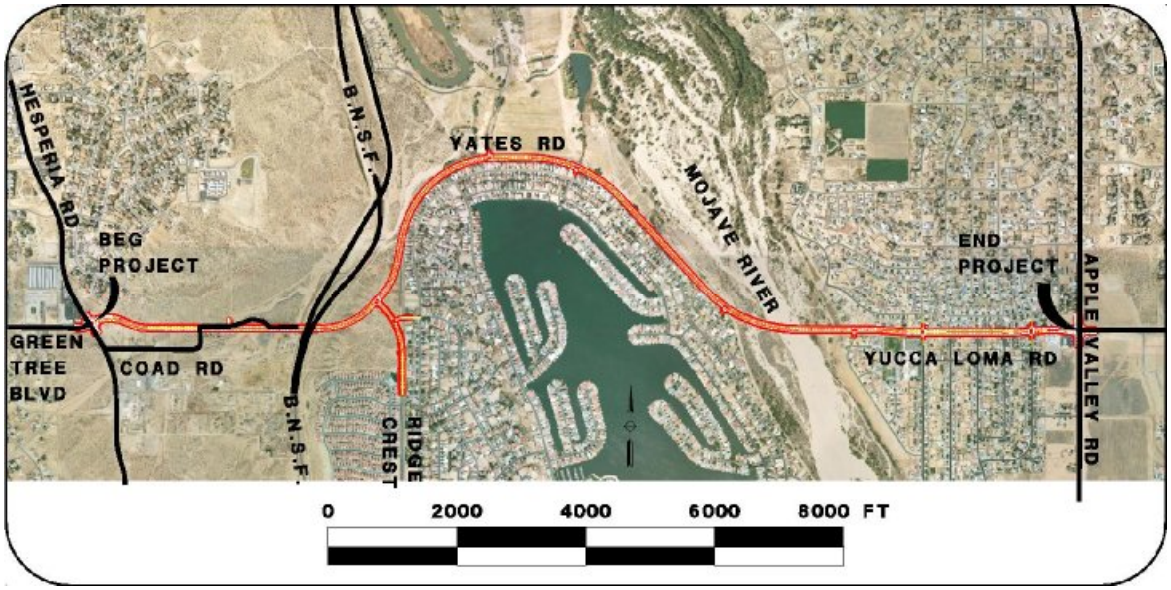

Noise Abatement Decision Report

Yucca Loma Road/Yates Road/Green Tree Boulevard transportation Improvement Project

Noise Study Report, March 2009

Town of Apple Valley, City of Victorville, and
County of San Bernardino, California

08-SBD-STPL-5453(011)

July 24, 2009

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Noise Study Report, March 2009

Town of Apple Valley, City of Victorville, and
County of San Bernardino, California

08-SBD-STPL-5453(011)

July 24, 2009

Prepared by:

Brian R. Stephenson

_____

Brian Stephenson, P. E.
Dokken Engineering

Concurred By: _____ Date: _____

Olufemi Odufalu, Office Chief
Environmental Engineering, Oversight
Caltrans District 8

Yucca Loma/Yates/Green Tree Project
Noise Abatement Decision Report Review
STPL 5453 (011) – August 13, 2009

Environmental Engineering Oversight has reviewed the second submittal of the Noise Abatement Decision Report dated July 24, 2009 for the above referenced project.

All previous comments have been adequately addressed. There are no further comments. The report is approved.

If there are any questions, please call Mike Goodhue at (909) 383-5991.

List of Abbreviated Terms

Caltrans	California Department of Transportation
dB	A measure of sound pressure level on a logarithmic scale
dBA	A-weighted sound pressure level
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
Benefited residence	A dwelling unit expected to receive a noise reducton of at least 5 dBA from the proposed abatement measure
Critical design receiver	The design receiver that is impacted and for which the absolute noise levels, build vs. existing noise levels, or achievable noise reduction will be at a maximum where noise abatement is considered
Planned, designed, and programmed	A noise-sensitive land use is considered planned, designed, and programmed when it has received final development approval (generally the issuance of a building permit) from the local agency with jurisdiction
Date of public knowledge	The date that a project is approved—approval of the final environmental documentation (e.g., Record of Decision) is complete
NSR	Noise study report
NADR	Noise Abatement Decision Report
NAC	Noise abatement criteria
ED	Environmental document
Reasonable allowance	A single dollar value—a reasonable allowance per benefited residence that embodies five reasonableness factors

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 approved by a California licensed professional civil engineer. The project level noise study report (NSR) *Yucca Loma Road/Yates Road/Green Tree Boulevard transportation Improvement Project Noise Study Report, March 2009* 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 dB of the NAC. A substantial increase is defined as being a 12-dB 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.

The Protocol establishes a process for assessing the reasonableness and feasibility of noise abatement. Before publication of the draft environmental document, 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 provides noise reduction of at least 5 dBA at receivers subject to noise impacts. Other nonacoustical factors relating to geometric standards (e.g., sight distances), safety, maintenance, and security can also affect feasibility.

The preliminary reasonableness determination is made by calculating an allowance that is considered to be a reasonable amount of money, per benefited residence, 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, the preliminary determination is that the abatement is reasonable. If the cost estimate is higher than the allowance, the preliminary determination is that abatement is not reasonable.

The NADR presents the preliminary noise abatement decision based on acoustical and nonacoustical feasibility factors 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 environmental document (ED) is published. The final overall reasonableness decision will take this information into account, along with other reasonableness factors identified during the environmental review process. These factors may include:

- impacts of abatement construction,
- public and local agency input,
- life cycle of abatement measures,
- views/opinions of impacted residents, and
- Social, economic, environmental, legal, and technological factors.

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 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 will provide a new route across the Mojave River between the Town of Apple Valley, County of San Bernardino, and City of Victorville. The eastern limit of the project is at the intersection of Yucca Loma Road and Apple Valley Road. The western limit is at the intersection of Green Tree Boulevard and Hesperia Road.

The proposed Project will widen Yucca Loma Road from two to four lanes from Apple Valley Road to its current terminus east of Kasanka Trail. A new bridge crossing over the Mojave River will be constructed extending the roadway to Yates Road. This bridge will be built wide enough for an ultimate build out use of six lanes but will be striped for four lanes. The bridge will also have shoulders and sidewalks. Space for sidewalk will be allowed on both sides of Yucca Loma Road; however, it is anticipated sidewalk will only be built on one side of the street as part of this project. A new signal with crosswalks is planned at Havasu Road.

Yates Road will be widened from two lanes to four lanes. From Fortuna Lane to Park Road roadway widening is necessary. From Park Road to Ridgecrest Road, Yates Road is currently built wide enough for four lanes, but has been striped and used for two lanes of traffic. Pavement rehabilitation and restriping is needed in this area. Yates Road as it connects to Ridgecrest Road will be realigned to the east to allow connection to an extension of Green Tree Boulevard. A pedestrian path is planned along the north side of Yates Road, connecting from the bridge over the Mojave River to Ridgecrest Road and Green Tree Boulevard.

Ridgecrest Road will be realigned, at its current width, from approximately five hundred ft south of Chinquapin Dr to a new intersection of Yates Road and the

extension of Green Tree Boulevard. Signals are planned at the new intersection and sidewalks will connect the three streets.

Green Tree Boulevard will be extended with four through travel lanes from the new Ridgecrest Road// Yates Road intersection to Hesperia Road by following one of two alternate alignments. The Green Tree Boulevard south alignment, Alternative A, is centered on the existing property Section Line boundary and impacts four single family residential parcels located between the railroad right-of-way and Hesperia Road. Alternative B, the Green Tree Boulevard north alignment, shifts the roadway approximately 150 ft to the north, avoiding the four single family residential parcels. New access roads will maintain access to the four parcels. Grading will allow for sidewalk to be built on both sides of the roadway; however, construction of sidewalks is anticipated to occur as development in the area occurs. Both Green Tree Boulevard alignment alternatives require the construction of a new bridge over the BNSF railroad which will also be striped for four lanes and include sidewalks.

Sound walls are proposed to abate noise impacts associated with the project. The sound walls will be constructed if the local jurisdictions and affected residents vote in favor of them.

Various utility relocations and realignments will be necessary throughout the project. Both Alternative A and Alternative B will provide Class II bicycle lanes and sidewalks throughout the entire project alignment. The bicycle lanes will be 8-ft wide and will include signs and striping.

To control access to the Spring Valley Lake community, portions of Yates Road will have a center median. Only right-in and right-out turning movements will be permitted for general traffic at Tahoe Lane and Fortuna Lane.

The proposed Project connects Apple Valley Road to Hesperia Road. Given the large scope of the proposed Project and its location in three jurisdictions, the proposed Project will be built under multiple construction contracts over multiple construction seasons. It is anticipated construction will begin in the year 2010 and that the first area of focus or phase will be the Yucca Loma Bridge over the Mojave River, sound walls along Yucca Loma Road and Yates Road and other improvements from Apple Valley to Ridgecrest Road that will allow opening the bridge while maintaining the existing two lane configuration. Constructing this phase first will allow the associated segments of the proposed Project to be utilized by the public while the other phases are implemented and constructed. This first component will take approximately two

to three years to construct. Other phases include the extension of Green Tree Boulevard from the intersection of Yates Road/Ridgecrest Road to Hesperia Road. These other phases include constructing the entire project to four lanes and building the bridge over the BNSF railroad. Construction of other phases will require approximately an additional two to three years.

1.4. Affected Land Uses

Figure 1-1 shows the project area in its existing configuration. It comprises three isolated areas, herein referred to as “west”, “central”, and “east”. The west and central areas are separated by the B.N.S.F. railroad tracks, while the east and central areas are separated by the Mojave River. No path currently connects any of these areas in the vicinity of the project.

The west side of the project, between Hesperia Road and the railroad tracks, is currently rural. It is sparsely populated by isolated residences and industrial activities, and is served by a small lane, Coad Road, which will not be included in the project alignment. Some of the existing residences have already been abandoned, and all are slated for demolition. Future residential development is planned on the north side of the alignment.

The central area is populated by single-family residences surrounding the northern end of Spring Valley Lake. These residences lie along the existing Yates Road, which will be incorporated into the project alignment. The Mojave Narrows Regional Park also lies in the central area, bordering the north side of Yates Road. Because recreational areas of the park lie at least 500 feet from the proposed alignment, the park was not included in this noise study.

The east area of the project, between the Mojave River and Apple Valley Road, is also primarily residential, with newer single-family residences lining both the north and south sides of the existing Yucca Loma Road. This area further includes an existing school at the corner of Havasu Road, and a fire station with sleeping quarters near the Apple Valley Road intersection. Commercial properties sit on the intersection of Yucca Loma Road and Apple Valley Road, but were not included in this study due to lack of any outdoor recreational areas.

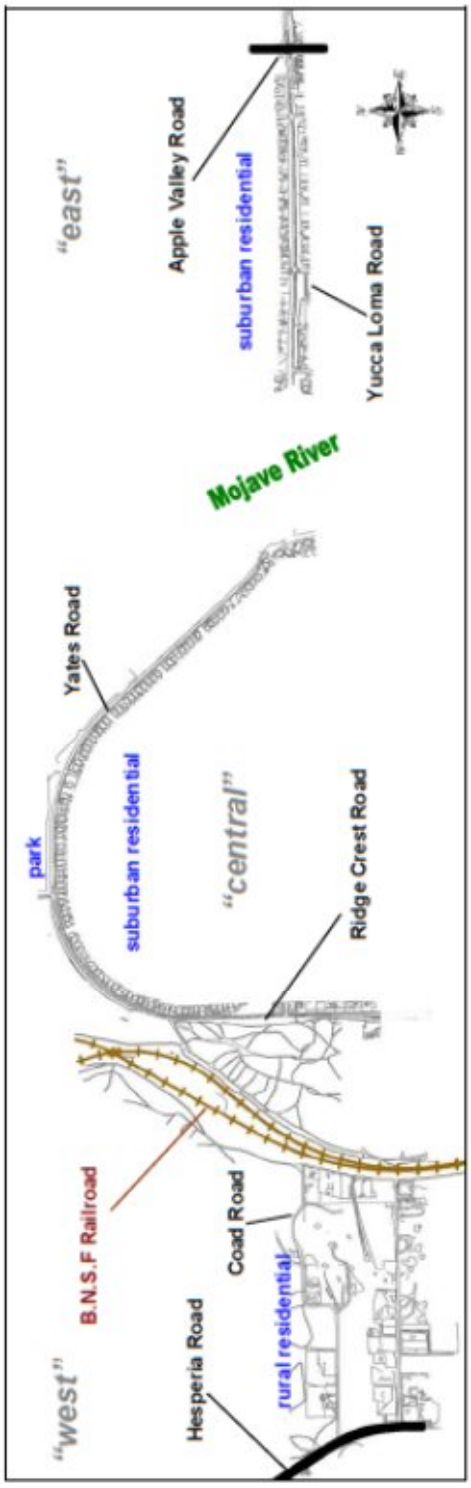


Figure 1: Project Area - existing configuration

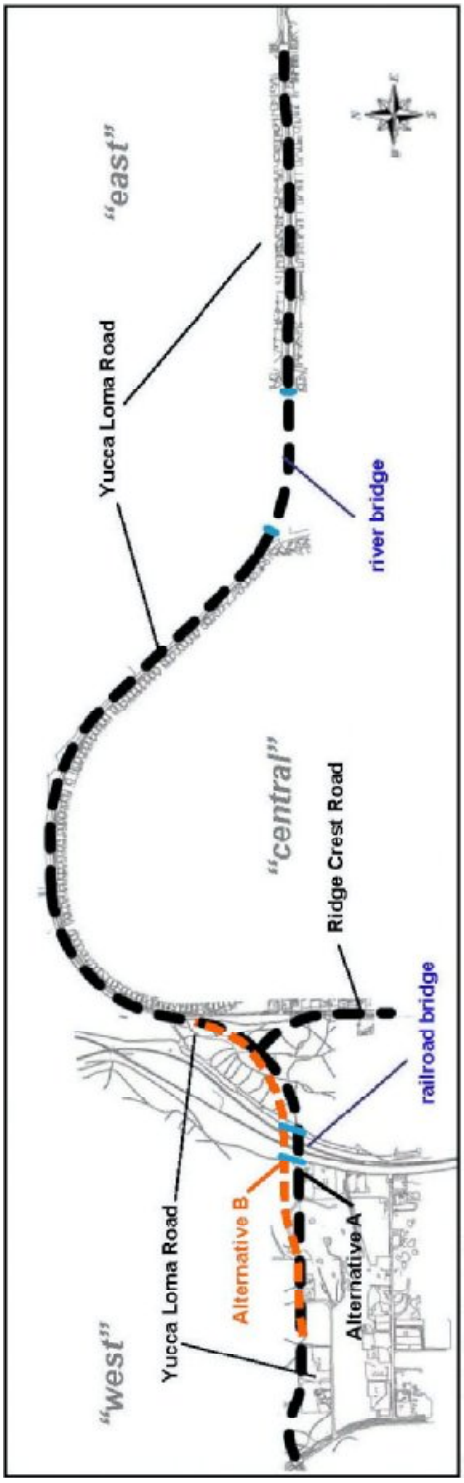


Figure 2: Project Alignments

2. Results of the Noise Study Report

The NSR for this project was prepared by Bollard Acoustical Consultants, Inc on March 11, 2009 and approved by Olufemi A. Odufalu, Office Chief, Environmental Engineering Oversight, Caltrans District 8 on June 30, 2009.

Existing noise levels are low. Current traffic volumes are minimal (approximately 3,300 vehicles per day on the east side and 1,000 per day in the central area) as there is no contiguous path through the project area. Figure 3 shows the 20 locations of the field measurements to determine ambient noise environment. Noise levels near the river run as low as 40 dBA, while those in other parts of the project are on the order of 45 - 55 dBA. The prominent exception to this is in locations near the railroad tracks. Residences with a view of the tracks unshielded by terrain experience average noise levels as high as 64 dBA due to train operations.

Project-Build Alternatives "A" and "B" are very similar, with Alternative "B" shifting the roadway slightly north between receivers West - N15 and West - N29 through West - N40. The conclusions regarding impacts and barrier performance are nearly identical between the two Build Alternatives. Build Alternative "B" includes three receivers (West - S1 through West - S3) that would be removed under Build Alternative "A."

Noise levels at build-out are predicted to range between 60-70 dBA for most receivers, with about 20% of receivers experiencing future levels of 70 dBA or greater. More than 70% of modeled receivers would experience noise impacts, necessitating consideration of noise abatement. These are primarily due to substantial increases over existing levels (+12 dB) rather than breach of the NAC. Of those receivers with impacts, roughly 44% meet both noise criteria. Train noise would become marginal at build-out for all but a few receivers.

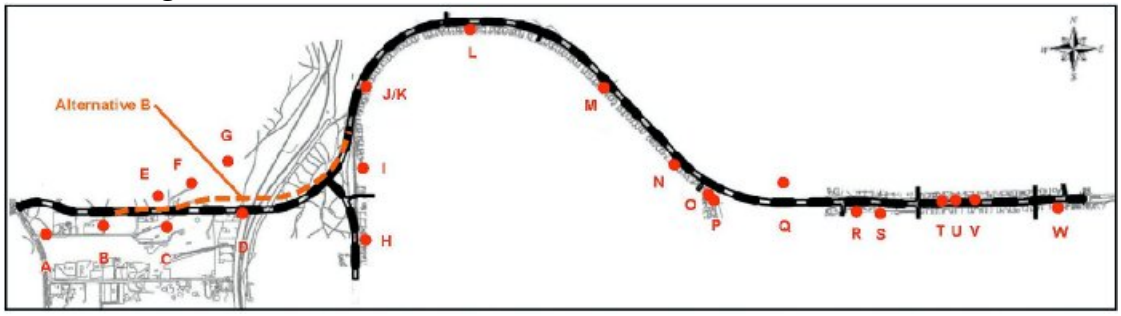


Figure 3: Noise Monitoring Locations

Noise abatement in the form of sound walls was evaluated for all impacted receivers. New walls on private property were modeled on the west side of the project (see Figure 4), new walls within the right-of-way were considered in the central section (see Figure 5), and while existing walls on the east side were considered at their current and raised heights (see Figure 6).

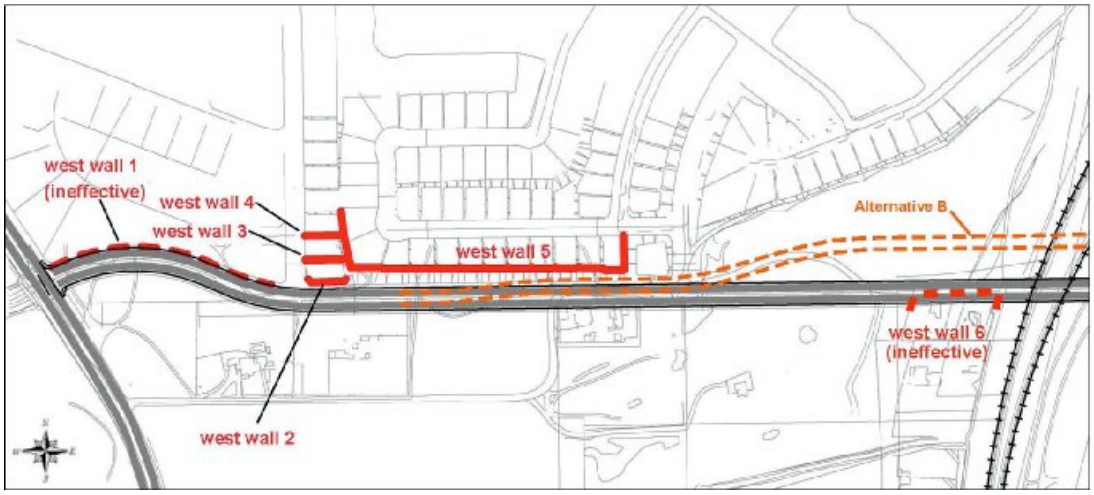


Figure 4: West Wall Locations

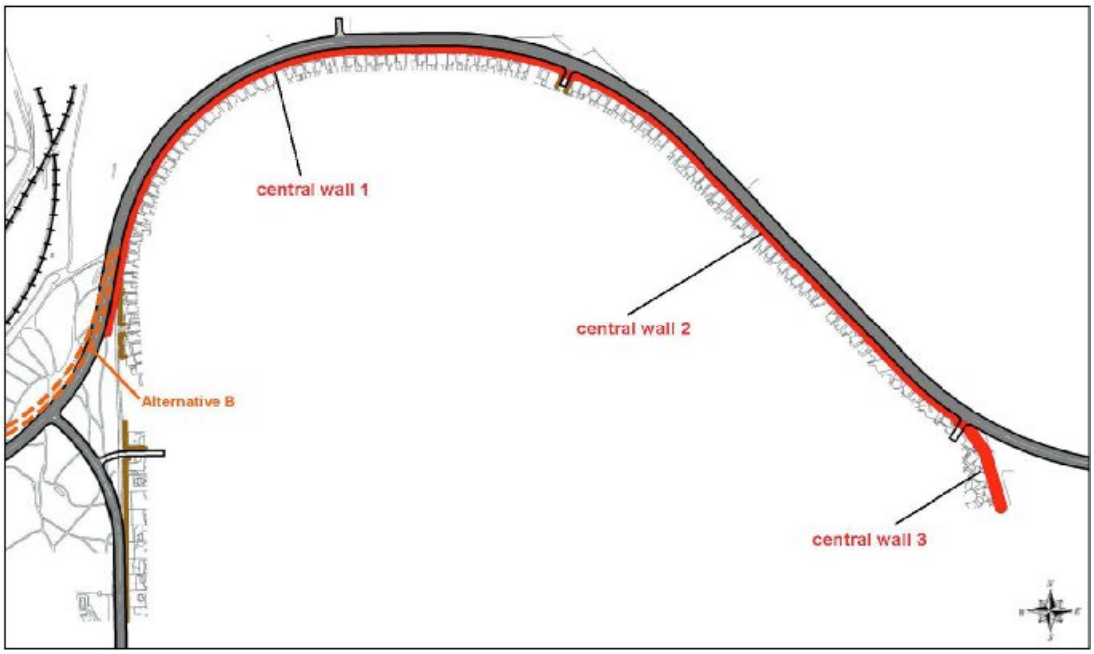


Figure 5: Central Wall Locations

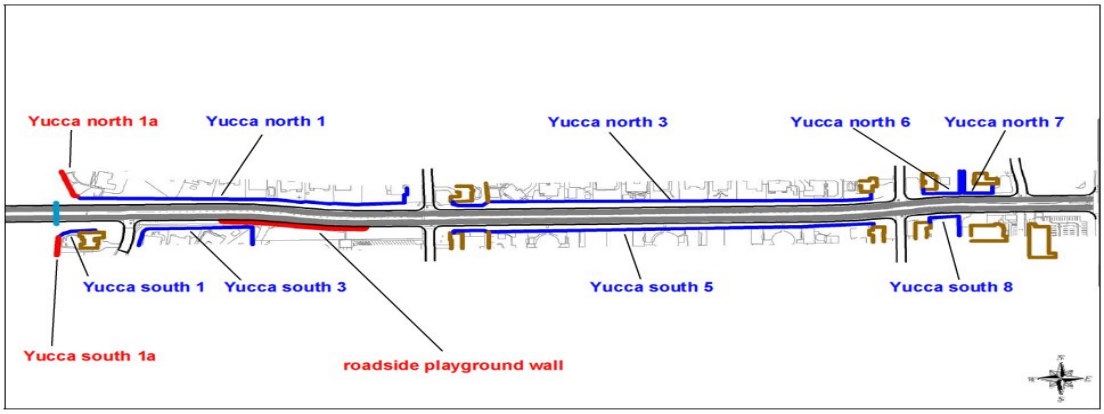


Figure 6: Yucca Loma Wall Locations

Sound walls were not modeled where existing terrain will adequately mitigate traffic noise. Predicted insertion losses vary between 0 - 15 dB depending on wall heights, geography, and the impact of train noise. Impacted receivers on the west side will benefit from sound walls and as low as six feet in height, though these must be placed on private property in order to be effective. Wall heights in the central section must generally be on the order of 12 feet in order to shield the elevated residences in this area. Existing sound walls on the east side must be raised 2-6 feet above their current heights in order to achieve the necessary 5 dB noise reduction. Table 1: Summary of Barrier Evaluation from Noise Study Report lists the location, height and noise reduction fro each wall segment.

Table 1. Summary of Barrier Evaluation from Noise Study Report

Barrier	Location	Station from - to		Height (feet)	Acoustically Feasible?	Number of Benefited Residences	Reasonable Allowance per Residence	Total Reasonable Allowance
West Wall 1	ROW	1+00.00	8+00.00	6	No	NA	NA	NA
				8	No	NA	NA	NA
				10	No	NA	NA	NA
				12	No	NA	NA	NA
				14	No	NA	NA	NA
				16	No	NA	NA	NA
West Wall 2	Private	9+15.45	10+54.30	6	No	1	$ 54,000	NA
				8	No	1	$ 54,000	NA
				10	No	1	$ 54,000	NA
				12	Yes	1	$ 54,000	$ 54,000
				14	Yes	1	$ 54,000	$ 54,000
				16	Yes	1	$ 54,000	$ 54,000
West Wall 3	Private	9+12.45	10+65.68	6	Yes	1	$ 56,000	$ 56,000
				8	Yes	1	$ 56,000	$ 56,000
				10	Yes	1	$ 58,000	$ 58,000
				12	Yes	1	$ 58,000	$ 58,000
				14	Yes	1	$ 58,000	$ 58,000
				16	Yes	1	$ 60,000	$ 60,000
West Wall 4	Private	9+07.39	10+49.07	6	Yes	1	$ 54,000	$ 54,000
				8	Yes	1	$ 56,000	$ 56,000
				10	Yes	1	$ 56,000	$ 56,000
				12	Yes	1	$ 56,000	$ 56,000
				14	Yes	1	$ 58,000	$ 58,000
				16	Yes	1	$ 58,000	$ 58,000
West Wall 5	Private	10+39.84	19+96.69	6	Yes	12	$ 58,000	$ 696,000
				8	Yes	12	$ 58,000	$ 696,000

				10	Yes	12	$ 60,000	$ 720,000
				12	Yes	12	$ 60,000	$ 720,000
				14	Yes	12	$ 60,000	$ 720,000
				16	Yes	12	$ 60,000	$ 720,000
Central Wall 1	**ROW**	53+01.17	90+44.03	6	No	55	$ 58,000	NA
				8	Yes	55	$ 58,000	$ 3,190,000
				10	Yes	55	$ 60,000	$ 3,300,000
				12	Yes	55	$ 60,000	$ 3,300,000
				14	Yes	55	$ 62,000	$ 3,410,000
				16	Yes	55	$ 62,000	$ 3,410,000
Central Wall 2	**ROW**	90+82.15	122+37.91	6	No	44	$ 58,000	NA
				8	No	44	$ 58,000	NA
				10	No	44	$ 58,000	NA
				12	Yes	44	$ 58,000	$ 2,552,000
				14	Yes	44	$ 60,000	$ 2,640,000
				16	Yes	44	$ 62,000	$ 2,728,000
Central Wall 3	**ROW**	122+90.44	126+31.80	6	Yes	6	$ 56,000	$ 336,000
				8	Yes	6	$ 58,000	$ 348,000
				10	Yes	6	$ 60,000	$ 360,000
				12	Yes	6	$ 60,000	$ 360,000
				14	Yes	6	$ 60,000	$ 360,000
				16	Yes	6	$ 60,000	$ 360,000
Yucca North 1 & 1a	**Private**	140+87.23	152+90.71	6	No	9	$ 54,000	NA
				8	No	9	$ 54,000	NA
				10	Yes	9	$ 54,000	$ 486,000
				12	Yes	9	$ 56,000	$ 504,000
				14	Yes	9	$ 56,000	$ 504,000
				16	Yes	9	$ 56,000	$ 504,000
Yucca North 3	**Private**	154+53.19	169+72.10	6	No	13	$ 54,000	NA
				8	No	13	$ 54,000	NA
				10	No	13	$ 54,000	NA
				12	Yes	13	$ 54,000	$ 702,000
				14	Yes	13	$ 56,000	$ 728,000
				16	Yes	13	$ 56,000	$ 728,000
Yucca North 6	**Private**	171+57.41	172+87.16	6	No	1	$ 54,000	NA
				8	No	1	$ 54,000	NA
				10	Yes	1	$ 56,000	$ 56,000
				12	Yes	1	$ 56,000	$ 56,000
				14	Yes	1	$ 58,000	$ 58,000
				16	Yes	1	$ 58,000	$ 58,000
Yucca	**vat**	2+ 86.	3+ 96.	6	No	1	$ 54,000	NA

North 7				8	No	1	$ 54,000	NA
				10	Yes	1	$ 56,000	$ 56,000
				12	Yes	1	$ 56,000	$ 56,000
				14	Yes	1	$ 58,000	$ 58,000
				16	Yes	1	$ 58,000	$ 58,000
Yucca South 1 & 1a	**Private**	140+69.99	142+40.77	6	Yes	1	$ 54,000	$ 54,000
				8	Yes	1	$ 54,000	$ 54,000
				10	Yes	1	$ 56,000	$ 56,000
				12	Yes	1	$ 56,000	$ 56,000
				14	Yes	1	$ 58,000	$ 58,000
				16	Yes	1	$ 58,000	$ 58,000
Yucca South 3	**Private**	143+45.40	147+70.90	6	No	4	$ 54,000	NA
				8	Yes	4	$ 54,000	$ 216,000
				10	Yes	4	$ 56,000	$ 224,000
				12	Yes	4	$ 56,000	$ 224,000
				14	Yes	4	$ 58,000	$ 232,000
				16	Yes	4	$ 58,000	$ 232,000
Yucca South 5	**Private**	154+51.74	169+60.26	6	No	8	$ 54,000	NA
				8	Yes	8	$ 54,000	$ 432,000
				10	Yes	8	$ 56,000	$ 448,000
				12	Yes	8	$ 56,000	$ 448,000
				14	Yes	8	$ 58,000	$ 464,000
				16	Yes	8	$ 58,000	$ 464,000
Yucca South 8	**Private**	171+70.24	172+75.80	6	No	1	$ 54,000	NA
				8	Yes	1	$ 54,000	$ 54,000
				10	Yes	1	$ 56,000	$ 56,000
				12	Yes	1	$ 56,000	$ 56,000
				14	Yes	1	$ 58,000	$ 58,000
				16	Yes	1	$ 58,000	$ 58,000

3. Preliminary Noise Abatement Decision

3.1. Summary of Key Information

The three sections of walls, West, Central and East all have an acoustically feasible configuration, with the exception of West Wall 1, which is not acoustically feasible. Table 2 lists the acoustically feasible heights for each wall section, the number of benefited residences, the reasonable allowances and the engineer's cost estimate for the abatement. The engineer's estimate was calculated for a spread footing masonry block sound wall, per 2006 Caltrans Standard Plan B15-1 and B15-2. The engineer's estimate of $45 per square foot of new masonry block sound wall includes the cost for the footing, traffic control, drainage, miscellaneous items and a 10% contingency.

Secondary effects of the abatement are included in the abatement construction cost estimate. Central Wall 1, 2 and 3 are the only abatement locations where a secondary effect is possible with the top 4 feet of wall being constructed of a see-through wall material. Table 2 is a summary of the Abatement Key Information.

Since all sections of abatement except West Wall 2 and Yucca South 1 and 1a are within the allowance amount, there is no need to investigate, evaluate or discuss alternative construction methods. The length of wall needed at the West Wall 2 and Yucca South 1 and 1a locations, the required height, and the allowance amount exceeds the current construction costs for any reasonable type of noise barrier construction.

Table 2. Summary of Abatement Key Information

Barrier	Height (feet)	Acoustically Feasible?	Number of Benefited Residences	Total Reasonable Allowance	Estimated Construction Cost	Cost Less than Allowance?
West Wall 1	6	No	NA	NA	NA	NA
	8	No	NA	NA	NA	NA
	10	No	NA	NA	NA	NA
	12	No	NA	NA	NA	NA
	14	No	NA	NA	NA	NA
	16	No	NA	NA	NA	NA
West Wall 2	6	No	1	NA	NA	NA
	8	No	1	NA	NA	NA

	10	No	1	NA	NA	NA
	12	Yes	1	$ 54,000	$ 105,749.40	No
	14	Yes	1	$ 54,000	$ 137,349.40	No
	16	Yes	1	$ 54,000	$ 168,949.40	No
West Wall 3	6	Yes	1	$ 56,000	$ 10,187.10	***Yes***
	8	Yes	1	$ 56,000	$ 39,587.10	***Yes***
	10	Yes	1	$ 58,000	$ 68,987.10	No
	12	Yes	1	$ 58,000	$ 98,387.10	No
	14	Yes	1	$ 58,000	$ 127,787.10	No
	16	Yes	1	$ 60,000	$ 157,187.10	No
West Wall 4	6	Yes	1	$ 54,000	$ 9,009.00	***Yes***
	8	Yes	1	$ 56,000	$ 35,009.00	***Yes***
	10	Yes	1	$ 56,000	$ 61,009.00	No
	12	Yes	1	$ 56,000	$ 87,009.00	No
	14	Yes	1	$ 58,000	$ 113,009.00	No
	16	Yes	1	$ 58,000	$ 139,009.00	No
West Wall 5	6	Yes	12	$ 696,000	$ 86,347.80	***Yes***
	8	Yes	12	$ 696,000	$ 335,547.80	***Yes***
	10	Yes	12	$ 720,000	$ 584,747.80	***Yes***
	12	Yes	12	$ 720,000	$ 833,947.80	No
	14	Yes	12	$ 720,000	$1,083,147.80	No
	16	Yes	12	$ 720,000	$1,332,347.80	No
Central Wall 1	6	No	55	NA	NA	NA
	8	Yes	55	$ 3,190,000	$1,156,374.20	***Yes***
	10	Yes	55	$ 3,300,000	$2,015,174.20	***Yes***
	12	Yes	55	$ 3,300,000	$2,873,974.20	***Yes***
	14	Yes	55	$ 3,410,000	$3,732,774.20	No
	16	Yes	55	$ 3,410,000	$4,591,574.20	No
Central Wall 2	6	No	44	NA	NA	NA
	8	No	44	NA	NA	NA
	10	No	44	NA	NA	NA
	12	Yes	44	$ 2,552,000	$2,104,279.20	***Yes***
	14	Yes	44	$ 2,640,000	$2,733,079.20	No
	16	Yes	44	$ 2,728,000	$3,361,879.20	No
Central Wall 3	6	Yes	6	$ 336,000	$ 38,669.40	***Yes***
	8	Yes	6	$ 348,000	$ 150,269.40	***Yes***
	10	Yes	6	$ 360,000	$ 217,620.00	***Yes***
	12	Yes	6	$ 360,000	$ 329,220.00	***Yes***
	14	Yes	6	$ 360,000	$ 440,820.00	No
	16	Yes	6	$ 360,000	$ 552,420.00	No

Yucca North 1 & 1a	6	No	9	NA	NA	NA
	8	No	9	NA	NA	NA
	10	Yes	9	$ 486,000	$ 289,600.00	***Yes***
	12	Yes	9	$ 504,000	$ 434,400.00	***Yes***
	14	Yes	9	$ 504,000	$ 579,200.00	No
	16	Yes	9	$ 504,000	$ 724,000.00	No
Yucca North 3	6	No	13	NA	NA	NA
	8	No	13	NA	NA	NA
	10	No	13	NA	NA	NA
	12	Yes	13	$ 702,000	$ 463,800.00	***Yes***
	14	Yes	13	$ 728,000	$ 618,400.00	***Yes***
	16	Yes	13	$ 728,000	$ 773,000.00	No
Yucca North 6	6	No	1	NA	NA	NA
	8	No	1	NA	NA	NA
	10	Yes	1	$ 56,000	$ 30,400.00	***Yes***
	12	Yes	1	$ 56,000	$ 45,600.00	***Yes***
	14	Yes	1	$ 58,000	$ 60,800.00	No
	16	Yes	1	$ 58,000	$ 76,000.00	No
Yucca North 7	6	No	1	NA	NA	NA
	8	No	1	NA	NA	NA
	10	Yes	1	$ 56,000	$ 32,000.00	***Yes***
	12	Yes	1	$ 56,000	$ 48,000.00	***Yes***
	14	Yes	1	$ 58,000	$ 64,000.00	No
	16	Yes	1	$ 58,000	$ 80,000.00	No
Yucca South 1 & 1a	6	Yes	1	$ 54,000	$ 15,661.80	***Yes***
	8	Yes	1	$ 54,000	$ 22,600.00	***Yes***
	10	Yes	1	$ 56,000	$ 45,200.00	***Yes***
	12	Yes	1	$ 56,000	$ 67,800.00	No
	14	Yes	1	$ 58,000	$ 90,400.00	No
	16	Yes	1	$ 58,000	$ 113,000.00	No
Yucca South 3	6	No	4	NA	NA	NA
	8	Yes	4	$ 216,000	$ 52,400.00	***Yes***
	10	Yes	4	$ 224,000	$ 104,800.00	***Yes***
	12	Yes	4	$ 224,000	$ 157,200.00	***Yes***
	14	Yes	4	$ 232,000	$ 209,600.00	***Yes***
	16	Yes	4	$ 232,000	$ 262,000.00	No
Yucca South 5	6	No	8	NA	NA	NA
	8	Yes	8	$ 432,000	$ 152,800.00	***Yes***
	10	Yes	8	$ 448,000	$ 305,600.00	***Yes***
	12	Yes	8	$ 448,000	$ 458,400.00	No

	14	Yes	8	$ 464,000	$ 611,200.00	No
	16	Yes	8	$ 464,000	$ 764,000.00	No
Yucca South 8	6	No	1	NA	NA	NA
	8	Yes	1	$ 54,000	$ 22,000.00	***Yes***
	10	Yes	1	$ 56,000	$ 44,000.00	***Yes***
	12	Yes	1	$ 56,000	$ 66,000.00	No
	14	Yes	1	$ 58,000	$ 88,000.00	No
	16	Yes	1	$ 58,000	$ 110,000.00	No

3.2. Nonacoustical Factors Relating to Feasibility

Geometric Standards

The West Wall segments are placed away from the edge of traveled way on private property and do not present a sight distance issue for the roadway. The Central Wall segments are placed in the right of way at a distance of 22 feet from the center of the inside lane. The smallest radius along the alignment is 1500 feet. Using the 2006 Caltrans Highway Design Manual (HDM), Figure 201.6, the calculated stopping sight distance is 514 feet. Per HDM Table 201.1 a stopping sight distance 514 feet equates to a design speed of 56 mph. The design speed for the project is 55 mph.

Safety

All of the locations of noise abatement are either existing or planned wall locations. Safety will not be changed after the abatement has been constructed.

Maintenance

For the noise abatement measures placed within the public right of way, Central Wall 1, 2 and 3, maintenance will be performed by the local agency. For the remaining noise abatement locations they will be placed on private property and maintenance will be upon the landowner.

Security

All of the locations of noise abatement are either existing or planned wall locations. Security will not be changed after the abatement has been constructed.

Geotechnical Considerations

The project location is located in mostly alluvial fan deposits made up of consolidated silt, sand and gravel deposits. The footing type for the noise abatement will be designed to accommodate the existing soil conditions.

Utility Relocations

All of the locations of noise abatement are either existing or planned wall locations. Utility impacts will be minimal and no major relocations are anticipated. Since the proposed noise abatement locations are at the back of the existing residential properties, the utilities are generally not present.

3.3. Preliminary Recommendation and Decision

West Wall 1

West Wall 1 is not an acoustically feasible noise abatement location because a 5 dB reduction can not be obtained. Therefore a barrier is not recommended for this location.

West Wall 2

West Wall 2 has 1 benefited residence and will act as a line of sight break for an 11.5 foot-high truck stack. To be acoustically feasible, the noise abatement must be at least 12 feet high. The estimated construction cost for a 12 foot-high sound wall exceeds the allowance for one residence and therefore a barrier is not recommended at this location.

West Wall 3

West Wall 3 has 1 benefited residence and will act as a line of sight break for an 11.5 foot-high truck stack. To be acoustically feasible, the noise abatement must be at least 8 feet high. Based on the topography, the 5 foot-high receptor line of sight to the 11.5 foot-high truck stack is blocked by an 8 foot-high sound wall. The estimated construction cost for an 8 foot-high sound wall is less than the allowance for one residence and therefore a barrier is recommended at this location.

West Wall 4

West Wall 4 has 1 benefited residence and will act as a line of sight break for an 11.5 foot-high truck stack. To be acoustically feasible, the noise abatement must be at

least 8 feet high. Based on the topography, the 5 foot-high receptor line of sight to the 11.5 foot-high truck stack is blocked by an 8 foot-high sound wall. The estimated construction cost for an 8 foot-high sound wall is less than the allowance for one residence and therefore a barrier is recommended at this location.

West Wall 5

West Wall 5 has 12 benefited residences and will act as a line of sight break for an 11.5 foot-high truck stack. To be acoustically feasible, the noise abatement must be at least 8 feet high. Based on the topography, the 5 foot-high receptor line of sight to the 11.5 foot-high truck stack is blocked by an 8 foot-high sound wall. The estimated construction cost for an 8 foot-high sound wall is less than the allowance for 12 residences and therefore a barrier is recommended at this location.

Central Wall 1

Central Wall 1 has 55 benefited residences and will act as a line of sight break for an 11.5 foot-high truck stack. To be acoustically feasible, and meet the 11.5 truck stack sight break requirement, the noise abatement must be at least 12 feet high. Based on the topography, the 5 foot-high receptor line of sight to the 11.5 foot-high truck stack is blocked by a 12 foot-high sound wall. The estimated construction cost for a 12 foot-high sound wall is less than the allowance for 55 residences and therefore a barrier is recommended at this location.

Central Wall 2

Central Wall 1 has 44 benefited residences and will act as a line of sight break for an 11.5 foot-high truck stack. To be acoustically feasible, and meet the 11.5 truck stack sight break requirement, the noise abatement must be at least 12 feet high. The estimated construction cost for a 12 foot-high sound wall is less than the allowance for 44 residences and therefore a barrier is recommended at this location.

Central Wall 3

Central Wall 1 has 6 benefited residences and will act as a line of sight break for an 11.5 foot-high truck stack. To be acoustically feasible, and meet the 11.5 truck stack sight break requirement, the noise abatement must be at least 12 feet high. The estimated construction cost for a 12 foot-high sound wall is less than the allowance for 6 residences and therefore a barrier is recommended at this location.

Yucca North 1 & 1a

Yucca North 1 & 1a has 9 benefited residences and will act as a line of sight break for an 11.5 foot-high truck stack. To be acoustically feasible, the noise abatement must be at least 10 feet high. Based on the topography, the 5 foot-high receptor line of sight to the 11.5 foot-high truck stack is blocked by a 10 foot-high sound wall. The estimated construction cost for a 10 foot-high sound wall is less than the allowance for 9 residences and therefore a barrier is recommended at this location

Yucca North 3

Yucca North 3 has 13 benefited residences and will act as a line of sight break for an 11.5 foot-high truck stack. To be acoustically feasible, the noise abatement must be at least 12 feet high. The estimated construction cost for a 12 foot-high sound wall is less than the allowance for 13 residences and therefore a barrier is recommended at this location

Yucca North 6

Yucca North 6 has 1 benefited residence and will act as a line of sight break for an 11.5 foot-high truck stack. To be acoustically feasible, the noise abatement must be at least 10 feet high. Based on the topography, the 5 foot-high receptor line of sight to the 11.5 foot-high truck stack is blocked by a 10 foot-high sound wall. The estimated construction cost for a 10 foot-high sound wall is less than the allowance for 6 residences and therefore a barrier is recommended at this location

Yucca North 7

Yucca North 7 has one benefited residences and will act as a line of sight break for an 11.5 foot-high truck stack. To be acoustically feasible, the noise abatement must be at least 10 feet high. Based on the topography, the 5 foot-high receptor line of sight to the 11.5 foot-high truck stack is blocked by a 10 foot-high sound wall. The estimated construction cost for a 10 foot-high sound wall is less than the allowance for one residence and therefore a barrier is recommended at this location

Yucca South 1 & 1a

Yucca South 1 & 1a has 1 benefited residence and will act as a line of sight break for an 11.5 foot-high truck stack. To be acoustically feasible, the noise abatement must be at least 8 feet high. Based on the topography, the 5 foot-high receptor line of sight

to the 11.5 foot-high truck stack is blocked by an 8 foot-high sound wall. The estimated construction cost for an 8 foot-high sound wall is less than the allowance for 6 residences and therefore a barrier is recommended at this location

Yucca South 3

Yucca South 3 has 4 benefited residences and will act as a line of sight break for an 11.5 foot-high truck stack. To be acoustically feasible, the noise abatement must be at least 8 feet high. Based on the topography, the 5 foot-high receptor line of sight to the 11.5 foot-high truck stack is blocked by an 8 foot-high sound wall. The estimated construction cost for an 8 foot-high sound wall is less than the allowance for 4 residences and therefore a barrier is recommended at this location

Yucca South 5

Yucca South 5 has 8 benefited residences and will act as a line of sight break for an 11.5 foot-high truck stack. To be acoustically feasible, the noise abatement must be at least 8 feet high. Based on the topography, the 5 foot-high receptor line of sight to the 11.5 foot-high truck stack is blocked by an 8 foot-high sound wall. The estimated construction cost for an 8 foot-high sound wall is less than the allowance for 8 residences and therefore a barrier is recommended at this location

Yucca South 8

Yucca South 8 has one benefited residence and will act as a line of sight break for an 11.5 foot-high truck stack. To be acoustically feasible, the noise abatement must be at least 8 feet high. Based on the topography, the 5 foot-high receptor line of sight to the 11.5 foot-high truck stack is blocked by an 8 foot-high sound wall. The estimated construction cost for an 8 foot-high sound wall is less than the allowance for one residence and therefore a barrier is recommended at this location

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, which will be circulated for public review.

4. Secondary Effects of Abatement

The noise abatements recommended for the West Wall locations, the Yucca North and South locations do not have a secondary effect.

The Central Wall locations do have secondary effects to the view shed of the individual residences. Those residences look north at the Mojave Narrows Park, a well know location significant to Native American and local histories. The existing 6 foot wall is below the residence elevation and does not block the view. By raising the wall elevation 6 feet in the Central Wall 1 and 2 locations, views of the Mojave Narrows Park is impacted. A possible mitigation for this is to provide the top 4 feet of the noise abatement in a see-through material.

5. References

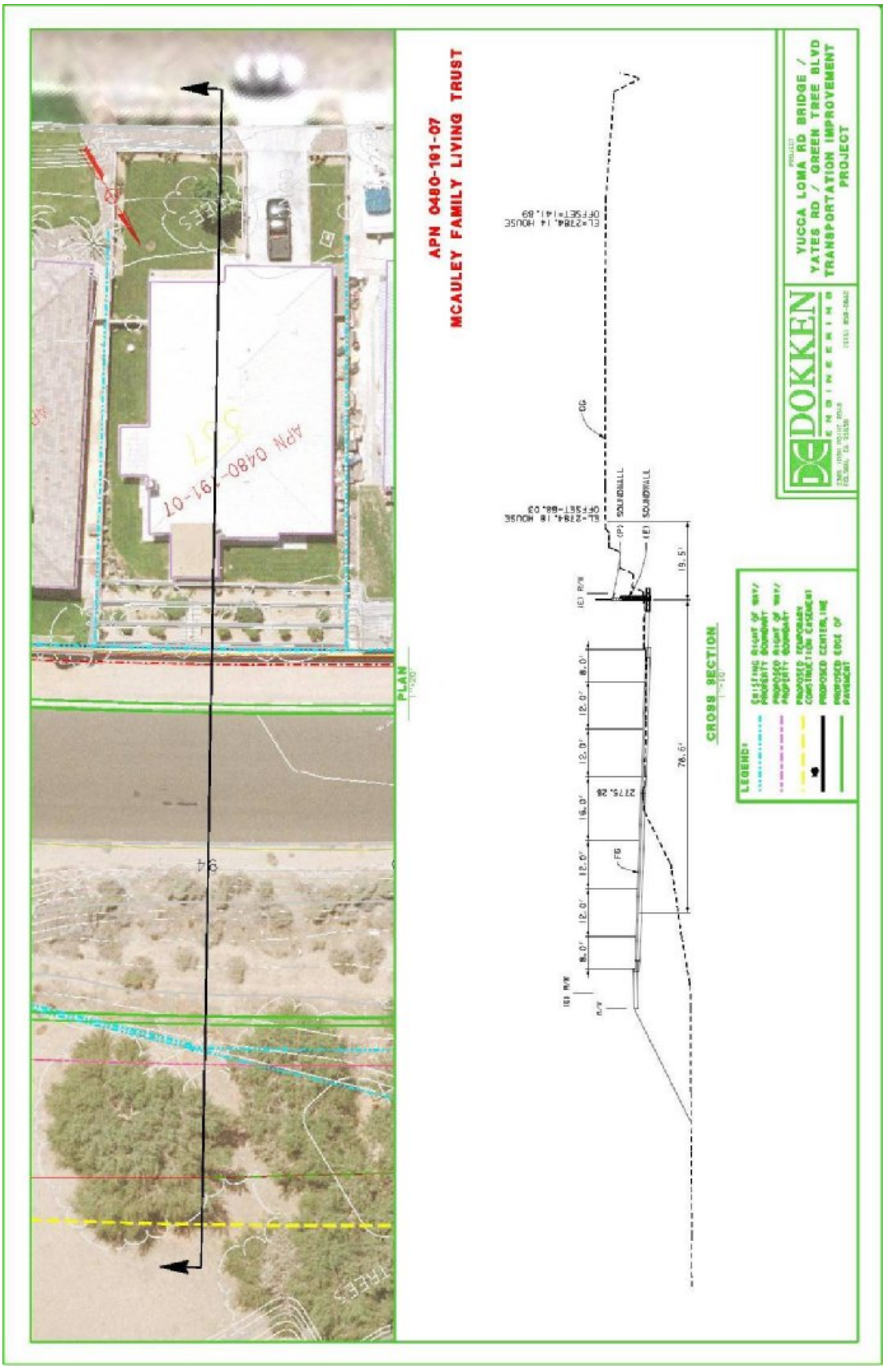
Books, Journal Articles, Reports:

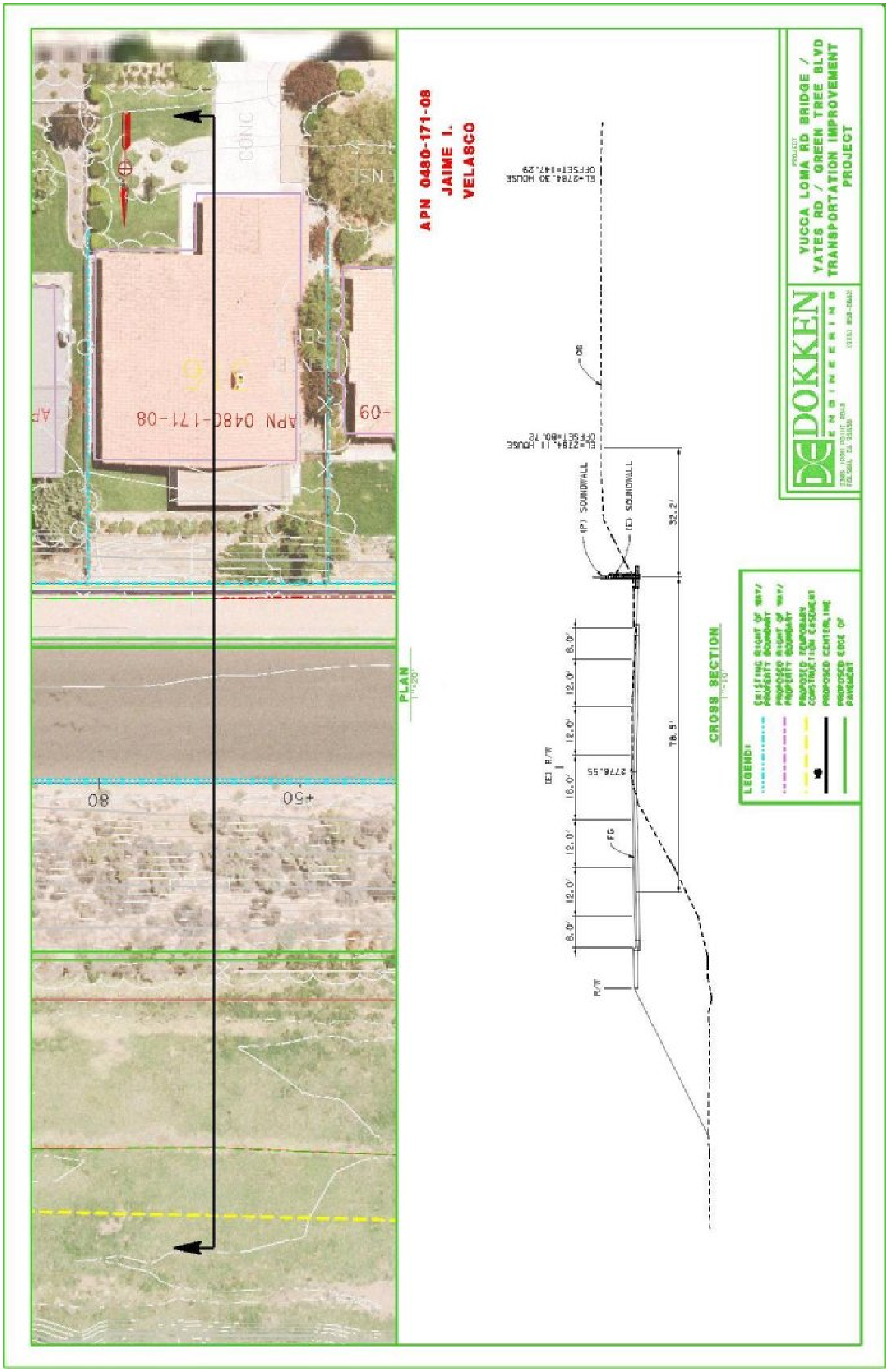
Bollard Acoustical Consultants, Inc. March 2009. Noise Study Report. Yucca Loma/Yates Road/Green Tree Boulevard Transportation Improvement Project

Dokken Engineering, March 2008, Mojave River Bridge at Yucca Loma Road, Preliminary Foundation Report

Appendix A Central Wall Location Exhibits

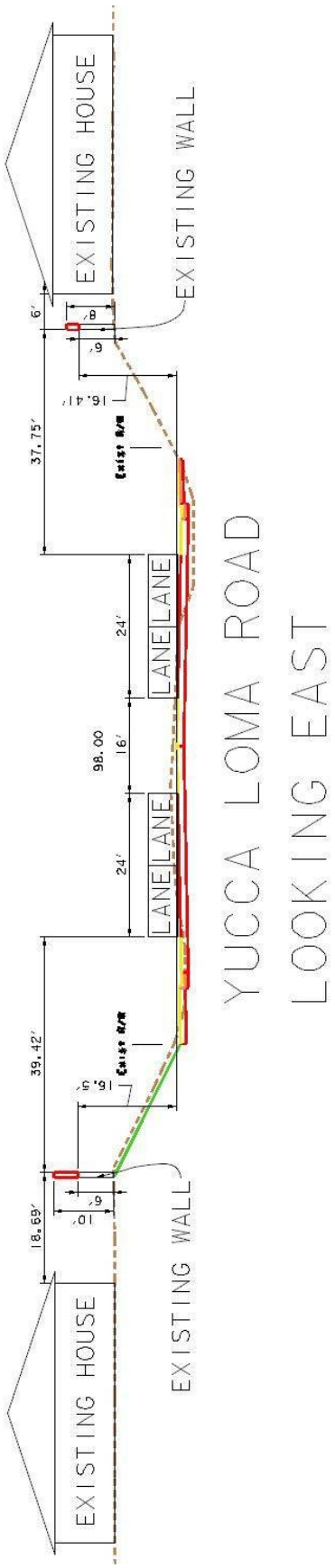
The following exhibits show the design section for each of the 3 locations.


APN 0480-101-07
MCAULEY FAMILY LIVING TRUST
PLAN
CROSS SECTION
YUCCA LOMA RD BRIDGE / YATES RD / GREEN TREE BLVD TRANSPORTATION IMPROVEMENT PROJECT
DOKKEN ENGINEERING
LEGEND
APN 0480-101-07


APN 0480-171-08
JAIME I.
VELASCO
PLAN
CROSS SECTION
(P) SOUNDWALL
(E) SOUNDWALL
32.2'
78.5'
LEGEND:
YUCCA LOMA RD BRIDGE /
YATES RD / GREEN TREE BLVD
TRANSPORTATION IMPROVEMENT
PROJECT
DOKKEN
ENGINEERING

Appendix B Yucca North & South Section

The following exhibits show the design section for Yucca North and South.


EXISTING HOUSE
EXISTING WALL
6'
8'
6'
16.41'
37.75'
LANE
LANE
24'
98.00
16'
LANE
LANE
24'
39.42'
16.5'
6'
10'
18.69'
EXISTING WALL
EXISTING HOUSE
YUCCA LOMA ROAD
LOOKING EAST

Appendix C Preliminary Alignment Plans

Preliminary Alignment Plans for the Yucca Loma Road/Yates Road/Green Tree Boulevard transportation Improvement Project.