Appendix E: Noise



Traffic Noise Screening

US 11 Improvements – 109496/104100 & 105100
Lamar County & Forrest County, MS

MDOT
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

Prepared For:

Mississippi Department of Transportation

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GARVER
GarverUSA.com

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1.0 Introduction

The Mississippi Department of Transportation (MDOT) is proposing to add lanes on US Highway 11 (US-11) between Interstate 59 (I-59) and Okahola Road in Forrest and Lamar Counties, Mississippi. A large industrial business development named Eagle One Mega Site (EOMS) is under development and marketed by both the Forest Lamar Area Development Partnership (FLADP) and by the Mississippi Development Authority (MDA). This site will provide infrastructure for large industrial complexes and substantial facilities with over 2200 acres available for development. The development of the EOMS is expected to increase both traffic volumes and the need for improved access along US 98, I-59, and US-11. The purpose of the proposed project is to comply with State and Federal legislation and add capacity to US-11 to improve access to EOMS and accommodate future traffic demand in a safe and efficient manner. The proposed project study area is shown in **Appendix A.**

2.0 Summary of Results

The MDOT noise policy allows for alternative screening for land use planning purposes. Results of the screening analysis indicate that one receptor, representing two residential dwelling units, meets the screening threshold by being within 4 dB(A) of the applicable Noise Abatement Criteria (NAC) for the identified noise sensitive land use and is considered impacted. The screening analysis used the FHWA Traffic Noise Model (TNM) Version 2.5 to predict future noise levels based on projected traffic growth.

Because the screening threshold was reached, traffic noise abatement was qualitatively evaluated for feasibility. A detailed noise analysis is not warranted based on the requirements to maintain driveway access for the impacted receptor, rendering traffic noise abatement infeasible.

3.0 Project Description

The proposed project would add and improve lanes on US-11 between I-59 and Okahola Road, which is presently a Type 3 two-lane major collector federal highway with no control of access and a posted speed limit is 55 mph. There are four minor arterial county roads that intersect US-11 within the project limits. The project area is rural and mostly undeveloped with residential homes and one autism therapy clinic. Most of the homes along the project are located in its southern portion, within 3,600 feet of Okahola School Road.

There is an industrial development located on the east side of US-11 midway through the project. The approximately 2,100-acre EOMS described in Section 1.0 will include approximately three miles of frontage on I-59 and one mile of frontage on US-11. At the time of

this study, the EMOS is mostly undeveloped with the exception of an approximately 33-acre development.

The project area is included within the Hattiesburg-Petal-Forrest-Lamar (HPFL) Metropolitan Planning Organization (MPO) area. HPFL-MPO projects growth for both population and employment as outlined in the 2045 Metropolitan Transportation Plan.

The Build Alternative proposes to widen US-11 to a four-lane divided highway between I-59 and Okahola Road. The two-lane section from Old Okahola School Road to the proposed railroad overpass will be improved for safety but not upgraded to four lanes. The proposed project would increase capacity for US-11. The Build Alternative is shown in **Appendix B**.

4.0 Fundamentals of Noise and Sound Theory

Noise, defined as unwanted or excessive sound, is an undesirable by-product of our modern way of life. From these known effects of noise, criteria have been established to help protect the public health and safety and prevent disruption of certain human activities. These criteria are based on such known impacts of noise on people as speech interference, sleep interference, physiological responses, hearing loss and annoyance. Highway traffic noise is a major contributor to overall transportation noise and is considered to be a line source of energy from which the energy levels dissipate vertically and laterally from the roadway. Traffic noise is not constant; it varies as each vehicle passes a point. The time-varying characteristics of environmental noise are analyzed statistically to determine the duration and intensity of noise exposure. In an urban environment, noise is made up of two distinct parts. One is ambient or background noise. Wind noise and distant traffic noise make up the acoustic environment surrounding the project. These sounds are not readily recognized but combine to produce a nonirritating ambient sound level. This background sound level varies throughout the day, being lowest at night and highest during the day. The other component of urban noise is that it can be intermittent and louder than background noises due to a number of sources such as manufacturing, railroads, and local airports. It is for these reasons that environmental noise is analyzed statistically.

Sound from highway traffic is generated primarily from a vehicle's tires, engine and exhaust. Sound intensity decreases in proportion with the square of the distance from the source. Generally, sound levels for a point source will decrease by 6 dB(A) for each doubling of distance. Sound levels for a highway line source vary differently with distance because sound pressure waves propagate along the line and overlap at the point of measurement. Sound is commonly measured in decibels (dB) which are logarithmic units and are not added arithmetically as opposed to the more common linear units such as temperature. Sound pressure level from two equal sources is 3 dB greater than the sound pressure level of just one

source. So, two trucks producing 90 dB each combine to produce 93 dB, not 180 dB. In other words, a doubling of the noise source produces only a 3 dB increase in the sound pressure level. Studies have shown that this increase is barely perceptible by the human ear. Sound occurs over a wide range of frequencies. However, not all frequencies are detectable by the human ear; therefore, an adjustment is made to the high and low frequencies to approximate the way an average person hears traffic sounds. This adjustment is called A-weighting and is expressed as dBA. In addition, because traffic sound levels are never constant due to the changing number, type and speed of vehicles, this noise analysis will discuss noise levels as Leq(h). Leq is defined as the steady-state sound level which, in a stated period of time, contains the same acoustic energy as the time-varying sound level during the same period. Leq(h) is the hourly value of Leq and is based on the dBA unit.

5.0 Methodology and Criteria for Determining Impacts

The noise analysis conducted for this project was consistent with FHWA and MDOT noise policy and 23 CFR Part 772. Traffic noise screening consists of a comparison of the worst noise hour Leq(h) to NAC criteria and predicted existing Leq(h) values. A screening analysis may be performed for projects that are unlikely to cause noise impacts and/or where noise abatement measures are likely to be unfeasible for engineering reasons. Factors common to these types of projects include low traffic volumes, slower speeds, the presence of few or no receptors, and the need for roadway access points (driveways, roadway intersections, etc.).

The screening was performed using TNM 2.5 to model existing and future noise levels based on existing and predicted traffic data, roadway widths, and receptor site locations and distances from the roadway. A receptor is a location, usually representing a dwelling unit, where frequent exterior human activity occurs. The FHWA has seven noise activity categories based on land use and sound levels, each of which has its own NAC. The NAC categories are listed in **Table 1**.

Table 1: FHWA Noise Abatement Criteria (NAC) Hourly A-Weighted Sound Level, decibels dB(A)		
Activity Category	**Activity Criteria[1] Leq(h) [2]**	**Activity Description**
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[3]	67 (Exterior)	Residential
C[3]	67 (Exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas,
D	52 (Interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public or nonprofit institutional structures, radio studios, recording
E[3]	72 (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F	- -	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	- -	Undeveloped lands that are not permitted

[1] The Leq(h) Activity Criteria values are for impact determination only, and are not design standards for noise abatement measures.
[2] The equivalent steady-state sound level which in a stated period of time contains the same acoustic energy as the time-varying sound level during the same time period, with Leq(h) being the hourly value of Leq.
[3] Includes undeveloped lands permitted for this activity category.

Screening analysis results represent a worst-case scenario with higher sound levels than would be expected in detailed modeling and are used to determine the need for a detailed analysis if noise impacts are likely and the placement of noise barriers are feasible. It may also be used for projects that lack receptors in order to assess impacts on undeveloped or developing land. Receptors within 4 dBA of the NAC were considered for further detailed analysis; the screening analysis threshold for NAC Categories B and C is 63 dBA, and for NAC Category D the screening analysis threshold is 48 dBA.

In the noise screening process, for a receptor to be considered impacted, the predicted design year noise level would need to approach (come within 1 dBA) or exceed the NAC shown in **Table 1**. A noise impact would also occur if the predicted design year noise level substantially exceeds the existing noise level (15 dBA or greater). If a project is anticipated to impact receptors, then noise abatement or mitigation measures must be evaluated.

6.0 Noise-Sensitive Land Uses

The project area includes NAC Activity Category B and C properties. The study area, including noise-sensitive receivers within 500 feet of the roadway centerline, is generally comprised of undeveloped woodland, with some residential development concentrated at its south end. There are also scattered residences and an autism therapy clinic located approximately 1.2 miles south of US-59. Twenty-eight modeled receiver locations representing 25 single-family dwellings, two duplexes, and one therapy clinic were selected for modeling purposes to identify noise levels for the existing and design year conditions. Refer to **Appendix A** for an overview of receptor locations and **Appendix B** for detailed views of receptors and results of the screening.

NAC Activity categories A, D, E, F, and G were not identified.

6.1 Traffic Data

Traffic volumes for the existing year 2025 and future year 2050 were identified for US-11 based on a traffic analysis conducted by Garver and approved by MDOT in 2025. TNM utilizes the design hourly volume (DHV) to determine the existing traffic noise levels and calculates the predicted noise levels that occur when the highest volume for an hour is combined with the highest speeds and considered as the "worst hour for noise." DHV data is based on the percentage of hourly vehicular traffic present on the facility at the design capacity consisting of cars, medium trucks, and heavy trucks. **Table 2** depicts the DHV values utilized in the modeling. TNM modeling assumes vehicles were traveling 55 mph on US-11 for both the existing and proposed conditions. Existing traffic conditions in the area are predominantly car traffic with very few medium and heavy trucks (3%).

The 2050 design year traffic was utilized to determine if future noise levels would exceed the NAC activity category thresholds. **Table 2** presents the future traffic data utilized.

Table 2: US-11 Noise Model Traffic Volumes
US-11 Widening, MDOT Job No. 109496/104100 & 105100
Lamar & Forrest Counties

Year	AADT	DHV	Cars	Medium Trucks	Heavy Trucks
Existing (2025)	6,400	640	310	5	5
Future (2050)	11,600	1,160	563	9	9

7.0 Determination of Future Sound Levels

For screening analysis purposes, determining noise levels within 4 dB(A) of the NAC value is required: therefore, the noise screening analysis buffer zone (NBZ) is 63 dB(A) for Activity Categories B and C. One receiver, representing a duplex with 2 dwelling units, would meet this threshold and be considered "impacted". No substantial increase impacts (defined by the MDOT noise policy as ≥15 dB (A) above existing conditions) were identified in association with the Build Alternative.

Under the Build Alternative, receptors may experience minor to moderate traffic noise increases (2.5 db(A) to 5.8 dB(A)) over existing noise levels; however, they do not rise to the level of substantial increase defined by MDOT noise policy. **Table 3** provides the future traffic noise results and **Appendix B** contains TNM results and layouts.

The No Build Alternative would allow for the continued ambient noise levels to remain unchanged and coincide with the increase in traffic on existing US-11 as influenced by development in the area.

Table 3: Future Traffic Noise Results
US-11 Widening, MDOT Job No. 109496/104100 & 105100
Lamar & Forrest Counties

Receptor*	Dwelling Units	Distance/Location from Proposed US-11 Nearest Travel Lane	Existing 2025 Noise Levels	Future 2050 Noise Levels	Change (+/-)	NAC Noise Impact?
R-1	1	260' West	52.3	54.8	2.5	----
R-2	1	174' West	56.3	58.9	2.6	----
R-3	1	167' West	56.7	59.3	2.6	----
R-4	1	212' West	54.3	56.9	2.6	----
R-5	1	331' West	49.9	52.5	2.6	----
R-6	1	441' West	47.2	49.8	2.6	----
R-7	1	305' West	50.7	53.3	2.6	----
R-8	1	390' West	48.3	50.9	2.6	----
R-9	1	500' West	46.0	48.6	2.6	----
R-10	1	154' West	57.5	60.1	2.6	----
R-11	1	184' West	55.7	58.3	2.6	----
R-12	1	236' West	53.2	55.8	2.6	----
R-13	1	390' West	48.3	50.9	2.6	----
R-14	1	157' West	57.3	59.9	0.0	----
R-15	1	270' West	51.9	54.5	2.6	----
R-16	1	303' West	50.8	53.3	2.6	----

Table 3: Future Traffic Noise Results US-11 Widening, MDOT Job No. 109496/104100 & 105100 Lamar & Forrest Counties						
R-17	1	298' West	48.4	54.2	2.5	----
R-18 (Autism Therapy Clinic)	N/A	406' West	46.2	51.1	5.8	----
R-19	1	463' East	46.6	49.7	4.9	----
R-20	1	178' East	56.1	58.6	3.1	----
R-21	2	100' East	62.0	64.6	2.5	----
R-22	2	180' East	56.0	58.5	2.6	----
R-23	1	269' East	51.9	54.5	2.5	----
R-24	1	181' East	55.9	58.5	2.6	----
R-25	1	349' East	49.4	52.0	2.6	----
R-26	1	197' East	55.0	57.6	2.6	----
R-27	1	267' East	52.0	54.6	2.6	----
R-28	1	447' East	47.1	49.6	2.6	----

*All receptors are single family receptors unless otherwise noted.

8.0 Coordination with Local Officials

Land uses classified as Activity Categories B, C, D, and E and their corresponding NACs are listed in **Table 1**. This information, along with **Table 4** data, is provided to inform and assist local officials and planners of anticipated noise levels so that future development would be compatible. In compliance with federal guidelines, a copy of this screening analysis will be transmitted to Lamar County, Forrest County, and the regional planning commission for land use planning purposes.

Table 4: Future Traffic Noise Results for Compatibility Planning US-11 Widening, MDOT Job No. 109496/104100 & 105100 Lamar & Forrest Counties		
Roadway Section	**63 dB(A)**	**66 dB(A)**
US-11 Two-Lane Improvement	116 ft	87 ft
US-11 Alternative B (New Construction)	131 ft	86 ft

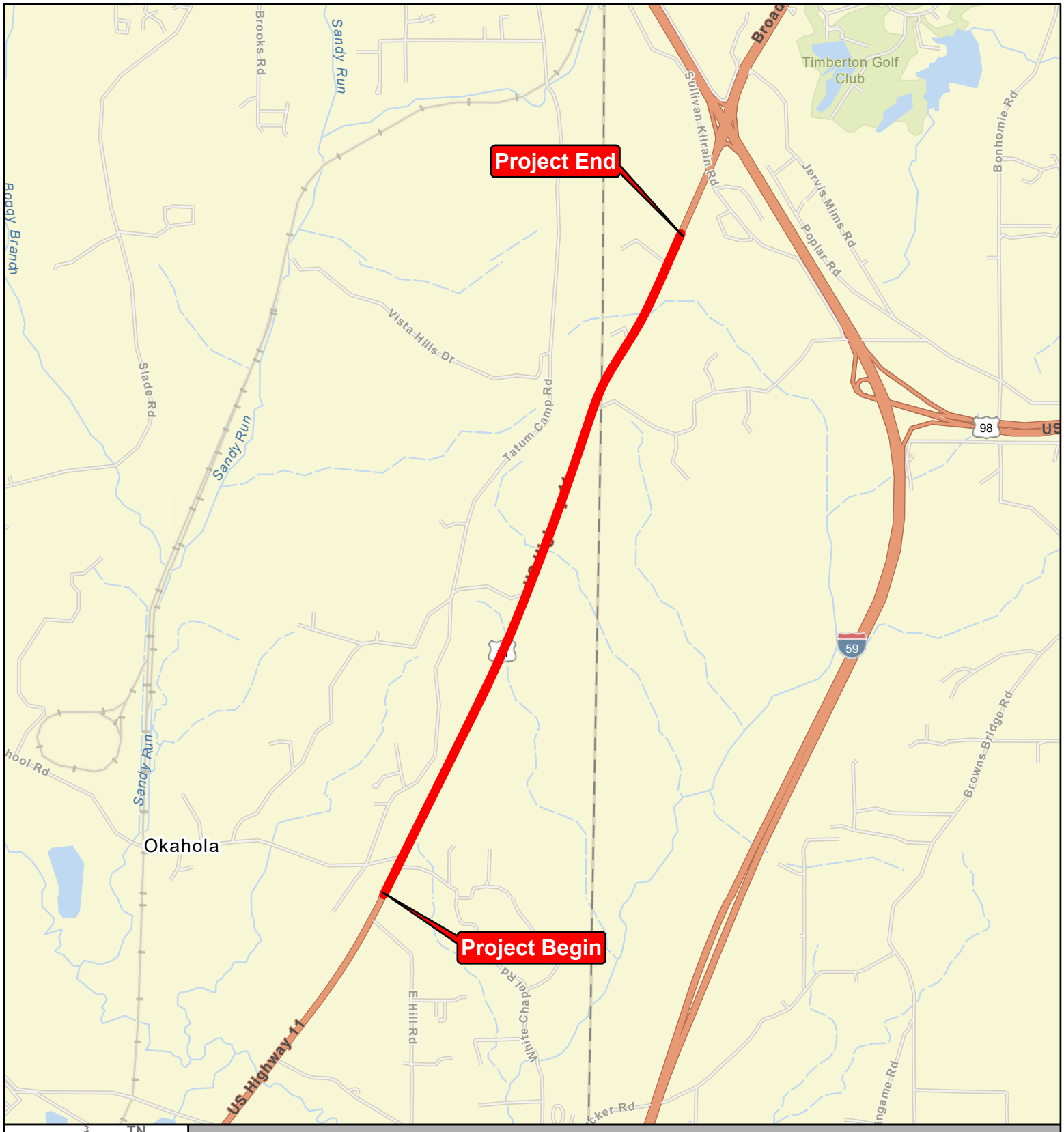
* Approximate average distance from noise contour to proposed centerline of nearest travel lane.

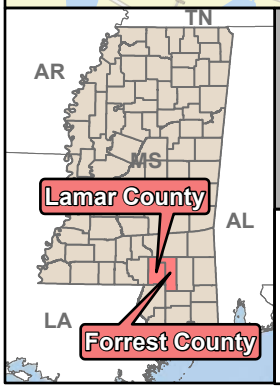
9.0 Conclusion

The noise level increases under the Build Alternative are predicted to range from 2.5 dB(A) up to 5.8 dB(A), which are categorized as minor to moderate, and would not constitute substantial increase noise impacts. Increases in noise levels may occur during the construction phase of the project. These increases would be temporary, of limited duration, and have minor adverse effects on land use and activities in the project area. One receptor analyzed (representing two residential dwelling units) exceeds the noise screening analysis threshold defined as within 4 dB(A) of the NAC for the identified receptor. Driveway access is required to be maintained for this receptor and as a result, any traffic noise abatement would be considered infeasible. Based on these results, a detailed noise analysis is not required for the project.

APPENDICES

Appendix A
Project Overview Map





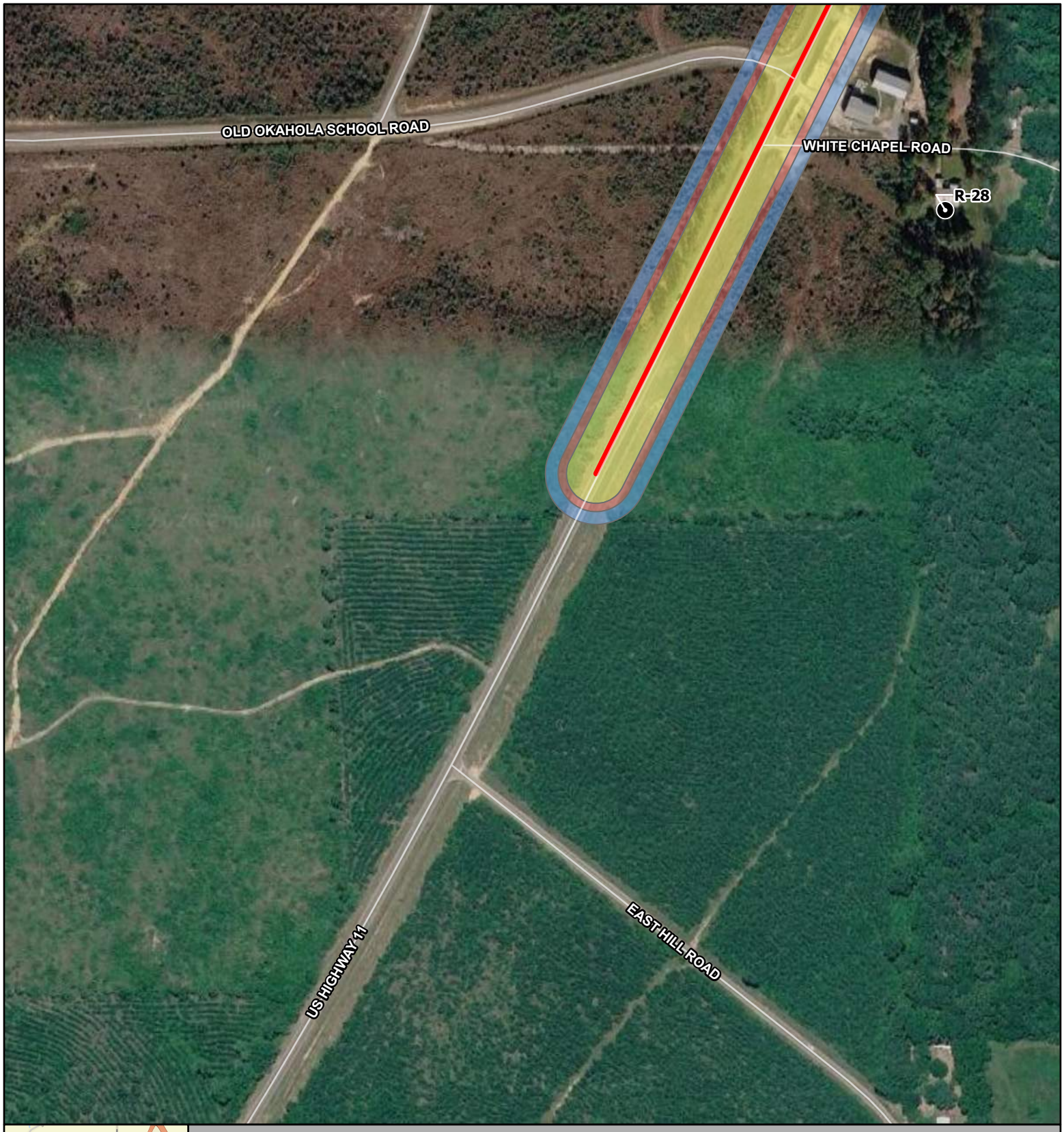
Project Limits

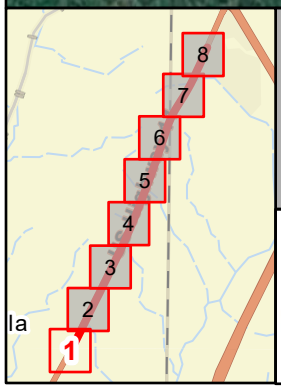
Noise Screening Overview Map
US-11 Widening - Lamar & Forrest Counties, MS

0 0.25 0.5 1 Miles

NORTH

Appendix B
Noise Screening Detailed Map





Project Limits

Receiver (Not Impacted)

Approximate Noise Impact Buffer Zones

- Existing 66 dB(A)
- Proposed 66 dB(A)
- Proposed 63 dB(A)

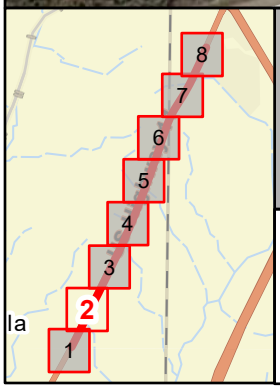
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Noise Screening Detail Map - Page 1 of 8
US-11 Widening - Lamar & Forrest Counties, MS

0 75 150 300
US Feet

NORTH





Project Limits

Receiver (Impacted >=63 dB[A])

Receiver (Not Impacted)

Approximate Noise Impact Buffer Zones

Existing 66 dB(A)

Proposed 66 dB(A)

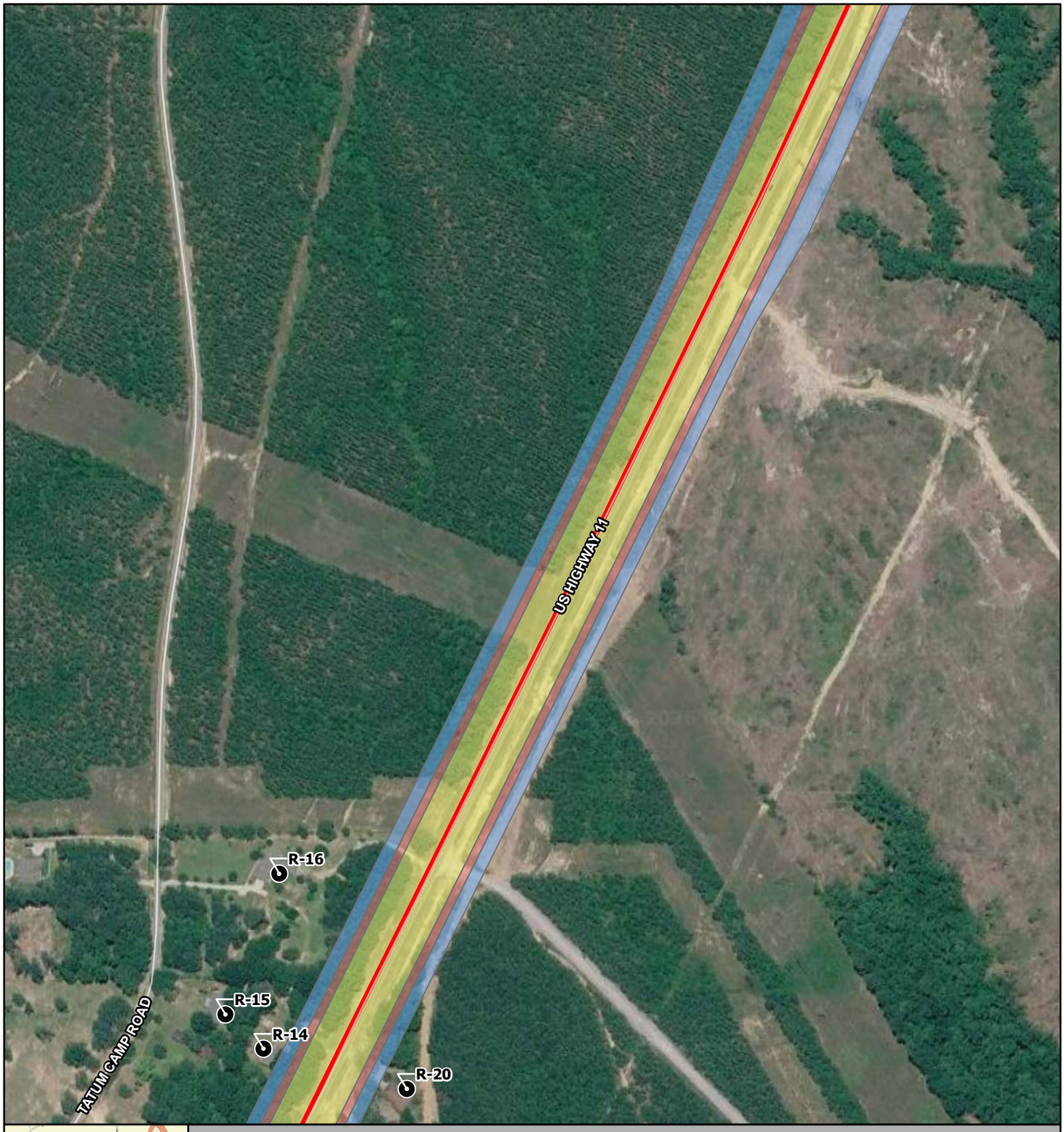
Proposed 63 dB(A)

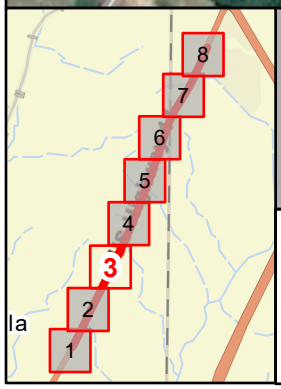
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Noise Screening Detail Map - Page 2 of 8
US-11 Widening - Lamar & Forrest Counties, MS

0 75 150 300
US Feet

NORTH





Project Limits

Receiver (Not Impacted)

Approximate Noise Impact Buffer Zones

- Existing 66 dB(A)
- Proposed 66 dB(A)
- Proposed 63 dB(A)

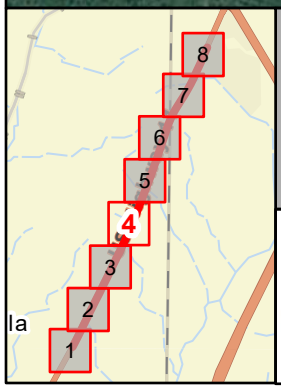
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Noise Screening Detail Map - Page 3 of 8
US-11 Widening - Lamar & Forrest Counties, MS

0 75 150 300
US Feet

NORTH





Project Limits

Approximate Noise Impact Buffer Zones

- Existing 66 dB(A)
- Proposed 66 dB(A)
- Proposed 63 dB(A)

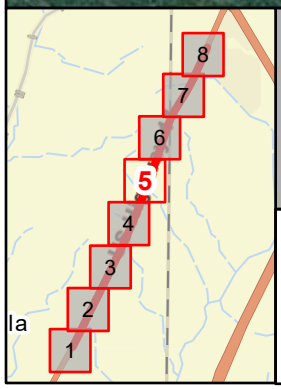
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Noise Screening Detail Map - Page 4 of 8
US-11 Widening - Lamar & Forrest Counties, MS

0 75 150 300
US Feet

NORTH





Project Limits

Approximate Noise Impact Buffer Zones

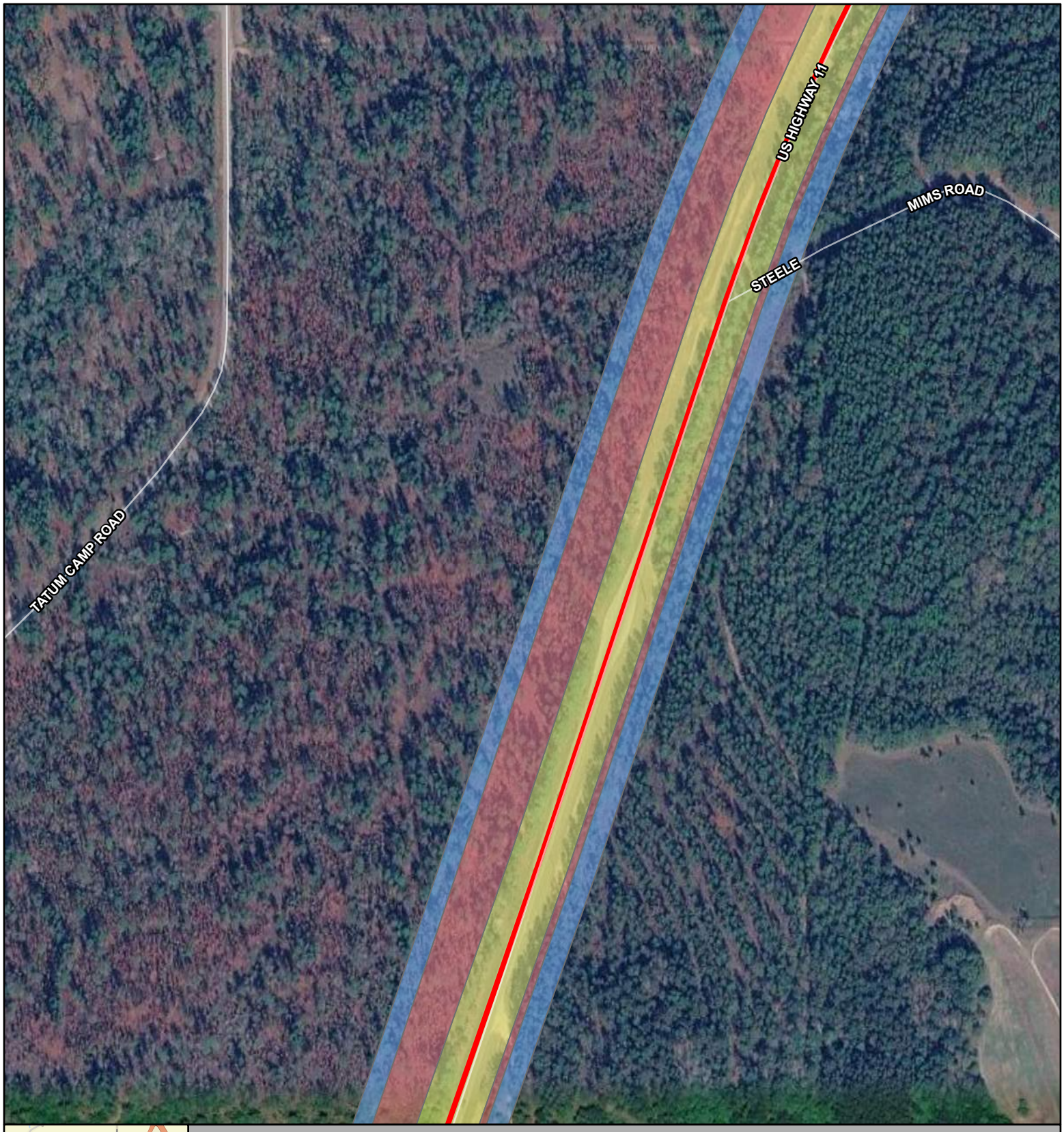
- Existing 66 dB(A)
- Proposed 66 dB(A)
- Proposed 63 dB(A)

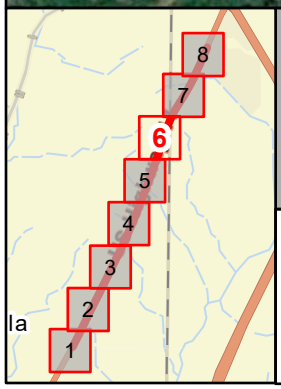
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Noise Screening Detail Map - Page 5 of 8
US-11 Widening - Lamar & Forrest Counties, MS

0 75 150 300
US Feet

NORTH





Project Limits

Approximate Noise Impact Buffer Zones

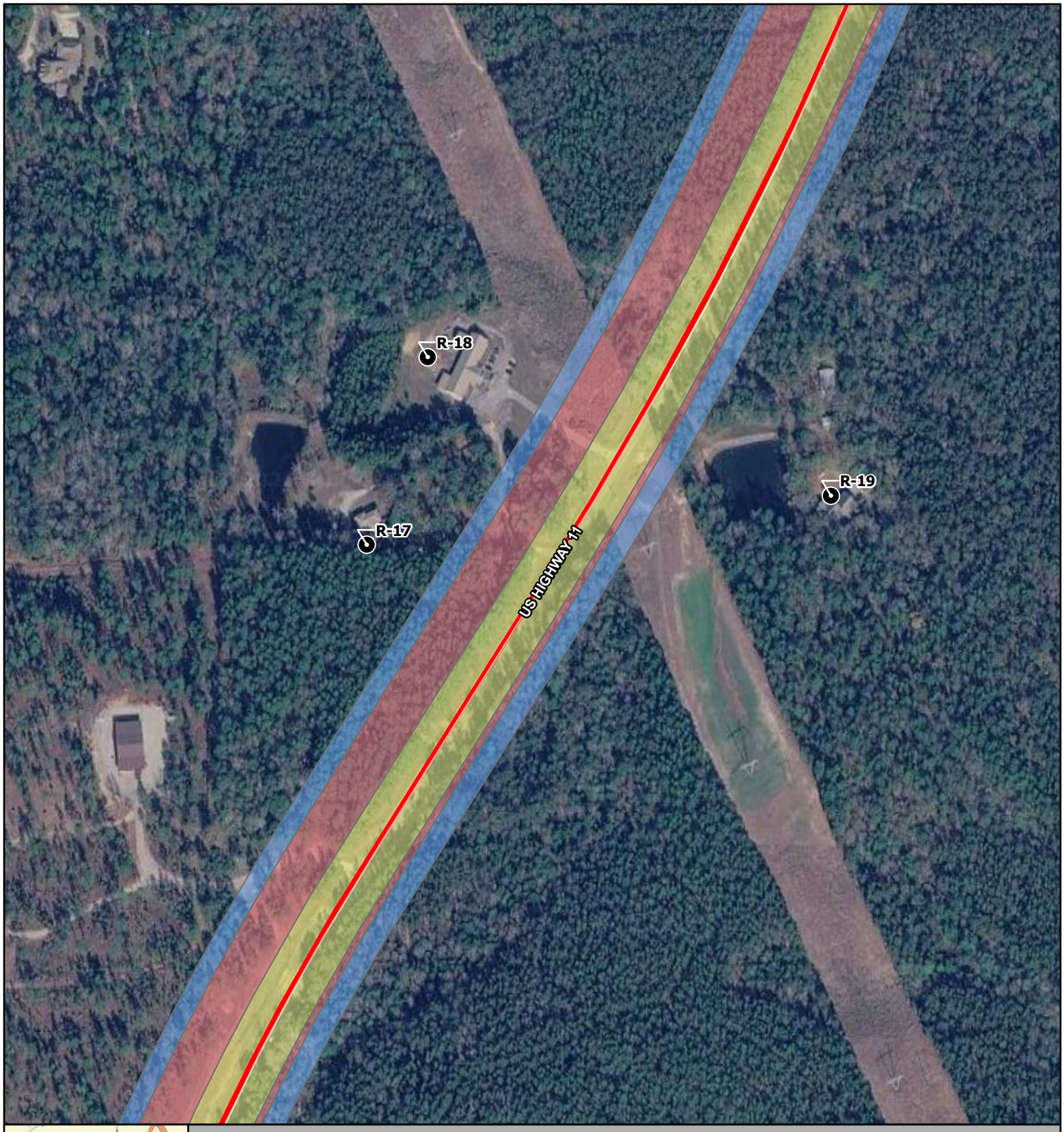
- Existing 66 dB(A)
- Proposed 66 dB(A)
- Proposed 63 dB(A)

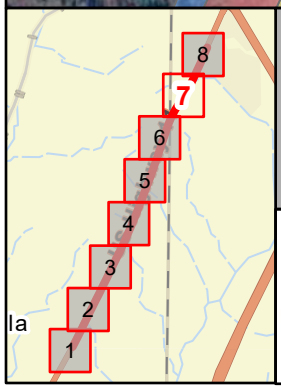
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Noise Screening Detail Map - Page 6 of 8
US-11 Widening - Lamar & Forrest Counties, MS

0 75 150 300
US Feet

NORTH





Project Limits

Receiver (Not Impacted)

Approximate Noise Impact Buffer Zones

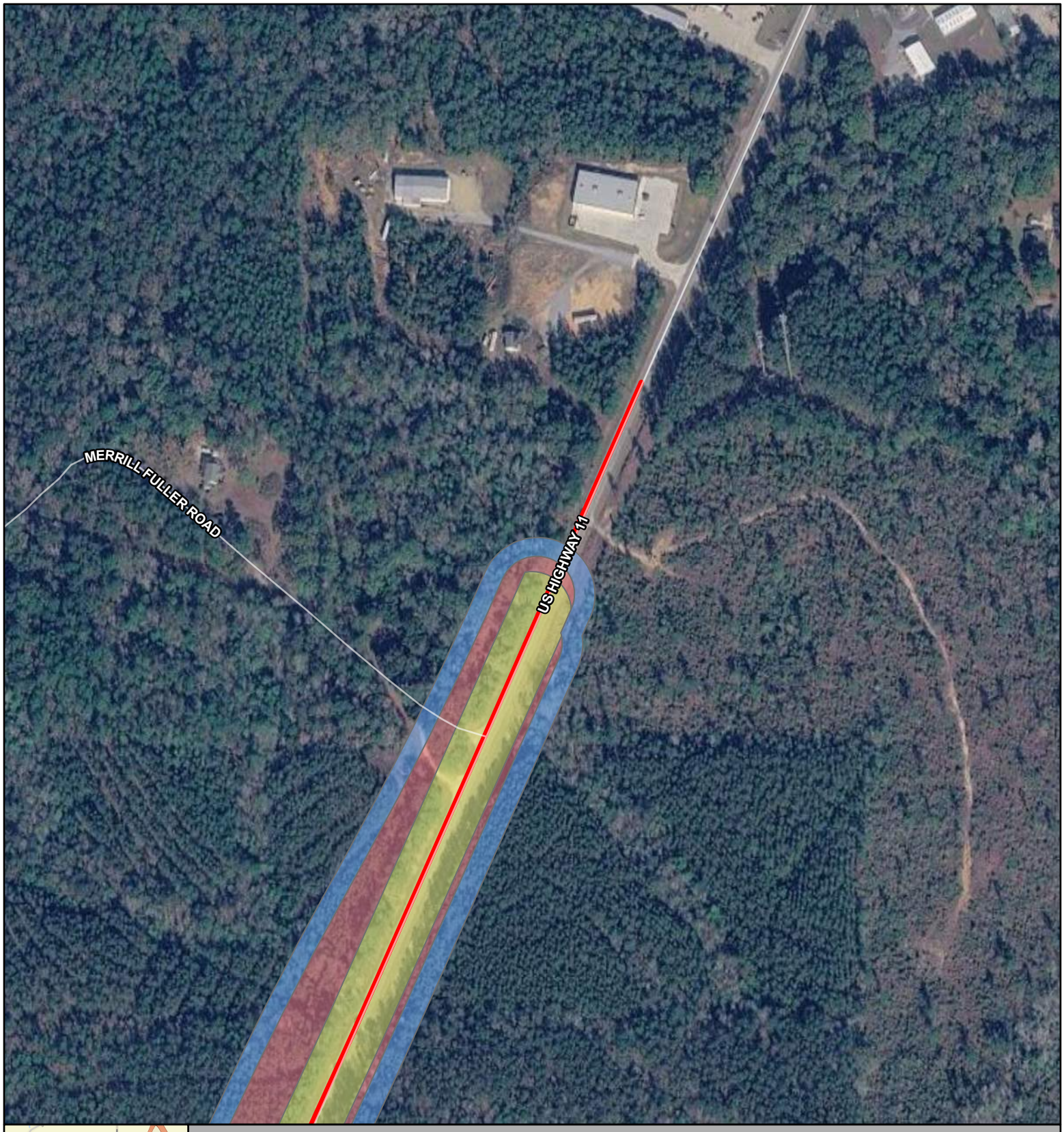
- Existing 66 dB(A)
- Proposed 66 dB(A)
- Proposed 63 dB(A)

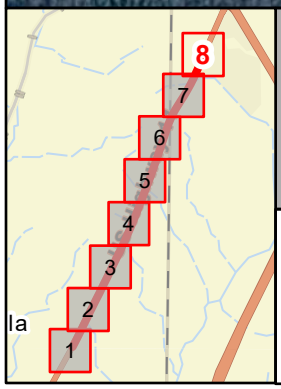
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Noise Screening Detail Map - Page 7 of 8
US-11 Widening - Lamar & Forrest Counties, MS

0 75 150 300
US Feet

NORTH





Project Limits

Approximate Noise Impact Buffer Zones

- Existing 66 dB(A)
- Proposed 66 dB(A)
- Proposed 63 dB(A)

MDOT
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

Noise Screening Detail Map - Page 8 of 8
US-11 Widening - Lamar & Forrest Counties, MS

0 75 150 300
US Feet

NORTH

Appendix C
TNM Results

Garver 20-Feb-26
Leigh Mercer TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: MDOT US-11 Widening
RUN: Existing Conditions - R1
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R-01	1	1	0	52.3	66	52.3	15	----	52.3	0	7	-7
R-02	2	1	0	56.3	66	56.3	15	----	56.3	0	7	-7
R-03	3	1	0	56.7	66	56.7	15	----	56.7	0	7	-7
R-04	4	1	0	54.3	66	54.3	15	----	54.3	0	7	-7
R-05	5	1	0	49.9	66	49.9	15	----	49.9	0	7	-7
R-06	6	1	0	47.2	66	47.2	15	----	47.2	0	7	-7
R-07	7	1	0	50.7	66	50.7	15	----	50.7	0	7	-7
R-08 R-13	8	1	0	48.3	66	48.3	15	----	48.3	0	7	-7
R-09	9	1	0	46.0	66	46	15	----	46	0	7	-7
R-10	10	1	0	57.5	66	57.5	15	----	57.5	0	7	-7
R-11	11	1	0	55.7	66	55.7	15	----	55.7	0	7	-7
R-12	12	1	0	53.2	66	53.2	15	----	53.2	0	7	-7
R-14	13	1	0	57.3	66	57.3	15	----	57.3	0	7	-7
R-15	14	1	0	51.9	66	51.9	15	----	51.9	0	7	-7
R-16	15	1	0	50.8	66	50.8	15	----	50.8	0	7	-7
R-17	16	1	0	48.4	66	48.4	15	----	48.4	0	7	-7
R-18	17	1	0	46.2	66	46.2	15	----	46.2	0	7	-7
R-19	18	1	0	46.6	66	46.6	15	----	46.6	0	7	-7
R-20	19	1	0	56.1	66	56.1	15	----	56.1	0	7	-7
R-21	20	1	0	62.0	66	62	15	----	62	0	7	-7
R-22	21	1	0	56.0	66	56	15	----	56	0	7	-7
R-23	22	1	0	51.9	66	51.9	15	----	51.9	0	7	-7
R-24	23	1	0	55.9	66	55.9	15	----	55.9	0	7	-7
R-25	24	1	0	49.4	66	49.4	15	----	49.4	0	7	-7
R-26	25	1	0	55.0	66	55	15	----	55	0	7	-7
R-27	27	1	0	52.0	66	52	15	----	52	0	7	-7
R-28	29	1	0	47.1	66	47.1	15	----	47.1	0	7	-7
50	30	1	0	68.3	66	68.3	15	Snd Lvl	68.3	0	7	-7
68 - 66 dBA	31	1	0	66	66	66	15	Snd Lvl	66	0	7	-7
200	33	1	0	54.9	66	54.9	15	----	54.9	0	7	-7
250	34	1	0	52.7	66	52.7	15	----	52.7	0	7	-7

Dwelling Units	# DUs	Noise Reduction Min dB	Avg dB	Max dB
All Selected	31	0	0	0
All Impacted	2	0	0	0
All that meet NR Goal	0	0	0	0

Garver
Leigh Mercer

24-Mar-26
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: MDOT US-11 Widening
RUN: Proposed 2-Lane Impvt - R2
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R-01	1	1	0	54.8	66	54.8	15	----	54.8	0	7	-7
R-02	2	1	0	58.9	66	58.9	15	----	58.9	0	7	-7
R-03	3	1	0	59.3	66	59.3	15	----	59.3	0	7	-7
R-04	4	1	0	56.9	66	56.9	15	----	56.9	0	7	-7
R-05	5	1	0	52.5	66	52.5	15	----	52.5	0	7	-7
R-06	6	1	0	49.8	66	49.8	15	----	49.8	0	7	-7
R-07	7	1	0	53.3	66	53.3	15	----	53.3	0	7	-7
R-08 R-13	8	1	0	50.9	66	50.9	15	----	50.9	0	7	-7
R-09	9	1	0	48.6	66	48.6	15	----	48.6	0	7	-7
R-10	10	1	0	60.1	66	60.1	15	----	60.1	0	7	-7
R-11	11	1	0	58.3	66	58.3	15	----	58.3	0	7	-7
R-12	12	1	0	55.8	66	55.8	15	----	55.8	0	7	-7
R-14	13	1	0	59.9	66	59.9	15	----	59.9	0	7	-7
R-15	14	1	0	54.5	66	54.5	15	----	54.5	0	7	-7
R-16	15	1	0	53.3	66	53.3	15	----	53.3	0	7	-7
R-17 (not adjacent)	16	1	0	51	66	51	15	----	51	0	7	-7
R-18 (not adjacent)	17	1	0	48.8	66	48.8	15	----	48.8	0	7	-7
R-19 (not adjacent)	18	1	0	49.2	66	49.2	15	----	49.2	0	7	-7
R-20	19	1	0	58.6	66	58.6	15	----	58.6	0	7	-7
R-21	20	1	0	64.6	66	64.6	15	----	64.6	0	7	-7
R-22	21	1	0	58.5	66	58.5	15	----	58.5	0	7	-7
R-23	22	1	0	54.5	66	54.5	15	----	54.5	0	7	-7
R-24	23	1	0	58.5	66	58.5	15	----	58.5	0	7	-7
R-25	24	1	0	52	66	52	15	----	52	0	7	-7
R-26	25	1	0	57.6	66	57.6	15	----	57.6	0	7	-7
R-27	27	1	0	54.6	66	54.6	15	----	54.6	0	7	-7
R-28	29	1	0	49.6	66	49.6	15	----	49.6	0	7	-7
50	30	1	0	70.9	66	70.9	15	Snd Lvl	70.9	0	7	-7
116 - 63 dBA	31	1	0	63	66	63	15	----	63	0	7	-7
87 - 66 dBA	33	1	0	66	66	66	15	Snd Lvl	66	0	7	-7
200	34	1	0	57.5	66	57.5	15	----	57.5	0	7	-7
250	35	1	0	55.2	66	55.2	15	----	55.2	0	7	-7

Dwelling Units	# DUs	Noise Reduction Min dB	Avg dB	Max dB
All Selected	32	0	0	0
All Impacted	2	0	0	0
All that meet NR Goal	0	0	0	0

Garver 24-Mar-26
Leigh Mercer TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: MDOT US-11 Widening
RUN: Proposed Construction Alt B - R2
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R-17	16	1	0	54.2	66	54.2	15	----	54.2	0	7	-7
R-18	17	1	0	51.1	66	51.1	15	----	51.1	0	7	-7
R-19	18	1	0	49.7	66	49.7	15	----	49.7	0	7	-7
86 - 66 dBA	29	1	0	66	66	66	15	Snd Lvl	66	0	7	-7
150	30	1	0	61.6	66	61.6	15	----	61.6	0	7	-7
200	31	1	0	58.5	66	58.5	15	----	58.5	0	7	-7
131 - 63 dBA	33	1	0	63	66	63	15	----	63	0	7	-7
250	34	1	0	56.1	66	56.1	15	----	56.1	0	7	-7
300	35	1	0	54.2	66	54.2	15	----	54.2	0	7	-7

Dwelling Units	# DUs	Noise Reduction Min dB	Avg dB	Max dB
All Selected	9	0	0	0
All Impacted	1	0	0	0
All that meet NR Goal	0	0	0	0


GARVER