



# LRFR BRIDGE LOAD RATING SUMMARY

Version 1.0

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SECTION 1 - GENERAL BRIDGE DATA					
(8) Asset ID 03374		Route Type Interstate		(27) Year Built 1960	(90) Date of Inspection 10/2019
(9) Bridge Location 6 MI NW OF COLUMBIA		(7) Facility Carried I-26		(6) Feature Intersected/Route Crossing STOOP CREEK	
(49) Length 21 ft.	(11) Milepost 106.470	(2) District 1	(3) County LEXINGTON	(22) Owner SCDOT	(418) Conditions During Rating (NBI Item 58, NBI Item 59, NBI Item 60) 7
(43, 44, 45, & 46) Bridge Description 2 Span RCCulvert			(31) Design Load H-20	(108) Existing Wearing Surface Type & Depth NOT APPLICABLE	
Rating Program & Version BrR 6.8.4 - AASHTO Engine		Rating Program & Version N/A		Rating Method LRFR	AASHTO Reference MBE 3rd Edition w/ 2019 Interims
(58) Deck N N/A (NBI)	(59) Superstructure N N/A (NBI)	(60) Substructure N N/A (NBI)	(62) Culvert 7 Minor Deterioration	(113) Scour Critical 8 Stable Above Footing	

SECTION 2 - INVENTORY AND OPERATING LOAD RATINGS					
Rating Vehicle	Rating Level	Controlling Member	Controlling Location	Controlling Limit State	Rating Factor
HL-93 Truck + Lane	Inventory	Top Slab 1	1.0	Flexure	1.507
HL-93 Truck Train + Lane (90%)	Inventory	-	-	-	-
HL-93 Tandem + Lane	Inventory	Top Slab 1	1.0	Flexure	1.401
HL-93 Truck + Lane	Operating	Top Slab 1	1.0	Flexure	1.954
HL-93 Truck Train + Lane (90%)	Operating	-	-	-	-
HL-93 Tandem + Lane	Operating	Top Slab 1	1.0	Flexure	1.816

This LRFR Load Rating is based on:			<input checked="" type="checkbox"/> Design Plans	<input type="checkbox"/> Design Plans & Approved Shop Drawings	<input type="checkbox"/> Other (Please explain in Remarks)
			<input type="checkbox"/> As-Built Plans		
SECTION 3 - BRIDGE LOAD RATING SUMMARY					
Controlling Legal Truck	Load Posting Required? If Yes, complete Signing/Posting Form.			Controlling Legal Load Rating Factor	
SU7	No			1.367	

SECTION 4 - REMARKS & SIGN/SEAL			
Load Rating Engineer		Quality Control Engineer	
Name: Jeremy Earnest		Name: Melissa Hennessy	
Company/Title: HDR		Company/Title: HDR	
Date: 8/5/2020		Date: 9/9/2020	
Remarks:		<input type="checkbox"/> Structure is part of QA sample set. Quality Assurance Engineer	
<p>1. As-Let plans 40.444 were used for the rating of the original culvert and As-Let plans 32.704.2 were used for the rating of the extended culvert.</p> <p>2. Traffic data was input into BrR using Directional % = 100% and Truck % = 12%.</p> <p>3. Based on the October 2019 inspection report, there is no measurable deterioration to warrant a Deteriorated structure model in BrR.</p> <p>4. Condition factor of 1.00 was used based on the 10/2019 Inspection Report.</p> <p>5. Drawings indicate 8' of fill. The inspection report dated 10/2019 indicates 20' of fill. A minimum and maximum fill of 8' and 20' fill were used for the rating.</p> <p>6. Culvert <i>top slab and bottom slab reinforcing</i> steel was increased 40% from what is shown on plans so culvert can rate above 1.00 per guidance in Chapter 17 of the LRGD and due to the low ratio between Live Load and Load from fill.</p>			

The ADTT value listed below is to be used to establish Legal and Permit $\gamma_{LL}$ factors.							
SECTION 5A - LEGAL & PERMIT RATINGS - AASHTO Legal Trucks							
(30) ADT Year 2017	(29) ADT 144900	(109) Truck % ADT 12	ADTT (ADT x Truck % ADT) 17388				
Rating Vehicle	Rating Level	Weight (Tons)	Controlling Member	Controlling Location	Controlling Limit State	Rating Factor	Rating (Tons)
Modified AASHTO SC - Type 3	Legal	25	Top Slab 1	1.0	Flexure	1.430	35
Modified AASHTO SC - Type 3S2	Legal	36.6	Top Slab 1	1.0	Flexure	1.439	52
AASHTO - Type 3-3	Legal	40	Top Slab 1	1.0	Flexure	1.464	58
Lane Type Loading (Neg. M only)	Legal	40	-	-	-	-	N/A
Lane Type Loading (Span > 200 ft)	Legal	40	-	-	-	-	N/A
Modified AASHTO SC - Type 3	Permit	25	Top Slab 1	1.0	Flexure	2.043	51
Modified AASHTO SC - Type 3S2	Permit	36.6	Top Slab 1	1.0	Flexure	2.056	75
AASHTO - Type 3-3	Permit	40	Top Slab 1	1.0	Flexure	2.092	83
Lane Type Loading (Neg. M only)	Permit	40	-	-	-	-	N/A
Lane Type Loading (Span > 200 ft)	Permit	40	-	-	-	-	N/A



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SECTION 5B - LEGAL RATINGS - SC Specialized Hauling Vehicles (SHV) - Legal on Non-Interstate Only (Permit on Interstate)							
Rating Vehicle	Rating Level	Weight (Tons)	Controlling Member	Controlling Location	Controlling Limit State	Rating Factor	Rating (Tons)
SC-SHV1A	Legal	32.5	Top Slab 1	1.0	Flexure	1.317	42
SC-SHV1B	Legal	35	Top Slab 1	1.0	Flexure	1.292	45
SC-SHV2A	Legal	33	Top Slab 1	1.0	Flexure	1.337	44
SC-SHV2B	Legal	40	Top Slab 1	1.0	Flexure	1.270	50
SC-SHV3A	Legal	42.5	Top Slab 1	1.0	Flexure	1.396	59
SC-SHV3B	Legal	45	Top Slab 1	1.0	Flexure	1.379	62
SECTION 5C - LEGAL RATINGS - Two Miscellaneous SHV & AASHTO SHV							
Rating Vehicle	Rating Level	Weight (Tons)	Controlling Member	Controlling Location	Controlling Limit State	Rating Factor	Rating (Tons)
SC Representative School Bus	Legal	17.525	Top Slab 1	1.0	Flexure	1.529	26
SC-SU2	Legal	20	Top Slab 1	1.0	Flexure	1.457	29
SU4	Legal	27	Top Slab 1	1.0	Flexure	1.401	37
SU5	Legal	31	Top Slab 1	1.0	Flexure	1.387	42
SU6	Legal	34.75	Top Slab 1	1.0	Flexure	1.377	47
SU7	Legal	38.75	Top Slab 1	1.0	Flexure	1.367	52
SECTION 5D - LEGAL RATINGS - Emergency Vehicles (EV)							
Rating Vehicle	Rating Level	Weight (Tons)	Controlling Member	Controlling Location	Controlling Limit State	Rating Factor	Rating (Tons)
EV2	Legal	28.75	Top Slab 1	1.0	Flexure	2.089	60
EV3	Legal	43	Top Slab 1	1.0	Flexure	1.927	82

SECTION 6 - PERMIT RATINGS - Specialized Hauling Vehicles (SHV), Standard Permit Vehicles & Typical Cranes							
Rating Vehicle	Rating Level	Weight (Tons)	Controlling Member	Controlling Location	Controlling Limit State	Rating Factor	Rating (Tons)
SC-SHV1A	Permit	32.5	Top Slab 1	1.0	Flexure	1.882	61
SC-SHV1B	Permit	35	Top Slab 1	1.0	Flexure	1.845	64
SC-SHV2A	Permit	33	Top Slab 1	1.0	Flexure	1.911	63
SC-SHV2B	Permit	40	Top Slab 1	1.0	Flexure	1.815	72
SC-SHV3A	Permit	42.5	Top Slab 1	1.0	Flexure	1.994	84
SC-SHV3B	Permit	45	Top Slab 1	1.0	Flexure	1.969	88
SC Representative School Bus	Permit	17.525	Top Slab 1	1.0	Flexure	2.184	38
SC-SU2	Permit	20	Top Slab 1	1.0	Flexure	2.081	41
SU4	Permit	27	Top Slab 1	1.0	Flexure	2.001	54
SU5	Permit	31	Top Slab 1	1.0	Flexure	1.981	61
SU6	Permit	34.75	Top Slab 1	1.0	Flexure	1.967	68
SU7	Permit	38.75	Top Slab 1	1.0	Flexure	1.953	75
SC - 100k	Permit	50	Top Slab 1	1.0	Flexure	1.899	94
SC - 120k	Permit	60	Top Slab 1	1.0	Flexure	1.855	111
SC - 130k	Permit	65	Top Slab 1	1.0	Flexure	1.843	119
SC Crane #544726	Permit	80	Top Slab 1	1.0	Flexure	1.763	141
SC Crane #527568	Permit	88.85	Top Slab 1	1.0	Flexure	1.736	154

Remarks: