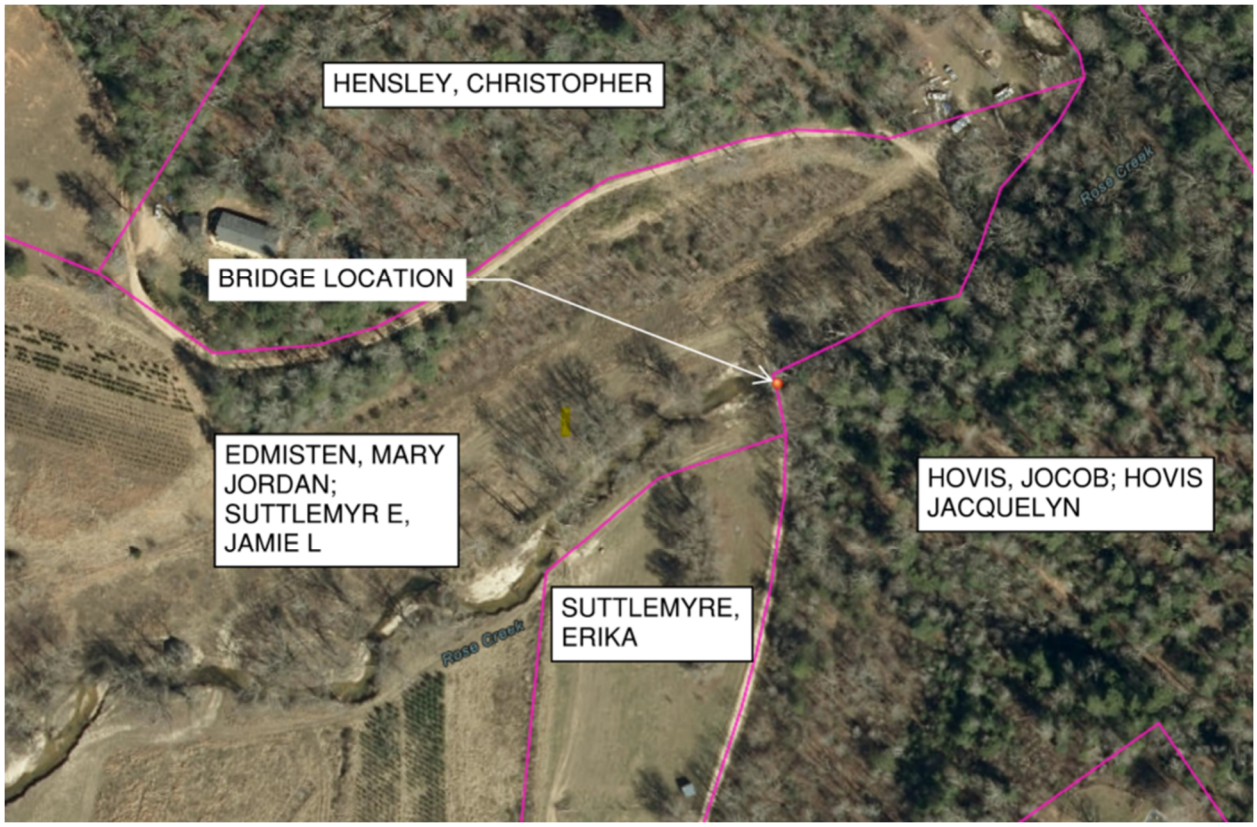


SITE ID: 012-01-c202f

SITE ADDRESS: 3900 ROSE CREEK ROAD, MORGANTON, NC 28655

North Carolina Emergency Management – Private Roads and Bridges

Site Information Form

Site Number: 012-01-c202f

Site Address: 3900 Rose Creek Road, Morganton, NC 28655

GPS Coordinates: 35.8434, -81.8058

County: Burke

Bridge Type: Steel I-beam with Timber Decking or Modular Steel Bridge

Span Length: 40 ft Standard Bridge or 50 ft Modular Bridge. Refer to BSR for required waterway opening.

Bridge Width: 12'-0" Clear Width

Substructure Type: Concrete Cap on Drilled-In Piles

Geotechnical Information: See Standard Bridge Plans or the Modular Bridge Substructure Plans for Notes

Additional Notes:

Timber bridge railing not required for Steel I-beam with timber decking option.

Modular Steel Bridge option shall include guardrail as part of the system.

Wingwalls are not required.

The existing bridge is in place and must be removed by the Contractor prior to the start of construction.

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 Number 012-01-c202f Latitude 35.84299 Longitude -81.80393

County Burke Address near 3900 Rose Creek Road

City Morganton, NC Zip Code 28655

Recommended Structure 1 @ 50' Modular Bridge (40' effective length)

Recommended Width of Roadway ____ Skew ____

Recommended Location is (At,) 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 31 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 ____

Date ____

NORTH CAROLINA PROFESSIONAL SEAL 20646 ENGINEER MATTHEW D. FOSTER

Signed by: Matthew D Foster 10/13/2026 | 4:19:55 PM EDT
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Reviewed by ____ Date ____

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

SITE DATA

Drainage Area ____ Source ____

River Basin Catawba Character ____

Stream Classification (e.g., Trout, High Quality Water) WS-III; Tr

Debris Potential: Low ☐ Moderate ☒ High ☐

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

Existing Structure - Description 1 @ 31' +/- private bridge (damaged by Helene)

Estimated Waterway Opening 98.4 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 Roses Creek (LDS) (Note the existing bridge is not in the model)

Flood Study 100-yr Discharge 2840 cfs WS Elev: With Floodway 1185.24 ft Without Floodway 1184.77 ft River Station 20765.53

DESIGN DATA

Hydrological Method ____

Hydraulic Design Method Disaster 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 Elev ____ sf 100-yr WS Elev ____ sf Total 165.9 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	= 1150	C.F.S.
FREQUENCY OF DESIGN FLOOD	= 25	YRS.
DESIGN HIGH WATER ELEVATION	= ____	
DRAINAGE AREA	= 5.74	SQ. MI.
BASIC DISCHARGE (Q100)	= 1740	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*

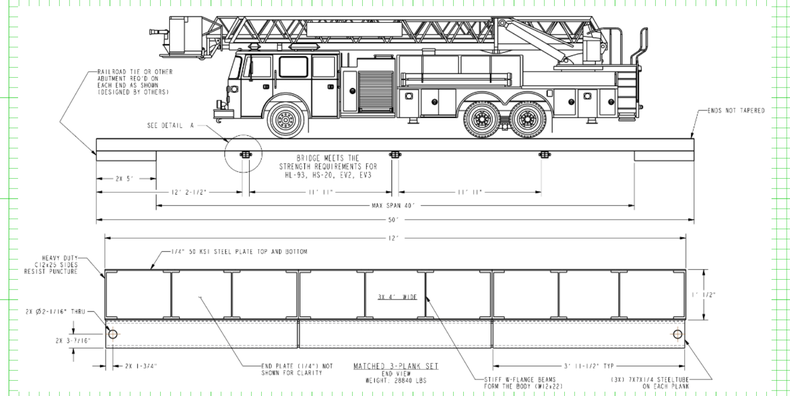
WS EL. Taken @ River Station ?

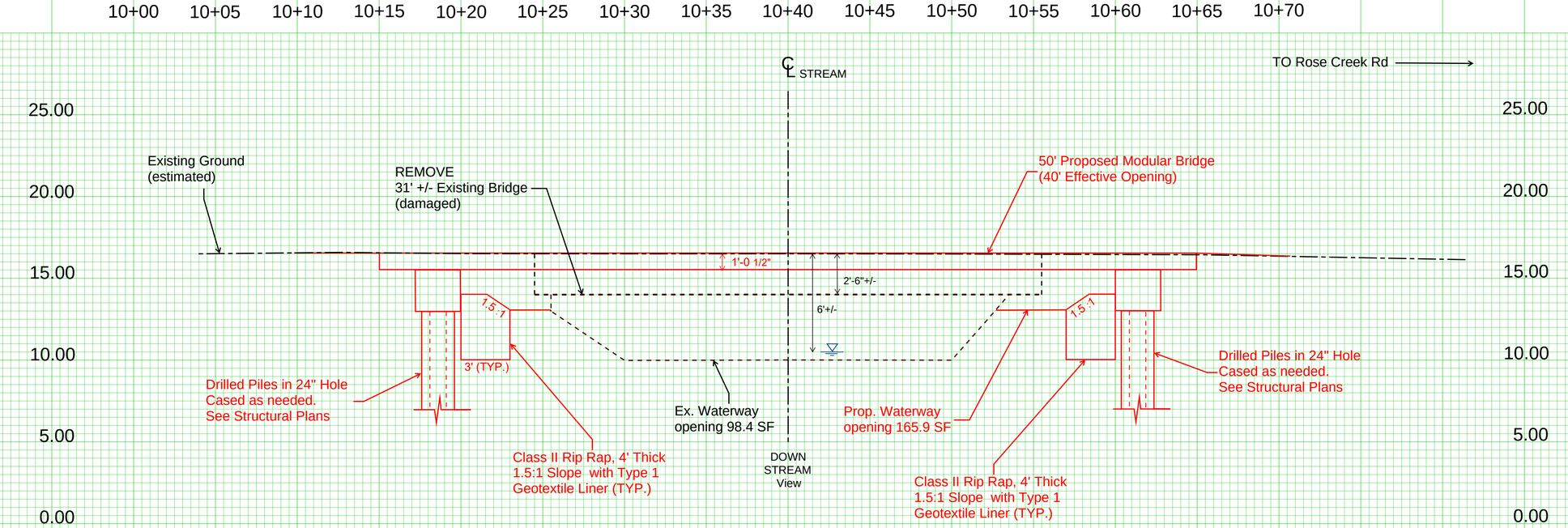
ADDITIONAL INFORMATION AND COMPUTATIONS

Bridge	1
Roadway	0
Culvert	0
structure_pipe	0
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	End bents of bridge are washed out, especially the bent on the other side of the bridge approach.
Overall Condition	Damage
Condition Other	
Site Repair Status	Temporary Repair
Condition Description	The end bent of the bridge needs to be restabialized. The bridge is an old wooden bridge with planks for tire tracks and metal I beams.
Expected Level of Effort	Replace
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)	31.00
Surface to Water (ft)	6.00
Utility/Mechanical	No

12" W12X25 beam
+ 0.25" Steel Plate
+ 0.25" Steel Plate
=12.5" (1'-1/2") 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 Number 012-01-c202f Latitude 35.84299 Longitude -81.80393

County Burke Address near 3900 Rose Creek Road

City Morganton, NC Zip Code 28655

Recommended Structure 1 @ 40' Steel Girder Bridge

Recommended Width of Roadway ..... Skew .....

Recommended Location is (At,) 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 31 ft +/- existing bridge with the proposed conveyance provided by the proposed 40.0 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 .....

NORTH CAROLINA PROFESSIONAL SEAL 20646 ENGINEER MATTHEW D. FOSTER

Signed by: Matthew D Foster 10/13/2026 | 4:19:55 PM EDT
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Johnson, Mirmiran, & Thompson Inc.
108 Asheville Commerce Parkway
Candler, NC, 28715
License No: C-3097

Reviewed by ..... Date .....

SITE DATA

Drainage Area ..... Source .....

River Basin Catawba Character .....

Stream Classification (e.g., Trout, High Quality Water) WS-III; Tr

Debris Potential: Low ☐ Moderate ☒ High ☐

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

Existing Structure - Description 1 @ 31' +/- private bridge (damaged by Helene)

Estimated Waterway Opening 98.4 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 Roses Creek (LDS) (Note the existing bridge is not in the model)

Flood Study 100-yr Discharge 2840 cfs WS Elev: With Floodway 1185.24 ft Without Floodway 1184.77 ft River Station 20765.53

DESIGN DATA

Hydrological Method .....

Hydraulic Design Method Disaster 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 Elev ..... sf 100-yr WS Elev ..... sf Total 109.0 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	= 1150	C.F.S.
FREQUENCY OF DESIGN FLOOD	= 25	YRS.
DESIGN HIGH WATER ELEVATION	= _____	
DRAINAGE AREA	= 5.74	SQ. MI.
BASIC DISCHARGE (Q100)	= 1740	C.F.S.
BASIC HIGH WATER ELEVATION	= _____	

OVERTOPPING FLOOD DATA

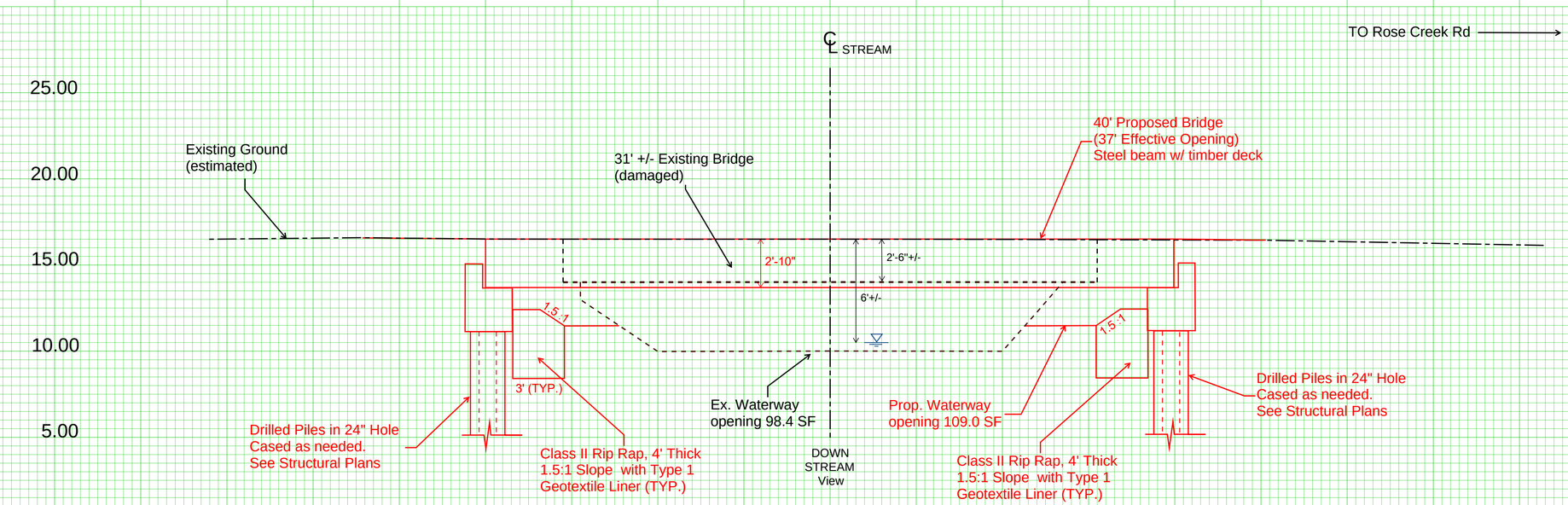
OVERTOPPING DISCHARGE	= _____	C.F.S.
FREQUENCY OF OVERRTOPPING FLOOD	= _____	YRS.
OVERTOPPING FLOOD ELEVATION	= _____	*

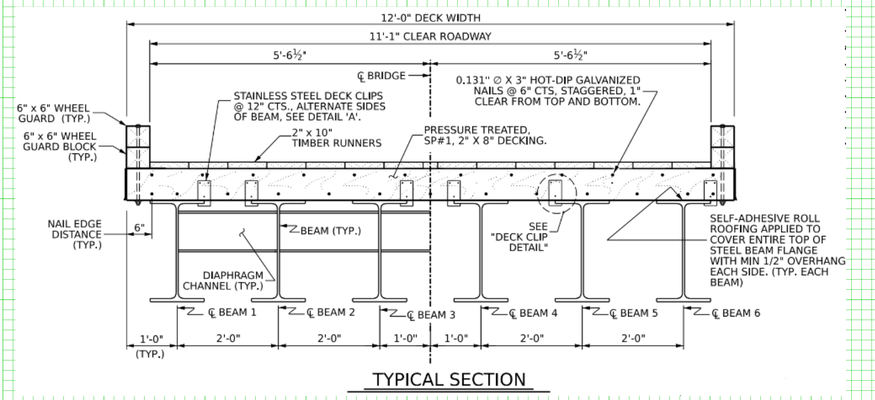
*NOTE LOCATION OF OVERTOPPING

WS EL. Taken @ River Station ?

ADDITIONAL INFORMATION AND COMPUTATIONS

Bridge	1
Roadway	0
Culvert	0
structure_pipe	0
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	End bents of bridge are washed out, especially the bent on the other side of the bridge approach.
Overall Condition	Damage
Condition Other	
Site Repair Status	Temporary Repair
Condition Description	The end bent of the bridge needs to be restabialized. The bridge is an old wooden bridge with planks for tire tracks and metal I beams.
Expected Level of Effort	Replace
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)	31.00
Surface to Water (ft)	6.00
Utility/Mechanical	No





TYPICAL SECTION

24" W24X76 beam
+ 8" Deck
+ 2" Runner
=34" (2'-10") ft structure depth)

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

FOR INFORMATION ONLY

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 012-01-c202f	**TIP** N/A	**COUNTY** BURKE	**GEOLOGIST** J. Baskin	
SITE DESCRIPTION 3900 Rose Creek Road for Bridge over Roses Creek				**GROUND WTR (ft)**
BORING NO. EB1	**STATION** N/A	**OFFSET** N/A	**ALIGNMENT** -L-	**0 HR.** 6.5
COLLAR ELEV. 0.0 ft	**TOTAL DEPTH** 21.9 ft	**NORTHING** 773,450	**EASTING** 1,169,099	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3147 CME-75 88% 05/18/2026		**DRILL METHOD** SPT Core Boring		**HAMMER TYPE** Automatic
DRILLER T. Beard	**START DATE** 07/28/26	**COMP. DATE** 07/28/26	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
0										0.0 GROUND SURFACE	0.0
	0.0	0.0	5	4	4	8		M		-0.5 **ARTIFICIAL FILL** ABC STONE Tan-Orange, Fine to Coarse Sandy Clayey SILT (A-4)	0.5
-5	-3.5	3.5	1	1	3	4		M		-7.0	7.0
	-8.5	8.5								-8.0 **ALLUVIAL** Brown, Fine Sandy Silty CLAY (A-6)	8.0
-10	-8.8	8.8	100/0.3			100/0.3				-8.8	8.8
			60/0.1			60/0.1				-8.9 **WEATHERED ROCK** Gray GNEISS	8.9
-15										**CRYSTALLINE ROCK** Slight to Severe Weathering, Medium Hard to Hard, Very Thinly to Thinly Foliated, Gray-Tan GNEISS with Very Close to Close Fracture Spacing	
-20										-21.9	21.9

Boring Terminated at Elevation -21.9 ft in CRYSTALLINE ROCK (GNEISS)

Notes:
1. Alluvial Soil not Encountered in Split Spoon- Sample Obtained from Soil Cuttings
2. Hard Drilling at 8.0'
3. Auger Refusal at 8.8', Began Coing at 8.9'
4. 0 HR Cave Depth= 6.9'
5. 0 HR Water and Cave Depths Obtained Prior to Rock Coring

DRAFT

FOR INFORMATION ONLY

GEOTECHNICAL BORING REPORT
CORE LOG

WBS 012-01-c202f	**TIP** N/A	**COUNTY** BURKE	**GEOLOGIST** J. Baskin
SITE DESCRIPTION 3900 Rose Creek Road for Bridge over Roses Creek			**GROUND WTR (ft)**
BORING NO. EB1	**STATION** N/A	**OFFSET** N/A	**ALIGNMENT** -L-	**0 HR.** 6.5
COLLAR ELEV. 0.0 ft	**TOTAL DEPTH** 21.9 ft	**NORTHING** 773,450	**EASTING** 1,169,099	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3147 CME-75 88% 05/18/2026		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER T. Beard	**START DATE** 07/28/26	**COMP. DATE** 07/28/26	**SURFACE WATER DEPTH** N/A
CORE SIZE NQ	**TOTAL RUN** 13.0 ft		

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS
-8.9											Begin Coring @ 8.9 ft
-10	-8.9	8.9	3.0	2:34/1.0 2:44/1.0 3:06/1.0	(2.4) 80%	(0.0) 0%		(12.1) 93%	(1.4) 11%		-8.9 ELEV. (ft) **CRYSTALLINE ROCK** 8.9 DEPTH (ft) Slight to Severe Weathering, Medium Hard to Hard, Very Thinly to Thinly Foliated, Gray-Tan GNEISS with Very Close to Close Fracture Spacing
	-11.9	11.9	5.0	2:32/1.0 2:50/1.0 2:42/1.0 2:36/1.0 2:25/1.0	(4.8) 96%	(0.4) 8%					
-15	-16.9	16.9	5.0	2:07/1.0 2:58/1.0 3:41/1.0 3:38/1.0 6:36/1.0	(4.9) 98%	(1.0) 20%					
-20	-21.9	21.9									-21.9 21.9 Boring Terminated at Elevation -21.9 ft in CRYSTALLINE ROCK (GNEISS)

Notes:
1. Alluvial Soil not Encountered in Split Spoon- Sample Obtained from Soil Cuttings
2. Hard Drilling at 8.0'
3. Auger Refusal at 8.8', Began Coing at 8.9'
4. 0 HR Cave Depth= 6.9'
5. 0 HR Water and Cave Depths Obtained Prior to Rock Coring

DRAFT

FOR INFORMATION ONLY

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 012-01-c202f	**TIP** N/A	**COUNTY** BURKE	**GEOLOGIST** J. Baskin
SITE DESCRIPTION 3900 Rose Creek Road for Bridge over Roses Creek			**GROUND WTR (ft)**
BORING NO. EB2	**STATION** N/A	**OFFSET** N/A	**ALIGNMENT** -L-	**0 HR.** 6.0
COLLAR ELEV. 0.0 ft	**TOTAL DEPTH** 18.9 ft	**NORTHING** 773,497	**EASTING** 1,169,091	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3147 CME-75 88% 05/18/2026		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER T. Beard	**START DATE** 07/28/26	**COMP. DATE** 07/28/26	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
0										0.0 GROUND SURFACE	0.0
	0.0	0.0	3	3	2	5		M		**ARTIFICIAL FILL** Brown, Fine to Coarse Sandy Clayey SILT (A-4)	-2.0 / 2.0
-5	-3.5	3.5	2	1	3	4		W		**ALLUVIAL** Gray, Clayey Silty Fine to Coarse SAND (A-2-4) with Trace Gravel	-7.0 / 7.0
-10	-8.5	8.5	48	52/0.3		100/0.8				**WEATHERED ROCK** Blue-Gray GNEISS	-12.0 / 12.0
-15	-13.5	13.5	37	24	57	81		M		**RESIDUAL** Blue-Gray, Silty Fine to Coarse SAND (A-2-4) with Trace Rock Fragments	-17.0 / 17.0
	-18.5	18.5								**WEATHERED ROCK** Tan GNEISS	-18.8 / 18.8
	-18.8	18.8	100/0.2			100/0.2				**CRYSTALLINE ROCK** Tan GNEISS	-18.9 / 18.9
			60/0.1			60/0.1				Boring Terminated with Standard Penetration Test Refusal at Elevation -18.9 ft in CRYSTALLINE ROCK (GNEISS)	

Notes:
1. Auger Refusal at 18.8'
2. 0 HR Cave Depth= 6.2'

DRAFT