



SITE ID: 057-01-b1b42

SITE ADDRESS: 11456 BIG LAUREL RD.,
MARSHALL, NC, 28753

North Carolina Emergency Management – Private Roads and Bridges

Site Information Form

Site Number: _____

Site Address: _____

GPS Coordinates: _____

County: _____

Bridge Type: _____

Span Length: _____

Bridge Width: _____

Substructure Type: _____

Geotechnical Information: _____

Additional Notes: _____

BRIDGE SURVEY & HYDRAULIC DESIGN REPORT

NC DEPARTMENT OF EMERGENCY MANAGEMENT
PRIVATE ROADS AND BRIDGES PROGRAM

Site Number

057-01-b1b42

Latitude

35.91262

Longitude

-82.61357

County

Madison

Address

near 11456 Big Laurel Rd.

City

Marshall, NC

Zip Code

28753

Recommended Structure

1 @ 60' Modular Bridge (50' effective)

Recommended Width of Roadway

Skew

Recommended Location is

(A) Upstream, Downstream) of Existing Crossing

Temporary Crossing



I hereby certify that I have reviewed the existing hydraulic conveyance at this site which was a 25 ft existing bridge with the proposed conveyance provided by the proposed 60.0 ft. span bridge.

The proposed bridge low chord for the bridge shall be set in accordance with the FEMA Disaster Specific Guidance for the Replacement of Private Roads and Bridges issued on 14 February 2025, "to provide bridge/culvert design plans certified (sealed, signed, and dated) by a Professional Engineer licensed in the State of North Carolina demonstrating that the newly designed and installed private bridge/culvert provides conveyance greater than or equal to the original destroyed crossing".

This certification demonstrates that the newly designed and installed private bridge/culvert provides conveyance greater than or equal to the original destroyed crossing. This is based on the best available data provided from post storm evaluations. Portions of the existing structures may have been destroyed, removed, modified or shifted from their original location or elevation.

Designed by

Assisted by

Date

Signed by:

Matthew D Foster

7B1932BFAFC8472...

Reviewed by

Date

REVISED 9/3/2026

Initial

MDF

SITE DATA

Drainage Area

Source

River Basin

French Broad River

Character

Stream Classification (e.g., Trout, High Quality Water)

C; Tr, ORW

Debris Potential: Low

☐ Moderate

☒ High

☐

Existing Structure - Source of Available Data

NCEM Private Roads and Bridges Inspection Team

Existing Structure - Description

1 @ 25' private bridge (destroyed by Helene)

Estimated Waterway Opening

147.9

ft²

Design Control Elev

ft

Source

Gage Station No

Period of Records

Max Discharge

cfs

Date

Frequency

Historical Flood Information:

Date

Elev

ft

Est Freq

yr

Source

Period of Knowledge

yrs

Historical Scour Info: General

ft

Contraction

ft

Local

ft

Channel Slope

ft/ft

Source

Normal Water Surface Elev

ft

Manning's n: Left OB

Channel

Right OB

Source

Flood Study / Status

Big Laurel Creek, LDS

Flood Study

100-yr Discharge

6020

cfs

WS Elev: With Floodway

2412.09

ft

Without Floodway

2411.15

ft

River Station

113833

DESIGN DATA

Hydrological Method

Disaster Specific Guidance for the Replacement of Private Roads and Bridges 2/14/2025

Hydraulic Design Method

Floods Evaluated

Frequency (year)

Discharge (cfs)

Elevation (ft)

Backwater (ft)

Bridge Opening Velocity (fps)

Waterway Opening Provided Below: Design WS Elev

sf

100-yr WS Elev

sf

Total

230.3

sf

Average Channel Velocity (Design)

fps

Average Overbank Velocity (Design)

fps

Computed Scour: General

ft

Contraction

ft

Local

ft

INFORMATION TO BE SHOWN ON PLANS

HYDRAULIC DATA

DESIGN DISCHARGE = 3810 C.F.S.

FREQUENCY OF DESIGN FLOOD = 25 YRS.

DESIGN HIGH WATER ELEVATION = 27.8 SQ. MI.

DRAINAGE AREA = 5570 C.F.S.

BASIC DISCHARGE (Q100) =

BASIC HIGH WATER ELEVATION =

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = C.F.S.

FREQUENCY OF OVERTOPPING FLOOD = YRS.

OVERTOPPING FLOOD ELEVATION = *

*NOTE LOCATION OF OVERTOPPING

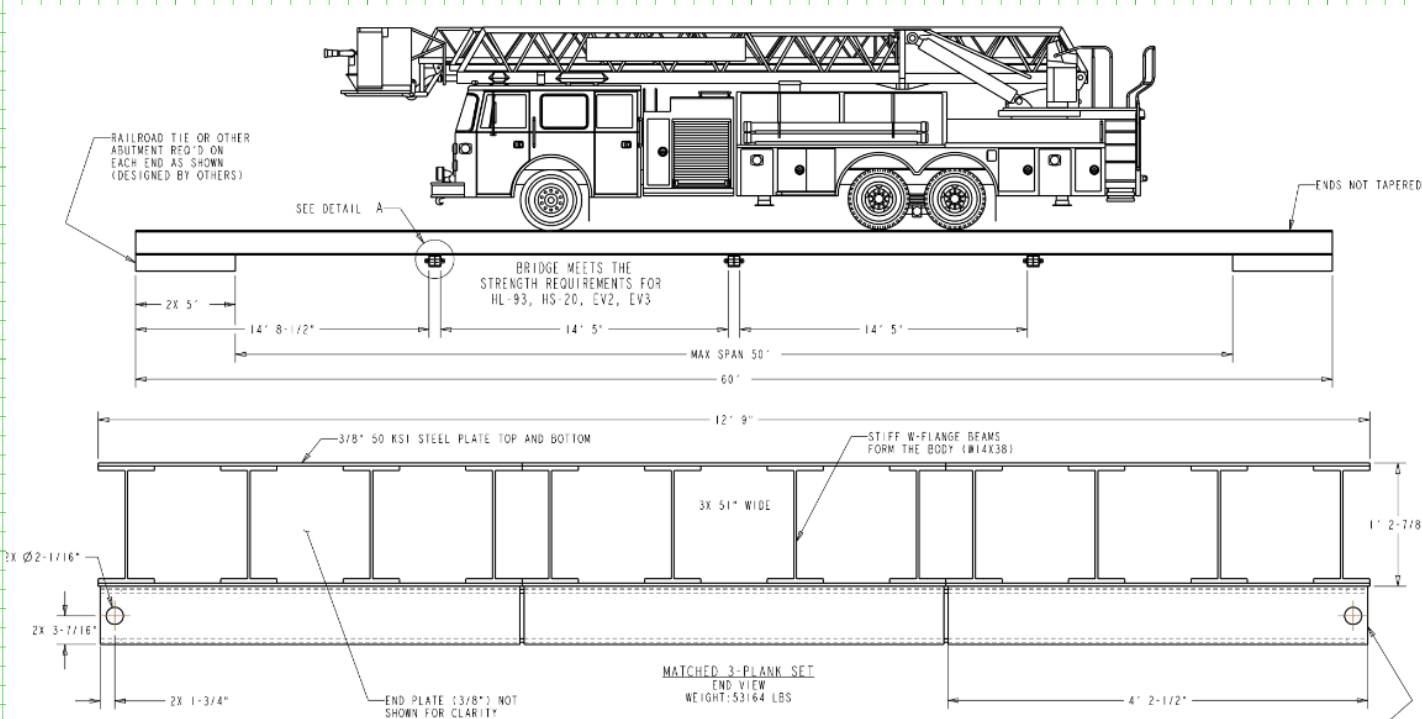
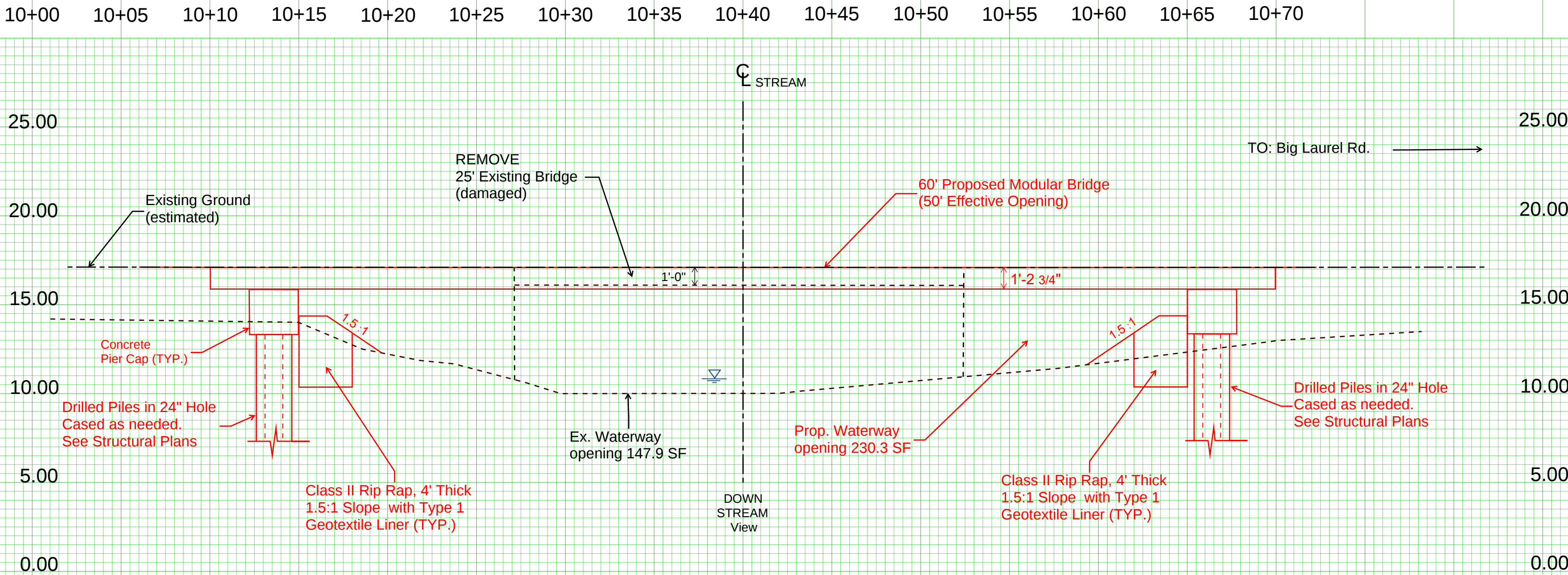
WS EL. Taken @ River Station ?

ADDITIONAL INFORMATION AND COMPUTATIONS

Emergency Vehicle Access Possible?	No
Number of Homes Confirmed	Yes
Number of Homes	2
Churches Confirmed	No
Number of Churches	0
Schools Confirmed	No
Number of Schools	0
Recreational/Business Areas Confirmed	No
Number of Recreational/Business Areas	0
General Description	Existing timber bridge has been damaged by the storm, timber deck and beams are in place but so hazardous for passing through it by any vehicle
Overall Condition	Damage
Condition Other	
Site Repair Status	No Repair
Condition Description	Existing bridge has been damaged and new bridge needed
Expected Level of Effort	Full Redesign
Other Level of Effort	
Horizontal Curve	Yes
Number of Travel Lanes (LOS)	1
Inclination	No
Roadway Divider	No
Road/Bridge Width (ft)	12.00
Span/Gap Estimate (ft)	30.00
Surface to Water (ft)	5.00

14" W14X38 beam
+ 0.25" Steel Plate
+ 0.25" Steel Plate
=14.75" (1'-2-3/4") ft structure depth)

Proposed Conveyance Area has been reduced by 0.9 sf to account for blockage created by 3 Plank Connectors as shown in Detail A of the Typical Section.



Stationing and elevations shown are relative to the site.
Based on an assumed datum.
No survey grade field work was performed.

BSR based on MODULAR BRIDGE PLANS

BRIDGE SURVEY & HYDRAULIC DESIGN REPORT

NC DEPARTMENT OF EMERGENCY MANAGEMENT
PRIVATE ROADS AND BRIDGES PROGRAM

Site Number057-01-b1b42Latitude35.91262Longitude-82.61357

CountyMadisonAddressnear 11456 Big Laurel Rd.

CityMarshall, NCZip Code28753

Recommended Structure1 @ 50' Steel Girder Bridge

Recommended Width of RoadwaySkew

Recommended Location is (A) Upstream, Downstream) of Existing Crossing

Temporary Crossing



I hereby certify that that I have reviewed the existing hydraulic conveyance at this site which was a 25 ft existing bridge with the proposed conveyance provided by the proposed 50.0 ft. span bridge.

The proposed bridge low chord for the bridge shall be set in accordance with the the FEMA Disaster Specific Guidance for the Replacement of Private Roads and Bridges issued on 14 February 2025, "to provide bridge/culvert design plans certified (sealed, signed, and dated) by a Professional Engineer licensed in the State of North Carolina demonstrating that the newly designed and installed private bridge/culvert provides conveyance greater than or equal to the original destroyed crossing".

This certification demonstrates that the newly designed and installed private bridge/culvert provides conveyance greater than or equal to the original destroyed crossing. This is based on the best available data provided from post storm evaluations. Portions of the existing structures may have been destroyed, removed, modified or shifted from their original location or elevation.

Designed by

Assisted by

Date9/3/202612:17:25 PM EDT

Signature of Matthew D. Foster

Professional Engineer Seal: Matthew D. Foster, License No. C-3097

Reviewed by

DateREVISED 9/3/2026Initial Mdf

SITE DATA

Drainage AreaSource

River BasinFrench Broad RiverCharacter

Stream Classification (e.g., Trout, High Quality Water)C; Tr, ORW

Debris Potential: Low Moderate High

Existing Structure - Source of Available DataNCEM Private Roads and Bridges Inspection Team

Existing Structure - Description1 @ 25' private bridge (destroyed by Helene)

Estimated Waterway Opening147.9 ft²

Design Control Elevft Source

Gage Station NoPeriod of Records

Max DischargecfsDateFrequency

Historical Flood Information:

DateElevft Est Freqyr SourcePeriod of Knowledgeyrs

Historical Scour Info: Generalft Contractionft Localft

Channel Slopeft/ft SourceNormal Water Surface Elevft

Manning's n: Left OBChannelRight OBSource

Flood Study / StatusBig Laurel Creek, LDS

Flood Study100-yr Discharge6020 cfs WS Elev: With Floodway2412.09 ft Without Floodway2411.15 ft River Station113833

DESIGN DATA

Hydrological Method

Hydraulic Design MethodDisaster Specific Guidance for the Replacement of Private Roads and Bridges 2/14/2025

Floods Evaluated	Frequency (year)	Discharge (cfs)	Elevation (ft)	Backwater (ft)	Bridge Opening Velocity (fps)

Waterway Opening Provided Below: Design WS Elevsf100-yr WS ElevsfTotal155.4 sf

Average Channel Velocity (Design)fpsAverage Overbank Velocity (Design)fps

Computed Scour: Generalft Contractionft Localft

INFORMATION TO BE SHOWN ON PLANS

HYDRAULIC DATA

DESIGN DISCHARGE= 3810 C.F.S.

FREQUENCY OF DESIGN FLOOD= 25 YRS.

DESIGN HIGH WATER ELEVATION= 27.8 SQ. MI.

DRAINAGE AREA= 5570 C.F.S.

BASIC DISCHARGE (Q100)=

BASIC HIGH WATER ELEVATION=

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE= C.F.S.

FREQUENCY OF OVERTTOPPING FLOOD= YRS.

OVERTOPPING FLOOD ELEVATION= *

*NOTE LOCATION OF OVERTOPPING

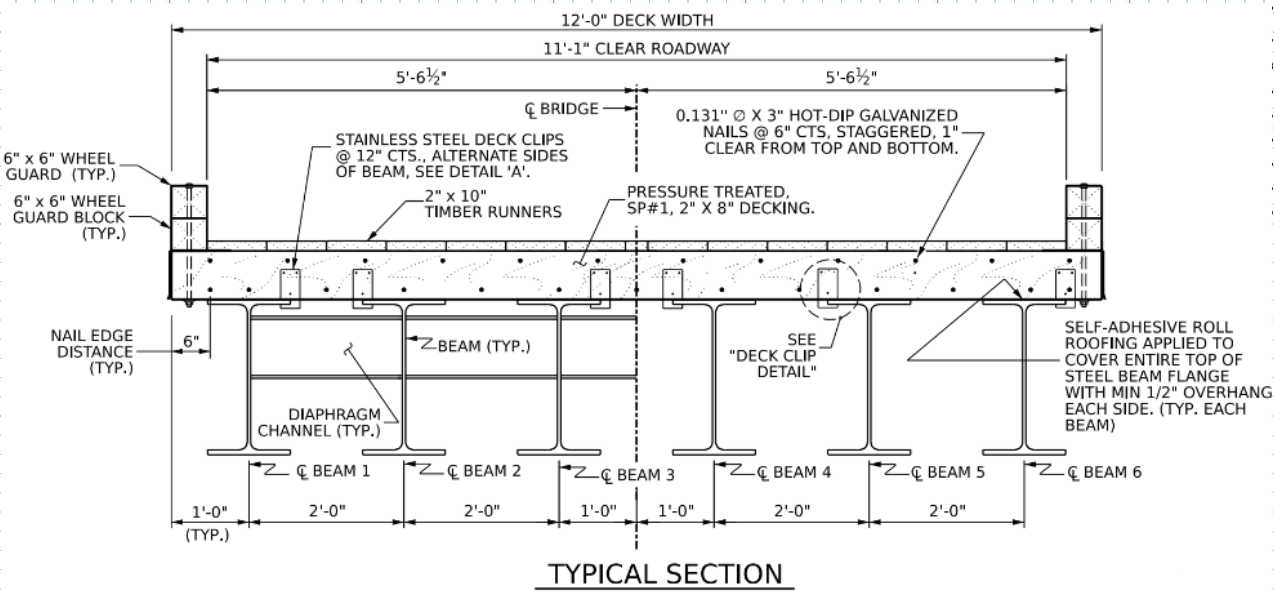
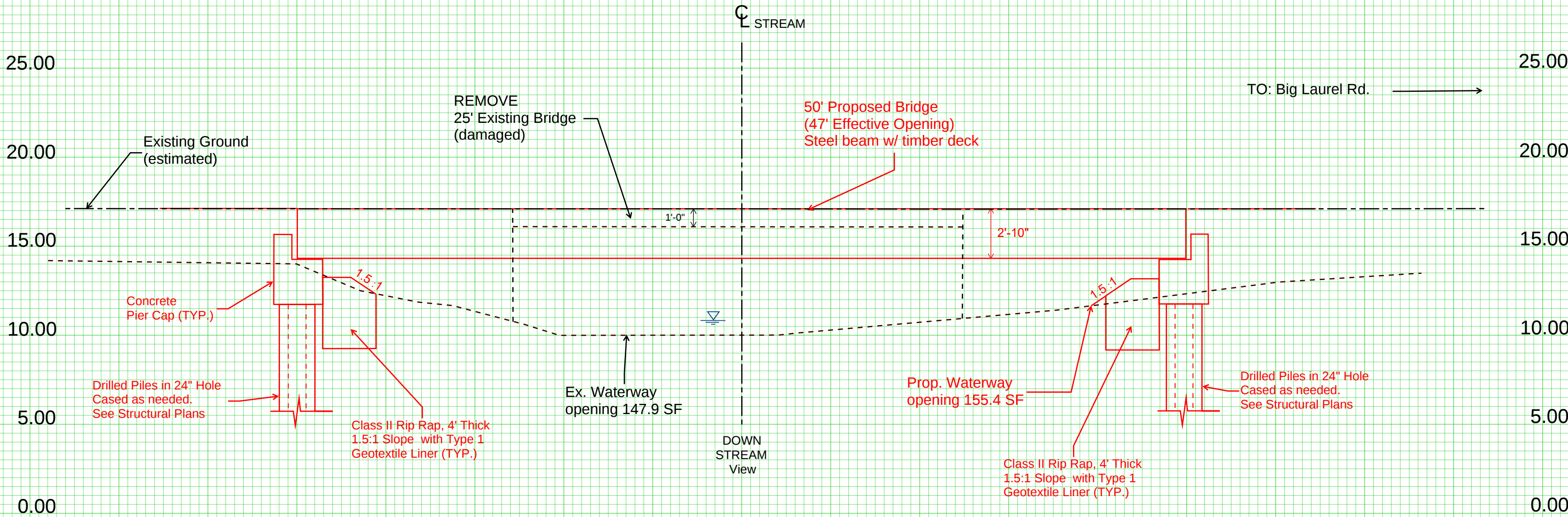
WS EL. Taken @ River Station ?

ADDITIONAL INFORMATION AND COMPUTATIONS

Emergency Vehicle Access Possible?	No
Number of Homes Confirmed	Yes
Number of Homes	2
Churches Confirmed	No
Number of Churches	0
Schools Confirmed	No
Number of Schools	0
Recreational/Business Areas Confirmed	No
Number of Recreational/Business Areas	0
General Description	Existing timber bridge has been damaged by the storm, timber deck and beams are in place but so hazardous for passing through it by any vehicle
Overall Condition	Damage
Condition Other	
Site Repair Status	No Repair
Condition Description	Existing bridge has been damaged and new bridge needed
Expected Level of Effort	Full Redesign
Other Level of Effort	
Horizontal Curve	Yes
Number of Travel Lanes (LOS)	1
Inclination	No
Roadway Divider	No
Road/Bridge Width (ft)	12.00
Span/Gap Estimate (ft)	30.00
Surface to Water (ft)	5.00

24" W24X104 beam
+ 8" Deck
+ 2" Runner
=34" (2'-10") ft structure depth)

10+00 10+05 10+10 10+15 10+20 10+25 10+30 10+35 10+40 10+45 10+50 10+55 10+60 10+65 10+70



Stationing and elevations shown are relative to the site.
Based on an assumed datum.
No survey grade field work was performed.

BSR based on STANDARD BRIDGE PLANS

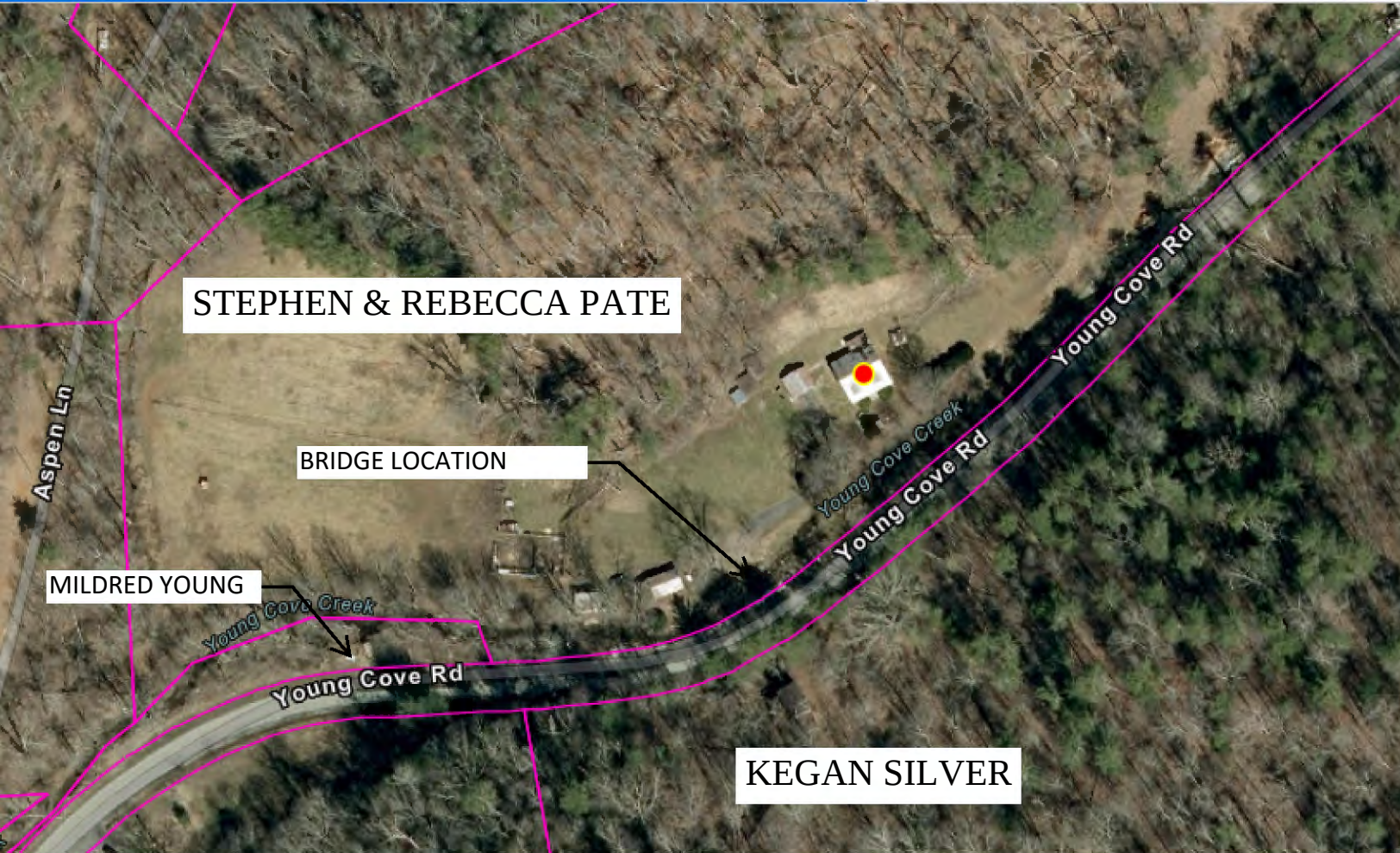
GEOTECHNICAL BORING REPORT
BORE LOG

WBS 057-01-b1b42		TIP N/A		COUNTY MADISON		GEOLOGIST J. Baskin						
SITE DESCRIPTION 11456 Big Laurel Road for Bridge over Big Laurel Creek						GROUND WTR (ft)						
BORING NO. EB1		STATION N/A		OFFSET N/A		ALIGNMENT -L-						
COLLAR ELEV. 0.0 ft		TOTAL DEPTH 25.9 ft		NORTHING 806,586		EASTING 930,213						
DRILL RIG/HAMMER EFF./DATE F&R3147 CME-75 89% 12/20/2024				DRILL METHOD SPT Core Boring		HAMMER TYPE Automatic						
DRILLER T. Beard		START DATE 06/03/26		COMP. DATE 06/03/26		SURFACE WATER DEPTH N/A						
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT		SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100		ELEV. (ft) DEPTH (ft)
0	0.0	0.0	6	6	7							0.0 GROUND SURFACE 0.0
-5	-3.5	3.5	16	12	16						D	ARTIFICIAL FILL
												Brown, Silty Fine to Coarse SAND (A-2-4) with Trace Gravel
											M	Boulders
-10	-8.5	8.5	60/0.0									ALLUVIAL
	-10.4	10.4	12	25	20							Gray-Pink-Tan, Silty Fine to Coarse SAND (A-2-4) with Trace Gravel
											W	Boulders/Cobbles
-15	-13.5	13.5	30	17	11							RESIDUAL
	-16.4	16.4	60/0.1								W	Brown-Red, Clayey Silty Fine to Coarse SAND with Trace Rock Fragments (A-2-4)
-20												CRYSTALLINE ROCK
												Medium to Moderately Hard, Moderately Severe to Severely Weathered, Red-Black-Gray, BIOTITE GNEISS with Close to Very Close Fracture Spacing
-25												Moderately Hard to Hard, Slightly Weathered to Fresh, Gray BIOTITE GNEISS with Very Close to Moderately Close Fracture Spacing
												Boring Terminated at Elevation -25.9 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)
												Notes:
												1. Auger Refusal at 10.6'.
												2. Casing Advancer used from 10.4' to 16.4'.

GEOTECHNICAL BORING REPORT

CORE LOG

WBS 057-01-b1b42					TIP N/A			COUNTY MADISON			GEOLOGIST J. Baskin		
SITE DESCRIPTION 11456 Big Laurel Road for Bridge over Big Laurel Creek										GROUND WTR (ft) 0 HR. Dry 24 HR. FIAD			
BORING NO. EB1			STATION N/A			OFFSET N/A			ALIGNMENT -L-				
COLLAR ELEV. 0.0 ft			TOTAL DEPTH 25.9 ft			NORTHING 806,586			EASTING 930,213				
DRILL RIG/HAMMER EFF./DATE F&R3147 CME-75 89% 12/20/2024							DRILL METHOD SPT Core Boring			HAMMER TYPE Automatic			
DRILLER T. Beard					START DATE 06/03/26			COMP. DATE 06/03/26			SURFACE WATER DEPTH N/A		
CORE SIZE N/A					TOTAL RUN 11.3 ft								
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) % RQD (ft) %		SAMP. NO.	STRATA REC. (ft) % RQD (ft) %		L O G	DESCRIPTION AND REMARKS ELEV. (ft) DEPTH (ft)		
-8.5											Begin Coring @ 8.5 ft		
-10	-8.5 -10.4	8.5 10.4	1.9	2:23/0.9 1:43/1.0 N=45	(0.7) 37%	(0.0) 0%		(0.7) 20%	(0.0) 0%	○○○ ○○○ ○○○ ○○○	-8.5	ALLUVIAL Boulders/Cobbles 8.5	
-15				N=28						○○○ ○○○ ○○○ ○○○	-12.0	RESIDUAL Brown-Red, Clayey Silty Fine to Coarse SAND with Trace Rock Fragments (A-2-4) 12.0	
-15	-16.5	16.5								●●●●●	-16.4	CRYSTALLINE ROCK Medium to Moderately Hard, Moderately Severe to Severely Weathered, Red-Black-Gray, BIOTITE GNEISS with Close to Very Close Fracture Spacing 16.4	
-20			4.4	N=60/0.1 0:48/1.0 3:46/1.0 3:50/1.0 3:46/1.0	(3.0) 68%	(1.2) 27%		(1.8) 56%	(0.0) 0%		-19.6	CRYSTALLINE ROCK Medium to Moderately Hard, Moderately Severe to Severely Weathered, Red-Black-Gray, BIOTITE GNEISS with Close to Very Close Fracture Spacing 19.6	
-25	-20.9	20.9	5.0	1:22/0.4 3:21/1.0 3:05/1.0 3:03/1.0 3:58/1.0 3:51/1.0	(4.3) 86%	(2.8) 56%		(5.5) 87%	(4.0) 63%		-25.9	Moderately Hard to Hard, Slightly Weathered to Fresh, Gray BIOTITE GNEISS with Very Close to Moderately Close Fracture Spacing 25.9	
	-25.9	25.9									Boring Terminated at Elevation -25.9 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)		
Notes: 1. Auger Refusal at 10.6'. 2. Casing Advancer used from 10.4' to 16.4'.													



SITE ID: 061-01-B901F

SITE ADDRESS: 303 YOUNG COVE ROAD,
BAKERSVILLE, NC

North Carolina Emergency Management – Private Roads and Bridges
Site Information Form

Site Number: 061-01-b901f

Site Address: 303 Young Cove Road, Bakersville, NC

GPS Coordinates: 36.0234, -82.1259

County: Mitchell

Bridge Type: Steel I-beam with Timber Decking

Span Length: 30 feet

Bridge Width: 12'-0" Clear Width

Substructure Type: Concrete Cap on Drilled-in Piles

Geotechnical Information: See Standard Bridge Plans for Notes

Additional Notes: _____

Timber bridge railing not required.

Wingwalls are not required.

The existing bridge is not in place.

No known debris or obstructions in the stream requiring removal.

BRIDGE SURVEY & HYDRAULIC DESIGN REPORT

NC DEPARTMENT OF EMERGENCY MANAGEMENT
PRIVATE ROADS AND BRIDGES PROGRAM

Site Number061-01-b901fLatitude36.02271Longitude-82.12629

CountyMitchellAddressnear 303 Young Cove Rd. (SR 1214)

CityBakersville, NCZip Code28705

Recommended Structure1 @ 30" Steel Girder Bridge

Recommended Width of RoadwaySkew

Recommended Location is (A) Upstream, (D) Downstream of Existing Crossing

Temporary Crossing



Note: Bridge was destroyed by Helene. Picture shown is a historical image from April 2024.

I hereby certify that that I have reviewed the existing hydraulic conveyance at this site which was a 17 ft +/- existing bridge with the proposed conveyance provided by the proposed 30.0 ft. span bridge.

The proposed bridge low chord for the bridge shall be set in accordance with the the FEMA Disaster Specific Guidance for the Replacement of Private Roads and Bridges issued on 14 February 2025, "to provide bridge/culvert design plans certified (sealed, signed, and dated) by a Professional Engineer licensed in the State of North Carolina demonstrating that the newly designed and installed private bridge/culvert provides conveyance greater than or equal to the original destroyed crossing".

This certification demonstrates that the newly designed and installed private bridge/culvert provides conveyance greater than or equal to the original destroyed crossing. This is based on the best available data provided from post storm evaluations. Portions of the existing structures may have been destroyed, removed, modified or shifted from their original location or elevation.

Designed by

Assisted by

Date

Signed by:Matthew D Foster7/13/202610:16:53 AM EDT

Reviewed by

Date

JMT Johnson, Mirmiran, & Thompson Inc.
108 Asheville Commerce Parkway
Candler, NC, 28715
License No: C-3097



SITE DATA

Drainage AreaSource

River BasinFrench BroadCharacter

Stream Classification (e.g., Trout, High Quality Water)C, Tr

Debris Potential: Low Moderate High

Existing Structure - Source of Available DataNCEM Private Roads and Bridges Inspection Team

Existing Structure - Description1 @ 17' +/- private bridge (destroyed by Helene)

Estimated Waterway Opening55.2 ft²

Design Control Elevft Source

Gage Station NoPeriod of Records

Max Dischargecfs DateFrequency

Historical Flood Information:

DateElevft Est Freqyr SourcePeriod of Knowledgeyrs

Historical Scour Info: Generalft Contractionft Localft

Channel Slopeft/ft SourceNormal Water Surface Elevft

Manning's n: Left OBChannelRight OBSource

Flood Study / StatusN/A, (this site is upstream from the LDS area for Young Cove Creek)

Flood StudyWithWithout

100-yr Dischargecfs WS Elev: Floodwayft Floodwayft River Station

DESIGN DATA

Hydrological Method

Hydraulic Design MethodDisaster Specific Guidance for the Replacement of Private Roads and Bridges 2/14/2025

Floods EvaluatedFrequency (year)Discharge (cfs)Elevation (ft)Backwater (ft)Bridge Opening Velocity (fps)

Waterway Opening Provided Below: Design WS Elevsf 100-yr WS Elevsf Total61.0 sf

Average Channel Velocity (Design)fps Average Overbank Velocity (Design)fps

Computed Scour: Generalft Contractionft Localft

INFORMATION TO BE SHOWN ON PLANS

HYDRAULIC DATA

DESIGN DISCHARGE= 575 C.F.S.

FREQUENCY OF DESIGN FLOOD= 25 YRS.

DESIGN HIGH WATER ELEVATION=

DRAINAGE AREA= 2.54 SQ. MI.

BASIC DISCHARGE (Q100)= 890 C.F.S.

BASIC HIGH WATER ELEVATION=

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE= C.F.S.

FREQUENCY OF OVERRTOPPING FLOOD= YRS.

OVERTOPPING FLOOD ELEVATION= *

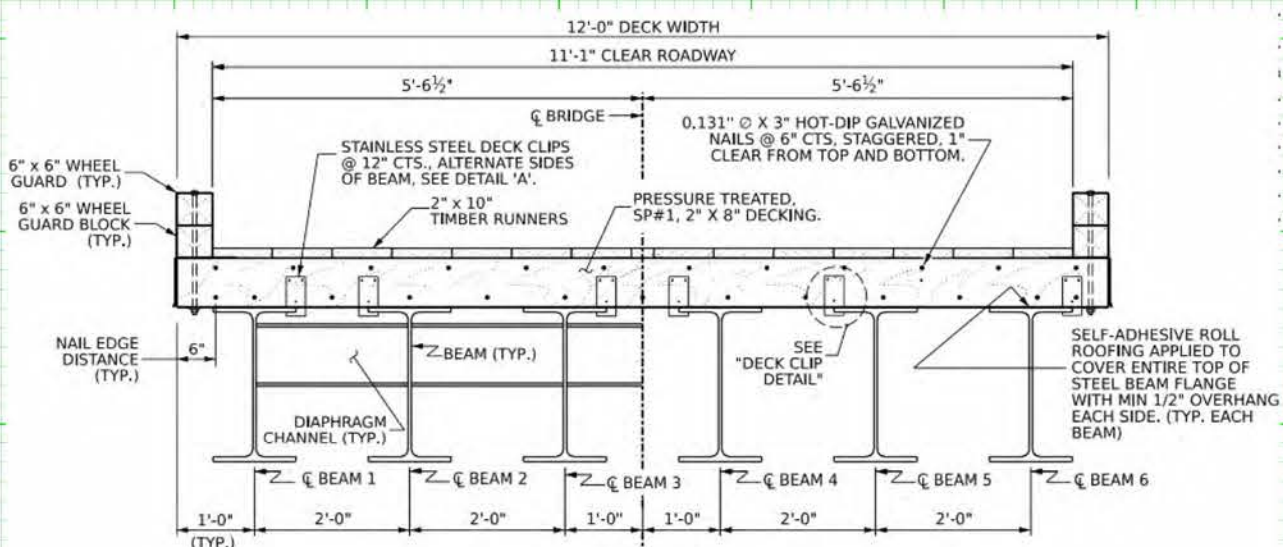
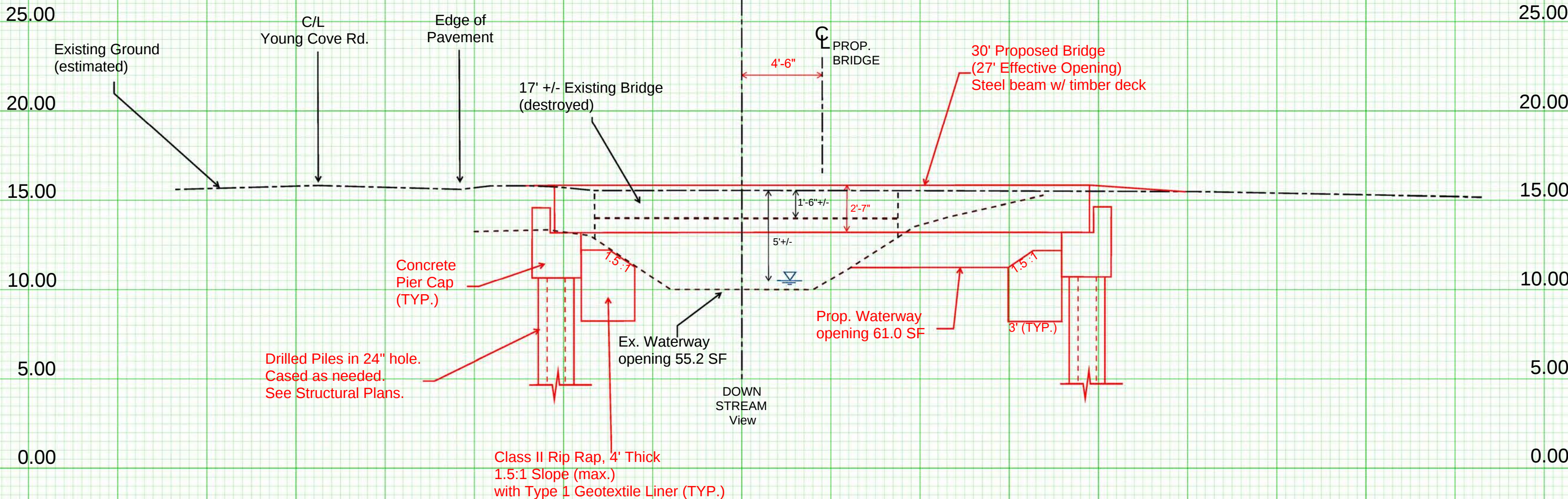
*NOTE LOCATION OF OVERTOPPING

WS EL. Taken @ River Station ?

ADDITIONAL INFORMATION AND COMPUTATIONS

Emergency Vehicle Access Possible?	No	
Number of Homes Confirmed	Yes	
Number of Homes	1	
Churches Confirmed	No	
Number of Churches	0	
Schools Confirmed	No	
Number of Schools	0	
Recreational/Business Areas Confirmed	No	
Number of Recreational/Business Areas	0	
General Description	Owner had a 14 ft wide bridge by span unknown. May be able to determine span from old aerials. Emergency vehicles, propane trucks, and hay trailers used to cross the bridge.	Proposed bridge is shifted from the C/L of the creek to avoid impacts to Young Cove Road.
Overall Condition	Collapse	
Condition Other		
Site Repair Status	No Repair	
Condition Description	Total loss of bridge. Only access is low water crossing and no one is currently living in house because of a lack of bridge.	
Expected Level of Effort	Full Redesign	
Other Level of Effort		
Horizontal Curve	No	
Number of Travel Lanes (LOS)	1	
Inclination	No	
Roadway Divider	No	
Road/Bridge Width (ft)	12.00	
Span/Gap Estimate (ft)	40.00	21" W21X48 beam
Surface to Water (ft)	5.00	+ 8" Deck
Utility/Mechanical	Yes	+ 2" Runner
Utility Types	Electrical	=31" (2'-7") ft structure depth

10+00 10+05 10+10 10+15 10+20 10+25 10+30 10+35 10+40 10+45 10+50 10+55 10+60 10+65 10+70



Stationing and elevations shown are relative to the site.
Based on an assumed datum.
No survey grade field work was performed.

BSR based on STANDARD BRIDGE PLANS

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 061-01-b901f			TIP N/A			COUNTY MITCHELL			GEOLOGIST C. Brake								
SITE DESCRIPTION 303 Young Cove Road for bridge over Young Cove Creek									GROUND WTR (ft)								
BORING NO. EB1			STATION N/A			OFFSET N/A			ALIGNMENT -L-								
COLLAR ELEV. 0.0 ft			TOTAL DEPTH 17.1 ft			NORTHING 841,728			EASTING 1,075,689								
DRILL RIG/HAMMER EFF./DATE F&R3147 CME-75 89% 12/20/2024						DRILL METHOD SPT Core Boring			HAMMER TYPE Automatic								
DRILLER W. Shenberger			START DATE 06/04/26			COMP. DATE 06/04/26			SURFACE WATER DEPTH N/A								
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION			
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)		
0	0.0	0.0	1	2	2										0.0	GROUND SURFACE	0.0
	-3.5	3.5	6	8	100/0.2										-2.0	ROADWAY EMBANKMENT	2.0
-5															-4.5	Brown, Fine to Coarse Highly Sandy Clayey SILT (A-4) with Trace Gravel and Mica	
	-6.5	6.5													-7.2	ALLUVIAL	4.5
	-7.2	7.2	100/0.5													Brown, Silty Fine to Coarse SAND (A-2-4) with Little Rounded Gravel	7.2
			60/0.0												-8.8	WEATHERED ROCK	8.8
-10																Black-White GNEISS	
															-11.4	CRYSTALLINE ROCK	11.4
																Fresh, Hard to Very Hard, Very Thinly Foliated, Black-White MIGMATITIC GNEISS with Moderately Close Fracture Spacing	
																WEATHERED ROCK	
																Black-White GNEISS	
-15															-17.1	CRYSTALLINE ROCK	17.1
																Fresh to Very Slightly Weathered, Hard to Very Hard, Very Thinly to Thinly Foliated, Black-White BIOTITE GNEISS with Minor AMPHIBOLITE with Close to Wide Fracture Spacing	
																Boring Terminated at Elevation -17.1 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)	
																Note: Auger Refusal at 7.2', Began Coring.	

GEOTECHNICAL BORING REPORT

CORE LOG

WBS 061-01-b901f				TIP N/A		COUNTY MITCHELL				GEOLOGIST C. Brake			
SITE DESCRIPTION 303 Young Cove Road for bridge over Young Cove Creek										GROUND WTR (ft)			
BORING NO. EB1				STATION N/A		OFFSET N/A		ALIGNMENT -L-		0 HR. 1.7			
COLLAR ELEV. 0.0 ft				TOTAL DEPTH 17.1 ft		NORTHING 841,728		EASTING 1,075,689		24 HR. 3.8			
DRILL RIG/HAMMER EFF./DATE F&R3147 CME-75 89% 12/20/2024						DRILL METHOD SPT Core Boring			HAMMER TYPE Automatic				
DRILLER W. Shenberger				START DATE 06/04/26		COMP. DATE 06/04/26		SURFACE WATER DEPTH N/A					
CORE SIZE NQ				TOTAL RUN 9.9 ft									
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	REC. (ft) %	RQD (ft) %	SAMP. NO.	REC. (ft) %	RQD (ft) %	LOG	DESCRIPTION AND REMARKS	DEPTH (ft)	
-7.2											Begin Coring @ 7.2 ft		
-10	-7.2	7.2	4.9	2:24/1.0 3:01/1.0 0:44/1.0 0:35/1.0 1:12/0.9	(2.3) 47%	(1.6) 33%		(1.6) 100%	(1.6) 100%		CRYSTALLINE ROCK Fresh, Hard to Very Hard, Very Thinly Foliated, Black-White MIGMATITIC GNEISS with Moderately Close Fracture Spacing	7.2 8.8	
-15	-12.1	12.1	5.0	1:51/1.0 2:25/1.0 2:21/1.0 2:19/1.0 2:08/1.0	(4.8) 96%	(4.3) 86%		(5.5) 96%	(4.3) 75%		WEATHERED ROCK Black-White GNESS CRYSTALLINE ROCK Fresh to Very Slightly Weathered, Hard to Very Hard, Very Thinly to Thinly Foliated, Black-White BIOTITE GNEISS with Minor AMPHIBOLITE with Close to Wide Fracture Spacing	11.4 17.1	
-17.1	-17.1	17.1									Boring Terminated at Elevation -17.1 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)		
Note: Auger Refusal at 7.2', Began Coring.													

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 061-01-b901f		TIP N/A		COUNTY MITCHELL		GEOLOGIST C. Brake										
SITE DESCRIPTION 303 Young Cove Road for bridge over Young Cove Creek							GROUND WTR (ft)									
BORING NO. EB2		STATION N/A		OFFSET N/A		ALIGNMENT -L-		0 HR. 16.5								
COLLAR ELEV. 0.0 ft		TOTAL DEPTH 18.9 ft		NORTHING 841,757		EASTING 1,075,649		24 HR. FIAD								
DRILL RIG/HAMMER EFF./DATE F&R3147 CME-75 89% 12/20/2024				DRILL METHOD H.S. Augers			HAMMER TYPE Automatic									
DRILLER W. Shenberger		START DATE 06/05/26		COMP. DATE 06/05/26		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)	
0	0.0	0.0	3	2	3	●5								0.0	GROUND SURFACE	0.0
-5	-3.5	3.5	12	8	8	●16						M	●	-0.3	ARTIFICIAL FILL	0.3
																Gray, Silty Fine to Coarse SAND (A-2-4) with Some Gravel
-10	-8.5	8.5	16	21	27	●48						M	●	-7.0	ALLUVIAL	7.0
																Brown and Gray, Silty Fine to Coarse SAND (A-2-4) with Trace to Little Rounded Gravel
-15	-13.5	13.5	29	23	14	●37						M	●		RESIDUAL	
																Brown, Fine to Coarse Sandy SILT (A-4) with Trace Mica
	-18.5	18.5	100/0.2			●						M	▽	-17.0	WEATHERED ROCK	17.0
	-18.9	18.9	60/0.0			100/0.2 60/0.0									-18.9	White-Brown-Black BIOTITE GNEISS
Boring Terminated with Standard Penetration Test Refusal at Elevation -18.9 ft on CRYSTALLINE ROCK (BIOTITE GNEISS)																
Note: Auger Refusal at 18.9'																