Appendix D

Visual Impact Assessment Scoping Questionnaire

Visual Impact Assessment Scoping Questionnaire

Project Name: NE J Street Interchange

Location: Bentonville, Benton County, AR

Special Conditions/Notes: Conducted By: CP Schmidt, Garver

Environmental Compatibility

1. *Will the project result in a noticeable change in the physical characteristics of the existing environment?* (Consider all project components and construction impacts - both permanent and temporary, including landform changes, structures, noise barriers, vegetation removal, railing, signage, and contractor activities.)

- ☐ High level of permanent change (3)
- ☐ Moderate level of permanent change (2)
- ☑ Low level of permanent or temporary change (1)
- ☐ No Noticeable Change (0)

2. *Will the project complement or contrast with the visual character desired by the community?* (Evaluate the scale and extent of the project features compared to the surrounding scale of the community. Is the project likely to give an urban appearance to an existing rural or suburban community? Do you anticipate that the change will be viewed by the public as positive or negative? Research planning documents, or talk with local planners and community representatives to understand the type of visual environment local residents envision for their community.)

- ☐ Low Compatibility (3)
- ☐ Moderate Compatibility (2)
- ☑ High compatibility (1)

3. *What level of local concern is there for the types of project features (e.g., bridge structures, large excavations, sound barriers, or median planting removal) and construction impacts that are proposed?* (Certain project improvements can be of special interest to local citizens, causing a heightened level of public concern, and requiring a more focused visual analysis.)

- ☐ High concern (3)
- ☐ Moderate concern (2)
- ☐ Low concern (1)
- ☑ Negligible Project Features (0)

NOTE: Project features would be aesthetically pleasing with grass median. Construction impacts will be temporary. Initial public concerns were ameliorated through proposed modifications to the typical section to reduce impacts to adjacent properties. These modifications were presented to and discussed with the two adjacent neighborhoods in February 2023.

4. *Is it anticipated that to mitigate visual impacts, it may be necessary to develop extensive or novel mitigation strategies to avoid, minimize, or compensate for adverse impacts or will using conventional mitigation strategies, such as landscape or architectural treatment adequately mitigate adverse visual impacts?*

☐ Extensive Non-Conventional Mitigation Likely (3)
☐ Some non-conventional Mitigation Likely (2)
☐ Only Conventional Mitigation Likely (1)
☑ No Mitigation Likely (0)

5. Will this project, when seen collectively with other projects, result in an aggregate adverse change (cumulative impacts) in overall visual quality or character? (Identify any projects [both state and local] in the area that have been constructed in recent years and those currently planned for future construction. The window of time and the extent of area applicable to possible cumulative impacts should be based on a reasonable anticipation of the viewing public's perception.)

☐ Cumulative Impacts likely: 0-5 years (3)
☐ Cumulative Impacts likely: 6-10 years (2)
☑ Cumulative Impacts unlikely (1)

Viewer Sensitivity

1. *What is the potential that the project proposal may be controversial within the community, or opposed by any organized group?* (This can be researched initially by talking with the state DOT and local agency management and staff familiar with the affected community's sentiments as evidenced by past projects and/or current information.)

☐ High Potential (3)
☐ Moderate Potential (2)
☐ Low Potential (1)
☑ No Potential (0)

NOTE: After modification of the typical section and discussion with the two adjacent neighborhoods in February 2023, no community controversy remains. No organized group opposing the project is known at this time.

2. *How sensitive are potential viewer-groups likely to be regarding visible changes proposed by the project?* (Consider among other factors the number of viewers within the group, probable viewer expectations, activities, viewing duration, and orientation. The expected viewer sensitivity level may be scoped by applying professional judgment, and by soliciting information from other DOT staff, local agencies and community representatives familiar with the affected community's sentiments and demonstrated concerns.)

☐ High Sensitivity (3)
☐ Moderate Sensitivity (2)
☑ Low Sensitivity (1)

3. *To what degree does the project's aesthetic approach appear to be consistent with applicable laws, ordinances, regulations, policies or standards?*

☐ Low Compatibility (3)
☐ Moderate Compatibility (2)
☑ High compatibility (1)

4. *Are permits going to be required by outside regulatory agencies (i.e., Federal, State, or local)?* (Permit requirements can have an unintended consequence on the visual environment. Anticipated permits, as well as specific permit requirements - which are defined by the permitter, may be determined by talking with the project environmental planner and project engineer. Note: coordinate with the state DOT representative responsible for obtaining the permit prior to communicating directly with any permitting agency. Permits that may benefit from additional analysis include permits that may result in visible built features, such as infiltration basins or devices under a storm water permit or a retaining wall for wetland avoidance or permits for work in sensitive areas such as coastal development permits or on Federal lands, such as impacts to Wild and Scenic Rivers.)

☑ Yes (3)
☐ Maybe (2)
☐ No (1)

5. *Will the project sponsor or public benefit from a more detailed visual analysis in order to help reach consensus on a course of action to address potential visual impacts?* (Consider the proposed project features, possible visual impacts, and probable mitigation recommendations.)

☐ Yes (3)
☐ Maybe (2)
☑ No (1)

Total Project Score: 9

Determining the Level of Visual Impact Assessment

Total the scores of the answers to all ten questions on the Visual Impact Assessment Scoping Questionnaire. Use the total score from the questionnaire as an indicator of the appropriate level of VIA to perform for the project. Confirm that the level suggested by the checklist is consistent with the project teams' professional judgments. If there remains doubt about whether a VIA needs to be completed, it may be prudent to conduct an Abbreviated VIA. If there remains doubt about the level of the VIA, begin with the simpler VIA process. If visual impacts emerge as a more substantial concern than anticipated, the level of VIA documentation can always be increased.

The level of the VIA can initially be based on the following ranges of total scores:

☐ ***Score 25-30***

An *Expanded VIA* is probably necessary. It is recommended that it should be proceeded by a formal visual scoping study prior to beginning the VIA to alert the project team to potential highly adverse impacts and to develop new project alternatives to avoid those impacts. These technical studies will likely receive state-wide, even national, public review. Extensive use of visual simulations and a comprehensive public involvement program would be typical.

☐ ***Score 20-24***

A *Standard VIA* is recommended. This technical study will likely receive extensive local, perhaps state-wide, public review. It would typically include several visual simulations. It would also include a thorough examination of public planning and policy documents supplemented with a direct public engagement processes to determine visual preferences.

☐ ***Score 15-19***

An *Abbreviated VIA* would briefly describe project features, impacts and mitigation requirements. Visual simulations would be optional. An Abbreviated VIA would receive little direct public interest beyond a summary of its findings in the project's environmental documents. Visual preferences would be based on observation and review of planning and policy documents by local jurisdictions.

☐ ***Score 10-14***

A *VIA Memorandum* addressing minor visual issues that indicates the nature of the limited impacts and any necessary mitigation strategies that should be implemented would likely be sufficient along with an explanation of why no formal analysis is required.

☑ ***Score 6-9***

No noticeable physical changes to the environment are proposed and no further analysis is required. Print out a copy of this completed questionnaire for your project file to document that there is no effect. A *VIA Memorandum* may be used to document that there is no effect and to explain the approach used for the determination.

Appendix E

Noise Assessment

Traffic Noise Analysis

NE J Street Interchange – ARDOT Job 090676
Tiger Blvd. to Interstate 49
Bentonville, Benton County, AR

Prepared For:

City of Bentonville

September 2023

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1.0 Executive Summary

The City of Bentonville, Arkansas initiated an Environmental Assessment (EA) for the NE J Street Interchange Improvement Project located in Benton County that would consist of the construction of a new interchange along Interstate 49 (I-49). Improvements would be made to NE J Street and proceed on new location northward over Shewmaker Creek and connect to I-49. Initially, a noise screening was conducted along NE J Street. For screening analysis purposes, the ARDOT noise policy requires determining noise levels within 4 dBA of the NAC for Categories B and C. Results determined that noise impacts would occur greater than the 63 decibel (dB) threshold for NAC Activity Categories B receptors. As a result, a detailed traffic noise analysis was performed. The proposed project study area is shown on **Figure 1.**

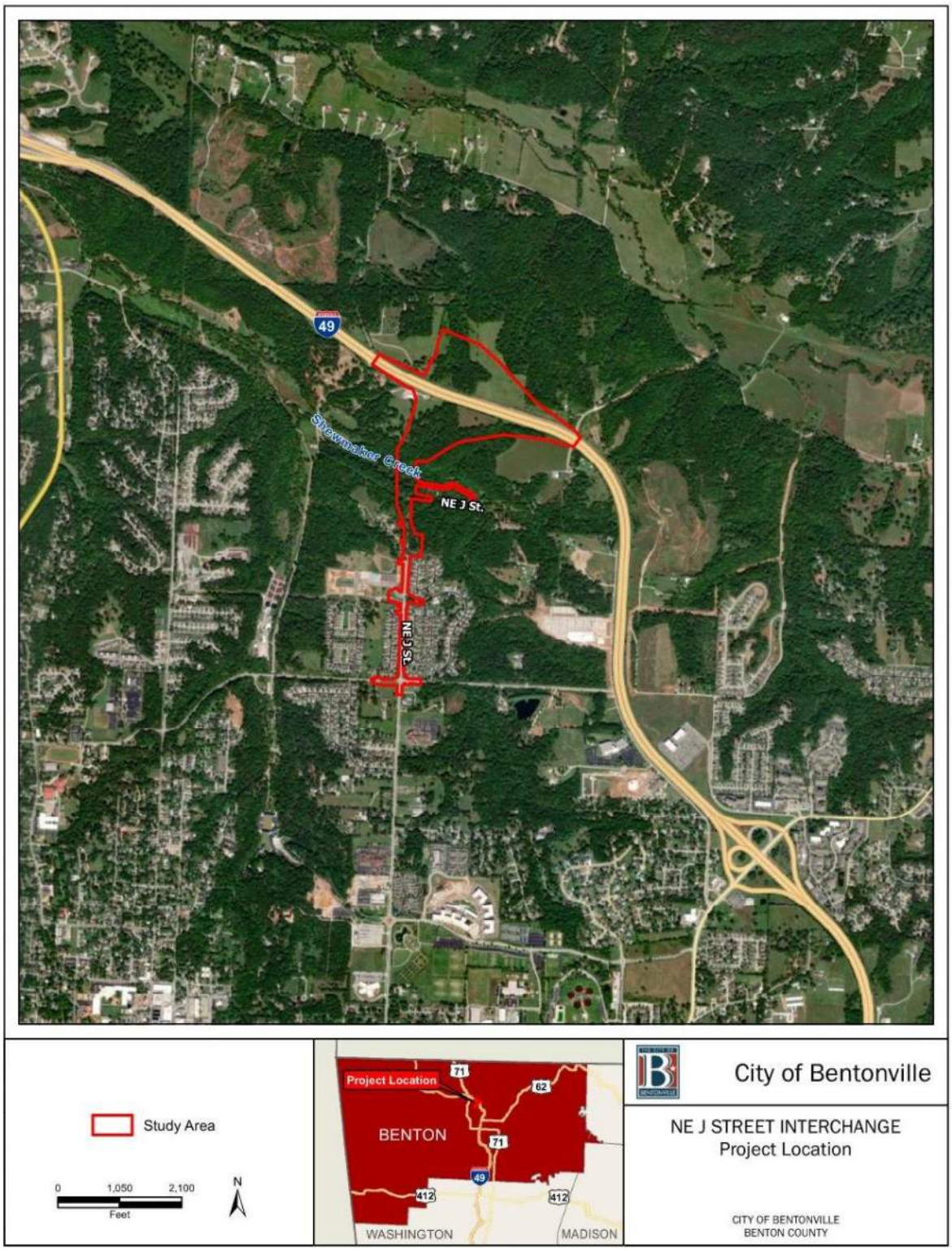
The detailed analysis included use of the FHWA Traffic Noise Model (TNM) 2.5 model validation, ambient field measurements, model validation and noise predictions based on future growth patterns. One ambient noise measurement was collected along NE J Street to represent the existing noise environment. Predicted noise levels were determined and compared to the FHWA Noise Abatement Criteria (NAC) and ARDOT's Policy on Highway Traffic Noise Abatement for determination of impacts.

Under current conditions, one residential dwelling is impacted (66 dB(A) Leq(h) or greater). Additionally, based on the proposed project and the 2045 design year traffic volumes, three residential dwellings will approach, meet, or exceed the 67 dB(A) Leq(h) for NAC Category B.

2.0 Project Description

The proposed project would include improvements to NE J Street from Tiger Boulevard (Blvd) northward and extend on new location to provide a new interchange at I-49. The project begins on the south end at the intersection of Tiger Blvd and NE J Street and would include one 11-foot-wide travel lane in each direction with a nine-foot-wide partial pave/landscaped median. The new roadway would continue northward past the sharp curve in the road and continue northward with an extension to I-49. Left turn lanes would be provided on NE J Street at local side streets as required for access to adjacent neighborhoods. Design plans include a single lane roundabout at the intersection of Chapel Hill Road and NE J Street. The design speed would be 30 miles per hour (mph) from Tiger Blvd to a point north of the Chapel Hill Road roundabout, transition to 35 mph prior to Shewmaker Creek bridge, and be 45 mph from the bridge northward. The roadway would then widen to include a bridge over Shewmaker Creek and include two 11-foot-wide travel lanes and 2 two-foot-wide outer shoulders in each direction, a five-foot wide sidewalk and 12-foot-wide multi-use path. North of the Shewmaker bridge the roadway would transition to include two 11-foot-wide roadways in each direction from curb to curb with a 16-foot wide median. The interchange at I-49 would include a folded diamond interchange. Loop ramp design would consist of one 15-foot lane with six foot outside shoulders and four foot inside shoulders exiting the interstate and expanding to two twelve-foot lanes approaching the bridge for right and left turn lanes. The Proposed Alternative is shown on figures in **Appendix A**.

Figure 1: Study Area



3.0 Fundamentals of Noise and Sound Theory

Noise, defined as unwanted or excessive sound, is an undesirable by-product of our modern way of life. From these known effects of noise, criteria have been established to help protect the public health and safety and prevent disruption of certain human activities. These criteria are based on such known impacts of noise on people as speech interference, sleep interference, physiological responses, hearing loss and annoyance. Highway traffic noise is a major contributor to overall transportation noise and is considered to be a line source of energy from which the energy levels dissipate vertically and laterally from the roadway. Traffic noise is not constant; it varies as each vehicle passes a point. The time-varying characteristics of environmental noise are analyzed statistically to determine the duration and intensity of noise exposure. In an urban environment, noise is made up of two distinct parts. One is ambient or background noise. Wind noise and distant traffic noise make up the acoustical environment surrounding the project. These sounds are not readily recognized but combine to produce a nonirritating ambient sound level. This background sound level varies throughout the day, being lowest at night and highest during the day. The other component of urban noise is that it can be intermittent and louder than background noises due to a number of sources such as manufacturing, railroads, and local airports. It is for these reasons that environmental noise is analyzed statistically.

Sound from highway traffic is generated primarily from a vehicle's tires, engine and exhaust. Sound intensity decreases in proportion with the square of the distance from the source. Generally, sound levels for a point source will decrease by 6 dB(A) for each doubling of distance. Sound levels for a highway line source vary differently with distance because sound pressure waves propagate along the line and overlap at the point of measurement. Sound is commonly measured in decibels (dB) which are logarithmic units and are not added arithmetically as opposed to the more common linear units such as temperature. Sound pressure level from two equal sources is 3 dB greater than the sound pressure level of just one source. So, two trucks producing 90 dB each combine to produce 93 dB, not 180 dB. In other words, a doubling of the noise source produces only a 3 dB increase in the sound pressure level. Studies have shown that this increase is barely perceptible by the human ear. Sound occurs over a wide range of frequencies. However, not all frequencies are detectable by the human ear; therefore, an adjustment is made to the high and low frequencies to approximate the way an average person hears traffic sounds. This adjustment is called A-weighting and is expressed as dBA. In addition, because traffic sound levels are never constant due to the changing number, type and speed of vehicles, this noise analysis will discuss noise levels as Leq(h). Leq is defined as the steady-state sound level which, in a stated period of time, contains the same acoustic energy as the time-varying sound level during the same period. Leq(h) is the hourly value of Leq and is based on the dBA unit.

4.0 Methodology and Criteria for Determining Impacts

Traffic noise analysis consists of a comparison of physically measured or modeled noise levels for the existing condition with projected noise levels for the future condition. The analysis was performed using TNM 2.5 to model existing and future noise levels based on traffic data, roadway geometry, and receptor site locations. A receptor is a location, usually representing a dwelling unit, where frequent exterior human activity occurs. The chosen receptor is modeled for noise levels and evaluated for noise impacts. The noise analysis conducted for this project was consistent with FHWA and ARDOT policy and 23 CFR Part 772. Methods used included identification of sensitive noise receptors, recording of ambient noise level along NE J Street, collection of four (4) validation readings for model validation to predict noise levels for the existing no-action, and design year build conditions. Traffic data was recorded at two locations to validate the TNM model.

The FHWA has seven noise activity categories based on land use and sound levels, each of which has its own Noise Abatement Criteria (NAC). The NAC categories are listed in **Table 1**. If a project would result in higher Leq(h) values than the NAC values for a given location, then noise abatement or mitigation measures must be evaluated.

Table 1: FHWA Noise Abatement Criteria (NAC)
Hourly A-Weighted Sound Level, decibels dB(A)

Activity Category	Activity Criteria[1] Leq(h)[2]	Activity Description
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[3]	67 (Exterior)	Residential
C[3]	67 (Exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreational areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52 (Interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios

Table 1: FHWA Noise Abatement Criteria (NAC) *Hourly A-Weighted Sound Level, decibels dB(A)*		
Activity Category	**Activity Criteria[1] Leq(h) [2]**	**Activity Description**
E[3]	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] The Leq(h) Activity Criteria values are for impact determination only, and are not design standards for noise abatement measures.

[2] The equivalent steady-state sound level which in a stated period of time contains the same acoustic energy as the time-varying sound level during the same time period, with Leq(h) being the hourly value of Leq.

[3] Includes undeveloped lands permitted for this activity category.

5.0 Noise-Sensitive Land Uses

The project area is approximately one mile in length and follows existing NE J Street from Tiger Blvd at the south end northward to a 90 degree curve in NE J Street. This segment passes through the Chapel Hill Subdivision. A new subdivision, Hawthorne Heights, is currently under construction to the west of NE Chapel Hill Drive. At that point northward to the curve are isolated residences on the west side existing J Street. All structures would be considered as a NAC Activity Category B properties. The northern one-half mile of the study area predominantly consists of upland woodlands and pastureland with isolated residences slightly to the west side of the study area near NE A Street and to the north of I-49. One business is located along the northwest border of the study area but does not have a designated frequent outdoor use area. All residential structures were considered as NAC Activity Category B for this evaluation. Business locations would be considered in NAC Activity Category E. NAC Activity categories A, C, D, F or G were not required, modeled, or applied.

Seventy-six (76) modeled receptor locations representing 96 single family dwellings and 3 multi-family dwellings were selected for modeling purposes to identify noise levels for the no-action, existing and design year conditions. Receptor locations are shown on figures in **Appendix A**.

6.0 Model Validation

Four noise readings were collected within the study area for model validation purposes. On January 17, 2023, two measurements each were collected at the same location along I-49 and two measurements (MV-1A and MV-1C) were collected on January 23, 2023, along NE J Street. These locations represented the only roadways within the project limits with appreciable traffic to correlate to TNM predictions. A Larson Davis LxT Model 831 noise meter was utilized to record model validation measurements for a duration of 15 minutes each. One 30-minute ambient reading was collected at a single residence located north of J Street's existing 90-degree bend. Model validation and ambient measurement locations are shown on figures in **Appendix A**. **Table 2** provides the model validation and ambient reading results. The modeled noise levels were compared with the field recorded noise levels to determine the accuracy of the model. The model is considered valid when the difference between the field measured and model predicted noise levels are with +/- 3.0 dB of each other. Results from the field measurements indicated that four out of the five field measurements taken validated the model.

Table 2: Validation Measurements
Field Recorded and Model Noise Levels Comparison

Receptor	Field Record Noise Level *dB(A) Leq(h)*	TNM Predicted Noise Level *dB(A) Leq(h)*	Difference (Model-Field)
MV-1A	56.1	54.0	-2.1
MV-1C	53.0	50.8	-2.2
MV-2A	74.9	75.0	0.1
MV-2B	75.4	74.7	-0.7

6.1 Ambient Measurement

One ambient noise level measurement was collected for 30 minutes in close proximity to a single isolated receptor, as shown on figures in **Appendix A.** Trains, airplanes, weather conditions, resident interaction, and other noise sources were also documented during the recording session. Ambient measurement results are contained in **Table 4** with overall modeling results.

6.2 Traffic Data

Traffic volumes for the existing Year 2022, future year 2045 and No-Action Year 2045 were identified for Tiger Blvd, NE J Street and I-49 were based on the Northwest Arkansas Travel Demand Model (TDM) that was based on traffic data obtained from the Arkansas Department of Transportation (ARDOT) website in 2019. TNM utilizes the design hourly volume (DHV) to determine the existing traffic noise levels and calculates the predicted noise levels that occur when the highest volume for an hour is combined with the highest speeds and considered as the "worst hour for noise." DHV data is based on the percentage of hourly vehicular traffic present on the facility at the design capacity consisting of cars, medium trucks, and heavy trucks. **Table 3**

depicts the DHV values utilized in the modeling. TNM modeling assume vehicles were traveling 30 mph on NE J Street, 35 mph on Tiger Blvd, and 70 mph on I-49 for the existing condition. Existing traffic conditions in the area are predominantly car traffic with very few medium and heavy trucks. Speed limits used for the future condition included 30 and 35 mph along NE J Street along the two-lane section and 45 mph along the four-lane section, 35 mph along Tiger Blvd, and 70 mph along I-49. Speed limits used for the no-action condition were identical to those used in the existing condition.

Table 3 Noise Model Traffic Volumes
NE J Street Interchange Project, Benton County

Year	AADT	DHV	Cars	Medium Trucks	Heavy Trucks
NE J Street (Tiger Blvd to 90-degree curve)					
Existing (2022)	900	90	88	2	0
Future (2045)	16,000	1,600	1,560	35	5
NE J Street (South of Tiger Blvd)					
Existing (2022)	5,267	527	514	12	2
Future (2045)	20,000	2,000	1,950	44	6
NE J Street New Location					
Future (2045)	18,000	1,800	900	1	1
Tiger Blvd Westbound					
Existing (2022)	9,000	900	878	20	3
Future (2045)	29,000	2,900	2,828	64	9
Tiger Blvd Eastbound					
Existing (2022)	5,000	500	488	11	2
Future (2045)	25,000	2,500	2,438	28	4
Interstate 49					
Existing (2022)	44,500	4,005	3,641	320	44
Interstate 49 (J St. Interchange North to Highway 71)					
Future (2045)	76,500	6,885	6,258	551	76
Interstate 49 (J St. Interchange South to Highway 72)					
Future (2045)	68,500	6,165	5,604	493	68

7.0 Determination of Future Sound Levels

The 2045 design year traffic was utilized to determine if future noise levels would exceed the NAC activity category thresholds. **Table 3** identifies the future traffic data utilized and **Appendix B** contains traffic data worksheets used in the modeling.

The results of the future 2045 Build Alternative indicated that 3 of the residences will approach, meet, or exceed the 67 dB(A) Leq(h) for NAC Activity Categories B. One residence (R-24) would experience a substantial increase (i.e., an increase of 10 dBA or more) and although several other receptors would be close to experiencing substantial increase impacts, no additional substantial impacts were identified in association with the Build Alternative. Eight future no-action alternative impacts would occur. **Appendix C** contains TNM results and layouts, and **Appendix D** contains alternative comparisons between the Build Alternative and No Build Alternative.

Under the Build Alternative, forty-eight receivers may experience minor increases in noise levels (i.e., 0-5 dB increase) and fifty receivers may experience moderate traffic noise increases (i.e., 6-9 dB increase) over existing noise levels.

The no-action alternative will allow for the continued ambient noise levels to remain unchanged and coincide with the increase in traffic on surrounding roadways and development in the area.

Table 4: Future Traffic Noise Results, dB(A) Leq (h) Build Alternative							
Receptor*	**Dwelling Units**	**Type**	**Distance/Location from Proposed Roadway Centerline**	**Existing 2020 Noise Levels****	**Future 2045 Noise Levels**	**Change (+/-)**	**Noise Impact?**
R-1	1	SFR	323' – South of Tiger Blvd.	50.2	54.9	4.7	----
R-2	1	SFR	292' Sta. 3+65 South of Tiger	53.3	58.2	4.9	----
R-3	1	SFR	292' Sta. 8+44 South of Tiger	56.0	59.6	3.6	----
R-4	1	SFR	113' – Sta. 9+04 South of Tiger	58.5	63.8	5.3	----
R-5	1	SFR	122' – Sta. 7+65 South of Tiger	61.6	63.0	1.4	----
R-6	1	SFR	91' – Sta. 1+85 North of Tiger	60.4	64.9	4.5	----
R-7	1	SFR	72' – Sta. 3+47 North of Tiger	63.7	65.9	2.2	----
R-8	1	SFR	73' – Sta. 4+22 North of Tiger	63.8	64.1	0.3	----
R-9	1	SFR	70' – Sta. 7+97 North of Tiger	64.8	64.7	-0.1	----
R-10	1	SFR	73' – Sta. 11+65 West of J St.	61.5	65.0	3.5	----
R-11	1	SFR	64' – Sta. 12+53 West of J St.	57.6	64.9	7.3	----
R-12	1	SFR	65' – Sta. 13+44 West of J St.	55.9	64.0	8.1	----
R-13	1	SFR	69' – Sta. 14+00 West of J St.	55.2	63.6	8.4	----
R-14	1	SFR	80' – Sta. 14+80 West of J St.	54.6	63.3	8.7	----
R-15	1	SFR	69' – Sta. 15+14 West of J St.	54.3	63.2	8.9	----
R-16	1	SFR	74' – Sta. 15+79 East of J St.	53.7	63.0	9.3	----
R-17	1	SFR	81' – Sta. 16+62 West of J St.	53.3	62.8	9.5	----
R-18	1	SFR	71' – Sta. 17+06 West of J St.	53.2	62.8	9.6	----
R-19	1	SFR	72' – Sta. 18+01 West of J St.	53.0	62.8	9.8	----
R-20	1	SFR	92' – Sta. 18+56 West of J St.	53.0	62.8	9.8	----
R-21	1	SFR	71' – Sta. 19+23 West of J St.	52.9	62.8	9.9	----
R-22	4	SFR	63' – Sta. 20+05 West of J St.	52.8	62.7	9.9	----
R-23	4	SFR	66' – Sta. 20+68 West of J St.	52.9	62.6	9.7	----
R-24	4	SFR	82' – Sta. 21+18 West of J St.	52.9	61.5	8.6	----
R-25	1	SFR	44' – Sta. 22+78 West of J St.	55.2	65.0	9.8	----
R-26	1	SFR	53' – Sta. 27+56 West of J St.	55.1	63.5	8.4	----
R-27	1	SFR	51' – Sta. 28+53 West of J St.	56.0	63.7	7.7	----
R-28	1	SFR	58' – Sta. 29+35 West of J St.	56.0	63.2	7.2	----
R-29	1	SFR	72' – Sta. 30+98 West of J St.	54.4	62.3	7.9	----
R-30	1	SFR	64' – Sta. 32+14 West of J St.	54.0	63.6	9.6	----
R-32	1	SFR	404' – Sta. 37+22 West of J St.	49.8	54.2	4.4	----
R-33	1	SFR	330' – Sta. 39+70 West of J St.	48.9	55.7	6.8	----

Table 4: Future Traffic Noise Results, dB(A) Leq (h) Build Alternative							
R-34	1	SFR	140' – Sta. 10+82 North of Tiger	57.9	62.5	4.6	----
R-35	1	SFR	145' – Sta. 10+07 North of Tiger	57.7	61.4	3.7	----
R-36	1	SFR	74' – Sta. 9+47 North of Tiger	62.7	67.1	4.4	Snd Lvl
R-37	1	SFR	70' – Sta. 8+14 North of Tiger	63.2	69.3	6.1	Snd Lvl
R-38	1	SFR	80' – Sta. 11+93 East of J St.	60.1	65.7	5.6	----
R-39	1	SFR	72' – Sta. 12+66 East of J St.	57.9	64.3	6.4	----
R-40	1	SFR	82' – Sta. 13+68 East of J St.	55.8	63.2	7.4	----
R-41	1	SFR	84' – Sta. 14+33 East of J St.	55.2	63.0	7.8	----
R-42	1	SFR	69' – Sta. 15+09 East of J St.	54.5	62.9	8.4	----
R-43	1	SFR	73' – Sta. 15+60 East of J St.	54.2	62.8	8.6	----
R-44	1	SFR	61' – Sta. 16+36 East of J St.	53.5	62.0	8.5	----
R-45	1	SFR	69' – Sta. 17+10 East of J St.	53.1	61.9	8.8	----
R-46	1	SFR	72' – Sta. 17+84 East of J St.	52.9	62.0	9.1	----
R-47	1	SFR	69' – Sta. 18+51 East of J St.	52.9	62.1	9.2	----
R-48	1	SFR	79' – Sta. 19+48 East of J St.	53.0	62.3	9.3	----
R-49	1	SFR	72' – Sta. 19+76 East of J St.	53.0	62.3	9.3	----
R-50	1	SFR	66' – Sta. 20+54 East of J St.	53.2	62.5	9.3	----
R-51	1	SFR	68' – Sta. 21+57 East of J St.	53.4	62.4	9.0	----
R-52	1	SFR	81' – Sta. 22+35 East of J St.	53.7	62.4	8.7	----
R-53	1	SFR	80' – Sta. 25+27 East of J St.	53.6	62.3	8.7	----
R-54	1	SFR	86' – Sta. 26+12 East of J St.	54.0	61.8	7.8	----
R-55	1	SFR	80' – Sta. 26+88 East of J St.	54.4	61.6	7.2	----
R-56	1	SFR	78' – Sta. 27+89 East of J St.	55.3	61.4	6.1	----
R-57	1	SFR	81' – Sta. 28+20 East of J St.	55.6	61.5	5.9	----
R-58	1	SFR	90' – Sta. 29+30 East of J St.	56.5	62.0	5.5	----
R-59	1	SFR	74' – Sta. 30+39 East of J St.	57.3	62.8	5.5	----
R-60	1	SFR	93' – Sta. 30+98 East of J St.	56.6	62.6	6.0	----
R-61	1	SFR	379' – Sta. 42+18 East of J St.	52.6	55.6	3.0	----
R-62	1	SFR	977' – Sta. 52+52 West of J St.	53.9	55.6	1.7	----
R-63	1	SFR	897' – Sta. 56+36 West of J St.	59.0	61.0	2.0	----
R-64	1	SFR	259' – Sta. 63+09 West of J St.	69.6	71.5	1.9	Snd Lvl
R-65	1	SFR	329' – Sta. 286+08 E. of Ramp	63.2	64.7	1.5	----
R-66	1	SFR	215' – Sta. 22+85 East of J St.	49.3	55.7	6.4	----
R-67	1	SFR	315' – Sta. 23+37 East of J St.	48.8	53.7	4.9	----
R-68	3	SFR	327' – Sta. 19+82 East of J St.	48.2	53.0.	4.8	----
R-69	5	SFR	328' – Sta. 16+26 East of J St.	49.0	53.1	4.1	----

Table 4: Future Traffic Noise Results, dB(A) Leq (h) Build Alternative							
R-70	1	SFR	373' – Sta. 12+37 East of J St.	54.4	57.1	2.7	----
R-71	1	SFR	298' – Sta. 12+89 West of J St.	53.0	55.3	2.3	----
R-72	1	SFR	299' – Sta. 13+26 West of J St.	52.0	54.8	2.8	----
R-73	3	SFR	301' – Sta. 14+79 West of J St.	49.6	53.5	3.9	----
R-74	3	SFR	301' – Sta. 16+77 West of J St.	48.1	52.5	4.4	----
R-75	2	SFR	301' – Sta. 18+41 West of J St.	47.9	52.4	4.5	----
R-76	4	SFR	303' – Sta. 20+00 West of J St.	47.7	52.1	4.4	----
R-77	1	SFR	115' – Sta. 22+97 West of J St.	52.4	55.3	2.9	----

* Ambient measurements were utilized to account for background noise levels at R-61. R-31 was not used.
Type: SFR-Single family residential; MFR-Multi-family residential.

8.0 Consideration of Abatement

Consideration of noise abatement measures is required when the NAC value is approached or exceeded, or when a substantial increase is predicted. Noise barriers (e.g., walls or berms) are the most common noise abatement measures and are considered feasible when the following criteria are met.

- *Constructability* – a barrier must be able to be physically constructed according to common engineering practices and materials.
- *Noise reduction* – ARDOT defines noise reduction as being at least 5 dBA and must be met for a minimum of one impacted receptor.
- *Safety and maintenance considerations* – a barrier must be accessible for maintenance while not restricting access to other highway components. Flood-prone areas and areas with severe drainage problems may dictate whether a noise barrier is feasible.
- *Access and utility requirements* – Sufficient access from adjacent properties and utility corridors are required, which includes driveway access and would not typically be feasible to construct effective noise barriers.

ARDOT noise policy considers noise barriers reasonable when the following criteria are met:

- *Noise reduction* – At least one benefited receptor receives a minimum noise level reduction of 8 dBA (i.e., noise reduction design goal).
- *Public input* – The viewpoints of benefited property owners and residents are solicited and consensus (greater than 50%) of support for or against a noise barrier is achieved.
- *Cost effectiveness* – The total cost for the proposed noise barrier does not exceed $36,000 average allowance per benefited receptor.

Noise abatement would be investigated upon future predicted impacts of receptors receiving noise levels at or above 66 dBA or if noise levels increased 10 dBA or more. The highest noise receptor reading was predicted to be 71.5 dBA in 2045 and the highest predicted increase in traffic noise levels was predicted to be 9.9 dBA for the future design year as shown in **Table 4**. Three receivers (R-36, R-37, and R-64) would experience impacts of 66 dBA or greater and require evaluation of abatement. Two potential noise wall locations were evaluated for the NE J Street project where anticipated impacts were identified.

Receivers R-36 and R-37 are located adjacent to Tiger Blvd. northeast of its intersection with NE J Street. Noise abatement in the form of a free-standing noise wall was evaluated for feasibility in this location. A noise wall in this location would be located within the easement for and require relocation of a buried fiber-optic line and therefore, would not prove feasible.

Receiver R-64 is located northeast of the interchange of NE J Street and I-49. The estimated cost of a noise wall in this location was based on a variable height of six to eight feet with the length based on a distance four times longer than the distance from the receptor to the nearest travel lane (approximately 550 linear feet). A barrier evaluation that results in exceeding an estimated cost per benefitted receptor (CPBR) of $36,000 would not be considered reasonable to construct according to ARDOT Noise Policy. The cost of $35.00 per square foot for reflective barriers was used in this evaluation to determine the estimated CPBR. Estimated costs for a noise wall 550 feet in length and six to eight feet in height at this location are expected to range from $115,000 to $154,000 and would exceed the CPBR. As a result, noise mitigation measures are not considered for the Build Alternative.

9.0 Construction Noise

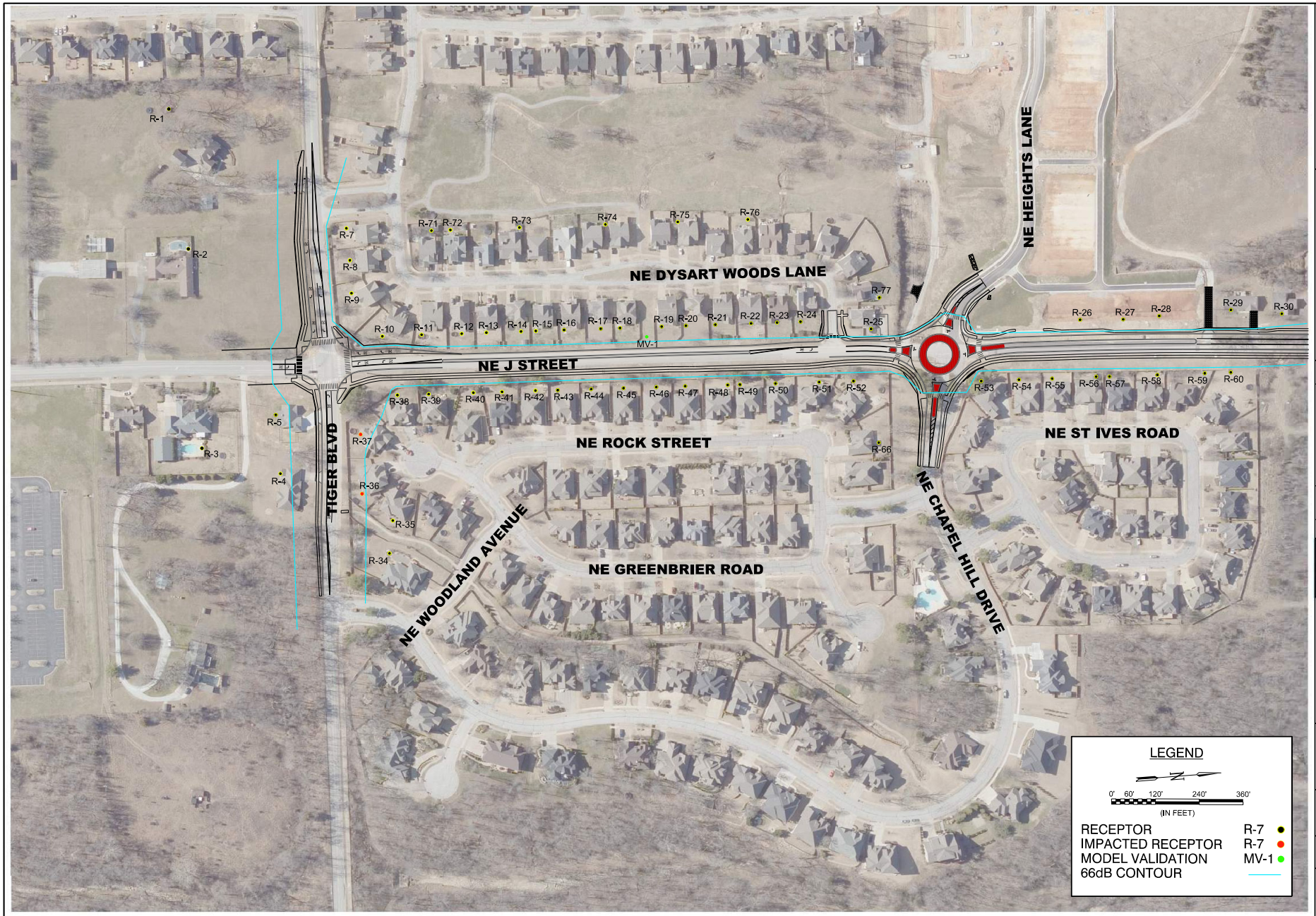
Construction noise sources may include heavy machinery such as dozers, trackhoes, scrapers, cranes, and large material transport trucks. Noise generated by construction are temporary and often can be minimized by implementing time of day restrictions limited to daylight hours. Temporary noise increases are anticipated adjacent to the project area; however, construction scheduling and other measures will be considered to minimize potential impacts.

10.0 Coordination with Local Officials

Noise levels approaching and/or exceeding the 66 dBA were identified to fall mostly within the proposed right-of-way along the entire project. However, there are locations where the 66 dBA future noise levels fall outside the right-of-way and are shown on the figures provided in **Appendix A**. Public comments that may arise due to the noise study should be coordinated with local officials.

APPENDICES

APPENDIX A
Project Layout and Receptor Locations



CONCEPTUAL PLANS
FOR REVIEW ONLY
NOT FOR CONSTRUCTION

REV.	DATE	DESCRIPTION	BY

CITY OF BENTONVILLE
BENTONVILLE, ARKANSAS

NE J STEET
TIGER BLVD. TO
PROPOSED
INTERCHANGE

Project Layout and Receptor Locations

JOB NO.: 21T21070
DATE: AUG. 2023
DESIGNED BY:
DRAWN BY:

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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
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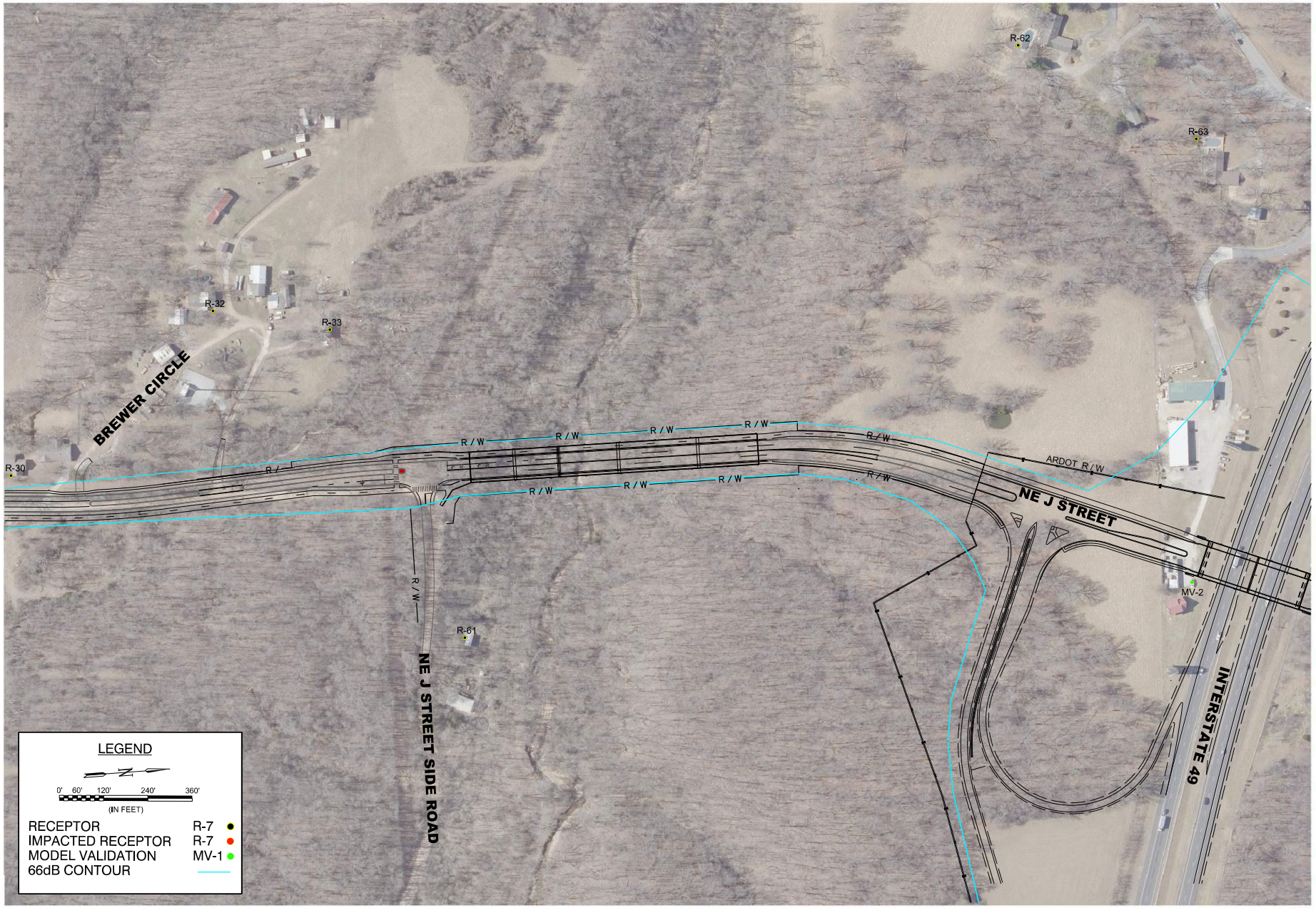

CONCEPTUAL PLANS
FOR REVIEW ONLY
NOT FOR CONSTRUCTION

REV.	DATE	DESCRIPTION	BY

CITY OF BENTONVILLE
BENTONVILLE, ARKANSAS

NE J STEET
TIGER BLVD. TO
PROPOSED
INTERCHANGE

Project Layout and Receptor Locations

JOB NO.: 21T21070
DATE: AUG. 2023
DESIGNED BY:
DRAWN BY:

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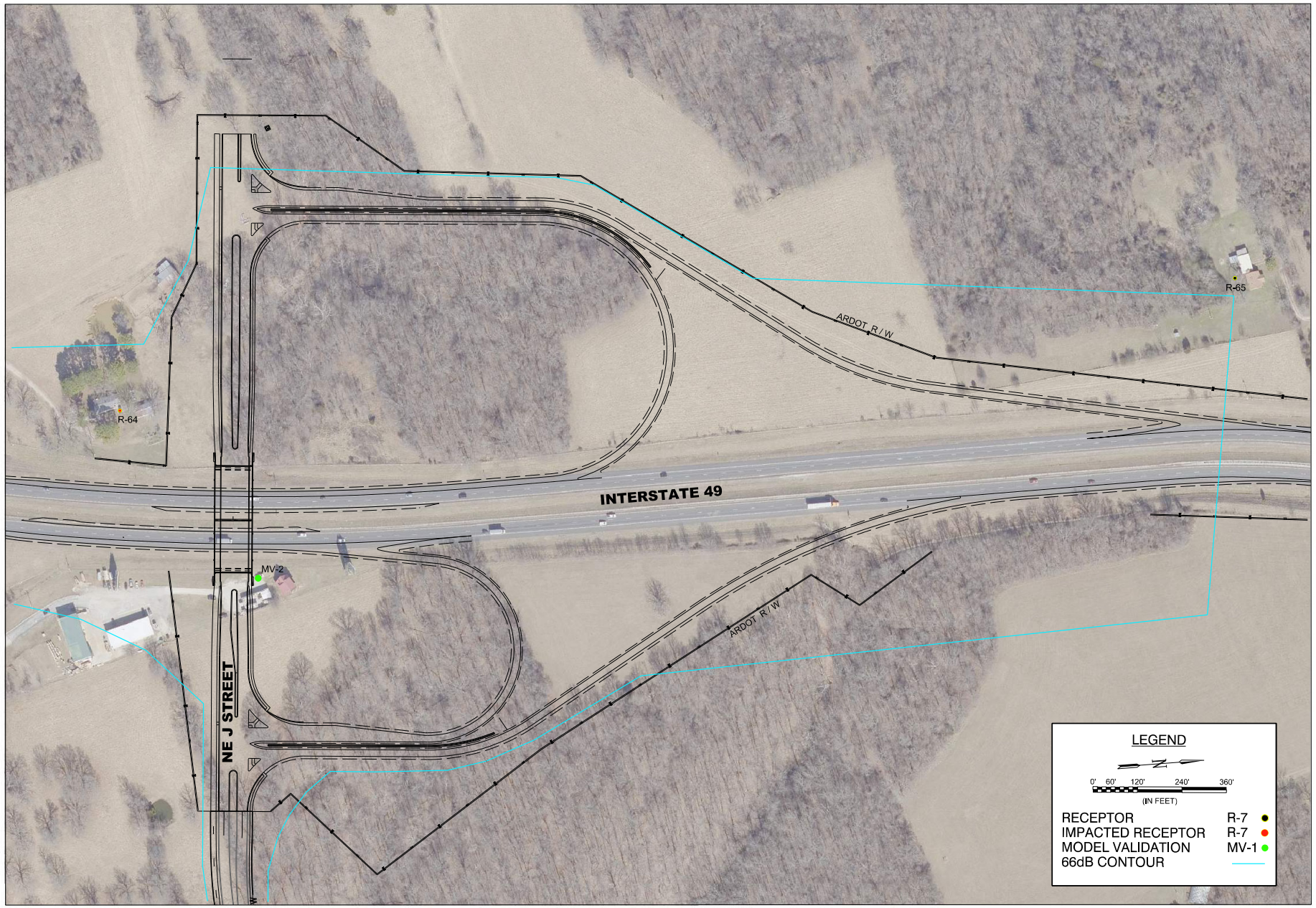

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CONCEPTUAL PLANS
FOR REVIEW ONLY
NOT FOR CONSTRUCTION

REV.	DATE	DESCRIPTION	BY

THE CITY OF BENTONVILLE

CITY OF BENTONVILLE
BENTONVILLE, ARKANSAS

NE J STEET
TIGER BLVD. TO
PROPOSED
INTERCHANGE

Project Layout and Receptor Locations

JOB NO.: 21T21070
DATE: AUG, 2023
DESIGNED BY:
DRAWN BY:

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C

APPENDIX B
Traffic Data Worksheets

NOISE DATA WORKSHEET

Job No: 090676

Job Name: NE J Street Interchange Project

Roadway Reference: I-49, Segment from Highway 72 to Highway 71

County: Benton

Design Year: 2045

Year(s) To Be Modeled: 2022 2045

Roadway Cross-Sections:

2022 Two 12' Travel Lanes, one 10' Outer Shldr, One 4' Inner Shldr=38 Feet

2045 Two 12' Travel Lanes, one 10' Outer Shldr, One 4' Inner Shldr=38 Feet

Note: DHV = (ADT)(K)
DDHV = (ADT)(K)(D)
K - Percent of ADT occuring in design hour
D - Directional Distribution

Operating Speed: 70

Kfactor	9%	D	62%

Traffic Data:

YEAR	ADT	%TRUCK	DHV	CARS	MT	HT	CARS	MT	HT
					8.0%	1.1%			
2022	45,500	9.1%	4095	3722	328	45	1862	164	23
2045	68,500	9.1%	6165	5604	493	68	2802	247	34

NOISE DATA WORKSHEET

Job No: 090676

Job Name: NE J Street Interchange Project

Roadway Reference: I-49-NB-NE J Street to Highway 71

County: Benton

Design Year: 2045

Year(s) To Be Modeled: 2022 2045

Roadway Cross-Sections:
2022
2045 Three 12' Travel Lanes, one 10' Outer Shldr, One 4' Inner Shldr=50 Feet

Note: DHV = (ADT)(K)
DDHV = (ADT)(K)(D)
K - Percent of ADT occuring in design hour
D - Directional Distribution

Operating Speed: 70

Kfactor	9%	D	62%

Traffic Data:

YEAR	ADT	%TRUCK	DHV	CARS	MT	HT	CARS	MT	HT
					8.0%	1.1%			
2022	44,500	9.1%	4005	3641	320	44	1821	161	23
2045	76,500	9.1%	6885	6258	551	76	3130	276	38

NOISE DATA WORKSHEET

Job No: 090676

Job Name: NE J Street Interchange Project

Roadway Reference: I-49-SB-NE J Street to Highway 72

County: Benton

Design Year: 2045

Year(s) To Be Modeled: 2022 2045

Roadway Cross-Section: 2022
2045 Three 12' Travel Lanes, one 10' Outer Shldr, One 4' Inner Shldr=50 Feet

Note: DHV = (ADT)(K)
DDHV = (ADT)(K)(D)
K - Percent of ADT occuring in design hour
D - Directional Distribution

Operating Speed: 70

Kfactor	9%	D	62%

Traffic Data:

YEAR	ADT	%TRUCK	DHV	CARS	MT	HT	CARS	MT	HT
					8.0%	1.1%			
2022	43,500	4.0%	3915	3559	313	43	1780	157	22
2045	68,500	9.1%	6165	5604	493	68	2802	247	34

NOISE DATA WORKSHEET

Job No: 090676

Job Name: NE J Street Interchange Project

Roadway Reference: Ramp 1, I-49 SB to NE J Street

County: Benton

Design Year: 2045

Year(s) To Be Modeled: 2022 2045

Roadway Cross-Sections:
2022
2045 4' shoulder, 15' lane, 6' shoulder=25 feet

Note: DHV = (ADT)(K)
DDHV = (ADT)(K)(D)
K - Percent of ADT occuring in design hour
D - Directional Distribution

Operating Speed: 70

Kfactor	9%	D	62%

Traffic Data:

YEAR	ADT	%TRUCK	DHV	CARS	MT	HT	CARS	MT	HT
					8.0%	1.1%			
2022	0	0.0%	0	0	0	0	0	0	0
2045	4,700	9.1%	423	385	34	5	385	34	5

NOISE DATA WORKSHEET

Job No: 090676

Job Name: NE J Street Interchange Project

Roadway Reference: Ramp 2, NE J Street to I-49 SB

County: Benton

Design Year: 2045

Year(s) To Be Modeled: 2022 2045

Roadway Cross-Sections:
2022
2045 4' shoulder, 15' lane, 6' shoulder=25 feet

Note: DHV = (ADT)(K)
DDHV = (ADT)(K)(D)
K - Percent of ADT occuring in design hour
D - Directional Distribution

Operating Speed: 70

Kfactor	9%	D	62%

Traffic Data:

YEAR	ADT	%TRUCK	DHV	CARS	MT	HT	CARS	MT	HT
					8.0%	1.1%			
2022	0	0.0%	0	0	0	0	0	0	0
2045	800	9.1%	72	65	6	1	66	6	1

NOISE DATA WORKSHEET

Job No: 090676

Job Name: NE J Street Interchange Project

Roadway Reference: Ramp 3, I-49 NB to NE J Street

County: Benton

Design Year: 2045

Year(s) To Be Modeled: 2022 2045

Roadway Cross-Sections:
2022
2045 4' shoulder, 15' lane, 6' shoulder=25 feet

Note: DHV = (ADT)(K)
DDHV = (ADT)(K)(D)
K - Percent of ADT occuring in design hour
D - Directional Distribution

Operating Speed: 70

Kfactor	9%	D	62%

Traffic Data:

YEAR	ADT	%TRUCK	DHV	CARS	MT	HT	CARS	MT	HT
					8.0%	1.1%			
2022	0	9.1%	0	0	0	0	0	0	0
2045	800	9.1%	72	65	6	1	66	6	1

NOISE DATA WORKSHEET

Job No: 090676

Job Name: NE J Street Interchange Project

Roadway Reference: Ramp 4, NE J Street to I-49 NB

County: Benton

Design Year: 2045

Year(s) To Be Modeled: 2022 2045

Roadway Cross-Sections:
2022
2045 4' shoulder, 15' lane, 6' shoulder=25 feet

Note: DHV = (ADT)(K)
DDHV = (ADT)(K)(D)
K - Percent of ADT occuring in design hour
D - Directional Distribution

Operating Speed: 70

Kfactor	9%	D	62%

Traffic Data:

YEAR	ADT	%TRUCK	DHV	CARS	MT	HT	CARS	MT	HT
					8.0%	1.1%			
2022	0	9.1%	0	0	0	0	0	0	0
2045	4,700	9.1%	423	385	34	5	385	34	5

NOISE DATA WORKSHEET

Job No: 090676

Job Name: NE J Street Interchange Project

Roadway Reference: NE J Street, North of Curve

County: Benton

Design Year: **2045**

Year(s) To Be Modeled: **2022** **2045**

Roadway Cross-Sections:
2022 Two 15" Travel Lanes (30 Feet)
2045 Two 11" Travel Lanes and One 12' Turning Lane

Note: DHV = (ADT)(K)
DDHV = (ADT)(K)(D)
K - Percent of ADT occuring in design hour
D - Directional Distribution

Operating Speed: 45 mph Existing

Kfactor	**10%**	**D**	**51%**

Traffic Data:

YEAR	ADT	%TRUCK	DHV	CARS	MT	HT	CARS	MT	HT
					2.2%	**0.3%**			
2022		2.5%	0	0	0	0	0	0	0
2045	18,000	2.5%	1800	1755	40	5	439	10	2

NOISE DATA WORKSHEET

Job No: 090676

Job Name: NE J Street Interchange Project

Roadway Reference: J St. (South of Intersection) - No Build

County: Benton

Design Year: 2045

Year(s) To Be Modeled: 2022 2045

Roadway Cross-Section

2022 Two 11' Travel Lanes

2045 Two 11' Travel Lanes One 12' Turning Lane

Note: DHV = (ADT)(K)
DDHV = (ADT)(K)(D)
K - Percent of ADT occuring in design hour
D - Directional Distribution

Operating Speed: 35

Kfactor	10%	D	54%

Traffic Data:

YEAR	ADT	%TRUCK	DHV	CARS	MT	HT	CARS	MT	HT
					2.2%	0.3%			
2022	9,000	2.5%	900	878	20	3	878	20	3
2045	18,000	2.5%	1800	1755	40	5	878	20	3

NOISE DATA WORKSHEET

Job No: 090676

Job Name: NE J Street Interchange Project

Roadway Reference: NE J Street South of Tiger Blvd

County: Benton

Design Year: 2045

Year(s) To Be Modeled: 2022 2045

Roadway Cross-Sections:

2022	Two 12' Travel Lanes, one 12 ' Turning Lane
2045	Two 11' Travel Lanes One 12' Turning Lane

Note: DHV = (ADT)(K)
DDHV = (ADT)(K)(D)
K - Percent of ADT occuring in design hour
D - Directional Distribution

Operating Speed: 35

Kfactor	10%	D	54%

Traffic Data:

YEAR	ADT	%TRUCK	DHV	CARS	MT	HT	CARS	MT	HT
					2.2%	0.3%			
2022	5,267	2.5%	527	514	12	2	257	6	1
2045	20,000	2.5%	2000	1950	44	6	975	22	3

NOISE DATA WORKSHEET

Job No: 090676

Job Name NE J Street Interchange Project

Roadway Reference: NE J Street (Tiger Blvd to Curve) South

County: Benton

Design Year: 2045

Year(s) To Be Modeled: 2022 2045

Roadway Cross-Sections:
2022 Two 15" Travel Lanes (30 Feet)
2045 Two 11" Travel Lanes and One 12' Turning Lane

Note: DHV = (ADT)(K)
DDHV = (ADT)(K)(D)
K - Percent of ADT occuring in design hour
D - Directional Distribution

Operating Speed: 30 mph

Kfactor	10%	D	51%

Traffic Data:

YEAR	ADT	%TRUCK	DHV	CARS	MT	HT	CARS	MT	HT
					2.2%	0.3%			
2022	900	2.5%	90	88	2	0	44	1	1
2045	16,000	2.5%	1600	1560	35	5	780	18	3

NOISE DATA WORKSHEET

Job No: 090676

Job Name: NE J Street Interchange Project

Roadway Reference: Tiger Blvd (East of Intersection)

County: Benton

Design Year: 2045

Year(s) To Be Modeled: 2022 2045

Roadway Cross-Section

2022	Two 11' Travel Lanes
2045	Two 11' Travel Lanes One 12' Turning Lane

Note: DHV = (ADT)(K)
DDHV = (ADT)(K)(D)
K - Percent of ADT occuring in design hour
D - Directional Distribution

Operating Speed: 35

Kfactor	10%	D	58%

Traffic Data:

YEAR	ADT	%TRUCK	DHV	CARS	MT	HT	CARS	MT	HT
					2.2%	0.3%			
2022	9,000	2.5%	900	878	20	3	878	20	3
2045	21,000	2.5%	2100	2048	46	6	1024	24	4

NOISE DATA WORKSHEET

Job No: 090676

Job Name: NE J Street Interchange Project

Roadway Reference: Tiger Blvd (East of Intersection)

County: Benton

Design Year: 2045

Year(s) To Be Modeled: 2022 2045

Roadway Cross-Sectio

2022 Two 15' Travel Lanes

2045 Two 11' Travel Lanes One 12' Turning Lane

Note: DHV = (ADT)(K)
DDHV = (ADT)(K)(D)
K - Percent of ADT occuring in design hour
D - Directional Distribution

Operating Speed: 35

Kfactor	10%	D	58%

Traffic Data:

YEAR	ADT	%TRUCK	DHV	CARS	MT	HT	CARS	MT	HT
					2.2%	0.3%			
2022	5,000	2.5%	500	488	11	2	244	6	1
2045	25,000	2.5%	2500	2438	55	8	1219	28	4

NOISE DATA WORKSHEET

Job No: 090676

Job Name: NE J Street Interchange Project

Roadway Reference: NE J Street (Tiger Blvd to Curve) - No Build

County: Benton

Design Year: 2045

Year(s) To Be Modeled: 2022 2045

Roadway Cross-Sections:

2022	Two 12" Travel Lanes (30 Feet)
2045	Two 12" Travel Lanes (30 Feet)

Note: DHV = (ADT)(K)
DDHV = (ADT)(K)(D)
K - Percent of ADT occuring in design hour
D - Directional Distribution

Operating Speed: 35

Kfactor	10%	D	51%

Traffic Data:

YEAR	ADT	%TRUCK	DHV	CARS	MT	HT	CARS	MT	HT
					2.2%	0.3%			
2022	2,400	2.5%	240	234	5	1	234	6	1
2045	2,400	2.5%	240	234	5	1	117	3	1

NOISE DATA WORKSHEET

Job No: 090676

Job Name: NE J Street Interchange Project

Roadway Reference: Tiger Blvd (West of Intersection)

County: Benton

Design Year: 2045

Year(s) To Be Modeled: 2022 2045

Roadway Cross-Sectio

2022 Two 11' Travel Lanes

2045 Two 11' Travel Lanes One 12' Turning Lane

Note: DHV = (ADT)(K)
DDHV = (ADT)(K)(D)
K - Percent of ADT occuring in design hour
D - Directional Distribution

Operating Speed: 35

Kfactor	10%	D	56%

Traffic Data:

YEAR	ADT	%TRUCK	DHV	CARS	MT	HT	CARS	MT	HT
					2.2%	0.3%			
2022	9,000	2.5%	900	878	20	3	878	20	3
2045	30,500	2.5%	3050	2974	67	9	1487	34	5

NOISE DATA WORKSHEET

Job No: 090676

Job Name: NE J Street Interchange Project

Roadway Reference: Tiger Blvd (west of Intersection)

County: Benton

Design Year: **2045**

Year(s) To Be Modeled: **2022** **2045**

Roadway Cross-Sections

2022	Two 11' Travel Lanes
2045	Two 11' Travel Lanes One 12' Turning Lane

Note: DHV = (ADT)(K)
DDHV = (ADT)(K)(D)
K - Percent of ADT occuring in design hour
D - Directional Distribution

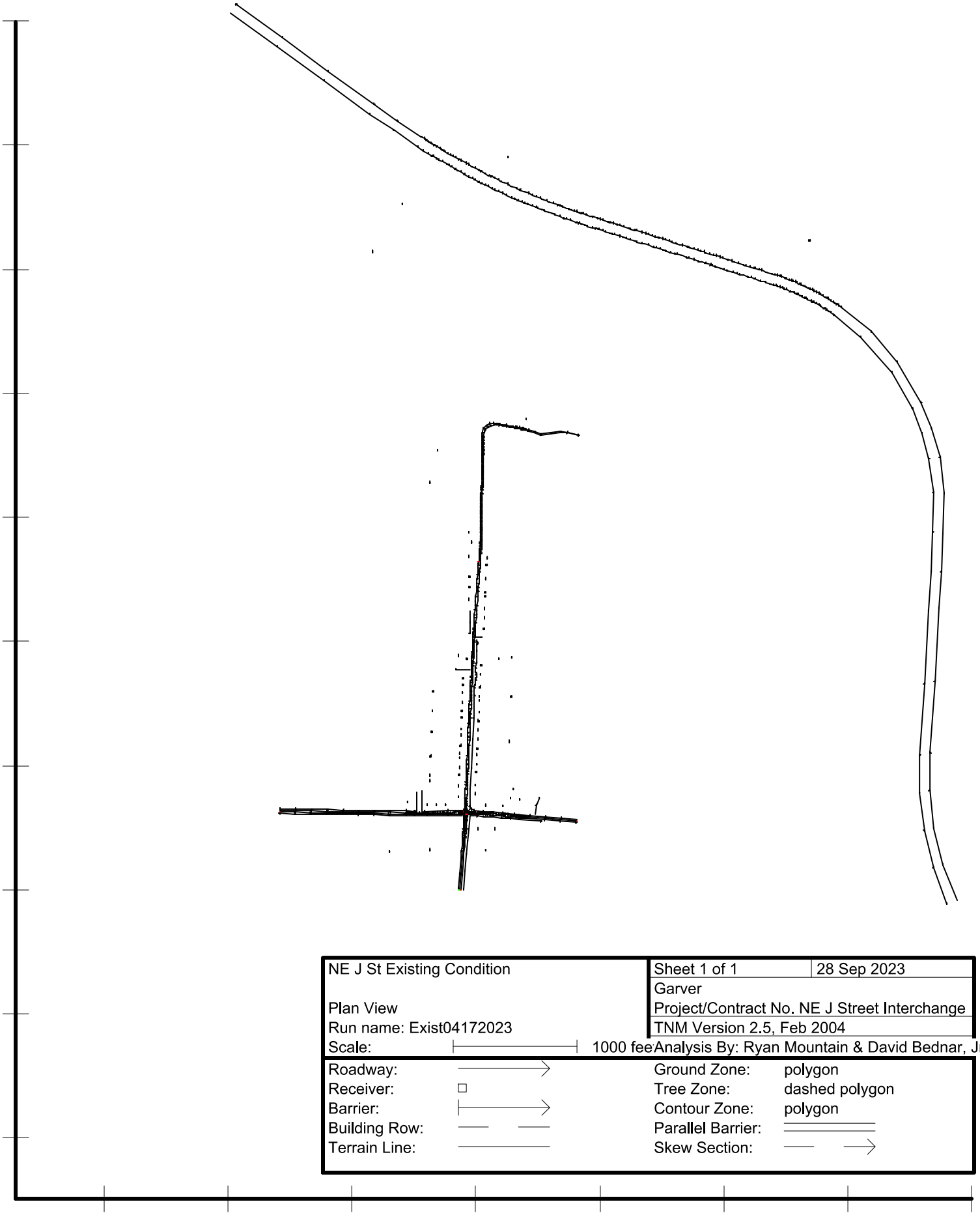
Operating Speed: 35

Kfactor	**10%**	**D**	**56%**

Traffic Data:

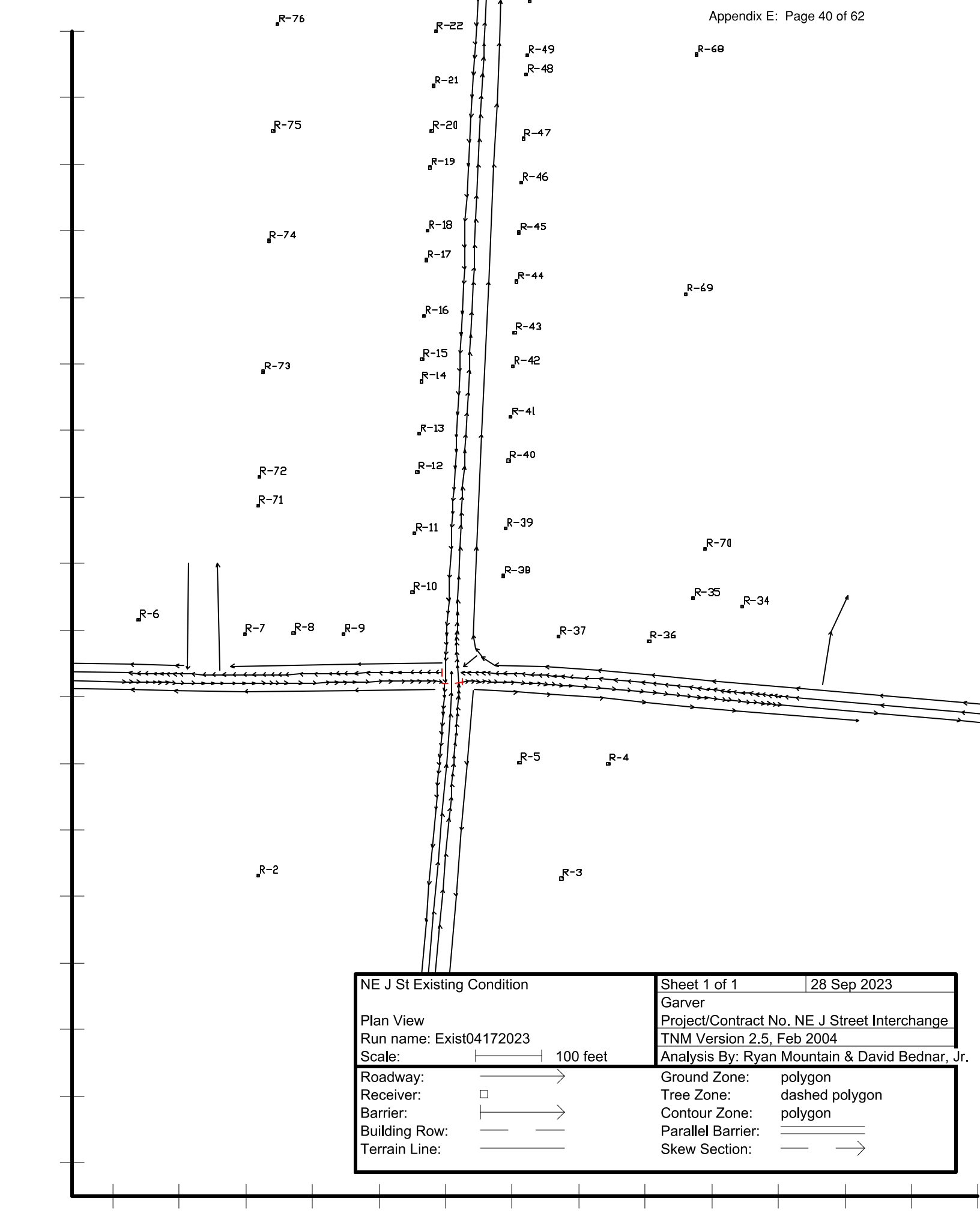
YEAR	ADT	%TRUCK	DHV	CARS	MT	HT	CARS	MT	HT
					2.2%	**0.3%**			
2022	9,000	2.5%	900	878	20	3	439	10	2
2045	29,000	2.5%	2900	2828	64	9	1414	32	5

APPENDIX C
TNM Output Files



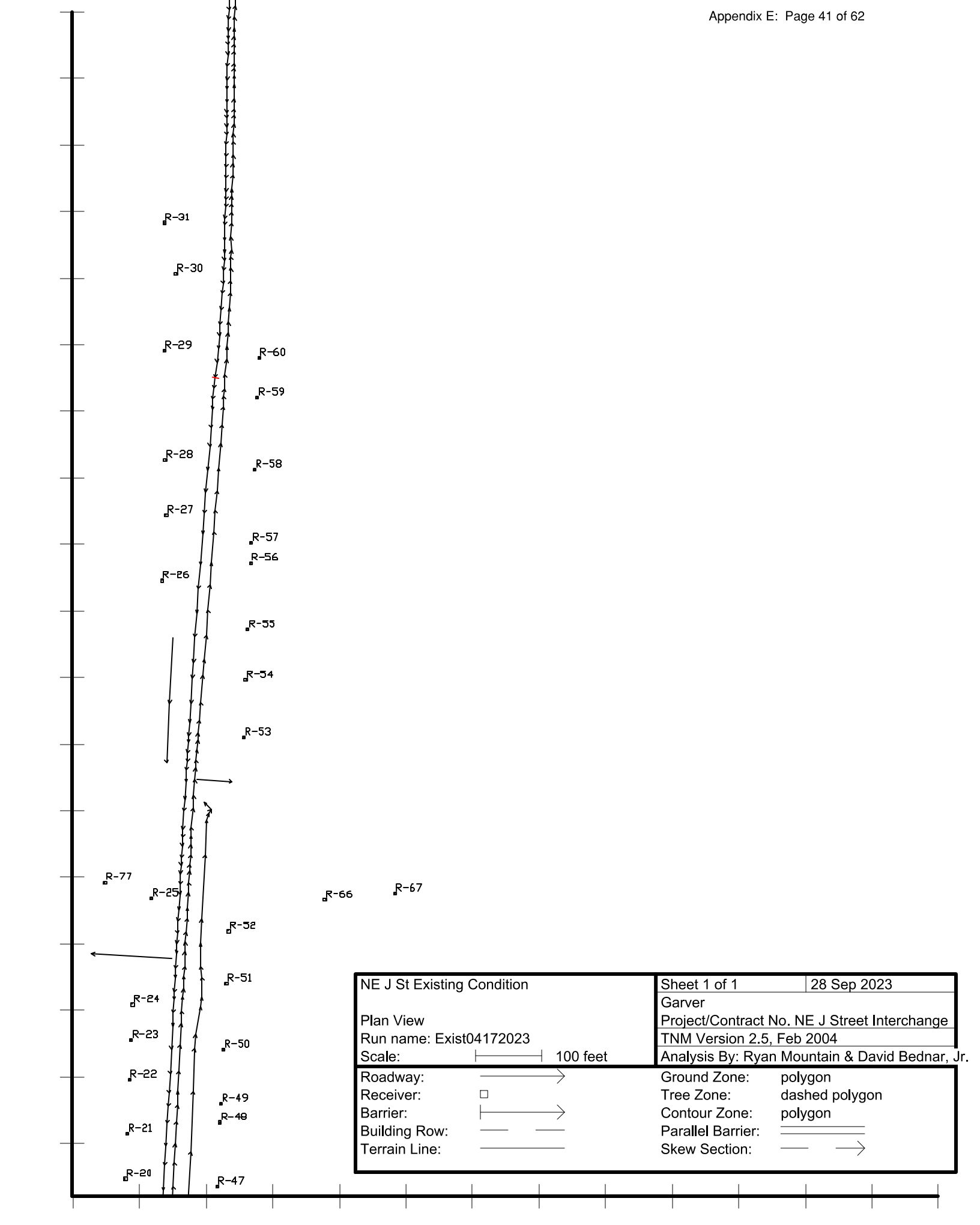
NE J St Existing Condition		Sheet 1 of 1	28 Sep 2023
		Garver	
Plan View		Project/Contract No. NE J Street Interchange	
Run name: Exist04172023		TNM Version 2.5, Feb 2004	
Scale:	1000 fee	Analysis By: Ryan Mountain & David Bednar, Jr.	

Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	



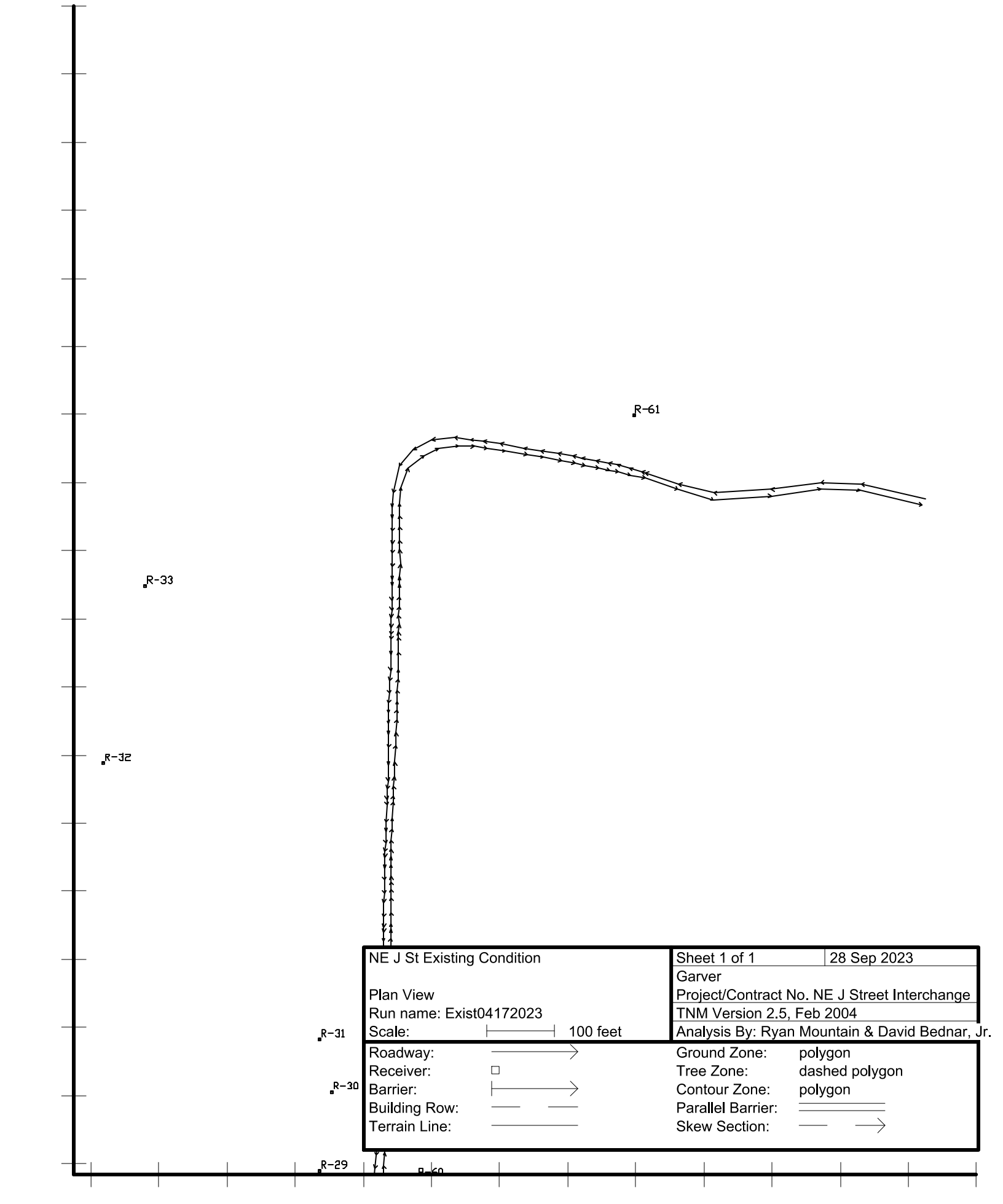
NE J St Existing Condition	Sheet 1 of 1 | 28 Sep 2023
	Garver
Plan View	Project/Contract No. NE J Street Interchange
Run name: Exist04172023	TNM Version 2.5, Feb 2004
Scale: 100 feet	Analysis By: Ryan Mountain & David Bednar, Jr.

Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	



NE J St Existing Condition	Sheet 1 of 1 | 28 Sep 2023
	Garver
Plan View	Project/Contract No. NE J Street Interchange
Run name: Exist04172023	TNM Version 2.5, Feb 2004
Scale: 100 feet	Analysis By: Ryan Mountain & David Bednar, Jr.

Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	


R-61
R-33
R-32
R-31
R-30
R-29
NE J St Existing Condition
Plan View
Run name: Exist04172023
Scale: 100 feet
Sheet 1 of 1
28 Sep 2023
Garver
Project/Contract No. NE J Street Interchange
TNM Version 2.5, Feb 2004
Analysis By: Ryan Mountain & David Bednar, Jr.
Roadway:
Receiver:
Barrier:
Building Row:
Terrain Line:
Ground Zone: polygon
Tree Zone: dashed polygon
Contour Zone: polygon
Parallel Barrier:
Skew Section:
600
665700
665800
665900
666000
666100
666200
666300
666400
666500
666600
666700
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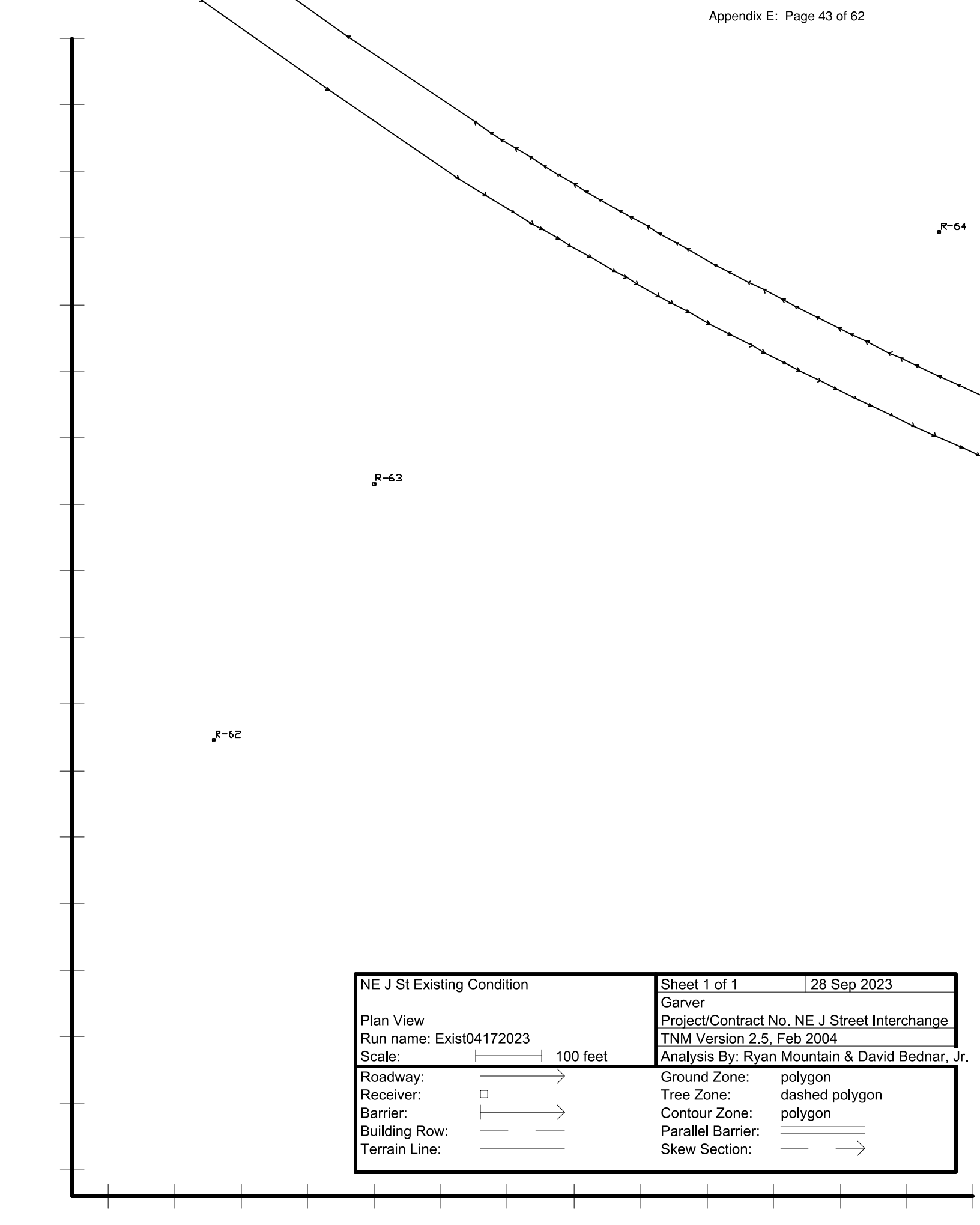
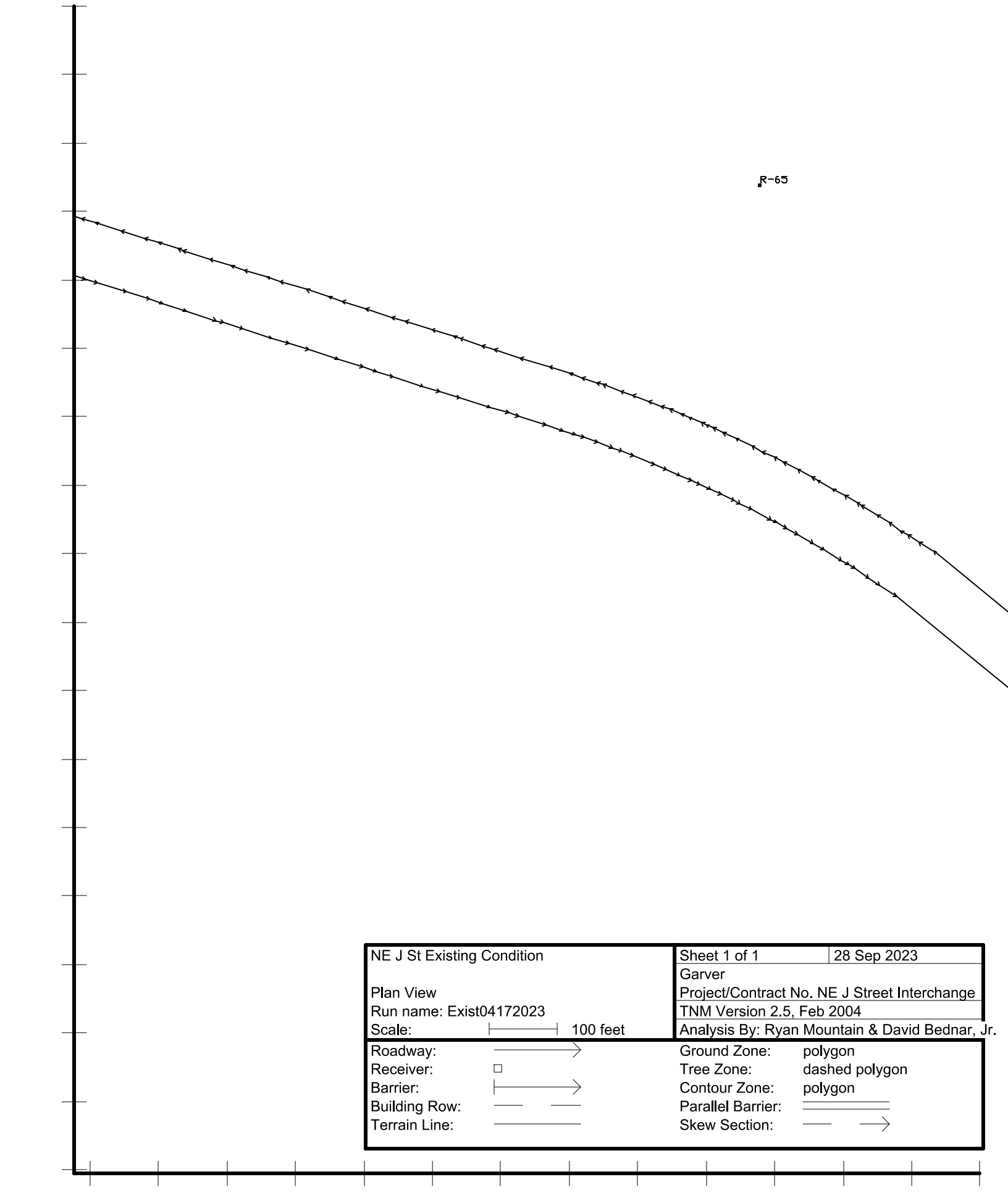
666900


R-64
R-63
R-62
NE J St Existing Condition
Plan View
Run name: Exist04172023
Scale: 100 feet
Sheet 1 of 1
28 Sep 2023
Garver
Project/Contract No. NE J Street Interchange
TNM Version 2.5, Feb 2004
Analysis By: Ryan Mountain & David Bednar, Jr.
Roadway:
Receiver:
Barrier:
Building Row:
Terrain Line:
Ground Zone: polygon
Tree Zone: dashed polygon
Contour Zone: polygon
Parallel Barrier:
Skew Section:
65000
665100
665200
665300
665400
665500
665600
665700
665800
665900
666000
666100
666200
666300


R-65
NE J St Existing Condition
Plan View
Run name: Exist04172023
Scale: 100 feet
Sheet 1 of 1
28 Sep 2023
Garver
Project/Contract No. NE J Street Interchange
TNM Version 2.5, Feb 2004
Analysis By: Ryan Mountain & David Bednar, Jr.
Roadway:
Receiver:
Barrier:
Building Row:
Terrain Line:
Ground Zone: polygon
Tree Zone: dashed polygon
Contour Zone: polygon
Parallel Barrier:
Skew Section:
700
667800
667900
668000
668100
668200
668300
668400
668500
668600
668700
668800
668900
669000

Garver
Ryan Mountain & David Bednar, Jr.
28 September 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: NE J Street Interchange
RUN: NE J St Existing Condition
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

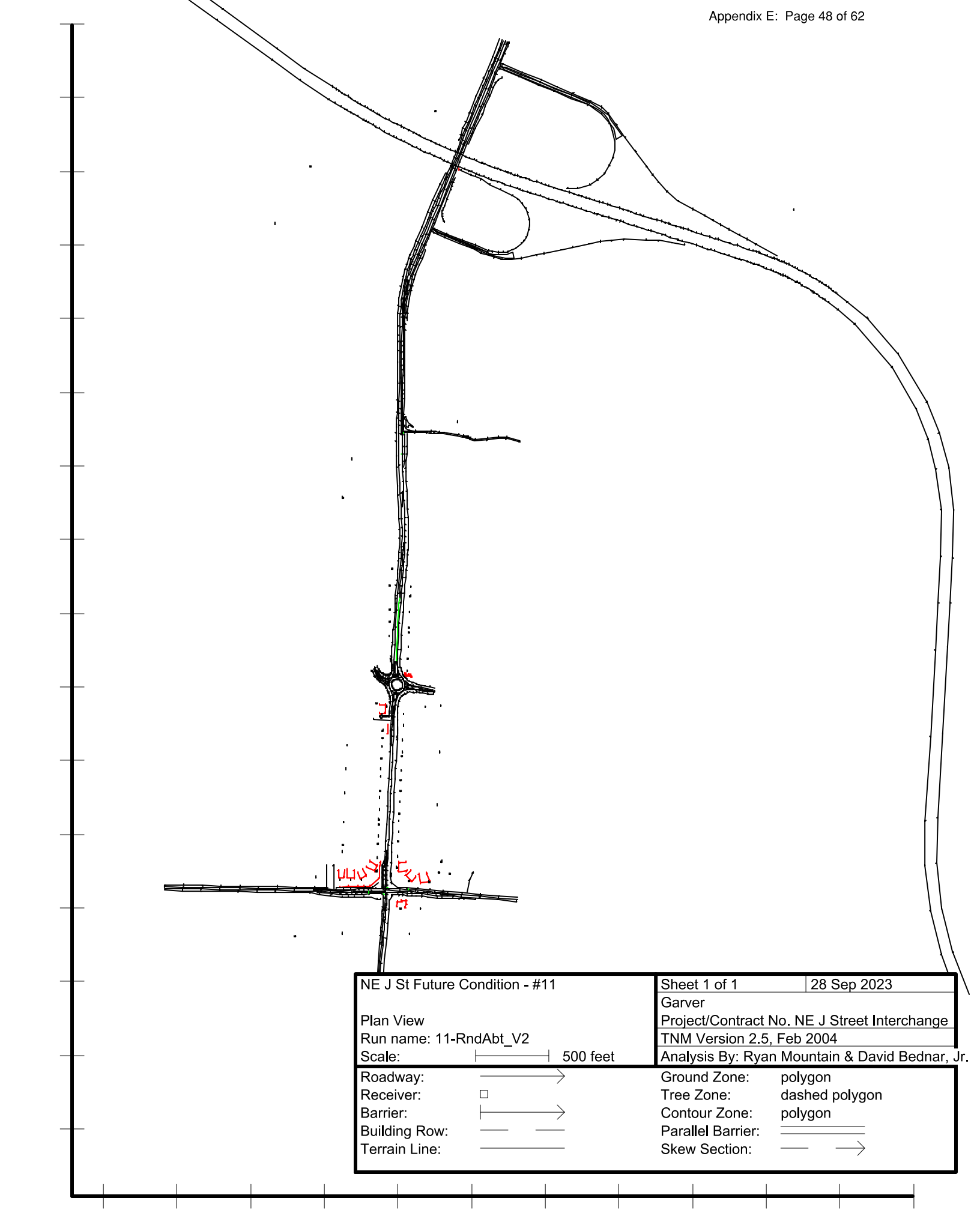
Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R-1	56	1	0.0	50.2	66	50.2	10	----	50.2	0.0	8	-8.0
R-2	58	1	0.0	53.3	66	53.3	10	----	53.3	0.0	8	-8.0
R-3	59	1	0.0	56.0	66	56.0	10	----	56.0	0.0	8	-8.0
R-4	60	1	0.0	58.5	66	58.5	10	----	58.5	0.0	8	-8.0
R-5	61	1	0.0	61.6	66	61.6	10	----	61.6	0.0	8	-8.0
R-6	62	1	0.0	60.4	66	60.4	10	----	60.4	0.0	8	-8.0
R-7	63	1	0.0	63.7	66	63.7	10	----	63.7	0.0	8	-8.0
R-8	64	1	0.0	63.8	66	63.8	10	----	63.8	0.0	8	-8.0
R-9	65	1	0.0	64.8	66	64.8	10	----	64.8	0.0	8	-8.0
R-10	66	1	0.0	61.5	66	61.5	10	----	61.5	0.0	8	-8.0
R-11	67	1	0.0	57.6	66	57.6	10	----	57.6	0.0	8	-8.0
R-12	68	1	0.0	55.9	66	55.9	10	----	55.9	0.0	8	-8.0
R-13	69	1	0.0	55.2	66	55.2	10	----	55.2	0.0	8	-8.0
R-14	70	1	0.0	54.6	66	54.6	10	----	54.6	0.0	8	-8.0
R-15	71	1	0.0	54.3	66	54.3	10	----	54.3	0.0	8	-8.0
R-16	72	1	0.0	53.7	66	53.7	10	----	53.7	0.0	8	-8.0
R-17	73	1	0.0	53.3	66	53.3	10	----	53.3	0.0	8	-8.0
R-18	74	1	0.0	53.2	66	53.2	10	----	53.2	0.0	8	-8.0
R-19	75	1	0.0	53.0	66	53.0	10	----	53.0	0.0	8	-8.0
R-20	76	1	0.0	53.0	66	53.0	10	----	53.0	0.0	8	-8.0
R-21	77	1	0.0	52.9	66	52.9	10	----	52.9	0.0	8	-8.0
R-22	78	1	0.0	52.8	66	52.8	10	----	52.8	0.0	8	-8.0
R-23	79	4	0.0	52.9	66	52.9	10	----	52.9	0.0	8	-8.0
R-24	80	4	0.0	52.9	66	52.9	10	----	52.9	0.0	8	-8.0

R-25	81	4	0.0	55.2	66	55.2	10	----	55.2	0.0	8	-8.0
R-26	82	1	0.0	55.1	66	55.1	10	----	55.1	0.0	8	-8.0
R-27	83	1	0.0	56.0	66	56.0	10	----	56.0	0.0	8	-8.0
R-28	84	1	0.0	56.0	66	56.0	10	----	56.0	0.0	8	-8.0
R-29	85	1	0.0	54.4	66	54.4	10	----	54.4	0.0	8	-8.0
R-30	86	1	0.0	54.0	66	54.0	10	----	54.0	0.0	8	-8.0
R-31	88	1	0.0	53.0	66	53.0	10	----	53.0	0.0	8	-8.0
R-32	89	1	0.0	49.8	66	49.8	10	----	49.8	0.0	8	-8.0
R-33	90	1	0.0	48.9	66	48.9	10	----	48.9	0.0	8	-8.0
R-34	96	1	0.0	57.9	66	57.9	10	----	57.9	0.0	8	-8.0
R-35	98	1	0.0	57.7	66	57.7	10	----	57.7	0.0	8	-8.0
R-36	100	1	0.0	62.7	66	62.7	10	----	62.7	0.0	8	-8.0
R-37	101	1	0.0	63.2	66	63.2	10	----	63.2	0.0	8	-8.0
R-38	102	1	0.0	60.1	66	60.1	10	----	60.1	0.0	8	-8.0
R-39	103	1	0.0	57.9	66	57.9	10	----	57.9	0.0	8	-8.0
R-40	105	1	0.0	55.8	66	55.8	10	----	55.8	0.0	8	-8.0
R-41	106	1	0.0	55.2	66	55.2	10	----	55.2	0.0	8	-8.0
R-42	107	1	0.0	54.5	66	54.5	10	----	54.5	0.0	8	-8.0
R-43	108	1	0.0	54.2	66	54.2	10	----	54.2	0.0	8	-8.0
R-44	109	1	0.0	53.5	66	53.5	10	----	53.5	0.0	8	-8.0
R-45	111	1	0.0	53.1	66	53.1	10	----	53.1	0.0	8	-8.0
R-46	112	1	0.0	52.9	66	52.9	10	----	52.9	0.0	8	-8.0
R-47	114	1	0.0	52.9	66	52.9	10	----	52.9	0.0	8	-8.0
R-48	115	1	0.0	53.0	66	53.0	10	----	53.0	0.0	8	-8.0
R-49	116	1	0.0	53.0	66	53.0	10	----	53.0	0.0	8	-8.0
R-50	117	1	0.0	53.2	66	53.2	10	----	53.2	0.0	8	-8.0
R-51	118	1	0.0	53.4	66	53.4	10	----	53.4	0.0	8	-8.0
R-52	119	1	0.0	53.7	66	53.7	10	----	53.7	0.0	8	-8.0
R-53	121	1	0.0	53.6	66	53.6	10	----	53.6	0.0	8	-8.0
R-54	122	1	0.0	54.0	66	54.0	10	----	54.0	0.0	8	-8.0
R-55	123	1	0.0	54.4	66	54.4	10	----	54.4	0.0	8	-8.0
R-56	125	1	0.0	55.3	66	55.3	10	----	55.3	0.0	8	-8.0
R-57	126	1	0.0	55.6	66	55.6	10	----	55.6	0.0	8	-8.0
R-58	128	1	0.0	56.5	66	56.5	10	----	56.5	0.0	8	-8.0
R-59	129	1	0.0	57.3	66	57.3	10	----	57.3	0.0	8	-8.0
R-60	131	1	0.0	56.6	66	56.6	10	----	56.6	0.0	8	-8.0
R-61	132	1	52.6	52.4	66	-0.2	10	----	52.4	0.0	8	-8.0
R-62	134	1	0.0	53.9	66	53.9	10	----	53.9	0.0	8	-8.0
R-63	136	1	0.0	59.0	66	59.0	10	----	59.0	0.0	8	-8.0
R-64	137	1	0.0	69.6	66	69.6	10	Snd Lvl	69.6	0.0	8	-8.0
R-65	139	1	0.0	63.2	66	63.2	10	----	63.2	0.0	8	-8.0

R-66	141	1	0.0	49.3	66	49.3	10	----	49.3	0.0	8	-8.0
R-67	142	1	0.0	48.8	66	48.8	10	----	48.8	0.0	8	-8.0
R-68	144	3	0.0	48.2	66	48.2	10	----	48.2	0.0	8	-8.0
R-69	146	5	0.0	49.0	66	49.0	10	----	49.0	0.0	8	-8.0
R-70	148	1	0.0	54.4	66	54.4	10	----	54.4	0.0	8	-8.0
R-71	150	1	0.0	53.0	66	53.0	10	----	53.0	0.0	8	-8.0
R-72	151	1	0.0	52.0	66	52.0	10	----	52.0	0.0	8	-8.0
R-73	153	3	0.0	49.6	66	49.6	10	----	49.6	0.0	8	-8.0
R-74	155	3	0.0	48.1	66	48.1	10	----	48.1	0.0	8	-8.0
R-75	157	2	0.0	47.9	66	47.9	10	----	47.9	0.0	8	-8.0
R-76	159	4	0.0	47.7	66	47.7	10	----	47.7	0.0	8	-8.0
R-77	161	1	0.0	52.4	66	52.4	10	----	52.4	0.0	8	-8.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	100	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0


NE J St Future Condition - #11
Plan View
Run name: 11-RndAbt_V2
Scale: 500 feet
Sheet 1 of 1
28 Sep 2023
Garver
Project/Contract No. NE J Street Interchange
TNM Version 2.5, Feb 2004
Analysis By: Ryan Mountain & David Bednar, Jr.
Roadway:
Receiver:
Barrier:
Building Row:
Terrain Line:
Ground Zone: polygon
Tree Zone: dashed polygon
Contour Zone: polygon
Parallel Barrier:
Skew Section:
64000
664500
665000
665500
666000
666500
667000
667500
668000
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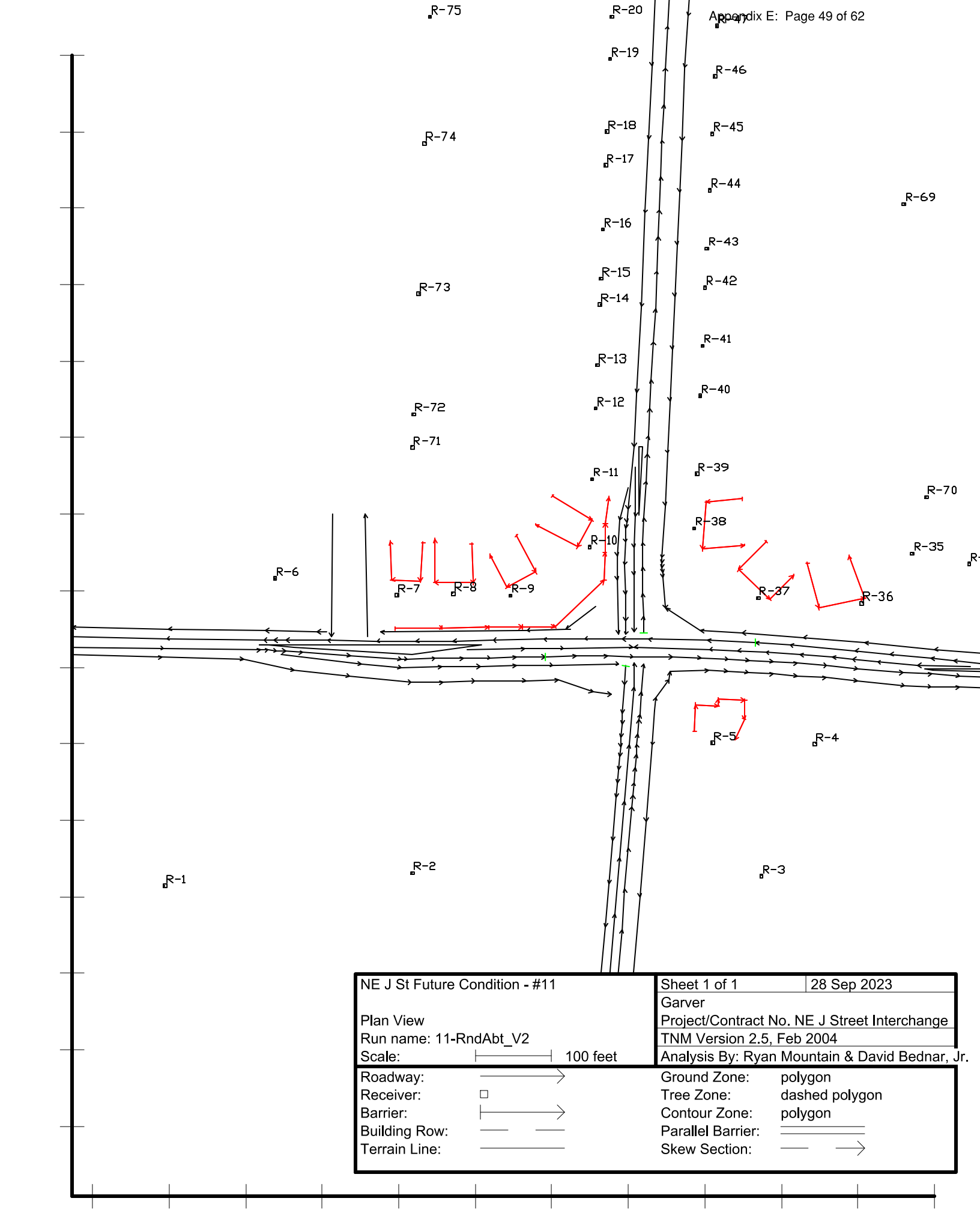
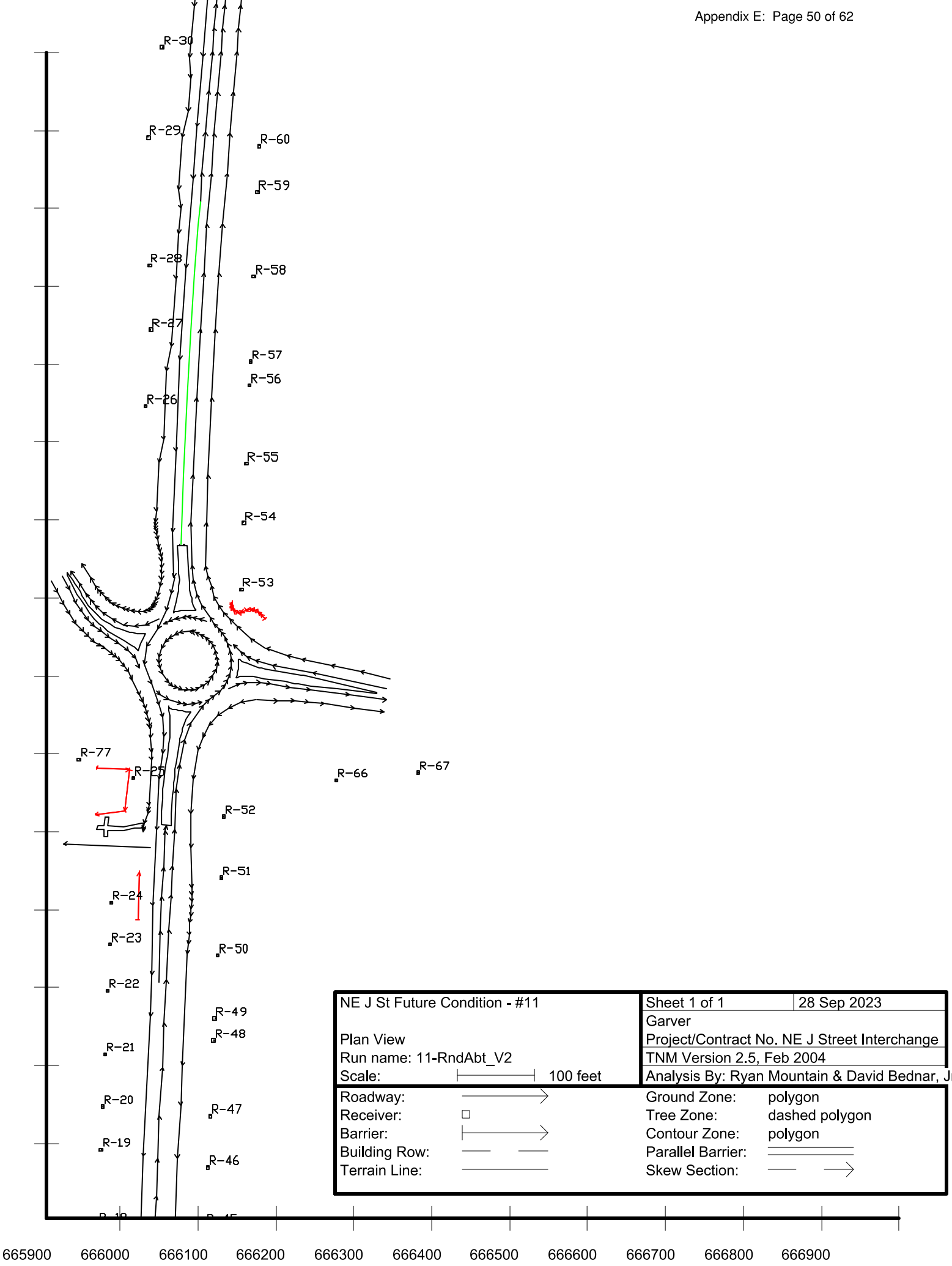
669000
669500

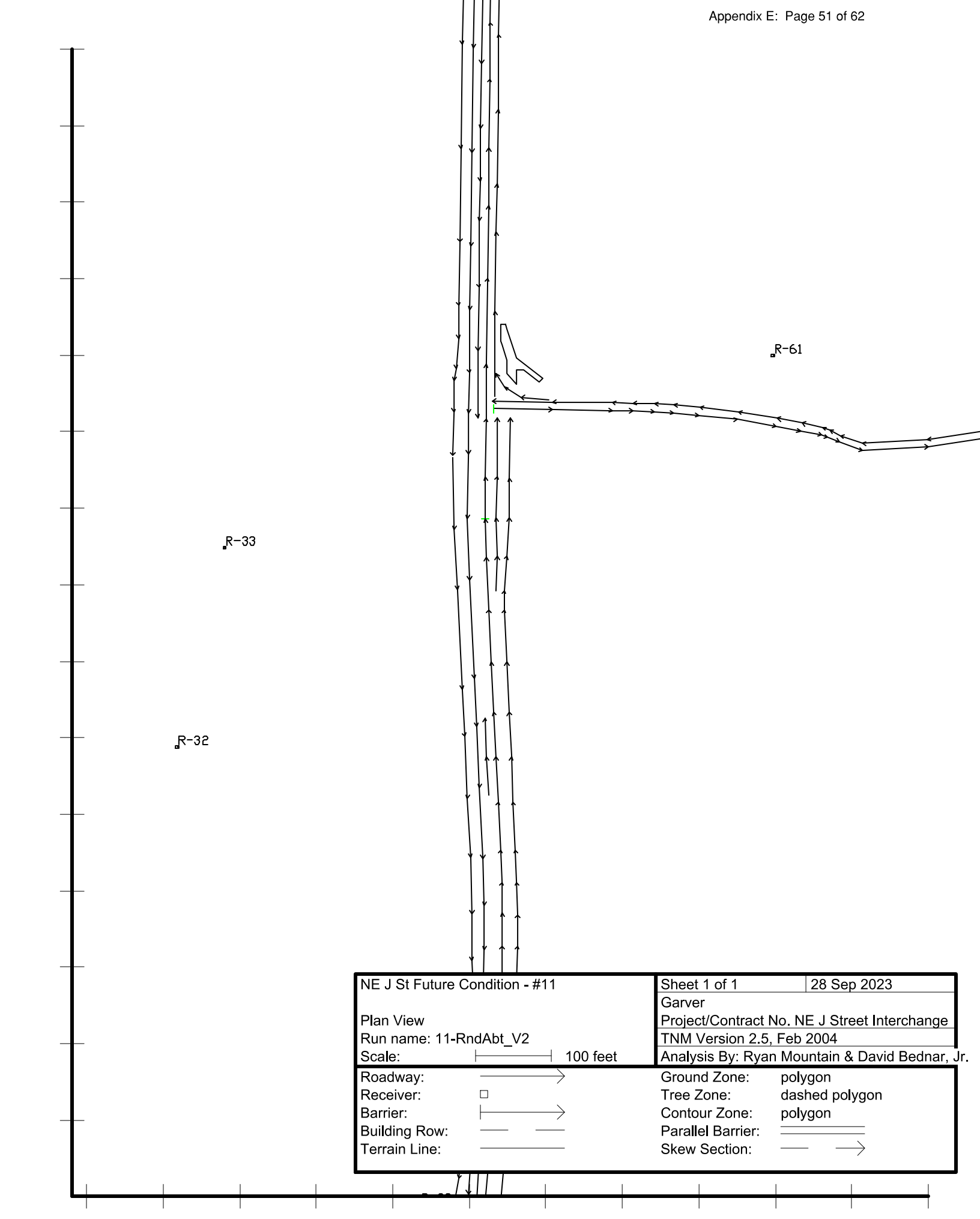


NE J St Future Condition - #11	Sheet 1 of 1 | 28 Sep 2023
	Garver
Plan View	Project/Contract No. NE J Street Interchange
Run name: 11-RndAbt_V2	TNM Version 2.5, Feb 2004
Scale: 100 feet	Analysis By: Ryan Mountain & David Bednar, Jr.

Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	



NE J St Future Condition - #11		Sheet 1 of 1	28 Sep 2023
		Garver	
Plan View		Project/Contract No. NE J Street Interchange	
Run name: 11-RndAbt_V2		TNM Version 2.5, Feb 2004	
Scale:	100 feet	Analysis By: Ryan Mountain & David Bednar, Jr.	
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	


R-61
R-33
R-32
NE J St Future Condition - #11
Plan View
Run name: 11-RndAbt_V2
Scale: 100 feet
Sheet 1 of 1
28 Sep 2023
Garver
Project/Contract No. NE J Street Interchange
TNM Version 2.5, Feb 2004
Analysis By: Ryan Mountain & David Bednar, Jr.
Roadway:
Receiver:
Barrier:
Building Row:
Terrain Line:
Ground Zone: polygon
Tree Zone: dashed polygon
Contour Zone: polygon
Parallel Barrier:
Skew Section:
500
665600
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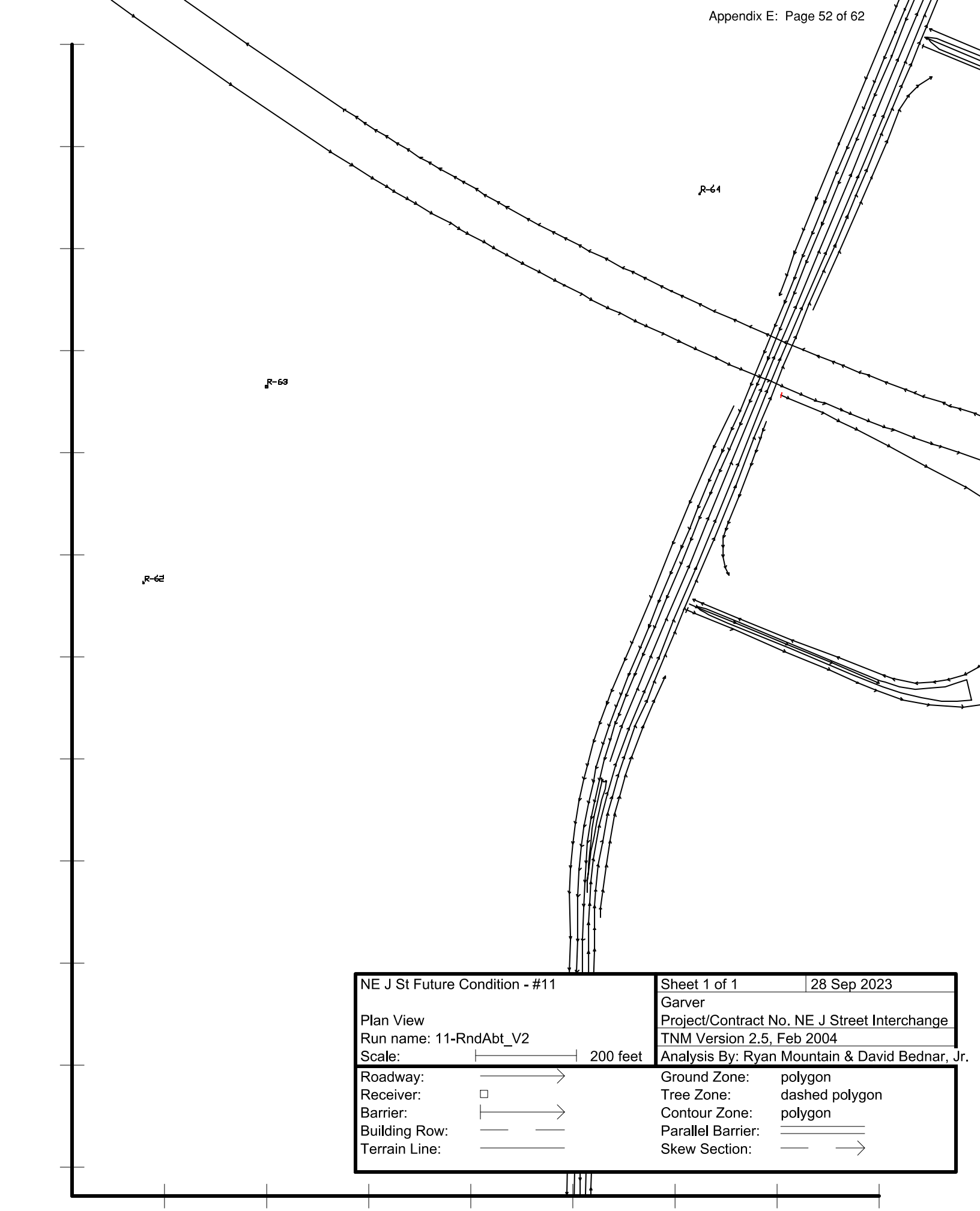
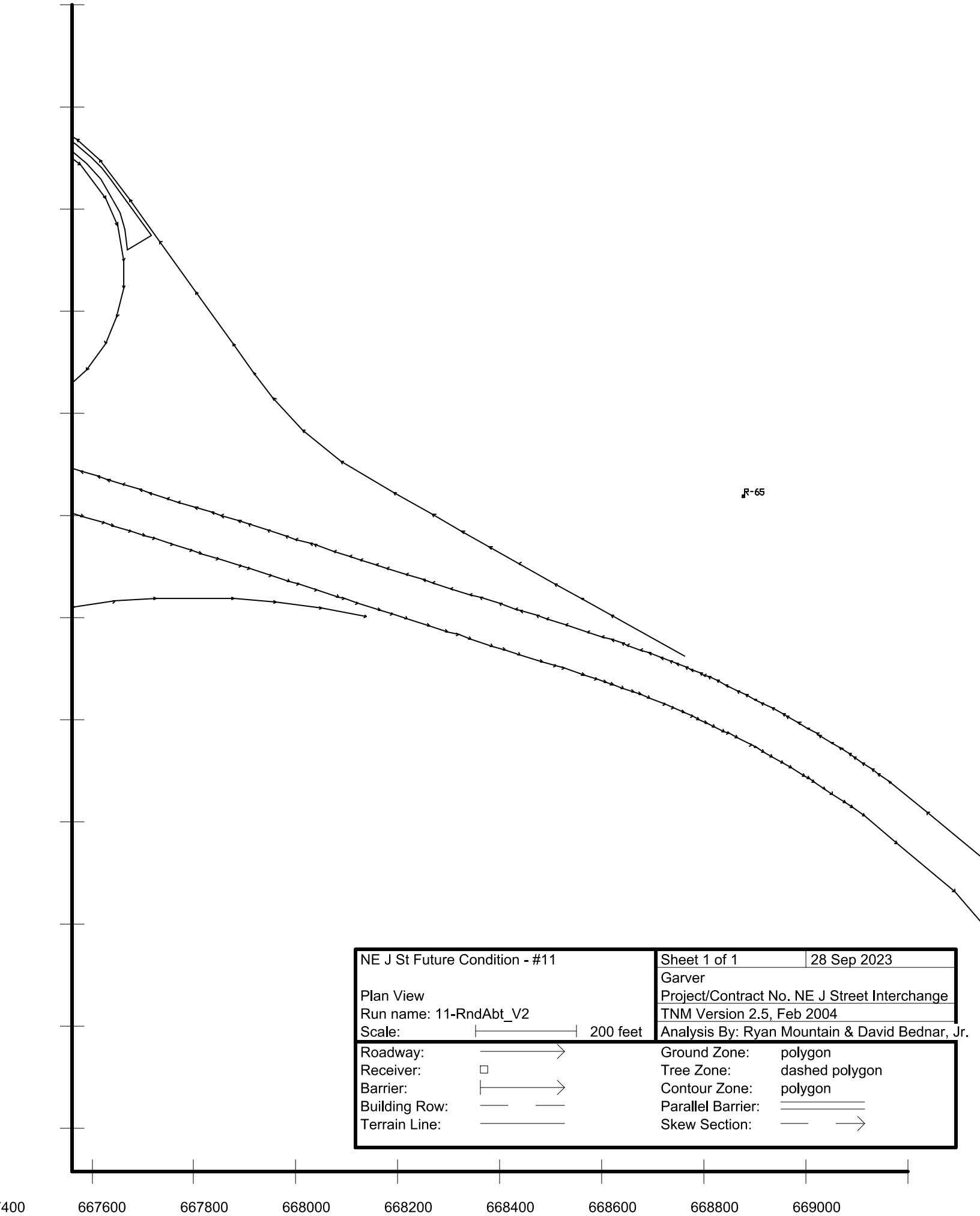


NE J St Future Condition - #11	Sheet 1 of 1 | 28 Sep 2023
	Garver
Plan View	Project/Contract No. NE J Street Interchange
Run name: 11-RndAbt_V2	TNM Version 2.5, Feb 2004
Scale: 200 feet	Analysis By: Ryan Mountain & David Bednar, Jr.

Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	


R-65
NE J St Future Condition - #11
Plan View
Run name: 11-RndAbt_V2
Scale: 200 feet
Sheet 1 of 1
28 Sep 2023
Garver
Project/Contract No. NE J Street Interchange
TNM Version 2.5, Feb 2004
Analysis By: Ryan Mountain & David Bednar, Jr.
Roadway:
Receiver:
Barrier:
Building Row:
Terrain Line:
Ground Zone: polygon
Tree Zone: dashed polygon
Contour Zone: polygon
Parallel Barrier:
Skew Section:
667400
667600
667800
668000
668200
668400
668600
668800
669000

Garver
Ryan Mountain & David Bednar, Jr.
28 September 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: NE J Street Interchange
RUN: NE J St Future Condition - #11
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R-1	56	1	50.2	54.9	66	4.7	10	----	54.9	0.0	8	-8.0
R-2	58	1	53.3	58.2	66	4.9	10	----	58.2	0.0	8	-8.0
R-3	59	1	56.0	59.6	66	3.6	10	----	59.6	0.0	8	-8.0
R-4	60	1	58.5	63.8	66	5.3	10	----	63.8	0.0	8	-8.0
R-5	61	1	61.6	63.0	66	1.4	10	----	63.0	0.0	8	-8.0
R-6	62	1	60.4	64.9	66	4.5	10	----	64.9	0.0	8	-8.0
R-7	63	1	63.7	65.9	66	2.2	10	----	65.9	0.0	8	-8.0
R-8	64	1	63.8	64.1	66	0.3	10	----	64.1	0.0	8	-8.0
R-9	65	1	64.8	64.7	66	-0.1	10	----	64.7	0.0	8	-8.0
R-10	66	1	61.5	65.0	66	3.5	10	----	65.0	0.0	8	-8.0
R-11	67	1	57.6	64.9	66	7.3	10	----	64.9	0.0	8	-8.0
R-12	68	1	55.9	64.0	66	8.1	10	----	64.0	0.0	8	-8.0
R-13	69	1	55.2	63.6	66	8.4	10	----	63.6	0.0	8	-8.0
R-14	70	1	54.6	63.3	66	8.7	10	----	63.3	0.0	8	-8.0
R-15	71	1	54.3	63.2	66	8.9	10	----	63.2	0.0	8	-8.0
R-16	72	1	53.7	63.0	66	9.3	10	----	63.0	0.0	8	-8.0
R-17	73	1	53.3	62.8	66	9.5	10	----	62.8	0.0	8	-8.0
R-18	74	1	53.2	62.8	66	9.6	10	----	62.8	0.0	8	-8.0
R-19	75	1	53.0	62.8	66	9.8	10	----	62.8	0.0	8	-8.0
R-20	76	1	53.0	62.8	66	9.8	10	----	62.8	0.0	8	-8.0
R-21	77	1	52.9	62.8	66	9.9	10	----	62.8	0.0	8	-8.0
R-22	78	1	52.8	62.7	66	9.9	10	----	62.7	0.0	8	-8.0
R-23	79	1	52.9	62.6	66	9.7	10	----	62.6	0.0	8	-8.0
R-24	80	1	52.9	61.5	66	8.6	10	----	61.5	0.0	8	-8.0

R-25	81	1	55.2	65.0	66	9.8	10	----	65.0	0.0	8	-8.0
R-26	82	4	55.1	63.5	66	8.4	10	----	63.5	0.0	8	-8.0
R-27	83	4	56.0	63.7	66	7.7	10	----	63.7	0.0	8	-8.0
R-28	84	4	56.0	63.2	66	7.2	10	----	63.2	0.0	8	-8.0
R-29	85	1	54.4	62.3	66	7.9	10	----	62.3	0.0	8	-8.0
R-30	86	1	54.0	63.6	66	9.6	10	----	63.6	0.0	8	-8.0
R-32	88	1	49.8	54.2	66	4.4	10	----	54.2	0.0	8	-8.0
R-33	89	1	48.9	55.7	66	6.8	10	----	55.7	0.0	8	-8.0
R-34	90	1	57.9	62.5	66	4.6	10	----	62.5	0.0	8	-8.0
R-35	96	1	57.7	61.4	66	3.7	10	----	61.4	0.0	8	-8.0
R-36	97	1	62.7	67.1	66	4.4	10	Snd Lvl	67.1	0.0	8	-8.0
R-37	98	1	63.2	69.3	66	6.1	10	Snd Lvl	69.3	0.0	8	-8.0
R-38	99	1	60.1	65.7	66	5.6	10	----	65.7	0.0	8	-8.0
R-39	100	1	57.9	64.3	66	6.4	10	----	64.3	0.0	8	-8.0
R-40	101	1	55.8	63.2	66	7.4	10	----	63.2	0.0	8	-8.0
R-41	102	1	55.2	63.0	66	7.8	10	----	63.0	0.0	8	-8.0
R-42	103	1	54.5	62.9	66	8.4	10	----	62.9	0.0	8	-8.0
R-43	104	1	54.2	62.8	66	8.6	10	----	62.8	0.0	8	-8.0
R-44	105	1	53.5	62.0	66	8.5	10	----	62.0	0.0	8	-8.0
R-45	106	1	53.1	61.9	66	8.8	10	----	61.9	0.0	8	-8.0
R-46	107	1	52.9	62.0	66	9.1	10	----	62.0	0.0	8	-8.0
R-47	108	1	52.9	62.1	66	9.2	10	----	62.1	0.0	8	-8.0
R-48	109	1	53.0	62.3	66	9.3	10	----	62.3	0.0	8	-8.0
R-49	110	1	53.0	62.3	66	9.3	10	----	62.3	0.0	8	-8.0
R-50	111	1	53.2	62.5	66	9.3	10	----	62.5	0.0	8	-8.0
R-51	112	1	53.4	62.4	66	9.0	10	----	62.4	0.0	8	-8.0
R-52	113	1	53.7	62.4	66	8.7	10	----	62.4	0.0	8	-8.0
R-53	114	1	53.6	62.3	66	8.7	10	----	62.3	0.0	8	-8.0
R-54	116	1	54.0	61.8	66	7.8	10	----	61.8	0.0	8	-8.0
R-55	117	1	54.4	61.6	66	7.2	10	----	61.6	0.0	8	-8.0
R-56	119	1	55.3	61.4	66	6.1	10	----	61.4	0.0	8	-8.0
R-57	120	1	55.6	61.5	66	5.9	10	----	61.5	0.0	8	-8.0
R-58	121	1	56.5	62.0	66	5.5	10	----	62.0	0.0	8	-8.0
R-59	122	1	57.3	62.8	66	5.5	10	----	62.8	0.0	8	-8.0
R-60	123	1	56.6	62.6	66	6.0	10	----	62.6	0.0	8	-8.0
R-61	124	1	52.6	55.6	66	3.0	10	----	55.6	0.0	8	-8.0
R-62	125	1	53.9	55.6	66	1.7	10	----	55.6	0.0	8	-8.0
R-63	126	1	59.0	61.0	66	2.0	10	----	61.0	0.0	8	-8.0
R-64	127	1	69.6	71.5	66	1.9	10	Snd Lvl	71.5	0.0	8	-8.0
R-65	129	1	63.2	64.7	66	1.5	10	----	64.7	0.0	8	-8.0
R-66	132	1	49.3	55.7	66	6.4	10	----	55.7	0.0	8	-8.0

R-67	133	1	48.8	53.7	66	4.9	10	----	53.7	0.0	8	-8.0
R-68	134	3	48.2	53.0	66	4.8	10	----	53.0	0.0	8	-8.0
R-69	135	5	49.0	53.1	66	4.1	10	----	53.1	0.0	8	-8.0
R-70	136	1	54.4	57.1	66	2.7	10	----	57.1	0.0	8	-8.0
R-71	137	1	53.0	55.3	66	2.3	10	----	55.3	0.0	8	-8.0
R-72	140	1	52.0	54.8	66	2.8	10	----	54.8	0.0	8	-8.0
R-73	141	3	49.6	53.5	66	3.9	10	----	53.5	0.0	8	-8.0
R-74	142	3	48.1	52.5	66	4.4	10	----	52.5	0.0	8	-8.0
R-75	143	2	47.9	52.4	66	4.5	10	----	52.4	0.0	8	-8.0
R-76	144	4	47.7	52.1	66	4.4	10	----	52.1	0.0	8	-8.0
R-77	146	1	52.4	55.3	66	2.9	10	----	55.3	0.0	8	-8.0

Dwelling Units		**# DUs**	**Noise Reduction**		
			Min	**Avg**	**Max**
			dB	**dB**	**dB**
All Selected		99	0.0	0.0	0.0
All Impacted		3	0.0	0.0	0.0
All that meet NR Goal		0	0.0	0.0	0.0

Garver
Ryan Mountain & David Bednar, Jr.
28 September 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: NE J Street Interchange
RUN: NE J St No Build
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R-1	56	1	50.2	55.1	66	4.9	10	----	55.1	0.0	8	-8.0
R-2	58	1	53.3	58.4	66	5.1	10	----	58.4	0.0	8	-8.0
R-3	59	1	56.0	61.3	66	5.3	10	----	61.3	0.0	8	-8.0
R-4	60	1	58.5	64.3	66	5.8	10	----	64.3	0.0	8	-8.0
R-5	61	1	61.6	67.1	66	5.5	10	Snd Lvl	67.1	0.0	8	-8.0
R-6	62	1	60.4	65.6	66	5.2	10	----	65.6	0.0	8	-8.0
R-7	63	1	63.7	68.9	66	5.2	10	Snd Lvl	68.9	0.0	8	-8.0
R-8	64	1	63.8	69.1	66	5.3	10	Snd Lvl	69.1	0.0	8	-8.0
R-9	65	1	64.8	70.0	66	5.2	10	Snd Lvl	70.0	0.0	8	-8.0
R-10	66	1	61.5	66.2	66	4.7	10	Snd Lvl	66.2	0.0	8	-8.0
R-11	67	1	57.6	62.2	66	4.6	10	----	62.2	0.0	8	-8.0
R-12	68	1	55.9	60.1	66	4.2	10	----	60.1	0.0	8	-8.0
R-13	69	1	55.2	59.1	66	3.9	10	----	59.1	0.0	8	-8.0
R-14	70	1	54.6	57.6	66	3.0	10	----	57.6	0.0	8	-8.0
R-15	71	1	54.3	58.0	66	3.7	10	----	58.0	0.0	8	-8.0
R-16	72	1	53.7	56.9	66	3.2	10	----	56.9	0.0	8	-8.0
R-17	73	1	53.3	56.0	66	2.7	10	----	56.0	0.0	8	-8.0
R-18	74	1	53.2	56.5	66	3.3	10	----	56.5	0.0	8	-8.0
R-19	75	1	53.0	56.3	66	3.3	10	----	56.3	0.0	8	-8.0
R-20	76	1	53.0	54.7	66	1.7	10	----	54.7	0.0	8	-8.0
R-21	77	1	52.9	56.2	66	3.3	10	----	56.2	0.0	8	-8.0
R-22	78	1	52.8	56.7	66	3.9	10	----	56.7	0.0	8	-8.0
R-23	79	4	52.9	56.1	66	3.2	10	----	56.1	0.0	8	-8.0
R-24	80	4	52.9	54.7	66	1.8	10	----	54.7	0.0	8	-8.0

R-25	81	4	55.2	58.2	66	3.0	10	----	58.2	0.0	8	-8.0
R-26	82	1	55.1	58.1	66	3.0	10	----	58.1	0.0	8	-8.0
R-27	83	1	56.0	59.2	66	3.2	10	----	59.2	0.0	8	-8.0
R-28	84	1	56.0	59.2	66	3.2	10	----	59.2	0.0	8	-8.0
R-29	85	1	54.4	57.4	66	3.0	10	----	57.4	0.0	8	-8.0
R-30	86	1	54.0	56.9	66	2.9	10	----	56.9	0.0	8	-8.0
R-32	89	1	49.8	51.8	66	2.0	10	----	51.8	0.0	8	-8.0
R-33	90	1	48.9	50.9	66	2.0	10	----	50.9	0.0	8	-8.0
R-34	96	1	57.9	63.8	66	5.9	10	----	63.8	0.0	8	-8.0
R-35	98	1	57.7	63.6	66	5.9	10	----	63.6	0.0	8	-8.0
R-36	100	1	62.7	68.7	66	6.0	10	Snd Lvl	68.7	0.0	8	-8.0
R-37	101	1	63.2	69.1	66	5.9	10	Snd Lvl	69.1	0.0	8	-8.0
R-38	102	1	60.1	64.9	66	4.8	10	----	64.9	0.0	8	-8.0
R-39	103	1	57.9	62.6	66	4.7	10	----	62.6	0.0	8	-8.0
R-40	105	1	55.8	59.7	66	3.9	10	----	59.7	0.0	8	-8.0
R-41	106	1	55.2	58.5	66	3.3	10	----	58.5	0.0	8	-8.0
R-42	107	1	54.5	58.4	66	3.9	10	----	58.4	0.0	8	-8.0
R-43	108	1	54.2	57.7	66	3.5	10	----	57.7	0.0	8	-8.0
R-44	109	1	53.5	57.6	66	4.1	10	----	57.6	0.0	8	-8.0
R-45	111	1	53.1	56.7	66	3.6	10	----	56.7	0.0	8	-8.0
R-46	112	1	52.9	56.3	66	3.4	10	----	56.3	0.0	8	-8.0
R-47	114	1	52.9	56.4	66	3.5	10	----	56.4	0.0	8	-8.0
R-48	115	1	53.0	55.6	66	2.6	10	----	55.6	0.0	8	-8.0
R-49	116	1	53.0	56.2	66	3.2	10	----	56.2	0.0	8	-8.0
R-50	117	1	53.2	56.7	66	3.5	10	----	56.7	0.0	8	-8.0
R-51	118	1	53.4	56.9	66	3.5	10	----	56.9	0.0	8	-8.0
R-52	119	1	53.7	56.2	66	2.5	10	----	56.2	0.0	8	-8.0
R-53	121	1	53.6	56.6	66	3.0	10	----	56.6	0.0	8	-8.0
R-54	122	1	54.0	56.5	66	2.5	10	----	56.5	0.0	8	-8.0
R-55	123	1	54.4	57.3	66	2.9	10	----	57.3	0.0	8	-8.0
R-56	125	1	55.3	58.4	66	3.1	10	----	58.4	0.0	8	-8.0
R-57	126	1	55.6	58.4	66	2.8	10	----	58.4	0.0	8	-8.0
R-58	128	1	56.5	58.5	66	2.0	10	----	58.5	0.0	8	-8.0
R-59	129	1	57.3	60.5	66	3.2	10	----	60.5	0.0	8	-8.0
R-60	131	1	56.6	58.0	66	1.4	10	----	58.0	0.0	8	-8.0
R-61	132	1	52.6	54.4	66	1.8	10	----	54.4	0.0	8	-8.0
R-62	134	1	53.9	55.8	66	1.9	10	----	55.8	0.0	8	-8.0
R-63	136	1	59.0	60.9	66	1.9	10	----	60.9	0.0	8	-8.0
R-64	137	1	69.6	71.5	66	1.9	10	Snd Lvl	71.5	0.0	8	-8.0
R-65	139	1	63.2	65.1	66	1.9	10	----	65.1	0.0	8	-8.0
R-66	141	1	49.3	52.0	66	2.7	10	----	52.0	0.0	8	-8.0

R-67	142	1	48.8	51.3	66	2.5	10	----	51.3	0.0	8	-8.0
R-68	143	3	48.2	51.3	66	3.1	10	----	51.3	0.0	8	-8.0
R-69	144	5	49.0	52.9	66	3.9	10	----	52.9	0.0	8	-8.0
R-70	145	1	54.4	60.0	66	5.6	10	----	60.0	0.0	8	-8.0
R-71	146	1	53.0	57.9	66	4.9	10	----	57.9	0.0	8	-8.0
R-72	147	1	52.0	56.8	66	4.8	10	----	56.8	0.0	8	-8.0
R-73	148	3	49.6	54.0	66	4.4	10	----	54.0	0.0	8	-8.0
R-74	149	3	48.1	51.9	66	3.8	10	----	51.9	0.0	8	-8.0
R-75	150	2	47.9	51.4	66	3.5	10	----	51.4	0.0	8	-8.0
R-76	151	4	47.7	50.7	66	3.0	10	----	50.7	0.0	8	-8.0
R-77	152	1	52.4	54.7	66	2.3	10	----	54.7	0.0	8	-8.0

Dwelling Units		**# DUs**	**Noise Reduction**		
			Min	**Avg**	**Max**
			dB	**dB**	**dB**
All Selected		99	0.0	0.0	0.0
All Impacted		8	0.0	0.0	0.0
All that meet NR Goal		0	0.0	0.0	0.0

APPENDIX D
Alternatives Comparison

Appendix D — Alternatives Traffic Noise Levels Comparison, *dB(A) Leq(h)*								
	Existing Condition	Build Alternative			No-Action			
Modeled Receiver*	Existing Level	Existing Level	Future Level	Change (+/-)	Existing Level	Future Level	Change (+/-)	Noise Impact?
R-1	50.2	50.2	54.9	4.7	50.2	55.1	4.9	No
R-2	53.3	53.3	58.2	4.9	53.3	58.4	5.1	No
R-3	56.0	56.0	59.6	3.6	56.0	61.3	5.3	No
R-4	58.5	58.5	63.8	5.3	58.5	64.3	5.8	No
R-5	61.6	61.6	63.0	1.4	61.6	67.1	5.5	No
R-6	60.4	60.4	64.9	4.5	60.4	65.6	5.2	No
R-7	63.7	63.7	65.9	2.2	63.7	68.9	5.2	No
R-8	63.8	63.8	64.1	0.3	63.8	69.1	5.3	No
R-9	64.8	64.8	64.7	-0.1	64.8	70.0	5.2	No
R-10	61.5	61.5	65.0	3.5	61.5	66.2	4.7	No
R-11	57.6	57.6	64.9	7.3	57.6	62.2	4.6	No
R-12	55.9	55.9	64.0	8.1	55.9	60.1	4.2	No
R-13	55.2	55.2	63.6	8.4	55.2	59.1	3.9	No
R-14	54.6	54.6	63.3	8.7	54.6	57.6	3.0	No
R-15	54.3	54.3	63.2	8.9	54.3	58.0	3.7	No
R-16	53.7	53.7	63.0	9.3	53.7	56.9	3.2	No
R-17	53.3	53.3	62.8	9.5	53.3	56.0	2.7	No
R-18	53.2	53.2	62.8	9.6	53.2	56.5	3.3	No
R-19	53.0	53.0	62.8	9.8	53.0	56.3	3.3	No
R-20	53.0	53.0	62.8	9.8	53.0	54.7	1.7	No
R-21	52.9	52.9	62.8	9.9	52.9	56.2	3.3	No
R-22	52.8	52.8	62.7	9.9	52.8	56.7	3.9	No
R-23	52.9	52.9	62.6	9.7	52.9	56.1	3.2	No
R-24	52.9	52.9	61.5	8.6	52.9	54.7	1.8	No
R-25	55.2	55.2	65.0	9.8	55.2	58.2	3.0	No
R-26	55.1	55.1	63.5	8.4	55.1	58.1	3.0	No
R-27	56.0	56.0	63.7	7.7	56.0	59.2	3.2	No
R-28	56.0	56.0	63.2	7.2	56.0	59.2	3.2	No
R-29	54.4	54.4	62.3	7.9	54.4	57.4	3.0	No
R-30	54.0	54.0	63.6	9.6	54.0	56.9	2.9	No
R-32	49.8	49.8	54.2	4.4	49.8	51.8	2.0	No
R-33	48.9	48.9	55.7	6.8	48.9	50.9	2.0	No
R-34	57.9	57.9	62.5	4.6	57.9	63.8	5.9	No
R-35	57.7	57.7	61.4	3.7	57.7	63.6	5.9	No
R-36	**62.7**	**62.7**	**67.1**	**4.4**	**62.7**	**68.7**	**6.0**	**Yes**
R-37	**63.2**	**63.2**	**69.3**	**6.1**	**63.2**	**69.1**	**5.9**	**Yes**
R-38	60.1	60.1	65.7	5.6	60.1	64.9	4.8	No
R-39	57.9	57.9	64.3	6.4	57.9	62.6	4.7	No
R-40	55.8	55.8	63.2	7.4	55.8	59.7	3.9	No
R-41	55.2	55.2	63.0	7.8	55.2	58.5	3.3	No
R-42	54.5	54.5	62.9	8.4	54.5	58.4	3.9	No
R-43	54.2	54.2	62.8	8.6	54.2	57.7	3.5	No
R-44	53.5	53.5	62.0	8.5	53.5	57.6	4.1	No
R-45	53.1	53.1	61.9	8.8	53.1	56.7	3.6	No
R-46	52.9	52.9	62.0	9.1	52.9	56.3	3.4	No
R-47	52.9	52.9	62.1	9.2	52.9	56.4	3.5	No
R-48	53.0	53.0	62.3	9.3	53.0	55.6	2.6	No
R-49	53.0	53.0	62.3	9.3	53.0	56.2	3.2	No
R-50	53.2	53.2	62.5	9.3	53.2	56.7	3.5	No
R-51	53.4	53.4	62.4	9.0	53.4	56.9	3.5	No
R-52	53.7	53.7	62.4	8.7	53.7	56.2	2.5	No
R-53	53.6	53.6	62.3	8.7	53.6	56.6	3.0	No
R-54	54.0	54.0	61.8	7.8	54.0	56.5	2.5	No
R-55	54.4	54.4	61.6	7.2	54.4	57.3	2.9	No
R-56	55.3	55.3	61.4	6.1	55.3	58.4	3.1	No
R-57	55.6	55.6	61.5	5.9	55.6	58.4	2.8	No
R-58	56.5	56.5	62.0	5.5	56.5	58.5	2.0	No
R-59	57.3	57.3	62.8	5.5	57.3	60.5	3.2	No
R-60	56.6	56.6	62.6	6.0	56.6	58.0	1.4	No
R-61	52.6	52.6	55.6	3.0	52.6	54.4	1.8	No
R-62	53.9	53.9	55.6	1.7	53.9	55.8	1.9	No
R-63	59.0	59.0	61.0	2.0	59.0	60.9	1.9	No
R-64	**69.6**	**69.6**	**71.5**	**1.9**	**69.6**	**71.5**	**1.9**	**Yes**
R-65	63.2	63.2	64.7	1.5	63.2	65.1	1.9	No
R-66	49.3	49.3	55.7	6.4	49.3	52.0	2.7	No
R-67	48.8	48.8	53.7	4.9	48.8	51.3	2.5	No
R-68	48.2	48.2	53.0	4.8	48.2	51.3	3.1	No
R-69	49.0	49.0	53.1	4.1	49.0	52.9	3.9	No
R-70	54.4	54.4	57.1	2.7	54.4	60.0	5.6	No
R-71	53.0	53.0	55.3	2.3	53.0	57.9	4.9	No
R-72	52.0	52.0	54.8	2.8	52.0	56.8	4.8	No
R-73	49.6	49.6	53.5	3.9	49.6	54.0	4.4	No
R-74	48.1	48.1	52.5	4.4	48.1	51.9	3.8	No
R-75	47.9	47.9	52.4	4.5	47.9	51.4	3.5	No
R-76	47.7	47.7	52.1	4.4	47.7	50.7	3.0	No
R-77	52.4	52.4	55.3	2.9	52.4	54.7	2.3	No
*R-31 was not used.								


GARVER

Appendix F

Cultural Resources

Sarah Huckabee Sanders
Governor
Shea Lewis
Secretary

October 20, 2023

Mr. John Fleming
Division Head
Environmental Division
Arkansas Department of Transportation
10324 Interstate 30
Little Rock, AR 72203-2261

RE: Benton County: General
Section 106 Review: FHWA
Proposed Undertaking: I-49/NE J St. Intchng.
Route I-49, Section 29
Cultural Resources Survey Report: *A Cultural Resources Survey for the Proposed NE J Street Expansion and Interchange Project in Bentonville, Benton County, Arkansas*
Flat Earth Archeology Report: 2021-123
ArDOT Job Number: 090676
AHPP Tracking Number: 111573

Dear Mr. Fleming:

The staff of the Arkansas Historic Preservation Program (AHPP) has reviewed the cultural resources survey for the above-referenced undertaking in Sections 17 and 20, Township 20 North, Range 30 West in Benton County. The project proposes to expand 1.1 linear miles of roadway and create an interstate/roadway interchange area covering approximately 29 acres in Benton County. A total of 237 shovel tests were excavated in the APE and a total of two isolated finds were identified. No other cultural materials were found in the APE. There are many previously recorded sites in the area and one (3BE0624) within the APE. However, shovel testing within the site boundaries did not recover any cultural materials as the portion of the site within the APE is highly disturbed by previous ground disturbing activity. It is recommended that 3BE0624 still be considered undetermined for inclusion in the National Register of Historic Places (NRHP) because not all the site has been thoroughly tested.

An architectural resource survey was conducted of the APE and a total of eight recorded historic structures located outside of the direct APE were evaluated during this survey. All eight structures are recommended as not eligible for inclusion in the NRHP and none will be affected by this undertaking.

AHPP Tracking Number 111573

An addendum to the original report was also included in the submission for an additional survey of 21.86 acres. A total of 296 shovel tests were excavated in this additional APE. A total of three sites (3BE1103, 3BE1104, and 3BE1105) were identified along with one isolated find. 3BE1103 and 3BE1104 are both pre-contact lithic scatters and due to portions of the sites being inaccessible, full delineation was not possible. 3BE1105 is also a pre-contact lithic scatter but did not produce much in the way of cultural materials or diagnostic artifacts. 3BE1103 and 3BE1104 are recommended as undetermined for inclusion in the NRHP and 3BE1105 is recommended as not eligible.

Based on the provided information, the AHPP concurs with the finding of **no historic properties affected pursuant to 36 CFR § 800.4(d)(1)** for the proposed undertaking **if** sites 3BE1103 and 3BE1104 are avoided. We concur that the portion of site 3BE0624 that falls within the APE will not be affected by this undertaking and should still be considered undetermined for inclusion in the NRHP. We concur that 3BE1103 and 3BE1104 are undetermined for inclusion in the NRHP and should be avoided or subjected to additional testing to determine eligibility. We concur that 3BE1105 is not eligible for inclusion in the NRHP. The AHPP concurs that all eight historic structures are not eligible for inclusion in the NRHP and will not be affected by this undertaking. In the event of a post-review discovery of historic properties within the area of potential effects, please contact the AHPP and other consulting parties in accordance with 36 CFR § 800.13(b)(3).

Thank you for the opportunity to review this cultural resource report. Please refer to the AHPP Tracking Number listed above in all correspondence. If you have any questions, please call Jessica Cogburn of my staff at 501-324-9357 or email jessica.cogburn@arkansas.gov.

Sincerely,
Jessica H. Cogburn
Digitally signed by Jessica H. Cogburn
Date: 2023.10.20 15:54:35 -05'00'
for
Scott Kaufman
State Historic Preservation Officer and Director, AHPP

cc: Randal Looney, Federal Highway Administration
Dr. Melissa Zabecki, Arkansas Archeological Survey