

## MEMORANDUM

**To:** Federal Highway Administration and U.S. Fish and Wildlife Service

**From:** Tennessee Department of Transportation  
Environmental Division / Technical Studies Office – Ecology Section

**Date:** December 19, 2025

**Subject:** Revised Biological Assessment for Nashville Crayfish (*Faxonius shoupi*) For:  
I-24 Southeast Choice Lanes; Davidson & Rutherford Counties, TN  
PIN 134727.00

Please find attached a revised Biological Assessment (BA) for Nashville crayfish for the subject project. Revisions since the previous submittal are summarized below:

- All perennial streams in the Mill Creek (Hydrologic Unit Code [HUC] 05130202) watershed within the project Environmental Technical Study Area (ETSA) were previously assumed to provide suitable habitat for Nashville crayfish. However, in August and September 2025, Barge Design Solutions, Inc. conducted habitat assessment site visits at all streams within the ETSA to verify the presence of suitable conditions.
  - Based on the habitat assessments, STR-8, STR-10, STR-18, STR-19, STR-20, STR-22, STR-23, STR-26, STR-38, and STR-45 were found to lack suitable habitat for Nashville crayfish and have been removed from the BA. Details/justification for habitat determinations are now summarized in Appendix A - Nashville Crayfish Stream Assessment Table.
- Plan sheets and anticipated impacts to streams with suitable habitat for Nashville crayfish have been updated based on design refinements since the previous submittal. Action areas (Figure 3) at each resource have been updated accordingly based on revised impact locations, types, and durations.
  - Overall anticipated impact lengths have increased at STR-3, STR-5.1, STR-7, STR-14, STR-25/Sorghum Branch, and STR-27.
  - Overall anticipated impact lengths have decreased at STR-12/Mill Creek, STR-34/Collins Creek, and STR-50.
  - STR-15 was previously anticipated to be completely avoided but is now anticipated to be impacted.
  - STR-39 was previously anticipated to be impacted but is now anticipated to be completely avoided.

- Based on all updates, total (permanent and temporary) anticipated impacts to suitable habitat for Nashville crayfish have decreased from 3,838 LF (59,194 sq. ft) to 1,932 LF (41,180 sq. ft).
  - Anticipated permanent impacts have decreased from 1,750 LF (24,076 sq. ft.) to 906 LF (17,937 sq. ft.).
  - Anticipated temporary impacts have decreased from 2,088 LF (35,118 sq. ft.) to 1,026 LF (23,243 sq. ft.).



# BIOLOGICAL ASSESSMENT FOR: NASHVILLE CRAYFISH (*FAXONIUS SHOUPI*)

PREPARED PURSUANT TO SECTION 7(C) OF THE  
ENDANGERED SPECIES ACT OF 1973, AS AMENDED

December 2025



## ISSUE AND REVISION RECORD

Revision	DATE	Preparer(s)	PMC Reviewer(s) <sup>1</sup>	PMC Approver <sup>2</sup>	Description/ NOTES
			TDOT REVIEWER(S)	TDOT APPROVER	
0	12/19/2024	Pierce Nordone, Erin McGehee (Consultant)	Austin Meadows, Alex Terry, Joy Riley	Eric Saggars	Working DRAFT submittal
	12/23/2025	---	TDOT Ecology	---	Working DRAFT submittal review
1	2/11/2025	Pierce Nordone (Consultant)	Austin Meadows, Alex Terry, Joy Riley	Eric Saggars	DRAFT submittal
	2/21/2025	---	TDOT Ecology	---	DRAFT submittal review
2	2/25/2025	Pierce Nordone (Consultant)	Austin Meadows, Alex Terry, Joy Riley	Eric Saggars	Revised DRAFT submittal
	3/5/2025	---	TDOT Ecology	TDOT Ecology	Revised DRAFT review and initial submittal to FHWA/USFWS
3	10/30/2025	Lauren Barber & Frank Amatucci (Consultant)	Austin Meadows, Alex Terry	Erin McGehee	Revised DRAFT per design changes and updated habitat suitability based on field assessments
	11/4/2025	---	TDOT Ecology	---	Revised DRAFT review

4	12/9/2025	Lauren Barber & Frank Amatucci (Consultant)	Austin Meadows, Alex Terry	Erin McGehee	Revised DRAFT submittal
	12/12/2025	---	TDOT Ecology	---	Revised DRAFT review
5	12/15/2025	Lauren Barber & Frank Amatucci (Consultant)	Austin Meadows, Alex Terry	Erin McGehee	Revised Final submittal
			TDOT Ecology		Submitted to USFWS
	12/19/2025	Lauren Barber & Frank Amatucci (Consultant)	Austin Meadows, Alex Terry	Erin McGehee	Revised to address TDOT Permitting Comments

**SHAREPOINT PATH**

[Biological Assessment - Nashville crayfish](#)

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## 1. INTRODUCTION

In early 2023, Governor Bill Lee signed the Transportation Modernization Act (TMA) into law providing the state of Tennessee with \$3 billion in transportation revenue and authorizing the development and operation of user-fee facility projects (Choice Lanes) to address traffic congestion across the state. The TMA allows the Tennessee Department of Transportation (TDOT) to expand its alternative project delivery methods, including the utilization of **Public-Private Partnerships (P3s)** and Choice Lanes to deliver its urban congestion reduction improvement projects.

Choice Lanes are priced managed lanes that use pricing to proactively manage demand and improve travel time reliability. Choice Lanes allow motorists to maintain consistent travel speeds even when the adjacent existing lanes are congested. Choice Lanes are new lanes and typically operate at around 45 miles per hour (mph) during rush hours.

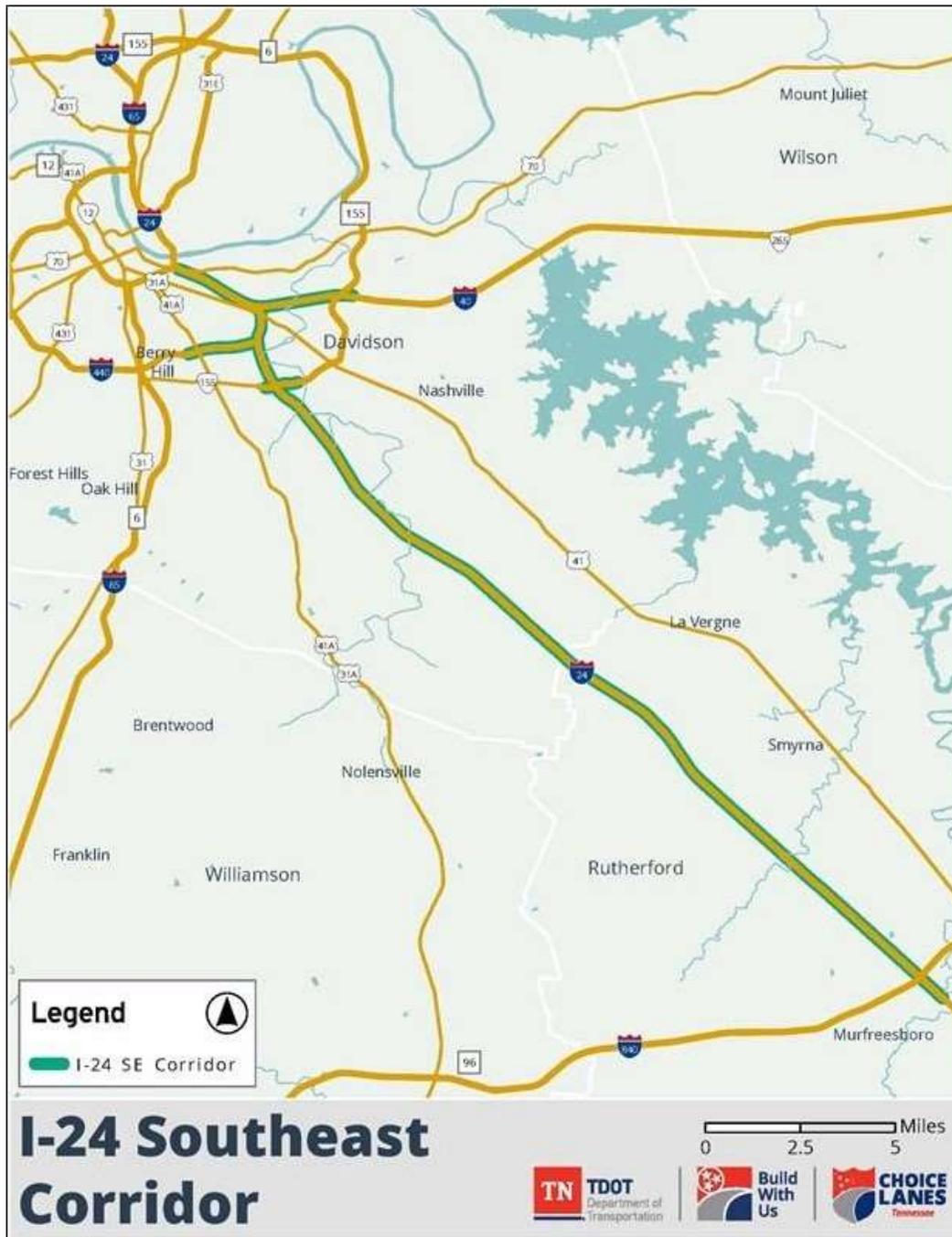
The additional state funding provided through the TMA expands TDOT's federal dollar capabilities and accelerates urban congestion projects, including Choice Lanes. TDOT's [10-Year Project Plan](#) identified the Interstate 24 (I-24) corridor southeast of Nashville between I-40 and I-840 as a priority urban congestion relief project to deliver as Tennessee's first Choice Lanes project (see **Figure 1-1** below). The proposed Choice Lanes on I-24 Southeast are part of a larger program of proposed Choice Lanes projects in some of the most congested areas of Tennessee.

On August 8, 2024, a list of species of concern was requested by TDOT Ecology from the U.S. Fish and Wildlife Service (USFWS) Tennessee Ecological Services Field Office. Many of the species contained within the list have known occurrences or suitable habitat within the proposed Project's ETSA. Based on the list of species of concern and upon review of the conceptual bridge plans and associated impacts to Mill Creek (STR-12)/Mill Creek tributaries (September 3, 2024), it was requested that potential impacts be assessed and determine if the proposed Project may affect the federally listed Nashville crayfish (*Faxonius shoupi*).

The purpose of this Biological Assessment (BA) is to review the proposed Project to determine whether it may impact the federally listed Nashville crayfish. This BA is prepared in accordance with legal requirements set forth under Section 7 of the Endangered Species Act (16 U.S.C. 1536 {c}).

The scientific name of the Nashville crayfish, *Orconectes shoupi*, was changed to *Faxonius shoupi* due to taxonomic re-classifications (Crandall and De Grave 2017). The genus name *Faxonius* will be used throughout the remainder of this BA.

Figure 1-1: Project Location Map



This figure depicts the project study area which comprises 26 miles of improvements associated with the project including mainline improvements on I-24 from the system-to-system interchange of I-24 and I-40 near downtown Nashville in Davidson County to the system-to-system interchange of I-24 and I-840 near Murfreesboro in Rutherford County. The project study area also includes improvements on I-40 associated with the system-to-system interchange improvements at I-24 and I-40 and includes improvements on I-440 associated with the interchange improvements at the I-24 at I-440 system-to-system interchange.

## 1.1. Project Overview

The proposed I-24 Southeast Choice Lanes project would improve travel time reliability and regional connectivity along approximately 26 miles of I-24 between I-40 near Downtown Nashville and I-840 near Murfreesboro. The proposed Project would address unreliable trip times for commuters, including those commuting via passenger vehicles or transit, and regional connectivity. Specifically, considering financial constraints, the proposed Project seeks to leverage the user fee financing mechanisms provided by the TMA. The proposed Project would not only bolster connectivity between Nashville and Murfreesboro but would also amplify access to employment areas, healthcare services, educational facilities and a spectrum of regional resources that extend beyond the proposed Project corridor. The proposed Choice Lanes would involve a contract with a private sector partner to design, build, finance, operate and maintain the new, optional lanes through a P3. The Project study area includes 26 miles of interstate segments:

- I-40, from Browns Creek to Briley Parkway
- I-24, from I-40 to I-840 (south of Downtown Nashville)

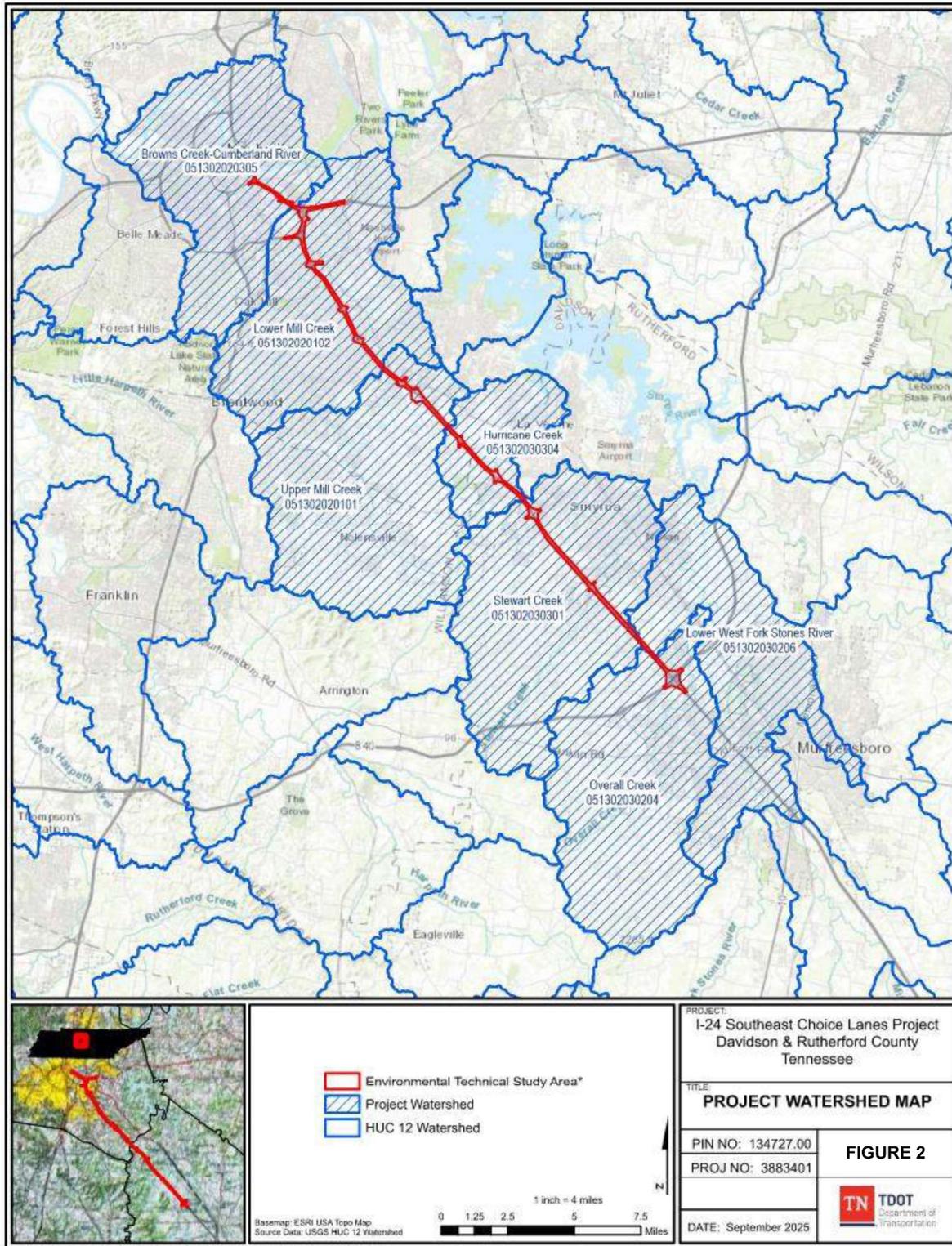
## 2. NASHVILLE CRAYFISH HABITAT ASSESSMENT

### 2.1. Literature Review

#### Mill Creek

Mill Creek's origin is in eastern Williamson County, and it flows 27.9 miles through Williamson and Davidson County, before entering the Cumberland River in Nashville (**Figure 2**). The entire length of Mill Creek lies within the Central Basin physiographic region, which is characterized by gently rolling to hilly terrain and by meandering, low-gradient streams (Miller, 1974). The watershed of Mill Creek is approximately 108 square miles and encompasses agricultural lands, suburban communities, urban neighborhoods, congested commercial areas, industrial areas, and the Nashville airport (Mill Creek Watershed Association 2023). The southern portion of the watershed near the Action Area was historically agricultural but is rapidly being converted into suburban neighborhoods and associated commercial developments.

**Figure 2: Mill Creek Watershed Map**



\*Site limits based on new ETSA

## **Nashville Crayfish**

### ***Faxonius shoupi***

### **Federally Listed - Endangered**

The Nashville crayfish, *Faxonius shoupi* (*F. shoupi*), was described by Horton Hobbs in 1948 (USFWS 1986). *Faxonius shoupi* specimens generally reach a maximum length of seven inches and are olive green to brown, often with a cream-colored thoracic saddle and elongate chelae. The following Form I male and female reproductive organ characteristics are more reliable in taxonomic identification: rostrum concave with thickened lateral margins, shape of first pleopod (males) and the shape of the annulus ventralis (females). The unique shape of the Form I male and female reproductive organs, as compared to others of the same genus, makes positive identification rather simple. The terminal elements of the first pleopod of Form I males are short (barely reaching coxopodite of second pereopod) and divergent; the mesial process is recurved and shorter than the central projection (Natureserve.org 2023). The female annulus ventralis is immovable (Biggins 1989).

*F. shoupi* was listed as endangered by the USFWS on September 26, 1986 (51 FR pp. 34410-34412) and is currently known only from the Mill Creek basin in Davidson and Williamson Counties, Tennessee. Withers (2005) reported occurrences from Mill Creek proper, as well as twelve primary (directly connected) tributaries and four secondary tributaries. Historic collection records indicate that *F. shoupi* was collected from two other locations: Big Creek (Elk River system) in Giles County and the South Harpeth River, Davidson County. Survey efforts by Bouchard (1976 & 1984) and Obara (1985) failed to identify any specimens of *F. shoupi* outside of the Mill Creek drainage (USFWS 1986). A third historic record from Richland Creek (Cumberland River tributary) in Davidson County has been proven to be an identification error (Biggins 1989).

*F. shoupi* typically inhabits riffle habitats, but it has also been collected from pools. *F. shoupi* has been found in streams with gravel and cobble runs, often associated with slab rock and other cover; however, it has also been found in small impoundments, storm water detention ponds, and streams with intermittent flow, indicating the species may be more of a generalist than previously thought (USFWS 2017).

Like other crayfish species, *F. shoupi* is likely opportunistic and feeds on a variety of plant and animal material. Collection records indicate that males are in reproductive form (Form I) from late summer to early spring (depending on winter and early spring temperatures). Egg laying occurs in early spring and is probably related to water temperature. The female broods the eggs and first three instars below her abdomen and the young are released in early summer (Natureserve.org 2023).

There seems to be little consensus on this crayfish's sensitivity to habitat degradation. Some experts contend that *F. shoupi* is intolerant of silt and that development of the

watershed and agricultural practices have led to a decline in the population, while others state that it is a ‘hardy beast’ and cite collection of significant numbers in pools with up to ten centimeters of silt (Natureserve.org 2023, Withers 2005).

Although development in the Mill Creek (05130202) HUC-8 Watershed has increased dramatically in recent years, studies on the resilience of the species indicate that it exhibits a high degree of resistance to disturbance, indicating the species has a low susceptibility to threats and a high degree of stability (USFWS 2018).

## 2.2. Project Habitat Assessment

Habitat assessments were conducted after preliminary research, such as *F. shoupi*'s habitat preference, and potential regions of the ETSA this species could occur. Each assessed resource that could provide potentially suitable habitat within and immediately adjacent to the ETSA are detailed in *F. shoupi* Stream Assessment Table (**Appendix A**), which summarizes the location of each evaluated reach and the findings from the assessment. Photographs were taken for each stream within the Mill Creek (05130202) HUC-8 Watershed to illustrate the available habitat for *F. shoupi* and are provided in the Site Photographs Summary (**Appendix B**).

### Methodology

*F. shoupi* typically prefer moderately fast, free-flowing streams with slab rock or firm bottoms and cobble substrates. The preferred substrate for this species is flat slabs of limestone and cobble. It requires non-turbid, well oxygenated water and clean substrate. In addition, they have been found in freshly silted riffles. *F. shoupi* have also been found to prefer large stones to hide under, and stagnant or slow-moving water in pools more frequently than fast and swift flow. Low flow headwater perennial streams (those with semi-seasonal flow) and intermittent streams can be excluded from their habitat as they need year-round flowing or pooled water. The native range of *F. shoupi* is the Mill Creek (05130202) HUC-8 Watershed and streams outside of this watershed were excluded as well.

Throughout the entire ETSA there are multiple reaches of delineated perennial and intermittent streams, as well as adjacent floodplain wetlands and wetland karst features. Per the October 2025 Draft Environmental Boundary Report (EBR), there are 96 streams (STR), 25 wet weather conveyances/ephemeral streams (WWC/EPH), 45 wet weather conveyances/upland drainage features (WWC/UDF), 78 wetlands (WTL), 6 man-made ponds (PND), and 32 constructed stormwater ponds (SWP) that were delineated within and immediately adjacent to the ETSA for the proposed project. Upon review of potential aquatic resources within the Mill Creek (05130202) HUC-8 Watershed, there are 60 previously delineated streams within the watershed. These 60 streams were assessed for suitable habitat for *F. shoupi*.

The habitat assessment surveys for *F. shoupi* were conducted on all 60 previously delineated streams within the Mill Creek (05130202) HUC-8 Watershed, throughout the entirety of the inspected reach within and immediately adjacent to the ETSA boundary. Inspections were performed starting from the downstream end of the reach and worked towards the upstream point source or ETSA limit to avoid siltation while working within the channel. Observed habitat parameters within the 60 previously delineated streams within the Mill Creek (05130202) HUC-8 Watershed were recorded, such as in-stream habitat (riffle, pool, run and glide), available substrate (bedrock, cobble, gravel, silt), approximate water depth within the channel, embeddedness, and presence of fish and crayfish species identified to family or genus classification by visual observations.

Confirmation, or lack thereof, of suitable *F. shoupi* habitat was determined based on the observed in-stream habitat parameters per each of the 60 previously delineated streams within the Mill Creek (05130202) HUC-8 Watershed. Streams that were observed with the presence of preferred substrate, anticipated annual surface water flow, and potential observation of *F. shoupi* or other crayfish species, were determined to be suitable habitat for the federally listed species. Whereas, streams observed with anticipated seasonal very shallow surface flow, very high embeddedness, or entirely silty clay lined channel, were determined to be non-suitable habitat for the species.

## Results & Conclusions

The habitat assessments for *F. shoupi* within the 60 streams within the Mill Creek (05130202) HUC-8 Watershed for the project were conducted on the dates of August 20 and 21, 2025, August 28, 2025, September 8 through 12, 2025, and September 16 and 17, 2025. Of those 60 previously delineated streams within the Mill Creek (05130202) HUC-8 Watershed, 23 were identified as perennial streams within or immediately adjacent to the ETSA, and 19 of which were further identified as second order or greater streams with year-round flowing or pooled water. Each assessed resource that could provide potentially suitable habitat for *F. shoupi*, or lack thereof, for the project is detailed in the Nashville Crayfish Stream Assessment Table (**Appendix A**), which summarizes the location of each evaluated reach and the findings from assessment. Photographs were taken at each stream to illustrate the available habitat for *F. shoupi* and observed findings, which are provided in **Appendix B**.

After inspection of each reach and review of observations made during the onsite assessment of each stream within the Mill Creek (05130202) HUC-8 Watershed for the project, 18 streams were concluded to provide potentially suitable habitat for *F. shoupi*. These streams were observed with suitable in-stream habitat in the form of riffles, glides, runs or pools; a channel bottom of either a bedrock or clay with a suitable presence of boulder, slab rock, cobble, or gravel substrate; little to no substrate embeddedness; and anticipated year-round flow of surface water. Whereas the remaining 42 stream channels

within the Mill Creek (05130202) HUC-8 Watershed were observed with a lack of suitable habitat for Nashville crayfish. These 42 streams were either observed as intermittent or headwater (first order) perennial streams with little to no surface water flow and depth, a lack of suitable substrate to shelter Nashville crayfish within the channel, and/or a significant presence of silt or clay embeddedness.

Descriptions of each of the 18 streams that provide potentially suitable habitat for *F. shoupi* are provided in the Nashville Crayfish Stream Assessment Table (**Appendix A**), as well as the remaining streams that are anticipated to be non-suitable habitat for the species. Therefore, from this point forward only the following 18 streams will be discussed in this biological assessment:

<b>Streams with Nashville Crayfish Habitat</b>			
<b>Feature</b>	<b>Evaluated Reach Coordinates</b>	<b>Feature</b>	<b>Evaluated Reach Coordinates</b>
STR-3 (UNT to Mill Creek)	Start: 36.141888, -86.722420 End: 36.141136, -86.720297	STR-21 (Seven Mile Creek)	Start: 36.100298, -86.713008 End: 36.101069, -86.711517
STR-5 (UNT to Mill Creek)	Start: 36.140441, -86.719417 End: 36.140077, -86.718452	STR-25 (Sorghum Branch)	Start: 36.082768, -86.699214 End: 36.087443, -86.698647
STR-5.1 (UNT to Mill Creek)	Start: 36.14298, -86.708854 End: 36.141951, -86.708052	STR-27 (UNT to Sorghum Branch)	Start: 36.078947, -86.694545 End: 36.081168, -86.698066
STR-5.4 (UNT to Mill Creek)	Start: 36.14376, -86.695421 End: 36.146104, -86.696055	STR-33 (Whittemore Branch)	Start: 36.055268, -86.675919 End: 36.056108, -86.674052
STR-7 (UNT to Mill Creek)	Start: 36.131881, -86.728362 End: 36.132287, -86.725561	STR-34 (Collins Creek)	Start: 36.041873, -86.648116 End: 36.051161, -86.670244
STR-12 (Mill Creek)	Start: 36.142378, -86.714289 End: 36.051201, -86.670332	STR-39 (UNT to Collins Creek)	Start: 36.047866, -86.661344 End: 36.046684, -86.662447
STR-13 (UNT to Mill Creek)	Start: 36.117269, -86.726994 End: 36.119180, -86.725591	STR-42 (UNT to Collins Creek)	Start: 36.043492, -86.660870 End: 36.045393, -86.660458
STR-14 (UNT to Mill Creek)	Start: 36.112269, -86.721282 End: 36.111654, -86.722528	STR-43 (UNT to Collins Creek)	Start: 36.043002, -86.657359 End: 36.04362, -86.657355
STR-15 (UNT to Mill Creek)	Start: 36.107249, -86.722046 End: 36.112269, -86.721282	STR-50 (UNT to Collins Creek)	Start: 36.028251, -86.635466 End: 36.029248, -86.635330

### 3. CONSTRUCTION ACTIVITIES

In general, construction activities for the project that would impact *F. shoupi* habitat include the removal or widening of existing bridges, construction of new bridges, and the extension and installation of culverts. General construction activities for bridges include dewatering of work areas, temporary stream diversions, foundation preparation (excavation, sheet piling, form work), retaining wall construction, haul roads, bank armoring, the installation of proposed bents, and construction of footings in and near streams. General construction activities for the extension and installation of culverts include dewatering of work areas, temporary stream diversions, reconstruction of headwalls and wingwalls, armoring, permanent stream relocations, and stream encapsulation by the new structures.

#### **General Itemized Bridge Construction Activities:**

- 1) Haul roads/work pads will be required to provide access for demolition and construction activities. The haul roads/work pads may extend into the Ordinary High-Water Mark (OHWM) of streams; therefore, in-stream diversions and crayfish sweeps will be required before installation of each haul road/work pad that would extend into the OHWM of a stream that provides suitable habitat for Nashville crayfish.
- 2) De-watering of work areas or temporary stream diversions to either demolish or construct piers within the streams. Instream diversions will use sandbags, jersey barriers (with plastic, as needed), or equivalent diversion measures per TDOT standards. Appropriate Erosion Prevention and Sediment Control (EPSC) measures will be used to prevent any sediment or material within the stream diversion work area from entering streams when the enclosure is de-watered.
- 3) Foundation preparation for spread footings and/or driving of piles following de-watering of work areas.
- 4) Demolition of existing spread footings or piers down to the bottom of stream elevation.
- 5) Once in-stream construction is complete, haul roads and stream dewatering/diversions will be removed, and the areas will be returned to preconstruction conditions and permanently stabilized.
- 6) All material (concrete, dirt, and rock, etc.) resulting from demolition and construction will be hauled to an approved waste site per the TDOT waste and borrow procedures.
- 7) Portions of the stream banks under and around the new bridges will be stabilized using riprap armoring.
- 8) No blasting within streams is proposed to construct this project. Some piers will be set on bedrock, and some chipping of the rock or leveling concrete may be needed for the footers.

- 9) Following the completion of each required crayfish sweep, the contractor shall ensure all employees and subcontractors initiate installation of instream diversions within one hour of the removal of crayfish.
- 10) Prior to the onset of construction or dewatering within the perimeter of any instream diversion, an additional sweep must be completed to remove any remaining crayfish.
- 11) If instream diversion fails or is overtopped, additional crayfish sweeps will be required. All in-stream work must cease immediately and cannot resume until additional sweeps have been completed.
- 12) Upon locating dead or injured crayfish, the TDOT Environmental Division Ecology Section must be immediately notified.
- 13) Proposed bridge drains will not discharge directly over any streams included in this report.

**In addition, for streams where culvert extensions and new culvert installations are proposed, the following general itemized construction activities will also occur, following dewatering/ diversions (all required crayfish sweeps, methodology for restoration of dewatered/diverted stream areas, and notification requirements for dead or injured crayfish, as listed above, would also apply to culvert activities):**

- 1) Stream bed excavation and preparation for the installation of corrugated metal, pre-cast concrete, or cast in place culvert extensions.
- 2) Installation of corrugated metal, pre-cast concrete, or cast in place culvert extensions, also referred to as stream encapsulation.
- 3) Reconstruction of headwalls and wingwalls at the ends of the proposed culvert extensions, including stream bed preparation and pouring of concrete for aprons.
- 4) Installation of armoring along stream banks and within the channels for culvert outfall locations.
- 5) At areas where culvert extensions must be skewed to match the existing culvert alignment under the roadway, some areas of permanent stream relocation are required to connect stream flow from the new culvert inlet/outlet to the existing natural/undisturbed stream reach. While the stream is diverted around the work area, the permanent relocation channel would be excavated and stabilized. The temporary stream diversion would then be removed to restore stream flow through the culvert and the newly constructed stream channel.

Please see **Table 1** below for a list of anticipated impacts to the streams that have potential habitat for *F. shoupi* along the proposed Project's corridor. A full summary of anticipated impacts to all streams on the Project's corridor can be found in **Appendix C**.

**Table 1: Construction Activity Impacts**

Streams with Nashville Crayfish Habitat			
Feature	Structure Locations	Anticipated Impacts	
		Permanent	Temporary
STR-3 (UT to Mill Creek)	I-40 WB Choice Lanes over Spence Lane (Bridge 10)	Not anticipated to be impacted	Temporary dewatering
STR-5 (UT to Mill Creek)	I-40 EB Choice Lanes over Spence Lane (Bridge 11)	Not anticipated to be impacted	Not anticipated to be impacted
STR-5.1 (UT to Mill Creek)	10'x8' box culvert under I-40	Culvert extension and armoring	Temporary dewatering
STR-5.4 (UT to Mill Creek)	–	Not anticipated to be impacted	Not anticipated to be impacted
STR-7 (UT to Mill Creek)	I-24 WB Choice Lanes (Bridge 20)/I-24 EB Choice Lanes (Bridge 21)	Not anticipated to be impacted	Temporary dewatering
STR-12 (Mill Creek) (STA. 498)	I-40 over Mill Creek (Bridges 8A, 8B)/ I-40 WB Choice Lanes over Mill Creek (Bridge 10A)/I-40 EB Choice Lanes over Mill Creek (Bridge 10B)	Proposed bridge footings (Bridge 8b) installed below OHWM	Temporary dewatering
STR-12 (Mill Creek) (STA. 477)	I-24 over Mill Creek (Bridge 49)/I-24 WB Choice Lanes (Bridge 54)/I-24 EB Choice Lanes (Bridge 51)	Not anticipated to be impacted	Temporary dewatering
STR-13 (UT to Mill Creek)	Bridge 51/Bridge 54/10'x10' box culvert under I-24	Not anticipated to be impacted	Not anticipated to be impacted
STR-14 (UT to Mill Creek)	I-24 WB Choice Lanes over E. Thompson Lane (Bridge 31A)/ 6'x5' box culvert under I-24	Culvert extension and armoring; construction of bridge footing	Temporary dewatering
STR-15 (UT to Mill Creek)	6'x5' box culvert under I-24	Culvert removal and armoring	Temporary dewatering

<b>Streams with Nashville Crayfish Habitat</b>			
<b>Feature</b>	<b>Structure Locations</b>	<b>Anticipated Impacts</b>	
		<b>Permanent</b>	<b>Temporary</b>
STR-21 (Seven Mile Creek)	I-24 WB Choice Lane over Seven Mile Creek (Bridge 44A)/I-24 EB Choice Lanes over Seven Mile Creek (Bridge 44B)	Not anticipated to be impacted	Not anticipated to be impacted
STR-25 (Sorghum Branch)	Double 10'x8' box culvert under I-24	Culvert extension and armoring, retaining wall construction and stream relocation	Temporary dewatering
STR-27 (UT to Sorghum Branch)	4'x6' box culvert and 60" reinforced concrete pipe (RCP) under I-24	Not anticipated to be impacted	Temporary dewatering
STR-33 (Whittemore Branch)	Bridge 51/Bridge 54/Double 12'x10' box culvert under I-24	Not anticipated to be impacted	Not anticipated to be impacted
STR-34 (Collins Creek)	Bridge 51/I-24 EB Exit Ramp to Bell Rd (Bridge 52)/I-24 EB Choice Lanes On-ramp from Bell Rd (Bridge 53)/Triple 12'x7' box culvert under Bell Rd/Triple 12'x7' box culvert under I-24 EB on-ramp from Bell Rd/Double 10'x9' box culvert under I-24	Culvert extensions	Temporary dewatering
STR-39 (UT to Collins Creek)	Bridge 51	Not anticipated to be impacted	Not anticipated to be impacted
STR-42 (UT to Collins Creek)	Bridge 51	Not anticipated to be impacted	Not anticipated to be impacted
STR-43 (UT to Collins Creek)	–	Not anticipated to be impacted	Not anticipated to be impacted

<b>Streams with Nashville Crayfish Habitat</b>			
		<b>Anticipated Impacts</b>	
<b>Feature</b>	<b>Structure Locations</b>	<b>Permanent</b>	<b>Temporary</b>
STR-50 (UT to Collins Creek)	24" RCP and 18" RCP under I-24	Pipe extension and armoring, stream relocation	Not anticipated to be impacted

## 4. ACTION AREA

The proposed action would improve travel time reliability and regional connectivity along approximately 26 miles of I-24 between I-40 near Downtown Nashville and I-840 near Murfreesboro. The Action Area consists of two Hydrologic Unit Code (HUC) HUC-12 sub-watersheds of Mill Creek. The Lower Mill Creek (051302020102) and Upper Mill Creek (051302020101) sub-watersheds along I-24 and its adjacent interchanges in between are within the Action Area. The corridor crosses named perennial streams such as Browns Creek (STR-1), Mill Creek (STR-12), Seven Mile Creek (STR-21), Sorghum Branch (STR-25), Whittemore Branch (STR-33), Collins Creek (STR-34), West Branch Hurricane Creek (STR-67), East Branch Hurricane Creek (STR-74), Rock Springs Branch (STR-79), Olive Branch (STR-81), and Stewart Creek (STR-82).

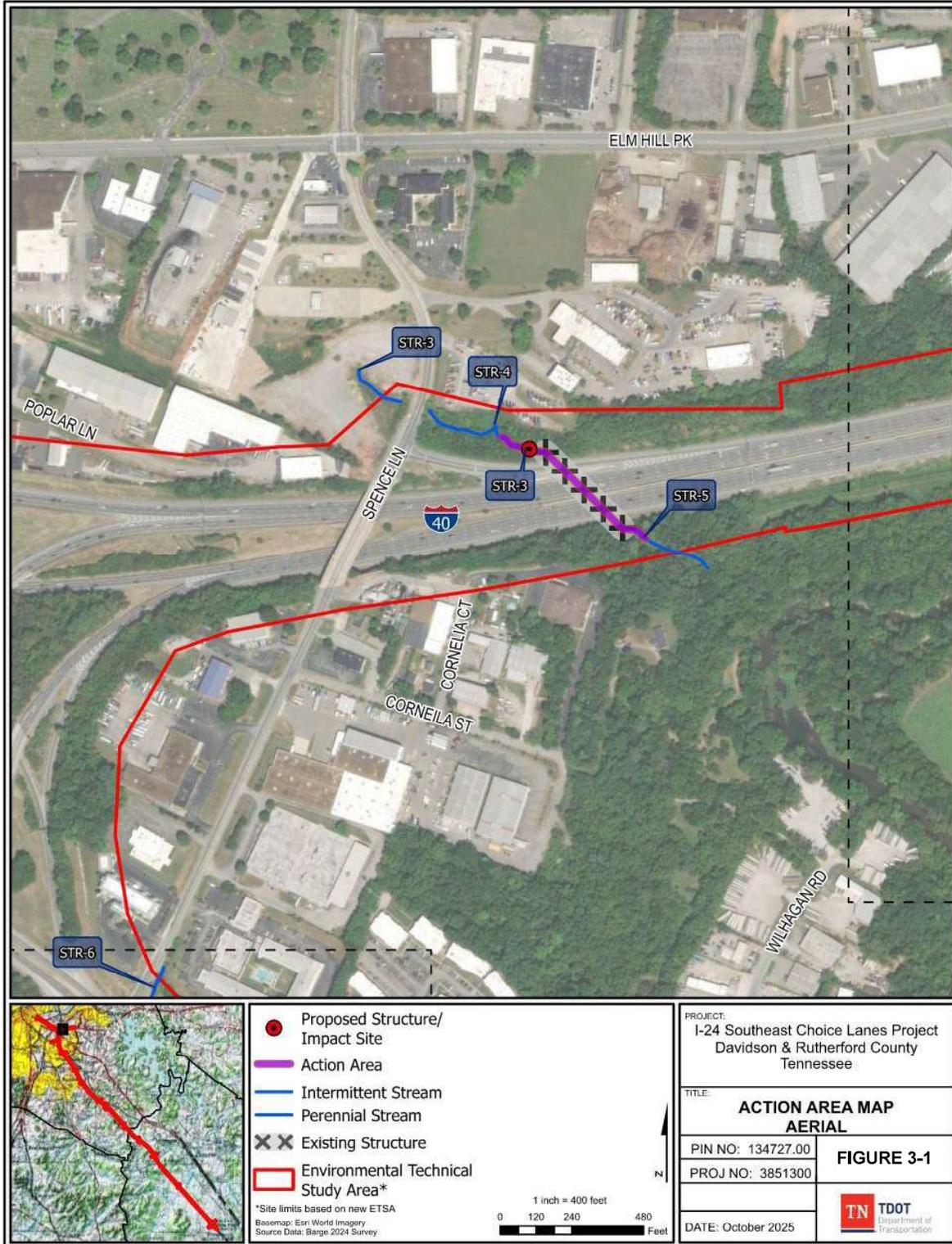
The Action Area would include the direct impacts of bridge construction, including new, widened and replacement structures, as well as culvert extension and new installation activities in addition to areas of temporary dewatering, diversions, stream crossings, and permanent stream relocations. For all culvert construction activities and temporary bridge construction activities, the Action Area extends 500 feet downstream from the construction activity impacts. For all permanent bridge construction activities, the Action Area extends 1,000 feet downstream from construction activity impacts. Additionally, for all bridge construction activities the Action Area extends 150 feet upstream, and for all culvert construction activities the Action Area extends 100 feet upstream. Note that there are instances where a resource with suitable habitat begins at a culvert outfall or is located in-line with another resource without suitable habitat. In these instances, the Action Area extents have been adjusted accordingly to capture these site conditions (**Figure 3**) [USFWS 2024]. It is expected that approximately 906 linear feet of permanent impacts and 1,026 linear feet of temporary impacts to Mill Creek (STR-12) and associated tributary channels and substrates within the Action Area would be disturbed at some point during the proposed Project (**Appendix D – Plan sheets, Appendix C – Impact Table**). These tributary channels only include the ones that were determined to be suitable habitat of *F. shoupi*. The proposed Project would permanently impact approximately 17,937 square feet below the OHWM of Mill Creek (STR-12) and suitable tributary channels<sup>1</sup>. Please note that due to the alternative delivery method for this proposed Project, the above stream impacts are subject to change based on the selection of a design-build contractor and the subsequent advancement of plans for construction.

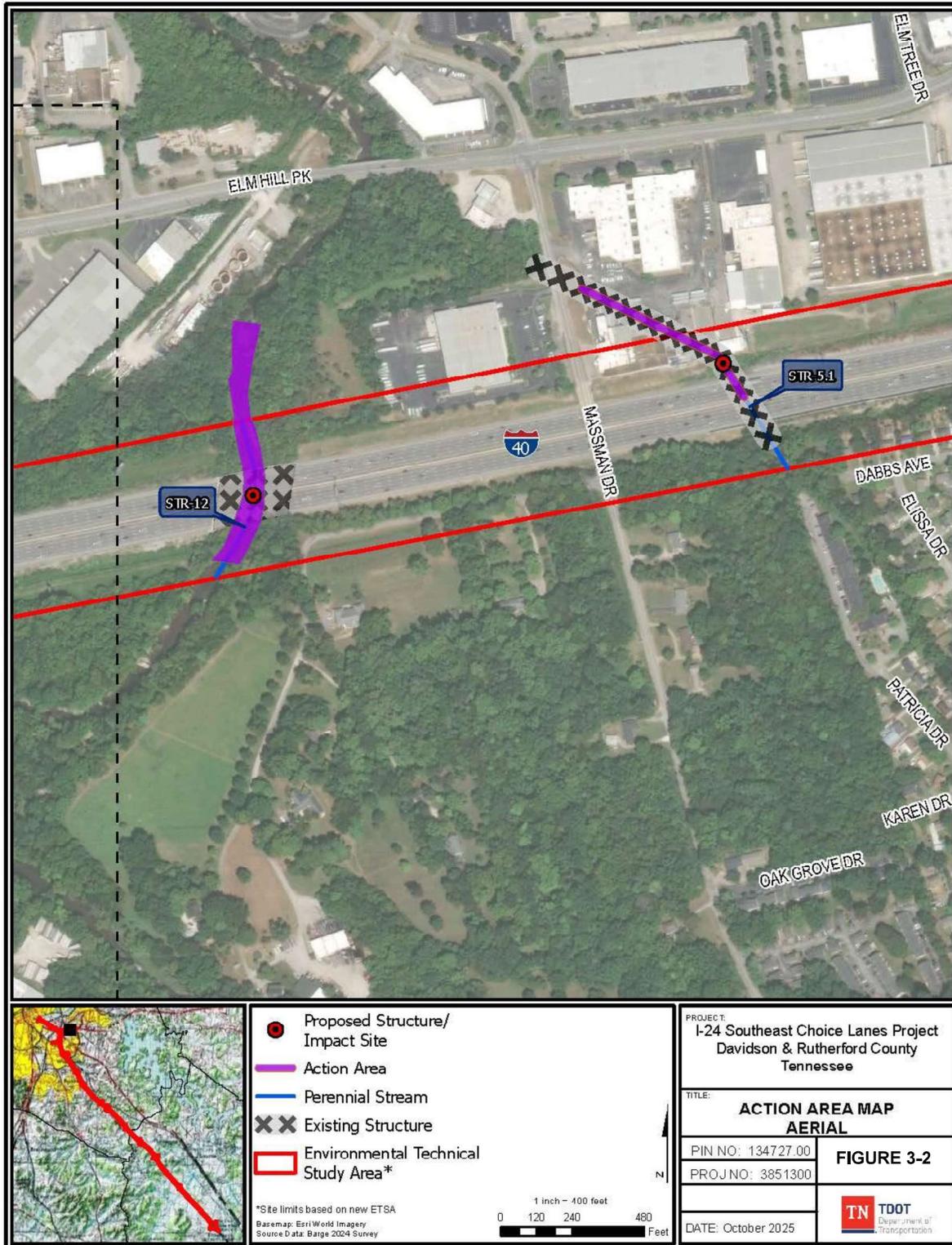
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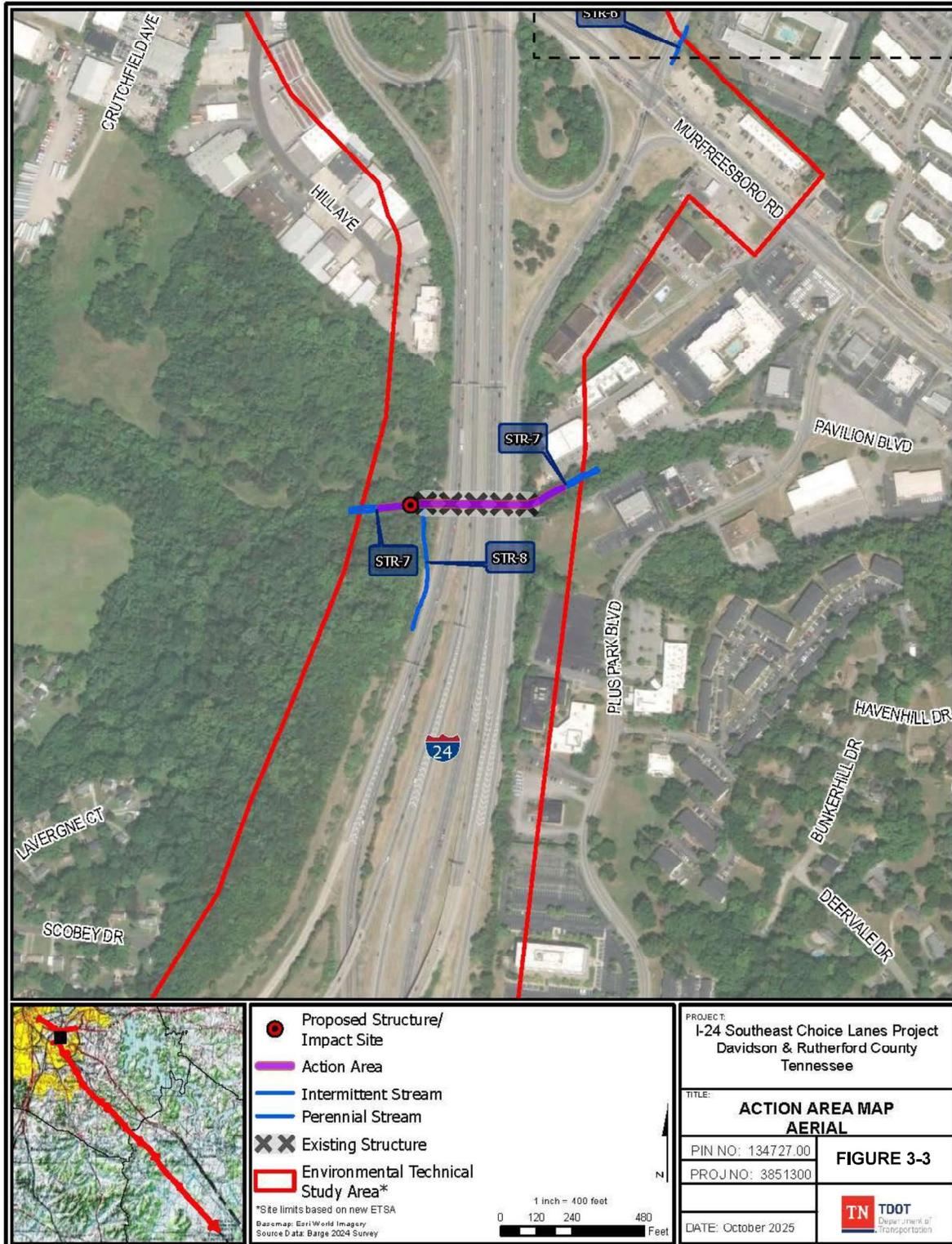
<sup>1</sup> See **Appendix C** for the Waters Resource Impacts table that includes a complete breakdown of impacts per water resource.

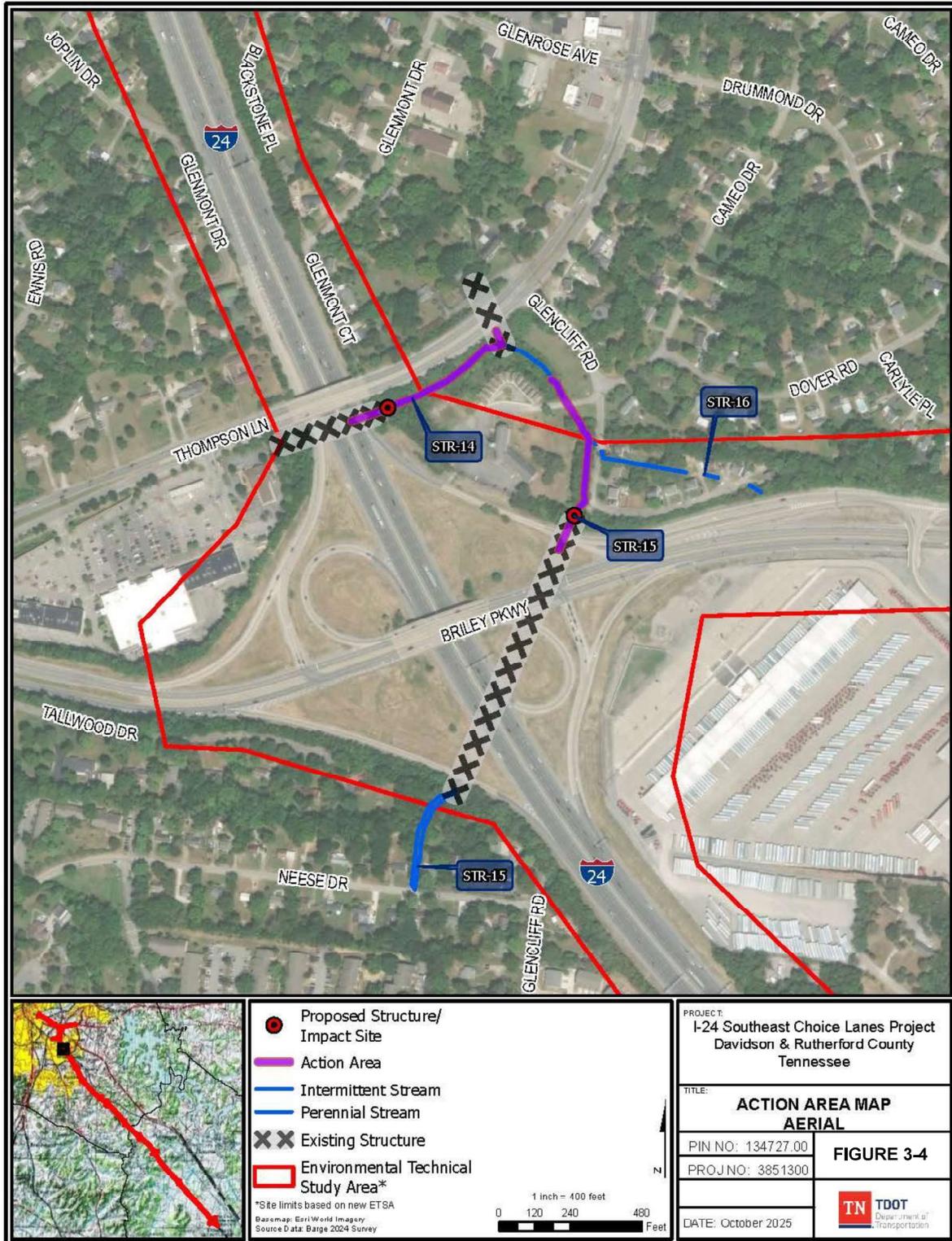
The Action Area was assessed for suitable habitat of *F. shoupi*, which included Mill Creek (STR-12) and its tributaries. Of the streams assessed within the Mill Creek basin, 18 were determined to have suitable habitat for *F. shoupi*. Nashville Crayfish Stream Assessment Table (**Appendix A**) summarizes all the streams that were assessed within proposed Project's ETSA and the determinations of suitable habitat for *F. shoupi*.

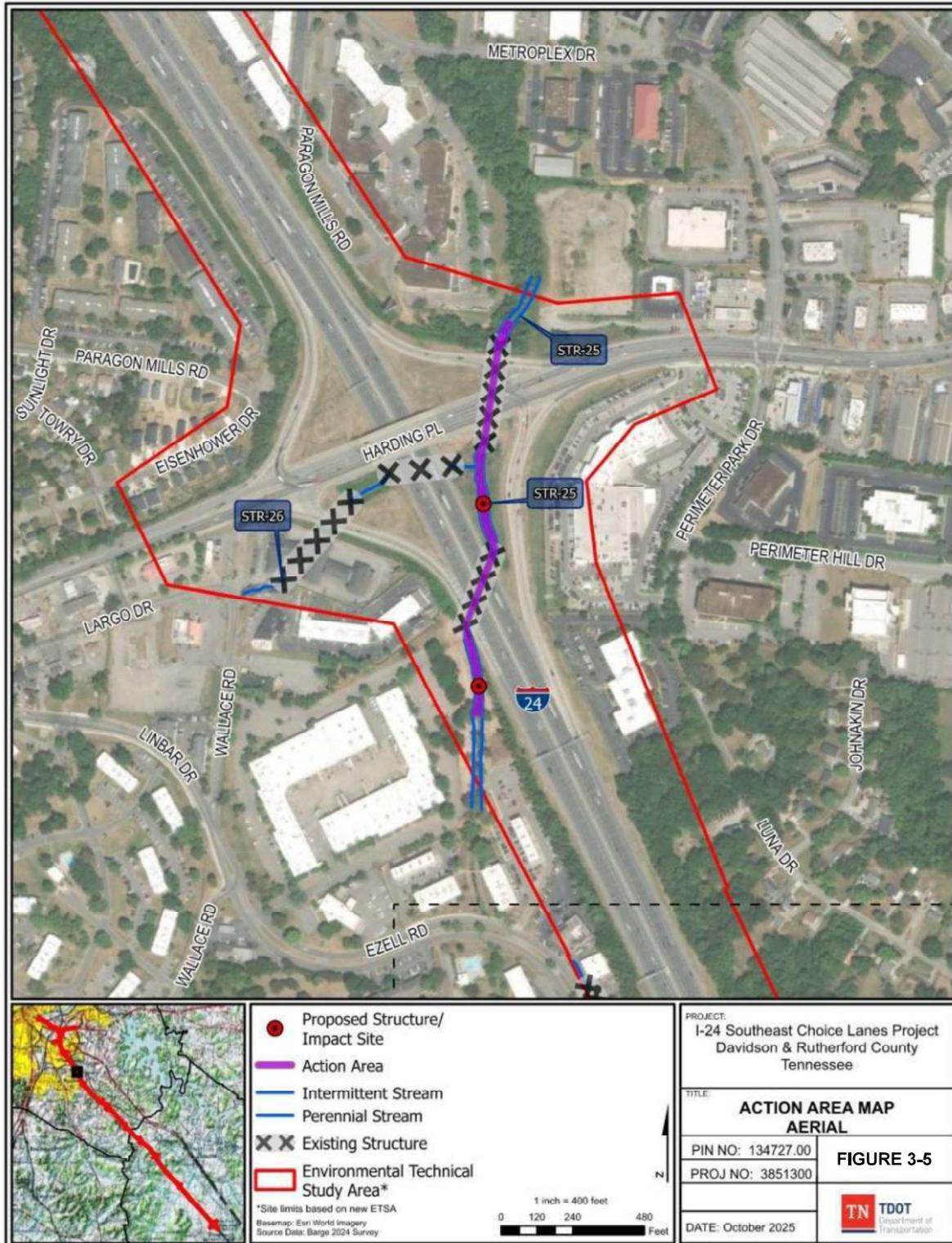
**Figure 3 – Action Area Maps**

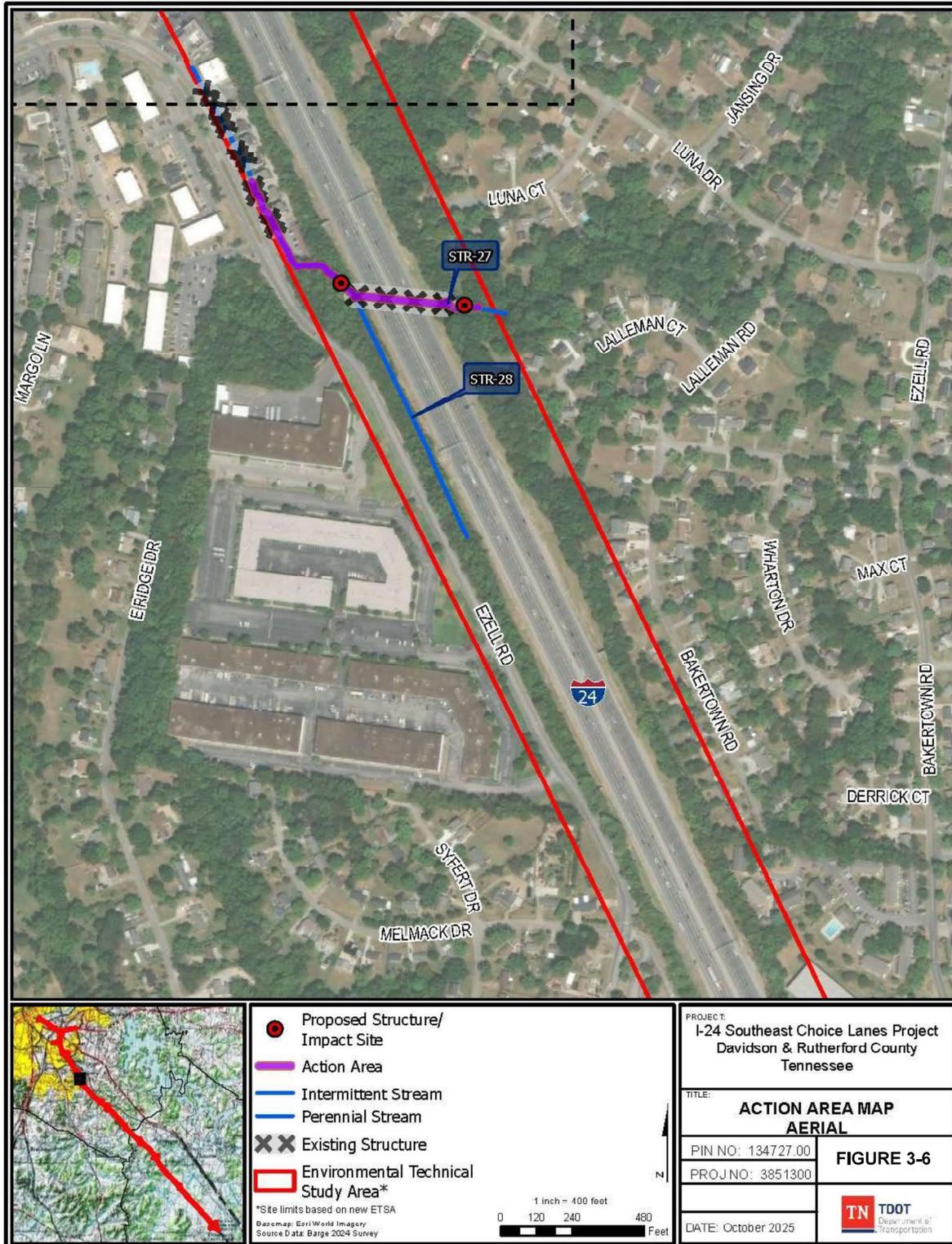


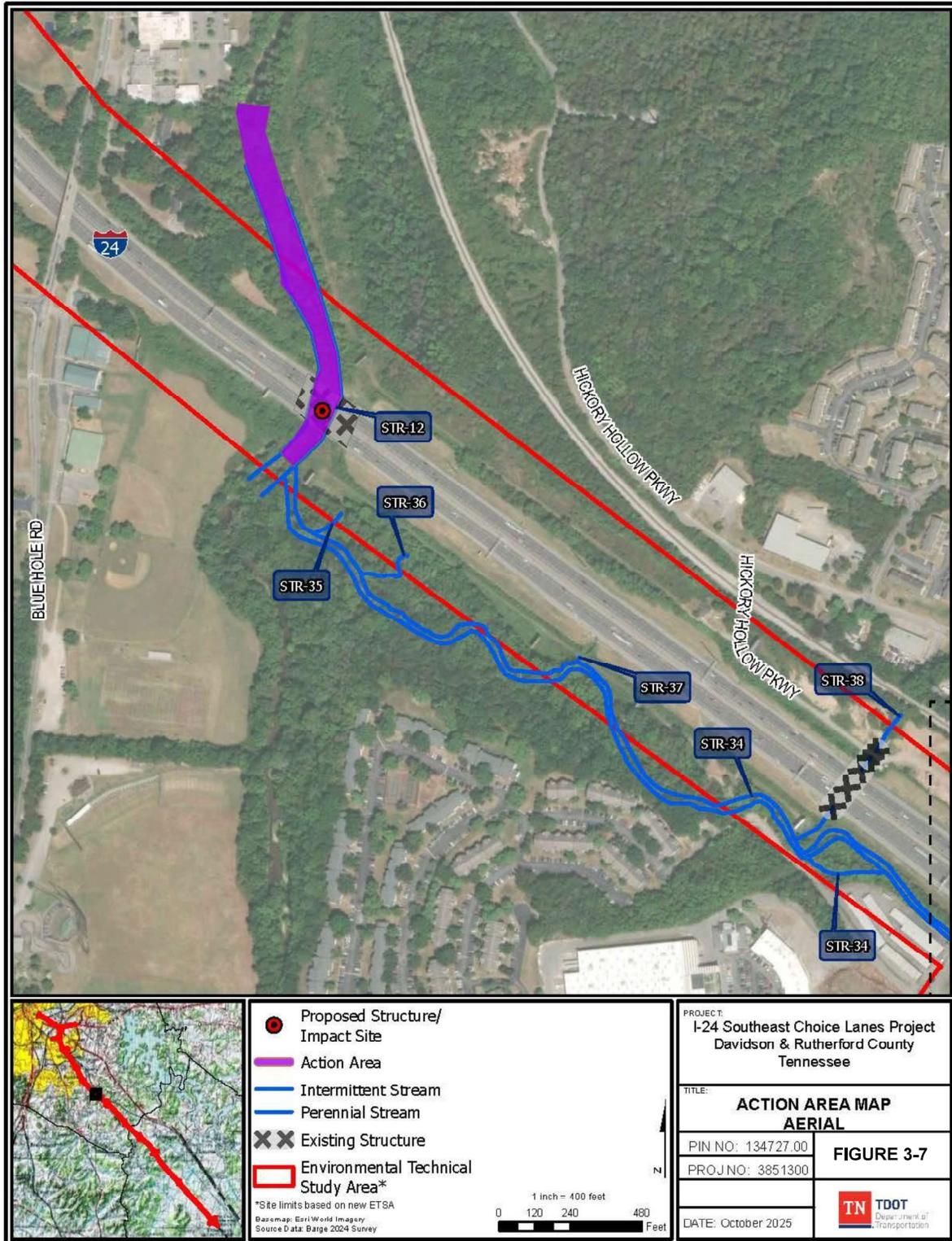


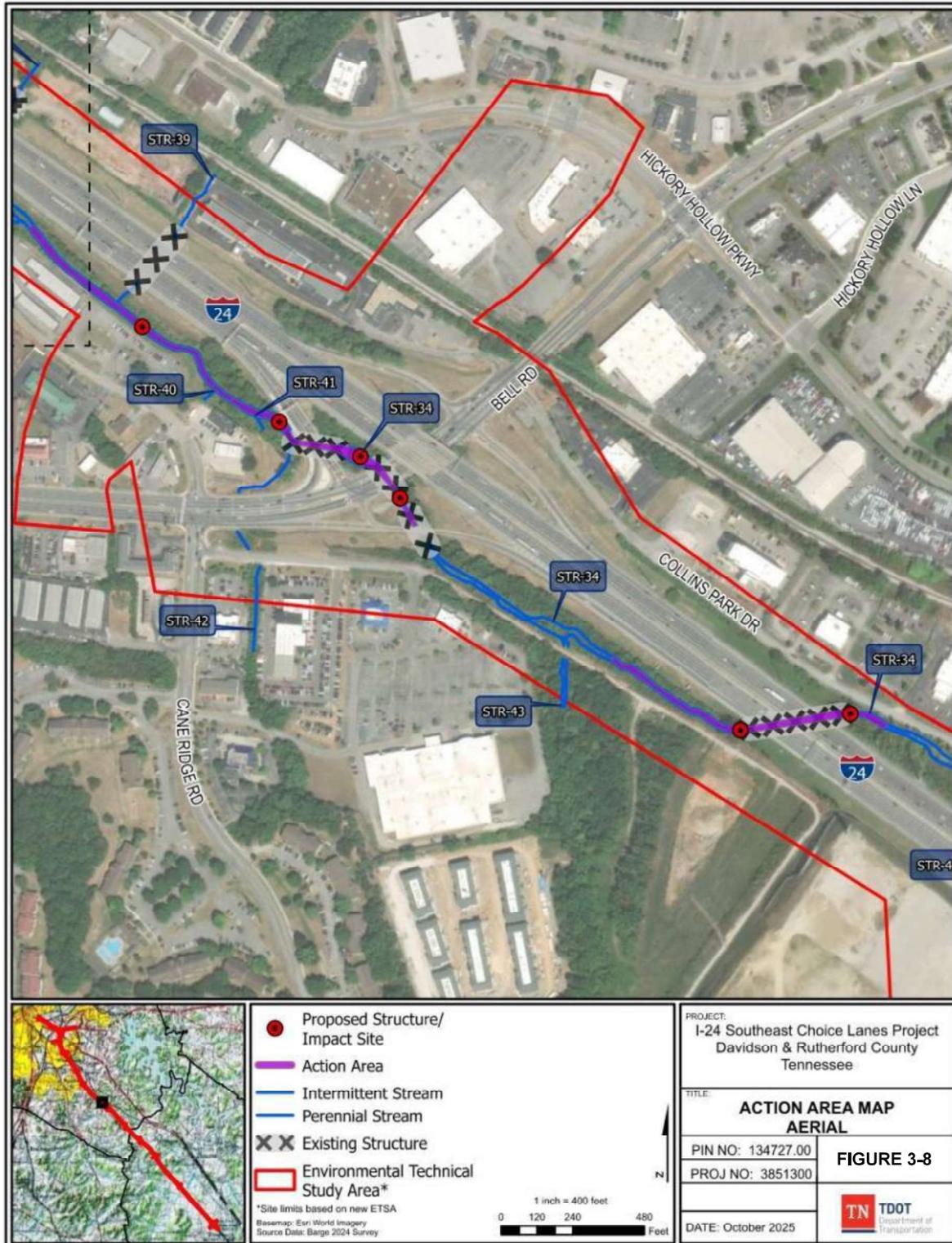














## 5. EFFECTS ANALYSIS

### 5.1. Direct Effects to *Faxonius shoupi*

The primary effects to *F. shoupi*, due to the proposed I-24 Southeast Choice Lanes, are the potential for harassment and take of individuals and alteration or coverage of *F. shoupi* habitat associated with the construction of bridges and extension of culverts. It is expected that approximately 1,026 linear feet/23,243 square feet of *F. shoupi* habitat will be made temporarily unavailable by the project. Additionally, approximately 906 linear feet/17,937 square feet of *F. shoupi* habitat is expected to be made permanently unavailable by the project.

A limited number of crayfish will likely experience mortality during the multiple collection, removal, and relocation activities. Other specimens could be missed during relocation efforts and may be killed by construction activities. Though some mortality is expected during the species relocations, it is likely that numerous *F. shoupi* specimens would experience direct mortality from the stream diversions if relocations were not attempted. Relocation of *F. shoupi* specimens is recommended. *F. shoupi* should begin to re-colonize habitat temporarily impacted shortly after the completion of the proposed Project.

Due to the extent of bedrock and other large rocky substrate present within sections of Mill Creek and associated tributary channels, aquatic habitat is expected to recover quickly, once all construction material used for in-stream work is removed.

Additionally, installation and maintenance of appropriate EPSC measures should mitigate the sediment impacts from the construction activities. Equipment used during construction can leak petroleum products used for fuel or lubrication into streams or other aquatic resources. These petroleum products can adversely affect both *F. shoupi* and its aquatic habitat.

## 5.2. Cumulative Effects

Present and reasonably foreseeable future development has the potential to result in impacts to threatened and endangered species which could include impacts to habitats. It is anticipated that the proposed Project would result in cumulative impacts within the Action Area as the alteration and reduction of *F. shoupi* habitat would be permanent. It is expected that approximately 906 linear feet/17,937 square feet of *F. shoupi* habitat will be made permanently unavailable by the project.

## 6. MEASURES TO MINIMIZE HARM

Several measures will be implemented during project construction to minimize the effects to *F. shoupi*. Avoided areas would be protected by silt fence with backing and high visibility fencing (HVF). Erosion and sediment control measures will be installed and maintained throughout project construction, in accordance with TDOT's EPSC Inspection Manual. If a Construction General Permit is needed, construction activities would comply with the Tennessee Department of Environment and Conservation (TDEC) National Pollution Discharge Elimination System (NPDES) Permit for Discharges of Stormwater Associated with Construction Activities. A site-specific Stormwater Pollution Prevention Plan (SWPPP) would also be developed to address all construction-related activities occurring from the date construction commences to the date of termination of permit coverage. Equipment refueling and maintenance areas will be located such that no petroleum fuel or lubrication products enter area streams or other aquatic resources. Protective notes will be included in the project plans to minimize potential for adversely impacting *F. shoupi*. Per protective plan note Item 2, all access below the OHWM would be from areas dewatered in accordance with state and federal permits, regulatory requirements, and TDOT standards. Dewatering could be done via rock pads, cofferdams, jersey barriers, sandbags/tarping, temporary work bridges, etc. The following protective notes will be included in the project plans:

1. No in-stream work will occur from October 1 to May 31. Work from behind installed stream diversions or dewatering structures may continue during the restricted period, if separation from flowing waters of streams is maintained.
2. All work below the OHWM of streams will be separated from flowing water using stream diversions or other standard best management practices. Appropriate EPSC measures will be implemented during any dewatering and stream diversion activities.
3. Prior to commencement of each phase of in-stream construction or demolition activities, sweeps for *F. shoupi* will be completed to remove as many individuals as practicable from the construction footprint. All crayfish collected will be relocated to suitable habitat, either upstream or downstream of the project area. Multiple sweeps may be required. The crayfish sweeps will be conducted by personnel approved by the USFWS and TWRA.

4. To the extent practicable, relocated crayfish will be released in small numbers and spread out across available habitats, to reduce competition with resident crayfish in relocation areas.
5. Measures will be implemented to prevent materials from the proposed construction activities from entering streams. Measures including, but not limited to, nets, tarps, etc. to contain these materials will be used. These materials include, but are not limited to asphalt, metal and concrete debris, dust, paints, sealers, materials from sandblasting activities, etc. These materials will be contained properly and disposed of in an appropriate manner at an approved waste site.
6. If spillage or leakage of concrete into a stream is observed, concrete pouring shall cease immediately and the TDOT Environmental Division Ecology Section must be immediately notified.
7. Waste and/or borrow areas, if needed, will be established in non-wetland areas and are to be of sufficient distance from area streams such that no soil material is allowed to enter these streams. Waste or borrow areas will be stabilized as soon as practicable. Appropriate EPSC measures will be utilized in these areas to minimize soil loss.
8. To minimize impairment to streams, the contractor shall adopt as many (at least one) of the following measures as practicable: 1) Equipment shall be staged a minimum of 150 feet from all streams, 2) Equipment shall be staged in upland areas with no direct drainage to streams, 3) Catch pans and/or spill containment “diaper” shall be installed on all construction equipment.

## 7. PROPOSED MITIGATION

The proposed Project’s direct and unavoidable impacts to suitable *F. shoupi* habitat as well as the species could be mitigated through funding of *F. shoupi* research at local universities or partner agencies to further the knowledge base and explore additional viable conservation measures for the species.

## 8. CONCLUSION AND DETERMINATION OF EFFECTS

Construction of the structures listed in the table above, including the associated in-stream construction, would impact suitable habitat for *F. shoupi*, permanently covering or altering the habitat within the direct project footprint. Sweeps for *F. shoupi* prior to construction will help minimize the risk of direct mortality of individual crayfish. Effects to *F. shoupi* habitat will be unavoidable to complete construction of the proposed project. Based on the above assessment of impacts, the proposed Project **may affect and is likely to adversely affect** *F. shoupi*.

## 9. REFERENCES

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# **APPENDIX A. NASHVILLE CRAYFISH STREAM ASSESSMENT TABLE**

## Nashville Crayfish Stream Assessment Table

Label	Type	Evaluated Reach Coordinates	Approximate Evaluated Linear Feet (Daylighted)	Channel Habitat Description	Comments/Justification
STR-3 (UT to Mill Creek)	Perennial	Start: 36.141888, -86.722420 End: 36.141136, -86.720297	644	Upstream of Spence Lane is a 1st order headwater perennial stream and then becomes 2nd order below STR-4 confluence; clay bottom channel; approximately 10% gravel, 20% cobble, and 80% silt/sand substrates; riffle/pool sequence with moderate flow regime; darter spp. observed; channel observed with slow to moderate flow 9/8/25	Little to no presence of limestone bedrock and slab rock; notable presence of cobble and flow regime; habitat for Nashville crayfish present
STR-4 (UT to Mill Creek)	Perennial	Start: 36.141402, -86.720877 End: 36.141350, -86.720875	21	Headwater 1st order perennial stream originating from groundwater seep; clay bottom channel; approximately 10% cobble, 30% gravel, and 60% silt/sand substrates; stream flowing at low speed with little surface flow from hillside seep; no aquatic fauna observed	Non-limestone stream and very shallow semi-seasonal surface flow; low flow and extremely shallow surface water anticipated year-round; channel has undesirable substrate of majority silt/sand; no suitable habitat for Nashville crayfish present
STR-5 (UT to Mill Creek)	Perennial	Start: 36.140441, -86.719417 End: 36.140077, -86.718452	323	Potential underground 2nd order or greater perennial stream; perched rock bottom channel, clay in some parts; approximately 5% bedrock, 20% boulder, 20% gravel, 25% cobble, and 30% silt/sand substrates, low embeddedness; moderate flow; darter spp. observed	Channel observed with moderate flow and appropriate channel substrate; habitat for Nashville crayfish present
STR-5.1 (UT to Mill Creek)	Perennial	Start: 36.14298, -86.708854 End: 36.141951, -86.708052	223	Lower gradient (2nd order or greater) perennial stream; bedrock bottom with approximately 25% gravel and 5% silt/sand deposits; little embeddedness; mostly glide through ETSA with a slow flow regime; darter spp, dace spp, creek chub, crayfish spp. observed	Bedrock bottom channel with boulder and cobble substrate presence; habitat for Nashville crayfish present
STR-5.2 (UT to Mill Creek)	Intermittent	Start: 36.143135, -86.702363 End: 36.144192, -86.703274	453	Potential 1st order headwater intermittent stream; clay bottom with approximately 5% cobble, 30% gravel, and 60% silt/sand deposits; mostly run/glide through ETSA with a slow flow regime; terrestrial crayfish burrows on bank margins; abundant green frog adults and tadpoles; no obligate aquatic fauna observed	Little to no slabrock, cobble, boulder, rip rap or other rocky substrates preferred by Nashville crayfish; majority silt/sand deposits are undesirable for Nashville crayfish; no suitable habitat for Nashville crayfish present

## Nashville Crayfish Stream Assessment Table

Label	Type	Evaluated Reach Coordinates	Approximate Evaluated Linear Feet (Daylighted)	Channel Habitat Description	Comments/Justification
STR-5.3 (UT to Mill Creek)	Intermittent	Start: 36.143335, -86.695947 End: 36.14381, -86.695448	247	Potential 1st order headwater intermittent stream likely originating within Nashville International Airport (BNA) property; clay bottom channel with approximately 20% gravel, 30% silt/sand, and 50% cobble substrates influenced by BNA; low and shallow surface water flow; no aquatic fauna observed	Little to no year-round surface water; likely vernal seasonal flow; no suitable habitat for Nashville crayfish present due to intermittent stream status and shallow surface water which they cannot survive in
STR-5.4 (UT to Mill Creek)	Perennial	Start: 36.14376, -86.695421 End: 36.146104, -86.696055	213	Potential 2nd order or greater perennial stream originating from BNA; bedrock bottom with approximately 50% cobble, 30% gravel, and 20% silt/sand substrates with little embeddedness; multiple unidentified crayfish spp.; moderate flow of shallow (>12-inches) surface water	Bedrock bottom channel with boulder and cobble substrate presence; habitat for Nashville crayfish present
STR-6 (UT to Mill Creek)	Intermittent	Start: 36.136369, -86.724586 End: 36.136031, -86.724758	134	Headwater 1st order intermittent stream; clay bottom channel with approximately 20% gravel and 80% silt/sand substrates influenced by nearby road; channel dry 9/8/25; no aquatic fauna observed	Little to no perennial surface water depth and potential seasonal vernal flow; no suitable habitat for Nashville crayfish present due to intermittent stream status and majority silt/sand substrates
STR-7 (UT to Mill Creek)	Perennial	Start: 36.131881, -86.728362 End: 36.132287, -86.725561	519	Lower gradient (2nd order or greater) perennial stream; bedrock bottom with approximately 40% cobble, 10% gravel, and 30% silt/sand substrates; little embeddedness; multiple unidentified chub spp, darter spp; moderate flow of relatively shallow and deep surface water	Bedrock bottom channel with boulder and cobble substrate presence; habitat for Nashville crayfish present
STR-8 (UT to Mill Creek)	Intermittent	Start: 36.130806, -86.727651 End: 36.131935, -86.727530	422	Entirely artificial concrete channel; low flow and shallow surface water originating from hillside seep at beginning of reach; flows towards confluence with STR-7 through concrete raceway; upper portion before concrete raceway does have slab rock in channel with approximately 15% silt/sand substrates; observed two-lined salamander	Little to no perennial surface water depth and potential seasonal vernal flow; no suitable habitat for Nashville crayfish present due to intermittent stream status and very shallow surface water

### Nashville Crayfish Stream Assessment Table

Label	Type	Evaluated Reach Coordinates	Approximate Evaluated Linear Feet (Daylighted)	Channel Habitat Description	Comments/Justification
STR-8.1 (UT to Mill Creek)	Intermittent	Start: 36.125141, -86.735712 End: 36.127313, -86.735611	55	Headwater 1st order intermittent stream; clay bottom channel with approximately 40% gravel, 35% cobble, and 25% silt/sand substrates; semi-moderate flow; mostly riffle within ETSa; no aquatic fauna observed	Little to no perennial surface water depth and potential seasonal vernal flow; no suitable habitat for Nashville crayfish present due to intermittent stream status and lack of year-round water in channel
STR-8.2 (UT to Mill Creek)	Intermittent	Start: 36.125059, -86.739202 End: 36.124108, -86.737598	601	Headwater 1st order intermittent stream likely above STR-8.3 confluence; clay bottom channel with approximately 45% cobble, 40% gravel, and 15% silt/sand substrates influenced from rip rap; small stagnant pools periodically in channel; otherwise channel mostly dry 9/9/25; no aquatic fauna observed	Little to no perennial surface water depth and potential seasonal flow; no suitable habitat for Nashville crayfish present due to intermittent stream status and lack of year-round water in channel
STR-8.3 (UT to Mill Creek)	Intermittent	Start: 36.124921, -86.739400 End: 36.124825, -86.738775	191	Headwater 1st order intermittent stream; clay bottom channel with approximately 45% cobble, 40% gravel, and 15% silt/sand substrates influenced from rip rap; channel dry 9/9/25; no aquatic fauna observed	Little to no perennial surface water depth and potential seasonal flow; no suitable habitat for Nashville crayfish present due to intermittent stream status and lack of year-round water in channel
STR-9 (UT to Mill Creek)	Perennial	Start: 36.125350, -86.728387 End: 36.124694, -86.728339	240	Headwater 1st order perennial stream originating from WTL-4 and hillside seeps; the channel is entirely conveyed within an artificial concrete raceway with approximately 5% gravel and 95% silt/sand substrates; channel dry 9/9/25	Channel might be an intermittent stream as observed in the dry; shallow surface water and limited channel substrate; no suitable habitat for Nashville crayfish present due to channel not providing year-round surface water, as well as channel substrate undesirable with majority silt/sand
STR-10 (UT to Mill Creek)	Perennial	Start: 36.124271, -86.728950 End: 36.122530, -86.726242	811	Headwater 1st order perennial stream; clay bottom channel with approximately 15% cobble, 25% gravel, and 60% silt/sand substrates, occasional cobble; very slow flow of very shallow surface water (<2 inches; channel originates from seep; dusky and two-lined salamander observed	Perennial stream with very shallow surface water, no suitable habitat for Nashville crayfish present due to little to no year-round surface water that is very shallow, as well as undesirable substrate being majority silt/sand

### Nashville Crayfish Stream Assessment Table

Label	Type	Evaluated Reach Coordinates	Approximate Evaluated Linear Feet (Daylighted)	Channel Habitat Description	Comments/Justification
STR-11 (UT to Mill Creek)	Perennial	Start: 36.123047, -86.728416 End: 36.123083, -86.728370	20	Headwater 1st order perennial stream; clay bottom channel with approximately 15% cobble, 25% gravel, and 60% silt/sand substrates, occasional cobble; very slow flow of very shallow surface water (<2 inches; channel originates from seep; dusky and two-lined salamander observed	Perennial stream with very shallow surface water, no suitable habitat for Nashville crayfish present due to little to no year-round surface water that is very shallow, as well as undesirable substrate being majority silt/sand
STR-12 (Mill Creek)	Perennial	Start: 36.142378, -86.714289 End: 36.051201, -86.670332	6,729	Lower gradient (2nd order or greater) major perennial stream; 60% bedrock bottom with 20% gravel and 20% cobble deposits; little embeddedness; darter spp, dace spp, creek chub, crayfish spp, stone rollers, shiners, Asian clam, mollusk spp. observed	Bedrock bottom channel with boulder and cobble substrate presence; habitat for Nashville crayfish present
STR-13 (UT to Mill Creek)	Perennial	Start: 36.117269, -86.726994 End: 36.119180, -86.725591	325	Potential 2nd order or greater perennial stream; bedrock bottom channel with approximately 5% boulder, 5% gravel, and 30% cobble substrates; good sequence of riffles; slow to moderate flow over multiple habitat types; darter spp and chub spp observed in standing pools	Bedrock bottom channel with cobble substrate presence; habitat for Nashville crayfish present
STR-14 (UT to Mill Creek)	Perennial	Start: 36.112269, -86.721282 End: 36.111654, -86.722528	436	Potential 2nd order or greater perennial stream; clay bottom channel with approximately 45% cobble, 30% gravel, and 15% silt/sand substrates; some embeddedness; unknown fish species observed in small pools 9/9/25; relatively slow flow over multiple habitat types	Clay bottom channel with suitable substrate of cobble and gravel; moderate surface water depth; habitat for Nashville crayfish present
STR-15 (UT to Mill Creek)	Perennial	Start: 36.107249, -86.722046 End: 36.112269, -86.721282	1,066	Potential 2nd order or greater perennial stream; clay bottom channel with approximately 5% boulder, 5% cobble, and 90% silt/sand substrates; high embeddedness; darter spp. observed in pools 9/9/25; relatively slow flow over multiple habitat types	Clay bottom channel with suitable substrate of cobble and gravel; moderate surface water depth; habitat for Nashville crayfish present

### Nashville Crayfish Stream Assessment Table

Label	Type	Evaluated Reach Coordinates	Approximate Evaluated Linear Feet (Daylighted)	Channel Habitat Description	Comments/Justification
STR-16 (UT to Mill Creek)	Intermittent	Start: 36.110940, -86.718131 End: 36.111416, -86.720100	432	Likely a headwater 1st order intermittent stream; perched rock bottom channel, clay in some parts; approximately 35% cobble, 40% gravel, and 25% silt/sand substrates; high embeddedness; some flow observed 9/9/25	Little to no perennial surface water depth and potential seasonal vernal flow; no suitable habitat for Nashville crayfish present due to intermittent stream status and lack of year-round water in channel
STR-17 (UT to Mill Creek)	Intermittent	Start: 36.103284, -86.715527 End: 36.103225, -86.715574	26	Headwater 1st order intermittent stream; clay bottom channel with entirely rip rap substrate; No water in channel 9/9/25	Little to no perennial surface water depth and potential seasonal vernal flow; no suitable habitat for Nashville crayfish present due to intermittent stream status and lack of year-round water in channel
STR-18 (UT to Mill Creek)	Perennial	Start: 36.102795, -86.715114 End: 36.102699, -86.714338	253	Headwater 1st order perennial stream; clay bottom channel with approximately 80% rip rap and 20% silt/sand substrates; Channel becomes slightly more natural in tree line; Primarily glide throughout the reach; most of channel was completely dry, some portions were saturated with stagnant pools of >1in. 9/9/25	Perennial stream with very shallow surface water, no suitable habitat for Nashville crayfish present due to channel not anticipated to be vernal surface water flow and very shallow surface water not providing enough depth for Nashville crayfish
STR-19 (UT to Mill Creek)	Perennial	Start: 36.102742, -86.713191 End: 36.102463, -86.712437	278	Headwater 1st order perennial stream; clay bottom channel with approximately 10% boulder, 50% cobble, and 40% silt/sand substrates; moderate embeddedness; no obligate aquatic fauna observed some pools of stagnant water, almost no flow observed 9/17/25	Perennial stream with very shallow surface water, no suitable habitat for Nashville crayfish present due to channel not anticipated to be vernal surface water flow and very shallow surface water not providing enough depth for Nashville crayfish
STR-20 (UT to Seven Mile Creek)	Perennial	Start: 36.101864, -86.713649 End: 36.101712, -86.713499	127	Headwater 1st order perennial stream; perched rock channel with approximately 15% cobble substrates; channel originates at seep and flows short distance over steep rocky hillside and ends in a wetland; water surface flows over rocks, no pools or runs. no obligate aquatic fauna observed 9/9/25; two-lined and dusky salamander observed	Perennial stream with very shallow surface water, no suitable habitat for Nashville crayfish present due to first-order stream channel not providing year-round surface water and shallow surface water not providing enough depth for Nashville crayfish

### Nashville Crayfish Stream Assessment Table

Label	Type	Evaluated Reach Coordinates	Approximate Evaluated Linear Feet (Daylighted)	Channel Habitat Description	Comments/Justification
STR-21 (Seven Mile Creek)	Perennial	Start: 36.100298, -86.713008 End: 36.101069, -86.711517	544	Lower gradient (2nd order or greater) major perennial stream; clay bottom channel with approximately 10% gravel, 15% cobble, and 15% boulder substrates; limited cobble in some sections; darter spp. and chub spp. observed 9/9/25	Clay bottom channel with suitable substrate of cobble and gravel; moderate surface water depth; habitat for Nashville crayfish present
STR-22 (UT to Seven Mile Creek)	Perennial	Start: 36.097708, -86.709865 End: 36.097814, -86.709993	54	Headwater 1st order perennial stream; clay bottom channel with 100% silt/sand substrates; rip rap present in the upper reach; no water in channel 9/9/25	Perennial stream with very shallow surface water, no suitable habitat for Nashville crayfish present due to little to no year-round surface water that is very shallow, as well as undesirable substrate being majority silt/sand
STR-23 (UT to Mill Creek)	Perennial	Start: 36.093713, -86.707376 End: 36.095803, -86.706466	575	Headwater 1st order perennial stream; clay bottom channel with approximately 10% gravel and 90% silt/sand substrates; average channel depth >1in.; no obligate aquatic fauna observed 9/9/25; relatively slow flow over glide habitat; Part of the reach lies within a restoration area	Perennial stream with very shallow surface water, no suitable habitat for Nashville crayfish present due to little to no year-round surface water that is very shallow, as well as undesirable substrate being majority silt/sand
STR-24 (UT to Mill Creek)	Perennial	Start: 36.093718, -86.706987 End: 36.093915, -86.707126	87	Headwater 1st order perennial stream; clay bottom channel with 100% silt/sand substrates; average channel depth >1in.; no obligate aquatic fauna observed 9/9/25; relatively slow flow over glide habitat	Perennial stream with very shallow surface water, as well as a lack of gravel and cobble; no suitable habitat for Nashville crayfish present; clay bottom and majority silt/sand substrate is undesirable habitat for Nashville crayfish
STR-25 (Sorghum Branch)	Perennial	Start: 36.082768, -86.699214 End: 36.087443, -86.698647	1,264	Lower gradient (2nd order or greater) major perennial stream; bedrock channel with approximately 5% gravel, 5% cobble, and 5% boulder substrates; low embeddedness; dace and darter spp. observed crayfish and queen snake observed 9/16/25; relatively shallow surface water and low flow	Slower flow of water over bedrock and cobble substrates; habitat for Nashville crayfish present

### Nashville Crayfish Stream Assessment Table

Label	Type	Evaluated Reach Coordinates	Approximate Evaluated Linear Feet (Daylighted)	Channel Habitat Description	Comments/Justification
STR-26 (UT to Sorghum Branch)	Intermittent	Start: 36.084571, -86.701856 End: 36.085744, -86.699235	397	Likely a headwater 1st order intermittent stream; clay bottom channel with approximately 10% boulder, 20% gravel, 25% silt/sand, and 45% cobble substrates; 2 small stagnant pools in channel and mostly a continuous glide throughout the reach; no obligate aquatic fauna observed 9/9/25 upstream portion affected by concrete debris	Little to no perennial surface water depth and potential seasonal vernal flow; no suitable habitat for Nashville crayfish present due to intermittent stream status and lack of year-round water in channel
STR-27 (UT to Sorghum Branch)	Perennial	Start: 36.078947, -86.694545 End: 36.081168, -86.698066	1,127	Potential 2nd order or greater perennial stream; clay channel bottom with approximately 5% bedrock, 5% boulder, 5% cobble, 25% silt/sand, and 60% gravel substrates; mostly glide within the reach and small plunge pools below culvert outlets; water observed in channel with slow flow; high embeddedness; darter spp observed 9/16/25	Shallower slow flow of water over multiple substrates except for bedrock, with presence of cobble; habitat for Nashville crayfish present
STR-28 (UT to Sorghum Branch)	Intermittent	Start: 36.076903, -86.694950 End: 36.079076, -86.696220	888	Headwater 1st order intermittent stream that drains WTL-17; clay bottom channel with approximately 10% bedrock, 10% boulder, 15% silt/sand, 30% cobble, and 35% gravel substrates; saturated channel with some small stagnant pools near confluence; no flowing water observed 9/16/25	Little to no perennial surface water depth and potential seasonal vernal flow; no suitable habitat for Nashville crayfish present due to intermittent stream status and lack of year-round water in channel
STR-29 (UT to Mill Creek)	Intermittent	Start: 36.071291, -86.690512 End: 36.069703, -86.691474	554	Headwater 1st order intermittent stream; clay bottom channel with approximately 5% bedrock, 5% boulder, 15% silt/sand, 35% gravel, and 40% cobble substrates; low to moderate embeddedness; channel completely dry 9/16/25	Little to no perennial surface water depth and potential seasonal vernal flow; no suitable habitat for Nashville crayfish present due to intermittent stream status and lack of year-round water in channel
STR-30 (UT to Mill Creek)	Perennial	Start: 36.067911, -86.690084 End: 36.06792, -86.690455	125	Stream drains PND-1; clay bottom channel with approximately 40% silt/sand, 40% gravel, and 20% cobble; stream has not completely cut through soil profile; entire stream bed vegetated; no obligate aquatic fauna observed 9/16/25; bluegill observed during EBR assessment; channel is overflow for residential community pond	Blue surface water from algaecide from PND-1; perennial stream with very shallow surface water; clay bottom and silt/sand substrate is undesirable habitat for Nashville crayfish; the effects of the algaecide will likely harm organisms like Nashville crayfish

## Nashville Crayfish Stream Assessment Table

Label	Type	Evaluated Reach Coordinates	Approximate Evaluated Linear Feet (Daylighted)	Channel Habitat Description	Comments/Justification
STR-31 (UT to Mill Creek)	Intermittent	Start: 36.063209, -86.682600 End: 36.063961, -86.682113	369	Potential underground 1st order intermittent stream; clay bottom channel with approximately 10% silt/sand, 40% gravel, and 50% cobble substrates; channel dry 9/16/25 except for one large pool at the culvert headcut; no obligate aquatic fauna observed	Little to no perennial surface water depth and potential seasonal vernal flow; no suitable habitat for Nashville crayfish present due to intermittent stream status and lack of year-round water in channel
STR-32 (UT to Whittemore Branch)	Intermittent	Start: 36.059186, -86.679594 End: 36.060091, -86.678180	388	Potential underground 1st order intermittent stream; clay bottom channel with approximately 5% cobble, 35% silt/sand, and 60% gravel substrates; high embeddedness; one small pool at a culvert headcut, otherwise dry 9/16/25	Little to no perennial surface water depth and potential seasonal vernal flow; no suitable habitat for Nashville crayfish present due to intermittent stream status and lack of year-round water in channel
STR-33 (Whittemore Branch)	Perennial	Start: 36.055268, -86.675919 End: 36.056108, -86.674052	531	Lower gradient (2nd order or greater) major perennial stream; bedrock channel with approximately 10% cobble, 35% silt/sand, and 55% gravel substrates; moderate flow; little embeddedness; shallow to semi-deep surface water; darter spp and shiner spp observed 9/16/25	Bedrock bottom channel with boulder and cobble substrate presence; habitat for Nashville crayfish present
STR-34 (Collins Creek)	Perennial	Start: 36.041873, -86.648116 End: 36.051161, -86.670244	7,407	Lower gradient (2nd order or greater) major perennial stream; bedrock bottom with approximately 15% silt/sand, 20% boulder, 25% cobble, and 30% gravel substrates; little embeddedness; mostly glide throughout the reach; unidentified fish species observed 9/12/25	Bedrock bottom channel with boulder and cobble substrate presence; habitat for Nashville crayfish present
STR-35 (UT to Collins Creek)	Intermittent	Start: 36.050713, -86.669728 End: 36.050523, -86.670038	117	Intermittent drainage channel for WTL-19; clay bottom channel with approximately 5% gravel and 95% silt/sand substrates; channel has low flow and a maximum water depth of ~1in; no obligate aquatic fauna observed 9/12/25; drains excess surface water from WTL-19 to STR-34	Little to no perennial surface water depth and potential seasonal vernal flow; no suitable habitat for Nashville crayfish present due to intermittent stream status and lack of year-round water in channel, as well as undesirable channel substrate of silt/sand

## Nashville Crayfish Stream Assessment Table

Label	Type	Evaluated Reach Coordinates	Approximate Evaluated Linear Feet (Daylighted)	Channel Habitat Description	Comments/Justification
STR-36 (UT to Collins Creek)	Intermittent	Start: 36.050320, -86.668975 End: 36.050161, -86.669502	229	Intermittent drainage channel for WTL-19; clay bottom channel with approximately 5% gravel and 95% silt/sand substrates; channel completely dry 9/12/25; drains excess surface water from WTL-19 to STR-34	Little to no perennial surface water depth and potential seasonal vernal flow; no suitable habitat for Nashville crayfish present due to intermittent stream status and lack of year-round water in channel, as well as undesirable channel substrate of silt/sand
STR-37 (UT to Collins Creek)	Intermittent	Start: 36.049400, -86.667004 End: 36.049350, -86.667024	20	Intermittent drainage channel for WTL-19; clay channel bottom with approximately 10% cobble, 20% silt/sand, and 70% gravel substrates; moderate embeddedness; reach ~20 ft from culvert to confluence with STR-34; low to moderate flow; the reach has one plunge pool and is mostly glide; no obligate aquatic fauna observed 9/12/25	Little to no perennial surface water depth and potential seasonal vernal flow; no suitable habitat for Nashville crayfish present due to intermittent stream status and lack of year-round water in channel
STR-38 (UT to Collins Creek)	Perennial	Start: 36.048884, -86.663345 End: 36.047721, -86.664548	379	Potential headwater 1st order perennial stream; clay bottom channel with approximately 10% cobble, 30% gravel, and 60% silt/sand substrates; very little water with slow flow; mostly glide throughout the reach; upper reach of channel has been impacted by vegetation clearing; no obligate aquatic fauna observed 9/12/25	Perennial stream with very shallow surface water, as well as a minimal presence of gravel and cobble; no suitable habitat for Nashville crayfish present; clay bottom and majority silt/sand substrate is undesirable habitat for Nashville crayfish
STR-39 (UT to Collins Creek)	Perennial	Start: 36.047866, -86.661344 End: 36.046684, -86.662447	355	Potential headwater 1st order perennial stream; clay bottom channel with approximately 15% silt/sand, 15% cobble, and 70% gravel substrates; moderate flow; upper reach of channel impacted by gravel and cobble from adjacent parking lot; surface water originates from offsite stormwater pond; channel is mostly a run throughout the reach	Clay bottom channel with suitable substrate of majority cobble and gravel; moderate surface water depth; habitat for Nashville crayfish present

### Nashville Crayfish Stream Assessment Table

Label	Type	Evaluated Reach Coordinates	Approximate Evaluated Linear Feet (Daylighted)	Channel Habitat Description	Comments/Justification
STR-40 (UT to Collins Creek)	Perennial	Start: 36.045806, -86.661444 End: 36.045897, -86.661325	50	Potential underground 1st order perennial stream; channel is piped under urban development; clay bottom channel with approximately 20% silt/sand, 30% cobble, and 50% gravel substrates; mostly glide throughout the reach with pools of water near culvert and confluence; no obligate aquatic fauna observed 9/11/25; two-lined salamander observed	Perennial stream with very shallow surface water that is mostly piped underground, no suitable habitat for Nashville crayfish present due to first-order stream channel providing little to now surface water depth for Nashville crayfish
STR-41 (UT to Collins Creek)	Intermittent	Start: 36.045533, -86.660771 End: 36.045658, -86.660865	51	Potential underground 1st order intermittent stream; clay bottom channel with approximately 15% cobble, 20% silt/sand, and 65% gravel substrates; some cobble influence from rip rap; mostly a run/glide; no obligate aquatic fauna observed 9/11/25	Little to no perennial surface water depth and potential seasonal vernal flow; no suitable habitat for Nashville crayfish present due to intermittent stream status and lack of year-round water in channel
STR-42 (UT to Collins Creek)	Perennial	Start: 36.043492, -86.660870 End: 36.045393, -86.660458	621	Potential headwater 1st order perennial stream; bedrock bottom with approximately 5% silt/sand, 10% boulder, 20% cobble, and 25% gravel substrates; little embeddedness; low flow; average depth >1 in; no obligate aquatic fauna observed 9/10/25, historic surveys show darter species observed	Bedrock bottom channel with cobble substrate presence; habitat for Nashville crayfish present
STR-43 (UT to Collins Creek)	Perennial	Start: 36.043002, -86.657359 End: 36.04362, -86.657355	188	Potential 2nd order or greater perennial stream; bedrock bottom with approximately 10% boulder and 10% silt/sand substrates; low embeddedness; moderate flow of relatively shallow surface water; unidentified fish species seen 9/12/25	Bedrock bottom channel with cobble substrate presence; habitat for Nashville crayfish
STR-44 (UT to Collins Creek)	Intermittent	Start: 36.040183, -86.651262 End: 36.042162, -86.652670	512	Headwater 1st order intermittent stream; concrete lined channel in upper reach and lower reach of a low gradient channel with approximately 45% gravel and 55% silt/sand substrates; depth around 8in in pools; mostly a run throughout the reach; high embeddedness of roots; no fish species observed 9/11/25	Little to no perennial surface water depth and potential seasonal vernal flow; no suitable habitat for Nashville crayfish present due to intermittent stream status and lack of year-round water in channel

### Nashville Crayfish Stream Assessment Table

Label	Type	Evaluated Reach Coordinates	Approximate Evaluated Linear Feet (Daylighted)	Channel Habitat Description	Comments/Justification
STR-45 (UT to Collins Creek)	Perennial	Start: 36.034843, -86.642605 End: 36.035257, -86.642180	206	Potential underground 1st order perennial stream; clay bottom channel with equal percentages silt/sand, cobble, and gravel substrates; abundant black willow roots; high organic deposition on top of channel substrate; rip rap in the upper reach at culvert outlet; green frogs observed; very slow flow; no obligate aquatic fauna observed	Shallow and slow surface water with a lack of bedrock and minimal presence of cobble and gravel; no suitable habitat for Nashville crayfish present due to limited surface water depth and flow, as well as significant presence of silt and organic embeddedness of channel substrates
STR-46 (UT to Collins Creek)	Perennial	Start: 36.033484, -86.641008 End: 36.033676, -86.644406	81	Potential underground 1st order perennial stream; channel daylighted between two culverts; clay bottom with approximately 30% boulder, 30% gravel, and 40% cobble substrates; very high embeddedness; very high presence of iron oxidizing bacteria; two-lined salamander observed	Stream is anticipated to be low water quality due to the significant abundance of iron-oxidizing bacteria; Perennial stream with very shallow surface water, no suitable habitat for Nashville crayfish present due to limited year-round surface water flow and depth, as well as a high embeddedness of fine substrate and iron-oxidizing bacteria in-between
STR-47 (UT to Collins Creek)	Intermittent	Start: 36.033378, -86.640894 End: 36.033502, -86.640992	55	Headwater 1st order intermittent stream; clay bottom with approximately 10% gravel and 90% silt/sand substrates; high embeddedness of overlying deposits of rip rap; no fauna; no flow observed 9/17/25	Little to no perennial surface water depth and potential seasonal vernal flow; no suitable habitat for Nashville crayfish present due to intermittent stream status and lack of year-round water in channel
STR-48 (UT to Collins Creek)	Intermittent	Start: 36.029279, -86.638734 End: 36.030625, -86.636709	548	Headwater 1st order intermittent stream; clay bottom channel with approximately 5% cobble, 30% gravel, and 65% silt/sand substrates; high embeddedness; incised banks; low to moderate flow with sequencing of riffles and pools; no obligate aquatic fauna observed 9/10/25	Little to no perennial surface water depth and potential seasonal vernal flow; no suitable habitat for Nashville crayfish present due to intermittent stream status and lack of year-round water in channel

### Nashville Crayfish Stream Assessment Table

Label	Type	Evaluated Reach Coordinates	Approximate Evaluated Linear Feet (Daylighted)	Channel Habitat Description	Comments/Justification
STR-49 (UT to Collins Creek)	Intermittent	Start: 36.029213, -86.636426 End: 36.029971, -86.636239	290	Headwater 1st order intermittent stream; clay bottom channel with approximately 5% cobble, 30% gravel, and 65% silt/sand substrates; some gravel in upper reach likely influenced from highway; slow to no flow through most of reach; some small pools below small headcuts; no obligate aquatic fauna observed 9/10/25	Little to no perennial surface water depth and potential seasonal vernal flow; no suitable habitat for Nashville crayfish present due to intermittent stream status and lack of year-round water in channel
STR-50 (UT to Collins Creek)	Perennial	Start: 36.028251, -86.635466 End: 36.029248, -86.635330	388	Headwater 1st order perennial stream; clay bottom channel with approximately 5% boulder, 20% cobble, 20% gravel, and 55% silt/sand substrates; portions flow subterranean; low to moderate flow; mostly glide and riffles with one pool below headcut; no obligate aquatic fauna observed 9/10/25	The lower reach has an increase in cobble on top of a clay bottom channel; moderate surface water depth; habitat for Nashville crayfish present
STR-51 (UT to Collins Creek)	Intermittent	Start: 36.027042, -86.635127 End: 36.028155, -86.634314	275	Headwater 1st order intermittent stream; clay bottom channel with approximately 30% gravel and 70% silt/sand substrates; slow flow mostly glide; average water depth >1in; no obligate aquatic fauna observed 9/11/25	Little to no perennial surface water depth and potential seasonal vernal flow; no suitable habitat for Nashville crayfish present due to intermittent stream status and lack of year-round water in channel
STR-52 (UT to Collins Creek)	Intermittent	Start: 36.026392, -86.633372 End: 36.026868, -86.632750	171	Headwater 1st order intermittent stream; clay bottom channel that flows subterranean with approximately 5% gravel and 95% silt/sand substrates; many hydrophytes in channel; no slab rock or cobble; channel dry 8/28/25	Little to no perennial surface water depth and potential seasonal vernal flow; no suitable habitat for Nashville crayfish present due to intermittent stream status and lack of year-round water in channel
STR-53 (UT to Collins Creek)	Intermittent	Start: 36.024933, -86.631243 End: 36.025033, -86.630893	150	Headwater 1st order intermittent stream; clay bottom channel with approximately 10% cobble, 40% gravel, and 50% silt/sand substrates; cobble and boulder influence from nearby infrastructure; channel dry 9/11/25	Little to no perennial surface water depth and potential seasonal vernal flow; no suitable habitat for Nashville crayfish present due to intermittent stream status and lack of year-round water in channel

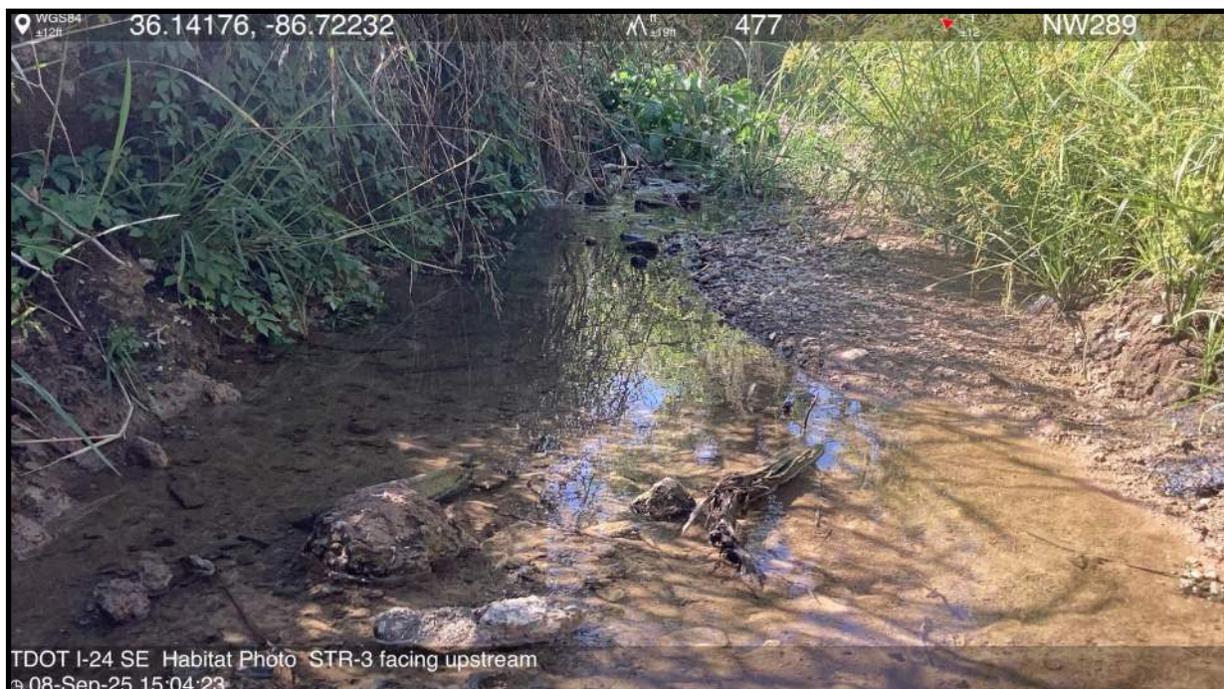
### Nashville Crayfish Stream Assessment Table

Label	Type	Evaluated Reach Coordinates	Approximate Evaluated Linear Feet (Daylighted)	Channel Habitat Description	Comments/Justification
STR-54 (UT to Collins Creek)	Intermittent	Start: 36.021964, -86.630480 End: 36.024929, -86.630434	655	Headwater 1st order intermittent stream; clay bottom with approximately 20% cobble, 20% silt/sand, and 60% gravel substrates; some embeddedness; no aquatic fauna; no water in channel 9/17/25	Little to no perennial surface water depth and potential seasonal vernal flow; no suitable habitat for Nashville crayfish present due to intermittent stream status and lack of year-round water in channel
STR-55 (UT to Collins Creek)	Intermittent	Start: 36.022387, -86.631051 End: 36.022797, -86.630659	215	Headwater 1st order intermittent stream; clay bottom with approximately 20% cobble, 20% silt/sand, and 60% gravel substrates; some embeddedness; no aquatic fauna; no water in channel 9/17/25	Little to no perennial surface water depth and potential seasonal vernal flow; no suitable habitat for Nashville crayfish present due to intermittent stream status and lack of year-round water in channel

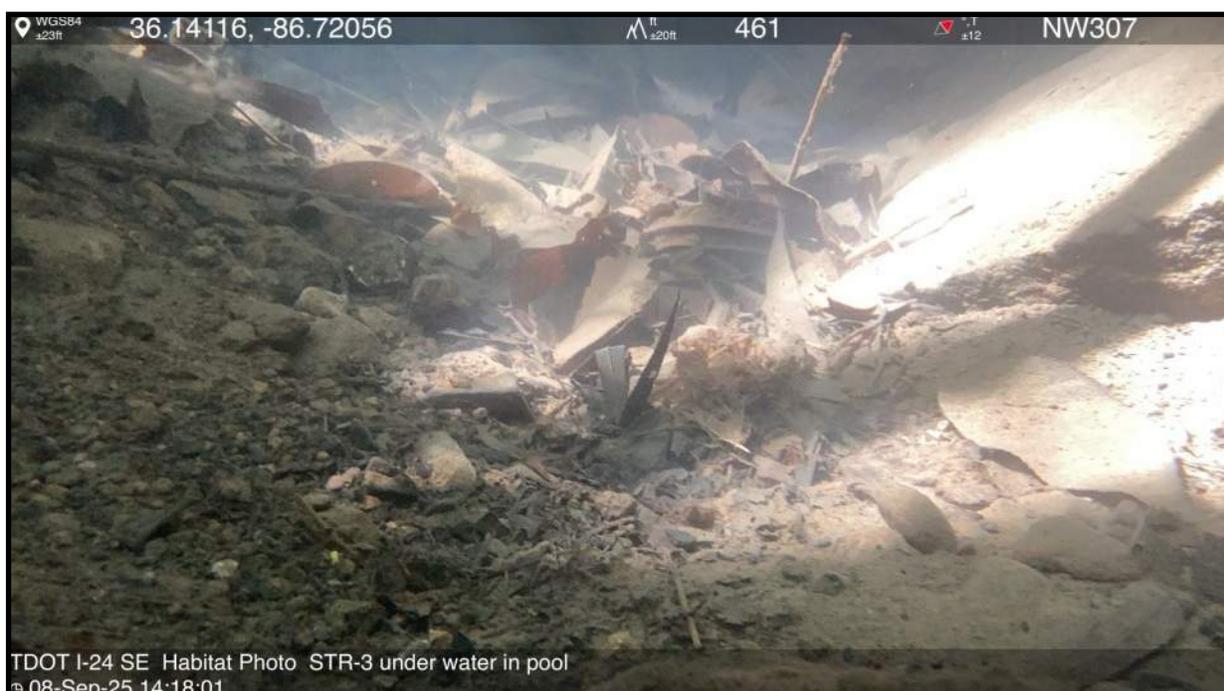
*\*Table excludes resources not present within the Mill Creek (05130202) HUC-8 Watershed*



## **APPENDIX B. SITE PHOTOGRAPHS SUMMARY**



**Photo 1: STR-3**—Representative conditions of STR-3 facing upstream.



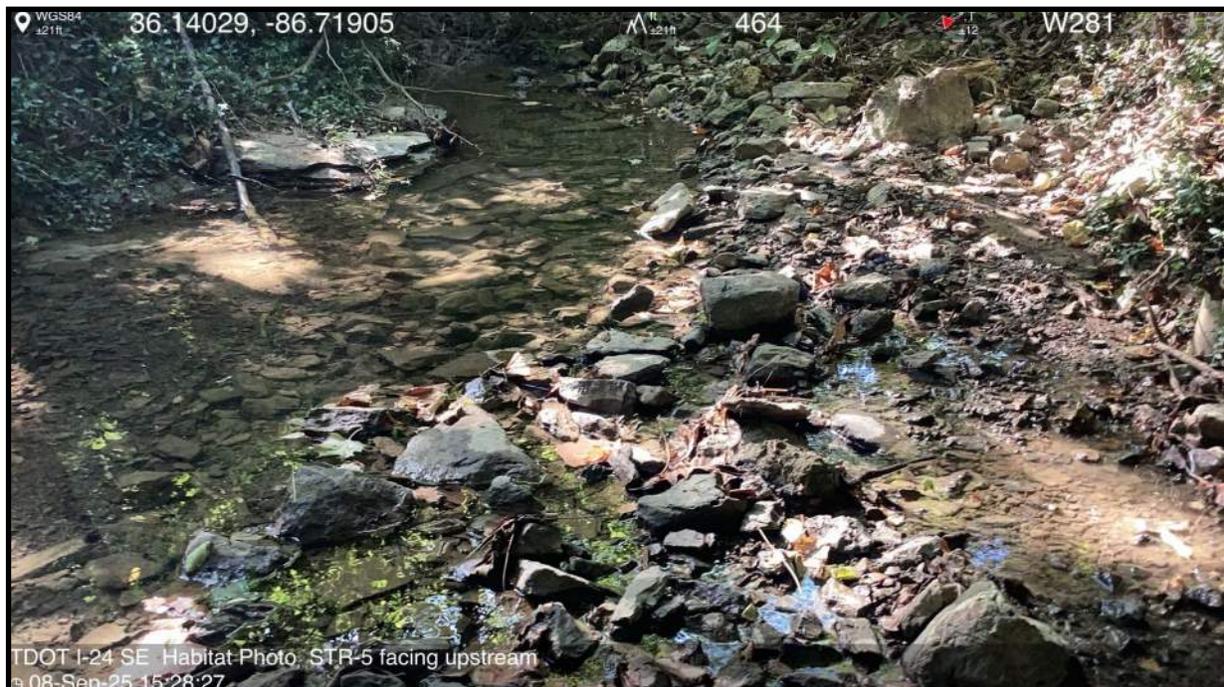
**Photo 2: STR-3**—Representative conditions of underwater habitat within pool habitat of STR-3.



**Photo 3: STR-4**—Representative conditions of STR-4 facing upstream.



**Photo 4: STR-4**—Representative conditions of STR-4 facing downstream.



**Photo 5: STR-5**—Representative conditions of STR-5 facing upstream.



**Photo 6: STR-5**—Representative conditions of the pool located within STR-5.



**Photo 7: STR-5**— Representative conditions of underwater habitat within pool habitat of STR-5.



**Photo 8: STR-5.1**— Representative conditions of STR-5.1.



**Photo 9: STR-5.1**— Representative conditions of large box culvert through STR-5.1.



**Photo 10: STR-5.2**— Representative conditions of STR-5.2.

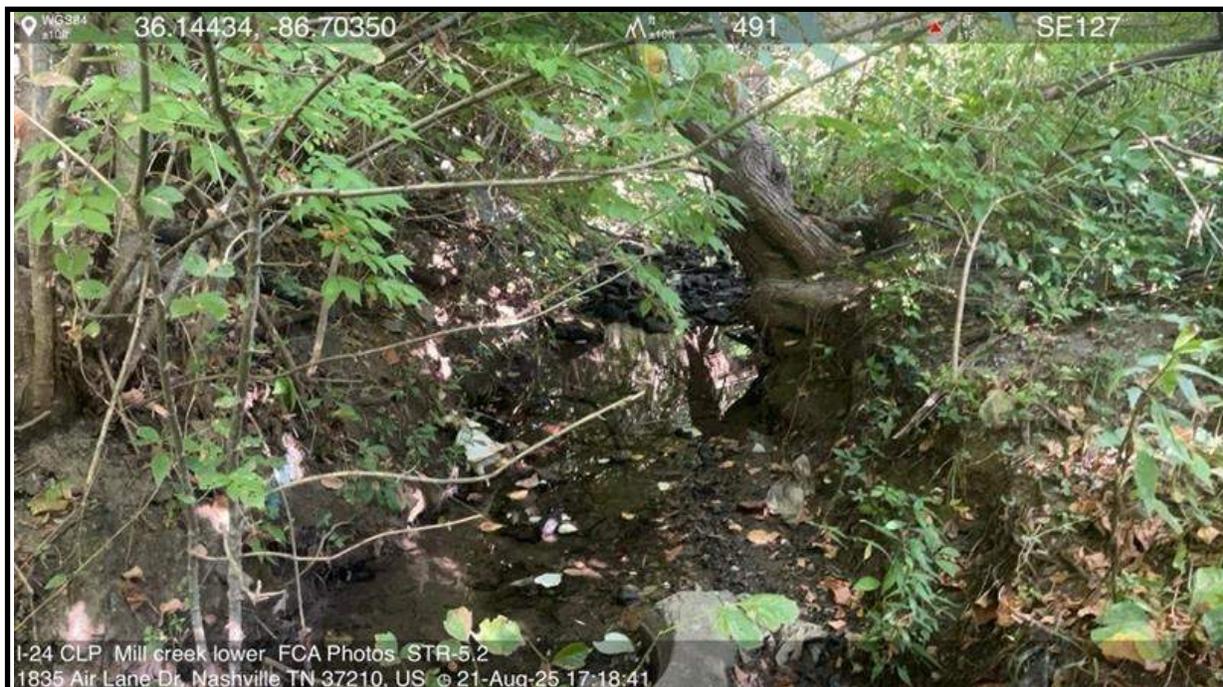


Photo 11: STR-5.2— Representative conditions of STR-5.2.



Photo 12: STR-5.3— Representative conditions the cobble section of STR-5.3.



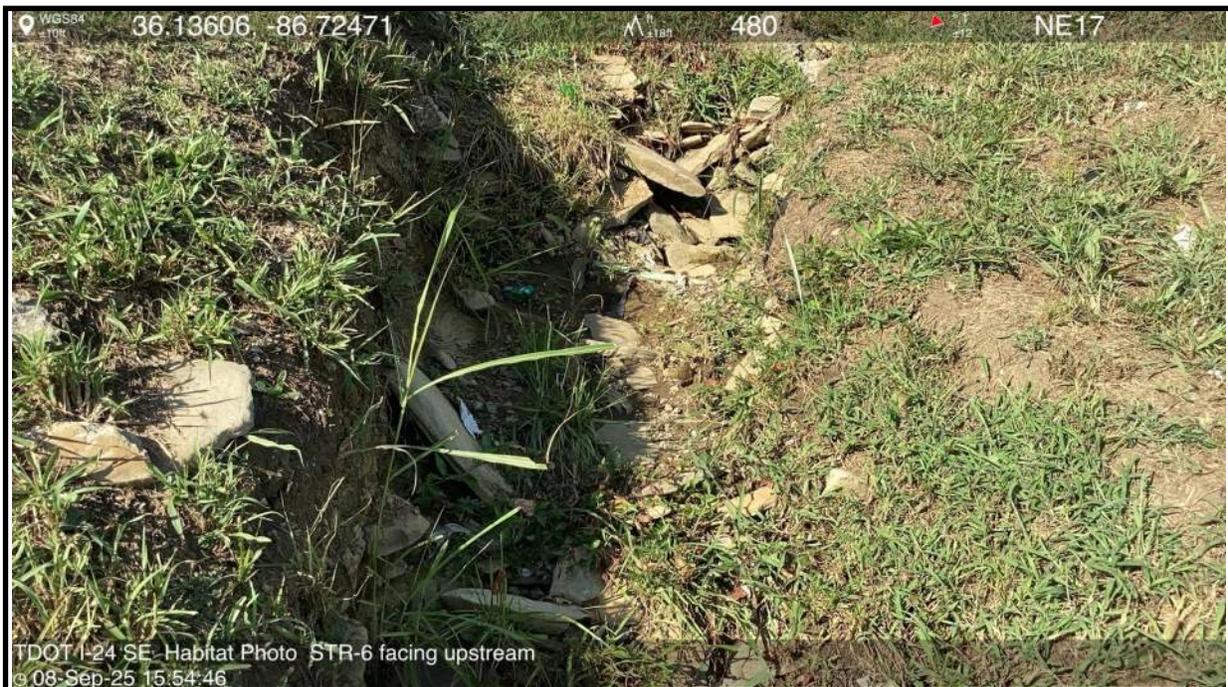
Photo 13: STR-5.3— Representative conditions the grass section of STR-5.3.



Photo 14: STR-5.4— Representative conditions of STR-5.4.



**Photo 15: STR-5.4**— Representative conditions of the culverted section of STR-5.4.



**Photo 16: STR-6**— Representative conditions of STR-6 facing upstream.



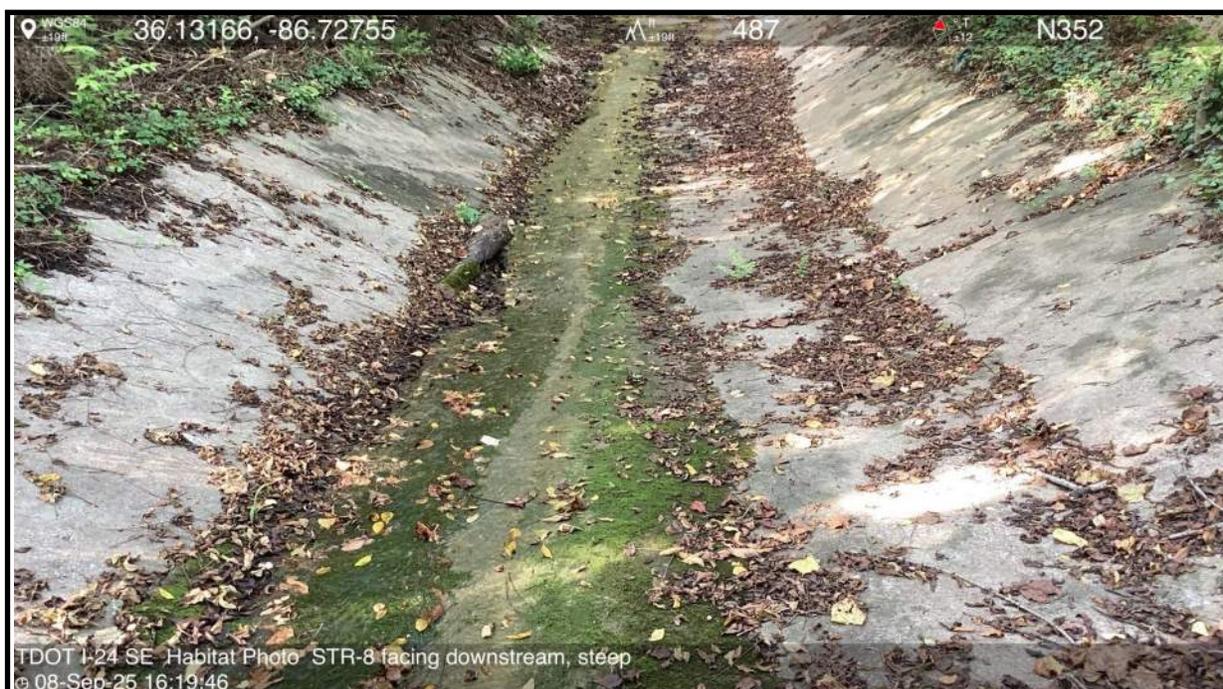
**Photo 17: STR-7**— Representative conditions of STR-7 facing upstream.



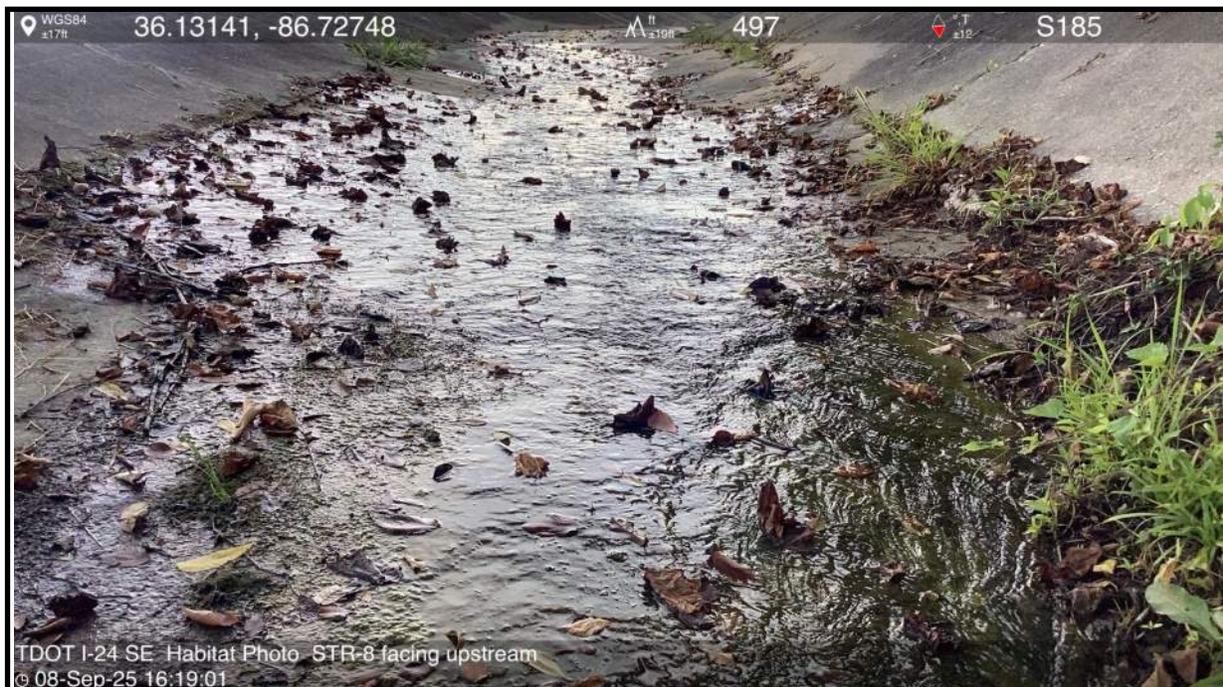
**Photo 18: STR-7**— Representative conditions of STR-7 facing upstream within a run habitat.



**Photo 19: STR-7**— Representative conditions of underwater habitat within pool habitat of STR-7.



**Photo 20: STR-8**— Representative conditions of STR-8 facing downstream.



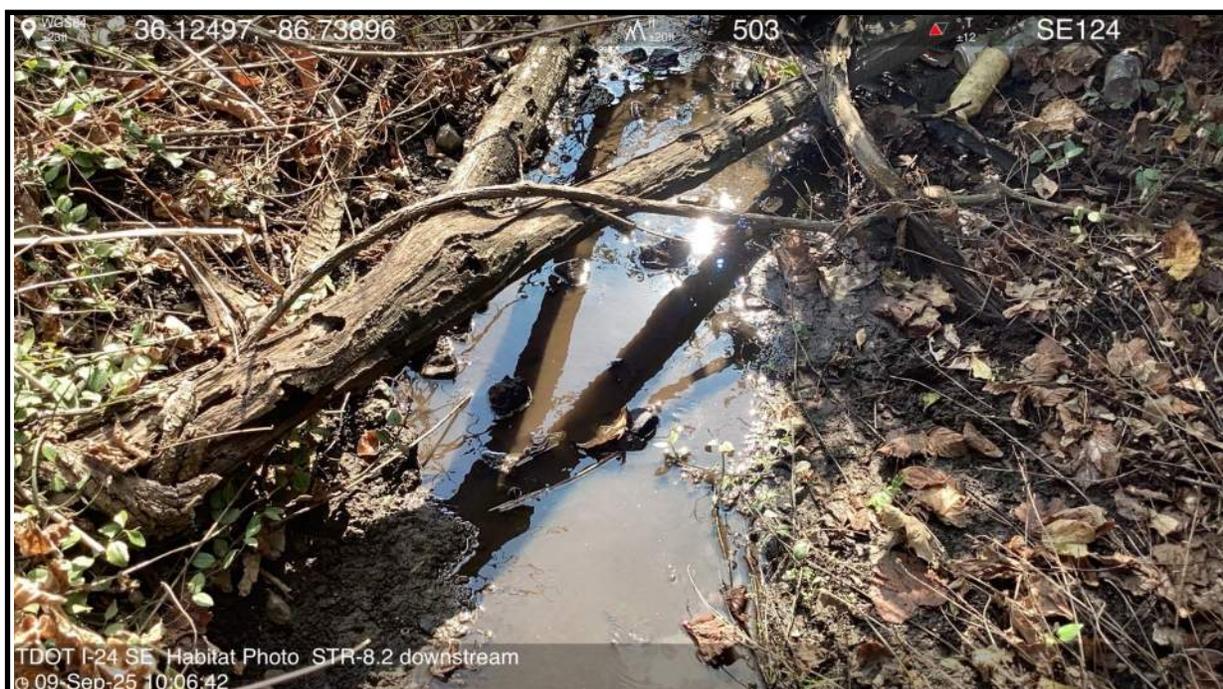
**Photo 21: STR-8**—Representative conditions of STR-8 facing upstream.



**Photo 22: STR-8.1**—Representative conditions of STR-8.1.



**Photo 23: STR-8.2**—Representative conditions of the cobble section of STR-8.2.



**Photo 24: STR-8.2**—Representative conditions of the silty section of STR-8.2.



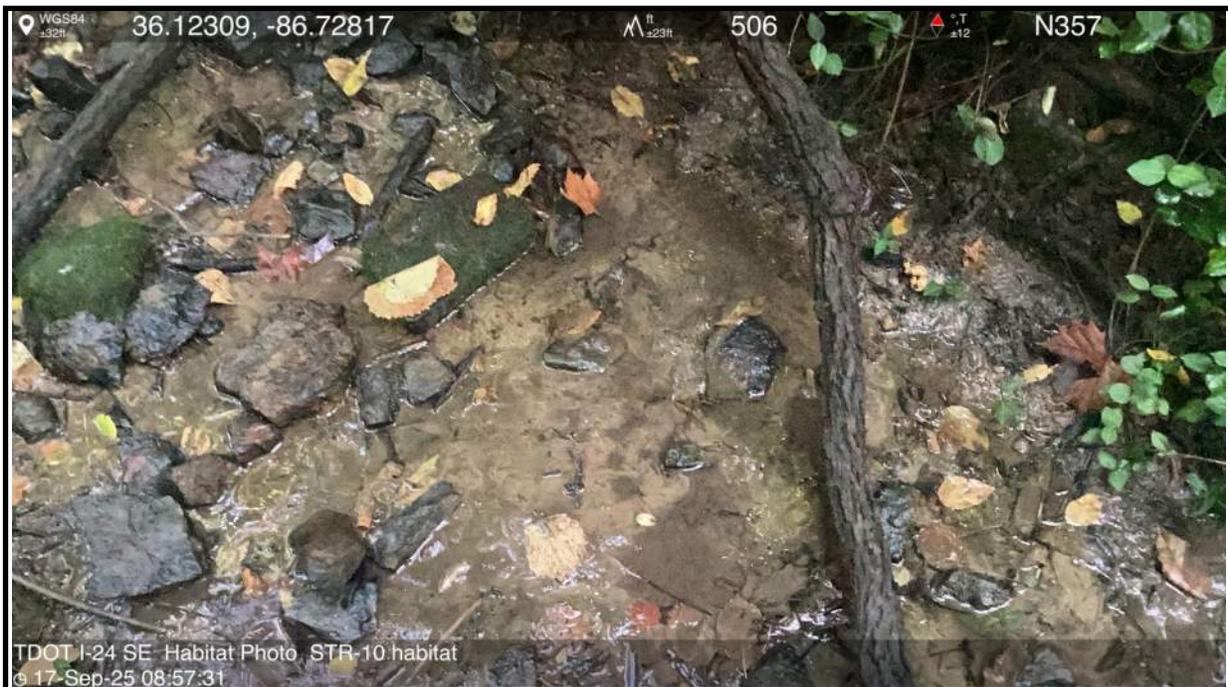
**Photo 25: STR-8.3**—Representative conditions of STR-8.3.



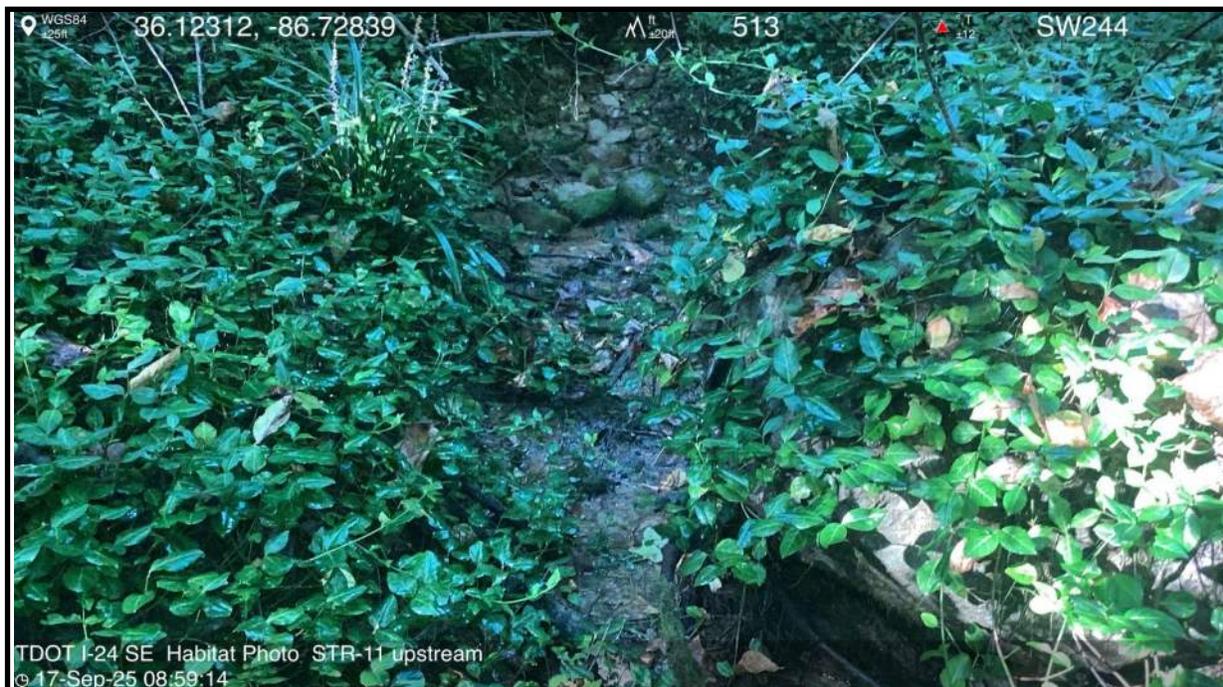
**Photo 26: STR-9**—Representative conditions of STR-9.



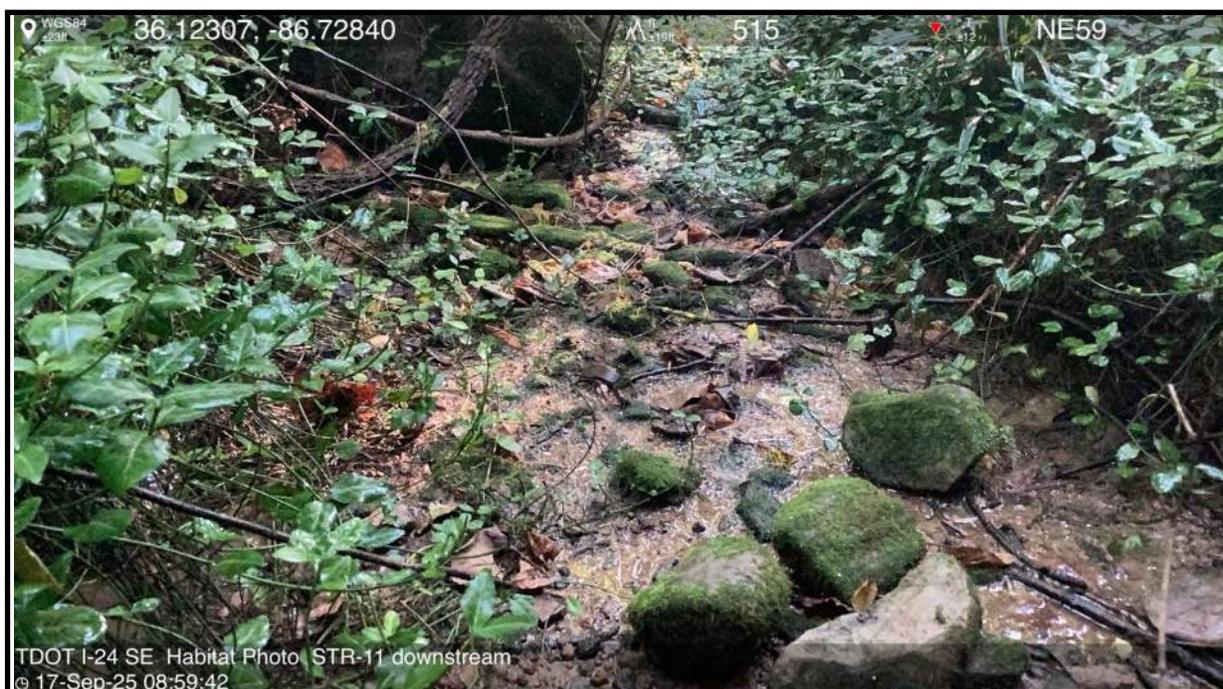
**Photo 27: STR-10**—Representative conditions of STR-10 facing downstream.



**Photo 28: STR-10**—Representative conditions of substrate within STR-10.



**Photo 29: STR-11**—Representative conditions of STR-11 facing upstream.



**Photo 30: STR-11**—Representative conditions of STR-11 facing downstream.



Photo 31: STR-12 (Mill Creek)—Representative conditions of STR-12 facing upstream.

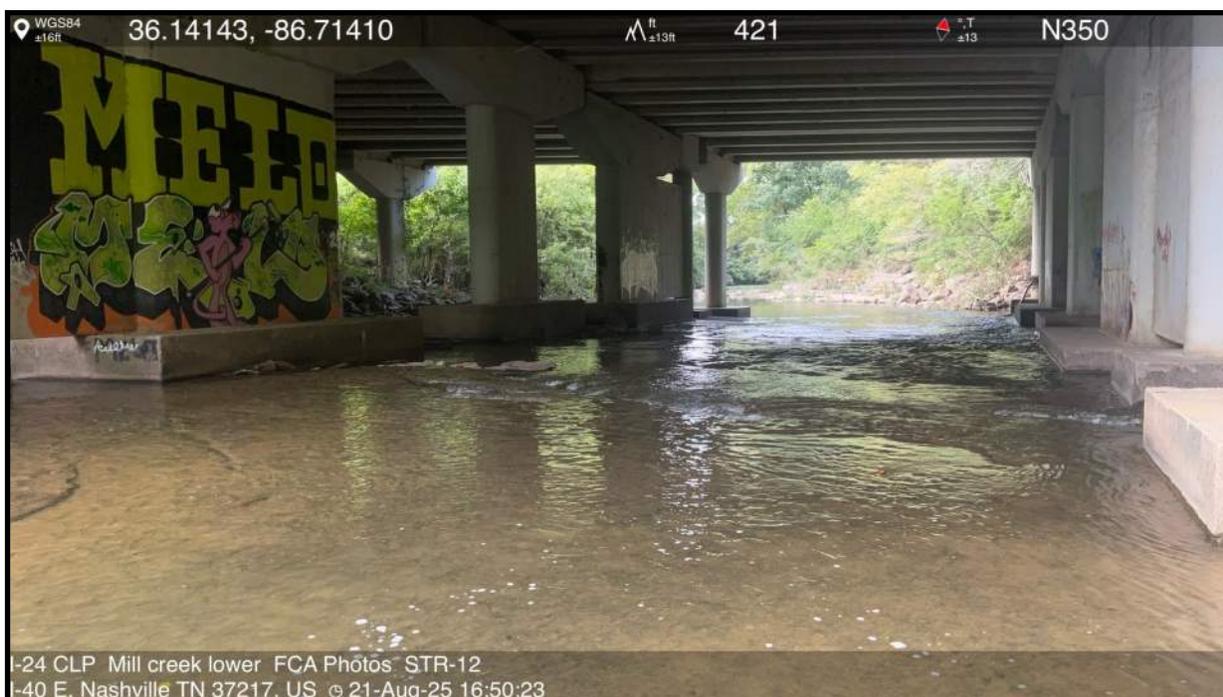
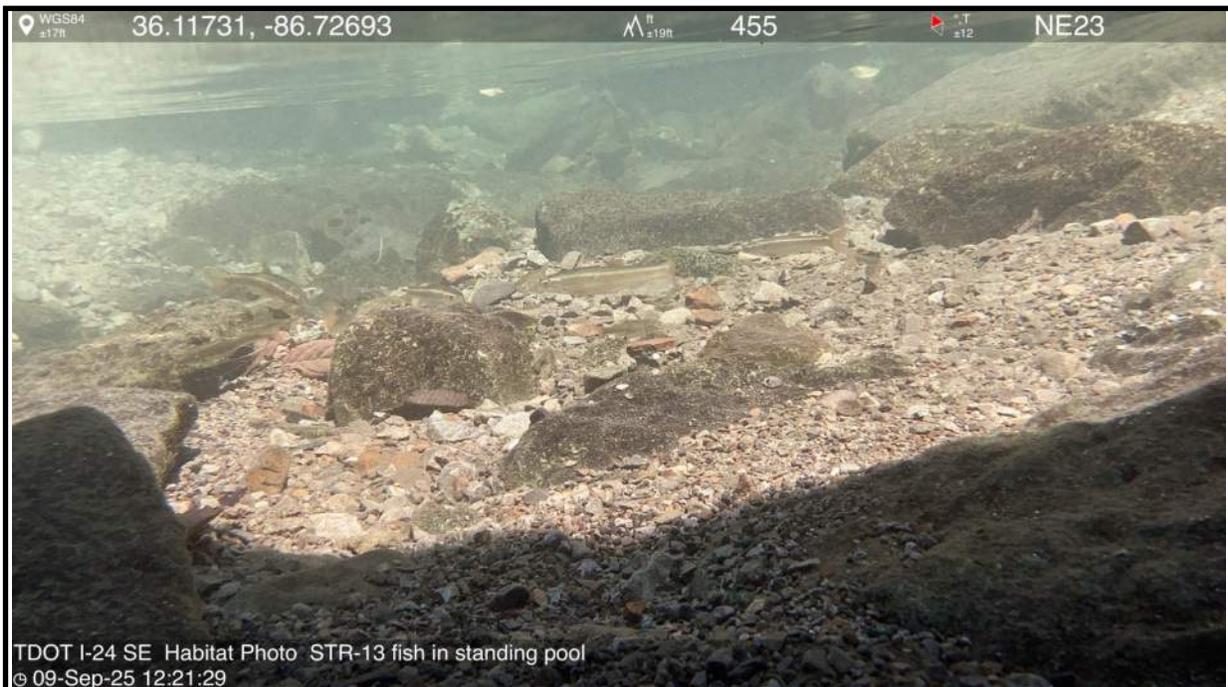


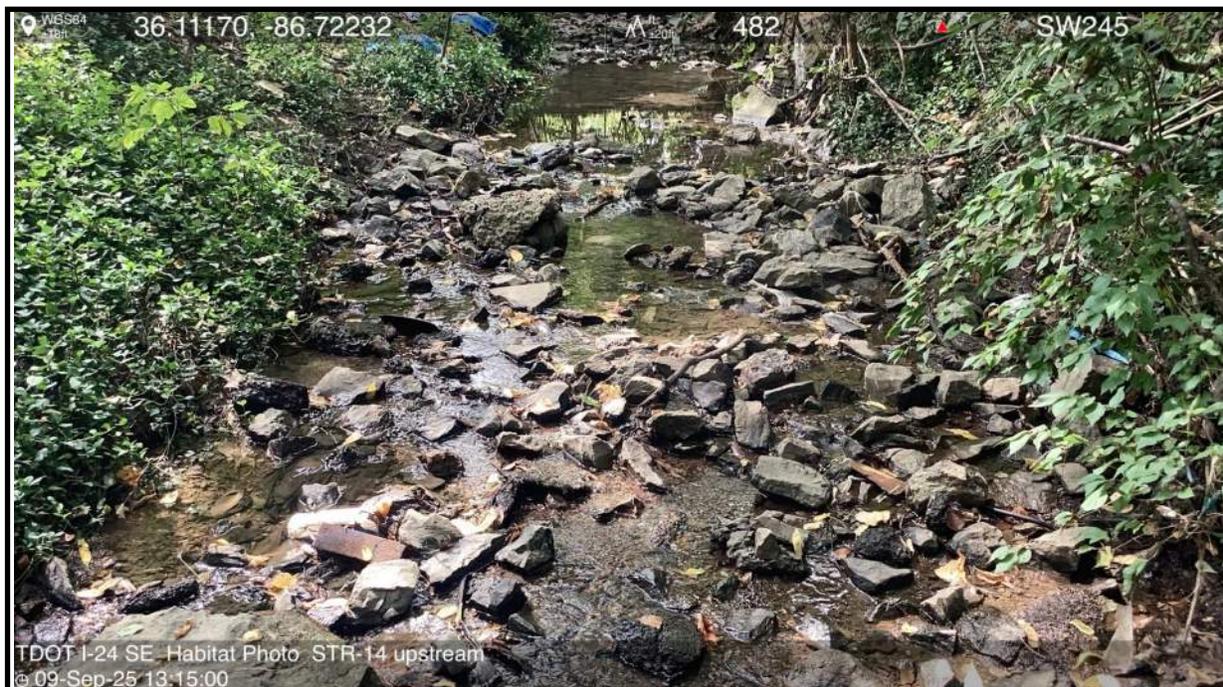
Photo 32: STR-12 (Mill Creek)—Representative conditions of STR-12 facing downstream.



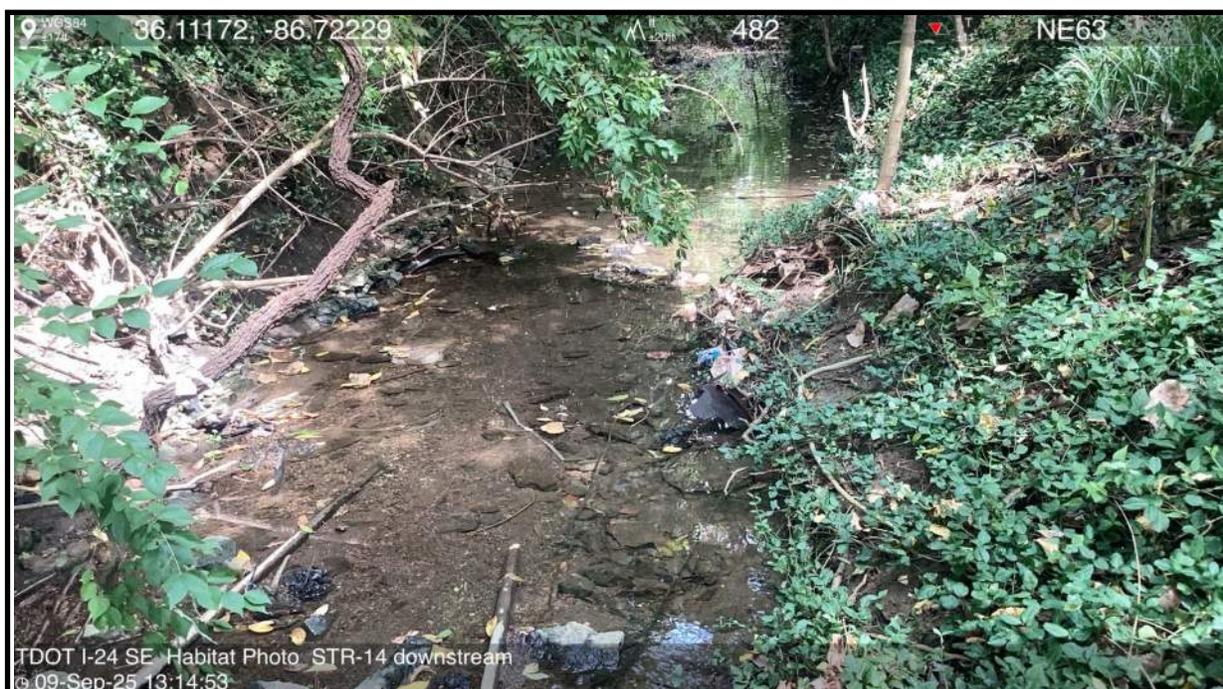
**Photo 33: STR-13**—Representative conditions of STR-13.



**Photo 34: STR-13**—Representative conditions of underwater habitat with fish present within pool habitat of STR-13.



**Photo 35: STR-14**—Representative conditions of STR-14 facing upstream.



**Photo 36: STR-14**—Representative conditions of STR-14 facing downstream.



**Photo 37: STR-14**—Representative conditions of substrate within riffle habitat of STR-14.



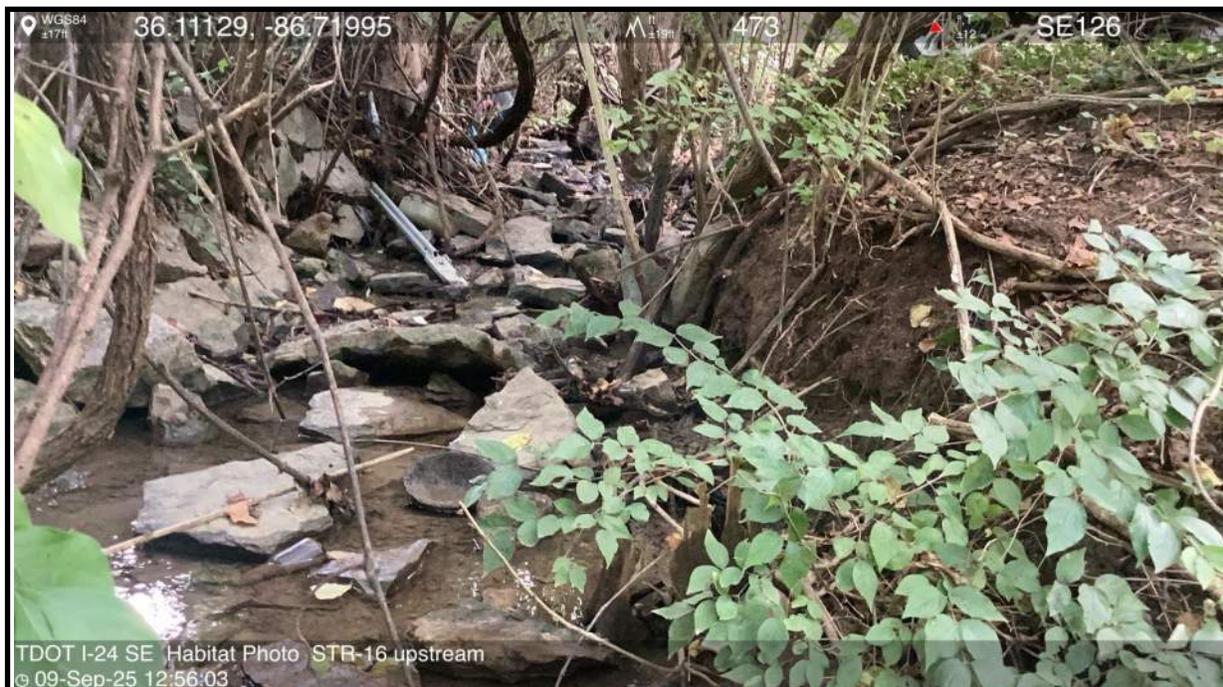
**Photo 38: STR-15**—Representative conditions of STR-15 facing upstream.



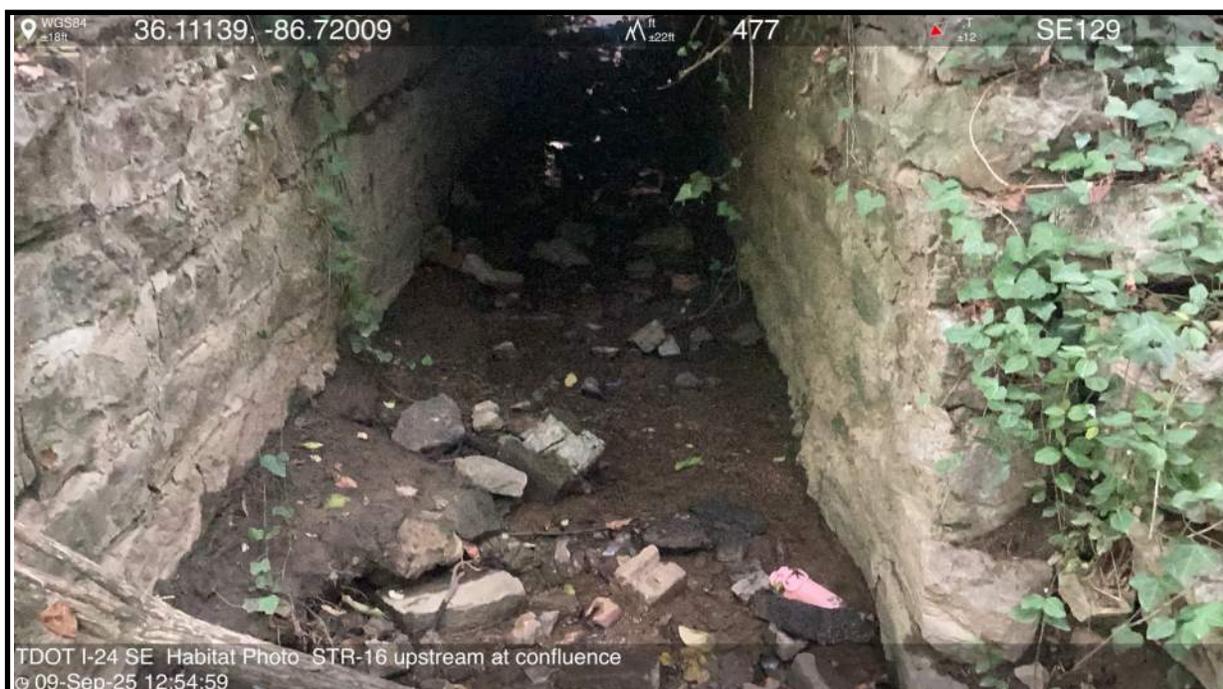
**Photo 39: STR-15**—Representative conditions of STR-15 facing downstream.



**Photo 40: STR-15**—Representative conditions of underwater habitat of STR-15.



**Photo 41: STR-16**—Representative conditions of STR-16 facing upstream.



**Photo 42: STR-16**—Representative conditions of STR-16 at confluence with STR-15.



**Photo 43: STR-17**—Representative conditions of STR-17.



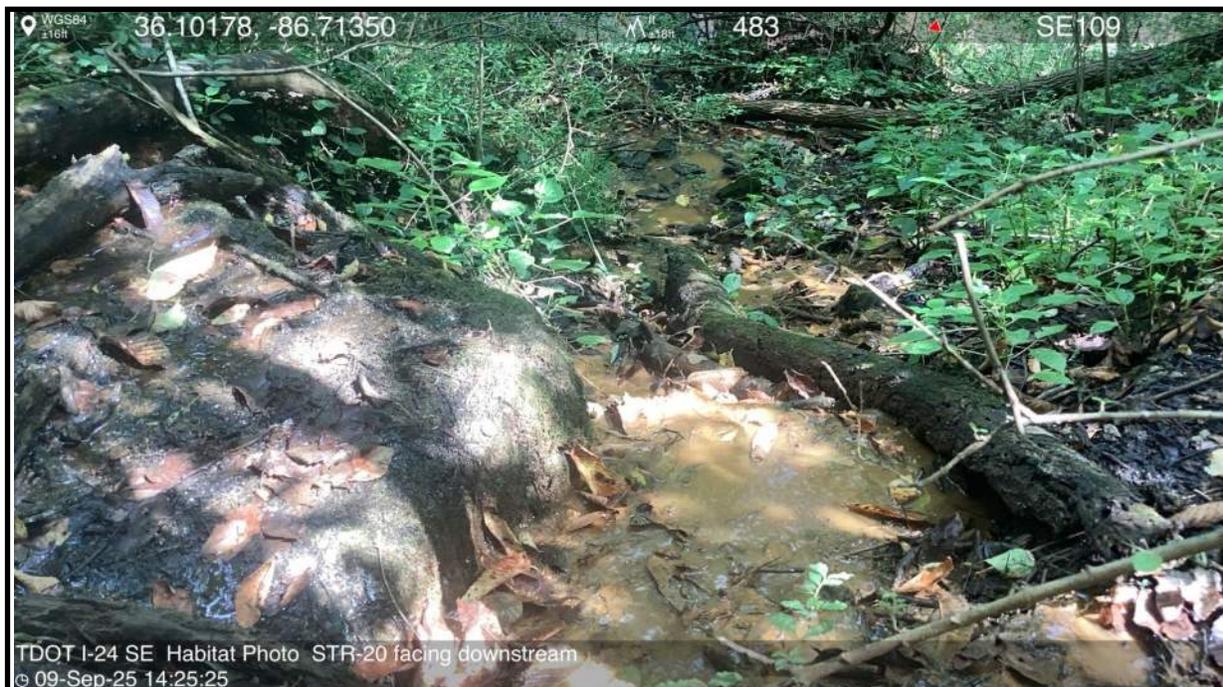
**Photo 44: STR-18**—Representative conditions of STR-18 facing downstream near start of reach.



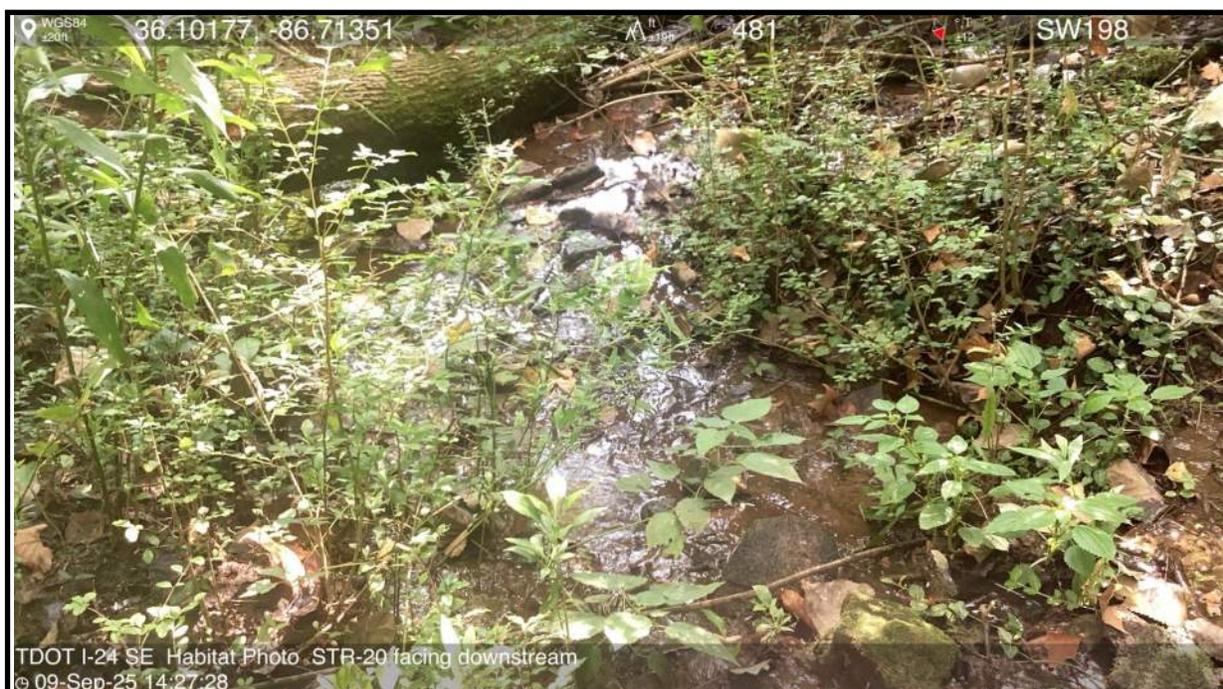
**Photo 45: STR-18**—Representative conditions of STR-18 facing upstream.



**Photo 46: STR-19**—Representative conditions of STR-19.



**Photo 47: STR-20**—Representative conditions of STR-20.



**Photo 48: STR-20**—Representative conditions of STR-20.



**Photo 49: STR-21 (Seven Mile Creek)** —Representative conditions of STR-21 (Seven Mile Creek).



**Photo 50: STR-21 (Seven Mile Creek)** —Representative conditions of underwater habitat within pool habitat of STR-21 (Seven Mile Creek).



**Photo 51: STR-22**—Representative conditions of STR-22 facing upstream.



**Photo 52: STR-22**—Representative conditions of STR-22 facing downstream.



Photo 53: STR-23—Representative conditions of STR-23.



Photo 54: STR-24—Representative conditions of STR-24.

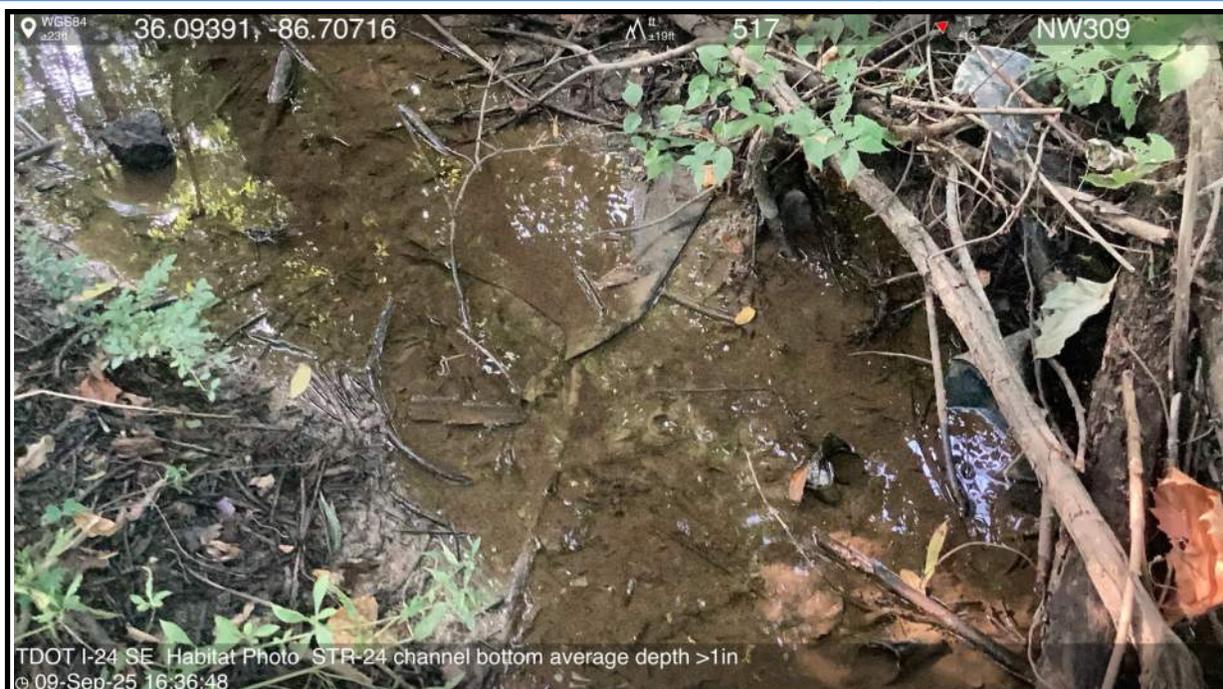


Photo 55: STR-24—Representative conditions of substrate within STR-24.

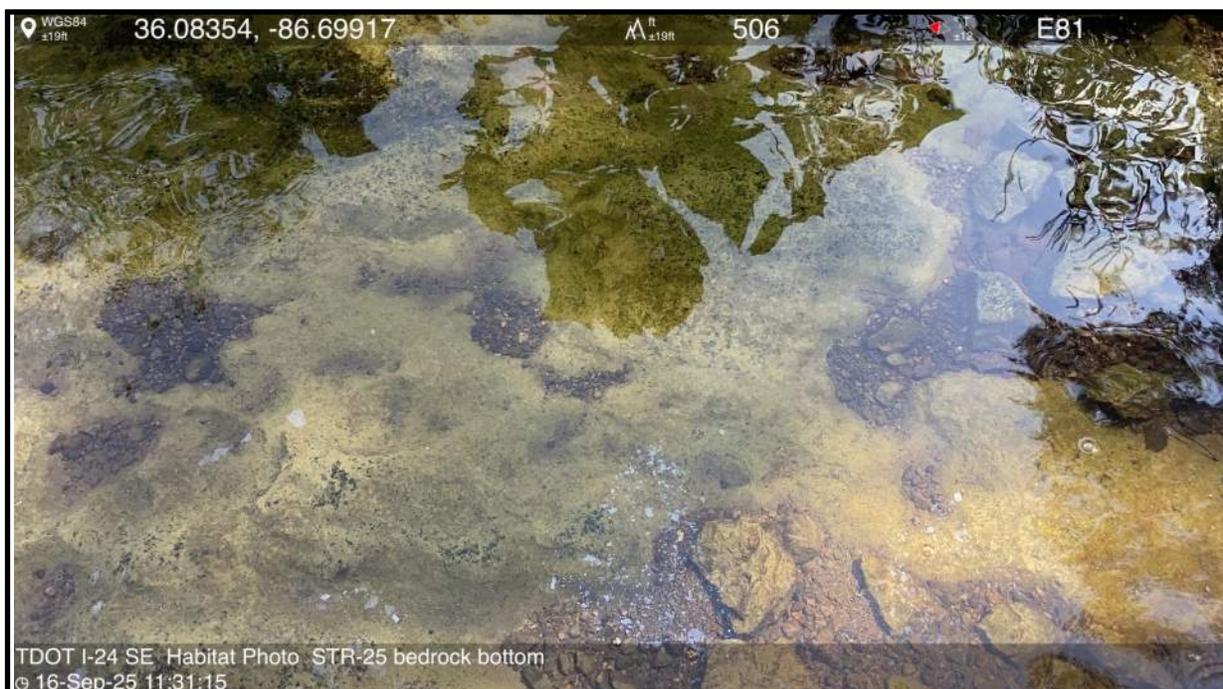
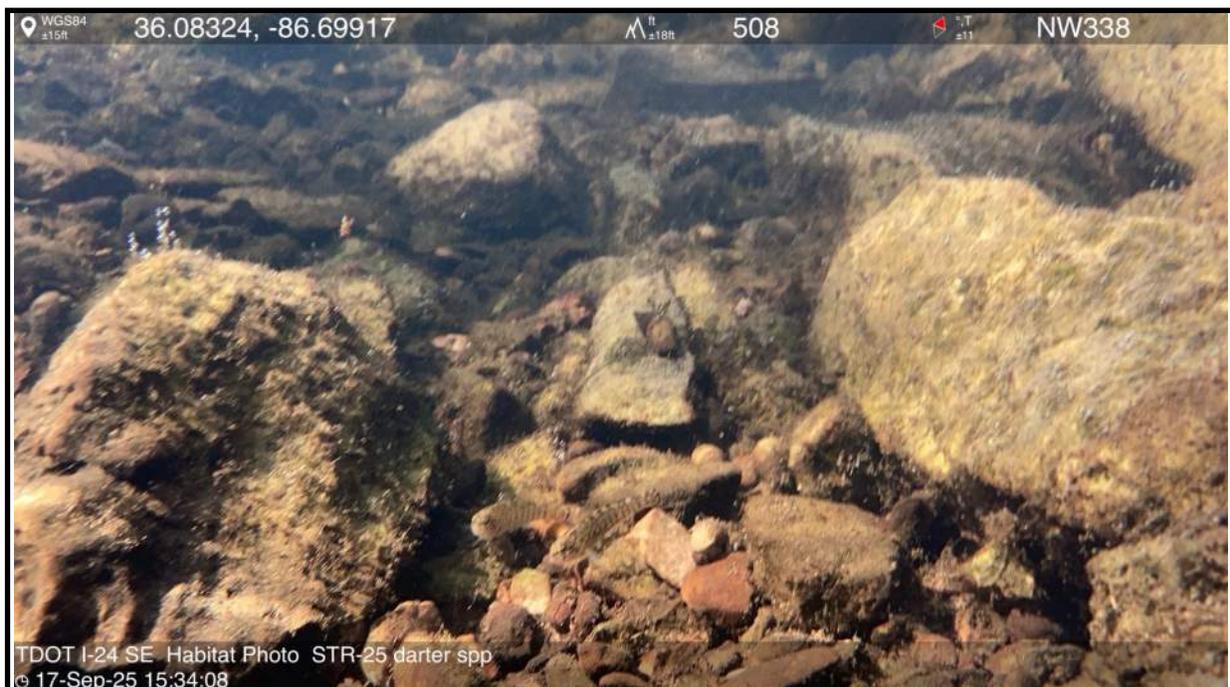


Photo 56: STR-25 (Sorghum Branch) —Representative conditions of substrate within STR-25 (Sorghum Branch).



**Photo 57: STR-25 (Sorghum Branch)** —Representative conditions of STR-25 (Sorghum Branch) facing upstream.



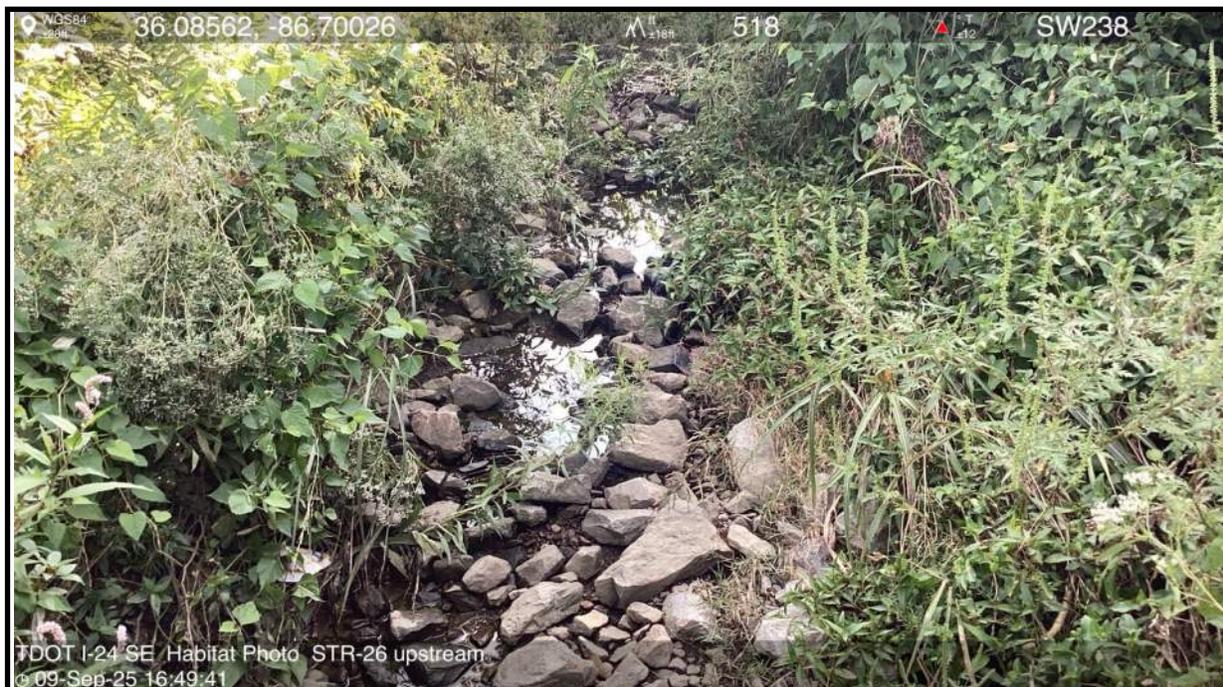
**Photo 58: STR-25 (Sorghum Branch)** —Darter species observed within STR-25 (Sorghum Branch).



Photo 59: STR-25 (Sorghum Branch) —Crayfish observed within STR-25 (Sorghum Branch).



Photo 60: STR-26—Representative conditions of STR-26 facing downstream.



**Photo 61: STR-26**—Representative conditions of STR-26 facing upstream.



**Photo 62: STR-27**—Representative condition of substrate within STR-27.



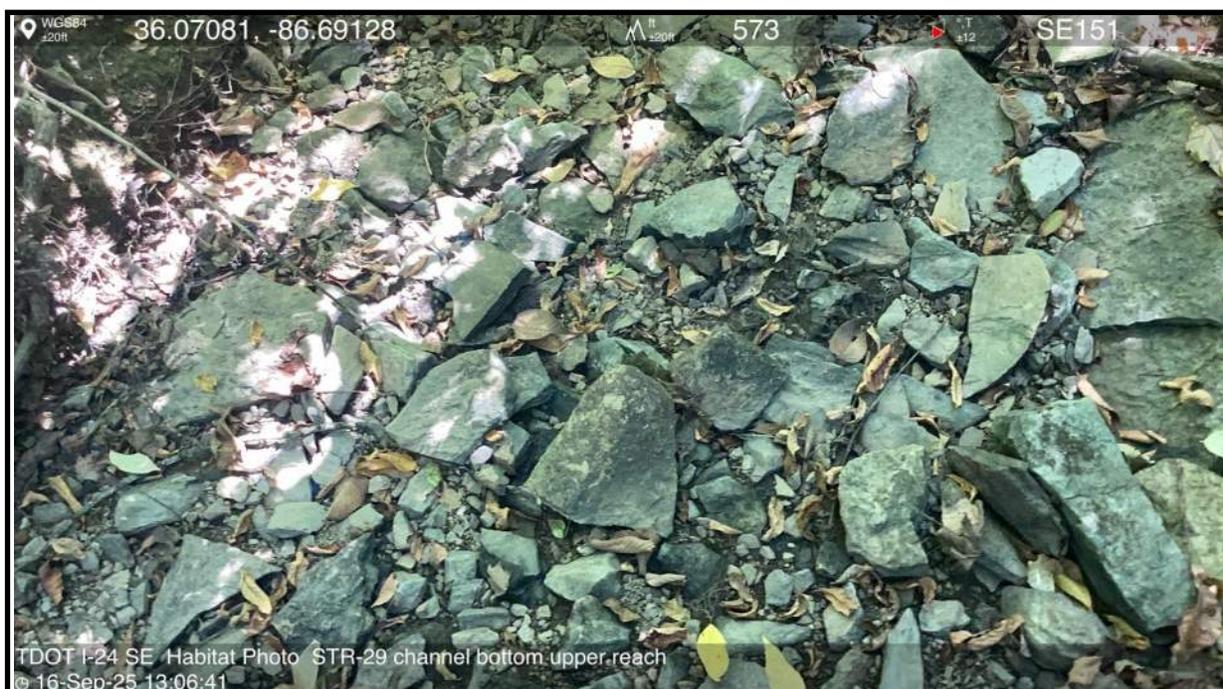
**Photo 63: STR-27**—Representative conditions of STR-27.



**Photo 64: STR-28**—Representative conditions of STR-28.



**Photo 65: STR-29**—Representative conditions of STR-29 within lower reach.



**Photo 66: STR-29**—Representative conditions of substrate within upper reach of STR-29.



**Photo 67: STR-30**—Representative conditions of STR-30.



**Photo 68: STR-30**—Representative conditions of substrate within STR-30.



Photo 69: STR-31—Representative conditions of STR-31.



Photo 70: STR-31—Representative conditions of STR-31.



**Photo 71: STR-32**—Representative conditions of STR-32.



**Photo 72: STR-32**—Representative conditions of substrate within STR-32.



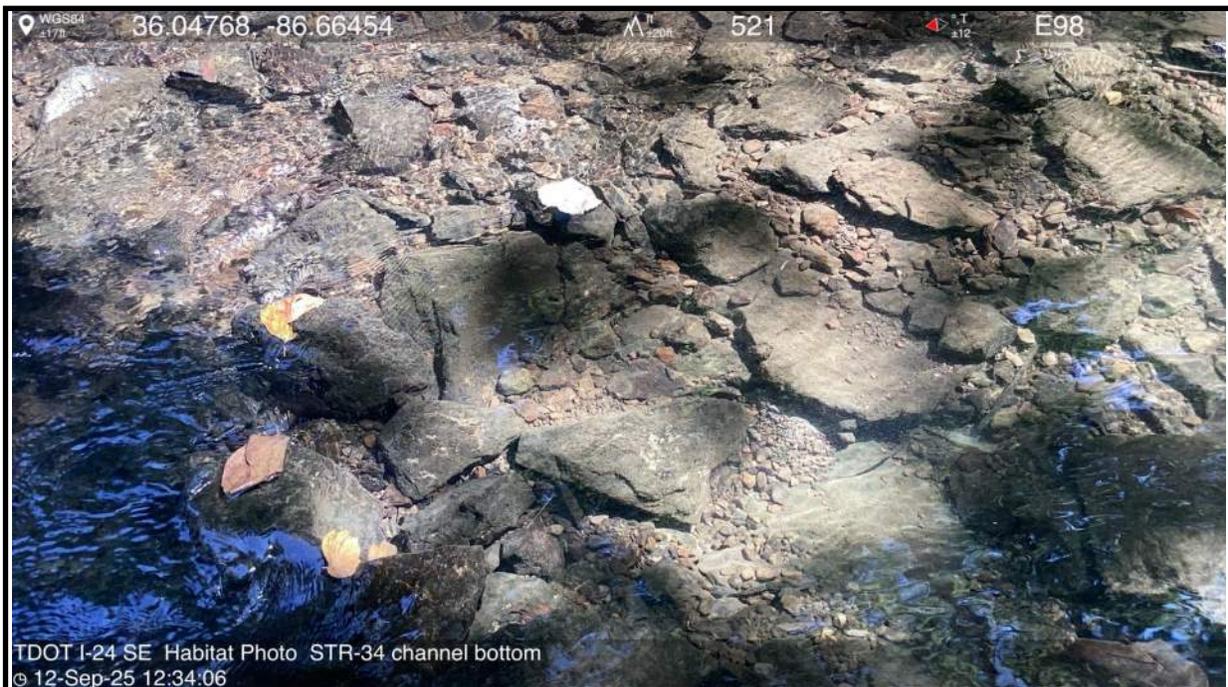
**Photo 73: STR-33 (Whittemore Branch)** —Representative conditions of STR-33 (Whittemore Branch).



**Photo 74: STR-33 (Whittemore Branch)** —Representative conditions of the substrate within STR-33 (Whittemore Branch).



**Photo 75: STR-34 (Collins Creek)** —Representative conditions of STR-34 (Collins Creek).



**Photo 76: STR-34 (Collins Creek)** —Representative conditions of substrate within STR-34 (Collins Creek).



**Photo 77: STR-34 (Collins Creek)** —Representative conditions of underwater habitat within glide habitat of STR-34 (Collins Creek).



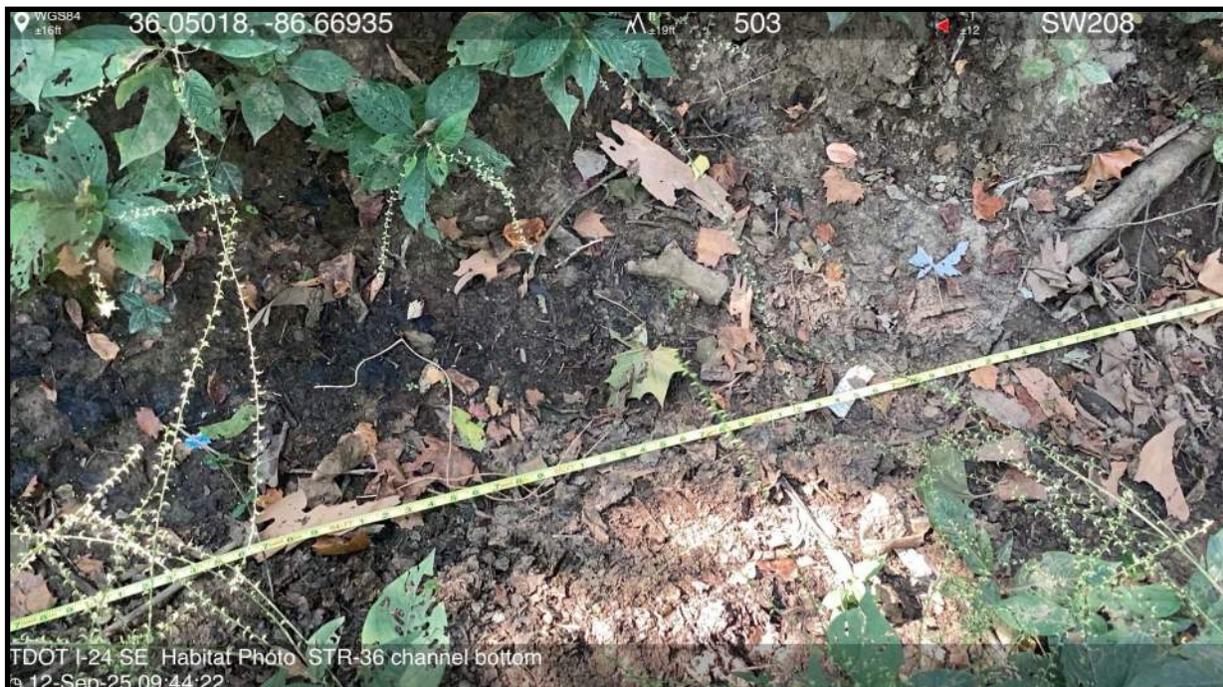
**Photo 78: STR-34 (Collins Creek)** —Representative conditions of underwater habitat within pool habitat of STR-34 (Collins Creek).



**Photo 79: STR-35**—Representative conditions of STR-35.



**Photo 80: STR-36**—Representative conditions of STR-36.



**Photo 81: STR-36**—Representative conditions of substrate within STR-36.



**Photo 82: STR-37**—Representative conditions of substrate within STR-37.



**Photo 83: STR-38**—Representative conditions of STR-38.



**Photo 84: STR-38**—Representative conditions of substrate within upper reach of STR-38.

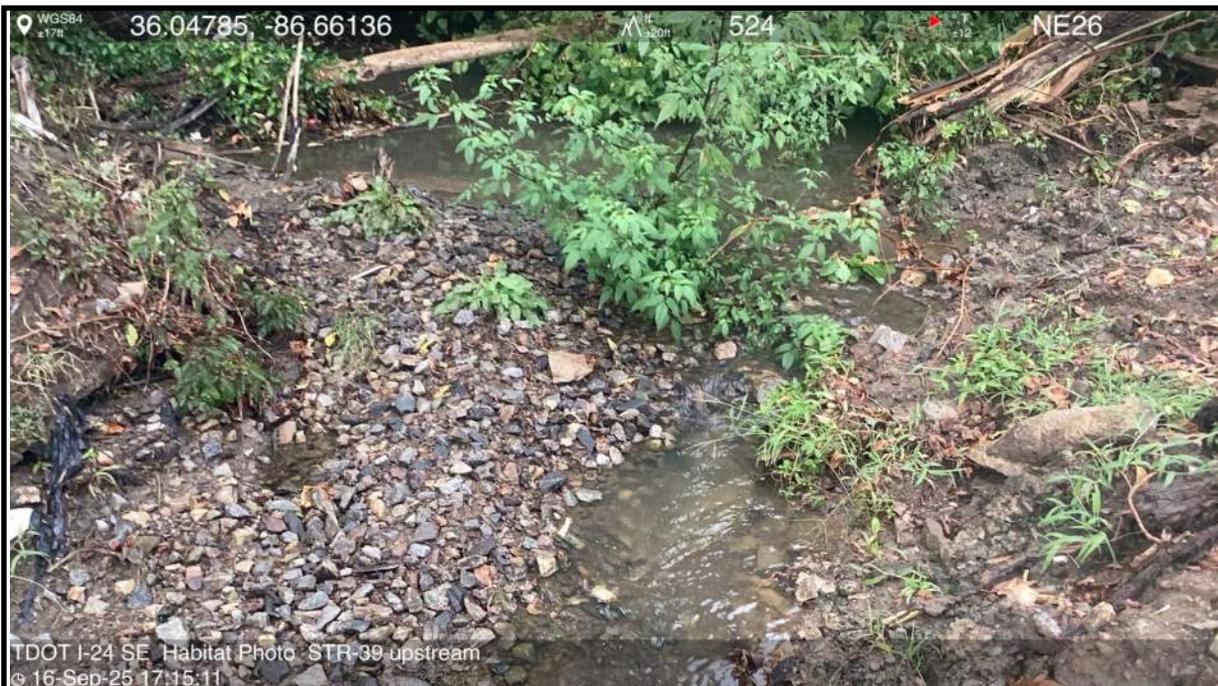
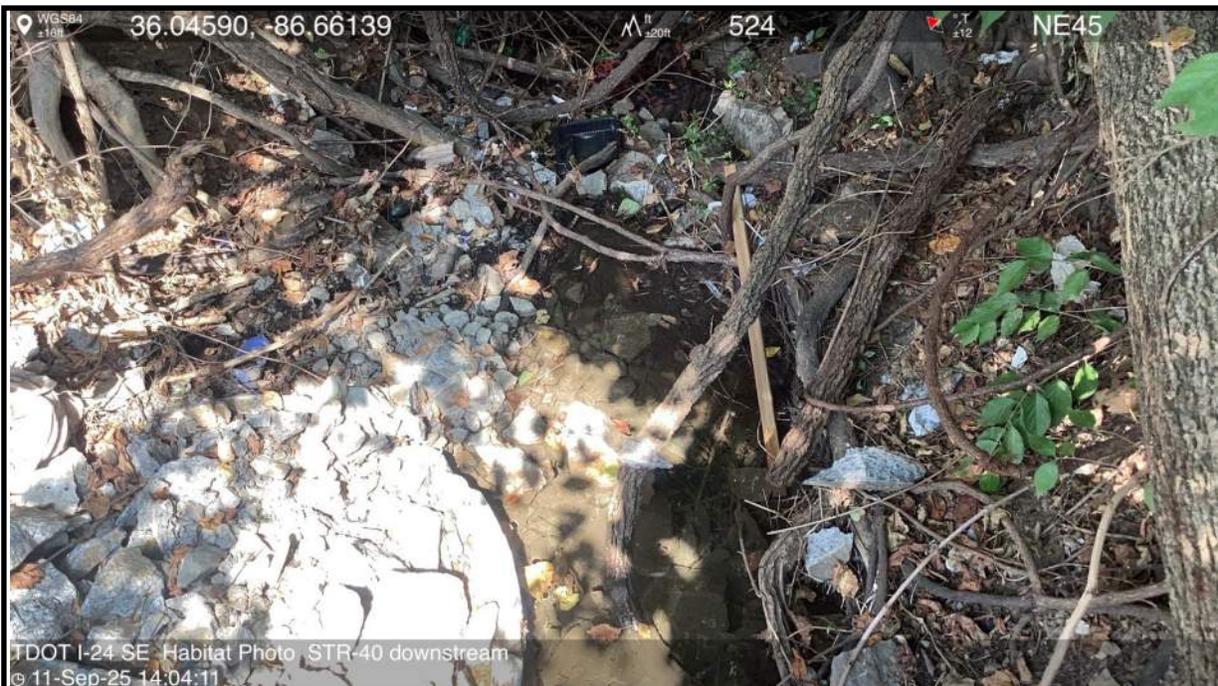


Photo 85: STR-39—Representative conditions of STR-39.



Photo 86: STR-40—Representative conditions of substrate within STR-40.



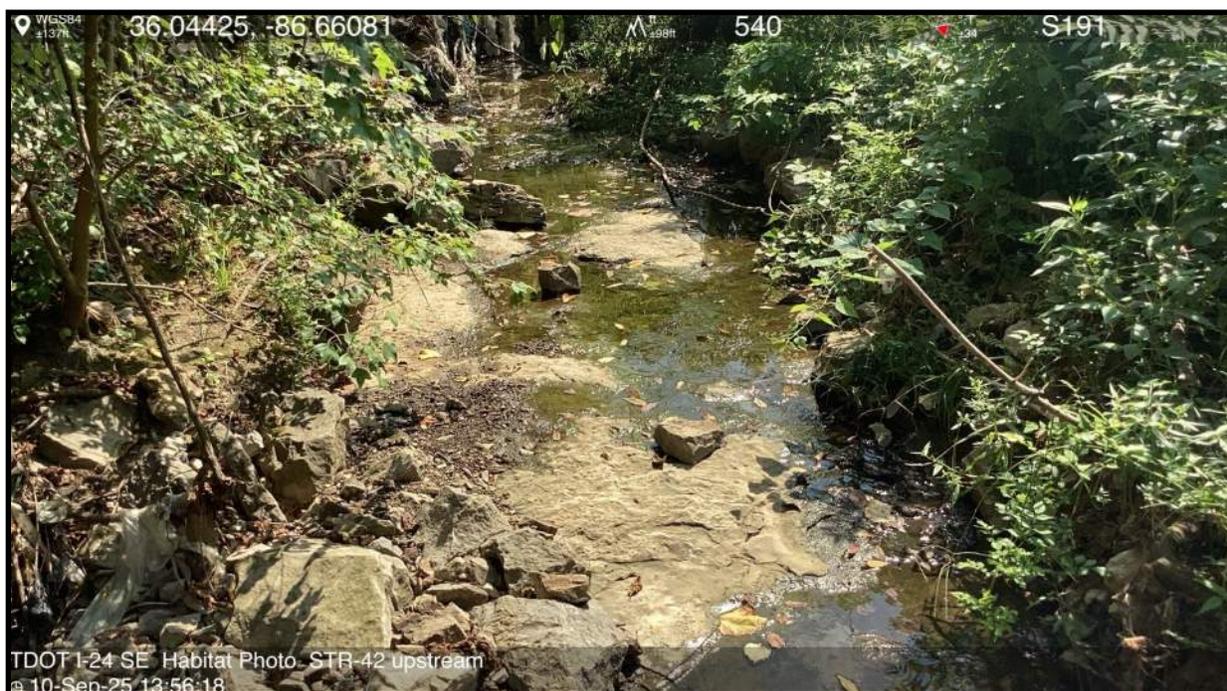
**Photo 87: STR-40**—Representative conditions of substrate within STR-40.



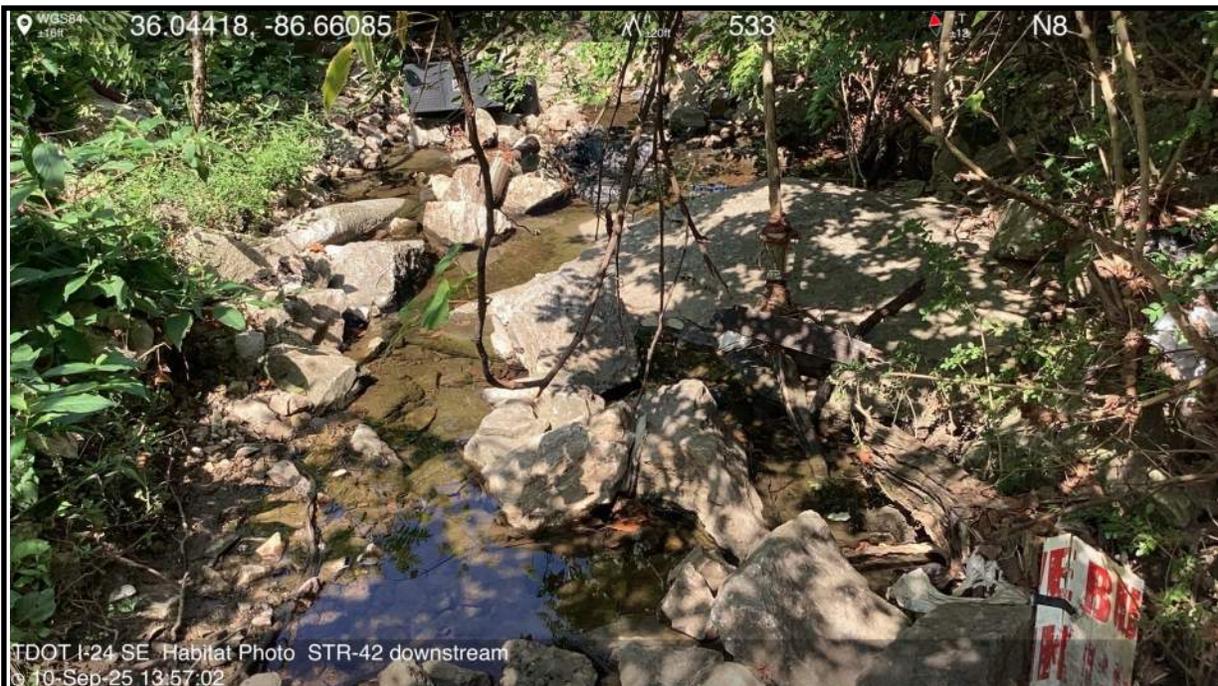
**Photo 88: STR-41**—Representative conditions of STR-41.



**Photo 89: STR-41**—Representative conditions of substrate within STR-41.



**Photo 90: STR-42**—Representative conditions of STR-42 within the upper reach.



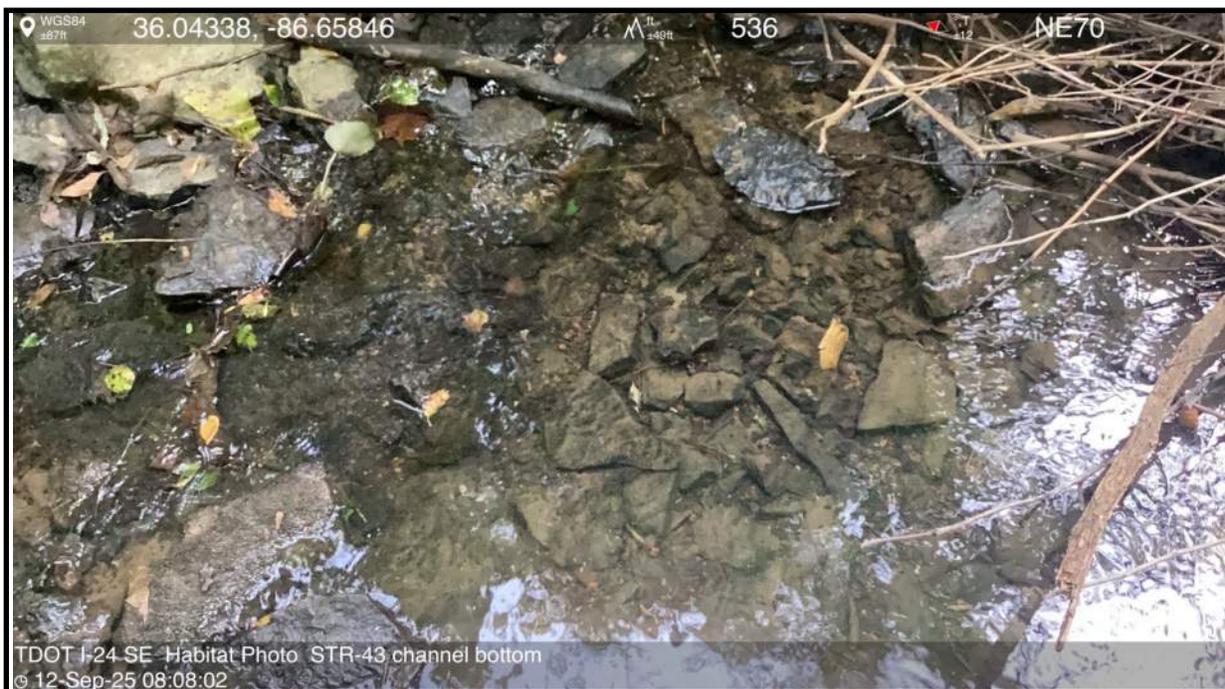
**Photo 91: STR-42**—Representative conditions of STR-42 within the upper reach.



**Photo 92: STR-42**—Representative conditions of STR-42 within the lower reach.



**Photo 93: STR-43**—Representative conditions of STR-43.



**Photo 94: STR-43**—Representative conditions of the substrate within STR-43.



**Photo 95: STR-44**—Representative conditions of STR-44.



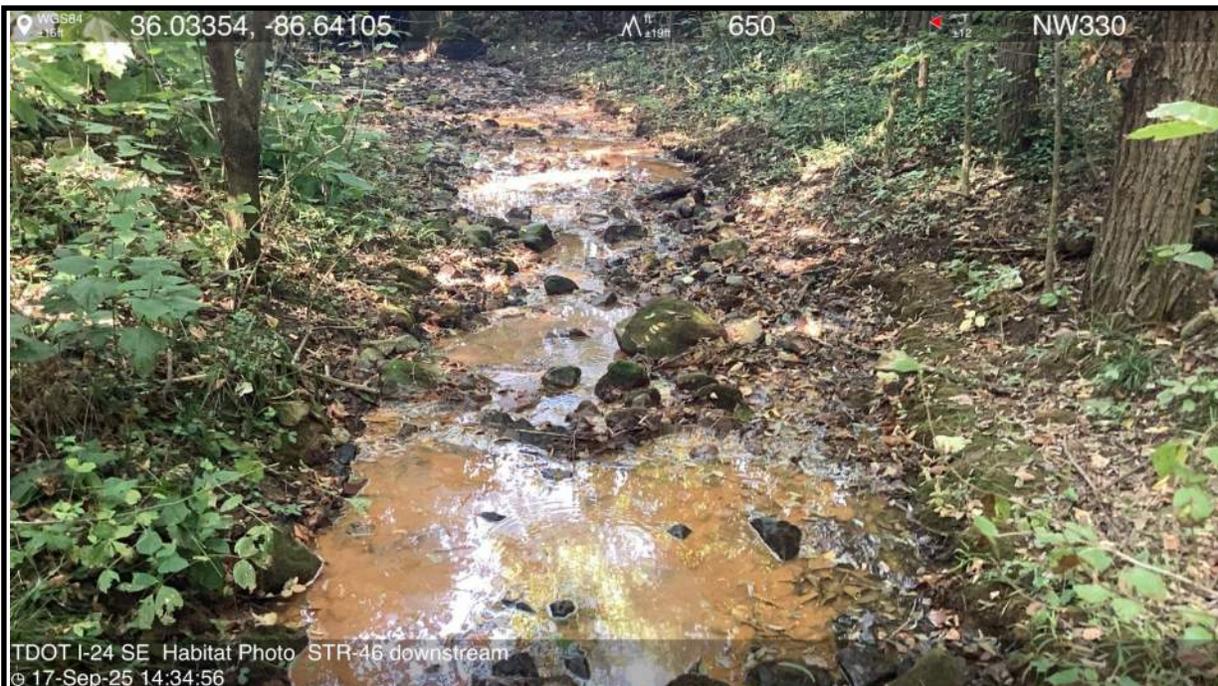
**Photo 96: STR-44**—Representative conditions of the substrate within STR-44 at culvert outlet.



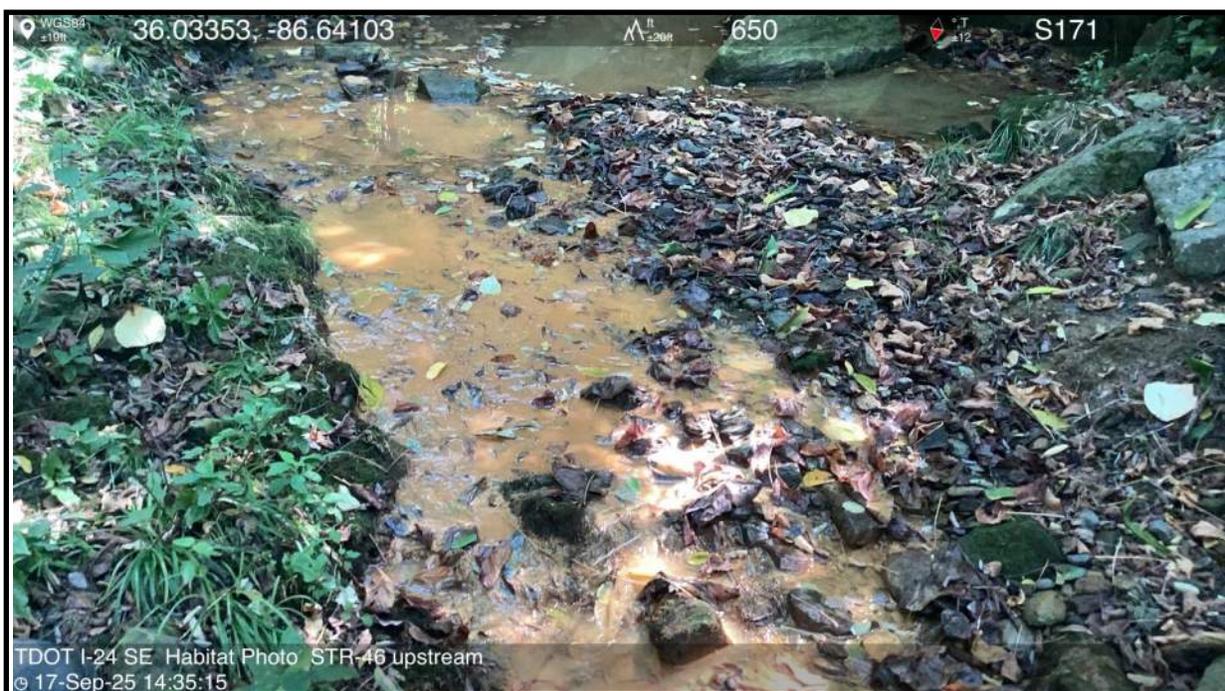
**Photo 97: STR-45**—Representative conditions of STR-45.



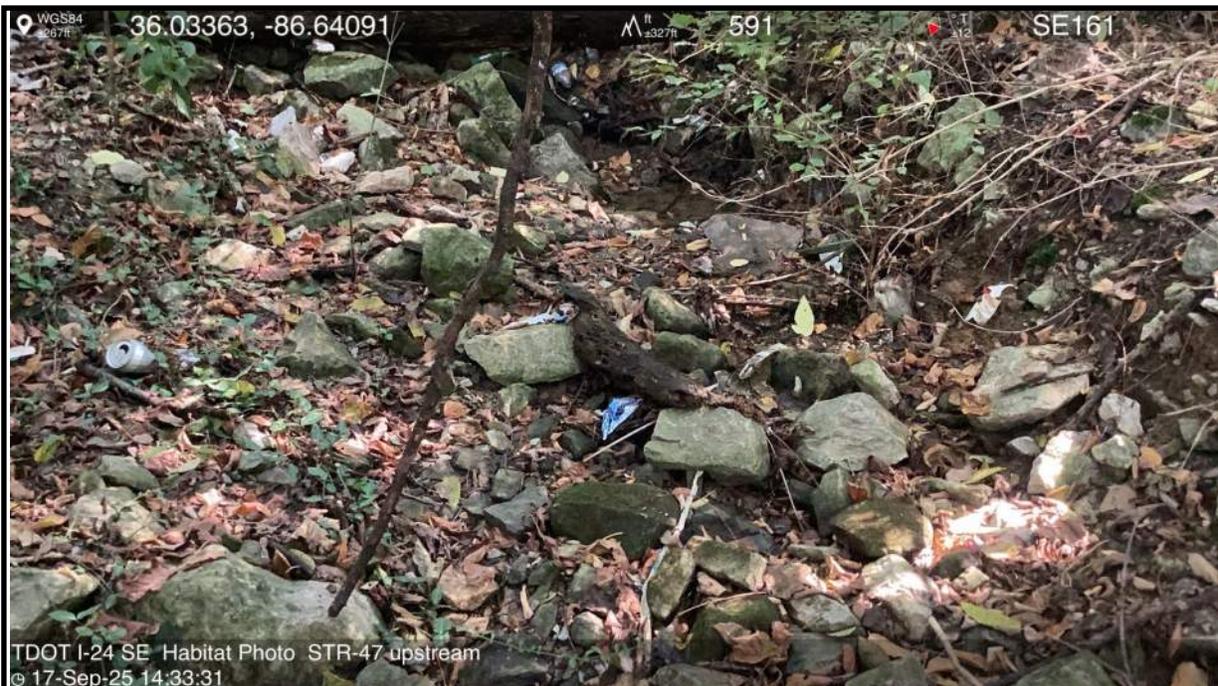
**Photo 98: STR-45**—Representative conditions of the substrate within STR-45.



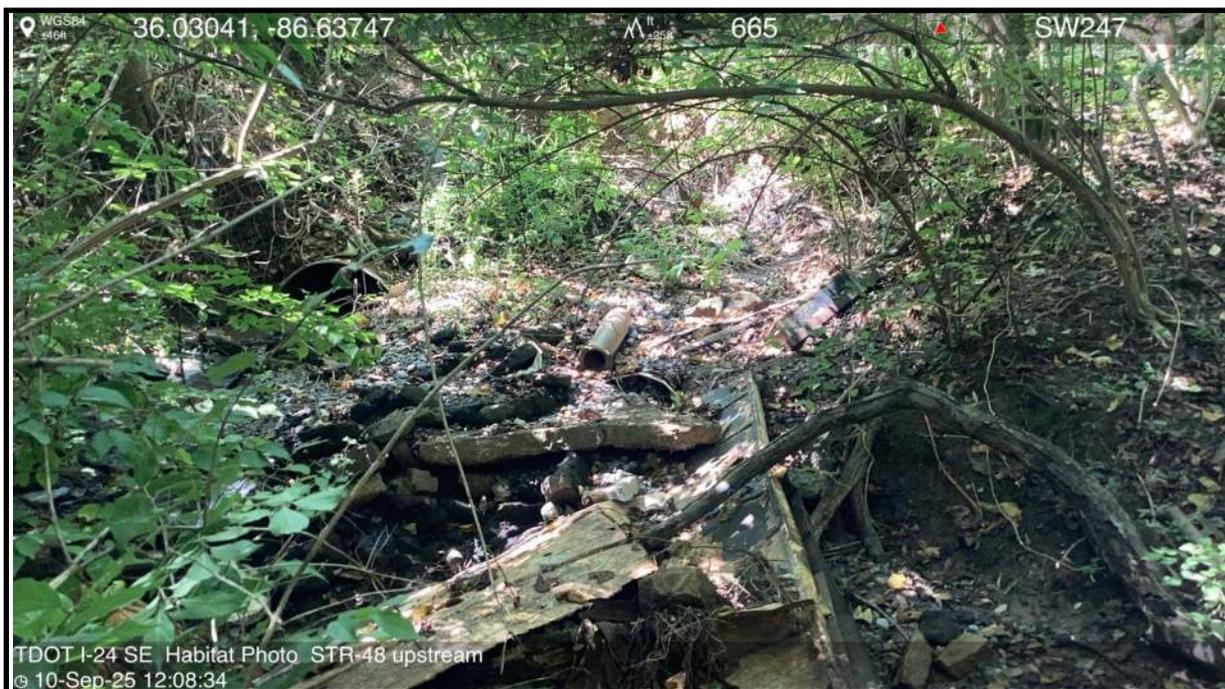
**Photo 99: STR-46**—Representative conditions of STR-46.



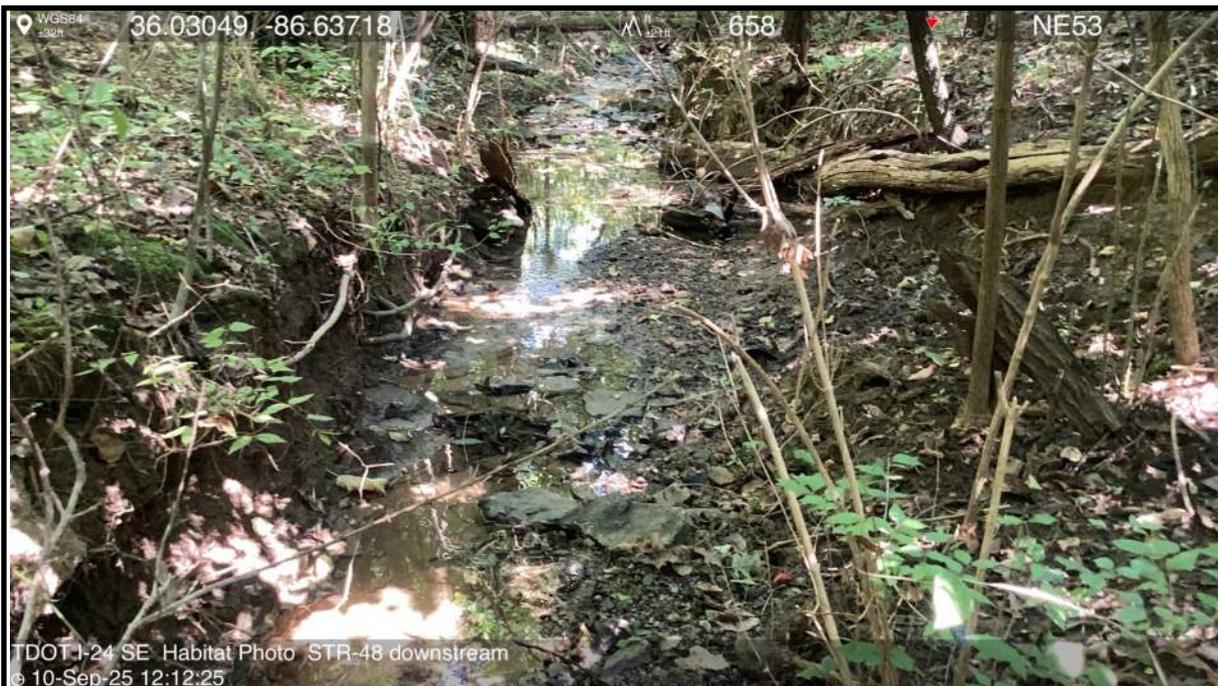
**Photo 100: STR-46**—Representative conditions of the substrate within STR-46.



**Photo 101: STR-47**—Representative conditions of STR-47.



**Photo 102: STR-48**—Representative conditions of debris within STR-48.



**Photo 103: STR-48**—Representative conditions of STR-48.



**Photo 104: STR-48**—Representative conditions of substrate within riffle habitat of STR-48.



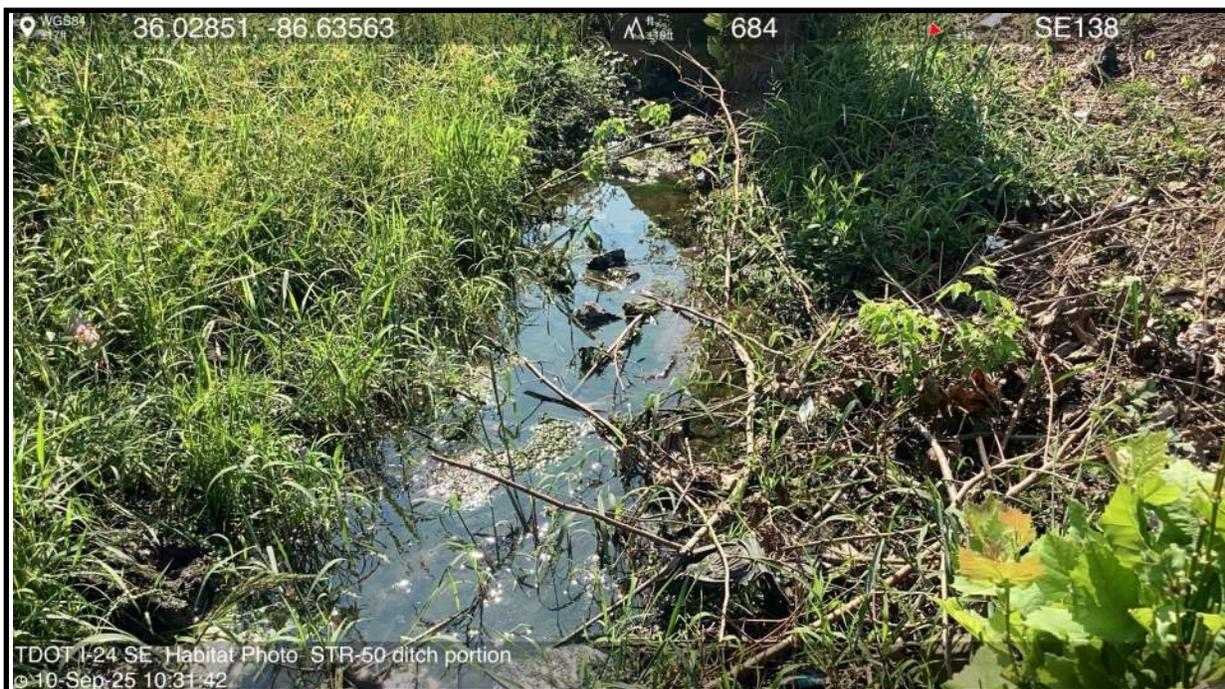
**Photo 105: STR-48**—Representative conditions of the substrate within pool habitat of STR-48.



**Photo 106: STR-49**—Representative conditions of STR-49.



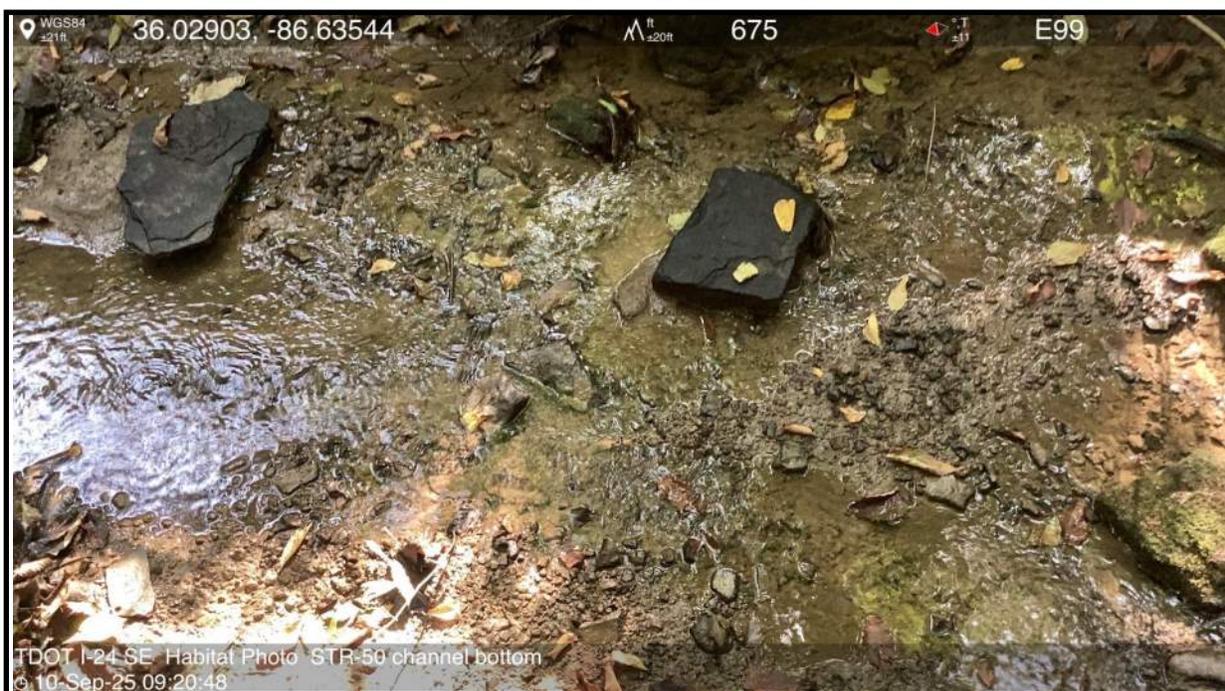
**Photo 107: STR-49**—Representative conditions of the substrate within STR-49.



**Photo 108: STR-50**—Representative conditions of the ditch portion of STR-50.



**Photo 109: STR-50**—Representative conditions of STR-50.



**Photo 110: STR-50**—Representative conditions of the substrate within STR-50.



**Photo 111: STR-51**—Representative conditions of the substrate within STR-51.



**Photo 112: STR-51**—Representative conditions of the substrate within STR-51.



**Photo 113: STR-52**—Representative conditions of STR-52. Note the significant presence of hydrophytes in the channel as it goes in and out of subterranean flow.



**Photo 114: STR-52**—Representative conditions of STR-52.



**Photo 115: STR-53**—Representative conditions of STR-53.



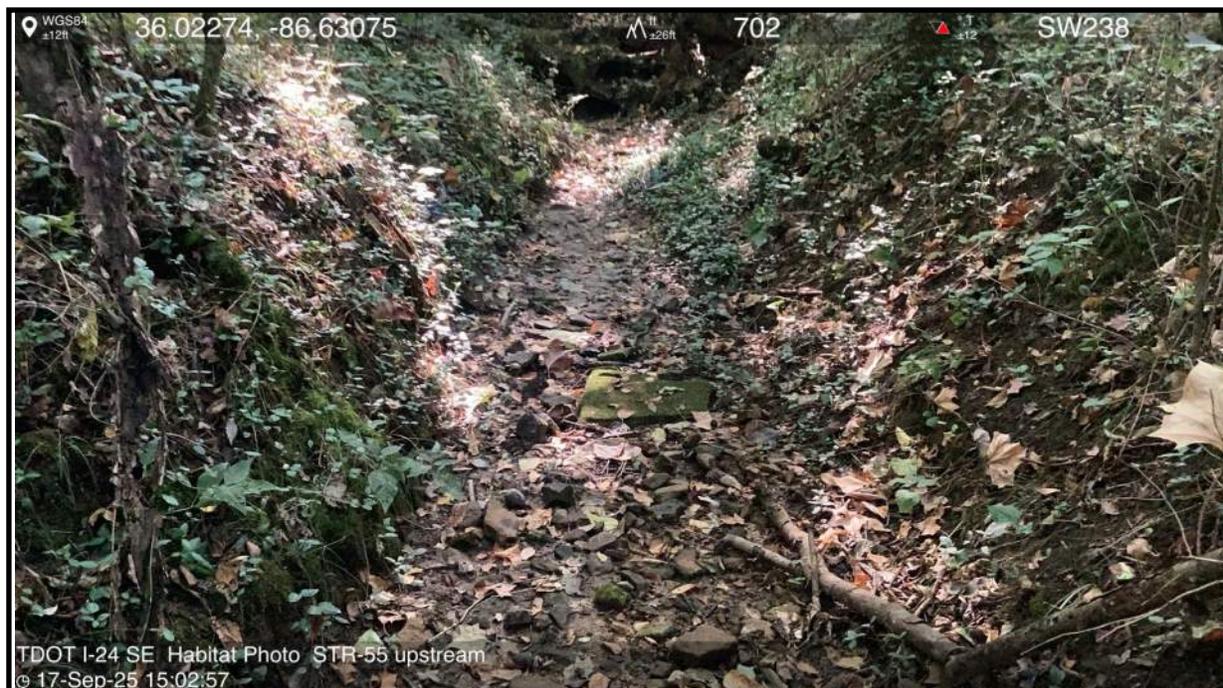
**Photo 116: STR-53**—Representative conditions of STR-53.



**Photo 117: STR-54**—Representative conditions of STR-54.



**Photo 118: STR-54**—Representative conditions of the substrate within STR-54.



**Photo 119: STR-55**—Representative conditions of STR-55.



**Photo 120: STR-55**—Representative conditions of the substrate within STR-55.



# **APPENDIX C. SUMMARY OF IMPACTS TABLE PER WATER RESOURCE**

**Streams with Nashville Crayfish Habitat**

Feature	Avg. Stream Width (LF)	Structure Locations	Permanent			Temporary		
			Permanent Impact Activities	Permanent Impacts (sf)	Permanent Impacts (LF)	Temporary Impact Activities	Temporary Impacts (sf)	Temporary Impacts (LF)
STR-3/UT to Mill Creek	2.5	I-40 WB Choice Lanes over Spence Lane (Bridge 10)	Not anticipated to be impacted. There is sufficient distance between the proposed bridge bents and the stream's OHWM to allow for construction without permanently impacting this resource.	0	0	Temporary dewatering/diversion for bridge bent construction	702	64
STR-5/UT to Mill Creek	11	I-40 EB Choice Lanes over Spence Lane (Bridge 11)	Not anticipated to be impacted. There is sufficient distance between the proposed bridge bents and the stream's OHWM to allow for construction without impacting this resource.	0	0	Not anticipated to be impacted. Silt fence with backing and HVF will be used to ensure this stream is protected and avoided during construction.	0	0
STR-5.1/UT to Mill Creek	17	10'x8' box culvert under I-40	Culvert extension - encapsulation/armoring	392	35	Temporary dewatering/diversion	330	25
STR-5.4/UT to Mill Creek	5	-	Not anticipated to be impacted. No structures proposed for construction in the vicinity of this resource.	0	0	Not anticipated to be impacted. No structures proposed for construction in the vicinity of this resource.	0	0
STR-7/UT to Mill Creek	8	I-24 WB Choice Lanes (Bridge 20)/I-24 EB Choice Lanes (Bridge 21)	Not anticipated to be impacted. There is sufficient distance between proposed bridge bents and the stream's OHWM to allow for construction without permanently impacting this resource.	0	0	Temporary dewatering/diversion for bridge construction and to accommodate relocation of adjacent STR-8.	1,453	96
STR-12 (STA. 498) (Mill Creek)	60	I-40 over Mill Creek (Bridges 8A, 8B)/ I-40 WB Choice Lanes over Mill Creek (Bridge 10A)/I-40 EB Choice Lanes over Mill Creek (Bridge 10B)	Proposed bridge footings (Bridge 8A) installed below OHWM. There is sufficient distance from the proposed bents of Bridge 8B, 10A, and 10B and the stream's OHWM to allow for construction of those structures without additional permanent impacts to this resource.	140	38	Temporary dewatering/diversion for construction of new bridge bents and removal of existing bents	12,953	269
STR-12 (STA. 477) (Mill Creek)	60	I-24 over Mill Creek (Bridge 49)/I-24 WB Choice Lanes (Bridge 54)/I-24 EB Choice Lanes (Bridge 51)	Not anticipated to be impacted. There is sufficient distance between proposed bridge bents and the stream's OHWM to allow for construction without permanently impacting this resource.	0	0	Temporary dewatering/diversion for construction of new bridge bents, access/haul roads, and removal of existing bents	2,966	195
STR-13/UT to Mill Creek	13	Bridge 51/Bridge 54/10'x10' box culvert under I-24	Not anticipated to be impacted. There is sufficient distance between proposed bridge bents and the stream's OHWM to allow for construction without impacting this resource. No work is proposed to the existing box culvert.	0	0	Not anticipated to be impacted. Silt fence with backing and HVF will be used to ensure this stream is protected and avoided during construction.	0	0
STR-14/UT to Mill Creek	6	I-24 WB Choice Lanes over E. Thompson Lane (Bridge 31A)/ 6'x5' box culvert under I-24	Culvert extension - encapsulation/armoring. Permanent impacts for construction of Bridge 31A bridge footing overlap with footprint of culvert extension.	329	30	Temporary dewatering/diversion for culvert extension and bridge construction	206	25
STR-15/UT to Mill Creek	4	6'x5' box culvert under I-24	Culvert removal and armoring	193	26	Temporary dewatering/diversion	480	25
STR-21 (Seven Mile Creek)	30	I-24 WB Choice Lane over Seven Mile Creek (Bridge 44A)/I-24 EB Choice Lanes over Seven Mile Creek (Bridge 44B)	Not anticipated to be impacted	0	0	Not anticipated to be impacted. Silt fence with backing and HVF will be used to ensure this stream is protected and avoided during construction.	0	0
STR-25 (Sorghum Branch)	25	Double 10'x8' box culvert under I-24	Culvert extension - encapsulation/armoring. Stream relocation will also be required to due to stream morphology adjacent to the proposed culvert impacts.	11,299	472	Temporary dewatering/diversion	1,118	50
STR-27/UT to Sorghum Branch	5	4'x6' box culvert and 60" reinforced concrete pipe (RCP) under I-24	Not anticipated to be permanently impacted. No work is proposed to the existing box culvert or RCP.	0	0	Temporary dewatering/diversion for construction access	649	93
STR-33 (Whittemore Branch)	22	Bridge 51/Bridge 54/Double 12'x10' box culvert under I-24	Not anticipated to be impacted. There is sufficient distance between proposed bridge bents and the stream's OHWM to allow for construction without impacting this resource. No work is proposed to the existing box culvert.	0	0	Not anticipated to be impacted. Silt fence with backing and HVF will be used to ensure this stream is protected and avoided during construction.	0	0

**Streams with Nashville Crayfish Habitat**

Feature	Avg. Stream Width (LF)	Structure Locations	Permanent		Temporary			
			Permanent Impact Activities	Permanent Impacts (sf)	Permanent Impacts (LF)	Temporary Impact Activities	Temporary Impacts (sf)	Temporary Impacts (LF)
STR-34 (Collins Creek)	16	Bridge 51/I-24 EB Exit Ramp to Bell Rd (Bridge 52)/I-24 EB Choice Lanes On-ramp from Bell Rd (Bridge 53)/Triple 12'x7' box culvert under Bell Rd/Triple 12'x7' box culvert under I-24 EB on-ramp from Bell Rd/Double 10'x9' box culvert under I-24	Culvert extensions at the triple 12'x7' box culvert under Bell Rd and the double 10'x9' box culvert under I-24. No work is proposed to the box culvert under I-24 EB on-ramp from Bell Rd. There is sufficient distance between all proposed bridge bents and the stream's OHWM to allow for bridge construction without additional permanent impacts to this resource.	4,993	146	Temporary dewatering/diversions for culvert extensions and construction of Bridge 51 and Bridge 52 footings.	2,386	184
STR-39/UT to Collins Creek	3	Bridge 51/60" RCP under I-24	Not anticipated to be impacted. There is sufficient distance between proposed bridge bents and the stream's OHWM to allow for construction without impacting this resource. No work is proposed to the existing RCP.	0	0	Not anticipated to be impacted. Silt fence with backing and HVF will be used to ensure this stream is protected and avoided during construction.	0	0
STR-42/UT to Collins Creek	4	Bridge 51	Not anticipated to be impacted. There is sufficient distance between proposed bridge bents and the stream's OHWM to allow for construction without impacting this resource	0	0	Not anticipated to be impacted. Silt fence with backing and HVF will be used to ensure this stream is protected and avoided during construction.	0	0
STR-43/UT to Collins Creek	10	-	Not anticipated to be impacted. No structures proposed for construction in the vicinity of this resource.	0	0	Not anticipated to be impacted. No structures proposed for construction in the vicinity of this resource.	0	0
STR-50/UT to Collins Creek	4	24" RCP and 18" RCP under I-24	Culvert extension - encapsulation and armoring. Stream relocation will also be required to due to stream morphology adjacent to the proposed culvert impacts.	591	159	Temporary dewatering/diversion will occur within the footprint of the permanent stream relocation.	0	0
<b>TOTALS (sf/LF)</b>				<b>17,937.00</b>	<b>906.00</b>		<b>23,243.00</b>	<b>1,026.00</b>

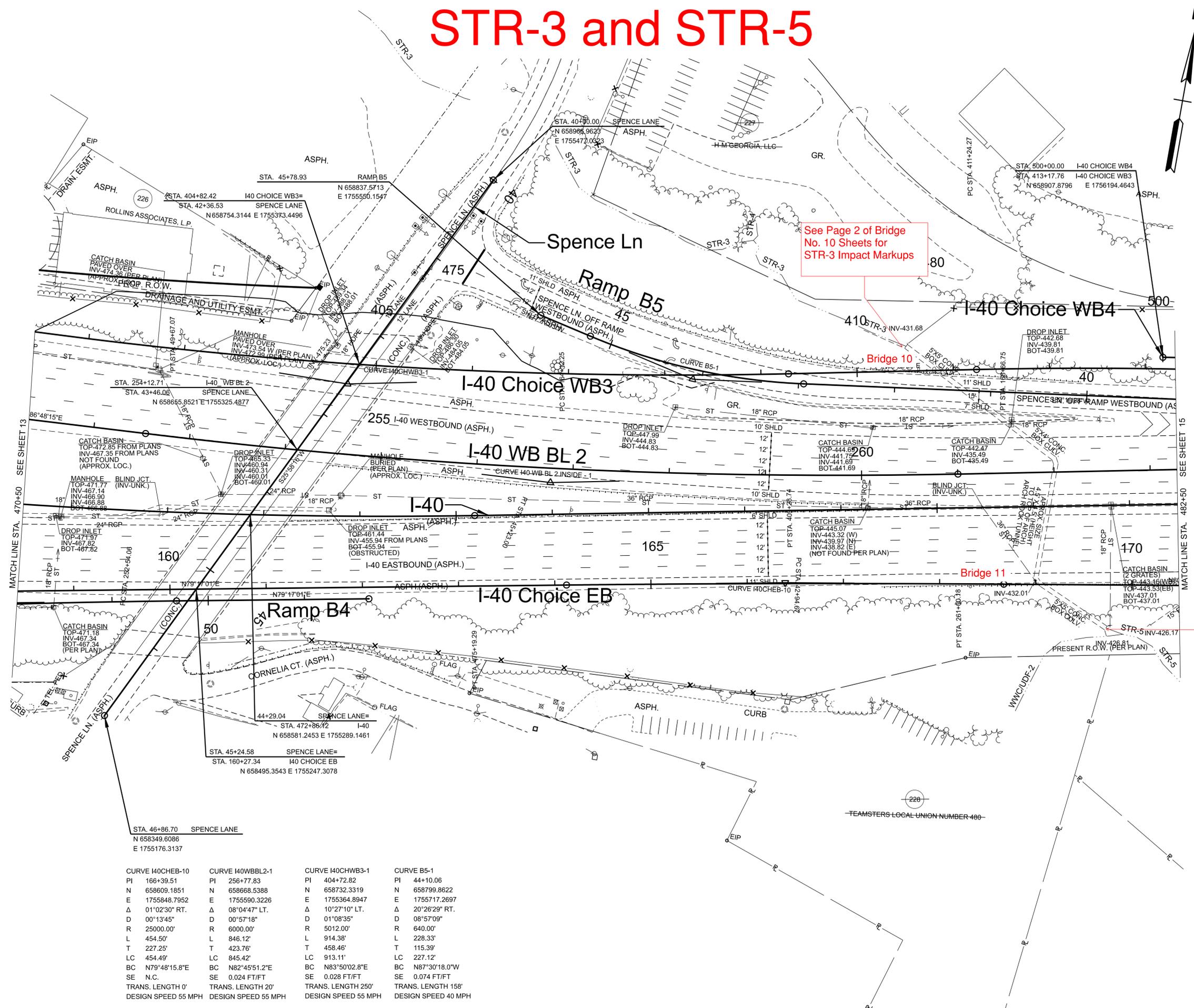


## **APPENDIX D. PLAN SHEETS**

# STR-3 and STR-5

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	14

REV. 07-01-25: REVISED EXISTING STORM DRAINAGE  
 REV. 11-07-25: REVISED ALIGNMENTS, SLOPE LINES, AND PROPOSED R.O.W.



See Page 2 of Bridge No. 10 Sheets for STR-3 Impact Markups

STR-5 No impacts at this location

10/14/2025 11:57:32 AM C:\CADD\BIP\WH\B\_SHELBY\_ALBERS\SE\DIV\0243399\ID\024-SHT-B-PRESENT LAYOUT.DGN

CURVE I40CHEB-10	CURVE I40WBBL2-1	CURVE I40CHWB3-1	CURVE B5-1
PI 166+39.51	PI 256+77.83	PI 404+72.82	PI 44+10.06
N 658609.1851	N 658668.5388	N 658732.3319	N 658799.8622
E 1755848.7952	E 1755590.3226	E 1755364.8947	E 1755717.2697
Δ 01°02'30" RT.	Δ 08°04'47" LT.	Δ 10°27'10" LT.	Δ 20°26'29" RT.
D 00°13'45"	D 00°57'18"	D 01°08'35"	D 08°57'09"
R 25000.00'	R 6000.00'	R 5012.00'	R 640.00'
L 454.50'	L 846.12'	L 914.38'	L 228.33'
T 227.25'	T 423.76'	T 458.46'	T 115.39'
LC 454.49'	LC 845.42'	LC 913.11'	LC 227.12'
BC N79°48'15.8"E	BC N82°45'51.2"E	BC N83°50'02.8"E	BC N87°30'18.0"W
SE N.C.	SE 0.024 FT/FT	SE 0.028 FT/FT	SE 0.074 FT/FT
TRANS. LENGTH 0'	TRANS. LENGTH 20'	TRANS. LENGTH 250'	TRANS. LENGTH 158'
DESIGN SPEED 55 MPH	DESIGN SPEED 55 MPH	DESIGN SPEED 55 MPH	DESIGN SPEED 40 MPH

**SEALED BY**

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 12B.

**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

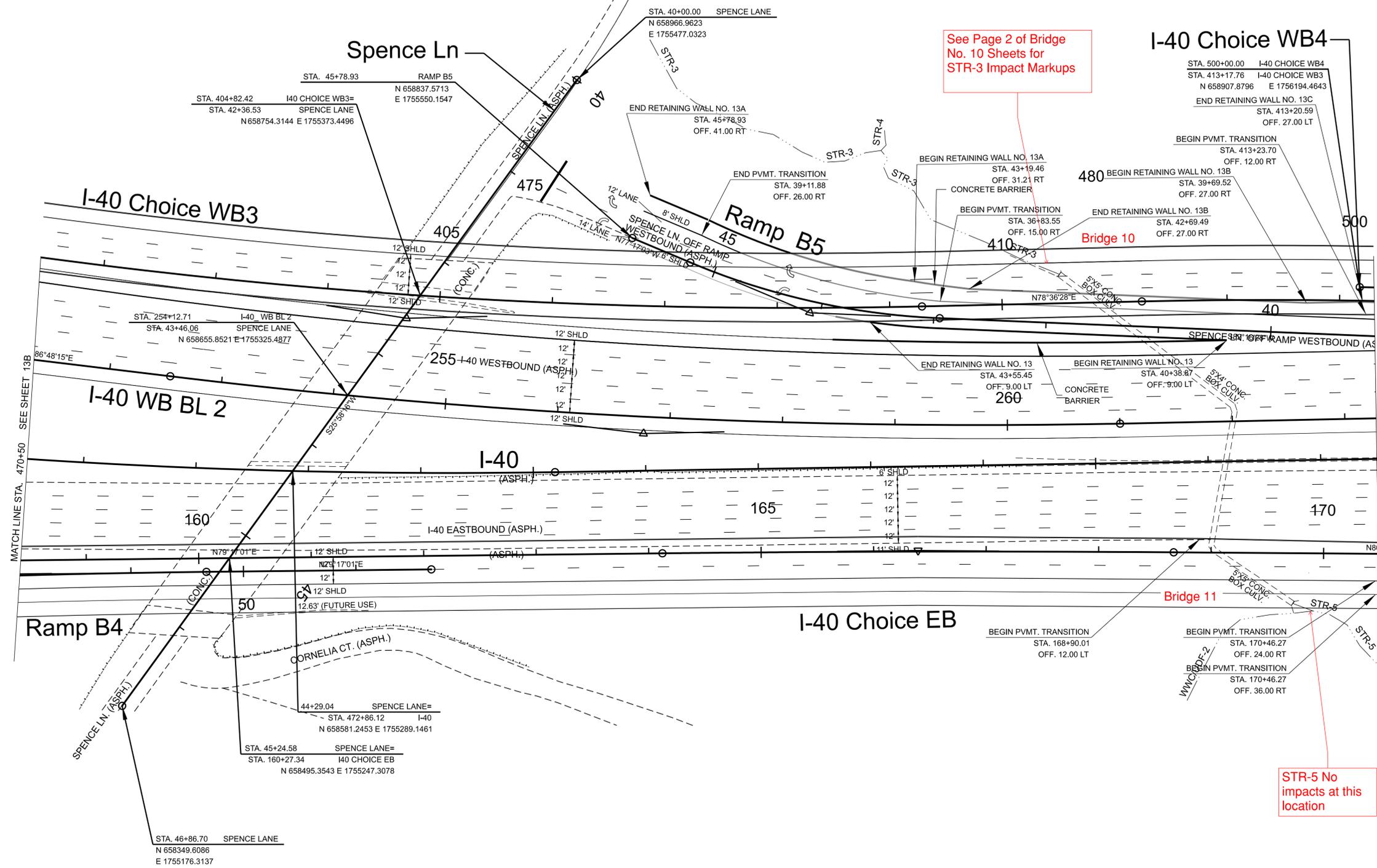
**PRESENT LAYOUT**

I-40  
 STA. 470+50.00 TO STA. 482+50.00  
 SCALE: 1" = 50'

# STR-3 and STR-5

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R3I024-S1-002	14B

REV. 07-01-25: REVISED EXISTING STORM DRAINAGE.  
 REV. 11-07-25: REVISED PROPOSED DESIGN AND LABELS



**SEALED BY**

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 12B.

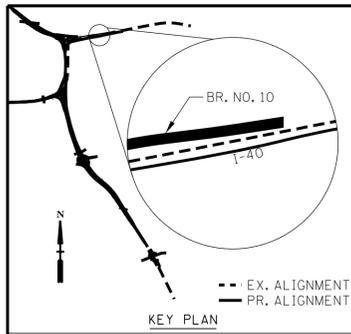
**STATE OF TENNESSEE  
 DEPARTMENT OF TRANSPORTATION**

**PROPOSED  
 LAYOUT**

I-40  
 STA. 470+50.00 TO STA. 482+50.00  
 SCALE: 1" = 50'

10/14/2025 12:43:52 PM C:\CADD\BIP\WH\TB\_SHELBY\ALBERS\SE\DIV\0243399\ID\024-SHT-B-PROPOSED LAYOUT.DGN

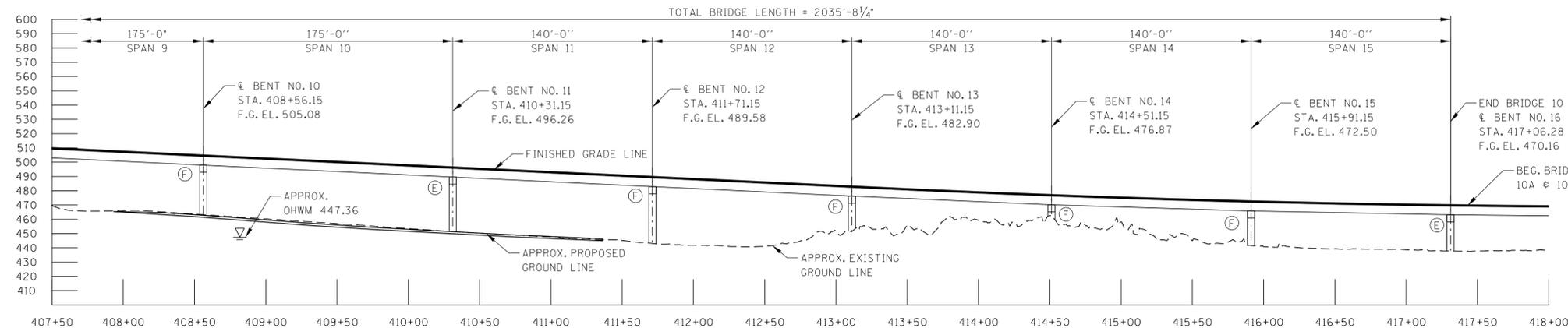
# Bridge 10, STR-3



CONST. NO.:			
PROJECT NO.	YEAR	SHEET NO.	
R31024-S1-002	2025		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
01	10-15-2025	HMD	REVISED PIER LOCATIONS AND STATIONS.
01	10-15-2025	HMD	REVISED BRIDGE AND ROADWAY WIDTHS.
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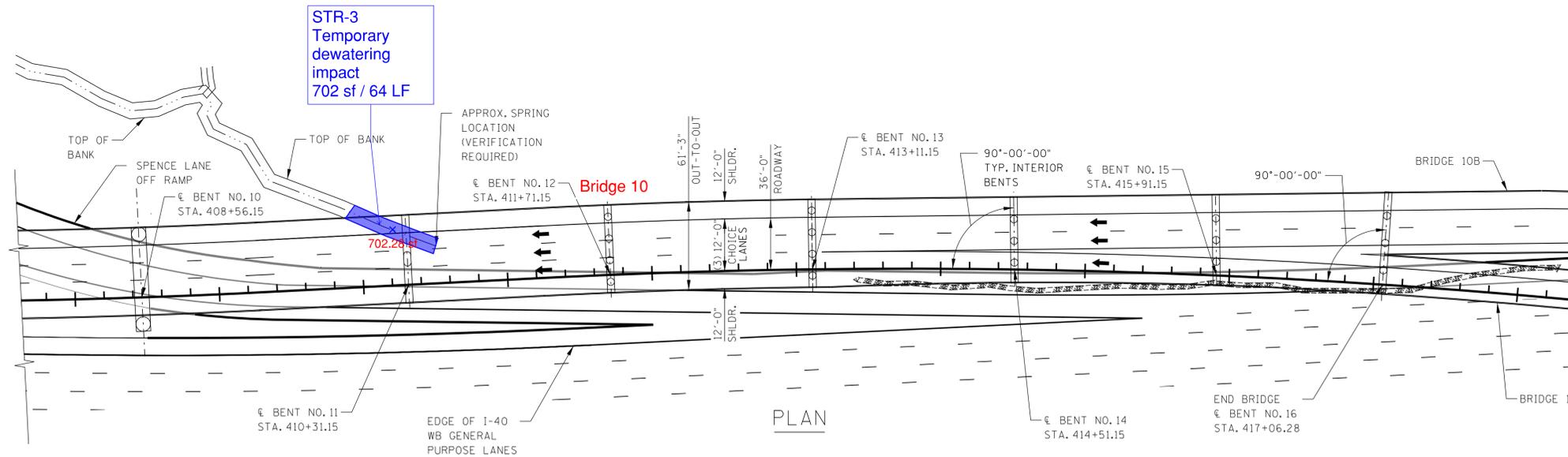
## GENERAL NOTES (CONT'D)

- STREAM CHANNEL: ANY WORK WITHIN THE STREAM CHANNEL AREA (E.G. PIER/BENT FOOTING, RIP-RAP PLACEMENT, ETC.) SHALL BE SEPARATED FROM FLOWING WATER OR EXPECTED FLOW PATH AND PERFORMED DURING LOW FLOW CONDITIONS. ALL ITEMS USED WITHIN THE STREAM CHANNEL AREA FOR DIVERSION OF FLOW (OR EXPECTED FLOW), UNLESS SPECIFIED IN THE PLANS, SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE INCLUDED IN THE COST OF OTHER ITEMS. THIS NOTE EXCLUDES ANY ITEMS SPECIFIED IN THE PLANS FOR TEMPORARY DIVERSION CHANNELS (EC-STR-31).
- EXPANSION JOINTS MAY BE ADDED OR RELOCATED BY ENGINEER AS REQUIRED BY DESIGN.
- DECK DRAINAGE SHALL BE DESIGNED BY THE ENGINEER AND DRAINS SHALL BE PLACED APPROPRIATELY. IF CLOSED DRAINAGE IS IMPLEMENTED, NO DRAINAGE COMPONENTS ARE ALLOWED TO BE PLACED ON THE SLAB CANTILEVERS.
- MULTIMODAL: LAYOUT MAY BE UPDATED TO ACCOMMODATE MULTIMODAL STANDARDS AND REQUIREMENTS FOR SPENCE LANE AS DETERMINED BY OWNER. DESIGNER SHALL COORDINATE MULTIMODAL ACCOMMODATIONS WITH ALL POTENTIALLY IMPACTED STAKEHOLDERS.
- DESIGNER SHALL MODIFY BRIDGE AT TOLL POINT OR GANTRY LOCATIONS TO ACCOMMODATE ITS EQUIPMENT. DESIGN OF MODIFICATION SHALL BE PERFORMED PER MOST RECENT APPLICABLE CODES AND SPECIFICATIONS AND COORDINATED WITH ITS DESIGNER.



(F) DENOTES: FIXED  
(E) DENOTES: EXPANSION

## ELEVATION



## PLAN



**CAUTION!  
CONCEPTUAL  
PLANS  
SUBJECT TO  
CHANGE**

2052 ADT = 16,150  
ROADWAY WIDTH VARIES FROM 60'-0" TO 69'-2"  
STD-1-1SS PARAPET  
DESIGN SPEED = 55 MPH  
**I-24 CHOICE LANES  
BRIDGE NO. 10**  
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
CONCEPTUAL LAYOUT  
I-40 WB CHOICE LANES  
OVER SPENCE LANE AND  
SPENCE LANE RAMP  
STATION 404+82.42  
DAVIDSON COUNTY  
2025

PIN NO.: \_\_\_\_\_  
DESIGN BY: BENESCH DATE: 10/2025  
DRAWN BY: B. PATEL DATE: 10/2025  
SUPERVISED BY: N. CHAYANGKURA DATE: 10/2025  
CHECKED BY: J. WILLIAMS DATE: 10/2025

10/7/2025 7:33:33 AM C:\CADD\LIB\PW\HNTB\_HANNAH.DREW\SEID\DD0254828\TDOT CHOICE LANES\_BRIDGE 10\_SHEET\_2.DGN

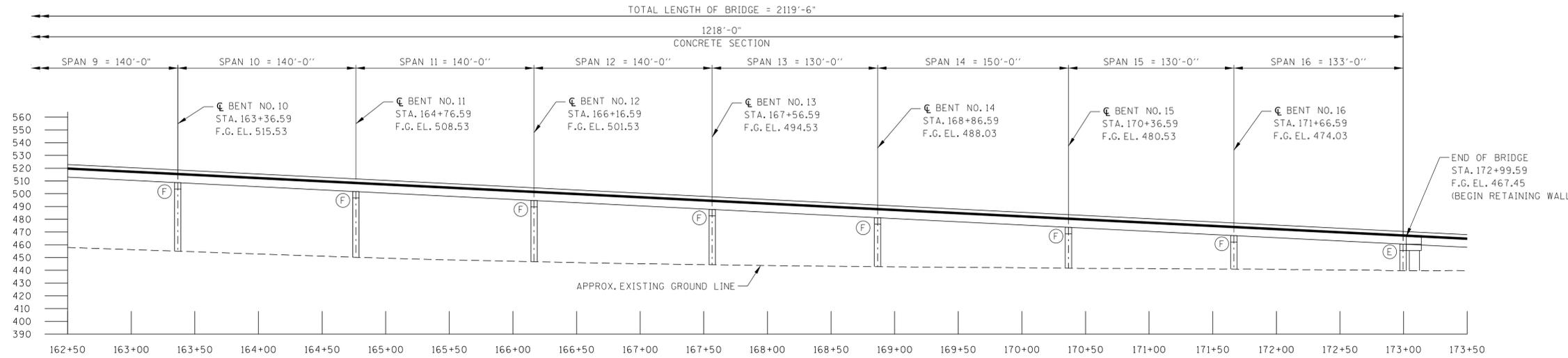
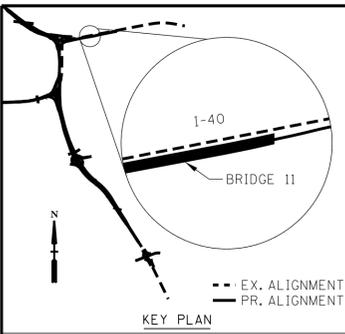
# Bridge 11, STR-5

CONST. NO.:

PROJECT NO.	YEAR	SHEET NO.
R31024-S1-002	2025	

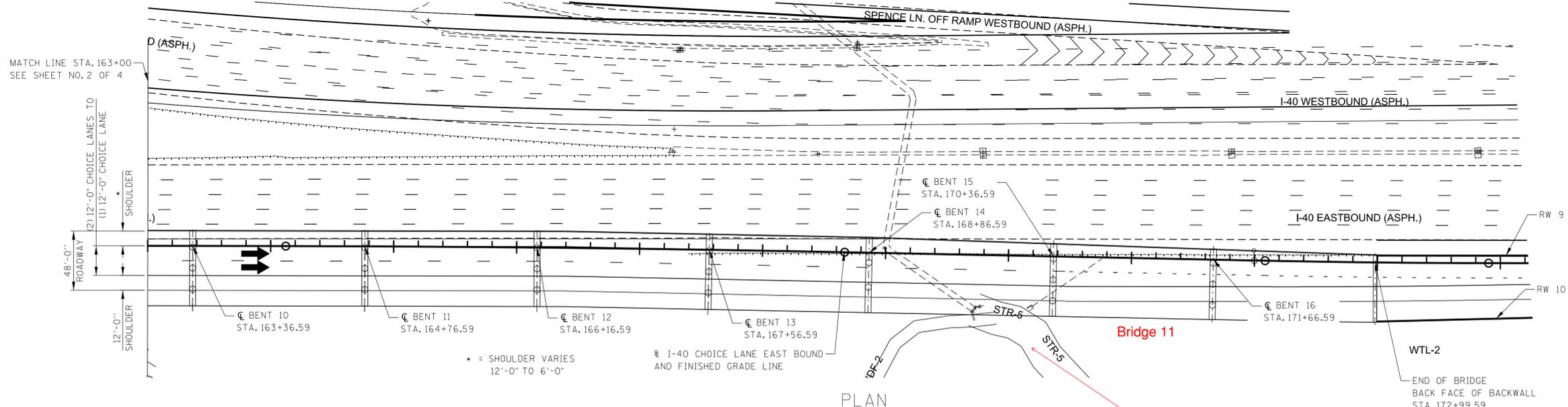
REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	05-30-2025	MRO	ADJUST SPANS 14, 15, 16, & 17
2	10-15-2025	HMD	REVISED PIER LOCATIONS AND STATIONS.
2	10-15-2025	HMD	REVISED BRIDGE AND ROADWAY WIDTHS.
-	-	-	-
-	-	-	-



(E) DENOTES: EXPANSION  
(F) DENOTES: FIXED

ELEVATION



PLAN



**CAUTION!**  
**CONCEPTUAL**  
**PLANS**  
**SUBJECT TO**  
**CHANGE**

2052 ADT = 16,525  
ROADWAY WIDTH VARIES FROM 48'-0" TO 33'-10"  
STD-I-ISS PARAPET  
DESIGN SPEED = 55 MPH  
**I-24 CHOICE LANES**  
**BRIDGE NO. 11**  
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
**CONCEPTUAL LAYOUT**  
**I-40 EB CHOICE LANES OVER SPENCE**  
**LANE AND I-40 WB RAMP TO I-24 WB**  
**STATION 162+39.84**  
**DAVIDSON COUNTY**  
**2025**

PIN NO.:  
DESIGN BY: BENESCH DATE: 10/2025  
DRAWN BY: B. PATEL DATE: 10/2025  
SUPERVISED BY: N. CHAYANGKURA DATE: 10/2025  
CHECKED BY: J. WILLIAMS DATE: 10/2025

VC = 700.00'  
K = 201



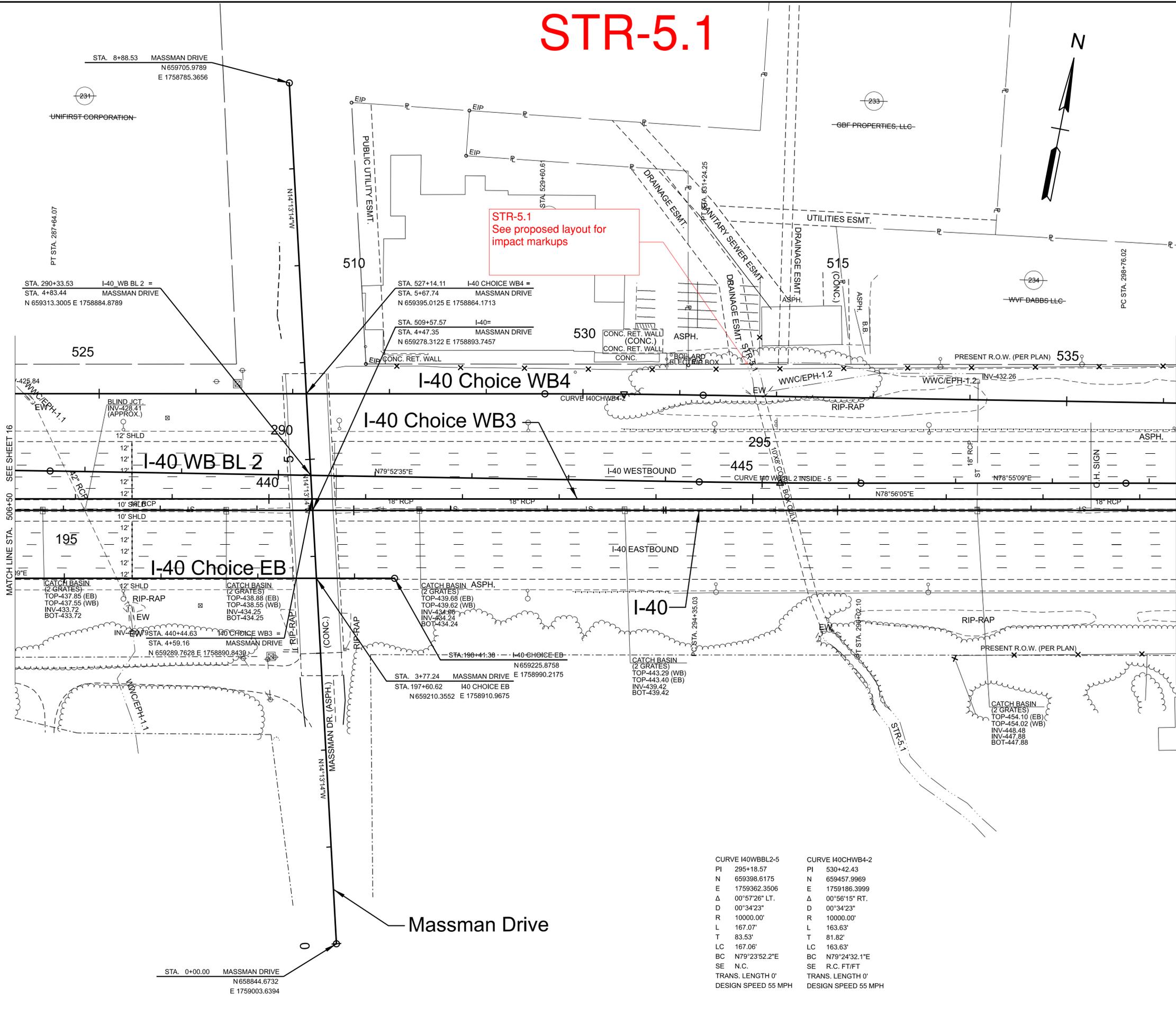
GRADE SKETCH  
(I-40 CHOICE LANE EASTBOUND)

10/8/2025 3:16:03 PM C:\CADD\LIB\PI\W\H\B\_HANNAH.DREW\SE\DIV\0254893\02-TDOT CHOICE LANES\_PREFERRED ALTERNATIVE\_BRIDGE 11\_SHEET\_02.DGN

# STR-5.1

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	17

REV. 07-01-25: REVISED EXISTING STORM DRAINAGE. REVISED ENVIRONMENTAL FEATURE NAMES PER THE EBR. REVISED SLOPE LINES  
 REV. 11-07-25: REVISED ALIGNMENTS, SLOPE LINES, AND PROPOSED R.O.W.



STR-5.1  
See proposed layout for impact markups

MATCH LINE STA. 506+50 SEE SHEET 16

MATCH LINE STA. 518+50 SEE SHEET 18

**SEALED BY**

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 12B.

**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

**PRESENT  
LAYOUT**

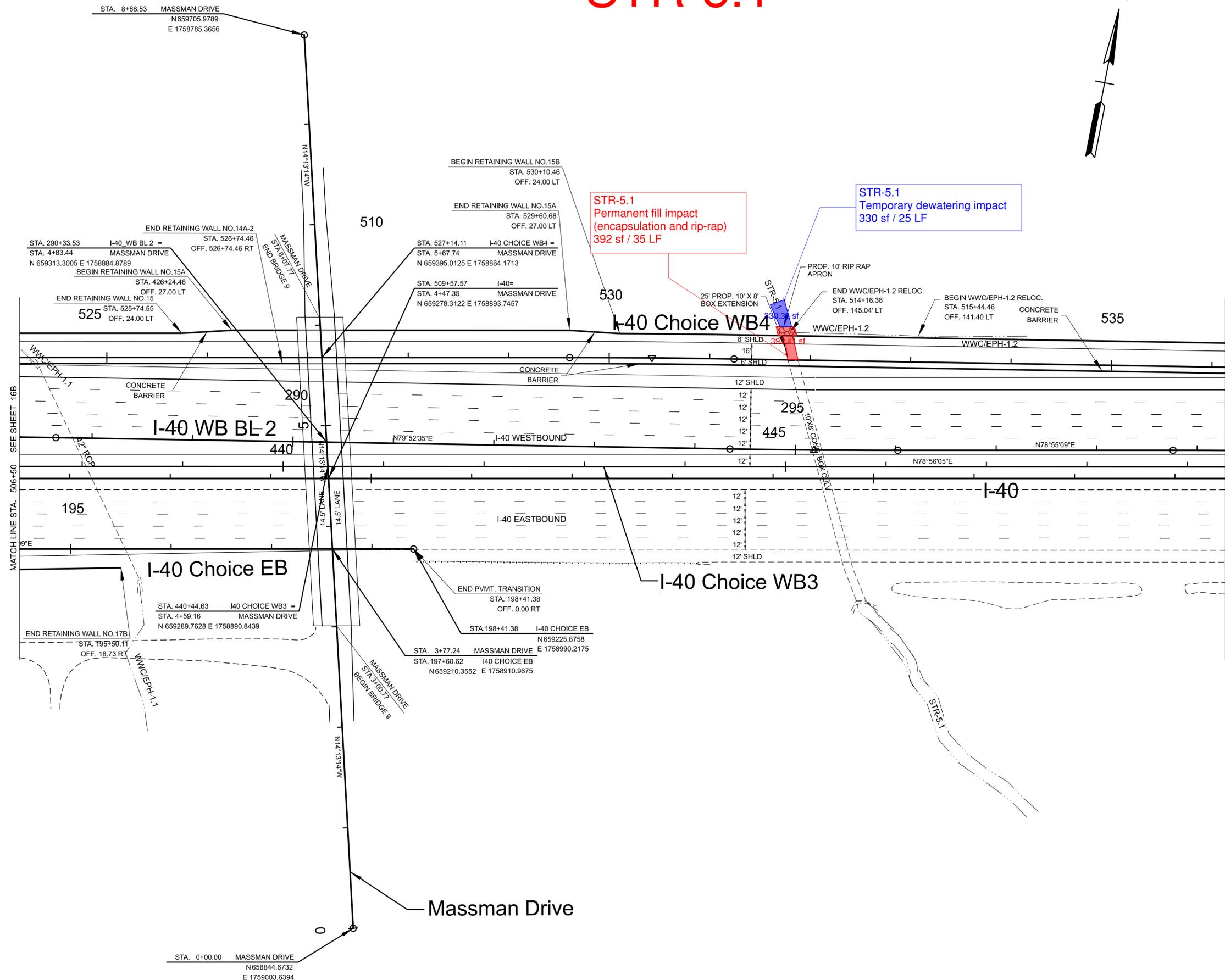
I-40  
STA. 506+50.00 TO STA. 518+50.00  
SCALE: 1" = 50'

CURVE I40WBBL2-5	CURVE I40CHWB4-2
PI 295+18.57	PI 530+42.43
N 659398.6175	N 659457.9969
E 1759362.3506	E 1759186.3999
Δ 00°57'26" LT.	Δ 00°56'15" RT.
D 00°34'23"	D 00°34'23"
R 10000.00'	R 10000.00'
L 167.07'	L 163.63'
T 83.53'	T 81.82'
LC 167.06'	LC 163.63'
BC N79°23'52.2"E	BC N79°24'32.1"E
SE N.C.	SE R.C. FT/FT
TRANS. LENGTH 0'	TRANS. LENGTH 0'
DESIGN SPEED 55 MPH	DESIGN SPEED 55 MPH

# STR-5.1

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	17B

REV. 07-01-25: ADDED EXISTING & PROPOSED CROSS DRAIN. REVISED ENVIRONMENTAL FEATURE NAMES PER THE EBR. REVISED TERMINATION POINT OF I-40 CHOICE EB. ADDED WWC/EPH-1.2 RELOCATION. REV. 11-07-25: REVISED PROPOSED DESIGN AND LABELS



STR-5.1  
Permanent fill impact  
(encapsulation and rip-rap)  
392 sf / 35 LF

STR-5.1  
Temporary dewatering impact  
330 sf / 25 LF

**SEALED BY**

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 12B.

**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

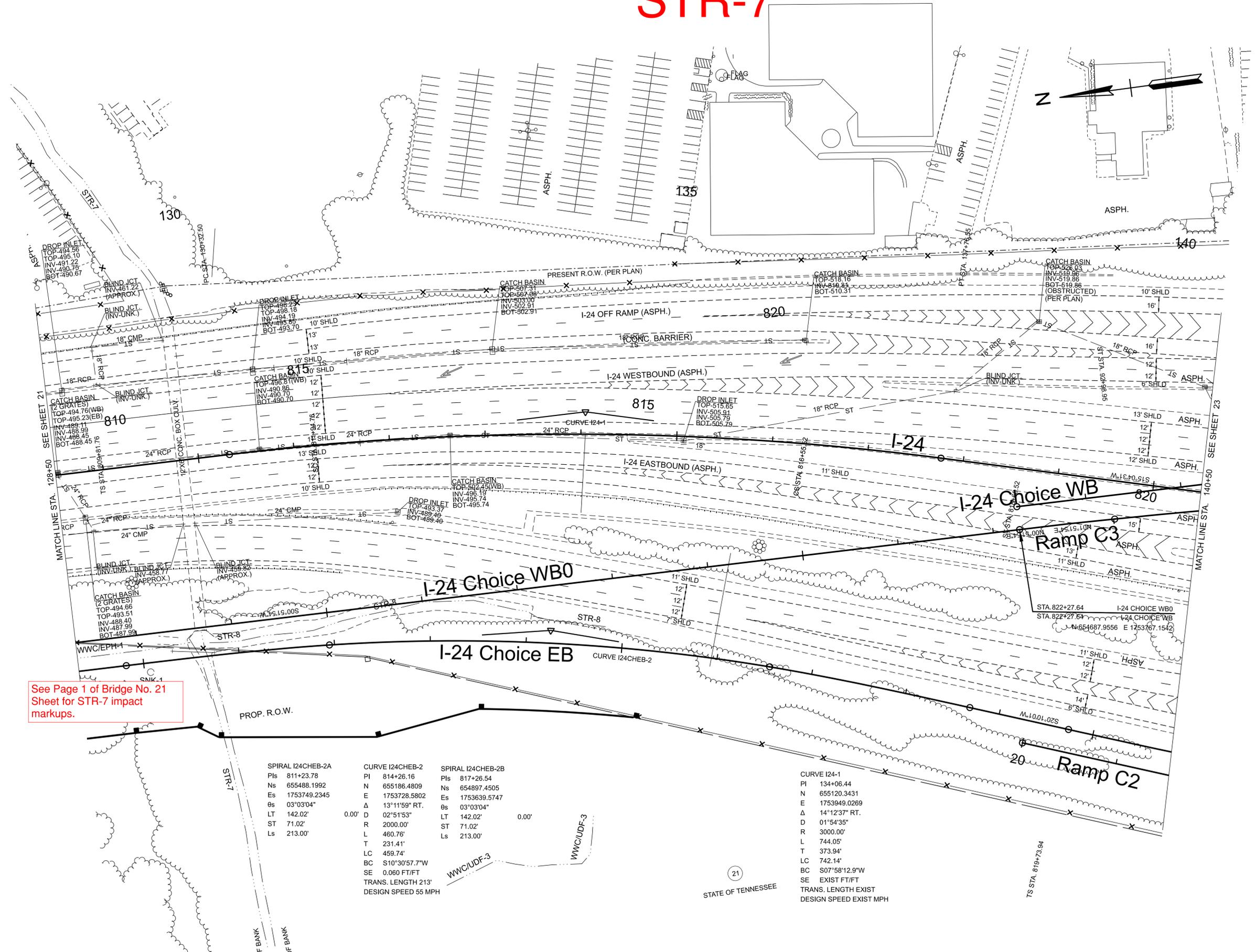
**PROPOSED  
LAYOUT**

I-40  
STA. 506+50.00 TO STA. 518+50.00  
SCALE: 1" = 50'

# STR-7

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	22

REV. 07-01-25: REVISED EXISTING STORM DRAINAGE. REVISED SLOPE LINES  
 REV. 11-07-25: REVISED ALIGNMENTS, SLOPE LINES, AND PROPOSED R.O.W.



See Page 1 of Bridge No. 21 Sheet for STR-7 impact markups.

SPIRAL I24CHEB-2A PIs 811+23.78 Ns 655488.1992 Es 1753749.2345 Ls 03°03'04" LT 142.02' ST 71.02' Ls 213.00'	CURVE I24CHEB-2 PI 814+26.16 N 655186.4809 E 1753728.5802 $\Delta$ 13°11'59" RT. D 02°51'53" R 2000.00' L 460.76' T 231.41' LC 459.74' BC S10°30'57.7"W SE 0.060 FT/FT TRANS. LENGTH 213' DESIGN SPEED 55 MPH	SPIRAL I24CHEB-2B PIs 817+26.54 Ns 654897.4505 Es 1753639.5747 Ls 03°03'04" LT 142.02' ST 71.02' Ls 213.00'	CURVE I24-1 PI 134+06.44 N 655120.3431 E 1753949.0269 $\Delta$ 14°12'37" RT. D 01°54'35" R 3000.00' L 744.05' T 373.94' LC 742.14' BC S07°58'12.9"W SE EXIST FT/FT TRANS. LENGTH EXIST DESIGN SPEED EXIST MPH
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**SEALED BY**

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 12B.

**STATE OF TENNESSEE  
 DEPARTMENT OF TRANSPORTATION**

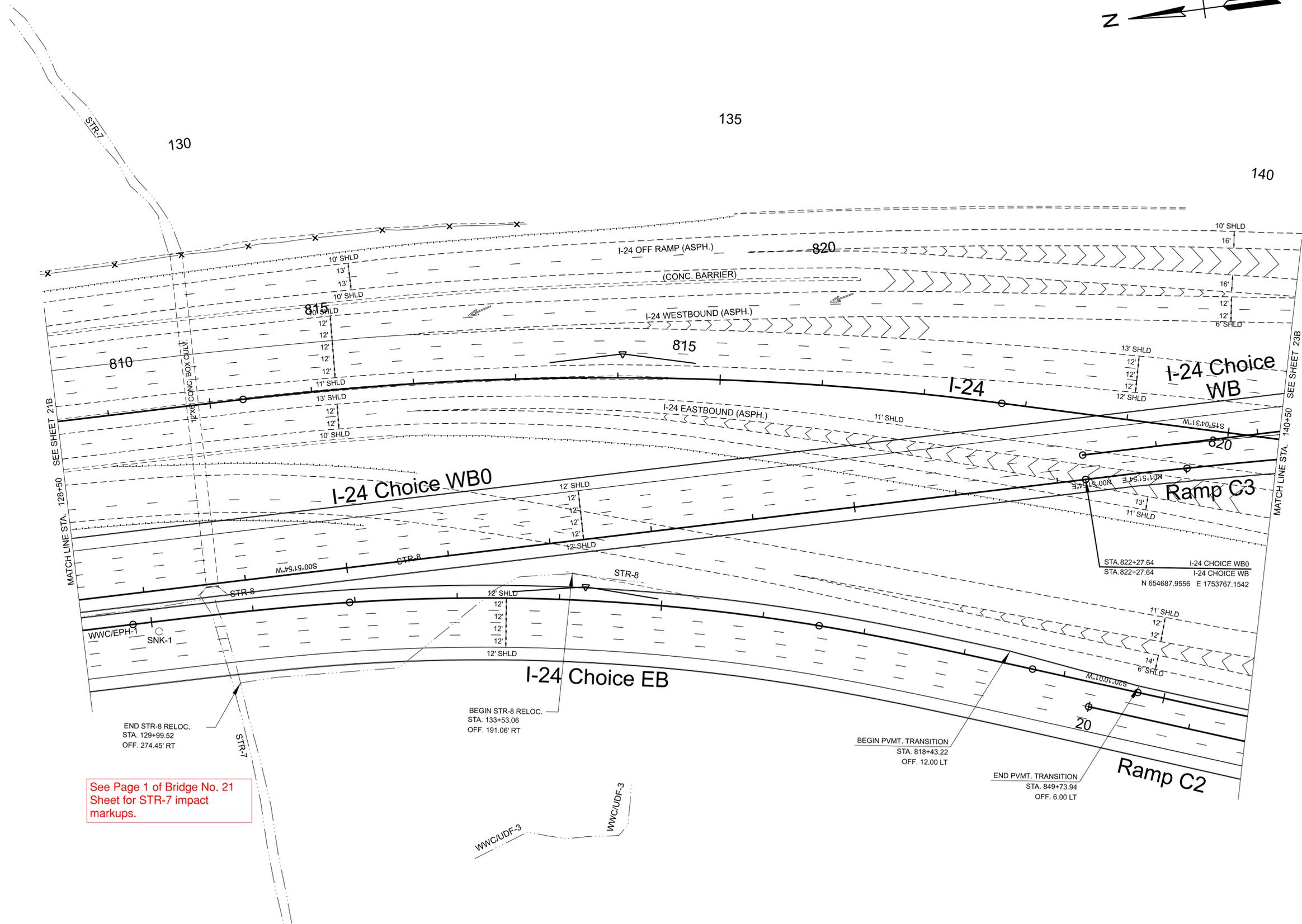
**PRESENT LAYOUT**

I-24  
 STA. 128+50.00 TO STA. 140+50.00  
 SCALE: 1" = 50'

# STR-7

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	22B

REV. 07-01-25: ADDED WWC/EPH-1 AND STR-8 RELOCATIONS. REVISED EXISTING STORM DRAINAGE.  
 REV. 11-07-25: REVISED PROPOSED DESIGN AND LABELS



See Page 1 of Bridge No. 21 Sheet for STR-7 impact markups.

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**SEALED BY**

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 12B.

**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

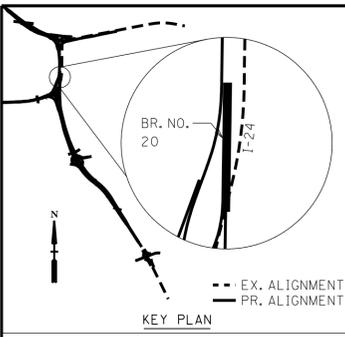
**PROPOSED LAYOUT**

I-24  
 STA. 128+50.00 TO STA. 140+50.00  
 SCALE: 1" = 50'

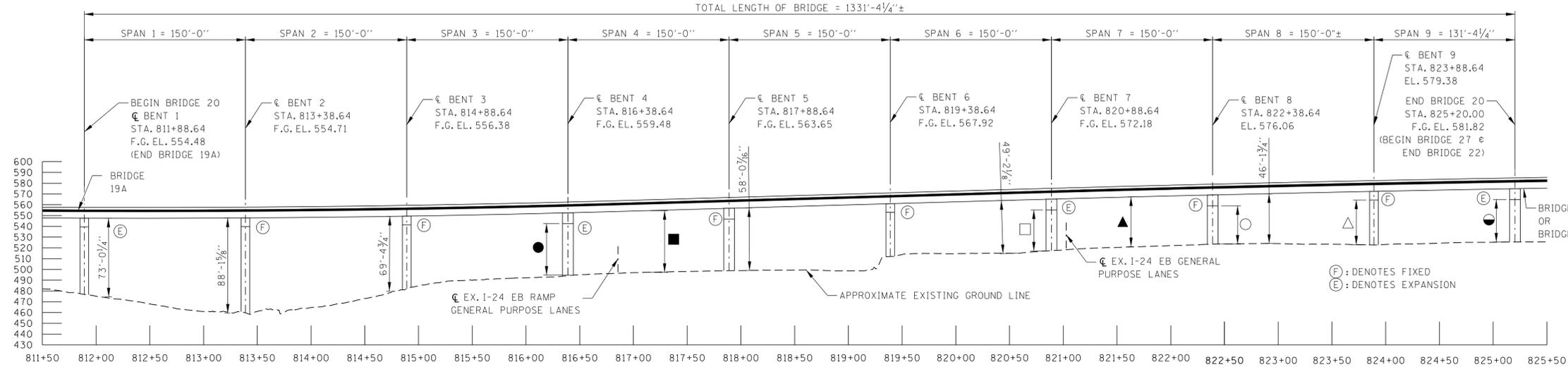
# Bridge 20, STR-7

CONST. NO.:

PROJECT NO.	YEAR	SHEET NO.	
R31024-S1-002	2025		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	10-15-25	NCR	REVISED PIER LOCATIONS AND STATIONS
1	10-15-25	NCR	REVISED BRIDGE AND ROADWAY WIDTHS
-	-	-	-
-	-	-	-
-	-	-	-

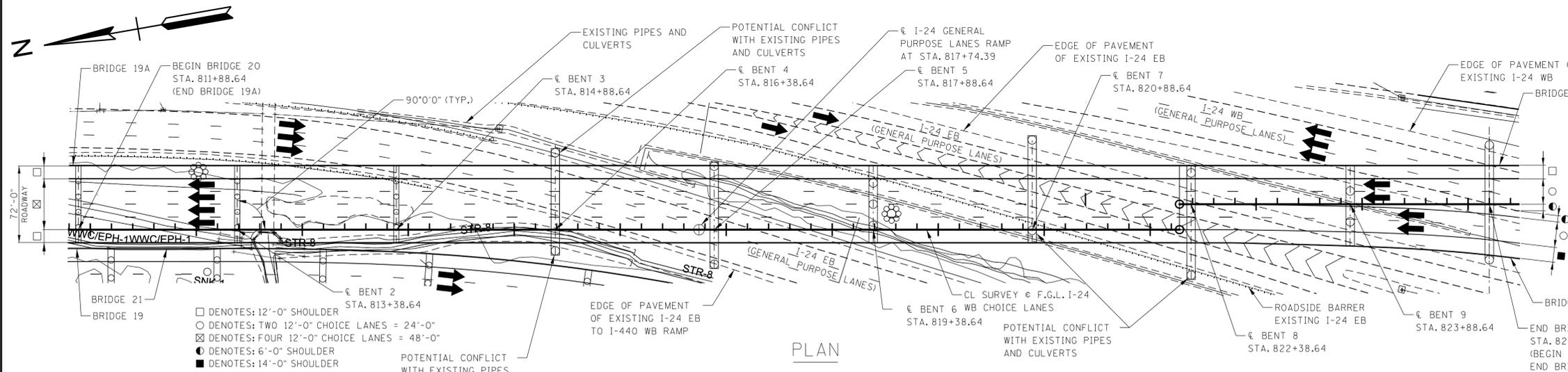


- DENOTES: 17'-0" MINIMUM VERTICAL CLEARANCE ABOVE I-24 GENERAL PURPOSE LANES
- DENOTES: 17'-0" MINIMUM VERTICAL CLEARANCE ABOVE I-24 GENERAL PURPOSE LANES
- DENOTES: 17'-0" MINIMUM VERTICAL CLEARANCE ABOVE I-24 GENERAL PURPOSE LANES
- ▲ DENOTES: 17'-0" MINIMUM VERTICAL CLEARANCE ABOVE I-24 GENERAL PURPOSE LANES
- DENOTES: 17'-0" MINIMUM VERTICAL CLEARANCE ABOVE I-24 GENERAL PURPOSE LANES
- △ DENOTES: 17'-0" MINIMUM VERTICAL CLEARANCE ABOVE I-24 GENERAL PURPOSE LANES
- DENOTES: 17'-0" MINIMUM VERTICAL CLEARANCE ABOVE I-24 GENERAL PURPOSE LANES



- (1) CONSTRUCTION SPECIFICATIONS: TENNESSEE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (JANUARY 1, 2021 EDITION).
- (2) DESIGN SPECIFICATIONS: 10TH EDITION (2024) AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND THE 2ND EDITION (2011) AASHTO GUIDE SPECIFICATIONS FOR LRFD SEISMIC BRIDGE DESIGN WITH INTERIMS.
- (3) LOADING: HL-93 LIVE LOADING; SEISMIC DESIGN CATEGORY "A" WITH AS= 0.90, SDS=0.217, SDI=0.080, (1000 YEAR RETURN PERIOD); DEAD LOAD INCLUDES 35 LB/SQ. FT. FOR FUTURE WEARING SURFACE. HL-93 LIVE LOADING INCREASED BY 10% BEFORE APPLYING ALL APPLICABLE LOAD FACTORS FOR ALL APPLICABLE LOAD COMBINATIONS.
- (4) SUPERSTRUCTURE: TO CONSIST OF 9 SPANS OF CONTINUOUS BULB-TEE WITH COMPOSITE CONCRETE SLAB. ACTUAL WEB DEPTH TO BE DETERMINED BY DESIGNER. WEB DEPTH SHOWN WAS USED TO CALCULATE CONCEPT VERTICAL CLEARANCES.
- (5) CONCRETE: CLASS A F'C=3000 PSI, CLASS DS F'C=4000 PSI FOR BRIDGE DECK.
- (6) REINFORCING STEEL: SHALL BE ASTM A615 GRADE 60 UNLESS NOTED OTHERWISE. EPOXY COAT ALL SLAB STEEL.
- (7) BRIDGE DECK SURFACE FINISH: TO BE IN ACCORDANCE WITH METHOD 03 IN ARTICLE 604.22 OF THE STANDARD SPECIFICATIONS.
- (8) USE STD-1-1SS PARAPETS.
- (9) EXCAVATION: TO BE BASED ON EXISTING GROUND AT BENTS.
- (10) EXPANSION JOINTS MAY BE ADDED OR RELOCATED BY ENGINEER AS REQUIRED BY DESIGN.
- (11) TEXTURE COATING: TO BE GRAY (36440) EXCEPT TRAFFIC FACE AND TOP OF PARAPET TO BE WHITE (37886) FOR STD-1-1SS PARAPETS.
- (12) CONCEPT PLANS ARE FOR INFORMATIONAL USE ONLY AND NOT FOR BIDDING OR CONSTRUCTION. DETAILS, DIMENSIONS, AND DRAWINGS MAY CHANGE PER DESIGNER OR OWNER DIRECTION.
- (13) DECK DRAINAGE SHALL BE DESIGNED BY THE ENGINEER AND DRAINS SHALL BE PLACED APPROPRIATELY. IF CLOSED DRAINAGE IS IMPLEMENTED, NO DRAINAGE COMPONENTS ARE ALLOWED TO BE PLACED ON THE SLAB CANTILEVERS.

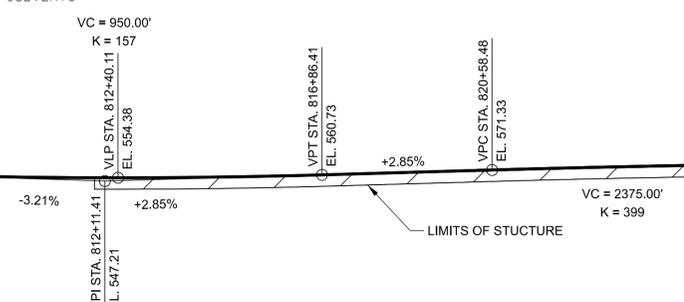
ELEVATION



- DENOTES: 12'-0" SHOULDER
- DENOTES: TWO 12'-0" CHOICE LANES = 24'-0"
- ⊠ DENOTES: FOUR 12'-0" CHOICE LANES = 48'-0"
- DENOTES: 6'-0" SHOULDER
- DENOTES: 14'-0" SHOULDER

See Page 1 of Bridge No. 21 Sheet for STR-7 impact markups.

PLAN



GRADE SKETCH  
(I-24 WB CHOICE LANES)

**CAUTION!**  
**CONCEPTUAL PLANS**  
**SUBJECT TO CHANGE**

2052 ADT = 26300  
ROADWAY WIDTH VARIES FROM 42'-0" TO 68'-0"  
STD-1-1SS PARAPETS  
DESIGN SPEED = 55 MPH  
**I-24 CHOICE LANES**  
**BRIDGE NO. 20**  
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
**CONCEPTUAL LAYOUT**  
**I-24 WB CHOICE LANES OVER**  
**I-24 GENERAL PURPOSE LANES**  
**STATION 818+54.32**  
**DAVIDSON COUNTY**  
**2025**

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PIN NO.:  
DESIGN BY: BENESCH DATE: 10/2025  
DRAWN BY: N. ROHRBAUGH DATE: 10/2025  
SUPERVISED BY: N. CHAYANGKURA DATE: 10/2025  
CHECKED BY: J. WILLIAMS DATE: 10/2025

# Bridge 21, STR-7

ITS MAY BE ADDED OR RELOCATED BY ENGINEER AS REQUIRED

CONST. NO.:

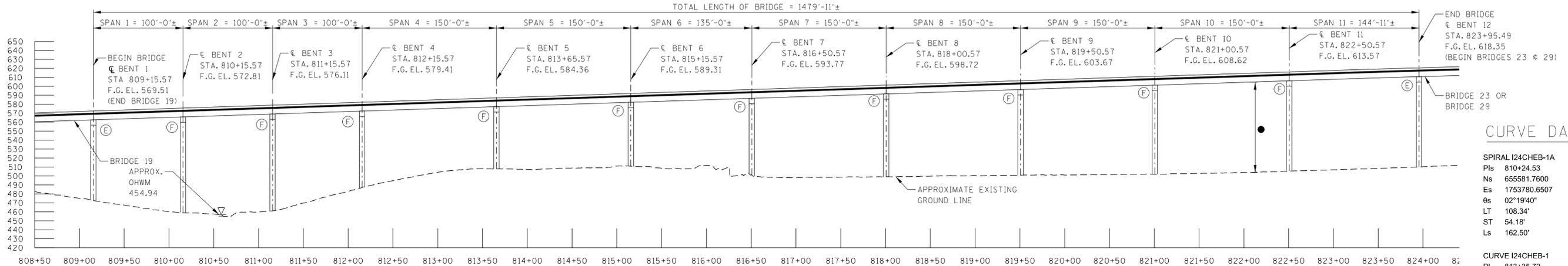
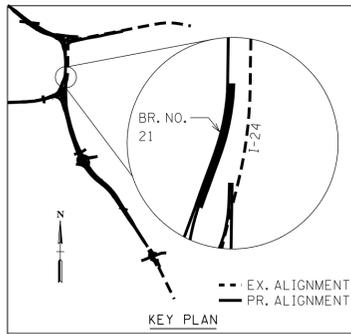
PROJECT NO.	YEAR	SHEET NO.	
R31024-S1-002	2025		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	10-15-25	NCR	REVISED PIER LOCATIONS AND STATIONS
1	10-15-25	NCR	REVISED BRIDGE AND ROADWAY WIDTHS
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## GENERAL NOTES:

- (1) CONSTRUCTION SPECIFICATIONS: TENNESSEE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (JANUARY 1, 2021 EDITION).
- (2) DESIGN SPECIFICATIONS: 10TH EDITION (2024) AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND THE 2ND EDITION (2011) AASHTO GUIDE SPECIFICATIONS FOR LRFD SEISMIC BRIDGE DESIGN WITH INTERIMS.
- (3) LOADING: HL-93 LIVE LOADING; SEISMIC DESIGN CATEGORY "A" WITH  $AS=0.90$ ,  $SDS=0.217$ ,  $SD1=0.080$ , (1000 YEAR RETURN PERIOD); DEAD LOAD INCLUDES 35 LB/SQ.FT. FOR FUTURE WEARING SURFACE. HL-93 LIVE LOADING INCREASED BY 10% BEFORE APPLYING ALL APPLICABLE LOAD FACTORS FOR ALL APPLICABLE LOAD COMBINATIONS.
- (4) SUPERSTRUCTURE: TO CONSIST OF 11 SPANS OF CONTINUOUS BULB-TEE WITH COMPOSITE CONCRETE SLAB. ACTUAL WEB DEPTH TO BE DETERMINED BY DESIGNER. WEB DEPTH SHOWN WAS USED TO CALCULATE CONCEPT VERTICAL CLEARANCES.

- (7) BRIDGE DECK SURFACE FINISH: TO BE IN ACCORDANCE WITH METHOD 03 IN ARTICLE 604.22 OF THE STANDARD SPECIFICATIONS.
- (8) USE STD-1-ISS PARAPETS.
- (9) TEXTURE COATING: TO BE GRAY (36440) EXCEPT TRAFFIC FACE AND TOP OF PARAPET TO BE WHITE (37886) FOR STD-1-ISS PARAPETS.
- (10) EXCAVATION: TO BE BASED ON EXISTING GROUND AT BENTS.

- CANTILEVERS.
- (14) CONCEPT PLANS ARE FOR INFORMATIONAL USE ONLY AND NOT FOR BIDDING OR CONSTRUCTION. DETAILS, DIMENSIONS, AND DRAWINGS MAY CHANGE PER DESIGNER OR OWNER DIRECTION.



## CURVE DATA

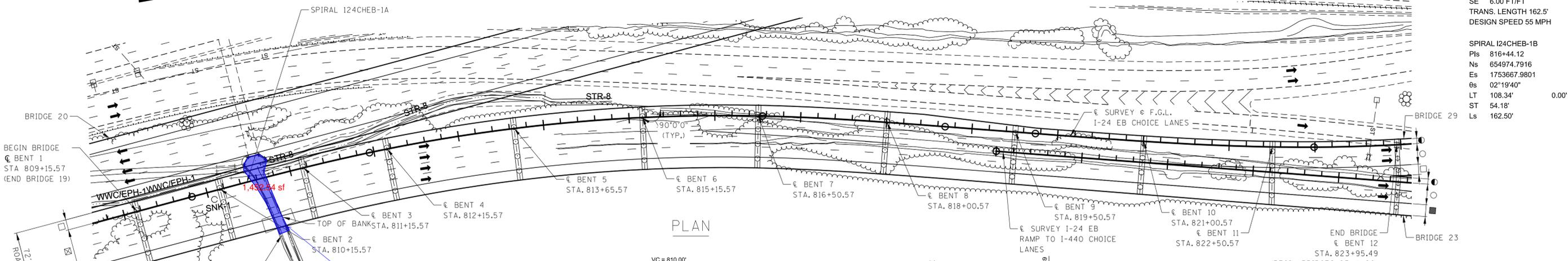
**SPIRAL I24CHEB-1A**  
 PIs 810+24.53  
 Ns 655581.7600  
 Es 1753780.6507  
 Os 02°19'40"  
 LT 108.34' 0.00'  
 ST 54.18'  
 Ls 162.50'

**CURVE I24CHEB-1**  
 PI 813+35.72  
 N 655271.0358  
 E 1753763.3180  
 Δ 14°38'48" RT.  
 D 02°51'53"  
 R 2000.00'  
 L 511.26'  
 T 257.03'  
 LC 509.87'  
 BC S10°30'57.7"W  
 SE 6.00 FT/FT  
 TRANS. LENGTH 162.5'  
 DESIGN SPEED 55 MPH

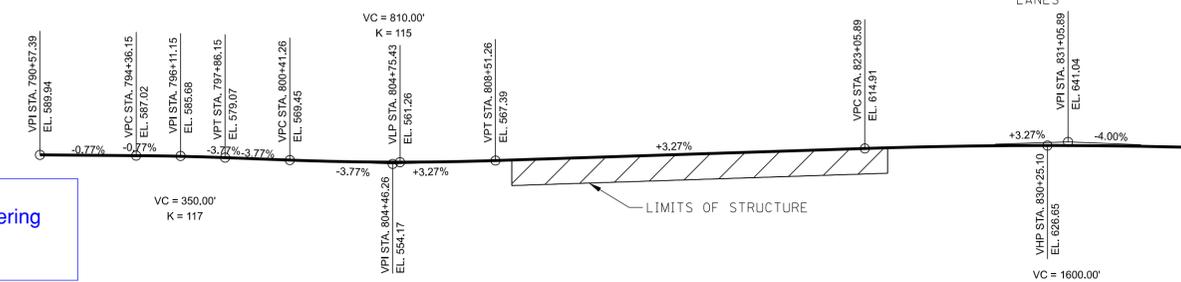
**SPIRAL I24CHEB-1B**  
 PIs 816+44.12  
 Ns 654974.7916  
 Es 1753667.9801  
 Os 02°19'40"  
 LT 108.34' 0.00'  
 ST 54.18'  
 Ls 162.50'

## ELEVATION

- (F) DENOTES: FIXED
- (E) DENOTES: EXPANSION



## PLAN



## GRADE SKETCH

(I-24 EB CHOICE LANES)

**CAUTION!**  
**CONCEPTUAL**  
**PLANS**  
**SUBJECT TO**  
**CHANGE**

2052 ADT = 23150  
 ROADWAY WIDTH VARIES FROM 42'-0" TO 78'-0"  
 STD-1-ISS PARAPETS  
 DESIGN SPEED = 55 MPH  
**I-24 CHOICE LANES**  
**BRIDGE NO. 21**  
 STATE OF TENNESSEE  
 DEPARTMENT OF TRANSPORTATION  
**CONCEPTUAL LAYOUT**  
**I-24 EB CHOICE LANES**  
 STATION 816+55.53  
 DAVIDSON COUNTY  
 2025

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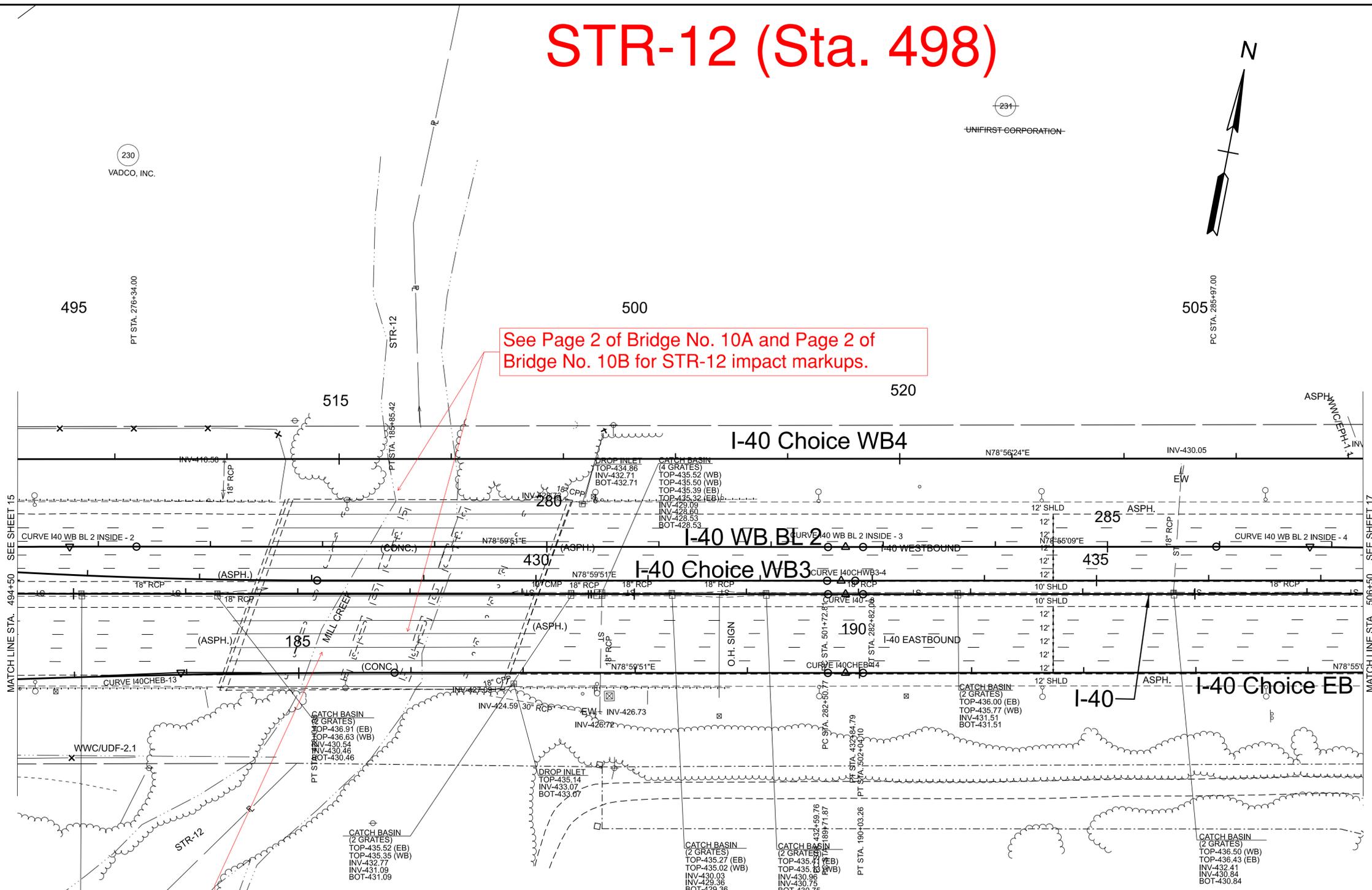
PIN NO.: \_\_\_\_\_  
 DESIGN BY: BENESCH DATE: 10/2025  
 DRAWN BY: N. ROHRBAUGH DATE: 10/2025  
 SUPERVISED BY: N. CHAYANGKURA DATE: 10/2025  
 CHECKED BY: J. WILLIAMS DATE: 10/2025

**STR-7**  
 Temporary dewatering impact  
 1,452 sf / 96 LF

# STR-12 (Sta. 498)

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	16

REV. 07-01-25: REVISED EXISTING STORM DRAINAGE. REVISED ENVIRONMENTAL FEATURE NAMES PER THE EBR. REVISED SLOPE LINES  
 REV. 11-07-25: REVISED ALIGNMENTS, SLOPE LINES, AND PROPOSED R.O.W.



See Page 2 of Bridge No. 10A and Page 2 of Bridge No. 10B for STR-12 impact markups.

See Page 1 of Bridge No. 8A and Page 1 of Bridge No. 8B for STR-12 impact markups.

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<b>CURVE I40-9</b> PI 501+88.46 N 659130.4955 E 1758138.9772 Δ 00°04'42" LT. D 00°15'00" R 22918.00' L 31.29' T 15.64' LC 31.29' BC N78°57'30.0"E SE EXIST FT/FT TRANS. LENGTH EXIST DESIGN SPEED EXIST MPH	<b>CURVE I40CHEB-13</b> PI 183+94.85 N 658948.6486 E 1757570.4532 Δ 02°17'48" RT. D 00°36'09" R 9510.00' L 381.19' T 190.62' LC 381.16' BC N77°50'57.0"E SE 0.20 FT/FT TRANS. LENGTH 0' DESIGN SPEED 55 MPH	<b>CURVE I40CHEB-14</b> PI 189+87.57 N 659061.7796 E 1758152.3237 Δ 00°04'42" LT. D 00°14'57" R 22968.00' L 31.38' T 15.69' LC 31.38' BC N78°57'30.0"E SE R.C. TRANS. LENGTH 0' DESIGN SPEED 55 MPH	<b>CURVE I40WBBL2-2</b> PI 275+74.41 N 659039.6529 E 1757451.6784 Δ 00°16'23" RT. D 00°13'45" R 25000.00' L 119.18' T 15.62' LC 119.18' BC N78°51'39.2"E SE R.C. TRANS. LENGTH 0' DESIGN SPEED 55 MPH	<b>CURVE I40WBBL2-3</b> PI 282+66.39 N 659171.7180 E 1758130.9332 Δ 00°04'42" LT. D 00°15'02" R 22876.00' L 31.23' T 15.62' LC 31.23' BC N78°57'30.0"E SE N.C. TRANS. LENGTH 0' DESIGN SPEED 55 MPH	<b>CURVE I40WBBL2-4</b> PI 286+80.54 N 659251.3146 E 1758537.3621 Δ 00°57'26" RT. D 00°34'23" R 10000.00' L 167.07' T 83.53' LC 167.06' BC N79°23'52.2"E SE R.C. TRANS. LENGTH 0' DESIGN SPEED 55 MPH	<b>CURVE I40CHWB3-4</b> PI 432+72.28 N 659141.5290 E 1758132.8503 Δ 00°03'45" LT. D 00°15'00" R 22906.00' L 25.03' T 12.52' LC 25.03' BC N78°57'58.1"E SE N.C. TRANS. LENGTH 0' DESIGN SPEED 55 MPH
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SEALED BY

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 12B.

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

PRESENT LAYOUT

I-40  
STA. 494+50.00 TO STA. 506+50.00  
SCALE: 1" = 50'

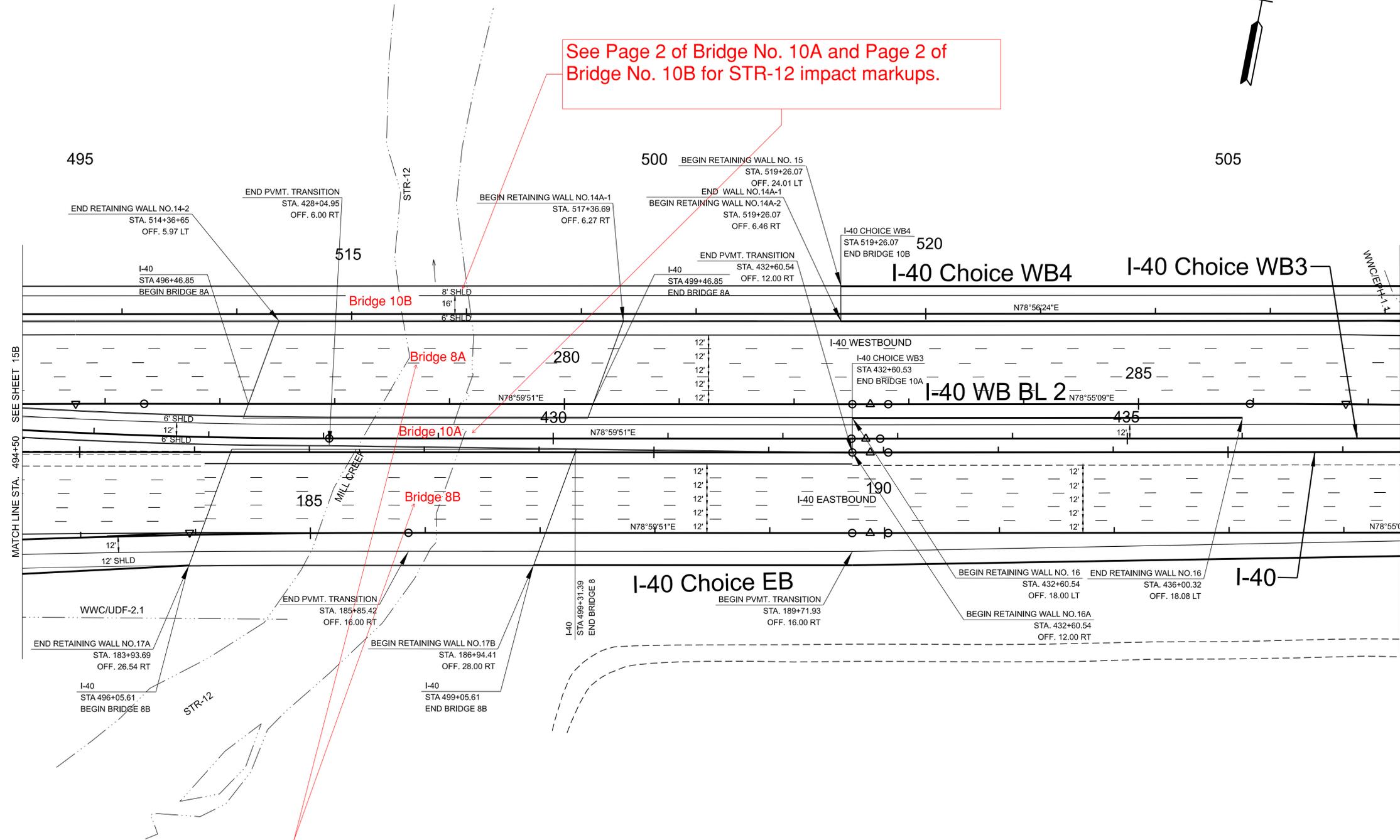
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	16B

REV. 07-01-25: REVISED ENVIRONMENTAL FEATURE NAMES PER THE EBR. REVISED I-40 CHOICE EB  
 REV. 11-07-25: REVISED PROPOSED DESIGN AND LABELS

# STR-12 (Sta. 498)



See Page 2 of Bridge No. 10A and Page 2 of Bridge No. 10B for STR-12 impact markups.



See Page 1 of Bridge No. 8A and Page 1 of Bridge No. 8B for STR-12 impact markups.

**SEALED BY**

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 12B.

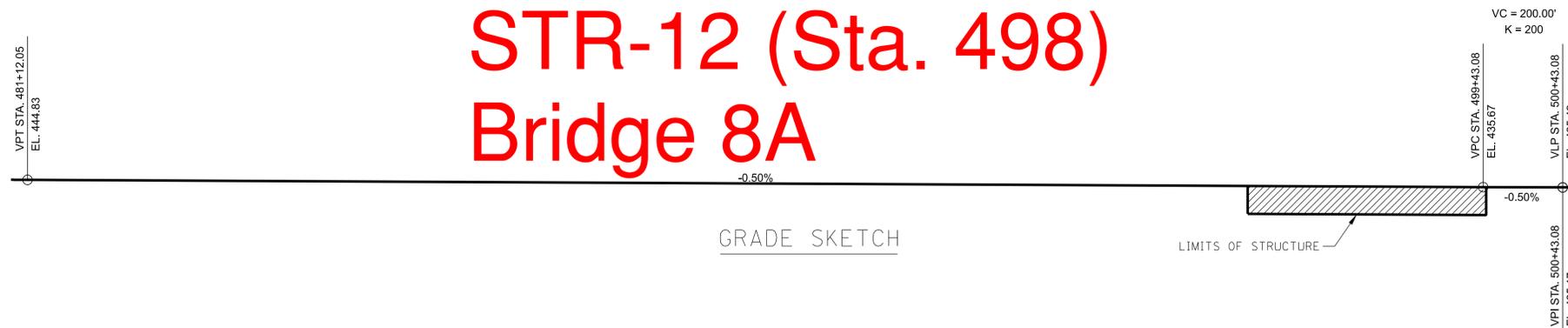
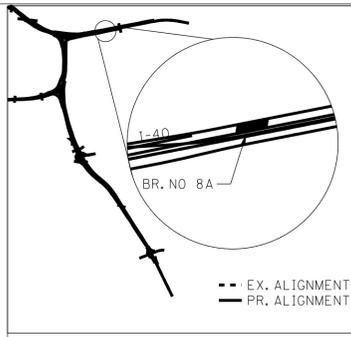
**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

**PROPOSED  
LAYOUT**

I-40  
STA. 494+50.00 TO STA. 506+50.00  
SCALE: 1" = 50'

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# STR-12 (Sta. 498) Bridge 8A

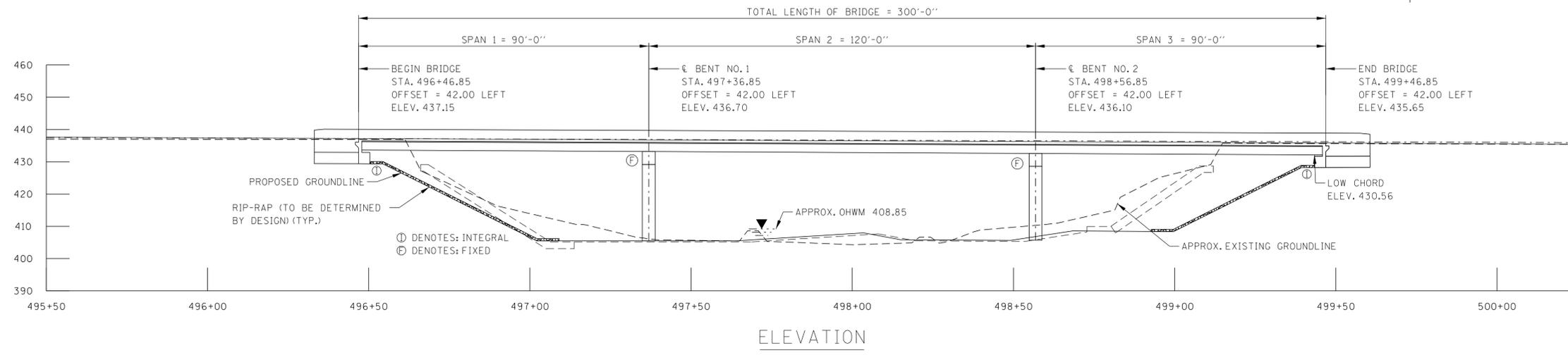


CONST. NO.:

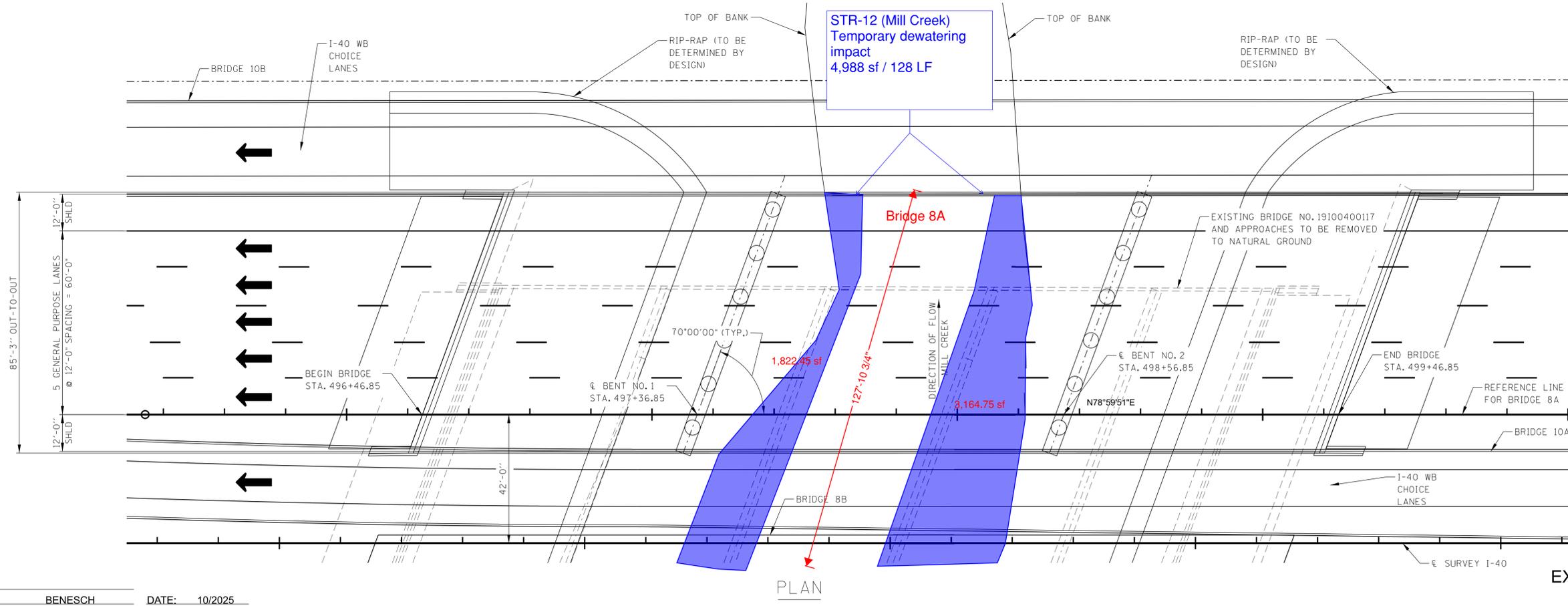
PROJECT NO.	YEAR	SHEET NO.
R31024-S1-002	2025	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	10-15-2025	M.O.	ADDED BRIDGE
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-



SEE SHEET 2 FOR GENERAL NOTES.



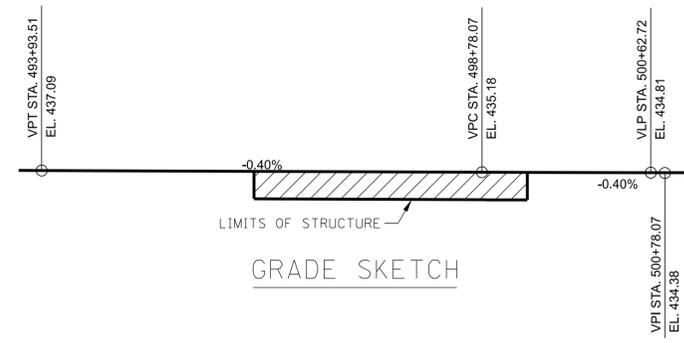
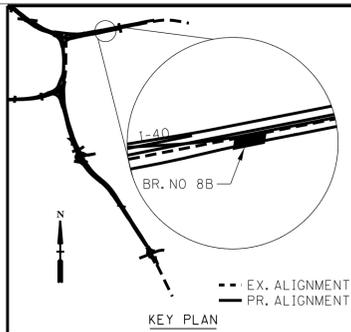
**CAUTION!**  
**CONCEPTUAL**  
**PLANS**  
**SUBJECT TO**  
**CHANGE**

2052 ADT = 216,775  
84'-0" ROADWAY WIDTH W/ STD-1-1SS PARAPETS  
DESIGN SPEED = 65 MPH  
**I-24 CHOICE LANES**  
**BRIDGE NO. 8A**  
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
CONCEPTUAL LAYOUT  
I-40 WESTBOUND  
OVER  
MILL CREEK  
EXISTING BRIDGE ID. NO. 19100400117  
DAVIDSON COUNTY  
2025

10/14/2025 1:13:53 PM C:\CADD\LIB\PW\HNTB\_MADISON\_OAKMAN\ISE\DIV025467101 TDOT CHOICE LANES\_PREFERRED ALTERNATIVE\_PANDE\_NEW.DGN

PIN NO.:  
DESIGN BY: BENESCH DATE: 10/2025  
DRAWN BY: M. OAKMAN DATE: 10/2025  
SUPERVISED BY: N. CHAYANGKURA DATE: 10/2025  
CHECKED BY: J. WILLIAMS DATE: 10/2025

# STR-12 (Sta. 498) Bridge 8B

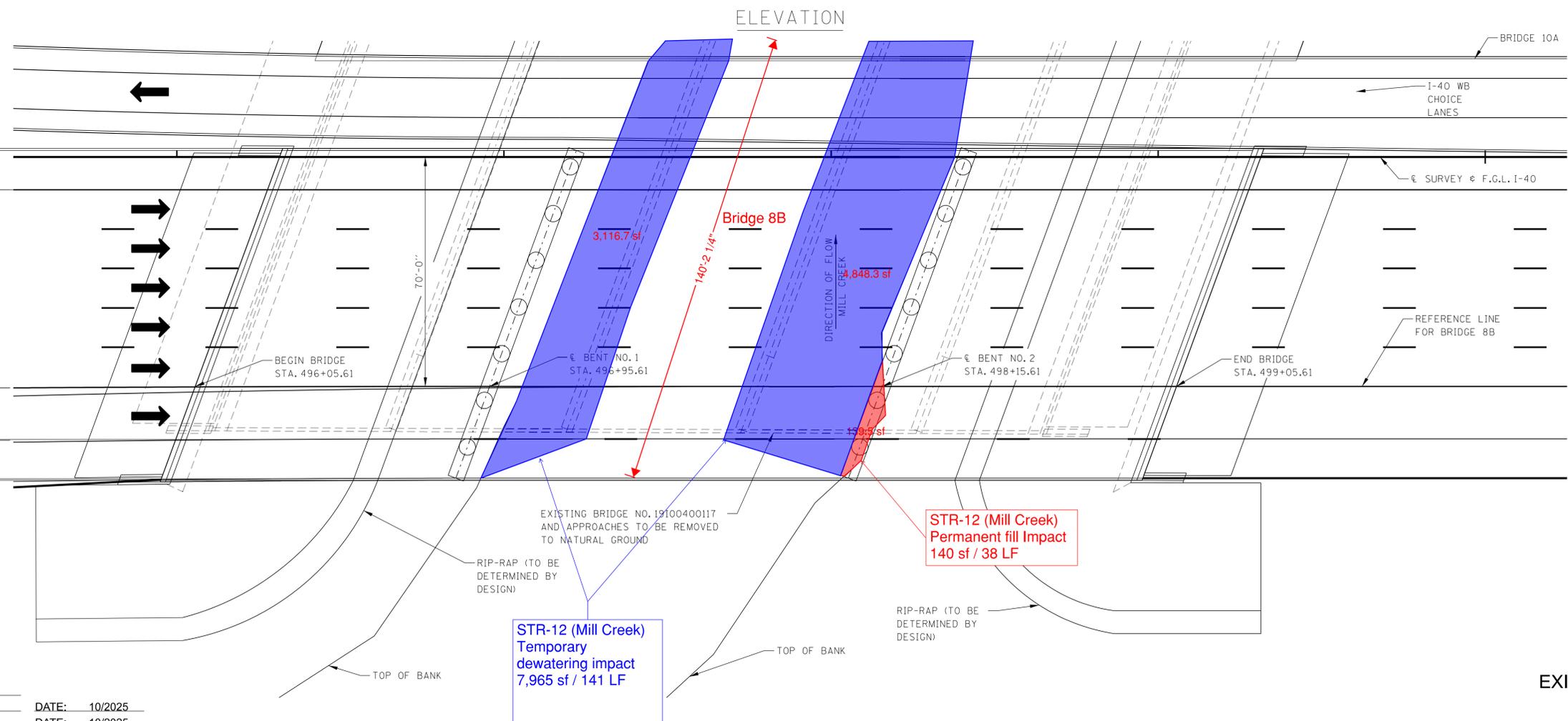
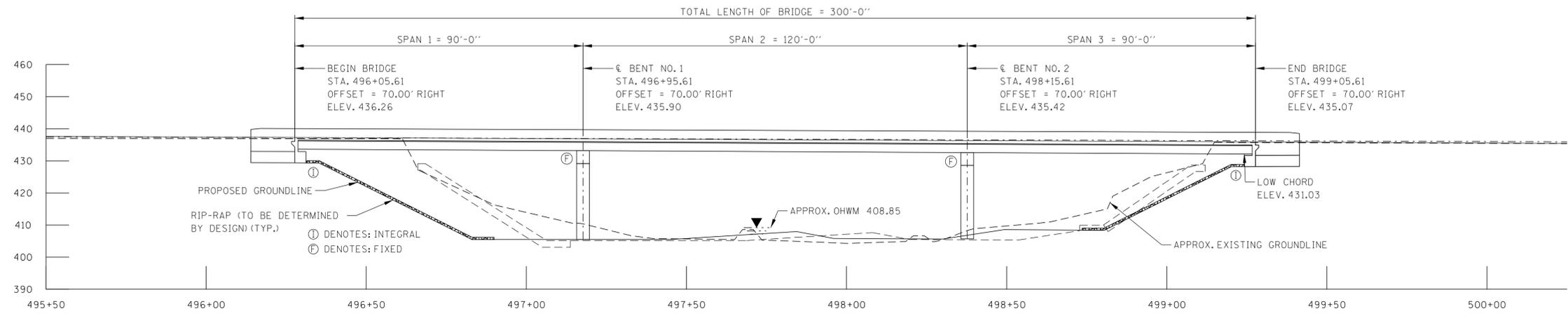


CONST. NO.: \_\_\_\_\_

PROJECT NO.	YEAR	SHEET NO.
R31024-S1-002	2025	

REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	10-15-2025	M.O.	ADDED BRIDGE
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-



**CAUTION!  
CONCEPTUAL  
PLANS  
SUBJECT TO  
CHANGE**

2052 ADT = 216,775  
101'-3" ROADWAY WIDTH W/ STD-1-ISS PARAPETS  
DESIGN SPEED = 65 MPH  
**I-24 CHOICE LANES  
BRIDGE NO. 8B**  
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
CONCEPTUAL LAYOUT  
I-40 EASTBOUND  
OVER  
MILL CREEK  
EXISTING BRIDGE ID. NO. 19100400117  
DAVIDSON COUNTY  
2025

CURVE  
PI 183+94.85  
N 658948.6486  
E 1757570.4532  
Δ 02°17'48" RT.  
D 00°36'09"  
R 9510.00'  
L 381.19'  
T 190.62'  
LC 381.16'  
BC N77°50'57.0"E  
SE -2.00 FT/FT  
TRANS. LENGTH 0'  
DESIGN SPEED 55 MPH

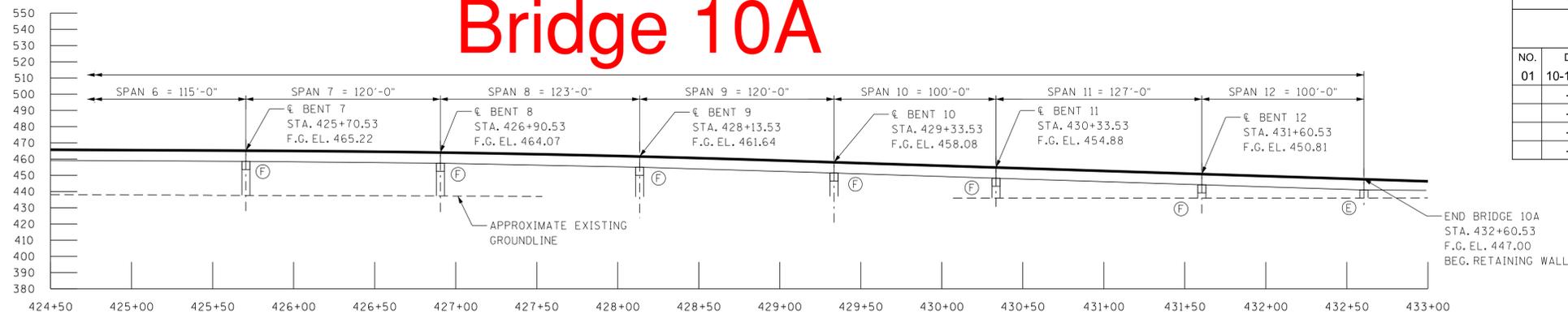
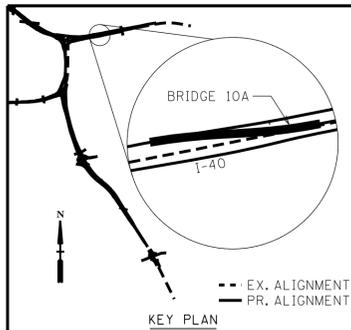
PIN NO.: \_\_\_\_\_  
DESIGN BY: BENESCH DATE: 10/2025  
DRAWN BY: M. OAKMAN DATE: 10/2025  
SUPERVISED BY: N. CHAYANGKURA DATE: 10/2025  
CHECKED BY: J. WILLIAMS DATE: 10/2025

10/10/2025 1:19:35 PM C:\CADD\LIB\PW\HNTB\_MADISON\_OAKMAN\ISE\DIV025467101 TDOT CHOICE LANES\_PREFERRED ALTERNATIVE\_PANDE\_NEW.DGN

# STR-12 (Sta. 498) Bridge 10A

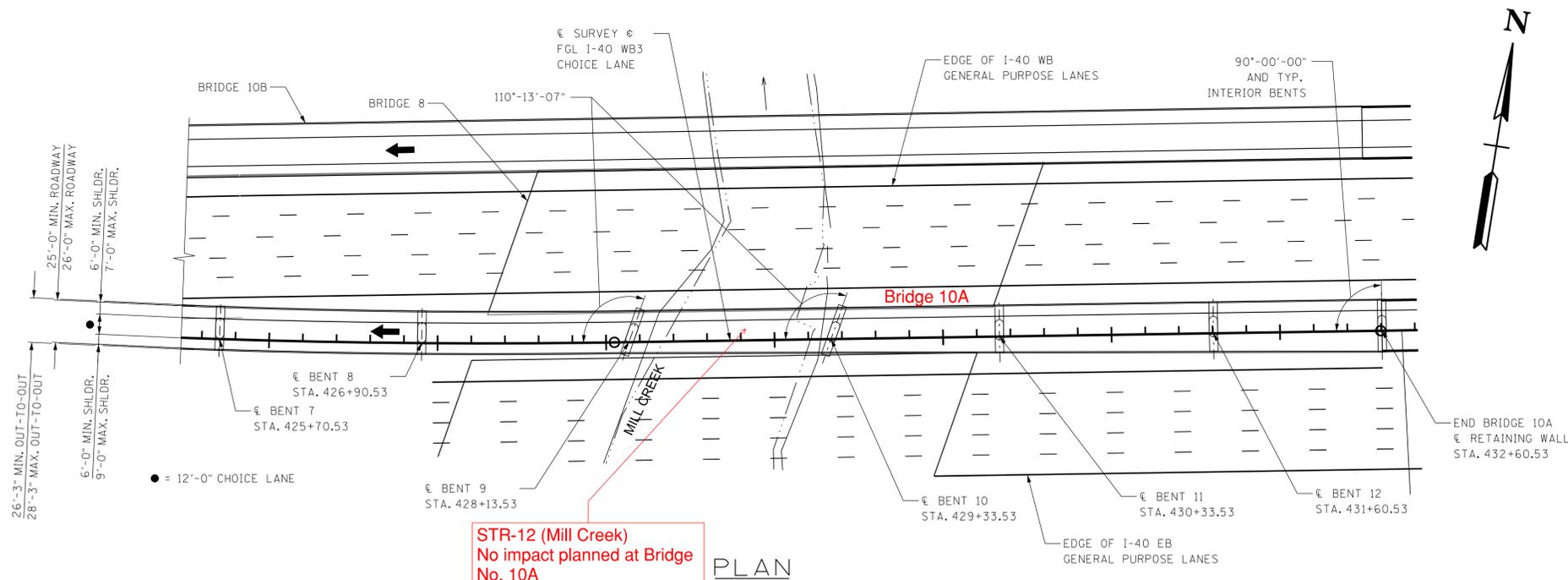
CONST. NO.:

PROJECT NO.	YEAR	SHEET NO.	
R31024-S1-002	2025		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
01	10-15-2025	HMD	ADDED BRIDGE.
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-



ⓔ DENOTES: EXPANSION  
ⓕ DENOTES: FIXED

ELEVATION



PLAN

**CAUTION!  
CONCEPTUAL  
PLANS  
SUBJECT TO  
CHANGE**

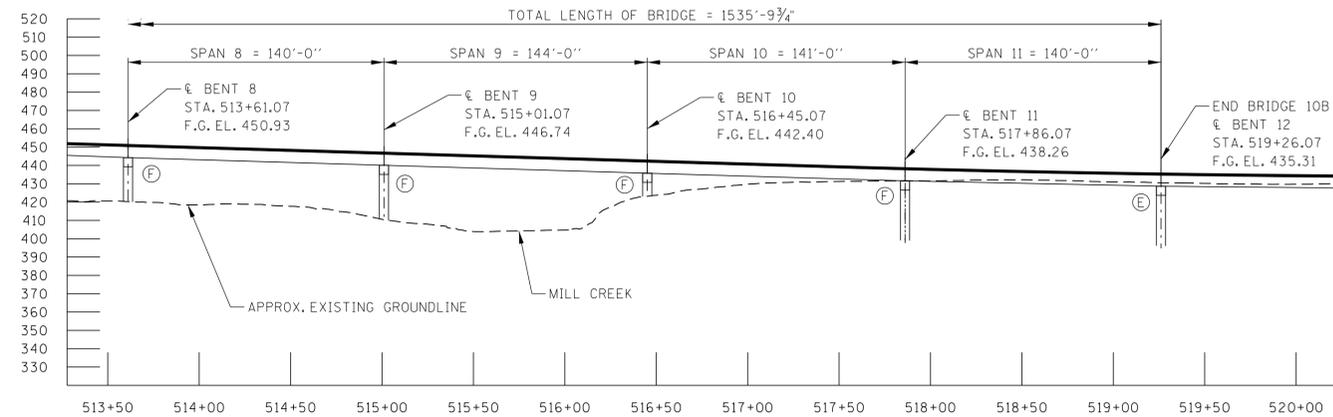
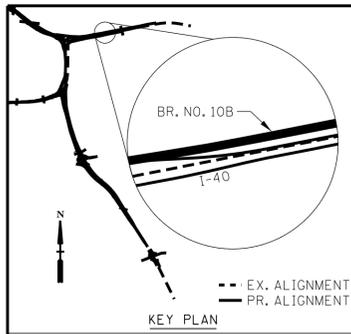
2052 ADT = 13,200  
27'-3" ROADWAY W/ STD-1-ISS  
DESIGN SPEED = 55 MPH  
**I-24 CHOICE LANES  
BRIDGE NO. 10A**  
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
CONCEPTUAL LAYOUT  
I-40 WB CHOICE LANES AND  
RAMP B6  
STA. 424+83.41  
DAVIDSON COUNTY  
2025

PIN NO.: \_\_\_\_\_  
DESIGN BY: BENESCH DATE: 10/2025  
DRAWN BY: H. DREW DATE: 10/2025  
SUPERVISED BY: N. ROHRBAUGH DATE: 10/2025  
CHECKED BY: N. CHAYANGKURA DATE: 10/2025

# STR-12 (Sta. 498) Bridge 10B

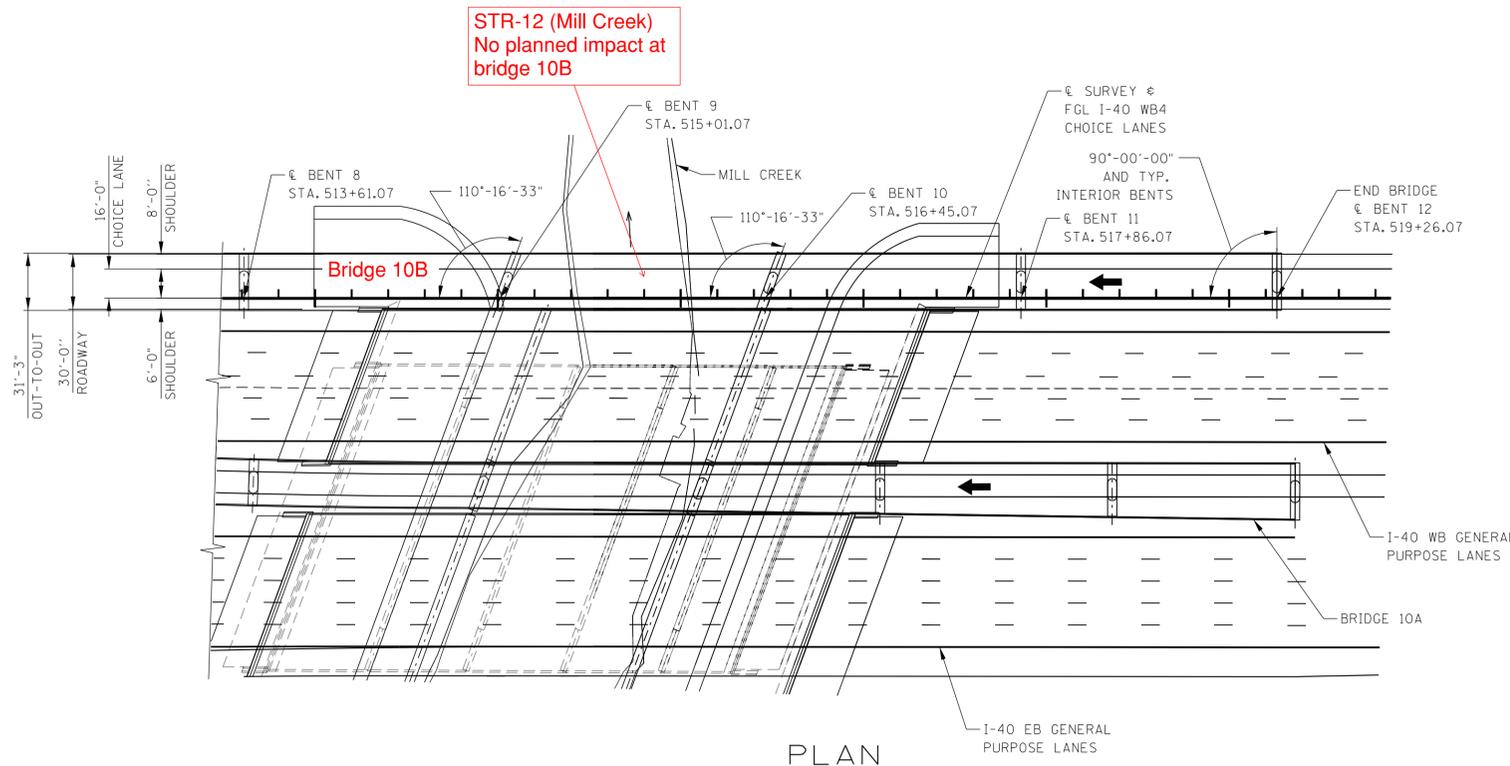
CONST. NO.:

PROJECT NO.	YEAR	SHEET NO.	
R31024-S1-002	2025		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
01	10-15-2025	HMD	ADDED BRIDGE.
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-



ELEVATION

ⓔ DENOTES: EXPANSION  
ⓕ DENOTES: FIXED



PLAN

**CAUTION!  
CONCEPTUAL  
PLANS  
SUBJECT TO  
CHANGE**

2052 ADT = 2,900  
VARIES 42'-0" TO 27'-3" ROADWAY  
W/ STD-1-1SS  
DESIGN SPEED = 55 MPH  
**I-24 CHOICE LANES  
BRIDGE NO. 10B**  
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
CONCEPTUAL LAYOUT  
I-40 WB CHOICE  
LANES  
STA. 514+38.16  
DAVIDSON COUNTY  
2025

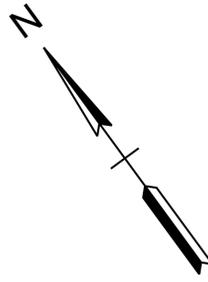
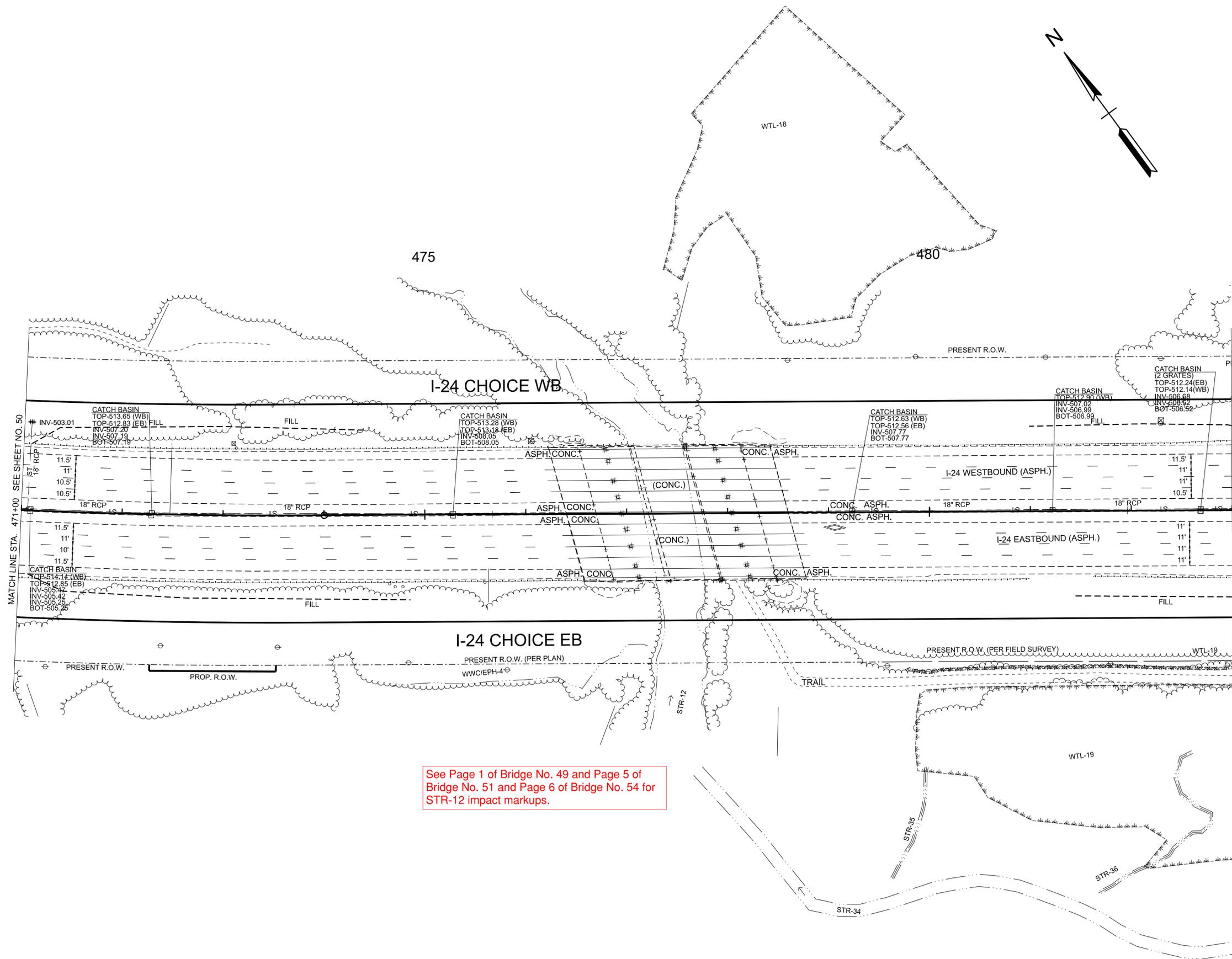
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PIN NO.: \_\_\_\_\_  
DESIGN BY: BENESCH DATE: 10/2025  
DRAWN BY: H. DREW DATE: 10/2025  
SUPERVISED BY: N. ROHRBAUGH DATE: 10/2025  
CHECKED BY: N. CHAYANGKURA DATE: 10/2025

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R3I024-S1-002	51

REV. 07-01-25: REVISED ENVIRONMENTAL FEATURE NAMES PER THE EBR, REVISED EXISTING STORM DRAINAGE.

REV. 08-15-25: REVISED R.O.W. LABELS.



See Page 1 of Bridge No. 49 and Page 5 of Bridge No. 51 and Page 6 of Bridge No. 54 for STR-12 impact markups.

**SEALED BY**

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 12B.

**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

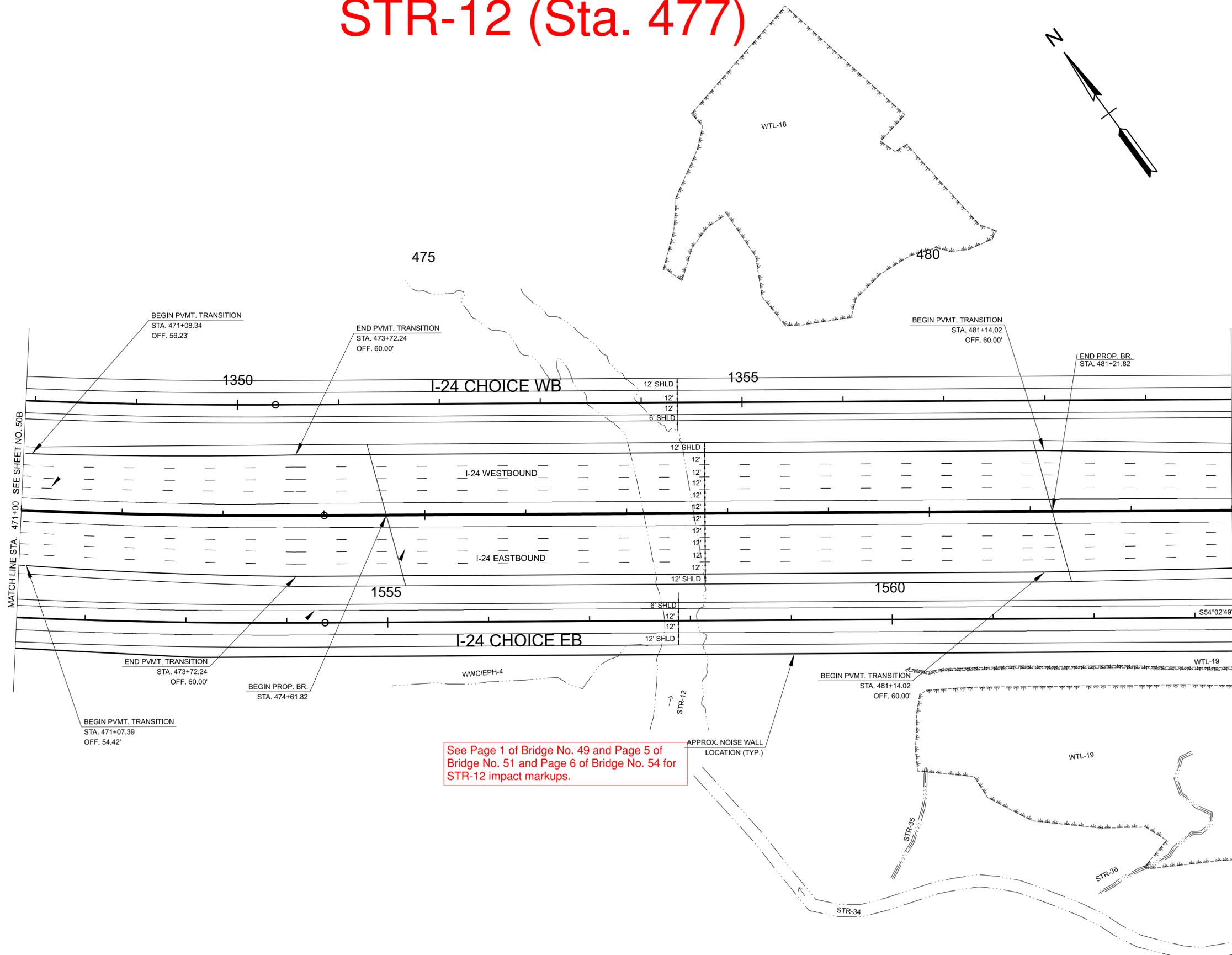
**PRESENT  
LAYOUT**

STA. 471+00.00 TO STA. 483+00.00  
SCALE: 1" = 50'

# STR-12 (Sta. 477)

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	51B

REV. 07-01-25: REVISED ENVIRONMENTAL FEATURE NAMES PER THE EBR.



See Page 1 of Bridge No. 49 and Page 5 of Bridge No. 51 and Page 6 of Bridge No. 54 for STR-12 impact markups.

**SEALED BY**

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID .

**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

**PROPOSED  
LAYOUT**

STA. 471+00.00 TO STA. 483+00.00  
SCALE: 1" = 50'

# STR-12 (Sta. 477) Bridge 49

PROJECT NO.	YEAR	SHEET NO.	
R31024-S1-002	2025		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1.	10/02/25	H. WU	REDUCE OUTSIDE SHOULDER WIDTH

### HYDRAULIC DATA

DRAINAGE AREA = 57.37 MI.<sup>2</sup>  
 DESIGN DISCHARGE (100 YR.) = 28000 CFS  
 WATER AREA PROVIDED BELOW ELEV. 514.00 = 33507.00 FT<sup>2</sup>  
 100 YR. VELOCITY = 2.97 FPS  
 100 YR. BRIDGE BACKWATER = 0.10 FT @ ELEV. 513.90  
 ROADWAY OVERTOPPING ELEV. 512.21 FT.  
 500 YR. DISCHARGE 37000 CFS @ ELEV. 517.00

### GENERAL NOTES:

- CONSTRUCTION SPECIFICATIONS: TENNESSEE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (JANUARY 1, 2021 EDITION)
- DESIGN SPECIFICATIONS: 10TH EDITION (2024) AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND THE 2ND EDITION (2011) AASHTO GUIDE SPECIFICATIONS FOR LRFD SEISMIC BRIDGE DESIGN WITH INTERIMS.
- LOADING: HL-93 LIVE LOADING; SEISMIC CATEGORY "A" WITH AS=0.079, SDS=0.193, SD1=0.074 (1000 YEAR RETURN PERIOD); DEAD LOADS TO INCLUDE 35 LB/SQ. FT. FOR FUTURE WEARING SURFACE. HL-93 LIVE LOADING INCREASED BY 10% BEFORE APPLYING ALL APPLICABLE LOAD FACTORS FOR ALL APPLICABLE LOAD COMBINATIONS.
- SUPERSTRUCTURE: TO CONSIST OF THREE SPAN OF CONTINUOUS PSC BULB TEE 54 GIRDERS WITH COMPOSITE CONCRETE SLAB.
- CONCRETE: CLASS A FC=3000 PSI, CLASS D FC= 4000 PSI FOR BRIDGE DECK.
- REINFORCING STEEL: TO BE ASTM A615 GRADE 60 UNLESS NOTED OTHERWISE. EPOXY COAT ALL SLAB STEEL.
- BRIDGE DECK SURFACE FINISH: TO BE IN ACCORDANCE WITH METHOD 3 IN ARTICLE 604.22 OF THE STANDARD SPECIFICATIONS. USE STD-1-ISS PARAPETS.
- TEXTURE COATING: TO BE GRAY (36440) EXCEPT TRAFFIC FACE AND TOP OF PARAPET TO BE WHITE (37886).
- EXCAVATION: TO BE BASED ON FINAL PROFILE AT ABUTMENTS AND EXISTING PROFILE AT BENTS.
- FLUMES AT BRIDGE ENDS ARE REQUIRED.
- BRIDGE DECK DRAINS ARE NOT REQUIRED.
- BRIDGE REPLACEMENT: BRIDGE CONSTRUCTION SHALL BE PHASED AND AT LEAST THREE 12'-0" LANES OF TRAFFIC EACH WAY SHALL BE MAINTAINED DURING ALL PHASES OF CONSTRUCTION UNLESS NOTED OTHERWISE APPROVED BY OWNER.
- EXISTING BRIDGE NO. 19100240039 AND APPROACHES TO BE REMOVED TO NATURAL GROUND.
- EXISTING BRIDGE NO. 19100240039 CONSIST OF FIVE SPAN CONTINUOUS CONCRETE BOX BEAM WITH COMPOSITE CONCRETE DECK AND CONCRETE SUBSTRUCTURES. TOTAL BRIDGE LENGTH = 167'-0" AND TOTAL BRIDGE WIDTH = 132'-0"
- STREAM CHANNEL: ANY WORK WITHIN THE STREAM CHANNEL AREA SHALL BE SEPERATED FROM FLOWING WATER OR EXPECTED FLOW PATH AND PERFORMED DURING LOW FLOW CONDITION. ALL ITEMS USED WITHIN THE STREAM CHANNEL AREA FOR DIVERSION OF FLOW, UNLESS SPECIFIED IN THE PLANS, SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE INCLUDED IN THE COST OF OTHER ITEMS. THIS NOTE EXCLUDES ANY ITEMS SPECIFIED IN THE PLANS FOR TEMPORARY DIVERSION CHANNELS (EC-STR-31).
- CONCEPT PLANS ARE FOR INFORMATIONAL USE ONLY AND NOT FOR BIDDING OR CONSTRUCTION. DETAILS, DIMENSIONS, AND DRAWINGS MAY CHANGE PER DESIGNER OR OWNER DIRECTION.

2052 ADT = 189,600  
 168'-0" ROADWAY,  
 WITH STD-1-ISS PARAPET  
 DESIGN SPEED = 70 MPH

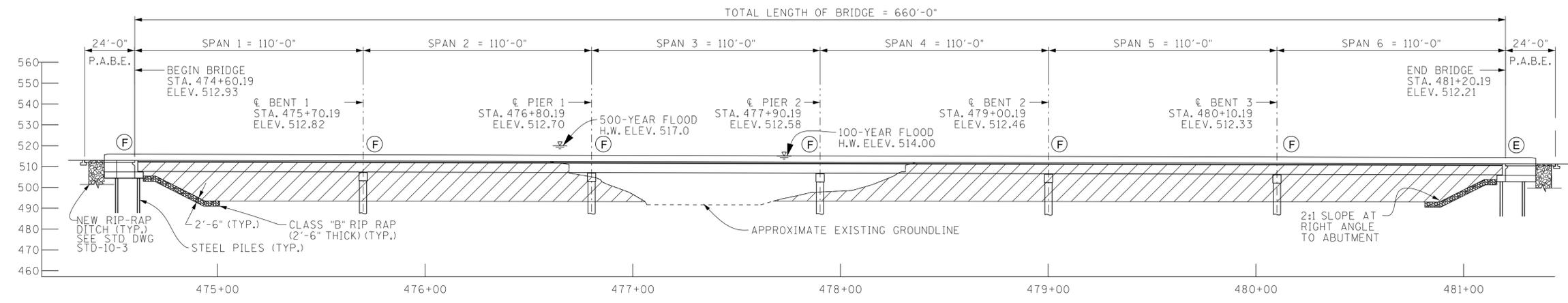
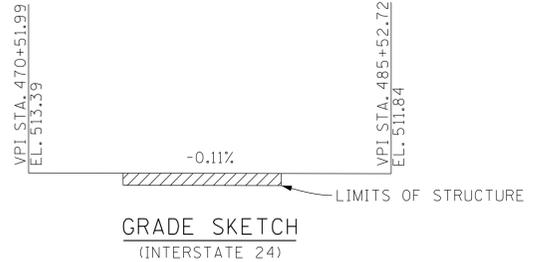
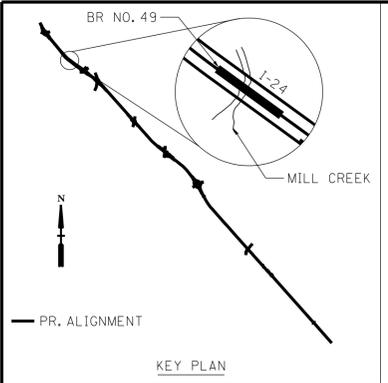
I-24 CHOICE LANES  
 BRIDGE NO. 49

STATE OF TENNESSEE  
 DEPARTMENT OF TRANSPORTATION

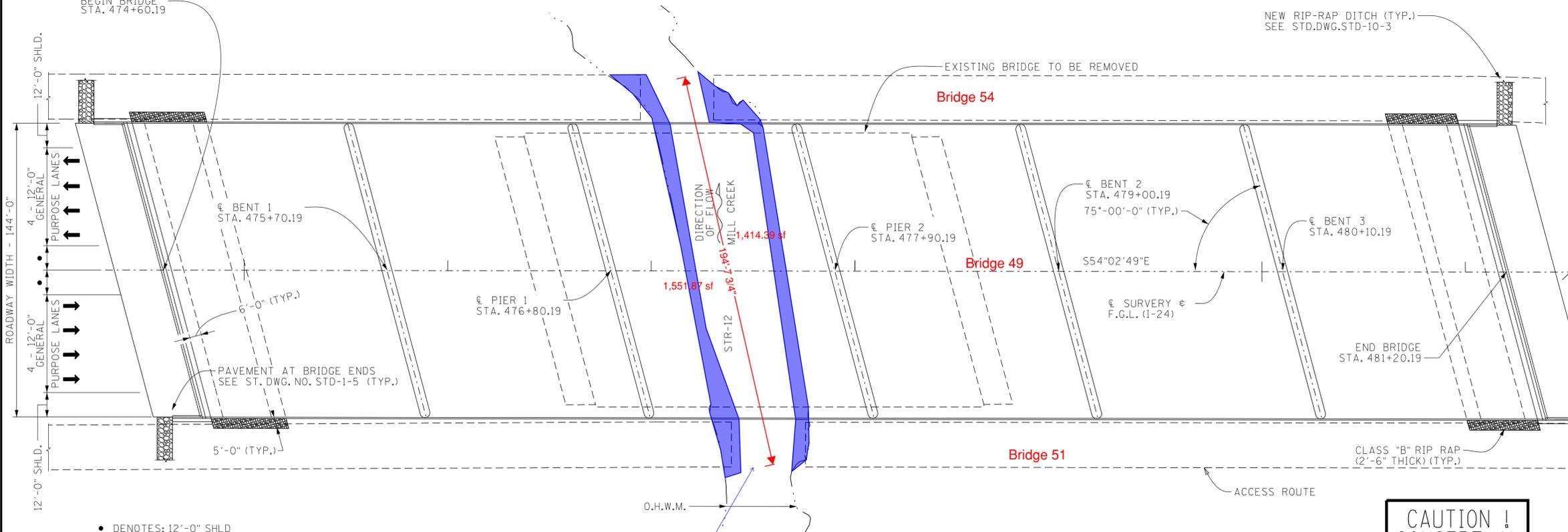
CONCEPTUAL LAYOUT

I-24 OVER  
 MILL CREEK  
 STATION 474+60.19  
 BRIDGE NO. 19100240039  
 DAVIDSON COUNTY  
 2025

**CAUTION !  
 CONCEPTUAL  
 PLANS  
 SUBJECT TO  
 CHANGE**



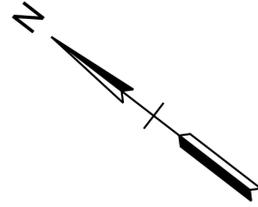
- ⊠ DENOTES: APPROX. AREA OF EXISTING GROUND TO BE EXCAVATED
- (F) DENOTES: FIXED SUPPORT CONDITION
- (E) DENOTES: EXPANSION SUPPORT CONDITION



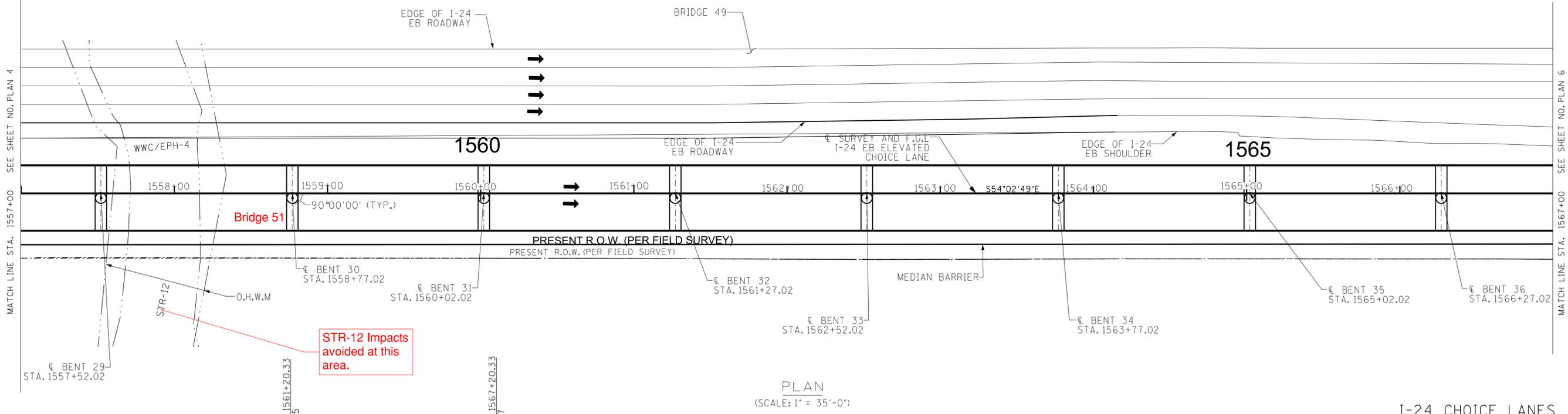
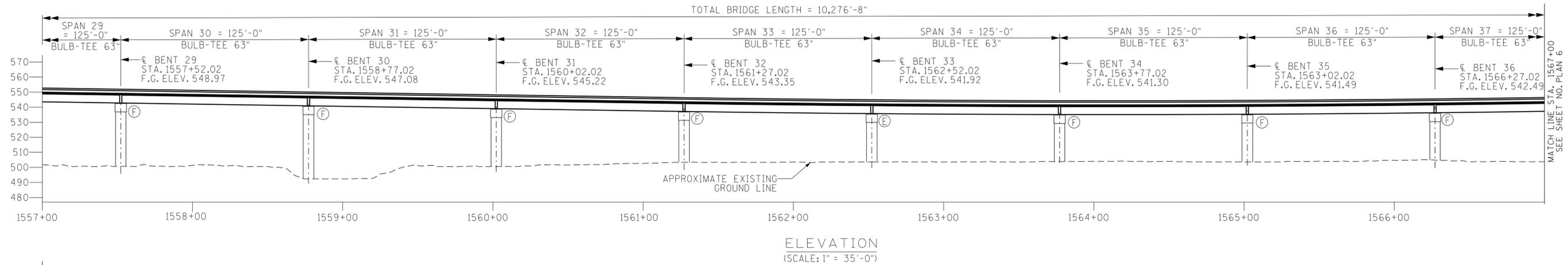
DESIGNED BY	N. PETRELLA	DATE	04/25
DRAWN BY	N. PETRELLA	DATE	04/25
SUPERVISED BY	M. DAVIS	DATE	04/25
CHECKED BY	K. McALISTER	DATE	04/25

STR-12 (Mill Creek)  
 Temporary dewatering  
 impact  
 2,966 sf / 195 LF

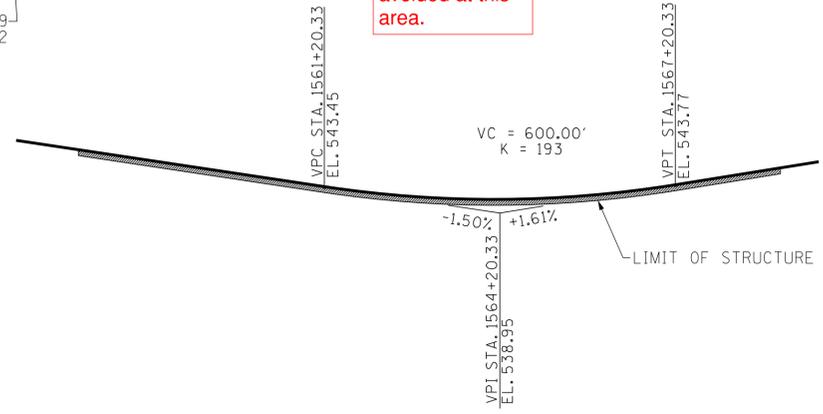
# STR-12 (Sta. 477) Bridge 51



PROJECT NO.	YEAR	SHEET NO.	
R31024-S1-002	2025		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION



**STR-12 Impacts avoided at this area.**



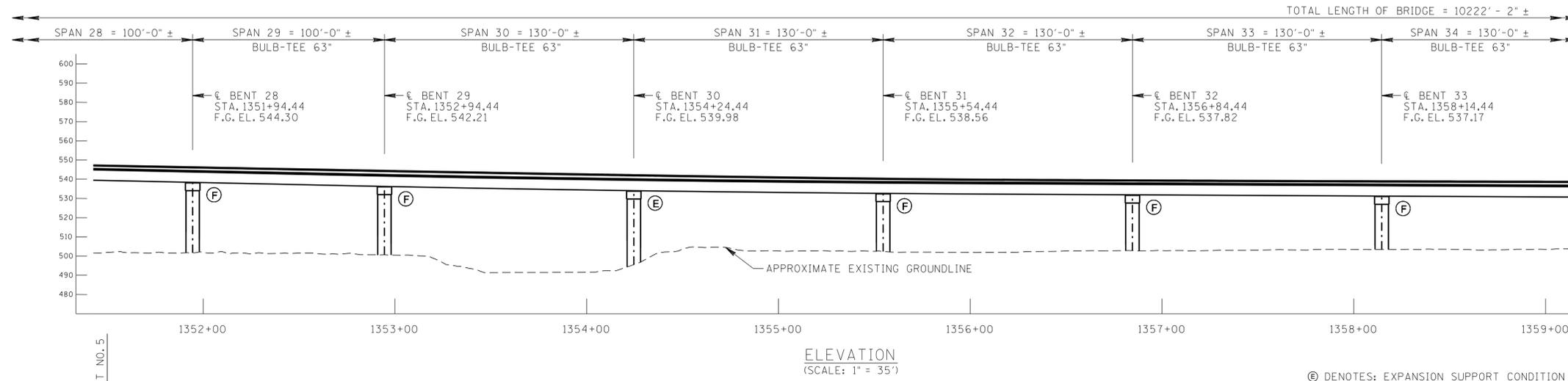
I-24 CHOICE LANES  
BRIDGE NO. 51  
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
CONCEPTUAL LAYOUT  
I-24 EASTBOUND CHOICE LANE  
OVER I-24 EASTBOUND AND  
BELL ROAD  
STA. 1517+53.19  
DAVIDSON COUNTY  
2025

**CAUTION !  
CONCEPTUAL  
PLANS  
SUBJECT TO  
CHANGE**

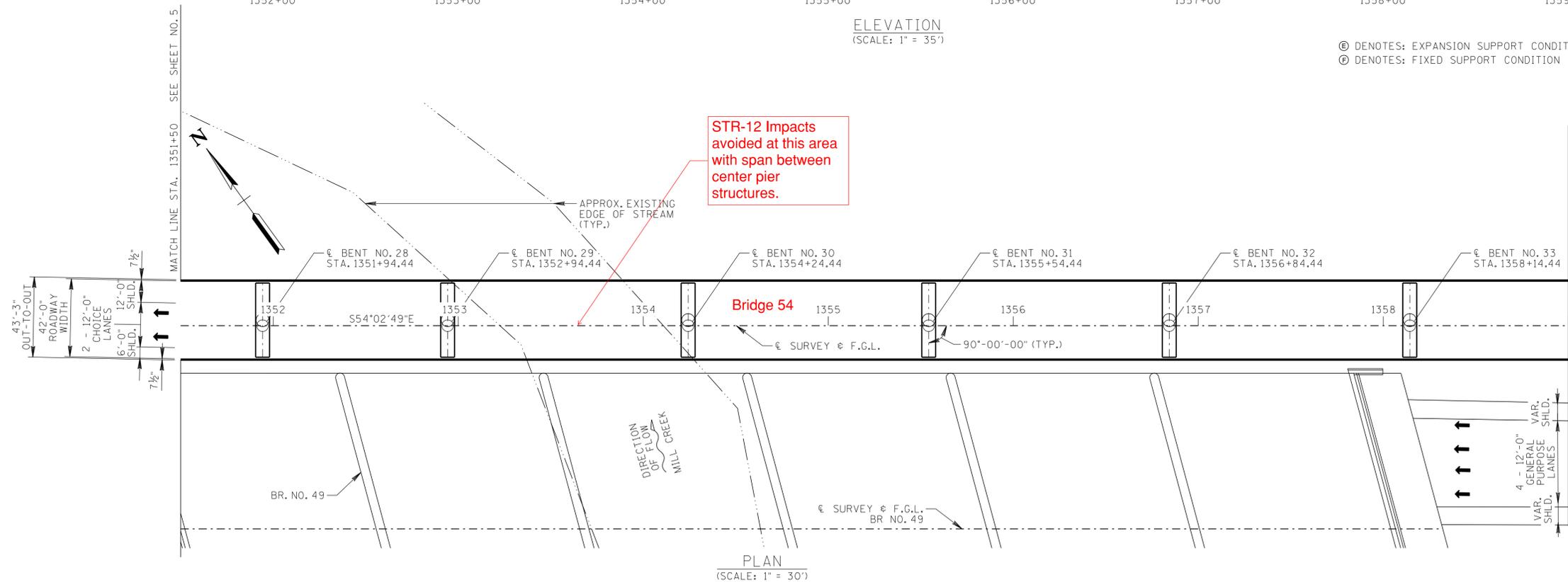
DESIGNED BY	J. GLOUDOUA	DATE	03/25
DRAWN BY	J. GLOUDOUA	DATE	03/25
SUPERVISED BY	K. McALISTER	DATE	03/25
CHECKED BY	M. DAVIS	DATE	03/25

# STR-12 (Sta. 477) Bridge 54

PROJECT NO.	YEAR	SHEET NO.	
R31024-S1-002	2025		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION



⊕ DENOTES: EXPANSION SUPPORT CONDITION  
⊙ DENOTES: FIXED SUPPORT CONDITION



I-24 CHOICE LANES  
BRIDGE NO. 54  
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
CONCEPTUAL LAYOUT

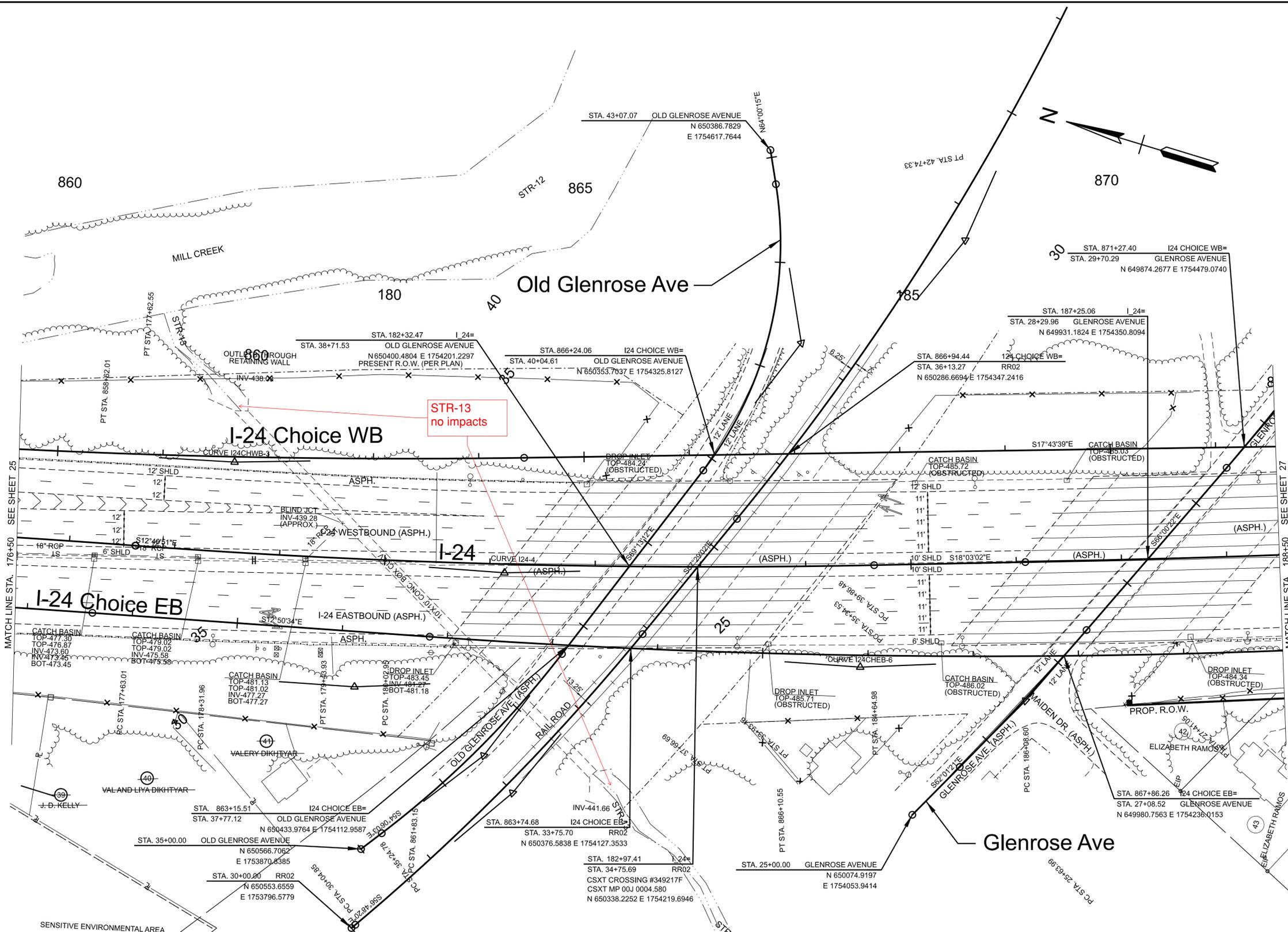
I-24 WB CHOICE LANES  
OVER I-24 WB AND BELL RD.  
STA. 1314+54.44  
DAVIDSON COUNTY  
2025

**CAUTION !  
CONCEPTUAL  
PLANS  
SUBJECT TO  
CHANGE**

DESIGNED BY H. WU DATE 04/04/2025  
DRAWN BY H. WU DATE 04/04/2025  
SUPERVISED BY M. DAVIS DATE 04/04/2025  
CHECKED BY K. McALISTER DATE 04/04/2025

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	26

REV. 07-01-25: REVISED EXISTING STORM DRAINAGE



10/14/2025 12:06:44 PM C:\CAD\LIB\PW\HNTB\_SHELBY\_ALBERS\SE\DIV\0243399\024-SHT-B-PRESENT LAYOUT.DGN

<p>CURVE I24-4</p> <p>PI 181+14.26</p> <p>N 650512.2842</p> <p>E 1754160.9977</p> <p>Δ 05°22'11" LT.</p> <p>D 00°45'54"</p> <p>R 7490.00'</p> <p>L 701.97'</p> <p>T 351.24'</p> <p>LC 701.71'</p> <p>BC S15°21'56.7"E</p> <p>SE EXIST FT/FT</p> <p>TRANS. LENGTH EXIST</p> <p>DESIGN SPEED EXIST MPH</p>	<p>CURVE I24CHWB-3</p> <p>PI 861+68.26</p> <p>N 650788.0502</p> <p>E 1754186.9652</p> <p>Δ 04°12'04" LT.</p> <p>D 00°45'50"</p> <p>R 7500.00'</p> <p>L 549.92'</p> <p>T 275.08'</p> <p>LC 549.79'</p> <p>BC S15°37'37.2"E</p> <p>SE 0.028 FT/FT</p> <p>TRANS. LENGTH 225'</p> <p>DESIGN SPEED 70 MPH</p>	<p>CURVE I24CHEB-6</p> <p>PI 865+93.26</p> <p>N 650162.9114</p> <p>E 1754173.5576</p> <p>Δ 06°15'35" LT.</p> <p>D 00°45'50"</p> <p>R 7500.00'</p> <p>L 819.40'</p> <p>T 410.11'</p> <p>LC 818.99'</p> <p>BC S68°00'51.4"E</p> <p>SE EXIST FT/FT</p> <p>TRANS. LENGTH EXIST</p> <p>DESIGN SPEED EXIST MPH</p>	<p>CURVE GLENAVE-1</p> <p>PI 26+52.56</p> <p>N 650003.3497</p> <p>E 1754188.6718</p> <p>Δ 03°59'02" LT.</p> <p>D 02°15'00"</p> <p>R 2546.48'</p> <p>L 177.06'</p> <p>T 88.57'</p> <p>LC 177.02'</p> <p>BC S64°00'51.4"E</p> <p>SE EXIST FT/FT</p> <p>TRANS. LENGTH EXIST</p> <p>DESIGN SPEED EXIST MPH</p>	<p>CURVE GLENAVE-2</p> <p>PI 30+29.47</p> <p>N 649850.0543</p> <p>E 1754533.0794</p> <p>Δ 04°40'30" LT.</p> <p>D 02°45'00"</p> <p>R 2083.48'</p> <p>L 170.00'</p> <p>T 85.05'</p> <p>LC 169.95'</p> <p>BC S62°20'37.2"E</p> <p>SE EXIST FT/FT</p> <p>TRANS. LENGTH EXIST</p> <p>DESIGN SPEED EXIST MPH</p>	<p>CURVE RR02-1</p> <p>PI 31+99.57</p> <p>N 650444.3954</p> <p>E 1753963.5798</p> <p>Δ 10°40'43" LT.</p> <p>D 02°15'00"</p> <p>R 2083.48'</p> <p>L 388.31'</p> <p>T 194.72'</p> <p>LC 387.75'</p> <p>BC S62°08'40.9"E</p> <p>SE EXIST FT/FT</p> <p>TRANS. LENGTH EXIST</p> <p>DESIGN SPEED EXIST MPH</p>	<p>CURVE RR02-2</p> <p>PI 38+76.29</p> <p>N 650184.8198</p> <p>E 1754589.7552</p> <p>Δ 15°17'15" LT.</p> <p>D 02°15'00"</p> <p>R 2546.48'</p> <p>L 679.45'</p> <p>T 341.75'</p> <p>LC 677.44'</p> <p>BC S81°39'37.3"E</p> <p>SE EXIST FT/FT</p> <p>TRANS. LENGTH EXIST</p> <p>DESIGN SPEED EXIST MPH</p>	<p>CURVE OLDGLENAVE1-1</p> <p>PI 36+46.44</p> <p>N 650480.8389</p> <p>E 1753989.4633</p> <p>Δ 15°07'09" LT.</p> <p>D 06°15'00"</p> <p>R 916.73'</p> <p>L 241.90'</p> <p>T 121.66'</p> <p>LC 241.20'</p> <p>BC S81°39'37.3"E</p> <p>SE EXIST FT/FT</p> <p>TRANS. LENGTH EXIST</p> <p>DESIGN SPEED EXIST MPH</p>	<p>CURVE OLDGLENAVE1-2</p> <p>PI 41+38.97</p> <p>N 650305.5959</p> <p>E 1754451.2763</p> <p>Δ 46°46'34" LT.</p> <p>D 16°15'00"</p> <p>R 352.59'</p> <p>L 287.85'</p> <p>T 152.49'</p> <p>LC 279.92'</p> <p>BC N87°23'31.6"E</p> <p>SE EXIST FT/FT</p> <p>TRANS. LENGTH EXIST</p> <p>DESIGN SPEED EXIST MPH</p>
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**SEALED BY**

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 12B.

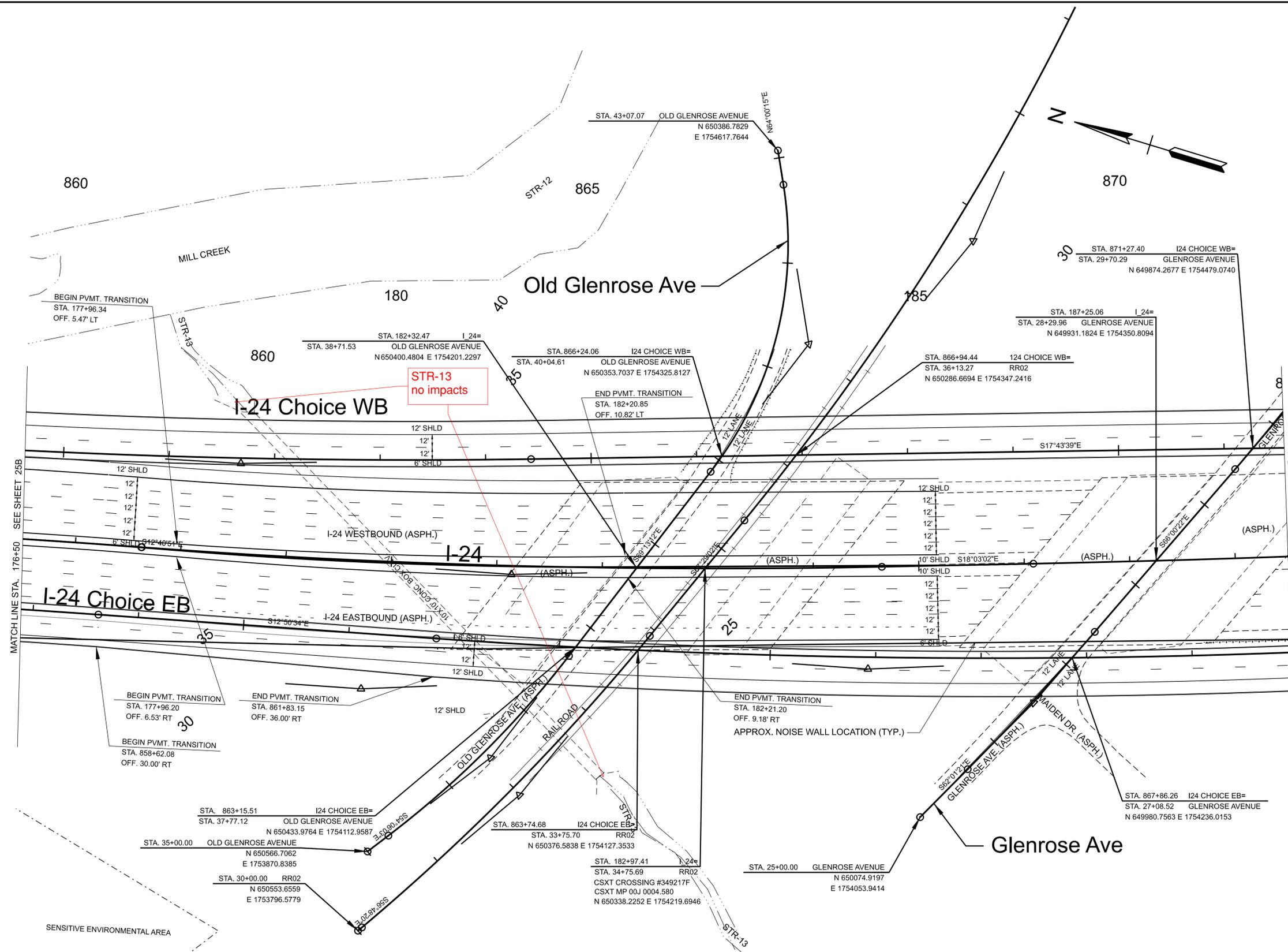
**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

**PRESENT LAYOUT**

I-24  
STA. 176+50.00 TO STA. 188+50.00  
SCALE: 1" = 50'

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	26B

REV. 07-01-25: ADDED EXISTING & PROPOSED CROSS DRAIN.



**SEALED BY**

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**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

**PROPOSED  
LAYOUT**

I-24  
STA. 176+50.00 TO STA. 188+50.00  
SCALE: 1" = 50'

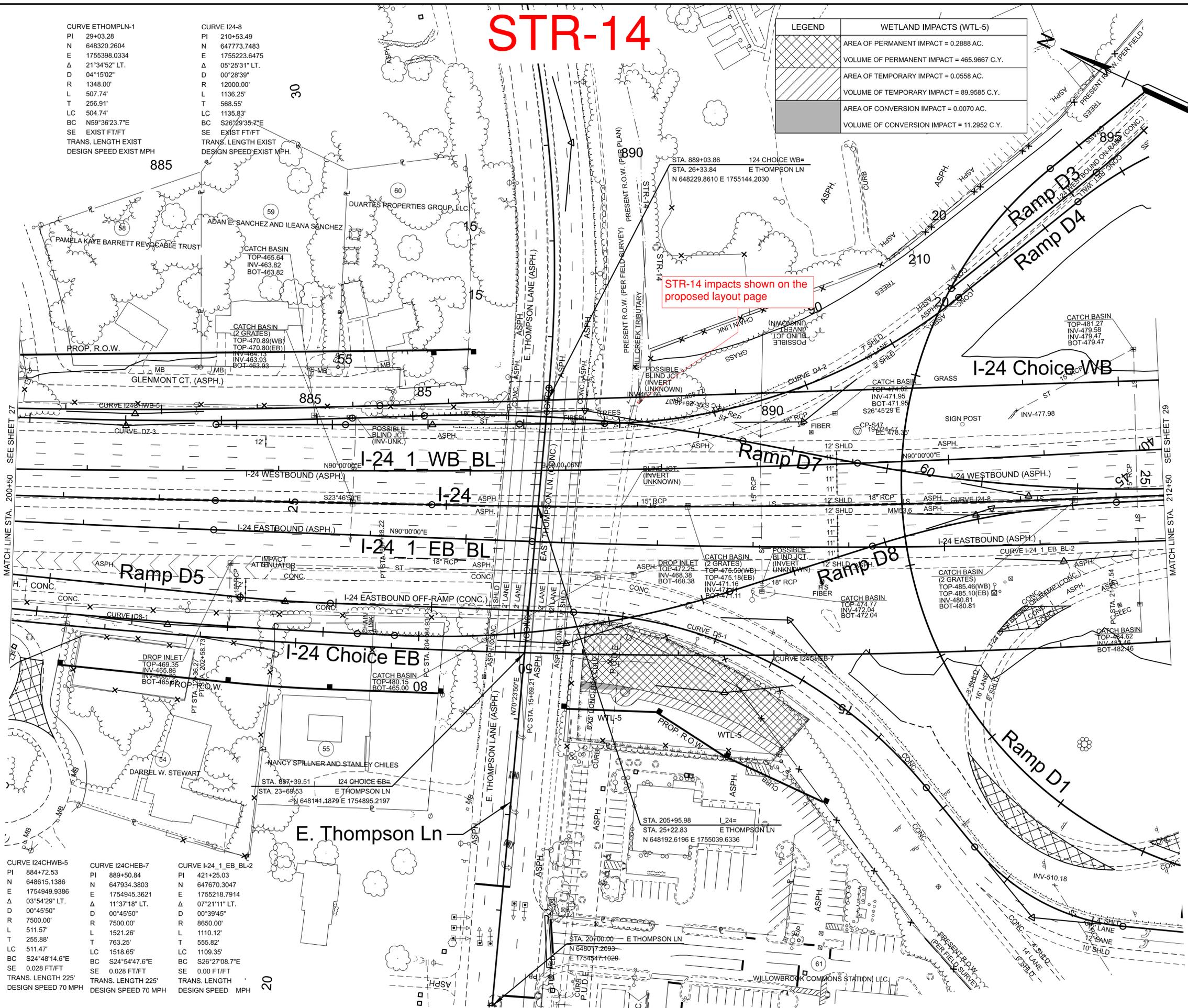
# STR-14

CURVE ETHOMPLN-1		CURVE I24-8	
PI	29+03.28	PI	210+53.49
N	648320.2804	N	647773.7483
E	1755398.0334	E	175223.6475
Δ	21°34'52" LT.	Δ	05°25'31" LT.
D	04°15'02"	D	00°28'39"
R	1348.00'	R	12000.00'
L	507.74'	L	1136.25'
T	256.91'	T	568.55'
LC	504.74'	LC	1135.83'
BC	N59°36'23.7"E	BC	S26°29'35.7"E
SE	EXIST FT/FT	SE	EXIST FT/FT
TRANS. LENGTH EXIST		TRANS. LENGTH EXIST	
DESIGN SPEED EXIST MPH		DESIGN SPEED EXIST MPH	

LEGEND	WETLAND IMPACTS (WTL-5)
	AREA OF PERMANENT IMPACT = 0.2888 AC.
	VOLUME OF PERMANENT IMPACT = 465.9667 C.Y.
	AREA OF TEMPORARY IMPACT = 0.0558 AC.
	VOLUME OF TEMPORARY IMPACT = 89.9585 C.Y.
	AREA OF CONVERSION IMPACT = 0.0070 AC.
	VOLUME OF CONVERSION IMPACT = 11.2952 C.Y.

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	28

REV. 07-01-25: REVISED EXISTING STORM DRAINAGE. ADDED WETLAND IMPACTS. REVISED SLOPE LINES  
 REV. 11-07-25: REVISED WETLAND IMPACTS



STR-14 impacts shown on the proposed layout page

MATCH LINE STA. 200+50 SEE SHEET 27

MATCH LINE STA. 212+50 SEE SHEET 29

CURVE I24CHWB-5		CURVE I24CHEB-7		CURVE I-24_1_EB_BL-2	
PI	884+72.53	PI	889+50.84	PI	421+25.03
N	648615.1386	N	647934.3803	N	647670.3047
E	1754949.9386	E	1754945.3621	E	1755218.7914
Δ	03°54'29" LT.	Δ	11°37'18" LT.	Δ	07°21'11" LT.
D	00°45'50"	Δ	00°45'50"	D	00°39'45"
R	7500.00'	R	7500.00'	R	8650.00'
L	511.57'	L	1521.26'	L	1110.12'
T	255.88'	T	763.25'	T	555.82'
LC	511.47'	LC	1518.65'	LC	1109.35'
BC	S24°48'14.6"E	BC	S24°54'47.6"E	BC	S26°27'08.7"E
SE	0.028 FT/FT	SE	0.028 FT/FT	SE	0.00 FT/FT
TRANS. LENGTH 225'		TRANS. LENGTH 225'		TRANS. LENGTH	
DESIGN SPEED 70 MPH		DESIGN SPEED 70 MPH		DESIGN SPEED MPH	

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STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

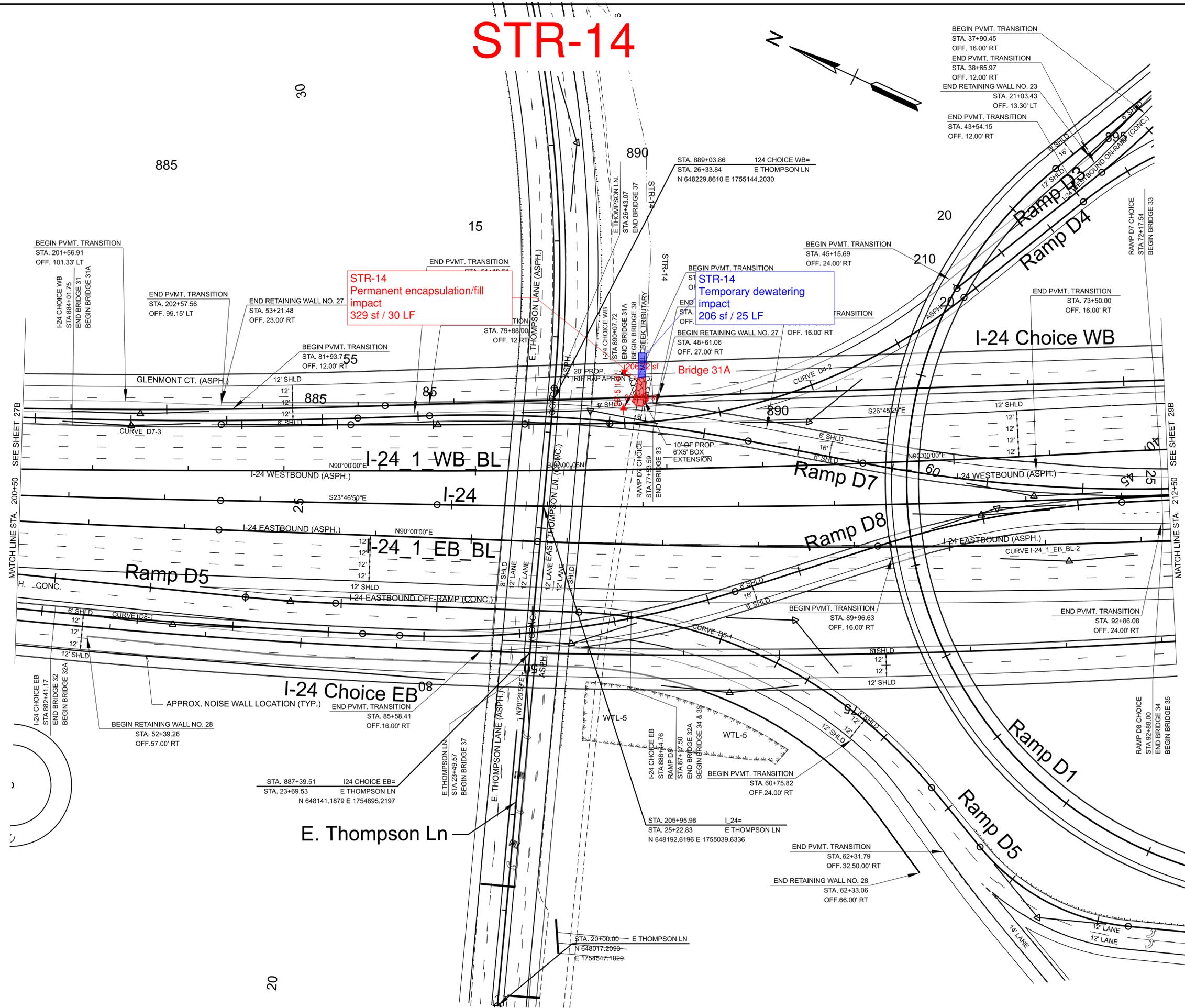
PRESENT LAYOUT

I-24  
STA. 200+50.00 TO STA. 212+50.00  
SCALE: 1" = 50'

# STR-14

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	28B

REV. 07-01-25: ADDED EXISTING & PROPOSED CROSS DRAIN  
 REV. 11-07-25: REVISED PROPOSED DRAINAGE LABELS



**SEALED BY**

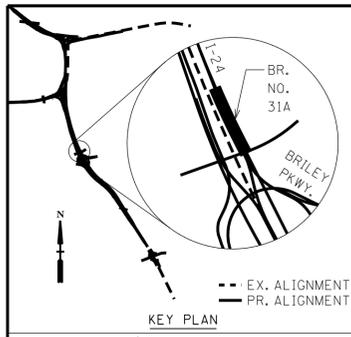
COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 12B.

**STATE OF TENNESSEE  
 DEPARTMENT OF TRANSPORTATION**

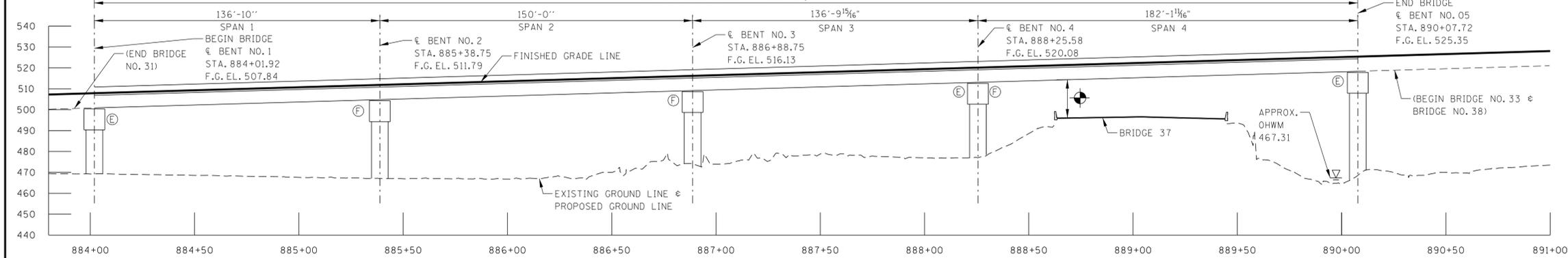
**PROPOSED  
 LAYOUT**

I-24  
 STA. 200+50.00 TO STA. 212+50.00  
 SCALE: 1" = 50'

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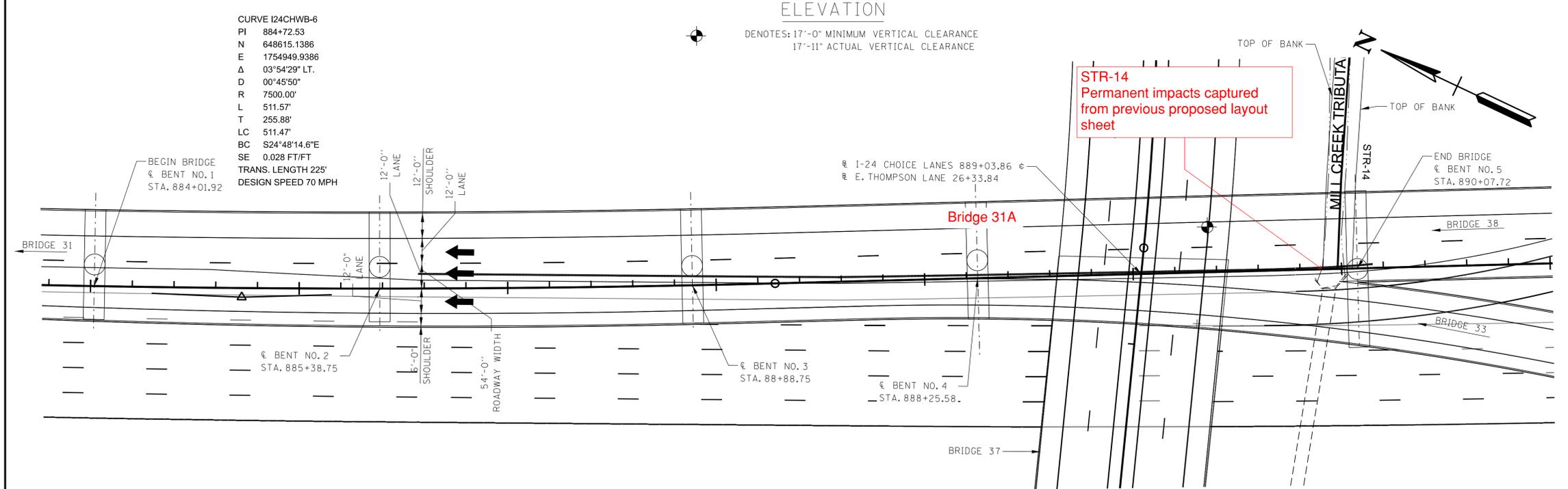
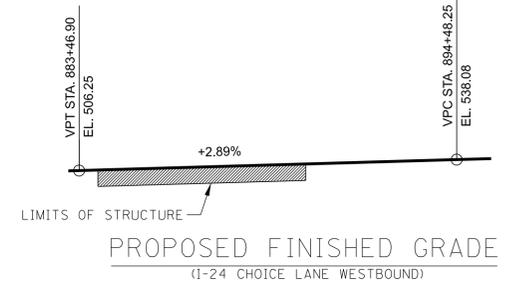


CONST. NO.:			
PROJECT NO.	YEAR	SHEET NO.	
R31024-S1-002	2025		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-



**CURVE I24CHWB-6**  
 PI 884+72.53  
 N 648615.1386  
 E 1754949.9386  
 Δ 03°54'29" LT.  
 D 00°45'50"  
 R 7500.00'  
 L 511.57'  
 T 255.88'  
 LC 511.47'  
 BC S24°48'14.6"E  
 SE 0.028 FT/FT  
 TRANS. LENGTH 225'  
 DESIGN SPEED 70 MPH

NOTES: 17'-0" MINIMUM VERTICAL CLEARANCE  
 17'-11" ACTUAL VERTICAL CLEARANCE



NOTES: 17'-0" MINIMUM VERTICAL CLEARANCE  
 18'-10" ACTUAL VERTICAL CLEARANCE

**CAUTION!  
 CONCEPTUAL  
 PLANS  
 SUBJECT TO  
 CHANGE**

**GENERAL NOTES:**

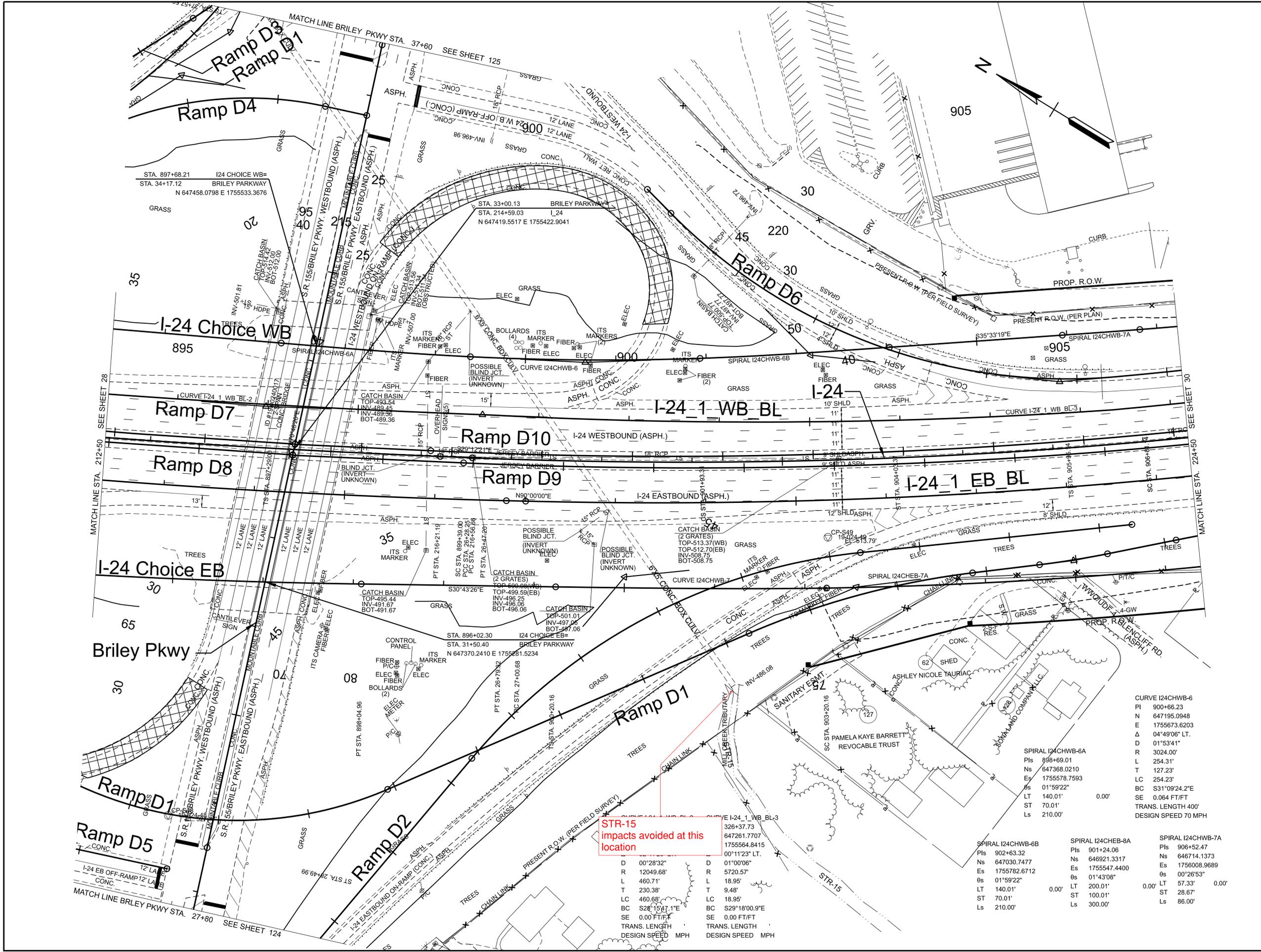
- |   |   |   |   |
|---|---|---|---|
| <p>(1) CONSTRUCTION SPECIFICATIONS: TENNESSEE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (JANUARY 1, 2021 EDITION).</p> <p>(2) DESIGN SPECIFICATIONS: 10TH EDITION (2024) AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND THE 2ND EDITION (2011) AASHTO GUIDE SPECIFICATIONS FOR LRFD SEISMIC BRIDGE DESIGN WITH INTERIMS.</p> <p>(3) LOADING: HL-93 LIVE LOADING; SEISMIC DESIGN CATEGORY "A" WITH AS= 0.90, SDS=0.217, SD1=0.080, (1000 YEAR RETURN PERIOD); DEAD LOAD INCLUDES 35 LB/SO. FT. FOR FUTURE WEARING SURFACE. HL-93 LIVE LOADING INCREASED BY 10% BEFORE APPLYING ALL APPLICABLE LOAD FACTORS FOR ALL APPLICABLE LOAD COMBINATIONS.</p> | <p>(4) SUPERSTRUCTURE: TO CONSIST OF 3 SPANS OF CONTINUOUS BULB TEE BEAMS AND 1 SIMPLE SPAN STEEL PLATE GIRDER WITH COMPOSITE CONCRETE SLAB. ACTUAL WEB DEPTH TO BE DETERMINED BY DESIGNER. WEB DEPTH SHOWN WAS USED TO CALCULATE CONCEPT VERTICAL CLEARANCES.</p> <p>(5) CONCRETE: CLASS A F'C=3000 PSI, CLASS DS F'C=4000 PSI FOR BRIDGE DECK.</p> <p>(6) REINFORCING STEEL: SHALL BE ASTM A615 GRADE 60 UNLESS NOTED OTHERWISE. EPOXY COAT ALL SLAB STEEL.</p> <p>(7) BRIDGE DECK SURFACE FINISH: TO BE IN ACCORDANCE WITH METHOD 03 IN ARTICLE 604.22 OF THE STANDARD SPECIFICATIONS.</p> <p>(8) USE STD-1-ISS PARAPETS.</p> <p>(9) TEXTURE COATING: TO BE GRAY (36440) EXCEPT TRAFFIC FACE AND TOP OF PARAPET TO BE WHITE (37886) FOR STD-1-ISS PARAPETS.</p> <p>(10) EXCAVATION: TO BE BASED ON FINAL PROFILE AT BENTS.</p> | <p>(11) STREAM CHANNEL: ANY WORK WITHIN THE STREAM CHANNEL AREA (E.G. PIER/BENT FOOTING, RIP-RAP PLACEMENT, ETC.) SHALL BE SEPARATED FROM FLOWING WATER OR EXPECTED FLOW PATH AND PERFORMED DURING LOW FLOW CONDITIONS. ALL ITEMS USED WITHIN THE STREAM CHANNEL AREA FOR DIVERSION OF FLOW (OR EXPECTED FLOW), UNLESS SPECIFIED IN THE PLANS, SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE INCLUDED IN THE COST OF OTHER ITEMS. THIS NOTE EXCLUDES ANY ITEMS SPECIFIED IN THE PLANS FOR TEMPORARY DIVERSION CHANNELS (EC-STR-31).</p> <p>(12) EXPANSION JOINTS MAY BE ADDED OR RELOCATED BY ENGINEER AS REQUIRED BY DESIGN.</p> <p>(13) DECK DRAINAGE SHALL BE DESIGNED BY THE ENGINEER AND DRAINS SHALL BE PLACED APPROPRIATELY. IF CLOSED DRAINAGE IS IMPLEMENTED, NO DRAINAGE COMPONENTS ARE ALLOWED TO BE PLACED ON THE SLAB CANTILEVERS.</p> <p>(14) MULTIMODAL: LAYOUT MAY BE UPDATED TO ACCOMMODATE MULTIMODAL STANDARDS AND REQUIREMENTS FOR EAST THOMPSON LANE AS DETERMINED BY OWNER. DESIGNER SHALL COORDINATE MULTIMODAL ACCOMMODATIONS WITH ALL POTENTIALLY IMPACTED STAKEHOLDERS.</p> | <p>(15) CONCEPT PLANS ARE FOR INFORMATIONAL USE ONLY AND NOT FOR BIDDING OR CONSTRUCTION. DETAILS, DIMENSIONS, AND DRAWINGS MAY CHANGE PER DESIGNER OR OWNER DIRECTION.</p> |
|---|---|---|---|

2052 ADT = 26450  
 ROADWAY WIDTH VARIES FROM 52'-3" TO 72'-4"  
 STD-1-ISS  
 DESIGN SPEED = 70 MPH  
**I-24 CHOICE LANES  
 BRIDGE NO. 31A**  
 STATE OF TENNESSEE  
 DEPARTMENT OF TRANSPORTATION  
**CONCEPTUAL LAYOUT  
 I-24 WB CHOICE LANES OVER  
 E. THOMPSON LANE AND  
 MILL CREEK TRIBUTARY  
 STATION 884+01.92  
 DAVIDSON COUNTY  
 2025**

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TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	29

REV. 07-01-25: REVISED EXISTING STORM DRAINAGE. REVISED SLOPE LINES.



STR-15 impacts avoided at this location

D	00°28'32"	D	01°00'06"
R	12049.68'	R	5720.57'
L	460.71'	L	18.95'
T	230.38'	T	9.48'
LC	460.68'	LC	18.95'
BC	S28°15'47.1"E	BC	S29°18'00.9"E
SE	0.00 FT/FT	SE	0.00 FT/FT
TRANS. LENGTH		TRANS. LENGTH	
DESIGN SPEED	MPH	DESIGN SPEED	MPH

CURVE I24CHWB-6	
PI	900+66.23
N	647195.0948
E	1755673.6203
Δ	04°49'06" LT.
D	01°53'41"
R	3024.00'
L	254.31'
T	127.23'
LC	254.23'
BC	S31°09'24.2"E
LT	140.01'
SE	0.064 FT/FT
ST	70.01'
Ls	210.00'

SPIRAL I24CHWB-6A		SPIRAL I24CHEB-7A	
PIs	898+69.01	PIs	906+52.47
Ns	647368.0210	Ns	646714.1373
Es	1755578.7593	Es	1756008.9689
θs	01°59'22"	θs	00°26'53"
LT	140.01'	LT	57.33'
ST	70.01'	ST	28.67'
Ls	210.00'	Ls	86.00'

**SEALED BY**

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**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

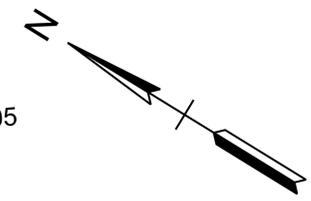
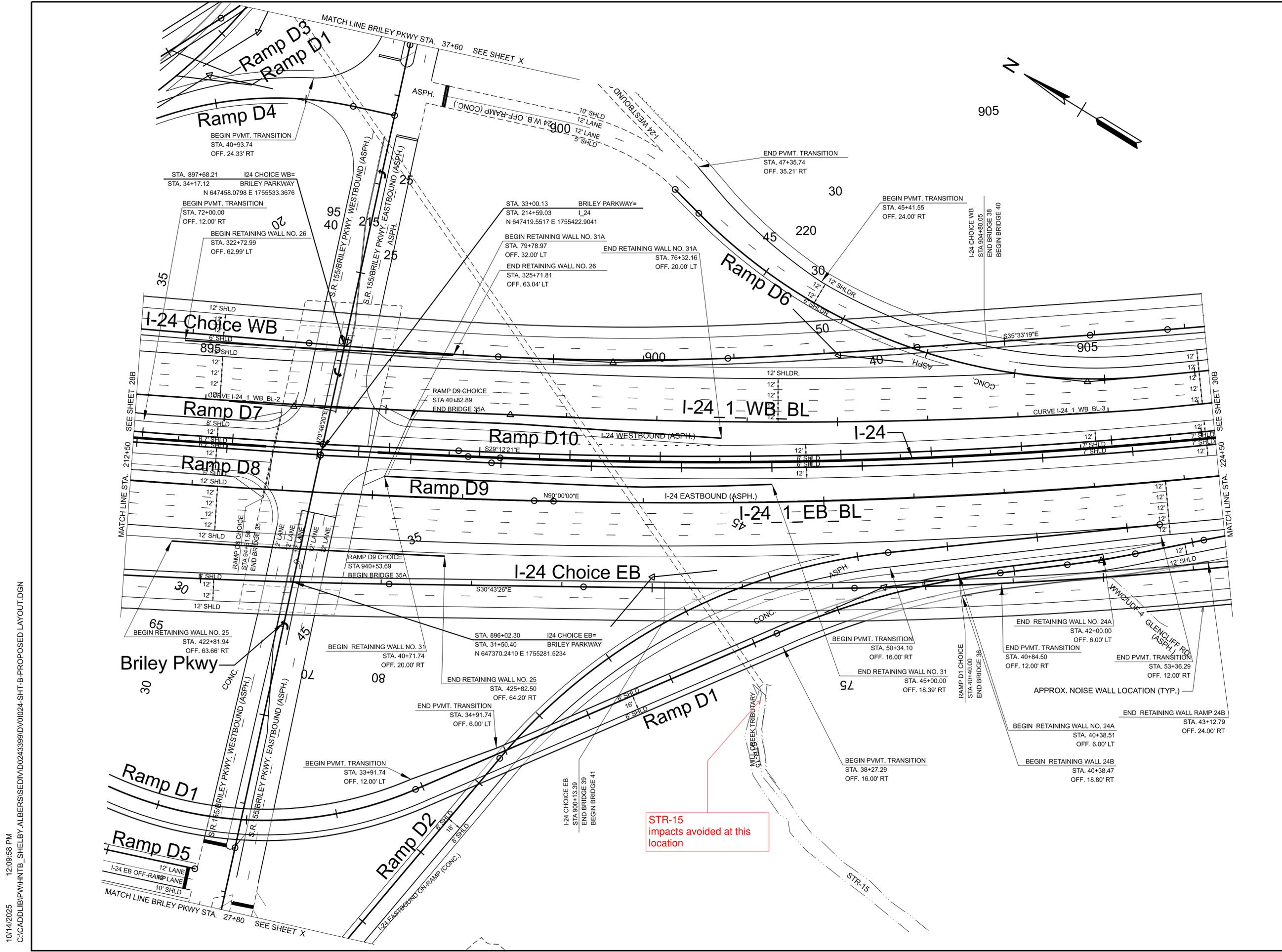
**PRESENT LAYOUT**

I-24  
STA. 212+50.00 TO STA. 224+50.00  
SCALE: 1" = 50'

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TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R3I024-S1-002	29B

REV. 07-01-25: ADDED EXISTING & PROPOSED CROSS DRAIN. REMOVED AT-GRADE CL/GP MERGES.



STR-15 impacts avoided at this location

**SEALED BY**

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 12B.

**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

**PROPOSED LAYOUT**

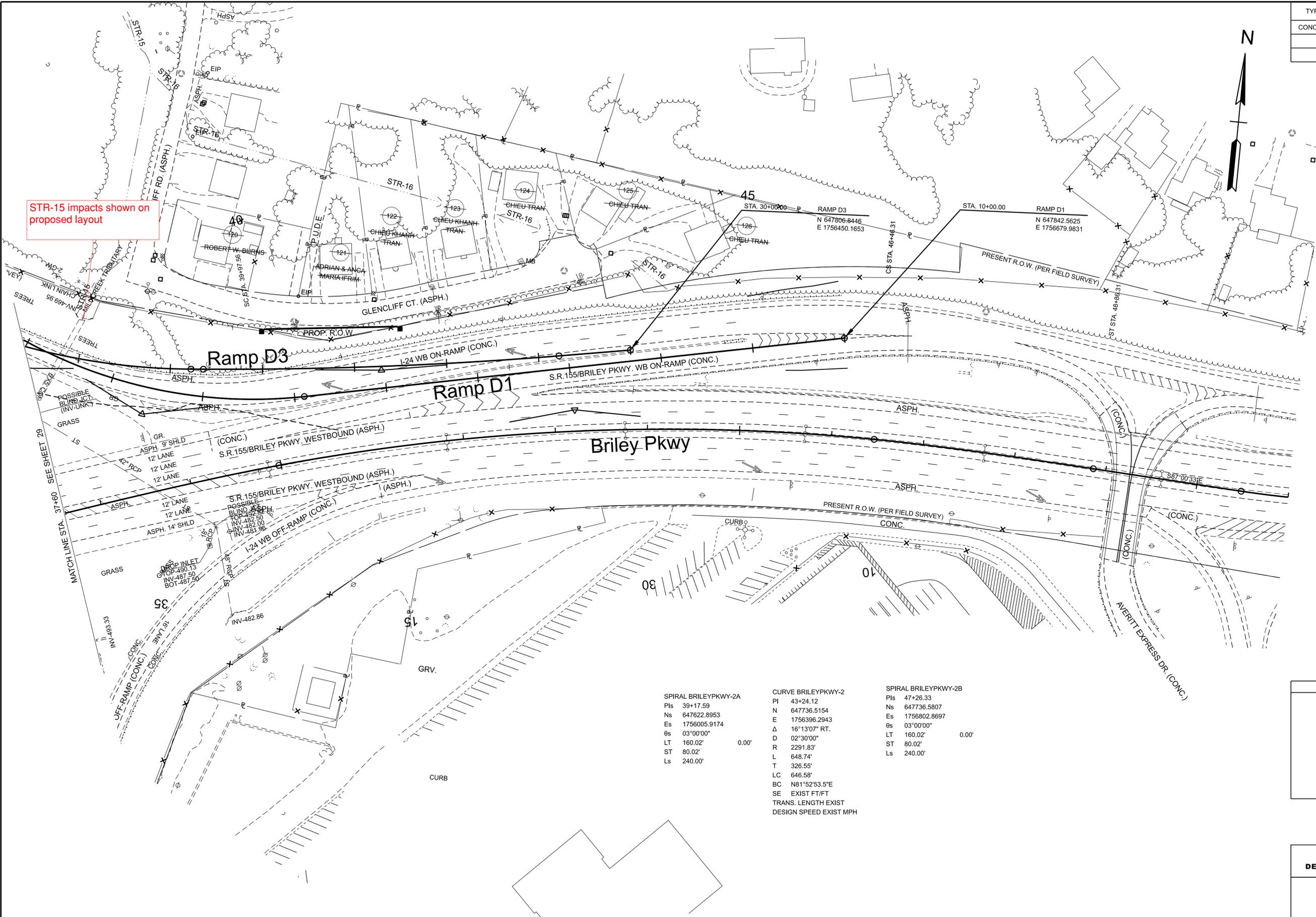
I-24  
STA. 212+50.00 TO STA. 224+50.00  
SCALE: 1" = 50'

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TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	125



STR-15 impacts shown on proposed layout



<p>SPIRAL BRILEYPKWY-2A          PIs 39+17.59          Ns 647622.8953          Es 1756005.9174          Bs 03°00'00"          LT 160.02'      0.00'          ST 80.02'          Ls 240.00'</p>	<p>CURVE BRILEYPKWY-2          PI 43+24.12          N 647736.5154          E 1756396.2943          Δ 16°13'07" RT.          D 02°30'00"          R 2291.83'          L 648.74'          T 326.55'          LC 646.58'          BC N81°52'53.5"E          SE EXIST FT/FT          TRANS. LENGTH EXIST          DESIGN SPEED EXIST MPH</p>	<p>SPIRAL BRILEYPKWY-2B          PIs 47+26.33          Ns 647736.5807          Es 1756802.8697          Bs 03°00'00"          LT 160.02'      0.00'          ST 80.02'          Ls 240.00'</p>
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**SEALED BY**

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**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

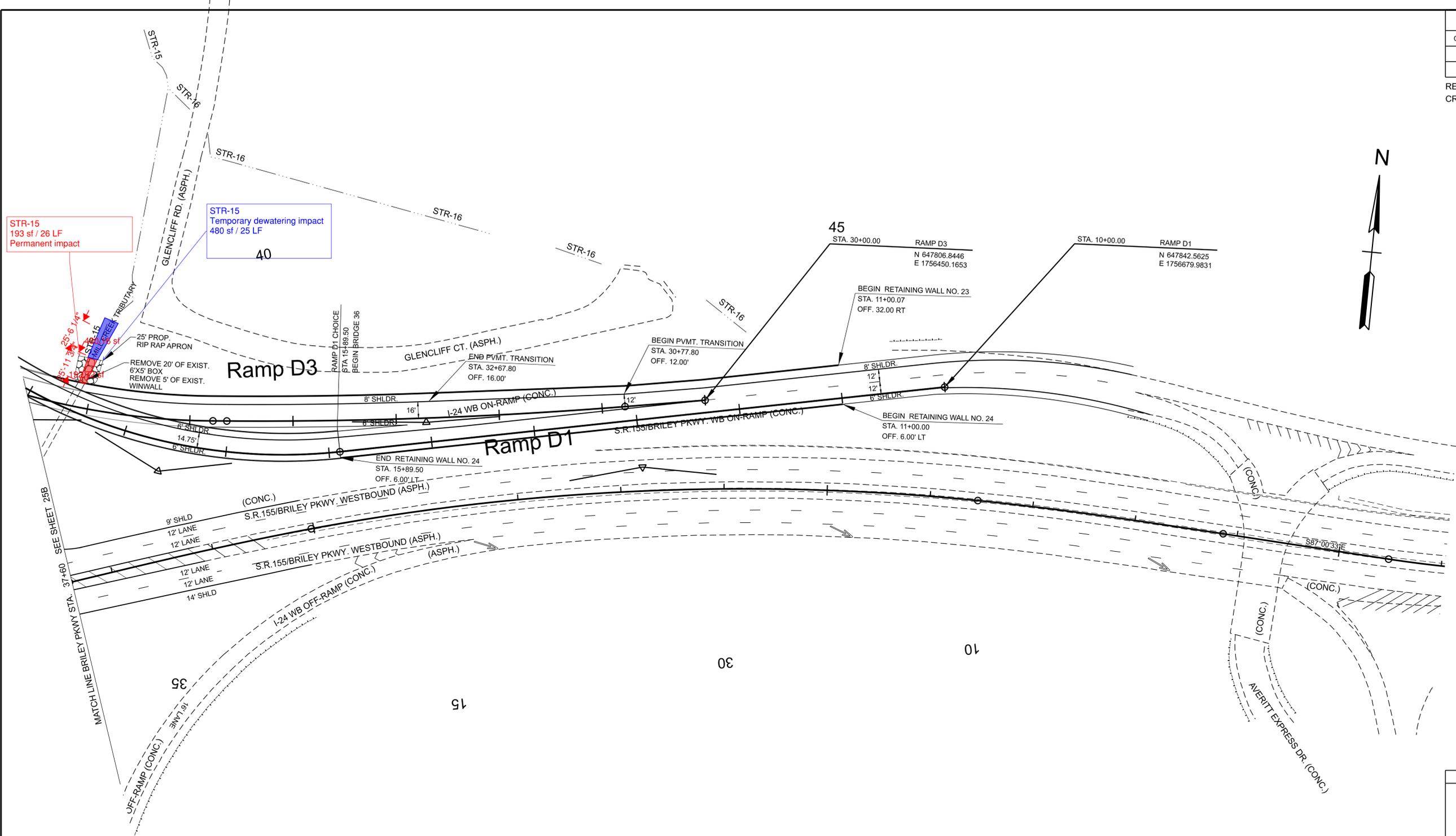
**PRESENT  
LAYOUT**

BRILEY PKWY  
STA. 37+60.00 TO STA. 51+00.00  
SCALE: 1" = 50'

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TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	125B

REV. 07-01-25: ADDED EXISTING & PROPOSED CROSS DRAIN.



# STR-15

**SEALED BY**

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 12B.

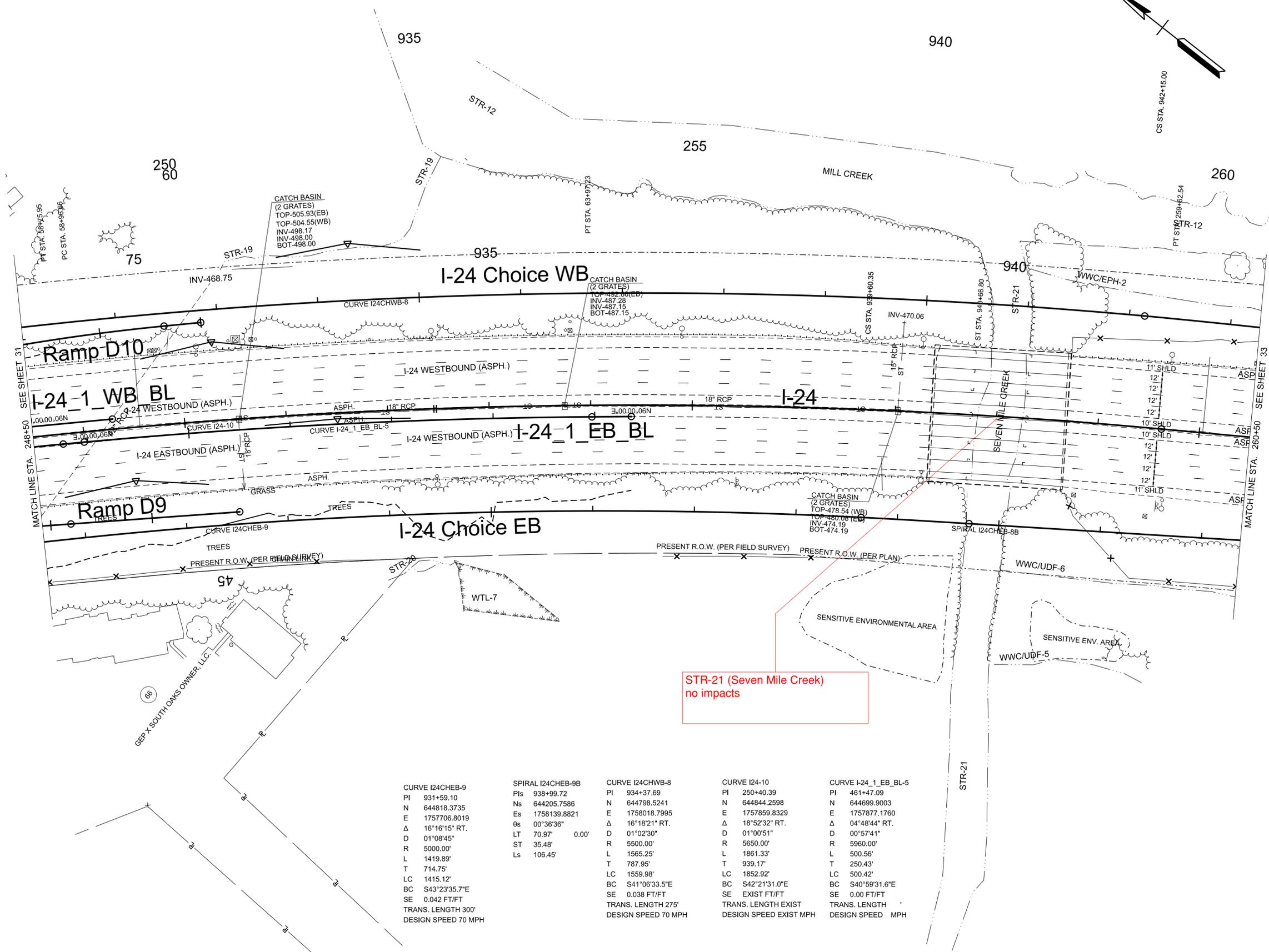
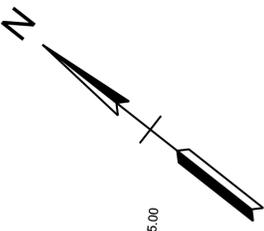
**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

**PROPOSED  
LAYOUT**

BRILEY PKWY  
STA. 37+60.00 TO STA. 51+00.00  
SCALE: 1" = 50'

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	32

REV. 07-01-25: REVISED EXISTING STORM DRAINAGE. REVISED SLOPE LINES.



STR-21 (Seven Mile Creek)  
no impacts

<p><b>CURVE I24CHEB-9</b>          PI 931+59.10          N 644818.3735          E 1757706.8019          Δ 16°16'15" RT.          LT 70.97'          D 01°08'45"          R 5000.00'          L 1419.89'          T 714.75'          LC 1415.12'          BC S43°23'35.7"E          SE 0.042 FT/FT          TRANS. LENGTH 300'          DESIGN SPEED 70 MPH</p>	<p><b>SPIRAL I24CHEB-9B</b>          PIs 938+99.72          Ns 644205.7586          Es 1758139.8821          Δs 00°36'36"          LT 70.97' 0.00'          ST 35.48'          Ls 106.45'</p>	<p><b>CURVE I24CHWB-8</b>          PI 934+37.69          N 644798.5241          E 1758018.7995          Δ 16°18'21" RT.          D 01°02'30"          R 5500.00'          L 1565.25'          T 787.95'          LC 1559.98'          BC S41°06'33.5"E          SE 0.038 FT/FT          TRANS. LENGTH 275'          DESIGN SPEED 70 MPH</p>	<p><b>CURVE I24-10</b>          PI 250+40.39          N 644844.2598          E 1757859.8329          Δ 18°52'32" RT.          D 01°00'51"          R 5650.00'          L 1861.33'          T 939.17'          LC 1852.92'          BC S42°21'31.0"E          SE EXIST FT/FT          TRANS. LENGTH EXIST          DESIGN SPEED EXIST MPH</p>	<p><b>CURVE I-24_1_EB_BL-5</b>          PI 461+47.09          N 644699.9003          E 1757877.1760          Δ 04°48'44" RT.          D 00°57'41"          R 5960.00'          L 500.56'          T 250.43'          LC 500.42'          BC S40°59'31.6"E          SE 0.00 FT/FT          TRANS. LENGTH          DESIGN SPEED MPH</p>
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**SEALED BY**

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 12B.

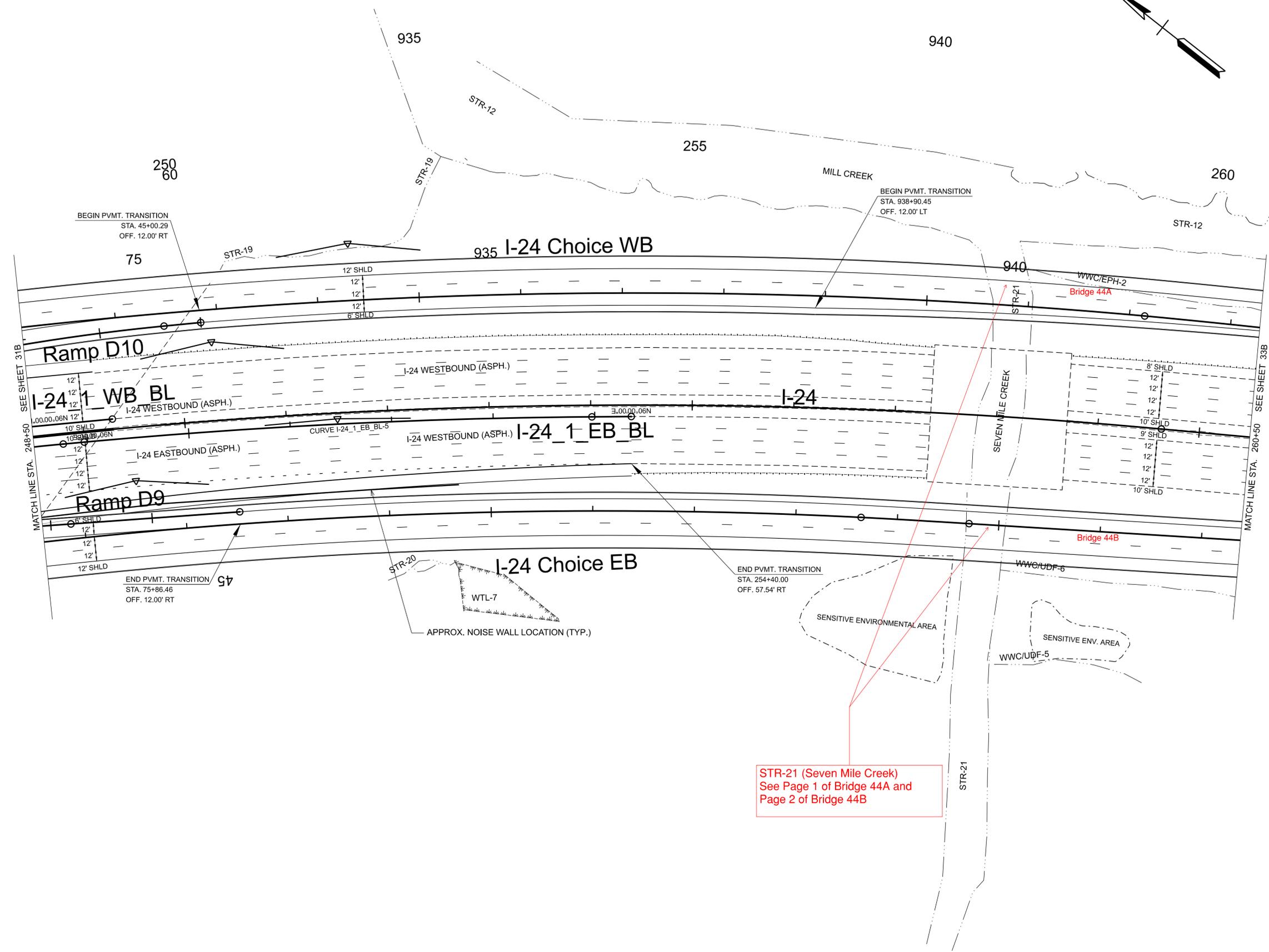
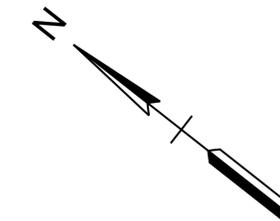
**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

**PRESENT LAYOUT**

I-24  
STA. 248+50.00 TO STA. 260+50.00  
SCALE: 1" = 50'

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TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	32B



MATCH LINE STA. 248+50 SEE SHEET 31B

MATCH LINE STA. 260+50 SEE SHEET 33B

STR-21 (Seven Mile Creek)  
See Page 1 of Bridge 44A and  
Page 2 of Bridge 44B

**SEALED BY**

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 12B.

**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

**PROPOSED  
LAYOUT**

I-24  
STA. 248+50.00 TO STA. 260+50.00  
SCALE: 1" = 50'

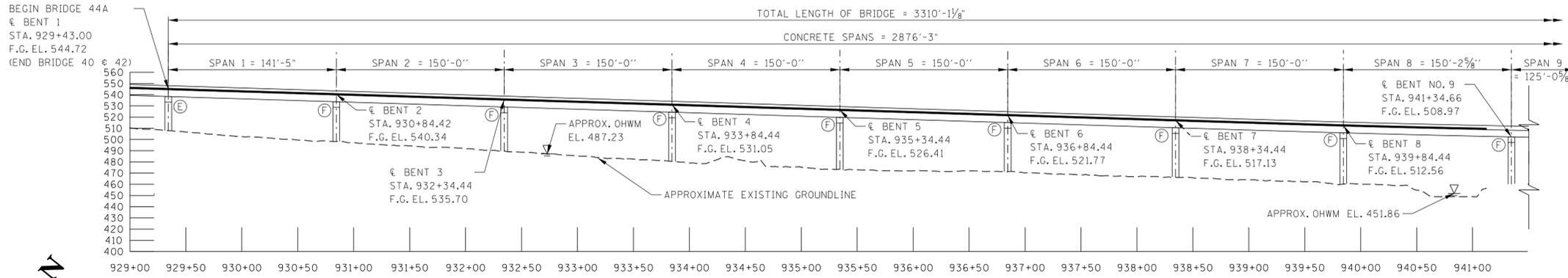
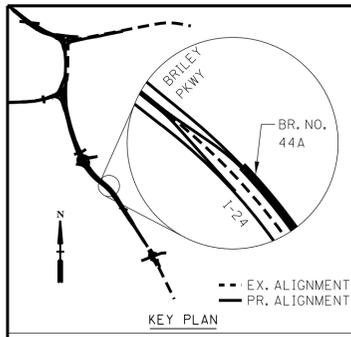
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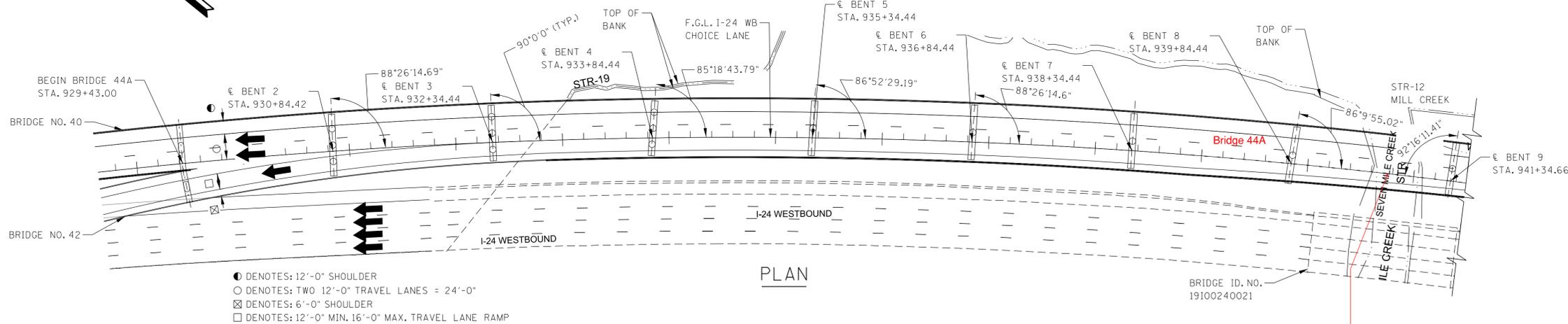
PROJECT NO.	YEAR	SHEET NO.	
R31024-S1-002	2025		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

### GENERAL NOTES

- CONSTRUCTION SPECIFICATIONS: TENNESSEE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (JANUARY 1, 2021 EDITION).
- DESIGN SPECIFICATIONS: 10TH EDITION (2024) AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND THE 2ND EDITION (2011) AASHTO GUIDE SPECIFICATIONS FOR LRFD SEISMIC BRIDGE DESIGN WITH INTERIMS.
- LOADING: HL-93 LIVE LOADING; SEISMIC DESIGN CATEGORY "A" WITH AS= 0.90, SDS=0.217, SD1=0.080, (1000 YEAR RETURN PERIOD); DEAD LOAD INCLUDES 35 LB/SO. FT. FOR FUTURE WEARING SURFACE. HL-93 LIVE LOADING INCREASED BY 10% BEFORE APPLYING ALL APPLICABLE LOAD FACTORS FOR ALL APPLICABLE LOAD COMBINATIONS.
- SUPERSTRUCTURE: TO CONSIST OF 23 SPANS OF CONTINUOUS BULB-TEE 72 BEAMS WITH COMPOSITE CONCRETE SLAB. ACTUAL WEB DEPTH TO BE DETERMINED BY DESIGNER. WEB DEPTH SHOWN WAS USED TO CALCULATE CONCEPT VERTICAL CLEARANCES.
- CONCRETE: CLASS A F'C=3000 PSI, CLASS D F'C=4000 PSI FOR BRIDGE DECK.
- REINFORCING STEEL: SHALL BE ASTM A615 GRADE 60 UNLESS NOTED OTHERWISE. EPOXY COAT ALL SLAB STEEL.
- BRIDGE DECK SURFACE FINISH: TO BE IN ACCORDANCE WITH METHOD 03 IN ARTICLE 604.22 OF THE STANDARD SPECIFICATIONS.
- USE STD-1-ISS PARAPETS.
- EXCAVATION: TO BE BASED ON EXISTING GROUND AT BENTS.
- STREAM CHANNEL: ANY WORK WITHIN THE STREAM CHANNEL AREA (E.G. PIER/BENT FOOTING, RIP-RAP PLACEMENT, ETC.) SHALL BE SEPARATED FROM FLOWING WATER OR EXPECTED FLOW PATH AND PERFORMED DURING LOW FLOW CONDITIONS. ALL ITEMS USED WITHIN THE STREAM CHANNEL AREA FOR DIVERSION OF FLOW (OR EXPECTED FLOW), UNLESS SPECIFIED IN THE PLANS, SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE INCLUDED IN THE COST OF OTHER ITEMS. THIS NOTE EXCLUDES ANY ITEMS SPECIFIED IN THE PLANS FOR TEMPORARY DIVERSION CHANNELS (EC-STR-31).
- EXPANSION JOINTS MAY BE ADDED OR RELOCATED BY ENGINEER AS REQUIRED BY DESIGN.
- DECK DRAINAGE SHALL BE DESIGNED BY THE ENGINEER AND DRAINS SHALL BE PLACED APPROPRIATELY. IF CLOSED DRAINAGE IS IMPLEMENTED, NO DRAINAGE COMPONENTS ARE ALLOWED TO BE PLACED ON THE SLAB CANTILEVERS.
- MULTIMODAL LAYOUT MAY BE UPDATED TO ACCOMMODATE MULTIMODAL STANDARDS AND REQUIREMENTS FOR ANTIOCH PIKE AS DETERMINED BY OWNER. DESIGNER SHALL COORDINATE MULTIMODAL ACCOMMODATIONS WITH ALL POTENTIALLY IMPACTED STAKEHOLDERS.
- CONCEPT PLANS ARE FOR INFORMATIONAL USE ONLY AND NOT FOR BIDDING OR CONSTRUCTION. DETAILS, DIMENSIONS, AND DRAWINGS MAY CHANGE PER DESIGNER OR OWNER DIRECTION.
- RAILROAD CROSSING: THE CONTRACTOR SHALL CONDUCT HIS WORK SO AS TO PROTECT THE RAILROAD TRACKS AND PROPERTIES FROM ANY DAMAGE. THE WORK SHALL BE DONE IN ACCORDANCE WITH REGULATIONS STIPULATED BY CSX SO AS TO MAINTAIN CLEARANCE AND NOT INTERRUPT TRAFFIC.
- DESIGNER SHALL REFER TO LATEST CSX PUBLIC PROJECT MANUAL FOR CONFORMANCE TO CSX DESIGN REQUIREMENTS.



### ELEVATION

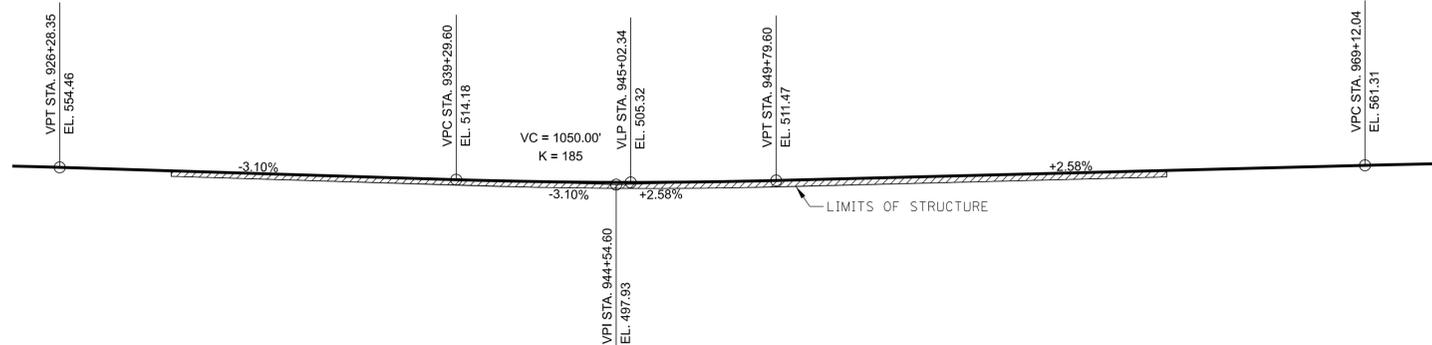


### PLAN

- DENOTES: 12'-0" SHOULDER
- DENOTES: TWO 12'-0" TRAVEL LANES = 24'-0"
- ⊠ DENOTES: 6'-0" SHOULDER
- DENOTES: 12'-0" MIN. 16'-0" MAX. TRAVEL LANE RAMP

### CURVE DATA

CURVE 124CHWB-9  
 PI 934+37.69  
 N 644798.5241  
 E 1758018.7995  
 Δ 16°18'21" RT.  
 D 01°02'30"  
 R 5500.00'  
 L 1565.25'  
 T 787.95'  
 LC 1559.98'  
 BC S41°06'33.5"E  
 SE 0.038 FT/FT  
 TRANS. LENGTH 275'  
 DESIGN SPEED 70 MPH



### PROPOSED GRADE SKETCH (I-24 WESTBOUND CHOICE LANES)

**STR-21 (Seven Mile Creek)  
no impacts**

**CAUTION!  
CONCEPTUAL  
PLANS  
SUBJECT TO  
CHANGE**

2052 ADT = 26,350  
 ROADWAY WIDTH VARIES FROM 42'-0" TO 73'-5 1/2"  
 STD-1-ISS PARAPETS  
 DESIGN SPEED = 70 MPH  
**I-24 CHOICE LANES  
BRIDGE NO. 44A**  
 STATE OF TENNESSEE  
 DEPARTMENT OF TRANSPORTATION  
**CONCEPTUAL LAYOUT  
I-24 WB CHOICE LANES  
ANTIOCH PIKE AND CSX R.R.  
STATION 945+98.05  
DAVIDSON COUNTY  
2025**

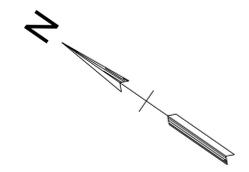
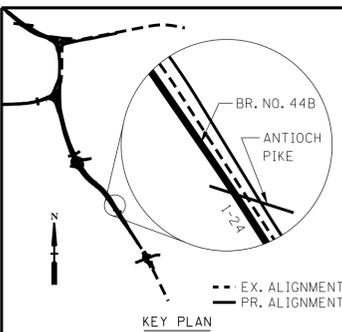
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PIN NO.: \_\_\_\_\_  
 DESIGN BY: BENESCH DATE: 10/2025  
 DRAWN BY: R. WITHERSPOON DATE: 10/2025  
 SUPERVISED BY: M. COVINGTON DATE: 10/2025  
 CHECKED BY: H. CARTER DATE: 10/2025

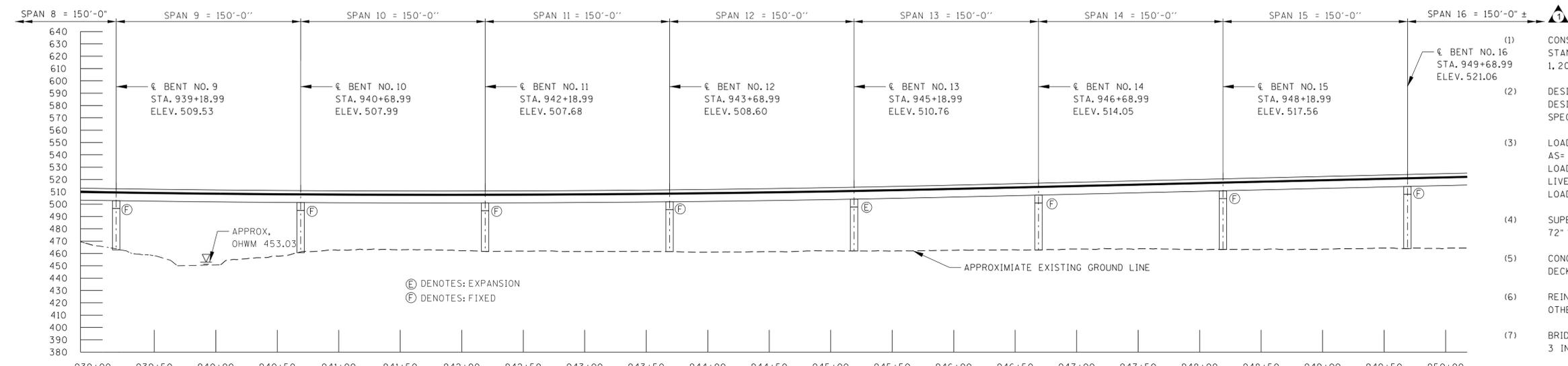
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CONST. NO.:

PROJECT NO.	YEAR	SHEET NO.	
R31024-S1-002	2025		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	05-30-25	MRO	UPDATE SPAN & BENT NUMBERING
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-



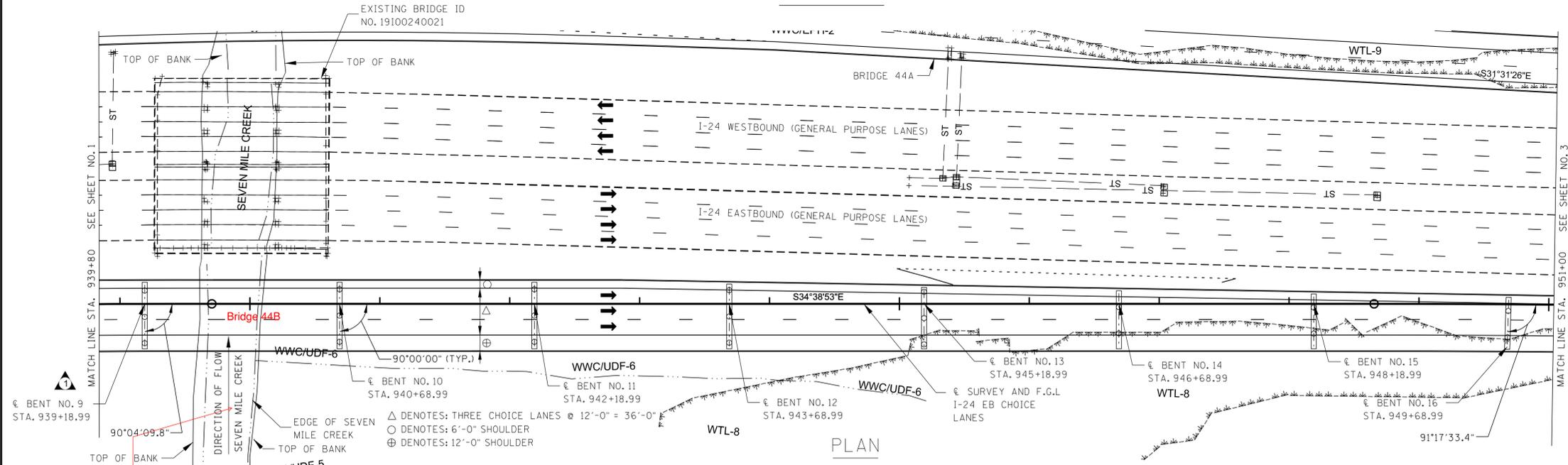
TOTAL LENGTH OF BRIDGE = 3204'-9 3/4" ±  
CONCRETE SPANS = 2532'-0"



**GENERAL NOTES**

- (1) CONSTRUCTION SPECIFICATIONS: TENNESSEE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (JANUARY 1, 2021 EDITION).
- (2) DESIGN SPECIFICATIONS: 10TH EDITION (2024) AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND THE 2ND EDITION (2011) AASHTO GUIDE SPECIFICATIONS FOR LRFD SEISMIC BRIDGE DESIGN WITH INTERIMS.
- (3) LOADING: HL-93 LIVE LOADING; SEISMIC DESIGN CATEGORY "A" WITH AS= 0.90, SDS=0.217, SD1=0.080, (1000 YEAR RETURN PERIOD); DEAD LOAD INCLUDES 35 LB/SO. FT. FOR FUTURE WEARING SURFACE. HL-93 LIVE LOADING INCREASED BY 10% BEFORE APPLYING ALL APPLICABLE LOAD FACTORS FOR ALL APPLICABLE LOAD COMBINATIONS.
- (4) SUPERSTRUCTURE: TO CONSIST OF 23 SPAN OF CONTINUOUS BLUB-TEE 72" WITH COMPOSITE CONCRETE SLAB.
- (5) CONCRETE: CLASS A F'C=3000 PSI, CLASS DS F'C=4000 PSI FOR BRIDGE DECK.
- (6) REINFORCING STEEL: SHALL BE ASTM A615 GRADE 60 UNLESS NOTED OTHERWISE. EPOXY COAT ALL SLAB STEEL.
- (7) BRIDGE DECK SURFACE FINISH: TO BE IN ACCORDANCE WITH METHOD 3 IN ARTICLE 604.22 OF THE STANDARD SPECIFICATIONS.
- (8) USE STD-1-1SS.
- (9) TEXTURE COATING: TO BE GRAY (36440) EXCEPT TRAFFIC FACE AND TOP OF PARAPET TO BE WHITE (37886) FOR STD-1-1SS PARAPETS.
- (10) STREAM CHANNEL: ANY WORK WITHIN THE STREAM CHANNEL AREA (E.G. PIER/BENT FOOTING, RIP-RAP PLACEMENT, ETC.) SHALL BE SEPARATED FROM FLOWING WATER OR EXPECTED FLOW PATH AND PERFORMED DURING LOW FLOW CONDITIONS. ALL ITEMS USED WITHIN THE STREAM CHANNEL AREA FOR DIVERSION OF FLOW (OR EXPECTED FLOW), UNLESS SPECIFIED IN THE PLANS, SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE INCLUDED IN THE COST OF OTHER ITEMS. THIS NOTE EXCLUDES ANY ITEMS SPECIFIED IN THE PLANS FOR TEMPORARY DIVERSION CHANNELS. (FC-STR-31).

**ELEVATION**



**PLAN**

**GENERAL NOTES (CONT.)**

- (11) EXPANSION JOINTS MAY BE ADDED OR RELOCATED BY ENGINEER AS REQUIRED BY DESIGN.
- (12) DECK DRAINAGE SHALL BE DESIGNED BY THE ENGINEER AND DRAINS SHALL BE PLACED APPROPRIATELY. IF CLOSED DRAINAGE IS IMPLEMENTED, NO DRAINAGE COMPONENTS ARE ALLOWED TO BE PLACED ON THE SLAB CANTILEVERS.
- (13) MULTIMODAL: LAYOUT MAY BE UPDATED TO ACCOMMODATE MULTIMODAL STANDARDS AND REQUIREMENTS FOR ANTIOCH PIKE AS DETERMINED BY OWNER. DESIGNER SHALL COORDINATE MULTIMODAL ACCOMMODATIONS WITH ALL POTENTIALLY IMPACTED STAKEHOLDERS.
- (14) CONCEPT PLANS ARE FOR INFORMATIONAL USE ONLY AND NOT FOR BIDDING OR CONSTRUCTION. DETAILS, DIMENSIONS, AND DRAWINGS MAY CHANGE PER DESIGNER OR OWNER DIRECTION.
- (15) RAILROAD CROSSING: THE CONTRACTOR SHALL CONDUCT HIS WORK SO AS TO PROTECT THE RAILROAD TRACKS AND PROPERTIES FROM ANY DAMAGE. THE WORK SHALL BE IN ACCORDANCE WITH REGULATIONS STIPULATED BY THE CSX RR SO AS TO MAINTAIN CLEARANCE AND NOT INTERRUPT TRAFFIC.
- (16) DESIGNER SHALL REFER TO LATEST CSX PUBLIC PROJECT MANUAL FOR CONFORMANCE TO CSX DESIGN REQUIREMENTS.

**CAUTION!  
CONCEPTUAL  
PLANS  
SUBJECT TO  
CHANGE**

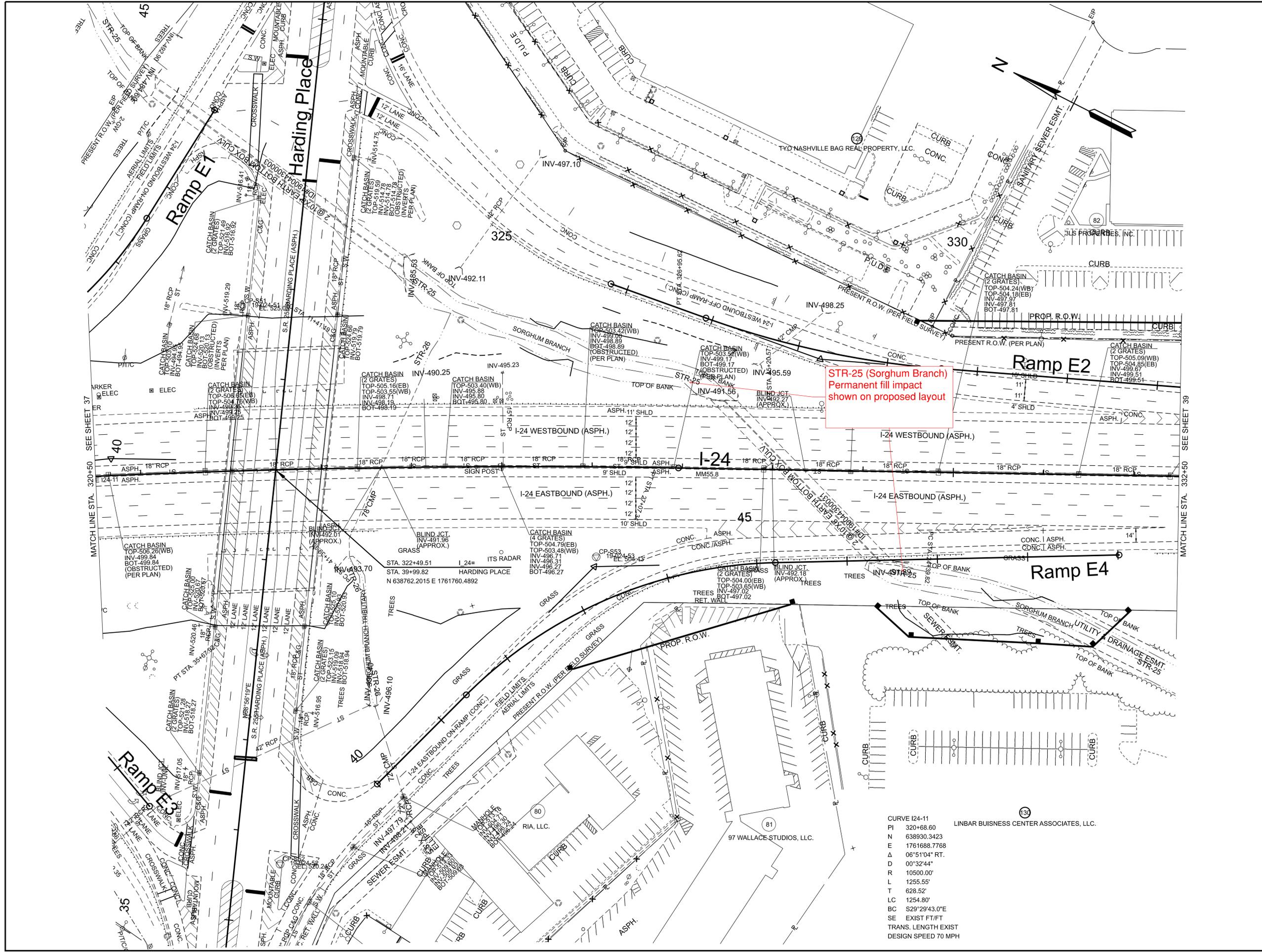
2052 ADT = 23950  
ROADWAY WIDTH VARIES FROM 42'-0" TO 69'-11 1/2"  
STD-1-1SS  
DESIGN SPEED = 70 MPH  
**I-24 CHOICE LANES  
BRIDGE NO. 44B**  
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
**CONCEPTUAL LAYOUT  
I-24 EB CHOICE LANES  
OVER SEVEN MILE CREEK  
ANTIOCH PIKE AND CSX R.R.  
STATION 944+71.39  
DAVIDSON COUNTY  
2025**

**STR-21 (Seven Mile Creek)  
no impacts**

PIN NO.: \_\_\_\_\_  
DESIGN BY: BENESCH DATE: 10/2025  
DRAWN BY: M. OAKMAN DATE: 10/2025  
SUPERVISED BY: K. LEWIS DATE: 10/2025  
CHECKED BY: J. WILLIAMS DATE: 10/2025

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	38

REV. 07-01-25: REVISED EXISTING STORM DRAINAGE. REVISED SLOPE LINES.



STR-25 (Sorghum Branch)  
Permanent fill impact  
shown on proposed layout

**SEALED BY**

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 12B.

**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

**PRESENT  
LAYOUT**

I-24  
STA. 320+50.00 TO STA. 332+50.00  
SCALE: 1" = 50'

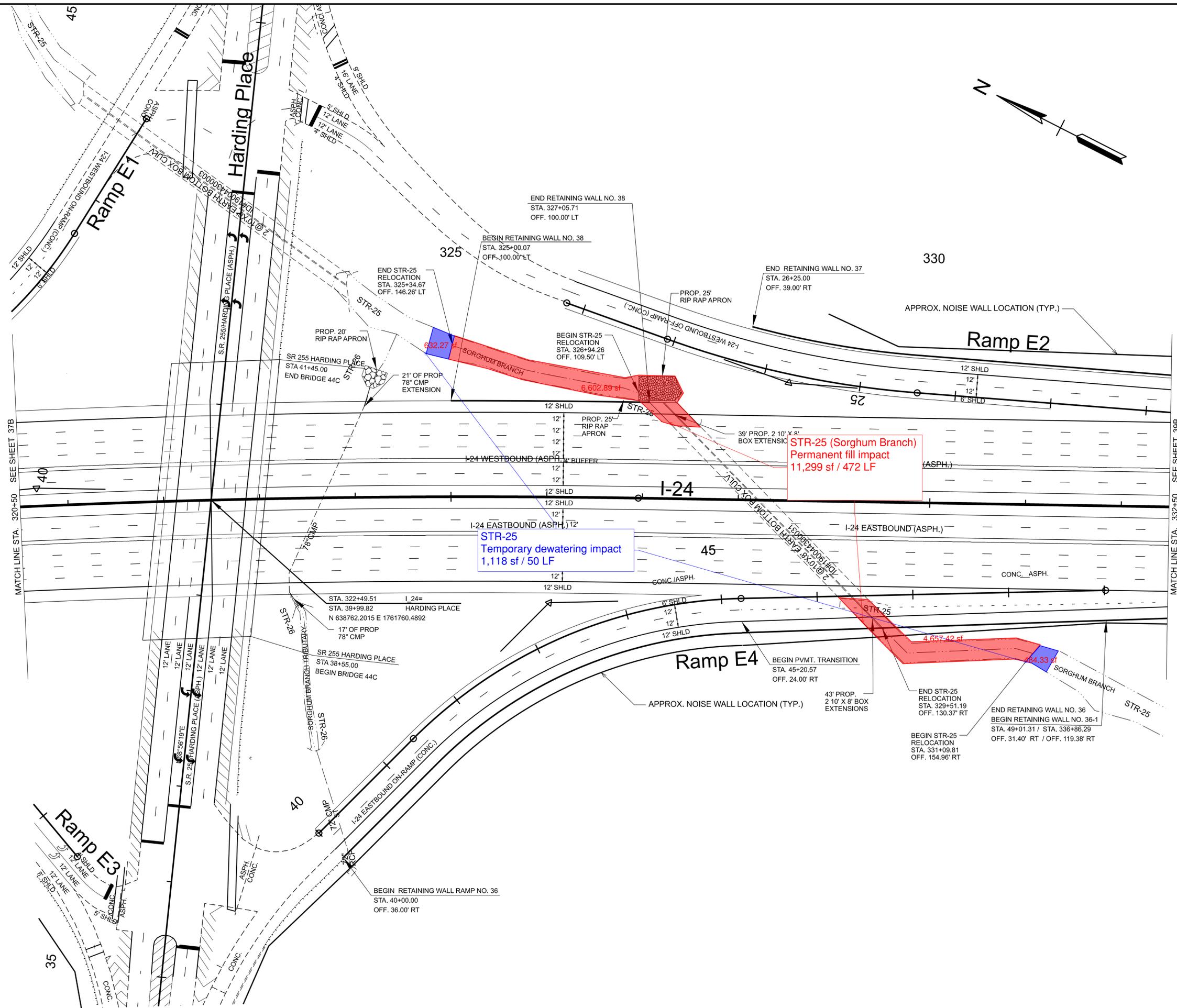
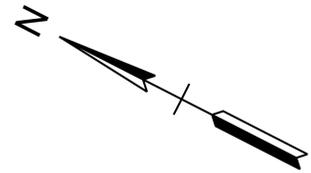
CURVE I24-11  
PI 320+68.60  
N 638930.3423  
E 1761688.7768  
Δ 06°51'04" RT.  
D 00°32'44"  
R 10500.00'  
L 1255.55'  
T 628.52'  
LC 1254.80'  
BC S29°29'43.0"E  
SE EXIST FT/FT  
TRANS. LENGTH EXIST  
DESIGN SPEED 70 MPH

LINBAR BUSINESS CENTER ASSOCIATES, L.L.C.

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TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	38B

REV. 07-01-25: ADDED EXISTING & PROPOSED CROSS DRAIN. ADDED STR-25 RELOCATION INFO. ADDED RETAINING WALL 30A  
 REV. 11-07-25: REVISED PROPOSED DESIGN AND LABELS



**SEALED BY**

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 12B.

**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

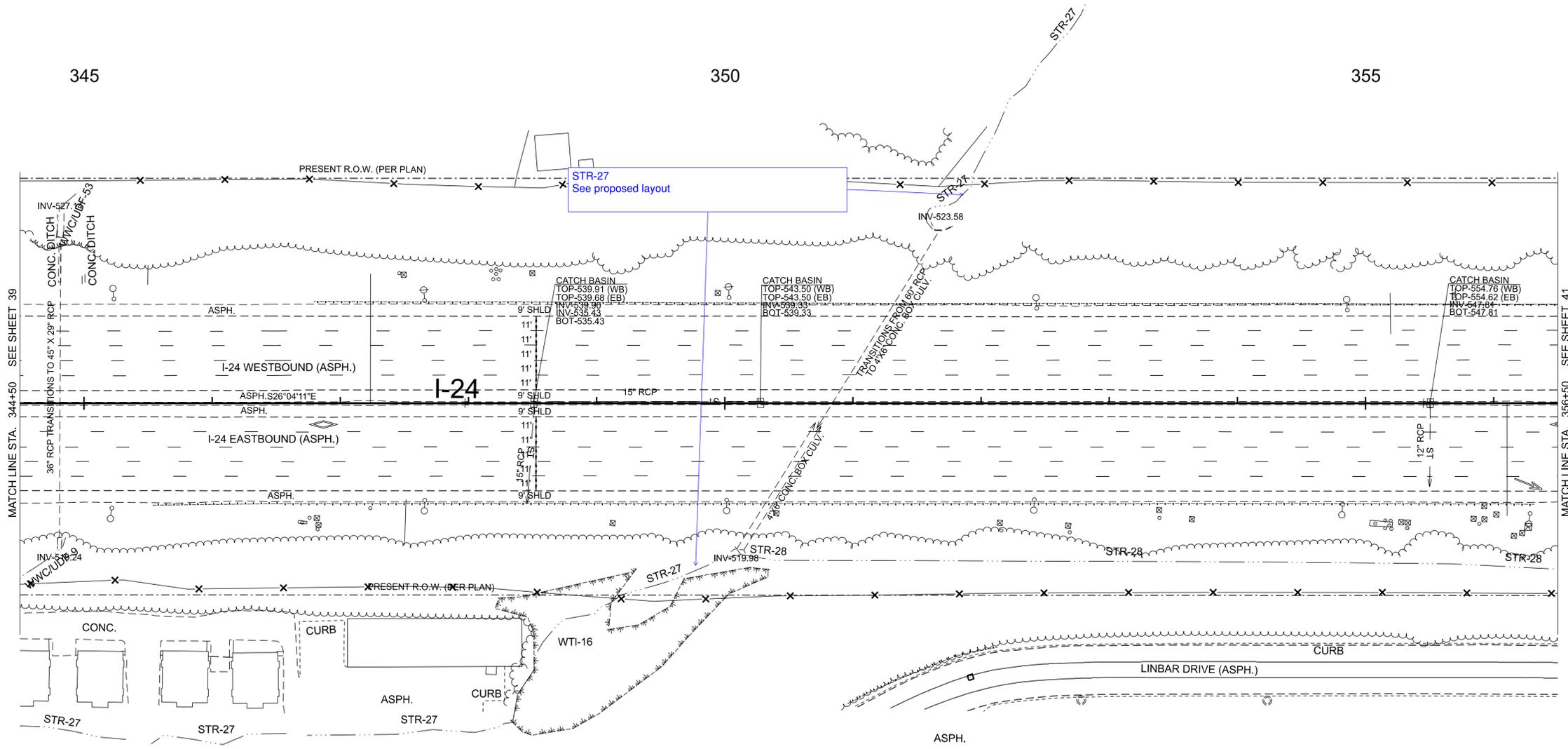
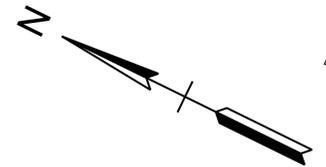
**PROPOSED  
LAYOUT**

I-24  
 STA. 320+50.00 TO STA. 332+50.00  
 SCALE: 1" = 50'

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TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	40

REV. 07-01-25: REVISED EXISTING STORM DRAINAGE. REVISED SLOPE LINES.



MATCH LINE STA. 344+50 SEE SHEET 39

MATCH LINE STA. 356+50 SEE SHEET 41

**SEALED BY**



COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 12B.

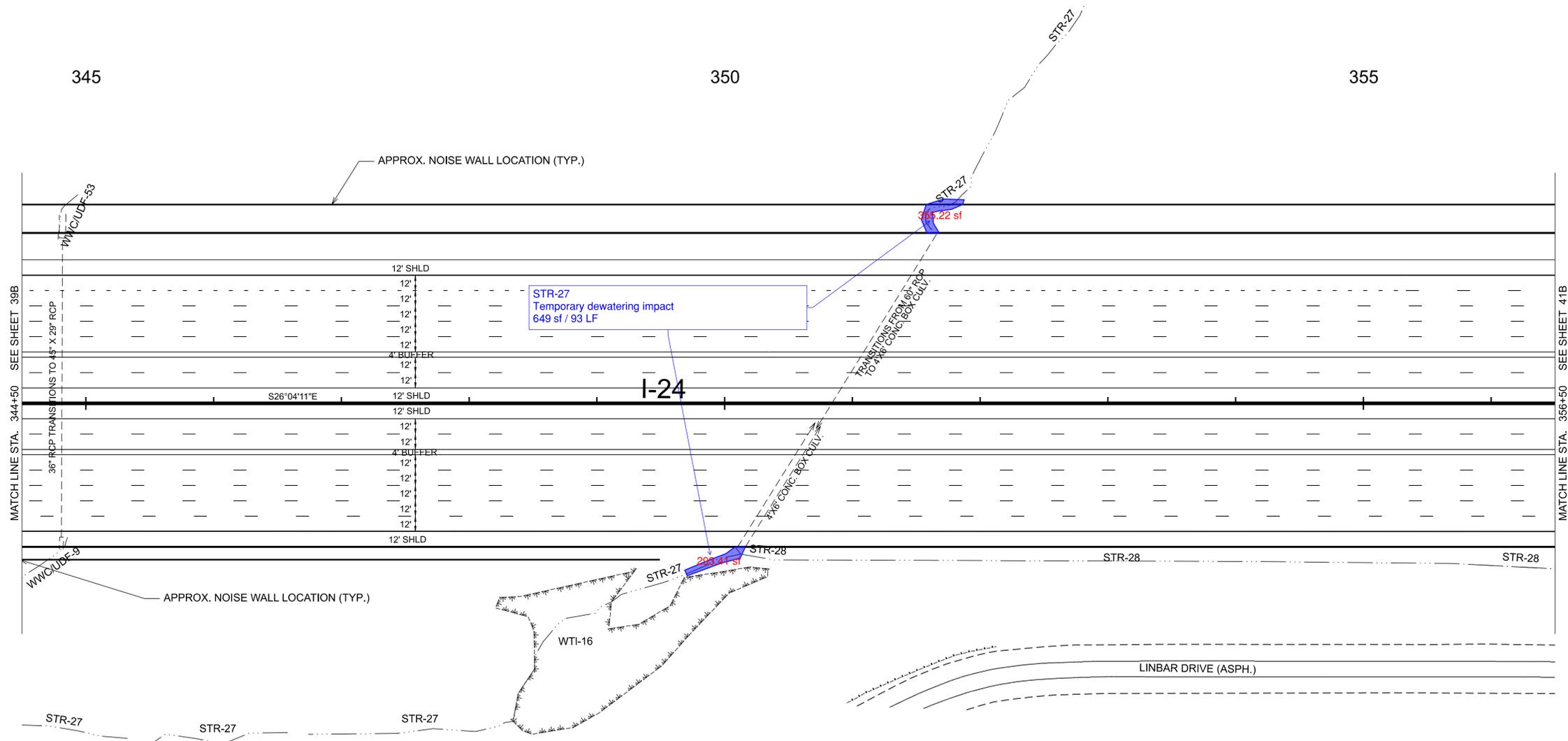
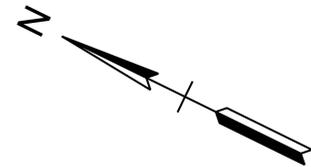
**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

**PRESENT  
LAYOUT**

I-24  
STA. 344+50.00 TO STA. 356+50.00  
SCALE: 1" = 50'

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	40B

REV. 07-01-25: ADDED EXISTING & PROPOSED CROSS DRAIN. ADDED STR-27 & STR-28 RELOCATIONS  
 REV. 11-07-25: REVISED PROPOSED DRAINAGE



MATCH LINE STA. 344+50 SEE SHEET 39B

MATCH LINE STA. 356+50 SEE SHEET 41B

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# STR-27

**SEALED BY**

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COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 12B.

**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

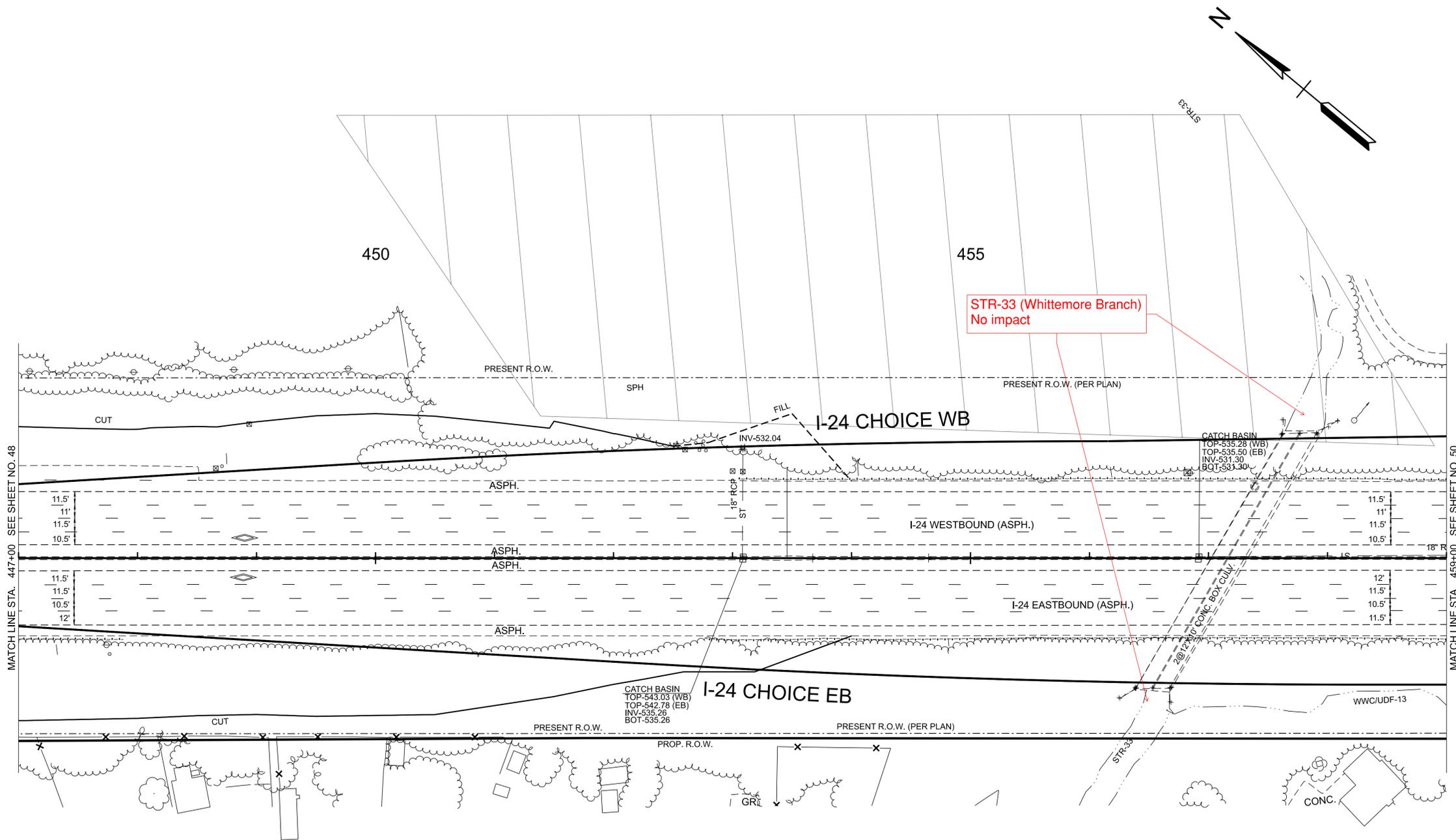
**PROPOSED  
LAYOUT**

I-24  
STA. 344+50.00 TO STA. 356+50.00  
SCALE: 1" = 50'

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	49

REV. 07-01-25: REVISED ENVIRONMENTAL FEATURE NAMES PER THE EBR, REVISED EXISTING STORM DRAINAGE.

REV. 08-15-25: REVISED R.O.W. LABELS.



MATCH LINE STA. 447+00 SEE SHEET NO. 48

MATCH LINE STA. 459+00 SEE SHEET NO. 50

**SEALED BY**

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 12B.

**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

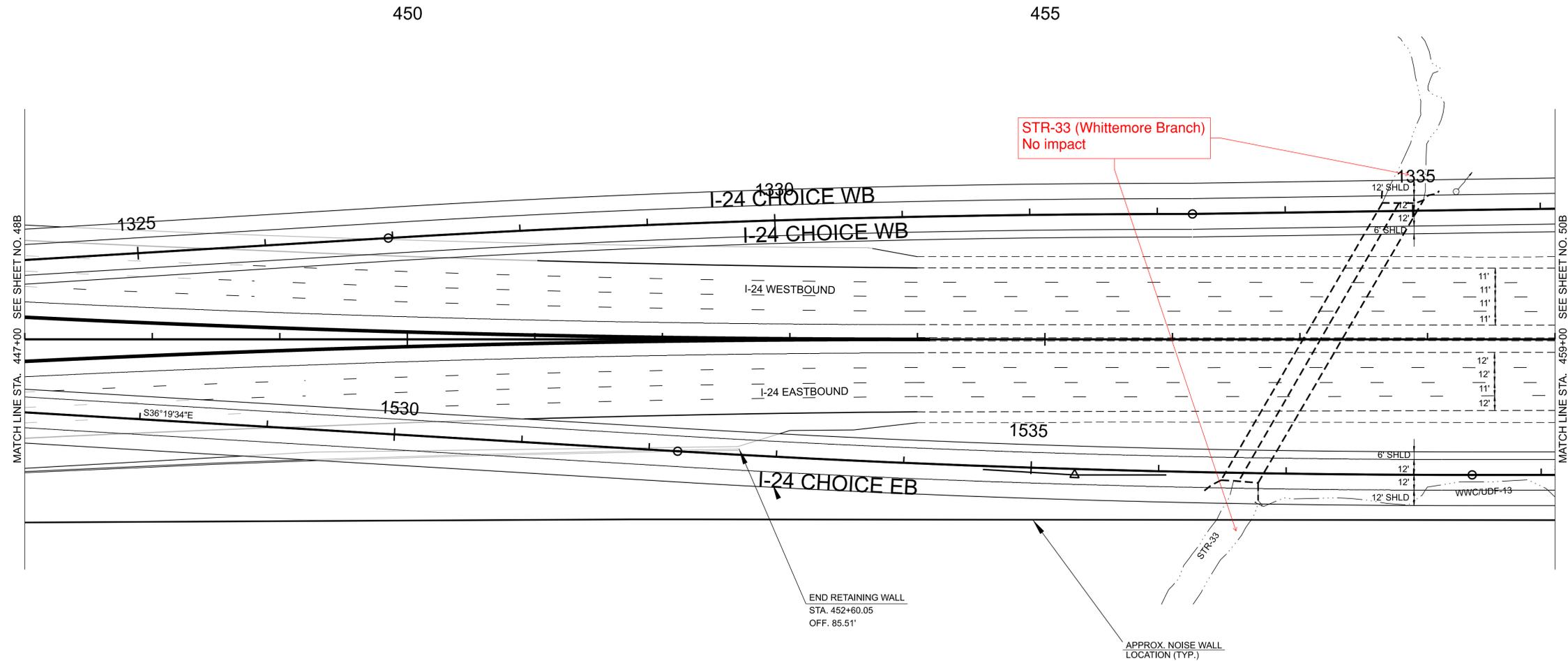
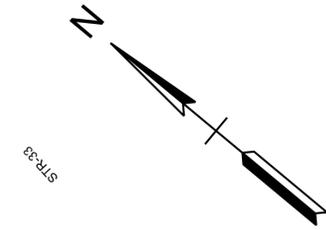
**PRESENT  
LAYOUT**

STA. 447+00.00 TO STA. 459+00.00  
SCALE: 1" = 50'

10/15/2025 10:13:55 PM C:\CADD\LIB\PW\HNTB\_ALAN\JOLLY\SEDI\0257019\ID\01024-SHT-PRESENT LAYOUT.DGN

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	49B

REV. 07-01-25: REVISED ENVIRONMENTAL FEATURE NAMES PER THE EBR, REVISED EXISTING STORM DRAINAGE.



**SEALED BY**



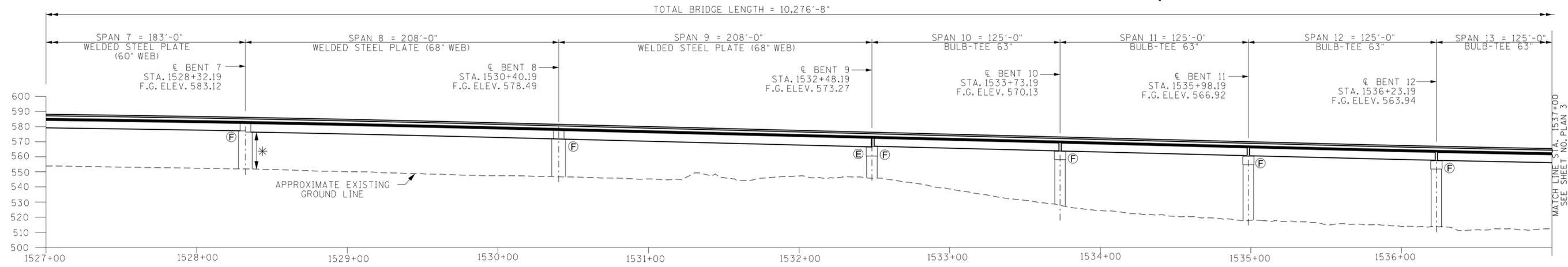
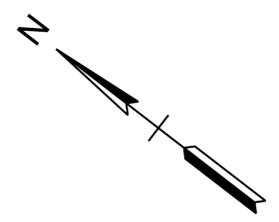
COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID .

**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

**PROPOSED  
LAYOUT**

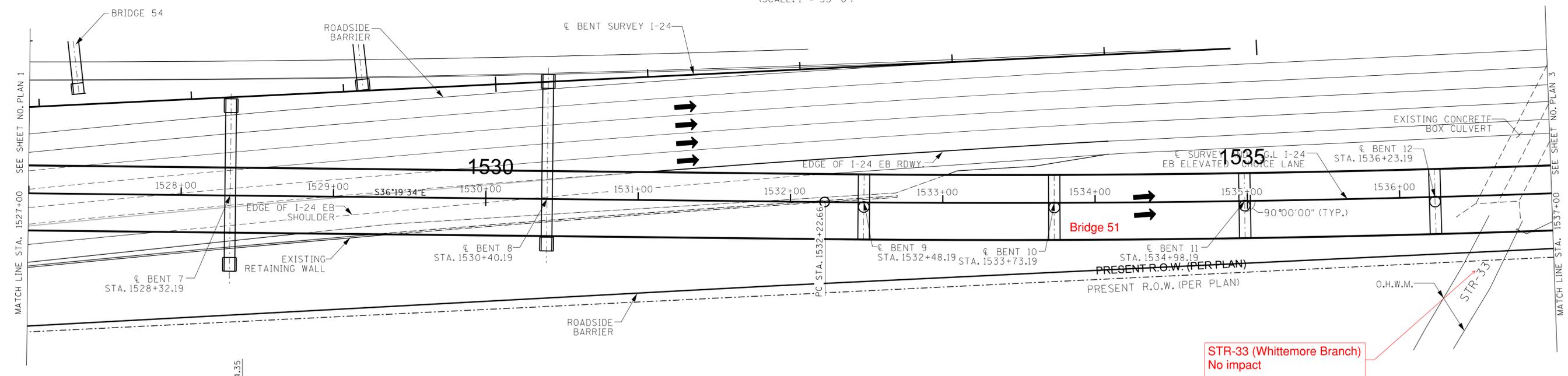
STA. 447+00.00 TO STA. 459+00.00  
SCALE: 1" = 50'

PROJECT NO.	YEAR	SHEET NO.	
R31024-S1-002	2025		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION



ELEVATION  
(SCALE: 1" = 35'-0")

\* DENOTES: 17'-0" PREFERRED MINIMUM VERTICAL CLEARANCE



PLAN  
(SCALE: 1" = 35'-0")

I-24 CHOICE LANES  
BRIDGE NO. 51  
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
CONCEPTUAL LAYOUT

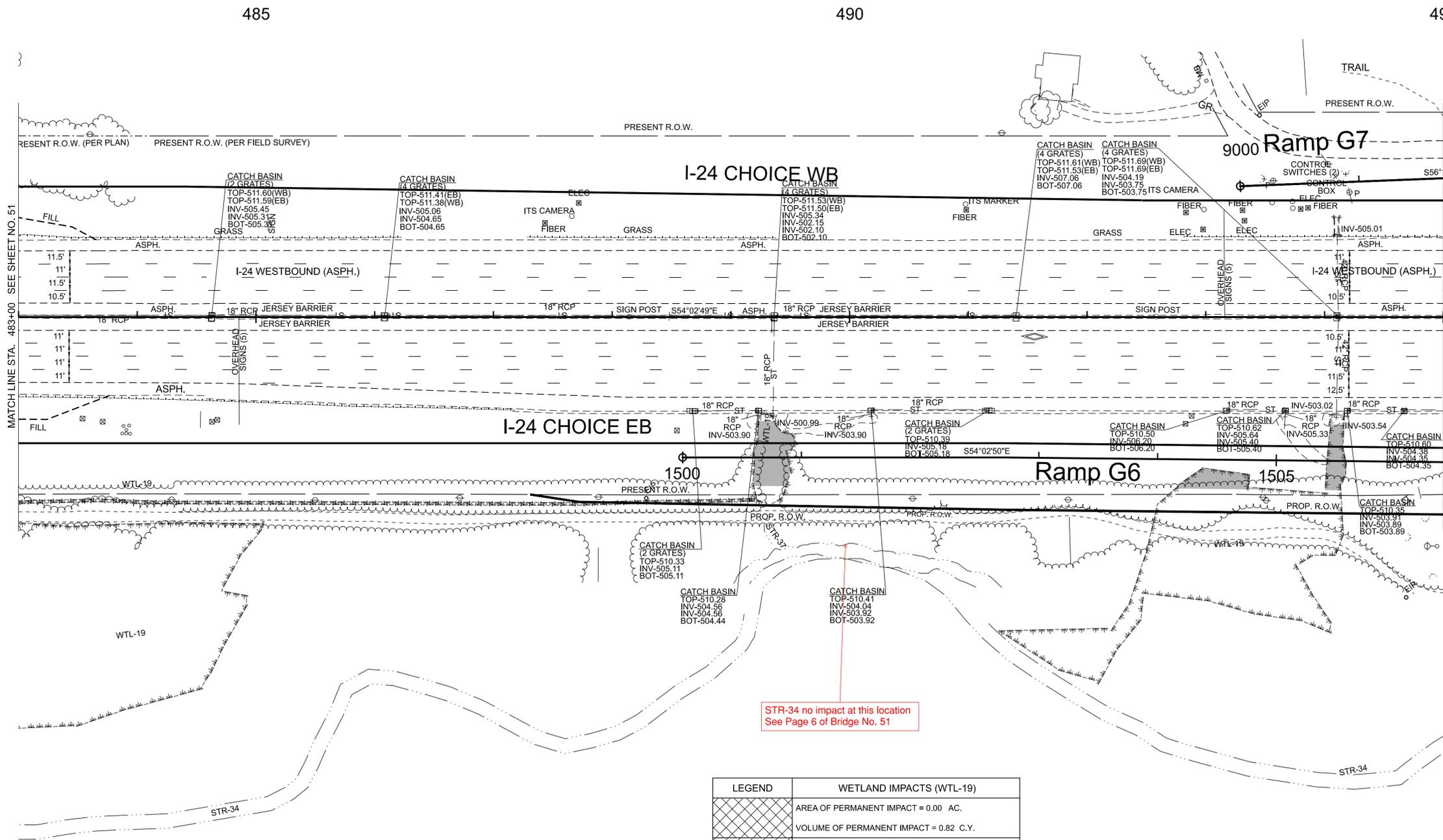
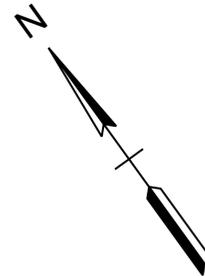
I-24 EASTBOUND CHOICE LANE  
OVER I-24 EASTBOUND AND  
BELL ROAD  
STA. 1517+53.19  
DAVIDSON COUNTY  
2025

**CAUTION !  
CONCEPTUAL  
PLANS  
SUBJECT TO  
CHANGE**

DESIGNED BY	J. GLOUDOUA	DATE	03/25
DRAWN BY	J. GLOUDOUA	DATE	03/25
SUPERVISED BY	K. McALISTER	DATE	03/25
CHECKED BY	M. DAVIS	DATE	03/25

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	52

REV. 07-01-25: REVISED ENVIRONMENTAL FEATURE NAMES PER THE EBR, REVISED EXISTING STORM DRAINAGE, ADDED WETLAND IMPACT TABLE.



MATCH LINE STA. 483+00 SEE SHEET NO. 51

MATCH LINE STA. 495+00 SEE SHEET NO. 53

STR-34 no impact at this location  
See Page 6 of Bridge No. 51

LEGEND	WETLAND IMPACTS (WTL-19)
	AREA OF PERMANENT IMPACT = 0.00 AC. VOLUME OF PERMANENT IMPACT = 0.82 C.Y.
	AREA OF TEMPORARY IMPACT = 0.04 AC. VOLUME OF TEMPORARY IMPACT = 62.40 C.Y.

**SEALED BY**

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID .

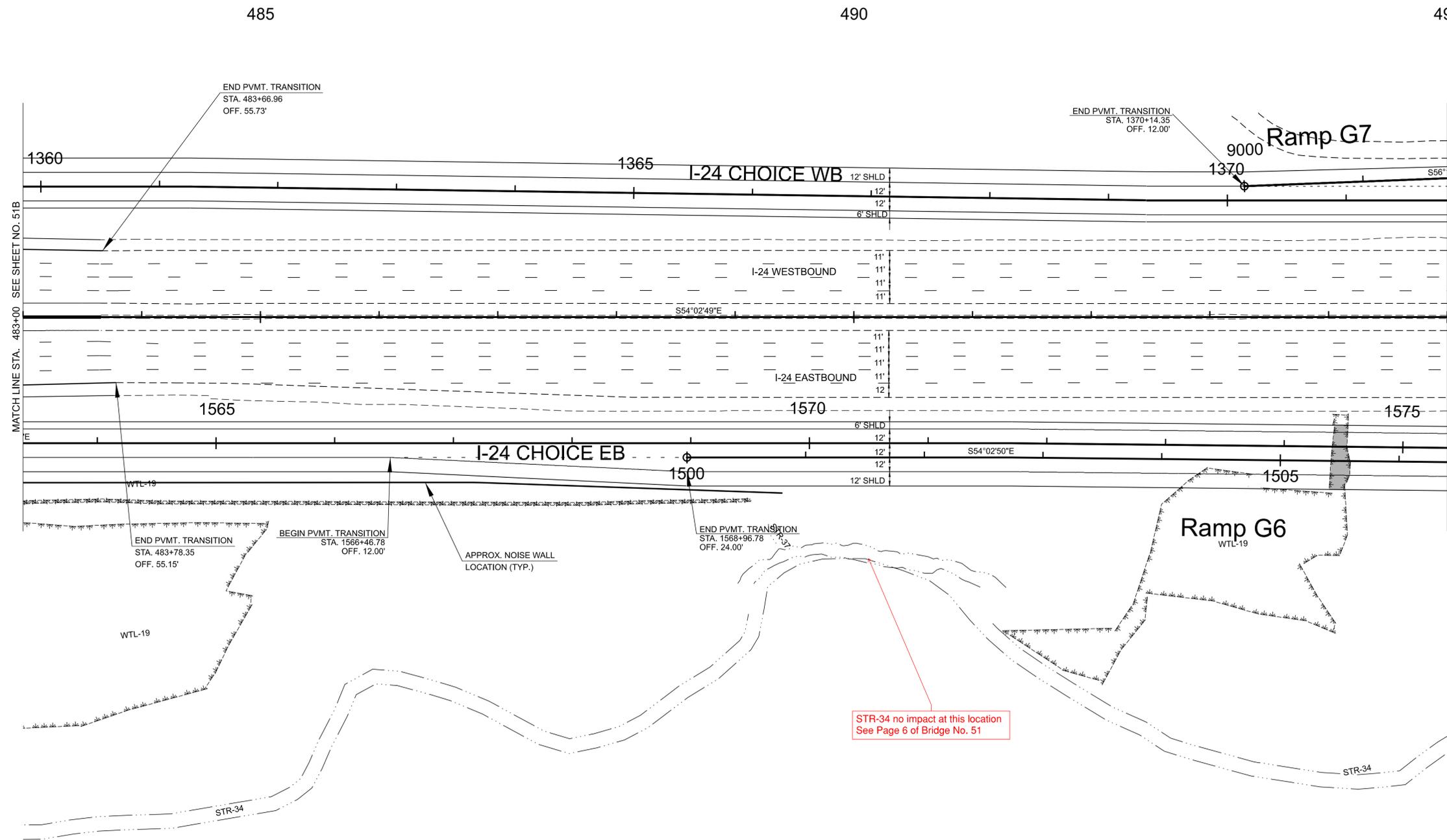
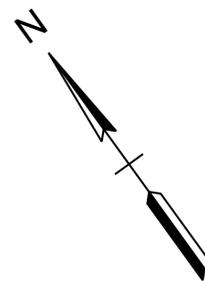
**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

**PRESENT  
LAYOUT**

STA. 483+00.00 TO STA. 495+00.00  
SCALE: 1" = 50'

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	52B

REV. 07-01-25: REVISED ENVIRONMENTAL FEATURE NAMES PER THE EBR.



**SEALED BY**

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID .

**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

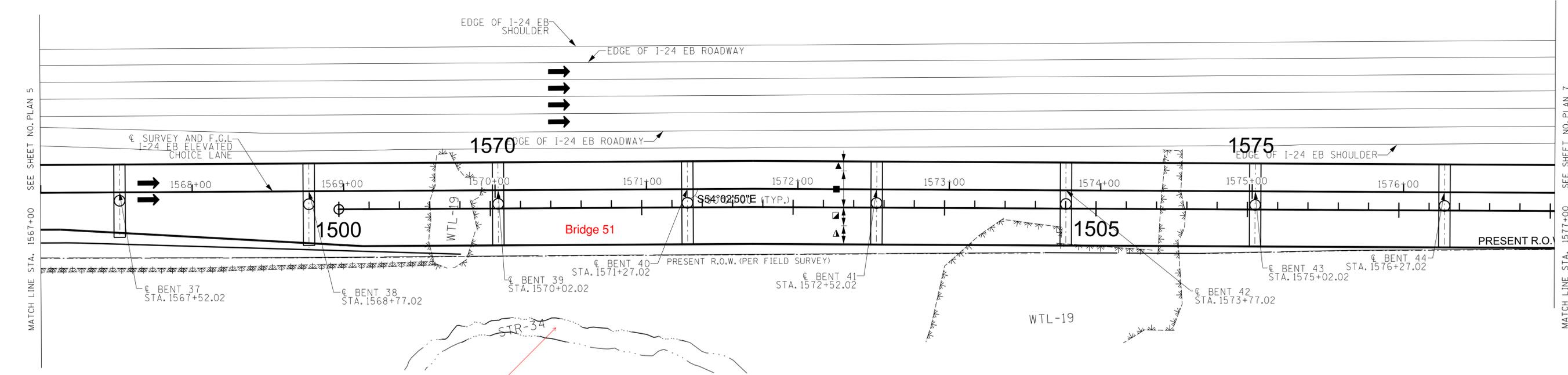
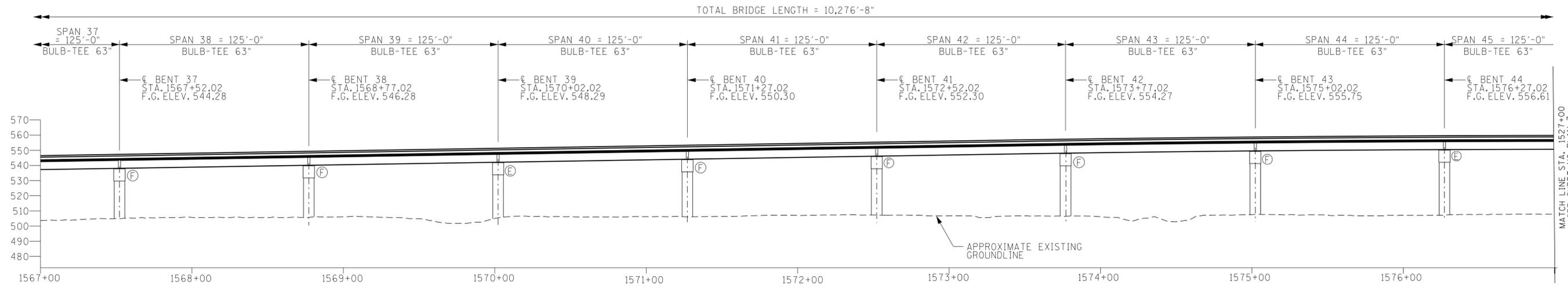
**PROPOSED  
LAYOUT**

STA. 483+00.00 TO STA. 495+00.00  
SCALE: 1" = 50'

STR-34 no impact at this location  
See Page 6 of Bridge No. 51

10/16/2025 12:01:48 AM C:\CADD\LIB\PW\HNTB\_ALAN\JOLLY\SE\VID0257019\ID\01024-SHT-PROPOSEDLAYOUT.DGN

PROJECT NO.	YEAR	SHEET NO.	
R31024-S1-002	2025		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION



- ▲ DENOTES 6'-0" SHLD.
- DENOTES 2- 12'-0" CHOICE LANES
- ▣ DENOTES 12'-0" TURN LANE
- ▲ DENOTES 12'-0" SHLD.

I-24 CHOICE LANES  
BRIDGE NO. 51  
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
CONCEPTUAL LAYOUT

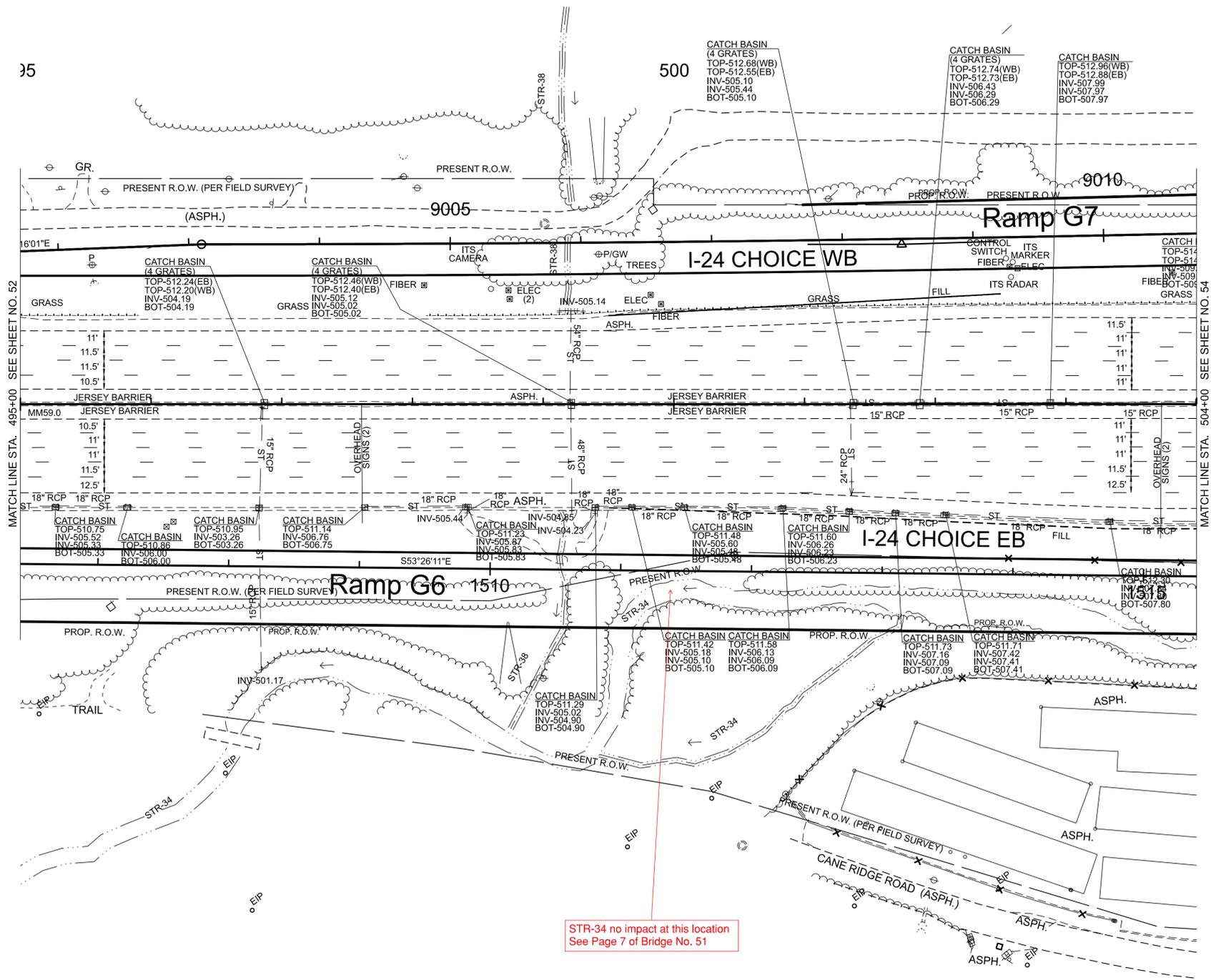
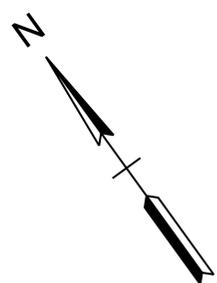
I-24 EASTBOUND CHOICE LANE  
OVER I-24 EASTBOUND AND  
BELL ROAD  
STA. 1517+53.19  
DAVIDSON COUNTY  
2025

CAUTION!  
CONCEPTUAL  
PLANS  
SUBJECT TO  
CHANGE

DESIGNED BY	J. GLOUDOUA	DATE	03/25
DRAWN BY	J. GLOUDOUA	DATE	03/25
SUPERVISED BY	K. MCALISTER	DATE	03/25
CHECKED BY	M. DAVIS	DATE	03/25

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R3I024-S1-002	53

REV. 07-01-25: REVISED EXISTING STORM DRAINAGE.



STR-34 no impact at this location  
See Page 7 of Bridge No. 51

**SEALED BY**

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID .

**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

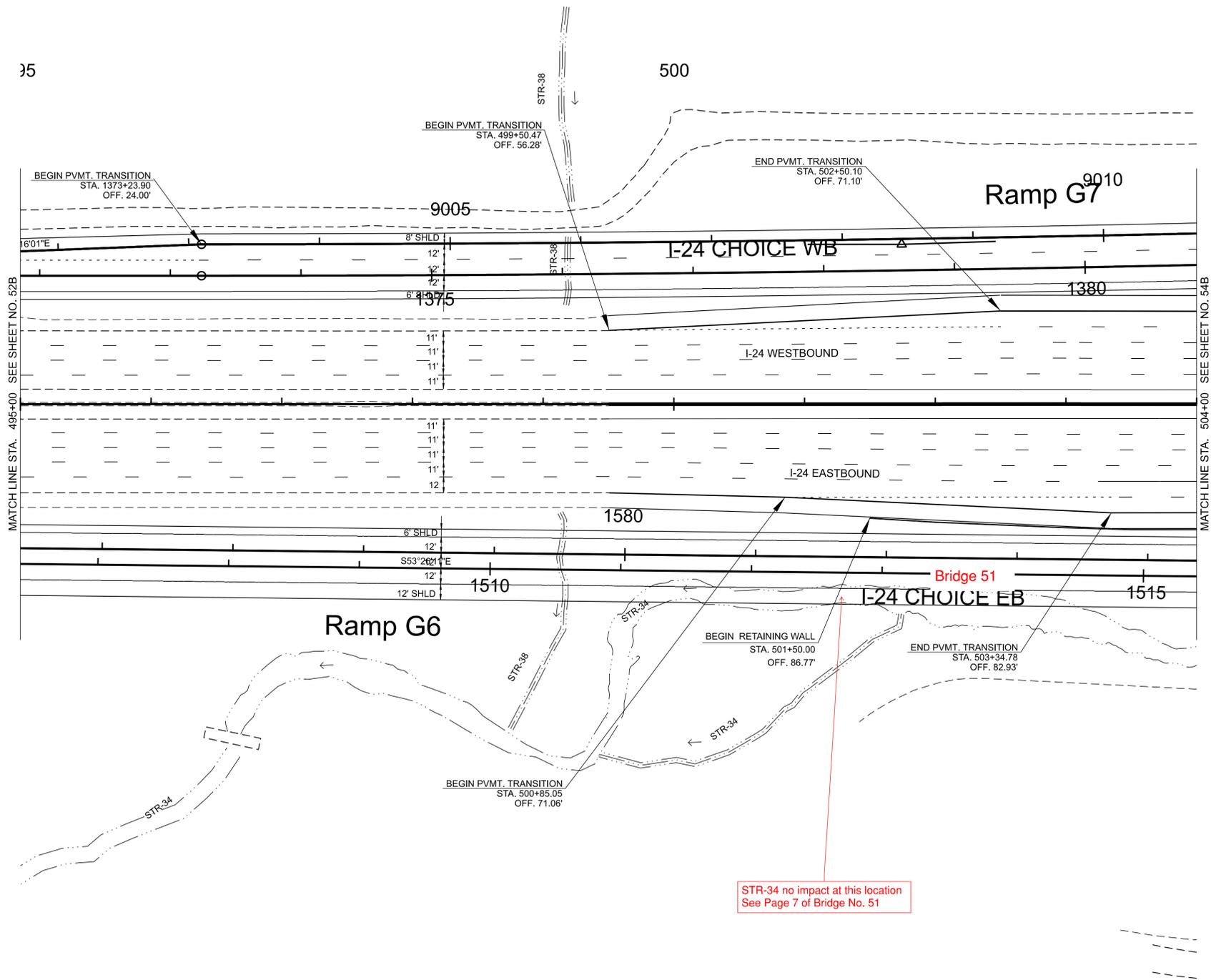
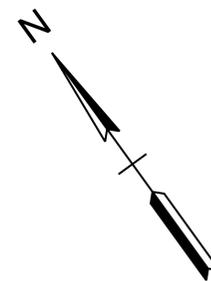
**PRESENT  
LAYOUT**

STA. 495+00.00 TO STA. 504+00.00  
SCALE: 1" = 50'

10/15/2025 10:13:58 PM C:\CADD\LIB\PW\HNTB\_ALAN\JOLLY\SEDI\VID0257019\IDV01024-SHT-PRESENT LAYOUT.DGN

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	53B

REV. 07-01-25: REVISED ENVIRONMENTAL FEATURE NAMES PER THE EBR, REVISED EXISTING STORM DRAINAGE.



MATCH LINE STA. 495+00 SEE SHEET NO. 52B

MATCH LINE STA. 504+00 SEE SHEET NO. 54B

**SEALED BY**

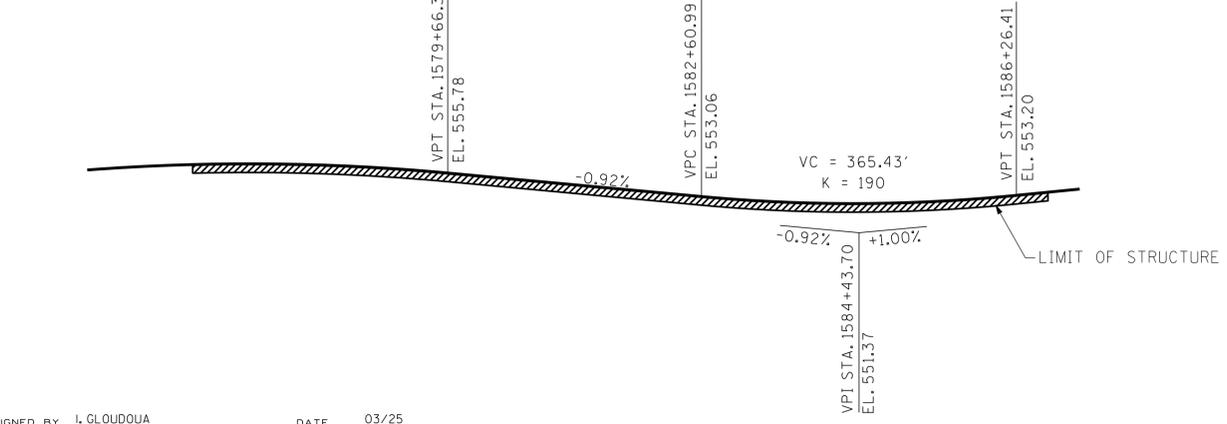
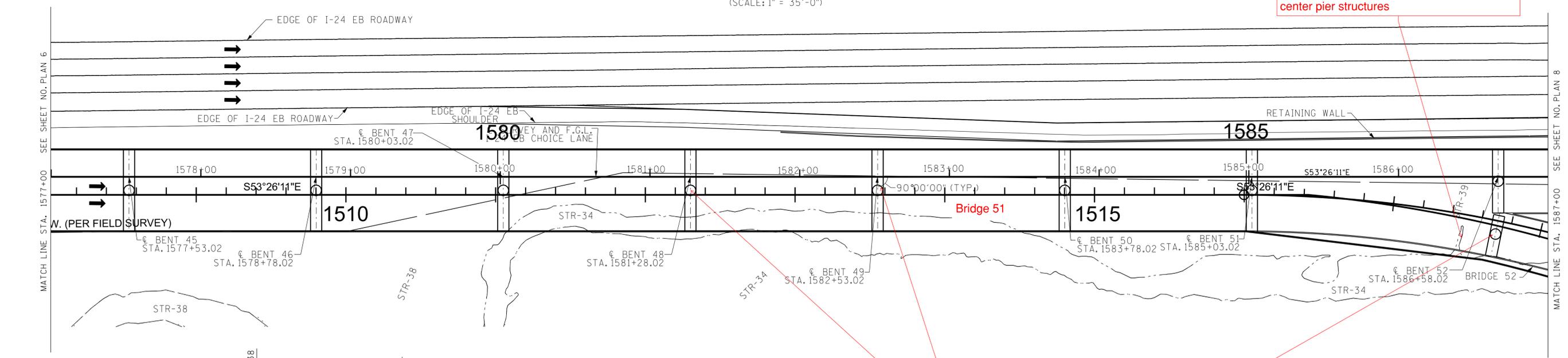
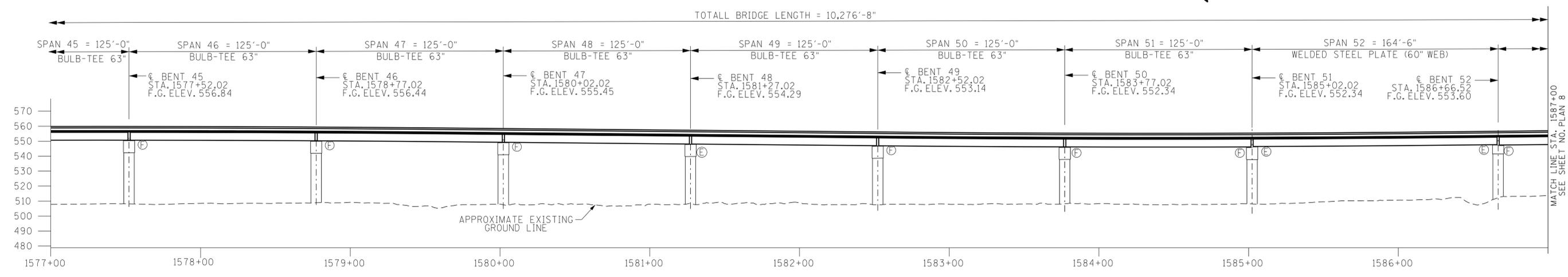
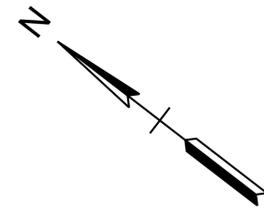
COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID .

**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

**PROPOSED  
LAYOUT**

STA. 495+00.00 TO STA. 504+00.00  
SCALE: 1" = 50'

PROJECT NO.	YEAR	SHEET NO.	
R31024-S1-002	2025		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION



STR-39 no impact at this location  
 Bridge pier outside of STR-39 OHWM with center pier structures

STR-34 no impact at this location  
 Bridge pier outside of STR-34 OHWM with center pier structures

**CAUTION !**  
 CONCEPTUAL  
 PLANS  
 SUBJECT TO  
 CHANGE

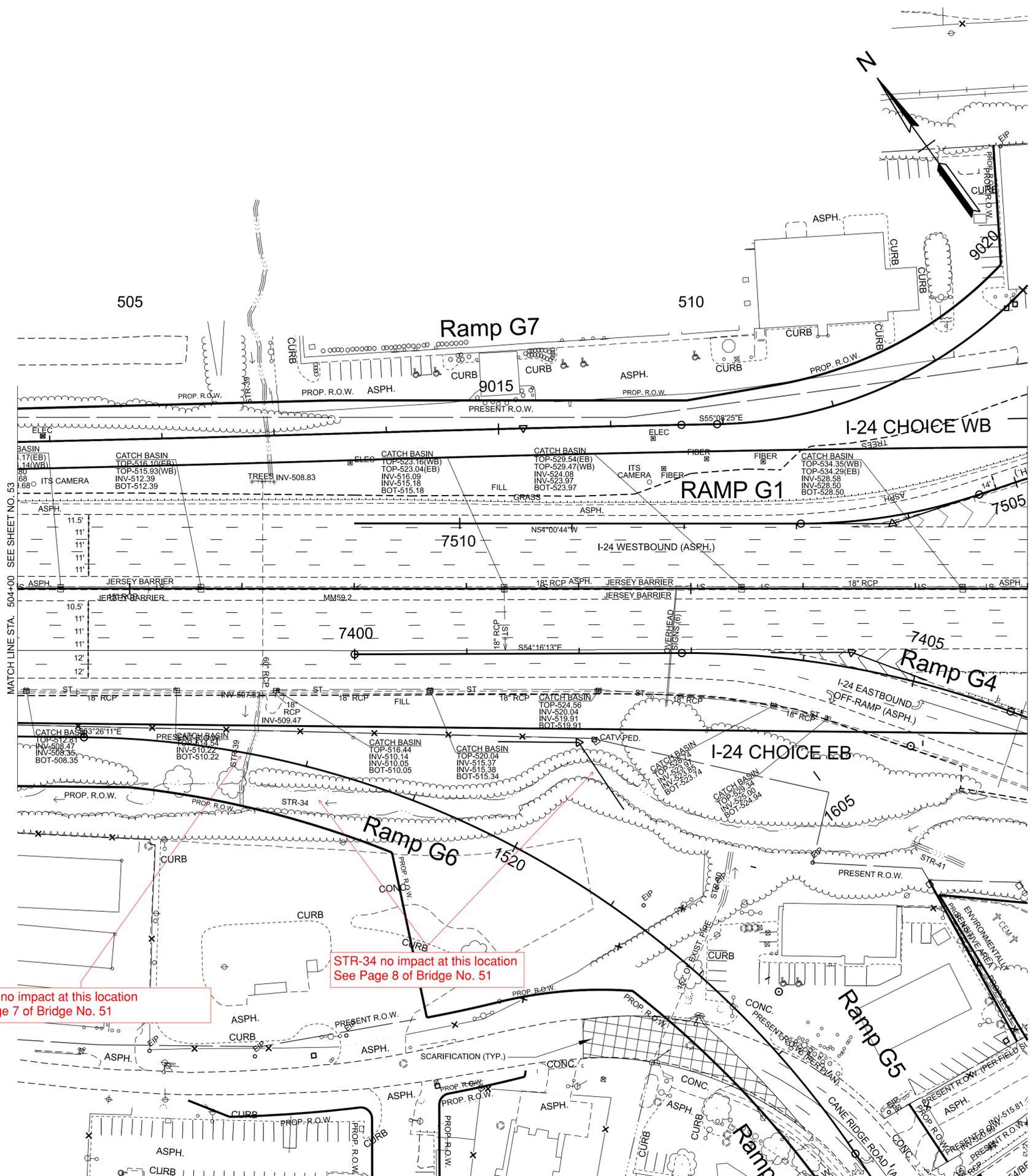
I-24 CHOICE LANES  
 BRIDGE NO. 51  
 STATE OF TENNESSEE  
 DEPARTMENT OF TRANSPORTATION  
 CONCEPTUAL LAYOUT

I-24 EASTBOUND CHOICE LANE  
 OVER I-24 EASTBOUND AND  
 BELL ROAD  
 STA. 1517+53.19  
 DAVIDSON COUNTY  
 2025

DESIGNED BY J. GLOUDOUA DATE 03/25  
 DRAWN BY J. GLOUDOUA DATE 03/25  
 SUPERVISED BY K. McALISTER DATE 03/25  
 CHECKED BY M. DAVIS DATE 03/25

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	54

REV. 07-01-25: REVISED EXISTING STORM DRAINAGE.



STR-39 no impact at this location  
See Page 7 of Bridge No. 51

STR-34 no impact at this location  
See Page 8 of Bridge No. 51

**SEALED BY**

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 12B.

**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

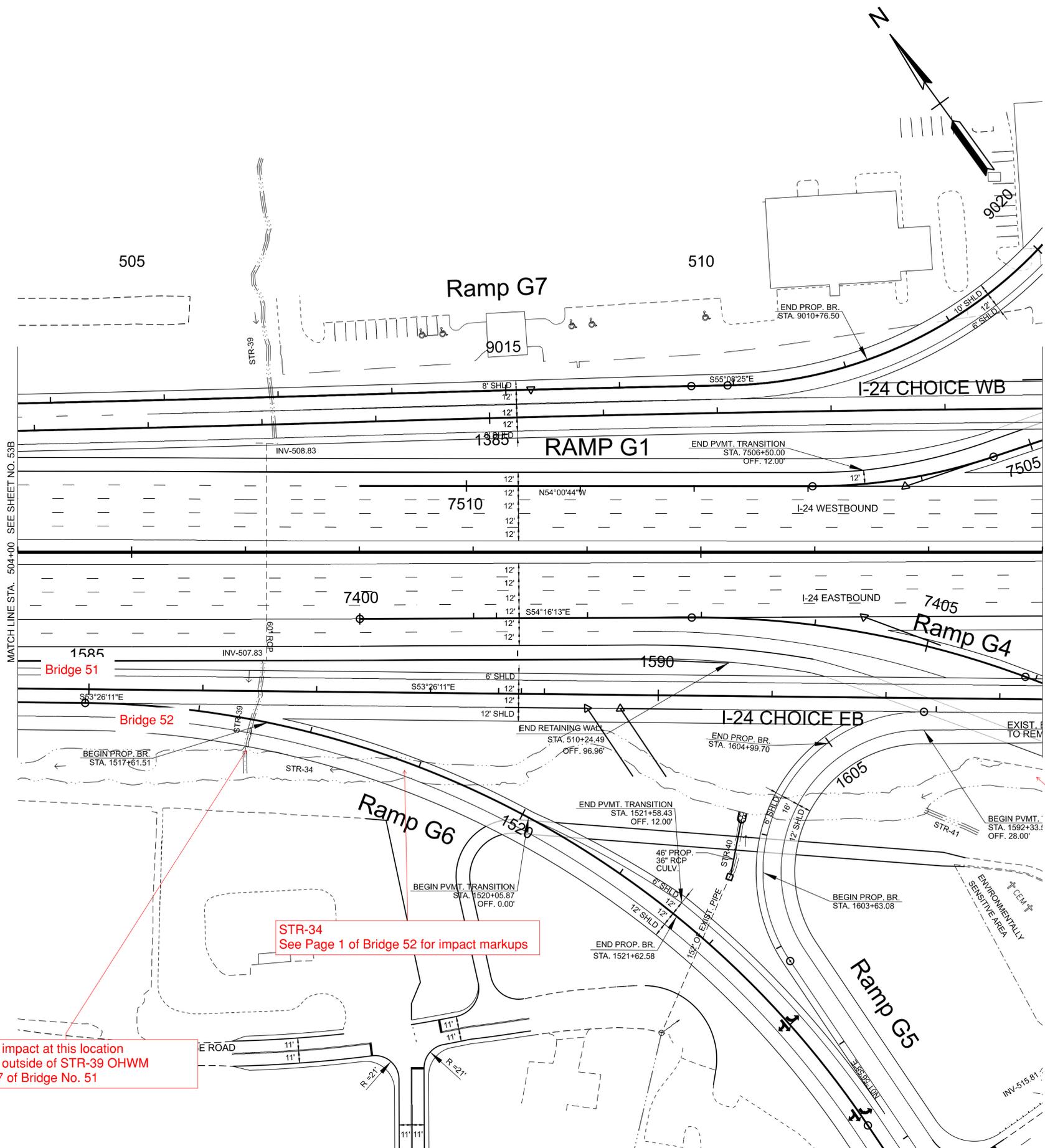
**PRESENT  
LAYOUT**

STA. 504+00.00 TO STA. 513+00.00  
SCALE: 1" = 50'

10/15/2025 10:13:59 PM C:\CADD\LIB\PW\HNTB\_ERIC.MENDEZ\SEID\VD0257019\VD010024-SHT-PRESENT LAYOUT.DGN

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	54B

REV. 07-01-25: REVISED ENVIRONMENTAL FEATURE NAMES PER THE EBR, REVISED EXISTING STORM DRAINAGE.



# STR-34 Collins Creek and STR-39

STR-34  
See Page 1 of Bridge 52 for impact markups

STR-39 no impact at this location  
Bridge pier outside of STR-39 OHWM  
See Page 7 of Bridge No. 51

STR-42  
See Page 8 of Bridge No. 51 for impact markups

SEALED BY

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID.

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

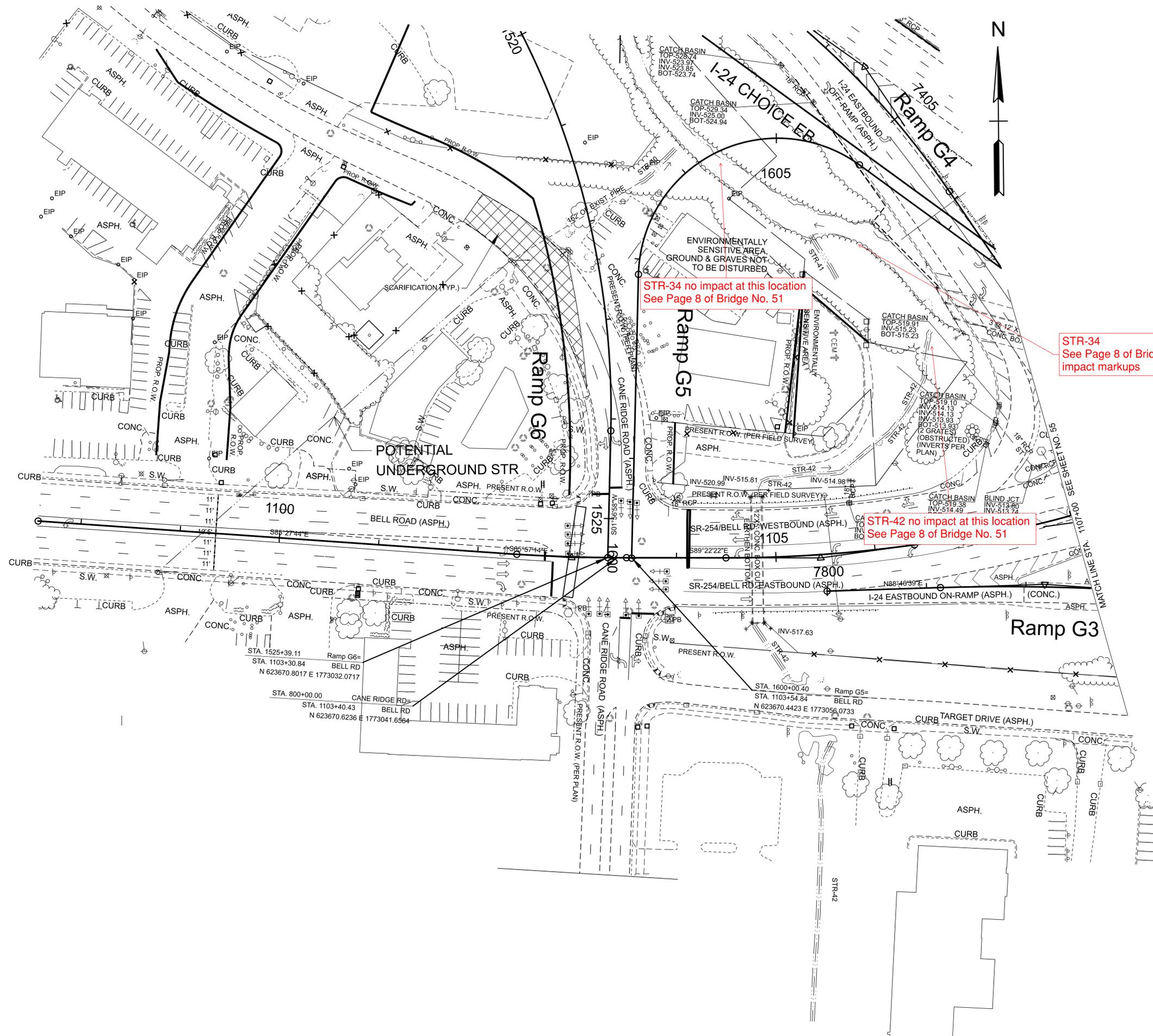
PROPOSED  
LAYOUT

STA. 504+00.00 TO STA. 513+00.00  
SCALE: 1" = 50'

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	128

REV. 07-01-25: REVISED ENVIRONMENTAL FEATURE NAMES PER THE EBR, REVISED EXISTING STORM DRAINAGE.

REV. 08-15-25: REVISED R.O.W. LABELS.



STR-34 no impact at this location  
See Page 8 of Bridge No. 51

STR-34  
See Page 8 of Bridge No. 51 for impact markups

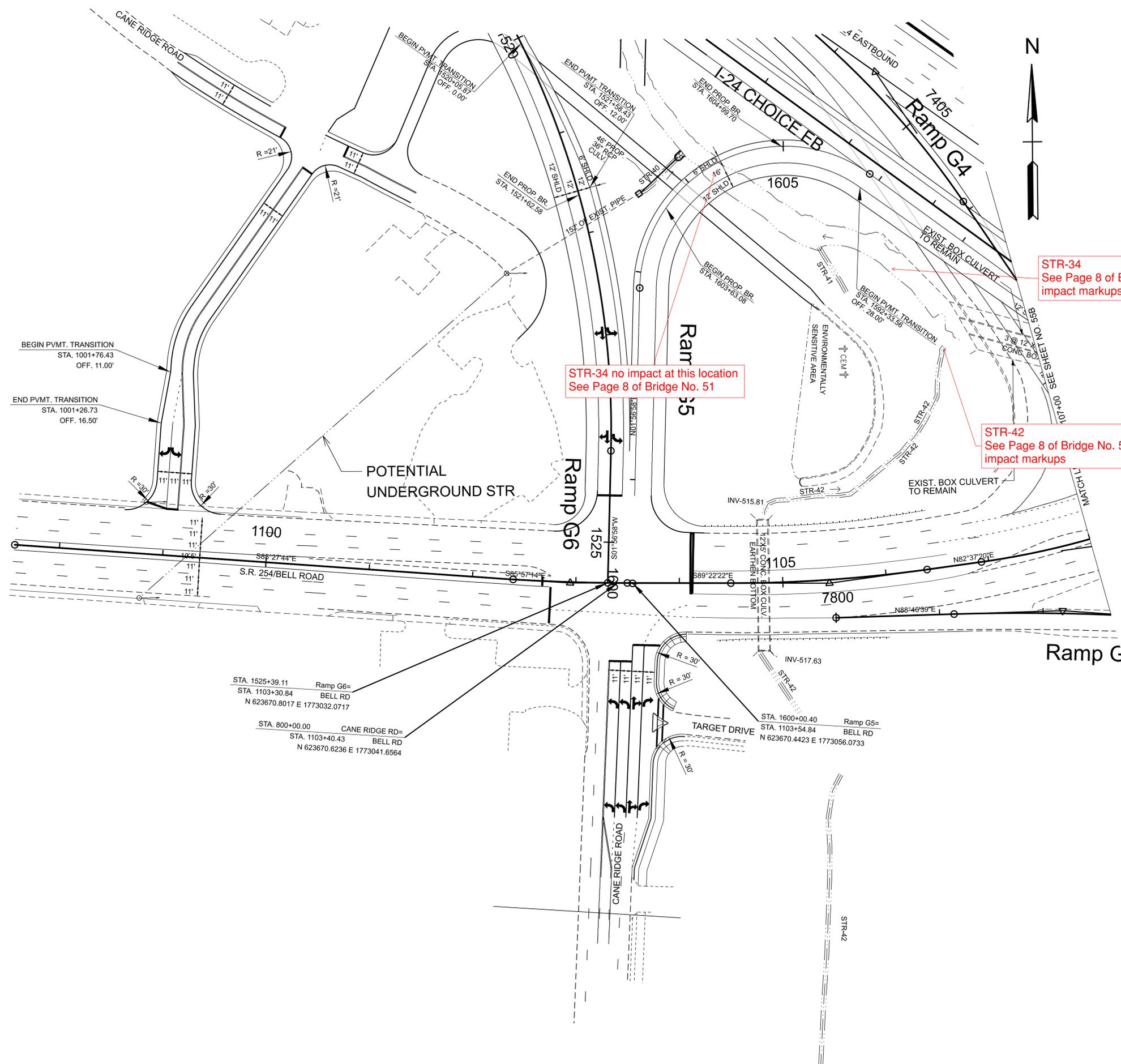
STR-42 no impact at this location  
See Page 8 of Bridge No. 51

<b>SEALED BY</b>
COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID.
<b>STATE OF TENNESSEE</b> <b>DEPARTMENT OF TRANSPORTATION</b>
<b>PRESENT LAYOUT</b>
STA. 1096+00.00 TO STA. 1108+00.00 SCALE: 1" = 50'

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TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	128B

REV. 07-01-25: REVISED ENVIRONMENTAL FEATURE NAMES PER THE EBR, REVISED EXISTING STORM DRAINAGE.



STR-34 no impact at this location  
See Page 8 of Bridge No. 51

STR-34  
See Page 8 of Bridge No. 51 for  
impact markings

STR-42  
See Page 8 of Bridge No. 51 for  
impact markings

BEGIN PVMT. TRANSITION  
STA. 1001+76.43  
OFF. 11.00'

END PVMT. TRANSITION  
STA. 1001+26.73  
OFF. 16.50'

POTENTIAL  
UNDERGROUND STR

STA. 1525+39.11 Ramp G6=  
STA. 1103+30.84 BELL RD  
N 623670.8017 E 1773032.0717

STA. 800+00.00 CANE RIDGE RD=  
STA. 1103+40.43 BELL RD  
N 623670.6236 E 1773041.6564

STA. 1600+00.40 Ramp G5=  
STA. 1103+54.84 BELL RD  
N 623670.4423 E 1773056.0733

SEALED BY

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID .

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

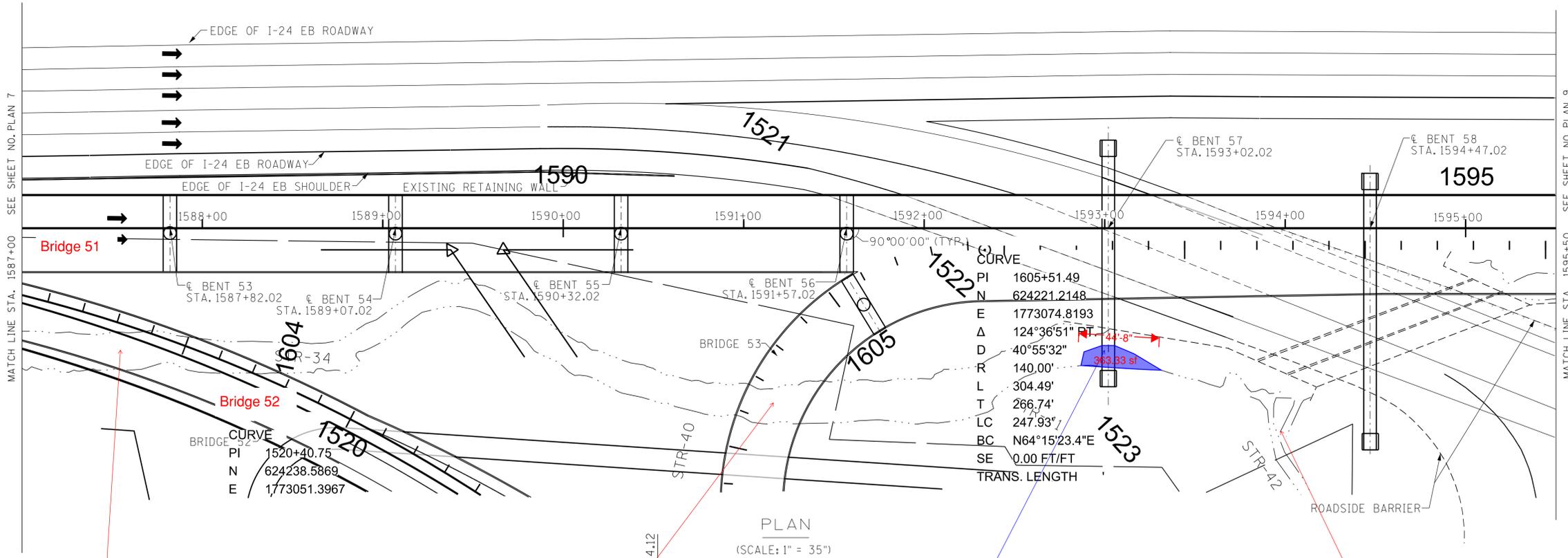
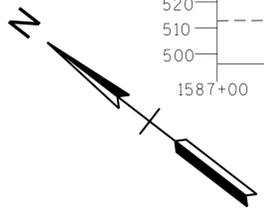
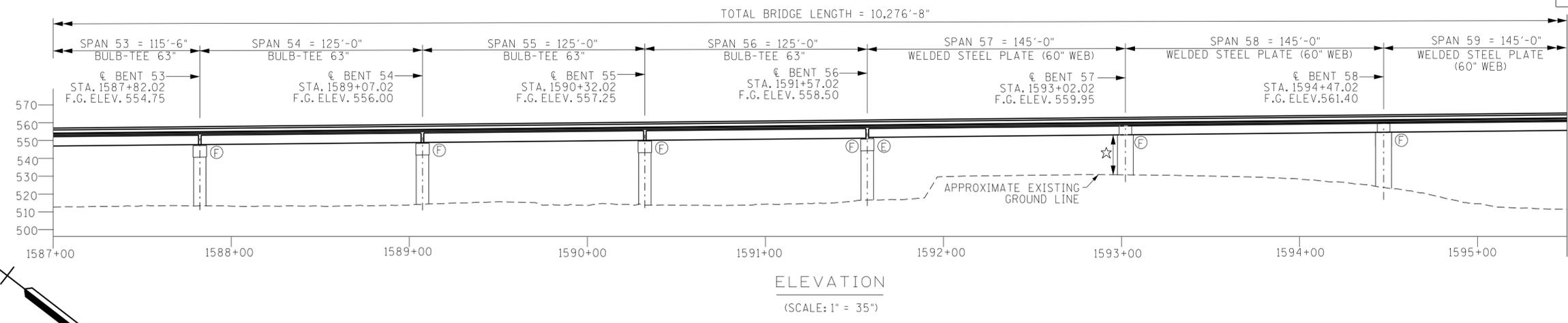
PROPOSED  
LAYOUT

STA. 1096+00.00 TO STA. 1108+00.00  
SCALE: 1" = 50'

10/16/2025 12:05:43 AM C:\CADD\LIB\PW\HNTB\_ERIC.MENDEZ\SEDI\VD0257019\VD01024-SHT-PROPOSEDLAYOUT.DGN

PROJECT NO.	YEAR	SHEET NO.	
R31024-S1-002	2025		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION

☆ DENOTES: 17'-0" PREFERRED MINIMUM VERTICAL CLEARANCE



STR-34 See Page 1 of Bridge 52 for impact markups

STR-34 no impact at this location

STR-34 Temporary dewatering impact 363 sf / 45 LF

STR-42 no impact at this location

I-24 CHOICE LANES  
BRIDGE NO. 51  
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
CONCEPTUAL LAYOUT

I-24 EASTBOUND CHOICE LANE  
OVER I-24 EASTBOUND AND  
BELL ROAD  
STA. 1517+53.19  
DAVIDSON COUNTY  
2025

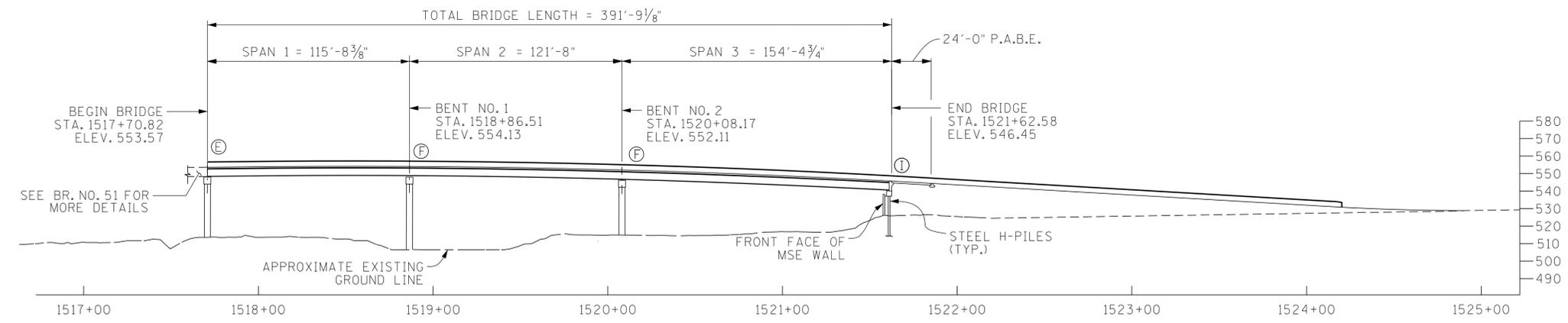
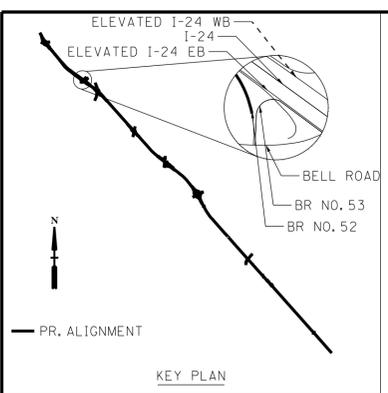
CAUTION!  
CONCEPTUAL  
PLANS  
SUBJECT TO  
CHANGE

VPT STA. 1586+26.41  
EL. 553.20

PROPOSED FINISHED GRADE

DESIGNED BY	J. GLOUDOUA	DATE	03/25
DRAWN BY	J. GLOUDOUA	DATE	03/25
SUPERVISED BY	K. McALISTER	DATE	03/25
CHECKED BY	M. DAVIS	DATE	03/25

PROJECT NO.	YEAR	SHEET NO.	
R31024-S1-002	2025		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION



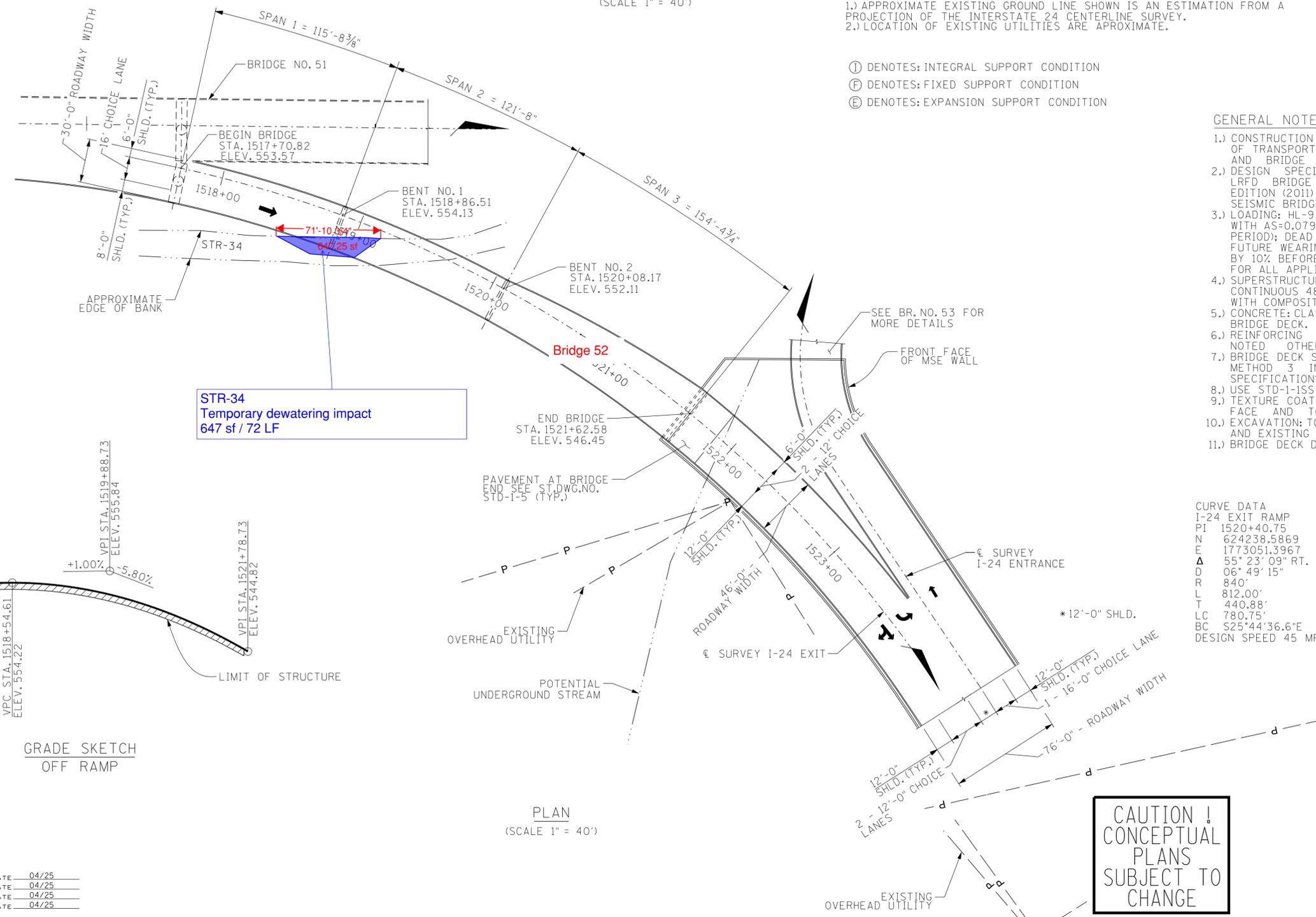
ELEVATION  
(SCALE 1" = 40')

NOTE:  
1.) APPROXIMATE EXISTING GROUND LINE SHOWN IS AN ESTIMATION FROM A PROJECTION OF THE INTERSTATE 24 CENTERLINE SURVEY.  
2.) LOCATION OF EXISTING UTILITIES ARE APPROXIMATE.

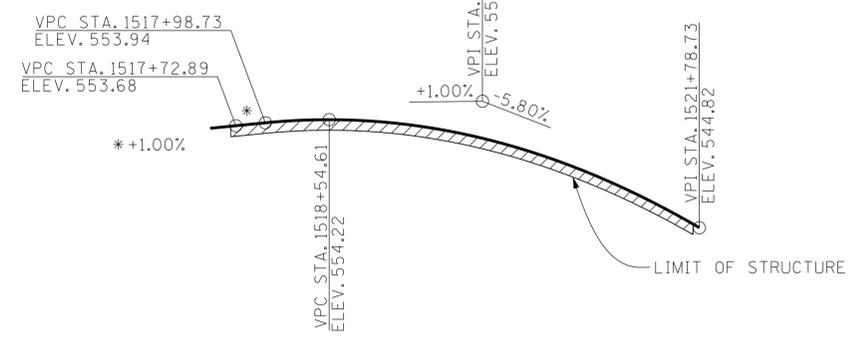
- Ⓜ DENOTES: INTEGRAL SUPPORT CONDITION
- Ⓧ DENOTES: FIXED SUPPORT CONDITION
- Ⓨ DENOTES: EXPANSION SUPPORT CONDITION

GENERAL NOTES:

- 1.) CONSTRUCTION SPECIFICATIONS; TENNESSEE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (JANUARY 1, 2021 EDITION)
- 2.) DESIGN SPECIFICATIONS; 10TH EDITION (2024) AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND THE 2ND EDITION (2011) AASHTO GUIDE SPECIFICATIONS FOR LRFD SEISMIC BRIDGE DESIGN WITH INTERIM'S.
- 3.) LOADING; HL-93 LIVE LOADING; SEISMIC CATEGORY "A" WITH AS=0.079, SDS=0.193, SDI=0.074 (1000 YEAR RETURN PERIOD); DEAD LOADS TO INCLUDE 35 LB/SQ. FT. FOR FUTURE WEARING SURFACE. HL-93 LIVE LOADING INCREASED BY 10% BEFORE APPLYING ALL APPLICABLE LOAD FACTORS FOR ALL APPLICABLE LOAD COMBINATIONS.
- 4.) SUPERSTRUCTURE; TO CONSIST OF FIVE SPAN OF CONTINUOUS 48 INCH WEB WELDED STEEL PLATE GIRDERS WITH COMPOSITE CONCRETE SLAB.
- 5.) CONCRETE; CLASS A FC'=3000, CLASS D FC'=4000 PSI FOR BRIDGE DECK.
- 6.) REINFORCING STEEL; TO BE ASTM A615 GRADE 60 UNLESS NOTED OTHERWISE. EPOXY COAT ALL SLAB STEEL.
- 7.) BRIDGE DECK SURFACE FINISH; TO BE IN ACCORDANCE WITH METHOD 3 IN ARTICLE 604.22 OF THE STANDARD SPECIFICATIONS.
- 8.) USE STD-1-ISS PARAPETS.
- 9.) TEXTURE COATING; TO BE GRAY (36440) EXCEPT TRAFFIC FACE AND TOP OF PARAPET TO BE WHITE (37886).
- 10.) EXCAVATION; TO BE BASED ON FINAL PROFILE AT ABUTMENTS AND EXISTING GROUND AT BENTS.
- 11.) BRIDGE DECK DRAINS ARE NOT REQUIRED.



PLAN  
(SCALE 1" = 40')



GRADE SKETCH  
OFF RAMP

CURVE DATA  
I-24 EXIT RAMP  
PI 1520+40.75  
N 624238.5869  
E 1773051.3967  
Δ 55° 23' 09" RT.  
D 06° 49' 15"  
R 840'  
L 812.00'  
T 440.88'  
LC 780.75'  
BC S25°44'36.6"E  
DESIGN SPEED 45 MPH

2052 ADT = 5225  
VARIES ROADWAY,  
WITH STD-1-ISS PARAPET  
DESIGN SPEED = 45 MPH

I-24 CHOICE LANES  
BRIDGE NO. 52  
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
CONCEPTUAL LAYOUT

I-24 EASTBOUND  
EXIT RAMP  
TO BELL RD.  
STA. 1517+61.51  
DAVIDSON COUNTY  
2025

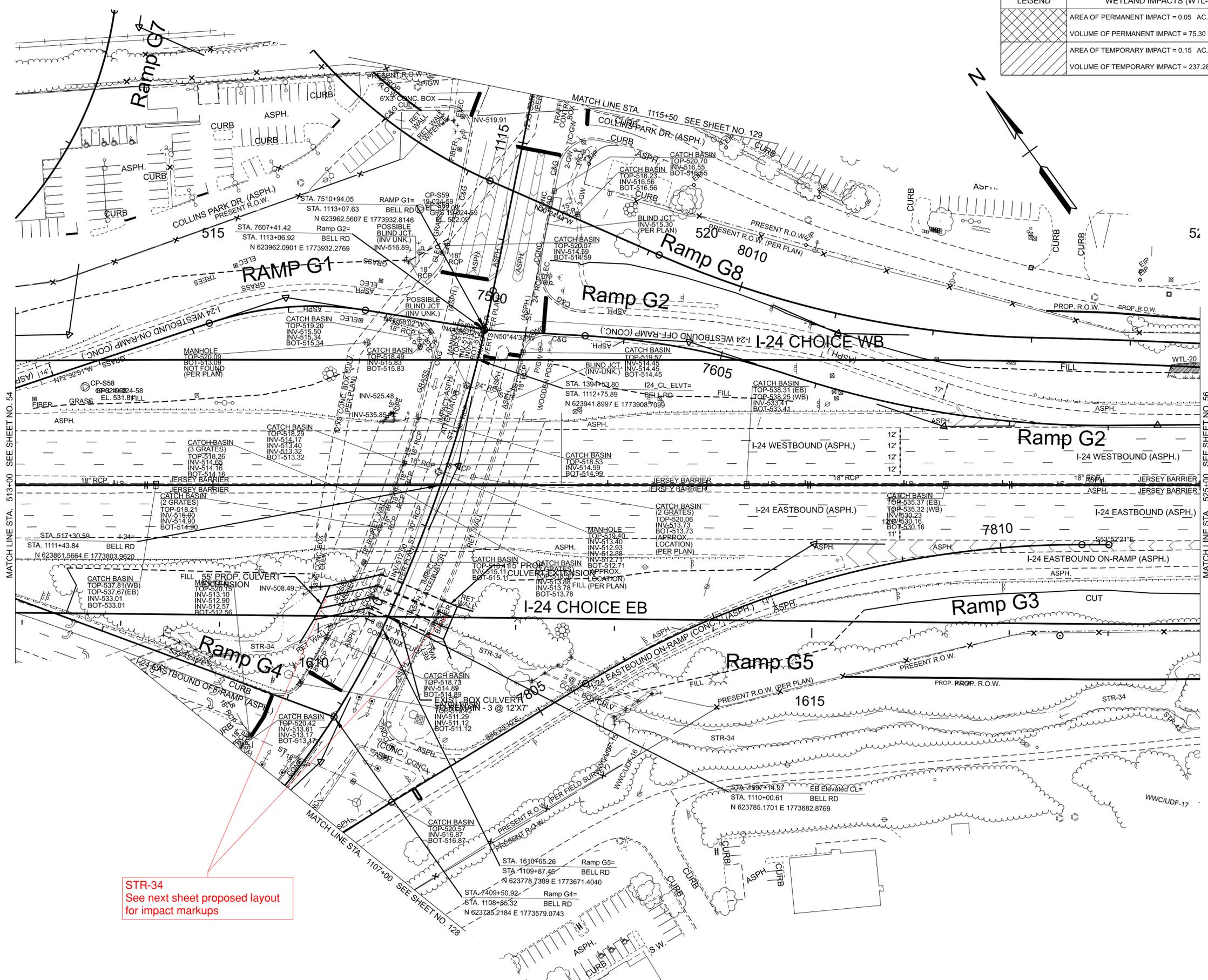
**CAUTION !  
CONCEPTUAL  
PLANS  
SUBJECT TO  
CHANGE**

DESIGNED BY	N. PETRELLA	DATE	04/25
DRAWN BY	N. PETRELLA	DATE	04/25
SUPERVISED BY	K. McALISTER	DATE	04/25
CHECKED BY	M. DAVIS	DATE	04/25

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R3I024-S1-002	55

REV. 07-01-25: REVISED ENVIRONMENTAL FEATURE NAMES PER THE EBR, REVISED EXISTING STORM DRAINAGE, ADDED WETLAND IMPACT TABLE.

LEGEND	WETLAND IMPACTS (WTL-20)
	AREA OF PERMANENT IMPACT = 0.05 AC. VOLUME OF PERMANENT IMPACT = 75.30 C.Y.
	AREA OF TEMPORARY IMPACT = 0.15 AC. VOLUME OF TEMPORARY IMPACT = 237.28 C.Y.



MATCH LINE STA. 513+00 SEE SHEET NO. 54

MATCH LINE STA. 825+00 SEE SHEET NO. 56

**STR-34**  
See next sheet proposed layout for impact markups

**SEALED BY**

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 12B.

**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

**PRESENT  
LAYOUT**

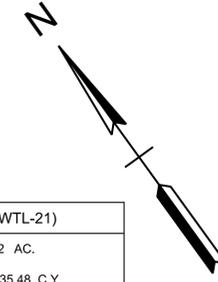
STA. 513+00.00 TO STA. 825+00.00  
SCALE: 1" = 50'





TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	56

REV. 07-01-25: REVISED ENVIRONMENTAL FEATURE NAMES PER THE EBR, REVISED EXISTING STORM DRAINAGE, REVISED SLOPE LINES, ADDED WETLAND IMPACT TABLES.



LEGEND	WETLAND IMPACTS (WTL-21)
	AREA OF PERMANENT IMPACT = 0.02 AC.
	VOLUME OF PERMANENT IMPACT = 35.48 C.Y.
	AREA OF TEMPORARY IMPACT = 0.15 AC.
	VOLUME OF TEMPORARY IMPACT = 237.28 C.Y.

LEGEND	WETLAND IMPACTS (WTL-20)
	AREA OF PERMANENT IMPACT = 0.05 AC.
	VOLUME OF PERMANENT IMPACT = 75.30 C.Y.
	AREA OF TEMPORARY IMPACT = 0.15 AC.
	VOLUME OF TEMPORARY IMPACT = 237.28 C.Y.

STR-43  
No impact in this location

STR-34  
See next sheet proposed layout for impact markings

**SEALED BY**

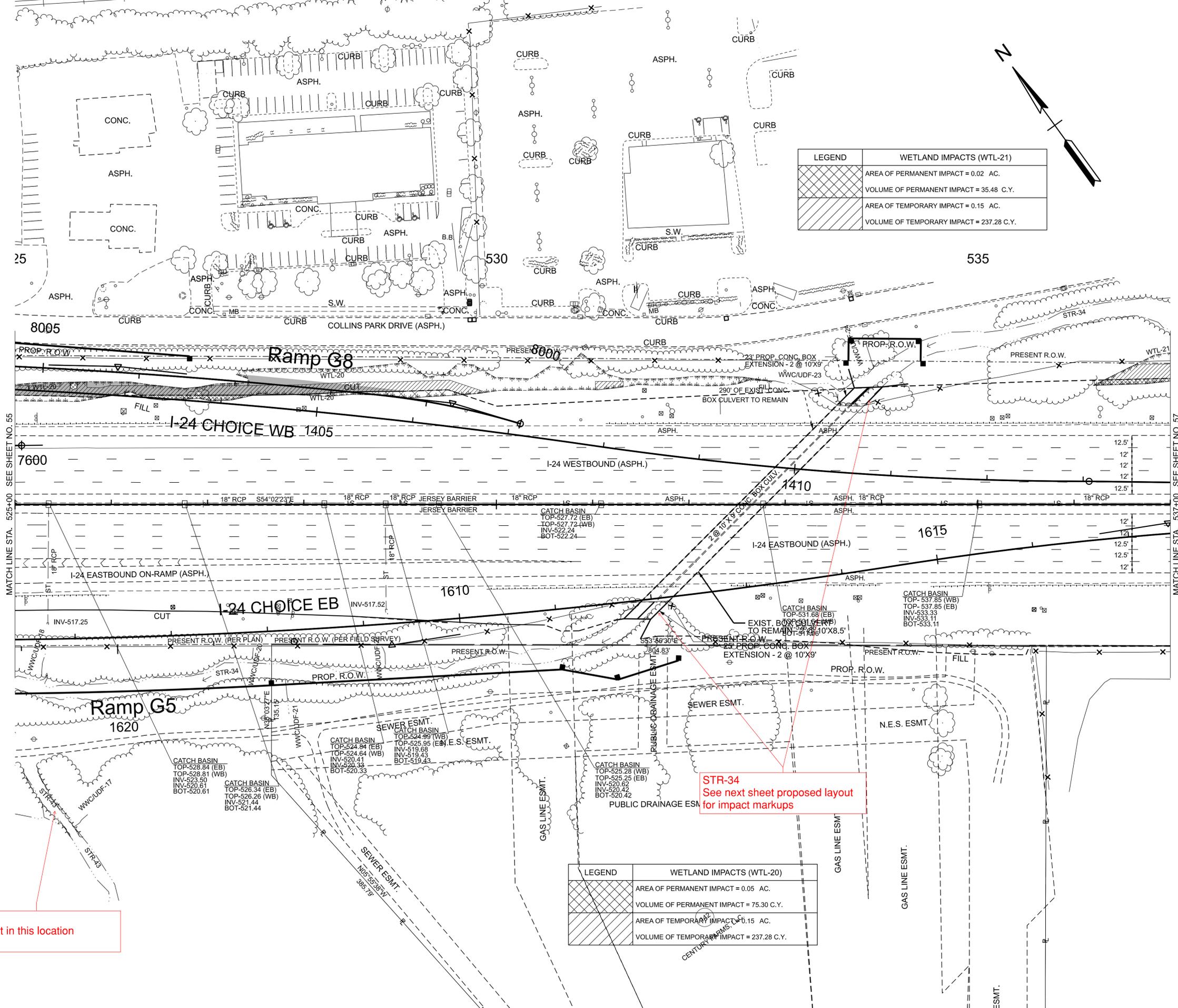
COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 12B.

**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

**PRESENT  
LAYOUT**

STA. 525+00.00 TO STA. 537+00.00  
SCALE: 1" = 50'

10/29/2025 12:13:48 PM C:\CADD\LIB\PW\HNTB\_ALAN\JOLLY\SEIDVID0257019\IDV01024-SHT-PRESENT LAYOUT.DGN

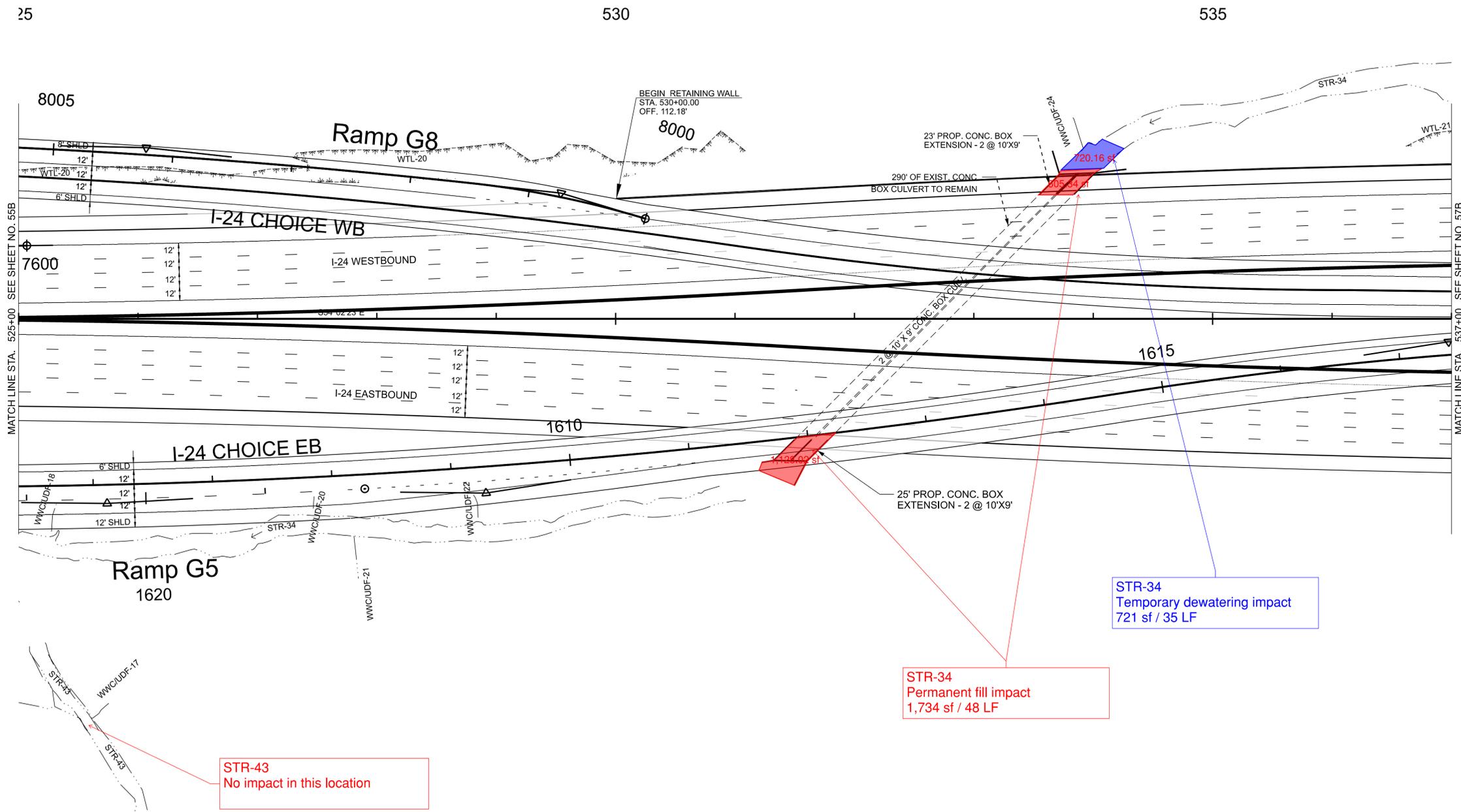
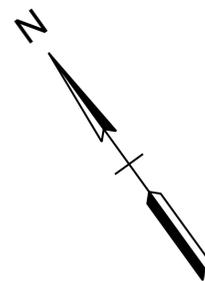


MATCH LINE STA. 525+00 SEE SHEET NO. 55

MATCH LINE STA. 537+00 SEE SHEET NO. 57

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	56B

REV. 07-01-25: REVISED ENVIRONMENTAL FEATURE NAMES PER THE EBR, REVISED EXISTING STORM DRAINAGE, ADJUSTED RETAINING WALL LOCATION.

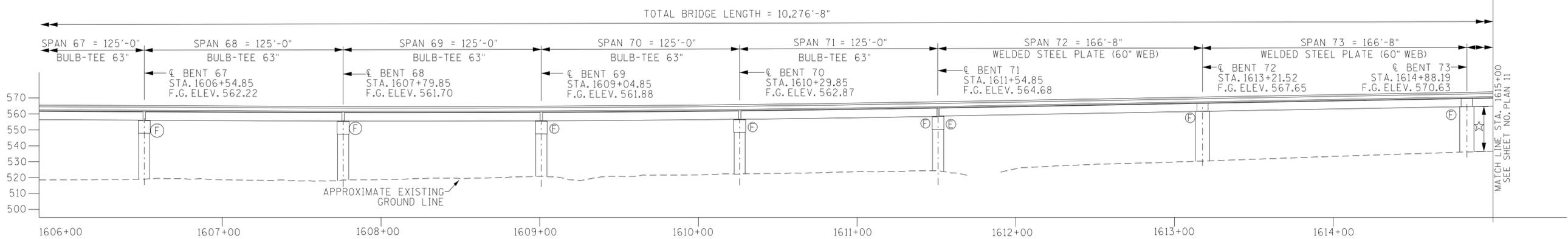
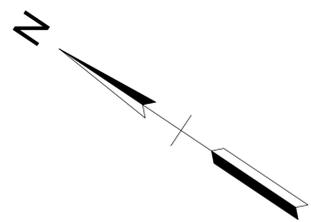


# STR-34 Collins Creek

<b>SEALED BY</b>
<p>COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID .</p> <p><b>STATE OF TENNESSEE DEPARTMENT OF TRANSPORTATION</b></p> <p style="text-align: center;"><b>PROPOSED LAYOUT</b></p> <p style="text-align: center;">STA. 525+00.00 TO STA. 537+00.00 SCALE: 1" = 50'</p>

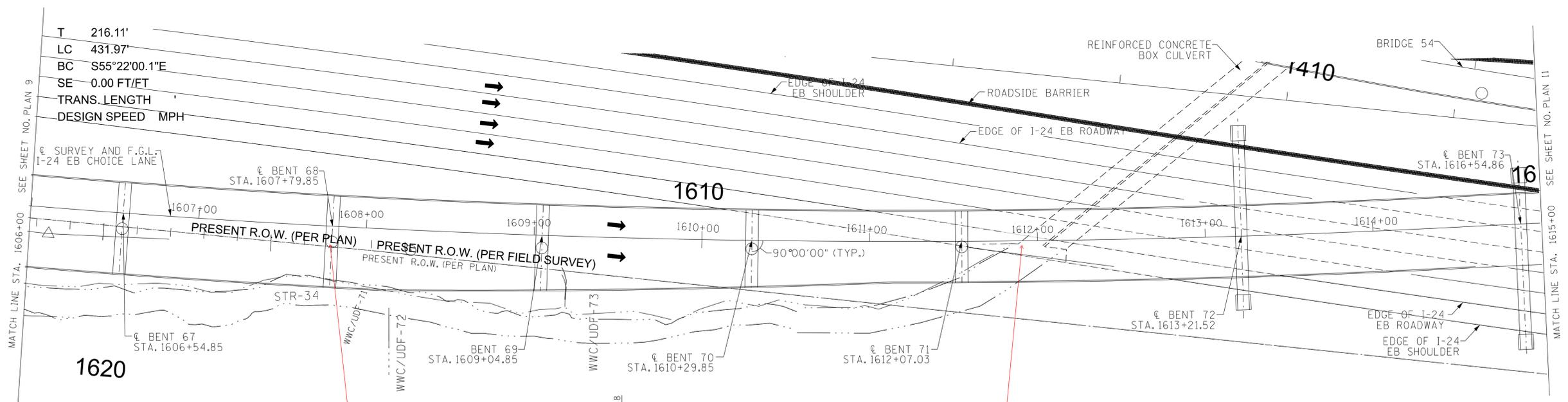
10/29/2025 12:14:28 PM C:\CADD\LIB\PW\HNTB\_ERIC.MENDEZ\SED\VD0257019\VD01024-SHT-PROPOSEDLAYOUT.DGN

PROJECT NO.	YEAR	SHEET NO.	
R31024-S1-002	2025		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION

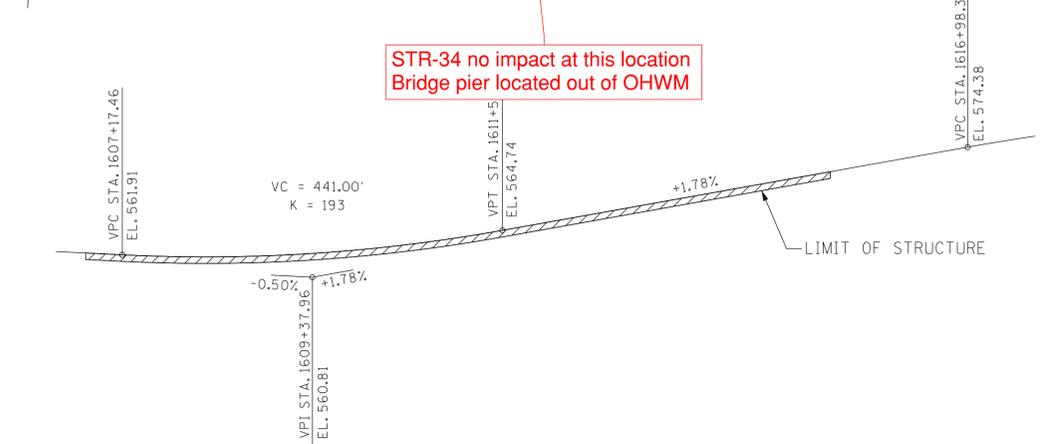


ELEVATION  
(SCALE: 1" = 35')

☆ DENOTES: 17'-0" PREFERRED MINIMUM VERTICAL CLEARANCE



PLAN  
(SCALE: 1" = 35')



STR-34 no impact at this location  
Bridge pier located out of OHWM

STR-34  
See previous sheet proposed  
layout for impact markups

CAUTION!  
CONCEPTUAL  
PLANS  
SUBJECT TO  
CHANGE

I-24 CHOICE LANES  
BRIDGE NO. 51  
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
CONCEPTUAL LAYOUT

I-24 EASTBOUND CHOICE LANE  
OVER I-24 EASTBOUND AND  
BELL ROAD  
STA. 1517+53.19  
DAVIDSON COUNTY  
2025

\$\$\$\$\$\$SYTIME\$\$\$\$\$\$  
 \$\$\$\$\$\$DONSPEC\$\$\$\$\$\$  
 DESIGNED BY J. GLOUDDUA DATE 03/25  
 DRAWN BY J. GLOUDDUA DATE 03/25  
 SUPERVISED BY K. McALISTER DATE 03/25  
 CHECKED BY M. DAVIS DATE 03/25

PROPOSED FINISHED GRADE

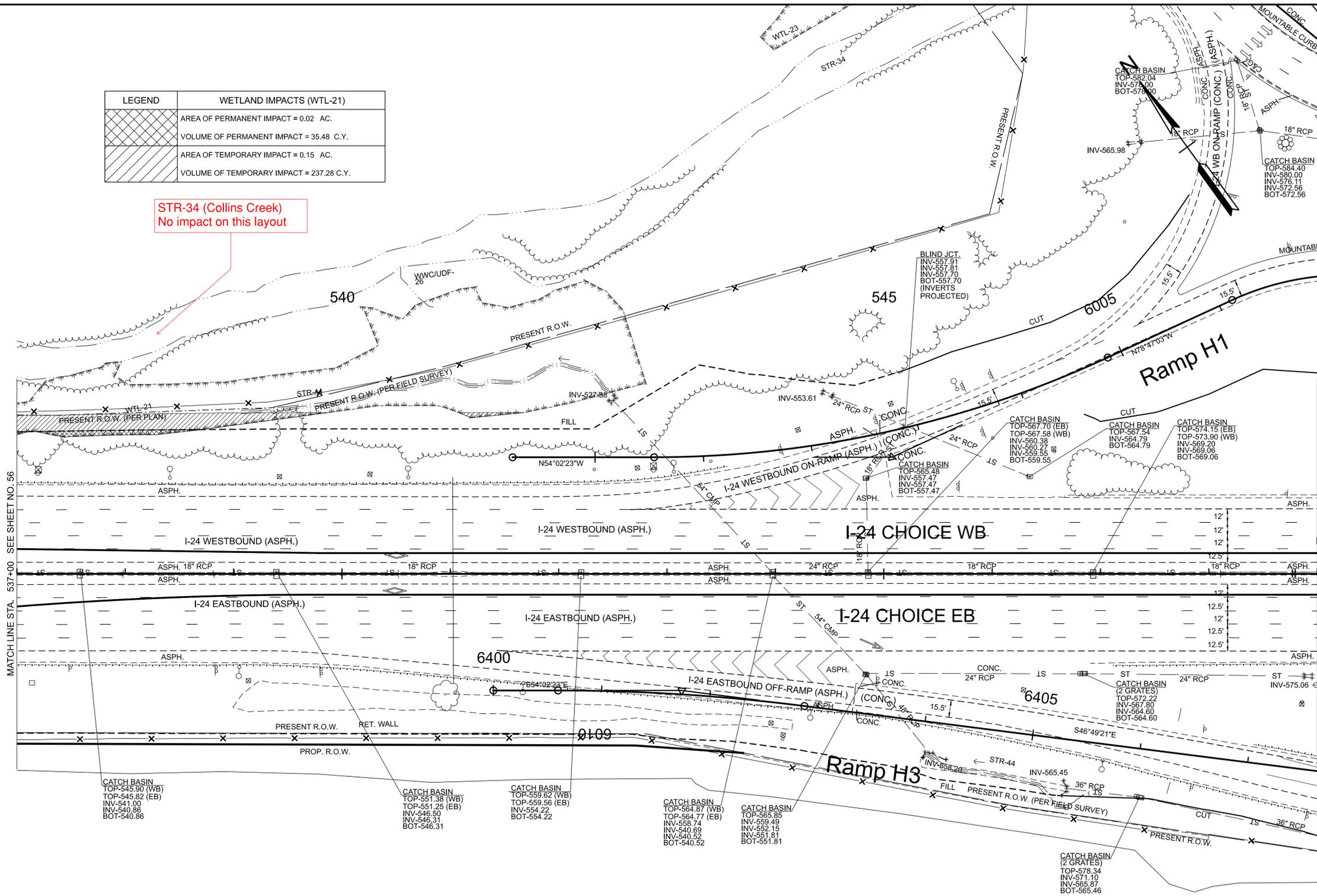
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R3I024-S1-002	57

REV. 07-01-25: REVISED ENVIRONMENTAL FEATURE NAMES PER THE EBR, REVISED EXISTING STORM DRAINAGE, REVISED SLOPE LINES, ADDED WETLAND IMPACT TABLE.

REV. 08-15-25: REVISED R.O.W. AND SLOPE LINE LABELS.

LEGEND	WETLAND IMPACTS (WTL-21)
	AREA OF PERMANENT IMPACT = 0.02 AC. VOLUME OF PERMANENT IMPACT = 35.48 C.Y.
	AREA OF TEMPORARY IMPACT = 0.15 AC. VOLUME OF TEMPORARY IMPACT = 237.28 C.Y.

STR-34 (Collins Creek)  
No impact on this layout



MATCH LINE STA. 537+00 SEE SHEET NO. 56

MATCH LINE STA. 549+00 SEE SHEET NO. 58

**SEALED BY**

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 12B.

**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

**PRESENT  
LAYOUT**

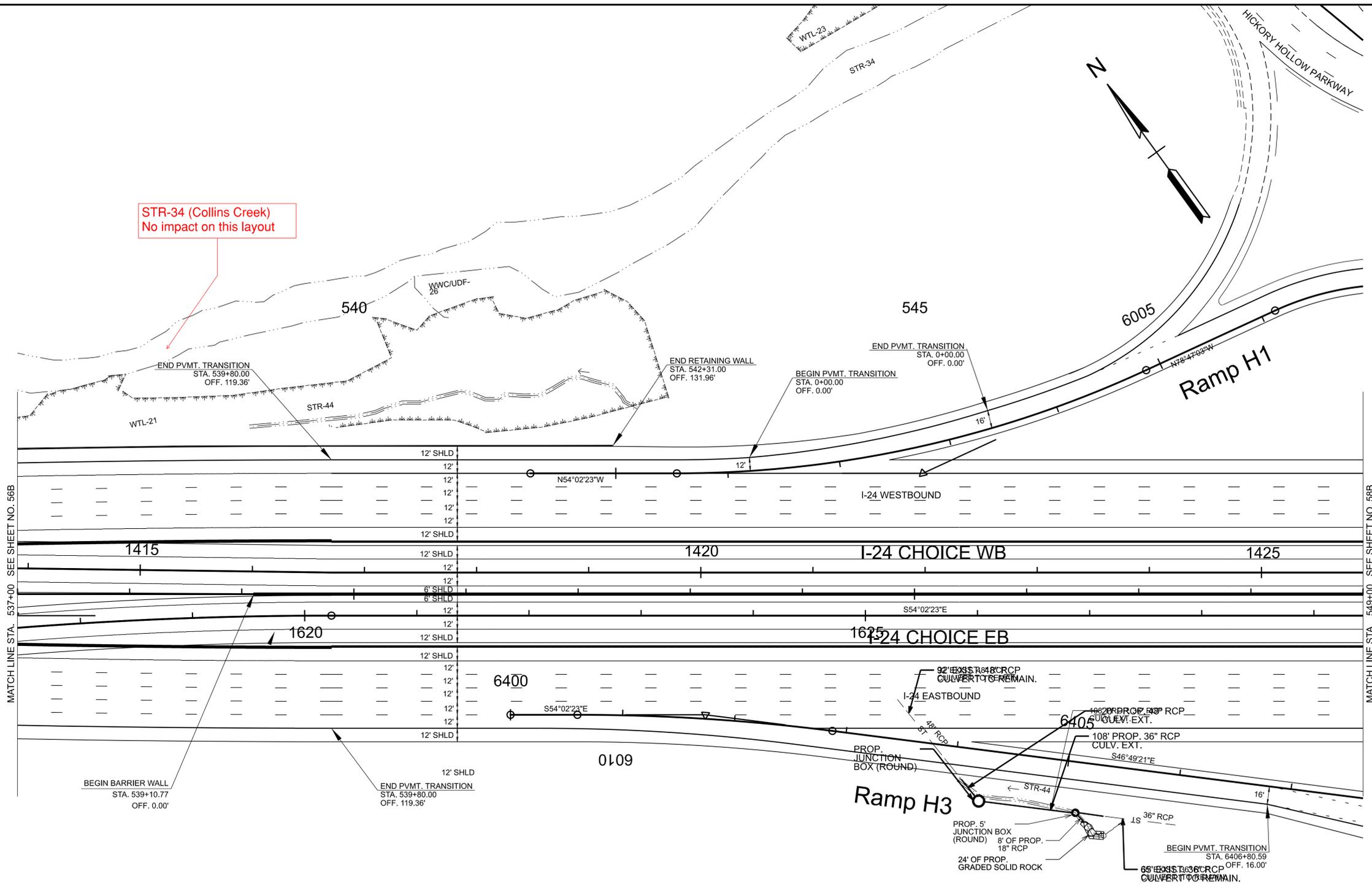
STA. 537+00.00 TO STA. 549+00.00  
SCALE: 1" = 50'

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UNDER CONSTRUCTION

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	57B

REV. 07-01-25: REVISED ENVIRONMENTAL FEATURE NAMES PER THE EBR, REVISED EXISTING STORM DRAINAGE, ADJUSTED RETAINING WALL LOCATION.



STR-34 (Collins Creek)  
No impact on this layout

MATCH LINE STA. 537+00 SEE SHEET NO. 56B

MATCH LINE STA. 549+00 SEE SHEET NO. 58B

**SEALED BY**

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID.

**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

**PROPOSED  
LAYOUT**

STA. 537+00.00 TO STA. 549+00.00  
SCALE: 1" = 50'

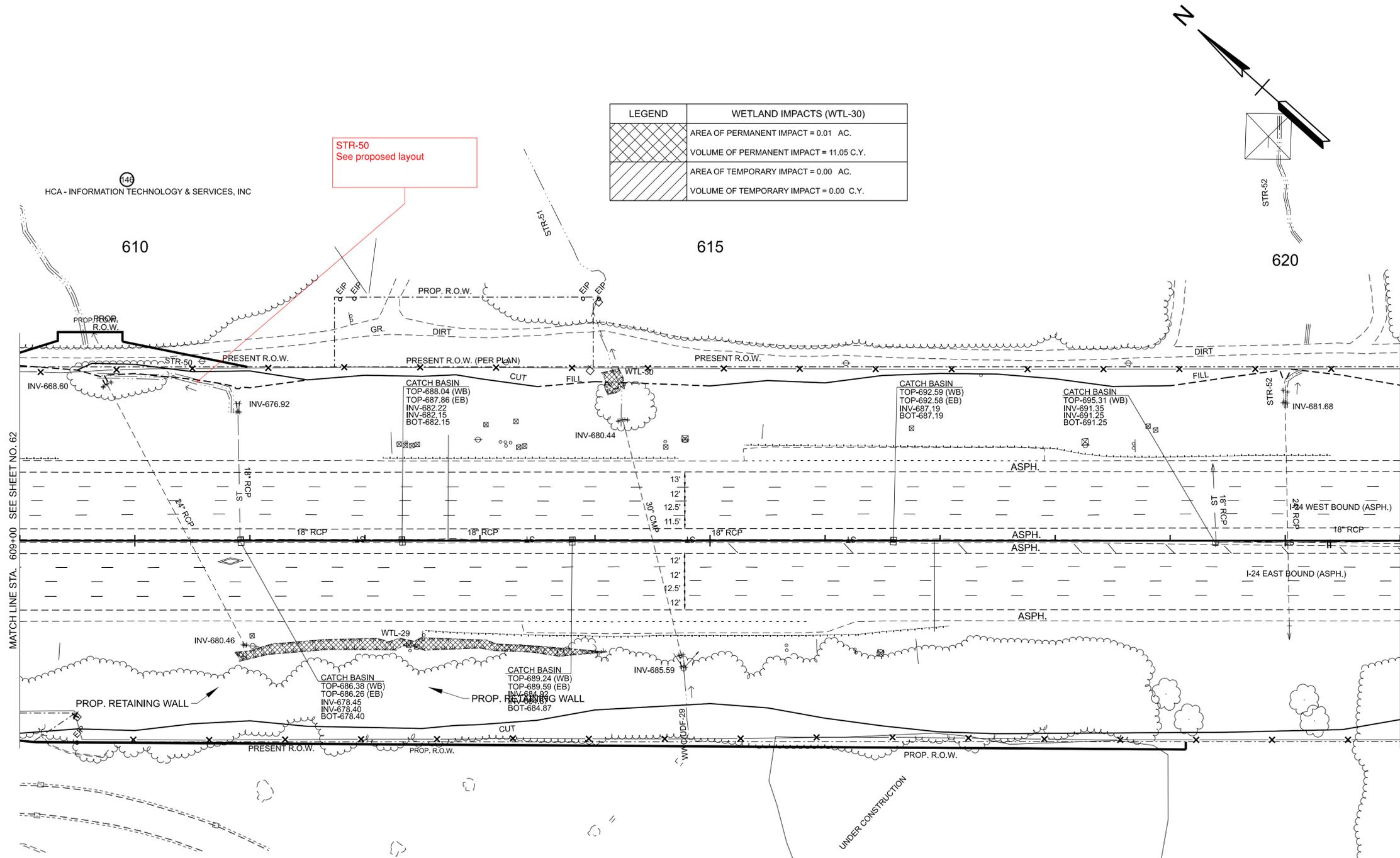
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	63

REV. 07-01-25: REVISED ENVIRONMENTAL FEATURE NAMES PER THE EBR, REVISED EXISTING STORM DRAINAGE, ADDED WETLAND IMPACT TABLES.

REV. 08-15-2025: REVISED PROPOSED R.O.W. AND SLOPE LINES. REVISED R.O.W. AND SLOPE LINE LABELS.

LEGEND	WETLAND IMPACTS (WTL-30)
	AREA OF PERMANENT IMPACT = 0.01 AC.
	VOLUME OF PERMANENT IMPACT = 11.05 C.Y.
	AREA OF TEMPORARY IMPACT = 0.00 AC.
	VOLUME OF TEMPORARY IMPACT = 0.00 C.Y.

STR-50  
See proposed layout



LEGEND	WETLAND IMPACTS (WTL-29)
	AREA OF PERMANENT IMPACT = 0.06 AC.
	VOLUME OF PERMANENT IMPACT = 89.90 C.Y.
	AREA OF TEMPORARY IMPACT = 0.00 AC.
	VOLUME OF TEMPORARY IMPACT = 0.00 C.Y.

CURB  
(ASPH.) CURB

**SEALED BY**

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 12B.

**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

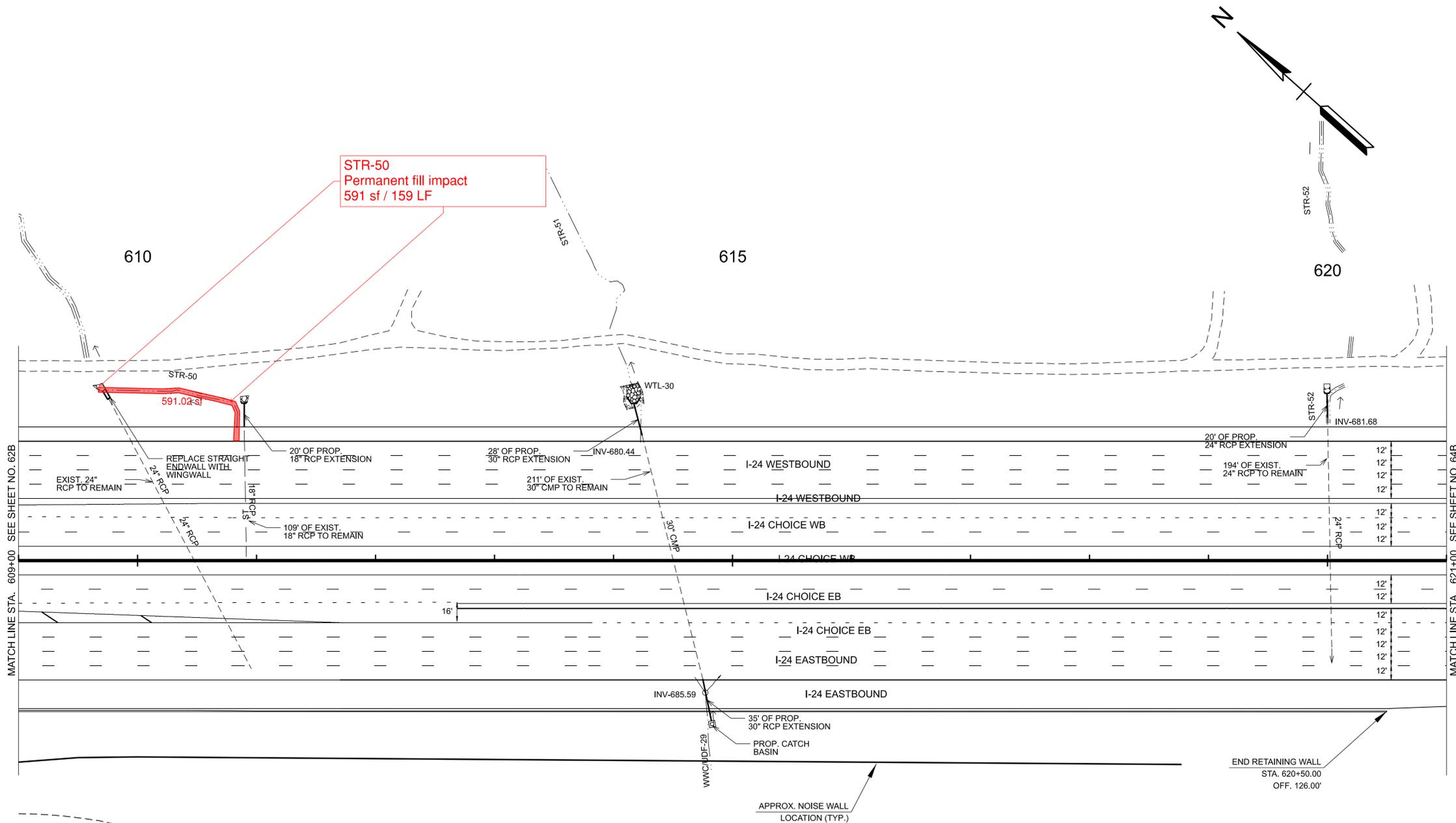
**PRESENT  
LAYOUT**

STA. 609+00.00 TO STA. 621+00.00  
SCALE: 1" = 50'

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONCEPT	2025	R31024-S1-002	63B

REV. 07-01-25: REVISED ENVIRONMENTAL FEATURE NAMES PER THE EBR, REVISED EXISTING STORM DRAINAGE.

REV. 08-15-25: REVISED NOISE WALL LOCATION



**SEALED BY**

Blank space for signature.

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00006 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID .

**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

**PROPOSED  
LAYOUT**

STA. 609+00.00 TO STA. 621+00.00  
SCALE: 1" = 50'

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## **APPENDIX E. CONSULTATION HISTORY**

## USFWS Correspondence & Consultation History

August 8, 2024 – TDOT Ecology requests official species list requested from the USFWS Tennessee Ecological Services Field Office.

September 3, 2024- USFWS response received with concerns for the federally endangered Nashville crayfish (*Faxonius shoupi*), Guthrie's (=Pyne's) ground plum (*Astragalus bibullatus*), leafy prairie clover (*Dalea foliosa*), Braun's rock cress (*Arabis* (=Boecherra) *perstellata*), the proposed endangered tricolored bat (*Perimyotis subflavus*), and the federally petitioned and State-listed streamside salamander (*Ambystoma barbouri*).

January 15, 2025 – TDOT Ecology submits “Not Likely to Adversely Affect” (NLAA) determinations for the Guthrie's (=Pyne's) ground plum (*Astragalus bibullatus*), leafy prairie clover (*Dalea foliosa*), Braun's rock cress (*Arabis* (=Boecherra) *perstellata*), and the proposed endangered tricolored bat (*Perimyotis subflavus*).

January 27, 2025 – USFWS response received concurring with the NLAA effects determinations made by TDOT Ecology and acknowledging the continued assessment of impacts to Nashville crayfish (*Faxonius shoupi*) to be addressed through the submittal of a Biological Assessment at a later date.

March 5, 2025 – TDOT Ecology Section submits Biological Assessment to the U.S. Fish and Wildlife Service (via the Federal Highway Administration), with a determination of may affect, likely to adversely affect the Nashville crayfish, *Faxonius shoupi*.

March 24, 2025 - FHWA initiates Formal Consultation with USFWS for Nashville crayfish

March 25, 2025 - USFWS determines BA submittal is complete and begins Formal Consultation

December 2025 - TDOT Ecology Section submits revised Biological Assessment due to design changes and updated habitat suitability based on field assessments