

### 1.5.2 Rama 5

Span No. —3

Inspector result

		Damages of steel members				Damages of concrete members					Others					Span No.	-3	
		Corrosion	Cracking	Missing bolts	Fracture	Cracking, Water leakage, Free lime	No.	Rebar exposure	Pop-outs	Deck cracking	Damages at anchorage of PC tender	Level difference of road surface	Functional damage of bearings	Damages in substructures	Damages in pavements	Damages in expansion joints	Damages in cable	Remarks
Girder	01					a		a			a							
	02					a		a			a							
Deck	01							a	a	a								
	02							a	a	a								
	03							a	a	a								
	04							a	a	a								
	05							a	a	a								
	06							a	a	a								
Pier	01					a		a										
	02					a		a										
Bearings	101												a					
	102												a					
	103												a					
	104												a					
Road surface												a						
Pavement															a			
Barriers Railings	01																a	
	02																a	
	03																a	
Expansion joints	01																a	
Others																		

Span No. - 3

Countermeasure classification of members					Bridge name	002 Rama V	Span No.	-3		
Member	No.	Damage	Damage classification		Countermeasure classification	No.	Damage	Damage classification		Countermeasure classification
			Classification	Judge				Classification	Judge	
Girder	01	Cracking, Water leakage, Free lime	a	-	5	02	Cracking, Water leakage, Free lime	a	-	5
		Rebar exposure	a	-	5		Rebar exposure	a	-	5
		Damages at anchorage of PC tendon	a	-	5		Damages at anchorage of PC tendon	a	-	5
Deck	01	Rebar exposure	a		5	04	Rebar exposure	a		5
		Pop-outs	a		5		Pop-outs	a		5
		Deck cracking	a	N	5		Deck cracking	a	N	5
	03	Rebar exposure	a		5	06	Rebar exposure	a		5
		Pop-outs	a		5		Pop-outs	a		5
		Deck cracking	a	N	5		Deck cracking	a	N	5
Pier	01	Cracking, Water leakage, Free lime	a	-	5	02	Cracking, Water leakage, Free lime	a	-	5
		Rebar exposure	a	-	5		Rebar exposure	a	-	5
		Damages in substructures	a	-	5		Damages in substructures	a	-	5
Bearings	101	Functional damage of bearings	a		5	103	Functional damage of bearings	a		5
	102	Functional damage of bearings	a		5	104	Functional damage of bearings	a		5
Road surface	01	Level difference of road surface	a		5	01	Damages in pavements	a		5
Barriers Railing	01	Damages in barriers	a		5	03	Damages in barriers	a		5
	02	Damages in barriers	a		5					
Expansion	01	Damages in expansion joints	a		5	-	-	-	-	-

Estimation of repair quantity

Bridge name		002 Rama V		Span No.	-3
Subject		Quantity	Remarks		
1	Span length	30.00 m	Length of 1 span		
2	Road width for pavement	21.50 m	Width for pavement area (Vehicle lane)		
3	Total road width	25.05 m	Deck width		
4	Area of bridge surface	751.5 m <sup>2</sup>	Span length x Total width		
5	Area of pavement	645.0 m <sup>2</sup>	Span length x Width for pavement		
6	Barriers & railings	01	concrete	Type of barriers & railings	
		02	concrete	Same as above	
		03	concrete	Same as above	
7	Expansion joints	01	steel	Type of expansion joint	
		-	-	"	
8	Crack length		Quantity	Remarks	
	Total crack length	L	30.1 m	A of bridge surf. x 0.040	
	Girder		15.0 m	L x 1/2 (per girder)	
9	Area of rebar exposure		Quantity	Remarks	
	Total area	A	6.0 m <sup>2</sup>	A of bridge surf. x 0.008	
	Girder		3.0 m <sup>2</sup>	L x 1/2 (per girder)	
10	Repaired area of deck		Quantity	Remarks	
	01	A	165.0 m <sup>2</sup>	Deck width = 5.50 m	
	Area of rebar exposure		1.7 m <sup>2</sup>	A x 0.010	
	Area of deck cracking		8.3 m <sup>2</sup>	A x 0.050	
	03,04,06	A	100.5 m <sup>2</sup>	Deck width = 3.35 m	
	Area of rebar exposure		1.0 m <sup>2</sup>	A x 0.010	
Area of deck cracking		5.0 m <sup>2</sup>	A x 0.050		
11	Repair quantity of substructure		Quantity	Remarks	
	Cracking, Water leakage, Free lime		5.54 m	per substructure	
	Rebar exposure		2.24 m <sup>2</sup>	per substructure	
12	Concrete barrier		Quantity	Remarks	
	Rebar exposure		3.01 m <sup>2</sup>	A of bridge surf. x 0.004	

Approximate repair price for countermeasure

Bridge name		002 Rama V		Span No.		-3								
Member	No.	Damage	Damage classification	Repair method	Repair quantity	Unit	Approximate unit price (B)	Approximate repair price (B)	Approximate repair price for countermeasure classification 1 & 2 (B)	countermeasure classification 3	countermeasure classification 4	Planned repair & reconstruction		
										Repair price (B)	Repair price (B)	Repair price (B)	Life cycle	
										Remaining years up to countermeasure measure cl. 2	Remaining years up to countermeasure measure cl. 2			
Girder	01	Cracking/Water leakage/Free lime	a 5	Resin injection	15.0	m	5,000	75,000	-	7	-	-	30	
		Rebar exposure	a 5	Patching	3.0	m <sup>2</sup>	17,500	52,500	-	-	-	-	52,500	30
Girder	02	Damages at anchorage of PC tendon	a 5	Reinforcement with external PC tendon	-	Pos	1,000,000	-	-	-	-	-	-	
		Cracking/Water leakage/Free lime	a 5	Resin injection	15.0	m	5,000	75,000	-	-	-	-	-	30
Girder	03	Rebar exposure	a 5	Patching	3.0	m <sup>2</sup>	17,500	52,500	-	-	-	-	52,500	30
		Damages at anchorage of PC tendon	a 5	Reinforcement with external PC tendon	-	Pos	1,000,000	-	-	-	-	-	-	-
Deck	01	Rebar exposure	a 5	Patching	1.7	m <sup>2</sup>	17,500	29,800	-	-	-	-	-	30
		Pop-outs	a 5	Patching & CFR	-	Pos	10,000	-	-	-	-	-	-	-
Deck	02	Deck cracking	a 5	CFR	8.3	m <sup>2</sup>	22,500	186,800	-	-	-	-	186,800	50
		Rebar exposure	a 5	Patching	1.0	m <sup>2</sup>	17,500	17,500	-	-	-	-	-	30
Deck	03	Pop-outs	a 5	Patching & CFR	-	Pos	10,000	-	-	-	-	-	-	
		Deck cracking	a 5	CFR	5.0	m <sup>2</sup>	22,500	112,500	-	-	-	-	112,500	50
Deck	04	Rebar exposure	a 5	Patching	1.0	m <sup>2</sup>	17,500	17,500	-	-	-	-	-	30
		Pop-outs	a 5	Patching & CFR	-	Pos	10,000	-	-	-	-	-	-	-
Deck	06	Deck cracking	a 5	CFR	5.0	m <sup>2</sup>	22,500	112,500	-	-	-	-	112,500	50
		Rebar exposure	a 5	Patching	1.0	m <sup>2</sup>	17,500	17,500	-	-	-	-	-	30
Pier	01	Pop-outs	a 5	Patching & CFR	-	Pos	10,000	-	-	-	-	-	-	
		Deck cracking	a 5	CFR	5.0	m <sup>2</sup>	22,500	112,500	-	-	-	-	112,500	50
Pier	02	Cracking/Water leakage/Free lime	a 5	Resin injection	5.54	m	5,000	27,700	-	-	-	-	27,700	30
		Rebar exposure	a 5	Patching	2.24	m <sup>2</sup>	17,500	39,200	-	-	-	-	39,200	30
Pier	02	Damages in substructures	a 5	Foot protection	-	Pier	1,750,000	-	-	-	-	-	-	
		Cracking/Water leakage/Free lime	a 5	Resin injection	5.54	m	5,000	27,700	-	-	-	-	27,700	30
Bearings	101	Rebar exposure	a 5	Patching	2.24	m <sup>2</sup>	17,500	39,200	-	-	-	-	39,200	30
		Damages in substructures	a 5	Foot protection	-	Pier	1,750,000	-	-	-	-	-	-	-
Bearings	102	Functional damage of bearings	a 5	Metal spraying	1.0	Pier	120,000	120,000	-	-	-	-	120,000	30
		Functional damage of bearings	a 5	Metal spraying	1.0	''	120,000	120,000	-	-	-	-	120,000	30
Road surface	01	Functional damage of bearings	a 5	Metal spraying	1.0	''	120,000	120,000	-	-	-	-	120,000	30
		Functional damage of bearings	a 5	Metal spraying	1.0	''	120,000	120,000	-	-	-	-	120,000	30
Barriers	01	Level difference of road surface	a 5	Pavement replacement	-	m <sup>2</sup>	5,000	-	-	-	-	-	5,000	20
		Damages in pavements	a 5	same as above	645.0	''	5,000	3,225,000	-	-	-	-	3,225,000	20
Railings	02	Damages in barriers	a 5	Patching	3.01	m <sup>2</sup>	17,500	52,700	-	-	-	-	52,700	30
		Damages in barriers	a 5	Patching	3.01	m <sup>2</sup>	17,500	52,700	-	-	-	-	52,700	30
Expansion joints	01	Damages in barriers	a 5	Patching	3.01	m <sup>2</sup>	17,500	52,700	-	-	-	-	52,700	30
		Damages in expansion joints	a 5	change of steel exp.	25.1	m	133,400	3,341,700	-	-	-	-	3,341,700	30

Span No. -2  
 Inspector result

Span No. -2

		Damages of steel members				Damages of concrete members						Others					Remarks	
		Corrosion	Cracking	Missing bolts	Fracture	Cracking, Water leakage, Free line	No.	Rebar exposure	Pop-ouis	Deck cracking	Damages at anchorage of PC tender	Level difference of road surface	Functional damage of bearings	Damages in substructures	Damages in pavements	Damages in expansion joints		Damages in cable
Girder	01					a		a			a							
	02					a		a			a							
Deck	01							a	a	a								
	02							a	a	a								
	03							a	a	a								
	04							a	a	a								
	05							a	a	a								
	06							a	a	a								
Pier	01					a		a										
	02					a		a										
Bearings	101												a					
	102												a					
	103												a					
	104												a					
Road surface											a							
Pavement														a				
Barriers Railings	01															a		
	02															a		
	03															a		
Others																		

Span No.2

Countermeasure classification of members					Bridge name	002 Rama V	Span No.	-2		
Member	No.	Damage	Damage classification		Countermeasure classification	No.	Damage	Damage classification		Countermeasure classification
			Classification	Judge				Classification	Judge	
Girder	01	Cracking, Water leakage, Free lime	a	-	5	02	Cracking, Water leakage, Free lime	a	-	5
		Rebar exposure	a	-	5		Rebar exposure	a	-	5
		Damages at anchorage of PC tendon	a	-	5		Damages at anchorage of PC tendon	a	-	5
Deck	01	Rebar exposure	a		5	04	Rebar exposure	a		5
		Pop-outs	a		5		Pop-outs	a		5
		Deck cracking	a	N	5		Deck cracking	a	N	5
	03	Rebar exposure	a		5	06	Rebar exposure	a		5
		Pop-outs	a		5		Pop-outs	a		5
		Deck cracking	a	N	5		Deck cracking	a	N	5
Pier	01	Cracking, Water leakage, Free lime	a	-	5	02	Cracking, Water leakage, Free lime	a	-	5
		Rebar exposure	a	-	5		Rebar exposure	a	-	5
		Damages in substructures	a	-	5		Damages in substructures	a	-	5
Bearings	101	Functional damage of bearings	a		5	103	Functional damage of bearings	a		5
	102	Functional damage of bearings	a		5	104	Functional damage of bearings	a		5
Road surface	01	Level difference of road surface	a		5	01	Damages in pavements	a		5
Barriers Railing	01	Damages in barriers	a		5	03	Damages in barriers	a		5
	02	Damages in barriers	a		5	04				

Estimation of repair quantity

Bridge name		002 Rama V		Span No.	-2
Subject		Quantity	Remarks		
1	Span length	40.00 m	Length of 1 span		
2	Road width for pavement	21.50 m	Width for pavement area (Vehicle lane)		
3	Total road width	25.05 m	Deck width		
4	Area of bridge surface	1,002.0 m <sup>2</sup>	Span length x Total width		
5	Area of pavement	860.0 m <sup>2</sup>	Span length x Width for pavement		
6	Barriers & railings	01	concrete	Type of barriers & railings	
		02	concrete	Same as above	
		03	concrete	Same as above	
7	Expansion joints	01	steel	Type of expansion joint	
		-	-	Same as above	
Crack length		Quantity	Remarks		
8	Total crack length L	40.1 m	A of bridge surf. x 0.040		
	Girder	20.0 m	L x 1/2 (per girder)		
Area of rebar exposure		Quantity	Remarks		
9	Total area A	8.0 m <sup>2</sup>	A of bridge surf. x 0.008		
	Girder	4.0 m <sup>2</sup>	L x 1/2 (per girder)		
Repaired area of deck		Quantity	Remarks		
10	01 A	220.0 m <sup>2</sup>	Deck width = 5.50 m		
	Area of rebar exposure	2.2 m <sup>2</sup>	A x 0.010		
	Area of deck cracking	11.0 m <sup>2</sup>	A x 0.050		
	03,04,06 A	134.0 m <sup>2</sup>	Deck width = 3.35 m		
	Area of rebar exposure	1.3 m <sup>2</sup>	A x 0.010		
	Area of deck cracking	6.7 m <sup>2</sup>	A x 0.050		
Repair quantity of substructure		Quantity	Remarks		
11	Cracking, Water leakage, Free lime	5.54 m	per substructure		
	Rebar exposure	2.24 m <sup>2</sup>	per substructure		
Concrete barrier		Quantity	Remarks		
12	Rebar exposure	4.01 m <sup>2</sup>	A of bridge surf. x 0.004		

Bridge name		002 Rama V										-2					
Member	No.	Damage	Damage classification	Countermeasure classification	Repair method	Repair quantity	Unit	Approximate unit price (B)	Approximate repair price (B)	Approximate repair price for countermeasure classification 1 & 2 (B)	countermeasure classification 3		countermeasure classification 4		Planned repair & reconstruction		
											Repair price (B)	Remaining years up to countermeasure measure cl. 2	Repair price (B)	Remaining years up to countermeasure measure cl. 2	Repair price (B)	Life cycle	
Girder	01	Cracking/Water leakage/Free lime	a 5	a 5	Resin injection	20.0	m	5,000	100,000	-	-	7	-	15	-	30	
		Rebar exposure	a 5	a 5	Patching	4.0	m <sup>2</sup>	17,500	70,000	-	-	7	-	15	-	70,000	30
		Damages at anchorage of PC tendon	a 5	a 5	Reinforcement with external PC tendon	-	Pos.	1,000,000	-	-	-	-	-	-	-	-	-
		Cracking/Water leakage/Free lime	a 5	a 5	Resin injection	20.0	m	5,000	100,000	-	-	7	-	15	-	-	30
		Rebar exposure	a 5	a 5	Patching	4.0	m <sup>2</sup>	17,500	70,000	-	-	7	-	15	-	70,000	30
		Damages at anchorage of PC tendon	a 5	a 5	Reinforcement with external PC tendon	-	Pos.	1,000,000	-	-	-	-	-	-	-	-	-
		Rebar exposure	a 5	a 5	Patching	2.2	m <sup>2</sup>	17,500	38,500	-	-	7	-	15	-	-	30
		Pop-outs	a 5	a 5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-	-
Deck		Deck cracking	a 5	a 5	CFR	11.0	m <sup>2</sup>	22,500	247,500	-	-	12	-	25	-	247,500	50
		Rebar exposure	a 5	a 5	Patching	1.3	m <sup>2</sup>	17,500	22,800	-	-	7	-	15	-	-	30
		Pop-outs	a 5	a 5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-	-
		Deck cracking	a 5	a 5	CFR	6.7	m <sup>2</sup>	22,500	150,800	-	-	12	-	25	-	150,800	50
		Rebar exposure	a 5	a 5	Patching	1.3	m <sup>2</sup>	17,500	22,800	-	-	7	-	15	-	-	30
		Pop-outs	a 5	a 5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-	-
		Deck cracking	a 5	a 5	CFR	6.7	m <sup>2</sup>	22,500	150,800	-	-	12	-	25	-	150,800	50
		Rebar exposure	a 5	a 5	Patching	1.3	m <sup>2</sup>	17,500	22,800	-	-	7	-	15	-	-	30
Pier		Pop-outs	a 5	a 5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-	-
		Deck cracking	a 5	a 5	CFR	6.7	m <sup>2</sup>	22,500	150,800	-	-	12	-	25	-	150,800	50
		Cracking/Water leakage/Free lime	a 5	a 5	Resin injection	5.54	m	5,000	27,700	-	-	7	-	15	-	27,700	30
		Rebar exposure	a 5	a 5	Patching	2.24	m <sup>2</sup>	17,500	39,200	-	-	7	-	15	-	39,200	30
		Damages in substructures	a 5	a 5	Foot protection	-	Pier	1,750,000	-	-	-	-	-	-	-	-	-
		Cracking/Water leakage/Free lime	a 5	a 5	Resin injection	5.54	m	5,000	27,700	-	-	7	-	15	-	27,700	30
		Rebar exposure	a 5	a 5	Patching	2.24	m <sup>2</sup>	17,500	39,200	-	-	7	-	15	-	39,200	30
		Damages in substructures	a 5	a 5	Foot protection	-	Pier	1,750,000	-	-	-	-	-	-	-	-	-
Bearings	101	Functional damage of bearings	a 5	a 5	Metal spraying	1.0	Pier	120,000	120,000	-	-	7	-	15	-	120,000	30
	102	Functional damage of bearings	a 5	a 5	Metal spraying	1.0	#	120,000	120,000	-	-	7	-	15	-	120,000	30
	103	Functional damage of bearings	a 5	a 5	Metal spraying	1.0	#	120,000	120,000	-	-	7	-	15	-	120,000	30
	104	Functional damage of bearings	a 5	a 5	Metal spraying	1.0	#	120,000	120,000	-	-	7	-	15	-	120,000	30
Road surface	01	Level difference of road surface	a 5	a 5	Pavement replacement	-	m <sup>2</sup>	5,000	-	-	-	5	-	10	-	5,000	20
Barriers	01	Damages in pavements	a 5	a 5	same as above	860.0	#	5,000	4,300,000	-	-	-	-	10	-	4,300,000	20
	02	Damages in barriers	a 5	a 5	Patching	4.01	m <sup>2</sup>	17,500	70,200	-	-	7	-	15	-	70,200	30
	03	Damages in barriers	a 5	a 5	Patching	4.01	m <sup>2</sup>	17,500	70,200	-	-	7	-	15	-	70,200	30
Railings	03	Damages in barriers	a 5	a 5	Patching	4.01	m <sup>2</sup>	17,500	70,200	-	-	7	-	15	-	70,200	30

Span No. -1  
 Inspection result

Span No. -1

		Damages of steel members				Damages of concrete members						Others						Remarks
		Corrosion	Cracking	Missing bolts	Fracture	Cracking, Water leakage, Free line	No.	Rebar exposure	Pop-outs	Deck cracking	Damages at anchorage of PC tender	Level difference of road surface	Functional damage of bearings	Damages in substructures	Damages in pavements	Damages in expansion joints	Damages in cable	
Girder	01					a		a			a							
	02					a		a			a							
Deck	01							a	a	a								
	02							a	a	a								
	03							a	a	a								
	04							a	a	a								
	05							a	a	a								
	06							a	a	a								
Pier	01					a		a										
	02					a		a										
Bearings	101											a						
	102											a						
	103											a						
	104											a						
Road surface											a							
Pavement													a					
Barriers	01															a		
	02															a		
Railings	03															a		
Others																		

Span No.2

Countermeasure classification of members

Bridge name	002 Rama V	Span No.	-1
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Member	No.	Damage	Damage classification		Countermeasure classification	No.	Damage	Damage classification		Countermeasure classification
			Classification	Judge				Classification	Judge	
Girder	01	Cracking, Water leakage, Free lime	a	-	5	02	Cracking, Water leakage, Free lime	a	-	5
		Rebar exposure	a	-	5		Rebar exposure	a	-	5
		Damages at anchorage of PC tendon	a	-	5		Damages at anchorage of PC tendon	a	-	5
Deck	01	Rebar exposure	a		5	04	Rebar exposure	a		5
		Pop-outs	a		5		Pop-outs	a		5
		Deck cracking	a	N	5		Deck cracking	a	N	5
	03	Rebar exposure	a		5	06	Rebar exposure	a		5
		Pop-outs	a		5		Pop-outs	a		5
		Deck cracking	a	N	5		Deck cracking	a	N	5
Pier	01	Cracking, Water leakage, Free lime	a	-	5	02	Cracking, Water leakage, Free lime	a	-	5
		Rebar exposure	a	-	5		Rebar exposure	a	-	5
		Damages in substructures	a	-	5		Damages in substructures	a	-	5
Bearings	101	Functional damage of bearings	a		5	103	Functional damage of bearings	a		5
	102	Functional damage of bearings	a		5	104	Functional damage of bearings	a		5
Road surface	01	Level difference of road surface	a		5	01	Damages in pavements	a		5
Barriers	01	Damages in barriers	a		5	03	Damages in barriers	a		5
Railing	02	Damages in barriers	a		5	04				

Estimation of repair quantity

Bridge name		002 Rama V		Span No.	-1
Subject		Quantity	Remarks		
1	Span length	40.00 m	Length of 1 span		
2	Road width for pavement	21.50 m	Width for pavement area (Vehicle lane)		
3	Total road width	25.05 m	Deck width		
4	Area of bridge surface	1,002.0 m <sup>2</sup>	Span length x Total width		
5	Area of pavement	860.0 m <sup>2</sup>	Span length x Width for pavement		
6	Barriers & railings	01	concrete	Type of barriers & railings	
		02	concrete	Same as above	
		03	concrete	Same as above	
7	Expansion joints	01	steel	Type of expansion joint	
		-	-	Same as above	
8	Crack length		Quantity	Remarks	
	Total crack length	L	40.1 m	A of bridge surf. x 0.040	
	Girder		20.0 m	L x 1/2 (per girder)	
9	Area of rebar exposure		Quantity	Remarks	
	Total area	A	8.0 m <sup>2</sup>	A of bridge surf. x 0.008	
	Girder		4.0 m <sup>2</sup>	L x 1/2 (per girder)	
10	Repaired area of deck		Quantity	Remarks	
	01	A	220.0 m <sup>2</sup>	Deck width = 5.50 m	
	Area of rebar exposure		2.2 m <sup>2</sup>	A x 0.010	
	Area of deck cracking		11.0 m <sup>2</sup>	A x 0.050	
	03,04,06	A	134.0 m <sup>2</sup>	Deck width = 3.35 m	
	Area of rebar exposure		1.3 m <sup>2</sup>	A x 0.010	
Area of deck cracking		6.7 m <sup>2</sup>	A x 0.050		
11	Repair quantity of substructure		Quantity	Remarks	
	Cracking, Water leakage, Free lime		5.54 m	per substructure	
	Rebar exposure		2.24 m <sup>2</sup>	per substructure	
12	Concrete barrier		Quantity	Remarks	
	Rebar exposure		4.01 m <sup>2</sup>	A of bridge surf. x 0.004	

Approximate repair price for countermeasure

Bridge name		002 Rama V				Span No.		-1							
Member	No.	Damage	Damage classification	Repair method	Repair quantity	Unit	Approximate unit price (B)	Approximate repair price (B)	Approximate repair price for countermeasure classification 1 & 2 (B)	countermeasure classification 3	countermeasure classification 4	Planned repair & reconstruction			
										Repair price (B)	Remaining years up to countermeasure measure el. 2	Repair price (B)	Remaining years up to countermeasure measure el. 2	Repair price (B)	Life cycle
Girder	01	Cracking/Water leakage/Free lime Rebar exposure	a 5	Resin injection Patching	20.0	m	5,000	100,000	-	7	-	-	15	-	30
		Damages at anchorage of PC tendon	a 5	Reinforcement with external PC tendon	4.0	m <sup>2</sup>	17,500	70,000	-	7	-	-	15	70,000	30
		Cracking/Water leakage/Free lime	a 5	Resin injection	20.0	m	1,000,000	-	-	-	-	-	-	-	-
		Rebar exposure	a 5	Patching	4.0	m <sup>2</sup>	17,500	70,000	-	7	-	-	15	70,000	30
Deck	01	Damages at anchorage of PC tendon Rebar exposure	a 5	Reinforcement with external PC tendon Patching	2.2	m <sup>2</sup>	17,500	38,500	-	7	-	-	15	-	30
		Pop-outs	a 5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-
		Deck cracking	a 5	CFR	11.0	m <sup>2</sup>	22,500	247,500	-	12	-	-	25	247,500	50
		Rebar exposure	a 5	Patching	1.3	m <sup>2</sup>	17,500	22,800	-	7	-	-	15	-	30
Deck	03	Pop-outs	a 5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-
		Deck cracking	a 5	CFR	6.7	m <sup>2</sup>	22,500	150,800	-	12	-	-	25	150,800	50
		Rebar exposure	a 5	Patching	1.3	m <sup>2</sup>	17,500	22,800	-	7	-	-	15	-	30
		Pop-outs	a 5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-
Deck	04	Deck cracking	a 5	CFR	6.7	m <sup>2</sup>	22,500	150,800	-	12	-	-	25	150,800	50
		Rebar exposure	a 5	Patching	1.3	m <sup>2</sup>	17,500	22,800	-	7	-	-	15	-	30
		Pop-outs	a 5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-
		Deck cracking	a 5	CFR	6.7	m <sup>2</sup>	22,500	150,800	-	12	-	-	25	150,800	50
Pier	06	Pop-outs	a 5	Patching & CFR	1.3	m <sup>2</sup>	17,500	22,800	-	7	-	-	15	-	30
		Deck cracking	a 5	CFR	6.7	m <sup>2</sup>	22,500	150,800	-	12	-	-	25	150,800	50
		Cracking/Water leakage/Free lime	a 5	Resin injection	5.54	m	5,000	27,700	-	7	-	-	15	-	30
		Rebar exposure	a 5	Patching	2.24	m <sup>2</sup>	17,500	39,200	-	7	-	-	15	39,200	30
Pier	01	Damages in substructures	a 5	Foot protection	-	Pier	1,750,000	-	-	-	-	-	-	-	-
		Cracking/Water leakage/Free lime	a 5	Resin injection	5.54	m	5,000	27,700	-	7	-	-	15	-	30
		Rebar exposure	a 5	Patching	2.24	m <sup>2</sup>	17,500	39,200	-	7	-	-	15	39,200	30
		Damages in substructures	a 5	Foot protection	-	Pier	1,750,000	-	-	-	-	-	-	-	-
Bearings	101	Cracking/Water leakage/Free lime	a 5	Resin injection	5.54	m	5,000	27,700	-	7	-	-	15	-	30
		Damages in substructures	a 5	Foot protection	-	Pier	1,750,000	-	-	-	-	-	-	-	-
		Cracking/Water leakage/Free lime	a 5	Resin injection	5.54	m	5,000	27,700	-	7	-	-	15	-	30
		Rebar exposure	a 5	Patching	2.24	m <sup>2</sup>	17,500	39,200	-	7	-	-	15	39,200	30
Bearings	102	Damages in substructures	a 5	Foot protection	-	Pier	1,750,000	-	-	-	-	-	-	-	-
		Cracking/Water leakage/Free lime	a 5	Resin injection	5.54	m	5,000	27,700	-	7	-	-	15	-	30
		Rebar exposure	a 5	Patching	2.24	m <sup>2</sup>	17,500	39,200	-	7	-	-	15	39,200	30
		Damages in substructures	a 5	Foot protection	-	Pier	1,750,000	-	-	-	-	-	-	-	-
Road surface	01	Functional damage of bearings	a 5	Metal spraying	1.0	Pier	120,000	120,000	-	7	-	-	15	120,000	30
		Functional damage of bearings	a 5	Metal spraying	1.0	''	120,000	120,000	-	7	-	-	15	120,000	30
		Functional damage of bearings	a 5	Metal spraying	1.0	''	120,000	120,000	-	7	-	-	15	120,000	30
		Functional damage of bearings	a 5	Metal spraying	1.0	''	120,000	120,000	-	7	-	-	15	120,000	30
Barriers	01	Level difference of road surface	a 5	Pavement replacement	-	m <sup>2</sup>	5,000	-	-	5	-	-	10	-	20
		Damages in pavements	a 5	same as above	860.0	''	5,000	4,300,000	-	5	-	-	10	4,300,000	20
		Damages in barriers	a 5	Patching	4.01	m <sup>2</sup>	17,500	70,200	-	7	-	-	15	70,200	30
Railings	02	Damages in barriers	a 5	Patching	4.01	m <sup>2</sup>	17,500	70,200	-	7	-	-	15	70,200	30
	03	Damages in barriers	a 5	Patching	4.01	m <sup>2</sup>	17,500	70,200	-	7	-	-	15	70,200	30

Span No.1

Inspecton result

Span No.

1

		Damages of steel members				Damages of concrete members						Others						Remarks
		Corrosion	Cracking	Missing bolts	Fracture	Cracking, Water leakage, Free lime	No.	Rebar exposure	Pop-outs	Deck cracking	Damages at anchorage of PC tender	Level difference of road surface	Functional damage of bearings	Damages in substructures	Damages in pavements	Damages in expansion joints	Damages in cable	
Girder	01					a		a			a							
	02					c	4	a			a							
Deck	01							a	a	a								
	02							a	a	a								
	03							a	a	a								
	04							a	a	a								
	05							a	a	a								
	06							a	a	a								
Pier	01					a		a										
	02					a		a										
Bearings	101											a						
	102											a						
	103											a						
	104											a						
Road surface											a							
Pavement													e					
Barriers	01															c		
	02															c		
Railings	03														a			
Others																		

Span No.1

Countermeasure classification of members

Bridge name	002 Rama V	Span No.	1
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Member	No.	Damage	Damage classification		Countermeasure classification	No.	Damage	Damage classification		Countermeasure classification
			Classification	Judge				Classification	Judge	
Girder	01	Cracking, Water leakage, Free lime	a	-	5	02	Cracking, Water leakage, Free lime	c	3	3
		Rebar exposure	a	-	5		Rebar exposure	a	-	5
		Damages at anchorage of PC tendon	a	-	5		Damages at anchorage of PC tendon	a	-	5
Deck	01	Rebar exposure	a		5	04	Rebar exposure	a		5
		Pop-outs	a		5		Pop-outs	a		5
		Deck cracking	a	N	5		Deck cracking	a	N	5
	03	Rebar exposure	a		5	06	Rebar exposure	a		5
		Pop-outs	a		5		Pop-outs	a		5
		Deck cracking	a	N	5		Deck cracking	a	N	5
Pier	01	Cracking, Water leakage, Free lime	a	-	5	02	Cracking, Water leakage, Free lime	a	-	5
		Rebar exposure	a	-	5		Rebar exposure	a	-	5
		Damages in substructures	a	-	5		Damages in substructures	a	-	5
Bearings	101	Functional damage of bearings	a		5	103	Functional damage of bearings	a		5
	102	Functional damage of bearings	a		5	104	Functional damage of bearings	a		5
Road surface	01	Level difference of road surface	a		5	01	Damages in pavemnants	a		5
Barriers Railing s	01	Damages in barriers	c		2	03	Damages in barriers	a		5
	02	Damages in barriers	c		2					

Estimation of repair quantity

Bridge name		002 Rama V		Span No.	1
Subject		Quantity	Remarks		
1	Span length	95.00 m	Length of 1 span		
2	Road width for pavement	21.50 m	Width for pavement area (Vehicle lane)		
3	Total road width	25.05 m	Deck width		
4	Area of bridge surface	2,379.8 m <sup>2</sup>	Span length x Total width		
5	Area of pavement	2,042.5 m <sup>2</sup>	Span length x Width for pavement		
6	Barriers & railings	01	concrete	Type of barriers & railings	
		02	concrete	Same as above	
		03	concrete	Same as above	
7	Expansion joints	01	steel	Type of expansion joint	
		-	-	Same as above	
8	Crack length		Quantity	Remarks	
	Total crack length	L	95.2 m	A of bridge surf. x 0.040	
	Girder		47.6 m	L x 1/2 (per girder)	
9	Area of rebarb exposure		Quantity	Remarks	
	Total area	A	19.0 m <sup>2</sup>	A of bridge surf. x 0.008	
	Girder		9.5 m <sup>2</sup>	L x 1/2 (per girder)	
10	Repaired area of deck		Quantity	Remarks	
	01	A	522.5 m <sup>2</sup>	Deck width = 5.50 m	
	Area of rebarb exposure		5.2 m <sup>2</sup>	A x 0.010	
	Area of deck cracking		26.1 m <sup>2</sup>	A x 0.050	
	03,04,06	A	318.3 m <sup>2</sup>	Deck width = 3.35 m	
	Area of rebarb exposure		3.2 m <sup>2</sup>	A x 0.010	
Area of deck cracking		15.9 m <sup>2</sup>	A x 0.050		
11	Repair quantity of substructure		Quantity	Remarks	
	Cracking, Water leakage, Free lime		5.54 m	per substructure	
	Rebar exposure		2.24 m <sup>2</sup>	per substructure	
12	Concrete barrier		Quantity	Remarks	
	Rebar exposure		9.52 m <sup>2</sup>	A of bridge surf. x 0.004	

Approximate repair price for countermeasure

Bridge name		002 Rama V													
Member	No.	Damage	Damage classification	Repair method	Repair quantity	Unit	Approximate unit price (B)	Approximate repair price (B)	Approximate repair price for countermeasure classification 1 & 2 (B)	countermeasure classification 3		countermeasure classification 4		Planned repair & reconstruction	
										Remainning years up to countermeasure el. 2	Repair price (B)	Remainning years up to countermeasure el. 2	Repair price (B)		Repair price (B)
Girder	01	Cracking/Water leakage/Free lime	a 5	Resin injection	47.6	m	5,000	238,000	-	-	7	-	15	-	30
		Rebar exposure	a 5	Patching	9.3	m <sup>2</sup>	17,500	166,300	-	-	7	-	15	166,300	30
		Damages at anchorage of PC tendon	a 5	Reinforcement with external PC tendon	-	Pos.	1,000,000	-	-	-	-	-	-	-	-
	02	Cracking/Water leakage/Free lime	c 3	Resin injection	47.6	m	5,000	238,000	-	238,000	7	-	15	-	30
		Rebar exposure	a 5	Patching	9.5	m <sup>2</sup>	17,500	166,300	-	-	7	-	15	166,300	30
		Damages at anchorage of PC tendon	a 5	Reinforcement with external PC tendon	-	Pos.	1,000,000	-	-	-	-	-	-	-	-
Deck	01	Rebar exposure	a 5	Patching & CFR	5.2	m <sup>2</sup>	17,500	91,000	-	-	7	-	15	-	30
		Pop-outs	a 5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-
		Deck cracking	a 5	CFR	26.1	m <sup>2</sup>	22,500	587,300	-	-	12	-	25	587,300	50
	03	Rebar exposure	a 5	Patching	3.2	m <sup>2</sup>	17,500	56,000	-	-	7	-	15	-	30
		Pop-outs	a 5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-
		Deck cracking	a 5	CFR	15.9	m <sup>2</sup>	22,500	357,800	-	-	12	-	25	357,800	50
Deck	04	Rebar exposure	a 5	Patching	3.2	m <sup>2</sup>	17,500	56,000	-	-	7	-	15	-	30
		Pop-outs	a 5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-
		Deck cracking	a 5	CFR	15.9	m <sup>2</sup>	22,500	357,800	-	-	12	-	25	357,800	50
	06	Rebar exposure	a 5	Patching	3.2	m <sup>2</sup>	17,500	56,000	-	-	7	-	15	-	30
		Pop-outs	a 5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-
		Deck cracking	a 5	CFR	15.9	m <sup>2</sup>	22,500	357,800	-	-	12	-	25	357,800	50
Pier	01	Cracking/Water leakage/Free lime	a 5	CFR	15.9	m <sup>2</sup>	22,500	357,800	-	-	12	-	25	357,800	50
		Rebar exposure	a 5	Resin injection	5.54	m	5,000	27,700	-	-	7	-	15	-	30
		Damages in substructures	a 5	Patching	2.24	m <sup>2</sup>	17,500	39,200	-	-	7	-	15	39,200	30
	02	Cracking/Water leakage/Free lime	a 5	Foot protection	-	Pier	1,750,000	-	-	-	-	-	-	-	-
		Rebar exposure	a 5	Resin injection	5.54	m	5,000	27,700	-	-	7	-	15	-	30
		Damages in substructures	a 5	Patching	2.24	m <sup>2</sup>	17,500	39,200	-	-	7	-	15	39,200	30
Bearings	101	Functional damage of bearings	a 5	Foot protection	-	Pier	1,750,000	-	-	-	-	-	-	-	-
	102	Functional damage of bearings	a 5	Metal spraying	1.0	Pier	120,000	120,000	-	-	7	-	15	120,000	30
	103	Functional damage of bearings	a 5	Metal spraying	1.0	#	120,000	120,000	-	-	7	-	15	120,000	30
	104	Functional damage of bearings	a 5	Metal spraying	1.0	#	120,000	120,000	-	-	7	-	15	120,000	30
Road surface	01	Level difference of road surface	a 5	Metal spraying	-	m <sup>2</sup>	5,000	-	-	5	-	10	-	20	
Barriers	01	Damages in pavements	a 5	Pavement replacement	2,042.5	#	5,000	10,212,500	-	-	5	-	10	10,212,500	20
	02	Damages in barriers	c 2	Patching	9.52	m <sup>2</sup>	17,500	166,600	166,600	-	7	-	15	166,600	30
	03	Damages in barriers	c 2	Patching	9.52	m <sup>2</sup>	17,500	166,600	166,600	-	7	-	15	166,600	30
Railings	03	Damages in barriers	a 5	Patching	9.52	m <sup>2</sup>	17,500	166,600	166,600	-	7	-	15	166,600	30

Span No.2

Inspecton result

		Damages of steel members				Damages of concrete members						Others						Span No.	2
		Corrosion	Cracking	Missing bolts	Fracture	Cracking, Water leakage, Free lime	No.	Rebar exposure	Pop-outs	Deck cracking	Damages at anchorage of PC tender	Level difference of road surface	Functional damage of bearings	Damages in substructures	Damages in pavements	Damages in expansion joints	Damages in cable	Remarks	
Girder	01					a		a			a								
	02					a		a			a								
Deck	01							a	a	a									
	02							a	a	a									
	03							a	a	a									
	04							a	a	a									
	05							a	a	a									
	06							a	a	c									
Pier	01					a		a											
	02					a		a											
Road surface											a								
Pavement															a				
Barriers	01																		
	02															a			
Railings	01																		
	03															a			
Others																			

Span No.2

Countermeasure classification of members					Bridge name		002 Rama V		Span No.		2
Member	No.	Damage	Damage classification		Countermeasure classification	No.	Damage	Damage classification		Countermeasure classification	
			Classification	Judge				Classification	Judge		
Girder	01	Cracking, Water leakage, Free lime	a	-	5	02	Cracking, Water leakage, Free lime	a	-	5	
		Rebar exposure	a	-	5		Rebar exposure	a	-	5	
		Damages at anchorage of PC tendon	a	-	5		Damages at anchorage of PC tendon	a	-	5	
Deck	01	Rebar exposure	a		5	04	Rebar exposure	a		5	
		Pop-outs	a		5		Pop-outs	a		5	
		Deck cracking	a	N	5		Deck cracking	a	N	5	
	03	Rebar exposure	a		5	06	Rebar exposure	a		5	
		Pop-outs	a		5		Pop-outs	a		5	
		Deck cracking	a	N	5		Deck cracking	c	-	3	
Pier	01	Cracking, Water leakage, Free lime	a	-	5	02	Cracking, Water leakage, Free lime	a	-	5	
		Rebar exposure	a	-	5		Rebar exposure	a	-	5	
		Damages in substructures	a	-	5		Damages in substructures	a	-	5	
Bearings	101	Functional damage of bearings	a		5	103	Functional damage of bearings	a		5	
	102	Functional damage of bearings	a		5	104	Functional damage of bearings	a		5	
Road surface	01	Level difference of road surface	a		5	01	Damages in pavements	a		5	
Barriers Railing	01	Damages in barriers	a		5	03	Damages in barriers	a		5	
	02	Damages in barriers	a		5						

Estimation of repair quantity

Bridge name		002 Rama V		Span No.	2
Subject		Quantity	Remarks		
1	Span length	130.00 m	Length of 1 span		
2	Road width for pavement	21.50 m	Width for pavement area (Vehicle lane)		
3	Total road width	25.05 m	Deck width		
4	Area of bridge surface	3,256.5 m <sup>2</sup>	Span length x Total width		
5	Area of pavement	2,795.0 m <sup>2</sup>	Span length x Width for pavement		
6	Barriers & railings	01	concrete	Type of barriers & railings	
		02	concrete	Same as above	
		03	concrete	Same as above	
7	Expansion joints	01	steel	Type of expansion joint	
		-	-	Same as above	
8	Crack length		Quantity	Remarks	
	Total crack length	L	130.3 m	A of bridge surf. x 0.040	
	Girder		65.1 m	L x 1/2 (per girder)	
9	Area of rebar exposure		Quantity	Remarks	
	Total area	A	26.1 m <sup>2</sup>	A of bridge surf. x 0.008	
	Girder		13.0 m <sup>2</sup>	L x 1/2 (per girder)	
10	Repaired area of deck		Quantity	Remarks	
	01	A	715.0 m <sup>2</sup>	Deck width = 5.50 m	
	Area of rebar exposure		7.2 m <sup>2</sup>	A x 0.010	
	Area of deck cracking		35.8 m <sup>2</sup>	A x 0.050	
	03,04,06	A	435.5 m <sup>2</sup>	Deck width = 3.35 m	
	Area of rebar exposure		4.4 m <sup>2</sup>	A x 0.010	
Area of deck cracking		21.8 m <sup>2</sup>	A x 0.050		
11	Repair quantity of substructure		Quantity	Remarks	
	Cracking, Water leakage, Free lime		5.54 m	per substructure	
	Rebar exposure		2.24 m <sup>2</sup>	per substructure	
12	Concrete barrier		Quantity	Remarks	
	Rebar exposure		13.03 m <sup>2</sup>	A of bridge surf. x 0.004	

Approximate repair price for countermeasure

Bridge name		002 Rama V		Span No.		2										
Member	No.	Damage	Damage classification	Repair method	Repair quantity	Unit	Approximate unit price (B)	Approximate repair price (B)	Approximate repair price for countermeasure classification 1 & 2 (B)	countermeasure classification 3	countermeasure classification 4	Planned repair & reconstruction				
										Repair price (B)	Remaining years up to countermeasure el. 2	Repair price (B)	Remaining years up to countermeasure el. 2	Repair price (B)	Life cycle	
Girder	01	Cracking/Water leakage/Free lime	a 5	Resin injection	65.1	m	5,000	325,500	-	7	-	-	15	-	30	
		Rebar exposure	a 5	Patching	13.0	m <sup>2</sup>	17,500	227,500	-	7	-	-	15	-	227,500	30
	02	Damages at anchorage of PC tendon	a 5	Reinforcement with external PC tendon	-	Pos.	1,000,000	-	-	-	-	-	-	-	-	-
		Cracking/Water leakage/Free lime	a 5	Resin injection	65.1	m	5,000	325,500	-	7	-	-	15	-	-	30
Deck	01	Rebar exposure	a 5	Patching	13.0	m <sup>2</sup>	17,500	227,500	-	7	-	-	15	-	227,500	30
		Damages at anchorage of PC tendon	a 5	Reinforcement with external PC tendon	-	Pos.	1,000,000	-	-	-	-	-	-	-	-	-
	Pop-outs	a 5	Patching	7.2	m <sup>2</sup>	17,500	126,000	-	7	-	-	15	-	-	30	
	Deck cracking	a 5	Patching & CFR	35.8	Pos.	10,000	-	-	-	-	-	-	-	-	-	-
03	Rebar exposure	a 5	CFR	4.4	m <sup>2</sup>	22,500	805,500	-	12	-	-	25	-	805,500	50	
	Deck cracking	a 5	Patching	4.4	m <sup>2</sup>	17,500	77,000	-	7	-	-	15	-	-	30	
	Pop-outs	a 5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-	-	
	Deck cracking	a 5	Patching & CFR	21.8	m <sup>2</sup>	22,500	490,500	-	12	-	-	25	-	490,500	50	
04	Rebar exposure	a 5	Patching	4.4	m <sup>2</sup>	17,500	77,000	-	7	-	-	15	-	-	30	
	Pop-outs	a 5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-	-	
	Deck cracking	a 5	CFR	21.8	m <sup>2</sup>	22,500	490,500	-	12	-	-	25	-	490,500	50	
	Rebar exposure	a 5	Patching	4.4	m <sup>2</sup>	17,500	77,000	-	7	-	-	15	-	-	30	
06	Pop-outs	a 5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-	-	
	Deck cracking	a 5	Patching	21.8	m <sup>2</sup>	22,500	490,500	-	12	-	-	25	-	490,500	50	
	Rebar exposure	a 5	Patching & CFR	4.4	m <sup>2</sup>	17,500	77,000	-	7	-	-	15	-	-	30	
	Deck cracking	a 5	Patching & CFR	21.8	m <sup>2</sup>	22,500	490,500	-	12	-	-	25	-	490,500	50	
Pier	01	Cracking/Water leakage/Free lime	a 5	Resin injection	5.54	m	5,000	27,700	-	7	-	-	15	-	30	
		Rebar exposure	a 5	Patching	2.24	m <sup>2</sup>	17,500	39,200	-	7	-	-	15	-	39,200	30
	Damages in substructures	a 5	Foot protection	-	Pier	1,750,000	-	-	-	-	-	-	-	-	-	
	Cracking/Water leakage/Free lime	a 5	Resin injection	5.54	m	5,000	27,700	-	7	-	-	15	-	-	30	
Bearings	02	Rebar exposure	a 5	Patching	2.24	m <sup>2</sup>	17,500	39,200	-	7	-	-	15	-	39,200	30
		Damages in substructures	a 5	Foot protection	-	Pier	1,750,000	-	-	-	-	-	-	-	-	-
	Functional damage of bearings	a 5	Metal spraying	1.0	Pier	120,000	120,000	-	7	-	-	15	-	120,000	30	
	Functional damage of bearings	a 5	Metal spraying	1.0	#	120,000	120,000	-	7	-	-	15	-	120,000	30	
Road surface	01	Level difference of road surface	a 5	Metal spraying	1.0	#	120,000	120,000	-	7	-	-	15	-	120,000	30
	02	Damages in pavements	a 5	Pavement replacement	2,795.0	m <sup>2</sup>	5,000	13,975,000	-	5	-	-	10	-	20	
	03	Damages in barriers	a 5	same as above	13.03	m <sup>2</sup>	17,500	228,100	-	7	-	-	15	-	228,100	30
Railings	01	Damages in barriers	a 5	Patching	13.03	m <sup>2</sup>	17,500	228,100	-	7	-	-	15	-	228,100	30
	02	Damages in barriers	a 5	Patching	13.03	m <sup>2</sup>	17,500	228,100	-	7	-	-	15	-	228,100	30
	03	Damages in barriers	a 5	Patching	13.03	m <sup>2</sup>	17,500	228,100	-	7	-	-	15	-	228,100	30

Span No.3

Inspection result

		Damages of steel members				Damages of concrete members					Others						Span No.	3
		Corrosion	Cracking	Missing bolts	Fracture	Cracking, Water leakage, Free lime	No.	Rebar exposure	Pop-outs	Deck cracking	Damages at anchorage of PC tender	Level difference of road surface	Functional damage of bearings	Damages in substructures	Damages in pavements	Damages in expansion joints	Damages in cable	Remarks
Girder	01					c	4	a			a							
	02					c	4	a			a							
Deck	01							a	a	a								
	02							a	a	a								
	03							a	a	a								
	04							a	a	a								
	05							a	a	a								
	06							a	a	a								
Pier	01					a		a										
	02					a		a										
Bearings	101												a					
	102												a					
	103												a					
	104												a					
Road surface												a						
Pavement															a			
Barriers	01																c	
	02																c	
Railings	01																c	
	03																c	
Others																		