

Noise Technical Report

for

Pellissippi Parkway Extension State Route 162 Blount County, Tennessee

PIN Number: 101423.00

Project Number: 05097-1226-04

Submitted to:



Prepared by:

Bowlby & Associates, Inc.



June 2014

TABLE OF CONTENTS

Executive Summary	1
1.0 Introduction	3
1.1 Alternative A with West Shift or East Shift.....	6
1.2 Alternative C	6
1.3 Alternative D	7
2.0 Noise Evaluation	8
2.1 Criteria for Determining Impacts	9
2.1.1 Traffic Noise Terminology	9
2.1.2 Noise Abatement Criteria (NAC)	10
2.2 Identification of Noise Analysis Areas	10
2.3 Determination of Existing Sound Levels.....	17
2.4 Determination of Future Sound Levels.....	19
2.4.1 No-Build Alternative	19
2.4.2 Build Alternatives	20
2.5 Impact Determination Analysis	21
2.5.1 Alternative A	21
2.5.2 Alternative A with East Shift.....	23
2.5.3 Alternative A with West Shift.....	23
2.5.4 Alternative C	23
2.5.5 Alternative D	24
2.6 Noise Abatement Evaluation.....	24
2.6.1 Noise Barrier Feasibility	24
2.6.2 Noise Barrier Reasonableness	26
2.6.3 Statement of Likelihood	37
2.7 Construction Noise	37
2.8 Information for Local Officials	37
3.0 References.....	39

APPENDICES

Appendix A	Proposed Typical Cross-Section
Appendix B	Noise Measurement Data Sheets and Drawings
Appendix C	Traffic Projections
Appendix D	TNM Plan Views
Appendix E	Existing, Design Year (2040) Build and No-Build Sound Levels and Impacts
Appendix F	Noise Barrier Design and Reasonableness Analysis
Appendix G	Feasible and Reasonable Noise Barrier Locations

LIST OF TABLES

Table 1: Impact Summary ⁽¹⁾	2
Table 2: Noise Abatement Criteria in 23 CFR 772.....	11
Table 3: Substantial Noise Level Increase	11
Table 4: Noise Analysis Areas	12
Table 5: Noise Analysis Areas Affected by Alternatives	13
Table 6: Year 2008 Sound Levels at Measurement Locations.....	18
Table 7: Existing Sound Levels	20
Table 8: Impact Determination Analysis, Design Year 2040, Build Alternatives ⁽¹⁾	22
Table 9: Feasibility Analysis ⁽¹⁾	26
Table 10: Noise Reduction Design Goal Analysis	28
Table 11: Reasonableness Allowances.....	30
Table 12: Determination of Reasonableness Allowances.....	31
Table 13: Equivalent Number of Residences for Driving Range	33
Table 14: Noise Barrier Design Results and Reasonableness Analysis	35
Table 15: Design Year 2040 Sound Levels for Undeveloped Lands, Alternatives A and C.....	38
Table 16: Design Year 2040 Sound Levels for Undeveloped Lands, Alternative D.....	38

LIST OF FIGURES

Figure 1: Build Alternatives	4
Figure 2: Alternative A with East Shift and West Shift	5
Figure 3: Typical Sound Levels	9
Figure 4: Noise Analysis Areas	14

EXECUTIVE SUMMARY

This noise study was conducted in accordance with the FHWA noise standards, *Procedures for Abatement of Highway Traffic and Construction Noise*, 23 CFR 772 [1], the Tennessee Department of Transportation's *Policy on Highway Traffic Noise Abatement* [2], and Section 5.3.4 (Noise) of the *Tennessee Environmental Procedures Manual* [3].

Five Build Alternatives were evaluated including: Alternative A, Alternative A with East Shift, Alternative A with West Shift, Alternative C, and Alternative D (Figures 1 and 2). Eighteen (18) noise analysis areas containing noise-sensitive land uses were identified that might be affected by the Build Alternatives (Table 4 and Figure 4).

The purpose of this analysis was to identify the number and locations of impacted noise-sensitive land uses in each Noise Analysis Area under each Build Alternative. Noise abatement in the form of noise barriers was evaluated for all impacted areas in accordance with TDOT's Noise Policy. Table 1 summarizes the number of impacts for each Noise Analysis Area for each Alternative. An indication of "n/a" means that the Noise Analysis Area is not affected by that Alternative.

As shown, Alternative A, Alternative A with East Shift, and Alternative D all result in a comparable number of noise impacts. The vast majority of the impacts are due to substantial increases in the existing sound levels. Alternative C is predicted to result in the fewest impacts at 65. However, approximately 26 residences will be taken under Alternative C. Alternative A with the West Shift is predicted to result in the most impacts at 105 due to the shift of the alignment closer to Area 4 (Kensington Place mobile home community). However, these additional impacts would be mitigated by the construction of a noise barrier for Area 4 as described below.

Noise barriers were evaluated to mitigate the predicted noise impacts in each Noise Analysis Area for each Alternative (Table 14). In order for noise barriers to be included in a project, they must be determined to be both feasible and reasonable in accordance with TDOT's Noise Policy.

The results of the noise barrier reasonableness analysis indicated that the area per benefited residence is substantially higher than the allowable area per benefited residence for all of the areas evaluated for Alternative A, Alternative A with the East Shift and Alternative C and for all but one area each for Alternative A with the West Shift and Alternative D.

Table 1: Impact Summary ⁽¹⁾

Noise Analysis Area	Alternative A	Alternative A with East Shift	Alternative A with West Shift	Alternative C	Alternative D
1	9	9	9	9	n/a
2	5	5	5	5	n/a
3	6	6	6	2	0
4	29	28	50	n/a	n/a
5	11	11	11	11	n/a
6	0	0	0	0	n/a
7	7	7	7	6	n/a
8	2	2	2	n/a	n/a
9	6	6	6	n/a	n/a
10	6	6	6	10	n/a
11	n/a	n/a	n/a	n/a	32
12	n/a	n/a	n/a	n/a	11 ⁽²⁾
13	n/a	n/a	n/a	n/a	8
14	n/a	n/a	n/a	n/a	9
15	n/a	n/a	n/a	7	n/a
16	n/a	n/a	n/a	5	12
17	n/a	n/a	n/a	n/a	8
18	n/a	n/a	n/a	9 ⁽³⁾	5
Total	81	80	103	64	85

(1) An "n/a" indicates that a Noise Analysis Area is not affected by that Alternative.

(2) Includes the Mt. Lebanon Baptist Church playground and baseball field.

(3) Includes the Misty Meadow Driving Range.

The high calculated areas per benefited residence are generally the result of 1) significant distances between the impacted residences and the Pellissippi Parkway Extension alignment, 2) low residential densities (large lots), 3) the requirement for long and tall barriers (high barrier areas) to provide a 7 dB noise reduction, and 4) the low number of benefits that can be achieved. The highest number of benefits that can be achieved by any barrier is eleven (11) with most barriers benefiting between two (2) and five (5) residences.

However, the area per benefited residence is lower than the allowable area per benefited residence for two locations: Area 4 for Alternative A with West Shift and Area 11 (Belfair Lane) for Alternative D.

As a result, noise barriers for these Areas have been determined to be preliminarily feasible and reasonable in accordance with TDOT's Noise Policy.

A noise barrier for Area 4 for Alternative A with West Shift is considered "likely" as design and engineering issues are not anticipated. However, a barrier for Area 11

(Belfair Lane) under Alternative D could pose sight distance and other design or construction issues that cannot be fully assessed at this time. These issues would need to be much more thoroughly evaluated if Alternative D were constructed. As a result, a barrier for this part of Area 11 (Belfair Lane) has been identified as “possible.” The preliminary barrier locations are shown in Appendix G.

It is important to note that the noise analysis was based on functional project plans. Final noise abatement decisions will be made based on an updated evaluation of the Preferred Alternative using the final design plans for the project. This evaluation will likely be conducted as part of the right-of-way or construction reevaluation for the project.

Additionally, the viewpoints of the benefited property owners and residents will be solicited before final reasonableness determinations are made.

1.0 INTRODUCTION

This Type I project involves extending existing Pellissippi Parkway (State Route (SR) 162) from SR 33 to Lamar Alexander Parkway (US 321/SR 73) in the cities of Alcoa and Maryville and in unincorporated Blount County.

In April 2006, TDOT initiated an Environmental Impact Statement (EIS) for the project. A detailed noise technical study was conducted by Parsons Brinckerhoff (PB) in July 2009 [3], and its results were published in the Draft EIS (DEIS), circulated in 2010. Build Alternatives A, C, and D were evaluated for the DEIS as shown in Figure 1. The proposed typical cross-section is provided in Appendix A. Alternative A was subsequently selected as the Preferred Alternative.

Several events have occurred since the approval of the DEIS and the selection of Alternative A as the Preferred Alternative that have affected the noise analysis. First, an environmentally sensitive archaeological site eligible for the National Register was discovered north of Lamar Alexander Parkway. TDOT and PB identified two potential alignment shifts to Alternative A to avoid the site: the East and West Shift Alternatives as shown in Figure 2. Subsequent environmental studies resulted in the West Shift being selected.

Second, the traffic forecasts for the project have been updated.

Third, TDOT revised its noise policy and procedures in July 2011 to be consistent with new federal regulations.

As a result of these events, the noise study for the Preferred Alternative (Alternative A with West Shift) was updated in February 2014 [4, 5].

However, FHWA subsequently requested that the noise analyses for all of the DEIS Alternatives be updated for the Final Environmental Impact Statement (FEIS). Therefore, this report summarizes the potential noise effects of the following Alternatives on nearby noise-sensitive land uses using TDOT’s Noise Policy effective July 2011 and the most recent traffic projections.

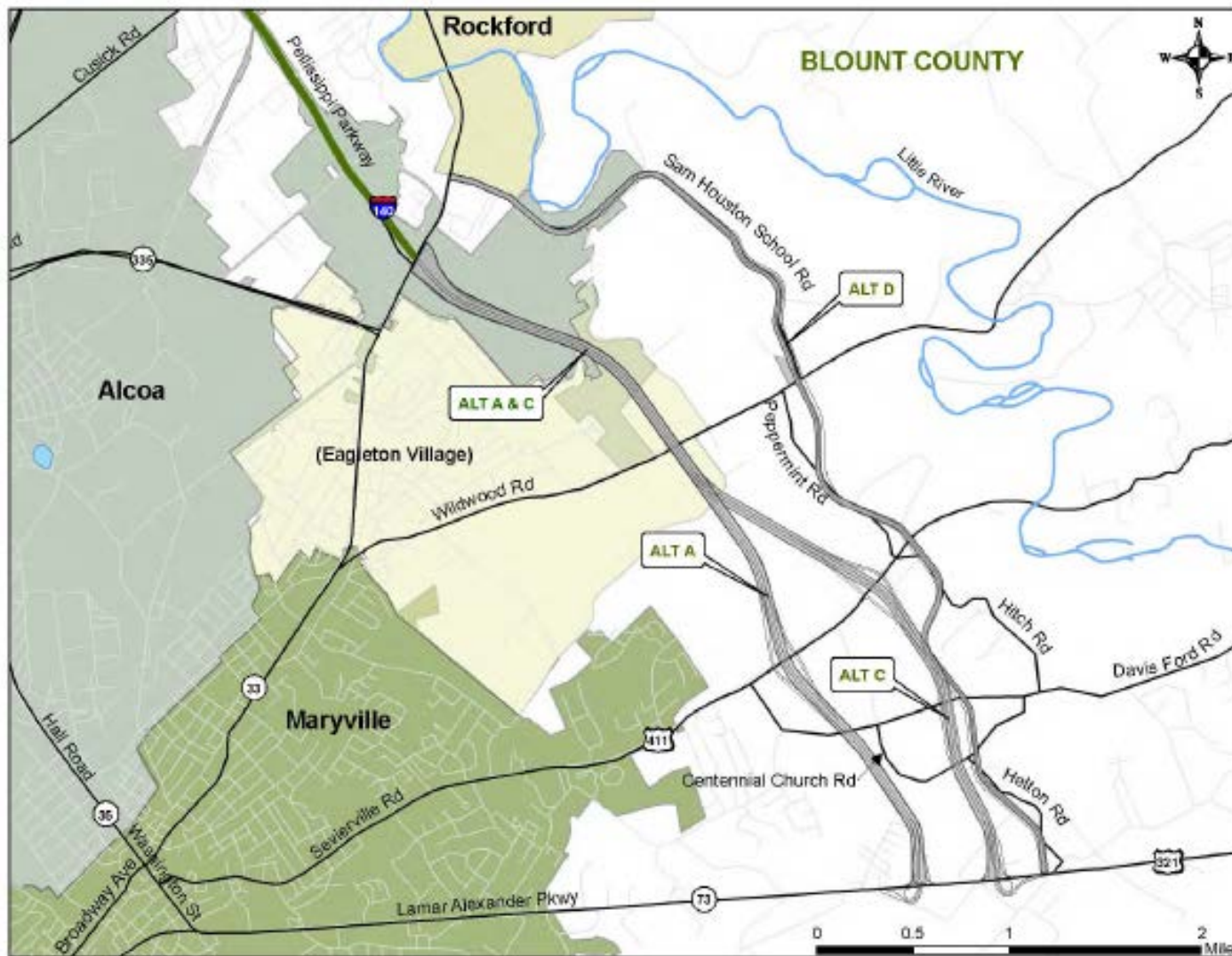


Figure 1: Build Alternatives

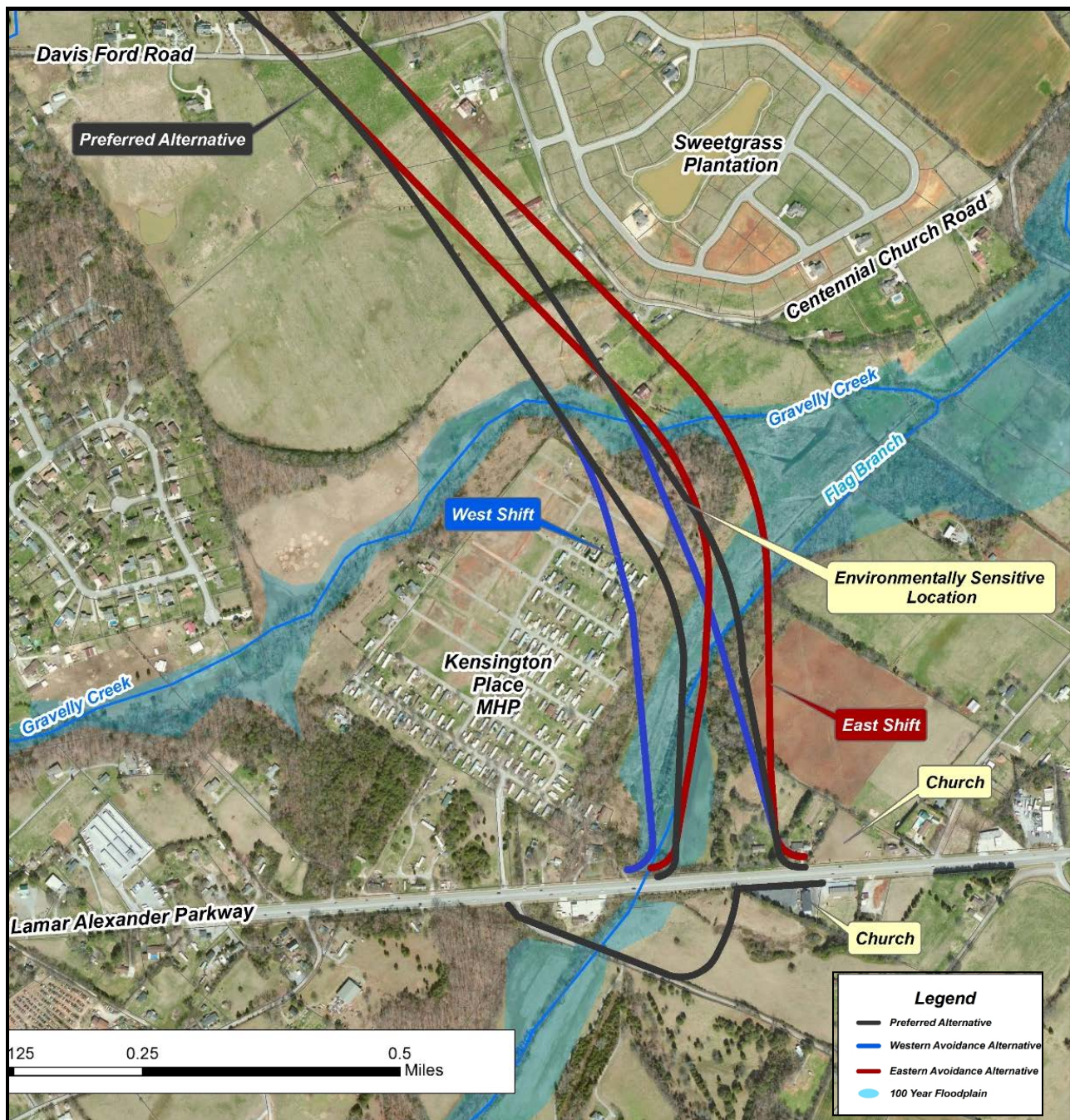


Figure 2: Alternative A with East Shift and West Shift

1.1 *Alternative A with West Shift or East Shift*

Alternative A extends 4.38 miles from SR 33 to US 321/SR 73, as a four-lane divided roadway with three proposed interchanges (with SR 33, US 411/Sevierville Road, and US 321/SR 73). The alignment begins on the east side of SR 33, opposite the existing half interchange of Pellissippi Parkway (I-140) and SR 33. From this terminus, the route follows a generally easterly and southeasterly path to Wildwood Road, passing through former farmlands that are now the site of the Pellissippi Place Research and Technology Park, currently under development. After crossing Wildwood Road, the route continues in a generally southerly direction, crossing Brown School Road, and crosses US 411/Sevierville Road east of the Davis Ford Road intersection with US 411. Alternative A with West Shift continues across Davis Ford Road and encroaches into the northeastern portion of the Kensington Place mobile home community. The route intersects US 321/SR 73 just east of Flag Branch.

Alternative A with East Shift continues across Davis Ford Road and shifts about 300 feet eastward toward Centennial Church Road, thus avoiding the Kensington Place mobile home community before to intersect with US 321/SR 73 east of Flag Branch.

The proposed typical section for the extension of Pellissippi Parkway along Alternative A with either shift consists of two 12-foot travel lanes in each direction, 12-foot outside shoulders, and a 48-foot depressed median with 6-foot inside shoulders. The proposed right-of-way is a minimum of 300 feet, requiring the purchase of new right-of-way. Depending upon the horizontal and vertical curve requirements, desired speed limits, and the slope of the existing land, actual right-of-way acquisition might be reduced or increased in some areas during the design phase of the project. The roadway is designed for traffic traveling at 60 miles-per-hour, although the posted speed may be lower.

Diamond interchanges connect the new roadway with SR 33 and US 411/Sevierville Road, and the roadway is proposed to terminate with a trumpet interchange at US 321/SR 73. All other road crossings are grade-separated without parkway access. The distance between the two proposed interchanges, with US 411/Sevierville Road and with US 321/SR 73, is about one mile. Due to this short distance, during the design phase for the Preferred Alternative, TDOT will consider the use of an auxiliary lane in each direction to assist traffic exiting and entering the proposed roadway.

Two cross routes that will have interchanges with the new roadway, SR 33 and US 411/Sevierville Road, will be improved to a five-lane urban section through the interchange area. The five-lane cross section on those two roadways will consist of two 12-foot lanes in each direction with a 12-foot continuous center turn lane.

1.2 *Alternative C*

Alternative C extends 4.68 miles from SR 33 to US 321/SR 73, as a four-lane divided roadway with three proposed interchanges (with SR 33, US 411/Sevierville Road and US 321/SR 73). The proposed typical section consists of two 12-foot travel lanes in each direction, 12-foot outside shoulders, and a 48-foot depressed median with 6-foot inside shoulders. The proposed right-of-way (ROW) is a minimum of 300 feet, requiring the purchase of a new ROW. Depending upon the horizontal and vertical curve requirements, desired speed

limits, and the slope of the existing land, actual ROW acquisition might be reduced or increased in some areas during the design phase of the project. The roadway is designed for traffic traveling at 60 miles-per-hour.

Alternative C's alignment begins on the east side of SR 33, opposite the existing half of the interchange of Pellissippi Parkway (I-140) and SR 33. From this terminus, the route follows a generally easterly and southeasterly path to Wildwood Road, passing through former farmlands that are now the site of the Pellissippi Place Research and Technology Park, currently under development. The corridor also runs west of Mount Lebanon Road through this area. After crossing Wildwood Road, the route continues in a generally southerly direction, crossing Brown School Road. At that point, Alternative C diverged to the east, and run in a southeasterly direction to intersect US 411/Sevierville Road about 0.6 mile east of the Preferred Alternative. Alternative C continued southeasterly to cross Davis Ford Road and proceeds southerly, crossing Centennial Church Road about 500 feet west of Helton Road. The alternative terminates at US 321/SR 73 in the vicinity of Hubbard School Road.

Diamond interchanges connect the new roadway with SR 33 and US 411/Sevierville Road, and the roadway is proposed to terminate with a trumpet interchange at US 321/SR 73. All other road crossings are grade-separated without access. The distance between the two proposed interchanges, with US 411/Sevierville Road and with US 321/SR 73, is about one mile. Due to this short distance, during the design phase for the Preferred Alternative, TDOT will consider the use of an auxiliary lane in each direction to assist traffic exiting and entering the proposed roadway.

Two cross routes that will have interchanges with the new roadway, SR 33 and US 411/Sevierville Road, will be improved to a five-lane urban section through the interchange area. The five-lane cross section on those two roadways will consist of two 12-foot lanes in each direction with a 12-foot continuous center turn lane.

1.3 *Alternative D*

Alternative D would upgrade an existing network of two-lane roads in the area (Sam Houston School Road, Peppermint Road, Hitch Road, and Helton Road) to serve as a two-lane connection between SR 33 and US 321/SR 73. Under this alternative, an improved two-lane roadway would be constructed using the existing roadway alignment where possible, while straightening curves, realigning intersections and using new locations to provide a continuous route with a 50 mile-per-hour design speed. The length of this corridor is 5.77 miles.

The proposed typical section for the upgraded two-lane network consists of one 12-foot travel lane in each direction with 10-foot outside shoulders. At major intersections, a center turn lane could be added as necessary. Bicyclists and pedestrians would use the paved shoulders.

The proposed ROW is a minimum of 150 feet, requiring the purchase of additional ROW. Depending upon the horizontal and vertical curve requirements, desired speed limits and the slope of the existing land, actual ROW acquisition might be reduced or increased in some areas during the design phase of the project.

The alternative generally follows Sam Houston School Road from SR 33 to Wildwood Road and continues across Wildwood Road on a new location before joining with Peppermint Road about 2,000 feet south of the current Peppermint Road/Wildwood intersection. This alignment avoids the existing offset intersections of Sam Houston School Road and Peppermint Road with Wildwood Road. The route uses Peppermint Road for about 1,800 feet before shifting to the east to intersect Hitch Road at its current intersection with Sevierville Road. The route uses Hitch Road for about 1,500 feet before shifting southwest to avoid substantial horizontal curves and a large residential subdivision. The route then follows a south/southeasterly course behind the subdivision and crosses Davis Ford Road to the west of Misty View Drive and subdivision. The alignment continues southerly crossing Centennial Church Road at Helton Road, then follows a course to the west of Helton Road and intersects with US 321/SR 73 about 250 feet west of the intersection of US 321/SR 73 and Old Walland Highway (Tuckaleechee Pike).

2.0 NOISE EVALUATION

This noise study was conducted in accordance with the FHWA noise standards, *Procedures for Abatement of Highway Traffic and Construction Noise*, 23 CFR 772, the Tennessee Department of Transportation's *Policy on Highway Traffic Noise Abatement*, and Section 5.3.4 (Noise) of the *Tennessee Environmental Procedures Manual* and includes the following tasks:

- Identification of noise analysis areas: Identification of eighteen (18) areas containing existing land uses that are sensitive to highway traffic noise;
- Determination of existing sound levels: Measurement and prediction of existing sound levels at noise-sensitive land uses to characterize the existing noise environment in the project area;
- Determination of future sound levels: Prediction of future, design year, worst-hour sound levels for the No-Build and Build Alternatives;
- Determination of traffic noise impacts: Determination of noise impacts for each Alternative based on the increase in existing sound levels, as well as design year sound levels;
- Noise abatement evaluation: Evaluation of noise abatement for areas determined to be impacted by the each Alternative;
- Discussion of construction noise; and
- Information for local officials.

Each of these analysis steps is discussed below following a discussion of TDOT's criteria for determining noise impacts.

2.1 Criteria for Determining Impacts

2.1.1 Traffic Noise Terminology

Traffic noise levels are expressed in terms of the hourly, A-weighted equivalent sound level in decibels (dBA). A sound level represents the level of the rapid air pressure fluctuations caused by sources such as traffic that are heard as noise. A decibel is a unit that relates the sound pressure of a noise to the faintest sound the young human ear can hear.

The A-weighting refers to the amplification or attenuation of the different frequencies of the sound (subjectively, the pitch) to correspond to the way the human ear “hears” these frequencies. Generally, when the sound level exceeds the mid-60 dBA range, outdoor conversation in normal tones at a distance of three feet becomes difficult. Figure 3 shows some typical indoor and outdoor sound levels.

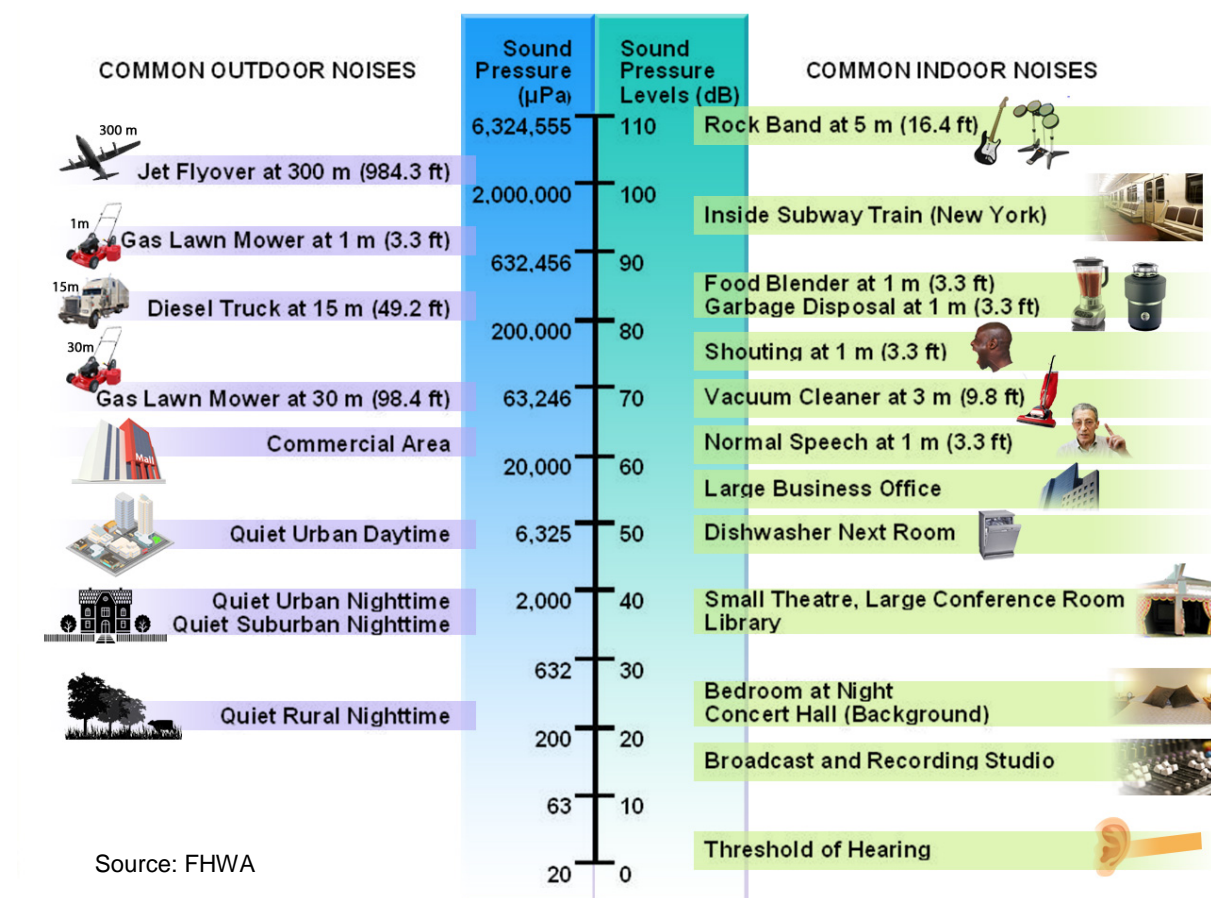


Figure 3: Typical Sound Levels

A 9-10 dB increase in sound level is typically judged by the listener to be twice as loud as the original sound while a 9-10 dB reduction is judged to be half as loud. Doubling the number of sources (i.e. vehicles) will increase the hourly equivalent sound level by approximately 3 dB, which is usually the smallest change in hourly equivalent A-weighted traffic noise levels that people can detect without specifically listening for the change.

Because most environmental noise fluctuates from moment to moment, it is standard practice to condense data into a single level called the equivalent sound level (L_{eq}). The L_{eq} is a steady sound level that would contain the same amount of sound energy as the actual time-varying sound evaluated over the same time-period. The L_{eq} averages the louder and quieter moments, but gives much more weight to the louder moments in the averaging. For traffic noise assessment purposes, L_{eq} is typically evaluated over the worst one-hour period and is defined as $L_{eq}(1h)$.

The term insertion loss (IL) is generally used to describe the reduction in $L_{eq}(1h)$ at a location after a noise barrier is constructed. For example, if the $L_{eq}(1h)$ at a residence is 75 dBA before a barrier is constructed and the $L_{eq}(1h)$ is 65 dBA after a barrier constructed, then the insertion loss would be 10 dB.

2.1.2 Noise Abatement Criteria (NAC)

Noise impact is determined by comparing future sound levels: (1) to a set of Noise Abatement Criteria (NAC) for a particular land use category, and (2) to existing sound levels.

The FHWA noise standards (contained in 23 CFR 772) and TDOT's noise policy state that traffic noise impacts require consideration of abatement when worst-hour sound levels approach or exceed the NAC listed in Table 2. TDOT's noise policy defines "approach" as one decibel below the NAC, or 66 dBA for Category B and C land uses.

The FHWA noise standards and TDOT's noise policy also define impacts to occur if there is a substantial increase in design year sound levels. Table 3 presents TDOT's criteria to define substantial noise increase.

2.2 Identification of Noise Analysis Areas

Eighteen (18) areas containing noise-sensitive land uses were identified in the project area. These "noise analysis areas" are described in Table 4 and shown in Figure 4.

As indicated, some of these areas may be affected by only one alternative while other areas might be affected by two or more alternatives. Each area were evaluated separately for each Alternative. Table 5 summarizes the Noise Analysis Areas that are affected by each Alternative.

Table 2: Noise Abatement Criteria in 23 CFR 772

Activity Category	L _{Aeq} (1h) dBA	Evaluation Location	Activity Description
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B ⁽¹⁾	67	Exterior	Residential.
C ⁽¹⁾	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structure, radio stations, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structure, radio studios, recording studios, schools, and television studios.
E ⁽¹⁾	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D, or F.
F	---	---	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	---	---	Undeveloped lands that are not permitted.

(1) Includes undeveloped lands permitted for this activity category.

Table 3: Substantial Noise Level Increase

Existing Noise Level (dBA) ⁽¹⁾	Predicted Design Year Noise Level Increase (dB) ⁽²⁾
42 or less	15 or more
43	14 or more
44	13 or more
45	12 or more
46	11 or more
47 or more	10 or more

(1) Worst hour noise level from the combination of natural and mechanical sources and human activity.

(2) Predicted design year noise level minus existing noise level.

Table 4: Noise Analysis Areas

Noise Analysis Area	Alternative(s)	Description	Activity Category	NAC (dBA)
1	A, C	Residences on Jackson Hills Drive, October Lane, and Luther Hills Drive.	B	67
2	A, C	Residences on Mt. Lebanon Road, Melody Lane and Wildwood Road.	B	67
3	A, East and West Shifts, C, D	Residences on Centennial Church Road and in the Sweetgrass Plantation subdivision.	B	67
4	A, East and West Shifts	Kensington Place mobile home community and single-family residences on Lamar Alexander Parkway.	B	67
5	A, C	Residences on East Brown School Road, Wildwood Road, Martha Neoma Street, and Talbott Lane.	B	67
6	A, C	Residences on Western Springs Drive and Old Knoxville Highway.	B	67
7	A, C	Residences on Saratoga Drive, the south side of Wildwood Road and East Brown School Road.	B	67
8	A	Residences on Sevierville Road (SR 35).p	B	67
9	A	Residences on Sevierville Road (SR 35) and Davis Ford Road.	B	67
10	A, East and West Shifts, C	Residences, the Morning Star Baptist Church, and the Rio Revolution Church on Lamar Alexander Parkway.	B, D	67, 52*
11	D	Residences on Sam Houston School Road and intersecting local roadways between SR 33 and Wildwood Road.	B	67
12	D	Residences on Wildwood Road, Peppermint Road, and Peppermint Hills Drive and the Mt. Lebanon Baptist Church baseball field and playground.	B, C	67
13	D	Residences on Peppermint Road, Peppermint Hills Drive, and Sevierville Road.	B	67
14	D	Residences on Hitch Road, Scarlet Drive, and Sevierville Road.	B	67
15	C	Residences Sevierville Road and Butler Road.	B	67
16	C, D	Residences on Melanie Drive, Davis Ford Road, Clayton Court, Misty View Drive and Helton Road and the Full Gospel Church.	B, D	67, 52*
17	D	Residences Helton Road and John Helton Road.	B	67
18	C, D	Residences John Helton Road, Hubbard Drive, Tuckaleechee Pike, and E Lamar Alexander Parkway and the Misty Meadow Driving Range.	B, E	67

* Interior

Table 5: Noise Analysis Areas Affected by Alternatives

Alternative	Affected Noise Analysis Areas
A	1, 2, 3, 4, 5, 6, 7, 8, 9, 10
A (East Shift)	3, 4, 10
A (West Shift)	3, 4, 10
C	1, 2, 3, 5, 6, 7, 10, 15, 16, 18
D	3, 11, 12, 13, 14, 16, 17, 18

As indicated in Table 4, the vast majority of noise-sensitive uses in the project area are Activity Category B residences. The Mt. Lebanon Baptist Church baseball field and playground on the south side of Wildwood Road in Noise Analysis Area 12 adjacent to Alternative D is the only Category C land use in the project area. Noise impacts will be identified and noise abatement will be considered for the Activity Category B residences and Activity Category C playground/baseball field if future sound levels are 66 dBA or higher, or if a substantial increase in existing sound levels is predicted.

The Misty Meadow Driving Range on John Helton Road on the north side of Lamar Alexander Parkway in Area 18 between Alternatives C and D is an Activity Category D commercial land use. Noise impacts will be identified and noise abatement will be considered for the driving range if future sound levels are 71 dBA or higher, or if a substantial increase in existing sound levels is predicted.

The Morning Star Baptist Church and the Rio Revolution Church in Area 10, and the Full Gospel Church in Area 16 do not have any exterior areas of frequent human use. Therefore, the Churches are Activity Category D land uses that must be assessed for interior impacts. Noise impacts will be identified and noise abatement will be considered if interior future sound levels are 51 dBA or higher, or if a substantial increase in existing sound levels is predicted.

There are no Category E land uses in the project area. However, there are some Category F properties located within the project limits. As indicated in Table 2, these land uses are not noise-sensitive and do not have an NAC. Therefore, they have not been included in the noise study.

Finally, there are tracts of Activity Category G undeveloped lands in the project area. These undeveloped lands are not noise-sensitive and have not been included in the noise analysis. However, noise impacts could occur in the future if noise-sensitive land uses are constructed near the proposed Pellissippi Parkway Extension. A discussion of future sound levels and the need for noise-compatible land use planning is provided later in this report.

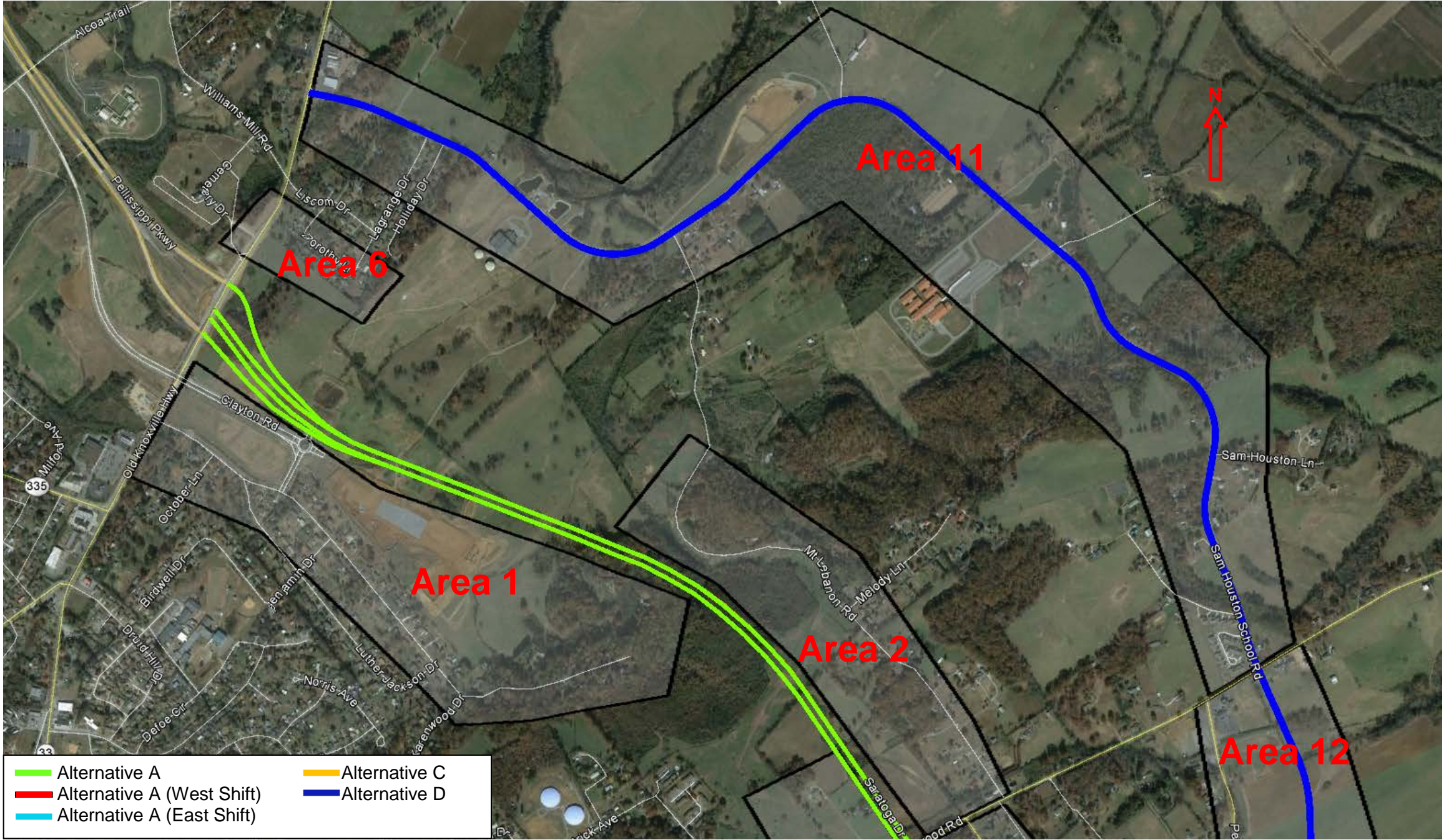


Figure 4: Noise Analysis Areas

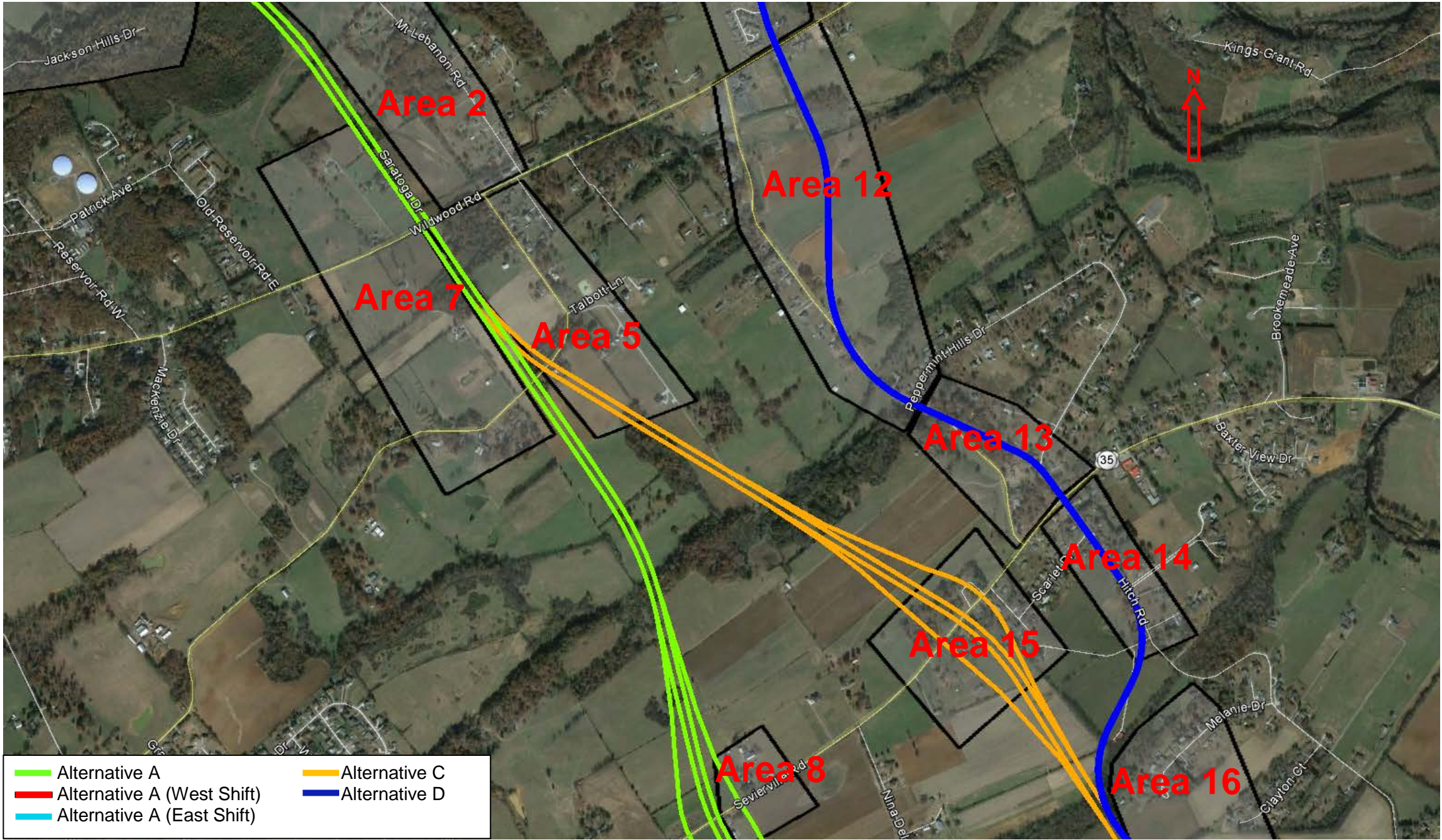


Figure 4: Noise Analysis Areas

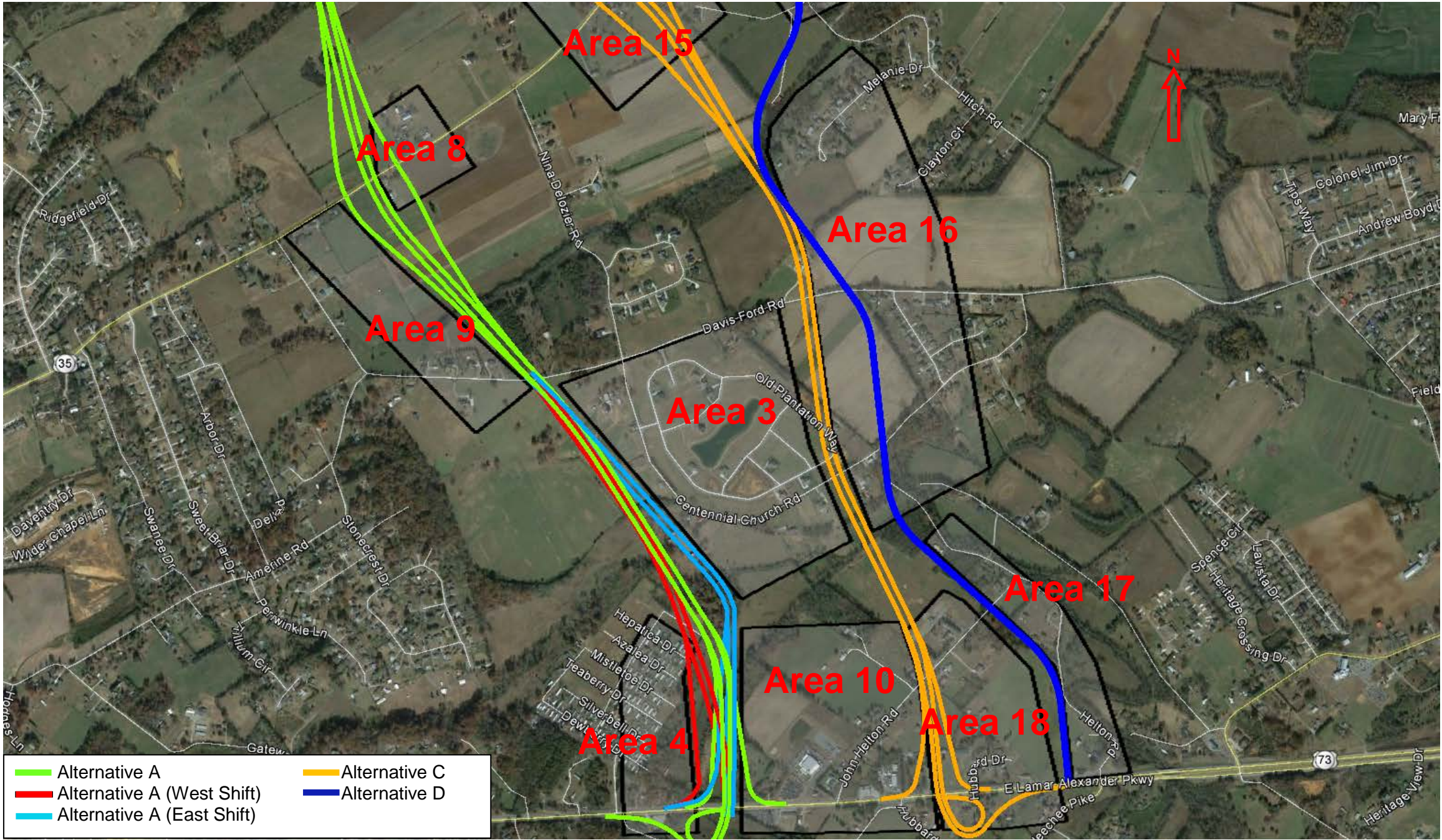


Figure 4: Noise Analysis Areas

2.3 *Determination of Existing Sound Levels*

Noise measurements were conducted by PB in 2008 for the previous noise study at several noise-sensitive land uses. A series of short-term (15-minute) noise measurements were conducted by PB at one-minute intervals to establish the existing noise environment within the proposed project corridor area. The noise measurement data collection sheets and drawings for the measurement locations from PB's previous noise study are provided in Appendix B.

The previous study noted that background noise (i.e. dog barking, sirens, etc.) during the measurements was noted, and the corresponding one-minute measurement intervals were eliminated and that the measurements were obtained during acceptable weather (no precipitation and relatively low winds) and dry road surface conditions. The representative monitoring locations consisted of mainly undeveloped farmland, residential locations, and the Morning Star Baptist Church.

Table 6 summarizes the existing sound levels at the measurement locations. As shown, many measurements were conducted during off-peak periods. Sound levels during the morning and afternoon periods would typically be higher than the reported off-peak sound levels at these locations.

It is important to note that sound levels vary throughout the day depending on the proximity to local roads and to other noise sources. Sound levels can also vary with environmental changes, including shifts in wind speed and direction and changes in the vertical temperature profile. As a result, the short-term measurement data provides only a snapshot of the existing noise environment at each measurement location.

The measured sound levels at many of the locations are below 50 dBA. These sound levels are typical of locations in areas with lightly traveled roads and no significant transportation or other major noise sources.

Sound levels at several other locations are between 50 and 60 dBA which are more indicative of proximity to more heavily traveled roads.

Higher noise levels of 64 and 67 dBA, respectively, were measured at 3412 Lamar Alexander Parkway and 3115 Sevierville Road, as those roads are heavily traveled.

A review of historic traffic data for the roads in the project area indicates that year 2013 traffic volumes were comparable to year 2008 traffic volumes. The 2013 average annual daily traffic (AADT) on US 321/SR 73 (Lamar Alexander Parkway) was 17,104 vehicles per day (vpd) and slightly lower than the 2008 AADT of 17,618 vpd. Similarly, the 2013 average annual daily traffic (AADT) on SR 33 was 15,448 vpd and just slightly higher than the 2008 AADT of 15,156 vpd. The 2013 AADT on Sevierville Road was 7,411 vpd and approximately 8% lower than the 2008 AADT of 8,187 vpd. These small traffic changes would have a negligible effect on sound levels. As a result, the sound levels measured in 2008 are considered to be representative of existing sound levels.

Table 6: Year 2008 Sound Levels at Measurement Locations

Location	Noise Analysis Area	Date	Period	Duration (minutes)	L _{eq} (1h) (dBA)
213 Jackson Hills Drive	1	10/28/08	8:10 - 8:25 AM	15	48
557 Jackson Hills Drive	1	10/28/08	8:55 - 9:10 AM	15	43
3330 Centennial Church Road	3	10/30/08	11:05 - 11:25 AM	15	42
626 Hepatica Drive	4	10/28/08	3:25 - 3:40 PM	15	40
1834 E Brown School Road	5	10/28/08	10:45 - 11:00 AM	15	40
3049 Wildwood Road	7	10/28/08	9:30 - 9:45 AM	15	41
1785 E Brown School Road	7	10/28/08	1:40 - 1:55 PM	15	43
3115 Sevierville Road	8	10/30/08	4:15 - 4:30 PM	15	64
3047 Davis Ford Road	9	10/28/08	2:30 - 2:45 PM	15	33
3412 Lamar Alexander Pkwy	10	10/28/08	4:00 - 4:15 PM	15	67
708 Sam Houston School Road	11	10/28/08	1:00 - 1:15 PM	15	42
229 Sam Houston School Road	11	10/29/08	8:30 - 8:45 AM	15	57
436 Sam Houston School Road	11	10/29/08	9:10 - 9:25 AM	15	55
909 Sam Houston School Road	11	10/29/08	9:55 - 10:10 AM	15	51
		10/29/08	5:00 - 5:15 PM	15	56
1036 Belfair Lane	11	10/29/08	10:35 - 10:50 AM	15	55
1514 Peppermint Road	12	10/29/08	1:00 - 1:15 PM	15	53
3324 Sevierville Road	14	10/29/08	1:40 - 1:55 PM	15	56
1225 Hitch Road	15	10/29/08	2:20 - 2:35 PM	15	46
		10/30/08	3:10 - 3:25 PM	15	39
3307 Melanie Drive	16	10/29/08	3:00 - 3:15 PM	15	47
		10/30/08	3:45 - 4:00 PM	15	36
839 Misty View Drive	16	10/29/08	3:35 - 3:50 PM	15	48
253 John Helton Road	17	10/30/08	9:15 - 9:30 AM	15	45
225 John Helton Road	18	10/30/08	10:15 - 10:30 AM	15	40

Existing noise levels at numerous additional receptors were also predicted by PB for the previous noise study using the FHWA Traffic Noise Model (TNM®) Version 2.5. The TNM model for existing conditions developed by PB was also updated using existing traffic volumes developed by Sain Associates, Inc. in December 2013 for Alternatives A, C and D and April 2014 for Alternative D. The updated traffic projections are summarized in Appendix C.

The modeled speeds were reviewed and modified, as necessary, to ensure that posted speeds were modeled in accordance with TDOT's Noise Procedures.

The modeled locations and elevations of the previously identified receptors were reviewed and modified as necessary, and the receivers were named using their street address in accordance with TDOT's Noise Procedures. Some additional receivers were also added.

No additional changes were made to the existing TNM model developed by PB. TNM plan views showing modeled TNM objects - including the locations of the modeled roadways and receivers - are provided in Appendix D.

It is also important to understand that the TNM model only predicts sound generated by vehicles on the modeled roadway network. There are other noise sources in the area that contribute to existing "background" sound levels including vehicles on local roads, driveways and parking lots; recreational uses; dogs barking; insect and bird noise; etc. Background sound levels can vary by hour, day and time of year. As shown in Table 6, many of the measured "background" sound levels in the area were between 39 and 48 dBA with only two of the short-term measurements below 39 dBA. Therefore, a background sound level of 40 dBA was used represent the existing "background" sound level.

The existing noise levels, including noise from the modeled roadway network and background noise, for the noise-sensitive land uses in Noise Analysis areas are summarized in Table 7. The predicted existing sound levels at each modeled receiver are provided in Appendix E.

2.4 Determination of Future Sound Levels

Traffic projections for the Build Alternatives for the design year 2040 were developed by Sain Associates, Inc. in December 2013 and April 2014. These projections include traffic volumes for the "design hour" which represents a theoretical worst case traffic condition. These design hour traffic projections were used for the noise analysis since they represent the highest number of vehicles expected to travel on the roadway network in a given hour and would, therefore, represent the worst (loudest) traffic noise hour. The design year traffic projections are summarized in Appendix C.

2.4.1 No-Build Alternative

The existing TNM model was updated using the design year 2040 traffic projections for the No-Build Alternative developed by Sain Associates. The sound levels for the No-Build Alternative are provided in Appendix E.

Table 7: Existing Sound Levels

Noise Analysis Area	Predicted Existing Sound Levels (dB)
1	41 - 54
2	41 – 52
3	42 – 48
4	42 – 64
5	41 – 52
6	45 – 59
7	41 – 55
8	61 – 65
9	43 – 61
10	45 – 68
11	43 – 66
12	46 – 63
13	46 – 62
14	45 – 63
15	44 – 60
16	41 – 50
17	43 – 63
18	44 – 65

2.4.2 Build Alternatives

Noise modeling of the each Build Alternative was completed using the FHWA TNM model. The program calculated design hour equivalent sound levels in design year 2040 for the noise-sensitive receptors in each Noise Analysis Area.

The TNM models that were developed by PB for the previous noise study were used for all noise analysis areas and Alternatives except for Areas 3 and 4 for the Alternative A with the East and West Shifts that were developed by Bowlby & Associates. As with the existing PB model, the modeled locations and elevations of the previously identified receptors were reviewed and modified as necessary, and the receivers were named using their street address in accordance with TDOT's Noise Procedures. Some additional receivers were also added.

The previous studies for the project [4, 5] noted that base maps and design files were exported from Micro-station as DXF design files and then imported into the FHWA TNM model. All TNM modeling files were created using the actual ground elevations of all existing roadways and receptor locations. The elevations of proposed roadways was estimated using available elevation data since roadway profiles have not yet been developed. The TNM modeling process was completed in accordance with TDOT's TNM Guidelines.

As stated above, the recent traffic projections for the design year 2040 were used for the noise analysis. These projections indicated design hour total truck volumes between 1% and 7% on the existing roadway network and 2% for the Pellissippi Parkway Extension. The percentage of trucks on several existing roads remains the same, showing no increase in trucks while the percentage of trucks on other existing roads is projected to increase. The traffic data is provided in Appendix C. The proposed design speed of 60 mph was modeled for the Pellissippi Parkway Extension.

TNM plan views showing modeled TNM objects - including the locations of the modeled roadways and receivers - are provided in Appendix D. The predicted design year sound levels for the modeled receptors in each Noise Analysis Area for each Alternative are provided in Appendix E.

2.5 *Impact Determination Analysis*

As noted previously, a location is impacted if 1) the predicted worst hour noise level approaches or exceeds the NAC or 2) there is a substantial increase in design year noise levels above existing noise levels.

The predicted impacts in each Noise Analysis area for each Alternative are summarized in Table 8 and discussed below. An indication of “n/a” means that the Noise Analysis Area is not affected by that Alternative. Tables showing the predicted existing and No-Build sound levels and the Build sound levels for each modeled receiver in each Area are shown in the tables in Appendix E for each Alternative. Receivers that are impacted are highlighted in the tables. Maps showing the locations of impacted receptors are also provided in Appendix E.

2.5.1 Alternative A

A total of 81 residences are predicted to be impacted - mostly by a substantial increase in design year noise levels. Only 12 of the 81 impacts are due to sound levels approaching or exceeding the NAC. Twenty-seven of the impacts are predicted in the Kensington Place mobile home community in Area 4. No impacts are predicted in Area 6 for the residences on Western Springs Drive and Old Knoxville Highway at the northern end of the project.

Five (5) residences would be taken under Alternative A: 3118 Wildwood Road in Area 5, 141 Saratoga Drive and 115 Saratoga Drive in Area 7, 3048 Sevierville Road in Area 8, and 3405 E Lamar Alexander Parkway in Area 10.

The predicted design year sound levels for the exterior areas of the Morning Star Baptist Church and the Rio Revolution Church in Area 10 are 74 and 70 dBA, respectively. Both Churches are air-conditioned and would be expected to operate under a “closed windows” condition. Application of a typical 25 dB reduction for building attenuation results in predicted interior sound levels of 49 dBA and 45 dBA, respectively. These levels are below the NAC of 52 dBA for Activity Category D land uses. As a result, the Churches are not predicted to be impacted under Alternative A.

Table 8: Impact Determination Analysis, Design Year 2040, Build Alternatives ⁽¹⁾

	Alternative A			Alternative A (East Shift)			Alternative A (West Shift)			Alternative C			Alternative D		
	Resi- dences	Cat. C/E	Total	Resi- dences	Cat. C/E	Total	Resi- dences	Cat. C/E	Total	Resi- dences	Cat. C/E	Total	Resi- dences	Cat. C/E	Total
Area 1	9	0	9	9	0	9	9	0	9	9	0	9	n/a	n/a	n/a
Area 2	5	0	5	5	0	5	5	0	5	5	0	5	n/a	n/a	n/a
Area 3	6	0	6	6	0	6	7	0	7	2	0	2	0	0	0
Area 4	29	0	29	28	0	28	50	0	50	n/a	n/a	n/a	n/a	n/a	n/a
Area 5	11	0	11	11	0	11	11	0	11	11	0	11	n/a	n/a	n/a
Area 6	0	0	0	0	0	0	0	0	0	0	0	0	n/a	n/a	n/a
Area 7	7	0	7	7	0	7	7	0	7	6	0	6	n/a	n/a	n/a
Area 8	2	0	2	2	0	2	2	0	2	n/a	n/a	n/a	n/a	n/a	n/a
Area 9	6	0	6	6	0	6	6	0	6	n/a	n/a	n/a	n/a	n/a	n/a
Area 10	6	0	6	6	0	6	6	0	6	10	0	10	n/a	n/a	n/a
Area 11	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	32	0	32
Area 12	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	9	2	11
Area 13	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	8	0	8
Area 14	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	9	0	9
Area 15	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	7	0	7	n/a	n/a	n/a
Area 16	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	5	0	5	12	0	12
Area 17	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	8	0	8
Area 18	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	8	1	9	5	0	5
Totals	81	0	81	80	0	80	103	0	103	63	1	64	83	2	85

(1) An "n/a" indicates that a Noise Analysis Area is not affected by that Alternative.

2.5.2 Alternative A with East Shift

The impacts for Alternative A with the East Shift are the same as for Alternative A for all of the Noise Analysis Areas except 3 and 4 where the alignment shifts toward the east north of Lamar Alexander Parkway.

A total of 80 residences are predicted to be impacted under Alternative A with the East Shift. Compared to Alternative A, one fewer residence would be impacted in Area 4 due to the east alignment shift away from the residences in the Kensington Place mobile-home community.

Six residences would be taken under this alternative – the same five residences taken under Alternative A along with 3266 Centennial Church Road in Area 3.

As with Alternative A, the Morning Star Baptist Church and the Rio Revolution Church in Area 10 are not predicted to be impacted.

2.5.3 Alternative A with West Shift

The impacts for Alternative A with the West Shift are the same as for Alternative A for all of the Noise Analysis Areas except 3 and 4 where the alignment shifts toward the west north of Lamar Alexander Parkway.

A total of 103 residences are predicted to be impacted under Alternative A with the West Shift. Compared to Alternative A, the increase in impacts is due to the west alignment shift toward the residences in the Kensington Place mobile home community in Area 4.

Eleven residences would be taken under this alternative – the same five residences taken under Alternative A along with six residences in Kensington Place.

As with Alternative A, the Morning Star Baptist Church and the Rio Revolution Church in Area 10 are not predicted to be impacted.

2.5.4 Alternative C

A total of 63 residences are predicted to be impacted under Alternative C – again, mostly by a substantial increase in design year noise levels. The impacts for Areas 1, 2, and 6 are similar to Alternative A, since the proposed alignments are the same in those areas. Although Alternative C shifts its alignment and avoids the impacts in Areas 4, 8, and 9; this reduction is somewhat offset by the additional impacts that would occur in Areas 15, 16, and 18.

Although the fewest number of impacts are predicted under Alternative C, approximately 26 residences would be taken under this alternative – 11 of which are in Area 15 near Sevierville Road and Butler Road.

The Misty Meadow Driving Range at 225 John Helton Rd is an Activity Category E use in Area 18, and it is predicted to be impacted by a substantial increase in design year noise

levels. Alternative C would also take a large portion of the property although the building would remain. As a result, the future use of this property under Alternative C is unknown.

As with Alternative A, the Morning Star Baptist Church and the Rio Revolution Church in Area 10 are not predicted to be impacted. The Full Gospel Church in Area 16 has a predicted exterior sound level of 60 dBA. The church is air-conditioned and would also be expected to operate under a “closed windows” condition. Application of a typical 25 dB reduction for building attenuation results in a predicted interior sound level well below the NAC of 52 dBA for Activity Category D land uses. As a result, the Full Gospel Church is also not predicted to be impacted.

2.5.5 Alternative D

A total of 83 residences are predicted to be impacted under Alternative D. Alternative D avoids any noise impacts in Areas 1 through 10 because of its shifted alignment. However, 32 residences along Sam Houston School Road in Area 11 area are predicted to be impacted - 17 of which have predicted noises level that approach or exceed the NAC.

Additionally, approximately 21 residences would be taken under Alternative D.

As with Alternative C, the Full Gospel Church is not predicted to be impacted. However, the baseball field and the playground at the Mt. Lebanon Baptist Church (Activity Category C) in Area 12 are predicted to be impacted by a by a substantial increase in design year noise levels.

2.6 *Noise Abatement Evaluation*

Abatement is generally evaluated when impacts are predicted to occur. Noise barriers were evaluated to reduce sound levels for the impacted residences in each area. In order for noise barriers to be included in a project, they must be determined to be both feasible and reasonable in accordance with TDOT's Noise Policy as discussed below.

2.6.1 Noise Barrier Feasibility

Feasibility means that: (1) the construction of a barrier would not be anticipated to pose any major design, construction, maintenance, or safety problems; and, (2) the noise barriers will provide a noise reduction (or insertion loss) of 5 dB reduction in design year highway traffic noise levels for the majority of the impacted first-row receptors.

Noise barriers can generally not be constructed where there are frequent driveway access points to adjacent properties. The impacted residences on Lamar Alexander Parkway and on several local road intersecting Lamar Alexander Parkway in Noise Analysis Areas 4, 10, and 18 have driveway access which precludes the consideration of noise barriers since they would eliminate and/or restrict access to Lamar Alexander Parkway from these properties as well as adjacent properties. Therefore, noise barriers for the impacted residences on or near Lamar Alexander Parkway are not feasible.

The unlimited access that would exist under Alternative D precludes the consideration of noise barriers at most locations under Alternative D. However, there are a few locations where

there might be sufficient length to construct a noise barrier without interfering with access although these issues would need be much more thoroughly evaluated if Alternative D were constructed. Noise barriers might be possible under Alternative D for the following impacted uses:

- residences on Belfair Lane and De Armond Lane on the west side of Alternative D north of Wildwood Road in Area 11;
- the Mt. Lebanon Baptist Church playground and baseball field on the west side of Alternative D south of Wildwood Road in Area 12; and
- residences on Melanie Drive and Misty View Drive on the east side of Alternative D south of Sevierville Road in Area 16.

Alternatives A, C, and D as well as the East and West Shift Alternatives involve a limited access facility. The construction of noise barriers along these alternatives would likely be possible if they were determined to be both acoustically feasible (provides a 5 dB IL for the majority on impacted first-row residences) and reasonable in accordance with TDOT's Noise Policy.

A TNM barrier analysis was conducted for each impacted Noise Analysis Area to determine whether noise barriers could be designed to provide a minimum 5 dB IL at the majority of impacted first-row residences (acoustic feasibility). The results are summarized in Table 9. As indicated, some Areas were divided into subareas where two separate noise barriers would be required that would be separated by a significant gap in the barrier.

Noise barriers are feasible for Areas 1 (North and South), 2, 3, 4 and 7 for Alternatives A and the East and West Shifts. Barriers are feasible for Areas 1 (North and South), 2, 3, 5, 7, 15 East, 16 North and 18 for Alternative C. Barriers are feasible for Areas 11, 12, and 16 (North and South) for Alternative D.

Noise barriers for several other areas were not acoustically feasible because 5 dB IL could not be achieved at the majority of first-row impacted uses primarily due to significant distances between the uses and the proposed Alternative.

It is often difficult to achieve 5 dB or more IL at significant distances from a road because the sound level reduction (attenuation) that is provided by the intervening soft ground is lost when a barrier is constructed. The lost ground attenuation can be significant especially at greater distances. The barrier must "make up" for the lost ground attenuation and then provide an additional 5 dB noise reduction in order to be feasible. As a result, noise barriers are often not feasible for locations that are hundreds of feet or more from the road.

Table 9: Feasibility Analysis ⁽¹⁾

Noise Analysis Area	Alternative A	Alternative A with East Shift	Alternative A with West Shift	Alternative C	Alternative D
1 North	Yes	Yes	Yes	Yes	n/a
1 South	Yes	Yes	Yes	Yes	n/a
2	Yes	Yes	Yes	Yes	n/a
3	Yes	Yes	Yes	Yes	Not Impacted
4	Yes	Yes	Yes	n/a	n/a
5	No	No	No	Yes	n/a
6	Not Impacted	Not Impacted	Not Impacted	Not Impacted	n/a
7	Yes	Yes	Yes	Yes	n/a
8	No	No	No	n/a	n/a
9	No	No	No	n/a	n/a
10	No	No	No	Yes	n/a
11	n/a	n/a	n/a	n/a	Yes
12	n/a	n/a	n/a	n/a	Yes
13	n/a	n/a	n/a	n/a	No (Access)
14	n/a	n/a	n/a	n/a	No (Access)
15 West	n/a	n/a	n/a	No	n/a
15 East	n/a	n/a	n/a	Yes	n/a
16 North	n/a	n/a	n/a	Yes	Yes
16 South	n/a	n/a	n/a	n/a ⁽²⁾	Yes
17	n/a	n/a	n/a	n/a	No (Access)
18	n/a	n/a	n/a	Yes	No (Access)

(4) An "n/a" indicates that a Noise Analysis Area is not affected by that Alternative.

(5) Only one residence is predicted to be impacted. Therefore, a barrier was not evaluated.

2.6.2 Noise Barrier Reasonableness

All noise barriers that were identified as feasible in Table 9 were evaluated for reasonableness in accordance with TDOT's Noise Policy. In order for a noise barrier to be reasonable, the following conditions must be met:

1. TDOT's noise reduction design goal must be achieved;
2. The required noise barrier area per benefited residence must be less than or equal to the allowable area per benefited residence; and
3. The benefited residents and/or property owners must support the construction of the noise barrier.

Each of these conditions is discussed in greater detail below.

Noise Reduction Design Goal

For a noise barrier to be considered reasonable, the noise barrier must provide at least a 7 dB noise reduction at 60% or more of the first-row benefited receptors. Table 10 summarizes the noise reduction design goal analysis for each barrier for each Alternative. As shown, the noise reduction design goal was achieved for all barriers except for Area 4 under Alternative A, Area 3 under Alternative C, and Area 12 under Alternative D.

The predicted design year sound levels and insertion losses for each barrier, and the preliminary noise barrier design table are provided in Appendix F. The calculations of the noise reduction design goal for each barrier are shown at the bottom of the sound levels tables.

Noise Barrier Area Per Benefited Residence

In order for a noise barrier to be reasonable, the noise barrier area per benefited residence must also be less than or equal to the allowable noise barrier area per benefited residence for each noise analysis area. All barriers that meet the noise reduction design goal were evaluated to determine if the actual noise barrier area per benefited residence was less than the allowable noise barrier area per benefited residence.

The allowable barrier area per benefited residence is calculated using the following equation:

Allowable Area per Benefited Residence =

Base Allowance	_____	square feet
+ Previous Type I Widening Allowance	_____	square feet
+ Design Year Noise Levels Allowance	_____	square feet
+ Noise Level Increase Allowance	_____	square feet
+ Noise Compatible Planning Allowance	_____	square feet
 = Total Allowable Area per Benefited Residence	 _____	 square feet

The value for each allowance type is selected based on the criteria outlined in Table 11. The calculation of the allowable area per benefited residence for each potential barrier is summarized in Table 12. As shown, all of the areas except Area 11 under Alternative D receive the maximum 1,500 square foot base allowance since the project is on a new alignment. Sam Houston Road will be widened adjacent to the residences in Area 11 under Alternative D. Additionally, the residences on Belfair Lane and De Armond Lane were constructed in 2004 and 2005. Therefore, this area receives a 750 square foot base allowance. All of the Areas also receive the maximum 400 foot Noise Level Increase Allowance. As shown, the resulting allowable area per benefited residence for most areas is 1,900 square feet due. Area 4 under Alternative A and Alternative A with the West Shift also receives a 100 square foot Design Year Noise Levels Allowance.

Table 10: Noise Reduction Design Goal Analysis

Noise Analysis Area	First-Row Benefited Receptors			Noise Reduction Design Goal Met?
	Total	Receiving 7 dB IL	Percent	
Alternative A				
1 North	3	2	66.7%	Yes
1 South	2	2	100%	Yes
2	3	3	100%	Yes
3	5	3	60%	Yes
4	1	3	33.3%	No
7	3	3	100%	Yes
Alternative A with East Shift				
1 North (Same as Alternative A)	3	2	66.7%	Yes
1 South (Same as Alternative A)	2	2	100%	Yes
2 (Same as Alternative A)	3	3	100%	Yes
3	5	5	100%	Yes
4	4	3	75%	Yes
5 (Same as Alternative A)	1	1	100%	Yes
7 (Same as Alternative A)	3	3	100%	Yes
Alternative A with West Shift				
1 (Same as Alternative A)	3	2	66.7%	Yes
2 (Same as Alternative A)	2	2	100%	Yes
3	5	4	80%	Yes

Noise Analysis Area	First-Row Benefited Receptors			Noise Reduction Design Goal Met?
	Total	Receiving 7 dB IL	Percent	
4	4	4	100%	Yes
5 (Same as Alternative A)	1	1	100%	Yes
7 (Same as Alternative A)	3	3	100%	Yes
Alternative C				
1 North (Same as Alternative A)	3	2	66.7%	Yes
1 South (Same as Alternative A)	2	2	100%	Yes
3	2	1	50%	No
5	2	2	100%	Yes
7	2	2	100%	Yes
10	2	2	100%	Yes
15	2	2	100%	Yes
16 North	2	2	100%	Yes
18	6	4	67%	Yes
Alternative D				
11	3	3	100%	Yes
12	2	0	0%	No
16 North	2	2	100%	Yes
16 South	7	5	71.4%	Yes

Table 11: Reasonableness Allowances

Allowance Type	Criteria	Allowance in square feet
Base Allowance	Residences pre-date the highway ⁽¹⁾ or the project is on a new alignment.	1,500
	Residences post-date the highway ⁽²⁾ but were constructed before September 16, 2005. ⁽³⁾	750
	Residences were constructed after September 16, 2005. ⁽³⁾	250
Previous Type I Widening Allowance ⁽⁴⁾	Residences pre-date a Type I widening project on the adjacent highway.	200
Design Year Noise Levels Allowance ⁽⁵⁾	69 dBA or less	0
	70 – 74 dBA	100
	75 dBA or more	200
Noise Level Increase Allowance ⁽⁶⁾⁽⁷⁾	0 – 4 dB	0
	5 – 9 dB	200
	10 or more dB	400
Noise Compatible Planning Allowance	The local government of the jurisdiction in which the project will be constructed has no policies to require that noise be considered in the land development process.	0
	The local government of the jurisdiction in which the project will be constructed has adopted official and enforceable policies to require that noise be considered as an integral component of the land development process.	100

(1) The majority (more than 50%) of residences existed before the original highway construction.

(2) The majority (more than 50%) of residences were constructed after the original highway construction.

(3) TDOT's previous noise policy became effective on September 16, 2005. FHWA's approval of this policy was contingent upon TDOT's completion of a public outreach program to 1) notify local jurisdictions of the changes in TDOT's new noise policy and 2) encourage them to consider noise compatible land use planning when noise-sensitive land uses are proposed adjacent to TDOT's highways. As a result, development that occurs after this date receives less consideration in the reasonableness analysis.

(4) The majority (more than 50%) of residences existed before the most recent Type I project that added through traffic lanes.

(5) Based on an average of the impacted first-row receivers' levels (design year noise levels for Type I projects and existing noise levels for Type II projects).

(6) An average of the increases from existing noise levels to design year noise levels for the Build Alternative at the impacted first-row receivers.

(7) Not applicable for Type II projects.

Table 12: Determination of Reasonableness Allowances

Area	Base Allowance	Previous Type I Widening Allowance	Design Year Noise Levels Allowance	Noise Level Increase Allowance	Noise Compatible Planning Allowance	Total
Alternative A						
1 North	1,500	0	0	400	0	1,900
1 South	1,500	0	0	400	0	1,900
2	1,500	0	0	400	0	1,900
3	1,500	0	0	400	0	1,900
4	1,500	0	0	400	0	1,900
7	1,500	0	0	400	0	1,900
Alternative A with East Shift						
1 North	1,500	0	0	400	0	1,900
1 South	1,500	0	0	400	0	1,900
2	1,500	0	0	400	0	1,900
3	1,500	0	100	400	0	2,000
4	1,500	0	0	400	0	1,900
7	1,500	0	0	400	0	1,900
Alternative A with West Shift						
1 North	1,500	0	0	400	0	1,900
1 South	1,500	0	0	400	0	1,900
2	1,500	0	0	400	0	1,900
3	1,500	0	0	400	0	1,900

Area	Base Allowance	Previous Type I Widening Allowance	Design Year Noise Levels Allowance	Noise Level Increase Allowance	Noise Compatible Planning Allowance	Total
4	1,500	0	100	400	0	2,000
7	1,500	0	0	400	0	1,900
Alternative C						
1 North	1,500	0	0	400	0	1,900
1 South	1,500	0	0	400	0	1,900
2	1,500	0	0	400	0	1,900
3	1,500	0	0	400	0	1,900
5	1,500	0	0	400	0	1,900
7	1,500	0	0	400	0	1,900
10	1,500	0	0	400	0	1,900
15	1,500	0	0	400	0	1,900
16	1,500	0	0	400	0	1,900
18	1,500	0	0	400	0	1,900
Alternative D						
11	750	0	0	400	0	1,150
16 North	1,500	0	0	400	0	1,900
16 South	1,500	0	0	400	0	1,900

The insertion loss for each modeled receiver was used to determine the total number of benefited residences. Benefited residences receive 5 dB or more of insertion loss due to construction of the barrier. The results of the noise barrier reasonableness analysis are summarized in Appendix F.

The Misty Meadow driving range in Area 18 that is impacted under Alternative C is a non-residential Activity Category E land use. Therefore, an equivalent number of residences must be calculated for it in accordance with the following equation from TDOT's Noise Procedures:

$$\text{Equivalent Residences} = \frac{\text{Number of Users}}{(\text{Number of People Per Residence})} \times \text{Usage}$$

where:

Number of Users = Average Number of Users During Usage Times

Number of People Per Residence = 2.5 (Tennessee Average from Census)

Usage = (Hours Used Per Day/24 Hours) x (Days Used Per Year/365 Days)

As noted previously, Alternative C would take a large portion of the driving range property although the building would remain. As a result, the future use of this property under Alternative C is unknown. However, the driving range was assumed to continue to operate in its current capacity for the purpose of the noise barrier analysis.

Table 13 summarizes the resulting number of equivalent residences for the driving range. As shown, the number of tee boxes at the driving range was estimated at 40 and it was assumed that 40% of the tee boxes are typically being used. The range was assumed to operate from April through mid-October (190 days) for 14 hours per day. The resulting number of equivalent residences for the driving range is two residences.

Table 13: Equivalent Number of Residences for Driving Range

Number of Users	16
Maximum Number of Users ⁽¹⁾	40
Typical User Factor ⁽²⁾	40%
Number of People Per Residence	2.5 ⁽³⁾
Usage	0.30
Hours Used Per Day	14
Days Used Per Year	190 ⁽⁴⁾
Equivalent Residences	2 ⁽⁵⁾

(1) Approximate number of tee boxes.

(2) The typical number of users would be significantly less than the maximum number of users.

(3) Tennessee average from census.

(4) Facilities assumed to operate April through mid-October.

(5) Calculated value rounded up.

The results of the noise barrier reasonableness analysis indicated that the area per benefited residence is substantially higher than the allowable area per benefited residence for all of the areas evaluated for Alternative A, Alternative A with the East Shift and Alternative C and for all but one area each for Alternative A with the West Shift and Alternative D.

The high calculated areas per benefited residence are generally the result of 1) significant distances between the impacted residences and the Pellissippi Parkway Extension alignment, 2) low residential densities (large lots), 3) the requirement for long and tall barriers (high barrier areas) to provide a 7 dB noise reduction, and 4) the low number of benefits that can be achieved. As shown in Table 14, the highest number of benefits that can be achieved by any barrier is eleven (11) with most barriers benefiting between two (2) and five (5) residences.

However, the area per benefited residence is lower than the allowable area per benefited residence for two locations: Area 4 for Alternative A with the West Shift and Area 11 (Belfair Lane and De Armond Lane) for Alternative D. The locations of the barriers are shown in Appendix G.

A noise barrier could not be designed to protect the impacted residences on De Armond Lane in Area 11 because of the adjacent driveway and local road intersections. A barrier could be designed to protect the impacted residences on Belfair Lane. However, a barrier for this location could pose sight distance and other design or construction issues that cannot be fully assessed at this time. These issues would need be much more thoroughly evaluated if Alternative D were constructed.

Views of Benefited Residents and Property Owners

TDOT's Noise Policy and Procedures require that the views of the benefited property owners and residents be considered in making final noise abatement decisions.

If noise barriers are determined to be both feasible and reasonable based on the design plans for the project, TDOT will hold a public meeting to solicit the views of benefited property owners and residents. The meeting advertisement will include a note that a noise barrier is proposed and that public comments will be solicited and received at the meeting or hearing.

If significant opposition exists and there is not clear support for the construction of the proposed noise barrier, TDOT will conduct a certified mail survey to solicit the views of the benefited residents and/or property owners that would be protected by the barrier. If a majority of benefited residents/property owners oppose the construction of a noise barrier, then the barrier will not be included as a "likely" noise abatement measure. Benefited residents and/or property owners that do not respond will be contacted a second time. A final determination will be made based upon the total responses received after the second survey.

Responses from residents or owners of properties that are predicted to be impacted as well as benefited will be counted as two responses. Responses from residents or owners of properties that are predicted to be benefited but not impacted will be counted as one response. TDOT will conclude that a community desires the construction of a noise barrier unless a majority (at least 51%) of the impacted property owners and residents indicate that they do not want the proposed noise barrier.

Table 14: Noise Barrier Design Results and Reasonableness Analysis

Area	Length (ft.)	Average Height (ft.)	Barrier Area (sq. ft.)	Benefited Residences	Area Per Benefited Residence (sq. ft.)	Allowable Area Per Benefited Residence (sq. ft.)	Reasonable ?⁽¹⁾
Alternative A							
1 North	2,600	20	52,000	4	13,000	1,900	No
1 South	1,600	11	17,000	2	8,500	1,900	No
2	4,266	17	70,528	5	14,106	1,900	No
3	2,700	20	53,800	6	8,967	1,900	No
7	4,503	18	81,056	4	20,264	1,900	No
Alternative A with East Shift							
1 North	2,600	20	52,000	4	13,000	1,900	No
1 South	1,600	11	17,000	2	8,500	1,900	No
2	4,266	17	70,528	5	14,106	1,900	No
3	2,562	14	35,136	8	4,392	2,000	No
4	1,870	22	41,628	11	3,784	1,900	No
7	4,503	18	81,056	4	20,264	1,900	No
Alternative A with West Shift							
1 North	2,600	20	52,000	4	13,000	1,900	No
1 South	1,600	11	17,000	2	8,500	1,900	No
2	4,266	17	70,528	5	14,106	1,900	No
3	2,594	19	49,142	11	4,467	1,900	No
4	1,268	16	19,646	11	1,786	1,900	Yes
7	4,503	18	81,056	4	20,264	1,900	No

<i>Area</i>	<i>Length (ft.)</i>	<i>Average Height (ft.)</i>	<i>Barrier Area (sq. ft.)</i>	<i>Benefited Residences</i>	<i>Area Per Benefited Residence (sq. ft.)</i>	<i>Allowable Area Per Benefited Residence (sq. ft.)</i>	<i>Reasonable ?⁽¹⁾</i>
Alternative C							
1 North	2,600	20	52,000	4	13,000	1,900	No
1 South	1,600	11	17,000	2	8,500	1,900	No
2	4,266	17	70,528	5	14,106	1,900	No
5	1,500	15	22,800	2	11,400	1,900	No
7	3,880	24	90,996	7	12,999	1,900	No
10	1,200	21	24,656	2	12,328	1,900	No
15	1,765	16	28,010	3	9,337	1,900	No
16	2,100	19	39,000	4	9,750	1,900	No
18	2,921	17	50,212	7 ⁽²⁾	7,173	1,900	No
Alternative D							
11	308	11	3,424	6	571	1,150	Yes
16 North	2,243	18	39,236	5	7,847	1,900	No
16 South	1,100	23	25,300	8	3,163	1,900	No

(1) Final determinations regarding reasonableness will be made during the design phase for the project.

(2) Five residences and two equivalent residences for the driving range.

2.6.3 Statement of Likelihood

A noise barrier has been determined to be preliminarily feasible and reasonable in accordance with TDOT's Noise Policy and is considered "likely" for Noise Analysis Area 4 (Kensington Place) if Alternative A with the West Shift is constructed.

A noise barrier for the impacted residences on Belfair Lane on the west side of Alternative D north of Wildwood Road in Area 11 was also identified as preliminarily feasible and reasonable. However, a barrier for this location could pose sight distance and other design or construction issues that cannot be fully assessed at this time. These issues would need be much more thoroughly evaluated if Alternative D were constructed. As a result, a barrier for this part of Area 11 has been identified as "possible."

However, the noise analysis was based on functional project plans. Final noise abatement decisions will be made based on an updated evaluation of the Preferred Alternative using the final design plans for the project. This evaluation will likely be conducted as part of the right-of-way or construction reevaluation for the project.

2.7 Construction Noise

It is expected that TDOT's construction specifications will apply to this project. As a result, construction procedures shall be governed by the *Standard Specifications for Road and Bridge Construction* as issued by TDOT and as amended by the most recent applicable supplements. The contractor will be bound by Section 107.01 of the Standard Specifications to observe any noise ordinance in effect within the project limits. Detoured traffic shall be routed during construction so as to cause the least practicable noise impact on noise-sensitive areas.

2.8 Information for Local Officials

There are tracts of undeveloped land adjacent to the proposed Pellissippi Parkway Extension. TDOT encourages the local governments with jurisdiction over these lands, as well as potential developers of these lands to practice noise compatibility planning in order to avoid future noise impacts. The following language is included in TDOT's noise policy:

"Highway traffic noise should be reduced through a program of shared responsibility. Local governments should use their power to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway or that the developments are planned, designed and constructed in such a way that noise impacts are minimized."

Two guidance documents on noise compatible land use planning are available from FHWA. [7, 8]

Tables 15 and 16 present design year sound levels for areas along the proposed Pellissippi Parkway Extension where vacant and possibly developable lands exist. Sound levels were predicted at distances between 50 and 800 feet from the edge of pavement of the near lane for the design year 2040. As indicated, sound levels within an approximate range between

100 and 200 feet from the edge of pavement of the nearest lane of the proposed Pellissippi Parkway Extension will approach or exceed the NAC of 66 dBA for Category B and C land uses. Noise-sensitive land uses should generally not be constructed in these areas unless noise mitigation measures are provided.

Table 15: Design Year 2040 Sound Levels for Undeveloped Lands, Alternatives A and C

Distance from Pellissippi Parkway⁽¹⁾	$L_{eq}(1h)$ (dBA)⁽²⁾
50 feet	77
100 feet	73
200 feet	68
300 feet	64
400 feet	60
500 feet	58
600 feet	57
700 feet	56
800 feet	55

(1) Perpendicular distance to the center of near lane.

(2) At-grade situation.

Table 16: Design Year 2040 Sound Levels for Undeveloped Lands, Alternative D

Distance from Pellissippi Parkway⁽¹⁾	$L_{eq}(1h)$ (dBA)⁽²⁾
50 feet	72
100 feet	69
200 feet	63
300 feet	60
400 feet	57
500 feet	54
600 feet	52
700 feet	51
800 feet	49

(1) Perpendicular distance to the center of near lane.

(2) At-grade situation.

The values in Tables 15 and 16 do not represent the predicted sound levels at all additional locations adjacent to and particular with the proposed project corridor. Sound levels may vary with changes in terrain and will be affected by the shielding of objects such as buildings. This information is being included to make local officials and planners aware of anticipated highway sound levels so that future development will be compatible with these levels.

Finally, TDOT currently has an active Type II Noise Barrier Program to facilitate the construction of “retrofit” noise barriers along existing highways. To be eligible for a Type II noise barrier, an area must meet the following criteria:

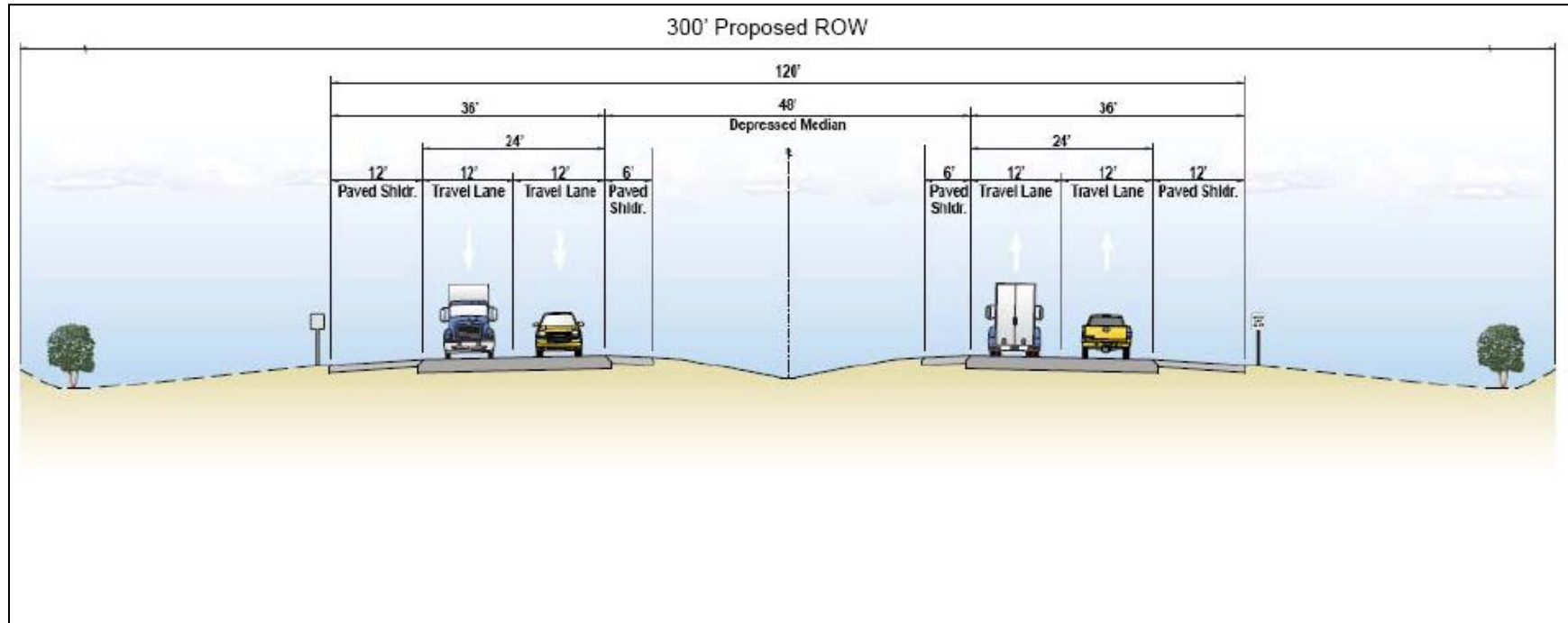
- The neighborhood must be located along a limited-access roadway;
- The neighborhood must be primarily residential;
- The majority (more than 50%) of residences in the neighborhood near the highway predated the initial highway construction;
- A noise barrier for the neighborhood must not have been previously determined to be not reasonable or not feasible as part of a new highway construction or through-lane widening study (Type I project);
- Existing noise levels measured in the neighborhood must be above the Noise Abatement Criteria (NAC) of 66 dBA;
- A barrier must be feasible to construct and will provide substantial noise reduction; and
- A barrier must be reasonable (barrier area per benefited residence) in accordance with TDOT’s noise policy. A residence is considered “benefited” if the noise barrier will reduce the traffic noise by at least 5 dB.

3.0 REFERENCES

- [1] *Procedures for Abatement of Highway Traffic and Construction Noise*, 23 CFR 772, Federal Highway Administration.
- [2] *Policy on Highway Traffic Noise Abatement*, Tennessee Department of Transportation, July 13, 2011.
- [3] *Procedures for Highway Traffic Noise Abatement*, Tennessee Department of Transportation, July 15, 2011.
- [4] *Noise Technical Report Update, Pellissippi Parkway Extension State Route 162*, Parsons Brinckerhoff, Inc., June 2013.
- [5] *Noise Technical Report Update for Preferred Alternative, Noise Analysis Areas 1, 2, 5, 6, 7, 8 and 9, Pellissippi Parkway Extension*, Parsons Brinckerhoff Inc., February 2014.
- [6] *Noise Technical Report Update for Preferred Alternative, Noise Analysis Areas 3, 4 and 10, Pellissippi Parkway Extension*, Bowlby & Associates, February 2014.
- [7] *The Audible Landscape: A Manual for Highway Noise and Land Use*, FHWA, November, 1974. <http://www.fhwa.dot.gov/environment/audible/index.htm>
- [8] *Entering the Quiet Zone: Noise Compatibility Land Use Planning*, FHWA, May, 2002. <http://www.fhwa.dot.gov/environment/noise/quietzon>

Appendix A
Typical Cross-Section

Figure 2-2: Typical Section for Build Alternatives A and C



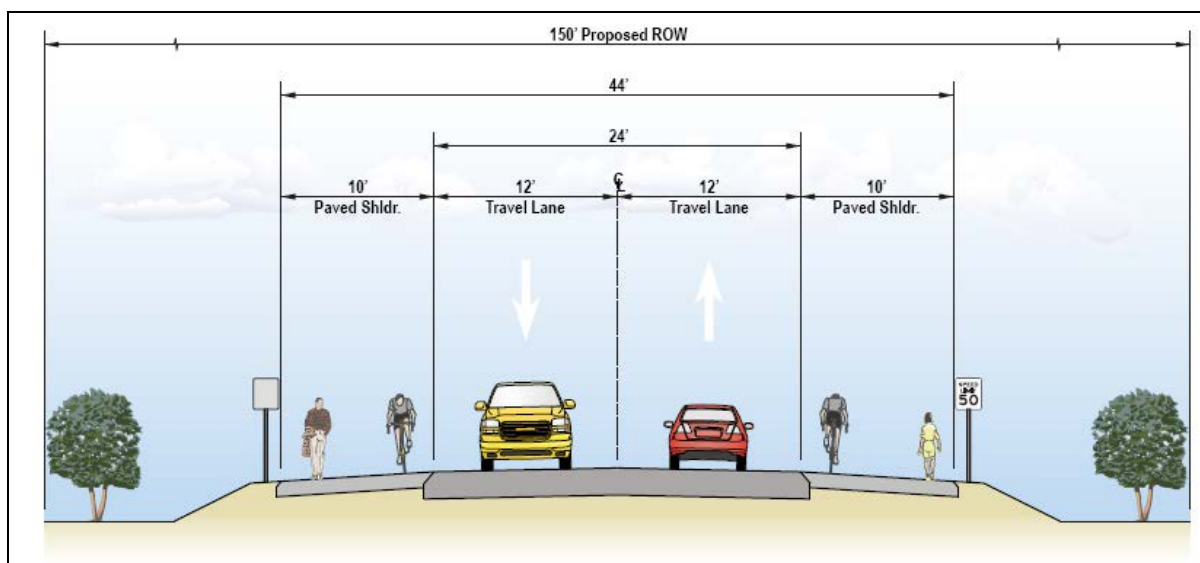
Source: PB Americas, 2009.

would be constructed using the existing roadway alignment where possible, while straightening curves and realigning intersections and using new locations to provide a continuous route with a 50 mile-per-hour design speed. The length of this corridor would be approximately 5.77 miles.

The proposed typical section for the upgraded two-lane network would consist of one 12-foot travel lane in each direction with 10-foot outside shoulders (see Figure 2-4). At major intersections, a center turn lane could be added as necessary. Bicyclists and pedestrians would use the paved shoulders.

The proposed ROW would be a minimum of 150 feet, requiring the purchase of additional ROW. Depending upon the horizontal and vertical curve requirements, desired speed limits and the slope of the existing land, actual ROW acquisition might be reduced or increased in some areas during the design phase of the project.

Figure 2-4: Typical Section for Build Alternative D



Source: PB Americas, 2009.

The corridor would generally follow Sam Houston School Road from SR 33 to Wildwood Road and would continue across Wildwood Road on a new location before joining with Peppermint Road about 2,000 feet south of the current Peppermint Road/Wildwood intersection; thus avoiding the existing offset intersections of Sam Houston School Road and Peppermint Road with Wildwood Road. The corridor would use Peppermint Road for about 1,800 feet before shifting to the east to intersect Hitch Road at its current intersection with Sevierville Road. The corridor would use Hitch Road for about 1,500 feet before shifting southwest to avoid substantial horizontal curves and a large residential subdivision. The corridor would follow a south/southeasterly course behind the subdivision and cross Davis Ford Road to the west of Misty View Drive and subdivision. The alignment would continue southerly crossing Centennial Church Road at Helton Road. Alternative D would generally follow a course to the west of Helton Road and intersecting with US 321/SR 73

Appendix B
Noise Measurement Data Sheets and Drawings
(From Previous Parson Brinckerhoff Noise Study)



Noise Measurement Data

ALT A & C Combined
R7

Measurement Information

Project: Pellissippi Pkwy
Location: 213 Jackson Hills
Measurement Number: #1
Date: Oct 28, 2008
Time: 8:10 am
Personnel: Byron & Emery

Equipment

Noise Meter: B & K
Microphone: _____
Calibrator: 93.8
Calibration: _____
Weighting: A
Response Speed: _____

Meteorology

Temperature: 40°
Humidity: 55%
Cloud Cover: Overcast
Notes: _____

Wind Speed: max 3.6 Avg 1.6
Wind Direction: SW

Measurement

Start Time: 8:10 am
End Time: 8:25 am
Duration: 15 min
Leq: 48.1
Lmin: 43.6
Lmax: 58.5
Notes: _____

L₁: 52.7
L₁₀: 50.2
L₅₀: 47.7
L₉₀: 45.7
L₉₉: 44.7
L: _____

SPL 48.8
Inst 48.8
SEL 77.6
MAXP 76.4
PEAK 60.1

Photographs

Roll: _____ Number: _____
Description: 1) Toward proposed Pkwy
2) " " "
3) Toward House

Noise Measurement Data

Noise Sources

Automobiles:

Busses:

Motorcycles:

Other:

Medium Trucks:

Heavy Trucks:

Aircraft:

Distant Train, Distant Traffic, Distant Plane (2)

Distant Dog Barking, Birds, Distant Hammering

Traffic Count

Roadway: *2 lanes*

Speed: *posted 25 mph*

Start Time: *8:10 am*

Duration: *15 minutes*

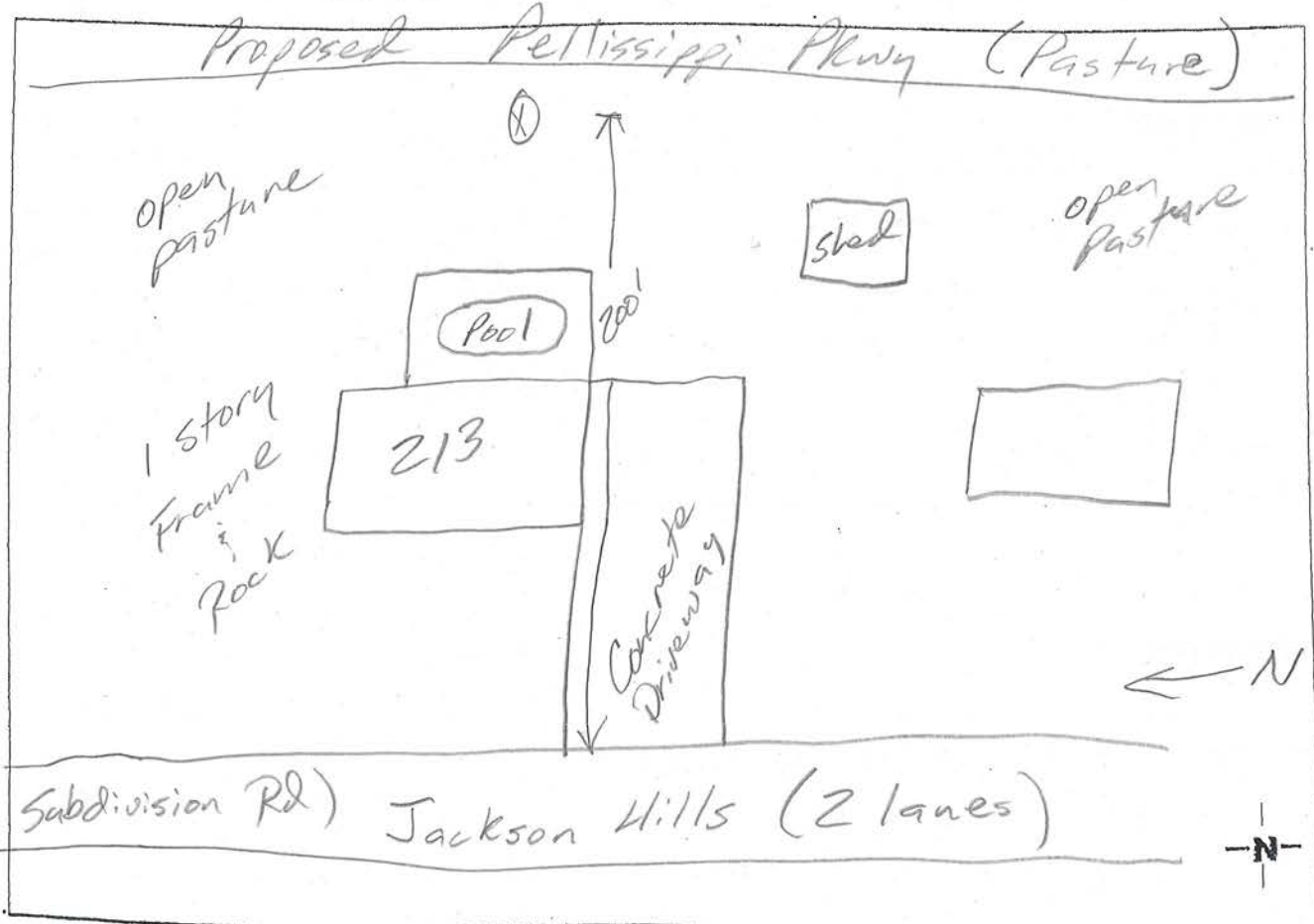
Automobiles:

Medium Trucks:

Heavy Trucks:

Site Sketch

Address: *213 Jackson Hills Dr*





ALT A & C Combined
R 35

Measurement Information

Project: Pellissippi Pkwy
Location: 557 Jackson Hills Dr
Measurement Number: #2
Date: Oct 28, 2008
Time: 8:55 am
Personnel: Byron & Emery

Equipment

Noise Meter: B & K
Microphone: _____
Calibrator: 93.8
Calibration: _____
Weighting: A
Response Speed: _____

Meteorology

Temperature: 40°
Humidity: 55%
Cloud Cover: Low clouds
Notes: _____

Wind Speed: Max 4.5 Aug 1.8
Wind Direction: _____

Measurement

Start Time: 8:55 am
End Time: 9:10 am
Duration: 15 min
Leq: 43.1
Lmin: 38.4
Lmax: 54.9
Notes: _____

L₁: 48.7 SPL 42.6
L₁₀: 45.2 Inst 42.6
L₅₀: 42.7 SEL 72.6
L₉₀: 40.7 max 76.0
L₉₉: 39.2 peak 55.6
L: _____

Photographs

Roll: _____ Number: 4, 5, 6
Description: 4) Toward Pkwy (North)
5) " " (South)
6) Toward House

Noise Measurement Data

Noise Sources

Automobiles:

Busses:

Motorcycles:

Other:

Medium Trucks:

Heavy Trucks:

Aircraft:

Distant Traffic, Birds, Leaves Rustling
Distant Plane

Traffic Count

Roadway: No Roadway

Speed:

Start Time: 8:55 am

Duration: 15 min

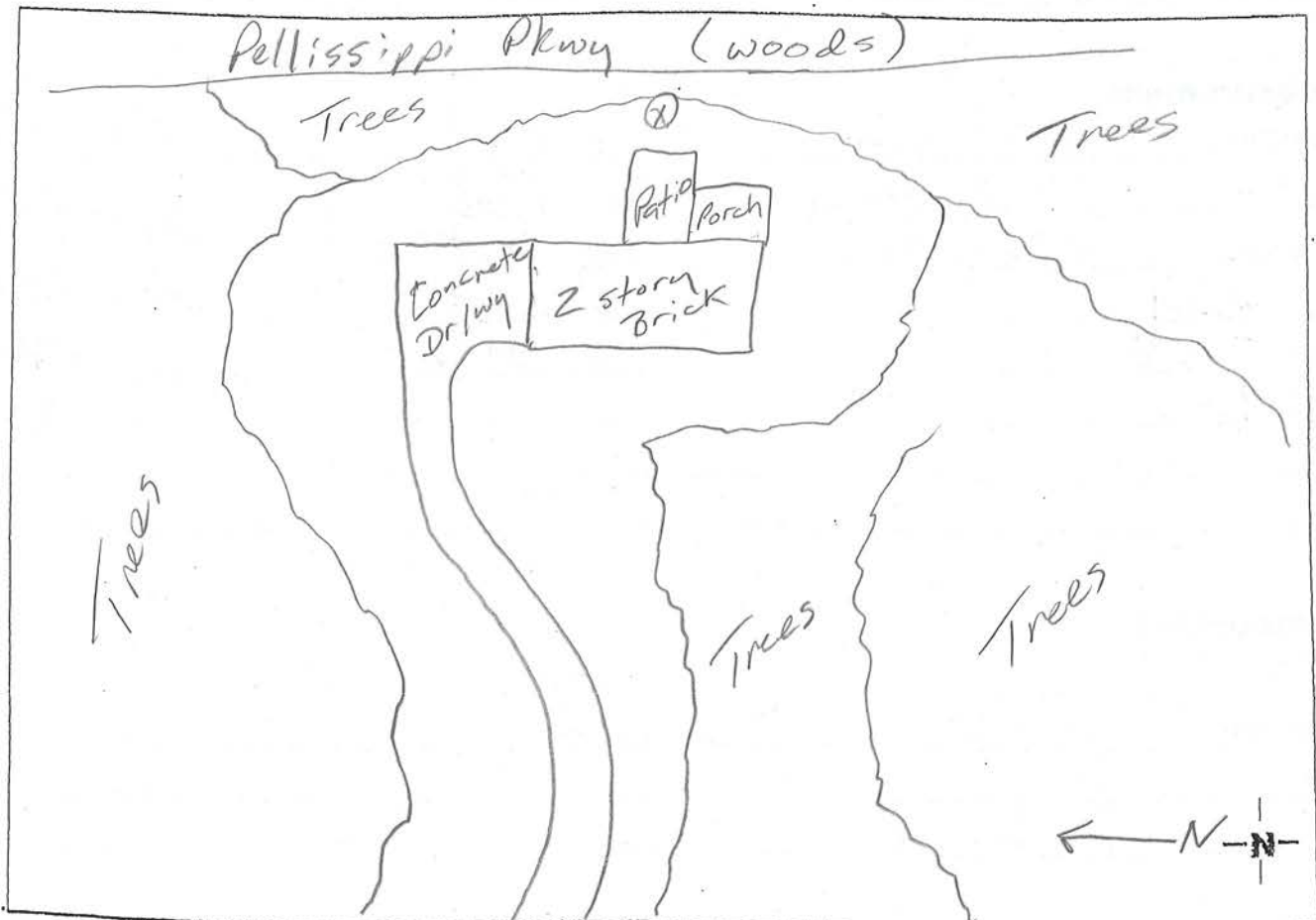
Automobiles:

Medium Trucks:

Heavy Trucks:

Site Sketch

Address: 557 Jackson Hills Dr.





Noise Measurement Data

ALT A & C Combined
R 51

Measurement Information

Project: Pellissippi Pkwy
Location: 3049 Wildwood Rd
Measurement Number: # 3
Date: Oct 28, 2008
Time: 9:30 am
Personnel: Byron & Emery

Equipment

Noise Meter: B & K
Microphone: _____
Calibrator: 93.8
Calibration: _____
Weighting: A
Response Speed: _____

Meteorology

Temperature: 40°
Humidity: 55%
Cloud Cover: Overcast
Notes: _____

Wind Speed: max 3.8 Avg 1.0
Wind Direction: _____

Measurement

Start Time: 9:30 am
End Time: 9:45 am
Duration: 15 min
Leq: 40.5
Lmin: 34.5
Lmax: 63.6
Notes: _____

L ₁	<u>47.2</u>	<u>SPL 38.3</u>
L ₁₀	<u>42.7</u>	<u>Fast 38.3</u>
L ₅₀	<u>38.7</u>	
L ₉₀	<u>36.7</u>	<u>SEL 69.9</u>
L ₉₉	<u>35.7</u>	<u>MaxP 85.8</u>
L		<u>peak 51.4</u>

Photographs

Roll: _____ Number: 7, 8, 9, 10, 11
Description: 7) Toward Pkwy NE
8) Toward Pkwy SE Scenic
9) Toward House SW

Noise Measurement Data

Noise Sources

Automobiles:

Busses:

Motorcycles:

Other:

Medium Trucks:

Heavy Trucks:

Aircraft:

Birds, Leaves Rustling, Distant Overhead Aircraft
Horses, Distant Traffic, Distant Tractor

Traffic Count

Roadway: 2 lanes

Speed: 30 to 40 mph

Start Time: 9:30 am

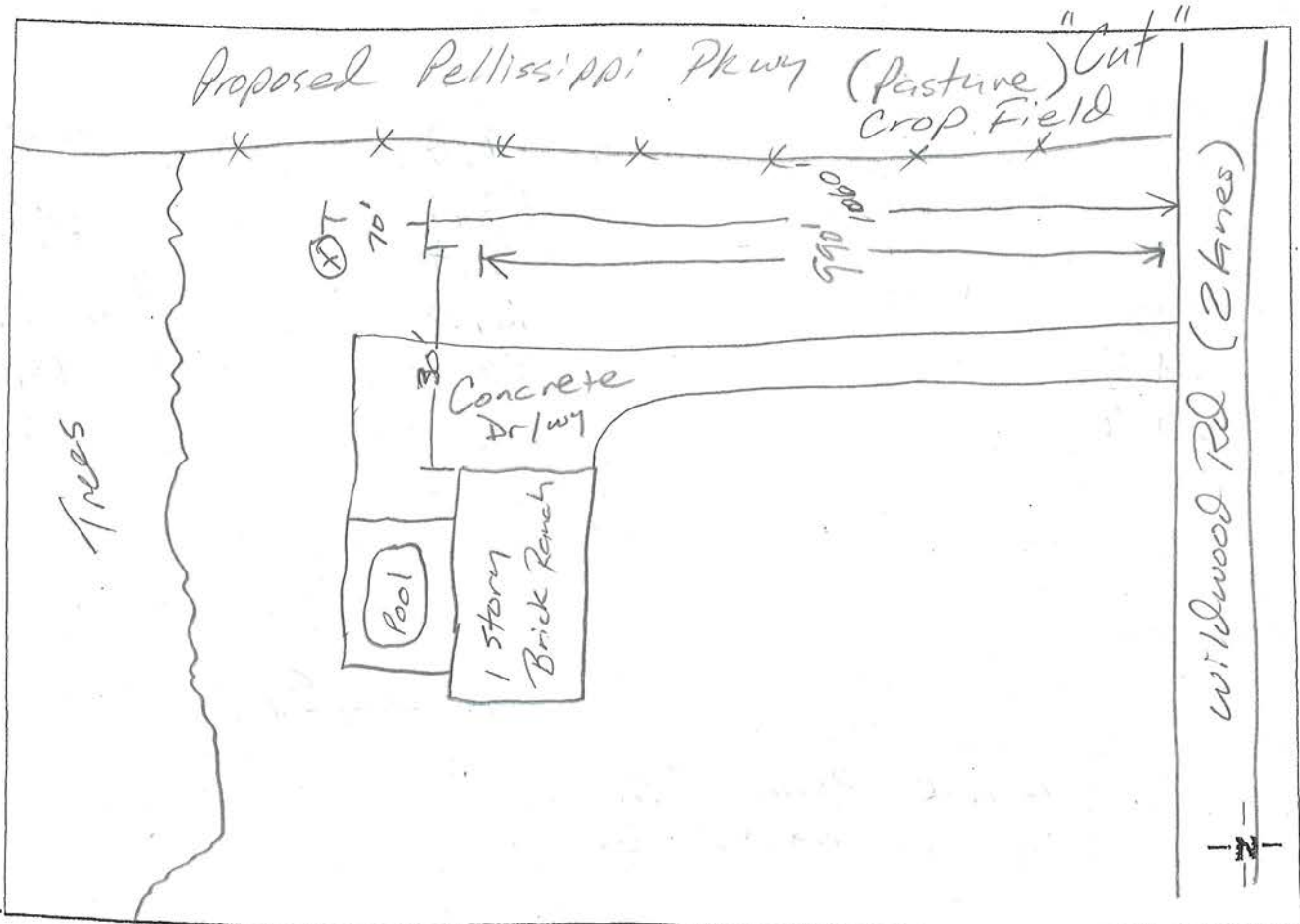
Duration: 15 min

Automobiles:

Medium Trucks: _____ Heavy Trucks: _____

Site Sketch

Address: 3049 Wildwood Rd





Alt A+C combined

Rec 63

Measurement Information

Project: Pellissippi Pkwy
Location: 1785 East Brown School Rd
Measurement Number: # 5
Date: Oct 28, 2008
Time: 1:40 pm
Personnel: Byron & Emery

Equipment

Noise Meter: BEK
Microphone: _____
Calibrator: 93.8
Calibration: _____
Weighting: A
Response Speed: _____

Meteorology

Temperature: 48°
Humidity: 45%
Cloud Cover: Partly Cloudy
Notes: _____

Wind Speed: Max 7.9 Avg 4.0
Wind Direction: SW

Measurement

Start Time: 1:40 pm
End Time: 1:55 pm
Duration: 15 min
Leq: 43.2
Lmin: 33.9
Lmax: 62.5
Notes: _____

L₁: 49.7 SPL 40.7
L₁₀: 47.2 Inst 40.6
L₅₀: 40.7
L₉₀: 37.2 SEL 72.6
L₉₉: 34.7 max P 81.7
L: _____ peak 52.7

Photographs

Roll: _____

Number: 19, 20, 21

Description: 19) Toward Pkwy - North
20) Toward Pkwy - East
21) Toward House - SW

Noise Measurement Data

Noise Sources

Automobiles:

Busses:

Motorcycles:

Other:

Medium Trucks:

Heavy Trucks:

Aircraft:

Birds, Distant Traffic, Distant Overhead Aircraft
Rustling Leaves, Distant Tractor, Distant Barking Dogs

Traffic Count

Roadway: 2 lanes

Speed: 35 to 45 mph

Start Time: 1:40 pm

Duration: 15 min

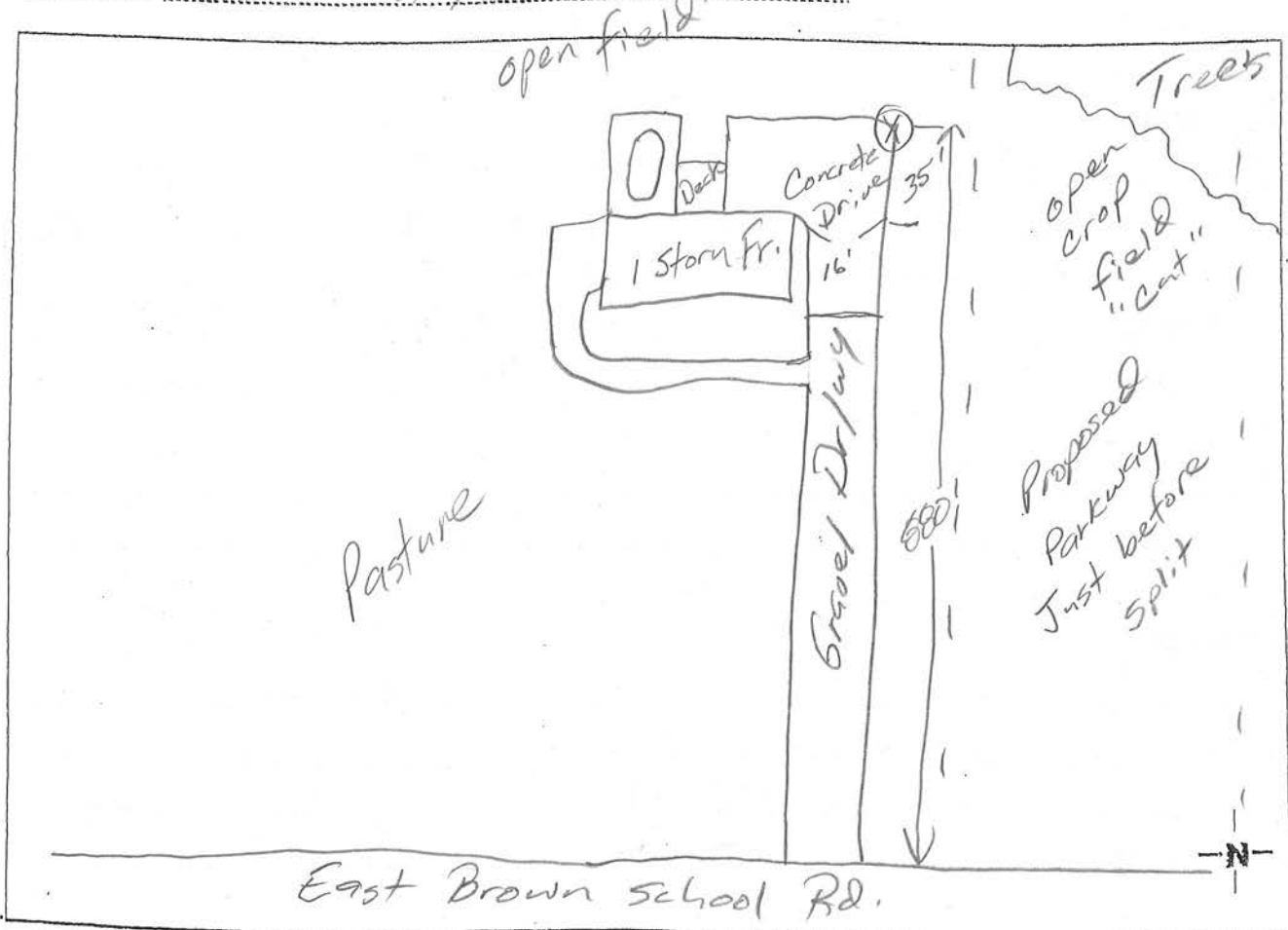
Automobiles:

Medium Trucks:

Heavy Trucks:

Site Sketch

Address: 1785 East Brown School Rd.



ALT C
R 66

Measurement Information

Project: Pellissippi Pkwy
Location: 1834 E Brown School Rd
Measurement Number: # 4
Date: Oct 28, 2008
Time: 10:45 am
Personnel: Byron & Emery

Equipment

Noise Meter: B & K
Microphone: _____
Calibrator: 93.8
Calibration: _____
Weighting: A
Response Speed: _____

Meteorology

Temperature: 44°
Humidity: 45%
Cloud Cover: Partly Cloudy
Notes: _____

Wind Speed: max 5.2 Avg 3.0
Wind Direction: _____

Measurement

Start Time: 10:45 am
End Time: 11:00 am
Duration: 15 min
Leq: 31.5
Lmin: 34.4
Lmax: 59.5
Notes: _____

L₁: 47.2 SPL 38.4
L₁₀: 44.2 Inst 37.5
L₅₀: 40.2
L₉₀: 36.7 SEL 70.9
L₉₉: 35.2 maxP 81.3
L: _____ peak 50.5

Photographs

Roll: _____ Number: 12, 13, 14, 15
Description: (12) Toward Pkwy (NW)
(13) Toward Pkwy (South)
(14) Toward HS (NW)
(15) Toward (west) Scenic

Noise Measurement Data

Noise Sources

Automobiles:

Busses:

Motorcycles:

Other:

Medium Trucks:

Heavy Trucks:

Aircraft:

Birds, Distant Train, Rustling, leaves
Distant Overhead Aircraft

Traffic Count

Roadway: *2 lanes*

Speed: *35 to 45 mph*

Start Time: *10:45 am*

Duration: *15 min*

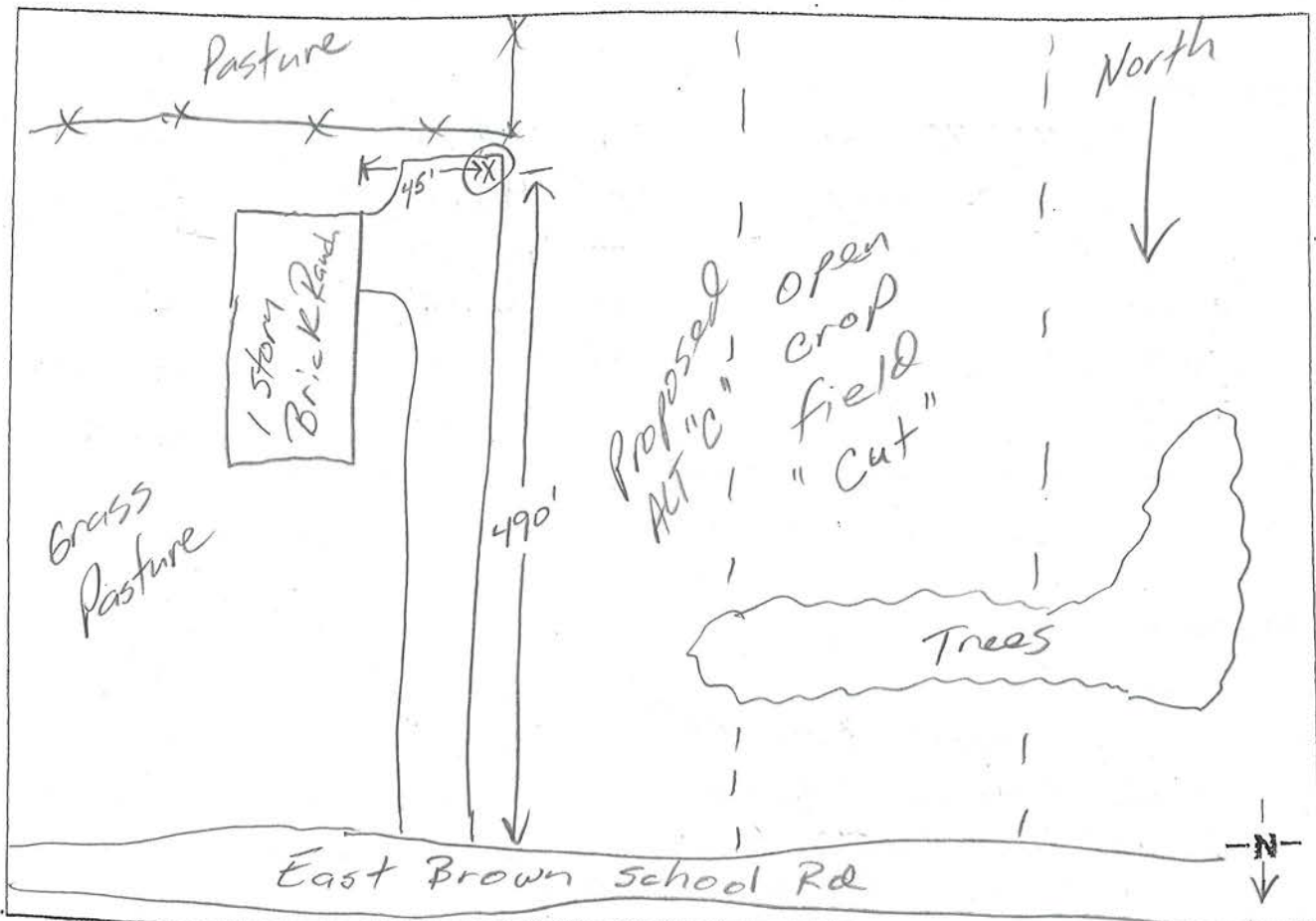
Automobiles:

Medium Trucks:

Heavy Trucks:

Site Sketch

Address: *1834 East Brown School Rd*





Noise Measurement Data

AH A

Rec 76

Measurement Information

Project: Mississippi Pkwy
Location: 3047 Davis Ford Rd
Measurement Number: # 7
Date: Oct 28, 2008
Time: 2:30 pm
Personnel: Byron & Emery

Equipment

Noise Meter: B & K
Microphone: _____
Calibrator: 93.8
Calibration: _____
Weighting: A
Response Speed: _____

Meteorology

Temperature: 52°
Humidity: 39%
Cloud Cover: partly Cloudy
Notes: _____

Wind Speed: Max 4.3 Avg 1.5
Wind Direction: NE

Measurement

Start Time: 2:30 pm
End Time: 2:45 pm
Duration: 15 min
Leq: 33.1
Lmin: 32.5
Lmax: 62.7
Notes: _____

L1: 54.2 SPL 34.7
L10: 46.2 Inst 33.9
L50: 37.2 SEL 72.6
L90: 35.2 max P 83.6
L99: 33.7 peak 44.8
L: _____

Photographs

Roll: _____ Number: 22, 23, 24
Description: 22) Towards Project - (Southeast)
23) Towards House/Project (North)
24) Towards Project - (Northeast)

Noise Measurement Data

Noise Sources

Automobiles: ☒
 Busses:
 Motorcycles:
 Other:

Medium Trucks:
 Heavy Trucks:
 Aircraft:

Distant Traffic, Distant Overhead Aircraft, Birds
Distant Trains

Traffic Count

Roadway: 2 lanes
 Speed: 30 to 40 mph

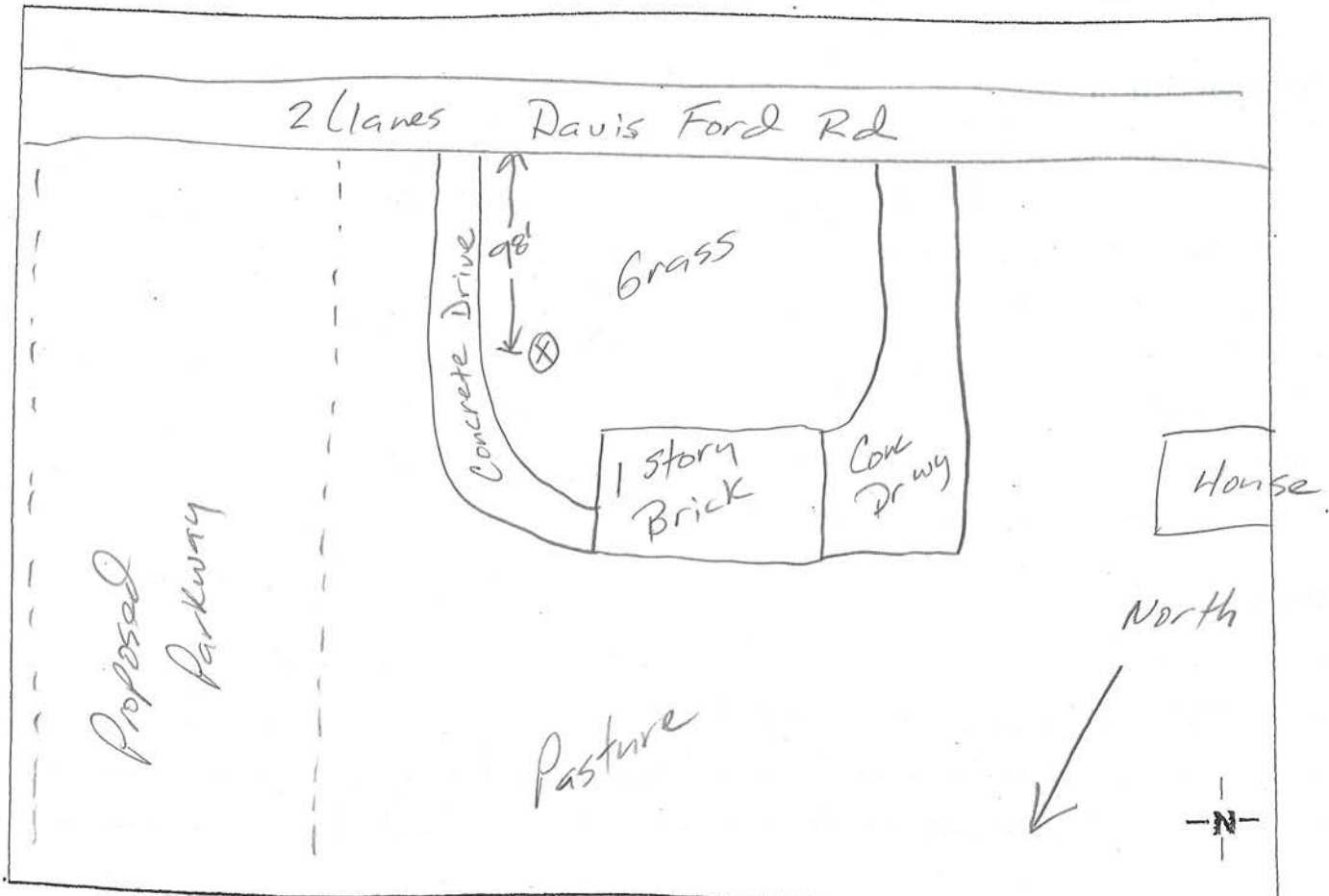
Start Time: 2:30 pm
 Duration: 15 min

Automobiles: EB 9 WB 8

Medium Trucks: Heavy Trucks:

Site Sketch

Address: 3047 Davis Ford Road





Noise Measurement Data

ALT "A"

Rec 72

Measurement Information

Project: Mississippi Pkwy
Location: 3115 Sevierville Rd.
Measurement Number: #10
Date: Oct 28, 2008
Time: 4:55 pm
Personnel: Byron & Emery

Equipment

Noise Meter: B & K
Microphone: _____
Calibrator: 93.8
Calibration: _____
Weighting: A
Response Speed: _____

Meteorology

Temperature: 54°
Humidity: 34%
Cloud Cover: Partly Cloudy
Notes: _____

Wind Speed: Max 2.3 Avg 1.2
Wind Direction: _____

Measurement

Start Time: 4:55 pm
End Time: 5:10 pm
Duration: 15 min
Leq: 63.9
Lmin: 37.1
Lmax: 75.3
Notes: _____

L1:	<u>71.2</u>	SPL	<u>60.3</u>
L10:	<u>68.7</u>	Inst	<u>57.7</u>
L50:	<u>59.2</u>	SEL	<u>93.4</u>
L90:	<u>44.7</u>	MAXP	<u>91.8</u>
L99:	<u>38.7</u>	peak	<u>73.3</u>
L:	_____		

Photographs

Roll: _____ Number: 32 33 34 35
Description: 32 Towards House
33 Towards Sevierville Rd
34 Scenic SE
35 Towards Parkway S.W.

Noise Measurement Data

Noise Sources

Automobiles: ☒

Busses: ☐

Motorcycles: ☐

Other: ☐

Medium Trucks: ☒

Heavy Trucks: ☐

Aircraft: ☐

Distant Overhead Aircraft

Birds, Leaves Rustling, Distant Dog Barking

Traffic Count

Roadway: 2 lane Asphalt

Speed: 35 - 50 mph

Start Time: 4:55 pm

Duration: 15 min

Automobiles: EB WB

Medium Trucks: EB WB

Heavy Trucks: EB WB

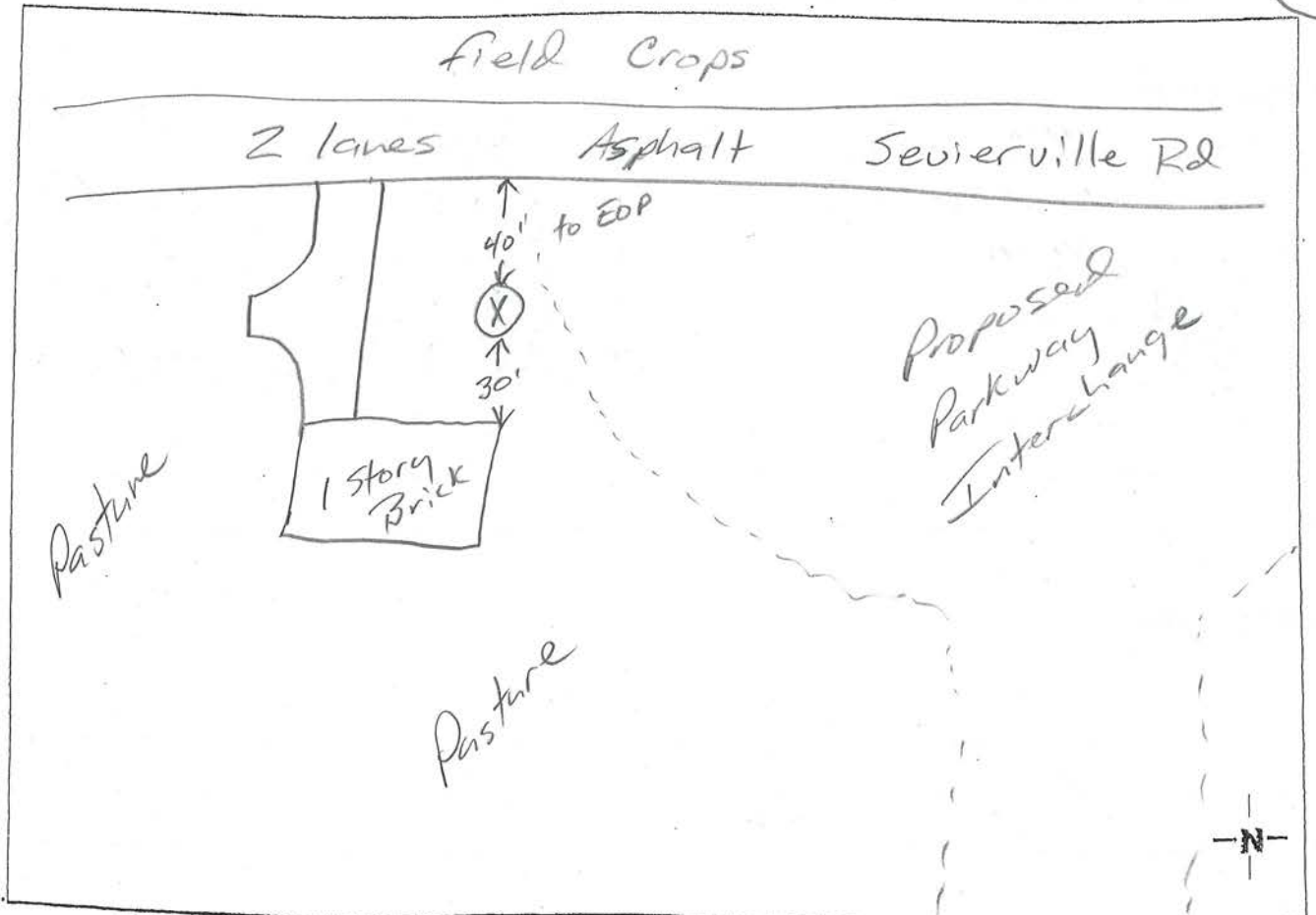
Site Sketch

Address: 3115 Sevierville Rd

Elevated 10'



Road



ACT "A"
Rec 84

Measurement Information

Project: Mississippi Pkwy
Location: 626 Hepatica Dr.
Measurement Number: #8
Date: Oct 28, 2008
Time: 3:25 pm
Personnel: Byron + Emory

Equipment

Noise Meter: B + K
Microphone: _____
Calibrator: 93.8
Calibration: _____
Weighting: A
Response Speed: _____

Meteorology

Temperature: 52°
Humidity: 34%
Cloud Cover: partly cloudy
Notes: _____

Wind Speed: max 2.3 Avg 1.3
Wind Direction: _____

Measurement

Start Time: 3:25 pm
End Time: 3:40 pm
Duration: 15 min
Leg: 40
Lmin: 33.8
Lmax: 59.5
Notes: _____

L ₁ :	<u>47.7</u>	SPL	<u>40.4</u>
L ₁₀ :	<u>42.2</u>	Inst	<u>40.1</u>
L ₅₀ :	<u>38.7</u>	SEL	<u>69.5</u>
L ₉₀ :	<u>36.2</u>	MAX P	<u>82.7</u>
L ₉₉ :	<u>35.2</u>	Peak	<u>52.7</u>
L :	_____		

Photographs

Roll: _____ Number: 25 26 27 28
Description: 25) Towards Project - North
26) Towards Project - North East
27) Towards Row of Trailers - Southeast
28) Towards Trailer - Southwest

Noise Measurement Data

Noise Sources

Automobiles:

Busses:

Motorcycles:

Other:

Medium Trucks:

Heavy Trucks:

Aircraft:

*Dogs Barking, Birds, Distant Overhead Aircraft
Rustling Leaves*

Traffic Count

Roadway: *No Road*

Speed:

Start Time: *3:25 pm*

Duration: *15 min*

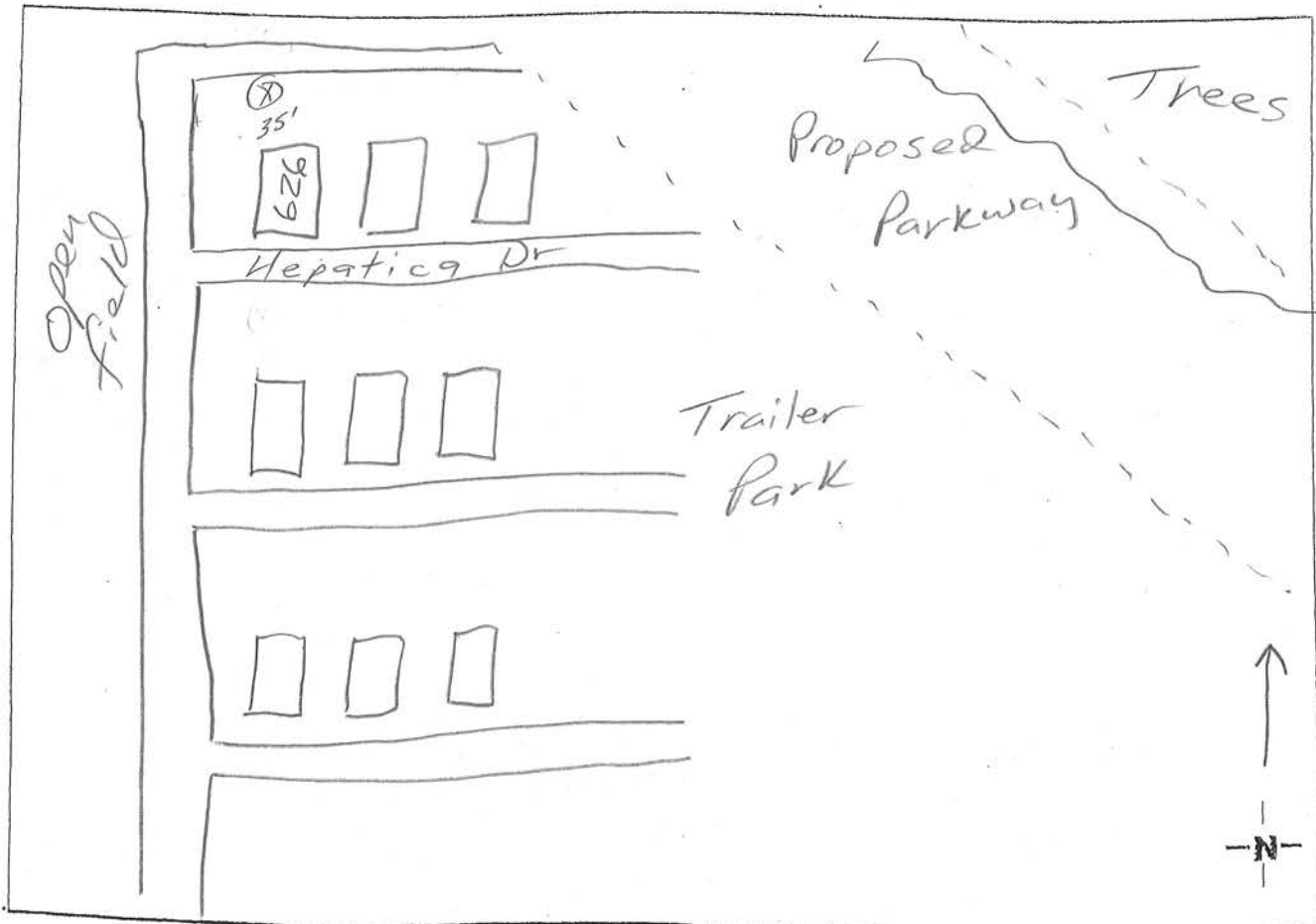
Automobiles:

Medium Trucks:

Heavy Trucks:

Site Sketch

Address: *626 Hepatica Drive*



Alt "A"
Rec 93

Measurement Information

Project: Mississippi Pkwy
Location: 3412 Lamar Alexander Pkwy
Measurement Number: #9
Date: Oct 28, 2008
Time: 4:00 pm
Personnel: Byron & Emery

Equipment

Noise Meter: B & K
Microphone: _____
Calibrator: 93.8
Calibration: _____
Weighting: A
Response Speed: _____

Meteorology

Temperature: 52°
Humidity: 33%
Cloud Cover: Partly Cloudy
Notes: _____

Wind Speed: max 3.9 Avg 1.8
Wind Direction: _____

Measurement

Start Time: 4:00 pm
End Time: 4:15 pm
Duration: 15 min
Leq: 67.2
Lmin: 52.8
Lmax: 79.8
Notes: _____

L₁: 73.2 SPL 68.1
L₁₀: 69.7 Inst 67.5
L₅₀: 66.2
L₉₀: 61.2 SEL 96.7
L₉₉: 56.7 maxP 92.2
L: _____ Peak 80.1

Photographs

Roll: _____ Number: 29, 30, 31
Description: 29) towards Project (Northwest)
30) towards Project (North)
31) towards church (East)

Noise Measurement Data

340 - 9181

Noise Sources

Automobiles: ☒

Busses: ☒ (2)

Motorcycles: ☒ (1)

Other: Distant Overhead Aircraft

Medium Trucks: ☒

Heavy Trucks: ☒

Aircraft: ☐

Traffic Count

Roadway: 4 lanes w/ flush median

Speed: 50 - 60 mph

Start Time: 4:00 pm


Duration:

Automobiles: EB 207 WB 204

Medium Trucks: EB 2 WB 1

Heavy Trucks: EB 3 WB 3

Site Sketch

Address: Morning Star Baptist Church  Road
3412 Lamar Alexander PKwy US 321



ALT 17
Rec 181

Measurement Information

Project: Mississippi Hwy
Location: Eagleton Elementary
Measurement Number: H6
Date: Oct 28, 2008
Time: 1:00 pm
Personnel: Byron + Emory

Equipment

Noise Meter: B + K
Microphone: _____
Calibrator: 93.8
Calibration: _____
Weighting: A
Response Speed: _____

Meteorology

Temperature: 52°
Humidity: 42%
Cloud Cover: Partly Cloudy
Notes: _____

Wind Speed: max 3.2 Avg 1.6
Wind Direction: _____

Measurement

Start Time: 1:00 pm
End Time: 1:15 pm
Duration: 15 min
Leq: 42.4
Lmin: 33.4
Lmax: 58.8
Notes: _____

L1	<u>53.2</u>	SEL	<u>38.5</u>
L10	<u>43.7</u>	Inst	<u>38.4</u>
L50	<u>38.7</u>	SEL	<u>71.9</u>
L90	<u>36.2</u>	MayP	<u>75.0</u>
L99	<u>34.7</u>	peak	<u>52.7</u>
L	_____		

Photographs

Roll: _____ Number: 16, 17, 18
Description: 16) Toward Sam Houston North
17) Toward Sam Houston E
18) Toward school SW

Noise Measurement Data

Noise Sources

Automobiles:

Busses:

Motorcycles:

Other:

Medium Trucks:

Heavy Trucks:

Aircraft:

Distant Traffic, Flag Blowing, Distant Overhead
Distant Birds, people talking, Aircraft

Traffic Count

Roadway: *2 lanes*

Speed: *35 to 45 mph*

Start Time:

Duration:

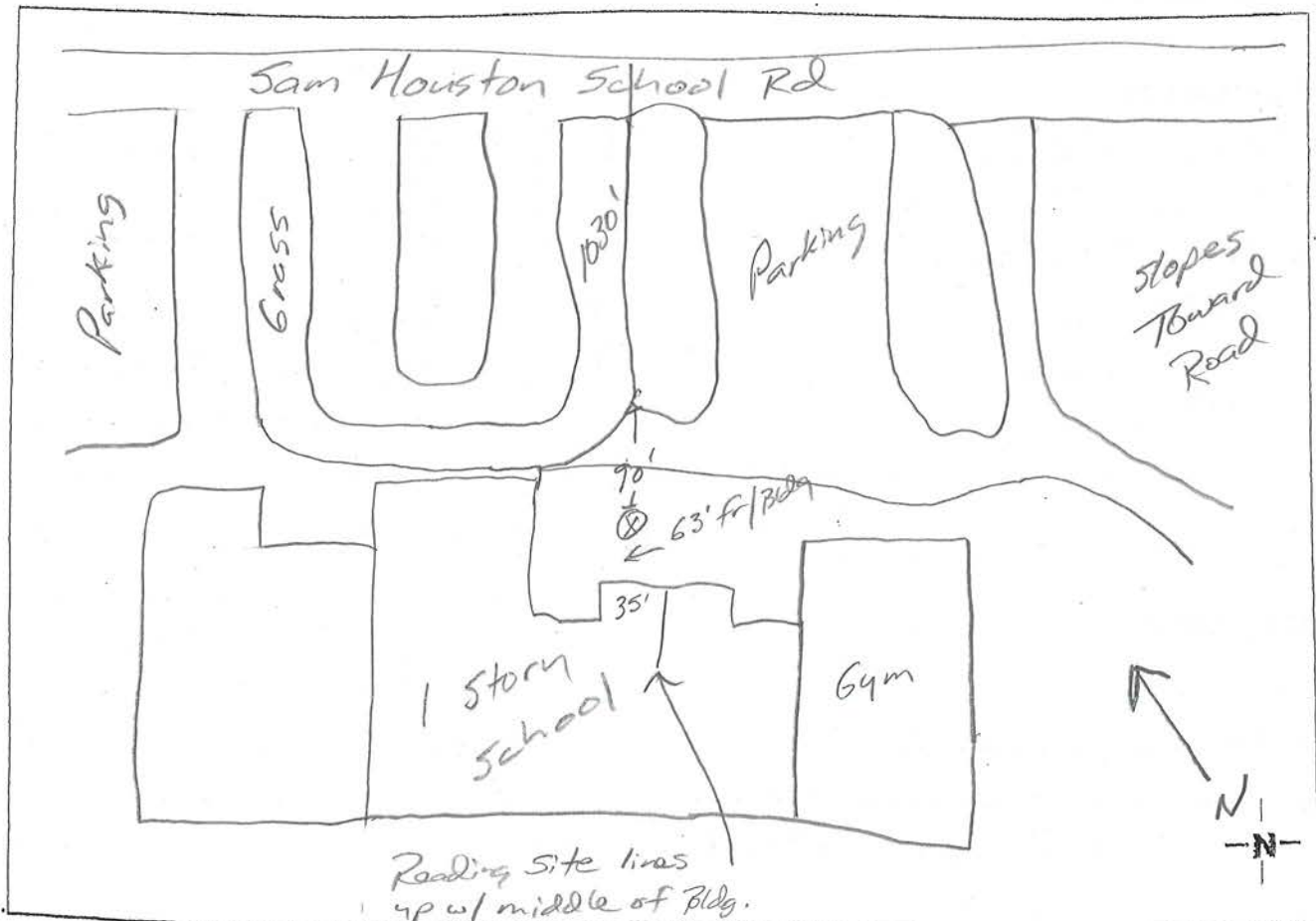
Automobiles:

Medium Trucks:

Heavy Trucks:

Site Sketch

Address: *Eagleton Elementary*





ALT "A"

Rec 72 Re-take

Measurement Information

Project: Pellessippi Pkwy
Location: 3115 Sevensville Rd
Measurement Number: #10-A
Date: Oct 30, 2008
Time: 4:15 pm
Personnel: Bryon + Emery

Equipment

Noise Meter: B + K
Microphone: _____
Calibrator: 93.8
Calibration: _____
Weighting: A
Response Speed: _____

Meteorology

Temperature: 70°
Humidity: 20%
Cloud Cover: Clear + Sunny
Notes: _____

Wind Speed: max 1.5 Avg .7
Wind Direction: _____

Measurement

Start Time: 4:15 pm
End Time: 4:30 pm
Duration: 15 min
Leq: 63.5
Lmin: 32.9
Lmax: 77.4
Notes: _____

L1: 71.7
L10: 68.2
L50: 57.2
L90: 41.2
L99: 33.7
L: _____

SPL 66.6
Inst 64.2
SEL 93.0
MAXP 89.8
PEAK 79.2

Photographs

Roll: _____ Number: _____
Description: See other site #10 pics

Noise Measurement Data

Noise Sources

Automobiles: ✓

Busses: _____

Motorcycles: _____

Other: _____

Medium Trucks: _____

Heavy Trucks: _____

Aircraft: _____

Leaves Rustling, Birds, Distant Overhead Aircraft.

Traffic Count

Roadway: 2 lanes

Speed: 35-50 mph

Start Time: 4:15 pm

Duration: 15 min

Automobiles: EB 90 WB 53

Medium Trucks: _____

Heavy Trucks: _____

Site Sketch

Address: 3115 Savienville Rd

*See Site #10
for Site map
Drawing.*





Noise Measurement Data

ALT "D"
Rec 167

Measurement Information

Project: Re Mississippi Hwy
Location: 229 Sam Houston School Rd
Measurement Number: # 11
Date: Oct 29, 2009
Time: 8:30 am
Personnel: Byron & Emery

Equipment

Noise Meter: B&K
Microphone: _____
Calibrator: 93.8
Calibration: _____
Weighting: A
Response Speed: _____

Meteorology

Temperature: 35°
Humidity: 65 %
Cloud Cover: Clear - Sunny
Notes: _____

Wind Speed: 0
Wind Direction: N/A

Measurement

Start Time: 8:30 am
End Time: 8:45 am
Duration: 15 min
Leq: 57.1
Lmin: 41.5
Lmax: 74.8
Notes: _____

L₁: 68.2 SPL 47.3
L₁₀: 60.7 Inst 46.1
L₅₀: 51.7 SEL 89.6
L₉₀: 45.7 maxP 88.7
L₉₉: 42.7 peak 59.8
L: _____

Photographs

Roll: _____

Number: 36, 37, 38, 39

Description: 36) facing House (w)
37) facing Rd (S)
38) facing House (N)
39) facing Rd (w)

Noise Measurement Data

Noise Sources

Automobiles: ☒

Busses: ☐

Motorcycles: ☐

Other: ☐

Medium Trucks: ☒

Heavy Trucks: ☒

Aircraft: ☒

Distant Trains, Leaves Rustling
Distant Overhead Aircraft, Birds

Traffic Count

Roadway: 2 lanes

Speed: 35-45 mph

Start Time: 8:30 am

Duration: 15 min


Automobiles: EB 21 WB 54

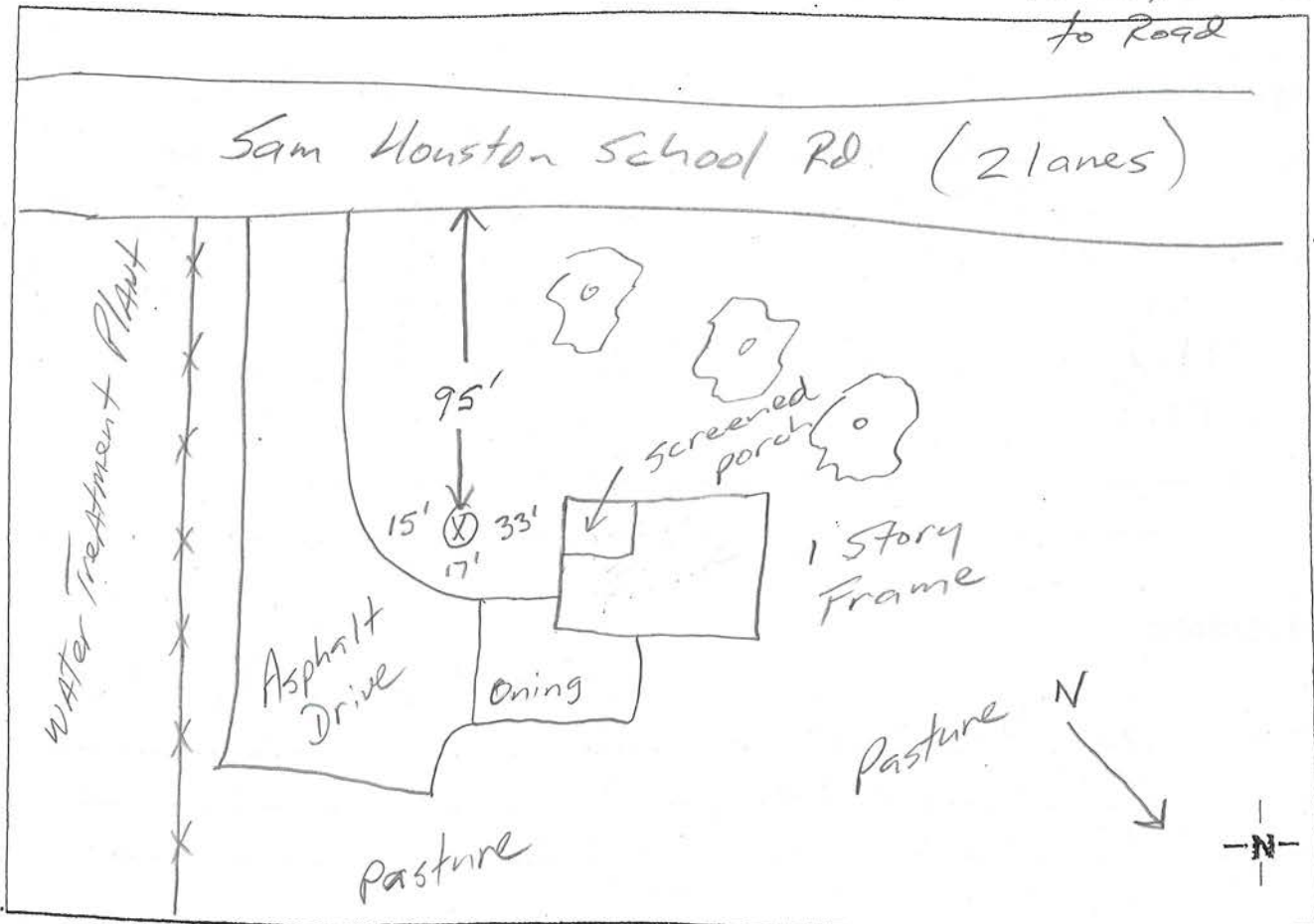
Medium Trucks: EB 0 WB 0

Heavy Trucks: EB 0 WB 2

Site Sketch

Address: 229 Sam Houston School Rd


15' slope
to Road Rd.



ACT "D"
Rec 177

Measurement Information

Project: Mississippi Plant
Location: 436 Sam Houston School
Measurement Number: Site 12
Date: October 29, 2008
Time: 9:10 am
Personnel: Bryan & Emery

Equipment

Noise Meter: B + K
Microphone: _____
Calibrator: 93.8
Calibration: _____
Weighting: A
Response Speed: _____

Meteorology

Temperature: 35°
Humidity: 65%
Cloud Cover: Clear + Sunny
Notes: _____

Wind Speed: 0
Wind Direction: N/A

Measurement

Start Time: 9:10 am
End Time: 9:25 am
Duration: 15 min
Leq: 54.6
Lmin: 40.8
Lmax: 67.5
Notes: _____

L1	: 64.2	Spl	54.6
L10	: 58.7	Inst	54.4
L50	: 50.2	SEL	84.1
L90	: 43.2	MaxP	82.2
L99	: 42.2	Peak	66.5
L	:		

Photographs

Roll: _____

Number: 40, 41, 42, 43Description: 40) towards project - west41) towards project - north42) towards house - southeast43) towards project - west

Noise Measurement Data

Noise Sources

Automobiles: ☒

Busses: ☐

Motorcycles: ☐

Other: ☐

Medium Trucks: ☒

Heavy Trucks: ☒

Aircraft: ☐

Birds, Leaves Falling, Distant Overhead Aircraft
Rustling Leaves

Traffic Count

Roadway: 2 lanes

Speed: 35-45 mph

Start Time: 9:10 am

Duration: 15 min

Automobiles: EB 15 WB 39

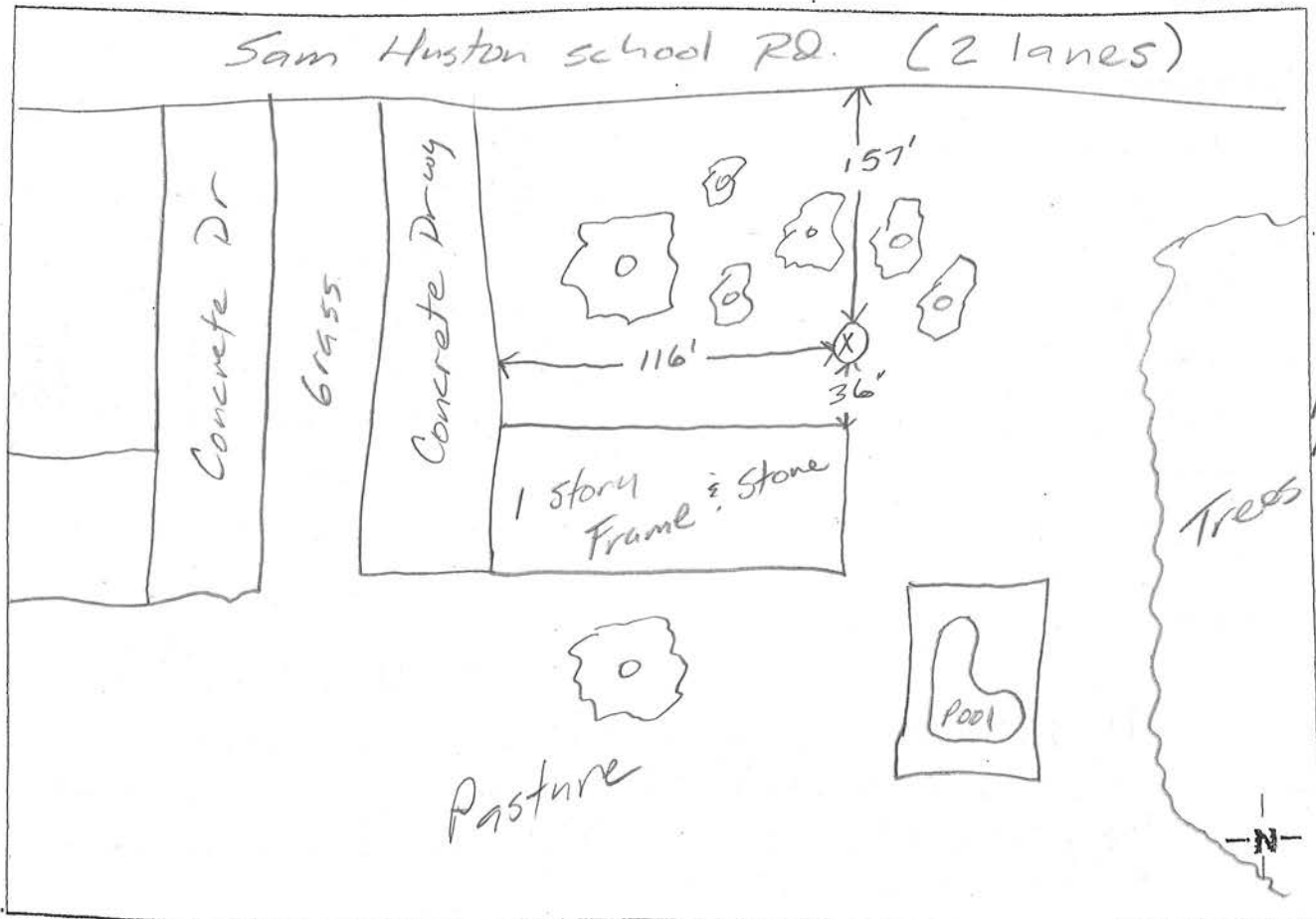
Medium Trucks: EB 1 WB 0 Heavy Trucks: EB 2 WB 2

Site Sketch

Address: 436 Sam Houston School Rd



Rd





ACT "D"

Rec 198

Measurement Information

Project: Mississippi Hwy
Location: 909 Sam Houston School Rd
Measurement Number: Site 13
Date: October 29, 2008
Time: 9:55 am
Personnel: Byron + Emery

Equipment

Noise Meter: B + K
Microphone: _____
Calibrator: 93.8
Calibration: _____
Weighting: A
Response Speed: _____

Meteorology

Temperature: 32°
Humidity: 60%
Cloud Cover: Clear + Sunny
Notes: _____

Wind Speed: max 3.7 Avg 1.0
Wind Direction: N / W

Measurement

Start Time: 9:55 am
End Time: 10:10 am
Duration: 15
Leg: 50.9
Lmin: 33.4
Lmax: 68.0
Notes: _____

L1: 62.7 SpL 41.0
L10: 54.2 Inst 38.7
L50: 43.2 SEL 80.4
L90: 37.2 MAXP 83.8
L99: 34.7 Peak 51.5
L: _____

Photographs

Roll: _____ Number: 44, 45, 46, 47, 48
Description: 44) Towards Project - Northwest
45) Towards Project - Southwest
46) Towards house - South
47) Towards Mic - East
48) Towards Mnts - East

Noise Measurement Data

Noise Sources

Automobiles: ☒

Busses: ☐

Motorcycles: ☒ NB 1

Other: ☐

Medium Trucks: ☐

Heavy Trucks: ☒

Aircraft: ☐

Distant Dogs Barking, Distant Overhead Aircraft
Distant Hammering, Birds, Distant Siren

Traffic Count

Roadway: 2 lanes

Speed: 35-45 mph

Start Time: 9:55 am

Duration: 15 min

Automobiles: SB 9 NB 18

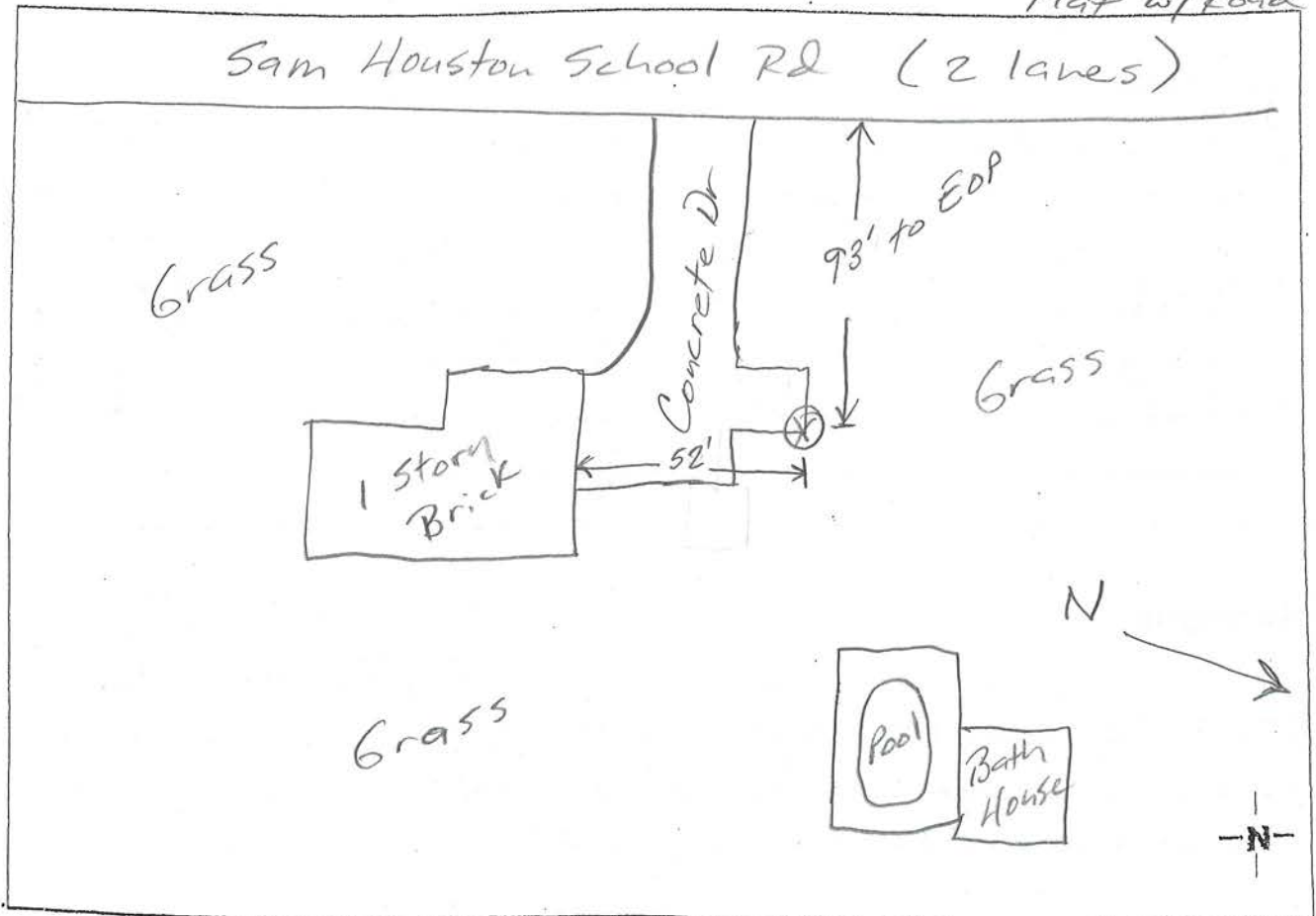
Medium Trucks: SB 0 NB 0

Heavy Trucks: SB 0 NB 1

Site Sketch

Address: 909 Sam Houston School Rd

Flat w/ Road





Noise Measurement Data

ALT 17

RE-TAKE
Rec 189

Measurement Information

Project: Pellissippi Pkwy
Location: 909 Smith Houston School Rd
Measurement Number: Site 13-A
Date: Oct 29, 2008
Time: 5:00 pm
Personnel: Byron & Emery

Equipment

Noise Meter: B & K
Microphone: _____
Calibrator: 93.8
Calibration: _____
Weighting: A
Response Speed: _____

Meteorology

Temperature: 57°
Humidity: 30%
Cloud Cover: Clear - Sunny
Notes: _____

Wind Speed: max 1.8 Avg 1.0
Wind Direction: _____

Measurement

Start Time: 5:00 pm
End Time: 5:15 pm
Duration: 15 min
Leq: 55.6
Lmin: 35.5
Lmax: 71.7
Notes: _____

L₁: 64.2
L₁₀: 59.2
L₅₀: 52.2
L₉₀: 41.2
L₉₉: 37.2
L: _____
SPC 51.7
Inst 51.6
SEL 85.1
MAXP 80.7
Peak 63.4

Photographs

Roll: _____

Number: _____

Description: Same As Site # 13

Noise Measurement Data

Noise Sources

Automobiles: ☒

Busses: _____

Motorcycles: ☒ (2)

Other: _____

Medium Trucks: _____

Heavy Trucks: _____

Aircraft: _____

People Talking at Road, Birds
Distant Overhead Aircraft, Distant Hammering

Traffic Count

Roadway: 2 lanes

Speed: 35 - 45 mph

Start Time: 5:00 pm

Duration: 15 min

Automobiles: NB 20 SB 93

Medium Trucks: NB 0 SB 0 Heavy Trucks: NB 0 SB 0

Site Sketch

Address: 909 Sam Houston School Rd.

Flat Rd

See Site 13
for Site Drawing





Noise Measurement Data

ACT "D"
Rec 211

Measurement Information

Project: Pellissippi Pkwy
Location: 1036 Belfair Ln
Measurement Number: # 14
Date: Oct 29, 2008
Time: 10:35 am
Personnel: Byron & Emery

Equipment

Noise Meter: B & K
Microphone: _____
Calibrator: 93.8
Calibration: _____
Weighting: A
Response Speed: _____

Meteorology

Temperature: 45°
Humidity: 45%
Cloud Cover: Clear - Sunny
Notes: _____

Wind Speed: max 4.4 Avg 1.0
Wind Direction: SE

Measurement

Start Time: 10:35 am
End Time: 10:50 am
Duration: 15 min
Leq: 54.4
Lmin: 37.6
Lmax: 72.8
Notes: _____

L1: 66.2 SPC 45.4
L10: 57.7 Inst 45.4
L50: 48.2
L90: 42.2 SEL 84.1
L99: 38.7 maxp 82.3
L: _____ peak 56.7

Photographs

Roll: _____ Number: 49, 50, 51, 52, 53
Description: 49) towards Wildwood - South 52) towards church South West
50) towards Wildwood - South East 53) towards Wildwood -
51) towards Sam Houston - North South East

Noise Measurement Data

Noise Sources

Automobiles: ☒

Busses: ☐

Motorcycles: ☒ 1 Wildwood SWB

Other: ☐

Medium Trucks: ☒

Heavy Trucks: ☒

Aircraft: ☐

Distant Overhead Aircraft, Birds, Rustling Leaves
Distant wind chime

Traffic Count

Roadway: Both (2 lanes)

Speed: Sam Houston 0-25 mph
Wildwood 30-45 mph

Automobiles: Wildwood SWB 37
Sam Houston SEB 12

Medium Trucks: Wildwood 1 NEB
Sam Houston 1 NWB

Start Time: 10:35 am

Duration: 15 min

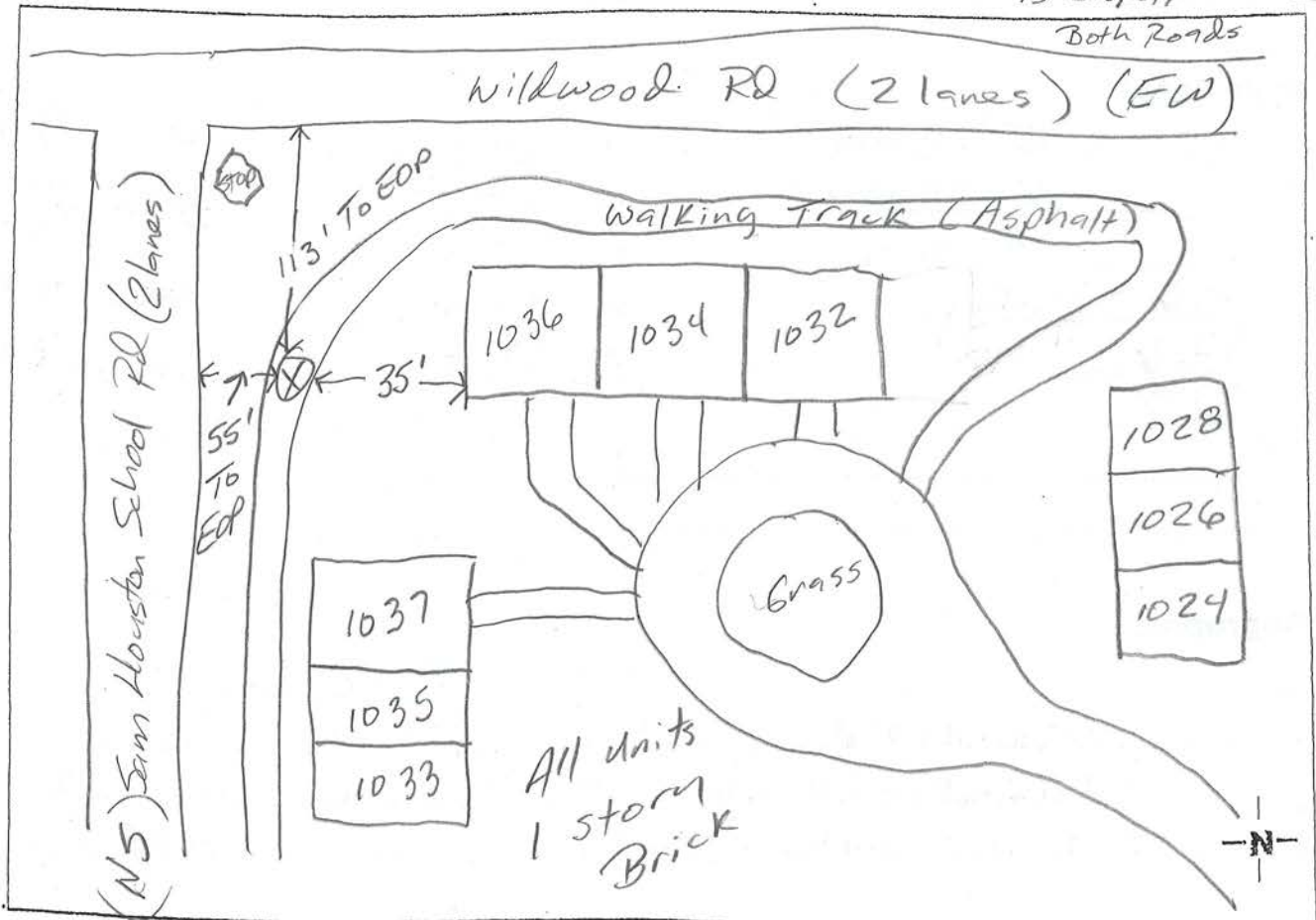
NEB 39
NWB 23

Heavy Trucks: Wildwood 1 NEB
Sam Houston 1 SEB

Site Sketch

Address: 1036

15' Dropoff
Both Roads
Rd





Noise Measurement Data

ALT. "D"
Rec 22.7

Measurement Information

Project: Pellissippi Pkwy
Location: 1514 Peppermint Rd.
Measurement Number: #15
Date: Oct 29, 2008
Time: 1:00 pm
Personnel: Byron & Emery

Equipment

Noise Meter: B & K
Microphone: _____
Calibrator: 93.8
Calibration: _____
Weighting: A
Response Speed: _____

Meteorology

Temperature: 50°
Humidity: 35%
Cloud Cover: Clear - Sunny
Notes: _____

Wind Speed: max 5.2 Avg 2.4
Wind Direction: _____

Measurement

Start Time: 1:00 pm
End Time: 1:15 pm
Duration: 15 min
Leq: 53.3
Lmin: 36.0
Lmax: 75.3
Notes: _____

L₁: 63.2 SPL 40.3
L₁₀: 57.2 Just 38.8
L₅₀: 47.7
L₉₀: 39.7 SEL 82.7
L₉₉: 37.7 max P 97.4
L: _____ peak 52.7

Photographs

Roll: _____ Number: 54, 55, 56, 57
Description: 54) toward project - west
55) toward project - south
56) toward house - northeast
57) toward project - north

Noise Measurement Data

Noise Sources

Automobiles: ☒

Busses: ☒

Motorcycles: ☐

Other: ☐

Medium Trucks: ☐

Heavy Trucks: ☐

Aircraft: ☐

Birds, Rustling Leaves, Distant Overhead Aircraft
Tractor passed By

Traffic Count

Roadway: 2 lanes

Speed: 35-50 mph

Start Time: 1:00 pm

Duration: 15 min

Automobiles: NB 15 SB 20

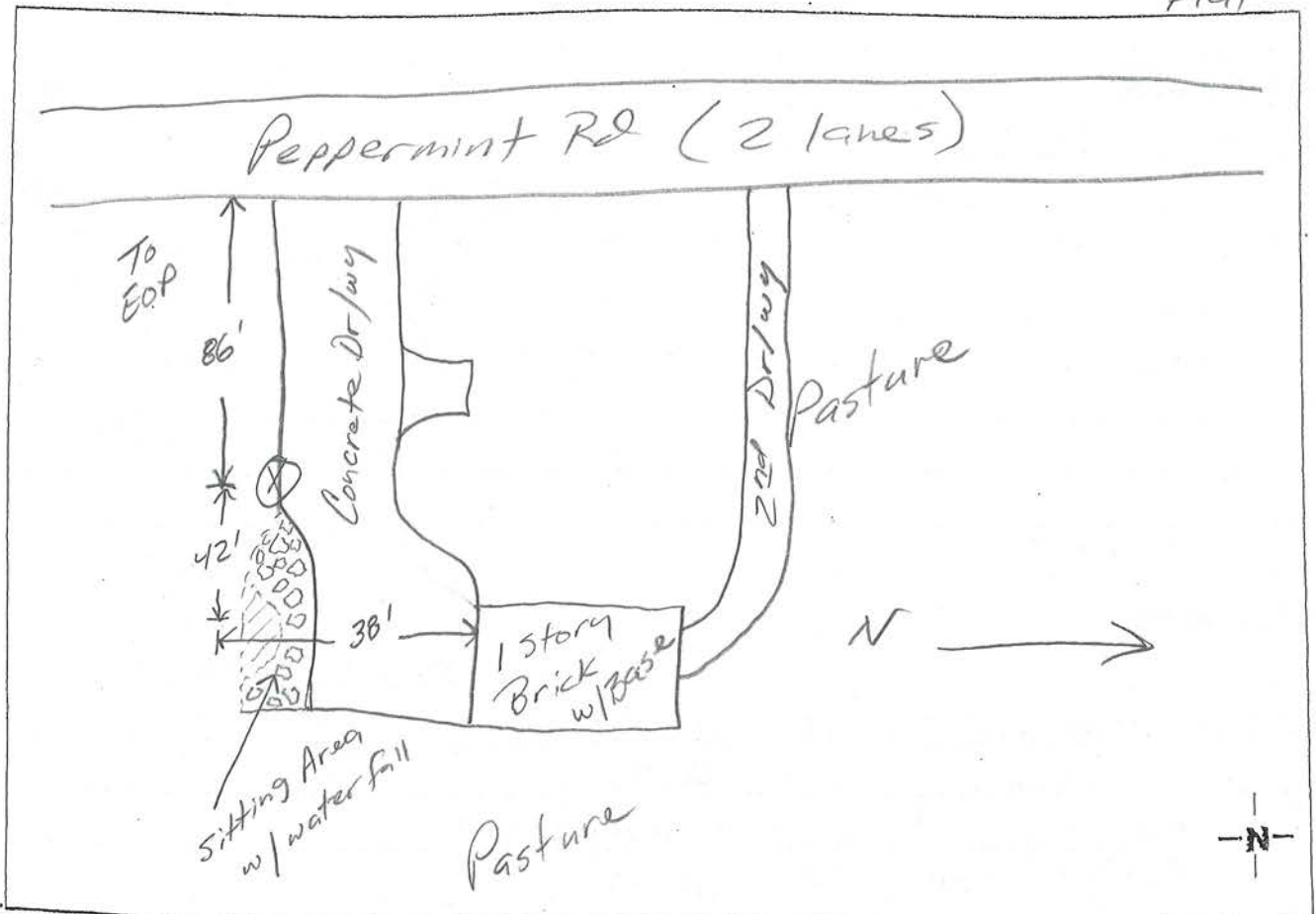
Medium Trucks: NB 1 SB 0

Heavy Trucks: NB 0 SB 0

Site Sketch

Address: 1514 Peppermint Rd.

Flat Rd





Noise Measurement Data

ALT "D"
Rec 250

Measurement Information

Project: Mississippi Pkwy
Location: 3324 Severnille Rd
Measurement Number: # 16
Date: Oct. 29, 2008
Time: 1:40 pm
Personnel: Byron & Emery

Equipment

Noise Meter: B. & K
Microphone: _____
Calibrator: 93.8
Calibration: _____
Weighting: A
Response Speed: _____

Meteorology

Temperature: 53°
Humidity: 35%
Cloud Cover: Clear - Sunny
Notes: _____

Wind Speed: max 2.1 Avg 1.6
Wind Direction: _____

Measurement

Start Time: 1:40 pm
End Time: 1:55 pm
Duration: 15 min
Leg: 56.1
Lmin: 39.9
Lmax: 71.8
Notes: _____

L1: 65.2 SPL 60.7
L10: 59.7 Inst 60.5
L50: 52.2 SEL 85.5
L90: 44.2 max 86.5
L99: 41.2 peak 72.8
L: _____

Photographs

Roll: _____

Number: 58, 59, 60, 61

Description: 58) towards Hitch Rd (Project) - East
59) towards project (Peppermint Hills) - North
60) towards House - South
61) towards Severnille Rd - Northwest

Noise Measurement Data

Noise Sources

Automobiles: ☒
Busses: ☒ (2)
Motorcycles: ☐
Other: ☐

Medium Trucks: ☐
Heavy Trucks: ☒
Aircraft: ☒

Rustling Leaves, Distant Overhead Aircraft
Distant wind chimes, Leaves Blowing

Traffic Count

Roadway: 2 lanes
Speed: 40-50 mph

Start Time: 1:40 pm
Duration: 15 min

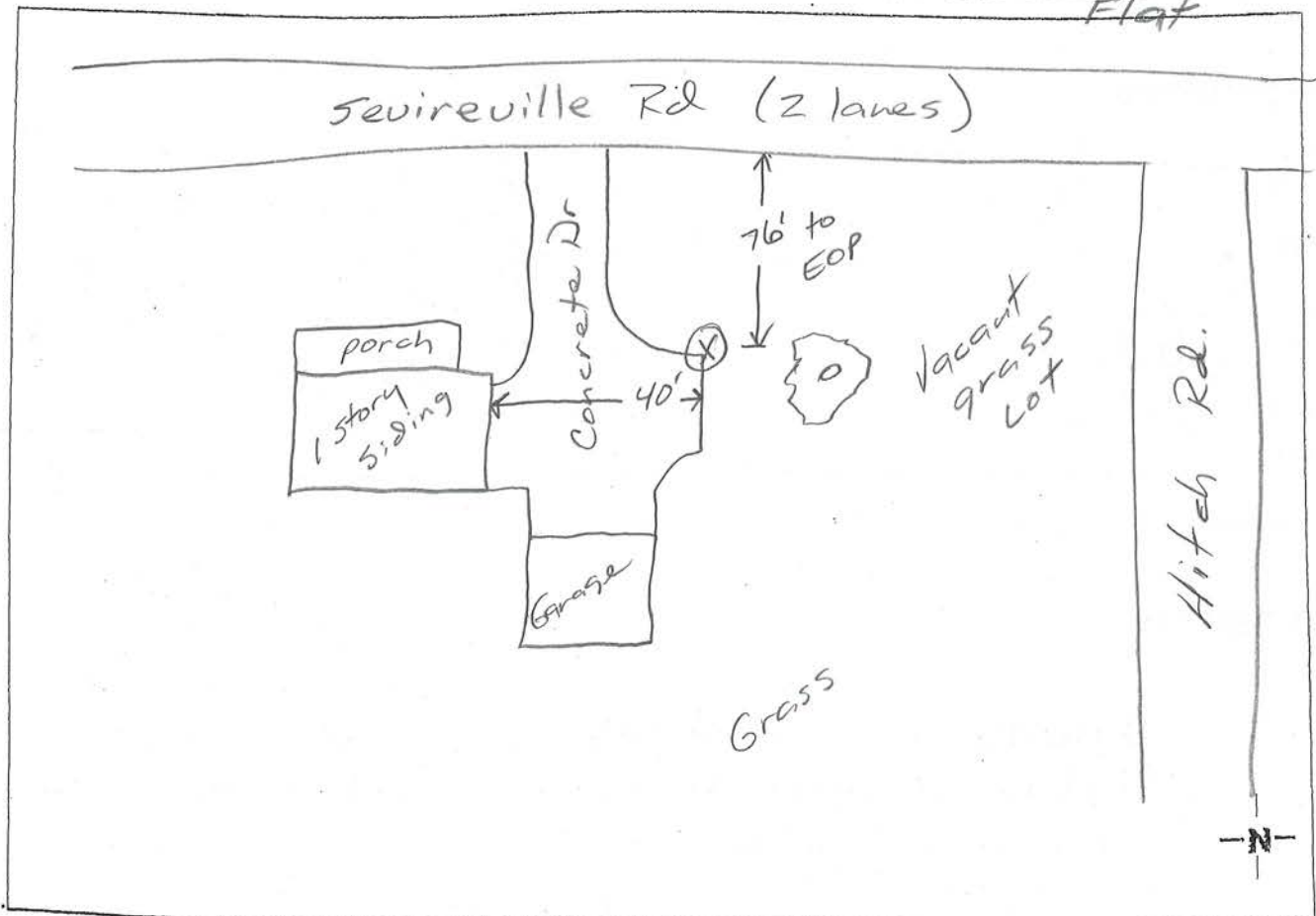
Automobiles: EB 52 WB 59

Medium Trucks: EB 0 WB 2 Heavy Trucks: EB 1 WB 0

Site Sketch

Address: 3324 Sevierville Rd

Flat Rd





Noise Measurement Data

ACT "C"
Rel 133

Measurement Information

Project: Pellissippi Pkwy
Location: 1225 Hitch Rd.
Measurement Number: #17
Date: Oct 29, 2008
Time: 2:20 pm
Personnel: Byron & Emery

Equipment

Noise Meter: B & K
Microphone: _____
Calibrator: 93.8
Calibration: _____
Weighting: A
Response Speed: _____

Meteorology

Temperature: 54°
Humidity: 35 %
Cloud Cover: Clear - Sunny
Notes: _____

Wind Speed: max 4.8 Avg 2.5
Wind Direction: _____

Measurement

Start Time: 2:20 pm
End Time: 2:35 pm
Duration: _____
Leq: 45.7
Lmin: 38.1
Lmax: 57.4
Notes: _____

L₁: 52.7 SPC 48.9
L₁₀: 48.7 Inst 48.8
L₅₀: 44.7 SEL 75.2
L₉₀: 40.7 MXP 78.0
L₉₉: 38.7 peak 61.0
L: _____

Photographs

Roll: _____

Number: 62-68

Description: (62) towards project - Southwest (67) Scenic - East
(63) " " " " " " (68) Scenic - East
(64) towards mic/project - West
(65) towards project - South
(66) towards mic/house - East

113.74
87.74
column
m

Noise Measurement Data

Noise Sources

Automobiles:

Busses:

Motorcycles:

Other:

Medium Trucks:

Heavy Trucks:

Aircraft: ✓

Distant Traffic, Distant Overhead Aircraft
Leaves Rustling, Birds

Traffic Count

Roadway: 2 lanes

Speed:

Start Time: 2:20 pm

Duration: 15 min

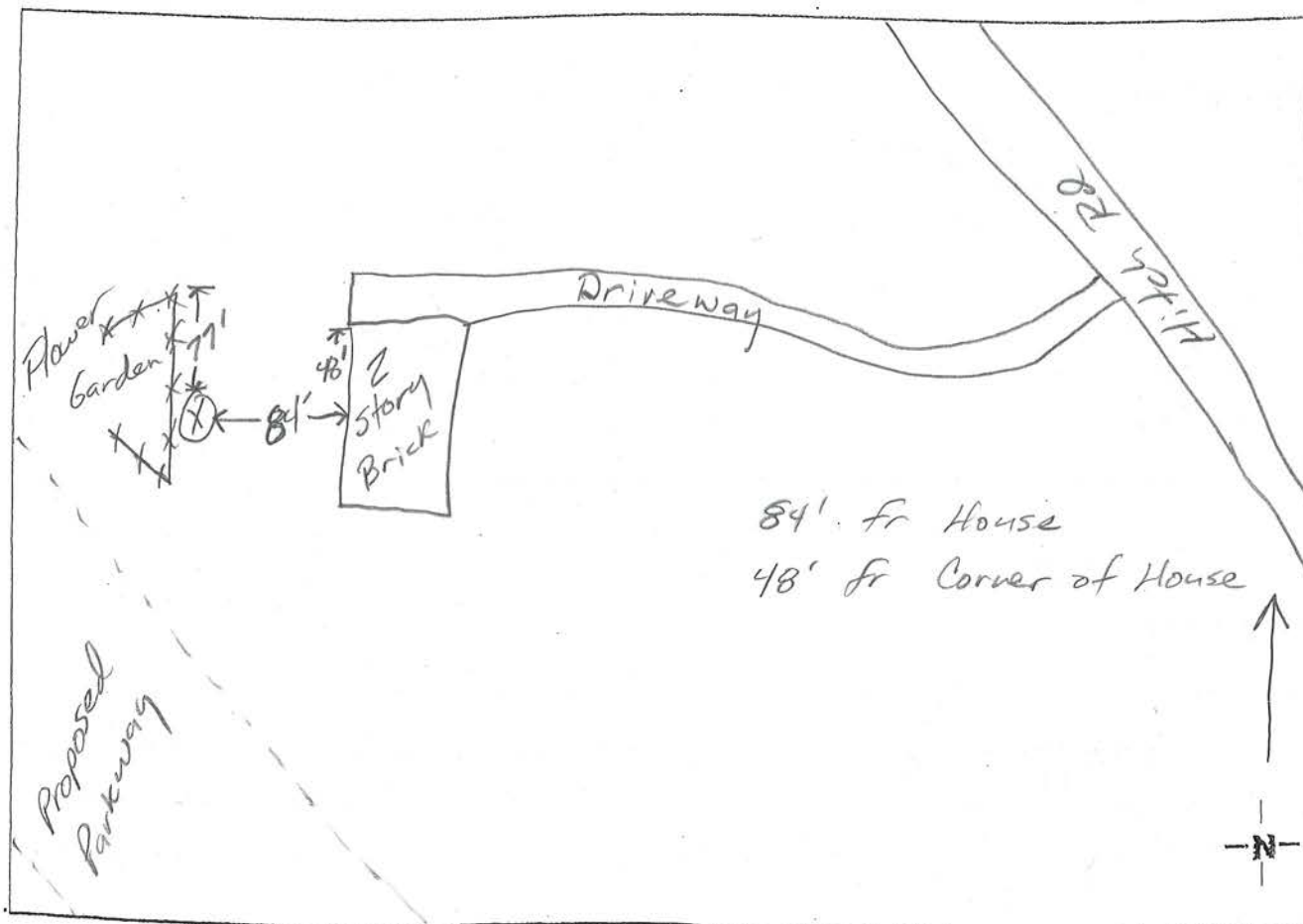
Automobiles:

Medium Trucks:

Heavy Trucks:

Site Sketch

Address: 1225 Hitch Road





Noise Measurement Data

ALT "C"

Measurement Information

Project: Pellissippi Pkwy
Location: Hitch Road
Measurement Number: #17-A
Date: Oct 30, 2008
Time: 3:10 pm
Personnel: Byron & Emery

Equipment

Noise Meter: B & K
Microphone: _____
Calibrator: 93.8
Calibration: _____
Weighting: A
Response Speed: _____

Meteorology

Temperature: 66°
Humidity: 20%
Cloud Cover: Clear - Sunny
Notes: _____

Wind Speed: max 5.8 Avg 3.4
Wind Direction: _____

Measurement

Start Time: 3:10 pm
End Time: 3:25 pm
Duration: 15 min
Leq: 39.4
Lmin: 30.9
Lmax: 52.0
Notes: _____

L₁: 45.2 SPL 39.1
L₁₀: 41.2 Inst 37.6
L₅₀: 38.7 SEL 68.8
L₉₀: 35.7 max P 75.5
L₉₉: 32.7 peak 52.3
L: _____

Photographs

Roll: _____

Number: _____

Description: _____

Noise Measurement Data

Noise Sources

Automobiles:

Medium Trucks:

Busses:

Heavy Trucks:

Motorcycles:

Aircraft:

Other: Distant Traffic, Distant Overhead Aircraft
Leaves Rustling, Birds, Distant AC Unit

Traffic Count

Roadway:

Start Time: 3:10 pm

Speed:

Duration: 15 min

Automobiles:

Medium Trucks:

Heavy Trucks:

Site Sketch

Address: Hitch Road

See Site #17
for Site Drawing
photos See Site
folder #17



ACT "C" & "D"
Rec 270

Measurement Information

Project: Pellissippi Pkwy
Location: 3307 Melanie Dr
Measurement Number: #18
Date: Oct 29, 2008
Time: 3:00 pm
Personnel: Byron & Emery

Equipment

Noise Meter: B & K
Microphone: _____
Calibrator: 93.8
Calibration: _____
Weighting: A
Response Speed: _____

Meteorology

Temperature: 54°
Humidity: 35%
Cloud Cover: Clear - Sunny
Notes: _____

Wind Speed: max 9.9 Avg 6.4
Wind Direction: _____

Measurement

Start Time: 3:00 pm
End Time: 3:15 pm
Duration: 15 min
Leq: 47.3
Lmin: 36.2
Lmax: 62.3
Notes: _____

L₁: 54.2
L₁₀: 50.7
L₅₀: 45.7
L₉₀: 39.7
L₉₉: 37.2
L: _____
SPC 46.5
Inst 45.5
SEL 76.7
max P 81.5
Peak 58.4

Photographs

Roll: _____ Number: 69, 70-74
Description: (69) towards project - Southwest
(70) towards project - South
(71) towards project - Southwest
(72) towards Melanie Dr - Northeast
(73) towards house - West
(74) southeast (scenic)

Noise Measurement Data

Noise Sources

Automobiles:

Busses:

Motorcycles:

Other:

Medium Trucks:

Heavy Trucks:

Aircraft:

Leaves Rustling, Distant Train, Distant Traffic
Distant Overhead Aircraft, Crows

Traffic Count

Roadway: Cul-de-Sac

Speed: posted 25 mph

Start Time: 3:00 pm

Duration: 15 min

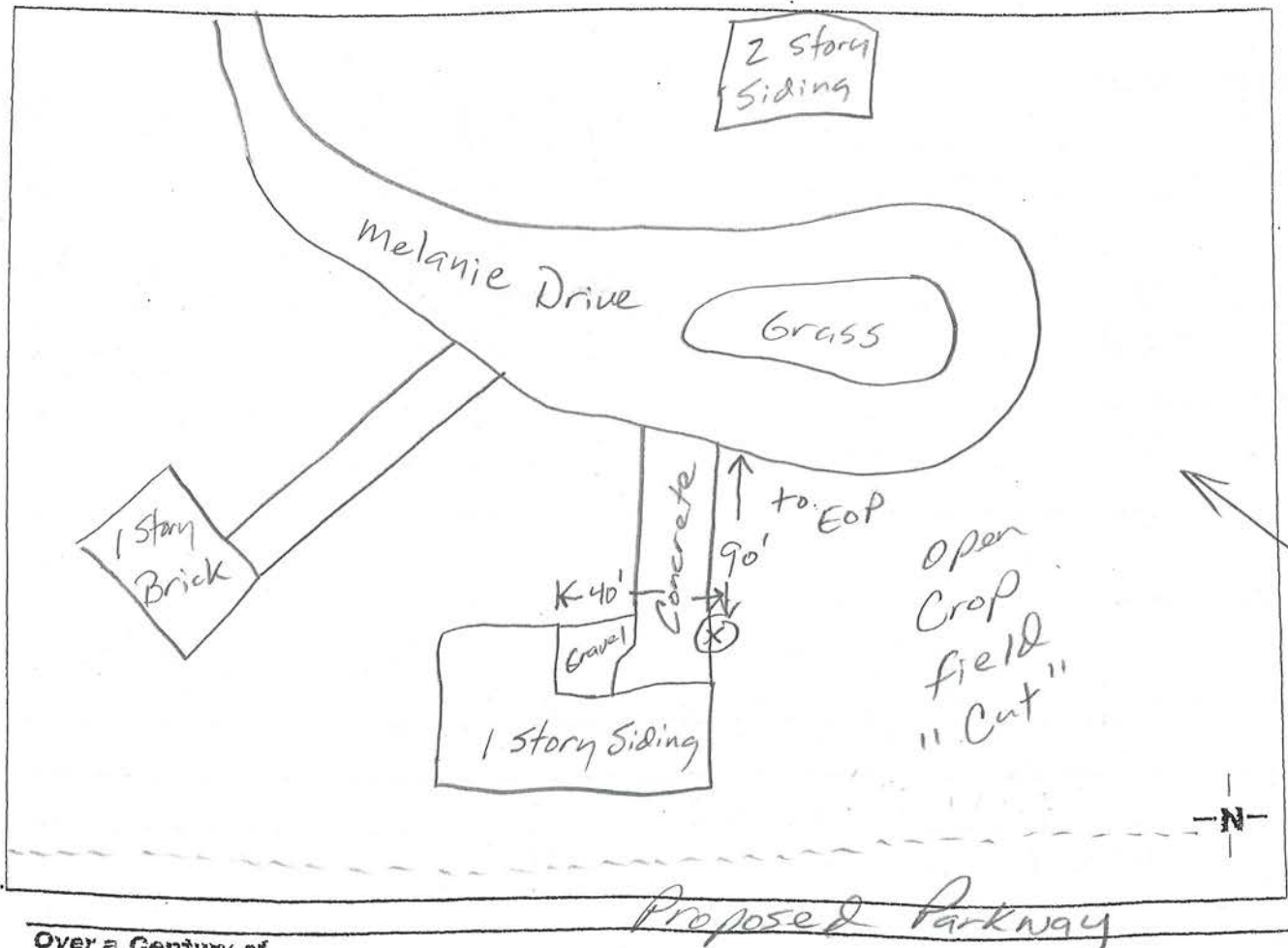
Automobiles:

Medium Trucks:

Heavy Trucks:

Site Sketch

Address: 3307 Melanie Drive



ALT
"C" & "D"

Measurement Information

Project: Pellissippi Pkwy
Location: 3307 Melrose Dr
Measurement Number: #18-A
Date: Oct 30, 2008
Time: 3:45 pm
Personnel: Byron & Emery

Equipment

Noise Meter: B & K
Microphone: _____
Calibrator: 93.8
Calibration: _____
Weighting: A
Response Speed: _____

Meteorology

Temperature: 70°
Humidity: 20%
Cloud Cover: Clear - Sunny
Notes: _____

Wind Speed: MAX 3.2 Avg 2.0
Wind Direction: _____

Measurement

Start Time: 3:45 pm
End Time: 4:00 pm
Duration: 15 min
Leq: 36.4
Lmin: 30.1
Lmax: 51.5
Notes: _____

L1: 44.2 SPL 38.5
L10: 38.7 Inst 37.3
L50: 34.7
L90: 32.2 SEL 65.9
L99: 30.7 maxp 76.3
L: _____ peak 50.6

Photographs

Roll: _____

Number: _____

Description: _____

Noise Measurement Data

Noise Sources

Automobiles:

Busses:

Motorcycles:

Other:

Medium Trucks:

Heavy Trucks:

Aircraft:

Distant Overhead Aircraft, Rustling Leaves
Birds, Kids talking in Distant, Crows

Traffic Count

Roadway:

Speed:

Start Time: 3:45 pm

Duration: 15 min

Automobiles:

Medium Trucks:

Heavy Trucks:

Site Sketch

Address: 3307 Melanie Dr.

See Site #18
for Site Drawing
photos located
in Site #18 folder



ALT "D"
Rec 272

Measurement Information

Project: Pellissippi Pkwy
Location: 839 Misty View Dr
Measurement Number: # 19
Date: Oct 29, 2008
Time: 3:35 pm
Personnel: Byron & Emery

Equipment

Noise Meter: B & K
Microphone: _____
Calibrator: 93.8
Calibration: _____
Weighting: A
Response Speed: _____

Meteorology

Temperature: 63°
Humidity: 30%
Cloud Cover: Clear - Sunny
Notes: _____

Wind Speed: max 12.5 Avg 9.5
Wind Direction: _____

Measurement

Start Time: 3:35 pm
End Time: 3:50 pm
Duration: 15 min
Leq: 48.1
Lmin: 39.1
Lmax: 63.5
Notes: _____

L1: 57.7
L10: 50.7
L50: 45.7
L90: 41.2
L99: 40.2
L: _____
SPL 41.3
Inst 41.3
SEL 77.5
max 83.7
peak 54.1

Photographs

Roll: _____ Number: 75-79
Description: 75) Towards Mic-East
76) towards house - North
77) towards Davis Ford Rd / Project - Northwest
78) towards corn field / Project - West
79) towards 11 11 - South

Noise Measurement Data

Noise Sources

Automobiles: ☒

Busses: ☒

Motorcycles: ☐

Other: ☐

Medium Trucks: ☐

Heavy Trucks: ☐

Aircraft: ☐

Distant Overhead Aircraft, Distant Dogs Barking,
Distant Traffic, Birds, Rustling Leaves

Traffic Count

Roadway: 2 lanes

Speed: 30 to 40 mph

Start Time: 3:35 pm

Duration: 15 min

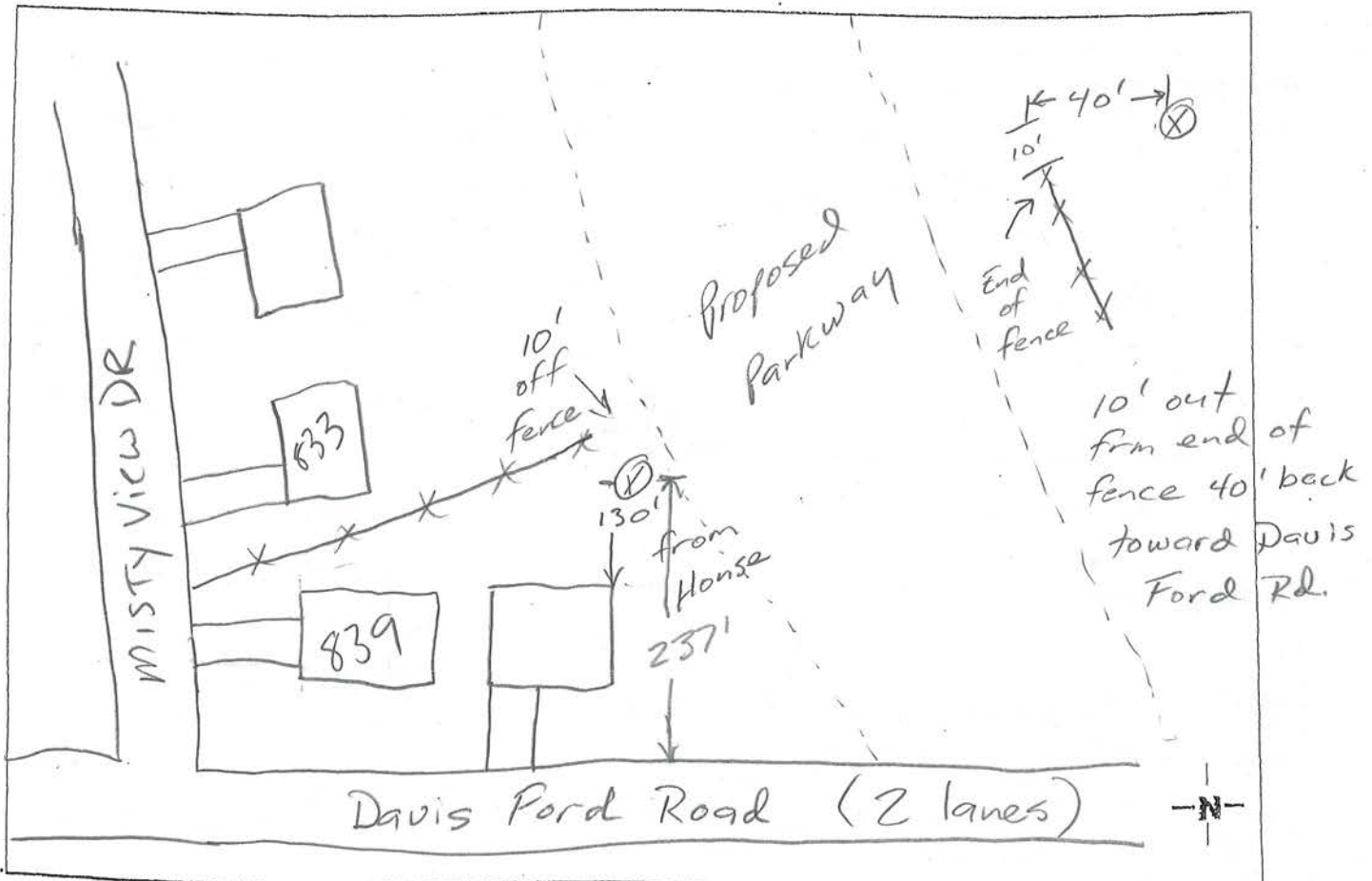
Automobiles: EB 19 WB 6

Medium Trucks: EB 0 WB 0

Heavy Trucks: EB 1 WB 0

Site Sketch

Address: Davis Ford Road 839 Misty View





Noise Measurement Data

ALT "C" & "D"

Rec 128

Measurement Information

Project: Mississippi Pkwy
Location: Full Gospel Christian Fellowship Church
Measurement Number: #20
Date: October 29, 2008
Time: 4:10 pm
Personnel: Byron & Emery

Equipment

Noise Meter: B + K
Microphone: _____
Calibrator: 93.8
Calibration: _____
Weighting: A
Response Speed: _____

Meteorology

Temperature: 58°
Humidity: 31%
Cloud Cover: Clear - Sunny
Notes: _____

Wind Speed: max 5.7 Avg 1.3
Wind Direction: _____

Measurement

Start Time: 4:10 pm
End Time: 4:25 pm
Duration: 15 min
Leq: 44.1
Lmin: 37.9
Lmax: 61.1
Notes: _____

L1: <u>53.2</u>	SPL <u>43.9</u>
L10: <u>46.2</u>	Inst <u>42.8</u>
L50: <u>42.2</u>	SEL <u>73.6</u>
L90: <u>40.2</u>	MAXP <u>85.8</u>
L99: <u>38.7</u>	Peak <u>54.3</u>
L: _____	

Photographs

Roll: _____ Number: 80-86
Description: 80) towards Project (C) - Northwest
81) towards project (C) - Southwest
82) towards project (C) - South
83) towards church (D) - Southwest
84) towards project D (Centennial Church Rd) - East
85) towards tree line - Northeast
86) towards cemetery - Northwest

Noise Measurement Data

Noise Sources

Automobiles: ☒

Busses: ☐

Motorcycles: ☐

Other: ☐

Medium Trucks: ☐

Heavy Trucks: ☐

Aircraft: ☒

Distant Dogs Barking, Distant Overhead Aircraft
Crows, Birds, Leaves Rustling, Distant Tractor

Traffic Count

Roadway: 2 lanes

Speed: 25 to 35 mph

Start Time: 4:10 pm

Duration:

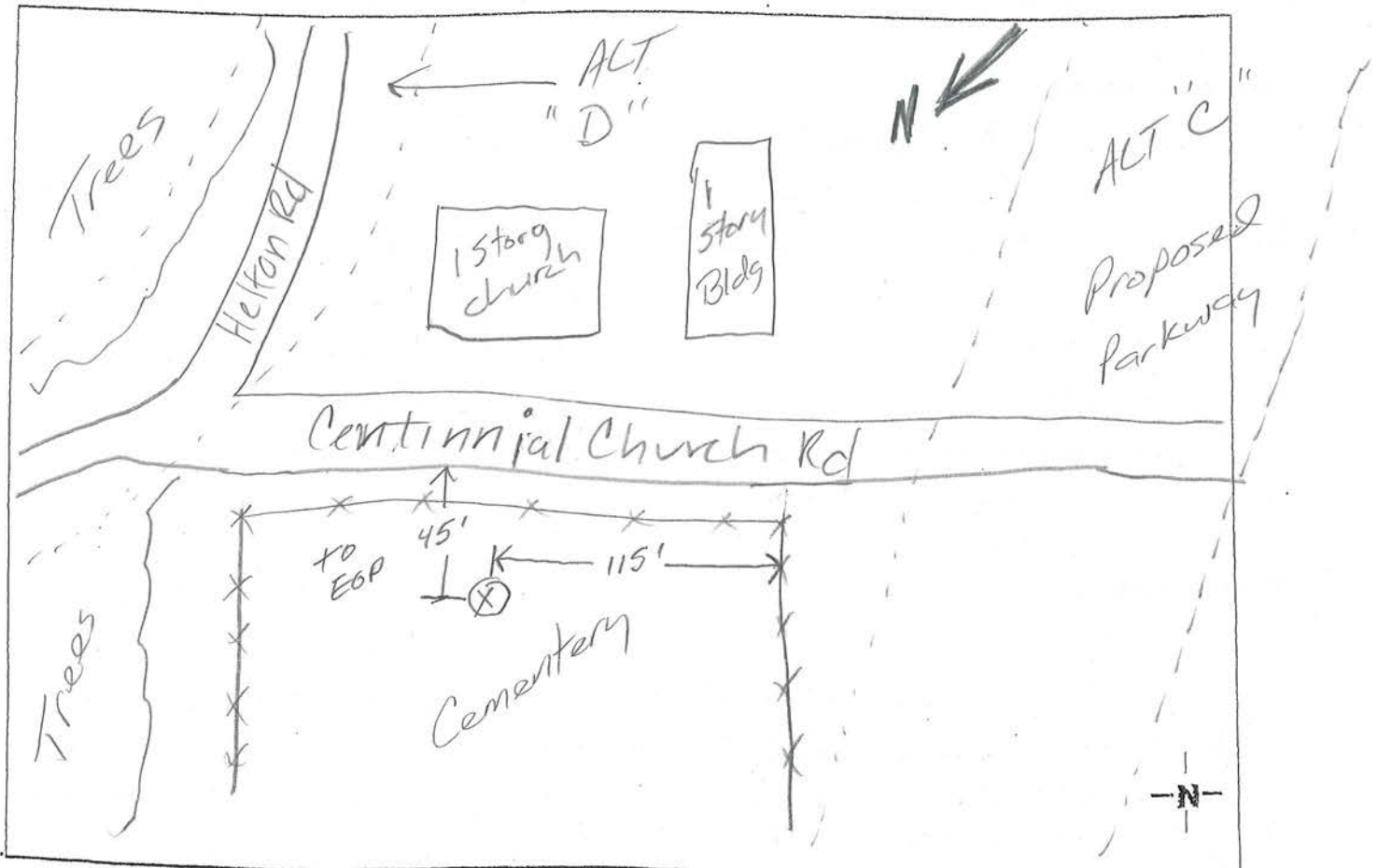
Automobiles: 3 Helton Rd 3 Centennial Church Rd

Medium Trucks:

Heavy Trucks:

Site Sketch

Address: Across from Full Gospel Christian Fellowship Church





ACT 11/11

Rec 298

Measurement Information

Project: Pellissippi Pkwy
Location: 3553A2 Tex Gas Station
Measurement Number: # 21
Date: Oct 30, 2008
Time: 8:35 am
Personnel: Byron & Emery

Equipment

Noise Meter: B & K
Microphone: _____
Calibrator: 93.8
Calibration: _____
Weighting: A
Response Speed: _____

Meteorology

Temperature: 41°
Humidity: 61%
Cloud Cover: Clear - Sunny
Notes: _____

Wind Speed: Max 0 Avg 0
Wind Direction: _____

Measurement

Start Time: 8:35 am
End Time: 8:50 am
Duration: 15 min
Leq: 63.0
Lmin: 50.4
Lmax: 79.2
Notes: _____

L1: 70.2 SPL 64.0
L10: 66.2 Inst 63.8
L50: 61.2
L90: 56.7 SEL 92.5
L99: 53.2 maxP 94.1
L: _____ peak 76.3

Photographs

Roll: _____

Number: 88-93Description: 88) Towards project - Northeast89) Towards end project - Southwest90) Towards gas station - Southwest91) Towards Cuman Alexander (321) - South92) Towards " " " " - Southeast93) towards project - Northeast

Noise Measurement Data

Noise Sources

Automobiles: ☒

Busses: ☒

Motorcycles: ☒ 1 WB

Other: ☐

Medium Trucks: ☐

Heavy Trucks: ☒

Aircraft: ☐

Distant Overhead Aircraft, Birds, Crows
Distant Dogs Barking, Distant AC Unit Running

Traffic Count

Roadway: 4 lanes w/turn lane

Speed: 45 to 60 mph

Start Time: 8:35 am

Duration: 15 min

Automobiles: EB 110

WB 141

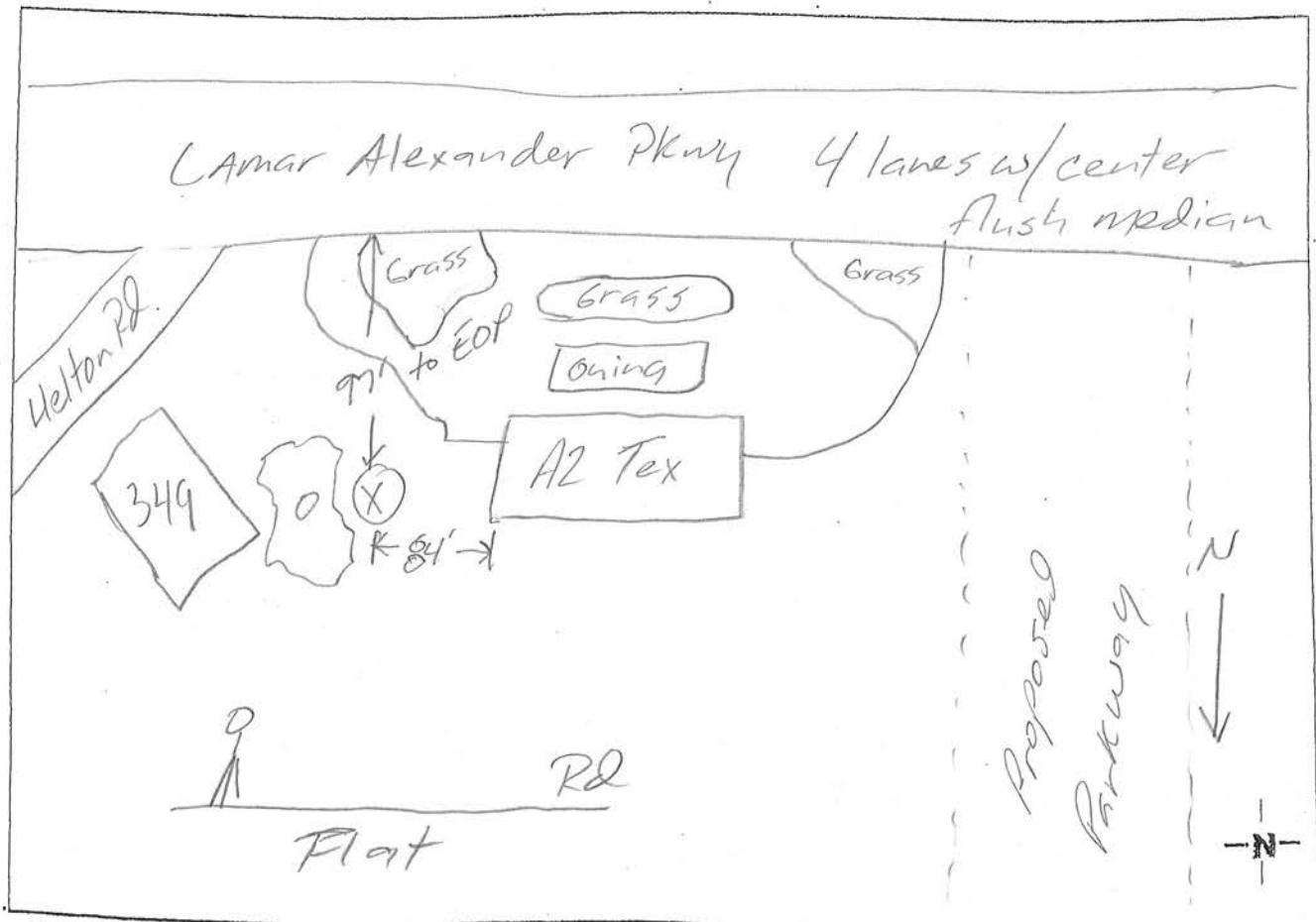
Helton Rd NB 1 SB 2

Medium Trucks: EB 0 WB 4

Heavy Trucks: EB 1 WB 2

Site Sketch

Address: A2 Tex Gas Station 3553 E. Lamar Alexander



ALT ¹⁰
Rec 287

Measurement Information

Project: Mississippi Pkwy
Location: 253 John Helton
Measurement Number: # 22
Date: Oct 30, 2008
Time: 9:15 am
Personnel: Byron & Emery

Equipment

Noise Meter: B & K
Microphone: _____
Calibrator: 93.8
Calibration: _____
Weighting: A
Response Speed: _____

Meteorology

Temperature: 42°
Humidity: 57%
Cloud Cover: Clear - Sunny
Notes: _____

Wind Speed: max 1.0 Avg 0
Wind Direction: _____

Measurement

Start Time: 9:15 am
End Time: 9:30 am
Duration: 15 min
Leq: 45.4
Lmin: 40.7
Lmax: 60.4
Notes: _____

L₁: 54.7 SPL 44.9
L₁₀: 46.2 Inst 43.7
L₅₀: 43.7 SEL 74.8
L₉₀: 41.7 maxP 74.3
L₉₉: 40.7 peak 57.1
L: _____

Photographs

Roll: _____

Number: 94-100Description: 94) towards house - Northeast95) towards project - west96) " " "97) towards project / house in Row - Southwest98) towards project - SouthOver a Century of
Engineering Excellence99) towards project - Southeast100) towards John Helton Rd - Southeast

Noise Measurement Data

Noise Sources

Automobiles:

Busses:

Motorcycles:

Other:

Medium Trucks:

Heavy Trucks:

Aircraft:

Birds, Distant Traffic, Distant Barking Dogs
Crows, Distant Overhead Aircraft, Distant Train

Traffic Count

Roadway: 2 lanes

Speed: posted 35 mph

Start Time: 9:15 am

Duration: 15 min

Automobiles:

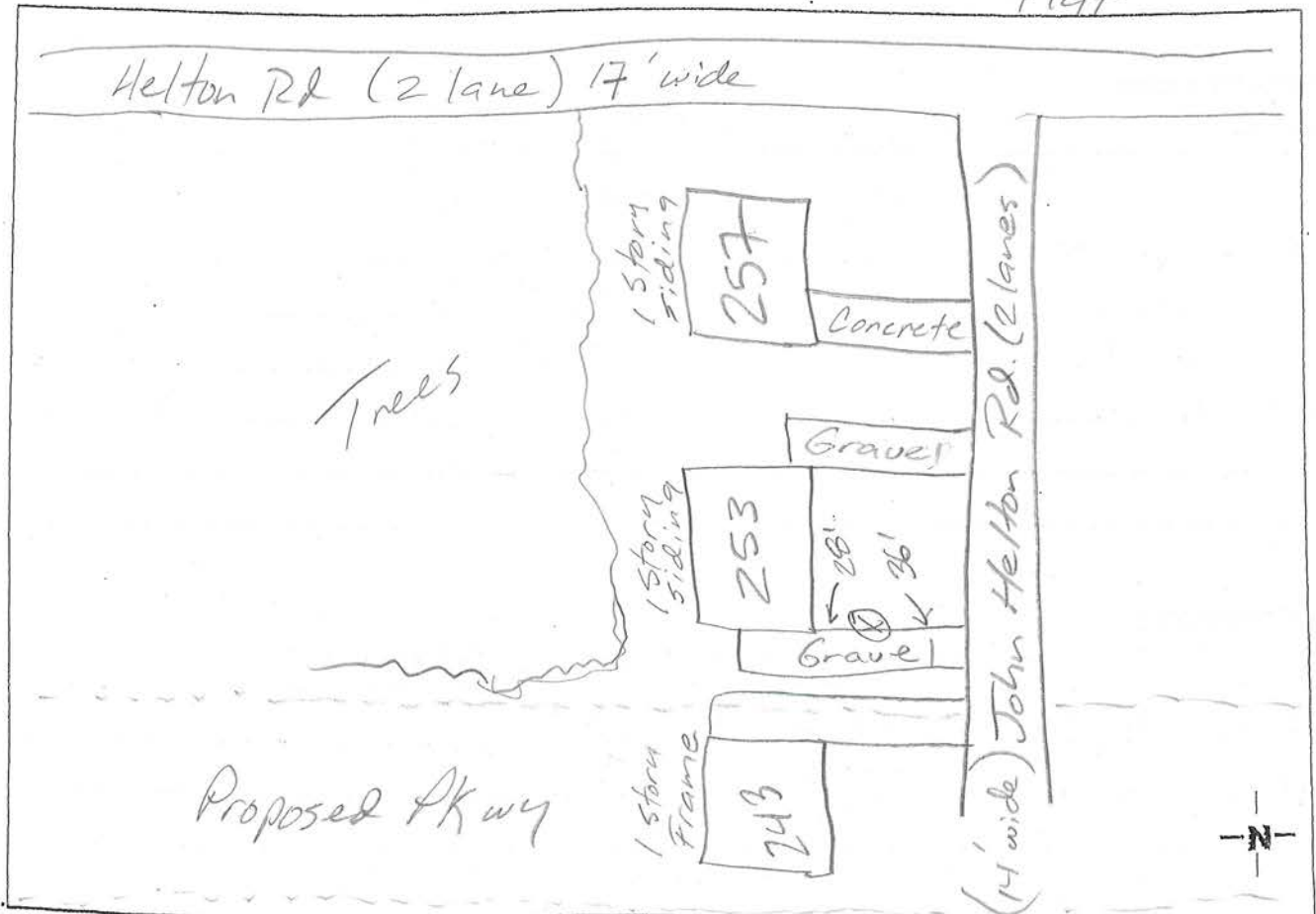
Medium Trucks:

Heavy Trucks:

Site Sketch

Address: 253 John Helton

RD
Flat



ALT "C"
Rec 123

Measurement Information

Project: Pellessippi Pkwy
Location: 225 John Helton Rd
Measurement Number: #23
Date: Oct 30, 2008
Time: 10:15 am
Personnel: Byron & Emery

Equipment

Noise Meter: B + K
Microphone: _____
Calibrator: 93.8
Calibration: _____
Weighting: A
Response Speed: _____

Meteorology

Temperature: 49°
Humidity: 58%
Cloud Cover: clear-Sunny
Notes: _____

Wind Speed: Max 0 Avg 0
Wind Direction: _____

Measurement

Start Time: 10:15 am
End Time: 10:30 am
Duration: 15 min
Leq: 39.9
Lmin: 34.1
Lmax: 52.1
Notes: _____

L1: 46.7 SPL 36.3
L10: 41.7 Inst 35.8
L50: 39.2 SEL 69.3
L90: 36.2 MAXD 77.8
L99: 35.2 Peak 49
L: _____

Photographs

Roll: _____ Number: 101-106
Description: (01) towards project - West
(02) towards project - Northwest
(03) towards house - Northeast
(04) towards project - South
(05) towards John Helton Rd - Southeast
(06) towards project - Southwest
(tree line)

Noise Measurement Data

Noise Sources

Automobiles:

Medium Trucks:

Busses:

Heavy Trucks:

Motorcycles:

Aircraft:

Other: Distant Train, Crows, Distant Barking Dogs
Birds, Distant Siren, Distant AC Unit, Geese
Distant Overhead Aircraft, Distant Traffic

Traffic Count

Roadway: 2 lanes

Start Time: 10:15 pm

Speed: posted 35 mph

Duration: 15 min

Automobiles:

Medium Trucks:

Heavy Trucks:

Site Sketch

Address: 225 John Helton Rd



ALT "C"
Rec 125

Measurement Information

Project: Mississippi Phwy
Location: 3330 Centennial Church Rd
Measurement Number: # 24
Date: Oct 30, 2008
Time: 11:05 am
Personnel: Byron + Emory

Equipment

Noise Meter: B + K
Microphone: _____
Calibrator: 93.8
Calibration: _____
Weighting: A
Response Speed: _____

Meteorology

Temperature: 56°
Humidity: 50 %
Cloud Cover: clear + sunny
Notes: _____

Wind Speed: Max 4.5 Avg 2.0
Wind Direction: _____

Measurement

Start Time: 11:05 am
End Time: 11:20 am
Duration: 15 min
Leq: 38.9
Lmin: 29.9
Lmax: 56.5
Notes: _____

L₁: 46.7 SPL 43.6
L₁₀: 41.7 Inst 41.2
L₅₀: 37.2 SEL 68.4
L₉₀: 32.7 MAXP 71.2
L₉₅: 31.2 Peak 55.5
L: _____

Photographs

107-109 (House in ^{New} subdivision)

Roll: _____

Number: 10-115 Sht 24Description: 107) towards ^{Back} New House - Northwest108) Back of New House - Northeast109) Centennial Church Rd + ^{New} House - Northeast110) towards project - Northeast110) " " - east

111) towards project - Northeast
112) " " - Southeast
113) towards driveway/cem - North

114) towards driveway - Northwest
115) towards shed - Southeast

Noise Measurement Data

Noise Sources

Automobiles:

Medium Trucks:

Busses:

Heavy Trucks:

Motorcycles:

Aircraft:

Other:

Birds, Distant Dogs Barking, Distant AC Unit Running
Distant Overhead Aircraft, Distant Train, Crows

Traffic Count

Roadway: 2 lanes

Start Time: 11:05 am

Speed: 35 to 45 mph

Duration: 15 min

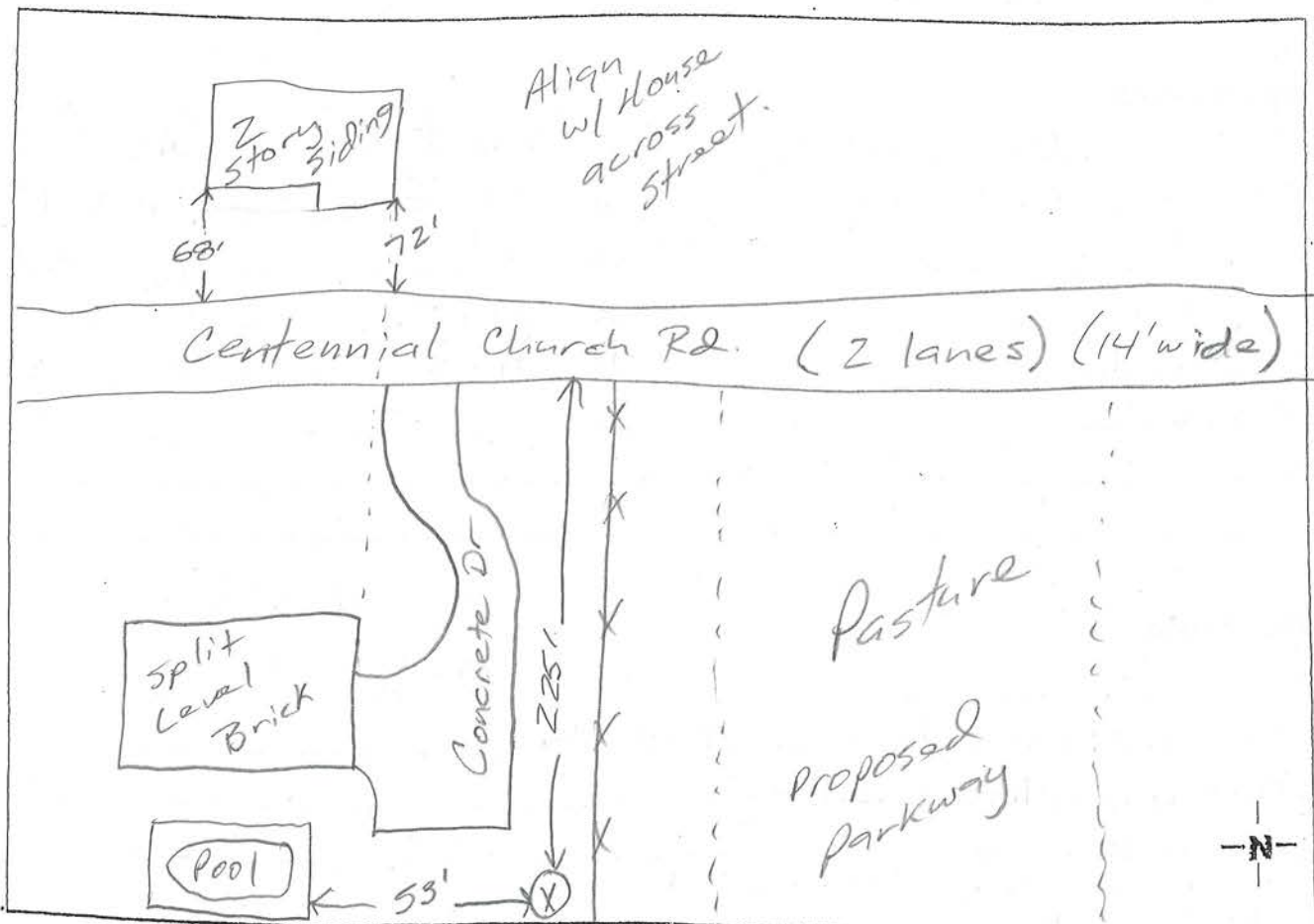
Automobiles:

Medium Trucks:

Heavy Trucks:

Site Sketch

Address: Centennial Church Rd





Noise Measurement Data

Alt "D"
Rec 240

Measurement Information

Project: Mississippi Hwy
Location: 1434 Peppermint Rd
Measurement Number: #25
Date: Oct 30, 2008
Time: 2:35 pm
Personnel: Byron + Emory

Equipment

Noise Meter: B + K
Microphone:
Calibrator: 93.8
Calibration:
Weighting: A
Response Speed:

Meteorology

Temperature: 68°
Humidity: 30%
Cloud Cover: Clear + Sunny
Notes:

Wind Speed: max 3.2 Aug 2.1
Wind Direction:

Measurement

Start Time: 2:35
End Time: 2:50
Duration: 15 min
Leq: 42.1
Lmin: 32.5
Lmax: 56.4
Notes:

L4:	46.7	SPL	43.8
L10:	45.2	Inst	43.4
L50:	40.7	SEL	71.5
L90:	37.2	max P	78.5
L99:	35.2	peak	56.3
L:			

Photographs

Roll: Number: 116-121
Description: 116) towards project - Northeast
117) towards project - North
118) " " " - East
119) towards House / Peppermint Rd - Southwest
120) towards Peppermint Rd - Southwest
121) towards project - Southeast

Noise Measurement Data

Noise Sources

Automobiles: ☒ Medium Trucks: ☒
Busses: _____ Heavy Trucks: _____
Motorcycles: _____ Aircraft: _____
Other: Distant AC Unit
Distant Overhead Aircraft, Birds,
Distant Traffic, Distant Hammering

Traffic Count

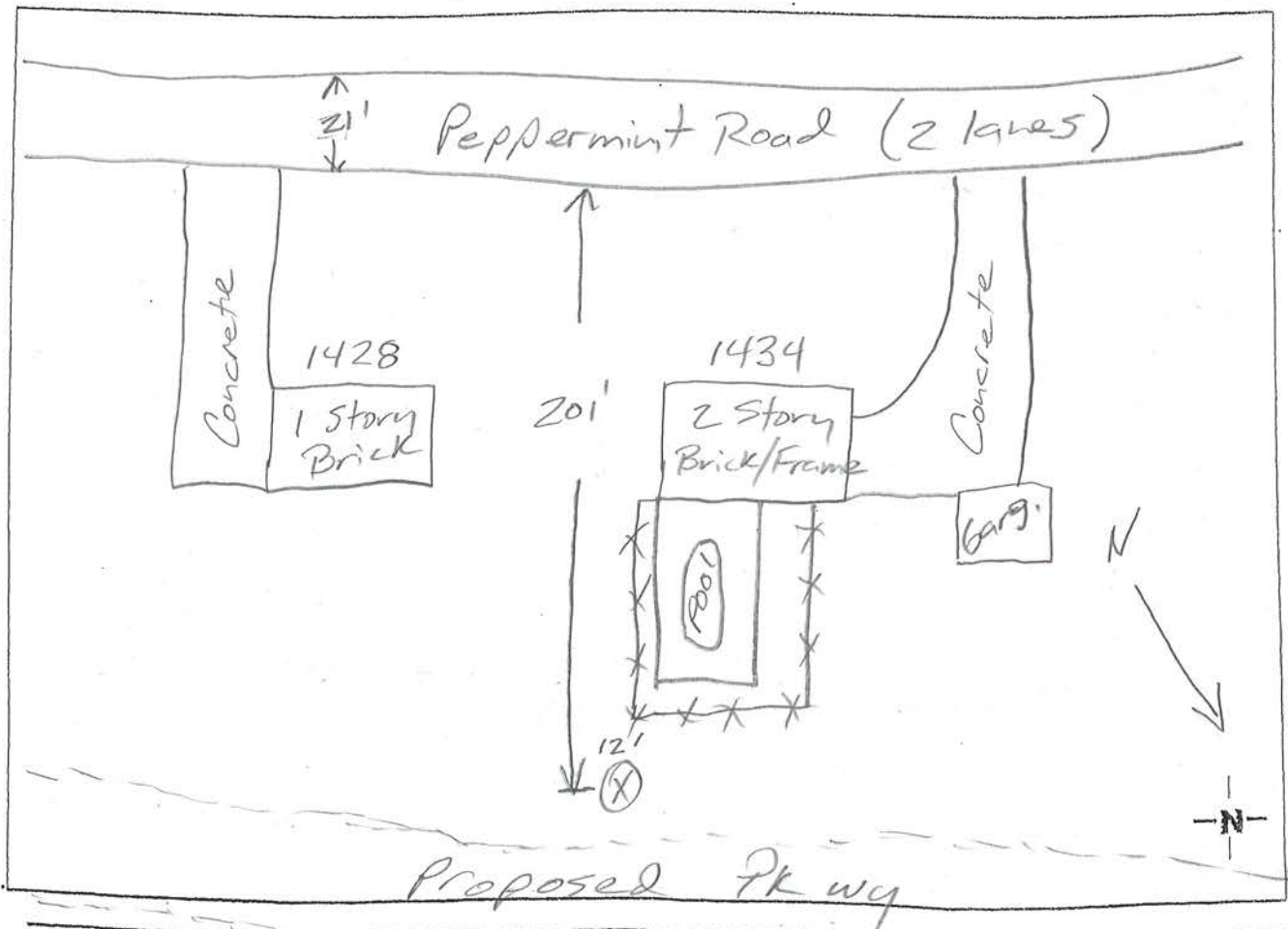
Roadway: 2 lanes Start Time: 2:35 pm
Speed: 35 to 45 mph Duration: 15 min

Automobiles: NB 18 SB 24

Medium Trucks: NB 1 SB 1 Heavy Trucks: NB 0 SB 0

Site Sketch

Address: 1434 Peppermint Rd

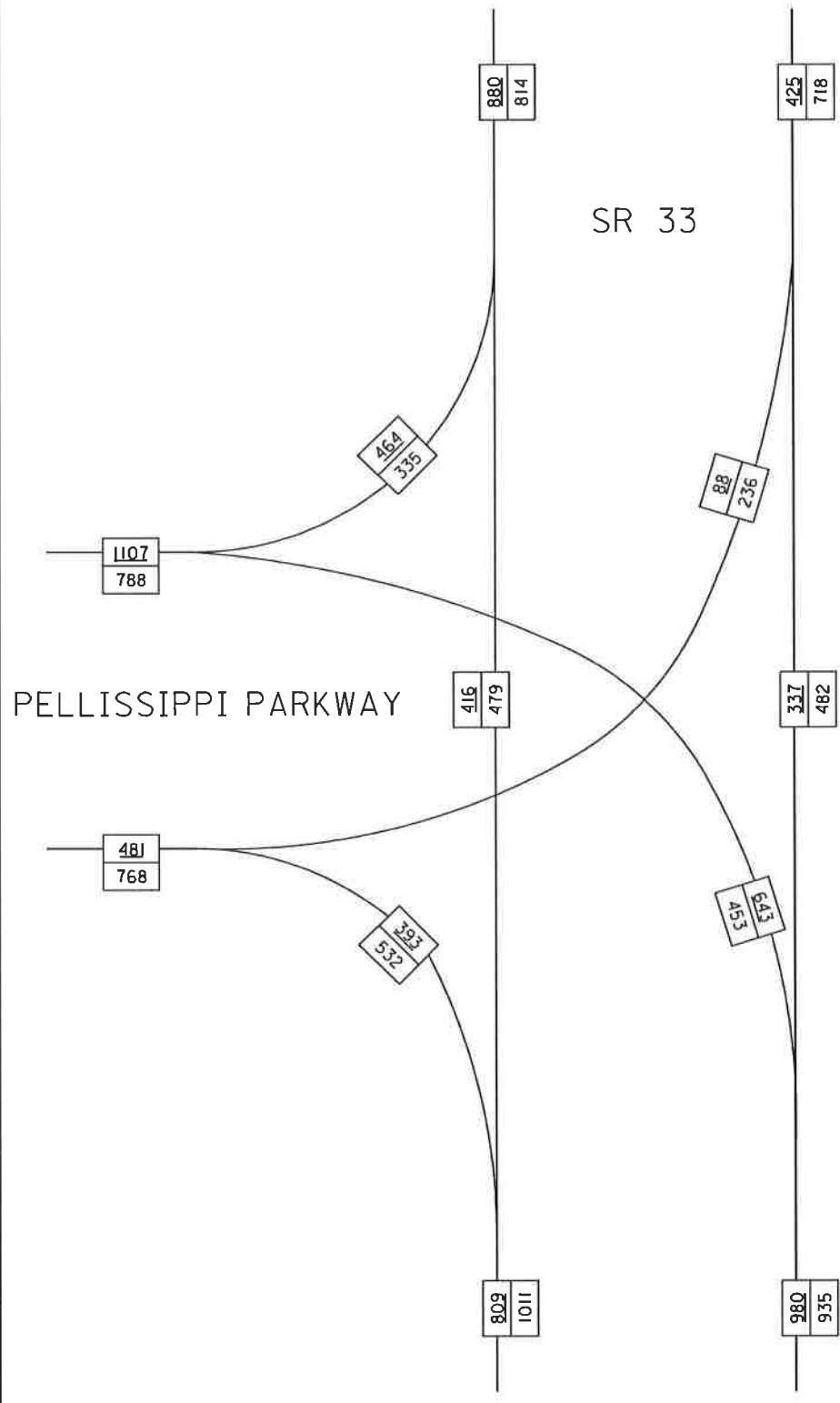


Appendix C

Traffic Projections



NOT TO SCALE

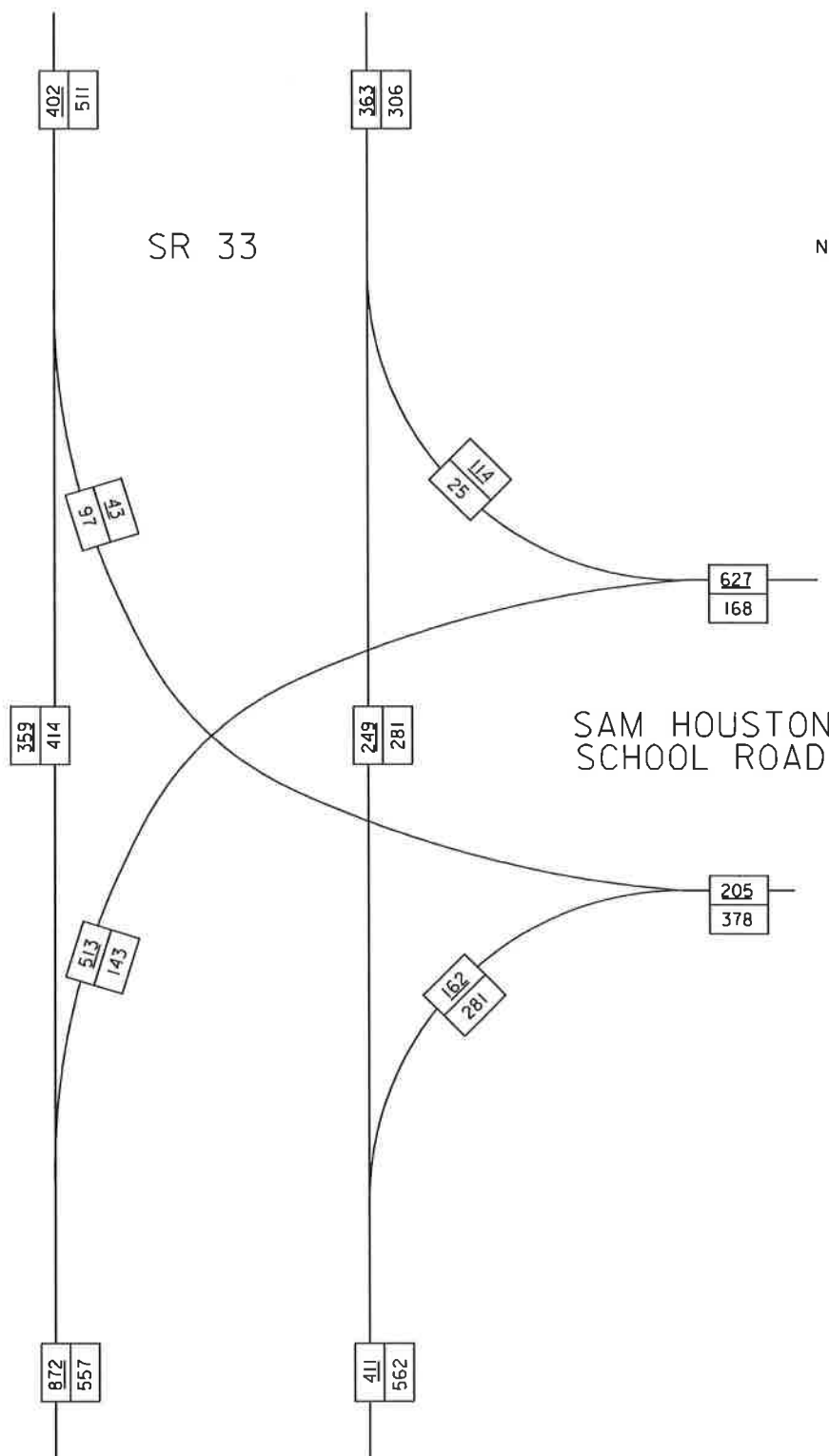


2013 DHV
AM/PM

SR 33 @ PELLISSIPPI PARKWAY



NOT TO SCALE



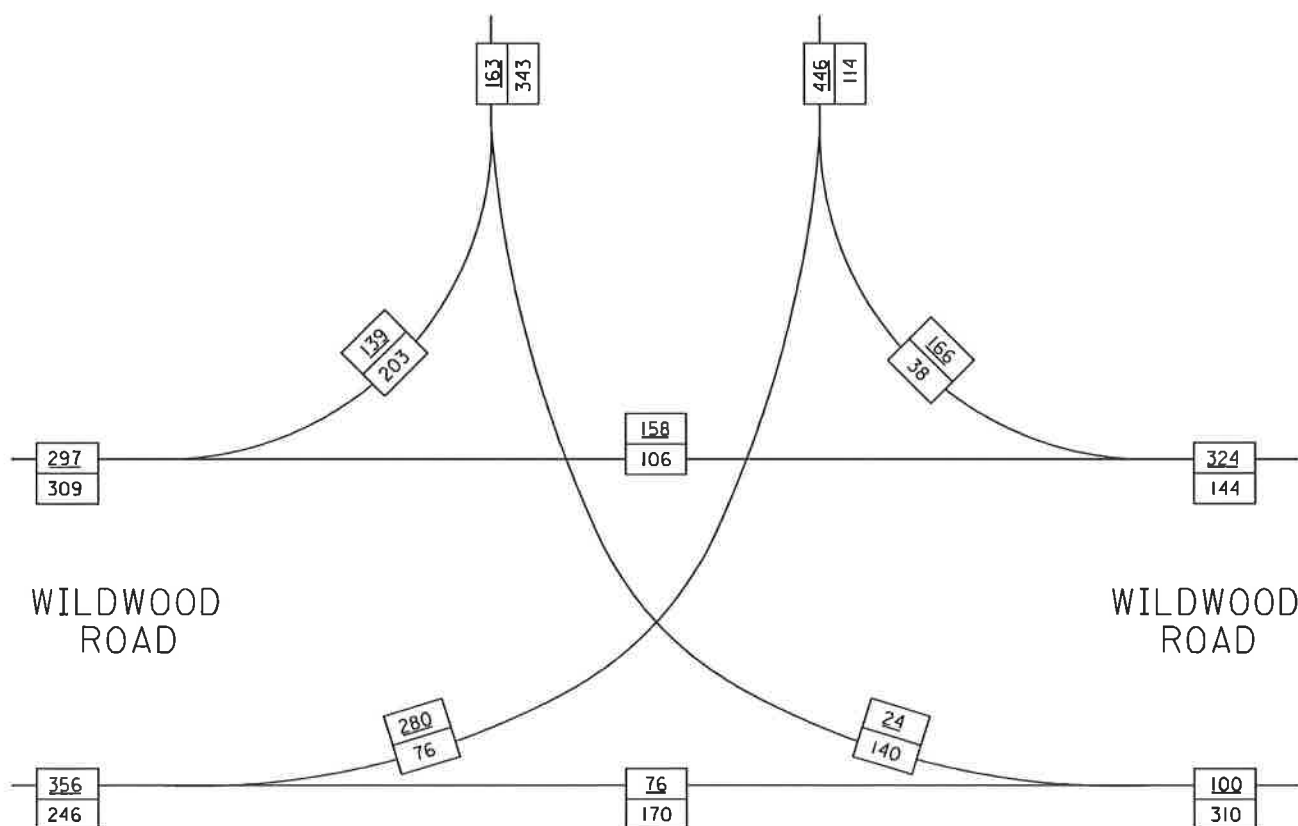
2010 DHV
AM/PM

SR 33 @
SAM HOUSTON SCHOOL ROAD



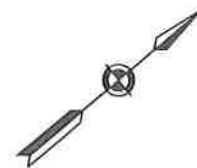
NOT TO SCALE

SAM HOUSTON SCHOOL ROAD

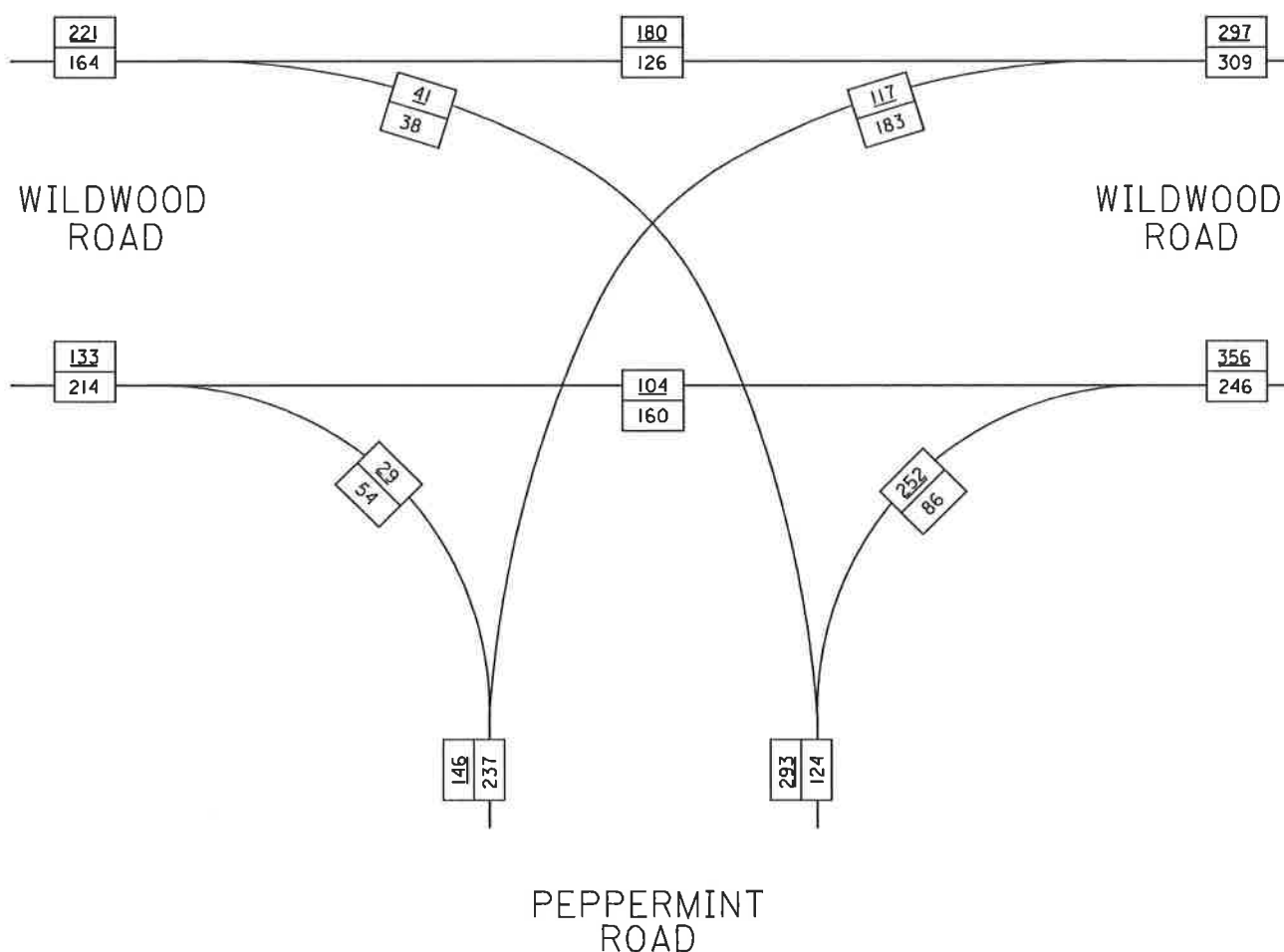


2010 DHV
AM/PM

SAM HOUSTON SCHOOL ROAD @
WILDWOOD ROAD



NOT TO SCALE



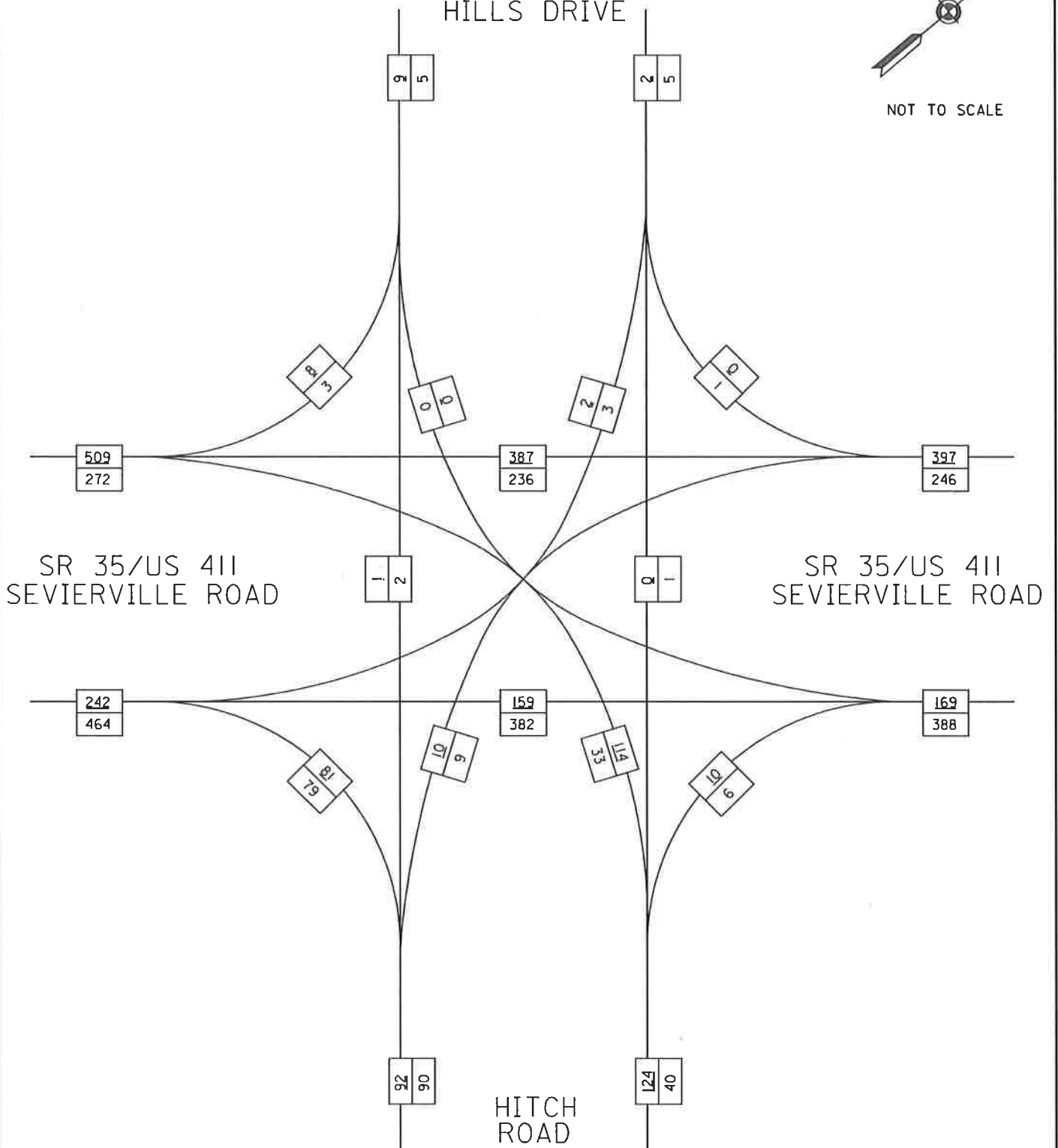
2010 DHV
AM/PM

PEPPERMINT ROAD @
WILDWOOD ROAD

PEPPERMINT
HILLS DRIVE

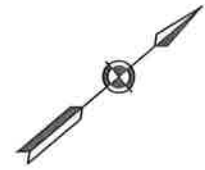


NOT TO SCALE

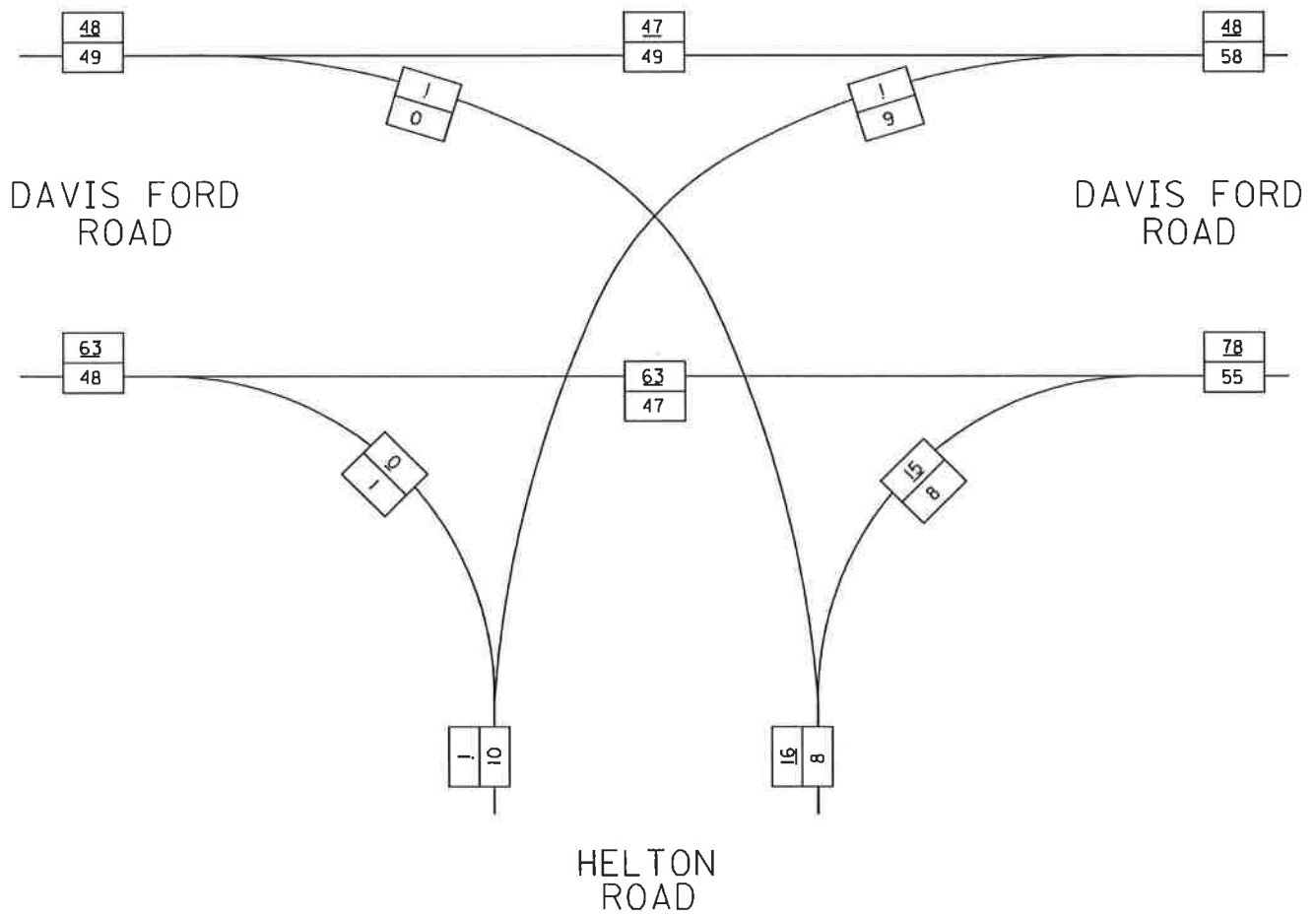


2010 DHV
AM/PM

SR 35/US 411/SEVIERVILLE ROAD @
HITCH ROAD/PEPPERMINT HILLS DR

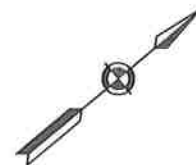


NOT TO SCALE

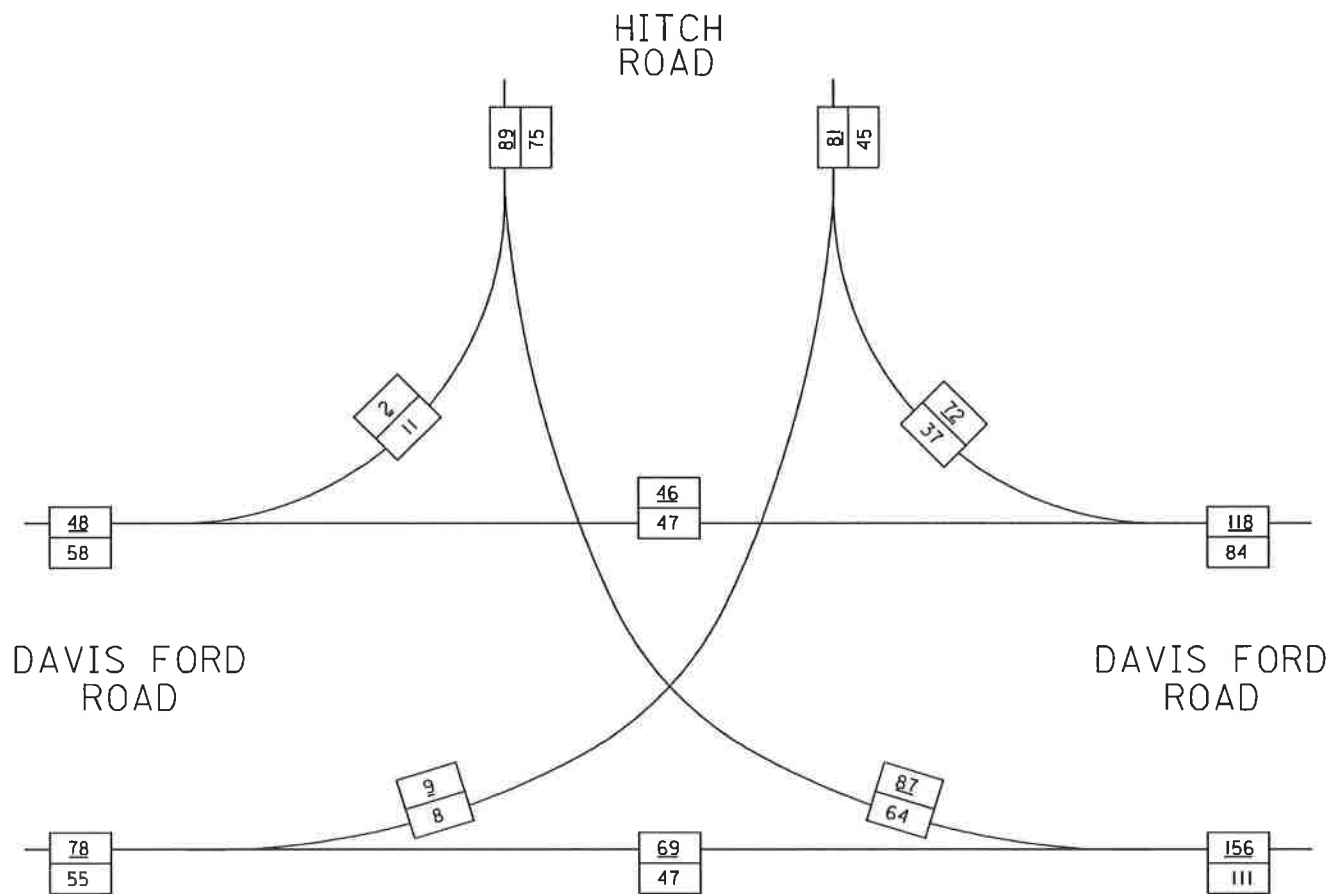


2010 DHV
AM/PM

DAVIS FORD ROAD @
HELTON ROAD



NOT TO SCALE

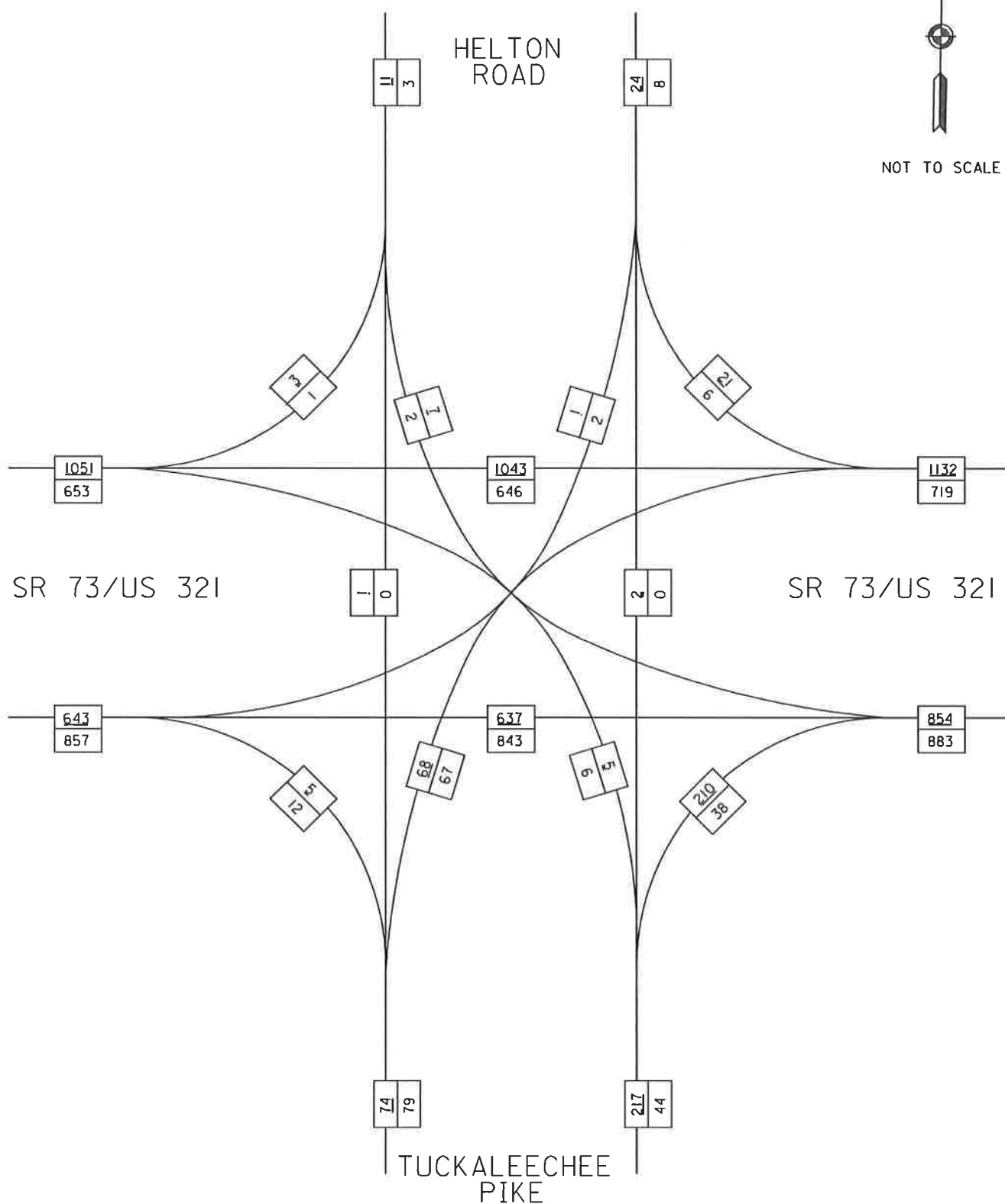


2010 DHV
AM/PM

DAVIS FORD ROAD @
HITCH ROAD

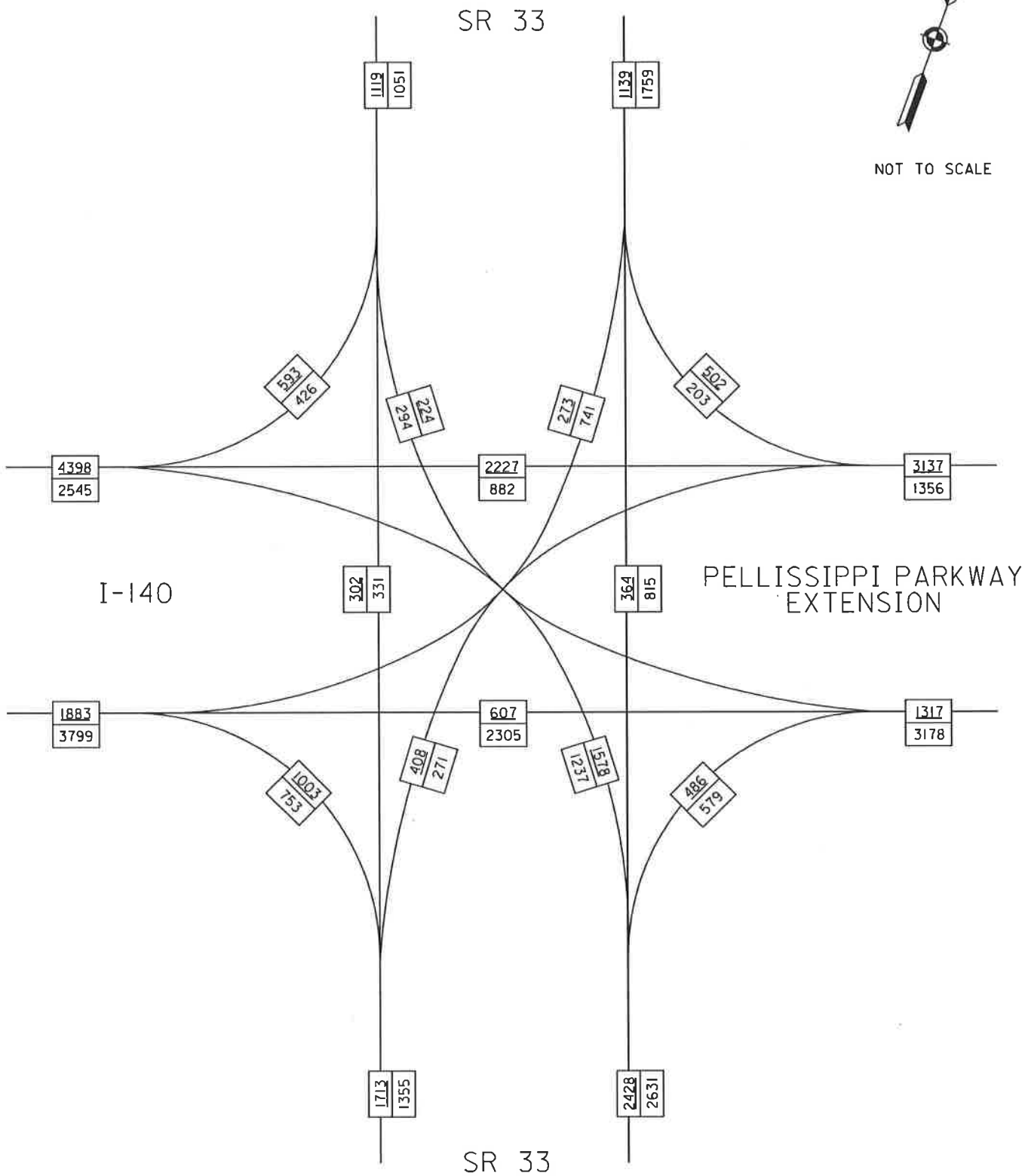


NOT TO SCALE



2010 DHV
AM/PM

SR 73/US 321 @
HELTON ROAD/TUCKALEECHEE PIKE

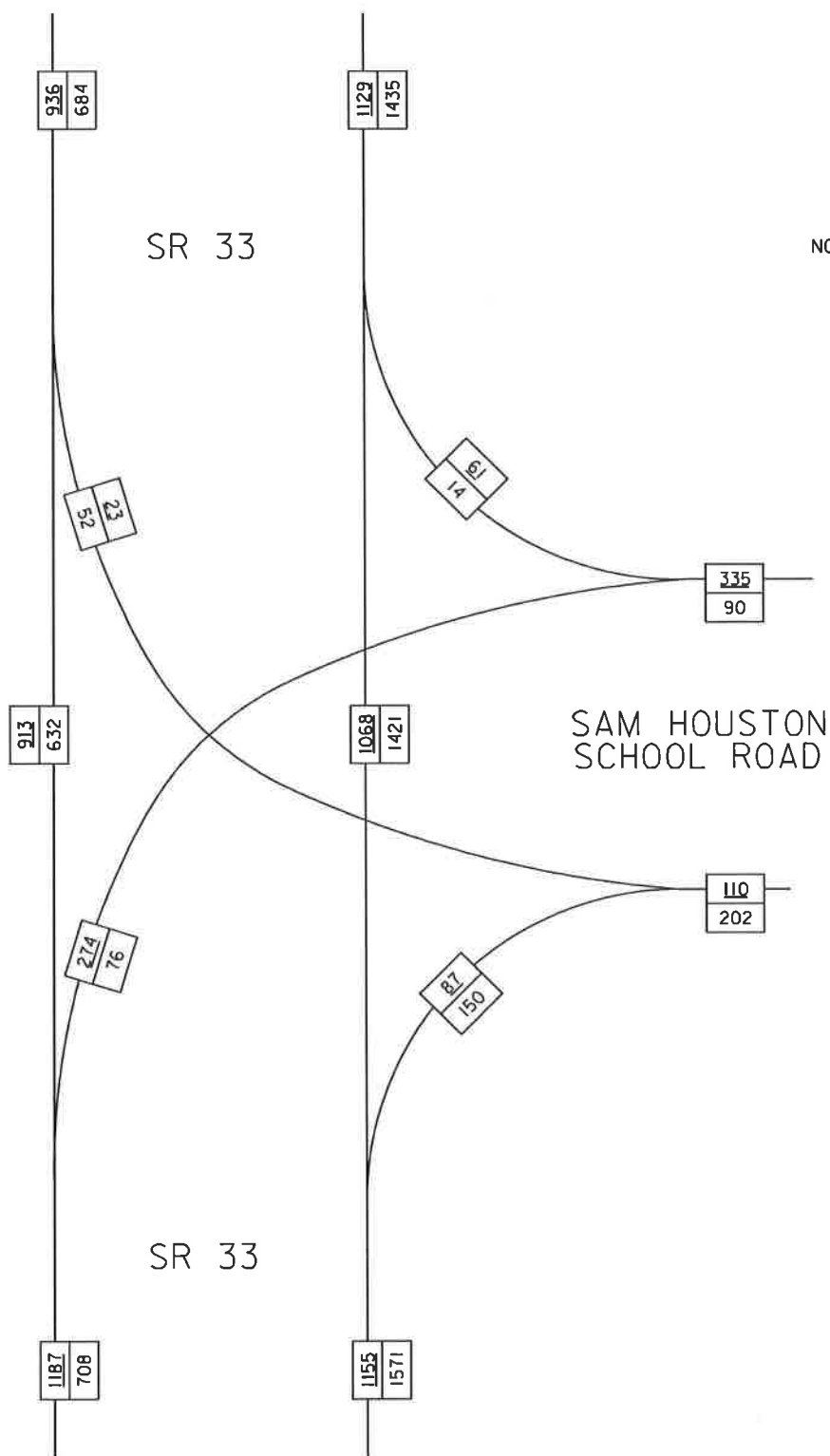


2040 DHV WITH PPE
AM / PM

SR 33 @
I-140 / PELLISSIPPI PKWY EXTENSION



NOT TO SCALE

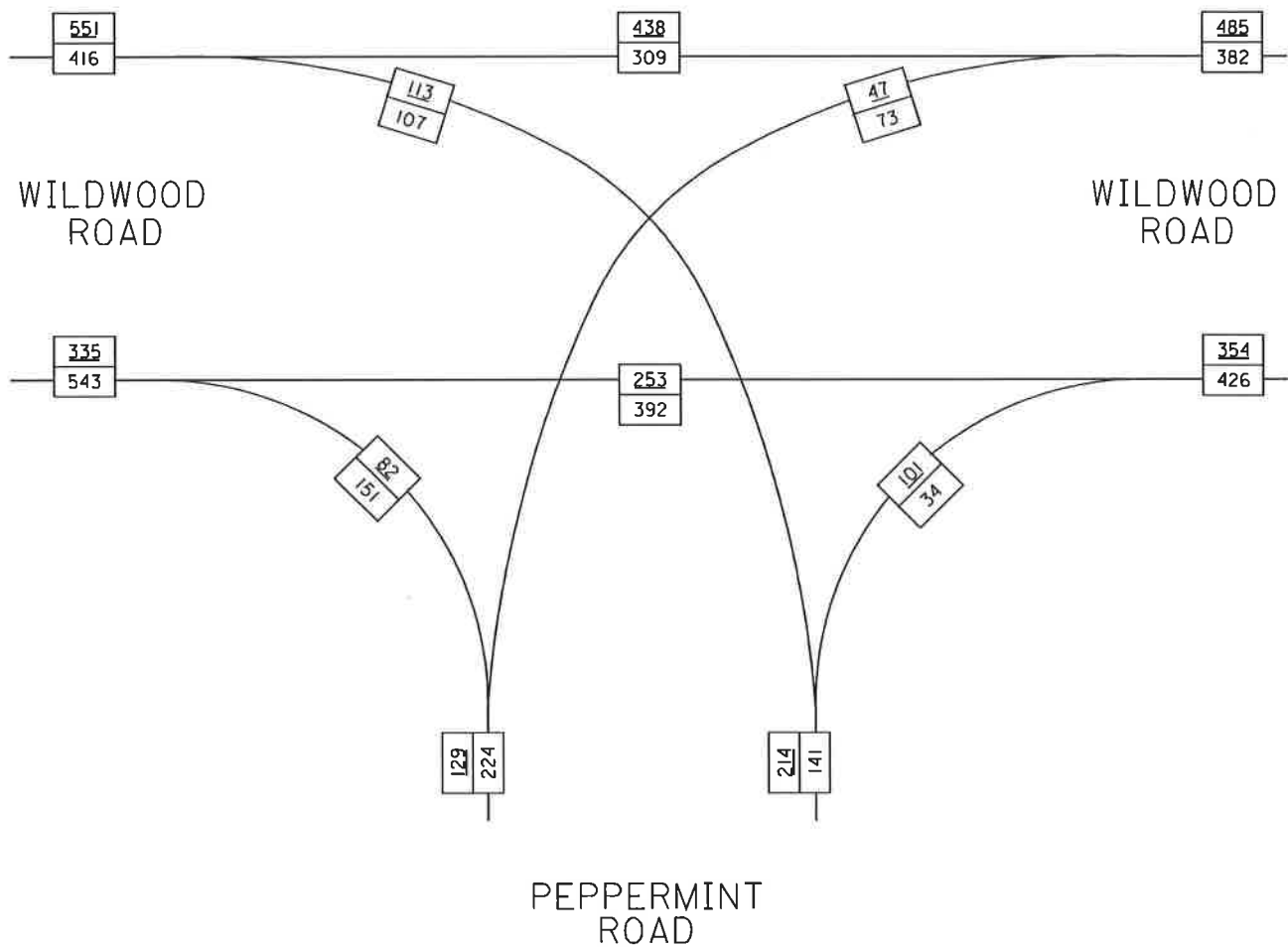


2040 DHV WITH PPE
AM / PM

SR 33 @
SAM HOUSTON SCHOOL ROAD



NOT TO SCALE

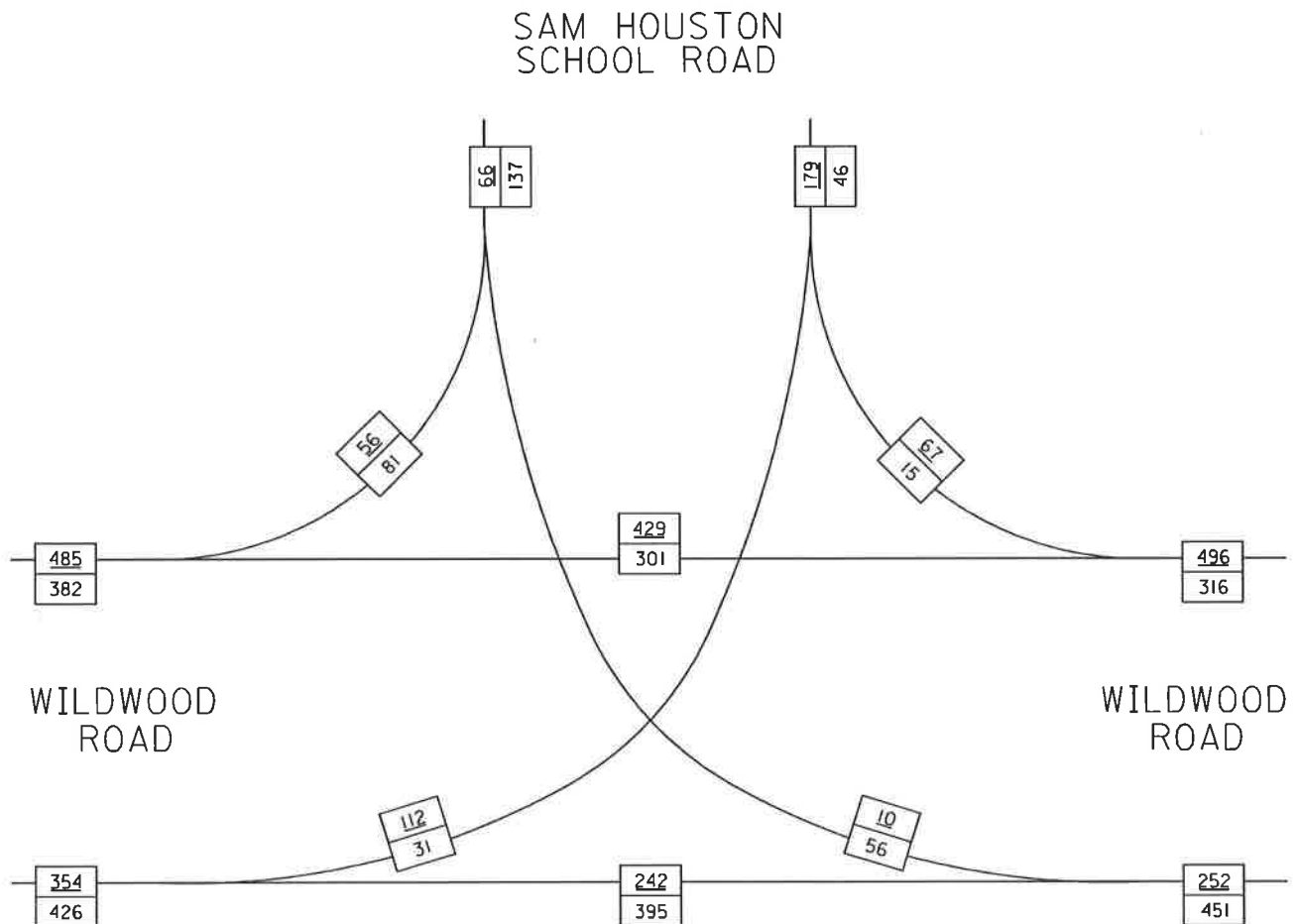


2040 DHV WITH PPE
AM / PM

PEPPERMINT ROAD @
WILDWOOD ROAD



NOT TO SCALE

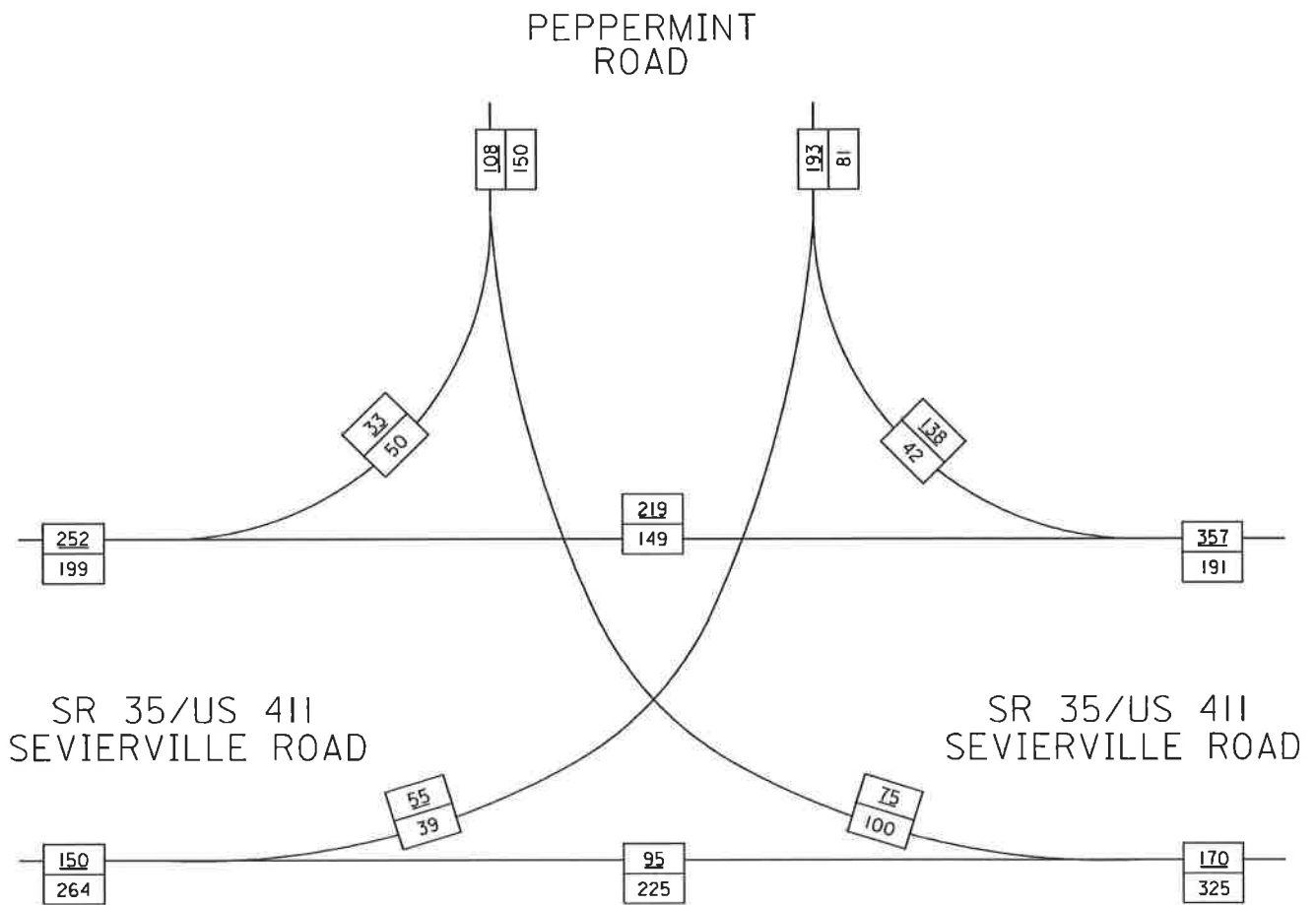


2040 DHV WITH PPE
AM / PM

SAM HOUSTON SCHOOL ROAD @
WILDWOOD ROAD



NOT TO SCALE



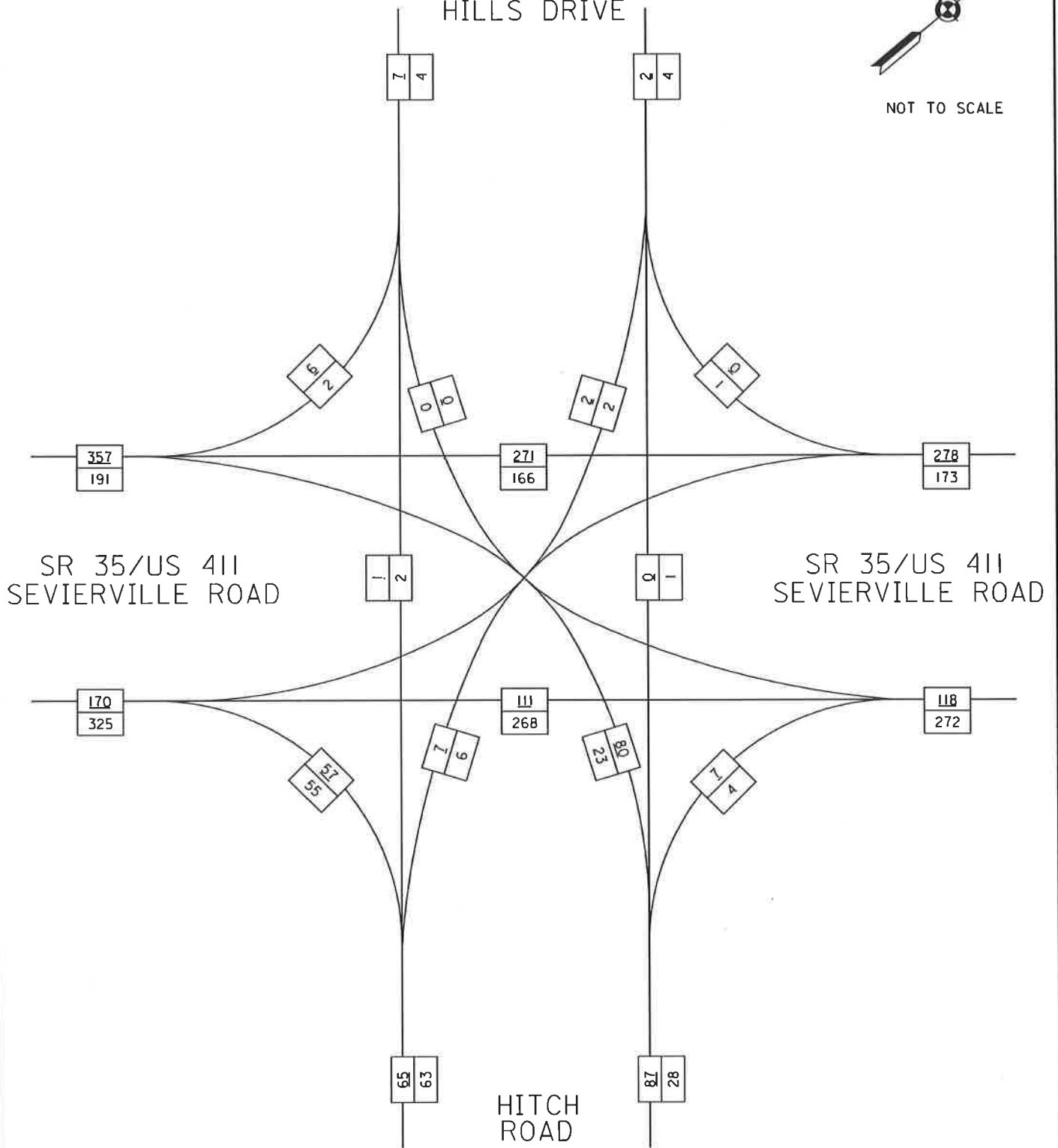
2040 DHV WITH PPE
AM / PM

SR 35/US 411/SEVIERVILLE ROAD @
PEPPERMINT ROAD

PEPPERMINT
HILLS DRIVE



NOT TO SCALE

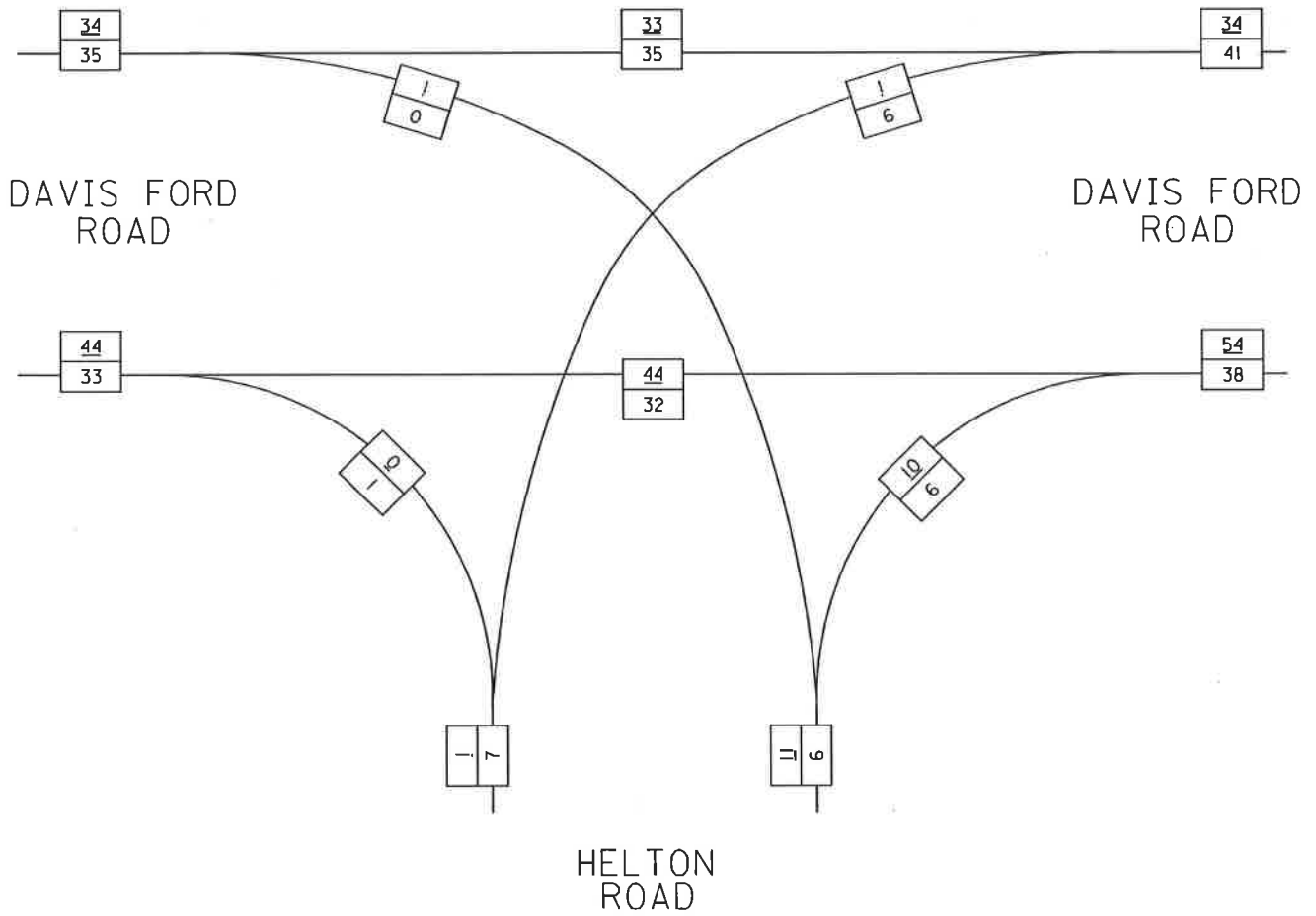


2040 DHV WITH PPE
AM / PM

SR 35/US 411/SEVIERVILLE ROAD @
HITCH ROAD/PEPPERMINT HILLS DR



NOT TO SCALE

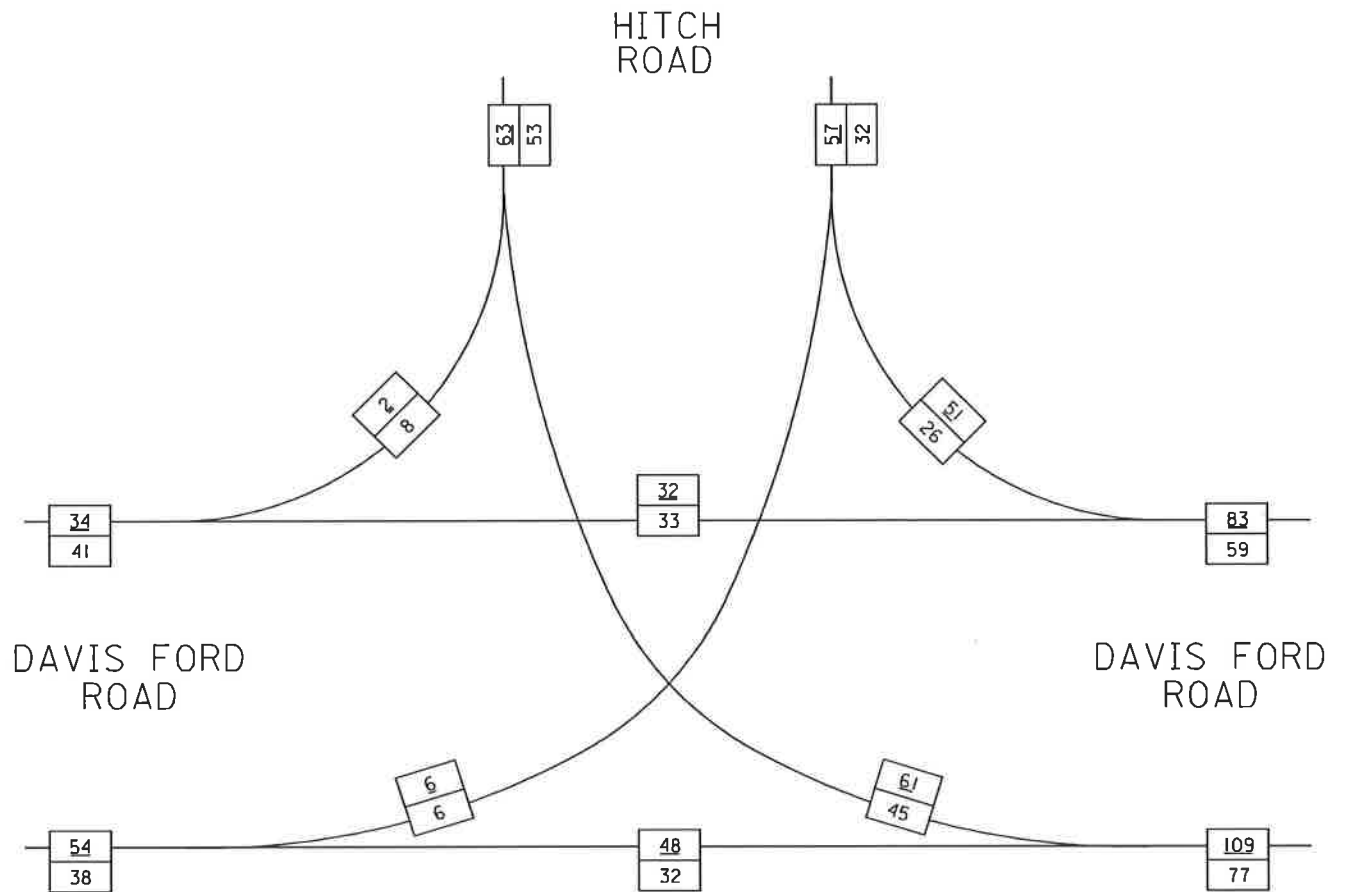


2040 DHV WITH PPE
AM / PM

DAVIS FORD ROAD @
HELTON ROAD



NOT TO SCALE

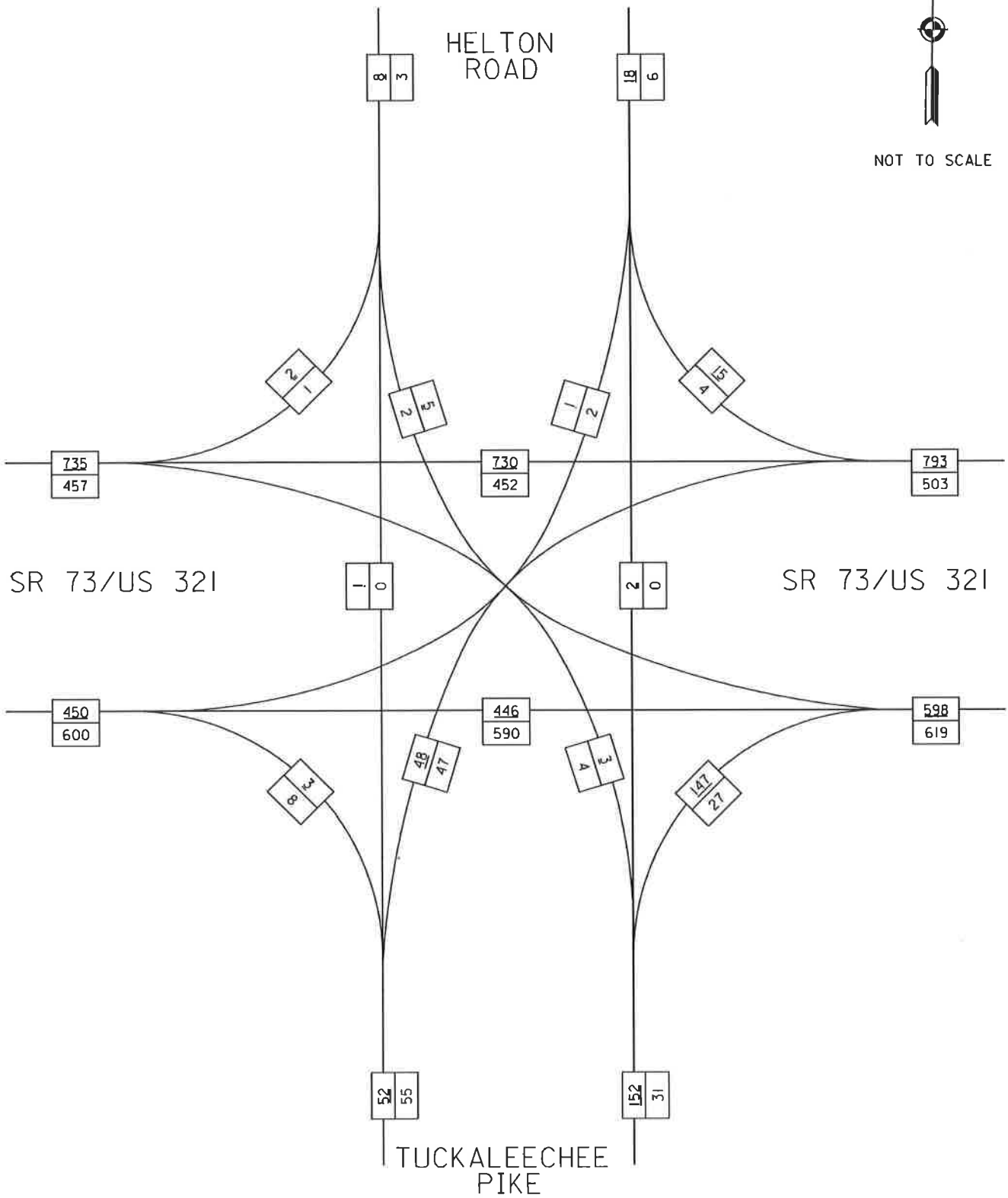


2040 DHV WITH PPE
AM / PM

DAVIS FORD ROAD @
HITCH ROAD



NOT TO SCALE



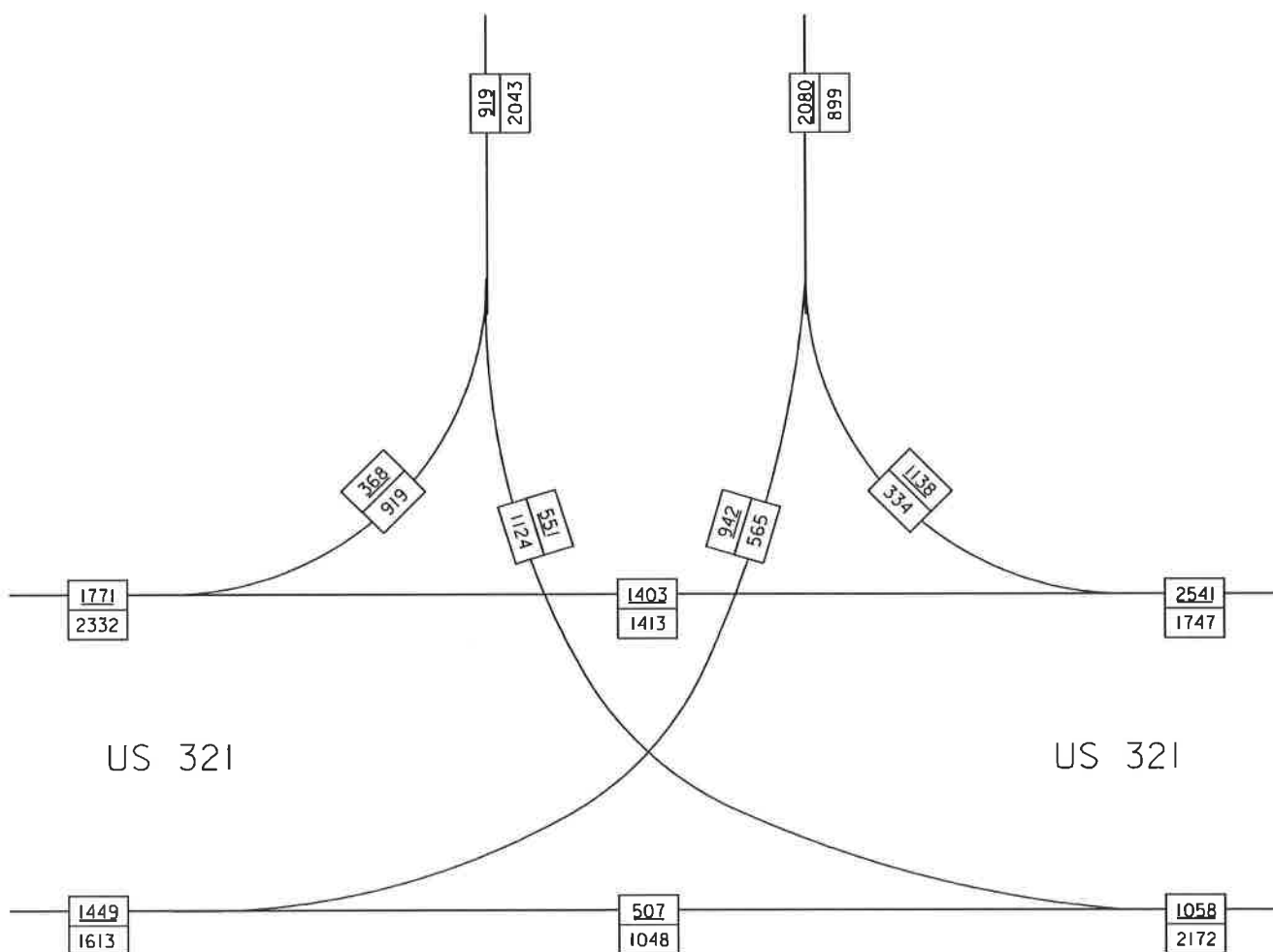
2040 DHV WITH PPE
AM / PM

SR 73/US 321 @
HELTON ROAD/TUCKALEECHEE PIKE



NOT TO SCALE

PELLISSIPPI PKWY EXTENSION



2040 DHV WITH PPE
AM / PM

PELLISSIPPI PKWY EXTENSION @
US 321



MEMORANDUM

TO: Nancy Skinner, Parsons Brinckerhoff

CC: Jonna Leigh Stack, TDOT
Margaret Slater, TDOT
Steve Allen, TDOT
Tony Armstrong, TDOT
Lindsay Walker, Parsons Brinckerhoff

FROM: Becky White

DATE: April 25, 2014

SUBJECT: FHWA Comments on Pellissippi Parkway Reevaluation

In response to my request, Mike Conger has prepared a model output for the year 2034 using the current approved Knoxville travel demand model and the Alternative D alignment (see attached figure). I reviewed the model volumes and my files from the previous Alternative D traffic forecasting effort and compiled the following comments. Before proceeding any further, I believe it would be best for us to conduct a conference call to discuss the model outputs and gain consensus on how to proceed.

1. Using existing volumes and the 2034 model volumes to determine a growth rate, I estimated the 2020 and 2040 AADT volumes with Alternative D as shown in the following table. These 2040 forecast volumes exceed the carrying capacity of a two-lane road. Based on my experience, a segment analysis of Alternative D with these volumes will show poor levels of service.

Route	Location	2020 AADT Forecast	2034 AADT from Model	2040 AADT Forecast
Sam Houston School Road	Btwn SR 33 and Wildwood Rd	9340	14560	16800
Peppermint Road	Btwn Wildwood Rd & US 411	9620	17290	20580
Hitch Road	South of US 411	6360	12330	14890
Helton Road	North of US 321	6130	12890	15790

"2013 Birmingham Business Alliance Small Business of the Year"

Two Perimeter Park South, Suite 500 East - Birmingham, Alabama 35243
p (205) 940-6420 - f (205) 940-6433
www.sain.com



2. I checked our project records from 2011 when Sain was last contracted by TDOT to prepare forecasts for Alternative D. The total amount billed for those services was \$40k. The scope of work included:
 - coordination
 - traffic counts at 8 locations
 - forecasts for 2015 and 2035 for 50 segments and 17 intersections, and
 - documentation of methodology

If we undertake to re-do forecasts for Alternative D without doing any new traffic counts on the Alternative D road network and with the smaller study area that was used for the reevaluation, the fee will probably range between \$20k-25k.

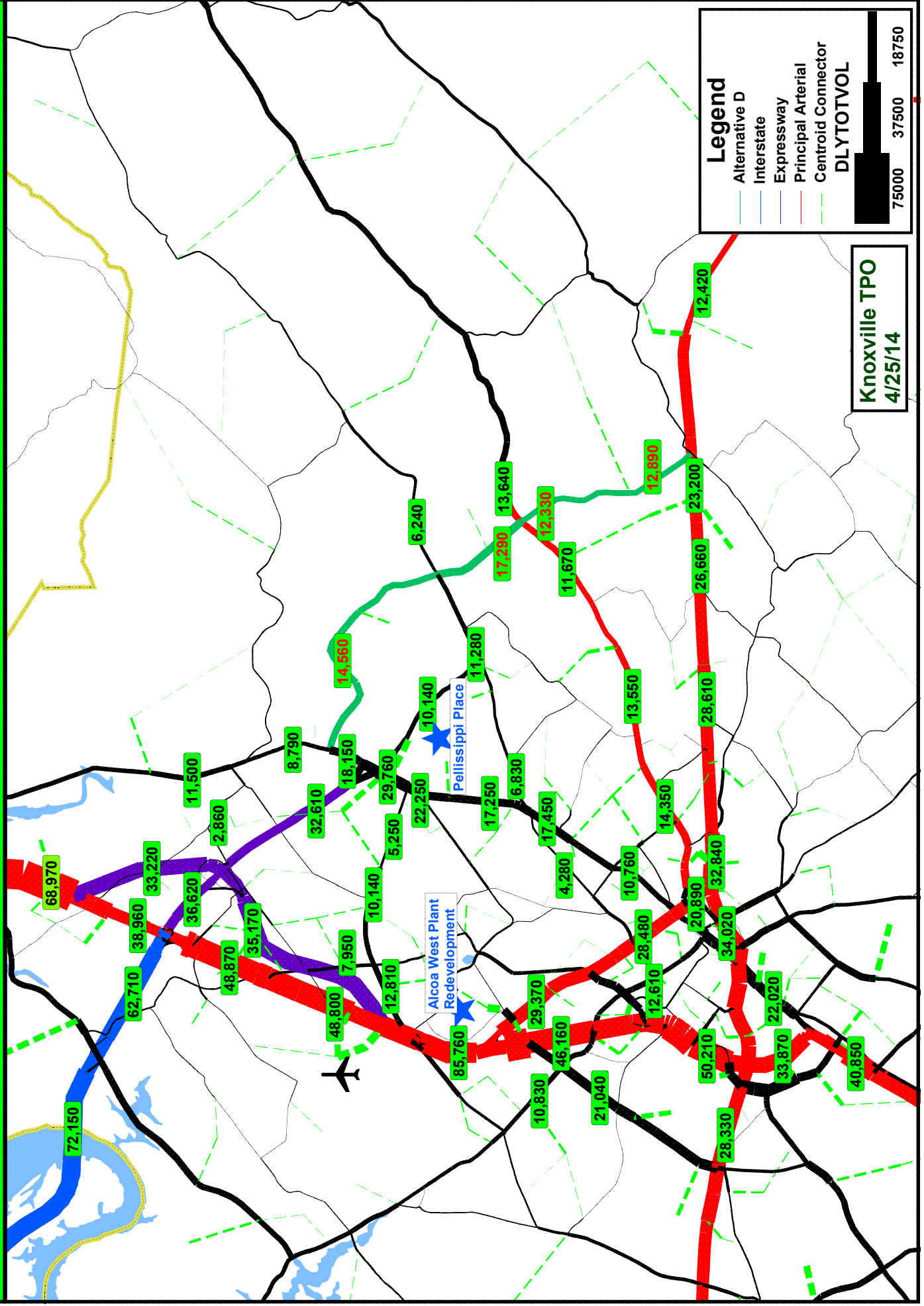
3. Given the expense of redoing forecasts again and model outputs that show AADT volumes on the Alternative D network that exceed capacity for a two-lane road, could we possibly convince FHWA that an intersection level analysis of Alternative D is unnecessary to prove that it is still not a viable alternative? Perhaps we could do that with a segment level analysis using AADT forecasts as provided in the above table and segment-level capacity analysis conducted by PB.

I will hold on any further work on this project for now. Please let me know as soon as possible if you are available for a conference call or if I should proceed with preparation of a manpower estimate to prepare the full traffic forecasts (segments and intersections) that FHWA has requested.

"2013 Birmingham Business Alliance Small Business of the Year"

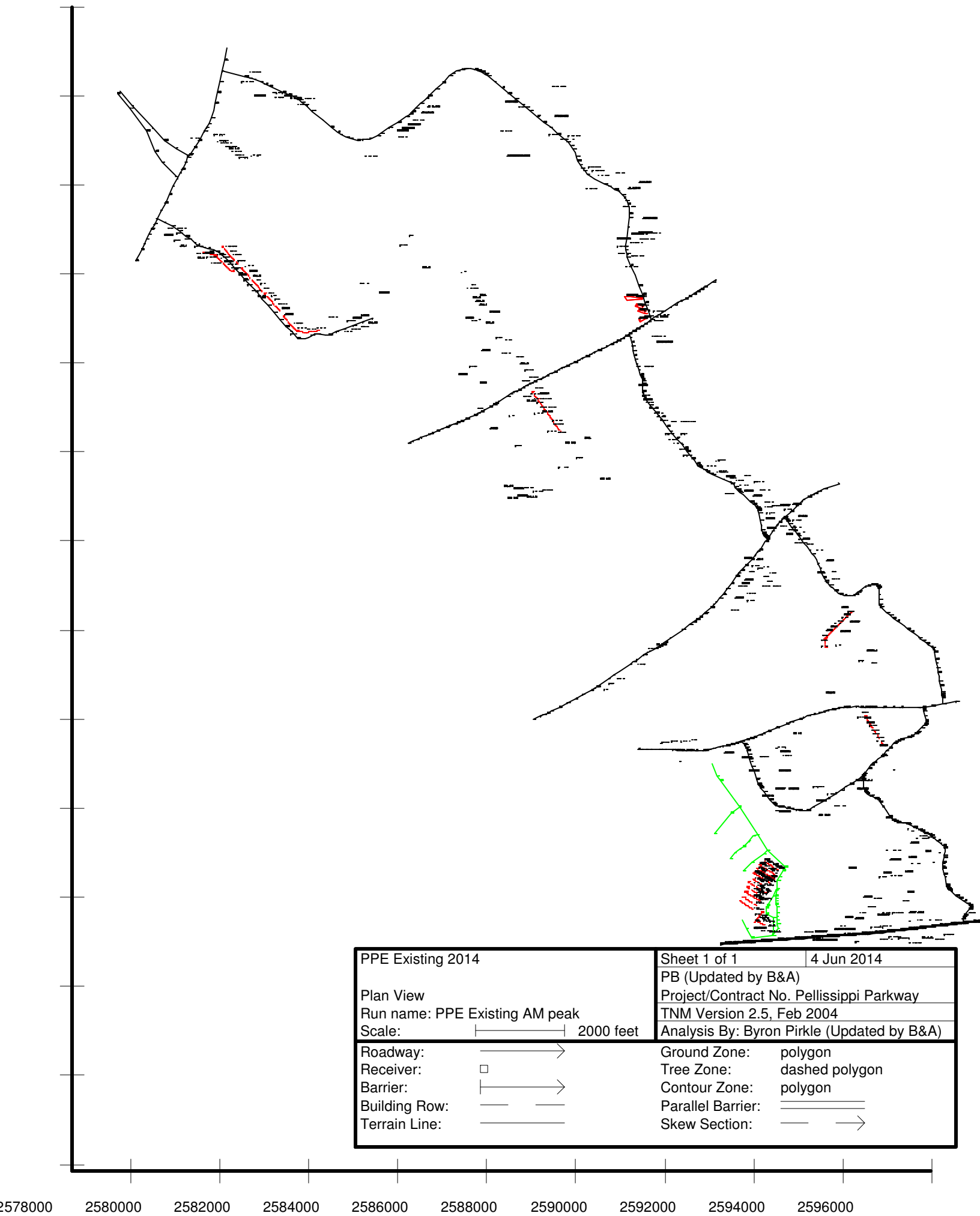
Two Perimeter Park South, Suite 500 East - Birmingham, Alabama 35243
p (205) 940-6420 - f (205) 940-6433
www.sain.com

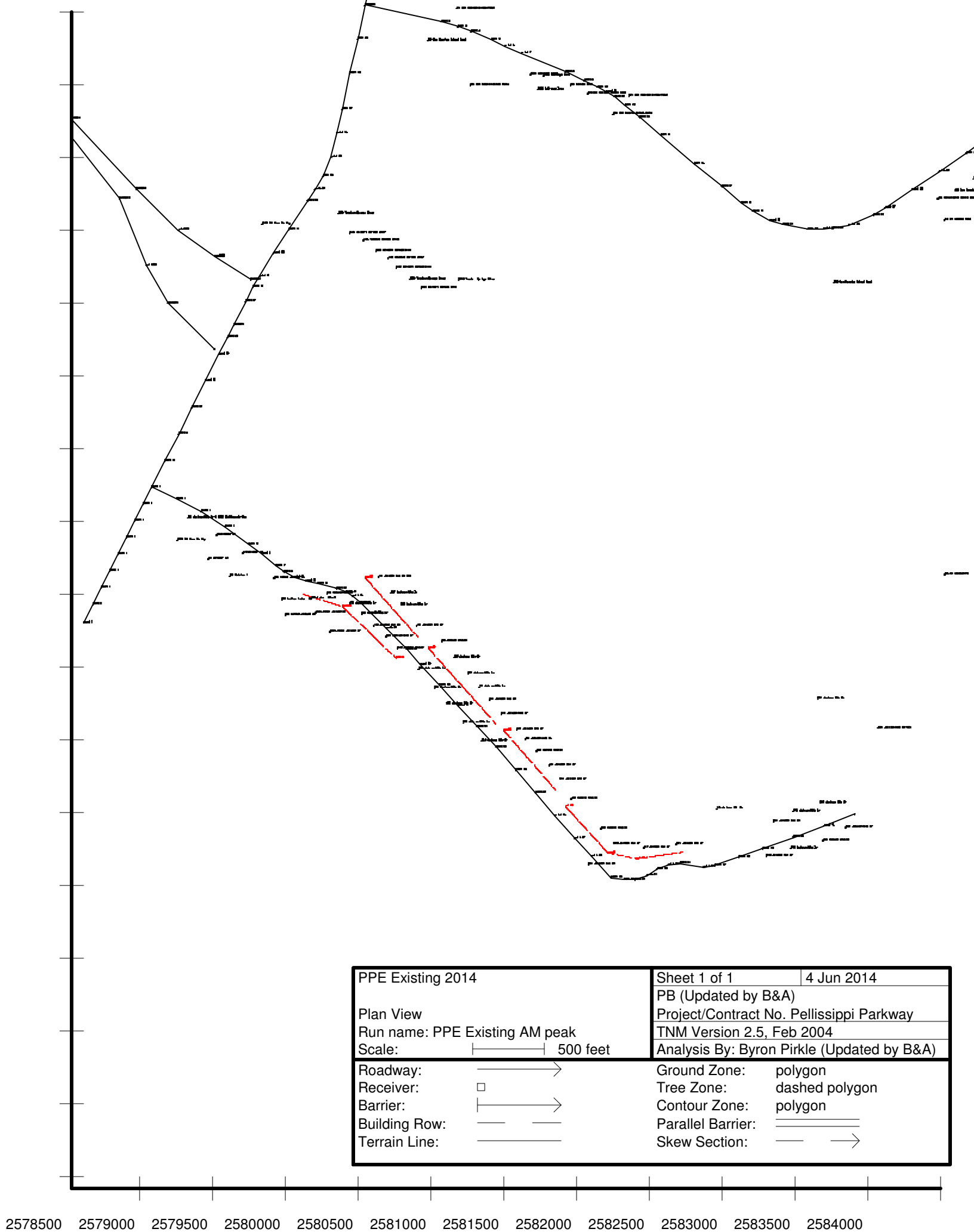
Pellissippi Pkwy Extension - 2034 Model Output for Alternative D



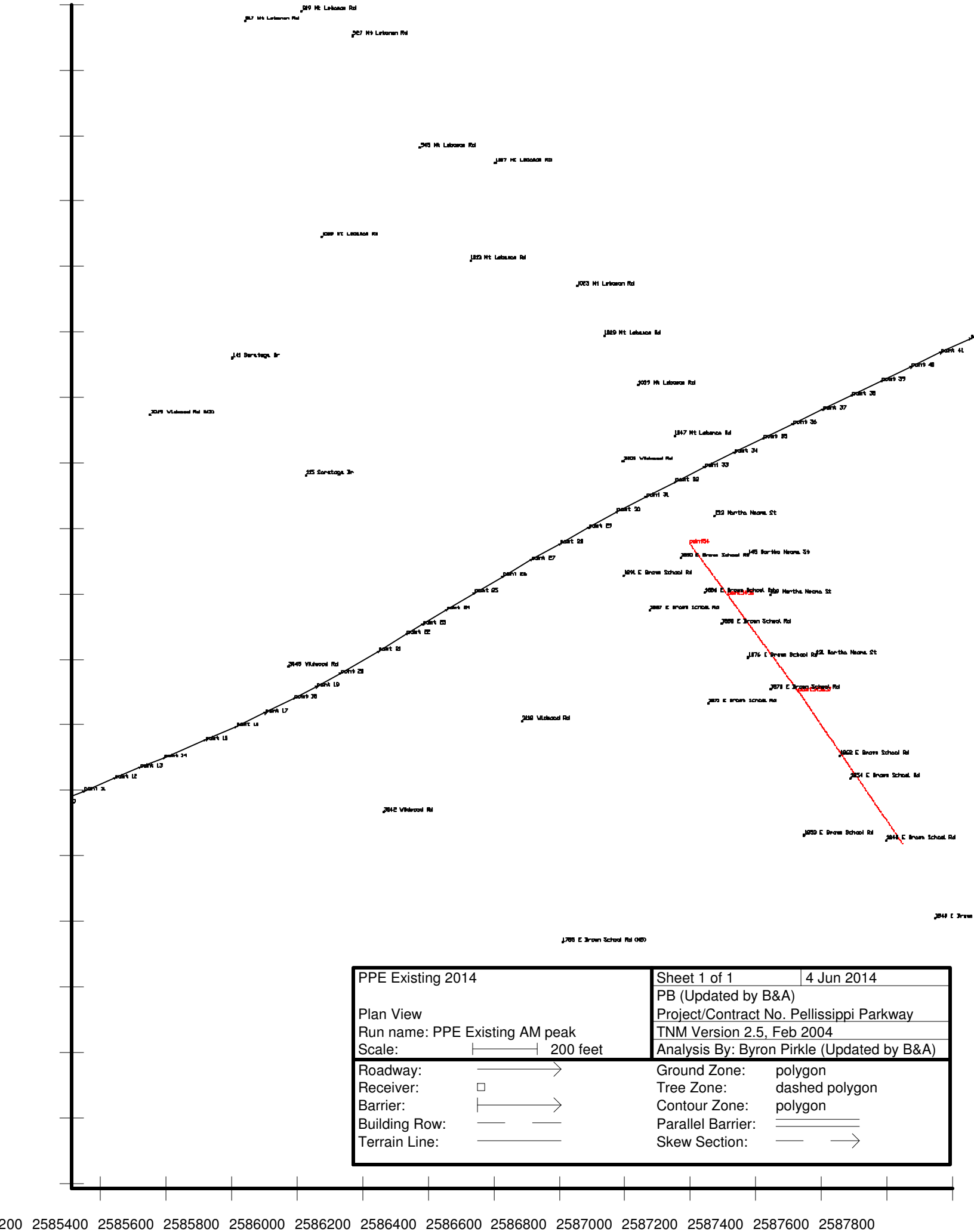
Appendix D
TNM Plan Views









Existing

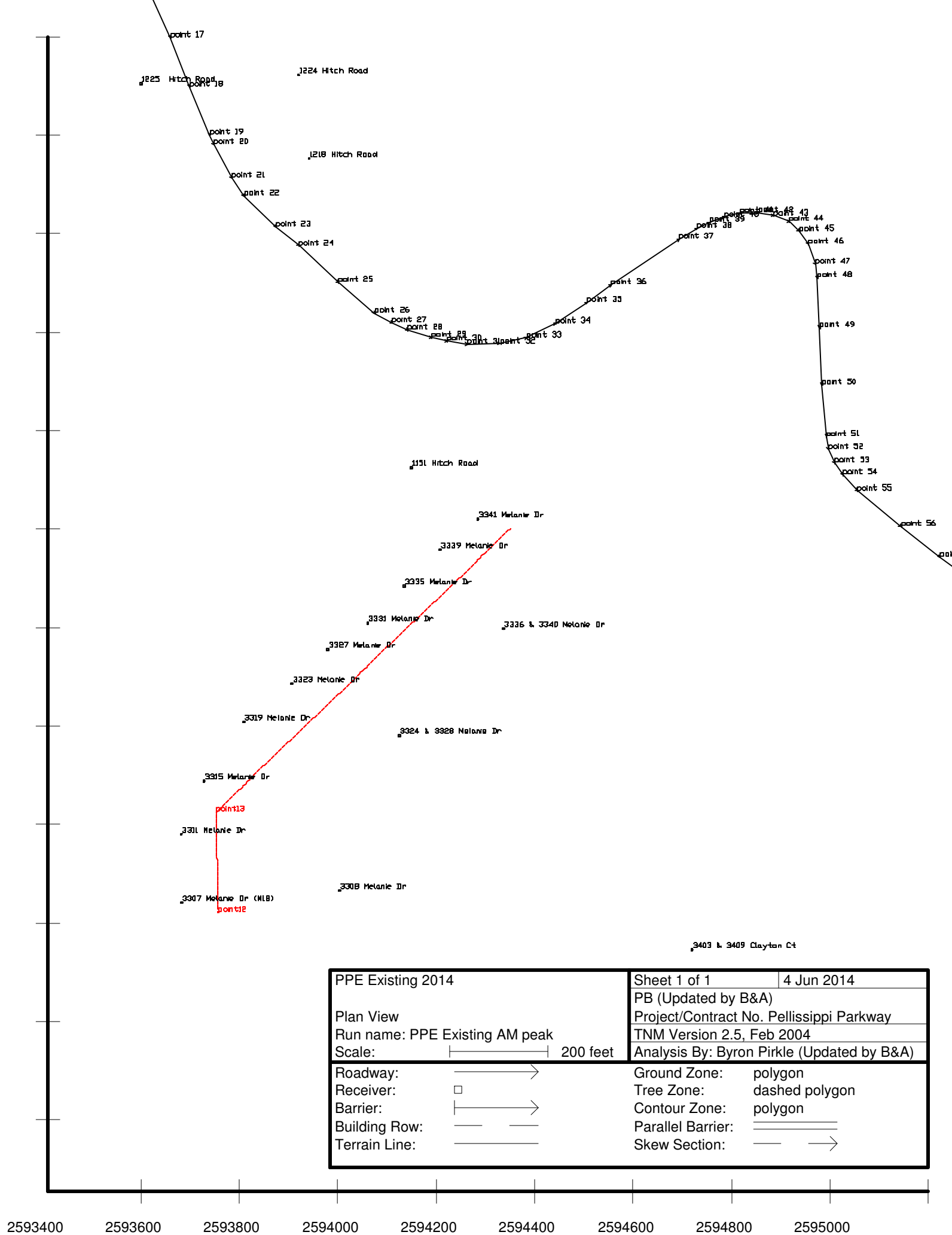


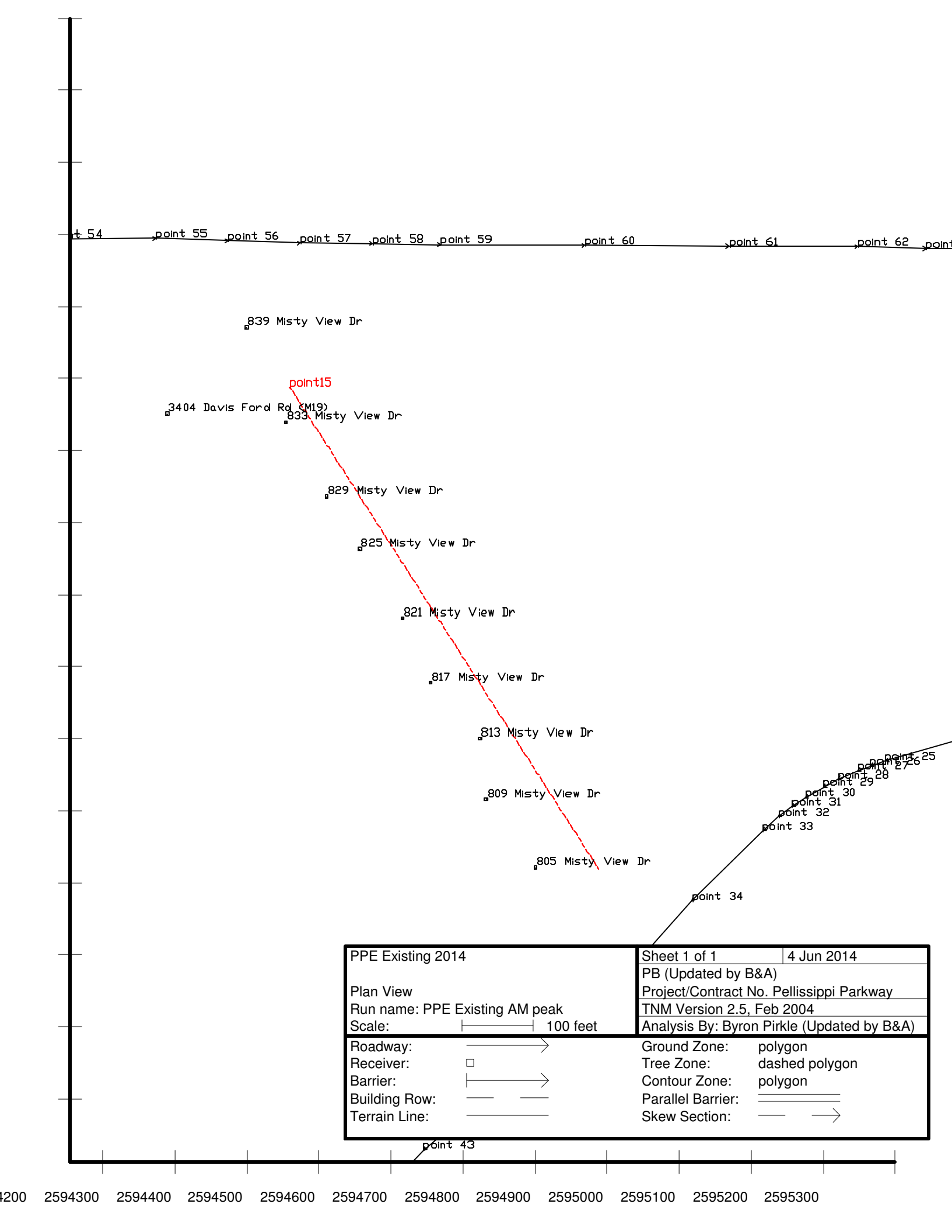










2578500 2579000 2579500 2580000 2580500 2581000 2581500 2582000 2582500 2583000 2583500 2584000

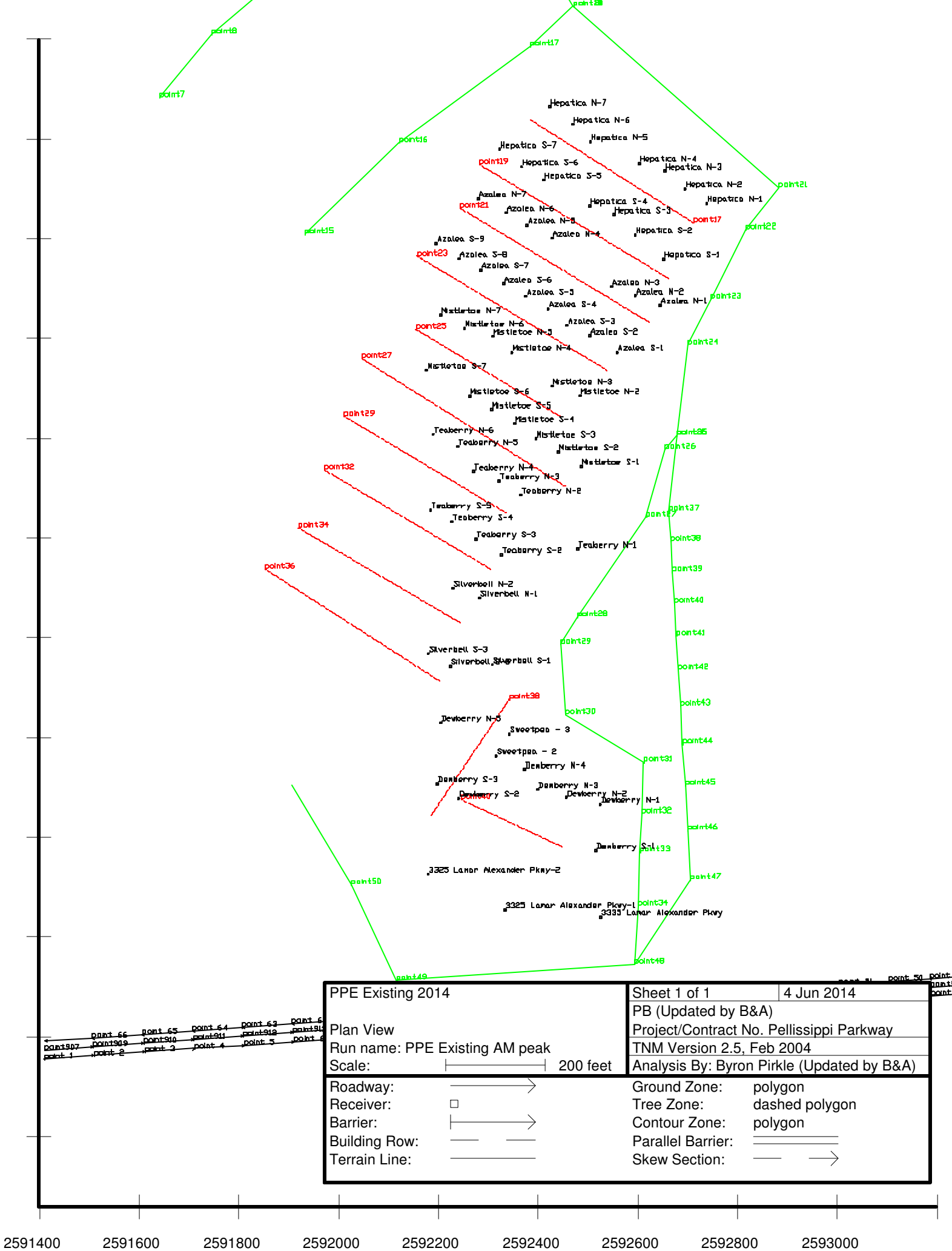










PPE Existing 2014		Sheet 1 of 1	4 Jun 2014
Plan View		PB (Updated by B&A)	
Run name: PPE Existing AM peak		Project/Contract No. Pellissippi Parkway	
Scale:  200 feet		TNM Version 2.5, Feb 2004	
		Analysis By: Byron Pirkle (Updated by B&A)	
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

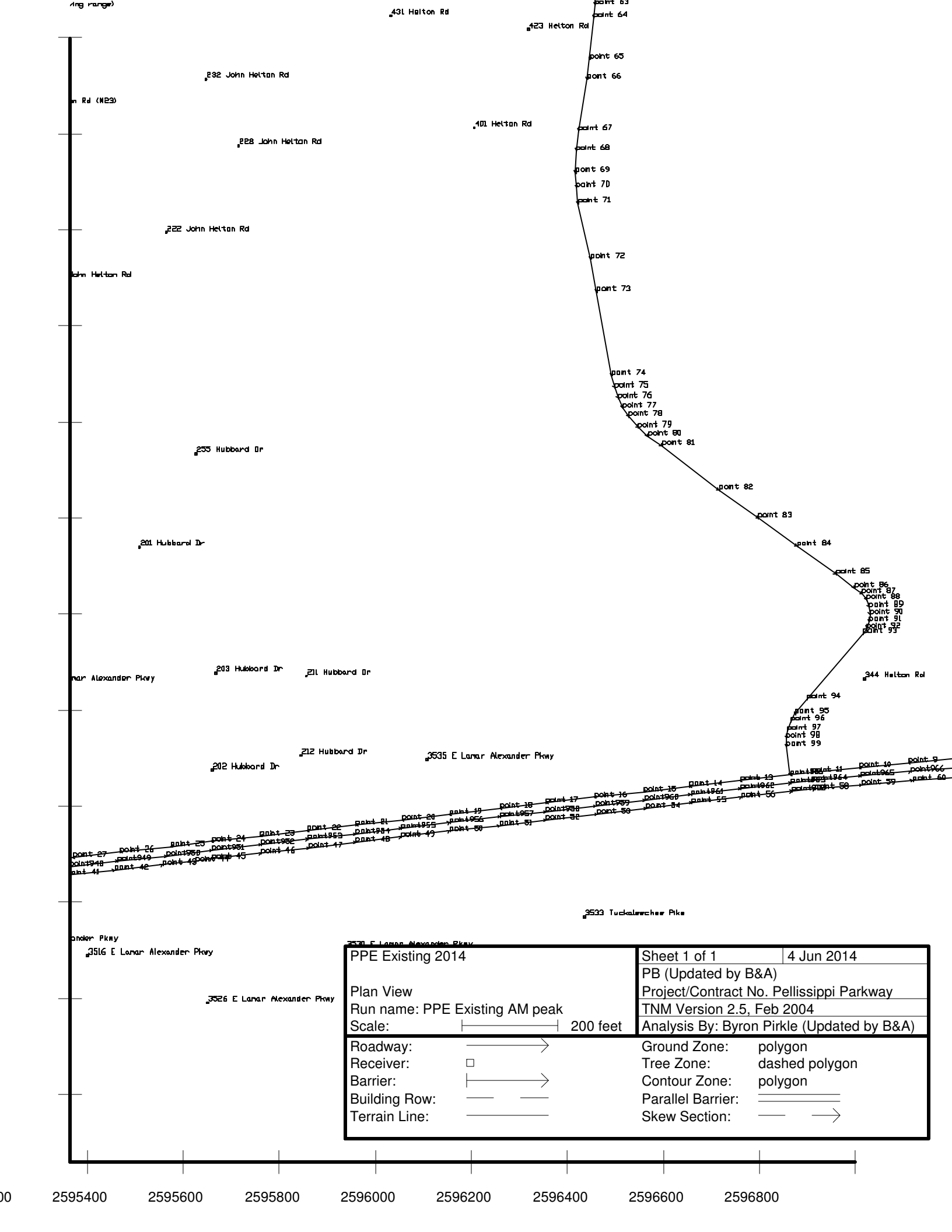












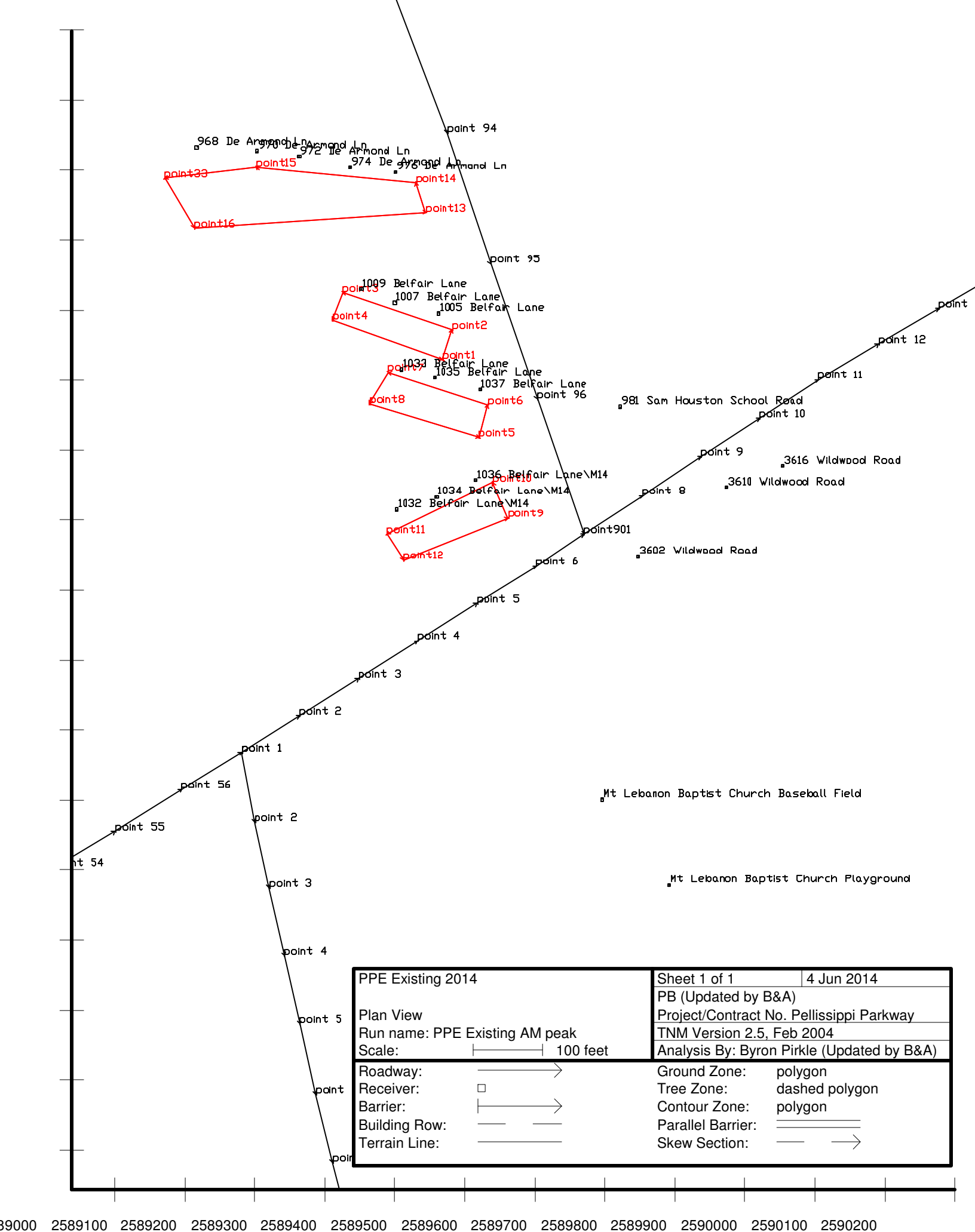
PPE Existing 2014		Sheet 1 of 1	4 Jun 2014
Plan View		PB (Updated by B&A)	
Run name: PPE Existing AM peak		Project/Contract No. Pellissippi Parkway	
Scale: 		TNM Version 2.5, Feb 2004	
		Analysis By: Byron Pirkle (Updated by B&A)	
Roadway: 	Ground Zone: polygon		
Receiver: 	Tree Zone: dashed polygon		
Barrier: 	Contour Zone: polygon		
Building Row: 	Parallel Barrier: 		
Terrain Line: 	Skew Section: 		



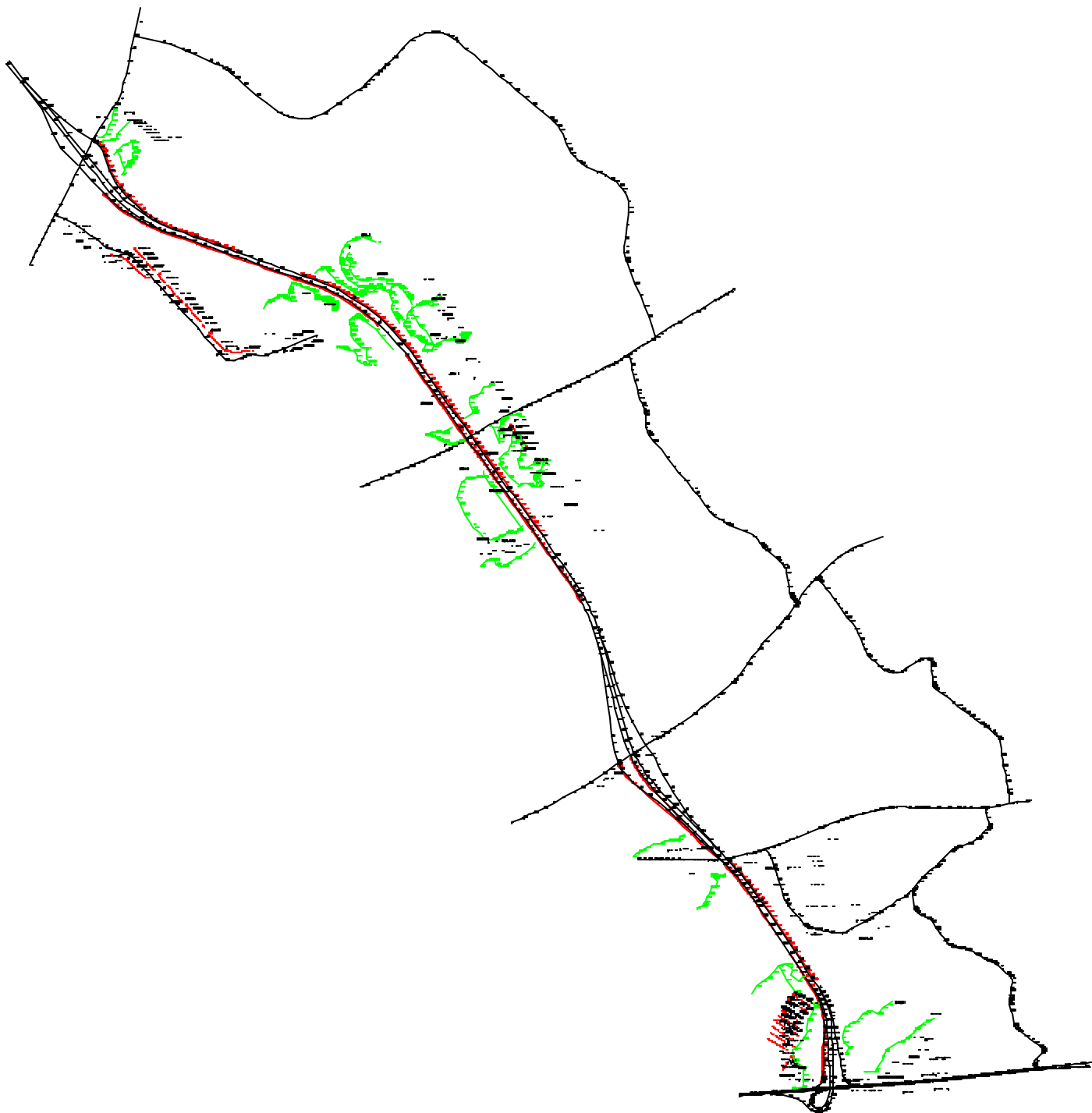
PPE Existing 2014		Sheet 1 of 1	4 Jun 2014
Plan View		PB (Updated by B&A)	
Run name: PPE Existing AM peak		Project/Contract No. Pellissippi Parkway	
Scale: 		TNM Version 2.5, Feb 2004	
Roadway: 		Analysis By: Byron Pirkle (Updated by B&A)	
Receiver: 		Ground Zone:	polygon
Barrier: 		Tree Zone:	dashed polygon
Building Row: 		Contour Zone:	polygon
Terrain Line: 		Parallel Barrier:	
		Skew Section:	






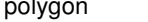




PPE Existing 2014		Sheet 1 of 1	4 Jun 2014
Plan View		PB (Updated by B&A)	
Run name: PPE Existing AM peak		Project/Contract No. Pellissippi Parkway	
Scale:  200 feet		TNM Version 2.5, Feb 2004	
Analysis By: Byron Pirkle (Updated by B&A)			
Roadway: 	Ground Zone: polygon		
Receiver: 	Tree Zone: dashed polygon		
Barrier: 	Contour Zone: polygon		
Building Row: 	Parallel Barrier: 		
Terrain Line: 	Skew Section: 		

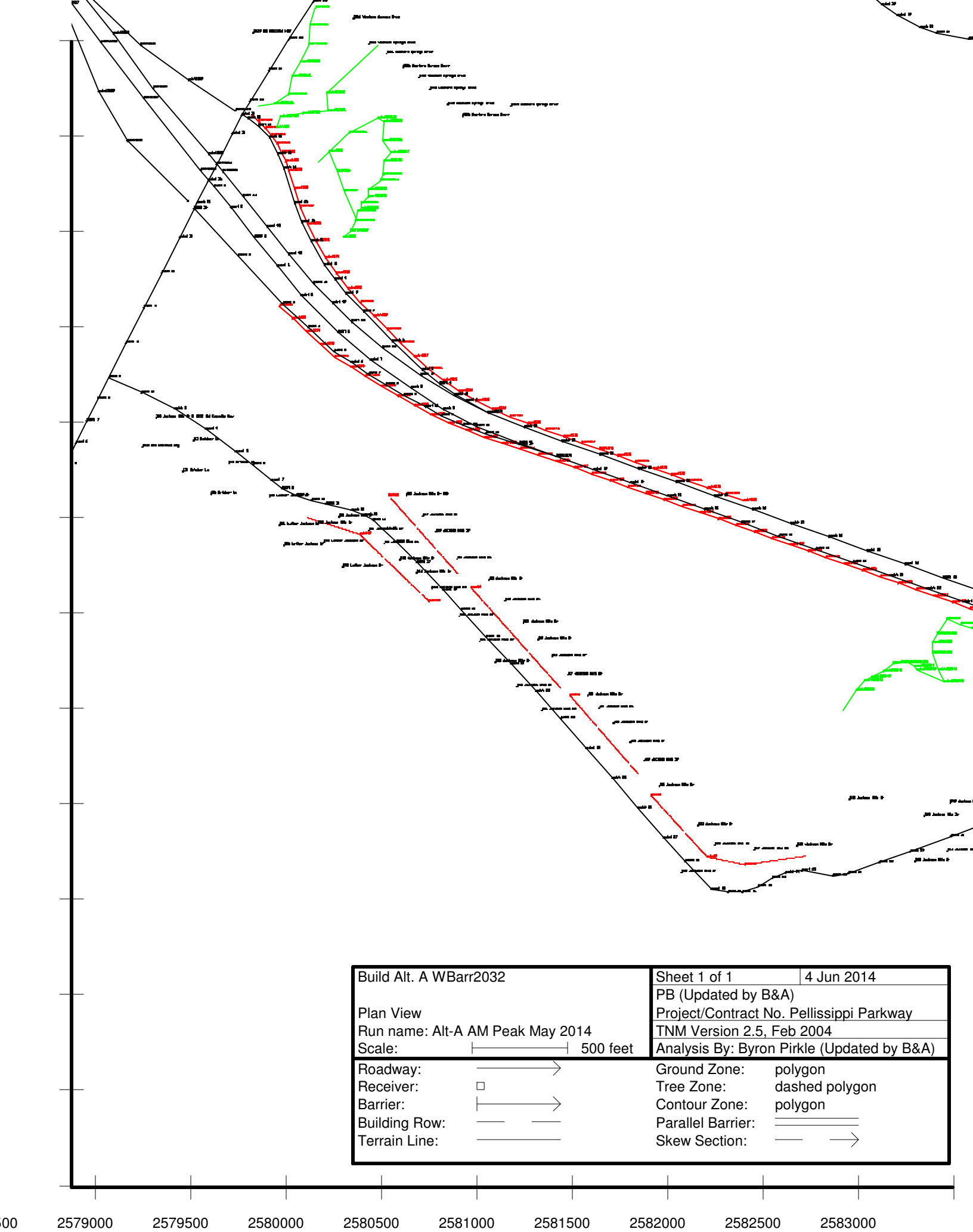


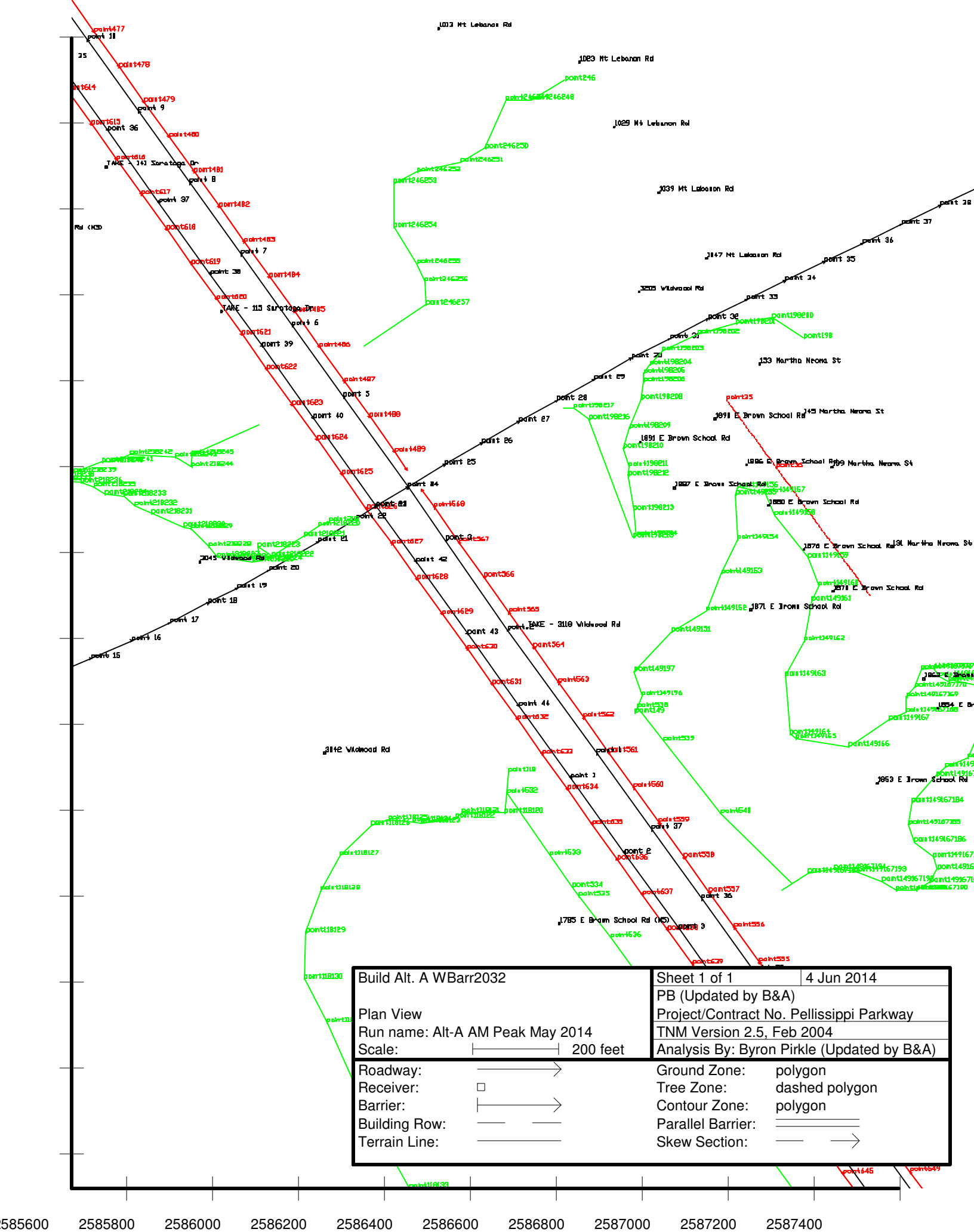
Alternative A











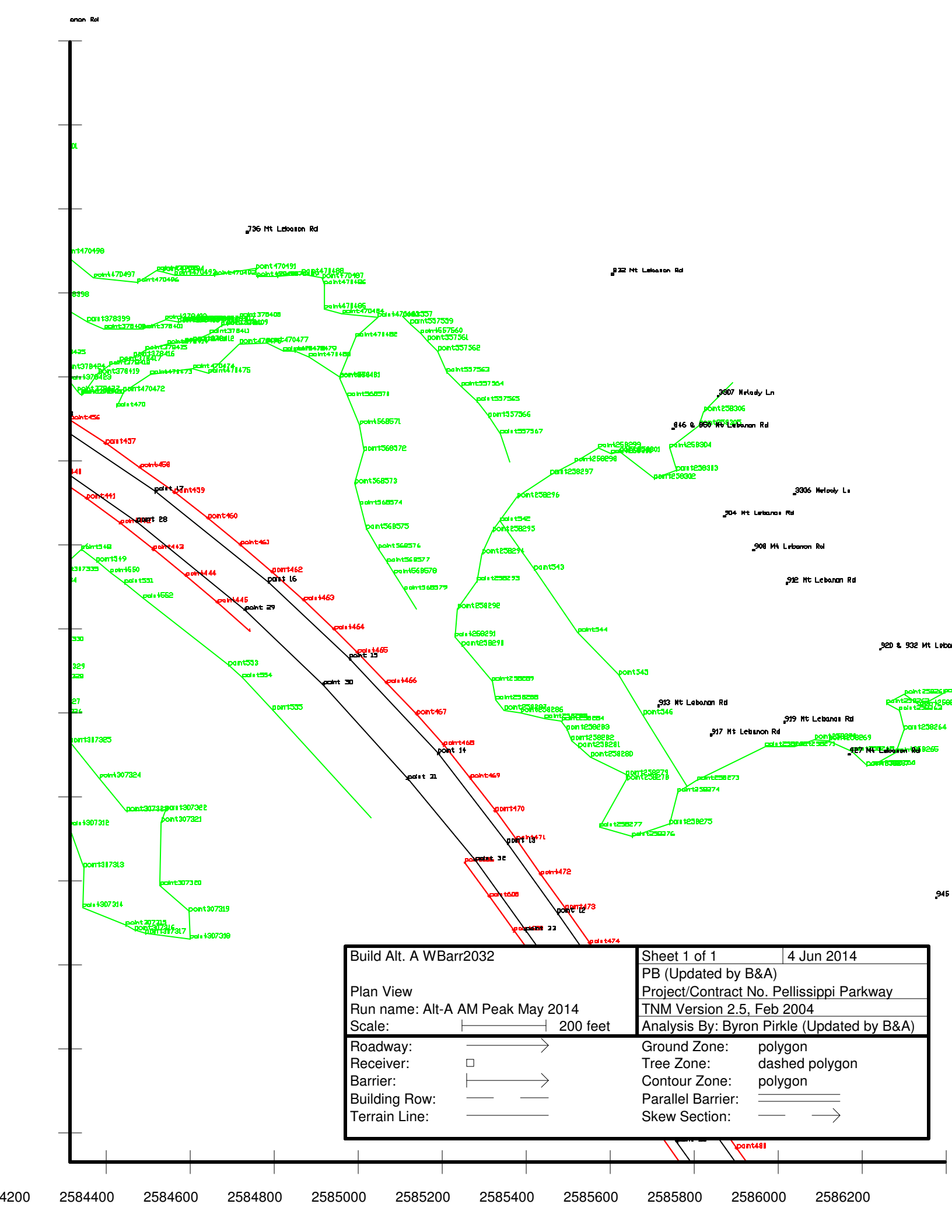
Build Alt. A WBarr2032		Sheet 1 of 1	4 Jun 2014
Plan View		PB (Updated by B&A)	
Run name: Alt-A AM Peak May 2014		Project/Contract No. Pellissippi Parkway	
Scale: 		TNM Version 2.5, Feb 2004	
		Analysis By: Byron Pirkle (Updated by B&A)	
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	









2578000 2580000 2582000 2584000 2586000 2588000 2590000 2592000 2594000 2596000 2598000

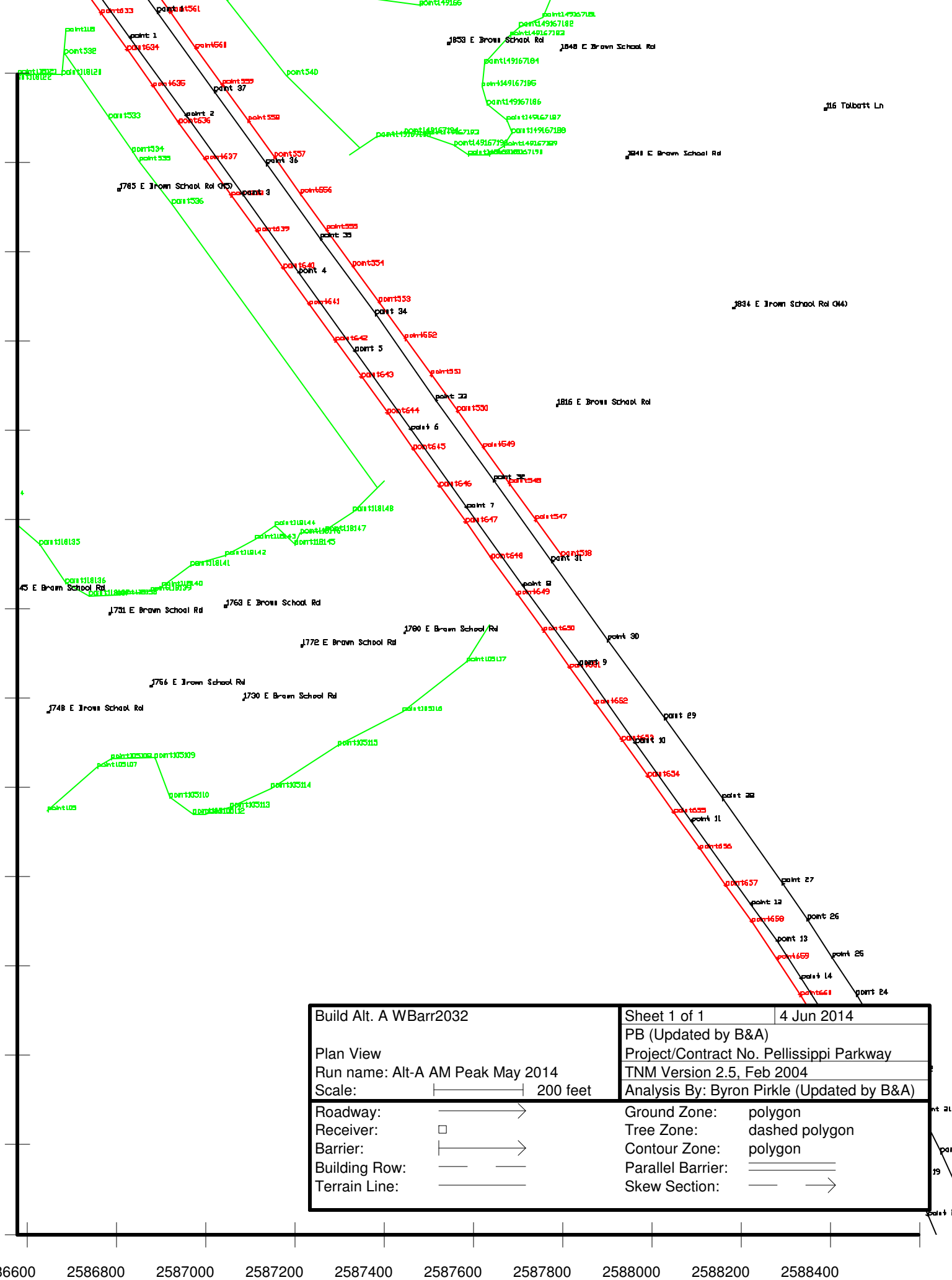


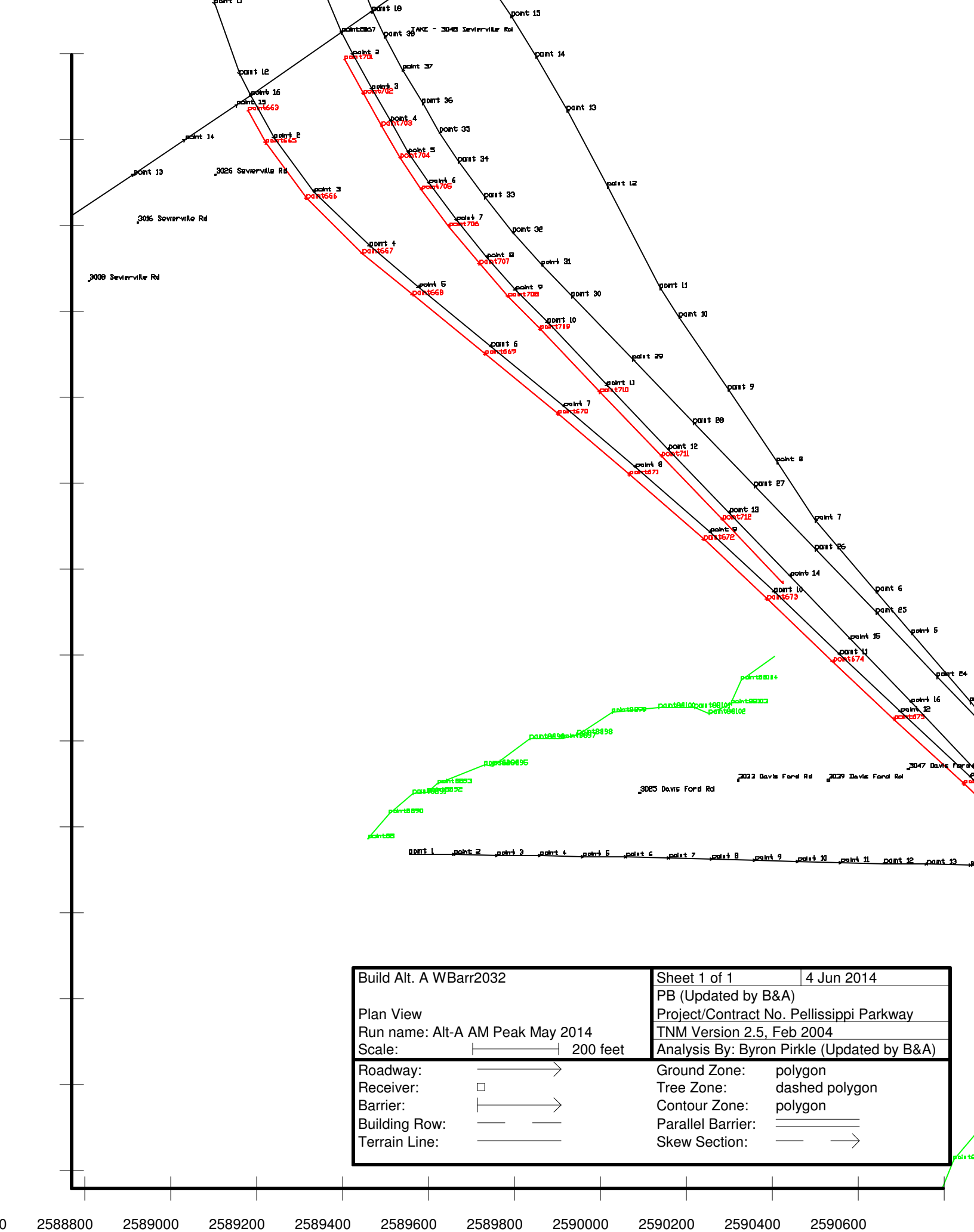










Build Alt. A WBarr2032		Sheet 1 of 1		4 Jun 2014	
Plan View		PB (Updated by B&A)			
Run name: Alt-A AM Peak May 2014		Project/Contract No. Pellissippi Parkway			
Scale:  200 feet		TNM Version 2.5, Feb 2004			
		Analysis By: Byron Pirkle (Updated by B&A)			
Roadway: 		Ground Zone:		polygon	
Receiver: 		Tree Zone:		dashed polygon	
Barrier: 		Contour Zone:		polygon	
Building Row: 		Parallel Barrier:			
Terrain Line: 		Skew Section:			

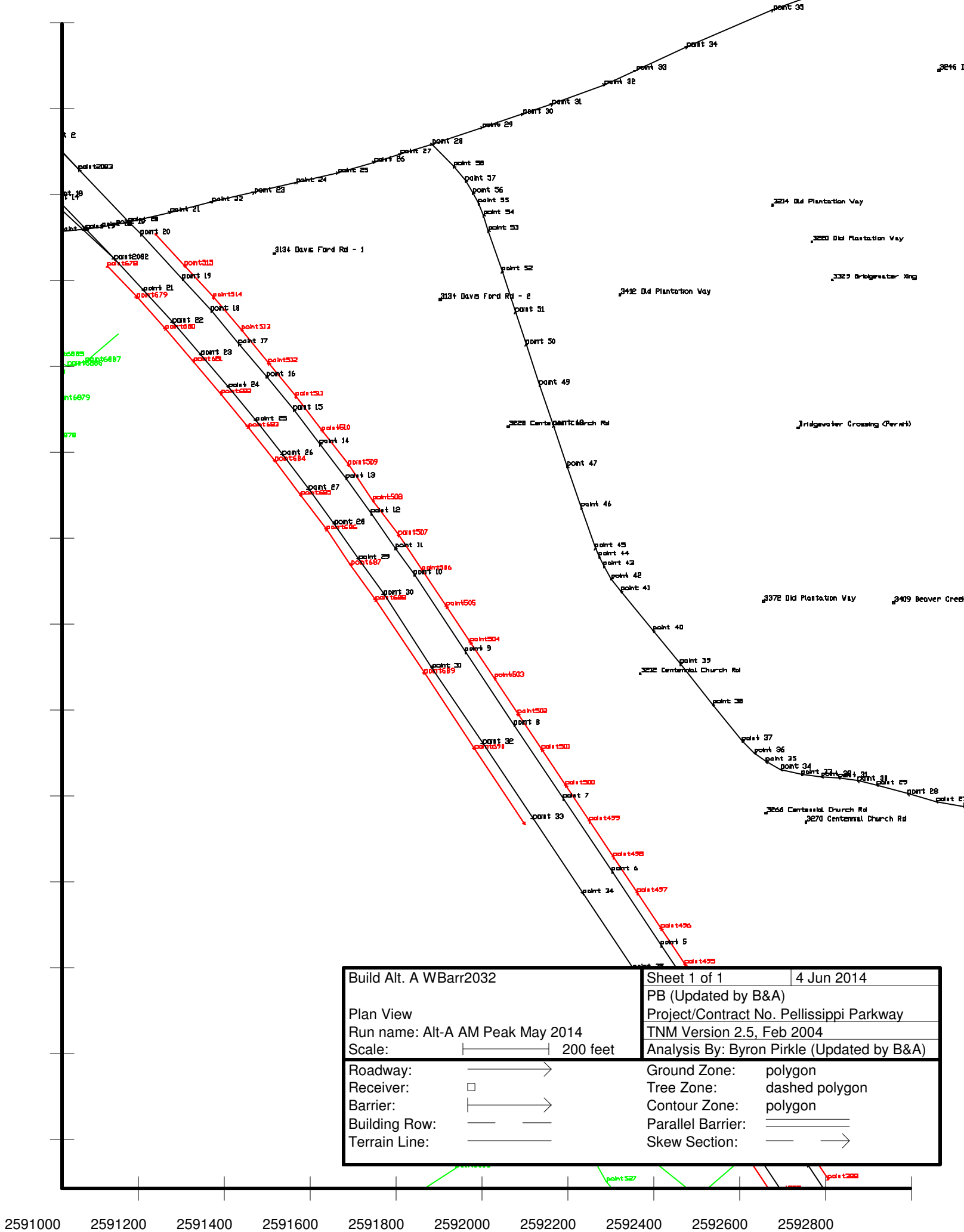


Build Alt. A WBarr2032		Sheet 1 of 1		4 Jun 2014	
Plan View		PB (Updated by B&A)			
Run name: Alt-A AM Peak May 2014		Project/Contract No. Pellissippi Parkway			
Scale:  200 feet		TNM Version 2.5, Feb 2004			
		Analysis By: Byron Pirkle (Updated by B&A)			
Roadway: 		Ground Zone:		polygon	
Receiver: 		Tree Zone:		dashed polygon	
Barrier: 		Contour Zone:		polygon	
Building Row: 		Parallel Barrier:			
Terrain Line: 		Skew Section:			

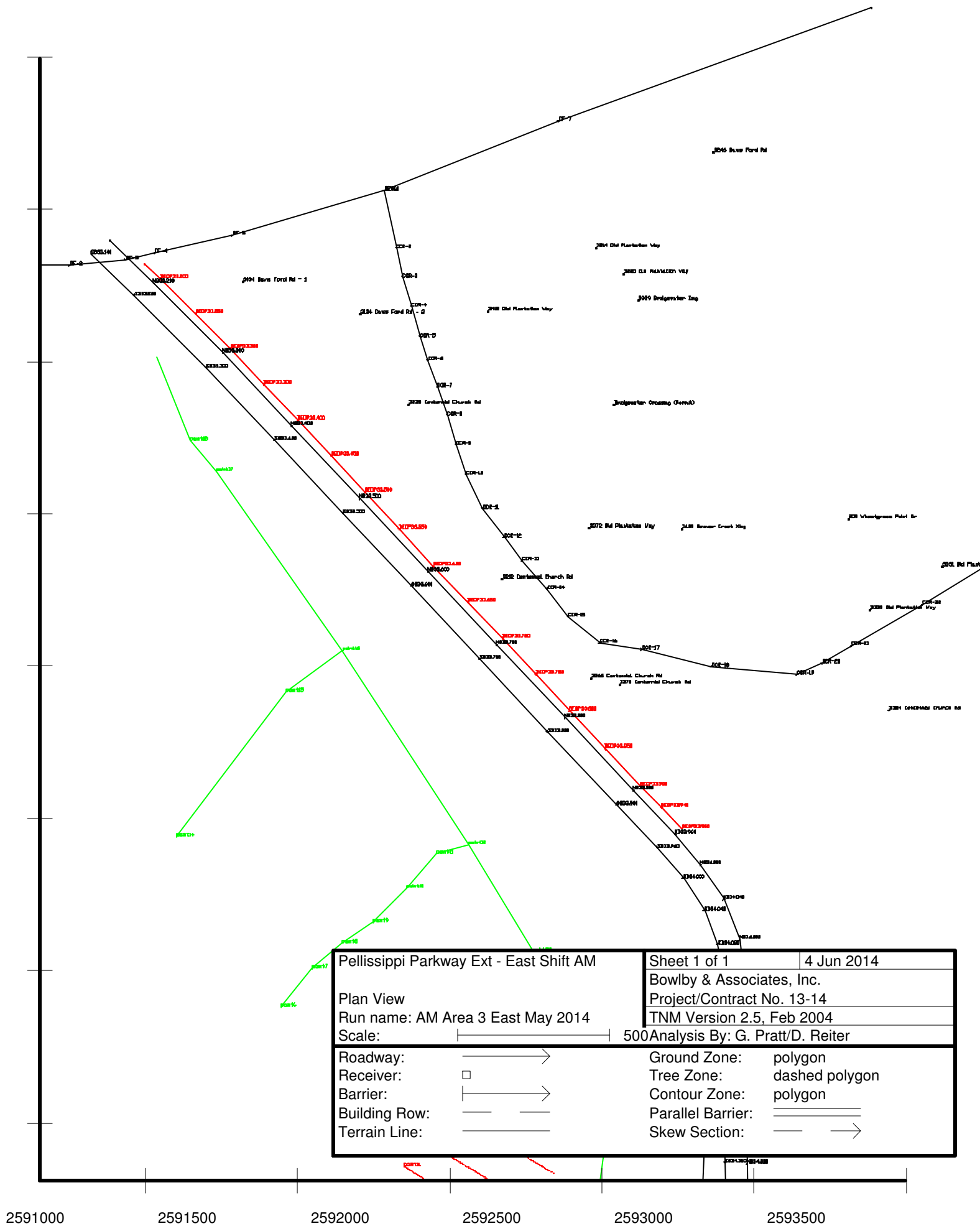


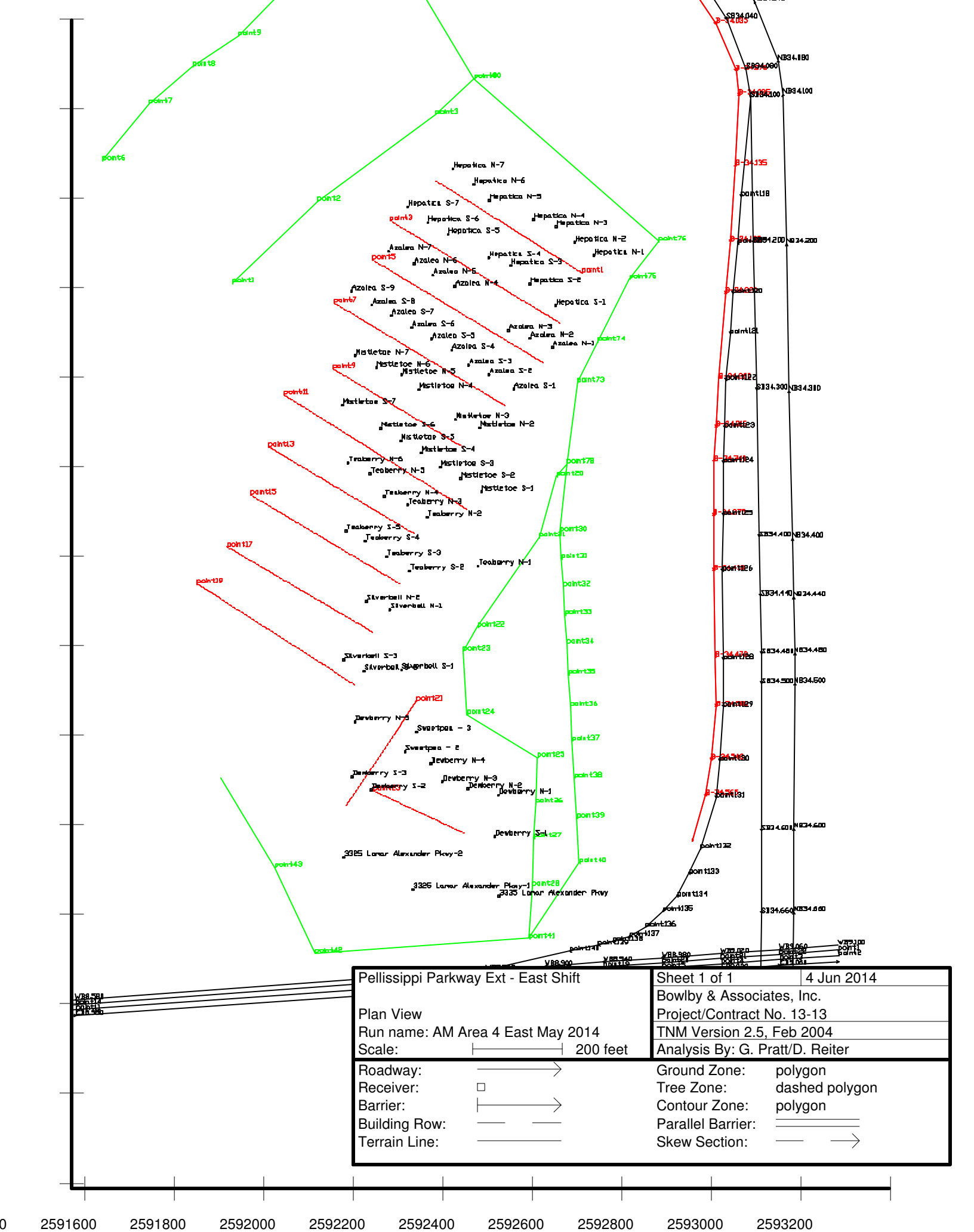


Build Alt. A WBarr2032		Sheet 1 of 1	4 Jun 2014
Plan View		PB (Updated by B&A)	
Run name: Alt-A AM Peak May 2014		Project/Contract No. Pellissippi Parkway	
Scale: 		TNM Version 2.5, Feb 2004	
		Analysis By: Byron Pirkle (Updated by B&A)	
Roadway: 	Ground Zone: polygon		
Receiver: 	Tree Zone: dashed polygon		
Barrier: 	Contour Zone: polygon		
Building Row: 	Parallel Barrier: 		
Terrain Line: 	Skew Section: 		



Alternative A East Shit

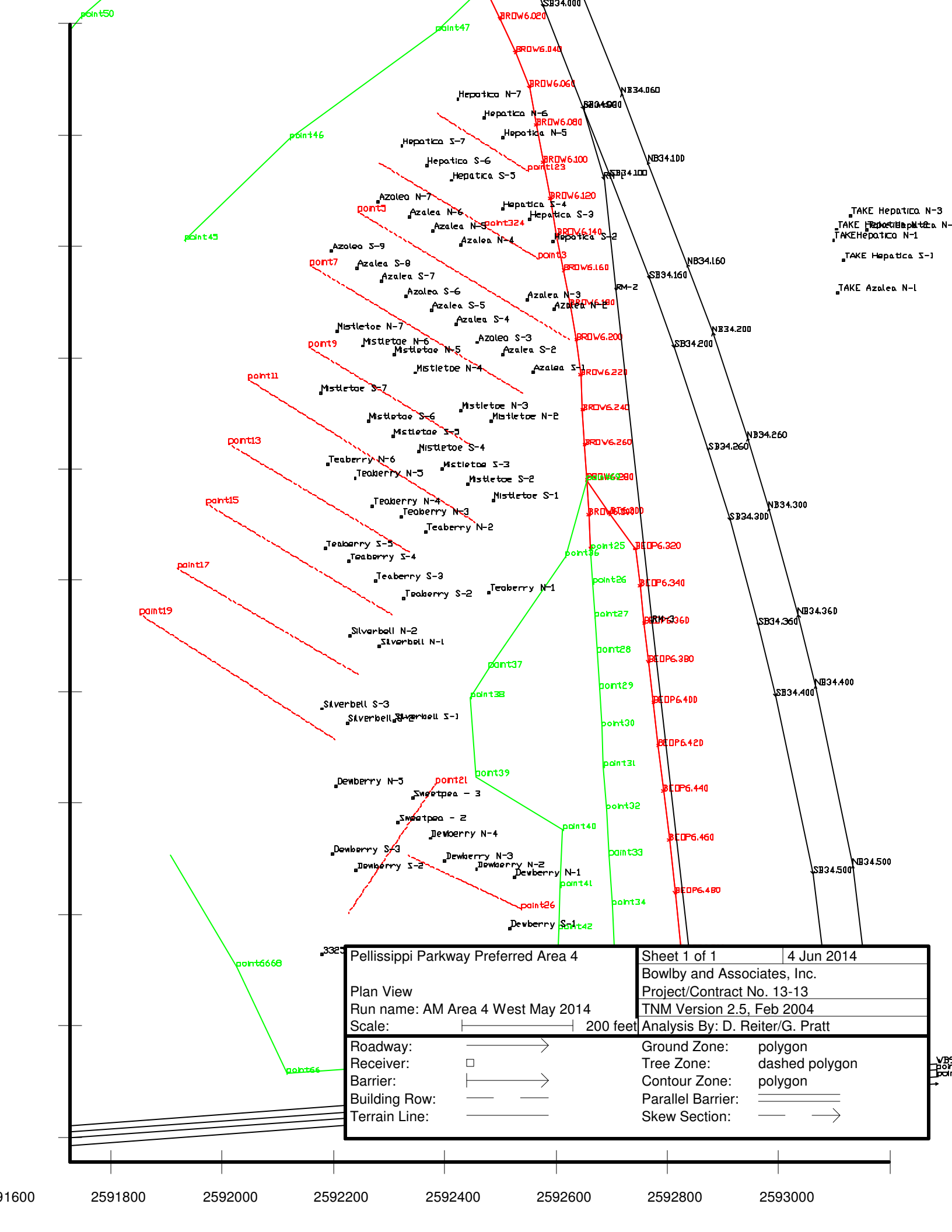












Pellissippi Parkway Ext - East Shift		Sheet 1 of 1		4 Jun 2014	
Bowlby & Associates, Inc.					
Project/Contract No. 13-13					
TNM Version 2.5, Feb 2004					
Analysis By: G. Pratt/D. Reiter					
Roadway:		Ground Zone:		polygon	
Receiver:		Tree Zone:		dashed polygon	
Barrier:		Contour Zone:		polygon	
Building Row:		Parallel Barrier:		_____	
Terrain Line:		Skew Section:		_____ →	

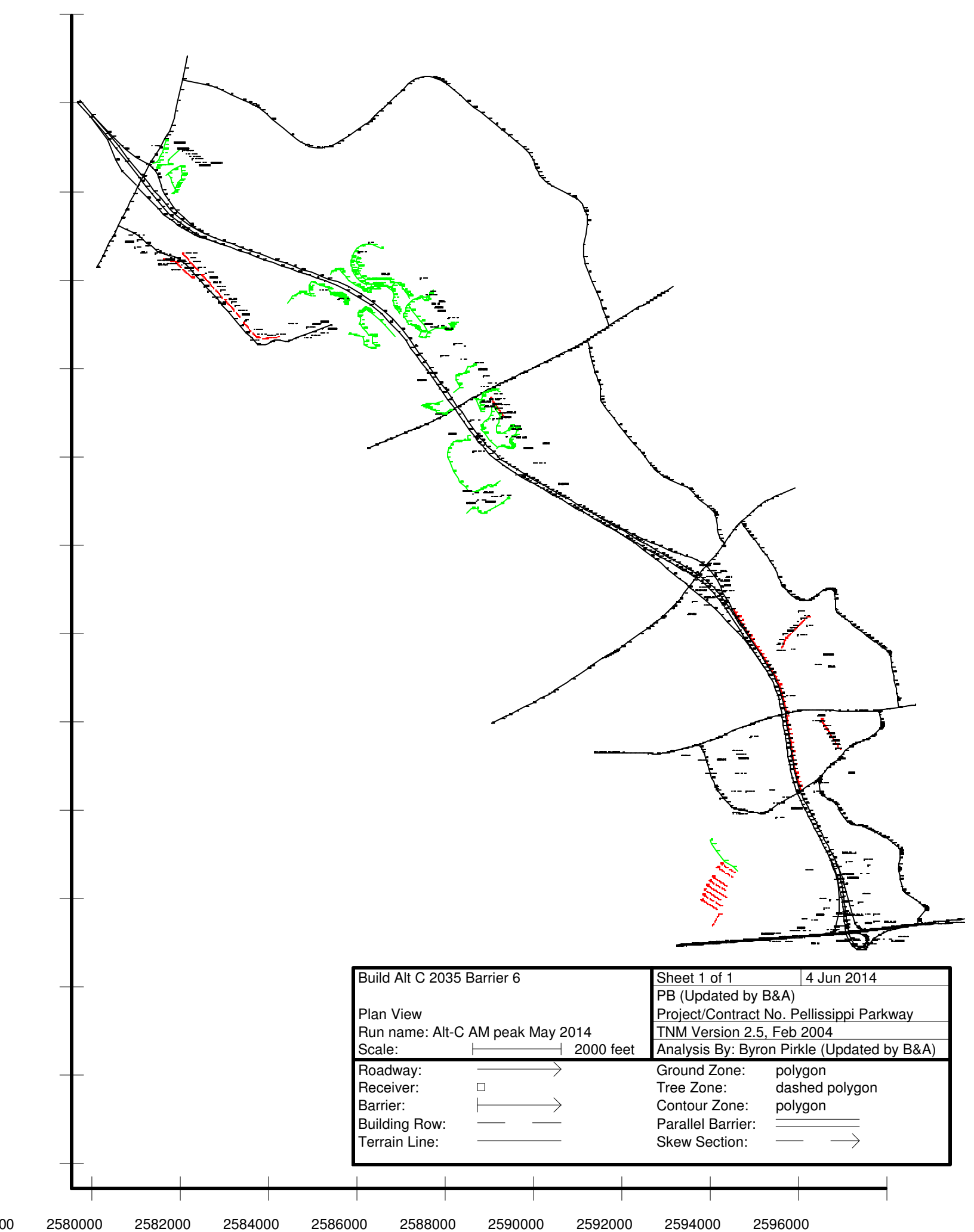


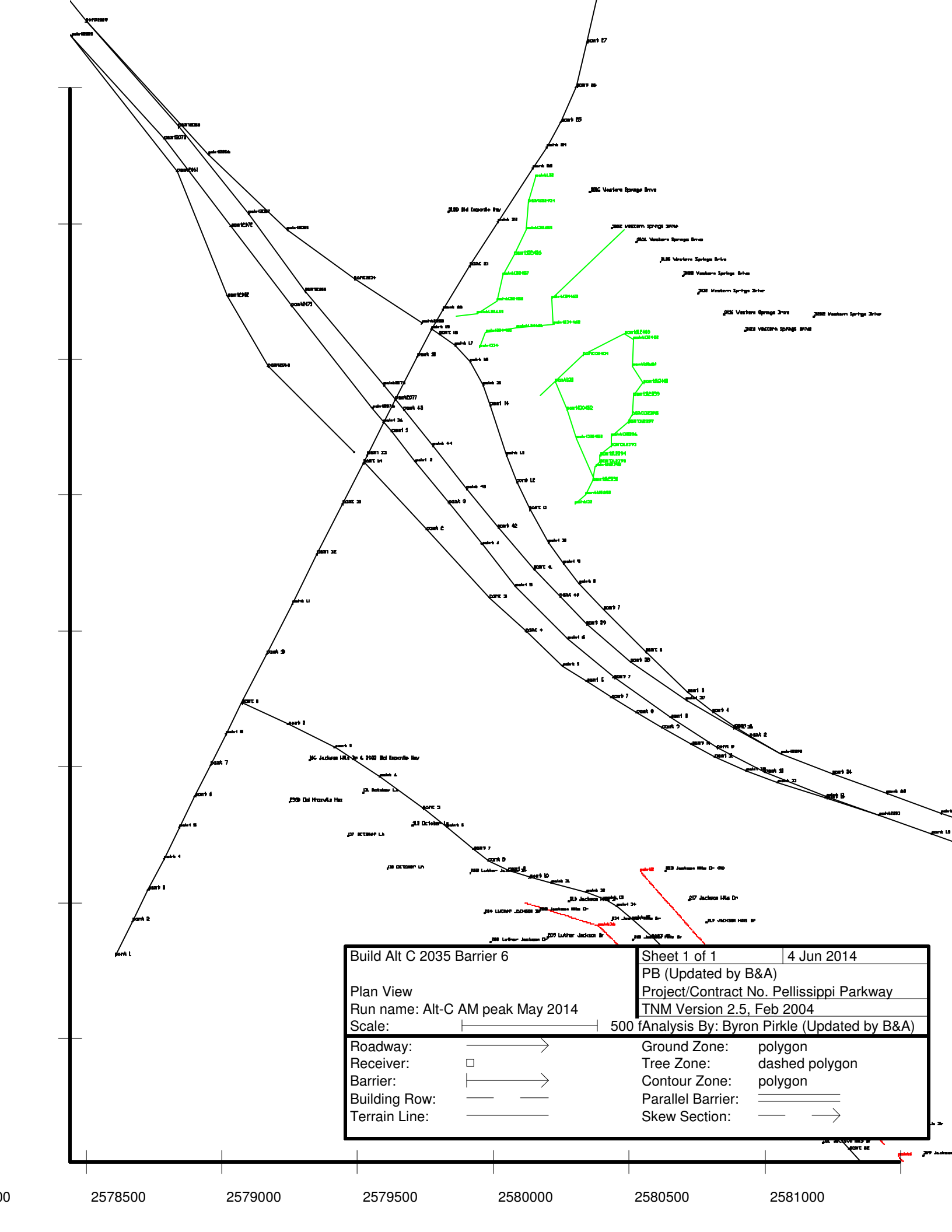
Alternative A West Shift











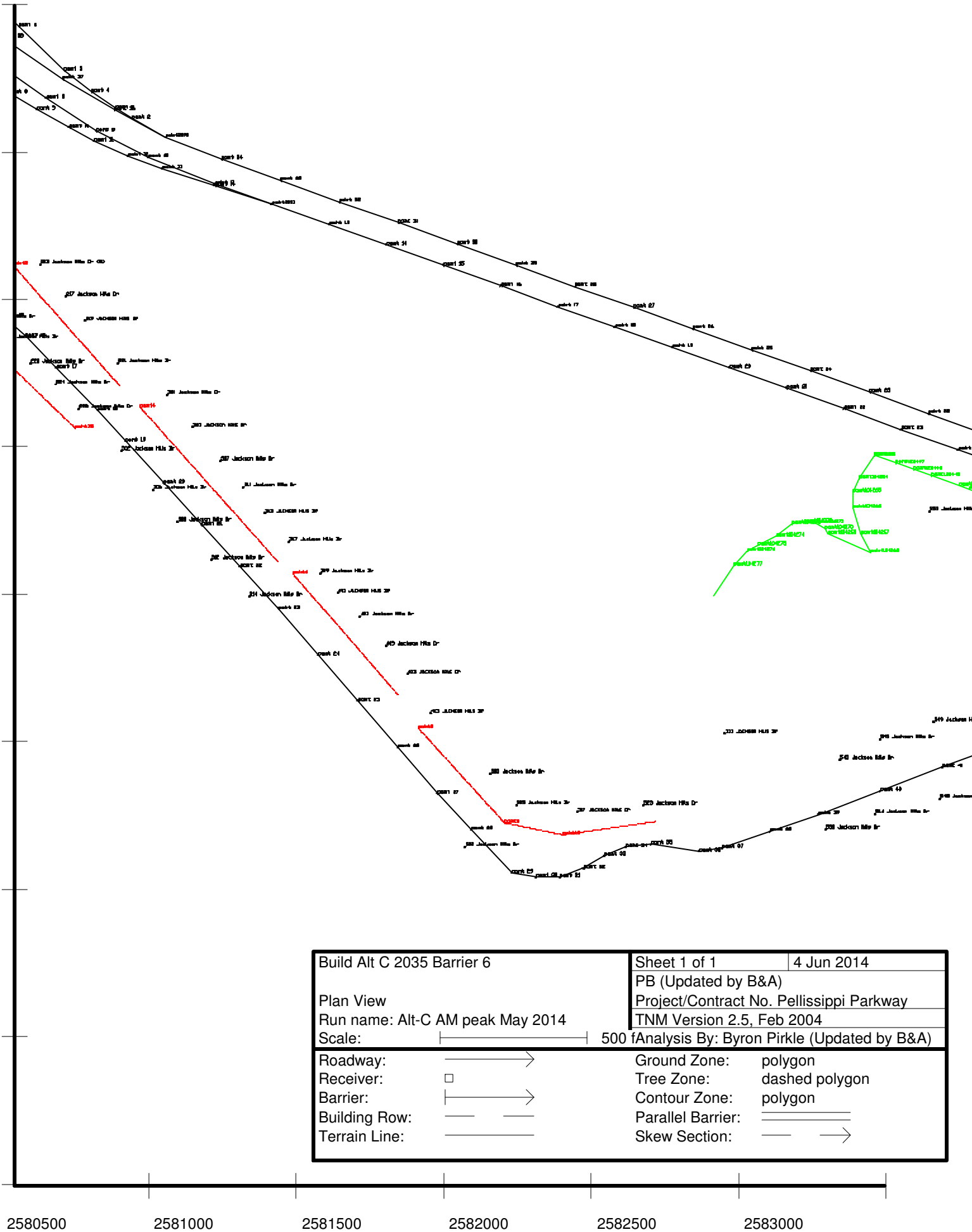
Pellissippi Parkway Preferred Area 4		Sheet 1 of 1	4 Jun 2014
Plan View		Bowlby and Associates, Inc.	
Run name: AM Area 4 West May 2014		Project/Contract No. 13-13	
Scale:  200 feet		TNM Version 2.5, Feb 2004	
Roadway: 		Ground Zone:	polygon
Receiver: 		Tree Zone:	dashed polygon
Barrier: 		Contour Zone:	polygon
Building Row: 		Parallel Barrier: 	
Terrain Line: 		Skew Section: 	

Alternative C

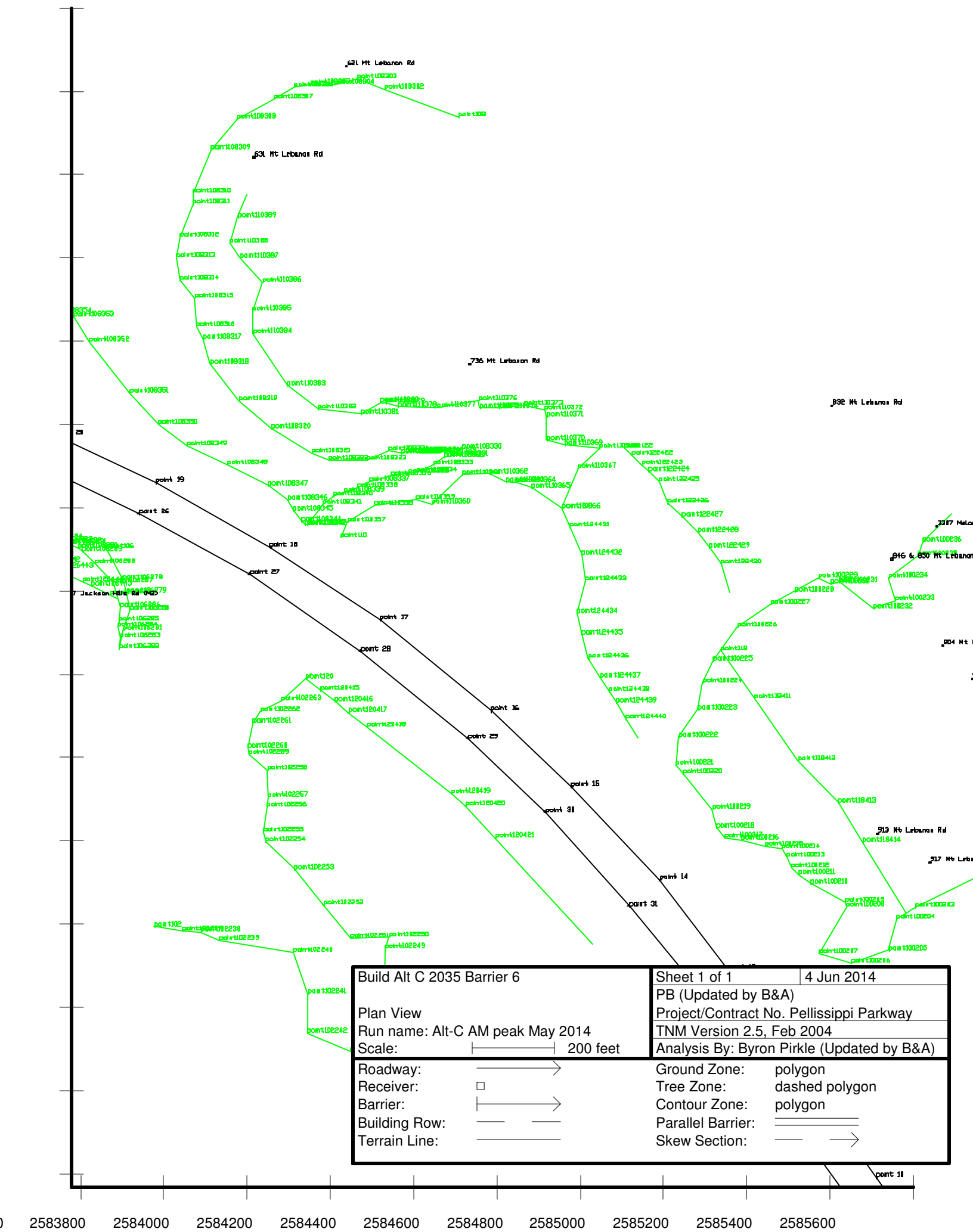


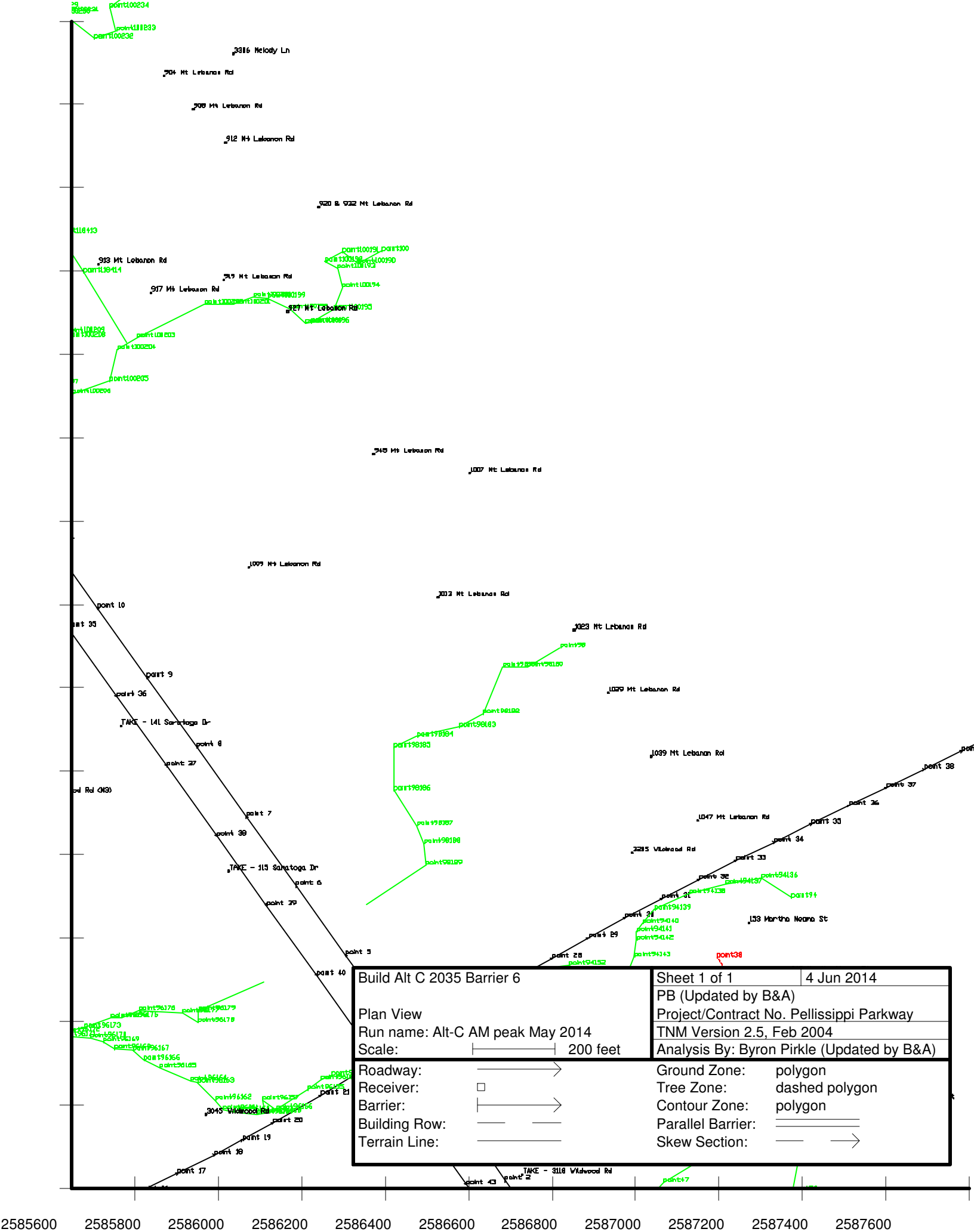


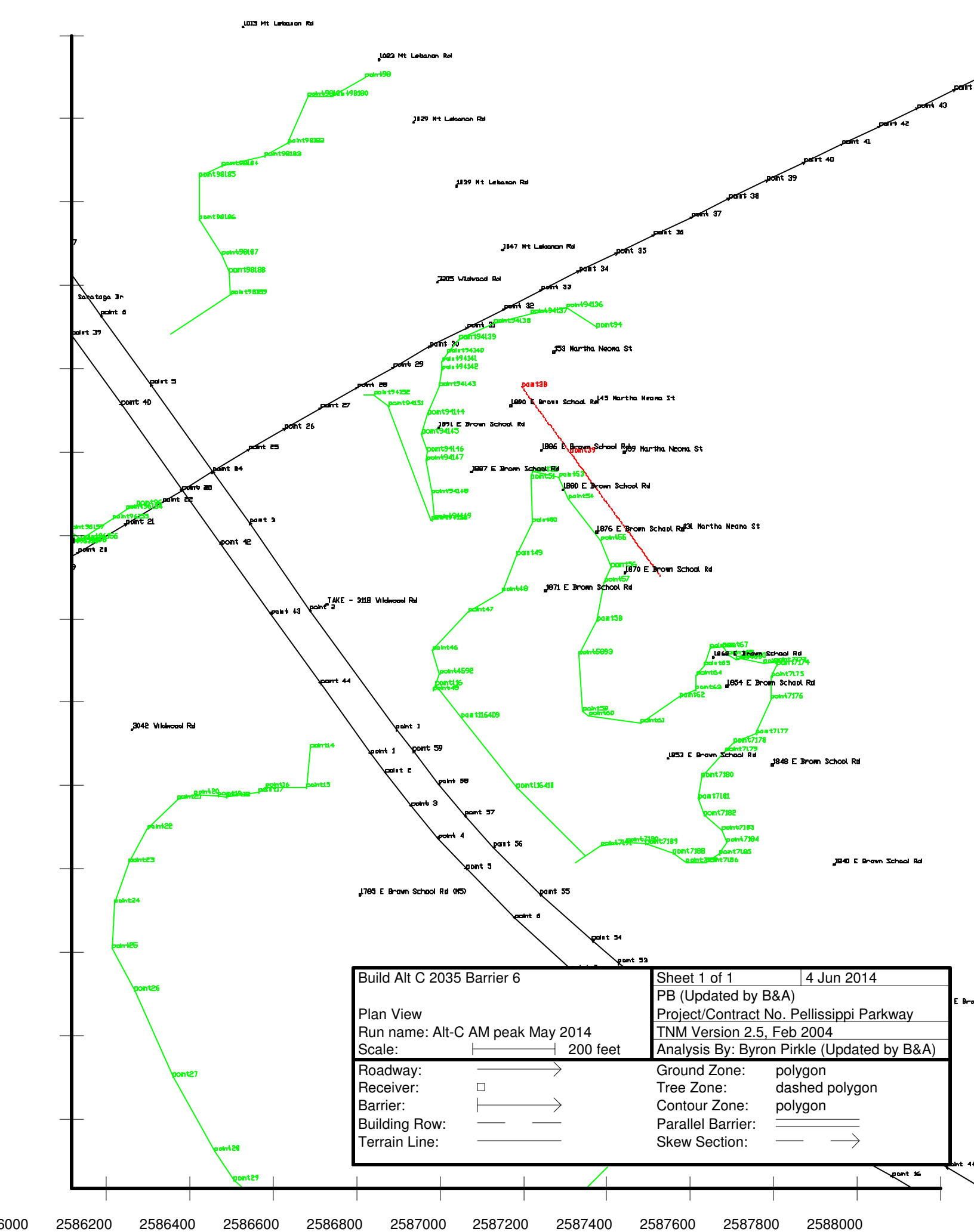
Build Alt C 2035 Barrier 6		Sheet 1 of 1		4 Jun 2014	
Plan View		PB (Updated by B&A)			
Run name: Alt-C AM peak May 2014		Project/Contract No. Pellissippi Parkway			
Scale: 		TNM Version 2.5, Feb 2004			
		Analysis By: Byron Pirkle (Updated by B&A)			
Roadway: 		Ground Zone:		polygon	
Receiver: 		Tree Zone:		dashed polygon	
Barrier: 		Contour Zone:		polygon	
Building Row: 		Parallel Barrier:			
Terrain Line: 		Skew Section:			

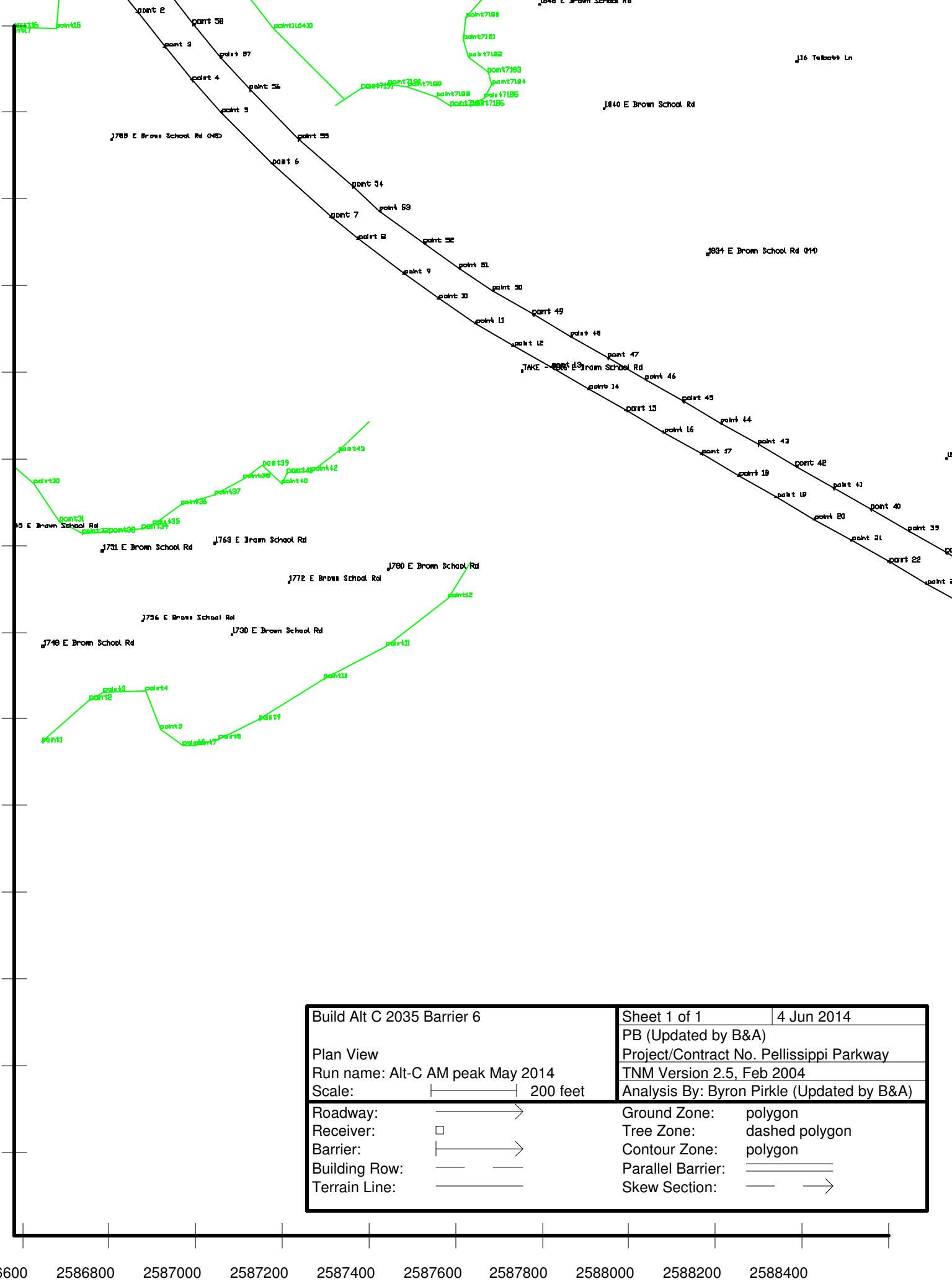










Build Alt C 2035 Barrier 6		Sheet 1 of 1	4 Jun 2014
Plan View		PB (Updated by B&A)	
Run name: Alt-C AM peak May 2014		Project/Contract No. Pellissippi Parkway	
Scale: 0 100 200 300 400 500		TNM Version 2.5, Feb 2004	
Roadway: —————>		Analysis By: Byron Pirkle (Updated by B&A)	
Receiver: □		Ground Zone: polygon	
Barrier: —————>		Tree Zone: dashed polygon	
Building Row: ——— ———		Contour Zone: polygon	
Terrain Line: ——— ———		Parallel Barrier: ——— ———	
		Skew Section: ——— ———>	

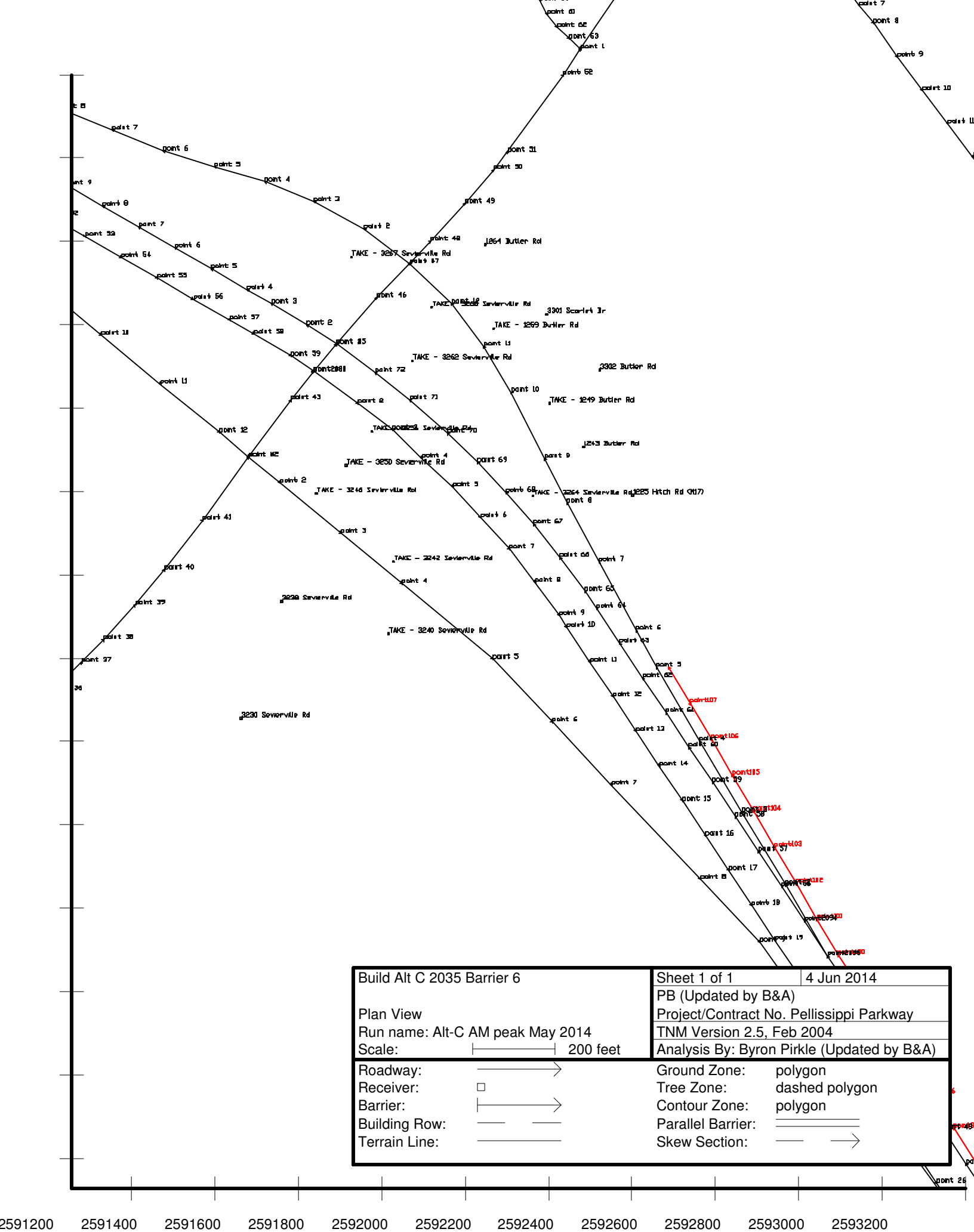


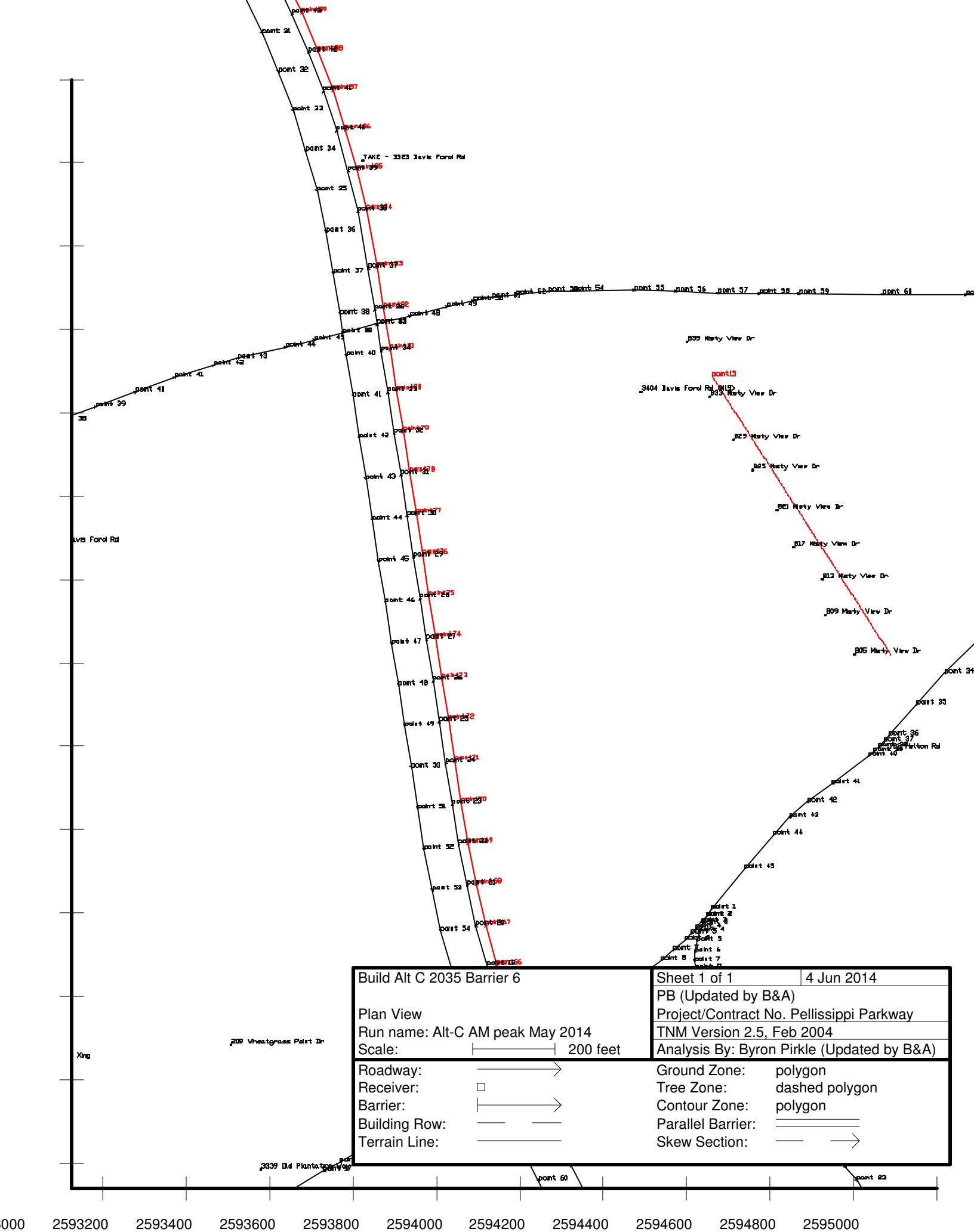






Build Alt C 2035 Barrier 6		Sheet 1 of 1	4 Jun 2014
Plan View		PB (Updated by B&A)	
Run name: Alt-C AM peak May 2014		Project/Contract No. Pellissippi Parkway	
Scale:  200 feet		TNM Version 2.5, Feb 2004	
		Analysis By: Byron Pirkle (Updated by B&A)	
Roadway: 	Ground Zone: polygon		
Receiver: 	Tree Zone: dashed polygon		
Barrier: 	Contour Zone: polygon		
Building Row: 	Parallel Barrier: 		
Terrain Line: 	Skew Section: 		






Build Alt C 2035 Barrier 6

Plan View

Run name: Alt-C AM peak May 2014

Scale: 200 feet

Roadway: 

Receiver: 

Barrier: 

Building Row: 

Terrain Line: 

Sheet 1 of 1

4 Jun 2014

PB (Updated by B&A)

Project/Contract No. Pellissippi Parkway


TNM Version 2.5, Feb 2004


Analysis By: Byron Pirkle (Updated by B&A)

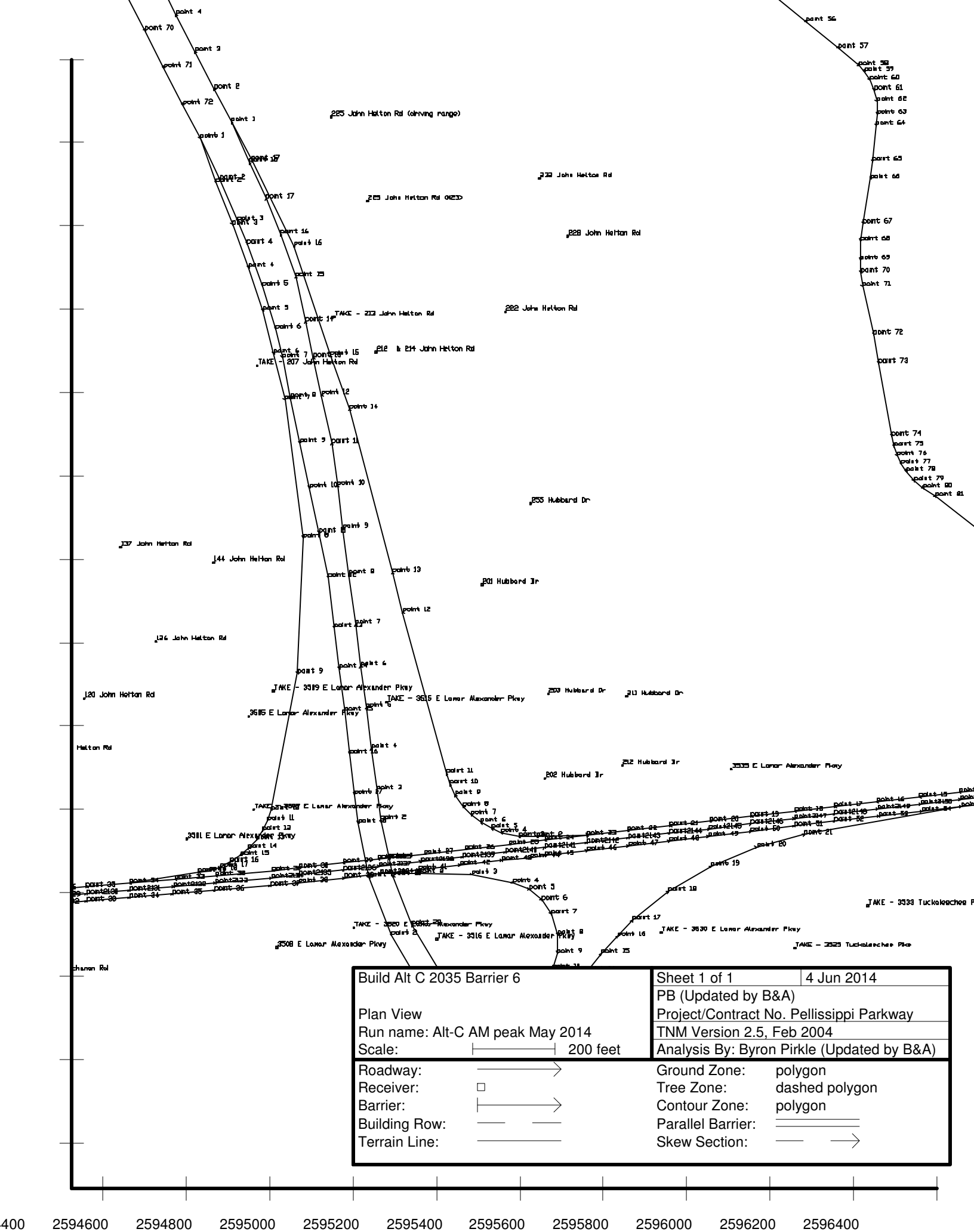
Ground Zone: polygon









Tree Zone: dashed polygon

Contour Zone: polygon

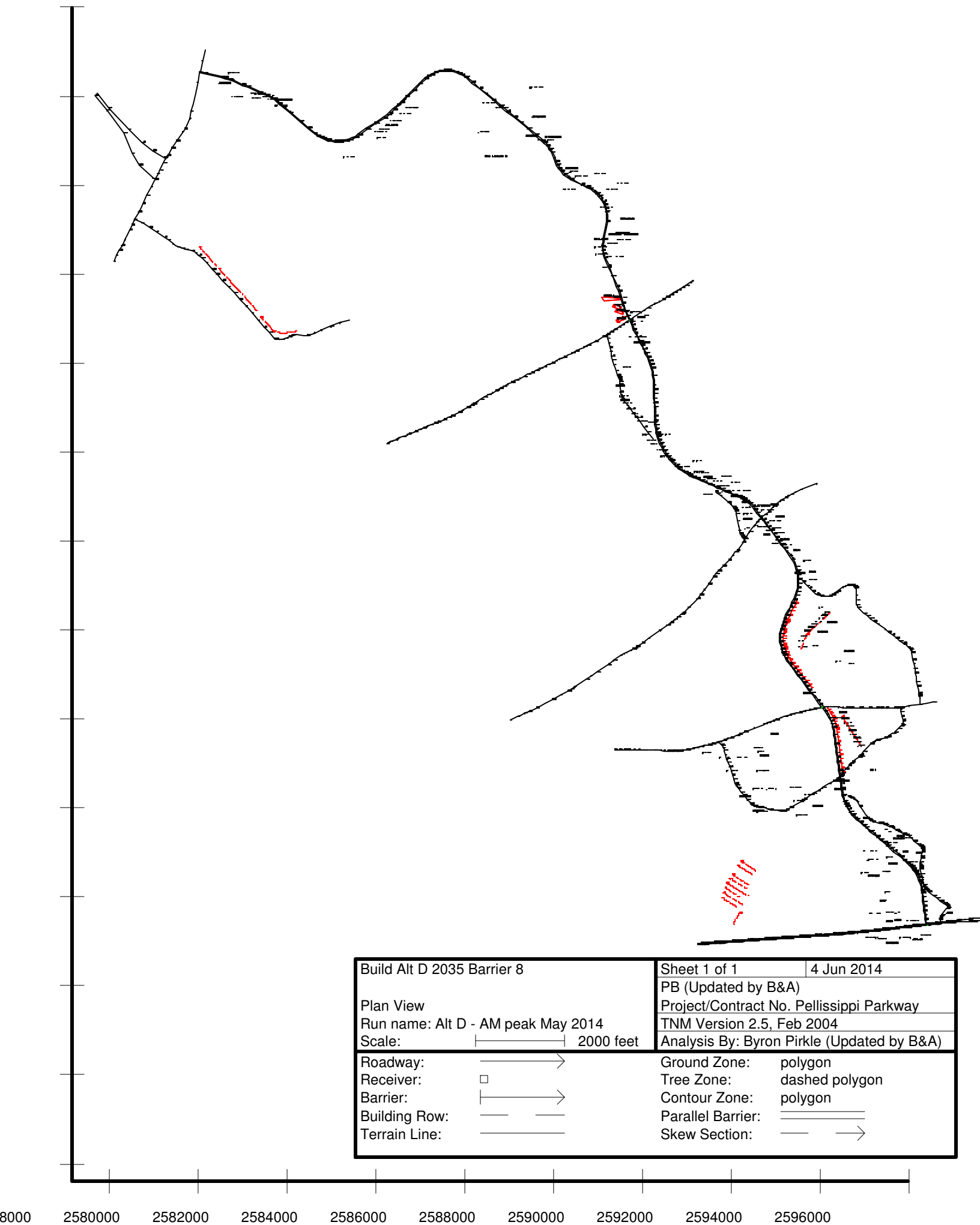
Parallel Barrier: 

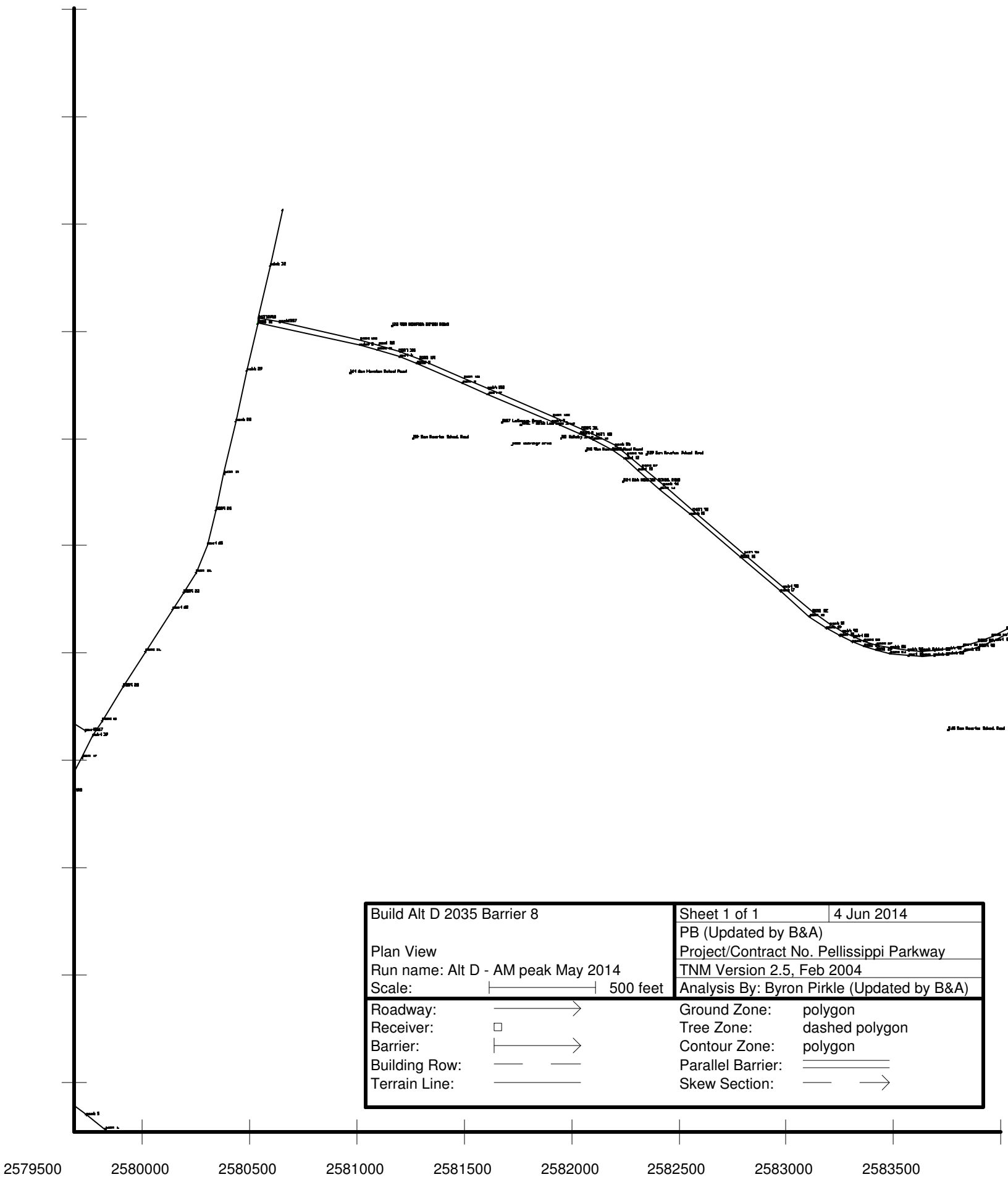
Skew Section: 











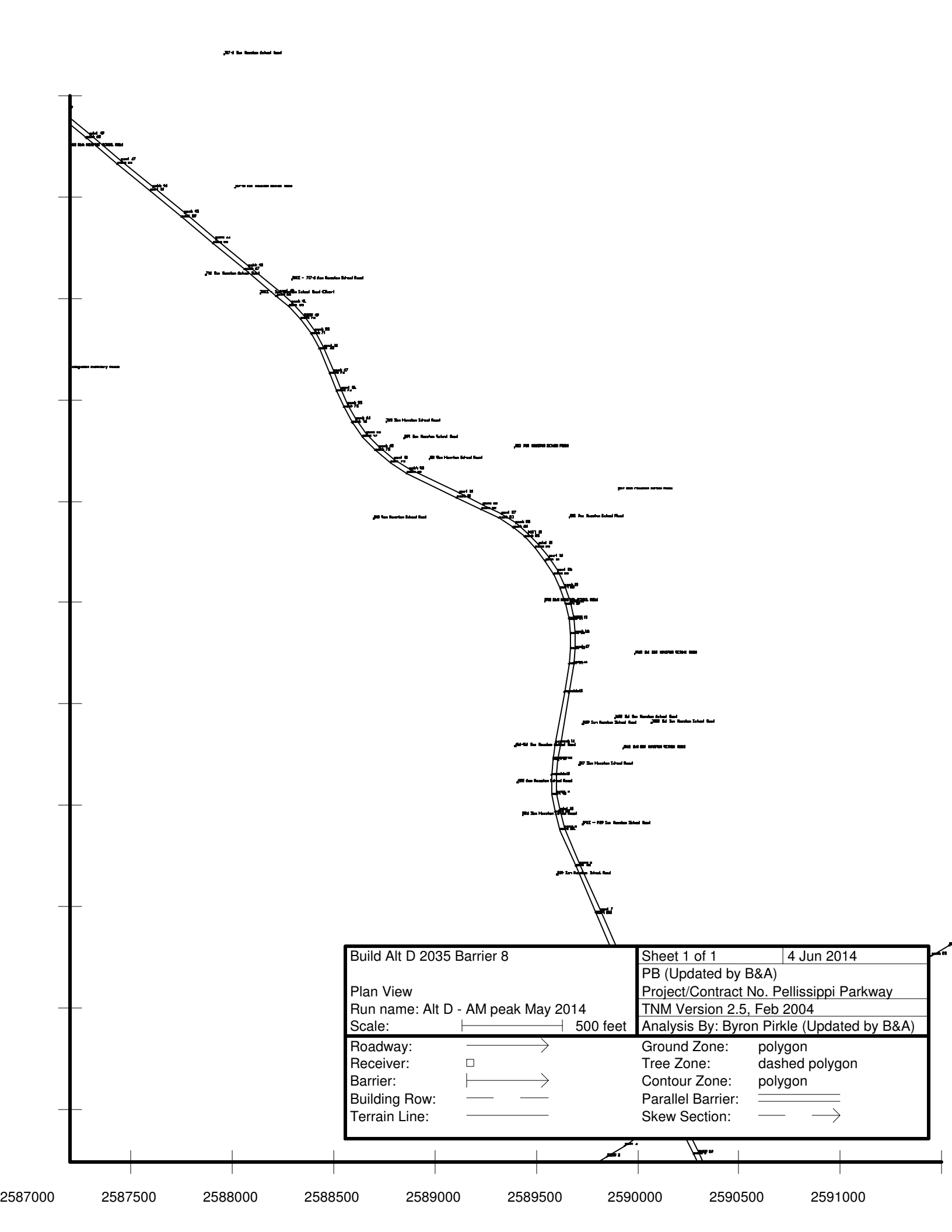
Build Alt C 2035 Barrier 6		Sheet 1 of 1	4 Jun 2014
Plan View		PB (Updated by B&A)	
Run name: Alt-C AM peak May 2014		Project/Contract No. Pellissippi Parkway	
Scale:  200 feet		TNM Version 2.5, Feb 2004	
Roadway: 		Analysis By: Byron Pirkle (Updated by B&A)	
Receiver: 		Ground Zone:	polygon
Barrier: 		Tree Zone:	dashed polygon
Building Row: 		Contour Zone:	polygon
Terrain Line: 		Parallel Barrier:	
		Skew Section:	









Alternative D

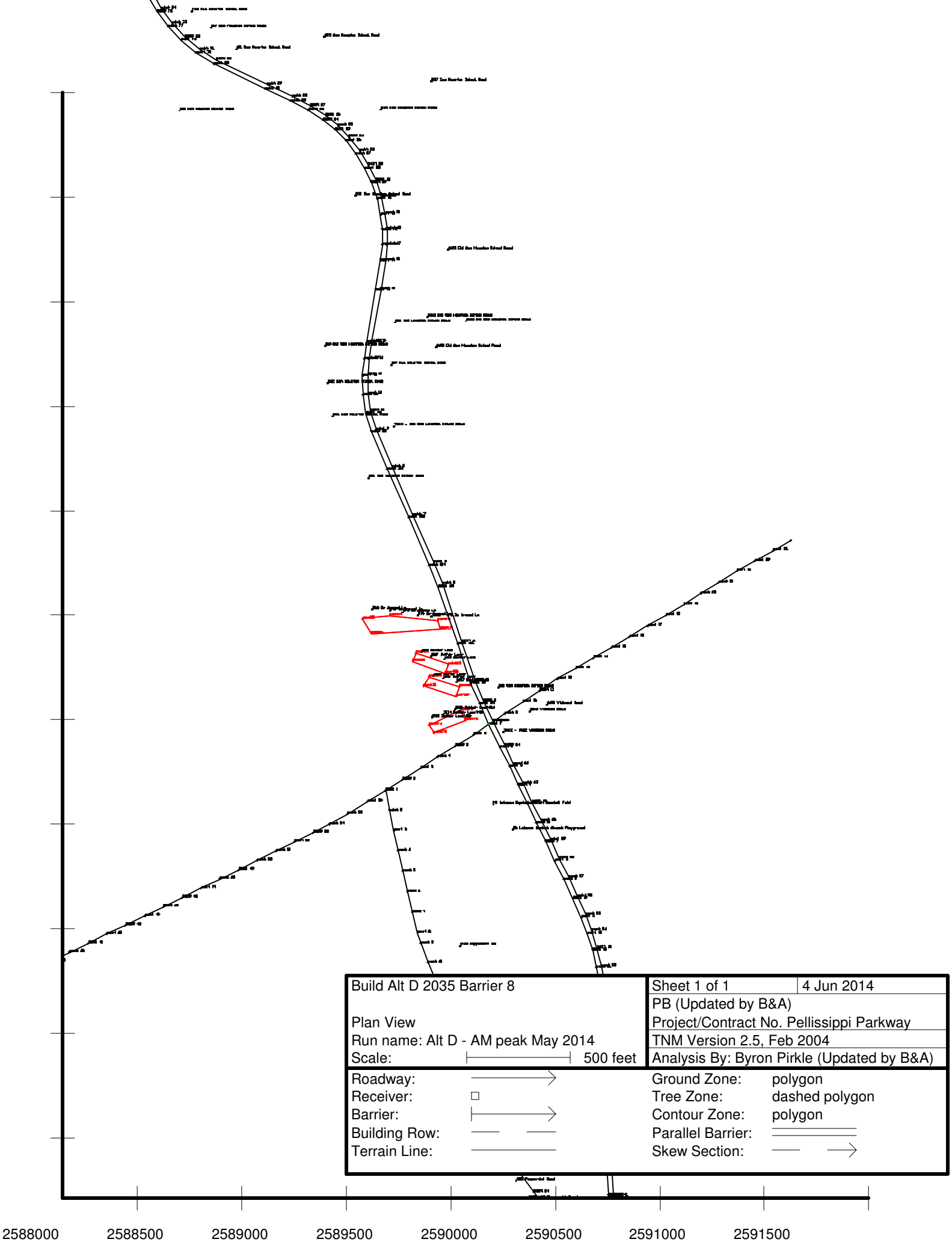


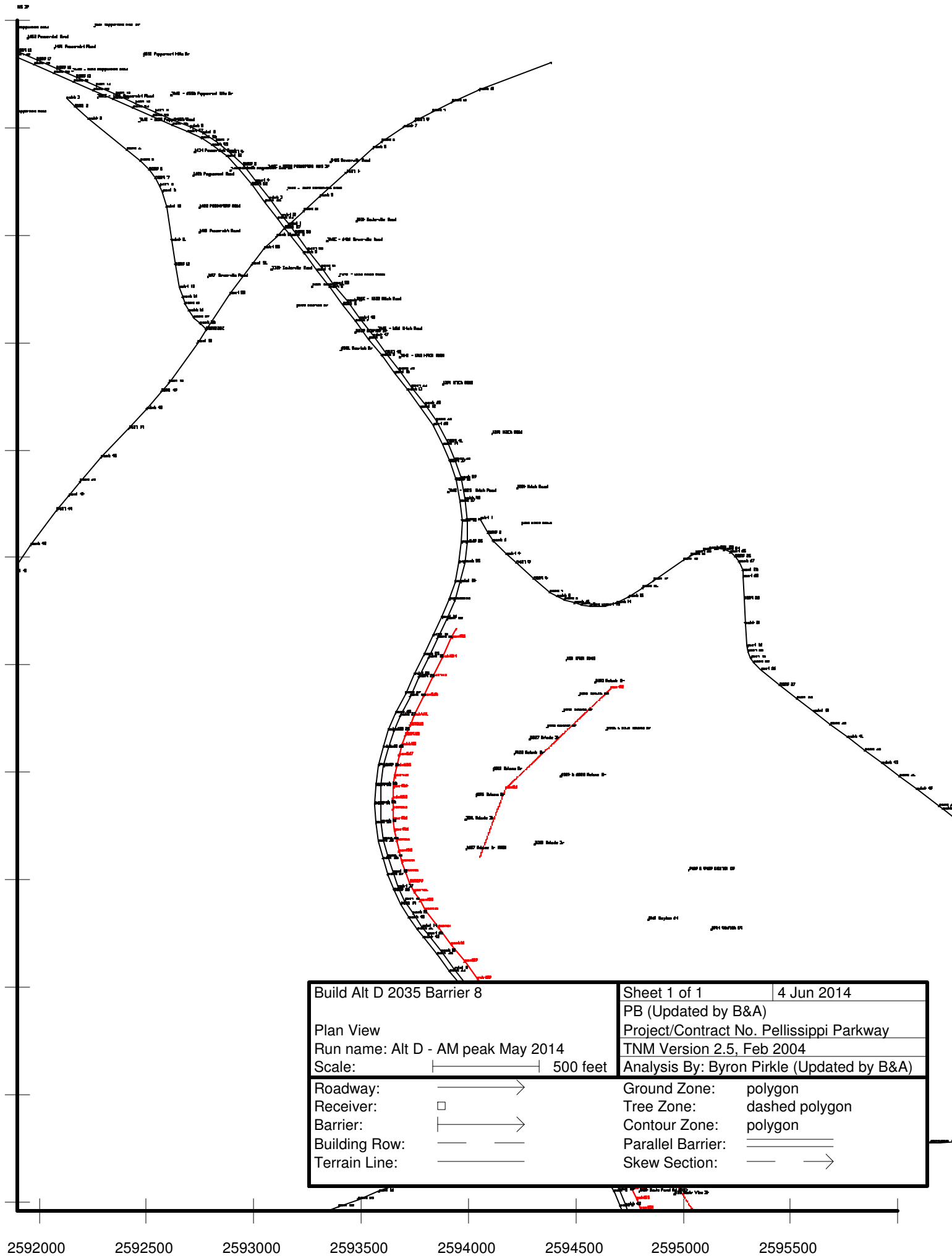










Build Alt D 2035 Barrier 8		Sheet 1 of 1	4 Jun 2014
Plan View		PB (Updated by B&A)	
Run name: Alt D - AM peak May 2014		Project/Contract No. Pellissippi Parkway	
Scale: 		TNM Version 2.5, Feb 2004	
		Analysis By: Byron Pirkle (Updated by B&A)	
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

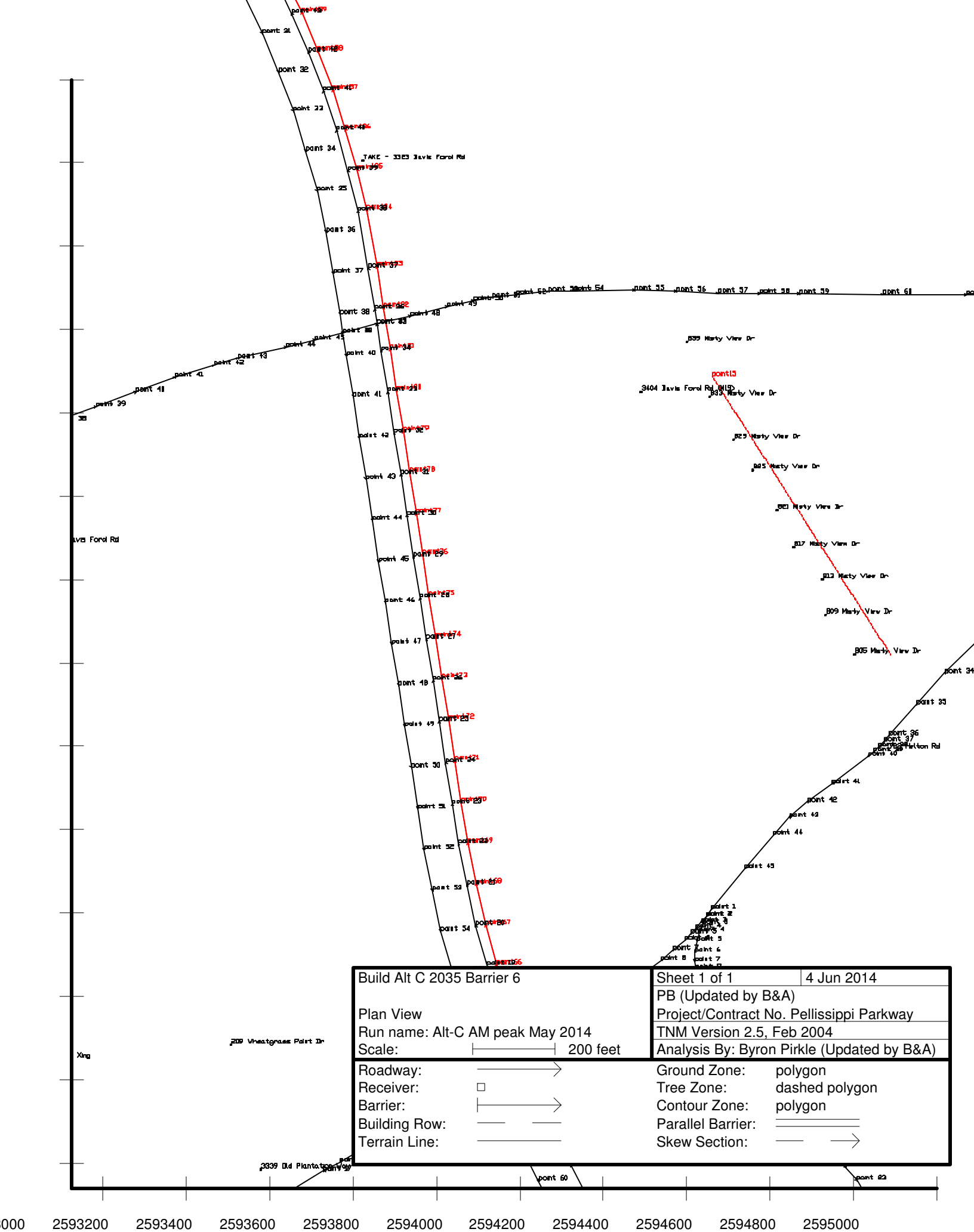


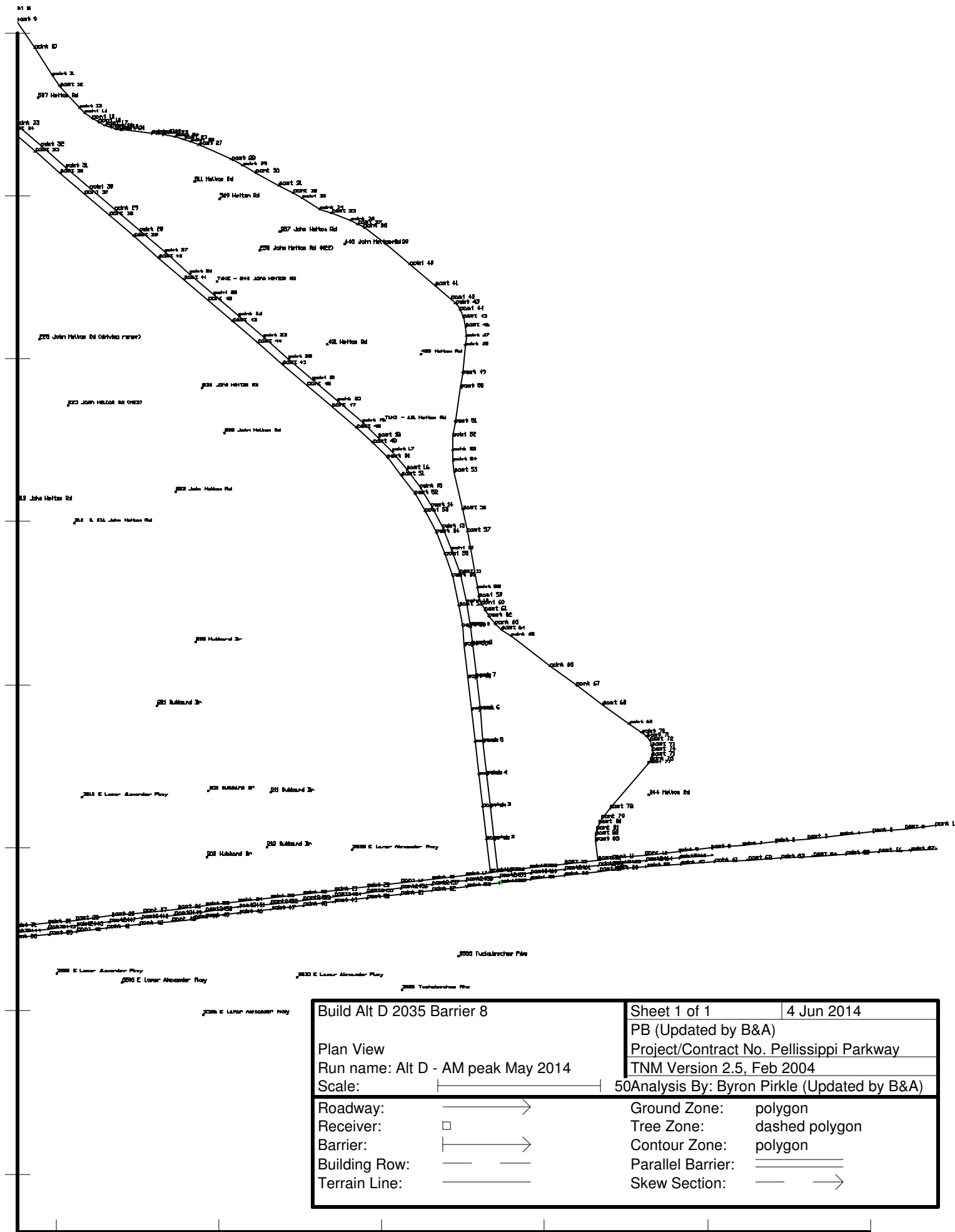
Build Alt D 2035 Barrier 8		Sheet 1 of 1	4 Jun 2014
Plan View		PB (Updated by B&A)	
Run name: Alt D - AM peak May 2014		Project/Contract No. Pellissippi Parkway	
Scale:  500 feet		TNM Version 2.5, Feb 2004	
		Analysis By: Byron Pirkle (Updated by B&A)	
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	





Build Alt D 2035 Barrier 8		Sheet 1 of 1	4 Jun 2014
Plan View		PB (Updated by B&A)	
Run name: Alt D - AM peak May 2014		Project/Contract No. Pellissippi Parkway	
Scale:  500 feet		TNM Version 2.5, Feb 2004	
		Analysis By: Byron Pirkle (Updated by B&A)	
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	





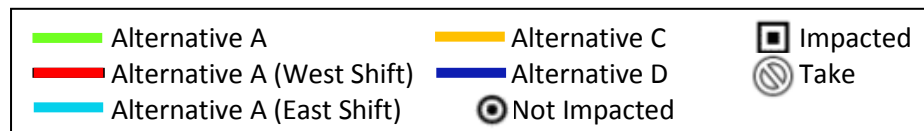
Appendix E
Existing, Design Year (2040) Build and No-Build Sound Levels and Impacts



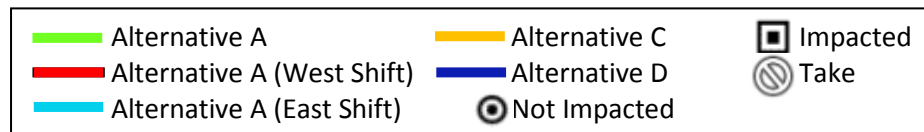
Alternatives A and C – Area 1

Project:	Pellissippi Parkway Extension
Noise Analysis Area:	1
Description:	Residences on Jackson Hills Drive, October Lane, and Luther Hills Drive.
Background Sound Level	40

ALTERNATIVES A and C (Same Alignment in this Area)																				
Receiver	Number of Residences	Existing Sound Level (dBA)				Design Year No-Build Sound Level (dBA)				Design Year Build Sound Level (dBA)				Sound Level Increase (dB)		Approach or Exceed NAC?	Substantial Increase?	Impacted?	Impacted Residences	
		AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	PM					
106 Jackson Hills Dr & 2932 Old Knoxville Hwy	2	54	54	54	54	57	57	57	57	59	59	59	59	5	5	No	No	No	0	
208 Jackson Hills Dr	1	42	44	42	44	45	46	45	46	51	52	51	51	8	7	No	No	No	0	
210 Jackson Hills Dr	1	48	49	48	49	49	50	49	50	56	56	55	55	7	6	No	No	No	0	
213 Jackson Hills Dr (M1)	1	41	43	41	43	44	45	44	45	58	58	58	59	15	16	No	Yes	Yes	1	
214 Jackson Hills Dr	1	48	48	48	48	48	49	48	49	54	55	54	54	7	6	No	No	No	0	
217 Jackson Hills Dr	1	40	43	41	43	43	45	44	45	57	57	58	58	14	15	No	Yes	Yes	1	
218 Jackson Hills Dr	1	47	48	47	48	48	49	48	49	54	54	54	54	6	6	No	No	No	0	
219 Jackson Hills Dr	1	40	43	40	43	43	45	43	45	57	57	57	57	14	14	No	Yes	Yes	1	
220 Jackson Hills Dr	1	47	48	47	48	48	49	48	49	54	54	55	55	6	7	No	No	No	0	
221 Jackson Hills Dr	1	40	43	40	43	43	45	43	45	56	56	56	56	13	13	No	No	No	0	
224 Jackson Hills Dr	1	48	49	48	49	49	49	49	49	55	55	55	55	6	6	No	No	No	0	
228 Jackson Hills Dr	1	48	49	48	49	49	49	49	49	55	55	55	55	6	6	No	No	No	0	
301 Jackson Hills Dr	1	39	43	40	43	42	44	42	44	56	56	56	56	13	13	No	No	No	0	
302 Jackson Hills Dr	1	49	50	49	50	50	50	50	55	55	55	56	56	5	6	No	No	No	0	
305 Jackson Hills Dr	1	40	43	40	43	42	44	42	44	56	56	55	55	13	12	No	No	No	0	
306 Jackson Hills Dr	1	48	49	48	49	49	49	49	49	54	54	55	55	5	6	No	No	No	0	
307 Jackson Hills Dr	1	38	42	39	42	41	44	41	44	55	56	54	54	14	12	No	No	No	0	
308 Jackson Hills Dr	1	47	48	47	48	48	48	48	48	52	53	52	52	5	4	No	No	No	0	
311 Jackson Hills Dr	1	38	42	38	42	41	43	41	43	55	55	54	54	13	12	No	No	No	0	
312 Jackson Hills Dr	1	47	48	47	48	47	48	47	48	54	54	53	53	6	5	No	No	No	0	
313 Jackson Hills Dr	1	39	42	39	42	41	44	41	44	54	54	53	53	12	11	No	No	No	0	
314 Jackson Hills Dr	1	48	48	48	48	48	49	48	49	52	52	52	52	4	4	No	No	No	0	
317 Jackson Hills Dr	1	39	42	39	42	41	43	41	43	53	54	52	53	12	11	No	No	No	0	
319 Jackson Hills Dr	1	38	42	38	42	40	43	40	43	53	53	52	52	11	10	No	No	No	0	
401 Jackson Hills Dr	1	38	42	38	42	40	43	40	43	52	53	51	52	11	10	No	No	No	0	
403 Jackson Hills Dr	1	39	42	39	42	41	43	41	43	52	52	51	51	10	9	No	No	No	0	
409 Jackson Hills Dr	1	38	42	38	42	40	43	40	43	51	52	51	51	10	9	No	No	No	0	
413 Jackson Hills Dr	1	37	42	37	42	39	43	39	43	51	51	50	50	9	8	No	No	No	0	
415 Jackson Hills Dr	1	39	43	39	43	41	43	41	43	50	51	49	50	8	7	No	No	No	0	
502 Jackson Hills Dr	1	45	47	45	47	46	47	46	47	49	50	49	50	3	3	No	No	No	0	
503 Jackson Hills Dr	1	38	42	38	42	40	43	40	43	49	50	49	49	8	7	No	No	No	0	
505 Jackson Hills Dr	1	38	42	38	42	40	43	40	43	49	50	49	49	8	7	No	No	No	0	
517 Jackson Hills Dr	1	37	42	37	42	39	43	39	43	50	50	49	50	8	8	No	No	No	0	
523 Jackson Hills Dr	1	38	42	38	42	40	43	40	43	51	51	51	51	9	9	No	No	No	0	
531 Jackson Hills Dr	1	36	41	36	41	38	42	38	42	54	55	54	54	14	13	No	No	No	0	
538 Jackson Hills Dr	1	46	47	46	47	47	48	47	48	53	53	52	53	6	6	No	No	No	0	
543 Jackson Hills Dr	1	38	42	38	42	40	43	39	43	56	56	56	56	14	14	No	No	No	0	
544 Jackson Hills Dr	1	46	47	46	47	46	47	46	47	54	54	54	54	7	7	No	No	No	0	
545 Jackson Hills Dr	1	38	42	38	42	39	43	39	43	58	58	58	58	16	16	No	Yes	Yes	1	
548 Jackson Hills Dr	1	44	45	44	45	45	46	45	46	58	58	58	58	13	13	No	Yes	Yes	1	
549 Jackson Hills Dr	1	37	42	37	42	39	43	39	43	59	59	59	59	17	17	No	Yes	Yes	1	
552 Jackson Hills Dr	1	45	46	45	46	46	47	46	47	57	57	57	57	11	11	No	Yes	Yes	1	
553 Jackson Hills Dr	1	36	41	35	41	39	42	39	42	69	69	70	70	28	29	Yes	Yes	Yes	1	
557 Jackson Hills Rd (M2)	1	36	41	35	41	38	42	38	42	69	69	69	69	28	28	Yes	Yes	Yes	1	
2930 Old Knoxville Hwy	1	53	53	53	53	57	57	57	57	59	59	59	59	6	6	No	No	No	0	
111 October Ln	1	49	50	49	50	52	52	52	52	56	56	55	56	6	6	No	No	No	0	
112 October Ln	1	48	49	48	49	50	51	50	51	55	55	55	55	6	6	No	No	No	0	
117 October Ln	1	47	48	47	48	51	51	51	51	55	55	55	55	7	7	No	No	No	0	
118 October Ln	1	45	46	46	47	49	49	49	49	54	55	54	55	9	8	No	No	No	0	
202 Luther Jackson Dr	1	47	48	47	48	49	49	49	49	55	55	55	55	7	7	No	No	No	0	
204 Luther Jackson Dr	1	43	45	44	45	46	47	47	47	54	54	53	53	9	8	No	No	No	0	
208 Luther Jackson Dr	1	42	44	42	44	45	46	46	47	53	53	52	52	9	8	No	No	No	0	
209 Luther Jackson Dr	1	41	44	42	44	44	46	45	46	51	51	51	51	7	7	No	No	No	0	
213 Luther Jackson Dr	1	40	43	40	43	43	45	44	45	52	52	52	52	9	9	No	No	No	0	
Impacted Residences																		9		
Category C Impacts																		0		
Total Impacts																		9		



Alternatives A and C – Area 2 (and eastern part of Area 1)



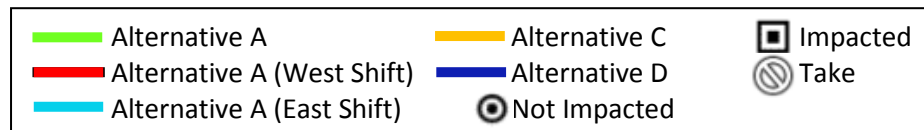
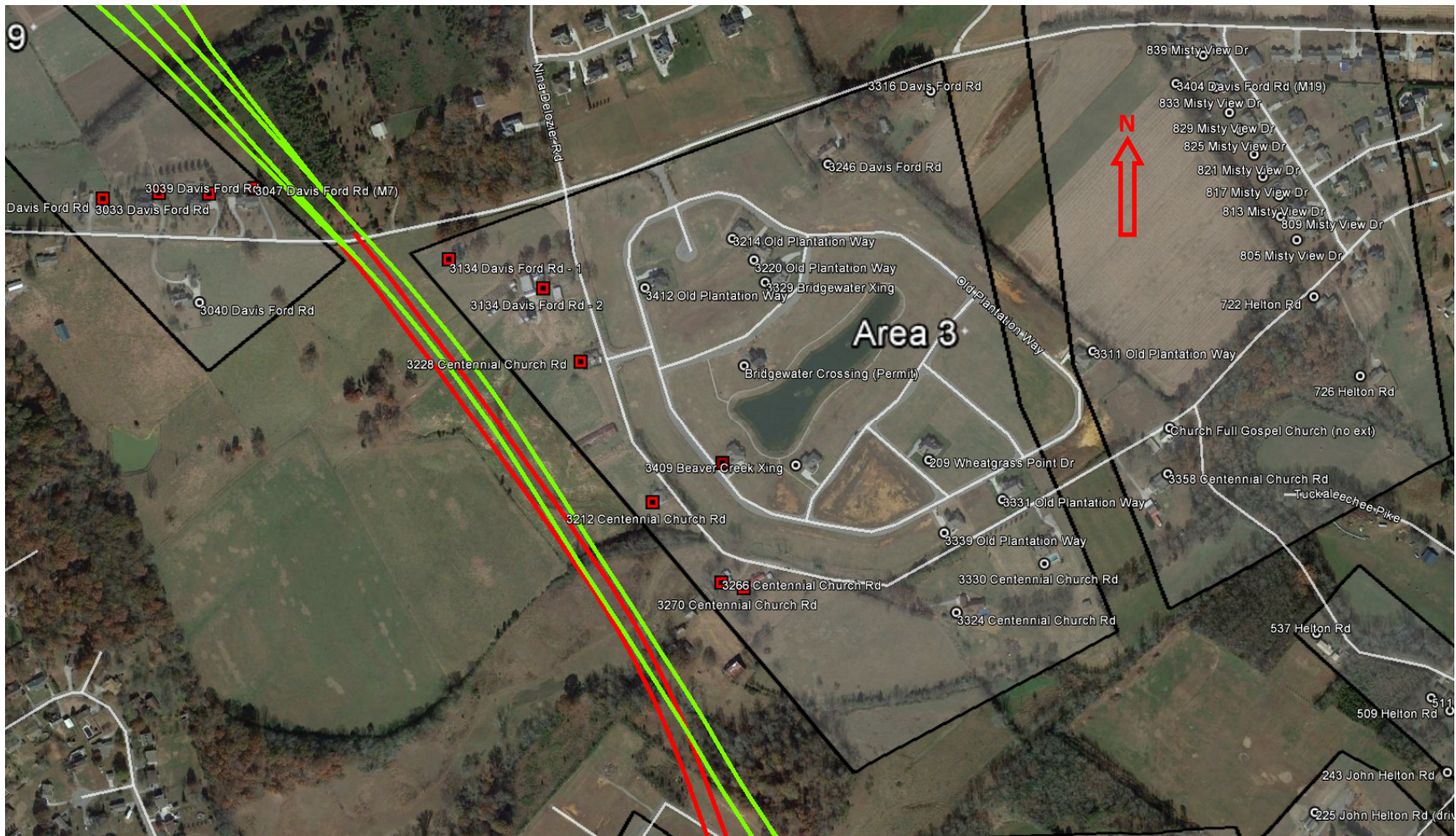
Alternative A – Area 3



Alternative A (East Shift) – Area 3

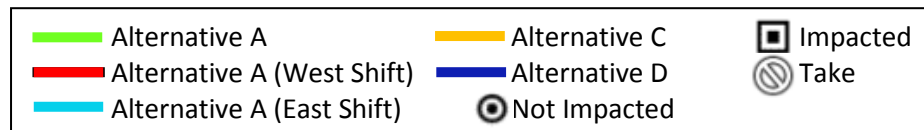
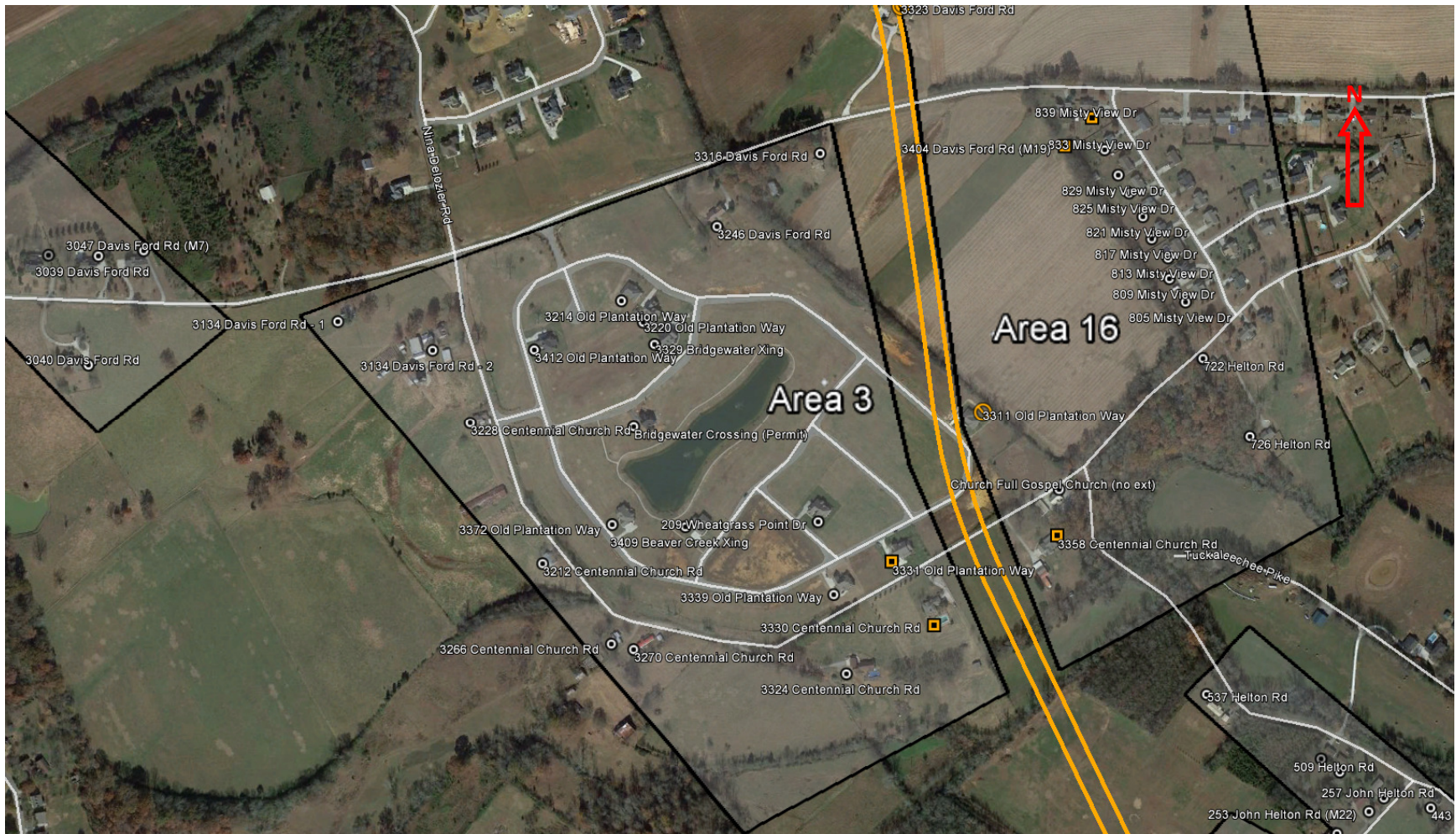
Project:	Pellissippi Parkway Extension
Noise Analysis Area:	3
Description:	Residences on Centennial Church Road and in the Sweetgrass Plantation subdivision.
Background Sound Level	40

ALTERNATIVE A (East Shift)																			
Receiver	Number of Residences	Existing Sound Level (dBA)				Design Year No-Build Sound Level (dBA)				Design Year Build Sound Level (dBA)				Sound Level Increase (dB)		Approach or Exceed NAC?	Substantial Increase?	Impacted?	Impacted Residences
		AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	PM				
3134 Davis Ford Rd - 2	1	41	43	40	43	43	45	43	45	58	58	58	58	15	15	No	Yes	Yes	1
3134 Davis Ford Rd - 1	1	45	46	45	46	49	49	48	49	67	67	66	66	21	20	Yes	Yes	Yes	1
3246 Davis Ford Rd	1	40	43	40	43	44	45	43	45	47	48	48	48	5	5	No	No	No	0
3316 Davis Ford Rd	1	48	48	47	48	51	51	50	51	48	49	48	49	1	1	No	No	No	0
3212 Centennial Church Rd	1	43	45	43	45	44	45	43	45	68	68	66	66	23	21	Yes	Yes	Yes	1
3228 Centennial Church Rd	1	42	44	42	44	43	45	43	45	61	61	60	60	17	16	No	Yes	Yes	1
3266 Centennial Church Rd	1	42	44	41	44	43	45	43	44	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
3270 Centennial Church Rd	1	42	44	42	44	43	45	43	45	68	68	67	67	24	23	Yes	Yes	Yes	1
3324 Centennial Church Rd	1	40	43	39	43	42	44	41	44	52	53	53	53	10	10	No	No	No	0
3330 Centennial Church Rd	1	39	43	39	42	42	44	41	44	48	49	49	49	6	7	No	No	No	0
3214 Old Plantation Way	1	39	42	38	42	42	44	41	44	51	52	52	52	10	10	No	No	No	0
3220 Old Plantation Way	1	38	42	38	42	41	44	41	43	51	51	52	52	9	10	No	No	No	0
3331 Old Plantation Way	1	44	45	44	45	45	46	45	46	50	50	50	51	5	6	No	No	No	0
3339 Old Plantation Way	1	44	45	44	45	45	46	45	46	54	54	54	54	9	9	No	No	No	0
3372 Old Plantation Way	1	38	42	37	42	40	43	40	43	57	57	57	57	15	15	No	Yes	Yes	1
3412 Old Plantation Way	1	40	43	39	43	42	44	42	44	55	55	55	55	12	12	No	No	No	0
3409 Beaver Creek Xing	1	38	42	37	42	41	43	40	43	56	56	56	56	14	14	No	No	No	0
Bridgewater Crossing (Permit)	1	37	42	37	42	40	43	39	43	53	53	53	54	11	12	No	No	No	0
3329 Bridgewater Xing	1	38	42	37	42	41	44	41	43	51	52	52	52	10	10	No	No	No	0
209 Wheatgrass Point Dr	1	38	42	37	42	41	43	40	43	51	52	51	52	10	10	No	No	No	0
																	Impacted Residences		6
																	Category C Impacts		0
																	Total Impacts		6



Alternative A (West Shift) – Area 3

Project:	Pellissippi Parkway Extension																			
Noise Analysis Area:	3																			
Description:	Residences on Centennial Church Road and in the Sweetgrass Plantation subdivision.																			
Background Sound Level	40																			
ALTERNATIVE A (West Shift)																				
Receiver	Number of Residences	Existing Sound Level (dBA)				Design Year No-Build Sound Level (dBA)				Design Year Build Sound Level (dBA)				Sound Level Increase (dB)		Approach or Exceed NAC?	Substantial Increase?	Impacted?	Impacted Residences	
		AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	PM					
3134 Davis Ford Rd - 2	1	41	43	40	43	43	45	43	45	57	57	57	57	14	14	No	Yes	Yes	1	
3134 Davis Ford Rd - 1	1	45	46	45	46	49	49	48	49	65	65	64	64	19	18	No	Yes	Yes	1	
3246 Davis Ford Rd	1	40	43	40	43	44	45	43	45	47	48	47	48	5	5	No	No	No	0	
3316 Davis Ford Rd	1	48	48	47	48	51	51	50	51	48	48	48	48	0	0	No	No	No	0	
3212 Centennial Church Rd	1	43	45	43	45	44	45	43	45	59	59	57	57	14	12	No	Yes	Yes	1	
3228 Centennial Church Rd	1	42	44	42	44	43	45	43	45	59	59	58	58	15	14	No	Yes	Yes	1	
3266 Centennial Church Rd	1	42	44	41	44	43	45	43	44	59	59	58	58	15	14	No	Yes	Yes	1	
3270 Centennial Church Rd	1	42	44	42	44	43	45	43	45	58	58	58	58	14	14	No	Yes	Yes	1	
3324 Centennial Church Rd	1	40	43	39	43	42	44	41	44	49	49	49	50	6	7	No	No	No	0	
3330 Centennial Church Rd	1	39	43	39	42	42	44	41	44	45	46	46	47	3	5	No	No	No	0	
3214 Old Plantation Way	1	39	42	38	42	42	44	41	44	51	51	51	51	9	9	No	No	No	0	
3220 Old Plantation Way	1	38	42	38	42	41	44	41	43	51	51	51	51	9	9	No	No	No	0	
3331 Old Plantation Way	1	44	45	44	45	45	46	45	46	49	50	50	50	5	5	No	No	No	0	
3339 Old Plantation Way	1	44	45	44	45	45	46	45	46	51	52	51	52	7	7	No	No	No	0	
3372 Old Plantation Way	1	38	42	37	42	40	43	40	43	57	57	55	55	15	13	No	Yes	Yes	1	
3412 Old Plantation Way	1	40	43	39	43	42	44	42	44	55	55	55	55	12	12	No	No	No	0	
3409 Beaver Creek Xing	1	38	42	37	42	41	43	40	43	55	55	55	55	13	13	No	No	No	0	
Bridgewater Crossing (Permit)	1	37	42	37	42	40	43	39	43	53	53	52	52	11	10	No	No	No	0	
3329 Bridgewater Xing	1	38	42	37	42	41	44	41	43	51	51	51	51	9	9	No	No	No	0	
209 Wheatgrass Point Dr	1	38	42	37	42	41	43	40	43	50	50	50	50	8	8	No	No	No	0	
																	Impacted Residences		7	
																	Category C Impacts		0	
																	Total Impacts		7	



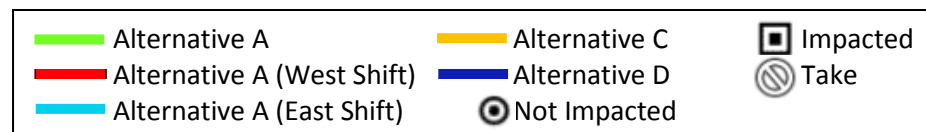
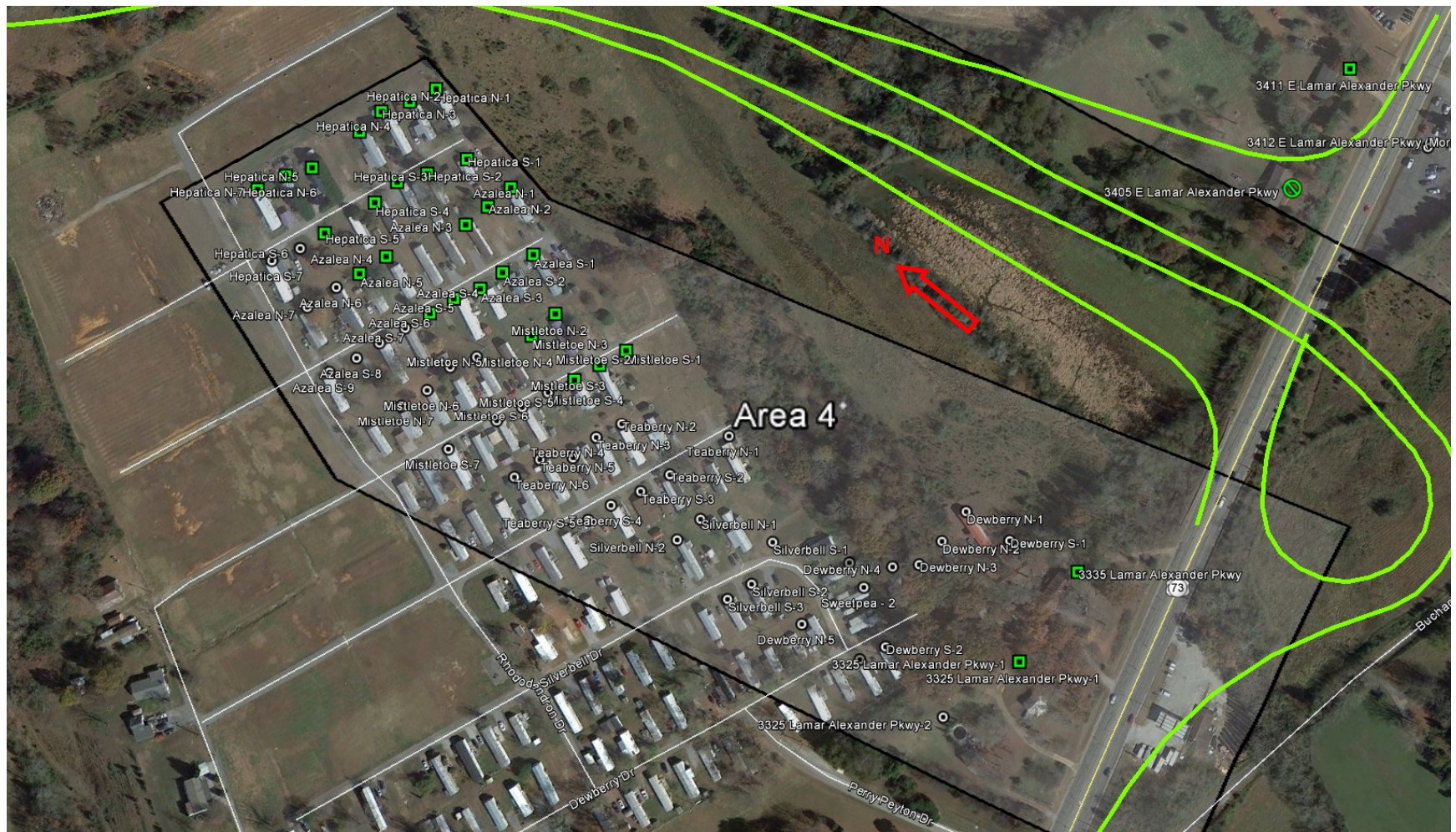
Alternative C – Area 3 (and southern end of Area 16)

Project:	Pellissippi Parkway Extension
Noise Analysis Area:	3
Description:	Residences on Centennial Church Road and in the Sweetgrass Plantation subdivision.
Background Sound Level	40

ALTERNATIVE C																			
Receiver	Number of Residences	Existing Sound Level (dBA)				Design Year No-Build Sound Level (dBA)				Design Year Build Sound Level (dBA)				Sound Level Increase (dB)		Approach or Exceed NAC?	Substantial Increase?	Impacted?	Impacted Residences
		AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	PM				
3134 Davis Ford Rd - 2	1	41	43	40	43	43	45	43	45	48	49	48	48	6	5	No	No	No	0
3134 Davis Ford Rd - 1	1	45	46	45	46	49	49	48	49	48	49	48	48	3	2	No	No	No	0
3246 Davis Ford Rd	1	40	43	40	43	44	45	43	45	55	55	54	54	12	11	No	No	No	0
3316 Davis Ford Rd	1	48	48	47	48	51	51	50	51	61	61	62	62	13	14	No	0	No	0
3212 Centennial Church Rd	1	43	45	43	45	44	45	43	45	49	50	49	50	5	5	No	No	No	0
3228 Centennial Church Rd	1	42	44	42	44	43	45	43	45	49	49	48	49	5	5	No	No	No	0
3266 Centennial Church Rd	1	42	44	41	44	43	45	43	44	51	51	51	51	7	7	No	No	No	0
3270 Centennial Church Rd	1	42	44	42	44	43	45	43	45	49	50	49	50	6	6	No	No	No	0
3324 Centennial Church Rd	1	40	43	39	43	42	44	41	44	53	53	52	52	10	9	No	No	No	0
3330 Centennial Church Rd	1	39	43	39	42	42	44	41	44	63	63	63	63	20	21	No	Yes	Yes	1
3214 Old Plantation Way	1	39	42	38	42	42	44	41	44	51	51	50	50	9	8	No	No	No	0
3220 Old Plantation Way	1	38	42	38	42	41	44	41	43	51	51	50	51	9	9	No	No	No	0
3331 Old Plantation Way	1	44	45	44	45	45	46	45	46	60	60	60	60	15	15	No	Yes	Yes	1
3339 Old Plantation Way	1	44	45	44	45	45	46	45	46	55	55	55	55	10	10	No	No	No	0
3372 Old Plantation Way	1	38	42	37	42	40	43	40	43	48	49	48	48	7	6	No	No	No	0
3412 Old Plantation Way	1	40	43	39	43	42	44	42	44	48	49	48	48	6	5	No	No	No	0
3409 Beaver Creek Xing	1	38	42	37	42	41	43	40	43	51	51	50	50	9	8	No	No	No	0
Bridgewater Crossing (Permit)	1	37	42	37	42	40	43	39	43	49	50	48	49	8	7	No	No	No	0
3329 Bridgewater Xing	1	38	42	37	42	41	44	41	43	51	52	50	51	10	9	No	No	No	0
209 Wheatgrass Point Dr	1	38	42	37	42	41	43	40	43	54	54	54	54	12	12	No			
																	Impacted Residences		2
																	Category C Impacts		0
																	Total Impacts		2

Project:	Pellissippi Parkway Extension
Noise Analysis Area:	3
Description:	Residences on Centennial Church Road and in the Sweetgrass Plantation subdivision.
Background Sound Level	40

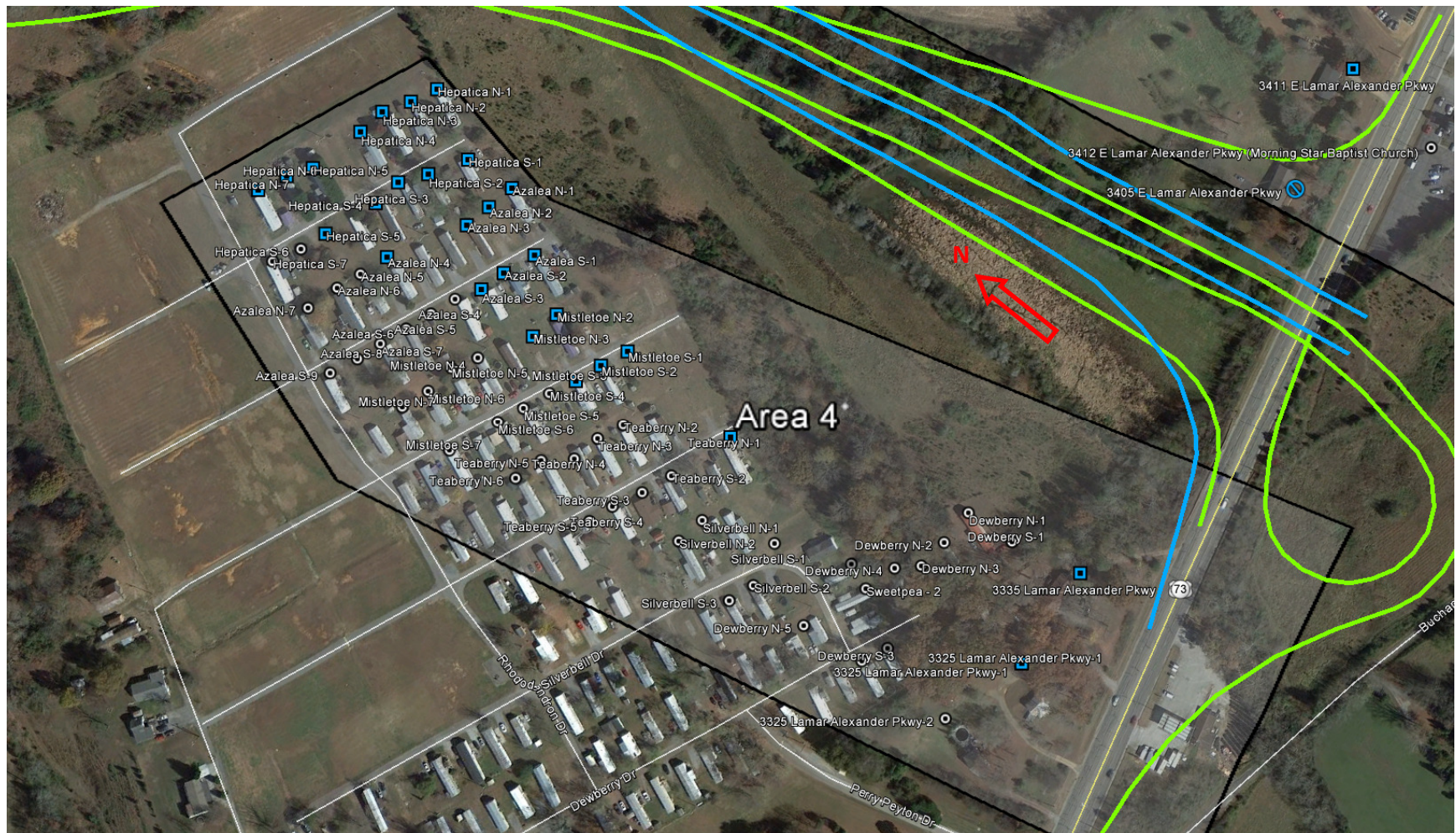
ALTERNATIVE D																				
Receiver	Number of Residences	Existing Sound Level (dBA)				Design Year No-Build Sound Level (dBA)				Design Year Build Sound Level (dBA)				Sound Level Increase (dB)		Approach or Exceed NAC?	Substantial Increase?	Impacted?	Impacted Residences	
		AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	PM					
3134 Davis Ford Rd - 2	1	41	43	40	43	43	45	43	45	46	47	46	47	4	4	No	No	No	0	
3134 Davis Ford Rd - 1	1	45	46	45	46	49	49	48	49	49	50	49	49	4	3	No	No	No	0	
3246 Davis Ford Rd	1	40	43	40	43	44	45	43	45	49	49	48	49	6	6	No	No	No	0	
3316 Davis Ford Rd	1	48	48	47	48	51	51	50	51	54	54	54	54	6	6	No	No	No	0	
3212 Centennial Church Rd	1	43	45	43	45	44	45	43	45	46	47	46	47	2	2	No	No	No	0	
3228 Centennial Church Rd	1	42	44	42	44	43	45	43	45	46	47	45	46	3	2	No	No	No	0	
3266 Centennial Church Rd	1	42	44	41	44	43	45	43	44	46	47	46	47	3	3	No	No	No	0	
3270 Centennial Church Rd	1	42	44	42	44	43	45	43	45	46	47	46	47	3	3	No	No	No	0	
3324 Centennial Church Rd	1	40	43	39	43	42	44	41	44	46	47	46	47	4	4	No	No	No	0	
3330 Centennial Church Rd	1	39	43	39	42	42	44	41	44	50	51	50	50	8	8	No	No	No	0	
3214 Old Plantation Way	1	39	42	38	42	42	44	41	44	46	47	46	47	5	5	No	No	No	0	
3220 Old Plantation Way	1	38	42	38	42	41	44	41	43	46	47	46	47	5	5	No	No	No	0	
3331 Old Plantation Way	1	44	45	44	45	45	46	45	46	50	51	50	51	6	6	No	No	No	0	
3339 Old Plantation Way	1	44	45	44	45	45	46	45	46	49	49	49	49	4	4	No	No	No	0	
3372 Old Plantation Way	1	38	42	37	42	40	43	40	43	44	46	44	46	4	4	No	No	No	0	
3412 Old Plantation Way	1	40	43	39	43	42	44	42	44	45	46	45	46	3	3	No	No	No	0	
3409 Beaver Creek Xing	1	38	42	37	42	41	43	40	43	45	46	45	46	4	4	No	No	No	0	
Bridgewater Crossing (Permit)	1	37	42	37	42	40	43	39	43	45	46	44	46	4	4	No	No	No	0	
3329 Bridgewater Xing	1	38	42	37	42	41	44	41	43	46	47	45	47	5	5	No	No	No	0	
209 Wheatgrass Point Dr	1	38	42	37	42	41	43	40	43	47	48	47	48	6	6	No	No	No	0	
																	Impacted Residences			0
																	Category C Impacts			0
																	Total Impacts			0



Alternative A – Area 4

Project:	Pellissippi Parkway Extension
Noise Analysis Area:	4
Description:	Kensington Place mobile home community and single-family residences on Lamar Alexander Parkway.
Background Sound Level	40

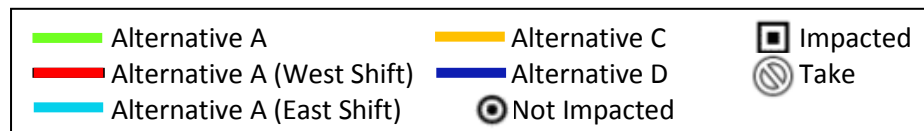
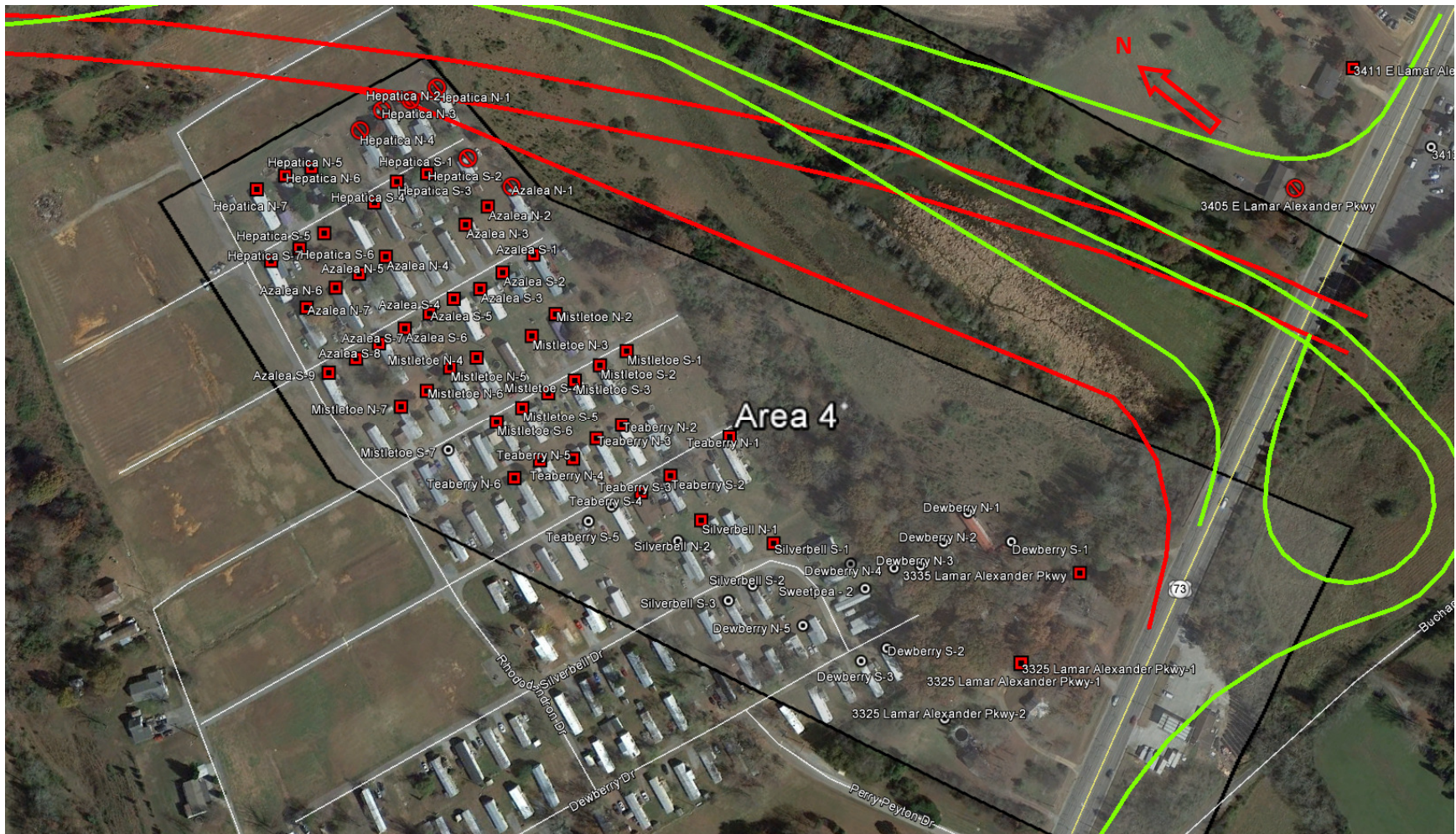
ALTERNATIVE A																			
Receiver	Number of Residences	Existing Sound Level (dBA)				Design Year No-Build Sound Level (dBA)				Design Year Build Sound Level (dBA)				Sound Level Increase (dB)		Approach or Exceed NAC?	Substantial Increase?	Impacted?	Impacted Residences
		AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	PM				
Hepatica N-1	1	42	44	41	44	45	46	44	46	67	67	67	67	23	23	Yes	Yes	Yes	1
Hepatica N-2	1	42	44	41	43	45	46	44	45	65	65	64	64	21	21	No	Yes	Yes	1
Hepatica N-3	1	42	44	41	43	44	46	43	45	65	65	64	64	21	21	No	Yes	Yes	1
Hepatica N-4	1	41	44	41	43	44	46	43	45	64	64	63	63	20	20	No	Yes	Yes	1
Hepatica N-5	1	41	43	40	43	43	45	43	44	62	62	61	61	19	18	No	Yes	Yes	1
Hepatica N-6	1	40	43	39	43	43	45	42	44	62	62	61	61	19	18	No	Yes	Yes	1
Hepatica N-7	1	39	42	38	42	42	44	41	43	57	57	56	56	15	14	No	Yes	Yes	1
Hepatica S-1	1	43	45	42	44	46	47	45	46	63	63	62	62	18	18	No	Yes	Yes	1
Hepatica S-2	1	42	44	41	44	45	46	44	45	61	61	60	60	17	16	No	Yes	Yes	1
Hepatica S-3	1	42	44	41	43	45	46	44	45	60	60	59	59	16	16	No	Yes	Yes	1
Hepatica S-4	1	42	44	41	43	44	46	43	45	59	59	58	58	15	15	No	Yes	Yes	1
Hepatica S-5	1	41	43	40	43	44	45	43	45	57	57	56	56	14	13	No	Yes	Yes	1
Hepatica S-6	1	40	43	39	43	43	45	42	44	56	56	56	56	13	13	No	No	No	0
Hepatica S-7	1	39	43	38	42	42	44	41	44	56	56	55	55	13	13	No	No	No	0
Azalea N-1	1	44	45	43	45	46	47	46	47	63	63	62	62	18	17	No	Yes	Yes	1
Azalea N-2	1	44	45	43	45	47	47	46	47	62	62	61	61	17	16	No	Yes	Yes	1
Azalea N-3	1	44	45	43	45	46	47	45	47	60	60	60	60	15	15	No	Yes	Yes	1
Azalea N-4	1	42	44	42	44	45	46	44	46	58	58	57	57	14	13	No	Yes	Yes	1
Azalea N-5	1	42	44	41	44	45	46	44	45	57	57	56	56	13	12	No	Yes	Yes	1
Azalea N-6	1	41	44	40	43	44	46	43	45	56	56	55	56	12	13	No	No	No	0
Azalea N-7	1	41	43	40	43	43	45	42	44	55	55	55	55	12	12	No	No	No	0
Azalea S-1	1	46	47	45	46	48	49	48	48	61	61	61	61	14	15	No	Yes	Yes	1
Azalea S-2	1	44	46	43	45	47	48	46	47	60	60	59	59	14	14	No	Yes	Yes	1
Azalea S-3	1	44	45	43	45	47	47	46	47	59	59	58	58	14	13	No	Yes	Yes	1
Azalea S-4	1	43	45	42	44	46	47	45	46	58	58	57	57	13	13	No	Yes	Yes	1
Azalea S-5	1	43	45	42	44	46	47	45	46	57	57	56	56	12	12	No	Yes	Yes	1
Azalea S-6	1	43	45	42	44	46	47	45	46	56	56	55	55	11	11	No	No	No	0
Azalea S-7	1	43	44	42	44	45	46	45	46	55	56	55	55	12	11	No	No	No	0
Azalea S-8	1	42	44	41	44	45	46	44	46	55	55	54	54	11	10	No	No	No	0
Azalea S-9	1	42	44	41	43	45	46	44	45	54	55	54	54	11	11	No	No	No	0
Mistletoe N-2	1	47	48	47	47	50	51	49	50	60	60	59	59	12	12	No	Yes	Yes	1
Mistletoe N-3	1	47	48	46	47	50	50	49	49	58	58	57	57	10	10	No	Yes	Yes	1
Mistletoe N-4	1	45	46	44	46	48	49	47	48	56	56	55	55	10	9	No	No	No	0
Mistletoe N-5	1	45	46	44	46	48	48	47	48	56	56	55	55	10	9	No	No	No	0
Mistletoe N-6	1	44	46	44	45	47	48	46	47	55	55	54	54	9	9	No	No	No	0
Mistletoe N-7	1	44	45	43	45	47	47	46	47	54	54	53	53	9	8	No	No	No	0
Mistletoe S-1	1	49	49	48	48	51	52	51	51	60	60	59	59	11	11	No	Yes	Yes	1
Mistletoe S-2	1	48	49	47	48	51	51	50	51	59	59	58	58	10	10	No	Yes	Yes	1
Mistletoe S-3	1	48	48	47	48	51	51	50	50	58	58	57	57	10	9	No	Yes	Yes	1
Mistletoe S-4	1	47	48	46	47	50	50	49	50	56	56	56	56	8	9	No	No	No	0
Mistletoe S-5	1	47	48	46	47	50	50	49	49	56	56	55	55	8	8	No	No	No	0
Mistletoe S-6	1	46	47	46	47	49	50	48	49	55	55	54	55	8	8	No	No	No	0
Mistletoe S-7	1	45	46	45	46	48	49	47	48	54	54	53	53	8	7	No	No	No	0
Teaberry N-1	2	49	49	48	49	52	52	51	51	58	58	58	58	9	9	No	No	No	0
Teaberry N-2	2	49	50	48	49	52	52	51	52	58	58	57	57	8	8	No	No	No	0
Teaberry N-3	1	49	49	48	48	51	52	51	51	57	57	57	57	8	9	No	No	No	0
Teaberry N-4	1	48	48	47	48	51	51	50	50	56	56	56	56	8	8	No	No	No	0
Teaberry N-5	1	48	48	47	48	50	51	50	50	55	55	55	55	7	7	No	No	No	0
Teaberry N-6	1	47	48	46	47	50	50	49	50	55	55	54	55	7	8	No	No	No	0
Teaberry S-2	1	49	50	48	49	52	52	51	51	56	56	56	56	6	7	No	No	No	0
Teaberry S-3	1	49	50	48	49	52	52	51	51	55	56	55	55	6	6	No	No	No	0
Teaberry S-4	1	48	49	47	48	51	51	50	51	54	54	54	54	5	6	No	No	No	0
Teaberry S-5	1	48	48	47	48	51	51	50	50	54	54	54	54	6	6	No	No	No	0
Silverbell N-1	1	50	50	49	50	53	53	52	52	56	56	56	56	6	6	No	No	No	0
Silverbell N-2	1	49	50	48	49	52	52	51	52	55	56	55	56	6	7	No	No	No	0
Silverbell S-1	1	51	51	50	50	53	54	53	53	57	57	57	57	6	7	No	No	No	0
Silverbell S-2	1	52	52	51	51	55	55	54	54	57	57	57	57	5	6	No	No	No	0
Silverbell S-3	1	52	52	51	51	55	55	54	54	56	56	56	56	4	5	No	No	No	0
Dewberry N-1	1	57	57	56	56	60	60	59	59	62	62	62	62	5	6	No	No	No	0
Dewberry N-2	1	57	57	56	56	60	60	59	59	61	61	62	62	4	6	No	No	No	0
Dewberry N-3	1	56	56	55	55	59	59	58	58	60	60	61	61	4	6	No	No	No	0
Dewberry N-4	1	54	54	53	53	57	57	56	56	59	59	59	59	5	6	No	No	No	0



Alternative A (East Shift) – Area 4

Project:	Pellissippi Parkway Extension
Noise Analysis Area:	4
Description:	Kensington Place mobile home community and single-family residences on Lamar Alexander Parkway.
Background Sound Level	40

ALTERNATIVE A (East Shift)																					
	Receiver	Number of Residences	Existing Sound Level (dBA)				Design Year No-Build Sound Level (dBA)				Design Year Build Sound Level (dBA)				Sound Level Increase (dB)		Approach or Exceed NAC?	Substantial Increase?	Impacted?	Impacted Residences	
			AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	PM					
	Hepatica N-1	1	42	44	41	44	45	46	44	46	63	63	63	63	19	19	No	Yes	Yes	1	
	Hepatica N-2	1	42	44	41	43	45	46	44	45	62	62	61	61	18	18	No	Yes	Yes	1	
	Hepatica N-3	1	42	44	41	43	44	46	43	45	61	61	61	61	17	18	No	Yes	Yes	1	
	Hepatica N-4	1	41	44	41	43	44	46	43	45	61	61	60	60	17	17	No	Yes	Yes	1	
	Hepatica N-5	1	41	43	40	43	43	45	43	44	58	58	58	58	15	15	No	Yes	Yes	1	
	Hepatica N-6	1	40	43	39	43	43	45	42	44	58	58	57	57	15	14	No	Yes	Yes	1	
	Hepatica N-7	1	39	42	38	42	42	44	41	43	57	57	56	56	15	14	No	Yes	Yes	1	
	Hepatica S-1	1	43	45	42	44	46	47	45	46	62	62	61	61	17	17	No	Yes	Yes	1	
	Hepatica S-2	1	42	44	41	44	45	46	44	45	60	60	59	59	16	15	No	Yes	Yes	1	
	Hepatica S-3	1	42	44	41	43	45	46	44	45	59	59	59	59	15	16	No	Yes	Yes	1	
	Hepatica S-4	1	42	44	41	43	44	46	43	45	58	58	57	57	14	14	No	Yes	Yes	1	
	Hepatica S-5	1	41	43	40	43	44	45	43	45	57	57	56	56	14	13	No	Yes	Yes	1	
	Hepatica S-6	1	40	43	39	43	43	45	42	44	56	56	55	55	13	12	No	No	No	0	
	Hepatica S-7	1	39	43	38	42	42	44	41	44	56	56	54	55	13	13	No	No	No	0	
	Azalea N-1	1	44	45	43	45	46	47	46	47	62	62	61	61	17	16	No	Yes	Yes	1	
	Azalea N-2	1	44	45	43	45	47	47	46	47	61	61	60	60	16	15	No	Yes	Yes	1	
	Azalea N-3	1	44	45	43	45	46	47	45	47	59	59	58	58	14	13	No	Yes	Yes	1	
	Azalea N-4	1	42	44	42	44	45	46	44	46	57	57	56	56	13	12	No	Yes	Yes	1	
	Azalea N-5	1	42	44	41	44	45	46	44	45	56	56	55	55	12	11	No	No	No	0	
	Azalea N-6	1	41	44	40	43	44	46	43	45	56	56	54	54	12	11	No	No	No	0	
	Azalea N-7	1	41	43	40	43	43	45	42	44	54	54	53	53	11	10	No	No	No	0	
	Azalea S-1	1	46	47	45	46	48	49	48	48	60	60	60	60	13	14	No	Yes	Yes	1	
	Azalea S-2	1	44	46	43	45	47	48	46	47	59	59	58	58	13	13	No	Yes	Yes	1	
	Azalea S-3	1	44	45	43	45	47	47	46	47	57	57	57	57	12	12	No	Yes	Yes	1	
	Azalea S-4	1	43	45	42	44	46	47	45	46	56	56	55	55	11	11	No	No	No	0	
	Azalea S-5	1	43	45	42	44	46	47	45	46	55	55	54	54	10	10	No	No	No	0	
	Azalea S-6	1	43	45	42	44	46	47	45	46	55	55	54	54	10	10	No	No	No	0	
	Azalea S-7	1	43	44	42	44	45	46	45	46	54	54	53	53	10	9	No	No	No	0	
	Azalea S-8	1	42	44	41	44	45	46	44	46	54	54	53	53	10	9	No	No	No	0	
	Azalea S-9	1	42	44	41	43	45	46	44	45	54	54	53	53	10	10	No	No	No	0	
	Mistletoe N-2	1	47	48	47	47	50	51	49	50	59	59	59	59	11	12	No	Yes	Yes	1	
	Mistletoe N-3	1	47	48	46	47	50	50	49	49	58	58	57	57	10	10	No	Yes	Yes	1	
	Mistletoe N-4	1	45	46	44	46	48	49	47	48	56	56	55	55	10	9	No	No	No	0	
	Mistletoe N-5	1	45	46	44	46	48	48	47	48	56	56	55	55	10	9	No	No	No	0	
	Mistletoe N-6	1	44	46	44	45	47	48	46	47	55	55	54	54	9	9	No	No	No	0	
	Mistletoe N-7	1	44	45	43	45	47	47	46	47	54	54	53	53	9	8	No	No	No	0	
	Mistletoe S-1	1	49	49	48	48	51	52	51	51	60	60	59	59	11	11	No	Yes	Yes	1	
	Mistletoe S-2	1	48	49	47	48	51	51	50	51	59	59	58	58	10	10	No	Yes	Yes	1	
	Mistletoe S-3	1	48	48	47	48	51	51	50	50	58	58	58	58	10	10	No	Yes	Yes	1	
	Mistletoe S-4	1	47	48	46	47	50	50	49	50	57	57	56	56	9	9	No	No	No	0	
	Mistletoe S-5	1	47	48	46	47	50	50	49	49	56	56	56	56	8	9	No	No	No	0	
	Mistletoe S-6	1	46	47	46	47	49	50	48	49	56	56	55	55	9	8	No	No	No	0	
	Mistletoe S-7	1	45	46	45	46	48	49	47	48	54	54	53	53	8	7	No	No	No	0	
	Teaberry N-1	2	49	49	48	49	52	52	51	51	60	60	59	59	11	10	No	Yes	Yes	2	
	Teaberry N-2	2	49	50	48	49	52	52	51	52	58	58	58	58	8	9	No	No	No	0	
	Teaberry N-3	1	49	49	48	48	51	52	51	51	58	58	57	57	9	9	No	No	No	0	
	Teaberry N-4	1	48	48	47	48	51	51	50	50	57	57	56	56	9	8	No	No	No	0	
	Teaberry N-5	1	48	48	47	48	50	51	50	50	56	56	55	55	8	7	No	No	No	0	
	Teaberry N-6	1	47	48	46	47	50	50	49	50	55	55	55	55	7	8	No	No	No	0	
	Teaberry S-2	1	49	50	48	49	52	52	51	51	58	58	57	57	8	8	No	No	No	0	
	Teaberry S-3	1	49	50	48	49	52	52	51	51	57	57	57	57	7	8	No	No	No	0	
	Teaberry S-4	1	48	49	47	48	51	51	50	51	56	56	55	56	7	8	No	No	No	0	
	Teaberry S-5	1	48	48	47	48	51	51	50	50	55	55	55	55	7	7	No	No	No	0	
	Silverbell N-1	1	50	50	49	50	53	53	52	52	58	58	58	58	8	8	No	No	No	0	
	Silverbell N-2	1	49	50	48	49	52	52	51	52	57	57	57	57	7	8	No	No	No	0	
	Silverbell S-1	1	51	51	50	50	53	54	53	53	58	58	58	58	7	8	No	No	No	0	
	Silverbell S-2	1	52	52	51	51	55	55	54	54	59	59	58	58	7	7	No	No	No	0	
	Silverbell S-3	1	52	52	51	51	55	55	54	54	58	58	58	58	7	6	No	No	No	0	
	Dewberry N-1	1	57	57	56	56	60	60	59	59	63	63	63	63	6	7	No	No	No	0	
	Dewberry N-2	1	57	57	56	56	60	60	59	59	63	63	62	62	6	6	No	No	No	0	
	Dewberry N-3	1	56	56	55	55	59	59	58	58	62	62	62	62	6	7	No	No	No	0	
	Dewberry N-4	1	54	54	53	53	57	57	56	56	61	61	60	60	7	7	No	No	No	0	
	Dewberry N-5	1	52	52	51	51	55	55	54	54	58	58	58	58	6	7	No	No	No	0	
	Dewberry S-2	1	54	54	54	54	57	57	56	56	60	60	60	60	6	6	No	No	No	0	
	Dewberry S-3	1	53	53	52	52	56	56	55	55	58	58	58	58	5	6	No	No	No	0	
	Sweetpea - 2	1	53	53	52	52	56	56	55	55	59	59	59	59	6	7	No	No	No	0	
	Sweetpea - 3	1	52	52	51	52	55	55	54	54	59	59	59	59	7	7	No	No	No	0	
	Dewberry S-1	1	59	59	59	59	62	62	62	62	64	64	64	64	5	5	No	No	No	0	
	3335 Lamar Alexander Pkwy	1	64	64	63	63	67	67	66	66	67	67	68	68	3	5	Yes	No	Yes	1	
	3325 Lamar Alexander Pkwy-1	1	63	63	62	62	66	66	65	65	66	66	66	66	3	4	Yes	No	Yes	1	
	3325 Lamar Alexander Pkwy-2	1	59	59	59	59	62	62	61	61	63	63	63	63	4	4	No	No	No	0	
																		Impacted Residences		28	
																		Category C Impacts		0	
																		Total Impacts		28	



Alternative A (West Shift) – Area 4

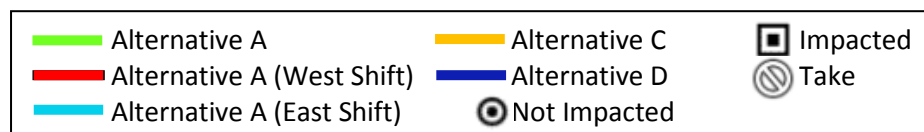
Project:	Pellissippi Parkway Extension
Noise Analysis Area:	4
Description:	Kensington Place mobile home community and single-family residences on Lamar Alexander Parkway.
Background Sound Level	40

ALTERNATIVE A (West Shift)																			
Receiver	Number of Residences	Existing Sound Level (dBA)				Design Year No-Build Sound Level (dBA)				Design Year Build Sound Level (dBA)				Sound Level Increase (dB)		Approach or Exceed NAC?	Substantial Increase?	Impacted?	Impacted Residences
		AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	PM				
Hepatica N-1	1	42	44	41	44	45	46	44	46	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
Hepatica N-2	1	42	44	41	43	45	46	44	45	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
Hepatica N-3	1	42	44	41	43	44	46	43	45	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
Hepatica N-4	1	41	44	41	43	44	46	43	45	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
Hepatica N-5	1	41	43	40	43	43	45	43	44	68	68	67	67	25	24	Yes	Yes	Yes	1
Hepatica N-6	1	40	43	39	43	43	45	42	44	67	67	66	66	24	23	Yes	Yes	Yes	1
Hepatica N-7	1	39	42	38	42	42	44	41	43	64	64	63	63	22	21	No	Yes	Yes	1
Hepatica S-1	1	43	45	42	44	46	47	45	46	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
Hepatica S-2	1	42	44	41	44	45	46	44	45	69	69	69	69	25	25	Yes	Yes	Yes	1
Hepatica S-3	1	42	44	41	43	45	46	44	45	66	66	65	65	22	22	Yes	Yes	Yes	1
Hepatica S-4	1	42	44	41	43	44	46	43	45	63	63	63	63	19	20	No	Yes	Yes	1
Hepatica S-5	1	41	43	40	43	44	45	43	45	61	61	61	61	18	18	No	Yes	Yes	1
Hepatica S-6	1	40	43	39	43	43	45	42	44	60	60	60	60	17	17	No	Yes	Yes	1
Hepatica S-7	1	39	43	38	42	42	44	41	44	60	60	60	60	17	18	No	Yes	Yes	1
Azalea N-1	1	44	45	43	45	46	47	46	47	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
Azalea N-2	1	44	45	43	45	47	47	46	47	68	68	68	68	23	23	Yes	Yes	Yes	1
Azalea N-3	1	44	45	43	45	46	47	45	47	65	65	64	64	20	19	No	Yes	Yes	1
Azalea N-4	1	42	44	42	44	45	46	44	46	61	61	61	61	17	17	No	Yes	Yes	1
Azalea N-5	1	42	44	41	44	45	46	44	45	60	60	59	59	16	15	No	Yes	Yes	1
Azalea N-6	1	41	44	40	43	44	46	43	45	60	60	59	59	16	16	No	Yes	Yes	1
Azalea N-7	1	41	43	40	43	43	45	42	44	59	59	58	58	16	15	No	Yes	Yes	1
Azalea S-1	1	46	47	45	46	48	49	48	48	65	65	65	65	18	19	Yes	Yes	Yes	1
Azalea S-2	1	44	46	43	45	47	48	46	47	63	63	62	62	17	17	No	Yes	Yes	1
Azalea S-3	1	44	45	43	45	47	47	46	47	62	62	61	61	17	16	No	Yes	Yes	1
Azalea S-4	1	43	45	42	44	46	47	45	46	60	60	59	59	15	15	No	Yes	Yes	1
Azalea S-5	1	43	45	42	44	46	47	45	46	59	59	58	58	14	14	No	Yes	Yes	1
Azalea S-6	1	43	45	42	44	46	47	45	46	58	58	58	58	13	14	No	Yes	Yes	1
Azalea S-7	1	43	44	42	44	45	46	45	46	58	58	57	57	14	13	No	Yes	Yes	1
Azalea S-8	1	42	44	41	44	45	46	44	46	58	58	57	57	14	13	No	Yes	Yes	1
Azalea S-9	1	42	44	41	43	45	46	44	45	57	57	57	57	13	14	No	Yes	Yes	1
Mistletoe N-2	1	47	48	47	47	50	51	49	50	63	63	63	63	15	16	No	Yes	Yes	1
Mistletoe N-3	1	47	48	46	47	50	50	49	49	61	61	61	61	13	14	No	Yes	Yes	1
Mistletoe N-4	1	45	46	44	46	48	49	47	48	59	59	58	58	13	12	No	Yes	Yes	1
Mistletoe N-5	1	45	46	44	46	48	48	47	48	58	58	58	58	12	12	No	Yes	Yes	1
Mistletoe N-6	1	44	46	44	45	47	48	46	47	58	58	57	57	12	12	No	Yes	Yes	1
Mistletoe N-7	1	44	45	43	45	47	47	46	47	57	57	56	56	12	11	No	Yes	Yes	1
Mistletoe S-1	1	49	49	48	48	51	52	51	51	63	63	63	63	14	15	No	Yes	Yes	1
Mistletoe S-2	1	48	49	47	48	51	51	50	51	62	62	61	61	13	13	No	Yes	Yes	1
Mistletoe S-3	1	48	48	47	48	51	51	50	50	61	61	60	60	13	12	No	Yes	Yes	1
Mistletoe S-4	1	47	48	46	47	50	50	49	50	60	60	59	59	12	12	No	Yes	Yes	1
Mistletoe S-5	1	47	48	46	47	50	50	49	49	59	59	58	58	11	11	No	Yes	Yes	1
Mistletoe S-6	1	46	47	46	47	49	50	48	49	58	58	57	57	11	10	No	Yes	Yes	1
Mistletoe S-7	1	45	46	45	46	48	49	47	48	56	56	56	56	10	10	No	No	No	0
Teaberry N-1	2	49	49	48	49	52	52	51	51	62	62	62	62	13	13	No	Yes	Yes	2
Teaberry N-2	2	49	50	48	49	52	52	51	52	60	60	60	60	10	11	No	Yes	Yes	2
Teaberry N-3	1	49	49	48	48	51	52	51	51	60	60	59	59	11	11	No	Yes	Yes	1
Teaberry N-4	1	48	48	47	48	51	51	50	50	59	59	58	58	11	10	No	Yes	Yes	1
Teaberry N-5	1	48	48	47	48	50	51	50	50	58	58	57	57	10	9	No	Yes	Yes	1
Teaberry N-6	1	47	48	46	47	50	50	49	50	57	57	57	57	9	10	No	Yes	Yes	1
Teaberry S-2	1	49	50	48	49	52	52	51	51	60	60	59	59	10	10	No	Yes	Yes	1
Teaberry S-3	1	49	50	48	49	52	52	51	51	59	59	59	59	9	10	No	Yes	Yes	1
Teaberry S-4	1	48	49	47	48	51	51	50	50	58	58	57	57	9	9	No	No	No	0
Teaberry S-5	1	48	48	47	48	51	51	50	50	57	57	57	57	9	9	No	No	No	0
Silverbell N-1	1	50	50	49	50	53	53	52	52	60	60	59	59	10	9	No	Yes	Yes	1
Silverbell N-2	1	49	50	48	49	52	52	51	52	59	59	58	58	9	9	No	No	No	0
Silverbell S-1	1	51	51	50	50	53	54	53	53	60	60	60	60	9	10	No	Yes	Yes	1
Silverbell S-2	1	52	52	51	51	55	55	54	54	60	60	59	59	8	8	No	No	No	0
Silverbell S-3	1	52	52	51	51	55	55	54	54	59	59	59	59	7	8	No	No	No	0
Dewberry N-1	1	57	57	56	56	60	60	59	59	64	64	64	64	7	8	No	No	No	0
Dewberry N-2	1	57	57	56	56	60	60	59	59	63	63	63	63	6	7	No	No	No	0
Dewberry N-3	1	56	56	55	55	59	59	58	58	63	63	62	62	7	7	No	No	No	0
Dewberry N-4	1	54	54	53	53	57	57	56	56	61	61	61	61	7	8	No	No	No	0
Dewberry N-5	1	52	52	51	51	55	55	54	54	59	59	59	59	7	8	No	No	No	0
Dewberry S-2	1	54	54	54	54	57	57	56	56	60	60	60	60	6	6	No	No	No	0
Dewberry S-3	1	53	53	52	52	56	56	55	55	60	60	59	59	7	7	No	No	No	0
Sweetpea - 2	1	53	53	52	52	56	56	55	55	60	60	60	60	7	8	No	No	No	0
Sweetpea - 3	1	52	52	51	52	55	55	54	54	60	60	60	60	8	8	No	No	No	0
Dewberry S-1	1	59	59	59	59	62	62	62	62	65	65	65	65	6	6	No	No	No	0
3335 Lamar Alexander Pkwy	1	64	64	63	63	67	67	66	66	68	68	68	68	4	5	Yes	No	Yes	1
3325 Lamar Alexander Pkwy-1	1	63	63	62	62	66	66	65	65	66	66	67	67	3	5	Yes	No	Yes	1
3325 Lamar Alexander Pkwy-2	1	59	59	59	59	62	62	61	61	63	63	63	63	4	4	No	No	No	0

Impacted Residences	50
Category C Impacts	0
Total Impacts	50



Alternative A – Areas 5 & 7



Alternative C – Areas 5 & 7

Project:	Pellissippi Parkway Extension
Noise Analysis Area:	5
Description:	Residences on East Brown School Road, Wildwood Road, Martha Neoma Street, and Talbott Lane.
Background Sound Level	40

ALTERNATIVE A

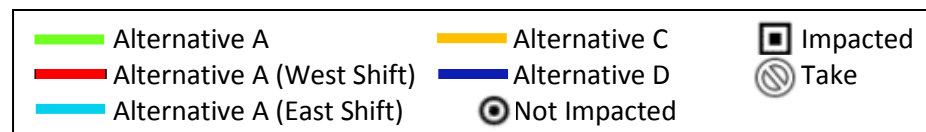
Receiver	Number of Residences	Existing Sound Level (dBA)				Design Year No-Build Sound Level (dBA)				Design Year Build Sound Level (dBA)				Sound Level Increase (dB)		Approach or Exceed NAC?	Substantial Increase?	Impacted?	Impacted Residences	
		AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	PM					
3118 Wildwood Rd	1	42	44	42	44	49	49	49	49	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a	
1816 E Brown School Rd	1	36	41	35	41	40	43	40	43	69	69	69	69	28	28	Yes	Yes	Yes	1	
1842 E Brown School Rd	1	36	42	36	41	40	43	40	43	54	55	56	56	13	15	No	Yes	Yes	1	
1834 E Brown School Rd (M4)	1	37	42	36	41	40	43	40	43	56	56	56	56	14	15	No	Yes	Yes	1	
1840 E Brown School Rd	1	37	42	36	42	41	44	41	44	56	56	56	56	14	14	No	No	No	0	
1848 E Brown School Rd	1	34	41	34	41	39	43	39	43	52	52	52	53	11	12	No	No	No	0	
1853 E Brown School Rd	1	37	42	37	42	42	44	42	44	57	57	57	57	15	15	No	Yes	Yes	1	
1854 E Brown School Rd	1	37	42	37	42	42	44	42	44	54	55	54	54	13	12	No	No	No	0	
1862 E Brown School Rd	1	37	42	37	42	43	45	43	45	55	55	55	55	13	13	No	No	No	0	
1870 E Brown School Rd	1	38	42	38	42	44	46	45	46	53	53	52	53	11	11	No	No	No	0	
1871 E Brown School Rd	1	39	42	39	42	45	46	45	46	60	60	59	59	18	17	No	Yes	Yes	1	
1876 E Brown School Rd	1	39	43	39	43	45	47	46	47	56	56	56	56	13	13	No	No	No	0	
1880 E Brown School Rd	1	40	43	40	43	47	47	47	48	58	58	58	58	15	15	No	Yes	Yes	1	
1886 E Brown School Rd	1	42	44	43	45	50	50	50	50	61	61	61	61	17	16	No	Yes	Yes	1	
1887 E Brown School Rd	1	43	45	44	45	51	51	51	51	63	63	62	62	18	17	No	Yes	Yes	1	
1890 E Brown School Rd	1	47	48	48	48	55	55	55	55	62	62	62	62	14	14	No	Yes	Yes	1	
1891 E Brown School Rd	1	49	49	49	50	56	56	57	57	61	61	60	60	12	10	No	Yes	Yes	1	
131 Martha Neoma St	1	39	42	39	42	45	46	45	46	54	54	53	53	12	11	No	No	No	0	
139 Martha Neoma St	1	41	43	41	43	47	48	48	48	51	52	50	51	9	8	No	No	No	0	
145 Martha Neoma St	1	44	46	45	46	51	52	52	52	57	57	56	56	11	10	No	Yes	Yes	1	
153 Martha Neoma St	1	51	51	51	52	58	58	59	59	60	60	60	60	9	8	No	No	No	0	
116 Talbott Ln	1	37	42	37	42	41	44	41	44	52	52	52	53	10	11	No	No	No	0	
																		Impacted Residences		11
																		Category C Impacts		0
																		Total Impacts		11

ALTERNATIVE C

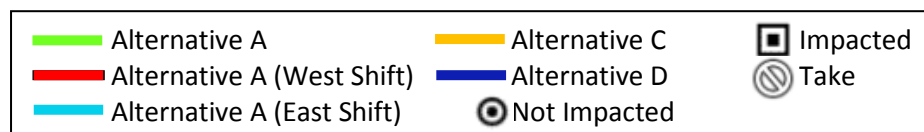
Receiver	Number of Residences	Existing Sound Level (dBA)				Design Year No-Build Sound Level (dBA)				Design Year Build Sound Level (dBA)				Sound Level Increase (dB)		Approach or Exceed NAC?	Substantial Increase?	Impacted?	Impacted Residences	
		AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	PM					
3118 Wildwood Rd	1	42	44	42	44	49	49	49	49	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a	
1816 E Brown School Rd	1	36	41	35	41	40	43	40	43	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a	
1842 E Brown School Rd	1	36	42	36	41	40	43	40	43	70	70	69	69	28	28	Yes	Yes	Yes	1	
1834 E Brown School Rd (M4)	1	37	42	36	41	40	43	40	43	63	63	62	62	21	21	No	Yes	Yes	1	
1840 E Brown School Rd	1	37	42	36	42	41	44	41	44	58	58	58	58	16	16	No	No	Yes	1	
1848 E Brown School Rd	1	34	41	34	41	39	43	39	43	54	54	54	54	13	13	No	No	No	0	
1853 E Brown School Rd	1	37	42	37	42	42	44	42	44	58	58	57	57	16	15	No	Yes	Yes	1	
1854 E Brown School Rd	1	37	42	37	42	42	44	42	44	55	55	55	55	13	13	No	No	No	0	
1862 E Brown School Rd	1	37	42	37	42	43	45	43	45	55	55	55	55	13	13	No	No	No	0	
1870 E Brown School Rd	1	38	42	38	42	44	46	45	46	53	53	52	53	11	11	No	No	No	0	
1871 E Brown School Rd	1	39	42	39	42	45	46	45	46	60	60	59	59	18	17	No	Yes	Yes	1	
1876 E Brown School Rd	1	39	43	39	43	45	47	46	47	56	56	56	56	13	13	No	No	No	0	
1880 E Brown School Rd	1	40	43	40	43	47	47	47	48	58	58	57	57	15	14	No	Yes	Yes	1	
1886 E Brown School Rd	1	42	44	43	45	50	50	50	50	61	61	60	60	17	15	No	Yes	Yes	1	
1887 E Brown School Rd	1	43	45	44	45	51	51	51	51	63	63	62	62	18	17	No	Yes	Yes	1	
1890 E Brown School Rd	1	47	48	48	48	55	55	55	55	62	62	62	62	14	14	No	Yes	Yes	1	
1891 E Brown School Rd	1	49	49	49	50	56	56	57	57	61	61	60	60	12	10	No	Yes	Yes	1	
131 Martha Neoma St	1	39	42	39	42	45	46	45	46	54	54	53	53	12	11	No	No	No	0	
139 Martha Neoma St	1	41	43	41	43	47	48	48	48	52	52	51	51	9	8	No	No	No	0	
145 Martha Neoma St	1	44	46	45	46	51	52	52	52	57	57	56	56	11	10	No	Yes	Yes	1	
153 Martha Neoma St	1	51	51	51	52	58	58	59	59	60	60	59	59	9	7	No	No	No	0	
116 Talbott Ln	1	37	42	37	42	41	44	41	44	54	54	55	55	12	13	No	No	No	0	
																	Impacted Residences			11
																	Category C Impacts			0
																	Total Impacts			11



Alternatives A and C – Area 6



Alternative A – Areas 5 & 7



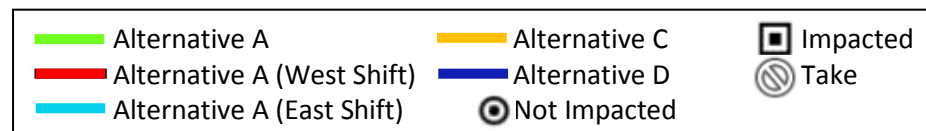
Alternative C – Areas 5 & 7

Project:	Pellissippi Parkway Extension
Noise Analysis Area:	7
Description:	Residences on Saratoga Drive, the south side of Wildwood Road and East Brown School Road.
Background Sound Level	40

ALTERNATIVE C

Receiver	Number of Residences	Existing Sound Level (dBA)				Design Year No-Build Sound Level (dBA)				Design Year Build Sound Level (dBA)				Sound Level Increase (dB)		Approach or Exceed NAC?	Substantial Increase?	Impacted?	Impacted Residences	
		AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	PM					
3042 Wildwood Rd	1	41	43	41	44	48	48	48	49	63	63	63	63	20	19	No	Yes	Yes	1	
3045 Wildwood Rd	1	55	55	55	55	62	62	63	63	63	63	64	64	8	9	No	No	No	0	
3049 Wildwood Rd (M3)	1	37	42	37	42	42	44	43	45	63	63	64	64	21	22	No	Yes	Yes	1	
115 Saratoga Dr	1	39	43	40	43	46	47	46	47	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a	
141 Saratoga Dr	1	37	42	37	42	42	44	43	44	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a	
1730 E Brown School Rd	1	34	41	34	41	38	42	38	42	56	56	55	55	15	14	No	Yes	Yes	1	
1745 E Brown School Rd	1	34	41	34	41	39	42	39	42	53	53	53	53	12	12	No	No	No	0	
1748 E Brown School Rd	1	34	41	34	41	38	42	38	42	53	54	53	53	13	12	No	No	No	0	
1751 E Brown School Rd	1	34	41	34	41	38	42	38	42	53	53	53	53	12	12	No	No	No	0	
1756 E Brown School Rd	1	34	41	34	41	38	42	38	42	55	55	54	54	14	13	No	No	No	0	
1763 E Brown School Rd	1	34	41	34	41	38	42	38	42	56	56	56	56	15	15	No	Yes	Yes	1	
1772 E Brown School Rd	1	35	41	34	41	38	42	38	42	59	59	58	58	18	17	No	Yes	Yes	1	
1780 E Brown School Rd	1	35	41	34	41	39	42	39	42	66	66	66	66	25	25	Yes	Yes	Yes	1	
1785 E Brown School Rd (M5)	1	36	41	36	41	41	44	42	44	67	67	67	67	26	26	Yes	Yes	Yes	1	
																		Impacted Residences Category C Impacts		7
																		Total Impacts		7

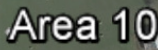
ALTERNATIVE C																				
Receiver	Number of Residences	Existing Sound Level (dBA)				Design Year No-Build Sound Level (dBA)				Design Year Build Sound Level (dBA)				Sound Level Increase (dB)		Approach or Exceed NAC?	Substantial Increase?	Impacted?	Impacted Residences	
		AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	PM					
3042 Wildwood Rd	1	41	43	41	44	48	48	48	49	62	62	63	63	19	19	No	Yes	Yes	1	
3045 Wildwood Rd	1	55	55	55	55	62	62	63	63	63	63	64	64	8	9	No	No	No	0	
3049 Wildwood Rd (M3)	1	37	42	37	42	42	44	43	45	63	63	64	64	21	22	No	Yes	Yes	1	
115 Saratoga Dr	1	39	43	40	43	46	47	46	47	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a	
141 Saratoga Dr	1	37	42	37	42	42	44	43	44	n/a	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a	
1730 E Brown School Rd	1	34	41	34	41	38	42	38	42	55	55	54	54	14	13	No	No	No	0	
1745 E Brown School Rd	1	34	41	34	41	39	42	39	42	54	54	54	54	13	13	No	No	No	0	
1748 E Brown School Rd	1	34	41	34	41	38	42	38	42	53	53	53	53	12	12	No	No	No	0	
1751 E Brown School Rd	1	34	41	34	41	38	42	38	42	54	54	54	54	13	13	No	No	No	0	
1756 E Brown School Rd	1	34	41	34	41	38	42	38	42	54	54	54	54	13	13	No	No	No	0	
1763 E Brown School Rd	1	34	41	34	41	38	42	38	42	56	56	56	56	15	15	No	Yes	Yes	1	
1772 E Brown School Rd	1	35	41	34	41	38	42	38	42	56	56	56	56	15	15	No	Yes	Yes	1	
1780 E Brown School Rd	1	35	41	34	41	39	42	39	42	57	57	57	57	16	16	No	Yes	Yes	1	
1785 E Brown School Rd (M5)	1	36	41	36	41	41	44	42	44	67	67	68	68	26	26	Yes	Yes	Yes	1	
																	Impacted Residences		6	
																	Category C Impacts		0	
																	Total Impacts		6	



Alternative A – Areas 8 & 9

Project:	Pellissippi Parkway Extension
Noise Analysis Area:	8
Description:	Residences on Sevierville Road (SR 35).
Background Sound Level	40

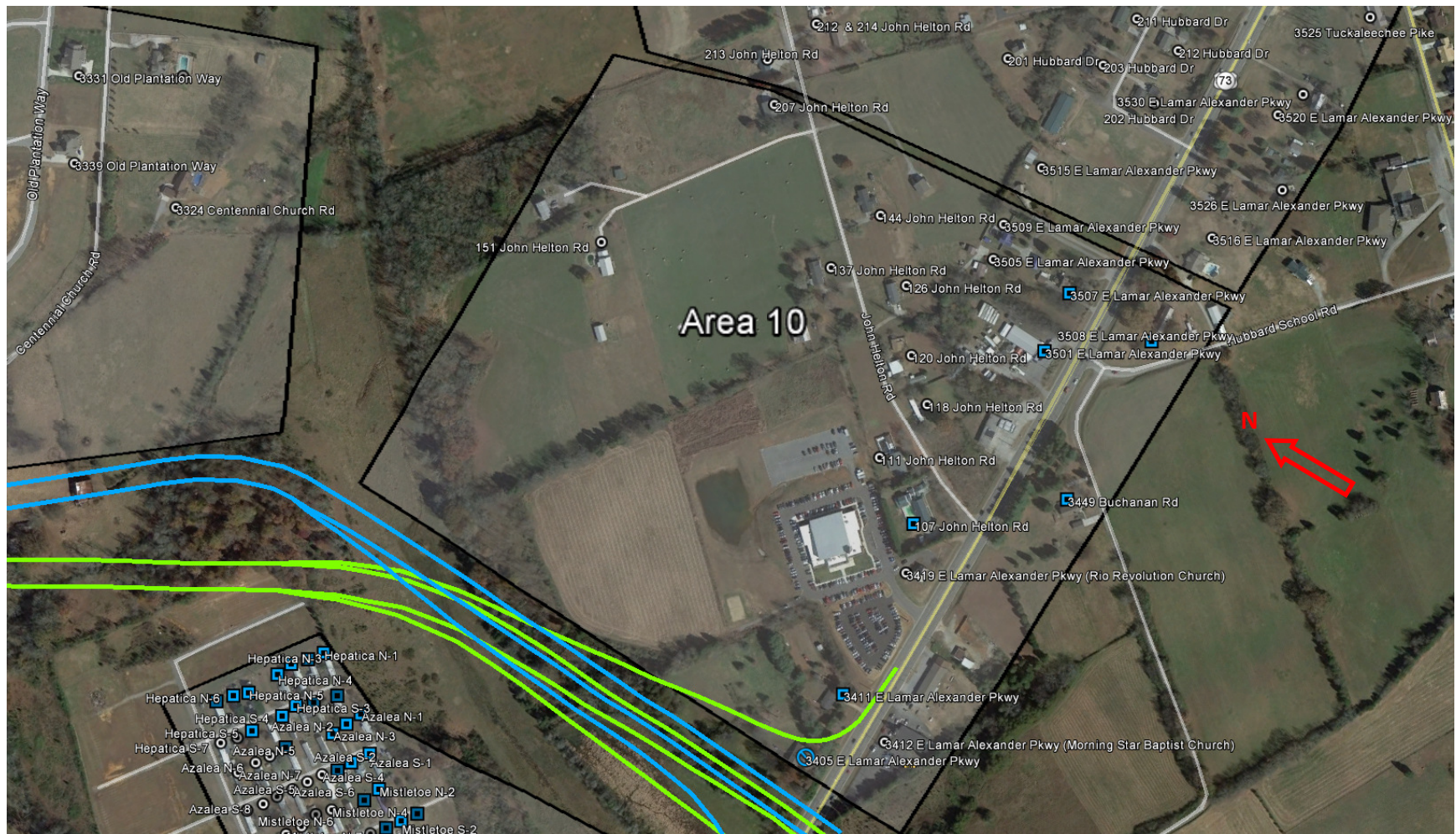
ALTERNATIVE A																			
Receiver	Number of Residences	Existing Sound Level (dBA)				Design Year No-Build Sound Level (dBA)				Design Year Build Sound Level (dBA)				Sound Level Increase (dB)		Approach or Exceed NAC?	Substantial Increase?	Impacted?	Impacted Residences
		AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	PM				
3048 Sevierville Rd	1	61	61	62	62	64	64	64	64	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
3105 Sevierville Rd	1	63	63	64	64	66	66	67	67	72	72	71	71	9	7	Yes	No	Yes	1
3115 Sevierville Rd (M10)	1	64	64	65	65	67	67	68	68	72	72	71	71	8	6	Yes	No	Yes	1
																		Impacted Residences	
																		Category C Impacts	
																		Total Impacts	
																		2	
																		0	
																		2	



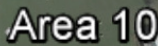
Alternative A – Area 10

Project:	Pellissippi Parkway Extension
Noise Analysis Area:	10
Description:	Residences and the Morning Star Baptist Church on Lamar Alexander Parkway.
Background Sound Level	40

ALTERNATIVE A																			
Receiver	Number of Residences	Existing Sound Level (dBA)				Design Year No-Build Sound Level (dBA)				Design Year Build Sound Level (dBA)				Sound Level Increase (dB)		Approach or Exceed NAC?	Substantial Increase?	Impacted?	Impacted Residences
		AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	PM				
3405 E Lamar Alexander Pkwy	1	67	67	66	66	70	70	69	69	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
3411 E Lamar Alexander Pkwy	1	67	67	66	66	70	70	69	69	70	70	69	69	3	3	Yes	No	Yes	1
3412 E Lamar Alexander Pkwy (Morning Star Baptist Church)	0	45	45	45	45	48	48	47	47	49	49	49	49	4	4	No	No	No	0
3419 E Lamar Alexander Pkwy (Rio Revolution Church)	0	41	41	40	40	44	44	43	43	45	45	44	44	4	4	No	No	No	0
3501 E Lamar Alexander Pkwy	1	68	68	67	67	71	71	70	70	71	71	71	71	3	4	Yes	No	Yes	1
3505 E Lamar Alexander Pkwy	1	55	55	54	54	58	58	57	57	58	58	59	59	3	5	No	No	No	0
3507 E Lamar Alexander Pkwy	1	67	67	66	66	70	70	69	69	70	70	70	70	3	4	Yes	No	Yes	1
3508 E Lamar Alexander Pkwy	1	64	64	64	64	67	67	66	66	68	68	68	68	4	4	Yes	No	Yes	1
3509 E Lamar Alexander Pkwy	1	55	55	54	54	57	57	57	57	58	58	58	58	3	4	No	No	No	0
3449 Buchanan Rd	1	64	64	63	63	67	67	66	66	67	67	67	67	3	4	Yes	No	Yes	1
107 John Helton Rd	1	63	63	62	62	65	65	65	65	66	66	66	66	3	4	Yes	No	Yes	1
111 John Helton Rd	1	55	55	54	54	58	58	57	57	59	59	59	59	4	5	No	No	No	0
118 John Helton Rd	1	56	56	55	55	59	59	58	58	60	60	60	60	4	5	No	No	No	0
120 John Helton Rd	1	53	53	52	53	56	56	55	55	57	57	57	57	4	4	No	No	No	0
126 John Helton Rd	1	51	51	50	50	54	54	53	53	55	55	55	55	4	5	No	No	No	0
144 John Helton Rd	1	48	49	47	48	51	51	50	51	53	53	52	53	4	5	No	No	No	0
137 John Helton Rd	1	48	48	47	48	51	51	50	50	52	53	52	52	5	4	No	No	No	0
151 John Helton Rd	1	44	45	43	45	46	47	46	47	50	51	50	50	6	5	No	No	No	0
207 John Helton Rd	1	44	46	43	45	47	48	46	47	49	50	49	49	4	4	No	No	No	0
																	Impacted Residences	6	
																	Category C Impacts	0	
																	Total Impacts	6	

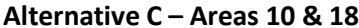


Alternative A (East Shift) – Area 10



Project:	Pellissippi Parkway Extension
Noise Analysis Area:	10
Description:	Residences and the Morning Star Baptist Church on Lamar Alexander Parkway.
Background Sound Level	40

ALTERNATIVE A (West Shift)																			
	Number of Residences	Existing Sound Level (dBA)				Design Year No-Build Sound Level (dBA)				Design Year Build Sound Level (dBA)				Sound Level Increase (dB)		Approach or Exceed NAC?	Substantial Increase?	Impacted?	Impacted Residences
		AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	PM				
3405 E Lamar Alexander Pkwy	1	67	67	66	66	70	70	69	69	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
3411 E Lamar Alexander Pkwy	1	67	67	66	66	70	70	69	69	71	71	71	71	4	5	Yes	No	Yes	1
3412 E Lamar Alexander Pkwy (Morning Star Baptist Church)	0	45	45	45	45	48	48	47	47	47	47	48	48	2	3	No	No	No	0
3419 E Lamar Alexander Pkwy (Rio Revolution Church)	0	41	41	40	40	44	44	43	43	44	44	44	44	3	4	No	No	No	0
3501 E Lamar Alexander Pkwy	1	68	68	67	67	71	71	70	70	71	71	71	71	3	4	Yes	No	Yes	1
3505 E Lamar Alexander Pkwy	1	55	55	54	54	58	58	57	57	60	60	61	61	5	7	No	No	No	0
3507 E Lamar Alexander Pkwy	1	67	67	66	66	70	70	69	69	70	70	70	70	3	4	Yes	No	Yes	1
3508 E Lamar Alexander Pkwy	1	64	64	64	64	67	67	66	66	66	66	66	66	2	2	Yes	No	Yes	1
3509 E Lamar Alexander Pkwy	1	55	55	54	54	57	57	57	57	59	59	61	61	4	7	No	No	No	0
3449 Buchanan Rd	1	64	64	63	63	67	67	66	66	66	66	66	66	2	3	Yes	No	Yes	1
107 John Helton Rd	1	63	63	62	62	65	65	65	65	66	66	66	66	3	4	Yes	No	Yes	1
111 John Helton Rd	1	55	55	54	54	58	58	57	57	59	59	61	61	4	7	No	No	No	0
118 John Helton Rd	1	56	56	55	55	59	59	58	58	60	60	61	61	4	6	No	No	No	0
120 John Helton Rd	1	53	53	52	53	56	56	55	55	58	58	59	59	5	6	No	No	No	0
126 John Helton Rd	1	51	51	50	50	54	54	53	53	55	55	57	57	4	7	No	No	No	0
144 John Helton Rd	1	48	49	47	48	51	51	50	51	53	53	54	54	4	6	No	No	No	0
137 John Helton Rd	1	48	48	47	48	51	51	50	50	52	53	53	53	5	5	No	No	No	0
151 John Helton Rd	1	44	45	43	45	46	47	46	47	48	49	48	48	4	3	No	No	No	0
207 John Helton Rd	1	44	46	43	45	47	48	46	47	49	49	49	50	3	5	No	No	No	0
																	Impacted Residences	6	
																	Category C Impacts	0	
																	Total Impacts	6	



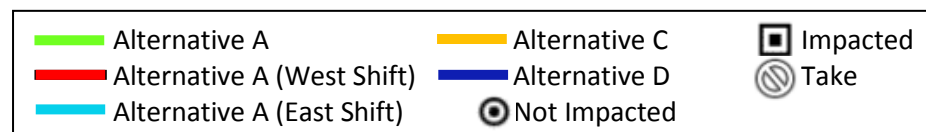
Alternative C – Areas 10 & 18

Project:	Pellissippi Parkway Extension
Noise Analysis Area:	10
Description:	Residences and the Morning Star Baptist Church on Lamar Alexander Parkway.
Background Sound Level	40

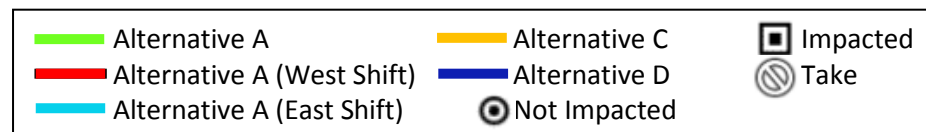
ALTERNATIVE C																			
Receiver	Number of Residences	Existing Sound Level (dBA)				Design Year No-Build Sound Level (dBA)				Design Year Build Sound Level (dBA)				Sound Level Increase (dB)		Approach or Exceed NAC?	Substantial Increase?	Impacted?	Impacted Residences
		AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	PM				
3405 E Lamar Alexander Pkwy	1	67	67	66	66	70	70	69	69	70	70	70	70	3	4	Yes	No	Yes	1
3411 E Lamar Alexander Pkwy	1	67	67	66	66	70	70	69	69	70	70	70	70	3	4	Yes	No	Yes	1
3412 E Lamar Alexander Pkwy (Morning Star Baptist Church)	0	45	45	45	45	48	48	47	47	48	48	48	48	3	3	No	No	No	0
3419 E Lamar Alexander Pkwy (Rio Revolution Church)	0	41	41	40	40	44	44	43	43	44	44	44	44	3	4	No	No	No	0
3501 E Lamar Alexander Pkwy	1	68	68	67	67	71	71	70	70	71	71	72	72	3	5	Yes	No	Yes	1
3505 E Lamar Alexander Pkwy	1	55	55	54	54	58	58	57	57	66	66	67	67	11	13	Yes	Yes	Yes	1
3507 E Lamar Alexander Pkwy	1	67	67	66	66	70	70	69	69	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
3508 E Lamar Alexander Pkwy	1	64	64	64	64	67	67	66	66	67	67	68	68	3	4	Yes	No	Yes	1
3509 E Lamar Alexander Pkwy	1	55	55	54	54	57	57	57	57	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
3449 Buchanan Rd	1	64	64	63	63	67	67	66	66	67	67	67	67	3	4	Yes	No	Yes	1
107 John Helton Rd	1	63	63	62	62	65	65	65	65	65	65	66	66	2	4	Yes	No	Yes	1
111 John Helton Rd	1	55	55	54	54	58	58	57	57	58	58	58	58	3	4	No	No	No	0
118 John Helton Rd	1	56	56	55	55	59	59	58	58	59	59	60	60	3	5	No	No	No	0
120 John Helton Rd	1	53	53	52	53	56	56	55	55	58	58	59	59	5	6	No	No	No	0
126 John Helton Rd	1	51	51	50	50	54	54	53	53	60	60	61	61	9	11	No	Yes	Yes	1
144 John Helton Rd	1	48	49	47	48	51	51	50	51	64	64	65	65	15	17	No	Yes	Yes	1
137 John Helton Rd	1	48	48	47	48	51	51	50	50	58	58	58	58	10	10	No	Yes	Yes	1
151 John Helton Rd	1	44	45	43	45	46	47	46	47	55	55	54	54	10	9	No	No	No	0
207 John Helton Rd	1	44	46	43	45	47	48	46	47	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
																	Impacted Residences	10	
																	Category C Impacts	0	
																	Total Impacts	10	



Alternative D – Area 11



Alternative D – Area 11 (cont'd)



Alternative D – Area 12

Project:	Pellissippi Parkway Extension
Noise Analysis Area:	12
Description:	Residences on Wildwood Road, Peppermint Road, and Peppermint Hills Drive and the Mt. Lebanon Baptist Church baseball field and playground.
Background Sound Level	40

ALTERNATIVE D																			
Receiver	Number of Residences	Existing Sound Level (dBA)				Design Year No-Build Sound Level (dBA)				Design Year Build Sound Level (dBA)				Sound Level Increase (dB)		Approach or Exceed NAC?	Substantial Increase?	Impacted?	Impacted Residences
		AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	PM				
3602 Wildwood Road	1	58	58	58	58	63	63	63	63	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
3610 Wildwood Road	1	60	60	60	60	66	66	67	67	68	68	68	68	8	8	Yes	No	Yes	1
3616 Wildwood Road	1	59	59	59	59	65	65	65	65	66	66	66	66	7	7	Yes	No	Yes	1
Mt Lebanon Baptist Church Baseball Field	0	47	48	46	47	52	52	52	52	60	60	60	60	12	13	No	Yes	Yes	0
Mt Lebanon Baptist Church Playground	0	45	46	44	46	50	50	50	50	60	60	60	60	14	14	No	Yes	Yes	0
1720 Peppermint Rd	1	51	51	50	50	55	55	54	55	54	54	54	54	3	4	No	No	No	0
1703 Peppermint Road	1	57	57	56	56	61	61	60	60	55	55	55	55	-2	-1	No	No	No	0
1641 Peppermint Road	1	63	63	62	62	66	66	66	66	57	57	57	57	-6	-5	No	No	No	0
1639 Peppermint Road	1	61	61	60	60	64	64	64	64	55	55	56	55	-5	-4	No	No	No	0
1635 Peppermint Road	1	61	61	60	60	65	65	64	64	56	56	56	56	-5	-4	No	No	No	0
1629 Peppermint Road	1	61	61	60	60	64	64	64	64	56	56	56	56	-5	-4	No	No	No	0
1625 Peppermint Road	1	61	61	60	60	65	65	64	64	57	57	57	57	-4	-3	No	No	No	0
1621 Peppermint Road	1	62	62	61	61	66	66	65	65	58	58	58	58	-4	-3	No	No	No	0
1613-1615 Peppermint Road	2	62	62	61	61	65	65	65	65	58	58	58	58	-4	-3	No	No	No	0
1608 Peppermint Road	1	51	52	50	51	55	55	54	55	67	67	67	67	15	16	Yes	Yes	Yes	1
1607 Peppermint Road	1	52	53	51	51	56	56	55	55	58	58	58	58	5	7	No	No	No	0
1551 Peppermint Road	1	52	52	51	51	55	55	55	55	60	60	60	60	8	9	No	No	No	0
1544 Peppermint Road	1	52	52	50	51	55	55	55	55	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
1541 Peppermint Road	1	54	54	53	53	57	57	57	57	63	63	63	63	9	10	No	Yes	Yes	1
1534 Peppermint Road	1	54	54	52	53	57	57	57	57	67	67	67	67	13	14	Yes	Yes	Yes	1
1529 Peppermint Road	1	53	53	52	52	56	56	56	56	67	67	67	67	14	15	Yes	Yes	Yes	1
1514 Peppermint Road	1	54	54	53	53	57	57	57	57	62	62	62	62	8	9	No	No	No	0
3401 Peppermint Hills Dr	1	55	55	54	54	59	59	58	58	69	69	69	69	14	15	Yes	Yes	Yes	1
3402 Peppermint Hills Dr	1	53	53	52	52	56	56	56	56	67	67	67	67	14	15	Yes	Yes	Yes	1
3403 Peppermint Hills Dr	1	46	47	45	46	49	49	49	49	59	59	59	59	12	13	No	Yes	Yes	1
																	Impacted Residences		9
																	Category C Impacts		2
																	Total Impacts		11



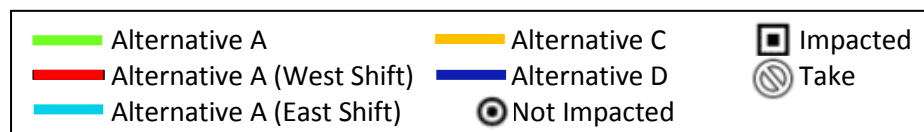
Alternative D – Areas 13 & 14

Project:	Pellissippi Parkway Extension
Noise Analysis Area:	13
Description:	Residences on Peppermint Road, Peppermint Hills Drive, and Sevierville Road.
Background Sound Level	40

ALTERNATIVE D																				
Receiver	Number of Residences	Existing Sound Level (dBA)				Design Year No-Build Sound Level (dBA)				Design Year Build Sound Level (dBA)				Sound Level Increase (dB)		Approach or Exceed NAC?	Substantial Increase?	Impacted?	Impacted Residences	
		AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	PM					
1509 Peppermint Road	1	48	49	47	48	52	52	51	52	63	63	63	63	14	15	No	Yes	Yes	1	
1466 Peppermint Road	1	57	57	56	56	61	61	60	60	70	70	70	70	13	14	Yes	Yes	Yes	1	
1462 Peppermint Road	1	58	58	57	57	61	61	61	61	70	70	70	70	12	13	Yes	Yes	Yes	1	
1456 Peppermint Road	1	55	55	54	54	58	58	58	58	70	70	70	70	15	16	Yes	Yes	Yes	1	
1452 Peppermint Road	1	56	56	55	55	59	59	59	59	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a	
1448 Peppermint Road	1	56	56	54	55	59	59	59	59	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a	
1436 Peppermint Road	1	53	53	52	52	56	56	56	56	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a	
1434 Peppermint Road	1	49	49	48	49	52	52	52	52	66	66	66	66	17	17	Yes	Yes	Yes	1	
1428 Peppermint Road	1	52	52	51	52	55	55	55	55	60	60	60	60	8	8	No	No	No	0	
1422 Peppermint Road	1	53	54	53	53	57	57	56	56	59	59	59	59	5	6	No	No	No	0	
1418 Peppermint Road	1	55	55	54	54	58	58	58	58	58	58	58	58	3	4	No	No	No	0	
3401 Peppermint Hills Dr	1	46	47	45	46	49	50	49	50	62	62	62	62	15	16	No	Yes	Yes	1	
3550 Peppermint Hills Dr	1	46	47	45	46	49	50	49	49	63	63	63	63	16	17	No	Yes	Yes	1	
3558 Peppermint Hills Dr	1	47	48	46	47	50	50	50	50	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a	
3559 Peppermint Hills Dr	1	52	52	52	52	54	54	55	55	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a	
3562 Peppermint Hills Dr	1	49	50	49	50	52	52	52	52	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a	
3317 Sevierville Road	1	59	59	59	59	62	62	62	62	62	62	62	62	3	3	No	No	No	0	
3405 Sevierville Road	1	58	58	58	58	61	61	61	61	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a	
3415 Sevierville Road	1	62	62	62	62	65	65	65	65	65	65	66	66	3	4	Yes	No	Yes	1	
																	Impacted Residences		8	
																	Category C Impacts		0	
																	Total Impacts		8	

Project:	Pellissippi Parkway Extension
Noise Analysis Area:	14
Description:	Residences on Hitch Road, Scarlet Drive, and Sevierville Road.
Background Sound Level	40

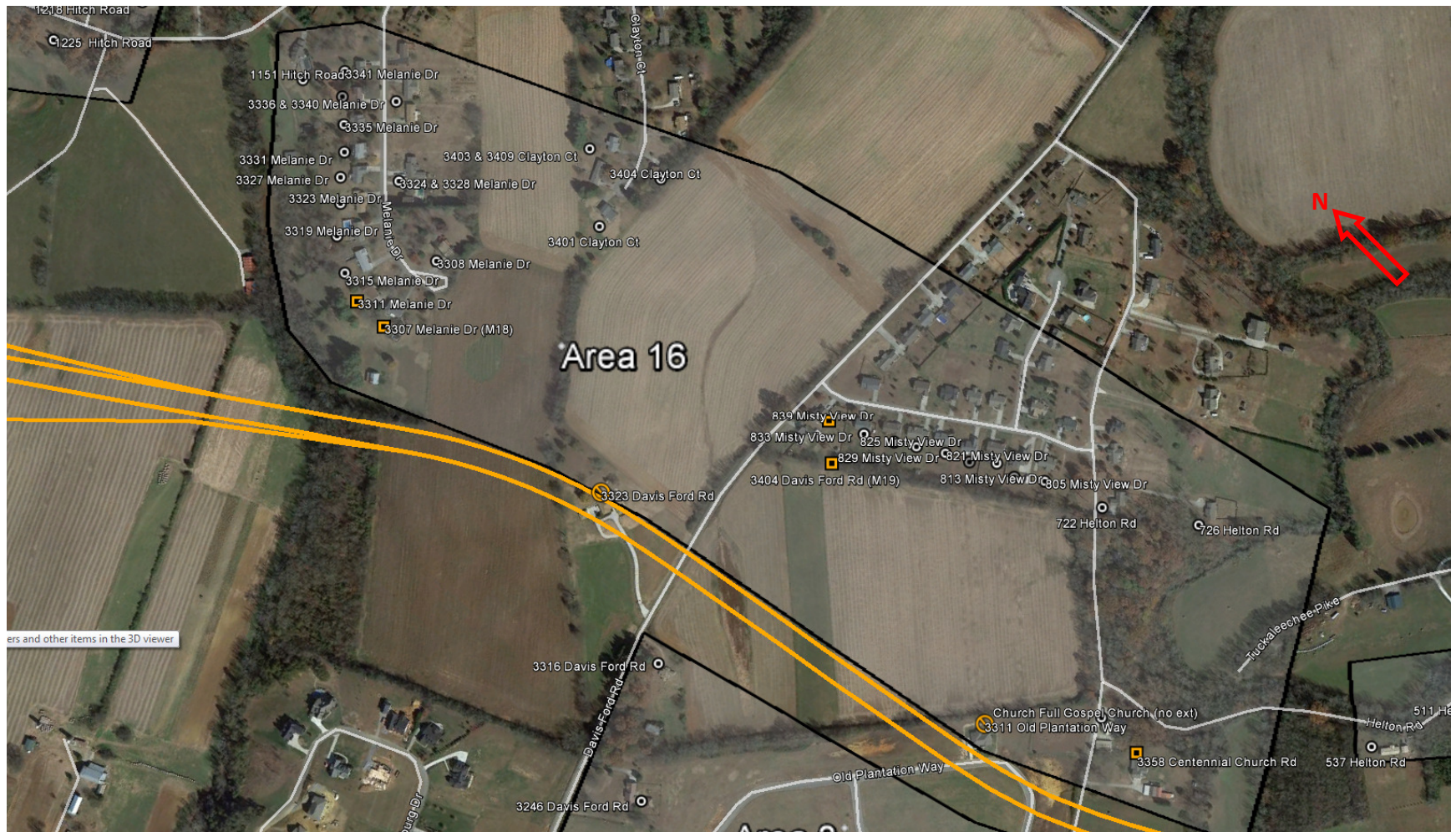
ALTERNATIVE D																			
Receiver	Number of Residences	Existing Sound Level (dBA)				Design Year No-Build Sound Level (dBA)				Design Year Build Sound Level (dBA)				Sound Level Increase (dB)		Approach or Exceed NAC?	Substantial Increase?	Impacted?	Impacted Residences
		AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	PM				
3324 Sevierville Road	1	63	63	63	63	65	65	65	65	67	67	67	67	4	4	Yes	No	Yes	1
3404 Sevierville Road	1	56	56	55	55	58	58	58	58	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
3414 Sevierville Road	1	53	53	53	53	56	56	56	56	61	61	61	61	8	8	No	No	No	0
3324 Scarlet Dr	1	50	50	48	49	52	52	51	51	65	65	65	65	15	16	No	Yes	Yes	1
3325 Scarlet Dr	1	52	52	52	52	55	55	55	55	63	63	63	63	11	11	No	Yes	Yes	1
3328 Scarlet Dr	1	57	57	55	55	59	59	58	58	73	73	73	73	16	18	Yes	Yes	Yes	1
3329 Scarlet Dr	1	56	56	55	55	58	58	57	57	70	70	70	70	14	15	Yes	Yes	Yes	1
1330 Hitch Road	1	54	54	53	53	56	56	55	56	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
1322 Hitch Road	1	54	54	52	52	56	56	55	55	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
1318 Hitch Road	1	56	56	53	53	57	57	56	56	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
1310 Hitch Road	1	55	55	52	53	57	57	55	55	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
1304 Hitch Road	1	50	51	48	49	52	52	51	51	66	66	66	66	15	17	Yes	Yes	Yes	1
1238 Hitch Road	1	46	47	44	45	48	48	47	48	62	62	62	62	15	17	No	Yes	Yes	1
1224 Hitch Road	1	46	47	44	45	48	48	47	48	61	61	61	61	14	16	No	Yes	Yes	1
1218 Hitch Road	1	49	50	47	47	51	51	50	50	61	61	61	61	11	14	No	Yes	Yes	1
1225 Hitch Road (2nd Residence in Area 15)	1	52	52	50	50	54	54	52	53	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
																	Impacted Residences		
																	Category C Impacts		
																	Total Impacts		
																	9		
																	0		
																	9		



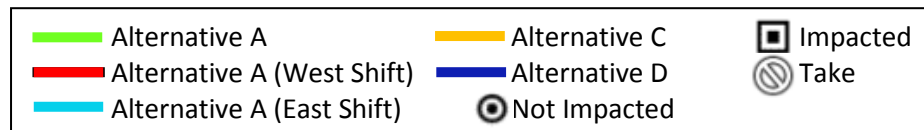
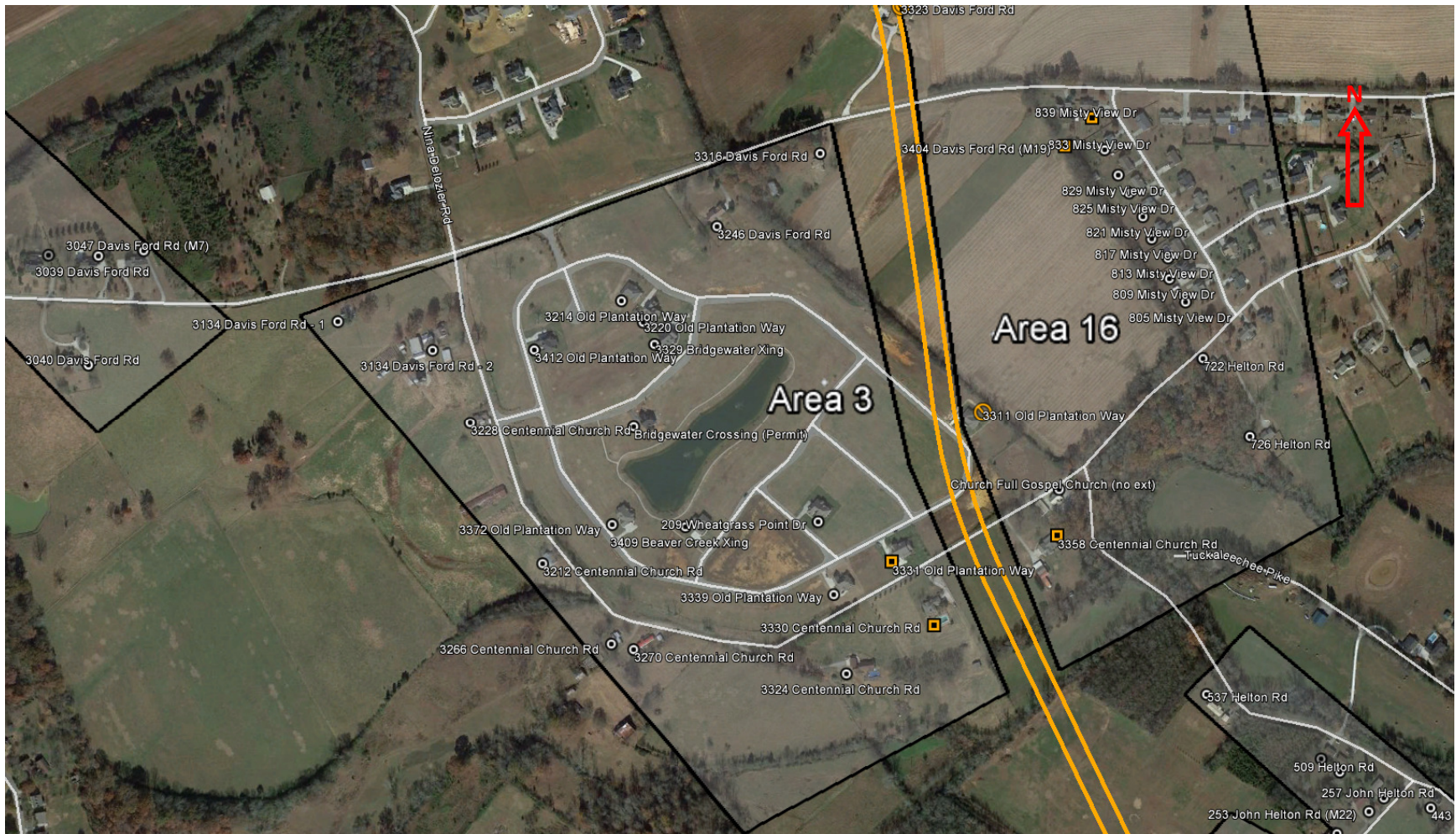
Alternative C – Area 15

Project:	Pellissippi Parkway Extension
Noise Analysis Area:	15
Description:	Residences Sevierville Road and Butler Road.
Background Sound Level	40

ALTERNATIVE C																			
Receiver	Number of Residences	Existing Sound Level (dBA)				Design Year No-Build Sound Level (dBA)				Design Year Build Sound Level (dBA)				Sound Level Increase (dB)		Approach or Exceed NAC?	Substantial Increase?	Impacted?	Impacted Residences
		AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	PM				
3230 Sevierville Rd	1	47	47	47	48	49	50	50	50	57	57	58	58	10	10	No	Yes	Yes	1
3238 Sevierville Rd	1	50	50	50	51	53	53	53	53	61	61	62	62	11	11	No	Yes	Yes	1
3240 Sevierville Rd	1	44	45	44	46	47	47	47	48	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
3242 Sevierville Rd	1	46	47	46	47	48	49	49	49	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
3246 Sevierville Rd	1	54	54	55	55	57	57	57	57	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
3250 Sevierville Rd	1	53	53	54	54	56	56	57	57	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
3256 Sevierville Rd	1	53	53	54	54	56	56	57	57	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
3262 Sevierville Rd	1	55	55	56	56	58	58	58	58	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
3264 Sevierville Rd	1	44	45	44	45	46	47	47	47	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
3268 Sevierville Rd	1	59	59	60	60	62	62	62	62	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
3267 Sevierville Rd	1	57	57	58	58	60	60	60	60	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
1264 Butler Rd	1	60	60	60	60	63	63	63	63	68	68	67	67	8	7	Yes	No	Yes	1
1259 Butler Rd	1	51	51	51	51	53	53	54	54	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
1249 Butler Rd	1	45	47	46	47	48	49	49	49	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
1243 Butler Rd	1	44	45	44	45	46	47	47	48	68	68	67	67	23	22	Yes	Yes	Yes	1
3302 Butler Rd	1	45	46	45	46	48	48	48	49	65	65	64	64	19	18	No	Yes	Yes	1
3301 Scarlet Dr	1	49	49	49	49	51	52	52	52	65	65	63	63	16	14	No	Yes	Yes	1
1225 Hitch Rd (M17)	1	42	44	42	44	45	46	45	46	68	68	67	67	24	23	Yes	Yes	Yes	1
																		Impacted Residences	
																		Category C Impacts	
																		Total Impacts	
																		7	
																		0	
																		7	



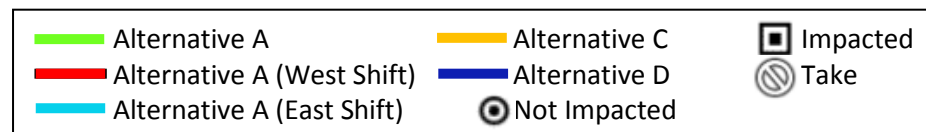
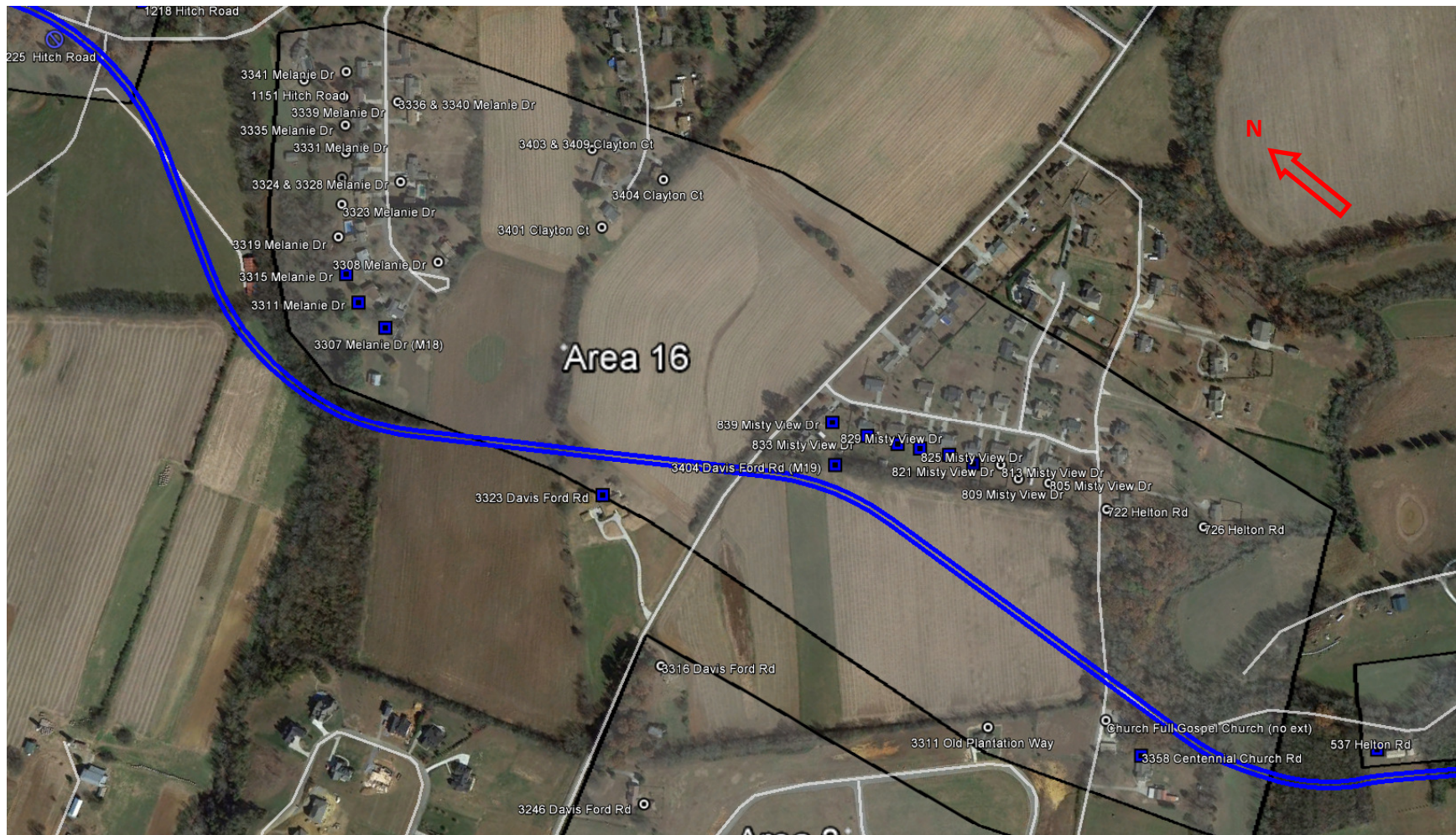
Alternative C – Area 16



Alternative C – Area 3 (and southern end of Area 16)

Project:	Pellissippi Parkway Extension
Noise Analysis Area:	16
Description:	Residences on Melanie Drive, Davis Ford Road, Clayton Court, Misty View Drive and Helton Road and the Full Gospel Church.
Background Sound Level	40

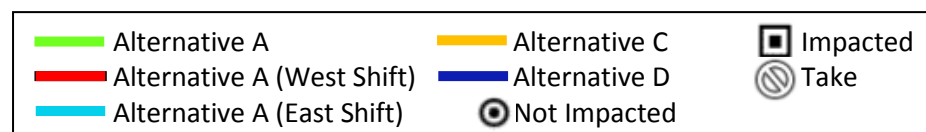
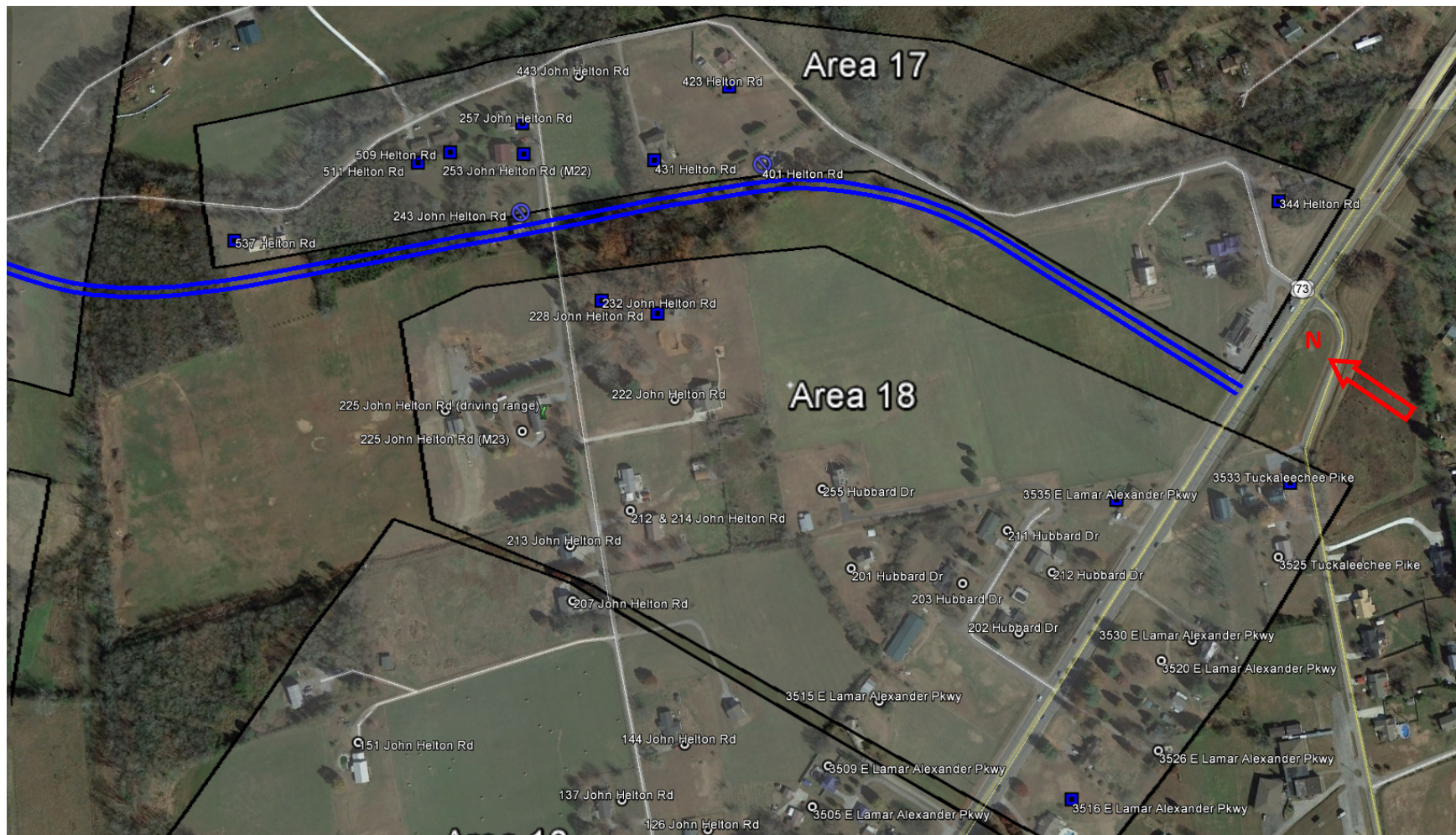
ALTERNATIVE C																			
Receiver	Number of Residences	Existing Sound Level (dBA)				Design Year No-Build Sound Level (dBA)				Design Year Build Sound Level (dBA)				Sound Level Increase (dB)		Approach or Exceed NAC?	Substantial Increase?	Impacted?	Impacted Residences
		AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	PM				
1151 Hitch Road	1	44	45	41	43	45	46	44	46	49	49	49	50	4	7	No	No	No	0
3307 Melanie Dr (M18)	1	36	41	35	41	39	42	39	42	59	59	58	58	18	17	No	Yes	Yes	1
3308 Melanie Dr	1	37	42	36	41	39	43	39	42	55	55	54	54	13	13	No	No	No	0
3311 Melanie Dr	1	37	42	36	41	39	43	39	43	57	57	57	57	15	16	No	Yes	Yes	1
3315 Melanie Dr	1	37	42	36	41	39	43	39	43	55	56	55	55	14	14	No	No	No	0
3319 Melanie Dr	1	36	41	35	41	38	42	38	42	53	53	54	54	12	13	No	No	No	0
3323 Melanie Dr	1	36	42	35	41	39	42	39	42	52	52	53	53	10	12	No	No	No	0
3324 & 3328 Melanie Dr	2	37	42	36	41	40	43	39	43	52	52	52	52	10	11	No	No	No	0
3327 Melanie Dr	1	37	42	36	41	39	43	39	42	51	51	52	52	9	11	No	No	No	0
3331 Melanie Dr	1	38	42	36	42	40	43	40	43	50	50	51	51	8	9	No	No	No	0
3335 Melanie Dr	1	39	42	37	42	41	43	40	43	49	49	49	50	7	8	No	No	No	0
3336 & 3340 Melanie Dr	2	39	42	37	42	41	43	40	43	49	50	50	50	8	8	No	No	No	0
3339 Melanie Dr	1	40	43	38	42	42	44	41	44	49	49	49	50	6	8	No	No	No	0
3341 Melanie Dr	1	42	44	39	43	44	45	43	45	49	50	49	50	6	7	No	No	No	0
3323 Davis Ford Rd	1	38	42	38	42	42	44	41	44	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
3404 Davis Ford Rd (M19)	1	41	44	41	43	45	46	44	46	58	58	58	58	14	15	No	Yes	Yes	1
3401 Clayton Ct	1	36	41	35	41	39	42	38	42	51	51	50	51	10	10	No	No	No	0
3403 & 3409 Clayton Ct	2	35	41	34	41	38	42	37	42	48	48	47	48	7	7	No	No	No	0
3404 Clayton Ct	1	36	41	34	41	38	42	38	42	48	49	48	49	8	8	No	No	No	0
805 Misty View Dr	1	40	43	39	43	43	45	42	44	54	54	54	54	11	11	No	No	No	0
809 Misty View Dr	1	39	43	38	42	42	44	41	44	54	54	54	54	11	12	No	No	No	0
813 Misty View Dr	1	39	42	38	42	42	44	41	44	54	54	54	54	12	12	No	No	No	0
817 Misty View Dr	1	39	42	38	42	42	44	41	44	54	54	54	55	12	13	No	No	No	0
821 Misty View Dr	1	39	43	39	42	42	44	42	44	55	55	55	55	12	13	No	No	No	0
825 Misty View Dr	1	40	43	39	43	43	45	42	44	56	56	56	56	13	13	No	No	No	0
829 Misty View Dr	1	40	43	40	43	44	45	43	45	56	56	56	56	13	13	No	No	No	0
833 Misty View Dr	1	40	43	40	43	44	45	43	45	56	56	56	56	13	13	No	No	No	0
839 Misty View Dr	1	47	48	46	47	51	51	50	51	57	57	57	57	9	10	No	Yes	Yes	1
722 Helton Rd	1	50	50	50	50	52	53	53	53	55	55	56	56	5	6	No	No	No	0
726 Helton Rd	1	38	42	37	42	41	43	40	43	50	51	50	50	9	8	No	No	No	0
3311 Old Plantation Way	1	38	42	37	42	41	44	40	43	Take	Take	Take	Take	Take	Take	n/a	n/a	n/a	n/a
Church Full Gospel Church (no ext)	0	26	26	26	26	27	27	26	26	35	35	34	34	9	8	No	No	No	0
3358 Centennial Church Rd	1	43	45	41	43	45	47	43	45	62	62	62	62	17	19	No	Yes	Yes	1
																		Impacted Residences	
																		Category C Impacts	
																		Total Impacts	



Alternative D – Area 16

Project:	Pellissippi Parkway Extension
Noise Analysis Area:	16
Description:	Residences on Melanie Drive, Davis Ford Road, Clayton Court, Misty View Drive and Helton Road and the Full Gospel Church.
Background Sound Level	40

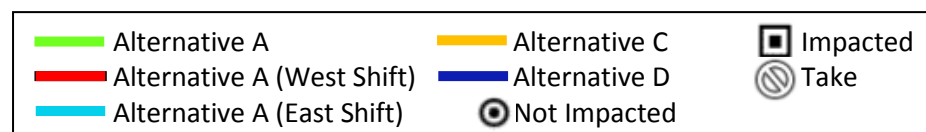
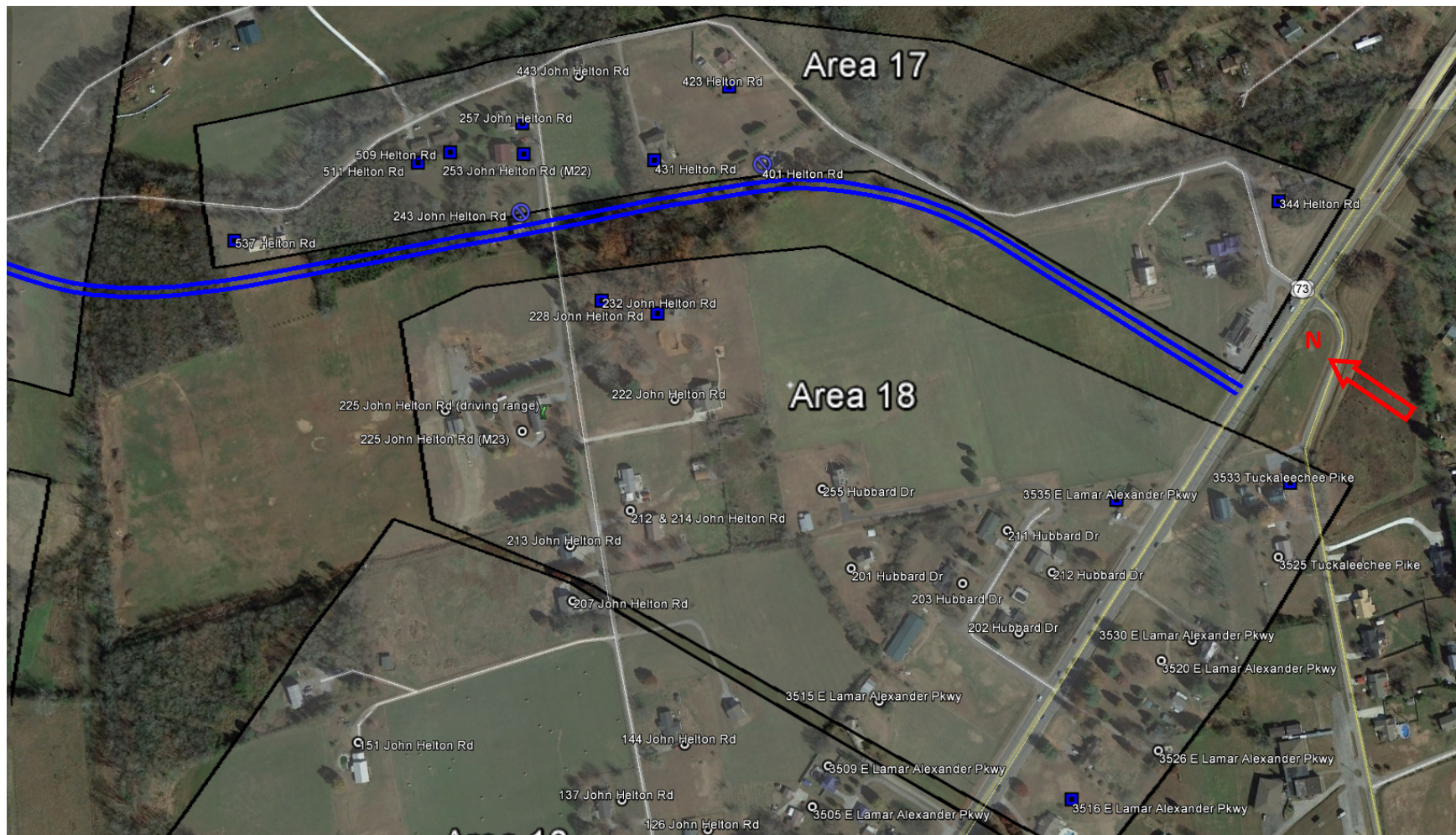
ALTERNATIVE D																			
Receiver	Number of Residences	Existing Sound Level (dBA)				Design Year No-Build Sound Level (dBA)				Design Year Build Sound Level (dBA)				Sound Level Increase (dB)		Approach or Exceed NAC?	Substantial Increase?	Impacted?	Impacted Residences
		AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	AM with background	PM	PM with background	AM	PM				
1151 Hitch Road	1	44	45	41	43	45	46	44	46	50	50	50	50	5	7	No	No	No	0
3307 Melanie Dr (M18)	1	36	41	35	41	39	42	39	42	57	57	57	57	16	16	No	Yes	Yes	1
3308 Melanie Dr	1	37	42	36	41	39	43	39	42	52	52	52	52	10	11	No	No	No	0
3311 Melanie Dr	1	37	42	36	41	39	43	39	43	58	58	58	58	16	17	No	Yes	Yes	1
3315 Melanie Dr	1	37	42	36	41	39	43	39	43	57	57	57	57	15	16	No	Yes	Yes	1
3319 Melanie Dr	1	36	41	35	41	38	42	38	42	54	55	54	55	14	14	No	No	No	0
3323 Melanie Dr	1	36	42	35	41	39	42	39	42	53	53	53	53	11	12	No	No	No	0
3324 & 3328 Melanie Dr	2	37	42	36	41	40	43	39	43	50	50	50	50	8	9	No	No	No	0
3327 Melanie Dr	1	37	42	36	41	39	43	39	42	52	52	52	52	10	11	No	No	No	0
3331 Melanie Dr	1	38	42	36	42	40	43	40	43	51	51	51	51	9	9	No	No	No	0
3335 Melanie Dr	1	39	42	37	42	41	43	40	43	50	50	50	50	8	8	No	No	No	0
3336 & 3340 Melanie Dr	2	39	42	37	42	41	43	40	43	49	49	49	49	7	7	No	No	No	0
3339 Melanie Dr	1	40	43	38	42	42	44	41	44	50	50	50	50	7	8	No	No	No	0
3341 Melanie Dr	1	42	44	39	43	44	45	43	45	50	51	50	51	7	8	No	No	No	0
3323 Davis Ford Rd	1	38	42	38	42	42	44	41	44	65	65	65	65	23	23	No	Yes	Yes	1
3404 Davis Ford Rd (M19)	1	41	44	41	43	45	46	44	46	69	69	69	69	25	26	Yes	Yes	Yes	1
3401 Clayton Ct	1	36	41	35	41	39	42	38	42	48	49	48	49	8	8	No	No	No	0
3403 & 3409 Clayton Ct	2	35	41	34	41	38	42	37	42	45	46	45	46	5	5	No	No	No	0
3404 Clayton Ct	1	36	41	34	41	38	42	38	42	46	47	46	47	6	6	No	No	No	0
805 Misty View Dr	1	40	43	39	43	43	45	42	44	55	55	55	55	12	12	No	No	No	0
809 Misty View Dr	1	39	43	38	42	42	44	41	44	56	56	56	56	13	14	No	No	No	0
813 Misty View Dr	1	39	42	38	42	42	44	41	44	56	56	55	56	14	14	No	No	No	0
817 Misty View Dr	1	39	42	38	42	42	44	41	44	57	57	57	57	15	15	No	Yes	Yes	1
821 Misty View Dr	1	39	43	39	42	42	44	42	44	58	58	58	58	15	16	No	Yes	Yes	1
825 Misty View Dr	1	40	43	39	43	43	45	42	44	60	60	60	60	17	17	No	Yes	Yes	1
829 Misty View Dr	1	40	43	40	43	44	45	43	45	60	60	60	60	17	17	No	Yes	Yes	1
833 Misty View Dr	1	40	43	40	43	44	45	43	45	60	60	60	60	17	17	No	Yes	Yes	1
839 Misty View Dr	1	47	48	46	47	51	51	50	51	61	61	61	61	13	14	No	Yes	Yes	1
722 Helton Rd	1	50	50	50	50	52	53	53	53	57	57	57	57	7	7	No	No	No	0
726 Helton Rd	1	38	42	37	42	41	43	40	43	50	50	50	50	8	8	No	No	No	0
3311 Old Plantation Way	1	38	42	37	42	41	44	40	43	56	56	56	56	14	14	No	No	No	0
Church Full Gospel Church (no ext)	0	26	40	26	40	27	40	26	40	42	44	41	44	4	4	No	No	No	0
3358 Centennial Church Rd	1	43	45	41	43	45	47	43	45	65	65	65	65	20	22	No	Yes	Yes	1
																	Impacted Residences		12
																	Category C Impacts		0
																	Total Impacts		12



Alternative D – Areas 17 & 18



Alternative C – Areas 10 & 18



Alternative D – Areas 17 & 18

Appendix F
Noise Barrier Design and Reasonableness Analysis

Project: Pellissippi Parkway Extension
Alternative: A
Noise Analysis Area: 1 North
Scenario: Barrier for impated residences at 213, 217 and 219 Jackson Hills Drive (North End)
Background Sound Level (dBA): 40

Receiver	Number of Residences	First Row Impacted?	No Barrier L_{eq} (dBA)		With Barrier L_{eq} (dBA)		IL (dBA)		Benefited?	Number of Benefits	Noise Reduction Design Goal		
			Without Background	With Background	Without Background	With Background	Without Background	With Background			First Row Benefits	Receiving 7 dB?	Number Receiving 7 dB
Jackson Hills Dr & 2932 Old Knoxville	2	No	59	59	59	59	0	0	No	0	0	No	0
208 Jackson Hills Dr	1	No	51	51	48	49	3	3	No	0	0	No	0
210 Jackson Hills Dr	1	No	55	55	52	52	3	3	No	0	0	No	0
213 Jackson Hills Dr (M1)	1	Yes	59	59	52	52	7	7	Yes	1	1	Yes	1
214 Jackson Hills Dr	1	No	54	54	51	52	3	3	No	0	0	No	0
217 Jackson Hills Dr	1	Yes	58	58	51	51	7	7	Yes	1	1	Yes	1
218 Jackson Hills Dr	1	No	54	54	51	51	3	3	No	0	0	No	0
219 Jackson Hills Dr	1	Yes	57	57	51	51	7	6	Yes	1	1	No	0
220 Jackson Hills Dr	1	No	55	55	51	52	3	3	No	0	0	No	0
221 Jackson Hills Dr	1	No	56	56	51	51	5	5	Yes	1	0	No	0
224 Jackson Hills Dr	1	No	55	55	52	53	3	2	No	0	0	No	0
228 Jackson Hills Dr	1	No	55	55	52	52	3	2	No	0	0	No	0
301 Jackson Hills Dr	1	No	56	56	51	52	4	4	No	0	0	No	0
302 Jackson Hills Dr	1	No	56	56	52	52	3	3	No	0	0	No	0
305 Jackson Hills Dr	1	No	55	55	51	52	4	4	No	0	0	No	0
306 Jackson Hills Dr	1	No	55	55	52	52	3	3	No	0	0	No	0
307 Jackson Hills Dr	1	No	54	54	50	51	4	4	No	0	0	No	0
308 Jackson Hills Dr	1	No	52	52	51	51	1	1	No	0	0	No	0
311 Jackson Hills Dr	1	No	54	54	50	50	4	3	No	0	0	No	0
312 Jackson Hills Dr	1	No	53	53	51	51	2	2	No	0	0	No	0
313 Jackson Hills Dr	1	No	53	53	50	51	3	3	No	0	0	No	0
314 Jackson Hills Dr	1	No	52	52	51	51	1	1	No	0	0	No	0
317 Jackson Hills Dr	1	No	52	53	50	50	3	2	No	0	0	No	0
319 Jackson Hills Dr	1	No	52	52	49	50	3	2	No	0	0	No	0
401 Jackson Hills Dr	1	No	51	52	49	50	2	2	No	0	0	No	0
403 Jackson Hills Dr	1	No	51	51	49	50	2	2	No	0	0	No	0
409 Jackson Hills Dr	1	No	51	51	49	49	2	1	No	0	0	No	0
413 Jackson Hills Dr	1	No	50	50	48	49	2	1	No	0	0	No	0
415 Jackson Hills Dr	1	No	49	50	48	49	1	1	No	0	0	No	0
502 Jackson Hills Dr	1	No	49	50	48	49	1	1	No	0	0	No	0
503 Jackson Hills Dr	1	No	49	49	48	48	1	1	No	0	0	No	0
505 Jackson Hills Dr	1	No	49	49	48	49	1	1	No	0	0	No	0
517 Jackson Hills Dr	1	No	49	50	49	49	1	1	No	0	0	No	0
523 Jackson Hills Dr	1	No	51	51	50	51	0	0	No	0	0	No	0
531 Jackson Hills Dr	1	No	54	54	54	54	0	0	No	0	0	No	0
538 Jackson Hills Dr	1	No	52	53	52	52	0	0	No	0	0	No	0
543 Jackson Hills Dr	1	No	56	56	56	56	0	0	No	0	0	No	0
544 Jackson Hills Dr	1	No	53	54	53	53	0	0	No	0	0	No	0
545 Jackson Hills Dr	1	No	58	58	57	57	0	0	No	0	0	No	0
548 Jackson Hills Dr	1	No	58	58	57	57	0	0	No	0	0	No	0
549 Jackson Hills Dr	1	No	59	59	59	59	0	0	No	0	0	No	0
552 Jackson Hills Dr	1	No	57	57	57	57	0	0	No	0	0	No	0
553 Jackson Hills Dr	1	No	70	70	70	70	0	0	No	0	0	No	0
557 Jackson Hills Rd (M2)	1	No	69	69	69	69	0	0	No	0	0	No	0
2930 Old Knoxville Hwy	1	No	59	59	58	58	0	0	No	0	0	No	0
111 October Ln	1	No	55	56	55	55	1	1	No	0	0	No	0
112 October Ln	1	No	55	55	54	54	1	1	No	0	0	No	0
117 October Ln	1	No	55	55	54	54	1	1	No	0	0	No	0
118 October Ln	1	No	54	55	53	54	1	1	No	0	0	No	0
202 Luther Jackson Dr	1	No	55	55	53	53	2	2	No	0	0	No	0
204 Luther Jackson Dr	1	No	53	53	50	51	3	3	No	0	0	No	0
208 Luther Jackson Dr	1	No	52	52	49	50	3	3	No	0	0	No	0
209 Luther Jackson Dr	1	No	51	51	48	49	3	2	No	0	0	No	0
213 Luther Jackson Dr	1	No	52	52	48	49	3	3	No	0	0	No	0
Benefited Residences										4	3		
Non-residential Category B Equivalent Benefits										0			
Total Benefits										4	NRDG 66.7%		

Project: Pellissippi Parkway Extension
Alternative: A
Noise Analysis Area: 1 North
Scenario: Barrier for impated residences at 213, 217 and 219 Jackson Hills Drive (North End)

From	To	Segment Length (ft.)	Wall Type ⁽¹⁾	Barrier Base Elevation (ft) ⁽²⁾	Barrier Top Elevation (ft) ⁽²⁾	Barrier Height (ft)	Barrier Area (sq ft)
point384	point390	100	F (EOP)	872	884	12	1,200
point390	point391	100	F (EOP)	872	886	14	1,400
point391	point392	100	F (EOP)	872	886	14	1,400
point392	point393	100	F (EOP)	872	892	20	2,000
point393	point394	100	F (EOP)	872	892	20	2,000
point394	point395	100	F (EOP)	872	894	22	2,200
point395	point396	100	F (EOP)	872	894	22	2,200
point396	point397	100	F (EOP)	872	894	22	2,200
point397	point398	100	F (EOP)	872	894	22	2,200
point398	point399	100	F (EOP)	872	894	22	2,200
point399	point400	100	F (EOP)	872	894	22	2,200
point400	point401	100	F (EOP)	872	894	22	2,200
point401	point402	100	F (EOP)	872	894	22	2,200
point402	point403	100	F (EOP)	872	894	22	2,200
point403	point404	100	F (EOP)	872	894	22	2,200
point404	point405	100	F (EOP)	872	894	22	2,200
point405	point406	100	F (EOP)	872	894	22	2,200
point406	point407	100	F (EOP)	872	894	22	2,200
point407	point408	100	F (EOP)	873	895	22	2,200
point408	point409	100	F (EOP)	875	897	22	2,200
point409	point410	100	F (EOP)	876	898	22	2,200
point410	point411	100	F (EOP)	878	900	22	2,200
point411	point412	100	F (EOP)	879	901	22	2,200
point412	point413	100	F (EOP)	880	902	22	2,200
point413	point414	100	F (EOP)	882	904	22	2,200
point414	Barrier End	100	F (EOP)	884	900	16	---
Length (ft.):				2,600	Area		52,000
					Average Height		20.0
					Number of Benefited Residences		4
					Area Per Benefited Residence		13,000
					Allowable Area per Benefited Residence		1,900
					Reasonable?		No

(1) F = free standing barrier. EOP = located at edge of pavement; ROW = located at right-of-way; T = located in transition between EOP and ROW.

(2) At beginning station.

Project: Pellissippi Parkway Extension
Alternative: A
Noise Analysis Area: 1 South
Scenario: Barrier for impated residences at 557 and 553 Jackson Hills Drive (South End)
Background Sound Level (dBA): 40

Receiver	Number of Residences	First Row Impacted?	No Barrier L_{eq} (dBA)		With Barrier L_{eq} (dBA)		IL (dBA)		Benefited?	Number of Benefits	Noise Reduction Design Goal		
			Without Background	With Background	Without Background	With Background	Without Background	With Background			First Row Benefits	Receiving 7 dB?	Number Receiving 7 dB
Jackson Hills Dr & 2932 Old Knoxville	2	No	59	59	59	59	0	0	No	0	0	No	0
208 Jackson Hills Dr	1	No	51	51	51	51	0	0	No	0	0	No	0
210 Jackson Hills Dr	1	No	55	55	55	55	0	0	No	0	0	No	0
213 Jackson Hills Dr (M1)	1	No	59	59	59	59	0	0	No	0	0	No	0
214 Jackson Hills Dr	1	No	54	54	54	54	0	0	No	0	0	No	0
217 Jackson Hills Dr	1	No	58	58	58	58	0	0	No	0	0	No	0
218 Jackson Hills Dr	1	No	54	54	54	54	0	0	No	0	0	No	0
219 Jackson Hills Dr	1	No	57	57	57	57	0	0	No	0	0	No	0
220 Jackson Hills Dr	1	No	55	55	55	55	0	0	No	0	0	No	0
221 Jackson Hills Dr	1	No	56	56	56	56	0	0	No	0	0	No	0
224 Jackson Hills Dr	1	No	55	55	55	55	0	0	No	0	0	No	0
228 Jackson Hills Dr	1	No	55	55	55	55	0	0	No	0	0	No	0
301 Jackson Hills Dr	1	No	56	56	56	56	0	0	No	0	0	No	0
302 Jackson Hills Dr	1	No	56	56	56	56	0	0	No	0	0	No	0
305 Jackson Hills Dr	1	No	55	55	55	55	0	0	No	0	0	No	0
306 Jackson Hills Dr	1	No	55	55	55	55	0	0	No	0	0	No	0
307 Jackson Hills Dr	1	No	54	54	54	54	0	0	No	0	0	No	0
308 Jackson Hills Dr	1	No	52	52	52	52	0	0	No	0	0	No	0
311 Jackson Hills Dr	1	No	54	54	54	54	0	0	No	0	0	No	0
312 Jackson Hills Dr	1	No	53	53	53	53	0	0	No	0	0	No	0
313 Jackson Hills Dr	1	No	53	53	53	53	0	0	No	0	0	No	0
314 Jackson Hills Dr	1	No	52	52	52	52	0	0	No	0	0	No	0
317 Jackson Hills Dr	1	No	52	53	52	52	0	0	No	0	0	No	0
319 Jackson Hills Dr	1	No	52	52	52	52	0	0	No	0	0	No	0
401 Jackson Hills Dr	1	No	51	52	51	51	0	0	No	0	0	No	0
403 Jackson Hills Dr	1	No	51	51	51	51	0	0	No	0	0	No	0
409 Jackson Hills Dr	1	No	51	51	50	51	0	0	No	0	0	No	0
413 Jackson Hills Dr	1	No	50	50	50	50	0	0	No	0	0	No	0
415 Jackson Hills Dr	1	No	49	50	49	50	0	0	No	0	0	No	0
502 Jackson Hills Dr	1	No	49	50	49	49	0	0	No	0	0	No	0
503 Jackson Hills Dr	1	No	49	49	48	49	1	1	No	0	0	No	0
505 Jackson Hills Dr	1	No	49	49	48	48	1	1	No	0	0	No	0
517 Jackson Hills Dr	1	No	49	50	48	49	1	1	No	0	0	No	0
523 Jackson Hills Dr	1	No	51	51	49	49	2	2	No	0	0	No	0
531 Jackson Hills Dr	1	No	54	54	51	52	3	3	No	0	0	No	0
538 Jackson Hills Dr	1	No	52	53	51	52	1	1	No	0	0	No	0
543 Jackson Hills Dr	1	No	56	56	53	53	3	3	No	0	0	No	0
544 Jackson Hills Dr	1	No	53	54	52	53	1	1	No	0	0	No	0
545 Jackson Hills Dr	1	No	58	58	55	55	3	3	No	0	0	No	0
548 Jackson Hills Dr	1	No	58	58	56	56	2	2	No	0	0	No	0
549 Jackson Hills Dr	1	No	59	59	56	56	3	3	No	0	0	No	0
552 Jackson Hills Dr	1	No	57	57	55	56	2	1	No	0	0	No	0
553 Jackson Hills Dr	1	Yes	70	70	62	62	7	7	Yes	1	1	Yes	1
557 Jackson Hills Rd (M2)	1	Yes	69	69	61	61	8	8	Yes	1	1	Yes	1
2930 Old Knoxville Hwy	1	No	59	59	59	59	0	0	No	0	0	No	0
111 October Ln	1	No	55	56	55	56	0	0	No	0	0	No	0
112 October Ln	1	No	55	55	55	55	0	0	No	0	0	No	0
117 October Ln	1	No	55	55	55	55	0	0	No	0	0	No	0
118 October Ln	1	No	54	55	54	55	0	0	No	0	0	No	0
202 Luther Jackson Dr	1	No	55	55	55	55	0	0	No	0	0	No	0
204 Luther Jackson Dr	1	No	53	53	53	53	0	0	No	0	0	No	0
208 Luther Jackson Dr	1	No	52	52	52	52	0	0	No	0	0	No	0
209 Luther Jackson Dr	1	No	51	51	51	51	0	0	No	0	0	No	0
213 Luther Jackson Dr	1	No	52	52	52	52	0	0	No	0	0	No	0
Benefited Residences										2	2		2
Non-residential Category B Equivalent Benefits										0			
Total Benefits										2		NRDG	100.0%

Project: Pellissippi Parkway Extension
Alternative: A
Noise Analysis Area: 1 South
Scenario: Barrier for impated residences at 557 and 553 Jackson Hills Drive (South End)

From	To	Segment Length (ft.)	Wall Type ⁽¹⁾	Barrier Base Elevation (ft) ⁽²⁾	Barrier Top Elevation (ft) ⁽²⁾	Barrier Height (ft)	Barrier Area (sq ft)
point424	point425	100	F (EOP)	922	932	10	1,000
point425	point426	100	F (EOP)	926	938	12	1,200
point426	point427	100	F (EOP)	930	942	12	1,200
point427	point428	100	F (EOP)	934	946	12	1,200
point428	point429	100	F (EOP)	938	950	12	1,200
point429	point430	100	F (EOP)	942	954	12	1,200
point430	point431	100	F (EOP)	946	958	12	1,200
point431	point432	100	F (EOP)	950	962	12	1,200
point432	point433	100	F (EOP)	954	966	12	1,200
point433	point434	100	F (EOP)	958	970	12	1,200
point434	point435	100	F (EOP)	962	974	12	1,200
point435	point436	100	F (EOP)	966	976	10	1,000
point436	point437	100	F (EOP)	970	980	10	1,000
point437	point438	100	F (EOP)	974	984	10	1,000
point438	point439	100	F (EOP)	978	988	10	1,000
point439	Barrier End	100	F (EOP)	982	992	10	---
Length (ft.):		1,600					Area
							17,000
							Average Height
							10.6
							Number of Benefited Residences
							2
							Area Per Benefited Residence
							8,500
							Allowable Area per Benefited Residence
							1,900
							Reasonable?
							No

(1) F = free standing barrier. EOP = located at edge of pavement; ROW = located at right-of-way; T = located in transition between EOP and ROW.

(2) At beginning station.

Project: Pellissippi Parkway Extension
 Alternative: A
 Noise Analysis Area: 2
 Scenario: Continuous Noise Barrier
 Background Sound Level (dBA): 40

Receiver	Number of Residences	First Row Impacted?	No Barrier L _{eq} (dBA)		With Barrier L _{eq} (dBA)		IL (dBA)		Benefited?	Number of Benefits	Noise Reduction Design Goal		
			Without Background	With Background	Without Background	With Background	Without Background	With Background			First Row Benefits	Receiving 7 dB?	Number Receiving 7 dB
621 Mt Lebanon Rd	1	No	48	48	45	46	3	2	No	0	0	No	0
631 Mt Lebanon Rd	1	Yes	58	58	51	51	7	7	Yes	1	1	Yes	1
736 Mt Lebanon Rd	1	Yes	63	63	53	53	10	10	Yes	1	1	Yes	1
832 Mt Lebanon Rd	1	No	55	55	48	49	7	6	Yes	1	0	No	0
846 & 850 Mt Lebanon Rd	2	No	54	54	49	50	5	4	No	0	0	No	0
904 Mt Lebanon Rd	1	No	50	51	49	50	1	1	No	0	0	No	0
908 Mt Lebanon Rd	1	No	52	52	50	50	2	2	No	0	0	No	0
912 Mt Lebanon Rd	1	No	51	51	50	50	1	1	No	0	0	No	0
913 Mt Lebanon Rd	1	No	52	52	51	51	1	1	No	0	0	No	0
917 Mt Lebanon Rd	1	No	54	54	51	52	2	2	No	0	0	No	0
919 Mt Lebanon Rd	1	No	54	54	51	51	3	3	No	0	0	No	0
920 & 932 Mt Lebanon Rd	2	No	52	52	50	50	2	2	No	0	0	No	0
927 Mt Lebanon Rd	1	No	55	55	53	53	2	2	No	0	0	No	0
945 Mt Lebanon Rd	1	No	56	56	54	54	3	3	No	0	0	No	0
1007 Mt Lebanon Rd	1	No	50	51	44	46	6	5	Yes	1	0	No	0
1009 Mt Lebanon Rd	1	Yes	63	63	56	56	7	7	Yes	1	1	Yes	1
1013 Mt Lebanon Rd	1	No	59	59	56	56	2	2	No	0	0	No	0
1023 Mt Lebanon Rd	1	No	55	55	52	52	3	3	No	0	0	No	0
1029 Mt Lebanon Rd	1	No	55	55	53	53	2	2	No	0	0	No	0
1039 Mt Lebanon Rd	1	No	56	56	55	55	1	1	No	0	0	No	0
1047 Mt Lebanon Rd	1	No	59	59	59	59	0	0	No	0	0	No	0
3306 Melody Ln	1	No	50	51	49	50	1	1	No	0	0	No	0
3307 Melody Ln	2	No	54	54	49	50	5	4	No	0	0	No	0
3205 Wildwood Rd	1	No	61	61	61	61	1	0	No	0	0	No	0
Benefited Residences										5	3		3
Non-residential Category B Equivalent Benefits										0			
Total Benefits										5		NRDG	100.0%

Project: Pellissippi Parkway Extension
Noise Analysis Area: 2
Scenario: Continuous Noise Barrier

From	To	Segment Length (ft.)	Wall Type ⁽¹⁾	Barrier Base Elevation (ft) ⁽²⁾	Barrier Top Elevation (ft) ⁽²⁾	Barrier Height (ft)	Barrier Area (sq ft)
point386	point446	100	F (EOP)	942	952	10	1,000
point446	point447	100	F (EOP)	946	960	14	1,400
point447	point448	100	F (EOP)	950	964	14	1,400
point448	point449	102	F (EOP)	954	968	14	1,428
point449	point450	99	F (EOP)	957	973	16	1,584
point450	point451	100	F (EOP)	961	977	16	1,600
point451	point452	101	F (EOP)	965	981	16	1,616
point452	point453	101	F (EOP)	968	986	18	1,818
point453	point454	99	F (EOP)	973	991	18	1,782
point454	point455	100	F (EOP)	977	995	18	1,800
point455	point456	99	F (EOP)	980	998	18	1,782
point456	point457	101	F (EOP)	984	1002	18	1,818
point457	point458	100	F (EOP)	988	1006	18	1,800
point458	point459	101	F (EOP)	992	1010	18	1,818
point459	point460	100	F (EOP)	996	1014	18	1,800
point460	point461	100	F (EOP)	1000	1018	18	1,800
point461	point462	100	F (EOP)	1004	1020	16	1,600
point462	point463	101	F (EOP)	1008	1022	14	1,414
point463	point464	100	F (EOP)	1012	1026	14	1,400
point464	point465	78	F (EOP)	1016	1030	14	1,092
point465	point466	100	F (EOP)	1018	1032	14	1,400
point466	point467	102	F (EOP)	1022	1036	14	1,428
point467	point468	98	F (EOP)	1024	1038	14	1,372
point468	point469	100	F (EOP)	1026	1040	14	1,400
point469	point470	98	F (EOP)	1028	1042	14	1,372
point470	point471	86	F (EOP)	1029	1043	14	1,204
point471	point472	100	F (EOP)	1030	1044	14	1,400
point472	point473	101	F (EOP)	1031	1051	20	2,020
point473	point474	100	F (EOP)	1032	1052	20	2,000
point474	point475	100	F (EOP)	1031	1051	20	2,000
point475	point476	99	F (EOP)	1030	1050	20	1,980
point476	point477	100	F (EOP)	1029	1049	20	2,000

Project: Pellissippi Parkway Extension
 Noise Analysis Area: 2
 Scenario: Continuous Noise Barrier

From	To	Segment Length (ft.)	Wall Type ⁽¹⁾	Barrier Base Elevation (ft) ⁽²⁾	Barrier Top Elevation (ft) ⁽²⁾	Barrier Height (ft)	Barrier Area (sq ft)
point477	point478	100	F (EOP)	1028	1048	20	2,000
point478	point479	100	F (EOP)	1026	1046	20	2,000
point479	point480	100	F (EOP)	1024	1044	20	2,000
point480	point481	100	F (EOP)	1022	1044	22	2,200
point481	point482	100	F (EOP)	1018	1038	20	2,000
point482	point483	101	F (EOP)	1015	1035	20	2,020
point483	point484	100	F (EOP)	1011	1031	20	2,000
point484	point485	99	F (EOP)	1007	1027	20	1,980
point485	point486	100	F (EOP)	1004	1014	10	1,000
point486	point487	100	F (EOP)	1001	1011	10	1,000
point487	point488	100	F (EOP)	999	1009	10	1,000
point488	Barrier End	---	F (EOP)	997	1009	12	---
		Length (ft.):	4,266				
							Area
							70,528
							Average Height
							16.5
							Number of Benefited Residences
							5
							Area Per Benefited Residence
							14,106
							Allowable Area per Benefited Residence
							1,900
							Reasonable?
							No

(1) F = free standing barrier. EOP = located at edge of pavement; ROW = located at right-of-way; T = located in transition between EOP and ROW.

(2) At beginning station.

Project: Pellissippi Parkway Extension
 Alternative: A
 Noise Analysis Area: 3
 Scenario: Continuous Noise Barrier
 Background Sound Level (dBA): 40

Receiver	Number of Residences	First Row Impacted?	No Barrier L _{eq} (dBA)		With Barrier L _{eq} (dBA)		IL (dBA)		Benefited?	Number of Benefits	Noise Reduction Design Goal		
			Without Background	With Background	Without Background	With Background	Without Background	With Background			First Row Benefits	Receiving 7 dB?	Number Receiving 7 dB
3134 Davis Ford Rd - 2	1	Yes	58	58	52	52	7	6	Yes	1	1	No	0
3134 Davis Ford Rd - 1	1	Yes	68	68	60	60	8	8	Yes	1	1	Yes	1
3246 Davis Ford Rd	1	Yes	48	49	47	48	1	1	No	0	0	No	0
3212 Centennial Church Rd	1	Yes	62	62	54	54	8	8	Yes	1	1	Yes	1
3228 Centennial Church Rd	1	Yes	60	60	53	53	7	7	Yes	1	1	Yes	1
3266 Centennial Church Rd	1	Yes	60	60	55	55	6	6	Yes	1	1	No	0
3270 Centennial Church Rd	1	No	59	59	54	54	4.5	4.4	No	0	0	No	0
3324 Centennial Church Rd	1	No	50	50	48	48	2	2	No	0	0	No	0
3330 Centennial Church Rd	1	No	48	49	47	47	2	1	No	0	0	No	0
3214 Old Plantation Way	1	No	50	51	48	49	2	2	No	0	0	No	0
3220 Old Plantation Way	1	No	50	50	47	48	2	2	No	0	0	No	0
3331 Old Plantation Way	1	No	51	51	50	50	1	1	No	0	0	No	0
3339 Old Plantation Way	1	No	52	53	51	52	1	1	No	0	0	No	0
3372 Old Plantation Way	1	No	54	54	50	50	4.8	4.5	Yes	1	0	No	0
3412 Old Plantation Way	1	No	54	54	50	50	4.1	3.8	No	0	0	No	0
3409 Beaver Creek Xing	1	No	53	54	51	51	3	3	No	0	0	No	0
Bridgewater Crossing (Permit)	1	No	51	52	48	48	4	3	No	0	0	No	0
3329 Bridgewater Xing	1	No	50	51	48	48	3	2	No	0	0	No	0
209 Wheatgrass Point Dr	1	No	50	50	48	49	2		No	0	0	No	0
Benefited Residences										6	5		3
Non-residential Category B Equivalent Benefits										0			
Total Benefits										6		NRDG	60.0%

Project: Pellissippi Parkway Extension
Noise Analysis Area: 3
Scenario: Continuous Noise Barrier

From	To	Segment Length (ft.)	Wall Type ⁽¹⁾	Barrier Base Elevation (ft) ⁽²⁾	Barrier Top Elevation (ft) ⁽²⁾	Barrier Height (ft)	Barrier Area (sq ft)
point388	point490	100	F (EOP)	899	917	18	1,800
point490	point491	100	F (EOP)	898	916	18	1,800
point491	point492	100	F (EOP)	898	916	18	1,800
point492	point493	100	F (EOP)	898	916	18	1,800
point493	point494	100	F (EOP)	898	916	18	1,800
point494	point495	100	F (EOP)	898	916	18	1,800
point495	point496	100	F (EOP)	900	918	18	1,800
point496	point497	100	F (EOP)	902	920	18	1,800
point497	point498	100	F (EOP)	904	922	18	1,800
point498	point499	100	F (EOP)	906	924	18	1,800
point499	point500	100	F (EOP)	908	926	18	1,800
point500	point501	100	F (EOP)	912	932	20	2,000
point501	point502	100	F (EOP)	916	936	20	2,000
point502	point503	100	F (EOP)	918	938	20	2,000
point503	point504	100	F (EOP)	922	942	20	2,000
point504	point505	100	F (EOP)	926	946	20	2,000
point505	point506	100	F (EOP)	930	952	22	2,200
point506	point507	99	F (EOP)	936	958	22	2,178
point507	point508	101	F (EOP)	939	961	22	2,222
point508	point509	100	F (EOP)	943	965	22	2,200
point509	point510	100	F (EOP)	947	969	22	2,200
point510	point511	100	F (EOP)	950	972	22	2,200
point511	point512	100	F (EOP)	954	976	22	2,200
point512	point513	100	F (EOP)	956	978	22	2,200
point513	point514	100	F (EOP)	958	980	22	2,200
point514	point515	100	F (EOP)	960	982	22	2,200
point515	point389	100	F (EOP)	962	982	20	2,000
point389	Barrier End	---	F (EOP)	962	982	20	---
Length (ft.):		2,700	Area				53,800
			Average Height				19.9
			Number of Benefited Residences				6
			Area Per Benefited Residence				8,967
			Allowable Area per Benefited Residence				1,900
			Reasonable?				No

(1) F = free standing barrier. EOP = located at edge of pavement; ROW = located at right-of-way; T = located in transition between EOP and ROW.

(2) At beginning station.

Project: Pellissippi Parkway Extension
Alternative: A
Noise Analysis Area: 4
Scenario: Continuous Noise Barrier
Background Sound Level (dBA): 40

Receiver	Number of Residences	First Row Impacted?	No Barrier L _{eq} (dBA)		With Barrier L _{eq} (dBA)		IL (dBA)		Benefited?	Number of Benefits	Noise Reduction Design Goal		
			Without Background	With Background	Without Background	With Background	Without Background	With Background			First Row Benefits	Receiving 7 dB?	Number Receiving 7 dB
Hepatica N-1	1	Yes	67	67	58	58	9	9	Yes	1	1	Yes	1
Hepatica N-2	1	No	64	64	57	57	7	7	Yes	1	0	No	0
Hepatica N-3	1	No	64	64	57	57	7	7	Yes	1	0	No	0
Hepatica N-4	1	No	63	63	57	57	6	6	Yes	1	0	No	0
Hepatica N-5	1	No	61	61	56	56	5	5	Yes	1	0	No	0
Hepatica N-6	1	No	61	61	56	56	5	5	Yes	1	0	No	0
Hepatica N-7	1	No	56	56	54	54	3	2	No	0	0	No	0
Hepatica S-1	1	Yes	62	62	57	57	6	6	Yes	1	1	No	0
Hepatica S-2	1	No	60	60	56	56	4	4	No	0	0	No	0
Hepatica S-3	1	No	59	59	56	56	3	3	No	0	0	No	0
Hepatica S-4	1	No	58	58	56	56	3	2	No	0	0	No	0
Hepatica S-5	1	No	56	56	55	55	2	2	No	0	0	No	0
Hepatica S-6	1	No	56	56	54	54	2	1	No	0	0	No	0
Hepatica S-7	1	No	55	55	54	54	1	1	No	0	0	No	0
Azalea N-1	1	Yes	63	63	57	57	6	6	Yes	1	1	No	0
Azalea N-2	1	No	61	61	57	57	5	5	Yes	1	0	No	0
Azalea N-3	1	No	60	60	56	56	4	4	No	0	0	No	0
Azalea N-4	1	No	57	57	55	55	2	2	No	0	0	No	0
Azalea N-5	1	No	56	56	54	55	2	2	No	0	0	No	0
Azalea N-6	1	No	55	55	54	54	1	1	No	0	0	No	0
Azalea N-7	1	No	54	55	53	54	1	1	No	0	0	No	0
Azalea S-1	1	Yes	61	61	57	57	4	4	No	0	0	No	0
Azalea S-2	1	No	59	59	56	56	3	3	No	0	0	No	0
Azalea S-3	1	No	58	58	55	55	3	3	No	0	0	No	0
Azalea S-4	1	No	57	57	54	55	2	2	No	0	0	No	0
Azalea S-5	1	No	56	56	54	54	2	2	No	0	0	No	0
Azalea S-6	1	No	55	55	54	54	2	2	No	0	0	No	0
Azalea S-7	1	No	55	55	53	53	2	2	No	0	0	No	0
Azalea S-8	1	No	54	54	53	53	1	1	No	0	0	No	0
Azalea S-9	1	No	54	54	52	52	1	1	No	0	0	No	0
Mistletoe N-2	1	Yes	60	60	57	57	3	3	No	0	0	No	0
Mistletoe N-3	1	No	58	58	56	56	2	2	No	0	0	No	0
Mistletoe N-4	1	No	55	55	54	55	1	1	No	0	0	No	0
Mistletoe N-5	1	No	55	55	54	54	1	1	No	0	0	No	0
Mistletoe N-6	1	No	54	54	53	53	1	1	No	0	0	No	0
Mistletoe N-7	1	No	53	53	53	53	1	0	No	0	0	No	0
Mistletoe S-1	1	Yes	60	60	57	57	3	3	No	0	0	No	0
Mistletoe S-2	1	No	59	59	56	56	2	2	No	0	0	No	0
Mistletoe S-3	1	No	58	58	56	56	2	1	No	0	0	No	0
Mistletoe S-4	1	No	56	56	56	56	1	1	No	0	0	No	0
Mistletoe S-5	1	No	56	56	55	55	1	0	No	0	0	No	0
Mistletoe S-6	1	No	55	55	54	55	0	0	No	0	0	No	0
Mistletoe S-7	1	No	53	54	53	53	0	0	No	0	0	No	0
Teaberry N-1	2	Yes	59	59	57	57	2	2	No	0	0	No	0
Teaberry N-2	2	No	58	58	56	56	1	1	No	0	0	No	0
Teaberry N-3	1	No	57	57	56	56	1	1	No	0	0	No	0
Teaberry N-4	1	No	56	56	55	55	1	1	No	0	0	No	0
Teaberry N-5	1	No	55	55	55	55	1	1	No	0	0	No	0
Teaberry N-6	1	No	55	55	54	54	0	0	No	0	0	No	0

Project: Pellissippi Parkway Extension
 Alternative: A
 Noise Analysis Area: 4
 Scenario: Continuous Noise Barrier
 Background Sound Level (dBA): 40

Receiver	Number of Residences	First Row Impacted?	No Barrier L _{eq} (dBA)		With Barrier L _{eq} (dBA)		IL (dBA)		Benefited?	Number of Benefits	Noise Reduction Design Goal		
			Without Background	With Background	Without Background	With Background	Without Background	With Background			First Row Benefits	Receiving 7 dB?	Number Receiving 7 dB
Teaberry S-2	1	No	57	57	56	56	1	1	No	0	0	No	0
Teaberry S-3	1	Yes	56	56	56	56	0	0	No	0	0	No	0
Teaberry S-4	1	No	55	55	55	55	0	0	No	0	0	No	0
Teaberry S-5	1	No	54	54	54	54	0	0	No	0	0	No	0
Silverbell N-1	1	No	57	57	56	56	0	0	No	0	0	No	0
Silverbell N-2	1	No	56	56	56	56	0	0	No	0	0	No	0
Silverbell S-1	1	No	57	57	57	57	1	1	No	0	0	No	0
Silverbell S-2	1	No	58	58	57	57	0	0	No	0	0	No	0
Silverbell S-3	1	No	57	57	57	57	0	0	No	0	0	No	0
Dewberry N-1	1	No	63	63	62	62	1	1	No	0	0	No	0
Dewberry N-2	1	No	62	62	62	62	1	0	No	0	0	No	0
Dewberry N-3	1	No	61	61	61	61	0	0	No	0	0	No	0
Dewberry N-4	1	No	60	60	60	60	0	0	No	0	0	No	0
Dewberry N-5	1	No	57	57	57	57	0	0	No	0	0	No	0
Dewberry S-2	1	No	58	58	58	58	0	0	No	0	0	No	0
Dewberry S-3	1	No	58	58	58	58	0	0	No	0	0	No	0
Sweetpea - 2	1	No	59	59	59	59	0	0	No	0	0	No	0
Sweetpea - 3	1	No	59	59	58	58	0	0	No	0	0	No	0
Dewberry S-1	1	No	64	64	64	64	1	0	No	0	0	No	0
3335 Lamar Alexander Pkwy	1	No	67	67	67	67	0	0	No	0	0	No	0
3325 Lamar Alexander Pkwy-1	1	No	65	65	65	65	0	0	No	0	0	No	0
3325 Lamar Alexander Pkwy-2	1	No	62	62	62	62	0	0	No	0	0	No	0
Benefited Residences										9	3		1
Non-residential Category B Equivalent Benefits										0			
Total Benefits										9		NRDG	33.3%

Project:

Alternative:

Noise Analysis Area:

Scenario:

Background Sound Level (dBA):

Pellissippi Parkway Extension

A

7

Continuous Noise Barrier

40

Receiver	Number of Residences	First Row Impacted?	No Barrier L _{eq} (dBA)		With Barrier L _{eq} (dBA)		IL (dBA)		Benefited?	Number of Benefits	Noise Reduction Design Goal		
			Without Background	With Background	Without Background	With Background	Without Background	With Background			First Row Benefits	Receiving 7 dB?	Number Receiving 7 dB
3042 Wildwood Rd	1	Yes	64	64	57	57	7	7	Yes	1	1	Yes	1
3045 Wildwood Rd	1	No	66	66	65	65	1	1	No	0	0	No	0
3049 Wildwood Rd (M3)	1	No	64	64	57	57	7	7	Yes	1	0	No	0
115 Saratoga Dr	1	No	Take	---	---	---	---	---	---	---	---	---	---
141 Saratoga Dr	1	No	Take	---	---	---	---	---	---	---	---	---	---
1730 E Brown School Rd	1	No	55	55	52	52	4	3	No	0	0	No	0
1745 E Brown School Rd	1	No	53	53	50	51	3	3	No	0	0	No	0
1748 E Brown School Rd	1	No	53	53	50	50	3	3	No	0	0	No	0
1751 E Brown School Rd	1	No	53	53	49	50	3	3	No	0	0	No	0
1756 E Brown School Rd	1	No	54	54	50	51	4	3	No	0	0	No	0
1763 E Brown School Rd	1	No	56	56	53	53	3	3	No	0	0	No	0
1772 E Brown School Rd	1	No	58	58	54	54	4	4	No	0	0	No	0
1780 E Brown School Rd	1	Yes	66	66	59	59	7	7	Yes	1	1	Yes	1
1785 E Brown School Rd (M5)	1	Yes	67	67	60	60	8	7	Yes	1	1	Yes	1
Benefited Residences										4	3		3
Non-residential Category B Equivalent Benefits										0			
Total Benefits										4		NRDG	100.0%

Project: Pellissippi Parkway Extension
Noise Analysis Area: 7
Scenario: Continuous Noise Barrier

From	To	Segment Length (ft.)	Wall Type ⁽¹⁾	Barrier Base Elevation (ft) ⁽²⁾	Barrier Top Elevation (ft) ⁽²⁾	Barrier Height (ft)	Barrier Area (sq ft)
point612	point613	100	F (EOP)	1030	1040	10	1,000
point613	point614	102	F (EOP)	1028	1046	18	1,836
point614	point615	99	F (EOP)	1026	1044	18	1,782
point615	point616	101	F (EOP)	1024	1042	18	1,818
point616	point617	99	F (EOP)	1022	1040	18	1,782
point617	point618	100	F (EOP)	1020	1038	18	1,800
point618	point619	99	F (EOP)	1017	1035	18	1,782
point619	point620	101	F (EOP)	1013	1031	18	1,818
point620	point621	100	F (EOP)	1010	1028	18	1,800
point621	point622	99	F (EOP)	1007	1025	18	1,782
point622	point623	102	F (EOP)	1003	1021	18	1,836
point623	point624	100	F (EOP)	999	1017	18	1,800
point624	point625	99	F (EOP)	997	1015	18	1,782
point625	point626	99	F (EOP)	996	1014	18	1,782
point626	point627	100	F (EOP)	995	1017	22	2,200
point627	point628	101	F (EOP)	994	1016	22	2,222
point628	point629	100	F (EOP)	993	1015	22	2,200
point629	point630	100	F (EOP)	991	1013	22	2,200
point630	point631	100	F (EOP)	990	1012	22	2,200
point631	point632	100	F (EOP)	989	1011	22	2,200
point632	point633	100	F (EOP)	988	1010	22	2,200
point633	point634	100	F (EOP)	987	1009	22	2,200
point634	point635	100	F (EOP)	986	1008	22	2,200
point635	point636	100	F (EOP)	985	1007	22	2,200
point636	point637	101	F (EOP)	984	1006	22	2,222
point637	point638	101	F (EOP)	983	1001	18	1,818
point638	point639	99	F (EOP)	982	1000	18	1,782
point639	point640	101	F (EOP)	981	999	18	1,818
point640	point641	99	F (EOP)	980	998	18	1,782
point641	point642	101	F (EOP)	980	998	18	1,818
point642	point643	100	F (EOP)	980	996	16	1,600
point643	point644	99	F (EOP)	979	995	16	1,584

Project: Pellissippi Parkway Extension
Noise Analysis Area: 7
Scenario: Continuous Noise Barrier

From	To	Segment Length (ft.)	Wall Type ⁽¹⁾	Barrier Base Elevation (ft) ⁽²⁾	Barrier Top Elevation (ft) ⁽²⁾	Barrier Height (ft)	Barrier Area (sq ft)
point644	point645	100	F (EOP)	979	995	16	1,600
point645	point646	101	F (EOP)	978	994	16	1,616
point646	point647	100	F (EOP)	978	994	16	1,600
point647	point648	98	F (EOP)	976	992	16	1,568
point648	point649	101	F (EOP)	976	992	16	1,616
point649	point650	100	F (EOP)	975	991	16	1,600
point650	point651	101	F (EOP)	975	991	16	1,616
point651	point652	99	F (EOP)	975	991	16	1,584
point652	point653	101	F (EOP)	974	990	16	1,616
point653	point654	100	F (EOP)	974	990	16	1,600
point654	point655	100	F (EOP)	973	989	16	1,600
point655	point656	99	F (EOP)	973	989	16	1,584
point656	point657	101	F (EOP)	972	982	10	1,010
point657	Barrier End	---	F (EOP)	971	983	12	---
		Length (ft.):	4,503				
				Area			81,056
				Average Height			18.0
				Number of Benefited Residences			4
				Area Per Benefited Residence			20,264
				Allowable Area per Benefited Residence			1,900
				Reasonable?			No

(1) F = free standing barrier. EOP = located at edge of pavement; ROW = located at right-of-way; T = located in transition between EOP and ROW.

(2) At beginning station.

Project: Pellissippi Parkway Extension
Description: Noise Analysis Area 3 - Alternative A East Shift
Scenario: With Noise Barrier

Receiver	Number of Residences	First Row Impacted?	No Barrier L _{eq} (dBA)	With Barrier L _{eq} (dBA)	IL (dBA)	Benefited?	Number of Benefits	Noise Reduction Design Goal		
								First Row Benefits	Receiving 7 dB?	Number Receiving 7 dB
3134 Davis Ford Rd - 2	1	Yes	58	51	7	Yes	1	1	Yes	1
3134 Davis Ford Rd - 1	1	Yes	67	58	9	Yes	1	1	Yes	1
3246 Davis Ford Rd	1	No	47	45	2	No	0	0	No	0
3212 Centennial Church Rd	1	Yes	68	55	13	Yes	1	1	Yes	1
3228 Centennial Church Rd	1	Yes	61	53	9	Yes	1	1	Yes	1
3266 Centennial Church Rd	Take	---	---	---	---	---	---	---	---	---
3270 Centennial Church Rd	1	Yes	68	60	8	Yes	1	1	Yes	1
3324 Centennial Church Rd	1	No	52	51	2	No	0	0	No	0
3330 Centennial Church Rd	1	No	48	46	2	No	0	0	No	0
3214 Old Plantation Way	1	No	51	47	4	No	0	0	No	0
3220 Old Plantation Way	1	No	51	47	4	No	0	0	No	0
3331 Old Plantation Way	1	No	50	49	1	No	0	0	No	0
3339 Old Plantation Way	1	No	54	52	1	No	0	0	No	0
3372 Old Plantation Way	1	No	57	51	7	Yes	1	0	No	0
3412 Old Plantation Way	1	No	55	49	6	Yes	1	0	No	0
3409 Beaver Creek Xing	1	No	56	53	4	No	0	0	No	0
Bridgewater Crossing (Permit)	1	No	53	48	6	Yes	1	0	No	0
3329 Bridgewater Xing	1	No	51	48	4	No	0	0	No	0
Benefited Residences							8	5		5
									NRDG	100%

Project: Pellissippi Parkway Extension
Description: Noise Analysis Area 3 - Alternative A East Shift
Scenario: With Noise Barrier

From	To	Segment Length (ft.)	Wall Type ⁽¹⁾	Barrier Base Elevation (ft) ⁽²⁾	Barrier Top Elevation (ft) ⁽²⁾	Barrier Height (ft)	Barrier Area (sq ft)
BEOP33.960	BEOP33.940	98	F (EOP)	899	911	12	1,176
BEOP33.940	BEOP33.900	98	F (EOP)	901	913	12	1,176
BEOP33.900	BEOP33.850	170	F (EOP)	902	914	12	2,040
BEOP33.850	BEOP33.800	170	F (EOP)	905	919	14	2,380
BEOP33.800	BEOP33.750	162	F (EOP)	908	922	14	2,268
BEOP33.750	BEOP33.700	162	F (EOP)	914	928	14	2,268
BEOP33.700	BEOP33.650	164	F (EOP)	920	934	14	2,296
BEOP33.650	BEOP33.600	164	F (EOP)	927	941	14	2,296
BEOP33.600	BEOP33.550	166	F (EOP)	934	948	14	2,324
BEOP33.550	BEOP33.500	166	F (EOP)	941	955	14	2,324
BEOP33.500	BEOP33.450	162	F (EOP)	948	962	14	2,268
BEOP33.450	BEOP33.400	162	F (EOP)	953	967	14	2,268
BEOP33.400	BEOP33.350	161	F (EOP)	958	972	14	2,254
BEOP33.350	BEOP33.300	161	F (EOP)	961	975	14	2,254
BEOP33.300	BEOP33.250	162	F (EOP)	965	979	14	2,268
BEOP33.250	BEOP33.200	162	F (EOP)	965	979	14	2,268
BEOP33.200	BEOP33.175	72	F (EOP)	965	979	14	1,008
BEOP33.175	Barrier End	---	F (EOP)	965	979	14	---
Length (ft.):		2,562					
							Barrier Area:
							35,136
							Average Height:
							13.7
							Number of Benefited Residences:
							8
							Area Per Benefited Residence:
							4,392
							Allowable Area per Benefited Residence:
							2,000
							Reasonable?
							No

(1) F = free standing barrier. EOP = located at edge of pavement; ROW = located at right-of-way; T = located in transition between EOP and ROW.

(2) At beginning station.

Project: Pellissippi Parkway Extension
Description: Noise Analysis Area 4 - Alternative A East Shift
Scenario: With Noise Barrier

Receiver	Number of Residences	First Row Impacted?	PM Peak		IL (dBA)	Benefited?	Number of Benefits	Noise Reduction Design Goal		
			No Barrier L _{eq} (dBA)	With Barrier L _{eq} (dBA)				First Row Benefits	Receiving 7 dB?	Number Receiving 7 dB
Hepatica N-1	1	Yes	63	55	8	Yes	1	1	Yes	1
Hepatica N-2	1	No	61	54	7	Yes	1	0	No	0
Hepatica N-3	1	No	61	55	6	Yes	1	0	No	0
Hepatica N-4	1	No	60	55	6	Yes	1	0	No	0
Hepatica N-5	1	No	58	54	4	No	0	0	No	0
Hepatica N-6	1	No	57	54	4	No	0	0	No	0
Hepatica N-7	1	No	56	52	4	No	0	0	No	0
Hepatica S-1	1	Yes	61	54	7	Yes	1	1	Yes	1
Hepatica S-2	1	No	59	54	6	Yes	1	0	No	0
Hepatica S-3	1	No	59	54	4	No	0	0	No	0
Hepatica S-4	1	No	57	53	4	No	0	0	No	0
Hepatica S-5	1	No	56	52	4	No	0	0	No	0
Hepatica S-6	1	No	55	52	3	No	0	0	No	0
Hepatica S-7	1	No	54	52	3	No	0	0	No	0
Azalea N-1	1	Yes	61	54	7	Yes	1	1	Yes	1
Azalea N-2	1	No	60	54	6	Yes	1	0	No	0
Azalea N-3	1	No	58	54	5	Yes	1	0	No	0
Azalea N-4	1	No	56	53	3	No	0	0	No	0
Azalea N-5	1	No	55	52	3	No	0	0	No	0
Azalea N-6	1	No	54	52	3	No	0	0	No	0
Azalea N-7	1	No	53	51	1	No	0	0	No	0
Azalea S-1	1	Yes	60	55	5	Yes	1	1	No	0
Azalea S-2	1	No	58	54	4	No	0	0	No	0
Azalea S-3	1	No	57	53	4	No	0	0	No	0
Azalea S-4	1	No	55	52	3	No	0	0	No	0
Azalea S-5	1	No	54	52	3	No	0	0	No	0
Azalea S-6	1	No	54	52	2	No	0	0	No	0
Azalea S-7	1	No	53	52	2	No	0	0	No	0
Azalea S-8	1	No	53	52	2	No	0	0	No	0
Azalea S-9	1	No	53	51	1	No	0	0	No	0
Mistletoe N-2	1	Yes	59	55	4	No	0	0	No	0
Mistletoe N-3	1	No	57	54	3	No	0	0	No	0
Mistletoe N-4	1	No	55	53	2	No	0	0	No	0
Mistletoe N-5	1	No	55	53	2	No	0	0	No	0
Mistletoe N-6	1	No	54	52	2	No	0	0	No	0
Mistletoe N-7	1	No	53	51	1	No	0	0	No	0
Mistletoe S-1	1	Yes	59	56	4	No	0	0	No	0
Mistletoe S-2	1	No	58	55	3	No	0	0	No	0
Mistletoe S-3	1	No	58	55	3	No	0	0	No	0
Mistletoe S-4	1	No	56	54	2	No	0	0	No	0

Project: Pellissippi Parkway Extension
Description: Noise Analysis Area 4 - Alternative A East Shift
Scenario: With Noise Barrier

Receiver	Number of Residences	First Row Impacted?	PM Peak		IL (dBA)	Benefited?	Number of Benefits	Noise Reduction Design Goal		
			No Barrier L _{eq} (dBA)	With Barrier L _{eq} (dBA)				First Row Benefits	Receiving 7 dB?	Number Receiving 7 dB
Mistletoe S-5	1	No	56	53	2	No	0	0	No	0
Mistletoe S-6	1	No	55	53	2	No	0	0	No	0
Mistletoe S-7	1	No	53	52	1	No	0	0	No	0
Teaberry N-1	2	Yes	59	56	3	No	0	0	No	0
Teaberry N-2	1	No	58	55	3	No	0	0	No	0
Teaberry N-3	1	No	57	55	3	No	0	0	No	0
Teaberry N-4	1	No	56	54	2	No	0	0	No	0
Teaberry N-5	1	No	55	53	2	No	0	0	No	0
Teaberry N-6	1	No	55	53	1	No	0	0	No	0
Teaberry S-2	1	No	57	55	2	No	0	0	No	0
Teaberry S-3	1	Yes	57	55	2	No	0	0	No	0
Teaberry S-4	1	No	55	54	1	No	0	0	No	0
Teaberry S-5	1	No	55	54	1	No	0	0	No	0
Silverbell N-1	1	No	58	56	2	No	0	0	No	0
Silverbell N-2	1	No	57	55	2	No	0	0	No	0
Silverbell S-1	1	No	58	57	1	No	0	0	No	0
Silverbell S-2	1	No	58	57	1	No	0	0	No	0
Silverbell S-3	1	No	58	57	1	No	0	0	No	0
Dewberry N-1	1	No	63	62	1	No	0	0	No	0
Dewberry N-2	1	No	62	62	1	No	0	0	No	0
Dewberry N-3	1	No	62	61	1	No	0	0	No	0
Dewberry N-4	1	No	60	60	1	No	0	0	No	0
Dewberry N-5	1	No	58	57	1	No	0	0	No	0
Dewberry S-2	1	No	60	59	0	No	0	0	No	0
Dewberry S-3	1	No	58	57	0	No	0	0	No	0
Sweetpea - 2	1	No	59	58	1	No	0	0	No	0
Sweetpea - 3	1	No	59	58	1	No	0	0	No	0
Dewberry S-1	1	No	64	64	0	No	0	0	No	0
3335 Lamar Alexander Pkwy	1	No	68	68	0	No	0	0	No	0
3325 Lamar Alexander Pkwy-1	1	No	66	66	0	No	0	0	No	0
3325 Lamar Alexander Pkwy-2	1	No	63	63	0	No	0	0	No	0
Benefited Residences							10	4	NRDG	75%

Project:	Pellissippi Parkway Extension
Description:	Noise Analysis Area 4 - Alternative A East Shift
Scenario:	With Noise Barrier

From	To	Segment Length (ft.)	Wall Type ⁽¹⁾	Barrier Base Elevation (ft) ⁽²⁾	Barrier Top Elevation (ft) ⁽²⁾	Barrier Height (ft)	Barrier Area (sq ft)
33+900	33+930	100	F (EOP)	902	914	12	1,200
33+930	33+960	100	F (EOP)	901	917	16	1,600
33+960	34+000	127	F (EOP)	899	915	16	2,032
34+000	34+035	118	F (EOP)	898	920	22	2,596
34+035	34+070	114	F (EOP)	899	923	24	2,736
34+070	34+085	55	F (EOP)	900	924	24	1,320
34+085	34+135	158	F (EOP)	900	924	24	3,792
34+135	34+185	169	F (EOP)	901	925	24	4,056
34+185	34+200	116	F (EOP)	902	926	24	2,784
34+200	34+280	191	F (EOP)	902	926	24	4,584
34+280	34+315	108	F (EOP)	903	927	24	2,592
34+315	34+340	76	F (EOP)	903	927	24	1,824
34+340	34+375	121	F (EOP)	904	928	24	2,904
34+375	34+410	123	F (EOP)	904	928	24	2,952
34+410	34+470	194	F (EOP)	905	929	24	4,656
34+470	Barrier End	---	F (EOP)	906	930	24	---
Length (ft.):		1,870				Barrier Area	41,628
						Average Height	22.3
						Number of Benefited Residences	11
						Area Per Benefited Residence	3,784
						Allowable Area per Benefited Residence	1,900
						Reasonable?	No

(1) F = free standing barrier. EOP = located at edge of pavement; ROW = located at right-of-way; T = located in transition between EOP and ROW.

(2) At beginning station.

Project: Pellissippi Parkway Extension
Description: Noise Analysis Area 3 - Alternative A West Shift
Scenario: With Noise Barrier

Receiver	Number of Residences	First Row Impacted?	No Barrier L _{eq} (dBA)	With Barrier L _{eq} (dBA)	IL (dBA)	Benefited?	Number of Benefits	Noise Reduction Design Goal		
								First Row Benefits	Receiving 7 dB?	Number Receiving 7 dB
3134 Davis Ford Rd - 2	1	Yes	57	55	2	No	0	0	No	0
3134 Davis Ford Rd - 1	1	Yes	65	49	16	Yes	1	1	Yes	1
3246 Davis Ford Rd	1	Yes	47	50	-3	No	0	0	No	0
3212 Centennial Church Rd	1	Yes	59	52	7	Yes	1	1	Yes	1
3228 Centennial Church Rd	1	Yes	59	52	6	Yes	1	1	Yes	1
3266 Centennial Church Rd	1	Yes	59	53	6	Yes	1	1	No	0
3270 Centennial Church Rd	1	No	58	45	13	Yes	1	1	Yes	1
3324 Centennial Church Rd	1	No	49	42	6	Yes	1	0	No	0
3330 Centennial Church Rd	1	No	45	56	-11	No	0	0	No	0
3214 Old Plantation Way	1	No	51	54	-3	No	0	0	No	0
3220 Old Plantation Way	1	No	51	46	5	Yes	1	0	No	0
3331 Old Plantation Way	1	No	49	48	2	No	0	0	No	0
3339 Old Plantation Way	1	No	51	51	0	No	0	0	No	0
3372 Old Plantation Way	1	No	57	48	8	Yes	1	0	Yes	0
3412 Old Plantation Way	1	No	55	44	11	Yes	1	0	Yes	0
3409 Beaver Creek Xing	1	No	55	45	10	Yes	1	0	Yes	0
Bridgewater Crossing (Permit)	1	No	53	46	7	Yes	1	0	Yes	0
3329 Bridgewater Xing	1	No	51	46	5	Yes	1	0	No	0
209 Wheatgrass Point Dr	1	No	50	46	4	No	0	0	No	0
Benefited Residences							11	5		4
									NRDG	80%

Project:	Pellissippi Parkway Extension
Description:	Noise Analysis Area 3 - Alternative A West Shift
Scenario:	With Noise Barrier

From	To	Segment Length (ft.)	Wall Type ⁽¹⁾	Barrier Base Elevation (ft)⁽²⁾	Barrier Top Elevation (ft)⁽²⁾	Barrier Height (ft)	Barrier Area (sq ft)
BEOP33.960	BEOP33.900	206	F (EOP)	922	936	14	2,884
BEOP33.900	BEOP33.860	134	F (EOP)	924	940	16	2,144
BEOP33.860	BEOP33.800	193	F (EOP)	926	942	16	3,088
BEOP33.800	BEOP33.760	138	F (EOP)	930	952	22	3,036
BEOP33.760	BEOP33.700	196	F (EOP)	933	957	24	4,704
BEOP33.700	BEOP33.600	336	F (EOP)	937	961	24	8,064
BEOP33.600	BEOP33.500	336	F (EOP)	944	968	24	8,064
BEOP33.500	BEOP33.400	319	F (EOP)	951	973	22	7,018
BEOP33.400	BEOP33.360	130	F (EOP)	958	972	14	1,820
BEOP33.360	BEOP33.300	198	F (EOP)	960	974	14	2,772
BEOP33.300	BEOP33.240	196	F (EOP)	962	976	14	2,744
BEOP33.240	BEOP33.200	130	F (EOP)	965	979	14	1,820
BEOP33.200	BEOP33.175	82	F (EOP)	967	979	12	984
BEOP33.175	Barrier End	---	F (EOP)	968	980	12	---
Length (ft.):		2,594				Barrier Area	49,142
Average Height (feet)							18.9
Number of Benefited Residences:							11
Area Per Benefited Residence:							4,467
Allowable Area per Benefited Residence:							1,900
Reasonable?							No

(1) F = free standing barrier. EOP = located at edge of pavement; ROW = located at right-of-way; T = located in transition between EOP and ROW.

(2) At beginning station.

Project: Pellissippi Parkway Extension
Description: Noise Analysis Area 4 - Alternative A West Shift
Scenario: With Noise Barrier

Receiver	Number of Residences	First Row Impacted?	PM Peak		IL (dBA)	Benefited?	Number of Benefits	Noise Reduction Design Goal		
			No Barrier L _{eq} (dBA)	With Barrier L _{eq} (dBA)				First Row Benefits	Receiving 7 dB?	Number Receiving 7 dB
Hepatica N-1	1	Take	Take	Take	n/a	n/a	n/a	n/a	n/a	n/a
Hepatica N-2	1	Take	Take	Take	n/a	n/a	n/a	n/a	n/a	n/a
Hepatica N-3	1	Take	Take	Take	n/a	n/a	n/a	n/a	n/a	n/a
Hepatica N-4	1	Take	Take	Take	n/a	n/a	n/a	n/a	n/a	n/a
Hepatica N-5	1	Yes	67	59	8	Yes	1	1	Yes	1
Hepatica N-6	1	No	66	60	7	Yes	1	0	Yes	0
Hepatica N-7	1	No	63	60	3	No	0	0	No	0
Hepatica S-1	1	Take	Take	Take	n/a	n/a	n/a	n/a	n/a	n/a
Hepatica S-2	1	Yes	69	55	14	Yes	1	1	Yes	1
Hepatica S-3	1	No	65	57	8	Yes	1	0	Yes	0
Hepatica S-4	1	No	63	57	5	Yes	1	0	No	0
Hepatica S-5	1	No	61	58	3	No	0	0	No	0
Hepatica S-6	1	No	60	59	1	No	0	0	No	0
Hepatica S-7	1	No	60	59	1	No	0	0	No	0
Azalea N-1	1	Take	Take	Take	n/a	n/a	n/a	n/a	n/a	n/a
Azalea N-2	1	Yes	68	57	11	Yes	1	1	Yes	1
Azalea N-3	1	No	64	56	8	Yes	1	0	Yes	0
Azalea N-4	1	No	61	57	4	No	0	0	No	0
Azalea N-5	1	No	59	57	2	No	0	0	No	0
Azalea N-6	1	No	59	57	2	No	0	0	No	0
Azalea N-7	1	No	58	57	1	No	0	0	No	0
Azalea S-1	1	Yes	65	57	8	Yes	1	1	Yes	1
Azalea S-2	1	No	62	56	6	Yes	1	0	No	0
Azalea S-3	1	No	61	55	5	Yes	1	0	No	0
Azalea S-4	1	No	59	55	5	Yes	1	0	No	0
Azalea S-5	1	No	58	55	3	No	0	0	No	0
Azalea S-6	1	No	58	55	3	No	0	0	No	0
Azalea S-7	1	No	57	55	2	No	0	0	No	0
Azalea S-8	1	No	57	56	1	No	0	0	No	0
Azalea S-9	1	No	57	56	1	No	0	0	No	0
Mistletoe N-2	1	Yes	63	58	4	No	0	0	No	0
Mistletoe N-3	1	No	61	57	4	No	0	0	No	0
Mistletoe N-4	1	No	58	56	3	No	0	0	No	0
Mistletoe N-5	1	No	58	56	2	No	0	0	No	0
Mistletoe N-6	1	No	57	55	2	No	0	0	No	0
Mistletoe N-7	1	No	56	55	1	No	0	0	No	0
Mistletoe S-1	1	Yes	63	60	3	No	0	0	No	0
Mistletoe S-2	1	No	61	59	3	No	0	0	No	0
Mistletoe S-3	1	No	60	58	2	No	0	0	No	0
Mistletoe S-4	1	No	59	57	2	No	0	0	No	0

Project: Pellissippi Parkway Extension
 Description: Noise Analysis Area 4 - Alternative A West Shift
 Scenario: With Noise Barrier

Receiver	Number of Residences	First Row Impacted?	PM Peak		IL (dBA)	Benefited?	Number of Benefits	Noise Reduction Design Goal		
			No Barrier L _{eq} (dBA)	With Barrier L _{eq} (dBA)				First Row Benefits	Receiving 7 dB?	Number Receiving 7 dB
Mistletoe S-5	1	No	58	57	1	No	0	0	No	0
Mistletoe S-6	1	No	57	56	1	No	0	0	No	0
Mistletoe S-7	1	No	56	55	1	No	0	0	No	0
Teaberry N-1	2	No	62	60	2	No	0	0	No	0
Teaberry N-2	1	Yes	60	59	1	No	0	0	No	0
Teaberry N-3	1	No	59	58	1	No	0	0	No	0
Teaberry N-4	1	No	58	57	1	No	0	0	No	0
Teaberry N-5	1	No	57	56	1	No	0	0	No	0
Teaberry N-6	1	No	57	56	1	No	0	0	No	0
Teaberry S-2	1	No	59	59	1	No	0	0	No	0
Teaberry S-3	1	Yes	59	58	1	No	0	0	No	0
Teaberry S-4	1	No	57	57	0	No	0	0	No	0
Teaberry S-5	1	No	57	56	0	No	0	0	No	0
Silverbell N-1	1	No	59	59	1	No	0	0	No	0
Silverbell N-2	1	No	58	58	1	No	0	0	No	0
Silverbell S-1	1	No	60	59	1	No	0	0	No	0
Silverbell S-2	1	No	59	59	0	No	0	0	No	0
Silverbell S-3	1	No	59	59	0	No	0	0	No	0
Dewberry N-1	1	No	64	64	0	No	0	0	No	0
Dewberry N-2	1	No	63	63	0	No	0	0	No	0
Dewberry N-3	1	No	62	62	0	No	0	0	No	0
Dewberry N-4	1	No	61	61	0	No	0	0	No	0
Dewberry N-5	1	No	59	59	0	No	0	0	No	0
Dewberry S-2	1	No	60	59	0	No	0	0	No	0
Dewberry S-3	1	No	59	59	0	No	0	0	No	0
Sweetpea - 2	1	No	60	60	0	No	0	0	No	0
Sweetpea - 3	1	No	60	60	0	No	0	0	No	0
Dewberry S-1	1	No	65	65	0	No	0	0	No	0
3335 Lamar Alexander Pkwy	1	No	68	68	0	No	0	0	No	0
3325 Lamar Alexander Pkwy-1	1	No	67	67	0	No	0	0	No	0
3325 Lamar Alexander Pkwy-2	1	No	63	63	0	No	0	0	No	0

Benefited Residences

11

4

NRDG

**4
100%**

Project:	Pellissippi Parkway Extension
Description:	Noise Analysis Area 4 - Alternative A West Shift
Scenario:	With Noise Barrier

From	To	Segment Length (ft.)	Wall Type ⁽¹⁾	Barrier Base Elevation (ft)⁽²⁾	Barrier Top Elevation (ft)⁽²⁾	Barrier Height (ft)	Barrier Area (sq ft)
6+000	6+020	66	F (ROW)	927	941	14	924
6+020	6+040	66	F (ROW)	930	944	14	924
6+040	6+060	67	F (ROW)	931	945	14	938
6+060	6+080	69	F (ROW)	931	945	14	966
6+080	6+100	68	F (ROW)	941	955	14	952
6+100	6+120	67	F (ROW)	943	957	14	938
6+120	6+140	66	F (ROW)	944	958	14	924
6+140	6+160	65	F (ROW)	942	956	14	910
6+160	6+180	64	F (ROW)	941	955	14	896
6+180	6+200	63	F (ROW)	933	947	14	882
6+200	6+220	63	F (ROW)	937	953	16	1,008
6+220	6+240	63	F (ROW)	931	949	18	1,134
6+240	6+260	63	F (ROW)	927	945	18	1,134
6+260	6+280	62	F (ROW)	925	943	18	1,116
6+280	6+300	74	F (ROW)	924	942	18	1,332
6+300	6+320	78	F (ROW)	917	935	18	1,404
6+320	6+340	66	F (ROW)	912	928	16	1,056
6+340	6+360	68	F (ROW)	912	928	16	1,088
6+360	6+380	70	F (ROW)	911	927	16	1,120
6+380	Barrier End	---	F (ROW)	911	927	16	---
Length (ft.):		1,268				Barrier Area	19,646
Average Height							15.5
Number of Benefited Residences							11
Area Per Benefited Residence							1,786
Allowable Area per Benefited Residence							1,900
Reasonable?							Yes

(1) F = free standing barrier. EOP = located at edge of pavement; ROW = located at right-of-way; T = located in transition between EOP and ROW.

(2) At beginning station.

Project:

Alternative:

Noise Analysis Area:

Scenario:

Background Sound Level (dBA):

Pellissippi Parkway Extension

C

3

Barrier for 3331 Old Plantation Way and 3330 Centennial Church Rd.

40

Receiver	Number of Residences	First Row Impacted?	No Barrier L _{eq} (dBA)		With Barrier L _{eq} (dBA)		IL (dBA)		Benefited?	Number of Benefits	Noise Reduction Design Goal		
			Without Background	With Background	Without Background	With Background	Without Background	With Background			First Row Benefits	Receiving 7 dB?	Number Receiving 7 dB
3330 Centennial Church Rd	1	Yes	63	63	56	56	7	7	Yes	1	1	Yes	1
3324 Centennial Church Rd	1	No	53	53	49	49	4	4	No	0	0	No	0
3331 Old Plantation Way	1	Yes	60	60	55	55	5	5	Yes	1	1	No	0
3339 Old Plantation Way	1	No	55	55	52	52	4	3	No	0	0	No	0
209 Wheatgrass Point Dr	1	No	54	54	50	51	4	4	No	0	0	No	0
Benefited Residences										2	2		1
Non-residential Category B Equivalent Benefits										0			
Total Benefits										2		NRDG	50.0%

Project: Pellissippi Parkway Extension
 Alternative: C
 Noise Analysis Area: 5
 Scenario: Barrier to prtect South Residences on E Brown School Road. Note: 24-Foot Continuous Noise Barrier - Not Feasible for North End Residences.
 Background Sound Level (dBA): 40

Receiver	Number of Residences	First Row Impacted?	No Barrier L _{eq} (dBA)		With Barrier L _{eq} (dBA)		IL (dBA)		Benefited?	Number of Benefits	Noise Reduction Design Goal		
			Without Background	With Background	Without Background	With Background	Without Background	With Background			First Row Benefits	Receiving 7 dB?	Number Receiving 7 dB
1890 E Brown School Rd	1	No	62	62	62	62	0	0	No	0	0	No	0
1891 E Brown School Rd	1	No	61	61	61	61	0	0	No	0	0	No	0
1886 E Brown School Rd	1	No	61	61	61	61	0	0	No	0	0	No	0
1887 E Brown School Rd	1	Yes	63	63	63	63	0	0	No	0	0	No	0
1880 E Brown School Rd	1	No	58	58	58	58	0	0	No	0	0	No	0
1876 E Brown School Rd	1	No	56	56	56	56	0	0	No	0	0	No	0
1870 E Brown School Rd	1	No	53	53	52	52	0	1	No	0	0	No	0
1871 E Brown School Rd	1	Yes	60	60	60	60	0	0	No	0	0	No	0
1862 E Brown School Rd	1	No	55	55	54	54	1	1	No	0	0	No	0
1854 E Brown School Rd	1	No	55	55	54	54	1	1	No	0	0	No	0
1853 E Brown School Rd	1	Yes	58	58	57	57	1	1	No	0	0	No	0
1848 E Brown School Rd	1	No	54	54	52	52	3	3	No	0	0	No	0
116 Talbott Ln	1	No	54	54	51	51	3	3	No	0	0	No	0
1840 E Brown School Rd	1	No	58	58	56	56	3	3	No	0	0	No	0
1834 E Brown School Rd (M4)	1	Yes	63	63	56	56	7	7	Yes	1	1	Yes	1
1842 E Brown School Rd	1	Yes	70	70	63	63	7	7	Yes	1	1	Yes	1
Benefited Residences										2	2		2
Non-residential Category B Equivalent Benefits										0			
Total Benefits										2		NRDG	100.0%

Project: Pellissippi Parkway Extension
Alternative: C
Noise Analysis Area: 5
Scenario: Barrier to protect South Residences on E Brown School Road. Note: 24-Foot Continuous Noise Barrier - Not Feasible for North End F

From	To	Segment Length (ft.)	Wall Type ⁽¹⁾	Barrier Base Elevation (ft) ⁽²⁾	Barrier Top Elevation (ft) ⁽²⁾	Barrier Height (ft)	Barrier Area (sq ft)
point152	point153	100	F (EOP)	961	973	12	1,200
point153	point154	100	F (EOP)	965	979	14	1,400
point154	point155	100	F (EOP)	969	985	16	1,600
point155	point156	100	F (EOP)	972	988	16	1,600
point156	point157	100	F (EOP)	975	991	16	1,600
point157	point158	100	F (EOP)	978	994	16	1,600
point158	point159	100	F (EOP)	980	996	16	1,600
point159	point160	100	F (EOP)	982	998	16	1,600
point160	point161	100	F (EOP)	983	999	16	1,600
point161	point162	100	F (EOP)	984	1000	16	1,600
point162	point163	100	F (EOP)	984	1000	16	1,600
point163	point164	100	F (EOP)	985	1001	16	1,600
point164	point165	100	F (EOP)	985	1001	16	1,600
point165	point166	100	F (EOP)	986	1002	16	1,600
point166	point167	100	F (EOP)	987	997	10	1,000
point167	Barrier End	---	F (EOP)	987	987		---
Length (ft.): 1,500				Area			22,800
				Average Height			15.2
				Number of Benefited Residences			2
				Area Per Benefited Residence			11,400
				Allowable Area per Benefited Residence			1,900
				Reasonable?			No

(1) F = free standing barrier. EOP = located at edge of pavement; ROW = located at right-of-way; T = located in transition between EOP and ROW.

(2) At beginning station.

Project:

Alternative:

Noise Analysis Area:

Scenario:

Background Sound Level (dBA):

Pellissippi Parkway Extension

C

7

Barrier for E Brown School Road

40

Receiver	Number of Residences	First Row Impacted?	No Barrier L _{eq} (dBA)		With Barrier L _{eq} (dBA)		IL (dBA)		Benefited?	Number of Benefits	Noise Reduction Design Goal		
			Without Background	With Background	Without Background	With Background	Without Background	With Background			First Row Benefits	Receiving 7 dB?	Number Receiving 7 dB
3042 Wildwood Rd	1	Not Feasible	62	62	60	60	2	2	No	0	0	No	0
1730 E Brown School Rd	1	No	55	55	49	50	5	5	Yes	1	0	No	0
1745 E Brown School Rd	1	No	54	54	50	51	4	3	No	0	0	No	0
1748 E Brown School Rd	1	No	53	53	50	50	3	3	No	0	0	No	0
1751 E Brown School Rd	1	No	54	54	49	50	5	5	Yes	1	0	No	0
1756 E Brown School Rd	1	No	54	54	50	50	5	4	Yes	1	0	No	0
1763 E Brown School Rd	1	No	56	56	50	51	6	5	Yes	1	0	No	0
1772 E Brown School Rd	1	No	56	56	51	51	6	6	Yes	1	0	No	0
1780 E Brown School Rd	1	Yes	58	58	51	51	7	6.5	Yes	1	1	Yes	1
1785 E Brown School Rd (M5)	1	Yes	67	67	56	56	11	11	Yes	1	1	Yes	1
Benefited Residences										7	2		2
Non-residential Category B Equivalent Benefits										0			
Total Benefits										7		NRDG	100.0%

Project: Pellissippi Parkway Extension
Alternative: C
Noise Analysis Area: 7
Scenario: Barrier for E Brown School Road

From	To	Segment Length (ft.)	Wall Type ⁽¹⁾	Barrier Base Elevation (ft) ⁽²⁾	Barrier Top Elevation (ft) ⁽²⁾	Barrier Height (ft)	Barrier Area (sq ft)
point141	point182	127	F (EOP)	996	1008	12	1,524
point182	point183	206	F (EOP)	996	1020	24	4,944
point183	point184	206	F (EOP)	998	1022	24	4,944
point184	point185	206	F (EOP)	994	1018	24	4,944
point185	point186	59	F (EOP)	993	1017	24	1,416
point186	point187	102	F (EOP)	993	1017	24	2,448
point187	point188	101	F (EOP)	992	1016	24	2,424
point188	point189	101	F (EOP)	992	1016	24	2,424
point189	point190	167	F (EOP)	991	1015	24	4,008
point190	point191	185	F (EOP)	990	1014	24	4,440
point191	point192	82	F (EOP)	989	1013	24	1,968
point192	point193	133	F (EOP)	989	1013	24	3,192
point193	point194	99	F (EOP)	988	1012	24	2,376
point194	point195	103	F (EOP)	987	1011	24	2,472
point195	point196	103	F (EOP)	987	1011	24	2,472
point196	point197	100	F (EOP)	986	1010	24	2,400
point197	point198	100	F (EOP)	985	1009	24	2,400
point198	point199	100	F (EOP)	985	1009	24	2,400
point199	point200	100	F (EOP)	984	1008	24	2,400
point200	point201	100	F (EOP)	984	1008	24	2,400
point201	point202	100	F (EOP)	983	1007	24	2,400
point202	point203	100	F (EOP)	982	1006	24	2,400
point203	point204	100	F (EOP)	980	1004	24	2,400
point204	point205	100	F (EOP)	978	1002	24	2,400
point205	point206	100	F (EOP)	975	999	24	2,400
point206	point207	100	F (EOP)	972	996	24	2,400
point207	point208	100	F (EOP)	969	993	24	2,400
point208	point209	100	F (EOP)	965	989	24	2,400
point209	point210	100	F (EOP)	961	985	24	2,400
point210	point211	100	F (EOP)	957	981	24	2,400
point211	point212	100	F (EOP)	953	977	24	2,400

Project: Pellissippi Parkway Extension
Alternative: C
Noise Analysis Area: 7
Scenario: Barrier for E Brown School Road

From	To	Segment Length (ft.)	Wall Type ⁽¹⁾	Barrier Base Elevation (ft) ⁽²⁾	Barrier Top Elevation (ft) ⁽²⁾	Barrier Height (ft)	Barrier Area (sq ft)		
point212	point213	100	F (EOP)	949	973	24	2,400		
point213	point214	100	F (EOP)	945	967	22	2,200		
point214	point142	100	F (EOP)	941	961	20	2,000		
point142	Barrier End	---	F (EOP)	938	938		---		
		Length (ft.):	3,880				Area	90,996	
								Average Height	23.5
								Number of Benefited Residences	7
								Area Per Benefited Residence	12,999
								Allowable Area per Benefited Residence	1,900
								Reasonable?	No

(1) F = free standing barrier. EOP = located at edge of pavement; ROW = located at right-of-way; T = located in transition between EOP and ROW.

(2) At beginning station.

Project:

Alternative:

Noise Analysis Area:

Scenario:

Background Sound Level (dBA):

Pellissippi Parkway Extension

C

10

Continuous Noise Barrier

40

Receiver	Number of Residences	First Row Impacted?	No Barrier L _{eq} (dBA)		With Barrier L _{eq} (dBA)		IL (dBA)		Benefited?	Number of Benefits	Noise Reduction Design Goal		
			Without Background	With Background	Without Background	With Background	Without Background	With Background			First Row Benefits	Receiving 7 dB?	Number Receiving 7 dB
3501 E Lamar Alexander Pkwy	1	No	71	71	71	71	0	0	No	0	0	No	0
3505 E Lamar Alexander Pkwy	1	Yes	66	66	58	58	7	7	Yes	1	1	Yes	1
111 John Helton Rd	1	No	58	58	58	58	0	0	No	0	0	No	0
118 John Helton Rd	1	No	59	59	59	59	1	1	No	0	0	No	0
120 John Helton Rd	1	No	58	58	57	57	2	1	No	0	0	No	0
126 John Helton Rd	1	No	60	60	56	56	4	4	No	0	0	No	0
144 John Helton Rd	1	Yes	64	64	57	57	7	7	Yes	1	1	Yes	1
137 John Helton Rd	1	No	58	58	54	54	4	4	No	0	0	No	0
151 John Helton Rd	1	No	55	55	54	54	1	1	No	0	0	No	0
TAKE - 207 John Helton Rd	Take	---	---	---	69	---	---	---	---	---	---	---	---
Benefited Residences										2	2		2
Non-residential Category B Equivalent Benefits										0			
Total Benefits										2		NRDG	100.0%

Project: Pellissippi Parkway Extension
Alternative: C
Noise Analysis Area: 10
Scenario: Continuous Noise Barrier

From	To	Segment Length (ft.)	Wall Type ⁽¹⁾	Barrier Base Elevation (ft) ⁽²⁾	Barrier Top Elevation (ft) ⁽²⁾	Barrier Height (ft)	Barrier Area (sq ft)
point219	point220	218	F (EOP)	926	940	14	3,052
point220	point221	331	F (EOP)	932	954	22	7,282
point221	point222	321	F (EOP)	944	966	22	7,062
point222	point223	330	F (EOP)	945	967	22	7,260
point223	Barrier End	---	F (EOP)	946	968	22	---
		Length (ft.):	1,200				Area
							24,656
							Average Height
							20.5
							Number of Benefited Residences
							2
							Area Per Benefited Residence
							12,328
							Allowable Area per Benefited Residence
							1,900
							Reasonable?
							No

(1) F = free standing barrier. EOP = located at edge of pavement; ROW = located at right-of-way; T = located in transition between EOP and ROW.

(2) At beginning station.

Project:

Alternative:

Noise Analysis Area:

Scenario:

Background Sound Level (dBA):

Pellissippi Parkway Extension

C

15

Barriers long ramp and mainline. Note: Barrier not feasible for 1264 Butler Road and 3301 Scarlett Drive.

40

Receiver	Number of Residences	First Row Impacted?	No Barrier L _{eq} (dBA)		With Barrier L _{eq} (dBA)		IL (dBA)		Benefited?	Number of Benefits	Noise Reduction Design Goal		
			Without Background	With Background	Without Background	With Background	Without Background	With Background			First Row Benefits	Receiving 7 dB?	Number Receiving 7 dB
1264 Butler Rd	1	Yes	68	68	68	68	0	0	No	0	0	No	0
3301 Scarlet Dr	1	Yes	65	65	62	62	3	3	No	0	0	No	0
3302 Butler Rd	1	No	65	65	60	60	5	5	Yes	1	0	No	0
1243 Butler Rd	1	Yes	68	68	61	61	7	7	Yes	1	1	Yes	1
1225 Hitch Rd (M17)	1	Yes	68	68	61	61	7	7	Yes	1	1	Yes	1
Benefited Residences										3	2		2
Non-residential Category B Equivalent Benefits										0			
Total Benefits										3		NRDG	100.0%

Project: Pellissippi Parkway Extension
 Alternative: C
 Noise Analysis Area: 15
 Scenario: Barriers long ramp and mainline. Note: Barrier not feasible for 1264 Butler Road and 3301 Scarlett Drive.

From	To	Segment Length (ft.)	Wall Type ⁽¹⁾	Barrier Base Elevation (ft) ⁽²⁾	Barrier Top Elevation (ft) ⁽²⁾	Barrier Height (ft)	Barrier Area (sq ft)
Barrier 1 Along Ramp							
point147	point241	102	F (EOP)	942	956	14	1,428
point241	point242	186	F (EOP)	944	958	14	2,604
point242	point243	160	F (EOP)	946	960	14	2,240
point243	point244	118	F (EOP)	948	962	14	1,652
point244	point245	179	F (EOP)	948	962	14	2,506
point245	point246	130	F (EOP)	949	961	12	1,560
point246	Barrier End	---	F (EOP)	950	962	12	---
Barrier 2 Along Mainline							
point275	point276	98	F (EOP)	960	978	18	1,764
point276	point277	58	F (EOP)	963	981	18	1,044
point277	point278	102	F (EOP)	964	982	18	1,836
point278	point279	101	F (EOP)	967	985	18	1,818
point279	point280	99	F (EOP)	970	988	18	1,782
point280	point281	100	F (EOP)	972	990	18	1,800
point281	point282	100	F (EOP)	974	992	18	1,800
point282	point283	120	F (EOP)	976	994	18	2,160
point283	point283	112	F (EOP)	977	995	18	2,016
point284	Barrier End	---	F (EOP)	978	996	18	---
Length (ft.):							28,010
							15.9
							3
							9,337
							1,900
							No

(1) F = free standing barrier. EOP = located at edge of pavement; ROW = located at right-of-way; T = located in transition between EOP and ROW.

(2) At beginning station.

Project: Pellissippi Parkway Extension
 Alternative: C
 Noise Analysis Area: 18
 Scenario: Barriers along NB Ramp and Mainline (Required to meet Noise Reduction Design Goal). Note: Barrier along Ramp must end near Hubbard intersection with Lamar Alexander Parkway.
 Background Sound Level (dBA): 40

Receiver	Number of Residences	First Row Impacted?	No Barrier L _{eq} (dBA)		With Barrier L _{eq} (dBA)		IL (dBA)		Benefited?	Number of Benefits	Noise Reduction Design Goal		
			Without Background	With Background	Without Background	With Background	Without Background	With Background			First Row Benefits	Receiving 7 dB?	Number Receiving 7 dB
232 John Helton Rd	1	No	56	56	53	53	3	3	No	0	0	No	0
228 John Helton Rd	1	No	56	56	54	54	3	3	No	0	0	No	0
225 John Helton Rd (driving range)	0	Yes	64	64	57	57	7	7	Yes	2	2	Yes	2
225 John Helton Rd (M23)	1	Yes	66	66	58	58	7	7	Yes	1	1	Yes	1
222 John Helton Rd	1	No	60	60	56	56	4	4	No	0	0	No	0
212 & 214 John Helton Rd	2	Yes	71	71	65	65	6	6	Yes	2	2	No	0
255 Hubbard Dr	1	No	60	60	55	56	5	5	Yes	1	0	No	0
201 Hubbard Dr	1	Yes	64	64	57	57	7	7	Yes	1	1	Yes	1
211 Hubbard Dr	1	No	60	60	59	59	1	1	No	0	0	No	0
203 Hubbard Dr	1	No	62	62	61	61	2	2	No	0	0	No	0
202 Hubbard Dr	1	Yes	66	66	66	66	0	0	No	0	0	No	0
212 Hubbard Dr	1	No	64	64	63	63	0	0	No	0	0	No	0
Benefited Residences										7	6		4
Non-residential Category B Equivalent Benefits										0			
Total Benefits										7		NRDG	66.7%

Project: Pellissippi Parkway Extension
Alternative: C
Noise Analysis Area: 18

Scenario: Barriers along NB Ramp and Mainline (Required to meet Noise Reduction Design Goal). Note: Barrier along Ramp must end near Hubbard intersection with Lamar Alexander Parkway.

From	To	Segment Length (ft.)	Wall Type ⁽¹⁾	Barrier Base Elevation (ft) ⁽²⁾	Barrier Top Elevation (ft) ⁽²⁾	Barrier Height (ft)	Barrier Area (sq ft)
Barrier 1 along Ramp							
point256	point257	26	F (EOP)	914	932	18	468
point257	point258	400	F (EOP)	913	935	22	8,800
point258	point259	98	F (EOP)	912	934	22	2,156
point259	point260	406	F (EOP)	911	933	22	8,932
point260	point261	137	F (EOP)	910	930	20	2,740
point261	point262	279	F (EOP)	909	929	20	5,580
point262	point263	230	F (EOP)	908	928	20	4,600
point263	point264	105	F (EOP)	907	927	20	2,100
point264	point265	89	F (EOP)	906	922	16	1,424
point265	point266	100	F (EOP)	902	912	10	1,000
point266	point267	100	F (EOP)	899	909	10	1,000
point267	Barrier End	---	F (EOP)	896	906	10	---
					0		0
Barrier 2 along Mainline							
point277	point278	107	F (EOP)	959	971	12	1,284
point278	point279	100	F (EOP)	957	969	12	1,200
point279	point280	99	F (EOP)	955	967	12	1,188
point280	point281	119	F (EOP)	953	965	12	1,428
point281	point282	113	F (EOP)	949	961	12	1,356
point282	point283	102	F (EOP)	946	958	12	1,224
point283	point284	102	F (EOP)	942	954	12	1,224
point284	point285	122	F (EOP)	938	950	12	1,464
point285	point286	87	F (EOP)	933	945	12	1,044
point286	Barrier End	---	F (EOP)	930	942	12	---
		Length (ft.):	2,921				
							Area
							50,212
							Average Height
							17.2
							Number of Benefited Residences
							7
							Area Per Benefited Residence
							7,173
							Allowable Area per Benefited Residence
							1,900
							Reasonable?
							No

(1) F = free standing barrier. EOP = located at edge of pavement; ROW = located at right-of-way; T = located in transition between EOP and ROW.
(2) At beginning station.

Project:

Alternative:

Noise Analysis Area:

Scenario:

Background Sound Level (dBA):

Pellissippi Parkway Extension

D

11

Noise Barrier for Belfair Lane South. 5 dB IL not achievable at 1005 Belfair Lane and 974 De Armond Lane due to driveway access.

40

Receiver	Number of Residences	First Row Impacted?	No Barrier L _{eq} (dBA)		With Barrier L _{eq} (dBA)		IL (dBA)		Benefited?	Number of Benefits	Noise Reduction Design Goal		
			Without Background	With Background	Without Background	With Background	Without Background	With Background			First Row Benefits	Receiving 7 dB?	Number Receiving 7 dB
1036 Belfair Lane\M14	1	Yes	66	66	57	57	9	9	Yes	1	1	Yes	1
1034 Belfair Lane\M14	1	No	59	59	51	52	8	8	Yes	1	0	No	0
1032 Belfair Lane\M14	1	No	56	56	51	51	5	5	Yes	1	0	No	0
1037 Belfair Lane	1	Yes	67	67	60	60	7	7	Yes	1	1	Yes	1
1035 Belfair Lane	1	Yes	65	65	58	58	7	7	Yes	1	1	Yes	1
1033 Belfair Lane	1	No	59	59	51	51	8	8	Yes	1	0	No	0
1005 Belfair Lane	1	No	69	69	67	67	2	2	No	0	0	No	0
1007 Belfair Lane	1	No	63	63	62	62	1	1	No	0	0	No	0
1009 Belfair Lane	1	No	60	60	59	59	1	1	No	0	0	No	0
TAKE - 976 De Armond Ln	Take	No	68	68	68	68	0	0	No	0	0	No	0
974 De Armond Ln	1	Yes	63	63	63	63	0	0	No	0	0	No	0
972 De Armond Ln	1	No	60	60	60	60	0	0	No	0	0	No	0
970 De Armond Ln	1	No	59	59	59	59	0	0	No	0	0	No	0
968 De Armond Ln	1	No	56	56	56	56	0	0	No	0	0	No	0
Benefited Residences										6	3		3
Non-residential Category B Equivalent Benefits										0			
Total Benefits										6		NRDG	100.0%

Project: Pellissippi Parkway Extension
Noise Analysis Area: 11
Scenario: Noise Barrier for Belfair Lane South. 5 dB IL not achievable at 1005 Belfair Lane and 974 De Armond Lane due to driveway access.

From	To	Segment Length (ft.)	Wall Type ⁽¹⁾	Barrier Base Elevation (ft) ⁽²⁾	Barrier Top Elevation (ft) ⁽²⁾	Barrier Height (ft)	Barrier Area (sq ft)
point135	point136	66	F (EOP)	954	964	10	660
point136	point123	65	F (EOP)	952	964	12	780
point123	point124	107	F (EOP)	949	961	12	1,284
point124	point125	70	F (EOP)	945	955	10	700
point125	Barrier End	---	F (EOP)	944	954	10	---
		Length (ft.):	308				
							Area
							3,424
							Average Height
							11.1
							Number of Benefited Residences
							6
							Area Per Benefited Residence
							571
							Allowable Area per Benefited Residence
							1,150
							Reasonable?
							Yes

(1) F = free standing barrier. EOP = located at edge of pavement; ROW = located at right-of-way; T = located in transition between EOP and ROW.

(2) At beginning station.

Project:

Alternative:

Noise Analysis Area:

Scenario:

Background Sound Level (dBA):

Pellissippi Parkway Extension

D

12

Continuous 24-Foot Noise Barrier

40

Receiver	Number of Residences	First Row Impacted?	No Barrier L _{eq} (dBA)		With Barrier L _{eq} (dBA)		IL (dBA)		Benefited?	Number of Benefits	Noise Reduction Design Goal		
			Without Background	With Background	Without Background	With Background	Without Background	With Background			First Row Benefits	Receiving 7 dB?	Number Receiving 7 dB
Mt Lebanon Bap Ch Playground	0	Yes	59	59	52	52	7	6	Yes	1	0	No	0
Mt Lebanon Bap Ch Baseball Field	0	Yes	58	58	53	53	5	5	Yes	1	0	No	0
Benefited Residences										2	0		0
Non-residential Category B Equivalent Benefits										0			
Total Benefits										2		NRDG	0.0%

Project: Pellissippi Parkway Extension
 Alternative: D
 Noise Analysis Area: 16 North
 Scenario: Barrier for Melanie Drive
 Background Sound Level (dBA): 40

Receiver	Number of Residences	First Row Impacted?	No Barrier L _{eq} (dBA)		With Barrier L _{eq} (dBA)		IL (dBA)		Benefited?	Number of Benefits	Noise Reduction Design Goal		
			Without Background	With Background	Without Background	With Background	Without Background	With Background			First Row Benefits	Receiving 7 dB?	Number Receiving 7 dB
1151 Hitch Road	1	No	50	51	47	48	3	3	No	0	0	No	0
3307 Melanie Dr (M18)	1	Yes	57	57	49	49	8	7	Yes	1	1	Yes	1
3308 Melanie Dr	1	No	52	52	49	50	3	2	No	0	0	No	0
3311 Melanie Dr	1	Yes	56	56	49	49	7	7	Yes	1	1	Yes	1
3315 Melanie Dr	1	No	55	55	49	49	7	6	Yes	1	0	No	0
3319 Melanie Dr	1	No	54	54	47	48	7	6	Yes	1	0	No	0
3323 Melanie Dr	1	No	53	53	48	48	5	4	Yes	1	0	No	0
3324 & 3328 Melanie Dr	2	No	50	51	48	49	2	2	No	0	0	No	0
3327 Melanie Dr	1	No	52	52	48	49	4	4	No	0	0	No	0
3331 Melanie Dr	1	No	51	52	48	49	3	3	No	0	0	No	0
3335 Melanie Dr	1	No	50	51	48	48	3	2	No	0	0	No	0
3336 & 3340 Melanie Dr	2	No	49	50	48	49	1	1	No	0	0	No	0
3339 Melanie Dr	1	No	50	50	48	48	2	2	No	0	0	No	0
3341 Melanie Dr	1	No	51	51	49	49	2	1	No	0	0	No	0
3401 Clayton Ct	1	No	48	49	48	48	1	1	No	0	0	No	0
3403 & 3409 Clayton Ct	2	No	45	46	44	45	1	1	No	0	0	No	0
3404 Clayton Ct	1	No	46	47	45	46	1	1	No	0	0	No	0
Benefited Residences										5	2		2
Non-residential Category B Equivalent Benefits										0			
Total Benefits										5			
											NRDG 100.0%		

Project: Pellissippi Parkway Extension
 Noise Analysis Area: 16 North
 Scenario: Barrier for Melanie Drive

From	To	Segment Length (ft.)	Wall Type ⁽¹⁾	Barrier Base Elevation (ft) ⁽²⁾	Barrier Top Elevation (ft) ⁽²⁾	Barrier Height (ft)	Barrier Area (sq ft)
point158	point159	100	F (EOP)	956	966	10	1,000
point159	point160	100	F (EOP)	956	972	16	1,600
point160	point161	100	F (EOP)	954	972	18	1,800
point161	point162	100	F (EOP)	951	969	18	1,800
point162	point163	45	F (EOP)	947	965	18	810
point163	point164	75	F (EOP)	944	962	18	1,350
point164	point165	70	F (EOP)	941	959	18	1,260
point165	point166	66	F (EOP)	937	955	18	1,188
point166	point167	71	F (EOP)	934	952	18	1,278
point167	point168	74	F (EOP)	930	948	18	1,332
point168	point169	82	F (EOP)	927	945	18	1,476
point169	point170	80	F (EOP)	924	942	18	1,440
point170	point171	84	F (EOP)	922	940	18	1,512
point171	point172	85	F (EOP)	920	938	18	1,530
point172	point173	86	F (EOP)	919	937	18	1,548
point173	point174	85	F (EOP)	919	937	18	1,530
point174	point175	86	F (EOP)	920	938	18	1,548
point175	point176	73	F (EOP)	921	939	18	1,314
point176	point177	100	F (EOP)	923	941	18	1,800
point177	point178	100	F (EOP)	924	944	20	2,000
point178	point179	100	F (EOP)	925	945	20	2,000
point179	point180	100	F (EOP)	927	947	20	2,000
point180	point181	97	F (EOP)	928	948	20	1,940
point181	point182	100	F (EOP)	929	947	18	1,800
point182	point183	90	F (EOP)	931	947	16	1,440
point183	point184	94	F (EOP)	932	942	10	940
point151	Barrier End	---	F (EOP)	933	943	10	---
		Length (ft.):	2,243				Area
							39,236
							Average Height
							17.5
							Number of Benefited Residences
							5
							Area Per Benefited Residence
							7,847
							Allowable Area per Benefited Residence
							1,900
							Reasonable?
							No

(1) F = free standing barrier. EOP = located at edge of pavement; ROW = located at right-of-way; T = located in transition between EOP and ROW.

(2) At beginning station.

Project:
Alternative:
Noise Analysis Area:
Scenario:
Background Sound Level (dBA):

Pellissippi Parkway Extension
D
16 South
Barrier for Misty View Drive
40

Receiver	Number of Residences	First Row Impacted?	No Barrier L _{eq} (dBA)		With Barrier L _{eq} (dBA)		IL (dBA)		Benefited?	Number of Benefits	Noise Reduction Design Goal		
			Without Background	With Background	Without Background	With Background	Without Background	With Background			First Row Benefits	Receiving 7 dB?	Number Receiving 7 dB
805 Misty View Dr	1	No	55	55	52	53	3	3	No	0	0	No	0
809 Misty View Dr	1	No	56	56	51	52	5	4	No	0	0	No	0
813 Misty View Dr	1	No	56	56	50	51	5	5	Yes	1	0	No	0
817 Misty View Dr	1	Yes	57	57	50	51	7	6	Yes	1	1	No	0
821 Misty View Dr	1	Yes	58	58	51	51	7	7	Yes	1	1	Yes	1
825 Misty View Dr	1	Yes	60	60	52	52	8	7	Yes	1	1	Yes	1
829 Misty View Dr	1	Yes	60	60	53	53	8	8	Yes	1	1	Yes	1
833 Misty View Dr	1	Yes	60	60	54	54	7	7	Yes	1	1	Yes	1
839 Misty View Dr	1	Yes	61	61	57	57	5	5	Yes	1	1	No	0
3404 Davis Ford Rd (M19)	1	Yes	69	69	54	54	15	15	Yes	1	1	Yes	1
Benefited Residences										8	7	5	
Non-residential Category B Equivalent Benefits										0			
Total Benefits										8	NRDG 71.4%		

Project: Pellissippi Parkway Extension
Noise Analysis Area: 16 South
Scenario: Barrier for Misty View Drive

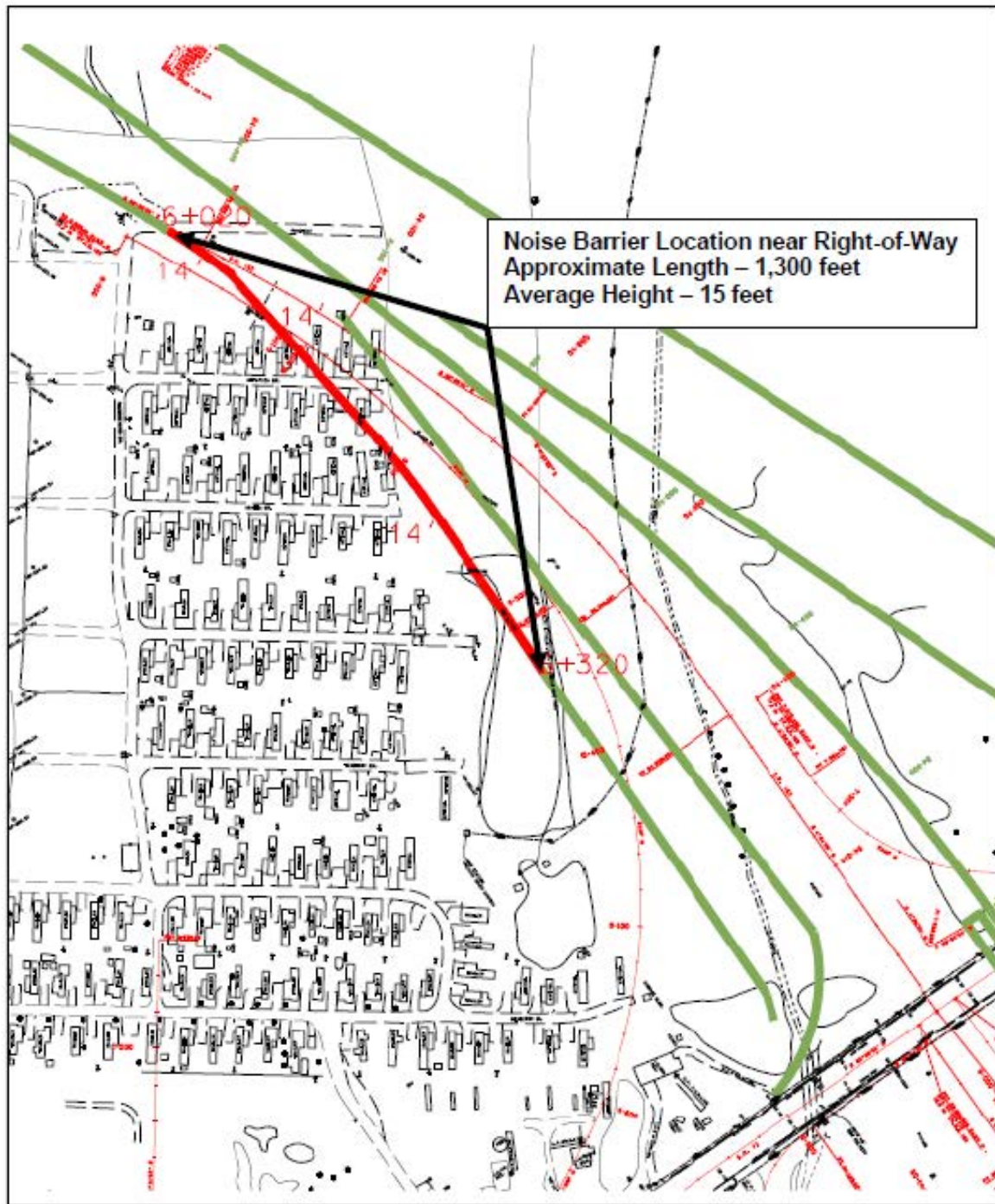
From	To	Segment Length (ft.)	Wall Type ⁽¹⁾	Barrier Base Elevation (ft) ⁽²⁾	Barrier Top Elevation (ft) ⁽²⁾	Barrier Height (ft)	Barrier Area (sq ft)
point44	point45	100	F (EOP)	944	960	16	1,600
point45	point46	100	F (EOP)	944	968	24	2,400
point46	point47	100	F (EOP)	946	970	24	2,400
point47	point48	100	F (EOP)	946	970	24	2,400
point48	point49	100	F (EOP)	946	970	24	2,400
point49	point50	50	F (EOP)	946	970	24	1,200
point50	point51	50	F (EOP)	948	972	24	1,200
point51	point52	50	F (EOP)	948	972	24	1,200
point52	point53	50	F (EOP)	947	971	24	1,200
point53	point54	50	F (EOP)	946	970	24	1,200
point54	point55	50	F (EOP)	945	969	24	1,200
point55	point56	50	F (EOP)	944	968	24	1,200
point56	point57	50	F (EOP)	943	967	24	1,200
point57	point58	50	F (EOP)	942	966	24	1,200
point58	point59	50	F (EOP)	941	963	22	1,100
point59	point60	50	F (EOP)	940	962	22	1,100
point60	point61	50	F (EOP)	939	961	22	1,100
point61	Barrier End	---	F (EOP)	938	938		---
		Length (ft.):	1,100				
				Area			25,300
				Average Height			23.0
				Number of Benefited Residences			8
				Area Per Benefited Residence			3,163
				Allowable Area per Benefited Residence			1,900
				Reasonable?			No

(1) F = free standing barrier. EOP = located at edge of pavement; ROW = located at right-of-way; T = located in transition between EOP and ROW.

(2) At beginning station.

Appendix G
Feasible and Reasonable Noise Barrier Locations

Noise Analysis Area 4, Alternative A (Preferred) with West Shift



Potential Noise Barrier Location
Noise Analysis Area 4 (Kensington Place Mobile Home Community)
Pellissippi Parkway Extension
Western Avoidance Alternative

Noise Analysis Area 11 (Belfair Lane and De Armond Lane), Alternative D

