



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL DIVISION
ENVIRONMENTAL TECHNICAL STUDIES OFFICE
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BUTCH ELELY
DEPUTY GOVERNOR &
COMMISSIONER OF TRANSPORTATION

BILL LEE
GOVERNOR

MEMORANDUM

To: Jeff Blevins
Alternative Delivery-Manager

From: James Ian Quilliams
Region 2 Ecology-Senior Technical Specialist

Date: 7/1/2025

Subject: Environmental Boundaries Report for:
Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement
PIN Number: 130900.00

An ecological evaluation of the subject project has been conducted in response to an initial evaluation request with the following results:

STREAMS: There is one (1) stream and two (2) wet weather conveyances identified within the project limits.

WETLANDS: There are three (3) wetlands identified within the project limits.

OTHER FEATURES: There is one (1) pond identified within the project limits.

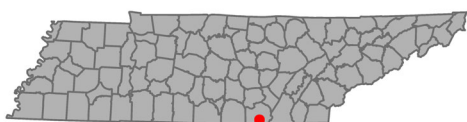
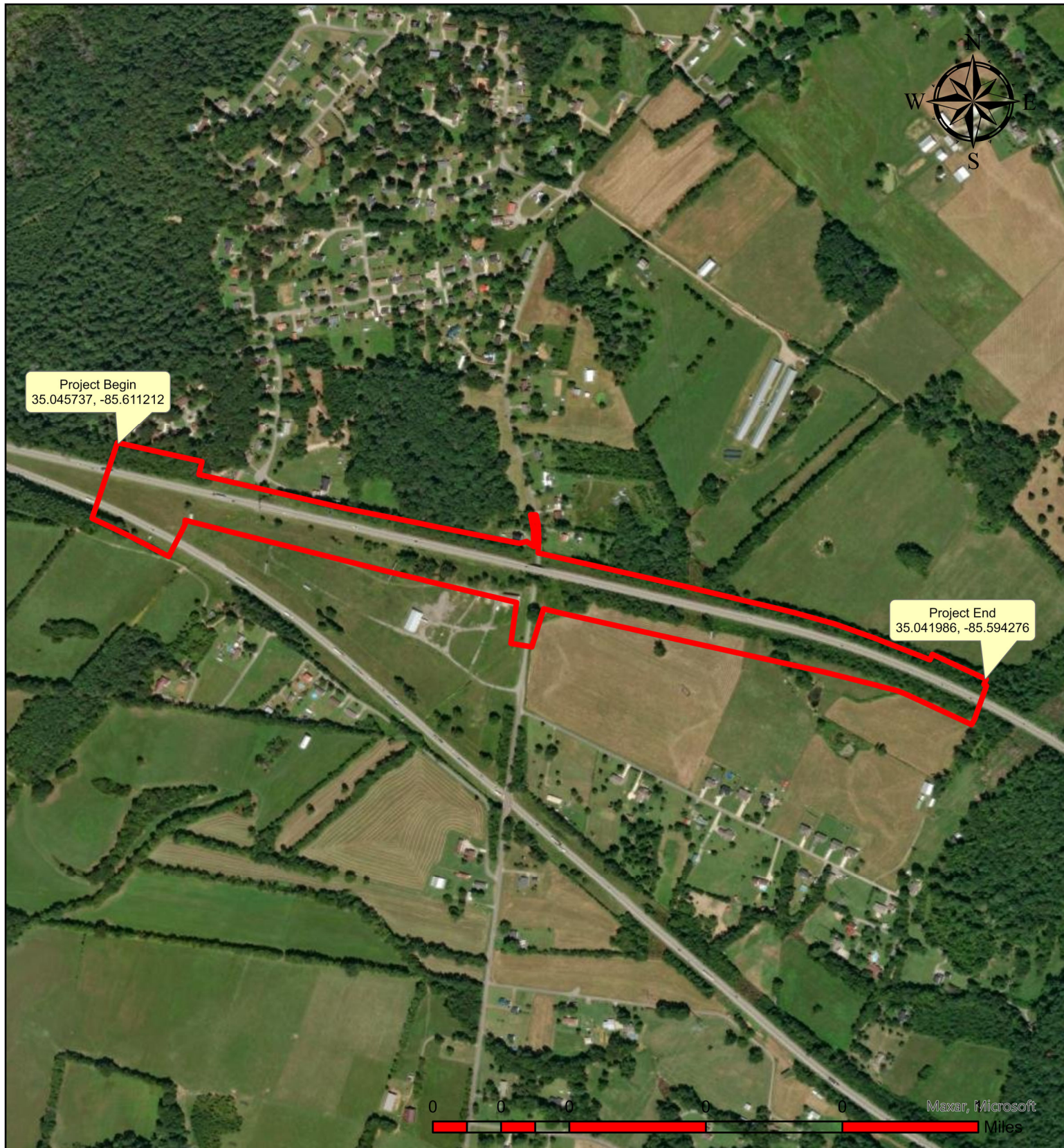
SPECIES:

- USFWS: Coordination with USFWS has been completed resulting in a project commitment.
- TWRA: Coordination with TWRA has been completed with no species concerns.
- TDEC DNA: TDOT ecology has determined that the subject project meets condition (1) of the TDEC DNA MOA.

COMMITMENTS: All tree clearing activities will take place between November 16th and March 31st.

Your assistance is appreciated. If you have any questions or comments, please contact me at (423-463-6103) or James.Quilliams@tn.gov.

CC: Region 2 Environmental Section: Scott Medlin, Chester Sutherland, Colby Mann, Rooney
 Ramos, Jesse Wooden
 Region Preconstruction: Doug Ford, Jason Ingram, Rachel Gentry
 HQ Ecology: Brendan Barney, Dennis Crumby
 HQ Permits: Shawn Wurst
 TDOT.Env.Ecology@tn.gov
 TDOT.Env.Permits@tn.gov
 TDOT.Env.Mitigation@tn.gov
 TDOT.Env.NEPA@tn.gov



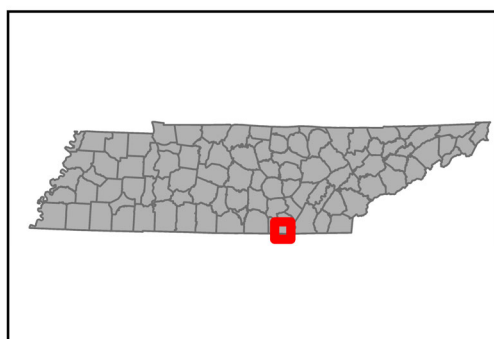
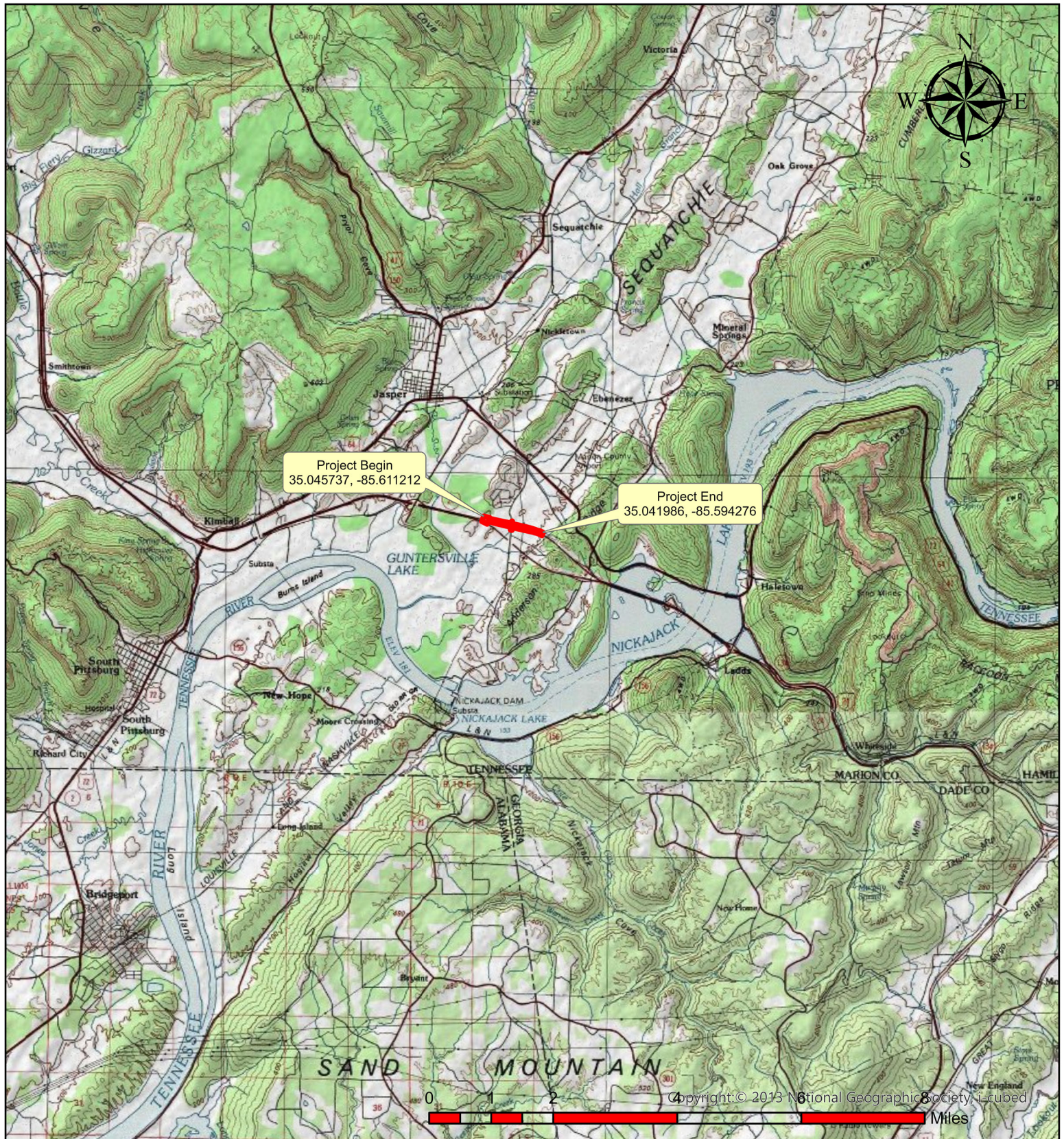
Project Location Aerial Map

Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement

9/4/2024

PIN 130900.00





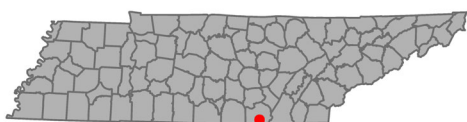
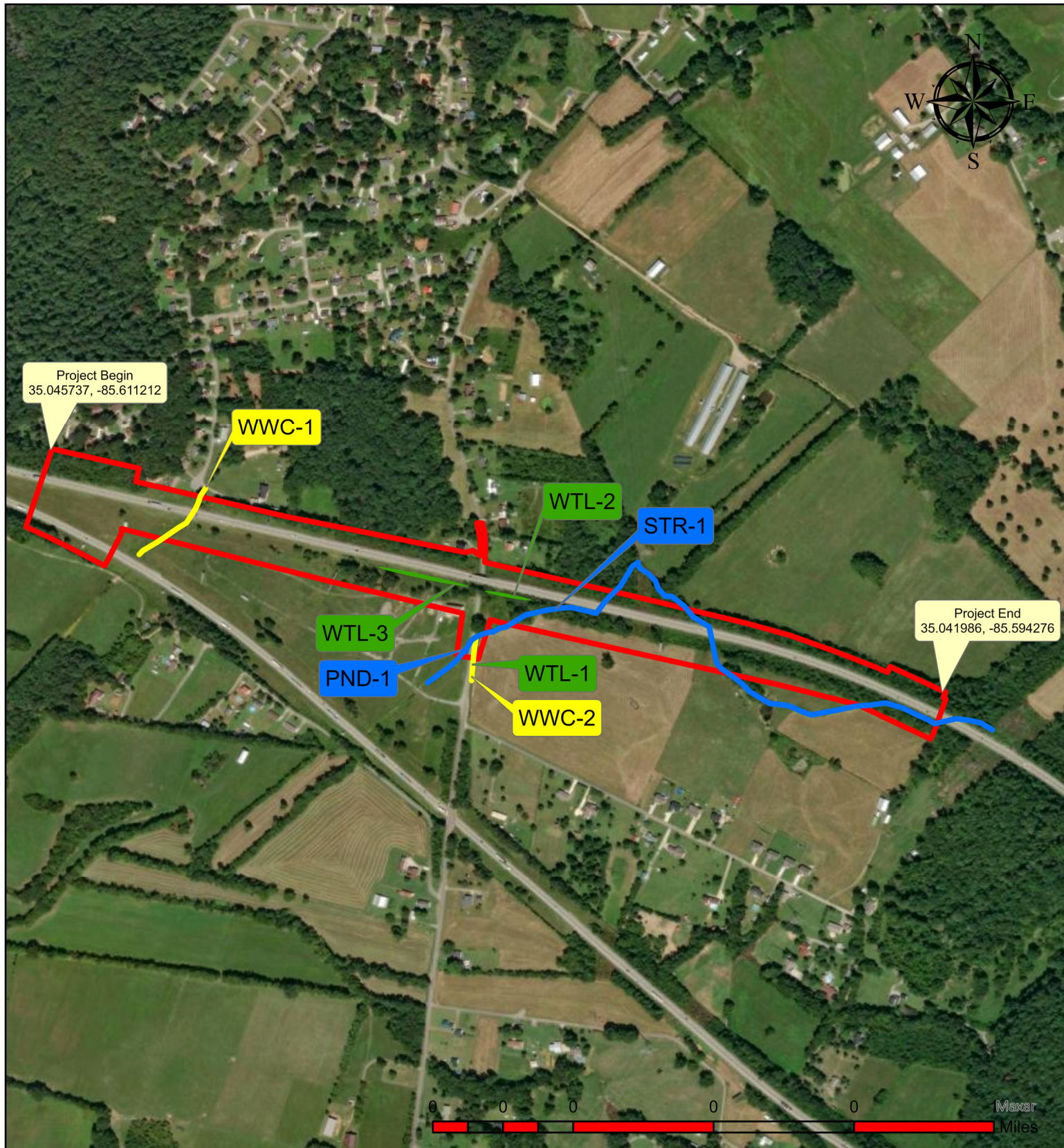
Project Location Topographical Map

Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement

9/4/2024

PIN 130900.00





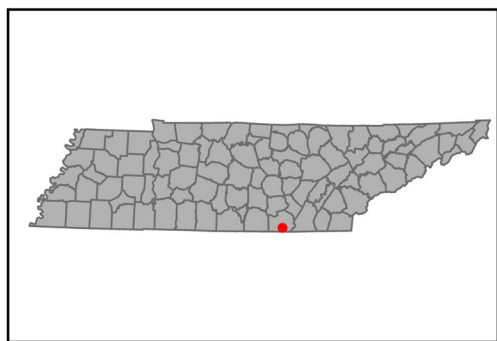
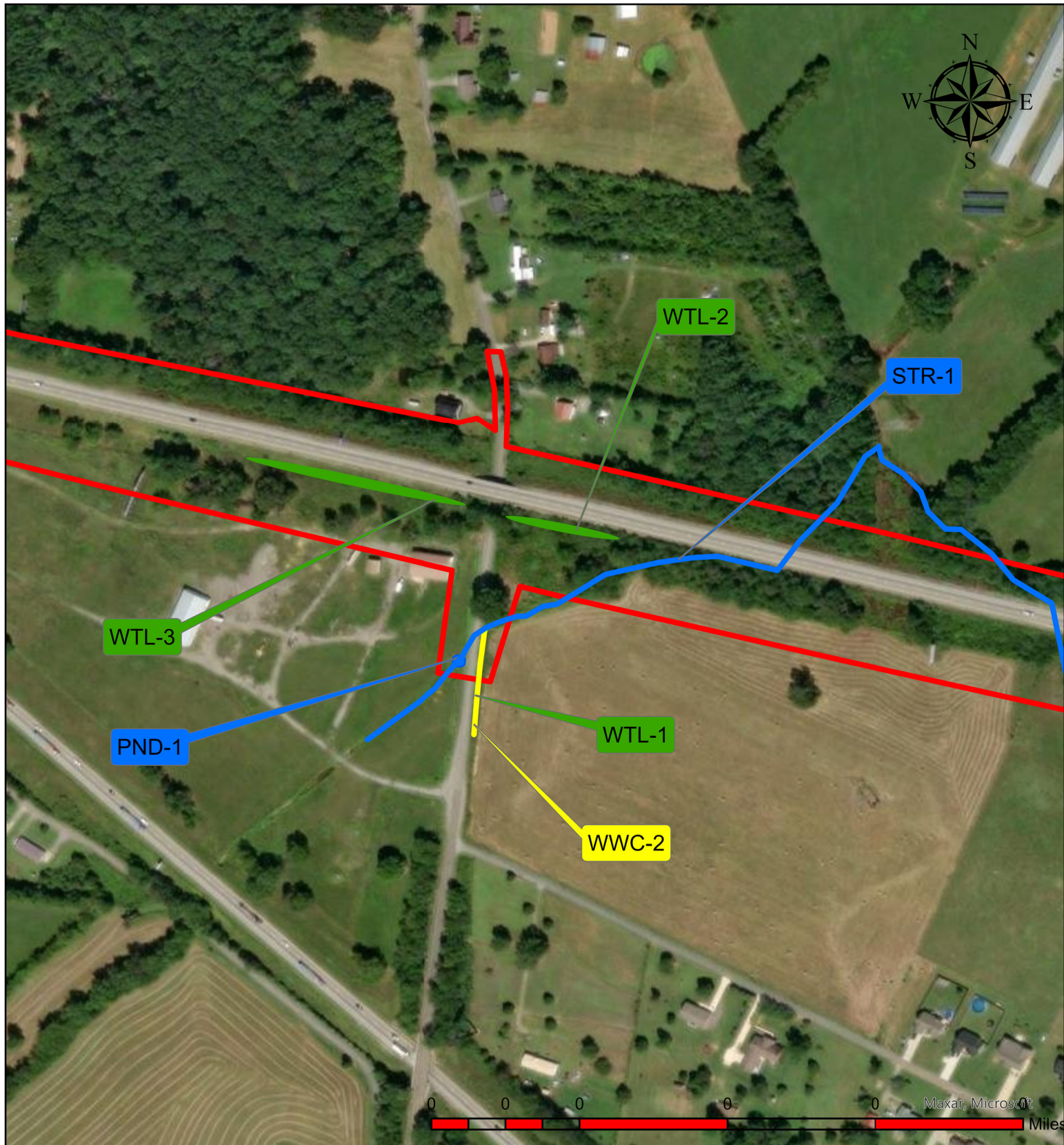
Water Resource Map 1 of 2

Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement

9/4/2024

PIN 130900.00





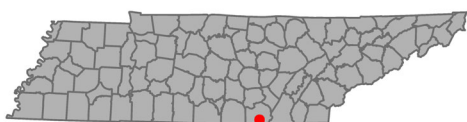
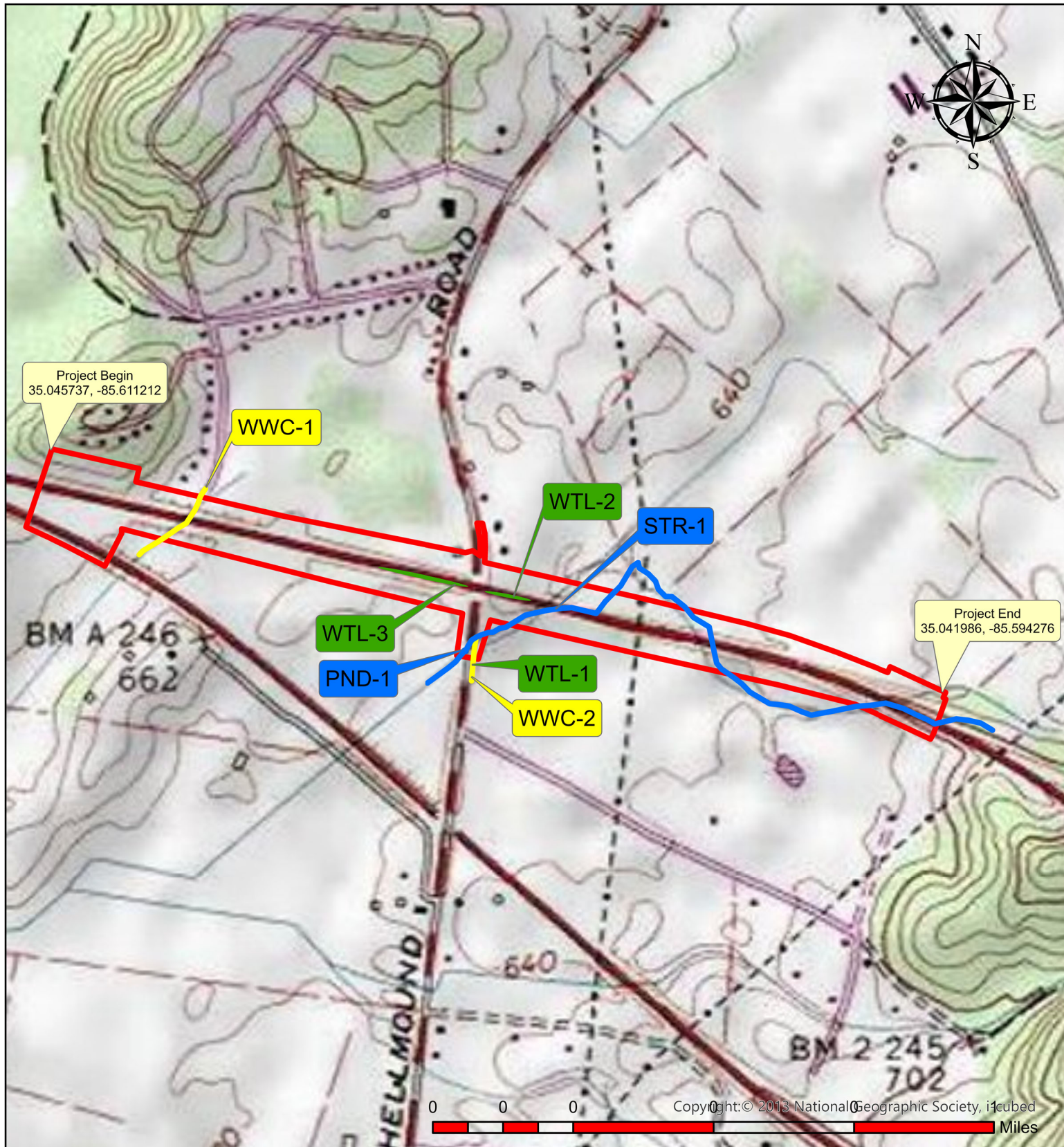
Water Resource Map 2 of 2

Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement

9/4/2024

PIN 130900.00





Water Resource Map

Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement

9/4/2024

PIN 130900.00



Project Name: Marion Co., I-24 WB LM 1.29 and 1.40 Bridge Replacement	PIN: 130900.00
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Water Resource Table

Based on:

ETSA

Date:

8/22/2024

Water Resources (Non-Wetland)					
Label	Type	Latitude	Longitude	Receiving Waters	Quality
WWC-1	Wet Weather Conveyance	35.045365	-85.608231	Sequatchie River	Unassessed
PND-1	Pond	35.043135	-85.603127	Sequatchie River	Not Applicable
WWC-2	Wet Weather Conveyance	35.043083	-85.602997	Sequatchie River	Unassessed
STR-1	Intermittent Stream	35.043711	-85.601827	Sequatchie River	Unassessed

Water Resources (Wetland)*

Label	Type	Latitude	Longitude	Receiving Waters	Quality
WTL-1	Emergent	35.602997	-85.043083	Sequatchie River	Low Resource Value
WTL-2	Emergent	35.043860	-85.602522	Sequatchie River	Low Resource Value
WTL-3	Emergent	35.044029	-85.603485	Sequatchie River	Low Resource Value

Ecology Field Data Sheet: Water Resources

Project: 130900.00 Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement									
Biologist:	JIQ		Affiliation:		TDOT		Date:		8-21-2024
1-Station: from plans	N/A								
2-Map label and name	WWC-1								
3-Latitude/Longitude	35.045365, -85.608231								
4-Feature description:									
-channel identification	perennial stream <input type="checkbox"/>		intermittent stream <input type="checkbox"/>		ephemeral stream <input type="checkbox"/>		wwc <input checked="" type="checkbox"/>		
-HD score (if applicable)									
-OHWM indicators	bed & banks <input checked="" type="checkbox"/>		deposition <input type="checkbox"/>		presence of litter debris <input type="checkbox"/>		scour <input type="checkbox"/>		veg absent, bent, matted <input checked="" type="checkbox"/>
	change in plant community <input type="checkbox"/>		destruction of terrestrial veg <input type="checkbox"/>		multiple observe flow events <input type="checkbox"/>		sediment sorting <input type="checkbox"/>		water staining <input checked="" type="checkbox"/>
	change in soil character <input type="checkbox"/>		leaf litter disturb or absent <input type="checkbox"/>		natural line impressed on bank <input type="checkbox"/>		shelving <input type="checkbox"/>		wracking <input type="checkbox"/>
-channel bottom width	3FT				-top of bank width		5FT		
-width and max depth at ordinary high water mark	N/A								
-width at bankfull	N/A								
-bank height	LDB - 2FT				RDB - 2FT				
-riffle/pool complex or other specialized habitat present?	No								
-dominant riparian species: ------(LDB /RDB)-----	LDB: Fescue								
	RDB: Fescue								
-particle size distribution %	Silt/Sand:	95	Gravel:	5	Cobble:		Boulder:		Bedrock:
5-photo numbers	See Photolog								
6-HUC -8 Code & Name	06020004-Sequatchie River								
7-Assessed	yes	<input type="checkbox"/>	no	<input checked="" type="checkbox"/>					
8-ETW	yes	<input type="checkbox"/>	no	<input checked="" type="checkbox"/>					
9-303 (d) List	yes	<input type="checkbox"/>	siltation	<input type="checkbox"/>	habitat:	<input type="checkbox"/>	other:	<input type="checkbox"/>	<input type="checkbox"/>
	no	<input checked="" type="checkbox"/>							
10-Notes	-Feature conveys precipitation driven hydrology. -Summer drought conditions. -Vegetation and dried algae mat in thalweg. -Weak geomorphology, hydrology, and biology. -All misc tribs in this waterbody will remain Not Assessed for all designated uses.								

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody: Sequatchie River		Date/Time: 8-21-2024
Assessors/Affiliation: TDOT/JIQ		Project ID : 130900.00
Site Name/Description: WWC-1		
Site Location: Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement		
HUC (12 digit): 060200040306		Lat/Long:
Previous Rainfall (7-days) : 0.0IN		35.045365, -85.608231
Precipitation this Season vs. Normal : abnormally wet <input type="checkbox"/> elevated <input type="checkbox"/> average <input type="checkbox"/> low <input type="checkbox"/> abnormally dry <input checked="" type="checkbox"/> unknown <input type="checkbox"/>		
Source of recent & seasonal precip data : APT		
Watershed Size : 0.41SQ MI		County: Marion
Soil Type(s) / Geology : Lindside silt loam (Hamblen)		Source: Websoil
Surrounding Land Use : Residential/Agricultural		
Degree of historical alteration to natural channel morphology & hydrology (circle one & describe fully in Notes) : Severe <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Slight <input type="checkbox"/> Absent <input type="checkbox"/>		

Primary Field Indicators Observed

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC <input type="checkbox"/>
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input type="checkbox"/>	WWC <input checked="" type="checkbox"/>
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	<input type="checkbox"/>	WWC <input type="checkbox"/>
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input type="checkbox"/>	WWC <input type="checkbox"/>
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream <input type="checkbox"/>
6. Presence of fish (except <i>Gambusia</i>)	<input checked="" type="checkbox"/>	Stream <input type="checkbox"/>
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream <input type="checkbox"/>
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream <input type="checkbox"/>
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream <input type="checkbox"/>

NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-WPC Guidance For Making Hydrologic Determinations, Version 1.5*

Overall Hydrologic Determination = wwc

Secondary Indicator Score (if applicable) = 11.5

Justification / Notes :

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 5)		Absent	Weak	Moderate	Strong
1. Continuous bed and bank	2.5	0	1	2	3
2. Sinuous channel	0	0	1	2	3
3. In-channel structure: riffle-pool sequences	0	0	1	2	3
4. Sorting of soil textures or other substrate	1	0	1	2	3
5. Active/relic floodplain	0	0	0.5	1	1.5
6. Depositional bars or benches	0.5	0	1	2	3
7. Braided channel	0	0	1	2	3
8. Recent alluvial deposits	0.5	0	0.5	1	1.5
9. Natural levees	0	0	1	2	3
10. Headcuts	0	0	1	2	3
11. Grade controls	0	0	0.5	1	1.5
12. Natural valley or drainageway	.5	0	0.5	1	1.5
13. At least second order channel on existing USGS or NRCS map		No=0			

B. Hydrology (Subtotal = 2.5)		Absent	Weak	Moderate	Strong
14. Subsurface flow/discharge into channel	0	0	1	2	3
15. Water in channel and >48 hours since sig. rain	0	0	1	2	3
16. Leaf litter in channel (January – September)	1.5	1.5	1	0.5	0
17. Sediment on plants or on debris	0.5	0	0.5	1	1.5
18. Organic debris lines or piles (wrack lines)	0.5	0	0.5	1	1.5
19. Hydric soils in channel bed or sides of channel		No=0			

C. Biology (Subtotal = 4)		Absent	Weak	Moderate	Strong
20. Fibrous roots in channel bed ¹	2	3	2	1	0
21. Rooted plants in the thalweg ¹	1	3	2	1	0
22. Crayfish in stream (exclude in floodplain)	0	0	1	2	3
23. Bivalves/mussels	0	0	1	2	3
24. Amphibians	0	0	0.5	1	1.5
25. Macroinvertebrates (record type & abundance)	0	0	1	2	3
26. Filamentous algae; periphyton	1	0	1	2	3
27. Iron oxidizing bacteria/fungus	0	0	0.5	1	1.5
28. Wetland plants in channel bed ²	0	0	0.5	1	1.5

¹ Focus is on the presence of terrestrial plants.

² Focus is on the presence of aquatic or wetland plants.

Total Points = 11.5

Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points

Notes :

- Feature conveys precipitation driven hydrology.
- Summer drought conditions.
- Vegetation and dried algae mat in thalweg.
- Weak geomorphology, hydrology, and biology.
- All misc tribs in this waterbody will remain Not Assessed for all designated uses.

Ecology Field Data Sheet: **Other Resource Features**
(Caves/Rock Houses; Potential Sinkholes; Specialized Habitats; Other)

Project: Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement **PIN #:** 130900.00

Date of survey: 8-21-2024 **Biologist(s):** JIQ **Affiliation:** TDOT

1-Station: from plans	N/A	
2-Map label	PND-1	
3-Lat/Long	35.043135, -85.603127	
4-Potential impact size	80 SQ FT	
5-Feature name	Pond	
6-Feature description:		
what is the feature	Retention agricultural pond	
portion affected	Entire area in ETSA	
connection to other features	STR-1 conveys hydrology	
photo number(s)	See photolog	
other information		
7- HUC code & name if applicable (12-digit)	060200040306-Sequatchie River Outlet	
8-Notes	-Multiple agricultural ponds are located off project in the general area. -Presence of fish identified on survey date. -Feature act as overflow during heavy precipitation events.	

Ecology Field Data Sheet: Water Resources

Project: 130900.00 Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement									
Biologist:	JIQ		Affiliation:		TDOT		Date:		8-14-2024
1-Station: from plans	N/A								
2-Map label and name	WWC-2								
3-Latitude/Longitude	35.043083, -85.602997								
4-Feature description:									
-channel identification	perennial stream <input type="checkbox"/>		intermittent stream <input type="checkbox"/>		ephemeral stream <input type="checkbox"/>		wwc <input checked="" type="checkbox"/>		
-HD score (if applicable)									
-OHWM indicators	bed & banks <input checked="" type="checkbox"/>		deposition <input type="checkbox"/>		presence of litter debris <input type="checkbox"/>		scour <input type="checkbox"/>		veg absent, bent, matted <input checked="" type="checkbox"/>
	change in plant community <input type="checkbox"/>		destruction of terrestrial veg <input checked="" type="checkbox"/>		multiple observe flow events <input type="checkbox"/>		sediment sorting <input type="checkbox"/>		water staining <input checked="" type="checkbox"/>
	change in soil character <input type="checkbox"/>		leaf litter disturb or absent <input type="checkbox"/>		natural line impressed on bank <input type="checkbox"/>		shelving <input type="checkbox"/>		wracking <input type="checkbox"/>
-channel bottom width	1.5FT				-top of bank width		3FT		
-width and max depth at ordinary high water mark	N/A								
-width at bankfull	N/A								
-bank height	LDB - 5FT					RDB - 7FT			
-riffle/pool complex or other specialized habitat present?	No								
-dominant riparian species: ------(LDB /RDB)-----	LDB: Ash, Sweetgum, Ironweed, Ragweed, Fescue, Johnson grass								
	RDB: Ash, Sweetgum, Ironweed, Ragweed, Fescue, Johnson grass								
-particle size distribution %	Silt/Sand:	10	Gravel:	30	Cobble:	60	Boulder:		Bedrock:
5-photo numbers	See Photolog								
6-HUC -8 Code & Name	06020004-Sequatchie River								
7-Assessed	yes	<input type="checkbox"/>	no	<input checked="" type="checkbox"/>					
8-ETW	yes	<input type="checkbox"/>	no	<input checked="" type="checkbox"/>					
9-303 (d) List	yes	<input type="checkbox"/>	siltation	<input type="checkbox"/>	habitat:	<input type="checkbox"/>	other:	<input type="checkbox"/>	
	no	<input checked="" type="checkbox"/>							
10-Notes	<p>-Feature conveys precipitation driven hydrology along roadside ditch on Shellmound Rd. and drains agricultural field.</p> <p>-Discharges hydrology to small retention pond outside of ETSA.</p> <p>-Weak geomorphology, hydrology, and biology.</p> <p>-Hydric soil in channel and banks.</p> <p>-Summer drought conditions.</p>								

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody: Sequatchie River		Date/Time: 8-14-2024
Assessors/Affiliation: TDOT/JIQ		Project ID : 130900.00
Site Name/Description: WWC-2		
Site Location: Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement		
HUC (12 digit): 060200040306		Lat/Long:
Previous Rainfall (7-days) : 0.0IN		35.043083, -85.602997
Precipitation this Season vs. Normal : abnormally wet <input type="checkbox"/> elevated <input type="checkbox"/> average <input type="checkbox"/> low <input type="checkbox"/> abnormally dry <input checked="" type="checkbox"/> unknown <input type="checkbox"/>		
Source of recent & seasonal precip data : APT		
Watershed Size : 0.18SQ MI		County: Marion
Soil Type(s) / Geology : Lindside silt loam (Hamblen)		Source: Websoil
Surrounding Land Use : Residential/Agricultural		
Degree of historical alteration to natural channel morphology & hydrology (circle one & describe fully in Notes) : Severe <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Slight <input type="checkbox"/> Absent <input type="checkbox"/>		

Primary Field Indicators Observed

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input type="checkbox"/>	WWC <input checked="" type="checkbox"/>
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC <input type="checkbox"/>
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	<input type="checkbox"/>	WWC <input type="checkbox"/>
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input type="checkbox"/>	WWC <input type="checkbox"/>
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream <input type="checkbox"/>
6. Presence of fish (except <i>Gambusia</i>)	<input checked="" type="checkbox"/>	Stream <input type="checkbox"/>
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream <input type="checkbox"/>
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream <input type="checkbox"/>
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream <input type="checkbox"/>

NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-WPC Guidance For Making Hydrologic Determinations, Version 1.5*

Overall Hydrologic Determination = wwc

Secondary Indicator Score (if applicable) = 12

Justification / Notes :

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 4.5)		Absent	Weak	Moderate	Strong
1. Continuous bed and bank	1	0	1	2	3
2. Sinuous channel	0	0	1	2	3
3. In-channel structure: riffle-pool sequences	0	0	1	2	3
4. Sorting of soil textures or other substrate	1	0	1	2	3
5. Active/relic floodplain	0	0	0.5	1	1.5
6. Depositional bars or benches	0	0	1	2	3
7. Braided channel	0	0	1	2	3
8. Recent alluvial deposits	0.5	0	0.5	1	1.5
9. Natural levees	0	0	1	2	3
10. Headcuts	0.5	0	1	2	3
11. Grade controls	.5	0	0.5	1	1.5
12. Natural valley or drainageway	1	0	0.5	1	1.5
13. At least second order channel on existing USGS or NRCS map		No=0			

B. Hydrology (Subtotal = 3.5)		Absent	Weak	Moderate	Strong
14. Subsurface flow/discharge into channel	0	0	1	2	3
15. Water in channel and >48 hours since sig. rain	0	0	1	2	3
16. Leaf litter in channel (January – September)	1.5	1.5	1	0.5	0
17. Sediment on plants or on debris	0	0	0.5	1	1.5
18. Organic debris lines or piles (wrack lines)	0.5	0	0.5	1	1.5
19. Hydric soils in channel bed or sides of channel		Yes=1.5			

C. Biology (Subtotal = 4)		Absent	Weak	Moderate	Strong
20. Fibrous roots in channel bed ¹	2	3	2	1	0
21. Rooted plants in the thalweg ¹	2	3	2	1	0
22. Crayfish in stream (exclude in floodplain)	0	0	1	2	3
23. Bivalves/mussels	0	0	1	2	3
24. Amphibians	0	0	0.5	1	1.5
25. Macroinvertebrates (record type & abundance)	0	0	1	2	3
26. Filamentous algae; periphyton	0	0	1	2	3
27. Iron oxidizing bacteria/fungus	0	0	0.5	1	1.5
28. Wetland plants in channel bed ²	0	0	0.5	1	1.5

¹ Focus is on the presence of terrestrial plants.

² Focus is on the presence of aquatic or wetland plants.

Total Points = **12**

Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points

Notes :

- Feature conveys precipitation driven hydrology along roadside ditch on Shellmound Rd. and drains agricultural field.
- Discharges hydrology to small retention pond outside of ETSA.
- Weak geomorphology, hydrology, and biology.
- Hydric soil in channel and banks.
- Summer drought conditions.

Ecology Field Data Sheet: Water Resources

Project: 130900.00 Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement										
Biologist:	JIQ		Affiliation:	TDOT		Date:	8-21-2024			
1-Station: from plans	N/A									
2-Map label and name	STR-1									
3-Latitude/Longitude	35.043711, -85.601827									
4-Feature description:										
-channel identification	perennial stream <input type="checkbox"/>		intermittent stream <input checked="" type="checkbox"/>		ephemeral stream <input type="checkbox"/>		wwc <input type="checkbox"/>			
-HD score (if applicable)										
-OHWM indicators	bed & banks <input checked="" type="checkbox"/>		deposition <input type="checkbox"/>		presence of litter debris <input type="checkbox"/>		scour <input type="checkbox"/>		veg absent, bent, matted <input checked="" type="checkbox"/>	
	change in plant community <input checked="" type="checkbox"/>		destruction of terrestrial veg <input checked="" type="checkbox"/>		multiple observe flow events <input type="checkbox"/>		sediment sorting <input checked="" type="checkbox"/>		water staining <input checked="" type="checkbox"/>	
	change in soil character <input checked="" type="checkbox"/>		leaf litter disturb or absent <input type="checkbox"/>		natural line impressed on bank <input checked="" type="checkbox"/>		shelving <input type="checkbox"/>		wracking <input type="checkbox"/>	
-channel bottom width	3.2FT				-top of bank width		5.5FT			
-width and max depth at ordinary high water mark	3.2FT, 0.3FT									
-width at bankfull	5.5FT									
-bank height	LDB - 3.5FT				RDB - 3.5FT					
-riffle/pool complex or other specialized habitat present?	Yes									
-dominant riparian species: ------(LDB /RDB)-----	LDB: Ash, Cherry, Elm, Hackberry, Privet									
	RDB: Ash, Cherry, Elm, Hackberry, Privet									
-particle size distribution %	Silt/Sand: 70		Gravel: 20		Cobble: 10		Boulder:		Bedrock:	
5-photo numbers	See Photolog									
6-HUC -8 Code & Name	06020004-Sequatchie River									
7-Assessed	yes <input type="checkbox"/>		no <input checked="" type="checkbox"/>							
8-ETW	yes <input type="checkbox"/>		no <input checked="" type="checkbox"/>							
9-303 (d) List	yes <input type="checkbox"/>		siltation <input type="checkbox"/>		habitat: <input type="checkbox"/>		other: <input type="checkbox"/>			
	no <input checked="" type="checkbox"/>									
10-Notes	<p>-Feature presents as intermittent stream.</p> <p>-Feature crosses under I-24 at multiple locations.</p> <p>-Summer drought conditions.</p> <p>-Isolated pool at headcut containing fish.</p> <p>-Strong geomorphology, moderate/weak hydrology, and biology.</p> <p>-All misc tribs in this waterbody will remain Not Assessed for all designated uses.</p>									

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody: Sequatchie River		Date/Time: 8-21-2024
Assessors/Affiliation: TDOT/JIQ		Project ID : 130900.00
Site Name/Description: STR-1		
Site Location: Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement		
HUC (12 digit): 060200040306		Lat/Long:
Previous Rainfall (7-days) : 0.0IN		35.043711, -85.601827
Precipitation this Season vs. Normal : abnormally wet <input type="checkbox"/> elevated <input type="checkbox"/> average <input type="checkbox"/> low <input type="checkbox"/> abnormally dry <input checked="" type="checkbox"/> unknown <input type="checkbox"/>		
Source of recent & seasonal precip data : APT		
Watershed Size : 0.41SQ MI	County: Marion	
Soil Type(s) / Geology : Lindside silt loam (Hamblen)		Source: Websoil
Surrounding Land Use : Residential/Agricultural		
Degree of historical alteration to natural channel morphology & hydrology (circle one & describe fully in Notes) : Severe <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Slight <input type="checkbox"/> Absent <input type="checkbox"/>		

Primary Field Indicators Observed

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	<input checked="" type="checkbox"/>	WWC <input type="checkbox"/>
2. Defined bed and bank absent, vegetation composed of upland and FACU species	<input checked="" type="checkbox"/>	WWC <input type="checkbox"/>
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	<input type="checkbox"/>	WWC <input type="checkbox"/>
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	<input type="checkbox"/>	WWC <input type="checkbox"/>
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	<input checked="" type="checkbox"/>	Stream <input type="checkbox"/>
6. Presence of fish (except <i>Gambusia</i>)	<input type="checkbox"/>	Stream <input checked="" type="checkbox"/>
7. Presence of naturally occurring ground water table connection	<input checked="" type="checkbox"/>	Stream <input type="checkbox"/>
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	<input checked="" type="checkbox"/>	Stream <input type="checkbox"/>
9. Evidence watercourse has been used as a supply of drinking water	<input checked="" type="checkbox"/>	Stream <input type="checkbox"/>

NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-WPC Guidance For Making Hydrologic Determinations, Version 1.5*

Overall Hydrologic Determination = STREAM

Secondary Indicator Score (if applicable) = 20.5

Justification / Notes :

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 9.5)		Absent	Weak	Moderate	Strong
1. Continuous bed and bank	3	0	1	2	3
2. Sinuous channel	1	0	1	2	3
3. In-channel structure: riffle-pool sequences	1	0	1	2	3
4. Sorting of soil textures or other substrate	1	0	1	2	3
5. Active/relic floodplain	0	0	0.5	1	1.5
6. Depositional bars or benches	1	0	1	2	3
7. Braided channel	0	0	1	2	3
8. Recent alluvial deposits	0	0	0.5	1	1.5
9. Natural levees	0.5	0	1	2	3
10. Headcuts	1.5	0	1	2	3
11. Grade controls	.5	0	0.5	1	1.5
12. Natural valley or drainageway	0	0	0.5	1	1.5
13. At least second order channel on existing USGS or NRCS map		No=0			

B. Hydrology (Subtotal = 5)		Absent	Weak	Moderate	Strong
14. Subsurface flow/discharge into channel	0	0	1	2	3
15. Water in channel and >48 hours since sig. rain	1	0	1	2	3
16. Leaf litter in channel (January – September)	1	1.5	1	0.5	0
17. Sediment on plants or on debris	0.5	0	0.5	1	1.5
18. Organic debris lines or piles (wrack lines)	1	0	0.5	1	1.5
19. Hydric soils in channel bed or sides of channel		Yes=1.5			

C. Biology (Subtotal = 6)		Absent	Weak	Moderate	Strong
20. Fibrous roots in channel bed ¹	2	3	2	1	0
21. Rooted plants in the thalweg ¹	2	3	2	1	0
22. Crayfish in stream (exclude in floodplain)	0	0	1	2	3
23. Bivalves/mussels	0	0	1	2	3
24. Amphibians	0.5	0	0.5	1	1.5
25. Macroinvertebrates (record type & abundance)	0	0	1	2	3
26. Filamentous algae; periphyton	1.5	0	1	2	3
27. Iron oxidizing bacteria/fungus	0	0	0.5	1	1.5
28. Wetland plants in channel bed ²	0	0	0.5	1	1.5

¹ Focus is on the presence of terrestrial plants.

² Focus is on the presence of aquatic or wetland plants.

Total Points = 20.5

Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points

Notes :

- Feature presents as intermittent stream.
- Feature crosses under I-24 at multiple locations.
- Summer drought conditions.
- Isolated pool at headcut containing fish.
- Strong geomorphology, moderate/weak hydrology, and biology.
- All misc tribs in this waterbody will remain Not Assessed for all designated uses.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 130900.00 Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement City/County: Marion Sampling Date: 8-21-2024
Applicant/Owner: TDOT State: TN Sampling Point: WTL-1
Investigator(s): JIQ Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Concave Slope (%): 2-5
Subregion (LRR or MLRA): LRR N Lat: 35.043083 Long: -85.602997 Datum: N/A
Soil Map Unit Name: Lindside silt loam (Hamblen) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)
Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Summer drought 8-21-2024.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)		<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

VEGETATION (Five Strata) – Use scientific names of plants.

 Sampling Point: WTL-1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
				_____ = Total Cover
50% of total cover: _____				20% of total cover: _____
Sapling Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
				_____ = Total Cover
50% of total cover: _____				20% of total cover: _____
Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
				_____ = Total Cover
50% of total cover: _____				20% of total cover: _____
Herb Stratum (Plot size: _____)				
1. <i>Carex cherokeensis</i>	40	Y	FACW	
2. <i>Eupatroides serotinum</i>	10	N	FACW	
3. <i>Vernonia gigantea</i>	10	N	FAC	
4. <i>Cyperus strigosus</i>	20	Y	FACW	
5. <i>Sorghum halepense</i>	10	N	FACU	
6. <i>Schedonorus arundinaceus</i>	10	N	FACU	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
				_____ = Total Cover
50% of total cover: _____				20% of total cover: _____
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
				_____ = Total Cover
50% of total cover: _____				20% of total cover: _____
Remarks: (Include photo numbers here or on a separate sheet.)				

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

 Total Number of Dominant Species Across All Strata: 2 (B)

 Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: <u>0</u> (A)	<u>0</u> (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0¹
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?

Yes ☒
No ☐

SOIL

Sampling Point: WTL-1

[illegible]

Tram User Guide

SITUATION	TRAM REQUIRED
• Wetland is a “roadside ditch” and not part of a larger wetland – constructed primarily to convey runoff.....	NO, COMPLETE EXCEPTIONAL STATUS WETLAND SECTION ONLY
• Fringe wetlands associated with ponds, impoundments, reservoirs, large lakes.....	YES- USE NON-HGM TRAM
• Created Depression wetlands, semi-permanent to permanently inundated (<6.6-feet deep).....	YES-USE NON-HGM TRAM
• Wetland impacts greater than 0.10 acre.....	YES

NOTE: The Exceptional Status Wetland section must be completed for all proposed wetland alterations, including wetlands situations where HGM assessment is not required or the Non-HGM TRAM is used, including proposed wetlands impacts less than 0.10 acre.

An affirmative response to 1-6 of the Decision Table identifies the wetland per rule as an Outstanding Natural Resource Water (ONRW) or Exceptional Tennessee Waters (ETW). A positive response to 7-13 requires a final determination by the Department.

#	Wetland Feature Decision Table	Yes/No	Affirmative Result
1	The wetland has been designated as an Outstanding Natural Resource Water (ONRW) by the Department under 0400-40-03-.06(5)(a).	No	ONRW
2	The wetland has previously been designated and documented as an Exceptional Tennessee Water (ETW) by the Department under 0400-40-03-.06(4)(a)(7)	No	ETW
3	The wetland is within state or national parks, wildlife refuges, forests, wilderness areas, natural areas, or is a designated State Scenic Rivers or Federal Wild and Scenic Rivers.	No	ETW
4	The wetland is known to contain a documented non-experimental population of state or federally listed threatened or endangered aquatic or semi-aquatic plants, or aquatic animals.	No	ETW
5	The wetland or the area it is in has been designated by the U.S. Fish and Wildlife Service as " Critical Habitat " for any threatened or endangered aquatic or semi-aquatic plant or aquatic animal species.	No	ETW
6	The wetland falls within an area designated as Lands Unsuitable for Mining pursuant to the federal Surface Mining Control and Reclamation Act where such designation is based in whole or in part on impacts to water resource values	No	ETW
7	The wetland exhibits outstanding ecological or recreational values such as, <u>but not limited to</u>, those as outlined in 8-12	No	Determination Required by TDEC
8	The wetland fits within the species composition concept for any plant community found in the state of Tennessee ranked G2, G1, or more imperiled at the "Association" classification level according to the NatureServe and Natural Heritage Ranking system (e.g. "bog", "fen", and "wet prairie/barren" communities).	No	Determination Required by TDEC
9	The wetland is an uncommon resource (e.g. vernal pools, headwater wetlands, sinks, spring/seeps, glades, newly described communities, high recreational or socioeconomic value) in the region and/or is deemed such by concurrence of qualified scientists.	No	Determination Required by TDEC
10	The wetland is an older aged forested wetland comprised of overstory trees with an average diameter at breast height (dbh) being greater than or equal to 30 in within the WAA.	No	Determination Required by TDEC
11	The wetland is observed and documented to be a significant waterfowl, songbird, shorebird, amphibian, bat, fish habitat area . These may include rookeries, migratory congregations, nesting sites, breeding areas, etc.	No	Determination Required by TDEC
12	The wetland is hydrologically connected to and/or has significant ecological contribution to an ETW	No	Determination Required by TDEC
13	The wetland has High Resource Value as determined by a score of 75 and above using the TRAM or non-HGM TRAM (to be determined after completing the quantitative portion of this manual)	No	Determination Required by TDEC

End of Narrative Rating. Begin Quantitative Rating on Next Page.

Quantitative Rating

Value Added Section

Wetland Size – Wetland size may increase particular wetland functions or provide greater habitat value to wildlife. In some regions, large wetlands or wetlands of certain types may be rare and may play a vital and significant local and/or regional ecological role. Refer to Tables 1 through 3 below for assessing value added points to wetland size.

Other Significant Value – See Table 4 for value added due to other significant wetland values

Critical Sizes for Tennessee Wetlands by HGM Class and Region of State

Table 1. Depression wetland size throughout Tennessee (max 5 pts). Estimate the area of wetland. Select the appropriate size class and assign score.	Score
≥5 acres	5
3 - <5 acres	3

Table 2. Slope and Flat wetland size throughout Tennessee (max 5 pts). Estimate the area of wetland. Select the appropriate size class and assign score.	Score
≥50 acres	5
25 - <50 acres	3
10 - <25 acres	2
5 - <10 acres	1

Table 3. Riverine wetland size in central and eastern Tennessee (max 5 pts). Estimate the area of wetland. Select the appropriate size class and assign score.	Score
≥50 acres	5
25 - <50 acres	3
10 - <25 acres	2
5 - <10 acres	1

Table 4. Other significant value (max 5 pts). Estimate the area of wetland. Select the appropriate size class and assign score.	Score
Wetland falls within a category from lines 8-12 of the Exceptional Status Wetlands Decision Table (pg. 18) but has not been determined by TDEC to qualify for Exceptional Tennessee Waters status.	5

No value added = 0

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 130900.00 Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement City/County: Marion Sampling Date: 8-21-2024
Applicant/Owner: TDOT State: TN Sampling Point: WTL-2
Investigator(s): JIQ Section, Township, Range:
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Concave Slope (%): 2-5
Subregion (LRR or MLRA): LRR N Lat: 35.043860 Long: -85.602522 Datum: N/A
Soil Map Unit Name: Lindside silt loam (Hamblen) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)
Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks: Summer drought 8-21-2024.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)		<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

VEGETATION (Five Strata) – Use scientific names of plants.

 Sampling Point: WTL-2

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
				0 = Total Cover
50% of total cover: 0				20% of total cover: 0
Sapling Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
				0 = Total Cover
50% of total cover: 0				20% of total cover: 0
Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
				0 = Total Cover
50% of total cover: 0				20% of total cover: 0
Herb Stratum (Plot size: _____)				
1. <i>Carex cherokeensis</i>	30	Y	FACW	
2. <i>Ambrosia artemisiifolia</i>	30	Y	UPL	
3. <i>Vernonia gigantea</i>	10	N	FAC	
4. <i>Eupatorium serotinum</i>	10	N	FAC	
5. <i>Solidago gigantea</i>	10	N	FACW	
6. <i>Cyperus strigosus</i>	10	N	FACW	
7. <i>Sorghum halepense</i>	10	N	FACU	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
				110 = Total Cover
50% of total cover: 55				20% of total cover: 22
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
				0 = Total Cover
50% of total cover: 0				20% of total cover: 0
Remarks: (Include photo numbers here or on a separate sheet.)				

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

 Total Number of Dominant Species Across All Strata: 2 (B)

 Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: <u>0</u> (A)	<u>0</u> (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0¹
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?

Yes ☒
No ☐

SOIL

Sampling Point: WTL-2

[illegible]

HGM FUNCTIONAL ASSESSMENT SLOPE WETLANDS

Date: 8-21-2024

Project Name 130900.00 Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement

Field Personnel JIQ/CDM

Wetland Name/Location WTL-2

Read instructions prior to conducting assessments. If project area is large or highly heterogeneous requiring the designation of several WAAs, a separate assessment should be performed for each WAA. CHECK THE APPROPRIATE BLANK(S) BELOW.

V1: Hydroperiod (HYDRO)

- | | |
|---|--|
| 1. Hydrology not altered (SI = 1.0) | |
| - no fill material or excessive sediment | - no roads or other impediments to surface ground water |
| - no ditches/drainage tiles | - no excavation |
| -no alteration to overland runoff, groundwater discharge/recharge | |
| 2. Hydrology slightly altered (SI = 0.75) | |
| - portion of site with minimal fill or sediment | - roads or other impediments, water flow slightly altered |
| - portion of site with drainage ditches/tiles | - minor portion of site excavated |
| -some alteration to overland runoff, groundwater discharge/recharge | |
| 3. Hydrology moderately altered (SI = 0.5) | |
| - portion of site with moderate fill or sediment | - roads or other impediments, water flow moderately altered |
| - portion of site with drainage ditches/tiles | - moderate portion of site excavated |
| - some alteration to overland runoff, groundwater discharge/recharge | |
| 4. Hydrology significantly altered (SI = 0.25) | |
| - portion of site with significant fill or sediment | - roads or other impediments, water flow significantly altered |
| - portion of site with drainage ditches/tiles | - significant portion of site excavated |
| - significant alteration to overland runoff, groundwater discharge/recharge | |
| 5. Hydrology severely altered (SI = 0.1) | |
| - entire site impacted by fill or excessive sediment | - roads or other impediments, water flow completely blocked |
| - entire site with numerous drainage ditches/tiles | - entire wetland affected |
| - no contributions to or from overland runoff, groundwater discharge/recharge | |

V2: Wetland Watershed Integrity (WSHEDINT)

Use weighted average as discussed on page 10. Examples of land uses and multipliers listed below

A = Percentage forested with no impervious surfaces _____

B = Percentage permeable land, e.g. park, golf course, pasture, hay, orchard, tree farm, or similar 100

C = Percentage low density residential, construction, or similar _____

D = Percentage high density residential, or similar _____

E = Percentage urban, commercial, industrial, or similar _____

$V2 = (A \times 1.0) + (B \times 0.75) + (C \times 0.5) + (D \times 0.25) + (E \times 0.01)/(100) =$ 0.75

V3: Canopy Tree Size Class (TSIZE)

1. Average size of canopy trees > 3 in. DBH

☐ ≥ 15 in. (SI = 1.0) ☐ 10 – 14 in. (SI = 0.75) ☐ 6 – 9 in. (SI = 0.5) ☐ 4 – 5 in. (SI = 0.25)

☒ < 4 in. or no trees present, go to V5

V4: Canopy Tree Density (TDEN)

1. Average number of canopy trees (> 3 in. DBH) per 30-ft. radius plot

☐ 5 – 10 (SI = 1.0) ☐ 11 – 15 (SI = 0.75) ☐ > 15 (SI = 0.5) ☐ 1 – 4 (SI = 0.5)

V5: Shrub Cover (SCOV)

1. Average percent cover of shrubs (woody stems < 3 in. DBH and taller than 3 ft.) per 30-ft. radius plot

☐ > 20 (SI = 1.0) ☒ < 20, go to V6**V6: Ground Vegetation Cover (GVC)**

1. Average percent cover of ground vegetation per 30-ft. radius plot

☒ ≥ 70 (SI = 1.0) ☐ 55 – 69 (SI = 0.75) ☐ 45 – 54 (SI = 0.5) ☐ 30 – 44 (SI = 0.25) ☐ 20 – 29 (SI = 0.1)
☐ < 20 (SI=0.0)**V7: Vegetation Composition and Diversity (COMP)**

1. Check the dominant species from Groups 1, 2, and 3 below using the 50/20 rule. If tree cover is < 20%, check the dominants in the next tallest stratum. If a dominant does not appear in lists below, but is a native species, it can be added as a Group 2 species. Native shrub and herbaceous species are assigned to Group 2. When using shrub or herbaceous write in the number of dominant species. Dominant invasive species are checked regardless of stratum. *

GROUP 1 (Reference Standard)		GROUP 2 (Native Ubiquitous)		GROUP 3 (Invasive)
<input type="checkbox"/> Water oak	<input type="checkbox"/> Pin oak	<input type="checkbox"/> American elm	<input type="checkbox"/> Green ash	<input type="checkbox"/> European/Chinese privet
<input type="checkbox"/> Bur oak	<input type="checkbox"/> Shumard oak	<input type="checkbox"/> Slippery elm	<input type="checkbox"/> Red maple	<input type="checkbox"/> Japanese honeysuckle
<input type="checkbox"/> Willow oak	<input type="checkbox"/> Bald cypress	<input type="checkbox"/> Sweetgum	<input type="checkbox"/> Silver maple	<input type="checkbox"/> Japanese stiltgrass
<input type="checkbox"/> Swamp chestnut oak	<input type="checkbox"/> Water tupelo	<input type="checkbox"/> Blackgum	<input type="checkbox"/> Black willow	<input type="checkbox"/> Purple loosestrife
<input type="checkbox"/> Cherrybark oak	<input type="checkbox"/> S. black gum	<input type="checkbox"/> Silky dogwood	<input type="checkbox"/> Sycamore	<input type="checkbox"/> Giant reed
<input type="checkbox"/> Swamp white oak	<input type="checkbox"/> Persimmon	<input type="checkbox"/> Boxelder	<input type="checkbox"/>	<input type="checkbox"/> Tall fescue
<input type="checkbox"/> Nuttall oak	<input type="checkbox"/> Am. hornbeam	<input type="checkbox"/> Tulip poplar	<input type="checkbox"/>	<input type="checkbox"/> Phragmites
<input type="checkbox"/> Overcup oak	<input type="checkbox"/>	Number native shrub spp.		<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	2 Number native herbaceous spp.		<input type="checkbox"/>

2. Using the number of dominants in Groups 1, 2, and 3 above, calculate a quality index (Q) using the following formula: $[(1.0 \times \# \text{ of checked dominants in Group 1}) + (0.66 \times \# \text{ of checked dominants in Group 2}) + (0.0 \times \# \text{ of checked dominants in Group 3})] / \text{total} \# \text{ of checked dominants in all groups} = \underline{\hspace{2cm}}$ 0.663. Multiply Q above by one of the following constants that reflects species richness:¹

a) if ≥ 4 species from Groups 1 and/or 2 occur as dominants, multiply Q by 1.0

b) if 3 species from Groups 1 and/or 2 occur as dominant, multiply Q by 0.75

c) if 2 species from Groups 1 and/or 2 occur as dominants, multiply Q by 0.50

d) if 1 species from Groups 1 and/or 2 occurs as dominant, multiply Q by 0.25

e) if no species from Groups 1 and/or 2 occurs as dominant, multiply Q by 0.0

4. Calculate the square root of the value from Step 3 above. This is the SI for V7=

*In some Depression wetlands and in some small WAAs (e.g., <0.5 acres), relatively few species (e.g., overcup oak) may be present. In cases in which this is the normal condition, Q can be multiplied by 1.0 if only 1 or 2 species are dominant.

V8: Soil Organic Matter (ORGANIC)

1. Surface horizons unaltered

☐ 100 percent cover of O and/or A horizon present (SI = 1.0)

2. Surface horizons altered. Estimate the percent of the WAA in which neither an O or A horizon is present.

3. Subtract the sum of the values from Step 2 from 100. Convert this value to a decimal. This is the SI for V8 (e.g., if 75 % of the WAA does not have an O or A horizon due to a significant disturbance, it will have an SI of 0.25).

V9: Buffer (BUFFER)

1. Determine the Connection Index (CI) by estimating the percent of the wetland surrounded by suitable buffer habitat.

☐ 90% – 100% (CI = 1.0) ☐ 75% – 89% (CI = 0.75) ☐ 40% – 74% (CI = 0.5) ☒ 10% – 39% (CI = 0.25)☐ < 10% (CI = 0.1)

2. Multiply the CI by one if the following values:

a) if average buffer width is ≥ 492 ft., multiply by 1.0

b) if average buffer is 98 ft to 491 ft., multiply by 0.66

c) if average buffer width is 33 ft to 97 ft., multiply by 0.33

d) if average buffer width is < 33 ft., multiply by 0.1

3. This value is the SI for V9 = 0.0825.**VALUES USED TO CALCULATE FUNCTIONAL CAPACITY INDICES (FCIs)****SUBINDEX VALUES:**V1 0.5 (HYDRO) V3 (TSIZE) V5 (SCOV) V7 0.33 (COMP) V9 0.0825 (BUFFER)V2 0.75 (WSHEDINT) V4 (TDEN) V6 1.0 (GVC) V8 0.75 (ORGANIC)

WETLAND FUNCTIONS

FUNCTION 1: MAINTAIN HYDROLOGIC REGIME

$$\text{FCI 1: } (V1 \times V2)^{1/2} \Rightarrow (\text{ } \times \text{ })^{1/2} = \underline{0.61}$$

FUNCTION 2: MAINTAIN BIOGEOCHEMICAL PROCESSES

$$\text{FCI (trees present)} = \left((V1 \times V2)^{1/2} \times \left(\frac{V3+V4}{2} + V8 \right) \right)^{1/2} \Rightarrow \left((\text{FCI 1}) \times \left(\frac{(\text{ } + \text{ })}{2} + \text{ } \right) \right)^{1/2} = \underline{\hspace{2cm}}$$

$$\text{FCI (shrubs present)} = \left((V1 \times V2)^{1/2} \times \left(\frac{V5+V8}{3} \right) \right)^{1/2} \Rightarrow \left((\text{FCI 1}) \times \left(\frac{(\text{ } + \text{ })}{3} \right) \right)^{1/2} = \underline{\hspace{2cm}}$$

$$\text{FCI (ground cover)} = \left((V1 \times V2)^{1/2} \times \left(\frac{V6+V8}{5} \right) \right)^{1/2} \Rightarrow \left((\text{FCI 1}) \times \left(\frac{(\text{ } + \text{ })}{5} \right) \right)^{1/2} = \underline{0.46}$$

FUNCTION 3: MAINTAIN CHARACTERISTIC PLANT COMMUNITY

$$\text{FCI (trees present)} = \frac{(V1 \times V2)^{1/2} + 2\left(\frac{V3+V4+V7}{3}\right)}{3} \Rightarrow \frac{(\text{FCI 1}) + 2\left(\frac{(\text{ } + \text{ } + \text{ })}{3}\right)}{3} = \underline{\hspace{2cm}}$$

$$\text{FCI (shrubs present)} = \frac{(V1 \times V2)^{1/2} + 2\left(\frac{V5+V7}{2}\right)}{6} \Rightarrow \frac{(\text{FCI 1}) + (\text{ } + \text{ })}{6} = \underline{\hspace{2cm}}$$

$$\text{FCI (groundcover)} = \frac{(V1 \times V2)^{1/2} + 2\left(\frac{V6+V7}{2}\right)}{9} \Rightarrow \frac{(\text{FCI 1}) + (\text{ } + \text{ })}{9} = \underline{0.24}$$

FUNCTION 4: MAINTAIN CHARACTERISTIC WILDILFE COMMUNITY

$$\text{FCI (trees)} = \frac{(V1 \times V2)^{1/2} + 2\left(\frac{V3+V4+V7}{3}\right) + V9}{4} \Rightarrow \frac{(\text{FCI 1}) + 2\left(\frac{(\text{ } + \text{ } + \text{ })}{3}\right) + \text{ }}{4} = \underline{\hspace{2cm}}$$

$$\text{FCI (shrubs present)} = \frac{(V1 \times V2)^{1/2} + 2\left(\frac{V5+V7}{2}\right) + V9}{6} \Rightarrow \frac{(\text{FCI 1}) + (\text{ } + \text{ } + \text{ })}{6} = \underline{\hspace{2cm}}$$

$$\text{FCI (groundcover)} = \frac{(V1 \times V2)^{1/2} + 2\left(\frac{V6+V7}{2}\right) + V9}{9} \Rightarrow \frac{(\text{FCI 1}) + (\text{ } + \text{ } + \text{ })}{9} = \underline{0.25}$$

Quantitative Rating

Value Added Section

Wetland Size – Wetland size may increase particular wetland functions or provide greater habitat value to wildlife. In some regions, large wetlands or wetlands of certain types may be rare and may play a vital and significant local and/or regional ecological role. Refer to Tables 1 through 3 below for assessing value added points to wetland size.

Other Significant Value – See Table 4 for value added due to other significant wetland values

Critical Sizes for Tennessee Wetlands by HGM Class and Region of State

Table 1. Depression wetland size throughout Tennessee (max 5 pts). Estimate the area of wetland. Select the appropriate size class and assign score.	Score
≥5 acres	5
3 - <5 acres	3

Table 2. Slope and Flat wetland size throughout Tennessee (max 5 pts). Estimate the area of wetland. Select the appropriate size class and assign score.	Score
≥50 acres	5
25 - <50 acres	3
10 - <25 acres	2
5 - <10 acres	1

Table 3. Riverine wetland size in central and eastern Tennessee (max 5 pts). Estimate the area of wetland. Select the appropriate size class and assign score.	Score
≥50 acres	5
25 - <50 acres	3
10 - <25 acres	2
5 - <10 acres	1

Table 4. Other significant value (max 5 pts). Estimate the area of wetland. Select the appropriate size class and assign score.	Score
Wetland falls within a category from lines 8-12 of the Exceptional Status Wetlands Decision Table (pg. 18) but has not been determined by TDEC to qualify for Exceptional Tennessee Waters status.	5

An affirmative response to 1-6 of the Decision Table identifies the wetland per rule as an Outstanding Natural Resource Water (ONRW) or Exceptional Tennessee Waters (ETW). A positive response to 7-13 requires a final determination by the Department.

#	Wetland Feature Decision Table	Yes/No	Affirmative Result
1	The wetland has been designated as an Outstanding Natural Resource Water (ONRW) by the Department under 0400-40-03-.06(5)(a).	No	ONRW
2	The wetland has previously been designated and documented as an Exceptional Tennessee Water (ETW) by the Department under 0400-40-03-.06(4)(a)(7)	No	ETW
3	The wetland is within state or national parks, wildlife refuges, forests, wilderness areas, natural areas, or is a designated State Scenic Rivers or Federal Wild and Scenic Rivers.	No	ETW
4	The wetland is known to contain a documented non-experimental population of state or federally listed threatened or endangered aquatic or semi-aquatic plants, or aquatic animals.	No	ETW
5	The wetland or the area it is in has been designated by the U.S. Fish and Wildlife Service as " Critical Habitat " for any threatened or endangered aquatic or semi-aquatic plant or aquatic animal species.	No	ETW
6	The wetland falls within an area designated as Lands Unsuitable for Mining pursuant to the federal Surface Mining Control and Reclamation Act where such designation is based in whole or in part on impacts to water resource values	No	ETW
7	The wetland exhibits outstanding ecological or recreational values such as, <u>but not limited to</u>, those as outlined in 8-12	No	Determination Required by TDEC
8	The wetland fits within the species composition concept for any plant community found in the state of Tennessee ranked G2, G1, or more imperiled at the "Association" classification level according to the NatureServe and Natural Heritage Ranking system (e.g. "bog", "fen", and "wet prairie/barren" communities).	No	Determination Required by TDEC
9	The wetland is an uncommon resource (e.g. vernal pools, headwater wetlands, sinks, spring/seeps, glades, newly described communities, high recreational or socioeconomic value) in the region and/or is deemed such by concurrence of qualified scientists.	No	Determination Required by TDEC
10	The wetland is an older aged forested wetland comprised of overstory trees with an average diameter at breast height (dbh) being greater than or equal to 30 in within the WAA.	No	Determination Required by TDEC
11	The wetland is observed and documented to be a significant waterfowl, songbird, shorebird, amphibian, bat, fish habitat area . These may include rookeries, migratory congregations, nesting sites, breeding areas, etc.	No	Determination Required by TDEC
12	The wetland is hydrologically connected to and/or has significant ecological contribution to an ETW	No	Determination Required by TDEC
13	The wetland has High Resource Value as determined by a score of 75 and above using the TRAM or non-HGM TRAM (to be determined after completing the quantitative portion of this manual)	No	Determination Required by TDEC

End of Narrative Rating. Begin Quantitative Rating on Next Page.

TRAM Summary Worksheet

Wetland Map Label: WTL-2

Exceptional Status Wetlands	Check if applicable	
1. ONRW	<input type="checkbox"/>	
2. ETW	<input type="checkbox"/>	
3. Further Review Requested: Attach Wetland Background and Exceptional Status Wetlands Worksheet	<input type="checkbox"/>	
COMMENTS/NOTES:		
Quantitative Rating scores	Function: Hydrologic Regime	0.61
	Function: Biogeochemical Processes	0.46
	Function: Retain Particulates	
	Function: Plant Community	0.24
	Function: Wildlife Community	0.25
	Quantitative Score (Average of FCIs x 100)	39
	Value Added (Significant Size) Total	
	Total of Quantitative and Value Added Scores	TOTAL SCORE

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 130900.00 Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement City/County: Marion Sampling Date: 8-21-2024
Applicant/Owner: TDOT State: TN Sampling Point: WTL-3
Investigator(s): JIQ Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Concave Slope (%): 2-5
Subregion (LRR or MLRA): LRR N Lat: 35.044029 Long: -85.603485 Datum: N/A
Soil Map Unit Name: Lindside silt loam (Hamblen) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)
Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Hydic Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Summer drought 8-21-2024.			

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)		<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

VEGETATION (Five Strata) – Use scientific names of plants.

 Sampling Point: WTL-3

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Prevalence Index worksheet: <u> </u> Total % Cover of: Multiply by: OBL species x 1 = <u> </u> FACW species x 2 = <u> </u> FAC species x 3 = <u> </u> FACU species x 4 = <u> </u> UPL species x 5 = <u> </u> Column Totals: <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = <u> </u>
Sapling Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				
Shrub Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				
Herb Stratum (Plot size: _____)				Definitions of Five Vegetation Strata: Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine – All woody vines, regardless of height.
1. <i>Carex cherokeensis</i>	40	Y	FACW	
2. <i>Eupatroides serotinum</i>	20	Y	FACW	
3. <i>Vernonia gigantea</i>	15	N	FAC	
4. <i>Solidago gigantea</i>	15	N	FACW	
5. <i>Polygonum pensylvanicum</i>	10	N	FACW	
<u>100</u> = Total Cover 50% of total cover: <u>50</u> 20% of total cover: <u>20</u>				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: WTL-3

[illegible]

HGM FUNCTIONAL ASSESSMENT SLOPE WETLANDS

Date: 8-21-2024

Project Name 130900.00 Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement

Field Personnel JIQ/CDM

Wetland Name/Location WTL-3

Read instructions prior to conducting assessments. If project area is large or highly heterogeneous requiring the designation of several WAAs, a separate assessment should be performed for each WAA. CHECK THE APPROPRIATE BLANK(S) BELOW.

V1: Hydroperiod (HYDRO)

- | | |
|---|--|
| 1. Hydrology not altered (SI = 1.0) | |
| - no fill material or excessive sediment | - no roads or other impediments to surface ground water |
| - no ditches/drainage tiles | - no excavation |
| -no alteration to overland runoff, groundwater discharge/recharge | |
| 2. Hydrology slightly altered (SI = 0.75) | |
| - portion of site with minimal fill or sediment | - roads or other impediments, water flow slightly altered |
| - portion of site with drainage ditches/tiles | - minor portion of site excavated |
| -some alteration to overland runoff, groundwater discharge/recharge | |
| 3. Hydrology moderately altered (SI = 0.5) | |
| - portion of site with moderate fill or sediment | - roads or other impediments, water flow moderately altered |
| - portion of site with drainage ditches/tiles | - moderate portion of site excavated |
| - some alteration to overland runoff, groundwater discharge/recharge | |
| 4. Hydrology significantly altered (SI = 0.25) | |
| - portion of site with significant fill or sediment | - roads or other impediments, water flow significantly altered |
| - portion of site with drainage ditches/tiles | - significant portion of site excavated |
| - significant alteration to overland runoff, groundwater discharge/recharge | |
| 5. Hydrology severely altered (SI = 0.1) | |
| - entire site impacted by fill or excessive sediment | - roads or other impediments, water flow completely blocked |
| - entire site with numerous drainage ditches/tiles | - entire wetland affected |
| - no contributions to or from overland runoff, groundwater discharge/recharge | |

V2: Wetland Watershed Integrity (WSHEDINT)

Use weighted average as discussed on page 10. Examples of land uses and multipliers listed below

A = Percentage forested with no impervious surfaces _____

B = Percentage permeable land, e.g. park, golf course, pasture, hay, orchard, tree farm, or similar 100

C = Percentage low density residential, construction, or similar _____

D = Percentage high density residential, or similar _____

E = Percentage urban, commercial, industrial, or similar _____

$V2 = (A \times 1.0) + (B \times 0.75) + (C \times 0.5) + (D \times 0.25) + (E \times 0.01)/(100) =$ 0.75

V3: Canopy Tree Size Class (TSIZE)

1. Average size of canopy trees > 3 in. DBH

☐ ≥ 15 in. (SI = 1.0) ☐ 10 – 14 in. (SI = 0.75) ☐ 6 – 9 in. (SI = 0.5) ☐ 4 – 5 in. (SI = 0.25)

☒ < 4 in. or no trees present, go to V5

V4: Canopy Tree Density (TDEN)

1. Average number of canopy trees (> 3 in. DBH) per 30-ft. radius plot

☐ 5 – 10 (SI = 1.0) ☐ 11 – 15 (SI = 0.75) ☐ > 15 (SI = 0.5) ☐ 1 – 4 (SI = 0.5)

V5: Shrub Cover (SCOV)

1. Average percent cover of shrubs (woody stems < 3 in. DBH and taller than 3 ft.) per 30-ft. radius plot

☐ > 20 (SI = 1.0) ☒ < 20, go to V6**V6: Ground Vegetation Cover (GVC)**

1. Average percent cover of ground vegetation per 30-ft. radius plot

☒ ≥ 70 (SI = 1.0) ☐ 55 – 69 (SI = 0.75) ☐ 45 – 54 (SI = 0.5) ☐ 30 – 44 (SI = 0.25) ☐ 20 – 29 (SI = 0.1)
☐ < 20 (SI=0.0)**V7: Vegetation Composition and Diversity (COMP)**

1. Check the dominant species from Groups 1, 2, and 3 below using the 50/20 rule. If tree cover is < 20%, check the dominants in the next tallest stratum. If a dominant does not appear in lists below, but is a native species, it can be added as a Group 2 species. Native shrub and herbaceous species are assigned to Group 2. When using shrub or herbaceous write in the number of dominant species. Dominant invasive species are checked regardless of stratum. *

GROUP 1 (Reference Standard)		GROUP 2 (Native Ubiquitous)		GROUP 3 (Invasive)
<input type="checkbox"/> Water oak	<input type="checkbox"/> Pin oak	<input type="checkbox"/> American elm	<input type="checkbox"/> Green ash	<input type="checkbox"/> European/Chinese privet
<input type="checkbox"/> Bur oak	<input type="checkbox"/> Shumard oak	<input type="checkbox"/> Slippery elm	<input type="checkbox"/> Red maple	<input type="checkbox"/> Japanese honeysuckle
<input type="checkbox"/> Willow oak	<input type="checkbox"/> Bald cypress	<input type="checkbox"/> Sweetgum	<input type="checkbox"/> Silver maple	<input type="checkbox"/> Japanese stiltgrass
<input type="checkbox"/> Swamp chestnut oak	<input type="checkbox"/> Water tupelo	<input type="checkbox"/> Blackgum	<input type="checkbox"/> Black willow	<input type="checkbox"/> Purple loosestrife
<input type="checkbox"/> Cherrybark oak	<input type="checkbox"/> S. black gum	<input type="checkbox"/> Silky dogwood	<input type="checkbox"/> Sycamore	<input type="checkbox"/> Giant reed
<input type="checkbox"/> Swamp white oak	<input type="checkbox"/> Persimmon	<input type="checkbox"/> Boxelder	<input type="checkbox"/>	<input type="checkbox"/> Tall fescue
<input type="checkbox"/> Nuttall oak	<input type="checkbox"/> Am. hornbeam	<input type="checkbox"/> Tulip poplar	<input type="checkbox"/>	<input type="checkbox"/> Phragmites
<input type="checkbox"/> Overcup oak	<input type="checkbox"/>	Number native shrub spp.		<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	2 Number native herbaceous spp.		<input type="checkbox"/>

2. Using the number of dominants in Groups 1, 2, and 3 above, calculate a quality index (Q) using the following formula: $[(1.0 \times \# \text{ of checked dominants in Group 1}) + (0.66 \times \# \text{ of checked dominants in Group 2}) + (0.0 \times \# \text{ of checked dominants in Group 3})] / \text{total} \# \text{ of checked dominants in all groups} = \underline{\quad 0.66 \quad}$ 3. Multiply Q above by one of the following constants that reflects species richness:¹

a) if ≥ 4 species from Groups 1 and/or 2 occur as dominants, multiply Q by 1.0

b) if 3 species from Groups 1 and/or 2 occur as dominant, multiply Q by 0.75

c) if 2 species from Groups 1 and/or 2 occur as dominants, multiply Q by 0.50

d) if 1 species from Groups 1 and/or 2 occurs as dominant, multiply Q by 0.25

e) if no species from Groups 1 and/or 2 occurs as dominant, multiply Q by 0.0

4. Calculate the square root of the value from Step 3 above. This is the SI for V7=

*In some Depression wetlands and in some small WAAs (e.g., <0.5 acres), relatively few species (e.g., overcup oak) may be present. In cases in which this is the normal condition, Q can be multiplied by 1.0 if only 1 or 2 species are dominant.

V8: Soil Organic Matter (ORGANIC)

1. Surface horizons unaltered

☐ 100 percent cover of O and/or A horizon present (SI = 1.0)

2. Surface horizons altered. Estimate the percent of the WAA in which neither an O or A horizon is present.

3. Subtract the sum of the values from Step 2 from 100. Convert this value to a decimal. This is the SI for V8 (e.g., if 75 % of the WAA does not have an O or A horizon due to a significant disturbance, it will have an SI of 0.25).

V9: Buffer (BUFFER)

1. Determine the Connection Index (CI) by estimating the percent of the wetland surrounded by suitable buffer habitat.

☐ 90% – 100% (CI = 1.0) ☐ 75% – 89% (CI = 0.75) ☒ 40% – 74% (CI = 0.5) ☐ 10% – 39% (CI = 0.25)☐ < 10% (CI = 0.1)

2. Multiply the CI by one if the following values:

a) if average buffer width is ≥ 492 ft., multiply by 1.0

b) if average buffer is 98 ft to 491 ft., multiply by 0.66

c) if average buffer width is 33 ft to 97 ft., multiply by 0.33

d) if average buffer width is < 33 ft., multiply by 0.1

3. This value is the SI for V9 = 0.33.**VALUES USED TO CALCULATE FUNCTIONAL CAPACITY INDICES (FCIs)****SUBINDEX VALUES:**V1 0.5 (HYDRO) V3 (TSIZE) V5 (SCOV) V7 0.33 (COMP) V9 0.33 (BUFFER)V2 0.75 (WSHEDINT) V4 (TDEN) V6 1.0 (GVC) V8 0.75 (ORGANIC)

WETLAND FUNCTIONS

FUNCTION 1: MAINTAIN HYDROLOGIC REGIME

$$\text{FCI 1: } (V1 \times V2)^{1/2} \Rightarrow (\text{ } \times \text{ })^{1/2} = \underline{0.61}$$

FUNCTION 2: MAINTAIN BIOGEOCHEMICAL PROCESSES

$$\text{FCI (trees present)} = \left((V1 \times V2)^{1/2} \times \left(\frac{V3+V4}{2} + V8 \right) \right)^{1/2} \Rightarrow \left((\text{FCI 1}) \times \left(\frac{(\text{ } + \text{ })}{2} + \text{ } \right) \right)^{1/2} = \underline{\hspace{2cm}}$$

$$\text{FCI (shrubs present)} = \left((V1 \times V2)^{1/2} \times \left(\frac{V5+V8}{3} \right) \right)^{1/2} \Rightarrow \left((\text{FCI 1}) \times \left(\frac{\text{ } + \text{ }}{3} \right) \right)^{1/2} = \underline{\hspace{2cm}}$$

$$\text{FCI (ground cover)} = \left((V1 \times V2)^{1/2} \times \left(\frac{V6+V8}{5} \right) \right)^{1/2} \Rightarrow \left((\text{FCI 1}) \times \left(\frac{\text{ } + \text{ }}{5} \right) \right)^{1/2} = \underline{0.46}$$

FUNCTION 3: MAINTAIN CHARACTERISTIC PLANT COMMUNITY

$$\text{FCI (trees present)} = \frac{(V1 \times V2)^{1/2} + 2\left(\frac{V3+V4+V7}{3}\right)}{3} \Rightarrow \frac{(\text{FCI 1}) + 2\left(\frac{\text{ } + \text{ } + \text{ }}{3}\right)}{3} = \underline{\hspace{2cm}}$$

$$\text{FCI (shrubs present)} = \frac{(V1 \times V2)^{1/2} + 2\left(\frac{V5+V7}{2}\right)}{6} \Rightarrow \frac{(\text{FCI 1}) + (\text{ } + \text{ })}{6} = \underline{\hspace{2cm}}$$

$$\text{FCI (groundcover)} = \frac{(V1 \times V2)^{1/2} + 2\left(\frac{V6+V7}{2}\right)}{9} \Rightarrow \frac{(\text{FCI 1}) + (\text{ } + \text{ })}{9} = \underline{0.24}$$

FUNCTION 4: MAINTAIN CHARACTERISTIC WILDILFE COMMUNITY

$$\text{FCI (trees)} = \frac{(V1 \times V2)^{1/2} + 2\left(\frac{V3+V4+V7}{3}\right) + V9}{4} \Rightarrow \frac{(\text{FCI 1}) + 2\left(\frac{\text{ } + \text{ } + \text{ }}{3}\right) + \text{ }}{4} = \underline{\hspace{2cm}}$$

$$\text{FCI (shrubs present)} = \frac{(V1 \times V2)^{1/2} + 2\left(\frac{V5+V7}{2}\right) + V9}{6} \Rightarrow \frac{(\text{FCI 1}) + (\text{ } + \text{ } + \text{ })}{6} = \underline{\hspace{2cm}}$$

$$\text{FCI (groundcover)} = \frac{(V1 \times V2)^{1/2} + 2\left(\frac{V6+V7}{2}\right) + V9}{9} \Rightarrow \frac{(\text{FCI 1}) + (\text{ } + \text{ } + \text{ })}{9} = \underline{0.28}$$

Quantitative Rating

Value Added Section

Wetland Size – Wetland size may increase particular wetland functions or provide greater habitat value to wildlife. In some regions, large wetlands or wetlands of certain types may be rare and may play a vital and significant local and/or regional ecological role. Refer to Tables 1 through 3 below for assessing value added points to wetland size.

Other Significant Value – See Table 4 for value added due to other significant wetland values

Critical Sizes for Tennessee Wetlands by HGM Class and Region of State

Table 1. Depression wetland size throughout Tennessee (max 5 pts). Estimate the area of wetland. Select the appropriate size class and assign score.	Score
≥5 acres	5
3 - <5 acres	3

Table 2. Slope and Flat wetland size throughout Tennessee (max 5 pts). Estimate the area of wetland. Select the appropriate size class and assign score.	Score
≥50 acres	5
25 - <50 acres	3
10 - <25 acres	2
5 - <10 acres	1

Table 3. Riverine wetland size in central and eastern Tennessee (max 5 pts). Estimate the area of wetland. Select the appropriate size class and assign score.	Score
≥50 acres	5
25 - <50 acres	3
10 - <25 acres	2
5 - <10 acres	1

Table 4. Other significant value (max 5 pts). Estimate the area of wetland. Select the appropriate size class and assign score.	Score
Wetland falls within a category from lines 8-12 of the Exceptional Status Wetlands Decision Table (pg. 18) but has not been determined by TDEC to qualify for Exceptional Tennessee Waters status.	5

An affirmative response to 1-6 of the Decision Table identifies the wetland per rule as an Outstanding Natural Resource Water (ONRW) or Exceptional Tennessee Waters (ETW). A positive response to 7-13 requires a final determination by the Department.

#	Wetland Feature Decision Table	Yes/No	Affirmative Result
1	The wetland has been designated as an Outstanding Natural Resource Water (ONRW) by the Department under 0400-40-03-.06(5)(a).	No	ONRW
2	The wetland has previously been designated and documented as an Exceptional Tennessee Water (ETW) by the Department under 0400-40-03-.06(4)(a)(7)	No	ETW
3	The wetland is within state or national parks, wildlife refuges, forests, wilderness areas, natural areas, or is a designated State Scenic Rivers or Federal Wild and Scenic Rivers.	No	ETW
4	The wetland is known to contain a documented non-experimental population of state or federally listed threatened or endangered aquatic or semi-aquatic plants, or aquatic animals.	No	ETW
5	The wetland or the area it is in has been designated by the U.S. Fish and Wildlife Service as " Critical Habitat " for any threatened or endangered aquatic or semi-aquatic plant or aquatic animal species.	No	ETW
6	The wetland falls within an area designated as Lands Unsuitable for Mining pursuant to the federal Surface Mining Control and Reclamation Act where such designation is based in whole or in part on impacts to water resource values	No	ETW
7	The wetland exhibits outstanding ecological or recreational values such as, <u>but not limited to</u>, those as outlined in 8-12	No	Determination Required by TDEC
8	The wetland fits within the species composition concept for any plant community found in the state of Tennessee ranked G2, G1, or more imperiled at the "Association" classification level according to the NatureServe and Natural Heritage Ranking system (e.g. "bog", "fen", and "wet prairie/barren" communities).	No	Determination Required by TDEC
9	The wetland is an uncommon resource (e.g. vernal pools, headwater wetlands, sinks, spring/seeps, glades, newly described communities, high recreational or socioeconomic value) in the region and/or is deemed such by concurrence of qualified scientists.	No	Determination Required by TDEC
10	The wetland is an older aged forested wetland comprised of overstory trees with an average diameter at breast height (dbh) being greater than or equal to 30 in within the WAA.	No	Determination Required by TDEC
11	The wetland is observed and documented to be a significant waterfowl, songbird, shorebird, amphibian, bat, fish habitat area . These may include rookeries, migratory congregations, nesting sites, breeding areas, etc.	No	Determination Required by TDEC
12	The wetland is hydrologically connected to and/or has significant ecological contribution to an ETW	No	Determination Required by TDEC
13	The wetland has High Resource Value as determined by a score of 75 and above using the TRAM or non-HGM TRAM (to be determined after completing the quantitative portion of this manual)	No	Determination Required by TDEC

End of Narrative Rating. Begin Quantitative Rating on Next Page.

TRAM Summary Worksheet

Wetland Map Label: WTL-3

Exceptional Status Wetlands		Check if applicable
	1. ONRW	<input type="checkbox"/>
	2. ETW	<input type="checkbox"/>
	3. Further Review Requested: Attach Wetland Background and Exceptional Status Wetlands Worksheet	<input type="checkbox"/>
	COMMENTS/NOTES:	
Quantitative Rating scores		0.61
	Function: Hydrologic Regime	
		0.46
	Function: Biogeochemical Processes	
	Function: Retain Particulates	
		0.24
	Function: Plant Community	
		0.28
	Function: Wildlife Community	
	Quantitative Score (Average of FCIs x 100)	40
	Value Added (Significant Size) Total	
Total of Quantitative and Value Added Scores	TOTAL SCORE	40



TH001772: WWC-1 facing upgradient before inlet at I-24.



TH001773: WWC-1 facing downgradient towards inlet at I-24.



TH001748: WWC-1 facing upgradient at outlet in median on I-24.



TH001743: PND-1 on Shellmound Road.



TH001747: WWC-2 facing upgradient at inlet.



TH001748: WWC-2 facing downgradient at inlet.



TH001781: STR-1 facing upstream before inlet.



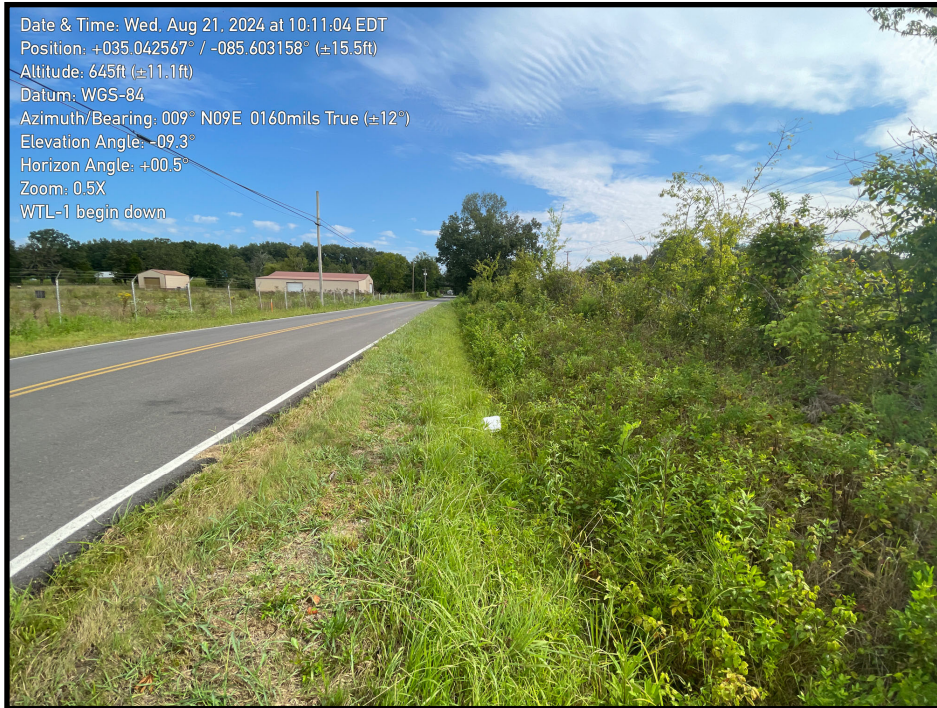
TH001780: STR-1 facing downstream towards inlet.



TH001745: STR-1 and WWC-2 confluence before crossing under Shellmound Road.



TH001770: WTL-1 facing upgradient before WWC-2 and STR-1 confluence.



TH001771: WTL-1 facing downgradient towards WWC-2 and STR-1 confluence.



TH001777: WTL-2 facing towards Shellmound Road.



TH001775: WTL-3 facing away from Shellmound Road along I-24.



TH001774: WTL-3 facing towards Shellmound Road along I-24.



Tennessee Ecological Services Field Office

FWS Log No: 2024-0144949

The Service concurs with your effect determination(s) for resources protected by the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.). This finding fulfills the requirements of the Act. If project design changes are made or new information becomes available, please submit new plans for review.

Field Supervisor

Date



[EXTERNAL] 130900.00 and 130902.00 Marion Co., I-24 and Shellmound Road Bridge Replacements-Updated Consultation

From James Quilliams <James.Quilliams@tn.gov>

Date Mon 6/9/2025 12:37 PM

To TDOT_USFWS <tdot_usfws@fws.gov>

Cc Harris, Abigail N <abigail_harris@fws.gov>; Giddens, David W <david_giddens@fws.gov>

 2 attachments (643 KB)

USFWS Response 130902.00 10-8-2024.pdf; USFWS Response 130900.00 10-8-2024.pdf;

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Abigail Harris,

This email is in response to a conversation I had with Wesley Giddens today, 6/9/2025. I inquired about two projects (130900.00 and 130902.00) that were originally coordinated with John Griffith on 10/8/2024 (attached), resulting in the request of a bat survey for the project study area. After speaking with Wesley, it was determined that a bat study would not be sufficient consultation for these projects and the USFWS would propose the time of year tree clearing restrictions (November 16th through March 31st) for both projects instead. Please see below the proposed tree clearing consultation commitment for projects 130900.00 and 130902.00. Please let me know if you need any additional information and it will be provided.

(PIN 130900.00)

Thank you for your time reviewing the subject project: PIN 130900.00 Marion Co., I-24 Bridge replacement over Shellmound Road. Based on your response of the proposed project being located in the winter buffer for the federally endangered Indiana bat (*Myotis sodalis*) and the proposed federally endangered tricolored bat (*Perimyotis subflavus*), TDOT has committed to perform all tree clearing activities in the timeframe of November 16th through March 31st. In adherence to the proposed scope of work, and the aforementioned tree clearing commitment, TDOT concludes the subject project will “not likely adversely affect” the federally endangered Indiana bat (*Myotis sodalis*) or the proposed federally endangered tricolored bat (*Perimyotis subflavus*).

I would appreciate your review and comment regarding concurrence or other findings for these determinations.

The above coordination is in compliance with the U.S. Fish and Wildlife Coordination Act of 1958 and the Endangered Species Act of 1973, as amended. Thank you for your assistance with this project. If you have any questions or need additional information, please contact me at 423-463-6103.

(PIN 130902.00)

Thank you for your time reviewing the subject project: PIN 130902.00 Marion Co., Shellmound Road bridge replacement over I-24. Based on your response of the proposed project being located in the winter buffer for the federally endangered Indiana bat (*Myotis sodalis*) and the proposed federally endangered tricolored bat (*Perimyotis subflavus*), TDOT has committed to perform all tree clearing activities in the timeframe of November 16th through March 31st. In adherence to the proposed scope of work, and the aforementioned tree clearing commitment, TDOT concludes the subject project will “not likely adversely affect” the federally endangered Indiana bat (*Myotis sodalis*) or the proposed federally endangered tricolored bat (*Perimyotis subflavus*).

I would appreciate your review and comment regarding concurrence or other findings for these determinations.

The above coordination is in compliance with the U.S. Fish and Wildlife Coordination Act of 1958 and the Endangered Species Act of 1973, as amended. Thank you for your assistance with this project. If you have any questions or need additional information, please contact me at 423-463-6103.

Kind Regards,
James Ian Quilliams



James “Ian” Quilliams | Senior Technical Specialist-Ecology

Region 2 Environmental Section

7512 Volkswagen Drive, Chattanooga, TN 37416

p. 423-510-1101 c. 423-463-6103

james.quilliams@tn.gov

tn.gov/tdot

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-

From: [Griffith, John](#)
To: [Dennis Crumby](#)
Cc: [Sikula, Nicole R](#); [Andy Barlow](#)
Subject: [EXTERNAL] Re: IPaC delivered Official Species List for project: TDOT PIN 130900.00 Marion County, I-24 Bridge over Shellmound Road (TMA)
Date: Tuesday, October 8, 2024 1:20:17 PM

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Dennis,

Thank you for your correspondence regarding the proposed Interstate 24 Bridge over Shellmound Road in Marion County, Tennessee. The scope of work would involve replacement of the existing bridge with a 120-foot-long, 3-span, concrete beam bridge. The typical section on the proposed structure will consist of two 12-foot lanes with a 24-foot inside shoulder, which can accommodate a future travel lane, a 12-foot outside shoulder, and concrete parapets for an out-to-out width of 61 feet and 3 inches. The proposed finished grade of the bridge would need to be raised approximately 3 feet to increase the clearance to 16-foot and 6 inches. The roadway centerline would be shifted 18 feet and the structure centerline would be shifted 24 feet, both to the south. You are requesting a list of federally threatened or endangered species that may be present in the project area.

Our database indicates that the project lies within the swarming areas of Nickajack Cave, a document hibernaculum for the federally endangered Indiana bat (*Myotis sodalis*), and Little Cedar Mountain Cave, a documented hibernaculum for the proposed endangered tricolored bat (*Perimyotis subflavus*). A qualified individual should assess potential impacts to these species as a result of the project. As a designated representative for the Federal Highway Administration (FHWA), the Tennessee Department of Transportation may submit its assessment and findings directly to this office for review and concurrence. A finding of "may affect" can be addressed through formal consultation by the FHWA, except when the Service concurs, in writing, that a proposed action "is not likely to adversely affect" listed species.

This email will serve as our official project response. Please let me know if we can offer further assistance. Thanks,

John Griffith
Transportation Biologist
U.S. Fish and Wildlife Service
Tennessee Field Office
931-444-1393 (office)
931-261-3755 (cell)

From: Administrator Email <ecosphere_support@ecosphere.fws.gov>

Sent: Wednesday, September 18, 2024 3:01 AM

To: Griffith, John <john_griffith@fws.gov>; Tennessee ES, FWS <tennesseeES@fws.gov>; Sykes, Robbie <robbie_sykes@fws.gov>; Alexander, Steven <steven_alexander@fws.gov>

Subject: IPaC delivered Official Species List for project: TDOT PIN 130900.00 Marion County, I-24 Bridge over Shellmound Road (TMA)

To: IPaC point(s) of contact for Tennessee Ecological Services Field Office

Project Location: Marion County, Tennessee

IPaC has delivered an official Section 7 species list on behalf of your office. For your convenience, IPaC has created an ETK project ([2024-0144949](#)) with a new associated 'Species List Provided' event. A PDF file of the species list document is attached to the event and contact information for the project can be found on the last page of the PDF.

IPaC has automatically set the consultation status to "Closed". If you need to do any additional work in this project (e.g., add staff, add events, change lead office, etc.), you must first change the status to "active" so that you can edit the project. You can access the project via the link, above.

Lead FWS Office:

The Tennessee Ecological Services Field Office is currently designated as the lead office for Section 7 on this project. The following additional offices have jurisdiction and have been notified: None. If another office is the lead office on this project, please access the project (via the link above) and update it. IPaC will not reset the Lead Office once it has been updated by a biologist.

*Projects created in ETK by IPaC have not been assigned to an FWS staff member. To identify the staff assigned to this project, please access the project (via the link above) and add their name(s).



TENNESSEE WILDLIFE RESOURCES AGENCY

ELLINGTON AGRICULTURAL CENTER
5107 EDMONDSON PIKE
NASHVILLE, TENNESSEE 37211

10/15/2024

Dennis Crumby / Ecology Section
Environmental Division
James K. Polk BLDG., Suite 900
505 Deaderick Street
Nashville, TN 37242-0334
p. 615-253-2465 c. 615-761-8513

RE: Marion County; I-24 Bridge over Shellmound Road (TMA) PIN 130900.00

Dear Mr. Crumby,

The Tennessee Wildlife Resources Agency has reviewed the information provided for the proposed bridge replacement for the I-24 Bridge over Shellmound Road (TMA) in Marion County, Tn. You have requested that we provide your office with a list of threatened or endangered species that may be present in the vicinity of the proposed project.

The proposed bridge is to be a 120' long concrete beam bridge with 3 spans and a maximum span of 60'. The typical section on the proposed structure will consist of 2-12' lanes with a 24' inside shoulder, which can accommodate a future travel lane, a 12' outside shoulder, and concrete parapets for an out-to-out width of 61' 3". The proposed finished grade of the bridge will need to be raised approximately 3' to increase the clearance to 16' 6". The roadway centerline will be shifted 18' and the structure centerline will be shifted 24', both to the south.

Our databases show documented occurrences of multiple state listed species within 4.0 miles for the project location however, based on the scope of work and location of the project our agency does not anticipate significant adverse impacts to these species provided that all applicable TDEC and US EPA approved Erosion Prevention/Silt Control measures and Best Management Practices be planned for, implemented, monitored, and maintained throughout construction.

Thank you for the opportunity to review and comment on this proposed project. If I may be of further assistance, please contact me at Andy.Barlow@tn.gov.

The State of Tennessee

AN EQUAL OPPORTUNITY, EQUAL ACCESS, AFFIRMATIVE ACTION EMPLOYER

Sincerely,

A handwritten signature in black ink, reading "Andy Barlow", written in a cursive style. The signature is set against a light gray, textured rectangular background.

Andy Barlow

Wildlife Biologist/Liaison to TDOT and the Federal Highway Administration

Dennis Crumby

From: twrasurveymgmt@gmail.com
Sent: Tuesday, September 17, 2024 9:30 AM
To: Dennis Crumby; Andy Barlow
Subject: [EXTERNAL] Environmental Review Request: 1726592400000

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Dennis Crumby

****Auto-generated email****

DO NOT REPLY

Tennessee Wildlife Resource Agency has received your submission. If additional information is required, Biodiversity Division staff will reach out via the contact information you provided. Although we strive to respond to review requests as quickly as possible, a formal response may take up to 30 days.

Thank you,

TWRA Biodiversity

Index Of Sheets

TITLE SHEET.....	1
TYPICAL SECTIONS.....	2B, 2B1, 2B2
RIGHT-OF-WAY ACQUISITION TABLE(S) and PROPERTY MAP(S).....	3A - 3B
PRESENT LAYOUT(S).....	4 - 6
RIGHT-OF-WAY DETAILS.....	4A - 6A
PROPOSED LAYOUT(S).....	4B - 6B
PROPOSED PROFILE(S).....	4C - 6C
DRAINAGE MAP(S).....	7 - 8
ROADWAY CROSS SECTIONS.....	9 - 40

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING

MARION COUNTY

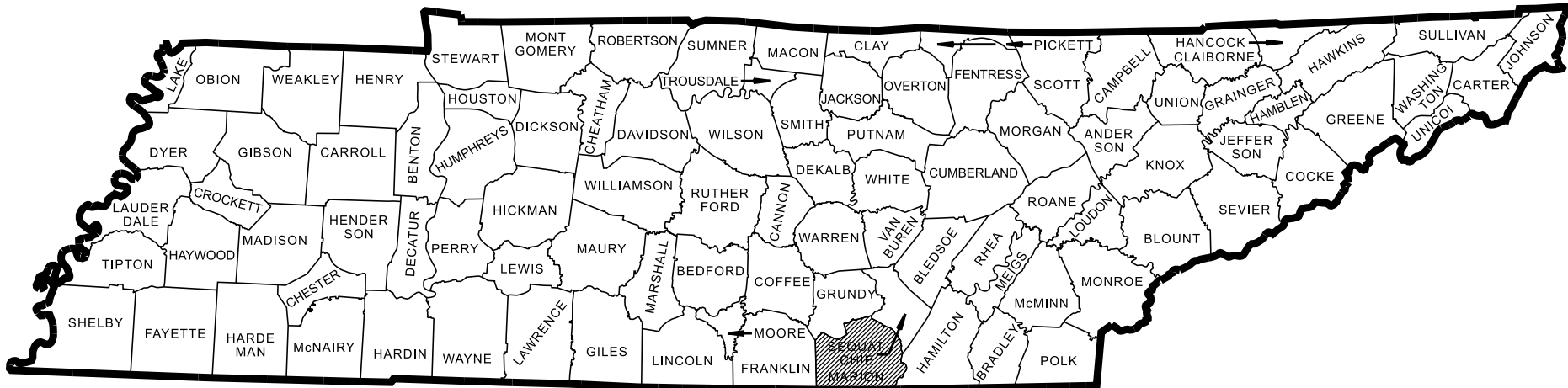
INTERSTATE 24 WESTBOUND
BRIDGE OVER SHELLMOUND ROAD
(LOG MILE 22.65)

LINE AND GRADE
BRIDGE REPLACEMENT

STATE HIGHWAY NO. N/A F.A.H.S. NO. I-24

DOES THIS PROJECT QUALIFY FOR UTILITY CHAPTER 86	YES X	NO
---	-------	----

TENN.	YEAR	SHEET NO.
	2025	1
FED. AID PROJ. NO.	BR-I-24-2(183)	
STATE PROJ. NO.	58100-0186-44	



PROJECT LOCATION
BRIDGE ID. # 581002400692

58100-0186-44
BEGIN PROJECT NO. BR-I-24-2(183) PRELIMINARY
STA. 115+77.41 INTERSTATE 24 WESTBOUND
N 259279.3798 E 2086025.8729

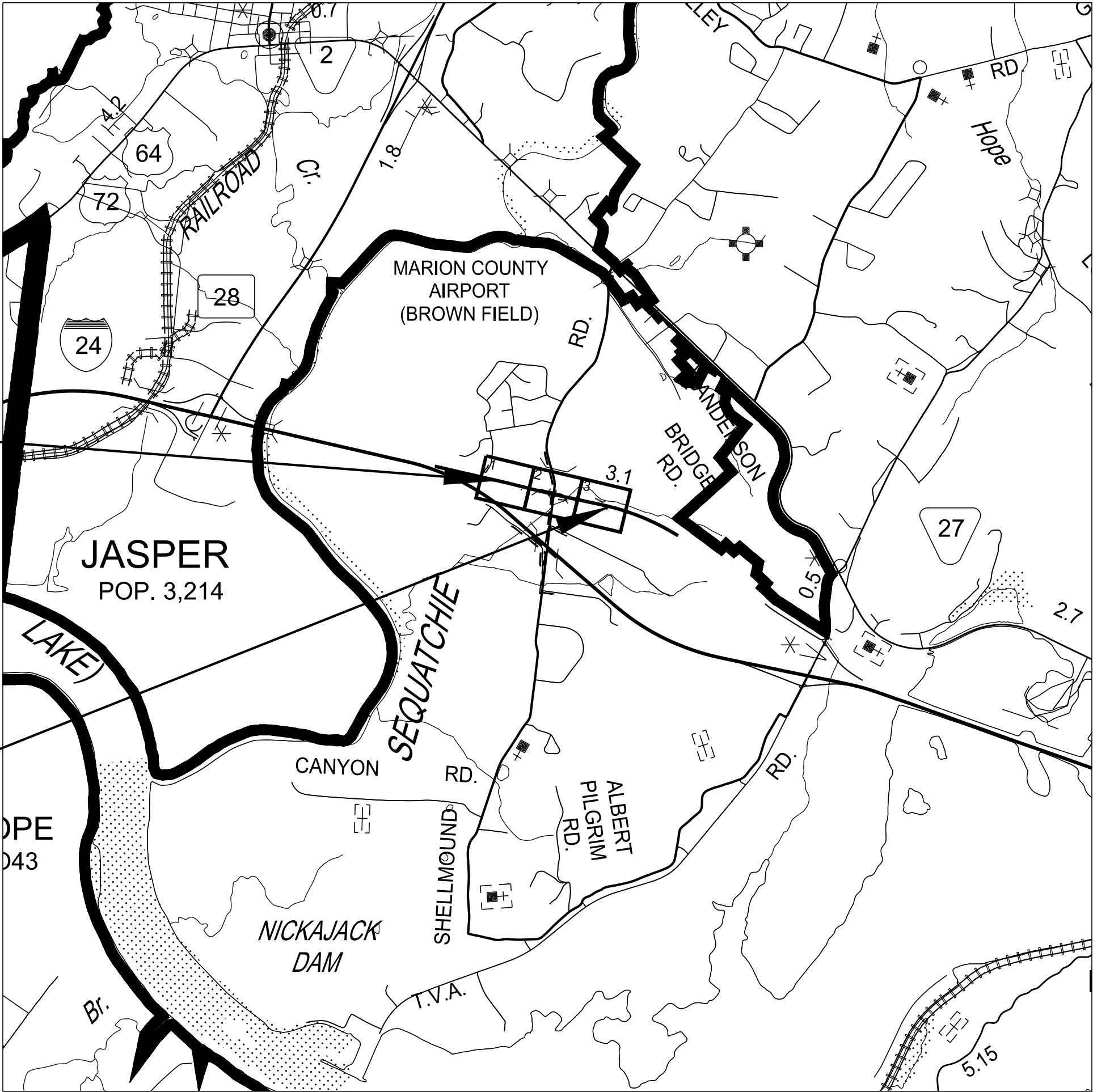
58100-0186-44
END PROJECT NO. BR-I-24-2(183) PRELIMINARY
STA. 143+43.76 INTERSTATE 24 WESTBOUND
N 258655.4557 E 2088720.6668

SPECIAL NOTES

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

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

TDOT PROJECT MANAGER: CHANEL HIPPIX, PMP
DESIGNER : HDR
P.E. NO. 58100-0186-44 (NEPA)
PIN NO. 130900.00
CHECKED BY : DAVID HORNE, P.E.



R.O.W. LENGTH	0.000 MILES
ROADWAY LENGTH	0.497 MILES
BRIDGE LENGTH	0.026 MILES
BOX BRIDGE LENGTH	0.000 MILES
BOX BRIDGE LENGTH	0.000 MILES ▲
PROJECT LENGTH	0.523 MILES

Not included in the project length (Non Riding Surface).



NO EXCLUSIONS

LINE
AND
GRADE

SEALED BY

APPROVED: WILL REID, CHIEF ENGINEER

DATE:

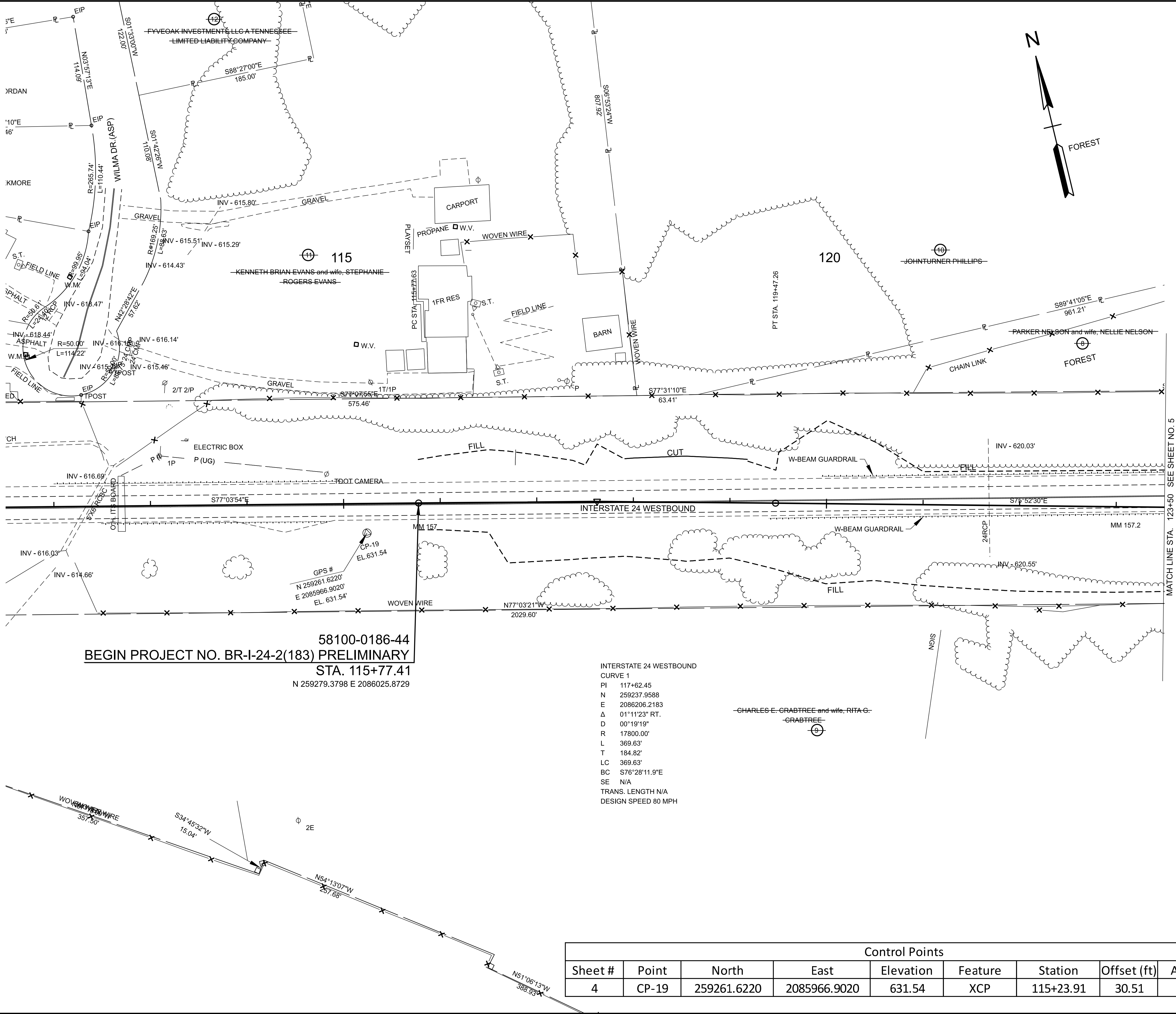
APPROVED: HOWARD H. ELELY, COMMISSIONER

SURVEY 05-06-24	TRAFFIC DATA
	ADT (2026) 27,400
	ADT (2046) 32,880
	DHV (2046) 2,630
	D 60 - 40
	T (ADT) 30 %
	T (DHV) 20 %
	V 80 MPH

COORDINATES VALUES ARE NAD 83(2011), ARE DATUM ADJUSTED BY THE FACTOR OF 0.99998, AND TIED TO TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 USING THE GEOID 18 MODEL, OBTAINED ON 05-06-2024.

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION	
APPROVED:	
DIVISION ADMINISTRATOR	DATE

TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	4



58100-0186-44
BEGIN PROJECT NO. BR-I-24-2(183) PRELIMINARY
STA. 115+77.41
N 259279.3798 E 2086025.8729

INTERSTATE 24 WESTBOUND
CURVE 1
PI 117+62.45
N 259237.9588
E 2086206.2183
Δ 01°11'23" RT.
D 00°19'19"
R 17800.00'
L 369.63'
T 184.82'
LC 369.63'
BC S76°28'11.9"E
SE N/A
TRANS. LENGTH N/A
DESIGN SPEED 80 MPH

Control Points								
Sheet #	Point	North	East	Elevation	Feature	Station	Offset (ft)	Alignment
4	CP-19	259261.6220	2085966.9020	631.54	XCP	115+23.91	30.51	I-24 WB

LINE AND GRADE

SEALED BY

COORDINATES ARE NAD 83(2011), ARE DATUM ADJUSTED BY THE FACTOR OF 0.99998 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 18.

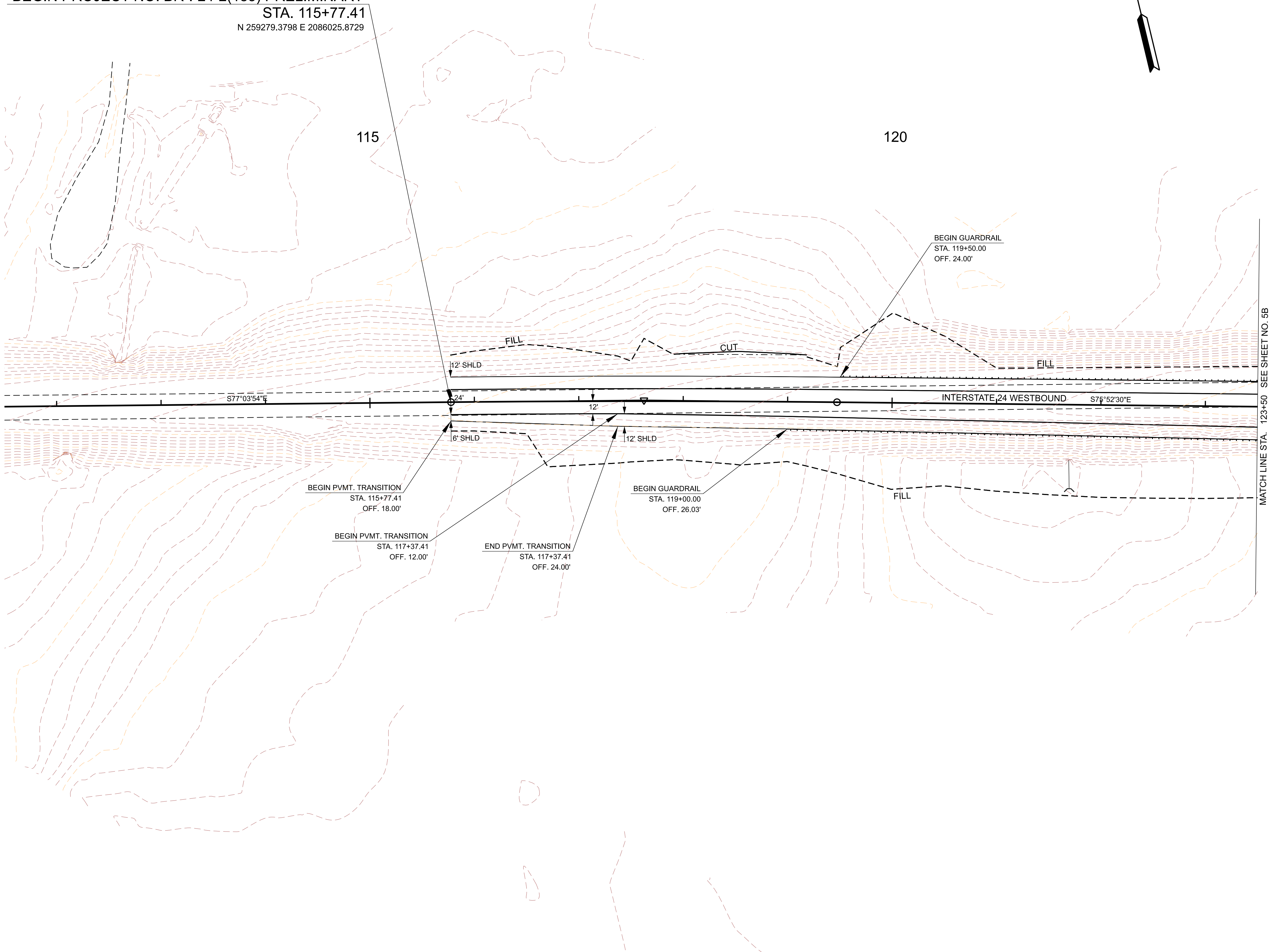
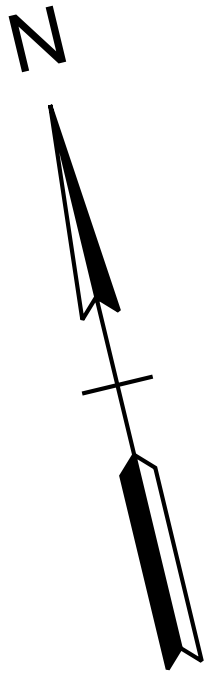
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

PRESENT
LAYOUT

STA. 111+50.00 TO STA. 123+50.00
SCALE: 1" = 50'

TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	4B

58100-0186-44
BEGIN PROJECT NO. BR-I-24-2(183) PRELIMINARY
STA. 115+77.41
N 259279.3798 E 2086025.8729



LINE AND GRADE

SEALED BY

COORDINATES ARE NAD 83(2011), ARE
DATUM ADJUSTED BY THE FACTOR
OF 0.99998 AND TIED TO THE TGRN.
ALL ELEVATIONS ARE REFERENCED
TO THE NAVD 1988 WITH GEOID 18.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

PROPOSED
LAYOUT

STA. 111+50.00 TO STA. 123+50.00
SCALE: 1" = 50'

TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	5

LINE AND GRADE

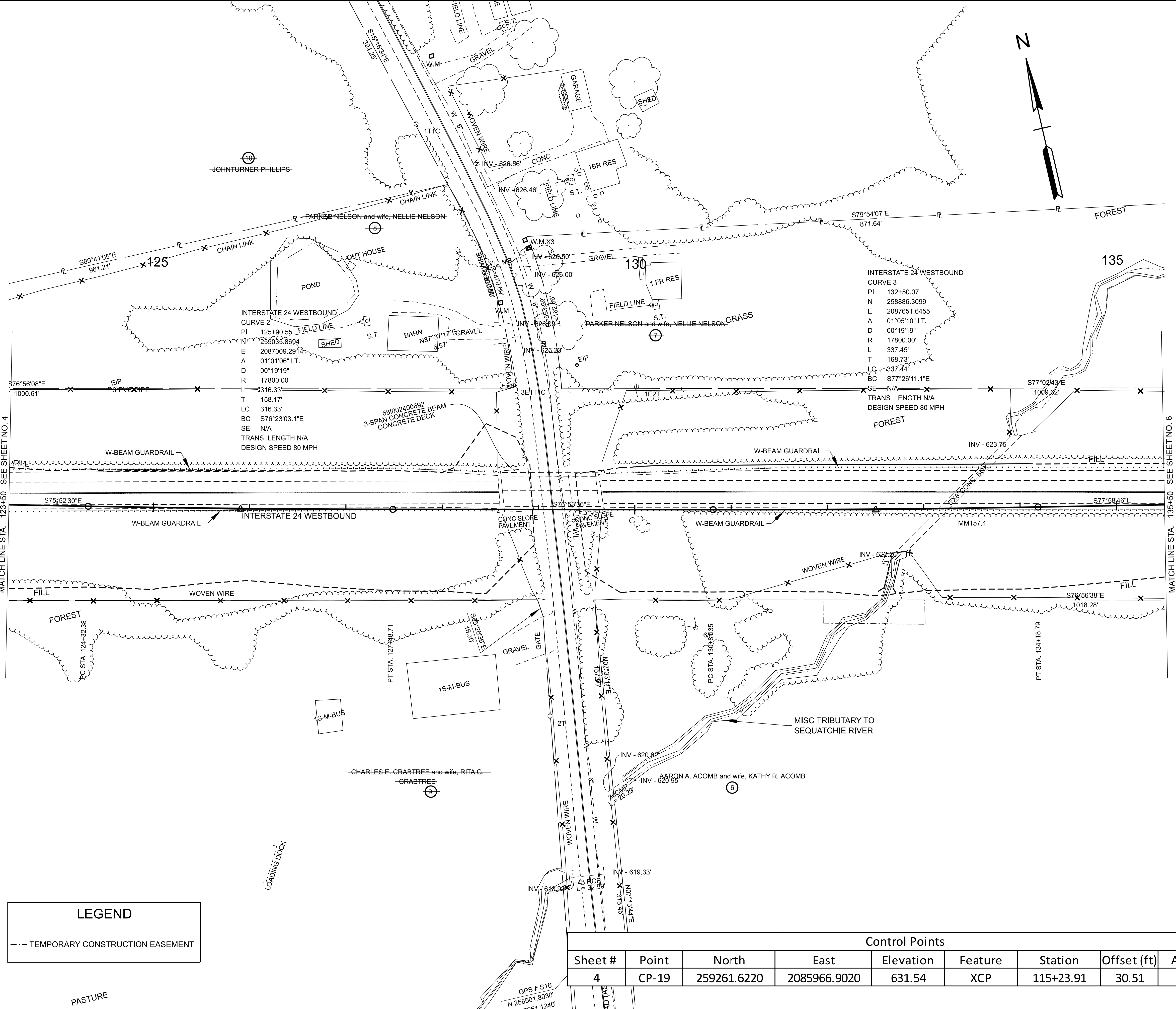
SEALED BY

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STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

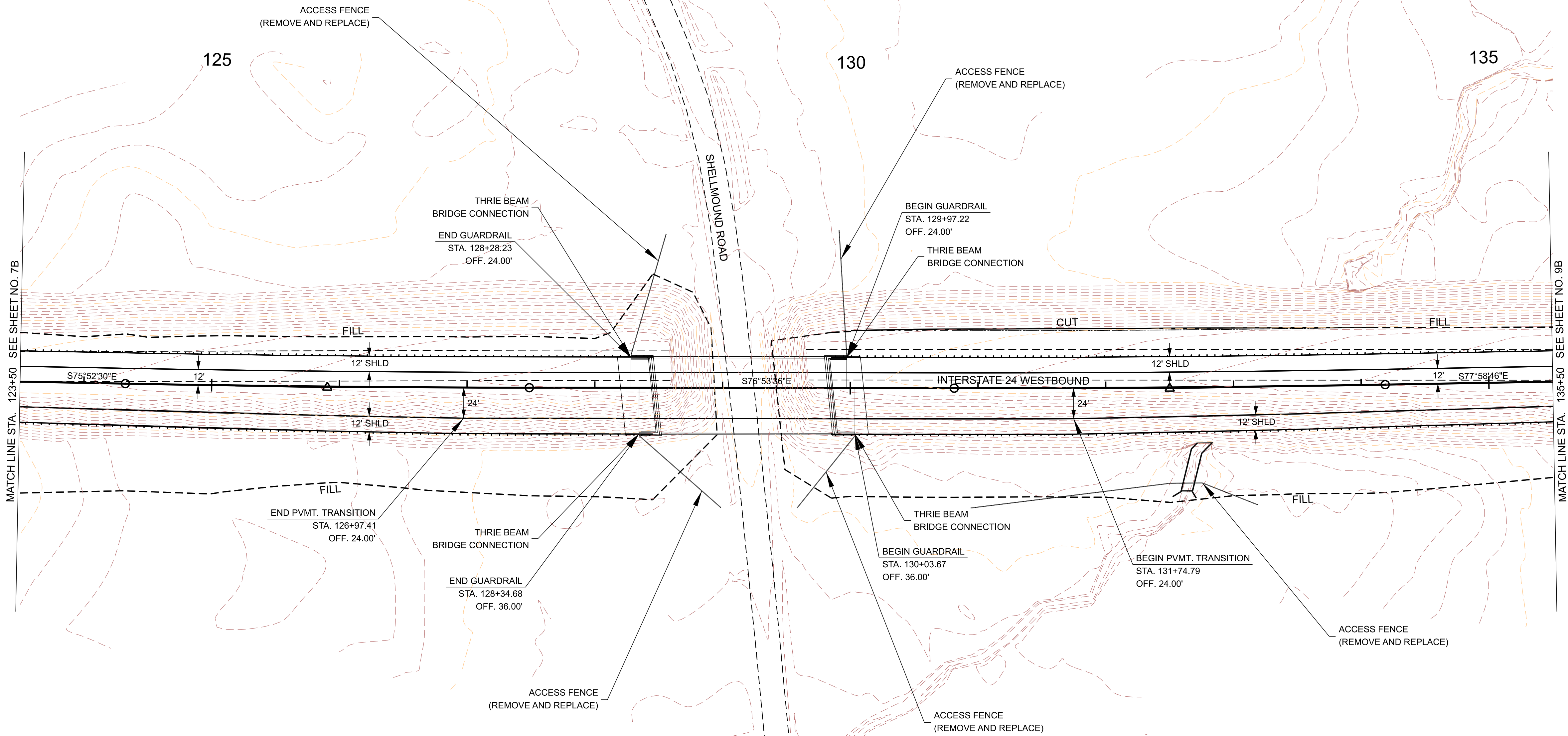
PRESENT LAYOUT

STA. 123+50.00 TO STA. 135+50.00
SCALE: 1" = 50'



LEGEND
--- TEMPORARY CONSTRUCTION EASEMENT

Control Points								
Sheet #	Point	North	East	Elevation	Feature	Station	Offset (ft)	Alignment
4	CP-19	259261.6220	2085966.9020	631.54	XCP	115+23.91	30.51	I-24 WB



TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	5B

LINE AND GRADE

SEALED BY

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STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

PROPOSED
LAYOUT

STA. 123+50.00 TO STA. 135+50.00
SCALE: 1" = 50'

TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	6

LINE
AND
GRADE

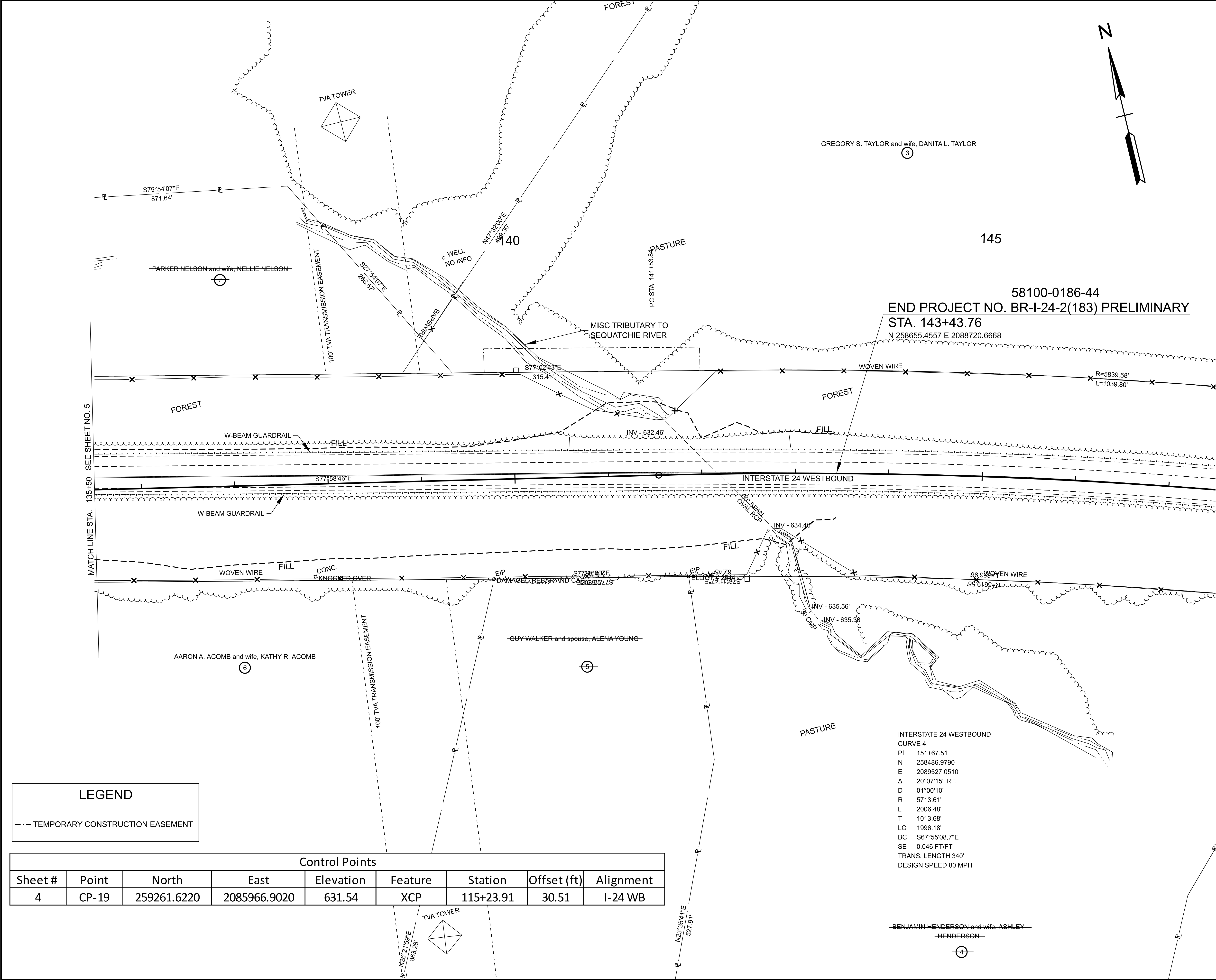
SEALED BY

COORDINATES ARE NAD 83(2011), ARE DATUM ADJUSTED BY THE FACTOR OF 0.99998 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 18.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

PRESENT
LAYOUT

STA. 135+50.00 TO STA. 147+50.00
SCALE: 1" = 50'



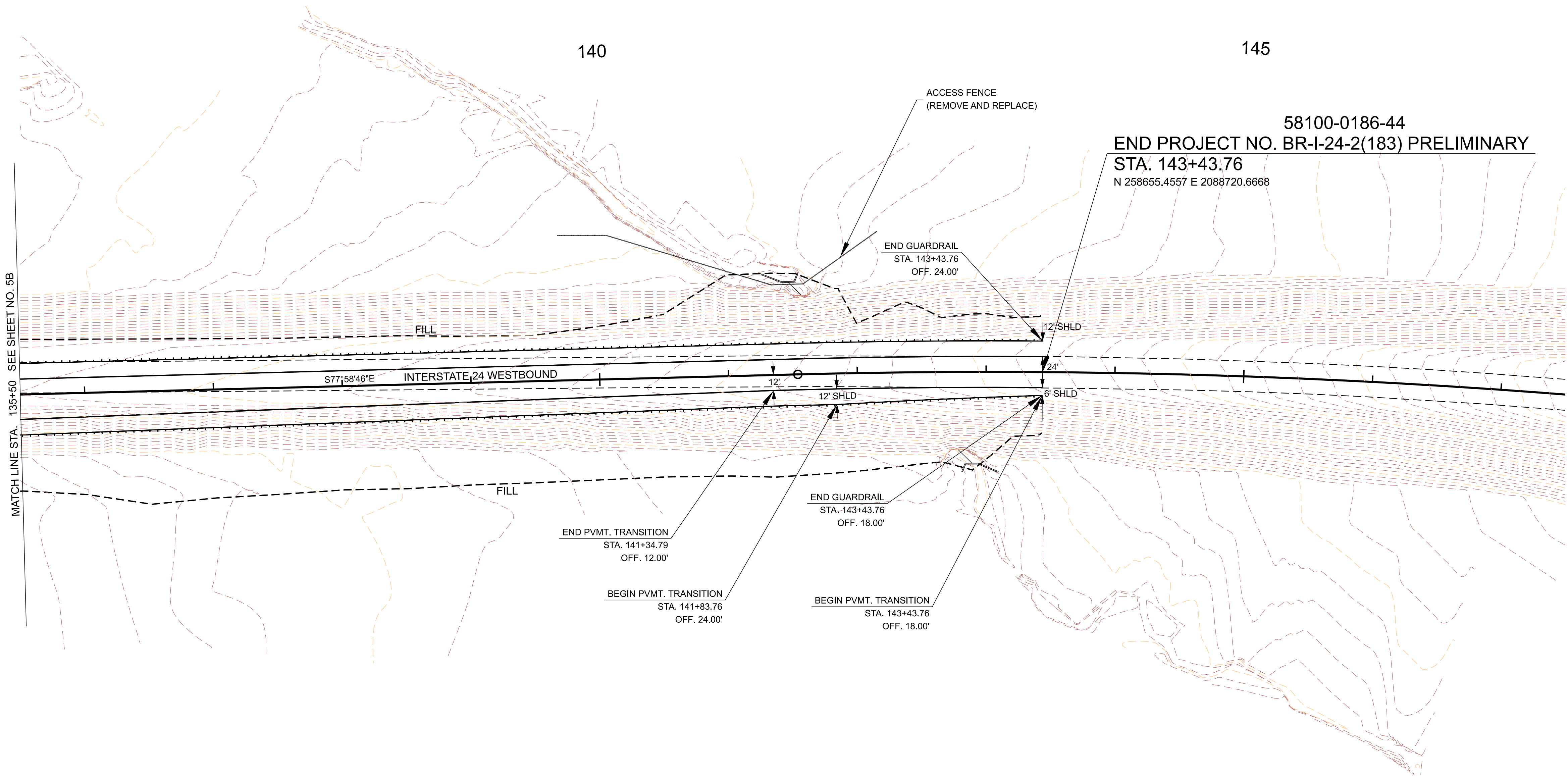
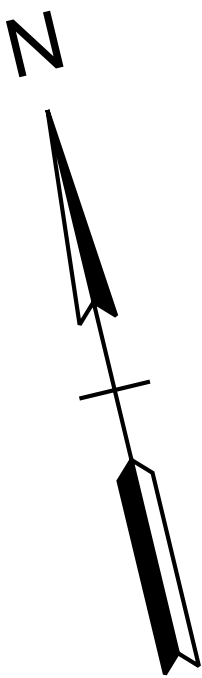
LEGEND

--- TEMPORARY CONSTRUCTION EASEMENT

Control Points

Sheet #	Point	North	East	Elevation	Feature	Station	Offset (ft)	Alignment
4	CP-19	259261.6220	2085966.9020	631.54	XCP	115+23.91	30.51	I-24 WB

TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	6B



LINE AND GRADE

SEALED BY

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STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

PROPOSED
LAYOUT

STA. 135+50.00 TO STA. 147+50.00
SCALE: 1" = 50'