FINAL
DESIGN NOISE STUDY
TECHNICAL MEMORANDUM

SR 55 (US 19) from north of Whitney Road to south of Seville Boulevard
Financial Project ID No.: 256881-1

SR 55 (US 19) from south of Seville Boulevard to north of SR 60
Financial Project ID No.: 256881-2

Pinellas County, Florida

Prepared for:

Florida Department of Transportation
District Seven
11201 N. Mckinley Drive
Tampa, Florida 33612

October 2008

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11201 N. Mckinley Drive
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Prepared by:

5300 West Cypress Street
Suite 200
Tampa, Florida 33607

October 2008

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1.0 INTRODUCTION

1.1 Project Description

The Florida Department of Transportation (FDOT) District Seven is designing improvements to 2.7 miles (mi) of SR 55 (US 19) extending from north of Whitney Road to north of SR 60. The improvements will widen SR 55 (US 19) from the existing six-lane arterial roadway to a six-lane controlled access facility, with two lane, one-way frontage roads paralleling the mainline. In select locations, auxiliary lanes between access ramps will supplement the mainline lanes. The improvements to SR 55 (US 19) have been divided into two design projects as follows (See Figure 1-1):

- Financial Project Identification (FPID) Number (#) 256881-1 from north of Whitney Road to south of Seville Boulevard (1.6 mi)
- FPID # 256881-2 from south of Seville Boulevard to north of SR 60 (1.1 mi)

1.2 Project History

A traffic noise analysis was performed for the FDOT during the Project Development and Environment (PD&E) phase of the improvement project for the section of SR 55 (US 19) from Gandy Boulevard (SR 694) to Alternate US 19 (SR 595) in Pinellas County. The results of this analysis are documented in the PD&E Noise Report dated June 1988. During this analysis, a series of noise contours were created to identify noise sensitive areas that may be affected by traffic noise in the Build Condition. Noise abatement measures were considered for the noise sensitive areas that were identified as affected, however, the conclusions stated that noise mitigation measures, including noise barriers, are not compatible with the design and function of the project.

Because of the elapsed time since the PD&E Study and to account for modifications to the conceptual design, FDOT is updating the noise analysis for the noise sensitive areas adjacent to SR 55 (US 19) within both project corridors (north of Whitney Road to south of Seville Boulevard/FPID # 256881-1 and south of Seville Boulevard to north of SR 60/ FPID # 256881-2).

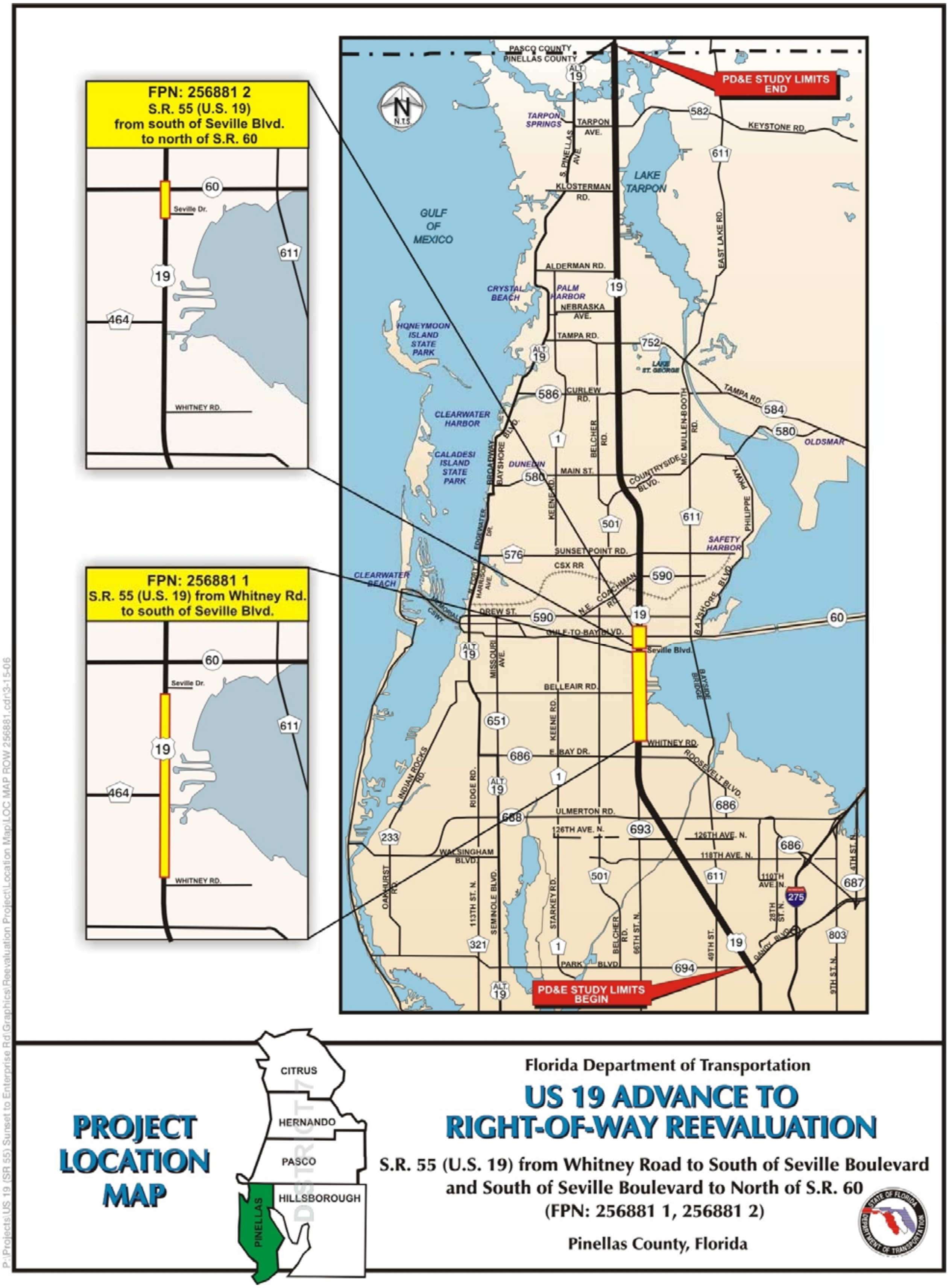

FPN: 256881 2
S.R. 55 (U.S. 19)
from south of Seville Blvd.
to north of S.R. 60
FPN: 256881 1
S.R. 55 (U.S. 19) from Whitney Rd.
to south of Seville Blvd.
PD&E STUDY LIMITS END
PD&E STUDY LIMITS BEGIN
PASCO COUNTY
PINELLAS COUNTY
GULF OF MEXICO
LAKE TARPON
TARPON SPRINGS
PALM HARBOR
CRYSTAL BEACH
HONEYMOON ISLAND STATE PARK
CLEARWATER HARBOR
CALADESI ISLAND STATE PARK
DUNEDIN
SAFETY HARBOR
OLDSMAR
CLEARWATER BEACH
Seville Blvd.
WHITNEY RD.
Florida Department of Transportation
US 19 ADVANCE TO RIGHT-OF-WAY REEVALUATION
S.R. 55 (U.S. 19) from Whitney Road to South of Seville Boulevard
and South of Seville Boulevard to North of S.R. 60
(FPN: 256881 1, 256881 2)
Pinellas County, Florida
PROJECT LOCATION MAP
CITRUS
HERNANDO
PASCO
HILLSBOROUGH
PINELLAS

Figure 1-1

The re-analysis will reflect the current design for improvements to SR 55 (US 19).

Predicted noise levels are determined for residences located in Donovan's Adult Park, The Columns at Allen's Creek Apartments (formerly known as The Oaks Apartments), Imperial Cove Apartments, Bay Cove Apartments, Japanese Gardens Mobile Estates, and the Royal Breeze Apartments as identified in the original analysis and subsequent field review. Additionally, the re-analysis determines the feasibility and cost reasonableness of potential barriers for noise abatement at affected residences.

2.0 METHODOLOGY

The traffic noise re-analysis is performed in accordance with Code of Federal Regulations (CFR) Title 23 Part 772 (23 CFR 772), *Procedures for Abatement of Highway Traffic Noise and Construction Noise*[1] using methodology established by the FDOT in the *Project Development and Environment Manual*[2], Part 2, Chapter 17 (October 2003). The STAMINA 2.0 (Florida Version 2.1) noise model is used to predict traffic noise levels (and subsequent barrier efficiency) in order to remain consistent with the previous analysis. STAMINA was the model approved for use by the Federal Highway Administration (FHWA) at the time the original analysis was performed.

2.1 Noise Metrics

Noise levels developed for this re-analysis are expressed in decibels (dB) using an "A"-scale weighting. The "A"-scale weighting most closely approximates the response characteristics of the human ear to traffic noise. All noise levels are reported as hourly equivalent noise levels (L_{Aeq1h}). The L_{Aeq1h}, a type of hourly average, is defined as the equivalent steady-state sound level that, in a given hourly period, contains the same acoustic energy as the time-varying sound level for the same hourly period. Use of the L_{Aeq1h} metric is consistent with the Federal regulation and noise levels developed for this re-analysis can be compared directly to criteria levels established by FHWA.

2.2 Traffic Data

Traffic noise is heavily dependent on traffic speed with the amount of noise generated by traffic increasing as the vehicle speed increases. Traffic data for the design year 2028 was reviewed to determine maximum traffic volumes that would allow traffic to flow at speeds consistent with established speed limits. To simulate "worst-case" conditions, Level of Service (LOS) C or demand traffic volumes, whichever is less, are modeled. The average daily traffic (ADT) volumes used in the analysis are summarized in Table 2-1, and the factors used to reduce this data to peak hour average volumes for input into the noise model can be found in Appendix A (Traffic Data for Noise Studies).

Table 2-1
Traffic Data

Roadway Segment	Year 2028 ADT volume (vehicles)	LOS C volume (vehicles)	Posted Speed (mph)
SR 55 (US 19) mainline from Whitney Road to Bellair Road (CR 464) and Nursery Road (CR 474) to Seville Boulevard	138,800	81,700	55
SR 55 (US 19) frontage from Whitney Road to Bellair Road (CR 464) and Nursery Road (CR 474) to Seville Boulevard	25,600	20,800	40
SR 55 (US 19) mainline from Gulf to Bay Boulevard (SR 60) to Drew Street (CR 528)	138,800	111,400	55
SR 55 (US 19) frontage from Gulf to Bay Boulevard (SR 60) to Drew Street (CR 528)	25,600	20,800	35

2.3 Roadway Data

The horizontal and vertical elevations of the proposed roadway for both project corridors (FPID # 256881-1 and 256881-2) are determined from the Contract Plans, Phase II (60 percent) submittals, November 2005, developed by H.W. Lochner, Inc. and Carter & Burgess, Inc. respectively.

3.0 TRAFFIC NOISE EVALUATION

3.1 Noise Abatement Criteria

The FHWA has established noise levels at which abatement is considered for various types of noise sensitive sites. These levels are referred to as the Noise Abatement Criteria (NAC). As shown in Table 3-1, the NAC vary by activity category. Noise abatement measures are considered when predicted traffic noise levels "approach" or exceed the NAC. The FDOT defines the term "approach" to mean within 1 dBA of the FHWA criteria. However, at the time the analysis was performed during the PD&E phase, the FDOT defined "approach" to mean within 2 dBA of the FHWA criteria. For consistency, the 2 dBA approach is used in this re-analysis.

Table 3-1
FHWA Noise Abatement Criteria

ACTIVITY CATEGORY	LEQ(H)	DESCRIPTION OF LAND USE ACTIVITY CATEGORY
A	57 dBA (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 dBA (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 dBA (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	--	Undeveloped lands.
E	52 dBA (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Source: 23 CFR Part 772, *Procedures for Abatement of Highway Traffic Noise and Construction Noise*, FHWA, 2008.

3.2 Noise Sensitive Sites

Noise Sensitive sites are any property where frequent human use occurs and where a lowered noise level would be of benefit. At the time of the noise analysis for the PD&E phase, the land uses adjacent to SR 55 (US 19) were predominately commercial, with medium to high density residential developments interspersed throughout each of the

project corridors. Since the PD&E phase, there have been no substantial changes in land use nor are any substantial changes expected to occur in the foreseeable future.

Noise sensitive land use adjacent to SR 55 (US 19) within both project limits includes only residential uses. These noise sensitive sites are categorized as Activity Category B of the NAC. Receiver points representing the noise sensitive sites are located in accordance with the *Project Development and Environment Manual* as follows:

- Unless the area of exterior frequent human use is identified elsewhere, receiver points are placed at the edge of the dwelling units closest to the major traffic noise source.
- Where more than one dwelling unit is clustered together, a single receiver point is analyzed as a representative of the group.
- Ground floor receiver elevations are assumed to be 5 feet (ft) above ground level, and second story receiver elevations are assumed to be 15 ft above the ground.

For the purposes of traffic noise modeling, the residential developments located adjacent to SR 55 (US 19) are referred to as noise sensitive areas. Noise sensitive areas can sometimes include more than one residential development. The noise sensitive areas included in this re-analysis are named for the residential development(s) included within. The noise sensitive areas, their descriptions and locations are as follows:

- Donovan's Adult Park – A mobile home park located west of SR 55 (US 19), just north of Whitney Road between Stations (Sta.) 850+00 and 854+00 (FPID # 256881-1)
- The Columns at Allen's Creek Apartments – A two-story apartment complex located west of SR 55 (US 19), just north of Central Avenue between Sta. 864+00 and 869+00 (FPID # 256881-1)
- Imperial Cove and Bay Cove Apartments – Two, two-story apartment complexes located east of SR 55 (US 19), just north of Nursery Road between Sta. 919+00 and 928+00 (FPID # 256881-1)
- Japanese Gardens Mobile Estates – A mobile home park located east of SR 55 (US 19), just south of Seville Boulevard between Sta. 937+00 and 950+50 (FPID # 256881-2)

- Royal Breeze Apartments – A two-story apartment complex located east of SR 55 (US 19), just north of SR 60 between Sta. 993+50 and 997+00 (FPID # 256881-2)

The alphanumeric identification (e.g., R59A) associated with each receiver point is formulated as follows:

- The numbers identify a particular receiver point within a noise sensitive area (e.g., R1, R24).
- Where noise sensitive sites occur on multiple floors of a building an additional symbol identifies the receiver as being located on the ground floor (denoted by an "A") or second story (denoted by a "B") of a residential property.

The noise sensitive sites associated with the receivers are described below by noise sensitive area (from south to north) and project. All noise sensitive areas and associated receiver locations can be found on the aerials in Appendix B.

FPID # 256881-1

- Donovan's Adult Park – Mobile home residences represented by receiver points R1 through R11.
- The Columns at Allen's Creek Apartments – First and second story apartment residences represented by receiver points R12 through R26.
- Imperial Cove and Bay Cove Apartments – First and second story apartment residences represented by receiver points R27 through R43.

FPID # 256881-2

- Japanese Gardens Mobile Estates – Mobile home residences represented by receiver points R42 through R65.
- Royal Breeze Apartments – First and second story apartment residences represented by receiver points R58 through R68.

3.3 Noise Analysis

Based on a review of land use data, proximity of noise sensitive sites to SR 55 (US 19), and field verification of noise sensitive site locations, a total of 124 receiver points are evaluated. Within the limits of project FPID # 256881-1, 75 receiver points represent 128 residences. Within the limits of project FPID # 256881-2, 49 receiver points represent 79 residences. The noise sensitive sites represented by the receiver points were previously described in Section 3.2 – Noise Sensitive Sites. Predicted future noise levels for the noise sensitive sites adjacent to SR 55 (US 19) within both project limits are summarized in the Predicted Noise Level tables located in Appendix C.

Out of the 124 receiver points evaluated, 60 receiver points representing 78 residences approach or exceed the NAC for the year 2028 Design Year Build Condition. Thirty-eight of those residences are located within the limits of project FPID # 256881-1, and 40 residences are located within the limits of project FPID # 256881-2. Affected residences are generally located in the first and sometimes second row of mobile homes or apartments in closest proximity to the proposed right-of-way (ROW).

4.0 NOISE BARRIER ANALYSIS

An analysis was performed to determine the feasibility and cost reasonableness of providing noise barriers for the 78 residences with noise levels that approach or exceed the NAC. Noise barriers reduce noise levels by blocking the sound path between a roadway and noise sensitive site. To effectively reduce traffic noise, a barrier must be relatively long, continuous (i.e., no intermittent openings), and of sufficient height. The following minimum conditions should be met for a noise barrier to be considered feasible and cost reasonable:

- A noise barrier must provide affected residences at least a 5 dBA reduction while meeting construction/engineering limitations on barrier lengths and heights.
- The cost of the noise barrier should not exceed $35,000 per benefited residence. This is the upper cost limit established by FDOT. A benefited residence is defined as a residence where at least a 5 dBA reduction would be provided as a result of

constructing a noise barrier. The unit cost used to evaluate reasonableness is $25 per square foot, which covers barrier materials and labor. Additional construction costs may be incorporated at site specific locations if identified during the engineering review.

After evaluating the amount of noise reduction and cost, other factors such as community desires, adjacent land uses and land use stability, antiquity and predicted noise level increases are also considered when evaluating the feasibility and reasonableness of providing noise barriers.

Engineering reviews of potential barrier locations identify where barriers cannot be built, or where the type, length or height of a barrier may be limited due to roadway design, drainage, constructability problems, utility conflicts or safety issues. Additional construction costs incurred because of barriers are also identified if applicable. The engineering reviews for project FPID # 256881-1 and FPID # 256881-2 are included in Appendix D.

In order to analyze the effectiveness of noise barriers, the STAMINA companion computer program, OPTIMA, is utilized. Barriers are evaluated for heights ranging from 8 to 22-ft along the ROW, and between 8 and 14 ft between SR 55 (US 19) and the frontage road (barriers along the mainline shoulder). These barrier heights comply with the FDOT *Plans Preparation Manual*[3] concerning barriers in relation to the clear zone and on structure. For a particular height, the length of the barrier is optimized to minimize cost while trying to maintain at least a 5 dBA reduction at affected noise sensitive sites. At some locations, noise barriers may benefit residences with a predicted noise level of less than 65 dBA. Since abatement consideration at these residences is not required, noise barrier lengths or heights are not increased to benefit these sites. However, if benefited because of the proximity to an affected residence, these sites are included when determining cost per benefited noise sensitive site. This methodology is consistent with FHWA guidance.

A discussion of the noise barrier evaluation for each of the noise study areas adjacent to SR 55 (US 19) is provided below. Noise barriers determined to be feasible and reasonable are shown on the aerials provided in Appendix B.

FPID # 256881-1

4.1 Donovan's Adult Park

Twelve residences located in the first and second row of mobile homes within this noise sensitive area are predicted to experience noise levels that approach or exceed the NAC. The predicted noise levels of the affected residences range from 65.1 to 71.9 dBA.

The analysis determined that a combination barrier configuration (barriers located on the ROW and shoulder) could provide at least a 5 dBA reduction to only one of the affected residences. Eleven of the affected residences could not be benefited at this location because the southern end of a ROW barrier would be severely limited to accommodate line of sight requirements for vehicles exiting the park from the southern driveway. Additionally, the northern end of a barrier would be limited to accommodate the northern access drive. The limitations on the length of a ROW barrier decrease the capability of the barrier to reduce traffic noise produced from the frontage road, therefore even a combination barrier configuration is ineffective.

The results of the noise barrier analysis are provided in Table 4-1. The lowest cost per benefited residence that could be achieved at this location is $233,750 for a 16-ft ROW barrier combined with two shoulder barriers of 8 and 14-ft respectively. This combination barrier configuration can provide at least a 5 dBA reduction to only one of the affected residences (represented by R5). At $233,750 per benefited residence, the cost of the noise barrier configuration exceeds the reasonable criterion of $35,000. Therefore, noise barriers were determined to not be a cost reasonable abatement measure at this location.

Table 4-1
Donovan's Adult Park Barrier Analysis

Barrier Height (feet)	Number of Residences Within a Noise Reduction Range							Number of Benefited Residences			Total Estimated Cost *	Cost Per Benefited Residence
	5-5.9 dBA	6-6.9 dBA	7-7.9 dBA	8-8.9 dBA	9 + dBA	Avg. (dBA)	Total Wall Length (ft)	Affected	Other	Total		
22 ROW	1	0	0	0	0	5.6	175	1	0	1	$260,000	$260,000
14 SB							245					
8 SB							390					
20 ROW	1	0	0	0	0	5.3	175	1	0	1	$251,250	$251,250
14 SB							245					
8 SB							390					
18 ROW	1	0	0	0	0	5.2	175	1	0	1	$242,500	$242,500
14 SB							245					
8 SB							390					
16 ROW	1	0	0	0	0	5.1	175	1	0	1	$233,750	$233,750
14 SB							245					
8 SB							390					
14 ROW	0	0	0	0	0	N/A	N/A	0	0	0	N/A	N/A
14 SB												
8 SB												

* Total estimated cost is calculated by multiplying the total square feet (sq ft) of proposed barrier with the barrier planning cost ($25/square foot).

4.2 The Columns at Allen's Creek Apartments

Fourteen residences located on the first and second floors of the apartment buildings with porches or balconies facing the roadway are predicted to experience noise levels that approach or exceed the NAC. The predicted noise levels of the affected residences range from 67.9 to 70.2 dBA.

The analysis determined that a combination barrier configuration (barriers located on the ROW and shoulder) could provide at least a 5 dBA reduction to all fourteen of the affected residences. The ends of a ROW barrier would be limited to accommodate line of sight requirements for vehicles accessing the frontage road from Central Avenue on the south end, and because of additional concrete safety barrier construction needed to the north. Even with the limitations on the length of a ROW barrier, the first and second floor residences still receive at least the minimum 5 dBA reduction when combined with a barrier located on the elevated mainline roadway shoulder.

The results of the noise barrier analysis are provided in Table 4-2. The optimal barrier configuration at this location is an 8-ft high, 336-ft long ROW barrier combined with a 14-ft high, 1,040-ft long barrier located along the mainline shoulder. This barrier configuration provides at least the minimum 5 dBA reduction to all 14 of the affected residences plus one resident with a predicted noise level of less than 65 dBA. Taking in to account all engineering recommendations, limitations and additional construction costs at this location, the cost per benefited residence of $33,188 is below the reasonable criterion of $35,000 per benefited residence.

Table 4-2
The Columns at Allen's Creek Apartments Barrier Analysis

Barrier Height (feet)	Number of Residences Within a Noise Reduction Range							Number of Benefited Residences			Total Estimated Cost *	Cost Per Benefited Residence
	5-5.9 dBA	6-6.9 dBA	7-7.9 dBA	8-8.9 dBA	9 + dBA	Avg. (dBA)	Total Wall Length (ft)	Affected	Other	Total		
8 ROW	9	5	1	0	0	5.8	336	14	1	15	$497,823	$33,188
14 SB							1,040					

* Total estimated cost is calculated by multiplying the total sq ft of proposed barrier with the barrier planning cost ($25/square foot) and adding the additional costs associated with construction ($66,623 - as per Carter Burgess memo on 4/26/07)

An 8-ft noise barrier located along the ROW from Sta. 165+00 to 168+36 combined with a 14-ft shoulder barrier located along the mainline from Sta. 863+00 to 873+40 is determined to be a feasible and cost reasonable abatement measure at this location. Other considerations for evaluating feasibility and reasonableness are provided in Table 4-3.

4.3 Imperial Cove and Bay Cove Apartments

Twelve residences located on the first and second floors of the Imperial Cove Apartment buildings with porches or balconies facing the roadway are predicted to experience noise levels that approach or exceed the NAC. The predicted noise levels of the affected residences range from 65.5 to 70.5 dBA. The noise levels for the residences at the Bay Cove Apartments are not predicted to approach or exceed the NAC because their areas of outdoor use (porches and balconies) are shielded from the road by their own, or adjacent apartment buildings.

Table 4-3
Traffic Noise Abatement Considerations
Noise Barrier Configuration Located at the Columns at Allen's Creek Apartments

Evaluation Criteria	Comment
1. Relationship of future levels to abatement criteria	14 residences approach or exceed the NAC.
2. Amount of noise reduction	Traffic noise from SR 55 (US 19) and associated frontage road would be reduced by a minimum of 5 dBA at all 14 residences. Average reduction is 5.8 dBA.
3. Safety	See Appendix D (Engineering Reviews) for line of sight considerations and additional concrete barrier construction details.
4. Community desires	See Appendix E (Noise Barrier Surveys) for affected property owner's decision on barrier construction.
5. Accessibility	Noise barrier will be located within the proposed ROW and will not disrupt emergency service access.
6. Land use stability	Land use in the area is expected to remain stable.
7. Local controls	Since the noise barriers will be placed within the proposed ROW line, there will be no restrictions imposed by local agencies.
8. Views of local officials with jurisdiction	There is no information available pertaining to this evaluation criterion.
9. Noise level change from existing to future build condition.	The PD&E phase predicted an increase of 4 dBA. No substantial increases are anticipated.
10. Noise level change from future no-build to future build condition.	The PD&E phase predicted an increase of 4 dBA. No substantial increases are anticipated.
11. Antiquity	The apartment complex within this noise study area was constructed in 1973.
12. Constructability	See Appendix D (Engineering Reviews).
13. Maintainability	See Appendix D (Engineering Reviews).
14. Aesthetics	See Appendix E (Noise Barrier Surveys) for affected property owner's decision on barrier texture and color.
15. ROW needs including access rights, easements for construction and/or maintenance, and additional land	Noise barriers are located within the proposed ROW line and no additional ROW will be required.
16. Cost	Barrier is below the cost per benefited residence criteria.
17. Utilities	See Appendix D (Engineering Reviews).
18. Drainage	See Appendix D (Engineering Reviews).
19. Special land use considerations	None.
20. Other environmental considerations	None.
21. Additional considerations	None.

The analysis determined that a combination barrier configuration (barriers located on the ROW and shoulder) could provide at least a 5 dBA reduction to all 12 of the affected residences. A ROW barrier must have a large gap directly in front of the majority of affected residences, to accommodate access and line of sight requirements for the entrance drive into Imperial Cove. Likewise, the northern end of the barrier would be limited to accommodate access and line of sight requirements for the entrance drive into Bay Cove. However, when combined with a continuous barrier located on the mainline roadway shoulder, a combination barrier configuration can provide at least a 5 dBA reduction to all of the affected residences.

The results of the noise barrier analysis are provided in Table 4-4. Because the shoulder barrier would need to be long and continuous in order to fill the gap and length limitations of the ROW barriers, the lowest cost per benefited residence that could be achieved at this location is $45,292. This is the cost of a barrier configuration consisting of two 14-ft ROW barriers combined with a 12-ft shoulder barrier located along the mainline of SR 55 (US 19). This combination barrier configuration can provide at least a 5 dBA reduction to 11 of the affected residences plus one resident with a predicted noise level of less than 65 dBA. At $45,292 per benefited residence, the cost of this noise barrier configuration exceeds the reasonable criterion of $35,000. Therefore, noise barriers were determined to not be a cost reasonable abatement measure for this location.

FPID # 256881-2

4.4 Japanese Gardens Mobile Estates

Thirty-three residences located in mostly the first and second row of mobile homes within this noise sensitive area are predicted to experience noise levels that approach or exceed the NAC. Seventeen of these residences are located in the front row within 30 ft of the proposed frontage road. The predicted noise levels of the affected residences range from 65.1 to 77.2 dBA.

The analysis determined that two ROW barriers could provide at least a 5 dBA reduction to 14 of the affected residences. The ends of each ROW barrier would be limited to

Table 4-4
The Imperial Cove and Bay Cove Apartments Barrier Analysis

Barrier Height (feet)	Number of Residences Within a Noise Reduction Range							Number of Benefited Residences			Total Estimated Cost *	Cost Per Benefited Residence
	5-5.9 dBA	6-6.9 dBA	7-7.9 dBA	8-8.9 dBA	9 + dBA	Avg. (dBA)	Total Wall Length (ft)	Affected	Other	Total		
8 ROW	9	2	0	0	0	5.5	470	10	1	11	$549,000	$49,909
14 SB							1,300					
10 ROW	8	5	0	0	0	5.7	470	11	2	13	$782,500	$60,192
14 SB							1,900					
12 ROW	8	4	0	0	0	5.7	470	11	1	12	$543,500	$45,292
14 SB							1,150					
14 ROW	9	4	1	0	0	5.9	470	12	2	14	$829,500	$59,250
14 SB							1,900					

* Total estimated cost is calculated by multiplying the total square feet (sq ft) of proposed barrier with the barrier planning cost ($25/square foot).

accommodate line of sight requirements for vehicles accessing the frontage road from the entrance drive (between the two barriers) and the access drive to the commercial property located to the north of the Japanese Gardens property. Additionally, the height of the barriers along the ROW would be limited to 12 ft to accommodate clearance from overhead power lines during construction. Even with limitations to the length and height of each ROW barrier, 14 of the 17 front row residences can be provided at least a 5 dBA reduction.

The results of the noise barrier analysis are provided in Table 4-5. The optimal barrier configuration that could be achieved at this location consists of two 12-ft high barriers located to the south and north of the entrance drive along the ROW. The barriers are 585 and 279-ft long respectively. This barrier configuration provides at least the minimum

Table 4-5
Japanese Gardens Mobile Estates Barrier Analysis

Barrier Height (feet)	Number of Residences Within a Noise Reduction Range							Number of Benefited Residences			Total Estimated Cost *	Cost Per Benefited Residence
	5-5.9 dBA	6-6.9 dBA	7-7.9 dBA	8-8.9 dBA	9 + dBA	Avg. (dBA)	Total Wall Length (ft)	Affected	Other	Total		
8 ROW	7	3	1	0	0	6.0	864	11	0	11	$349,694.50	$31,790
10 ROW	0	3	6	0	2	7.6	864	11	0	11	$392,894.50	$35,718
12 ROW	3	2	2	5	2	6.9	864	14	0	14	$436,094.50	$31,150

* Total estimated cost is calculated by multiplying the total sq ft of proposed barrier with the barrier planning cost ($25/square foot) and adding the additional costs associated with construction ($176,894.50 as per Lochner memo on 4/27/07)

5 dBA reduction to 14 of the affected residences. Taking in to account all engineering recommendations, limitations and additional construction costs at this location, the cost per benefited residence of $31,150 is below the reasonable criterion of $35,000 per benefited residence.

Two 12-ft noise barriers located along the ROW from Sta. 937+15 to 943+00 and Sta. 946+56 to 949+35 are determined to be a feasible and cost reasonable abatement measure at this location. Other considerations for evaluating feasibility and reasonableness are provided in Table 4-6.

4.5 Royal Breeze Apartments

Seven residences located on the first and second floors of the apartment buildings with porches or balconies facing the roadway are predicted to experience noise levels that approach or exceed the NAC. The predicted noise levels at the affected residences range from 65.2 to 68.8 dBA. The noise levels for some of the residences at this apartment complex are not predicted to approach or exceed the NAC because their areas of outdoor use (porches and balconies) are shielded from the road by their own, or adjacent apartment buildings.

Table 4-6
Traffic Noise Abatement Considerations Noise Barrier Configuration Located at Japanese Gardens Mobile Estates

Evaluation Criteria	Comment
1. Relationship of future levels to abatement criteria	33 residences approach or exceed the NAC.
2. Amount of noise reduction	Traffic noise from SR 55 (US 19) and associated frontage road would be reduced by a minimum of 5 dBA at 14 residences. Average reduction is 6.9 dBA.
3. Safety	See Appendix D (Engineering Reviews) for line of sight considerations and additional concrete barrier construction details.
4. Community desires	See Appendix E (Noise Barrier Surveys) for affected property owner's decision on barrier construction.
5. Accessibility	Noise barrier will be located within the proposed ROW and will not disrupt emergency service access.
6. Land use stability	Land use in the area is expected to remain stable.
7. Local controls	Since the noise barriers will be placed within the proposed ROW line, there will be no restrictions imposed by local agencies.
8. Views of local officials with jurisdiction	There is no information available pertaining to this evaluation criterion.
9. Noise level change from existing to future build condition.	The PD&E phase predicted an increase of 5 dBA. No substantial increases are anticipated.
10. Noise level change from future no-build to future build condition.	The PD&E phase predicted an increase of 5 dBA. No substantial increases are anticipated.
11. Antiquity	The mobile homes within this noise study area were constructed between in 1964 and 1969.
12. Constructability	See Appendix D (Engineering Reviews).
13. Maintainability	See Appendix D (Engineering Reviews).
14. Aesthetics	See Appendix E (Noise Barrier Surveys) for affected property owner's decision on barrier texture and color.
15. ROW needs including access rights, easements for construction and/or maintenance, and additional land	See Appendix D (Engineering Reviews) for a five foot perpetual easement requirement. See Appendix E (Noise Barrier Surveys) for affected property owner's decision on granting a temporary easement for barrier construction and a perpetual easement for barrier maintenance.
16. Cost	Barrier is below the cost per benefited residence criteria.
17. Utilities	See Appendix D (Engineering Reviews).
18. Drainage	See Appendix D (Engineering Reviews).
19. Special land use considerations	None.
20. Other environmental considerations	None.
21. Additional considerations	None.

The analysis determined that none of the seven affected residences could be provided the required 5 dBA reduction with any barrier configuration. None of the affected residences could be provided at least a 5 dBA reduction at this location because a ROW barrier would be limited in length and height to accommodate line of sight requirements for the driveway access points and overhead utilities. Additionally, a barrier located along the mainline shoulder would be located on structure and, therefore, limited to 8-ft in height for a substantial portion of its length. Therefore, noise barriers were determined to not be a feasible abatement measure at this location.

5.0 NOISE BARRIER SURVEY

In order to establish public support, owners of property that would benefit (i.e., receive at least a 5 dBA reduction) from the noise barrier configurations found to be cost reasonable and feasible were surveyed. These property owners were provided a noise barrier public survey to document their support for, or opposition to, construction of noise barriers adjacent to their property.

Each owner was asked (within the text of the survey) to fill out the survey sheet with a YES or NO vote along with their signature to document their position regarding a noise barrier in the vicinity of their property. The dimensions of the proposed barriers and locations relative to each property were included within the text of the survey. Owners of property adjacent to a noise barrier were also asked (by YES or NO vote) if they were willing to provide the FDOT with a 5-ft perpetual easement within their property.

The owners were also asked their preference of barrier texture and color, if they voted YES to the first two questions (indicating that they approved of the construction of a noise barrier adjacent to their property and were willing to provide a perpetual easement). The texture choices included RANDOM ASHLAR STONE, STACKED SPLIT FACED BLOCK or RUNNING BOND NEW BRICK. The color choices included MISTY BAY, SANDALWOOD or PEARL WHITE.

5.1 Survey Results

FPID 256881-1

The results of the analysis show that an 8-ft noise barrier located along the ROW from Sta. 165+00 to 168+36 combined with a 14-ft shoulder barrier located along the mainline from Sta. 863+00 to 873+40 would be cost reasonable and feasible adjacent to the Columns at Allen's Creek Apartments. The property owner voted NO, he did not approve of the FDOT's plans for construction of a noise barrier adjacent to his property. Similarly, he voted NO, that he was not willing to provide the FDOT with a 5-ft perpetual easement within his property. A copy of the signed noise barrier survey is provided in Appendix E.

FPID # 256881-2

The results of the analysis show that two 12-ft noise barriers located along the ROW from Sta. 937+15 to 943+00 and from Sta. 946+56 to 949+35 would be cost reasonable and feasible adjacent to the Japanese Gardens Mobile Estates. The property owner voted YES, he did approve of the FDOT's plans for construction of a noise barrier adjacent to his property, and YES, that he was willing to provide the FDOT with a 5-ft perpetual easement within his property. Additionally, the property owner voted for the STACKED SPLIT FACED BLOCK texture and the MISTY BAY color. A copy of the signed noise barrier survey is provided in Appendix E.

6.0 CONCLUSIONS

With the proposed improvements to SR 55 (US 19), 78 of the 207 residences analyzed are predicted to experience outdoor traffic noise levels that approach or exceed the FHWA NAC for Activity category B. More specifically, 38 of the 128 evaluated residences located adjacent to SR 55 (US 19) from north of Whitney road to south of Seville boulevard (project FPID # 256881-1), and 40 of the 79 evaluated residences from south of Seville Boulevard to north of SR 60 (project FPID # 256881-2) are predicted to experience outdoor traffic noise levels that approach or exceed the FHWA NAC for

Activity category B. Noise levels at the affected sites are predicted to range from 65.1 to 77.2 dBA. The results also indicate that noise barriers are a feasible and cost reasonable abatement measure at two of the five noise sensitive sites that were analyzed within both of the projects.

The noise barrier configuration found to be cost reasonable and feasible within the project limits of FPID # 256881-1, occurs at the Columns at Allen's Creek Apartment complex. This multiple barrier configuration could provide the required 5 dBA reduction to all 14 of the affected residences plus one resident with a predicted noise level of less than 65 dBA. The configuration consists of an 8-ft high, 336-ft long ROW barrier located between Sta. 165+00 and 168+36, combined with a 14-ft high, 1,040-ft long barrier located along the mainline between Stations 863+00 and 873+40. However, when surveyed regarding the construction of this proposed barrier combination, the property owner voted NO, he did not approve of the FDOT's plans for construction of a noise barrier adjacent to his property. Similarly, he voted NO, that he was not willing to provide the FDOT with a 5-ft perpetual easement within his property. Consequently, a noise barrier will no longer be considered for the Columns at Allen's Creek Apartment complex.

Donovan's Adult Park and the Imperial Cove/Bay Cove Apartment complex are the other two noise sensitive areas that were analyzed for abatement within the project limits of FPID # 256881-1. Although the barrier configurations analyzed at these locations benefited one and 12 affected residences respectively, they were found to be not cost reasonable.

The noise barrier configuration found to be cost reasonable and feasible within the project limits of FPID # 256881-2, occurs at the Japanese Gardens Mobile Estates. A ROW barrier configuration will provide the required 5 dBA reduction to 14 affected residences located along the front row of this noise sensitive area. The configuration consists of two 12-ft high, 585 and 279-ft long ROW barriers located between Sta. 937+15 and 943+00, and Sta. 946+56 and 949+35 respectively. When surveyed

regarding the construction of this proposed barrier combination, the property owner voted YES, he did approve of the FDOT's plans for construction of a noise barrier adjacent to his property, and YES, that he was willing to provide the FDOT with a 5-ft perpetual easement within his property. Additionally, the property owner voted for the STACKED SPLIT FACED BLOCK texture and the MISTY BAY color. Therefore, the noise barriers for the Japanese Gardens Mobile Estates will be included in the SR 55 (US 19) final design plans.

The other noise sensitive area analyzed for abatement within the project limits of FPID # 256881-2 was the Royal Breeze apartment complex. The results showed that none of the affected residences could be provided the required minimum 5 dBA reduction, therefore abatement is considered not feasible at this location.

7.0 CONSTRUCTION NOISE AND VIBRATION

During the construction phase of the proposed project, short-term noise may occur as a result of both stationary and mobile construction equipment. The construction noise will be temporary at any one location.

Construction noise will be controlled by adherence to the controls listed in the most recent edition of the FDOT *Standard Specifications for Road and Bridge Construction*[4].

The Construction Engineer will address specific noise problems that may arise during construction of the project.

Using the FDOT's partial listing of vibration sensitive sites, general land uses such as residences have been identified as potentially affected by construction vibration. Provisions will be added to the project's construction specifications as needed.

8.0 REFERENCES

1. Title 23 CFR Part 772, *Procedures for Abatement of Highway Traffic Noise and Construction Noise*; Federal Highway Administration; April 2001.

2. *Project Development and Environment Manual*, Part 2, Chapter 17; Florida Department of Transportation; Tallahassee, Florida; October 2003.

3. *Plans Preparation Manual*, Volume 1, Chapter 32; Florida Department of Transportation; Tallahassee, Florida; January 2003 (revised January 1, 2004).

4. *Standard Specifications for Road and Bridge Construction*; Florida Department of Transportation; Tallahassee, Florida; 2003.

APPENDICES

Appendix A: Traffic Data
Appendix B: Aerial Photographs
Appendix C: Predicted Noise Levels
Appendix D: Engineering Reviews
Appendix E: Noise Barrier Surveys

APPENDIX A

TRAFFIC DATA

TRAFFIC DATA FOR NOISE STUDIES

FINANCIAL PROJECT ID: N/A

WPI: 256881-2

Federal Aid Number(s): N/A

Project Description: SR 55 (US 19) from Gulf to Bay Boulevard (SR 60) to Drew Street (CR 528)

Segment Description: FRONTAGE ROAD [1]

Existing Facility:

Year 2005 **K = N/A %**

***ADT** **D = N/A**

%

LOS C N/A **T = N/A**

% for 24 Hours

DEMAND N/A **T = N/A %**

Design Hour

Auto Speed _____ MT Speed _____ HT Speed _____ MT = N/A **% DHV**

Posted Speed N/A **HT = N/A %**

DHV

==========

Without Project (design year):

Year 2028 **K = N/A %**

***ADT** **D = N/A**

%

LOS C N/A **T = N/A**

% for 24 Hours

DEMAND N/A **T = N/A %**

Design Hour

Auto Speed _____ MT Speed _____ HT Speed _____ MT = N/A % DHV

Posted Speed N/A HT = N/A % DHV

==========

WITH PROJECT (DESIGN YEAR): 2-LANE FRONTAGE ROAD (ONE-WAY)

Year 2028 K = 9.90 %

***ADT D = 100.00 %**

LOS C 20,800 (Urbanized State Two-Way Art., Class 1 [34,700] decreased by 40% to obtain the equivalent directional volume for one-way facilities) [2] T = 8.00 % for 24 Hours

DEMAND 25,600 T = 4.00 % Design Hour

Auto Speed _____ MT Speed _____ HT Speed _____ MT = 2.50 [3] % DHV

Posted Speed 35 mph HT = 1.50 [3] % DHV

==========

*ADT = Capacity @ LOS or Demand (whichever is less).

1 Data was obtained from Contract Plans; Phase II; Sheet 6; Lochner, Clearwater, FL; November 2005, except where noted.

2 2002 Quality/Level of Service Handbook; Florida Department of Transportation; Tallahassee, FL; 2002. Table 4-1 "Generalized Annual Average Daily Volumes For Florida's Urbanized Areas."

3 Truck percentages based on traffic data obtained from the 2004 Florida Traffic Information CD.

Prepared By: psc Date 5/2 / 06

TRAFFIC DATA FOR NOISE STUDIES

FINANCIAL PROJECT ID: N/A

WPI: 256881-2

Federal Aid Number(s): N/A

Project Description: SR 55 (US 19) from Gulf to Bay Boulevard (SR 60) to Drew Street (CR 528)

Segment Description: MAINLINE [1]

Existing Facility: 6-lane divided roadway

Year 2005 **K = 9.90 %**

***ADT** **D = 55.00 %**

LOS C 52,100 (Urbanized State Two-Way Arterials, Class 1) [2] **T = 8.00 % for 24 Hours**

DEMAND 87,000 **T = 4.00 %**

Design Hour

Auto Speed _____ MT Speed _____ HT Speed _____ MT = 2.50 [3] % DHV

Posted Speed 50 mph **HT = 1.50 [3] %**

DHV

==========

Without Project (design year): 6-lane divided roadway

Year 2028 **K = 9.90 %**

***ADT** **D = 55.00 %**

LOS C 52,100 (Urbanized State Two-Way Arterials, Class 1) [2] **T = 8.00 % for 24 Hours**

DEMAND 138,800 **T = 4.00 %**

Design Hour

Auto Speed _____ MT Speed _____ HT Speed _____ MT = 2.50 [3] % DHV

Posted Speed 55 mph HT = 1.50 [3] % DHV

==========

WITH PROJECT (DESIGN YEAR): 8-LANE LIMITED ACCESS ROADWAY

Year 2028 K = 9.90 %

***ADT D = 55.00 %**

LOS C 111,400 (Urbanized Fwy, Interchange Spacing < 2 mi apart) [2] T = 8.00 % for 24 Hours

DEMAND 138,800 T = 4.00 % Design Hour

Auto Speed _____ MT Speed _____ HT Speed _____ MT = 2.50 [3] % DHV

Posted Speed 55 mph HT = 1.50 [3] % DHV

==========

*ADT = Capacity @ LOS or Demand (whichever is less).

1 Data was obtained from Contract Plans; Phase II; Sheet 6; Lochner, Clearwater, FL; November 2005, except where noted.

2 2002 Quality/Level of Service Handbook; Florida Department of Transportation; Tallahassee, FL; 2002. Table 4-1 "Generalized Annual Average Daily Volumes For Florida's Urbanized Areas."

3 Truck percentages based on traffic data obtained from the 2004 Florida Traffic Information CD.

Prepared By: psc Date 5/2 / 06

TRAFFIC DATA FOR NOISE STUDIES

FINANCIAL PROJECT ID: N/A

WPI: 256881-1

Federal Aid Number(s): N/A

Project Description: SR 55 (US 19) from Whitney Road to Belleair Road (CR 464) and

Nursery Road (CR 474) to Seville Boulevard

Segment Description: FRONTAGE ROAD [1]

Existing Facility:

Year 2005 **K = N/A %**

***ADT** **D = N/A**

%

LOS C N/A **T = N/A**

% for 24 Hours

DEMAND N/A **T = N/A %**

Design Hour

Auto Speed _____ MT Speed _____ HT Speed _____ MT = N/A

% DHV

Posted Speed N/A **HT = N/A %**

DHV

==========

Without Project (design year):

Year 2028 **K = N/A %**

***ADT** **D = N/A**

%

LOS C N/A **T = N/A**

% for 24 Hours

DEMAND N/A **T = N/A %**

Design Hour

Auto Speed _____ MT Speed _____ HT Speed _____ MT = N/A % DHV

Posted Speed N/A HT = N/A % DHV

==========

WITH PROJECT (DESIGN YEAR): 2-LANE FRONTAGE ROAD (ONE-WAY)

Year 2028 K = 9.90 %

***ADT D = 100.00 %**

LOS C 20,800 (Urbanized State Two-Way Art., Class 1 [34,700] decreased by 40% to obtain the equivalent directional volume for one-way facilities) [2] T = 8.00 % for 24 Hours

DEMAND 25,600 T = 4.00 % Design Hour

Auto Speed _____ MT Speed _____ HT Speed _____ MT = 2.50 [3] % DHV

Posted Speed 40 mph HT = 1.50 [3] % DHV

==========

*ADT = Capacity @ LOS or Demand (whichever is less).

1 Data was obtained from Contract Plans; Phase II; Sheet 19; Carter Burgess, Tampa, FL; November 2005 except where noted..

2 2002 Quality/Level of Service Handbook; Florida Department of Transportation; Tallahassee, FL; 2002. Table 4-1 "Generalized Annual Average Daily Volumes For Florida's Urbanized Areas."

3 Truck percentages based on traffic data obtained from the 2004 Florida Traffic Information CD.

Prepared By: psc Date 5/2 / 06

TRAFFIC DATA FOR NOISE STUDIES

FINANCIAL PROJECT ID: N/A

WPI: 256881-1

Federal Aid Number(s): N/A

Project Description: SR 55 (US 19) from Whitney Road to Belleair Road (CR 464) and

Nursery Road (CR 474) to Seville Boulevard

Segment Description: MAINLINE [1]

Existing Facility: 6-lane divided roadway

Year 2005 **K = 9.90 %**

***ADT** **D = 55.00**

%

LOS C 52,100 (Urbanized State Two-Way Arterials, Class 1) [2] **T = 8.00**

% for 24 Hours

DEMAND 87,000 **T = 4.00 %**

Design Hour

Auto Speed _____ MT Speed _____ HT Speed _____ MT = 2.50 [3]

% DHV

Posted Speed 50 mph **HT = 1.50 [3] %**

DHV

==========

Without Project (design year): 6-lane divided roadway

Year 2028 **K = 9.90 %**

***ADT** **D = 55.00**

%

LOS C 52,100 (Urbanized State Two-Way Arterials, Class 1) [2] **T = 8.00**

% for 24 Hours

DEMAND 138,800 **T = 4.00 %**

Design Hour

Auto Speed _____ MT Speed _____ HT Speed _____ MT = 2.50 [3] % DHV

Posted Speed 55 mph HT = 1.50 [3] % DHV

==========

WITH PROJECT (DESIGN YEAR): 6-LANE LIMITED ACCESS ROADWAY

Year 2028 K = 9.90 %

***ADT D = 55.00 %**

LOS C 81,700 (Urbanized Fwy, Interchange Spacing < 2 mi apart) [2] T = 8.00 % for 24 Hours

DEMAND 138,800 T = 4.00 % Design Hour

Auto Speed _____ MT Speed _____ HT Speed _____ MT = 2.50 [3] % DHV

Posted Speed 55 mph HT = 1.50 [3] % DHV

==========

*ADT = Capacity @ LOS or Demand (whichever is less).

1 Except where noted, data was obtained from Contract Plans; Phase II; Sheet 19; Carter Burgess, Tampa, FL; November 2005..

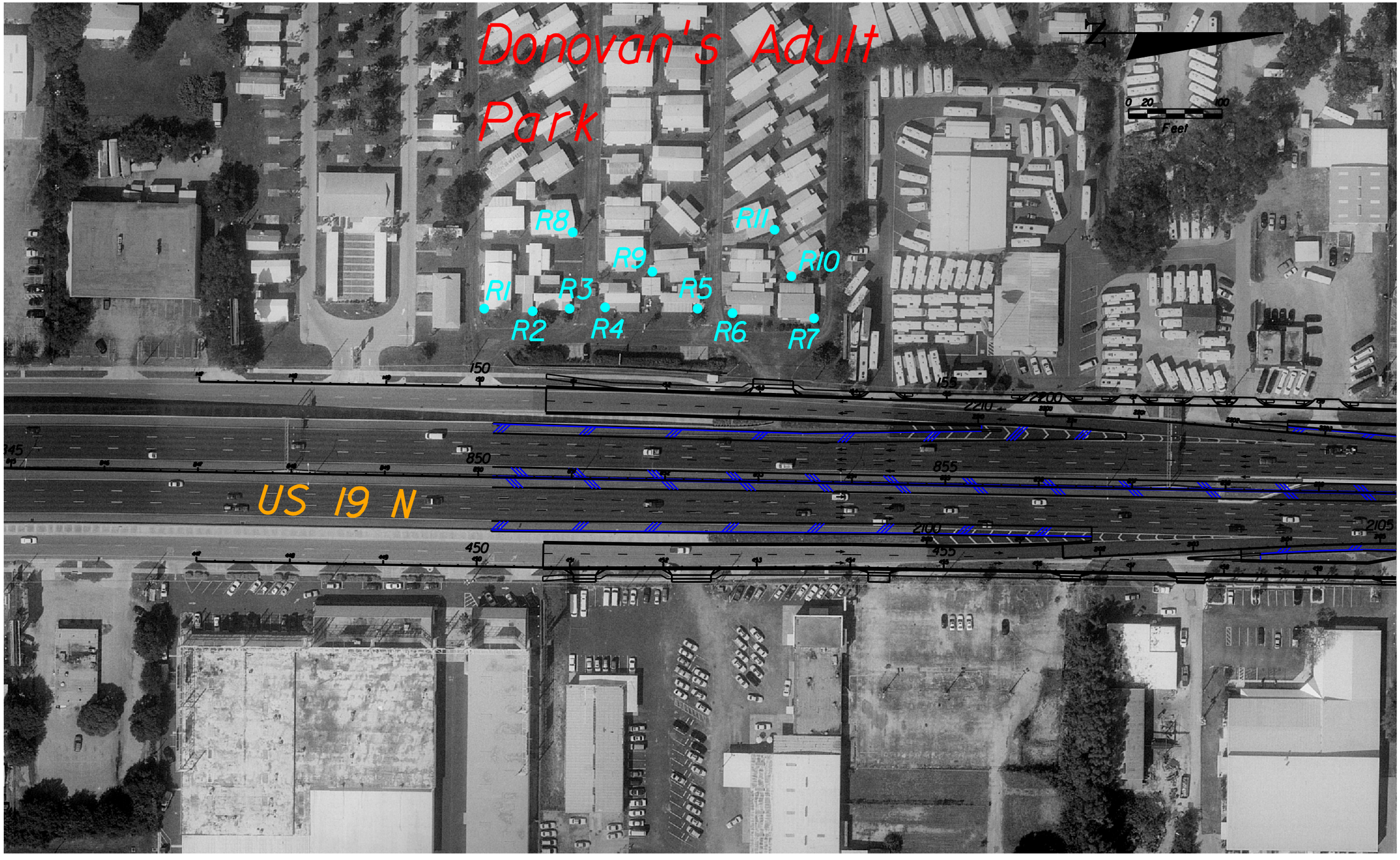
2 2002 Quality/Level of Service Handbook; Florida Department of Transportation; Tallahassee, FL; 2002. Table 4-1 "Generalized Annual Average Daily Volumes For Florida's Urbanized Areas."

3 Truck percentages based on traffic data obtained from the 2004 Florida Traffic Information CD.

Prepared By: psc Date 5/2 / 06

APPENDIX B

AERIAL PHOTOGRAPHS



COST REASONABLE AND FEASIBLE NOISE BARRIER LOCATION

R15 NOISE SENSITIVE RECEIVER LOCATION

120 CENTERLINE CONSTRUCTION

TRAFFIC NOISE RE-ANALYSIS
S.R. 55 (US 19) FROM NORTH OF WHITNEY RD. TO SOUTH OF SEVILLE BLVD. (FPID: 256881-1)
S.R. 55 (US 19) FROM SOUTH OF SEVILLE BLVD. TO NORTH OF S.R. 60 (FPID: 256881-2)
PINELLAS COUNTY, FLORIDA

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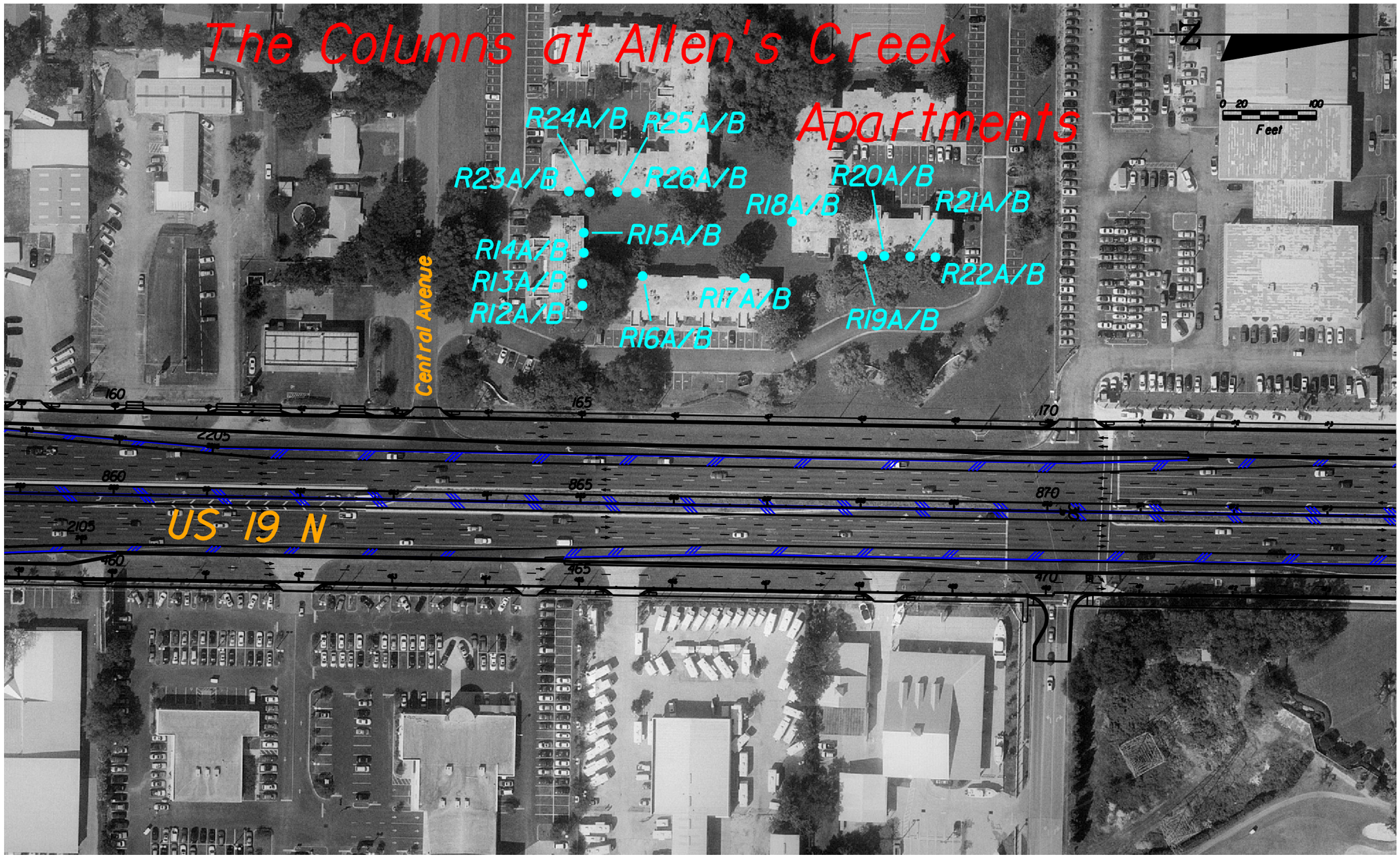

COST REASONABLE AND FEASIBLE NOISE BARRIER LOCATION

R15 NOISE SENSITIVE RECEIVER LOCATION

120 CENTERLINE CONSTRUCTION

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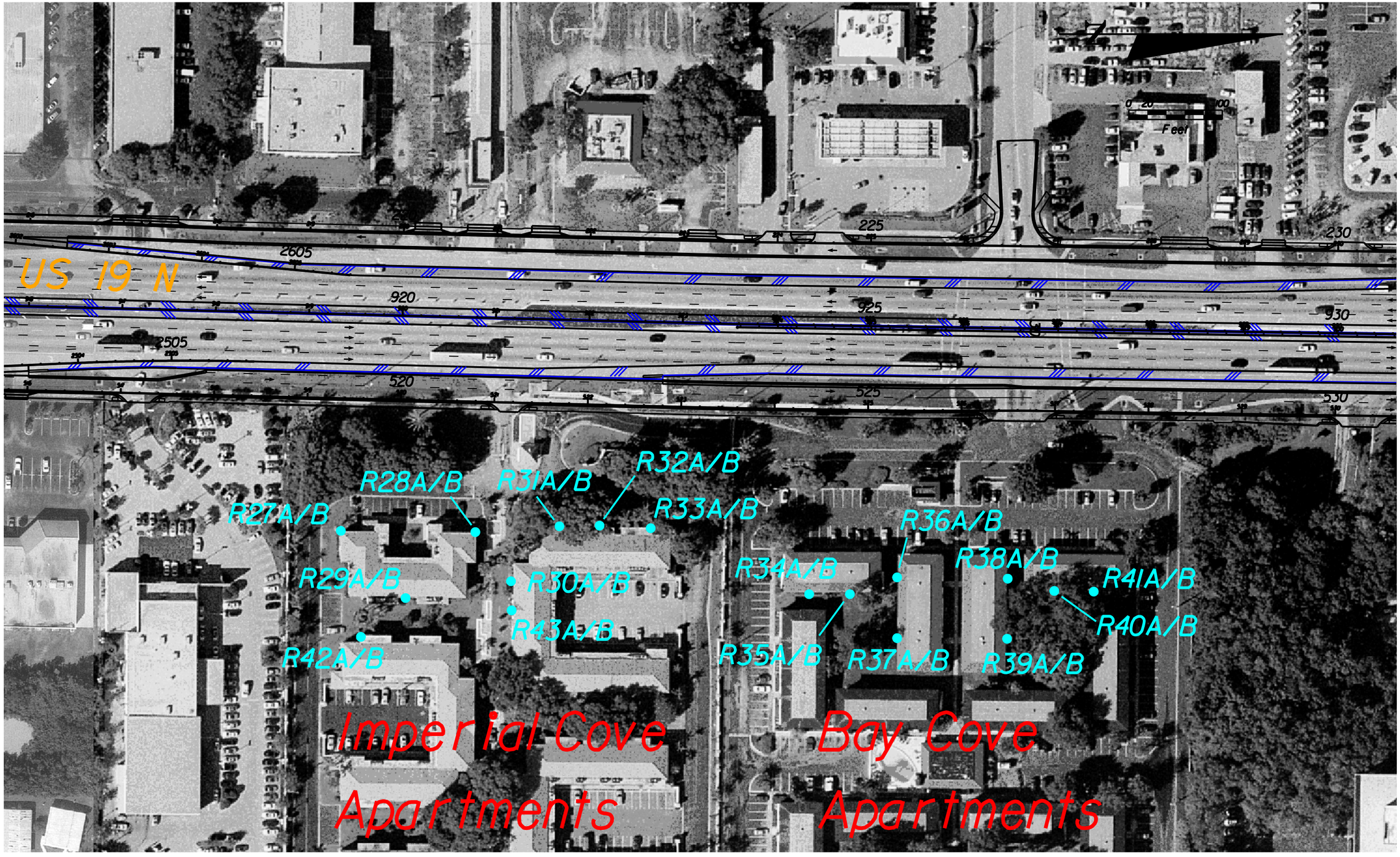

COST REASONABLE AND FEASIBLE NOISE BARRIER LOCATION

R15 NOISE SENSITIVE RECEIVER LOCATION

120 CENTERLINE CONSTRUCTION

TRAFFIC NOISE RE-ANALYSIS
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PINELLAS COUNTY, FLORIDA

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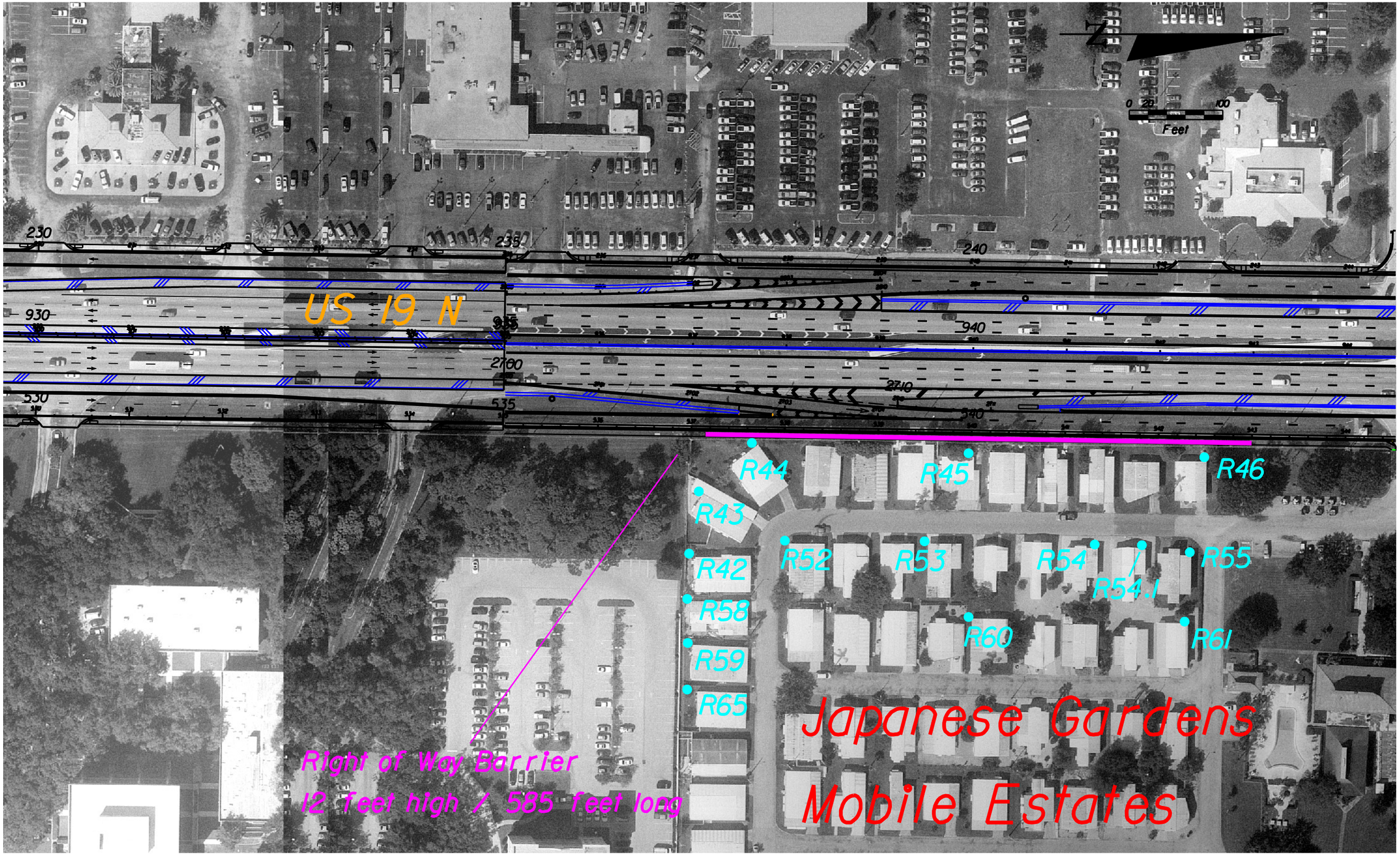

COST REASONABLE AND FEASIBLE NOISE BARRIER LOCATION

R15 NOISE SENSITIVE RECEIVER LOCATION

120 CENTERLINE CONSTRUCTION

TRAFFIC NOISE RE-ANALYSIS
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PINELLAS COUNTY, FLORIDA

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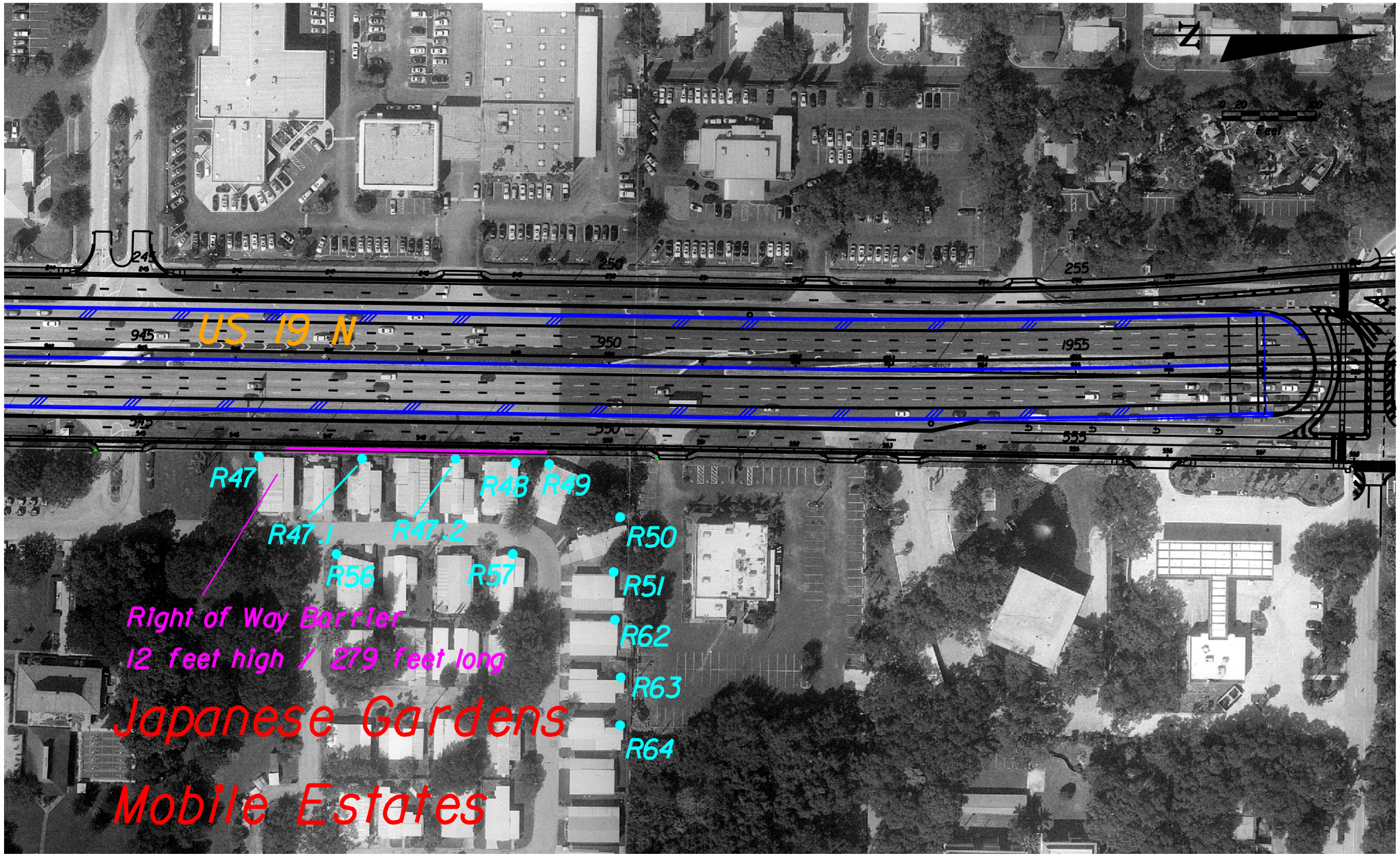

COST REASONABLE AND FEASIBLE NOISE BARRIER LOCATION

R15 NOISE SENSITIVE RECEIVER LOCATION

120 CENTERLINE CONSTRUCTION

TRAFFIC NOISE RE-ANALYSIS
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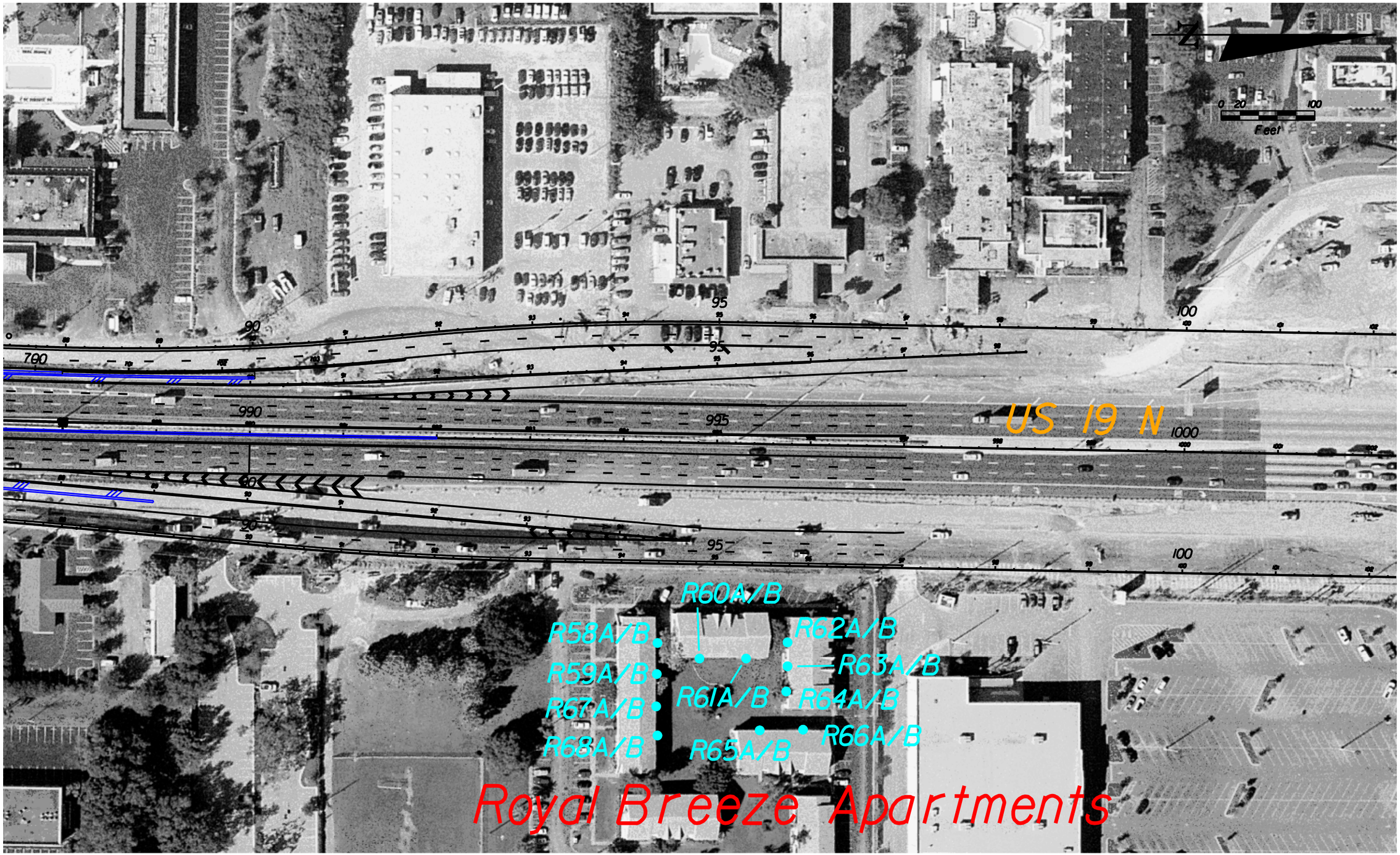

COST REASONABLE AND FEASIBLE NOISE BARRIER LOCATION

R15 NOISE SENSITIVE RECEIVER LOCATION

120 CENTERLINE CONSTRUCTION

TRAFFIC NOISE RE-ANALYSIS
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PINELLAS COUNTY, FLORIDA

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APPENDIX C

PREDICTED NOISE LEVELS

Final Results - 5/16/07
US 19 Traffic Noise Re-analysis (FPID 256881-1 and 256881-2)

Predicted Noise Levels
Project FPID # 256881-1

Receiver Identification	Noise Sensitive Sites Represented	2028 Build (dBA)	NAC Approached Or Exceeded
Donovan's Adult Park			
R1	1 Residence	71.4	Y
R2	1 Residence	71.7	Y
R3	1 Residence	71.7	Y
R4	1 Residence	71.5	Y
R5	1 Residence	71.8	Y
R6	1 Residence	71.7	Y
R7	1 Residence	71.9	Y
R8	4 Residences	63.9	N
R9	3 Residences	65.1	Y
R10	2 Residences	65.2	Y
R11	2 Residences	62.3	N
Columns at Allen's Creek Apartments			
R12A	1 Residence	69.6	Y
R12B	1 Residence	70.2	Y
R13A	1 Residence	67.9	Y
R13B	1 Residence	68.4	Y
R14A	1 Residence	63.9	N
R14B	1 Residence	64.7	N
R15A	1 Residence	62.8	N
R15B	1 Residence	63.6	N
R16A	4 Residences	59.8	N
R16B	4 Residences	61.7	N
R17A	4 Residences	61.9	N
R17B	4 Residences	62.9	N
R18A	2 Residences	60.5	N
R18B	2 Residences	62.2	N
R19A	2 Residences	68.6	Y
R19B	2 Residences	68.9	Y
R20A	1 Residence	68.7	Y
R20B	1 Residence	69.0	Y
R21A	1 Residence	68.6	Y
R21B	1 Residence	68.9	Y
R22A	1 Residence	68.6	Y
R22B	1 Residence	68.9	Y
R23A	2 Residences	61.3	N
R23B	2 Residences	62.2	N
R24A	1 Residence	62.1	N
R24B	1 Residence	63.0	N
R25A	1 Residence	61.6	N
R25B	1 Residence	62.7	N
R26A	1 Residence	61.4	N
R26B	1 Residence	62.6	N

Predicted Noise Levels (Cont.)
Project FPID # 256881-1

Receiver Identification	Noise Sensitive Sites Represented	2028 Build (dBA)	NAC Approached Or Exceeded
Imperial Cove and Bay Cove Apartments			
R27A	1 Residence	69.7	Y
R27B	1 Residence	70.1	Y
R28A	1 Residence	69.8	Y
R28B	1 Residence	70.2	Y
R29A	4 Residences	63.0	N
R29B	4 Residences	63.2	N
R30A	1 Residence	65.5	Y
R30B	1 Residence	65.8	Y
R31A	1 Residence	70.0	Y
R31B	1 Residence	70.4	Y
R32A	1 Residence	70.0	Y
R32B	1 Residence	70.4	Y
R33A	1 Residence	70.1	Y
R33B	1 Residence	70.5	Y
R34A	2 Residences	63.3	N
R34B	2 Residences	63.5	N
R35A	2 Residences	63.3	N
R35B	2 Residences	63.5	N
R36A	2 Residences	64.6	N
R36B	2 Residences	64.8	N
R37A	2 Residences	62.3	N
R37B	2 Residences	62.4	N
R38A	2 Residences	64.6	N
R38B	2 Residences	64.9	N
R39A	2 Residences	62.3	N
R39B	2 Residences	62.5	N
R40A	2 Residences	63.4	N
R40B	2 Residences	63.6	N
R41A	2 Residences	63.4	N
R41B	2 Residences	63.7	N
R42A	4 Residences	64.2	N
R42B	4 Residences	64.3	N
R43A	1 Residence	64.8	N
R43B	1 Residence	64.9	N

Predicted Noise Levels
Project FPID # 256881-2

Receiver Identification	Noise Sensitive Sites Represented	2028 Build (dBA)	NAC Approached Or Exceeded
Japanese Gardens Mobile Estates			
R42	1 Residence	68.0	Y
R43	1 Residence	72.8	Y
R44	2 Residences	77.2	Y
R45	5 Residences	75.8	Y
R46	3 Residences	75.5	Y
R47	1 Residence	75.1	Y
R47.1	3 Residences	73.8	Y
R47.2	1 Residence	73.8	Y
R48	1 Residence	74	Y
R49	1 Residence	74.7	Y
R50	1 Residence	69.9	Y
R51	1 Residence	66.1	Y
R52	2 Residences	65.6	Y
R53	3 Residences	65.6	Y
R54	2 Residences	65.6	Y
R54.1	1 Residence	65.6	Y
R55	1 Residence	67.3	Y
R56	2 Residences	64.6	N
R57	2 Residences	63.8	N
R58	1 Residence	66.8	Y
R59	1 Residence	65.6	Y
R60	8 Residences	63.4	N
R61	1 Residence	63.3	N
R62	1 Residence	65.1	Y
R63	1 Residence	64.2	N
R64	1 Residence	63.5	N
R65	1 Residence	64.7	N

Predicted Noise Levels (Cont.)
Project FPID # 256881-2

Receiver Identification	Noise Sensitive Sites Represented	2028 Build (dBA)	NAC Approached Or Exceeded
Royal Breeze Apartments			
R58A	1 Residence	66.3	Y
R58B	1 Residence	67.1	Y
R59A	1 Residence	63.6	N
R59B	1 Residence	65.2	Y
R60A	2 Residences	60.9	N
R60B	2 Residences	63.6	N
R61A	2 Residences	60.2	N
R61B	2 Residences	62.7	N
R62A	1 Residence	68.3	Y
R62B	1 Residence	68.8	Y
R63A	1 Residence	65.2	Y
R63B	1 Residence	66.1	Y
R64A	1 Residence	63.0	N
R64B	1 Residence	64.3	N
R65A	2 Residences	61.3	N
R65B	2 Residences	63.0	N
R66A	2 Residences	63.1	N
R66B	2 Residences	64.1	N
R67A	1 Residence	61.6	N
R67B	1 Residence	63.6	N
R68A	1 Residence	60.9	N
R68B	1 Residence	63.1	N

APPENDIX D

ENGINEERING REVIEWS

Noise Barrier Engineering Review Form

US Highway 19 from north of Whitney Road to south of Seville Boulevard
FPID: 256881-1
Donovan's Adult Park (MHP)

Name/Organization: Frank X. Heck, P.E. Review Date: 11//21/06

Area of Specialization: Roadway

Potential Barrier Locations	**Barrier location 1 –** Stations 850+20 to 854+00, west side between frontage road and R/W. **Barrier location 2** – Stations 844+00 to 855+40, west side between mainline and frontage road.
Potential Maximum Barrier Heights	**Barrier location 1** – 22 feet **Barrier location 2** – 14 feet
Known Issue/Comments	**No Wall can be constructed between Stations 852+90 to 853+36 to provided driveway access.**
Design/Constructability Issues	Location 1: Insufficient R/W for the construction and maintenance of sound wall. Location 2: a) MSE wall from begin project to station 852+50. **b) The wall will require a height transition between stations 854+95 and 855+40. The wall height will transition to the height of the standard barrier wall.**
Drainage Issues	Location 1: Conflicts with exist drainage, to remain near station 152+00.
Utility Issues	Location 1: Numerous conflicts with overhead and buried utilities.
Safety Issues	Location 1: **No Wall can be constructed between stations 853+36 to 854+15 due to line of sight requirements.** Locations 1 and 2: Proposed design would need to provide for special design to attach signs to the sound barrier walls to cantilever the sidewalk and shoulders which meet vertical clearance requirements and breakaway requirements.
Maintenance Issues	Location 1: Insufficient R/W for the construction and maintenance of sound wall.
R/W Acquisition Issues	No R/W acquisition with this project.

Are any of the above issues severe enough that a noise barrier cannot be constructed, will alter the potential dimensions, and/or require the construction cost increase at this location? If so, please explain in detail.	Location 1: Insufficient R/W for the construction and maintenance of sound wall, drainage conflicts, line of sight encroachments and utility conflicts. Location 2: 235’ of the proposed wall is located on MSE wall which limits the height to 8’. A transition approximately 50’ in length is required at the wall termination near station 855+35.

Finck, Robert J

From: Heck, Frank X. [Frank.Heck@c-b.com]
Sent: Thursday, November 30, 2006 6:36 PM
To: robin.rhinesmith@dot.state.fl.us
Cc: Finck, Robert J; Amy.Neidringhaus@dot.state.fl.us
Subject: RE: Additional Noise wall comments

Robin,
The driveway located near station 150+00 is indeed located outside of the project limits. However, upon looking at this driveway and the offset of the existing sidewalk and location of the existing right of way line the sight distance is not as great of a concern at this location. I would be acceptable from a sight distance standpoint to start the wall just north of that driveway near station 151+15 if it is to run along the back of the existing sidewalk along the right of way line.

Please let me know if you have any other questions.
Frank X. Heck, P.E.
Carter & Burgess, Inc.
(813) 217-4012
frank.heck@c-b.com

-----Original Message-----
From: robin.rhinesmith@dot.state.fl.us
[mailto:robin.rhinesmith@dot.state.fl.us]
Sent: Thursday, November 30, 2006 4:38 PM
To: Heck, Frank X.
Cc: rjfinck@pbsj.com
Subject: Fw: Additional Noise wall comments

Frank -

PBS&J has a question about a driveway at Donovan's....

Robin Rhinesmith
Florida Department of Transportation
(813) 975-6496
ext 27853
----- Forwarded by Robin M Rhinesmith/D7/FDOT on 11/30/2006 04:37 PM

"Finck, Robert J"
<RJFinck@pbsj.com
>
To
<robin.rhinesmith@dot.state.fl.us>
11/30/2006 04:28
cc
PM
"Doebler, Daniel"
<dcdoebler@pbsj.com>,
<rick.adair@dot.state.fl.us>

Subject
RE: Additional Noise wall comments

Robin,

I began the barrier analysis of Donovan's Adult Park utilizing the line of sight recommendations suggested by Frank Heck today, but quickly realized that there are actually two driveways that access this park (one to the north and one to the south). The comments received from Frank have line of sight considerations for the northern driveway but not for the one to the south. Maybe because it is outside of the project area?

Anyway, I would think that the line of sight considerations for the southern driveway would be the same as the ones for the northern driveway (approximately 79 feet), but would like confirmation from Frank before I incorporate these changes into the model. Could you please check on this issue for me? It will make a big difference in the amount of receivers that will be benefited within this Park.

Thanks very much and please let me know if you need any further information regarding this location.

Bob

Robert J. Finck Jr.
PBS&J
5300 West Cypress Street, Suite 200
Tampa, Fl. 33607-1712
(813) 281-8313
Cell phone - (941) 447-9271

Noise Barrier Engineering Review Form

US Highway 19 from north of Whitney Road to south of Seville Boulevard
FPID: 256881-1
Oaks Apartments

Name/Organization: Frank X. Heck, P.E. Review Date: 11/21/06

Area of Specialization: Roadway

Potential Barrier Locations	**Barrier location 1** – Stations 863+50 to 870+00, West side between frontage road and R/W. **Barrier location 2** – Stations 860+00 to 874+00, West side between mainline and frontage road.
Potential Maximum Barrier Heights	**Barrier location 1** – 22 feet **Barrier location 2** – 14 feet
Known Issue/Comments	
Design/Constructability Issues	Location 1: Insufficient R/W for the construction and maintenance of sound wall. Location 2:
Drainage Issues	Location 1: Conflicts with proposed drainage near station 164+50.
Utility Issues	Location 1: Numerous conflicts with overhead and buried utilities.
Safety Issues	Location 1: **No Wall can be constructed between stations 863+50 to 864+55 due to line of sight requirements.** Locations 1 and 2: Proposed design would need to provide for special design to attach signs to the sound barrier walls to cantilever the sidewalk and shoulders which meet vertical clearance requirements and breakaway requirements. (Signs of up to 8 feet wide must be accommodated)
Maintenance Issues	Location 1: Insufficient R/W for the construction and maintenance of sound wall.
R/W Acquisition Issues	No R/W acquisition with this project.
Are any of the above issues severe enough that a noise barrier cannot be constructed, will alter the potential dimensions, and/or require the construction cost increase at this location? If so, please explain in detail.	Location 1: Insufficient R/W for the construction and maintenance of sound wall, drainage conflicts, line of sight encroachments and utility conflicts. Location 2:

Carter&Burgess
400 N. Ashley Drive, Suite 1550
Tampa, Florida 33602

MEMORANDUM

TO: Rick Adair

Cc: Amy Neidringhaus, P.E.

FROM: Frank Heck, P.E.

DATE: April 26, 2007

PROJECT: US 19 (SR 55) (From North of Whitney Road to South of Seville Boulevard)
Financial Project ID No. 256881-1-52-02

RE: Re-analysis of Noise Walls at The Oaks Apartments

Carter and Burgess has further analyzed the impacts of a proposed sound wall along the southbound US19 Frontage Road at the Oaks apartments. The following conclusions were derived from our analysis:

- As discussed in the meeting on 4/23/2007, a proposed sound wall located within 24 feet from the edge of travel must be shielded from errant vehicles. A concrete barrier wall, located along the edge of pavement for the Frontage Road, would be required to shield a proposed sound wall if located along the Oaks apartment property line. This would reduce the effective sidewalk width to 2.44 feet at locations where Progress Energy is proposing power poles along the sound wall (based on a sketch from the utility owner). FDOT requires a 4 ft minimum sidewalk at 'point' locations. If required to accommodate the installation of the sound wall the roadway design could be modified to include a shift toward the east to obtain an acceptable sidewalk width at the proposed power poles. This approach would require redesign of approximately 800 LF of the Frontage Road.
- Per FDOT standards, the concrete barrier wall to protect the sound wall would need 134 ft of approach advancement and an additional 20 ft for the transition to curb and gutter. This means that the barrier wall would have continue 154 ft north of where the sound wall ends to protect it from errant vehicles. The concrete barrier wall will have to terminate prior to the Walker Ford driveway and therefore the sound wall will have to terminate 154 ft before the Walker Ford driveway to accommodate the advancement and transition of the concrete barrier wall. The means that the sound wall will have to end at station 168+36 while the original noise analysis assumed the sound wall to end at station 169+00. Since the sound wall is approximately 64 ft shorter than the length originally assumed for the noise analysis, a new analysis will have to done to calculate the feasibility of the shorter sound wall.

Carter::Burgess
400 N. Ashley Drive, Suite 1550
Tampa, Florida 33602

- In addition to the cost of the sound wall, other additional costs associated with its construction include the additional cost to construct the concrete barrier wall (506 LF X $127.61/LF = $64,571) and the cost to mount 3 roadway signs on the sound wall (3 X $684= $2052). The roadway signs are not able to be constructed conventionally because of the sound wall. The estimated additional cost for this work is $66,623. A reduction in wall cost of $12,800 (64 X 8 X $25) is needed to account for the shorter wall length. The approximate cost to construct the wall changes to $462,823 from $409,000, previously computed based on $25 per square foot of wall.
- This increase in cost and the potential decrease of benefited residences could send the cost per benefited residence over the threshold and make the construction of the sound wall infeasible. **The cost per benefited residence, if number of benefited residences is assumed unchanged, based on the information above is $30,855.**

Noise Barrier Engineering Review Form

US Highway 19 from north of Whitney Road to south of Seville Boulevard

FPID: 256881-1

Imperial Cove Condos/Bay Cove Apartments

Name/Organization: Frank X. Heck, P.E. Review Date: 11/21/06

Area of Specialization: Roadway

Potential Barrier Locations	**Barrier location 1** – Stations 918+80 to 928+60, east side between frontage road and R/W. **Barrier location 2** – Stations 916+20 to 931+00, east side between mainline and frontage road.
Potential Maximum Barrier Heights	**Barrier location 1** – 22 feet **Barrier location 2** – 14 feet
Known Issue/Comments	**No Wall can be constructed between Stations 921+00 to 921+30 to provide driveway access.** **No Wall can be constructed between Stations 926+20 to 926+95 to provide driveway access.**
Design/Constructability Issues	Location 1: a) Special wall design will be required between 918+80 and 920+10 to provide support of embankment which is supported by gravity wall in the current design. b) Insufficient R/W for the construction and maintenance of sound wall. Location 2: a) Proposed truss sign near stations 922+50 and 928+00 located within the limits of the proposed barrier wall. A noise wall would need to provide adequate gaps to accommodate these sign structures. b) **The wall will require a height transition between stations 916+00 and 916+45. The wall height will transition to the height of the standard barrier wall.**
Drainage Issues	Location 1: Conflicts with proposed drainage near station 527+75 and 528+60. At 528+60 the proposed drainage will include the construction of a 4'x 10' box culvert and endwalls.
Utility Issues	Location 1: Numerous conflicts with overhead and buried utilities.

Safety Issues	Location 1: **No Wall can be constructed between stations 920+10 to 921+00 due to line of sight requirements.** **No Wall can be constructed between stations 924+70 to 926+20 due to line of sight requirements** Location 2: Proposed truss sign near stations 922+50 and 928+00 located within the limits of the proposed barrier wall. A noise wall would need to provide adequate gaps to accommodate these sign structures. The end of these gaps could result in a snag point for trucks if striking the wall while leaning. Locations 1 and 2: Proposed design would need to provide for special design to attach signs to the sound barrier walls to cantilever the sidewalk and shoulders which meet vertical clearance requirements and breakaway requirements.
Maintenance Issues	Location 1: Insufficient R/W for the construction and maintenance of sound wall.
R/W Acquisition Issues	No R/W acquisition with this project.
Are any of the above issues severe enough that a noise barrier cannot be constructed, will alter the potential dimensions, and/or require the construction cost increase at this location? If so, please explain in detail.	Location 1: Insufficient R/W for the construction and maintenance of sound wall, drainage conflicts, line of sight encroachments and utility conflicts. Location 2: Proposed truss sign near stations 922+50 and 928+00 located within the limits of the proposed barrier wall. A noise wall would need to provide adequate gaps to accommodate these sign structures. A transition approximately 50' in length is required at the beginning of wall near station 916+35.

LOCHNER

13577 FEATHER SOUND DRIVE, SUITE 600, CLEARWATER, FLORIDA 33762

(727) 572-7111
FAX (727) 571-3371

MEMORANDUM

DATE: April 27, 2007

TO: Rick Adair

FROM: Jason Dahlvik, E.I.

cc: Amy Neidringhaus, P.E., Project File

SUBJECT: **US 19 (From south of Seville Boulevard to north of SR 60)**
Noise Wall Re-analysis – Japanese Gardens
Financial Proj. ID: 256881-2-52-01
Pinellas County

Lochner has performed additional analysis of the potential noisewall at Japanese Garden Mobile Home Estates based on the discussions we had at our meeting on Monday, April 23, 2007.

It has been determined that barrier wall is needed to shield the potential noisewall. This barrier wall would not otherwise be needed if the noisewall were not in place. Therefore, the premium cost of the barrier wall instead of type F curb and gutter needs to be included in the evaluation of reasonableness for the noisewall.

Due to the required length of advancement for the barrier wall, the limits of noisewall had to be reduced. The revised limits of noisewall are from station 937+00 to 943+00 and from 946+56 (formerly 945+12) to 949+35. **The noise model will have to be rerun to determine if the number of benefited receptors has decreased.**

Additional Costs.
1210' of Concrete Barrier Wall (Rigid) (Curb and Gutter) (521-72-5) @ $150/LF = $181,500
Minus 1210' of Type F Curb and Gutter @ $24/LF = ($29,040)
One roadway sign mounted to noisewall = $684
Additional cost for Progress Energy to relocate twice = $20,750.50
Additional cost for Brighthouse Networks to relocate twice = $3,000

Total additional costs = $176,894.50

Final Reviews comments 12/06

Noise Barrier Engineering Review Form

US Highway 19 from north of Whitney Road to south of Seville Boulevard
FPID: 256881-2
Japanese Gardens Mobile Estates

Name / Organization: Jason Dahlvik / H.W. Lochner Review Date: 11/27/06

Area of Specialization: Roadway

Potential Barrier Locations	**Barrier location 1 -** Stations 936+96 to 950+30, east side between frontage road and R/W. **Barrier location 2 -** Stations 940+70 to 953+00, east side between mainline and frontage road.
Potential Maximum Barrier Heights	**Barrier location 1 -** 12 feet **Barrier location 2 –** Varies 8 - 14 feet
Known Issues/Comments	R/W barrier will need to be broken at Japanese Gardens access drive (St. 944+78).
Design/Constructability Issues	Location 1 – Not enough R/W for construction of Noise Wall within exist R/W (only 4' available from back of sidewalk to R/W line). Location 2 – a) Shoulder barrier wall installation is limited to max 14' wall height. b) MSE Wall from Station 942+50 to end of wall (953+00). **Noise wall height will be limited to 8' for this segment of wall** due to MSE wall mounting restriction.
Drainage Issues	None
Utility Issues	Location 1 – Conflicts with existing overhead utilities (that would otherwise remain in place) for the entire length of noise wall. **Any potential noise wall or construction equipment needed to construct noise wall needs to maintain a 10' clearance at all times from the overhead electrical line per OSHA regulations.** The sag elevation of the overhead electrical line is 22' above ground level. **Maintaining the 10' clearance would limit the height of noise wall to approximately 12'. Block Noise wall would have to be constructed to avoid conflicts with construction equipment and the overhead electrical.** A 1' clearance is required from the utility poles to allow for future auguring or replacement of pole. **Noise wall will need to be broken at utility poles if located within 1' of pole.**

Safety Issues	Location 1 – a) **No wall can be constructed from station 943+15 to 945+12 due to line of sight requirements of driveway located at Sta. 944+78.** b) **No wall can be constructed from 948+96 to 950+30 due to line of sight requirements of driveway located at Sta. 950+70.**
Maintenance Issues	Location 1 – Not enough R/W for maintenance of Noise Wall within exist R/W (only 4' available from back of sidewalk to R/W line).
R/W Acquisition Issues	Location 1 – TCE and 5' perpetual easement would be required.
Are any of the above issues severe enough that a noise barrier cannot be constructed, will alter the potential dimensions, and/or require the construction cost to increase at this location? If so, please explain in detail.	Location 1 – a) Insufficient R/W for construction and maintenance of Noise Wall (only 4' available from back of sidewalk to R/W line). Property owner would need to grant easement. b) Additional cost may be associated with different wall types and construction methods required to avoid conflicts with overhead utilities. Maximum wall height will be limited to less than 12' in order to provide required clearance from overhead electrical utilities. Noise wall can not be constructed within 1' of utility poles; the noise wall will have to be broken in these areas. c) Line of sight requirements require a gap of 200' in the center of the proposed limits, and shortened 34' at the north end of wall limits. Location 2 – 1050' of the potential noise wall is on proposed MSE wall, this limits the height of noise wall to 8' (total wall length is 1230').

Finck, Robert J

From: Dahlvik, Jason [jdahlvik@hwlochner.com]
Sent: Tuesday, September 23, 2008 5:01 PM
To: Finck, Robert J
Cc: Neidringhaus, Amy; Rhinesmith,Robin
Subject: RE: Japanese Gardens Noise barrier
Attachments: NOISEWALL_PLAN_9-23-08.pdf

Bob,

Please see attached sketch for the noisewall layout. Please let me know if you have any questions.
Thanks for your help,
Jason

From: Rhinesmith, Robin [mailto:Robin.Rhinesmith@dot.state.fl.us]
Sent: Wednesday, September 17, 2008 3:38 PM
To: Dahlvik, Jason
Cc: Neidringhaus, Amy; Finck, Robert J
Subject: FW: Japanese Gardens Noise barrier

Hi Jason –

PBS&J called me today asking about the barrier at Japanese Gardens. They wanted to know the final dimensions (since it was shortened) and you so kindly offered to provide us a graphic too!


POTENTIAL NOISE WALL
at JAPANESE GARDENS
MOBILE HOME ESTATES
TROPIC HILLS DR.
Legend
COST REASONABLE AND FEASIBLE NOISE BARRIER LOCATION
RESIDENCES RECEIVING AT LEAST 5dBA REDUCTION FROM PROPOSED BARRIER
5 FOOT MAINTENANCE EASEMENT
R47 AFFECTED NOISE RECEIVER LOCATION
R56 NON-AFFECTED NOISE RECEIVER LOCATION
240
245
250
POT STA. 250+35.81
940
945
950
POT STA. 550+38.30
540
545
550
19
19
POTENTIAL NOISE WALL
POTENTIAL NOISE WALL
15.0'
BEGIN BARRIER WALL STA. 935+61
I216 DEPARTURE LINE
R44
BEGIN NOISEWALL STA. 937+15
R45
R46
END NOISEWALL STA. 943+00
END BARRIER WALL STA. 943+35
R47
BEGIN BARRIER WALL STA. 945+15
I216 DEPARTURE LINE
R47.1
BEGIN NOISEWALL STA. 946+56
R47.2
R48
R49
END NOISEWALL STA. 949+35
END BARRIER WALL STA. 949+60
R43
5' PERMANENT MAINTENANCE EASEMENT
5' PERMANENT MAINTENANCE EASEMENT
R50
R52
R53
R54
R54.1
R55
R42
R56
R57
R58

Noise Barrier Engineering Review Form

US Highway 19 from north of Whitney Road to south of Seville Boulevard
FPID: 256881-2
Royal Breeze Apartments

Name / Organization: Jason Dahlvik / H.W. Lochner Review Date: 11/27/06

Area of Specialization: Roadway

Potential Barrier Locations	**Barrier location 1** - Stations 993+70 to 996+20, east side between frontage road and R/W. **Barrier location 2** - Stations 986+00 to 1001+00, east side between mainline and frontage road.
Potential Maximum Barrier Heights	**Barrier location 1** - 12 feet **Barrier location 2** – Varies 8 - 14 feet
Known Issues/Comments	Shoulder barrier will need to be broken to accommodate ramp AA1 (St. 992+25).
Design/Constructability Issues	Location 1 – Not enough R/W for construction of Noise Wall within exist R/W (only 2' available from back of sidewalk to R/W line). Location 2 – a) Shoulder barrier wall installation is limited to max 14' wall height. b) MSE Wall from Station 986+00 to 987+20 (120'). **Noise wall height will be limited to 8' for this segment of wall** due to MSE wall mounting restrictions c) From 993+68 to 1001+00 (732'), the potential noise wall would have to be placed on exiting MSE Wall. **This installation detail limits the potential noise wall height to 8 feet for the majority of the walls length.** d) **The cost of the potential noise barrier to be placed on existing barrier wall or MSE wall would include removal of the existing barrier wall, select MSE wall panels, and shoulder pavement that conflicts with construction of the potential noise wall.** The cost of returning these areas to their original condition would also have to be included i.e. repaving any areas that had to be removed to construct noise wall footings.
Drainage Issues	None
Utility Issues	Location 1 – a) Conflicts with existing overhead utilities (that would otherwise remain in place) for the entire length of noise wall. **Any potential noise wall or construction equipment needed to construct noise wall needs to maintain a 10' clearance at all times from the overhead electrical line per OSHA regulations.**

Utility Issues (Continued)	The sag elevation of the overhead electrical line is 22' above ground level. **Maintaining the 10' clearance would limit the height of noise wall to approximately 12'. Block Noise wall would have to be constructed to avoid conflicts with construction equipment and the overhead electrical.** A 1' clearance is required from the utility poles to allow for future auguring or replacement of pole. **Noise wall will need to be broken at utility poles if located within 1' of pole.** b) Conflicts with existing underground utilities (that would otherwise remain in place) for the majority of the length of noise wall. **Any potential noise wall would have to be designed such that the foundations would not interfere with the existing underground utilities.**
Safety Issues	Location 1 – **No wall can be constructed from station 995+30 to 996+20 due to line of sight requirements of driveway located at Sta. 997+20.**
Maintenance Issues	Location 1 – Not enough R/W for maintenance of Noise Wall within exist R/W (only 2' available from back of sidewalk to R/W line).
R/W Acquisition Issues	Location 1 – TCE and 5' perpetual easement would be required.
Are any of the above issues severe enough that a noise barrier cannot be constructed, will alter the potential dimensions, and/or require the construction cost to increase at this location? If so, please explain in detail.	Location 1 – a) Insufficient R/W for construction and maintenance of Noise Wall (only 2' available from back of sidewalk to R/W line). Property owner would need to grant easement. b) Additional cost may be associated with different wall types and construction methods required to avoid conflicts with overhead utilities. Maximum wall height will be limited to less than 12' in order to provide required clearance from overhead electrical utilities. Noise wall can not be constructed within 1' of utility poles; the noise wall will have to be broken in these areas. c) Line of sight requirement preclude wall from 90' at the north end of noise wall limits. Location 2 – Of the 1500' of potential noise wall: a) 120' of the potential noise wall is on proposed MSE wall, this limits the height of noise wall to 8' b) 732' is on existing MSE wall; this limits the height of noise wall to 8' and cost of wall needs to include cost for removal of barrier. c) 463' of potential noise wall is on existing barrier wall; cost of wall needs to include cost for removal of barrier.

APPENDIX E

NOISE BARRIER SURVEYS

Florida Department of Transportation
US 19 (SR 55) Noise Barrier Survey, FPN 256681-1-52-02
The Columns at Allen's Creek Luxurious Apartments (Previously known as the Oaks Apartments)

c/o Seth Greenberg
2700 Delk Rd., Suite 100
Marietta, GA 30067-8836
Parcel Number 30/29/16/55044/000/0010

Property Owner:

The Florida Department of Transportation (FDOT) is seeking your input as an affected property owner adjacent to a potential noise barrier for The Columns at Allen's Creek Luxurious Apartments (Previously known as the Oaks Apartments). By checking the boxes below and executing this survey, you are providing FSOT an indication of your desire to have the barrier. *Please note that any property owner who does not respond to this survey or suggest location or dimension changes to the barrier will have their response regarded as "Not Desired".* FDOT is seeking your opinion only on the noise barrier as described here.

The noise barrier being considered would be located along the west wide of US19 (SR55) in the vicinity of your property to reduce traffic noise levels. The noise barrier would consist of an 8-ft high, 336-ft., long noise barrier along the right- of- way line combined with a 14-ft high, 1040-ft long, noise barrier along the west side of the US19 (SR55) mainline. By checking "Yes" boxes below, you indicate to FDOT that you approve of the barrier's construction as described and you are willing to provide FDOT with a 5- foot perpetual easement within your property. By checking either of the "No" boxes, you indicate that you do not approve of the barrier. By signing this survey, you are acknowledging that the noise barrier may affect the amount of sunlight on your property, the view from your property, and may restrict the flow of air on to and off of your property.

Do you approve of the FDOT's construction of a noise barrier adjacent to your property associated with The Columns at Allen's Creek Luxurious Apartments (Previously known as the Oaks Apartments)?

Yes ☐ No ☒

Are you willing to grant the FDOT a temporary easement to construct the noise barrier and a perpetual easement to construct/maintain the barrier located at the right-of way line?

Yes ☐ No ☒

Your texture choice for the barrier along the right-of-way line is:

Random Ashlar Stone ☐ Stacked Split Face Block ☐ Running Pond New Brick ☐

Your color choice for the barrier along the right-of-way line is:

Misty Bay ☐ Sandalwood ☐ Pearl White ☐

Please note that the person (s) signing this form must be the property owner(s) on record with the Pinellas County Property Appraiser's Office- the owner(s) on record are shown art the top of this survey.

7-19-07
Date

Signature

Seth R Greenberg
Printed Name VP of Manager

Date

Signature

Printed Name

Please use the pre- addressed, stamped envelope provided to mail back this survey. Note that this survey must be received by July 20, 2007 in order to be considered. If a response is not received by July 20th, FDOT will assume you do not want the barrier and the barrier will not be constructed.

If you have any questions, please contact Amy Neidringhaus of the FDOT at 813-975-6169

Florida Department of Transportation
US 19 (SR 55) Noise Barrier Survey, FPN 256681-2-52-07
Japanese Garden Mobile Estates Inc.

c/o George Thompson
1601 Englewood Rd.
Englewood, FL 34223
Parcel Number 20/29/16/43866/001/0610

Property Owner:

The Florida Department of Transportation (FDOT) is seeking your input as an affected property owner adjacent to a potential noise barrier for Japanese Gardens Mobile Estates Inc. By checking the boxes below and executing this survey, you are providing FDOT an indication of your desire to have the barrier. *Please note that any property owner who does not respond to this survey or suggest location or dimension changes to the barrier will have their response recorded as "Not Desired".* FDOT is seeking your opinion only on the noise barrier as described here.

The noise barrier being considered would be located along the east side of US 19 (SR 55) in the vicinity of your property to reduce traffic noise levels. The noise barrier would consist of two 12-ft high noise barriers along the right- of- way line at the entrance to Japanese Garden Mobile Estates Inc., one 600-ft. long barrier on the south side of the entrance combined with a 279-ft. long barrier on the north side of the entrance. By checking "Yes" boxes below, you indicate to FDOT that you approve of the barrier's construction as described and you are willing to provide FDOT with a 5- foot perpetual easement within your property. By checking either of the "No" boxes, you indicate that you do not approve of the barrier. By signing this survey, you are acknowledging that the noise barrier may affect the amount of sunlight on your property, the view from your property, and may restrict the flow of air on to and off of your property.

Do you approve of the FDOT's construction of a noise barrier adjacent to your property associated with Japanese Garden Mobile Estates Inc.?

Yes [✓] No [ ]

Are you willing to grant the FDOT a temporary easement to construct the noise barrier and a perpetual easement to construct/maintain the barrier located at the right-of-way line?

Yes [✓] No [ ]

Your texture choice for the barrier along the right-of-way line is:

Random Ashlar Stone [ ] Stacked Split Face Block [✓] Running Pond Row Brick [ ]

Your color choice for the barrier along the right-of-way line is:

Misty Bay [✓] Sandalwood [ ] Plant White [ ]

Please note that the person (s) signing this form must be the property owner(s) on record with the Pinellas County Property Appraiser's Office- the owner(s) on record are shown at the top of this survey.

8/28/07
Date
George R Thompson Jr
Signature
George R Thompson Jr
Printed Name

Date
Signature
Printed Name

Please use the pre- addressed, stamped envelope provided to mail back this survey. Note that this survey must be received by August 31st, 2007 in order to be considered. If a response is not received by August 31st, FDOT will assume you do not want the barrier and the barrier will not be constructed.

If you have any questions, please contact Amy Neidringhaus of the FDOT at 813-975-6169