

**Noise Technical Memorandum**  
**Forum Vista Creek – Master Plan**  
**March 18, 2022**

## Executive Summary

Forum Investment Group (Forum) is proposing to construct a residential community development “Vista Creek Master Plan” (Vista Creek) located east of E-470 State Highway (E-470) in Aurora, Colorado (Figure 1 in **Appendix B**).

According to the City of Aurora Unified Development Ordinance 4.7.9-G:

*Along E-470. In all residential developments adjacent to E-470, a minimum eight-foot-high solid sound attenuation wall shall be constructed along the development's E-470 frontage and shall meet all the material and design requirements for fences and walls along arterial streets. The sound attenuation wall shall be constructed and maintained by the developer, Title 32 District, homeowners' association, or business district.*

**Appendix A** includes the Vista Creek Site Plan. There is an existing berm located between Vista Creek and E-470. Newton Environmental Consulting (NEC) conducted a traffic noise analysis to evaluate the noise levels from the existing berm compared to the noise levels of the existing berm combined with the inclusion of an 8-foot sound wall at the property line. As shown in Appendix A, the property line is about 168 feet from the northbound lanes of E-470. The FHWA approved Traffic Noise Model (TNM) v2.5 was used to complete the analysis. Noise receiver, berm and 8-foot sound wall locations are shown in **Appendix B**.

The table below shows the future projected 2040 noise levels at the residential homes in the Vista Creek Development. The first column identifies the noise receiver identification number for the homes closest to E-470. The second column shows the description of each modeled noise receiver. The third column shows the future 2040 predicted noise levels with attenuation due to the existing berm. The fourth column shows the future 2040 predicted noise levels with attenuation from the existing berm combined with an 8-foot sound wall. The fifth column shows the difference in noise levels from the berm only compared with the berm combined with an 8-foot sound wall. The TNM traffic volumes used for the analysis are shown in **Appendix C**.

| Vista Creek Noise Levels |                      |                                       |   |                                  |
|--------------------------|----------------------|---------------------------------------|---|----------------------------------|
| Rec ID                   | Description          | Existing Berm 2040 Noise Levels (dBA) | Existing Berm + 8' Sound Wall 2040 Noise Levels (dBA) | Difference in Noise Levels (dBA) |
| R1                       | ground floor         | 63.3                                  | 60.8  | 2.5                              |
| R2                       | ground floor         | 62.7                                  | 60.4  | 2.3                              |
| R3                       | ground floor         | 62.4                                  | 60.1  | 2.3                              |
| R4                       | ground floor         | 61.1                                  | 59.2  | 1.9                              |
| R5                       | ground floor         | 60.4                                  | 58.7  | 1.7                              |
| R6                       | ground floor         | 59.9                                  | 58.3  | 1.6                              |
| R7                       | ground floor         | 59.8                                  | 58.3  | 1.5                              |
| R8                       | ground floor         | 58.7                                  | 56.9  | 1.8                              |
| R9                       | ground swimming pool | 56.7                                  | 55.4  | 1.3                              |
| R10                      | ground floor         | 58.8                                  | 57.1  | 1.7                              |
| R11                      | ground floor         | 58.8                                  | 57.6  | 1.2                              |
| R12                      | ground floor         | 59.4                                  | 58.4  | 1.0                              |
| R13                      | ground floor         | 60.0                                  | 59.0  | 1.0                              |
| R14                      | ground floor         | 60.5                                  | 59.5  | 1.0                              |
| R15                      | ground floor         | 61.0                                  | 59.8  | 1.2                              |

The 2040 noise levels with attenuation from the existing berm range from 57 to 63 dBA. The 2040 noise levels with attenuation from the existing berm combined with an 8-foot sound wall range from 55 to 61 dBA. All 2040 noise levels under both modeled scenarios (Existing Berm and Existing Berm with 8' sound wall) are below the Colorado Department of Transportation (CDOT) noise impact threshold of 66 dBA.

When comparing attenuation from the existing berm versus the existing berm combined with an 8-foot sound wall, the noise barrier insertion loss provided by the 8-foot sound wall ranges from 1-2.5 dBA. The smallest change in noise levels that can be detected by the human ear is approximately 3 dBA. According to the CDOT Noise Analysis and Abatement Guidelines (September 2020), "A barrier must provide a reduction of at least 5.0 dB to at least three impacted receptors (receptors, not receivers) to be feasible."

In summary, noise levels at the proposed Vista Creek development do not exceed the CDOT noise impact threshold of 66 dBA without consideration of an 8-foot sound wall at the property line. Due to noise attenuation over distance, the existing berm provides sufficient attenuation from traffic noise from E-470.

The addition of an 8-foot sound wall would provide minimal additional noise attenuation that would not be discernible to residents of the Vista Creek development and therefore is not recommended.

The following Appendices are included in this Memorandum:

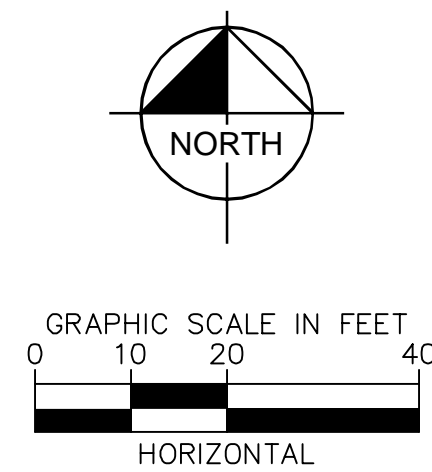
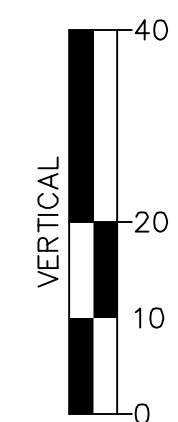
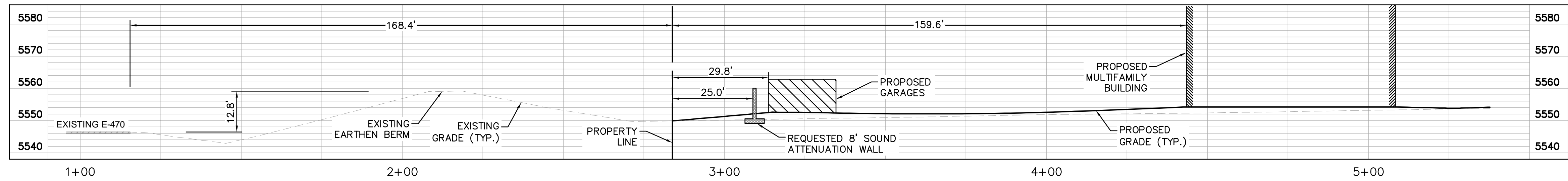
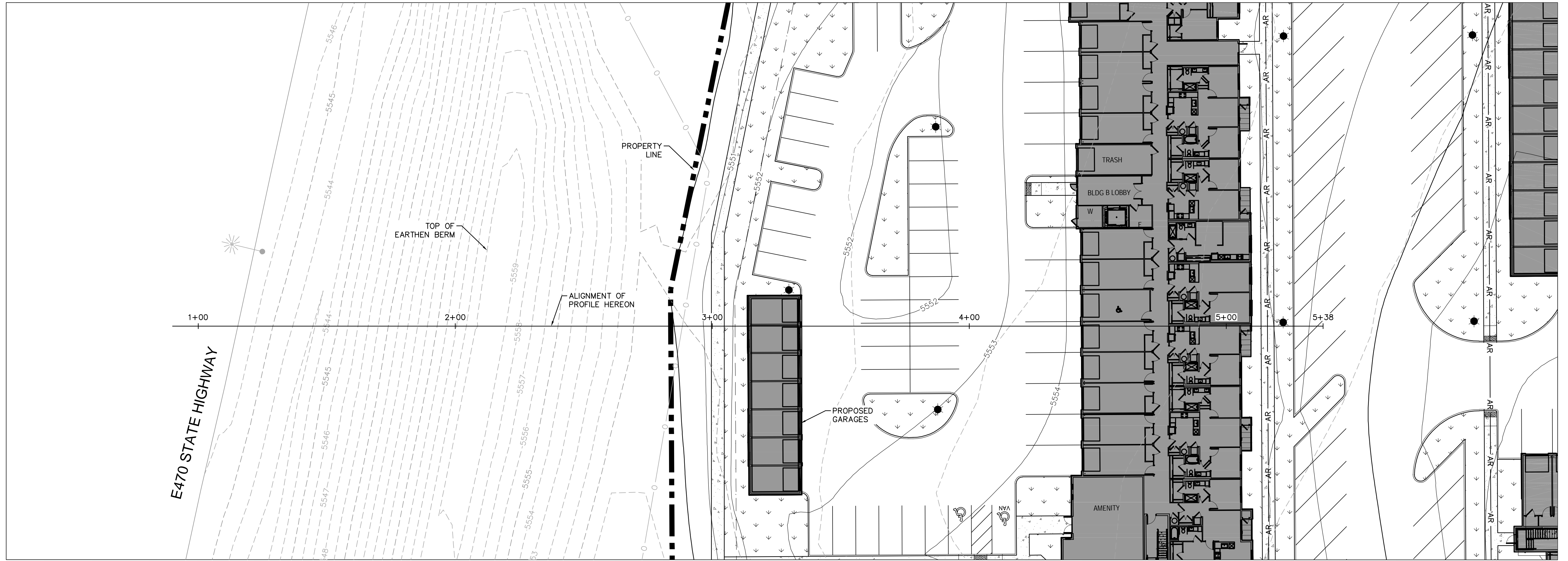
**Appendix A** - Vista Creek Sound Attenuation Site Plan

**Appendix B** - Noise Receiver, Berm, and 8-Foot Sound Wall Locations

**Appendix C** - TNM 2.5 Traffic Volumes

## **APPENDIX A – VISTA CREEK SOUND ATTENUATION SITE PLAN**

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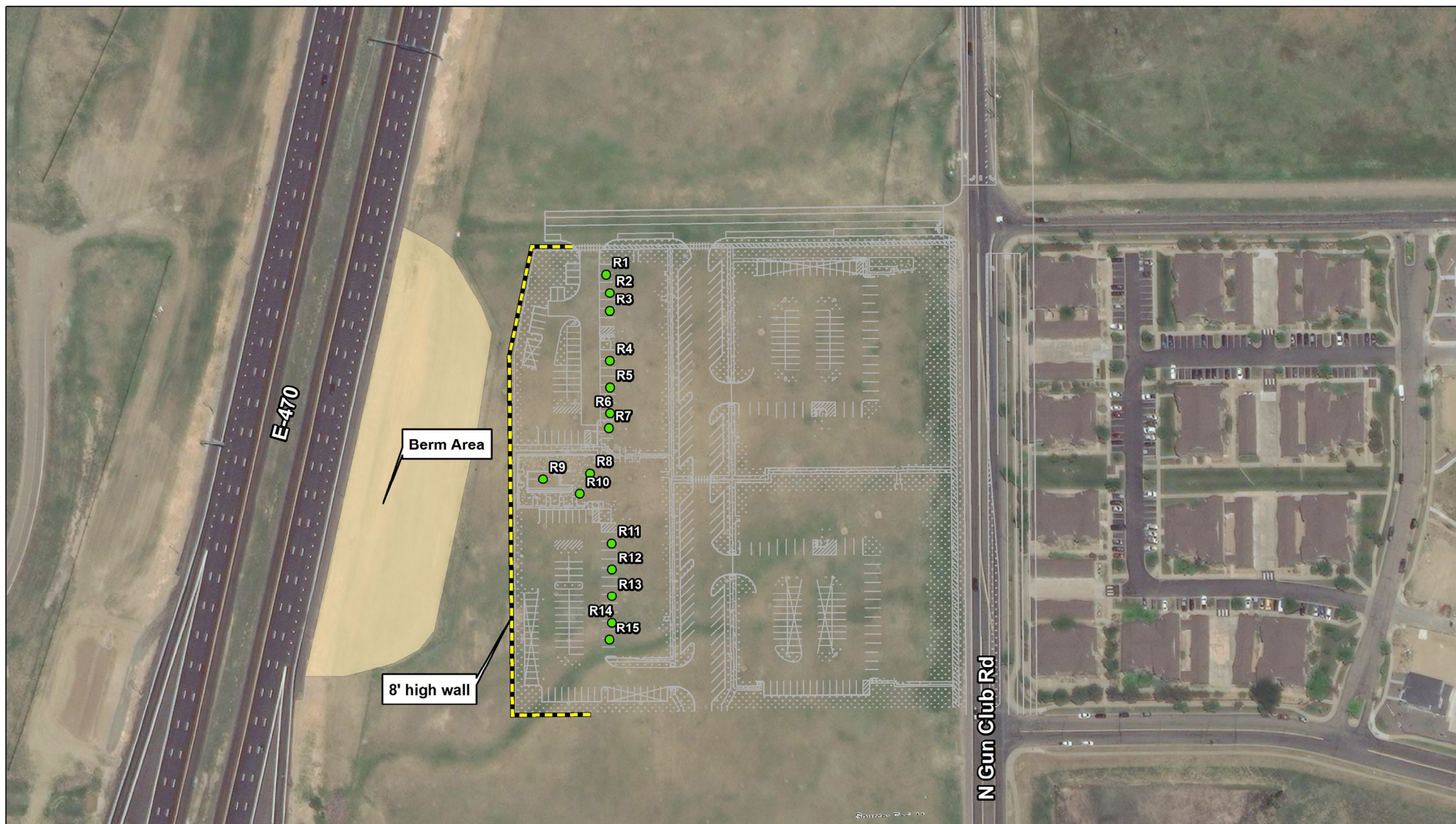


VISTA CREEK  
SOUND ATTENUATION  
SECTION  
NOVEMBER 29, 2021

Kimley»Horn

## **APPENDIX B – NOISE RECEIVER, BERM, AND 8-FOOT SOUND WALL LOCATIONS**





Revised: 3/17/2022  
SOURCE: World Imagery

## Legend

- Evaluated Developer Wall
 ● Noise Receivers

**newton**  
Environmental Consulting, LLC

## **APPENDIX C – TNM 2.5 TRAFFIC VOLUMES**

### E-470 at 6th Parkway Existing and Future Auto & Future Truck Volumes

| Route | Milepost Start | Milepost End | AADT   | AADT Year | Truck % | AADT Trucks | 20 Year Factor | 2040 Truck ADT | Location                        |
|-------|----------------|--------------|--------|-----------|---------|-------------|----------------|----------------|---------------------------------|
| 470B  | 16.5           | 19           | 22,000 | 2020      | 5.7     | 1,250       | 1.55           | 1,938          | ON E-470 TOLL RD N/O JEWELL AVE |
| 470B  | 19             | 20.5         | 22,000 | 2020      | 5.8     | 1,270       | 1.54           | 1,956          | ON E-470 TOLL RD S/O I-70       |

Modeled Speed Limit: 75 mph for all vehicles

<https://dtdapps.coloradodot.info/otis/TrafficData>