APPENDIX A

PERATURAN PEMBEBANAN JEMBATAN JALAN RAYA RSNI T-12-2004

Table 2.1 Factor of own heavy load

Type of material	Factor of Load		
	KSMS	KUMS	
		Normal	Reduced
Steel, Aluminium	1	1.1	0.9
Precast concrete	1	1.2	0.85
Concrete cast	1	1.3	0.75
Wood	1	1.4	0.7

Table 2.2 Load factor for additional dead load

Time Period		Factor of Load		
		K_{MA}^{S}	K_{MA}^{U}	
			Normal	Reduce
Static	At general condition	1.0 (1)	2	0.7
	At special condition	1	1.4	0.8
Note (1) load factor of service power 1.3 use for load utility				

Table 2.3 Load factor due to "D" line load

Time Period	Factor of Load	
	$K^{S}TD$	$K^{S}TD$
Transien	1.0	1.8

Table 2.4 The number of median assumptions to calculate the laying reaction

Number of paths	Total Median Traffic	Number of Paths	Number Medians Presumption
n = 4	1	n = 8	3
n = 5	1	n = 9	3
n = 6	1	n = 10	3
n = 7	1	n = 0	0

APPENDIX B

PERATURAN PEMBEBANAN JEMBATAN JALAN RAYA RSNI T-12-2004

Table 2.7 Load factor due to loading of "T" truck

Time Period	Factor of Load	
	K^{s}_{TT}	K^{u}_{TT}
Permanent	1.0	1.8

Table 2.5 Load factor due to brake force

Time Period	Factor of Load	
	K^{s}_{TS}	K^{s}_{TB}
Transien	1.0	1.8

Table 2.6 Load factors for pedestrians

Time Period	Factor of Load	
	K^{s}_{TP}	K^{s}_{SS}
Transien	1.0	1.8

Table 2.8 Coefficient drag Cw

Type of Bridge	Cw
Building over massive :	2.1
b/d = 1.0	1.5
b/d = 2.0	1.25
b/d ≥ 6.0	—
Building over structure	1.2

APPENDIX C

PERATURAN PEMBEBANAN JEMBATAN JALAN RAYA RSNI T-12-2004

Table 2.9 Wind speed plan Vw

Type of Bridge	Cw
Building over massive :	2.1
b/d = 1.0	1.5
b/d = 2.0	1.25
b/d ≥ 6.0	—
Building over structure	1.2

Table 2.10 Load factor for wind load

Time Period	Factor of Load	
	K_{EW}^{S}	K_{EW}^{U}
Transien	1.0	1.2

Table 2.11 Load factor for earthquake load

Time Period	Factor of Load	
	KS ; EQ	KU ; EQ
Transien	Cannot be use	1

Table 2.12 Interest Factors

The bridge contains more than 2000 vehicles / day, bridges on major highways or arteries and bridges where there are no alternative routes	1.2
All other permanent bridges where alternative routes are avaible, excluding bridges planned for reduced traffic loading	2
Temporary bridges and bridges are planned for reduced traffic loading	0.8

APPENDIX D

PERATURAN PEMBEBANAN JEMBATAN JALAN RAYA RSNI T-12-2004

Table 2.13 Building Type Factor

Type of Bridge	Bridges with reinforced concrete joints or steel	Bridges with prestressed concrete joint area	
		Partial Prestressed	Full Prestressed
Type A	1 F	1.15 F	1,3 F
Type B	1 F	1,15 F	1,3 F
Type C	3	3	3

Table 2.14 Basic Shear Coefficient (C)

Earthquake Teritorial (1)	Basic Shear Coefficient (C)		
	Static Subgrade (2)	Medium Subgrade (3)	Soft Subgrade (4)
1	0,20	0,23	0,23
2	0,17	0,21	0,21
3	0,14	0,18	0,18
4	0,10	0,15	0,15
5	0,07	0,12	0,12
6	0,06	0,06	0,07

Table 2.15 Effect of plan age on ultimit load factor

Time Period	Plan Age	Factor of Load	
		Static	Transien
Temporary Bridges	20 year	1.0	0.87
Usual Bridge	50 year	1.0	1.0
Special Bridge	100 year	1.0	1.10

APPENDIX E

WIND LOAD

Table 2.16 Young Elasitis Modulus and Long Coefficient

Material Type	Ɛ (kg/cm^2)	Ɛ / degree Celcius
Steel	2.1×10^{6}	12×10^{-6}
Concrete	$2{,}4 \times 10^{5*}$	10×10^{-6}
Wood	–	–
a. Parallel fiber	$1{,}0 \times 10^{5*}$	5×10^{-6}
b. Sraight fiber	$1{,}0 \times 10^{5*}$	50×10^{-6}

Table 3.1. Drag Coeficient[21]

Bridge Type	C_w
Building over massive (1), (2)	
b/d = 1.0	2.1 (3)
b/d = 2.0	1.5 (3)
b/d ≥ 6.0	1.25 (3)
Building on the framework	1.2
Note (1) b = atotal width of bridge is calculated from the outer side of the backrest d = height of the upper building, including the height of the massive backrest	
Note (2) for the intermediate price of b/d can be interparted linearly	
Note (3) if the upper buiding has superelevation, Cw shall be increast by 3% for each superelevation degree, with a maximum increast of 2.5%	

Table 3.2 Wind speed plan[21]

Bondary state	Location	
	up to 5 km from the beach	> 5 km from the beach
Service power	30 m/s	25 m/s
Ultimit	35 m/s	30 m/s

APPENDIX F

RESUME MOMENTS AND SHEAR FORCE ON A BOX GIRDER

Table 3.3. Formula for calculated of maximum moment and maximum shear force

No	Type of Load	Moment Equations	Shear Force Equations
1	Self weight of Box girder	$M_x = 1/2*Q_{bs}*(L*X - X^2)$	$V_x = Q_{bs}*(L/2 - X)$
2	Maximum moment due to self weight (MS)	$M_x = 1/2*Q_{MS}*(L*X - X^2)$	$V_x = Q_{MS}*(L/2 - X)$
3	Maximum moment due to dead load (MA)	$M_x = 1/2*Q_{MA}*(L*X - X^2)$	$V_x = Q_{MA}*(L/2 - X)$
4	Maximum moment due to wind load (EW)	$M_x = 1/2*Q_{EW}*(L*X - X^2)$	$V_x = Q_{EW}*(L/2 - X)$
5	Maximum moment due to earthquake load (EQ)	$M_x = 1/2*Q_{EQ}*(L*X - X^2)$	$V_x = Q_{EQ}*(L/2 - X)$
Maximum moment due to self weight $M_{bs} = 1/8*Q_{bs}*L^2 =$			49885.997 kNm

APPENDIX G

PRESTRESS FORCES, EXENTRISITY, AND NUMBER OF TENDON

Table 3.4. Seven wire strands

Nominal diameter		Diameter tolerance		Grade		Nominal weight		Nominal steel area		Minimum breaking strenght		Yield strength minimum load at 1 % extension	
ϕ	inch	inch	mm	ksi	Mpa	lb/1000'	g/m	$inch^2$	mm^2	lbs	kN	lbs	kN
1/4	0.250	-0.016/+0.016	-0.40/+0.40	250	1725	122	182	0.036	23.2	9000	40.0	8100	36
5/16	0.313	-0.016/+0.016	-0.40/+0.40	250	1725	197	294	0.058	37.4	14500	64.5	13050	58.1
3/8	0.375	-0.006/+0.026	-0.15/+0.65	270	1860	290	432	0.085	54.8	23000	102.3	20700	92.1
7/16	0.438	-0.006/+0.026	-0.15/+0.65	270	1860	390	582	0.115	74.2	31000	137.9	27900	124.1
1/2	0.500	-0.006/+0.026	-0.15/+0.65	270	1860	520	775	0.152	98.7	41300	183.7	37170	165.3
0.52	0.520	-0.006/+0.026	-0.15/+0.65	270	1860	568	844	0.167	107.7	45000	200.2	40500	180.1
0.56	0.563	-0.006/+0.026	-0.15/+0.65	270	1860	651	970	0.192	123.9	51700	230.0	46530	207
0.6	0.600	-0.006/+0.026	-0.15/+0.65	270	1860	740	1102	0.217	140.0	58600	260.7	52740	234.6
0.7	0.700	-0.006/+0.026	-0.15/+0.65	270	1860	1000	1487	0.294	189.7	79400	353.2	71500	318