

# Appendix F: Noise Analysis Technical Memorandum

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July 24, 2011

Fernando Camarillo  
Poznecki-Camarillo, Inc.  
5835 Callaghan Road, Suite 200  
San Antonio, TX 75228

**RE: Noise Analysis Technical Memorandum  
Eagle Pass Railroad and International Bridge  
Maverick County, Texas**

Dear Mr. Camarillo:

Civil Associates, Inc. (CAI) was retained by Poznecki-Camarillo, Inc. (PCI) to conduct a noise analysis for a new location short line freight railroad in Eagle Pass, Maverick County, Texas. The proposed corridor is approximately seven miles long and includes an international bridge crossing the Rio Grande River to Piedras Negras, Coahuila, Mexico. The noise analysis results will be incorporated in the National Environmental Policy Act (NEPA) Environmental Assessment (EA) document prepared for the Surface Transportation Board (STB).

### Regulatory Setting

Federal laws, regulations, and guidelines that specify requirements and provide guidance on noise impact analysis include:

- STB environmental regulations at 49 Code of Federal Regulations (CFR) 1105.7
- Noise Control Act of 1972 (42 U.S. Code [USC] 4910)
- Federal Railroad Administration (FRA) High-Speed Ground Transportation Noise and Vibration Impact Assessment (October 2005)
- Occupational Safety and Health Administration Occupational Noise Exposure Hearing Conservation Amendment (29 CFR 1910.95)
- U.S. Environmental Protection Agency (EPA) Railroad Noise Emission Standards (40 CFR 201)
- FRA Railroad Noise Emission Compliance Regulations (49 CFR 210)
- FRA Final Rule on the Use of Locomotive Horns at Highway-Rail Grade Crossings (49 CFR 222 and 229)
- Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment (FTAVA-90-1003-06, May 2006)

### Regulations and Applicability to the Proposed Project

The STB's 49 CFR 1105.7(e)(6) on environmental report requirements on noise are as follows:

If any of the thresholds identified in item (5)(e)(i)[Air] are surpassed, state whether the proposed action will cause:

- (i) An incremental increase in noise levels of three decibels day-night average sound level (Ldn)<sup>1</sup> or more; or
- (ii) An increase to a noise level of 65 decibels Ldn or greater.

<sup>1</sup> Ldn - the 24-hour Leq obtained after addition of 10 dBA to the sound levels from 10 P.M. to 7 A.M.

If so, identify sensitive receptors (e.g., schools, libraries, hospitals, residences, retirement communities, and nursing homes) in the project area, and quantify the noise increase for these receptors if the thresholds are surpassed.

STB Regulation 49 CFR 1105.7(5)(e)(i) [Air] states that if the proposed action will result in (A), (B), or (C), the anticipated effects on air emissions would be quantified.

- (A) An increase in rail traffic of at least 100% (measured in gross ton miles annually) or an increase of at least eight trains a day on any segment of rail line affected by the proposal, or
- (B) An increase in rail yard activity of at least 100% (measured by carload activity), or
- (C) An average increase in truck traffic of more than 10% of the average daily traffic or 50 vehicles a day on any affected road segment.

For a proposal under 49 USC 10901, *Authorizing construction and operation of railroad lines*, (or 10505, *Authority to exempt rail carrier and motor carrier transportation*) to construct a new line or reinstitute service over a previously abandoned line, only the eight train a day provision in subsection (5)(i)(A) will apply.

#### Proposed Project:

- It is projected that at least two diesel engine trains per day would utilize the proposed project.
- Union Pacific Railroad does not plan to run any of its existing traffic over the proposed project's route.
- The proposed project's route would only be utilized by the Altos Hornos de Mexico SA (AHMSA) for coal traffic. This company is Mexico's largest steelmaker, with a production capacity of more than three million tons a year. It makes flat products (plate, hot- and cold-rolled coil, tin-free steel) and long products (heavy and light structural sections, wire rod, wire products). A former government-controlled company privatized in 1991, AHMSA mines its own iron ore and coal to produce steel, and it also produces steam coal.
- Track configurations would be in cuts, at fills, and bridged.
- One railroad track (with a potential of a staging track to cross the U.S.-Mexico border) is proposed.

#### Results:

- On May 4, 2011, CAI conducted a field reconnaissance at the proposed project. Three background/ambient noise measurements were collected using the Extech 407780 Integrating Sound Level Meter within the study area. CAI estimated noise exposure that would result from rail line operation in terms of AHMSA using future operation in terms of equivalent sound level (Leq).
- There are no sensitive receptors identified within the study area.
- Two of the three background noise locations reported quarry operations could be heard in the background.
- Each noise measurement was collected at the duration of 15 minutes and results are presented in **Table 1**.
- Refer to **Appendix A** for the **Noise Measurement Data Sheets** and **Appendix B** for the **Project Area Photographs**.

TABLE 1 AMBIENT NOISE MEASUREMENTS					
Site No.	Location	Leq (dBA)	Lmin (dBA)	Lmax (dBA)	SEL (dBA)
N1	Southern portion of the new alignment (approximately 0.1 mile east of the Rio Grande River).	45.0	38.7	58.1	74.6
N2	Middle portion of the new alignment (approximately 0.4 mile east of U.S. Highway 277 and approximately 0.2 mile west of the Maverick County Canal).	45.9	34.6	71.7	75.5
N3	Middle portion of the new alignment (approximately 1.1 miles east of the Maverick County Canal and approximately one mile west of the UPRR line).	49.2	33.4	81.6	78.7

Leq – Equivalent Noise Level (The energy-averaged sound pressure level averaged over a specified unit of time).  
dBA – A-weighted decibel (Because the human ear does not hear all frequencies, an adjustment is made to the high and low frequency to approximate the average human response to traffic sounds. These adjusted sound levels are referred to as “A-weighted levels”).  
Lmin – the lowest sound pressure level within the measuring period.  
Lmax – the highest sound pressure level within the measuring period.  
SEL – Sound Exposure Level (the total noise energy produced from a single noise event. The SEL is a metric used to describe the amount of noise from an event).

The threshold of human hearing is defined as 0 dBA; very quiet conditions (as in a library, for example) are approximately 40 dBA; levels between 50 dBA and 70 dBA define the range of acceptable daily activity; levels above 70 dBA would be considered noisy, and then loud, intrusive, and deafening as the scale approaches 130 dBA. For most people to perceive an increase in noise, it must be at least 3 dBA. At 5 dBA, the change will be readily noticeable (Bolt, Beranek, and Newman, 1973).

### Construction Noise

Noise associated with the construction of the proposed project is difficult to predict. Heavy machinery, the major source of noise in construction, is constantly moving in unpredictable patterns. **Table 2** shows examples of noise levels for construction equipment associated with railroad construction.

TABLE 2 CONSTRUCTON EQUIPMENT NOISE LEVELS (dBA)	
Equipment	Noise Level at 50 feet <sup>1</sup>
Bulldozer	85
Heavy truck	88
Rail saw	90
Rock drill	98
Impact pile driver	101

<sup>1</sup>Source: Transit Noise and Vibration Impact Assessment, FTAVA-90-1003-06, May 2006

For the proposed project, sensitive receptors were not identified within the study area. However, provisions will still be included in the plans and specifications that require the contractor to make every reasonable effort to minimize construction noise through abatement measures such as work-hour controls and proper maintenance of muffler systems.

**Noise from Operation**

Potential unavoidable impacts from noise during rail operation would include wayside noise and horn sounding at at-grade rail/roadway crossings. However, as previously stated, there are no sensitive receptors within the study area.

Conclusion:

The construction of the new line would be less than the eight train a day provision; therefore, the proposed project does not meet the threshold and quantification required by STB Regulation 49 CFR 1105.7(e)(i) [Air], a preliminary requirement to quantify STB's 49 CFR 1105.7(e)(6) on quantification of noise levels. The STB's 49 CFR 1105.6(6) environmental documentation requirements on noise analysis for the proposed project have been met.

**Attachments**

Appendix A - Noise Measurement Data Sheets

Appendix B - Project Area Photographs

Please note that we have also sent this information to you in an EA format. Please call or email me with any questions or comments. Thank you.

Sincerely,



Christopher Hagar  
Project Manager  
Civil Associates, Inc.

# NOISE MEASUREMENT DATA SHEET

PROJECT: Eagle Pass Railroad CSJ / CAI #: 2517  
 Meter Operator / Assistants: Robert Pitt and Christopher Hagar

Site #: N1 Description / Location: Southern portion of the new alignment.  
 Date: 05/04/2011 Weather: Clear, dry, gentle breeze

Time: Start: 8:43 a.m. End: 8:58 a.m.  
 Duration: 15 minutes

Leq (dBA): 45.0 Lmin (dBA): 38.7 SEL (dBA): 74.6  
 Lmax (dBA): 58.1

Main Noise Source(s):  Planes  Autos  Trucks  Construction  
 Other Songbirds and quarry operations

Traffic Data			
Road Name			
Autos			
Medium Trucks			
Heavy Trucks			

Site Sketch:

Notes:

Quarry operations could be heard in the background. Sampling location was taken approximately 0.1 mile east of the Rio Grande River.

# NOISE MEASUREMENT DATA SHEET

PROJECT: Eagle Pass Railroad CSJ / CAI #: 2517  
 Meter Operator / Assistants: Robert Pitt and Christopher Hagar

Site #: N2 Description / Location: Middle portion of the new alignment.  
 Date: 05/04/2011 Weather: Clear, dry, gentle breeze

Time: Start: 9:57 a.m. End: 10:12 a.m.  
 Duration: 15 minutes

Leq (dBA): 45.9 Lmin (dBA): 34.6 SEL (dBA): 75.5  
 Lmax (dBA): 71.7

Main Noise Source(s):  Planes  Autos  Trucks  Construction  
 Other Songbirds and quarry operations

Traffic Data			
Road Name			
Autos			
Medium Trucks			
Heavy Trucks			

Site Sketch:

Notes:

Quarry operations could be heard in the background. Sampling location was taken approximately 0.4 mile east of the US 277 and approximately 0.2 mile west of the Maverick County Canal.

# NOISE MEASUREMENT DATA SHEET

PROJECT: Eagle Pass Railroad CSJ / CAI #: 2517  
 Meter Operator / Assistants: Robert Pitt and Christopher Hagar

Site #: N3 Description / Location: Middle portion of the new alignment.  
 Date: 05/04/2011 Weather: Clear, dry, gentle breeze

Time: Start: 12:25 a.m. End: 12:40 a.m.  
 Duration: 15 minutes

Leq (dBA): 49.2 Lmin (dBA): 33.4 SEL (dBA): 78.7  
 Lmax (dBA): 81.6

Main Noise Source(s):  Planes  Autos  Trucks  Construction  
 Other \_\_\_\_\_

Traffic Data			
Road Name			
Autos			
Medium Trucks			
Heavy Trucks			

Site Sketch:

Notes:

Sampling location was taken approximately 1.1 mile east of the Maverick County Canal and approximately 1 mile west of the Union Pacific Railroad.



**Photograph 1: Ambient Noise Measurement Site Location N1.**



**Photograph 2: Ambient Noise Measurement Site Location N2.**



**Photograph 3: Ambient Noise Measurement Site Location N3.**