

APPENDIX

APPENDIX-1

Bridge Survey Record by Visual Inspection

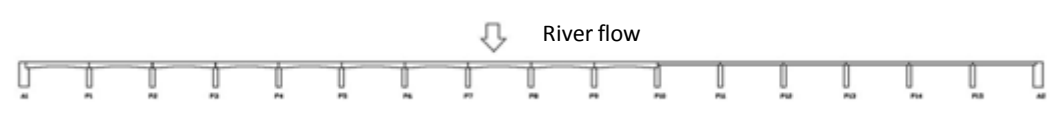
Bridge Survey Record (1/8)

Inspector : Toshinao YAMAGUCHI Date & Time: 27 Nov 2013

Bridge No.	1	Location (State)	Assam
Bridge Name	Jia-Bharali Bridge	Road Name	NH 15 (old NH 52)
Station	Km166	Road Category	National Highway
GPS Data	N 26 ° 48 ' 36.0 "	Management Authority	State PWD
	E 092 ° 52 ' 23.6 "	Year of Construction	1962

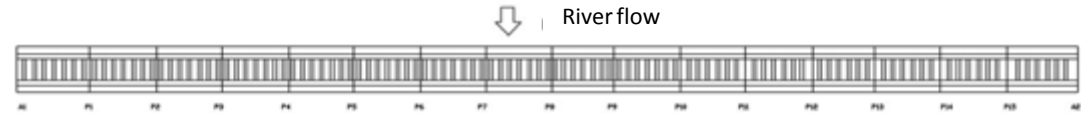
Bridge Length	625.4m	Span Arrangement	16 spans
Bridge Width		Approach Road Width	Same as bridge
- Carriageway Width	7.2m		
- Medium Width	Nil		
- Footway Width	Nil	Existing of Detour	None (approx. 423Km)
Type of Superstructure	RC T Girber (Gerber Girder)	Type of Substructure	RC
Type of Foundation	Well		

Sketch of the Bridge
Side View



↓ River flow

Plan View



↓ River flow

Bridge Survey Record (2/8) R1-R6

Inspector : Toshinao YAMAGUCHI Date & Time: 27 Nov 2013

Bridge No.	1	Location (State)	Assam
Bridge Name	Jia-Bharali Bridge	Road Name	NH 15 (old NH 52)
Photoes			
Photo R1			
Photo R2			
Photo R3			
Photo R4			
Photo R5			
Photo R6			

Bridge Survey Record (3/8) R7-R11

Inspector : Toshinao YAMAGUCHI Date & Time: 27 Nov 2013

Bridge No.	1	Location (State)	Assam
Bridge Name	Jia-Bharali Bridge	Road Name	NH 15 (old NH 52)
Photoes			
Photo R7			
Photo R8			
Photo R9			
Photo R10			
Photo R11			

Bridge Survey Record (4/8) L1-L6

Inspector : Toshinao YAMAGUCHI Date & Time: 27 Nov 2013

Bridge No.	1	Location (State)	Assam
Bridge Name	Jia-Bharali Bridge	Road Name	NH 15 (old NH 52)
Photoes			
Photo L1			
Photo L2			
Photo L3			
Photo L4			
Photo L5			
Photo L6			

Bridge Survey Record (5/8) L7-L11

Inspector : Toshinao YAMAGUCHI Date & Time: 27 Nov 2013

Bridge No.	1	Location (State)	Assam
Bridge Name	Jia-Bharali Bridge	Road Name	NH 15 (old NH 52)
Photoes			
Photo L7			
Photo L8			
Photo L9			
Photo L10			
Photo L11			

Bridge Survey Record (6/8)

Inspector : Toshinao YAMAGUCHI Date & Time: 27 Nov 2013

Bridge No.	1	Location (State)	Assam
Bridge Name	Jia-Bharali Bridge	Road Name	NH 15 (old NH 52)
Station	Km166	Road Category	National Highway
GPS Data	N 26 °48 ' 36.0 "	Management Authority	State PWD
	E 092 °52 ' 23.6 "	Year of Construction	1962

General Description of Damages

Member	Kind of the Damage
	Ex. Concrete : Cracking, Spalling, etc. Steel : Cracking, Rusting, Fracture, etc.
1. Superstructure	
(1) Concrete Member	
- Girder	Nil
- Cross Beam	Nil
- Slab	Nil
(2) Steel Member	
- Girder	N/A
- Vertical Girder (stringer)	N/A
- Cross Beam	N/A
- Sway Bracing	N/A
(3) Bearing Shoe	Nil
(4) EXP Joint	Nil
(5) Handrail	Nil
(6) Kerb	N/A
(7) Drainage Pipe	Nil
(8) Others	Some cracks on well cap
2. Substructure	
- Pier	Nil
- Abutment	Nil
- Wing Wall	Nil
3. Miscellaneous	
- Approach Road Condition	Nil
- Obstruction	Nil
- Scouring	Not serious
4. Evaluation	See Sheet 8

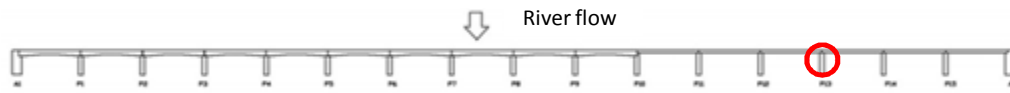
Bridge Survey Record (7/8)

Inspector : Toshinao YAMAGUCHI Date & Time: 27 Nov 2013

Bridge No.	1	Location (State)	Assam
Bridge Name	Jia-Bharali Bridge	Road Name	NH 15 (old NH 52)
Station	Km166	Road Category	National Highway
GPS Data	N 26 °48 ' 36.0 "	Management Authority	State PWD
	E 092 °52 ' 23.6 "	Year of Construction	1962

Detailed Description of Damages

Object Member	Foundation (P3)
Kind of Damage	Cracks on well cap
Sketch or Photo	



Bridge Survey Record (8/8)

Inspector : Toshinao YAMAGI Date & Time: 27 Nov 2013

Bridge No.	1	Location (State)	Assam
Bridge Name	Jia-Bharali Bridge	Road Name	NH 15 (old NH 52)
Station	Km166	Road Category	National Highway
GPS Data	N 26 °48 ' 36.0 "	Management Authority	State PWD
	E 092 °52 ' 23.6 "	Year of Construction	1962

Evaluation index

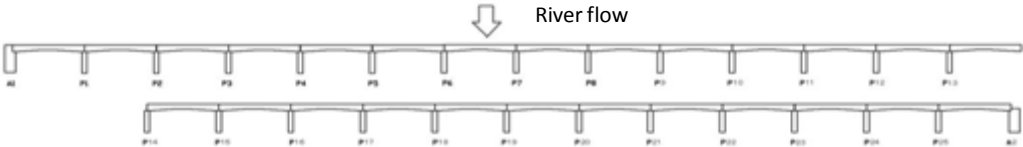
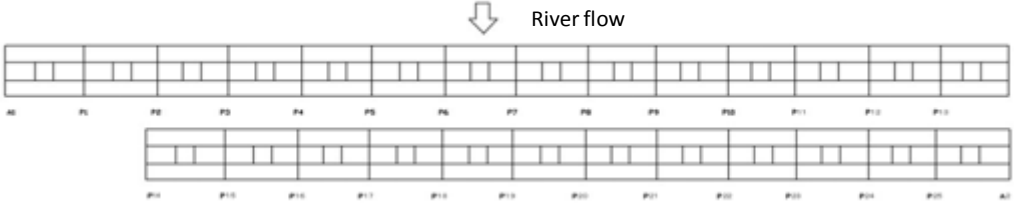
1	Traffic Demand	Moderate
2	Distance of Detour Route	None (approx.423km)
3	Project Effects for Japanese Companies	Low
4	Damage Level of the Bridges	Minor damages
5	Application of Japanese Technology	Repairing work can be done by local technology
6	Duplication with Other Projects by Donor's or Local	None
7	Importance of the Bridge on Surrounding Society and Economy	High
8	Impacts on the Environment	-

Bridge Survey Record (1/8)

Inspector : Toshinao YAMAGUCHI Date & Time: 27 Nov 2013

Bridge No.	2	Location (State)	Assam
Bridge Name	Kaliabhomora Bridge	Road Name	NH37A
Station	-	Road Category	National Highway
GPS Data	N 26 ° 36 ' 43.0 "	Management Authority	State PWD
	E 092 ° 51 ' 12.5 "	Year of Construction	1987

Bridge Length	3,105m	Span Arrangement	26 spans
Bridge Width		Approach Road Width	Same as bridge
- Carriageway Width	7.5m	Existing of Detour	None (approx. 327Km)
- Medium Width	Nil		
- Footway Width	1.5m (both side)		
Type of Superstructure	PC BOX Girder (Gerber Girder)	Type of Substructure	RC
Type of Foundation	Well		

Sketch of the Bridge	Side View
	
Plan View	
	

Bridge Survey Record (2/8) R1-R6

Inspector : Toshinao YAMAGUCHI Date & Time: 27 Nov 2013

Bridge No.	2	Location (State)	Assam
Bridge Name	Kaliabhomora Bridge	Road Name	NH37A
Photoes			
Photo R1			
Photo R2			
Photo R3			
Photo R4			
Photo R5			
Photo R6			

Bridge Survey Record (3/8) R7-R11

Inspector : Toshinao YAMAGUCHI Date & Time: 27 Nov 2013

Bridge No.	2	Location (State)	Assam
Bridge Name	Kaliabhomora Bridge	Road Name	NH37A
Photoes			
Photo R7			
Photo R8			
Photo R9			
Photo R10			
Photo R11			

Bridge Survey Record (4/8) L1-L6

Inspector : Toshinao YAMAGUCHI Date & Time: 27 Nov 2013

Bridge No.	2	Location (State)	Assam
Bridge Name	Kaliabhomora Bridge	Road Name	NH37A
Photoes			
Photo L1			
Photo L2			
Photo L3			
Photo L4			
Photo L5			
Photo L6			

Bridge Survey Record (5/8) L7-L11

Inspector : Toshinao YAMAGUCHI Date & Time: 27 Nov 2013

Bridge No.	2	Location (State)	Assam
Bridge Name	Kaliabhomora Bridge	Road Name	NH37A
Photoes			
Photo L7			
Photo L8			
Photo L9			
Photo L10			
Photo L11			

Bridge Survey Record (6/8)

Inspector : Toshinao YAMAGUCHI Date & Time: 27 Nov 2013

Bridge No.	2	Location (State)	Assam
Bridge Name	Kaliabhomora Bridge	Road Name	NH37A
Station	-	Road Category	National Highway
GPS Data	N 26 °36 ' 43.0 "	Management Authority	State PWD
	E 092 °51 ' 12.5 "	Year of Construction	1987

General Description of Damages

Member	Kind of the Damage
	Ex. Concrete : Cracking, Spalling, etc. Steel : Cracking, Rusting, Fracture, etc.
1. Superstructure	
(1) Concrete Member	
- Girder	Unequal level in deck slab of Gerber Girder in some spans
- Cross Beam	Nil
- Slab	Nil
(2) Steel Member	
- Girder	N/A
- Vertical Girder (stringer)	N/A
- Cross Beam	N/A
- Sway Bracing	N/A
(3) Bearing Shoe	Nil
(4) EXP Joint	Nil
(5) Handrail	Nil
(6) Kerb	Nil
(7) Drainage Pipe	Nil
(8) Others	Nil
2. Substructure	
- Pier	Nil
- Abutment	Nil
- Wing Wall	Nil
3. Miscellaneous	
- Approach Road Condition	Nil
- Obstruction	Nil
- Scouring	At some piers, but not serious
4. Evaluation	See Sheet 8

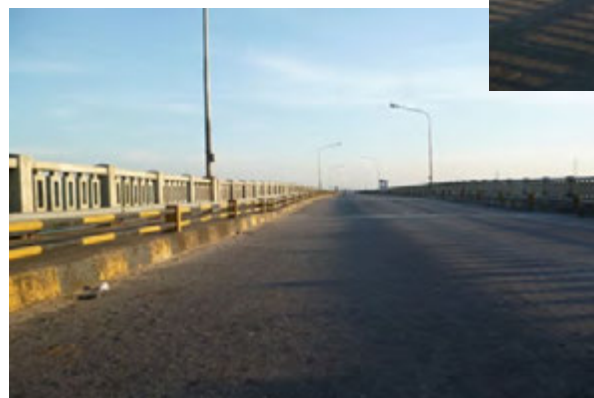
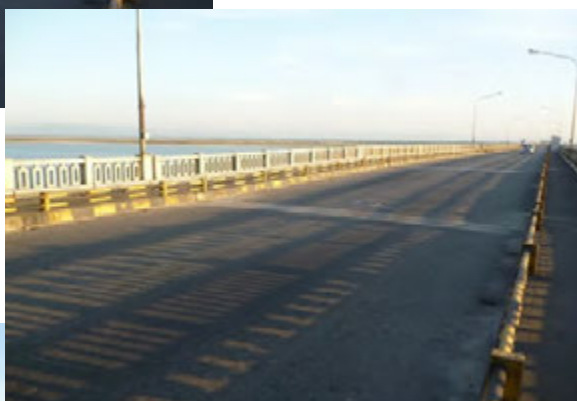
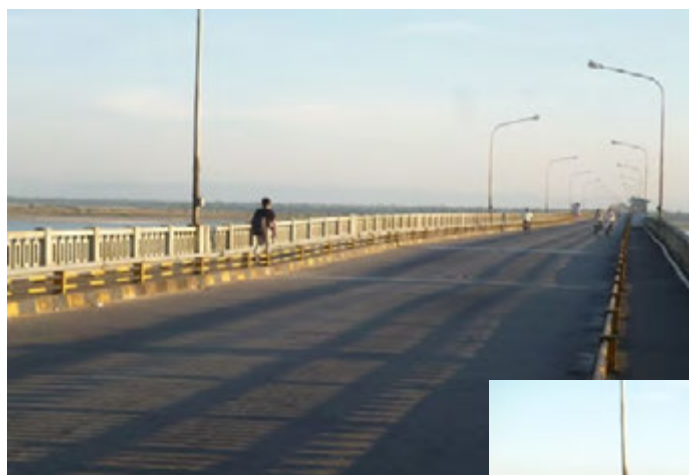
Bridge Survey Record (7/8) -1

Inspector : Toshinao YAMAGUCHI Date & Time: 27 Nov 2013

Bridge No.	2	Location (State)	Assam
Bridge Name	Kaliabhomora Bridge	Road Name	NH37A
Station	-	Road Category	National Highway
GPS Data	N 26 °36 ' 43.0 "	Management Authority	State PWD
	E 092 °51 ' 12.5 "	Year of Construction	1987

Detailed Description of Damages

Object Member	Gerber Girder (at some spans)
Kind of Damage	Unequal level in deck slab of Gerber Girder in some spans
Sketch or Photo	



Bridge Survey Record (7/8) -2

Inspector : Toshinao YAMAGUCHI Date & Time: 27 Nov 2013

Bridge No.	2	Location (State)	Assam
Bridge Name	Kaliabhomora Bridge	Road Name	NH37A
Station	-	Road Category	National Highway
GPS Data	N 26 °36 ' 43.0 "	Management Authority	State PWD
	E 092 °51 ' 12.5 "	Year of Construction	1987

Detailed Description of Damages


Object Member	Gerber Girder (at some spans)
Kind of Damage	Unequal level in deck slab of Gerber Girder
Sketch or Photo	

Bridge Survey Record (7/8) -3

Inspector : Toshinao YAMAGUCHI Date & Time: 27 Nov 2013

Bridge No.	2	Location (State)	Assam
Bridge Name	Kaliabhomora Bridge	Road Name	NH37A
Station	-	Road Category	National Highway
GPS Data	N 26 °36 ' 43.0 "	Management Authority	State PWD
	E 092 °51 ' 12.5 "	Year of Construction	1987

Detailed Description of Damages

Object Member	Gerber Girder (at some spans)
Kind of Damage	Unequal level in deck slab of Gerber Girder
Sketch or Photo	

Bridge Survey Record (8/8)

Inspector : Toshinao YAMAG Date & Time: 27 Nov 2013

Bridge No.	2	Location (State)	Assam
Bridge Name	Kaliabhomora Bridge	Road Name	NH37A
Station	-	Road Category	National Highway
GPS Data	N 26 °36 ' 43.0 "	Management Authority	State PWD
	E 092 °51 ' 12.5 "	Year of Construction	1987

Evaluation index

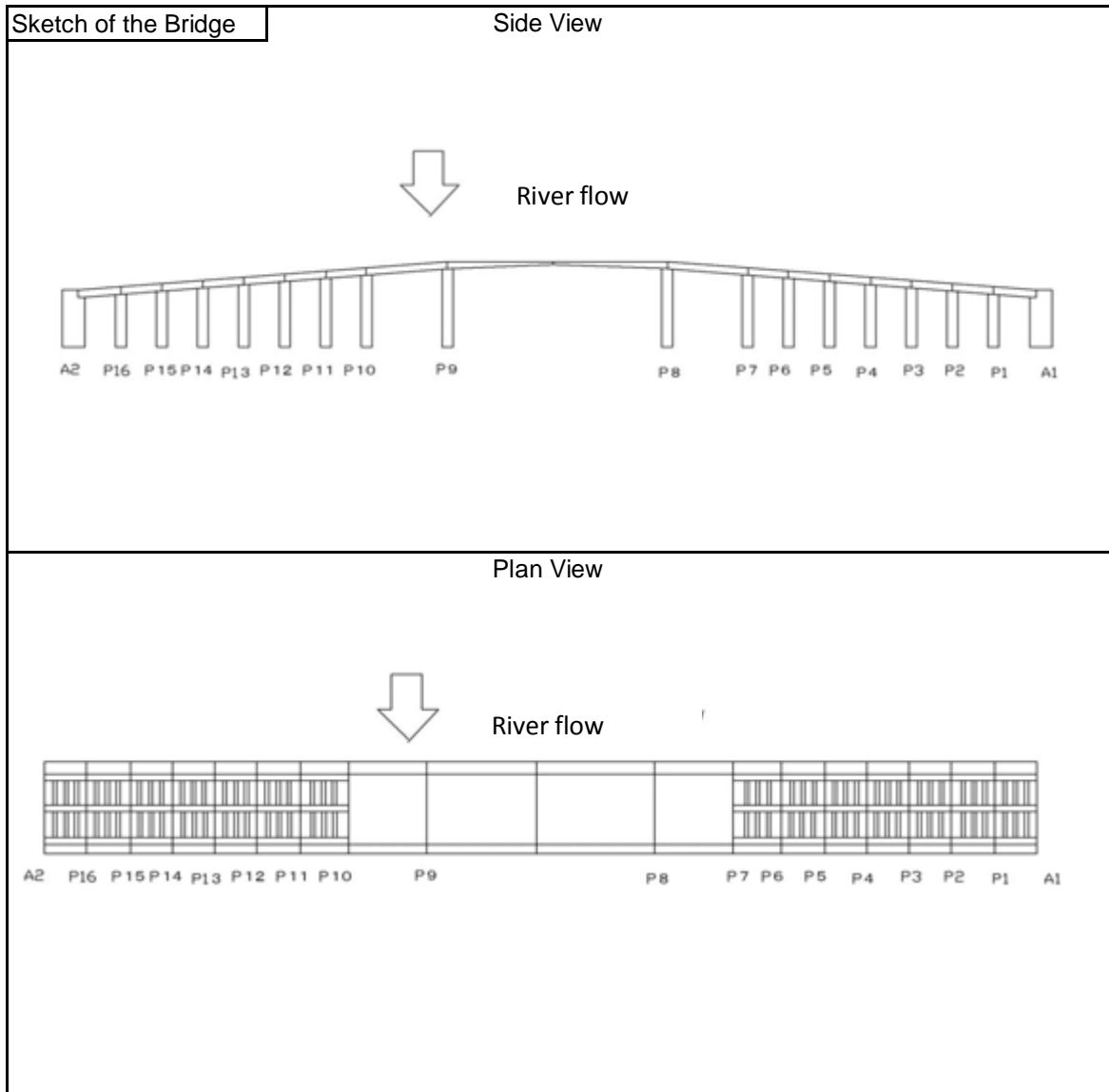
1	Traffic Demand	Moderate
2	Distance of Detour Route	None (approx. 327km)
3	Project Effects for Japanese Companies	Low
4	Damage Level of the Bridges	Need repairing for removing of level difference at Gerber girder
5	Application of Japanese Technology	Applicable (replacement by Steel girder for Gerber portions)
6	Duplication with Other Projects by Donor's or Local	None
7	Importance of the Bridge on Surrounding Society and Economy	Very high
8	Impacts on the Environment	Minimal

Bridge Survey Record (1/8)

Inspector : Toshinao YAMAGUCHI Date & Time: 29 Nov 2013

Bridge No.	3	Location (State)	Assam
Bridge Name	Sadarghat Bridge	Road Name	NH 37 (old NH 53)
Station	Km226	Road Category	National Highway
GPS Data	N 24 ° 49 ' 52.3 "	Management Authority	State PWD
	E 092 ° 48 ' 12.4 "	Year of Construction	1967

Bridge Length	472 m	Span Arrangement	17 spans
Bridge Width		Approach Road Width	Same as bridge
- Carriageway Width	7.65m		
- Medium Width	Nil		
- Footway Width	Nil		
Type of Superstructure	PC BOX Girder (Centre Hinge)+RC T Girder	Existing of Detour	Approx. 67Km
Type of Foundation	Well	Type of Substructure	RC



Bridge Survey Record (2/8) R1-R6

Inspector : Toshinao YAMAGUCHI Date & Time: 29 Nov 2013

Bridge No.	3	Location (State)	Assam
Bridge Name	Sadarghat Bridge	Road Name	NH 37 (old NH 53)
Photoes			
Photo R1			
Photo R2			
Photo R3			
Photo R4			
Photo R5			
Photo R6			

Bridge Survey Record (3/8) R7-R11

Inspector : Toshinao YAMAGUCHI Date & Time: 29 Nov 2013

Bridge No.	3	Location (State)	Assam
Bridge Name	Sadarghat Bridge	Road Name	NH 37 (old NH 53)
Photoes			
Photo R7			
Photo R8			
Photo R9			
Photo R10			
Photo R11			

Bridge Survey Record (4/8) L1-L6

Inspector : Toshinao YAMAGUCHI Date & Time: 29 Nov 2013

Bridge No.	3	Location (State)	Assam
Bridge Name	Sadarghat Bridge	Road Name	NH 37 (old NH 53)
Photoes			
Photo L1			
Photo L2			
Photo L3			
Photo L4			
Photo L5			
Photo L6			

Bridge Survey Record (5/8) L7-L11

Inspector : Toshinao YAMAGUCHI Date & Time: 29 Nov 2013

Bridge No.	3	Location (State)	Assam
Bridge Name	Sadarghat Bridge	Road Name	NH 37 (old NH 53)
Photoes			
Photo L7			
Photo L8			
Photo L9			
Photo L10			
Photo L11			

Bridge Survey Record (6/8)

Inspector : Toshinao YAMAGUCHI Date & Time: 29 Nov 2013

Bridge No.	3	Location (State)	Assam
Bridge Name	Sadarghat Bridge	Road Name	NH 37 (old NH 53)
Station	Km226	Road Category	National Highway
GPS Data	N 24 °49 ' 52.3 "	Management Authority	State PWD
	E 092 °48 ' 12.4 "	Year of Construction	1967

General Description of Damages

Member	Kind of the Damage
	Ex. Concrete : Cracking, Spalling, etc. Steel : Cracking, Rusting, Fracture, etc.
1. Superstructure	
(1) Concrete Member	
- Girder	Abnormal deflection at center hinge. Some cracks observed in approach bridge.
- Cross Beam	Not visible now
- Slab	Defrection for main bridge
(2) Steel Member	
- Girder	N/A
- Vertical Girder (stringer)	N/A
- Cross Beam	N/A
- Sway Bracing	N/A
(3) Bearing Shoe	Some bearings are not visible now
(4) EXP Joint	Collapsed at center hinge. Other portions has no damage.
(5) Handrail	CC peeling
(6) Kerb	Nil
(7) Drainage Pipe	Nil
(8) Others	
2. Substructure	
- Pier	Nil
- Abutment	Nil
- Wing Wall	Nil
3. Miscellaneous	
- Approach Road Condition	Nil
- Obstruction	Nil
- Scouring	Unknown
4. Evaluation	See Sheet 8

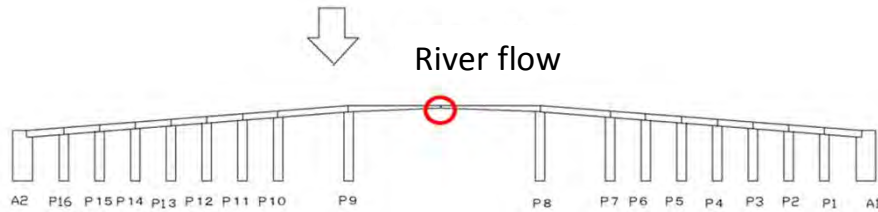
Bridge Survey Record (7/8) -1

Inspector : Toshinao YAMAGUCHI Date & Time: 29 Nov 2013

Bridge No.	3	Location (State)	Assam
Bridge Name	Sadarghat Bridge	Road Name	NH 37 (old NH 53)
Station	Km226	Road Category	National Highway
GPS Data	N 24 °49 ' 52.3 "	Management Authority	State PWD
	E 092 °48 ' 12.4 "	Year of Construction	1967

Detailed Description of Damages

Object Member	Main Girder (at centre hinge)
Kind of Damage	End point of girders damaged at several locations. Abnormal deflection at center hinge, and 10m span timber bridge are provided over the centre hinge.
Sketch or Photo	



Bridge Survey Record (7/8) -2

Inspector : Toshinao YAMAGUCHI Date & Time: 29 Nov 2013

Bridge No.	3	Location (State)	Assam
Bridge Name	Sadarghat Bridge	Road Name	NH 37 (old NH 53)
Station	Km226	Road Category	National Highway
GPS Data	N 24 °49 ' 52.3 "	Management Authority	State PWD
	E 092 °48 ' 12.4 "	Year of Construction	1967

Detailed Description of Damages

Object Member	Main Bridge Girder
Kind of Damage	Some cracks have been repaired in 1990. Further cracks are observed.
Sketch or Photo	



Bridge Survey Record (7/8) -3

Inspector : Toshinao YAMAGUCHI Date & Time: 29 Nov 2013

Bridge No.	3	Location (State)	Assam
Bridge Name	Sadarghat Bridge	Road Name	NH 37 (old NH 53)
Station	Km226	Road Category	National Highway
GPS Data	N 24 °49 ' 52.3 "	Management Authority	State PWD
	E 092 °48 ' 12.4 "	Year of Construction	1967

Detailed Description of Damages

Object Member	Approach Bridge Girder
Kind of Damage	Some cracks have been repaired in 1990. Further cracks are observed.
Sketch or Photo	

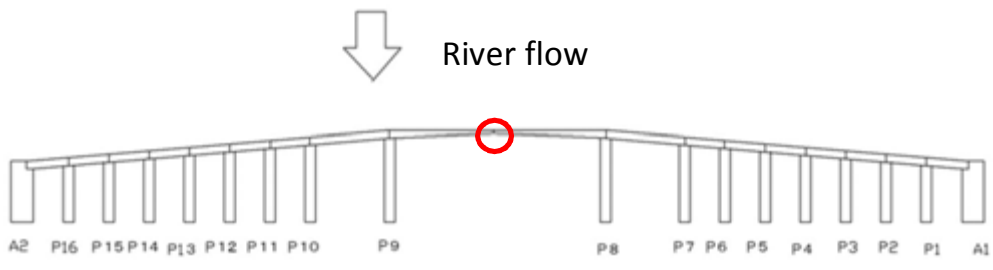


Bridge Survey Record (7/8) -4

Inspector : Toshinao YAMAGUCHI Date & Time: 29 Nov 2013

Bridge No.	3	Location (State)	Assam
Bridge Name	Sadarghat Bridge	Road Name	NH 37 (old NH 53)
Station	Km226	Road Category	National Highway
GPS Data	N 24 °49 ' 52.3 "	Management Authority	State PWD
	E 092 °48 ' 12.4 "	Year of Construction	1967

Detailed Description of Damages

Object Member	Handrail at centre hinge
Kind of Damage	CC crumbling
Sketch or Photo	



Bridge Survey Record (8/8)

Inspector : Toshinao YAMAGUCHI Date & Time: 29 Nov 2013

Bridge No.	3	Location (State)	Assam
Bridge Name	Sadarghat Bridge	Road Name	NH 37 (old NH 53)
Station	Km226	Road Category	National Highway
GPS Data	N 24 °49 ' 52.3 "	Management Authority	State PWD
	E 092 °48 ' 12.4 "	Year of Construction	1967

Evaluation index

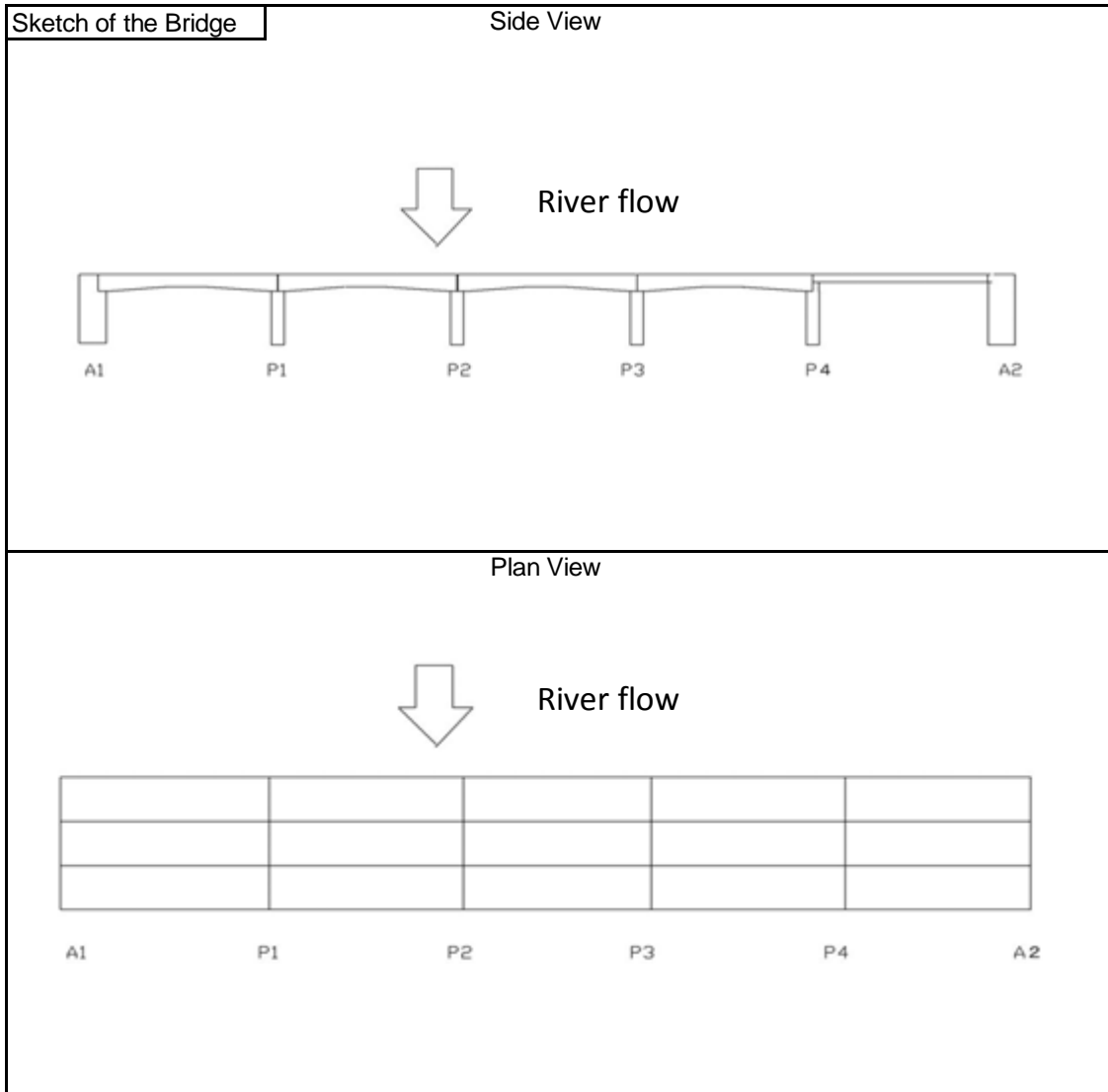
1	Traffic Demand	Very high
2	Distance of Detour Route	Approx. 67km
3	Project Effects for Japanese Companies	Low
4	Damage Level of the Bridges	Very serious damages at centre hinge
5	Application of Japanese Technology	Applicable (centre hinge connection)
6	Duplication with Other Projects by Donor's or Local	Construction of New Bridge has been sanctioned.
7	Importance of the Bridge on Surrounding Society and Economy	Very high
8	Impacts on the Environment	Moderate

Bridge Survey Record (1/8)

Inspector : Toshinao YAMAGUCHI Date & Time: 28 Nov 2013

Bridge No.	4	Location (State)	Assam
Bridge Name	Badarpurghat Bridge	Road Name	NH 6 (old NH 44)
Station	Km201	Road Category	National Highway
GPS Data	N 24 ° 52 ' 34.5 "	Management Authority	State PWD
	E 092 ° 35 ' 00.8 "	Year of Construction	1974

Bridge Length	359.44 m	Span Arrangement	5 spans
Bridge Width		Approach Road Width	Same as bridge
- Carriageway Width	7.0m	Existing of Detour	Approx. 64Km
- Medium Width	Nil		
- Footway Width	1.5m (both side)		
Type of Superstructure	PC BOX Girber (Centre Hinge)	Type of Substructure	RC
Type of Foundation	Well		



Bridge Survey Record (2/8) R1-R6

Inspector : Toshinao YAMAGUCHI Date & Time: 28 Nov 2013

Bridge No.	4	Location (State)	Assam
Bridge Name	Badarpurghat Bridge	Road Name	NH 6 (old NH 44)
Photoes			
Photo R1			
Photo R2			
Photo R3			
Photo R4			
Photo R5			
Photo R6			

Bridge Survey Record (3/8) R7-R11

Inspector : Toshinao YAMAGUCHI Date & Time: 28 Nov 2013

Bridge No.	4	Location (State)	Assam
Bridge Name	Badarpurghat Bridge	Road Name	NH 6 (old NH 44)
Photoes	<p style="text-align: center;">River flow</p>		
Photo R7			
Photo R8			
Photo R9			
Photo R10			
Photo R11			

Bridge Survey Record (4/8) L1-L6

Inspector : Toshinao YAMAGUCHI Date & Time: 28 Nov 2013

Bridge No.	4	Location (State)	Assam
Bridge Name	Badarpurghat Bridge	Road Name	NH 6 (old NH 44)
Photoes			
Photo L1			
Photo L2			
Photo L3			
Photo L4			
Photo L5			
Photo L6			

Bridge Survey Record (5/8) L7-L11

Inspector : Toshinao YAMAGUCHI Date & Time: 28 Nov 2013

Bridge No.	4	Location (State)	Assam
Bridge Name	Badarpurghat Bridge	Road Name	NH 6 (old NH 44)
Photos			
Photo L7			
Photo L8			
Photo L9			
Photo L10			
Photo L11	<p>写真なし</p>		

Bridge Survey Record (6/8)

Inspector : Toshinao YAMAGUCHI Date & Time: 28 Nov 2013

Bridge No.	4	Location (State)	Assam
Bridge Name	Badarpurghat Bridge	Road Name	NH 6 (old NH 44)
Station	Km201	Road Category	National Highway
GPS Data	N 24 °52 ' 34.5 "	Management Authority	State PWD
	E 092 °35 ' 00.8 "	Year of Construction	1974

General Description of Damages

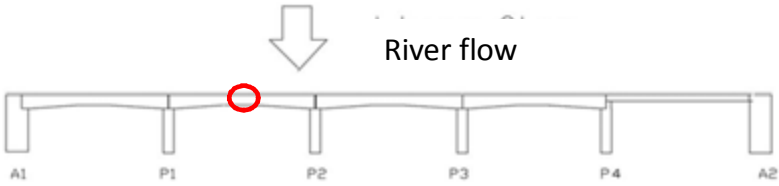


Member	Kind of the Damage
	Ex. Concrete : Cracking, Spalling, etc. Steel : Cracking, Rusting, Fracture, etc.
1. Superstructure	
(1) Concrete Member	
- Girder	Abnormal deflection and level differences at center hinge portions.
- Cross Beam	Nil
- Slab	Nil
(2) Steel Member	
- Girder	N/A
- Vertical Girder (stringer)	N/A
- Cross Beam	N/A
- Sway Bracing	N/A
(3) Bearing Shoe	Not approachable in first survey
(4) EXP Joint	Nil
(5) Handrail	Nil
(6) Kerb	CC peeling
(7) Drainage Pipe	Nil
(8) Others	Nil
2. Substructure	
- Pier	Nil
- Abutment	Nil
- Wing Wall	Nil
3. Miscellaneous	
- Approach Road Condition	Nil
- Obstruction	Nil
- Scouring	Unknown
4. Evaluation	See Sheet 8

Bridge Survey Record (7/8) -1

Inspector : Toshinao YAMAGUCHI Date & Time: 28 Nov 2013

Bridge No.	4	Location (State)	Assam
Bridge Name	Badarpurghat Bridge	Road Name	NH 6 (old NH 44)
Station	Km201	Road Category	National Highway
GPS Data	N 24 °52 ' 34.5 "	Management Authority	State PWD
	E 092 °35 ' 00.8 "	Year of Construction	1974

Detailed Description of Damages

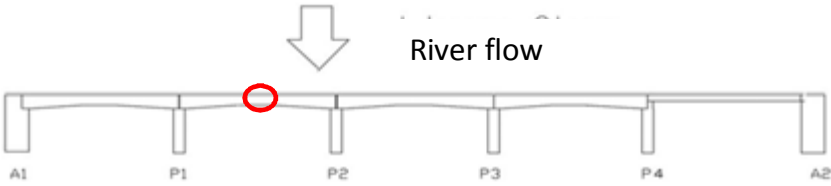


Object Member	Centre Hinge (P1-P2)
Kind of Damage	End point of girders damaged. Abnormal deflection, and 10m span steel bridge are provided over the centre hinge.
Sketch or Photo	  

Bridge Survey Record (7/8) -2

Inspector : Toshinao YAMAGUCHI Date & Time: 28 Nov 2013

Bridge No.	4	Location (State)	Assam
Bridge Name	Badarpurghat Bridge	Road Name	NH 6 (old NH 44)
Station	Km201	Road Category	National Highway
GPS Data	N 24 °52 ' 34.5 "	Management Authority	State PWD
	E 092 °35 ' 00.8 "	Year of Construction	1974

Detailed Description of Damages

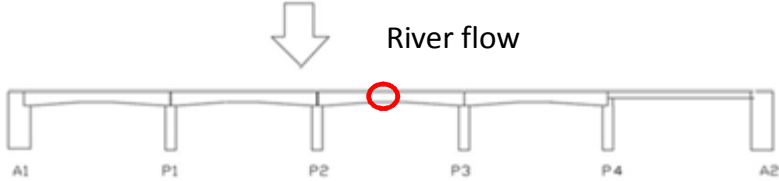


Object Member	Centre Hinge (P1-P2)
Kind of Damage	End point of girders damaged. Abnormal deflection, and 10m span steel bridge are provided over the centre hinge.
Sketch or Photo	
	
	

Bridge Survey Record (7/8) -3

Inspector : Toshinao YAMAGUCHI Date & Time: 28 Nov 2013

Bridge No.	4	Location (State)	Assam
Bridge Name	Badarpurghat Bridge	Road Name	NH 6 (old NH 44)
Station	Km201	Road Category	National Highway
GPS Data	N 24 °52 ' 34.5 "	Management Authority	State PWD
	E 092 °35 ' 00.8 "	Year of Construction	1974

Detailed Description of Damages

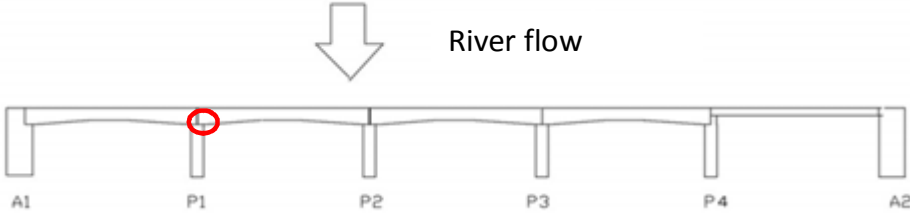


Object Member	Centre Hinge (P2-P3)
Kind of Damage	Level difference
Sketch or Photo	<div style="text-align: center; margin-bottom: 20px;">  </div> <div style="display: flex; justify-content: space-around;"> <div style="width: 45%;">  </div> <div style="width: 45%;">  </div> </div>

Bridge Survey Record (7/8) -4

Inspector : Toshinao YAMAGUCHI Date & Time: 28 Nov 2013

Bridge No.	4	Location (State)	Assam
Bridge Name	Badarpurghat Bridge	Road Name	NH 6 (old NH 44)
Station	Km201	Road Category	National Highway
GPS Data	N 24 °52 ' 34.5 "	Management Authority	State PWD
	E 092 °35 ' 00.8 "	Year of Construction	1974

Detailed Description of Damages

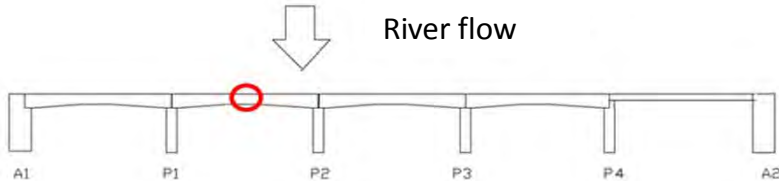


Object Member	Girder (P1, downstream side)
Kind of Damage	Cracks
Sketch or Photo	
	
	

Bridge Survey Record (7/8) -5

Inspector : Toshinao YAMAGUCHI Date & Time: 28 Nov 2013

Bridge No.	4	Location (State)	Assam
Bridge Name	Badarpurghat Bridge	Road Name	NH 6 (old NH 44)
Station	Km201	Road Category	National Highway
GPS Data	N 24 °52 ' 34.5 "	Management Authority	State PWD
	E 092 °35 ' 00.8 "	Year of Construction	1974

Detailed Description of Damages

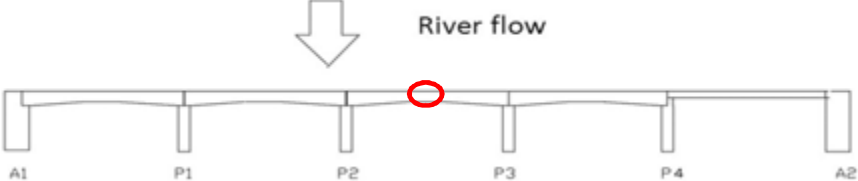


Object Member	Handrail (P1-P2)
Kind of Damage	Level difference and uneven gap
Sketch or Photo	<div style="text-align: center; margin-bottom: 10px;">  </div> <div style="display: flex; justify-content: space-around;"> <div style="width: 45%;">  </div> <div style="width: 45%;">  </div> </div>

Bridge Survey Record (7/8) -6

Inspector : Toshinao YAMAGUCHI Date & Time: 28 Nov 2013

Bridge No.	4	Location (State)	Assam
Bridge Name	Badarpurghat Bridge	Road Name	NH 6 (old NH 44)
Station	Km201	Road Category	National Highway
GPS Data	N 24 °52 ' 34.5 "	Management Authority	State PWD
	E 092 °35 ' 00.8 "	Year of Construction	1974

Detailed Description of Damages



Object Member	Handrail (P2-P3)
Kind of Damage	Level difference and uneven gap
Sketch or Photo	
	
	

Bridge Survey Record (7/8) -7

Inspector : Toshinao YAMAGUCHI Date & Time: 28 Nov 2013

Bridge No.	4	Location (State)	Assam
Bridge Name	Badarpurghat Bridge	Road Name	NH 6 (old NH 44)
Station	Km201	Road Category	National Highway
GPS Data	N 24 °52 ' 34.5 "	Management Authority	State PWD
	E 092 °35 ' 00.8 "	Year of Construction	1974

Detailed Description of Damages

Object Member	Kerb
Kind of Damage	Peeling off finishing layer
Sketch or Photo	<div style="text-align: center;">  </div> <div style="text-align: center; margin-top: 20px;">  </div>

Bridge Survey Record (8/8)

Inspector : Toshinao YAMAGUCHI Date & Time: 28 Nov 2013

Bridge No.	4	Location (State)	Assam
Bridge Name	Badarpurghat Bridge	Road Name	NH 6 (old NH 44)
Station	Km201	Road Category	National Highway
GPS Data	N 24 °52 ' 34.5 "	Management Authority	State PWD
	E 092 °35 ' 00.8 "	Year of Construction	1974

Evaluation index

1	Traffic Demand	High
2	Distance of Detour Route	Approx. 64km
3	Project Effects for Japanese Companies	Low
4	Damage Level of the Bridges	Very serious damages at centre hinge
5	Application of Japanese Technology	Applicable (centre hinge connection)
6	Duplication with Other Projects by Donor's or Local	None (A rehabilitation estimate has been sanctioned for Rs2.65 Cr. But the work has not yet tendered)
7	Importance of the Bridge on Surrounding Society and Economy	Very high
8	Impacts on the Environment	Minimal

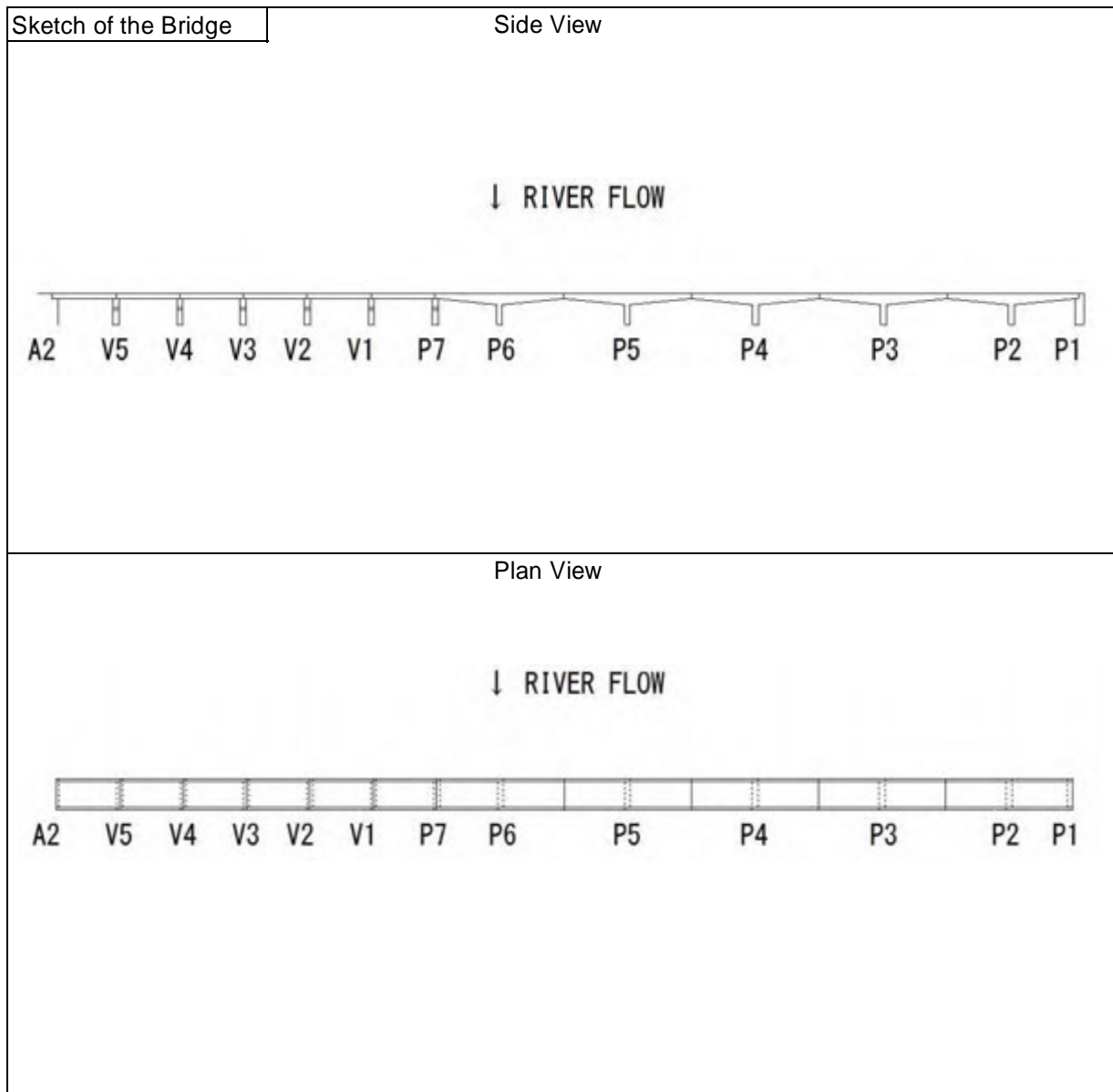
Bridge Survey Record (1/8)

Inspector : Koji KAWAMATA

Date & Time: 22 Nov 2013

Bridge No.	5	Location (State)	Goa
Bridge Name	Zuari Bridge	Road Name	NH17
Station	Panaji Km14/800	Road Category	National Highway
GPS Data	N 15 ° 24' 41.49 "	Management Authority	MORTH/PWD
	E 73 ° 54' 24.59"	Year of Construction	1982

Bridge Length	809m	Span Arrangement	11 Spans
Bridge Width		Approach Road Width	8.5m (Both side)
- Carriageway Width	7.50m (2 Lane)		
- Medium Width	Nil		
- Footway Width	1.50m		
Type of Superstructure	PC Box Girder	Existing of Detour	Approx. 54km
Type of Foundation	RC Well	Type of Substructure	RC

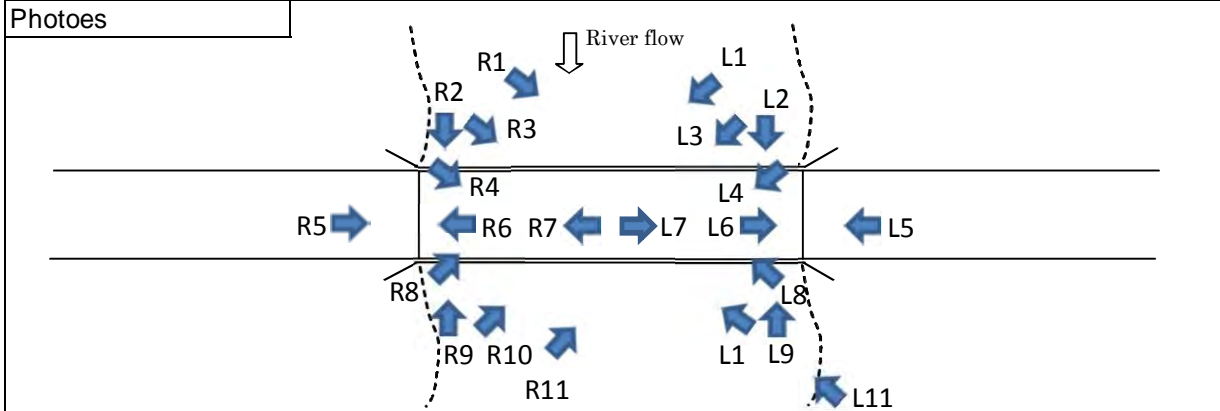


Bridge Survey Record (2/8) R1-R6

Inspector : Koji KAWAMATA

Date & Time: 22 Nov 2013

Bridge No.	5	Location (State)	Goa
Bridge Name	Zuari Bridge	Road Name	NH17

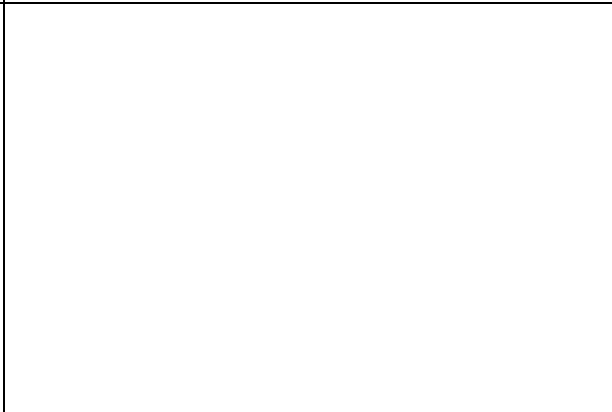
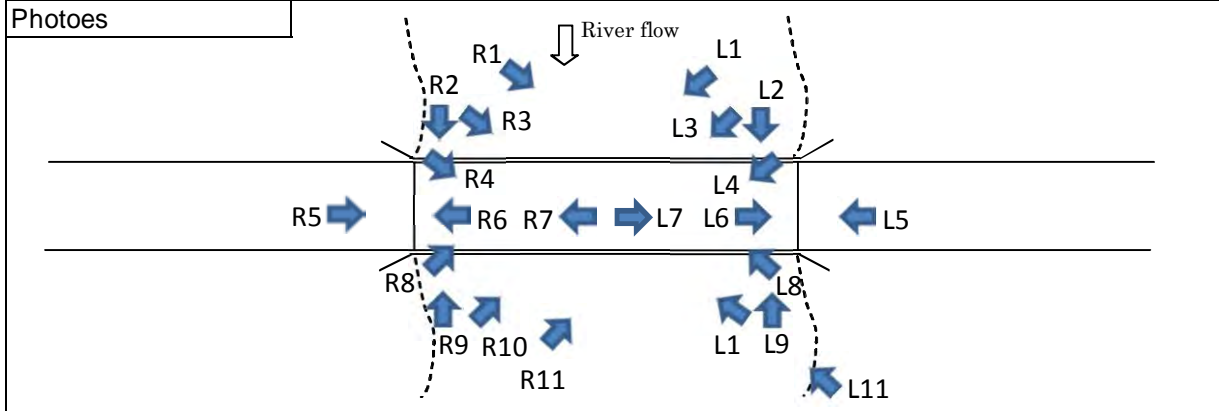


Bridge Survey Record (3/8) R7-R11

Inspector : Koji KAWAMATA

Date & Time: 22 Nov 2013

Bridge No.	5	Location (State)	Goa
Bridge Name	Zuari Bridge	Road Name	NH17

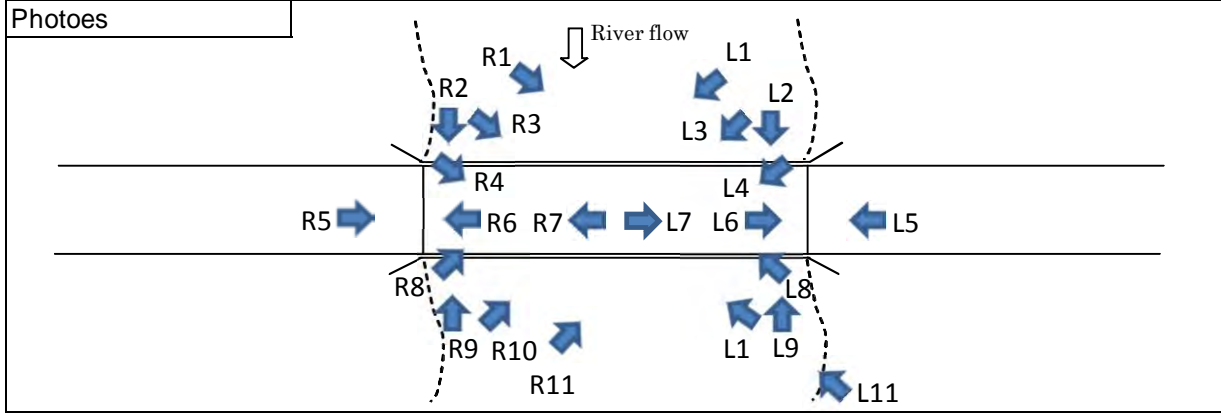


Bridge Survey Record (4/8) L1-L6

Inspector : Koji KAWAMATA

Date & Time: 22 Nov 2013

Bridge No.	5	Location (State)	Goa
Bridge Name	Zuari Bridge	Road Name	NH17

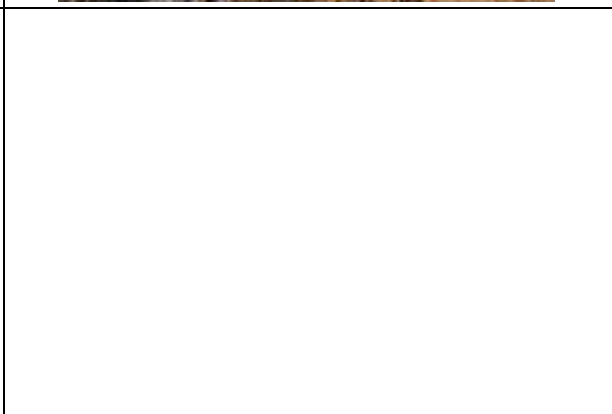
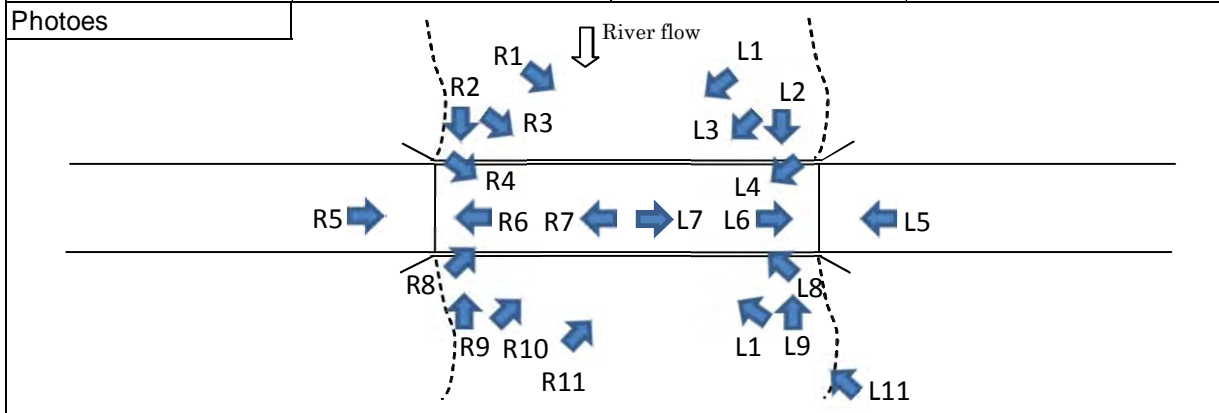


Bridge Survey Record (5/8) L7-L11

Inspector : Koji KAWAMATA

Date & Time: 22 Nov 2013

Bridge No.	5	Location (State)	Goa
Bridge Name	Zuari Bridge	Road Name	NH17



Bridge Survey Record (6/8)

Inspector : Koji KAWAMATA Date & Time: 22 Nov 2013

Bridge No.	5	Location (State)	Goa
Bridge Name	Zuari Bridge	Road Name	NH17
Station	Panaji Km14/800	Road Category	National Highway
GPS Data	N 15 ° 24' 41.49 "	Management Authority	MORTH/PWD
	E 73 ° 54' 24.59"	Year of Construction	1982

General Description of Damages




Member	Kind of the Damage
	Ex. Concrete : Cracking, Spalling, etc. Steel : Cracking, Rusting, Fracture, etc.
1. Superstructure	
(1) Concrete Member	
- Girder	Gap (V4) Level difference (V5)
- Cross Beam	Nil
- Slab	Corrosion (P5P6)
(2) Steel Member	
- Girder	N/A
- Vertical Girder (stringer)	N/A
- Cross Beam	N/A
- Sway Bracing	N/A
(3) Bearing Shoe	Nil
(4) EXP Joint	Corrosion (P4P5, P5P6) Broken (P7)
(5) Handrail	Nil
(6) Kerb	Nil
(7) Drainage Pipe	Nil
(8) Others	
2. Substructure	
- Pier	Nil
- Abutment	Nil
- Wing Wall	Nil
3. Miscellaneous	
- Approach Road Condition	Nil
- Obstruction	Nil
- Scouring	Nil
4. Evaluation	See Sheet 8

Bridge Survey Record (7/8) -1

Inspector : Koji KAWAMATA Date & Time: 22 Nov 2013

Bridge No.	5	Location (State)	Goa
Bridge Name	Zuari Bridge	Road Name	NH17
Station	Panaji Km14/800	Road Category	National Highway
GPS Data	N 15 ° 24' 41.49 "	Management Authority	MORTH/PWD
	E 73 ° 54' 24.59"	Year of Construction	1982

Detailed Description of Damages

Object Member	EXP Joint P4P5 P5P6
Kind of Damage	Corrossion
Sketch or Photo	<p style="text-align: center;">↓ RIVER FLOW</p>   

Bridge Survey Record (7/8) -2

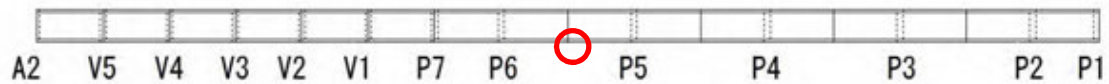
Inspector : Koji KAWAMATA Date & Time: 22 Nov 2013

Bridge No.	5	Location (State)	Goa
Bridge Name	Zuari Bridge	Road Name	NH17
Station	Panaji Km14/800	Road Category	National Highway
GPS Data	N 15 ° 24' 41.49 "	Management Authority	MORTH/PWD
	E 73 ° 54' 24.59"	Year of Construction	1982

Detailed Description of Damages

Object Member	PC Box Girder
Kind of Damage	Concrete Peeling, Re-bar exposed and Corroded
Sketch or Photo	

↓ RIVER FLOW

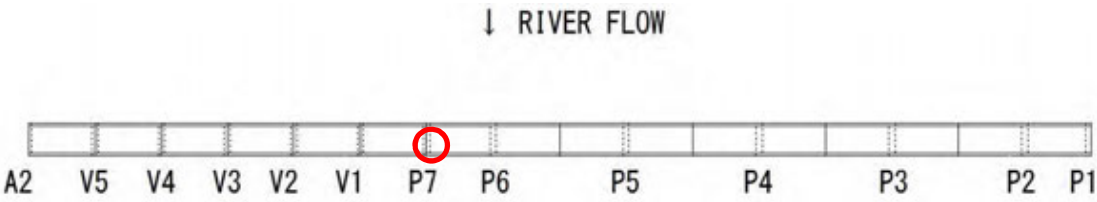


Bridge Survey Record (7/8) -3

Inspector : Koji KAWAMATA Date & Time: 22 Nov 2013

Bridge No.	5	Location (State)	Goa
Bridge Name	Zuari Bridge	Road Name	NH17
Station	Panaji Km14/800	Road Category	National Highway
GPS Data	N 15 ° 24' 41.49 "	Management Authority	MORTH/PWD
	E 73 ° 54' 24.59"	Year of Construction	1982

Detailed Description of Damages

Object Member	EXP Joint (P7)
Kind of Damage	Broken
Sketch or Photo	



Bridge Survey Record (7/8) -4

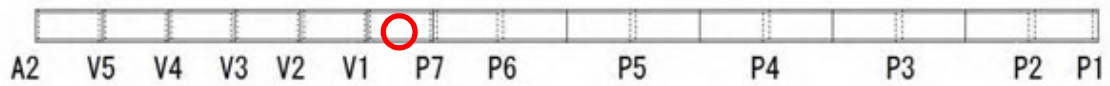
Inspector : Koji KAWAMATA Date & Time: 22 Nov 2013

Bridge No.	5	Location (State)	Goa
Bridge Name	Zuari Bridge	Road Name	NH17
Station	Panaji Km14/800	Road Category	National Highway
GPS Data	N 15 ° 24' 41.49 "	Management Authority	MORTH/PWD
	E 73 ° 54' 24.59"	Year of Construction	1982

Detailed Description of Damages

Object Member	Pavement
Kind of Damage	Abrasion
Sketch or Photo	

↓ RIVER FLOW

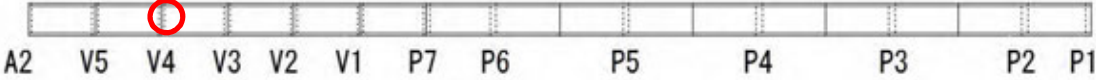




Bridge Survey Record (7/8) -5

Inspector : Koji KAWAMATA Date & Time: 22 Nov 2013

Bridge No.	5	Location (State)	Goa
Bridge Name	Zuari Bridge	Road Name	NH17
Station	Panaji Km14/800	Road Category	National Highway
GPS Data	N 15 ° 24' 41.49 "	Management Authority	MORTH/PWD
	E 73 ° 54' 24.59"	Year of Construction	1982

Detailed Description of Damages

Object Member	Exp. Joint (V4)
Kind of Damage	Gap
Sketch or Photo	<p style="text-align: center;">↓ RIVER FLOW</p>   

Bridge Survey Record (7/8) -6

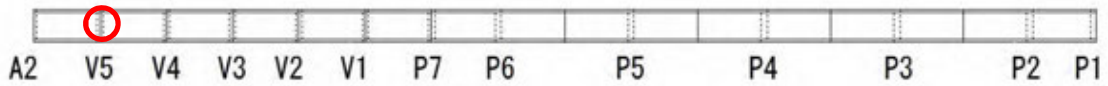
Inspector : Koji KAWAMATA Date & Time: 22 Nov 2013

Bridge No.	5	Location (State)	Goa
Bridge Name	Zuari Bridge	Road Name	NH17
Station	Panaji Km14/800	Road Category	National Highway
GPS Data	N 15 ° 24' 41.49 "	Management Authority	MORTH/PWD
	E 73 ° 54' 24.59"	Year of Construction	1982

Detailed Description of Damages

Object Member	Exp. Joint (V5)
Kind of Damage	Level difference
Sketch or Photo	

↓ RIVER FLOW



Bridge Survey Record (8/8)

Inspector : Koji KAWAMATA Date & Time: 22 Nov 2013

Bridge No.	5	Location (State)	Goa
Bridge Name	Zuari Bridge	Road Name	NH17
Station	Panaji Km14/800	Road Category	National Highway
GPS Data	N 15 ° 24' 41.49 "	Management Authority	MORTH/PWD
	E 73 ° 54' 24.59"	Year of Construction	1982

Evaluation index

1	Traffic Demand	Very high
2	Distance of Detour Route	Approx. 54 km
3	Project Effects for Japanese Companies	Moderate
4	Damage Level of the Bridges	Need repairing at centre hinge
5	Application of Japanese Technology	Applicable (centre hinge connection)
6	Duplication with Other Projects by Donor's or Local	None
7	Importance of the Bridge on Surrounding Society and Economy	Very High
8	Impacts on the Environment	Minimal

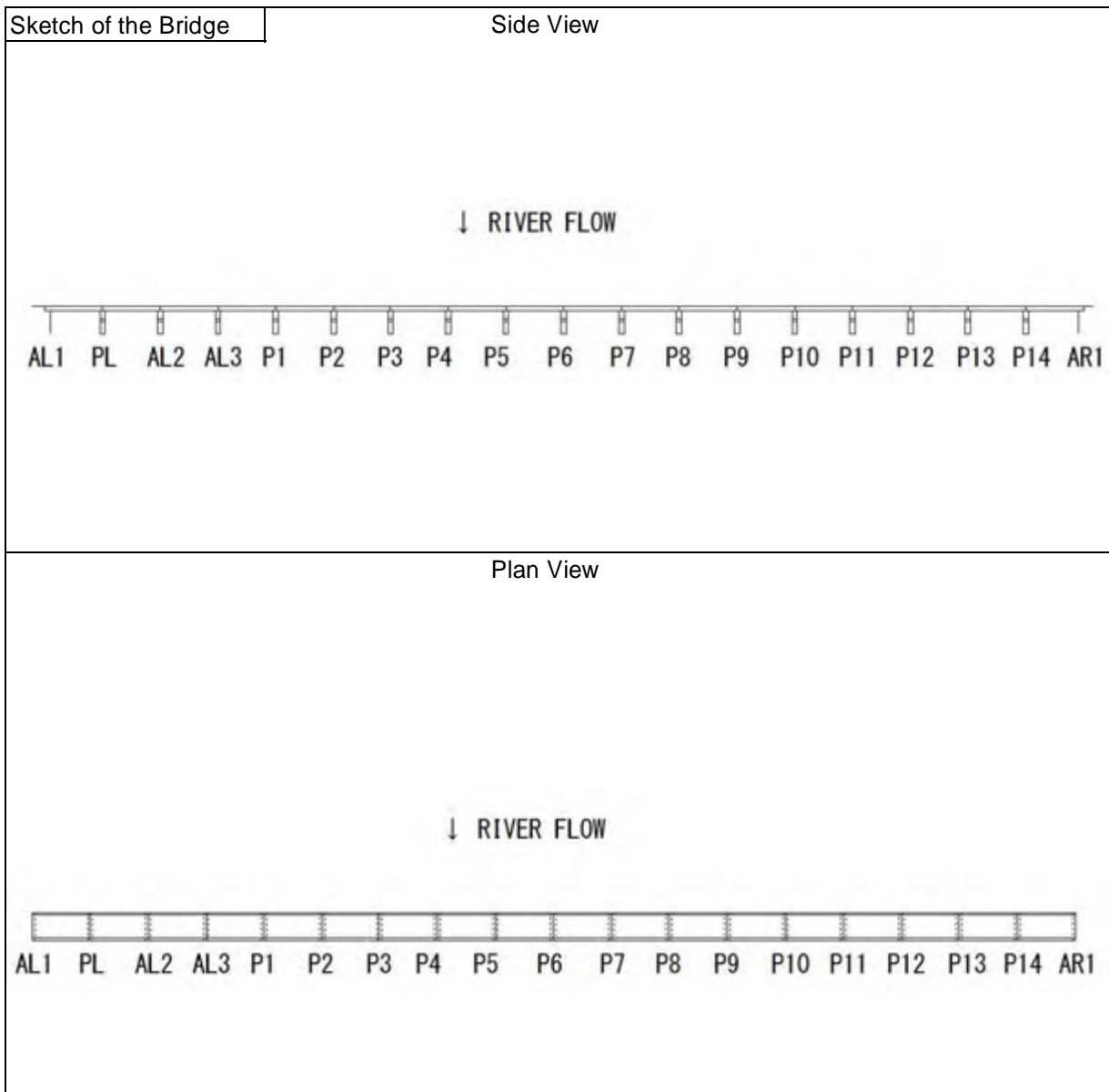
Bridge Survey Record (1/8)

Inspector : Koji KAWAMATA

Date & Time: 23 Nov 2013

Bridge No.	6	Location (State)	Goa
Bridge Name	Mandvi Bridge (old)	Road Name	NH17
Station	Panaji Km0/228	Road Category	National Highway
GPS Data	N 15° 30' 08.20"	Management Authority	MORTH/PWD
	E 73° 50' 12.56"	Year of Construction	1993

Bridge Length	741m	Span Arrangement	18 Spans
Bridge Width		Approach Road Width	8.5m (Both side)
- Carriageway Width	7.50 m (2 Lane)		
- Medium Width	Nil		
- Footway Width	1.5m		
Type of Superstructure	PC Box Girder	Existing of Detour	Approx. 63km
Type of Foundation	RC Well	Type of Substructure	RC



Bridge Survey Record (2/8) R1-R6

Inspector : Koji KAWAMATA

Date & Time: 23 Nov 2013

Bridge No.	6	Location (State)	Goa
Bridge Name	Mandvi Bridge (old)	Road Name	NH17

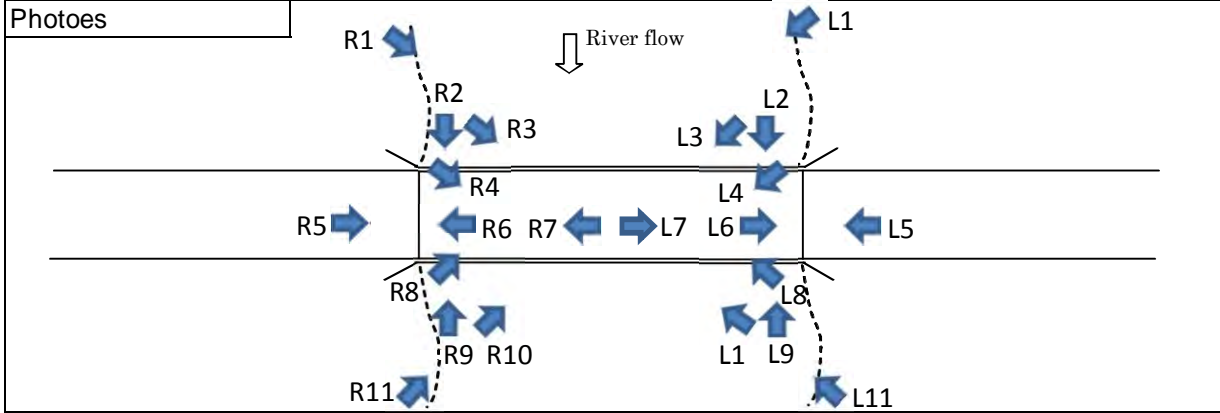


Photo R1

Photo R2



Photo R4

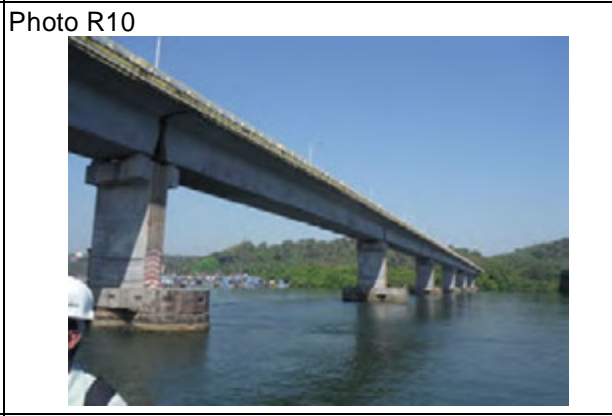
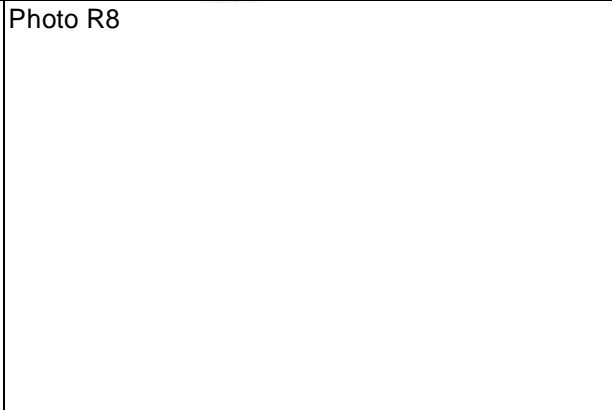
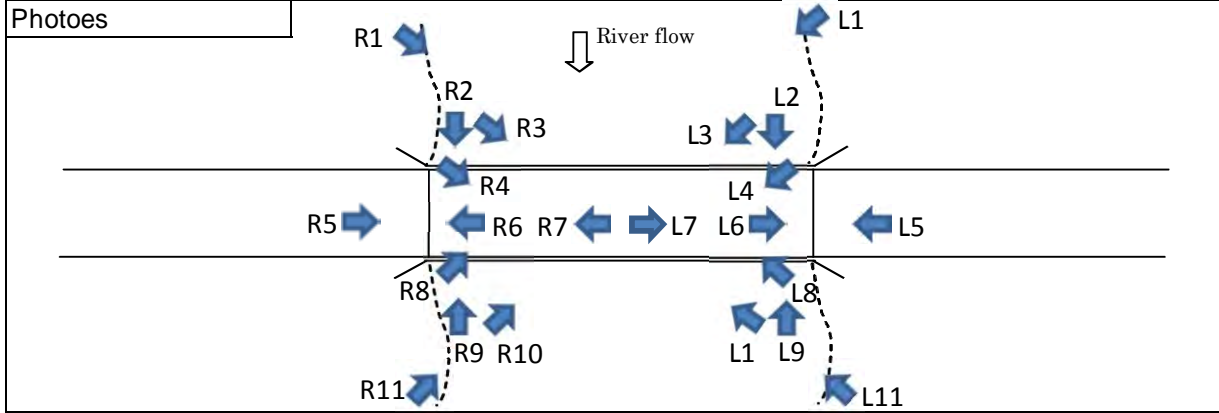


Bridge Survey Record (3/8) R7-R11

Inspector : Koji KAWAMATA

Date & Time: 23 Nov 2013

Bridge No.	6	Location (State)	Goa
Bridge Name	Mandvi Bridge (old)	Road Name	NH17

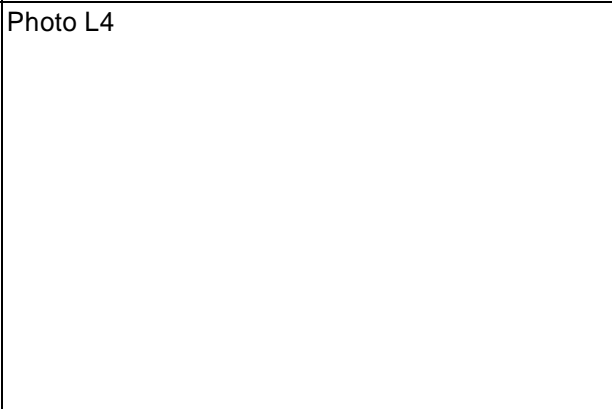
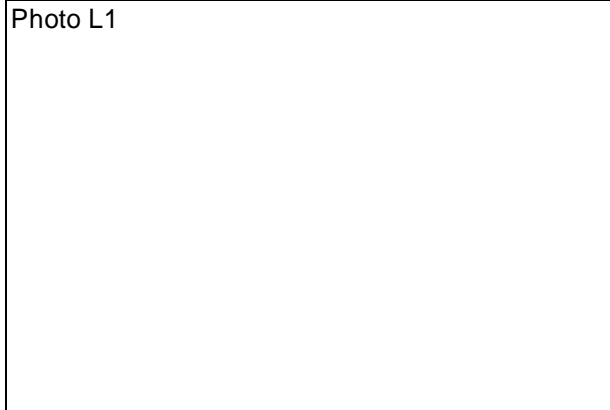
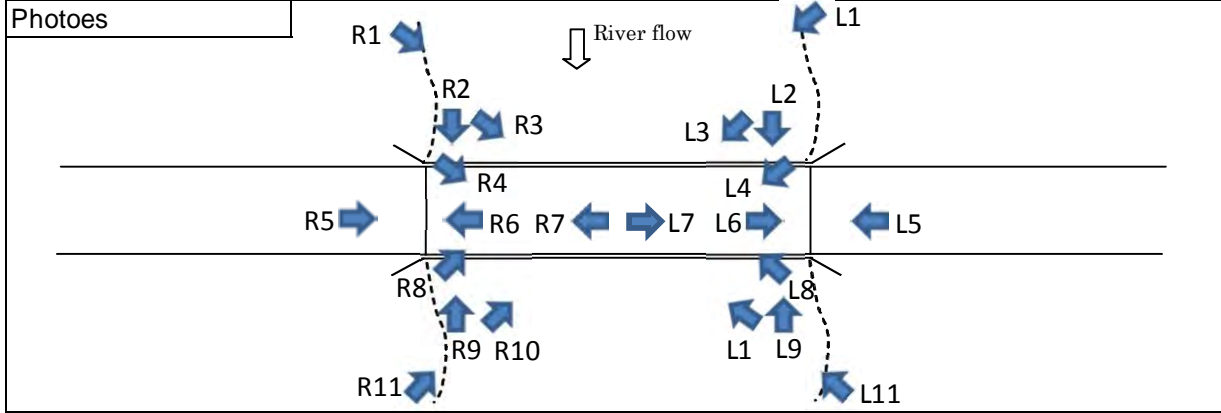


Bridge Survey Record (4/8) L1-L6

Inspector : Koji KAWAMATA

Date & Time: 23 Nov 2013

Bridge No.	6	Location (State)	Goa
Bridge Name	Mandvi Bridge (old)	Road Name	NH17

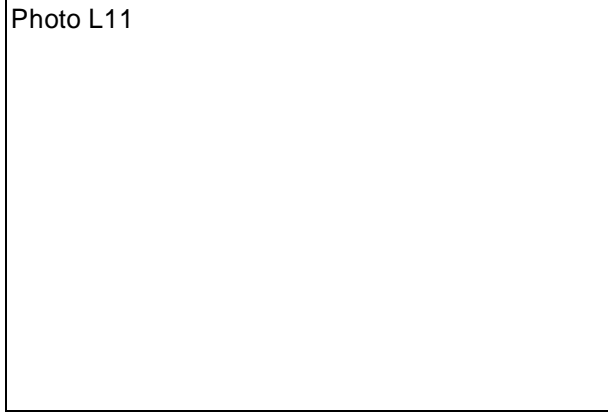
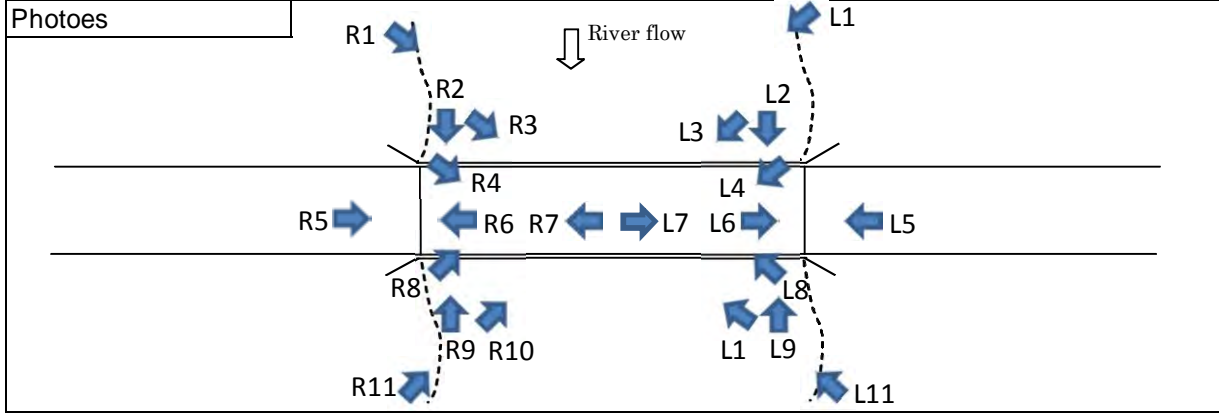


Bridge Survey Record (5/8) L7-L11

Inspector : Koji KAWAMATA

Date & Time: 23 Nov 2013

Bridge No.	6	Location (State)	Goa
Bridge Name	Mandvi Bridge (old)	Road Name	NH17



Bridge Survey Record (6/8)

Inspector : Koji KAWAMATA Date & Time: 23 Nov 2013

Bridge No.	6	Location (State)	Goa
Bridge Name	Mandvi Bridge (old)	Road Name	NH17
Station	Panaji Km0/228	Road Category	National Highway
GPS Data	N 15°30' 08.20"	Management Authority	MORTH/PWD
	E 73°50' 12.56"	Year of Construction	1993

General Description of Damages


Member	Kind of the Damage	
	Ex. Concrete : Cracking, Spalling, etc. Steel : Cracking, Rusting, Fracture, etc.	
1. Superstructure		
(1) Concrete Member		
- Girder	Nil	
- Cross Beam	N/A	
- Slab	Nil	
(2) Steel Member		
- Girder	N/A	
- Vertical Girder (stringer)	N/A	
- Cross Beam	N/A	
- Sway Bracing	N/A	
(3) Bearing Shoe	Nil	
(4) EXP Joint	Nil	
(5) Handrail	Nil	
(6) Kerb	Nil	
(7) Drainage Pipe	Nil	
(8) Others		
2. Substructure		
- Pier	Nil	
- Abutment	Nil	
- Wing Wall	Nil	
3. Miscellaneous		
- Approach Road Condition	Nil	
- Obstruction	Nil	
- Scouring	Nil	
4. Evaluation	See Sheet 8	

Bridge Survey Record (7/8)

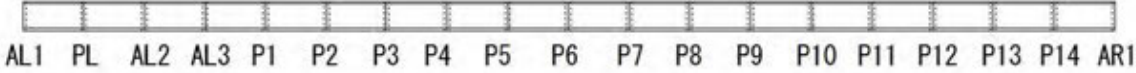
Inspector : Koji KAWAMATA Date & Time: 23 Nov 2013

Bridge No.	6	Location (State)	Goa
Bridge Name	Mandvi Bridge (old)	Road Name	NH17
Station	Panaji Km0/228	Road Category	National Highway
GPS Data	N 15°30' 08.20"	Management Authority	MORTH/PWD
	E 73°50' 12.56"	Year of Construction	1993

Detailed Description of Damages

Object Member	
Kind of Damage	
Sketch or Photo	

↓ RIVER FLOW



AL1 PL AL2 AL3 P1 P2 P3 P4 P5 P6 P7 P8 P9 P10 P11 P12 P13 P14 AR1

Bridge Survey Record (8/8)

Inspector : Koji KAWAMATA Date & Time: 23 Nov 2013

Bridge No.	6	Location (State)	Goa
Bridge Name	Mandvi Bridge (old)	Road Name	NH17
Station	Panaji Km0/228	Road Category	National Highway
GPS Data	N 15°30' 08.20"	Management Authority	MORTH/PWD
	E 73°50' 12.56"	Year of Construction	1993

Evaluation index

1	Traffic Demand	Very high
2	Distance of Detour Route	Approx. 63 km
3	Project Effects for Japanese Companies	Moderate
4	Damage Level of the Bridges	Very minor damages
5	Application of Japanese Technology	Local Technology
6	Duplication with Other Projects by Donor's or Local	None
7	Importance of the Bridge on Surrounding Society and Economy	Very high
8	Impacts on the Environment	-

Bridge Survey Record (1/8)

Inspector : Koji KAWAMATA

Date & Time: 23 Nov 2013

Bridge No.	7	Location (State)	Goa
Bridge Name	Mandvi Bridge (new)	Road Name	NH17
Station	Panaji Km0/280	Road Category	National Highway
GPS Data	N 15° 30' 08.20"	Management Authority	MORTH/PWD
	E 73° 50' 12.56"	Year of Construction	1997

Bridge Length	891m	Span Arrangement	21 Spans
Bridge Width		Approach Road Width	-
- Carriageway Width	7.50 m (2 Lane)		
- Medium Width	Nil		
- Footgeway Width	1.50 m		
Type of Superstructure	PC Box Girder	Existing of Detour	Approx. 63km
Type of Foundation	RC Well	Type of Substructure	RC

Sketch of the Bridge	Side View
<p style="text-align: center;">Plan View</p>	

Bridge Survey Record (2/8) R1-R6

Inspector : Koji KAWAMATA

Date & Time: 23 Nov 2013

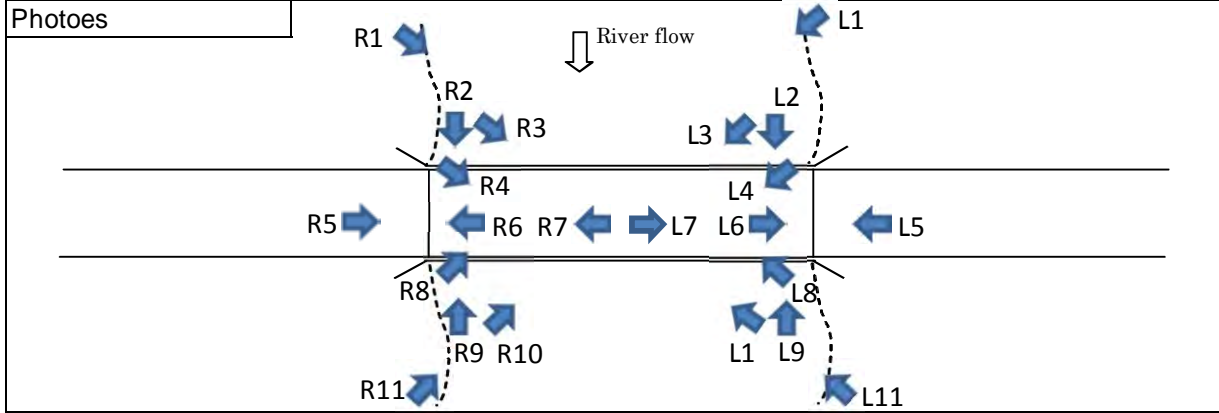
Bridge No.	7	Location (State)	Goa
Bridge Name	Mandvi Bridge (new)	Road Name	NH17
Photoes			
Photo R1			
Photo R2			
Photo R3			
Photo R4			
Photo R5			
Photo R6			

Bridge Survey Record (3/8) R7-R11

Inspector : Koji KAWAMATA

Date & Time: 23 Nov 2013

Bridge No.	7	Location (State)	Goa
Bridge Name	Mandvi Bridge (new)	Road Name	NH17



Bridge Survey Record (4/8) L1-L6

Inspector : Koji KAWAMATA

Date & Time: 23 Nov 2013

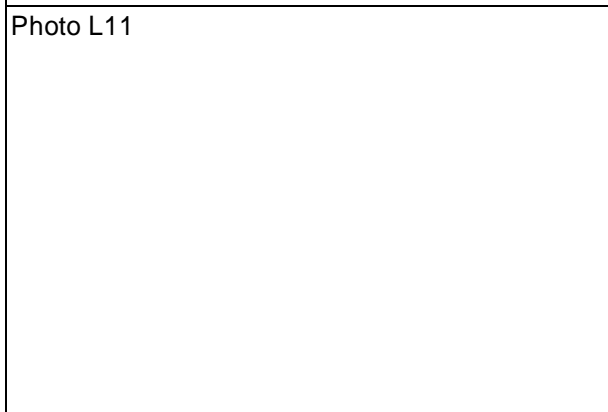
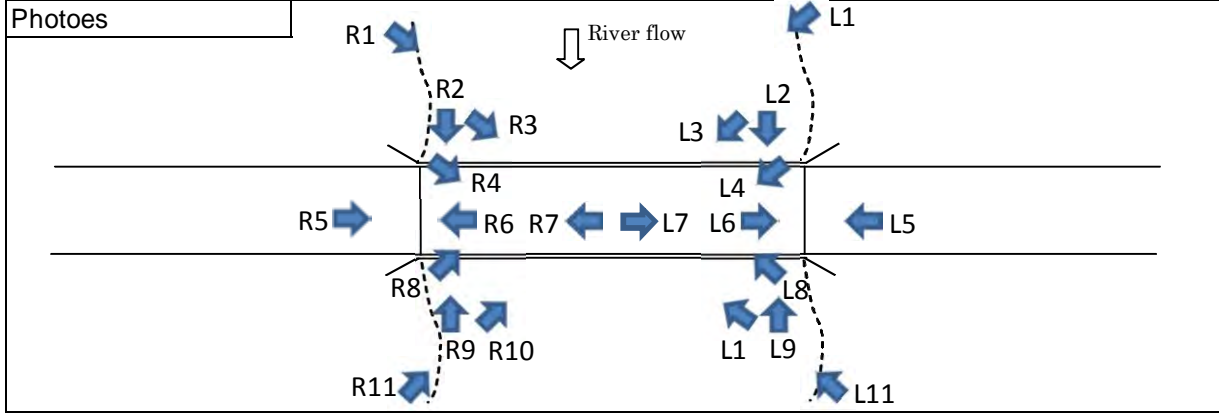
Bridge No.	7	Location (State)	Goa
Bridge Name	Mandvi Bridge (new)	Road Name	NH17
Photoes			
Photo L1	Photo L2		
Photo L3	Photo L4		
Photo L5	Photo L6		

Bridge Survey Record (5/8) L7-L11

Inspector : Koji KAWAMATA

Date & Time: 23 Nov 2013

Bridge No.	7	Location (State)	Goa
Bridge Name	Mandvi Bridge (new)	Road Name	NH17



Bridge Survey Record (6/8)

Inspector : Koji KAWAMATA Date & Time: 23 Nov 2013

Bridge No.	7	Location (State)	Goa
Bridge Name	Mandvi Bridge (new)	Road Name	NH17
Station	Panaji Km0/280	Road Category	National Highway
GPS Data	N 15°30' 08.20"	Management Authority	MORTH/PWD
	E 73°50' 12.56"	Year of Construction	1997

General Description of Damages

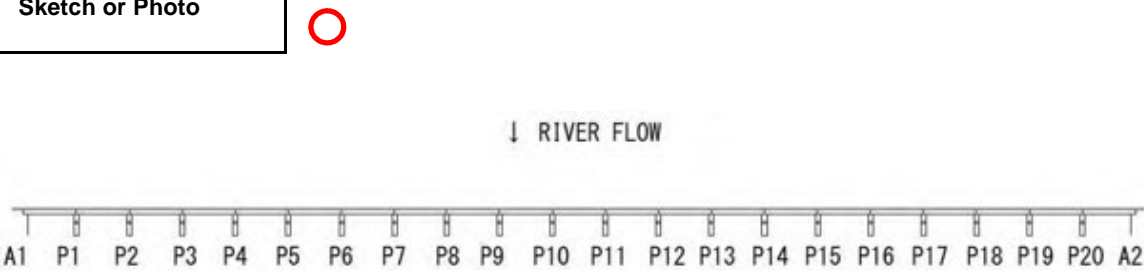
Member	Kind of the Damage	
	Ex. Concrete : Cracking, Spalling, etc. Steel : Cracking, Rusting, Fracture, etc.	
1. Superstructure		
(1) Concrete Member		
- Girder	Nil	
- Cross Beam	N/A	
- Slab	Nil	
(2) Steel Member		
- Girder	N/A	
- Vertical Girder (stringer)	N/A	
- Cross Beam	N/A	
- Sway Bracing	N/A	
(3) Bearing Shoe	Nil	
(4) EXP Joint	Nil	
(5) Handrail	Nil	
(6) Kerb	Nil	
(7) Drainage Pipe	Nil	
(8) Others		
2. Substructure		
- Pier	Nil	
- Abutment	Nil	
- Wing Wall	Nil	
3. Miscellaneous		
- Approach Road Condition	Nil	
- Obstruction	Nil	
- Scouring	Nil	
4. Evaluation	See Sheet 8	

Bridge Survey Record (7/8)

Inspector : Koji KAWAMATA Date & Time: 23 Nov 2013

Bridge No.	7	Location (State)	Goa
Bridge Name	Mandvi Bridge (new)	Road Name	NH17
Station	Panaji Km0/280	Road Category	National Highway
GPS Data	N 15°30' 08.20"	Management Authority	MORTH/PWD
	E 73°50' 12.56"	Year of Construction	1997

Detailed Description of Damages

Object Member	
Kind of Damage	
Sketch or Photo	 <p style="text-align: center;">↓ RIVER FLOW</p> <p style="text-align: center;">A1 P1 P2 P3 P4 P5 P6 P7 P8 P9 P10 P11 P12 P13 P14 P15 P16 P17 P18 P19 P20 A2</p>

Bridge Survey Record (8/8)

Inspector : Koji KAWAMATA Date & Time: 23 Nov 2013

Bridge No.	7	Location (State)	Goa
Bridge Name	Mandvi Bridge (new)	Road Name	NH17
Station	Panaji Km0/280	Road Category	National Highway
GPS Data	N 15°30' 08.20"	Management Authority	MORTH/PWD
	E 73°50' 12.56"	Year of Construction	1997

Evaluation index

1	Traffic Demand	Very high
2	Distance of Detour Route	Approx. 63 km
3	Project Effects for Japanese Companies	Moderate
4	Damage Level of the Bridges	Very minor damages
5	Application of Japanese Technology	Local Technology
6	Duplication with Other Projects by Donor's or Local	None
7	Importance of the Bridge on Surrounding Society and Economy	Very high
8	Impacts on the Environment	-

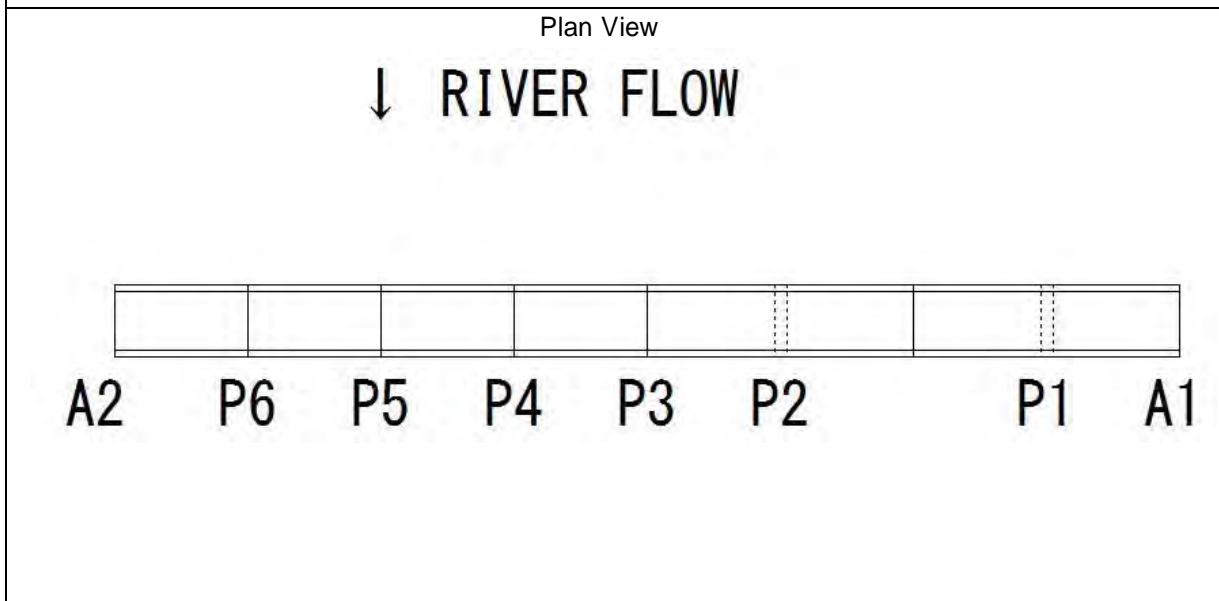
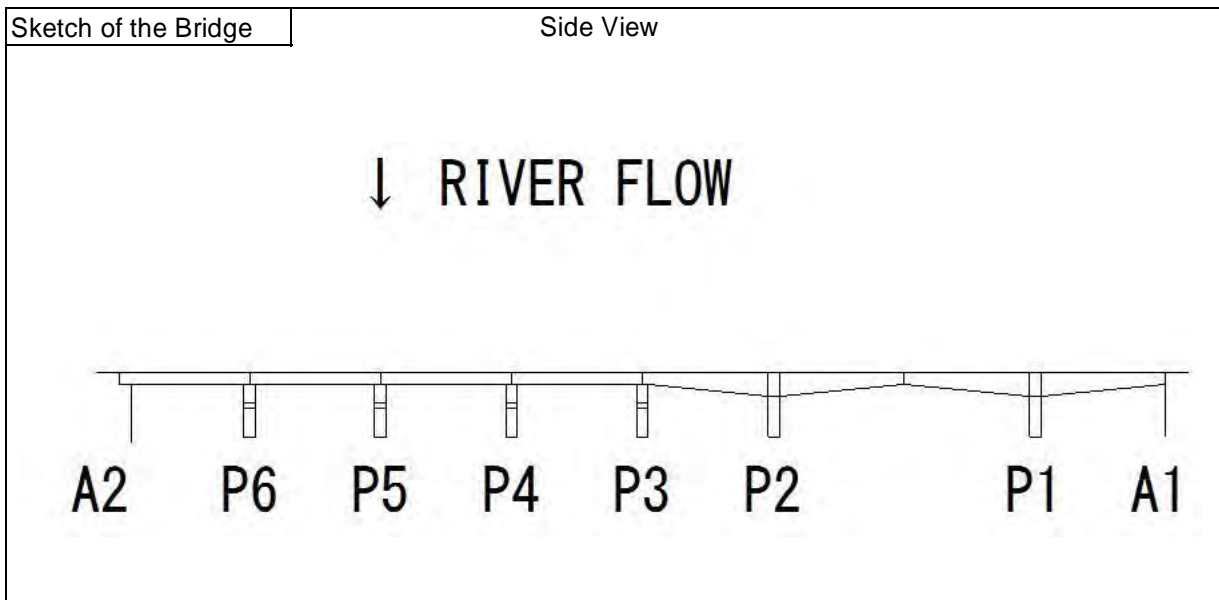
Bridge Survey Record (1/8)

Inspector : Koji KAWAMATA

Date & Time: 22 Nov 2013

Bridge No.	8	Location (State)	Goa
Bridge Name	Borim Bridge	Road Name	NH17B
Station	Ponda Km9/00	Road Category	National Highway
GPS Data	N 15° 20' 58.61"	Management Authority	MORTH
	E 74° 00' 10.43"	Year of Construction	1983

Bridge Length	411 m	Span Arrangement	7 Spans
Bridge Width		Approach Road Width	11m (Both side)
- Carriageway Width	7.50 m (2 Lane)		
- Medium Width	Nil		
- Footway Width	1.50 m		
Type of Superstructure	PC Box Girder	Existing of Detour	Approx. 48km
Type of Foundation	Well	Type of Substructure	Hollow RC



Bridge Survey Record (2/8) R1-R6

Inspector : Koji KAWAMATA

Date & Time: 22 Nov 2013

Bridge No.	8	Location (State)	Goa
Bridge Name	Borim Bridge	Road Name	NH17B
Photoes			
Photo R1	Photo R2		
Photo R3	<div style="text-align: right;"> </div>		
Photo R5	<div style="text-align: right;"> </div>		

Bridge Survey Record (3/8) R7-R11

Inspector : Koji KAWAMATA

Date & Time: 22 Nov 2013

Bridge No.	8	Location (State)	Goa
Bridge Name	Borim Bridge	Road Name	NH17B
Photoes			
Photo R7			
Photo R8			
Photo R9			
Photo R10			
Photo R11			

Bridge Survey Record (4/8) L1-L6

Inspector : Koji KAWAMATA

Date & Time: 22 Nov 2013

Bridge No.	8	Location (State)	Goa
Bridge Name	Borim Bridge	Road Name	NH17B
Photoes			

Photo L1



Bridge Survey Record (5/8) L7-L11

Inspector : Koji KAWAMATA

Date & Time: 22 Nov 2013

Bridge No.	8	Location (State)	Goa
Bridge Name	Borim Bridge	Road Name	NH17B
Photoes			
Photo L7			
Photo L8			
Photo L9			
Photo L10			
Photo L11			

Bridge Survey Record (6/8)

Inspector : Koji KAWAMATA Date & Time: 22 Nov 2013

Bridge No.	8	Location (State)	Goa
Bridge Name	Borim Bridge	Road Name	NH17B
Station	Ponda Km9/00	Road Category	National Highway
GPS Data	N 15° 20' 58.61"	Management Authority	MORTH
	E 74° 00' 10.43"	Year of Construction	1983

General Description of Damages

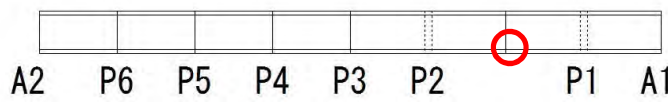

Member	Kind of the Damage
	Ex. Concrete : Cracking, Spalling, etc. Steel : Cracking, Rusting, Fracture, etc.
1. Superstructure	
(1) Concrete Member	
- Girder	There is some level difference at centre hinge
- Cross Beam	N/A
- Slab	Nil
(2) Steel Member	
- Girder	N/A
- Vertical Girder (stringer)	N/A
- Cross Beam	N/A
- Sway Bracing	N/A
(3) Bearing Shoe	Nil
(4) EXP Joint	Corrosion & Gap (P1P2)
(5) Handrail	Nil
(6) Kerb	Nil
(7) Drainage Pipe	Nil
(8) Others	Nil
2. Substructure	
- Pier	Nil
- Abutment	Nil
- Wing Wall	Nil
3. Miscellaneous	
- Approach Road Condition	Nil
- Obstruction	Nil
- Scouring	Nil
4. Evaluation	See Sheet 8

Bridge Survey Record (7/8) -1

Inspector : Koji KAWAMATA Date & Time: 22 Nov 2013

Bridge No.	8	Location (State)	Goa
Bridge Name	Borim Bridge	Road Name	NH17B
Station	Ponda Km9/00	Road Category	National Highway
GPS Data	N 15° 20' 58.61"	Management Authority	MORTH
	E 74° 00' 10.43"	Year of Construction	1983

Detailed Description of Damages

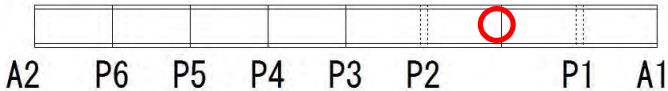


Object Member	EXP Joint (P1P2)
Kind of Damage	Corrosion
Sketch or Photo	<p>↓ RIVER FLOW</p> 
	
	

Bridge Survey Record (7/8) -2

Inspector : Koji KAWAMATA Date & Time: 22 Nov 2013

Bridge No.	8	Location (State)	Goa
Bridge Name	Borim Bridge	Road Name	NH17B
Station	Ponda Km9/00	Road Category	National Highway
GPS Data	N 15° 20' 58.61"	Management Authority	MORTH
	E 74° 00' 10.43"	Year of Construction	1983

Detailed Description of Damages

Object Member	EXP Joint (P1P2)
Kind of Damage	Level difference
Sketch or Photo	<p>↓ RIVER FLOW</p> 
	
	

Bridge Survey Record (7/8) -3

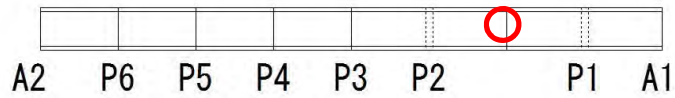
Inspector : Koji KAWAMATA Date & Time: 22 Nov 2013

Bridge No.	8	Location (State)	Goa
Bridge Name	Borim Bridge	Road Name	NH17B
Station	Ponda Km9/00	Road Category	National Highway
GPS Data	N 15° 20' 58.61"	Management Authority	MORTH
	E 74° 00' 10.43"	Year of Construction	1983

Detailed Description of Damages

Object Member	Girder (P1P2)
Kind of Damage	There are some level difference at centre hinge
Sketch or Photo	

↓ RIVER FLOW



Bridge Survey Record (8/8)

Inspector : Koji KAWAMATA Date & Time: 22 Nov 2013

Bridge No.	8	Location (State)	Goa
Bridge Name	Borim Bridge	Road Name	NH17B
Station	Ponda Km9/00	Road Category	National Highway
GPS Data	N 15° 20' 58.61"	Management Authority	MORTH
	E 74° 00' 10.43"	Year of Construction	1983

Evaluation index

1	Traffic Demand	High
2	Distance of Detour Route	Approx. 48 km
3	Project Effects for Japanese Companies	Moderate
4	Damage Level of the Bridges	Need repairing at centre hinge
5	Application of Japanese Technology	Applicable (centre hinge connection)
6	Duplication with Other Projects by Donor's or Local	None
7	Importance of the Bridge on Surrounding Society and Economy	Very high
8	Impacts on the Environment	Minimal

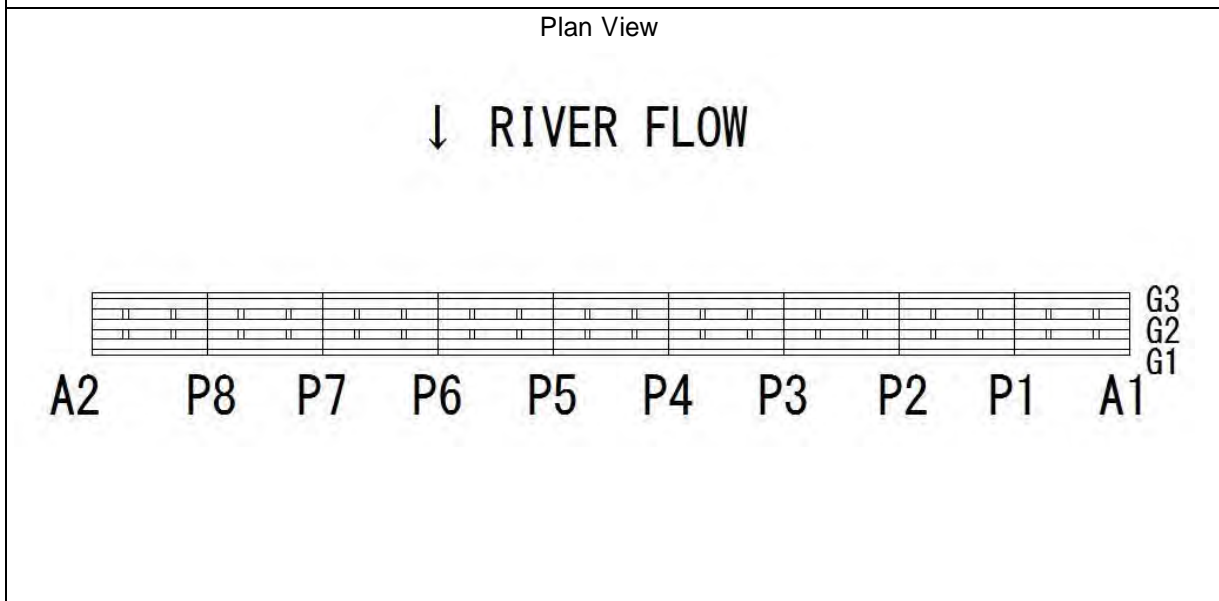
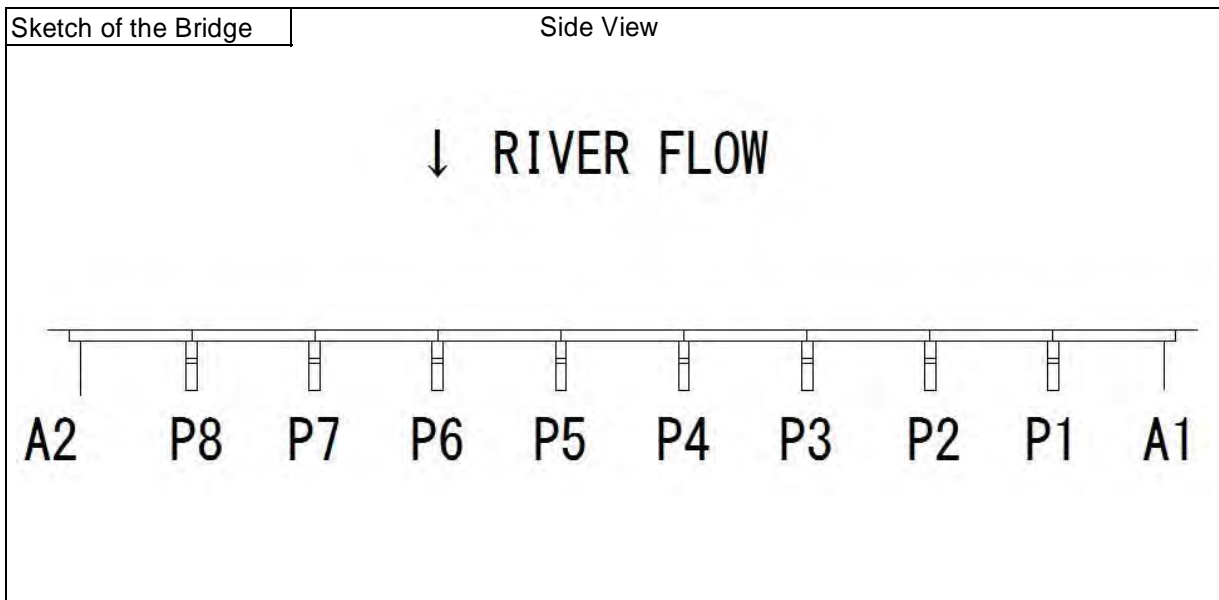
Bridge Survey Record (1/8)

Inspector : Koji KAWAMATA

Date & Time: 22 Nov 2013

Bridge No.	9	Location (State)	Goa
Bridge Name	Khanderpar Bridge	Road Name	NH4A
Station	Km118/800	Road Category	National Highway
GPS Data	N 15° 25' 21.66"	Management Authority	MORTH
	E 74° 03' 00.61"	Year of Construction	1961

Bridge Length	110 m	Span Arrangement	9 Spans
Bridge Width		Approach Road Width	8.0m (Both side)
- Carriageway Width	5.45 m (2 Lane)		
- Medium Width	Nil		
- Footgeway Width	Nil		
Type of Superstructure	RC T Girder	Existing of Detour	approx. 28km
Type of Foundation	Well	Type of Substructure	RC



Bridge Survey Record (2/8) R1-R6

Inspector : Koji KAWAMATA

Date & Time: 22 Nov 2013

Bridge No.	9	Location (State)	Goa
Bridge Name	Khanderpar Bridge	Road Name	NH4A

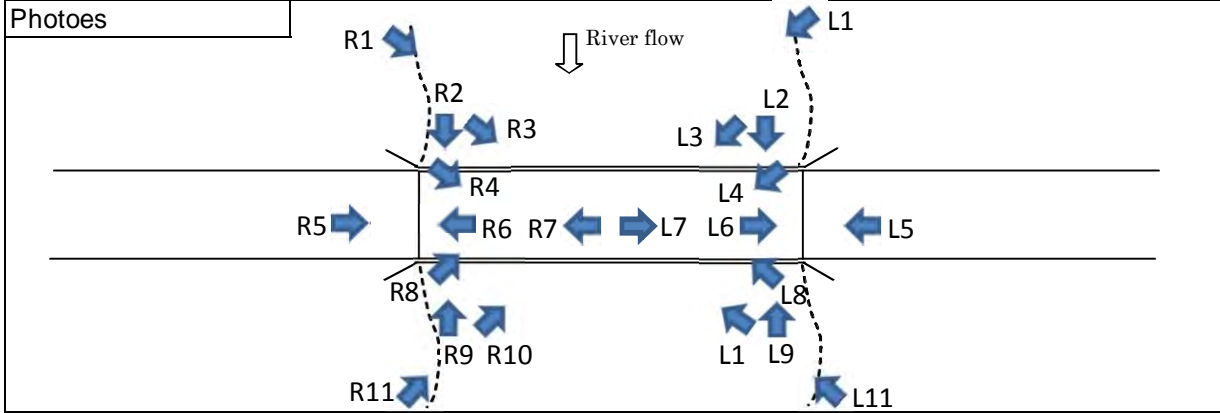


Photo R1



Photo R2



Photo R3



Photo R4



Photo R5



Photo R6

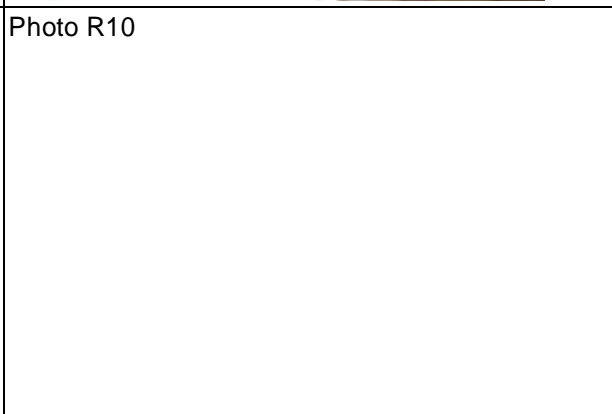
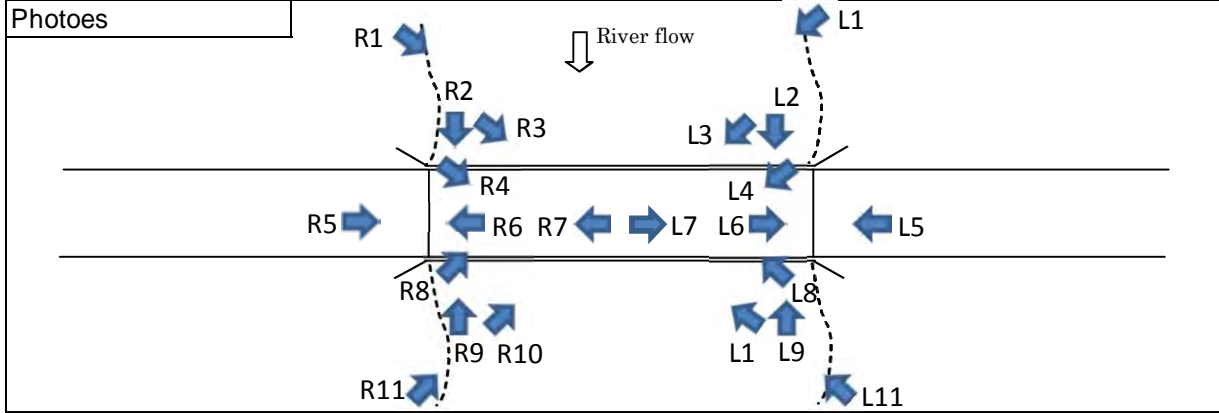


Bridge Survey Record (3/8) R7-R11

Inspector : Koji KAWAMATA

Date & Time: 22 Nov 2013

Bridge No.	9	Location (State)	Goa
Bridge Name	Khanderpar Bridge	Road Name	NH4A

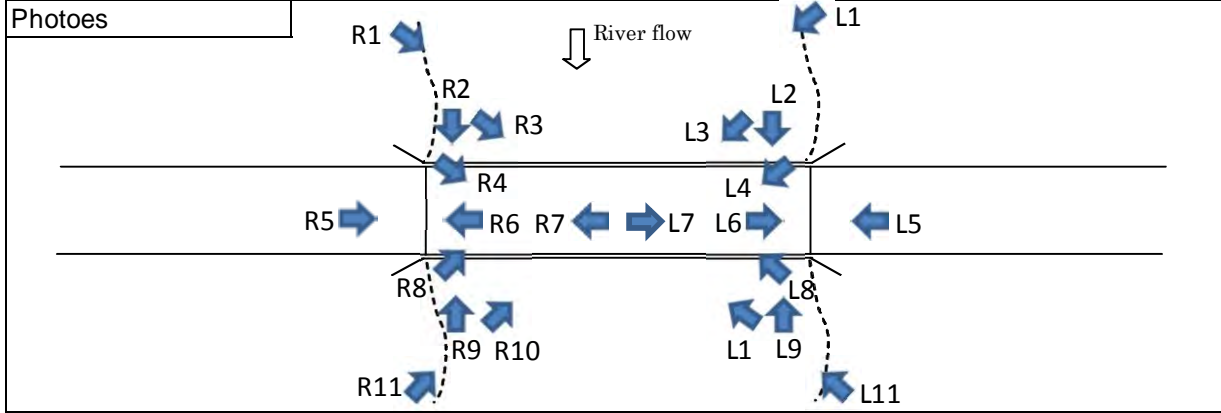


Bridge Survey Record (4/8) L1-L6

Inspector : Koji KAWAMATA

Date & Time: 22 Nov 2013

Bridge No.	9	Location (State)	Goa
Bridge Name	Khanderpar Bridge	Road Name	NH4A

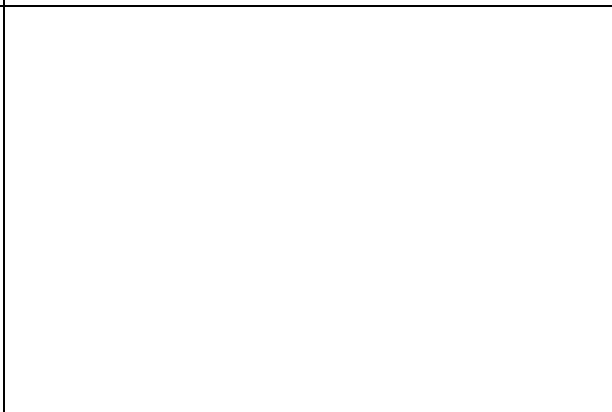
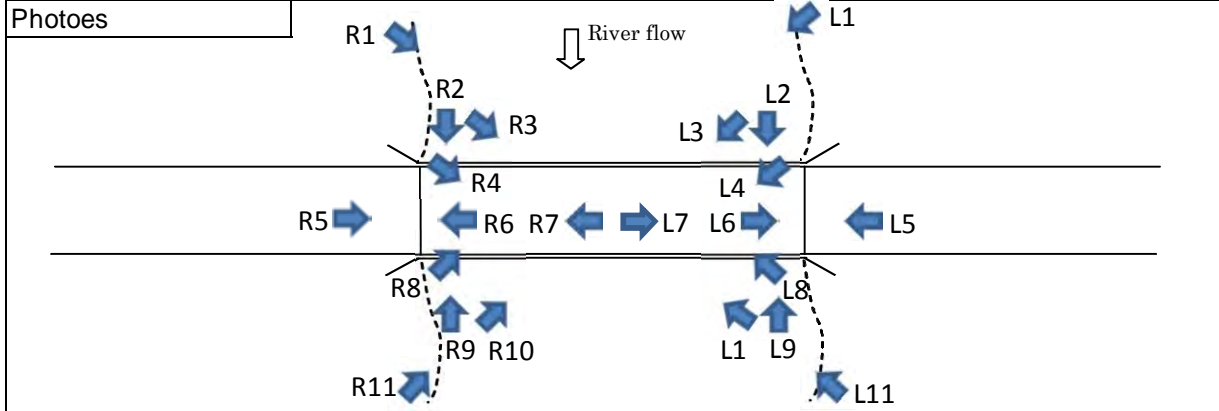


Bridge Survey Record (5/8) L7-L11

Inspector : Koji KAWAMATA

Date & Time: 22 Nov 2013

Bridge No.	9	Location (State)	Goa
Bridge Name	Khanderpar Bridge	Road Name	NH4A



Bridge Survey Record (6/8)

Inspector : Koji KAWAMATA Date & Time: 22 Nov 2013

Bridge No.	9	Location (State)	Goa
Bridge Name	Khandarpar Bridge	Road Name	NH4A
Station	Km118/800	Road Category	National Highway
GPS Data	N 15°25' 21.66"	Management Authority	MORTH
	E 74°03' 00.61"	Year of Construction	1961

General Description of Damages

Member	Kind of the Damage
	Ex. Concrete : Cracking, Spalling, etc. Steel : Cracking, Rusting, Fracture, etc.
1. Superstructure	
(1) Concrete Member	
- Girder	Cracking on lower flange (P1P2)
- Cross Beam	Nil
- Slab	Nil
(2) Steel Member	
- Girder	N/A
- Vertical Girder (stringer)	N/A
- Cross Beam	N/A
- Sway Bracing	N/A
(3) Bearing Shoe	Nil
(4) EXP Joint	Nil
(5) Handrail	Nil
(6) Kerb	N/A
(7) Drainage Pipe	Filling
(8) Others	
2. Substructure	
- Pier	Nil
- Abutment	Nil
- Wing Wall	Nil
3. Miscellaneous	
- Approach Road Condition	Nil
- Obstruction	Nil
- Scouring	Nil
4. Evaluation	See Sheet 8

Bridge Survey Record (7/8) -1

Inspector : Koji KAWAMATA Date & Time: 22 Nov 2013

Bridge No.	9	Location (State)	Goa
Bridge Name	Khanderpar Bridge	Road Name	NH4A
Station	Km118/800	Road Category	National Highway
GPS Data	N 15°25' 21.66"	Management Authority	MORTH
	E 74°03' 00.61"	Year of Construction	1961

Detailed Description of Damages

Object Member	Pavement
Kind of Damage	Cracking
Sketch or Photo	

↓ RIVER FLOW



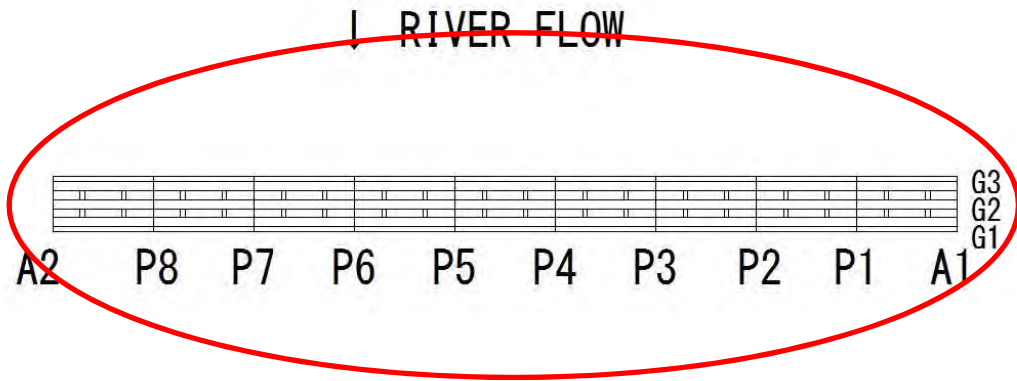
Bridge Survey Record (7/8) -2

Inspector : Koji KAWAMATA Date & Time: 22 Nov 2013

Bridge No.	9	Location (State)	Goa
Bridge Name	Khanderpar Bridge	Road Name	NH4A
Station	Km118/800	Road Category	National Highway
GPS Data	N 15°25' 21.66"	Management Authority	MORTH
	E 74°03' 00.61"	Year of Construction	1961

Detailed Description of Damages

Object Member	Drainage Pipe
Kind of Damage	Filling
Sketch or Photo	



Bridge Survey Record (7/8) -3

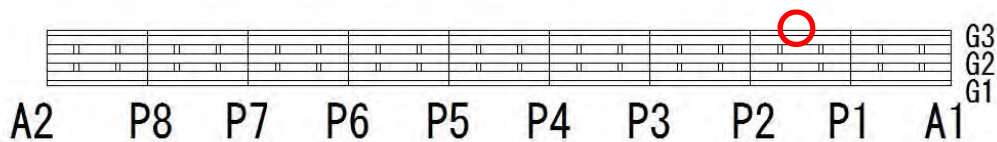
Inspector : Koji KAWAMATA Date & Time: 22 Nov 2013

Bridge No.	9	Location (State)	Goa
Bridge Name	Khandarpar Bridge	Road Name	NH4A
Station	Km118/800	Road Category	National Highway
GPS Data	N 15°25' 21.66"	Management Authority	MORTH
	E 74°03' 00.61"	Year of Construction	1961

Detailed Description of Damages

Object Member	RC T Girder (P1P2)
Kind of Damage	Cracking
Sketch or Photo	

↓ RIVER FLOW



Bridge Survey Record (8/8)

Inspector : Koji KAWAMATA Date & Time: 22 Nov 2013

Bridge No.	9	Location (State)	Goa
Bridge Name	Khanderpar Bridge	Road Name	NH4A
Station	Km118/800	Road Category	National Highway
GPS Data	N 15°25' 21.66"	Management Authority	MORTH
	E 74°03' 00.61"	Year of Construction	1961

Evaluation index

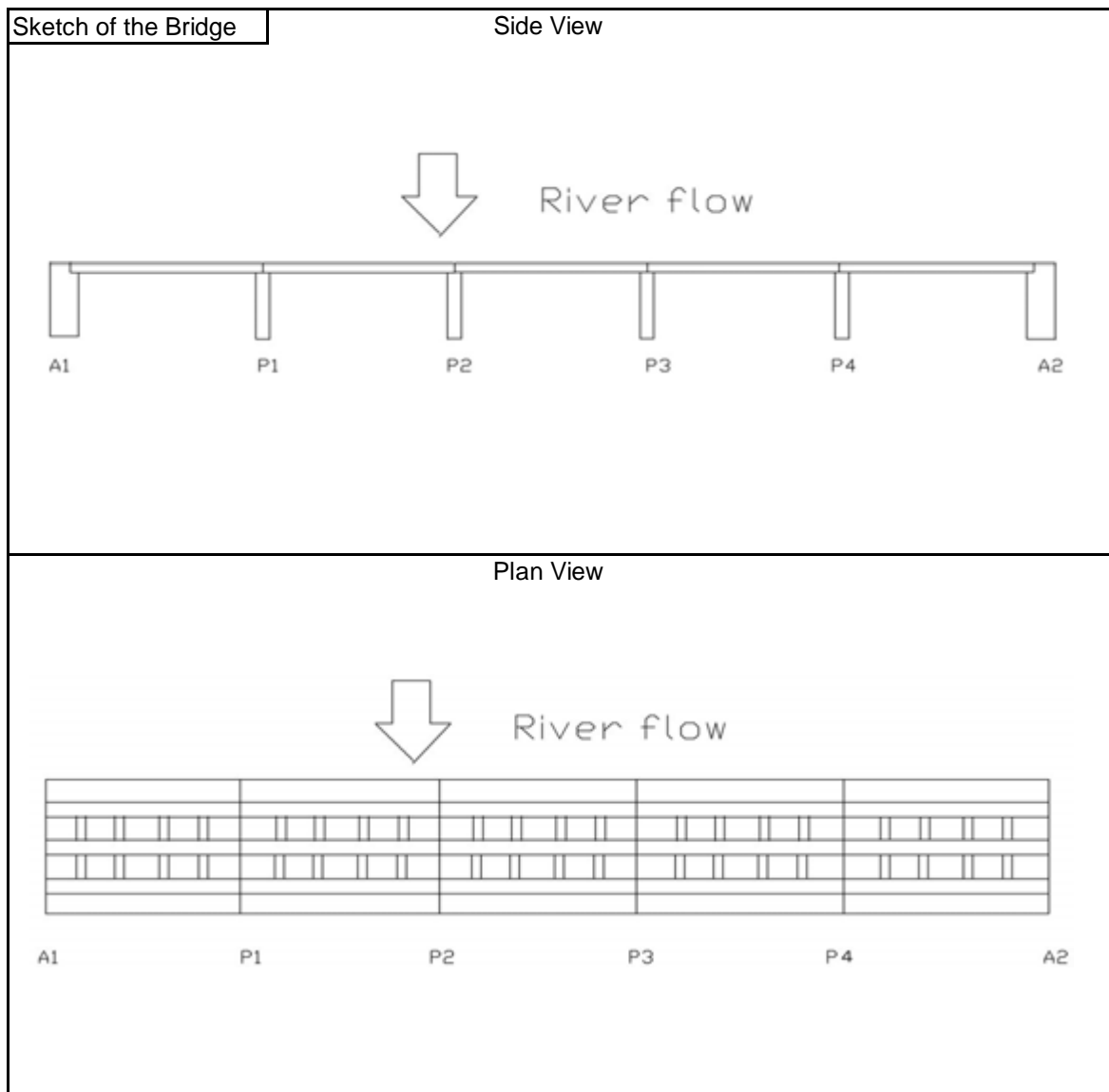
1	Traffic Demand	Moderate
2	Distance of Detour Route	Approx. 28 km
3	Project Effects for Japanese Companies	Moderate
4	Damage Level of the Bridges	Minor damages
5	Application of Japanese Technology	Local Technology
6	Duplication with Other Projects by Donor's or Local	Improvement (4 lane bridge, 40m upstream) plan beside existing bridge
7	Importance of the Bridge on Surrounding Society and Economy	Moderate
8	Impacts on the Environment	-

Bridge Survey Record (1/8)

Inspector : Toshinao YAMAGUCHI Date & Time: 20 Nov 2013

Bridge No.	10	Location (State)	Kerala
Bridge Name	Mahe Bridge	Road Name	NH17
Station	184/600	Road Category	National Highway
GPS Data	N 11 ° 42 ' 24.3 "	Management Authority	Kerala PWD
	E 075 ° 31 ' 59.4 "	Year of Construction	1930

Bridge Length	117 m	Span Arrangement	5 x 23.40m
Bridge Width		Approach Road Width	Same as bridge
- Carriageway Width	6.7m		
- Median Width	Nil		
- Footway Width	0.96m (both side)		
Type of Superstructure	RC T Girder	Existing of Detour	Approx. 16Km
Type of Foundation	Well	Type of Substructure	Stone masonry



Bridge Survey Record (2/8) R1-R6

Inspector : Toshinao YAMAGUCHI Date & Time: 20 Nov 2013

Bridge No.	10	Location (State)	Kerala
Bridge Name	Mahe Bridge	Road Name	NH17
Photoes			
Photo R1			
Photo R2			
Photo R3			
Photo R4			
Photo R5			
Photo R6			

Bridge Survey Record (3/8) R7-R11

Inspector : Toshinao YAMAGUCHI Date & Time: 20 Nov 2013

Bridge No.	10	Location (State)	Kerala
Bridge Name	Mahe Bridge	Road Name	NH17
Photoes			
Photo R7			
Photo R8			
Photo R9			
Photo R10			
Photo R11			

Bridge Survey Record (4/8) L1-L6

Inspector : Toshinao YAMAGUCHI Date & Time: 20 Nov 2013

Bridge No.	10	Location (State)	Kerala
Bridge Name	Mahe Bridge	Road Name	NH17
Photoes			
Photo L1			
Photo L2			
Photo L3			
Photo L4			
Photo L5			
Photo L6			

Bridge Survey Record (5/8) L7-L11

Inspector : Toshinao YAMAGUCHI Date & Time: 20 Nov 2013

Bridge No.	10	Location (State)	Kerala
Bridge Name	Mahe Bridge	Road Name	NH17
Photoes			
Photo L7			
Photo L8			
Photo L9			
Photo L10			
Photo L11			

Bridge Survey Record (6/8)

Inspector : Toshinao YAMAGUCHI Date & Time: 20 Nov 2013

Bridge No.	10	Location (State)	Kerala
Bridge Name	Mahe Bridge	Road Name	NH17
Station	184/600	Road Category	National Highway
GPS Data	N 11 °42 ' 24.3 "	Management Authority	Kerala PWD
	E 075 °31 ' 59.4 "	Year of Construction	1930

General Description of Damages

Member	Kind of the Damage
	Ex. Concrete : Cracking, Spalling, etc. Steel : Cracking, Rusting, Fracture, etc.
1. Superstructure	
(1) Concrete Member	
- Girder	There are some cracks on lower flange and web.
- Cross Beam	Unidentifiable due to guniting work in 2000
- Slab	There aore some crack on lower slab
(2) Steel Member	
- Girder	N/A
- Vertical Girder (stringer)	N/A
- Cross Beam	N/A
- Sway Bracing	N/A
(3) Bearing Shoe	Some bearing shoe are broken
(4) EXP Joint	All covered by asphalt and not functioning propely
(5) Handrail	CC peeling and corroded re-bar exposed
(6) Kerb	Kerb height is not available
(7) Drainage Pipe	Nil
(8) Others	It is assumed that there are many damages on superstructure although cracks were covered by guniting work and it is difficult to observe them.
2. Substructure	
- Pier	Nil
- Abutment	Nil
- Wing Wall	Nil
3. Miscellaneous	
- Approach Road Condition	Nil
- Obstruction	Nil
- Scouring	Unknown
4. Evaluation	See Sheet 8

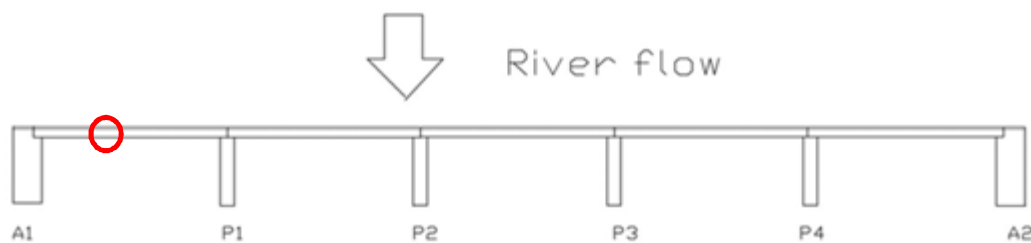
Bridge Survey Record (7/8) -1

Inspector : Toshinao YAMAGUCHI Date & Time: 20 Nov 2013

Bridge No.	10	Location (State)	Kerala
Bridge Name	Mahe Bridge	Road Name	NH17
Station	184/600	Road Category	National Highway
GPS Data	N 11 °42 '24.3 "	Management Authority	Kerala PWD
	E 075 °31 '59.4 "	Year of Construction	1930

Detailed Description of Damages

Object Member	Girder (A1-P1)
Kind of Damage	Cracks on web
Sketch or Photo	



Bridge Survey Record (7/8) -2

Inspector : Toshinao YAMAGUCHI Date & Time: 20 Nov 2013

Bridge No.	10	Location (State)	Kerala
Bridge Name	Mahe Bridge	Road Name	NH17
Station	184/600	Road Category	National Highway
GPS Data	N 11 °42 '24.3 "	Management Authority	Kerala PWD
	E 075 °31 '59.4 "	Year of Construction	1930

Detailed Description of Damages

Object Member	Girder
Kind of Damage	Cracks on lower flange (P4-A2)
Sketch or Photo	



Bridge Survey Record (7/8) -3

Inspector : Toshinao YAMAGUCHI Date & Time: 20 Nov 2013

Bridge No.	10	Location (State)	Kerala
Bridge Name	Mahe Bridge	Road Name	NH17
Station	184/600	Road Category	National Highway
GPS Data	N 11 °42 ' 24.3 "	Management Authority	Kerala PWD
	E 075 °31 ' 59.4 "	Year of Construction	1930

Detailed Description of Damages

Object Member	All EXP joints
Kind of Damage	EXP joints are plugged with asphalt or bituminous material
Sketch or Photo	



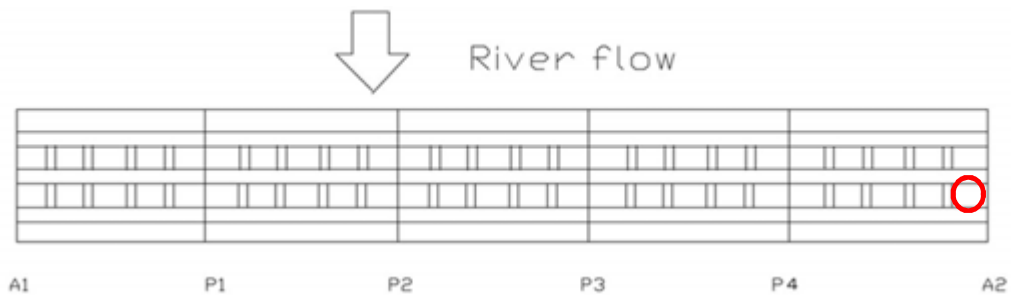
Bridge Survey Record (7/8) -4

Inspector : Toshinao YAMAGUCHI Date & Time: 20 Nov 2013

Bridge No.	10	Location (State)	Kerala
Bridge Name	Mahe Bridge	Road Name	NH17
Station	184/600	Road Category	National Highway
GPS Data	N 11 °42 ' 24.3 "	Management Authority	Kerala PWD
	E 075 °31 ' 59.4 "	Year of Construction	1930

Detailed Description of Damages

Object Member	Deck slab (P4-A2)
Kind of Damage	Some cracks are observed in the bottom of the deck slab
Sketch or Photo	



Bridge Survey Record (7/8) -5

Inspector : Toshinao YAMAGUCHI Date & Time: 20 Nov 2013

Bridge No.	10	Location (State)	Kerala
Bridge Name	Mahe Bridge	Road Name	NH17
Station	184/600	Road Category	National Highway
GPS Data	N 11 °42 ' 24.3 "	Management Authority	Kerala PWD
	E 075 °31 ' 59.4 "	Year of Construction	1930

Detailed Description of Damages

Object Member	Hand railing (all spans)
Kind of Damage	CC spalling and re-bar corroded
Sketch or Photo	

Bridge Survey Record (7/8) -6

Inspector : Toshinao YAMAGUCHI Date & Time: 20 Nov 2013

Bridge No.	10	Location (State)	Kerala
Bridge Name	Mahe Bridge	Road Name	NH17
Station	184/600	Road Category	National Highway
GPS Data	N 11 °42 ' 24.3 "	Management Authority	Kerala PWD
	E 075 °31 ' 59.4 "	Year of Construction	1930

Detailed Description of Damages

Object Member	Footpath
Kind of Damage	Kerb stone and footpath broken
Sketch or Photo	



Bridge Survey Record (8/8)

Inspector : Toshinao YAMAGUCHI Date & Time: 20 Nov 2013

Bridge No.	10	Location (State)	Kerala
Bridge Name	Mahe Bridge	Road Name	NH17
Station	184/600	Road Category	National Highway
GPS Data	N 11 °42 ' 24.3 "	Management Authority	Kerala PWD
	E 075 °31 ' 59.4 "	Year of Construction	1930

Evaluation index

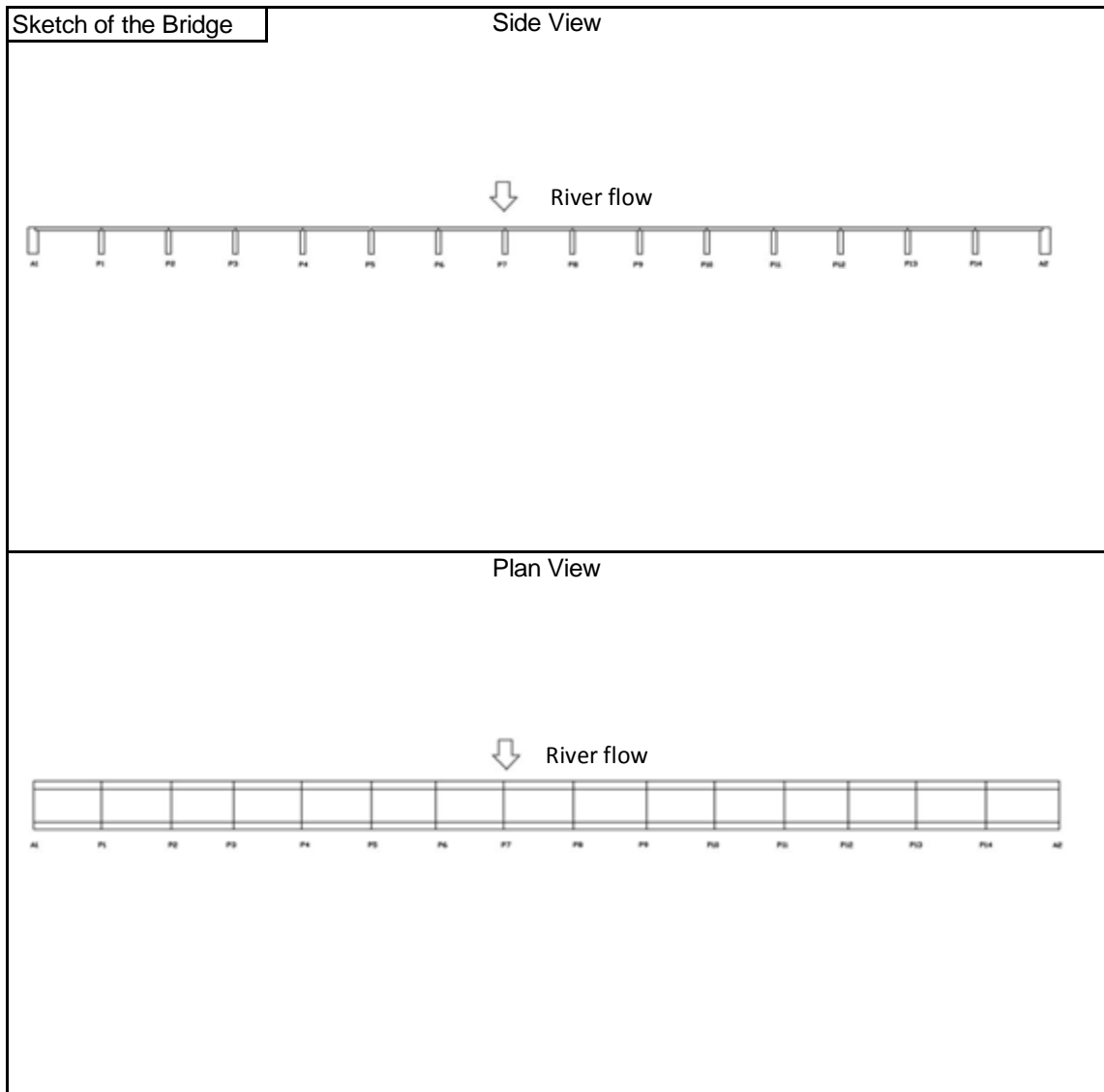
1	Traffic Demand	Very High
2	Distance of Detour Route	Approx. 16 km
3	Project Effects for Japanese Companies	High
4	Damage Level of the Bridges	Need repairing on superstructure
5	Application of Japanese Technology	Applicable (replacement by Steel girder)
6	Duplication with Other Projects by Donor's or Local	None (There is bypass with new 4 lane bridge 1km upstream under NHDP)
7	Importance of the Bridge on Surrounding Society and Economy	Highly useful
8	Impacts on the Environment	Moderate

Bridge Survey Record (1/8)

Inspector : Toshinao YAMAGUCHI Date & Time: 20 Nov 2013

Bridge No.	11	Location (State)	Kerala
Bridge Name	Valapattanam Bridge	Road Name	NH17
Station	Km147/250	Road Category	National Highway
GPS Data	N 11 ° 55 ' 49.8 "	Management Authority	Kerala PWD
	E 075 ° 21 ' 11.0 "	Year of Construction	1980

Bridge Length	420.77 m	Span Arrangement	15 spans
Bridge Width		Approach Road Width	Same as bridge
- Carriageway Width	7.50m		
- Median Width	Nil		
- Footway Width	1.35m (both side)	Existing of Detour	Approx. 26Km
Type of Superstructure	RC Box Girder	Type of Substructure	RC
Type of Foundation	RC Piles		



Bridge Survey Record (2/8) R1-R6

Inspector : Toshinao YAMAGUCHI Date & Time: 20 Nov 2013

Bridge No.	11	Location (State)	Kerala
Bridge Name	Valapattanam Bridge	Road Name	NH17
Photoes			



Bridge Survey Record (3/8) R7-R11

Inspector : Toshinao YAMAGUCHI Date & Time: 20 Nov 2013

Bridge No.	11	Location (State)	Kerala
Bridge Name	Valapattanam Bridge	Road Name	NH17
Photoes			
Photo R7			
Photo R8			
Photo R9			
Photo R10			
Photo R11	<p>写真なし</p>		

Bridge Survey Record (4/8) L1-L6

Inspector : Toshinao YAMAGUCHI Date & Time: 20 Nov 2013

Bridge No.	11	Location (State)	Kerala
Bridge Name	Valapattanam Bridge	Road Name	NH17
Photoes			
Photo L1			
Photo L2			
Photo L3			
Photo L4			
Photo L5			
Photo L6			

Bridge Survey Record (5/8) L7-L11

Inspector : Toshinao YAMAGUCHI Date & Time: 20 Nov 2013

Bridge No.	11	Location (State)	Kerala
Bridge Name	Valapattanam Bridge	Road Name	NH17
Photoes			
Photo L7			
Photo L8			
Photo L9			
Photo L10			
Photo L11			

Bridge Survey Record (6/8)

Inspector : Toshinao YAMAGUCHI Date & Time: 20 Nov 2013

Bridge No.	11	Location (State)	Kerala
Bridge Name	Valapattanam Bridge	Road Name	NH17
Station	Km147/250	Road Category	National Highway
GPS Data	N 11 °55 ' 49.8 "	Management Authority	Kerala PWD
	E 075 °21 ' 11.0 "	Year of Construction	1980

General Description of Damages

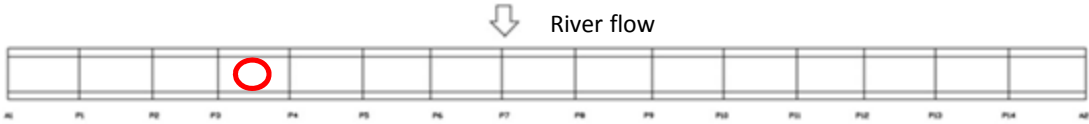

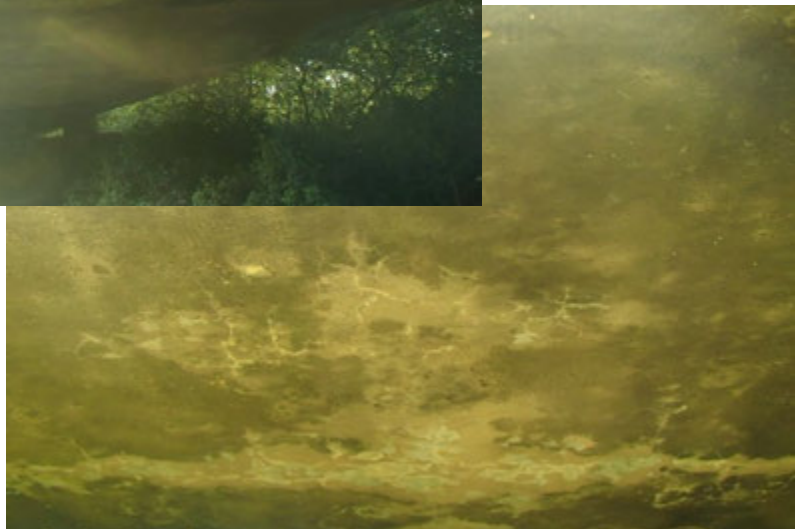
Member	Kind of the Damage
	Ex. Concrete : Cracking, Spalling, etc. Steel : Cracking, Rusting, Fracture, etc.
1. Superstructure	
(1) Concrete Member	
- Girder	Nil
- Cross Beam	Nil
- Slab	There are some crack and honeycomb on lower slab
(2) Steel Member	
- Girder	N/A
- Vertical Girder (stringer)	N/A
- Cross Beam	N/A
- Sway Bracing	N/A
(3) Bearing Shoe	Inclination
(4) EXP Joint	All covered by asphalt and not functioning properly
(5) Handrail	Nil
(6) Kerb	Nil
(7) Drainage Pipe	Nil
(8) Others	There are some potholes on pavement
2. Substructure	
- Pier	There are some cracks and CC peeling
- Abutment	Nil
- Wing Wall	Nil
3. Miscellaneous	
- Approach Road Condition	Nil
- Obstruction	Nil
- Scouring	Unknown
4. Evaluation	See Sheet 8

Bridge Survey Record (7/8) -1

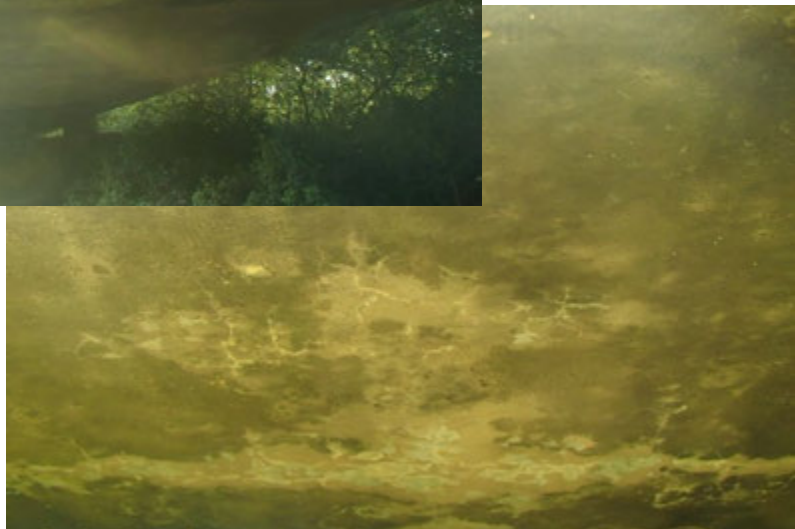
Inspector : Toshinao YAMAGUCHI Date & Time: 20 Nov 2013

Bridge No.	11	Location (State)	Kerala
Bridge Name	Valapattanam Bridge	Road Name	NH17
Station	Km147/250	Road Category	National Highway
GPS Data	N 11 °55 ' 49.8 "	Management Authority	Kerala PWD
	E 075 °21 ' 11.0 "	Year of Construction	1980

Detailed Description of Damages

Object Member	Deck Slab (P3-P4)
Kind of Damage	Some cracks and efflorescences are observed in the bottom of the deck slab
Sketch or Photo	<div style="text-align: center; margin-bottom: 10px;">  </div> <div style="display: flex; justify-content: space-between;">   </div>

↓ River flow



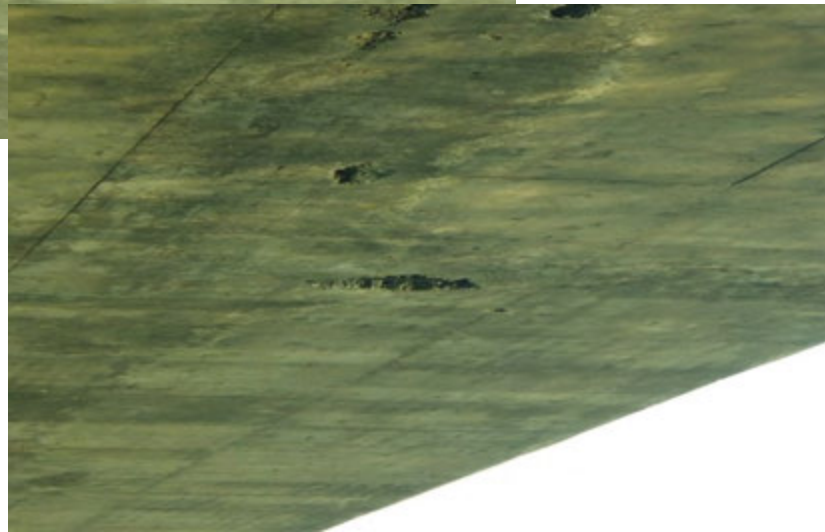
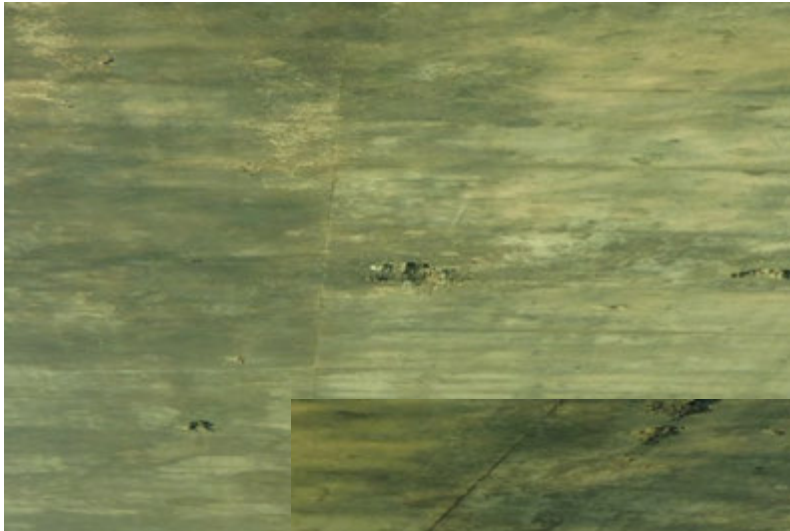
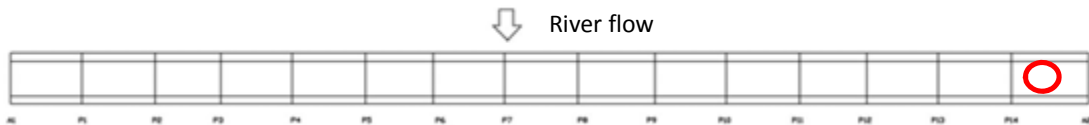
Bridge Survey Record (7/8) -2

Inspector : Toshinao YAMAGUCHI Date & Time: 20 Nov 2013

Bridge No.	11	Location (State)	Kerala
Bridge Name	Valapattanam Bridge	Road Name	NH17
Station	Km147/250	Road Category	National Highway
GPS Data	N 11 °55 ' 49.8 "	Management Authority	Kerala PWD
	E 075 °21 ' 11.0 "	Year of Construction	1980

Detailed Description of Damages

Object Member	Deck Slab (P14-A2)
Kind of Damage	Honeycomb
Sketch or Photo	



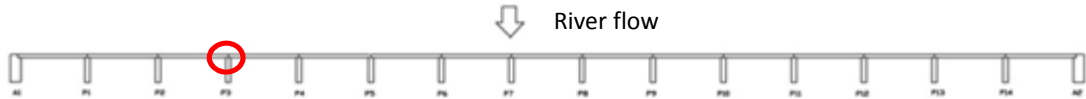
Bridge Survey Record (7/8) -3

Inspector : Toshinao YAMAGUCHI Date & Time: 20 Nov 2013

Bridge No.	11	Location (State)	Kerala
Bridge Name	Valapattanam Bridge	Road Name	NH17
Station	Km147/250	Road Category	National Highway
GPS Data	N 11 °55 ' 49.8 "	Management Authority	Kerala PWD
	E 075 °21 ' 11.0 "	Year of Construction	1980

Detailed Description of Damages

Object Member	Bearing Shoe (P3 upstream side)
Kind of Damage	Inclination
Sketch or Photo	



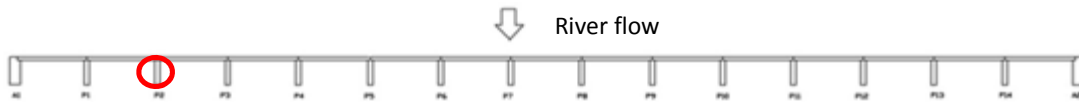
Bridge Survey Record (7/8) -4

Inspector : Toshinao YAMAGUCHI Date & Time: 20 Nov 2013

Bridge No.	11	Location (State)	Kerala
Bridge Name	Valapattanam Bridge	Road Name	NH17
Station	Km147/250	Road Category	National Highway
GPS Data	N 11 °55 ' 49.8 "	Management Authority	Kerala PWD
	E 075 °21 ' 11.0 "	Year of Construction	1980

Detailed Description of Damages

Object Member	P2 upstream side
Kind of Damage	Crack
Sketch or Photo	



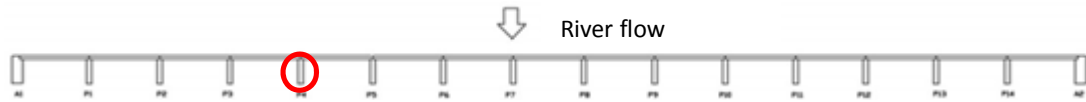
Bridge Survey Record (7/8) -5

Inspector : Toshinao YAMAGUCHI Date & Time: 20 Nov 2013

Bridge No.	11	Location (State)	Kerala
Bridge Name	Valapattanam Bridge	Road Name	NH17
Station	Km147/250	Road Category	National Highway
GPS Data	N 11 °55 ' 49.8 "	Management Authority	Kerala PWD
	E 075 °21 ' 11.0 "	Year of Construction	1980

Detailed Description of Damages

Object Member	P4
Kind of Damage	CC peeling and corroded re-bar exposed
Sketch or Photo	




Bridge Survey Record (7/8) -6

Inspector : Toshinao YAMAGUCHI Date & Time: 20 Nov 2013

Bridge No.	11	Location (State)	Kerala
Bridge Name	Valapattanam Bridge	Road Name	NH17
Station	Km147/250	Road Category	National Highway
GPS Data	N 11 °55 ' 49.8 "	Management Authority	Kerala PWD
	E 075 °21 ' 11.0 "	Year of Construction	1980

Detailed Description of Damages

Object Member	Pavement
Kind of Damage	Mamy potholes
Sketch or Photo	

Bridge Survey Record (8/8)

Inspector : Toshihao YAMAGUCHI Date & Time: 20 Nov 2013

Bridge No.	11	Location (State)	Kerala
Bridge Name	Valapattanam Bridge	Road Name	NH17
Station	Km147/250	Road Category	National Highway
GPS Data	N 11 °55 ' 49.8 "	Management Authority	Kerala PWD
	E 075 °21 ' 11.0 "	Year of Construction	1980

Evaluation index

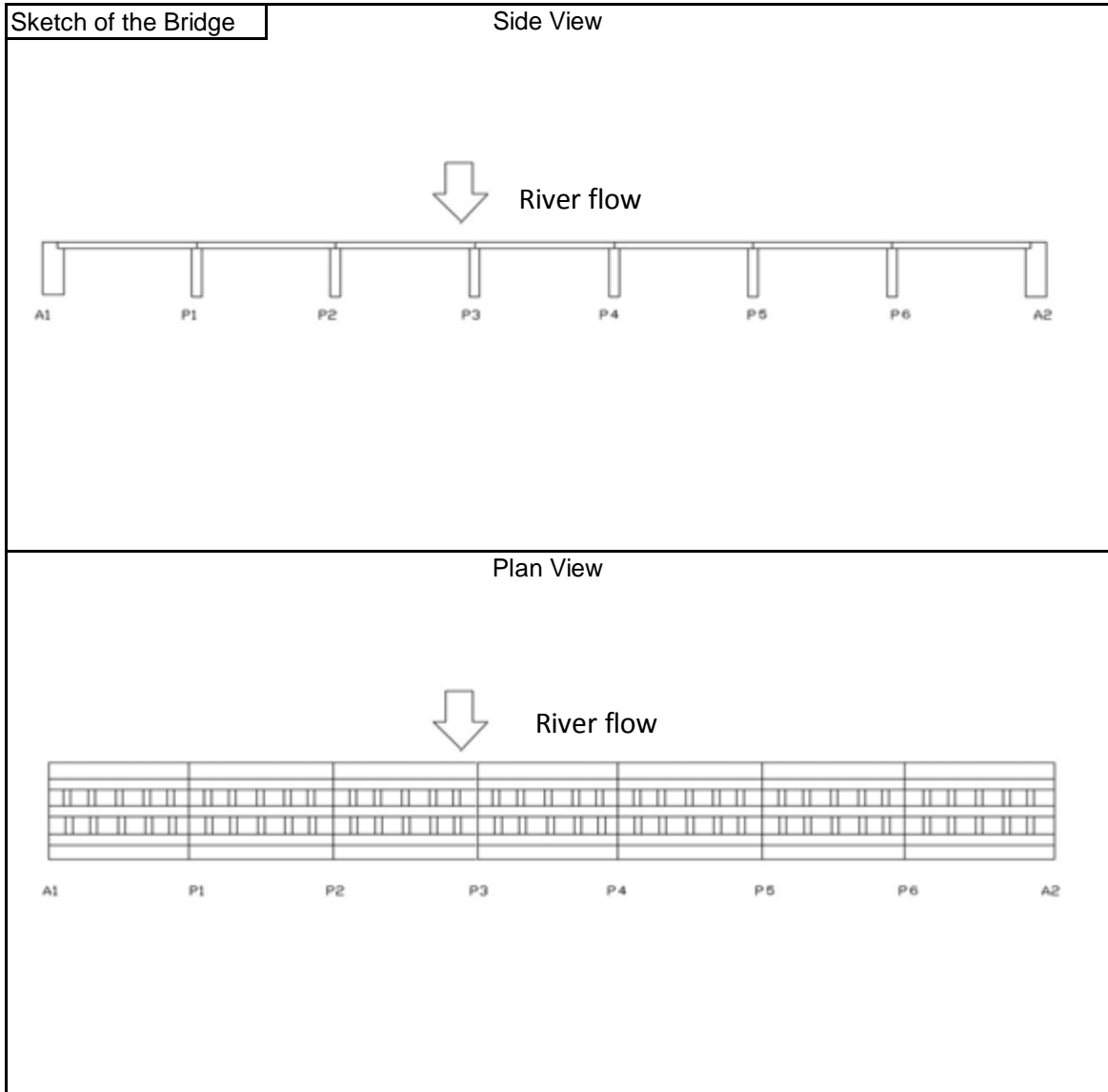
1	Traffic Demand	High
2	Distance of Detour Route	Approx. 26km
3	Project Effects for Japanese Companies	High
4	Damage Level of the Bridges	Need repairing on some portions
5	Application of Japanese Technology	Applicable (Carbon fibre for piers and bottom of slab)
6	Duplication with Other Projects by Donor's or Local	None (There is improvement with additional 2 lane bridge beside existing bridge under NHDP)
7	Importance of the Bridge on Surrounding Society and Economy	High
8	Impacts on the Environment	Minimal

Bridge Survey Record (1/8)

Inspector : Toshinao YAMAGUCHI Date & Time: 21 Nov 2013

Bridge No.	12	Location (State)	Kerala
Bridge Name	Perumba Bridge	Road Name	NH17
Station	Km115/400	Road Category	National Highway
GPS Data	N 12 ° 06 ' 30.0 "	Management Authority	Kerala PWD
	E 075 ° 13 ' 18.7 "	Year of Construction	1952

Bridge Length	146.8 m	Span Arrangement	7 spans
Bridge Width		Approach Road Width	Same as Bridge
- Carriageway Width	6.7m	Existing of Detour	Approx. 23Km
- Median Width	Nil	Type of Substructure	Stone Masonry
- Footway Width	Nil		
Type of Superstructure	RC T Girder		
Type of Foundation	Well		



Bridge Survey Record (2/8) R1-R6

Inspector : Toshinao YAMAGUCHI Date & Time: 21 Nov 2013

Bridge No.	12	Location (State)	Kerala
Bridge Name	Perumba Bridge	Road Name	NH17
Photoes			
Photo R1			
Photo R2			
Photo R3			
Photo R4			
Photo R5			
Photo R6			

Bridge Survey Record (3/8) R7-R11

Inspector : Toshinao YAMAGUCHI Date & Time: 21 Nov 2013

Bridge No.	12	Location (State)	Kerala
Bridge Name	Perumba Bridge	Road Name	NH17
Photoes			
Photo R7			
Photo R8			
Photo R9			
Photo R10			
Photo R11			

Bridge Survey Record (4/8) L1-L6

Inspector : Toshinao YAMAGUCHI Date & Time: 21 Nov 2013

Bridge No.	12	Location (State)	Kerala
Bridge Name	Perumba Bridge	Road Name	NH17
Photoes			
Photo L1	Photo L2		
Photo L3	Photo L4		
Photo L5	Photo L6		

Bridge Survey Record (5/8) L7-L11

Inspector : Toshinao YAMAGUCHI Date & Time: 21 Nov 2013

Bridge No.	12	Location (State)	Kerala
Bridge Name	Perumba Bridge	Road Name	NH17
Photoes			
Photo L7			
Photo L8			
Photo L9			
Photo L10			
Photo L11			

Bridge Survey Record (6/8)

Inspector : Toshinao YAMAGUCHI Date & Time: 21 Nov 2013

Bridge No.	12	Location (State)	Kerala
Bridge Name	Perumba Bridge	Road Name	NH17
Station	Km115/400	Road Category	National Highway
GPS Data	N 12 °06 ' 30.0 "	Management Authority	Kerala PWD
	E 075 °13 ' 18.7 "	Year of Construction	1952

General Description of Damages

Member	Kind of the Damage
	Ex. Concrete : Cracking, Spalling, etc. Steel : Cracking, Rusting, Fracture, etc.
1. Superstructure	
(1) Concrete Member	
- Girder	There are some cracks and efflorescence on web.
- Cross Beam	Unidentifiable due to guniting work in 2000
- Slab	There are some cracks and efflorescence on bottom slab.
(2) Steel Member	
- Girder	N/A
- Vertical Girder (stringer)	N/A
- Cross Beam	N/A
- Sway Bracing	N/A
(3) Bearing Shoe	Void in bearing block of P6
(4) EXP Joint	All covered by asphalt and not functioning properly. Some cracks.
(5) Handrail	CC peeling and corroded re-bar exposed
(6) Kerb	Nil
(7) Drainage Pipe	Nil
(8) Others	It is assumed that there are many damages on superstructure although cracks were covered by guniting work and it is difficult to observe them.
2. Substructure	
- Pier	Nil
- Abutment	Nil
- Wing Wall	Nil
3. Miscellaneous	
- Approach Road Condition	Nil
- Obstruction	Nil
- Scouring	Unknown
4. Evaluation	See Sheet 8

Bridge Survey Record (7/8) -1

Inspector : Toshinao YAMAGUCHI Date & Time: 21 Nov 2013

Bridge No.	12	Location (State)	Kerala
Bridge Name	Perumba Bridge	Road Name	NH17
Station	Km115/400	Road Category	National Highway
GPS Data	N 12 °06 ' 30.0 "	Management Authority	Kerala PWD
	E 075 °13 ' 18.7 "	Year of Construction	1952

Detailed Description of Damages

Object Member	Girder (all spans)
Kind of Damage	Many cracks and efflorescence are observed on the girder web.
Sketch or Photo	



Bridge Survey Record (7/8) -2

Inspector : Toshinao YAMAGUCHI Date & Time: 21 Nov 2013

Bridge No.	12	Location (State)	Kerala
Bridge Name	Perumba Bridge	Road Name	NH17
Station	Km115/400	Road Category	National Highway
GPS Data	N 12 °06 ' 30.0 "	Management Authority	Kerala PWD
	E 075 °13 ' 18.7 "	Year of Construction	1952

Detailed Description of Damages

Object Member	Girder (all spans)
Kind of Damage	Many cracks and efflorescence are observed on the girder web.
Sketch or Photo	



Bridge Survey Record (7/8) -3

Inspector : Toshinao YAMAGUCHI Date & Time: 21 Nov 2013

Bridge No.	12	Location (State)	Kerala
Bridge Name	Perumba Bridge	Road Name	NH17
Station	Km115/400	Road Category	National Highway
GPS Data	N 12 °06 ' 30.0 "	Management Authority	Kerala PWD
	E 075 °13 ' 18.7 "	Year of Construction	1952

Detailed Description of Damages

Object Member	Bearing Block (P6)
Kind of Damage	Void in bearing block
Sketch or Photo	




Bridge Survey Record (7/8) -4

Inspector : Toshinao YAMAGUCHI Date & Time: 21 Nov 2013

Bridge No.	12	Location (State)	Kerala
Bridge Name	Perumba Bridge	Road Name	NH17
Station	Km115/400	Road Category	National Highway
GPS Data	N 12 °06 ' 30.0 "	Management Authority	Kerala PWD
	E 075 °13 ' 18.7 "	Year of Construction	1952

Detailed Description of Damages

Object Member	EXP Joints
Kind of Damage	EXP Joints are plugged and non functional
Sketch or Photo	

Bridge Survey Record (7/8) -5

Inspector : Toshinao YAMAGUCHI Date & Time: 21 Nov 2013

Bridge No.	12	Location (State)	Kerala
Bridge Name	Perumba Bridge	Road Name	NH17
Station	Km115/400	Road Category	National Highway
GPS Data	N 12 °06 ' 30.0 "	Management Authority	Kerala PWD
	E 075 °13 ' 18.7 "	Year of Construction	1952

Detailed Description of Damages

Object Member	Handrail
Kind of Damage	CC peeling and corroded re-bar exposed
Sketch or Photo	



Bridge Survey Record (8/8)

Inspector : Toshinao YAMAGUCHI Date & Time: 21 Nov 2013

Bridge No.	12	Location (State)	Kerala
Bridge Name	Perumba Bridge	Road Name	NH17
Station	Km115/400	Road Category	National Highway
GPS Data	N 12 °06 ' 30.0 "	Management Authority	Kerala PWD
	E 075 °13 ' 18.7 "	Year of Construction	1952

Evaluation index

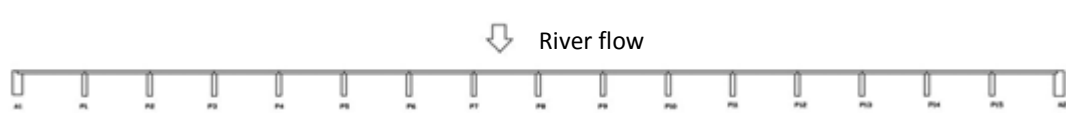

1	Traffic Demand	High
2	Distance of Detour Route	Approx. 23km
3	Project Effects for Japanese Companies	High
4	Damage Level of the Bridges	Need repairing on superstructure.
5	Application of Japanese Technology	Applicable (replacement by Steel girder)
6	Duplication with Other Projects by Donor's or Local	None (but there is a plan for a bypass with new 4 lane bridge 1km upstream)
7	Importance of the Bridge on Surrounding Society and Economy	High
8	Impacts on the Environment	Moderate

Bridge Survey Record (1/8)

Inspector : Toshinao YAMAGUCHI Date & Time: 19 Nov 2013

Bridge No.	13	Location (State)	Kerala
Bridge Name	Kariyangodu Bridge	Road Name	NH17
Station	Km96/750	Road Category	National Haighway
GPS Data	N 12 ° 14 ' 18.6 "	Management Authority	Kasaragod PWD
	E 075 ° 09 ' 01.2 "	Year of Construction	1960

Bridge Length	187.50m	Span Arrangement	16 spans
Bridge Width		Approach Road Width	Same as bridge
- Carriageway Width	6.20m		
- Medium Width	Nil		
- Footway Width	Nil	Existing of Detour	Approx. 27Km
Type of Superstructure	RC T Girder	Type of Substructure	RC
Type of Foundation	Well		

Sketch of the Bridge	Side View
	 <p style="text-align: center;">↓ River flow</p>
	Plan View
	 <p style="text-align: center;">↓ River flow</p>

Bridge Survey Record (2/8) R1-R6

Inspector : Toshinao YAMAGUCHI Date & Time: 19 Nov 2013

Bridge No.	13	Location (State)	Kerala
Bridge Name	Kariyangodu Bridge	Road Name	NH17
Photoes			
Photo R1			
Photo R2			
Photo R3			
Photo R4			
Photo R5			
Photo R6			

Bridge Survey Record (3/8) R7-R11

Inspector : Toshinao YAMAGUCHI Date & Time: 19 Nov 2013

Bridge No.	13	Location (State)	Kerala
Bridge Name	Kariyangodu Bridge	Road Name	NH17
Photoes			
Photo R7			
Photo R8			
Photo R9			
Photo R10			
Photo R11			

Bridge Survey Record (4/8) L1-L6

Inspector : Toshinao YAMAGUCHI Date & Time: 19 Nov 2013

Bridge No.	13	Location (State)	Kerala
Bridge Name	Kariyangodu Bridge	Road Name	NH17
Photoes			
Photo L1			
Photo L2			
Photo L3	写真なし		
Photo L4			
Photo L5			
Photo L6			

Bridge Survey Record (5/8) L7-L11

Inspector : Toshinao YAMAGUCHI Date & Time: 19 Nov 2013

Bridge No.	13	Location (State)	Kerala
Bridge Name	Kariyangodu Bridge	Road Name	NH17
Photos			
Photo L7			
Photo L8			
Photo L9			
Photo L10	写真なし		
Photo L11			

Bridge Survey Record (6/8)

Inspector : Toshinao YAMAGUCHI Date & Time: 19 Nov 2013

Bridge No.	13	Location (State)	Kerala
Bridge Name	Kariyangodu Bridge	Road Name	NH17
Station	Km96/750	Road Category	National Haighway
GPS Data	N 12 °14 ' 18.6 "	Management Authority	Kasaragod PWD
	E 075 °09 ' 01.2 "	Year of Construction	1960

General Description of Damages

Member	Kind of the Damage
	Ex. Concrete : Cracking, Spalling, etc. Steel : Cracking, Rusting, Fracture, etc.
1. Superstructure	
(1) Concrete Member	
- Girder	There are some cracks on lower fiange and bottom of girder.
- Cross Beam	Unidentified by guniting work in 1982
- Slab	Nil
(2) Steel Member	
- Girder	N/A
- Virtical Girder (stringer)	N/A
- Cross Beam	N/A
- Sway Bracing	N/A
(3) Bearing Shoe	Cracking, Peeling and no functioning properly
(4) EXP Joint	All covered by asphalt and not functioning propely
(5) Handrail	Nil
(6) Kerb	Nil
(7) Drainage Pipe	Nil
(8) Others	It is assumed that there are mamy dameges on superstructure although cracks were covered by guniting work and it is difficult to observe them.
2. Substructure	
- Pier	Nil
- Abutment	Nil
- Wing Wall	Nil
3. Miscellaneous	
- Approach Road Condition	Nil
- Obstruction	Nil
- Scouring	Unknown
4.Evaluation	See Sheet 8

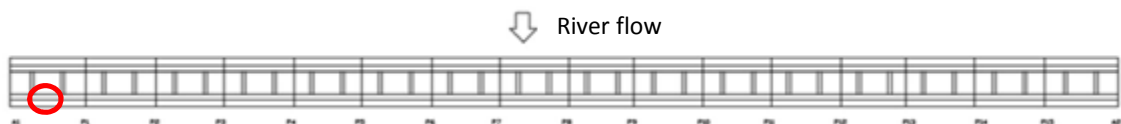
Bridge Survey Record (7/8) -1

Inspector : Toshinao YAMAGUCHI Date & Time: 19 Nov 2013

Bridge No.	13	Location (State)	Kerala
Bridge Name	Kariyangodu Bridge	Road Name	NH17
Station	Km96/750	Road Category	National Haighway
GPS Data	N 12 °14 ' 18.6 "	Management Authority	Kasaragod PWD
	E 075 °09 ' 01.2 "	Year of Construction	1960

Detailed Description of Damages

Object Member	Girder (A1-P1)
Kind of Damage	Some cracks are observed in the bottom girder
Sketch or Photo	



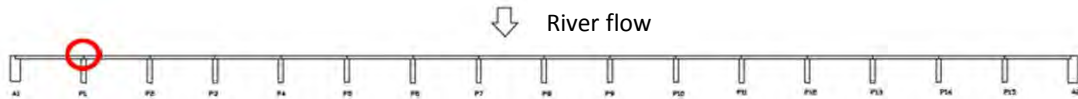
Bridge Survey Record (7/8) -2

Inspector : Toshinao YAMAGUCHI Date & Time: 19 Nov 2013

Bridge No.	13	Location (State)	Kerala
Bridge Name	Kariyangodu Bridge	Road Name	NH17
Station	Km96/750	Road Category	National Haighway
GPS Data	N 12 °14 ' 18.6 "	Management Authority	Kasaragod PWD
	E 075 °09 ' 01.2 "	Year of Construction	1960

Detailed Description of Damages

Object Member	Bearing Shoe (P1)
Kind of Damage	Peeling of mortar concrete and cracking
Sketch or Photo	



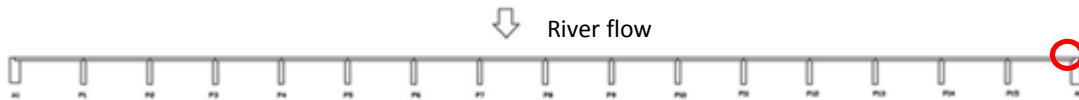
Bridge Survey Record (7/8) -3

Inspector : Toshinao YAMAGUCHI Date & Time: 19 Nov 2013

Bridge No.	13	Location (State)	Kerala
Bridge Name	Kariyangodu Bridge	Road Name	NH17
Station	Km96/750	Road Category	National Haighway
GPS Data	N 12 °14 ' 18.6 "	Management Authority	Kasaragod PWD
	E 075 °09 ' 01.2 "	Year of Construction	1960

Detailed Description of Damages

Object Member	Bearing Shoe (A2)
Kind of Damage	Peeling of mortar concrete and corrosion
Sketch or Photo	




Bridge Survey Record (7/8) -4

Inspector : Toshinao YAMAGUCHI Date & Time: 19 Nov 2013

Bridge No.	13	Location (State)	Kerala
Bridge Name	Kariyangodu Bridge	Road Name	NH17
Station	Km96/750	Road Category	National Haighway
GPS Data	N 12 °14 ' 18.6 "	Management Authority	Kasaragod PWD
	E 075 °09 ' 01.2 "	Year of Construction	1960

Detailed Description of Damages

Object Member	EXP joints
Kind of Damage	Uneven gap, not functioning properly
Sketch or Photo	

Bridge Survey Record (8/8)

Inspector : Toshinao YAMAGUCHI Date & Time: 19 Nov 2013

Bridge No.	13	Location (State)	Kerala
Bridge Name	Kariyangodu Bridge	Road Name	NH17
Station	Km96/750	Road Category	National Haighway
GPS Data	N 12 °14 ' 18.6 "	Management Authority	Kasaragod PWD
	E 075 °09 ' 01.2 "	Year of Construction	1960

Evaluation index

1	Traffic Demand	High
2	Distance of Detour Route	Approx. 27km
3	Project Effects for Japanese Companies	High
4	Damage Level of the Bridges	Need repairing in some portions
5	Application of Japanese Technology	Nil
6	Duplication with Other Projects by Donor's or Local	There is an road and bridge improvement plan with new 4 lane only 60m upstream under NHDP
7	Importance of the Bridge on Surrounding Society and Economy	Moderate
8	Impacts on the Environment	-

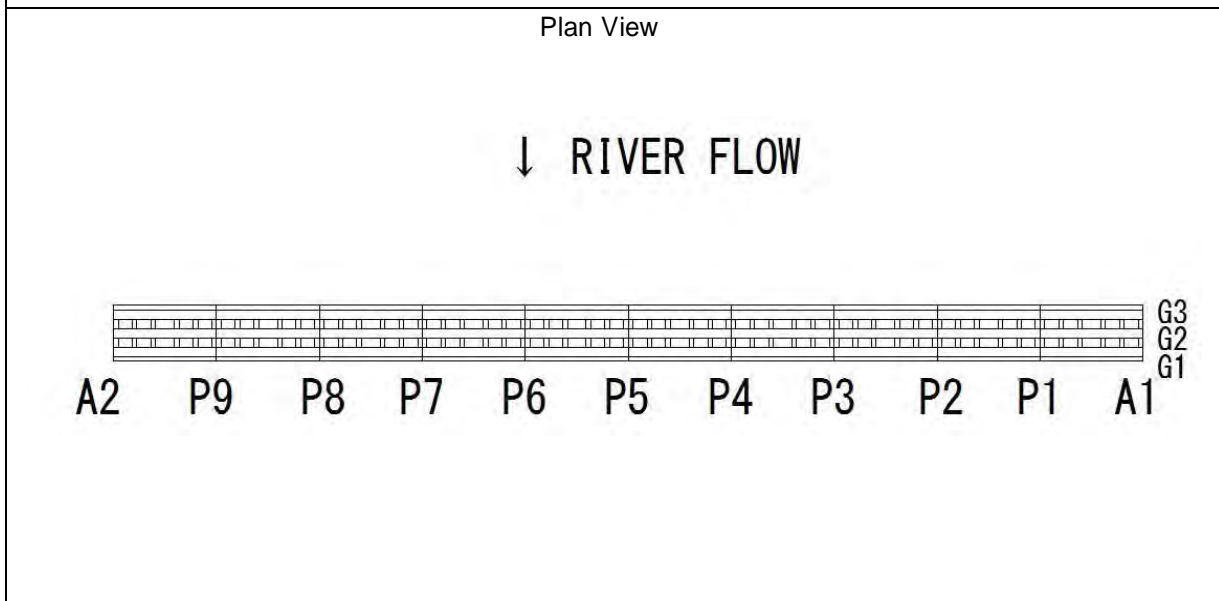
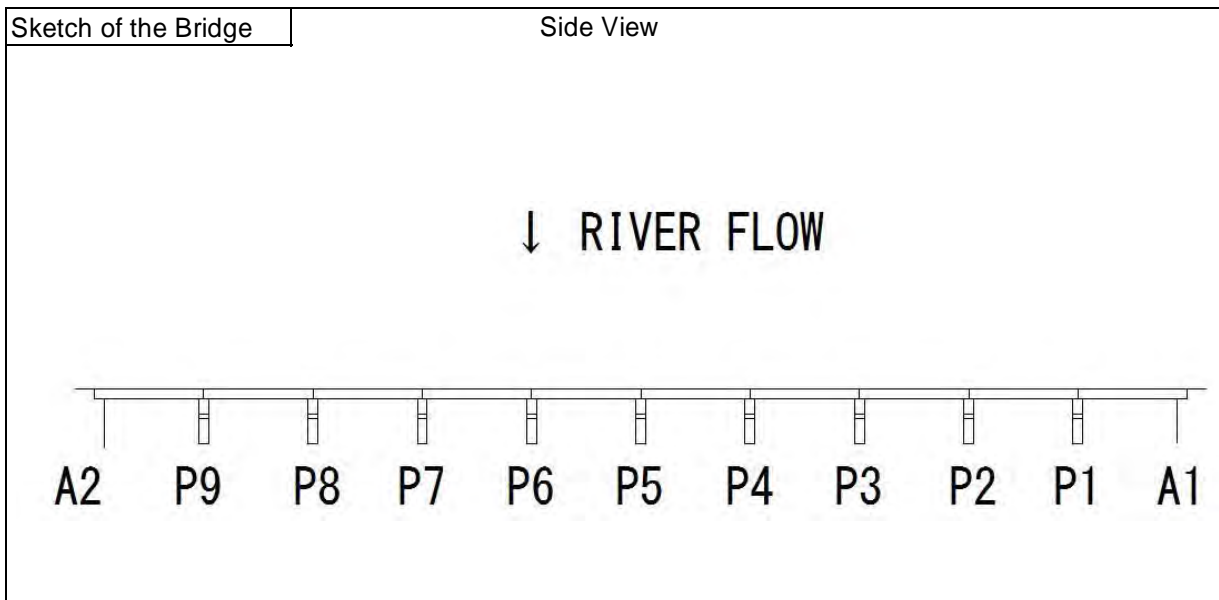
Bridge Survey Record (1/8)

Inspector : Koji KAWAMATA

Date & Time: 18 Nov 2013

Bridge No.	14	Location (State)	Gujarat
Bridge Name	Shetrunji Bridge	Road Name	NH8E
Station	Budhel Km10/0	Road Category	National Highway
GPS Data	N 21° 22' 09.77"	Management Authority	MORTH
	E 77° 02' 25.69"	Year of Construction	1985

Bridge Length	240m	Span Arrangement	10 Spans
Bridge Width		Approach Road Width	7.50m (Both side)
- Carriageway Width	7.50m (2 Lane)		
- Medium Width	Nil		
- Footway Width	5.50m	Existing of Detour	Approx. 7km
Type of Superstructure	RC T Girder	Type of Substructure	RC mass concrete
Type of Foundation	Pile		

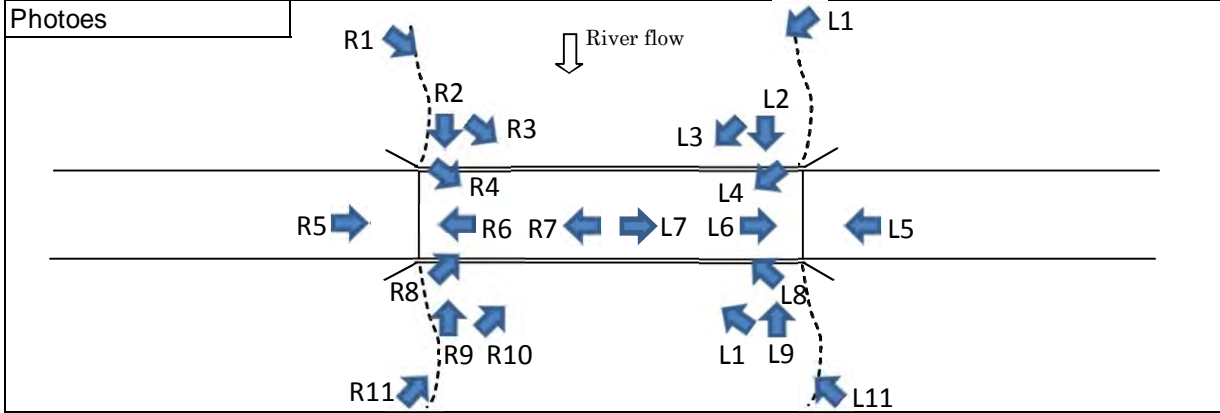


Bridge Survey Record (2/8) R1-R6

Inspector : Koji KAWAMATA

Date & Time: 18 Nov 2013

Bridge No.	14	Location (State)	Gujarat
Bridge Name	Shetrunji Bridge	Road Name	NH8E

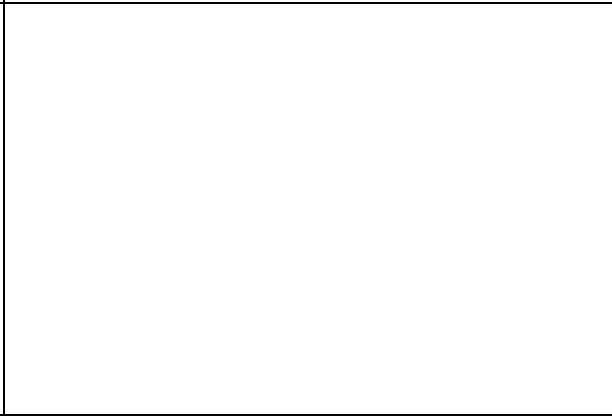
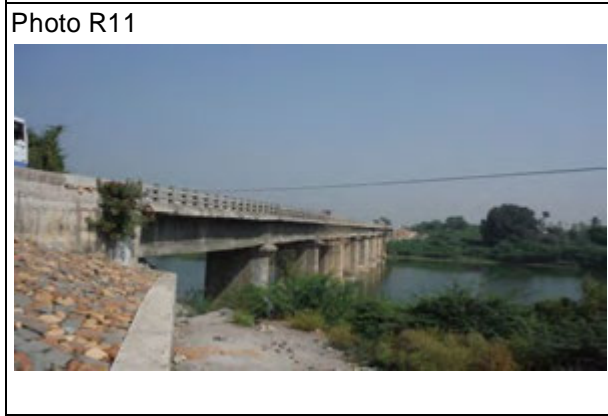
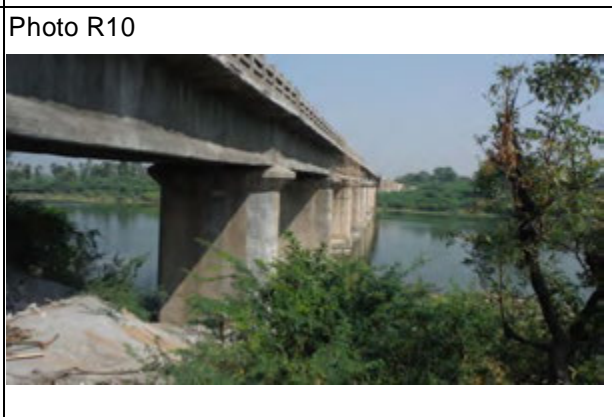
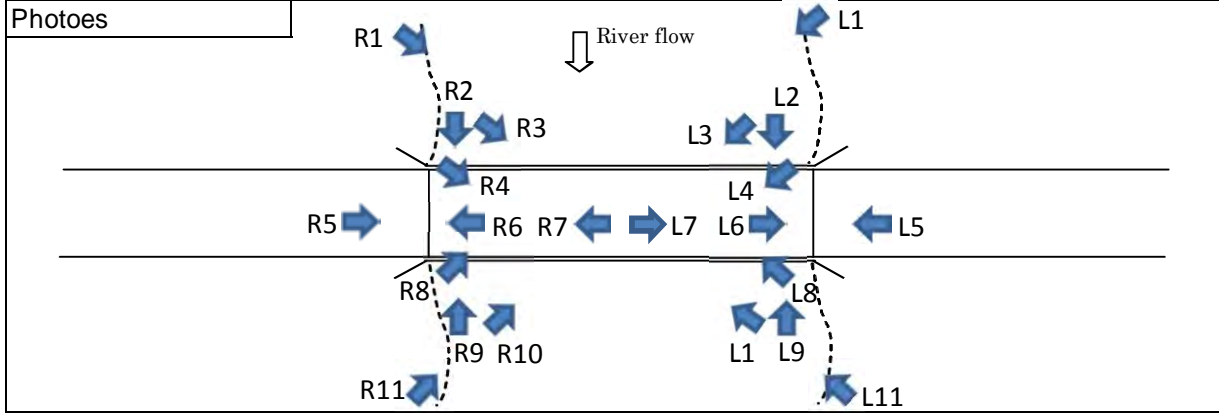


Bridge Survey Record (3/8) R7-R11

Inspector : Koji KAWAMATA

Date & Time: 18 Nov 2013

Bridge No.	14	Location (State)	Gujarat
Bridge Name	Shetrunji Bridge	Road Name	NH8E

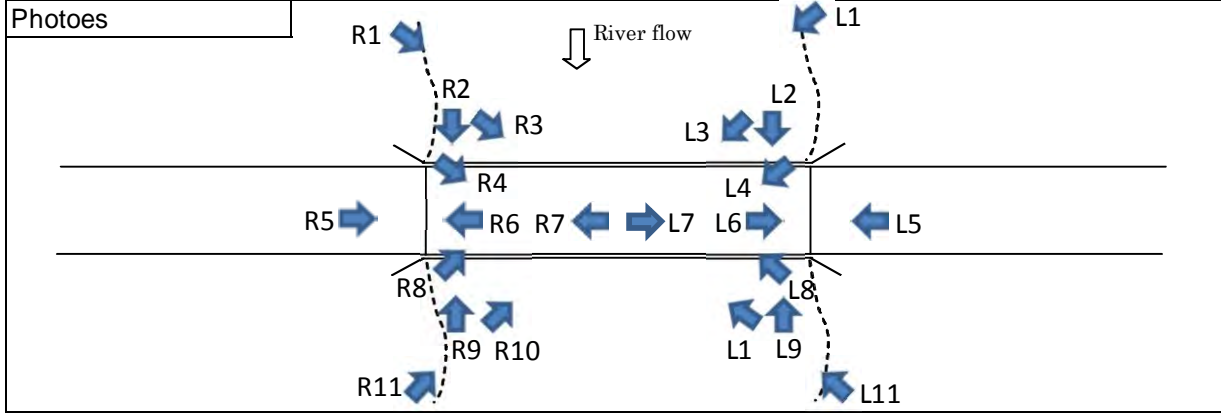


Bridge Survey Record (4/8) L1-L6

Inspector : Koji KAWAMATA

Date & Time: 18 Nov 2013

Bridge No.	14	Location (State)	Gujarat
Bridge Name	Shetrunji Bridge	Road Name	NH8E

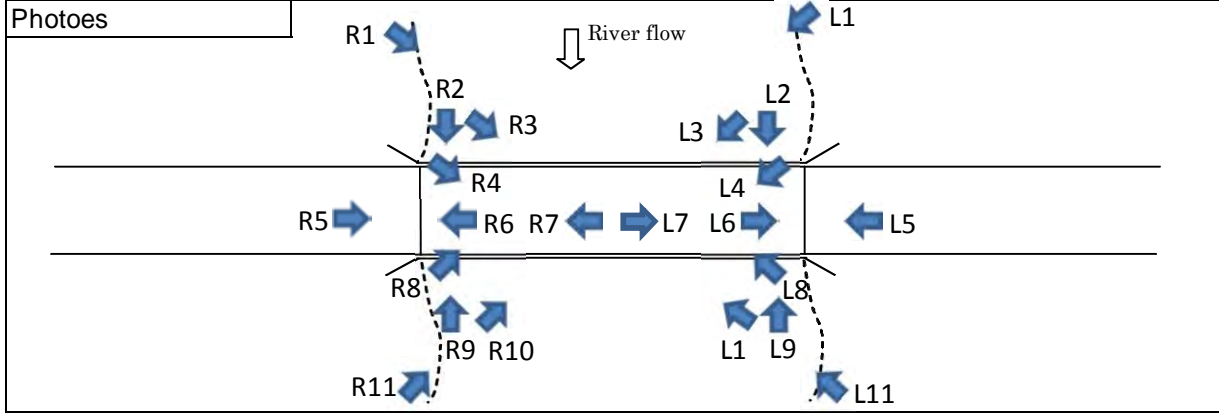


Bridge Survey Record (5/8) L7-L11

Inspector : Koji KAWAMATA

Date & Time: 18 Nov 2013

Bridge No.	14	Location (State)	Gujarat
Bridge Name	Shetrunji Bridge	Road Name	NH8E



Bridge Survey Record (6/8)

Inspector : Koji KAWAMATA Date & Time: 18 Nov 2013

Bridge No.	14	Location (State)	Gujarat
Bridge Name	Shetrunji Bridge	Road Name	NH8E
Station	Budhel Km10/0	Road Category	National Higway
GPS Data	N 21°22' 09.77"	Management Authority	MORTH
	E 77°02' 25.69"	Year of Construction	1985

General Description of Damages

Member	Kind of the Damage
	Ex. Concrete : Cracking, Spalling, etc. Steel : Cracking, Rusting, Fracture, etc.
1. Superstructure	
(1) Concrete Member	
- Girder	There are many spalling
- Cross Beam	Nil
- Slab	Nil
(2) Steel Member	
- Girder	N/A
- Vertical Girder (stringer)	N/A
- Cross Beam	N/A
- Sway Bracing	N/A
(3) Bearing Shoe	Nil
(4) EXP Joint	Nil
(5) Handrail	Nil
(6) Kerb	N/A
(7) Drainage Pipe	Nil
(8) Others	
2. Substructure	
- Pier	Nil
- Abutment	Nil
- Wing Wall	There are many spalling
3. Miscellaneous	
- Approach Road Condition	Nil
- Obstruction	Nil
- Scouring	Nil
4. Evaluation	See Sheet 8

Bridge Survey Record (7/8) -1

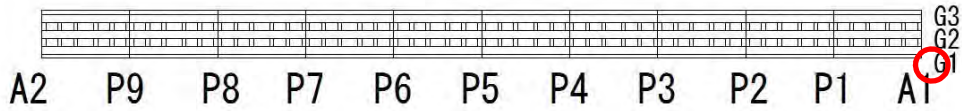
Inspector : Koji KAWAMATA Date & Time: 18 Nov 2013

Bridge No.	14	Location (State)	Gujarat
Bridge Name	Shetrunji Bridge	Road Name	NH8E
Station	Budhel Km10/0	Road Category	National Highway
GPS Data	N 21°22' 09.77"	Management Authority	MORTH
	E 77°02' 25.69"	Year of Construction	1985

Detailed Description of Damages

Object Member	Wing Wall (A1)
Kind of Damage	Spalling
Sketch or Photo	

↓ RIVER FLOW

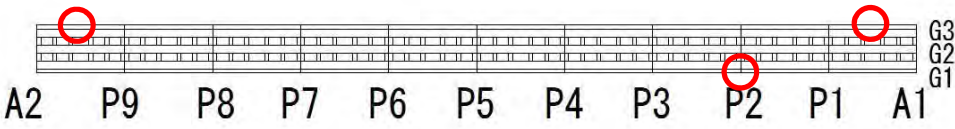





Bridge Survey Record (7/8) -2

Inspector : Koji KAWAMATA Date & Time: 18 Nov 2013

Bridge No.	14	Location (State)	Gujarat
Bridge Name	Shetrunji Bridge	Road Name	NH8E
Station	Budhel Km10/0	Road Category	National Higway
GPS Data	N 21°22' 09.77"	Management Authority	MORTH
	E 77°02' 25.69"	Year of Construction	1985

Detailed Description of Damages

Object Member	RC T Girder
Kind of Damage	Spaliing
Sketch or Photo	<div style="text-align: center; margin-bottom: 10px;"> <p>↓ RIVER FLOW</p>  </div> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div> <div style="text-align: center; margin-top: 20px;">  </div>

Bridge Survey Record (8/8)

Inspector : Koji KAWAMATA Date & Time: 18 Nov 2013

Bridge No.	14	Location (State)	Gujarat
Bridge Name	Shetrunji Bridge	Road Name	NH8E
Station	Budhel Km10/0	Road Category	National Highway
GPS Data	N 21°22' 09.77"	Management Authority	MORTH
	E 77°02' 25.69"	Year of Construction	1985

Evaluation index

1	Traffic Demand	High
2	Distance of Detour Route	Approx. 7 km
3	Project Effects for Japanese Companies	High
4	Damage Level of the Bridges	Very serious damages on superstructure
5	Application of Japanese Technology	Applicable (replacement to Steel girder)
6	Duplication with Other Projects by Donor's or Local	None
7	Importance of the Bridge on Surrounding Society and Economy	High
8	Impacts on the Environment	Minimal


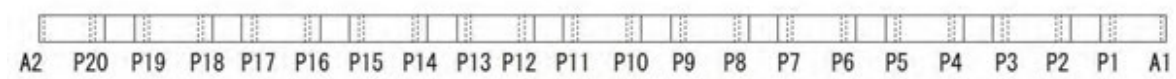
Bridge Survey Record (1/8)

Inspector : Koji KAWAMATA

Date & Time: 20 Nov 2013

Bridge No.	15	Location (State)	Gujarat
Bridge Name	Medhacreek Bridge	Road Name	NH8E
Station	Km408/000	Road Category	National Highway
GPS Data	N 21° 50' 39.30"	Management Authority	MORTH
	E 69° 22' 36.83"	Year of Construction	1978

Bridge Length	831m	Span Arrangement	21 Spans
Bridge Width		Approach Road Width	7.50 m
- Carriageway Width	8.0m (2Lane)		7.50m
- Medium Width	Nil	Existing of Detour	None (approx. 184km)
- Footway Width	Nil	Type of Substructure	RC Solid
Type of Superstructure	RC Box Girder (Gerber Girder)		
Type of Foundation	Wellflow		

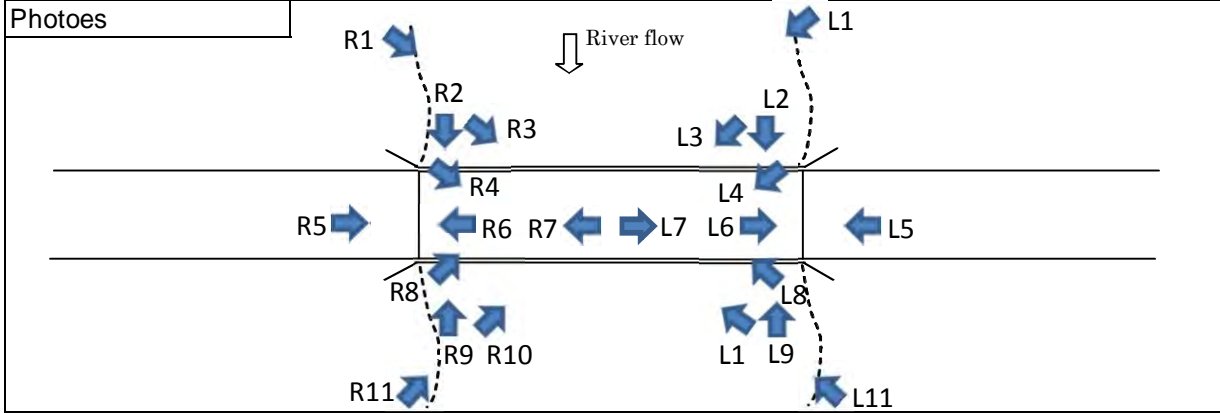
Sketch of the Bridge	Side View
<p>↓ RIVER FLOW</p> 	
<p>Plan View</p> <p>↓ RIVER FLOW</p> 	

Bridge Survey Record (2/8) R1-R6

Inspector : Koji KAWAMATA

Date & Time: 20 Nov 2013

Bridge No.	15	Location (State)	Gujarat
Bridge Name	Medhacreek Bridge	Road Name	NH8E

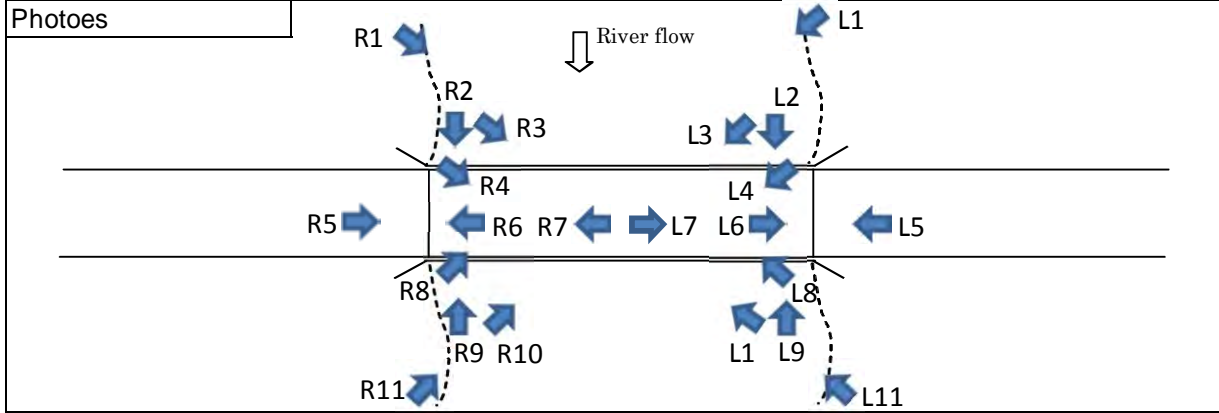


Bridge Survey Record (3/8) R7-R11

Inspector : Koji KAWAMATA

Date & Time: 20 Nov 2013

Bridge No.	15	Location (State)	Gujarat
Bridge Name	Medhacreek Bridge	Road Name	NH8E

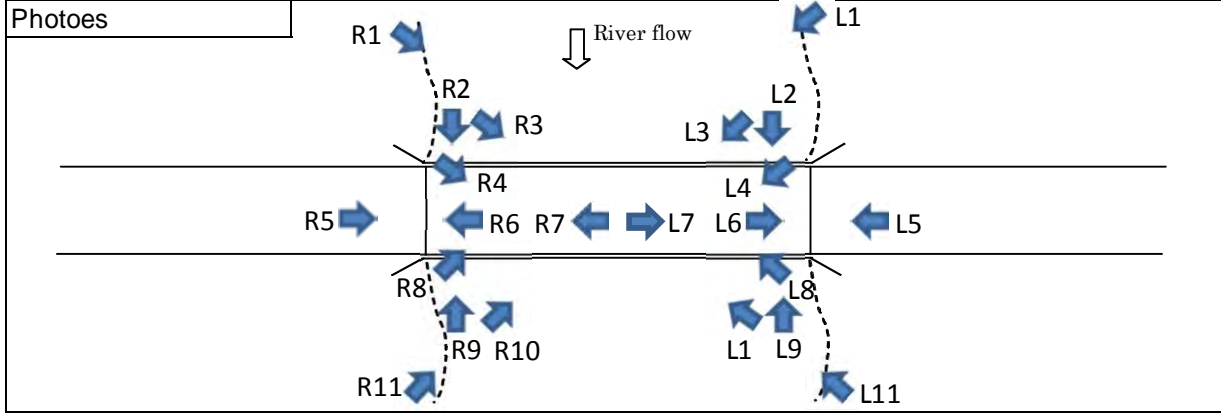


Bridge Survey Record (4/8) L1-L6

Inspector : Koji KAWAMATA

Date & Time: 20 Nov 2013

Bridge No.	15	Location (State)	Gujarat
Bridge Name	Medhacreek Bridge	Road Name	NH8E

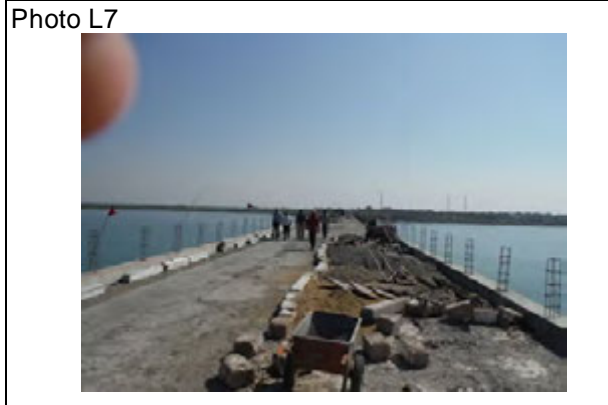
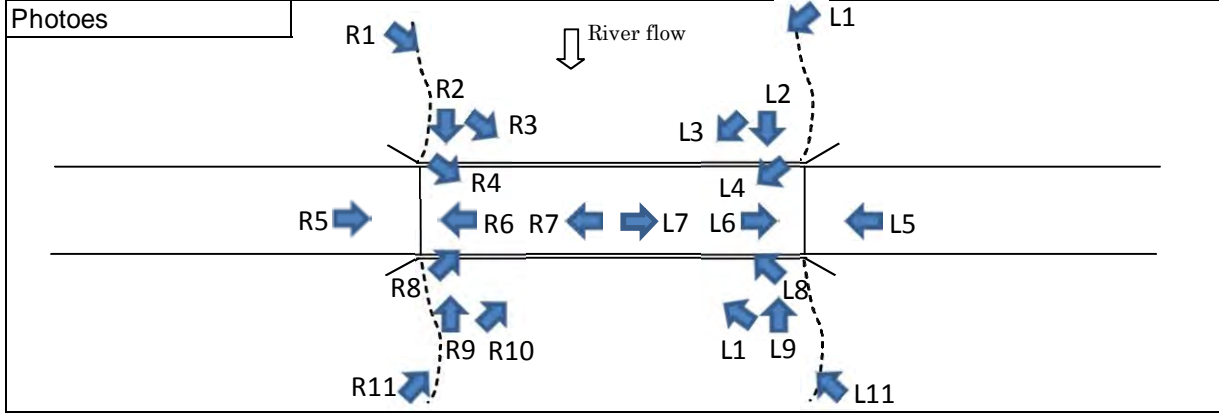


Bridge Survey Record (5/8) L7-L11

Inspector : Koji KAWAMATA

Date & Time: 20 Nov 2013

Bridge No.	15	Location (State)	Gujarat
Bridge Name	Medhacreek Bridge	Road Name	NH8E



Bridge Survey Record (6/8)

Inspector : Koji KAWAMATA Date & Time: 20 Nov 2013

Bridge No.	15	Location (State)	Gujarat
Bridge Name	Medhacreek Bridge	Road Name	NH8E
Station	Km408/000	Road Category	National Highway
GPS Data	N 21° 50' 39.30"	Management Authority	MORTH
	E 69° 22' 36.83"	Year of Construction	1978

General Description of Damages

Member	Kind of the Damage
	Ex. Concrete : Cracking, Spalling, etc. Steel : Cracking, Rusting, Fracture, etc.
1. Superstructure	
(1) Concrete Member	
- Girder	There are many spalling Repairing work is on going
- Cross Beam	N/A
- Slab	N/A
(2) Steel Member	
- Girder	N/A
- Vertical Girder (stringer)	N/A
- Cross Beam	N/A
- Sway Bracing	N/A
(3) Bearing Shoe	Nil
(4) EXP Joint	Nil
(5) Handrail	Nil
(6) Kerb	Nil
(7) Drainage Pipe	Nil
(8) Others	
2. Substructure	
- Pier	Nil
- Abutment	Nil
- Wing Wall	Nil
3. Miscellaneous	
- Approach Road Condition	Nil
- Obstruction	Nil
- Scouring	Nil
4. Evaluation	See Sheet 8

Bridge Survey Record (7/8) -1

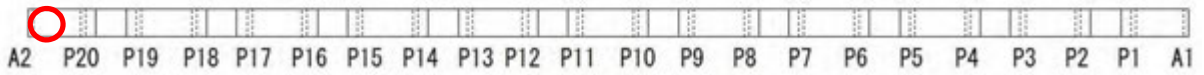
Inspector : Koji KAWAMATA Date & Time: 20 Nov 2013

Bridge No.	15	Location (State)	Gujarat
Bridge Name	Medhacreek Bridge	Road Name	NH8E
Station	Km408/000	Road Category	National Highway
GPS Data	N 21° 50' 39.30"	Management Authority	MORTH
	E 69° 22' 36.83"	Year of Construction	1978

Detailed Description of Damages

Object Member	RC Box Girder
Kind of Damage	Spalling
Sketch or Photo	

↓ RIVER FLOW



Bridge Survey Record (7/8) -2

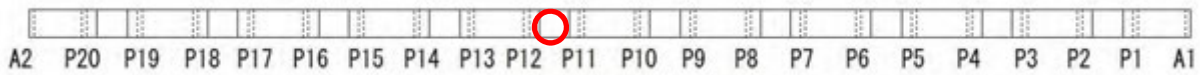
Inspector : Koji KAWAMATA Date & Time: 20 Nov 2013

Bridge No.	15	Location (State)	Gujarat
Bridge Name	Medhacreek Bridge	Road Name	NH8E
Station	Km408/000	Road Category	National Highway
GPS Data	N 21° 50' 39.30"	Management Authority	MORTH
	E 69° 22' 36.83"	Year of Construction	1978

Detailed Description of Damages

Object Member	RC Box Girder
Kind of Damage	Under Repairing
Sketch or Photo	

↓ RIVER FLOW



Bridge Survey Record (7/8) -3

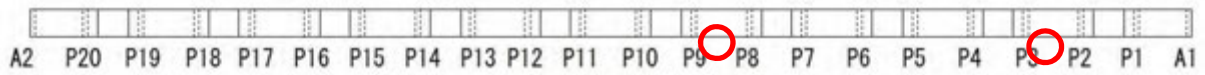
Inspector : Koji KAWAMATA Date & Time: 20 Nov 2013

Bridge No.	15	Location (State)	Gujarat
Bridge Name	Medhacreek Bridge	Road Name	NH8E
Station	Km408/000	Road Category	National Highway
GPS Data	N 21° 50' 39.30"	Management Authority	MORTH
	E 69° 22' 36.83"	Year of Construction	1978

Detailed Description of Damages

Object Member	RC Box Girder
Kind of Damage	Spalling
Sketch or Photo	

↓ RIVER FLOW



Bridge Survey Record (7/8) -4

Inspector : Koji KAWAMATA Date & Time: 20 Nov 2013

Bridge No.	15	Location (State)	Gujarat
Bridge Name	Medhacreek Bridge	Road Name	NH8E
Station	Km408/000	Road Category	National Highway
GPS Data	N 21° 50' 39.30"	Management Authority	MORTH
	E 69° 22' 36.83"	Year of Construction	1978

Detailed Description of Damages

Object Member	RC Box Girder
Kind of Damage	Under Repairing
Sketch or Photo	

↓ RIVER FLOW



Bridge Survey Record (8/8)

Inspector : Koji KAWAMATA Date & Time: 20 Nov 2013

Bridge No.	15	Location (State)	Gujarat
Bridge Name	Medhacreek Bridge	Road Name	NH8E
Station	Km408/000	Road Category	National Highway
GPS Data	N 21° 50' 39.30"	Management Authority	MORTH
	E 69° 22' 36.83"	Year of Construction	1978

Evaluation index

1	Traffic Demand	High
2	Distance of Detour Route	None (approx. 184 km)
3	Project Effects for Japanese Companies	High
4	Damage Level of the Bridges	Very serious damages on superstructure. But repairing work is on going.
5	Application of Japanese Technology	Applicable (replacement to Steel girder)
6	Duplication with Other Projects by Donor's or Local	Improvement (4 lane bridge) plan on 400m upstream
7	Importance of the Bridge on Surrounding Society and Economy	Very high
8	Impacts on the Environment	-

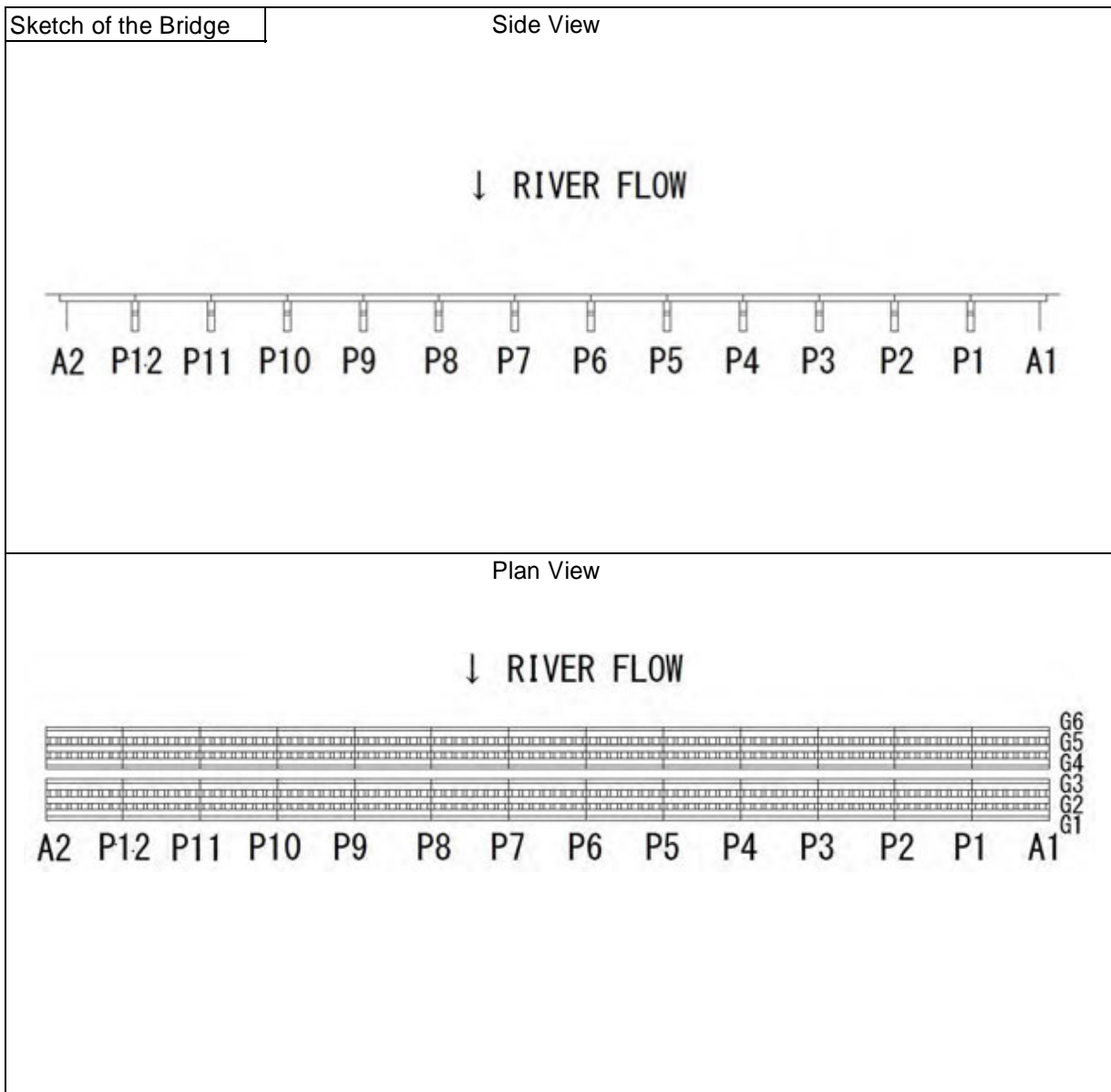
Bridge Survey Record (1/8)

Inspector : Koji KAWAMATA

Date & Time: 15 Nov 2013

Bridge No.	16	Location (State)	Delhi
Bridge Name	Nizanuddin Bridge	Road Name	NH24
Station	-	Road Category	National Highway
GPS Data	N 28° 35' 38"	Management Authority	MORTH
	E 77° 17' 00"	Year of Construction	

Bridge Length	520m	Span Arrangement	13 Spans
Bridge Width		Approach Road Width	9.0m (Both side)
- Carriageway Width	7.30m (2 Lane)		
- Medium Width	1.80m		
- Footway Width	1.30m	Existing of Detour	Approx. 11km
Type of Superstructure	PC T Girder	Type of Substructure	RC
Type of Foundation	-		



Bridge Survey Record (2/8) R1-R6

Inspector : Koji KAWAMATA

Date & Time: 15 Nov 2013

Bridge No.	16	Location (State)	Delhi
Bridge Name	Nizanuddin Bridge	Road Name	NH24
Photoes			

Photo R1



Photo R2



Photo R3



Photo R4



Photo R5



Photo R6

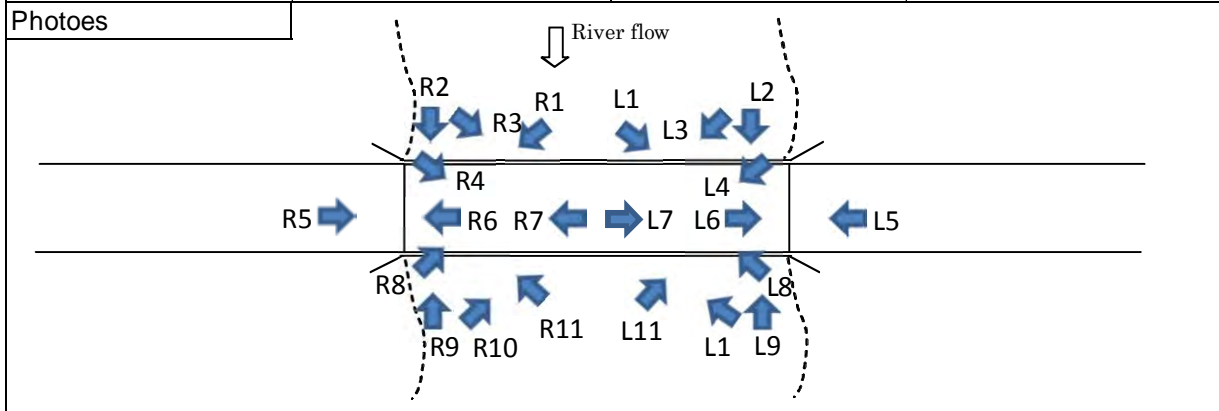


Bridge Survey Record (3/8) R7-R11

Inspector : Koji KAWAMATA

Date & Time: 15 Nov 2013

Bridge No.	16	Location (State)	Delhi
Bridge Name	Nizanuddin Bridge	Road Name	NH24

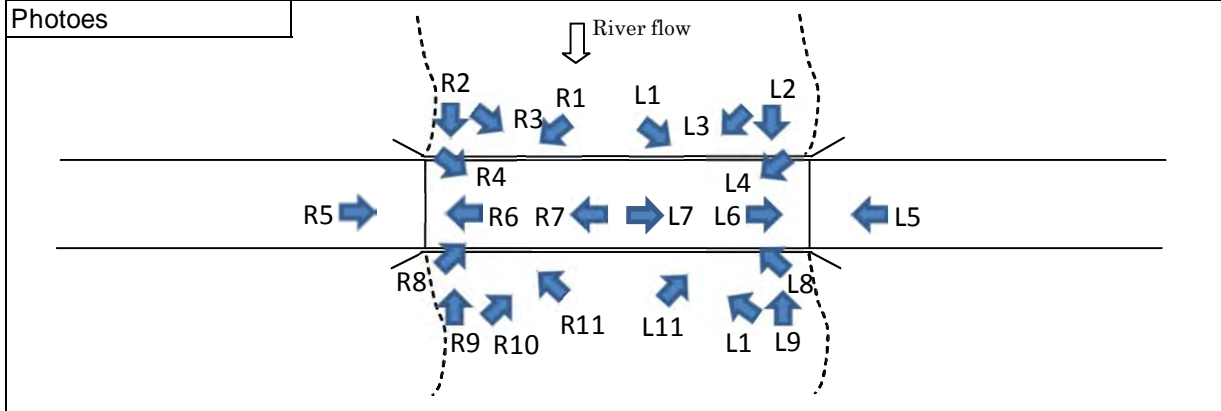


Bridge Survey Record (4/8) L1-L6

Inspector : Koji KAWAMATA

Date & Time: 15 Nov 2013

Bridge No.	16	Location (State)	Delhi
Bridge Name	Nizanuddin Bridge	Road Name	NH24

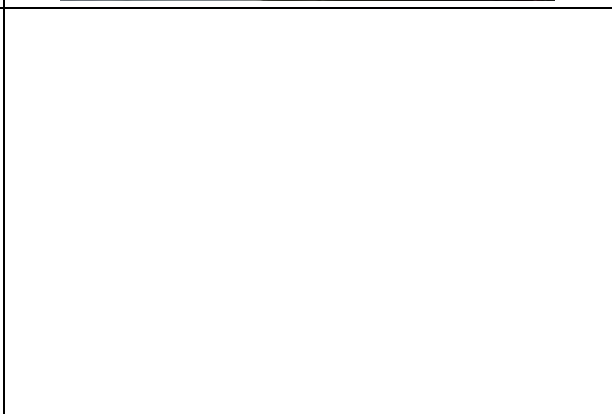
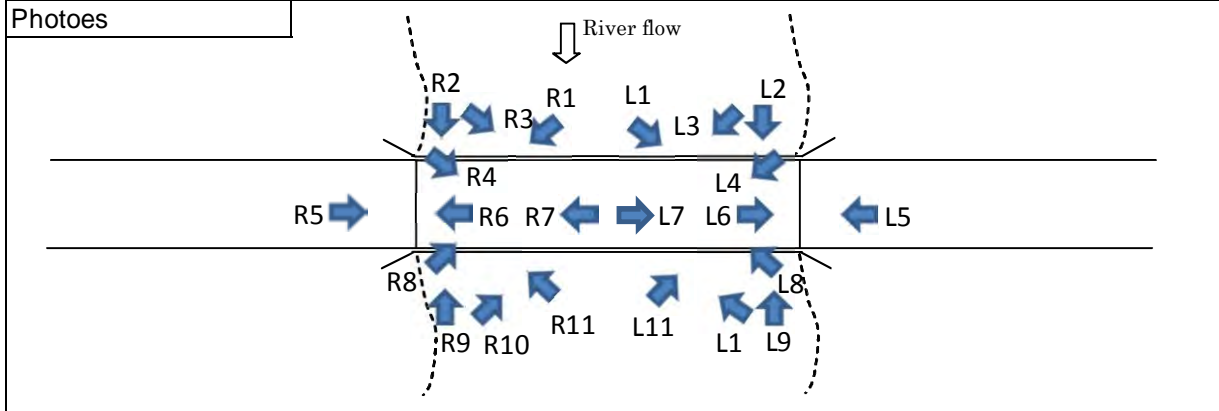


Bridge Survey Record (5/8) L7-L11

Inspector : Koji KAWAMATA

Date & Time: 15 Nov 2013

Bridge No.	16	Location (State)	Delhi
Bridge Name	Nizanuddin Bridge	Road Name	NH24



Bridge Survey Record (6/8)

Inspector : Koji KAWAMATA Date & Time: 15 Nov 2013

Bridge No.	16	Location (State)	Delhi
Bridge Name	Nizanuddin Bridge	Road Name	NH24
Station	-	Road Category	National Highway
GPS Data	N 28° 35' 38"	Management Authority	MORTH
	E 77° 17' 00"	Year of Construction	

General Description of Damages

Member	Kind of the Damage
	Ex. Concrete : Cracking, Spalling, etc. Steel : Cracking, Rusting, Fracture, etc.
1. Superstructure	
(1) Concrete Member	
- Girder	Spalling (P3)
- Cross Beam	Nil
- Slab	Nil
(2) Steel Member	
- Girder	N/A
- Vertical Girder (stringer)	N/A
- Cross Beam	N/A
- Sway Bracing	N/A
(3) Bearing Shoe	Nil
(4) EXP Joint	Nil
(5) Handrail	Nil
(6) Kerb	Nil
(7) Drainage Pipe	Filling
(8) Others	Some out cable are broken and slacking
2. Substructure	
- Pier	Spalling (P2)
- Abutment	Nil
- Wing Wall	Nil
3. Miscellaneous	
- Approach Road Condition	Nil
- Obstruction	Nil
- Scouring	Nil
4. Evaluation	See Sheet 8

Bridge Survey Record (7/8) -1

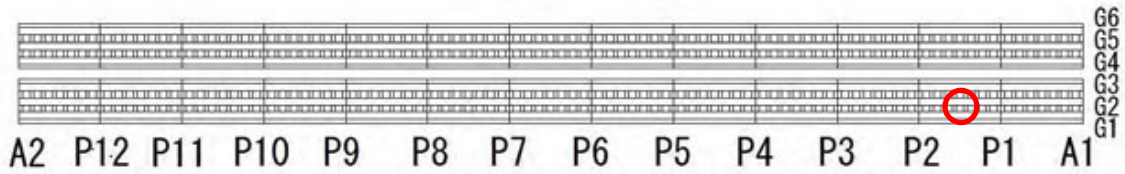
Inspector : Koji KAWAMATA Date & Time: 15 Nov 2013

Bridge No.	16	Location (State)	Delhi
Bridge Name	Nizanuddin Bridge	Road Name	NH24
Station	-	Road Category	National Highway
GPS Data	N 28° 35' 38"	Management Authority	MORTH
	E 77° 17' 00"	Year of Construction	

Detailed Description of Damages

Object Member	Girder outcable (P1P2)
Kind of Damage	Boroken
Sketch or Photo	

↓ RIVER FLOW



Bridge Survey Record (7/8) -2

Inspector : Koji KAWAMATA Date & Time: 15 Nov 2013

Bridge No.	16	Location (State)	Delhi
Bridge Name	Nizanuddin Bridge	Road Name	NH24
Station	-	Road Category	National Highway
GPS Data	N 28° 35' 38"	Management Authority	MORTH
	E 77° 17' 00"	Year of Construction	

Detailed Description of Damages

Object Member	Girder outcable (P2P3)
Kind of Damage	Slack of outcable
Sketch or Photo	

↓ RIVER FLOW

Bridge Survey Record (7/8) -3

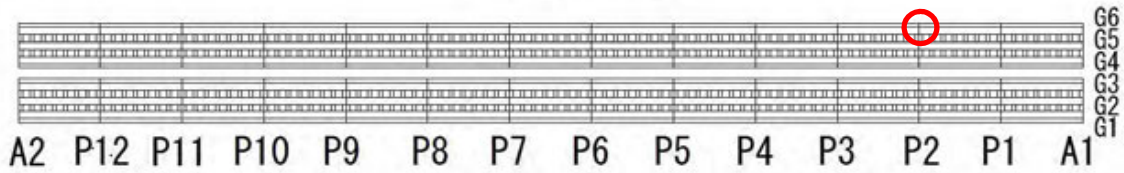
Inspector : Koji KAWAMATA Date & Time: 15 Nov 2013

Bridge No.	16	Location (State)	Delhi
Bridge Name	Nizanuddin Bridge	Road Name	NH24
Station	-	Road Category	National Highway
GPS Data	N 28° 35' 38"	Management Authority	MORTH
	E 77° 17' 00"	Year of Construction	

Detailed Description of Damages

Object Member	RC Substructure (P2)
Kind of Damage	Spalling
Sketch or Photo	

↓ RIVER FLOW



Bridge Survey Record (7/8) -4



Inspector : Koji KAWAMATA Date & Time: 15 Nov 2013

Bridge No.	16	Location (State)	Delhi
Bridge Name	Nizanuddin Bridge	Road Name	NH24
Station	-	Road Category	National Highway
GPS Data	N 28° 35' 38"	Management Authority	MORTH
	E 77° 17' 00"	Year of Construction	

Detailed Description of Damages

Object Member	PC T Girder (P3)
Kind of Damage	Spalling
Sketch or Photo	

↓ RIVER FLOW

Bridge Survey Record (7/8) -5

Inspector : Koji KAWAMATA Date & Time: 15 Nov 2013

Bridge No.	16	Location (State)	Delhi
Bridge Name	Nizanuddin Bridge	Road Name	NH24
Station	-	Road Category	National Highway
GPS Data	N 28° 35' 38"	Management Authority	MORTH
	E 77° 17' 00"	Year of Construction	

Detailed Description of Damages

Object Member	All Joint
Kind of Damage	Clogging & Gap
Sketch or Photo	



Bridge Survey Record (7/8) -6

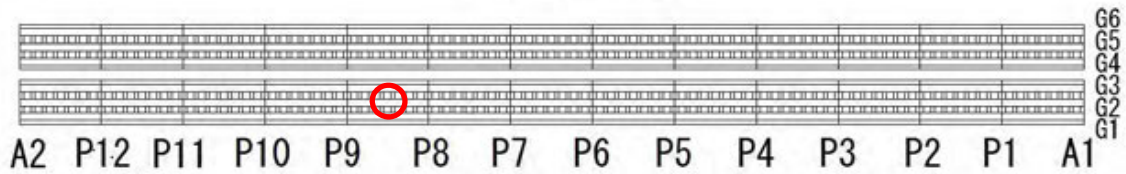
Inspector : Koji KAWAMATA Date & Time: 15 Nov 2013

Bridge No.	16	Location (State)	Delhi
Bridge Name	Nizanuddin Bridge	Road Name	NH24
Station	-	Road Category	National Highway
GPS Data	N 28° 35' 38"	Management Authority	MORTH
	E 77° 17' 00"	Year of Construction	

Detailed Description of Damages

Object Member	Pavement (P8P9)
Kind of Damage	Peeling
Sketch or Photo	

↓ RIVER FLOW



Bridge Survey Record (7/8) -7

Inspector : Koji KAWAMATA Date & Time: 15 Nov 2013

Bridge No.	16	Location (State)	Delhi
Bridge Name	Nizanuddin Bridge	Road Name	NH24
Station	-	Road Category	National Highway
GPS Data	N 28° 35' 38"	Management Authority	MORTH
	E 77° 17' 00"	Year of Construction	

Detailed Description of Damages

Object Member	Drainage Pipe
Kind of Damage	filling
Sketch or Photo	



Bridge Survey Record (8/8)

Inspector : Koji KAWAMATA Date & Time: 15 Nov 2013

Bridge No.	16	Location (State)	Delhi
Bridge Name	Nizanuddin Bridge	Road Name	NH24
Station	-	Road Category	National Highway
GPS Data	N 28° 35' 38"	Management Authority	MORTH
	E 77° 17' 00"	Year of Construction	

Evaluation index

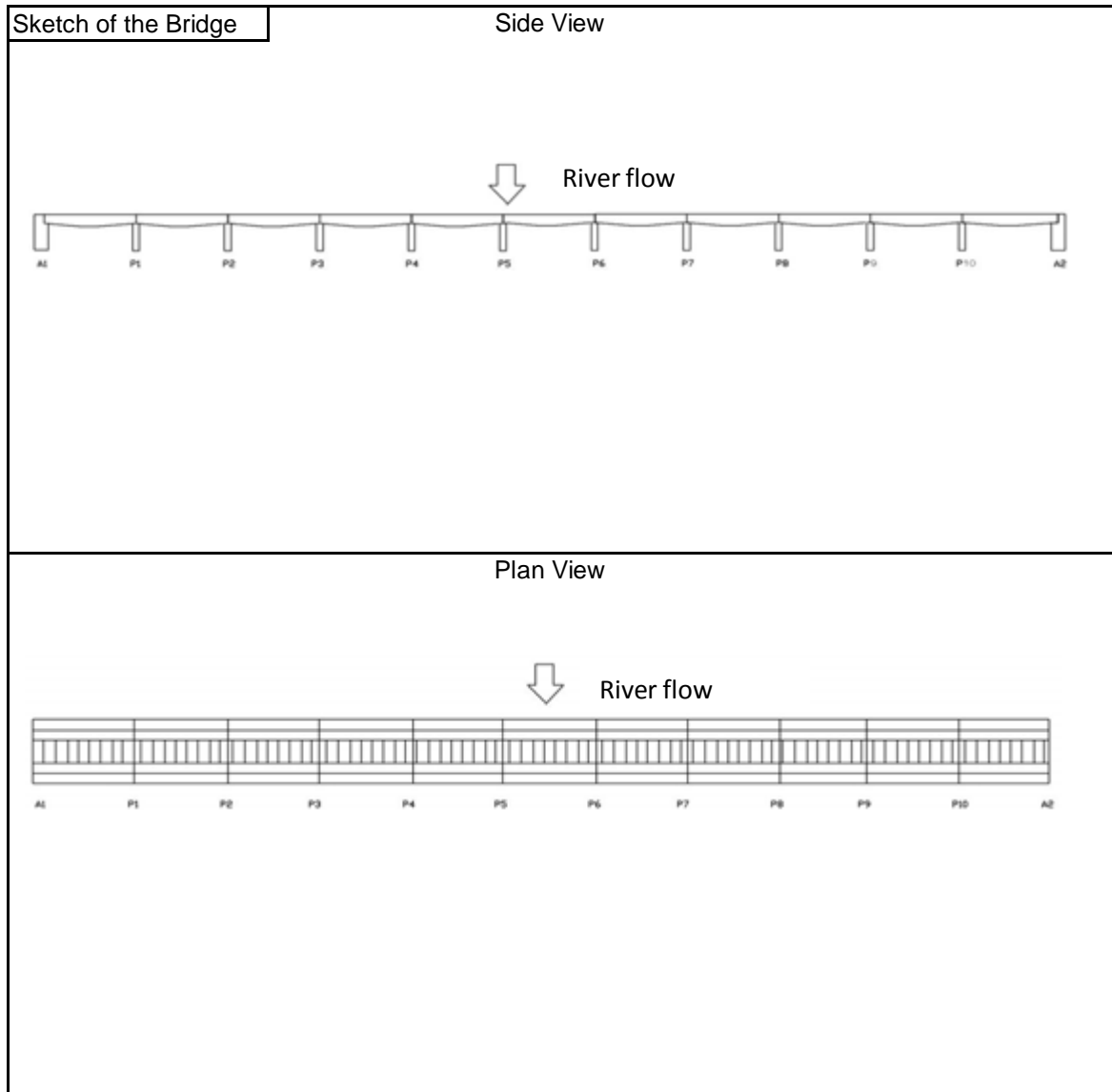
1	Traffic Demand	Very High
2	Distance of Detour Route	Approx. 11 km
3	Project Effects for Japanese Companies	Very High
4	Damage Level of the Bridges	Need repairing on some portion
5	Application of Japanese Technology	Local Technology
6	Duplication with Other Projects by Donor's or Local	None
7	Importance of the Bridge on Surrounding Society and Economy	Very high
8	Impacts on the Environment	-

Bridge Survey Record (1/8)

Inspector : Toshinao YAMAGUCHI Date & Time: 23 Nov 2013

Bridge No.	17	Location (State)	Uttar Pradesh
Bridge Name	Sharada Bridge	Road Name	NH730
Station	-	Road Category	National haighway
GPS Data	N 27 ° 50 ' 47.2 "	Management Authority	State PWD
	E 081 ° 01 ' 24.5 "	Year of Construction	1967

Bridge Length	581m	Span Arrangement	11 spans
Bridge Width		Approach Road Width	Same as bridge
- Carriageway Width	7.5m		
- Medium Width	Nil		
- Footway Width	1.5m (both side)		
Type of Superstructure	RC T Girder	Existing of Detour	None (approx.156Km)
Type of Foundation	Well	Type of Substructure	RC



Bridge Survey Record (2/8) R1-R6

Inspector : Toshinao YAMAGUCHI Date & Time: 23 Nov 2013

Bridge No.	17	Location (State)	Uttar Pradesh
Bridge Name	Sharada Bridge	Road Name	NH730
Photoes			
Photo R1			
Photo R2			
Photo R3			
Photo R4			
Photo R5			
Photo R6			

Bridge Survey Record (3/8) R7-R11

Inspector : Toshinao YAMAGUCHI Date & Time: 23 Nov 2013

Bridge No.	17	Location (State)	Uttar Pradesh
Bridge Name	Sharada Bridge	Road Name	NH730
Photoes			
Photo R7			
Photo R8			
Photo R9			
Photo R10			
Photo R11			

Bridge Survey Record (4/8) L1-L6

Inspector : Toshinao YAMAGUCHI Date & Time: 23 Nov 2013

Bridge No.	17	Location (State)	Uttar Pradesh
Bridge Name	Sharada Bridge	Road Name	NH730
Photoes			
Photo L1			
Photo L2			
Photo L3			
Photo L4			
Photo L5			
Photo L6			

Bridge Survey Record (5/8) L7-L11

Inspector : Toshinao YAMAGUCHI Date & Time: 23 Nov 2013

Bridge No.	17	Location (State)	Uttar Pradesh
Bridge Name	Sharada Bridge	Road Name	NH730
Photoes			
Photo L7			
Photo L8			
Photo L9			
Photo L10			
Photo L11			

Bridge Survey Record (6/8)

Inspector : Toshinao YAMAGUCHI Date & Time: 23 Nov 2013

Bridge No.	17	Location (State)	Uttar Pradesh
Bridge Name	Sharada Bridge	Road Name	NH730
Station	-	Road Category	National highway
GPS Data	N 27 °50 ' 47.2 "	Management Authority	State PWD
	E 081 °01 ' 24.5 "	Year of Construction	1967

General Description of Damages

Member	Kind of the Damage
	Ex. Concrete : Cracking, Spalling, etc. Steel : Cracking, Rusting, Fracture, etc.
1. Superstructure	
(1) Concrete Member	
- Girder	There are some cracks on web
- Cross Beam	Nil
- Slab	Nil
(2) Steel Member	
- Girder	N/A
- Vertical Girder (stringer)	N/A
- Cross Beam	N/A
- Sway Bracing	N/A
(3) Bearing Shoe	Nil
(4) EXP Joint	Mostly broken and uneven gap are observed
(5) Handrail	CC peeling
(6) Kerb	Nil
(7) Drainage Pipe	Nil
(8) Others	Cracks on girder was already repaired in 1981. So many cracks on concrete pavement. Slab of footway is collapsed between P10-A2.
2. Substructure	
- Pier	Nil
- Abutment	Nil
- Wing Wall	Nil
3. Miscellaneous	
- Approach Road Condition	Nil
- Obstruction	Nil
- Scouring	Unknown
4. Evaluation	See Sheet 8

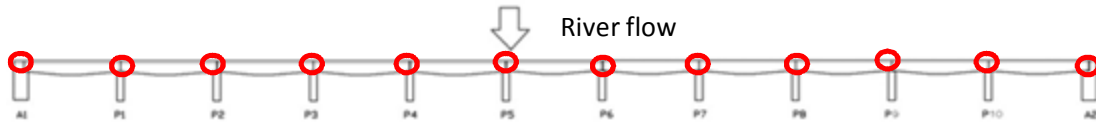
Bridge Survey Record (7/8) -1

Inspector : Toshinao YAMAGUCHI Date & Time: 23 Nov 2013

Bridge No.	17	Location (State)	Uttar Pradesh
Bridge Name	Sharada Bridge	Road Name	NH730
Station	-	Road Category	National haighway
GPS Data	N 27 °50 ' 47.2 "	Management Authority	State PWD
	E 081 °01 ' 24.5 "	Year of Construction	1967

Detailed Description of Damages

Object Member	Girder end
Kind of Damage	Small cracks on web. Some of them were already repaired in 1981
Sketch or Photo	



Bridge Survey Record (7/8) -2

Inspector : Toshinao YAMAGUCHI Date & Time: 23 Nov 2013

Bridge No.	17	Location (State)	Uttar Pradesh
Bridge Name	Sharada Bridge	Road Name	NH730
Station	-	Road Category	National haighway
GPS Data	N 27 °50 ' 47.2 "	Management Authority	State PWD
	E 081 °01 ' 24.5 "	Year of Construction	1967

Detailed Description of Damages

Object Member	All EXP joint
Kind of Damage	Uneven gap, broken and/or peeling
Sketch or Photo	



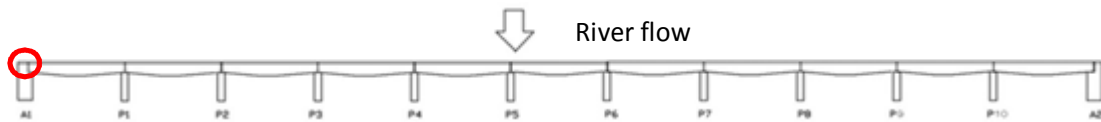
Bridge Survey Record (7/8) -3

Inspector : Toshinao YAMAGUCHI Date & Time: 23 Nov 2013

Bridge No.	17	Location (State)	Uttar Pradesh
Bridge Name	Sharada Bridge	Road Name	NH730
Station	-	Road Category	National haighway
GPS Data	N 27 °50 ' 47.2 "	Management Authority	State PWD
	E 081 °01 ' 24.5 "	Year of Construction	1967

Detailed Description of Damages

Object Member	Handrail (A1)
Kind of Damage	CC peeling and corroded re-bar exposed
Sketch or Photo	



Bridge Survey Record (7/8) -4

Inspector : Toshinao YAMAGUCHI Date & Time: 23 Nov 2013

Bridge No.	17	Location (State)	Uttar Pradesh
Bridge Name	Sharada Bridge	Road Name	NH730
Station	-	Road Category	National haighway
GPS Data	N 27 °50 ' 47.2 "	Management Authority	State PWD
	E 081 °01 ' 24.5 "	Year of Construction	1967

Detailed Description of Damages

Object Member	Pavement (all portions)
Kind of Damage	Many cracks on concrete pavement
Sketch or Photo	

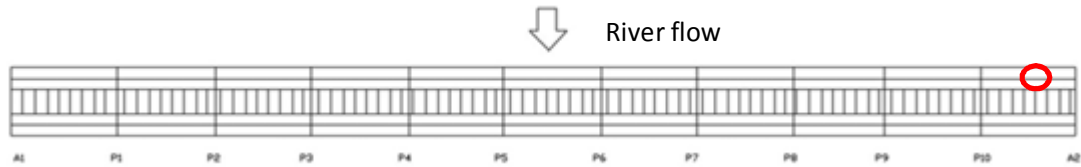


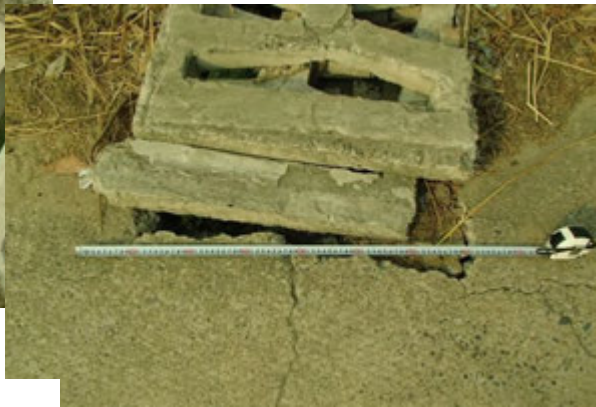
Bridge Survey Record (7/8) -5

Inspector : Toshinao YAMAGUCHI Date & Time: 23 Nov 2013

Bridge No.	17	Location (State)	Uttar Pradesh
Bridge Name	Sharada Bridge	Road Name	NH730
Station	-	Road Category	National haighway
GPS Data	N 27 °50 ' 47.2 "	Management Authority	State PWD
	E 081 °01 ' 24.5 "	Year of Construction	1967

Detailed Description of Damages

Object Member	Footway slab (P10-A2)
Kind of Damage	Falling out of footway slab
Sketch or Photo	



Bridge Survey Record (8/8)

Inspector : Toshinao YAMAGUCHI Date & Time: 23 Nov 2013

Bridge No.	17	Location (State)	Uttar Pradesh
Bridge Name	Sharada Bridge	Road Name	NH730
Station	-	Road Category	National haighway
GPS Data	N 27 °50 ' 47.2 "	Management Authority	State PWD
	E 081 °01 ' 24.5 "	Year of Construction	1967

Evaluation index

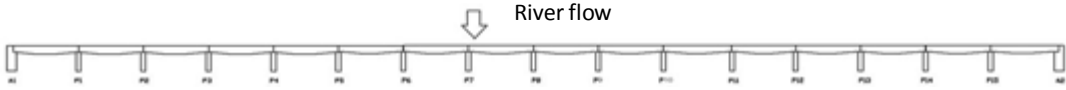
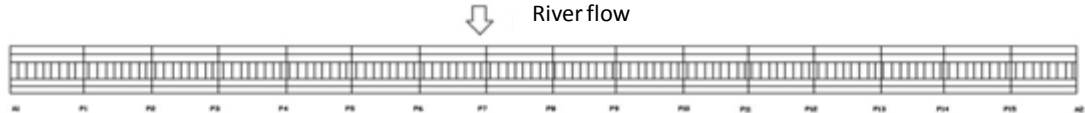
1	Traffic Demand	Moderate
2	Distance of Detour Route	None (approx. 156km)
3	Project Effects for Japanese Companies	Low
4	Damage Level of the Bridges	Need repairing in some portions
5	Application of Japanese Technology	Applicable (Carbon fibre for the end of RC girder)
6	Duplication with Other Projects by Donor's or Local	None
7	Importance of the Bridge on Surrounding Society and Economy	Moderate
8	Impacts on the Environment	-

Bridge Survey Record (1/8)

Inspector : Toshinao YAMAGUCHI Date & Time: 23 Nov 2013

Bridge No.	18	Location (State)	Uttar Pradesh
Bridge Name	Ghaghra Bridge	Road Name	NH730
Station	-	Road Category	National Highway
GPS Data	N 27 ° 59 ' 20.5 "	Management Authority	State PWD
	E 081 ° 12 ' 50.3 "	Year of Construction	1968

Bridge Length	837m	Span Arrangement	16 spans
Bridge Width		Approach Road Width	Same as bridge
- Carriageway Width	7.5m	Existing of Detour	None (approx.171Km)
- Medium Width	Nil	Type of Superstructure	RC T Girder
- Footway Width	1.5m (both side)	Type of Substructure	RC
Type of Foundation	Well		

Sketch of the Bridge	Side View
	
Plan View	
	

Bridge Survey Record (2/8) R1-R6

Inspector : Toshinao YAMAGUCHI Date & Time: 23 Nov 2013

Bridge No.	18	Location (State)	Uttar Pradesh
Bridge Name	Ghaghra Bridge	Road Name	NH730
Photoes	<p style="text-align: center;">River flow</p>		
Photo R1			
Photo R2			
Photo R3			
Photo R4			
Photo R5			
Photo R6			

Bridge Survey Record (3/8) R7-R11

Inspector : Toshinao YAMAGUCHI Date & Time: 23 Nov 2013

Bridge No.	18	Location (State)	Uttar Pradesh
Bridge Name	Ghaghra Bridge	Road Name	NH730
Photoes	<p style="text-align: center;">River flow</p>		
Photo R7			
Photo R8			
Photo R9			
Photo R10			
Photo R11			

Bridge Survey Record (4/8) L1-L6

Inspector : Toshinao YAMAGUCHI Date & Time: 23 Nov 2013

Bridge No.	18	Location (State)	Uttar Pradesh
Bridge Name	Ghaghra Bridge	Road Name	NH730
Photoes			
Photo L1			
Photo L2			
Photo L3			
Photo L4			
Photo L5			
Photo L6			

Bridge Survey Record (5/8) L7-L11

Inspector : Toshinao YAMAGUCHI Date & Time: 23 Nov 2013

Bridge No.	18	Location (State)	Uttar Pradesh
Bridge Name	Ghaghra Bridge	Road Name	NH730
Photoes			
Photo L7			
Photo L8			
Photo L9			
Photo L10			
Photo L11			

Bridge Survey Record (6/8)

Inspector : Toshinao YAMAGUCHI Date & Time: 23 Nov 2013

Bridge No.	18	Location (State)	Uttar Pradesh
Bridge Name	Ghaghra Bridge	Road Name	NH730
Station	-	Road Category	National Highway
GPS Data	N 27 °59 ' 20.5 "	Management Authority	State PWD
	E 081 °12 ' 50.3 "	Year of Construction	1968

General Description of Damages

Member	Kind of the Damage
	Ex. Concrete : Cracking, Spalling, etc. Steel : Cracking, Rusting, Fracture, etc.
1. Superstructure	
(1) Concrete Member	
- Girder	There are some cracks on web
- Cross Beam	Nil
- Slab	Nil
(2) Steel Member	
- Girder	N/A
- Vertical Girder (stringer)	N/A
- Cross Beam	N/A
- Sway Bracing	N/A
(3) Bearing Shoe	Nil
(4) EXP Joint	Mostly broken and uneven gap are observed
(5) Handrail	Nil
(6) Kerb	Nil
(7) Drainage Pipe	Nil
(8) Others	Cracks on girder was already repaired in 1986. So many cracks on concrete pavement.
2. Substructure	
- Pier	Cracking
- Abutment	Nil
- Wing Wall	Nil
3. Miscellaneous	
- Approach Road Condition	Nil
- Obstruction	Nil
- Scouring	Unknown
4. Evaluation	See Sheet 8

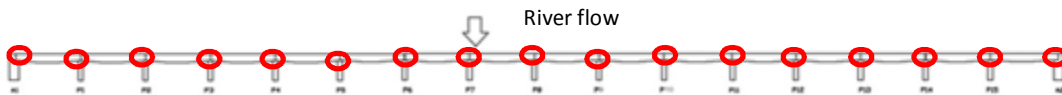
Bridge Survey Record (7/8) -1

Inspector : Toshinao YAMAGUCHI Date & Time: 23 Nov 2013

Bridge No.	18	Location (State)	Uttar Pradesh
Bridge Name	Ghaghra Bridge	Road Name	NH730
Station	-	Road Category	National Highway
GPS Data	N 27 °59 ' 20.5 "	Management Authority	State PWD
	E 081 °12 ' 50.3 "	Year of Construction	1968

Detailed Description of Damages

Object Member	Girder end
Kind of Damage	Small cracks on web. Some of them were already repaired in 1986
Sketch or Photo	



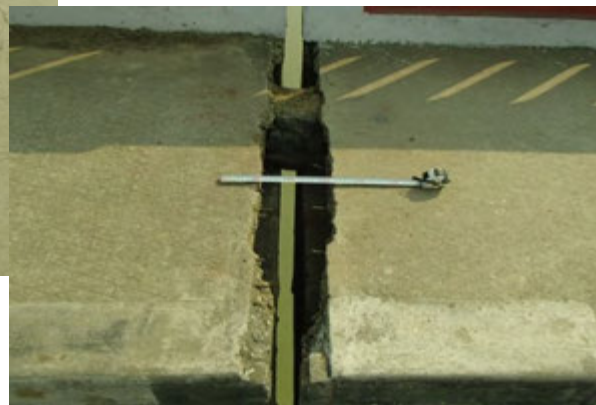
Bridge Survey Record (7/8) -2

Inspector : Toshinao YAMAGUCHI Date & Time: 23 Nov 2013

Bridge No.	18	Location (State)	Uttar Pradesh
Bridge Name	Ghaghra Bridge	Road Name	NH730
Station	-	Road Category	National Highway
GPS Data	N 27 °59 ' 20.5 "	Management Authority	State PWD
	E 081 °12 ' 50.3 "	Year of Construction	1968

Detailed Description of Damages

Object Member	All EXP joint
Kind of Damage	Uneven gap, broken and/or peeling
Sketch or Photo	



Bridge Survey Record (7/8) -3

Inspector : Toshinao YAMAGUCHI Date & Time: 23 Nov 2013

Bridge No.	18	Location (State)	Uttar Pradesh
Bridge Name	Ghaghra Bridge	Road Name	NH730
Station	-	Road Category	National Highway
GPS Data	N 27 °59 ' 20.5 "	Management Authority	State PWD
	E 081 °12 ' 50.3 "	Year of Construction	1968

Detailed Description of Damages

Object Member	Pvement (all portions)
Kind of Damage	Many cracks on concrete pavement
Sketch or Photo	



Bridge Survey Record (7/8) -4

Inspector : Toshinao YAMAGUCHI Date & Time: 23 Nov 2013

Bridge No.	18	Location (State)	Uttar Pradesh
Bridge Name	Ghaghra Bridge	Road Name	NH730
Station	-	Road Category	National Highway
GPS Data	N 27 °59 ' 20.5 "	Management Authority	State PWD
	E 081 °12 ' 50.3 "	Year of Construction	1968

Detailed Description of Damages

Object Member	All Piers
Kind of Damage	Cracks on pier cap and column
Sketch or Photo	



Bridge Survey Record (8/8)

Inspector : Toshinao YAMAGUCHI Date & Time: 23 Nov 2013

Bridge No.	18	Location (State)	Uttar Pradesh
Bridge Name	Ghaghra Bridge	Road Name	NH730
Station	-	Road Category	National Highway
GPS Data	N 27 °59 ' 20.5 "	Management Authority	State PWD
	E 081 °12 ' 50.3 "	Year of Construction	1968

Evaluation index

1	Traffic Demand	Moderate
2	Distance of Detour Route	None (approx. 171km)
3	Project Effects for Japanese Companies	Low
4	Damage Level of the Bridges	Need repairing in some portions
5	Application of Japanese Technology	Applicable (Carbon fibre for the end of RC girder and piers)
6	Duplication with Other Projects by Donor's or Local	None
7	Importance of the Bridge on Surrounding Society and Economy	Moderate
8	Impacts on the Environment	-

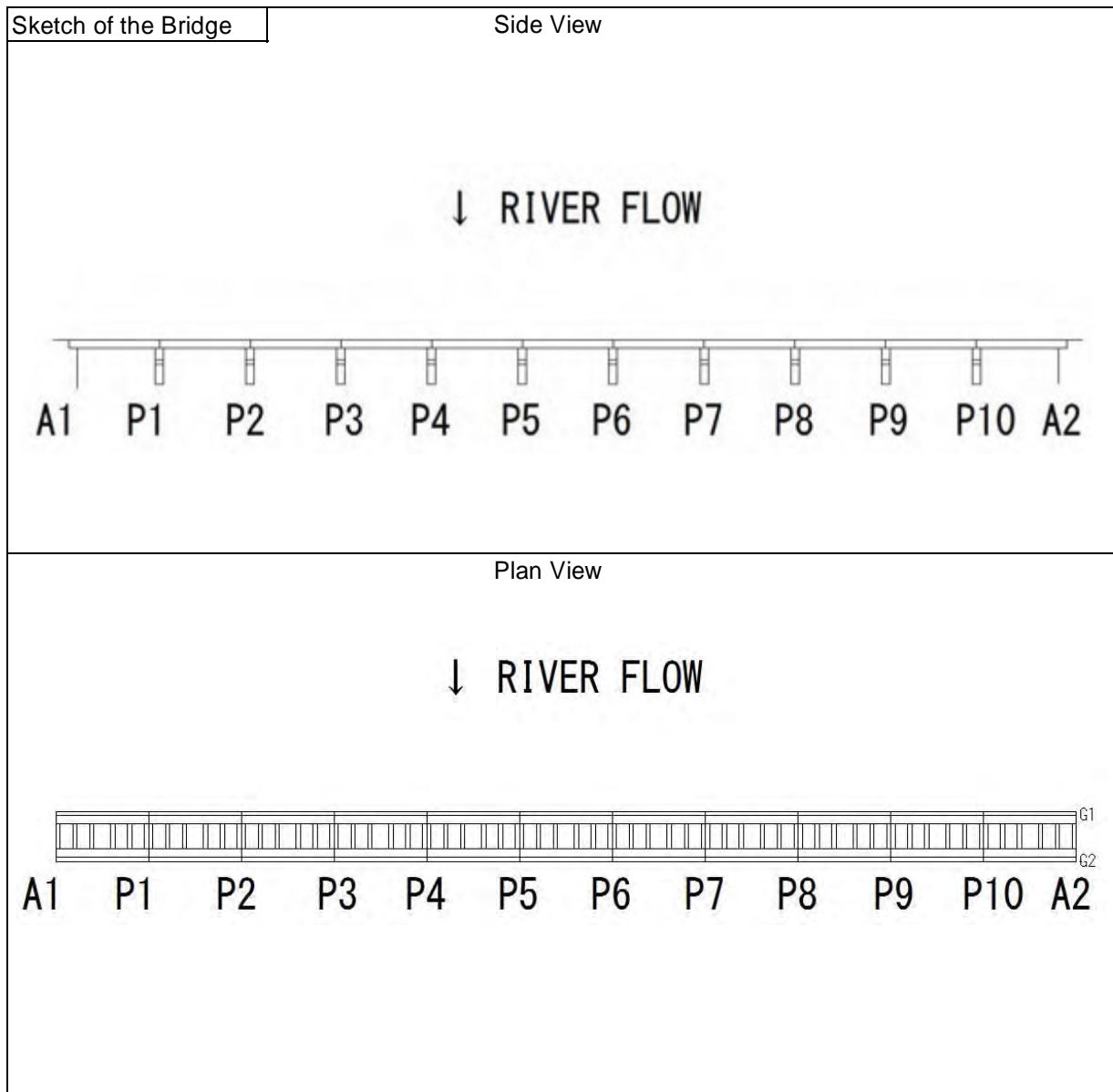
Bridge Survey Record (1/8)

Inspector : Koji KAWAMATA

Date & Time: 28 Nov 2013

Bridge No.	19	Location (State)	Himachal Pradesh
Bridge Name	Dehra Bridge (Beas River)	Road Name	NH20A
Station	-	Road Category	National Highway
GPS Data	N 31° 52' 27.44"	Management Authority	MORTH
	E 76° 13' 21.78"	Year of Construction	1962

Bridge Length	357m	Span Arrangement	11 Spans
Bridge Width		Approach Road Width	8.00m (Both side)
- Carriageway Width	7.50m (2Lane)		
- Medium Width	Nil		
- Footway Width	Nil		
Type of Superstructure	RC T & Box (Gerber Girder)	Existing of Detour	Approx. 90km
Type of Foundation	Well	Type of Substructure	RC



Bridge Survey Record (2/8) R1-R6

Inspector : Koji KAWAMATA

Date & Time: 28 Nov 2013

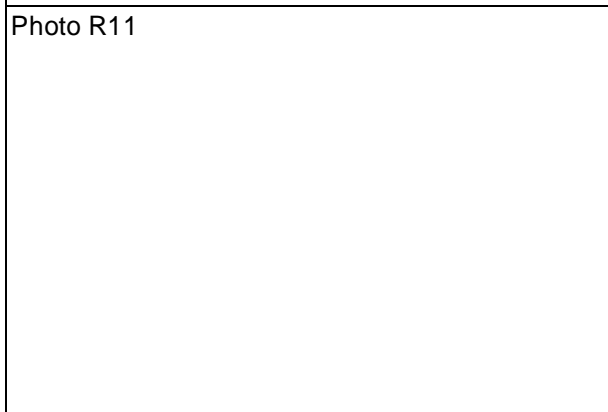
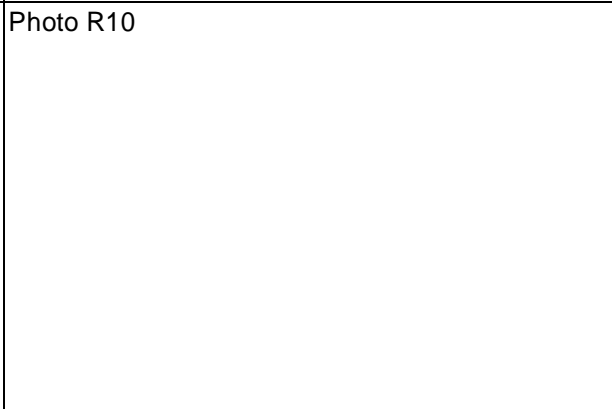
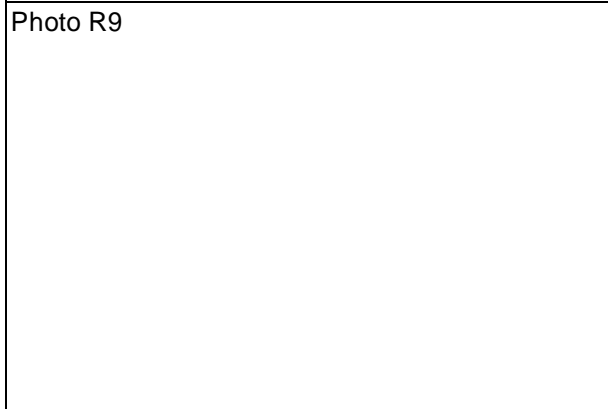
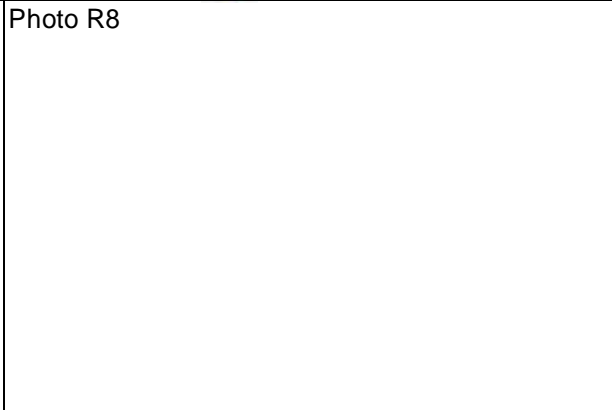
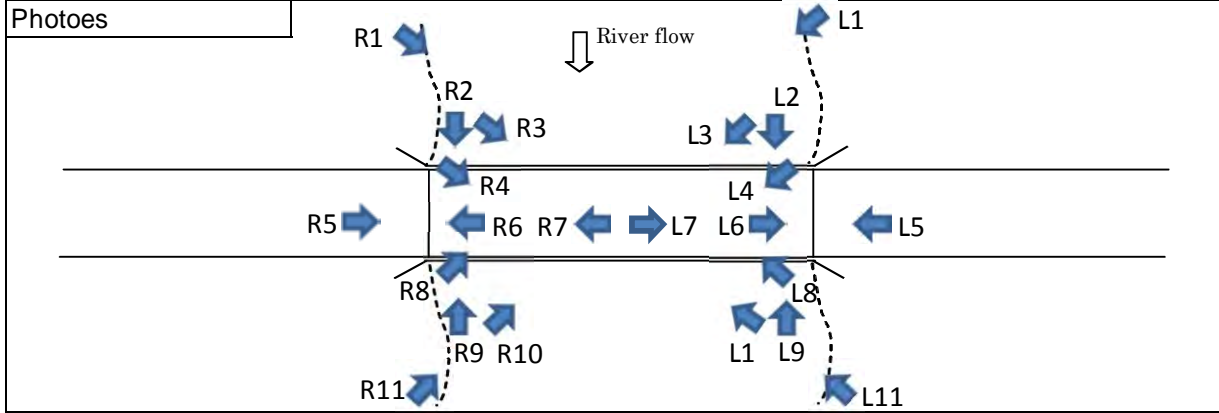
Bridge No.	19	Location (State)	Himachal Pradesh
Bridge Name	Dehra Bridge (Beas River)	Road Name	NH20A
Photoes			
Photo R1	Photo R2		
Photo R3	Photo R4		
Photo R5	Photo R6		

Bridge Survey Record (3/8) R7-R11

Inspector : Koji KAWAMATA

Date & Time: 28 Nov 2013

Bridge No.	19	Location (State)	Himachal Pradesh
Bridge Name	Dehra Bridge (Beas River)	Road Name	NH20A

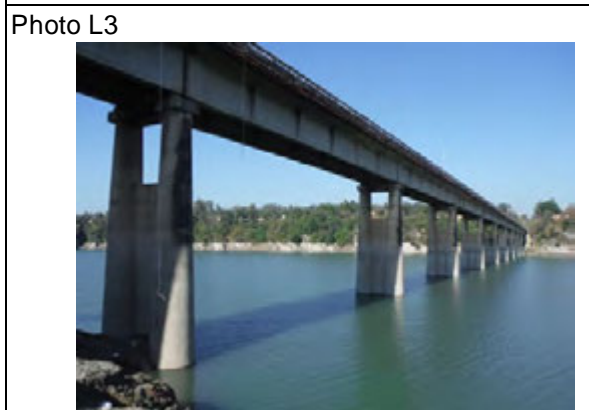
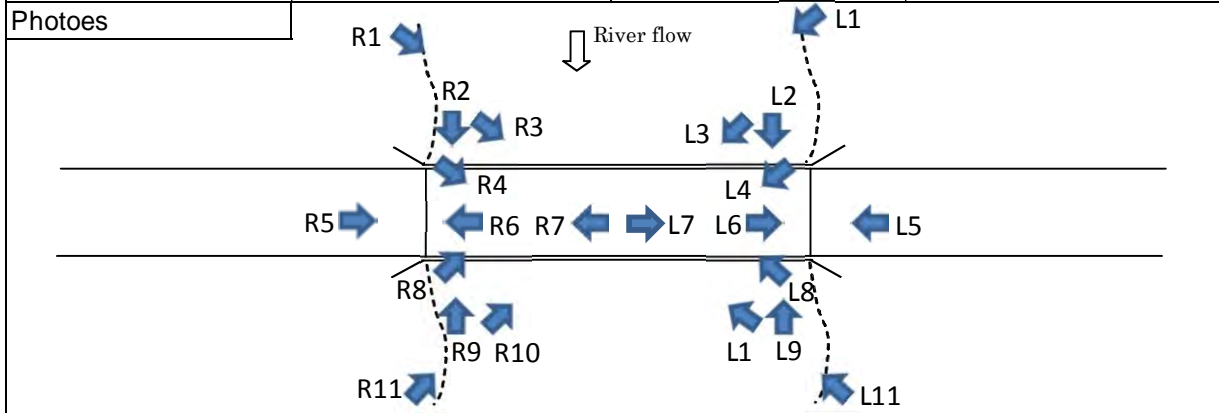


Bridge Survey Record (4/8) L1-L6

Inspector : Koji KAWAMATA

Date & Time: 28 Nov 2013

Bridge No.	19	Location (State)	Himachal Pradesh
Bridge Name	Dehra Bridge (Beas River)	Road Name	NH20A

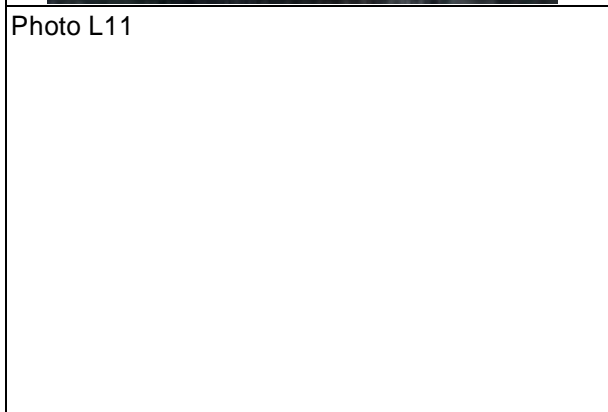
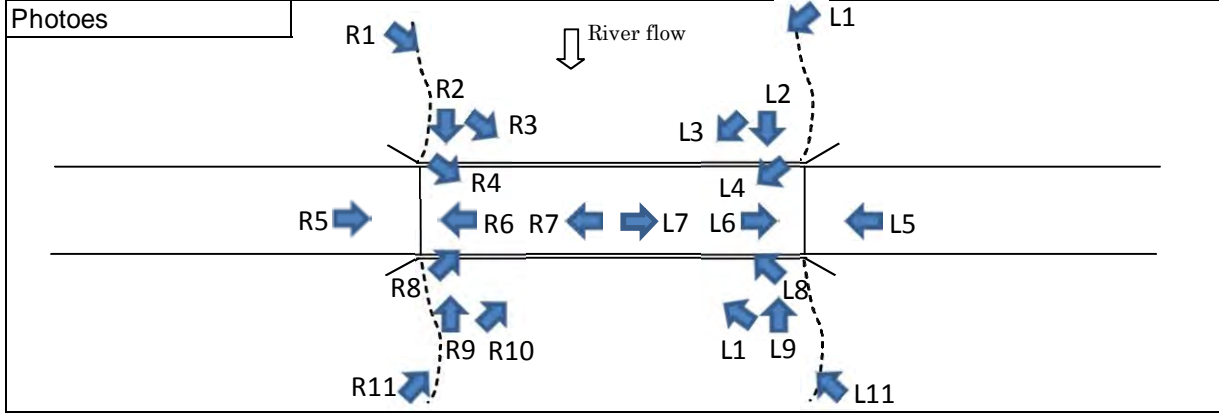


Bridge Survey Record (5/8) L7-L11

Inspector : Koji KAWAMATA

Date & Time: 28 Nov 2013

Bridge No.	19	Location (State)	Himachal Pradesh
Bridge Name	Dehra Bridge (Beas River)	Road Name	NH20A



Bridge Survey Record (6/8)

Inspector : Koji KAWAMATA Date & Time: 28 Nov 2013

Bridge No.	19	Location (State)	Himachal Pradesh
Bridge Name	Dehra Bridge (Beas River)	Road Name	NH20A
Station	-	Road Category	National Highway
GPS Data	N 31°52' 27.44"	Management Authority	MORTH
	E 76°13' 21.78"	Year of Construction	1962

General Description of Damages

Member	Kind of the Damage
	Ex. Concrete : Cracking, Spalling, etc. Steel : Cracking, Rusting, Fracture, etc.
1. Superstructure	
(1) Concrete Member	
- Girder	Nil
- Cross Beam	Nil
- Slab	Nil
(2) Steel Member	
- Girder	N/A
- Vertical Girder (stringer)	N/A
- Cross Beam	N/A
- Sway Bracing	N/A
(3) Bearing Shoe	Nil
(4) EXP Joint	All covered by pavement and not functioning properly
(5) Handrail	Nil
(6) Kerb	N/A
(7) Drainage Pipe	Nil
(8) Others	There are many cracks on concrete pavement
2. Substructure	
- Pier	Leaking of water (P2)
- Abutment	Nil
- Wing Wall	Nil
3. Miscellaneous	
- Approach Road Condition	Nil
- Obstruction	Nil
- Scouring	Nil
4. Evaluation	See Sheet 8

Bridge Survey Record (7/8) -1

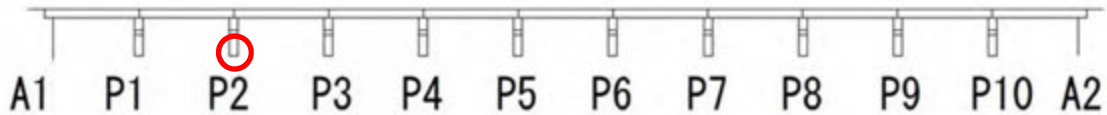
Inspector : Koji KAWAMATA Date & Time: 28 Nov 2013

Bridge No.	19	Location (State)	Himachal Pradesh
Bridge Name	Dehra Bridge (Beas River)	Road Name	NH20A
Station	-	Road Category	National Highway
GPS Data	N 31°52' 27.44"	Management Authority	MORTH
	E 76°13' 21.78"	Year of Construction	1962

Detailed Description of Damages

Object Member	P2
Kind of Damage	Leaking of water
Sketch or Photo	

↓ RIVER FLOW



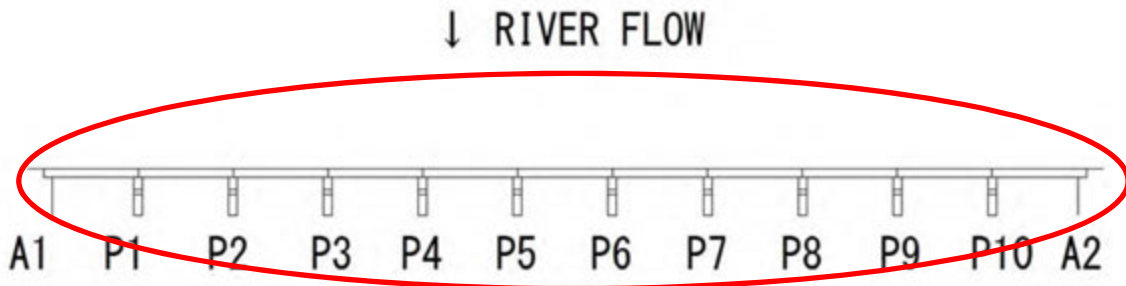
Bridge Survey Record (7/8) -2

Inspector : Koji KAWAMATA Date & Time: 28 Nov 2013

Bridge No.	19	Location (State)	Himachal Pradesh
Bridge Name	Dehra Bridge (Beas River)	Road Name	NH20A
Station	-	Road Category	National Highway
GPS Data	N 31°52' 27.44"	Management Authority	MORTH
	E 76°13' 21.78"	Year of Construction	1962

Detailed Description of Damages

Object Member	Pavement
Kind of Damage	Cracking
Sketch or Photo	



Bridge Survey Record (8/8)

Inspector : Koji KAWAMATA Date & Time: 28 Nov 2013

Bridge No.	19	Location (State)	Himachal Pradesh
Bridge Name	Dehra Bridge (Beas River)	Road Name	NH20A
Station	-	Road Category	National Highway
GPS Data	N 31°52' 27.44"	Management Authority	MORTH
	E 76°13' 21.78"	Year of Construction	1962

Evaluation index

1	Traffic Demand	Moderate
2	Distance of Detour Route	Approx. 90 km
3	Project Effects for Japanese Companies	Low
4	Damage Level of the Bridges	Minor damages
5	Application of Japanese Technology	Local Technology
6	Duplication with Other Projects by Donor's or Local	None
7	Importance of the Bridge on Surrounding Society and Economy	Moderate
8	Impacts on the Environment	-

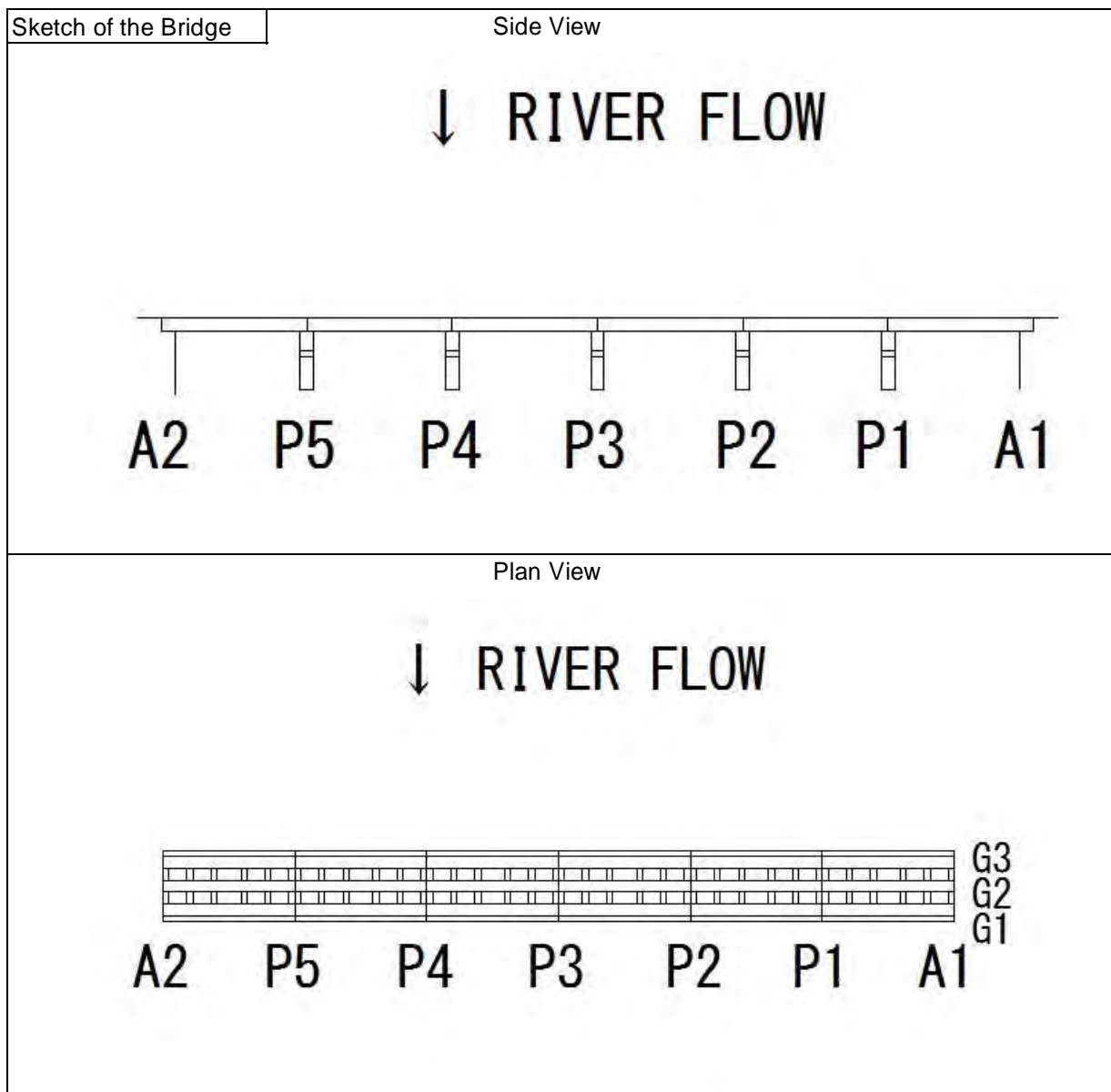
Bridge Survey Record (1/8)

Inspector : Koji KAWAMATA

Date & Time: 27 Nov 2013

Bridge No.	20	Location (State)	Himachal Pradesh
Bridge Name	Kandrour Bridge (Satluj River)	Road Name	NH88
Station	-	Road Category	National Highway
GPS Data	N 31° 23' 39.10"	Management Authority	MORTH
	E 76° 45' 10.96"	Year of Construction	1962

Bridge Length	280m	Span Arrangement	6 Spans
Bridge Width		Approach Road Width	11.5m (Both side)
- Carriageway Width	11.70m (2Lane)		
- Medium Width	Nil		
- Footway Width	Nil		
Type of Superstructure	PC T Girder	Existing of Detour	None (approx. 200km)
Type of Foundation		Type of Substructure	RC



Bridge Survey Record (2/8) R1-R6

Inspector : Koji KAWAMATA

Date & Time: 27 Nov 2013

Bridge No.	20	Location (State)	Himachal Pradesh
Bridge Name	Kandroun Bridge (Satluj River)	Road Name	NH88

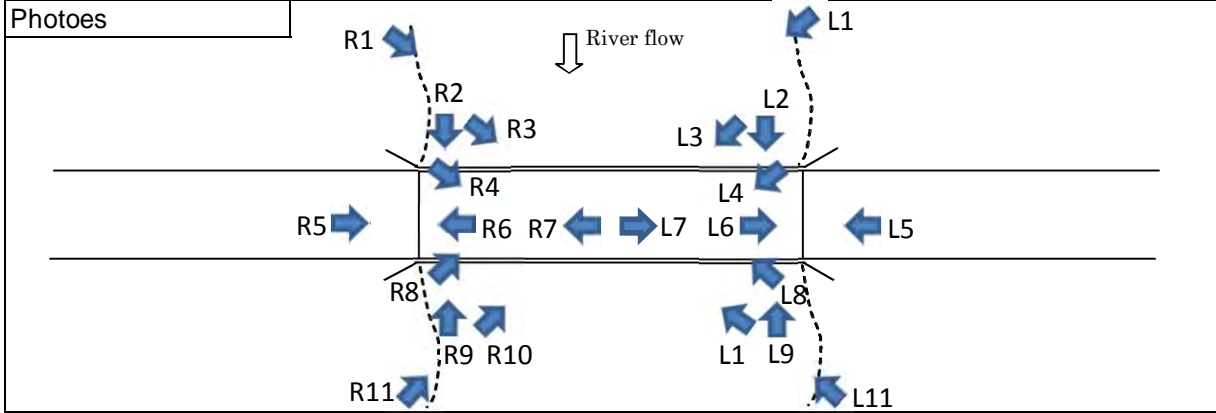


Photo R1



Photo R2



Photo R3



Photo R4



Photo R5



Photo R6

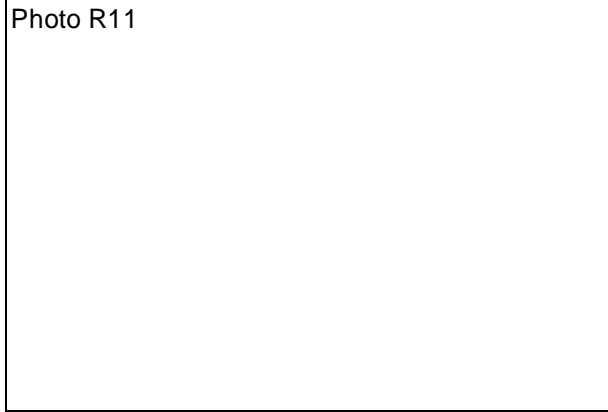
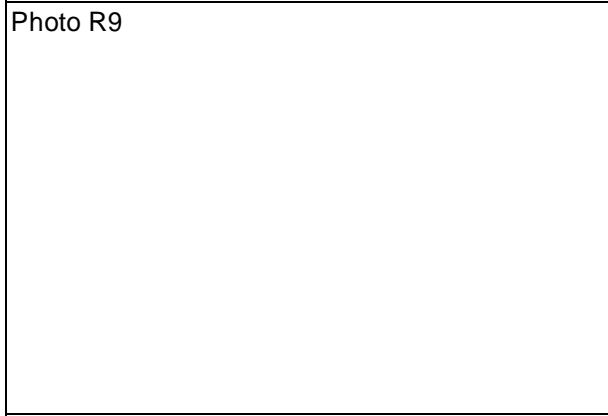
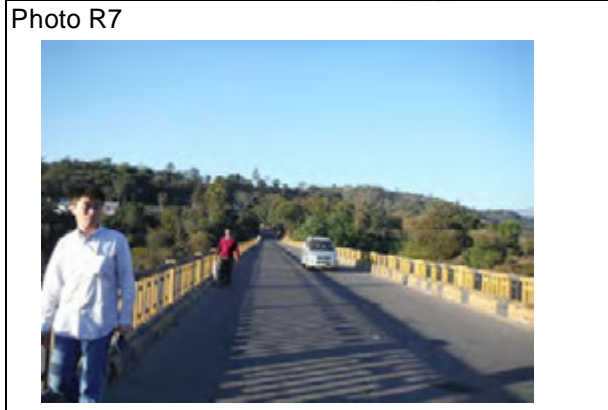
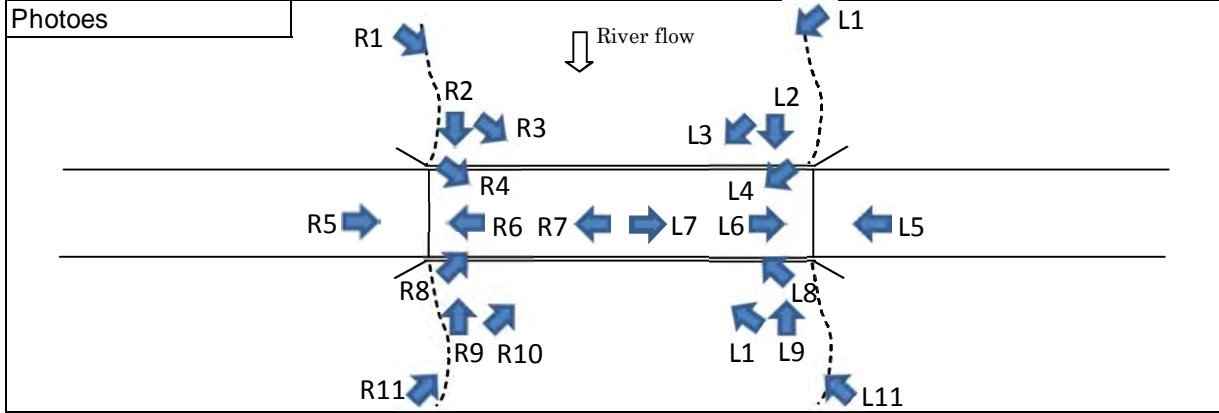


Bridge Survey Record (3/8) R7-R11

Inspector : Koji KAWAMATA

Date & Time: 27 Nov 2013

Bridge No.	20	Location (State)	Himachal Pradesh
Bridge Name	Kandrour Bridge (Satluj River)	Road Name	NH88

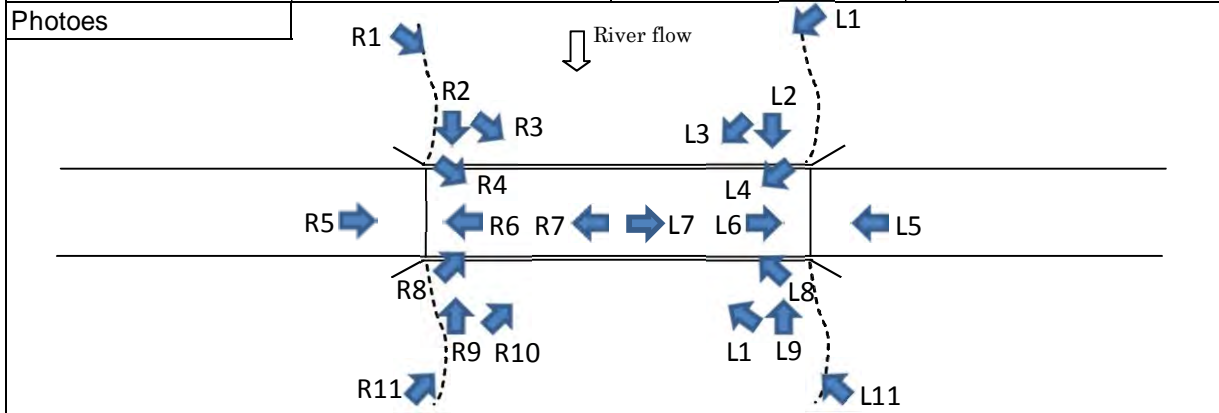


Bridge Survey Record (4/8) L1-L6

Inspector : Koji KAWAMATA

Date & Time: 27 Nov 2013

Bridge No.	20	Location (State)	Himachal Pradesh
Bridge Name	Kandrour Bridge (Satluj River)	Road Name	NH88

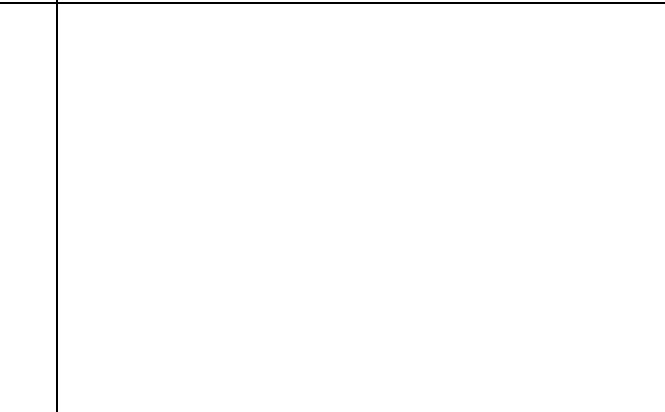
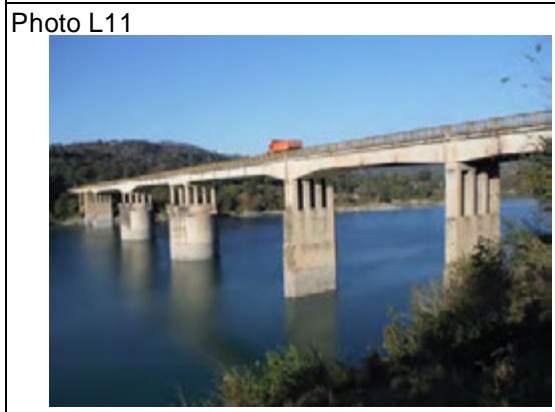
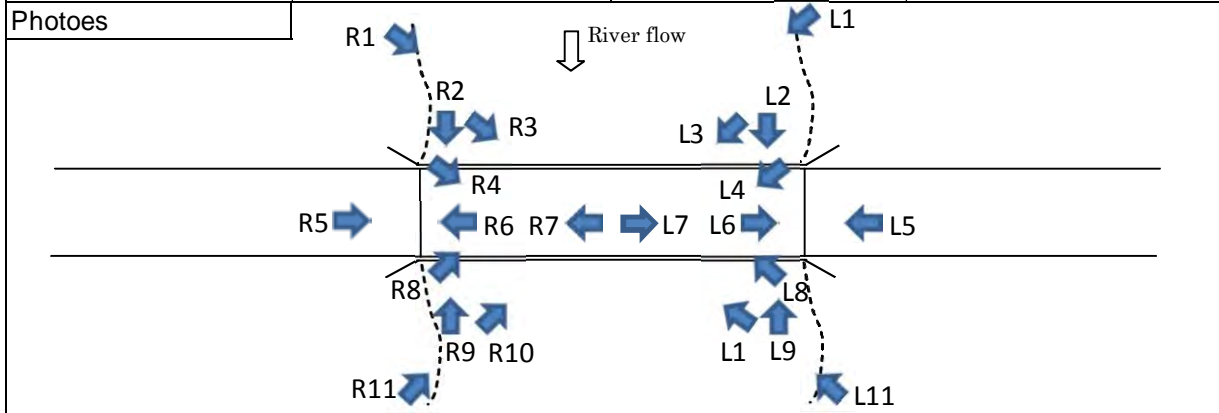


Bridge Survey Record (5/8) L7-L11

Inspector : Koji KAWAMATA

Date & Time: 27 Nov 2013

Bridge No.	20	Location (State)	Himachal Pradesh
Bridge Name	Kandrour Bridge (Satluj River)	Road Name	NH88



Bridge Survey Record (6/8)

Inspector : Koji KAWAMATA Date & Time: 27 Nov 2013

Bridge No.	20	Location (State)	Himachal Pradesh
Bridge Name	Kandrour Bridge (Satluj River)	Road Name	NH88
Station	-	Road Category	National Highway
GPS Data	N 31° 23' 39.10"	Management Authority	MORTH
	E 76° 45' 10.96"	Year of Construction	1962

General Description of Damages

Member	Kind of the Damage	
	Ex. Concrete : Cracking, Spalling, etc. Steel : Cracking, Rusting, Fracture, etc.	
1. Superstructure		
(1) Concrete Member		
- Girder	Cracking on web(A1P1)	
- Cross Beam	Nil	
- Slab	Nil	
(2) Steel Member		
- Girder	N/A	
- Vertical Girder (stringer)	N/A	
- Cross Beam	N/A	
- Sway Bracing	N/A	
(3) Bearing Shoe	Nil	
(4) EXP Joint	Nil	
(5) Handrail	Nil	
(6) Kerb	N/A	
(7) Drainage Pipe	Nil	
(8) Others		
2. Substructure		
- Pier	Nil	
- Abutment	Nil	
- Wing Wall	Nil	
3. Miscellaneous		
- Approach Road Condition	Nil	
- Obstruction	Nil	
- Scouring	Nil	
4. Evaluation	See Sheet 8	

Bridge Survey Record (7/8)

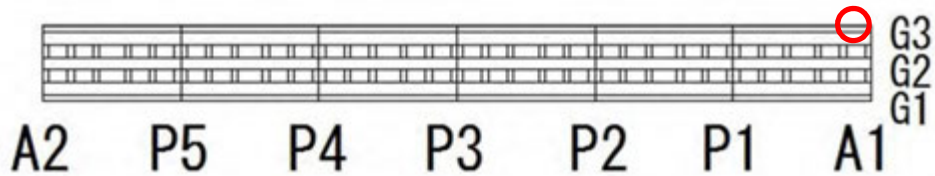
Inspector : Koji KAWAMATA Date & Time: 27 Nov 2013

Bridge No.	20	Location (State)	Himachal Pradesh
Bridge Name	Kandrour Bridge (Satluj River)	Road Name	NH88
Station	-	Road Category	National Highway
GPS Data	N 31° 23' 39.10"	Management Authority	MORTH
	E 76° 45' 10.96"	Year of Construction	1962

Detailed Description of Damages

Object Member	PC T Girder (A1P1)
Kind of Damage	Cracking on web
Sketch or Photo	

↓ RIVER FLOW



Bridge Survey Record (8/8)

Inspector : Koji KAWAMATA Date & Time: 27 Nov 2013

Bridge No.	20	Location (State)	Himachal Pradesh
Bridge Name	Kandrour Bridge (Satluj River)	Road Name	NH88
Station	-	Road Category	National Highway
GPS Data	N 31° 23' 39.10"	Management Authority	MORTH
	E 76° 45' 10.96"	Year of Construction	1962

Evaluation index

1	Traffic Demand	Moderate
2	Distance of Detour Route	None (approx. 200 km)
3	Project Effects for Japanese Companies	Low
4	Damage Level of the Bridges	Minor damages
5	Application of Japanese Technology	Local Technology
6	Duplication with Other Projects by Donor's or Local	None
7	Importance of the Bridge on Surrounding Society and Economy	Moderate
8	Impacts on the Environment	-

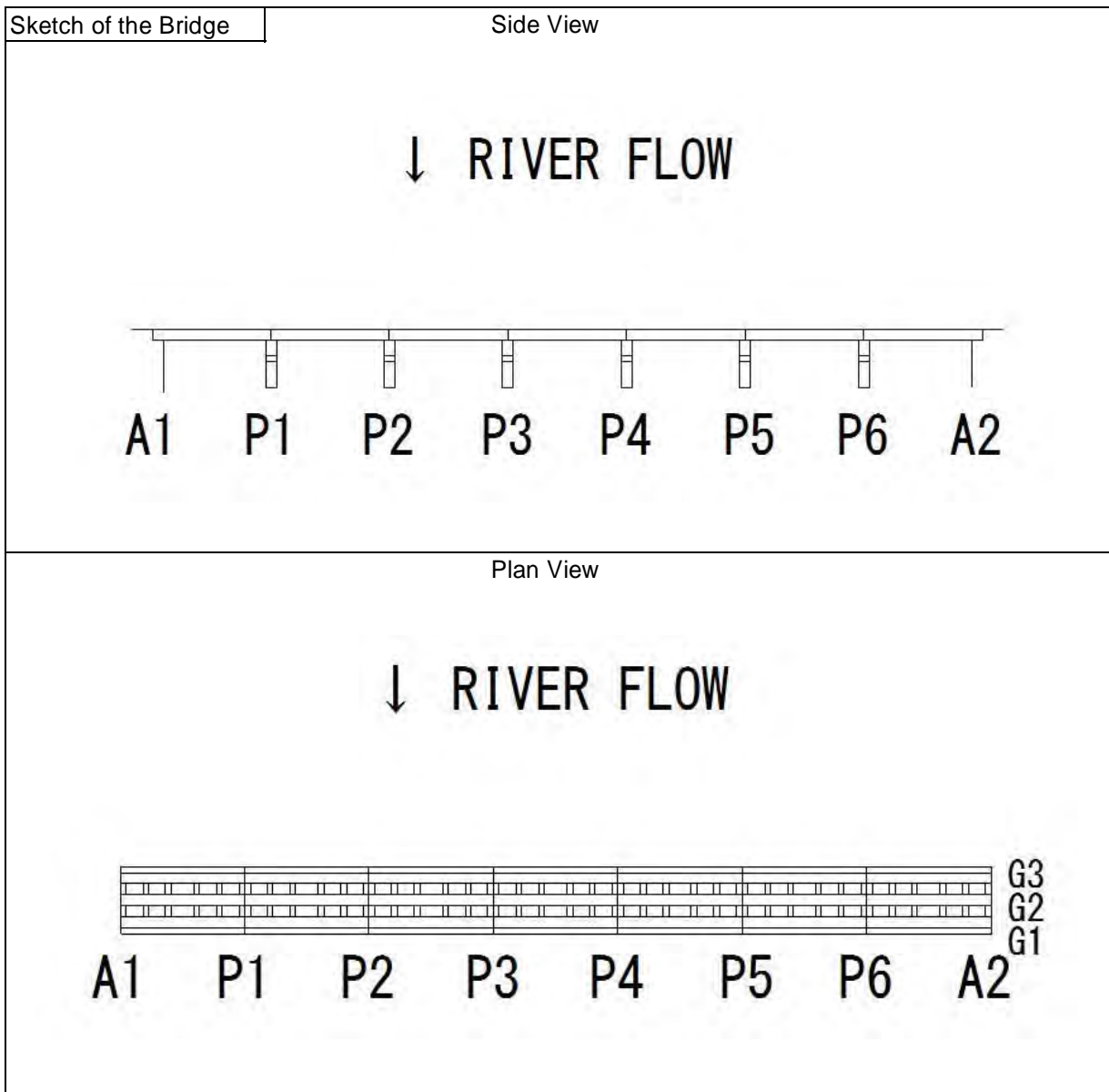
Bridge Survey Record (1/8)

Inspector : Koji KAWAMATA

Date & Time: 28 Nov 2013

Bridge No.	21	Location (State)	Himachal Pradesh
Bridge Name	Nadaun Bridge (Beas River)	Road Name	NH88
Station	-	Road Category	National Highway
GPS Data	N 31° 47' 25.57"	Management Authority	MORTH
	E 76° 20' 48.37"	Year of Construction	1974

Bridge Length	324m	Span Arrangement	7 Spans
Bridge Width		Approach Road Width	7.50m (Both side)
- Carriageway Width	7.50m (2Lane)		
- Medium Width	Nil		
- Footgeway Width	Nil		
Type of Superstructure	PC T Girder	Existing of Detour	Approx. 90km
Type of Foundation	Well	Type of Substructure	RC



Bridge Survey Record (2/8) R1-R6

Inspector : Koji KAWAMATA

Date & Time: 28 Nov 2013

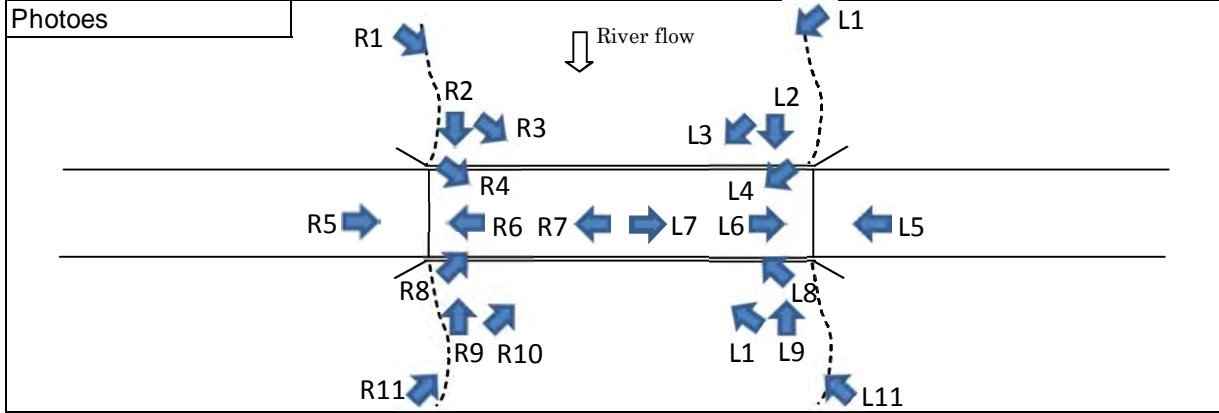
Bridge No.	21	Location (State)	Himachal Pradesh
Bridge Name	Nadaun Bridge (Beas River)	Road Name	NH88
Photoes			
Photo R1	Photo R2		
Photo R3	Photo R4		
Photo R5	Photo R6		

Bridge Survey Record (3/8) R7-R11

Inspector : Koji KAWAMATA

Date & Time: 28 Nov 2013

Bridge No.	21	Location (State)	Himachal Pradesh
Bridge Name	Nadaun Bridge (Beas River)	Road Name	NH88

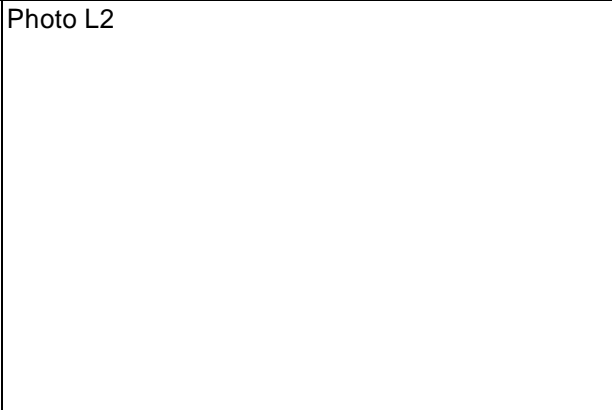
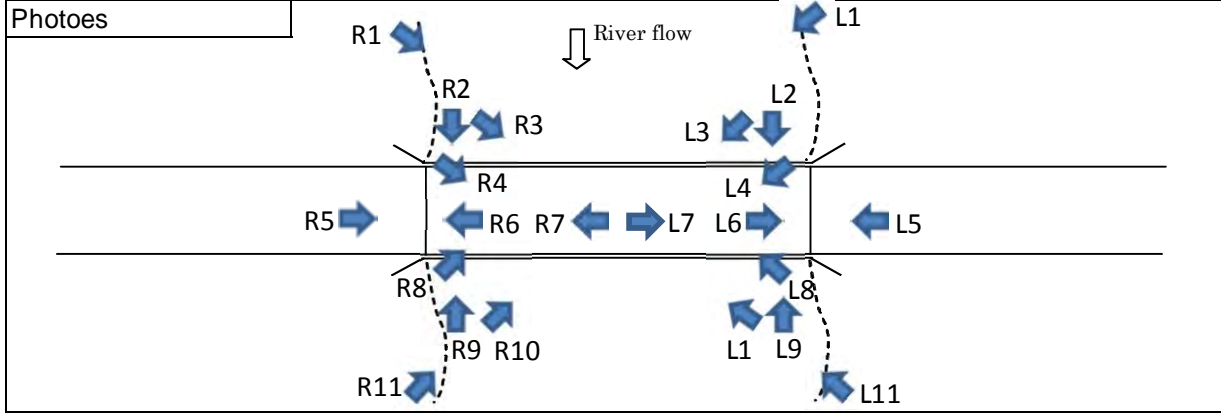


Bridge Survey Record (4/8) L1-L6

Inspector : Koji KAWAMATA

Date & Time: 28 Nov 2013

Bridge No.	21	Location (State)	Himachal Pradesh
Bridge Name	Nadaun Bridge (Beas River)	Road Name	NH88

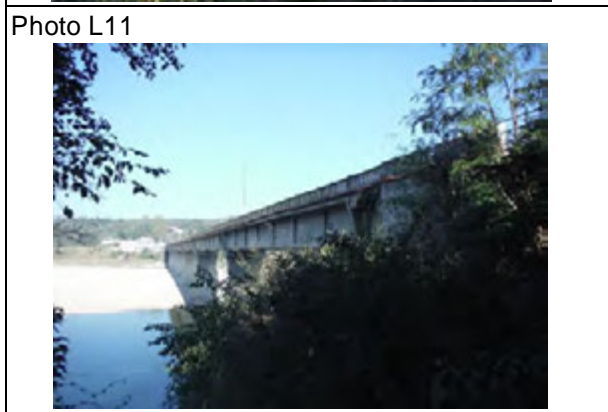
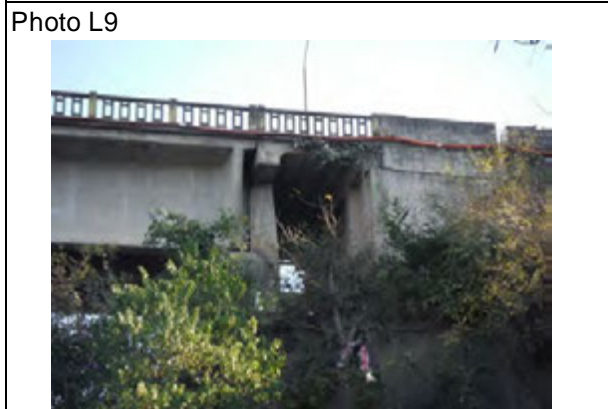
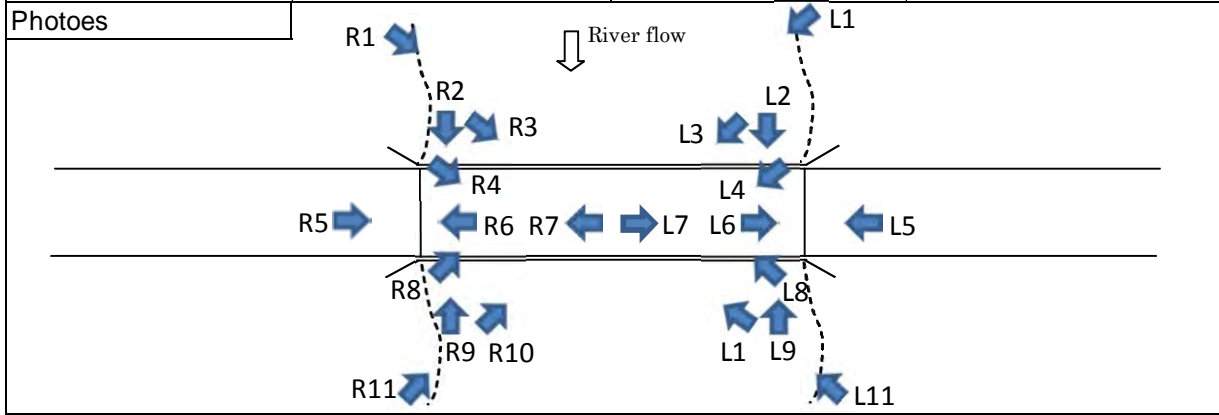


Bridge Survey Record (5/8) L7-L11

Inspector : Koji KAWAMATA

Date & Time: 28 Nov 2013

Bridge No.	21	Location (State)	Himachal Pradesh
Bridge Name	Nadaun Bridge (Beas River)	Road Name	NH88



Bridge Survey Record (6/8)

Inspector : Koji KAWAMATA Date & Time: 28 Nov 2013

Bridge No.	21	Location (State)	Himachal Pradesh
Bridge Name	Nadaun Bridge (Beas River)	Road Name	NH88
Station	-	Road Category	National Highway
GPS Data	N 31° 47' 25.57"	Management Authority	MORTH
	E 76° 20' 48.37"	Year of Construction	1974

General Description of Damages

Member	Kind of the Damage
	Ex. Concrete : Cracking, Spalling, etc. Steel : Cracking, Rusting, Fracture, etc.
1. Superstructure	
(1) Concrete Member	
- Girder	Honycomb (P1P2, P2P3) Efflorescence(P5P6) Unusual Vibration (P1P2,P2P3)
- Cross Beam	Nil
- Slab	Nil
(2) Steel Member	
- Girder	N/A
- Vertical Girder (stringer)	N/A
- Cross Beam	N/A
- Sway Bracing	N/A
(3) Bearing Shoe	Nil
(4) EXP Joint	N/A
(5) Handrail	Nil
(6) Kerb	N/A
(7) Drainage Pipe	Nil
(8) Others	
2. Substructure	
- Pier	Scouring (P1)
- Abutment	Nil
- Wing Wall	Nil
3. Miscellaneous	
- Approach Road Condition	Nil
- Obstruction	Nil
- Scouring	P1
4. Evaluation	See Sheet 8

Bridge Survey Record (7/8) -1

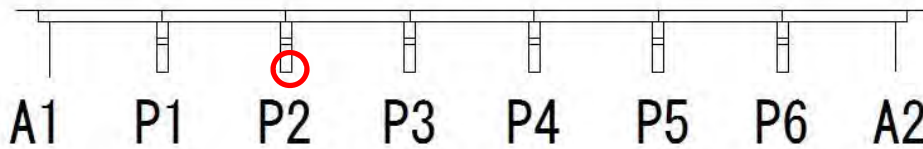
Inspector : Koji KAWAMATA Date & Time: 28 Nov 2013

Bridge No.	21	Location (State)	Himachal Pradesh
Bridge Name	Nadaun Bridge (Beas River)	Road Name	NH88
Station	-	Road Category	National Highway
GPS Data	N 31° 47' 25.57"	Management Authority	MORTH
	E 76° 20' 48.37"	Year of Construction	1974

Detailed Description of Damages

Object Member	P2
Kind of Damage	Scouring
Sketch or Photo	

↓ RIVER FLOW



Bridge Survey Record (7/8) -2

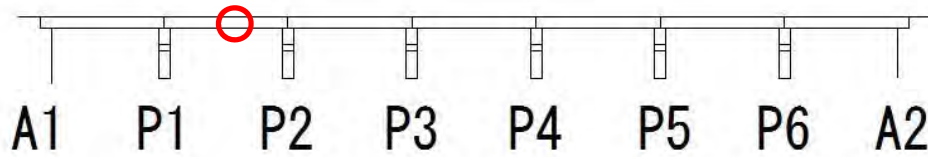
Inspector : Koji KAWAMATA Date & Time: 28 Nov 2013

Bridge No.	21	Location (State)	Himachal Pradesh
Bridge Name	Nadaun Bridge (Beas River)	Road Name	NH88
Station	-	Road Category	National Highway
GPS Data	N 31° 47' 25.57"	Management Authority	MORTH
	E 76° 20' 48.37"	Year of Construction	1974

Detailed Description of Damages

Object Member	PC T Girder (P1P2)
Kind of Damage	Honeycomb
Sketch or Photo	

↓ RIVER FLOW



Bridge Survey Record (7/8) -3

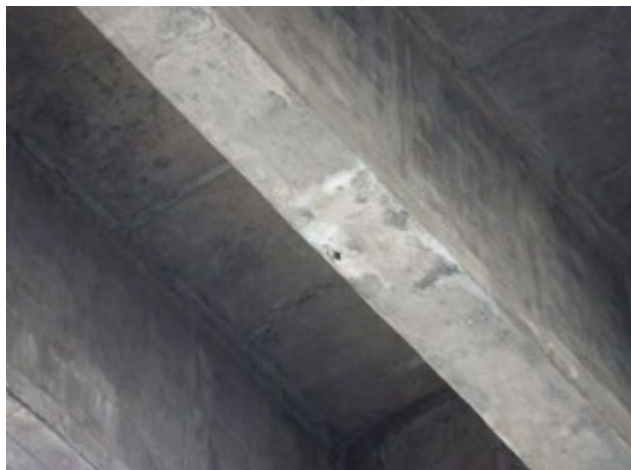
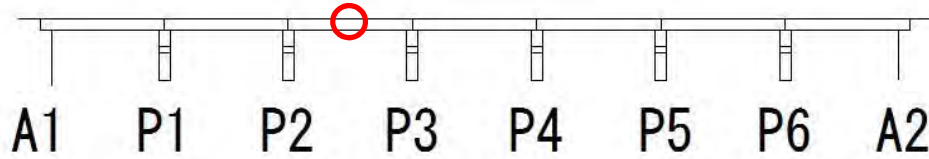
Inspector : Koji KAWAMATA Date & Time: 28 Nov 2013

Bridge No.	21	Location (State)	Himachal Pradesh
Bridge Name	Nadaun Bridge (Beas River)	Road Name	NH88
Station	-	Road Category	National Highway
GPS Data	N 31° 47' 25.57"	Management Authority	MORTH
	E 76° 20' 48.37"	Year of Construction	1974

Detailed Description of Damages

Object Member	PC T Girder (P2P3)
Kind of Damage	Honeycomb
Sketch or Photo	

↓ RIVER FLOW



Bridge Survey Record (7/8) -4

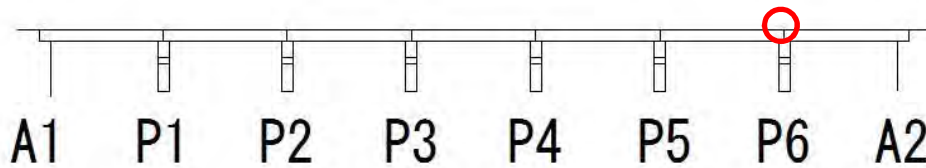
Inspector : Koji KAWAMATA Date & Time: 28 Nov 2013

Bridge No.	21	Location (State)	Himachal Pradesh
Bridge Name	Nadaun Bridge (Beas River)	Road Name	NH88
Station	-	Road Category	National Highway
GPS Data	N 31° 47' 25.57"	Management Authority	MORTH
	E 76° 20' 48.37"	Year of Construction	1974

Detailed Description of Damages

Object Member	Joint of Pavement (P6)
Kind of Damage	Level difference
Sketch or Photo	

↓ RIVER FLOW



Bridge Survey Record (7/8) -5

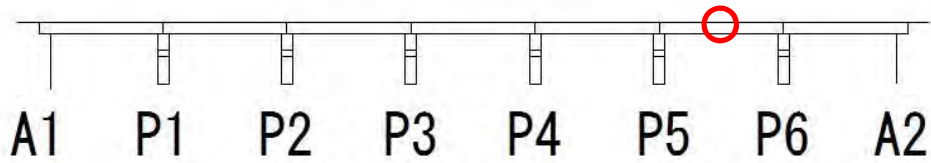
Inspector : Koji KAWAMATA Date & Time: 28 Nov 2013

Bridge No.	21	Location (State)	Himachal Pradesh
Bridge Name	Nadaun Bridge (Beas River)	Road Name	NH88
Station	-	Road Category	National Highway
GPS Data	N 31° 47' 25.57"	Management Authority	MORTH
	E 76° 20' 48.37"	Year of Construction	1974

Detailed Description of Damages

Object Member	PC T Girder (P5P6)
Kind of Damage	Efflorescence
Sketch or Photo	

↓ RIVER FLOW



Bridge Survey Record (8/8)

Inspector : Koji KAWAMATA Date & Time: 28 Nov 2013

Bridge No.	21	Location (State)	Himachal Pradesh
Bridge Name	Nadaun Bridge (Beas River)	Road Name	NH88
Station	-	Road Category	National Highway
GPS Data	N 31° 47' 25.57"	Management Authority	MORTH
	E 76° 20' 48.37"	Year of Construction	1974

Evaluation index

1	Traffic Demand	Moderate
2	Distance of Detour Route	Approx. 90 km
3	Project Effects for Japanese Companies	Low
4	Damage Level of the Bridges	Minor damages
5	Application of Japanese Technology	Local Technology
6	Duplication with Other Projects by Donor's or Local	None
7	Importance of the Bridge on Surrounding Society and Economy	Moderate
8	Impacts on the Environment	-