Of Equipment At Receptor



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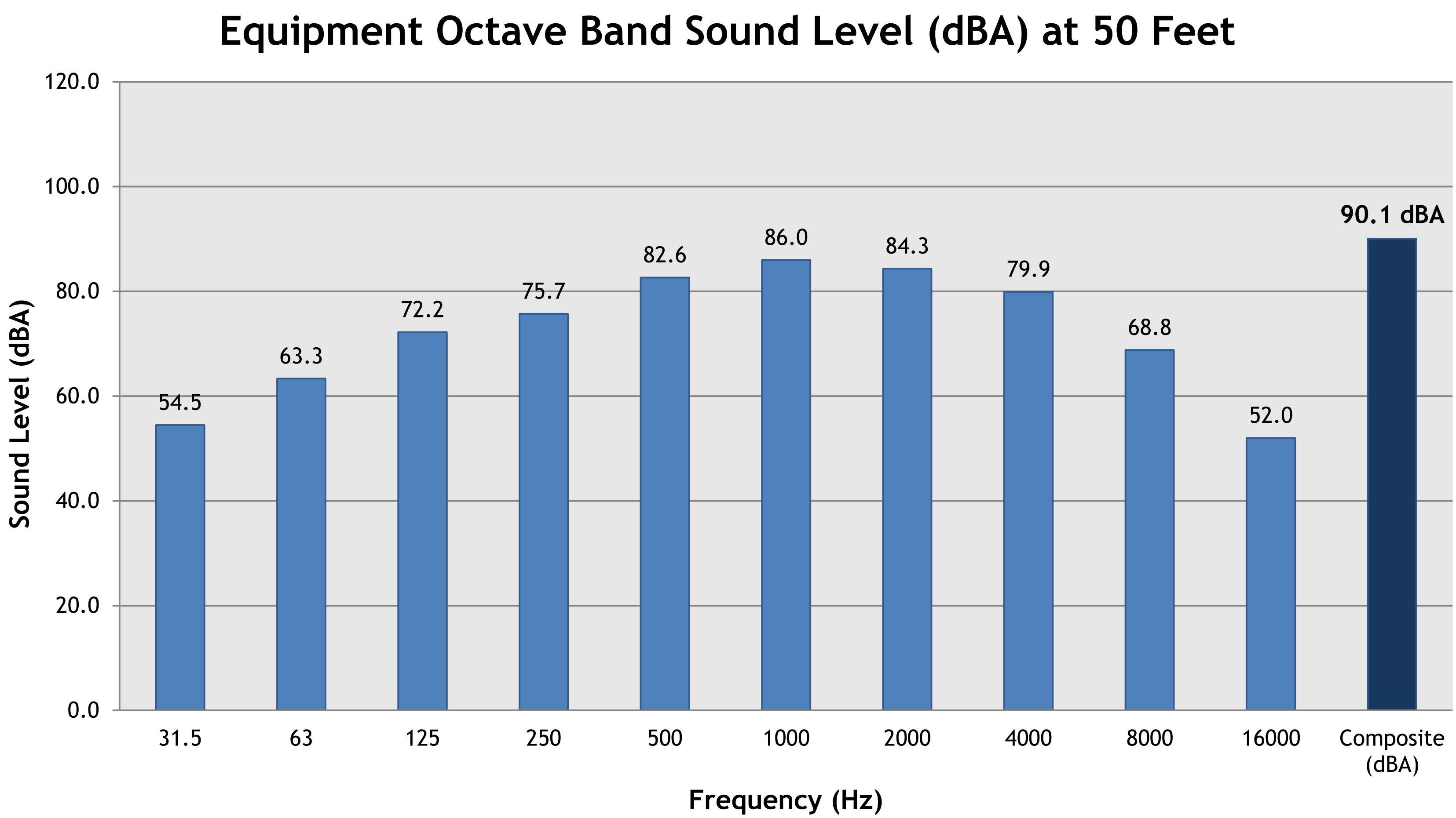
Eagle Harbor
New Quarry

Existing Processing Plant

Scenario: P
Receptor: R1

Equipment: Plant, Loader and Dump Truck



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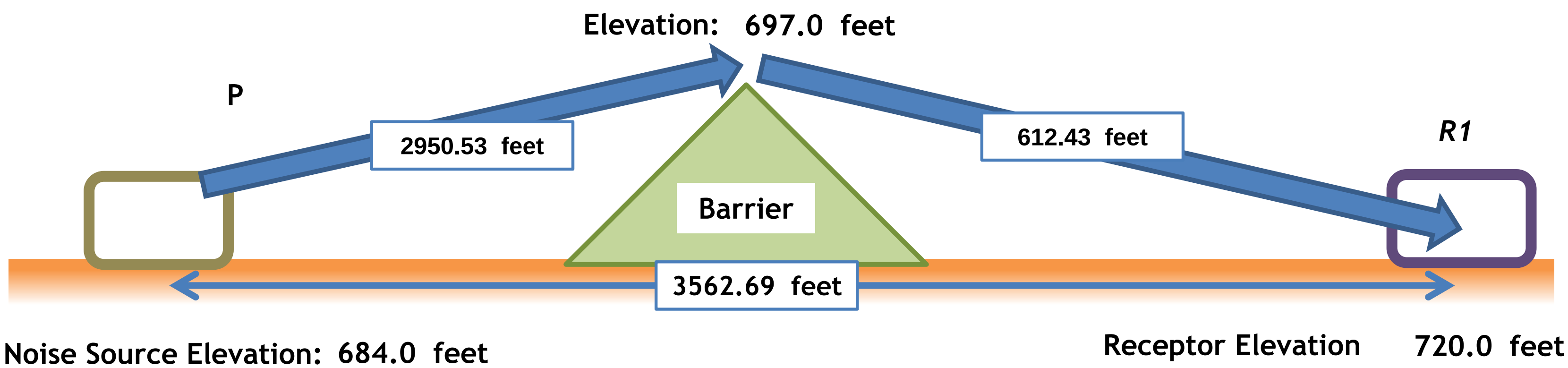
Eagle Harbor
New Quarry
Equipment: Plant, Loader and Dump Truck

Existing Processing Plant

Scenario: P
Receptor: R1

Distance and Barrier Attenuation Inputs



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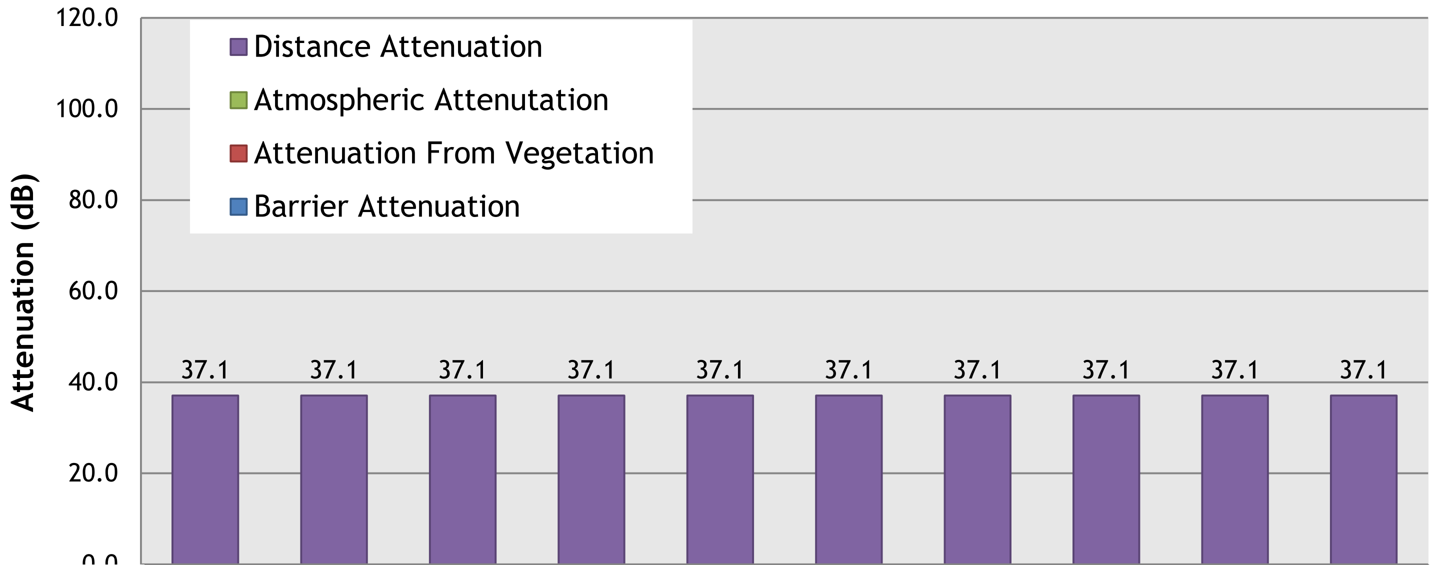
Eagle Harbor
New Quarry

Existing Processing Plant

Scenario: P
Receptor: R1

Equipment: Plant, Loader and Dump Truck

Attenuation By Source



Wooded Area Thickness:
0 feet

Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	37.1	37.1	37.1	37.1	37.1	37.1	37.1	37.1	37.1	37.1
Distance Attenuation	37.1	37.1	37.1	37.1	37.1	37.1	37.1	37.1	37.1	37.1
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

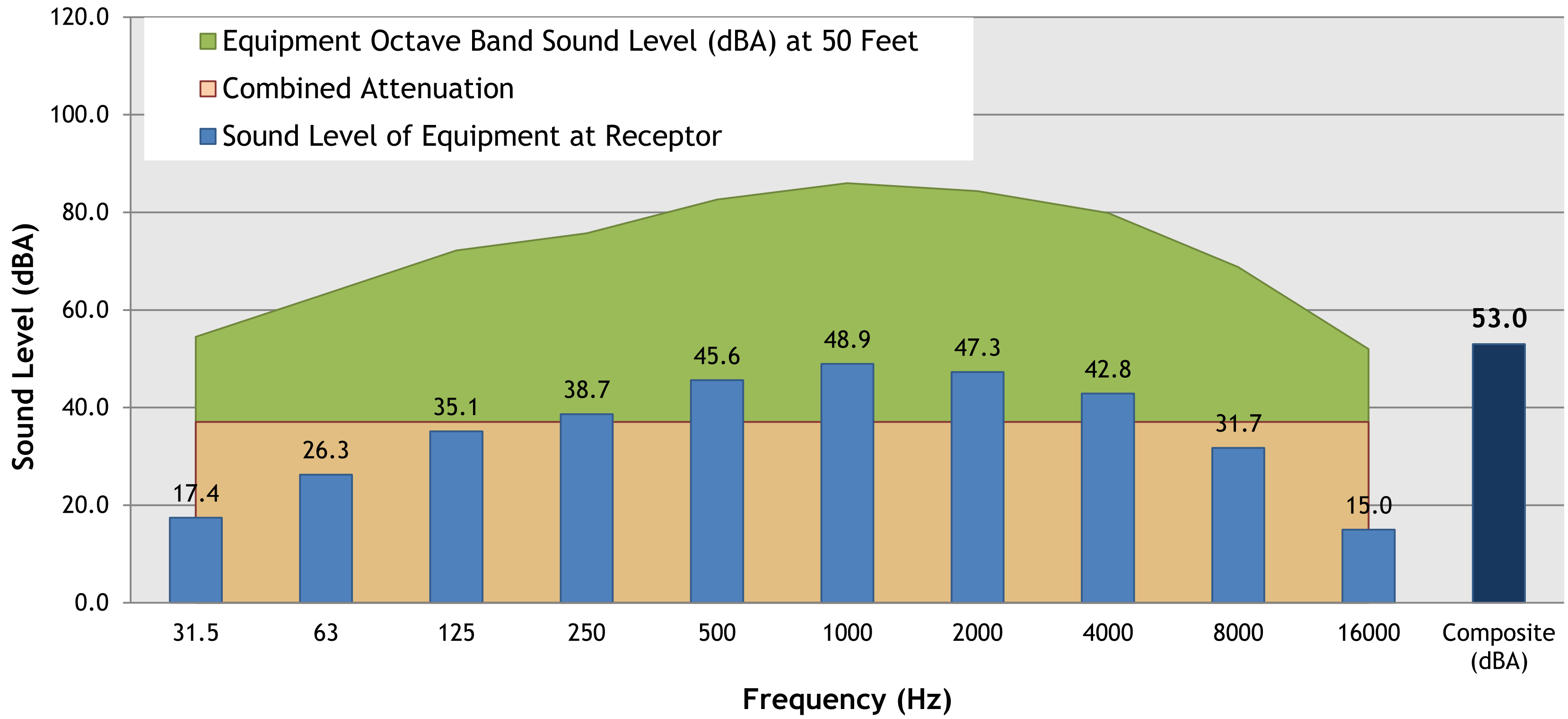
Eagle Harbor
New Quarry

Existing Processing Plant

Scenario: P
Receptor: R1

Equipment: Plant, Loader and Dump Truck

Sound Level Of Equipment At Receptor



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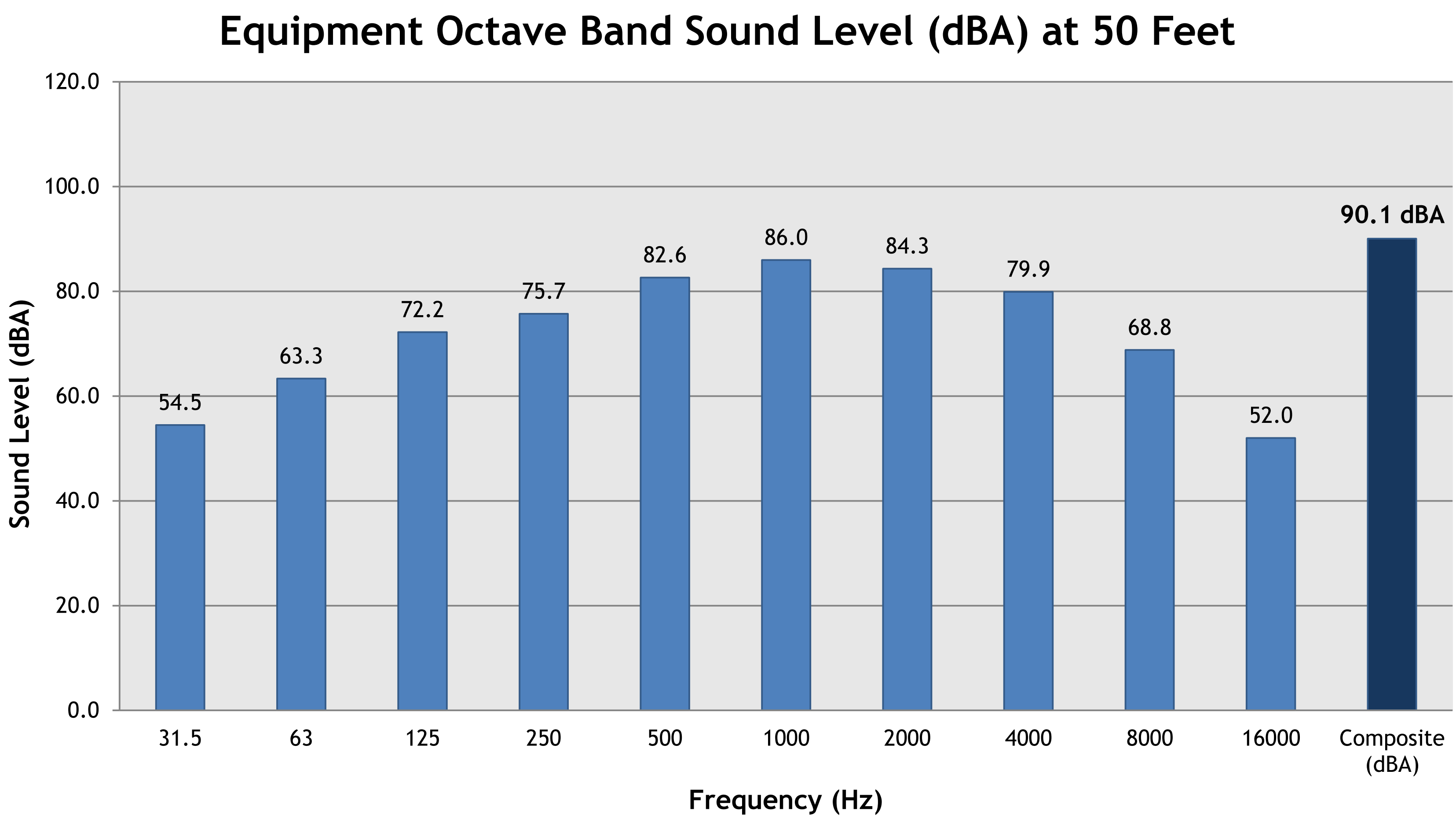
Eagle Harbor
New Quarry

Existing Processing Plant

Scenario: P
Receptor: R2

Equipment: Plant, Loader and Dump Truck



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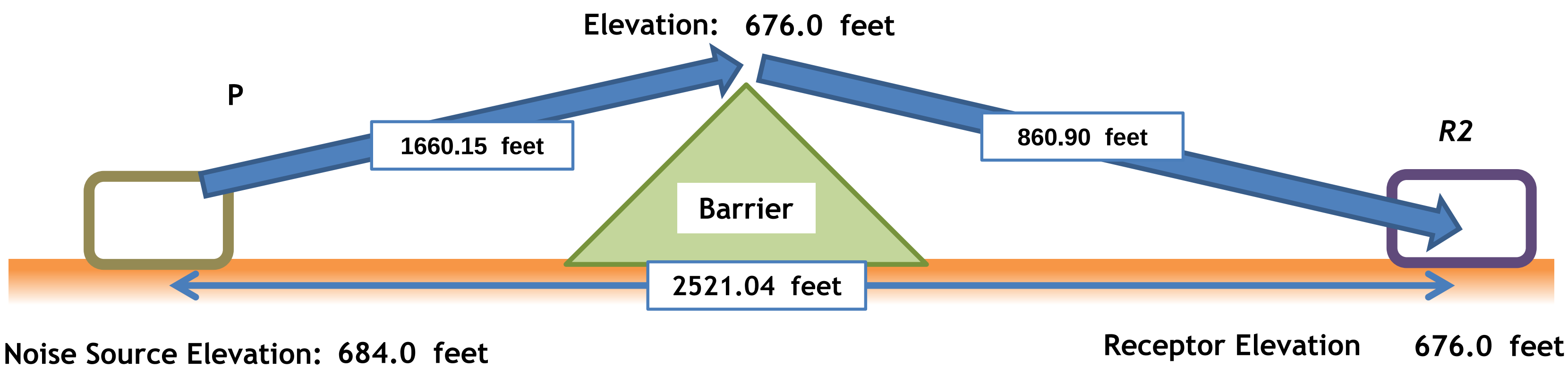
Eagle Harbor
New Quarry

Existing Processing Plant

Scenario: P
Receptor: R2

Equipment: Plant, Loader and Dump Truck

Distance and Barrier Attenuation Inputs



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Eagle Harbor
New Quarry

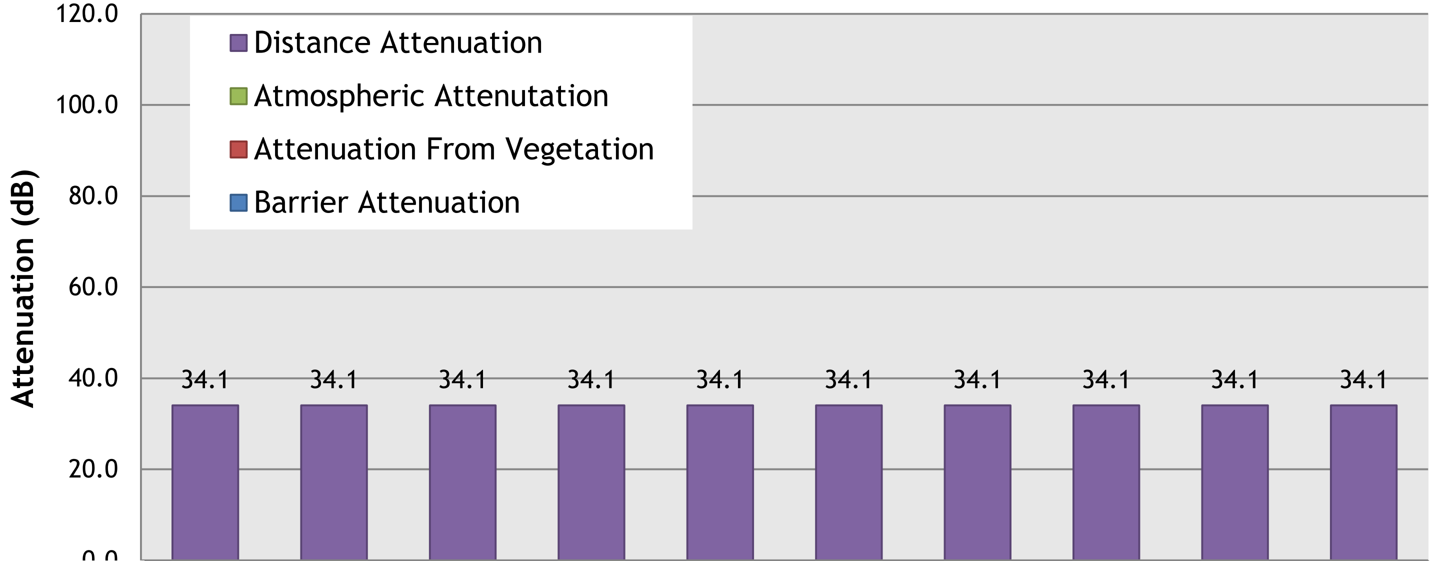
Existing Processing Plant

Scenario: P
Receptor: R2

Equipment: Plant, Loader and Dump Truck

Attenuation By Source

Wooded Area Thickness:
0 feet



Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1
Distance Attenuation	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

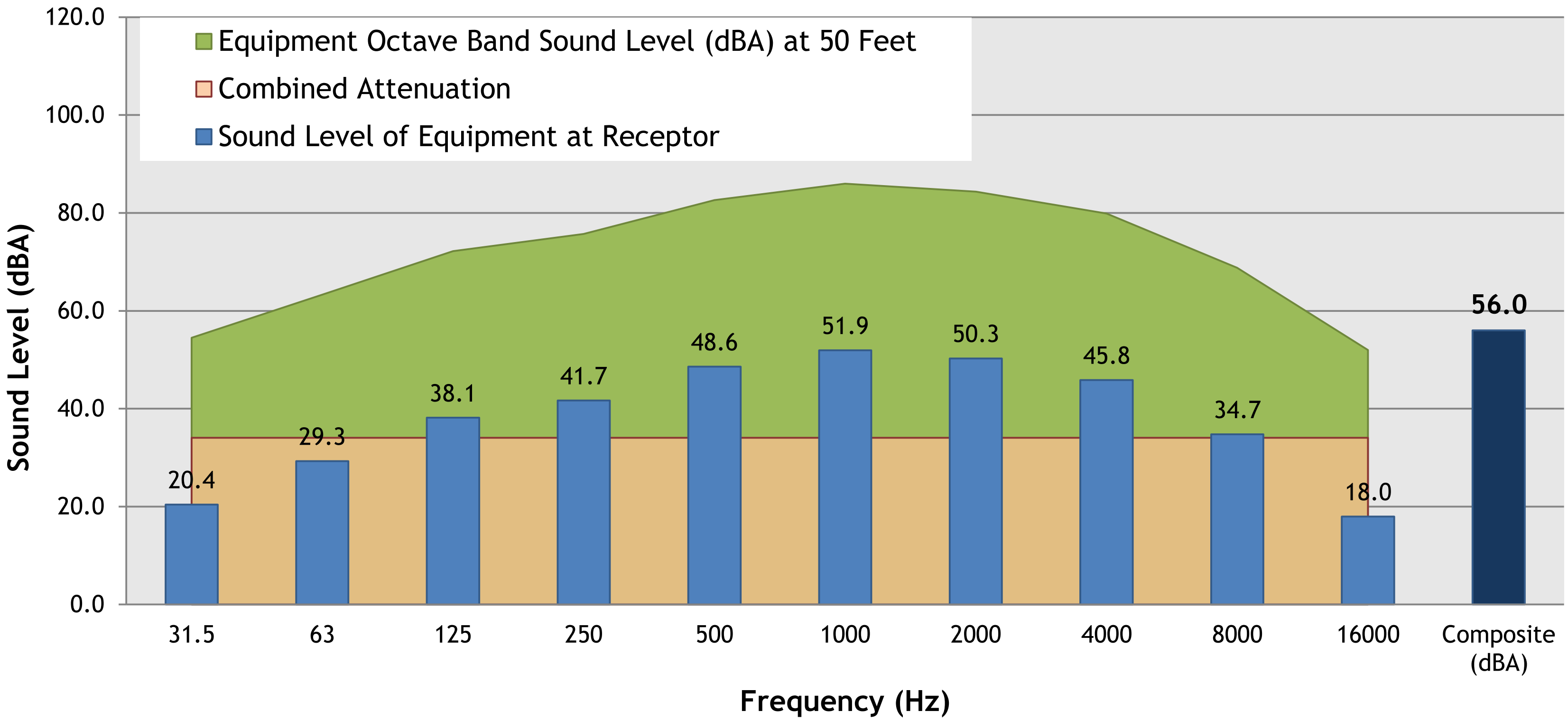
Eagle Harbor
New Quarry

Existing Processing Plant

Scenario: P
Receptor: R2

Equipment: Plant, Loader and Dump Truck

Sound Level Of Equipment At Receptor



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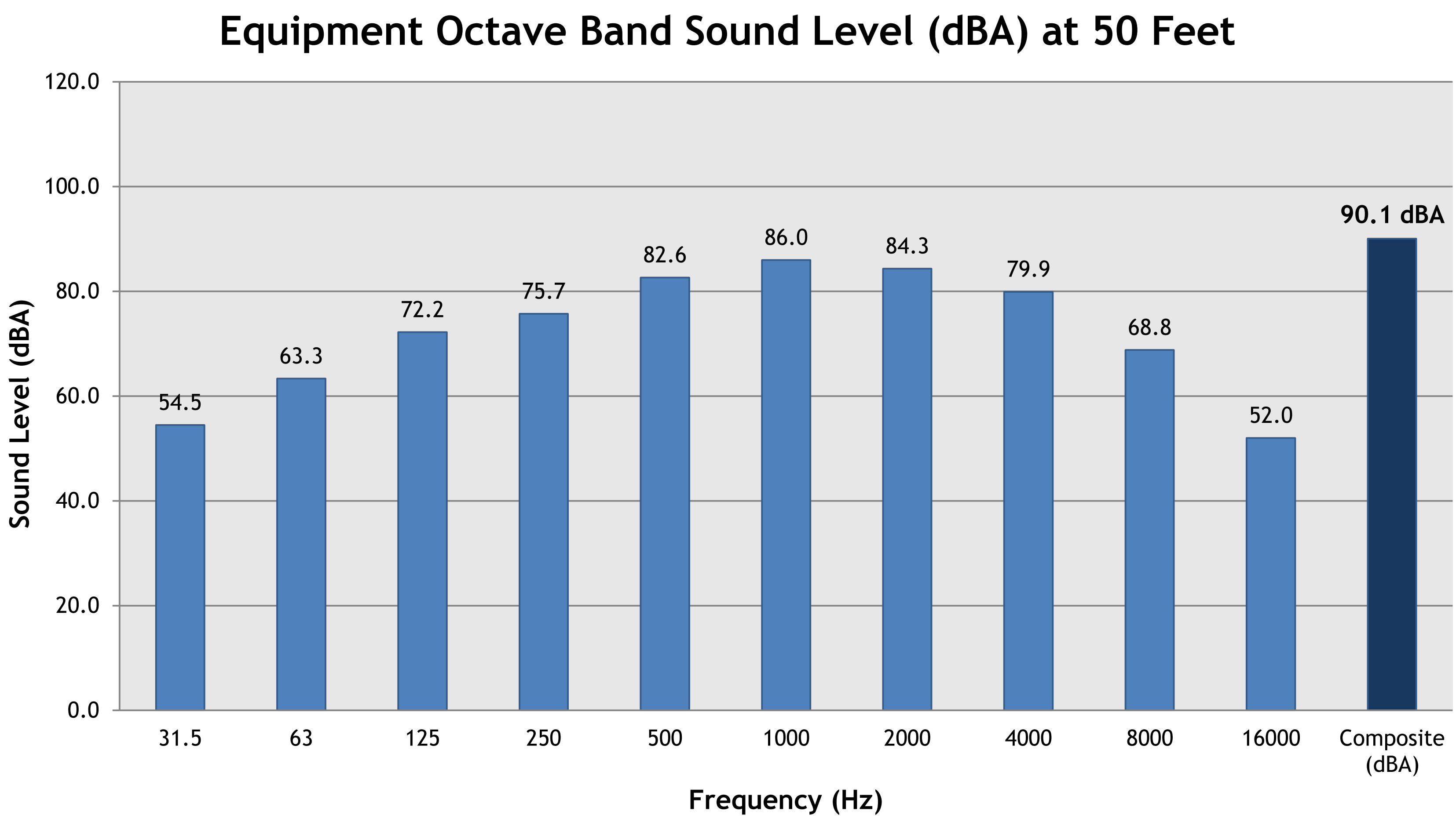
Eagle Harbor
New Quarry

Existing Processing Plant

Scenario: P
Receptor: R3

Equipment: Plant, Loader and Dump Truck



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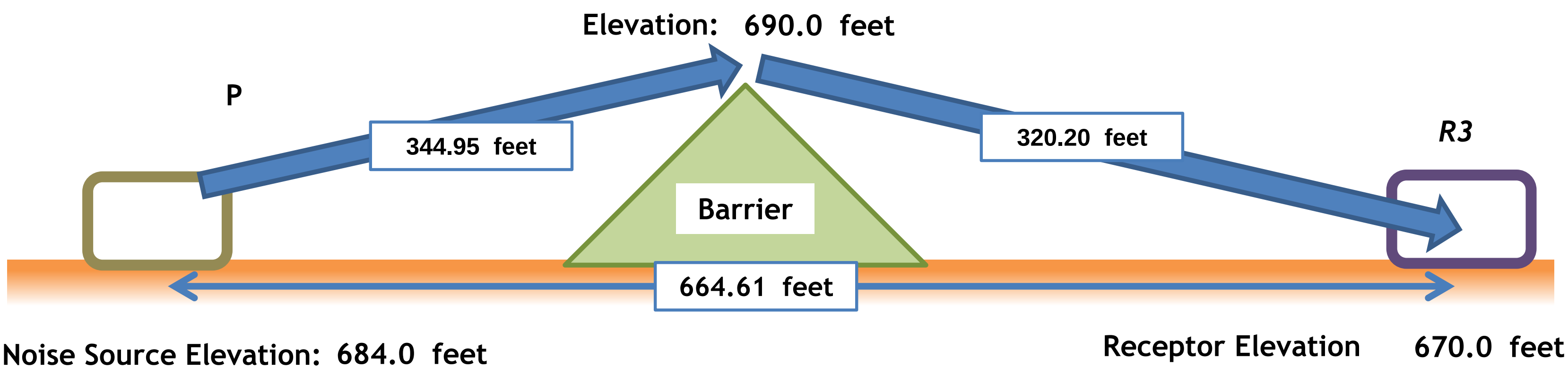
Eagle Harbor
New Quarry

Equipment: Plant, Loader and Dump Truck

Existing Processing Plant

Scenario: P
Receptor: R3

Distance and Barrier Attenuation Inputs



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Eagle Harbor
New Quarry

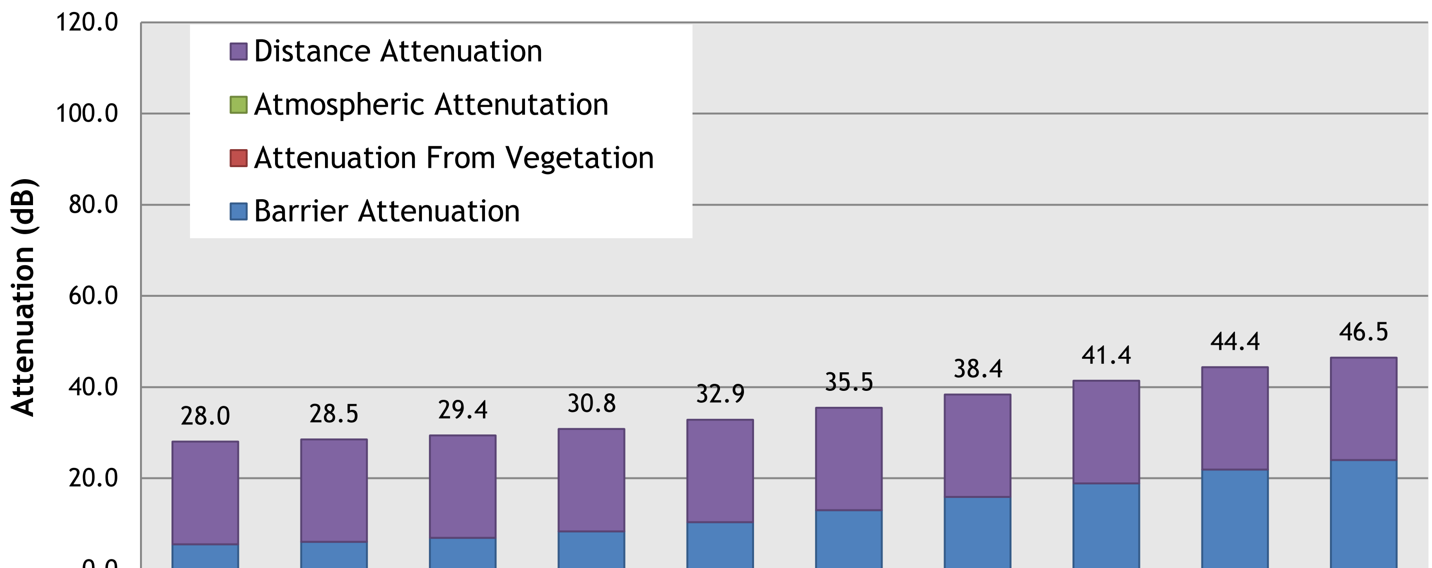
Existing Processing Plant

Scenario: P
Receptor: R3

Equipment: Plant, Loader and Dump Truck

Attenuation By Source

Wooded Area Thickness:
0 feet



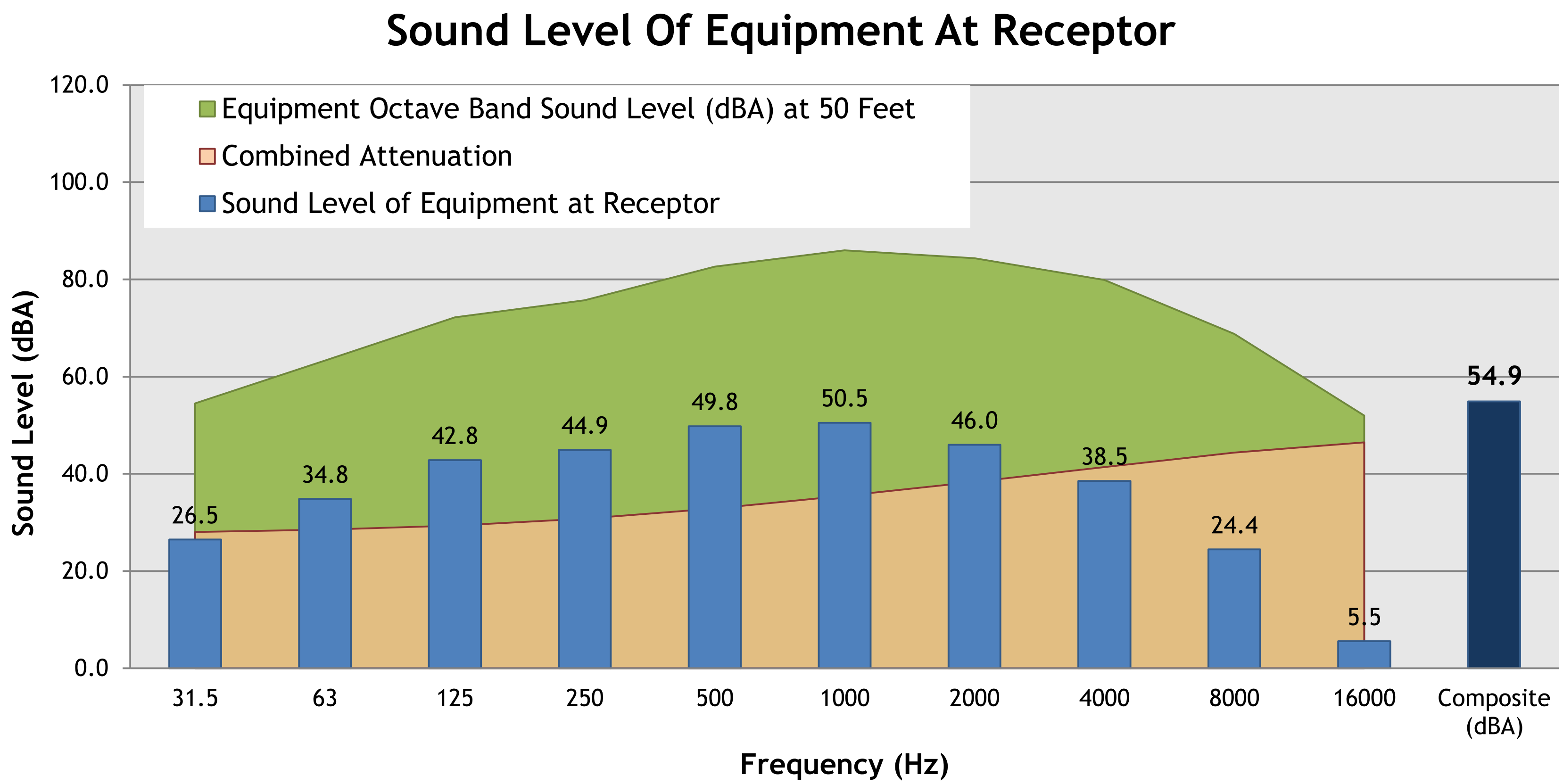
Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	28.0	28.5	29.4	30.8	32.9	35.5	38.4	41.4	44.4	46.5
Distance Attenuation	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	5.53	6.03	6.89	8.31	10.38	12.99	15.89	18.89	21.90	24.00

Eagle Harbor
New Quarry

Existing Processing Plant

Scenario: P
Receptor: R3

Equipment: Plant, Loader and Dump Truck



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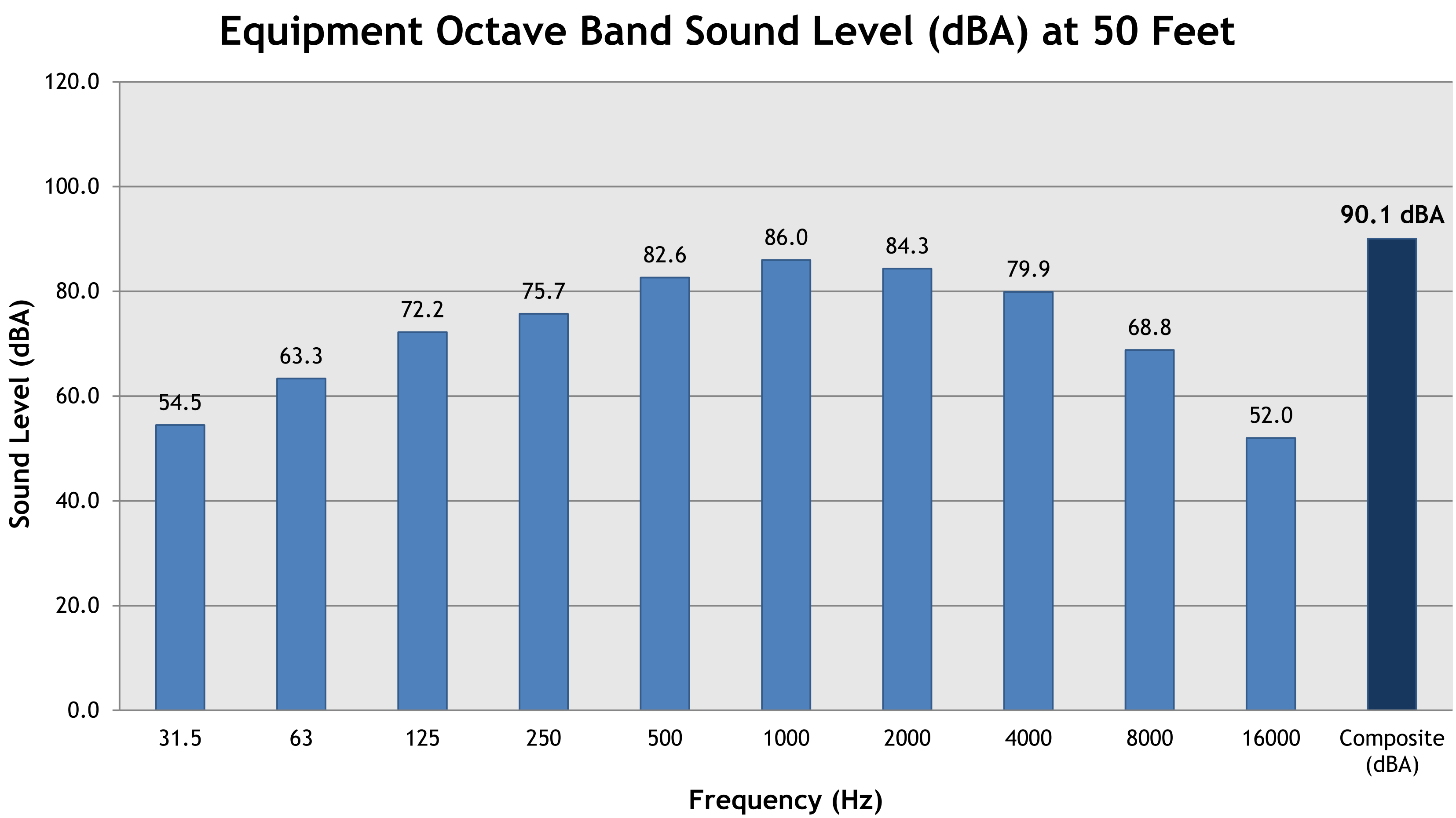
Eagle Harbor
New Quarry

Equipment: Plant, Loader and Dump Truck

Existing Processing Plant

Scenario: P
Receptor: R4



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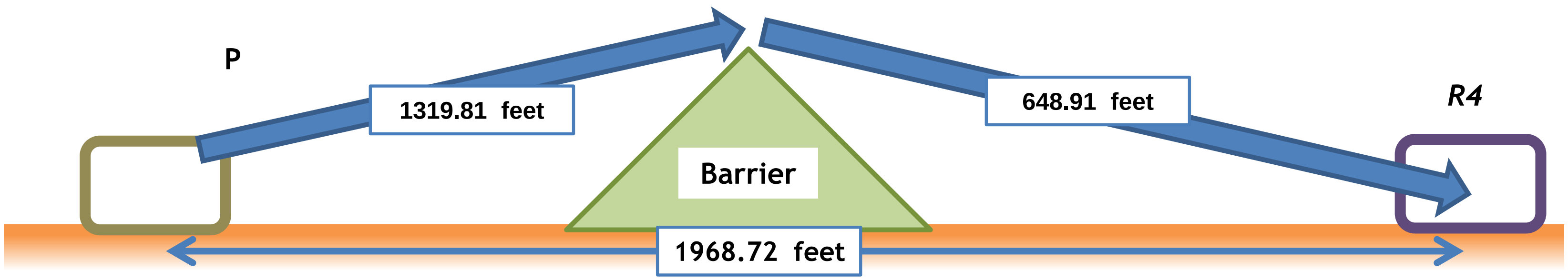
Eagle Harbor
New Quarry

Equipment: Plant, Loader and Dump Truck

Existing Processing Plant

Scenario: P
Receptor: R4

Distance and Barrier Attenuation Inputs



Noise Source Elevation: 684.0 feet

Receptor Elevation 699.0 feet

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Eagle Harbor
New Quarry

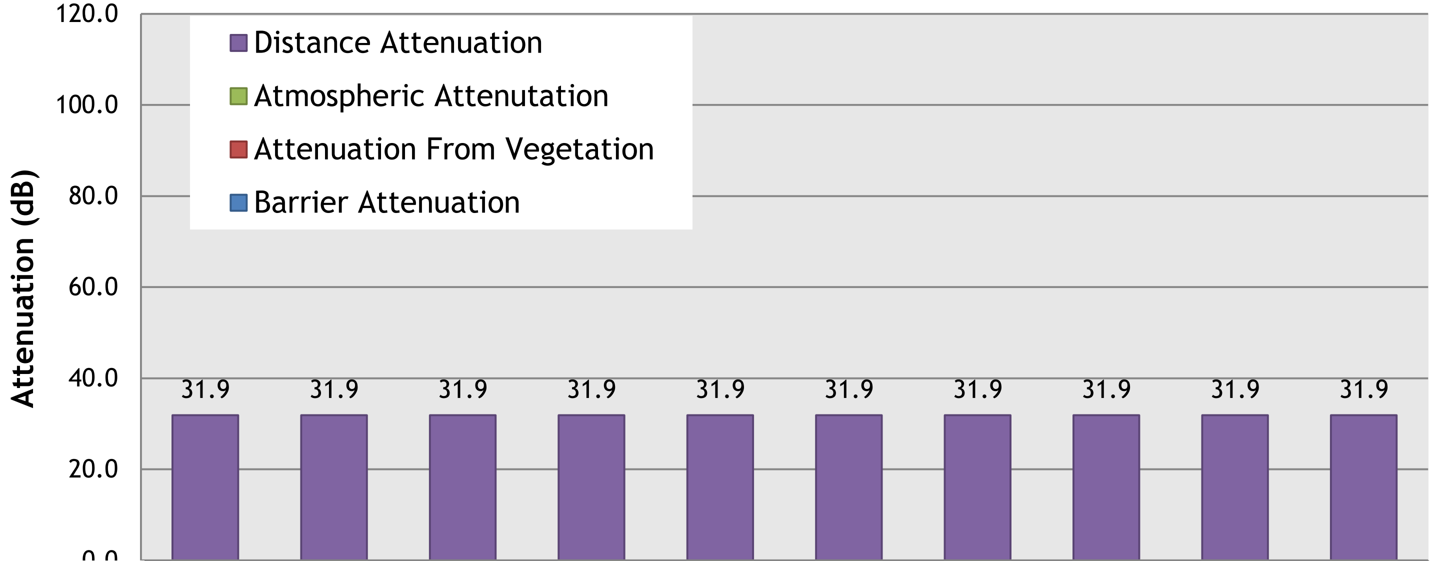
Existing Processing Plant

Scenario: P
Receptor: R4

Equipment: Plant, Loader and Dump Truck

Attenuation By Source

Wooded Area Thickness: 0 feet



Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	31.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9
Distance Attenuation	31.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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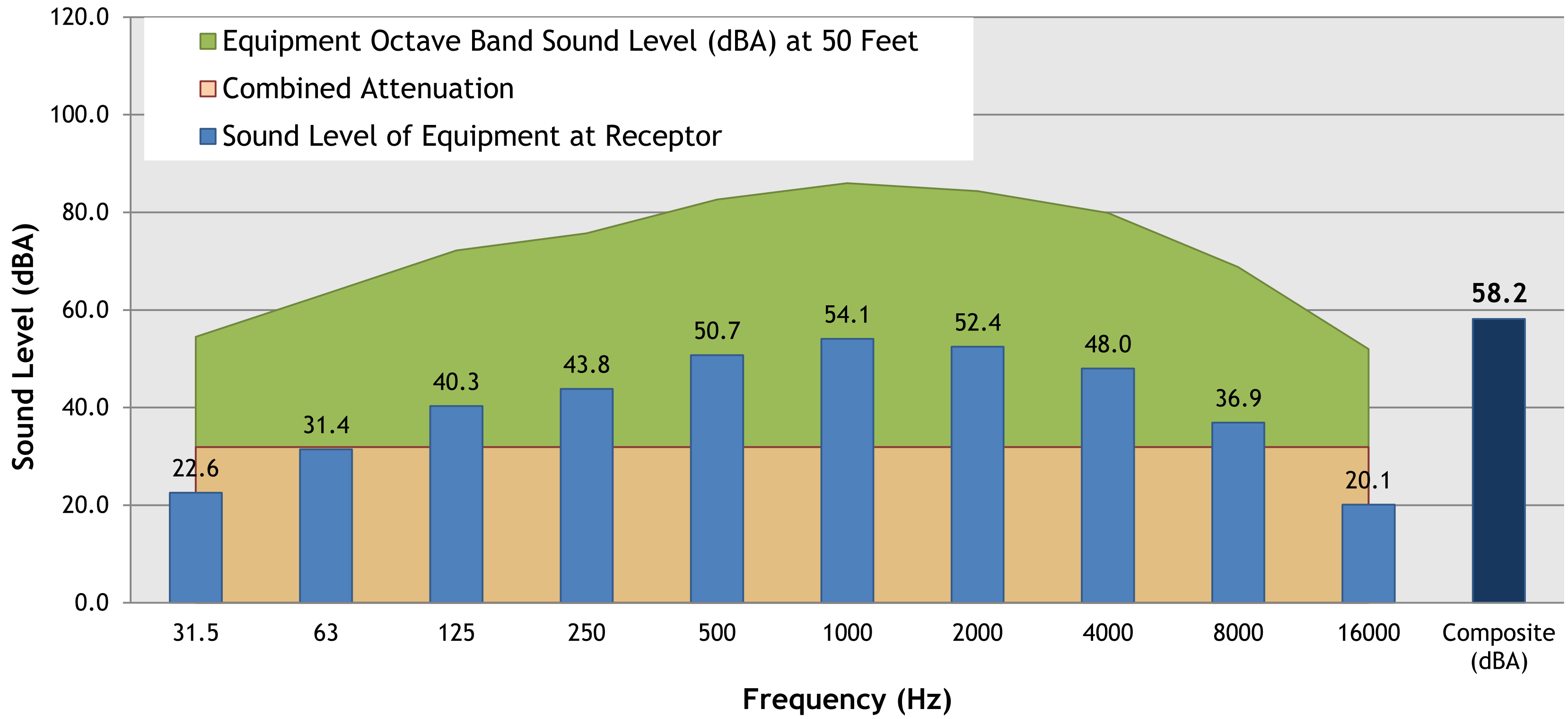
Eagle Harbor
New Quarry

Existing Processing Plant

Scenario: P
Receptor: R4

Equipment: Plant, Loader and Dump Truck

Sound Level Of Equipment At Receptor



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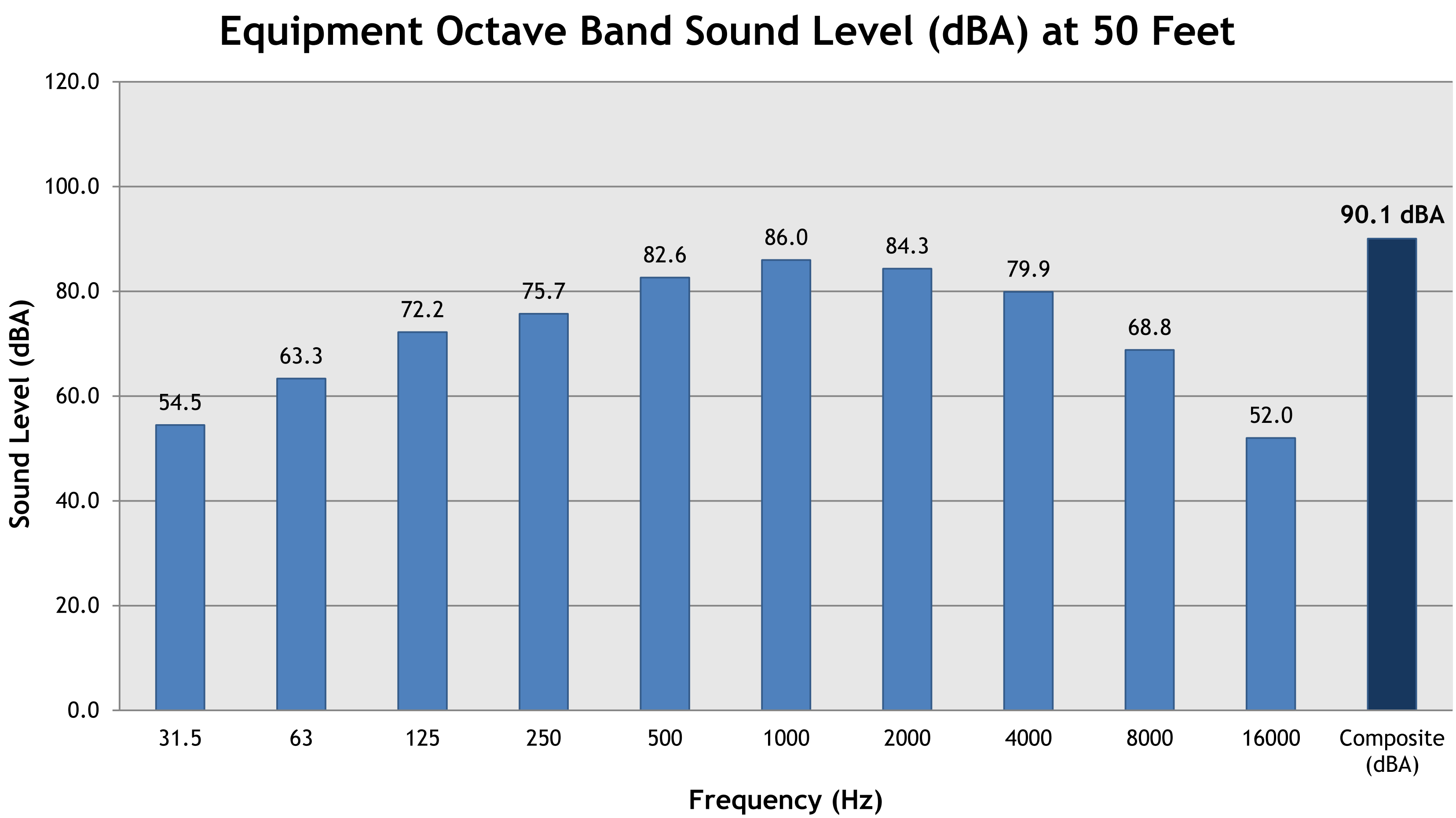
Eagle Harbor
New Quarry

Existing Processing Plant

Scenario: P
Receptor: R5

Equipment: Plant, Loader and Dump Truck



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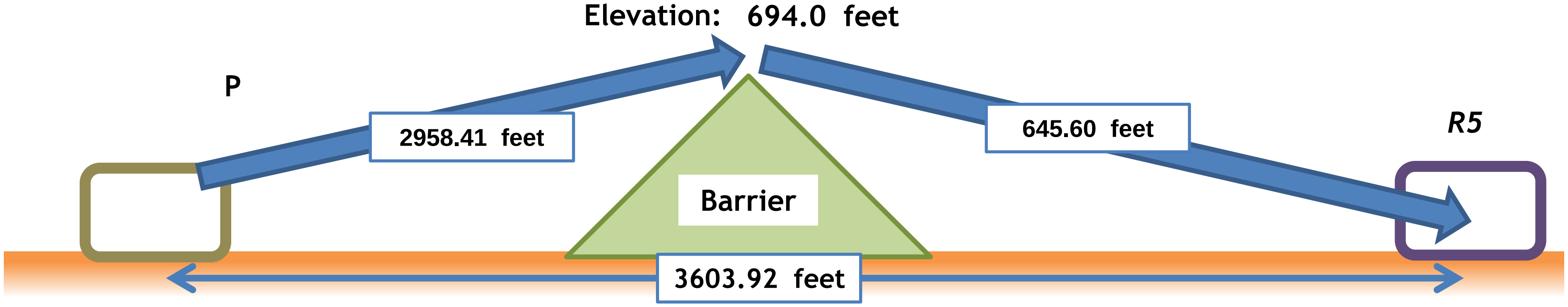
Eagle Harbor
New Quarry

Existing Processing Plant

Scenario: P
Receptor: R5

Equipment: Plant, Loader and Dump Truck

Distance and Barrier Attenuation Inputs



Noise Source Elevation: 684.0 feet

Receptor Elevation 684.0 feet

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Eagle Harbor
New Quarry

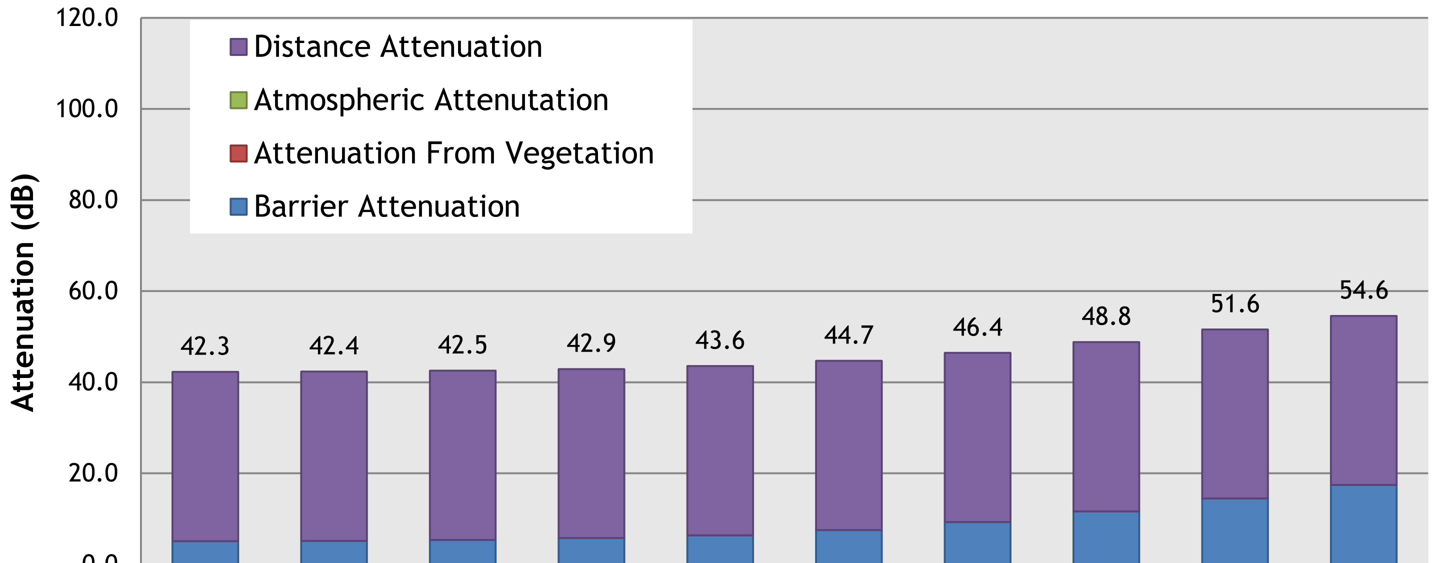
Existing Processing Plant

Scenario: P
Receptor: R5

Equipment: Plant, Loader and Dump Truck

Attenuation By Source

Wooded Area Thickness: 0 feet



Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	42.3	42.4	42.5	42.9	43.6	44.7	46.4	48.8	51.6	54.6
Distance Attenuation	37.2	37.2	37.2	37.2	37.2	37.2	37.2	37.2	37.2	37.2
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	5.10	5.20	5.38	5.74	6.40	7.54	9.29	11.66	14.45	17.42

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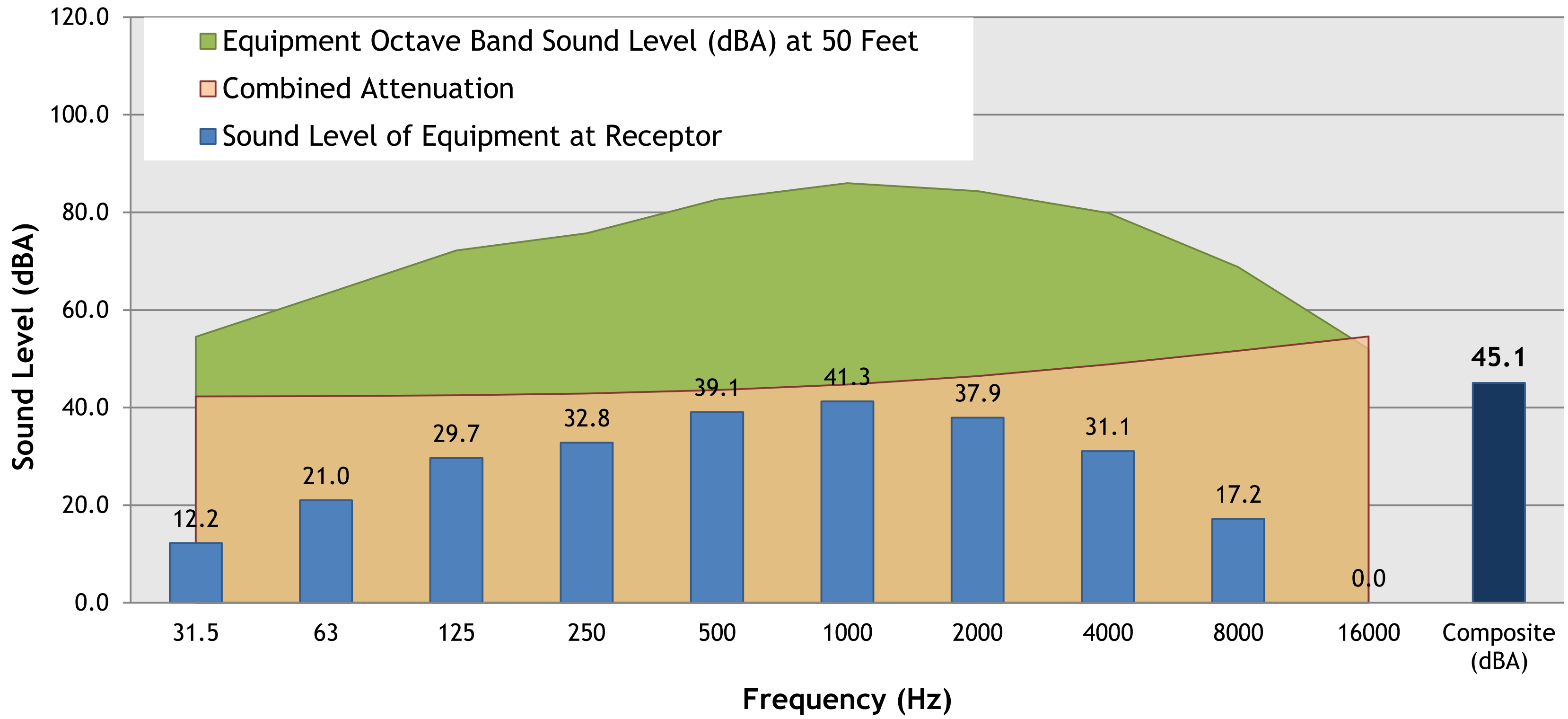
Eagle Harbor
New Quarry

Existing Processing Plant

Scenario: P
Receptor: R5

Equipment: Plant, Loader and Dump Truck

Sound Level Of Equipment At Receptor



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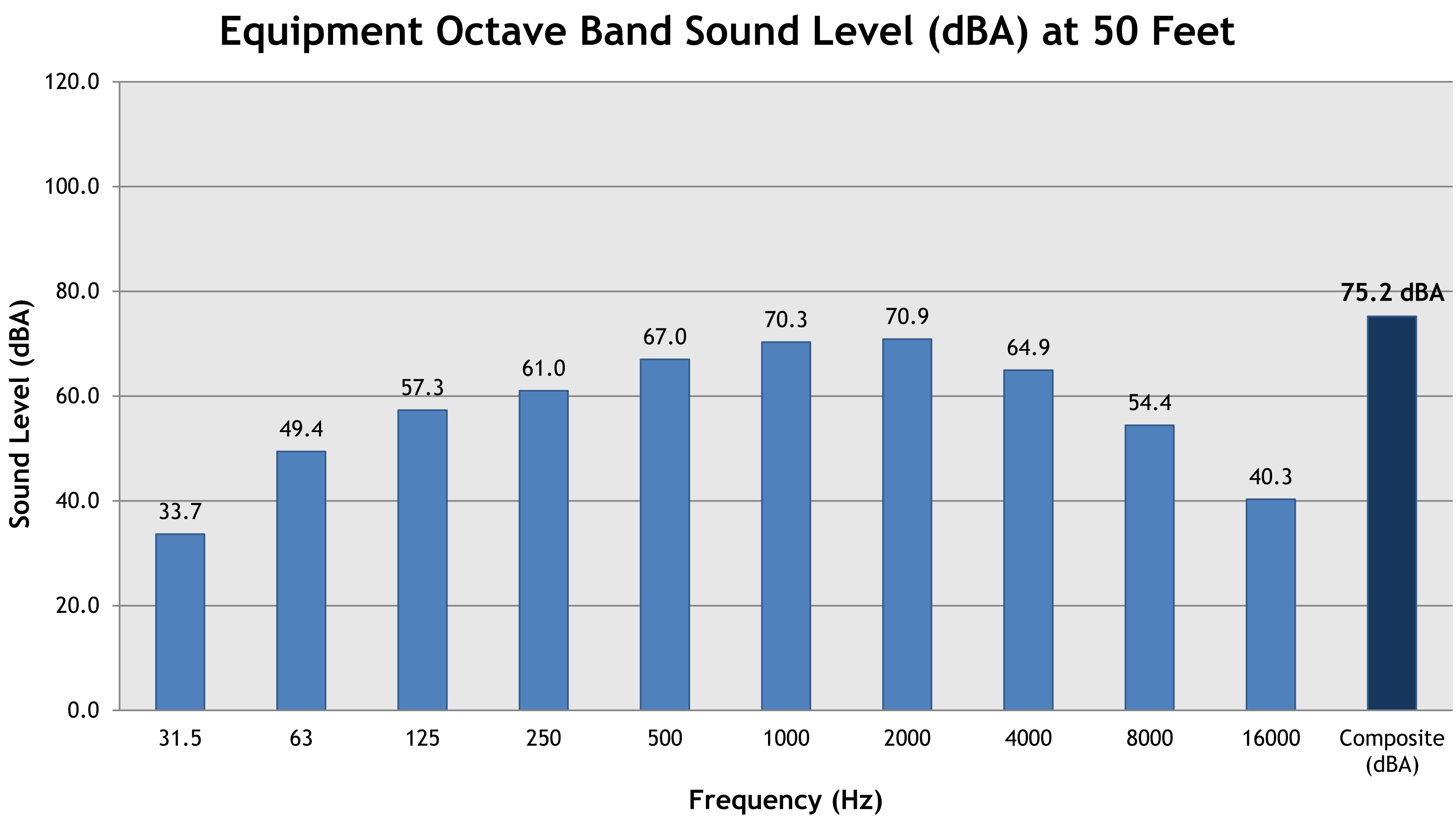
Eagle Harbor
Quarry Modification

Equipment: Articulated Haul Truck

Haul Truck Hauling Stone

Scenario: HT
Receptor: R1



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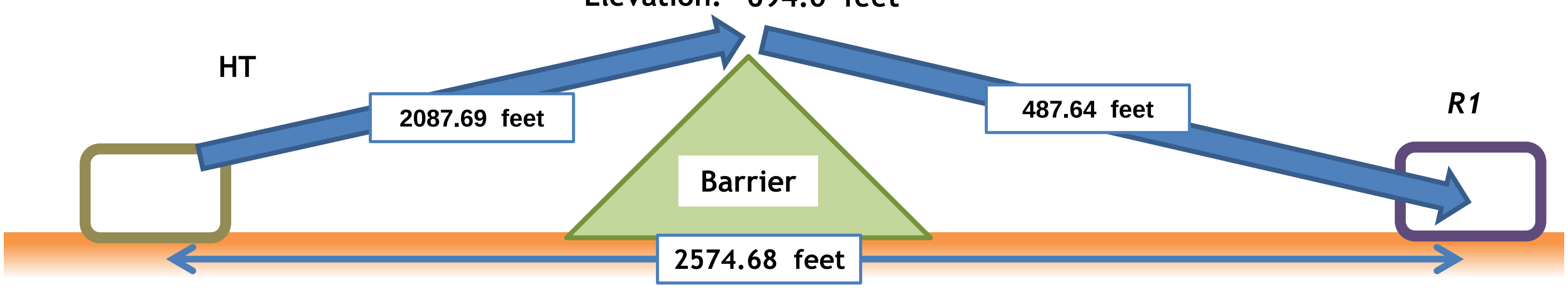
Eagle Harbor
Quarry Modification
Equipment: Articulated Haul Truck

Haul Truck Hauling Stone

Scenario: HT
Receptor: R1

Distance and Barrier Attenuation Inputs



Noise Source Elevation: 702.0 feet

Receptor Elevation 720.0 feet

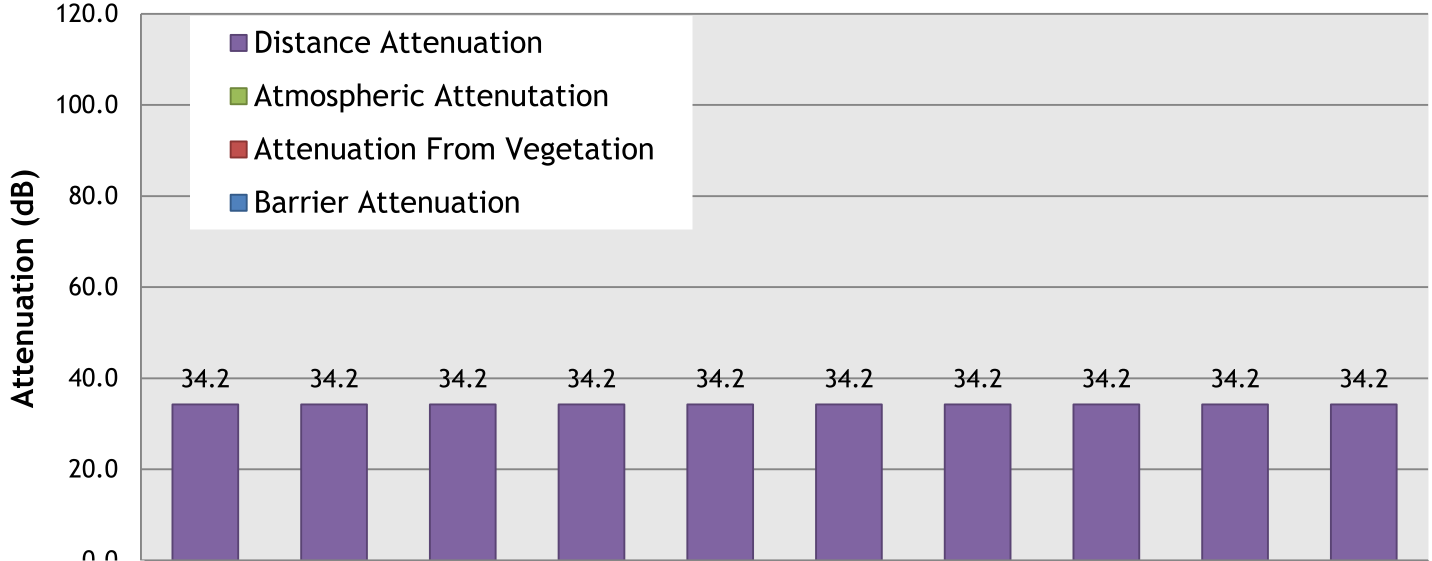
Eagle Harbor
Quarry Modification
Equipment: Articulated Haul Truck

Haul Truck Hauling Stone

Scenario: HT
Receptor: R1

Attenuation By Source

Wooded Area Thickness: 0 feet



Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	34.2	34.2	34.2	34.2	34.2	34.2	34.2	34.2	34.2	34.2
Distance Attenuation	34.2	34.2	34.2	34.2	34.2	34.2	34.2	34.2	34.2	34.2
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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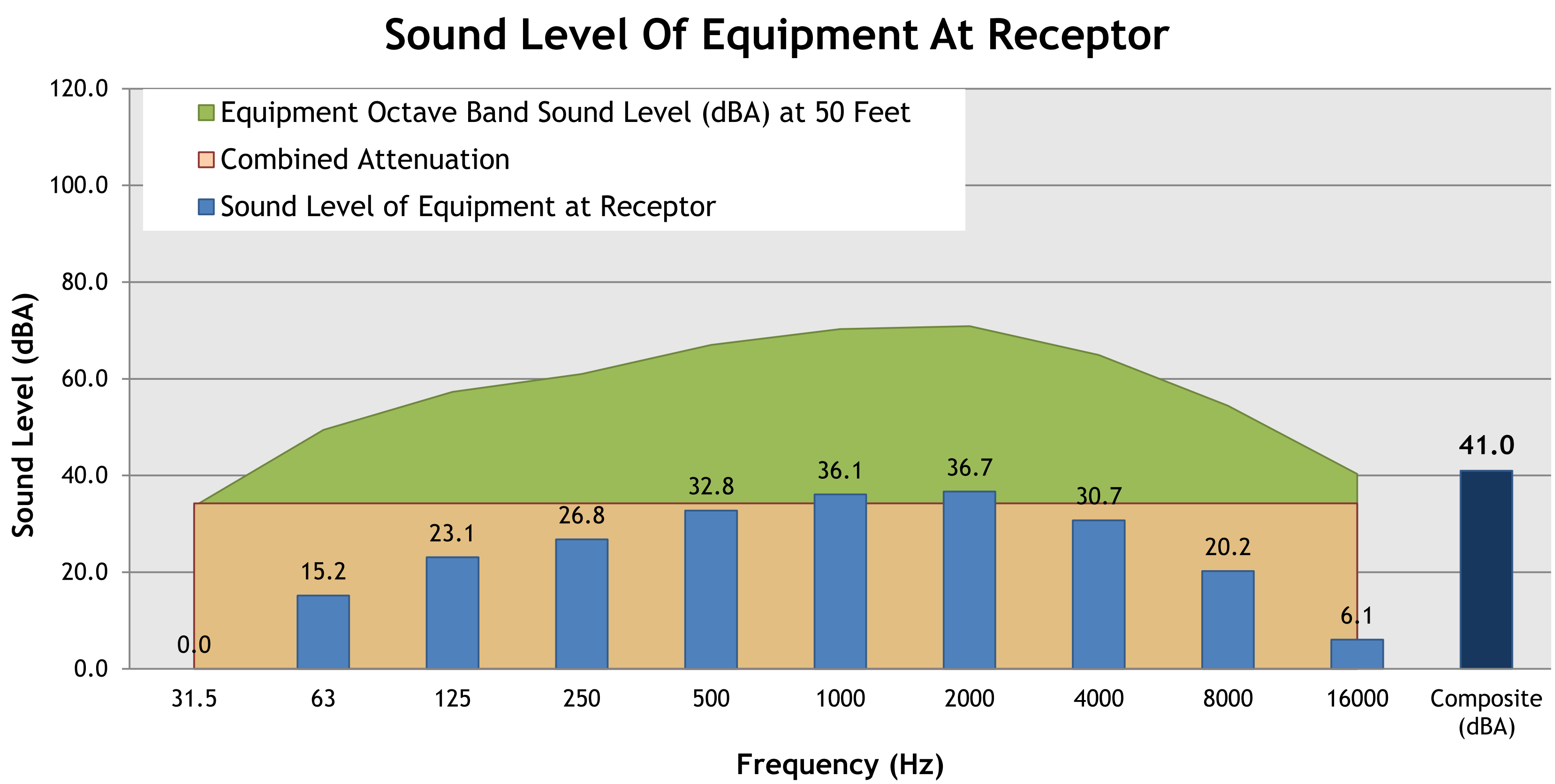
Eagle Harbor
Quarry Modification

Haul Truck Hauling Stone

Scenario: HT
Receptor: R1

Equipment: Articulated Haul Truck



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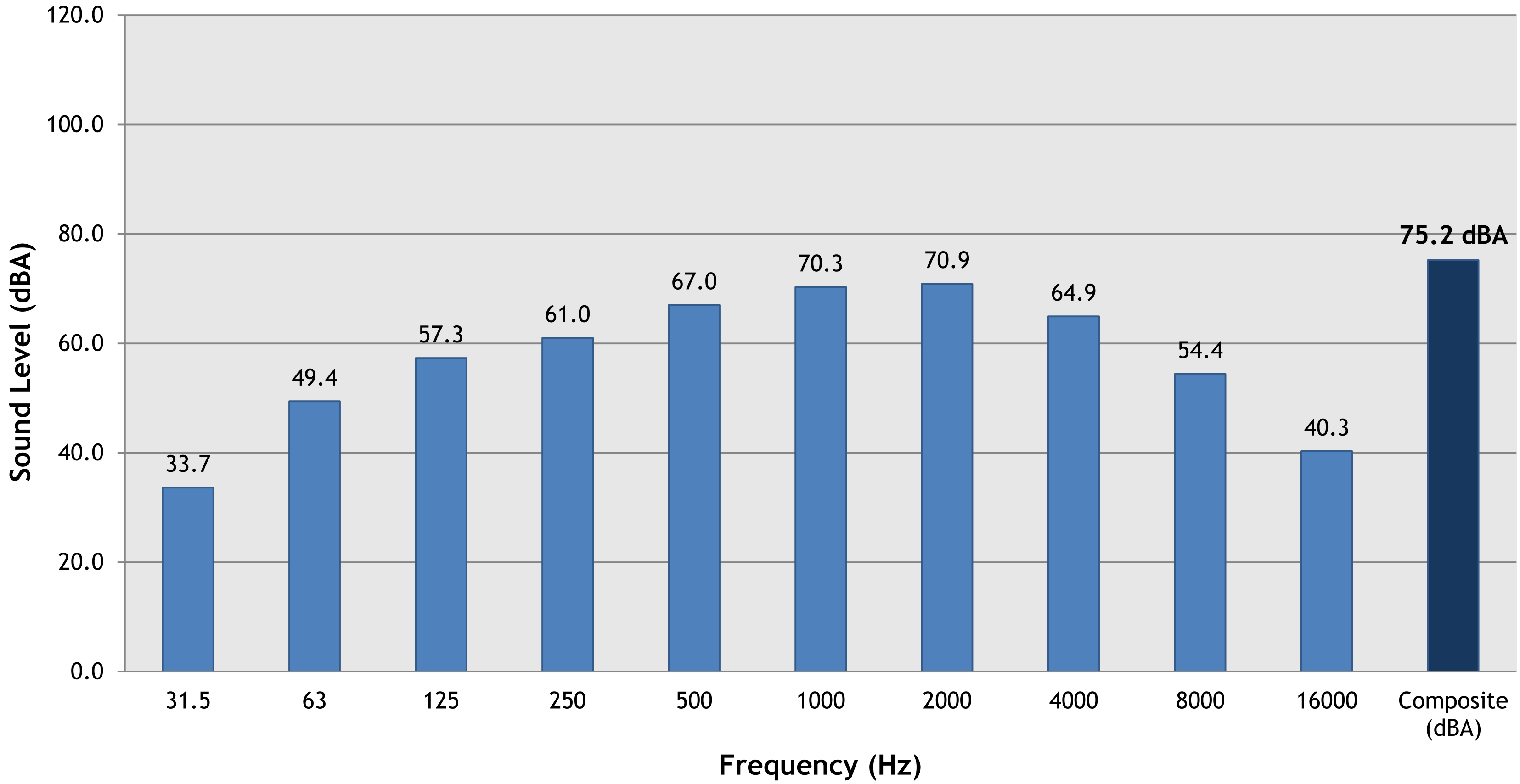
Eagle Harbor
Quarry Modification

Haul Truck Hauling Stone

Scenario: HT
Receptor: R2

Equipment: Articulated Haul Truck

Equipment Octave Band Sound Level (dBA) at 50 Feet



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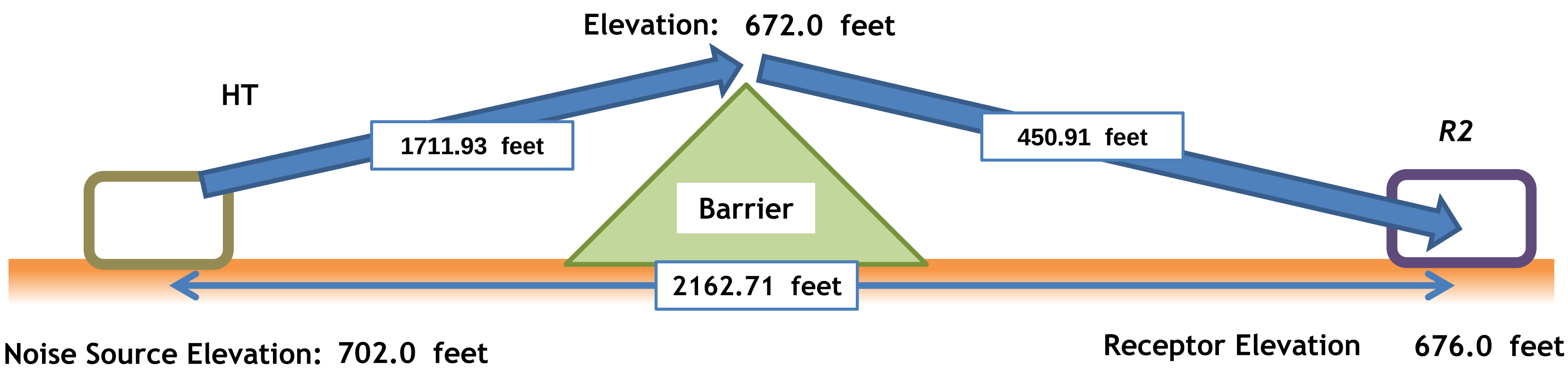
Eagle Harbor
Quarry Modification
Equipment: Articulated Haul Truck

Haul Truck Hauling Stone

Scenario: HT
Receptor: R2

Distance and Barrier Attenuation Inputs



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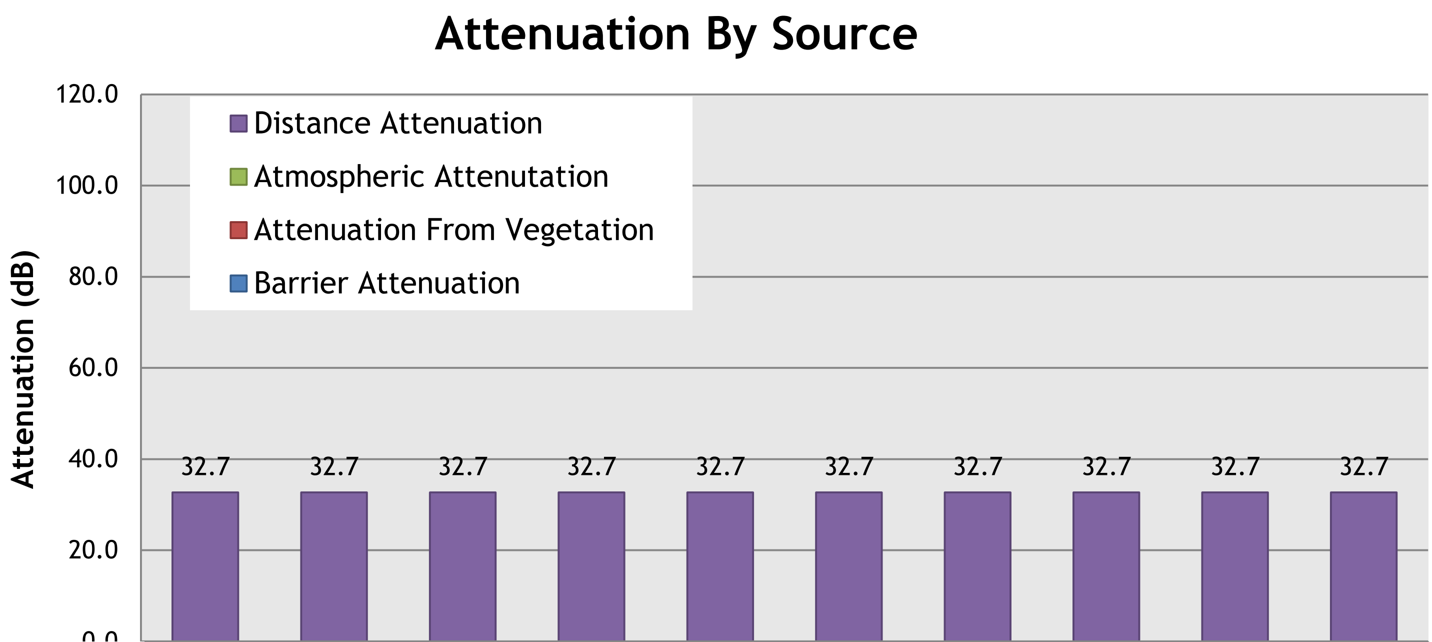
Eagle Harbor
Quarry Modification
Equipment: Articulated Haul Truck

Haul Truck Hauling Stone

Scenario: HT
Receptor: R2

Wooded Area Thickness: 0 feet



Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	32.7	32.7	32.7	32.7	32.7	32.7	32.7	32.7	32.7	32.7
Distance Attenuation	32.7	32.7	32.7	32.7	32.7	32.7	32.7	32.7	32.7	32.7
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

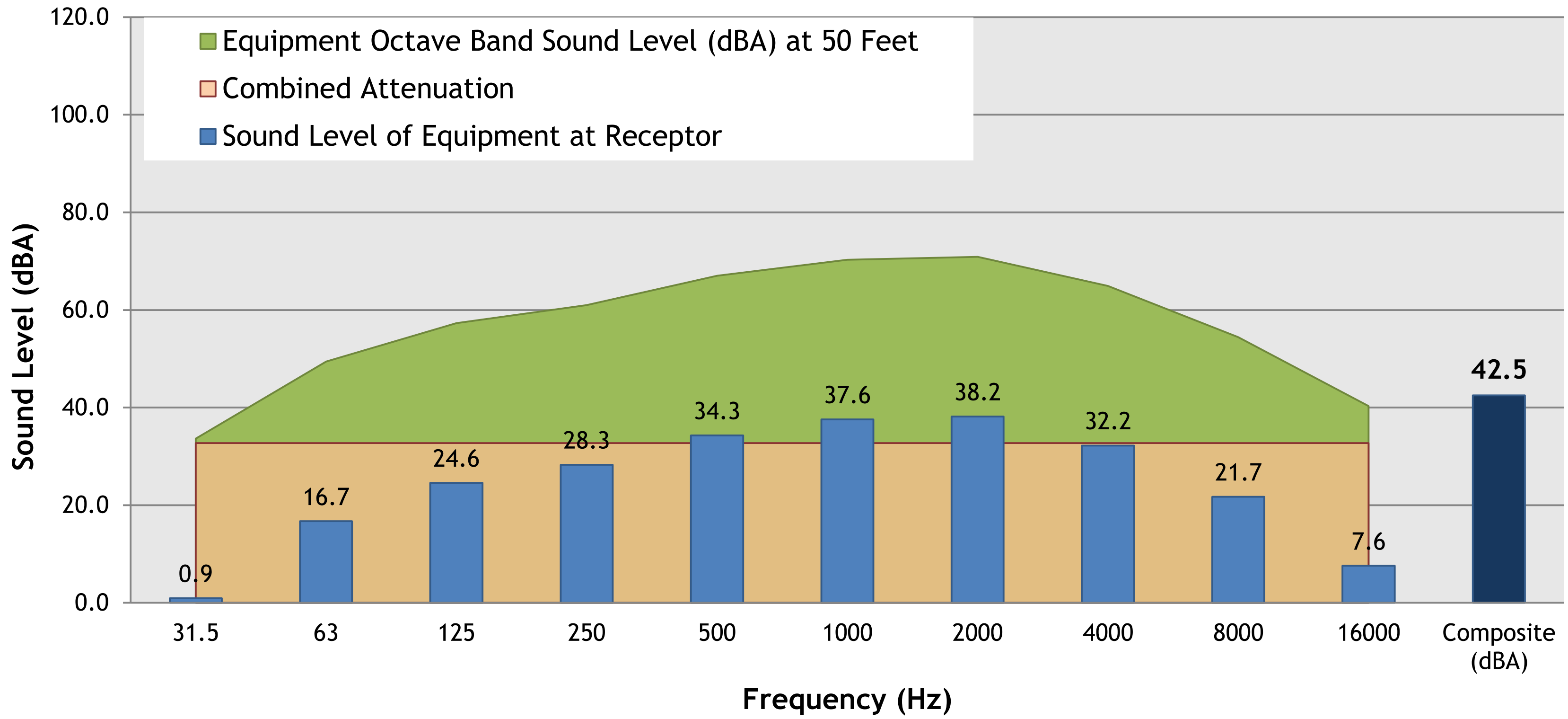
Eagle Harbor
Quarry Modification

Haul Truck Hauling Stone

Scenario: HT
Receptor: R2

Equipment: Articulated Haul Truck

Sound Level Of Equipment At Receptor



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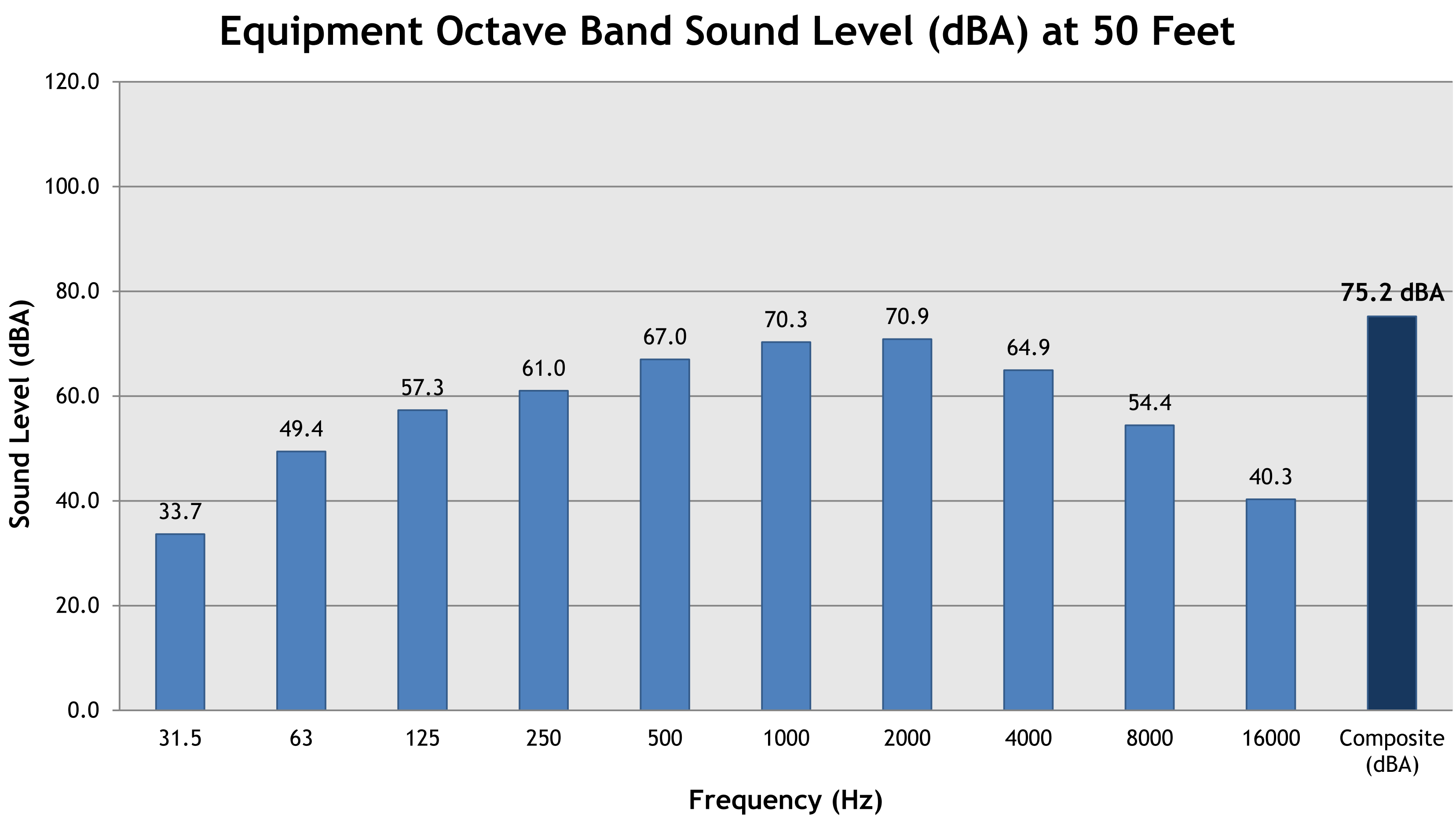
Eagle Harbor
Quarry Modification

Equipment: Articulated Haul Truck

Haul Truck Hauling Stone

Scenario: HT
Receptor: R3



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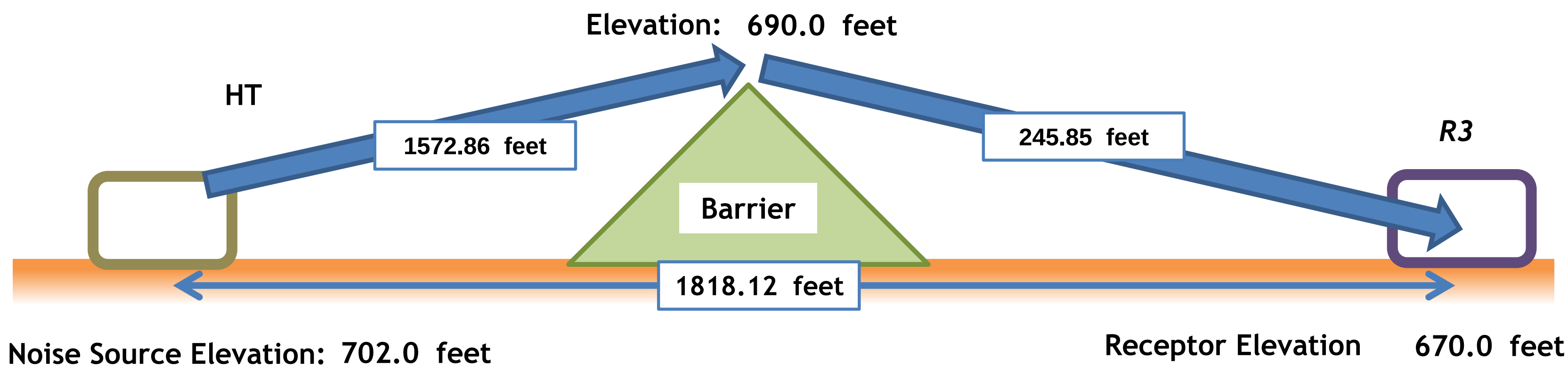
Eagle Harbor
Quarry Modification

Haul Truck Hauling Stone

Scenario: HT
Receptor: R3

Equipment: Articulated Haul Truck

Distance and Barrier Attenuation Inputs



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Eagle Harbor
Quarry Modification

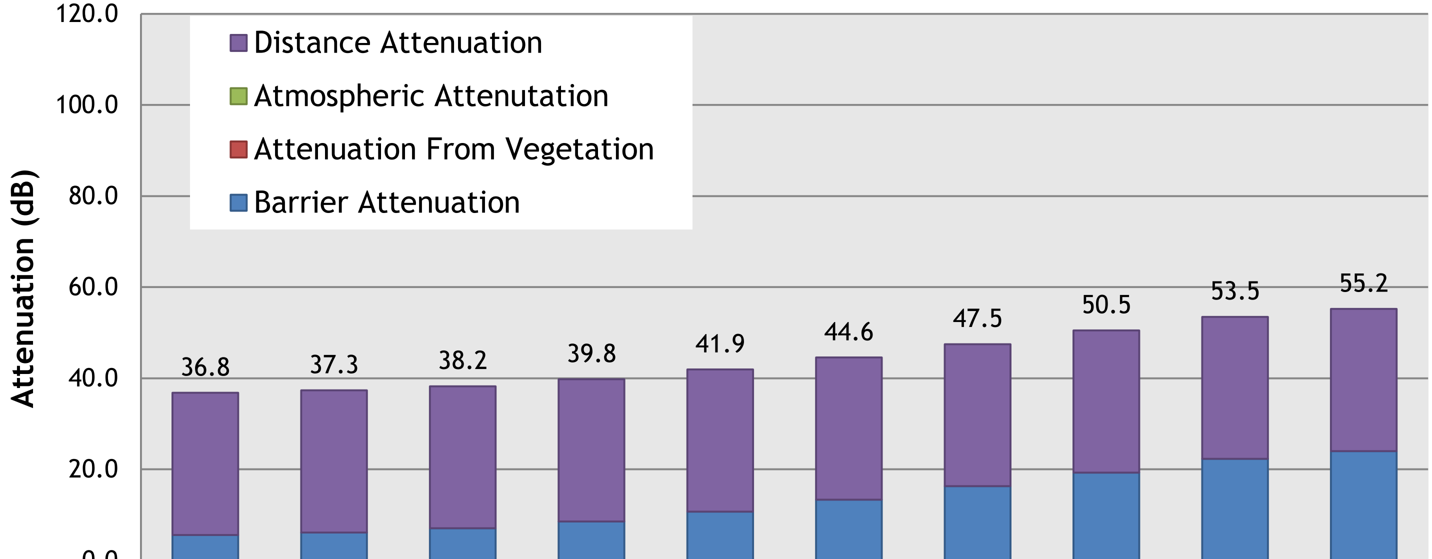
Equipment: Articulated Haul Truck

Haul Truck Hauling Stone

Scenario: HT
Receptor: R3

Wooded Area Thickness: 0 feet

Attenuation By Source

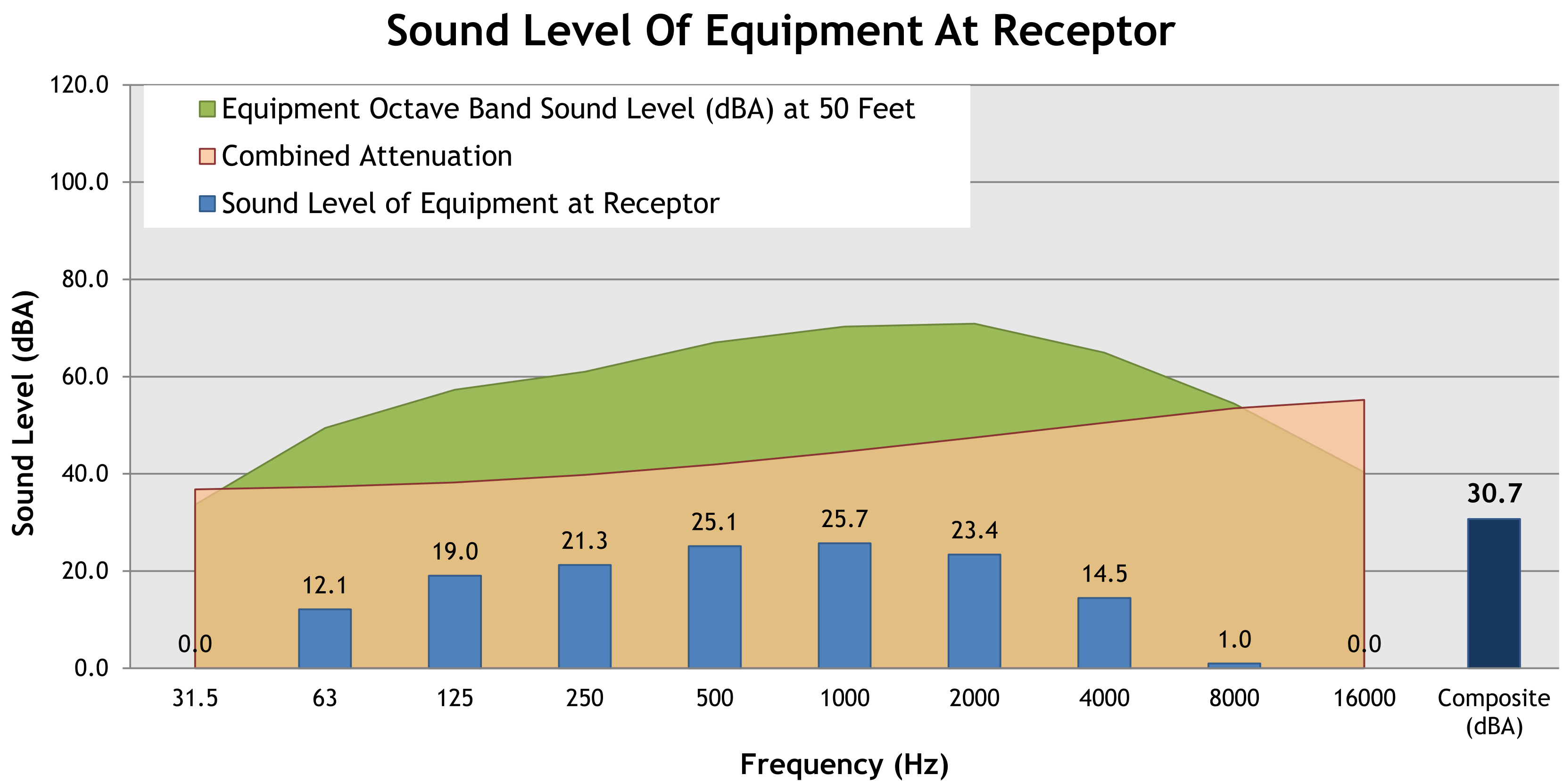


Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	36.8	37.3	38.2	39.8	41.9	44.6	47.5	50.5	53.5	55.2
Distance Attenuation	31.2	31.2	31.2	31.2	31.2	31.2	31.2	31.2	31.2	31.2
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	5.58	6.11	7.04	8.54	10.69	13.35	16.27	19.27	22.28	24.00

Eagle Harbor
Quarry Modification
Equipment: Articulated Haul Truck

Haul Truck Hauling Stone

Scenario: HT
Receptor: R3



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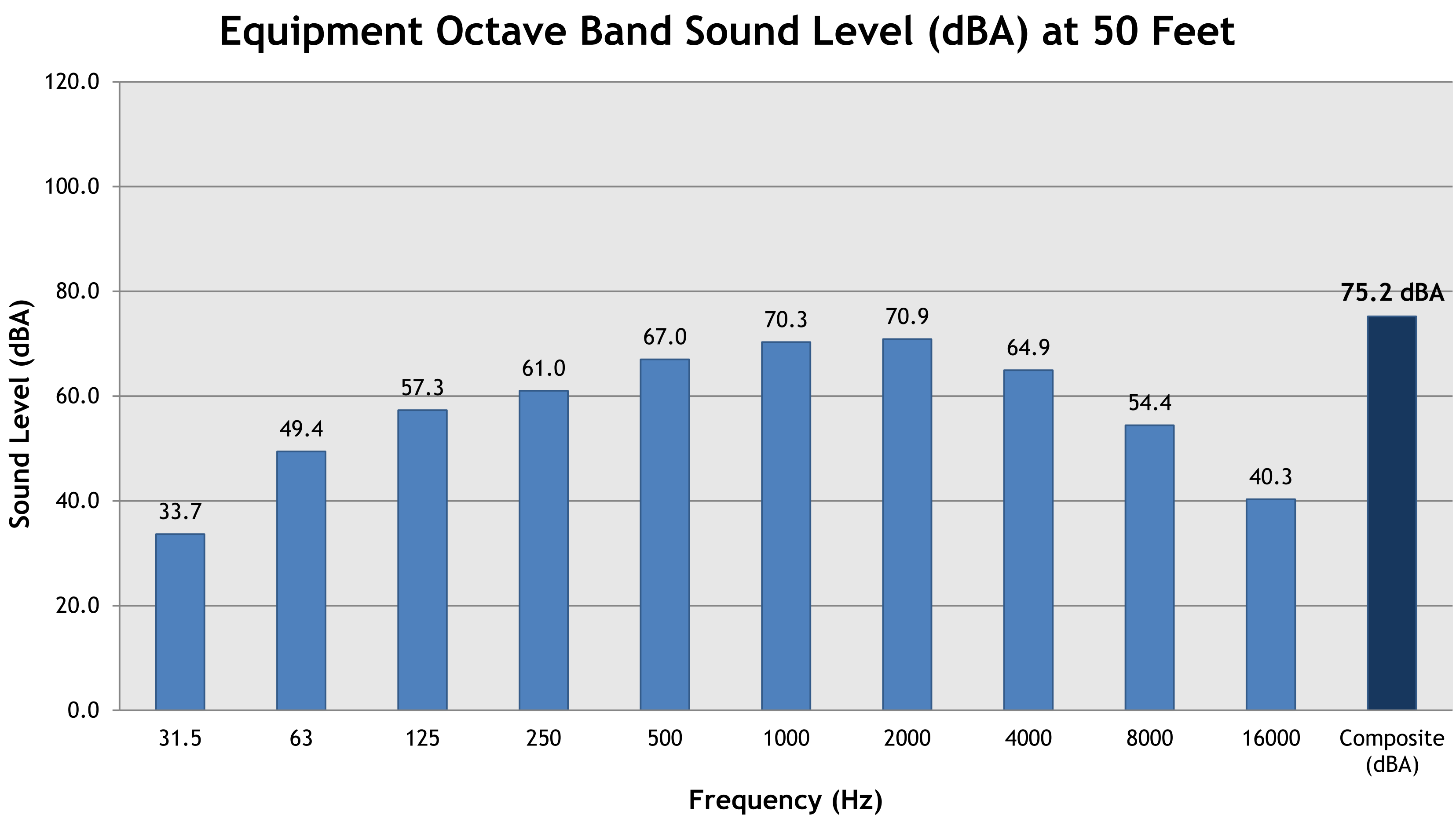
Eagle Harbor
Quarry Modification

Haul Truck Hauling Stone

Scenario: HT
Receptor: R4

Equipment: Articulated Haul Truck



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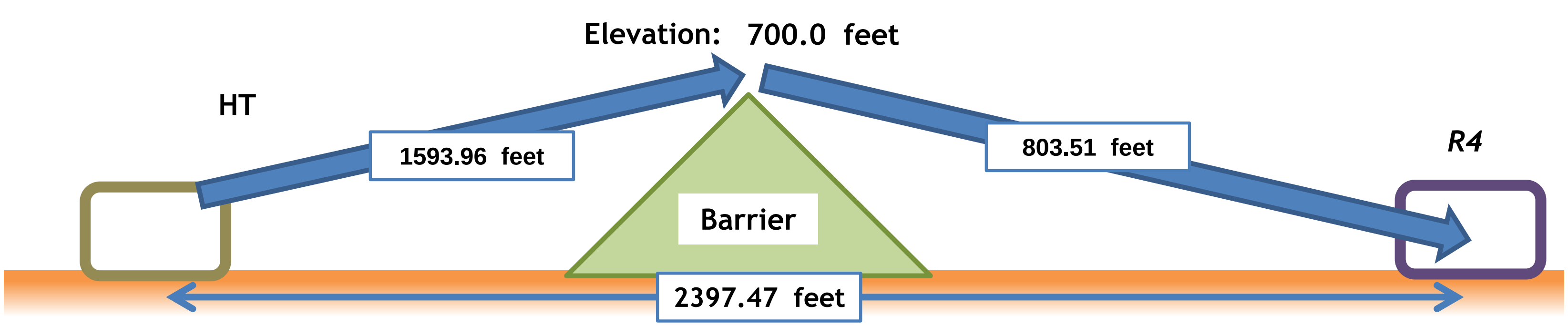
Eagle Harbor
Quarry Modification

Equipment: Articulated Haul Truck

Haul Truck Hauling Stone

Scenario: HT
Receptor: R4

Distance and Barrier Attenuation Inputs



Noise Source Elevation: 702.0 feet

Receptor Elevation 699.0 feet

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Eagle Harbor
Quarry Modification

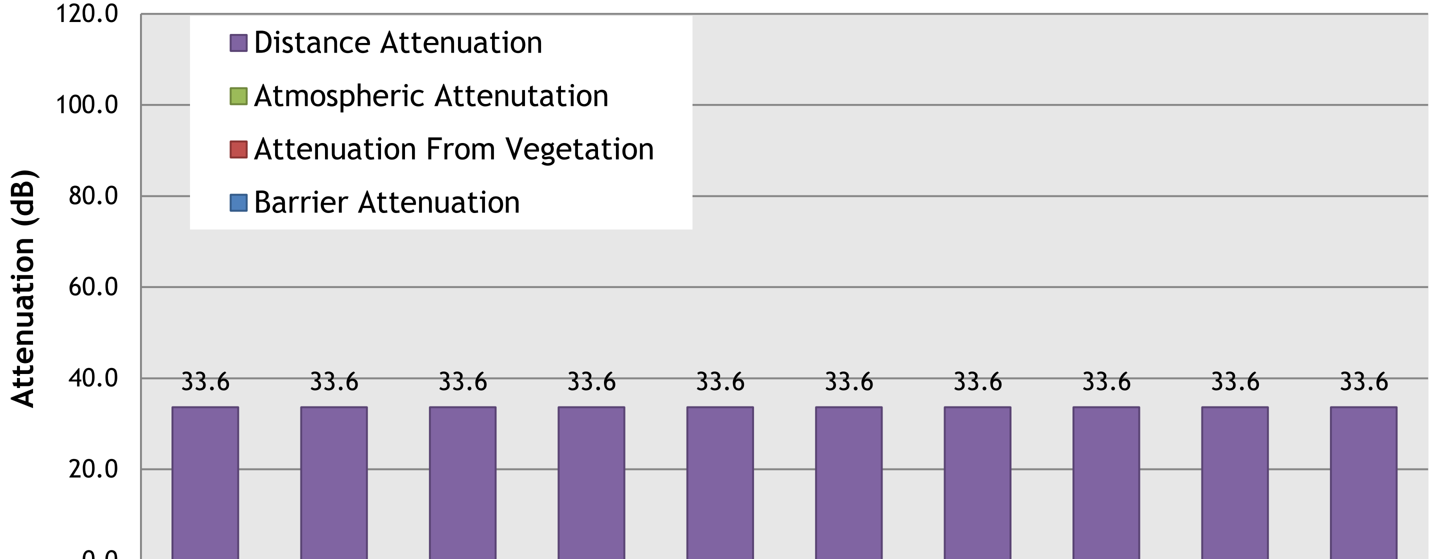
Haul Truck Hauling Stone

Scenario: HT
Receptor: R4

Equipment: Articulated Haul Truck

Attenuation By Source

Wooded Area Thickness:
0 feet



Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	33.6	33.6	33.6	33.6	33.6	33.6	33.6	33.6	33.6	33.6
Distance Attenuation	33.6	33.6	33.6	33.6	33.6	33.6	33.6	33.6	33.6	33.6
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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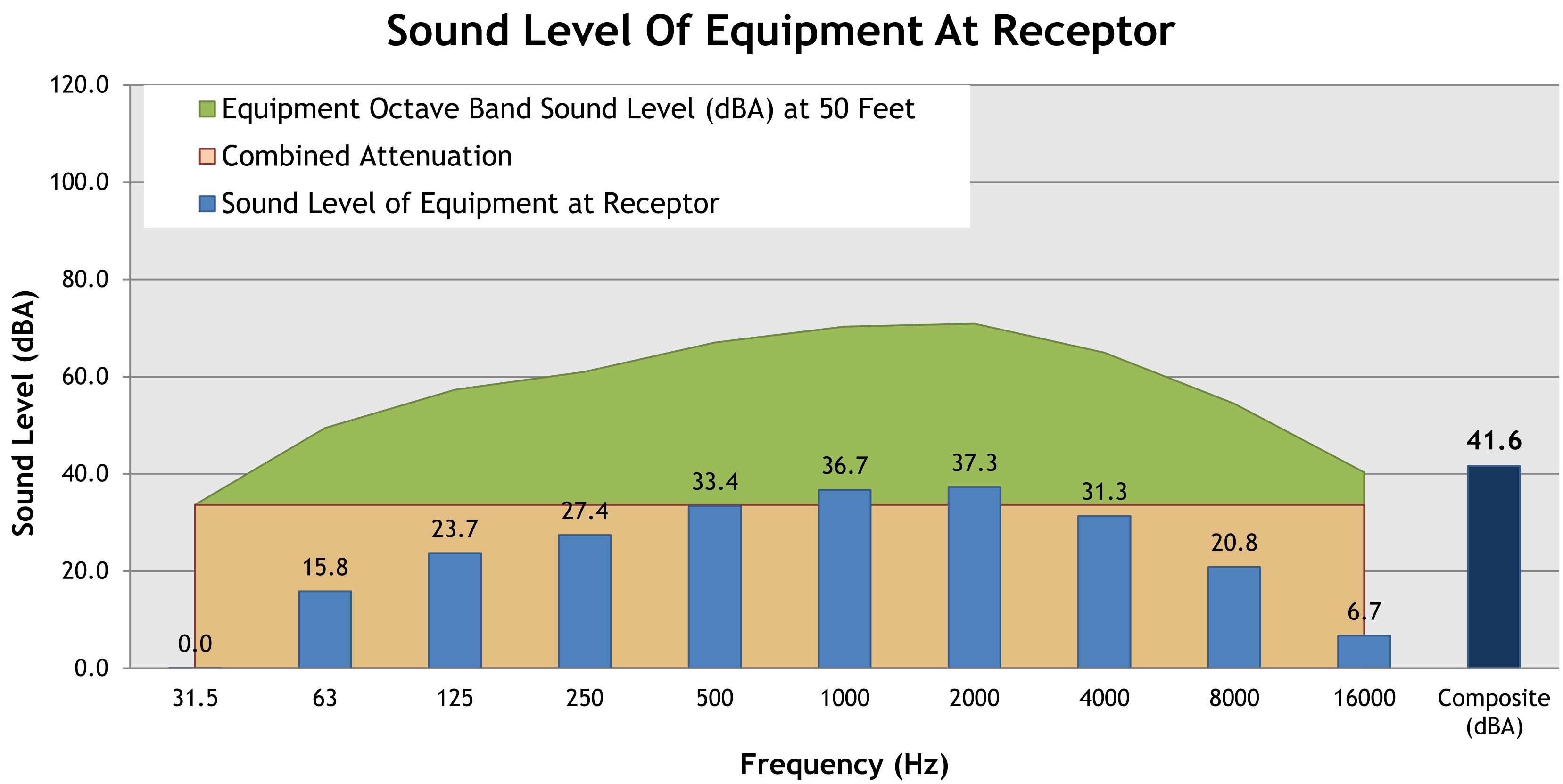
Quarry Modification

Equipment: Articulated Haul Truck

Haul Truck Hauling Stone

Scenario: HT
Receptor: R4



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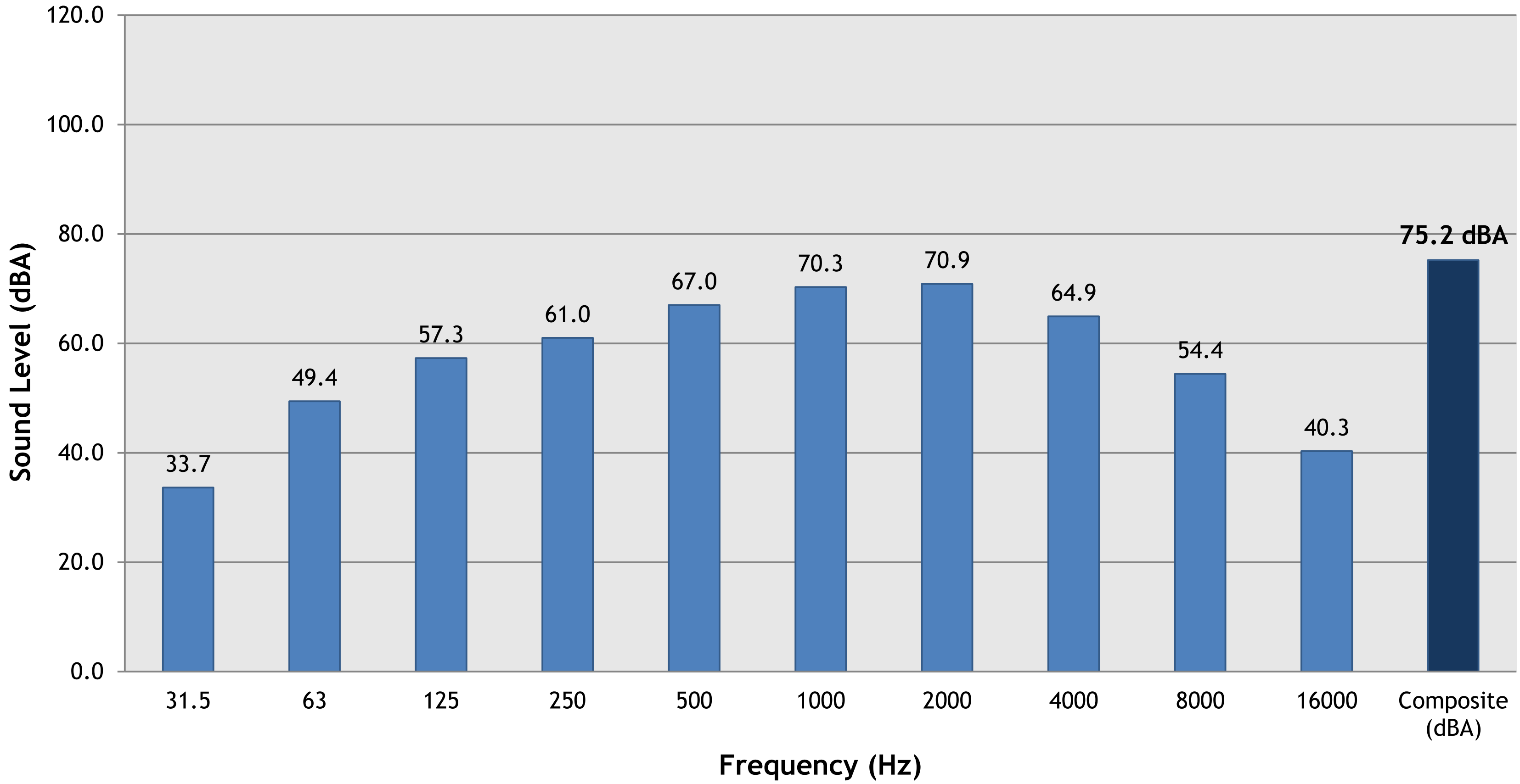
Eagle Harbor
Quarry Modification

Equipment: Articulated Haul Truck

Haul Truck Hauling Stone

Scenario: HT
Receptor: R5

Equipment Octave Band Sound Level (dBA) at 50 Feet



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Eagle Harbor
Quarry Modification

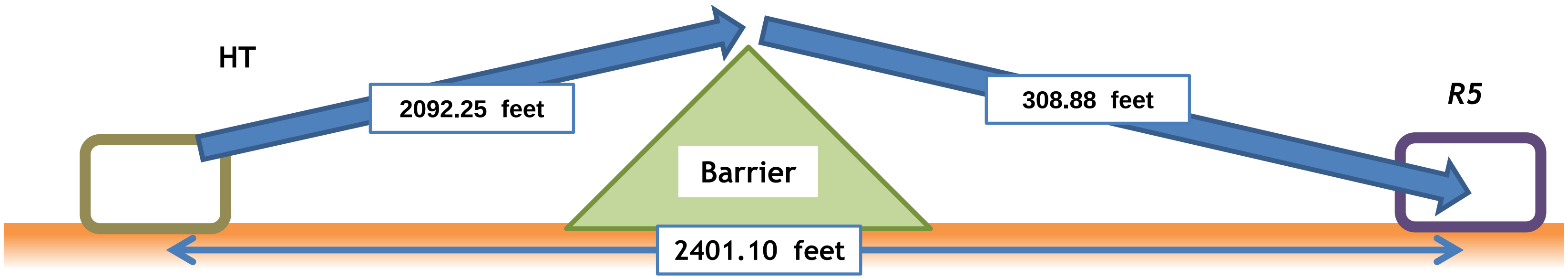
Haul Truck Hauling Stone

Scenario: HT
Receptor: R5

Equipment: Articulated Haul Truck

Distance and Barrier Attenuation Inputs

Elevation: 690.0 feet



Noise Source Elevation: 702.0 feet

Receptor Elevation 684.0 feet

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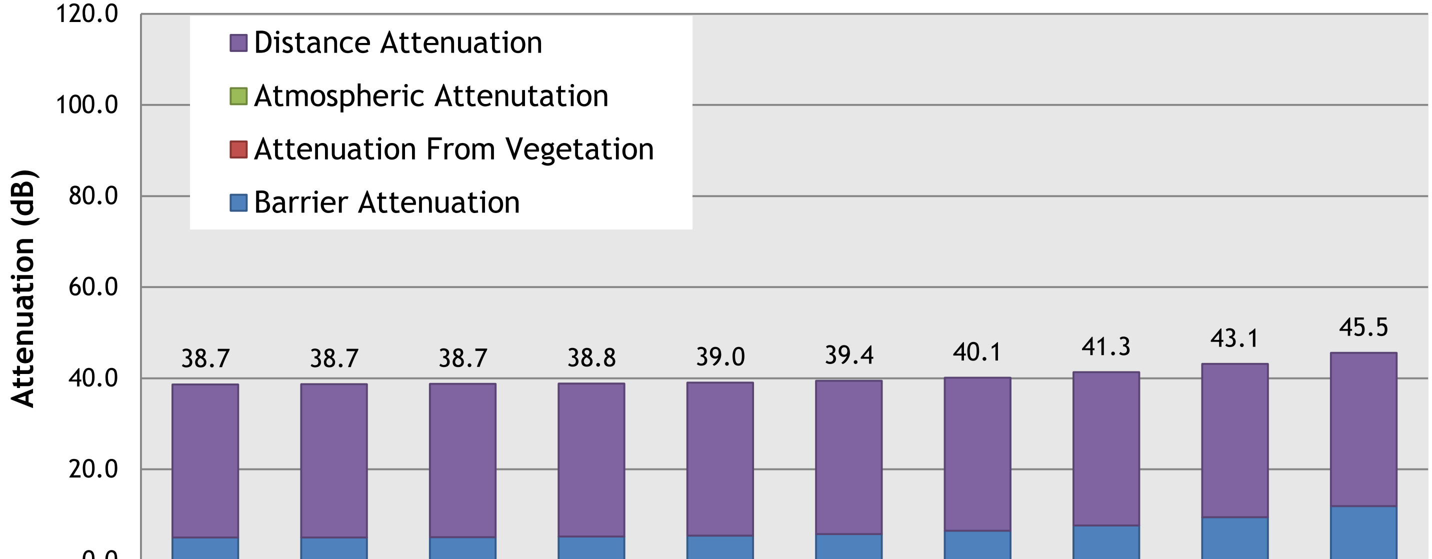
Quarry Modification
Equipment: Articulated Haul Truck

Haul Truck Hauling Stone

Scenario: HT
Receptor: R5

Attenuation By Source

Wooded Area Thickness:
0 feet



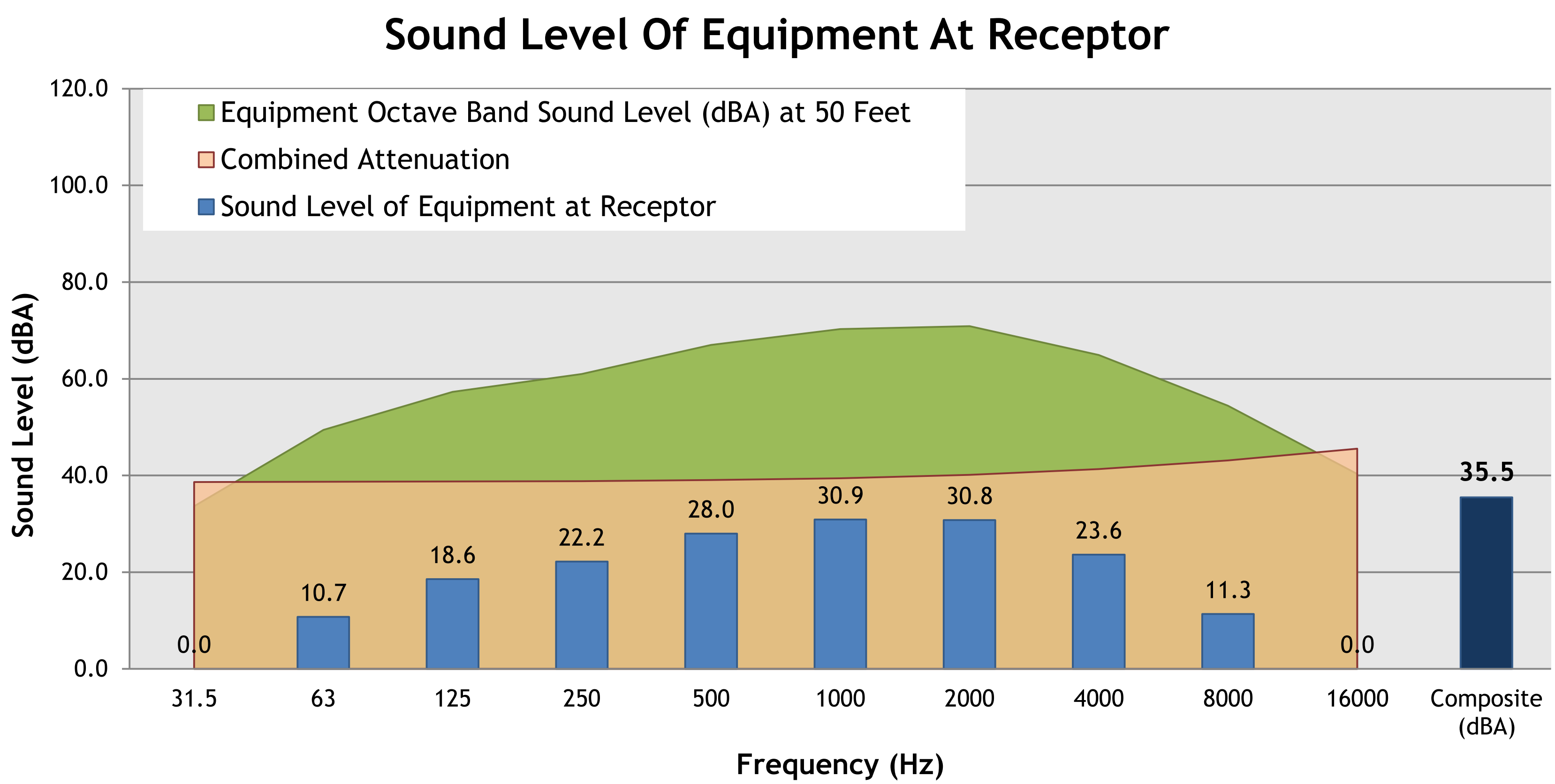
Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	38.7	38.7	38.7	38.8	39.0	39.4	40.1	41.3	43.1	45.5
Distance Attenuation	33.6	33.6	33.6	33.6	33.6	33.6	33.6	33.6	33.6	33.6
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	5.03	5.05	5.10	5.21	5.41	5.79	6.49	7.68	9.49	11.92

Eagle Harbor
Quarry Modification

Equipment: Articulated Haul Truck

Haul Truck Hauling Stone

Scenario: HT
Receptor: R5



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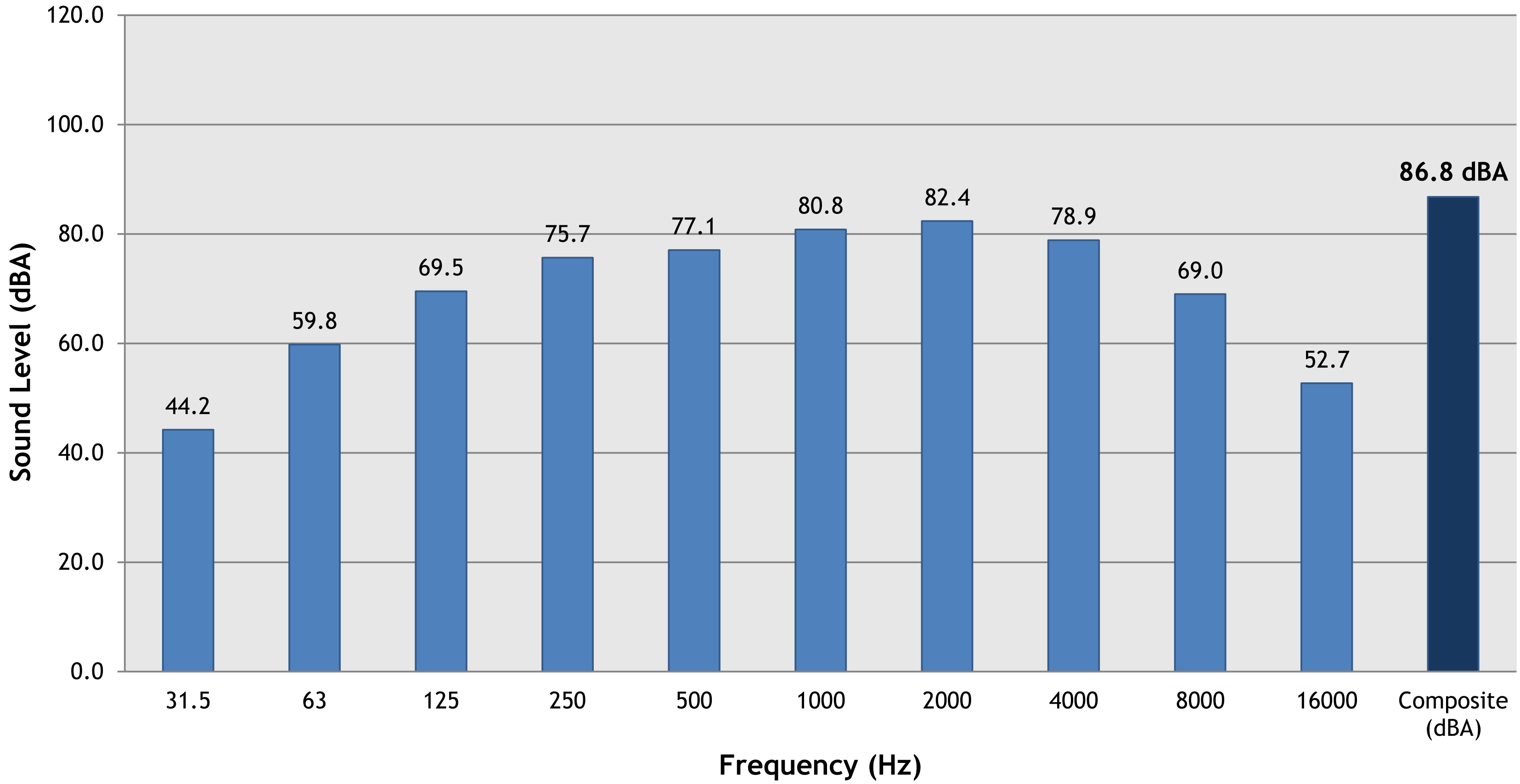
Eagle Harbor
Quarry Modification
Equipment: Portable Crushing Plant

Portable Crushing Plant

Scenario: PCP
Receptor: R1

Equipment Octave Band Sound Level (dBA) at 50 Feet



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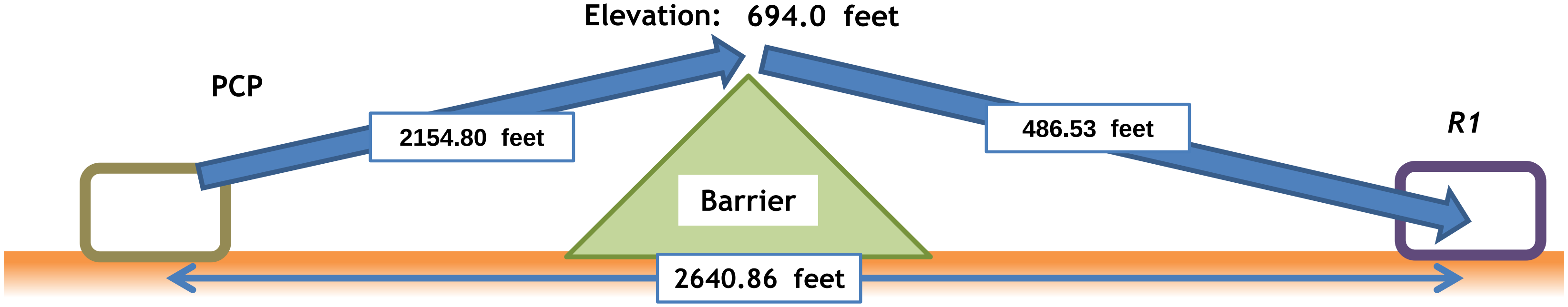
Eagle Harbor
Quarry Modification
Equipment: Portable Crushing Plant

Portable Crushing Plant

Scenario: PCP
Receptor: R1

Distance and Barrier Attenuation Inputs



Noise Source Elevation: 684.0 feet

Receptor Elevation 720.0 feet

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Eagle Harbor
Quarry Modification

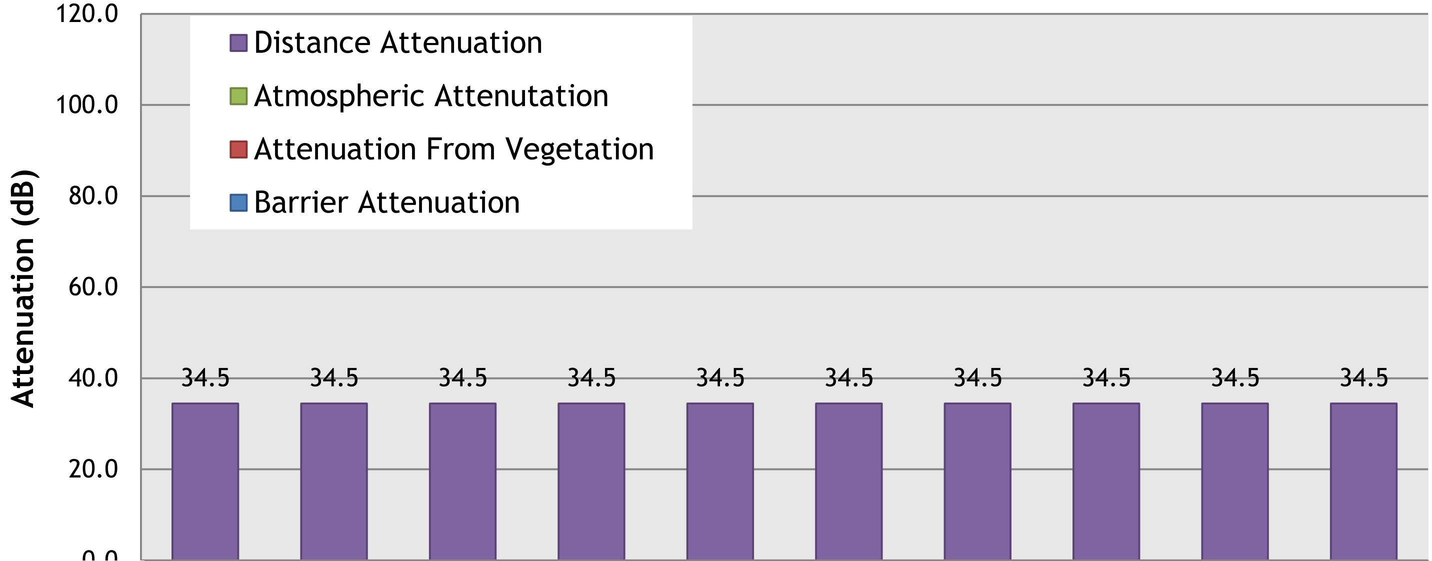
Portable Crushing Plant

Scenario: PCP
Receptor: R1

Equipment: Portable Crushing Plant

Attenuation By Source

Wooded Area Thickness:
0 feet



Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5
Distance Attenuation	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

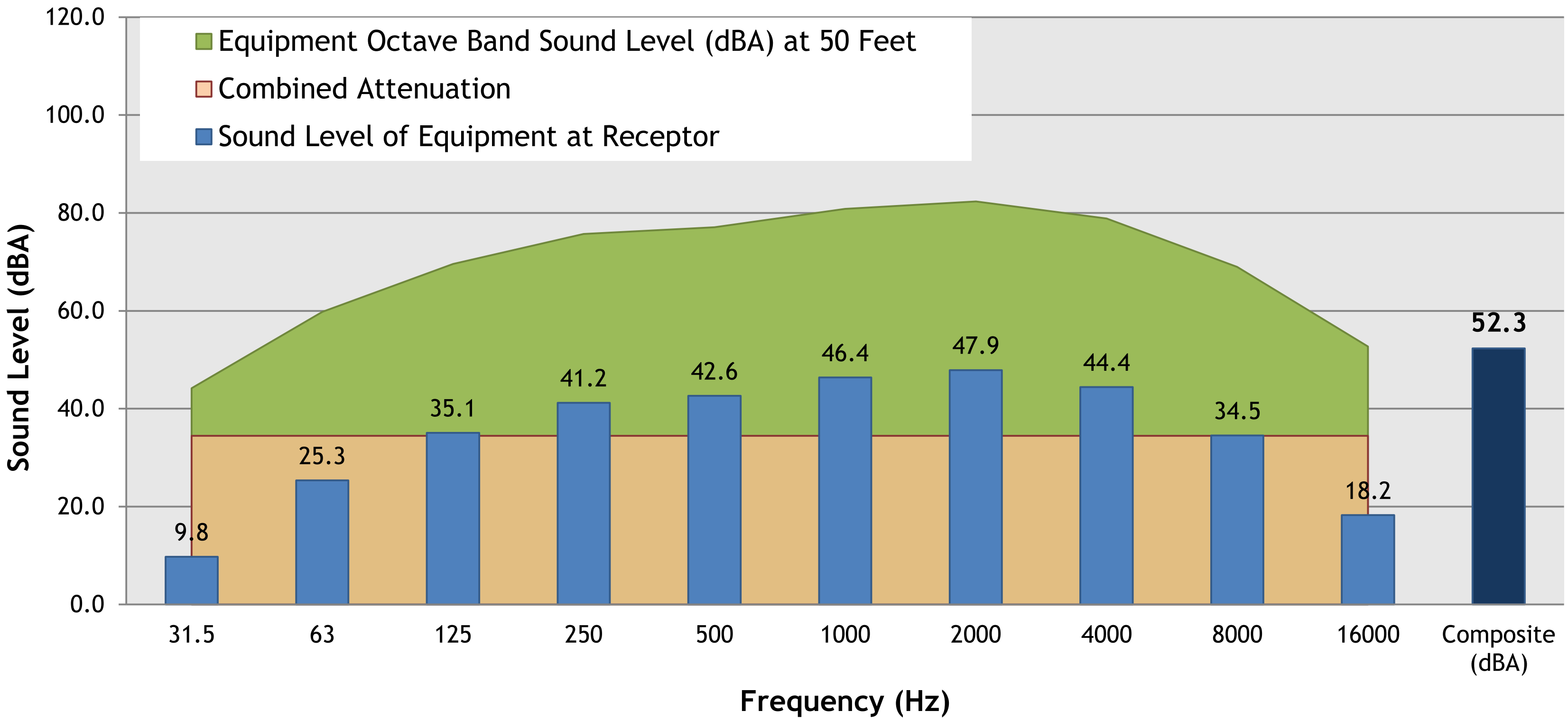
Eagle Harbor
Quarry Modification

Portable Crushing Plant

Scenario: PCP
Receptor: R1

Equipment: Portable Crushing Plant

Sound Level Of Equipment At Receptor



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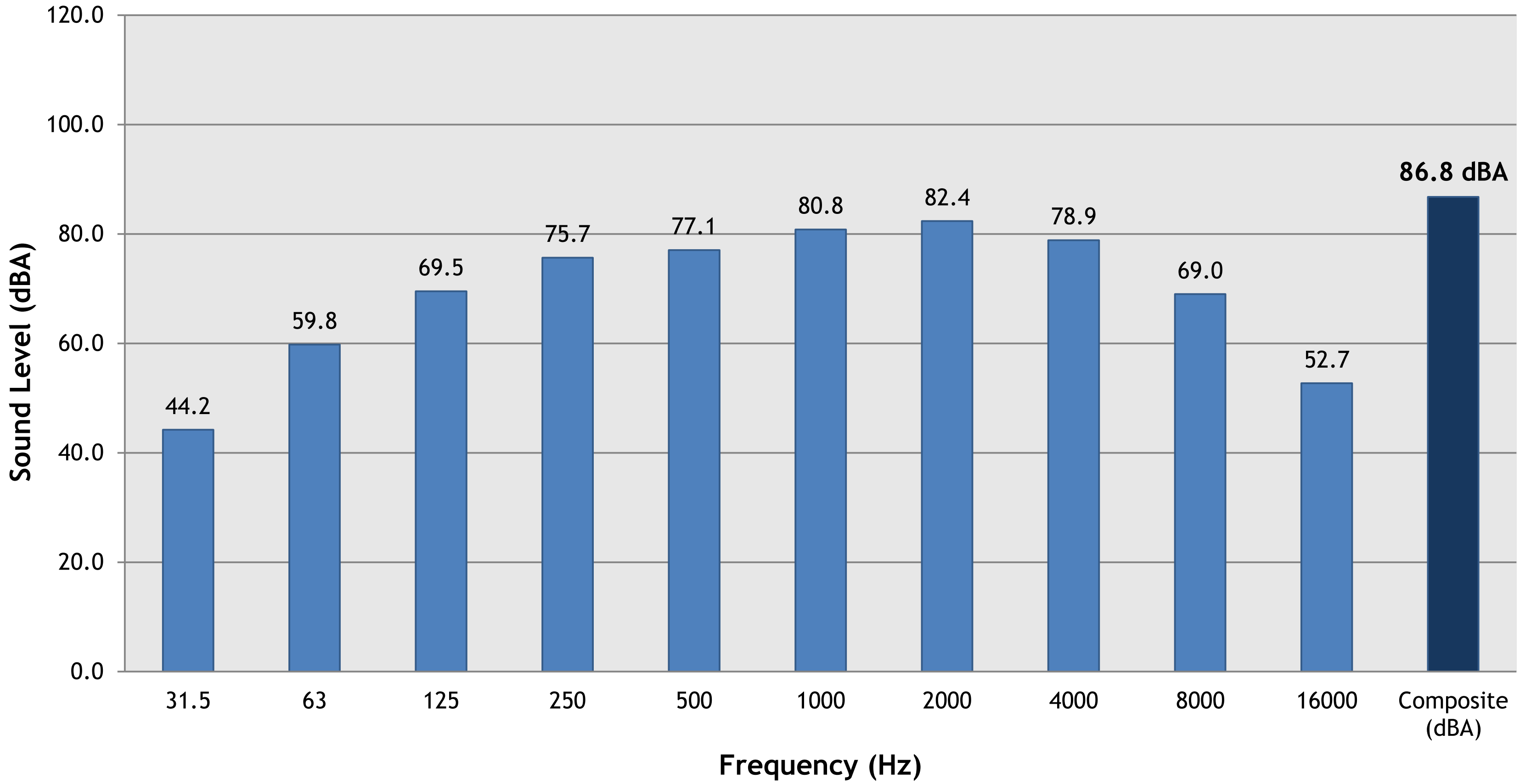
Eagle Harbor
Quarry Modification
Equipment: Portable Crushing Plant

Portable Crushing Plant

Scenario: PCP
Receptor: R2

Equipment Octave Band Sound Level (dBA) at 50 Feet



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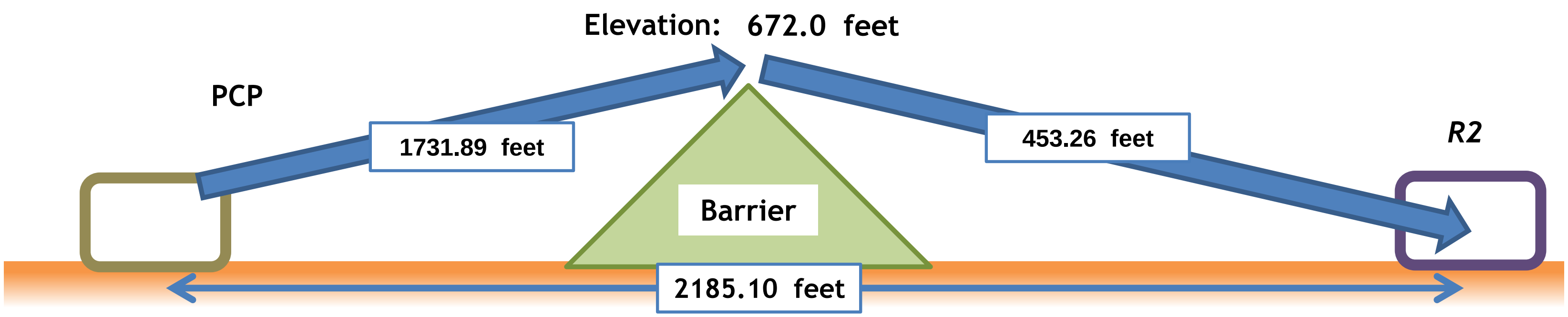
Eagle Harbor
Quarry Modification
Equipment: Portable Crushing Plant

Portable Crushing Plant

Scenario: PCP
Receptor: R2

Distance and Barrier Attenuation Inputs



Noise Source Elevation: 684.0 feet

Receptor Elevation 676.0 feet

November 2018

Eagle Harbor
Quarry Modification

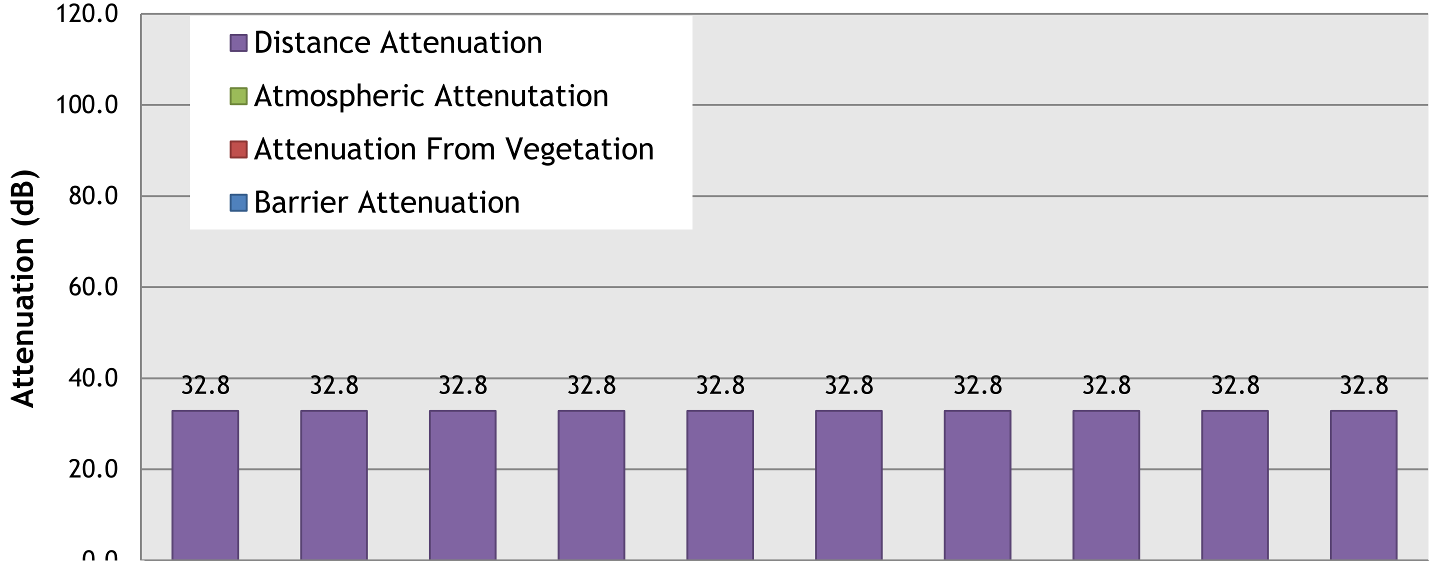
Portable Crushing Plant

Scenario: PCP
Receptor: R2

Equipment: Portable Crushing Plant

Attenuation By Source

Wooded Area Thickness:
0 feet



Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	32.8	32.8	32.8	32.8	32.8	32.8	32.8	32.8	32.8	32.8
Distance Attenuation	32.8	32.8	32.8	32.8	32.8	32.8	32.8	32.8	32.8	32.8
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

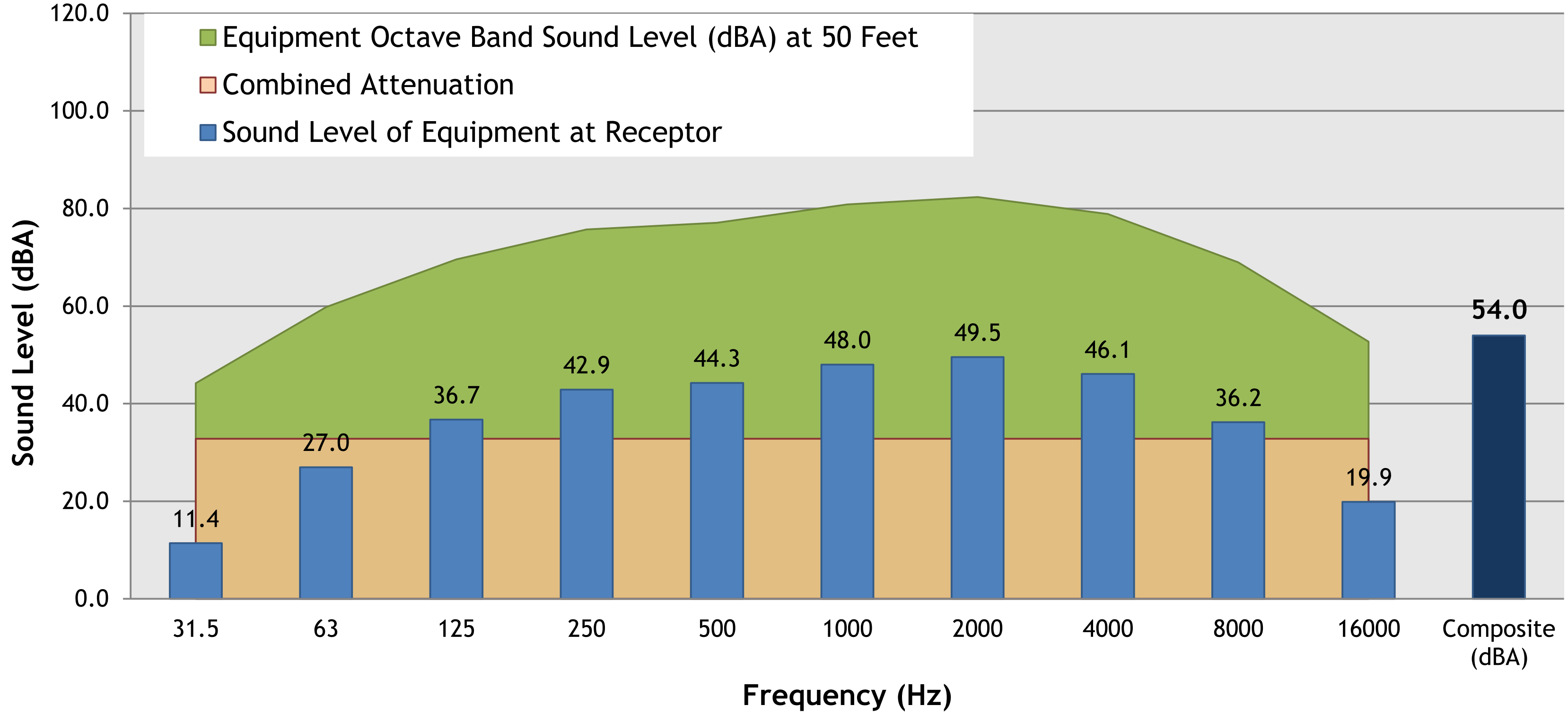
Eagle Harbor
Quarry Modification

Portable Crushing Plant

Scenario: PCP
Receptor: R2

Equipment: Portable Crushing Plant

Sound Level Of Equipment At Receptor



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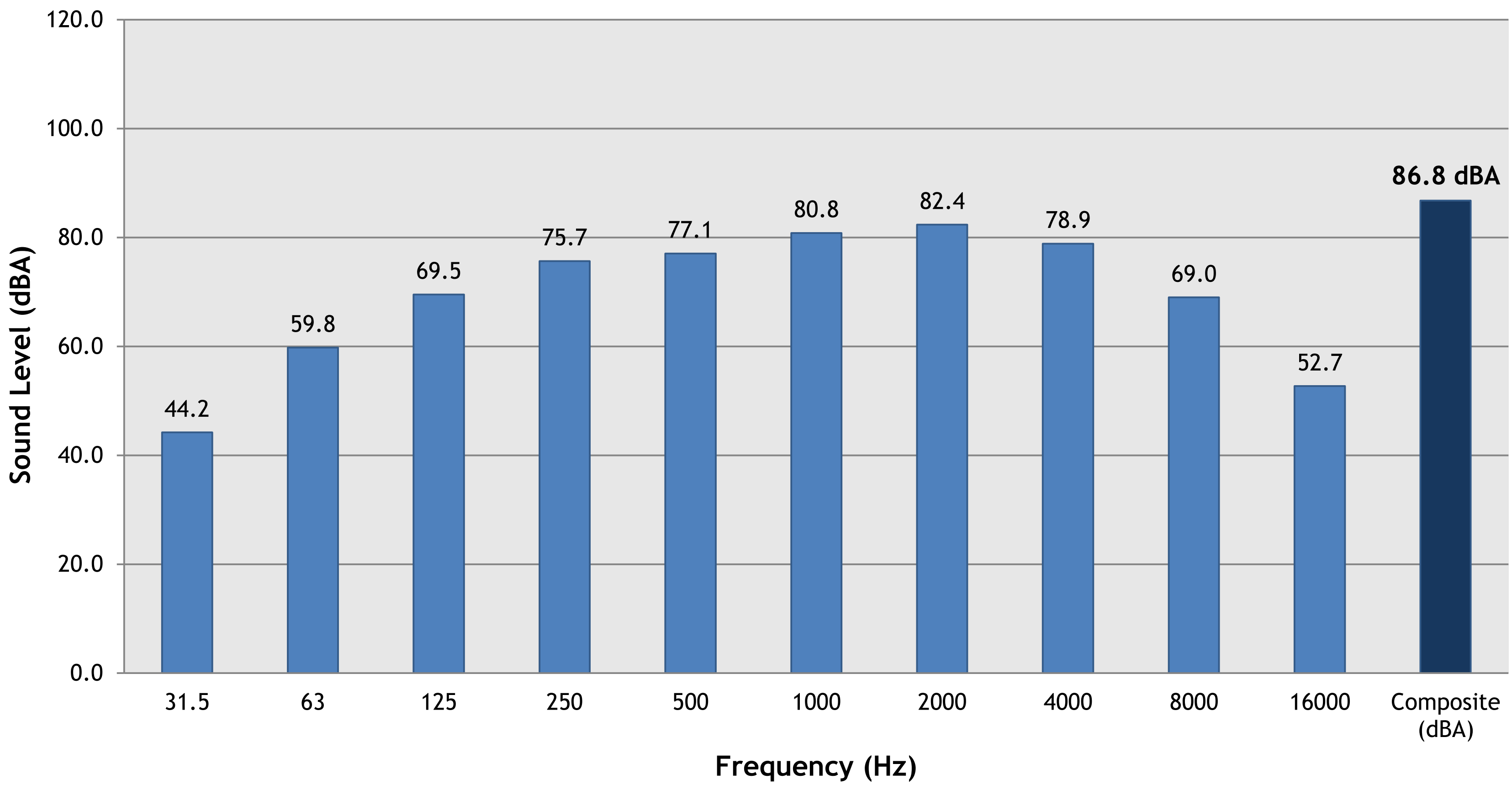
Eagle Harbor
Quarry Modification

Portable Crushing Plant

Scenario: PCP
Receptor: R3

Equipment: Portable Crushing Plant

Equipment Octave Band Sound Level (dBA) at 50 Feet



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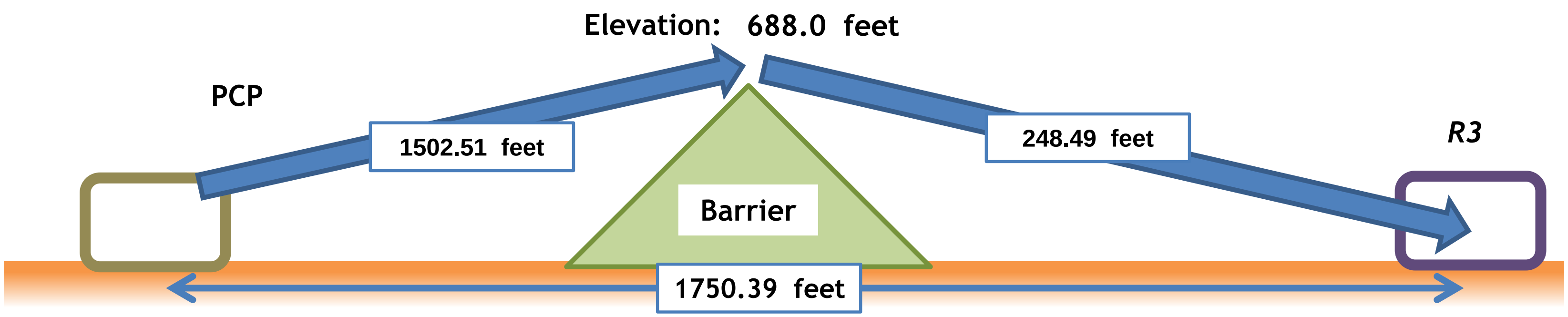
Eagle Harbor
Quarry Modification
Equipment: Portable Crushing Plant

Portable Crushing Plant

Scenario: PCP
Receptor: R3

Distance and Barrier Attenuation Inputs



Noise Source Elevation: 684.0 feet

Receptor Elevation 670.0 feet

Eagle Harbor
Quarry Modification

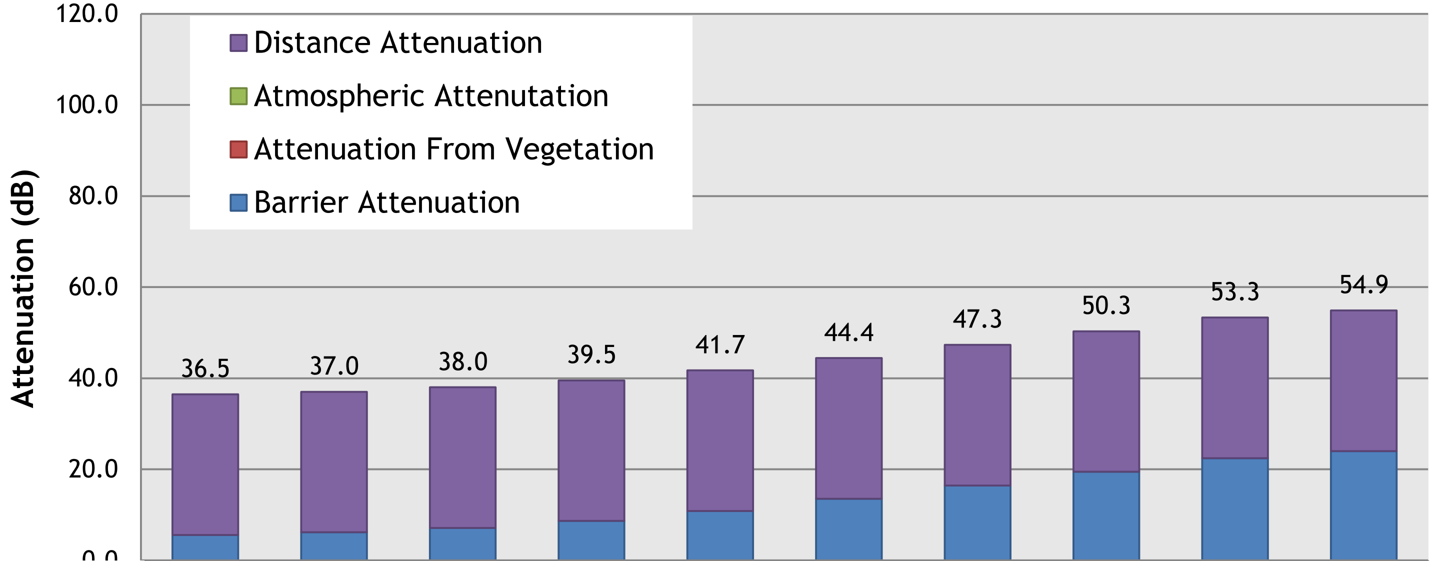
Portable Crushing Plant

Scenario: PCP
Receptor: R3

Equipment: Portable Crushing Plant

Attenuation By Source

Wooded Area Thickness:
0 feet



Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	36.5	37.0	38.0	39.5	41.7	44.4	47.3	50.3	53.3	54.9
Distance Attenuation	30.9	30.9	30.9	30.9	30.9	30.9	30.9	30.9	30.9	30.9
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	5.60	6.15	7.10	8.65	10.83	13.51	16.44	19.44	22.45	24.00

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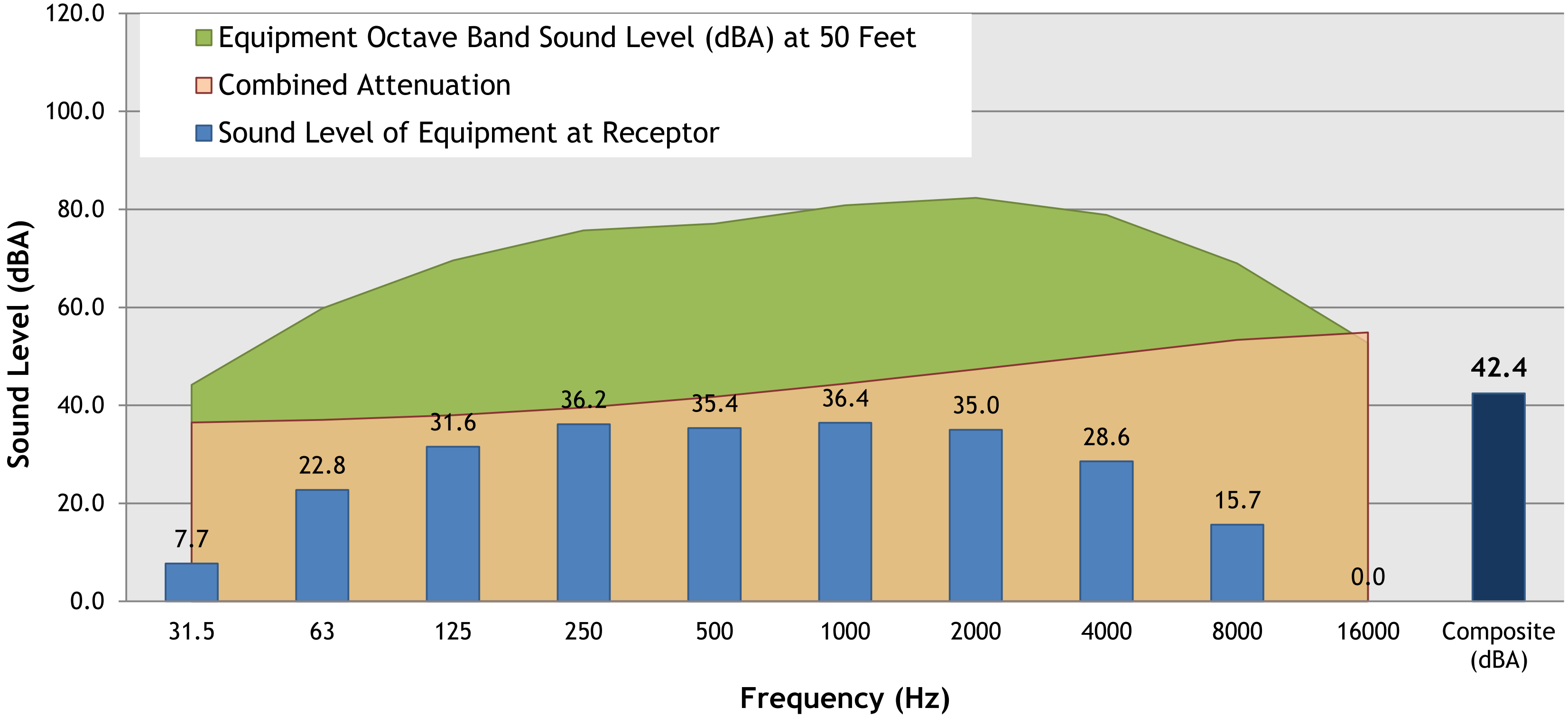
Eagle Harbor
Quarry Modification

Portable Crushing Plant

Scenario: PCP
Receptor: R3

Equipment: Portable Crushing Plant

Sound Level Of Equipment At Receptor



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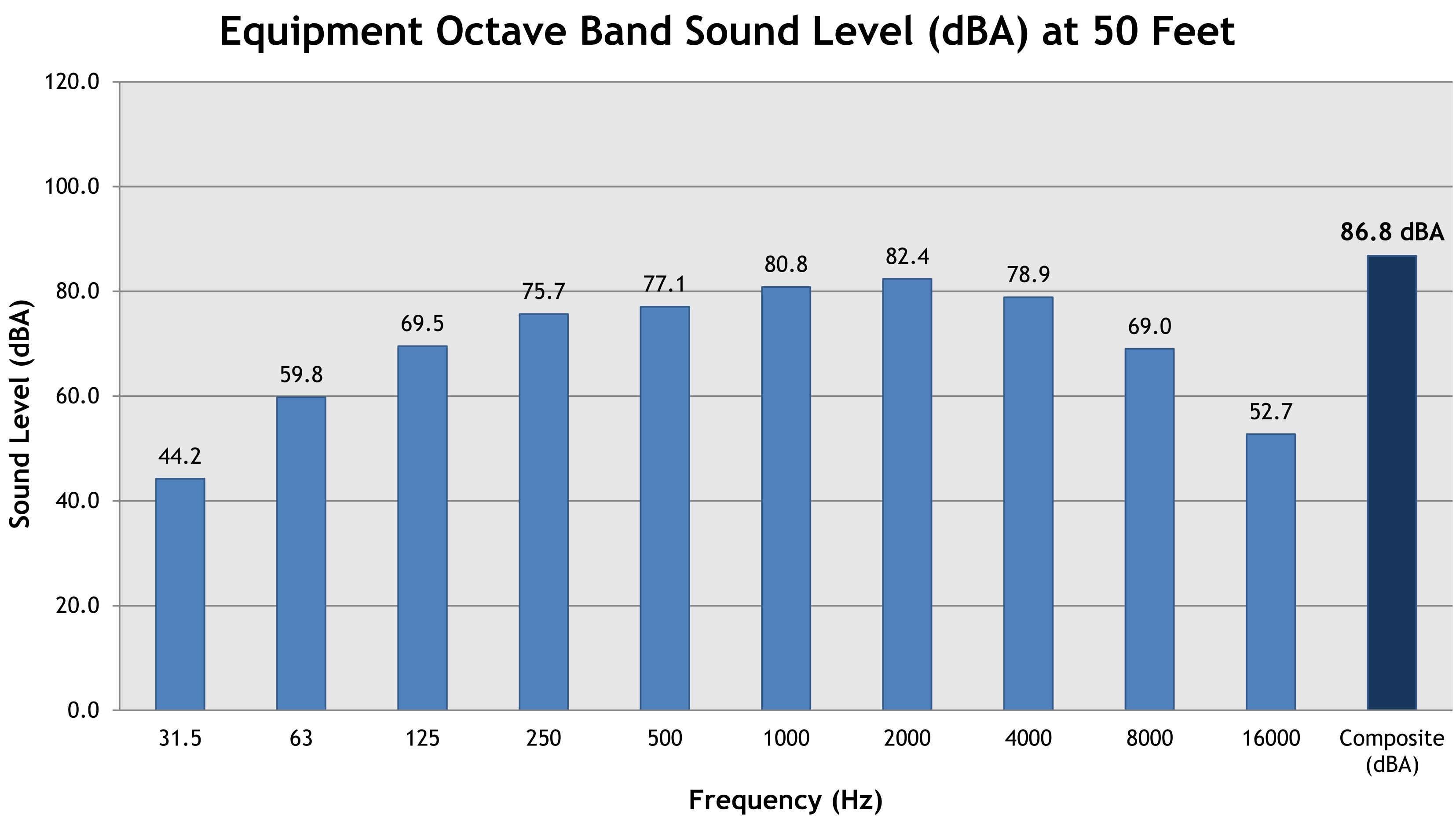
Eagle Harbor
Quarry Modification

Portable Crushing Plant

Scenario: PCP
Receptor: R4

Equipment: Portable Crushing Plant



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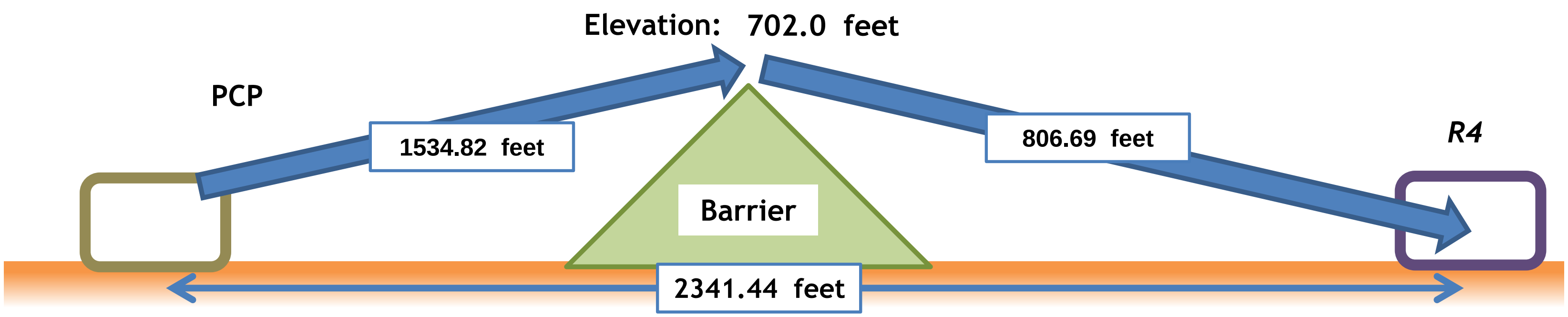
Eagle Harbor
Quarry Modification
Equipment: Portable Crushing Plant

Portable Crushing Plant

Scenario: PCP
Receptor: R4

Distance and Barrier Attenuation Inputs



Noise Source Elevation: 684.0 feet

Receptor Elevation 699.0 feet

Eagle Harbor
Quarry Modification

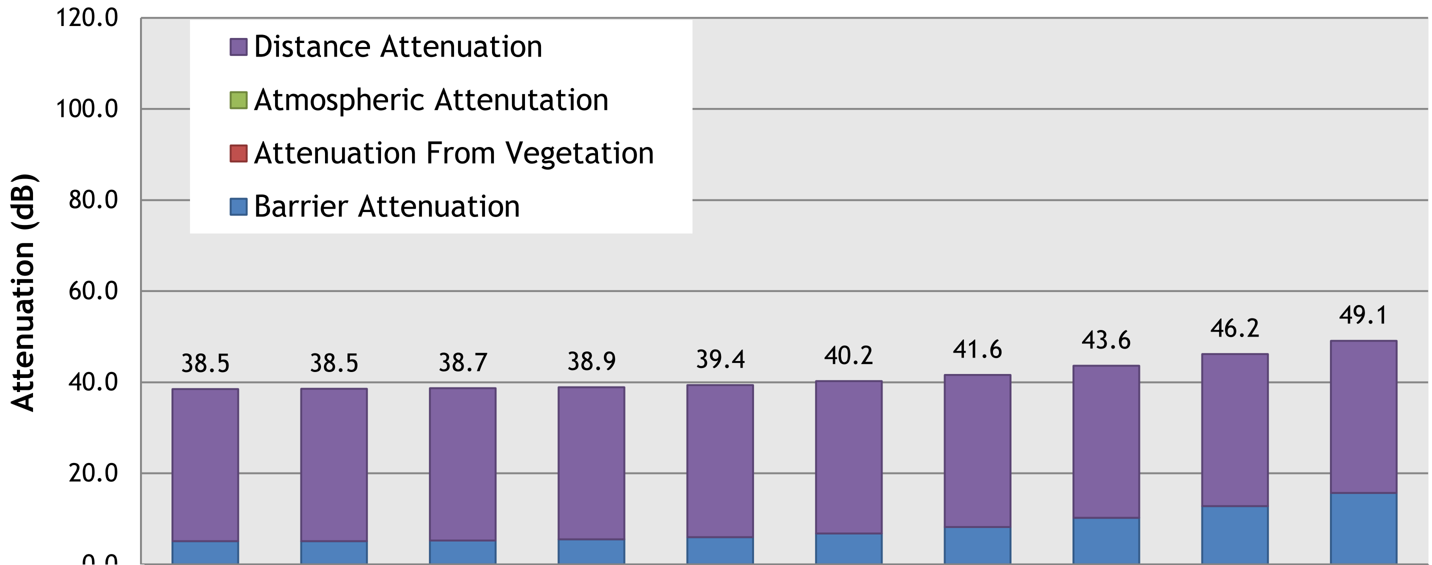
Portable Crushing Plant

Scenario: PCP
Receptor: R4

Equipment: Portable Crushing Plant

Attenuation By Source

Wooded Area Thickness: 0 feet



Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	38.5	38.5	38.7	38.9	39.4	40.2	41.6	43.6	46.2	49.1
Distance Attenuation	33.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	5.07	5.13	5.26	5.51	5.97	6.81	8.19	10.22	12.79	15.68

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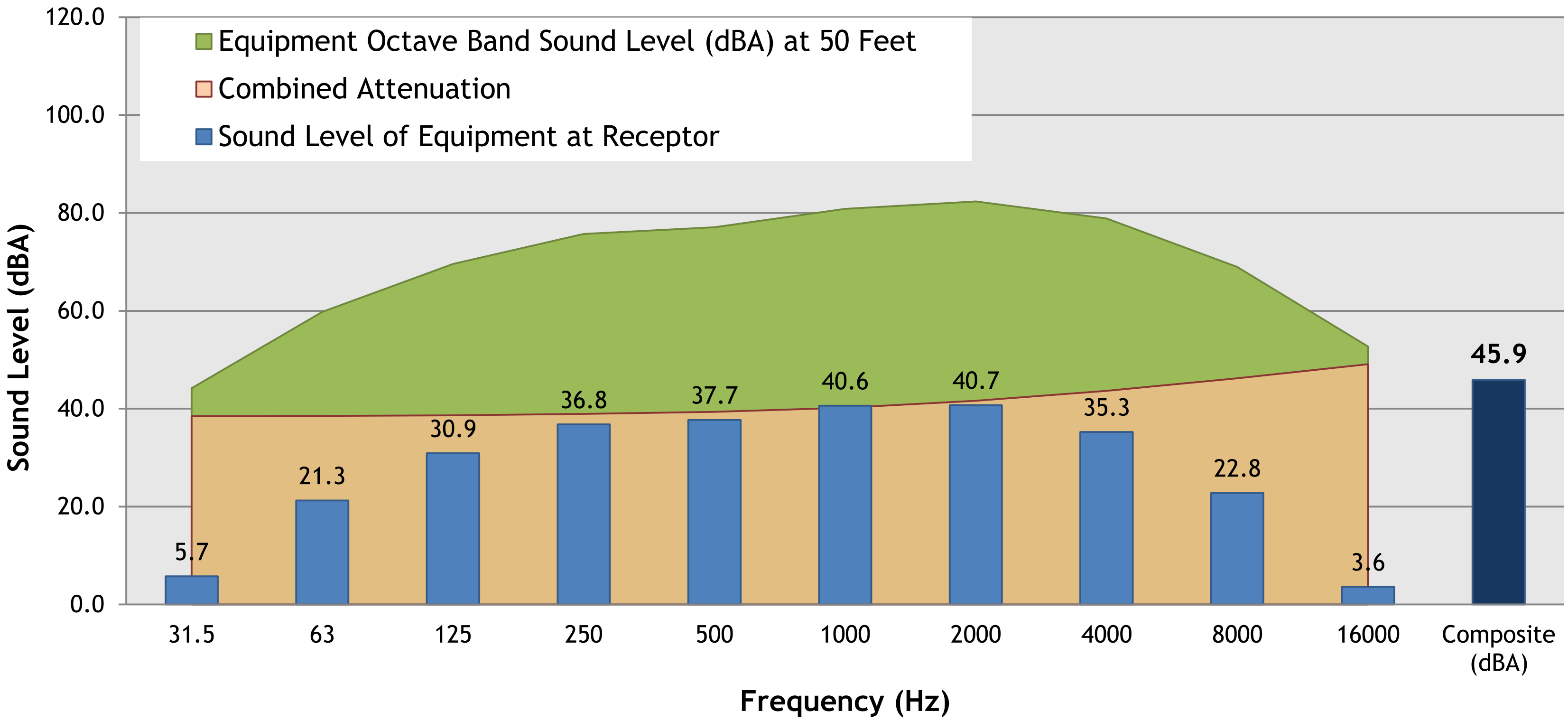
Eagle Harbor
Quarry Modification

Portable Crushing Plant

Scenario: PCP
Receptor: R4

Equipment: Portable Crushing Plant

Sound Level Of Equipment At Receptor



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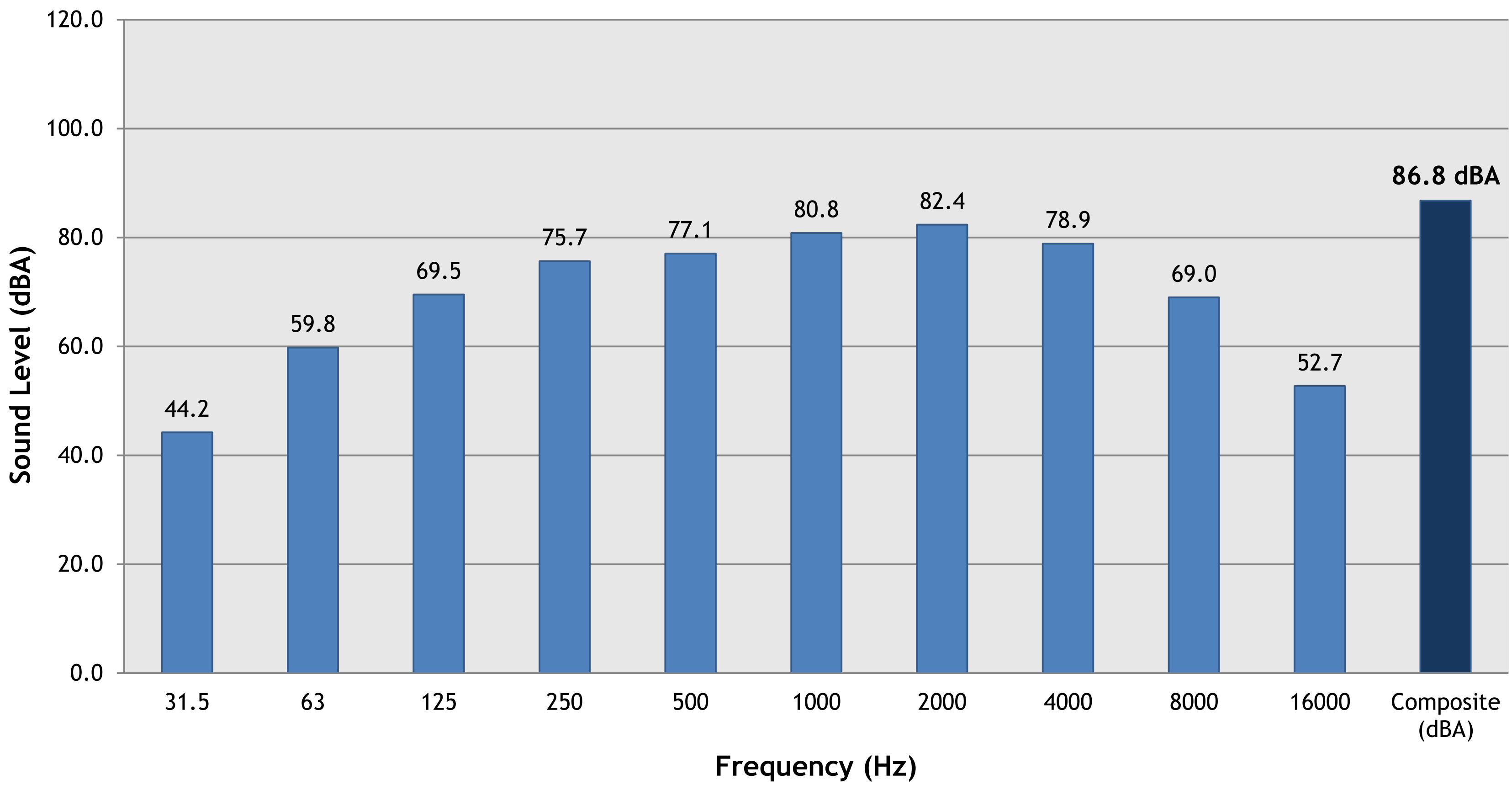
Eagle Harbor
Quarry Modification

Portable Crushing Plant

Scenario: PCP
Receptor: R5

Equipment: Portable Crushing Plant

Equipment Octave Band Sound Level (dBA) at 50 Feet



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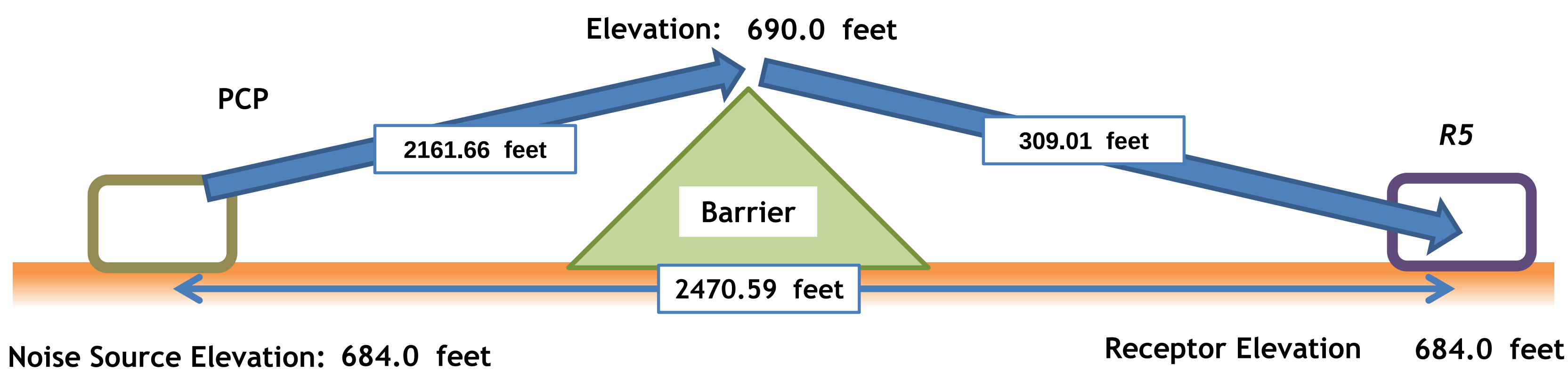
Eagle Harbor
Quarry Modification
Equipment: Portable Crushing Plant

Portable Crushing Plant

Scenario: PCP
Receptor: R5

Distance and Barrier Attenuation Inputs



Eagle Harbor
Quarry Modification

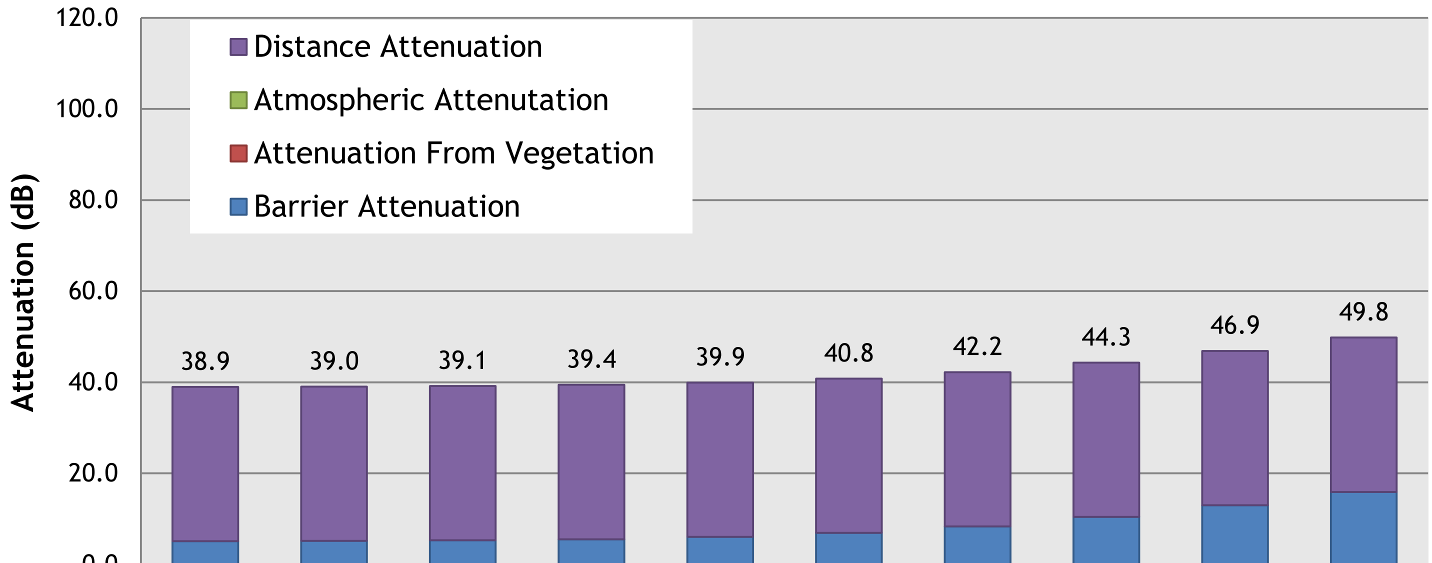
Equipment: Portable Crushing Plant

Portable Crushing Plant

Scenario: PCP
Receptor: R5

Attenuation By Source

Wooded Area Thickness:
0 feet



Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	38.9	39.0	39.1	39.4	39.9	40.8	42.2	44.3	46.9	49.8
Distance Attenuation	33.9	33.9	33.9	33.9	33.9	33.9	33.9	33.9	33.9	33.9
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	5.07	5.14	5.27	5.53	6.02	6.90	8.33	10.40	13.01	15.92

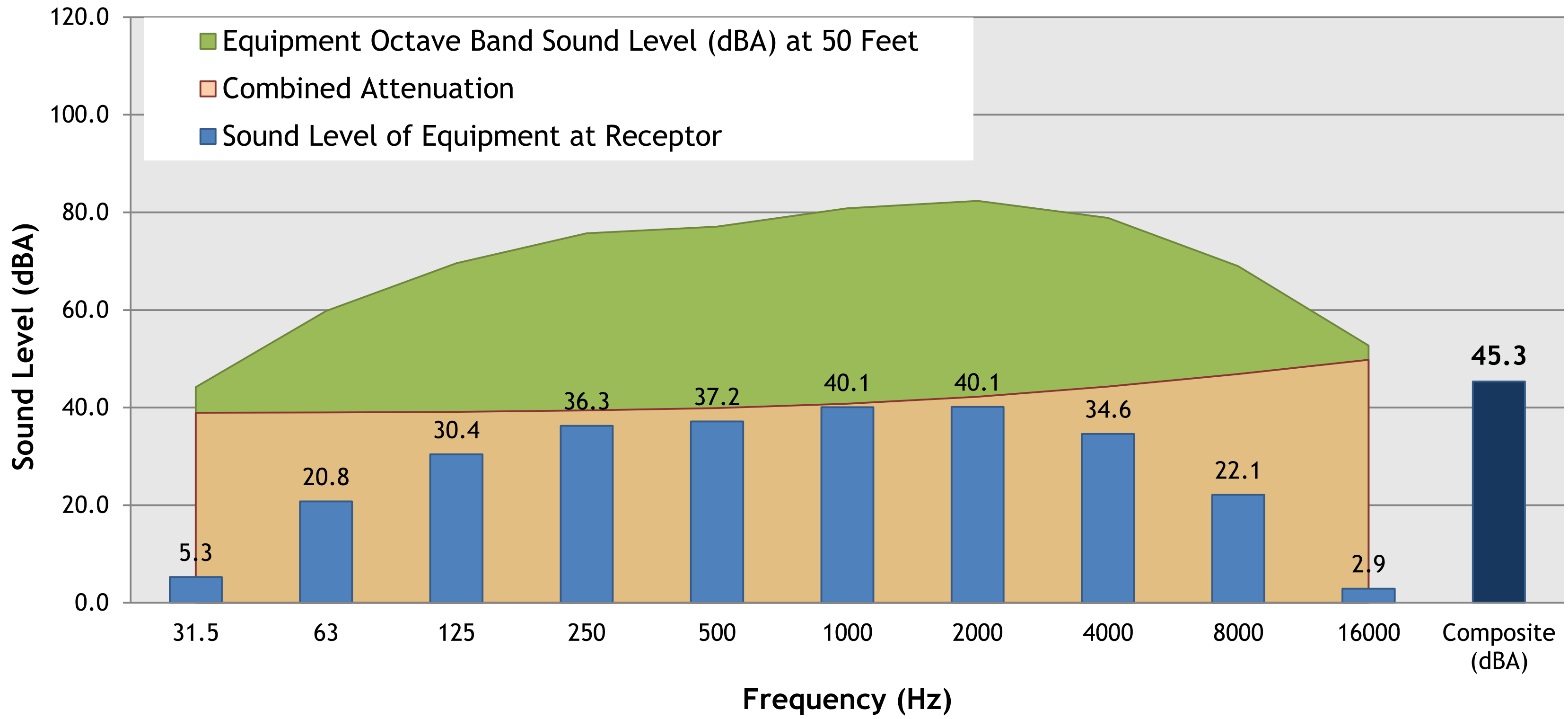
Eagle Harbor
Quarry Modification

Portable Crushing Plant

Scenario: PCP
Receptor: R5

Equipment: Portable Crushing Plant

Sound Level Of Equipment At Receptor



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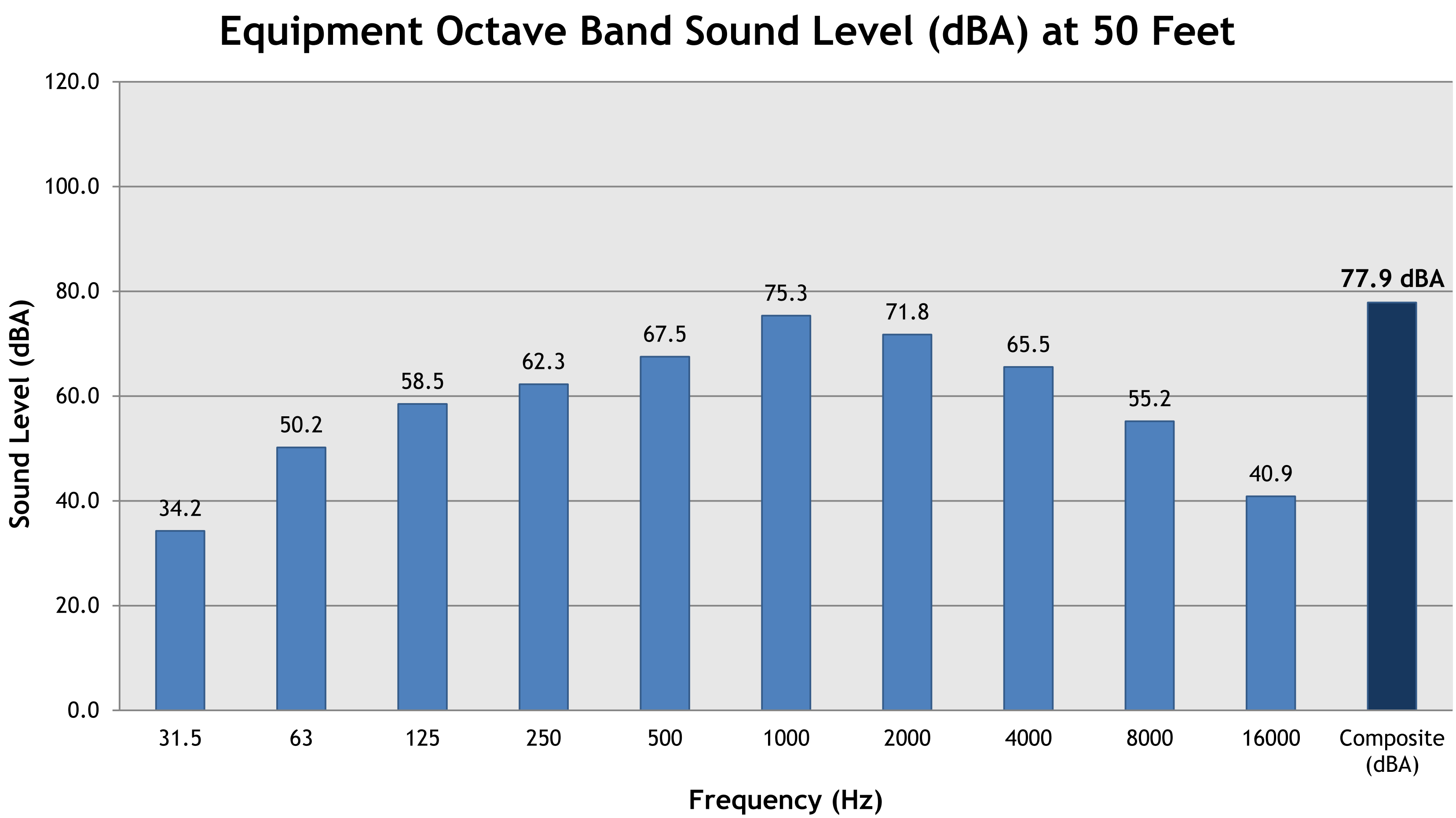
Eagle Harbor
Quarry Modification
Equipment: Loader and Haul Truck

Quarry Excavation

Scenario: QE
Receptor: R1



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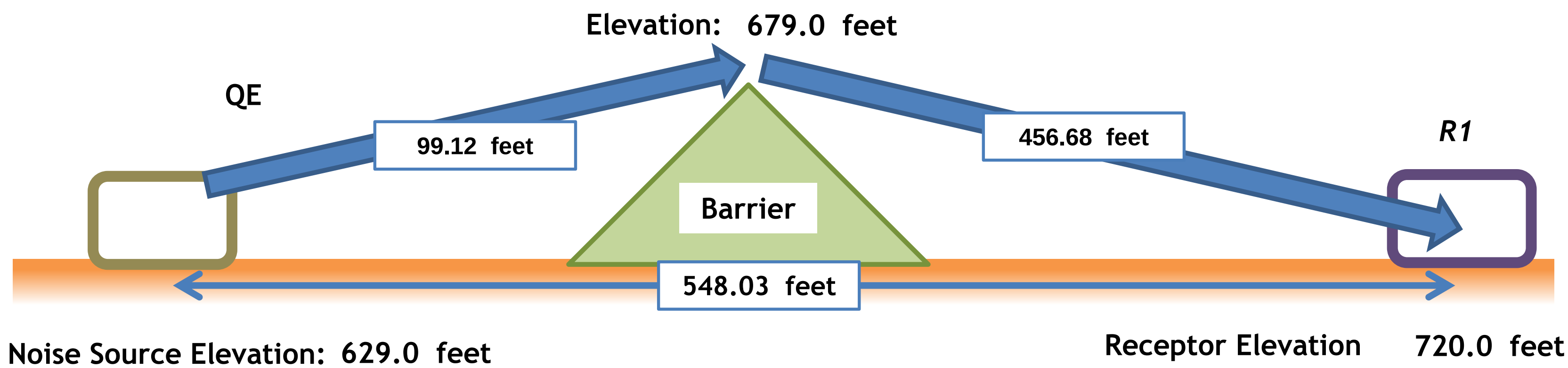
Eagle Harbor
Quarry Modification
Equipment: Loader and Haul Truck

Quarry Excavation

Scenario: QE
Receptor: R1

Distance and Barrier Attenuation Inputs



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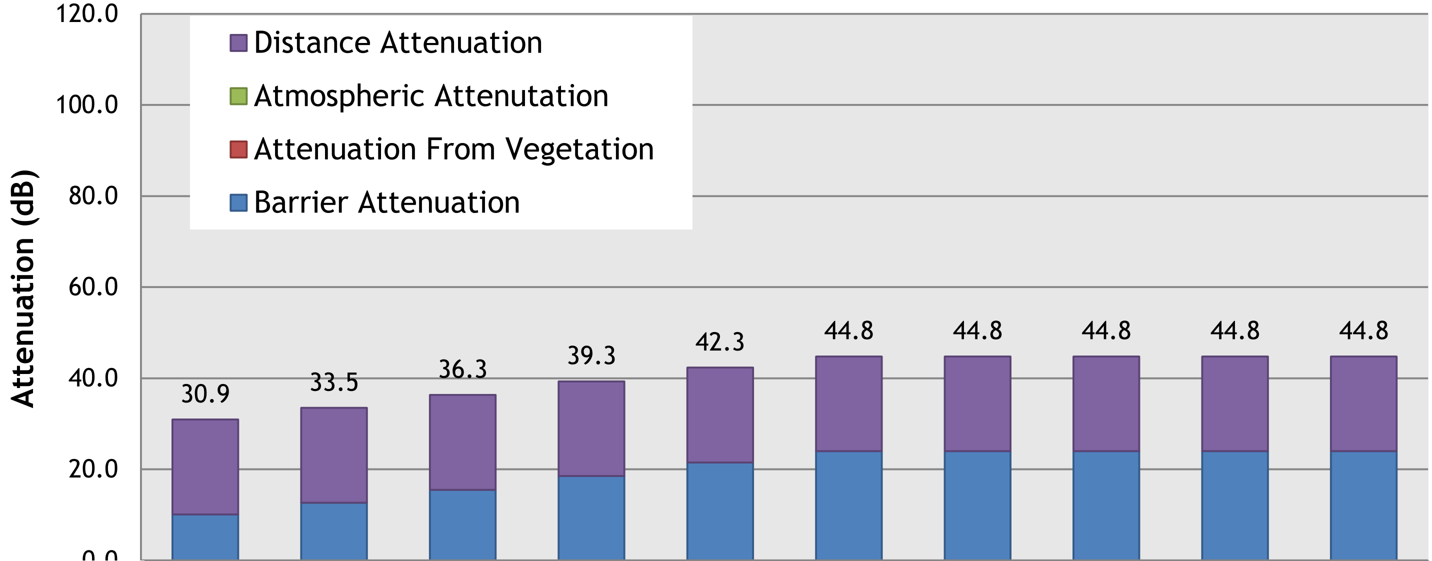
Eagle Harbor
Quarry Modification
Equipment: Loader and Haul Truck

Quarry Excavation

Scenario: QE
Receptor: R1

Attenuation By Source

Wooded Area Thickness:
0 feet



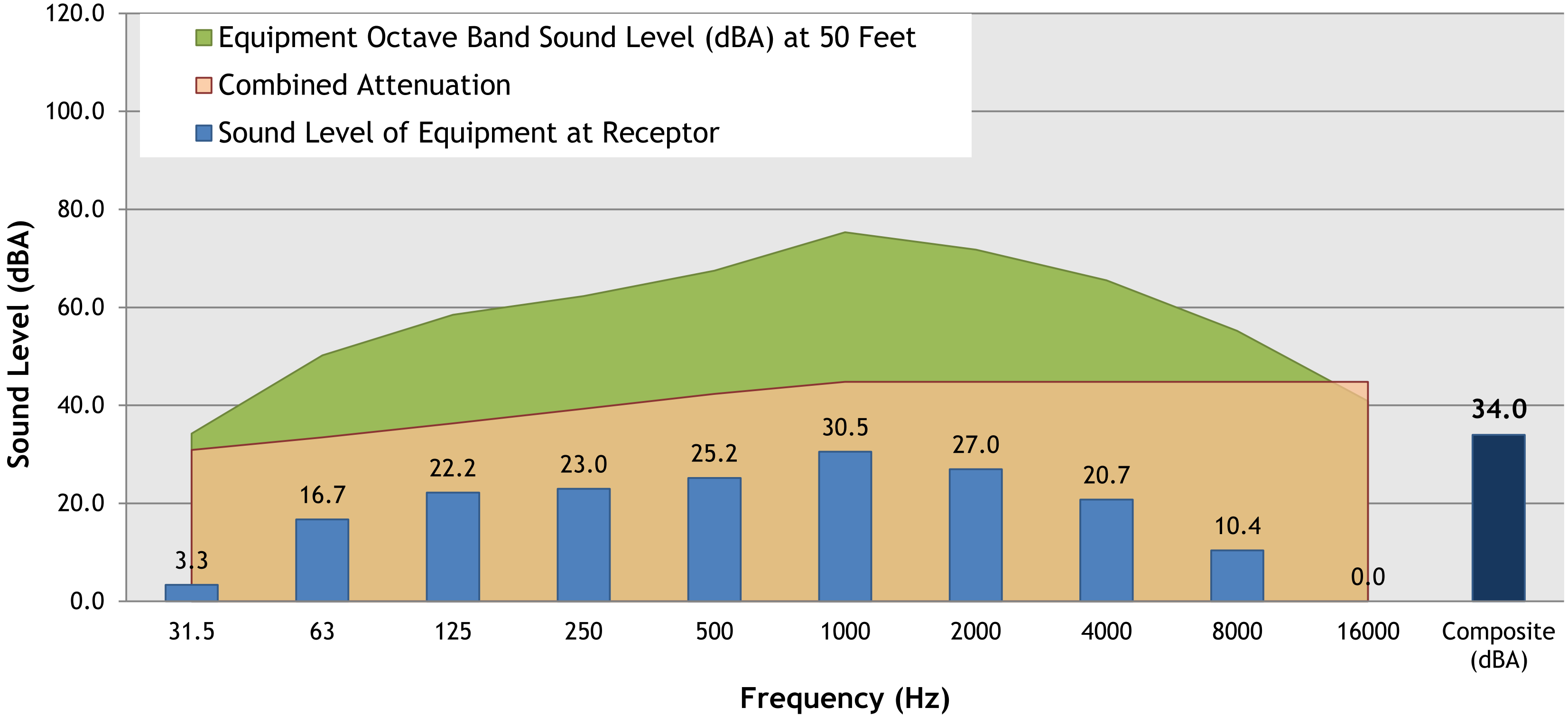
Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	30.9	33.5	36.3	39.3	42.3	44.8	44.8	44.8	44.8	44.8
Distance Attenuation	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	10.11	12.67	15.52	18.51	21.52	24.00	24.00	24.00	24.00	24.00

Eagle Harbor
Quarry Modification
Equipment: Loader and Haul Truck

Quarry Excavation

Scenario: QE
Receptor: R1

Sound Level Of Equipment At Receptor



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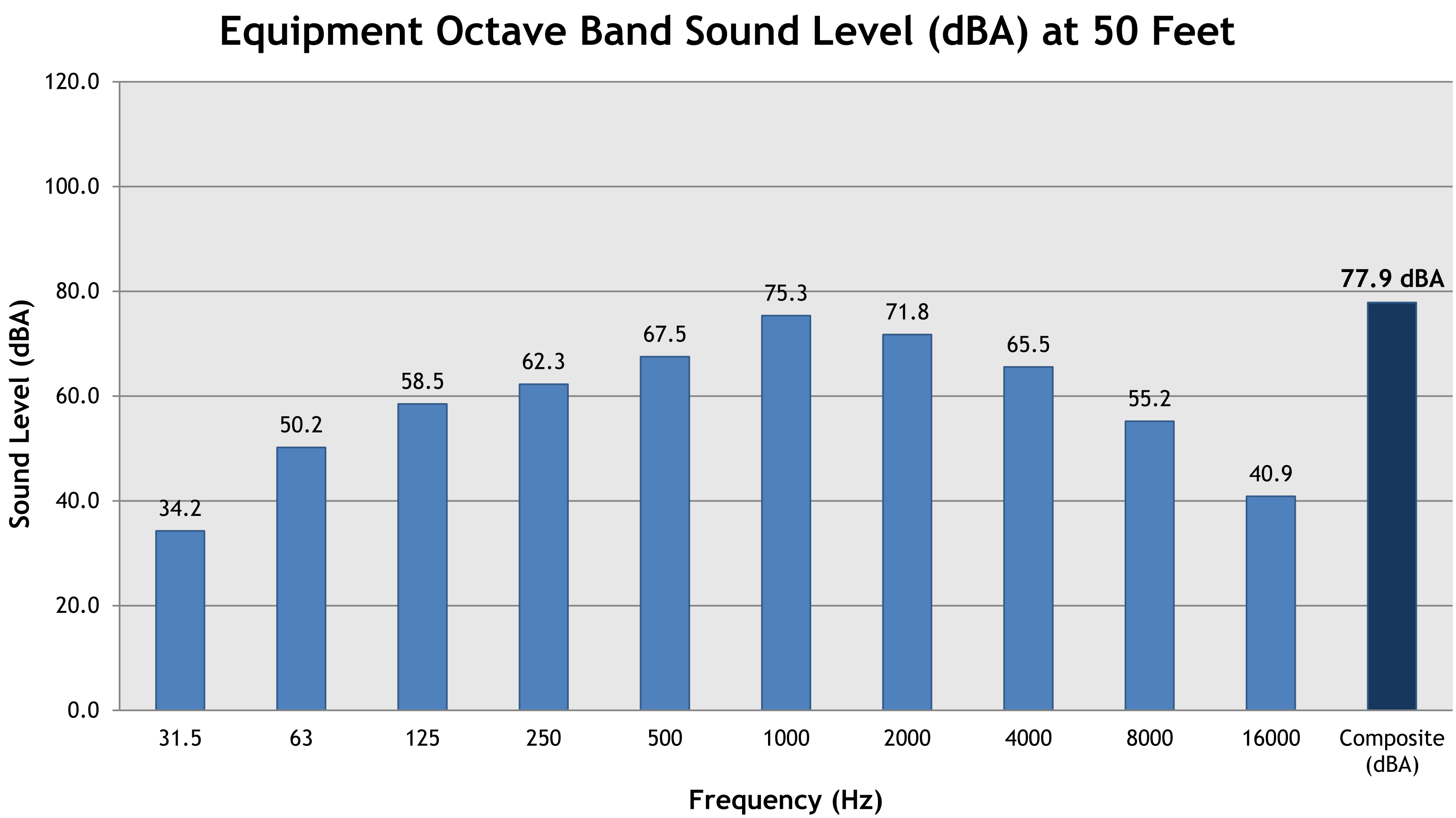
Eagle Harbor
Quarry Modification
Equipment: Loader and Haul Truck

Quarry Excavation

Scenario: QE
Receptor: R2



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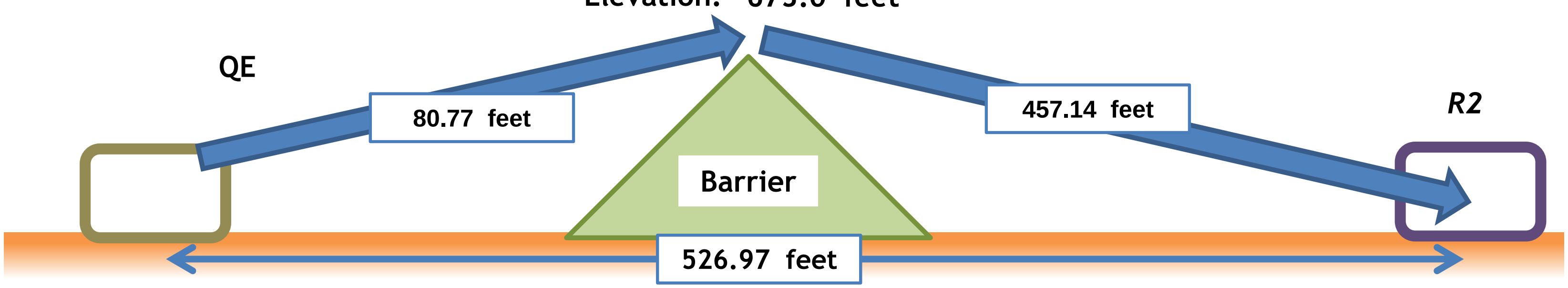
Eagle Harbor
Quarry Modification
Equipment: Loader and Haul Truck

Quarry Excavation

Scenario: QE
Receptor: R2

Distance and Barrier Attenuation Inputs



Noise Source Elevation: 629.0 feet

Receptor Elevation 676.0 feet

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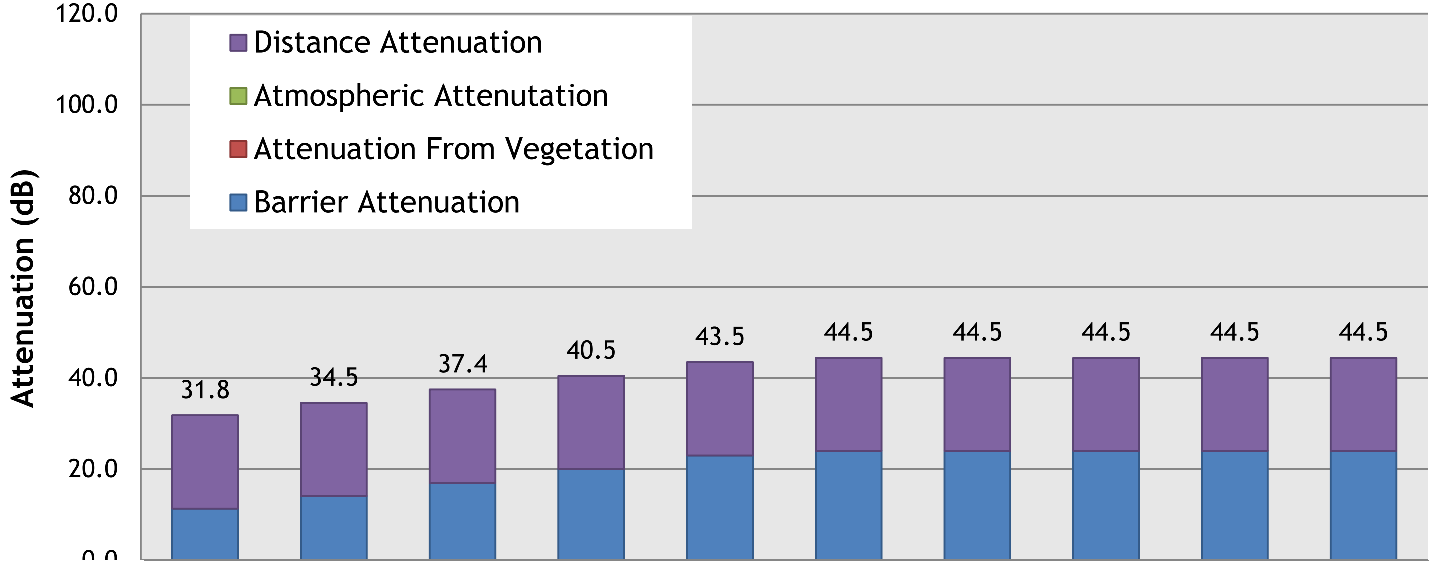
Eagle Harbor
Quarry Modification
Equipment: Loader and Haul Truck

Quarry Excavation

Scenario: QE
Receptor: R2

Attenuation By Source

Wooded Area Thickness:
0 feet



Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	31.8	34.5	37.4	40.5	43.5	44.5	44.5	44.5	44.5	44.5
Distance Attenuation	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	11.32	14.07	16.99	20.00	23.01	24.00	24.00	24.00	24.00	24.00

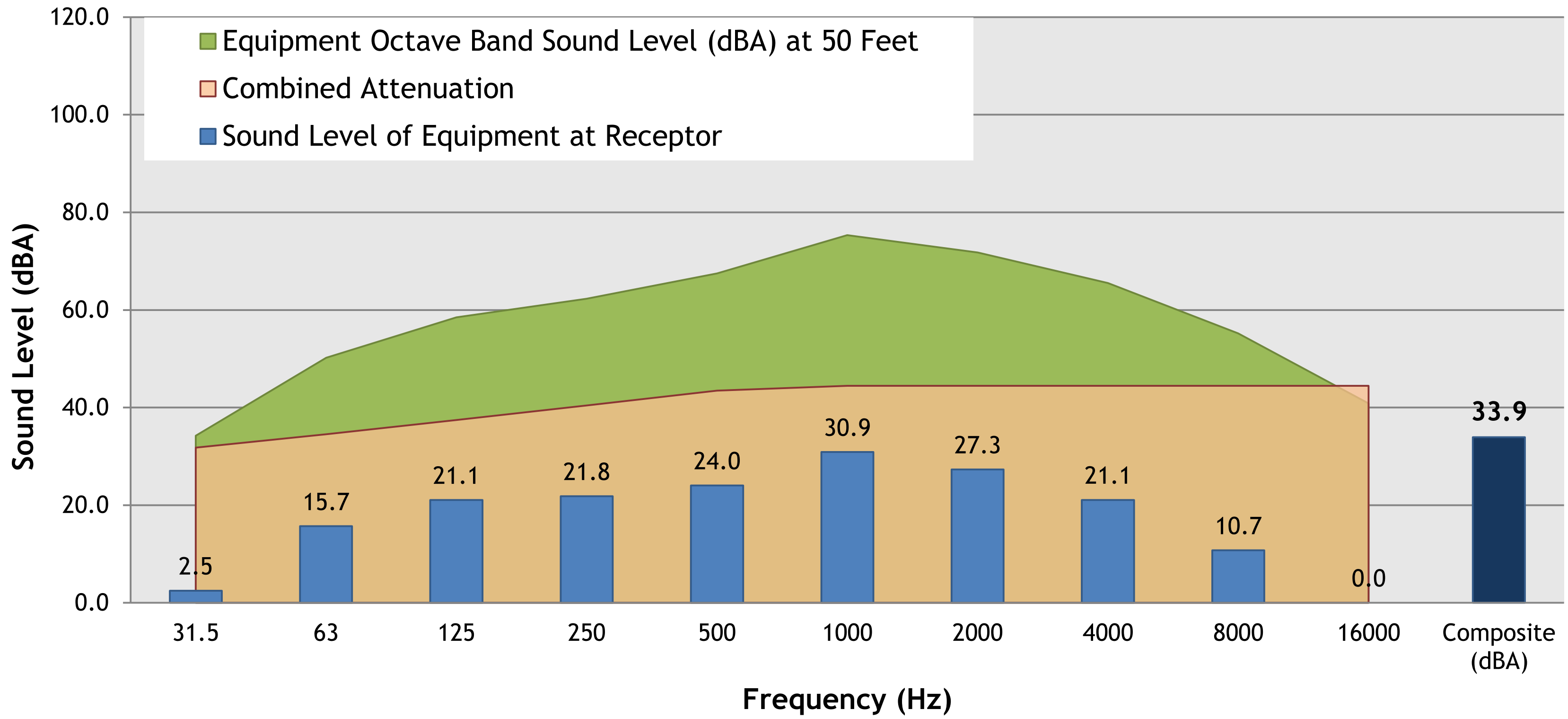
Eagle Harbor
Quarry Modification

Quarry Excavation

Scenario: QE
Receptor: R2

Equipment: Loader and Haul Truck

Sound Level Of Equipment At Receptor



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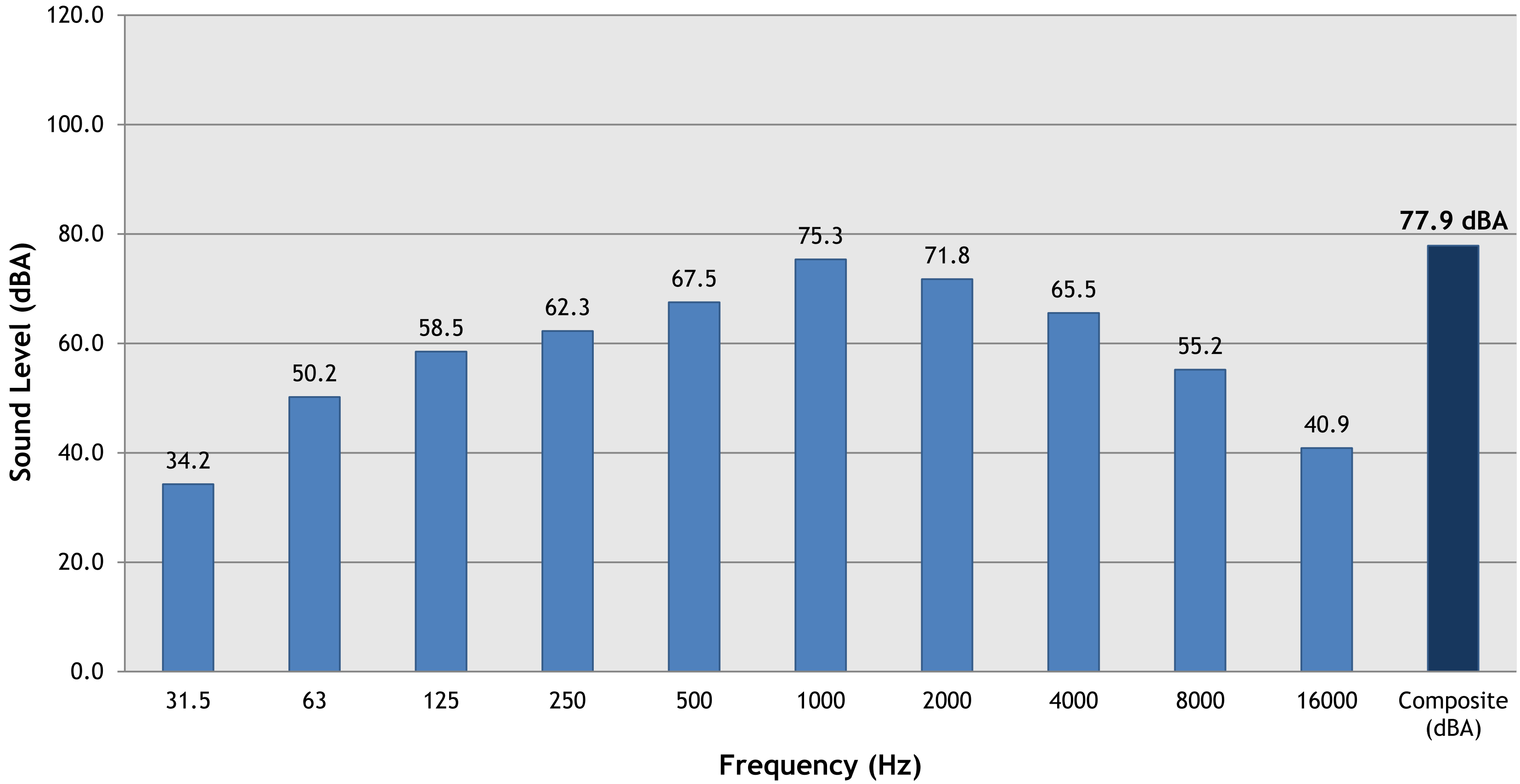
Eagle Harbor
Quarry Modification

Quarry Excavation

Scenario: QE
Receptor: R3

Equipment: Loader and Haul Truck

Equipment Octave Band Sound Level (dBA) at 50 Feet



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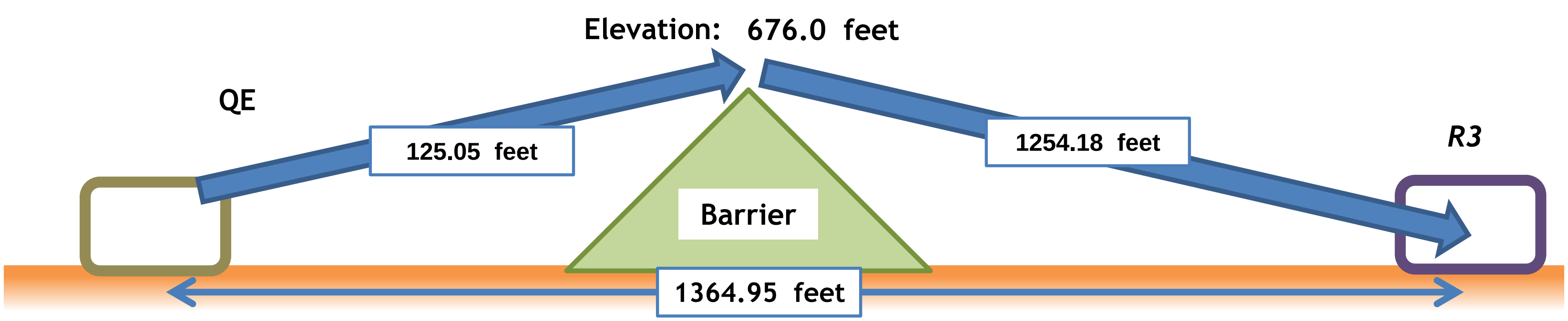
Eagle Harbor
Quarry Modification
Equipment: Loader and Haul Truck

Quarry Excavation

Scenario: QE
Receptor: R3

Distance and Barrier Attenuation Inputs



Noise Source Elevation: 616.0 feet

Receptor Elevation 670.0 feet

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Eagle Harbor
Quarry Modification

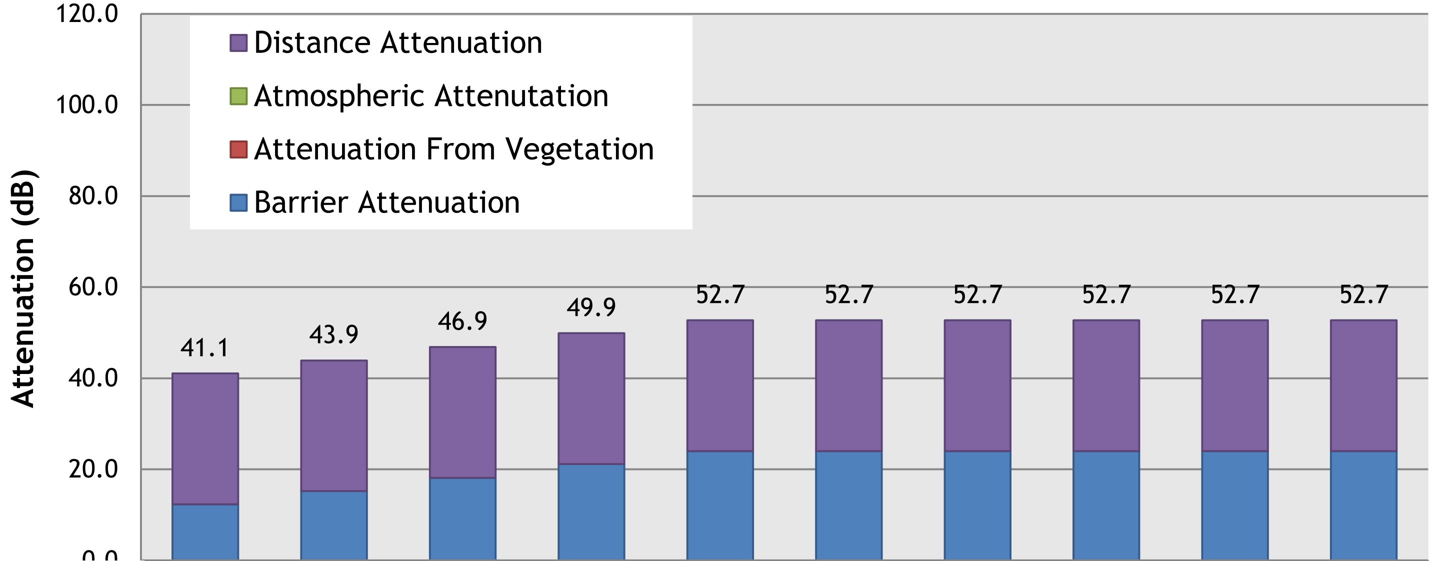
Equipment: Loader and Haul Truck

Quarry Excavation

Scenario: QE
Receptor: R3

Attenuation By Source

Wooded Area Thickness: 0 feet

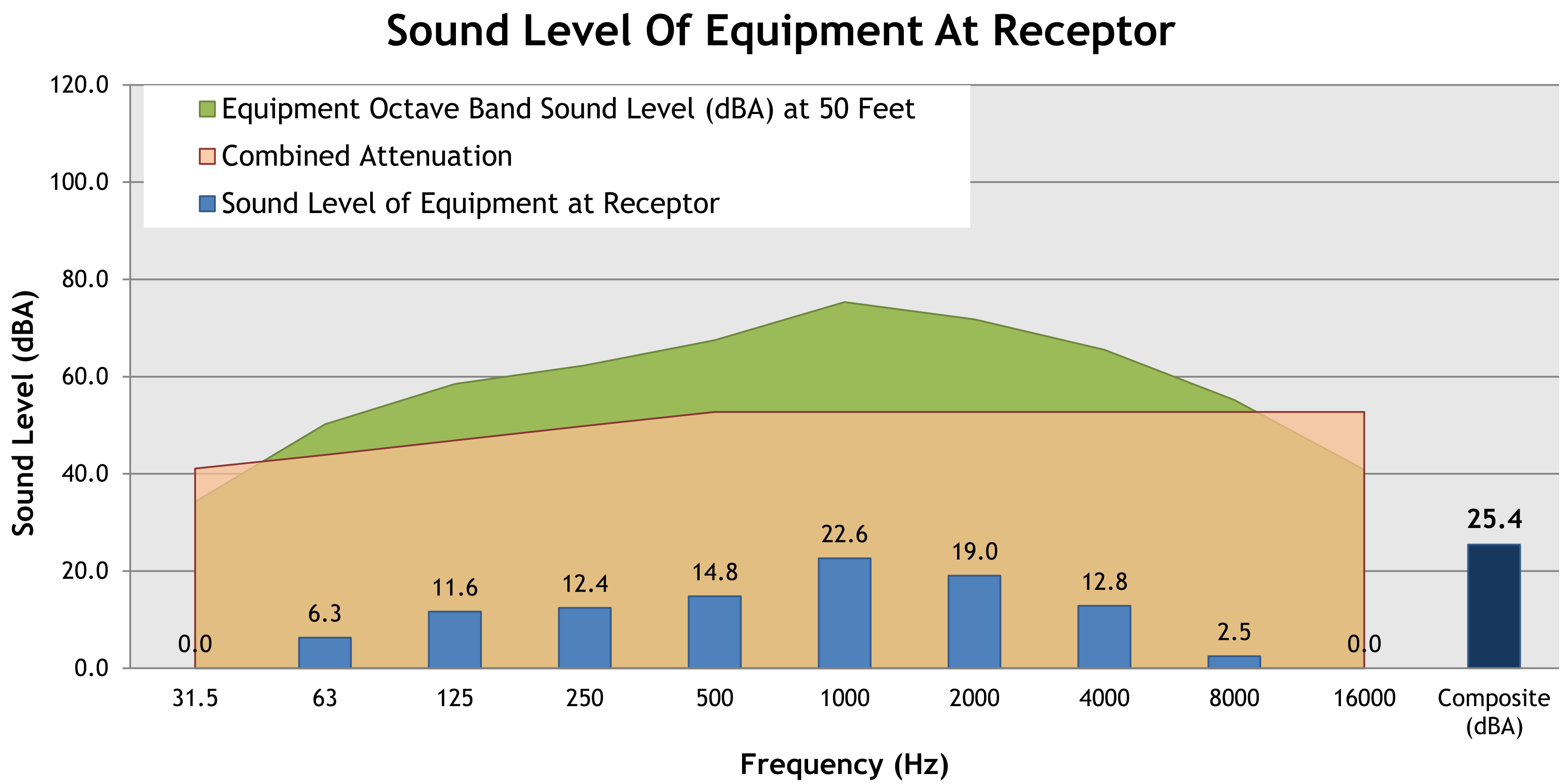


Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	41.1	43.9	46.9	49.9	52.7	52.7	52.7	52.7	52.7	52.7
Distance Attenuation	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	12.34	15.19	18.14	21.15	24.00	24.00	24.00	24.00	24.00	24.00

Eagle Harbor
Quarry Modification
Equipment: Loader and Haul Truck

Quarry Excavation

Scenario: QE
Receptor: R3



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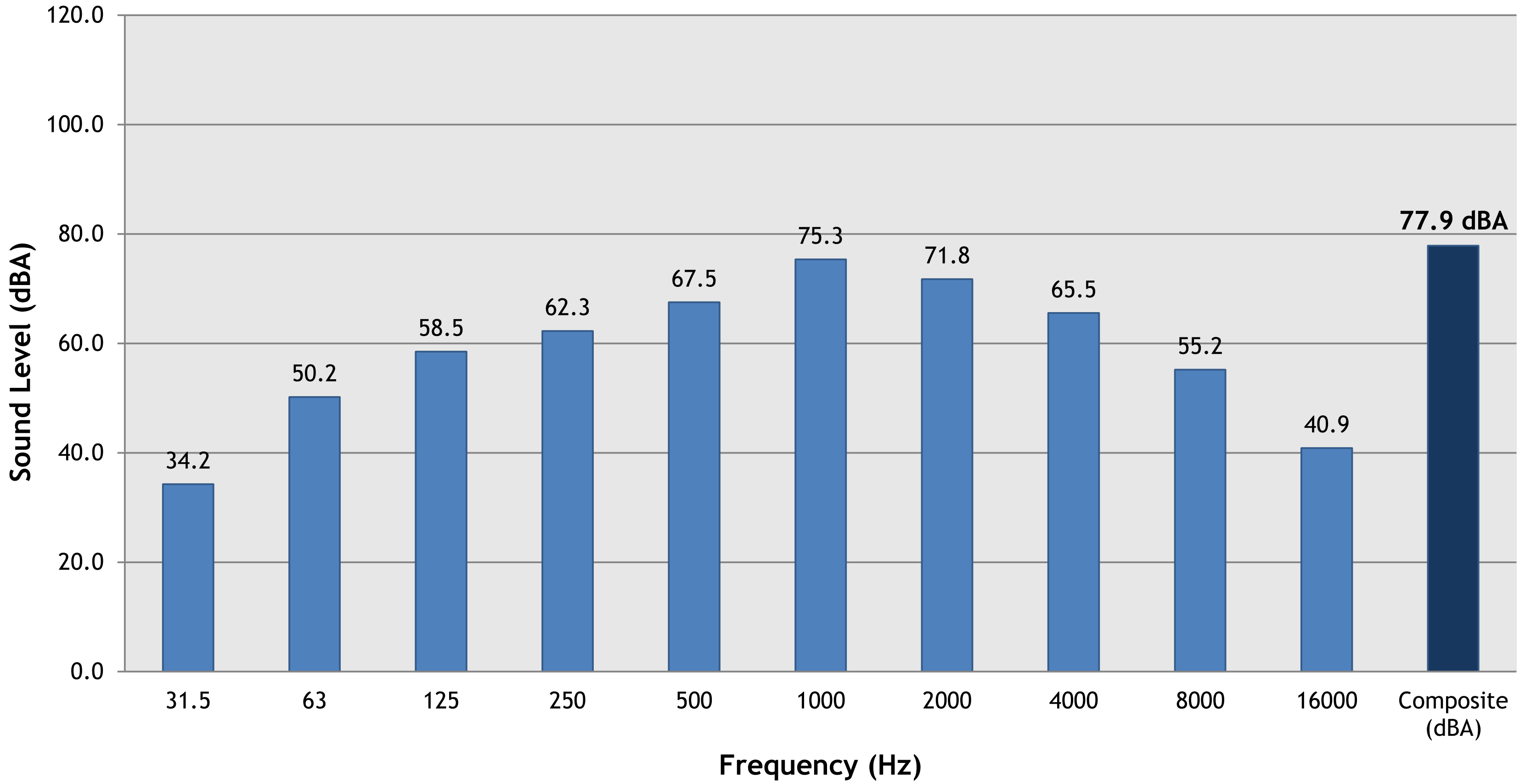
Eagle Harbor
Quarry Modification
Equipment: Loader and Haul Truck

Quarry Excavation

Scenario: QE
Receptor: R4

Equipment Octave Band Sound Level (dBA) at 50 Feet



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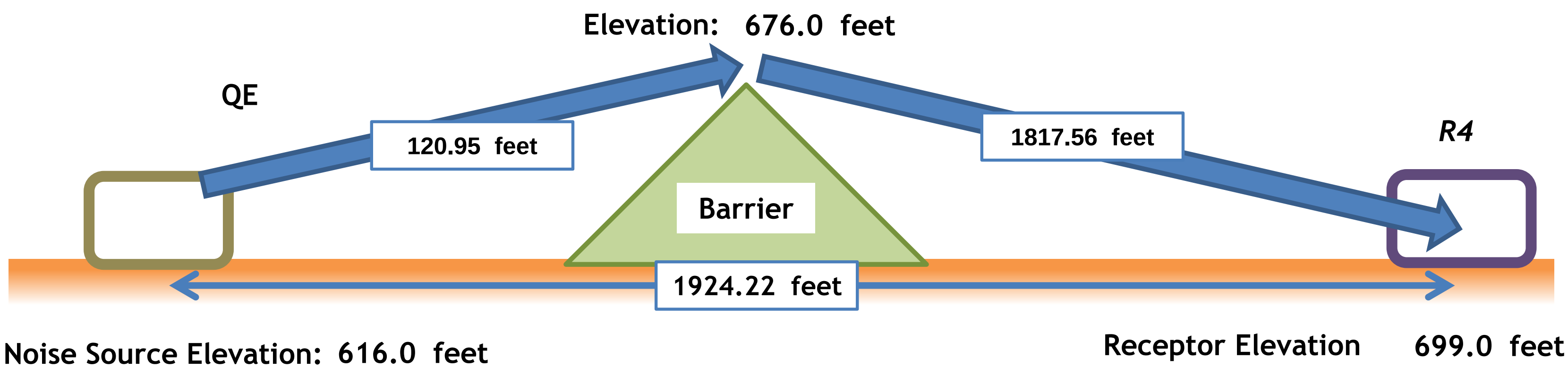
Eagle Harbor
Quarry Modification
Equipment: Loader and Haul Truck

Quarry Excavation

Scenario: QE
Receptor: R4

Distance and Barrier Attenuation Inputs



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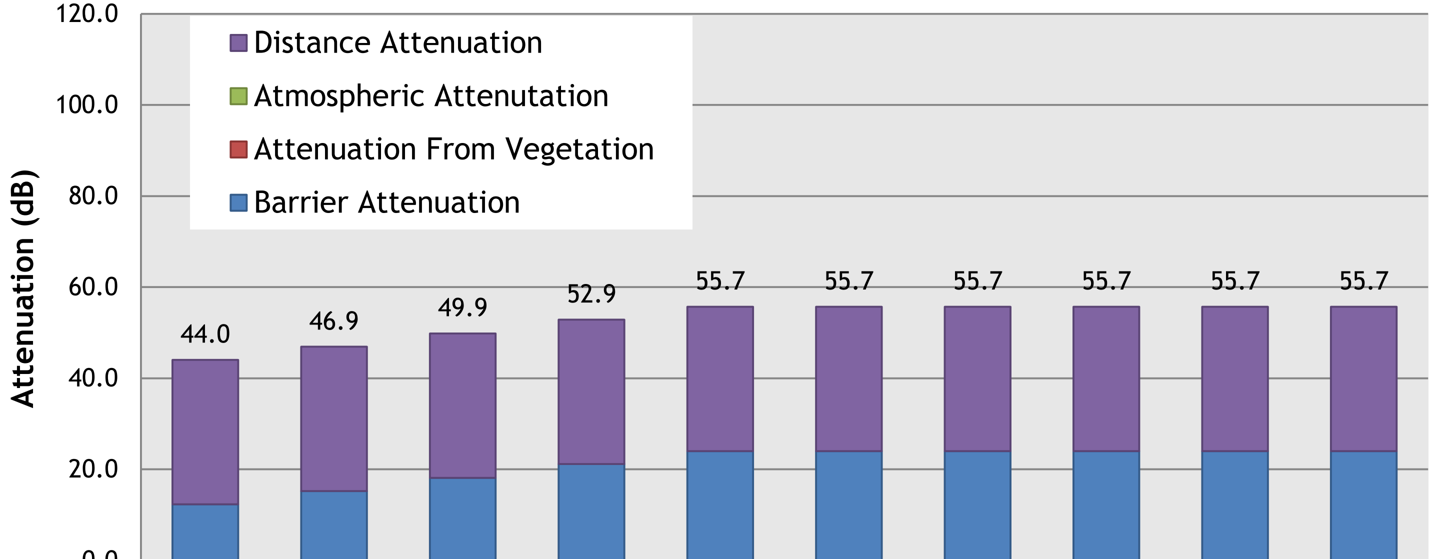
Eagle Harbor
Quarry Modification
Equipment: Loader and Haul Truck

Quarry Excavation

Scenario: QE
Receptor: R4

Attenuation By Source

Wooded Area Thickness:
0 feet



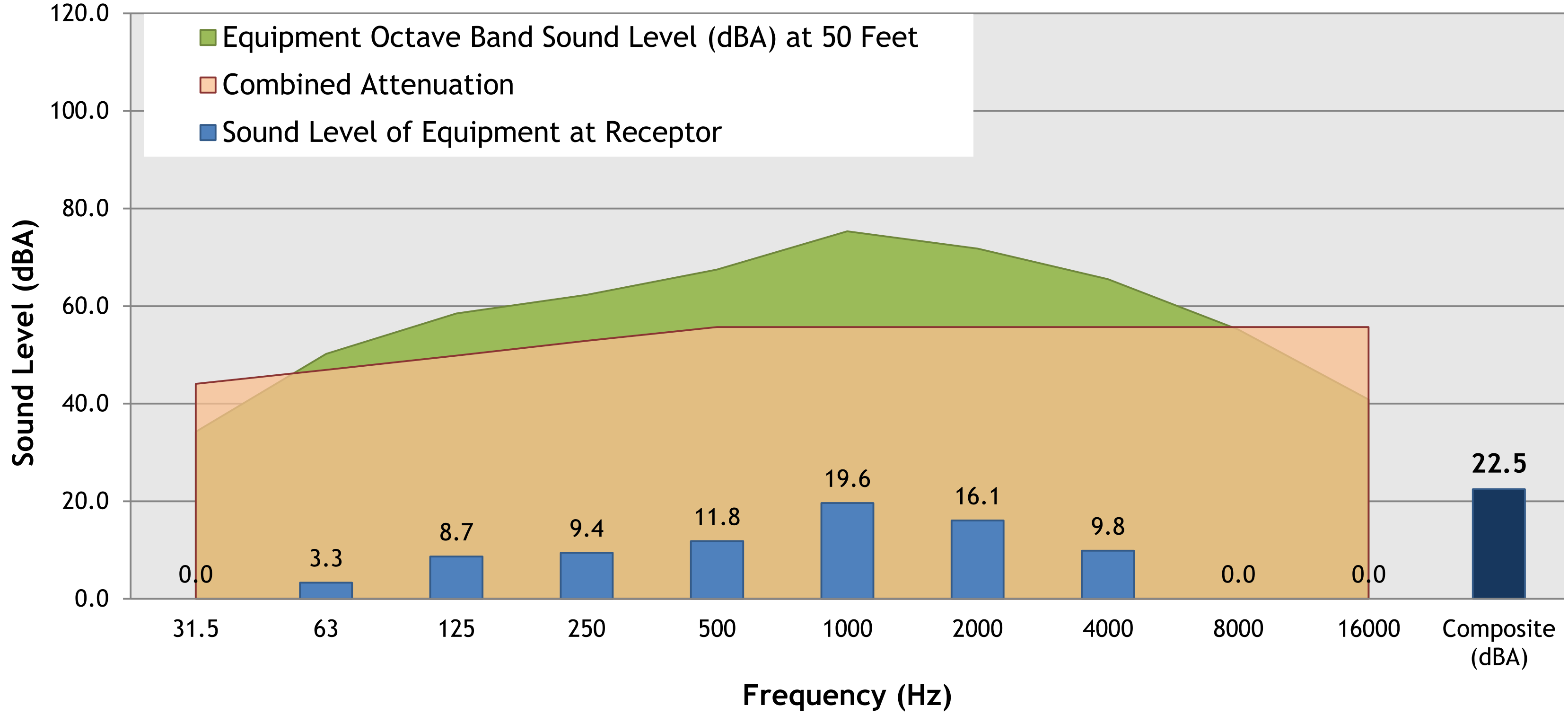
Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	44.0	46.9	49.9	52.9	55.7	55.7	55.7	55.7	55.7	55.7
Distance Attenuation	31.7	31.7	31.7	31.7	31.7	31.7	31.7	31.7	31.7	31.7
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	12.34	15.19	18.14	21.15	24.00	24.00	24.00	24.00	24.00	24.00

Eagle Harbor
Quarry Modification
Equipment: Loader and Haul Truck

Quarry Excavation

Scenario: QE
Receptor: R4

Sound Level Of Equipment At Receptor



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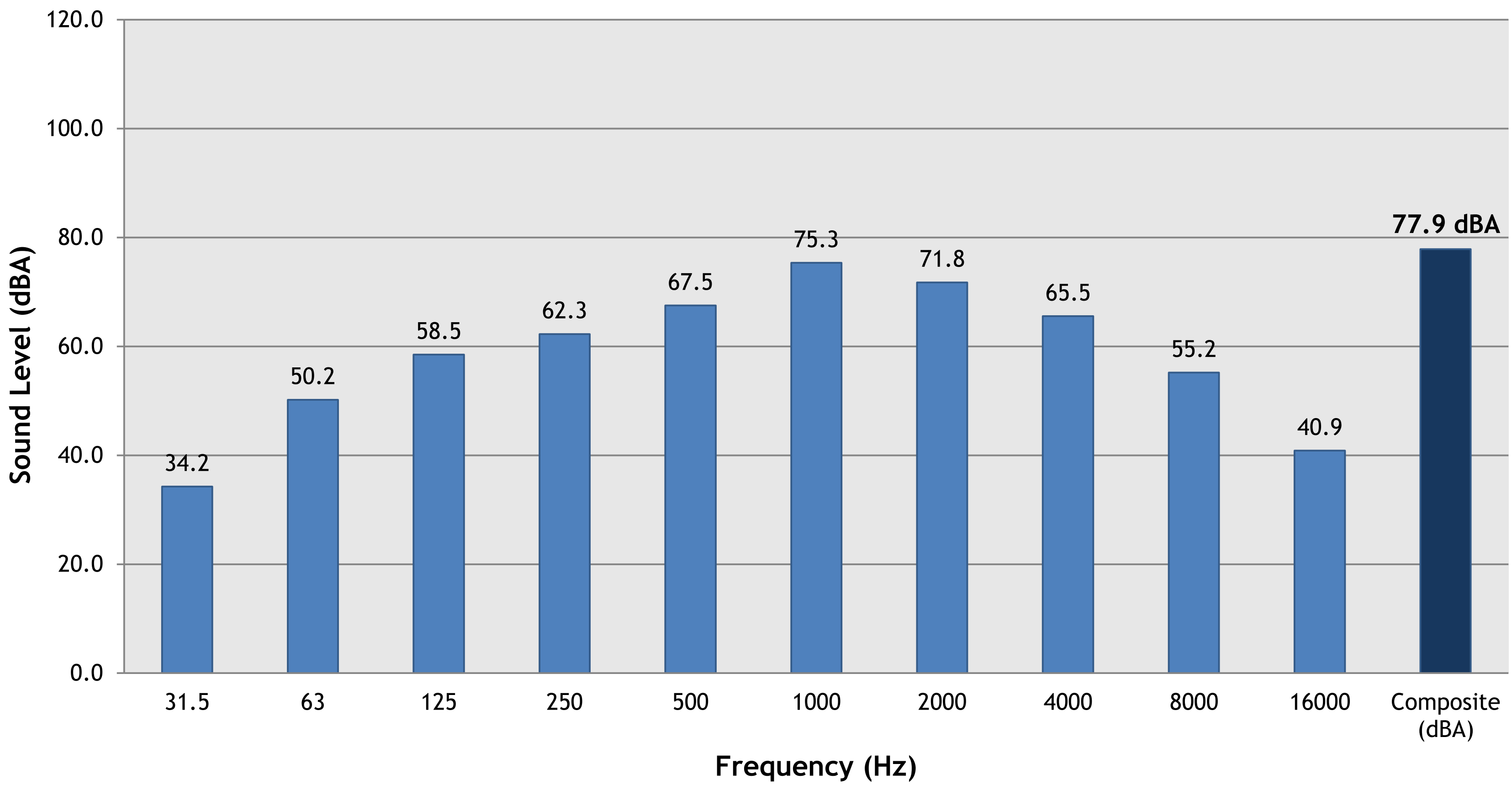
Eagle Harbor
Quarry Modification

Quarry Excavation

Scenario: QE
Receptor: R5

Equipment: Loader and Haul Truck

Equipment Octave Band Sound Level (dBA) at 50 Feet



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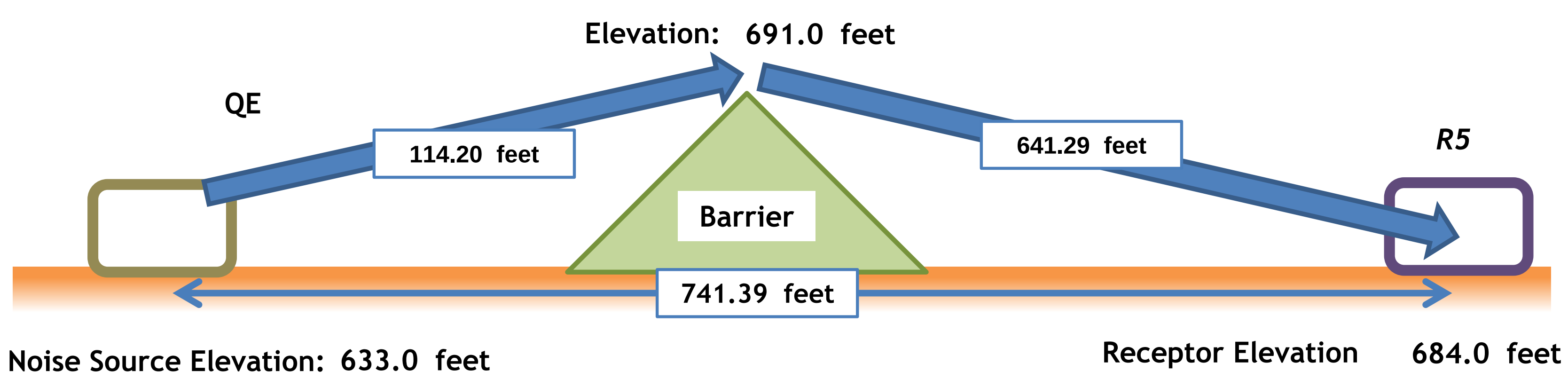
Eagle Harbor
Quarry Modification
Equipment: Loader and Haul Truck

Quarry Excavation

Scenario: QE
Receptor: R5

Distance and Barrier Attenuation Inputs



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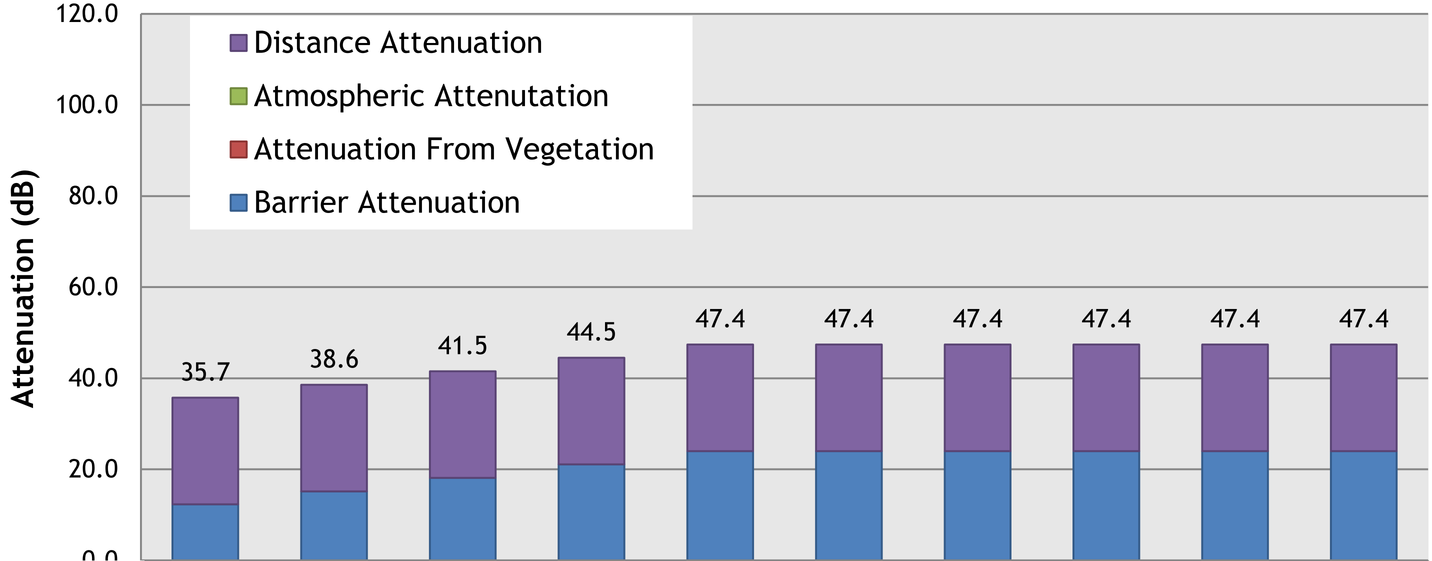
Eagle Harbor
Quarry Modification
Equipment: Loader and Haul Truck

Quarry Excavation

Scenario: QE
Receptor: R5

Attenuation By Source

Wooded Area Thickness:
0 feet



Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	35.7	38.6	41.5	44.5	47.4	47.4	47.4	47.4	47.4	47.4
Distance Attenuation	23.4	23.4	23.4	23.4	23.4	23.4	23.4	23.4	23.4	23.4
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	12.29	15.14	18.09	21.10	24.00	24.00	24.00	24.00	24.00	24.00

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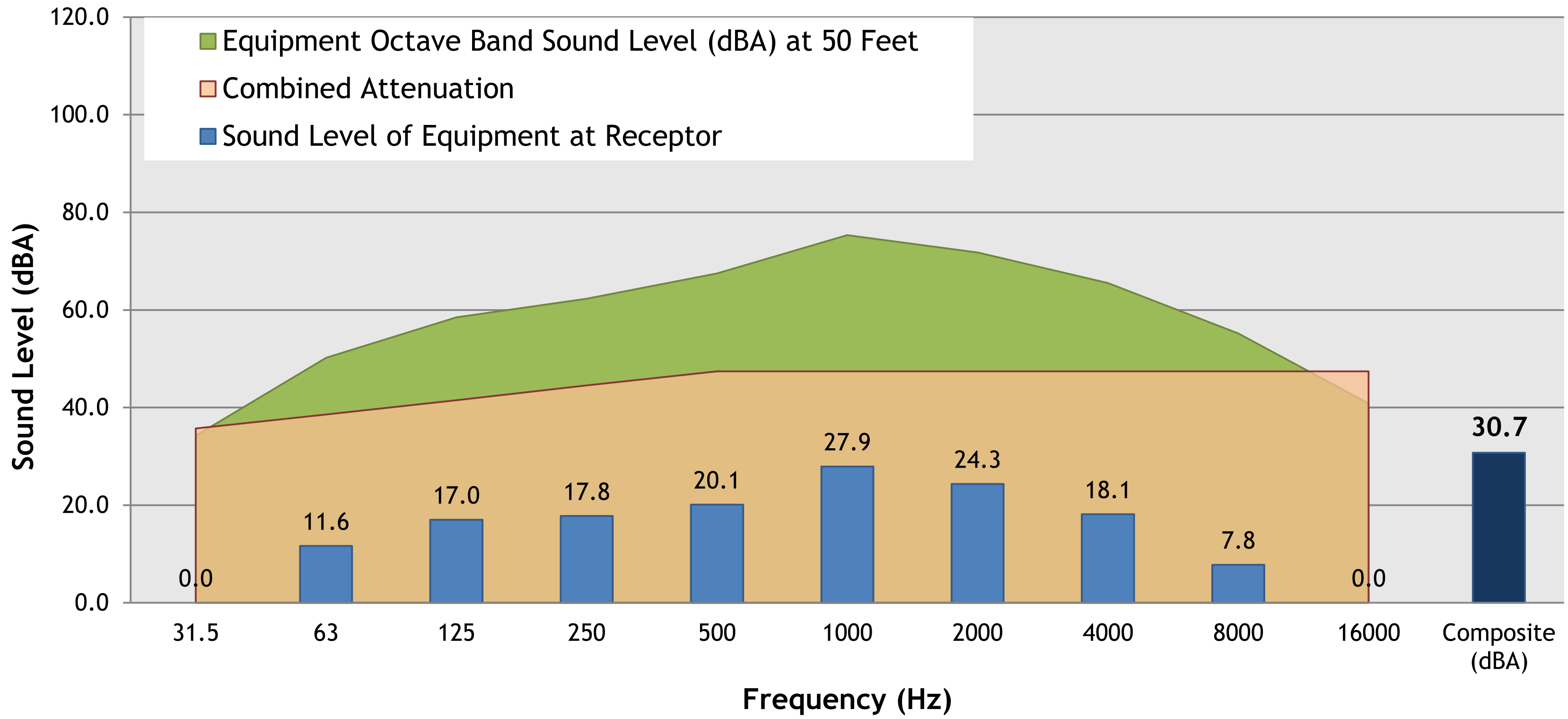
Eagle Harbor
Quarry Modification

Quarry Excavation

Scenario: QE
Receptor: R5

Equipment: Loader and Haul Truck

Sound Level Of Equipment At Receptor



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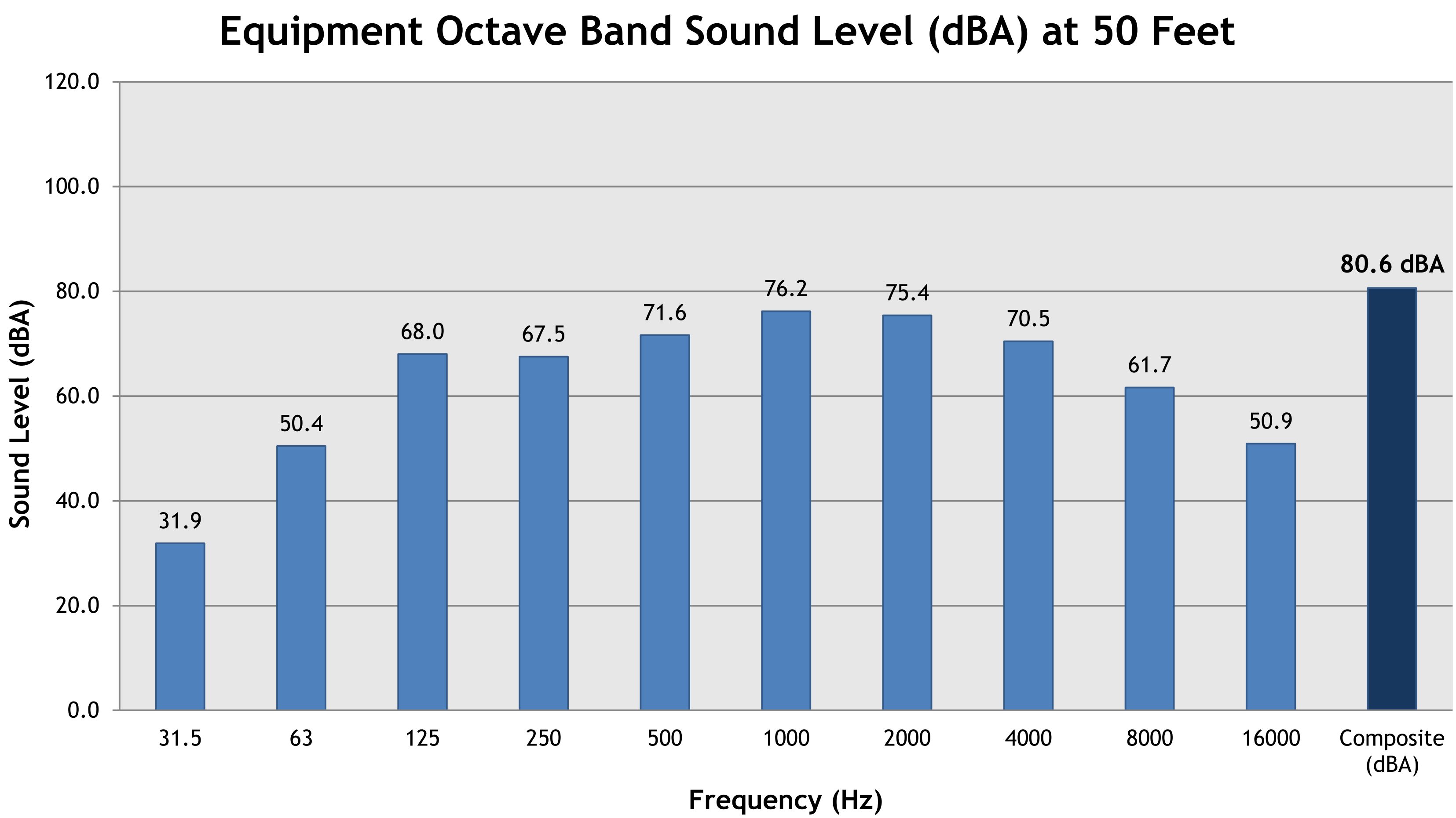
Eagle Harbor
Quarry Modification
Equipment: Rock Drill

Rock Drill Drilling Holes

Scenario: RD
Receptor: R1



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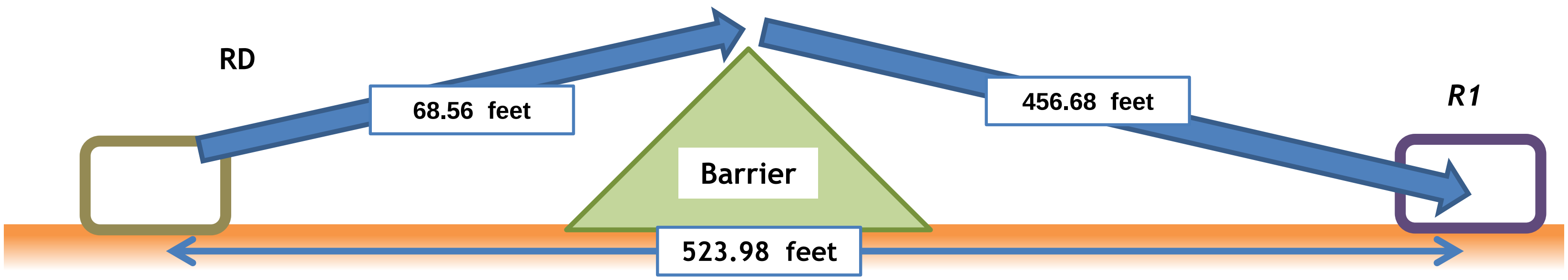
Eagle Harbor
Quarry Modification
Equipment: Rock Drill

Rock Drill Drilling Holes

Scenario: RD
Receptor: R1

Distance and Barrier Attenuation Inputs



Noise Source Elevation: 659.0 feet

Receptor Elevation 720.0 feet

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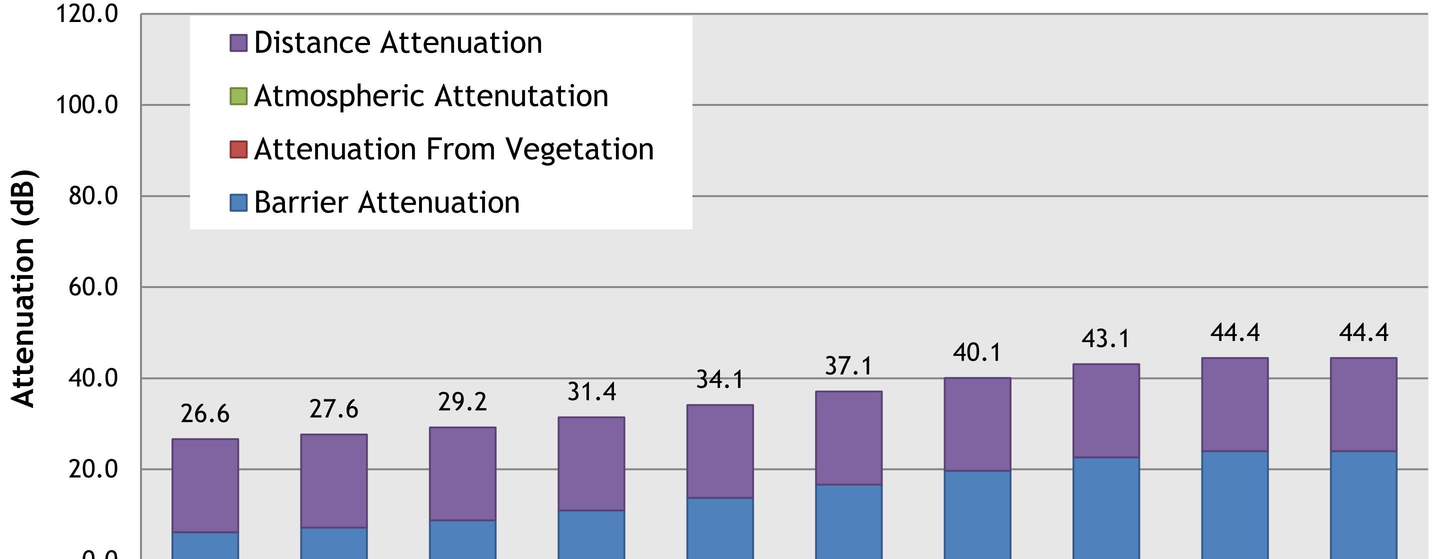
Eagle Harbor
Quarry Modification
Equipment: Rock Drill

Rock Drill Drilling Holes

Scenario: RD
Receptor: R1

Attenuation By Source

Wooded Area Thickness:
0 feet

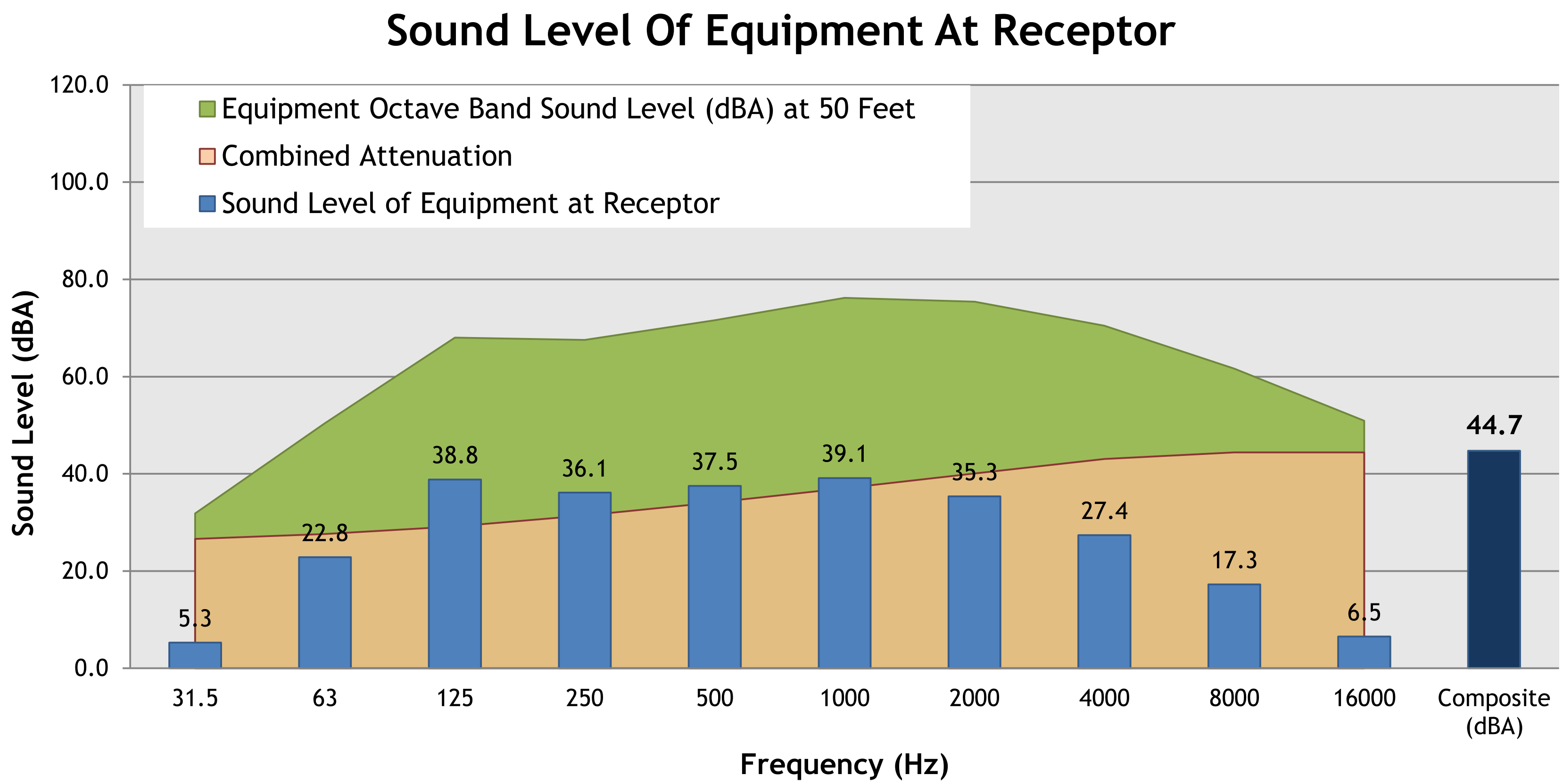


Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	26.6	27.6	29.2	31.4	34.1	37.1	40.1	43.1	44.4	44.4
Distance Attenuation	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	6.20	7.21	8.78	11.00	13.71	16.65	19.65	22.66	24.00	24.00

Eagle Harbor
Quarry Modification
Equipment: Rock Drill

Rock Drill Drilling Holes

Scenario: RD
Receptor: R1



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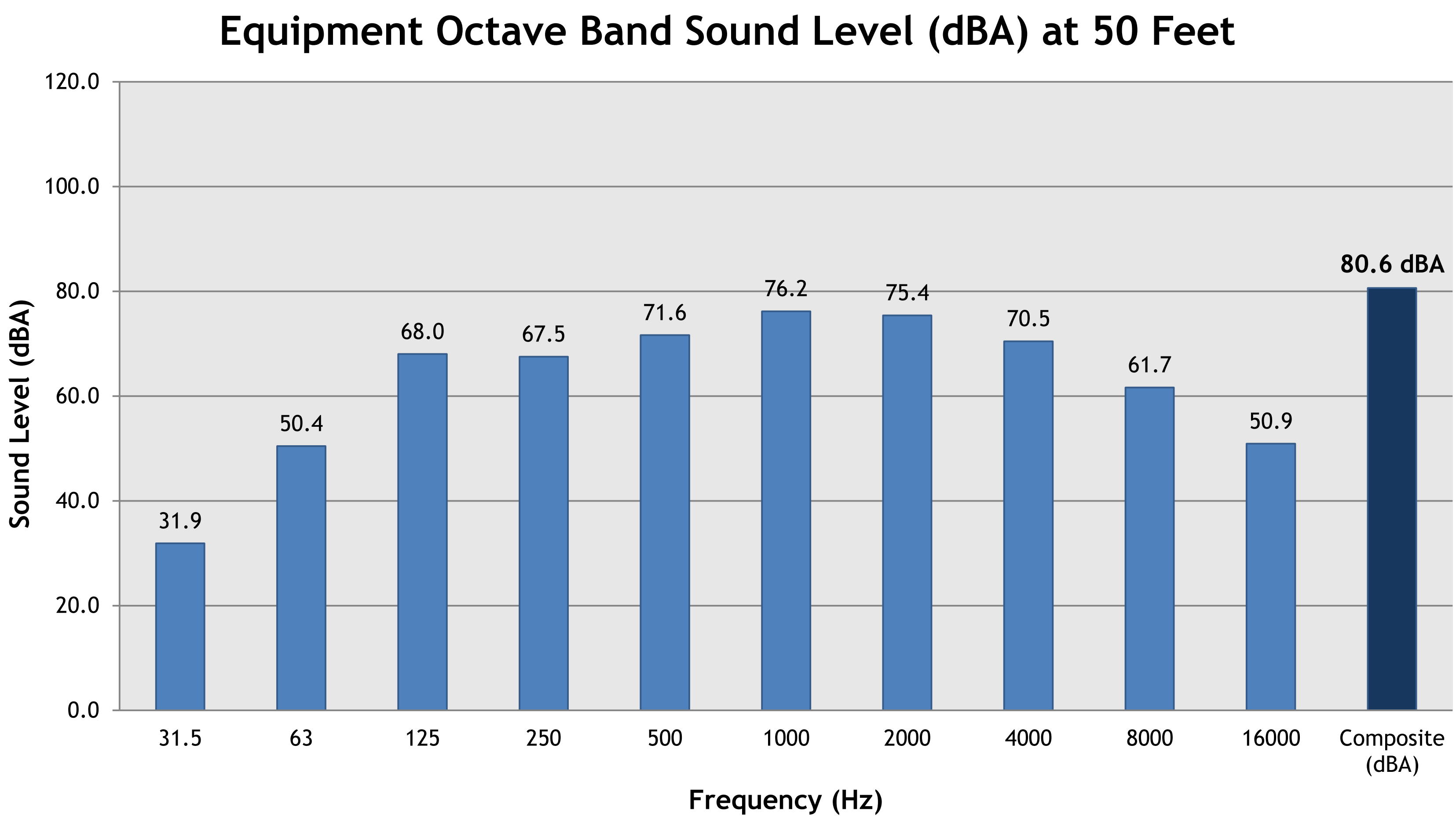
Eagle Harbor
Quarry Modification
Equipment: Rock Drill

Rock Drill Drilling Holes

Scenario: RD
Receptor: R2



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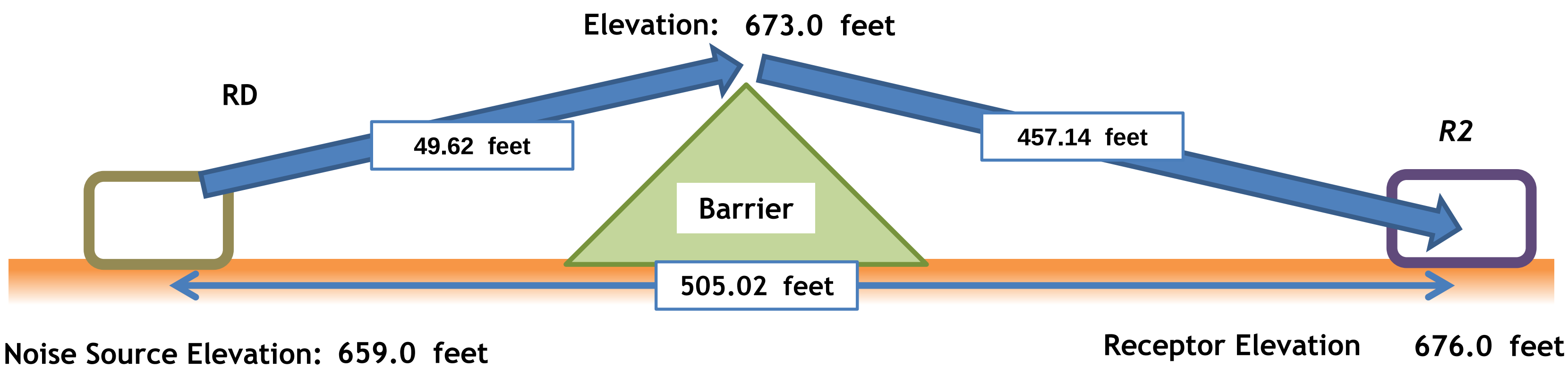
Eagle Harbor
Quarry Modification
Equipment: Rock Drill

Rock Drill Drilling Holes

Scenario: RD
Receptor: R2

Distance and Barrier Attenuation Inputs



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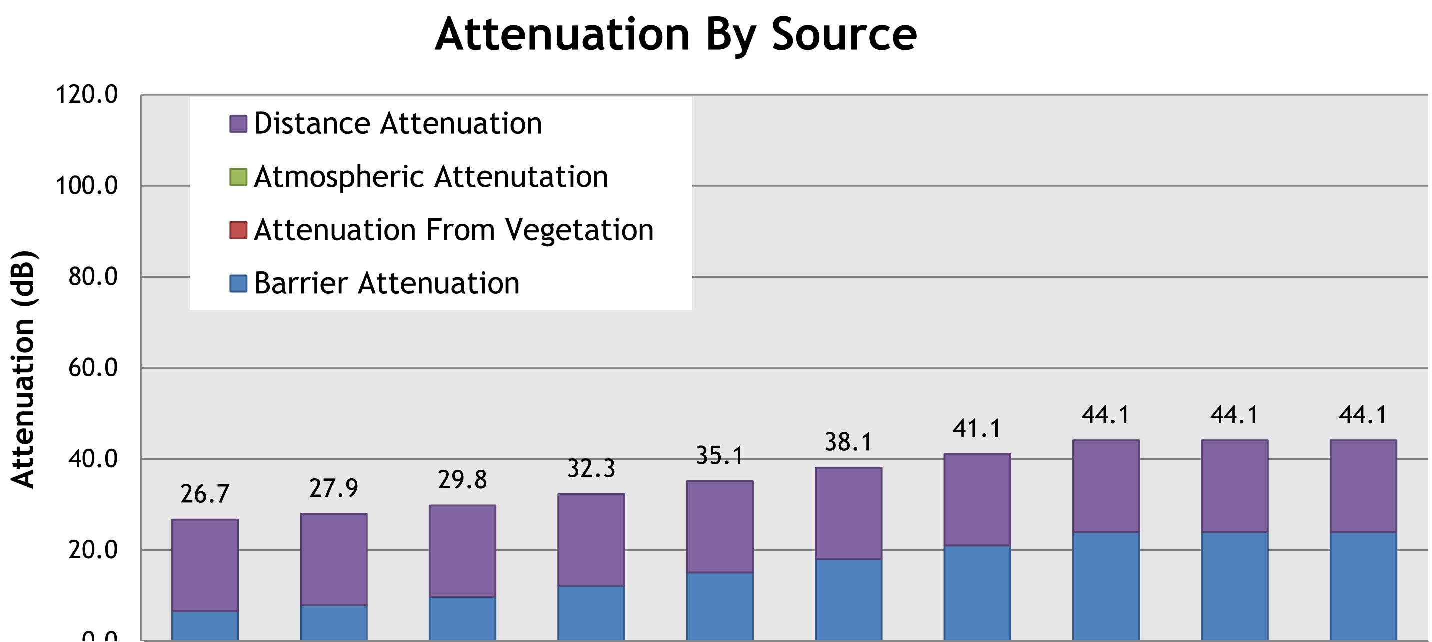
Eagle Harbor
Quarry Modification
Equipment: Rock Drill

Rock Drill Drilling Holes

Scenario: RD
Receptor: R2

Wooded Area Thickness: 0 feet



Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	26.7	27.9	29.8	32.3	35.1	38.1	41.1	44.1	44.1	44.1
Distance Attenuation	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	6.60	7.86	9.73	12.21	15.05	18.03	21.04	24.00	24.00	24.00

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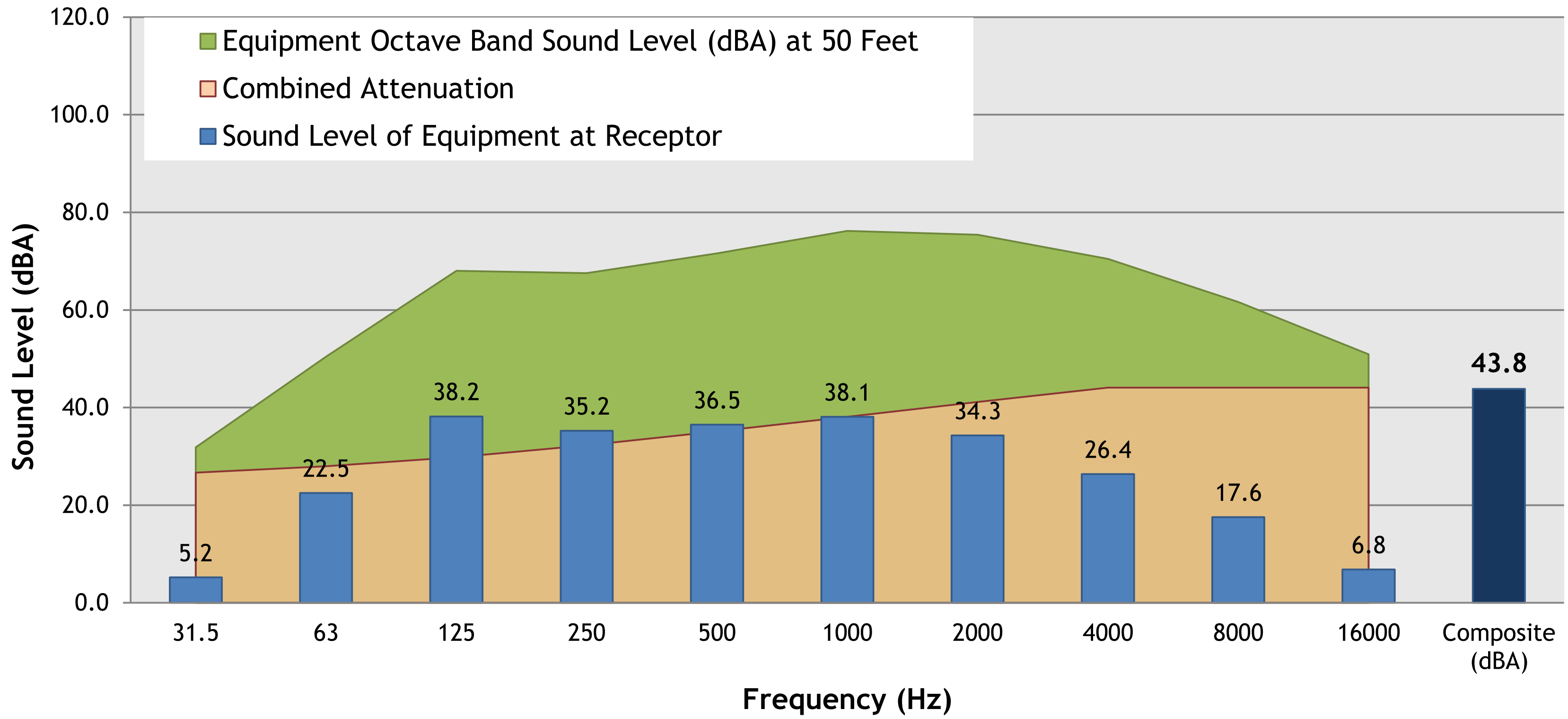
Eagle Harbor
Quarry Modification
Equipment: Rock Drill

Rock Drill Drilling Holes

Scenario: RD
Receptor: R2

Sound Level Of Equipment At Receptor



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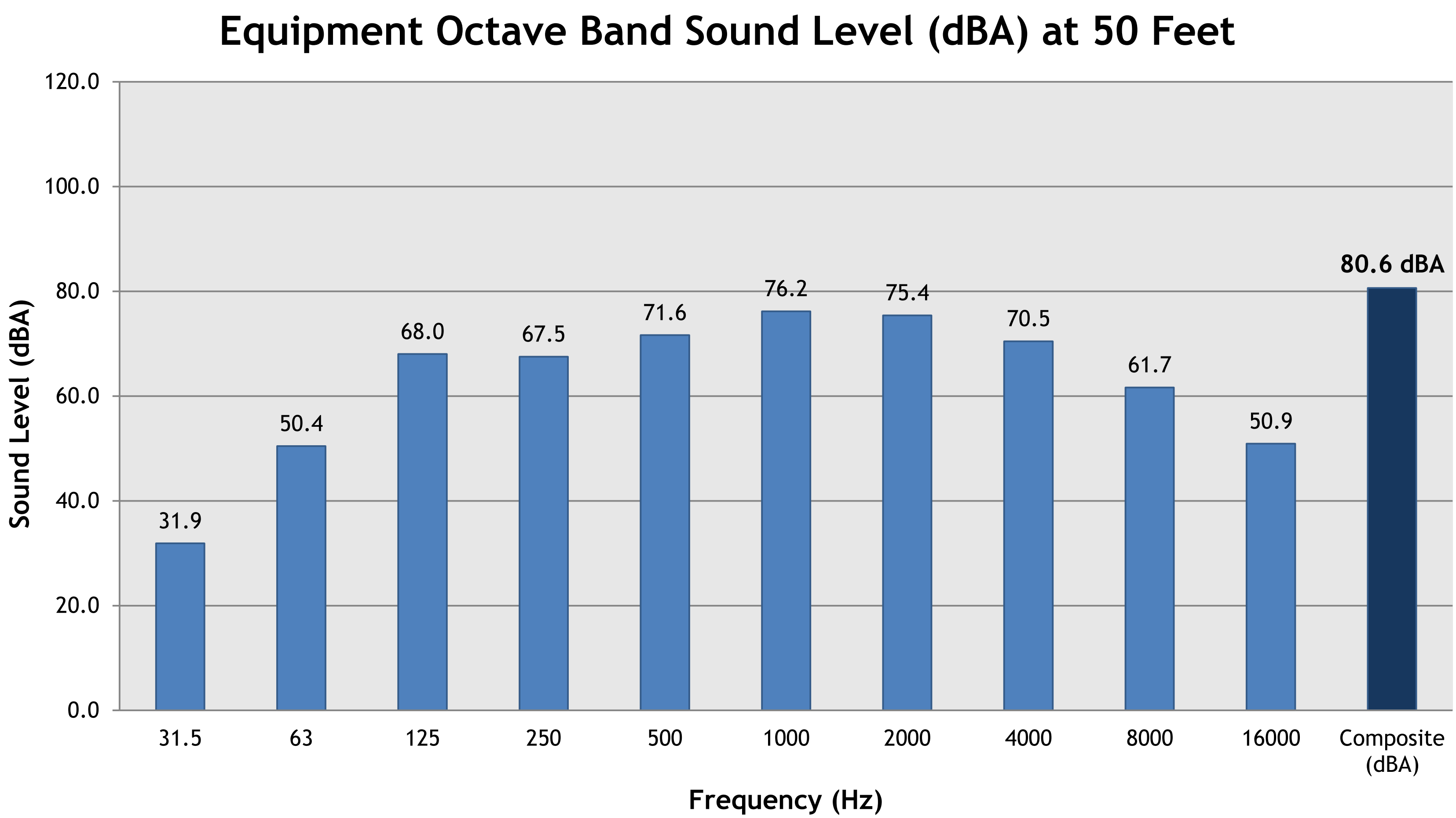
Eagle Harbor
Quarry Modification
Equipment: Rock Drill

Rock Drill Drilling Holes

Scenario: RD
Receptor: R3



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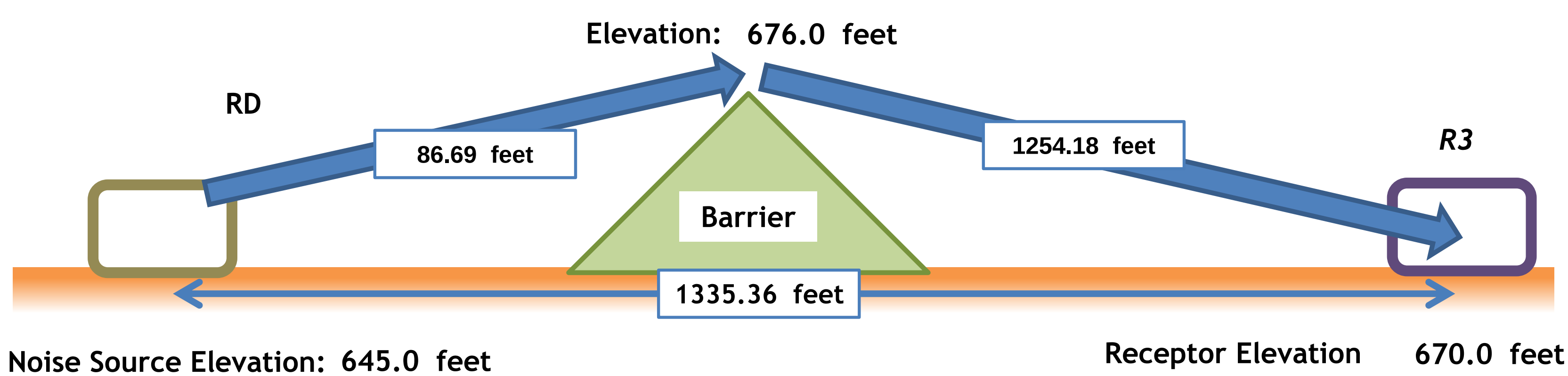
Eagle Harbor
Quarry Modification
Equipment: Rock Drill

Rock Drill Drilling Holes

Scenario: RD
Receptor: R3

Distance and Barrier Attenuation Inputs



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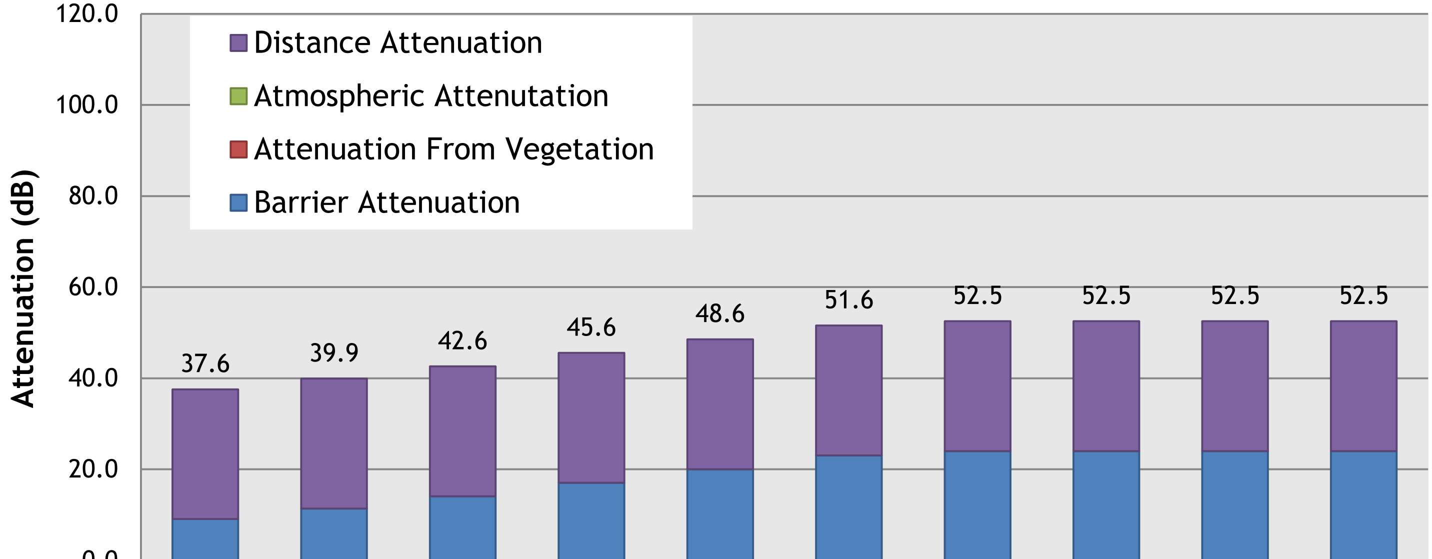
Eagle Harbor
Quarry Modification
Equipment: Rock Drill

Rock Drill Drilling Holes

Scenario: RD
Receptor: R3

Attenuation By Source



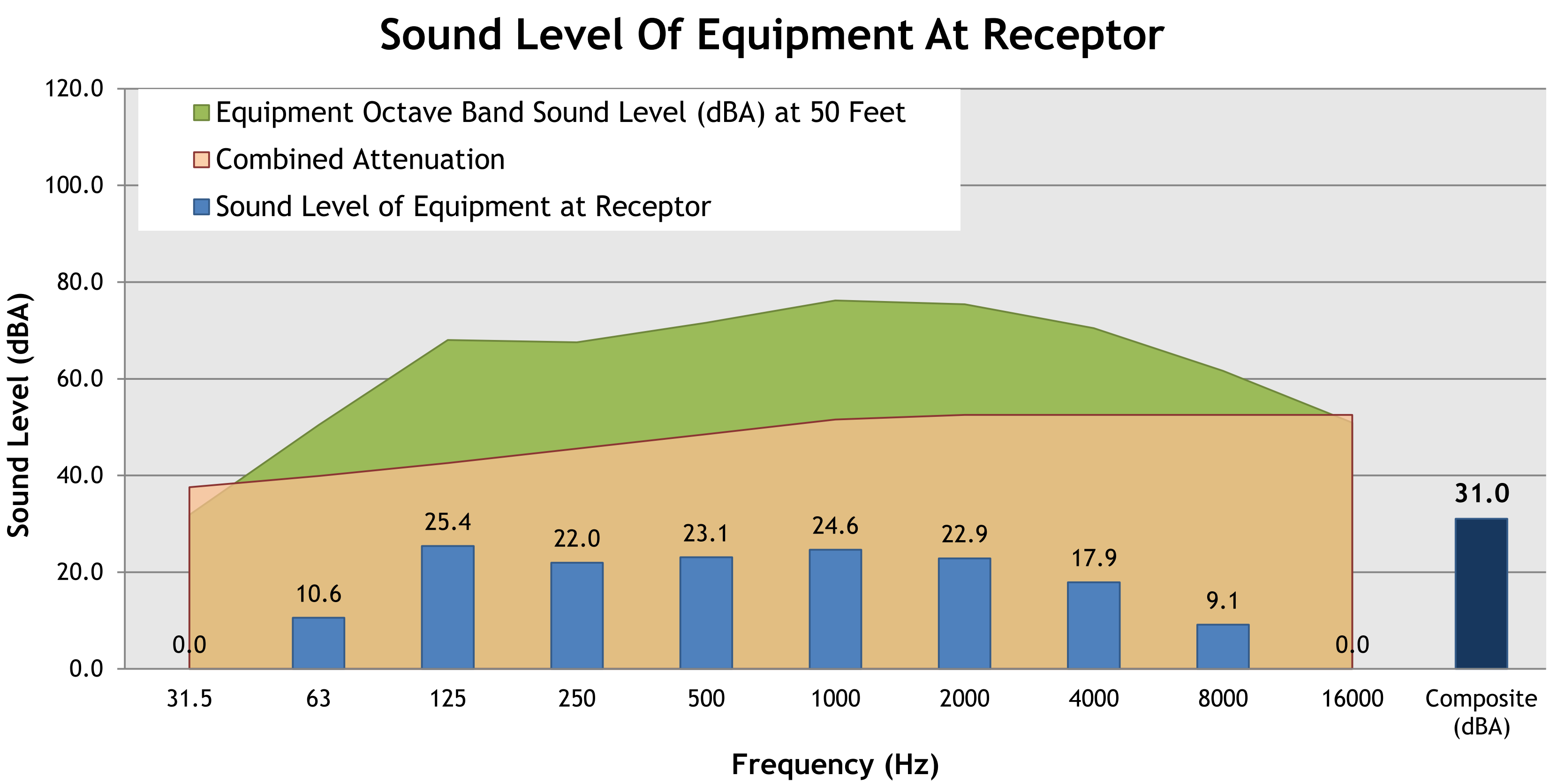
Wooded Area Thickness:
0 feet

Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	37.6	39.9	42.6	45.6	48.6	51.6	52.5	52.5	52.5	52.5
Distance Attenuation	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	9.05	11.35	14.07	17.02	20.03	23.04	24.00	24.00	24.00	24.00

Eagle Harbor
Quarry Modification
Equipment: Rock Drill

Rock Drill Drilling Holes

Scenario: RD
Receptor: R3



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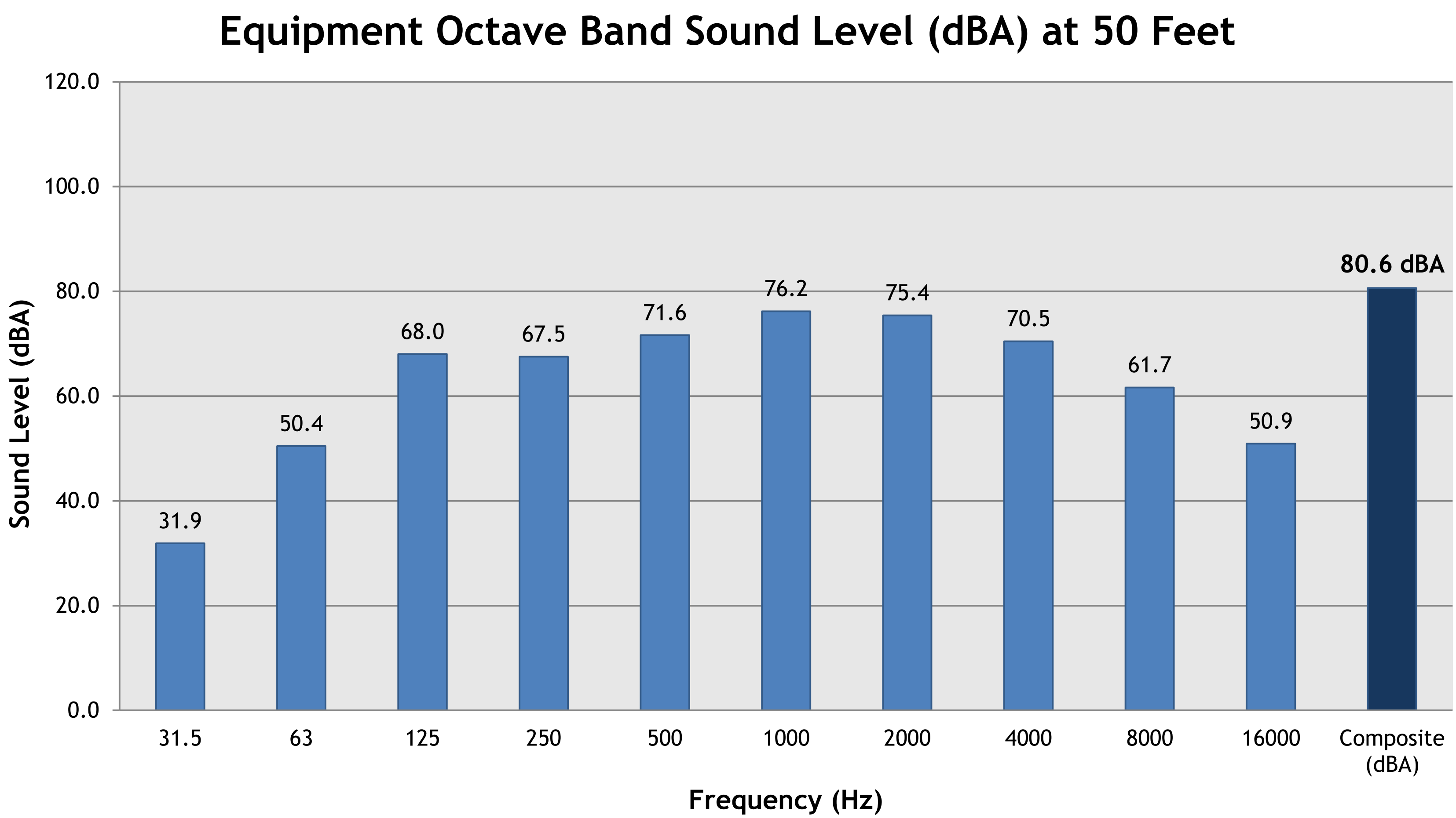
Eagle Harbor
Quarry Modification
Equipment: Rock Drill

Rock Drill Drilling Holes

Scenario: RD
Receptor: R4



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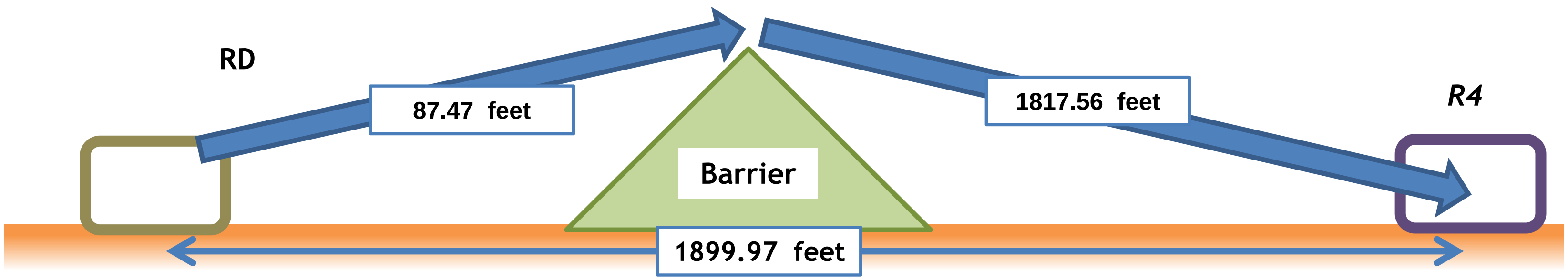
Eagle Harbor
Quarry Modification
Equipment: Rock Drill

Rock Drill Drilling Holes

Scenario: RD
Receptor: R4

Distance and Barrier Attenuation Inputs



Noise Source Elevation: 645.0 feet

Receptor Elevation 699.0 feet

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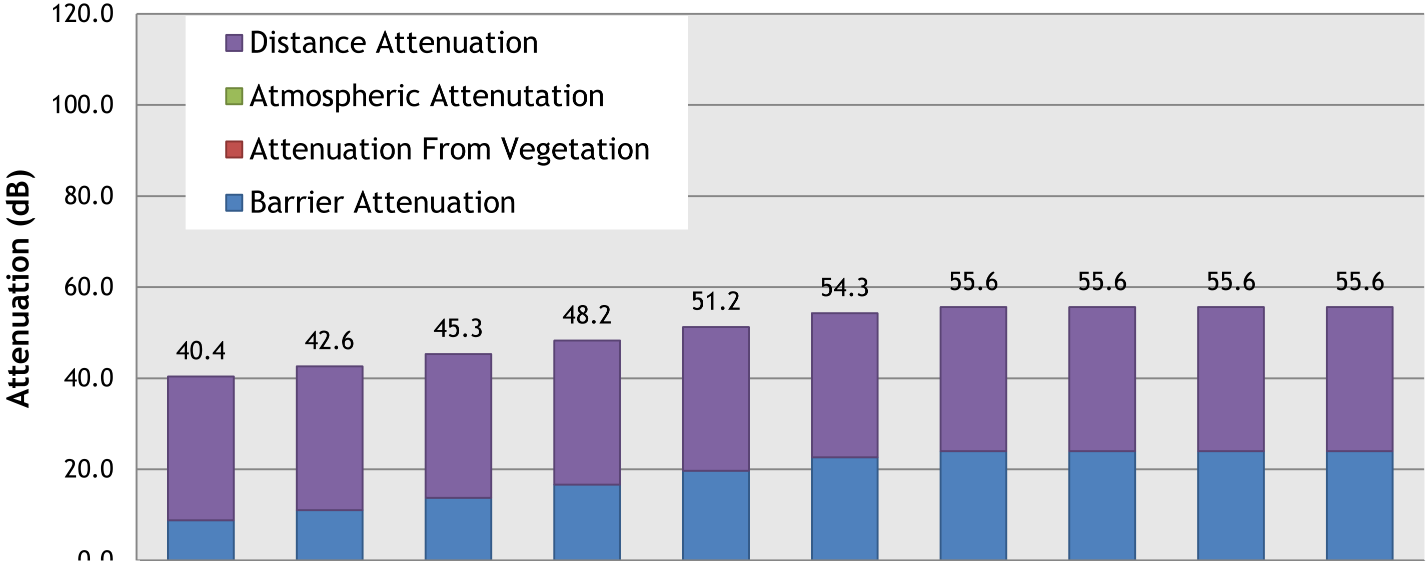
Eagle Harbor
Quarry Modification
Equipment: Rock Drill

Rock Drill Drilling Holes

Scenario: RD
Receptor: R4

Attenuation By Source

Wooded Area Thickness:
0 feet



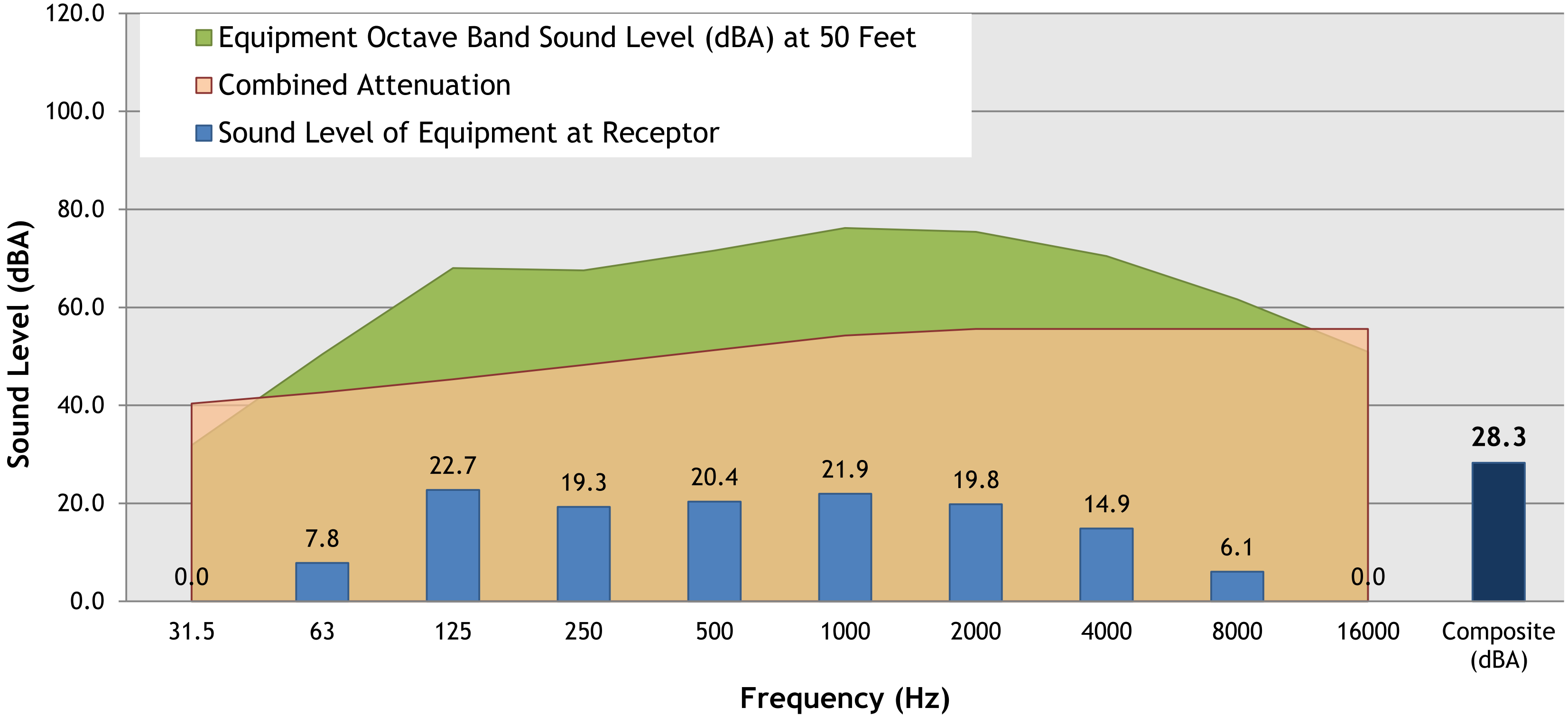
Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	40.4	42.6	45.3	48.2	51.2	54.3	55.6	55.6	55.6	55.6
Distance Attenuation	31.6	31.6	31.6	31.6	31.6	31.6	31.6	31.6	31.6	31.6
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	8.80	11.03	13.71	16.65	19.65	22.66	24.00	24.00	24.00	24.00

Eagle Harbor
Quarry Modification
Equipment: Rock Drill

Rock Drill Drilling Holes

Scenario: RD
Receptor: R4

Sound Level Of Equipment At Receptor



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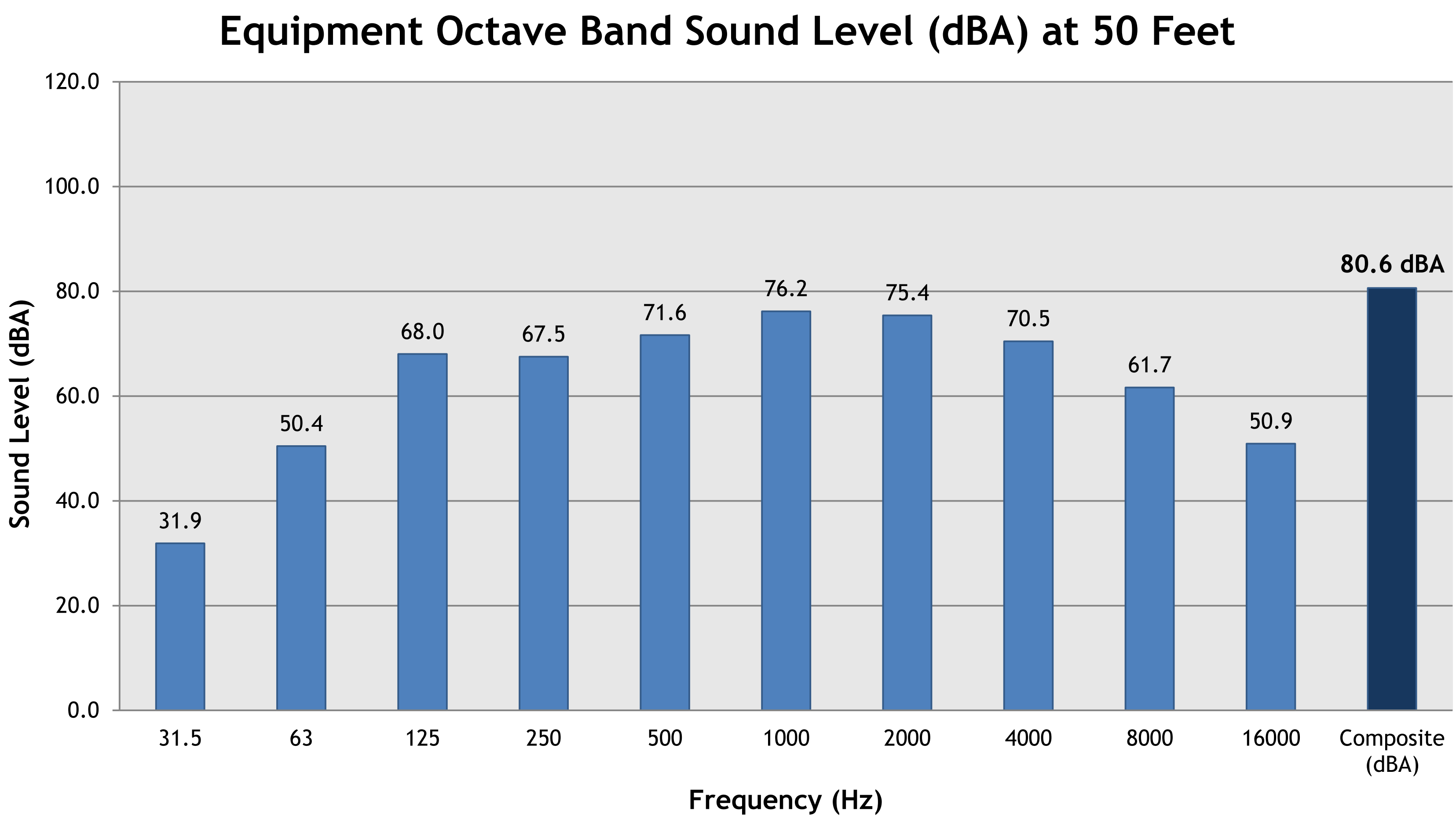
Eagle Harbor
Quarry Modification
Equipment: Rock Drill

Rock Drill Drilling Holes

Scenario: RD
Receptor: R5



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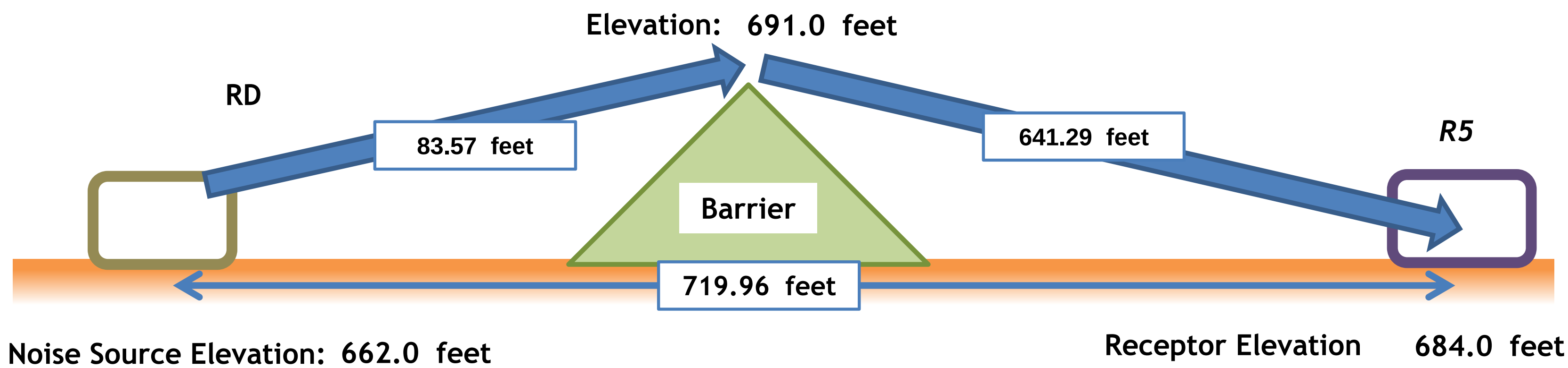
Eagle Harbor
Quarry Modification
Equipment: Rock Drill

Rock Drill Drilling Holes

Scenario: RD
Receptor: R5

Distance and Barrier Attenuation Inputs



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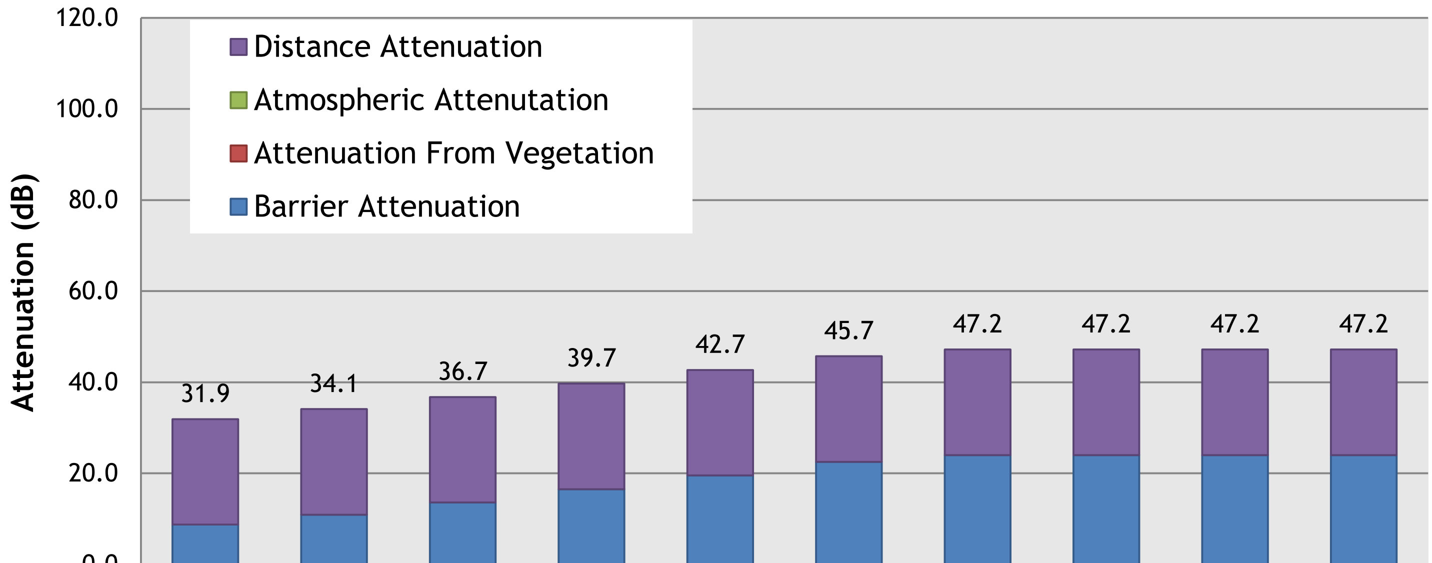
Eagle Harbor
Quarry Modification
Equipment: Rock Drill

Rock Drill Drilling Holes

Scenario: RD
Receptor: R5

Attenuation By Source

Wooded Area Thickness:
0 feet



Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	16000
Composite Attenuation	31.9	34.1	36.7	39.7	42.7	45.7	47.2	47.2	47.2	47.2
Distance Attenuation	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2
Atmospheric Attenutation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Attenuation From Vegetation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier Attenuation	8.71	10.91	13.58	16.51	19.51	22.52	24.00	24.00	24.00	24.00

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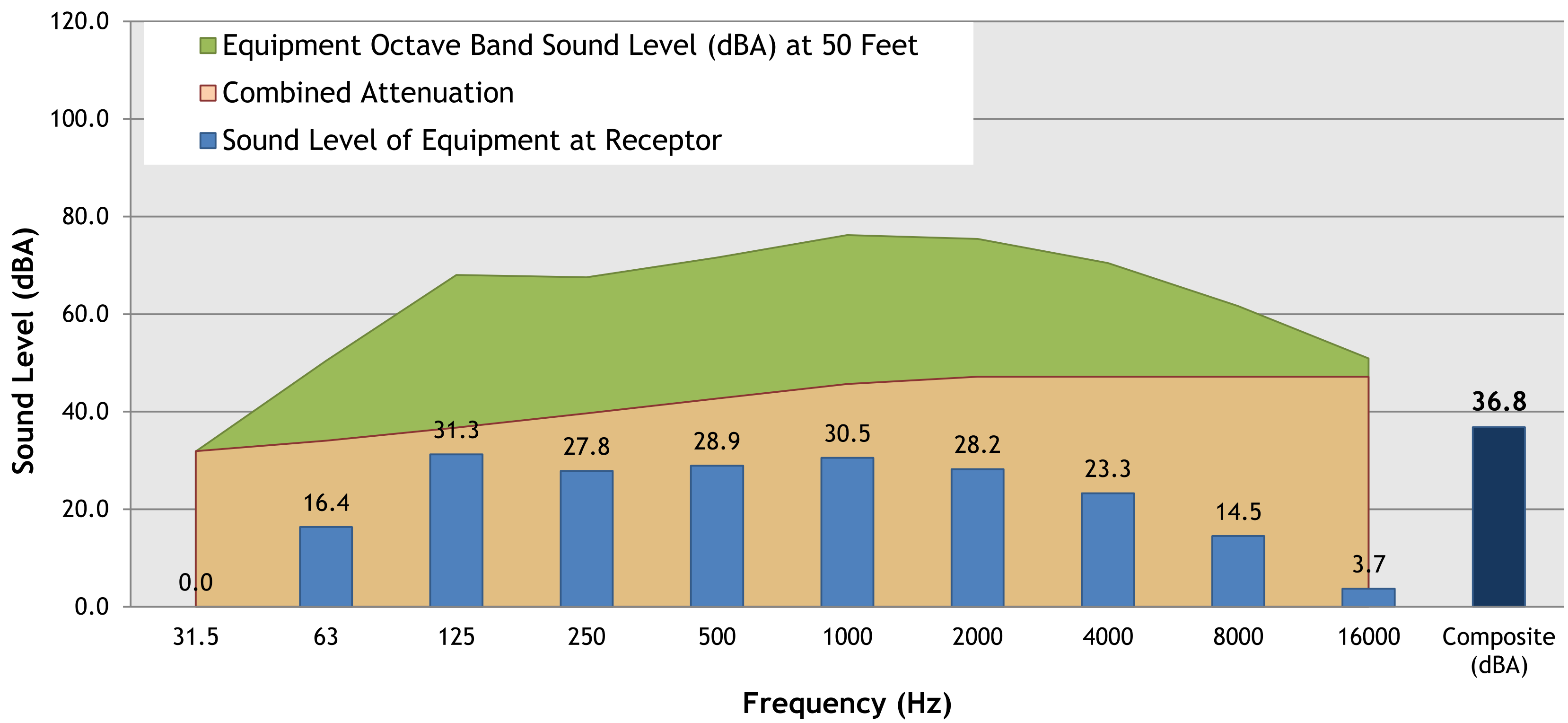
Eagle Harbor
Quarry Modification
Equipment: Rock Drill

Rock Drill Drilling Holes

Scenario: RD
Receptor: R5

Sound Level Of Equipment At Receptor



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