

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 × RF	STRENGTH I LIMIT STATE									COMMENT NUMBER
						LIVE-LOAD FACTORS (γ _{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	1.47	--	1.75	1.47	1	TOP SLAB	15.50	1.98	2	TOP SLAB	30.00	
	HL-93 (OPERATING)	N/A		1.90	--	1.35	1.90	1	TOP SLAB	15.50	2.57	2	TOP SLAB	30.00	
	HS-20 (INVENTORY)	36.000	2	1.83	65.88	1.75	1.83	1	TOP SLAB	15.50	2.47	2	TOP SLAB	30.00	
	HS-20 (OPERATING)	36.000		2.37	85.32	1.35	2.37	1	TOP SLAB	15.50	3.20	2	TOP SLAB	30.00	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH		6.33	85.46	1.40	6.33	1	TOP SLAB	15.50	8.75	2	TOP SLAB	30.00	
		SNGARBS2		4.37	87.40	1.40	4.37	1	TOP SLAB	15.50	6.01	2	TOP SLAB	30.00	
		SNAGRIS2		3.99	87.78	1.40	3.99	1	TOP SLAB	15.50	5.49	2	TOP SLAB	30.00	
		SNCOTTS3		3.09	84.20	1.40	3.09	1	TOP SLAB	15.50	4.26	2	TOP SLAB	30.00	
		SNAGGRS4		2.54	88.71	1.40	2.54	1	TOP SLAB	15.50	3.51	2	TOP SLAB	30.00	
		SNS5A		2.62	93.14	1.40	2.62	1	TOP SLAB	15.50	3.62	2	TOP SLAB	30.00	
		SNS6A		2.47	98.68	1.40	2.47	1	TOP SLAB	15.50	3.38	2	TOP SLAB	30.00	
		SNS7B		2.32	97.44	1.40	2.32	1	TOP SLAB	15.50	3.20	2	TOP SLAB	30.00	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3		2.85	94.05	1.40	2.85	1	TOP SLAB	15.50	3.94	2	TOP SLAB	30.00	
		TNT4A		3.04	100.55	1.40	3.04	1	TOP SLAB	15.50	4.16	2	TOP SLAB	30.00	
		TNT6A		2.61	112.23	1.40	2.61	1	TOP SLAB	15.50	3.54	2	TOP SLAB	30.00	
		TNT7A		2.51	112.95	1.40	2.51	1	TOP SLAB	15.50	3.45	2	TOP SLAB	30.00	
		TNT7B		2.74	123.30	1.40	2.74	1	TOP SLAB	15.50	3.69	2	TOP SLAB	30.00	
		TNAGRIT4		2.46	102.34	1.40	2.46	1	TOP SLAB	15.50	3.35	2	TOP SLAB	30.00	
EV VEHICLES (EV)	TNAGT5A		2.56	107.52	1.40	2.56	1	TOP SLAB	15.50	3.40	2	TOP SLAB	30.00		
	TNAGT5B		3	2.11	88.62	1.40	2.11	1	TOP SLAB	15.50	2.93	2	TOP SLAB	30.00	
	EV2	28.75		3.37	96.89	1.30	3.37	1	TOP SLAB	15.50	4.62	2	TOP SLAB	30.00	
EV3	43.00	4	2.43	104.49	1.30	2.43	1	TOP SLAB	15.50	3.37	2	TOP SLAB	30.00		

LOAD FACTORS:

DESIGN LOAD RATING FACTORS

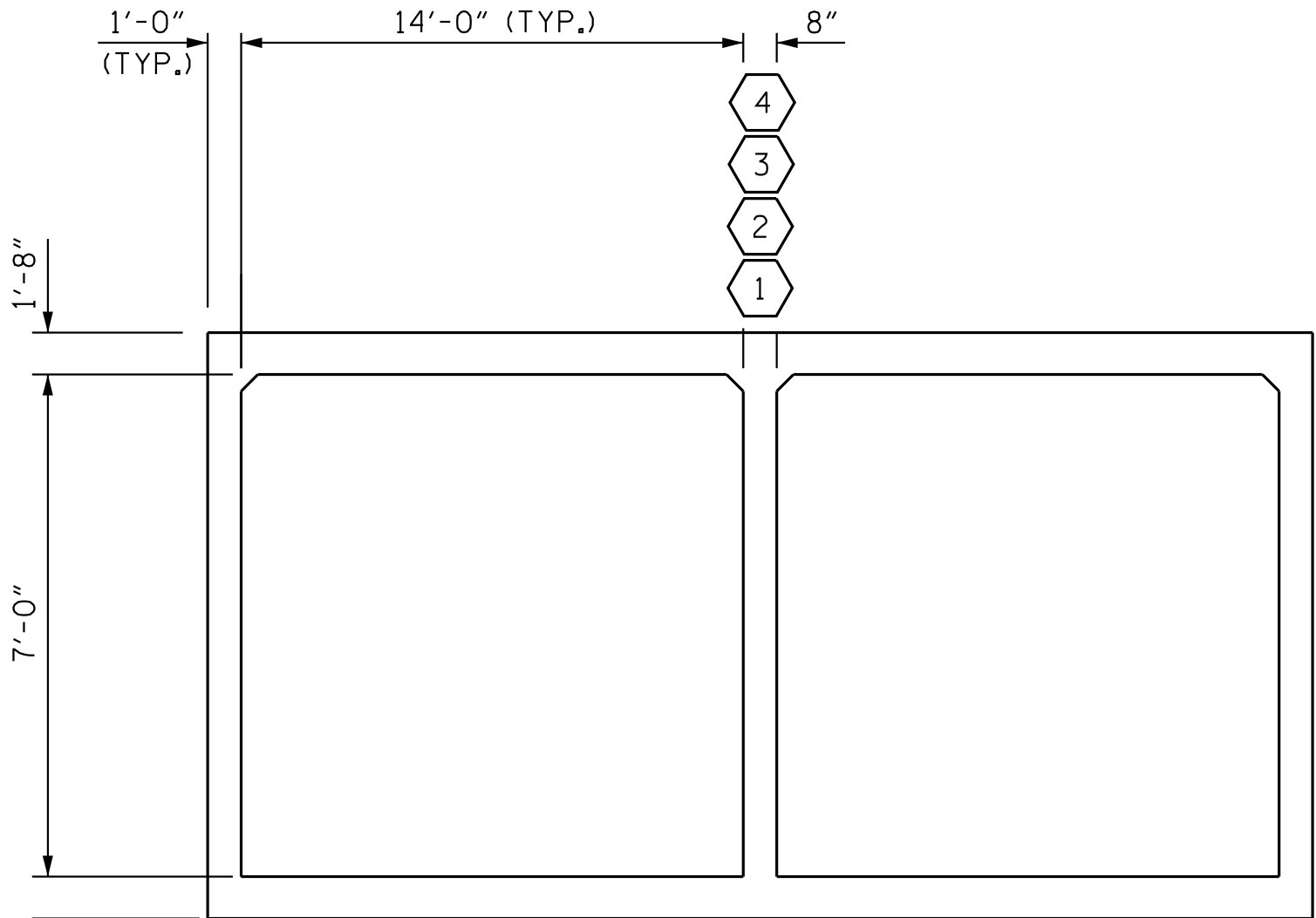
LOAD TYPE	MAX FACTOR	MIN FACTOR
DC	1.25	0.90
DW	1.50	0.65
EV	1.30	0.90
EH	1.35	0.90
ES	1.35	0.90
LS	1.75	--
WA	1.00	--

NOTE:

RATING FACTORS ARE BASED ON THE STRENGTH I LIMIT STATE.

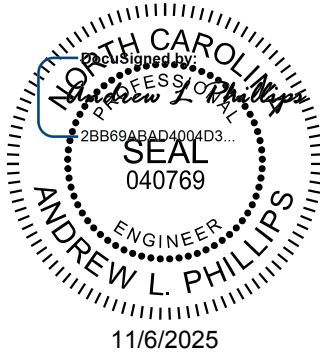
DISTANCE FROM LEFT END OF ELEMENT IS GIVEN FROM THE EXTERIOR EDGE OF EXTERIOR WALL.

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



PROJECT NO. U-6105
MECKLENBURG COUNTY
STATION: 22+01.71 -L-

SHEET 2 OF 8



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REVISIONS						SHEET NO. C2-2
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 8
2			4			

CULVERT 42C002 STD. NO. LRFR5

ASSEMBLED BY : D.D. LOWERY	DATE : 05/2023
CHECKED BY : C. T. POOLE	DATE : 05/2023
DRAWN BY : WMC	7/II
CHECKED BY : GM	7/II
REV. 10/1/II	MAA/GM
REV. 12/17	MAA/THC

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