ASTI ENVIRONMENTAL

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December 18, 2019

Sent via email only

Dane Olmstead
Chief Investment Officer
Jackson Dearbron Partners
404 Wells Street Suite 400
Chicago, IL 60607

RE: Sound Transmission Calculations (STC) for Noise Attenuation for the Proposed Residential Development Located at: Powers Blvd. and Galley Road, Colorado Springs, Colorado (ASTI Project No. 11311)

Dear Mr. Olmstead:

ASTI Environmental (ASTI) was retained to estimate the noise attenuation for the exterior wall, door and window assemblies for the Proposed Residential Development located at: Powers Blvd. and Galley Road, Colorado Springs, Colorado. ASTI based the following estimates on the noise attenuation methods in the HUD Noise Notebook Chapter 4 Supplement and Catalog of STC and the STC and IIC Ratings for Wall and Floor/Ceiling Assemblies, California Department of Health Services.

The proposed wall, window and door designs are from the LCM Architects drawings dated June 21, 2019. Manufacture, model numbers or STC ratings were not included in the plans. STC ratings were estimated based on the architectural drawings and the HUD Noise Book Chapter 4 Supplement or the California Department of Health Catalog of STC and IIC Ratings for Wall and Floor/Ceiling Assemblies.

The site Location Map and the Site Features Map with the Noise Assessment Locations (NAL) are attached to this letter. The locations were chosen based on the shortest distance from the source.

Traffic volumes were obtained from the El Paso County Department of Transportation and the Colorado Online Transportation Information Service. Airport noise levels were obtained from the National Transportation Board web site Noise Map.

The following Table 1 presents the alternative designs. STC ratings for walls, windows and doors were not provided by the architect. Manufacturer's model number or style was not provided by the architect.

Table 1 Proposed Wall Window and Door Designs and Alternative Designs Proposed Residential Development Powers Blvd. and Galley Rd., Colorado Springs, Colorado		
Cross Section Design	**Description**	**STC**
NAL 1; Building Type II HUD Noise Book Chapter 4 Supplement Windows - 1,115 sf	• 3x5' double hung window, • 7/16” glazed insulating glass, • single panel plus storm sash, • glazed single strength, • single sealed separation between panels: upper 1 ½”, lower 2 13/16”.	35
NAL 1; Building II HUD Noise Book Chapter 4 Supplement Doors - 308 sf	• 3x7' steel-faced door, 1 ¾” thick, rigid polyurethane core	26
NAL 1; Building Type II HUD Noise Book Chapter 4 Supplement Brick (1,253 sf) and Concrete Siding (1,022 sf) total 2,153 sf	• 1 courses of brick • ½” air space with metal ties • 3/4 insulation board sheathing • 2”x4” studs; 16” O.C. • Resilient channel • Fiberglass Insulation (3-1/2”) • ½” gypsum board	54
NAL 1; Building Type II California STC Book (1.2.2.1.5.8) Aluminum Siding - 1,753 sf	• 2x4 studs, 16" O.C. • 5/8" type X gypsum Board Screwed 12" O.C. • Resilient channels, 24" O.C. • 5/8" type X gypsum Board Screwed 12" O.C. • 3" thick sound attenuation blanket	52
A cross section for aluminum siding was not available in the data bases. Closet cross section is shown.		
NAL 3 Building Type I HUD Noise Book Chapter 4 Supplement Windows - 674 sf	• 3x5' double hung window, • 7/16” glazed insulating glass, • single panel plus storm sash, • glazed single strength, • single sealed separation between panels: upper 1 ½”, lower 2 13/16”.	35
NAL 3 Building Type I HUD Noise Book Chapter 4 Supplement Doors - 69 sf	• 3x7' steel-faced door, 1 ¾” thick, rigid polyurethane core	26

Table 1 Proposed Wall Window and Door Designs and Alternative Designs Proposed Residential Development Powers Blvd. and Galley Rd., Colorado Springs, Colorado		
Cross Section Design	**Description**	**STC**
HUD Noise Book Chapter 4 Supplement Wood Panel Horizontal 638 sf; Vertical 898; total 1,536 sf -	• 5/8" redwood siding • 1/2" insulation board sheathing • 2x4 wood studs 16" O.C. • fiberglass building insulation 3-1/2" • Resilient channel • 1/2" gypsum board screwed to channel	47
HUD Noise Book Chapter 4 Supplement Feathered Stone 1,389 sf -Cast Stone 712 sf; total 2,101	• 1 courses of brick • ½" air space with metal ties • 3/4 insulation board sheathing • 2"x4" studs; 16" O.C. • Resilient channel • Fiberglass Insulation (3-1/2") • ½" gypsum board	54

The following Table 2 summarizes the calculations completed according to the HUD Noise Notebook using HUD's figure 17 in Chapter of the Notebook.

Table 2 – Summary of STC Calculations Proposed Residential Development Powers Blvd. and Galley Rd., Colorado Springs, Colorado			
Location	Calculated Exterior Noise HUD DNL Calculator	Calculated STC Wall/Windows/ Doors Based on HUD Figure 17	Calculated Interior Noise
NAL 1 Building Type II	68.5	32	35
NAL 2 Building Type II	67	33	28
NAL 3 Building Type I	60.74	44	17

Conclusions

The level of accuracy for the calculations in this report are limited to level of accuracy of the information provided by the HUD methodology and HUD or California Guidelines for STC ratings for walls, windows and doors.

US EPA guidelines and regulations in 24 CFR 51 states 65 decibel, or below, exterior noise level is acceptable. Interior acceptable noise level is 45 decibels or less. The calculations indicate that interior noise levels are acceptable.

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Recommendations
In order to confirm the conclusions of this report, manufacturer's STC ratings for wall, window and door assemblies should be used to calculate sound attenuation.

If you have any questions or comments, please do not hesitate to call me at **800.395.ASTI**. We greatly appreciate the opportunity to work with you on this project.

Sincerely yours,

ASTI ENVIRONMENTAL

Bruce Bawkon
Director, Industrial Compliance

Attachments: Site Location Map
Site Features Map

Attachment A
Site Location Map
Site Features Map

STC Ratings for Sound Attenuation

Powers Boulevard (US 21) & Galley Road,
Colorado Springs, CO

2,000 1,000 0 2,000 Feet

ASTI Environmental

Created for: N.E.S Inc.
Created by: RMH, December 12, 2019, ASTI Project 11311

Township T14S, Range R65W
Lat. 38.85, Long. -104.72

Site Location Map

STC Ratings for Sound Attenuation

Powers Boulevard (US 21) & Galley Road,
Colorado Springs, CO

150 75 0 150 Feet

ASTI Environmental

Created for: N.E.S Inc.
Created by: RMH, December 18, 2019, ASTI Project 11311

Township T14S, Range R65W
Lat. 38.85, Long. -104.72

Figure 2 - STC Calculations