

LOAD FACTORS:

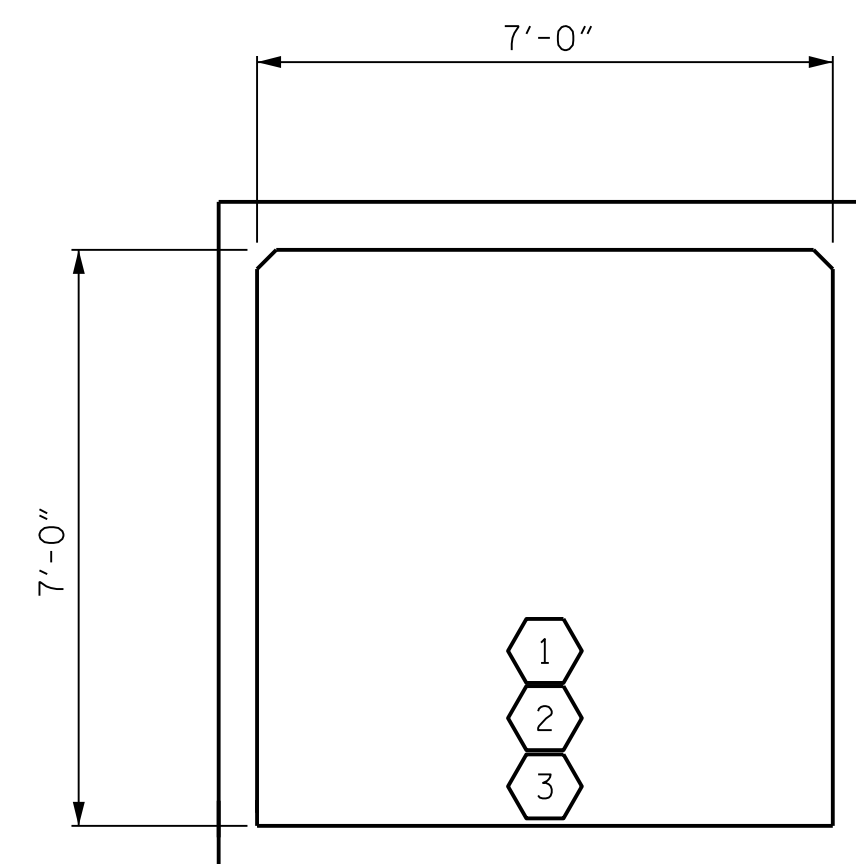
DESIGN LOAD RATING FACTORS		
LOAD TYPE	MAX FACTOR	MIN FACTOR
DC	1.25	0.90
DW	1.50	0.65
EV	1.30	0.90
EH	1.35	0.90
ES	1.35	0.90
LS	1.75	--
WA	1.00	--

NOTE:

RATING FACTORS ARE BASED ON THE STRENGTH I LIMIT STATE.

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR REINFORCED CONCRETE BOX CULVERTS															
LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE								COMMENT NUMBER	
						LIVE-LOAD FACTORS (LL)	MOMENT				SHEAR				
							RATING FACTOR	BOX NO.	ELEMENT TYPE	DISTANCE FROM LEFT END OF ELEMENT (ft)	RATING FACTOR	BOX NO.	ELEMENT TYPE		DISTANCE FROM LEFT END OF ELEMENT (ft)
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.33	--	1.75	1.33	1	BOTTOM SLAB	3.50	2.91	1	BOTTOM SLAB	0.00	
	HL-93 (OPERATING)	N/A		1.72	--	1.35	1.72	1	BOTTOM SLAB	3.50	3.77	1	BOTTOM SLAB	0.00	
	HS-20 (INVENTORY)	36.000	②	1.77	63.72	1.75	1.77	1	BOTTOM SLAB	3.50	3.88	1	BOTTOM SLAB	0.00	
	HS-20 (OPERATING)	36.000		2.29	82.44	1.35	2.29	1	BOTTOM SLAB	3.50	5.03	1	BOTTOM SLAB	0.00	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SH	③	2.25	28.13	1.40	2.25	1	BOTTOM SLAB	3.50	5.10	1	BOTTOM SLAB	0.00	
		S3C		2.35	50.53	1.40	2.35	1	BOTTOM SLAB	3.50	5.33	1	BOTTOM SLAB	0.00	
		S3A		2.35	53.46	1.40	2.35	1	BOTTOM SLAB	3.50	5.33	1	BOTTOM SLAB	0.00	
		S4A		2.35	62.86	1.40	2.35	1	BOTTOM SLAB	3.50	5.33	1	BOTTOM SLAB	0.00	
		S5A		2.35	71.68	1.40	2.35	1	BOTTOM SLAB	3.50	5.33	1	BOTTOM SLAB	0.00	
		S6A		2.35	81.08	1.40	2.35	1	BOTTOM SLAB	3.50	5.33	1	BOTTOM SLAB	0.00	
		S7B		2.35	90.48	1.40	2.35	1	BOTTOM SLAB	3.50	5.33	1	BOTTOM SLAB	0.00	
		S7A		2.35	94.00	1.40	2.35	1	BOTTOM SLAB	3.50	5.33	1	BOTTOM SLAB	0.00	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	T4A			2.35	66.39	1.40	2.35	1	BOTTOM SLAB	3.50	5.33	1	BOTTOM SLAB	0.00
		T5B			2.35	75.20	1.40	2.35	1	BOTTOM SLAB	3.50	5.33	1	BOTTOM SLAB	0.00
		T6A			2.35	84.60	1.40	2.35	1	BOTTOM SLAB	3.50	5.33	1	BOTTOM SLAB	0.00
		T7A			2.35	94.00	1.40	2.35	1	BOTTOM SLAB	3.50	5.33	1	BOTTOM SLAB	0.00
	T7B			2.35	94.00	1.40	2.35	1	BOTTOM SLAB	3.50	5.33	1	BOTTOM SLAB	0.00	

①	CONTROLLING LOAD RATING
①	DESIGN LOAD RATING (HL-93)
②	DESIGN LOAD RATING (HS-20)
③	LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE	



LRFR SUMMARY

(LOOKING DOWNSTREAM)

PROJECT NO. I-5987A
ROBESON COUNTY
 STATION: 111+25.00 -L-

SHEET 8 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 LRFR SUMMARY FOR
 REINFORCED CONCRETE
 BOX CULVERTS
 (INTERSTATE TRAFFIC)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CDM Smith
 CDM SMITH
 5400 Glenwood Avenue, Suite 400
 Raleigh, NC 27612-3228
 NC COA No. F-1255

DWG. No. _____

DRAWN BY : JJR DATE : 8/21
 CHECKED BY : THF DATE : 8/21
 DESIGN ENGINEER : VDK DATE : 9/21

STATE OF NORTH CAROLINA
 PROFESSIONAL ENGINEER
 SEAL 16301
 TUNG FANG
 3/19/2022

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C19-8
1			3			TOTAL SHEETS
2			4			8