APPENDIX A1

Calculation Section Properties of Box Girder

Segment 2

Number	Width (m)	Thick (m)	Shape factor	Amount	Distance to Y	Area (A)	Statis Moment (A * Y)	Inertia Moment (A * Y^2)	Io	Distance to neutral point (Yo)	Static Moment (A * Yo)
1	7	0.4	1	1	4.2500	2.8000	11.9000	50.5750	0.0373	2.0763	5.8138
2	1	0.3	1	2	4.3000	0.6000	2.5800	11.0940	0.0023	2.1263	1.2758
3	1	0.1	0.5	2	4.1167	0.1000	0.4117	1.6947	0.0000	1.9430	0.1943
4	0.7	3.75	1	2	2.1750	5.2500	11.4188	24.8358	3.0762	0.0013	0.0070
5	1	3.75	1	1	2.1750	3.7500	8.1563	17.7398	4.3945	0.0013	0.0050
6	6	0.3	1	2	0.1500	3.6000	0.5400	0.0810	0.0135	2.0237	7.2852
7a	0.2	0.2	0.5	4	3.9833	0.0800	0.3187	1.2694	0.0000	1.8097	0.1448
7b	0.2	0.2	0.5	4	0.3667	0.0800	0.0293	0.0108	0.0000	1.8070	0.1446
8	0.037037	0.3	0.5	1	0.2000	0.0056	0.0011	0.0002	0.0000	1.9737	0.0110
					Total	**16.2656**	**35.3558**	**107.3007**	**7.5239**		**14.8814**

APPENDIX A2

Calculation Section Properties of Box Girder

Segment 3

Width (m)	Thick (m)	Shape factor	Amount	Distance to Y	Area (A)	Statis Moment (A * Y)	Inertia Moment (A * Y^2)	Io	Distance to neutral point (Yo)	Static Moment (A * Yo)
1	7	0.4	1	1	3.2500	2.8000	9.1000	29.5750	0.0373	1.5730
2	1	0.3	1	2	3.3000	0.6000	1.9800	6.5340	0.0023	1.6230
3	1	0.1	0.5	2	3.1167	0.1000	0.3117	0.9714	0.0000	1.4396
4	0.7	2.75	1	2	1.6750	3.8500	6.4488	10.8017	1.2132	-0.0020
5	1	2.75	1	1	1.6750	2.7500	4.6063	7.7155	1.7331	-0.0020
6	6	0.3	1	2	0.1500	3.6000	0.5400	0.0810	0.0135	1.5270
7a	0.2	0.2	0.5	4	2.9833	0.0800	0.2387	0.7120	0.0000	1.3063
7b	0.2	0.2	0.5	4	0.3667	0.0800	0.0293	0.0108	0.0000	1.3104
8	0.04918	0.3	0.5	1	0.2000	0.0074	0.0015	0.0003	0.0000	1.4770
				Total	**16.7167**	**13.8674**	**23.2561**	**56.4016**		**2.9995**

APPENDIX A3

Calculation Section Properties of Box Girder

Segment 4

Width (m)	Thick (m)	Shape factor	Amount	Distance to Y	Area (A)	Statis Moment (A * Y)	Inertia Moment (A * Y^2)	Io	Distance to neutral point (Yo)	Static Moment (A * Yo)
1	7	0.4	1	1	2.2500	2.8000	6.3000	14.1750	0.0373	1.0682
2	1	0.3	1	2	2.3000	0.6000	1.3800	3.1740	0.0023	1.1182
3	1	0.1	0.5	2	2.1167	0.1000	0.2117	0.4480	0.0000	0.9348
4	0.7	1.75	1	2	1.1750	2.4500	2.8788	3.3825	0.3126	-0.0068
5	1	1.75	1	1	1.1750	1.7500	2.0563	2.4161	0.4466	-0.0068
6	6	0.3	1	2	0.1500	3.6000	0.5400	0.0810	0.0135	1.0318
7a	0.2	0.2	0.5	4	1.9833	0.0800	0.1587	0.3147	0.0000	0.8015
7b	0.2	0.2	0.5	4	0.3667	0.0800	0.0293	0.0108	0.0000	0.8152
8	0.073171	0.3	0.5	1	0.2000	0.0110	0.0022	0.0004	0.0001	0.9818
				Total	**10.5417**	**11.4710**	**13.5569**	**24.0025**		**0.8125**

APPENDIX A4

Calculation Section Properties of Box Girder

Segment 5

Width (m)	Thick (m)	Shape factor	Amount	Distance to Y	Area (A)	Statis Moment (A * Y)	Inertia Moment (A * Y^2)	Io	Distance to neutral point (Yo)	Static Moment (A * Yo)
1	7	0.4	1	1	3.2500	2.8000	9.1000	29.5750	0.0373	1.5730
2	1	0.3	1	2	3.3000	0.6000	1.9800	6.5340	0.0023	1.6230
3	1	0.1	0.5	2	3.1167	0.1000	0.3117	0.9714	0.0000	1.4396
4	0.7	2.75	1	2	1.6750	3.8500	6.4488	10.8017	1.2132	-0.0020
5	1	2.75	1	1	1.6750	2.7500	4.6063	7.7155	1.7331	-0.0020
6	6	0.3	1	2	0.1500	3.6000	0.5400	0.0810	0.0135	1.5270
7a	0.2	0.2	0.5	4	2.9833	0.0800	0.2387	0.7120	0.0000	1.3063
7b	0.2	0.2	0.5	4	0.3667	0.0800	0.0293	0.0108	0.0000	1.3104
8	0.04918	0.3	0.5	1	0.2000	0.0074	0.0015	0.0003	0.0000	1.4770
				Total	**16.7167**	**13.8674**	**23.2561**	**56.4016**		**2.9995**

APPENDIX B1

Calculation of Weight of Box Girder

Segment 2

Numb	Type of self construction weight	Weight
1	Box girder prestress	414.772 kN/m
2	Center of kerb	0.2637 kN/m
3	Edge of kerb	0.7675 kN/m
	Q_{MS}	= 415.803 kN/m

Segment 3

Numb	Type of self construction weight	Weight
1	Box girder prestress	353.618 kN/m
2	Center of kerb	0.2637 kN/m
3	Edge of kerb	0.7675 kN/m
	Q_{MS}	= 354.649 kN/m

Segment 4

Numb	Type of self construction weight	Weight
1	Box girder prestress	292.51 kN/m
2	Center of kerb	0.2637 kN/m
3	Edge of kerb	0.7675 kN/m
	Q_{MS}	= 293.541 kN/m

Segment 5

Numb	Type of self construction weight	Weight
1	Box girder prestress	231.576 kN/m
2	Center of kerb	0.2637 kN/m
3	Edge of kerb	0.7675 kN/m
	Q_{MS}	= 232.6-8 kN/m

APPENDIX C1

Superimposed Dead Load Type of Box Girder

Segment 2

Numb	Superimposed dead load Type	Weight b (m)	Thick h (m)	Area A (m^2)	Weight w (kN/m^3)	Load Q_{MA} (kN/m)
1	Aspalth layer + overlay	9	0.75	6.75	22	148.5
2	Rainwater	9	0.05	0.45	9.8	4.41
3	Light	-	-	-	-	0.1

Segment 3

Numb	Superimposed dead load Type	Weight b (m)	Thick h (m)	Area A (m^2)	Weight w (kN/m^3)	Load Q_{MA} (kN/m)
1	Aspalth layer + overlay	9	0.75	6.75	22	148.5
2	Rainwater	9	0.05	0.45	9.8	4.41
3	Light	-	-	-	-	0.1

Segment 4

Numb	Superimposed dead load Type	Weight b (m)	Thick h (m)	Area A (m^2)	Weight w (kN/m^3)	Load Q_{MA} (kN/m)
1	Aspalth layer + overlay	9	0.75	6.75	22	148.5
2	Rainwater	9	0.05	0.45	9.8	4.41
3	Light	-	-	-	-	0.1

Segment 5

Numb	Superimposed dead load Type	Weight b (m)	Thick h (m)	Area A (m^2)	Weight w (kN/m^3)	Load Q_{MA} (kN/m)
1	Aspalth layer + overlay	9	0.75	6.75	22	148.5
2	Rainwater	9	0.05	0.45	9.8	4.41
3	Light	-	-	-	-	0.1

APPENDIX D

Line Load

DLA = 0,4 for L ≤ 50 m

DLA = 0,4 – 0,0025*(L – 50) for 50 < L < 90 m

DLA = 0,3 for L ≥ 90 m

Box Girder	L (m)	B (m)	q (Kpa)	Qtd (kN/m)	p (kN/m)	DLA (m)	Ptd (kN)	Vtd (kN)	Mtd (kNm)
I	15	9	12	87	44	0.4	446.6	875.8	4121.625
II	15	9	12	87	44	0.4	446.6	875.8	4121.625
III	15	9	12	87	44	0.4	446.6	875.8	4121.625
IV	15	9	12	87	44	0.4	446.6	875.8	4121.625
V	15	9	12	87	44	0.4	446.6	875.8	4121.625

Wind Load

Box Girder	Qew (kN/m)	Vew (kN)	Mew (kNm)
I	2.016	15.12	56.7
II	2.016	15.12	56.7
III	2.016	15.12	56.7
IV	2.016	15.12	56.7
V	2.016	15.12	56.7

APPENDIX E

Brake Force

- Brake force, T_{TB} = 250 Kn for $L_t \leq 80$ m
- Brake force, T_{TB} = 250 + 2.5*(L_t – 80) Kn for $80 < L_t < 180$ m
- Brake force, T_{TB} = 500 Kn for $L_t \geq 180$ m

Brake force can be taken equal to 5% “D” line load without taking into account the dynamic load factor.
Landscape length (L) = 45 m
Brake force, because L = 45 so use : T_{TB} = 250 Kn for $L_t \leq 80$ m
T_{TB} = 250 Kn

Box Girder	Y arms (m)	M (kNm)	Vtb (Kn)	Mtb (kNm)
I	5.32885	432.703	28.8468	216.351
II	4.82634	391.899	26.1266	195.949
III	4.32296	351.024	23.4016	175.512
IV	3.81816	310.035	20.6690	155.017
V	3.31080	268.837	17.9224	134.418

Earthquake Load

Box Girder	Qms (kN/m)	Qma (Kn/m)	L (m)	Wt (kN)	Teq (kN)	Qeq (kN)	Veq (kN)	Meq (kNm)
I	476.975	153.01	15	9449.77	944.977	62.99849	472.489	1771.83
II	415.803	153.01	15	8532.19	853.219	56.8813	426.61	1599.79
III	354.649	153.01	15	7614.89	761.489	50.7659	380.745	1427.79
IV	293.541	153.01	15	6698.27	660.827	44.6551	334.913	1255.93
V	232.608	153.01	15	5784.27	578.427	38.5618	289.213	1084.55

APPENDIX F1

Number of Strands of Box Girder I

Segment 1

Ns	Jumlah	Strand / tendon	strand dengan selubung tendon	Besar (mm)
ns1	9	20	180	85
ns2	11	20	220	85
ns3	13	20	260	85
ns4	13	20	260	
nt	46		920	
Beban Per Satu Strand		Pbs1 = Pt / ns =	89.8869 kN	

Segment 2

Ns	Jumlah	Strand / tendon	strand dengan selubung tendon	Besar (mm)
ns1	9	20	180	78.26
ns2	11	20	220	78.26
ns3	13	20	260	85
ns4	13	20	260	
nt	46		920	
Beban Per Satu Strand		Pbs1 = Pt / ns =	90.1837 kN	

Segment 3

Ns	Jumlah	Strand / tendon	strand dengan selubung tendon	Besar (mm)
ns1	9	20	180	78.26
ns2	11	20	220	78.26
ns3	13	20	260	78.26
ns4	13	20	260	
nt	46		920	
Beban Per Satu Strand		Pbs1 = Pt / ns =	94.9735 kN	

APPENDIX F2

Number of Strands of Box Girder I

Segment 4

Ns	Jumlah	Strand / tendon	strand dengan selubung tendon	Besar (mm)
ns1	9	20	180	78.26
ns2	11	20	220	78.26
ns3	13	20	260	78.26
ns4	13	20	260	
nt	46		920	
Beban Per Satu Strand		Pbs1 = Pt / ns =	107.364 kN	

Segment 5

Ns	Jumlah	Strand / tendon	strand dengan selubung tendon	Besar (mm)
ns1	9	20	180	78.26
ns2	11	20	220	78.26
ns3	13	20	260	78.26
ns4	13	20	260	
nt	46		920	
Beban Per Satu Strand		Pbs1 = Pt / ns =	132.692 kN	

Eccentricity of Each Tendon of Box Girder I, II, III,

Line of tendon	Zi'	Zi	fi'
1	2.07115	0,075	1.99615
2	2.47115	0,225	2.24615
3	2.87115	0,375	2.49615
4	3.27115	0,525	2.74615

APPENDIX G1

Trajectory of the tendon core of Box Girder I

Segment 1

X (m)	Y(m)	X (m)	Y(m)	X (m)	Y(m)
-0,25	-0.15393	7	2.26105	15	0
0	0	8	2.26105		
1	0.56526	9	2.18030		
2	1.04977	10	2.01880		
3	1.45354	11	1.77654		
4	2.01803	12	1.45354		
5	2.01880	13	0.56526		
6	2.18030	14	0.56527		

Segment 2

X (m)	Y(m)	X (m)	Y(m)	X (m)	Y(m)
-0,25	-0.120215	7	1.7657767	15	0
0	0	8	1.7657767		
1	0.4414442	9	1.7027132		
2	0.8198249	10	1.5765863		
3	1.1351421	11	1.3874		
4	1.387396	12	1.13514		
5	1.5765863	13	0.81982		
6	1.7027132	14	0.44144		

Segment 3

X (m)	Y(m)	X (m)	Y(m)	X (m)	Y(m)
-0,25	-0.086555	7	1.2713642	15	0
0	0	8	1.2713642		
1	0.3178411	9	1.2259584		
2	0.5902762	10	1.11351466		
3	0.8173056	11	0.99893		
4	0.998929	12	0.81731		
5	1.1351466	13	0.59028		
6	1.2259584	14	0.31784		

APPENDIX G2

Trajectory of the tendon core of Box Girder I

Segment 4

X (m)	Y(m)	X (m)	Y(m)	X (m)	Y(m)
-0,25	-0.052991	7	0.7783658	15	0
0	0	8	0.7783658		
1	0.1945914	9	0.750567		
2	0.3613841	10	0.6949695		
3	0.500378	11	0.61157		
4	0.6115731	12	0.50038		
5	0.6949695	13	0.36138		
6	0.750567	14	0.19459		

Segment 5

X (m)	Y(m)	X (m)	Y(m)	X (m)	Y(m)
-0,25	-0.019602	7	0.2879185	15	0
0	0	8	0.2879185		
1	0.0719796	9	0.2776357		
2	0.1336765	10	0.2570701		
3	0.1850905	11	0.22622		
4	0.2262217	12	0.18509		
5	0.2570701	13	0.13368		
6	0.2776357	14	0.07198		

An Anchore Angel (Box Girder I)

Numb	Amount Of Strand	Diameter Wrpaper	Fi	Dy/Dx	Angle Anchorage			
1	180	78,26	1.99615	0.532307	**0.489158**	rad	**28.02667**	degrees
2	220	78,26	2.24615	0.598973	**0.53966**	rad	**30.92048**	degrees
3	260	78,26	2.49615	0.66564	**0.587291**	rad	**33.64932**	degrees
4	260	78,26	2.74615	0.732307	**0.632081**	rad	**36.21557**	degrees

APPENDIX H1

Position and Trace Cable of Box Girder

Segment 1

Distance	Core Trace	Position Tendon			
X		Z1	Z2	Z3	Z4
(m)	(m)	(m)	(m)	(m)	(m)
0	2.67115	2.07115	2.47115	2.87115	3.27115
1	2.105886	1.57433	1.912108	2.249886	2.587664
2	1.621374	1.148485	1.43293	1.717374	2.001818
3	1.217614	0.793614	1.033614	1.272614	1.513614
4	0.894606	0.509717	0.714162	0.918606	1.12305
5	0.65235	0.296794	0.474572	0.65235	0.830128
6	0.490846	0.154846	0.31485	0.47485	0.63485
7	0.41009	0.08387	0.23498	0.38609	0.53721
8	0.41009	0.08387	0.23498	0.38609	0.53721
9	0.49085	0.15485	0.31485	0.47485	0.63485
10	0.65235	0.29679	0.47457	0.65235	0.83013
11	0.89461	0.50972	0.71416	0.91861	1.12305
12	1.21761	0.79361	1.03361	1.27361	1.51361
13	1.62137	1.14849	1.43293	1.71737	2.00182
14	2.10589	1.57433	1.91211	2.24989	2.58766
15	2.67115	2.07115	2.47115	2.87115	3.27115

APPENDIX H2

Position and Trace Cable of Box Girder

Segment 2

Distance	Core Trace	Position Tendon			
X		Z1	Z2	Z3	Z4
(m)	(m)	(m)	(m)	(m)	(m)
0	2.17366	2.07115	2.47115	2.87115	3.27115
1	1.73222	1.57433	1.912108	2.249886	2.587664
2	1.35383	1.148485	1.43293	1.717374	2.001818
3	1.03852	0.793614	1.033614	1.272614	1.513614
4	0.78626	0.509717	0.714162	0.918606	1.12305
5	0.59707	0.296794	0.474572	0.65235	0.830128
6	0.47095	0.154846	0.31485	0.47485	0.63485
7	0.40788	0.08387	0.23498	0.38609	0.53721
8	0.40788	0.08387	0.23498	0.38609	0.53721
9	0.47095	0.15485	0.31485	0.47485	0.63485
10	0.59707	0.29679	0.47457	0.65235	0.83013
11	0.78626	0.50972	0.71416	0.91861	1.12305
12	1.03852	0.79361	1.03361	1.27361	1.51361
13	1.35383	1.14849	1.43293	1.71737	2.00182
14	1.73222	1.57433	1.91211	2.24989	2.58766
15	2.17366	2.07115	2.47115	2.87115	3.27115

APPENDIX H3

Position and Trace Cable of Box Girder

Segment 3

Distance	Core Trace	Position Tendon			
X		Z1	Z2	Z3	Z4
(m)	(m)	(m)	(m)	(m)	(m)
0	1.67704	2.07115	2.47115	2.87115	3.27115
1	1.3592	1.57433	1.912108	2.249886	2.587664
2	1.08676	1.148485	1.43293	1.717374	2.001818
3	0.85973	0.793614	1.033614	1.272614	1.513614
4	0.67811	0.509717	0.714162	0.918606	1.12305
5	0.54189	0.296794	0.474572	0.65235	0.830128
6	0.45108	0.154846	0.31485	0.47485	0.63485
7	0.40568	0.08387	0.23498	0.38609	0.53721
8	0.40568	0.08387	0.23498	0.38609	0.53721
9	0.45108	0.15485	0.31485	0.47485	0.63485
10	0.54189	0.29679	0.47457	0.65235	0.83013
11	0.67811	0.50972	0.71416	0.91861	1.12305
12	0.85973	0.79361	1.03361	1.27361	1.51361
13	1.08676	1.14849	1.43293	1.71737	2.00182
14	1.3592	1.57433	1.91211	2.24989	2.58766
15	1.67704	2.07115	2.47115	2.87115	3.27115

APPENDIX H4

Position and Trace Cable of Box Girder

Segment 4

Distance	Core Trace	Position Tendon			
X		Z1	Z2	Z3	Z4
(m)	(m)	(m)	(m)	(m)	(m)
0	1.18184	2.07115	2.47115	2.87115	3.27115
1	0.98725	1.57433	1.912108	2.249886	2.587664
2	0.82046	1.148485	1.43293	1.717374	2.001818
3	0.68146	0.793614	1.033614	1.272614	1.513614
4	0.57027	0.509717	0.714162	0.918606	1.12305
5	0.48687	0.296794	0.474572	0.65235	0.830128
6	0.43127	0.154846	0.31485	0.47485	0.63485
7	0.40347	0.08387	0.23498	0.38609	0.53721
8	0.40347	0.08387	0.23498	0.38609	0.53721
9	0.43127	0.15485	0.31485	0.47485	0.63485
10	0.48687	0.29679	0.47457	0.65235	0.83013
11	0.57027	0.50972	0.71416	0.91861	1.12305
12	0.68146	0.79361	1.03361	1.27361	1.51361
13	0.82046	1.14849	1.43293	1.71737	2.00182
14	0.98725	1.57433	1.91211	2.24989	2.58766
15	1.18184	2.07115	2.47115	2.87115	3.27115

APPENDIX H5

Position and Trace Cable of Box Girder

Segment 5

Distance	Core Trace	Position Tendon			
X		Z1	Z2	Z3	Z4
(m)	(m)	(m)	(m)	(m)	(m)
0	0.6892	2.07115	2.47115	2.87115	3.27115
1	0.61722	1.57433	1.912108	2.249886	2.587664
2	0.55553	1.148485	1.43293	1.717374	2.001818
3	0.50411	0.793614	1.033614	1.272614	1.513614
4	0.46298	0.509717	0.714162	0.918606	1.12305
5	0.43213	0.296794	0.474572	0.65235	0.830128
6	0.41157	0.154846	0.31485	0.47485	0.63485
7	0.40129	0.08387	0.23498	0.38609	0.53721
8	0.40129	0.08387	0.23498	0.38609	0.53721
9	0.41157	0.15485	0.31485	0.47485	0.63485
10	0.43213	0.29679	0.47457	0.65235	0.83013
11	0.46298	0.50972	0.71416	0.91861	1.12305
12	0.50411	0.79361	1.03361	1.27361	1.51361
13	0.55553	1.14849	1.43293	1.71737	2.00182
14	0.61722	1.57433	1.91211	2.24989	2.58766
15	0.6892	2.07115	2.47115	2.87115	3.27115

APPENDIX I
Residual Creep of Box Girder

Segment 1

Stress	σ_2 (kPa)	σ_1 (kPa)	σ_{cr} (kPa)
Stress in the upper fiber (fa) =	5469.215	-8662,25	10963.82
Stress in the bottom fiber (fb) =	-17456	-5172,13	-9530.41

Segment 2

Stress	σ_2 (kPa)	σ_1 (kPa)	σ_{cr} (kPa)
Stress in the upper fiber (fa) =	2435.03	-8662,25	8609.762
Stress in the bottom fiber (fb) =	-11221.3	-5172,13	-4693.24

Segment 3

Stress	σ_2 (kPa)	σ_1 (kPa)	σ_{cr} (kPa)
Stress in the upper fiber (fa) =	-2514.88	-8662,25	4769.401
Stress in the bottom fiber (fb) =	-6918.58	-5172,13	-1354.97

Segment 4

Stress	σ_2 (kPa)	σ_1 (kPa)	σ_{cr} (kPa)
Stress in the upper fiber (fa) =	-7450.64	-8662,25	940.0228
Stress in the bottom fiber (fb) =	-2628.12	-5172,13	1973.756

Segment 5

Stress	σ_2 (kPa)	σ_1 (kPa)	σ_{cr} (kPa)
Stress in the upper fiber (fa) =	-12360.9	-8662,25	-2869.54
Stress in the bottom fiber (fb) =	-1640.135	-5172,13	5285.257

APPENDIX J

Stress On the Concrete Due to Creep and Shrinkage of Box Girder

Segment 1

Stress on the concrete due to creep and shrinkage	Creep (kPa)	Shrinkage (kPa)	Creep and Shrinkage (kPa)
Stress in the upper fiber fa =	1271.065	10963.82	12234.88
Stress in the bottom fiber fb =	888.1208	-9530.41	-8642.29

Segment 2

Stress on the concrete due to creep and shrinkage	Creep (kPa)	Shrinkage (kPa)	Creep and Shrinkage (kPa)
Stress in the upper fiber fa =	2559.179	8609.762	11168.94
Stress in the bottom fiber fb =	2176.235	-4693.24	-2517.01

Segment 3

Stress on the concrete due to creep and shrinkage	Creep (kPa)	Shrinkage (kPa)	Creep and Shrinkage (kPa)
Stress in the upper fiber fa =	2559.179	4769.401	7328.58
Stress in the bottom fiber fb =	2176.235	-1354.97	821.2651

Segment 4

Stress on the concrete due to creep and shrinkage	Creep (kPa)	Shrinkage (kPa)	Creep and Shrinkage (kPa)
Stress in the upper fiber fa =	2559.179	940.0228	3499.202
Stress in the bottom fiber fb =	2176.235	1973.756	4149.991

Segment 5

Stress on the concrete due to creep and shrinkage	Creep (kPa)	Shrinkage (kPa)	Creep and Shrinkage (kPa)
Stress in the upper fiber fa =	2559.179	-2869.54	-310.36
Stress in the bottom fiber fb =	2176.235	5285.257	7461.492

APPENDIX K

Initial Pre stress Force of Box Girder I, II, III, IV, V

Numb	Width (m)	Thick (m)	Shape Factor	Amount	Area At	Upper Temp	Under Temp	(Ta+Tb)/2	Pt (kg)	Zi (m)	Mpt (kg-cm)
1	10	0,4	1	1	4	15	8	11,5	18049,0061	1,137427	20529,44
2	1,3	0,3	1	2	0,78	15	10	12,5	3825,60455	1,187427	4542,628
3	1,3	0,1	0,5	2	0,13	10	8	9	459,072546	1,004094	460,952
4	0,465	0,93743	1	2	0,871808	8	0	4	1368,28345	0,087427	119,6256
5	0,4	0,93743	1	1	0,374971	8	0	4	588,509009	0,468714	275,8423
7a	0,2	0,2	0,5	4	0,08	8	6	7	219,727031	0,870761	191,3297
				∑At	**6,23678**			∑pt	**24510,203**	∑Mpt	**26119,8**

Stress control to load combination

Load	Symbol	Load Combination				
		1	2	3	4	5
A. Fixed Action						
Self Weight	MS	√	√	√	√	√
Superimposed Dead Load	MA	√	√	√	√	√
Creep and Shrinkage	SR	√	√	√	√	√
Prestress	PR	√	√	√	√	√
B. Transient Action						
Line Load "D"	TD	√	√	√	√	
Brake Force	TB	√	√	√	√	
C. Enviromental Action						
Influence of Temperature	ET		√		√	
Wind Load	EW			√	√	
Earthquake Load	EQ					√

APPENDIX L1

Stress Control of Box Girder I

Stress control to combination 1

Stress	Self Weight	Superimposed Dead Load	Creep Shrinkage	Pre stress	Line Load
	1	2	3	4	5
fa	-7915.35	-730.338	15016.04	2729.99	-2244.56
fb	6867.204	633.6267	-5861.14	-11477.77	1951.105

Stress control to combination 1
continue

Stress	Brake Force	Temperature	Wind Load	Earthquake Load	STRESS COMBINATION
	6	7	8	9	
fa	-44.3684	-	-	-	6811.412
fb	38.56772	-	-	-	-7848.37

Stress control to combination 2

Stress	Self Weight	Superimposed Dead Load	Creep Shrinkage	Pre stress	Line Load
	1	2	3	4	6
fa	-7915.35	-730.338	15016.04	2729.99	-2244.56
fb	6867.204	633.6267	-5861.14	-11477.7	1951.105

Stress control to combination 2
continue

Stress	Brake Force	Temperature	Wind Load	Earthquake Load	STRESS COMBINATION
	6	7	8	9	
fa	-44.3684	-1189.758898	-	-	5621.653
fb	38.56772	-657.2958368	-	-	-8505.66

APPENDIX L2

Stress Control of Box Girder I

Stress control to combination 3

Stress	Self Weight	Superimposed Dead Load	Creep Shrinkage	Pre stress	Line Load
	1	2	3	4	6
Fa	-7915.35	-730.338	15016.04	2729.99	-2244.56
Fb	6867.204	633.6267	-5861.14	-11477.7	1951.105

Stress control to combination 3 continue

Stress	Brake Force	Temperature	Wind Load	Earthquake Load	STRESS COMBINATION
	6	7	8	9	
fa	-44.3684	-	-55.9487	-	6755.464
fb	38.56772	-	48.63394	-	-7799.73

Stress control to combination 4

Stress	Self Weight	Superimposed Dead Load	Creep Shrinkage	Pre stress	Line Load
	1	2	3	4	6
Fa	-7915.35	-703.338	15016.04	2729.99	-2244.56
Fb	6867.204	633.6267	-5861.14	-11477.7	1951.105

Stress control to combination 4 continue

Stress	Brake Force	Temperature	Wind Load	Earthquake Load	STRESS COMBINATION
	6	7	8	9	
fa	-44.3684	-1189.758898	-55.9487	-	5565.705
fb	38.56772	-657.2958368	48.63394	-	-8457.03

APPENDIX L3

Stress Control of Box Girder II

Stress control to combination 1

Stress	Self Weight	Superimposed Dead Load	Creep Shrinkage	Pre stress	Line Load
	1	2	3	4	5
fa	-8809.5	-812.84	11168.94	2729.99	-2244.56
fb	8412.122	776.1741	-2517.01	-11477.77	1951.105

Stress control to combination 1
continue

Stress	Brake Force	Temperature	Wind Load	Earthquake Load	STRESS COMBINATION
	6	7	8	9	
fa	-44.3684	-	-55.9487	-	1931.718
fb	38.56772	-	-48.63394	-	-2768.14

Stress control to combination 2

Stress	Self Weight	Superimposed Dead Load	Creep Shrinkage	Pre stress	Line Load
	1	2	3	4	5
fa	-8809.5	-812.84	11168.94	2729.99	-2244.56
fb	8412.122	776.1741	-2517.01	-11477.77	1951.105

Stress control to combination 2
continue

Stress	Brake Force	Temperature	Wind Load	Earthquake Load	STRESS COMBINATION
	6	7	8	9	
fa	-44.3684	-1189.758898	-	-	797.9077
fb	38.56772	-657.2958368	-	-	-3474.07

APPENDIX L4

Stress Control of Box Girder II

Stress control to combination 3

Stress	Self Weight	Superimposed Dead Load	Creep Shrinkage	Pre stress	Line Load
	1	2	3	4	5
fa	-8809.5	-812.84	11168.94	2729.99	-2244.56
fb	8412.122	776.1741	-2517.01	-11477.77	1951.105

Stress control to combination 3
continue

Stress	Brake Force	Temperature	Wind Load	Earthquake Load	STRESS COMBINATION
	6	7	8	9	
fa	-44.3684	-	-55.9487	-	1931.718
fb	38.56772	-	-48.63394	-	-2768.14

Stress control to combination 4

Stress	Self Weight	Superimposed Dead Load	Creep Shrinkage	Pre stress	Line Load
	1	2	3	4	5
fa	-8809.5	-812.84	11168.94	2729.99	-2244.56
fb	8412.122	776.1741	-2517.01	-11477.77	1951.105

Stress control to combination 4
continue

Stress	Brake Force	Temperature	Wind Load	Earthquake Load	STRESS COMBINATION
	6	7	8	9	
fa	-44.3684	-1189.758898	-55.9487	-	741.959
fb	38.56772	-657.2958368	-48.63394	-	-3425.44

APPENDIX L5

Stress Control of Box Girder III

Stress control to combination 1

Stress	Self Weight	Superimposed Dead Load	Creep Shrinkage	Pre stress	Line Load
	1	2	3	4	5
fa	-10744.7	-994.164	7328.58	2729.99	-2244.56
fb	10191.76	940.3782	821.2651	-11477.77	1951.105

Stress control to combination 1
continue

Stress	Brake Force	Temperature	Wind Load	Earthquake Load	STRESS COMBINATION
	6	7	8	9	
fa	-44.3684	-	-	-	-3999.2
fb	38.56772	-	-	-	2465.337

Stress control to combination 2

Stress	Self Weight	Superimposed Dead Load	Creep Shrinkage	Pre stress	Line Load
	1	2	3	4	5
fa	-10744.7	-994.164	7328.58	2729.99	-2244.56
fb	10191.76	940.3782	821.2651	-11477.77	1951.105

Stress control to combination 2
continue

Stress	Brake Force	Temperature	Wind Load	Earthquake Load	STRESS COMBINATION
	6	7	8	9	
fa	-44.3684	-1189.758898	-	-	-5188.96
fb	38.56772	-657.2958368	-	-	1808.041

APPENDIX L6

Stress Control of Box Girder III

Stress control to combination 3

Stress	Self Weight	Superimposed Dead Load	Creep Shrinkage	Pre stress	Line Load
	1	2	3	4	5
Fa	-10744.7	-994.164	7328.58	2729.99	-2244.56
Fb	10191.76	940.3782	821.2651	-11477.77	1951.105

Stress control to combination 3
continue

Stress	Brake Force	Temperature	Wind Load	Earthquake Load	STRESS COMBINATION
	6	7	8	9	
fa	-44.3684	-	-55.9487	-	-4055.15
fb	38.56772	-	-48.63394	-	2513.971

Stress control to combination 4

Stress	Self Weight	Superimposed Dead Load	Creep Shrinkage	Pre stress	Line Load
	1	2	3	4	5
Fa	-10744.7	-994.164	7328.58	2729.99	-2244.56
Fb	10191.76	940.3782	821.2651	-11477.77	1951.105

Stress control to combination 4
continue

Stress	Brake Force	Temperature	Wind Load	Earthquake Load	STRESS COMBINATION
	6	7	8	9	
fa	-44.3684	-1189.758898	-55.9487	-	-5244.91
fb	38.56772	-657.2958368	-48.63394	-	1856.675

APPENDIX L7

Stress Control of Box Girder IV

Stress control to combination 1

Stress	Self Weight	Superimposed Dead Load	Creep Shrinkage	Pre stress	Line Load
	1	2	3	4	5
fa	-12997.3	-1199.24	3499.202	2729.99	-2244.56
fb	12112.63	1117.614	4149.991	-11477.77	1951.105

Stress control to combination 1
continue

Stress	Brake Force	Temperature	Wind Load	Earthquake Load	STRESS COMBINATION
	6	7	8	9	
fa	-44.3684	-	-	-	-10256.3
fb	38.56772	-	-	-	7892.174

Stress control to combination 2

Stress	Self Weight	Superimposed Dead Load	Creep Shrinkage	Pre stress	Line Load
	1	2	3	4	5
fa	-12997.3	-1199.24	3499.202	2729.99	-2244.56
fb	12112.63	1117.614	4149.991	-11477.77	1951.105

Stress control to combination 2
continue

Stress	Brake Force	Temperature	Wind Load	Earthquake Load	STRESS COMBINATION
	6	7	8	9	
fa	-44.3684	-1189.758898	-	-	-11446
fb	38.56772	-657.2958368	-	-	7234.878

APPENDIX L8

Stress Control of Box Girder IV

Stress control to combination 3

Stress	Self Weight MS	Superimposed Dead Load MA	Creep Shrinkage SR	Pre stress PR	Line Load TD
	1	2	3	4	5
Fa	-12997.3	-1199.24	3499.202	2729.99	-2244.56
Fb	12112.63	1117.614	4149.991	-11477.77	1951.105

Stress control to combination 3
continue

Stress	Brake Force TB	Temperature ET	Wind Load EW	Earthquake Load EQ	STRESS COMBINATION
	6	7	8	9	
fa	-44.3684	-	-55.9487	-	-10312.2
fb	38.56772	-	-48.63394	-	7940.808

Stress control to combination 4

Stress	Self Weight MS	Superimposed Dead Load MA	Creep Shrinkage SR	Pre stress PR	Line Load TD
	1	2	3	4	5
Fa	-12997.3	-1199.24	3499.202	2729.99	-2244.56
Fb	12112.63	1117.614	4149.991	-11477.77	1951.105

Stress control to combination 3
continue

Stress	Brake Force TB	Temperature ET	Wind Load EW	Earthquake Load EQ	STRESS COMBINATION
	6	7	8	9	
fa	-44.3684	-1189.758898	-55.9487	-	-11502
fb	38.56772	-657.2958368	-48.63394	-	7283.512

APPENDIX L9

Stress Control of Box Girder V

Stress control to combination 1

Stress	Self Weight MS	Superimposed Dead Load MA	Creep Shrinkage SR	Pre stress PR	Line Load TD
	1	2	3	4	5
fa	-15998.1	-1476.12	-310.36	2729.99	-2244.56
fb	14492.69	1337.219	7461.492	-11477.77	1951.105

Stress control to combination 1
continue

Stress	Brake Force TB	Temperature ET	Wind Load EW	Earthquake Load EQ	STRESS COMBINATION
	6	7	8	9	
fa	-44.3684	-	-	-	-17343.6
fb	38.56772	-	-	-	13803.34

Stress control to combination 2

Stress	Self Weight MS	Superimposed Dead Load MA	Creep Shrinkage SR	Pre stress PR	Line Load TD
	1	2	3	4	5
fa	-15998.1	-1476.12	-310.36	2729.99	-2244.56
fb	14492.69	1337.219	7461.492	-11477.77	1951.105

Stress control to combination 2
continue

Stress	Brake Force TB	Temperature ET	Wind Load EW	Earthquake Load EQ	STRESS COMBINATION
	6	7	8	9	
fa	-44.3684	-1189.758898	-	-	-18533.3

APPENDIX L10

Stress Control of Box Girder V

Stress control to combination 3

Stress	Self Weight MS	Superimposed Dead Load MA	Creep Shrinkage SR	Pre stress PR	Line Load TD
	1	2	3	4	5
Fa	-15998.1	-1476.12	-310.36	2729.99	-2244.56
Fb	14492.69	1337.219	7461.492	-11477.77	1951.105

Stress control to combination 3
continue

Stress	Brake Force TB	Temperature ET	Wind Load EW	Earthquake Load EQ	STRESS COMBINATION
	6	7	8	9	
fa	-44.3684	-	-55.9487	-	-17399.5
fb	38.56772	-	-48.63394	-	13851.97

Stress control to combination 4

Stress	Self Weight MS	Superimposed Dead Load MA	Creep Shrinkage SR	Pre stress PR	Line Load TD
	1	2	3	4	5
Fa	-15998.1	-1476.12	-310.36	2729.99	-2244.56
Fb	14492.69	1337.219	7461.492	-11477.77	1951.105

Stress control to combination 4
continue

Stress	Brake Force TB	Temperature ET	Wind Load EW	Earthquake Load EQ	STRESS COMBINATION
	6	7	8	9	
fa	-44.3684	-1189.758898	-55.9487	-	-18589.3
fb	38.56772	-657.2958368	-48.63394	-	13194.67

APPENDIX M1

BOX GIRDER I, II, III, IV, V

Deflection Control to Load Combination

Control Deflection Combination I

Stress	Self Weight MS	Superimposed Dead Load MA	Creep Shrinkage SR	Pre stress PR	Line Load TD
	1	2	3	4	6
δ	0.00073	8.39E-05	0.003073	-0.01112	-0.000204

Control Deflection Combination I
continue

Stress	Brake Force TB	Temperature ET	Wind Load EW	Earthquake Load EQ	DEFLECTION COMB
	6	7	8	9	
δ	8.18E-06	-	-	-	-0.00703

Control Deflection Combination II

Stress	Self Weight MS	Superimposed Dead Load MA	Creep Shrinkage SR	Pre stress PR	Line Load TD
	1	2	3	4	6
δ	0.00073	8.39E-05	0.003073	-0.01112	-0.000204

Control Deflection Combination II
continue

Stress	Brake Force TB	Temperature ET	Wind Load EW	Earthquake Load EQ	DEFLECTION COMB
	6	7	8	9	
δ	8.18E-06	0.00867119	-	-	-0.00616

APPENDIX M2

BOX GIRDER I, II, III, IV, V

Control Deflection Combination III

Stress	Self Weight MS	Superimposed Dead Load MA	Creep Shrinkage SR	Pre stress PR	Line Load TD
	1	2	3	4	6
δ	0.00073	8.39E-05	0.003073	-0.01112	-0.000204

Control Deflection Combination III
continue

Stress	Brake Force TB	Temperature ET	Wind Load EW	Earthquake Load EQ	DEFLECTION COMB
	6	7	8	9	
δ	8.18E-06	-	3.05E-06	-	-0.00703

Control Deflection Combination IV

Stress	Self Weight MS	Superimposed Dead Load MA	Creep Shrinkage SR	Pre stress PR	Line Load TD
	1	2	3	4	6
δ	0.00073	8.39E-05	0.003073	-0.01112	-0.000204

Control Deflection Combination IV
continue

Stress	Brake Force TB	Temperature ET	Wind Load EW	Earthquake Load EQ	DEFLECTION COMB
	6	7	8	9	
δ	8.18E-06	0.000867119	3.05E-06	-	-0.00616

Control Deflection Combination V

Stress	Self Weight MS	Superimposed Dead Load MA	Creep Shrinkage SR	Pre stress PR	Line Load TD
	1	2	3	4	6
δ	0.00073	8.39E-05	0.003073	-0.01112	-

Control Deflection Combination V
continue

Stress	Brake Force TB	Temperature ET	Wind Load EW	Earthquake Load EQ	DEFLECTION COMB
	6	7	8	9	
δ	-	-	-	-	-0.00724

APPENDIX N1

Ultimate Moment Box Girder

Segment I

Load Action	Load Factor		Moment		Ultimate Moment	
	Ultimate		M	(kNm)	Mu	(kNm)
A Fixed Action						
Self Weight	K_{MS}	1.3	M_{MS}	86615.84	$K_{MS\,X}\ M_{MS}$	112600.6
Superimposed Dead Load	K_{MA}	2	M_{MA}	7991.916	$K_{MA\,X}\ M_{MA}$	15983.83
Shrinkage and Creep	K_{SR}	1	M_{SR}	-142139	$K_{SR\,X}\ M_{SR}$	-142139
Prestress	K_{PR}	1	M_{PR}	-69325.1	$K_{PR\,X}\ M_{PR}$	-69325.1
B.Transein Action						
Line Load	K_{TD}	2	M_{TD}	20472.3	$K_{TD\,X}\ M_{TD}$	40944.6
Brake Force	K_{TB}	2	M_{TB}	404.678	$K_{TB\,X}\ M_{TB}$	809.3569
C.Environment Action						
Temperature Influence	K_{ET}	1.2	M_{ET}	13059.91	$K_{ET\,X}\ M_{ET}$	15671.89
Wind Loas	K_{EW}	1.2	M_{EW}	510.3	$K_{EW\,X}\ M_{EW}$	612.36
Earthquake Load	K_{EQ}	1	M_{EQ}	9460.776	$K_{EQ\,X}\ M_{EQ}$	9460.776

Segment II

Load Action	Load Factor		Moment		Ultimate Moment	
	Ultimate		M	(kNm)	Mu	(kNm)
A Fixed Action						
Self Weight	K_{MS}	1.3	M_{MS}	86615.84	$K_{MS\,X}\ M_{MS}$	112600.6
Superimposed Dead Load	K_{MA}	2	M_{MA}	7991.916	$K_{MA\,X}\ M_{MA}$	15983.83
Shrinkage and Creep	K_{SR}	1	M_{SR}	-107050	$K_{SR\,X}\ M_{SR}$	-107050
Prestress	K_{PR}	1	M_{PR}	-69325.1	$K_{PR\,X}\ M_{PR}$	-69325.1
B.Transein Action						
Line Load	K_{TD}	2	M_{TD}	20472.3	$K_{TD\,X}\ M_{TD}$	40944.6
Brake Force	K_{TB}	2	M_{TB}	404.678	$K_{TB\,X}\ M_{TB}$	809.3569
C.Environment Action						
Temperature Influence	K_{ET}	1.2	M_{ET}	13059.91	$K_{ET\,X}\ M_{ET}$	15671.89
Wind Loas	K_{EW}	1.2	M_{EW}	510.3	$K_{EW\,X}\ M_{EW}$	612.36
Earthquake Load	K_{EQ}	1	M_{EQ}	9460.776	$K_{EQ\,X}\ M_{EQ}$	9460.776

APPENDIX N2

Ultimate Moment Box Girder

Segment III

Load Action	Load Factor		Moment		Ultimate Moment	
	Ultimate		M	(kNm)	Mu	(kNm)
A Fixed Action						
Self Weight	K_{MS}	1.3	M_{MS}	86615.84	$K_{MS} \times M_{MS}$	112600.6
Superimposed Dead Load	K_{MA}	2	M_{MA}	7991.916	$K_{MA} \times M_{MA}$	15983.83
Shrinkage and Creep	K_{SR}	1	M_{SR}	-72022.7	$K_{SR} \times M_{SR}$	-72022.7
Prestress	K_{PR}	1	M_{PR}	-69325.1	$K_{PR} \times M_{PR}$	-69325.1
B.Transein Action						
Line Load	K_{TD}	2	M_{TD}	20472.3	$K_{TD} \times M_{TD}$	40944.6
Brake Force	K_{TB}	2	M_{TB}	404.678	$K_{TB} \times M_{TB}$	809.3569
C.Environment Action						
Temperature Influence	K_{ET}	1.2	M_{ET}	13059.91	$K_{ET} \times M_{ET}$	15671.89
Wind Loas	K_{EW}	1.2	M_{EW}	510.3	$K_{EW} \times M_{EW}$	612.36
Earthquake Load	K_{EQ}	1	M_{EQ}	9460.776	$K_{EQ} \times M_{EQ}$	9460.776

Segment IV

Load Action	Load Factor		Moment		Ultimate Moment	
	Ultimate		M	(kNm)	Mu	(kNm)
A Fixed Action						
Self Weight	K_{MS}	1.3	M_{MS}	86615.84	$K_{MS} \times M_{MS}$	112600.6
Superimposed Dead Load	K_{MA}	2	M_{MA}	7991.916	$K_{MA} \times M_{MA}$	15983.83
Shrinkage and Creep	K_{SR}	1	M_{SR}	-37095.5	$K_{SR} \times M_{SR}$	-37095.5
Prestress	K_{PR}	1	M_{PR}	-69325.1	$K_{PR} \times M_{PR}$	-69325.1
B.Transein Action						
Line Load	K_{TD}	2	M_{TD}	20472.3	$K_{TD} \times M_{TD}$	40944.6
Brake Force	K_{TB}	2	M_{TB}	404.678	$K_{TB} \times M_{TB}$	809.3569
C.Environment Action						
Temperature Influence	K_{ET}	1.2	M_{ET}	13059.91	$K_{ET} \times M_{ET}$	15671.89
Wind Loas	K_{EW}	1.2	M_{EW}	510.3	$K_{EW} \times M_{EW}$	612.36
Earthquake Load	K_{EQ}	1	M_{EQ}	9460.776	$K_{EQ} \times M_{EQ}$	9460.776

APPENDIX N3

Ultimate Moment Box Girder

Segment V

Load Action	Load Factor		Moment		Ultimate Moment	
	Ultimate		M	(kNm)	Mu	(kNm)
A Fixed Action						
Self Weight	K_{MS}	1.3	M_{MS}	86615.84	$K_{MS\,X}\ M_{MS}$	112600.6
Superimposed Dead Load	K_{MA}	2	M_{MA}	7991.916	$K_{MA\,X}\ M_{MA}$	15983.83
Shrinkage and Creep	K_{SR}	1	M_{SR}	-2348.98	$K_{SR\,X}\ M_{SR}$	-2348.98
Prestress	K_{PR}	1	M_{PR}	-69325.1	$K_{PR\,X}\ M_{PR}$	-69325.1
B.Transein Action						
Line Load	K_{TD}	2	M_{TD}	20472.3	$K_{TD\,X}\ M_{TD}$	40944.6
Brake Force	K_{TB}	2	M_{TB}	404.678	$K_{TB\,X}\ M_{TB}$	809.3569
C.Environment Action						
Temperature Influence	K_{ET}	1.2	M_{ET}	13059.91	$K_{ET\,X}\ M_{ET}$	15671.89
Wind Loas	K_{EW}	1.2	M_{EW}	510.3	$K_{EW\,X}\ M_{EW}$	612.36
Earthquake Load	K_{EQ}	1	M_{EQ}	9460.776	$K_{EQ\,X}\ M_{EQ}$	9460.776

APPENDIX O1

Box Girder I

Moment Ultimate Control to Load Combination

Moment Ultimate Control to Load Combination I

Ultimate Moment	Selft Weight	Superimposed Dead Load	Shrinkage and Creep	Prestress	Line Load
	$K_{MS} \times M_{MS}$	$K_{MA} \times M_{MA}$	$K_{SR} \times M_{SR}$	$K_{PR} \times M_{PR}$	$K_{TD} \times M_{TD}$
	1	2	3	4	5
M_U	112600.6	15983.83	-142139	-69325.1	40944.6

Moment Ultimate Control to Load Combination I (continue)

Ultimate Moment	Brake Force	Temperature	Wind Load	Earthquake Load	Ultimate Moment Comb
	$K_{TB} \times M_{TB}$	$K_{ET} \times M_{ET\,A}$	$K_{EW} \times M_{EW}$	$K_{EQ} \times M_{EQ}$	
	6	7	8	9	
M_U	809.3569	-	-	-	-41125.7

Moment Ultimate Control to Load Combination II

Ultimate Moment	Selft Weight	Superimposed Dead Load	Shrinkage and Creep	Prestress	Line Load
	$K_{MS} \times M_{MS}$	$K_{MA} \times M_{MA}$	$K_{SR} \times M_{SR}$	$K_{PR} \times M_{PR}$	$K_{TD} \times M_{TD}$
	1	2	3	4	5
M_U	112600.6	15983.83	-142139	-69325.1	40944.6

Moment Ultimate Control to Load Combination II (continue)

Ultimate Moment	Brake Force	Temperature	Wind Load	Earthquake Load	Ultimate Moment Comb
	$K_{TB} \times M_{TB}$	$K_{ET} \times M_{ET\,A}$	$K_{EW} \times M_{EW}$	$K_{EQ} \times M_{EQ}$	
	6	7	8	9	
M_U	809.3569	15671.89	-	-	-25453.8

Moment Ultimate Control to Load Combination III

Ultimate Moment	Selft Weight	Superimposed Dead Load	Shrinkage and Creep	Prestress	Line Load
	$K_{MS} \times M_{MS}$	$K_{MA} \times M_{MA}$	$K_{SR} \times M_{SR}$	$K_{PR} \times M_{PR}$	$K_{TD} \times M_{TD}$
	1	2	3	4	5
M_U	112600.6	15983.83	-142139	-69325.1	40944.6

Moment Ultimate Control to Load Combination III (continue)

Ultimate Moment	Brake Force	Temperature	Wind Load	Earthquake Load	Ultimate Moment Comb
	$K_{TB} \times M_{TB}$	$K_{ET} \times M_{ET\,A}$	$K_{EW} \times M_{EW}$	$K_{EQ} \times M_{EQ}$	
	6	7	8	9	
M_U	809.3569	-	612.36	-	-40513.3

APPENDIX O2

Box Girder I

Moment Ultimate Control to Load Combination

Moment Ultimate Control to Load Combination IV

Ultimate Moment	Selft Weight	Superimposed Dead Load	Shrinkage and Creep	Prestress	Line Load
	$K_{MS} \times M_{MS}$	$K_{MA} \times M_{MA}$	$K_{SR} \times M_{SR}$	$K_{PR} \times M_{PR}$	$K_{TD} \times M_{TD}$
	1	2	3	4	5
M_U	112600.6	15983.83	-142139	-69325.1	40944.6

Moment Ultimate Control to Load Combination IV (continue)

Ultimate Moment	Brake Force	Temperature	Wind Load	Earthquake Load	Ultimate Moment Comb
	$K_{TB} \times M_{TB}$	$K_{ET} \times M_{ET\,A}$	$K_{EW} \times M_{EW}$	$K_{EQ} \times M_{EQ}$	
	6	7	8	9	
M_U	809.3569	15871.89	612.36		-24841.4

Moment Ultimate Control to Load Combination V

Ultimate Moment	Selft Weight	Superimposed Dead Load	Shrinkage and Creep	Prestress	Line Load
	$K_{MS} \times M_{MS}$	$K_{MA} \times M_{MA}$	$K_{SR} \times M_{SR}$	$K_{PR} \times M_{PR}$	$K_{TD} \times M_{TD}$
	1	2	3	4	5
M_U	112600.6	15983.83	-142139	-69325.1	40944.6

Moment Ultimate Control to Load Combination V (continue)

Ultimate Moment	Brake Force	Temperature	Wind Load	Earthquake Load	Ultimate Moment Comb
	$K_{TB} \times M_{TB}$	$K_{ET} \times M_{ET\,A}$	$K_{EW} \times M_{EW}$	$K_{EQ} \times M_{EQ}$	
	6	7	8	9	
M_U	-	-	-	9460.776	-73418.9

APPENDIX O3

Box Girder II

Moment Ultimate Control to Load Combination

Moment Ultimate Control to Load Combination I

Ultimate Moment	Selft Weight	Superimposed Dead Load	Shrinkage and Creep	Prestress	Line Load
	$K_{MS} \times M_{MS}$	$K_{MA} \times M_{MA}$	$K_{SR} \times M_{SR}$	$K_{PR} \times M_{PR}$	$K_{TD} \times M_{TD}$
	1	2	3	4	5
M_U	112600.6	15983.83	-107050	-69325.1	40944.6

Moment Ultimate Control to Load Combination I (continue)

Ultimate Moment	Brake Force	Temperature	Wind Load	Earthquake Load	Ultimate Moment Comb
	$K_{TB} \times M_{TB}$	$K_{ET} \times M_{ETA}$	$K_{EW} \times M_{EW}$	$K_{EQ} \times M_{EQ}$	
	6	7	8	9	
M_U	809.3569	-	-	-	-6036.85

Moment Ultimate Control to Load Combination II

Ultimate Moment	Selft Weight	Superimposed Dead Load	Shrinkage and Creep	Prestress	Line Load
	$K_{MS} \times M_{MS}$	$K_{MA} \times M_{MA}$	$K_{SR} \times M_{SR}$	$K_{PR} \times M_{PR}$	$K_{TD} \times M_{TD}$
	1	2	3	4	5
M_U	112600.6	15983.83	-107050	-69325.1	40944.6

Moment Ultimate Control to Load Combination II (continue)

Ultimate Moment	Brake Force	Temperature	Wind Load	Earthquake Load	Ultimate Moment Comb
	$K_{TB} \times M_{TB}$	$K_{ET} \times M_{ETA}$	$K_{EW} \times M_{EW}$	$K_{EQ} \times M_{EQ}$	
	6	7	8	9	
M_U	809.3569	15671.89	-	-	-9635.038

Moment Ultimate Control to Load Combination III

Ultimate Moment	Selft Weight	Superimposed Dead Load	Shrinkage and Creep	Prestress	Line Load
	$K_{MS} \times M_{MS}$	$K_{MA} \times M_{MA}$	$K_{SR} \times M_{SR}$	$K_{PR} \times M_{PR}$	$K_{TD} \times M_{TD}$
	1	2	3	4	5
M_U	112600.6	15983.83	-107050	-69325.1	40944.6

Moment Ultimate Control to Load Combination III (continue)

Ultimate Moment	Brake Force	Temperature	Wind Load	Earthquake Load	Ultimate Moment Comb
	$K_{TB} \times M_{TB}$	$K_{ET} \times M_{ETA}$	$K_{EW} \times M_{EW}$	$K_{EQ} \times M_{EQ}$	
	6	7	8	9	
M_U	809.3569	-	612.36	-	-5424.49

APPENDIX O4

Box Girder II

Moment Ultimate Control to Load Combination

Moment Ultimate Control to Load Combination IV

Ultimate Moment	Selft Weight	Superimposed Dead Load	Shrinkage and Creep	Prestress	Line Load
	$K_{MS} \times M_{MS}$	$K_{MA} \times M_{MA}$	$K_{SR} \times M_{SR}$	$K_{PR} \times M_{PR}$	$K_{TD} \times M_{TD}$
	1	2	3	4	5
M_U	112600.6	15983.83	-107050	-69325.1	40944.6

Moment Ultimate Control to Load Combination IV (continue)

Ultimate Moment	Brake Force	Temperature	Wind Load	Earthquake Load	Ultimate Moment Comb
	$K_{TB} \times M_{TB}$	$K_{ET} \times M_{ET\,A}$	$K_{EW} \times M_{EW}$	$K_{EQ} \times M_{EQ}$	
	6	7	8	9	
M_U	809.3569	15871.89	612.36		-10247.4

Moment Ultimate Control to Load Combination V

Ultimate Moment	Selft Weight	Superimposed Dead Load	Shrinkage and Creep	Prestress	Line Load
	$K_{MS} \times M_{MS}$	$K_{MA} \times M_{MA}$	$K_{SR} \times M_{SR}$	$K_{PR} \times M_{PR}$	$K_{TD} \times M_{TD}$
	1	2	3	4	5
M_U	112600.6	15983.83	-107050	-69325.1	40944.6

Moment Ultimate Control to Load Combination V (continue)

Ultimate Moment	Brake Force	Temperature	Wind Load	Earthquake Load	Ultimate Moment Comb
	$K_{TB} \times M_{TB}$	$K_{ET} \times M_{ET\,A}$	$K_{EW} \times M_{EW}$	$K_{EQ} \times M_{EQ}$	
	6	7	8	9	
M_U	-	-	-	9460.776	-9460.776

APPENDIX O5

Box Girder III

Moment Ultimate Control to Load Combination

Moment Ultimate Control to Load Combination I

Ultimate Moment	Selft Weight	Superimposed Dead Load	Shrinkage and Creep	Prestress	Line Load
	$K_{MS} \times M_{MS}$	$K_{MA} \times M_{MA}$	$K_{SR} \times M_{SR}$	$K_{PR} \times M_{PR}$	$K_{TD} \times M_{TD}$
	1	2	3	4	5
M_U	112600.6	15983.83	-72022.7	-69325.1	40944.6

Moment Ultimate Control to Load Combination I (continue)

Ultimate Moment	Brake Force	Temperature	Wind Load	Earthquake Load	Ultimate Moment Comb
	$K_{TB} \times M_{TB}$	$K_{ET} \times M_{ET A}$	$K_{EW} \times M_{EW}$	$K_{EQ} \times M_{EQ}$	
	6	7	8	9	
M_U	809.3569	-	-	-	-28990.56

Moment Ultimate Control to Load Combination II

Ultimate Moment	Selft Weight	Superimposed Dead Load	Shrinkage and Creep	Prestress	Line Load
	$K_{MS} \times M_{MS}$	$K_{MA} \times M_{MA}$	$K_{SR} \times M_{SR}$	$K_{PR} \times M_{PR}$	$K_{TD} \times M_{TD}$
	1	2	3	4	5
M_U	112600.6	15983.83	-72022.7	-69325.1	40944.6

Moment Ultimate Control to Load Combination II (continue)

Ultimate Moment	Brake Force	Temperature	Wind Load	Earthquake Load	Ultimate Moment Comb
	$K_{TB} \times M_{TB}$	$K_{ET} \times M_{ET A}$	$K_{EW} \times M_{EW}$	$K_{EQ} \times M_{EQ}$	
	6	7	8	9	
M_U	809.3569	15671.89	-	-	-44662.44

Moment Ultimate Control to Load Combination III

Ultimate Moment	Selft Weight	Superimposed Dead Load	Shrinkage and Creep	Prestress	Line Load
	$K_{MS} \times M_{MS}$	$K_{MA} \times M_{MA}$	$K_{SR} \times M_{SR}$	$K_{PR} \times M_{PR}$	$K_{TD} \times M_{TD}$
	1	2	3	4	5
M_U	112600.6	15983.83	-72022.7	-69325.1	40944.6

Moment Ultimate Control to Load Combination III (continue)

Ultimate Moment	Brake Force	Temperature	Wind Load	Earthquake Load	Ultimate Moment Comb
	$K_{TB} \times M_{TB}$	$K_{ET} \times M_{ET A}$	$K_{EW} \times M_{EW}$	$K_{EQ} \times M_{EQ}$	
	6	7	8	9	
M_U	809.3569	-	612.36	-	-29602.92

APPENDIX O6

Box Girder III

Moment Ultimate Control to Load Combination

Moment Ultimate Control to Load Combination IV

Ultimate Moment	Selft Weight	Superimposed Dead Load	Shrinkage and Creep	Prestress	Line Load
	$K_{MS} \times M_{MS}$	$K_{MA} \times M_{MA}$	$K_{SR} \times M_{SR}$	$K_{PR} \times M_{PR}$	$K_{TD} \times M_{TD}$
	1	2	3	4	5
M_U	112600.6	15983.83	-72022.7	-69325.1	40944.6

Moment Ultimate Control to Load Combination IV (continue)

Ultimate Moment	Brake Force	Temperature	Wind Load	Earthquake Load	Ultimate Moment Comb
	$K_{TB} \times M_{TB}$	$K_{ET} \times M_{ET\,A}$	$K_{EW} \times M_{EW}$	$K_{EQ} \times M_{EQ}$	
	6	7	8	9	
M_U	809.3569	15871.89	612.36		-45274.8

Moment Ultimate Control to Load Combination V

Ultimate Moment	Selft Weight	Superimposed Dead Load	Shrinkage and Creep	Prestress	Line Load
	$K_{MS} \times M_{MS}$	$K_{MA} \times M_{MA}$	$K_{SR} \times M_{SR}$	$K_{PR} \times M_{PR}$	$K_{TD} \times M_{TD}$
	1	2	3	4	5
M_U	112600.6	15983.83	-72022.7	-69325.1	40944.6

Moment Ultimate Control to Load Combination V (continue)

Ultimate Moment	Brake Force	Temperature	Wind Load	Earthquake Load	Ultimate Moment Comb
	$K_{TB} \times M_{TB}$	$K_{ET} \times M_{ET\,A}$	$K_{EW} \times M_{EW}$	$K_{EQ} \times M_{EQ}$	
	6	7	8	9	
M_U	-	-	-	9460.776	-3302.62

APPENDIX O7

Box Girder IV

Moment Ultimate Control to Load Combination

Moment Ultimate Control to Load Combination I

Ultimate Moment	Selft Weight	Superimposed Dead Load	Shrinkage and Creep	Prestress	Line Load
	$K_{MS} \times M_{MS}$	$K_{MA} \times M_{MA}$	$K_{SR} \times M_{SR}$	$K_{PR} \times M_{PR}$	$K_{TD} \times M_{TD}$
	1	2	3	4	5
M_U	112600.6	15983.83	-37095.5	-69325.1	40944.6

Moment Ultimate Control to Load Combination I (continue)

Ultimate Moment	Selft Weight	Superimposed Dead Load	Shrinkage and Creep	Prestress	Line Load
	$K_{MS} \times M_{MS}$	$K_{MA} \times M_{MA}$	$K_{SR} \times M_{SR}$	$K_{PR} \times M_{PR}$	$K_{TD} \times M_{TD}$
	1	2	3	4	5
M_U	112600.6	15983.83	-37095.5	-69325.1	40944.6

Moment Ultimate Control to Load Combination II

Ultimate Moment	Selft Weight	Superimposed Dead Load	Shrinkage and Creep	Prestress	Line Load
	$K_{MS} \times M_{MS}$	$K_{MA} \times M_{MA}$	$K_{SR} \times M_{SR}$	$K_{PR} \times M_{PR}$	$K_{TD} \times M_{TD}$
	1	2	3	4	5
M_U	112600.6	15983.83	-37095.5	-69325.1	40944.6

Moment Ultimate Control to Load Combination II (continue)

Ultimate Moment	Brake Force	Temperature	Wind Load	Earthquake Load	Ultimate Moment Comb
	$K_{TB} \times M_{TB}$	$K_{ET} \times M_{ET\,A}$	$K_{EW} \times M_{EW}$	$K_{EQ} \times M_{EQ}$	
	6	7	8	9	
M_U	809.3569	15671.89	-	-	-79589.67

Moment Ultimate Control to Load Combination III

Ultimate Moment	Selft Weight	Superimposed Dead Load	Shrinkage and Creep	Prestress	Line Load
	$K_{MS} \times M_{MS}$	$K_{MA} \times M_{MA}$	$K_{SR} \times M_{SR}$	$K_{PR} \times M_{PR}$	$K_{TD} \times M_{TD}$
	1	2	3	4	5
M_U	112600.6	15983.83	-37095.5	-69325.1	40944.6

Moment Ultimate Control to Load Combination III (continue)

Ultimate Moment	Brake Force	Temperature	Wind Load	Earthquake Load	Ultimate Moment Comb
	$K_{TB} \times M_{TB}$	$K_{ET} \times M_{ET\,A}$	$K_{EW} \times M_{EW}$	$K_{EQ} \times M_{EQ}$	
	6	7	8	9	
M_U	809.3569	-	612.36	-	-64530.15

APPENDIX O8

Box Girder IV

Moment Ultimate Control to Load Combination

Moment Ultimate Control to Load Combination IV

Ultimate Moment	Selft Weight	Superimposed Dead Load	Shrinkage and Creep	Prestress	Line Load
	$K_{MS} \times M_{MS}$	$K_{MA} \times M_{MA}$	$K_{SR} \times M_{SR}$	$K_{PR} \times M_{PR}$	$K_{TD} \times M_{TD}$
	1	2	3	4	5
M_U	112600.6	15983.83	-37095.5	-69325.1	40944.6

Moment Ultimate Control to Load Combination IV (continue)

Ultimate Moment	Brake Force	Temperature	Wind Load	Earthquake Load	Ultimate Moment Comb
	$K_{TB} \times M_{TB}$	$K_{ET} \times M_{ET\,A}$	$K_{EW} \times M_{EW}$	$K_{EQ} \times M_{EQ}$	
	6	7	8	9	
M_U	809.3569	15871.89	612.36		-80202.03

Moment Ultimate Control to Load Combination V

Ultimate Moment	Selft Weight	Superimposed Dead Load	Shrinkage and Creep	Prestress	Line Load
	$K_{MS} \times M_{MS}$	$K_{MA} \times M_{MA}$	$K_{SR} \times M_{SR}$	$K_{PR} \times M_{PR}$	$K_{TD} \times M_{TD}$
	1	2	3	4	5
M_U	112600.6	15983.83	-37095.5	-69325.1	40944.6

Moment Ultimate Control to Load Combination V (continue)

Ultimate Moment	Brake Force	Temperature	Wind Load	Earthquake Load	Ultimate Moment Comb
	$K_{TB} \times M_{TB}$	$K_{ET} \times M_{ET\,A}$	$K_{EW} \times M_{EW}$	$K_{EQ} \times M_{EQ}$	
	6	7	8	9	
M_U	-	-	-	9460.776	-31624.61

APPENDIX O9

Box Girder V

Moment Ultimate Control to Load Combination

Moment Ultimate Control to Load Combination I

Ultimate Moment	Selft Weight	Superimposed Dead Load	Shrinkage and Creep	Prestress	Line Load
	$K_{MS} \times M_{MS}$	$K_{MA} \times M_{MA}$	$K_{SR} \times M_{SR}$	$K_{PR} \times M_{PR}$	$K_{TD} \times M_{TD}$
	1	2	3	4	5
M_U	112600.6	15983.83	-2348.98	-69325.1	40944.6

Moment Ultimate Control to Load Combination I (continue)

Ultimate Moment	Brake Force	Temperature	Wind Load	Earthquake Load	Ultimate Moment Comb
	$K_{TB} \times M_{TB}$	$K_{ET} \times M_{ET\,A}$	$K_{EW} \times M_{EW}$	$K_{EQ} \times M_{EQ}$	
	6	7	8	9	
M_U	809.3569	-	-	-	98664.27

Moment Ultimate Control to Load Combination II

Ultimate Moment	Selft Weight	Superimposed Dead Load	Shrinkage and Creep	Prestress	Line Load
	$K_{MS} \times M_{MS}$	$K_{MA} \times M_{MA}$	$K_{SR} \times M_{SR}$	$K_{PR} \times M_{PR}$	$K_{TD} \times M_{TD}$
	1	2	3	4	5
M_U	112600.6	15983.83	-2348.98	-69325.1	40944.6

Moment Ultimate Control to Load Combination II (continue)

Ultimate Moment	Brake Force	Tempetarute	Wind Load	Earthquake Load	Ultimate Moment Comb
	$K_{TB} \times M_{TB}$	$K_{ET} \times M_{ET\,A}$	$K_{EW} \times M_{EW}$	$K_{EQ} \times M_{EQ}$	
	6	7	8	9	
M_U	809.3569	15671.89	-	-	114336.2

Moment Ultimate Control to Load Combination III

Ultimate Moment	Selft Weight	Superimposed Dead Load	Shrinkage and Creep	Prestress	Line Load
	$K_{MS} \times M_{MS}$	$K_{MA} \times M_{MA}$	$K_{SR} \times M_{SR}$	$K_{PR} \times M_{PR}$	$K_{TD} \times M_{TD}$
	1	2	3	4	5
M_U	112600.6	15983.83	-2348.98	-69325.1	40944.6

Moment Ultimate Control to Load Combination III (continue)

Ultimate Moment	Brake Force	Temperature	Wind Load	Earthquake Load	Ultimate Moment Comb
	$K_{TB} \times M_{TB}$	$K_{ET} \times M_{ET\,A}$	$K_{EW} \times M_{EW}$	$K_{EQ} \times M_{EQ}$	
	6	7	8	9	
M_U	809.3569	-	612.36	-	99276.63

APPENDIX O10

Box Girder V

Moment Ultimate Control to Load Combination

Moment Ultimate Control to Load Combination IV

Ultimate Moment	Selft Weight	Superimposed Dead Load	Shrinkage and Creep	Prestress	Line Load
	$K_{MS} \times M_{MS}$	$K_{MA} \times M_{MA}$	$K_{SR} \times M_{SR}$	$K_{PR} \times M_{PR}$	$K_{TD} \times M_{TD}$
	1	2	3	4	5
M_U	112600.6	15983.83	-2348.98	-69325.1	40944.6

Moment Ultimate Control to Load Combination IV (continue)

Ultimate Moment	Brake Force	Temperature	Wind Load	Earthquake Load	Ultimate Moment Comb
	$K_{TB} \times M_{TB}$	$K_{ET} \times M_{ET A}$	$K_{EW} \times M_{EW}$	$K_{EQ} \times M_{EQ}$	
	6	7	8	9	
M_U	809.3569	15871.89	612.36		114948.5

Moment Ultimate Control to Load Combination V

Ultimate Moment	Selft Weight	Superimposed Dead Load	Shrinkage and Creep	Prestress	Line Load
	$K_{MS} \times M_{MS}$	$K_{MA} \times M_{MA}$	$K_{SR} \times M_{SR}$	$K_{PR} \times M_{PR}$	$K_{TD} \times M_{TD}$
	1	2	3	4	5
M_U	112600.6	15983.83	-2348.98	-69325.1	40944.6

Moment Ultimate Control to Load Combination V (continue)

Ultimate Moment	Brake Force	Temperature	Wind Load	Earthquake Load	Ultimate Moment Comb
	$K_{TB} \times M_{TB}$	$K_{ET} \times M_{ET A}$	$K_{EW} \times M_{EW}$	$K_{EQ} \times M_{EQ}$	
	6	7	8	9	
M_U	-	-	-	9460.776	66371.09

APPENDIX P

End Block Reinforcement of Box Girder I, II, III, IV, V

Numb Cable	Live Anchore VSL		Dead Anchore VSL		ns STRAN	Pbs (kN)	Po	Pj (kN)	Angel
	Sc (Ton)	Dim (mm)	P (Ton)	Dim (mm)					
1	19	265	19	250	720	353.2	0.706585	126964.3	1.97311
2	19	265	19	250	720	353.2	0.706585	126964.3	3.243661
3	19	265	19	250	720	353.2	0.706585	126964.3	4.511026
4	19	265	19	250	720	353.2	0.706585	126964.3	5.773984

Static Cross – Section Moment of the Upper – Beam (Box Girder I, II, III, IV, V)

Numb	Horizontal	Vertical	Shape	Amount	Area	Distance	Moment
1	10	0.4	1	1	4	1.137427	4.54971
2	1.3	0.3	1	2	0.78	1.187427	0.926193
3	1.3	0.1	0.5	2	0.13	1.004094	0.130532
4	0.465	0.937427	1	2	0.871808	0.087427	0.07622
5	0.4	0.937427	1	1	0.374971	0.468714	0.175754
7a	0.2	0.2	0.5	4	0.08	0.870761	0.069661
Jumlah Area					6.23678	**S x A**	5.92807

Static Cross-Section Moment of the Under-Beam (Box Girder I, II, III, IV, V)

Numb	Horizontal	Vertical	Shape	Amount	Area	Distance	Moment
4	0.7	0.762573	1	2	1.067602	0.381286	0.407062
5	0.7	0.762573	1	1	0.533801	0.381286	0.203531
6	6	0.3	1	2	3.6	0.962573	3.465261
7b	0.2	0.2	0.5	4	0.08	0.695906	0.054672
8	0.3	0.029703	0.5	1	0.004455	0.895906	0.003992
Jumlah Area					6.23678	**S x A**	5.92807

APPENDIX Q

End Block Reinforcement of Box Girder I, II, III, IV, V

Calculation Stirrups Vertical Direction (Box Girder I, II, III, IV, V)

No Cable	Life Anchor VSL		Dead Anchor VSL		Pj (kN)	a1	a	ra	Pbta	Ara	Total Stirrup
	Sc(Ton)	Dim(mm)	P(Ton)	Dim(mm)							
1	19	265	19	250	126964.3	250	340	0.735294	10082.46	0.006413	24.1703795
2	19	265	19	250	126964.3	250	340	0.735294	10082.46	0.006413	24.1703795
3	19	265	19	250	126964.3	250	340	0.735294	10082.46	0.006413	24.1703795
4	19	265	19	250	126964.3	250	340	0.735294	10082.46	0.006413	24.1703795

Calculation Stirrups Horizontal Direction (Box Girder I, II, III, IV, V)

No Cable	Life Anchor VSL		Dead Anchor VSL		Pj (kN)	b1	b	rb	Pbtb	Arb	Total Stirrup
	Sc(Ton)	Dim(mm)	P(Ton)	Dim(mm)							
1	19	265	19	250	126964.3	250	340	0.735294	10082.46	0.006413	24.1703795
2	19	265	19	250	126964.3	250	340	0.735294	10082.46	0.006413	24.1703795
3	19	265	19	250	126964.3	250	340	0.735294	10082.46	0.006413	24.1703795
4	19	265	19	250	126964.3	250	340	0.735294	10082.46	0.006413	24.1703795

Number of Stirrups Used for Bursting Force (Box Girder I, II, III, IV, V)

Numb Cable	Live Anchore VSL		Dead Anchore VSL		Amount of Stirrups
	Sc (Ton)	Dim (mm)	P (Ton)	Dim(mm)	
1	19	265	19	250	25
2	19	265	19	250	25
3	19	265	19	250	25
4	19	265	19	250	25

APPENDIX R

Overview of Shear above Neutral Line (Box Girder I, II, III, IV, V)

APPENDIX R

Overview of Shear above Neutral Line (Box Girder I,II,III,IV,V)

X	KOMBINASI III		Pers1 e	Pers 2 α	Pers 3 Px	Pers 4 Py	Pers 5 Vr	Pers 6 fv	Pers 7 fa	Pers 8 ϒ	Pers 9 as
	Momen M	Geser V									
0	0	10027.8	0	0.200617	89086.24	18115.93	-8088.12	-1423.13	-17031.5	0.082794	0.89945186
2.5	23844.022	8945.033	0.160046	0.134747	90085.48	12212.75	-3267.72	-574.966	-15525.5	0.036966	4.55365401
5	44981.116	7862.262	0.301263	0.067681	90701.41	6148.125	1714.137	301.6083	-14156.4	-0.02129	13.74596
7.5	63411.283	6779.491	0.423651	0	90909.54	0	6779.491	1192.874	-12945.2	-0.09113	0.74067786
10	79134.523	5696.72	0.527211	-0.06768	90701.41	-6148.12	11844.85	2084.141	-11909.5	-0.16834	0.20970973
12.5	92150.835	4613.949	0.611941	-0.13475	90085.48	-12212.7	16826.7	2960.715	-11062.2	-0.24574	0.0929102
15	102460.22	3531.178	0.677842	-0.20062	89086.24	-18115.9	21647.1	3808.881	-10410.8	-0.31585	0.05216547

Overview of Shear Below Neutral Line (Box Girder I,II,III,IV,V)

X	KOMBINASI III		Pers1 e	Pers 2 α	Pers 3 Px	Pers 4 Py	Pers 5 Vr	Pers 6 fv	Pers 7 fb	Pers 8 ϒ	Pers 9 as
	Momen M	Geser V									
0	0	10027.8	0	0.200617	89086.24	18115.93	-8088.12	-1423.13	-15675.4	0.089809	0.64654485
2.5	23844.022	8945.033	0.160046	0.134747	90085.48	12212.75	-3267.72	-574.966	-14376	0.03991	3.30979706
5	44981.116	7862.262	0.301263	0.067681	90701.41	6148.125	1714.137	301.6083	-13191.9	-0.02285	10.1174931
7.5	63411.283	6779.491	0.423651	0	90909.54	0	6779.491	1192.874	-12141.1	-0.09701	0.55281194
10	79134.523	5696.72	0.527211	-0.06768	90701.41	-6148.12	11844.85	2084.141	-11238.8	-0.17758	0.15882497
12.5	92150.835	4613.949	0.611941	-0.13475	90085.48	-12212.7	16826.7	2960.715	-10496.2	-0.25682	0.07135521
15	102460.22	3531.178	0.677842	-0.20062	89086.24	-18115.9	21647.1	3808.881	-9920.3	-0.32743	0.04053277

APPENDIX S

Distance of Stirrup D16 (Box Girder I, II, III, IV, V)

X	Jarak Sengkang D16		
	Tinjauan		Jarak yang diambil
(m)	Geser 1	Geser 2	
0	899.45186	646.5449	250
0.25	4553.654	3309.797	250
5	13745.96	10117.49	250
7.5	740.67786	552.8119	250
10	209.70973	158.825	250
12.5	92.910199	71.35521	250
15	52.16457	40.53277	250

Total Superimposed Dead Load (Box Girder I, II, III, IV, V)

Load Factor		Thick (h)	Weight (w)	Load (Qma)
No	Addition Dead Load Type	m	kN/m^3	kN/m
1	Plat Layers 30cm + overlay	0.3	24	7.2
2	Rainwater	0.5	9.8	0.49
3	Light	-	-	0.1
Q_{MA}				**7.79**

Ultimate Moment on The Slab Bridge Floor (Box Girder I, II, III, IV, V)

Numb	Load Type	Code	Weight Factor	Moment (kNm)	M_U (kNm)
1	Selft Weight	K_{MS}	1.3	104	135
2	Superimpose Dead Load	K_{MA}	2	16	32
3	Wind Load	K_{EW}	1.2	0.63	0.756
4	Temperature Influance	K_{ET}	1.2	0.00167203	0.002006
Total		Slab Moment Ultimate			**169**