Noise Abatement Decision Report

North County Corridor New State Route 108 Project Noise Study Report, [December 2014]

Stanislaus County, California

District 10 – STA – 108

(SR-108 [PM 27.5/44.5], SR-219 [PM 3.7/4.8], SR-120 [PM 6.9-11.6])

EA: 10-0S8000 & Project ID: 1000000263

February 2017

Noise Abatement Decision Report

North County Corridor New State Route 108 Project Noise Study Report [December 2014]

North County Corridor New State Route 108 Project

Stanislaus County, California

District 10 – STA – 108

(SR-108 [PM 27.5/44.5], SR-219 [PM 3.7/4.8], SR-120 [PM 6.9-11.6])

EA: 10-0S8000 & Project ID: 1000000263

February 2017

Approved By: _____ Date: _____

Richard M. Helgeson
Office Chief, Central Region Design IV
Project Development

THIS PAGE LEFT BLANK INTENTIONALLY

List of Abbreviated Terms

Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
Benefited receptor	A dwelling unit or other equivalent land use expected to receive a noise reduction of at least 5 dBA from the proposed abatement measure
Date of public knowledge	The date of approval of the project CE, FONSI, or ROD.
dB	Decibels
dBA	A-weighted sound pressure level
ED	Environmental Document
FHWA	Federal Highway Administration
Leq	Equivalent sound level (energy averaged sound level)
Leq[h]	A-weighted, energy average sound level during a 1-hour period
MID	Modesto Irrigation District
NAC	Noise abatement criteria
NADR	Noise Abatement Decision Report
NSR	Noise study report
Noise reduction design goal	7 dBA of noise reduction at one or more benefited receptors.
OID	Oakdale Irrigation District
Protocol	Caltrans Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Sound Walls Projects
R	Receiver
Reasonable Allowance	A single dollar value – a reasonable allowance per benefited receptor
SR	State Route
ST	Short Term Measurement
TNM 2.5	FHWA Traffic Noise Model Version 2.5
LT	Long Term Measurement

THIS PAGE LEFT BLANK INTENTIONALLY

1. Introduction

The Noise Abatement Decision Report (NADR) presents the preliminary noise abatement decision as defined in the Caltrans Traffic Noise Analysis Protocol (Protocol). This report has been appoved by a Calfornia licensed professional civil engineer. The project level noise study report (NSR) (Feburary 2017) prepared for this project is hereby incorporated by reference.

1.1. Noise Abatement Assessment Requirements

Title 23, Code of Federal Regulations (CFR), Part 772 of the Federal Highway Administration (FHWA) standards (23 CFR 772) and the Caltrans Traffic Noise Analysis Protocol (Protocol) require that noise abatement be considered for projects that are predicted to result in traffic noise impacts. A traffic noise impact is considered to occur when future predicted design-year noise levels with the project "approach or exceed" Noise Abatement Criteria (NAC) defined in 23 CFR 772 or when the predicted design-year noise levels with the project substantially exceed existing noise levels. A predicted design-year noise level is considered to "approach" the NAC when it is within 1 dBA of the NAC. A substantial increase is defined as being a 12-dBA increase above existing conditions.

23 CFR 772 requires that noise abatement measures that are reasonable and feasible and are likely to be incorporated into the project be identified before adoption of the final environmental document (ED).

The Protocol establishes a process for assessing the reasonableness and feasibility of noise abatement. Before publication of the draft ED, a *preliminary noise abatement decision* is made. The preliminary noise abatement decision is based on the *feasibility* of evaluated abatement and the *preliminary reasonableness determination.* Noise abatement is considered to be acoustically feasible if it is predicted to provide noise reduction of at least 5 dBA at an impacted receptor (FHWA requirement). Other nonacoustical factors relating to geometric standards (e.g., sight distances), safety, maintenance, and security can also affect feasibility.

The overall reasonableness of noise abatement is determined by the following three factors:

- the viewpoints of benefited receptors,
- the cost of noise abatement, and
- the noise reduction design goal.

The preliminary reasonableness determination reported in this document is based on the noise reduction design goal and the cost of abatement. The viewpoints of benefited receptors are

determined by a survey that is normally conducted during the public review period for the project ED.

Caltrans' noise reduction design goal is that a barrier must be predicted to provide at least 7 dBA of noise reduction at one or more benefited receptors. The cost reasonableness of abatement is determined by calculating a cost allowance that is considered to be a reasonable amount of money to spend on abatement. This *reasonable allowance* is then compared to the engineer's cost estimate for the abatement. If the engineer's cost estimate is less than the allowance and the abatement will provide at least 7 dBA of noise reduction at one or more benefited receptors, then the preliminary determination is that the abatement is reasonable. If the cost estimate is higher than the allowance or if the design goal cannot be achieved, the preliminary determination is that abatement is not reasonable.

The NADR presents the preliminary noise abatement decision based on acoustical and nonacoustical feasibility factors, the design goal, and the relationship between noise abatement allowances and the engineer's cost estimate. The NADR does not present the final decision regarding noise abatement; rather, it presents key information on abatement to be considered throughout the environmental review process, based on the best available information at the time the draft ED is published. The final overall reasonableness decision will take this information into account, along with the results of the survey of benefited receptors conducted during the environmental review process.

At the end of the public review process for the ED, the final noise abatement decision is made and is indicated in the final ED. The preliminary noise abatement decision will become the final noise abatement decision unless compelling information received during the environmental review process indicates that it should be changed.

1.2. Purpose of the Noise Abatement Decision Report

The purpose of the NADR is to:

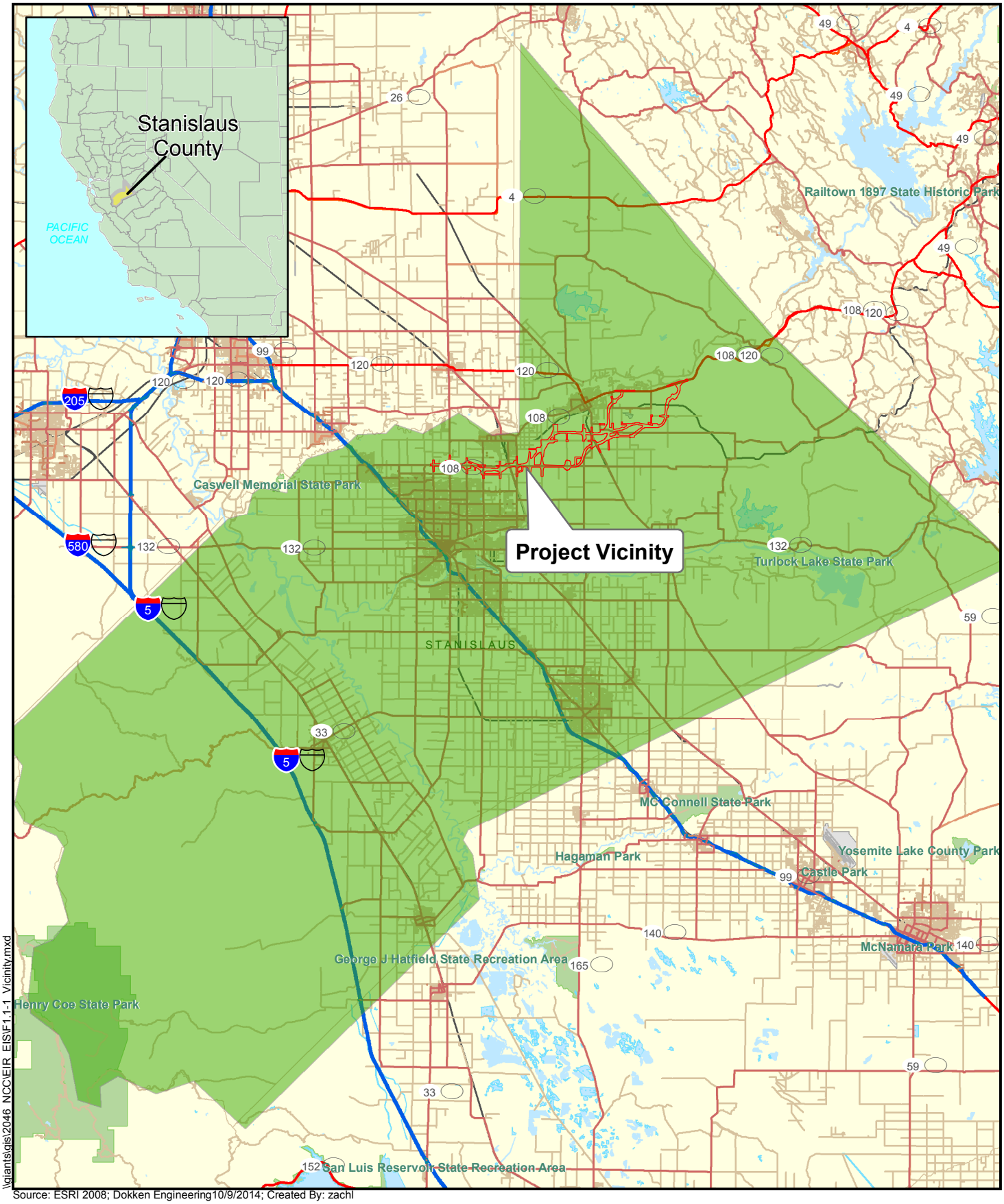
- summarize the conclusions of the NSR relating to acoustical feasibility, the design goal, and the reasonable allowances for abatement evaluated,
- present the engineer's cost estimate for evaluated abatement,
- present the engineer's evaluation of nonacoustical feasibility issues,
- present the preliminary noise abatement decision, and
- present preliminary information on secondary effects of abatement (impacts on cultural resources, scenic views, hazardous materials, biology, etc.).

The NADR does not address noise barriers or other noise-reducing treatments required as mitigation for significant adverse environmental effects identified under the California Environmental Quality Act (CEQA).

1.3. Project Description

The proposed project is located in Caltrans District 10 within portions of the Oakdale, Riverbank, and Modesto communities of Stanislaus County, California (see Figures 1 and 2). The North County Corridor New State Route (SR) 108 Project will connect SR 219 near Modesto, CA to SR 120 near Oakdale, CA. The proposed project consists of four Build Alternatives (1A, 1B, 2A, and 2B) and the No-Build Alternative (see Figure 3).

Segment 1 of all alternatives begins at the SR-219 (Kiernan Avenue)/Tully Road intersection. The alternatives proceed to the vicinity of the Claus Road/Claribel Road intersection, where Segment 2 begins and the alternatives separate into two different alignments (A and B). In Segment 2, Alternatives 1A and 1B veer northeast near the Claus Road/Claribel Road intersection and pass through the southern boundary of Oakdale, and Alternatives 2A and 2B continue easterly along Claribel Road and turn northeastward past the intersection of Claribel Road/Bentley Road. Each of the alternatives then breaks into two possible alignments to their eastern terminus in Segment 3, just past the Oakdale-Waterford Highway. The eastern terminus of Alternatives 1A and 2A end along SR-108/120 just east of the City of Oakdale boundary. Alternatives 1B and 2B end farther east of the Alternatives 1A and 2A terminus, along SR-108/120 in the vicinity of Lancaster Road. The purpose of the project is to reduce existing and future traffic congestion in northern Stanislaus County, enhance traffic safety on existing SR-108, support the efficient movement of goods, and improve interregional travel.



Source: ESRI 2008; Dokken Engineering10/9/2014; Created By: zachl

\\giantstgis\2046 NCC\EIR EIS\F1.1-1 Vicinity.mxd

0 5 10 Miles

FIGURE 1
Project Vicinity

EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California

Environmental Study Limits

EASTERN TERMINUS (1A, 2A)

SR-120 [PM 11.6]

EASTERN TERMINUS (1B, 2B)

SR-120 [PM 6.9]

SIERRA RAILROAD

BURLINGTON NORTHERN SANTA FE RAILROAD

UNION PACIFIC RAILROAD

SR-219 [PM 3.7]

WESTERN TERMINUS (1A, 1B, 2A, 2B)

Project Location

Oakdale

Riverbank

Salida

East Oakdale

Stanislaus River

San Joaquin

Del Rio Country Club

Vintage Faire Mall

Plaza Parkway

Modesto Junior College-West

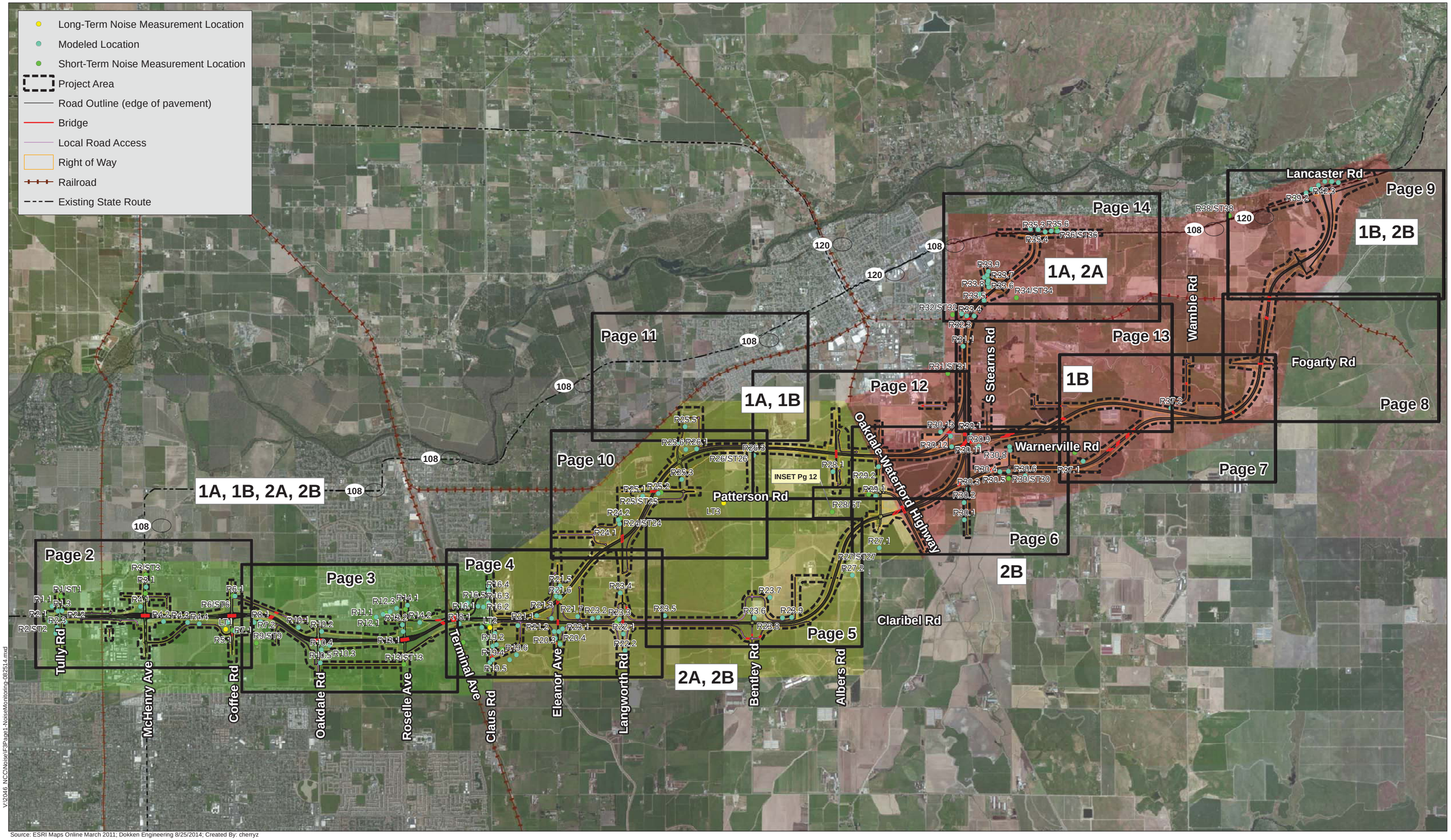
Dry Creek

0 1 2 3 4 5 Miles

Segment 1 Segment 2 Segment 3

FIGURE 2
Project Location
EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California

\\giants\gis\2046_NCC\EIR_EIS\F1.1-2_ProjectLocation.mxd

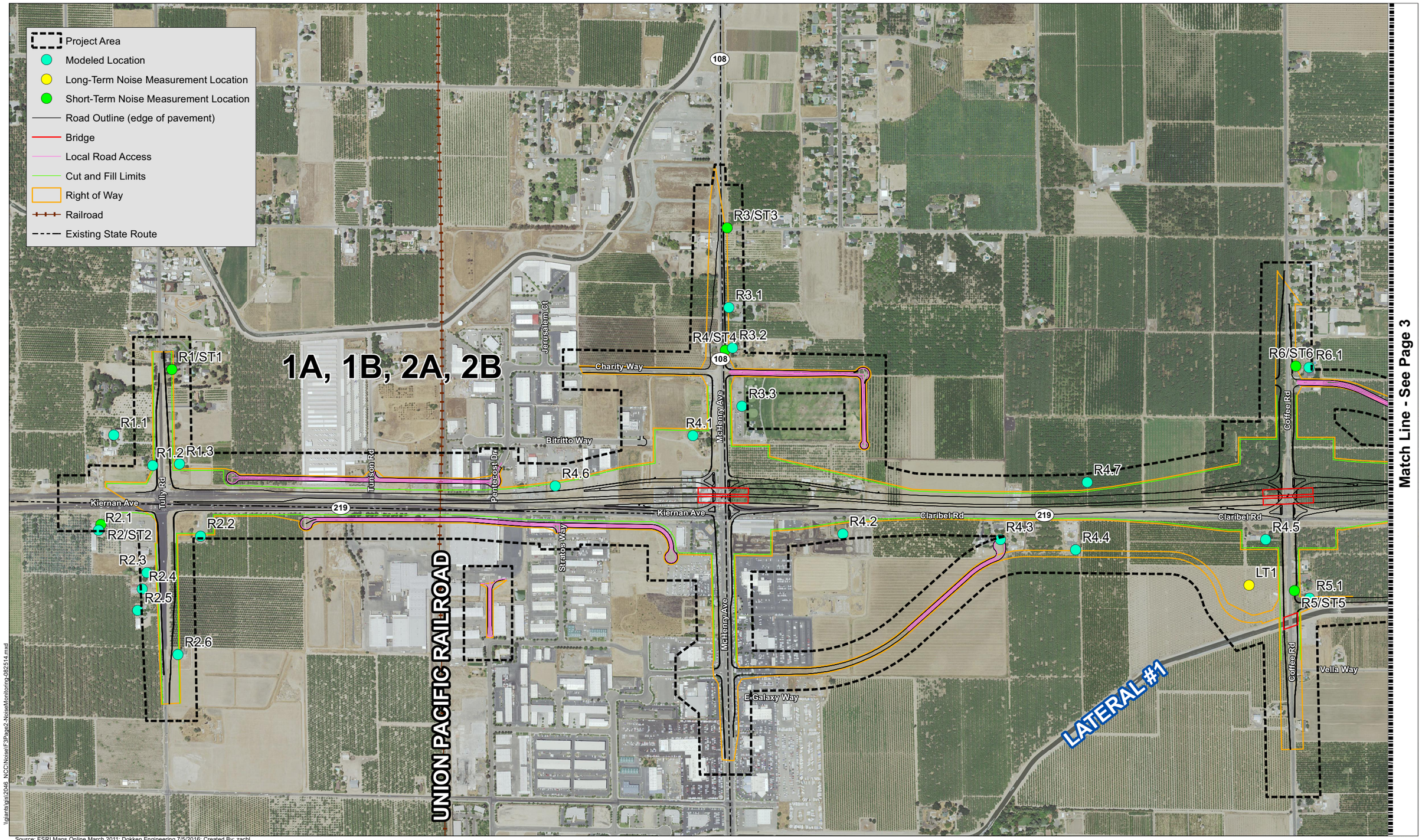


Source: ESRI Maps Online March 2011; Dokken Engineering 8/25/2014; Created By: cherryz

0 0.5 1 1.5 2 Miles

FIGURE 3
Build Alternatives/Noise Receiver Locations
Page 1 of 14

EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California



Source: ESRI Maps Online March 2011; Dokken Engineering 7/5/2016; Created By: zachl

0 500 1,000 1,500 2,000 Feet

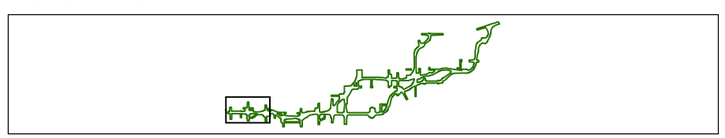
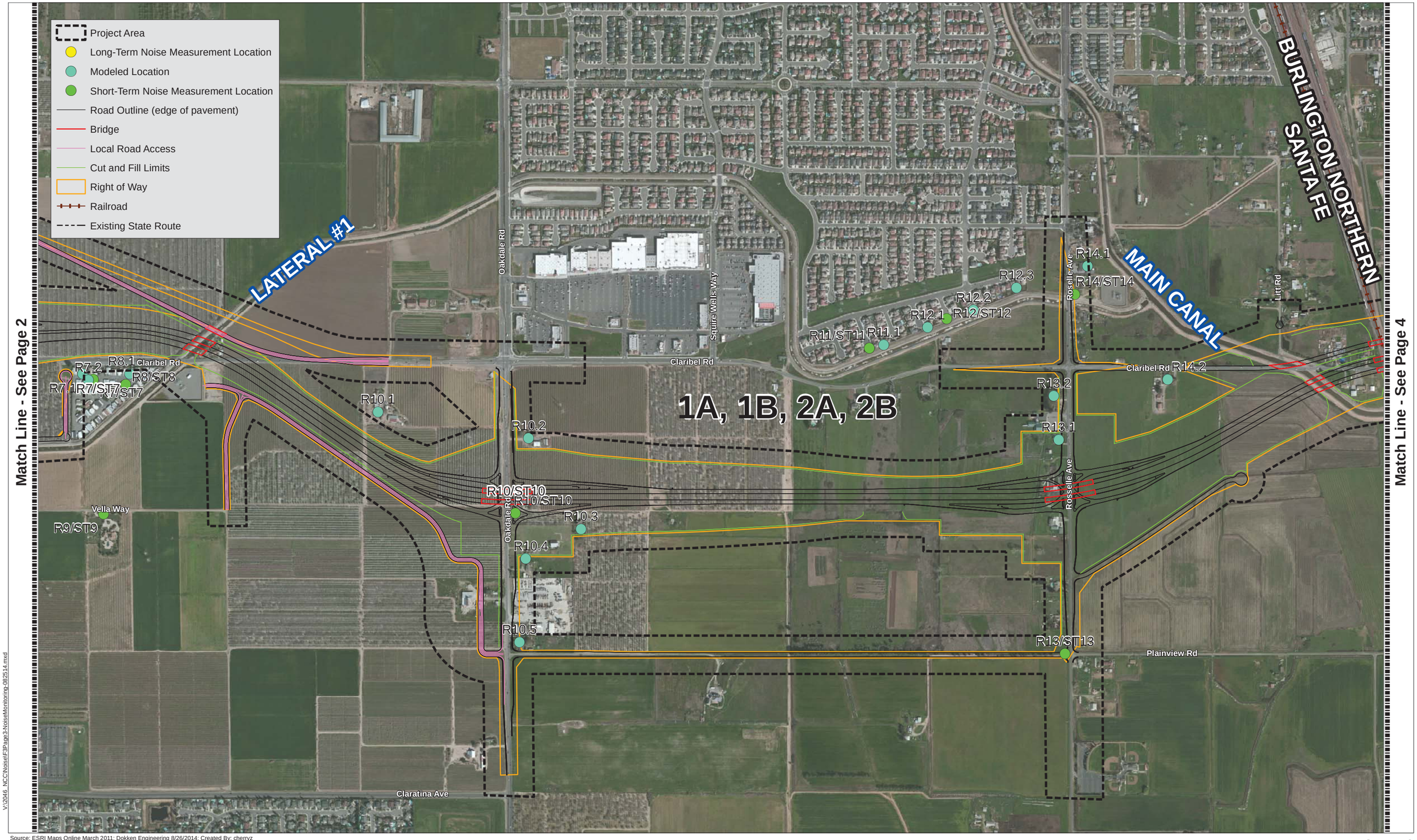


FIGURE 3
Build Alternatives/Noise Receiver Locations
Page 2 of 14
EA: 10-0S800, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California



Source: ESRI Maps Online March 2011; Dokken Engineering 8/26/2014; Created By: cherryz

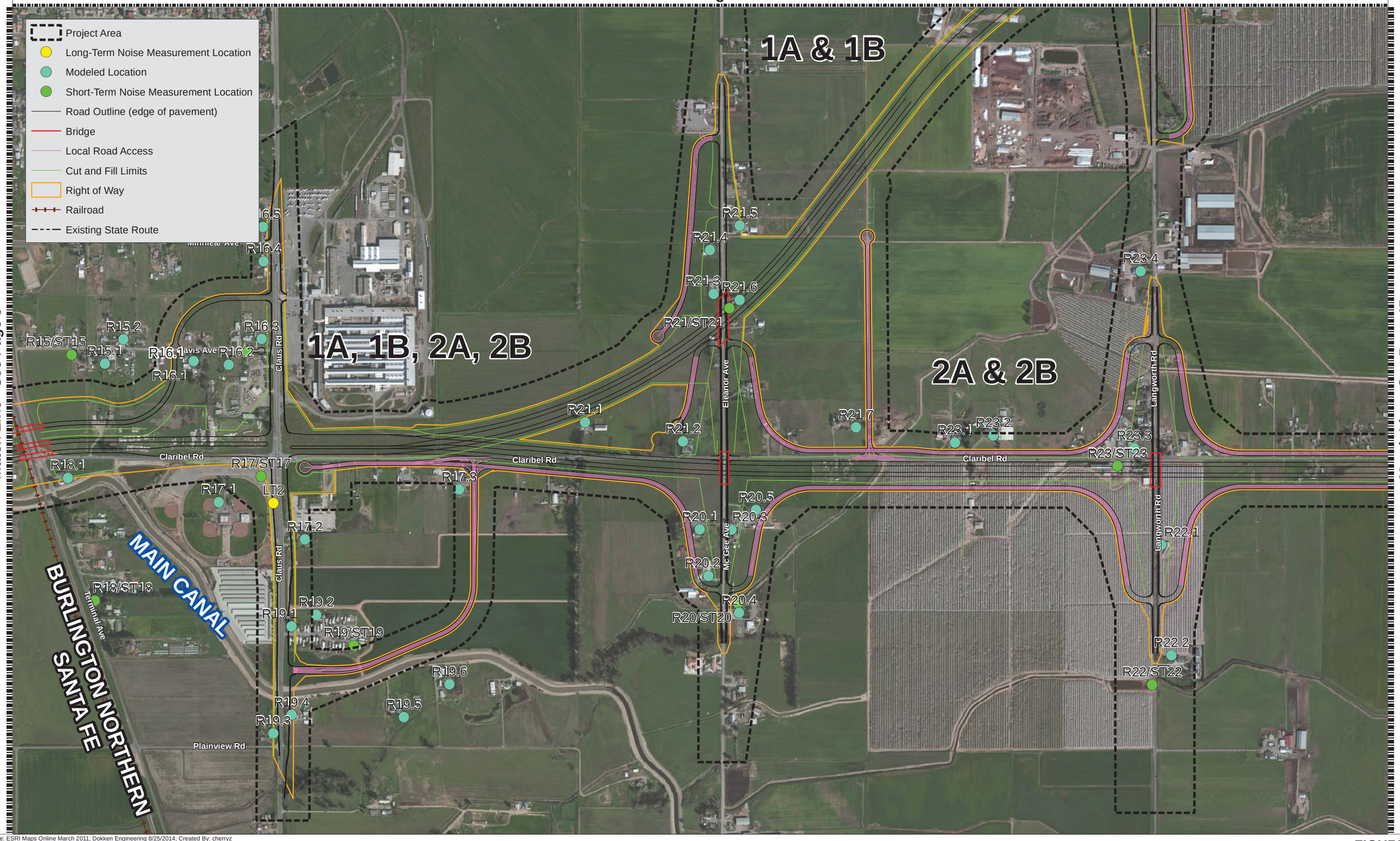
0 500 1,000 1,500 2,000 Feet

FIGURE 3
Build Alternatives/Noise Receiver Locations
Page 3 of 14
EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California

Match Line - See Page 10

Match Line - See Page 3

Match Line - See Page 45



Source: ESRI Maps Online March 2011; Dokken Engineering 8/25/2014; Created By: cherryz

V:\2046_NCC\Noise\F3Page4-NoiseMonitoring-082214.mxd

0 500 1,000 1,500 2,000 Feet

FIGURE 3
Build Alternatives/Noise Receiver Locations
Page 4 of 14

EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California

Match Line - See Page 4

Match Line - See Page 6

Project Area
Long-Term Noise Measurement Location
Modeled Location
Short-Term Noise Measurement Location
Road Outline (edge of pavement)
Bridge
Local Road Access
Cut and Fill Limits
Right of Way
Railroad
Existing State Route

2A & 2B

R23.5
R23.6
R23.7
R23.8
R23.9
R27.2

Claribel Rd
Bentley Rd
Albers Rd
Valk Rd

V:\2046_NCC\Noise\F3Page5-NoiseMonitoring_082214.mxd

Source: ESRI Maps Online March 2011; Dokken Engineering 8/25/2014; Created By: cherryz

0 500 1,000 1,500 2,000 Feet

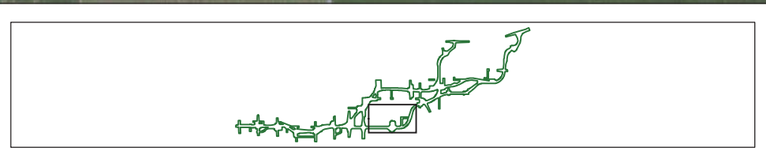
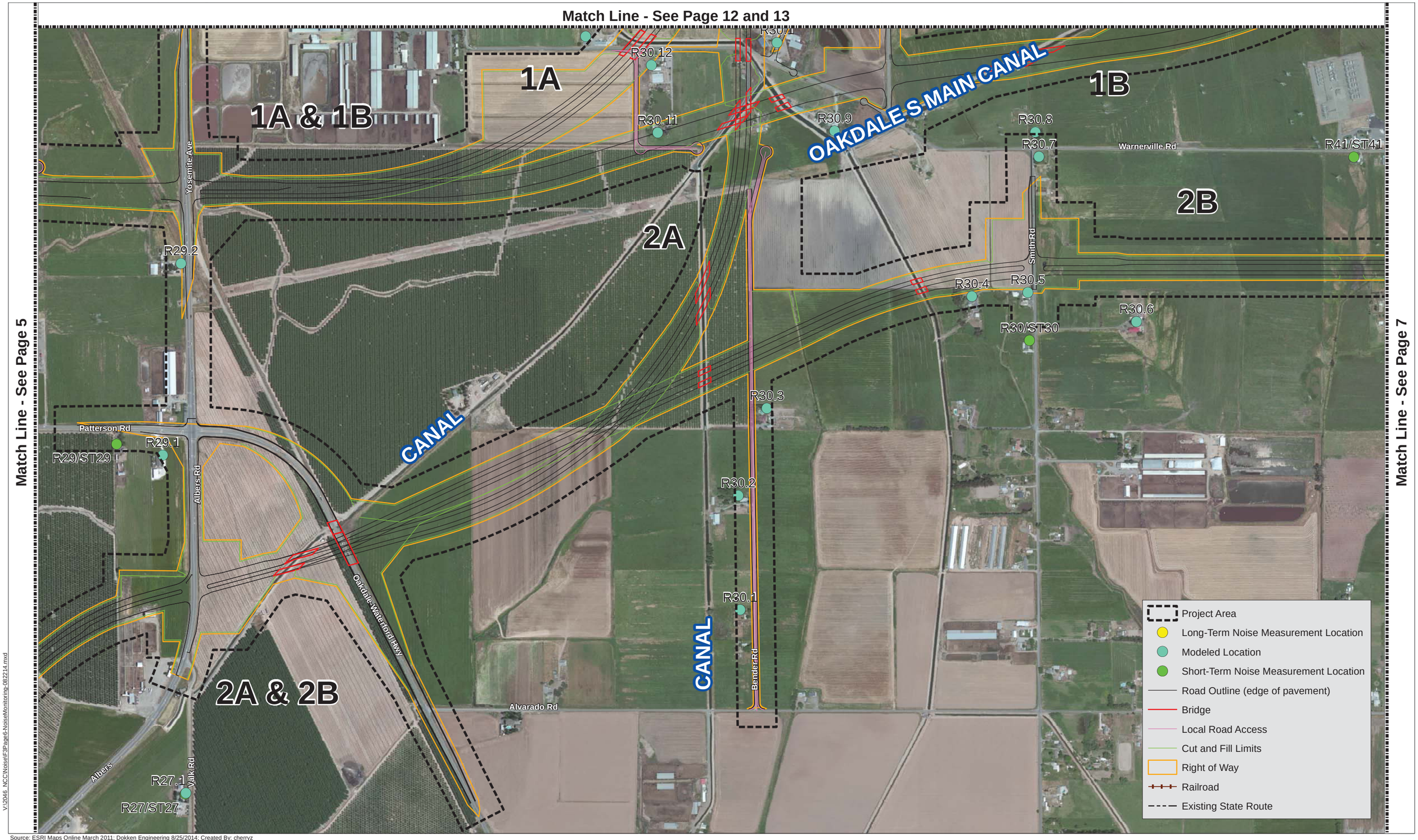


FIGURE 3
Build Alternatives/Noise Receiver Locations
Page 5 of 14
EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California



Source: ESRI Maps Online March 2011; Dokken Engineering 8/25/2014; Created By: cherryz

V:\2046_NCC\Noise\F3Page6-NoiseMonitoring-082214.mxd

FIGURE 3
Build Alternatives/Noise Receiver Locations
Page 6 of 14
EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California

Project Area
Long-Term Noise Measurement Location
Modeled Location
Short-Term Noise Measurement Location
Road Outline (edge of pavement)
Bridge
Local Road Access
Cut and Fill Limits
Right of Way
Railroad
Existing State Route

OAKDALE S MAIN CANAL
OAKDALE S MAIN CANAL
CANAL
1B
2B
Wamble Rd
Fogarty Rd
R37.2
R37/ST37
R37.1
Warnerville Rd
Warnerville Rd
Warnerville Rd
Stoddard Rd
Emery Rd
Match Line - See Page 8
Match Line - See Page 6

V:\2046_NCCNoise\F3page7-NoiseMonitoring-082214.mxd

Source: ESRI Maps Online March 2011; Dokken Engineering 8/25/2014; Created By: cherryz

0 500 1,000 1,500 2,000 Feet

FIGURE 3
Build Alternatives/Noise Receiver Locations
Page 7 of 14
EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California

Match Line - See Page 9

SIERRA RAILROAD

1B & 2B

OAKDALE S MAIN CANAL

Fogarty Rd

Emery Rd

Match Line - See Page 7

- Project Area
- Long-Term Noise Measurement Location
- Modeled Location
- Short-Term Noise Measurement Location
- Road Outline (edge of pavement)
- Bridge
- Local Road Access
- Cut and Fill Limits
- Right of Way
- Railroad
- Existing State Route

V:\2046_NCC\Noise\F3Page8-NoiseMonitoring-082214.mxd

Source: ESRI Maps Online March 2011; Dokken Engineering 8/25/2014; Created By: cherryz

0 500 1,000 1,500 2,000 Feet

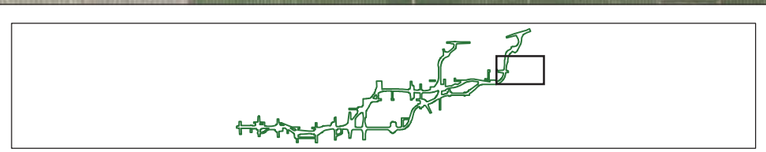


FIGURE 3
Build Alternatives/Noise Receiver Locations
Page 8 of 14
EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California

Match Line - See Page 8

Source: ESRI Maps Online March 2011; Dokken Engineering 8/26/2014; Created By: cherryz

0 500 1,000 1,500 2,000 Feet

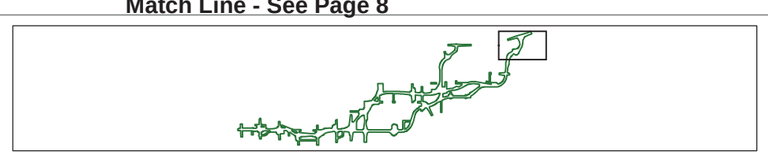


FIGURE 3
Build Alternatives/Noise Receiver Locations
Page 9 of 14
EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California

V:\2046 NCC\Noise\F3Page9-NoiseMontoring-082514.mxd

Match Line - See Page 11

Match Line - See Page 12

Match Line - See Page 4

V:\2046_NCC\Noise\F3\Page10-NoiseMonitoring-082214.mxd

Source: ESRI Maps Online March 2011; Dokken Engineering 8/25/2014; Created By: cherryz

0 500 1,000 1,500 2,000 Feet

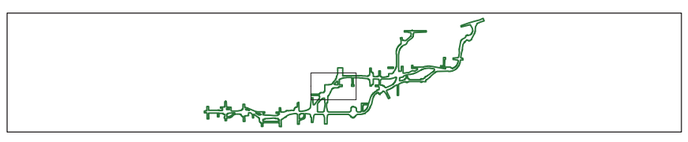
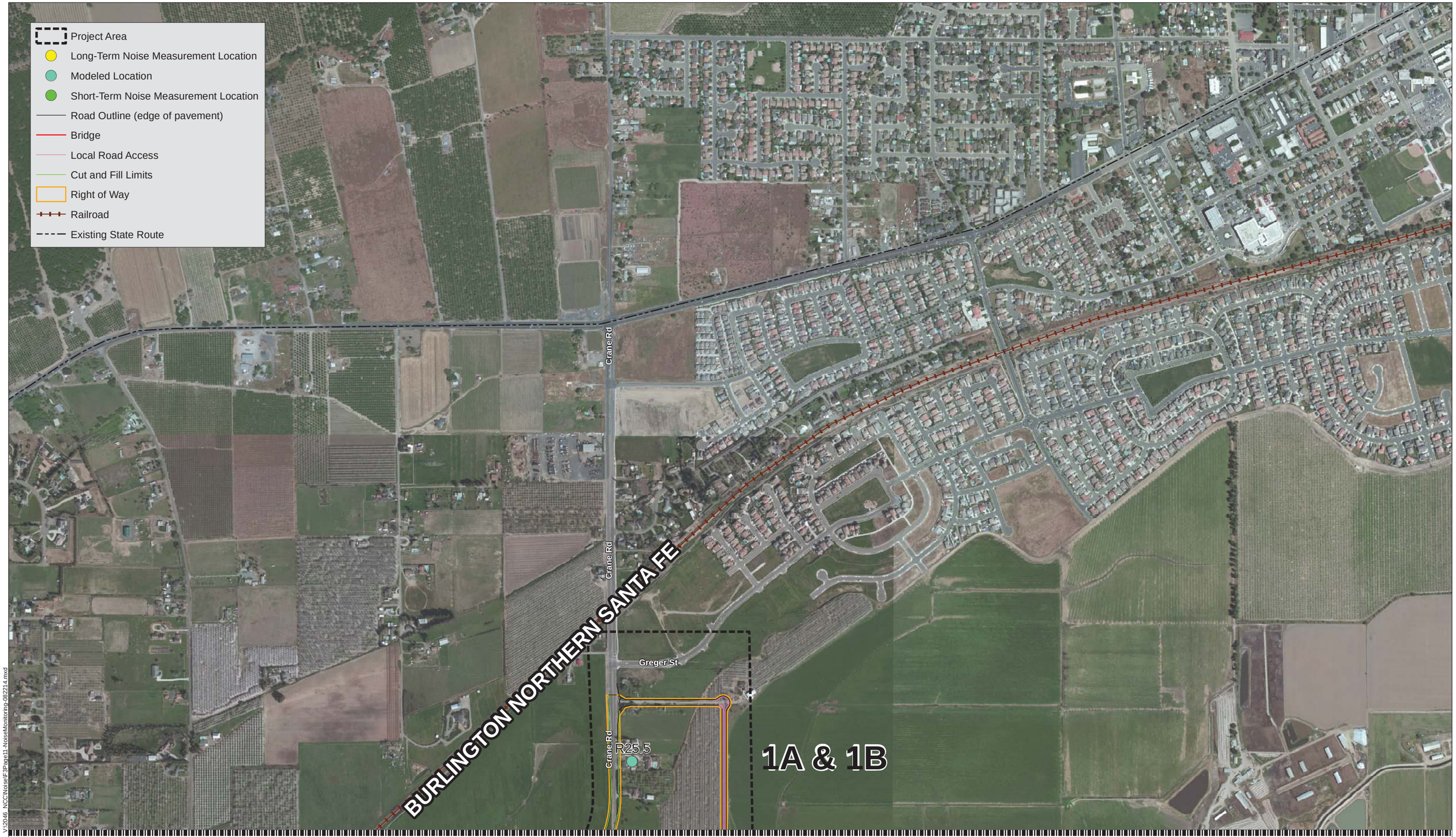


FIGURE 3
Build Alternatives/Noise Receiver Locations
Page 10 of 14
EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California



Match Line - See Page 10

Source: ESRI Maps Online March 2011; Dokken Engineering 8/25/2014; Created By: cherryz

0 500 1,000 1,500 2,000 Feet

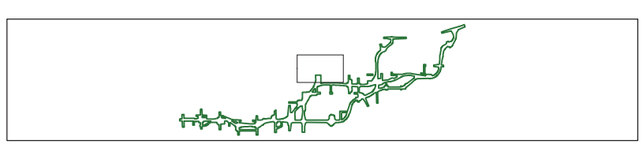
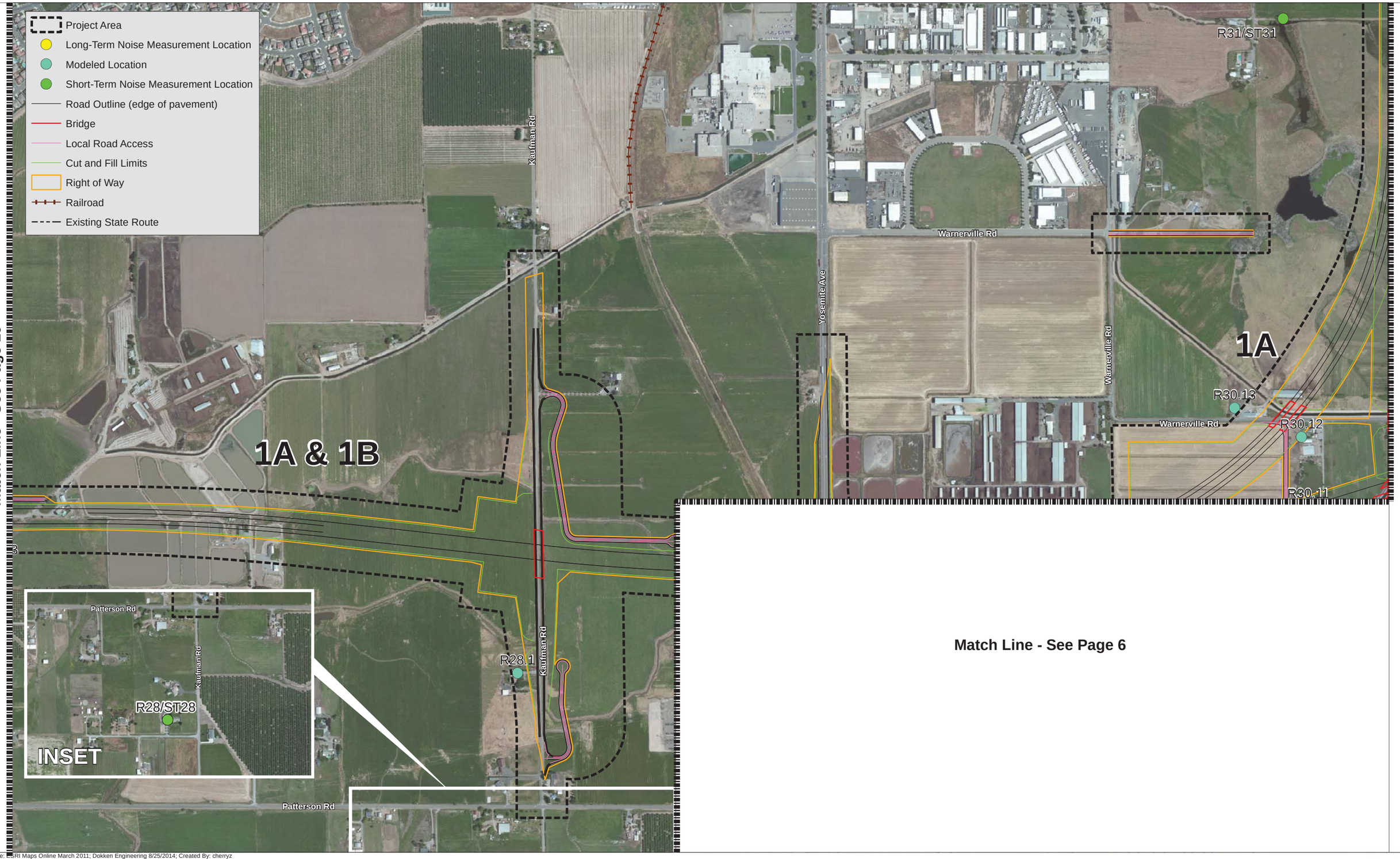


FIGURE 3
Build Alternatives/Noise Receiver Locations
Page 11 of 14
EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California

V:\2046 NCC\Noise\F3Page11-NoiseMonitorlrp-082214.mxd



Source: ESRI Maps Online March 2011; Dokken Engineering 8/25/2014; Created By: cherryz

0 500 1,000 1,500 2,000 Feet

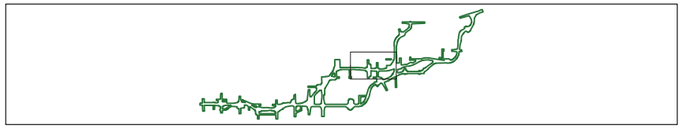
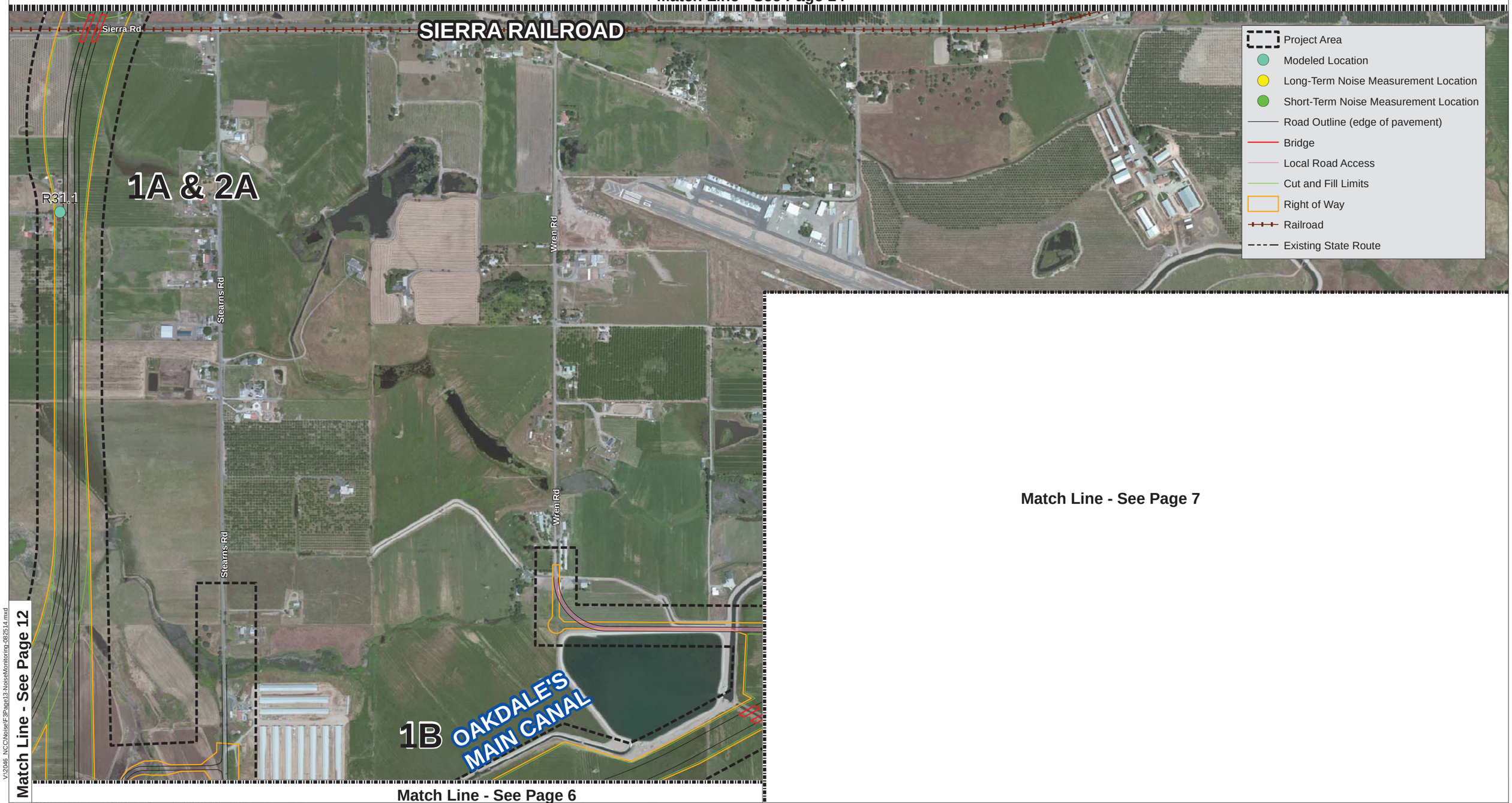


FIGURE 3
Build Alternatives/Noise Receiver Locations
Page 12 of 14
EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California

V:\2046_NCC\Noise\F3Page12-NoiseMonitoring-082214.mxd

Match Line - See Page 14



Match Line - See Page 7

Match Line - See Page 12

Match Line - See Page 6

V:\2046_NCC\Noise\F3Page13-NoiseMonitoring-082514.mxd

Source: ESRI Maps Online March 2011; Dokken Engineering 8/26/2014; Created By: cherryz

0 500 1,000 1,500 2,000 Feet

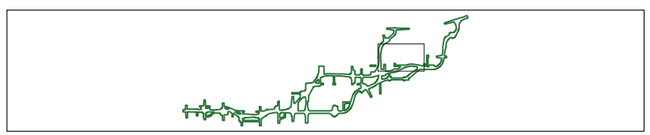
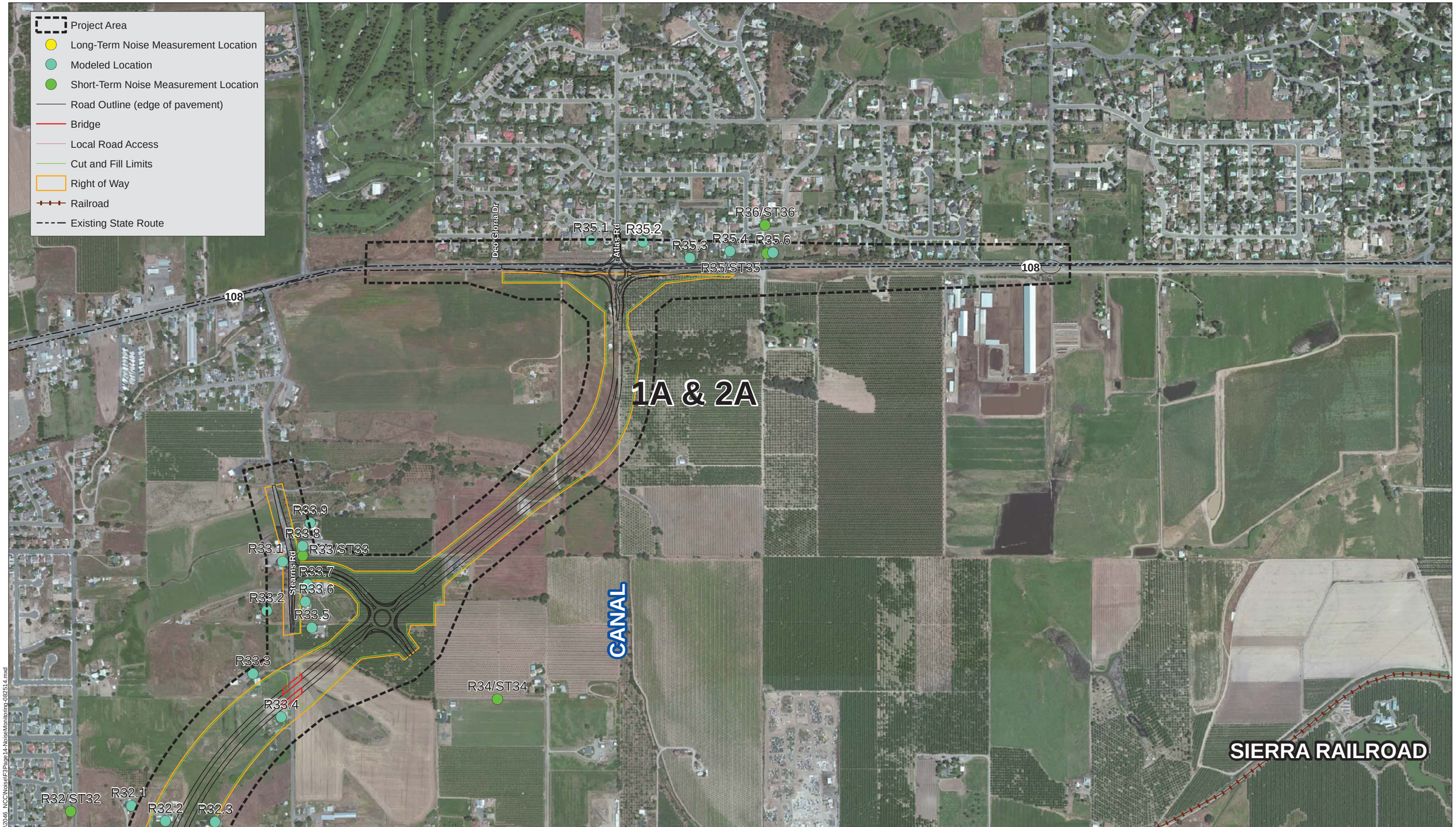


FIGURE 3
Build Alternatives/Noise Receiver Locations
Page 13 of 14
EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California



Match Line - See Page 13

Source: ESRI Maps Online March 2011; Dokken Engineering 8/26/2014; Created By: cherryz

0 500 1,000 1,500 2,000 Feet

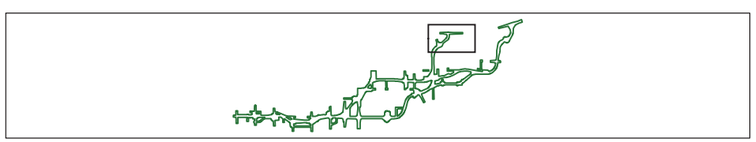


FIGURE 3
Build Alternatives/Noise Receiver Locations
Page 14 of 14
EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California

The proposed project improvements include:

- At grade intersections;
- Grade separation structures at major roadway and railway crossings;
- Structures at various waterway crossings, including Modesto Irrigation District (MID) and Oakdale Irrigation District (OID) canals;
- County and City roadway improvements at various locations; and,
- New freeway/expressway controlled access travel lanes.

The four alternatives would consist of two to three 12-foot-wide through lanes with 5-foot to 10-foot-wide left and right shoulders in each direction. The eastbound and westbound alignments would be separated by a 46 to 70-foot-wide median, including the 5-foot to 19-foot-wide shoulders and 26-foot to 60-foot-wide graded, unpaved median area. Drainage ditches and/or retention basins would be located along either side of the new roadway.

As the proposed roadway would function as a freeway/expressway with controlled access, new and realigned local access roads are needed to provide continued access to existing properties. This would involve construction of a discontinuous local roadway system that would provide a 12-foot-wide through lane and an 8-foot-wide shoulder in each direction. Drainage ditches and/or longitudinal retention basins would be provided between the right-of-way limit and the edge of pavement. Where required, turn lanes would provide connections to cross roads. Each of the four build alternatives includes these proposed local access road modifications, which are delineated in Figure 3.

Elevated roadways, separated grade crossings, single point urban interchanges, signalized intersections, and roundabouts would be needed for each of the four alternatives. A Class 2 bike lane would also be constructed within the road shoulder from Claus Road to the eastern terminus at State-Route 108/120.

Various utilities exist throughout the project area that would need to be relocated. These include electric, telephone, water, sewer, and irrigation lines. At the time of this report, the exact locations to which the impacted utilities would be relocated is unknown, but relocation would take place within the currently defined project area.

Permanent right-of-way and temporary construction easements would also be required for the proposed project.

1.4. Affected Land Uses

A general reconnaissance of the proposed project area was performed within the project limits to identify noise-sensitive land uses. Aerial and Microstation mapping provided by the Project Engineer, street views in Google Maps and field photographs of the project area were used to identify noise-sensitive land uses. Frequent outdoor human use areas were identified at single-family residences within the proposed project area. This land use type falls into NAC Activity Category B. The FHWA and Caltrans NAC for Activity Categories B is 67 dBA L_{eq}(h). There are commercial properties within the project area as well. Commercial properties with outdoor use areas fall itno NAC Activity Category C while properties without outdoor use area fall into land use type NAC Activity Category E. The FHWA and Caltrans NAC for Activity Categories C is 67 dBA L_{eq}(h) and is 72 dBA L_{eq}(h) for NAC Acticity Category E. Addtionally, agricultural and undeveloped land were identified within the project area, which fall into NAC Activity Categories F and G, respectively; however, neither have noise level thresholds. Further, the project area was reviewed to identify any planned and approved future residential developments in the area. However, no future planned and approved residential developments were identified for evaluation. Local County ordinances and City municipal codes provide exemptions to local noise standards for vehicle noise. Traffic noise resulting from the operation of the proposed project is categorized as an exemption to these local noise standards.

As required by the Protocol, all developed land uses are evaluated in this analysis, noise abatement is only considered for outdoor areas of frequent human use that would benefit from a lowered noise level. The Noise Study Report impact analysis focused on all properties within the project area, and included analysis of potential noise impacts at locations with defined outdoor activity areas, such as residential backyards and commercial businesses.

The section of SR-108 located between SR-219 (Kiernan Avenue)/Tully Road intersection and along the alignment of SR-120/108 east of the City of Oakdale encompasses a variety of land uses including single-family residences on farmland, commercial properties and undeveloped farmland. The single-family residences on farmland, are dispersed throughout the entire project area, with great gaps between each grouping of residences. Clusters of single-family residences in master planned developments are also scattered throughout the proposed Project area. Currently, a large portion of SR-108 operates as a “main street” with several signalized intersections and many commercial and residential driveways. These commercial and residential uses hinder the flow of traffic, which results in poor traffic circulation patterns and reduces the level of service on the roadway.

Some of the residences located along SR-108 are located on large lots with formal and informal driveway access along the highway making shielding, such as sound walls, difficult to place near

these locations. To describe the existing land uses in the project area in further detail, land uses within the project area have been divided into three segments as discussed below. Receiver locations are shown in Figure 3.

Segment 1: Tully Road to Claus Road: Single-family residences at the western terminus of the project limits surround the utility substation, located at the northwest corner of Tully Road and Kiernan Avenue. These single-family residences represented by receptors 1.1 to 2.6 have driveway access to Kiernan Avenue and Tully Road. Under the Build conditions, residential right of way acquisition would occur along Kiernan Avenue to accommodate the new alignment, which would bring the roadway closer to receptors in this area. The dominate noise source in the area is traffic traveling on Kiernan Avenue. A church is located along Tully Road and Kiernan Avenue, the Seed of Joy Church. This church does not have any outdoor areas of frequent human use; however there are windows that face the proposed alignment. This church is considered an Activity Category D property, and does have an interior NAC of 52 dBA; however, the predicted noise level at this location is predicted to be 47 dBA.[1]

The concentration of commercial properties for this segment occurs between Tunson Road and McHenry Ave. These commercial properties include a variety of retail businesses such as fitness studios, car maintenance facilities and fast food restaurants. The new project alignment for all Build Alternatives would require right of way acquisition along Kiernan Avenue, including the Empire Sportsmen Association building. Single-family residences represented by 3.1 to 4.1 are located to the north of Kiernan Avenue along McHenry Avenue would become front row receptors to the realigned roadway. In addition, right of way acquisition would occur on McHenry Avenue bringing the roadway closer to these receptors.

The land uses east of McHenry Road to Rosselle Avenue consists mainly of single-family residences on farmlands, represented by receptors 4.2 to 19.6 located adjacent to Claribel Road or their respective local cross streets of Coffee Road, Oakdale Road, Rosselle Avenue and Claus Road. Receptors 7.1 through 8.1 represent the Morningside Mobile Home Park, located adjacent to Claribel Road. Receptors 10.1 to 10.5 south of Claribel Road between Oakdale and Rosselle Road would reside adjacent to the new alignment for all Build Alternatives. As the new alignment continues north from Rosselle Road to Terminal Avenue, additional residential right of way acquisition would occur north of Claribel Road. Local roadway improvements would occur along Rosselle Avenue near single-family residences represented by receptors 11.1 to 14.2

[1]A receiver was placed at the corner of the Seeds of Joy Church to determine the exterior noise level. The exterior noise level was predicted to be 67 dbA Leq (h) for all Build alternatives. Applying 20 dBA attenuation for building insulation per Standard construction methods in Southern California provides an interior noise level of 47 dBA L_{eq} (h) which is below the interior standard 52 dBA L_{eq} (h). Therefore, no interior impacts are predicted.

that reside along Rosselle Avenue and those located near Black sand Creek Way within a master plan community of the City of Riverbank.

The new alignment would also reside adjacent to the Rainbow Fields Sports Park represented by receiver 17.1 along Claribel Road.

Local roads such as Tully Road, McHenry, Coffee Avenue, Oakdale Road and Rosselle Avenue are the dominant noise sources to residences adjacent to these roadways, while Kiernan Avenue and Claribel are main roadways that are the dominant noise sources for receptors with driveway access directly to these main roads. The terrain in this area is relatively flat and similar to the elevation of nearby local or main roadways. Although some properties have fences along their property line, no existing sound walls in this segment shield receptors from traffic noise.

Segment 2: Claus Road to Albers Road: The majority of the receptors within this segment consists of single-family residences located on farmlands; they are sparsely located throughout the area and experience a serene existing noise environment. The only concentrated single-family area in this segment is the Olive Lane Mobile Home Park located along Claus Road, represented by Receptors 19.1 and 19.2. Receptors 19.3 to 19.5 represent single-family residences on farmlands near Plainview Road. The widening of Claus Road in this area would bring these receptors closer to the realigned roadway.

Local roads in this zone include Terminal Avenue, Claus Road, McGee Avenue and Langsworth Road, while Claribel is the main road. Traffic traveling on Claribel Road is the dominant noise source in the area. The terrain in this segment is relatively flat and similar to the elevation of nearby local or main roadways. There are no existing sound walls in this segment that shield receptors from traffic noise. Receptors 21.1 to 23.9 represent the single-family residences on farmland. These receptors experience a serene existing noise environment.

Segment 3: Albers Road to SR-120/108: The sizes of the agricultural parcels with single-family residences in this segment are larger than the parcels in Segments 1 and 2. Receptors 24.1 to 33.9 and 37.1 and 38 represent the single-family residences on farmland. These receptors experience a serene existing noise environment. Access to the properties within this segment is limited to travel on local roadways. No main roadways lead to the agricultural parcels in this segment. Single-family residences, represented by 35.1 to 35.6 reside in the City of Oakdale located near Sierra Road and Orsi Road and along Orange Blossom Road. The Oakdale community consists of several single-family homes in the Oakdale Golf and Country Club master plan community. Existing sound walls ESW-1, ESW-2 and ESW-3 shield these receptors from traffic noise on local roadways. SR-120/108 provides the main access to local roadways within this community. Beyond the City of Oakdale, single-family residences represented by

39.1 to 42.3 are sparsely located along Lancaster Road with backyards facing SR-120/SR-108. Similar to the other segments, the terrain continues to be relatively flat and similar in elevation to local roadways. There are no existing sound walls that shield these receptors from traffic noise on local roadways.

2. Results of the Noise Study Report

The NSR for this project was prepared by Joza Burnam (Entech Consulting) on April 25, 2015 and approved by Michelle A. Jones (Entech Consulting) on April 25, 2015. The project was approved by Allam Alhabaly (Caltrans) on February 27, 2017.

Under No-Build conditions, no improvements would be constructed, however traffic volumes increase over existing conditions. The traffic noise modeling results for the design year No-Build Alternative range from 41 to 68 dBA L_{eq}(h), as shown in Table A-1 of Appendix A. These noise levels result in an increase of up to 7 dBA under No-Build conditions. Furthermore, No-Build noise levels at few of the evaluated receptors approach 67 dBA for NAC Activity Category B.

The design year traffic noise modeling results for the four Build Alternatives are presented below.

Noise levels range from 46 to 78 dBA L_{eq}(h), as shown in Tables A-1 through A-4 of Appendix A. Noise levels for the design year under the Build Alternatives are expected to be up to 35 dBA higher than existing noise levels at some locations (existing noise levels can be found in Appendix A). This substantial increase is due to sensitive receptors being adjacent to the new alignment and increased traffic volumes under Build conditions. A description of the changes in noise levels at sensitive receptors is presented for each segment below.

Segment 1-Tully Road to Claus Road.

Noise levels within this segment are identical for each Build Alternative so changes in noise levels are considered to be similar for each Build Alternative.

Tully Road and Kiernan Avenue. Except for Receiver 2.1, receivers located near Tully Road and Kiernan Avenue, represented by 1.1 through 2.6, experience an increase in noise levels due to the widening of Tully Road and Kiernan Avenue and an increase in traffic volumes under Build conditions. Receiver 2.1 experiences a decrease because the new alignment is shifted away from this receiver. Noise levels for these receivers remain below 67 dBA for NAC Activity Category B.

At this location, the difference in noise levels between existing vs Build is between 3 and 7 dBA. As these noise level differences do not exceed 12 DBA, no substantial increase from existing noise levels to build noise levels is anticipated at this location.

Kiernan Avenue and McHenry Avenue. Single-family residence represented by Receiver 3.1 experience a slight decrease in noise levels under future Build conditions due to the right of

way acquisition from the realigning and widening of McHenry Avenue. Traffic is shifted away from this receiver. Noise levels for these receivers would exceed 67 dBA for NAC Activity Category B. At this location, the difference in noise levels between existing vs Build is 1 dBA. As this noise level difference does not exceed 12 DBA, no substantial increase from existing noise levels to build noise levels is anticipated at this location.

Receiver 3.2 represents the McHentry Golf Center, an outdoor golf driving range,, and is classified as a NAC Activity Category E. At this location, the difference in noise levels between existing vs Build is 0 dBA. As this noise level difference does not exceed 12 DBA, no substantial increase from existing noise levels to build noise levels is anticipated at this location. Further, noise levels for this receiver would not exceed 72 dBA for NAC Activity Category E.

Receiver 3.3 represents a commercial businesses, Bar El Atrancon, and is classified as a NAC Activity Category C. At this location, the difference in noise levels between existing vs Build is 1 dBA. As this noise level difference does not exceed 12 DBA, no substantial increase from existing noise levels to build noise levels is anticipated at this location. Additionally, noise levels for this receiver would exceed 67 dBA for NAC Activity Category C.

Between McHenry Avenue and Coffee Road. Receiver 4.1 represents a single-family residence that would become a first row receiver under future Build conditions due to right of way acquisition for the realignment of Kiernan Avenue. Receivers 4.2 through 4.5 move farther away from the realigned roadway; therefore, noise levels do not approach or exceed 67 dBA for NAC Activity Category B. Receiver 4.5 is located adjacent to the new alignment near Coffee Road and experiences an increase over existing noise levels, yet noise levels remain below 67 dBA for NAC Activity Category B.

At this location, the difference in noise levels between existing vs Build is between 2 and 7 dBA. As these noise level differences do not exceed 12 DBA, no substantial increase from existing noise levels to build noise levels is anticipated at this location.

Receiver 4.6 represents undeveloped land, and is classified as a NAC Activity Category G, and Receiver 4.7 represents an agricultural field, and is classified as a NAC Activity Category F. Neither NAC Activity Category G nor F have noise thresholds. While the NAC Activity Category G and F difference between existing and build noise levels is 12 dBA and 14 dBA respectively, no substantial increase thresholds exist for these NAC Activity Categories. No substantial increase in noise is identified at these locations.

South of Claribel Road along Coffee Road. Receiver 5.1 represents the single-family residences on Coffee Road, south of Claribel Road. This receiver does not experience a change in noise levels over No-Build noise levels. Build condition noise levels do not exceed 67 dBA for NAC Activity Category B.

At this location, the difference in noise levels between existing vs Build is 4 dBA. As this noise level difference does not exceed 12 DBA, no substantial increase from existing noise levels to build noise levels is anticipated at this location.

North of Claribel Road along Coffee Road. Receiver 6.1 represents single-family residences along Coffee Road, north of Claribel Road. This receiver also does not experience a change in noise levels over No-Build noise levels. Build condition noise levels do not exceed 67 dBA for NAC Activity Category B.

At this location, the difference in noise levels between existing vs Build is 6 dBA. As this noise level difference does not exceed 12 DBA, no substantial increase from existing noise levels to build noise levels is anticipated at this location.

Morningside Mobile Home Park adjacent to Claribel Road. Receivers 7 through 8.1 represent receivers located within the Morningside Mobile Home Park. These receivers experience a decrease over No-Build noise levels resulting from the realigned roadway moving farther away from these receivers. Noise levels for these receivers are below 67 dBA for NAC Activity Category B.

At this location, the difference in noise levels between existing vs Build is between -2 and 0 dBA. As these noise level differences do not exceed 12 DBA, no substantial increase from existing noise levels to build noise levels is anticipated at this location.

South of Claribel Road along Oakdale Road. The new alignment brings traffic noise closer to sensitive receivers 10.1 through 10.5. These receivers were not previously near major roadways. Under Build conditions, increases in noise levels over No-Build conditions are attributed to the proposed Project shifting traffic closer to these sensitive receivers. The traffic volumes on the new alignment and the close proximity to these sensitive receivers increases noise levels above No-Build noise levels. Receiver 10.3 experiences a substantial increase.

At this location, the difference in noise levels between existing vs Build is between 1 and 10 dBA. As these noise level differences do not exceed 12 DBA, no substantial increase from existing noise levels to build noise levels is anticipated at this location.

Claribel Road and Roselle Avenue. Receivers 11.1, 12.1 through 12.3, 13.1, 13.2, 14.1 and 14.2 are adjacent to widening occurring on Roselle Avenue and the new alignment. The receivers that have the greatest increase in noise levels are receivers 13.1 and 13.2 due to traffic under the Build Alternative conditions increases on Roselle Avenue. However, traffic decreases on Claribel Road near receiver 14.2 therefore, this receiver experiences a decrease in noise levels. Noise levels for this area remain below 67 dBA for NAC Activity Category B.

At this location, the difference in noise levels between existing vs Build is between -6 and 4 dBA. As these noise level differences do not exceed 12 DBA, no substantial increase from existing noise levels to build noise levels is anticipated at this location.

Terminal Avenue to Claus Road. Receivers 15.1, 15.2, 16.1, 17.3 and 18.1 experience increases in noise levels from future No-Build to Build conditions due to increases in traffic volumes and the new realignment; however, noise levels remain below 67 dBA for NAC Activity Category B. However, Receivers 16.2 through 16.5 and 17.2, represent residences along Claus Road, do not experience increases in noise levels over Build conditions. The greatest increase in noise levels occurs at receivers 19.1, 19.3 and 19.4. Receivers 19.1 and 19.2 represent the single-family residences in the Olive Lane Trailer Park. Receivers 19.3 through 19.6 represent individual single-family residences near Plainview Road. Under Build conditions, Claus Road south of the proposed alignment would widen causing an increase for receivers along Claus Road that exceed 67 dBA for NAC Activity Category B.

At this location, the difference in noise levels between existing vs Build is between 3 and 11 dBA. As these noise level differences do not exceed 12 DBA, no substantial increase from existing noise levels to build noise levels is anticipated at this location.

Receiver 17.1, the Rainbow Sports Park, classified as a NAC Activity Category C, does not experience increases in No-Build noise levels over Build conditions, and noise levels for this area remain below 67 dBA for NAC Activity Category C. This location does experience an increase of 4 dBA from existing condition to Build conditions; however, as this noise level difference does not exceed 12 DBA, no substantial increase from existing noise levels to build noise levels is anticipated at this location.

Segment 2 Claus Road to Albers Road

The Build Alternatives diverge near Claus Road. Alternatives 1A and 1B veer north, while Alternatives 2A and 2B follow Claribel Road heading east. Different receivers are affected

by Alternatives 1 and 2. Therefore, noise levels would be discussed for each receiver by alternative within this segment.

Alternative 1A and 1B. A majority of these receivers are individual single-family residences on farmland not located near heavily travelled roadways. Under the Existing and No-Build conditions, these receivers experience a serene noise environment. However, under Build conditions, Receivers 21.1 through 21.6 and Receivers 25.3 through 26.2 experience the greatest substantial noise increases in noise levels due to the new alignment shifting traffic closer to these receivers, causing some of these receivers to experience noise levels that exceed 67 dBA for NAC Activity Category B.

At this location, the difference in noise levels between existing vs Build is between 1 and 16 dBA. As these noise level differences do exceed 12 DBA, a substantial increase from existing noise levels to build noise levels is anticipated at this location.

Alternative 2A and 2B-A majority of these receivers are individual single-family residences on farmland not located near roadways. Under the existing conditions, Receivers 21.1 through 23.9 experience a serene noise environment, but traffic under No-Build conditions increases noise levels in the area resulting in higher noise levels. Under Build conditions, traffic volumes increase however the new alignment moves traffic away from some of the receivers in the area causing decreases in noise levels. Noise levels for this area remain below 67 dBA for NAC Activity Category B.

At this location, the difference in noise levels between existing vs Build is between 1 and 7 dBA. As these noise level differences do not exceed 12 DBA, no substantial increase from existing noise levels to build noise levels is anticipated at this location.

Segment 3 Albers Road to SR-120/108

Alternative 1A and 2A. A majority of these receivers are individual single-family residences on farmland not located near heavily travelled roadways. Under the Existing and No-Build conditions, these receivers experience a serene noise environment. However, under Build conditions, Receivers 30.12 through 33.9 experience noise level increases due to increases in traffic volumes and the new alignment shifting traffic closer to these receivers. The greatest increases occur at receivers 30.12, 32.1, and 33.3 where noise levels substantially increase, and/or approach or exceed 67 dBA for NAC Activity Category B. However, Receivers 35.1 through 35.6, which represent single-family residences near the end of this alignment, experience decreases in noise levels over No-Build condition and Existing conditions due to decreased traffic volumes and the alignment moves traffic away from receivers in this area.

At this location, the difference in noise levels between existing vs Build is between -2 and 21 dBA. As these noise level differences do exceed 12 DBA, a substantial increase from existing noise levels to build noise levels is anticipated at this location.

Alternative 1B and 2B- A majority of the receivers in this area are individual single-family residences on farmland not located near roadways. Receivers 27.1 through 42.3 experience noise level increases due to increases in traffic volumes and the new alignment shifting traffic closer to these receivers. Under the existing and No-Build conditions, these receivers experience a serene noise environment. However, under Build conditions, noise levels at some receivers within this area have substantial increases, approach and or exceed 67 dBA for NAC Activity Category B.

At this location, the difference in noise levels between existing vs Build is between 0 and 35 dBA. As these noise level differences do exceed 12 DBA, a substantial increase from existing noise levels to build noise levels is anticipated at this location.

Property Acquisitions

The following properties will be acquired under the Build Alternatives: R5, R10/ST10, R21/ST21, R21.6, R23, R30.11, R25.4, ST26/ST26, and R26.2. Therefore, these properties are not included in the noise abatement evaluation.

Preliminary Noise Abatement Analysis

In accordance with 23 CFR 772, noise abatement is considered where noise impacts are predicted in areas of frequent human use that would benefit from a lowered noise level. Potential noise abatement measures identified in the Protocol include the following:

- Avoiding the impact by using design alternatives, such as altering the horizontal and vertical alignment of the project;
- Constructing noise sound walls;
- Acquiring property to serve as a buffer zone;
- Using traffic management measures to regulate types of vehicles and speeds; and
- Acoustically insulating public-use or nonprofit institutional structures.

All of these abatement options have been considered. However, because of the configuration and location of the project, abatement in the form of noise sound walls is the only abatement that is considered to be feasible. Analysis of the various alignments is inherent in this study and is hereby taken into account. Applying traffic management measures, such as restricting

truck traffic, would be fundamentally counter to the Project purpose and need. Acquisition of land for creating buffer zones would not be practical, as much of the areas where such measures would be most effective are already used by homes and businesses.

Each noise sound wall has been evaluated for feasibility based on achievable noise reduction. For each of the noise sound walls found to be acoustically feasible, reasonable cost allowances were calculated. Table A-1 through A-4 in Appendix A summarizes sound wall analysis results at receiver locations.

The analysis was conducted with sound walls heights ranging from 6 to 16 feet at two foot increments. The sound wall heights and locations were evaluated to determine if a minimum 5 dBA attenuation at the outdoor frequent use areas of the representative receptors could be achieved. The reason for limiting the maximum sound wall height to 16 feet above the ground line is to comply with the suggestions set forth by Highway Design Manual (Caltrans, 6th Edition). The minimum sound wall height required to cut the line-of-sight from each receiver to the exhaust stacks of heavy trucks has been calculated for all feasible sound walls. These heights were evaluated through calculations performed by TNM 2.5.

For any noise sound wall to be considered reasonable from a cost perspective the estimated cost of the noise sound walls should be equal to or less than the total cost allowance calculated for the sound walls. Furthermore, 23 CFR 772 requires that an acoustical design goal be applied to all noise abatement. Caltrans' acoustical design goal is that a sound wall must be predicted to provide at least 7 dBA of noise reduction at one or more benefited receptors. For a wall to be considered reasonable, the 7 dBA design goal must be achieved at one or more benefited receptors. This design goal applies to any receiver and is not limited to impacted receptors.

The design of noise sound walls presented in this report is preliminary and has been conducted at a level appropriate for environmental review and not for final design of the proposed project. Preliminary information on the physical location, length, and height of noise sound walls is provided in this report. If pertinent parameters change substantially during the final proposed project design, preliminary noise sound walls designs may be modified or eliminated from the final proposed project. A final decision on the construction of the noise abatement would be made upon completion of the proposed project design.

Receiver locations under the Build Alternatives show design-year noise levels would approach or exceed 67 dBA L_{eq} NAC. Therefore, a noise abatement evaluation was required. Sound wall heights were evaluated in 2 foot increments ranging in height from 6 feet to 16 feet.

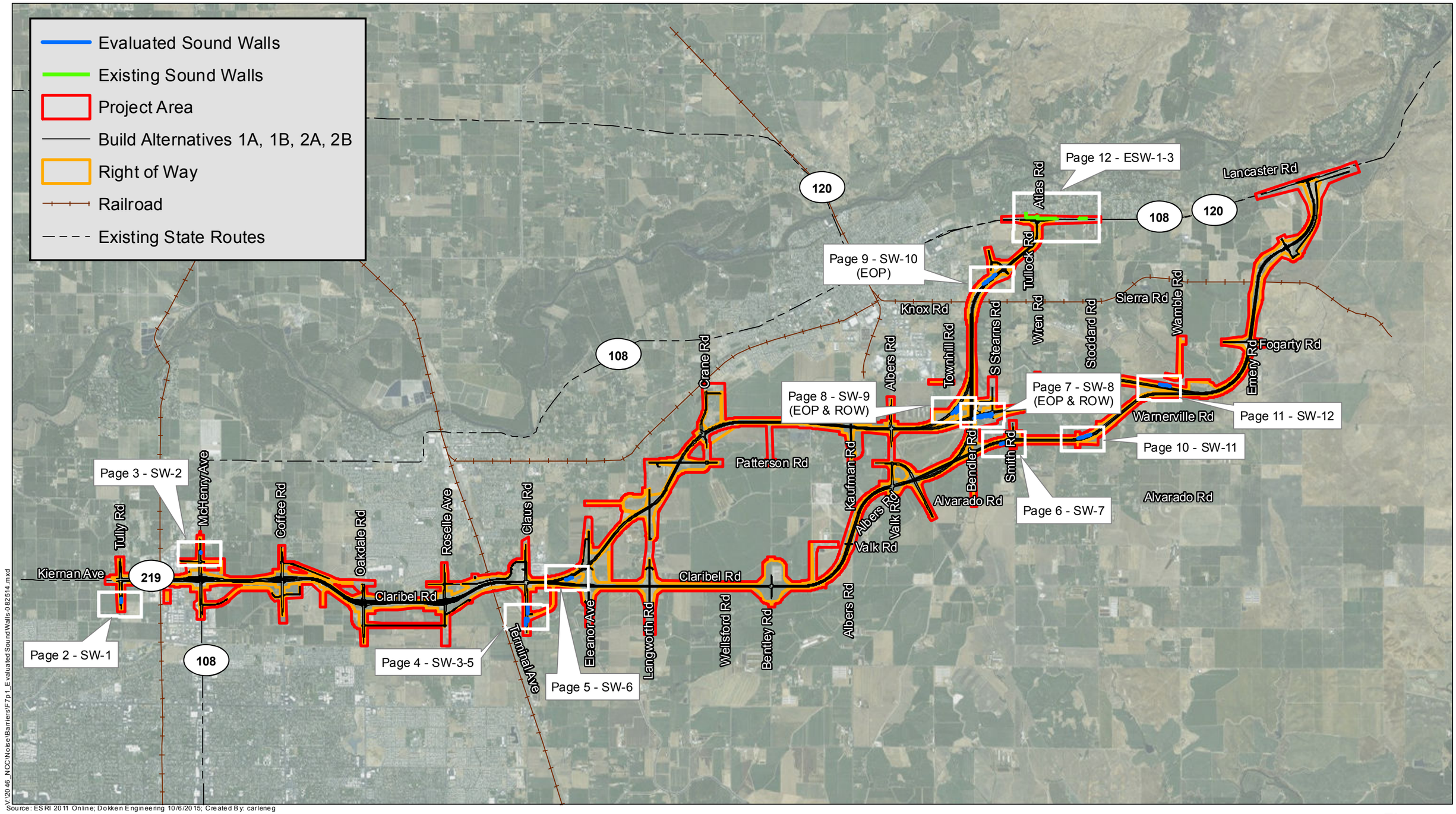
Results of the noise abatement evaluation are presented in Tables A-1 through Table A-4 in Appendix A for each Build Alternative. Alternative 1A contains the majority of the evaluated sound walls because it is the alignment that is closest to more densely populated areas. There are negligible differences in noise levels between the Build Alternatives due to variations in the design of local roadways and alignment locations which would not significantly affect cost allowances for sound walls. Therefore, the costs tables were developed based on the results for Alternative 1A. Other alternatives may have triggered additional areas that would require a sound wall evaluation that were not impacted in Alternative 1A. In these instances, the results from the additional Alternatives were used to prepare the costs tables. A matrix of which Alternatives shared sound wall locations is listed in Table 1. Sound walls for impacted receiver locations are presented in Figure 4. The following discussion summarizes sound wall locations.

Table 1. Sound Walls Common to Build Alternatives

SW ID	Critical Receiver	1A	1B	2A	2B
SW-1	2.6	X	x	x	x
SW-2	3.1	X	x	x	x
SW-3	19.1	x	x	x	x
SW-4	19.3	x	x	x	x
SW-5	19.4	x	x	x	x
SW-6	21.1	x	x		
SW-7	30.4				x
SW-8	30.9		x		
SW-9	30.12	x			
SW-10	33.3	x		x	
SW-11	37.1				x
SW-12	37.2		x		

Evaluated Sound Wall Locations

SW-1: *Kiernan Avenue and Tully Road.* The single-family residence represented by Receiver 2.6 approaches the NAC Activity Category B of 67 dBA. The widening of Tully Road brings traffic closer to this receiver increasing noise levels. SW-1 was placed on the Edge of Pavement (EOP) of Tully Road as shown in Figure 4 for all Build Alternatives. SW-1 was found not feasible at any evaluated height because the length of the soundwall was limited by driveway openings.

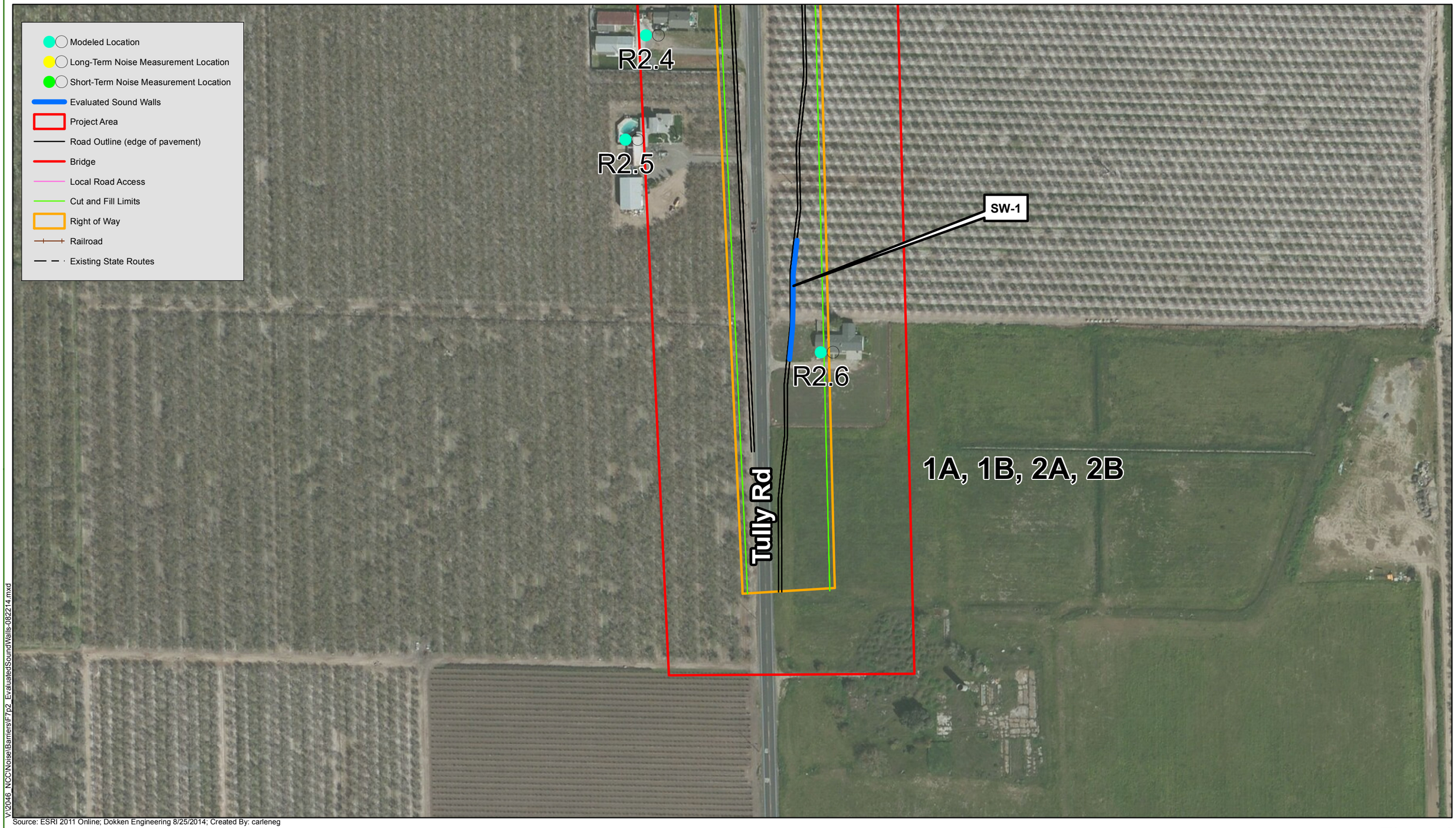


Source: ESRI 2011 Online; Dokken Engineering 10/6/2015; Created By: carleneg

0 1 2 3 4 Miles

Figure 4
Evaluated Sound Wall Locations
Page 1 of 12

EA: 10-0S800, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California

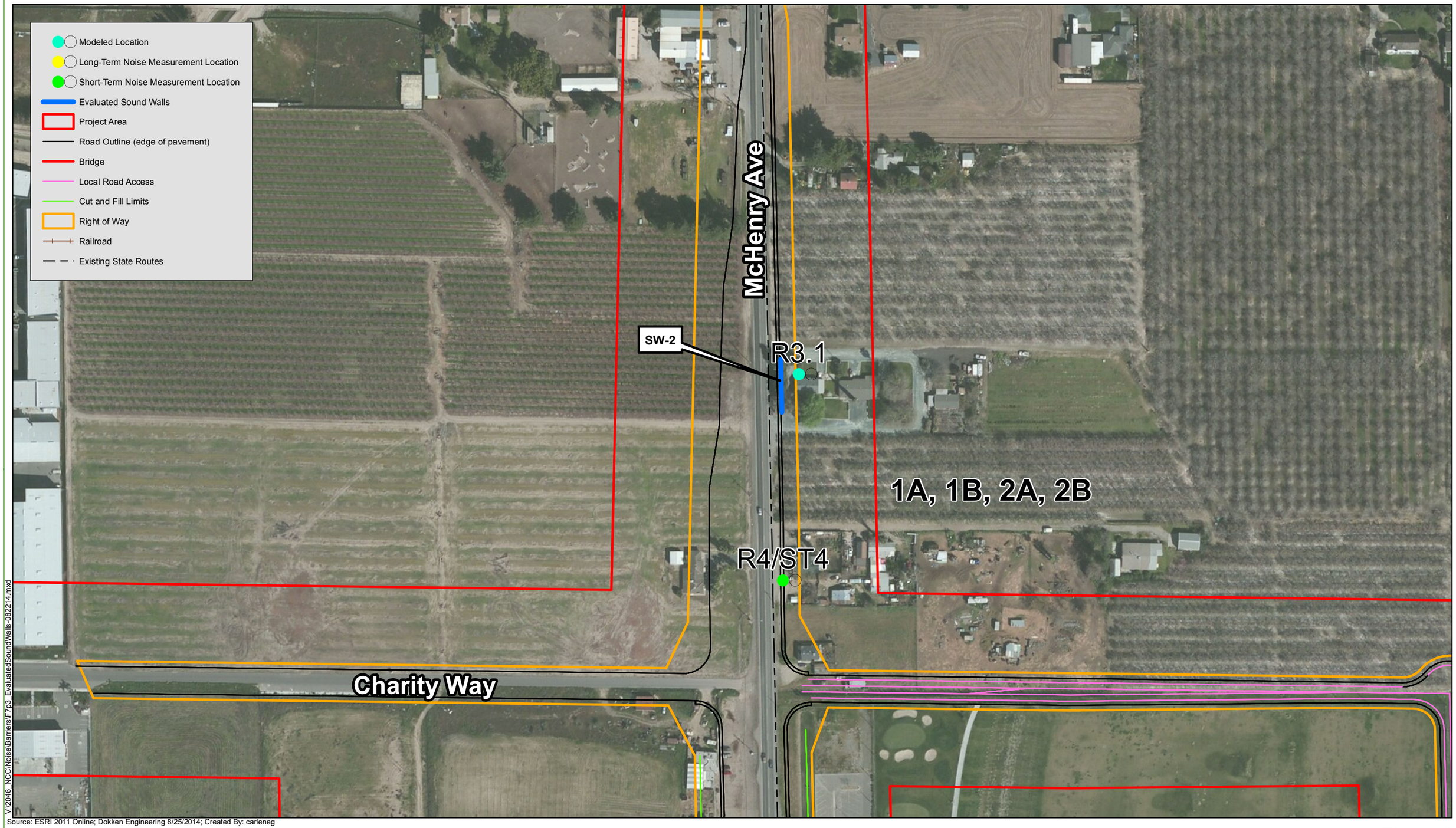


Source: ESRI 2011 Online; Dokken Engineering 8/25/2014; Created By: carleneg

0 250 500 750 1,000 Feet

Figure 4
Evaluated Sound Wall Locations
Page 2 of 12

EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California

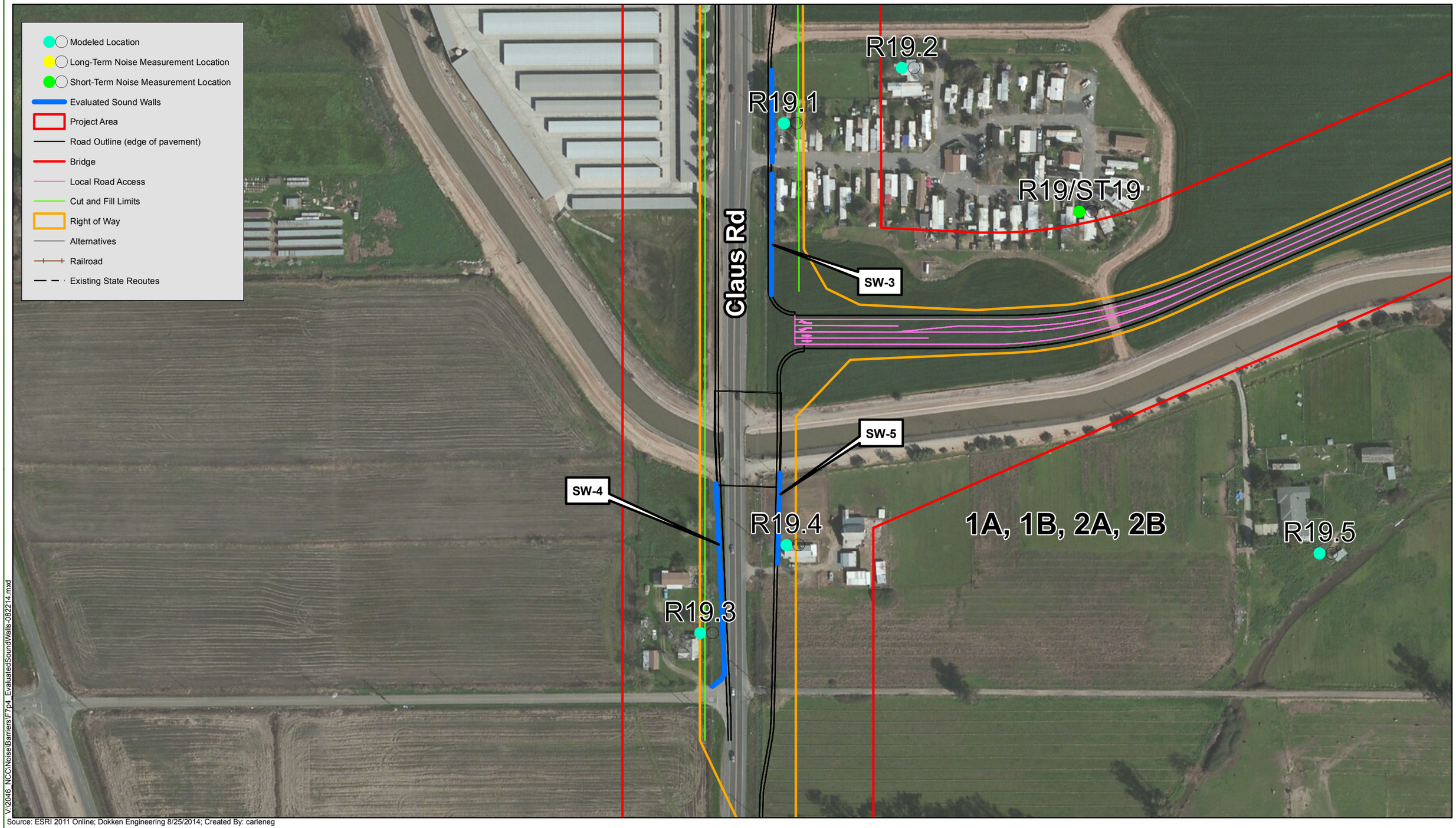


Source: ESRI 2011 Online; Dokken Engineering 8/25/2014; Created By: carleneg

0 250 500 750 1,000 Feet

Figure 4
Evaluated Sound Wall Locations
Page 3 of 12

EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California



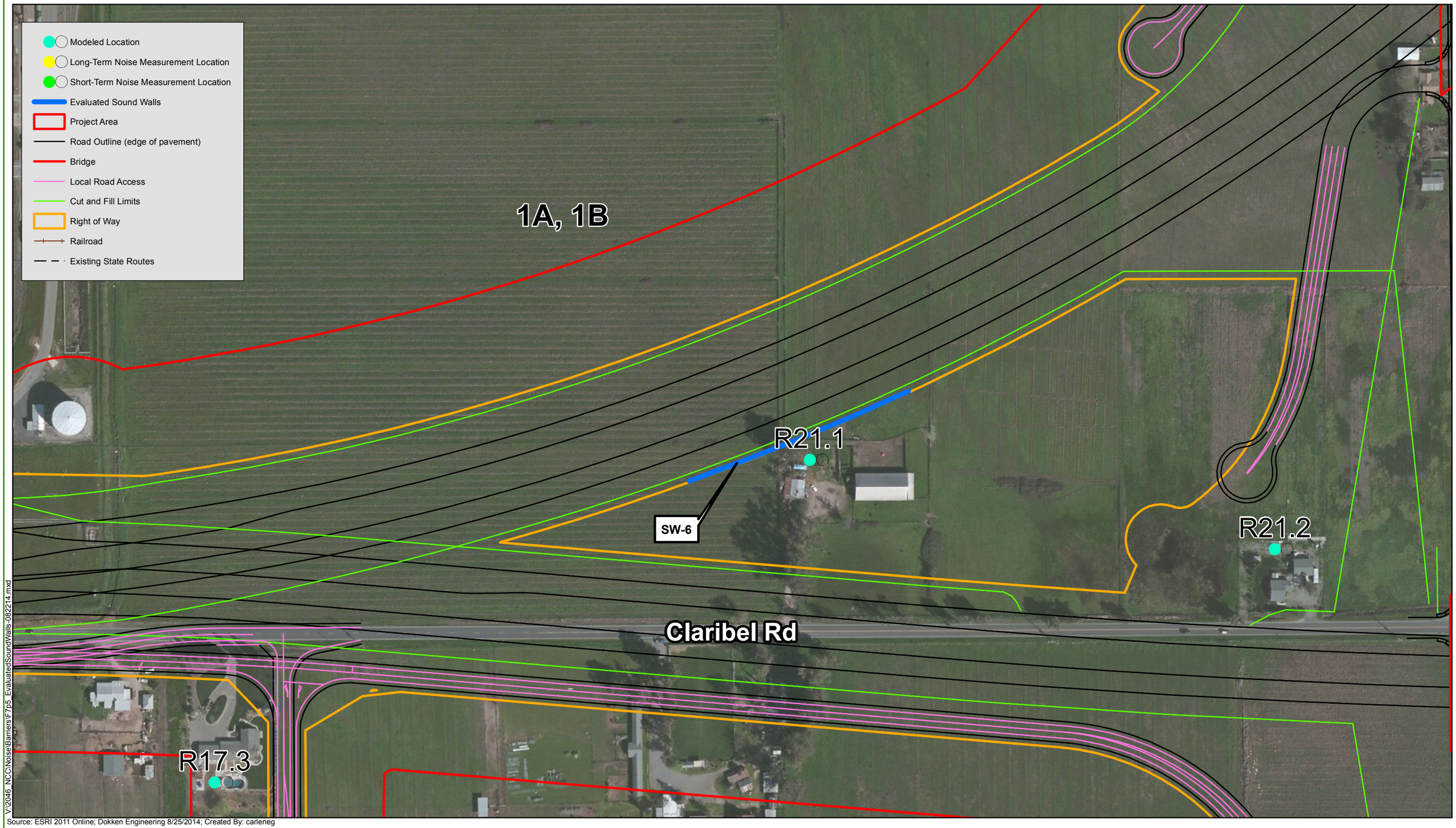
V:\2046_NC\Noise\Barriers\F7p4_EvaluatedSoundWalls_082214.mxd

Source: ESRI 2011 Online; Dokken Engineering 8/25/2014; Created By: carleneg

0 250 500 750 1,000 Feet

Figure 4
Evaluated Sound Wall Locations
Page 4 of 12

EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California



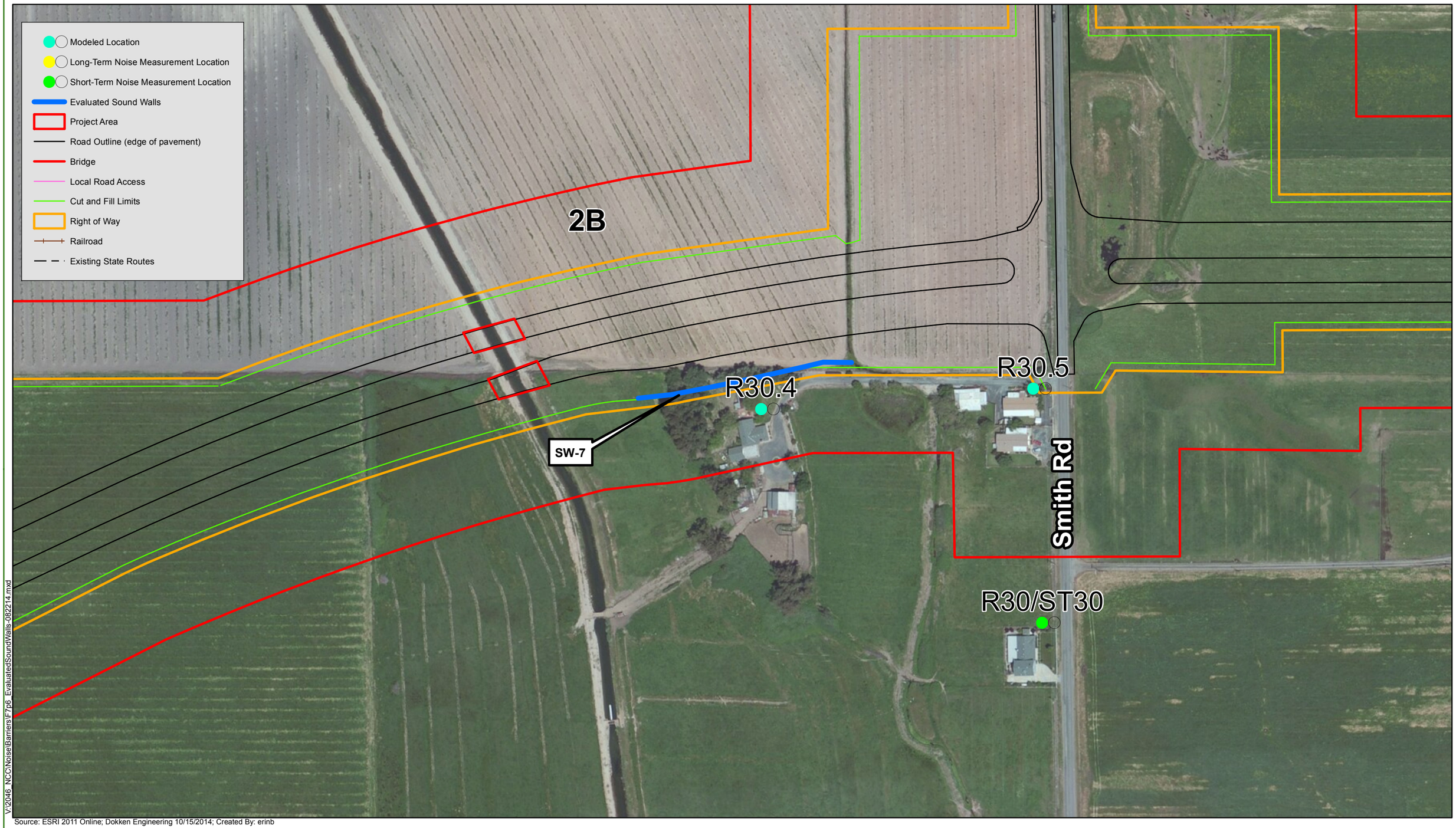
V:\2046_NCC\Noise\Barriers\F7p5_EvaluatedSoundWalls-082214.mxd

Source: ESRI 2011 Online; Dokken Engineering 8/25/2014; Created By: carleneg

0 250 500 750 1,000 Feet

Figure 4
Evaluated Sound Wall Locations
Page 5 of 12

EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California



V:\2046_NCC\NoiseBarriersLF7p6_EvaluatedSoundWalls-082214.mxd

Source: ESRI 2011 Online; Dokken Engineering 10/15/2014; Created By: erinb

0 250 500 750 1,000 Feet

Figure 4
Evaluated Sound Wall Locations
Page 6 of 12

EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California

Modeled Location
Long-Term Noise Measurement Location
Short-Term Noise Measurement Location
Evaluated Sound Walls
Project Area
Road Outline (edge of pavement)
Bridge
Local Road Access
Cut and Fill Limits
Right of Way
Railroad
Existing State Routes

R30.1
Warnerville Rd
S Stearns Rd
SW-8 (ROW)
SW-8 (ROW)
2A
1B
R30.9

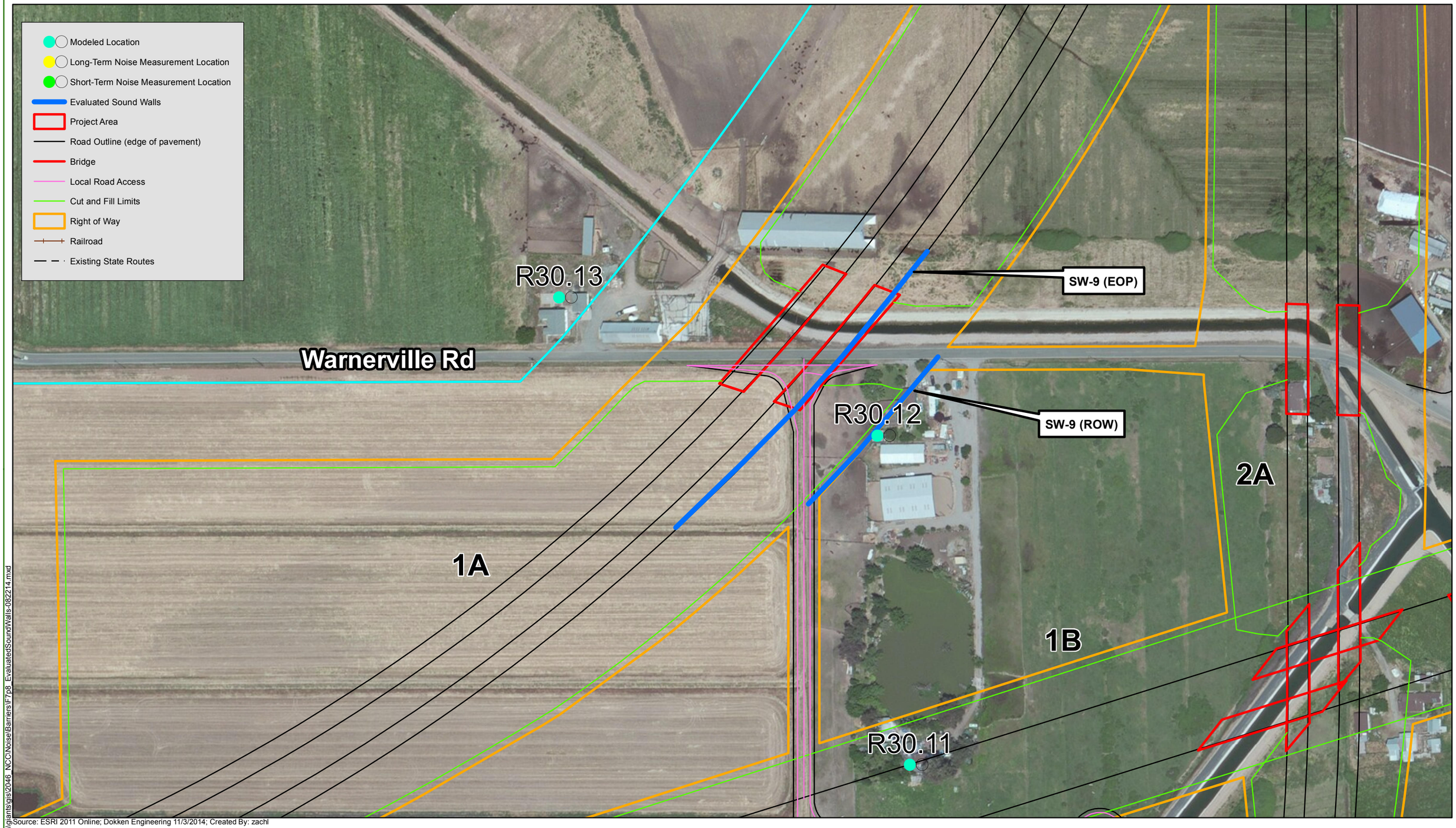
\\giants\gis\2046_NCC\Noise\Barriers\F7p7_EvaluatedSoundWalls-082214.mxd

Source: ESRI 2011 Online; Dokken Engineering 11/3/2014; Created By: zachl

0 250 500 750 1,000 Feet

Figure 4
Evaluated Sound Wall Locations
Page 7 of 12

EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California



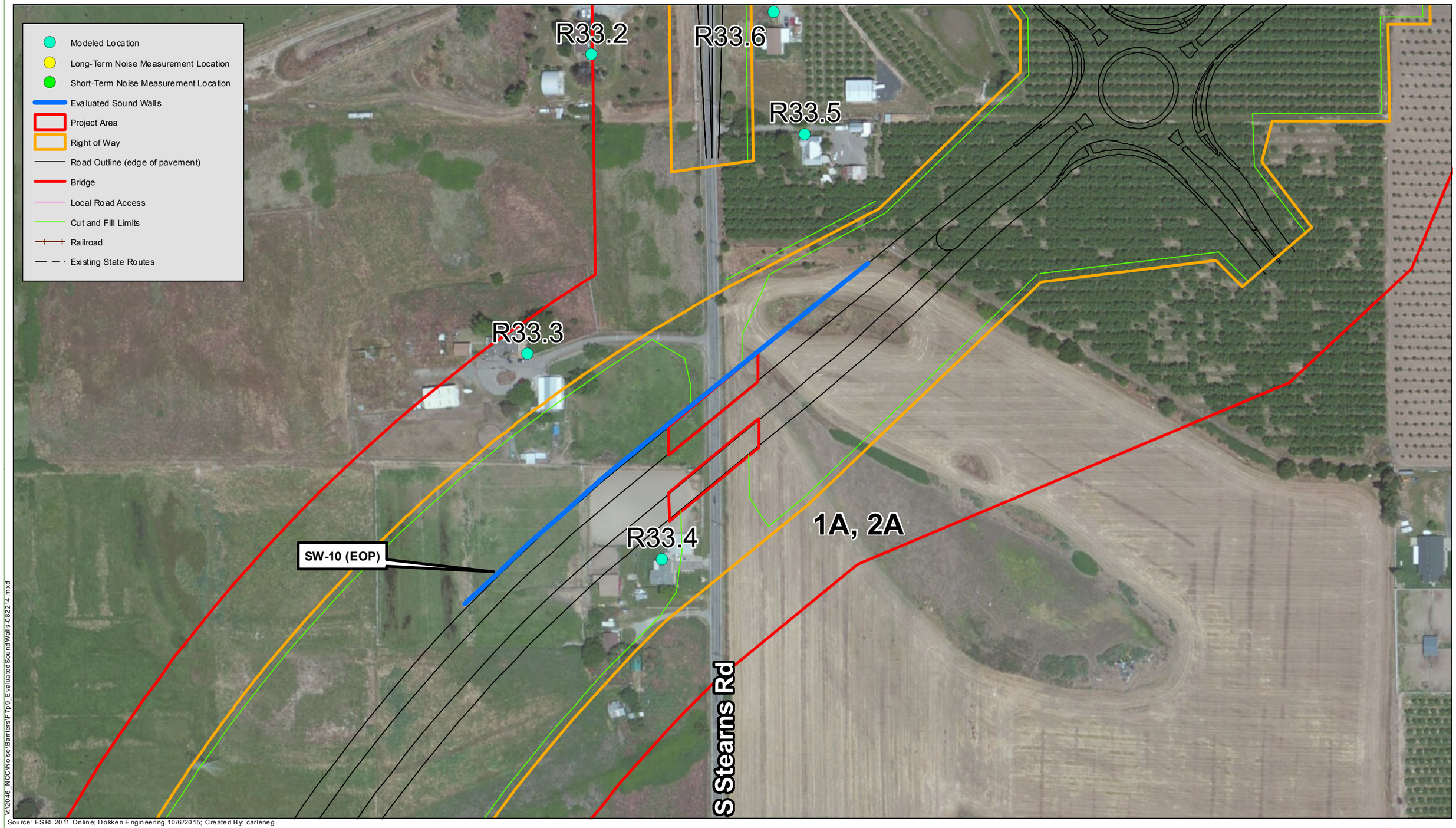
\\giants\gis\2046_NCC\Noise\Barriers\F7p8_EvaluatedSoundWalls-082214.mxd

Source: ESRI 2011 Online; Dokken Engineering 11/3/2014; Created By: zachl

0 250 500 750 1,000 Feet

Figure 4
Evaluated Sound Wall Locations
Page 8 of 12

EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California



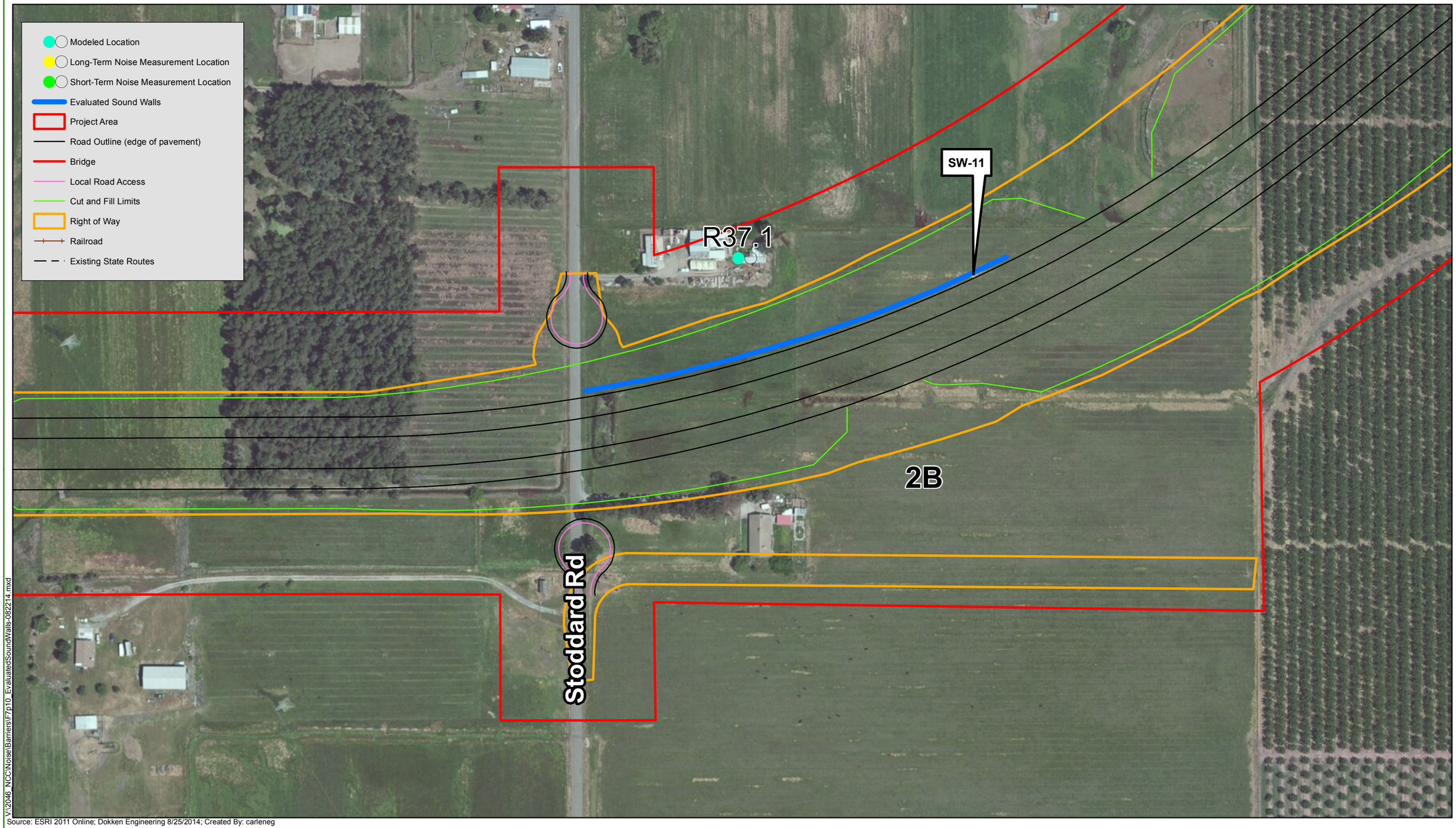
V:\2046_NCC\Noise\Barriers\F7p9_EvaluatedSoundWalls-082214.mxd

Source: ESRI 2011 Online; Dokken Engineering 10/6/2015; Created By: carleneg

0 250 500 750 1,000 Feet

Figure 4
Evaluated Sound Wall Locations
Page 9 of 12

EA: 10-0S800, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California



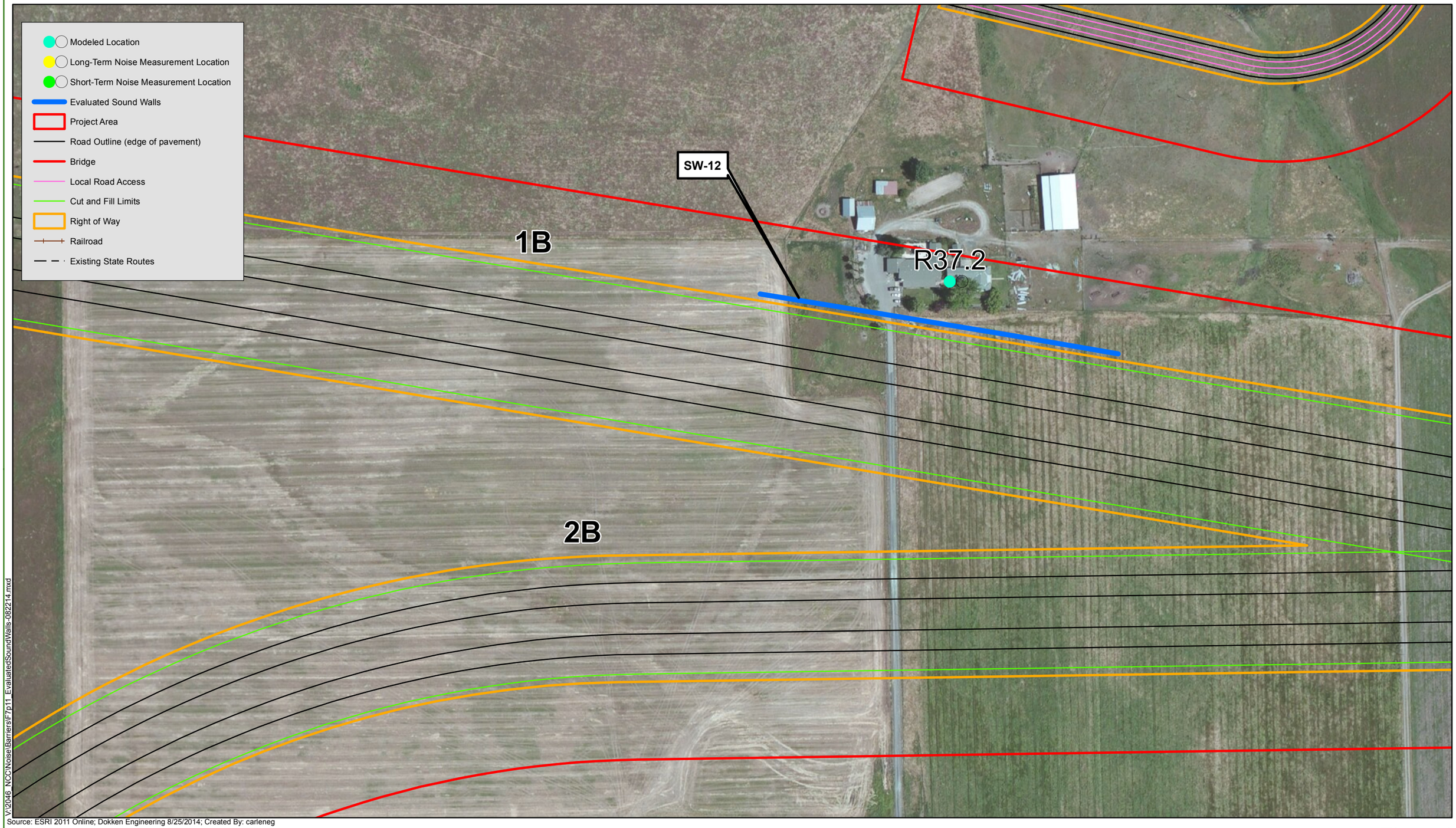
V:\2046_NCC\Noise\Barriers\F7p10_EvaluatedSoundWalls-082214.mxd

Source: ESRI 2011 Online; Dokken Engineering 8/25/2014; Created By: carleneg

0 250 500 750 1,000 Feet

Figure 4
Evaluated Sound Wall Locations
Page 10 of 12

EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California

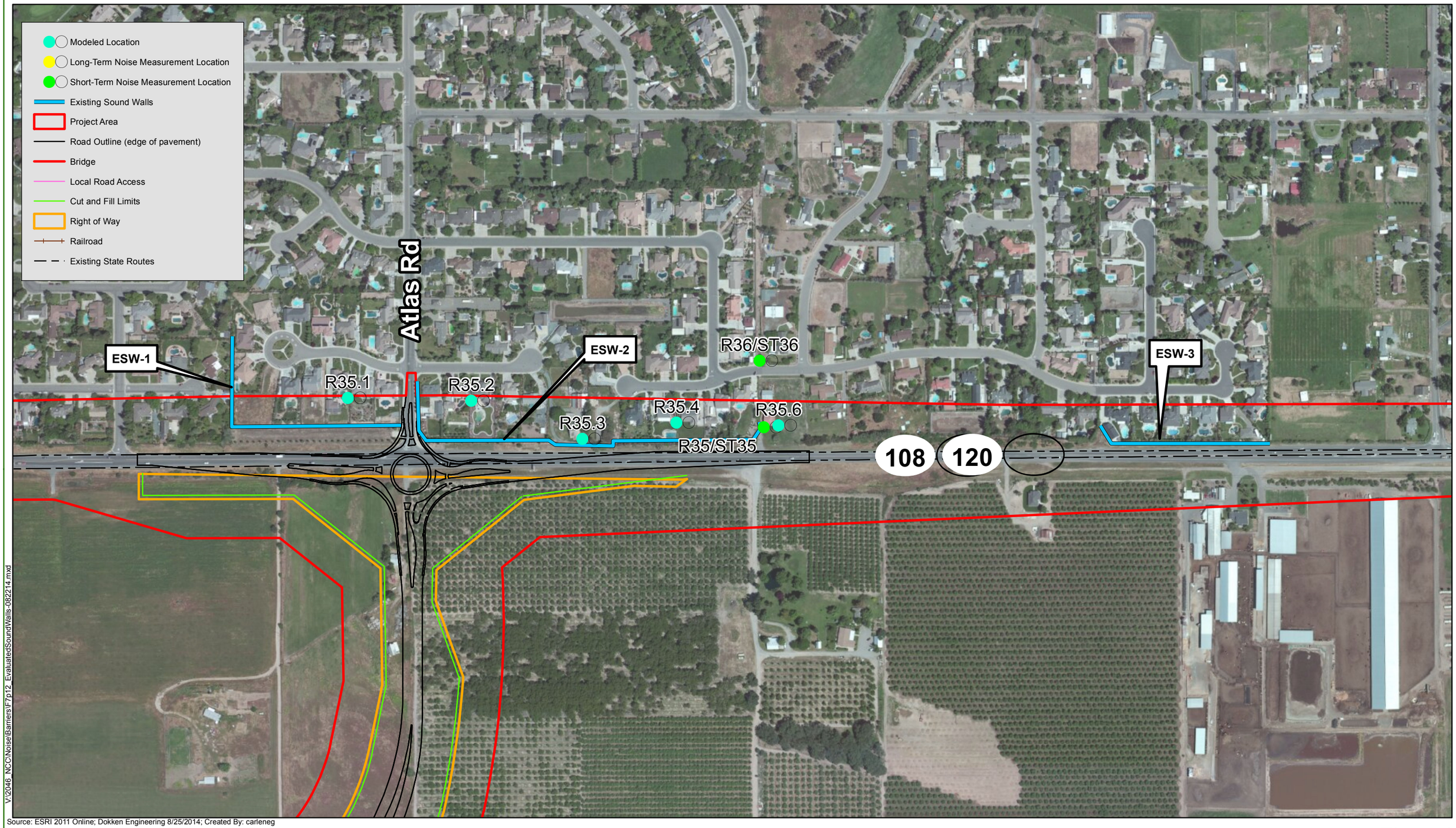


Source: ESRI 2011 Online; Dokken Engineering 8/25/2014; Created By: carleneg

0 250 500 750 1,000 Feet

Figure 4
Evaluated Sound Wall Locations
Page 11 of 12

EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California



Source: ESRI 2011 Online; Dokken Engineering 8/25/2014; Created By: carleneg

V:\2046_NCC\Noise\Barriers\F7p12_EvaluatedSoundWalls-082214.mxd

0 500 1,000 1,500 2,000 Feet

Figure 4
Evaluated Sound Wall Locations
Page 12 of 12

EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California

SW-2: *Kiernan Avenue and McHenry Avenue.* The single-family residence represented by Receiver 3.1 exceeds the NAC Activity Category B. The widening of McHenry Avenue decreases noise levels for this receiver however, noise levels remain above 67 dBA. SW-2 was placed on the EOP of McHenry Road as shown in Figure 4 for all Build Alternatives. SW-2 was not found to be feasible at any evaluated height.

SW-3: *Olive Lane Trailer Park along Claus Road.* Single-family residences in the Olive Lane Trailer Park, represented by receiver 19.1, experience a substantial increase and exceed the NAC due to the widening of Claus Road and the increase in traffic on Claus Road under Build conditions. Sound wall SW-3 was placed on the EOP of Claus Road as shown in Figure 4 for all Build Alternatives. Sound wall SW-3 was found to be feasible at a height of 6 feet. SW-3 meets the Caltrans acoustical design goal of a 7 dBA reduction at 10 feet and breaks the truck line of sight at 12 feet.

SW-4: *Claus Road near Plainview Road*. The single-family residence represented by receiver 19.3 experiences a substantial increase in noise levels and exceeds the NAC due to the widening of Claus Road and the increase in traffic on Claus Road under Build conditions. Sound wall SW-4 was placed on the EOP of Claus Road adjacent to this receiver. Sound wall SW-4 was found to be feasible at a height of 8 feet for all Build Alternatives. In order to meet the Caltrans acoustical design goal of a 7 dBA reduction, SW-4 should be at a minimum height of 10 feet. The sound wall at 12 feet would break the line of sight of an 11.5 foot truck stack.

SW-5: *Claus Road near Plainview Road*. The single-family residence represented by receiver 19.4, experience a substantial increase and an exceedance of the NAC due to the widening of Claus Road and the increase in traffic on Claus Road under Build conditions. Sound wall SW-5 was placed on the EOP of the Claus Road adjacent to this receiver. SW-5 was found to be feasible at a height of 8 feet for all Build Alternatives. In order to meet the Caltrans acoustical design goal of a 7 dBA reduction, SW-5 should be at a minimum height of 10 feet. The sound wall at 12 feet would break the line of sight of an 11.5 foot truck stack.

SW-6: *North of Claribel Road.* The single-family residence represented by receiver 21.1 experiences a substantial increase and an exceedance of the NAC due its close proximity to new alignment. Sound wall, SW-6, was placed on the ROW of the new alignment. Sound wall heights were evaluated in 2 foot increments for this location ranging in height from 6 feet to 16 feet for Build Alternatives 1A and 1B. Tables A-1 and A-2 in Appendix A summarize the results of the sound wall analysis for this location for Build Alternatives 1A and 1B, respectively. SW-6 was found to be feasible at a height of 8 feet.

The Caltrans acoustical design goal of a 7 dBA reduction is met at a height of 10 feet. The sound wall at 12 feet would break the line of sight of an 11.5 foot truck stack

SW-7: *Near Smith Road.* The single-family residence represented by receiver 30.4 experiences a substantial increase in noise levels due its close proximity to the new alignment. Sound wall SW-7 was placed on the ROW of the new alignment for Alternative 2B. Table A-4 in Appendix A summarizes the results of the sound wall analysis for this location for Build Alternative 2B. SW-7 was found to be feasible at a height of 8 feet. The Caltrans acoustical design goal of a 7 dBA reduction is met at a height of 12 feet, and SW-7 breaks the truck line of sight at this height.

SW-8: *Near Warnerville Road and Oakdale S. Main Canal*. The single-family residence, represented by Receiver 30.9, experiences a substantial increase in noise levels due its close proximity to the new alignment. Sound wall SW-8 was placed on the ROW of the new alignment for Alternative 1B. Tables A-2 in Appendix A summarizes the results of the sound wall analysis for this location for Build Alternative 1B. SW-8 was found to be feasible at a height of 14 feet. However, this sound wall does not meet the Caltrans acoustical design goal of a 7 dBA reduction.

SW-9: *Near Warnerville Road and Oakdale S. Main Canal*. The single-family residence, represented by Receiver 30.12, experiences a substantial increase in noise levels due its close proximity to the new alignment. Sound wall SW-9 was placed on the ROW of the new alignment for Alternative 1A. Table A-1 in Appendix A summarizes the results of the sound wall analysis for this location for Build Alternative 1A. SW-9 was not found to be feasible at any evaluated a height due to the length of the wall being limited by the surrounding local roadways. Therefore, the receiver was only partially shielded from traffic noise from the proposed alignment.

SW-10: *Adjacent to Stearns Road.* The single-family residence, represented by receiver 33.3, experiences a substantial increase in noise levels due to its close proximity to new alignment. Sound wall SW-10 was placed on the EOP of the new alignment for Alternatives 1A and 2A. Tables A-1 and A-3 in Appendix A summarize the results of the sound wall analysis for this location for Build Alternative 1A and 2A. SW-10 was not found to be feasible at any height.

SW-11: *Adjacent to Stoddard Road.* The single-family residence represented by receiver 37.1 experiences a substantial increase in noise levels due to its close proximity to new alignment. Sound wall SW-11 was placed on the EOP of the new alignment for Alternative 2B. Placing the sound wall on the ROW does not block the noise source from the receiver.

Table A-4 in Appendix A summarizes the results of the sound wall analysis for SW-11 at the EOP. SW-11 was found to be feasible at a height of 12 feet (5dBA reduction). However, this sound wall does not meet the Caltrans acoustical design goal of a 7 dBA reduction at any height.

SW-12: *Near Oakdale S Main Canal.* The single-family residence represented by receiver 37.2 experiences a substantial increase in noise levels due to its close proximity to new alignment. Sound wall SW-12 was placed on the ROW of the new alignment for Alternative 2B. Table A-4 in Appendix A summarizes the results of the sound wall analysis for this location. SW-12 was found to be feasible at a height of 10 feet (5 dBA reduction). However, this sound wall does not meet the Caltrans acoustical design goal of a 7 dBA reduction at any height.

Non Feasible Wall Locations

There are several locations where noise impacts were predicted but an optimum location for sound wall placement was not identified. The following is a summary of these locations along with an explanation of the physical limitations that prevented sound wall placement.

Sound wall placement for Receptors 21.3, 21.4, 21.5, 28.1, 30.2, 30.3 and 30.13 which are adjacent to driveways, was limited due to gaps required for access to local roadways. Sound wall effectiveness in blocking the line of sight from the noise source to the receiver would be reduced due to these driveway openings.

Sound wall placement for Receptors 26.3, 30.6 and 32.1 could not be placed close to the receiver to provide shielding for these receptors. These receptors are not located near the ROW of the new alignment where a sound wall would block the line of sight between the receiver and the noise source. Placing of the sound wall at the ROW is at the midpoint between the receiver and the noise source, therefore rendering the sound wall not feasible.

Table 2 below summarizes the acoustical feasibility, number of benefited receptors, achievement of design goal, and reasonable allowances.

Table 2. Summary of Barrier Evaluation from Noise Study Report

Barrier	Location	Station	Height (feet)	Acoustically Feasible?	Number of Benefited Residences	Design Goal Achieved?	Reasonable Allowance per Residence	Total Reasonable Allowance
SW-3	Receiver 19.1	"CLA1A, 1B, 2A, 2B" 31+35 to 35+68	6	Yes	5	No	$71,000	$355,000
			8	Yes	5	No	$71,000	$355,000
			10	Yes	5	Yes	$71,000	$355,000
			12	Yes	5	Yes	$71,000	$355,000
			14	Yes	5	Yes	$71,000	$355,000
			16	Yes	5	Yes	$71,000	$355,000
SW-4	Receiver 19.3	"CLA1A, 1B, 2A, 2B" 23+80 to 27+71	6	No	-	No	-	-
			8	Yes	1	No	$71,000	$71,000
			10	Yes	1	Yes	$71,000	$71,000
			12	Yes	1	Yes	$71,000	$71,000
			14	Yes	1	Yes	$71,000	$71,000
			16	Yes	1	Yes	$71,000	$71,000
SW-5	Receiver 19.4	"CLA1A, 1B, 2A, 2B" 26+17 to 27+91	6	No	-	No	-	-
			8	Yes	1	No	$71,000	$71,000
			10	Yes	1	Yes	$71,000	$71,000
			12	Yes	1	Yes	$71,000	$71,000
			14	Yes	1	Yes	$71,000	$71,000
			16	Yes	1	Yes	$71,000	$71,000
SW-6	Receiver 21.1	"1A,1B" 371+72 to 376+20	6	No	-	No	-	-
			8	Yes	1	No	$71,000	$71,000
			10	Yes	1	Yes	$71,000	$71,000
			12	Yes	1	Yes	$71,000	$71,000
			14	Yes	1	Yes	$71,000	$71,000
			16	Yes	1	Yes	$71,000	$71,000
SW-7	Receiver 30.4	"2B" 696+91 to 701+22	6	No	-	No	-	-
			8	Yes	1	No	$71,000	$71,000
			10	Yes	1	Yes	$71,000	$71,000

Barrier	Location	Station	Height (feet)	Acoustically Feasible?	Number of Benefited Residences	Design Goal Achieved?	Reasonable Allowance per Residence	Total Reasonable Allowance
			12	Yes	1	Yes	$71,000	$71,000
			14	Yes	1	Yes	$71,000	$71,000
			16	Yes	1	Yes	$71,000	$71,000
SW-11	Receiver 37.1	"2B"	6	No	-	No	-	-
		747+80 to 756+62	8	No	-	No	-	-
			10	No	-	No	-	-
			12	Yes	1	No	$71,000	$71,000
			14	Yes	1	No	$71,000	$71,000
			16	Yes	1	No	$71,000	$71,000
SW-12	Receiver 37.2	"1B"	6	No	-	No	-	-
		808+61 to 815+64	8	No	-	No	-	-
			10	Yes	1	No	$71,000	$71,000
			12	Yes	1	No	$71,000	$71,000
			14	Yes	1	No	$71,000	$71,000
			16	Yes	1	No	$71,000	$71,000

3. Preliminary Noise Abatement Decision

3.1. Summary of Key Information

Based on the engineer's cost estimate, including costs required to construct the abatements (cost of the walls, footings, traffic control, drainage, modified or additional plantings, miscellaneous items) and a 10% contingency, the estimated construction costs for each barrier ($40 per square foot) were developed (see Appendix B for breakdown). Table 3 compares the total reasonable allowances to the estimated constuction costs for each barrier within 10%.

Table 3. Summary of Abatement Key Information

Barrier	Height (feet)	Acoustically Feasible?	Number of Benefited Residences	Design Goal Achieved?	Total Reasonable Allowance	Estimated Construction Cost	Cost Less than Allowance? (within 10%)
SW-3	6	Yes	5	No	$355,000	$98,400	YES
	8	Yes	5	No	$355,000	$131,200	YES
	10	Yes	5	Yes	$355,000	$164,000	YES
	12	Yes	5	Yes	$355,000	$196,800	YES
	14	Yes	5	Yes	$355,000	$229,600	YES
	16	Yes	5	Yes	$355,000	$262,400	YES
SW-4	6	No	-	No	-	-	-
	8	Yes	1	No	$71,000	$128,640	NO
	10	Yes	1	Yes	$71,000	$160,800	NO
	12	Yes	1	Yes	$71,000	$192,960	NO
	14	Yes	1	Yes	$71,000	$225,120	NO
	16	Yes	1	Yes	$71,000	$257,280	NO
SW-5	6	No	-	No	-	-	-
	8	Yes	1	No	$71,000	$56,000	YES
	10	Yes	1	Yes	$71,000	$70,000	YES
	12	Yes	1	Yes	$71,000	$84,000	NO
	14	Yes	1	Yes	$71,000	$98,000	NO
	16	Yes	1	Yes	$71,000	$112,000	NO

Barrier	Height (feet)	Acoustically Feasible?	Number of Benefited Residences	Design Goal Achieved?	Total Reasonable Allowance	Estimated Construction Cost	Cost Less than Allowance? (within 10%)
SW-6	6	No	-	No	-	-	-
	8	Yes	1	No	$71,000	$146,880	NO
	10	Yes	1	Yes	$71,000	$183,600	NO
	12	Yes	1	Yes	$71,000	$220,320	NO
	14	Yes	1	Yes	$71,000	$257,040	NO
	16	Yes	1	Yes	$71,000	$293,760	NO
SW-7	6	No	-	No	-	-	-
	8	Yes	1	No	$71,000	$134,720	NO
	10	Yes	1	Yes	$71,000	$168,400	NO
	12	Yes	1	Yes	$71,000	$202,080	NO
	14	Yes	1	Yes	$71,000	$235,760	NO
	16	Yes	1	Yes	$71,000	$269,440	NO
SW-11	6	No	-	No	-	-	-
	8	No	-	No	-	-	-
	10	No	-	No	-	-	-
*	12	Yes	1	No	$71,000	$412,320	NO
	14	Yes	1	No	$71,000	$481,040	NO
	16	Yes	1	No	$71,000	$549,760	NO
SW-12	6	No	-	No	-	-	-
	8	No	-	No	-	-	-
	10	Yes	1	No	$71,000	$281,200	NO
	12	Yes	1	No	$71,000	$337,440	NO
	14	Yes	1	No	$71,000	$393,680	NO
	16	Yes	1	No	$71,000	$449,920	NO

3.2. Nonacoustical Factors Relating to Feasibility

Several nonacoustic factors were considered relating to the feasibility of the proposed soundwalls, such as geometric standards, safety, maintenance, security, geotechnical

considerations, and utility relocations. The soundwalls were designed in accordance with required geometric safety standards and in such a way as to minimize or avoid utility and geotechnical considerations.

3.3. Preliminary Recommendation and Decision

Sound walls 3, 4, 5, 6, 7, 11, and 12 were evaluated. It was found that at a 12-foot height, SW-3 is reasonable from a cost perspective and meets the 5 dBA feasibility requirement, 7 dBA design goal, and line-of-sight criteria. It was also found that at a 10-foot height, SW-5 is reasonable from a cost perspective, meets the 5 dBA feasibility requirement, and meets the 7 dBA design goal. While SW-5 at a 12-foot height would meet the line-of-site criteria, its estimated construction cost would be higher than the reasonable allowance. Based on the reasons discussed, SW-3 at a 12-foot height and SW-5 at a 10-ft height are recommended.

The preliminary noise abatement decision presented in this report is based on preliminary project alignments and profiles, which may be subject to change. As such, the physical characteristics of noise abatement described herein also may be subject to change. If pertinent parameters change substantially during the final project design, the preliminary noise abatement decision may be changed or eliminated from the final project design. A final decision to construct noise abatement will be made upon completion of the project design.

The preliminary noise abatement decision presented here will be included in the draft environmental document (ED), which will be circulated for public review.

4. Secondary Effects of Abatement

Construction of the noise abatement recommended in the preliminary noise abatement decision is unlikely to have secondary effects on other environmental resources. The recommended noise abatement are a 12-foot sound wall (SW-3) located at the edge of the pavement in front of the Olive Lane Trailer Park on Claus Road and a 10-foot soundwall located at the edge of pavement of Claus Road near Plainview Road. A 12-foot soundwall at the SW-3 location is unlikely to negatively affect the local residents' viewshed, as the current view to the west is of the wall surrounding the storage facility on the west side of Claus Road. A 10-foot soundwall at the SW-5 location is also unlikely to negatively affect the local residents' viewshed because views to the west would largely be of the roadway. Residents' views of the mountains to the east would not be affected. As these locations are already to be disturbed by construction of the new roadway, no additional effects to cultural resources or biological resources would occur with the addition of this sound wall. Furthermore, the Initial Site Assessment (2014) indicated that all of the parcels at these locations are "low-risk," meaning that the sound walls are unlikely to have effects on hazardous materials.

5. References

Caltrans, 2013. *Technical Noise Supplement*. November. Sacramento, CA: Division of Environmental Analysis. Sacramento, CA. Available: (http://www.dot.ca.gov/hq/env/noise/pub/tens_complete.pdf).

Caltrans, 2011. *Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Sound walls Projects*. May. Sacramento, CA: Division of Environmental Analysis. Sacramento, CA.

Crawford & Associates, 2014. *North County Corridor New State Route 108 Project Initial Site Assessment.*

Entech Consulting Group, 2014. *North County Corridor New State Route 108 Project Noise Study Report*.

Federal Highway Administration, 2004. *FHWA Traffic Noise Model*, Version 2.5

Fehr & Peers, 2014. *Traffic Operations Report for the North County Corridor*. September 2014.

Appendix A Predicted Future Noise Levels

Table B-1. Predicted Future Noise and Sound Wall Analysis - Alternative 1A

Receiver I.D.	Barrier I.D.	Barrier Location	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA[1]	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA						Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receivers (NBR)																							
													6 feet			8 feet			10 feet			12 feet			14 feet			16 feet		
							Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus No Project Conditions	Activity Category (NAC)	Impact Type[2]	$L_{eq}(h)$		I.L.[3]	NBR	$L_{eq}(h)$		I.L.[3]	NBR	$L_{eq}(h)$		I.L.[3]	NBR	$L_{eq}(h)$		I.L.[3]	NBR	$L_{eq}(h)$		I.L.[3]	NBR	$L_{eq}(h)$		I.L.[3]	NBR
1.1	No Barrier	--	1	SFR	5211 Tully Rd, Modesto	49	54	55	5	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1.2	No Barrier		1	SFR	5089 Tully Rd, Modesto	60	64	65	4	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1.3	No Barrier		1	SFR	5080 Tully Rd, Modesto	56	60	62	4	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.1	No Barrier		1	SFR	1394 Kiernan Ave, Modesto	59	63	62	4	-1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.2	No Barrier		1	SFR	1248 Kiernan Ave, Modesto	57	62	63	5	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.3	No Barrier		1	SFR	4885 Tully Rd, Modeseto	56	61	62	5	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.4	No Barrier		1	SFR	4767 Tully Rd, Modeseto	53	59	60	6	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.5	No Barrier		1	SFR	4823 Tully Rd, Modeseto	52	58	58	6	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.6	SW-1	EOP	1	SFR	4744 Tully Rd, Modeseto	59	64	66	5	2	B (67)	A/E	--	65	1	1	--	64	2	1	--	64	2	1	--	64	3	1	--	63	3	1	--	63	3	1
3.1	SW-2	EOP	1	SFR	177 Chow Chow Ln, Modesto	68	69	67	1	-2	B (67)	A/E	--	64	3	1	--	64	3	1	--	63	4	1	--	63	4	1	--	63	4	1	--	63	4	1
4.1	No Barrier		1	SFR	5097 McHenry Rd, Modesto	56	57	60	1	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.2	No Barrier		1	SFR	254 Claribel Road, Modesto	59	63	64	4	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.3	No Barrier		1	SFR	630 Claribel Road, Modesto	57	61	64	4	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.4	No Barrier		1	SFR	830 Claribel Road, Modesto	55	59	61	4	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.5	No Barrier		1	SFR	Claribel Road, Modesto	60	64	62	4	-2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5.1	No Barrier		1	SFR	4854 Coffee Rd, Modesto	56	60	60	4	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6.1	No Barrier		1	SFR	5330 Coffee Rd, Modesto	53	57	59	4	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7.1	No Barrier		4	SFR	1509 Cabo Dr, Modesto	62	65	60	3	-5	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7.2	No Barrier		1	SFR	1532 Cabo Dr, Modesto	59	62	59	3	-3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8.1	No Barrier		5	SFR	1609 Cabo Dr, Modesto	62	66	60	4	-6	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10.1	No Barrier		1	SFR	2010 Claribel Rd, Modesto	51	55	61	4	6	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10.2	No Barrier		1	SFR	5036 Oakdale Rd, Modesto	59	60	61	1	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10.4	No Barrier		1	SFR	4780 Oakdale Rd, Modesto	60	61	62	1	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10.5	No Barrier		1	SFR	4610 Oakdale Rd, Modesto	64	66	65	2	-1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11.1	No Barrier		1	SFR	5007 Gold River Ct, Riverbank	55	57	50	2	-7	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12.1	No Barrier		1	SFR	5008 Riverbed Ct, Riverbank	53	55	50	2	-5	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12.2	No Barrier	--	1	SFR	5015 Prospectors Pkwy, Riverbank	51	53	51	2	-2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12.3	No Barrier		1	SFR	2966 Blacksand Creek Wy, Riverbank	50	53	53	3	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table B-1. Predicted Future Noise and Sound Wall Analysis - Alternative 1A

Receiver I.D.	Barrier I.D.	Barrier Location	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA[1]	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA						Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receivers (NBR)																							
													6 feet			8 feet			10 feet			12 feet			14 feet			16 feet		
							Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus No Project Conditions	Activity Category (NAC)	Impact Type[2]	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR
13.1	No Barrier		1	SFR	4955 Rosselle Ave, Modesto	61	65	65	4	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13.2	No Barrier		1	SFR	4955 Rosselle Ave, Modesto	60	64	62	4	-2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14.1	No Barrier		1	SFR	5230 Roselle Ave, Riverbank	57	59	59	2	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14.2	No Barrier		1	SFR	3212 Claribel Rd, Modesto	61	66	55	5	-11	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
15.1	No Barrier		1	SFR	3728 Davis Ave, Modesto	45	51	54	6	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
15.2	No Barrier		1	SFR	3761 Davis Ave, Modesto	45	50	53	5	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.1	No Barrier		1	SFR	3874 Davis Ave, Modesto	47	54	58	7	4	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.2	No Barrier		1	SFR	3932 Davis Ave, Modesto	50	57	57	7	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.3	No Barrier		1	SFR	3973 Davis Ave, Modesto	58	62	62	4	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.4	No Barrier		1	SFR	5361 Claus Rd, Modesto	60	64	64	4	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.5	No Barrier		1	SFR	3973 Minniear Ave, Modesto	60	64	63	4	-1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17.1	No Barrier		1	SFR	3800 Claribel Rd, Modesto	55	59	59	4	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17.2	No Barrier		1	SFR	4824 Claus Rd, Modesto	56	61	61	5	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17.3	No Barrier		1	SFR	4380 Claribel Rd, Modesto	53	58	59	5	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
18.1	No Barrier		1	SFR	Claribel Road, Modesto	57	61	63	4	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19.1	SW-3	EOP	5	SFR	4650 Claus Rd, Modesto	63	68	70	5	2	B (67)	A/E	--	65	5	5	--	64	6	5	--	62	8	5	--	61	9	5	--	61	10	5	--	60	10	5
19.2	No Barrier	--	1	SFR	4672 Claus Rd, Modesto	52	56	57	4	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19.3	SW-4	EOP	1	SFR	4527 Claus Rd, Modesto	63	64	69	1	5	B (67)	A/E	--	65	4	1	--	63	6	1	--	61	8	1	--	60	9	1	--	59	10	1	--	59	10	1
19.4	SW-5	EOP	1	SFR	4548 Claus Rd, Modesto	62	66	69	4	3	B (67)	A/E	--	65	4	1	--	63	6	1	--	62	7	1	--	61	8	1	--	61	8	1	--	61	8	1
19.5	No Barrier	--	1	SFR	4510 Claus Rd, Modesto	42	46	49	4	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19.6	No Barrier		1	SFR	4500 Claus Rd, Modesto	41	45	48	4	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
21.1	SW-6	ROW	1	SFR	4601 Claribel Rd, Modesto	52	56	68	4	12	B (67)	A/E/S	--	64	4	1	--	62	6	1	--	60	8	1	--	59	9	1	--	58	10	1	--	57	11	1
24.1	No Barrier		1	SFR	6153 Langworth Rd, Oakdale	53	53	57	0	4	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
24.2	No Barrier		1	SFR	5459 Langworth Rd, Oakdale	49	49	54	0	5	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
25.1	No Barrier		1	SFR	5732 Langworth Rd, Oakdale	52	52	59	0	7	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
25.2	No Barrier		1	SFR	5918 Patterson Rd, Oakdale	61	61	64	0	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
25.3	No Barrier		1	SFR	6399 Crane Rd, Oakdale	57	62	62	5	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
25.5	No Barrier	--	1	SFR	6236 Crane Rd, Oakdale	53	58	61	5	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table B-1. Predicted Future Noise and Sound Wall Analysis - Alternative 1A

Receiver I.D.	Barrier I.D.	Barrier Location	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA[1]	Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus No Project Conditions	Activity Category (NAC)	Impact Type[2]	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA																							
													Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receivers (NBR)																							
													6 feet				8 feet				10 feet				12 feet				14 feet				16 feet			
													$L_{eq}(h)$		I.L.[3]	NBR	$L_{eq}(h)$		I.L.[3]	NBR	$L_{eq}(h)$		I.L.[3]	NBR	$L_{eq}(h)$		I.L.[3]	NBR	$L_{eq}(h)$		I.L.[3]	NBR	$L_{eq}(h)$		I.L.[3]	NBR
25.6	No Barrier		1	SFR	1750 Lexington Ave, Oakdale	51	56	59	5	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
26.3	No Barrier[4]		2	SFR	South of Lexington Ave and Bentley Rd, Oakdale	41	36	57	-5	21	B (67)	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
28	No Barrier		0	SFR	4628 Claus Rd, Modesto #22	41	41	43	0	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
28.1	No Barrier[4]		1	SFR	3160 Kaufman Rd, Oakdale	41	39	51	-2	12	B (67)	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
29.2	No Barrier		1	SFR	6751 Albers Rd, Oakdale	67	68	68	1	0	B (67)	A/E	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
30.12	SW-9	ROW	1	SFR	9625 Warnerville Rd, Oakdale	41	35	62	-6	27	B (67)	S	--	57	5	1	--	54	8	1	--	51	11	1	--	50	12	1	--	49	13	1	--	48	14	1
30.13	No Barrier[4]		1	SFR	8877 Warnerville Rd, Oakdale	41	35	56	-6	21	B (67)	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
32.1	No Barrier[4]	--	1	SFR	1918 Sierra Rd, Oakdale	42	42	56	0	14	B (67)	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
33.1	No Barrier		1	SFR	308 S Stearns Rd, Oakdale	57	57	64	0	7	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
33.2	No Barrier		1	SFR	336 S Stearns Rd, Oakdale	46	46	54	0	8	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
33.3	SW-10	EOP	1	SFR	448 S Stearns Rd, Oakdale	42	42	57	0	15	B (67)	S	--	54	3	1	--	54	3	1	--	53	4	1	--	53	5	1	--	52	5	1	--	52	5	1
33.5	No Barrier		1	SFR	337 S Stearns Rd, Oakdale	49	49	59	0	10	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
33.6	No Barrier		1	SFR	401 S Stearns Rd, Oakdale	52	53	59	1	6	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
33.7	No Barrier		1	SFR	279 S Stearns Rd, Oakdale	51	51	62	0	11	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
33.8	No Barrier		1	SFR	249 S Stearns Rd, Oakdale	52	52	61	0	9	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
33.9	No Barrier	--	1	SFR	211 S Stearns Rd, Oakdale	45	46	56	1	10	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
35.1	No Barrier		1	SFR	10008 Plaza De Oro Dr, Oakdale	56	58	54	2	-4	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
35.2	No Barrier		1	SFR	10306 Rio Sombra Ct, Oakdale	59	61	58	2	-3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
35.3	No Barrier		1	SFR	10318 Rio Sombra Ct, Oakdale	65	67	65	2	-2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
35.4	No Barrier		1	SFR	10468 St Andrews Ct, Oakdale	61	62	62	1	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
35.6	No Barrier		1	SFR	10529 California 108, Oakdale	64	66	65	2	-1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:EOP=Edge of Pavement, ROW=Right of Way

1. Short Term measurements were used for calibrating the TNM models and do not represent a frequently used outdoor area within the proposed project area.
2. Impact types: A/E - Future noise conditions approach (within 1 dBA) or exceed the Noise Abatement Criteria (NAC).
3. I.L. = Insertion Loss
4. '-- A soundwall was not analyzed for this receiver. No feasible location to place a soundwall.
5. SFR = Single Family Residence
6. Noise leves for Existing and No-Build for receivers 26.3, 28, 28.1, 30.12, 30.13 are representative of background noise sites. No traffic near receivers under Existing and No-Build conditions.

Table B-2. Predicted Future Noise and Sound Wall Analysis - Alternative 1B

Receiver I.D.	Barrier I.D.	Barrier Location	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA[1]	Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus No Project Conditions	Activity Category (NAC)	Impact Type[2]	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA																							
													Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receivers (NBR)																							
													6 feet				8 feet				10 feet				12 feet				14 feet				16 feet			
													$L_{eq}(h)$	I.L.[3]	NBR		$L_{eq}(h)$	I.L.[3]	NBR		$L_{eq}(h)$	I.L.[3]	NBR		$L_{eq}(h)$	I.L.[3]	NBR		$L_{eq}(h)$	I.L.[3]	NBR		$L_{eq}(h)$	I.L.[3]	NBR	
1.1	No Barrier	--	1	SFR	5211 Tully Rd, Modesto	49	54	55	5	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1.2	No Barrier		1	SFR	5089 Tully Rd, Modesto	60	64	65	4	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1.3	No Barrier		1	SFR	5080 Tully Rd, Modesto	56	60	62	4	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.1	No Barrier		1	SFR	1394 Kiernan Ave, Modesto	59	63	62	4	-1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.2	No Barrier		1	SFR	1248 Kiernan Ave, Modesto	57	62	63	5	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.3	No Barrier		1	SFR	1248 Kiernan Ave, Modesto	56	61	64	5	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.4	No Barrier		1	SFR	4885 Tully Rd, Modeseto	53	59	61	6	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.5	No Barrier		1	SFR	4823 Tully Rd, Modeseto	52	58	58	6	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.6	SW-1	EOP	1	SFR	4744 Tully Rd, Modeseto	59	64	66	5	2	B (67)	A/E	--	65	1	1	--	64	2	1	--	64	2	1	--	64	3	1	--	63	3	1	--	63	3	1
3.1	SW-2	EOP	1	SFR	177 Chow Chow Ln, Modesto	68	69	67	1	-2	B (67)	A/E	--	64	3	1	--	64	3	1	--	63	4	1	--	63	4	1	--	63	4	1	--	63	4	1
4.1	No Barrier	--	1	SFR	5097 McHenry Rd, Modesto	56	57	60	1	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.2	No Barrier		1	SFR	254 Claribel Road, Modesto	59	63	64	4	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.3	No Barrier		1	SFR	630 Claribel Road, Modesto	57	61	64	4	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.4	No Barrier		1	SFR	830 Claribel Road, Modesto	55	59	61	4	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.5	No Barrier		1	SFR	Claribel Road, Modesto	60	64	62	4	-2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5.1	No Barrier		1	SFR	4854 Coffee Rd, Modesto	56	60	60	4	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6.1	No Barrier		1	SFR	5330 Coffee Rd, Modesto	53	57	59	4	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7.1	No Barrier		4	SFR	1509 Cabo Dr, Modesto	62	65	60	3	-5	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7.2	No Barrier		1	SFR	1532 Cabo Dr, Modesto	59	62	59	3	-3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8.1	No Barrier		5	SFR	1609 Cabo Dr, Modesto	62	66	60	4	-6	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10.1	No Barrier		1	SFR	2010 Claribel Rd, Modesto	51	55	61	4	6	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10.2	No Barrier		1	SFR	5036 Oakdale Rd, Modesto	59	60	61	1	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10.4	No Barrier		1	SFR	4780 Oakdale Rd, Modesto	60	61	62	1	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10.5	No Barrier		1	SFR	4610 Oakdale Rd, Modesto	64	66	64	2	-2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11.1	No Barrier		1	SFR	5007 Gold River Ct, Riverbank	55	57	51	2	-6	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12.1	No Barrier		1	SFR	5008 Riverbed Ct, Riverbank	53	55	51	2	-4	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12.2	No Barrier		1	SFR	5015 Prospectors Pkwy, Riverbank	51	53	52	2	-1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12.3	No Barrier		1	SFR	2966 Blacksand Creek Wy, Riverbank	50	53	53	3	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13.1	No Barrier		1	SFR	4955 Rosselle Ave, Modesto	61	65	65	4	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table B-2. Predicted Future Noise and Sound Wall Analysis - Alternative 1B

Receiver I.D.	Barrier I.D.	Barrier Location	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA[1]	Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus No Project Conditions	Activity Category (NAC)	Impact Type[2]	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA																							
													Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receivers (NBR)																							
													6 feet				8 feet				10 feet				12 feet				14 feet				16 feet			
													$L_{eq}(h)$	I.L.[3]	NBR		$L_{eq}(h)$	I.L.[3]	NBR		$L_{eq}(h)$	I.L.[3]	NBR		$L_{eq}(h)$	I.L.[3]	NBR		$L_{eq}(h)$	I.L.[3]	NBR		$L_{eq}(h)$	I.L.[3]	NBR	
13.2	No Barrier		1	SFR	4955 Rosselle Ave, Modesto	60	64	62	4	-2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14.1	No Barrier		1	SFR	5230 Roselle Ave, Riverbank	57	59	59	2	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14.2	No Barrier		1	SFR	3212 Claribel Rd, Modesto	61	66	60	5	-6	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
15.1	No Barrier		1	SFR	3728 Davis Ave, Modesto	45	51	55	6	4	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
15.2	No Barrier		1	SFR	3761 Davis Ave, Modesto	45	50	54	5	4	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.1	No Barrier		1	SFR	3874 Davis Ave, Modesto	47	54	58	7	4	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.2	No Barrier		1	SFR	3932 Davis Ave, Modesto	50	57	57	7	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.3	No Barrier		1	SFR	3973 Davis Ave, Modesto	58	62	62	4	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.4	No Barrier		1	SFR	5361 Claus Rd, Modesto	60	64	64	4	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.5	No Barrier		1	SFR	3973 Minniear Ave, Modesto	60	64	63	4	-1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17.1	No Barrier		1	SFR	3800 Claribel Rd, Modesto	55	59	59	4	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17.2	No Barrier	--	1	SFR	4824 Claus Rd, Modesto	56	61	60	5	-1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17.3	No Barrier		1	SFR	4380 Claribel Rd, Modesto	53	58	58	5	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
18.1	No Barrier		1	SFR	Claribel Road, Modesto	57	61	63	4	2	B (67)	A/E	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19.1	SW-3	EOP	5	SFR	4650 Claus Rd, Modesto	63	68	70	5	2	B (67)	A/E	--	64	6	5	--	62	9	5	--	60	10	5	--	59	11	5	--	58	12	5	--	57	13	5
19.2	No Barrier	--	1	SFR	4672 Claus Rd, Modesto	52	56	57	4	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19.3	SW-4	EOP	1	SFR	4527 Claus Rd, Modesto	63	64	69	1	5	B (67)	A/E	--	64	5	1	--	63	6	1	--	61	8	1	--	60	9	1	--	59	10	1	--	59	10	1
19.4	SW-5	EOP	1	SFR	4548 Claus Rd, Modesto	62	66	69	4	3	B (67)	A/E	--	65	4	1	--	63	6	1	--	62	7	1	--	61	8	1	--	60	9	1	--	60	9	1
19.5	No Barrier		1	SFR	4510 Claus Rd, Modesto	42	46	49	4	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19.6	No Barrier		1	SFR	4500 Claus Rd, Modesto	41	45	48	4	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
21.1	SW-6		1	SFR	4601 Claribel Rd, Modesto	52	56	68	4	12	B (67)	A/E/S	--	64	4	1	--	64	5	1	--	63	5	1	--	62	7	1	--	61	6	1	--	61	7	1
21.3	No Barrier		1	SFR	5303 Eleanor Ave, Oakdale	49	50	65	1	15	B (67)	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
21.4	No Barrier		1	SFR	5307 Eleanor Ave, Oakdale	44	46	56	2	10	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
21.5	No Barrier		1	REC	5354 Eleanor Ave, Oakdale	40	44	57	4	13	B (67)	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
24.1	No Barrier		1	SFR	6153 Langworth Rd, Oakdale	53	53	57	0	4	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
24.2	No Barrier	--	1	SFR	5459 Langworth Rd, Oakdale	49	49	54	0	5	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
25.1	No Barrier		1	SFR	5732 Langworth Rd, Oakdale	52	52	59	0	7	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
25.2	No Barrier		1	SFR	5918 Patterson Rd, Oakdale	61	61	64	0	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
25.3	No Barrier		1	SFR	6399 Crane Rd, Oakdale	57	62	62	5	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table B-2. Predicted Future Noise and Sound Wall Analysis - Alternative 1B

Receiver I.D.	Barrier I.D.	Barrier Location	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA[1]	Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus No Project Conditions	Activity Category (NAC)	Impact Type[2]	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA																							
													Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receivers (NBR)																							
													6 feet				8 feet				10 feet				12 feet				14 feet				16 feet			
													$L_{eq}(h)$	I.L.[3]	NBR		$L_{eq}(h)$	I.L.[3]	NBR		$L_{eq}(h)$	I.L.[3]	NBR		$L_{eq}(h)$	I.L.[3]	NBR		$L_{eq}(h)$	I.L.[3]	NBR		$L_{eq}(h)$	I.L.[3]	NBR	
25.5	No Barrier		1	SFR	6236 Crane Rd, Oakdale	53	58	61	5	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
25.6	No Barrier		1	SFR	1750 Lexington Ave, Oakdale	51	56	59	5	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
28.1	No Barrier		1	SFR	3160 Kaufman Rd, Oakdale	37	39	50	2	11	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
29.2	No Barrier		1	SFR	6751 Albers Rd, Oakdale	67	68	68	1	0	B (67)	A/E	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
30.9	SW-8	EOP	1	SFR	9684 Warnerville Rd, Oakdale	41	41	55	0	14	B (67)	S	--	54	2	1	--	53	2	1	--	53	2	1	--	51	4	1	--	50	5	1	--	49	6	1
30.11	No Barrier		1	SFR	9600 Warnerville Rd, Oakdale	41	41	76	0	35	B (67)	A/E/S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
37.2	SW-12	ROW	1	SFR	11955 Warnerville Rd, Oakdale	41	41	57	0	16	B (67)	S	--	55	2	1	--	53	4	1	--	52	5	1	--	52	5	1	--	51	6	1	--	51	6	1
39.1	No Barrier		1	SFR	13949 California 108, Oakdale	58	59	58	1	-1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
39.2	No Barrier		1	SFR	13460 Lancaster Rd, Oakdale	54	55	55	1	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
39.3	No Barrier	--	1	SFR	13542 Lancaster Rd, Oakdale	52	52	56	0	4	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
42	No Barrier		0	SFR	13712 Lancaster Rd, Oakdale	57	57	58	0	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
42.1	No Barrier		1	SFR	13614 Lancaster Rd, Oakdale	52	52	54	0	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
42.2	No Barrier		1	SFR	13712 Lancaster Rd, Oakdale	57	57	59	0	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
42.3	No Barrier	--	1	SFR	13760 Lancaster Rd, Oakdale	59	59	60	0	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:EOP=Edge of Pavement, ROW=Right of Way

1. Short Term measurements were used for calibrating the TNM models and do not represent a frequently used outdoor area within the proposed project area.
2. Impact types: A/E - Future noise conditions approach (within 1 dBA) or exceed the Noise Abatement Criteria (NAC).
3. I.L. = Insertion Loss
4. SFR = Single Family Residence
5. Existing and No-Build noise levels for Receivers 30.9, 30.11, 37.2 are representative of background field measurement. No traffic near receivers under Existing and No-Build conditions.

Table B-3. Predicted Future Noise and Sound Wall Analysis - Alternative 2A

Receiver I.D.	Barrier I.D.	Barrier Location	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA[1]	Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus No Project Conditions	Activity Category (NAC)	Impact Type[2]	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA																							
													Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receivers (NBR)																							
													6 feet			8 feet			10 feet			12 feet			14 feet			16 feet		
													$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR
1.1	No Barrier	--	1	SFR	5211 Tully Rd, Modesto	49	54	55	5	1	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
1.2	No Barrier		1	SFR	5089 Tully Rd, Modesto	60	64	65	4	1	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
1.3	No Barrier		1	SFR	5080 Tully Rd, Modesto	56	60	62	4	2	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
2.1	No Barrier		1	SFR	1394 Kiernan Ave, Modesto	59	63	62	4	-1	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
2.2	No Barrier		1	SFR	1248 Kiernan Ave, Modesto	57	62	63	5	1	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
2.3	No Barrier		1	SFR	4885 Tully Rd, Modeseto	56	61	62	5	1	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
2.4	No Barrier		1	SFR	4767 Tully Rd, Modeseto	53	59	60	6	1	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
2.5	No Barrier		1	SFR	4823 Tully Rd, Modeseto	52	58	58	6	0	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
2.6	SW-1	EOP	1	SFR	4744 Tully Rd, Modeseto	59	64	66	5	2	B (67)	A/E	-- 65	1	1	-- 64	2	1	-- 64	2	1	-- 64	2	1	-- 63	3	1	-- 63	3	1
3.1	SW-2	EOP	1	SFR	177 Chow Chow Ln, Modesto	68	69	67	1	-2	B (67)	A/E	-- 64	3	1	-- 64	3	1	-- 64	3	1	-- 63	4	1	-- 63	4	1	-- 63	4	1
4.1	No Barrier		1	SFR	5097 McHenry Rd, Modesto	56	57	60	1	3	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
4.2	No Barrier		1	SFR	254 Claribel Road, Modesto	59	63	63	4	0	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
4.3	No Barrier		1	SFR	630 Claribel Road, Modesto	57	61	64	4	3	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
4.4	No Barrier		1	SFR	830 Claribel Road, Modesto	55	59	61	4	2	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
4.5	No Barrier		1	SFR	Claribel Road, Modesto	60	64	62	4	-2	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
5.1	No Barrier		1	SFR	4854 Coffee Rd, Modesto	56	60	60	4	0	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
6.1	No Barrier		1	SFR	5330 Coffee Rd, Modesto	53	57	59	4	2	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
7.1	No Barrier		4	CH	1509 Cabo Dr, Modesto	62	65	60	3	-5	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
7.2	No Barrier		1	SFR	1532 Cabo Dr, Modesto	59	62	59	3	-3	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
8.1	No Barrier		5	SFR	1609 Cabo Dr, Modesto	62	66	60	4	-6	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
10.1	No Barrier		1	SFR	2010 Claribel Rd, Modesto	51	55	60	4	5	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
10.2	No Barrier		1	SFR	5036 Oakdale Rd, Modesto	59	60	61	1	1	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
10.4	No Barrier		1	SFR	4780 Oakdale Rd, Modesto	60	61	62	1	1	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
10.5	No Barrier		1	SFR	4610 Oakdale Rd, Modesto	64	66	65	2	-1	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
11.1	No Barrier		1	SFR	5007 Gold River Ct, Riverbank	55	57	50	2	-7	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
12.1	No Barrier		1	SFR	5008 Riverbed Ct, Riverbank	53	55	49	2	-6	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
12.2	No Barrier		1	SFR	5015 Prospectors Pkwy, Riverbank	51	53	50	2	-3	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
12.3	No Barrier		1	SFR	2966 Blacksand Creek Wy, Riverbank	50	53	52	3	-1	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
13.1	No Barrier		1	SFR	4955 Rosselle Ave, Modesto	61	65	65	4	0	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
13.2	No Barrier		1	SFR	4955 Rosselle Ave, Modesto	60	64	62	4	-2	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--

Table B-3. Predicted Future Noise and Sound Wall Analysis - Alternative 2A

Receiver I.D.	Barrier I.D.	Barrier Location	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA[1]	Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus No Project Conditions	Activity Category (NAC)	Impact Type[2]	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA																							
													Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receivers (NBR)																							
													6 feet				8 feet				10 feet				12 feet				14 feet				16 feet			
													$L_{eq}(h)$		I.L.[3]	NBR	$L_{eq}(h)$		I.L.[3]	NBR	$L_{eq}(h)$		I.L.[3]	NBR	$L_{eq}(h)$		I.L.[3]	NBR	$L_{eq}(h)$		I.L.[3]	NBR	$L_{eq}(h)$		I.L.[3]	NBR
14.1	No Barrier		1	SFR	5230 Roselle Ave, Riverbank	57	59	59	2	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14.2	No Barrier		1	SFR	3212 Claribel Rd, Modesto	61	66	55	5	-11	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
15.1	No Barrier		1	SFR	3728 Davis Ave, Modesto	45	51	54	6	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
15.2	No Barrier		1	SFR	3761 Davis Ave, Modesto	45	50	52	5	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.1	No Barrier		1	SFR	3874 Davis Ave, Modesto	47	54	57	7	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.2	No Barrier		1	SFR	3932 Davis Ave, Modesto	50	57	56	7	-1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.3	No Barrier		1	SFR	3973 Davis Ave, Modesto	58	62	62	4	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.4	No Barrier		1	SFR	5361 Claus Rd, Modesto	60	64	64	4	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.5	No Barrier		1	SFR	3973 Minniear Ave, Modesto	60	64	64	4	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17.1	No Barrier		1	SFR	3800 Claribel Rd, Modesto	55	59	58	4	-1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17.2	No Barrier		1	SFR	4824 Claus Rd, Modesto	56	61	59	5	-2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17.3	No Barrier		1	SFR	4380 Claribel Rd, Modesto	53	58	59	5	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
18.1	No Barrier		1	SFR	Claribel Road, Modesto	57	61	62	4	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19.1	SW-3	EOP	5	SFR	4650 Claus Rd, Modesto	63	68	69	5	1	B (67)	A/E	--	64	5	5	--	62	7	5	--	62	7	5	--	60	9	5	--	60	9	5	--	59	10	5
19.2	No Barrier	--	1	SFR	4672 Claus Rd, Modesto	52	56	56	4	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19.3	SW-4	EOP	1	SFR	4527 Claus Rd, Modesto	63	64	67	1	3	B (67)	A/E	--	63	4	1	--	62	5	1	--	62	5	1	--	60	7	1	--	59	8	1	--	58	9	1
19.4	SW-5	EOP	1	SFR	4548 Claus Rd, Modesto	62	66	68	4	2	B (67)	A/E	--	64	4	1	--	62	7	1	--	62	7	1	--	60	8	1	--	60	8	1	--	59	9	1
19.5	No Barrier		1	SFR	4510 Claus Rd, Modesto	42	46	48	4	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19.6	No Barrier		1	SFR	4500 Claus Rd, Modesto	41	45	47	4	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20	No Barrier		1	SFR	4718 McGee Ave, Modesto	42	46	48	4	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20.1	No Barrier		1	SFR	4877 McGee Ave, Modesto	47	51	53	4	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20.2	No Barrier		1	SFR	4663 McGee Ave, Modesto	43	47	50	4	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20.3	No Barrier		1	SFR	4896 McGee Ave, Modesto	47	51	54	4	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20.4	No Barrier		1	SFR	4642 McGee Ave, Modesto	42	46	48	4	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20.5	No Barrier		1	REC	4906 McGee Ave, Modesto	49	53	57	4	4	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
21.1	No Barrier		1	SFR	4601 Claribel Rd, Modesto	52	56	59	4	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
21.2	No Barrier		1	SFR	4737 Claribel Rd, Modesto	60	65	64	5	-1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
21.7	No Barrier		1	SFR	5023 Claribel Rd, Modesto	53	58	57	5	-1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
22.1	No Barrier		1	SFR	4854 Langworth Rd, Modesto	59	60	60	1	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
22.2	No Barrier		1	SFR	4660 Langworth Rd, Modesto	49	50	53	1	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23.1	No Barrier		1	SFR	5233 Claribel Rd, Modesto	59	63	61	4	-2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table B-3. Predicted Future Noise and Sound Wall Analysis - Alternative 2A

Receiver I.D.	Barrier I.D.	Barrier Location	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA[1]	Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus No Project Conditions	Activity Category (NAC)	Impact Type[2]	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA																							
													Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receivers (NBR)																							
													6 feet			8 feet			10 feet			12 feet			14 feet			16 feet		
													$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR
23.2	No Barrier	--	1	SFR	5315 Claribel Rd, Modesto	57	61	59	4	-2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23.3	No Barrier		1	SFR	5553 Claribel Rd, Modesto	63	68	64	5	-4	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23.4	No Barrier		1	SFR	5553 Claribel Rd, Oakdale	40	44	45	5	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23.5	No Barrier		1	SFR	5125 Langworth Rd, Oakdale	51	56	57	5	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23.6	No Barrier		1	SFR	5931 Claribel Rd, Oakdale	55	60	60	5	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23.7	No Barrier		1	SFR	500 Bentley Rd, Oakdale	41	43	47	2	4	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23.8	No Barrier		1	SFR	7131 Claribel Rd, Oakdale	55	59	59	4	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23.9	No Barrier		1	SFR	7321 Claribel Rd, Oakdale	54	59	60	5	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
27.1	No Barrier		1	SFR	5773 Valk Rd, Oakdale	47	47	49	0	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
27.2	No Barrier[4]		1	SFR	8500 Valk Rd, Oakdale	41	41	50	0	9	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
29.1	No Barrier		1	SFR	6085 Albers Rd, Oakdale	56	58	59	2	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
30.1	No Barrier		1	SFR	6107 Bender Rd, Oakdale	41	41	44	0	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
30.12	No Barrier[4]		0	SFR	9625 Warnerville Rd, Oakdale	41	41	50	0	9	B (67)	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
32.1	No Barrier[4]		2	SFR	1918 Sierra Rd, Oakdale	42	42	56	0	14	B (67)	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
33.1	No Barrier		1	SFR	308 S Stearns Rd, Oakdale	57	57	64	0	7	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
33.2	No Barrier		1	SFR	336 S Stearns Rd, Oakdale	46	46	54	0	8	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
33.3	SW-10	EOP	1	SFR	448 S Stearns Rd, Oakdale	42	42	57	0	15	B (67)	S	--	55	2	1	--	55	3	1	--	55	3	1	--	54	3	1	--	52	5	1	--	52	5	1
33.5	No Barrier		1	SFR	337 S Stearns Rd, Oakdale	49	49	59	0	10	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
33.6	No Barrier		1	SFR	401 S Stearns Rd, Oakdale	52	53	58	1	5	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
35.1	No Barrier		1	SFR	10008 Plaza De Oro Dr, Oakdale	56	58	54	2	-4	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
35.2	No Barrier	--	1	SFR	10306 Rio Sombra Ct, Oakdale	59	61	57	2	-4	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
35.3	No Barrier		1	SFR	10318 Rio Sombra Ct, Oakdale	65	67	64	2	-3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
35.4	No Barrier		1	SFR	10468 St Andrews Ct, Oakdale	61	62	61	1	-1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
35.6	No Barrier		1	SFR	10529 California 108, Oakdale	64	66	65	2	-1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:EOP=Edge of Pavement, ROW=Right of Way

1. Short Term measurements were used for calibrating the TNM models and do not represent a frequently used outdoor area within the proposed project area.
2. Impact types: A/E - Future noise conditions approach (within 1 dBA) or exceed the Noise Abatement Criteria (NAC).
3. I.L. = Insertion Loss
4. '-- A soundwall was not analyzed for this receiver. No feasible location to place a soundwall.
5. SFR = Single Family Residence
6. Existing and No-Build noise levels for receivers 27.2, 30.1, 30.12 are representative of background noise sites. No traffic near receivers under Existing and No-Build conditions.

Table B-4. Predicted Future Noise and Sound Wall Analysis - Alternative 2B

Receiver I.D.	Barrier I.D.	Barrier I.D.	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA[1]	Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus No Project Conditions	Activity Category (NAC)	Impact Type[2]	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA																							
													Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receivers (NBR)																							
													6 feet			8 feet			10 feet			12 feet			14 feet			16 feet		
													$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR
1.1	No Barrier	--	1	SFR	5211 Tully Rd, Modesto	49	54	55	5	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1.2	No Barrier		1	SFR	5089 Tully Rd, Modesto	60	64	65	4	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1.3	No Barrier		1	SFR	5080 Tully Rd, Modesto	56	60	62	4	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.1	No Barrier		1	SFR	1394 Kiernan Ave, Modesto	59	63	62	4	-1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.2	No Barrier		1	SFR	1248 Kiernan Ave, Modesto	57	62	63	5	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.3	No Barrier		1	SFR	4885 Tully Rd, Modeseto	56	61	62	5	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.4	No Barrier		1	SFR	4767 Tully Rd, Modeseto	53	59	60	6	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.5	No Barrier		1	SFR	4823 Tully Rd, Modeseto	52	58	58	6	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.6	SW-1	EOP	1	SFR	4744 Tully Rd, Modeseto	59	64	66	5	2	B (67)	A/E	--	65	1	1	--	64	2	1	--	64	2	1	--	63	3	1	--	63	3	1	--	63	3	1
3.1	SW-2	EOP	1	SFR	177 Chow Chow Ln, Modesto	68	69	67	1	-2	B (67)	A/E	--	64	3	1	--	64	3	1	--	63	4	1	--	63	4	1	--	63	4	1	--	63	4	1
4.1	No Barrier		1	SFR	5097 McHenry Rd, Modesto	56	57	60	1	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.2	No Barrier		1	SFR	254 Claribel Road, Modesto	59	63	64	4	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.3	No Barrier		1	SFR	630 Claribel Road, Modesto	57	61	64	4	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.4	No Barrier		1	SFR	830 Claribel Road, Modesto	55	59	61	4	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.5	No Barrier		1	SFR	Claribel Road, Modesto	60	64	62	4	-2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5.1	No Barrier		1	SFR	4854 Coffee Rd, Modesto	56	60	60	4	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6.1	No Barrier		1	SFR	5330 Coffee Rd, Modesto	53	57	59	4	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7.1	No Barrier		4	SFR	1509 Cabo Dr, Modesto	62	65	60	3	-5	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7.2	No Barrier		1	SFR	1532 Cabo Dr, Modesto	59	62	59	3	-3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8.1	No Barrier		5	SFR	1609 Cabo Dr, Modesto	62	66	60	4	-6	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10.1	No Barrier		1	SFR	2010 Claribel Rd, Modesto	51	55	60	4	5	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10.2	No Barrier		1	SFR	5036 Oakdale Rd, Modesto	59	60	61	1	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10.4	No Barrier		1	SFR	4780 Oakdale Rd, Modesto	60	61	62	1	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10.5	No Barrier		1	SFR	4610 Oakdale Rd, Modesto	64	66	65	2	-1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11.1	No Barrier		1	SFR	5007 Gold River Ct, Riverbank	55	57	50	2	-7	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12.1	No Barrier		1	SFR	5008 Riverbed Ct, Riverbank	53	55	50	2	-5	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12.2	No Barrier		1	SFR	5015 Prospectors Pkwy, Riverbank	51	53	51	2	-2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12.3	No Barrier		1	SFR	2966 Blacksand Creek Wy, Riverbank	50	53	53	3	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13.1	No Barrier		1	SFR	4955 Rosselle Ave, Modesto	61	65	65	4	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13.2	No Barrier		1	SFR	4955 Rosselle Ave, Modesto	60	64	62	4	-2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table B-4. Predicted Future Noise and Sound Wall Analysis - Alternative 2B

Receiver I.D.	Barrier I.D.	Barrier I.D.	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA[1]	Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus No Project Conditions	Activity Category (NAC)	Impact Type[2]	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA																							
													Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receivers (NBR)																							
													6 feet			8 feet			10 feet			12 feet			14 feet			16 feet		
													$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR
14.1	No Barrier		1	SFR	5230 Roselle Ave, Riverbank	57	59	60	2	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14.2	No Barrier		1	SFR	3212 Claribel Rd, Modesto	61	66	61	5	-5	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
15.1	No Barrier		1	SFR	3728 Davis Ave, Modesto	45	51	54	6	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
15.2	No Barrier		1	SFR	3761 Davis Ave, Modesto	45	50	53	5	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.1	No Barrier		1	SFR	3874 Davis Ave, Modesto	47	54	58	7	4	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.2	No Barrier		1	SFR	3932 Davis Ave, Modesto	50	57	56	7	-1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.3	No Barrier		1	SFR	3973 Davis Ave, Modesto	58	62	63	4	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.4	No Barrier		1	SFR	5361 Claus Rd, Modesto	60	64	64	4	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.5	No Barrier		1	SFR	3973 Minniear Ave, Modesto	60	64	64	4	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17.1	No Barrier		1	SFR	3800 Claribel Rd, Modesto	55	59	57	4	-2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17.2	No Barrier		1	SFR	4824 Claus Rd, Modesto	56	61	59	5	-2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17.3	No Barrier		1	SFR	4380 Claribel Rd, Modesto	53	58	59	5	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
18.1	No Barrier		1	SFR	Claribel Road, Modesto	57	61	62	4	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19.1	SW-3	EOP	5	SFR	4650 Claus Rd, Modesto	63	68	69	5	1	B (67)	A/E	--	64	5	5	--	62	7	5	--	60	9	5	--	60	9	5	--	59	10	5	--	59	11	5
19.2	No Barrier	--	1	SFR	4672 Claus Rd, Modesto	52	56	56	4	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19.3	SW-4	EOP	1	SFR	4527 Claus Rd, Modesto	63	64	67	1	3	B (67)	A/E	--	63	4	1	--	62	5	1	--	62	5	1	--	59	8	1	--	58	9	1	--	57	10	1
19.4	SW-5	EOP	1	SFR	4548 Claus Rd, Modesto	62	66	68	4	2	B (67)	A/E	--	64	4	1	--	62	6	1	--	62	6	1	--	60	8	1	--	59	9	1	--	59	9	1
19.5	No Barrier		1	SFR	4510 Claus Rd, Modesto	42	46	48	4	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19.6	No Barrier		1	SFR	4500 Claus Rd, Modesto	41	45	47	4	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20	No Barrier		1	SFR	4718 McGee Ave, Modesto	42	46	48	4	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20.1	No Barrier		1	SFR	4877 McGee Ave, Modesto	47	51	54	4	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20.2	No Barrier		1	SFR	4663 McGee Ave, Modesto	43	47	50	4	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20.3	No Barrier		1	SFR	4896 McGee Ave, Modesto	47	51	54	4	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20.4	No Barrier		1	SFR	4642 McGee Ave, Modesto	42	46	48	4	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20.5	No Barrier		1	SFR	4906 McGee Ave, Modesto	49	53	58	4	5	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
21.1	No Barrier		1	SFR	4601 Claribel Rd, Modesto	52	56	59	4	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
21.2	No Barrier		1	SFR	4737 Claribel Rd, Modesto	60	65	64	5	-1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
21.7	No Barrier		1	SFR	5023 Claribel Rd, Modesto	53	58	57	5	-1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
22.1	No Barrier		1	SFR	4854 Langworth Rd, Modesto	59	60	60	1	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
22.2	No Barrier		1	SFR	4660 Langworth Rd, Modesto	49	50	53	1	3	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23.1	No Barrier	--	1	SFR	5233 Claribel Rd, Modesto	59	63	61	4	-2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table B-4. Predicted Future Noise and Sound Wall Analysis - Alternative 2B

Receiver I.D.	Barrier I.D.	Barrier I.D.	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA[1]	Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus No Project Conditions	Activity Category (NAC)	Impact Type[2]	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA																							
													Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receivers (NBR)																							
													6 feet			8 feet			10 feet			12 feet			14 feet			16 feet		
													$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR
23.2	No Barrier		1	SFR	5315 Claribel Rd, Modesto	57	61	59	4	-2	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
23.3	No Barrier		1	SFR	5553 Claribel Rd, Modesto	63	68	64	5	-4	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
23.4	No Barrier		1	SFR	5553 Claribel Rd, Oakdale	40	44	51	5	7	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
23.5	No Barrier		1	SFR	5125 Langworth Rd, Oakdale	51	56	57	5	1	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
23.6	No Barrier		1	SFR	5931 Claribel Rd, Oakdale	55	60	61	5	1	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
23.7	No Barrier		1	SFR	500 Bentley Rd, Oakdale	41	43	47	3	4	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
23.8	No Barrier		1	SFR	7131 Claribel Rd, Oakdale	55	59	59	4	0	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
23.9	No Barrier		1	SFR	7321 Claribel Rd, Oakdale	54	59	60	5	1	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
27.1	No Barrier		1	SFR	5773 Valk Rd, Oakdale	47	47	49	0	2	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
27.2	No Barrier		1	SFR	8500 Valk Rd, Oakdale	41	41	49	0	8	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
29.1	No Barrier		1	SFR	6085 Albers Rd, Oakdale	56	58	60	2	2	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
30.1	No Barrier		1	SFR	6107 Bender Rd, Oakdale	41	41	42	0	1	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
30.2	No Barrier[4]		1	SFR	6355 Bender Rd, Oakdale	41	41	45	0	4	B (67)	S	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
30.3	No Barrier[4]		1	SFR	6466 Bender Rd, Oakdale	41	41	52	0	11	B (67)	S	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
30.4	SW-7	ROW	1	SFR	6729 Smith Rd, Oakdale	41	41	61	0	20	B (67)	S	-- 58	3	1	-- 56	5	1	-- 55	6	1	-- 54	7	1	-- 54	7	1	-- 53	8	1
30.5	No Barrier		1	SFR	6739 Smith Rd, Oakdale	55	55	62	0	7	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
30.6	No Barrier[4]		1	SFR	6680Smith Rd, Oakdale	41	41	51	0	10	B (67)	S	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
30.7	No Barrier	--	1	SFR	10022 Warnerville Rd, Oakdale	56	56	62	0	6	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
30.8	No Barrier		1	SFR	9979 Warnerville Rd, Oakdale	44	45	54	1	9	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
30.12	No Barrier		1	SFR	9625 Warnerville Rd, Oakdale	41	41	40	0	-1	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
37.1	SW-11	EOP	1	SFR	6954 Stoddard Rd, Oakdale	41	41	57	0	16	B (67)	S	-- 55	2	1	-- 55	2	1	-- 54	3	1	-- 52	5	1	-- 52	5	1	-- 51	6	1
39.1	No Barrier		1	SFR	13949 California 108, Oakdale	58	59	58	1	-1	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
39.2	No Barrier	--	1	SFR	13460 Lancaster Rd, Oakdale	54	55	54	1	-1	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
39.3	No Barrier		1	SFR	13542 Lancaster Rd, Oakdale	52	52	53	0	1	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--
42	No Barrier		1	SFR	13712 Lancaster Rd, Oakdale	57	57	58	0	1	B (67)	None	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--	-- --	--	--

Notes:EOP=Edge of Pavement, ROW=Right of Way

1. Short Term measurements were used for calibrating the TNM models and do not represent a frequently used outdoor area within the proposed project area.
2. Impact types: A/E - Future noise conditions approach (within 1 dBA) or exceed the Noise Abatement Criteria (NAC).
3. I.L. = Insertion Loss
4. '-- A soundwall was not analyzed for this receiver. No feasible location to place a soundwall.
5. SFR = Single Family Residence
6. Existing and No-Build noise levels for receivers 23.7,27.2,30.1,30.2,30.3,30.4,30.6, 30.12, 37.1 are representative of background noise sites. No traffic near receivers under Existing and No Build conditions.

Appendix B Construction Cost Breakdown

Barrier	Height (ft)	Length (ft)	Cost per SF	Total Cost
SW-3	6	410	$ 40.00	$ 98,400
	8	410	$ 40.00	$ 131,200
	10	410	$ 40.00	$ 164,000
	12	410	$ 40.00	$ 196,800
	14	410	$ 40.00	$ 229,600
	16	410	$ 40.00	$ 262,400
SW-4	6	402	$ 40.00	$ 96,480
	8	402	$ 40.00	$ 128,640
	10	402	$ 40.00	$ 160,800
	12	402	$ 40.00	$ 192,960
	14	402	$ 40.00	$ 225,120
	16	402	$ 40.00	$ 257,280
SW-5	6	175	$ 40.00	$ 42,000
	8	175	$ 40.00	$ 56,000
	10	175	$ 40.00	$ 70,000
	12	175	$ 40.00	$ 84,000
	14	175	$ 40.00	$ 98,000
	16	175	$ 40.00	$ 112,000
SW-6	6	459	$ 40.00	$ 110,160
	8	459	$ 40.00	$ 146,880
	10	459	$ 40.00	$ 183,600
	12	459	$ 40.00	$ 220,320
	14	459	$ 40.00	$ 257,040
	16	459	$ 40.00	$ 293,760

Barrier	Height (ft)	Length (ft)	Cost per SF	Total Cost
SW-7	6	421	$ 40.00	$ 101,040
	8	421	$ 40.00	$ 134,720
	10	421	$ 40.00	$ 168,400
	12	421	$ 40.00	$ 202,080
	14	421	$ 40.00	$ 235,760
	16	421	$ 40.00	$ 269,440
SW-11	6	859	$ 40.00	$ 206,160
	8	859	$ 40.00	$ 274,880
	10	859	$ 40.00	$ 343,600
	12	859	$ 40.00	$ 412,320
	14	859	$ 40.00	$ 481,040
	16	859	$ 40.00	$ 549,760
SW-12	6	703	$ 40.00	$ 168,720
	8	703	$ 40.00	$ 224,960
	10	703	$ 40.00	$ 281,200
	12	703	$ 40.00	$ 337,440
	14	703	$ 40.00	$ 393,680
	16	703	$ 40.00	$ 449,920