

August 05, 2022

GEOTECHNICAL DESIGN BULLETIN NO. 2022-3

SUBJECT: GDF 001 Bridge Load Data Sheet Update
EFFECTIVE DATE: Refer to First Paragraph
SUPERSEDES: GDF 001, Dated 02/2022
RE: None

GDF 001 – Bridge Load Data Sheet included in Appendix A of the 2022 Geotechnical Design Manual (GDM) is updated to include the prestressed concrete pile compressive strength of concrete as well as the prestress applied to the prestressing tendons. In addition, the yield strength for HP piles and the concrete compressive strength for drilled shafts has also been added. This information is anticipated being used in the selection of the pile driving hammer energy range determination. Revised GDF 001 will be effective for all projects that have not completed the Roadway Design Field Review or Preliminary Bridge Plan phases of project development as of August 5, 2022.

The updated GDF 001 may be viewed or downloaded from the Department's website at <https://www.scdot.org>, by searching for Geotechnical Design Manual.

Questions, concerns, or recommendations for future revisions should be addressed to the Geotechnical Design Support Section of the Office of Engineering Support.



Jeff Sizemore, P.E.
Geotechnical Design Support Engineer

JCS:rew

ec:

John Boylston, Director of Preconstruction
Robbie Isgett, Director of Construction
David Cook, Director of Maintenance
Rob Perry, Director of Traffic Engineering
Chris Gaskins, Dir. of Alternative Delivery
Rob Bedenbaugh, Dir. Of Engineering Support

Jennifer Necker, RP Engineer - Lowcountry
Leah Quattlebaum, RP Engineer - Pee Dee
Adam Humphries, RP Engineer - Midlands
Julie Barker, RP Engineer - Upstate
Tad Kitowicz, FHWA

File:OES/GRB

Bridge Load Data Sheet

PROJECT INFORMATION			
Project ID:	County:	Route:	
Description:			
Loads Provided By:	Date Loads Provided:		
Bridge Type:			
No. Spans / Lengths:	Width / No. Lanes:	Scour Report Attached:	
Edition of AASHTO LRFD Bridge Design Specifications:			
Edition of SCDOT Seismic Design Specifications for Highway Bridges:			
<i>Proposed Foundations (foundation type, size, and number per bent)</i>			
	Driven Piles		Drilled Shafts
	Steel	Concrete	
End Bent	$f_y =$ psi	$f'_c =$ psi and Prestress = psi	$f'_c =$ psi
Interior Bent	$f_y =$ psi	$f'_c =$ psi and Prestress = psi	$f'_c =$ psi
Location/Elev. of Applied Loads: ¹	End Bent:	Int. Bent:	
Location/Elev. Est. Point of Fixity:	End Bent:	Int. Bent:	

¹Preferred location of loads is either the existing ground line for interior bents or the proposed ground line for end bents.

Bridge Load Data Sheet

Compression Loads

	Limit State Load Cases:	Strength			Service		
		Case 1FL (P=P _{max})	Case 2FL (V=V _{max})	Case 3FL (M=M _{max})	Case 1SL (P=P _{max})	Case 2SL (V=V _{max})	Case 3SL (M=M _{max})
End Bent - Longitudinal	P (kips) =						
	V (kips) =						
	M (ft-kip) =						
End Bent - Transverse	P (kips) =						
	V (kips) =						
	M (ft-kip) =						
Interior Bent - Longitudinal	P (kips) =						
	V (kips) =						
	M (ft-kip) =						
Interior Bent - Transverse	P (kips) =						
	V (kips) =						
	M (ft-kip) =						

	Limit State Load Cases:	Extreme Event I ^c			Extreme Event II ^{a,c}			Extreme Event II ^{b,c}		
		Case 1EL (P=P _{max})	Case 2EL (V=V _{max})	Case 3EL (M=M _{max})	Case 1EEL (P=P _{max})	Case 2EEL (V=V _{max})	Case 3EEL (M=M _{max})	Case 1EEL (P=P _{max})	Case 2EEL (V=V _{max})	Case 3EEL (M=M _{max})
End Bent - Longitudinal	P (kips) =									
	V (kips) =									
	M (ft-kip) =									
End Bent - Transverse	P (kips) =									
	V (kips) =									
	M (ft-kip) =									
Interior Bent - Longitudinal	P (kips) =									
	V (kips) =									
	M (ft-kip) =									
Interior Bent - Transverse	P (kips) =									
	V (kips) =									
	M (ft-kip) =									

Notes: P – Axial; V – Shear; M – Moment; ^a – Check Flood w/o collision loads; ^b – Collision loads w/o check flood; ^c – If no EE Limit State loads are to be provided, the SEOR shall either put 0 or N/A. Please note that N/A will be interpreted as 0.

Bridge Load Data Sheet

Tension Loads

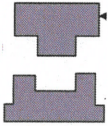
	Limit State Load Cases:	Strength			Service		
		Case 1FL (P=P _{max})	Case 2FL (V=V _{max})	Case 3FL (M=M _{max})	Case 1SL (P=P _{max})	Case 2SL (V=V _{max})	Case 3SL (M=M _{max})
End Bent - Longitudinal	P (kips) =						
	V (kips) =						
	M (ft-kip) =						
End Bent - Transverse	P (kips) =						
	V (kips) =						
	M (ft-kip) =						
Interior Bent - Longitudinal	P (kips) =						
	V (kips) =						
	M (ft-kip) =						
Interior Bent - Transverse	P (kips) =						
	V (kips) =						
	M (ft-kip) =						

	Limit State Load Cases:	Extreme Event I ^c			Extreme Event II ^{a,c}			Extreme Event II ^{b,c}		
		Case 1EL (P=P _{max})	Case 2EL (V=V _{max})	Case 3EL (M=M _{max})	Case 1EEL (P=P _{max})	Case 2EEL (V=V _{max})	Case 3EEL (M=M _{max})	Case 1EEEL (P=P _{max})	Case 2EEEL (V=V _{max})	Case 3EEEL (M=M _{max})
End Bent - Longitudinal	P (kips) =									
	V (kips) =									
	M (ft-kip) =									
End Bent - Transverse	P (kips) =									
	V (kips) =									
	M (ft-kip) =									
Interior Bent - Longitudinal	P (kips) =									
	V (kips) =									
	M (ft-kip) =									
Interior Bent - Transverse	P (kips) =									
	V (kips) =									
	M (ft-kip) =									

Notes: P – Axial; V – Shear; M – Moment; ^a – Check Flood w/o collision loads; ^b – Collision loads w/o check flood; ^c – If no EE Limit State loads are to be provided, the SEOR shall either put 0 or N/A. Please note that N/A will be interpreted as 0.

PILE HAMMER DATA

Date: _____ Contract #: _____ Project #: _____ County: _____
 Road #: _____ Road Info: _____
 Contractor: _____



HAMMER

Manufacturer: Model:
 Type: Serial #:
 Rated Energy (k/ft): @ Length of Stroke (ft): Lead Size (in):
 Modifications:
 Last Maintenance Date: Performed By:
 Maintenance Type:

NOTE:
 Attach any hammer modification specifications. Manufacturer's Specifications may be required if hammer is not found in Wave Equation database.



STRIKER PLATE

Weight (kips): Diameter (in): Thickness (in):

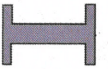


HAMMER CUSHION

Description: Area (sq in):

	Material Description	# Layers	Modulus of Elasticity	Thickness per Layer
1	<input type="text"/>	<input type="text"/>	<input type="text"/> (ksi)	<input type="text"/> (in)
2	<input type="text"/>	<input type="text"/>	<input type="text"/> (ksi)	<input type="text"/> (in)

Coefficient of Restitution: TOTAL (in)



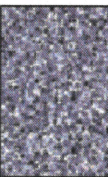
PILE CAP (HELMET)

Pile Cap Weight (kips): Inserts Weight (kips): Dimension (in):



PILE CUSHION

Material: Thickness (in):
 Modulus of Elasticity (ksi): Coefficient of Restitution: Area (sq in):



PILE

Pile Type/Size: Pile Point:
 Total Pile & Point Length (ft): Splice Description:
 Exposed Pile Point Length (ft): Splice Location from Pile Top (ft):
 Cross-Sectional Area (sq ft): Concrete Pile Strength, f_c (psi): Prestress (PSI):
 Pipe Pile Wall Thickness (in): Steel Pile Yield Strength, F_y (ksi):
 Pile Tip Description:

NOTE: Within 30 calendar days after Award of Contract or no later than 30 days before driving the first pile, submit this form & Pile Installation Plan to the Regional Production Group Geotechnical Engineer with copy to Bridge Construction Engineer & RCE.

Submitted By:

Name: _____ Title: _____ Phone #: _____ Date: _____