



# **Appendix F**

## SR-66 Air Quality and Noise Technical Memorandum

# STATE ROUTE

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From State Route 34 (US-11E, Andrew Johnson Highway) in Bulls Gap to  
Near Speedwell Road/Old Highway 66, Hawkins County, Tennessee

PIN 107579.00, Federal Project #: STP-66(38)

Appendix F: SR-66 Air Quality and Noise Technical Memorandum

April 2025



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## Air Quality and Noise Technical Memorandum

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\*Please note that copies of the appendices listed above are available for download via the <https://tinyurl.com/SR-66Hawkins> or by scanning the QR code and have not been printed. If you would like to receive a printed version of the appendix material, please call 1-800-546-0949 or email at [TDOT.Comments@tn.gov](mailto:TDOT.Comments@tn.gov).



# 1. Introduction

The Tennessee Department of Transportation (TDOT), in cooperation with the Federal Highway Administration (FHWA), proposes to widen and realign State Route (SR) 66, from the intersection with SR-34 (US-11E, Andrew Johnson Highway) in the Town of Bulls Gap to near the intersection with Speedwell Road/Old Highway 66, in Hawkins County.

Because the proposed project involves the use of federal funds, the project is subject to the requirements of the [National Environmental Policy Act \(NEPA\)](#).<sup>1</sup> TDOT and FHWA are preparing an Environmental Assessment (EA) in accordance with the NEPA to identify and evaluate the environmental effects of the proposed project and to identify measures to minimize harm.

## 2. Alternatives Under Consideration

A No-Build Alternative and one Build Alternative are being evaluated in the EA. Each alternative is described in the subsequent text below.

### 2.1. No-Build Alternative

The No-Build Alternative has been retained for detailed study and serves as a benchmark for comparison against the Build Alternative. The No-Build Alternative would retain the existing state route and roadway configuration throughout the SR-66 project area except for those modifications to the roadway network that have been programmed and approved for implementation, as identified in [TDOT's 25-Year Long Range Transportation Policy Plan](#),<sup>2</sup> [State Transportation Improvement Program \(STIP\)](#),<sup>3</sup> and the [TDOT 10-Year Project Plan](#)<sup>4</sup> and would allow for routine maintenance and safety upgrades.

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<sup>1</sup> <https://www.govinfo.gov/content/pkg/COMPS-10352/pdf/COMPS-10352.pdf>

<sup>2</sup> <https://www.tn.gov/tdot/long-range-planning-home/25-year-transportation-policy-plan.html>

<sup>3</sup> <https://www.tn.gov/tdot/program-development-and-administration-home/program-development-and-administration-state-programs.html>

<sup>4</sup> <https://www.tn.gov/tdot/build-with-us.html>

## 2.2. Build Alternative

According to the Right-of-Way Plans (dated August 9, 2024),<sup>5</sup> which serve as the basis of the EA, the Build Alternative would generally follow the existing SR-66 roadway alignment, except in locations where minor alignment shifts are needed to correct roadway geometric deficiencies. The Build Alternative would also widen the existing two-lane roadway configuration (which currently consists of one 10-foot-wide lane in each direction) to include the following (see **Figure 1**):

- Two 12-foot travel lanes (one travel lane in each direction) and paved shoulders four- to ten-feet in width.
- An intermittent 12-foot-wide two-way left-turn lane from SR-34 (US-11E, Andrew Johnson Highway) to north of Goan Drive and from north of Berry Road to near Speedwell Road/Old Highway 66.
- Five-foot wide sidewalks from SR-34 (US-11E, Andrew Johnson Highway) to north of Goan Drive.
- Intermittent curb and gutter.
- Guardrail, as required.

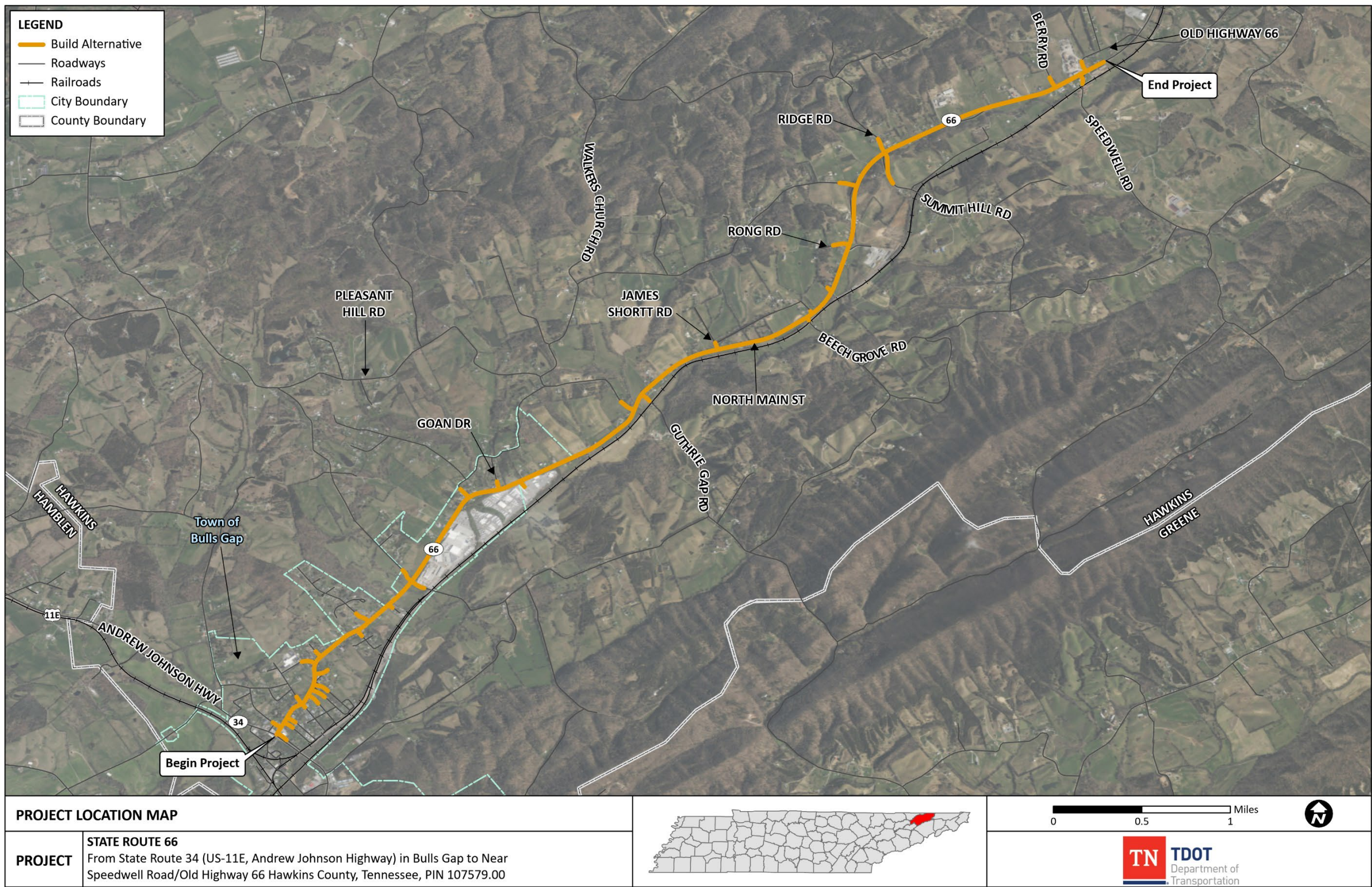
Once completed, the Build Alternative would provide a consistent typical section along SR-66 from SR-34 (US-11E, Andrew Johnson Highway) to the county seat of Rogersville, as well as provide a link from Rogersville to Interstate 81 (I-81). The total proposed project length is approximately 5.70 miles.

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<sup>5</sup> Please see **Appendix C** of the EA for a copy of the Right-of-Way Plans (dated August 9, 2024).



Figure 1: Project Location Map





### 3. Focus of this Technical Memorandum

This technical memorandum identifies potential air quality effects and noise impacts within the limits of the SR-66 project area and provides an estimated impact determination for both the No-Build and Build Alternatives.

### 4. Air Quality

An air quality analysis for the proposed project was conducted in accordance with Section 5.3.5 (Air Quality) of the [Tennessee Environmental Procedures Manual \(June 2011\)](https://www.tn.gov/content/dam/tn/tdot/programdevelopment/localprograms/documents-and-forms/local_programs_2011_Revised_Tenn_Envir_Procedures_Manual.pdf).<sup>6</sup> The purposes of this analysis were to address the transportation conformity requirements for the proposed project, the potential Mobile Source Air Toxics (MSATs) effects, and construction air quality.<sup>7</sup> An Air Quality Technical Report was prepared in December 2024 and is attached to this technical memorandum as **Appendix A**.

This section of this technical memorandum identifies potential air quality effects within the limits of the SR-66 project area and provides an estimated impact determination for both the No-Build and Build Alternatives.

#### 4.1. TDOT Air Quality and Noise Section's Environmental Studies Request Response – Air Quality

An Environmental Studies Request (ESR) was submitted to TDOT's Air Quality and Noise Section on September 11, 2024, for the Build Alternative (based on Right-of-Way Plans, dated August 9, 2024).<sup>8</sup> The TDOT Air Quality and Noise Section provided the following response on March 21, 2025:

*"The air quality evaluation for the SR-66 project was conducted per TDOT's Tennessee Environmental Procedures Manual (TDOT, 2011). The purposes of the analysis were to address the transportation conformity requirements for the project, the potential Mobile Source Air Toxics (MSAT) effects and construction air quality.*

##### Transportation Conformity

*The evaluation concluded that transportation conformity does not apply to projects in Hawkins County since the area is in attainment for all transportation-related criteria pollutants.*

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<sup>6</sup> [https://www.tn.gov/content/dam/tn/tdot/programdevelopment/localprograms/documents-and-forms/local\\_programs\\_2011\\_Revised\\_Tenn\\_Envir\\_Procedures\\_Manual.pdf](https://www.tn.gov/content/dam/tn/tdot/programdevelopment/localprograms/documents-and-forms/local_programs_2011_Revised_Tenn_Envir_Procedures_Manual.pdf)

<sup>7</sup> Information on the construction air quality impacts can be found in **Chapter 3** of the EA.

<sup>8</sup> See **Appendix C** of the EA for a copy of the Right-of-Way Plans (dated August 9, 2024).

### Mobile Sources Air Toxics (MSATs)

*The project is a 'Project with Low Potential MSAT Effects' per the Federal Highway Administration's (FHWA) 'Updated Interim Guidance on Air Toxic Analysis in NEPA Documents' and is not predicted to create any adverse MSAT effects.*

### Construction Air Quality

*Finally, construction activities may generate temporary construction-related pollutant emissions and dust that could result in short-term air quality effects. These effects will be minimized by compliance with the procedures in TDOT's Standard Specifications for Road and Bridge Construction. There are no air quality monitors in the project construction area."*

Refer to **Attachment 1** for a copy of the TDOT Air Quality and Noise Section's ESR response dated March 21, 2025.

## 4.2. Impacts to Air Quality

### 4.2.1. No-Build Alternative

The No-Build Alternative would not make changes to existing roadway network. Therefore, no direct impacts to air quality would occur.

### 4.2.2. Build Alternative

#### TRANSPORTATION CONFORMITY

The Build Alternative is located within Hawkins County, which is in attainment for all regulated criteria pollutants. Therefore, the Build Alternative is not subject to conformity.

#### MOBILE SOURCE AIR TOXICS (MSATS)

The Build Alternative qualifies as a "Project with Low Potential Mobile Source Air Toxic (MSAT) Effects" and is not predicted to create adverse MSAT effects.

#### CONSTRUCTION AIR QUALITY

The Build Alternative may cause temporary generation of construction-related pollutant emissions that would be mitigated through the implementation of best management practices, in accordance with the procedures in [TDOT's Standard Specifications for Road and Bridge Construction](#).<sup>9</sup>

## 4.3. Minimization/Mitigation Measures to Address Impacts

To mitigate the temporary generation of construction-related pollutant emissions, standard best management practices would be implemented in accordance with the procedures in [TDOT's Standard Specifications for Road and Bridge Construction](#).

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<sup>9</sup> <https://www.tn.gov/content/tn/tdot/tdot-construction-division/transportation-construction-division-resources/2021-standard-specifications.html/>

**Table 1: Potential Air Quality Impacts**

	No-Build Alternative	Build Alternative	
Impact Category	Effect Determination	Effect Determination	Minimization/Mitigation Measures to Address Impacts
Transportation Conformity	No Effect	The Build Alternative is located within Hawkins County, which is in attainment for all regulated criteria pollutants. Therefore, the Build Alternative is not subject to conformity.	Not Applicable
Mobile Source Air Toxics	No Effect	The Build Alternative qualifies as a “Project with Low Potential Mobile Source Air Toxic (MSAT) Effects” and is not predicted to create adverse Mobile Source Air Toxic effects.	
Construction Air Quality	No Effect	The Build Alternative may cause temporary generation of construction-related pollutant emissions.	To mitigate the temporary generation of construction-related pollutant emissions, standard best management practices would be implemented in accordance with the procedures in <a href="https://www.tn.gov/content/tn/tdot/tdot-construction-division/transportation-construction-division-resources/2021-standard-specifications.html/">TDOT’s Standard Specifications for Road and Bridge Construction</a> . <sup>10</sup>

<sup>10</sup> <https://www.tn.gov/content/tn/tdot/tdot-construction-division/transportation-construction-division-resources/2021-standard-specifications.html/>



## 5. Noise

The proposed SR-66 project is a Type I project in accordance with FHWA's noise regulation, [Procedures for Abatement of Highway Traffic and Construction Noise, 23 C.F.R. § 772](#).<sup>11</sup> The proposed project requires a noise study to identify noise impacts and to evaluate noise abatement for those impacts. The noise study was conducted in accordance with TDOT's [Policy on Highway Traffic Noise Abatement](#)<sup>12</sup> (TDOT's noise policy) and Section 5.3.4 (Noise) of the [Tennessee Environmental Procedures Manual](#).<sup>13</sup> A Noise Technical Report was prepared in November 2024 and is attached to this technical memorandum as **Appendix B**.

This section of this technical memorandum identifies potential noise impacts within the limits of the SR-66 project area and provides an estimated impact determination for both the No-Build and Build Alternatives.

### 5.1. TDOT Air Quality and Noise Section's Environmental Studies Request Response-Noise

An ESR was submitted to TDOT's Air Quality and Noise Section on September 11, 2024, for the Build Alternative (based on Right-of-Way Plans, dated August 9, 2024).<sup>14</sup> The TDOT Air Quality and Noise Section provided the following response on March 21, 2025:

*"The widening and realignment of SR-66 is a Type I project per the Federal Highway Administration (FHWA) noise regulation, Procedures for Abatement of Highway Traffic and Construction Noise, 23 CFR 772. The project requires a noise study to identify noise impacts and to evaluate noise abatement for those impacts. The noise study was conducted per the Tennessee Department of Transportation's (TDOT) Policy on Highway Traffic Noise Abatement (TDOT's noise policy) and Section 5.3.4 (Noise) of the Tennessee Environmental Procedures Manual.*

#### Noise Impacts

*The FHWA Traffic Noise Model (TNM) version 2.5 predicted existing and design year 2048 worst-hour noise levels for the noise-sensitive land uses in each NAA. The predicted noise levels were used to identify noise impacts per TDOT's noise policy. The project is not predicted to cause a substantial increase in existing noise levels and the predicted noise levels at most land uses do not approach or exceed the FHWA Noise Abatement Criteria. However, five residences are predicted to be impacted with noise levels of 66 dBA or higher.*

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<sup>11</sup> <https://www.ecfr.gov/current/title-23/chapter-I/subchapter-H/part-772>

<sup>12</sup>

[https://www.tn.gov/content/dam/tn/tdot/documents/Signed\\_and\\_Approved\\_TDOT\\_Policy\\_on\\_Highway\\_Traffic\\_Noise\\_Abatement\\_July\\_13\\_2011.pdf](https://www.tn.gov/content/dam/tn/tdot/documents/Signed_and_Approved_TDOT_Policy_on_Highway_Traffic_Noise_Abatement_July_13_2011.pdf)

<sup>13</sup> [https://www.tn.gov/content/dam/tn/tdot/programdevelopment/localprograms/documents-and-forms/local\\_programs\\_2011\\_Revised\\_Tenn\\_Envir\\_Procedures\\_Manual.pdf](https://www.tn.gov/content/dam/tn/tdot/programdevelopment/localprograms/documents-and-forms/local_programs_2011_Revised_Tenn_Envir_Procedures_Manual.pdf)

<sup>14</sup> See **Appendix C** of the EA for a copy of the Right-of-Way Plans (dated August 9, 2024).

### Noise Abatement Evaluation

Noise barriers were evaluated but determined to not be feasible as they would eliminate or restrict access to SR-66. Therefore, noise abatement is not proposed.

### Statement of Likelihood

Noise abatement is not proposed for this project.

### Construction Noise

Construction activities may generate intermittent and temporary noise above existing noise levels. The generated noise levels will depend on the types of equipment utilized, the duration of the activities, and the distances between construction activities and nearby land uses. TDOT construction specifications will apply to this project.

### Information for Local Officials

Some tracts of undeveloped land exist in the project area. The FHWA noise regulation does not allow federal funds to be used to construct noise abatement for new land uses. Therefore, TDOT encourages the local governments with jurisdiction over these lands, as well as potential developers of these lands, to practice noise compatibility planning to avoid future noise impacts.

Refer to **Attachment 1** for a copy of the TDOT Air Quality and Noise Section's ESR response dated March 21, 2025.

## 5.2. Impacts to Noise

### 5.2.1. No-Build Alternative

The No-Build Alternative would not make changes to existing roadway network. Therefore, no direct impacts to noise would occur.

### 5.2.2. Build Alternative

#### NOISE IMPACTS

A noise-sensitive land use is impacted if 1) the predicted worst hour noise level approaches or exceeds the Noise Abatement Criteria (NAC) or 2) the project substantially increases existing noise levels. The predicted design year noise levels and results of the noise impact assessment for the Build Alternative are discussed below.

Five noise analysis areas (NAAs) containing noise-sensitive land uses were identified within the limits of the Build Alternative. All NAAs include Activity Category B<sup>15</sup> receivers, NAA 2 and NAA 3 also include one Activity Category C<sup>16</sup> receiver, and NAA 2 and NAA 5 also include one Activity Category D<sup>17</sup> receiver.

The Build Alternative is predicted to impact one residence in NAA 2 and four residences in NAA 5 by generating design year noise levels of 66 A-weighted equivalent sound level in decibels (dBA) or higher. Additionally, the Build Alternative is predicted to increase existing noise levels at Bulls Gap School in NAA 2 to 49 dBA and the patio at the Trinity Pentecostal Church in NAA3 to 58.5 dBA. These predicted noise levels are below the NAC; therefore, these uses are not predicted to be impacted. Furthermore, the predicted interior noise levels at the Oak Grove Baptist Church in NAA2 and the Otes Methodist Church in NAA5 are below the NAC and are not predicted to be impacted.

### NOISE ABATEMENT EVALUATION

The November 2024 Noise Technical Report<sup>18</sup> determined that the Build Alternative would impact five residences. All five residences have direct driveway access to SR-66; therefore, noise barriers are not feasible at these locations because they would eliminate or restrict the ability to access SR-66.

### CONSTRUCTION NOISE

Construction activities may generate intermittent and temporary noise above existing noise levels. The noise levels resulting from construction activities would depend on the types of equipment utilized, the duration of the activities, and the distances between construction activities and nearby land uses.

## 5.3. Minimization/Mitigation Measures to Address Impacts

No mitigation or minimization measures are currently proposed under the Build Alternative for noise related impacts.

Noise barriers are not considered feasible for the five impacted residences because they would eliminate or restrict the ability to access SR-66.

To mitigate the temporary generation of construction-related noise impacts, TDOT construction specifications will apply to this project. The contractor would follow the procedures in TDOT's [Standard Specifications for Road and Bridge Construction](#)<sup>19</sup> as amended by the most recent applicable supplements.

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<sup>15</sup> Activity Category B = Residential. See **Appendix B** for additional details.

<sup>16</sup> Activity Category C = Active sports areas, amphitheaters, auditoriums, campgrounds, cemeteries, daycare centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio stations, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings. See **Appendix B** for additional details.

<sup>17</sup> Activity Category D = 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. See **Appendix B** for additional details.

<sup>18</sup> See **Appendix B** for a copy of the 2024 Noise Technical Report.

<sup>19</sup> <https://www.tn.gov/tdot/tdot-construction-division/transportation-construction-division-resources/2021-standard-specifications.html>

Table 2: Potential Noise Impacts

	No-Build Alternative	Build Alternative	
Impact Category	Effect Determination	Effect Determination	Minimization/Mitigation Measures to Address Impacts
Noise	No Effect	<p>Five noise analysis areas (NAA) were identified within the limits of the Build Alternative.</p> <p>The Build Alternative is predicted to impact the following residences by generating Design Year (2048) noise levels of 66 A-weighted sound level decibels (dBA) or higher:</p> <ul style="list-style-type: none"> <li>• One residence in NAA 2; and</li> <li>• Four residences in NAA 5.</li> </ul> <p>In total, the Build Alternative is anticipated to impact five Activity Category B (Residential) noise receivers in NAAs 2 and 5. However, the Build Alternative is not predicted to cause a substantial increase in existing noise levels or exceed the FHWA Noise Abatement Criteria.</p>	<p>No mitigation or minimization measures are currently proposed under the Build Alternative for noise related impacts.</p> <p>Noise barriers are not considered feasible for the five impacted residences because they would eliminate or restrict the ability to access SR-66.</p>
Construction Noise	No Effect	<p>Construction activities associated with the Build Alternative may cause intermittent and temporary noise above existing noise levels. The generated noise levels will depend on the types of equipment utilized, the duration of the activities, and the distances between construction activities and nearby land uses.</p>	<p>TDOT construction specifications will apply to this project. The contractor would follow the procedures in TDOT's <a href="https://www.tn.gov/tdot/tdot-construction-division/transportation-construction-division-resources/2021-standard-specifications.html">Standard Specifications for Road and Bridge Construction</a><sup>20</sup> as amended by the most recent applicable supplements.</p>

<sup>20</sup> <https://www.tn.gov/tdot/tdot-construction-division/transportation-construction-division-resources/2021-standard-specifications.html>



# **Attachment 1**

TDOT Air Quality and Noise Section's  
Environmental Studies Request Response  
(Dated March 21, 2025)

# Environmental Studies

## Air and Noise

# Environmental Studies Request

## Project Information

Route: State Route 66  
Termini: From State Route 34 in Bulls Gap to North of Speedwell Road/Old Highway 66  
County: Hawkins  
PIN: 107579.00

## Request

Request Type: Environmental Study Reevaluation  
Project Plans: Right-of-Way  
Date of Plans: 08/09/2024  
Location: FTP  
Link: <https://kimley-horn.securevdr.com/public/share/web-s1304e6f4b4b94d0f9bb3f3f6f6bdf6a7>

## Certification

Requestor: Katie Evans  
Title: Environmental Planner

Signature:  Katie Evans  
Digitally signed by Katie Evans  
Date: 2024.09.11 17:02:15 -05'00'

# Environmental Study

## Technical Section

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Section: Air and Noise

## Study Results

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### AIR QUALITY

The air quality evaluation for the SR-66 project was conducted per TDOT's Tennessee Environmental Procedures Manual (TDOT, 2011). The purposes of the analysis were to address the transportation conformity requirements for the project, the potential Mobile Source Air Toxics (MSAT) effects and construction air quality.

#### Transportation Conformity

The evaluation concluded that transportation conformity does not apply to projects in Hawkins County since the area is in attainment for all transportation-related criteria pollutants.

#### Mobile Sources Air Toxics (MSATs)

The project is a "Project with Low Potential MSAT Effects" per the Federal Highway Administration's (FHWA) "Updated Interim Guidance on Air Toxic Analysis in NEPA Documents" and is not predicted to create any adverse MSAT effects.

#### Construction Air Quality

Finally, construction activities may generate temporary construction-related pollutant emissions and dust that could result in short-term air quality effects. These effects will be minimized by compliance with the procedures in TDOT's Standard Specifications for Road and Bridge Construction. There are no air quality monitors in the project construction area.

### NOISE

The widening and realignment of SR-66 is a Type I project per the Federal Highway Administration (FHWA) noise regulation, Procedures for Abatement of Highway Traffic and Construction Noise, 23 CFR 772. The project requires a noise study to identify noise impacts and to evaluate noise abatement for those impacts. The noise study was conducted per the Tennessee Department of Transportation's (TDOT) Policy on Highway Traffic Noise Abatement (TDOT's noise policy) and Section 5.3.4 (Noise) of the Tennessee Environmental Procedures Manual.

#### Noise Impacts

The FHWA Traffic Noise Model (TNM) version 2.5 predicted existing and design year 2048 worst-hour noise levels for the noise-sensitive land uses in each NAA. The predicted noise levels were used to identify noise impacts per TDOT's noise policy. The project is not predicted to cause a substantial increase in existing noise levels and the predicted noise levels at most land uses do not approach or exceed the FHWA Noise Abatement Criteria. However, five residences are predicted to be impacted with noise levels of 66 dBA or higher.

#### Noise Abatement Evaluation



Noise barriers were evaluated but determined to not be feasible as they would eliminate or restrict access to SR-66. Therefore, noise abatement is not proposed.

#### Statement of Likelihood

Noise abatement is not proposed for this project.

#### Construction Noise

Construction activities may generate intermittent and temporary noise above existing noise levels. The generated noise levels will depend on the types of equipment utilized, the duration of the activities, and the distances between construction activities and nearby land uses. TDOT construction specifications will apply to this project.

#### Information for Local Officials

Some tracts of undeveloped land exist in the project area. The FHWA noise regulation does not allow federal funds to be used to construct noise abatement for new land uses. Therefore, TDOT encourages the local governments with jurisdiction over these lands, as well as potential developers of these lands, to practice noise compatibility planning to avoid future noise impacts.

## Commitments

Did the study of this project result in any environmental commitments?

No

## Additional Information

Is there any additional information or material included with this study?

Yes

Type: Air Quality Technical Report

Type: Noise Technical Report

Location: FileNet

## Certification

Responder: Chasity L. Stinson

Signature: Chasity  
Stinson

Title: Senior Technical Specialist, TDOT Environmental Division

Digitally signed by  
Chasity Stinson  
Date: 2025.03.21  
10:20:28 -05'00'



# **Appendix A**

Air Quality Technical Report  
(Dated December 2024)

# Air Quality Technical Report

**SR-66**

**From SR-34 in Bulls Gap to South of  
Speedwell Rd/Old Hwy 66 (IA)  
Hawkins County, Tennessee**

Based on Right-of-Way Plans dated August 2024

PIN Number: 107579.00

Federal Project Number: STP-66(38)

State Project Number: 37005-1237-14

Prepared for:



Prepared by:

**Bowlby & Associates, Inc.** 

December 2024

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## Executive Summary

The air quality evaluation for the SR-66 project was conducted per TDOT's *Tennessee Environmental Procedures Manual* (TDOT, 2011). The purposes of the analysis were to address the transportation conformity requirements for the project, the potential Mobile Source Air Toxics (MSAT) effects and construction air quality.

The evaluation concluded that transportation conformity does not apply to projects in Hawkins County since the area is in attainment for all transportation-related criteria pollutants.

The project is a "Project with Low Potential MSAT Effects" per the Federal Highway Administration's (FHWA) *"Updated Interim Guidance on Air Toxic Analysis in NEPA Documents"* and is not predicted to create any adverse MSAT effects.

Finally, construction activities may generate temporary construction-related pollutant emissions and dust that could result in short-term air quality effects. These effects will be minimized by compliance with the procedures in *TDOT's Standard Specifications for Road and Bridge Construction*. There are no air quality monitors in the project construction area.

## 1.0 Introduction

The Tennessee Department of Transportation (TDOT) is proposing improvements to SR-66 in Hawkins County between SR-34 and south of Speedwell Road/Old Hwy 66, a distance of approximately 5.6 miles. The improvements include widening as well as realignment or shifting of some sections of the existing roadway to correct geometric, operational, and safety deficiencies and to improve connectivity between Rogersville and I-81 in conjunction with the proposed SR-34 (US 11E) project. The project area is shown in Figure 1. The cover sheet of the project plans, proposed typical cross-sections, and project overlay are included in Appendix A.

This report summarizes the results of an analysis of the potential air quality effects of the project.

## 2.0 Air Quality Evaluation

The air quality evaluation was conducted per TDOT's *Tennessee Environmental Procedures Manual* (TDOT 2011). The purposes of the analysis are to address the transportation conformity requirements for the project, and the potential Mobile Source Air Toxics (MSAT) effects.

### 2.1 National Ambient Air Quality Standards (NAAQS)

The United States Environmental Protection Agency (EPA) has established allowable concentrations and exposure limits called the National Ambient Air Quality Standards (NAAQS) for various "criteria" pollutants. These pollutants include carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), ozone (O<sub>3</sub>), particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), sulfur oxides (SO<sub>x</sub>), and lead (Pb).

Per the Clean Air Act Amendments of 1990 (CAAA of 1990), EPA identified areas that did not meet the NAAQS for the criteria pollutants and designated them as "nonattainment" areas. Once a nonattainment area meets the NAAQS, it is redesignated as a "maintenance" area.

Hawkins County is in attainment for all transportation-related criteria pollutants.

## 2.2 Transportation Conformity

Transportation conformity is a process required of Metropolitan Planning Organizations (MPOs) under the CAAA of 1990. CAAA requires that transportation plans, programs, and projects in nonattainment or maintenance areas that are funded or approved by the FHWA conform to the State Implementation Plan (SIP), which represents the state's plan to either achieve or maintain the NAAQS for a particular pollutant.

Projects conform to the SIP if they are included in a fiscally constrained and conforming Long Range Transportation Plan (LRTP) or Transportation Improvement Program (TIP).

This project is in Hawkins County which is in attainment for all regulated criteria pollutants. Therefore, conformity does not apply to this project.

## 2.3 Mobile Source Air Toxics

On February 3, 2006, the FHWA released *"Interim Guidance on Air Toxic Analysis in NEPA Documents."* This guidance was superseded on September 30, 2009, December 6, 2012, October 16, 2016, and most recently on January 23, 2023, by FHWA's *"Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents."* (FHWA 2023). The purpose of FHWA's guidance is to advise on when and how to analyze Mobile Source Air Toxics (MSAT) in the NEPA process for highways. This guidance is interim because MSAT science is still evolving. As the science progresses, FHWA will continue to revise and update the guidance.

The qualitative analysis presented below provides a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the various alternatives. The assessment is derived in part from a study conducted by the FHWA entitled *"A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives"* (Claggett, 2006). Appendix B provides additional information regarding MSAT.

FHWA's Interim Guidance groups projects into the following categories:

- Exempt Projects and Projects with no Meaningful Potential MSAT Effects;
- Projects with Low Potential MSAT Effects; and
- Projects with Higher Potential MSAT Effects.

FHWA's Updated Interim Guidance provides examples of "Projects with Low Potential MSAT Effects." These projects include minor widening projects and new interchanges, such as those that replace a signalized intersection on a surface street, or where design year traffic projections are less than 140,000 to 150,000 average annual daily traffic (AADT).

The Build Alternative includes the widening and realignment of SR-66, although no additional through travel lanes will be constructed. The highest projected design year 2048 AADT on SR-66 is 6,020 vehicles per day and substantially lower than the FHWA criterion. Therefore, the project meets the criteria for a “Project with Low Potential MSAT Effects.” Appendix C included the traffic projections for the project.

For both the No-Build and Build Alternatives, the amount of MSAT emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. The estimated VMT for the Build Alternative is slightly lower than for the No-Build Alternative as shown in Table 1 due to the realignment of some sections of SR-66. The differences in overall MSAT emissions between the No-Build and Build Alternatives are expected to be small.

The project may reduce emissions by increasing speeds; according to EPA's MOVES4 model, emissions of all the priority MSAT decrease as speed increases. Travel speeds on some sections of SR-66 may be higher for the Build Alternative than for the No-Build Alternative, particularly on the east end where the new design speed will be 60 mph.

Reduced MSAT emissions are expected in the immediate project area under the Build Alternative in the design year, relative to the No-Build Alternative due to EPA's MSAT reduction programs. Additionally, EPA's vehicle and fuel regulations coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region wide MSAT levels to be significantly lower than today.

Substantial construction related MSAT emissions are not anticipated for this project as construction is not planned to occur over an extended building period. However, construction activity may generate temporary increases in MSAT emissions in the project area.

## 2.4 Construction Air Quality

Construction activities will generate intermittent and temporary construction-related pollutant emissions and dust.

TDOT's construction specifications will apply to this project. Construction procedures should be governed by the *Standard Specifications for Road and Bridge Construction* as issued by TDOT and as amended by the most recent applicable supplements. All construction equipment shall be maintained, repaired, and adjusted to keep it in full satisfactory condition.



Additionally, there are no air quality monitoring stations close to the project. The closest stations are in Kingsport to the northeast, New Market to the southwest, and Speedwell to the northwest. All stations are more than 30 miles from the project.

### 3.0 Conclusions

The evaluation concluded that the project is in Hawkins County which is in attainment for all transportation-related criteria pollutants. Therefore, the project is not subject to transportation conformity.

The project may cause temporary generation of construction-related pollutant emissions and dust that could result in short-term air quality effects that will be minimized by compliance with the procedures in *TDOT's Standard Specifications for Road and Bridge Construction*. There are no air quality monitors in the project area.

## 4.0 References

Claggett, M., et. al., *"A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives,"* Federal Highway Administration Resource Center, May 4, 2006.

Federal Highway Administration (FHWA), *Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents*, January 18, 2023.

Federal Highway Administration (FHWA), *Vulnerability Assessment and Adaptation Framework, Third Edition, FHWA-HEP-18-020*, December 2017.

Tennessee Department of Transportation (TDOT), *Tennessee Environmental Procedures Manual*, June 2011.

Tennessee Department of Transportation (TDOT), *Standard Specifications for Road and Bridge Construction*, January 1, 2021.

United States Environmental Protection Agency (EPA), *Clarification to the 2006 Joint EPA/FHWA Transportation Conformity Guidance for Qualitative Hot-spot Analysis in PM2.5 and PM10 Nonattainment and Maintenance Areas*, 2009.

United States Environmental Protection Agency (EPA), *Official Release of the MOVES3 Motor Vehicle Emissions Model for SIPs and Transportation Conformity*, January 7, 2021.

United States Environmental Protection Agency (EPA), *Official Release of the MOVES4 Motor Vehicle Emissions Model for SIPs and Transportation Conformity*, September 12, 2023.

United States Environmental Protection Agency (EPA), *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas*, October 2021.

United States Environmental Protection Agency (EPA), *Transportation Regulations*, April 2012.

## TABLES

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**Table 1: Design Year VMT Projections on Affected Roadway Network**

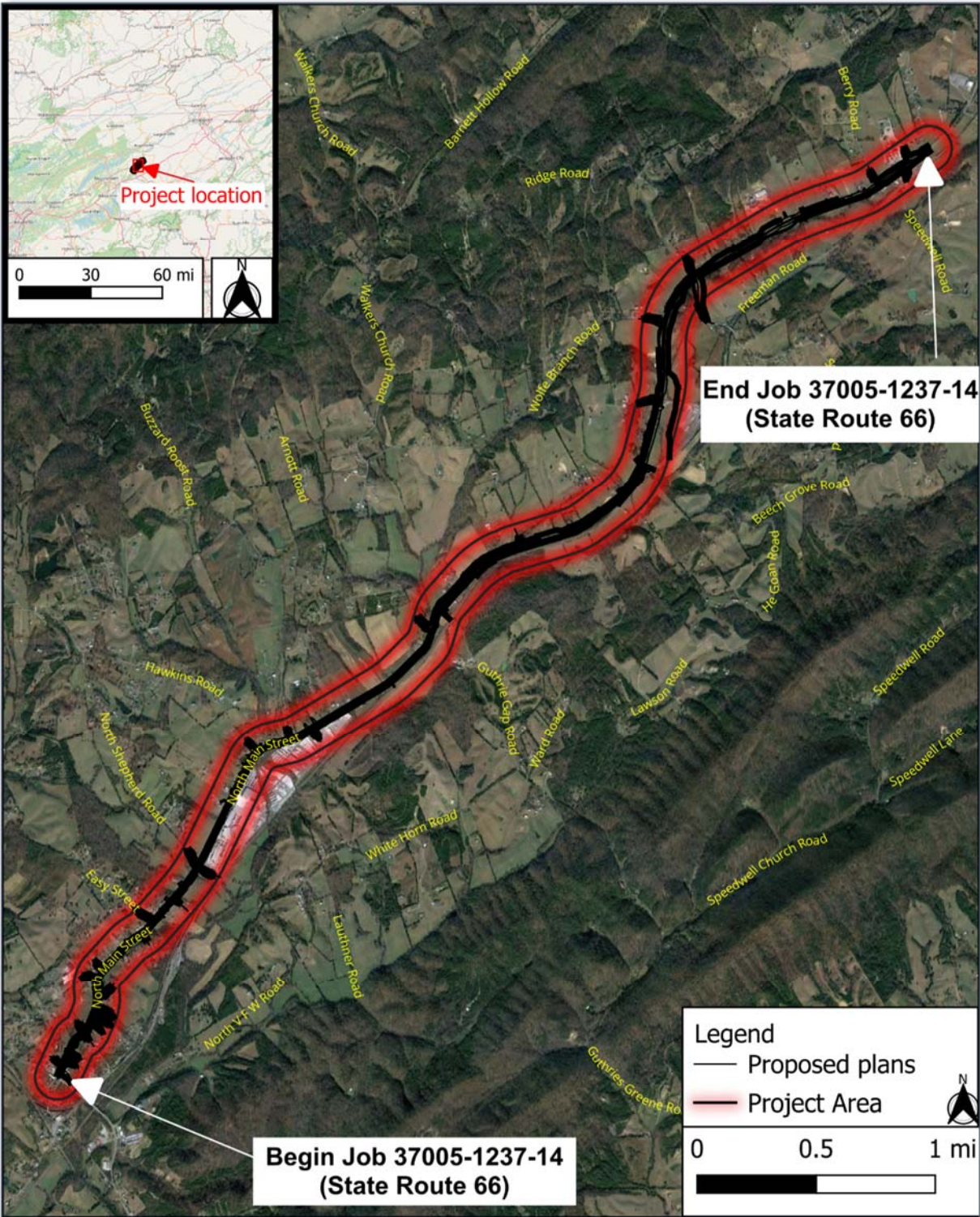
<b>Alternative</b>	<b>Year 2048 VMT</b>
No-Build	29,879
Build	29,589
<b><i>Change</i></b>	<b><i>-290</i></b>

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## FIGURES

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Figure 1: Project Location Map



## **APPENDICES**

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**Appendix A**  
**Plans Cover Page and Typical Section**

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STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF ENGINEERING

HAWKINS COUNTY

SR-66  
FROM SR-34 IN BULLS GAP TO  
NORTH OF SPEEDWELL ROAD/OLD HIGHWAY 66 (1A)

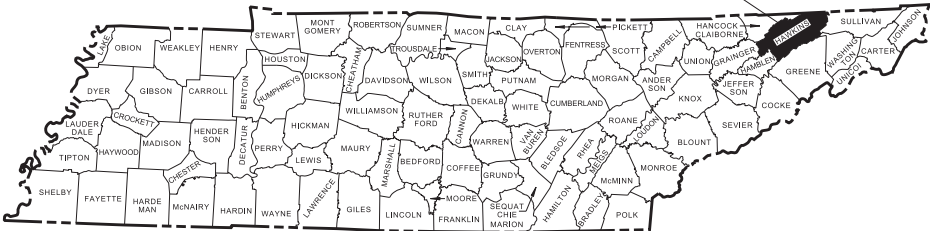
RIGHT-OF-WAY  
WIDENING, NEW ALIGNMENT, GRADING, DRAINAGE, AND PAVEMENT MARKING

STATE HIGHWAY NO. 66 F.A.H.S. NO. N/A

DOES THIS PROJECT QUALIFY FOR UTILITY CHAPTER 86	YES X	NO
WORK ZONE SIGNIFICANCE DETERMINATION		
SIGNIFICANT	YES	NO X

TENN.	YEAR 2024	SHEET NO. 1
FED. AID PROJ. NO.	STP-66(38)	
STATE PROJ. NO.	37S066-F2-004	

PROJECT LOCATION



NO EXCLUSIONS

EQUATION

DESCRIPTION	NET EFFECT ON ENUMERATION
STA. 345+85.27 BK. = STA. 341+00.00 R2 AH.	+485.27
TOTAL	+485.27

DESIGN EXCEPTION  
APPROVED 06-09-23

- 1) [ URBAN SHOULDER WIDTH ]  
[ STA 99+60.00 TO STA 214+00.00 ]
- 2) [ RURAL SHOULDER WIDTH ]  
[ STA 277+00.00 TO STA 302+00.00 ]

SEALED BY

APPROVED:

WILL REID, CHIEF ENGINEER

DATE:

APPROVED:

HOWARD H. ELEY, COMMISSIONER

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ADMINISTRATOR

DATE

SURVEY 06-06-14	TRAFFIC DATA	
UPDATED: 10-17-16	ADT (2028)	4330
UPDATED: 08-08-18	ADT (2048)	5320
UPDATED: 04-20-23	DHV (2048)	532
	D	65 - 35
	T (ADT)	5 %
	T (DHV)	3 %
	V	MPH

STATE PLANE COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.000070 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988.



SCALE: 1"= 1 MILE



R.O.W. LENGTH

5.697 MILES

STP-66(38)  
END PROJECT NO. 37S066-F2-004 R.O.W.

STA. 396+00.79  
N 733446.0335 E 2847102.8704

STP-66(38)  
BEGIN PROJECT NO. 37S066-F2-004 R.O.W.

STA. 100+04.87  
N 712879.8893 E 2827791.8391

SPECIAL NOTES

PROPOSALS MAY BE REJECTED BY THE COMMISSIONER IF ANY OF THE UNIT PRICES CONTAINED THEREIN ARE OBVIOUSLY UNBALANCED, EITHER EXCESSIVE OR BELOW THE REASONABLE COST ANALYSIS VALUE.

THIS PROJECT TO BE CONSTRUCTED UNDER THE STANDARD SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION DATED JANUARY 1, 2021 AND ADDITIONAL SPECIFICATIONS AND SPECIAL PROVISIONS CONTAINED IN THE PLANS AND IN THE PROPOSAL CONTRACT.

TDOT C.E. MANAGER 1 OR  
TDOT TRANSPORTATION MANAGER 1 : ERIC WILSON, P.E.

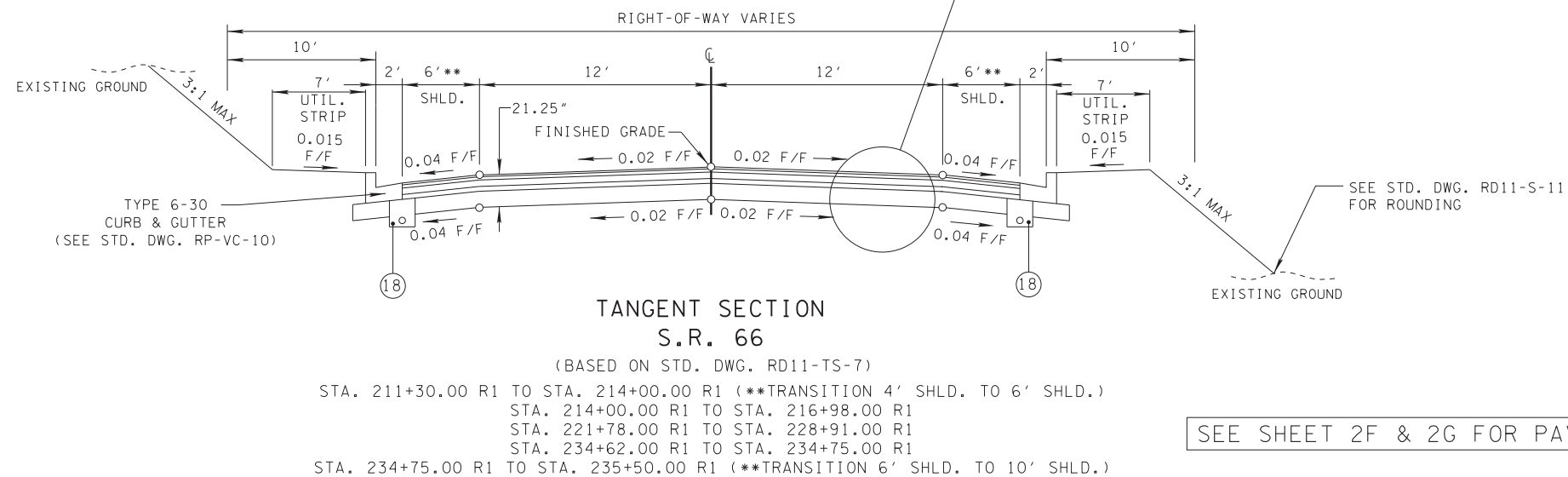
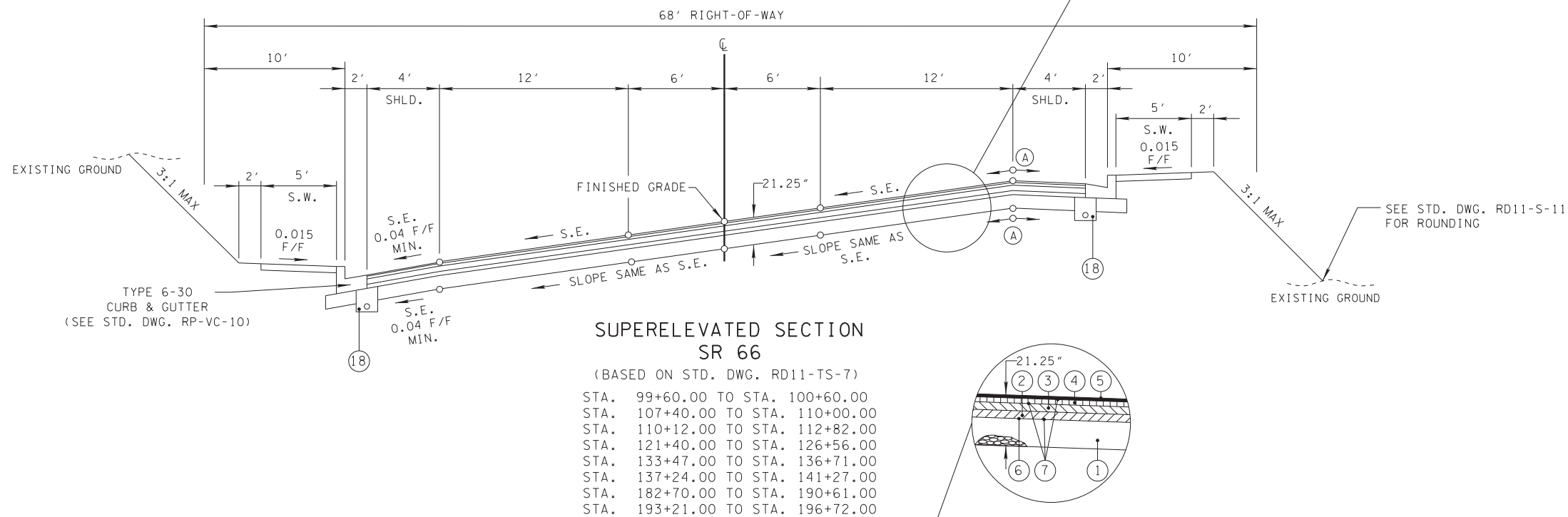
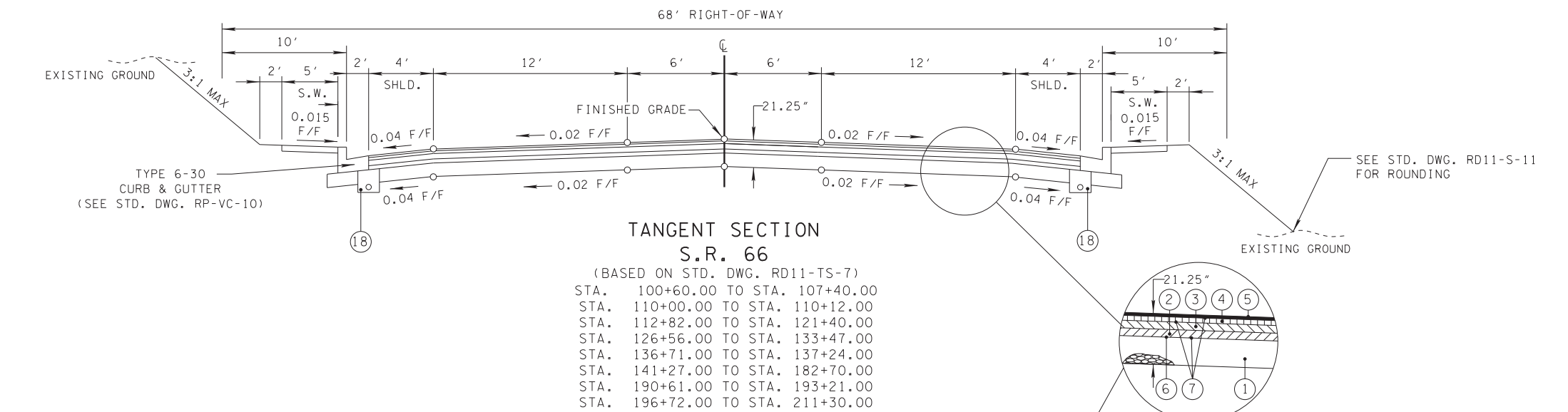
DESIGNED BY : CHA CONSULTING, INC.

DESIGNER : RYAN CLARK CHECKED BY TOM KARIS, P.E.

P.E. NO. 37005-1237-14 (DESIGN)

PIN NO. 107579.00

TYPE	YEAR	PROJECT NO.	SHEET NO.
R.O.W.	2023	STP-66(38)	2B



R.O.W.  
FIELD REVIEW

SEALED BY

COORDINATES ARE NAD/83(1995),  
ARE DATUM ADJUSTED BY THE  
FACTOR OF 1.000070 AND TIED TO  
THE TGRN. ALL ELEVATIONS ARE  
REFERENCED TO THE NAVD 1988.

STATE OF TENNESSEE  
DEPARTMENT OF  
TRANSPORTATION

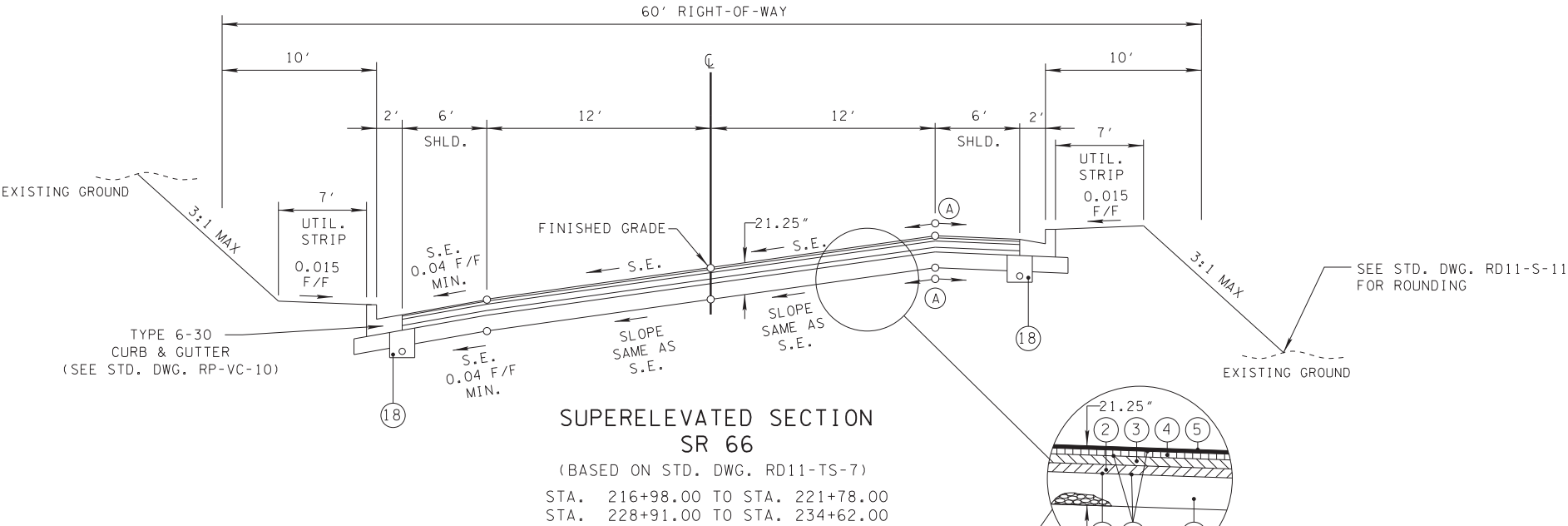
TYPICAL  
SECTIONS

SEE SHEET 2F & 2G FOR PAVEMENT SCHEDULE

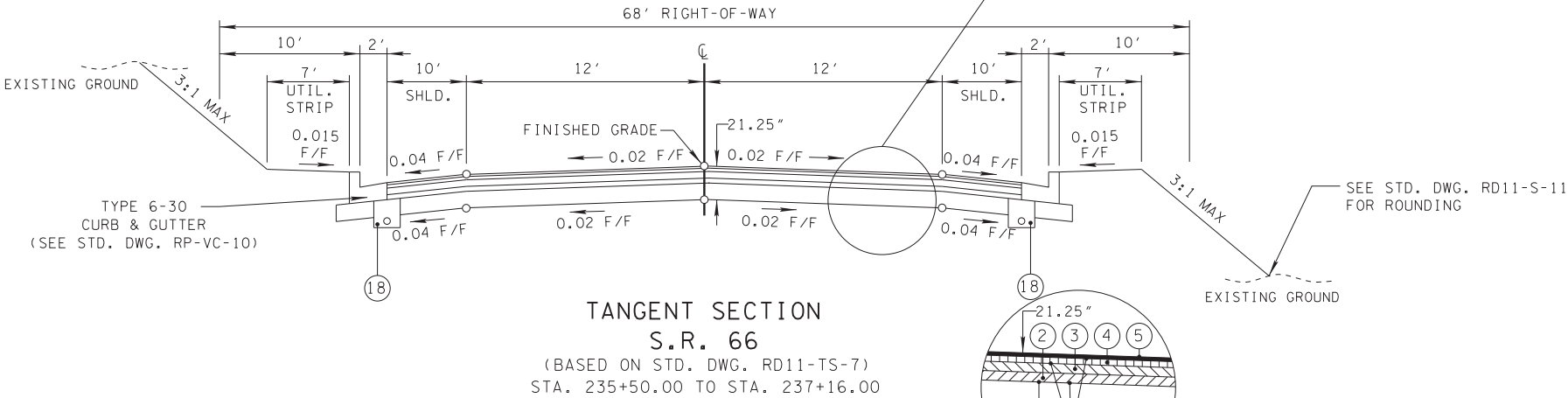
(R.O.W.)

(A) THE SLOPES OF THE ROADWAY PAVEMENT  
SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE  
OF 0.07 FOOT PER FOOT.

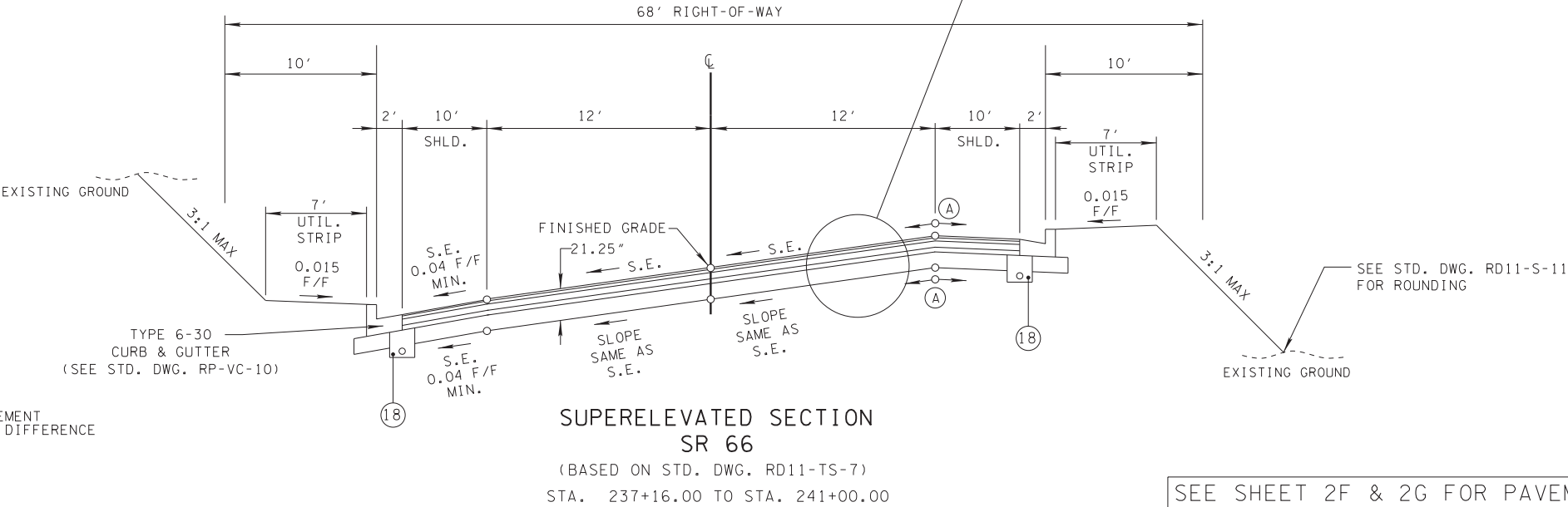
TYPE	YEAR	PROJECT NO.	SHEET NO.
R.O.W.	2023	STP-66(38)	2B1



**SUPERELEVATED SECTION  
SR 66**  
(BASED ON STD. DWG. RD11-TS-7)  
STA. 216+98.00 TO STA. 221+78.00  
STA. 228+91.00 TO STA. 234+62.00



**TANGENT SECTION  
S.R. 66**  
(BASED ON STD. DWG. RD11-TS-7)  
STA. 235+50.00 TO STA. 237+16.00



**SUPERELEVATED SECTION  
SR 66**  
(BASED ON STD. DWG. RD11-TS-7)  
STA. 237+16.00 TO STA. 241+00.00

(A) THE SLOPES OF THE ROADWAY PAVEMENT SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 0.07 FOOT PER FOOT.

SEE SHEET 2F & 2G FOR PAVEMENT SCHEDULE (R.O.W.)

# R.O.W. FIELD REVIEW

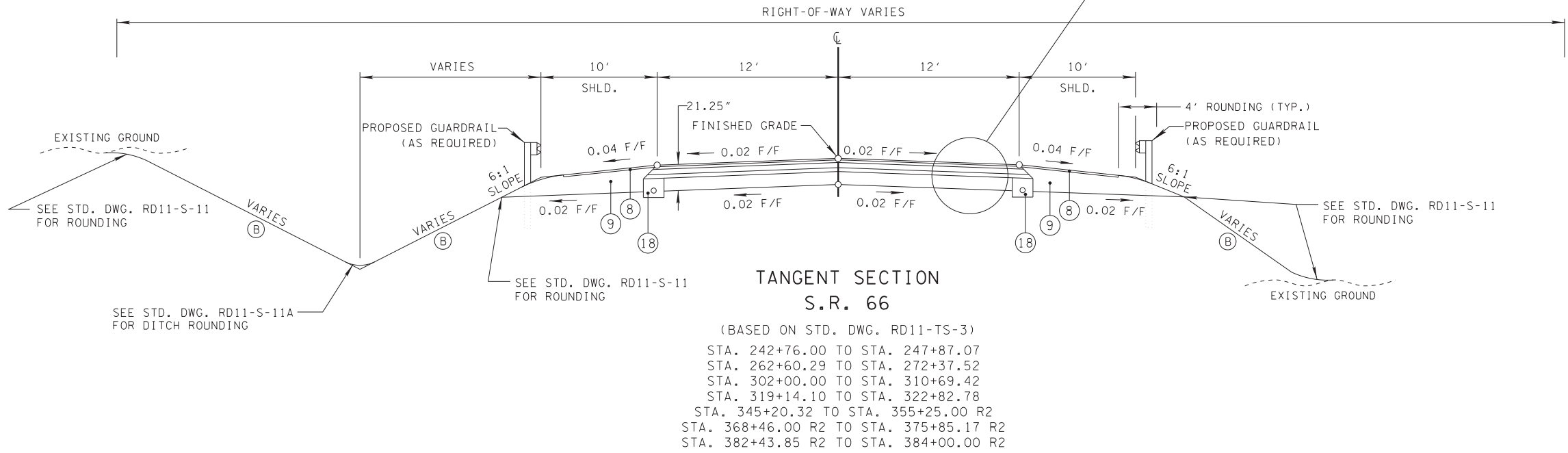
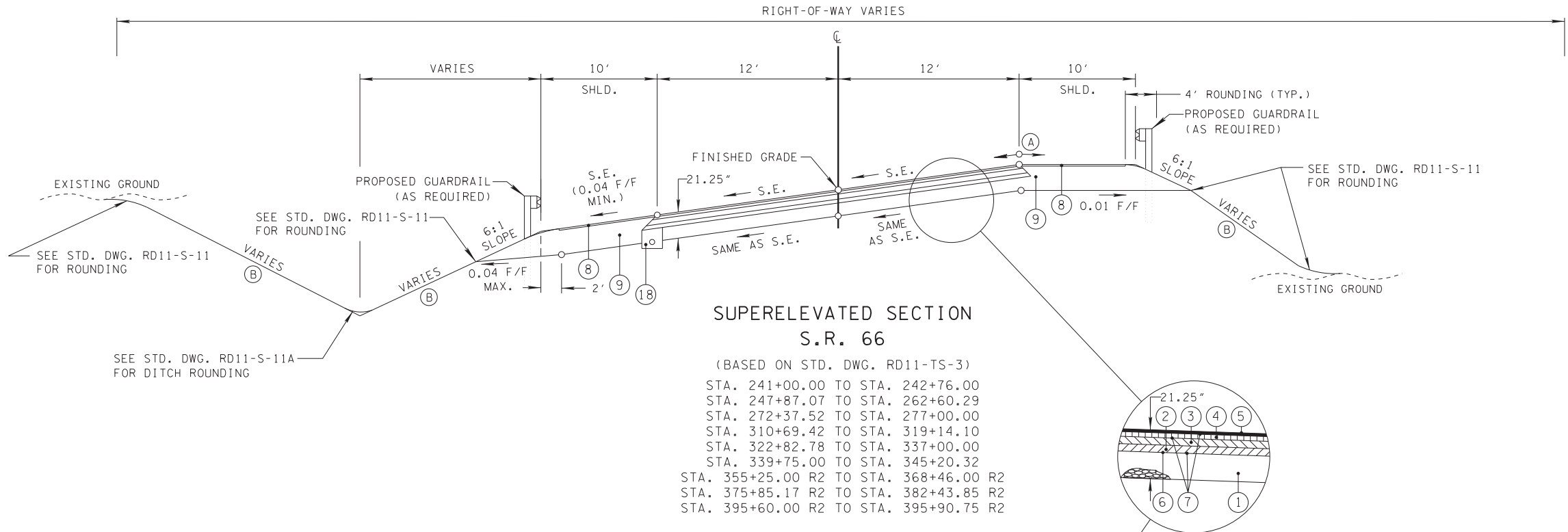
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COORDINATES ARE NAD/83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.000070 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988.

STATE OF TENNESSEE  
DEPARTMENT OF  
TRANSPORTATION

TYPICAL  
SECTIONS

TYPE	YEAR	PROJECT NO.	SHEET NO.
R.O.W.	2023	STP-66(38)	2B2



R.O.W.  
FIELD REVIEW

SEALED BY

COORDINATES ARE NAD/83(1995),  
ARE DATUM ADJUSTED BY THE  
FACTOR OF 1.000070 AND TIED TO  
THE TGRN. ALL ELEVATIONS ARE  
REFERENCED TO THE NAVD 1988.

STATE OF TENNESSEE  
DEPARTMENT OF  
TRANSPORTATION

TYPICAL  
SECTIONS

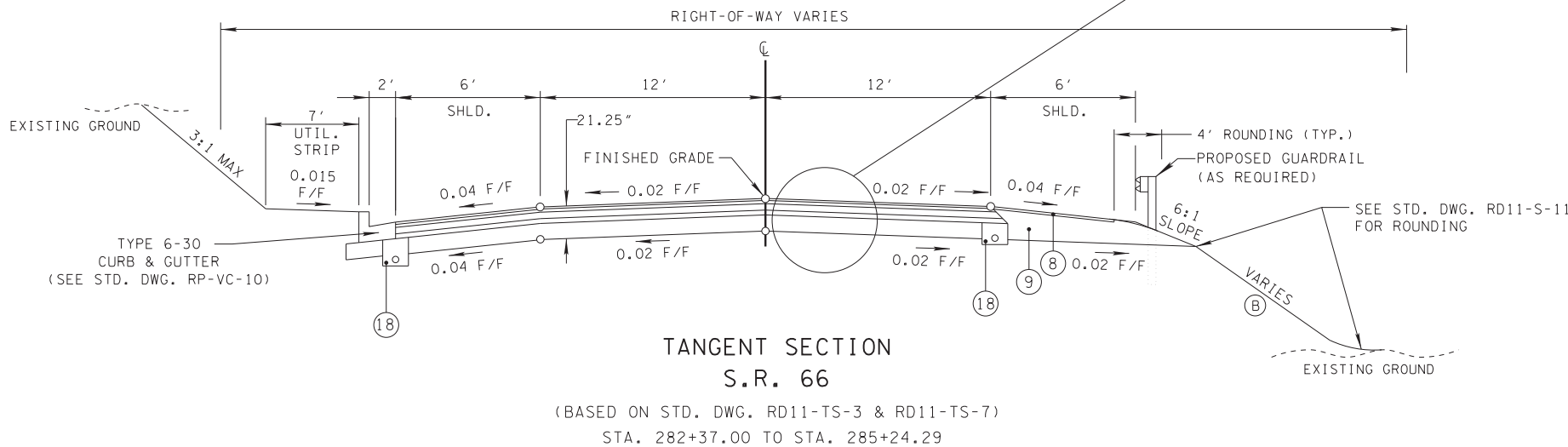
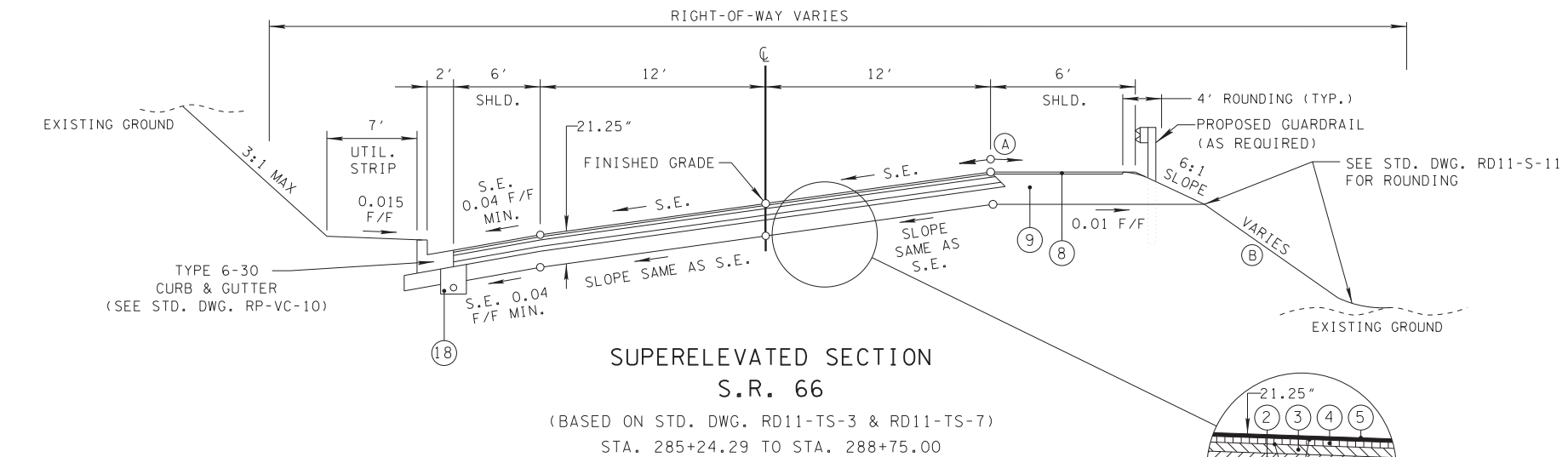
- (A) THE SLOPES OF THE ROADWAY PAVEMENT SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 0.07 FOOT PER FOOT. HIGH SIDE SHOULDER SLOPE SHALL MATCH S.E. FROM STA 341+50.00 TO STA 345+20.32.
- (B) SEE CROSS-SECTIONS FOR SLOPES. SLOPES SHALL NOT EXCEED 2:1.

SEE SHEET 2F & 2G FOR PAVEMENT SCHEDULE (R.O.W.)





TYPE	YEAR	PROJECT NO.	SHEET NO.
R.O.W.	2023	STP-66(38)	2B4



- (A) THE SLOPES OF THE ROADWAY PAVEMENT SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 0.07 FOOT PER FOOT.
- (B) SEE CROSS-SECTIONS FOR SLOPES. SLOPES SHALL NOT EXCEED 2:1.

SEE SHEET 2F & 2G FOR PAVEMENT SCHEDULE (R.O.W.)

R.O.W.  
FIELD REVIEW

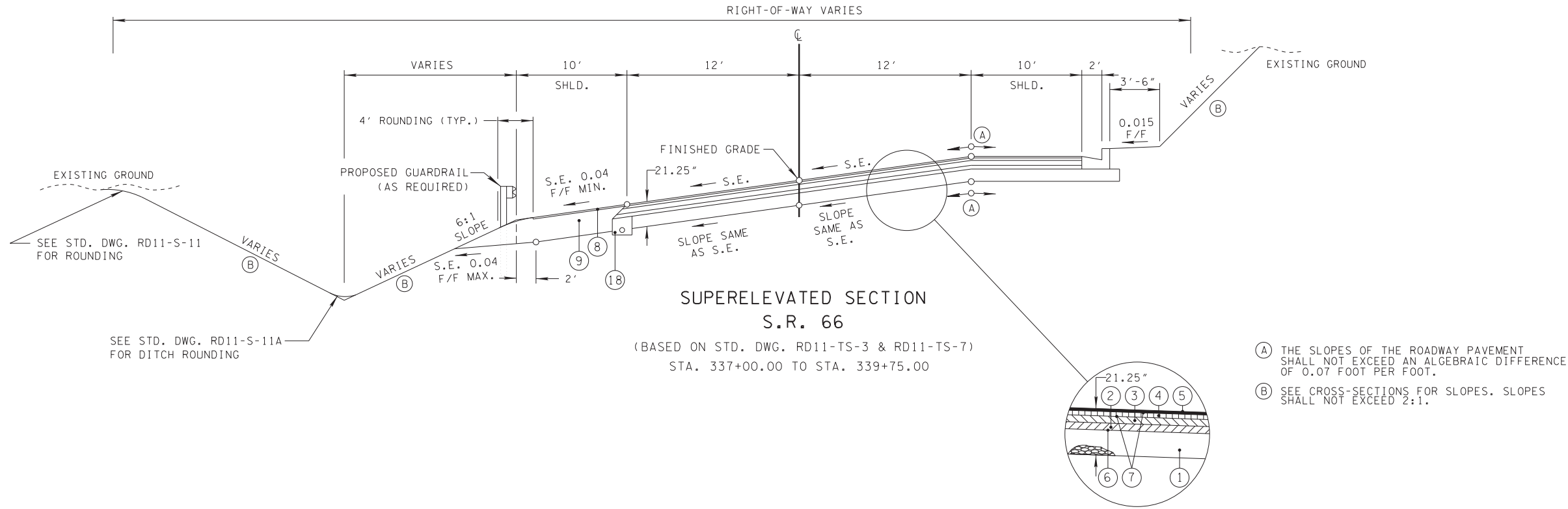
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COORDINATES ARE NAD/83(1995),  
ARE DATUM ADJUSTED BY THE  
FACTOR OF 1.000070 AND TIED TO  
THE TGRN. ALL ELEVATIONS ARE  
REFERENCED TO THE NAVD 1988.

STATE OF TENNESSEE  
DEPARTMENT OF  
TRANSPORTATION

TYPICAL  
SECTIONS

TYPE	YEAR	PROJECT NO.	SHEET NO.
R.O.W.	2023	STP-66(38)	2B5



- (A) THE SLOPES OF THE ROADWAY PAVEMENT SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 0.07 FOOT PER FOOT.
- (B) SEE CROSS-SECTIONS FOR SLOPES. SLOPES SHALL NOT EXCEED 2:1.

R.O.W.  
FIELD REVIEW

SEALED BY

COORDINATES ARE NAD/83(1995),  
ARE DATUM ADJUSTED BY THE  
FACTOR OF 1.000070 AND TIED TO  
THE TGRN. ALL ELEVATIONS ARE  
REFERENCED TO THE NAVD 1988.

STATE OF TENNESSEE  
DEPARTMENT OF  
TRANSPORTATION

TYPICAL  
SECTIONS

SEE SHEET 2F & 2G FOR PAVEMENT SCHEDULE (R.O.W.)

TYPE	YEAR	PROJECT NO.	SHEET NO.
R.O.W.	2023	STP-66(38)	2B6





**Appendix B**  
**MSATs Background Information**

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## MOBILE SOURCE AIR TOXICS (MSAT)

### *Background*

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the U.S. Environmental Protection Agency (EPA) regulate 188 air toxics, also known as hazardous air pollutants. The EPA assessed this expansive list in its rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007), and identified a group of 93 compounds emitted from mobile sources that are part of EPA's Integrated Risk Information System (IRIS). In addition, EPA identified nine compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers or contributors and non-cancer hazard contributors from the 2011 National Air Toxics Assessment (NATA). These are *1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter (diesel PM), ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter*. While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules.

### *Motor Vehicle Emissions Simulator (MOVES)*

MOVES4 is a major revision to the MOVES series of models and is the latest emissions model for SIP and conformity purposes. MOVES4 includes many changes, including new vehicle standards, new emissions and activity data, and new features. As a result of these changes, estimates of emissions from MOVES4 may be different from versions of MOVES3, including MOVES3.1.

The structure of MOVES4 is fundamentally the same as MOVES3, but the emission rates and activity included in MOVES4 differ from MOVES3. The net impact of these changes on calculated emissions will depend on many factors, including the specific area being modeled and the inputs used.

MOVES4 incorporates several important updates, including:

- The emission impacts of the EPA heavy-duty low NO<sub>x</sub> rule for model years 2027.
  - The ability to model heavy-duty battery-electric and fuel-cell vehicles, as well as compressed natural gas (CNG) long-haul combination trucks.
  - Improved modeling of light-duty electric vehicles.
  - New tools to make the model easier to use and updates for compatibility with newer software.
-

- Updated data and forecasts on vehicle populations (including electric vehicle fractions), travel activity, and emission rates, as well as updated fuel supply information at the county level.
- The latest data on ammonia emission rates for light-duty and heavy-duty vehicles.
- A number of limited-impact updates to specific emissions rates and adjustments.

For additional information on the updates included in MOVES4, please refer to the *Overview of EPA's MOtor Vehicle Emissions Simulator (MOVES4)*, found at EPA's MOVES website: <https://www.epa.gov/moves/latest-version-motor-vehicle-emission-simulator-moves>. Specific information about MOVES4 inputs and algorithms can be found in EPA's MOVES onroad and nonroad technical reports, found at EPA's websites <https://www.epa.gov/moves/moves-onroadtechnical-reports> and <https://www.epa.gov/moves/nonroad-technical-reports>, respectively.

#### *MSAT Research*

Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how potential public health risks posed by MSAT exposure should be factored into project-level decision-making within the context of NEPA.

Nonetheless, air toxics concerns continue to arise on highway projects during the NEPA process. Even as the science emerges, the public and other agencies expect FHWA to address MSAT impacts in its environmental documents. The FHWA, EPA, the Health Effects Institute, and others have funded and conducted research studies to try to more clearly define potential risks from MSAT emissions associated with highway projects. The FHWA will continue to monitor the developing research in this field.

#### *NEPA Context*

The NEPA requires, to the fullest extent possible, that the policies, regulations, and laws of the Federal Government be interpreted and administered per its environmental protection goals, and that Federal agencies use an interdisciplinary approach in planning and decision-making for any action that adversely impacts the environment (42 U.S.C. 4332). In addition to evaluating the potential environmental effects, FHWA must also take into account the need for safe and efficient transportation in reaching a decision that is in the best overall public interest (23 U.S.C. 109(h)). The FHWA policies and procedures for implementing NEPA are contained in regulation at 23 CFR Part 771.

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### *Incomplete or Unavailable Information for Project-Specific MSAT Health Impacts Analysis*

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in mobile source air toxic (MSAT) emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The Environmental Protection Agency (EPA) is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations for hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System (IRIS), which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (EPA, <https://www.epa.gov/iris/>). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Several HEI studies are summarized in Appendix D of FHWA's Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are: cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI Special Report 16, <https://www.healtheffects.org/publication/mobile-source-air-toxics-critical-review-literature-exposure-and-health-effects>) or in the future as vehicle emissions substantially decrease.

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then a final determination of health impacts – each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns

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and vehicle technology (which affects emissions rates) over that time frame since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways to determine the portion of time that people are exposed at a specific location and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (Special Report 16, <https://www.healtheffects.org/publication/mobile-source-air-toxics-criticalreview-literature-exposure-and-health-effects>). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA states that concerning diesel engine exhaust, “[t]he absence of adequate data to develop a sufficiently confident dose-response relationship from the epidemiologic studies has prevented the estimation of inhalation carcinogenic risk (<https://www.epa.gov/iris>).”

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an “acceptable” level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA’s approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable ([https://www.cadc.uscourts.gov/internet/opinions.nsf/284E23FFE079CD59852578000050C9DA/\\$file/07-1053-1120274.pdf](https://www.cadc.uscourts.gov/internet/opinions.nsf/284E23FFE079CD59852578000050C9DA/$file/07-1053-1120274.pdf)).

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of

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such assessments would not be useful to decision-makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

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**Appendix C**  
**Traffic Projections**

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**TENNESSEE DEPARTMENT OF TRANSPORTATION  
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION**

PROJECT NO.: 37005-1237-14 ROUTE: S.R. 66  
COUNTY: HAWKINS CITY: BULLS GAP  
PROJECT PIN NUMBER: 107579.00  
PROJECT DESCRIPTION: FROM S.R. 34 TO SPEEDWELL ROAD / OLD HWY. 66  
[1] S.R. 66 AVERAGE TRAFFIC DATA

**DIVISION REQUESTING:**

MAINTENANCE ☐ PAVEMENT DESIGN ☐  
S.T.I.D. ☐ STRUCTURES ☐  
PROG. DEVELOPMENT & ADM. ☐ SURVEY & ROADWAY DESIGN ☒  
PUBLIC TRANS. & AERO. ☐ TRAFFIC SIGNAL DESIGN ☐  
OTHER ☐  
YEAR PROJECT PROGRAMMED FOR CONSTRUCTION: 2028  
PROJECTED LETTING DATE: DECEMBER 10, 2027

**TRAFFIC ASSIGNMENT:**

[1]

BASE YEAR		DESIGN YEAR					DESIGN ROADWAY % TRUCKS		DESIGN AVERAGE DAILY LOADS	
AADT	YEAR	AADT	DHV	%	YEAR	DIR.DIST.	DHV	AADT	FLEX	RIGID
4,330	2028	5,320	532	10	2048	65-35	3	5	136	197

REQUESTED BY: NAME ERIC WILSON DATE 4/18/23  
DIVISION REGION I PROJECT DEVELOPMENT  
ADDRESS 7345 REGION LANE  
KNOXVILLE TN 37914

REVIEWED BY: RANDY BOGUSKIE Randy Boguskie DATE 4/19/2023  
TRANSPORTATION MANAGER 1  
SUITE 1000, JAMES K. POLK BUILDING

APPROVED BY: TONY ARMSTRONG Tony Armstrong DATE 4/19/2023  
TRANSPORTATION MANAGER 2  
SUITE 1000, JAMES K. POLK BUILDING

**COMMENTS:**

FURNISH THE 2028-2048 TRAFFIC DATA AND ADL's FOR A TWO LANE ROADWAY.

THIS TRAFFIC IS BASED ON 2022 CYCLE COUNTS AND THE PREVIOUS PROJECT PREPARED FOR DESIGN DATED 10/17/2019. DUE TO THE 2022 CYCLE COUNTS BEING LOWER THAN THE 2023 FORECASTED TRAFFIC DATA THIS TRAFFIC IS LOWER THAN THE PREVIOUS PROJECT TRAFFIC. THE DESIGN YEAR TRAFFIC IS BASED ON GROWTH RATE FROM THE TN-TIMES LINEAR REGRESSION TOOL. AADT's, DHV's AND ADL's ARE INCLUDED. THE TRUCK PERCENT WAS LOWERED BASED ON A 2022 CLASSIFICATION COUNT.

**DHV'S ARE NOT REQUIRED FOR SIDE ROADS LESS THAN 1000 AADT.**

**NOTE:** FOR BRIDGE REPLACEMENT PROJECTS, ADLs ARE NOT REQUIRED FOR ADTs OF 1000 OR LESS AND PERCENTAGE OF TRUCKS OF 7% OR LESS.

SEE ATTACHMENTS FOR TURNING MOVEMENTS AND/OR OTHER DETAILS.

(REV. 6/9/21)

**TENNESSEE DEPARTMENT OF TRANSPORTATION  
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION**

PROJECT NO.: 37005-1237-14 ROUTE NO.: S.R. 66  
 COUNTY: HAWKINS CITY: BULLS GAP  
 PROJECT DESCRIPTION: FROM S.R. 34 TO SPEEDWELL ROAD/OLD HWY. 66

**FAP Rural**

Pavement Structural Design

Calculation of Equivalent Daily 18 Kip Single Axle Loads

Type Vehicle		ADT (No. Counted)	Flexible		Rigid	
			18-kip Factor	ADL	18-kip Factor	ADL
Pass. cars and motorcycles (1-2)		3,307	0.001	3	0.001	3
Pick-up, Panel, Van (3)		1,277	0.005	6	0.004	5
Sing. Unit	Buses (4)	2	0.300	1	0.300	1
	2-axle, 6-tire (5)	63	0.240	15	0.310	20
	3-axle or more (6-7)	57	1.700	97	2.300	131
	4-axle (8)	38	1.110	42	1.500	57
Comb.	5-axle or more (9-13)	81	1.320	107	2.200	178
Totals (2038 AADT)		4,825		271		395

Suggested Percentages of Trucks in Design Lane

5,000 or less ADT	95%
5,000 - 10,000 ADT	90%
10,000 - 15,000 ADT	85%
15,000 - 20,000 ADT	80%
20,000 - 30,000 ADT	75%
30,000 - 40,000 ADT	70%
40,000 Plus	60%

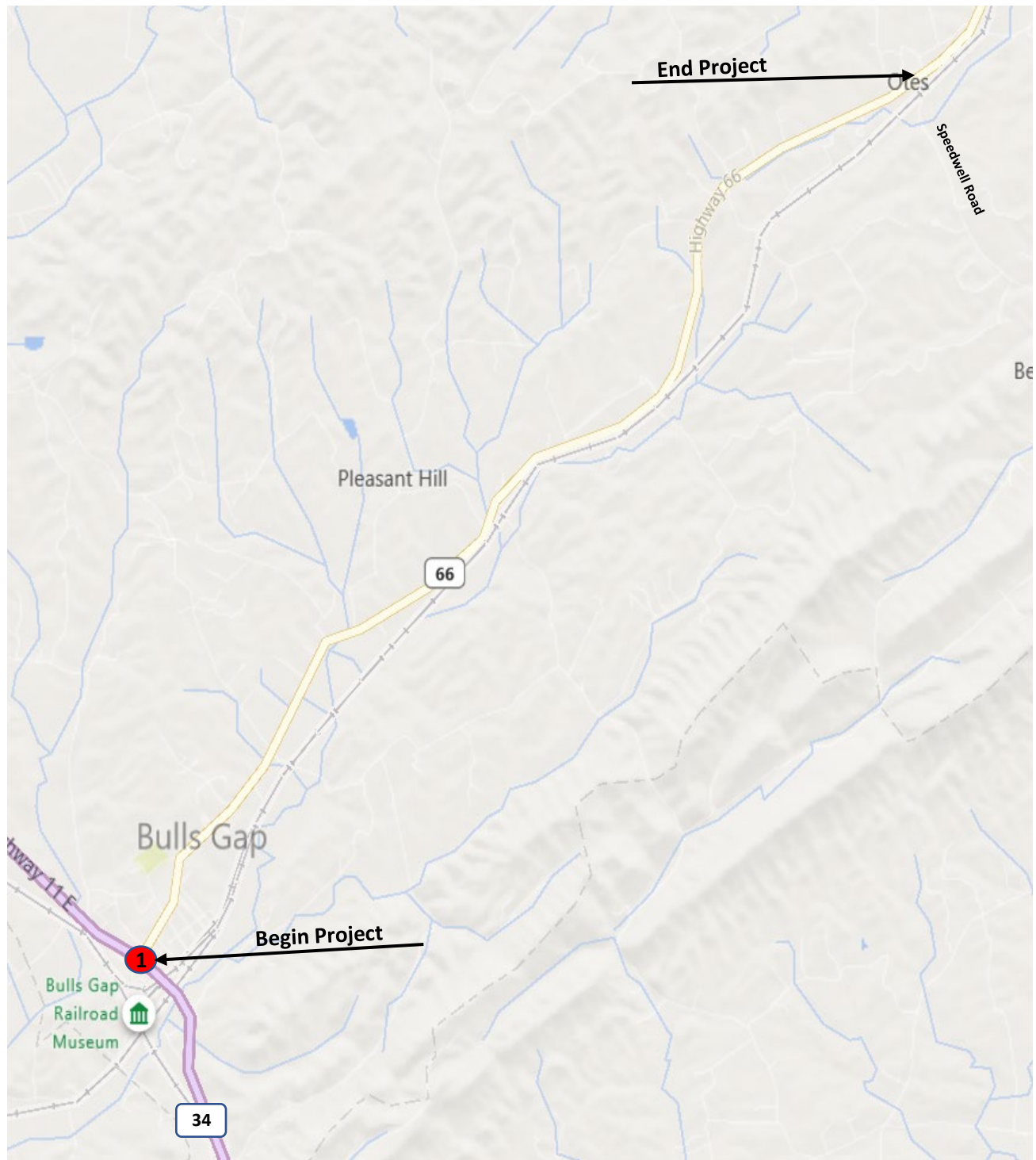
No. of Lanes: 2

% Trucks in Design Lane: 100%

ADL in Design Lane:

FLEX:	0.5	X	1.00	X	271.4	=	136
RIGID:	0.5	X	1.00	X	394.8	=	197

ADL Calculations By: Ashlie Bevan Date: 4/19/2023  
 Reviewed By: Randy Boguskie Date: 4/19/2023  
 [REV. 7/1/14]

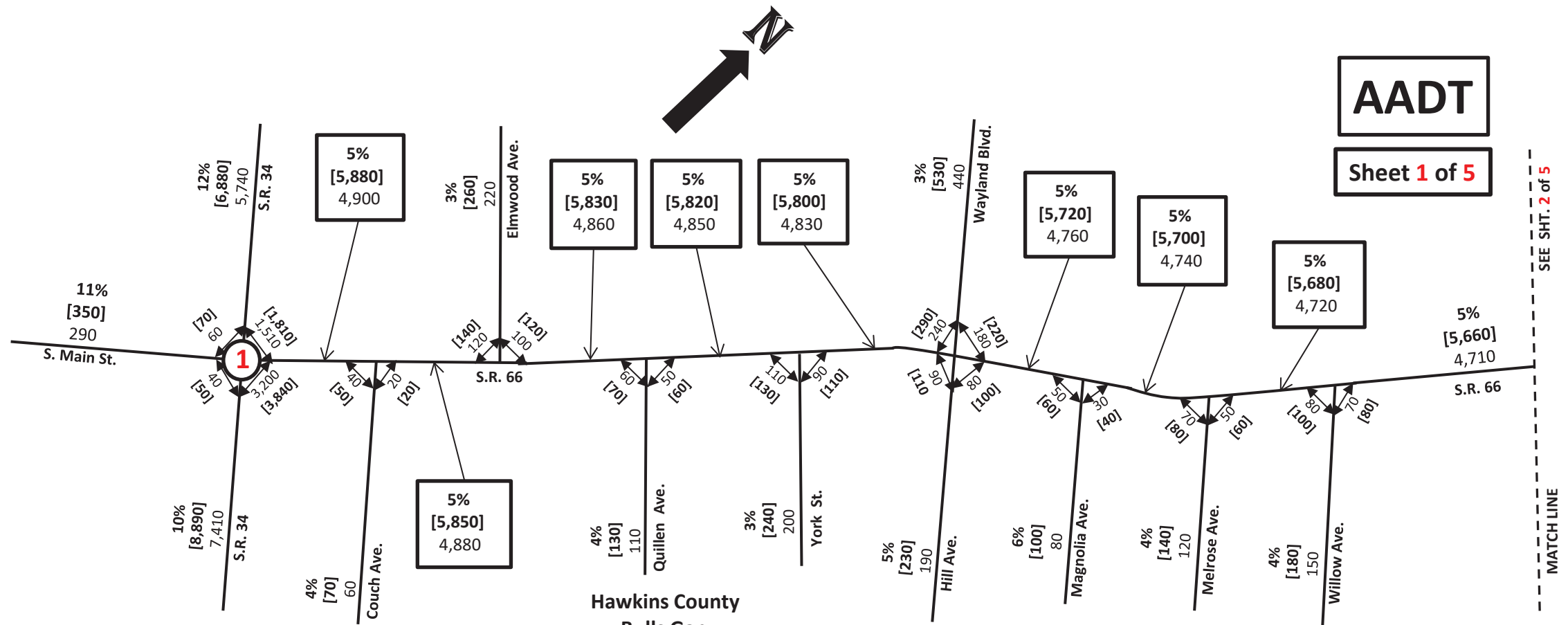


**Hawkins County**

**Bulls Gap**

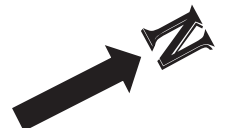
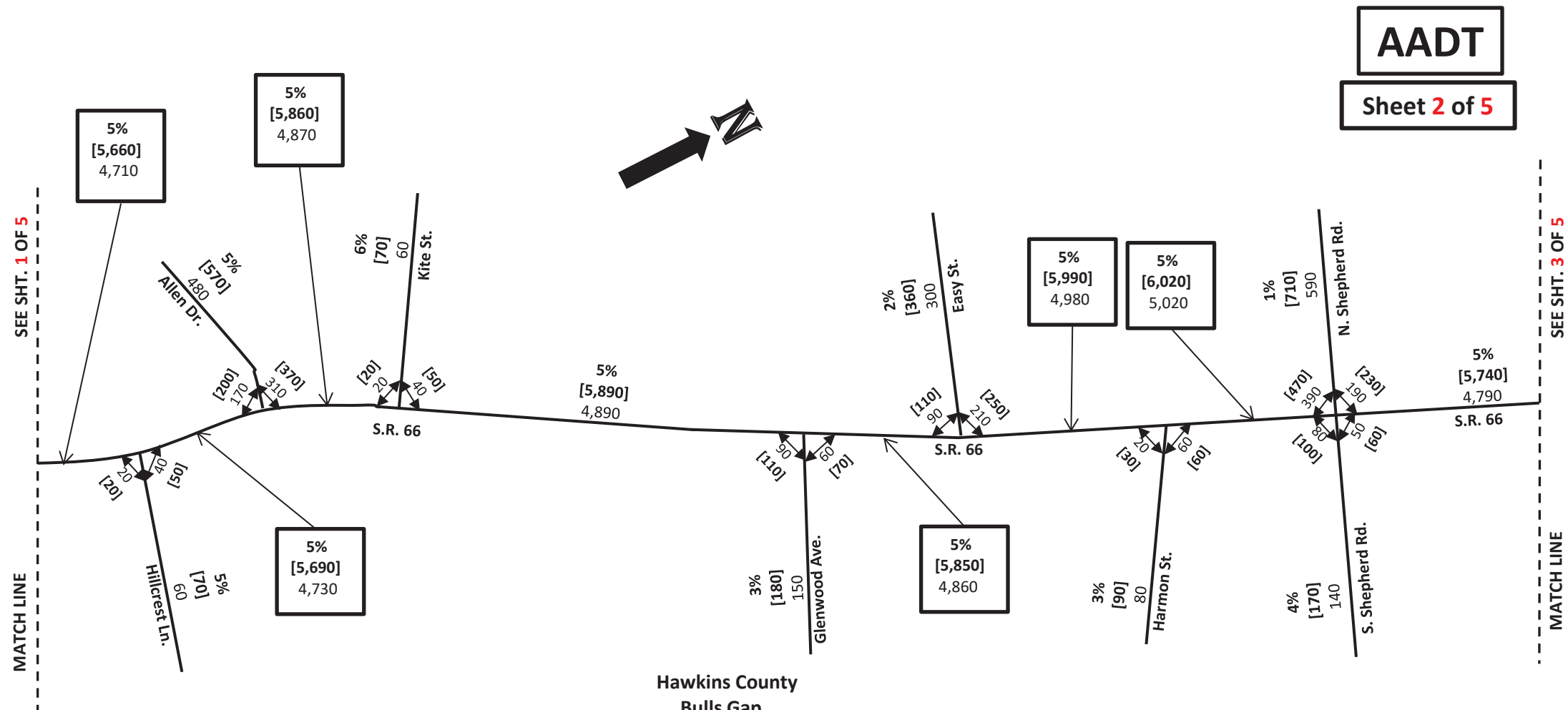
**S.R. 66**

**From S.R. 34 to Speedwell Road / Old Hwy. 66**

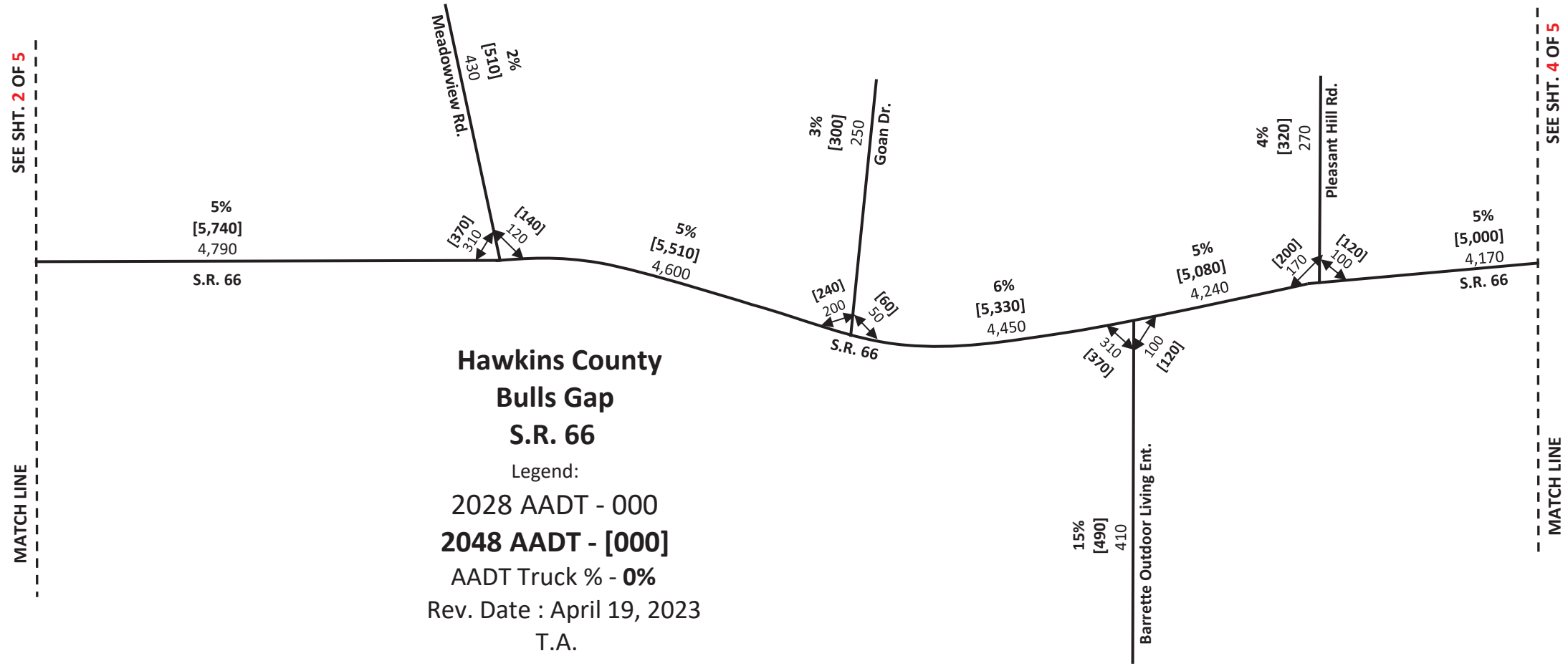


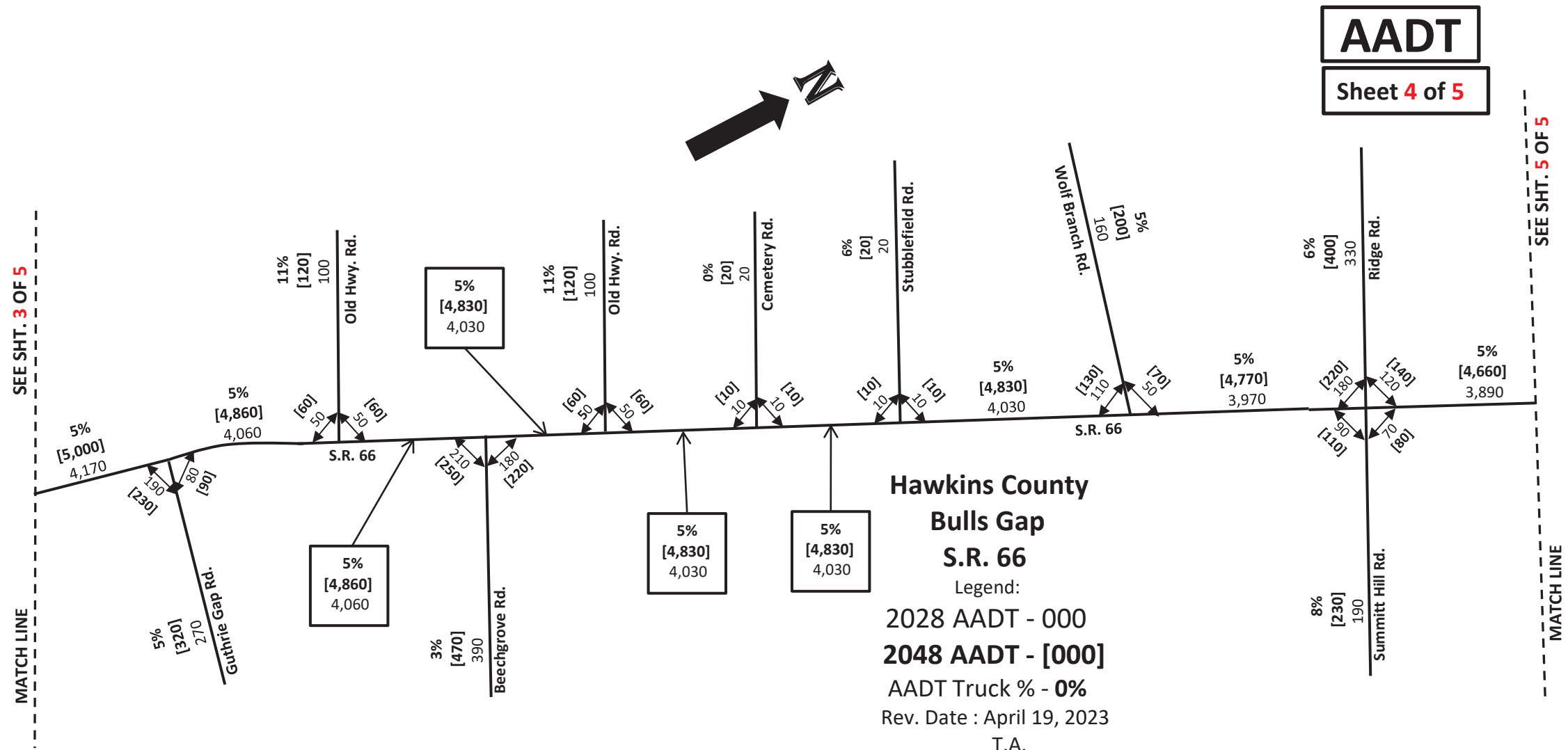
Hawkins County  
Bulls Gap  
S.R. 66  
Legend :  
2028 AADT - 000  
2048 AADT - [000]  
AADT Truck % - 0%  
Rev. Date : April 19, 2023  
T.A.

AADT  
Sheet 1 of 5



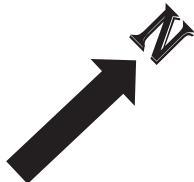
Hawkins County  
Bulls Gap  
S.R. 66  
Legend:  
2028 AADT - 000  
**2048 AADT - [000]**  
AADT Truck % - 0%  
Rev. Date : April 19, 2023  
T.A.





SEE SHT. 4 OF 5

MATCH LINE



AADT

Sheet 5 of 5

5%  
[4,660]  
3,890  
S.R. 66

6%  
[180]  
150  
Berry Rd.

5%  
[4,600]  
3,840

5%  
[420]  
350  
Speedwell Rd.

5%  
[4,460]  
3,730

13%  
[180]  
150  
Old Tn. 66

5%  
[4,440]  
3,700  
S.R. 66

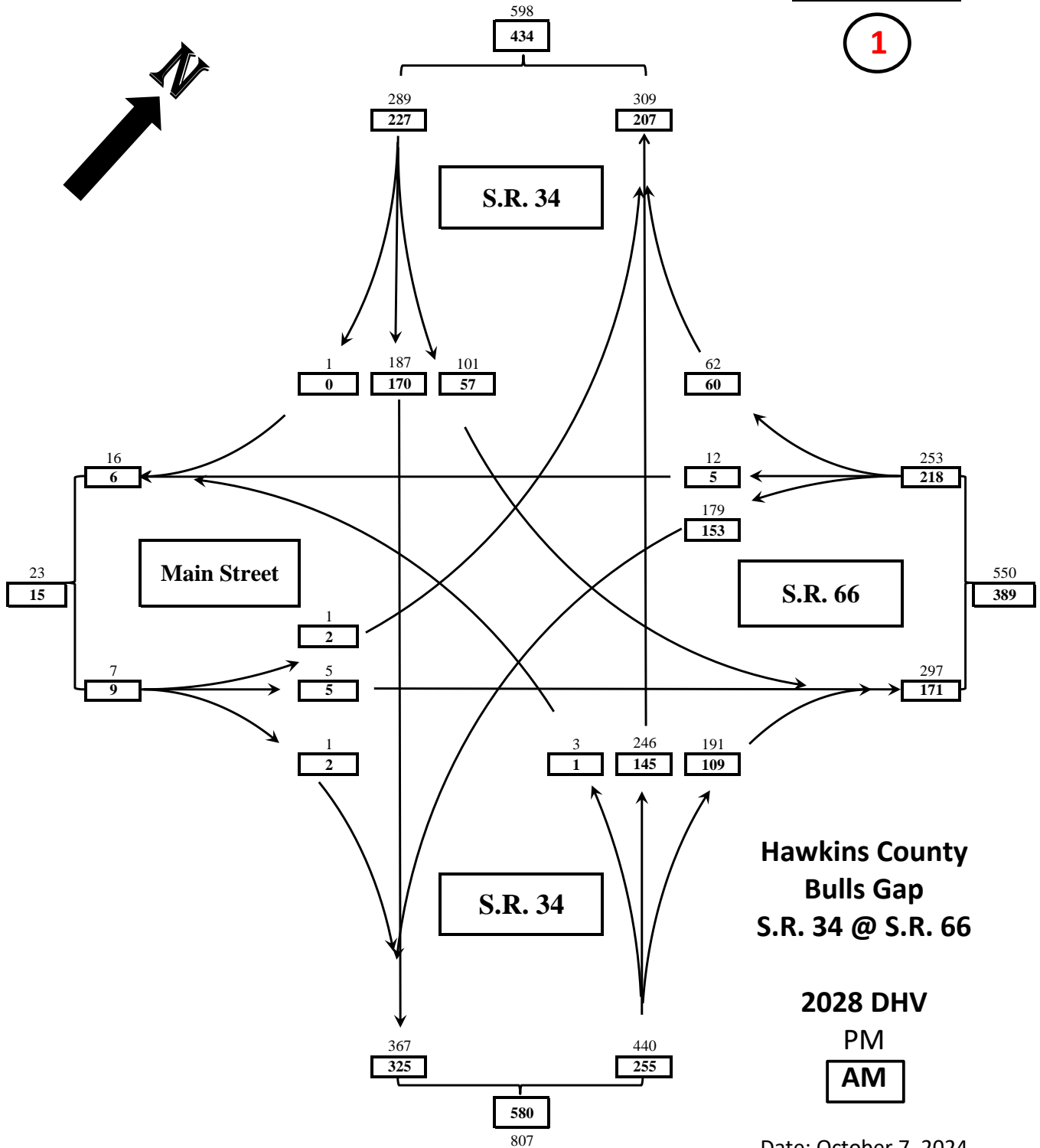
Hawkins County  
Bulls Gap  
S.R. 66

Legend:  
2028 AADT - 000  
2048 AADT - [000]  
AADT Truck % - 0%  
Rev. Date : April 19, 2023  
T.A.



2028 DHV

1



Hawkins County  
Bulls Gap  
S.R. 34 @ S.R. 66

2028 DHV

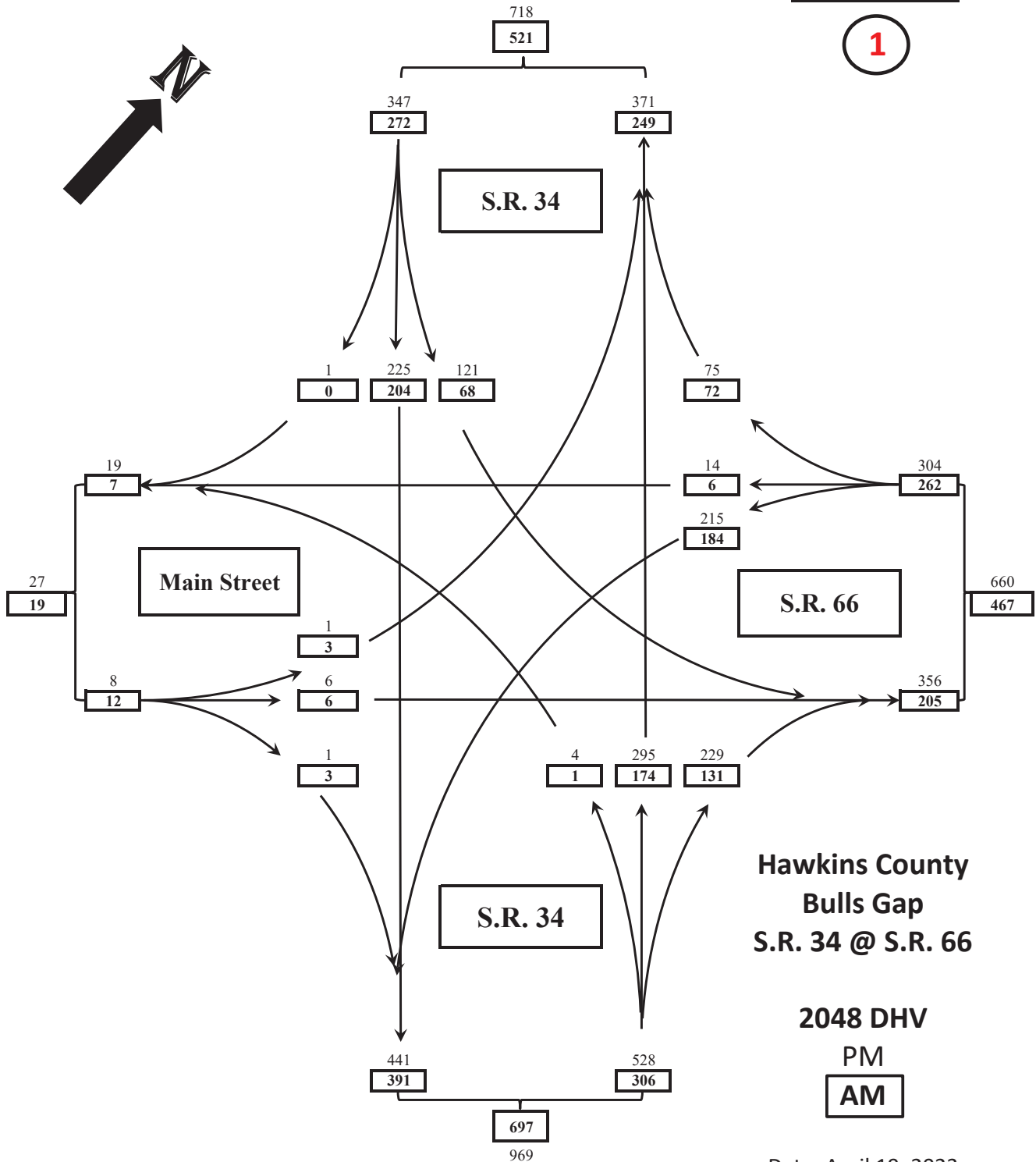
PM

AM

Date: October 7, 2024  
TA

2048 DHV

1



Hawkins County  
Bulls Gap  
S.R. 34 @ S.R. 66

2048 DHV

PM

AM

Date: April 19, 2023  
TA



# **Appendix B**

Noise Technical Report  
(Dated November 2024)

# Noise Technical Report

## SR-66

### From SR-34 in Bulls Gap to South of Speedwell Rd/ Old Hwy 66 (IA) (TMA) Hawkins County, Tennessee

Based on Right-of-Way Plans dated August 2024

PIN Number: 107579.00

Federal Project Number: STP-66(38)

State Project Number: 37005-1237-14

**Prepared for:**



Prepared by:

**Bowlby & Associates, Inc.** 

November 2024

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Appendix B	Traffic Data
Appendix C	TNM Checklists and Plan Views
Appendix D	Existing and Design Year Noise Levels and Impacts

## LIST OF ABBREVIATIONS

AADT	Annual Average Daily Traffic
CFR	Code of Federal Regulations
CSRP	Conceptual Stage Relocation Plan
dBA	A-weighted decibels
DHV	Design Hour Volume
FHWA	Federal Highway Administration
IL	Insertion Loss
L <sub>eq</sub> (1h)	One-hour equivalent noise level
NAA	Noise Analysis Area
NAC	Noise Abatement Criteria
TDOT	Tennessee Department of Transportation
TNM	Traffic Noise Model

## EXECUTIVE SUMMARY

The widening and realignment of SR-66 is a Type I project per the Federal Highway Administration (FHWA) noise regulation, *Procedures for Abatement of Highway Traffic and Construction Noise*, 23 CFR 772. The project requires a noise study to identify noise impacts and to evaluate noise abatement for those impacts. The noise study was conducted per the Tennessee Department of Transportation's (TDOT) *Policy on Highway Traffic Noise Abatement* (TDOT's noise policy) and Section 5.3.4 (Noise) of the *Tennessee Environmental Procedures Manual*.

The study identified five Noise Analysis Areas (NAAs) within the project limits, all of which include Activity Category B residential land uses. Other uses include the Activity Category C Bulls Gap School playground and the Trinity Pentecostal Church patio. The Oak Grove Baptist Church and the Otes Methodist Church are Activity Category D uses since they do not have exterior areas of frequent human use. Therefore, these two churches were evaluated for interior impacts.

The FHWA Traffic Noise Model (TNM) version 2.5 predicted existing and design year 2048 worst-hour noise levels for the noise-sensitive land uses in each NAA. The predicted noise levels were used to identify noise impacts per TDOT's noise policy. The project is not predicted to cause a substantial increase in existing noise levels and the predicted noise levels at most land uses do not approach or exceed the FHWA Noise Abatement Criteria. However, five residences are predicted to be impacted with noise levels of 66 dBA or higher.

Noise barriers were evaluated but determined to not be feasible as they would eliminate or restrict access to SR-66. Therefore, noise abatement is not proposed.

Construction activities may generate intermittent and temporary noise above existing noise levels. The generated noise levels will depend on the types of equipment utilized, the duration of the activities, and the distances between construction activities and nearby land uses. TDOT construction specifications will apply to this project.

Some tracts of undeveloped land exist in the project area. The FHWA noise regulation does not allow federal funds to be used to construct noise abatement for new land uses. Therefore, TDOT encourages the local governments with jurisdiction over these lands, as well as potential developers of these lands, to practice noise compatibility planning to avoid future noise impacts.

## 1.0 INTRODUCTION

The Tennessee Department of Transportation (TDOT) is proposing improvements to SR-66 in Hawkins County between SR-34 and south of Speedwell Road/Old Hwy 66, a distance of approximately 5.6 miles. The improvements include widening as well as realignment or shifting of some sections of the existing roadway. Figure 1 shows the project area and limits. Appendix A includes the cover sheet of the project plans, typical cross-sections, and project overlay.

The project is Type I per the Federal Highway Administration (FHWA) noise regulation, *Procedures for Abatement of Highway Traffic and Construction Noise*, 23 CFR 772 (FHWA, 2010) due to the new alignment sections and the halving of the distance between the widened roadway and some adjacent noise-sensitive land uses. Therefore, a noise study is required.

This report documents the results of the noise analysis that was conducted per the FHWA noise regulation, TDOT's *Policy on Highway Traffic Noise Abatement* (TDOT, July 13, 2011), and Section 5.3.4 (Noise) of the *Tennessee Environmental Procedures Manual* (TDOT, July 15, 2011).

## 2.0 NOISE EVALUATION

This study includes the following tasks:

- *Identification of noise analysis areas*: Identification of existing land uses in the project area that are sensitive to highway traffic noise
- *Determination of existing noise levels*: Prediction of existing noise levels at sensitive land uses to characterize the existing noise environment in the project area
- *Determination of future noise levels*: Prediction of future, design year, worst-hour noise levels for the No-Build and Build Alternatives
- *Determination of traffic noise impacts*: Determination of noise impacts based on the increase in existing noise levels, as well as design year noise levels
- *Noise abatement evaluation*: Evaluation of noise abatement for areas determined to be impacted by the project
- *Discussion of construction noise*
- *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 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. When the sound level exceeds the mid-60 dBA range, outdoor conversation in normal tones at three feet becomes difficult. Common indoor and outdoor sound levels are shown in Figure 2.

A 9-10 dB increase in sound level is 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 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 evaluated over the worst one-hour period and is defined as  $L_{eq}(1h)$ .

The term insertion loss (IL) is 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 before a barrier is constructed is 75 dBA and the  $L_{eq}(1h)$  after a barrier is constructed is 65 dBA, then the IL would be 10 dB.

### 2.1.2 Noise Abatement Criteria (NAC)

Noise impact is determined by comparing future project noise levels to a set of Noise Abatement Criteria (NAC) for a particular land use category and existing noise levels. The FHWA noise regulation and TDOT’s noise policy state that traffic noise impacts require consideration of abatement when worst-hour noise levels approach or exceed the NAC listed in Table 1. TDOT’s noise policy defines “approach” as one decibel below the NAC, or

66 dBA for Activity Category B and C land uses. The FHWA noise regulation and TDOT's noise policy also define impacts to occur if there is a *substantial increase* in existing noise levels. TDOT's criteria to define substantial noise increases are presented in Table 2.

## 2.2 Noise Analysis Areas

A review of available electronic mapping revealed numerous noise-sensitive land uses that might be impacted by the project. These land uses were assigned to individual areas for study called noise analysis areas (NAA). The NAAs are listed in Table 3 and shown in Figures 3 through 6. A building permit search did not identify any active permits in the project area. Land uses within approximately 300 feet of SR-66 were included to ensure that all impacts were identified. The project will also include work along several local intersecting roads. Land uses along these roads were also included.

All five NAAs include Activity Category B residential land uses. Two Activity Category C land uses were identified, including the playground at the Bulls Gap School in NAA 2 and the exterior patio at the Trinity Pentecostal Church in NAA 3. Noise impacts will be identified, and noise abatement will be considered at the Activity Category B residences and Activity Category C land uses if design year noise levels are 66 dBA or higher or if the project causes a substantial increase in existing noise levels.

Two additional churches/places of worship exist within the project limits: the Oak Grove Baptist Church in NAA 2 and the Otes Methodist Church in NAA 5. These churches do not have exterior areas of frequent human use so they are Activity Category D land uses that must be evaluated for interior noise impacts. Noise impacts will be identified, and noise abatement will be considered if interior design year sound levels are 51 dBA or higher, or if the project causes a substantial increase in existing sound levels.

The historic Long & Berry Cemetery is on the north side of SR-66 behind the residence at 1443 Hwy 66 S. Per TDOT's Noise Procedures, frequent human use areas at cemeteries might include exterior areas where services are held regularly but would generally not include individual grave sites. The cemetery is not active and does not have an exterior area where services would be held, therefore, the cemetery is not a noise-sensitive land use and has not been included in the noise analysis.

Some Activity Category F land uses also exist within the project limits including commercial and retail uses near SR-34; the 1.8 million square foot Barrette Outdoor Living fabrication plant with outdoor storage/distribution at 740 N Main Street; commercial, industrial, and warehousing uses near Speedwell Road/Old Hwy 66; and scattered agricultural uses. Activity Category F land uses are not noise-sensitive and do not have an NAC (Table 1). As a result, these uses have not been included in the noise study.

Finally, some tracts of Activity Category G undeveloped lands exist in the project area. These undeveloped lands are not noise-sensitive, do not have a NAC, and have not been included in the noise study. However, noise impacts could occur in the future if noise-sensitive land uses are constructed near SR-66. A discussion of future noise levels and the need for noise-compatible land use planning is provided in Section 2.8.

### 2.3 Existing Noise Levels

Existing noise levels were determined by using *Method 2: Prediction of Existing Noise Levels* of TDOT's noise procedures. Noise modeling of the project area was completed using the TNM Version 2.5 per *TDOT Guidelines for Noise Modeling Using FHWA's Traffic Noise Model* (TDOT, 2010). TNM calculated existing worst-hour noise levels for the noise-sensitive land use in each NAA.

MicroStation design files of the project plans were used to develop the TNM runs. When developing the TNM files, the points of TNM objects (including roadways, receivers, terrain lines, and building rows) were first digitized into MicroStation Powerdraft. Elevations were obtained from the Tennessee Department of Finance and Administration's STS-GIS Service website and the project plans. Each travel lane of SR-66 and SR-34 was modeled as a separate TNM roadway. Local roads with daily traffic of 200 vehicles per day or higher were also modeled using either one or two TNM roadways.

Each noise-sensitive land use was modeled as a discrete TNM receiver. As outlined in the Conceptual Stage Relocation Plan (CSRP), TDOT will acquire more than 30 residences and some commercial land uses to construct the project. Changes to the project plans could result in changes to the CSRP. Therefore, receivers were modeled for land uses that are currently planned to be taken for the project. These receivers are noted as a "take" but were assigned zero dwelling units.

Traffic volumes for the "design hour" represent the theoretical worst traffic condition. Therefore, the design hour volumes (DHV) were used to predict existing worst-hour noise levels since they represent the highest number of vehicles expected to travel on the roadway network in a given hour and would represent the worst noise hour.

TDOT's Strategic Transportation Investments Division provided year 2028 Annual Average Daily Traffic (AADT) projections for the roadways within the project limits. DHVs were also provided for the AM and PM peak periods for the intersection of SR-66 and SR-34. The year 2028 volumes were used to represent existing conditions. DHVs for SR-66 were calculated by applying the provided peak/design hour factor (k) of 10% to the AADTs.

TDOT also provided daily truck percentages of 5% to 6% on SR-66, which equates to 3% to 4% trucks during the design hour. The truck percentages on SR-34 are 10% to 12% daily and 7% to 8% during the design hour. Truck percentages on the modeled local roads range from 1% to 8% daily and 1% to 5% during the design hour.

The splits between medium trucks and heavy trucks for SR-66 were calculated using the Pavement Structural Design data included with TDOT's traffic projections. This data indicates that approximately 26% of the trucks are medium trucks and 74% are heavy trucks. Those percentages were used for SR-66 and intersecting local roads. Data was not provided for SR-34. However, TDOT's Traffic Count Database System has a classification count on SR-34 west of the project. That data shows that approximately 14% of the trucks are medium trucks and 84% are heavy trucks, so those percentages were used for SR-34. Appendix B includes the traffic data.

The existing posted speed limits on SR-66 were modeled as summarized in Table 4. The speed limit is 30 mph from SR-34 to north of Barrette Drive. The limit increases to 50 mph from north of Barrette Drive to just south of Berry Road. The speed limit for the last 2,000 feet of SR-66 within the project limits is 55 mph. The existing posted speed limits were modeled for other modeled roadways including 30 mph on SR-34. The posted speeds for the other modeled local roads range from 15 to 30 mph.

Table 5 summarizes the predicted existing worst-hour noise levels, and levels for each receiver can be found in Appendix D. Since the noise levels generated by SR-66 are relatively low at many locations, the analysis included a 40 dBA exterior background noise level which was added to traffic noise levels predicted by TNM. Existing worst-hour exterior noise levels at the Activity Category B and C land uses range from 45 to 66 dBA.

The interior noise levels at the two Activity Category D churches were estimated by applying a typical 25 dB reduction for building attenuation, which assumes standard construction and air conditioning per FHWA guidance (FHWA, 2011). Predicted existing noise levels for the interior areas of the Activity Category D churches range from 33 to 38 dBA. The analysis included a 30 dBA noise level to account for interior background noise.

The TNM quality control checklist and plan views showing all modeled TNM objects and the location of the modeled roadways and receivers are included in Appendix C.

## 2.4 Future Noise Levels

TDOT's Strategic Transportation Investments Division provided year 2048 AADTs for the roadways within the project limits as well as AM and PM DHVs for the intersection of SR-66 and SR-34. As with existing conditions, DHVs for SR-66 were calculated by applying the provided peak/design hour factor (k) of 10% to the AADTs. The resulting year 2048 DHVs were used to predict future worst-hour noise levels. The truck percentages and speeds were assumed to be the same as for existing conditions.

### 2.4.1 No-Build Alternative

Noise levels for the No-Build Alternative can be reasonably estimated by evaluating existing and future traffic volumes on SR-66. Doubling the traffic on a roadway would result in a 3 dB increase in the noise level at a given receiver, assuming all other conditions remain the same. Design year 2048 traffic volumes on SR-66 are predicted to be approximately 20% higher than year 2028 volumes. These higher volumes would increase noise levels at nearby land uses by approximately 1 dB per the equation below:

$$\text{Noise Level Increase} = 10 \times \log \left( \frac{\text{Future Traffic Volume}}{\text{Existing Traffic Volume}} \right) = 10 \times \log \left( \frac{1.20}{1.00} \right) = 0.79 \text{ dB}$$

As a result, existing noise levels were increased by 1 dB to arrive at design year 2048 noise levels for the No-Build Alternative shown in Figures 7 through 18.

### 2.4.2 Build Alternative

Noise modeling of the Build Alternative was completed using TNM in the same manner as for existing conditions. The project modeling utilized the current right-of-way plans dated August 2024 shown in Appendix A.

The design speeds for the widened and realigned road are shown in Table 4. As shown, the design speed will be 30 mph from SR-34 to Kite Street, 45 mph between Kite Street and south of James Shortt Road, and 60 mph from south of James Shortt Road to the project end. Future posted speed limits could be lower than the design speeds. However, the design speeds were modeled to provide a conservative analysis of potential noise impacts.

TNM calculated design hour noise levels in design year 2048 for the noise-sensitive land use in each NAA. The analysis included a 40 dBA exterior background noise level and a 30 dBA *interior* background noise level for Category D land uses.

The predicted design year noise levels are summarized in Table 5, shown in Figures 7 through 18, and discussed in the following section. The predicted levels for each receiver can be found in Appendix D. The TNM quality control checklist and plan views showing all modeled TNM objects, and the location of the modeled roadways and receivers are included in Appendix C.

## 2.5 Noise Impact Evaluation

A noise-sensitive land use is impacted if the predicted worst-hour noise level approaches or exceeds the NAC, or the project substantially increases existing noise levels.

The predicted changes in existing noise levels due to the project range from a decrease of 1 dB to an increase of 9 dB. The reductions occur at locations where SR-66 will be shifted away from noise-sensitive uses. The noise level increases occur due to several factors: widening of the road, realignment of the road, and increases in speed limits. However, the noise level increases are not “substantial” per TDOT’s noise policy.

Predicted design year 2048 noise levels for the Build Alternative at the Activity Category B residences range from 46 to 67 dBA. Most residences are not impacted. However, five residences are predicted to be impacted with noise levels of 66 dBA or higher including:

- NAA 2:
  - 848 Main Street
- NAA 5:
  - 1711 Hwy 66 S
  - 1747 Hwy 66 S
  - 1755 Hwy 66 S
  - 2003 Hwy 66 S

The predicted noise levels at the Activity Category C Bulls Gap School in NAA 2 and the patio at the Trinity Pentecostal Church in NAA 3 are 49 and 58.5 dBA, respectively, and below the NAC. Therefore, these uses are not impacted.

The predicted interior noise levels at the Oak Grove Baptist Church in NAA 2 and the Otes Methodist Church in NAA 5 are well below the NAC and are not predicted to be impacted.

## 2.6 Noise Abatement Evaluation

Abatement is evaluated when impacts are predicted to occur. SR-66 is not a limited-access facility. All five impacted residences have direct driveway access to SR-66. Noise barriers

are not feasible at these locations because they would eliminate or restrict the ability to access SR-66.

### 2.6.1 Statement of Likelihood

Noise abatement is not proposed for this project.

## 2.7 Construction Noise

Construction activities will generate intermittent and temporary noise above existing ambient noise levels. The noise levels resulting from construction activities will depend on the types of equipment utilized, the duration of the activities, and the distances between construction activities and nearby land uses. However, the noise increases will be temporary and will not constitute a noise impact as defined by the FHWA noise regulation and TDOT's noise policy.

Construction procedures will be governed by TDOT's *Standard Specifications for Road and Bridge Construction* (TDOT, 2021), as amended by the most recent applicable supplements. Construction equipment will meet the standards set forth in Section 108.04.B (Methods and Equipment). The contractor shall observe any local noise ordinance that applies to the project.

## 2.8 Information for Local Officials

Some undeveloped tracts of land are adjacent to SR-66. TDOT has encouraged the local governments with jurisdiction over these lands, as well as potential developers of these lands, to practice noise compatibility planning 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."*

FHWA developed two guidance documents on noise-compatible land use planning: *The Audible Landscape: A Manual for Highway Noise and Land Use* (FHWA, 1974) and *Entering the Quiet Zone: Noise Compatibility Land Use Planning* (FHWA, 2002).

Design year noise levels for areas along SR-66 where vacant and possibly developable lands exist are listed in Table 6. Noise predictions were made at distances between 50 feet and 300 feet from the centerline of the near lane for the design year 2048 using the worst-

case traffic volumes and speeds. The 66 dBA contour is approximately 75 feet from the centerline of the near lane. Noise-sensitive land uses should not be constructed within those limits unless noise mitigation measures are provided by the developer.

The values in Table 6 do not represent predicted levels at every location at a particular distance from the roadway. Noise levels will 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 noise levels so that future development will be compatible with these levels.

TDOT has constructed Type II or “retrofit” noise barriers along existing highways. TDOT’s noise policy includes the criteria for a neighborhood to qualify for a Type II noise barrier.

## 2.9 Meteorological (Weather) Effects on Noise Levels

Noise levels from highways or other sources are louder or quieter during certain times of the day or year. Changes in weather conditions are often the cause of these higher or lower noise levels. The effects on a community depend on the distance to highways and the frequency and duration of certain weather conditions.

Higher noise levels will be more common in areas where the wind blows from a highway toward a community (*downwind*) than in locations where the wind blows from the community toward the highway (*upwind*). Downwind conditions cause sound waves to bend back toward the earth and increase sound levels.

When the air above the ground is warmer than the air near the ground, a *temperature inversion* occurs that causes sound waves to bend back toward the earth and increase noise levels. Temperature inversions often occur at night when the weather is clear, and the winds are calm.

Changes in weather conditions also affect how well a noise barrier performs. Temperature inversions and downwind conditions can increase noise levels in neighborhoods protected by a noise barrier, while temperature lapses and upwind conditions can further reduce noise levels in neighborhoods protected by a noise barrier.



### 3.0 CONCLUSIONS

The noise evaluation identified five NAAs within the project limits, all of which include Activity Category B residential land uses. Other uses include the Activity Category C Bulls Gap School and the Trinity Pentecostal Church as well as the Activity Category D Oak Grove Baptist Church and Otes Methodist Church, which were evaluated for interior impacts.

Existing predicted exterior noise levels range from 45 to 66 dBA and predicted year 2048 exterior noise levels for the Build Alternative range from 46 to 67 dBA. The predicted noise level increases due to the project are not substantial and predicted noise levels for the Build Alternative do not exceed the NAC at most locations. However, five residences are predicted to be impacted with noise levels of 66 dBA or higher.

Noise barriers were evaluated but determined to not be feasible as SR-66 is not a limited access facility; barriers would eliminate or restrict the ability to access SR-66. Therefore, noise abatement is not proposed.

Construction noise effects will be temporary and intermittent and will be governed by TDOT's construction specifications.

The FHWA noise regulation does not allow federal funds to be used to construct noise abatement for newly constructed land uses.

## 4.0 REFERENCES

Federal Highway Administration, November 1974, *The Audible Landscape: A Manual for Highway Noise and Land Use*.

Federal Highway Administration, May 2002, *Entering the Quiet Zone: Noise Compatibility Land Use Planning*.

Federal Highway Administration, July 2010, *Procedures for Abatement of Highway Traffic and Construction Noise*, 23 CFR 772.

Federal Highway Administration, December 2011, *Highway Traffic Noise: Analysis and Abatement Guidance*.

Tennessee Department of Transportation, April 2010, *TDOT Guidelines for Noise Modeling Using FHWA's Traffic Noise Model*.

Tennessee Department of Transportation, July 13, 2011, *Policy on Highway Traffic Noise Abatement*.

Tennessee Department of Transportation, July 15, 2011, *Procedures for Highway Traffic Noise Abatement*.

Tennessee Department of Transportation, January 1, 2021, *Standard Specifications for Road and Bridge Construction*.

**Table 1: Noise Abatement Criteria in 23 CFR 772**

<b>Activity Category</b>	<b>L<sub>Aeq</sub>(1h) dBA</b>	<b>Evaluation Location</b>	<b>Activity Description</b>
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 <sup>(1)</sup>	67	Exterior	Residential.
C <sup>(1)</sup>	67	Exterior	Active sports areas, amphitheaters, auditoriums, campgrounds, cemeteries, daycare centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio stations, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, daycare centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E <sup>(1)</sup>	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 2: Substantial Noise Level Increase**

<b>Existing Noise Level (dBA) <sup>(1)</sup></b>	<b>Predicted Design Year Noise Level Increase (dB) <sup>(2)</sup></b>
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 r 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 3: Noise Analysis Areas

Noise Analysis Area	Limits	Type of Work	Station Limits	Proposed Cross-Section	Description	Activity Category	NAC (dBA)
1	Project Begin at SR-34 to Magnolia Avenue	Widening	100+04.87-114+00	two 12-foot travel lanes, 12-foot center turn lane, 4-foot shoulders, curb and gutter, 5-foot sidewalks	Single-family residences on N Main Street, Couch Street, Elmwood Avenue, Quillen Avenue, York Street, Hill Avenue, and Magnolia Avenue	B	67
2	Magnolia Avenue to north of Barrette Drive	Widening and New/Shifted Alignment	114+00-211+30		Single-family residences on N Main Street, Melrose Avenue, Willow Avenue, Hillcrest Lane, Allen Drive, Glenwood Avenue, Easy Street, Harmon Street, Shepherd Drive, Meadowview Road, and Goan Drive	B	67
					Bulls Gap School playground	C	67
					Oak Grove Baptist Church (interior)	D	52
3	North of Barrette Drive to Guthrie Gap Road	Widening and New/Shifted Alignment	211+30-241+00	two 12-foot travel lanes, 6-foot or 10-foot shoulders, curb	Single-family residences on N Main Street and Hwy 66 S	B	67
				Trinity Pentecostal Church (patio with bench)	C	67	
4	Guthrie Gap Road to north of Rong Road	Widening and New/Shifted Alignment	241+00-321+00	two 12-foot travel lanes, 10-foot shoulders	Single-family residences on Hwy 66 S and Old Hwy 155	B	67
5	North of Rong Road to Project End north of Old Hwy 66	Widening and New/Shifted Alignment	321+00-396+00.79		Single-family residences on Hwy 66 S, Summit Hill Road, Ridge Road, and Speedwell Road	B	67
					Otes Methodist Church (interior)	D	52

**Table 4: Existing and Future Speeds, SR-66**

Noise Analysis Area	Roadway Limits	Station Limits	Curb and Gutter?	Existing Posted Speed (mph)	Future Design Speed (mph)
1	Project Begin at SR-34 to Magnolia Avenue	100+04.87 -114+00	Yes	30	30
2	Magnolia Avenue to Kite Street	114+00 -127+00	Yes		
	Kite Street to north of Barrette Drive	127+00 -211+30	Yes		45
3	North of Barrette Drive to Guthrie Gap Road	211+30 -241+00	Yes	50	
4	Guthrie Gap Road to south of James Shortt Road	241+00 -248+00	No		
	South of James Shortt Road to north of Rong Road	248+00 -321+00	No		60
5	North of Rong Road to south of Berry Road	321+00 -376+50	No	55	
	South of Berry Road to Project End north of Old Hwy 66	376+50- 396+00.79	No		

**Table 5: Noise Impact Analysis, Design Year 2048, Build Alternative**

Noise Analysis Area	Existing Noise Levels (dBA)	Design Year Noise Levels (dBA)	Noise Level Changes (dB)	Impacted?	Number of Impacts
1	46 - 63	48 - 63	-1 to 3	No	0
2	33 <sup>(1)</sup> - 61	38 <sup>(1)</sup> - 67	0 to 9	Yes	1
3	49 - 66	55 - 65	0 to 7	No	0
4	51 - 62	56 - 65	0 to 6	No	0
5	38 <sup>(1)</sup> - 66	40 <sup>(1)</sup> - 67	-6 to 7	Yes	4
<b>Total</b>					<b>5</b>

(1) Interior.

**Table 6: Design Year 2048 Noise Levels for Undeveloped Lands**

<b>Distance <sup>(1)</sup></b>	<b>L<sub>eq</sub> (1h) (dBA) <sup>(2)</sup></b>
50 feet	68
100 feet	64
200 feet	58
300 feet	53

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

(2) At-grade situation and worst-case traffic volumes and speeds.



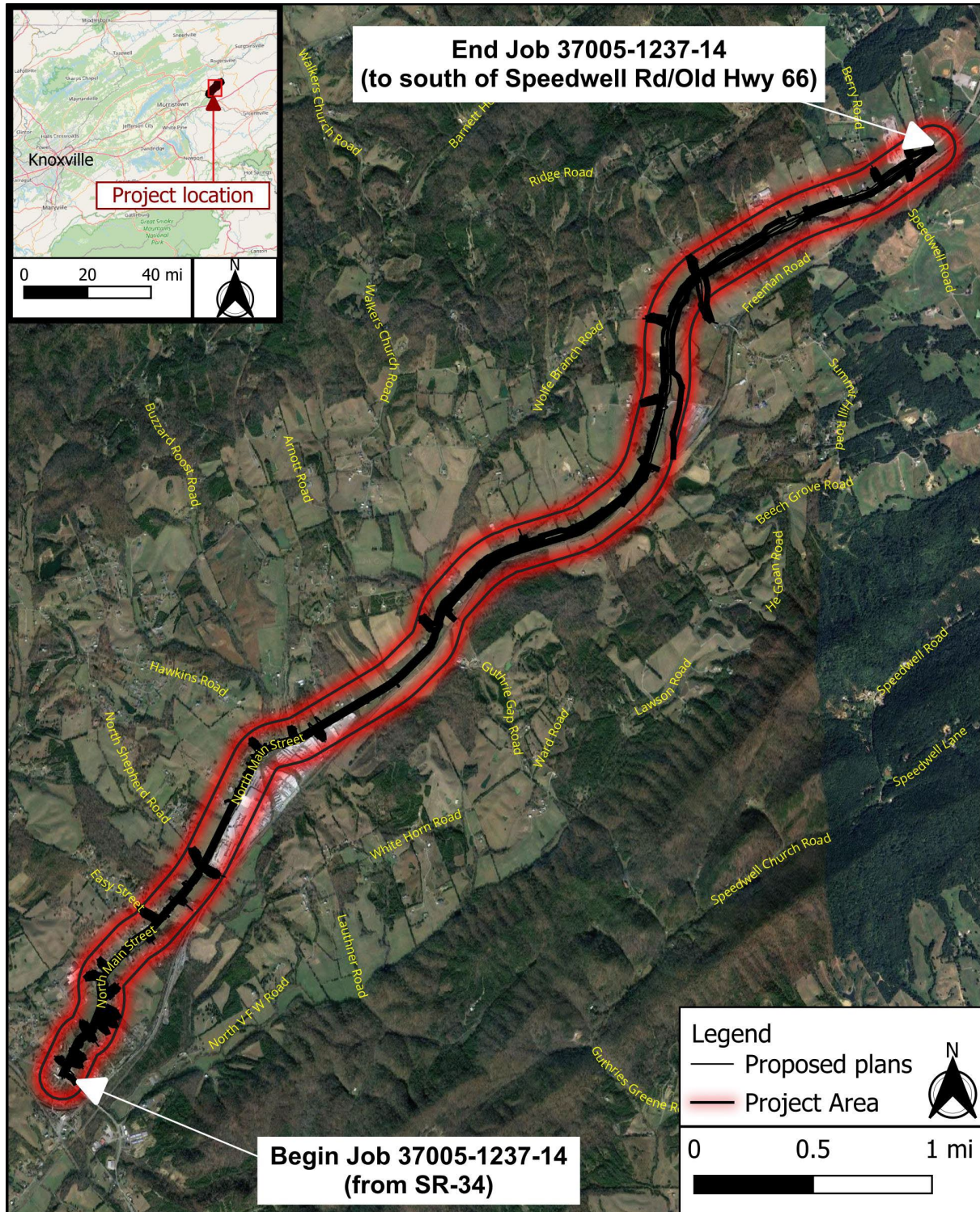


Figure 1: Project Area and Limits



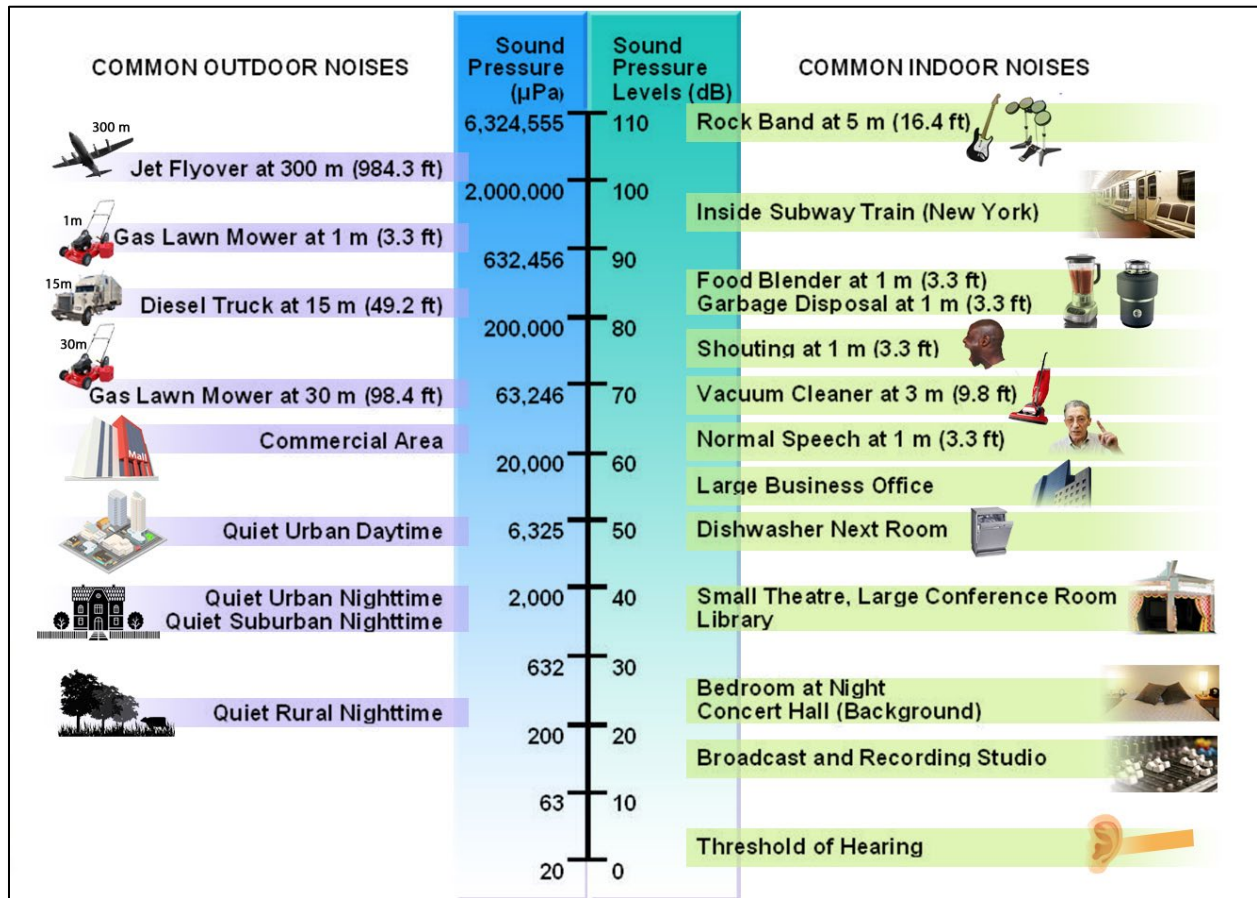


Figure 2: Common Sound Levels

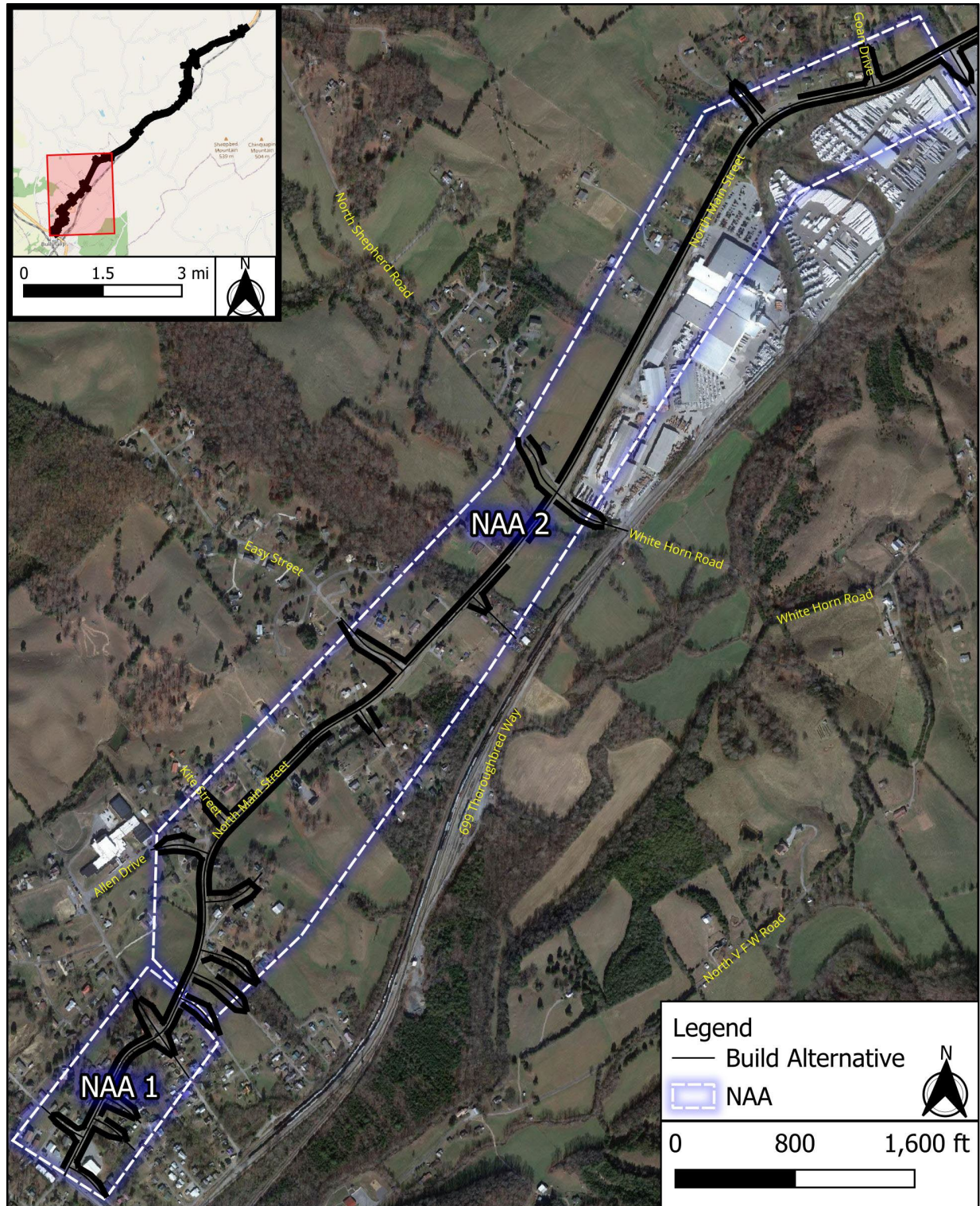
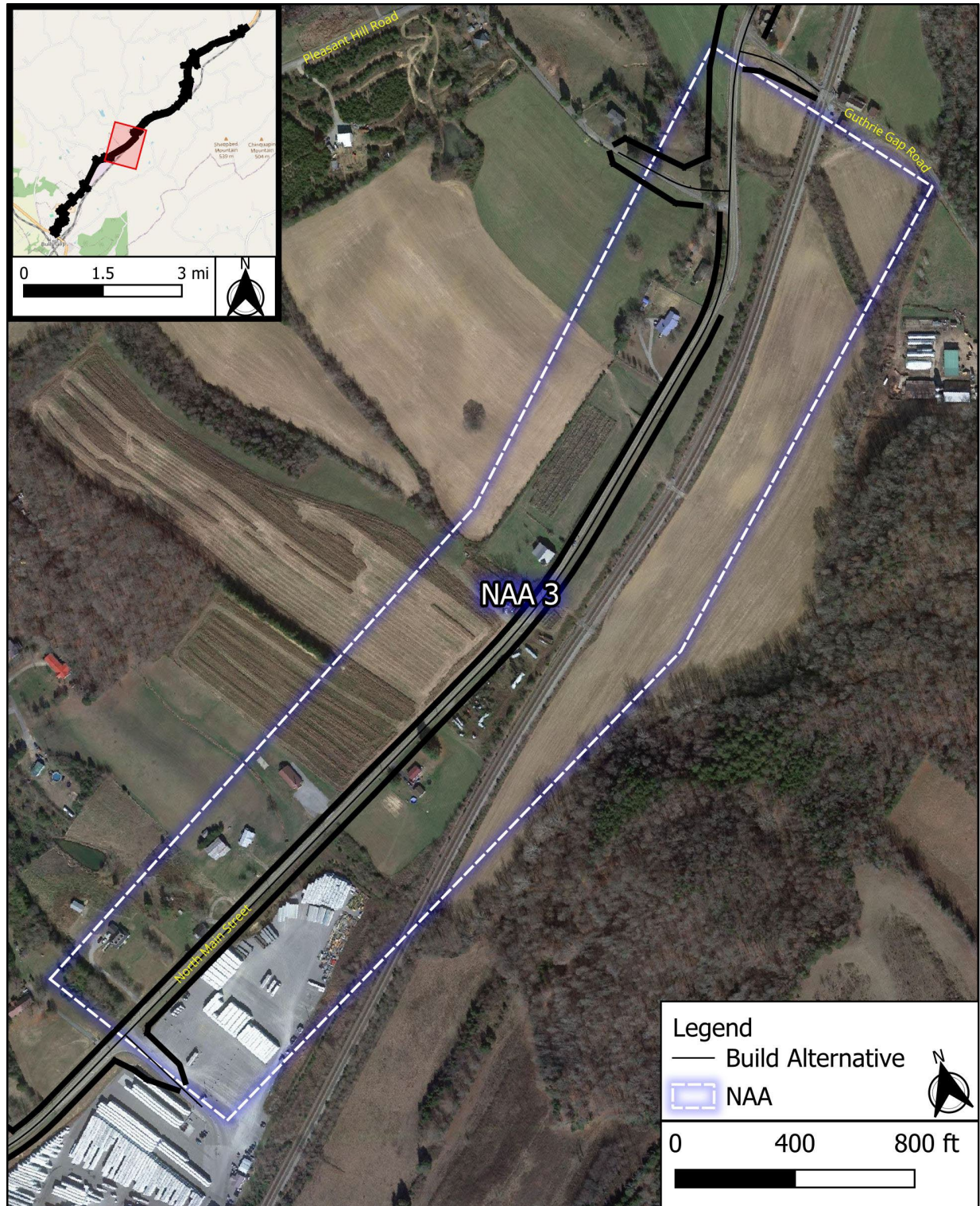
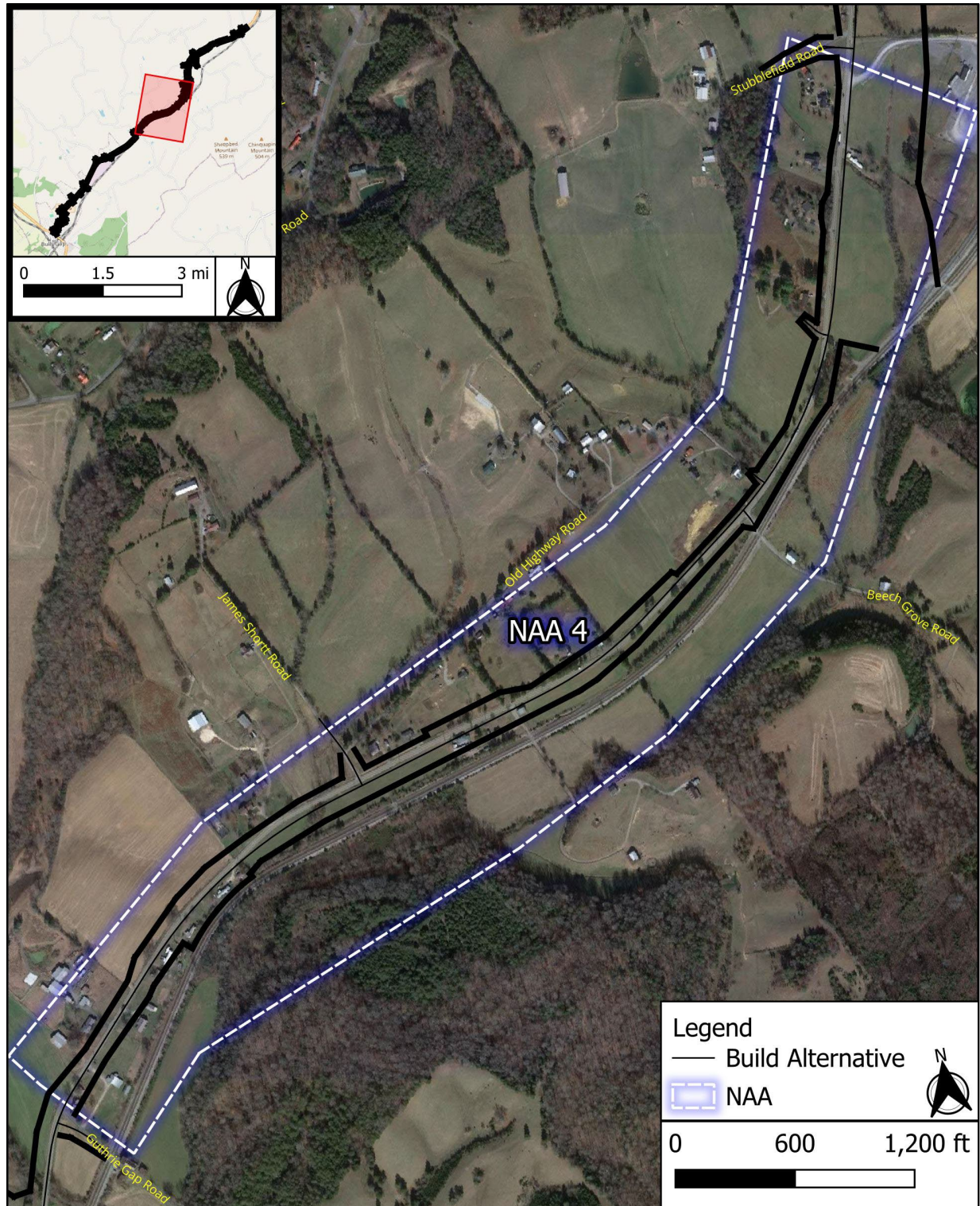


Figure 3: Noise Analysis Areas 1 and 2



**Figure 4: Noise Analysis Area 3**



**Figure 5: Noise Analysis Area 4**



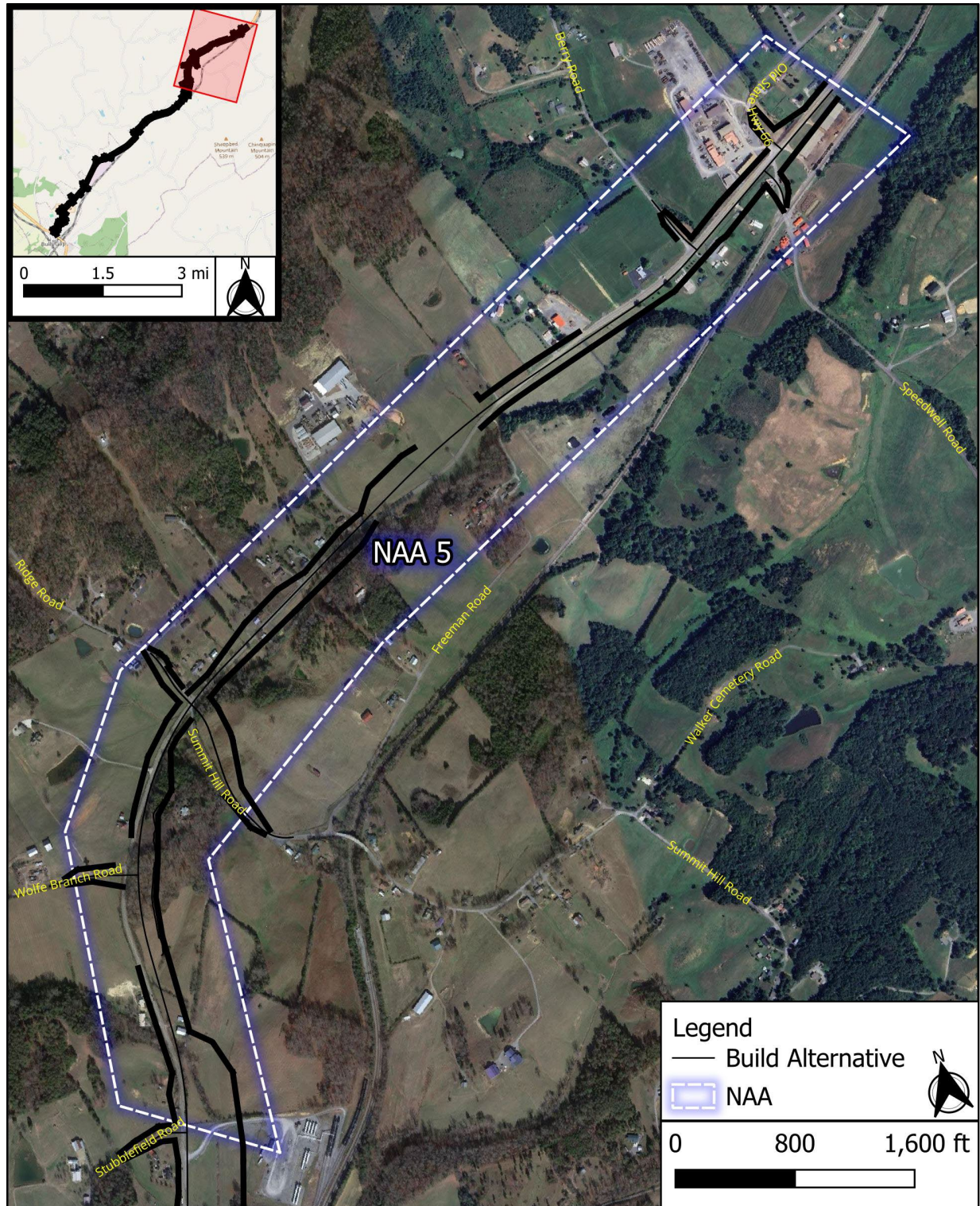


Figure 6: Noise Analysis Area 5



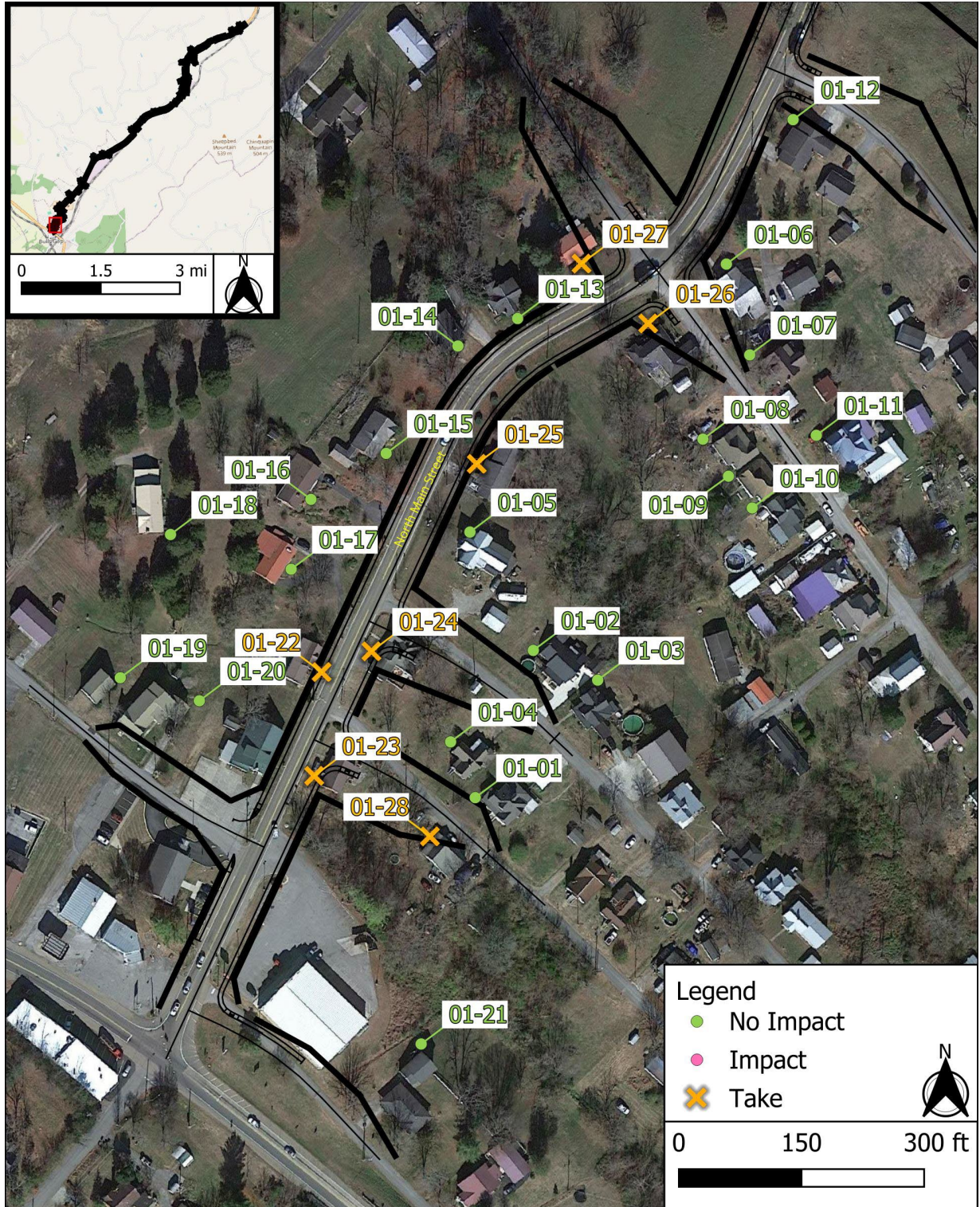


Figure 7: Existing and Design Year 2048 Results, Noise Analysis Area 1



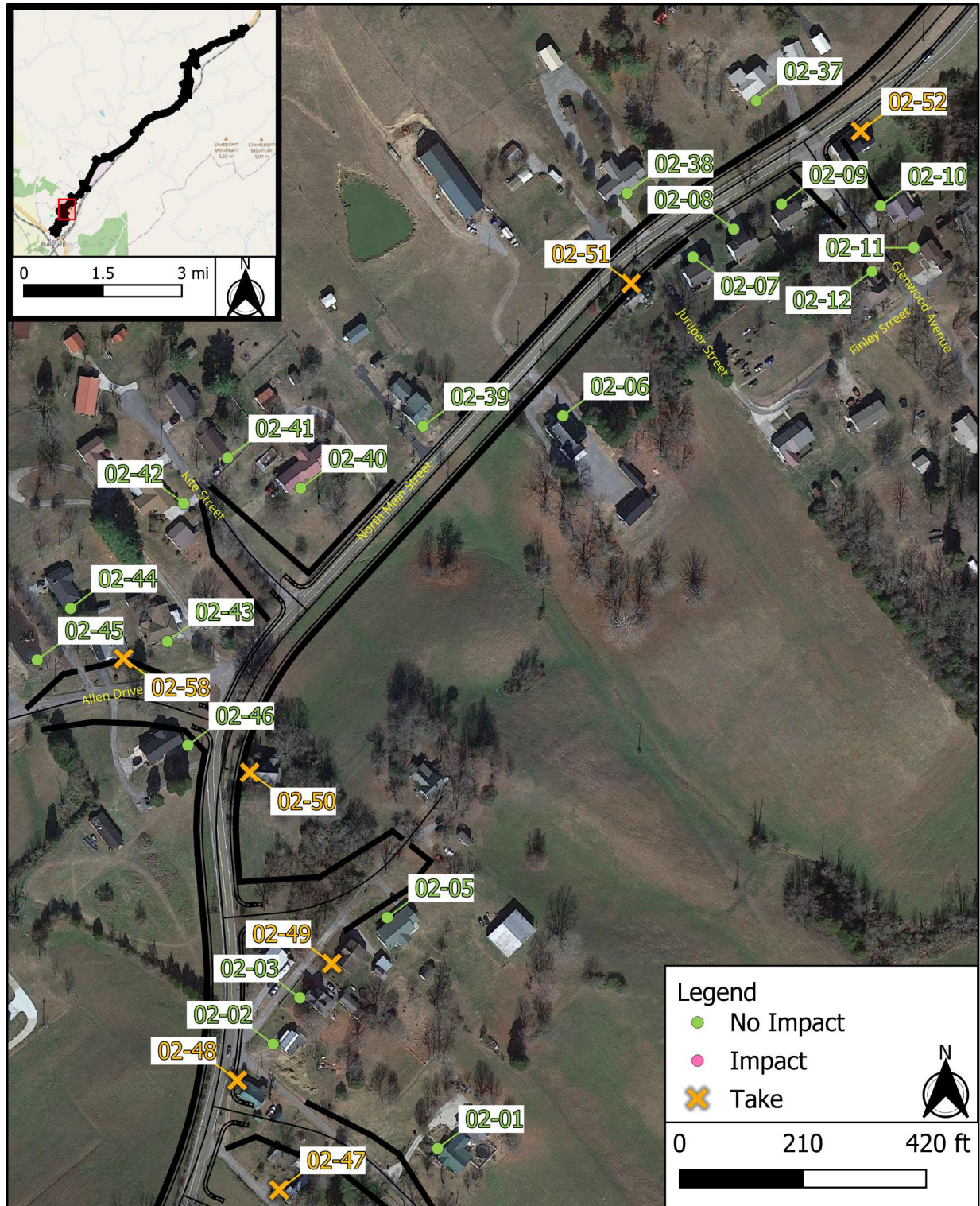


Figure 8: Existing and Design Year 2048 Results, Noise Analysis Area 2



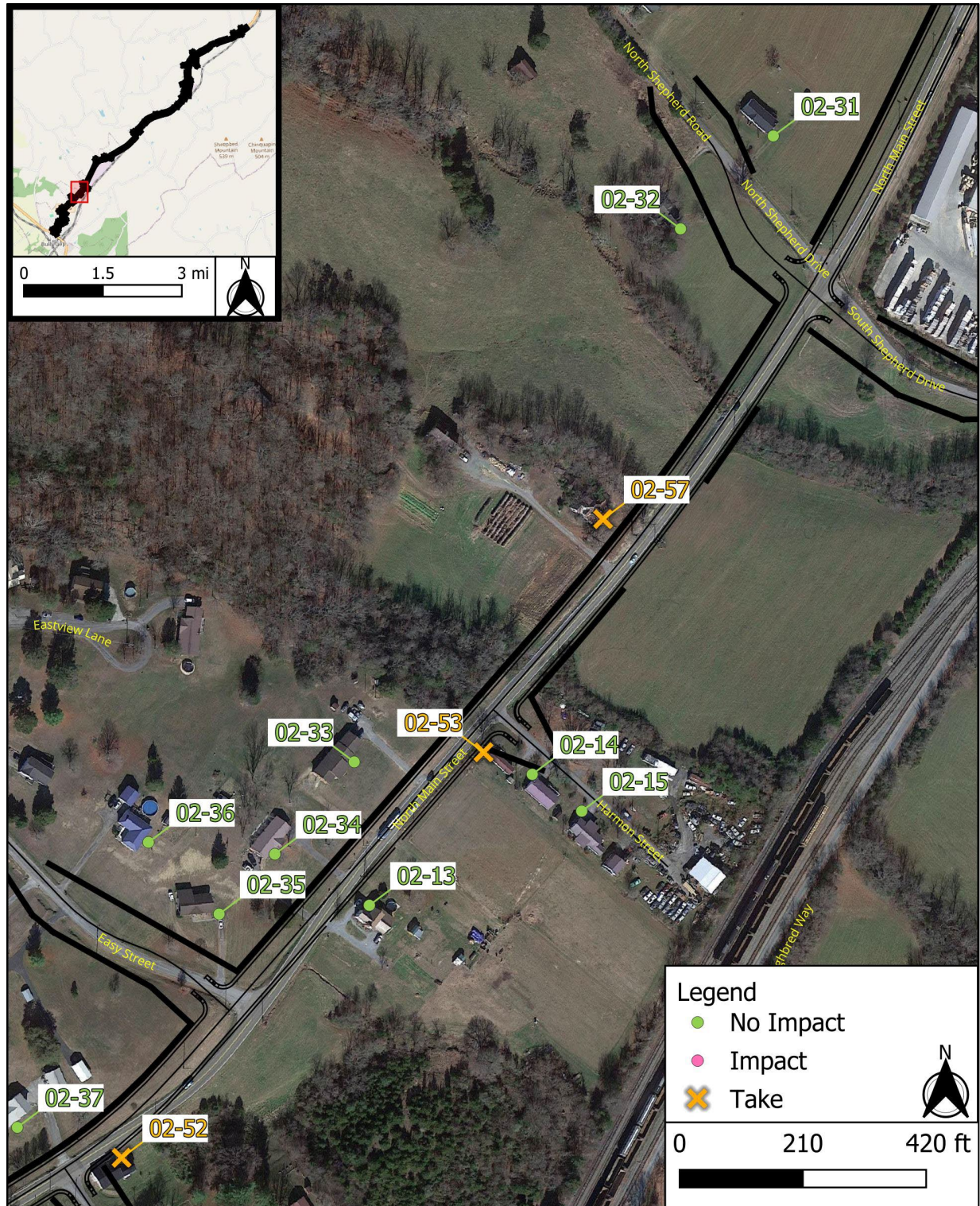


Figure 9: Existing and Design Year 2048 Results, Noise Analysis Area 2, continued



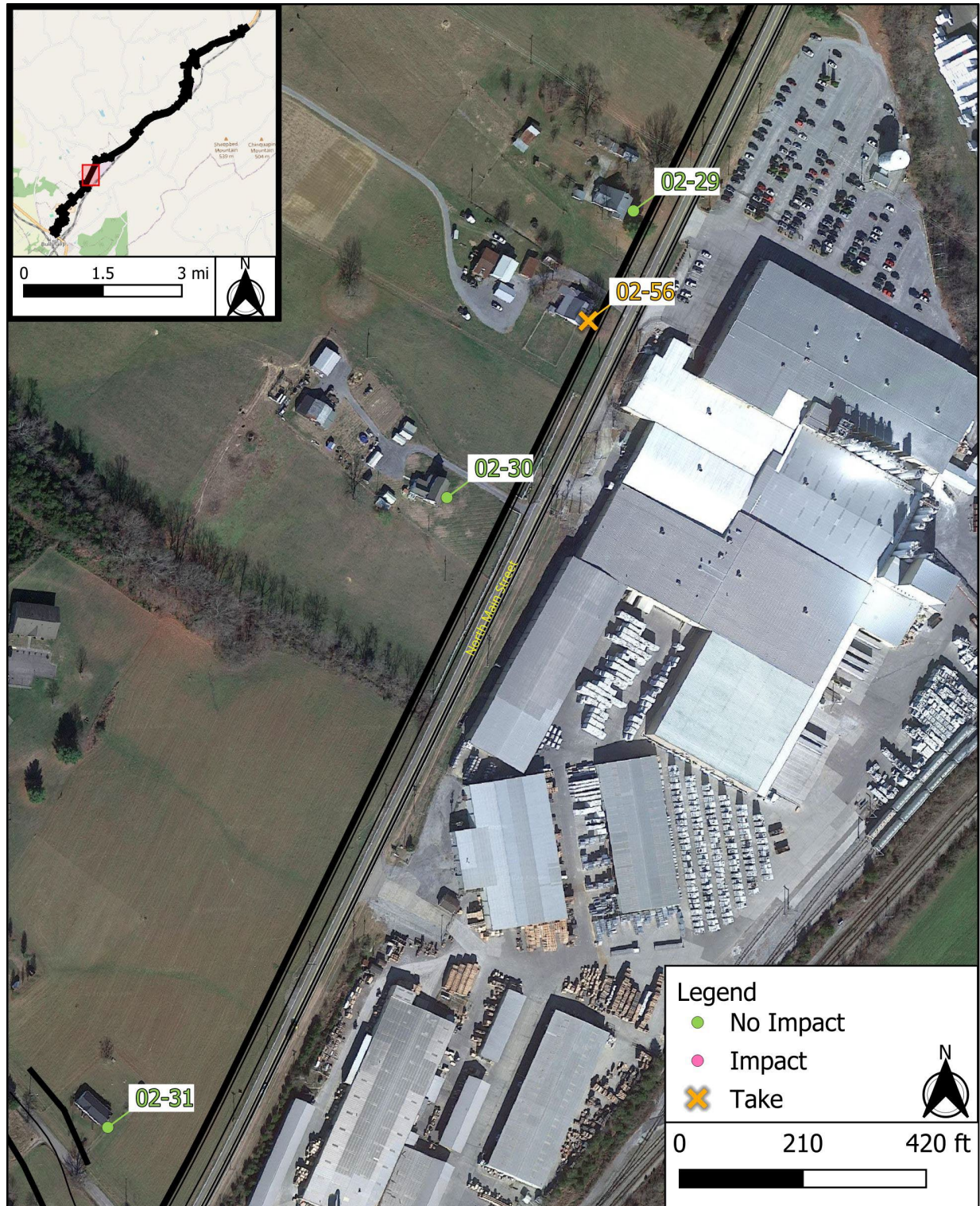


Figure 10: Existing and Design Year 2048 Results, Noise Analysis Area 2, continued



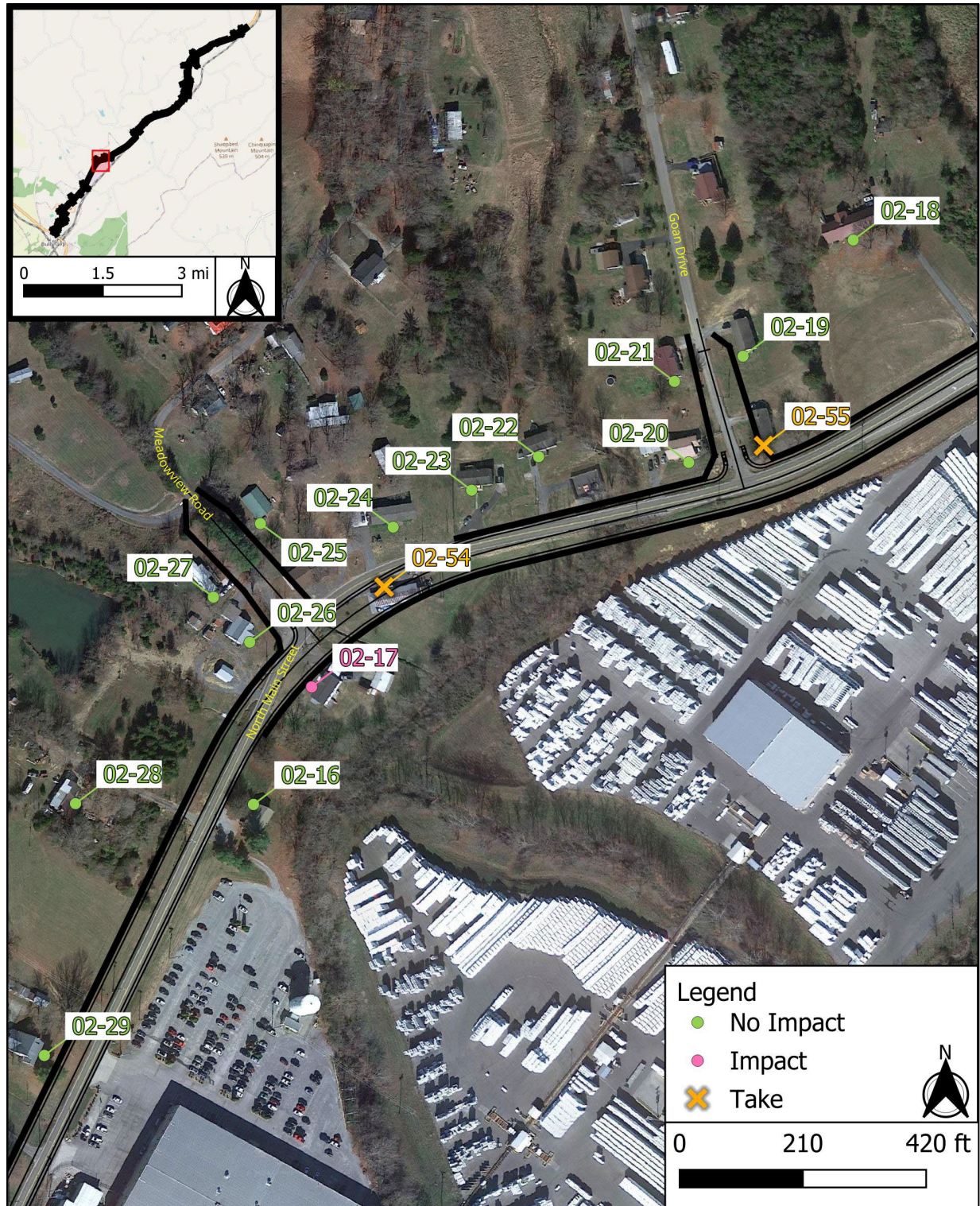


Figure 11: Existing and Design Year 2048 Results, Noise Analysis Area 2, continued



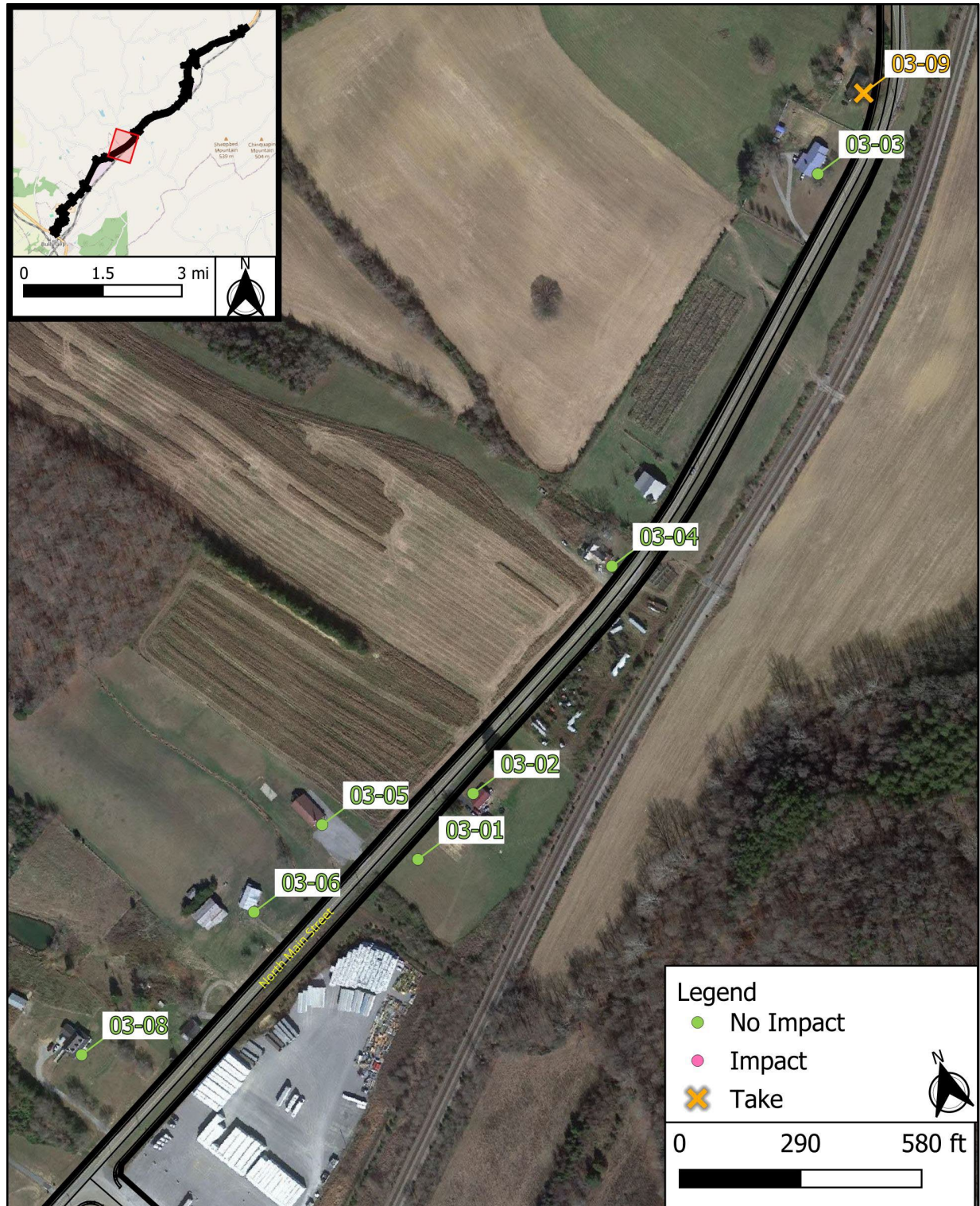


Figure 12: Existing and Design Year 2048 Results, Noise Analysis Area 3



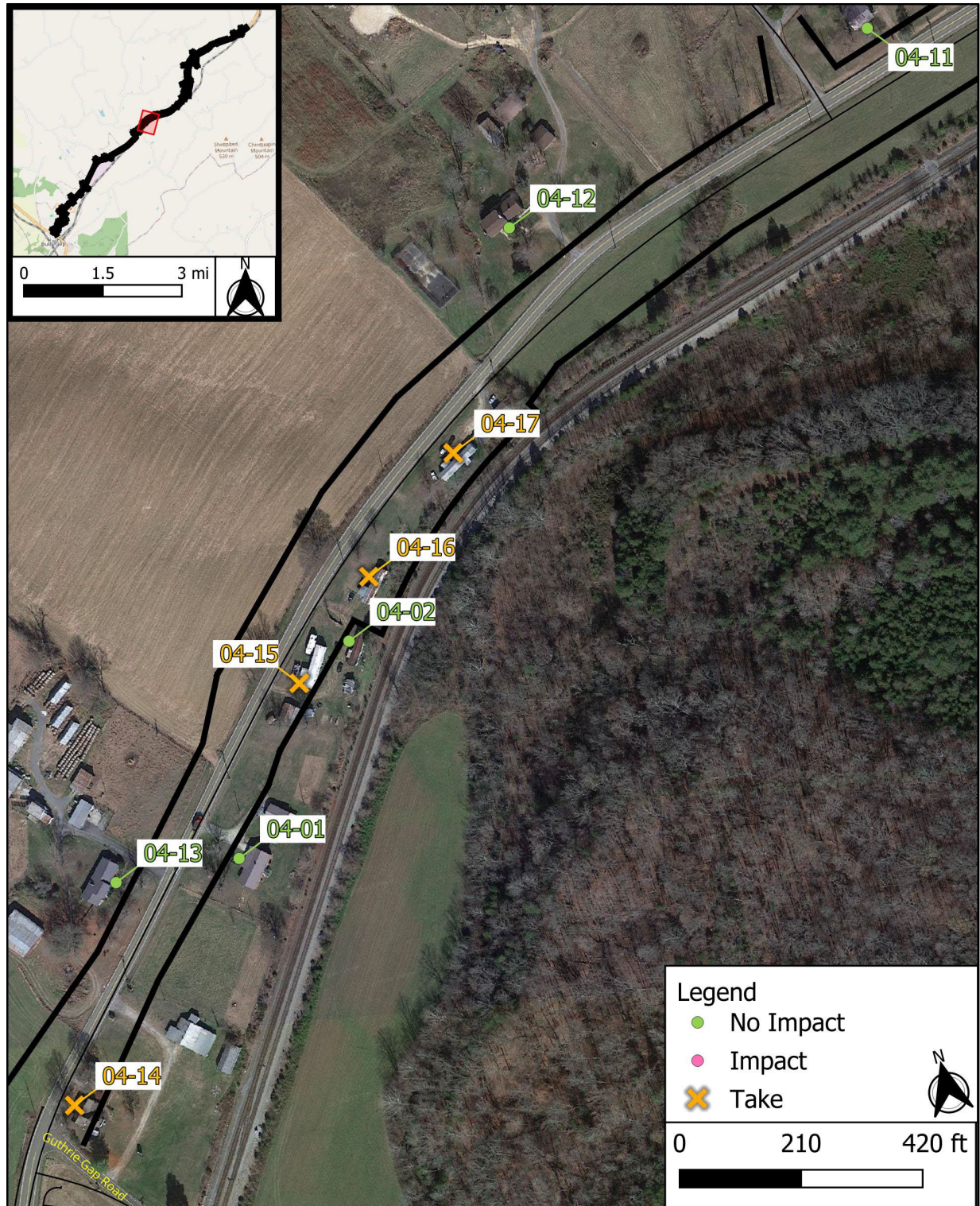


Figure 13: Existing and Design Year 2048 Results, Noise Analysis Area 4



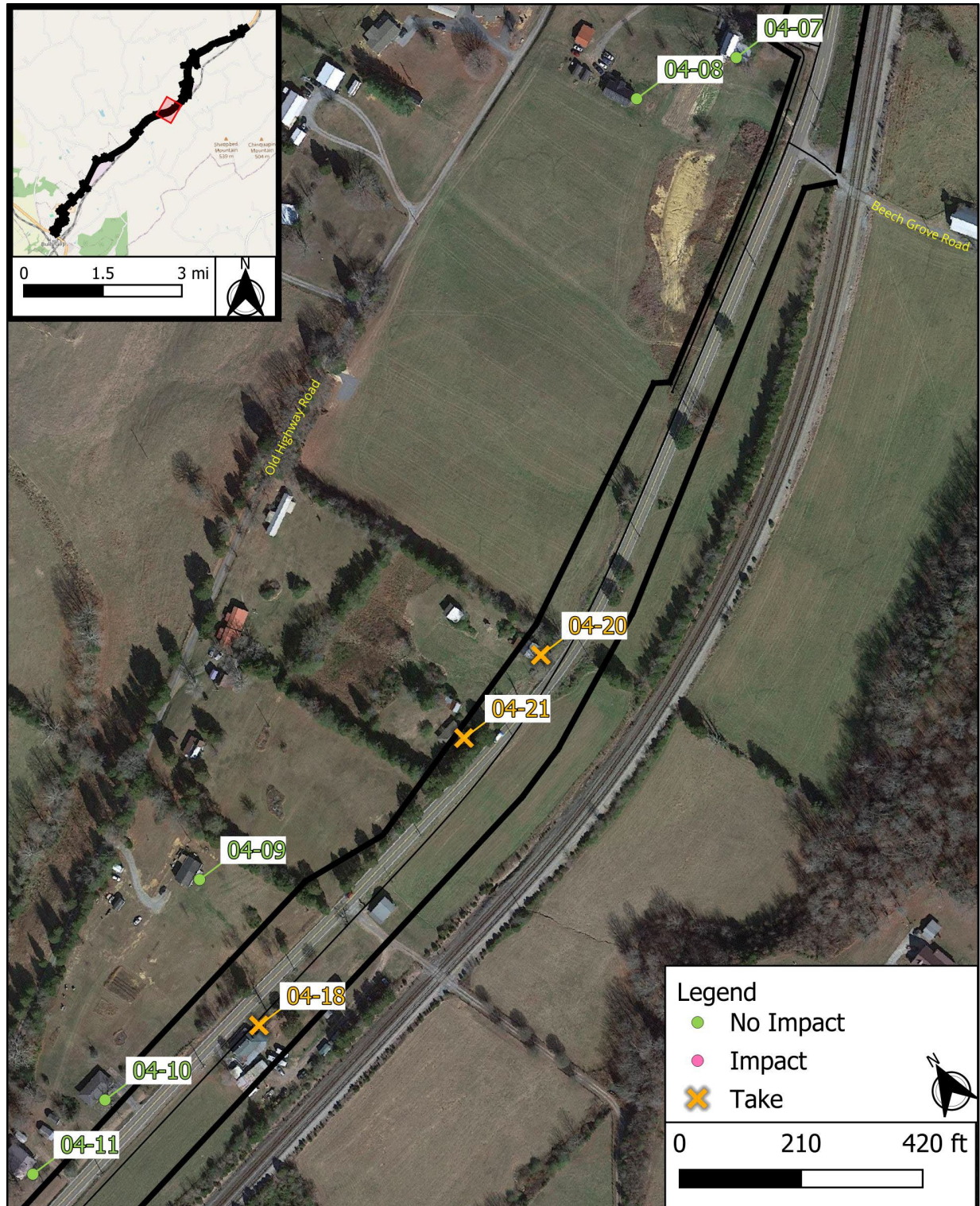


Figure 14: Existing and Design Year 2048 Results, Noise Analysis Area 4, continued



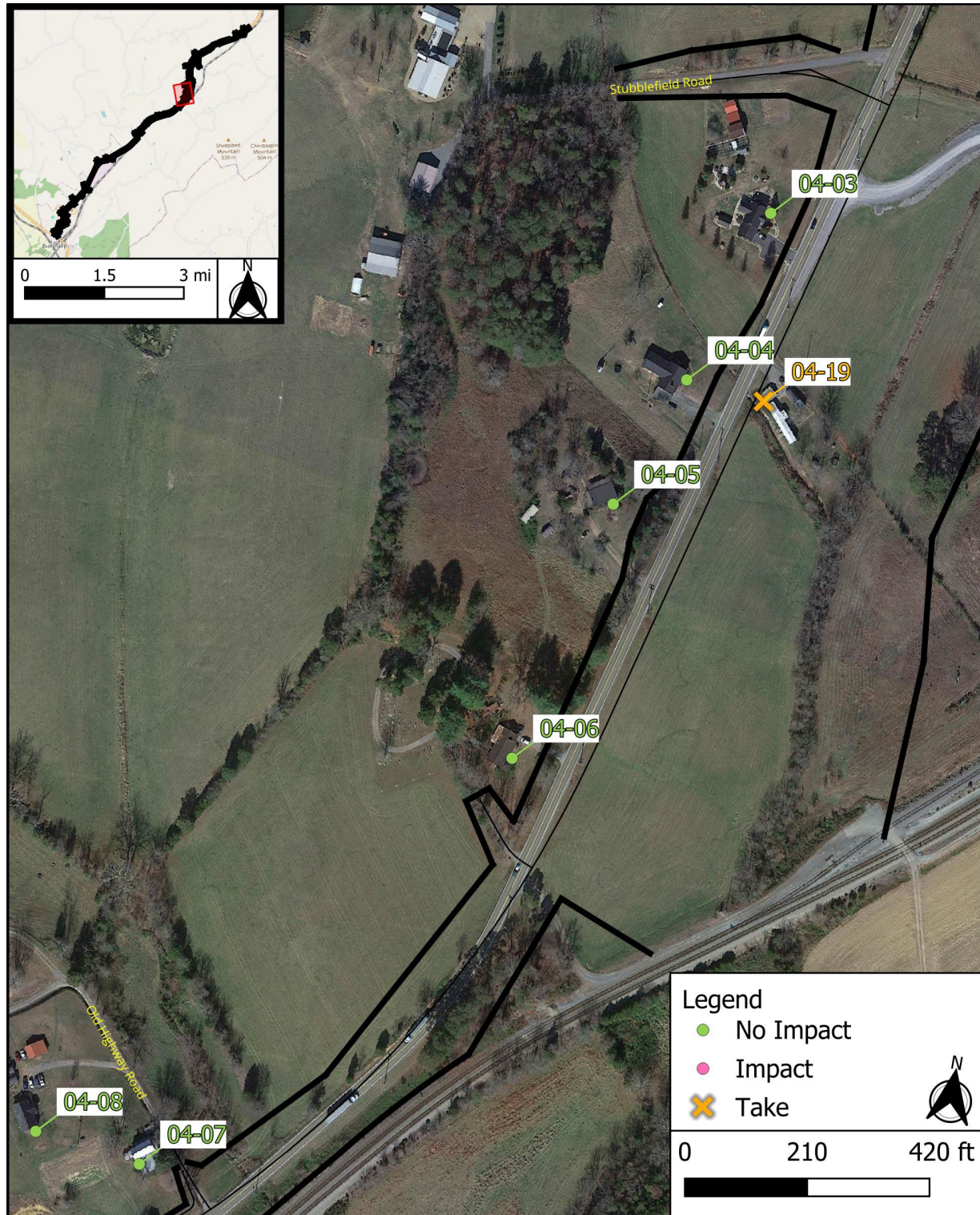


Figure 15: Existing and Design Year 2048 Results, Noise Analysis Area 4, continued



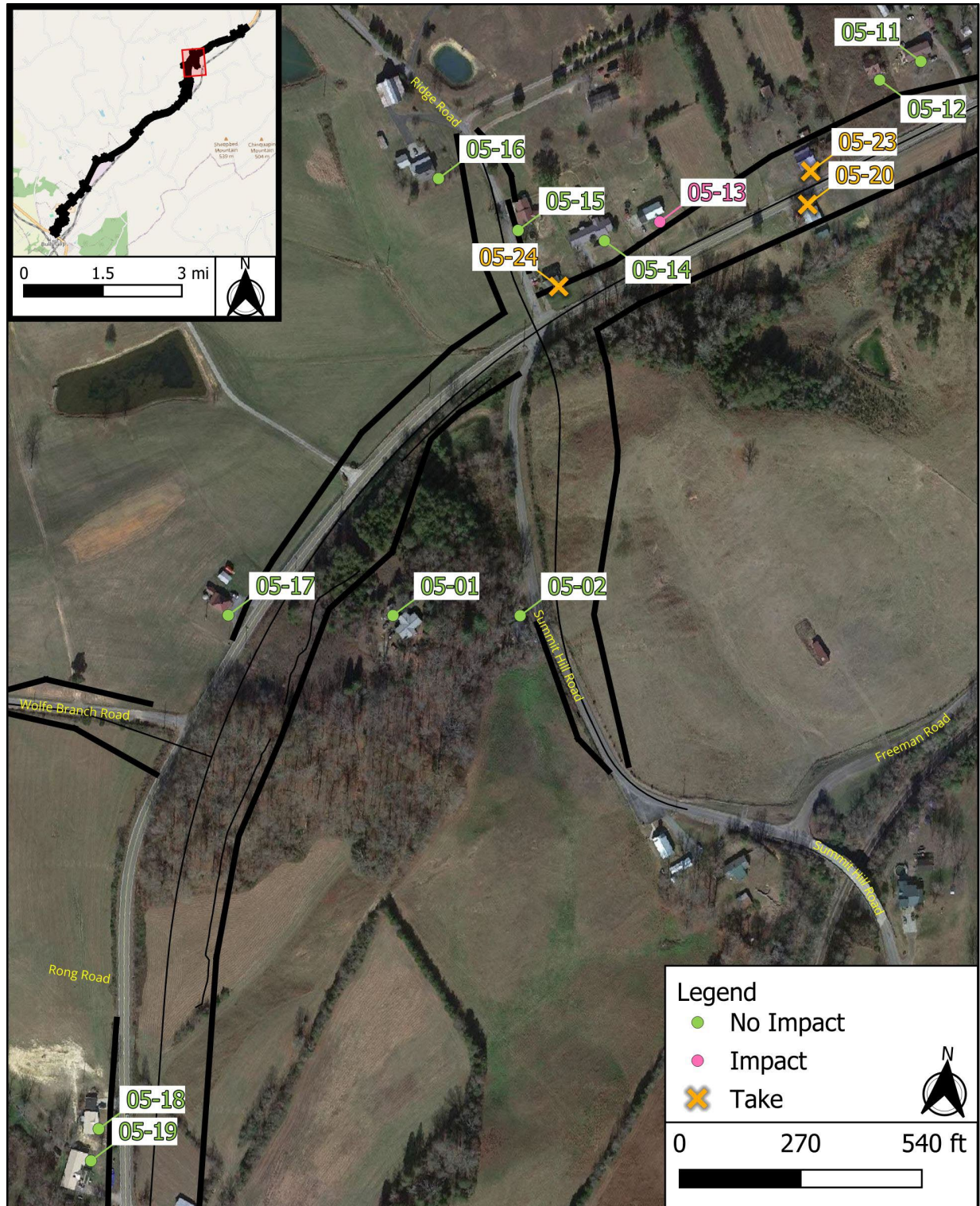


Figure 16: Existing and Design Year 2048 Results, Noise Analysis Area 5



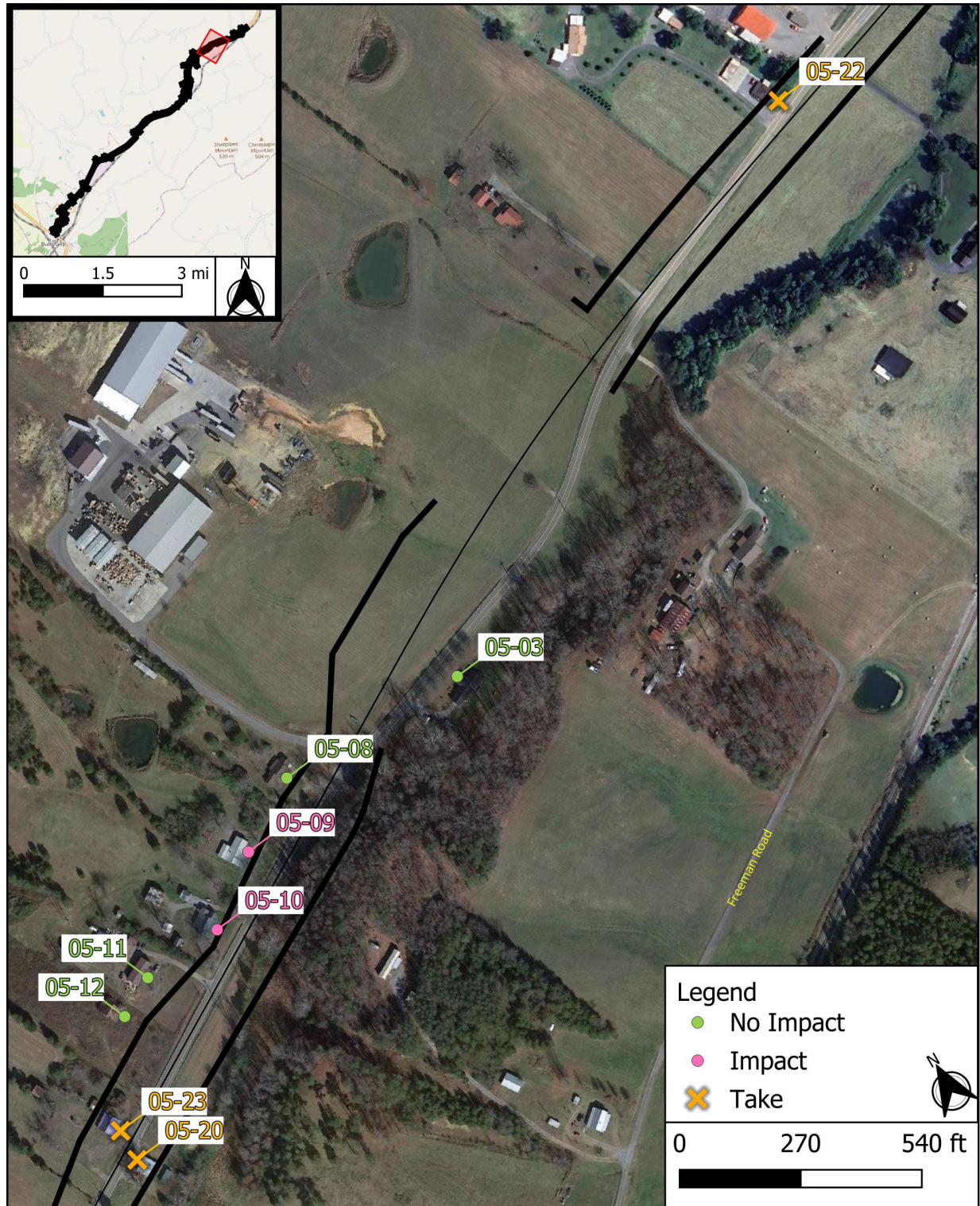


Figure 17: Existing and Design Year 2048 Results, Noise Analysis Area 5, continued



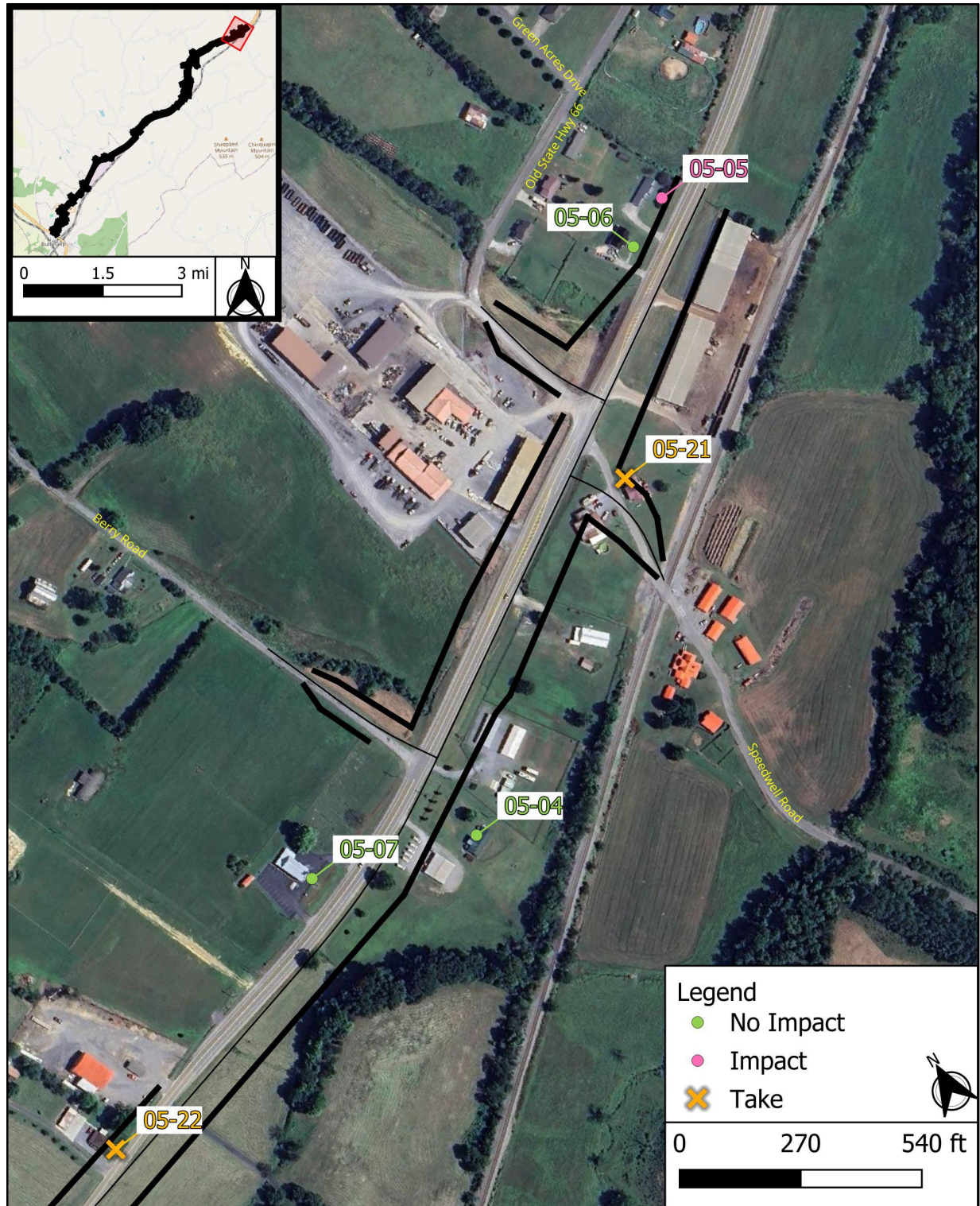


Figure 18: Existing and Design Year 2048 Results, Noise Analysis Area 5, continued

**Appendix A**  
**Cover Page, Typical Cross Sections, and Project Overlay**



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TYPICAL SECTIONS AND PAVEMENT SCHEDULE .....	2B – 2B9
RIGHT-OF-WAY NOTES, UTILITY NOTES and UTILITY OWNERS .....	3
PROPERTY MAPS .....	3A – 3F
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EROSION PREVENTION AND SEDIMENT CONTROL PLANS .....	100B – 116E
ROADWAY CROSS SECTIONS .....	XS1 – XS199
SIDE ROAD CROSS SECTIONS .....	XS200 – XS298

STP-66(38)  
END PROJECT NO. 37S066-F2-004 R.O.W.  
STA. 396+00.79  
N 733446.0335 E 2847102.8704

STP-66(38)  
BEGIN PROJECT NO. 37S066-F2-004 R.O.W.  
STA. 100+04.87  
N 712879.8893 E 2827791.8391

SPECIAL NOTES

PROPOSALS MAY BE REJECTED BY THE COMMISSIONER IF ANY OF THE UNIT PRICES CONTAINED THEREIN ARE OBVIOUSLY UNBALANCED, EITHER EXCESSIVE OR BELOW THE REASONABLE COST ANALYSIS VALUE.

THIS PROJECT TO BE CONSTRUCTED UNDER THE STANDARD SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION DATED JANUARY 1, 2021 AND ADDITIONAL SPECIFICATIONS AND SPECIAL PROVISIONS CONTAINED IN THE PLANS AND IN THE PROPOSAL CONTRACT.

TDOT C.E. MANAGER 1 OR  
TDOT TRANSPORTATION MANAGER 1 : ERIC WILSON, P.E.

DESIGNED BY : CHA CONSULTING, INC.

DESIGNER : RYAN CLARK CHECKED BY TOM KARIS, P.E.

P.E. NO. 37005-1237-14 (DESIGN)

PIN NO. 107579.00

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF ENGINEERING

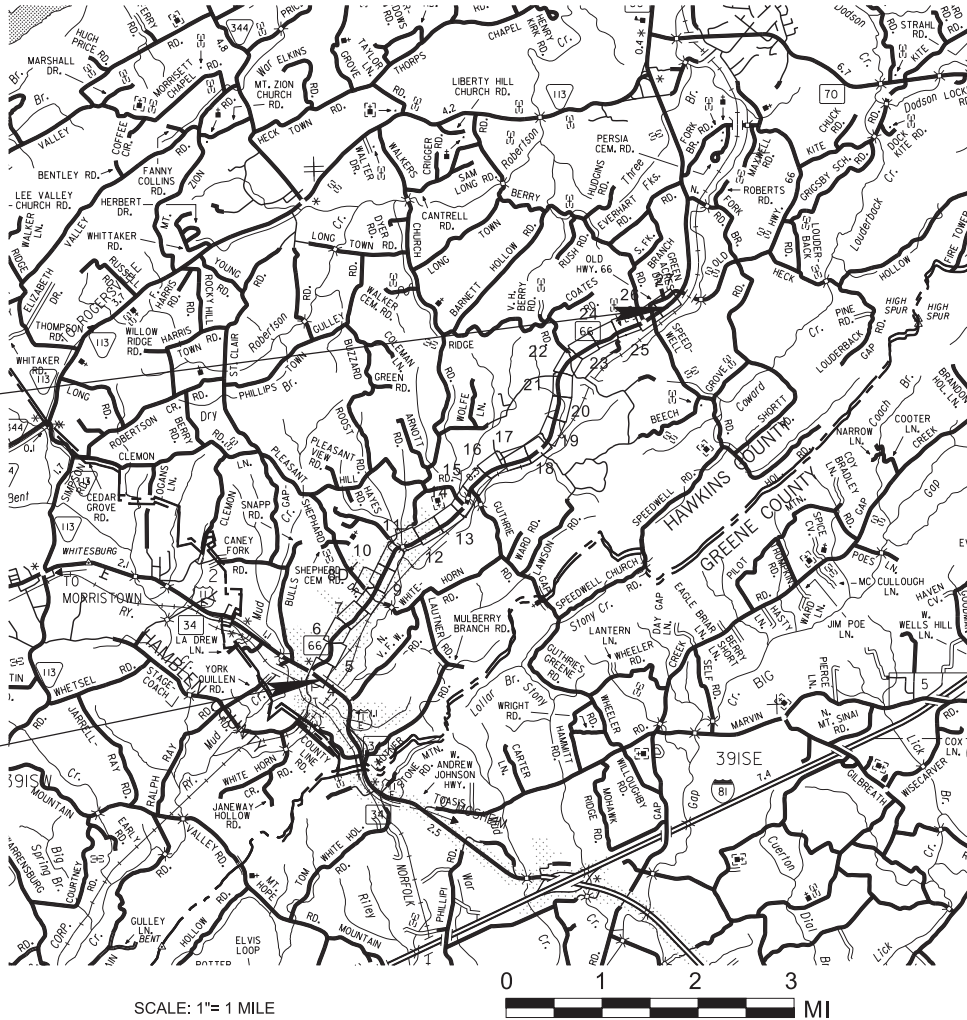
HAWKINS COUNTY

SR-66  
FROM SR-34 IN BULLS GAP TO  
NORTH OF SPEEDWELL ROAD/OLD HIGHWAY 66 (1A)

RIGHT-OF-WAY

WIDENING, NEW ALIGNMENT, GRADING, DRAINAGE, AND PAVEMENT MARKING

STATE HIGHWAY NO. 66 F.A.H.S. NO. N/A



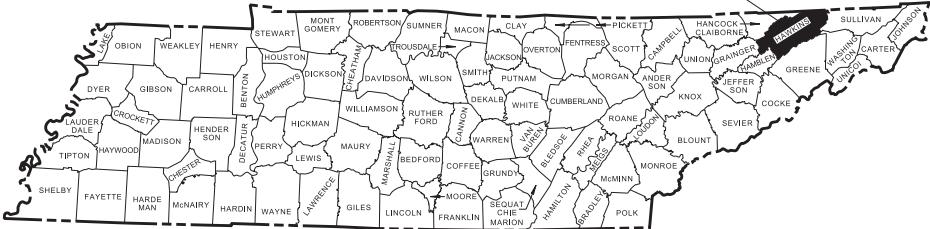
R.O.W. LENGTH

5.697 MILES

DOES THIS PROJECT QUALIFY FOR UTILITY CHAPTER 86	YES X	NO
WORK ZONE SIGNIFICANCE DETERMINATION		
SIGNIFICANT	YES	NO X

TENN.	YEAR 2024	SHEET NO. 1
FED. AID PROJ. NO.	STP-66(38)	
STATE PROJ. NO.	37S066-F2-004	

PROJECT LOCATION



NO EXCLUSIONS

EQUATION	
DESCRIPTION	NET EFFECT ON ENUMERATION
STA. 345+85.27 BK. = STA. 341+00.00 R2 AH.	+485.27
TOTAL	+485.27

DESIGN EXCEPTION  
APPROVED 06-09-23  
1) [ URBAN SHOULDER WIDTH ]  
[ STA 99+60.00 TO STA 214+00.00 ]  
  
2) [ RURAL SHOULDER WIDTH ]  
[ STA 277+00.00 TO STA 302+00.00 ]

SEALED BY

APPROVED: WILL REID, CHIEF ENGINEER

DATE:

APPROVED: HOWARD H. ELEY, COMMISSIONER

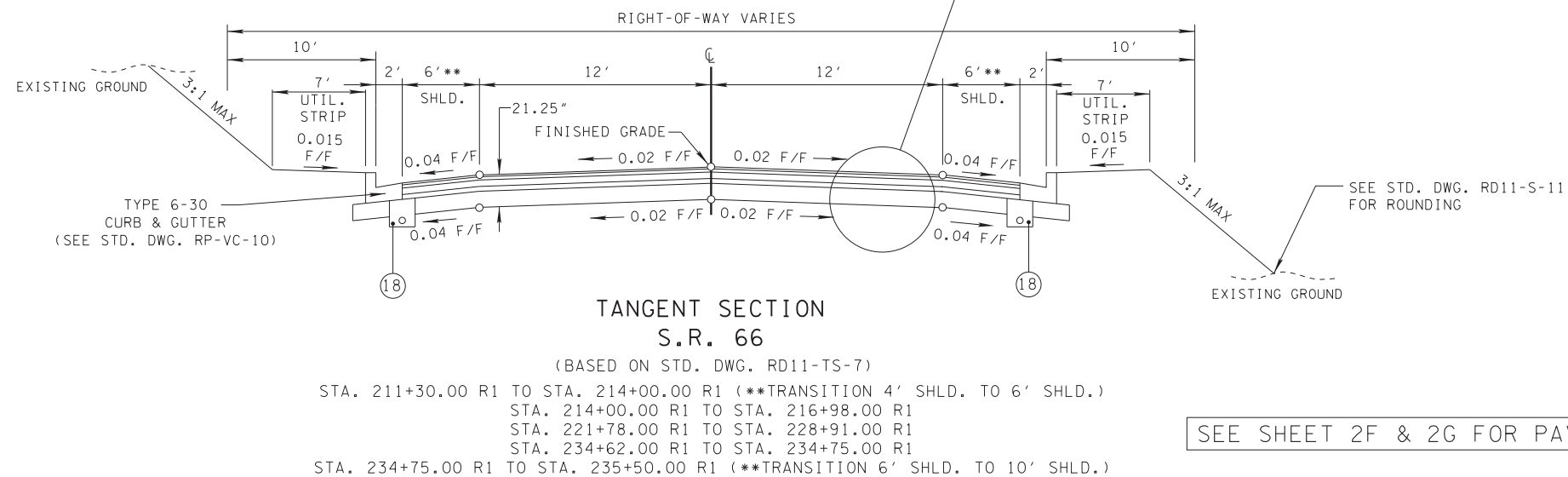
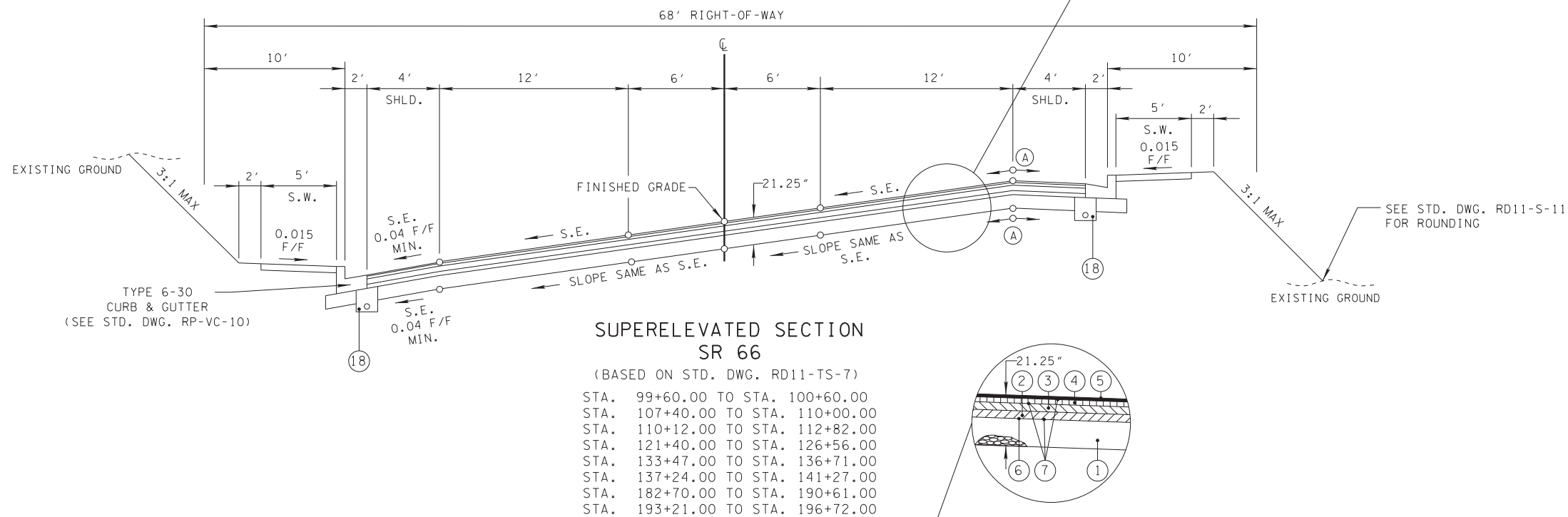
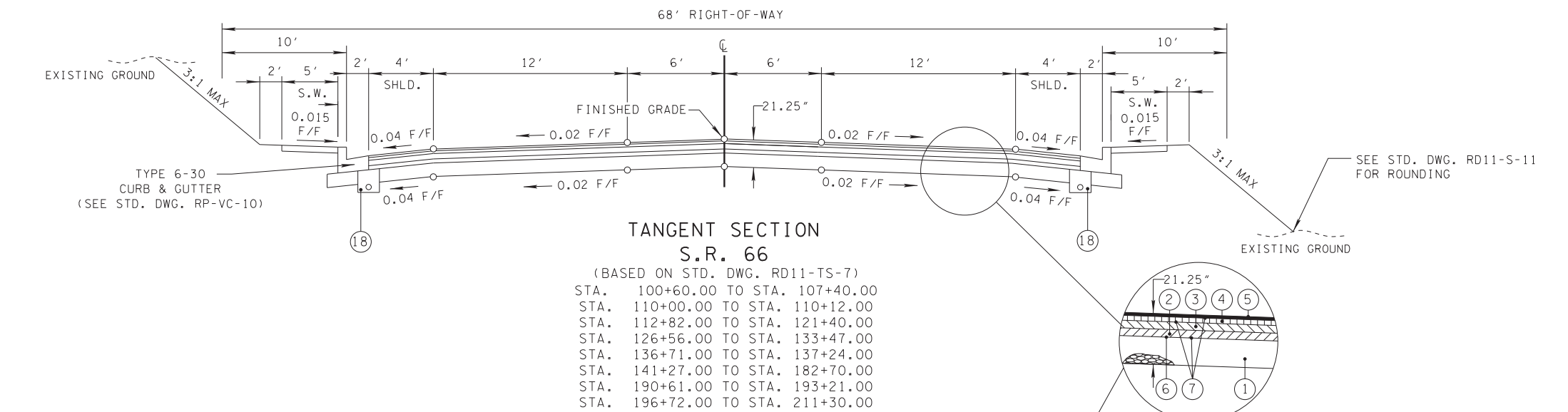
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UPDATED: 08-08-18	ADT (2048)	5320
UPDATED: 04-20-23	DHV (2048)	532
	D	65 - 35
	T (ADT)	5 %
	T (DHV)	3 %
	V	MPH

STATE PLANE COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.000070 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988.

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

APPROVED: DIVISION ADMINISTRATOR DATE

TYPE	YEAR	PROJECT NO.	SHEET NO.
R.O.W.	2023	STP-66(38)	2B



R.O.W.  
FIELD REVIEW

SEALED BY

COORDINATES ARE NAD/83(1995),  
ARE DATUM ADJUSTED BY THE  
FACTOR OF 1.000070 AND TIED TO  
THE TGRN. ALL ELEVATIONS ARE  
REFERENCED TO THE NAVD 1988.

STATE OF TENNESSEE  
DEPARTMENT OF  
TRANSPORTATION

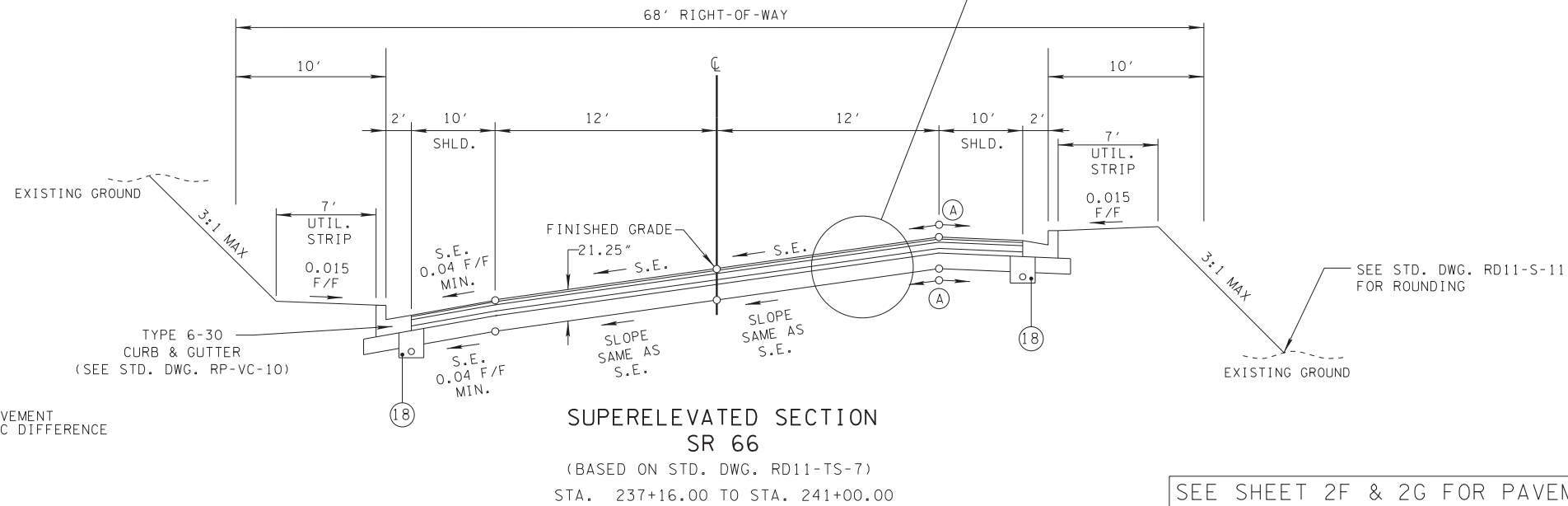
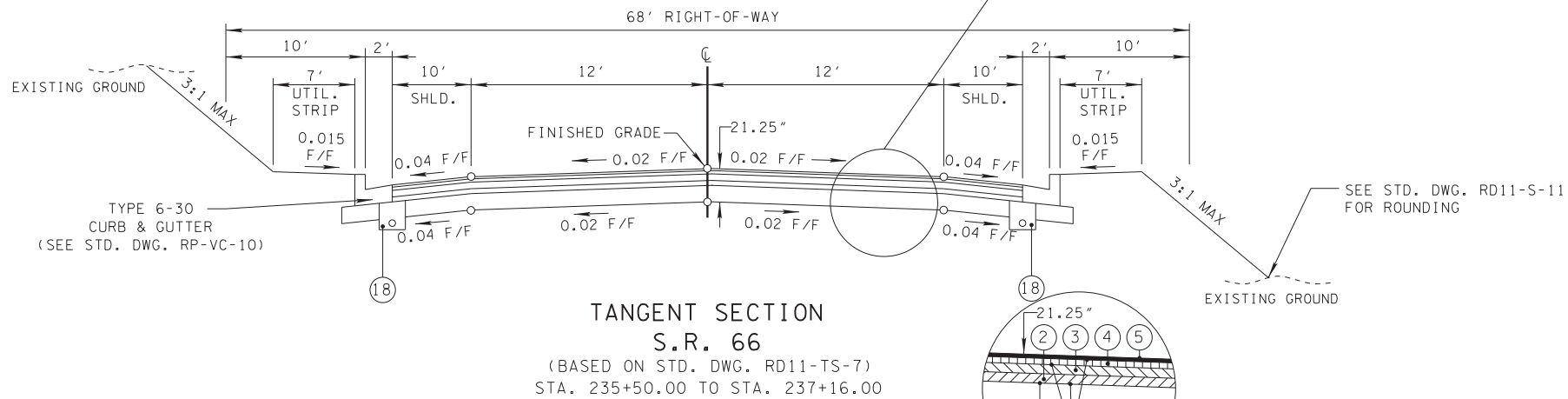
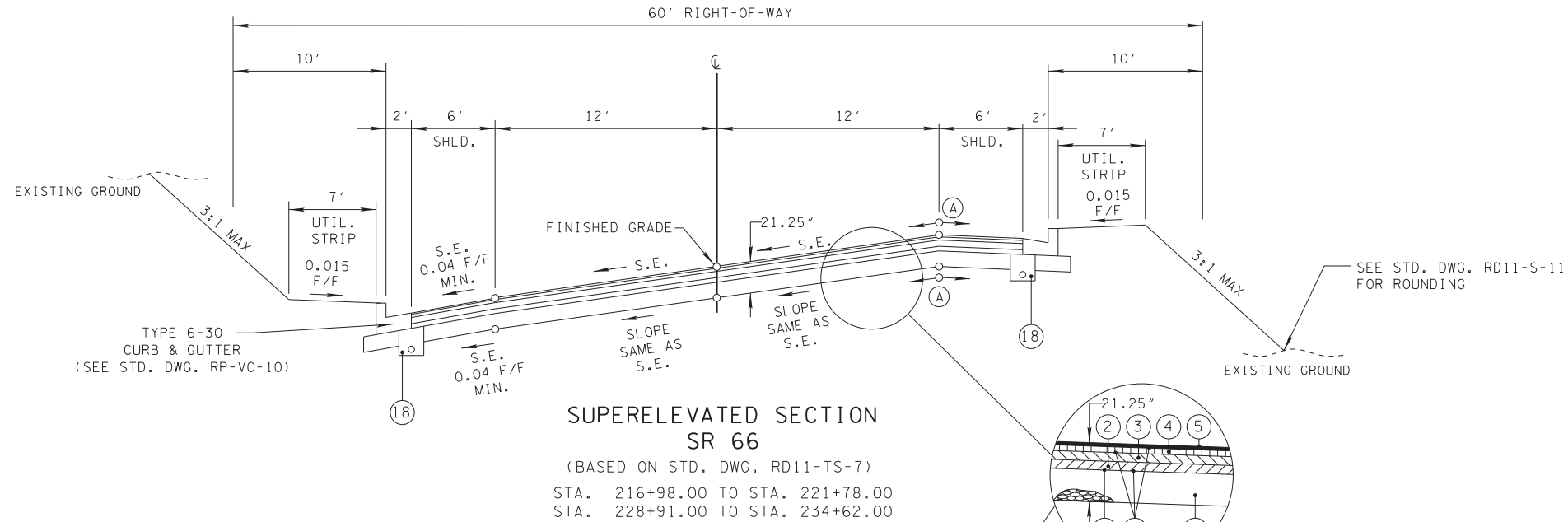
TYPICAL  
SECTIONS

SEE SHEET 2F & 2G FOR PAVEMENT SCHEDULE

(R.O.W.)

(A) THE SLOPES OF THE ROADWAY PAVEMENT  
SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE  
OF 0.07 FOOT PER FOOT.

TYPE	YEAR	PROJECT NO.	SHEET NO.
R.O.W.	2023	STP-66(38)	2B1



(A) THE SLOPES OF THE ROADWAY PAVEMENT SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 0.07 FOOT PER FOOT.

SEE SHEET 2F & 2G FOR PAVEMENT SCHEDULE (R.O.W.)

R.O.W.  
FIELD REVIEW

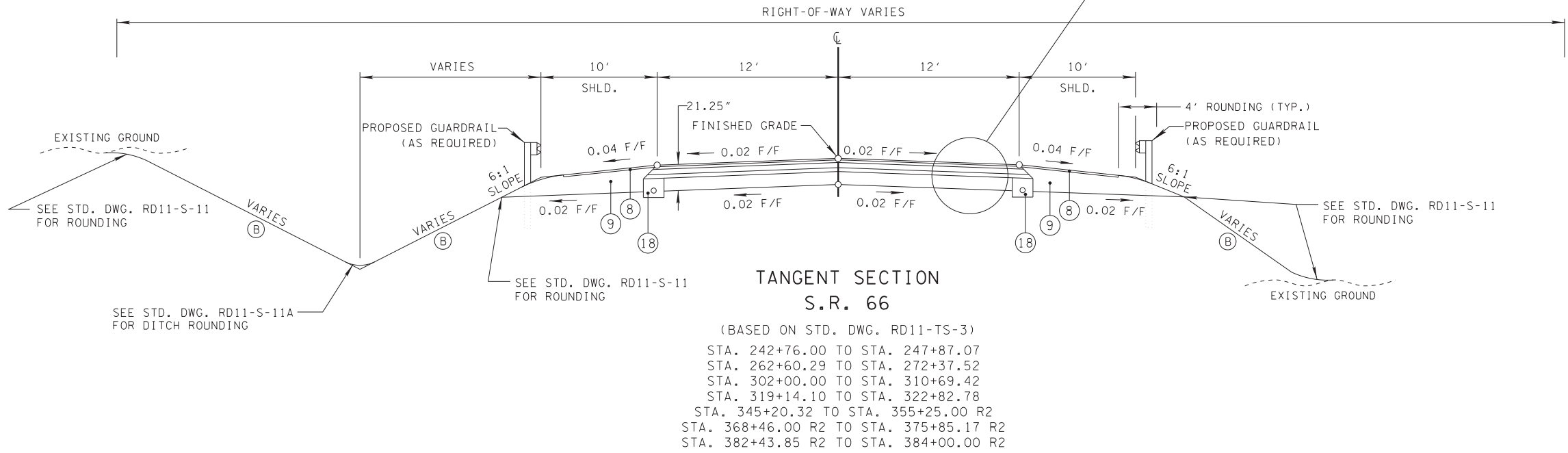
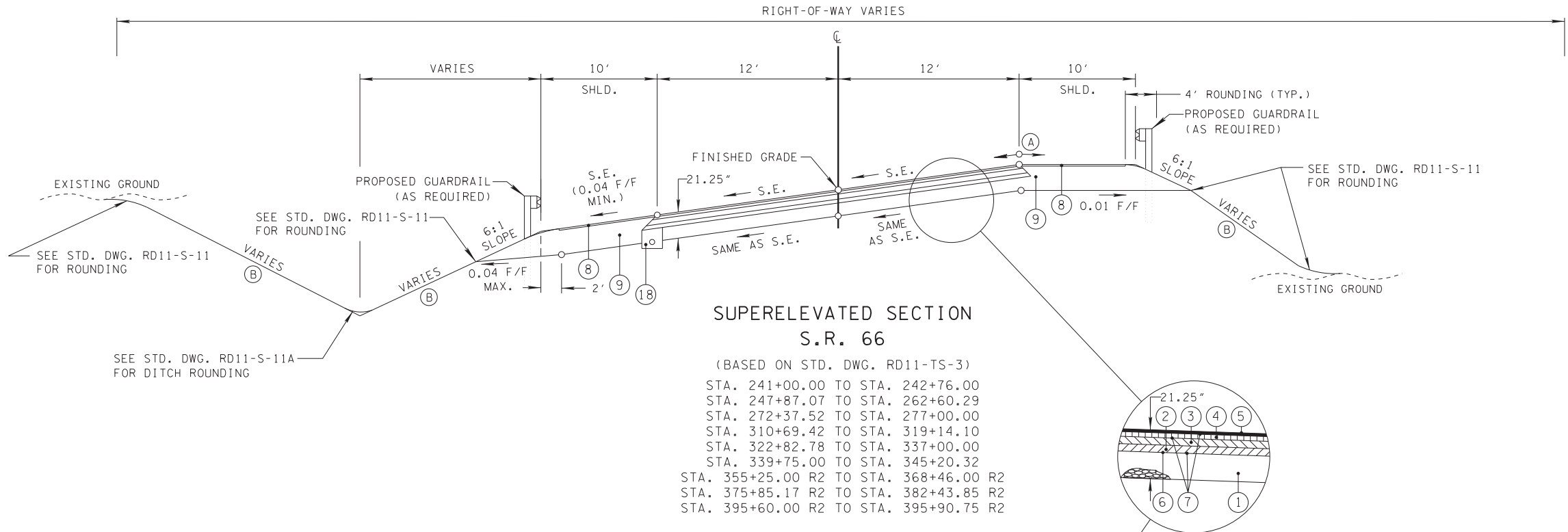
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COORDINATES ARE NAD/83(1995),  
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FACTOR OF 1.000070 AND TIED TO  
THE TGRN. ALL ELEVATIONS ARE  
REFERENCED TO THE NAVD 1988.

STATE OF TENNESSEE  
DEPARTMENT OF  
TRANSPORTATION

TYPICAL  
SECTIONS

TYPE	YEAR	PROJECT NO.	SHEET NO.
R.O.W.	2023	STP-66(38)	2B2



R.O.W.  
FIELD REVIEW

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COORDINATES ARE NAD/83(1995),  
ARE DATUM ADJUSTED BY THE  
FACTOR OF 1.000070 AND TIED TO  
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STATE OF TENNESSEE  
DEPARTMENT OF  
TRANSPORTATION

TYPICAL  
SECTIONS

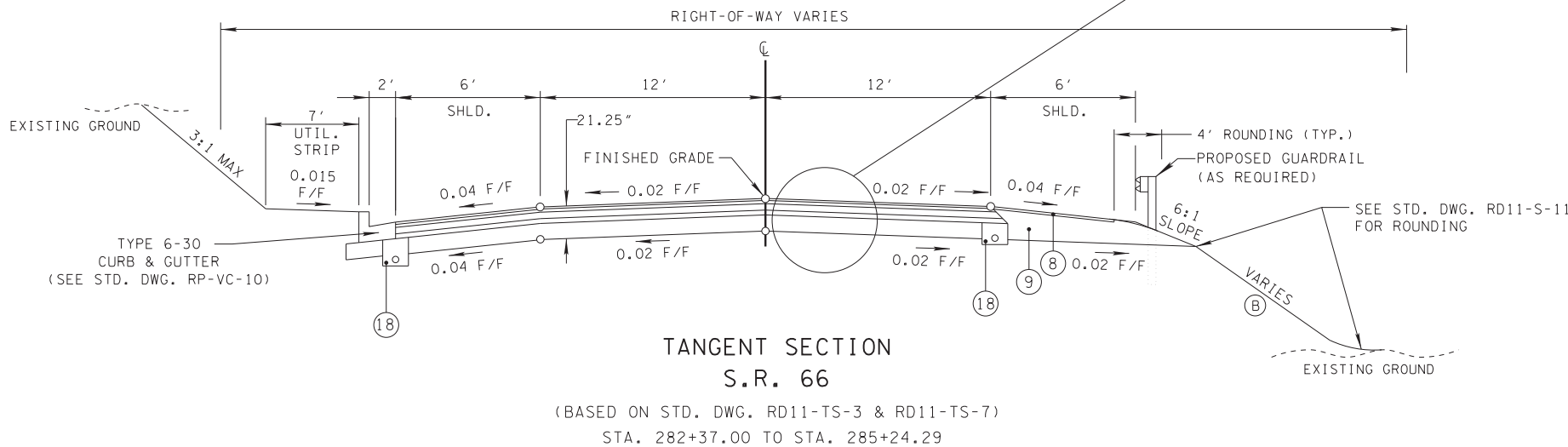
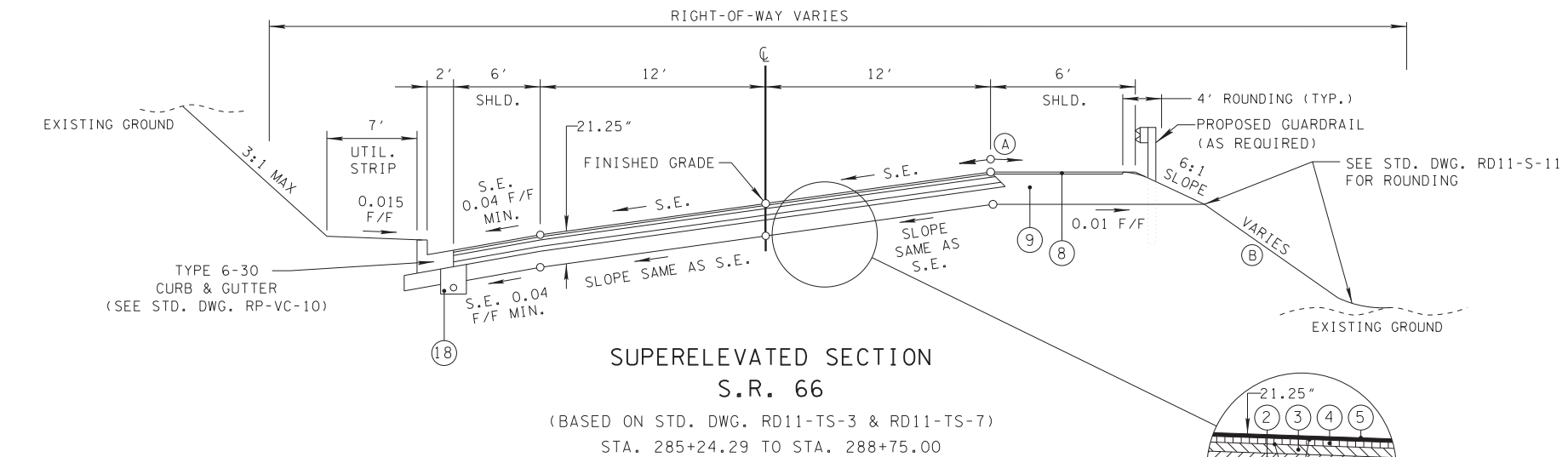
- (A) THE SLOPES OF THE ROADWAY PAVEMENT SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 0.07 FOOT PER FOOT. HIGH SIDE SHOULDER SLOPE SHALL MATCH S.E. FROM STA 341+50.00 TO STA 345+20.32.
- (B) SEE CROSS-SECTIONS FOR SLOPES. SLOPES SHALL NOT EXCEED 2:1.

SEE SHEET 2F & 2G FOR PAVEMENT SCHEDULE (R.O.W.)





TYPE	YEAR	PROJECT NO.	SHEET NO.
R.O.W.	2023	STP-66(38)	2B4



- (A) THE SLOPES OF THE ROADWAY PAVEMENT SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 0.07 FOOT PER FOOT.
- (B) SEE CROSS-SECTIONS FOR SLOPES. SLOPES SHALL NOT EXCEED 2:1.

SEE SHEET 2F & 2G FOR PAVEMENT SCHEDULE (R.O.W.)

**R.O.W.  
FIELD REVIEW**

SEALED BY

COORDINATES ARE NAD/83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.000070 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988.

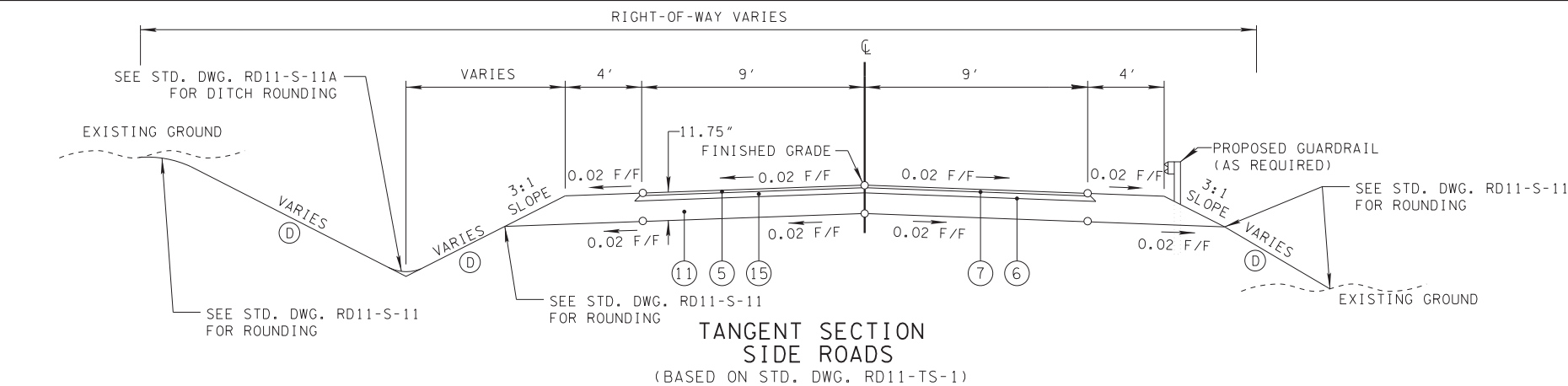
STATE OF TENNESSEE  
DEPARTMENT OF  
TRANSPORTATION

TYPICAL  
SECTIONS





TYPE	YEAR	PROJECT NO.	SHEET NO.
R.O.W.	2023	STP-66(38)	2B6



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STA. 46+00.00 TO STA. 49+82.00

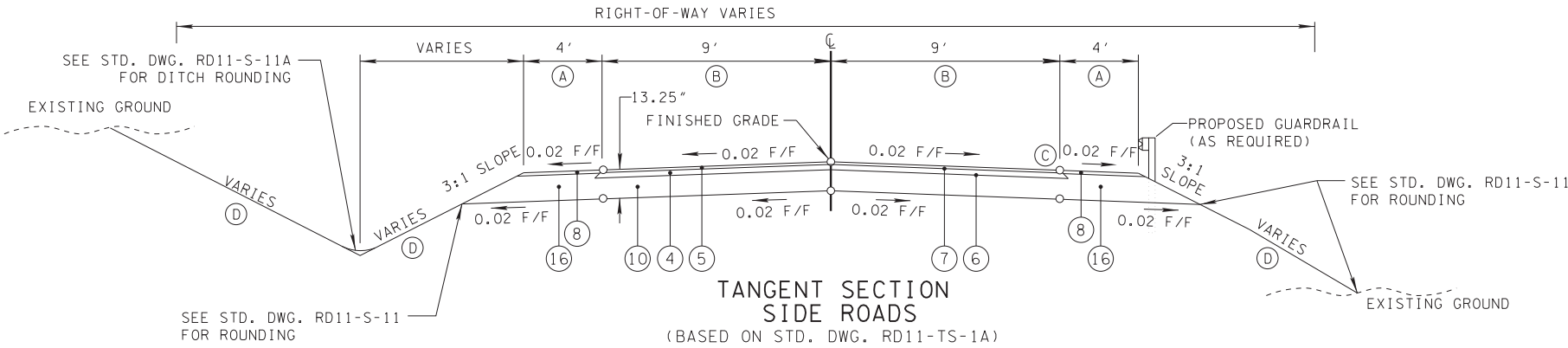
GOAN DRIVE - LT. SR-66 STA. 194+09.00  
STA. 47+55.00 TO STA. 49+82.00

PLEASANT HILL ROAD - LT. SR-66 STA. 235+20.00  
STA. 46+00.00 TO STA. 47+64.00

GUTHRIE GAP ROAD - RT. SR-66 STA. 239+90.00  
STA. 50+12.00 TO STA. 52+90.00

SPEEDWELL AVENUE - RT. SR-66 STA. 389+00.00  
STA. 52+88.00 TO STA. 53+00.00

RIDGE ROAD - LT. SR-66 STA. 341+20.00  
STA. 45+61.00 TO STA. 49+88.00

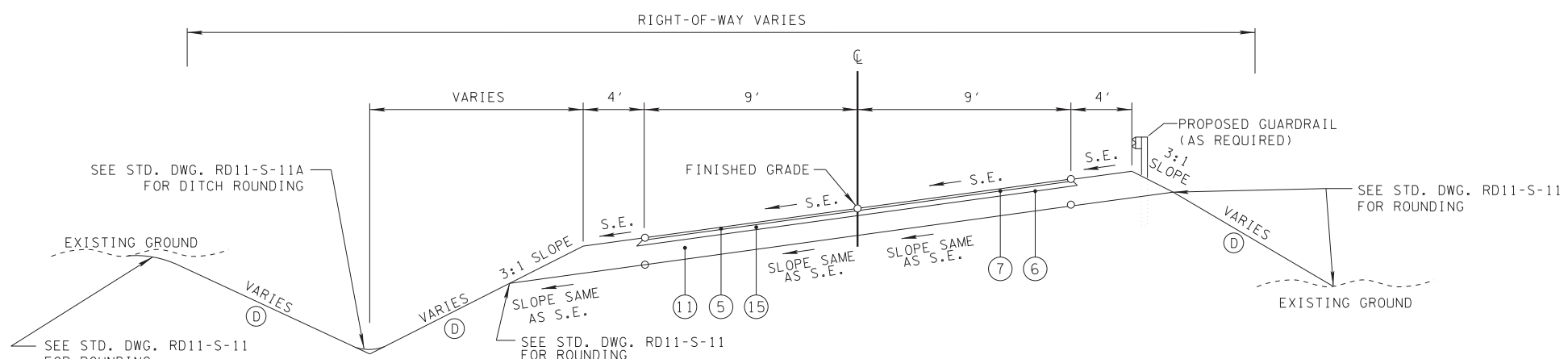


WAYLAND BLVD - LT. SR-66 STA. 111+15.00  
STA 47+50.00 TO STA. 49+82.00

BEECH GROVE ROAD - RT. SR-66 STA. 287+13.28  
STA. 50+12.00 TO STA. 51+00.00

MEADOWVIEW ROAD - LT. SR-66 STA. 186+32.00  
STA. 47+00.00 TO STA. 49+82.00

BARRETTE ENTRANCE - RT. SR-66 STA. 199+72.00  
STA. 50+12.00 TO STA. 52+00.00



PLEASANT HILL ROAD - LT. SR-66 STA. 235+20.00  
STA. 47+64.00 TO STA. 49+88.00

SPEEDWELL AVENUE - RT. SR-66 STA. 389+00.00 R2  
STA. 50+18.00 TO STA. 52+88.00

SEE SHEET 2F & 2G FOR PAVEMENT SCHEDULE (R.O.W.)

R.O.W.  
FIELD REVIEW

SEALED BY

COORDINATES ARE NAD/83(1995),  
ARE DATUM ADJUSTED BY THE  
FACTOR OF 1.000070 AND TIED TO  
THE TGRN. ALL ELEVATIONS ARE  
REFERENCED TO THE NAVD 1988.

STATE OF TENNESSEE  
DEPARTMENT OF  
TRANSPORTATION

TYPICAL  
SECTIONS

8/9/2024 10:57:41 AM  
V:\Projects\TANY\428376\ICADD\1\_MSTN\Sheets\002B6.sht

- (A) 5' SHOULDERS FOR WAYLAND BLVD & HILL AVE  
10' SHOULDERS FOR BARRETTE ENTRANCE  
ELIMINATE SHOULDER DESIGN FOR SHOULDER  
WIDTH 4' OR LESS, REFER TO ROADWAY DESIGN  
GUIDELINES SEC. 4-203.01
- (B) 10' TRAFFIC LANES FOR WAYLAND BLVD & HILL  
AVE 18' TRAFFIC LANES FOR BARRETTE ENTRANCE
- (C) FOR SHOULDER WIDTHS GREATER THAN 4', THE  
SLOPES OF THE SHOULDER SHALL BE 0.04 F/F  
MINIMUM.
- (D) SEE CROSS-SECTIONS FOR SLOPES. SLOPES  
SHALL NOT EXCEED 2:1.







**ROW Plans (dated 08-09-2024)**

- Proposed ROW
- Proposed Permanent Drainage Easement
- Proposed Slope Easement
- Proposed Temporary Construction Easement
- Proposed Edge of Traveled Way
- Property Lines
- Stream Mitigation Area

**ROW Field Review Plans (dated 03-06-2024)**

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- Proposed Slope Easement
- Proposed Temporary Construction Easement
- Proposed Edge of Traveled Way

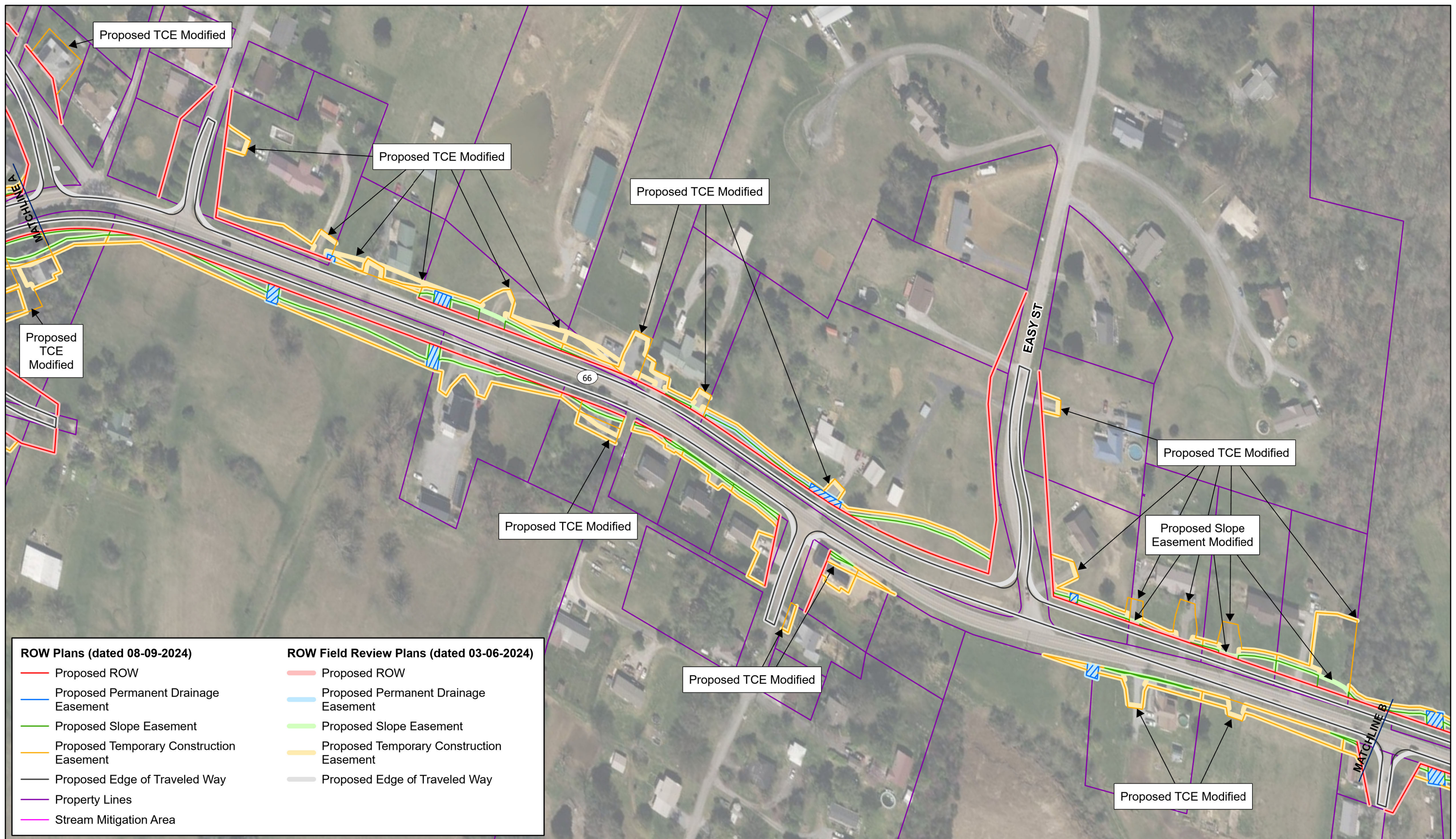
**OVERLAY MAP**

**PROJECT**

**STATE ROUTE 66**  
From State Route 34 in Bulls Gap to North of Speedwell Road/Old Highway 66  
Hawkins County, Tennessee, PIN 107579.00







**ROW Plans (dated 08-09-2024)**

Proposed ROW

Proposed Permanent Drainage Easement

Proposed Slope Easement

Proposed Temporary Construction Easement

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Proposed Slope Easement

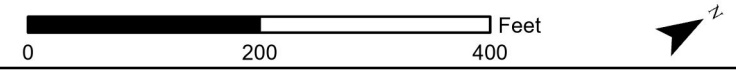
Proposed Temporary Construction Easement

Proposed Edge of Traveled Way

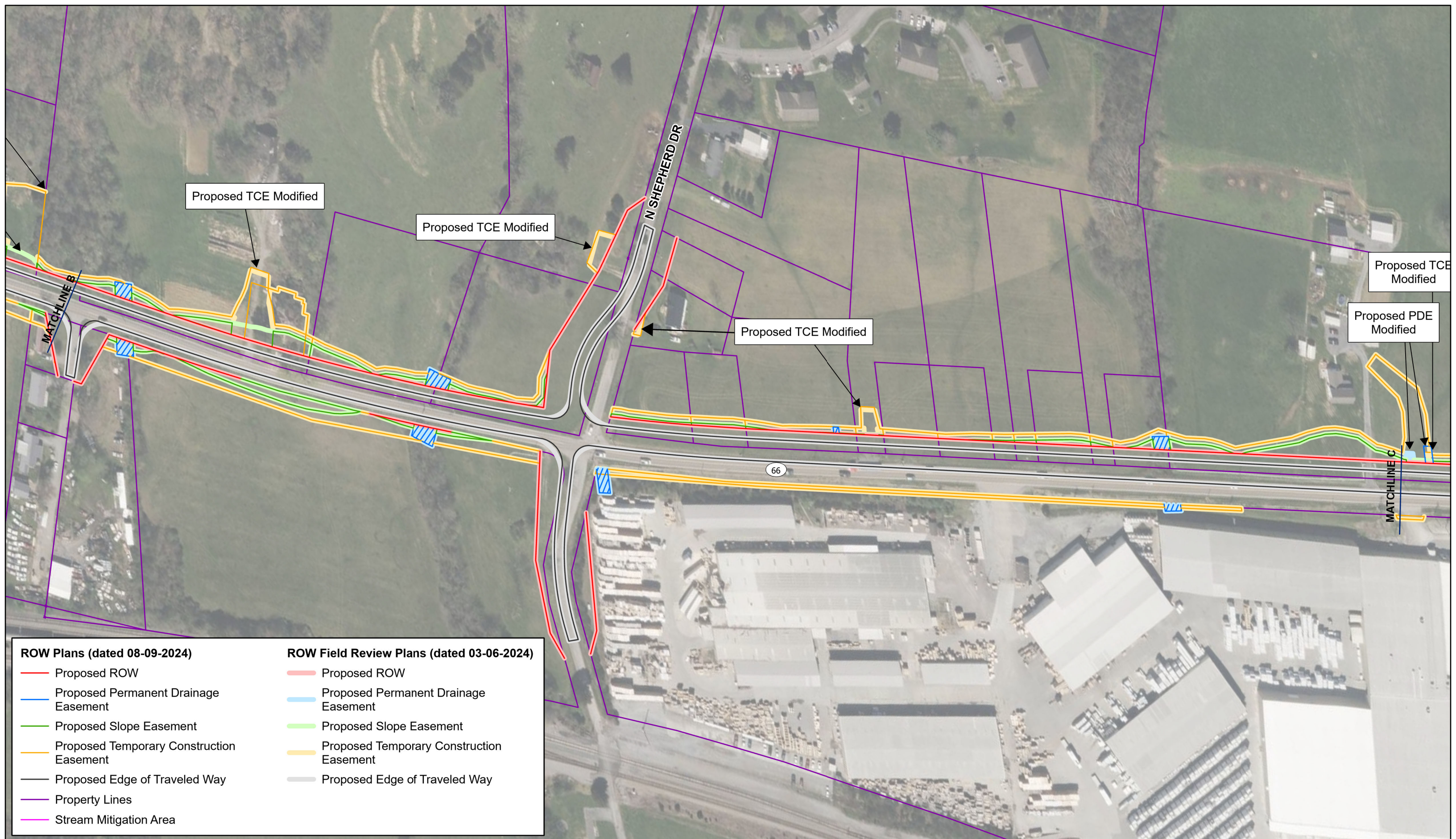
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STATE ROUTE 66  
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Hawkins County, Tennessee, PIN 107579.00







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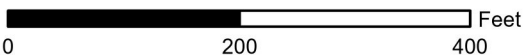
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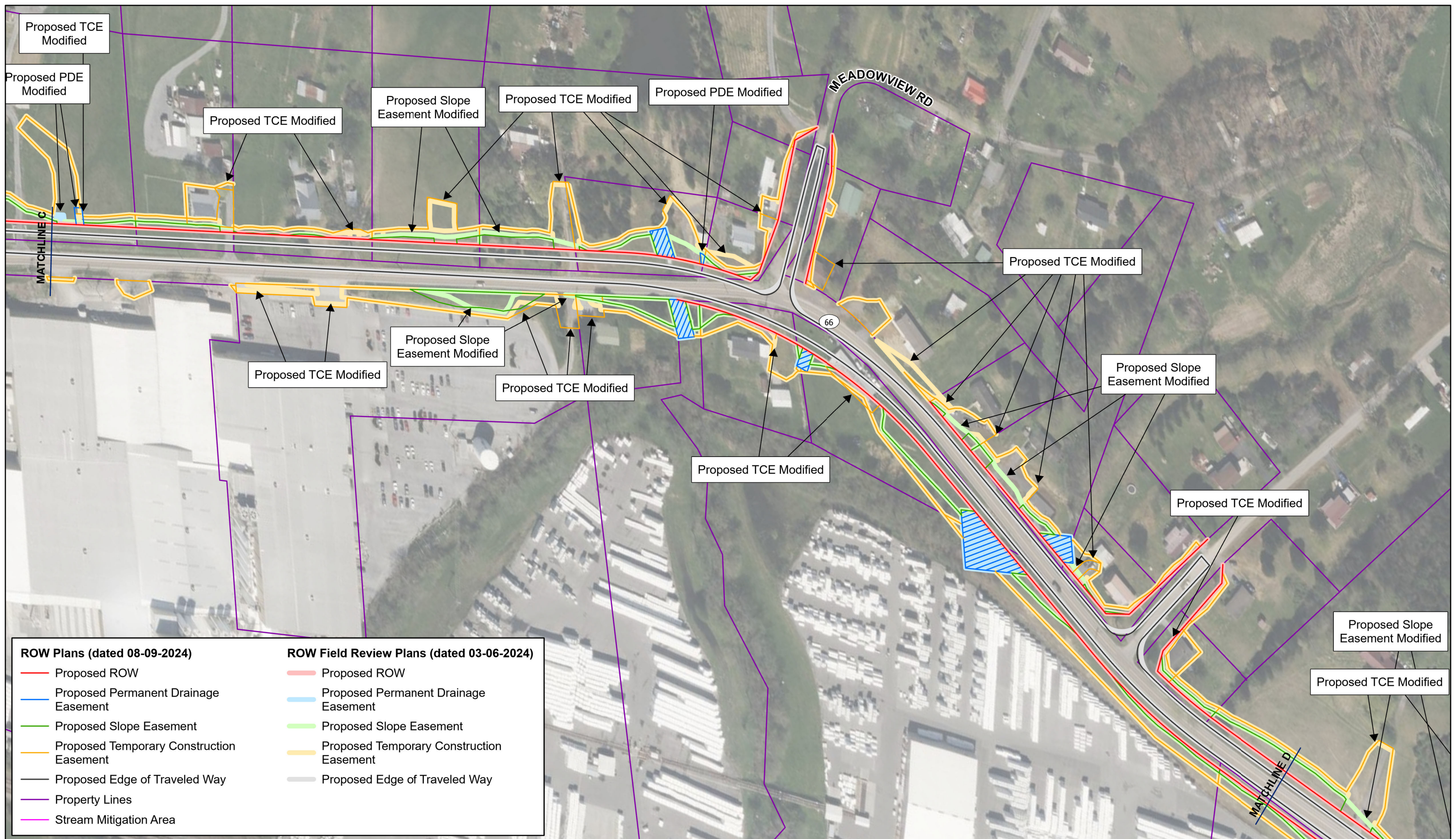
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**STATE ROUTE 66**  
From State Route 34 in Bulls Gap to North of Speedwell Road/Old Highway 66  
Hawkins County, Tennessee, PIN 107579.00







**ROW Plans (dated 08-09-2024)**

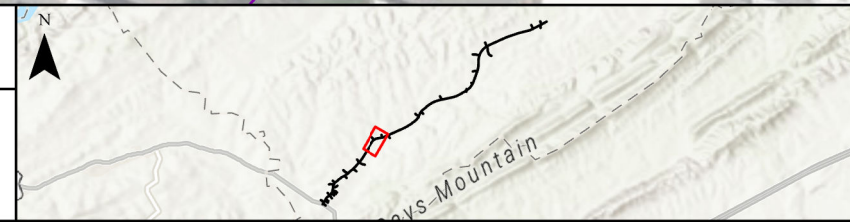
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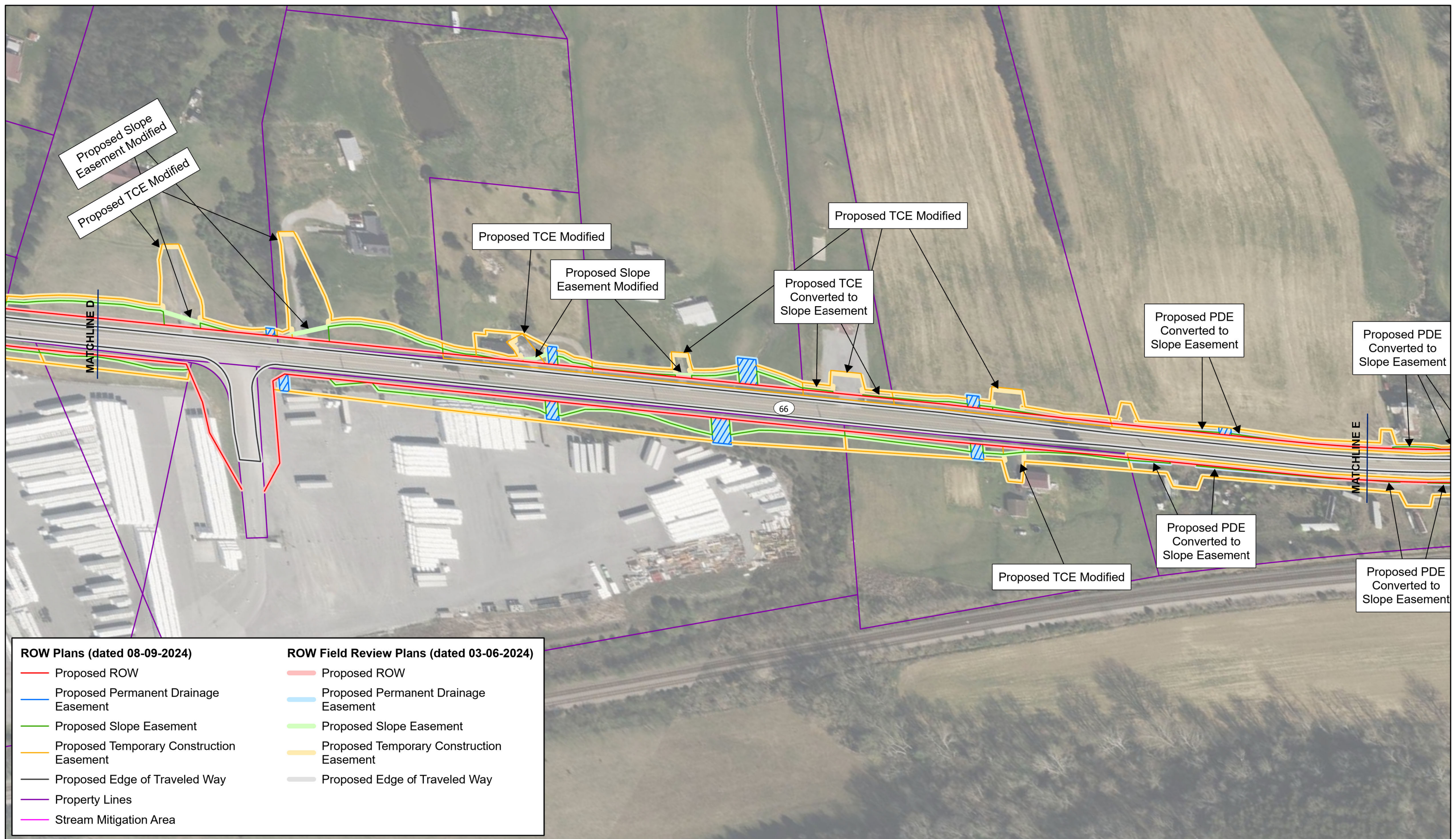
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**PROJECT** **STATE ROUTE 66**  
From State Route 34 in Bulls Gap to North of Speedwell Road/Old Highway 66  
Hawkins County, Tennessee, PIN 107579.00







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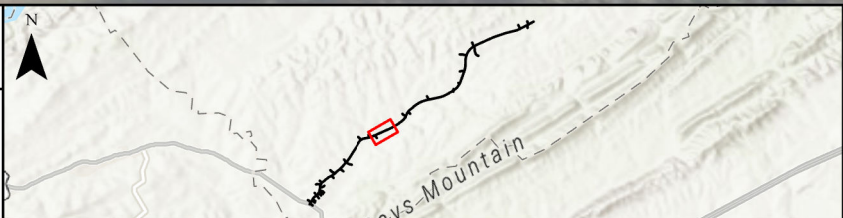
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**STATE ROUTE 66**  
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ROW Plans (dated 08-09-2024)

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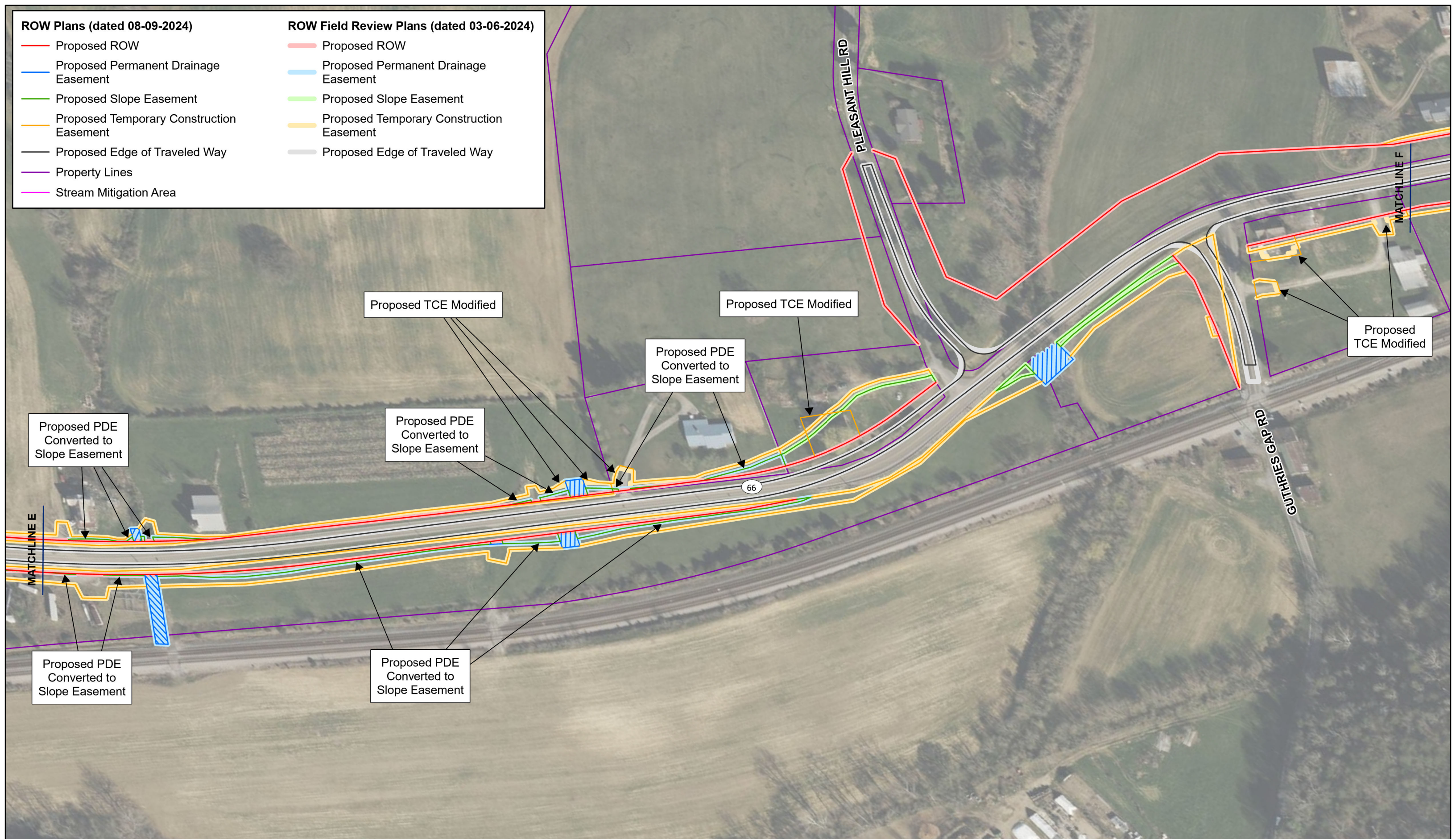
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OVERLAY MAP

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STATE ROUTE 66  
From State Route 34 in Bulls Gap to North of Speedwell Road/Old Highway 66  
Hawkins County, Tennessee, PIN 107579.00



0200400

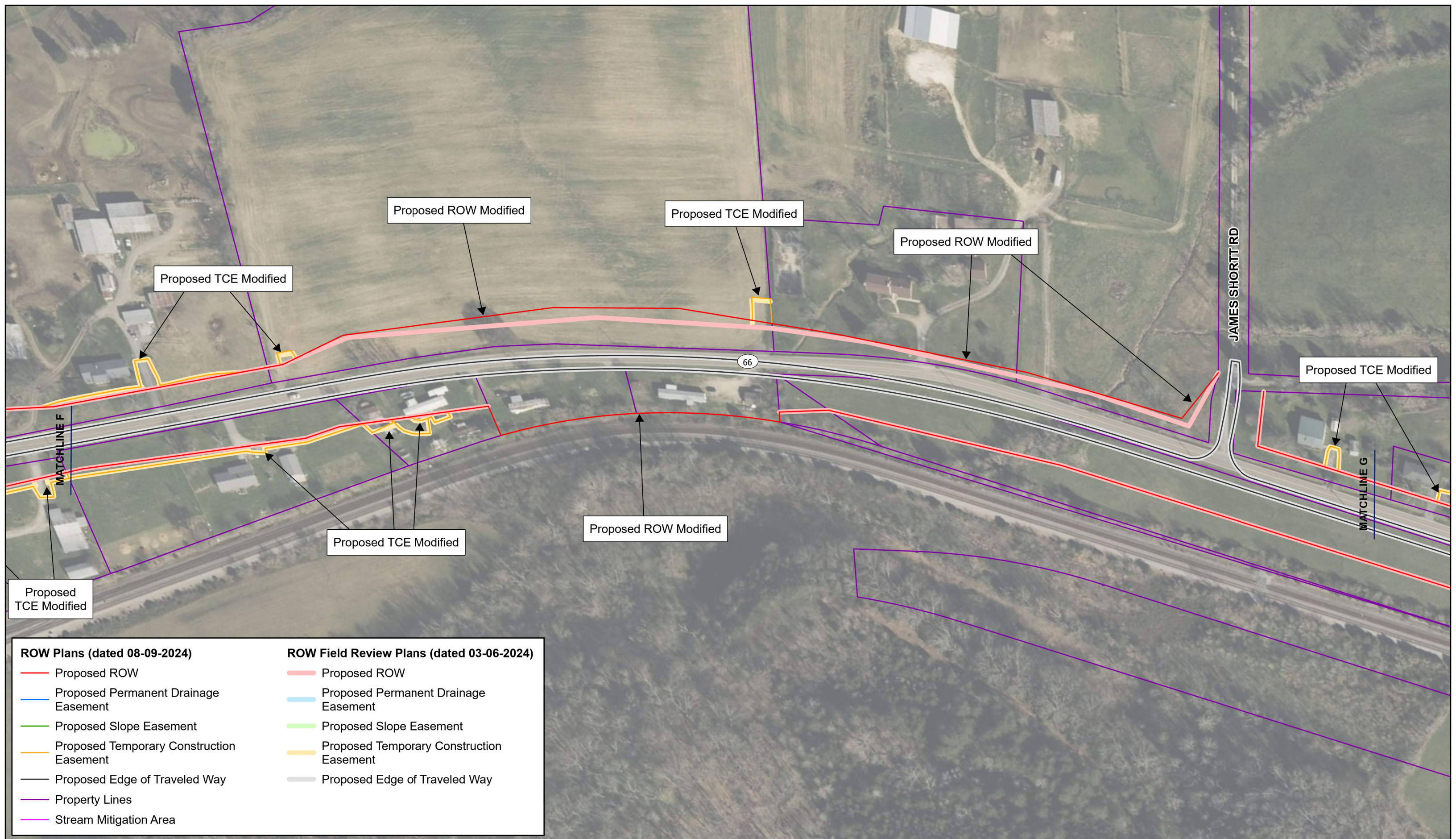
Feet

TN

TDOT

Department of Transportation



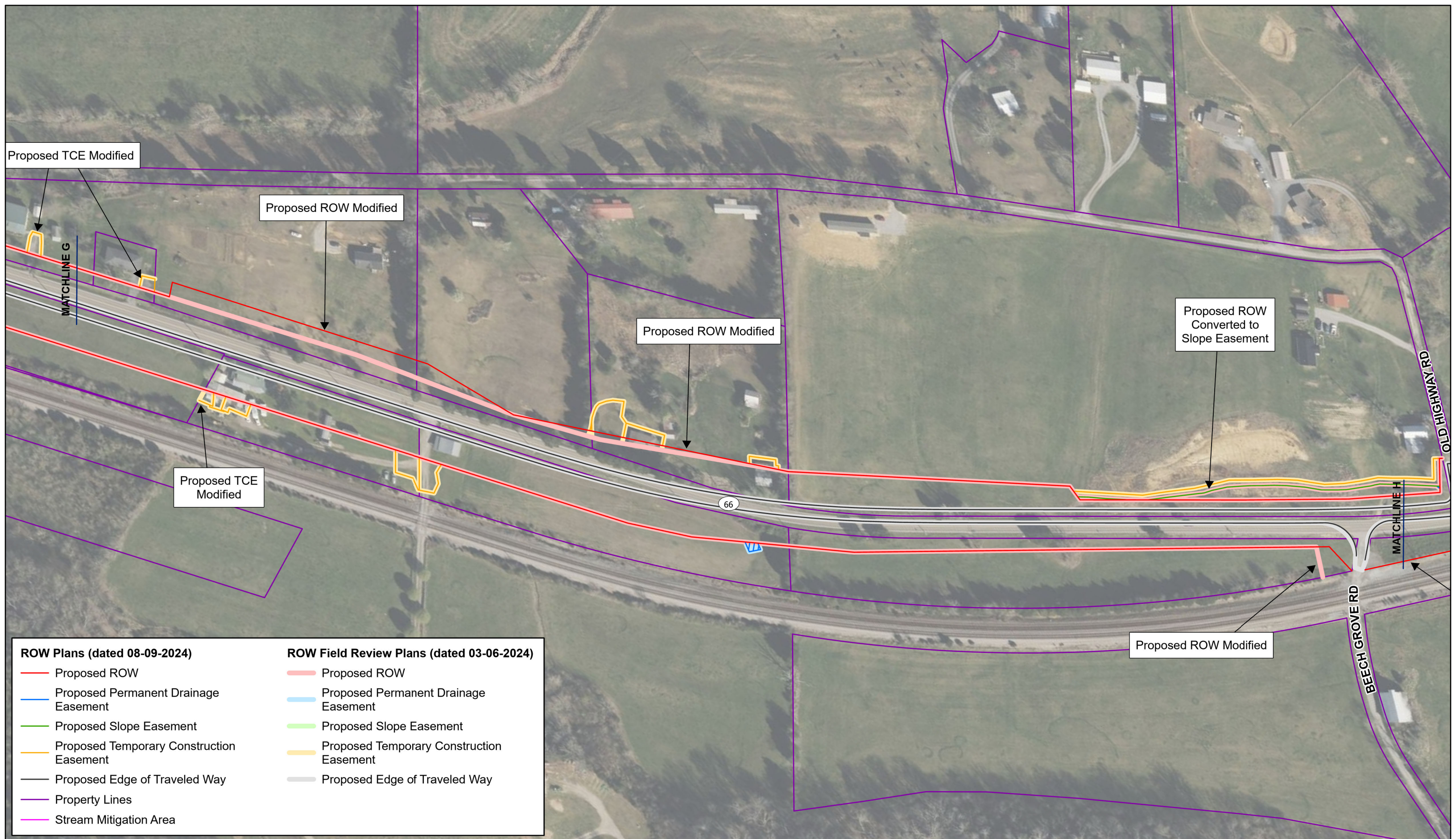


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<b>OVERLAY MAP</b>	
<b>PROJECT</b>	<b>STATE ROUTE 66</b> From State Route 34 in Bulls Gap to North of Speedwell Road/Old Highway 66 Hawkins County, Tennessee, PIN 107579.00





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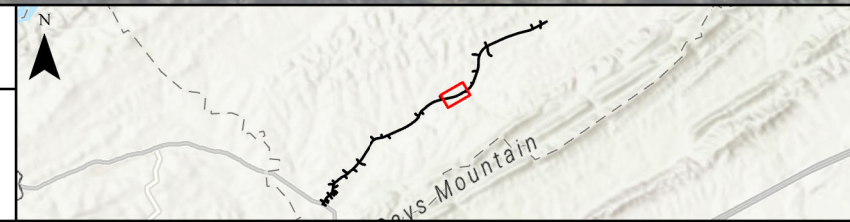
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OVERLAY MAP

PROJECT

STATE ROUTE 66  
From State Route 34 in Bulls Gap to North of Speedwell Road/Old Highway 66  
Hawkins County, Tennessee, PIN 107579.00



0200400

Feet

TN

TDOT

Department of Transportation



ROW Plans (dated 08-09-2024)

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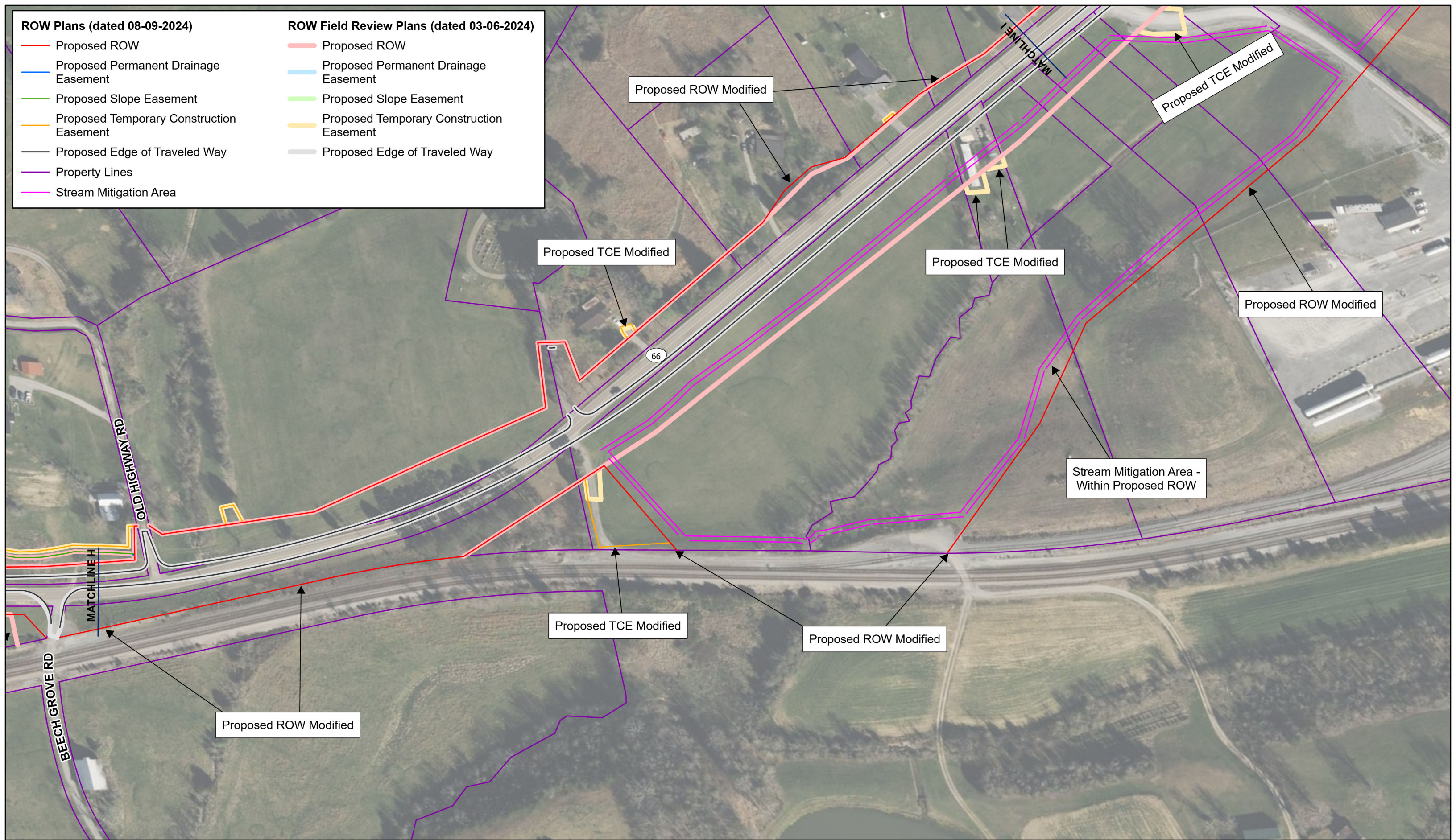
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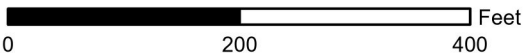
Proposed Edge of Traveled Way



OVERLAY MAP

PROJECT

**STATE ROUTE 66**  
From State Route 34 in Bulls Gap to North of Speedwell Road/Old Highway 66  
Hawkins County, Tennessee, PIN 107579.00





ROW Plans (dated 08-09-2024)

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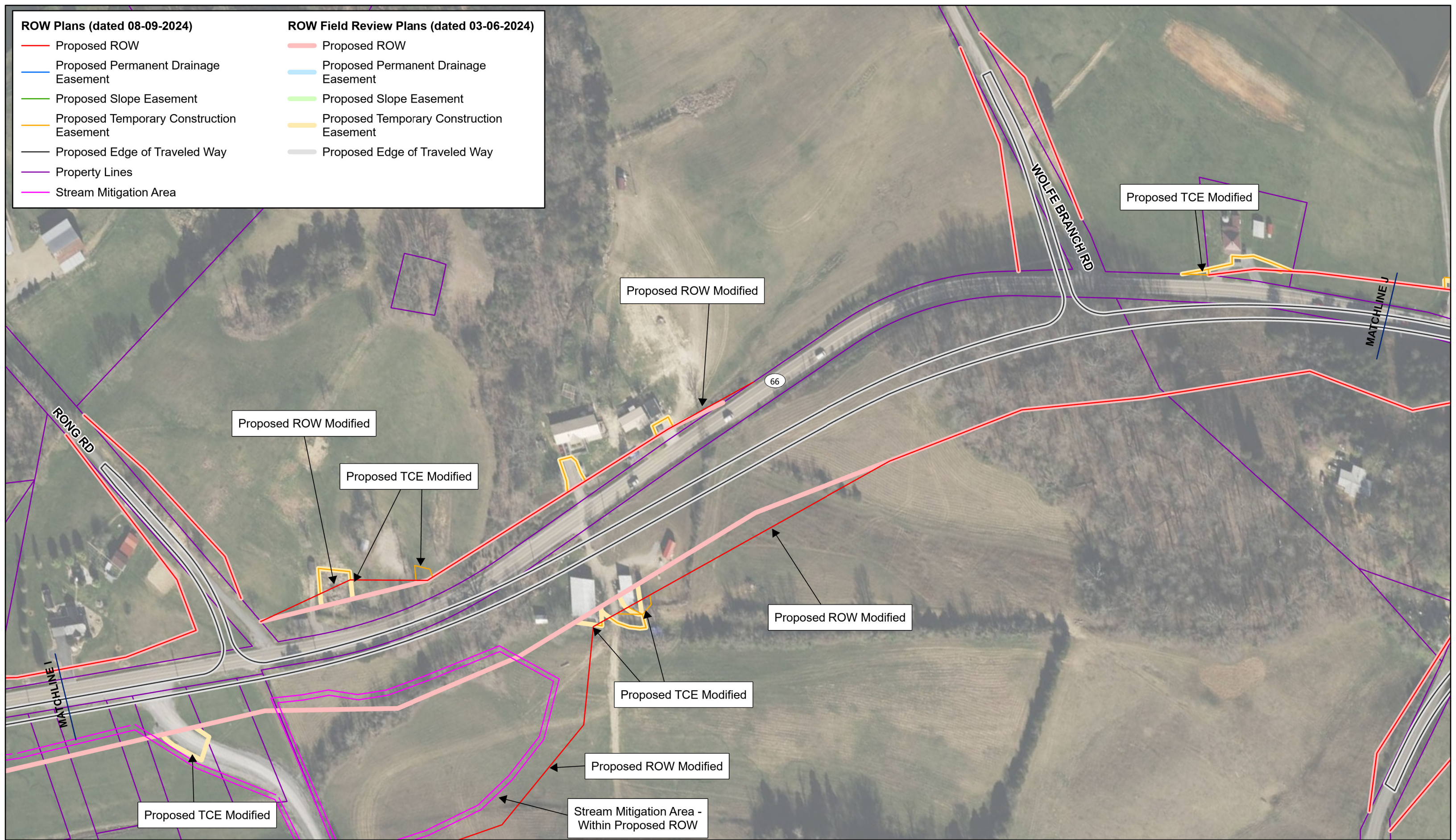
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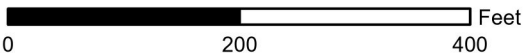
Proposed Edge of Traveled Way



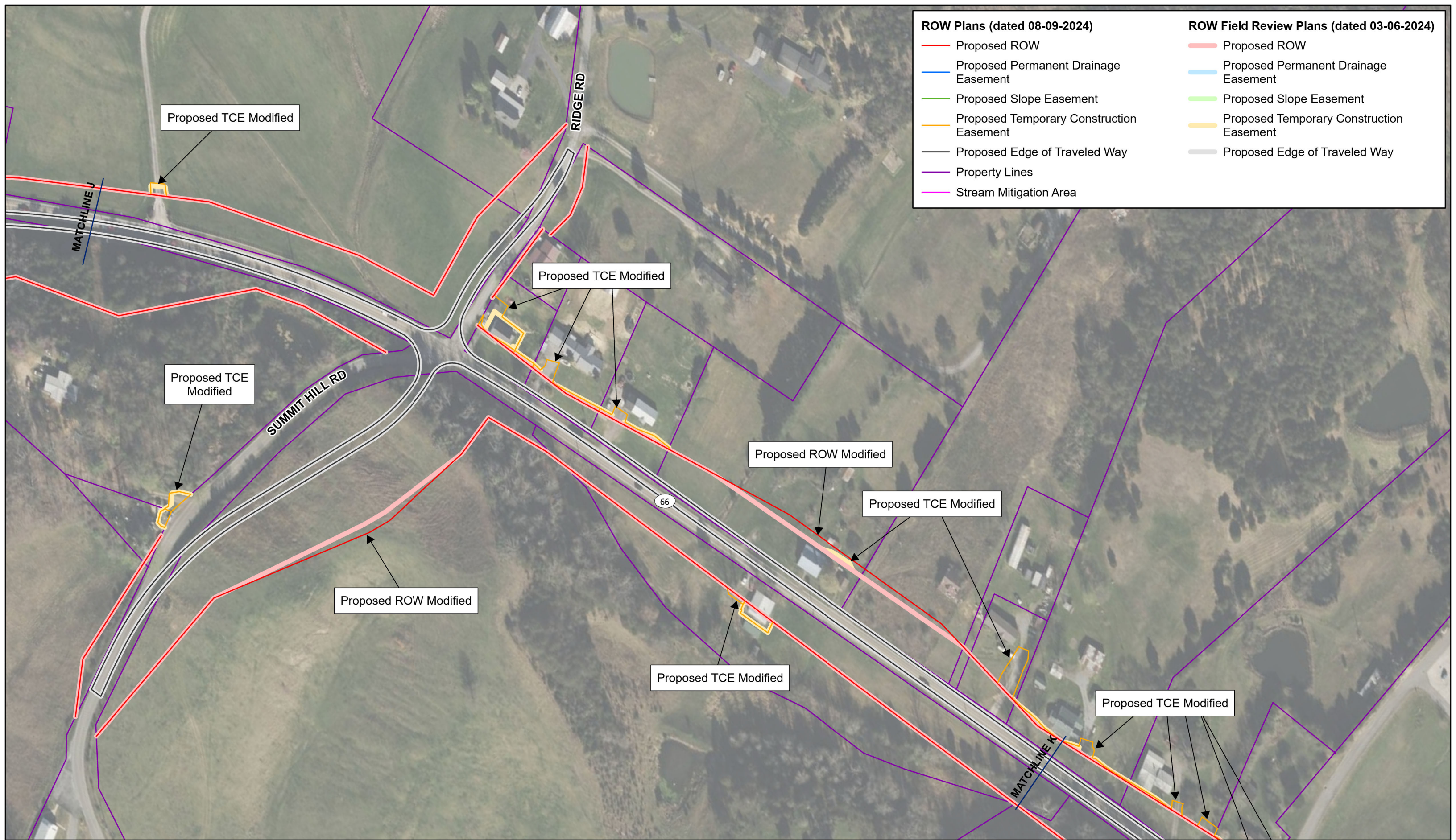
OVERLAY MAP

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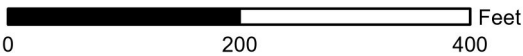
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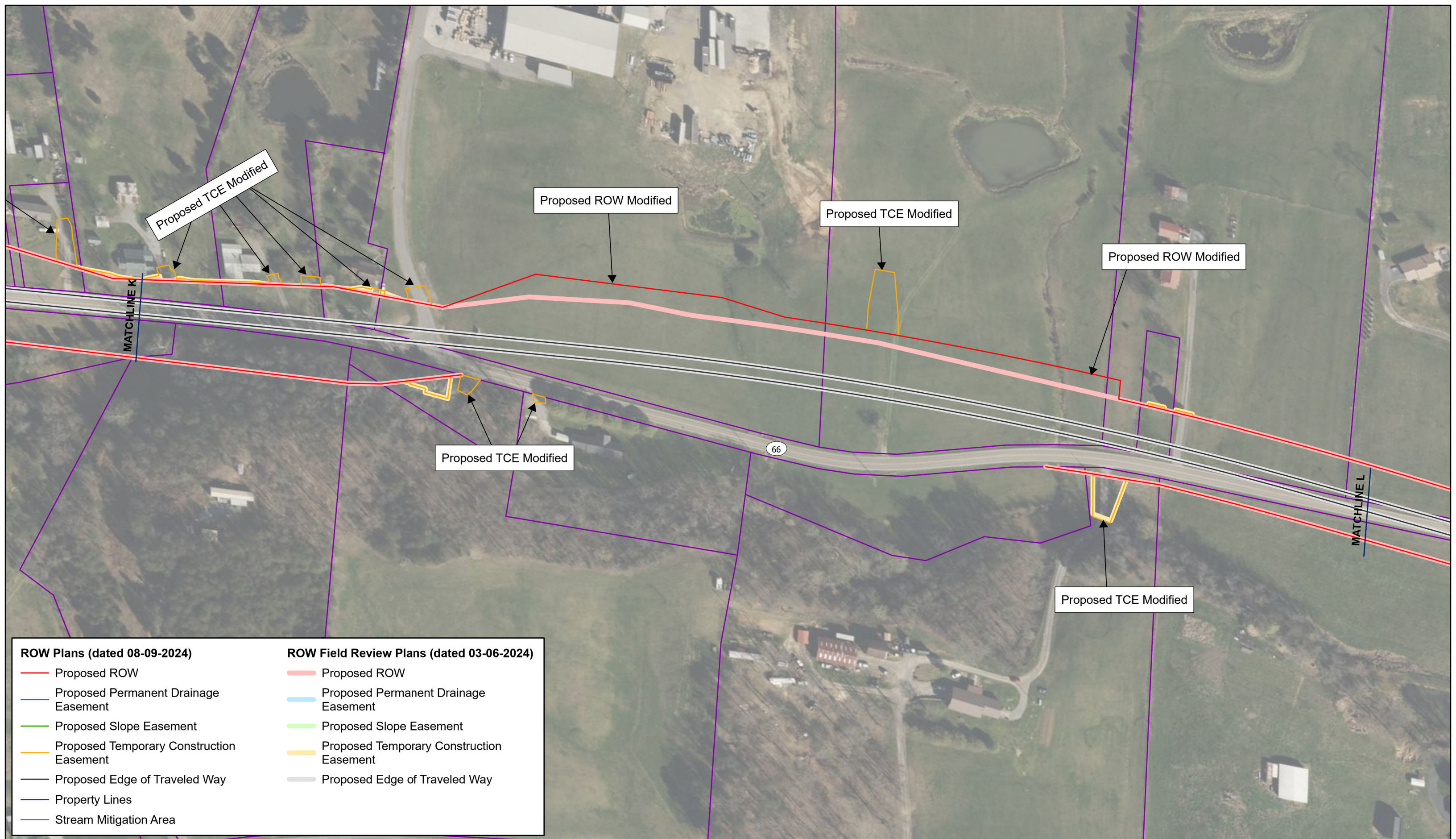
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Hawkins County, Tennessee, PIN 107579.00

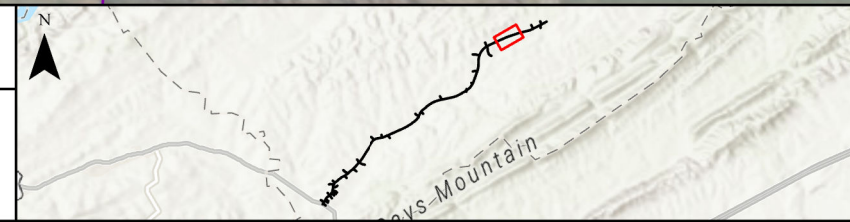




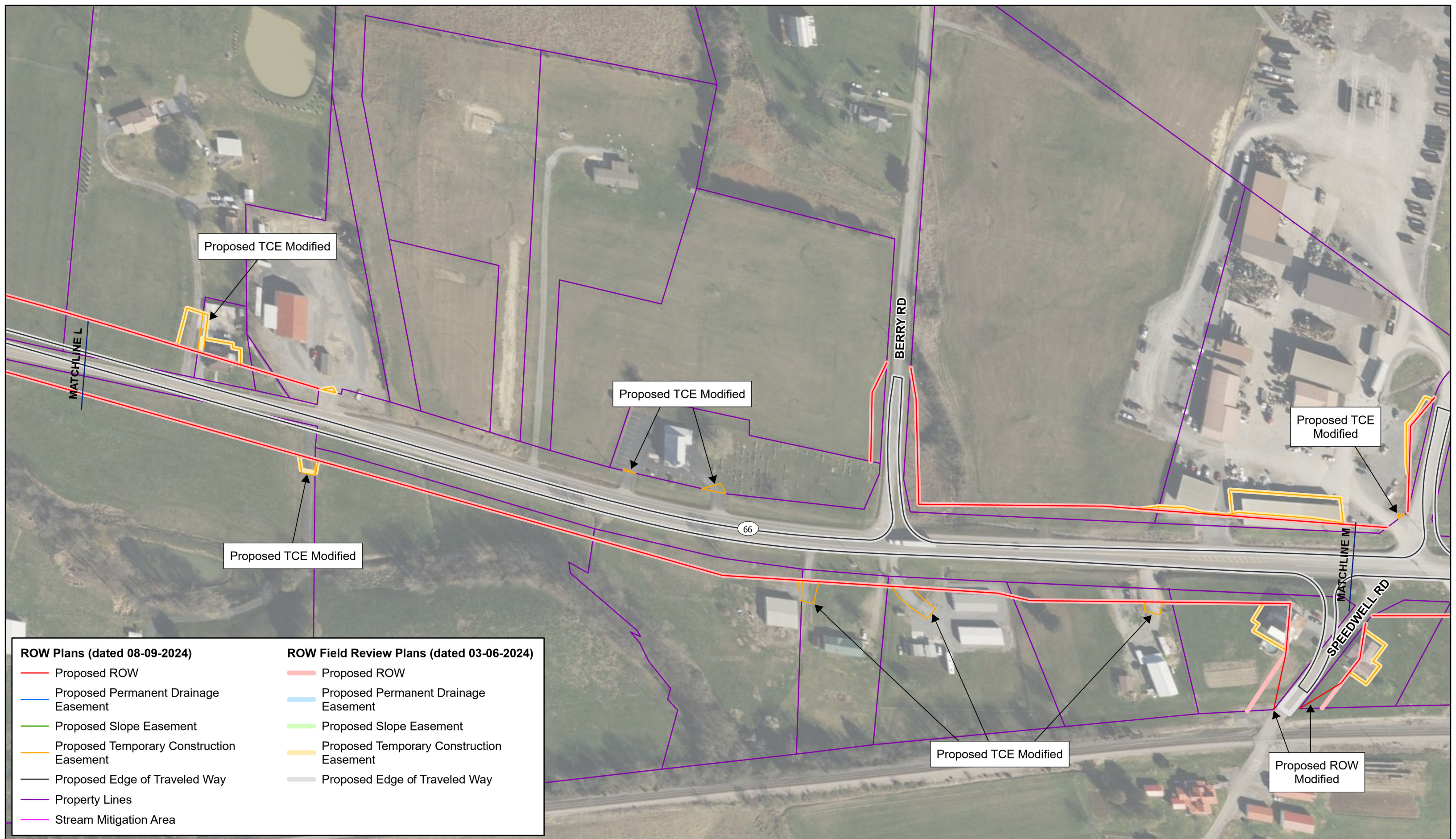


ROW Plans (dated 08-09-2024)	ROW Field Review Plans (dated 03-06-2024)
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<b>OVERLAY MAP</b>	
<b>PROJECT</b>	<b>STATE ROUTE 66</b> From State Route 34 in Bulls Gap to North of Speedwell Road/Old Highway 66 Hawkins County, Tennessee, PIN 107579.00





**ROW Plans (dated 08-09-2024)**

Proposed ROW

Proposed Permanent Drainage Easement

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STATE ROUTE 66  
From State Route 34 in Bulls Gap to North of Speedwell Road/Old Highway 66  
Hawkins County, Tennessee, PIN 107579.00

0200400

Feet

TN

TDOT

Department of Transportation



**Appendix B**  
**Traffic Data**



Project Name:	SR-66, Hawkins County
Base Year:	2028
Alternative:	Existing

K	0.1
D	65%
DHV % of % AADT Trucks	67%
%MT of Trucks	26%
%HT of Trucks	74%

Road	From	To	Average Annual Daily Traffic (AADT)	% AADT Trucks	Design Hour Volume (DHV)	% DHV Trucks	AM				PM			
							Total	Autos	MTs	HTs	Total	Autos	MTs	HTs
NB SR-66	SR-34	Elmwood Ave	2,450	5%	490	3.3%	172	166	2	4	319	308	3	8
	Elmwood Ave	York St	2,430	5%	486	3.3%	170	164	1	4	316	305	3	8
	York St	Hill Ave/Wayland Blvd	2,415	5%	483	3.3%	169	163	1	4	314	303	3	8
	Hill Ave/Wayland Blvd	Allen Dr	2,380	5%	476	3.3%	167	161	1	4	309	299	3	8
	Allen Dr	Easy St	2,435	5%	487	3.3%	170	165	1	4	317	306	3	8
	Easy St	Shepherd Rd	2,490	5%	498	3.3%	174	168	2	4	324	313	3	8
	Shepherd Rd	Meadowview Rd	2,395	5%	479	3.3%	168	162	1	4	311	301	3	8
	Meadowview Rd	Goan Dr	2,300	5%	460	3.3%	161	156	1	4	299	289	3	7
	Goan Dr	Pleasant Hill Rd	2,225	6%	445	4.0%	156	150	2	5	289	278	3	9
	Pleasant Hill Rd	Guthrie Gap Rd	2,085	5%	417	3.3%	146	141	1	4	271	262	2	7
	Guthrie Gap Rd	Beechgrove Rd	2,030	5%	406	3.3%	142	137	1	3	264	255	2	6
	Beechgrove Rd	Wolf Branch Rd	2,015	5%	403	3.3%	141	136	1	3	262	253	2	6
SB SR-66	Wolf Branch Rd	Summit Hill Rd/Ridge Rd	1,985	5%	397	3.3%	139	134	1	3	258	249	2	6
	Summit Hill Rd/Ridge Rd	Project End	1,945	5%	389	3.3%	136	132	1	3	253	244	2	6
	SR-34	Elmwood Ave	2,450	5%	490	3.3%	319	308	3	8	172	166	2	4
	Elmwood Ave	York St	2,430	5%	486	3.3%	316	305	3	8	170	164	1	4
	York St	Hill Ave/Wayland Blvd	2,415	5%	483	3.3%	314	303	3	8	169	163	1	4
	Hill Ave/Wayland Blvd	Allen Dr	2,380	5%	476	3.3%	309	299	3	8	167	161	1	4
	Allen Dr	Easy St	2,435	5%	487	3.3%	317	306	3	8	170	165	1	4
	Easy St	Shepherd Rd	2,490	5%	498	3.3%	324	313	3	8	174	168	2	4
	Shepherd Rd	Meadowview Rd	2,395	5%	479	3.3%	311	301	3	8	168	162	1	4
	Meadowview Rd	Goan Dr	2,300	5%	460	3.3%	299	289	3	7	161	156	1	4
	Goan Dr	Pleasant Hill Rd	2,225	6%	445	4.0%	289	278	3	9	156	150	2	5
	Pleasant Hill Rd	Guthrie Gap Rd	2,085	5%	417	3.3%	271	262	2	7	146	141	1	4
	Guthrie Gap Rd	Beechgrove Rd	2,030	5%	406	3.3%	264	255	2	6	142	137	1	3
	Beechgrove Rd	Wolf Branch Rd	2,015	5%	403	3.3%	262	253	2	6	141	136	1	3
	Wolf Branch Rd	Summit Hill Rd/Ridge Rd	1,985	5%	397	3.3%	258	249	2	6	139	134	1	3
	Summit Hill Rd/Ridge Rd	Project End	1,945	5%	389	3.3%	253	244	2	6	136	132	1	3
	Main Street	---	290	11%	29	7.3%	29	27	1	2	29	27	1	2
	Elmwood Ave	---	220	3%	22	2.0%	22	22	0	0	22	22	0	0
	York St	---	200	3%	20	2.0%	20	20	0	0	20	20	0	0
	Hill Ave	---	190	5%	19	3.3%	19	18	0	0	19	18	0	0
	Wayland Blvd	---	440	3%	44	2.0%	44	43	0	1	44	43	0	1
	Allen Dr	---	480	5%	48	3.3%	48	46	0	1	48	46	0	1
	Easy St	---	300	2%	30	1.3%	30	30	0	0	30	30	0	0
	N Shepherd Rd	---	590	1%	59	0.7%	59	59	0	0	59	59	0	0
	S Shepherd Rd	---	140	4%	14	2.7%	14	14	0	0	14	14	0	0
	Meadowview Rd	---	430	2%	43	1.3%	43	42	0	0	43	42	0	0
	Goan Dr	---	510	3%	51	2.0%	51	50	0	1	51	50	0	1
	Pleasant Hill Rd	---	270	4%	27	2.7%	27	26	0	1	27	26	0	1

<b>Project Name:</b>	<b>SR-66, Hawkins County</b>
<b>Base Year:</b>	<b>2028</b>
<b>Alternative:</b>	<b>Existing</b>

K	0.1
D	65%
DHV % of % AADT Trucks	67%
%MT of Trucks	26%
%HT of Trucks	74%

Road	From	To	Average Annual Daily Traffic (AADT)	% AADT Trucks	Design Hour Volume (DHV)	% DHV Trucks	AM				PM			
							Total	Autos	MTs	HTs	Total	Autos	MTs	HTs
Guthrie Gap Rd	---	---	270	5%	27	3.3%	27	26	0	1	27	26	0	1
Beechgrove Rd	---	---	390	3%	39	2.0%	39	38	0	1	39	38	0	1
Wolf Branch Rd	---	---	160	5%	16	3.3%	16	15	0	0	16	15	0	0
Summit Hill Rd	---	---	190	8%	19	5.3%	19	18	0	1	19	18	0	1
Ridge Rd	---	---	330	6%	33	4.0%	33	32	0	1	33	32	0	1
EB SR-34	West	SR-66	2,870	12%	516	8.0%	227	209	3	16	289	266	3	20
	SR-66	East	3,705	10%	692	6.7%	325	303	3	19	367	343	3	21
WB SR-34	West	SR-66	2,870	12%	516	8.0%	207	190	2	14	309	284	3	21
	SR-66	East	3,705	10%	695	6.7%	255	238	2	15	440	411	4	25



Project Name:	SR-66, Hawkins County
Design Year	2048
Alternative:	Build

K	0.1
D	65%
DHV % of % AADT Trucks	67%
%MT of Trucks	26%
%HT of Trucks	74%

Road	From	To	Average Annual Daily Traffic (AADT)	% AADT Trucks	Design Hour Volume (DHV)	% DHV Trucks	AM				PM			
							Total	Autos	MTs	HTs	Total	Autos	MTs	HTs
NB SR-66	SR-34	Elmwood Ave	2,940	5%	588	3.3%	206	199	2	5	382	369	3	9
	Elmwood Ave	York St	2,915	5%	583	3.3%	204	197	2	5	379	366	3	9
	York St	Hill Ave/Wayland Blvd	2,900	5%	580	3.3%	203	196	2	5	377	364	3	9
	Hill Ave/Wayland Blvd	Allen Dr	2,860	5%	572	3.3%	200	194	2	5	372	359	3	9
	Allen Dr	Easy St	2,930	5%	586	3.3%	205	198	2	5	381	368	3	9
	Easy St	Shepherd Rd	2,995	5%	599	3.3%	210	203	2	5	389	376	3	10
	Shepherd Rd	Meadowview Rd	2,870	5%	574	3.3%	201	194	2	5	373	361	3	9
	Meadowview Rd	Goan Dr	2,755	5%	551	3.3%	193	186	2	5	358	346	3	9
	Goan Dr	Pleasant Hill Rd	2,665	6%	533	4.0%	187	179	2	5	346	333	4	10
	Pleasant Hill Rd	Guthrie Gap Rd	2,500	5%	500	3.3%	175	169	2	4	325	314	3	8
	Guthrie Gap Rd	Beechgrove Rd	2,430	5%	486	3.3%	170	164	1	4	316	305	3	8
	Beechgrove Rd	Wolf Branch Rd	2,415	5%	483	3.3%	169	163	1	4	314	303	3	8
SB SR-66	Wolf Branch Rd	Summit Hill Rd/Ridge Rd	2,385	5%	477	3.3%	167	161	1	4	310	300	3	8
	Summit Hill Rd/Ridge Rd	Project End	2,330	5%	466	3.3%	163	158	1	4	303	293	3	7
	SR-34	Elmwood Ave	2,940	5%	588	3.3%	382	369	3	9	206	199	2	5
	Elmwood Ave	York St	2,915	5%	583	3.3%	379	366	3	9	204	197	2	5
	York St	Hill Ave/Wayland Blvd	2,900	5%	580	3.3%	377	364	3	9	203	196	2	5
	Hill Ave/Wayland Blvd	Allen Dr	2,860	5%	572	3.3%	372	359	3	9	200	194	2	5
	Allen Dr	Easy St	2,930	5%	586	3.3%	381	368	3	9	205	198	2	5
	Easy St	Shepherd Rd	2,995	5%	599	3.3%	389	376	3	10	210	203	2	5
	Shepherd Rd	Meadowview Rd	2,870	5%	574	3.3%	373	361	3	9	201	194	2	5
	Meadowview Rd	Goan Dr	2,755	5%	551	3.3%	358	346	3	9	193	186	2	5
	Goan Dr	Pleasant Hill Rd	2,665	6%	533	4.0%	346	333	4	10	187	179	2	5
	Pleasant Hill Rd	Guthrie Gap Rd	2,500	5%	500	3.3%	325	314	3	8	175	169	2	4
Main Street	Guthrie Gap Rd	Beechgrove Rd	2,430	5%	486	3.3%	316	305	3	8	170	164	1	4
	Beechgrove Rd	Wolf Branch Rd	2,415	5%	483	3.3%	314	303	3	8	169	163	1	4
	Wolf Branch Rd	Summit Hill Rd/Ridge Rd	2,385	5%	477	3.3%	310	300	3	8	167	161	1	4
	Summit Hill Rd/Ridge Rd	Project End	2,330	5%	466	3.3%	303	293	3	7	163	158	1	4
	---	---	350	11%	35	7.3%	35	32	1	2	35	32	1	2
	---	---	260	3%	26	2.0%	26	25	0	0	26	25	0	0
	---	---	240	3%	24	2.0%	24	24	0	0	24	24	0	0
	---	---	230	5%	23	3.3%	23	22	0	1	23	22	0	1
	---	---	530	3%	53	2.0%	53	52	0	1	53	52	0	1
	---	---	570	5%	57	3.3%	57	55	1	1	57	55	1	1
	---	---	360	2%	36	1.3%	36	36	0	0	36	36	0	0
	---	---	710	1%	71	0.7%	71	71	0	0	71	71	0	0
Main Street	---	---	170	4%	17	2.7%	17	17	0	0	17	17	0	0
	---	---	300	2%	30	1.3%	30	30	0	0	30	30	0	0
	---	---	300	3%	30	2.0%	30	29	0	0	30	29	0	0
	---	---	320	4%	32	2.7%	32	31	0	1	32	31	0	1

Project Name:	SR-66, Hawkins County
Design Year	2048
Alternative:	Build

K	0.1
D	65%
DHV % of % AADT Trucks	67%
%MT of Trucks	26%
%HT of Trucks	74%

Road	From	To	Average Annual Daily Traffic (AADT)	% AADT Trucks	Design Hour Volume (DHV)	% DHV Trucks	AM				PM			
							Total	Autos	MTs	HTs	Total	Autos	MTs	HTs
Guthrie Gap Rd	---	---	320	5%	32	3.3%	32	31	0	1	32	31	0	1
Beechgrove Rd	---	---	470	3%	47	2.0%	47	46	0	1	47	46	0	1
Wolf Branch Rd	---	---	200	5%	20	3.3%	20	19	0	0	20	19	0	0
Summit Hill Rd	---	---	230	8%	23	5.3%	23	22	0	1	23	22	0	1
Ridge Rd	---	---	400	6%	40	4.0%	40	38	0	1	40	38	0	1
EB SR-34	West	SR-66	3,440	12%	619	8.0%	272	250	3	19	347	319	4	24
	SR-66	East	4,445	10%	832	6.7%	391	365	4	22	441	412	4	25
WB SR-34	West	SR-66	3,440	12%	620	8.0%	249	229	3	17	371	341	4	26
	SR-66	East	4,445	10%	834	6.7%	306	286	3	18	528	493	5	30

Classification Count Summary	
Road:	SR-66
County:	Hawkins
Station:	Pavement Data

Classification	Total	%
1. Motorcycles		0.0%
2. Cars	3,307	68.5%
3. Two-Axle, Four Tire Light Trucks	1,277	26.5%
<i>Subtotal Passenger Vehicles</i>	<i>4,584</i>	<i>95%</i>
4. Buses	2	0.0%
5. 2-Axle, Six Tire, SU Trucks	63	1.3%
6. 3-Axle, SU Trucks	57	1.2%
7. 4-Axle or more, SU Truck		0.0%
<i>Subtotal Single-Unit Trucks</i>	<i>122</i>	<i>3%</i>
8. 2S-1, 3S-1, 2S-2	38	0.8%
9. 3S-2, 2S-3		0.0%
10. 3S-3, 3S-4		0.0%
<i>Subtotal Combination Trucks</i>	<i>38</i>	<i>3%</i>
11. 2S-1-2	81	1.7%
12. 2S-2-2, 3S-1-2		0.0%
13. Any 7 Axle		0.0%
<i>Subtotal Twin Trailers</i>	<i>81</i>	<i>1.7%</i>
<i>Total Trucks</i>	<i>241</i>	<i>5.0%</i>
<b>TOTAL ALL VEHICLES</b>	<b>4,825</b>	

TNM Vehicle Types	Total	%
Autos	4,584	95.0%
MTs	63	1.3%
HTs	176	3.6%
Buses	2	0.0%
Motorcycles	0	0.0%
<b>Total</b>	<b>4,825</b>	<b>100%</b>

Percentage of Total Trucks for TNM Modeling	
MTs	26.4%
HTs	73.6%



Classification Count Summary	
Road:	SR-34
County:	Hawkins
Station:	XA43702

Classification	Total	%
1. Motorcycles	61	1.1%
2. Cars	3,471	60.0%
3. Two-Axle, Four Tire Light Trucks	1,540	26.6%
<i>Subtotal Passenger Vehicles</i>	<i>5,072</i>	<i>88%</i>
4. Buses	2	0.0%
5. 2-Axle, Six Tire, SU Trucks	98	1.7%
6. 3-Axle, SU Trucks	73	1.3%
7. 4-Axle or more, SU Truck	30	0.5%
<i>Subtotal Single-Unit Trucks</i>	<i>203</i>	<i>4%</i>
8. 2S-1, 3S-1, 2S-2	105	1.8%
9. 3S-2, 2S-3	392	6.8%
10. 3S-3, 3S-4	8	0.1%
<i>Subtotal Combination Trucks</i>	<i>505</i>	<i>12%</i>
11. 2S-1-2	0	0.0%
12. 2S-2-2, 3S-1-2	1	0.0%
13. Any 7 Axle	1	0.0%
<i>Subtotal Twin Trailers</i>	<i>2</i>	<i>0.0%</i>
<i>Total Trucks</i>	<i>710</i>	<i>12.3%</i>
<b>TOTAL ALL VEHICLES</b>	<b>5,782</b>	

TNM Vehicle Types	Total	%
Autos	5,011	86.7%
MTs	98	1.7%
HTs	610	10.5%
Buses	2	0.0%
Motorcycles	61	1.1%
<b>Total</b>	<b>5,782</b>	<b>100%</b>

Percentage of Total Trucks for TNM Modeling	
MTs	13.8%
HTs	86.2%

**TENNESSEE DEPARTMENT OF TRANSPORTATION  
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION**

PROJECT NO.: 37005-1237-14 ROUTE: S.R. 66  
COUNTY: HAWKINS CITY: BULLS GAP  
PROJECT PIN NUMBER: 107579.00  
PROJECT DESCRIPTION: FROM S.R. 34 TO SPEEDWELL ROAD / OLD HWY. 66  
\_\_\_\_\_  
\_\_\_\_\_  
[1] S.R. 66 AVERAGE TRAFFIC DATA

**DIVISION REQUESTING:**

MAINTENANCE	<input type="checkbox"/>	PAVEMENT DESIGN	<input type="checkbox"/>
S.T.I.D.	<input type="checkbox"/>	STRUCTURES	<input type="checkbox"/>
PROG. DEVELOPMENT & ADM.	<input type="checkbox"/>	SURVEY & ROADWAY DESIGN	<input checked="" type="checkbox"/>
PUBLIC TRANS. & AERO.	<input type="checkbox"/>	TRAFFIC SIGNAL DESIGN	<input type="checkbox"/>
YEAR PROJECT PROGRAMMED FOR CONSTRUCTION:	<u>2028</u>	OTHER	<input type="checkbox"/>
PROJECTED LETTING DATE: <u>DECEMBER 10, 2027</u>			

**TRAFFIC ASSIGNMENT:**

[1]

BASE YEAR		DESIGN YEAR					DESIGN ROADWAY % TRUCKS		DESIGN AVERAGE DAILY LOADS	
AADT	YEAR	AADT	DHV	%	YEAR	DIR.DIST.	DHV	AADT	FLEX	RIGID
4,330	2028	5,320	532	10	2048	65-35	3	5	136	197

REQUESTED BY: NAME ERIC WILSON DATE 4/18/23  
DIVISION REGION I PROJECT DEVELOPMENT  
ADDRESS 7345 REGION LANE  
KNOXVILLE TN 37914

REVIEWED BY: RANDY BOGUSKIE Randy Boguskie DATE 4/19/2023  
TRANSPORTATION MANAGER 1  
SUITE 1000, JAMES K. POLK BUILDING

APPROVED BY: TONY ARMSTRONG Tony Armstrong DATE 4/19/2023  
TRANSPORTATION MANAGER 2  
SUITE 1000, JAMES K. POLK BUILDING

**COMMENTS:**

FURNISH THE 2028-2048 TRAFFIC DATA AND ADL's FOR A TWO LANE ROADWAY.

THIS TRAFFIC IS BASED ON 2022 CYCLE COUNTS AND THE PREVIOUS PROJECT PREPARED FOR DESIGN DATED 10/17/2019. DUE TO THE 2022 CYCLE COUNTS BEING LOWER THAN THE 2023 FORECASTED TRAFFIC DATA THIS TRAFFIC IS LOWER THAN THE PREVIOUS PROJECT TRAFFIC. THE DESIGN YEAR TRAFFIC IS BASED ON GROWTH RATE FROM THE TN-TIMES LINEAR REGRESSION TOOL. AADT's, DHV's AND ADL's ARE INCLUDED. THE TRUCK PERCENT WAS LOWERED BASED ON A 2022 CLASSIFICATION COUNT.

**DHV'S ARE NOT REQUIRED FOR SIDE ROADS LESS THAN 1000 AADT.**

**NOTE:** FOR BRIDGE REPLACEMENT PROJECTS, ADLs ARE NOT REQUIRED FOR ADTs OF 1000 OR LESS AND PERCENTAGE OF TRUCKS OF 7% OR LESS.  
SEE ATTACHMENTS FOR TURNING MOVEMENTS AND/OR OTHER DETAILS.

(REV. 6/9/21)

**TENNESSEE DEPARTMENT OF TRANSPORTATION  
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION**

PROJECT NO.: 37005-1237-14 ROUTE NO.: S.R. 66  
 COUNTY: HAWKINS CITY: BULLS GAP  
 PROJECT DESCRIPTION: FROM S.R. 34 TO SPEEDWELL ROAD/OLD HWY. 66

**FAP Rural**

Pavement Structural Design

Calculation of Equivalent Daily 18 Kip Single Axle Loads

Type Vehicle		ADT (No. Counted)	Flexible		Rigid	
			18-kip Factor	ADL	18-kip Factor	ADL
Pass. cars and motorcycles (1-2)		3,307	0.001	3	0.001	3
Pick-up, Panel, Van (3)		1,277	0.005	6	0.004	5
Sing. Unit	Buses (4)	2	0.300	1	0.300	1
	2-axle, 6-tire (5)	63	0.240	15	0.310	20
	3-axle or more (6-7)	57	1.700	97	2.300	131
	4-axle (8)	38	1.110	42	1.500	57
Comb.	5-axle or more (9-13)	81	1.320	107	2.200	178
Totals (2038 AADT)		4,825		271		395

Suggested Percentages of Trucks in Design Lane

5,000 or less ADT 95%  
 5,000 - 10,000 ADT 90%  
 10,000 - 15,000 ADT 85%  
 15,000 - 20,000 ADT 80%  
 20,000 - 30,000 ADT 75%  
 30,000 - 40,000 ADT 70%  
 40,000 Plus 60%

No. of Lanes: 2

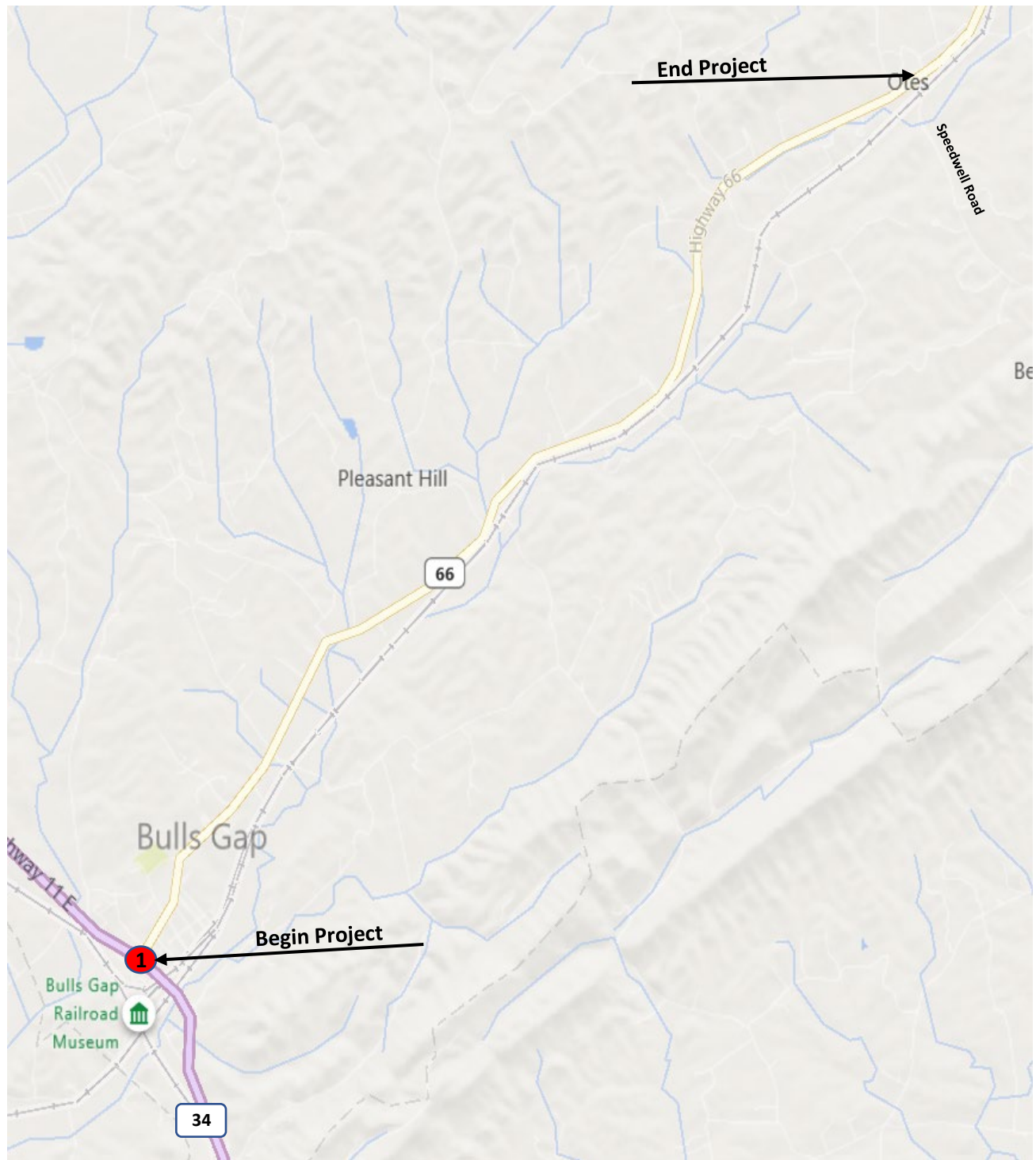
% Trucks in Design Lane: 100%

ADL in Design Lane:

FLEX:	0.5	X	1.00	X	271.4	=	136
RIGID:	0.5	X	1.00	X	394.8	=	197

ADL Calculations By: Ashlie Bevan Date: 4/19/2023  
 Reviewed By: Randy Boguskie Date: 4/19/2023  
 [REV. 7/1/14]



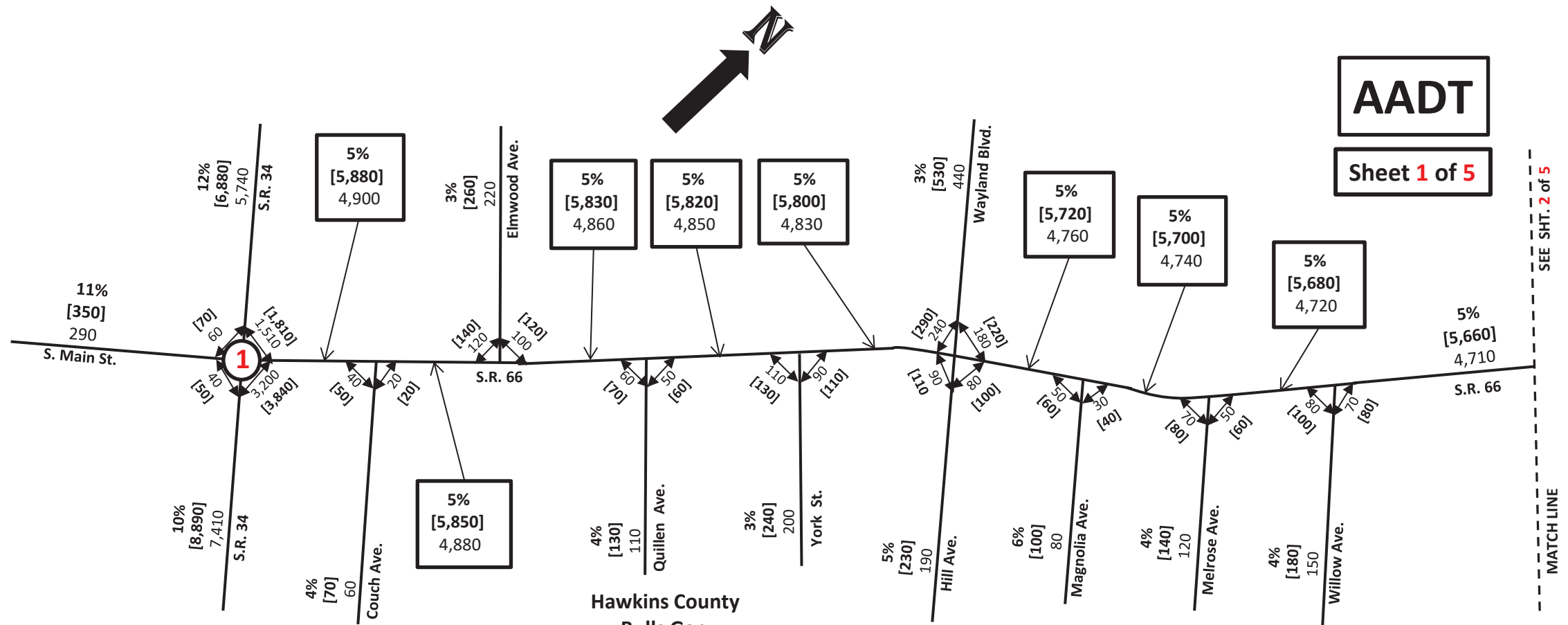


**Hawkins County**

**Bulls Gap**

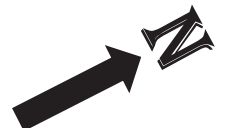
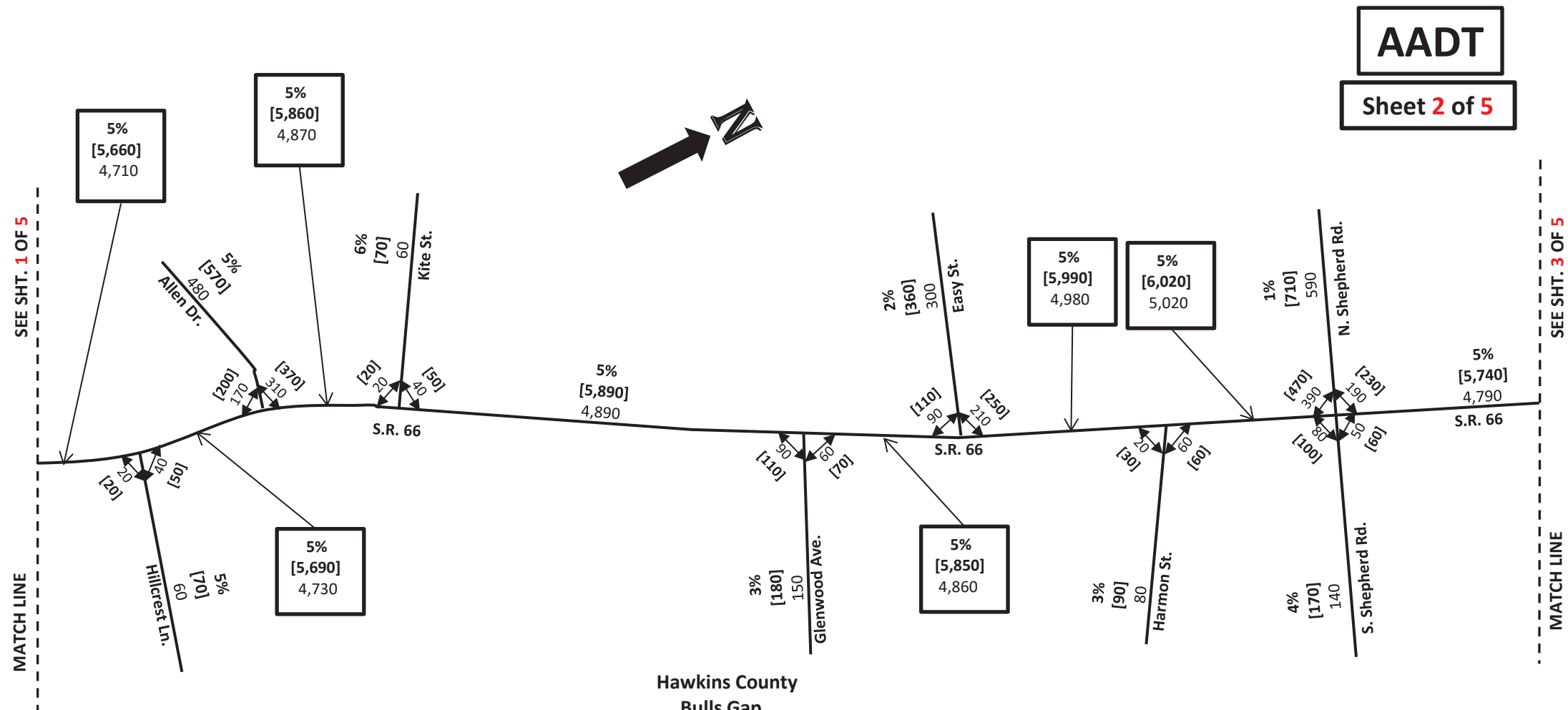
**S.R. 66**

**From S.R. 34 to Speedwell Road / Old Hwy. 66**



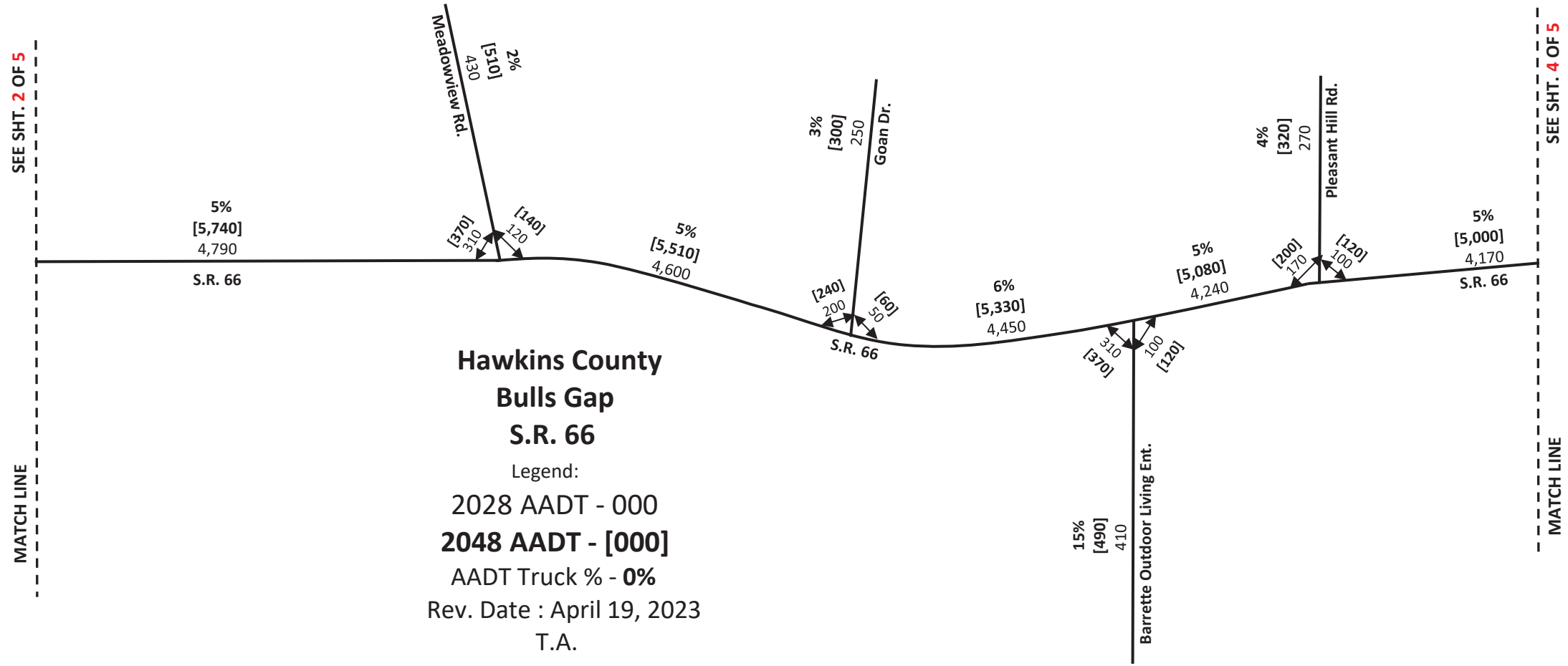
Hawkins County  
Bulls Gap  
S.R. 66  
Legend :  
2028 AADT - 000  
2048 AADT - [000]  
AADT Truck % - 0%  
Rev. Date : April 19, 2023  
T.A.

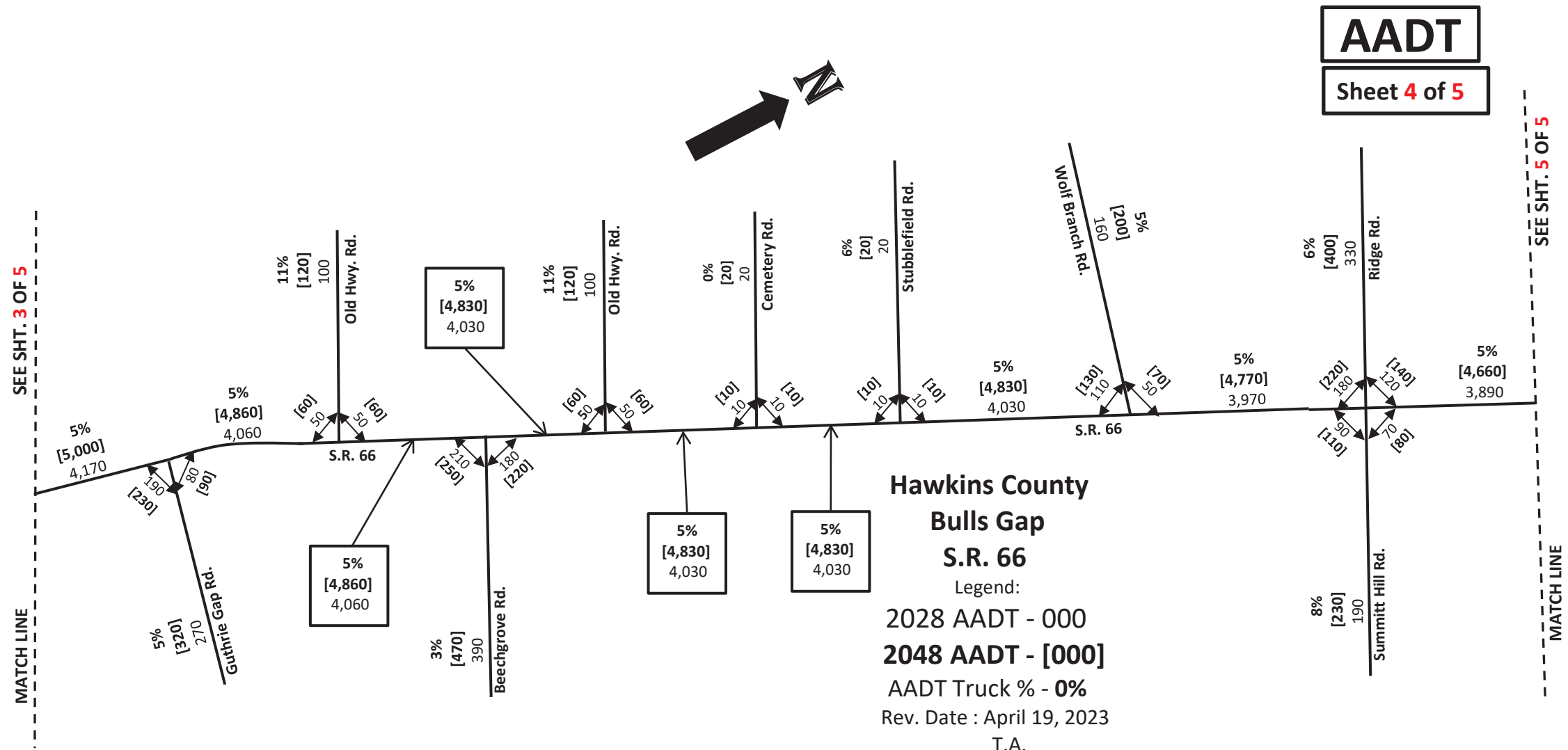
AADT  
Sheet 1 of 5



Hawkins County  
Bulls Gap  
S.R. 66  
Legend:  
2028 AADT - 000  
**2048 AADT - [000]**  
AADT Truck % - 0%  
Rev. Date : April 19, 2023  
T.A.







SEE SHT. 4 OF 5

MATCH LINE



AADT

Sheet 5 of 5

5%  
[4,660]  
3,890  
S.R. 66

6%  
[180]  
150  
Berry Rd.

5%  
[4,600]  
3,840

5%  
[420]  
350  
Speedwell Rd.

5%  
[4,460]  
3,730

13%  
[180]  
150  
Old Tn. 66

5%  
[4,440]  
3,700  
S.R. 66

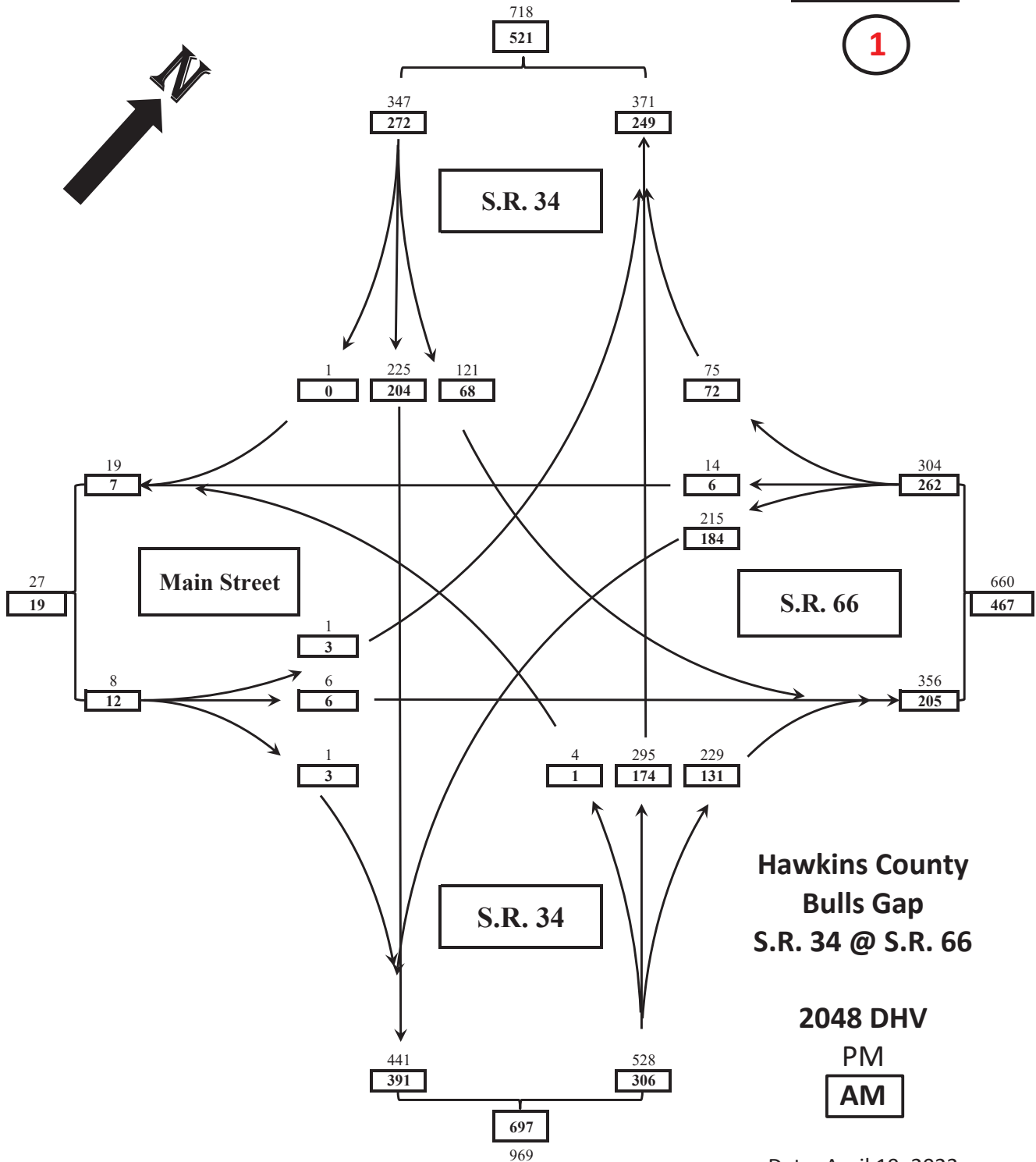
Hawkins County  
Bulls Gap  
S.R. 66

Legend:  
2028 AADT - 000  
2048 AADT - [000]  
AADT Truck % - 0%  
Rev. Date : April 19, 2023  
T.A.



2048 DHV

1



Date: April 19, 2023  
TA

**Appendix C**  
**TNM Checklists and Plan Views**

# TNM Modeling Checklist

All modeling must be done in accordance with TDOT's Noise Procedures and TNM Modeling Guidelines

Project	SR-66
County	Hawkins
PIN	107579.00
Project Number	37005-1237-14
Project Plans Description and Date	ROW Plans dated August 2024
Traffic Data Source and Date	TDOT 4-19-23
TNM Modeler	G. Pratt
Date Checklist Completed	10/14/2024
TNM Reviewer	R. Williamson
Date Checklist Completed	10/15/2024

TNM Run	Existing 10-11-24		Modeling Year	2028
Input	Task	Complete?	Notes	
Setup	Run Information	<input checked="" type="checkbox"/>		
	General	<input checked="" type="checkbox"/>		
Roadways	Roadway names assigned	<input checked="" type="checkbox"/>		
	Widths of All Roadways per Guidance	<input checked="" type="checkbox"/>		
	Lengths of all roadways are adequate to represent roadway contributions	<input checked="" type="checkbox"/>		
	Points tied to stationing if available	<input checked="" type="checkbox"/>	Mainline is	
	Elevations seem correct	<input checked="" type="checkbox"/>		
	Traffic/Speeds on all Roadways	<input checked="" type="checkbox"/>	Traffic not entered yet {Traffic has been entered and is correct}	
	Modeled traffic volumes match projections and truck percentages are correct	<input checked="" type="checkbox"/>	Traffic not entered yet {Traffic has been entered and is correct}	
	Traffic Flow Control Devices Modeled (Traffic Signals, Stop Signs, & On-Ramps)	<input checked="" type="checkbox"/>	Roadways not split yet. Signals should modeled at Hwy 66/US 11 {Traffic flow control devices have been modeled}	

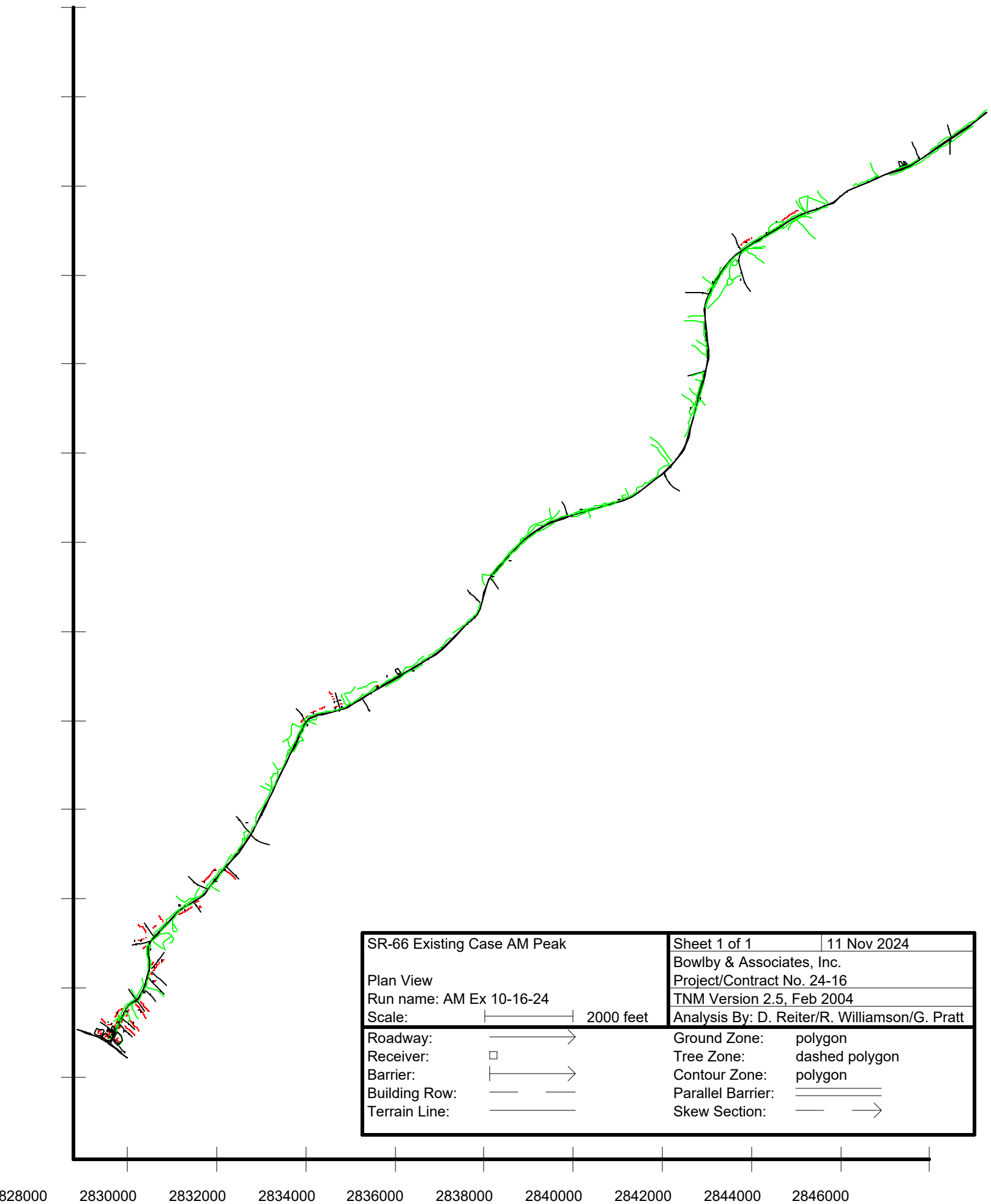


# TNM Modeling Checklist

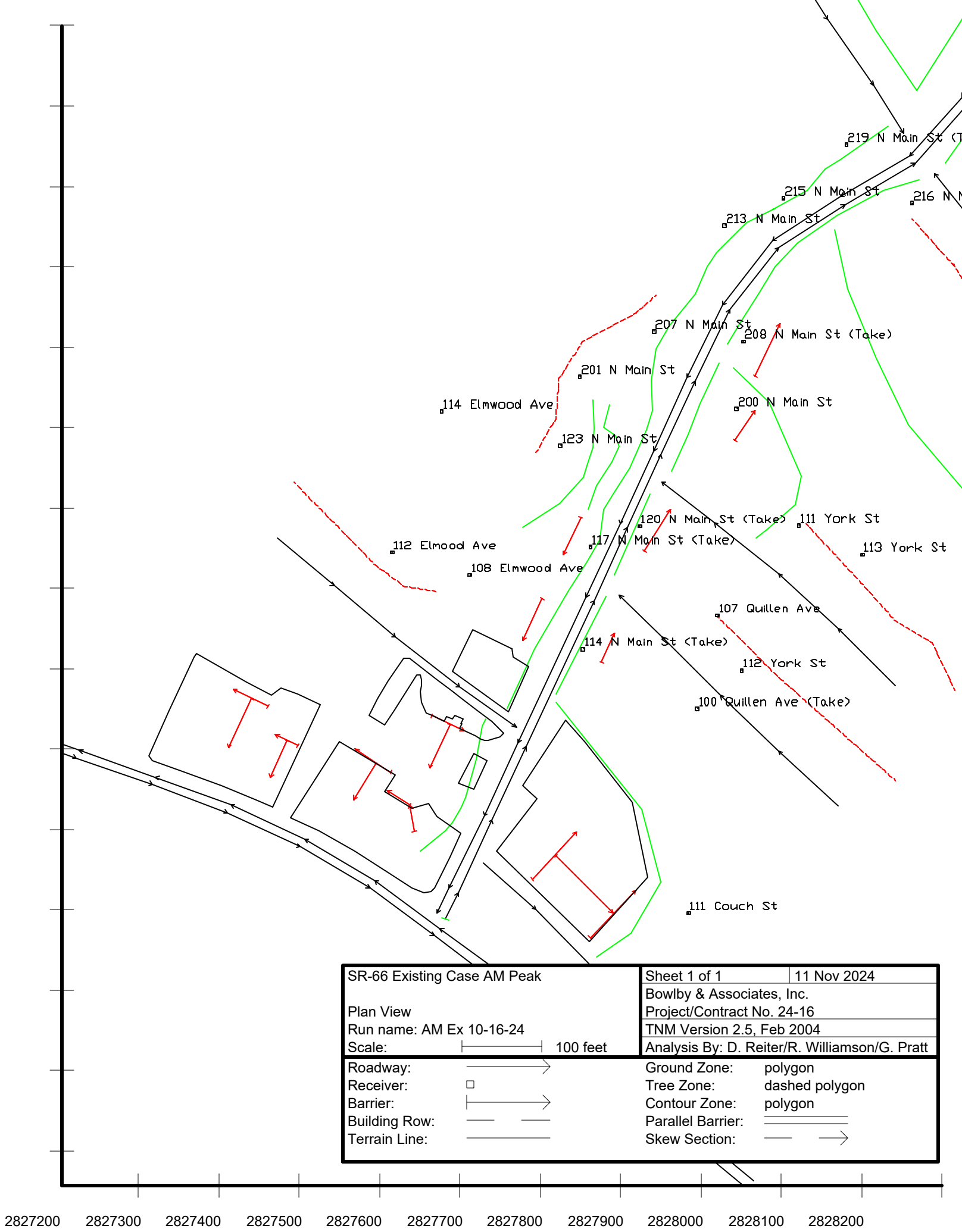
TNM Run	Existing 10-11-24		Modeling Year	2028
Input	Task	Complete?	Notes	
	Roadways modeled on structure as appropriate	<input checked="" type="checkbox"/>	N/A	
Receivers	Receivers named by address or stationing; "M" identifies measurement rec's	<input checked="" type="checkbox"/>		
	Number of dwelling units set for each receiver (if applicable)	<input checked="" type="checkbox"/>		
	Receivers in order of adjacent traffic flow	<input checked="" type="checkbox"/>	<b>By NAA. NAAs encompass both sides of the highway</b>	
	Elevations appear to be correct	<input checked="" type="checkbox"/>		
	Elevations at second-story locations at appropriate heights (if applicable)	<input checked="" type="checkbox"/>	N/A	
	Enough receivers modeled (for impacts and benefits)	<input type="checkbox"/>	<b>If we're modeling out to 300ft, some should be added:</b> - 110 Harmon St. - 110 & 115 Kite St - along Hill Ave - along Elmwood Ave 117 Willow is 400ft away {RW added}	
	Receivers modeled at locations currently under development.	<input checked="" type="checkbox"/>	N/A	
	NAC set per State's Policy for each receiver/ land use	<input checked="" type="checkbox"/>	externally	
	Noise Reduction set per State's Policy	<input checked="" type="checkbox"/>	externally	
	Substantial Increase set per State's Policy	<input checked="" type="checkbox"/>	externally	
Barriers	Significant buildings modeled	<input checked="" type="checkbox"/>	<b>add 413 N Main St {RW added}</b>	
	Parapets, etc. modeled	<input checked="" type="checkbox"/>	N/A	
	Perturbable barriers modeled as applicable	<input checked="" type="checkbox"/>	N/A	
	Build runs include zero-height barriers to match abatement runs	<input checked="" type="checkbox"/>	N/A	
	Barrier names assigned	<input checked="" type="checkbox"/>		
	Barrier points named by stationing or length, and segments <i>on structure</i> or <i>retaining wall</i> are labeled	<input checked="" type="checkbox"/>	<b>Generic point names</b>	

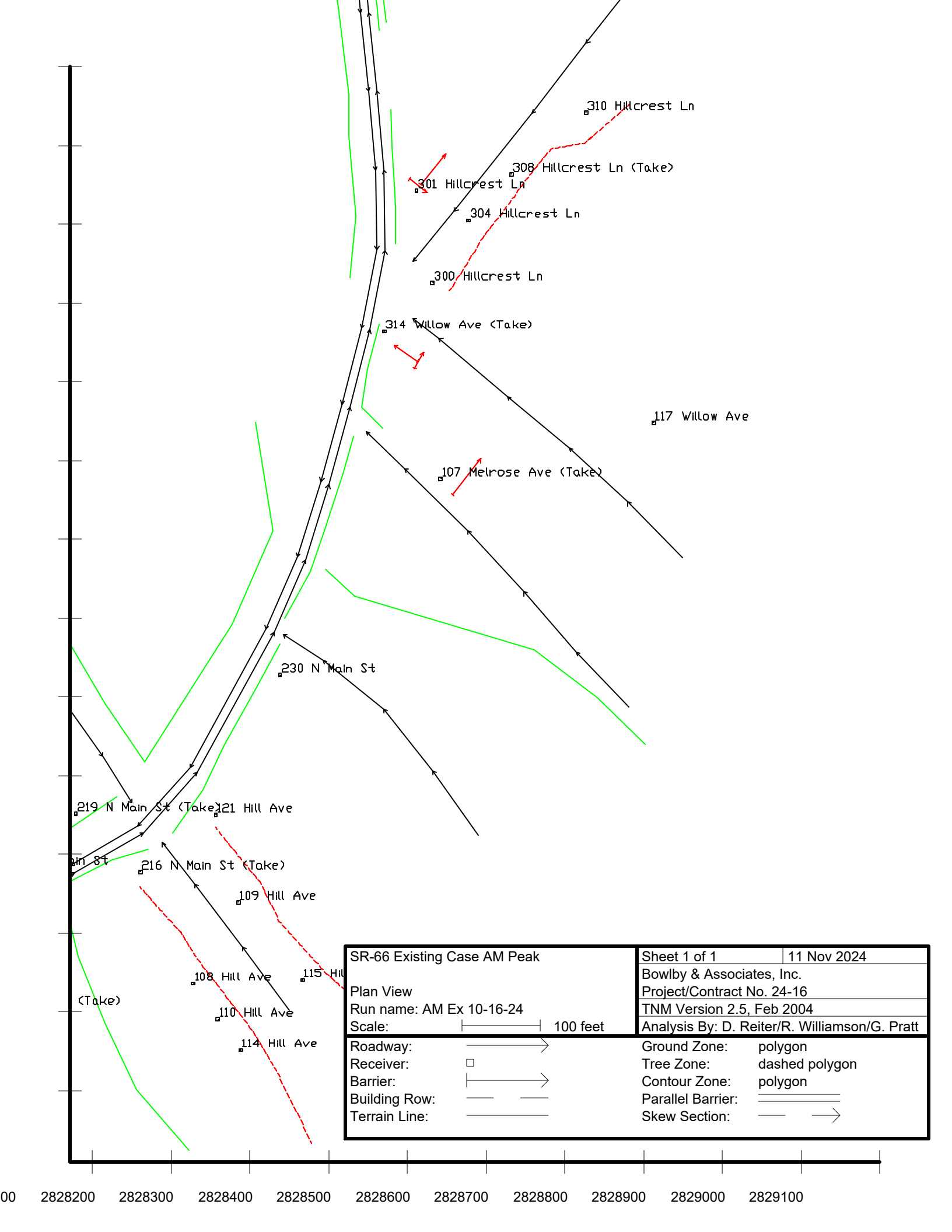
## TNM Modeling Checklist

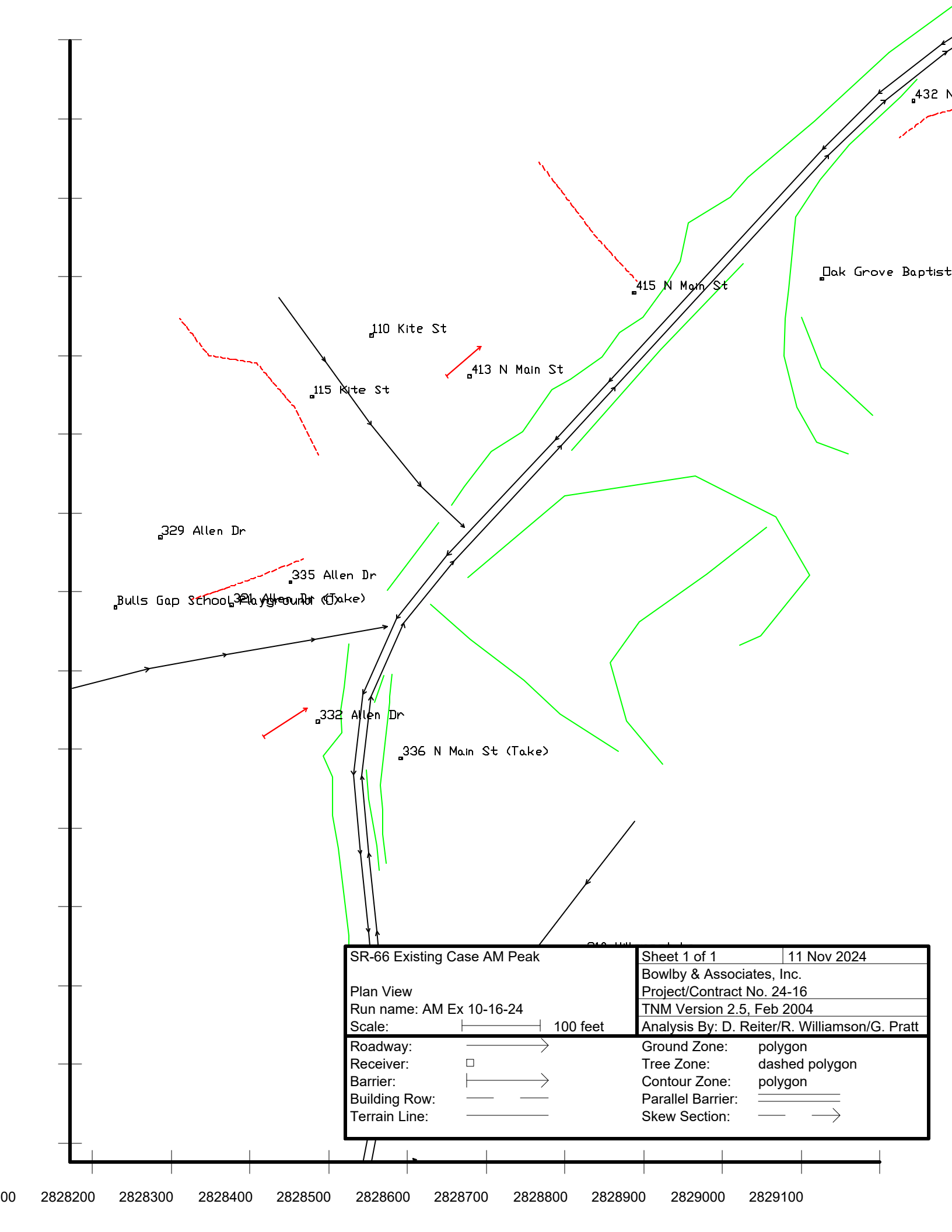
TNM Run	Existing 10-11-24		Modeling Year	2028
Input	Task	Complete?	Notes	
	Barrier heights assigned	<input checked="" type="checkbox"/>		
	Elevations appear to be correct	<input checked="" type="checkbox"/>		
	Increment and #up/down assigned	<input checked="" type="checkbox"/>	N/A	
	Barriers modeled on structure as appropriate and shielded lists are correct	<input checked="" type="checkbox"/>	N/A	
Building Rows	Building rows modeled per FHWA Guidance	<input checked="" type="checkbox"/>	need to add some bldg rows {RW added}	
	Elevations appear to be correct	<input checked="" type="checkbox"/>		
	Height and percentage assigned	<input checked="" type="checkbox"/>		
Terrain Lines	Significant terrain features modeled	<input checked="" type="checkbox"/>	need to add some TLs {RW added}	
	Terrain lines modeled in the same direction of adjacent roadway	<input checked="" type="checkbox"/>		
	Terrain line names assigned	<input checked="" type="checkbox"/>	Generic names	
	Elevations appear to be correct	<input checked="" type="checkbox"/>		
Ground Zones	Ground Zones modeled per FHWA Guidance	<input checked="" type="checkbox"/>		
	Ground zone names assigned	<input checked="" type="checkbox"/>		
	Ground zone types assigned	<input checked="" type="checkbox"/>		
Tree Zones	Tree zones modeled per FHWA Guidance	<input checked="" type="checkbox"/>	N/A	
	Tree zone names assigned	<input checked="" type="checkbox"/>	N/A	
	Elevations appear to be correct	<input checked="" type="checkbox"/>	N/A	
Perspective Views	Perspective views checked for accuracy	<input checked="" type="checkbox"/>		
Skew Views	Numerous skew views cut and checked for accuracy	<input checked="" type="checkbox"/>		
Input Check	Input Check completed and errors fixed/documented	<input checked="" type="checkbox"/>		
QA/QC is complete	All issues listed above have been addressed/fixed	<input checked="" type="checkbox"/>	<b>Initials: RW</b> <b>Date Completed: 10/16/24</b>	













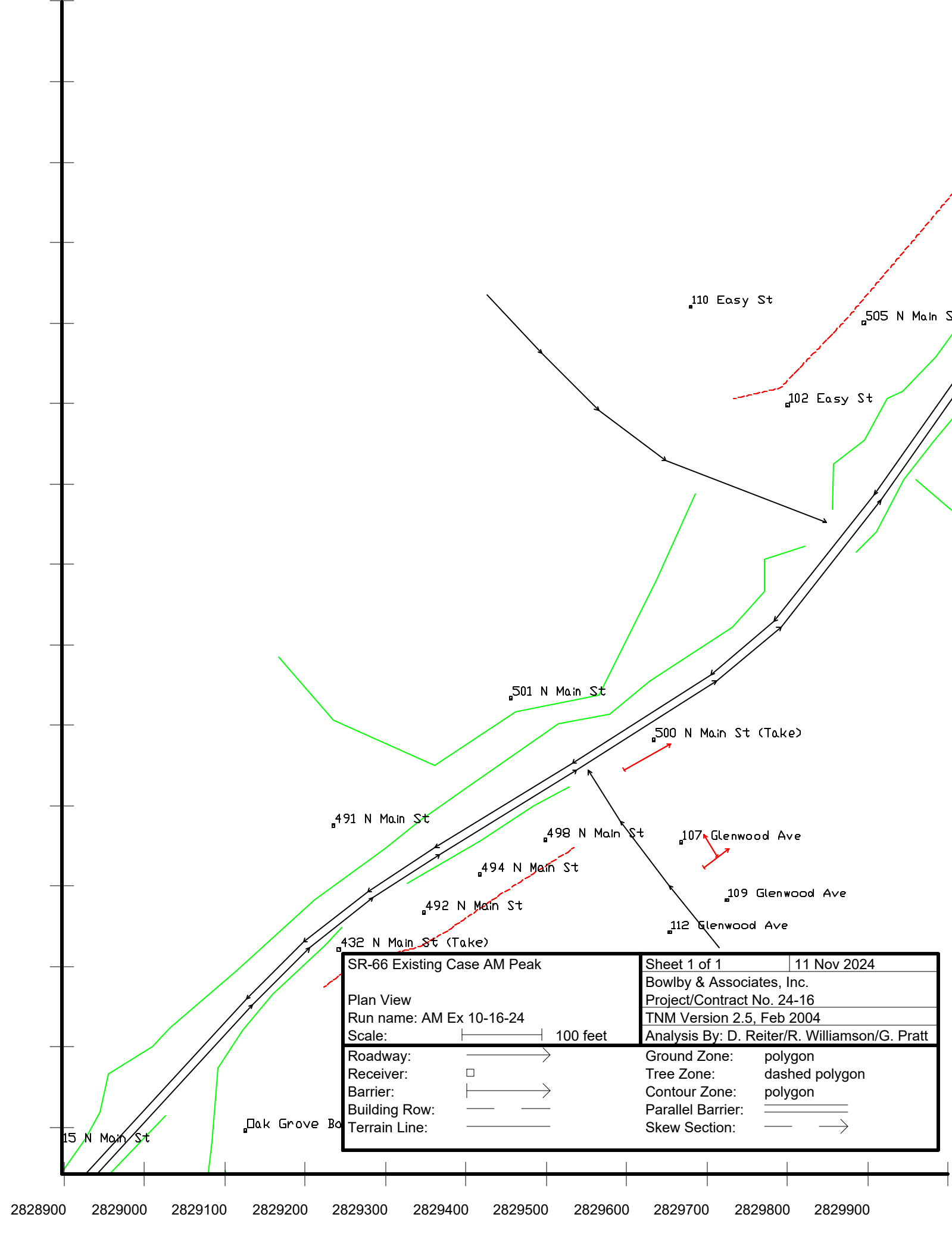












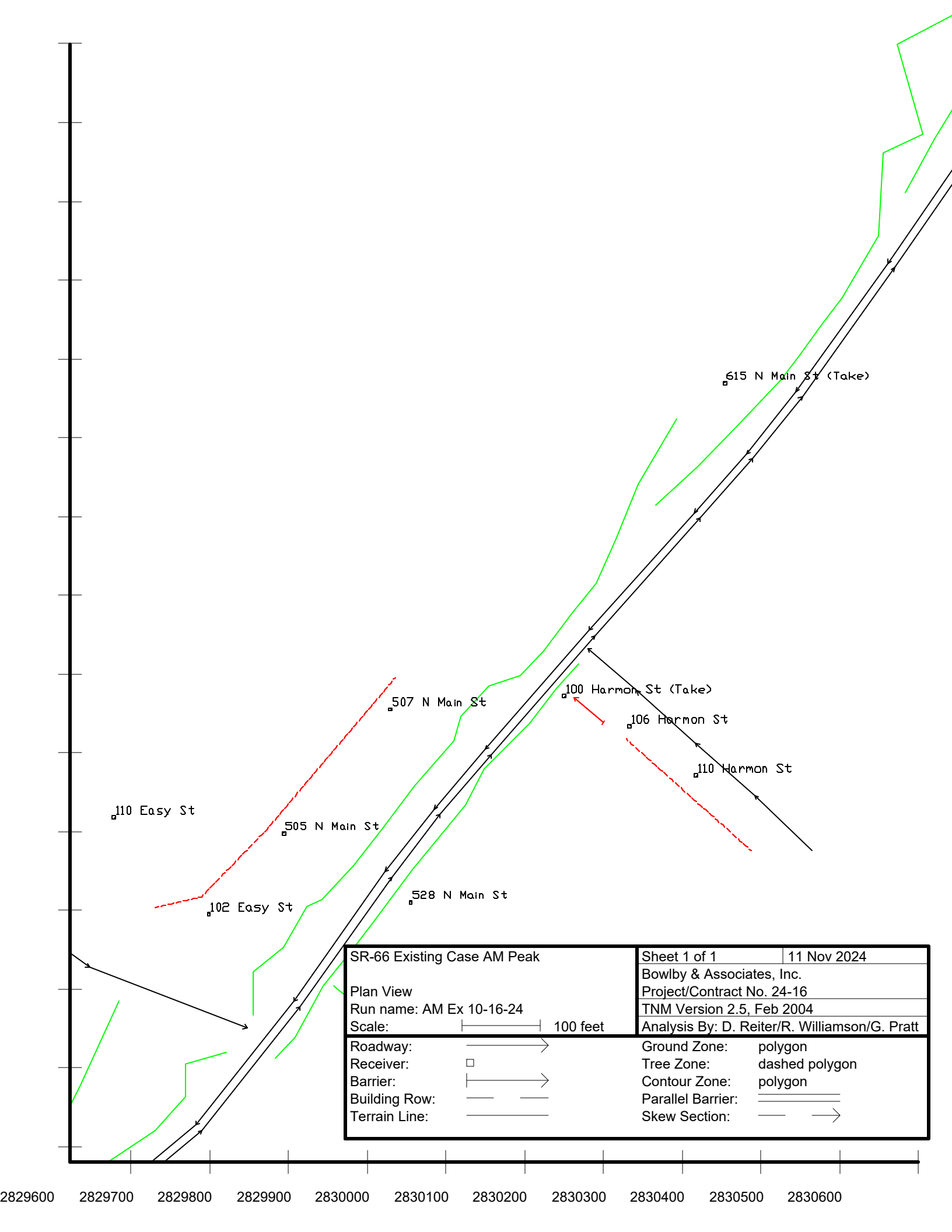


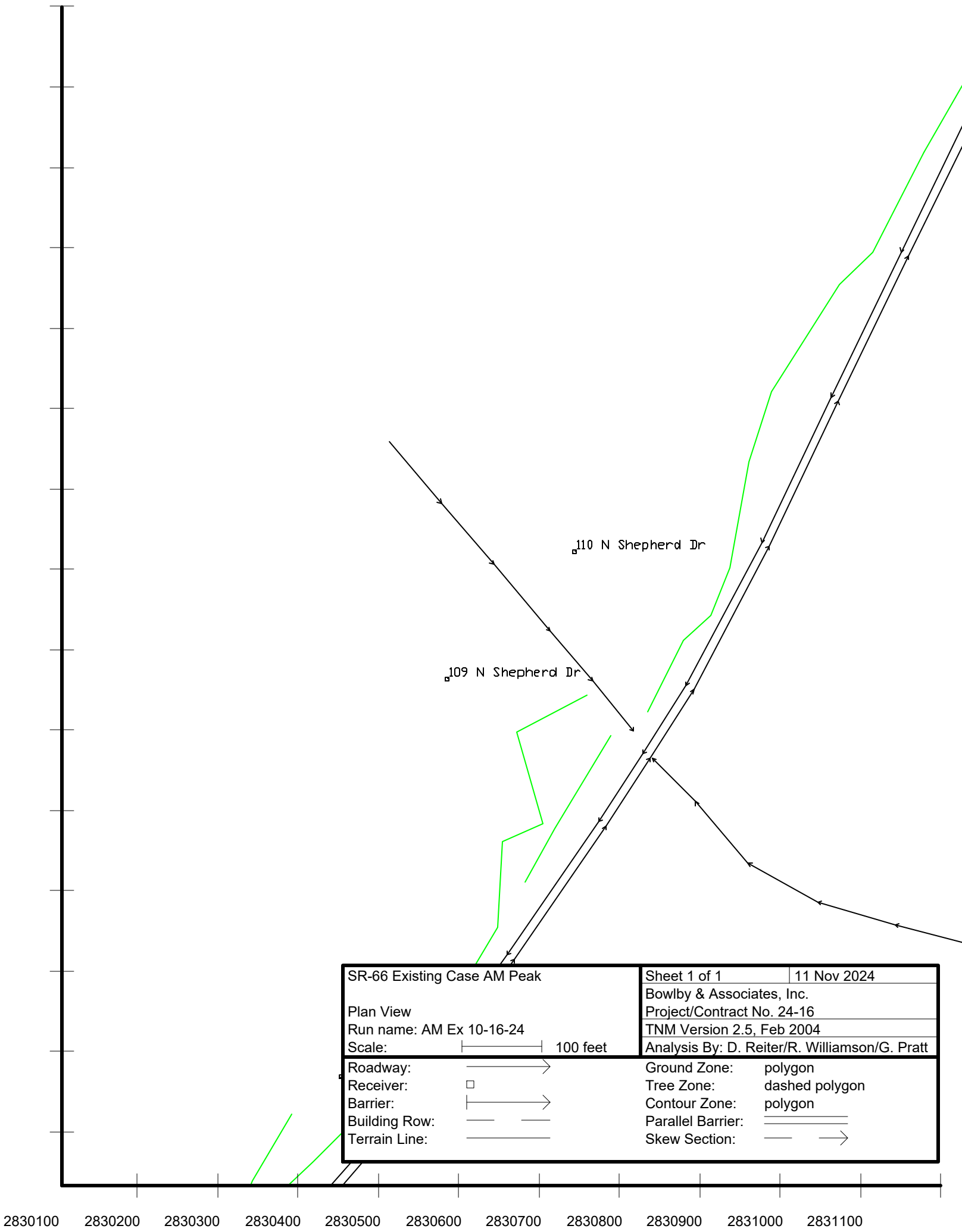
SR-66 Existing Case AM Peak		Sheet 1 of 1	11 Nov 2024
Plan View		Bowlby & Associates, Inc.	
Run name: AM Ex 10-16-24		Project/Contract No. 24-16	
Scale: 		TNM Version 2.5, Feb 2004	
		Analysis By: D. Reiter/R. Williamson/G. Pratt	
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	



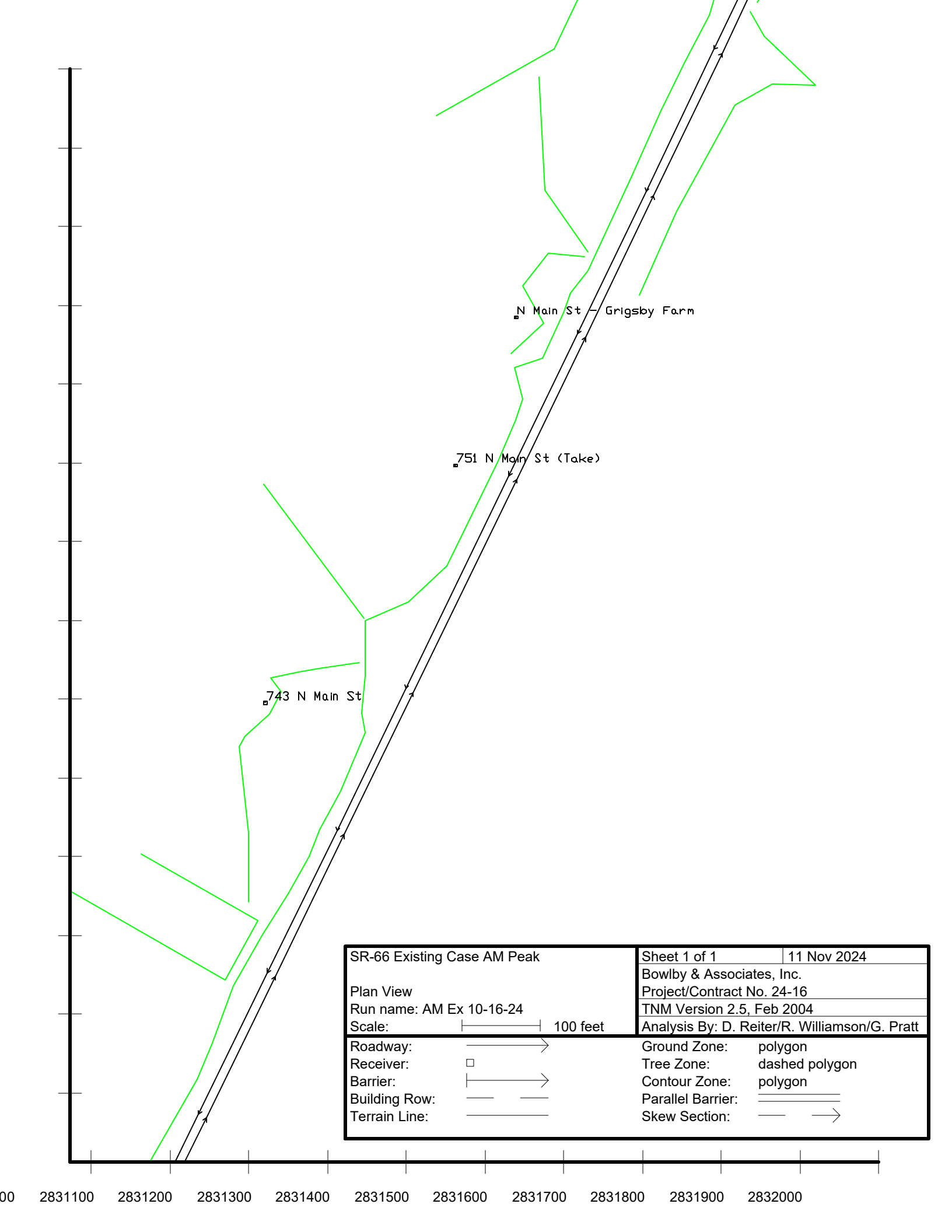










SR-66 Existing Case AM Peak		Sheet 1 of 1	11 Nov 2024
Plan View		Bowlby & Associates, Inc.	
Run name: AM Ex 10-16-24		Project/Contract No. 24-16	
Scale: 		TNM Version 2.5, Feb 2004	
Roadway: 		Analysis By: D. Reiter/R. Williamson/G. Pratt	
Receiver: 		Ground Zone:	polygon
Barrier: 		Tree Zone:	dashed polygon
Building Row: 		Contour Zone:	polygon
Terrain Line: 		Parallel Barrier:	
		Skew Section:	

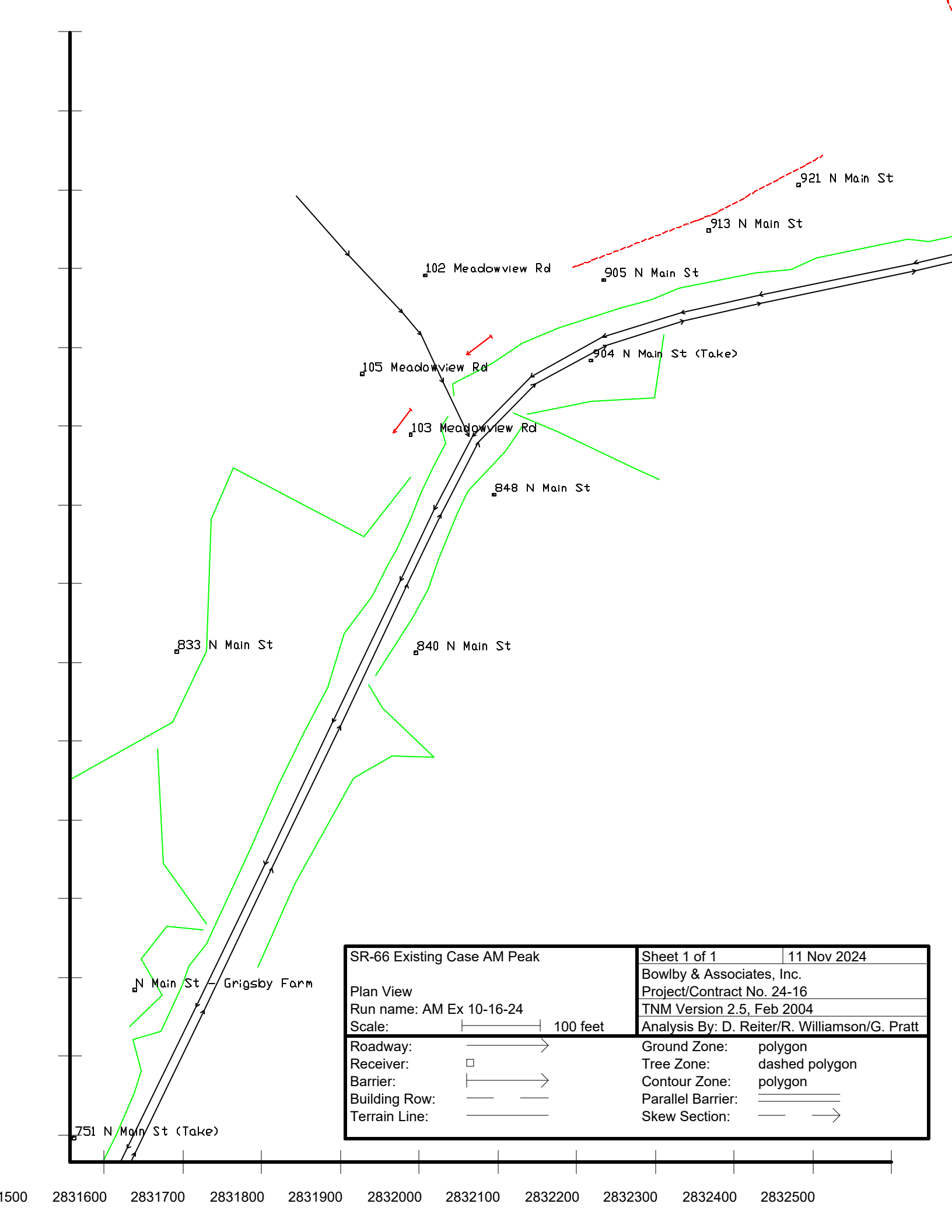












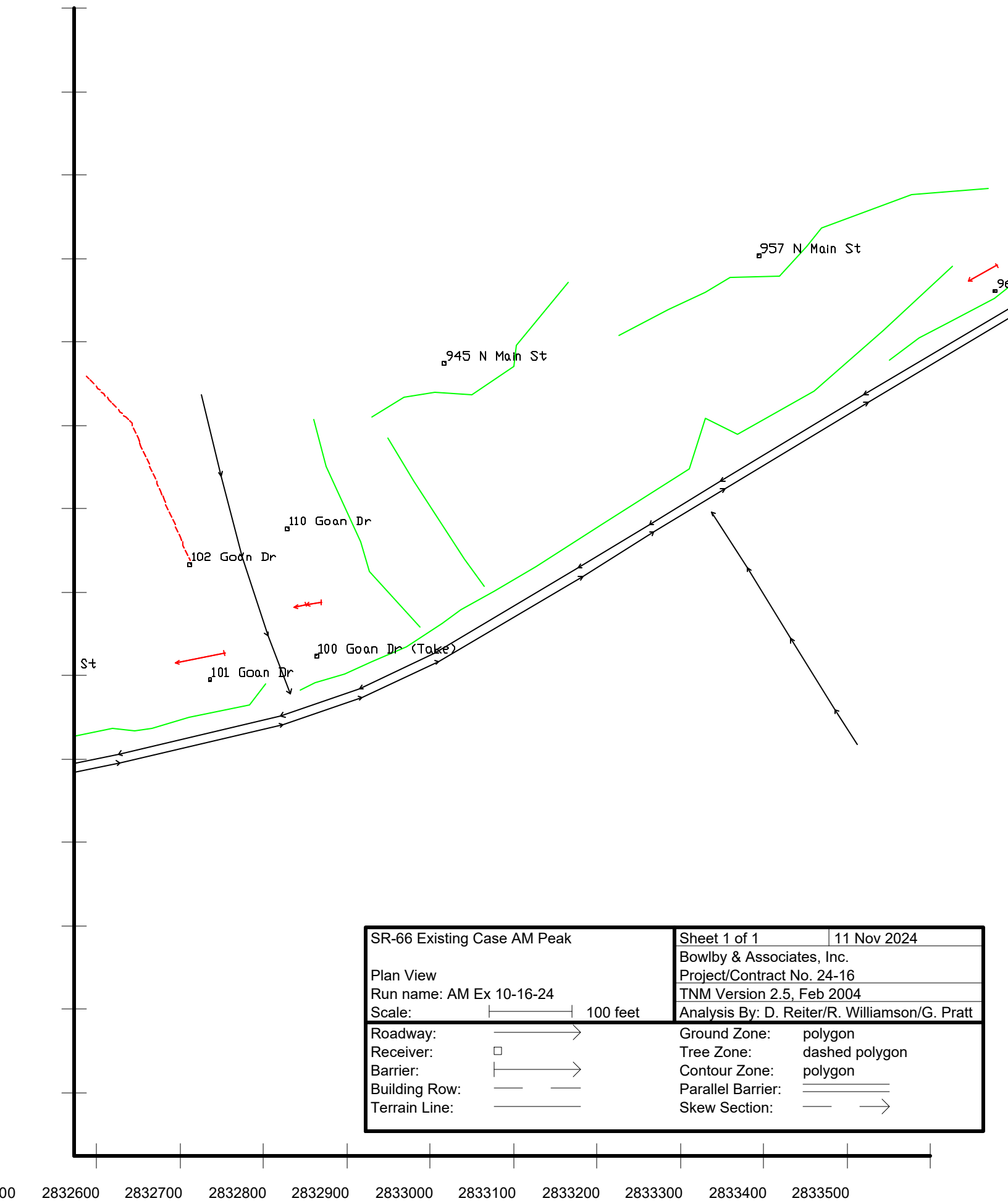




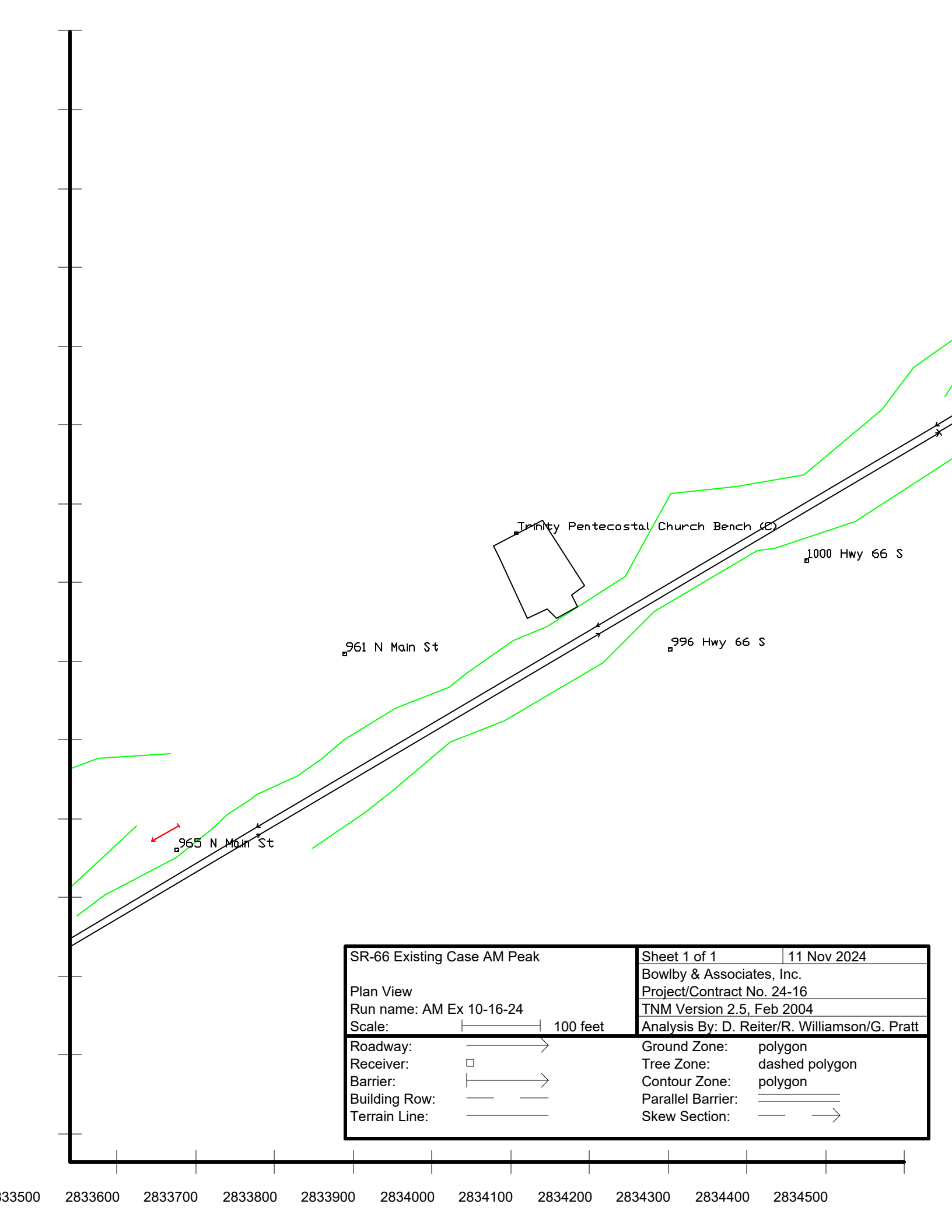
SR-66 Existing Case AM Peak		Sheet 1 of 1	11 Nov 2024
Plan View		Bowlby & Associates, Inc.	
Run name: AM Ex 10-16-24		Project/Contract No. 24-16	
Scale: 		TNM Version 2.5, Feb 2004	
		Analysis By: D. Reiter/R. Williamson/G. Pratt	
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

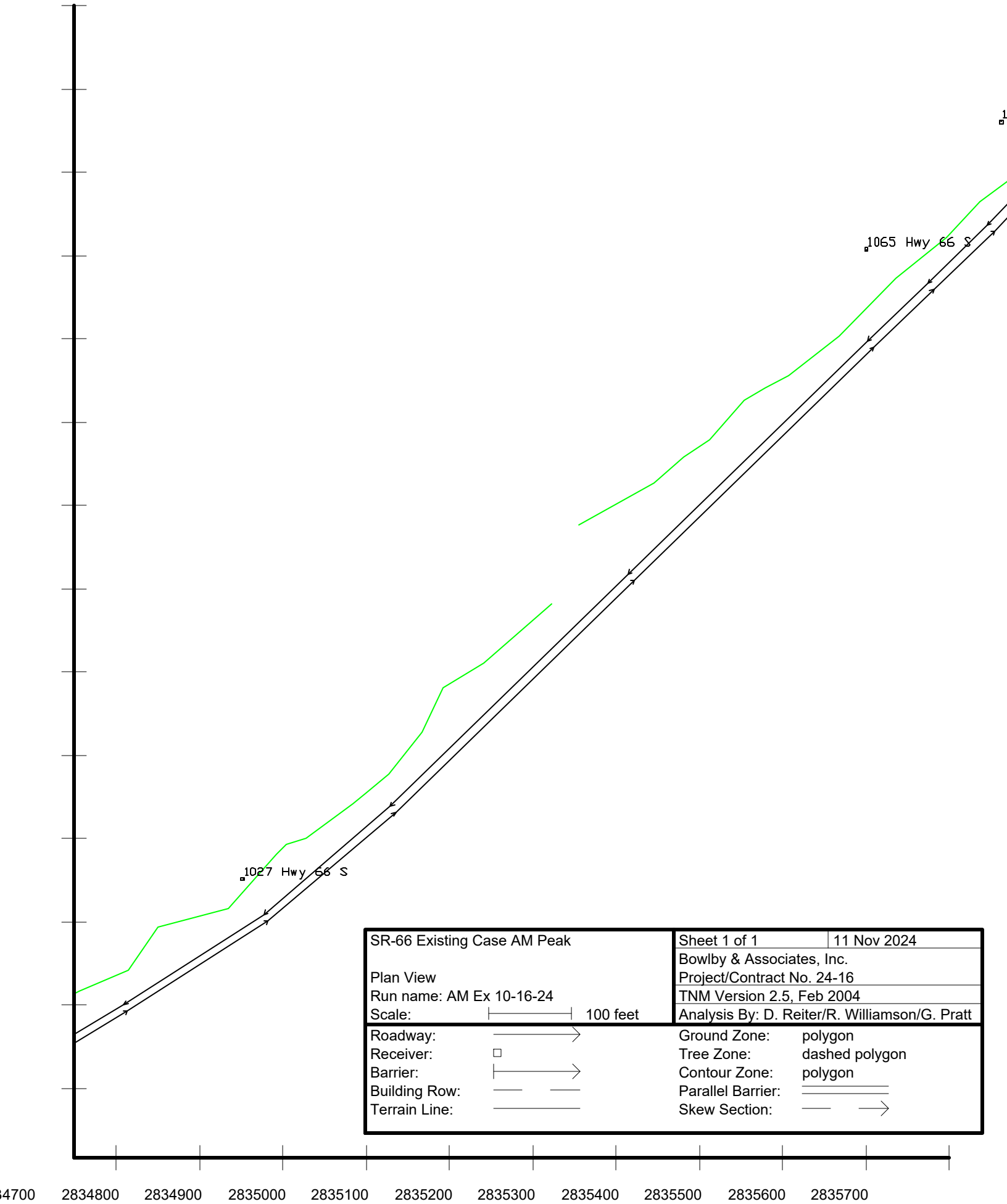


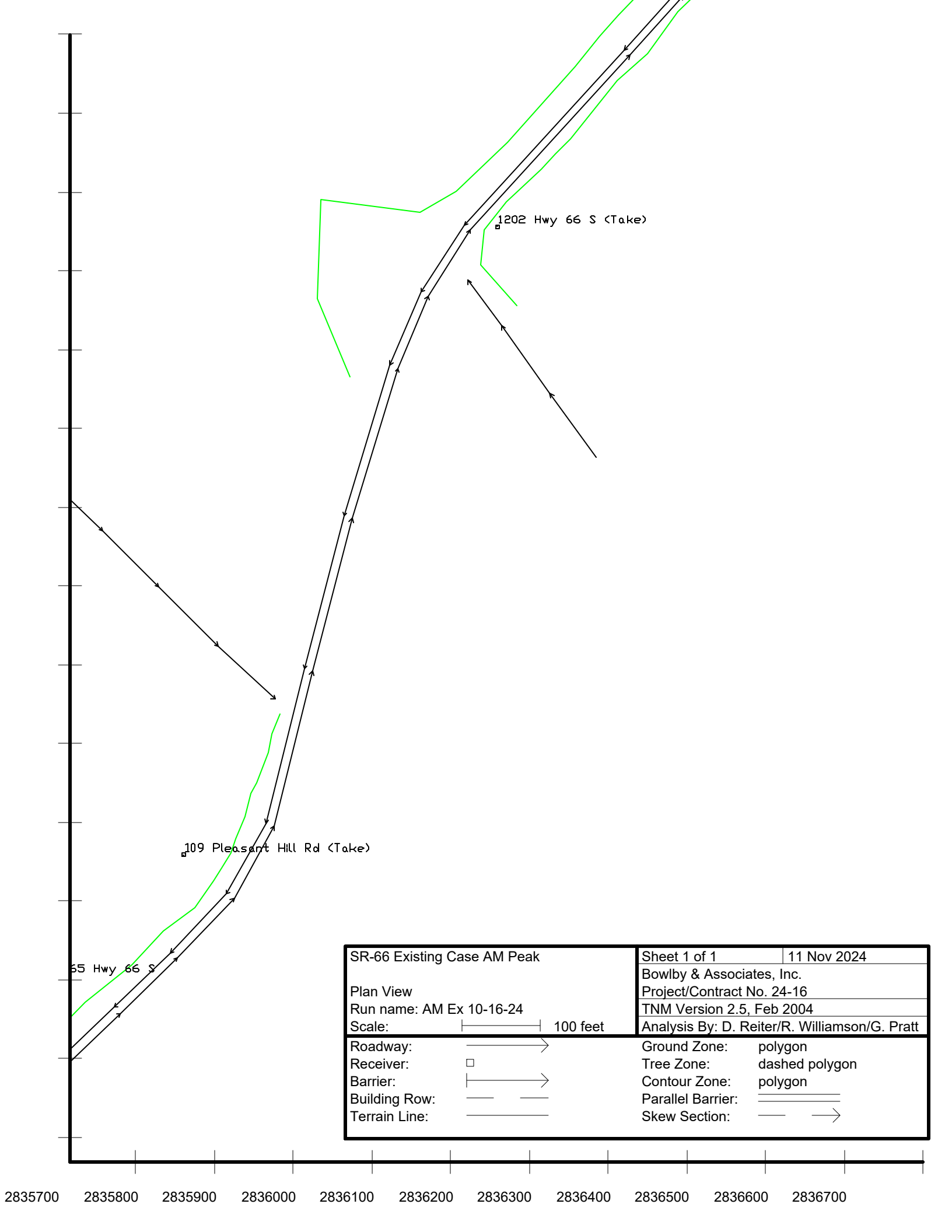
SR-66 Existing Case AM Peak		Sheet 1 of 1	11 Nov 2024
Plan View		Bowlby & Associates, Inc.	
Run name: AM Ex 10-16-24		Project/Contract No. 24-16	
Scale: 		TNM Version 2.5, Feb 2004	
		Analysis By: D. Reiter/R. Williamson/G. Pratt	
Roadway: 	Ground Zone: polygon		
Receiver: 	Tree Zone: dashed polygon		
Barrier: 	Contour Zone: polygon		
Building Row: 	Parallel Barrier: 		
Terrain Line: 	Skew Section: 		













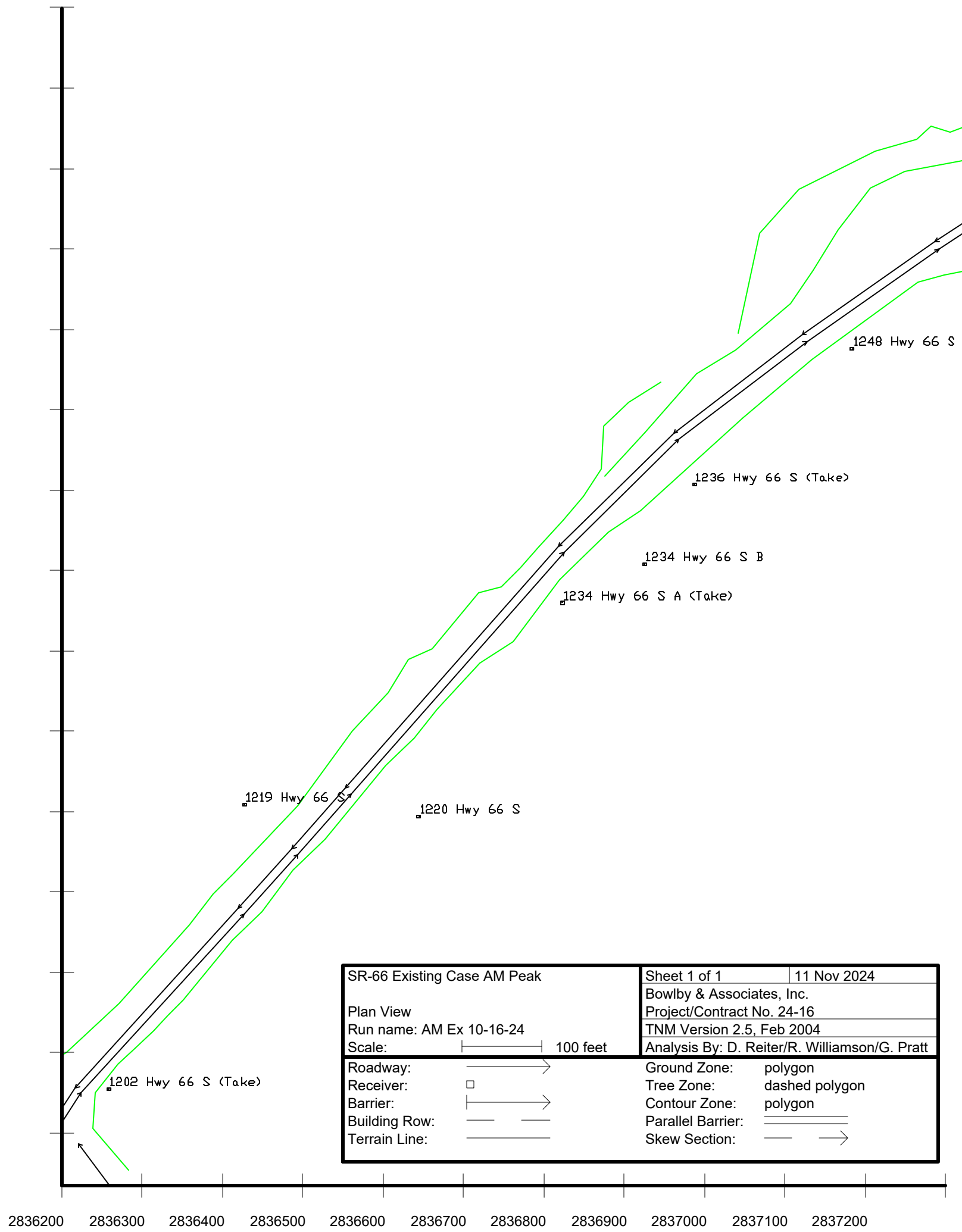


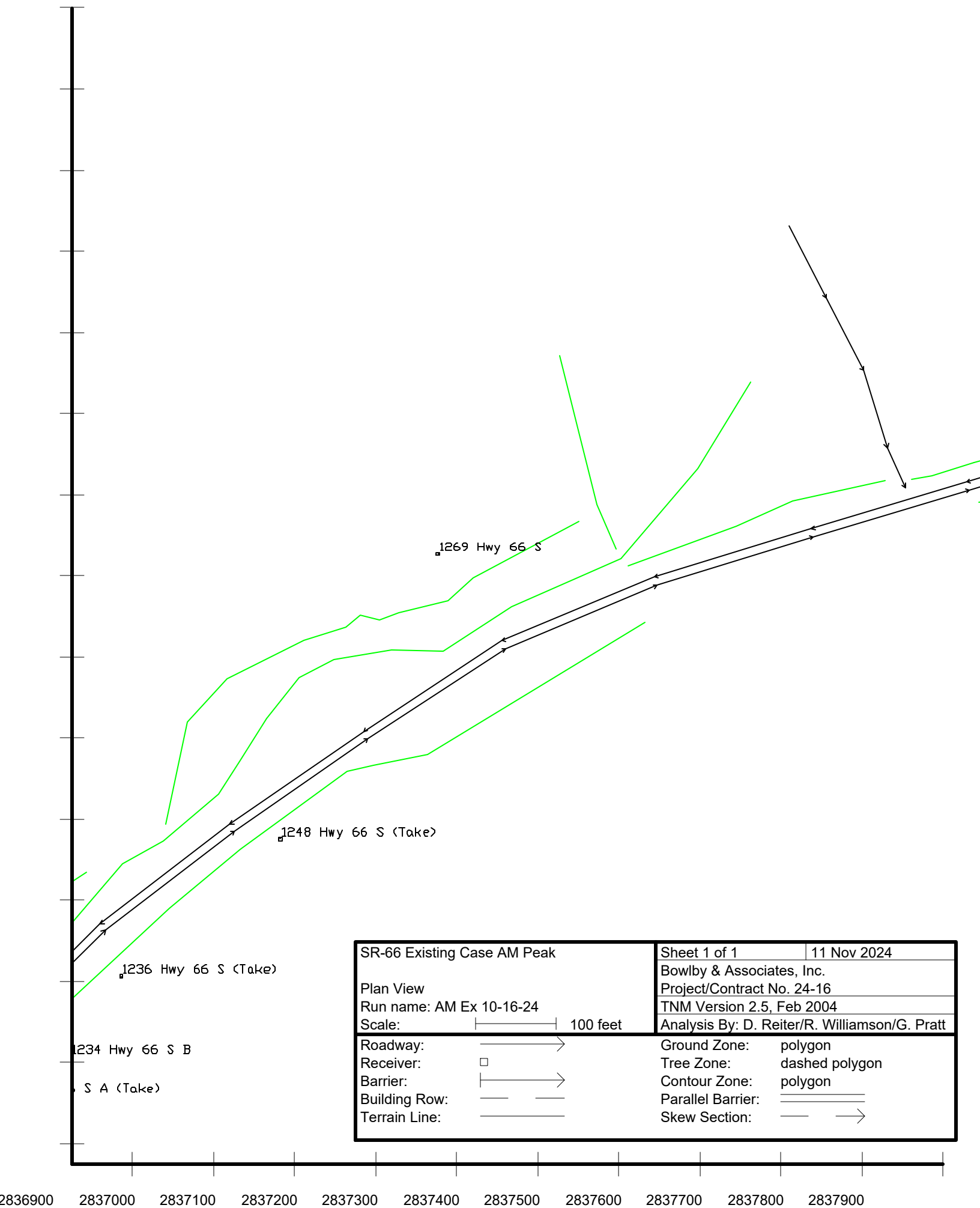


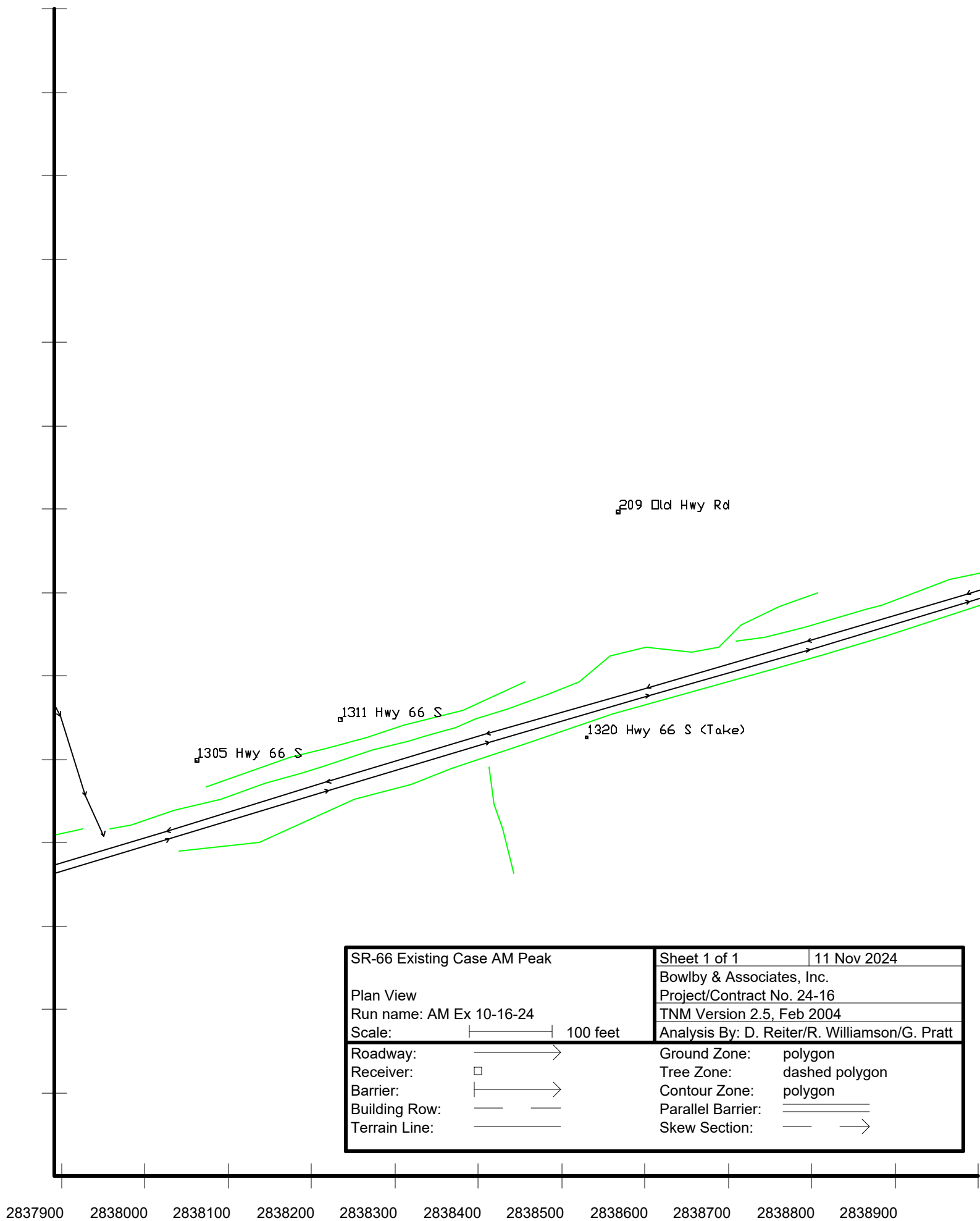


SR-66 Existing Case AM Peak		Sheet 1 of 1	11 Nov 2024
Plan View		Bowlby & Associates, Inc.	
Run name: AM Ex 10-16-24		Project/Contract No. 24-16	
Scale: 		TNM Version 2.5, Feb 2004	
Analysis By: D. Reiter/R. Williamson/G. Pratt			
Roadway: 	Ground Zone: polygon		
Receiver: 	Tree Zone: dashed polygon		
Barrier: 	Contour Zone: polygon		
Building Row: 	Parallel Barrier: 		
Terrain Line: 	Skew Section: 		

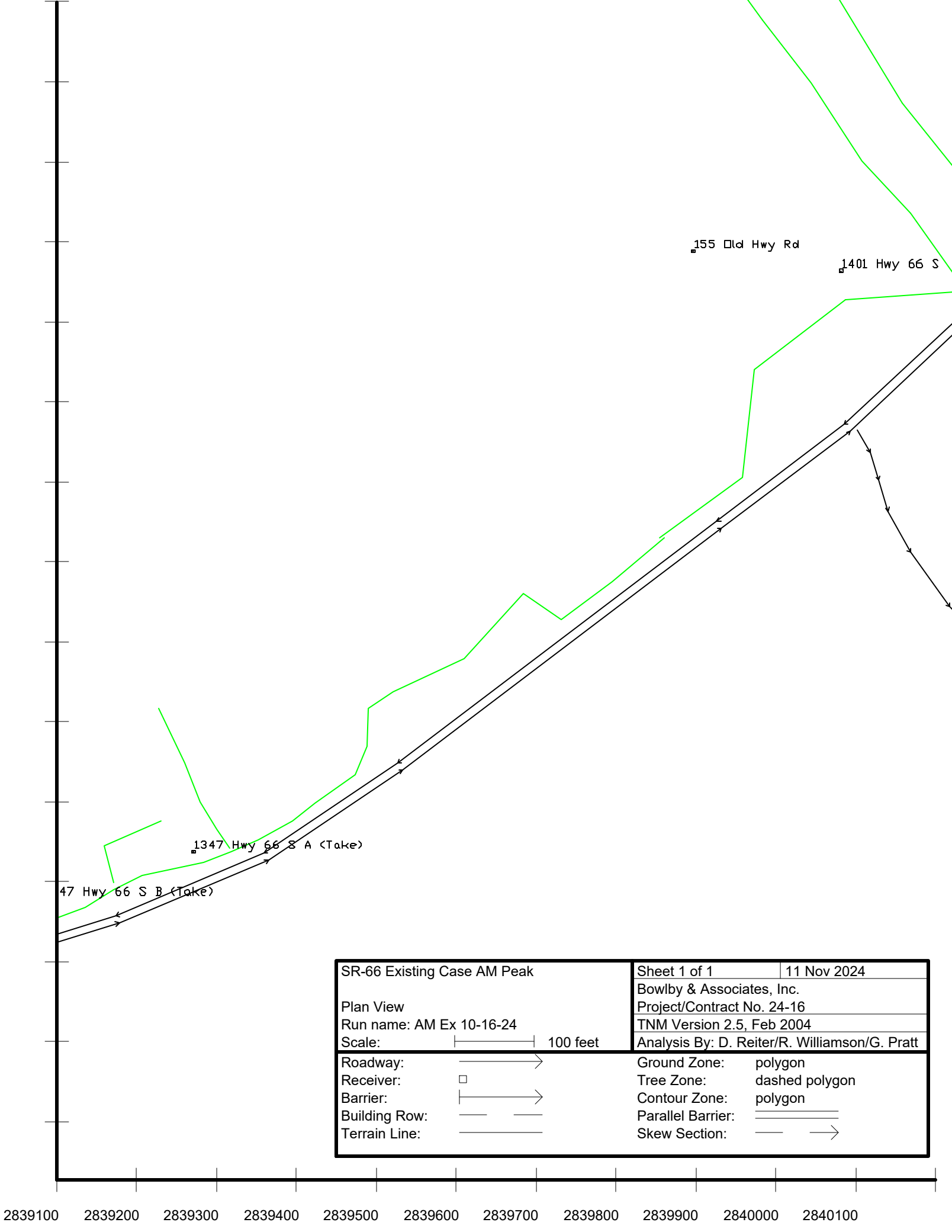












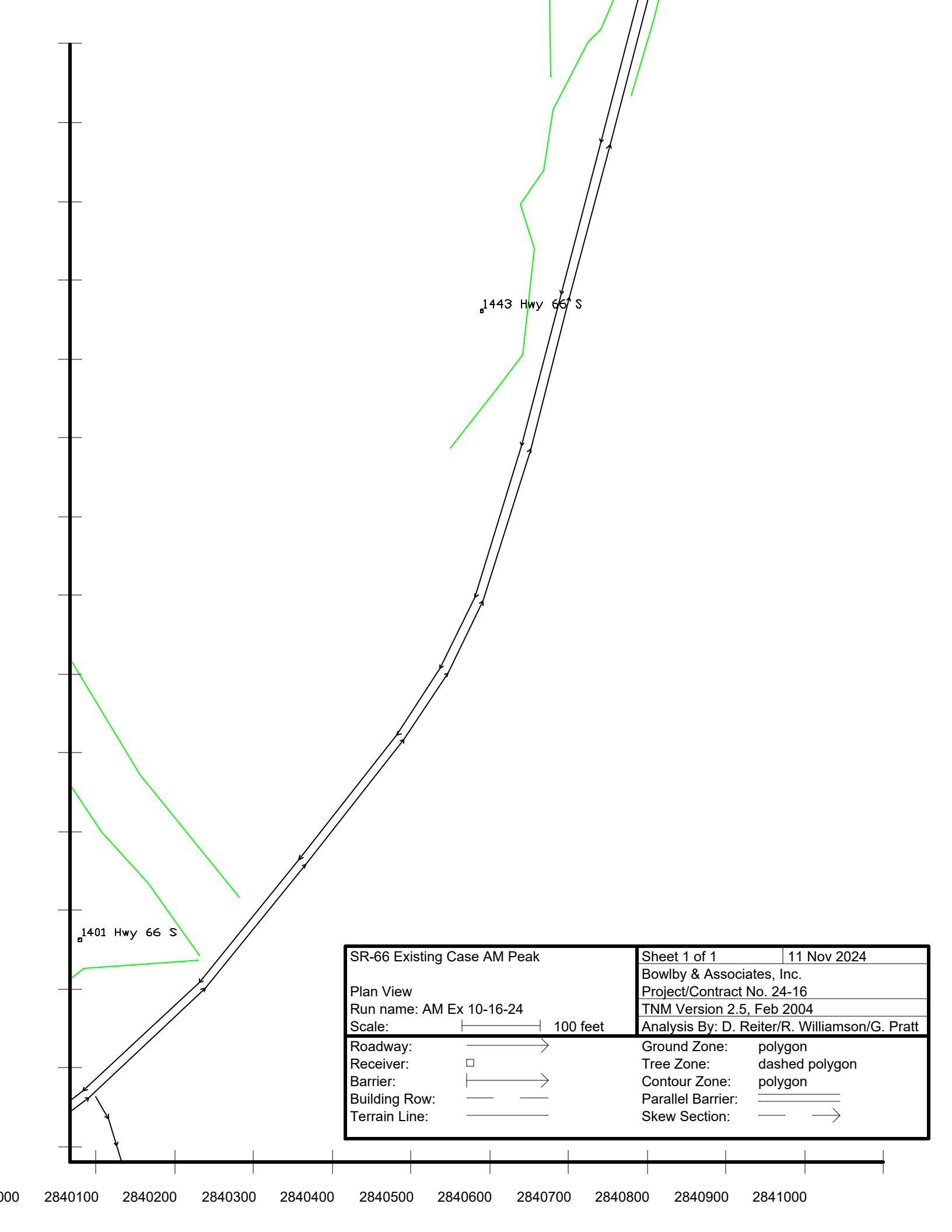












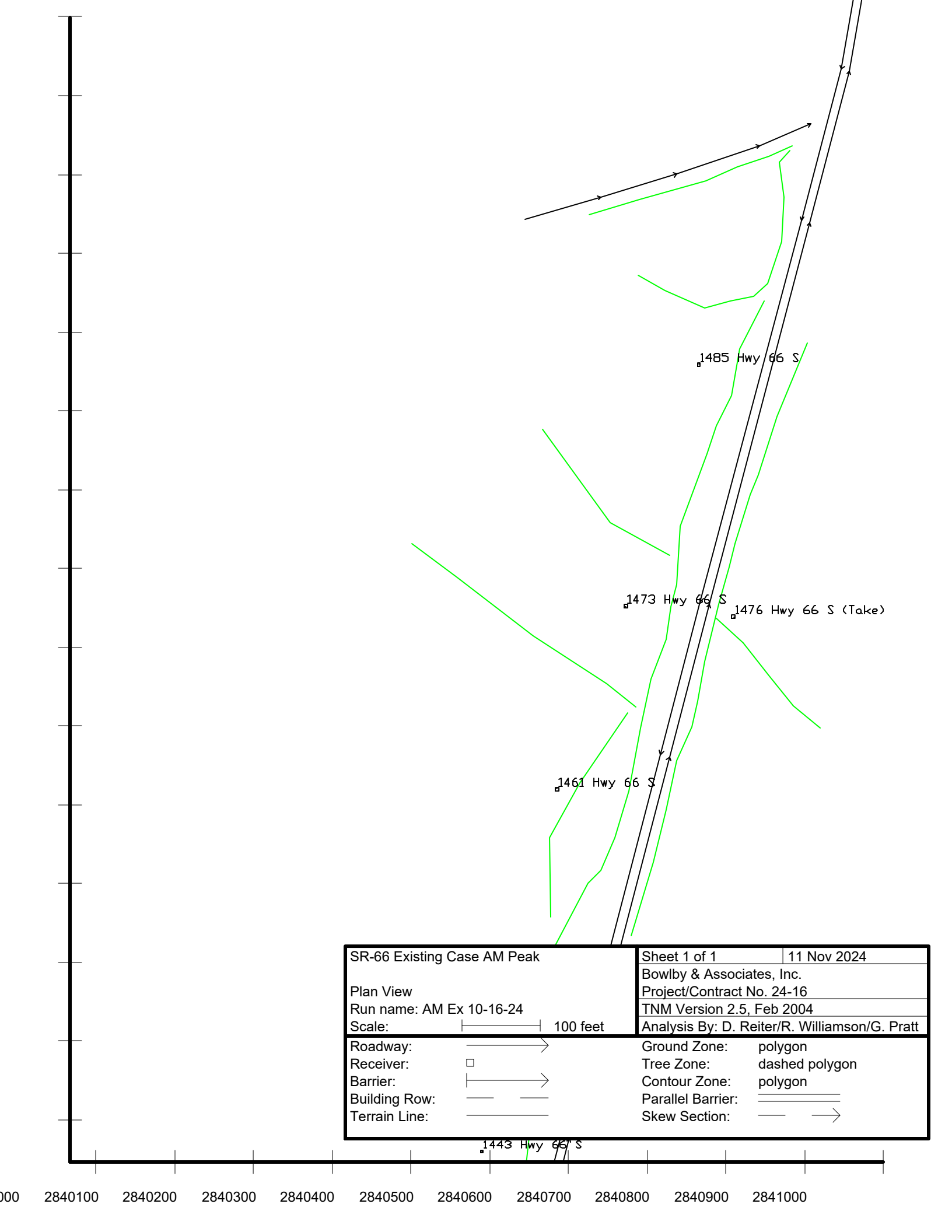















SR-66 Existing Case AM Peak		Sheet 1 of 1	11 Nov 2024
Plan View		Bowlby & Associates, Inc.	
Run name: AM Ex 10-16-24		Project/Contract No. 24-16	
Scale: 		TNM Version 2.5, Feb 2004	
		Analysis By: D. Reiter/R. Williamson/G. Pratt	
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

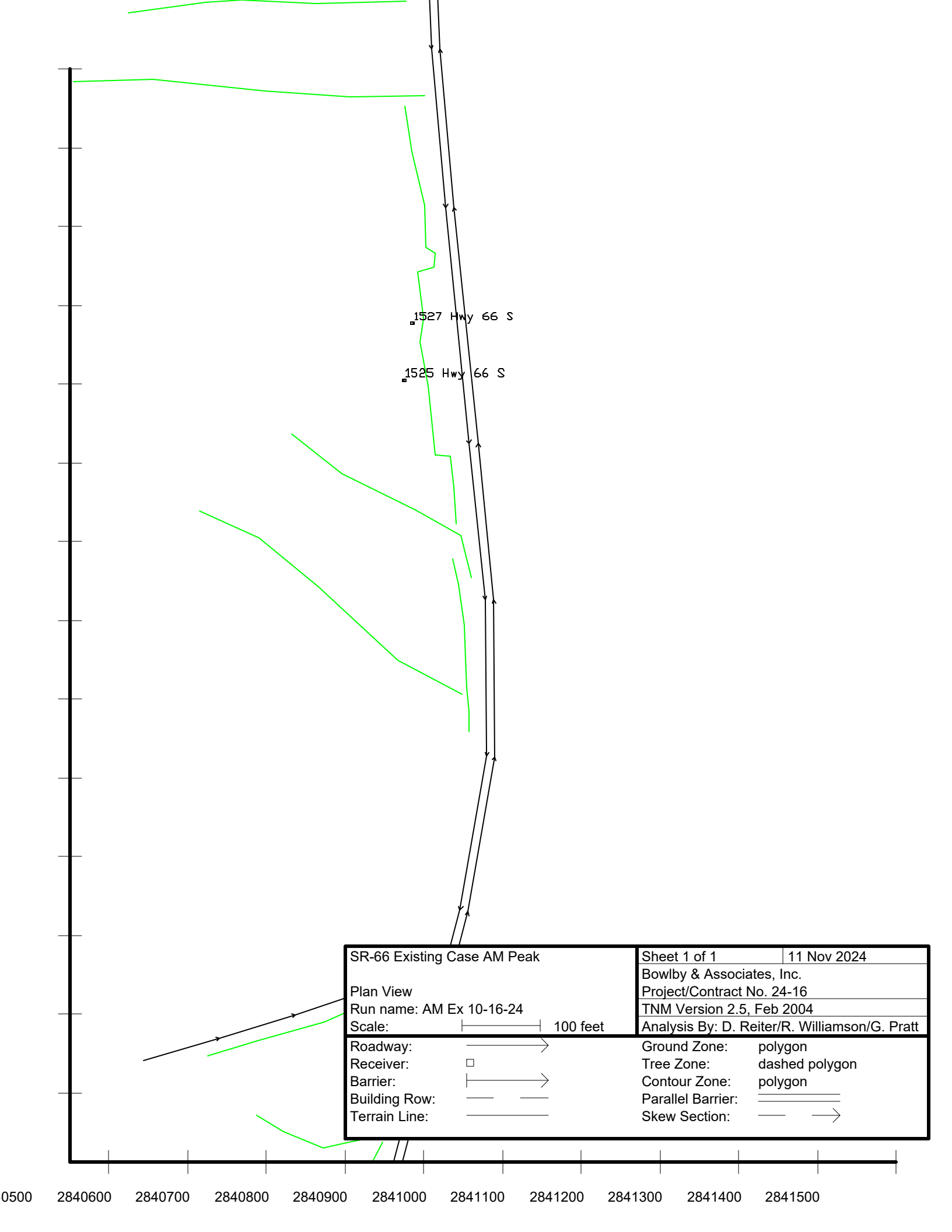










SR-66 Existing Case AM Peak		Sheet 1 of 1	11 Nov 2024
Plan View		Bowlby & Associates, Inc.	
Run name: AM Ex 10-16-24		Project/Contract No. 24-16	
Scale: 		TNM Version 2.5, Feb 2004	
		Analysis By: D. Reiter/R. Williamson/G. Pratt	
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

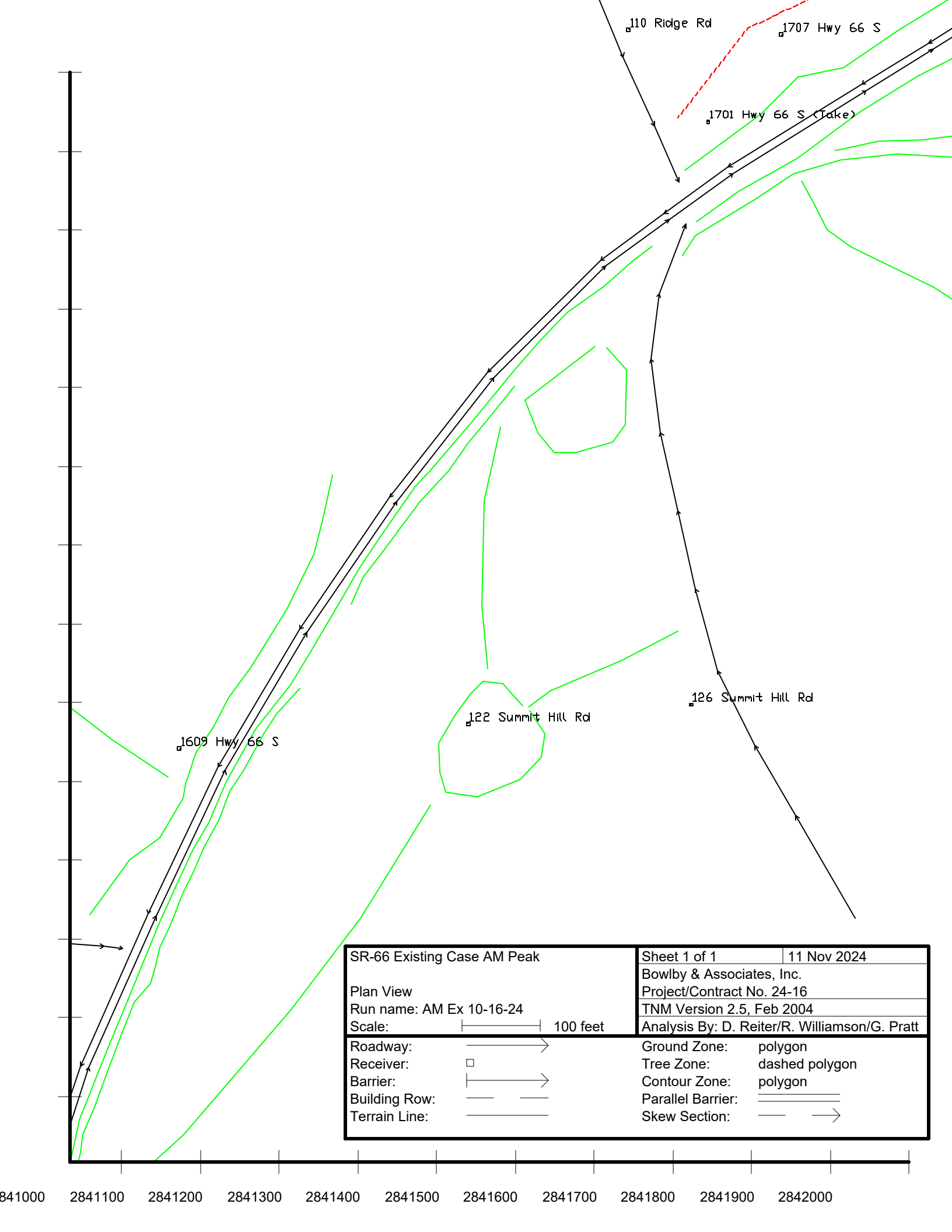










SR-66 Existing Case AM Peak		Sheet 1 of 1	11 Nov 2024
Plan View		Bowlby & Associates, Inc.	
Run name: AM Ex 10-16-24		Project/Contract No. 24-16	
Scale: 		TNM Version 2.5, Feb 2004	
		Analysis By: D. Reiter/R. Williamson/G. Pratt	
Roadway: 	Ground Zone: 	polygon	
Receiver: 	Tree Zone: 	dashed polygon	
Barrier: 	Contour Zone: 	polygon	
Building Row: 	Parallel Barrier: 		
Terrain Line: 	Skew Section: 		

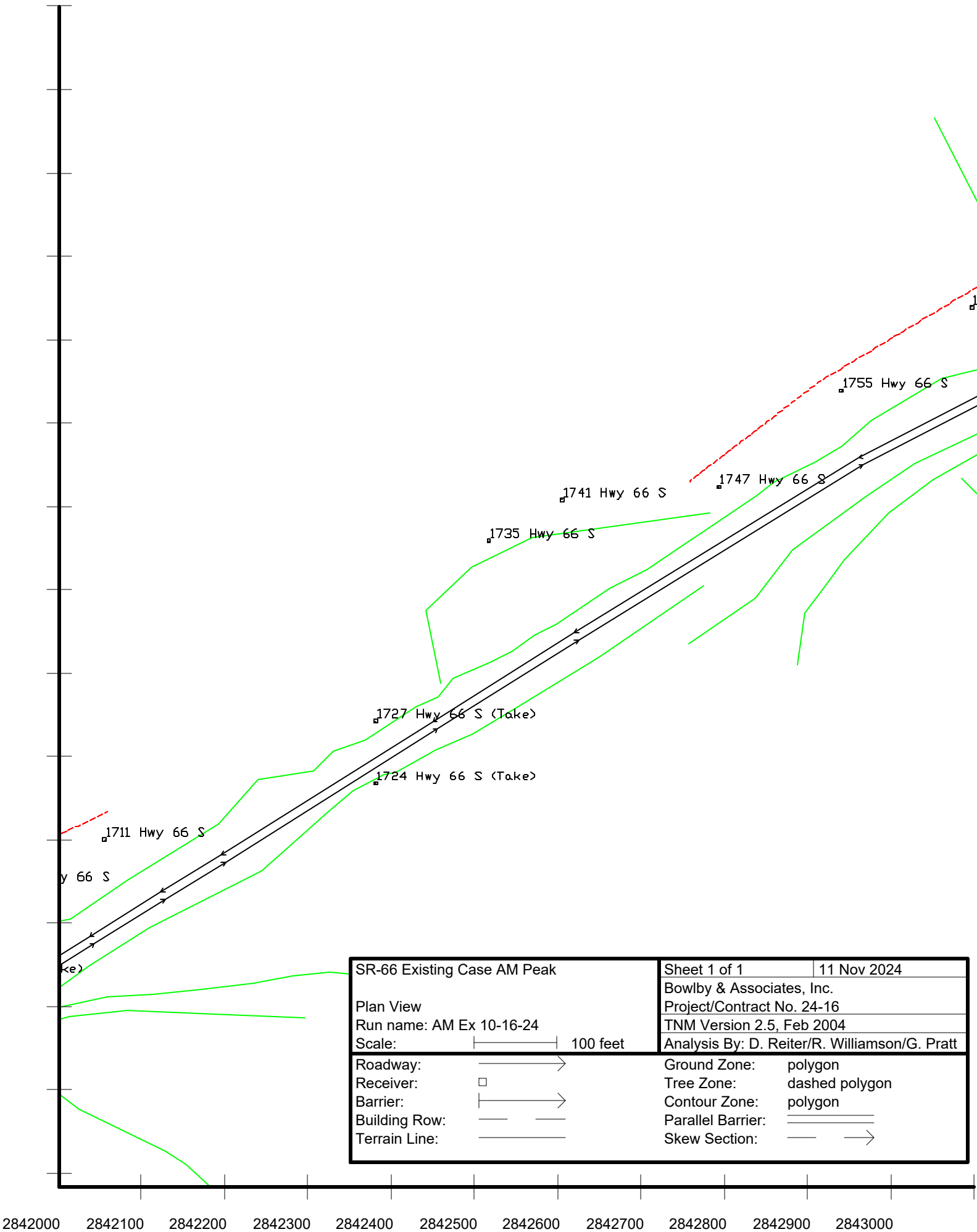




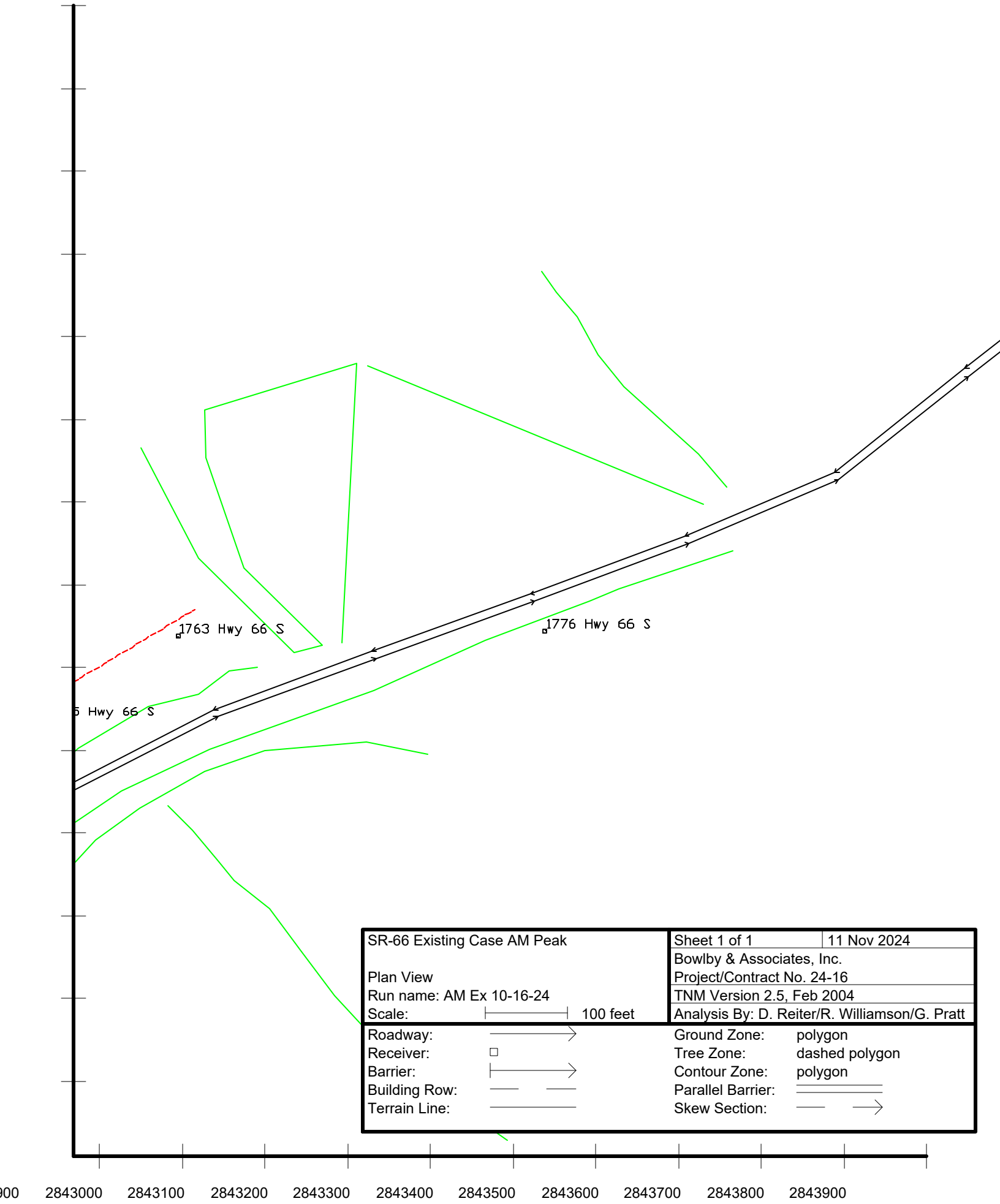
SR-66 Existing Case AM Peak		Sheet 1 of 1	11 Nov 2024
Plan View		Bowlby & Associates, Inc.	
Run name: AM Ex 10-16-24		Project/Contract No. 24-16	
Scale: 		TNM Version 2.5, Feb 2004	
Analysis By: D. Reiter/R. Williamson/G. Pratt			
Roadway: 	Ground Zone: polygon		
Receiver: 	Tree Zone: dashed polygon		
Barrier: 	Contour Zone: polygon		
Building Row: 	Parallel Barrier: 		
Terrain Line: 	Skew Section: 		











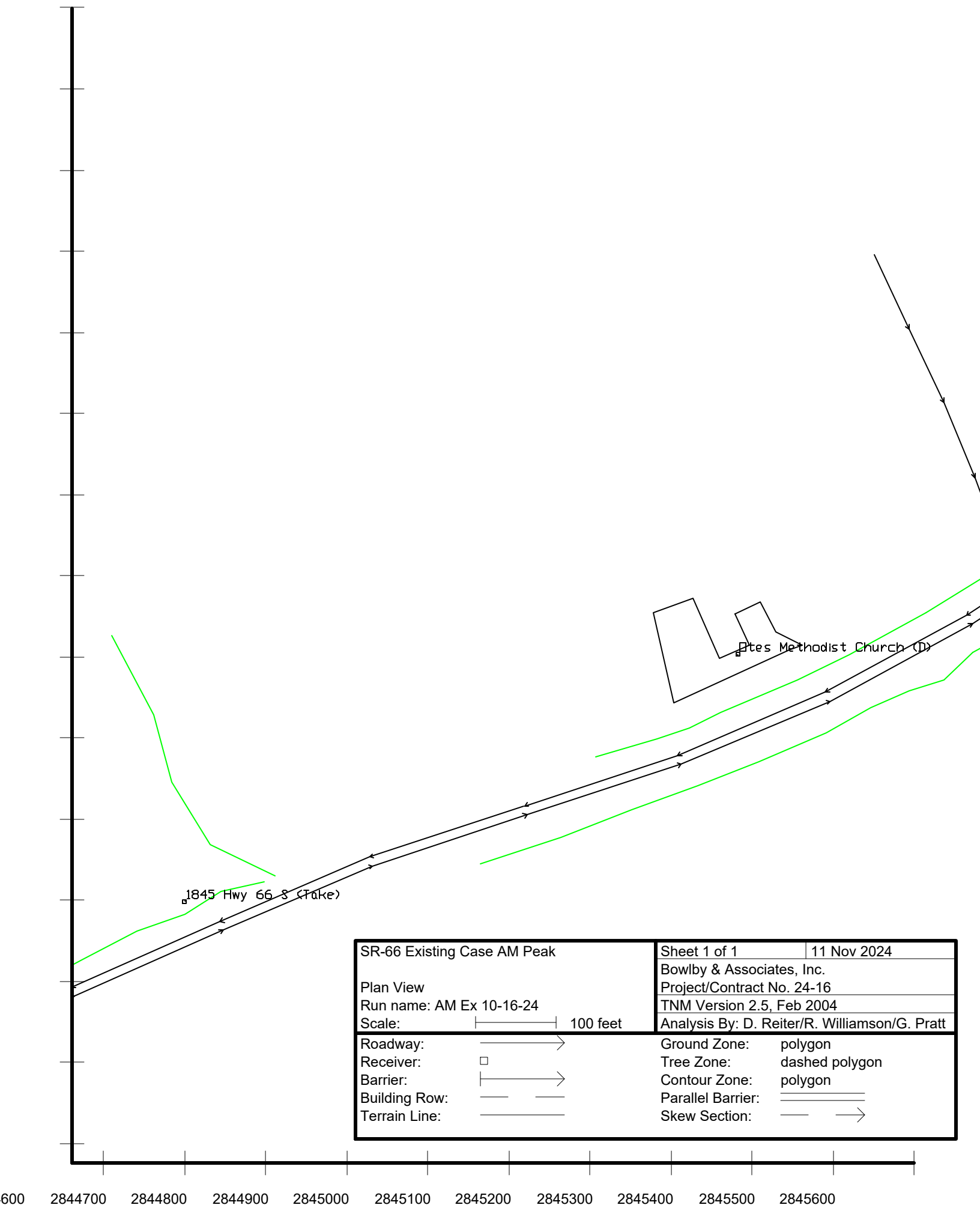
SR-66 Existing Case AM Peak		Sheet 1 of 1	11 Nov 2024
Plan View		Bowlby & Associates, Inc.	
Run name: AM Ex 10-16-24		Project/Contract No. 24-16	
Scale: 		TNM Version 2.5, Feb 2004	
		Analysis By: D. Reiter/R. Williamson/G. Pratt	
Roadway: 	Ground Zone: polygon		
Receiver: 	Tree Zone: dashed polygon		
Barrier: 	Contour Zone: polygon		
Building Row: 	Parallel Barrier: 		
Terrain Line: 	Skew Section: 		

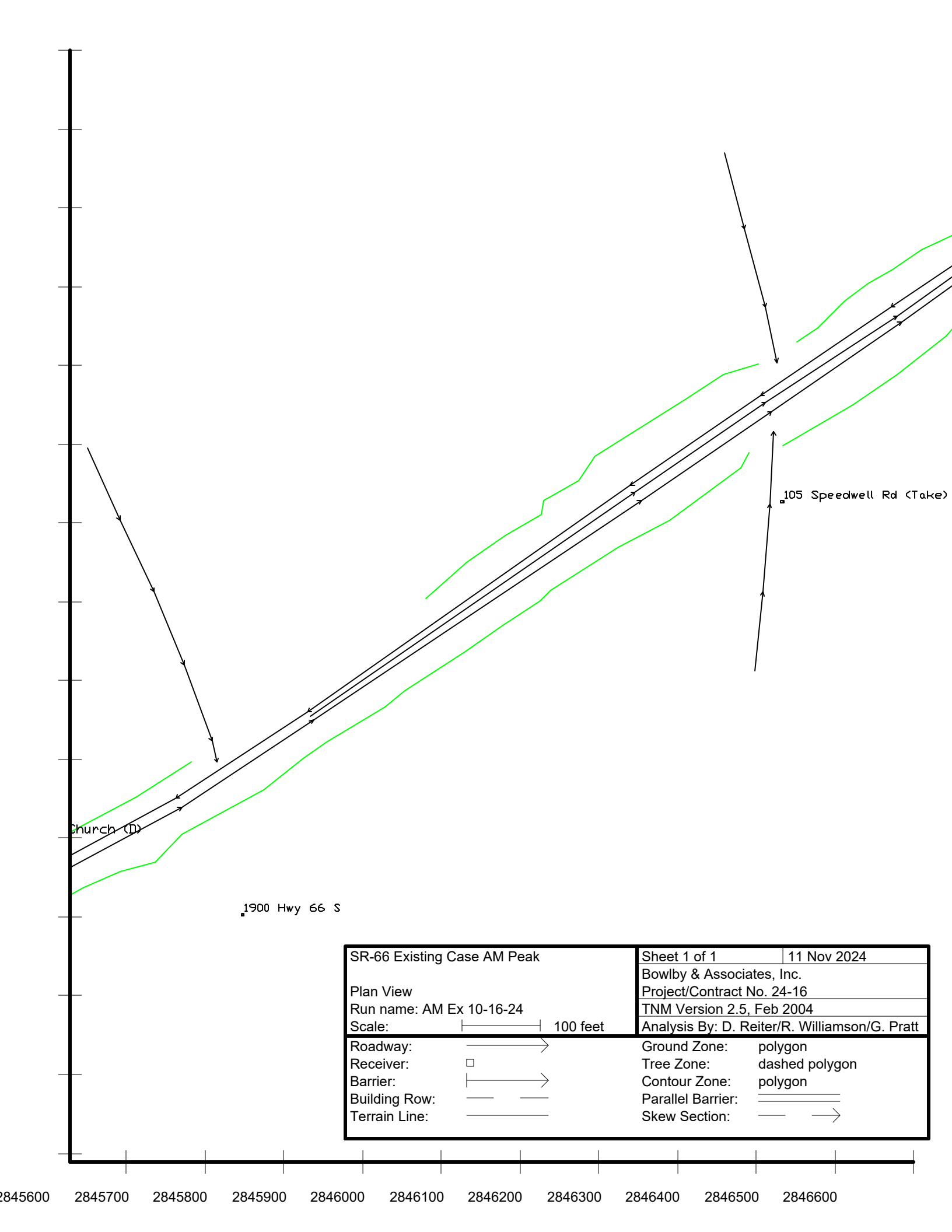














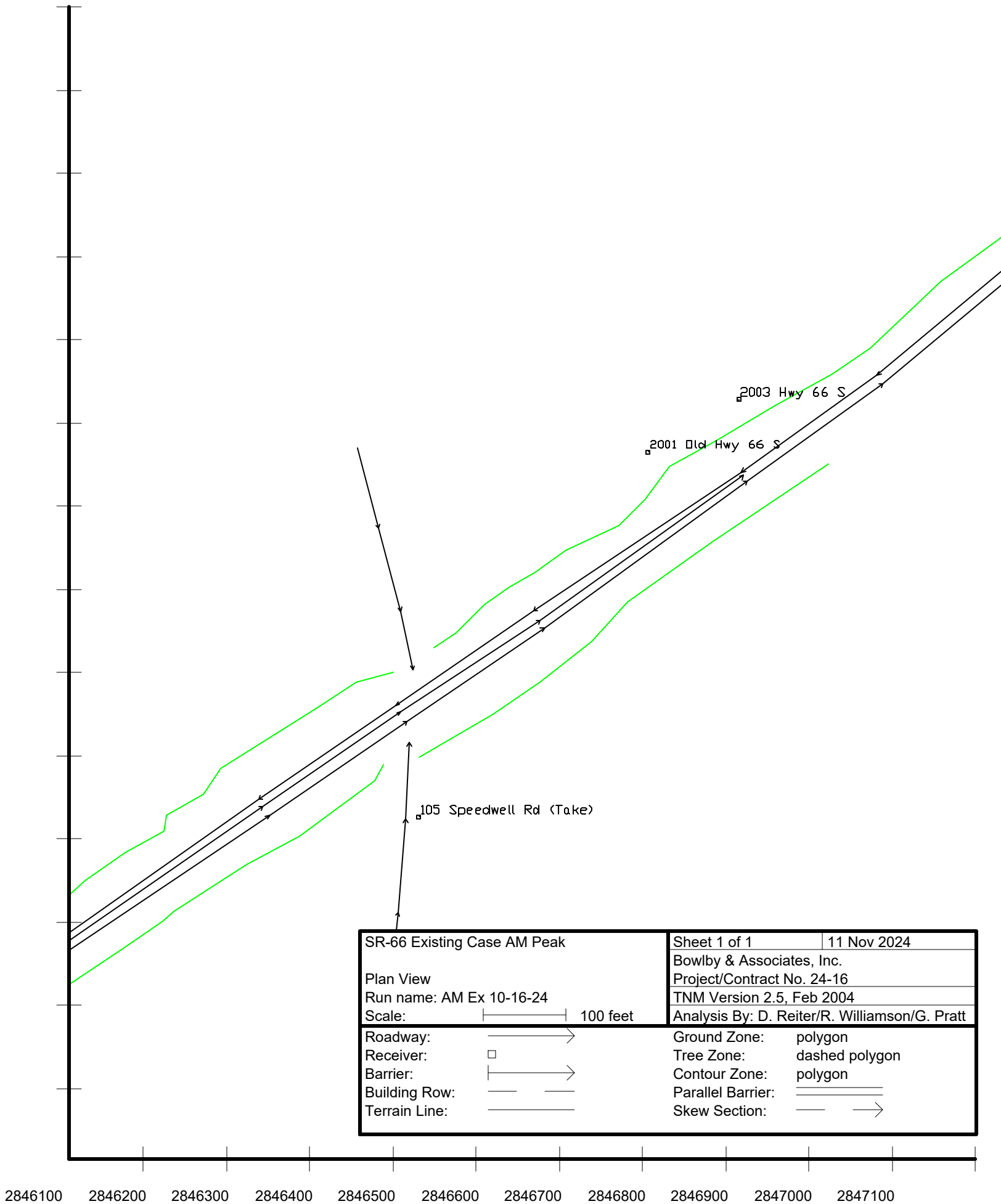
SR-66 Existing Case AM Peak		Sheet 1 of 1	11 Nov 2024
Plan View		Bowlby & Associates, Inc.	
Run name: AM Ex 10-16-24		Project/Contract No. 24-16	
Scale: 		TNM Version 2.5, Feb 2004	
		Analysis By: D. Reiter/R. Williamson/G. Pratt	
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	





SR-66 Existing Case AM Peak		Sheet 1 of 1	11 Nov 2024
Plan View		Bowlby & Associates, Inc.	
Run name: AM Ex 10-16-24		Project/Contract No. 24-16	
Scale: 		TNM Version 2.5, Feb 2004	
		Analysis By: D. Reiter/R. Williamson/G. Pratt	
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	





# TNM Modeling Checklist

*All modeling must be done in accordance with TDOT's Noise Procedures and TNM Modeling Guidelines*

<b>Project</b>	<b>SR-66</b>
<b>County</b>	<b>Hawkins</b>
<b>PIN</b>	<b>107579.00</b>
<b>Project Number</b>	<b>37005-1237-14</b>
<b>Project Plans Description and Date</b>	<b>ROW Plans dated August 2024</b>
<b>Traffic Data Source and Date</b>	<b>TDOT 4-19-23</b>
<b>TNM Modeler</b>	<b>G. Pratt</b>
<b>Date Checklist Completed</b>	<b>10/14/2024</b>
<b>TNM Reviewer</b>	<b>R. Williamson</b>
<b>Date Checklist Completed</b>	<b>10/15/2024</b>

<b>TNM Run</b>	<b>Build 10-11-24</b>		<b>Modeling Year</b>	<b>2048</b>
<b>Input</b>	<b>Task</b>	<b>Complete?</b>	<b>Notes</b>	
Setup	Run Information	<input checked="" type="checkbox"/>	<b>Change to "Existing" to "Build"</b>	
	General	<input checked="" type="checkbox"/>		
Roadways	Roadway names assigned	<input checked="" type="checkbox"/>		
	Widths of All Roadways per Guidance	<input checked="" type="checkbox"/>		
	Lengths of all roadways are adequate to represent roadway contributions	<input checked="" type="checkbox"/>		
	Points tied to stationing if available	<input checked="" type="checkbox"/>	<b>Mainline is</b>	
	Elevations seem correct	<input checked="" type="checkbox"/>	<b>1<sup>st</sup> point of "CLTL 100-215" is incorrect</b>	
	Traffic/Speeds on all Roadways	<input checked="" type="checkbox"/>	<b>Traffic not entered yet {Traffic has been entered and is correct}</b>	
	Modeled traffic volumes match projections and truck percentages are correct	<input checked="" type="checkbox"/>	<b>Traffic not entered yet {Traffic has been entered and is correct}</b>	
	Traffic Flow Control Devices Modeled (Traffic Signals, Stop Signs, & On-Ramps)	<input checked="" type="checkbox"/>	<b>Signals should modeled at Hwy 66/US 11 {RW fixed}</b>	

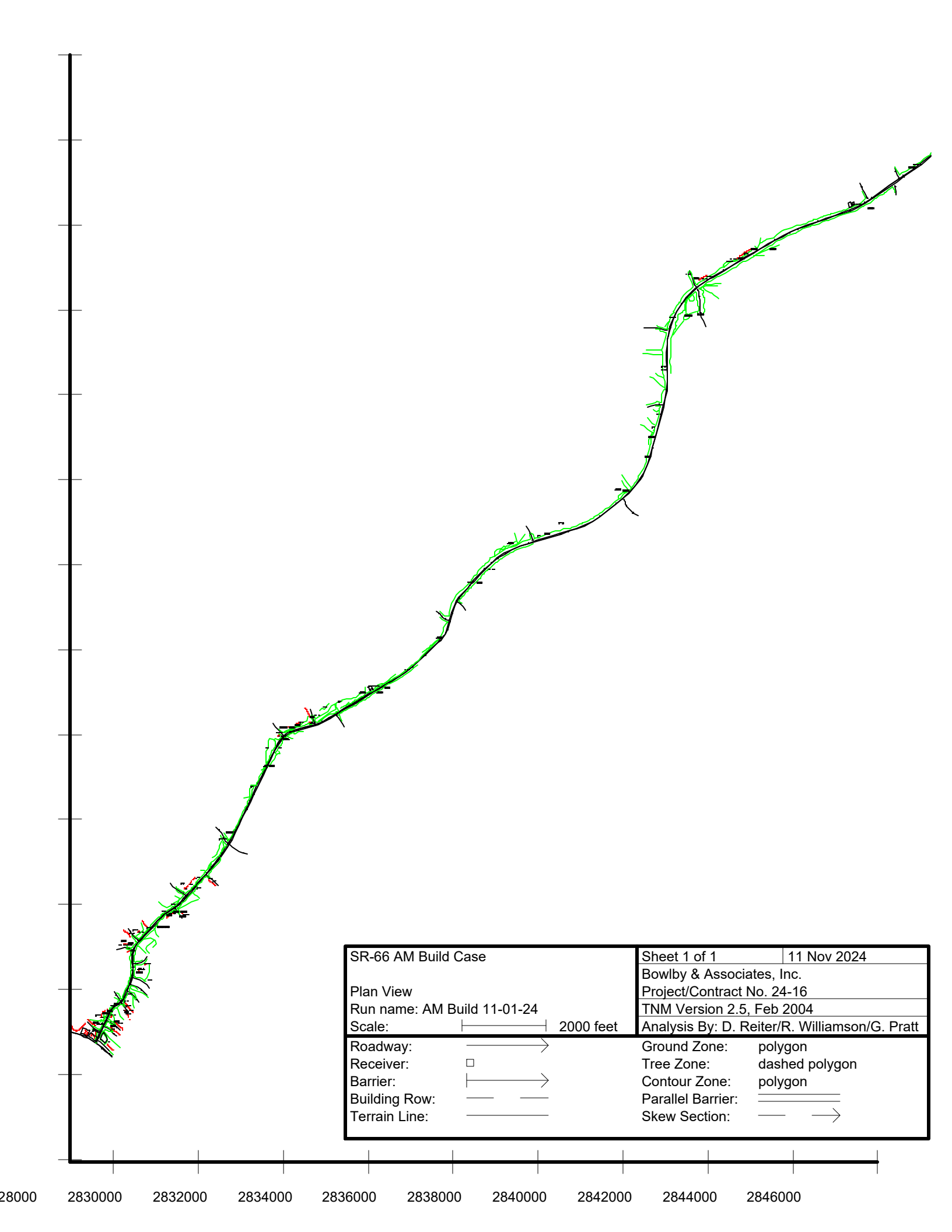
# TNM Modeling Checklist

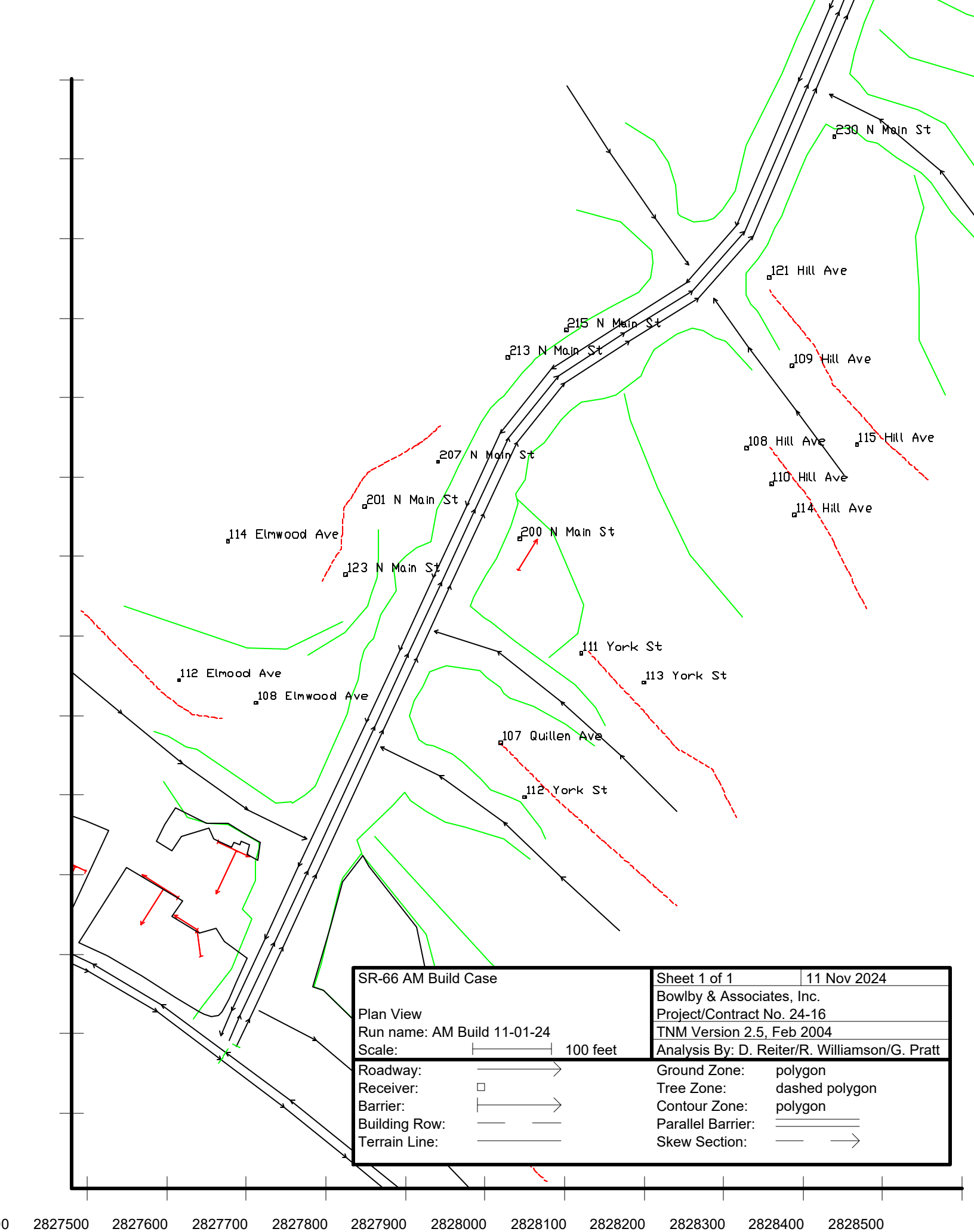
TNM Run	Build 10-11-24		Modeling Year	2048
Input	Task	Complete?	Notes	
	Roadways modeled on structure as appropriate	<input checked="" type="checkbox"/>	N/A	
Receivers	Receivers named by address or stationing; "M" identifies measurement rec's	<input checked="" type="checkbox"/>		
	Number of dwelling units set for each receiver (if applicable)	<input checked="" type="checkbox"/>		
	Receivers in order of adjacent traffic flow	<input checked="" type="checkbox"/>	By NAA. NAAs encompass both sides of the highway	
	Elevations appear to be correct	<input checked="" type="checkbox"/>		
	Elevations at second-story locations at appropriate heights (if applicable)	<input checked="" type="checkbox"/>	N/A	
	Enough receivers modeled (for impacts and benefits)	<input checked="" type="checkbox"/>		
	Receivers modeled at locations currently under development.	<input checked="" type="checkbox"/>	N/A	
	NAC set per State's Policy for each receiver/ land use	<input checked="" type="checkbox"/>	externally	
	Noise Reduction set per State's Policy	<input checked="" type="checkbox"/>	externally	
	Substantial Increase set per State's Policy	<input checked="" type="checkbox"/>	externally	
Barriers	Significant buildings modeled	<input checked="" type="checkbox"/>		
	Parapets, etc. modeled	<input checked="" type="checkbox"/>	N/A	
	Perturbable barriers modeled as applicable	<input checked="" type="checkbox"/>	N/A	
	Build runs include zero-height barriers to match abatement runs	<input checked="" type="checkbox"/>	Assume abatement is not feasible	
	Barrier names assigned	<input checked="" type="checkbox"/>		
	Barrier points named by stationing or length, and segments <i>on structure</i> or <i>retaining wall</i> are labeled	<input checked="" type="checkbox"/>	Generic point names	
	Barrier heights assigned	<input checked="" type="checkbox"/>		
	Elevations appear to be correct	<input checked="" type="checkbox"/>		
	Increment and #up/down assigned	<input checked="" type="checkbox"/>	N/A	











## TNM Modeling Checklist

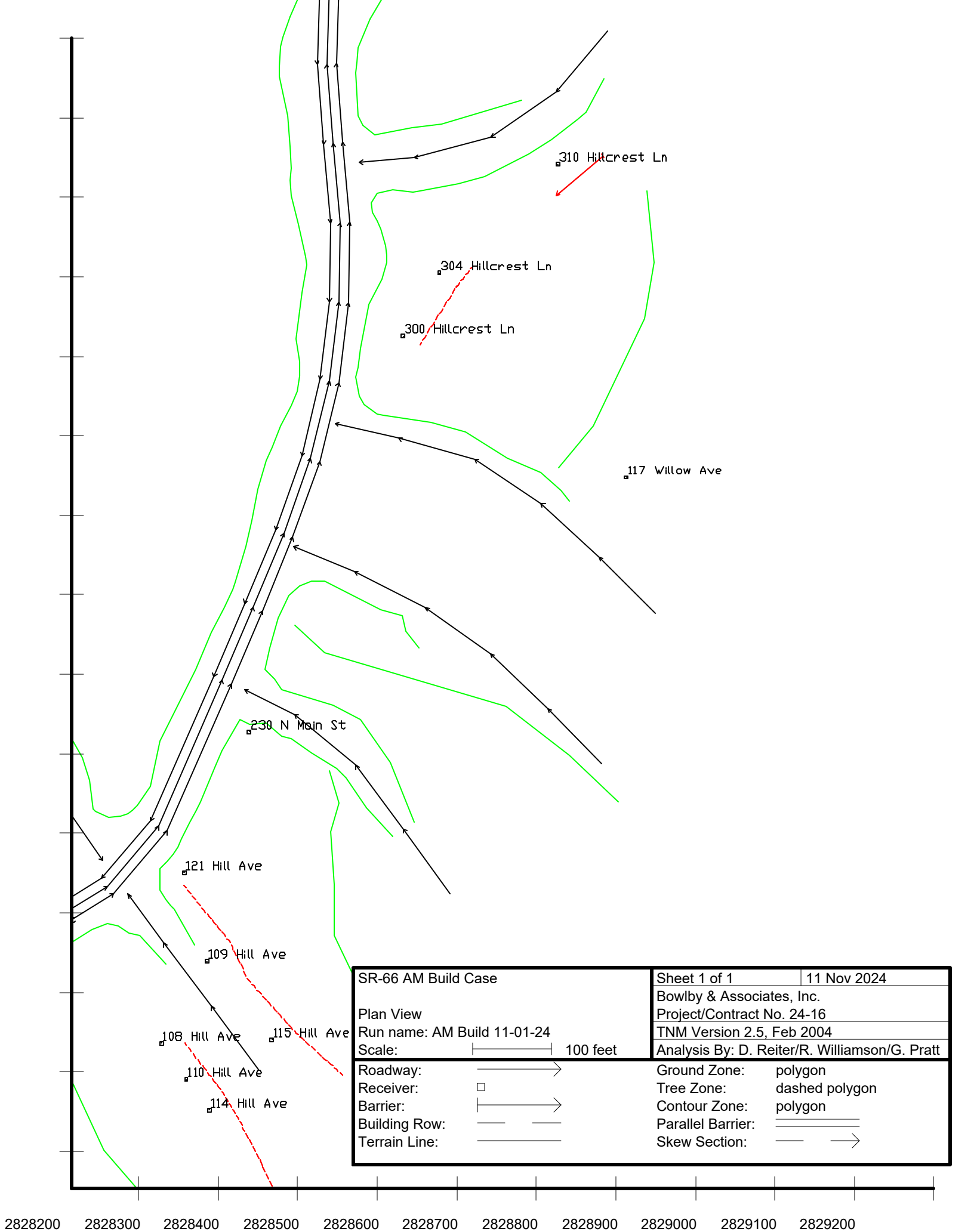
TNM Run	Build 10-11-24		Modeling Year	2048
Input	Task	Complete?	Notes	
	Barriers modeled on structure as appropriate and shielded lists are correct	<input checked="" type="checkbox"/>	N/A	
Building Rows	Building rows modeled per FHWA Guidance	<input checked="" type="checkbox"/>		
	Elevations appear to be correct	<input checked="" type="checkbox"/>		
	Height and percentage assigned	<input checked="" type="checkbox"/>		
Terrain Lines	Significant terrain features modeled	<input checked="" type="checkbox"/>	- delete TLs around driveway entrances - connect gaps - fix inconsistent intersections {RW fixed}	
	Terrain lines modeled in the same direction of adjacent roadway	<input checked="" type="checkbox"/>		
	Terrain line names assigned	<input checked="" type="checkbox"/>	Generic names ("TL..")	
	Elevations appear to be correct	<input checked="" type="checkbox"/>		
Ground Zones	Ground Zones modeled per FHWA Guidance	<input checked="" type="checkbox"/>		
	Ground zone names assigned	<input checked="" type="checkbox"/>		
	Ground zone types assigned	<input checked="" type="checkbox"/>		
Tree Zones	Tree zones modeled per FHWA Guidance	<input checked="" type="checkbox"/>	N/A	
	Tree zone names assigned	<input checked="" type="checkbox"/>	N/A	
	Elevations appear to be correct	<input checked="" type="checkbox"/>	N/A	
Perspective Views	Perspective views checked for accuracy	<input checked="" type="checkbox"/>		
Skew Views	Numerous skew views cut and checked for accuracy	<input checked="" type="checkbox"/>		
Input Check	Input Check completed and errors fixed/documented	<input checked="" type="checkbox"/>	Some errors	
QA/QC is complete	All issues listed above have been addressed/fixed	<input checked="" type="checkbox"/>	Initials: RW Date Completed: 10/16/24	

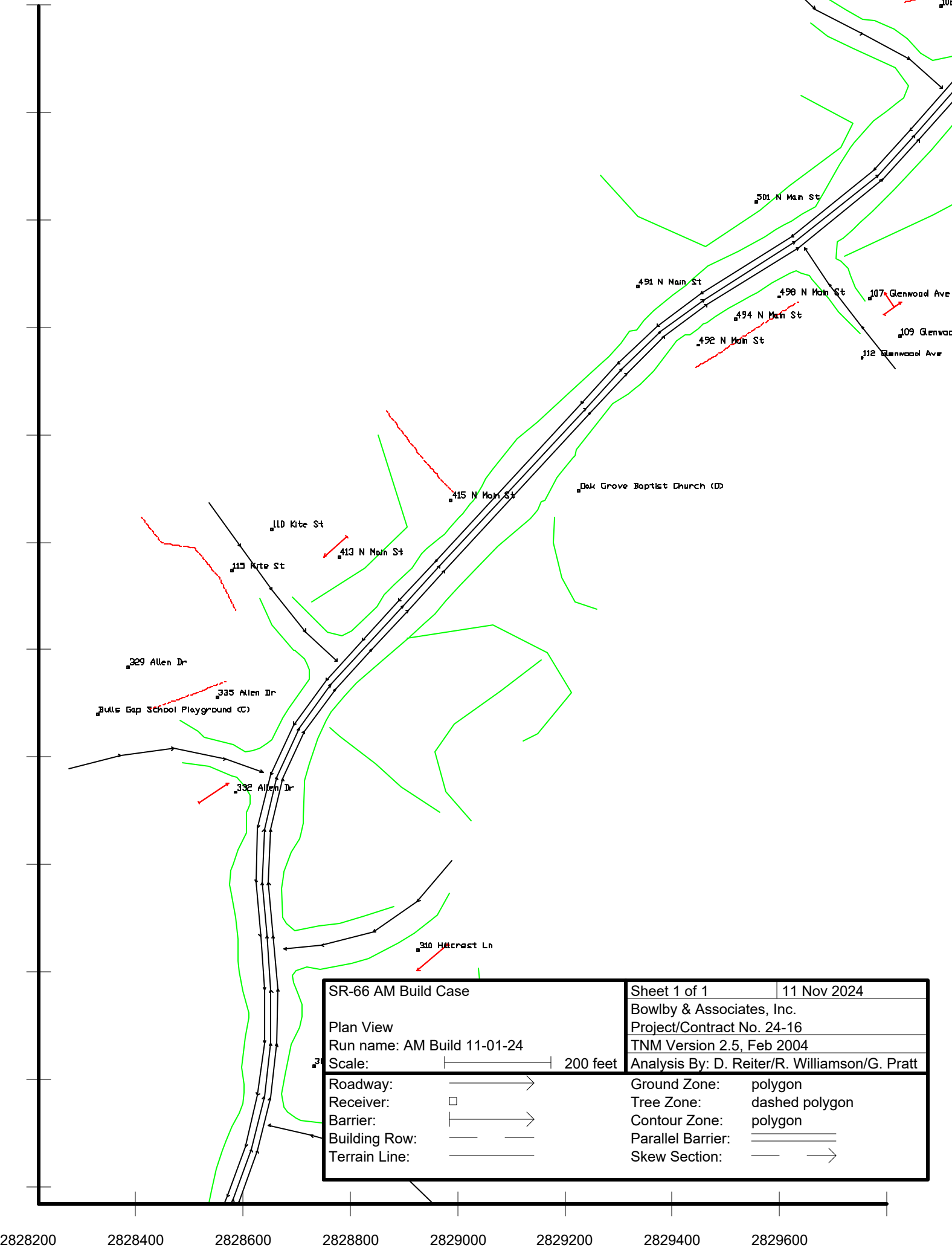












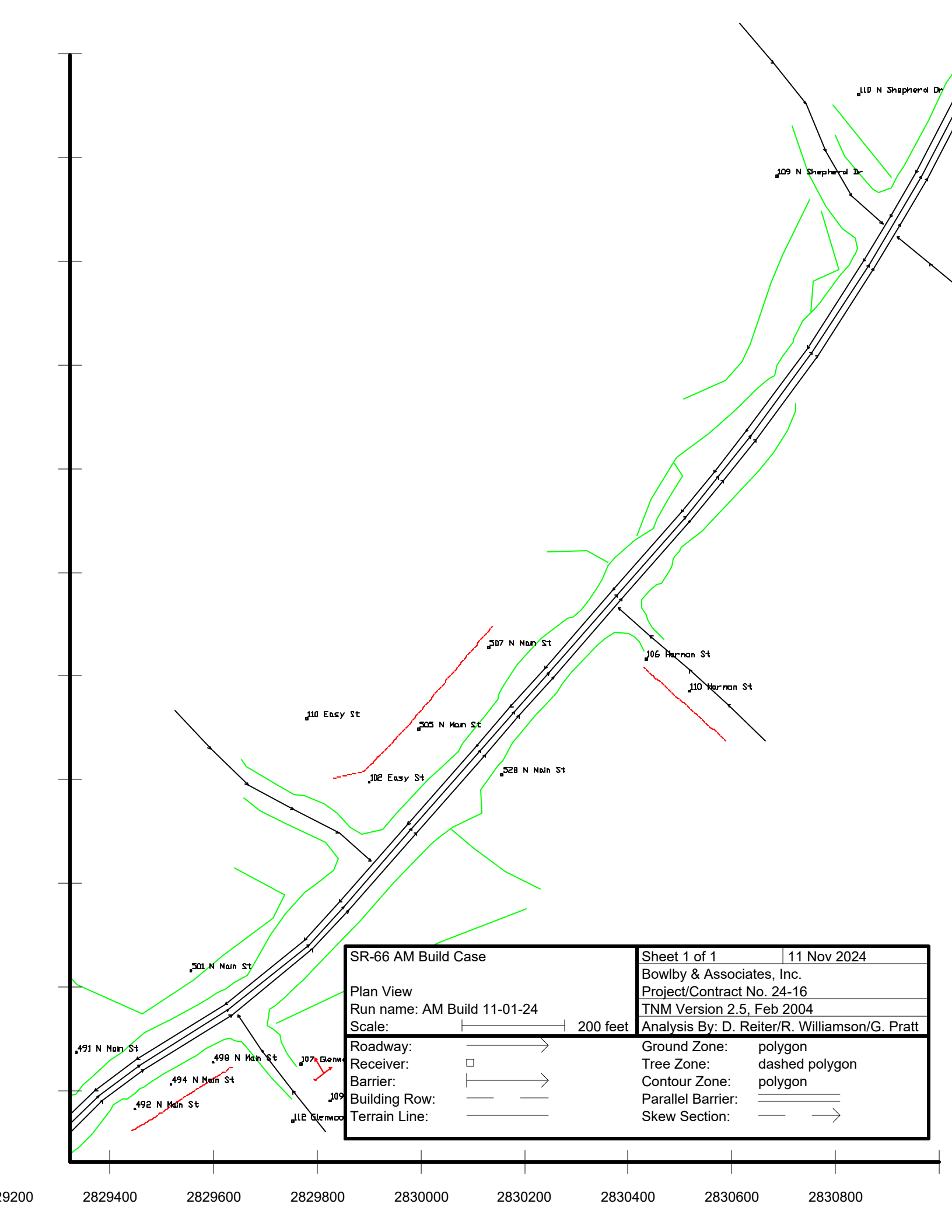
SR-66 AM Build Case		Sheet 1 of 1	11 Nov 2024
Plan View		Bowlby & Associates, Inc.	
Run name: AM Build 11-01-24		Project/Contract No. 24-16	
Scale: 		TNM Version 2.5, Feb 2004	
Roadway: 		Analysis By: D. Reiter/R. Williamson/G. Pratt	
Receiver: 		Ground Zone:	polygon
Barrier: 		Tree Zone:	dashed polygon
Building Row: 		Contour Zone:	polygon
Terrain Line: 		Parallel Barrier:	
		Skew Section:	













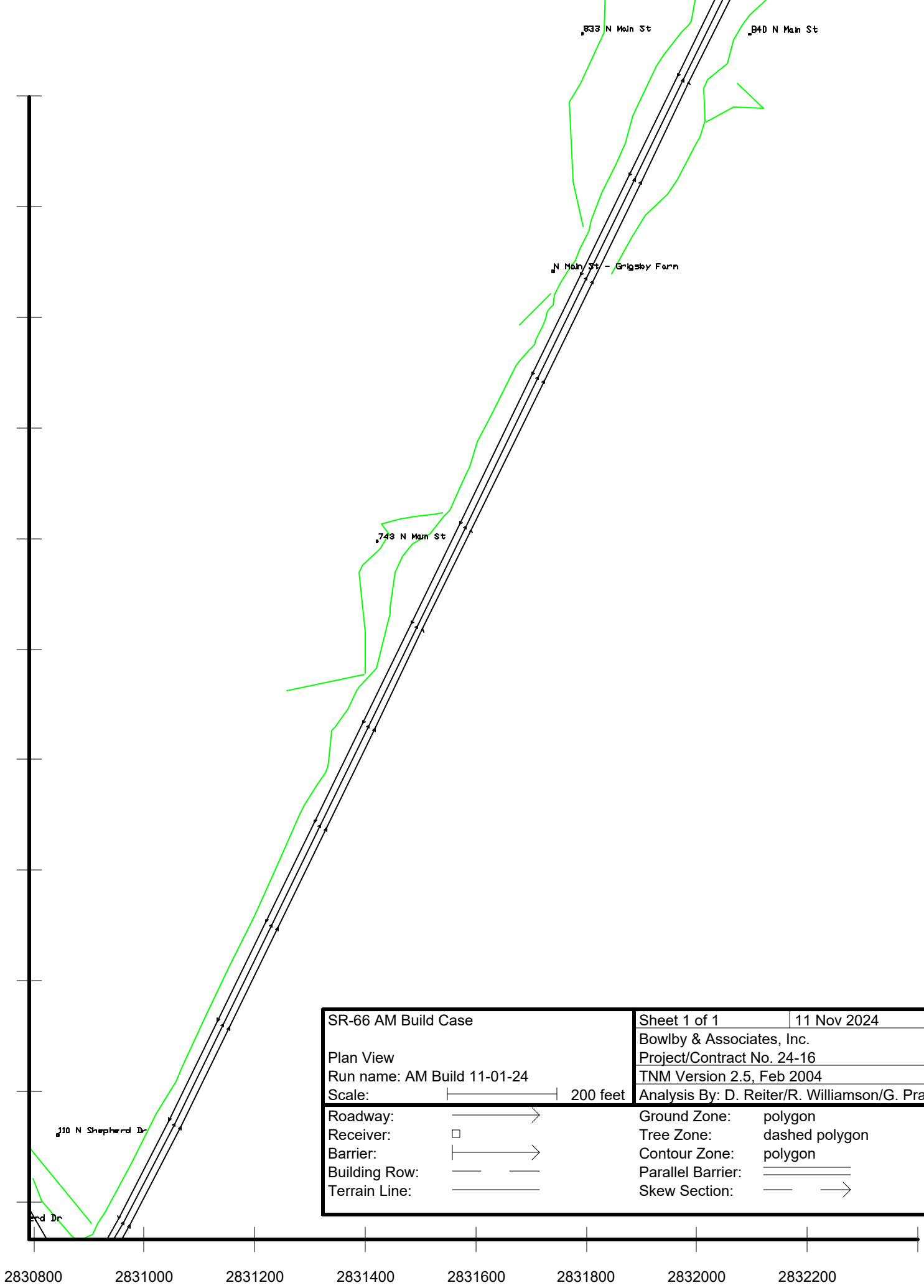


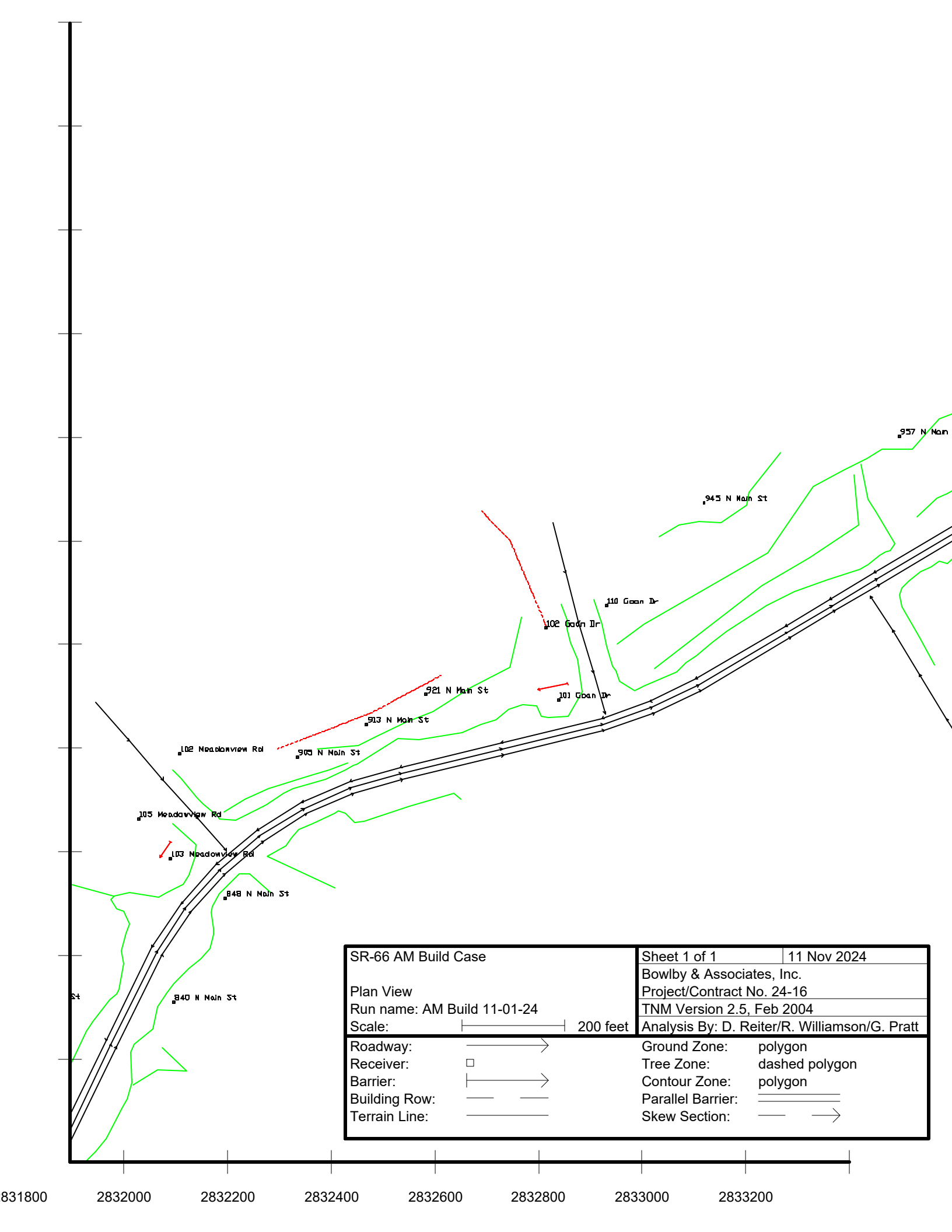
SR-66 AM Build Case		Sheet 1 of 1	11 Nov 2024
Plan View		Bowlby & Associates, Inc.	
Run name: AM Build 11-01-24		Project/Contract No. 24-16	
Scale: 		TNM Version 2.5, Feb 2004	
Roadway: 		Analysis By: D. Reiter/R. Williamson/G. Pratt	
Receiver: 		Ground Zone:	polygon
Barrier: 		Tree Zone:	dashed polygon
Building Row: 		Contour Zone:	polygon
Terrain Line: 		Parallel Barrier:	
		Skew Section:	











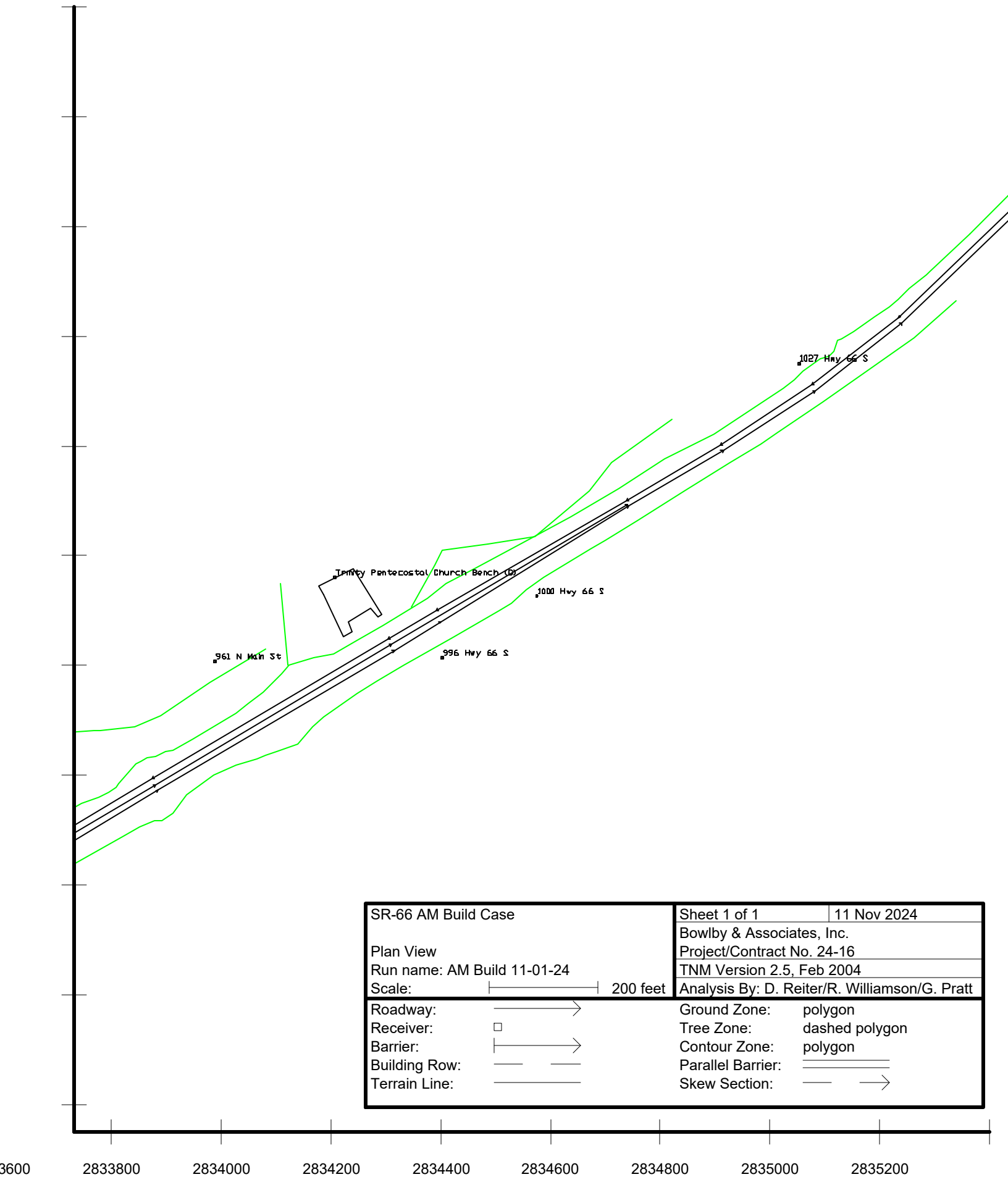
SR-66 AM Build Case		Sheet 1 of 1	11 Nov 2024
Plan View		Bowlby & Associates, Inc.	
Run name: AM Build 11-01-24		Project/Contract No. 24-16	
Scale: 		TNM Version 2.5, Feb 2004	
		Analysis By: D. Reiter/R. Williamson/G. Pratt	
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	
















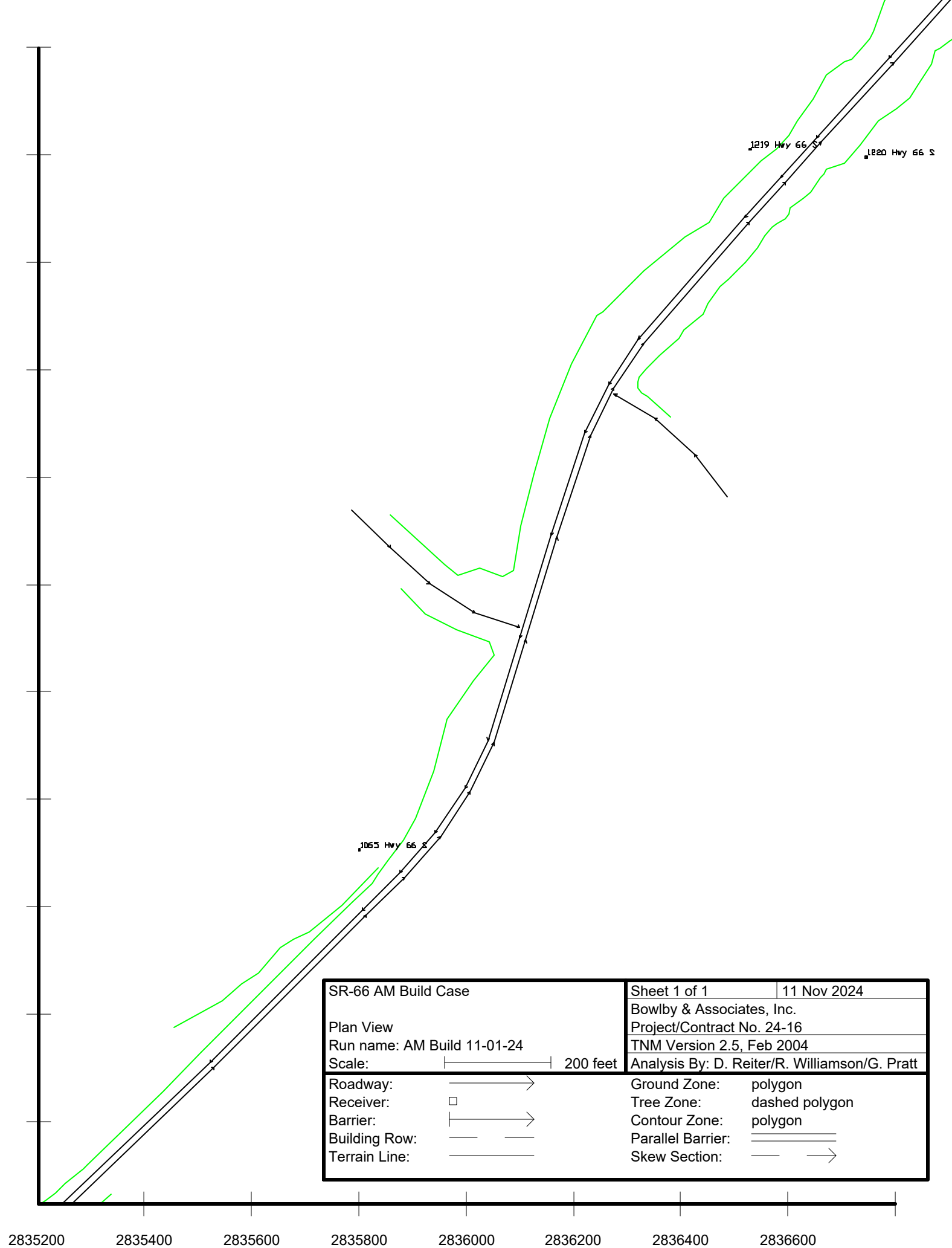


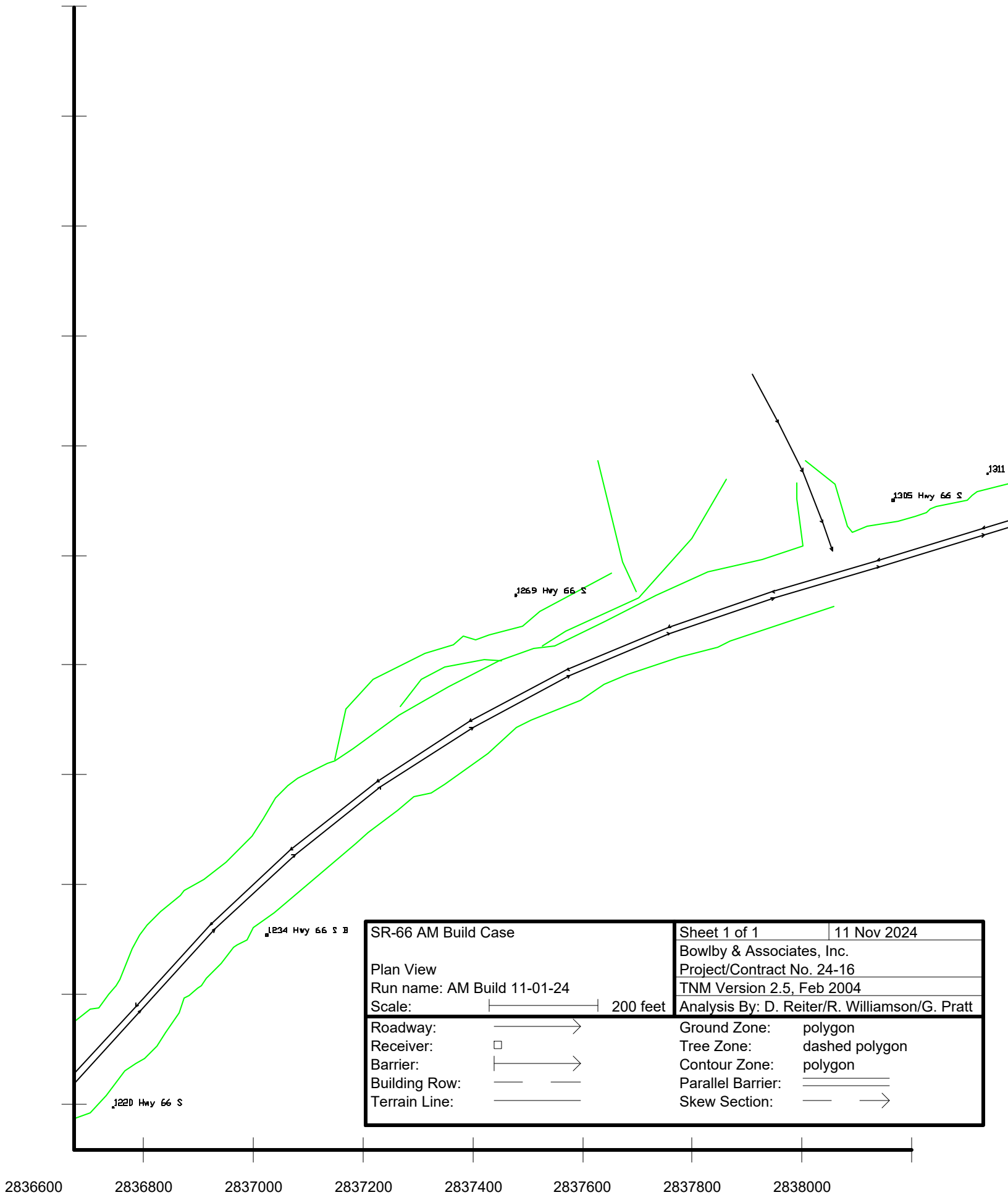
SR-66 AM Build Case		Sheet 1 of 1	11 Nov 2024
Plan View		Bowlby & Associates, Inc.	
Run name: AM Build 11-01-24		Project/Contract No. 24-16	
Scale: 		TNM Version 2.5, Feb 2004	
Roadway: 		Analysis By: D. Reiter/R. Williamson/G. Pratt	
Receiver: 		Ground Zone:	polygon
Barrier: 		Tree Zone:	dashed polygon
Building Row: 		Contour Zone:	polygon
Terrain Line: 		Parallel Barrier:	
		Skew Section:	











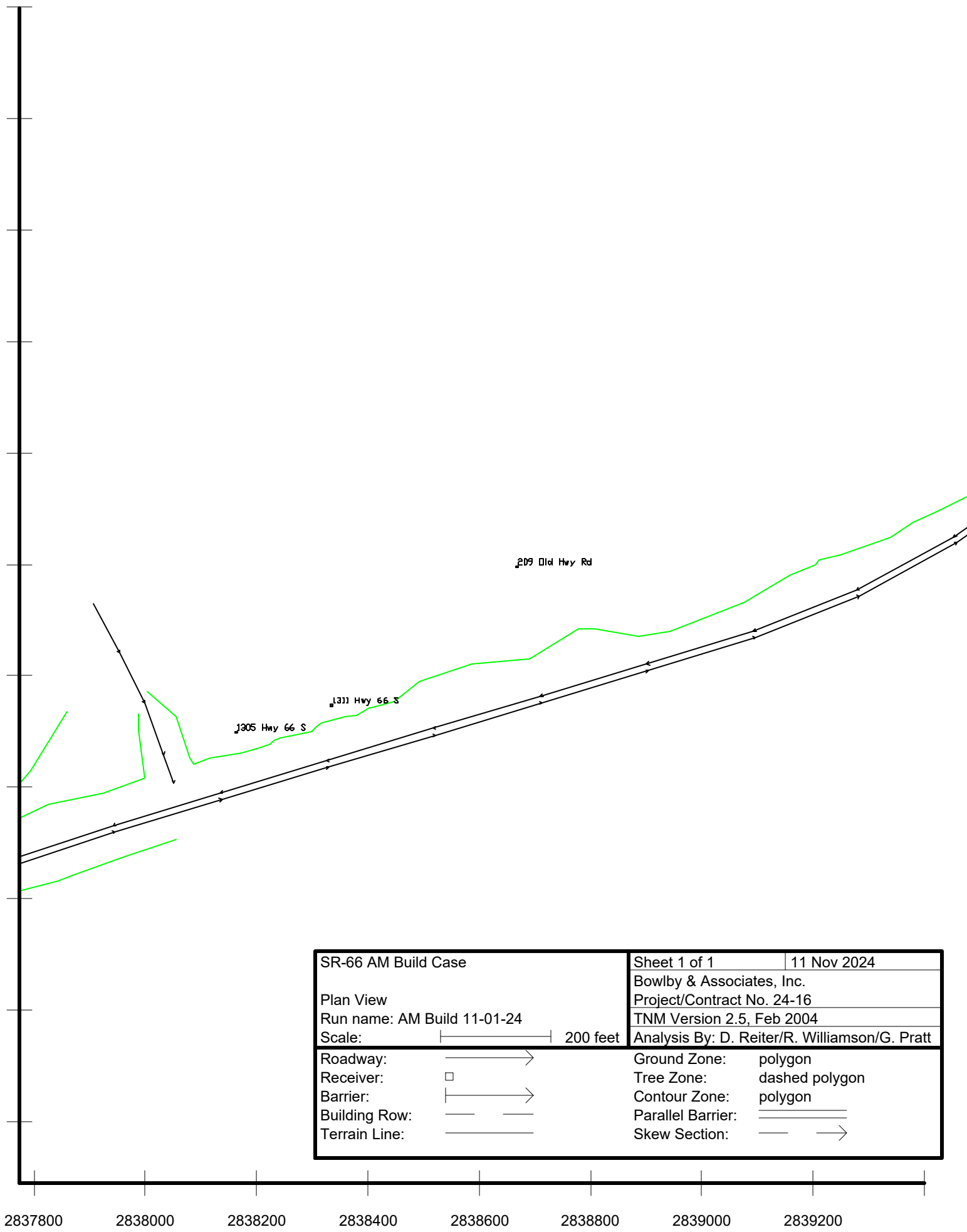
SR-66 AM Build Case		Sheet 1 of 1	11 Nov 2024
Plan View		Bowlby & Associates, Inc.	
Run name: AM Build 11-01-24		Project/Contract No. 24-16	
Scale: 		TNM Version 2.5, Feb 2004	
Analysis By: D. Reiter/R. Williamson/G. Pratt			
Roadway: 	Ground Zone: 	polygon	
Receiver: 	Tree Zone: 	dashed polygon	
Barrier: 	Contour Zone: 	polygon	
Building Row: 	Parallel Barrier: 		
Terrain Line: 	Skew Section: 		



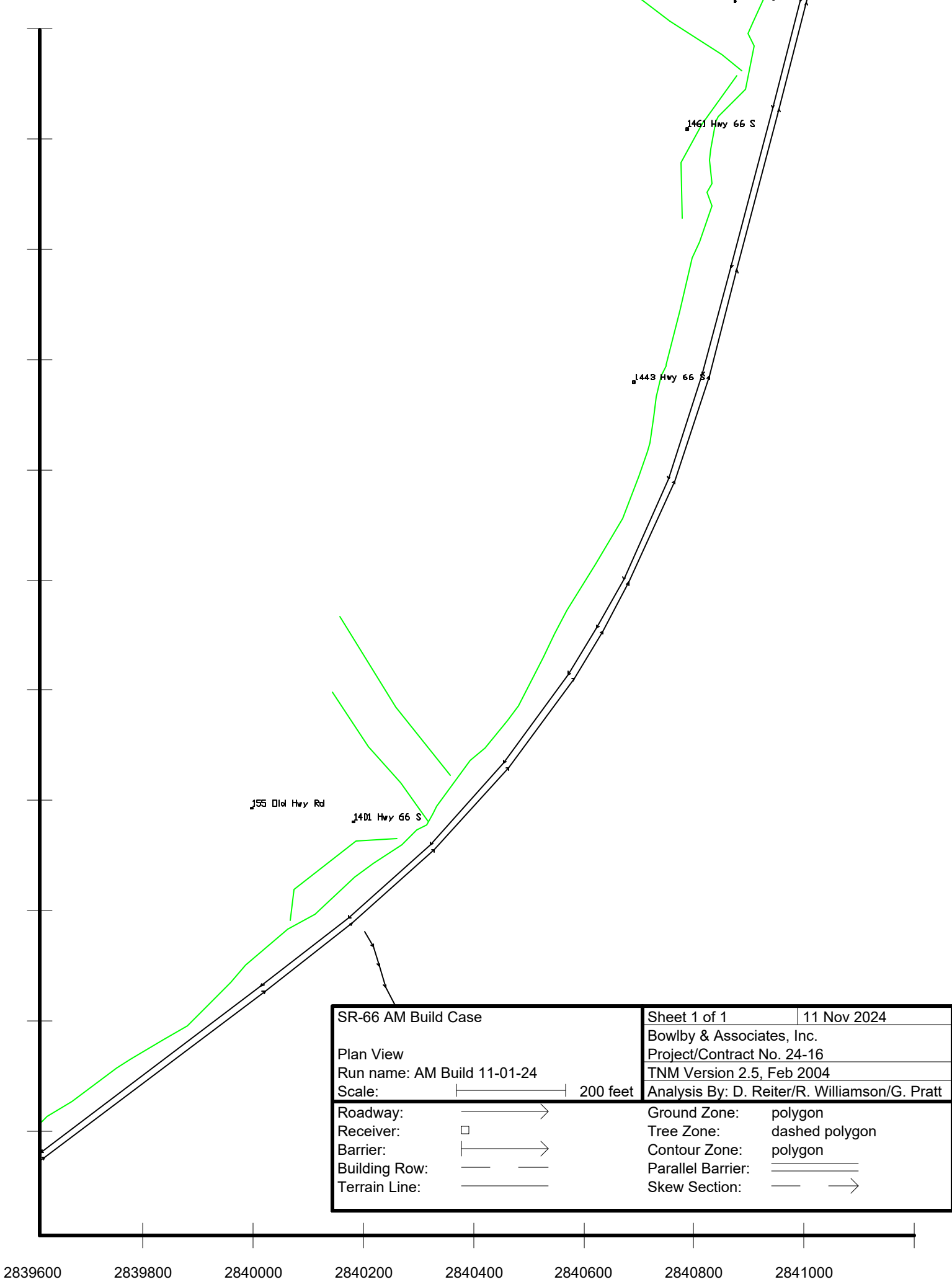


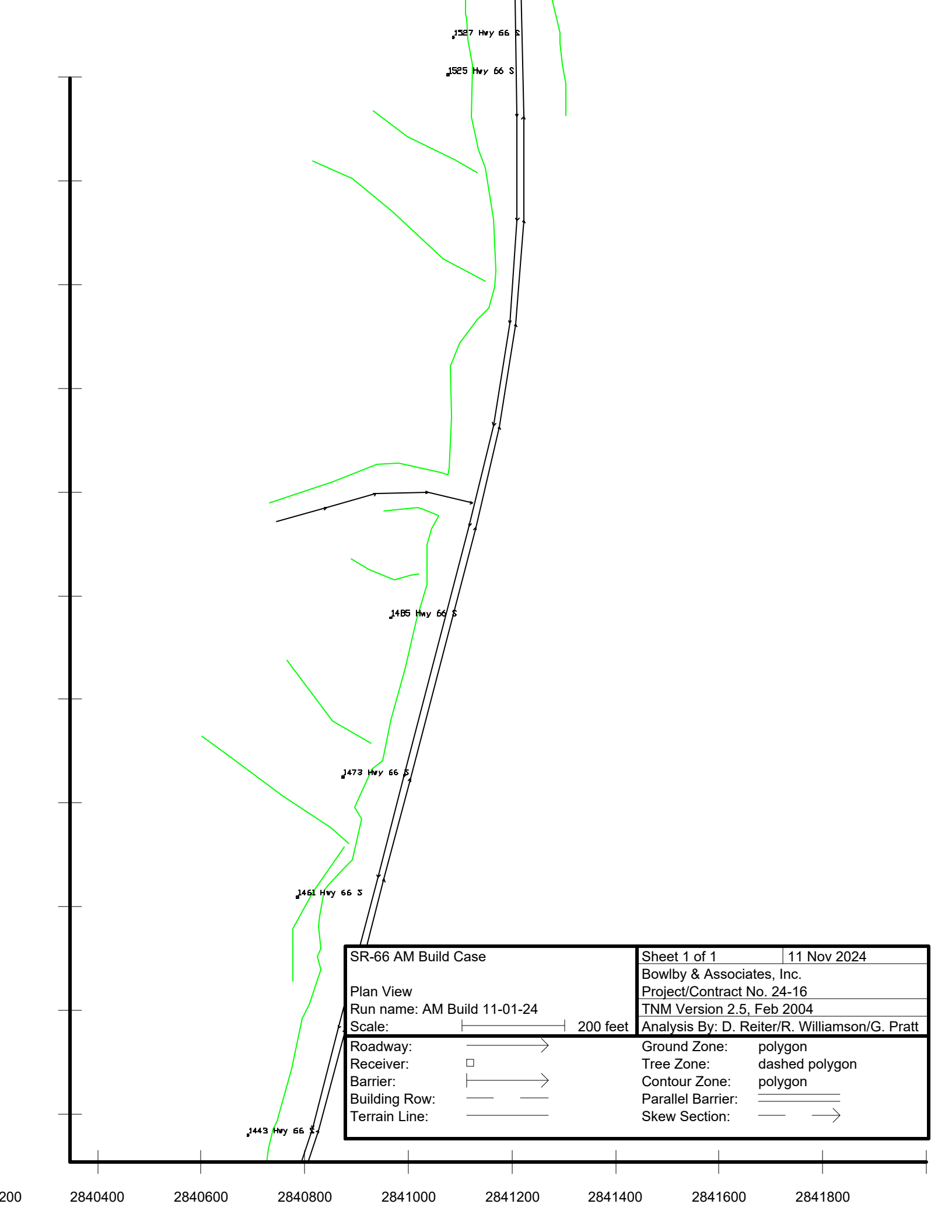


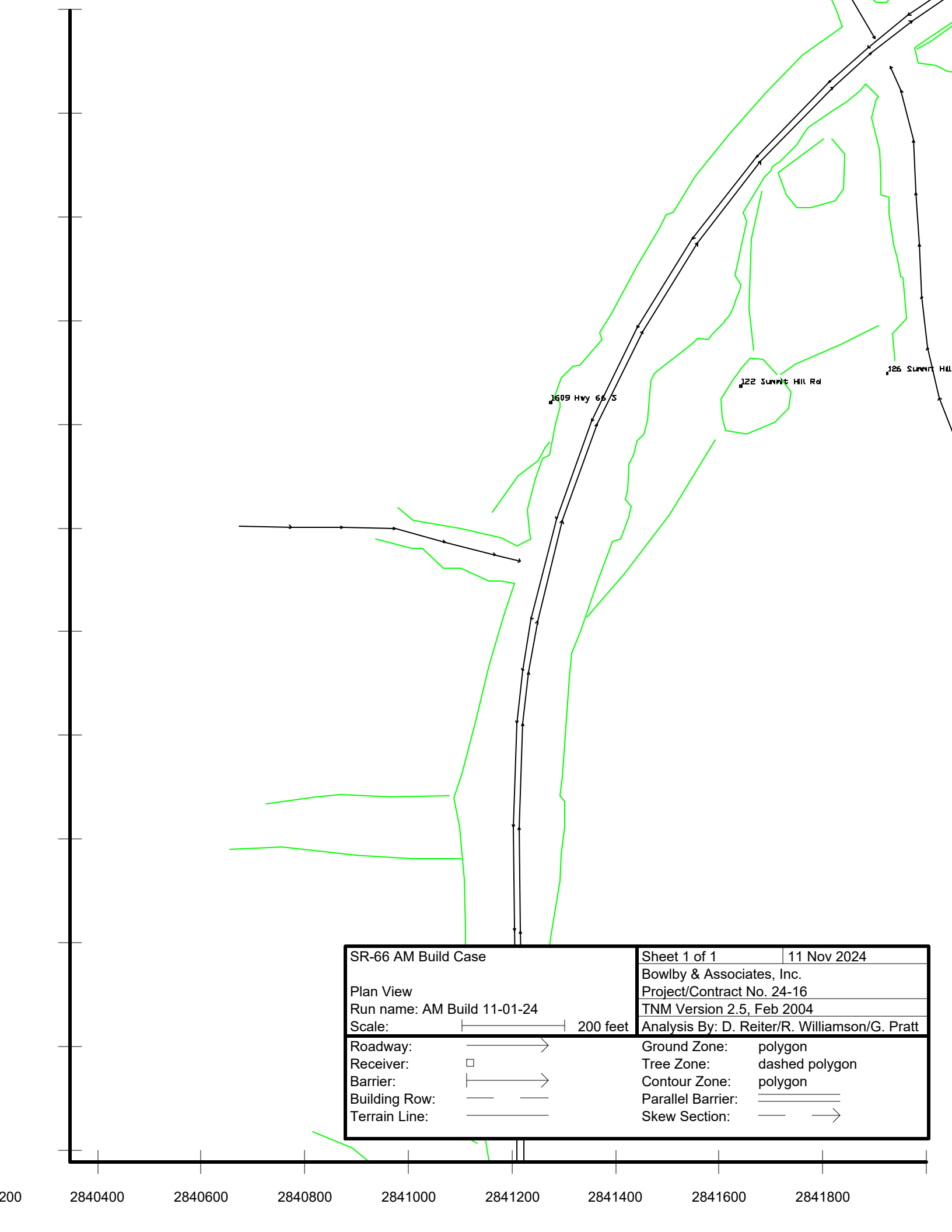
SR-66 AM Build Case		Sheet 1 of 1	11 Nov 2024
Plan View		Bowlby & Associates, Inc.	
Run name: AM Build 11-01-24		Project/Contract No. 24-16	
Scale:  200 feet		TNM Version 2.5, Feb 2004	
Roadway: 		Analysis By: D. Reiter/R. Williamson/G. Pratt	
Receiver: 		Ground Zone: polygon	
Barrier: 		Tree Zone: dashed polygon	
Building Row: 		Contour Zone: polygon	
Terrain Line: 		Parallel Barrier: 	
		Skew Section: 	











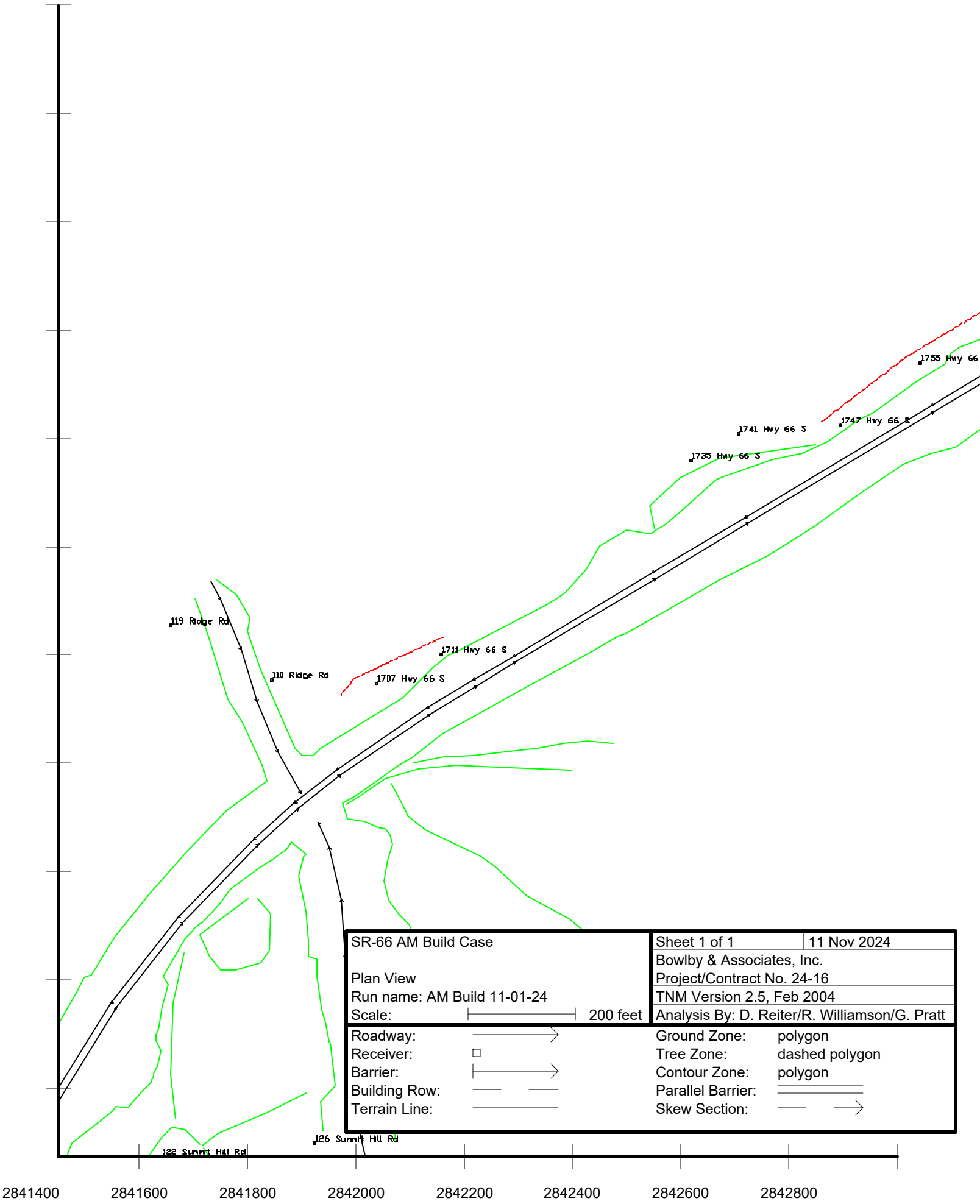




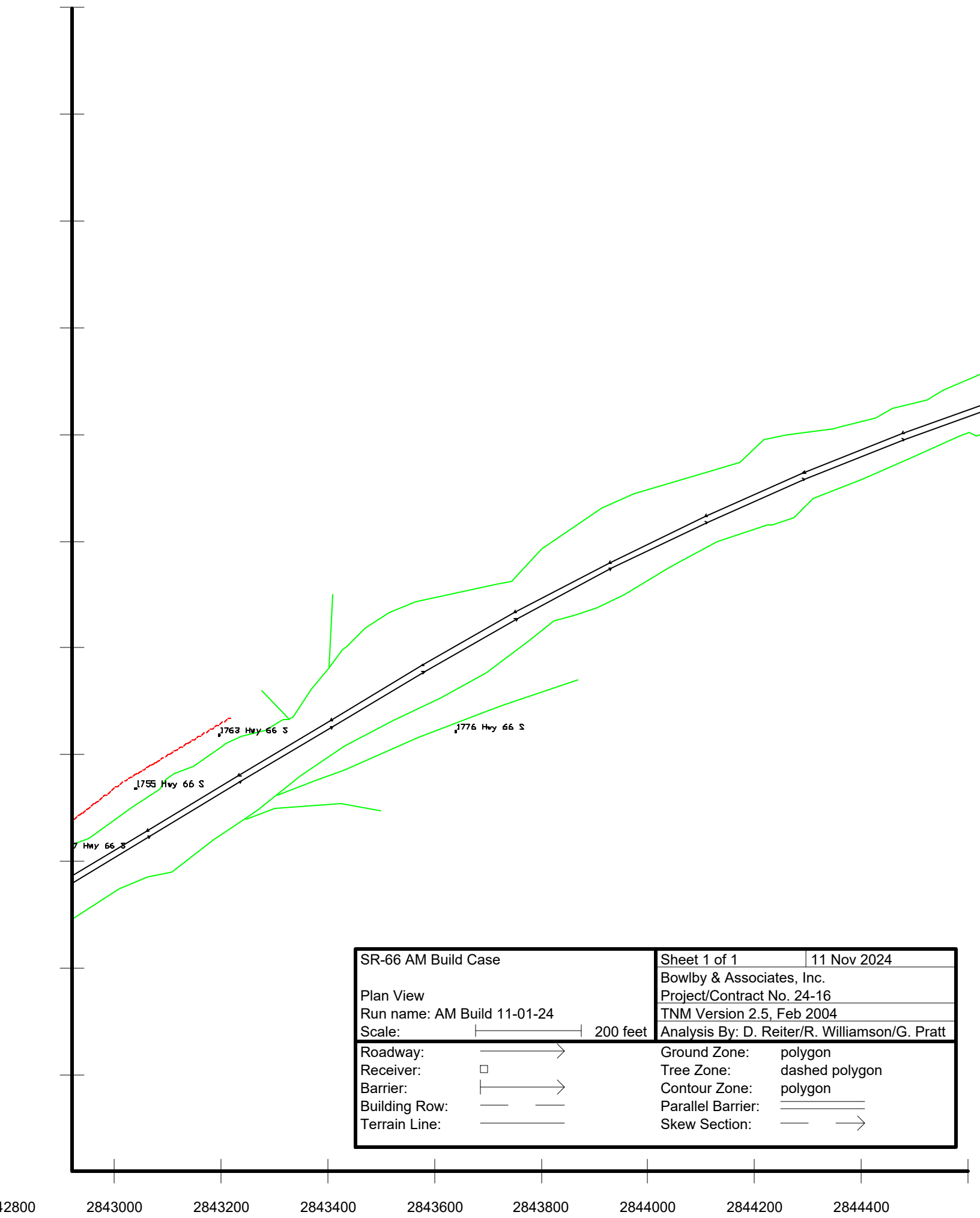


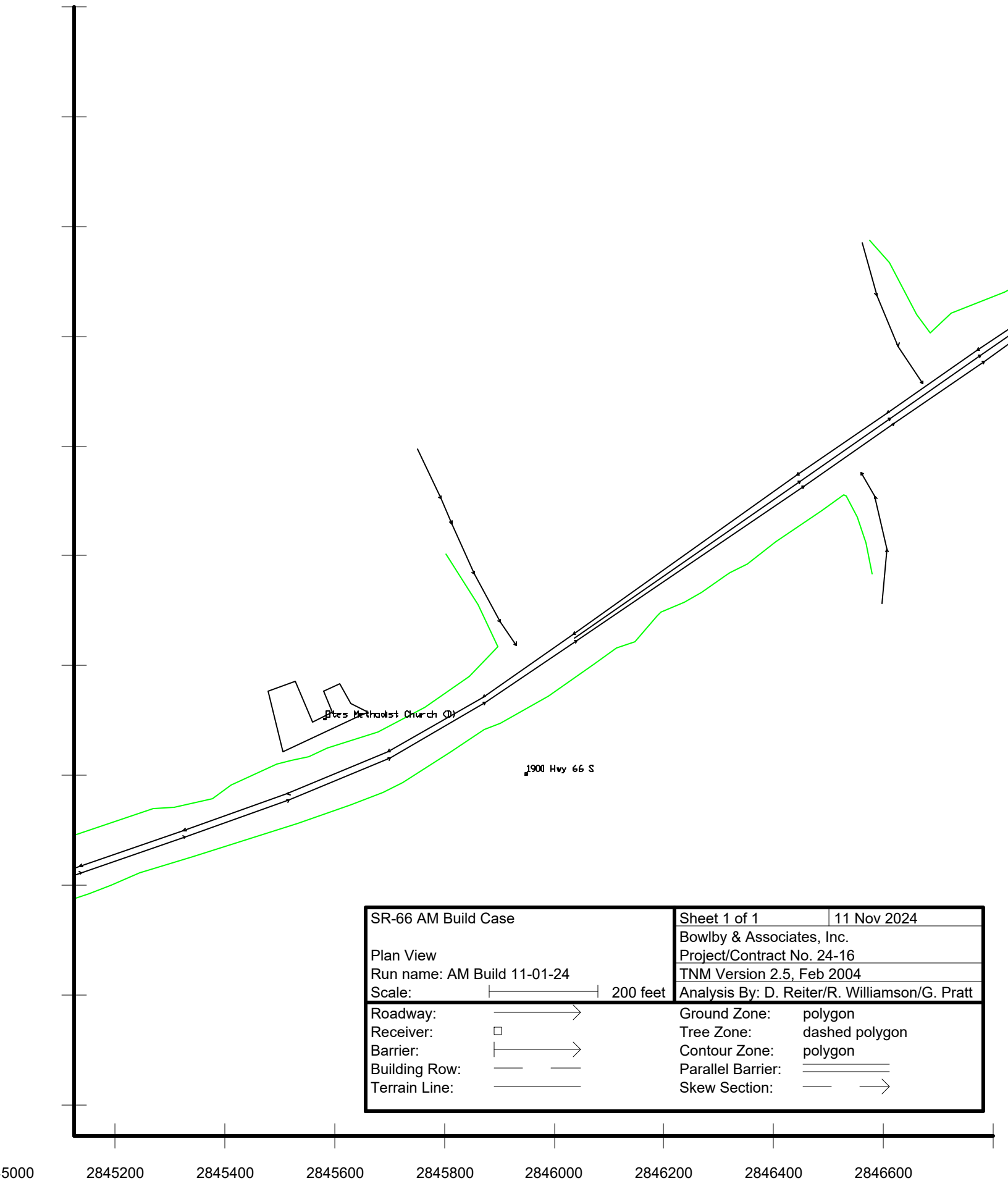


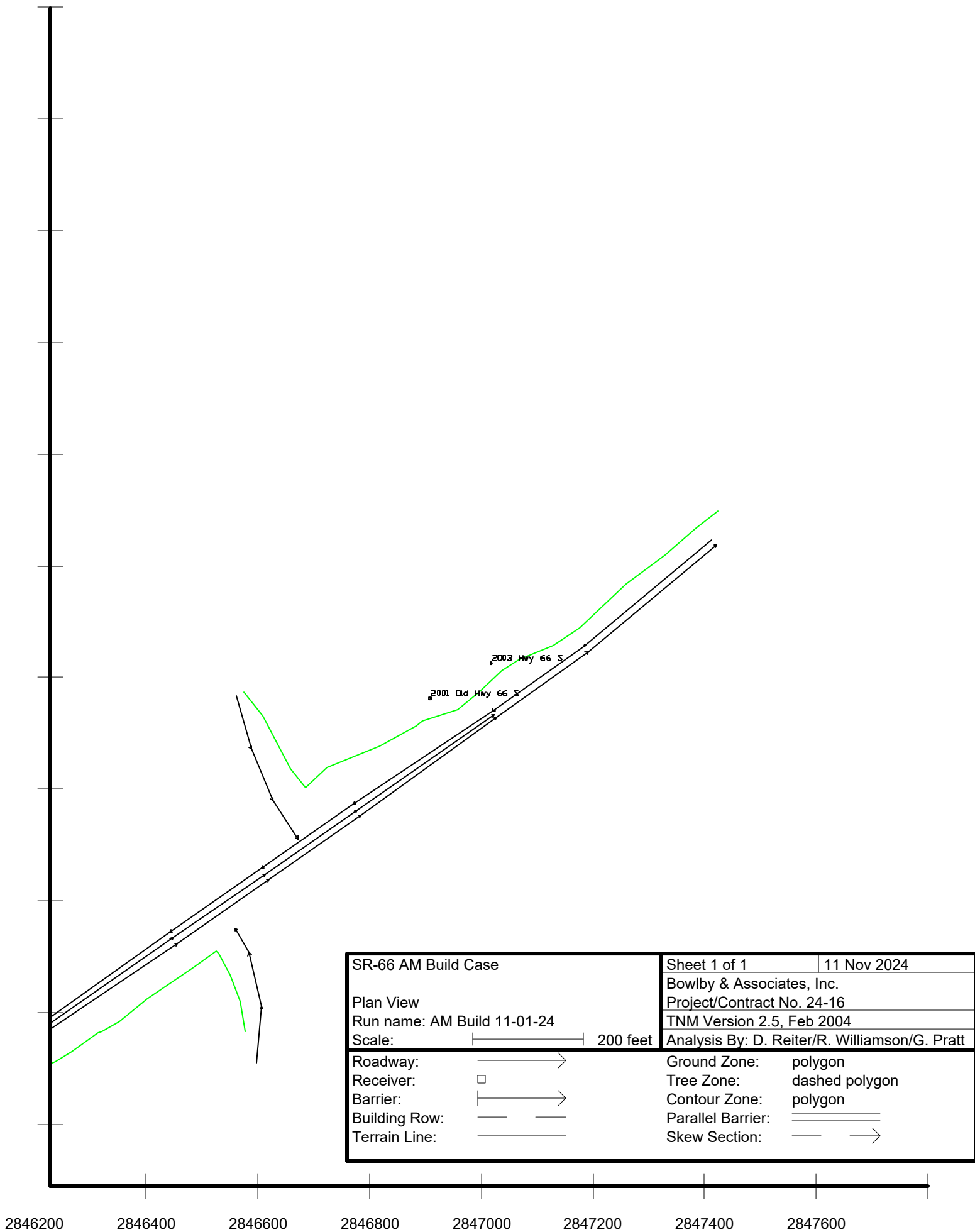
SR-66 AM Build Case		Sheet 1 of 1	11 Nov 2024
Plan View		Bowlby & Associates, Inc.	
Run name: AM Build 11-01-24		Project/Contract No. 24-16	
Scale: 		TNM Version 2.5, Feb 2004	
Roadway: 		Analysis By: D. Reiter/R. Williamson/G. Pratt	
Receiver: 		Ground Zone: polygon	
Barrier: 		Tree Zone: dashed polygon	
Building Row: 		Contour Zone: polygon	
Terrain Line: 		Parallel Barrier: 	
		Skew Section: 	











**Appendix D**  
**Existing and Design Year Noise Levels and Impacts**



<b>Project:</b>	SR-66
<b>Project #:</b>	37005-1237-14
<b>County:</b>	Hawkins
<b>Noise Study Area:</b>	NAA 1
<b>Description:</b>	SR-34 to Magnolia Avenue
<b>Design Year:</b>	2048
<b>Alternative:</b>	Build

NAA 1 - BUILD IMPACTS	
Category B Impacts	0
Category C Impacted Land Uses	0
Category D Impacted Land Uses	0
Category E Impacted Land Uses	0
Total Impacts	0
Total 1st row Impacts	0

						EXISTING	BUILD						
Receiver Number	TNM Receiver Name	FHWA Activity Category	# of Residences	1st row? (Yes/No)	Background level, dBA	Predicted Existing, dBA (with background)	Predicted Build, dBA (with Background)	Approach/ Exceed NAC?	Increase (dBA)	Substantial Increase?	Build Noise Impact?	Impacted Residences	
01-01	112 York St	B	1	---	40.0	51.2	53.6	No	2.4	No	No	0	
01-02	111 York St	B	1	---	40.0	51.0	53.1	No	2.1	No	No	0	
01-03	113 York St	B	1	---	40.0	47.8	49.3	No	1.5	No	No	0	
01-04	107 Quillen Ave	B	1	---	40.0	52.0	54.7	No	2.7	No	No	0	
01-05	200 N Main St	B	1	---	40.0	59.0	60.5	No	1.5	No	No	0	
01-06	121 Hill Ave	B	1	---	40.0	59.6	60.4	No	0.8	No	No	0	
01-07	109 Hill Ave	B	1	---	40.0	51.4	53.7	No	2.3	No	No	0	
01-08	108 Hill Ave	B	1	---	40.0	49.0	52.3	No	3.3	No	No	0	
01-09	110 Hill Ave	B	1	---	40.0	47.2	49.4	No	2.2	No	No	0	
01-10	114 Hill Ave	B	1	---	40.0	45.7	47.5	No	1.8	No	No	0	
01-11	115 Hill Ave	B	1	---	40.0	47.2	48.1	No	0.9	No	No	0	
01-12	230 N Main St	B	1	---	40.0	62.8	61.8	No	-1.0	No	No	0	
01-13	215 N Main St	B	1	---	40.0	61.4	62.6	No	1.2	No	No	0	
01-14	213 N Main St	B	1	---	40.0	59.4	60.8	No	1.4	No	No	0	
01-15	207 N Main St	B	1	---	40.0	59.4	60.7	No	1.3	No	No	0	
01-16	201 N Main St	B	1	---	40.0	54.2	56.0	No	1.8	No	No	0	
01-17	123 N Main St	B	1	---	40.0	54.0	54.9	No	0.9	No	No	0	
01-18	114 Elmwood Ave	B	1	---	40.0	49.3	51.0	No	1.7	No	No	0	
01-19	112 Elmood Ave	B	1	---	40.0	49.3	51.1	No	1.8	No	No	0	
01-20	108 Elmwood Ave	B	1	---	40.0	51.9	52.7	No	0.8	No	No	0	
01-21	111 Couch St	B	1	---	40.0	51.3	53.3	No	2.0	No	No	0	
01-22	117 N Main St (Take)	Take	0	---	40.0	63.6	Take	Take	Take	Take	Take	0	
01-23	114 N Main St (Take)	Take	0	---	40.0	65.4	Take	Take	Take	Take	Take	0	
01-24	120 N Main St (Take)	Take	0	---	40.0	65.4	Take	Take	Take	Take	Take	0	
01-25	208 N Main St (Take)	Take	0	---	40.0	63.2	Take	Take	Take	Take	Take	0	
01-26	216 N Main St (Take)	Take	0	---	40.0	60.6	Take	Take	Take	Take	Take	0	
01-27	219 N Main St (Take)	Take	0	---	40.0	59.5	Take	Take	Take	Take	Take	0	
01-28	100 Quillen Ave (Take)	Take	0	---	40.0	51.8	Take	Take	Take	Take	Take	0	

<b>Project:</b>	SR-66
<b>Project #:</b>	37005-1237-14
<b>County:</b>	Hawkins
<b>Noise Study Area:</b>	NAA 2
<b>Description:</b>	Magnolia Avenue to north of Barette Drive
<b>Design Year:</b>	2048
<b>Alternative:</b>	Build

NAA 2 - BUILD IMPACTS	
Category B Impacts	1
Category C Impacted Land Uses	0
Category D Impacted Land Uses	0
Category E Impacted Land Uses	0
Total Impacts	1
Total 1st row Impacts	0

						EXISTING	BUILD						
Receiver Number	TNM Receiver Name	FHWA Activity Category	# of Residences	1st row? (Yes/No)	Background level, dBA	Predicted Existing, dBA (with background)	Predicted Build, dBA (with Background)	Approach/ Exceed NAC?	Increase (dBA)	Substantial Increase?	Build Noise Impact?	Impacted Residences	
02-01	117 Willow Ave	B	1	---	40.0	45.2	46.1	No	0.9	No	No	0	
02-02	300 Hillcrest Ln	B	1	---	40.0	57.3	58.7	No	1.4	No	No	0	
02-03	304 Hillcrest Ln	B	1	---	40.0	53.0	56.1	No	3.1	No	No	0	
02-04	301 Hillcrest Ln (Take)	Take	1	---	40.0	60.3	Take	Take	Take	Take	Take	0	
02-05	310 Hillcrest Ln	B	1	---	40.0	47.6	50.6	No	3.0	No	No	0	
02-06	Oak Grove Baptist Church (D)	D	0	---	30.0	32.8	38.3	No	5.5	No	No	0	
02-07	492 N Main St	B	1	---	40.0	59.7	64.9	No	5.2	No	No	0	
02-08	494 N Main St	B	1	---	40.0	60.1	64.7	No	4.6	No	No	0	
02-09	498 N Main St	B	1	---	40.0	59.4	64.0	No	4.6	No	No	0	
02-10	107 Glenwood Ave	B	1	---	40.0	51.5	58.8	No	7.3	No	No	0	
02-11	109 Glenwood Ave	B	1	---	40.0	48.0	55.2	No	7.2	No	No	0	
02-12	112 Glenwood Ave	B	1	---	40.0	48.7	56.0	No	7.3	No	No	0	
02-13	528 N Main St	B	1	---	40.0	60.9	64.9	No	4.0	No	No	0	
02-14	106 Harmon St	B	1	---	40.0	54.0	60.3	No	6.3	No	No	0	
02-15	110 Harmon St	B	1	---	40.0	49.2	53.9	No	4.7	No	No	0	
02-16	840 N Main St	B	1	---	40.0	60.0	62.9	No	2.9	No	No	0	
02-17	848 N Main St	B	1	---	40.0	59.9	66.6	Yes	6.7	No	Yes	1	
02-18	945 N Main St	B	1	---	40.0	47.8	52.8	No	5.0	No	No	0	
02-19	110 Goan Dr	B	1	---	40.0	50.3	54.7	No	4.4	No	No	0	
02-20	101 Goan Dr	B	1	---	40.0	58.6	63.9	No	5.3	No	No	0	
02-21	102 Goan Dr	B	1	---	40.0	50.2	54.7	No	4.5	No	No	0	
02-22	921 N Main St	B	1	---	40.0	52.9	58.0	No	5.1	No	No	0	
02-23	913 N Main St	B	1	---	40.0	55.2	60.6	No	5.4	No	No	0	
02-24	905 N Main St	B	1	---	40.0	58.2	62.3	No	4.1	No	No	0	
02-25	102 Meadowview Rd	B	1	---	40.0	49.4	53.4	No	4.0	No	No	0	
02-26	103 Meadowview Rd	B	1	---	40.0	57.7	63.0	No	5.3	No	No	0	
02-27	105 Meadowview Rd	B	1	---	40.0	51.1	56.9	No	5.8	No	No	0	
02-28	833 N Main St	B	1	---	40.0	49.2	56.3	No	7.1	No	No	0	
02-29	N Main St - Grigsby Farm	B	1	---	40.0	56.3	64.9	No	8.6	No	No	0	
02-30	743 N Main St	B	1	---	40.0	51.6	59.8	No	8.2	No	No	0	
02-31	110 N Shepherd Dr	B	1	---	40.0	49.9	57.3	No	7.4	No	No	0	
02-32	109 N Shepherd Dr	B	1	---	40.0	48.0	54.3	No	6.3	No	No	0	
02-33	507 N Main St	B	1	---	40.0	53.2	60.3	No	7.1	No	No	0	
02-34	505 N Main St	B	1	---	40.0	52.5	60.8	No	8.3	No	No	0	
02-35	102 Easy St	B	1	---	40.0	51.0	60.1	No	9.1	No	No	0	
02-36	110 Easy St	B	1	---	40.0	47.2	54.1	No	6.9	No	No	0	

						EXISTING	BUILD						
Receiver Number	TNM Receiver Name	FHWA Activity Category	# of Residences	1st row? (Yes/No)	Background level, dBA	Predicted Existing, dBA (with background)	Predicted Build, dBA (with Background)	Approach/ Exceed NAC?	Increase (dBA)	Substantial Increase?	Build Noise Impact?	Impacted Residences	
02-37	501 N Main St	B	1	---	40.0	54.3	62.2	No	7.9	No	No	0	
02-38	491 N Main St	B	1	---	40.0	54.9	62.7	No	7.8	No	No	0	
02-39	415 N Main St	B	1	---	40.0	59.4	64.3	No	4.9	No	No	0	
02-40	413 N Main St	B	1	---	40.0	53.0	58.4	No	5.4	No	No	0	
02-41	110 Kite St	B	1	---	40.0	48.3	52.1	No	3.8	No	No	0	
02-42	115 Kite St	B	1	---	40.0	49.0	52.3	No	3.3	No	No	0	
02-43	335 Allen Dr	B	1	---	40.0	53.4	55.2	No	1.8	No	No	0	
02-44	329 Allen Dr	B	1	---	40.0	47.5	49.4	No	1.9	No	No	0	
02-45	Bulls Gap School Playground (C)	C	0	---	40.0	47.9	49.0	No	1.1	No	No	0	
02-46	332 Allen Dr	B	1	---	40.0	59.9	60.3	No	0.4	No	No	0	
02-47	107 Melrose Ave (Take)	Take	0	---	40.0	50.9	Take	Take	Take	Take	Take	0	
02-48	314 Willow Ave (Take)	Take	0	---	40.0	64.1	Take	Take	Take	Take	Take	0	
02-49	308 Hillcrest Ln (Take)	Take	0	---	40.0	50.2	Take	Take	Take	Take	Take	0	
02-50	336 N Main St (Take)	Take	0	---	40.0	59.6	Take	Take	Take	Take	Take	0	
02-51	432 N Main St (Take)	Take	0	---	40.0	63.2	Take	Take	Take	Take	Take	0	
02-52	500 N Main St (Take)	Take	0	---	40.0	63.8	Take	Take	Take	Take	Take	0	
02-53	100 Harmon St (Take)	Take	0	---	40.0	64.0	Take	Take	Take	Take	Take	0	
02-54	904 N Main St (Take)	Take	0	---	40.0	67.0	Take	Take	Take	Take	Take	0	
02-55	100 Goan Dr (Take)	Take	0	---	40.0	59.3	Take	Take	Take	Take	Take	0	
02-56	751 N Main St (Take)	Take	0	---	40.0	57.7	Take	Take	Take	Take	Take	0	
02-57	615 N Main St (Take)	Take	0	---	40.0	56.2	Take	Take	Take	Take	Take	0	
02-58	321 Allen Dr (Take)	Take	0	---	40.0	51.0	Take	Take	Take	Take	Take	0	

<b>Project:</b>	SR-66
<b>Project #:</b>	37005-1237-14
<b>County:</b>	Hawkins
<b>Noise Study Area:</b>	NAA 3
<b>Description:</b>	North of Barette Drive tp Guthrie Gap Road
<b>Design Year:</b>	2048
<b>Alternative:</b>	Build

NAA 3 - BUILD IMPACTS	
Category B Impacts	0
Category C Impacted Land Uses	0
Category D Impacted Land Uses	0
Category E Impacted Land Uses	0
Total Impacts	0
Total 1st row Impacts	0

						EXISTING	BUILD						
Receiver Number	TNM Receiver Name	FHWA Activity Category	# of Residences	1st row? (Yes/No)	Background level, dBA	Predicted Existing, dBA (with background)	Predicted Build, dBA (with Background)	Approach/ Exceed NAC?	Increase (dBA)	Substantial Increase?	Build Noise Impact?	Impacted Residences	
03-01	996 Hwy 66 S	B	1	---	40.0	60.6	63.2	No	2.6	No	No	0	
03-02	1000 Hwy 66 S	B	1	---	40.0	62.5	64.5	No	2.0	No	No	0	
03-03	1065 Hwy 66 S	B	1	---	40.0	61.3	62.3	No	1.0	No	No	0	
03-04	1027 Hwy 66 S	B	1	---	40.0	65.7	65.3	No	-0.4	No	No	0	
03-05	Trinity Pentecostal Church Bench (C)	C	0	---	40.0	53.1	58.5	No	5.4	No	No	0	
03-06	961 N Main St	B	1	---	40.0	52.5	59.5	No	7.0	No	No	0	
03-07	965 N Main St (Take)	Take	1	---	40.0	62.6	Take	Take	Take	Take	Take	0	
03-08	957 N Main St	B	1	---	40.0	49.2	55.1	No	5.9	No	No	0	
03-09	109 Pleasant Hill Rd (Take)	Take	0	---	40.0	61.4	Take	Take	Take	Take	Take	0	



<b>Project:</b>	SR-66
<b>Project #:</b>	37005-1237-14
<b>County:</b>	Hawkins
<b>Noise Study Area:</b>	NAA 4
<b>Description:</b>	Guthrie Gap Road to north of Rong Road
<b>Design Year:</b>	2048
<b>Alternative:</b>	Build

NAA 4 - BUILD IMPACTS	
Category B Impacts	0
Category C Impacted Land Uses	0
Category D Impacted Land Uses	0
Category E Impacted Land Uses	0
Total Impacts	0
Total 1st row Impacts	0

						EXISTING	BUILD						
Receiver Number	TNM Receiver Name	FHWA Activity Category	# of Residences	1st row? (Yes/No)	Background level, dBA	Predicted Existing, dBA (with background)	Predicted Build, dBA (with Background)	Approach/ Exceed NAC?	Increase (dBA)	Substantial Increase?	Build Noise Impact?	Impacted Residences	
04-01	1220 Hwy 66 S	B	1	---	40.0	60.1	59.9	No	-0.2	No	No	0	
04-02	1234 Hwy 66 S B	B	1	---	40.0	60.3	61.0	No	0.7	No	No	0	
04-03	1485 Hwy 66 S	B	1	---	40.0	60.7	64.6	No	3.9	No	No	0	
04-04	1473 Hwy 66 S	B	1	---	40.0	60.3	64.1	No	3.8	No	No	0	
04-05	1461 Hwy 66 S	B	1	---	40.0	57.1	62.7	No	5.6	No	No	0	
04-06	1443 Hwy 66 S	B	1	---	40.0	59.3	64.1	No	4.8	No	No	0	
04-07	1401 Hwy 66 S	B	1	---	40.0	56.4	62.8	No	6.4	No	No	0	
04-08	155 Old Hwy Rd	B	1	---	40.0	50.7	55.7	No	5.0	No	No	0	
04-09	209 Old Hwy Rd	B	1	---	40.0	51.8	56.6	No	4.8	No	No	0	
04-10	1311 Hwy 66 S	B	1	---	40.0	61.8	65.1	No	3.3	No	No	0	
04-11	1305 Hwy 66 S	B	1	---	40.0	61.6	64.9	No	3.3	No	No	0	
04-12	1269 Hwy 66 S	B	1	---	40.0	56.3	61.5	No	5.2	No	No	0	
04-13	1219 Hwy 66 S	B	1	---	40.0	60.3	62.7	No	2.4	No	No	0	
04-14	1202 Hwy 66 S (Take)	Take	0	---	40.0	68.4	Take	Take	Take	Take	Take	0	
04-15	1234 Hwy 66 S A (Take)	Take	0	---	40.0	65.9	Take	Take	Take	Take	Take	0	
04-16	1236 Hwy 66 S (Take)	Take	0	---	40.0	64.1	Take	Take	Take	Take	Take	0	
04-17	1248 Hwy 66 S (Take)	Take	0	---	40.0	65.7	Take	Take	Take	Take	Take	0	
04-18	1320 Hwy 66 S (Take)	Take	0	---	40.0	67.5	Take	Take	Take	Take	Take	0	
04-19	1476 Hwy 66 S (Take)	Take	0	---	40.0	65.2	Take	Take	Take	Take	Take	0	
04-20	1347 Hwy 66 S A (Take)	Take	0	---	40.0	65.9	Take	Take	Take	Take	Take	0	
04-21	1347 Hwy 66 S B (Take)	Take	0	---	40.0	64.9	Take	Take	Take	Take	Take	0	

<b>Project:</b>	SR-66
<b>Project #:</b>	37005-1237-14
<b>County:</b>	Hawkins
<b>Noise Study Area:</b>	NAA 5
<b>Description:</b>	North of Rong Road to Project End
<b>Design Year:</b>	2048
<b>Alternative:</b>	Build

NAA 5 - BUILD IMPACTS	
Category B Impacts	4
Category C Impacted Land Uses	0
Category D Impacted Land Uses	0
Category E Impacted Land Uses	0
Total Impacts	4
Total 1st row Impacts	0

						EXISTING	BUILD						
Receiver Number	TNM Receiver Name	FHWA Activity Category	# of Residences	1st row? (Yes/No)	Background level, dBA	Predicted Existing, dBA (with background)	Predicted Build, dBA (with Background)	Approach/ Exceed NAC?	Increase (dBA)	Substantial Increase?	Build Noise Impact?	Impacted Residences	
05-01	122 Summit Hill Rd	B	1	---	40.0	50.8	53.6	No	2.8	No	No	0	
05-02	126 Summit Hill Rd	B	1	---	40.0	49.2	49.8	No	0.6	No	No	0	
05-03	1776 Hwy 66 S	B	1	---	40.0	65.8	59.4	No	-6.4	No	No	0	
05-04	1900 Hwy 66 S	B	1	---	40.0	57.0	61.7	No	4.7	No	No	0	
05-05	2003 Hwy 66 S	B	1	---	40.0	62.7	66.0	Yes	3.3	No	Yes	1	
05-06	2001 Old Hwy 66 S	B	1	---	40.0	61.8	65.2	No	3.4	No	No	0	
05-07	Otes Methodist Church (D)	D	0	---	30.0	37.6	40.1	No	2.5	No	No	0	
05-08	1763 Hwy 66 S	B	1	---	40.0	59.0	65.4	No	6.4	No	No	0	
05-09	1755 Hwy 66 S	B	1	---	40.0	60.5	65.5	Yes	5.0	No	Yes	1	
05-10	1747 Hwy 66 S	B	1	---	40.0	63.2	67.3	Yes	4.1	No	Yes	1	
05-11	1741 Hwy 66 S	B	1	---	40.0	55.2	62.5	No	7.3	No	No	0	
05-12	1735 Hwy 66 S	B	1	---	40.0	55.3	62.7	No	7.4	No	No	0	
05-13	1711 Hwy 66 S	B	1	---	40.0	59.9	66.2	Yes	6.3	No	Yes	1	
05-14	1707 Hwy 66 S	B	1	---	40.0	58.2	64.7	No	6.5	No	No	0	
05-15	110 Ridge Rd	B	1	---	40.0	55.7	59.4	No	3.7	No	No	0	
05-16	119 Ridge Rd	B	1	---	40.0	49.2	54.9	No	5.7	No	No	0	
05-17	1609 Hwy 66 S	B	1	---	40.0	63.9	65.2	No	1.3	No	No	0	
05-18	1527 Hwy 66 S	B	1	---	40.0	63.5	58.5	No	-5.0	No	No	0	
05-19	1525 Hwy 66 S	B	1	---	40.0	61.1	58.1	No	-3.0	No	No	0	
05-20	1724 Hwy 66 S (Take)	Take	0	---	40.0	69.1	Take	Take	Take	Take	Take	0	
05-21	105 Speedwell Rd (Take)	Take	0	---	40.0	59.3	Take	Take	Take	Take	Take	0	
05-22	1845 Hwy 66 S (Take)	Take	0	---	40.0	65.6	Take	Take	Take	Take	Take	0	
05-23	1727 Hwy 66 S (Take)	Take	0	---	40.0	66.2	Take	Take	Take	Take	Take	0	
05-24	1701 Hwy 66 S (Take)	Take	0	---	40.0	63.2	Take	Take	Take	Take	Take	0	



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