California Department of Transportation
Division of Maintenance

Structure Maintenance and Investigations

BRIDGE

INSPECTION

RECORDS

INFORMATION

SYSTEM

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BRIDGE INSPECTION REPORT
Other Inspection

BRIDGE NO.: **10 0136**
STRUCTURE NAME: **ALBION RIVER**
INSPECTION DATE: **April 19, 2021**

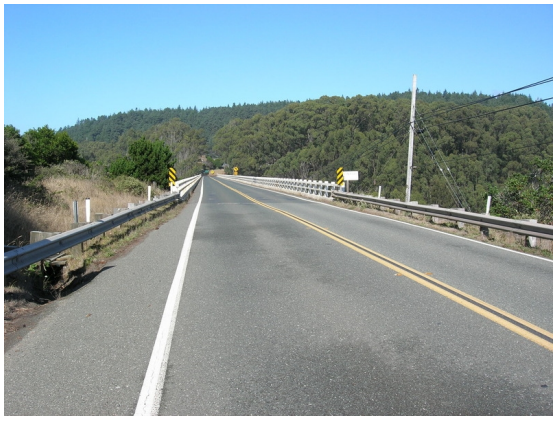
BRIDGE LOCATION INFORMATION

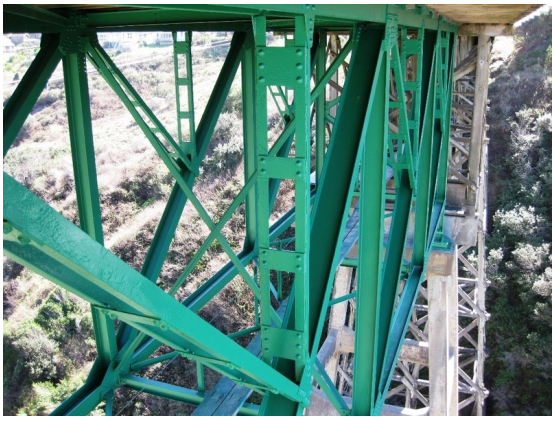
(9) LOCATION	01-MEN-001-43.74	(7) FACILITY CARRIED	STATE ROUTE 1
(11) POSTMILE	43.74	(6) FEATURE INTERSECTED	ALBION RIVER
(16) LATITUDE	39°13'30.32"	(5) INVENTORY RTE(ON/UNDER)	ON 131000010
(17) LONGITUDE	123°46'09.83"	(104) ON NATIONAL HIGHWAY SYSTEM	NOT ON NHS

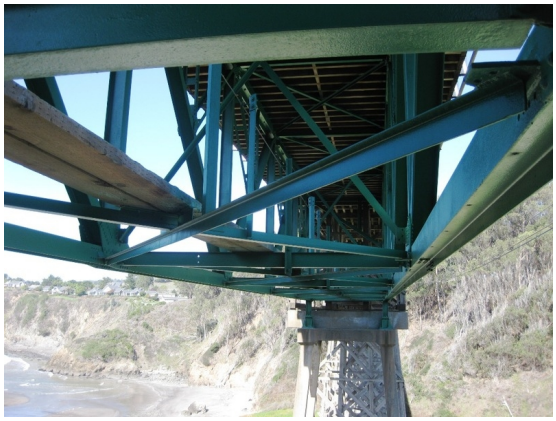
STRUCTURAL HEALTH CONDITION SUMMARY INFORMATION

(58) DECK	(5 FAIR)	DECK AREA (SF)	2,540
(59) SUPERSTRUCTURE	(4 POOR)	SUFFICIENCY RATING	31.3
(60) SUBSTRUCTURE	4 POOR	PAINT CONDITION SUPER 100.0 SUBSTR	100.0
(62) CULVERT	N N/A (NBI)	STRUCTURALLY DEFICIENT (SD) STATUS	SD
(67) STRUCTURE EVALUATION	4 MINIMUM TOLERABLE	(113) SCOUR	5 STABLE W/IN FOOTING

PHOTOGRAPH IDENTIFICATION


Routine-Roadway View (10/06/2011)


Routine-Elevation View (03/11/2014)


Routine-Underside View (03/11/2014)

TEAM LEADER Warren L. Peterson

REPORT AUTHOR Warren L. Peterson

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5/7/2021
Warren L. Peterson (Registered Civil Engineer) Date

REGISTERED PROFESSIONAL ENGINEER
Warren L. Peterson
No. 67006
Exp. 09/30/2022
CIVIL
STATE OF CALIFORNIA

STRUCTURE OVERVIEW

AGENCY INFORMATION

(1) STATE NAME	CALIFORNIA 069
(2) HIGHWAY DISTRICT	01
(3) COUNTY CODE	(10)MENDOCINO
(4) PLACE CODE	(00000) _____
(21) MAINTAIN	01 STATE HIGHWAY AGENCY
(22) OWNER	01 STATE HIGHWAY AGENCY
(98) BORDER BRIDGE STATE CODE	N/A % SHARE N/A
(99) BORDER BRIDGE STRUCTURE NUMBER	N/A

INSPECTION INFORMATION

(90) INSPECTION DATE	08/20	(91) FREQUENCY	24 MO
(92) CRITICAL FEATURE INSPECTION		(93)	CFI DATE
A) FRACTURE CRITICAL INSP	Y-YES	24 MO A)	02/20
B) UNDERWATER INSP	N-NO	MO B)	N/A
C) OTHER SPECIAL INSP	N-NO	MO C)	N/A

CONSTRUCTION INFORMATION

(27) YEAR BUILT	1944	(45) MAIN SPANS	1	(43a) STRUCTURE TYPE MAIN	3: STEEL
(106) YEAR MODIFIED	N/A	(46) APPR SPANS	33	(43b) DESIGN TYPE MAIN	09: TRUSS - DECK
(34) SKEW	0	(48) MAX SPAN (M)	39.6	(44a) STRUCTURE TYPE APPR	7: WOOD OR TIMBER
(49) LENGTH (M)	295.4	(35) STR FLARE	0-NO	(44b) DESIGN TYPE APPR	09: TRUSS - DECK
(112) NBIS BR LENGTH	Y	JOINTS	2	NO. OF HINGES	0

STRUCTURE DESCRIPTION

Simply supported 34-span bridge. Timber 2-ply plank deck, with AC riding surface, timber 17-girder spans on timber A-frame deck trusses on timber tower bents. Eleven timber approach spans at the south end of the bridge, with Span 8 & 10 being a timber A-frame deck truss. A single-span riveted steel deck truss on RC tower bents over the main channel. Twenty-two timber approach spans at the north end of the bridge, with Span 14, 16, 18, 20, 22, 24, 26, 28, & 30 being a timber A-frame deck truss. Both abutments are RC buttress-type with monolithic RC wingwalls and 3-column bents on spread footings. Foundations for Bents 2-10 & 26-34 are concrete pedestal-type spread footings, Tower 11-12 is on driven (split-rail reinforced) PC/RC piles and Tower 13-14 is on driven timber piles, Bents 15-25 are concrete pedestal-type footings on driven timber piles. (The main span is a riveted steel deck truss, expansion at Bent 12 and fixed at Bent 13, which was recycled from an old bridge that had been located on the South Fork of the Feather River approximately 1.5 miles downstream of Bidwell Bar) All timber is treated Douglas Fir (from Washington State).

SPAN CONFIGURATION

7 @ 19.0 ft, 1 @ 38.0 ft, 1 @ 19.0 ft, 1 @ 38.0 ft, 1 @ 16.5 ft, 1 @ 130.0 ft, 1 @ 16.5 ft, 1 @ 38.0 ft, 1 @ 19.0 ft, 1 @ 38.0 ft, 1 @ 19.0 ft, 1 @ 38.0 ft, 1 @ 19.0 ft, 1 @ 38.0 ft, 1 @ 19.0 ft, 1 @ 38.0 ft, 1 @ 19.0 ft, 1 @ 38.0 ft, 1 @ 19.0 ft, 1 @ 38.0 ft, 1 @ 19.0 ft, 1 @ 38.0 ft, 1 @ 19.0 ft, 1 @ 38.0 ft, 4 @ 19.0 ft

OPERATIONAL INFORMATION

LOAD CAPACITY

(31) DESIGN LOAD	2 M 13.5 (H 15)	(65) CALC METHOD	2 AS ALLOWABLE STRESS
(66) INVENTORY RATING	RF=0.70 =>22.7 metric tons	(63) CALC METHOD	2 AS ALLOWABLE STRESS
(64) OPERATING RATING	RF=0.95 =>30.8 metric tons	(70) BRIDGE POSTING	5 AT/ABOVE LEGAL LOADS
(41) STRUCTURE STATUS	A-OPEN, NO RESTRICTION	PERMIT RATING	PGGGO
OVERLAY THICKNESS	2 (inches)		

POSTING LOADS

	Safe Loads	Existing Ordinance/Order	Posting Signs	
Type 3	Legal	N/A	N/A	U.S. Tons
Type 3S2	Legal	N/A	N/A	U.S. Tons
Type 3-3	Legal	N/A	N/A	U.S. Tons
Speed	50	N/A	N/A	MPH

Additional Ordinance/Order Requirements

NONE

Additional Signs

NONE

Posting Date N/A
Load Rating Summary Date 09/04/13
Load Rating Type Calculated
Load Rating Tool - Date MIDAS, Hand Calcs - 11/01/11

MINIMUM VERTICAL CLEARANCE

(53) MIN VERT CLEAR OVER BRIDGE RDWY		Unimpaired
(54) MIN VERT UNDERCLEAR REF	N-NOT H/RR	0.00 M

MINIMUM LATERAL UNDERCLEARANCE

(55) MIN LAT UNDERCLEAR RT REF	N-NOT H/RR	0.0 M
(56) MIN LAT UNDERCLEAR LT		0.0 M

CONDITION INFORMATION

INSPECTION COMMENTARY

SCOPE AND ACCESS

This investigation was conducted over one week of inspection and is the third and final phase of inspecting up close at hands reach all of the timber substructure elements. The scope of this investigation was limited to the substructure timber trestle elements and its associated connection points as an extension of the last routine inspection dated 08/18/2020. A complete inspection of these elements was performed and the defects discovered during this investigation are detailed below. All conditions listed for elements not inspected during this investigation have been carried forward from the previous inspections.

The first phase of this investigation was conducted with the use of UAS technology during the week of 09/01/2020, consisting of up close inspection of each timber trestle tower for their full length with the use of the UAS device. High resolution video imaging was recorded of each member and was later analyzed to identify specific areas of interest or concern and mark these locations for further hands-on inspection methods during the second phase of the investigation. The main defects that were identified through this phase of investigation were corroded timber connection hardware including claw plates and anchor bolts, multiple split or fractured timber scabs and deterioration of timber preservative treatment and associated widespread checking of almost all of the timber elements.

The second phase of this investigation was performed during the week of 10/05/2020 focusing on the areas identified in the first phase, as well as a general visual inspection of all timber members. A climb team comprised of personnel from the Toll Bridges Investigations Office inspected all of the timber substructure members at and below the catwalk of Bents 16 through 26. Please refer to the SUBSTRUCTURE condition text from the BIR dated 10/05/2020 for more detailed information.

The third phase of this investigation was performed during the week of 04/19/2021 focusing on the areas identified in the first phase, as well as a general visual inspection of all timber members. A climb team comprised of personnel from the Toll Bridges Investigations Office inspected all of the timber substructure members at and below the catwalk of Bents 7 through 9, Bent 15 and Bents 27 through 32. This completes inspection on all of the timber trestle bents and the remaining timber column bents (Bents 2 through 6 and Bents 33 and 34) were inspected from the ground with the use of ladders. As with the second phase, this inspection included close visual and auditory reconnaissance of the full length and all sides of every primary and secondary timber substructure element. Any suspect members were drilled to verify their integrity; and, if found to be deficient, the location, amount, and severity of any decay found was documented for future remediation. Please refer to the SUBSTRUCTURE condition text below for more detailed information.

Close up climb inspections of the timber trestle members will continue on an annual basis going forward in the future in order to closely monitor the condition of the timber and its associated connections.

HISTORY

This structure has a history of advanced corrosion occurring to the exposed portions of the bolted timber connections throughout the

CONDITION INFORMATION

INSPECTION COMMENTARY

trestle substructure, as well as the timber truss superstructure. The nuts and bolts of the timber connections in the towers have historically been replaced by the District 01 Bridge Crew.

During the Climb inspection performed on 5/15/2012, it was discovered that, on average, approximately 50 to 70% of the nuts had failed due to corrosion from the marine environment. Due to the amount of labor and connections needing replacement, a maintenance contract was put out to bid to replace the majority of the corroded bolts and nuts. There were approximately 5,000 bolts with nuts that needed replacement, 2,500 to 3,500 of which had failed.

In 2016, Maintenance Contract 01-E2004 was completed which replaced approximately 80% of all of the bolts and nuts throughout the substructure. None of the bolted connections of the superstructure were addressed. In addition, rotted and decaying horizontal scabs located between the trestle columns were filled with an epoxy system which filled any rotted voids present in the members. Another project is planned for November 2021 to replace the remaining corroded substructure bolts in these spans.

In addition to the advanced corrosion of the steel connection hardware, soil sampling taken during a District Preliminary Environmental Assessment dated July 2017, indicated chromium contamination around the timber towers. This is indicative of the preservative treatment leaching from the timbers. Without reliable chemical preservative treatment, an increased rate of decay of the treated timber elements is anticipated. Insect infestation noted during the previous routine inspection performed on 08/18/2020 indicates that the loss of preservative treatment is evident. SM&I is in the process of testing the treated timber members to determine the extent of preservative present in the timber with the hope that this can lead to a better understanding of the remaining lifespan of the preservative.

Based on the deficiencies detailed above along with the expectation that the decay and corrosion will continue at an increased rate over time, SM&I has initiated these advanced supplemental inspection methods on a regular inspection interval from this time going forward.

SUBSTRUCTURE

All of the timber members with observed checking were sounded with a hammer. Hollow sounding members were then subsequently drilled. In all, 6 locations were drilled, with the majority of those being horizontal trestle members located at the level where columns transitioned from 4 to 6 columns, and again at the level where the columns transitioned from 6 to 5 columns. The members were all drilled to a minimum depth of 6 inches and the timber borings examined for signs of decay and rot. In all cases, the members were found to be free of decay at their core. However, with the presence of the large checks and loss of preservative treatment as indicated by the District Preliminary Environmental Assessment dated July 2017, it is anticipated that moisture will continue to penetrate into the members, which will eventually lead to decay. SM&I is currently in the process of testing the remaining preservative treatment present in the timber members to use as a baseline for future comparisons on the remaining lifespan of said preservative treatment.

Approximately 80% of all of the bolted connections throughout the substructure were replaced under Contract 01-E2004. For a complete list of the bolts replaced, please refer to the hardware table in the as-built drawings for Contract 01-E2004. The remaining 20% of the connections exhibit surface rust throughout but without measurable section loss (see Photos 46 - 49 from the BIR dated 10/11/2017).

All of the timber columns in the timber bents and the timber columns that make up the trestles have 0.125 to 0.25 inch wide vertical checks for most of the members length (see Photos 50 - 64 from the BIR dated 10/11/2017). For a detailed list of each trestle member and its associated defect, please refer to the attached table in Appendix B from the BIR dated 10/11/2017.

The substructure condition (NBI 60) is rated a 4-Poor due to the widespread checking of the timber columns, decay potential due to diminished effectiveness of the preservative treatment, distressed timber scab connections and the assumed corroded condition of the split ring, toothed ring and claw plate connectors, the majority of which are not visible for inspection.

SAFE LOAD CAPACITY

The load rating for this structure is being reviewed by SMI Ratings Branch. An updated Load Rating Summary Sheet will be archived when this review is complete. The current ratings are based on Midas computer program output dated 11/01/2011.

The steel deck truss main span was found to have lower Inventory, Operating and Permit Ratings than the timber truss spans, and therefore, to be the controlling portion of the structure. The load rating values shown are for the steel deck truss main span.

A work request (#9990) has also been submitted to SMI Ratings Branch to evaluate the affect of the apparent insect infestation on the load bearing capacity of timber Column 4 at Bent 23. The extent of the infestation is documented under the respective parent element. Preliminary calculations indicate that the damage due to the insect infestation is not an immediate threat to the safe load capacity of the structure, however, the Load Ratings Branch will perform an in-depth review of the safe load capacity including the timber substructure elements.

SPECIAL INSPECTION INFORMATION

STEEL INVESTIGATION DETAILS

SPECIAL INSPECTION INFORMATION

This structure qualifies for an in-depth Steel investigation because it possesses the following fracture critical or fatigue prone details :
Truss: FC Members with Category E Welds

FCI Required	Yes	Last FCI	02/19/2020	FCI Freq.	24	months	Next FC Inspection	02/19/2022

UNDERWATER INVESTIGATION DETAILS - NOT APPLICABLE FOR THIS BRIDGE.

DECK AND ROADWAY

DECK CROSS SECTION

0.3 ft br, 1.0 ft wg, 26.0 ft, 1.0 ft wg, 0.3 ft br

DECK GEOMETRY

(49)	LENGTH		295.4 M
(51)	NET WIDTH		7.9 M
(52)	TOTAL WIDTH		8.5 M
(50)	CURB OR SIDEWALK	LEFT 0.3 M	RIGHT 0.3 M
(32)	APPROACH RDWY WIDTH		7.3 M
(33)	BRIDGE MEDIAN		0 NO MEDIAN

DECK STRUCTURE INFORMATION

(107)	DECK STRUCTURE TYPE		8-TIMBER
(108)	WEARING SURFACE / PROTECTIVE SYSTEM		
	A) TYPE OF WEARING SURFACE		6-BITUMINOUS
	B) TYPE OF MEMBRANE		0-NONE
	C) TYPE OF DECK PROTECTION		0-NONE
	OVERLAY THICKNESS (inches)		2
(29)	AVERAGE DAILY TRAFFIC		2100
(30)	YEAR OF ADT 2009	(109) TRUCK ADT %	6 %
(19)	BYPASS, DETOUR LENGTH		62 KM
(114)	FUTURE ADT		5182
(115)	YEAR OF FUTURE ADT		2041
(37)	HISTORICAL SIGNIFICANCE		2: ELIGIBLE FOR NRHP

DECK ROADWAY/OPERATIONAL INFORMATION

(42a)	TYPE OF SERVICE	1-HIGHWAY
(12)	BASE HIGHWAY NETWORK	1-PART OF NET
(13)	LRS INVENTORY RTE & SUBRTE	000000000101
(104)	NATIONAL HIGHWAY SYSTEM	0-NOT ON NHS
(26)	FUNCTIONAL CLASS	06-MINOR ARTERIAL RURAL
(100)	DEFENSE HIGHWAY	0-NOT STRAHNET
(101)	PARALLEL STRUCTURE	N-NONE EXISTS
(102)	DIRECTION OF TRAFFIC	2-2 WAY
(10)	INVENTORY ROUTE MIN VERT CLEAR	99.99 M
(47)	INVENTORY ROUTE TOTAL HORIZ CLEAR	7.9 M
(68)	DECK GEOMETRY	3 INTOLERABLE - CORRECT
(72)	APPR ROADWAY ALIGN	8 EQUAL DESIRABLE CRIT
(105)	FEDERAL LANDS HWY	0-NOT APPLICABLE
(110)	DESIGNATED NATIONAL NETWORK	0-NOT ON NET
(20)	TOLL	3-ON FREE ROAD
(28a)	LANES	2
	SPEED	50
(103)	TEMPORARY STRUCTURE	N/A

DECK ELEMENT INSPECTION RATINGS AND NOTES

(58) DECK RATING = (5)

Element Group: 101 - Approach - Southern Spans 1-11 - Timber Deck Trusses

Elem No.	Defect/ Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4
31			**Deck-Timber**	3	651	sq.m	631	5	15	0
	1140		**Decay/Section Loss (Timber)**	3	20		0	5	15	0
	510		**Deck Wearing Surface-Asphalt**	3	594	sq.m	594	0	0	0

(31) Deck-Timber

The spacer block in Bay 13 of Span 2 is loose and hanging down below the girders.

(31-1140) Decay/Section Loss (Timber)

DECK ELEMENT INSPECTION RATINGS AND NOTES

Element Group: 101 - Approach - Southern Spans 1-11 - Timber Deck Trusses

Elem No.	Defect/ Prot	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4

(31-1140) Decay/Section Loss (Timber)

The timber deck consists of two layers of 11.25 inch by 3 inch timber deck planks with the top layer oriented at a 30 degree angle to the bridge deck and the bottom layer oriented perpendicular to the top layer. There are several areas of white fungus present on the soffit of the timber deck (see Photo 1 from the BIR dated 08/18/2020 and Photos 4 - 8 from the BIR dated 10/11/2017). When these areas were drilled, the deck appeared to be sound without decay or rot.

Large areas of rotted and decayed timber deck planks were discovered along the edge of deck on both sides throughout the length of the structure. The rot was typically present in the area beneath the deck drains and extended approximately 18 to 24 inches into the deck on both layers of deck planks (see Photos 9 - 21 from the BIR dated 10/11/2017). The exact amount of decay (linear footage) was not measured but conservatively estimated at 15 to 20% of the total length of the deck.

(31-510) Deck Wearing Surface-Asphalt

There were no significant defects noted. A new AC overlay was placed on the bridge deck in 2016 under EA 01-E2004.

Element Group: 102 - Main - Main Span - Steel Deck Truss

Elem No.	Defect/ Prot	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4
31		**Deck-Timber**	3	341	sq.m	331	2	8	0
	1140	**Decay/Section Loss (Timber)**	3	10		0	2	8	0
	510	**Deck Wearing Surface-Asphalt**	3	341	sq.m	341	0	0	0

(31-1140) Decay/Section Loss (Timber)

The timber deck consists of two layers of 11.25 inch by 3 inch timber deck planks with the top layer oriented at a 30 degree angle to the bridge deck and the bottom layer oriented perpendicular to the top layer. There are areas of white fungus present on the soffit of the timber deck (see Photos 4 - 8 from the BIR dated 10/11/2017). When these areas were drilled, the deck appeared to be sound without decay or rot.

Large areas of rotted and decayed timber deck planks were discovered along the edge of deck on both sides throughout the length of the structure. The rot was typically present in the area beneath the deck drains and extended approximately 18 to 24 inches into the deck on both layers of deck planks (see Photos 9 - 21 from the BIR dated 10/11/2017). The exact amount of decay (linear footage) was not measured but conservatively estimated at 15 to 20% of the total length of the deck.

(31-510) Deck Wearing Surface-Asphalt

There were no significant defects noted. A new AC overlay was placed on the bridge deck in 2016 under EA 01-E2004.

Element Group: 103 - Approach - Northern Spans 13-34 - Timber Deck Trusses

Elem No.	Defect/ Prot	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4
31		**Deck-Timber**	2	1557	sq.m	1511	10	36	0
	1140	**Decay/Section Loss (Timber)**	2	46		0	10	36	0
	510	**Deck Wearing Surface-Asphalt**	2	1420	sq.m	1420	0	0	0

(31-1140) Decay/Section Loss (Timber)

DECK ELEMENT INSPECTION RATINGS AND NOTES

Element Group: 103 - Approach - Northern Spans 13-34 - Timber Deck Trusses

Elem No.	Defect/ Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4

(31-1140) Decay/Section Loss (Timber)

The scuppers at the base of the wheel guards on both sides of the deck at the north end of the bridge are plugged with dirt and weeds.

The timber deck consists of two layers of 11.25 inch by 3 inch timber deck planks with the top layer oriented at a 30 degree angle to the bridge deck and the bottom layer oriented perpendicular to the top layer. There are areas of white fungus present on the soffit of the timber deck (see Photos 4 - 8 from the BIR dated 10/11/2017). When these areas were drilled, the deck appeared to be sound without decay or rot.

Large areas of rotted and decayed timber deck planks were discovered along the edge of deck on both sides throughout the length of the structure. The rot was typically present in the area beneath the deck drains and extended approximately 18 to 24 inches into the deck on both layers of deck planks (see Photos 9 - 22 from the BIR dated 10/11/2017). The exact amount of decay (linear footage) was not measured but conservatively estimated at 15 to 20% of the total length of the deck.

(31-510) Deck Wearing Surface-Asphalt

There were no significant defects noted. A new AC overlay was placed on the bridge deck in 2016 under EA 01-E2004.

JOINT - APPROACH - RAIL

RAIL INFORMATION

(36a) Rail Code 0 (36b) Transition 0 (36c) Appr Guardrail 1 (36d) Appr Guardrail End 0 Roadway Speed 50 MPH

JOINT/APPROACH/RAIL ELEMENT INSPECTION RATINGS AND NOTES

Element Group: 101 - Approach - Southern Spans 1-11 - Timber Deck Trusses

Elem No.	Defect/ Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4
332			**Railing-Timber**	3	512	m	410	0	102	0
	1020		**Connection**	3	102		0	0	102	0

(332) Railing-Timber

The timber bridge rail was cleaned and painted in 2013 as part of EA 01-0A5904.

(332-1020) Connection

The timber rail connection to the deck is affected by the deck rot that is present along the edge of the deck planks on both sides of the structure. The exact amount of decay (linear footage) was not measured but conservatively estimated at 15 to 20% of the total length of the deck.

Element Group: 102 - Main - Main Span - Steel Deck Truss

Elem No.	Defect/ Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4
301			**Joint-Pourable Seal**	2	17	m	9	8	0	0
	2330		**Seal Damage (Joints)**	2	8		0	8	0	0

(301) Joint-Pourable Seal

New Type "A" pourable joint seals were installed at Bents 13 and 14 in 2016 under EA 01-E2004.

(301-2330) Seal Damage (Joints)

The pourable joint seal at Bent 13 already exhibits small tears throughout its length but the seal at Bent 14 remains in good condition.

304			**Joint-Open Expansion**	3	17	m	17	0	0	0

(304) Joint-Open Expansion

There were no significant defects noted.

332			**Railing-Timber**	3	79	m	63	0	16	0
	1020		**Connection**	3	16		0	0	16	0

(332) Railing-Timber

JOINT - APPROACH - RAIL

JOINT/APPROACH/RAIL ELEMENT INSPECTION RATINGS AND NOTES

Element Group: 102 - Main - Main Span - Steel Deck Truss

Elem No.	Defect/ Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4

(332) Railing-Timber

The timber bridge rail was cleaned and painted in 2013 as part of EA 01-0A5904.

(332-1020) Connection

The timber rail connection to the deck may be affected by the deck rot that is present along the edge of the deck planks on both sides of the structure.

Element Group: 103 - Approach - Northern Spans 13-34 - Timber Deck Trusses

Elem No.	Defect/ Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4
332			**Railing-Timber**	3	358	m	286	0	72	0
	1020		**Connection**	3	72		0	0	72	0

(332) Railing-Timber

The timber bridge rail was cleaned and painted in 2013 as part of EA 01-0A5904.

(332-1020) Connection

The timber rail connection to the deck is affected by the deck rot that is present along the edge of the deck planks on both sides of the structure. The exact amount of decay (linear footage) was not measured but conservatively estimated at 15 to 20% of the total length of the deck.

SUPERSTRUCTURE

SUPERSTRUCTURE ELEMENT INSPECTION RATINGS AND NOTES

(59) SUPERSTRUCTURE RATING = (4)

Element Group: 101 - Approach - Southern Spans 1-11 - Timber Deck Trusses

Elem No.	Defect/ Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4
111			**Girder/Beam-Timber**	2	590	m	568	22	0	0
	1150		**Check/Shake (Timber)**	2	22		0	22	0	0

(111) Girder/Beam-Timber

See Appendix A from the BIR dated 08/18/2020 for detailed information on the element and associated defects.

(111-1150) Check/Shake (Timber)

Several timber girders display horizontal checks along their neutral axis that penetrate less than 50% of the member thickness (see Photo 2 from the BIR dated 08/18/2020).

These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.

117			**Stringer-Timber**	3	690	m	667	23	0	0
	1150		**Check/Shake (Timber)**	3	23		0	23	0	0

(117-1150) Check/Shake (Timber)

Several timber stringers display horizontal checks along their neutral axis that penetrate less than 50% of the member thickness.

These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.

135			**Truss-Timber**	3	46	m	0	46	0	0
	1020		**Connection**	3	14		0	14	0	0
	1150		**Check/Shake (Timber)**	3	32		0	32	0	0

(135) Truss-Timber

See Appendix A from the BIR dated 08/18/2020 for detailed information on the element and associated defects.

(135-1020) Connection

SUPERSTRUCTURE

SUPERSTRUCTURE ELEMENT INSPECTION RATINGS AND NOTES

(59) SUPERSTRUCTURE RATING = (4)

Elem No.	Defect/ Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4
(135-1020) Connection										
Approximately 30% of the threaded fasteners are exhibiting signs of corrosion. The marine environment has caused significant section loss of a large number of the nuts on the threaded rods that hold the timber members in place (see Photos 21 - 23 from the BIR dated 10/11/2017 for typical condition).										
(135-1150) Check/Shake (Timber)										
Many of the vertical and diagonal members of the truss have checks approximately 0.125 to 0.25 inches wide that penetrate approximately 3 to 4 inches into the members' cross section (see Photos 6 - 10 from from the BIR dated 08/18/2020 and Photos 24 - 31 from the BIR dated 10/11/2017). These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.										
156		**Floor Beam-Timber**		3	17	m	7	10	0	0
	1140	**Decay/Section Loss (Timber)**		3	2		0	2	0	0
	1150	**Check/Shake (Timber)**		3	8		0	8	0	0
(156) Floor Beam-Timber										
See Appendix A from the BIR dated 08/18/2020 for detailed information on the element and associated defects.										
(156-1140) Decay/Section Loss (Timber)										
There is rot and decay present for a length of 6 to 12 inches on the outer edges of the floor beams (see Photos 38 -39 from the BIR dated 10/11/2017). Several of the floor beams were drilled and determined to be sound. This currently does not warrant a work recommendation but will be monitored during future inspections.										
(156-1150) Check/Shake (Timber)										
Many of the floor beams exhibit horizontal checks along their neutral axis that penetrate less than 50% of the members thickness. These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.										

Element Group: 102 - Main - Main Span - Steel Deck Truss

Elem No.	Defect/ Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4
120			**Truss-Steel**	4	79	m	71	0	8	0
	1000		**Corrosion**	4	8		0	0	8	0
	515		**Steel Coating-Paint**	4	876	sq.m	876	0	0	0
(120) Truss-Steel										
FCMI(02/19/2020): See the report narrative for a list of members that were inspected.										
(120-1000) Corrosion										
FCMI(02/19/2020): See the report narrative for description of the defects (7.8 m in CS3).										
(120-515) Steel Coating-Paint										
The steel deck truss of the main span was cleaned and painted in the fall of 2013 as part of EA 01-0A5904. The paint system on the main span steel deck truss appears to be in good condition.										
156			**Floor Beam-Timber**	4	573	m	57	516	0	0
	1140		**Decay/Section Loss (Timber)**	4	58		0	58	0	0
	1150		**Check/Shake (Timber)**	4	458		0	458	0	0
(156-1140) Decay/Section Loss (Timber)										
There is rot and decay present for a length of 6 to 12 inches on the outer edges of the floor beams (see Photos 38 and 39 from the BIR dated 10/11/2017). This currently does not warrant a work recommendation but will be monitored during future inspections.										
(156-1150) Check/Shake (Timber)										
Approximately 80% of the floor beams exhibit horizontal checks approximately 0.125 to 0.25 inches wide that penetrate 3 to 4 inches into the members' cross section (see Photos 40 - 43 from the BIR dated 10/11/2017).										

SUPERSTRUCTURE

SUPERSTRUCTURE ELEMENT INSPECTION RATINGS AND NOTES

(59) SUPERSTRUCTURE RATING = (4)

Elem No.	Defect/ Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4
162			**Steel Gusset Plate**	2	40	each	40	0	0	0

(162) Steel Gusset Plate

There were no significant defects noted. The gusset plates was cleaned and painted in the fall of 2013 as part of EA 01-0A5904. The paint system appears to be in good condition.

311			**Bearing-Moveable**	4	2	each	2	0	0	0

(311) Bearing-Moveable

There were no significant defects noted.

313			**Bearing-Fixed**	4	2	each	2	0	0	0

(313) Bearing-Fixed

There were no significant defects noted.

Element Group: 103 - Approach - Northern Spans 13-34 - Timber Deck Trusses

Elem No.	Defect/ Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4
111			**Girder/Beam-Timber**	2	295	m	295	0	0	0

(111) Girder/Beam-Timber

There were no significant defects noted.

117			**Stringer-Timber**	3	2757	m	2496	261	0	0
	1150		**Check/Shake (Timber)**	3	261		0	261	0	0

(117) Stringer-Timber

See Appendix A from the BIR dated 08/18/2020 for detailed information on the element and associated defects.

(117-1150) Check/Shake (Timber)

Several timber stringers display horizontal checks along their neutral axis that penetrate less than 50% of the member thickness.

These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.

135			**Truss-Timber**	3	208	m	3	195	10	0
	1020		**Connection**	3	62		0	62	0	0
	1140		**Decay/Section Loss (Timber)**	3	10		0	0	10	0
	1150		**Check/Shake (Timber)**	3	133		0	133	0	0

(135) Truss-Timber

See Appendix A from the BIR dated 08/18/2020 for detailed information on the element and associated defects.

The right 12 inch member in the third section of the catwalk of Span 20 is rotted in the middle and the right 12 inch member in the middle section of the catwalk in Span 22 is rotted around the connection points (see Photo 3 from the BIR dated 08/18/2020).

Approximately 50 of the timber scabs located at the connections of the diagonal truss members to the bottom chord have been split (see Photos 33 - 37 from the BIR dated 10/11/2017).

(135-1020) Connection

Approximately 30% of the threaded fasteners are exhibiting signs of corrosion. The marine environment has caused significant section loss of a large number of the nuts on the threaded rods that hold the timber members in place (see Photos 21 - 23 from the BIR dated 10/11/2017 for typical condition).

The threaded connector that bolts a 3 inch by 8 inch diagonal brace at Bent 17, which is attached to the left side of Column 3 at the catwalk level and extends to the top of Column 3 in Bent 18, has sheared off between the brace and the post.

(135-1140) Decay/Section Loss (Timber)

SUPERSTRUCTURE

SUPERSTRUCTURE ELEMENT INSPECTION RATINGS AND NOTES

(59) SUPERSTRUCTURE RATING = (4)

Elem No.	Defect/ Prot	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4
156		**Floor Beam-Timber**	3	77	m	19	58	0	0
	1140	**Decay/Section Loss (Timber)**	3	7		0	7	0	0
	1150	**Check/Shake (Timber)**	3	51		0	51	0	0

(135-1140) Decay/Section Loss (Timber)

An area of decay was found at the top left horizontal between Bent 15 and Bent 16. The top 4 inches has core rot and extends 10 feet from Bent 15 towards Bent 16.

An area of decay was found at the top of horizontal member to the right (east) of the catwalk between Bent 23 and 24. The top 3 inches has core rot that extends 5 feet towards Bent 24.

An area of decay was found at the top of horizontal member to the right (east) of the catwalk between Bent 31 and 32. The top 3 inches has core rot that extends 15 feet towards Bent 32.

(135-1150) Check/Shake (Timber)

All of the vertical and diagonal members of the truss have checks approximately 0.125 to 0.25 inches wide that penetrate approximately 3 to 4 inches into the members' cross section (see Photos 6 - 10 from the BIR dated 08/18/2020 and Photos 24 - 31 from the BIR dated 10/11/2017).

These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.

(156) Floor Beam-Timber

See Appendix A from the BIR dated 08/18/2020 for detailed information on the element and associated defects.

(156-1140) Decay/Section Loss (Timber)

There is rot and decay present for a length of 6 to 12 inches on the outer edges of the floor beams (see Photos 38 -39 from the BIR dated 10/11/2017). Several of the floor beams were drilled and determined to be sound. This currently does not warrant a work recommendation but will be monitored during future inspections.

(156-1150) Check/Shake (Timber)

Many of the floor beams exhibit horizontal checks along their neutral axis that penetrate less than 50% of the members thickness.

These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.

SUBSTRUCTURE

DESCRIPTION UNDER STRUCTURE

(42b) TYPE OF SERVICE UNDER	5-WATERWAY	(38) NAVIGATION CONTROL	1: BR PERMIT REQ
(69) UNDERCLEARANCES V - H	N NOT APPLICABLE (NBI)	(111) PIER PROTECTION	1 NOT REQUIRED
(71) WATER ADEQUACY	9 ABOVE DESIRABLE	(39) NAVIGATION VERTICAL CLEARANCE	50.0 M
(61) CHANNEL PROTECTION	8 PROTECTED	(116) VERT-LIFT BRIDGE NAV MIN VERTICAL CLEAR	M
(113) SCOUR	5 STABLE W/IN FOOTING	(40) NAVIGATION HORIZONTAL CLEARANCE	35.7 M
SCOUR POA DATE	N/A		

CHANNEL DESCRIPTION

Wide, sandy bed on flat slope situated in bottom of relatively narrow canyon at outlet to the ocean. Tidally influenced; flow reversal. Bridge is on straight reach downstream of right bend, about 600 feet from the outlet to the ocean.

SUBSTRUCTURE ELEMENT INSPECTION RATINGS AND NOTES

(60) SUBSTRUCTURE RATING = 4

Element Group: 101 - Approach - Southern Spans 1-11 - Timber Deck Trusses

Elem No.	Defect/ Prot	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4
205		**Column-RC**	3	2	each	2	0	0	0

(205) Column-RC

There were no significant defects noted.

SUBSTRUCTURE

SUBSTRUCTURE ELEMENT INSPECTION RATINGS AND NOTES

(60) SUBSTRUCTURE RATING = 4

Elem No.	Defect/ Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4
206			**Column-Timber**	3	24	each	15	9	0	0
	1150		**Check/Shake (Timber)**	3	9		0	9	0	0

(206) Column-Timber

See Appendix A from the BIR dated 11/11/2017 for detailed information on the element and associated defects.

(206-1150) Check/Shake (Timber)

There are 0.125 to 0.25 inch wide vertical checks that penetrate approximately 3 to 4 inches into the members' cross section (see Photo 11 from the BIR dated 08/18/2020).

These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.

Elem No.	Defect/ Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4
208			**Trestle-Timber**	3	116	m	0	116	0	0
	1020		**Connection**	3	23		0	23	0	0
	1150		**Check/Shake (Timber)**	3	93		0	93	0	0

(208) Trestle-Timber

See Appendix A from the BIR dated 11/11/2017 for detailed information on the element and associated defects.

(208-1020) Connection

Approximately 20% of the threaded connections have not been replaced and show signs of corrosion with surface rust throughout (see Photos 44 - 47 from the BIR dated 10/11/2017).

Based on the observed corrosion of the connection bolts, it is logical to assume that the internal split ring, toothed ring and claw plate shear connectors are in an equal state of distress. The integrity of these split ring (and other types) of shear connections is critical to the load transfer ability of the connections.

(208-1150) Check/Shake (Timber)

There are 0.125 to 0.25 inch wide vertical checks that penetrate approximately 3 to 4 inches into the members' cross section throughout every member of the trestle (see Photos 52 - 62 from the BIR dated 10/11/2017).

These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.

Elem No.	Defect/ Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4
215			**Abutment-RC**	3	11	m	11	0	0	0

(215) Abutment-RC

There were no significant defects noted.

Elem No.	Defect/ Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4
220			**Pile Cap/Footing-RC**	2	30	m	30	0	0	0

(220) Pile Cap/Footing-RC

There were no significant defects noted. This element represents the concrete footing under each column of the trestle.

Elem No.	Defect/ Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4
234			**Pier Cap-RC**	3	8	m	8	0	0	0

(234) Pier Cap-RC

There were no significant defects noted.

Elem No.	Defect/ Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4
235			**Pier Cap-Timber**	3	52	m	10	42	0	0
	1150		**Check/Shake (Timber)**	3	42		0	42	0	0

(235) Pier Cap-Timber

See Appendix A from the BIR dated 08/18/2020 for detailed information on the element and associated defects.

(235-1150) Check/Shake (Timber)

Many of the floor beams exhibit horizontal checks along their neutral axis that penetrate less than 50% of the members thickness (see Photos 16 and 17 from the BIR dated 08/18/2020).

These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.

Element Group: 102 - Main - Main Span - Steel Deck Truss

Elem No.	Defect/ Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4

SUBSTRUCTURE

SUBSTRUCTURE ELEMENT INSPECTION RATINGS AND NOTES

(60) SUBSTRUCTURE RATING = 4

Elem No.	Defect/ Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4
205			**Column-RC**	3	4	each	3	1	0	0
	1080		**Delamination/Spall/Patched Area**	3	1		0	1	0	0

(205) Column-RC

There is a delamination measuring approximately 36 inches long by 18 inches high in the debris wall near Column 2 of Tower 13.

(205-1080) Delamination/Spall/Patched Area

There is a 6 inch diameter spall that has been patched on the east side of the south wall of the base of Tower 13-14.

227			**Pile-RC**	2	1	ea.	1	0	0	0

(227) Pile-RC

The pile element is included to indicate the presence of piles on this structure. The piles were not exposed for visual inspection. No indication of pile distress was noted in any substructure element.

228			**Pile-Timber**	2	1	ea.	1	0	0	0

(228) Pile-Timber

The pile element is included to indicate the presence of piles on this structure. The piles were not exposed for visual inspection. No indication of pile distress was noted in any substructure element.

234			**Pier Cap-RC**	3	17	m	17	0	0	0

(234) Pier Cap-RC

There were no significant defects noted. New concrete bearing pedestals were constructed at each truss support tower in 2016 under EA 01-E2004.

Element Group: 103 - Approach - Northern Spans 13-34 - Timber Deck Trusses

Elem No.	Defect/ Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4
205			**Column-RC**	3	2	each	1	1	0	0
	1080		**Delamination/Spall/Patched Area**	3	1		0	1	0	0

(205-1080) Delamination/Spall/Patched Area

The incipient spall located along the northeast corner of Column 2 at Bent 14 has been patched. The patch measures approximately 24 inches tall by 12 inches wide and is located 20 feet above the ground.

206			**Column-Timber**	3	8	each	6	2	0	0
	1150		**Check/Shake (Timber)**	3	2		0	2	0	0

(206) Column-Timber

See Appendix A from the BIR dated 11/11/2017 for detailed information on the element and associated defects.

(206-1150) Check/Shake (Timber)

There are 0.125 to 0.25 inch wide vertical checks that penetrate approximately 3 to 4 inches into the members' cross section (see Photo 11 from the BIR dated 08/18/2020).

These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.

208			**Trestle-Timber**	3	600	m	0	515	0	85
	1020		**Connection**	3	120		0	120	0	0
	1140		**Decay/Section Loss (Timber)**	3	85		0	0	0	85
	1150		**Check/Shake (Timber)**	3	395		0	395	0	0

(208) Trestle-Timber

See Appendix A from the BIR dated 11/11/2017 for detailed information on the element and associated defects.

(208-1020) Connection

SUBSTRUCTURE

SUBSTRUCTURE ELEMENT INSPECTION RATINGS AND NOTES

(60) SUBSTRUCTURE RATING = 4

Elem No.	Defect/ Prot	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4

(208-1020) Connection

Approximately 20% of the threaded connections have not been replaced and show signs of corrosion with surface rust throughout (see Photos 44 - 47 from the BIR dated 10/11/2017).

Based on the observed corrosion of the connection bolts, it is logical to assume that the internal split ring, toothed ring and claw plate shear connectors are in an equal state of distress. The integrity of these split ring (and other types) of shear connections is critical to the load transfer ability of the connections.

(208-1140) Decay/Section Loss (Timber)

There is a void measuring approximately 12 inches high by 8 inches wide by 4 inches deep located in the core of Column 4 at Bent 23 due to an apparent insect infestation (see Photos 12 and 13 from the BIR dated 08/18/2020). The timber fibers adjacent to the void are soft and crumbly for about an inch in each direction around the affected area. The void is located approximately 2 feet above the concrete footing support.

There is another area of infestation present at Column 2 of Bent 24. The timber scab at the footing connection on the east face of the column has a void measuring approximately 10 inches high by 2 inches wide by 3.5 inches deep (see Photos 14 and 15 from the BIR dated 08/18/2020). The infestation has not reached the column, but has penetrated the full depth of the timber scab.

(208-1150) Check/Shake (Timber)

There are 0.125 to 0.25 inch wide vertical checks that penetrate approximately 3 to 4 inches into the members' cross section throughout every member of the trestle (see Photos 52 - 62 from the BIR dated 10/11/2017).

These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.

215		**Abutment-RC**	3	11	m	11	0	0	0

(215) Abutment-RC

There were no significant defects noted.

220		**Pile Cap/Footing-RC**	2	90	m	90	0	0	0

(220) Pile Cap/Footing-RC

There were no significant defects noted. This element represents the concrete footing under each column of the trestle.

234		**Pier Cap-RC**	3	8	m	8	0	0	0

(234) Pier Cap-RC

There were no significant defects noted.

235		**Pier Cap-Timber**	3	17	m	0	17	0	0
	1150	**Check/Shake (Timber)**	3	17		0	17	0	0

(235) Pier Cap-Timber

See Appendix A from the BIR dated 08/18/2020 for a detailed information on which members display checking.

(235-1150) Check/Shake (Timber)

Many of the floor beams exhibit horizontal checks along their neutral axis that penetrate less than 50% of the members thickness (see Photos 16 and 17 from the BIR dated 08/18/2020).

These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.

WORK RECOMMENDATIONS

DECK WORK RECOMMENDATIONS

Rec Date	10/11/2017	Work By	MAINT. CONTRACT	Est Cost	$500,000	Dist Target	
Status	PROPOSED	Action	Deck-Misc.	Str Target	2 YEARS	EA	

Remove the rotted and decaying portions of the deck located along the edge of deck on both sides of the bridge. Large areas of rotted timber deck was encountered along the outermost 24 inches of the bridge deck, particularly in the areas underneath the deck drains. The entire deck may have to be removed and replaced due to the configuration of the timber deck planks.

JOINT/APPR/RAIL WORK RECOMMENDATIONS

SUPERSTRUCTURE WORK RECOMMENDATIONS

WORK RECOMMENDATIONS

JOINT/APPR/RAIL WORK RECOMMENDATIONS

Rec Date	02/10/1984	Work By	SHOPP	Est Cost	$1,008,600	Dist Target	
Status	LONG LEAD	Action	Railing-Upgrade	Str Target	2 YEARS	EA	40110

F1-10 / F2-6 / F3-1 / Rail Type-WOOD. Replace the bridge rail.

SUPERSTRUCTURE WORK RECOMMENDATIONS

Rec Date	08/18/2020	Work By	BRIDGE CREW	Est Cost	$5,000	Dist Target	
Status	PROPOSED	Action	Super-Misc.	Str Target	1 YEAR	EA	

Replace two rotted catwalk members. The right 12 inch member in the third section of the catwalk of Span 20 is rotted in the middle and the right 12 inch member in the middle section of the catwalk in Span 22 is rotted around the connection points.

Rec Date	10/11/2017	Work By	MAINT. CONTRACT	Est Cost	$7,500	Dist Target	
Status	PROGRAMMED	Action	Super-Epoxy Inject	Str Target	2 YEARS	EA	0E201

Epoxy inject the horizontal members to the right (east) of the catwalk at Bents 23 and 31 and to the left of the catwalk at Bent 15. The member at Bent 15 has an area of decay within the top 4 inches of the cross section by 15 feet in length. The member at Bent 23 has an area of decay within the top 3 inches of the cross section by 5 feet in length. The member at Bent 31 has an area of decay within the top 3 inches of the cross section by 15 feet in length.

Rec Date	10/11/2017	Work By	MAINT. CONTRACT	Est Cost	$60,000	Dist Target	
Status	PROGRAMMED	Action	Super-Misc.	Str Target	2 YEARS	EA	0E201

Remove and replace the 53 split timber scabs located throughout the northern approach spans.

SUBSTRUCTURE WORK RECOMMENDATIONS

Rec Date	08/18/2020	Work By	MAINT. CONTRACT	Est Cost	$500	Dist Target	
Status	PROPOSED	Action	Sub-Epoxy Inject	Str Target	2 YEARS	EA	

Epoxy inject the voids due to insect infestation at Column 4 of Bent 23 and at the east timber scab at Column 2 at Bent 24. The void at Column 4 of Bent 23 measures approximately 12 inches high by 8 inches wide by 4 inches deep and the void at the east timber scab at Column 2 at Bent 24 measures 10 inches high by 2 inches wide by 3.5 inches deep.

Rec Date	10/11/2017	Work By	MAINT. CONTRACT	Est Cost	$500,000	Dist Target	
Status	PROGRAMMED	Action	Sub-Misc.	Str Target	2 YEARS	EA	0E201

Continue the ongoing program of replacement of timber fasteners. Remove and replace the bolted connections and hardware (threaded rods, malleys, nuts, splice plates/straps, scabs, etc.) throughout the entire timber sub-structure.

Rec Date	07/01/1986	Work By	SHOPP	Est Cost	$1,500,000	Dist Target	
Status	LONG LEAD	Action	Sub-Rehab	Str Target	2 YEARS	EA	40110

Remove and replace the bolted connections and hardware (threaded rods, malleys, nuts, splice plates/straps, etc) throughout the entire timber sub-structure. Replace the top left horizontal timber element between Bent 15 and Bent 16.

OTHER WORK RECOMMENDATIONS

Rec Date	10/11/2017	Work By	MAINT. CONTRACT	Est Cost	$25,000	Dist Target	
Status	PROGRAMMED	Action	Bridge-Misc	Str Target	2 YEARS	EA	0E201

Remove and replace the rusted and failed pipe support along the right side of the bridge.

Rec Date	03/28/2007	Work By	SHOPP	Est Cost	$1,270,000	Dist Target	
Status	LONG LEAD	Action	Seismic-Retrofit	Str Target	4 YEARS	EA	40110

Priority 181, This Bridge has been recommended for seismic retrofit by the screening of the Office of Earthquake Engingeering. Steel truss members may require strengthening. Priority 4. Final Score 2.8125. BELOW THE LINE.

Rec Date	04/05/1999	Work By	SHOPP	Est Cost	$13,200,000	Dist Target	
Status	LONG LEAD	Action	Bridge-Replace(Bridg	Str Target	2 YEARS	EA	40110

Replace the steel main span. Estimated at $2,000,000 (NOT including traffic handling costs). Or, replace the entire structure. Estimated at $13,200,000.

THIS AGING STRUCTURE IS IN A MARGINAL AND DETERIORATING CONDITION. IT IS FUNCTIONALLY

WORK RECOMMENDATIONS

OTHER WORK RECOMMENDATIONS

OBSOLETE, HAS A LOW LOAD RATING, AND IS AN INAPPROPRIATE DESIGN FOR THE ENVIRONMENT. THE LIFE CYCLE ECONOMIC COST OF ADEQUATE MAINTENANCE DOES NOT COMPARE FAVORABLY WITH COST OF REPLACEMENT WITH A STRUCTURE TYPE BETTER SUITED TO THE ENVIRONMENT.

IT IS THEREFORE URGENTLY RECOMMENDED THAT THIS STRUCTURE BE REPLACED. AN SM&I PEER REVIEW IN AUGUST 2007 REAFFIRMED THE RECOMMENDATION THAT THIS BRIDGE BE REPLACED.

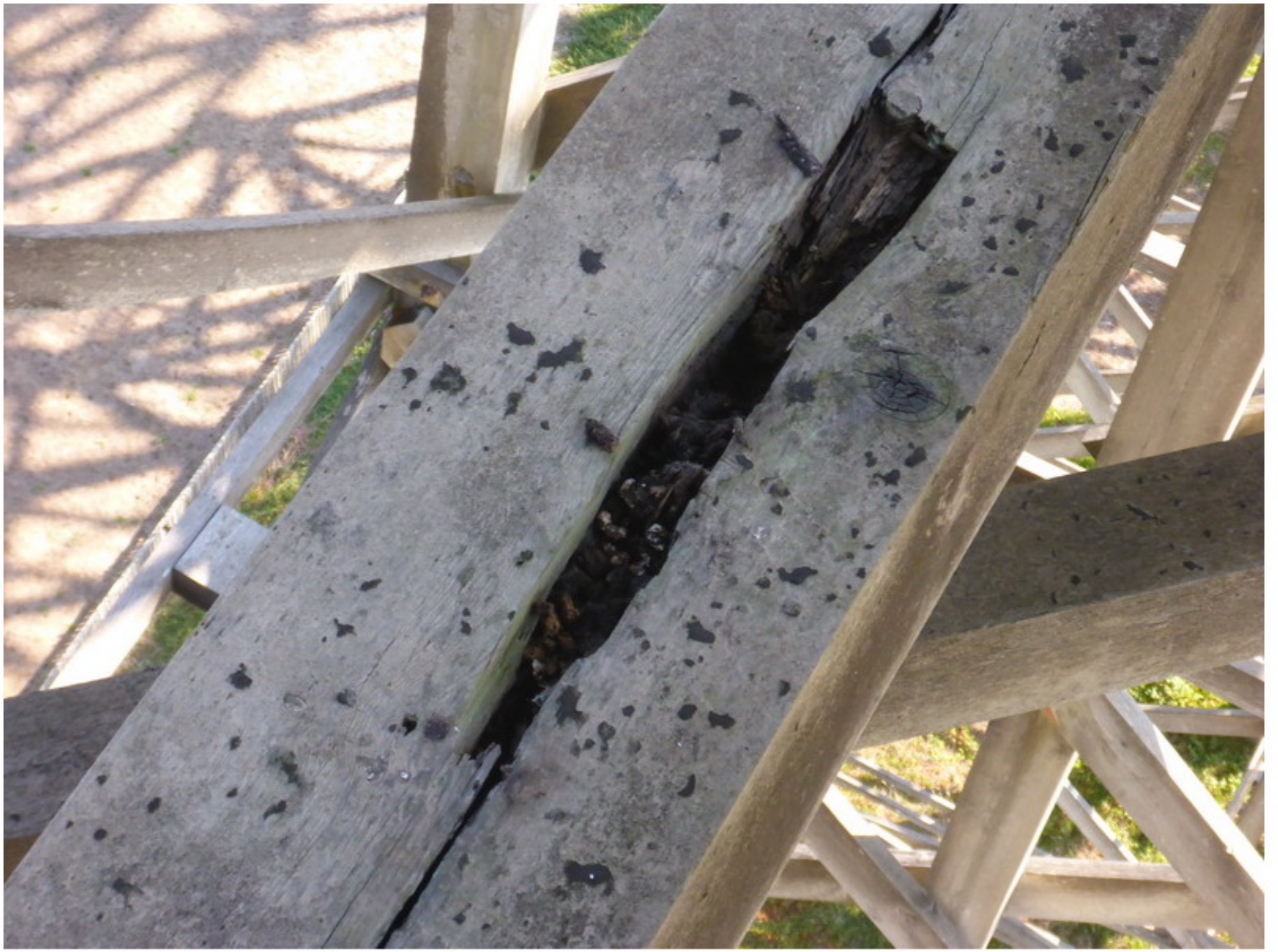


Photo No. 4
An area of decay was found at the top left horizontal between Bent 15 and Bent 16.

DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 10 0136
Facility Carried: STATE ROUTE 1
Location : 01-MEN-001-43.74
City :
Inspection Date : 09/01/2020
Inspection Type

Bridge Inspection Report

Routine ☐ FC ☐ Underwater ☐ Special ☐ Other ☒ :Other

STRUCTURE NAME: ALBION RIVER

CONSTRUCTION INFORMATION

Year Built : 1944
Year Modified: N/A
Length (m) : 295.4
Skew (degrees): 0
No. of Joints : 2
No. of Hinges : 0

Structure Description: Simply supported 34-span bridge. Timber 2-ply plank deck, with AC riding surface, timber 17-girder spans on timber A-frame deck trusses on timber tower bents. Eleven timber approach spans at the south end of the bridge, with Span 8 & 10 being a timber A-frame deck truss. A single-span riveted steel deck truss on RC tower bents over the main channel. Twenty-two timber approach spans at the north end of the bridge, with Span 14, 16, 18, 20, 22, 24, 26, 28, & 30 being a timber A-frame deck truss. Both abutments are RC buttress-type with monolithic RC wingwalls and 3-column bents on spread footings. Foundations for Bents 2-10 & 26-34 are concrete pedestal-type spread footings, Tower 11-12 is on driven (split-rail reinforced) PC/RC piles and Tower 13-14 is on driven timber piles, Bents 15-25 are concrete pedestal-type footings on driven timber piles. (The main span is a riveted steel deck truss, expansion at Bent 12 and fixed at Bent 13, which was recycled from an old bridge that had been located on the South Fork of the Feather River approximately 1.5 miles downstream of Bidwell Bar) All timber is treated Douglas Fir (from Washington State).

Span Configuration : 7 @ 19.0 ft, 1 @ 38.0 ft, 1 @ 19.0 ft, 1 @ 38.0 ft, 1 @ 16.5 ft, 1 @ 130.0 ft, 1 @ 16.5 ft, 1 @ 38.0 ft, 1 @ 19.0 ft, 1 @ 38.0 ft, 1 @ 19.0 ft, 1 @ 38.0 ft, 1 @ 19.0 ft, 1 @ 38.0 ft, 1 @ 19.0 ft, 1 @ 38.0 ft, 1 @ 19.0 ft, 1 @ 38.0 ft, 1 @ 19.0 ft, 1 @ 38.0 ft, 1 @ 19.0 ft, 1 @ 38.0 ft, 4 @ 19.0 ft

SAFE LOAD CAPACITY AND RATINGS

Design Live Load: M-13.5 OR H-15
Inventory Rating: RF=0.70 =>22.7 metric tons Calculation Method: ALLOWABLE STRESS
Operating Rating: RF=0.95 =>30.8 metric tons Calculation Method: ALLOWABLE STRESS
Permit Rating : PGGGO
Posting Load : Type 3: Legal Type 3S2: Legal Type 3-3: Legal

DESCRIPTION ON STRUCTURE

Deck X-Section: 0.3 ft br, 1.0 ft wg, 26.0 ft, 1.0 ft wg, 0.3 ft br
Total Width: 8.5 m Net Width: 7.9 m No. of Lanes: 2 Speed: 50 mph
Min. Vertical Clearance: Unimpaired Overlay Thickness: 2.0 inches
Rail Code: 0010

DESCRIPTION UNDER STRUCTURE

Channel Description: Wide, sandy bed on flat slope situated in bottom of relatively narrow canyon at outlet to the ocean. Tidally influenced; flow reversal. Bridge is on straight reach downstream of right bend, about 600 feet from the outlet to the ocean.

NOTICE

INSPECTION COMMENTARY

NOTICE

The bridge inspection condition assessment used for this inspection is based on the American Association of State Highway and Transportation Officials (AASHTO) Bridge Element Inspection Manual 2013 as defined in Moving Ahead for Progress in the 21st Century (MAP-21) federal law. The new element inspection methodology may result in changes to related condition and appraisal ratings on the bridge without significant physical changes at the bridge.

The element condition information contained in this report represents the current condition of the bridge based on the most recent routine and special inspections. Some of the notes presented below may be from an inspection that occurred prior to the date noted in this report. Refer to the Scope and Access section of this inspection report for a description of which portions of the bridge were inspected on this date.

INSPECTION COMMENTARY

SCOPE AND ACCESS

This investigation was conducted in two phases, each phase consisting of one week of inspection. The scope of this investigation was limited to the substructure timber trestle elements and its associated connection points as an extension of the last routine inspection dated 08/18/2020. A complete inspection of these elements was performed and the defects discovered during this investigation are detailed below. All conditions listed for elements not inspected during this investigation have been carried forward from the previous inspections.

The first phase of this investigation was conducted with the use of UAS technology during the week of 09/01/2020, consisting of up close inspection of each timber trestle tower for their full length with the use of the UAS device. High resolution video imaging was recorded of each member and was later analyzed to identify specific areas of interest or concern and mark these locations for further hands-on inspection methods during the second phase of the investigation. The main defects that were identified through this phase of investigation were corroded timber connection hardware including claw plates and anchor bolts, multiple split or fractured timber scabs and deterioration of timber preservative treatment and associated widespread checking of almost all of the timber elements.

The second phase of this investigation was performed during the week of 10/05/2020 focusing on the areas identified in the first phase, as well as a general visual inspection of all timber members. A climb team comprised of personnel from the Toll Bridges Investigations Office inspected all of the timber substructure members at and below the catwalk of Bents 16 through 26. A follow up rope access inspection of the remaining timber trestles will be scheduled for a future date pending weather permissibility and the rope access team availability. The inspection included close visual and auditory reconnaissance of the full length and all sides of every primary and secondary timber substructure element. Any suspect members were drilled to verify their integrity; and, if found to be deficient, the location, amount, and severity of any decay found was documented for future remediation. Please refer to the SUBSTRUCTURE condition text below for more detailed information.

HISTORY

This structure has a history of advanced corrosion occurring to the exposed portions of the bolted timber connections throughout the trestle substructure, as well as the timber truss superstructure. The nuts and bolts of the timber connections in the towers have historically been replaced by the District 01 Bridge Crew.

During the Climb inspection performed on 5/15/2012, it was discovered that, on average, approximately 50 to 70% of the nuts had failed due to corrosion from the marine environment. Due to the amount of labor and connections needing replacement, a

INSPECTION COMMENTARY

maintenance contract was put out to bid to replace the majority of the corroded bolts and nuts. There were approximately 5,000 bolts with nuts that needed replacement, 2,500 to 3,500 of which had failed.

In 2016, Maintenance Contract 01-E2004 was completed which replaced approximately 80% of all of the bolts and nuts throughout the substructure. None of the bolted connections of the superstructure were addressed. In addition, rotted and decaying horizontal scabs located between the trestle columns were filled with an epoxy system which filled any rotted voids present in the members. Another project is planned for November 2021 to replace the remaining corroded substructure bolts in these spans.

In addition to the advanced corrosion of the steel connection hardware, soil sampling taken during a District Preliminary Environmental Assessment dated July 2017, indicated chromium contamination around the timber towers. This is indicative of the preservative treatment leaching from the timbers. Without reliable chemical preservative treatment, an increased rate of decay of the treated timber elements is anticipated. Insect infestation noted during the previous routine inspection performed on 08/18/2020 indicates that the loss of preservative treatment is evident. SM&I is in the process of testing the treated timber members to determine the extent of preservative present in the timber with the hope that this can lead to a better understanding of the remaining lifespan of the preservative.

Based on the deficiencies detailed above along with the expectation that the decay and corrosion will continue at an increased rate over time, SM&I has initiated these advanced supplemental inspection methods on a regular inspection interval from this time going forward.

SUBSTRUCTURE

All of the timber members with observed checking were sounded with a hammer. Hollow sounding members were then subsequently drilled. In all, 12 locations were drilled, with the majority of those being horizontal trestle members located at the level where columns transitioned from 4 to 6 columns, and again at the level where the columns transitioned from 6 to 5 columns. The members were all drilled to a minimum depth of 6 inches and the timber borings examined for signs of decay and rot. In all cases, the members were found to be free of decay at their core. However, with the presence of the large checks and loss of preservative treatment as indicated by the District Preliminary Environmental Assessment dated July 2017, it is anticipated that moisture will continue to penetrate into the members, which will eventually lead to decay. SM&I is currently in the process of testing the remaining preservative treatment present in the timber members to use as a baseline for future comparisons on the remaining lifespan of said preservative treatment.

Approximately 80% of all of the bolted connections throughout the substructure were replaced under Contract 01-E2004. For a complete list of the bolts replaced, please refer to the hardware table in the as-built drawings for Contract 01-E2004. The remaining 20% of the connections exhibit surface rust throughout but without measurable section loss (see Photos 46 - 49 from the BIR dated 10/11/2017).

All of the timber columns in the timber bents and the timber columns that make up the trestles have 0.125 to 0.25 inch wide vertical checks for most of the members length (see Photos 50 - 64 from the BIR dated 10/11/2017). For a detailed list of each trestle member and its associated defect, please refer to the attached table in Appendix B from the BIR dated 10/11/2017.

The substructure condition (NBI 60) is rated a 4-Poor due to the widespread checking of the timber columns, decay potential due to diminished effectiveness of the preservative

INSPECTION COMMENTARY

treatment, distressed timber scab connections and the assumed corroded condition of the split ring, toothed ring and claw plate connectors, the majority of which are not visible for inspection.

SAFE LOAD CAPACITY

The load rating for this structure is being reviewed by SMI Ratings Branch. An updated Load Rating Summary Sheet will be archived when this review is complete. The current ratings are based on Midas computer program output dated 11/01/2011.

The steel deck truss main span was found to have lower Inventory, Operating and Permit Ratings than the timber truss spans, and therefore, to be the controlling portion of the structure. The load rating values shown are for the steel deck truss main span.

A work request (#9990) has also been submitted to SMI Ratings Branch to evaluate the affect of the termite infestation on the load bearing capacity of timber Column 4 at Bent 23. The extent of the infestation is documented under the respective parent element. Preliminary calculations indicate that the damage due to the termite infestation is not an immediate threat to the safe load capacity of the structure, however, the Load Ratings Branch will perform an in-depth review of the safe load capacity including the timber substructure elements.

STEEL INVESTIGATIONS

This structure qualifies for an in-depth Steel investigation because it possesses the following fracture critical or fatigue prone details:

Truss: FC Members with Category E Welds

Fracture Critical: Yes Inspection Freq.: 24 Next Inspection: 02/19/2022

ELEMENT INSPECTION RATINGS AND COMMENTARY

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
Element Group: 101 - Approach - Southern Spans 1-11 - Timber Deck Trusses										
31			**Deck-Timber**	3	651	sq.m	631	5	15	0
	1140		**Decay/Section Loss (Timber)**	3	20		0	5	15	0
	510		**Deck Wearing Surface-Asphalt**	3	594	sq.m	594	0	0	0

(31)
The spacer block in Bay 13 of Span 2 is loose and hanging down below the girders.

(31-1140)
The timber deck consists of two layers of 11.25 inch by 3 inch timber deck planks with the top layer oriented at a 30 degree angle to the bridge deck and the bottom layer oriented perpendicular to the top layer. There are several areas of white fungus present on the soffit of the timber deck (see Photo 1 from the BIR dated 08/18/2020 and Photos 4 - 8 from the BIR dated 10/11/2017). When these areas were drilled, the deck appeared to be sound without decay or rot.

Large areas of rotted and decayed timber deck planks were discovered along the edge of deck on both sides throughout the length of the structure. The rot was typically present in the area beneath the deck drains and extended approximately 18 to 24 inches into the deck on both layers of deck planks (see Photos 9 - 21 from the BIR dated 10/11/2017). The exact amount of decay (linear footage) was not measured but conservatively estimated at 15 to 20% of the total length of the deck.

(31-510)

ELEMENT INSPECTION RATINGS AND COMMENTARY

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
Element Group: 101 - Approach - Southern Spans 1-11 - Timber Deck Trusses										
There were no significant defects noted. A new AC overlay was placed on the bridge deck in 2016 under EA 01-E2004.										
111			**Girder/Beam-Timber**	2	590	m	568	22	0	0
	1150		**Check/Shake (Timber)**	2	22		0	22	0	0
(111) See Appendix A from the BIR dated 08/18/2020 for detailed information on the element and associated defects.										
(111-1150) Several timber girders display horizontal checks along their neutral axis that penetrate less than 50% of the member thickness (see Photo 2 from the BIR dated 08/18/2020). These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.										
117			**Stringer-Timber**	3	690	m	667	23	0	0
	1150		**Check/Shake (Timber)**	3	23		0	23	0	0
(117-1150) Several timber stringers display horizontal checks along their neutral axis that penetrate less than 50% of the member thickness. These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.										
135			**Truss-Timber**	3	46	m	0	46	0	0
	1020		**Connection**	3	14		0	14	0	0
	1150		**Check/Shake (Timber)**	3	32		0	32	0	0
(135) See Appendix A from the BIR dated 08/18/2020 for detailed information on the element and associated defects.										
(135-1020) Approximately 30% of the threaded fasteners are exhibiting signs of corrosion. The marine environment has caused significant section loss of a large number of the nuts on the threaded rods that hold the timber members in place (see Photos 21 - 23 from the BIR dated 10/11/2017 for typical condition).										
(135-1150) Many of the vertical and diagonal members of the truss have checks approximately 0.125 to 0.25 inches wide that penetrate approximately 3 to 4 inches into the members' cross section (see Photos 6 - 10 from from the BIR dated 08/18/2020 and Photos 24 - 31 from the BIR dated 10/11/2017). These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.										
156			**Floor Beam-Timber**	3	17	m	7	10	0	0
	1140		**Decay/Section Loss (Timber)**	3	2		0	2	0	0

ELEMENT INSPECTION RATINGS AND COMMENTARY

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
Element Group: 101 - Approach - Southern Spans 1-11 - Timber Deck Trusses										
	1150		Check/Shake (Timber)	3	8		0	8	0	0

(156)
See Appendix A from the BIR dated 08/18/2020 for detailed information on the element and associated defects.

(156-1140)
There is rot and decay present for a length of 6 to 12 inches on the outer edges of the floor beams (see Photos 38 -39 from the BIR dated 10/11/2017). Several of the floor beams were drilled and determined to be sound. This currently does not warrant a work recommendation but will be monitored during future inspections.

(156-1150)
Many of the floor beams exhibit horizontal checks along their neutral axis that penetrate less than 50% of the members thickness.

These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
205			**Column-RC**	3	2	each	2	0	0	0

(205)
There were no significant defects noted.

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
206			**Column-Timber**	3	24	each	15	9	0	0
	1150		Check/Shake (Timber)	3	9		0	9	0	0

(206)
See Appendix A from the BIR dated 11/11/2017 for detailed information on the element and associated defects.

(206-1150)
There are 0.125 to 0.25 inch wide vertical checks that penetrate approximately 3 to 4 inches into the members' cross section (see Photo 11 from the BIR dated 08/18/2020).

These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
208			**Trestle-Timber**	3	116	m	0	116	0	0
	1020		Connection	3	23		0	23	0	0
	1150		Check/Shake (Timber)	3	93		0	93	0	0

(208)
See Appendix A from the BIR dated 11/11/2017 for detailed information on the element and associated defects.

(208-1020)
Approximately 20% of the threaded connections have not been replaced and show signs of corrosion with surface rust throughout (see Photos 44 - 47 from the BIR dated 10/11/2017).

Based on the observed corrosion of the connection bolts, it is logical to assume that the internal split ring, toothed ring and claw plate shear connectors are in an equal state of distress. The integrity of these split ring (and other types) of shear connections is critical to the load transfer ability of the connections.

ELEMENT INSPECTION RATINGS AND COMMENTARY

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
Element Group: 101 - Approach - Southern Spans 1-11 - Timber Deck Trusses										
(208-1150) There are 0.125 to 0.25 inch wide vertical checks that penetrate approximately 3 to 4 inches into the members' cross section throughout every member of the trestle (see Photos 52 - 62 from the BIR dated 10/11/2017). These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.										
215		**Abutment-RC**		3	11	m	11	0	0	0
(215) There were no significant defects noted.										
220		**Pile Cap/Footing-RC**		2	30	m	30	0	0	0
(220) There were no significant defects noted. This element represents the concrete footing under each column of the trestle.										
234		**Pier Cap-RC**		3	8	m	8	0	0	0
(234) There were no significant defects noted.										
235		**Pier Cap-Timber**		3	52	m	10	42	0	0
	1150	**Check/Shake (Timber)**		3	42		0	42	0	0
(235) See Appendix A from the BIR dated 08/18/2020 for detailed information on the element and associated defects.										
(235-1150) Many of the floor beams exhibit horizontal checks along their neutral axis that penetrate less than 50% of the members thickness (see Photos 16 and 17 from the BIR dated 08/18/2020). These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.										
332		**Railing-Timber**		3	512	m	410	0	102	0
	1020	**Connection**		3	102		0	0	102	0
(332) The timber bridge rail was cleaned and painted in 2013 as part of EA 01-0A5904.										
(332-1020) The timber rail connection to the deck is affected by the deck rot that is present along the edge of the deck planks on both sides of the structure. The exact amount of decay (linear footage) was not measured but conservatively estimated at 15 to 20% of the total length of the deck.										
Element Group: 102 - Main - Main Span - Steel Deck Truss										
31		**Deck-Timber**		3	341	sq.m	331	2	8	0
	1140	**Decay/Section Loss (Timber)**		3	10		0	2	8	0
	510	**Deck Wearing Surface-Asphalt**		3	341	sq.m	341	0	0	0

ELEMENT INSPECTION RATINGS AND COMMENTARY

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
Element Group: 102 - Main - Main Span - Steel Deck Truss										

(31-1140)
The timber deck consists of two layers of 11.25 inch by 3 inch timber deck planks with the top layer oriented at a 30 degree angle to the bridge deck and the bottom layer oriented perpendicular to the top layer. There are areas of white fungus present on the soffit of the timber deck (see Photos 4 - 8 from the BIR dated 10/11/2017). When these areas were drilled, the deck appeared to be sound without decay or rot.

Large areas of rotted and decayed timber deck planks were discovered along the edge of deck on both sides throughout the length of the structure. The rot was typically present in the area beneath the deck drains and extended approximately 18 to 24 inches into the deck on both layers of deck planks (see Photos 9 - 21 from the BIR dated 10/11/2017). The exact amount of decay (linear footage) was not measured but conservatively estimated at 15 to 20% of the total length of the deck.

(31-510)
There were no significant defects noted. A new AC overlay was placed on the bridge deck in 2016 under EA 01-E2004.

120		**Truss-Steel**	4	79	m	71	0	8	0
	1000	**Corrosion**	4	8		0	0	8	0
	515	**Steel Coating-Paint**	4	876	sq.m	876	0	0	0

(120)
FCMI(02/19/2020): See the report narrative for a list of members that were inspected.

(120-1000)
FCMI(02/19/2020): See the report narrative for description of the defects (7.8 m in CS3).

(120-515)
The steel deck truss of the main span was cleaned and painted in the fall of 2013 as part of EA 01-0A5904. The paint system on the main span steel deck truss appears to be in good condition.

156		**Floor Beam-Timber**	4	573	m	57	516	0	0
	1140	**Decay/Section Loss (Timber)**	4	58		0	58	0	0
	1150	**Check/Shake (Timber)**	4	458		0	458	0	0

(156-1140)
There is rot and decay present for a length of 6 to 12 inches on the outer edges of the floor beams (see Photos 38 and 39 from the BIR dated 10/11/2017). This currently does not warrant a work recommendation but will be monitored during future inspections.

(156-1150)
Approximately 80% of the floor beams exhibit horizontal checks approximately 0.125 to 0.25 inches wide that penetrate 3 to 4 inches into the members' cross section (see Photos 40 - 43 from the BIR dated 10/11/2017).

162		**Steel Gusset Plate**	2	40	each	40	0	0	0

(162)
There were no significant defects noted. The gusset plates was cleaned and painted in the fall of 2013 as part of EA 01-0A5904. The paint system appears to be in good condition.

205		**Column-RC**	3	4	each	3	1	0	0
	1080	**Delamination/Spall/Patched Area**	3	1		0	1	0	0

(205)
There is a delamination measuring approximately 36 inches long by 18 inches high in the debris wall

ELEMENT INSPECTION RATINGS AND COMMENTARY

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
Element Group: 102 - Main - Main Span - Steel Deck Truss										
near Column 2 of Tower 13.										
(205-1080) There is a 6 inch diameter spall that has been patched on the east side of the south wall of the base of Tower 13-14.										
227			**Pile-RC**	2	1	ea.	1	0	0	0
(227) The pile element is included to indicate the presence of piles on this structure. The piles were not exposed for visual inspection. No indication of pile distress was noted in any substructure element.										
228			**Pile-Timber**	2	1	ea.	1	0	0	0
(228) The pile element is included to indicate the presence of piles on this structure. The piles were not exposed for visual inspection. No indication of pile distress was noted in any substructure element.										
234			**Pier Cap-RC**	3	17	m	17	0	0	0
(234) There were no significant defects noted. New concrete bearing pedestals were constructed at each truss support tower in 2016 under EA 01-E2004.										
301			**Joint-Pourable Seal**	2	17	m	9	8	0	0
	2330		**Seal Damage (Joints)**	2	8		0	8	0	0
(301) New Type "A" pourable joint seals were installed at Bents 13 and 14 in 2016 under EA 01-E2004.										
(301-2330) The pourable joint seal at Bent 13 already exhibits small tears throughout its length but the seal at Bent 14 remains in good condition.										
304			**Joint-Open Expansion**	3	17	m	17	0	0	0
(304) There were no significant defects noted.										
311			**Bearing-Moveable**	4	2	each	2	0	0	0
(311) There were no significant defects noted.										
313			**Bearing-Fixed**	4	2	each	2	0	0	0
(313) There were no significant defects noted.										
332			**Railing-Timber**	3	79	m	63	0	16	0
	1020		**Connection**	3	16		0	0	16	0
(332) The timber bridge rail was cleaned and painted in 2013 as part of EA 01-0A5904.										
(332-1020) The timber rail connection to the deck may be affected by the deck rot that is present along the edge of the deck planks on both sides of the structure.										
Element Group: 103 - Approach - Northern Spans 13-34 - Timber Deck Trusses										

ELEMENT INSPECTION RATINGS AND COMMENTARY

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
Element Group: 103 - Approach - Northern Spans 13-34 - Timber Deck Trusses										
31			**Deck-Timber**	2	1557	sq.m	1511	10	36	0
	1140		**Decay/Section Loss (Timber)**	2	46		0	10	36	0
	510		**Deck Wearing Surface-Asphalt**	2	1420	sq.m	1420	0	0	0

(31-1140)
The scuppers at the base of the wheel guards on both sides of the deck at the north end of the bridge are plugged with dirt and weeds.

The timber deck consists of two layers of 11.25 inch by 3 inch timber deck planks with the top layer oriented at a 30 degree angle to the bridge deck and the bottom layer oriented perpendicular to the top layer. There are areas of white fungus present on the soffit of the timber deck (see Photos 4 - 8 from the BIR dated 10/11/2017). When these areas were drilled, the deck appeared to be sound without decay or rot.

Large areas of rotted and decayed timber deck planks were discovered along the edge of deck on both sides throughout the length of the structure. The rot was typically present in the area beneath the deck drains and extended approximately 18 to 24 inches into the deck on both layers of deck planks (see Photos 9 - 22 from the BIR dated 10/11/2017). The exact amount of decay (linear footage) was not measured but conservatively estimated at 15 to 20% of the total length of the deck.

(31-510)
There were no significant defects noted. A new AC overlay was placed on the bridge deck in 2016 under EA 01-E2004.

111			**Girder/Beam-Timber**	2	295	m	295	0	0	0

(111)
There were no significant defects noted.

117			**Stringer-Timber**	3	2757	m	2496	261	0	0
	1150		**Check/Shake (Timber)**	3	261		0	261	0	0

(117)
See Appendix A from the BIR dated 08/18/2020 for detailed information on the element and associated defects.

(117-1150)
Several timber stringers display horizontal checks along their neutral axis that penetrate less than 50% of the member thickness.

These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.

135			**Truss-Timber**	3	208	m	3	195	10	0
	1020		**Connection**	3	62		0	62	0	0
	1140		**Decay/Section Loss (Timber)**	3	10		0	0	10	0
	1150		**Check/Shake (Timber)**	3	133		0	133	0	0

(135)
See Appendix A from the BIR dated 08/18/2020 for detailed information on the element and associated defects.

The right 12 inch member in the third section of the catwalk of Span 20 is rotted in the middle and

ELEMENT INSPECTION RATINGS AND COMMENTARY

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
Element Group: 103 - Approach - Northern Spans 13-34 - Timber Deck Trusses										

the right 12 inch member in the middle section of the catwalk in Span 22 is rotted around the connection points (see Photo 3 from the BIR dated 08/18/2020).

Approximately 50 of the timber scabs located at the connections of the diagonal truss members to the bottom chord have been split (see Photos 33 - 37 from the BIR dated 10/11/2017).

(135-1020)
Approximately 30% of the threaded fasteners are exhibiting signs of corrosion. The marine environment has caused significant section loss of a large number of the nuts on the threaded rods that hold the timber members in place (see Photos 21 - 23 from the BIR dated 10/11/2017 for typical condition).

The threaded connector that bolts a 3 inch by 8 inch diagonal brace at Bent 17, which is attached to the left side of Column 3 at the catwalk level and extends to the top of Column 3 in Bent 18, has sheared off between the brace and the post.

(135-1140)
An area of decay was found at the top left horizontal between Bent 15 and Bent 16. The top 4 inches has core rot and extends 10 feet from Bent 15 towards Bent 16.

An area of decay was found at the top of horizontal member to the right (east) of the catwalk between Bent 23 and 24. The top 3 inches has core rot that extends 5 feet towards Bent 24.

An area of decay was found at the top of horizontal member to the right (east) of the catwalk between Bent 31 and 32. The top 3 inches has core rot that extends 15 feet towards Bent 32.

(135-1150)
All of the vertical and diagonal members of the truss have checks approximately 0.125 to 0.25 inches wide that penetrate approximately 3 to 4 inches into the members' cross section (see Photos 6 - 10 from the BIR dated 08/18/2020 and Photos 24 - 31 from the BIR dated 10/11/2017).

These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.

156		**Floor Beam-Timber**	3	77	m	19	58	0	0
	1140	**Decay/Section Loss (Timber)**	3	7		0	7	0	0
	1150	**Check/Shake (Timber)**	3	51		0	51	0	0

(156)
See Appendix A from the BIR dated 08/18/2020 for detailed information on the element and associated defects.

(156-1140)
There is rot and decay present for a length of 6 to 12 inches on the outer edges of the floor beams (see Photos 38 -39 from the BIR dated 10/11/2017). Several of the floor beams were drilled and determined to be sound. This currently does not warrant a work recommendation but will be monitored during future inspections.

(156-1150)
Many of the floor beams exhibit horizontal checks along their neutral axis that penetrate less than 50% of the members thickness.

These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the

ELEMENT INSPECTION RATINGS AND COMMENTARY

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
Element Group: 103 - Approach - Northern Spans 13-34 - Timber Deck Trusses										
elements.										
205			**Column-RC**	3	2	each	1	1	0	0
	1080		**Delamination/Spall/Patched Area**	3	1		0	1	0	0
(205-1080) The incipient spall located along the northeast corner of Column 2 at Bent 14 has been patched. The patch measures approximately 24 inches tall by 12 inches wide and is located 20 feet above the ground.										
206			**Column-Timber**	3	8	each	6	2	0	0
	1150		**Check/Shake (Timber)**	3	2		0	2	0	0
(206) See Appendix A from the BIR dated 11/11/2017 for detailed information on the element and associated defects.										
(206-1150) There are 0.125 to 0.25 inch wide vertical checks that penetrate approximately 3 to 4 inches into the members' cross section (see Photo 11 from the BIR dated 08/18/2020). These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.										
208			**Trestle-Timber**	3	600	m	0	515	0	85
	1020		**Connection**	3	120		0	120	0	0
	1140		**Decay/Section Loss (Timber)**	3	85		0	0	0	85
	1150		**Check/Shake (Timber)**	3	395		0	395	0	0
(208) See Appendix A from the BIR dated 11/11/2017 for detailed information on the element and associated defects.										
(208-1020) Approximately 20% of the threaded connections have not been replaced and show signs of corrosion with surface rust throughout (see Photos 44 - 47 from the BIR dated 10/11/2017). Based on the observed corrosion of the connection bolts, it is logical to assume that the internal split ring, toothed ring and claw plate shear connectors are in an equal state of distress. The integrity of these split ring (and other types) of shear connections is critical to the load transfer ability of the connections.										
(208-1140) There is a void measuring approximately 12 inches high by 8 inches wide by 4 inches deep located in the core of Column 4 at Bent 23 due to termite infestation (see Photos 12 and 13 from the BIR dated 08/18/2020). The timber fibers adjacent to the void are soft and crumbly for about an inch in each direction around the affected area. The void is located approximately 2 feet above the concrete footing support. There is another area of infestation present at Column 2 of Bent 24. The timber scab at the footing connection on the east face of the column has a void measuring approximately 10 inches high by 2 inches wide by 3.5 inches deep (see Photos 14 and 15 from the BIR dated 08/18/2020). The infestation has not reached the column, but has penetrated the full depth of the timber scab.										

ELEMENT INSPECTION RATINGS AND COMMENTARY

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
Element Group: 103 - Approach - Northern Spans 13-34 - Timber Deck Trusses										
(208-1150) There are 0.125 to 0.25 inch wide vertical checks that penetrate approximately 3 to 4 inches into the members' cross section throughout every member of the trestle (see Photos 52 - 62 from the BIR dated 10/11/2017). These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.										
215			**Abutment-RC**	3	11	m	11	0	0	0
(215) There were no significant defects noted.										
220			**Pile Cap/Footing-RC**	2	90	m	90	0	0	0
(220) There were no significant defects noted. This element represents the concrete footing under each column of the trestle.										
234			**Pier Cap-RC**	3	8	m	8	0	0	0
(234) There were no significant defects noted.										
235			**Pier Cap-Timber**	3	17	m	0	17	0	0
	1150		**Check/Shake (Timber)**	3	17		0	17	0	0
(235) See Appendix A from the BIR dated 08/18/2020 for a detailed information on which members display checking.										
(235-1150) Many of the floor beams exhibit horizontal checks along their neutral axis that penetrate less than 50% of the members thickness (see Photos 16 and 17 from the BIR dated 08/18/2020). These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.										
332			**Railing-Timber**	3	358	m	286	0	72	0
	1020		**Connection**	3	72		0	0	72	0
(332) The timber bridge rail was cleaned and painted in 2013 as part of EA 01-0A5904.										
(332-1020) The timber rail connection to the deck is affected by the deck rot that is present along the edge of the deck planks on both sides of the structure. The exact amount of decay (linear footage) was not measured but conservatively estimated at 15 to 20% of the total length of the deck.										

WORK RECOMMENDATIONS

WORK RECOMMENDATIONS

RecDate: 08/18/2020 Action : Sub-Epoxy Inject Work By: MAINT. CONTRACT Status : PROPOSED	EstCost: $500 StrTarget: 2 YEARS DistTarget: EA:	Epoxy inject the voids due to termite infestation at Column 4 of Bent 23 and at the east timber scab at Column 2 at Bent 24. The void at Column 4 of Bent 23 measures approximately 12 inches high by 8 inches wide by 4 inches deep and the void at the east timber scab at Column 2 at Bent 24 measures 10 inches high by 2 inches wide by 3.5 inches deep.
RecDate: 08/18/2020 Action : Super-Misc. Work By: BRIDGE CREW Status : PROPOSED	EstCost: $5,000 StrTarget: 1 YEAR DistTarget: EA:	Replace two rotted catwalk members. The right 12 inch member in the third section of the catwalk of Span 20 is rotted in the middle and the right 12 inch member in the middle section of the catwalk in Span 22 is rotted around the connection points.
RecDate: 10/11/2017 Action : Super-Misc. Work By: MAINT. CONTRACT Status : PROGRAMMED	EstCost: $60,000 StrTarget: 2 YEARS DistTarget: EA: 0E201	Remove and replace the 53 split timber scabs located throughout the northern approach spans.
RecDate: 10/11/2017 Action : Bridge-Misc Work By: MAINT. CONTRACT Status : PROGRAMMED	EstCost: $25,000 StrTarget: 2 YEARS DistTarget: EA: 0E201	Remove and replace the rusted and failed pipe support along the right side of the bridge.
RecDate: 10/11/2017 Action : Sub-Misc. Work By: MAINT. CONTRACT Status : PROGRAMMED	EstCost: $500,000 StrTarget: 2 YEARS DistTarget: EA: 0E201	Continue the ongoing program of replacement of timber fasteners. Remove and replace the bolted connections and hardware (threaded rods, malleys, nuts, splice plates/straps, scabs, etc.) throughout the entire timber sub-structure.
RecDate: 10/11/2017 Action : Super-Epoxy Inject Work By: MAINT. CONTRACT Status : PROGRAMMED	EstCost: $7,500 StrTarget: 2 YEARS DistTarget: EA: 0E201	Epoxy inject the horizontal members to the right (east) of the catwalk at Bents 23 and 31 and to the left of the catwalk at Bent 15. The member at Bent 15 has an area of decay within the top 4 inches of the cross section by 15 feet in length. The member at Bent 23 has an area of decay within the top 3 inches of the cross section by 5 feet in length. The member at Bent 31 has an area of decay within the top 3 inches of the cross section by 15 feet in length.
RecDate: 10/11/2017 Action : Deck-Misc. Work By: MAINT. CONTRACT Status : PROPOSED	EstCost: $500,000 StrTarget: 2 YEARS DistTarget: EA:	Remove the rotted and decaying portions of the deck located along the edge of deck on both sides of the bridge. Large areas of rotted timber deck was encountered along the outermost 24 inches of the bridge deck, particularly in the areas underneath the deck drains. The entire deck may have to be removed and replaced due to the configuration of the timber deck planks.

WORK RECOMMENDATIONS

RecDate: 03/28/2007
Action : Seismic-Retrofit
Work By: SHOPP
Status : LONG LEAD

EstCost: $1,270,000
StrTarget: 4 YEARS
DistTarget:
EA: 40110

Priority 181, This Bridge has been recommended for seismic retrofit by the screening of the Office of Earthquake Engingeering. Steel truss members may require strengthening. Priority 4. Final Score 2.8125. BELOW THE LINE.

RecDate: 04/05/1999
Action : Bridge-Replace(Bridg
Work By: SHOPP
Status : LONG LEAD

EstCost: $13,200,000
StrTarget: 2 YEARS
DistTarget:
EA: 40110

Replace the steel main span. Estimated at $2,000,000 (NOT including traffic handling costs). Or, replace the entire structure. Estimated at $13,200,000.

THIS AGING STRUCTURE IS IN A MARGINAL AND DETERIORATING CONDITION. IT IS FUNCTIONALLY OBSOLETE, HAS A LOW LOAD RATING, AND IS AN INAPPROPRIATE DESIGN FOR THE ENVIRONMENT. THE LIFE CYCLE ECONOMIC COST OF ADEQUATE MAINTENANCE DOES NOT COMPARE FAVORABLY WITH COST OF REPLACEMENT WITH A STRUCTURE TYPE BETTER SUITED TO THE ENVIRONMENT.

IT IS THEREFORE URGENTLY RECOMMENDED THAT THIS STRUCTURE BE REPLACED. AN SM&I PEER REVIEW IN AUGUST 2007 REAFFIRMED THE RECOMMENDATION THAT THIS BRIDGE BE REPLACED.

RecDate: 07/01/1986
Action : Sub-Rehab
Work By: SHOPP
Status : LONG LEAD

EstCost: $1,500,000
StrTarget: 2 YEARS
DistTarget:
EA: 40110

Remove and replace the bolted connections and hardware (threaded rods, malleys, nuts, splice plates/straps, etc) throughout the entire timber sub-structure. Replace the top left horizontal timber element between Bent 15 and Bent 16.

RecDate: 02/10/1984
Action : Railing-Upgrade
Work By: SHOPP
Status : LONG LEAD

EstCost: $1,008,600
StrTarget: 2 YEARS
DistTarget:
EA: 40110

F1-10 / F2-6 / F3-1 / Rail Type-WOOD. Replace the bridge rail.

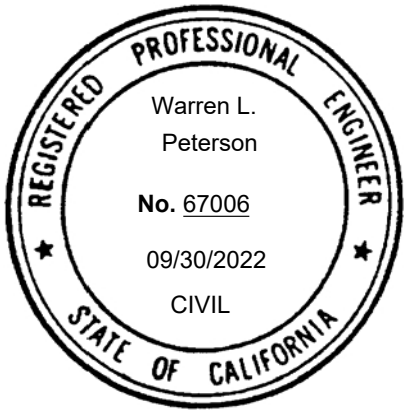
Team Leader : Warren L. Peterson

Report Author : Warren L. Peterson

Inspected By : WL.Peterson/JT.Alamares

11/10/2020

Warren L. Peterson (Registered Civil Engineer) (Date)



STRUCTURE INVENTORY AND APPRAISAL REPORT

********** IDENTIFICATION **********

(1) STATE NAME- CALIFORNIA 069
(8) STRUCTURE NUMBER **10 0136**
(5) INVENTORY ROUTE(ON/UNDER)- ON 131000010
(2) HIGHWAY AGENCY DISTRICT 01
(3) COUNTY CODE 045 (4) PLACE CODE 00000
(6) FEATURE INTERSECTED- ALBION RIVER
(7) FACILITY CARRIED- STATE ROUTE 1
(9) LOCATION- 01-MEN-001-43.74
(11) MILEPOINT/KILOMETERPOINT 43.74
(12) BASE HIGHWAY NETWORK- PART OF NET 1
(13) LRS INVENTORY ROUTE & SUBROUTE 000000000101
(16) LATITUDE 39 DEG 13 MIN 30.32 SEC
(17) LONGITUDE 123 DEG 46 MIN 09.83 SEC
(98) BORDER BRIDGE STATE CODE % SHARE %
(99) BORDER BRIDGE STRUCTURE NUMBER

******** STRUCTURE TYPE AND MATERIAL *********

(43) STRUCTURE TYPE MAIN:MATERIAL- STEEL
TYPE- TRUSS - DECK CODE 309
(44) STRUCTURE TYPE APPR:MATERIAL- WOOD OR TIMBER
TYPE- TRUSS - DECK CODE 709
(45) NUMBER OF SPANS IN MAIN UNIT 1
(46) NUMBER OF APPROACH SPANS 33
(107) DECK STRUCTURE TYPE- TIMBER CODE 8
(108) WEARING SURFACE / PROTECTIVE SYSTEM:
A) TYPE OF WEARING SURFACE- BITUMINOUS CODE 6
B) TYPE OF MEMBRANE- NONE CODE 0
C) TYPE OF DECK PROTECTION- NONE CODE 0

********** AGE AND SERVICE **********

(27) YEAR BUILT 1944
(106) YEAR RECONSTRUCTED 0000
(42) TYPE OF SERVICE: ON- HIGHWAY 1
UNDER- WATERWAY 5
(28) LANES:ON STRUCTURE 02 UNDER STRUCTURE 00
(29) AVERAGE DAILY TRAFFIC 2100
(30) YEAR OF ADT 2009 (109) TRUCK ADT 6 %
(19) BYPASS, DETOUR LENGTH 62 KM

********** GEOMETRIC DATA **********

(48) LENGTH OF MAXIMUM SPAN 39.6 M
(49) STRUCTURE LENGTH 295.4 M
(50) CURB OR SIDEWALK: LEFT 0.3 M RIGHT 0.3 M
(51) BRIDGE ROADWAY WIDTH CURB TO CURB 7.9 M
(52) DECK WIDTH OUT TO OUT 8.5 M
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 7.3 M
(33) BRIDGE MEDIAN- NO MEDIAN 0
(34) SKEW 0 DEG (35) STRUCTURE FLARED NO
(10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR 7.9 M
(53) MIN VERT CLEAR OVER BRIDGE RDWY 99.99 M
(54) MIN VERT UNDERCLEAR REF- NOT H/RR 0.00 M
(55) MIN LAT UNDERCLEAR RT REF- NOT H/RR 0.0 M
(56) MIN LAT UNDERCLEAR LT 0.0 M

********** NAVIGATION DATA **********

(38) NAVIGATION CONTROL- BR PERMIT REQ CODE 1
(111) PIER PROTECTION- NOT REQUIRED CODE 1
(39) NAVIGATION VERTICAL CLEARANCE 50.0 M
(116) VERT-LIFT BRIDGE NAV MIN VERT CLEAR M
(40) NAVIGATION HORIZONTAL CLEARANCE 35.7 M

****

SUFFICIENCY RATING = 31.3

PAINT CONDITION INDEX = 100.0

********** CLASSIFICATION ********** CODE

(112) NBIS BRIDGE LENGTH- YES Y
(104) HIGHWAY SYSTEM- NOT ON NHS 0
(26) FUNCTIONAL CLASS- MINOR ARTERIAL RURAL 06
(100) DEFENSE HIGHWAY- NOT STRAHNET 0
(101) PARALLEL STRUCTURE- NONE EXISTS N
(102) DIRECTION OF TRAFFIC- 2 WAY 2
(103) TEMPORARY STRUCTURE-
(105) FED.LANDS HWY- NOT APPLICABLE 0
(110) DESIGNATED NATIONAL NETWORK - NOT ON NET 0
(20) TOLL- ON FREE ROAD 3
(21) MAINTAIN- STATE HIGHWAY AGENCY 01
(22) OWNER- STATE HIGHWAY AGENCY 01
(37) HISTORICAL SIGNIFICANCE- ELIGIBLE 2

********** CONDITION ********** CODE

(58) DECK 5
(59) SUPERSTRUCTURE 4
(60) SUBSTRUCTURE 4
(61) CHANNEL & CHANNEL PROTECTION 8
(62) CULVERTS N

********* LOAD RATING AND POSTING ********* CODE

(31) DESIGN LOAD- M-13.5 OR H-15 2
(63) OPERATING RATING METHOD- ALLOWABLE STRESS 2
(64) OPERATING RATING- 30.8
(65) INVENTORY RATING METHOD- ALLOWABLE STRESS 2
(66) INVENTORY RATING- 22.7
(70) BRIDGE POSTING- EQUAL TO OR ABOVE LEGAL LOADS 5
(41) STRUCTURE OPEN, POSTED OR CLOSED- A
DESCRIPTION- OPEN, NO RESTRICTION

********** APPRAISAL ********** CODE

(67) STRUCTURAL EVALUATION 4
(68) DECK GEOMETRY 3
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N
(71) WATER ADEQUACY 9
(72) APPROACH ROADWAY ALIGNMENT 8
(36) TRAFFIC SAFETY FEATURES 0010
(113) SCOUR CRITICAL BRIDGES 5

********** PROPOSED IMPROVEMENTS **********

(75) TYPE OF WORK- CODE
(76) LENGTH OF STRUCTURE IMPROVEMENT M
(94) BRIDGE IMPROVEMENT COST
(95) ROADWAY IMPROVEMENT COST
(96) TOTAL PROJECT COST
(97) YEAR OF IMPROVEMENT COST ESTIMATE
(114) FUTURE ADT 5182
(115) YEAR OF FUTURE ADT 2040

********** INSPECTIONS **********

(90) INSPECTION DATE 08/20 (91) FREQUENCY 24 MO
(92) CRITICAL FEATURE INSPECTION: (93) CFI DATE
A) FRACTURE CRIT DETAIL- YES 24 MO A) 02/20
B) UNDERWATER INSP- NO MO B)
C) OTHER SPECIAL INSP- NO MO C)

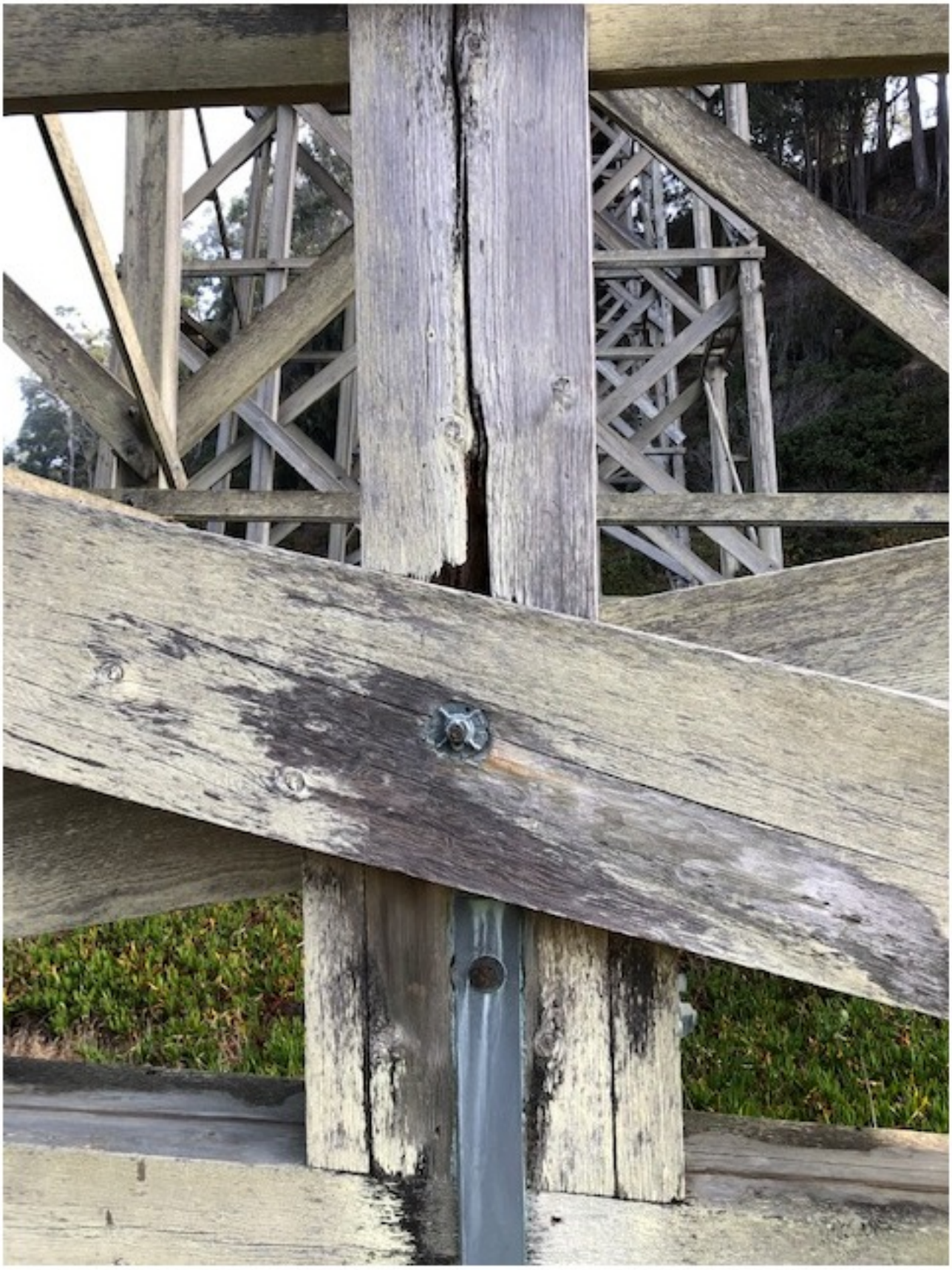


Photo No. 12
Column 4 at Bent 23 has a void and rot due to termite infestation.

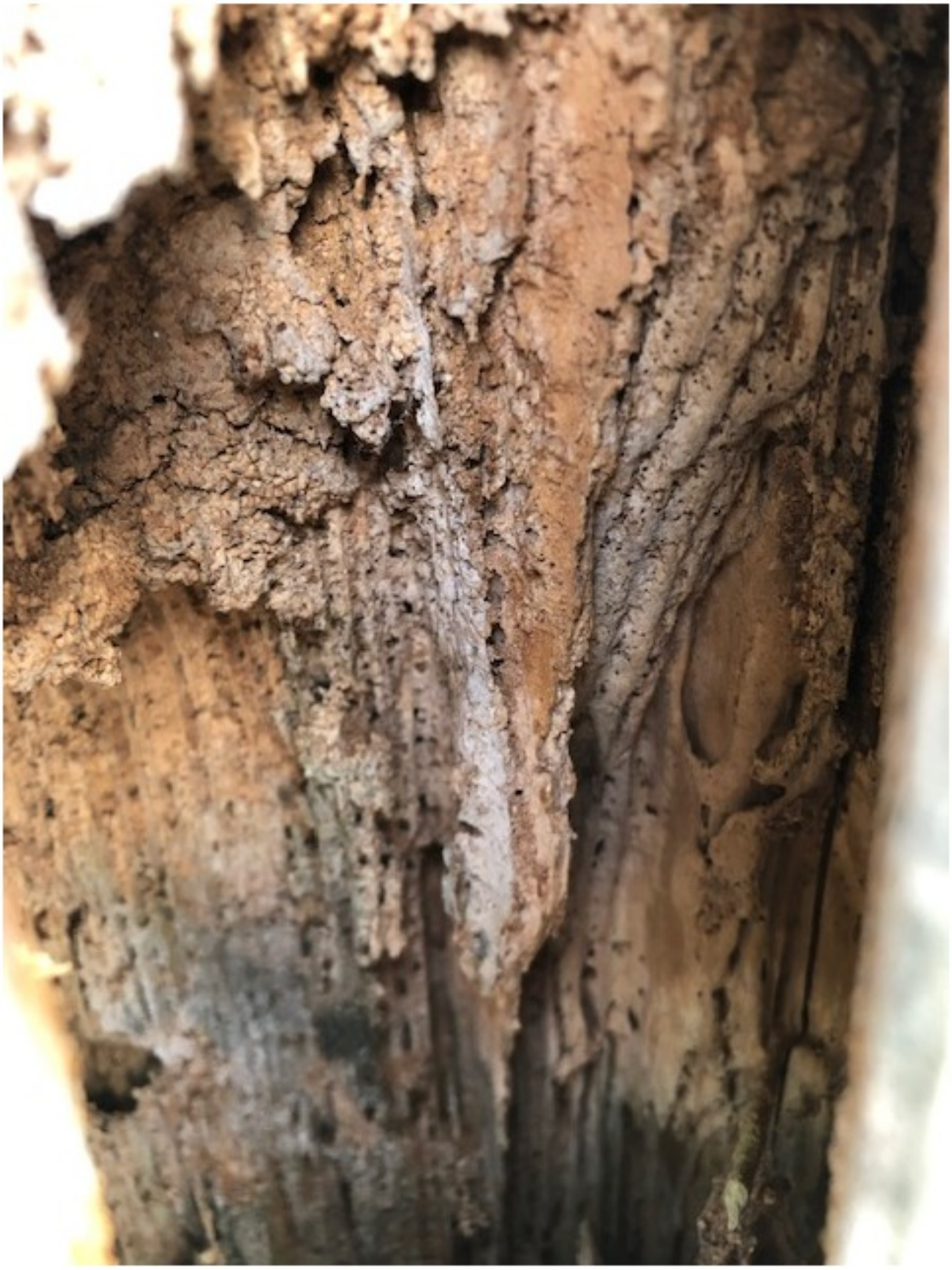


Photo No. 13
Core rot due to termites in Column 4 at Bent 23.

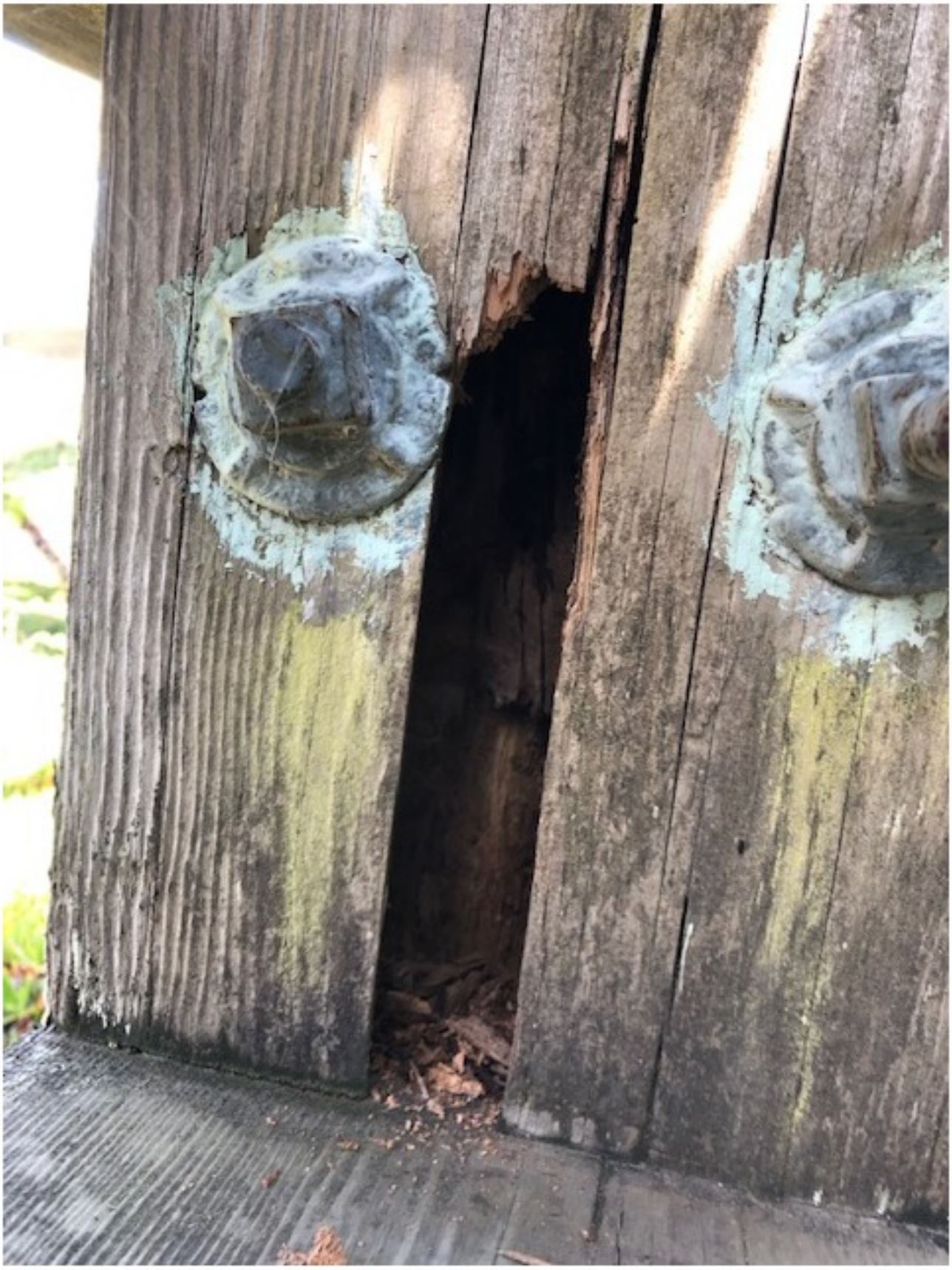


Photo No. 14
The east scab at Column 2 of Bent 24 has a void and rot due to termite infestation.

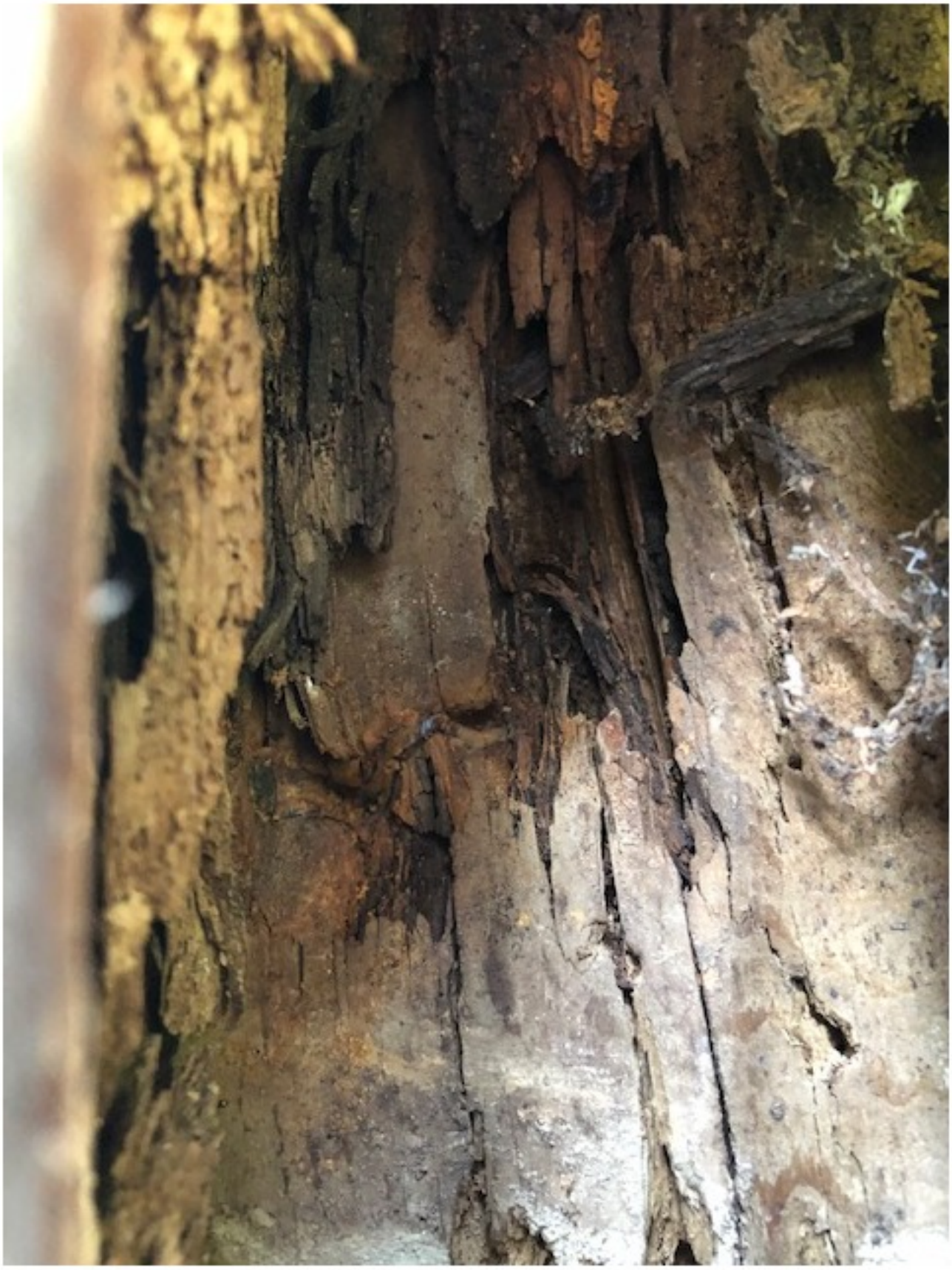


Photo No. 15
Core rot due to termites in the eastern timber scab at Column 2 of Bent 24.

DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 10 0136
Facility Carried: STATE ROUTE 1
Location : 01-MEN-001-43.74
City :
Inspection Date : 08/18/2020

Bridge Inspection Report

Inspection Type

Routine	FC	Underwater	Special	Other
X				

STRUCTURE NAME: ALBION RIVER

CONSTRUCTION INFORMATION

Year Built : 1944
Year Modified: N/A
Length (m) : 295.4

Skew (degrees): 0
No. of Joints : 2
No. of Hinges : 0

Structure Description: Simply supported 34-span bridge. Timber 2-ply plank deck, with AC riding surface, timber 17-girder spans on timber A-frame deck trusses on timber tower bents. Eleven timber approach spans at the south end of the bridge, with Span 8 & 10 being a timber A-frame deck truss. A single-span riveted steel deck truss on RC tower bents over the main channel. Twenty-two timber approach spans at the north end of the bridge, with Span 14, 16, 18, 20, 22, 24, 26, 28, & 30 being a timber A-frame deck truss. Both abutments are RC buttress-type with monolithic RC wingwalls and 3-column bents on spread footings. Foundations for Bents 2-10 & 26-34 are concrete pedestal-type spread footings, Tower 11-12 is on driven (split-rail reinforced) PC/RC piles and Tower 13-14 is on driven timber piles, Bents 15-25 are concrete pedestal-type footings on driven timber piles. (The main span is a riveted steel deck truss, expansion at Bent 12 and fixed at Bent 13, which was recycled from an old bridge that had been located on the South Fork of the Feather River approximately 1.5 miles downstream of Bidwell Bar) All timber is treated Douglas Fir (from Washington State).

Span Configuration : 7 @ 19.0 ft, 1 @ 38.0 ft, 1 @ 19.0 ft, 1 @ 38.0 ft, 1 @ 16.5 ft, 1 @ 130.0 ft, 1 @ 16.5 ft, 1 @ 38.0 ft, 1 @ 19.0 ft, 1 @ 38.0 ft, 1 @ 19.0 ft, 1 @ 38.0 ft, 1 @ 19.0 ft, 1 @ 38.0 ft, 1 @ 19.0 ft, 1 @ 38.0 ft, 1 @ 19.0 ft, 1 @ 38.0 ft, 1 @ 19.0 ft, 1 @ 38.0 ft, 1 @ 19.0 ft, 1 @ 38.0 ft, 4 @ 19.0 ft

SAFE LOAD CAPACITY AND RATINGS

Design Live Load: M-13.5 OR H-15
Inventory Rating: RF=0.70 =>22.7 metric tons Calculation Method: ALLOWABLE STRESS
Operating Rating: RF=0.95 =>30.8 metric tons Calculation Method: ALLOWABLE STRESS
Permit Rating : PGGGO
Posting Load : Type 3: Legal Type 3S2: Legal Type 3-3: Legal

DESCRIPTION ON STRUCTURE

Deck X-Section: 0.3 ft br, 1.0 ft wg, 26.0 ft, 1.0 ft wg, 0.3 ft br
Total Width: 8.5 m Net Width: 7.9 m No. of Lanes: 2 Speed: 50 mph
Min. Vertical Clearance: Unimpaired Overlay Thickness: 2.0 inches
Rail Code: 0010

DESCRIPTION UNDER STRUCTURE

Channel Description: Wide, sandy bed on flat slope situated in bottom of relatively narrow canyon at outlet to the ocean. Tidally influenced; flow reversal. Bridge is on straight reach downstream of right bend, about 600 feet from the outlet to the ocean.

NOTICE

INSPECTION COMMENTARY

NOTICE

The bridge inspection condition assessment used for this inspection is based on the American Association of State Highway and Transportation Officials (AASHTO) Bridge Element Inspection Manual 2013 as defined in Moving Ahead for Progress in the 21st Century (MAP-21) federal law. The new element inspection methodology may result in changes to related condition and appraisal ratings on the bridge without significant physical changes at the bridge.

The element condition information contained in this report represents the current condition of the bridge based on the most recent routine and special inspections. Some of the notes presented below may be from an inspection that occurred prior to the date noted in this report. Refer to the Scope and Access section of this inspection report for a description of which portions of the bridge were inspected on this date.

INSPECTION COMMENTARY

SCOPE AND ACCESS

The river was flowing at a depth of approximately 6 to 8 feet deep through Span 12 at the time of this investigation. The base of both main-span towers was out of the water. The soffit, superstructure and substructure were viewed with the aid of the Under Bridge Inspection Truck (UBIT) and from the catwalk and also from the ground underneath with binoculars. Spans 1 through 5 and Spans 32 and 33 were inspected from the ground below with the aid of binoculars. A complete routine inspection was performed on all of the visible elements.

This structure is fracture critical because of the lack of redundancy of the riveted steel deck truss main span. The Fracture Critical Investigation Team is responsible for inspection of the fracture critical steel elements of this bridge. The most recent Fracture Critical Investigation was performed on 02/19/2020 in accordance with the Fracture Critical Member Inspection Plan dated 03/22/2012. A hands-on visual inspection was performed on the tension members of the left and right steel truss in Span 12. No fractures or cracks were found.

The condition of the structure elements of this bridge below the catwalk could not be completely evaluated during this routine inspection due to the height of the timber towers (over 100 feet tall on average). Only the timbers and fasteners at the base of the bents could be completely examined. The timber members below the catwalk were inspected in May of 2012 by climbers who rappeled from the catwalk. A follow up in-depth inspection on the timber tower elements has been scheduled for late September/early October of 2020 utilizing UAS technology as well as climbers. These inspection methods will be employed on a regular inspection interval from this time going forward due to the advancing deterioration of the timber elements and diminished effectiveness of the preservative treatment.

A climb team comprised of personnel from the Toll Bridges Investigations Office inspected all timber structure members at and below the catwalk in May 2012. The inspection included close visual and auditory reconnaissance of the full length and all sides of every piece of timber. Any suspect members were drilled to verify their integrity; and, if found to be deficient, the location, amount, and severity of any decay found was documented for future remediation. Please refer to the 05/15/2012 BIR as well as the SUBSTRUCTURE condition text below for more detailed information.

MISCELLANEOUS

The main span is a riveted steel deck truss that was recycled from an old bridge that had been located on the South Fork of the Feather River approximately 1.5 miles downstream of Bidwell Bar.

During a District Preliminary Environmental Assessment dated July 2017, soil sampling

INSPECTION COMMENTARY

indicated chromium contamination around the timber towers, This is indicative of the preservative treatment leaching from the timbers. Without reliable chemical preservative treatment, an increased rate of decay of the treated timber elements is anticipated. Insect infestation noted during this inspection indicates that the loss of preservative treatment is evident. SM&I is in the process of testing the treated timber members to determine the extent of preservative present in the timber with the hope that this can lead to a better understanding of the remaining lifespan of the preservative.

Recommendations to repair or replace portions or all of the structure have been added to the backlog of Outstanding Work for this bridge over more than 20 years. The District established an Expenditure Authorization (EA), 01-40110X, in April 1999 to address many of these issues. A partial listing includes:

1.) Replace the wood bridge rail.
2.) Remove and replace the bolted connections and hardware throughout the entire timber sub-structure.
3.) Replace the steel main span.
4.) Or, replace the entire structure.

This project has been included in the District's 2012 SHOPP Plan. It is programmed for funding; the EA is currently active with the contract tentatively scheduled to be advertised in June 2016. No work is under way at this time to deal with most of the outstanding Work Recommendations that have been consolidated under this EA.

A Structure Maintenance & Investigations Peer Review in August 2007 unanimously reaffirmed replacement of the structure as the preferred engineering and most fiscally responsible alternative to ensure the safety and reliability of this critical link of the state highway system. The decision to recommend replacement was based on the significant cost to upgrade the bridge and the need for future preventive maintenance, including continual replacement of the bolted connectors of the timber towers and repainting the truss of the main span of the structure every five to ten years. The district should proceed with complete replacement of this structure.

DECK AND ROADWAY

The deck condition (NBI 58) is rated a 5-Fair based on the rot and decay that is present along the ends of the deck planks and the associated rail connection capacity at these locations. The timber bridge rail is also rated as substandard due to the material type when compared to current bridge rail standards. It is anticipated that the decay will continue at an advanced rate once it has been established.

SUPERSTRUCTURE

The superstructure condition (NBI 59) is rated a 4-Poor due to the advanced corrosion of the connections, the multiple split and severed timber scabs and widespread checking of the timber elements. This widespread checking of the timber elements coupled with the loss of preservative treatment noted above are conditions that give rise to an increased rate of decay that will be difficult to predict. The increased rate of decay, corrosion of the steel split ring, toothed ring and claw plate connectors used in all timber connections, as well as the condition of over 50 split timber scabs throughout the timber truss is an item of high concern due to the effect this can have on the overall structural capacity of the structure.

SUBSTRUCTURE

INSPECTION COMMENTARY

The substructure condition (NBI 60) is rated a 4-Poor due to the widespread checking of the timber columns, decay potential due to diminished effectiveness of the preservative treatment, distressed timber scab connections and the assumed corroded condition of the split ring, toothed ring and claw plate connectors, the majority of which are not visible for inspection.

The bolted connections are acting as pins. If the nuts that retain the galvanized steel bolts or threaded rods should fail, there is a possibility that they will slide out of the connections as the timber members shift. Currently, approximately 50% to 75% of the nuts of the bolted connections in the towers are in unsatisfactory condition due to corrosion from the marine environment (see Photos 1 through 10 from the BIR dated 05/15/2012). Based on the configuration of the timber bents, it has been determined that there are 50 galvanized steel bolts or threaded rods in the top horizontals, 60 galvanized steel bolts or threaded rods at the intermediate horizontals, 8 galvanized steel bolts or threaded rods in the intermediate cross-braces and 114 galvanized steel bolts or threaded rods in the bases; (and depending on the height) the quantities are as follows:

Bents 2-3, 4-5, and 6: 100 galvanized steel bolts or threaded rods.
Bents 7-8: 178 galvanized steel bolts or threaded rods.
Bents 9-10: 436 galvanized steel bolts or threaded rods.
Bents 15-16, 17-18, 19-20, 21-22 and 23-24: 2,560 galvanized steel bolts or threaded rods (512 per tower bent).
Bents 25-26 and 27-28: 888 galvanized steel bolts or threaded rods (444 per tower bent).
Bents 29-30: 379 galvanized steel bolts or threaded rods.
Bents 31-32: 178 galvanized steel bolts or threaded rods.
Bents 33-34: 100 galvanized steel bolts or threaded rods.

Total: 4,819 galvanized steel bolts or threaded rods. Estimate 5,000 galvanized steel bolts or threaded rods, malleys, and nuts for contract purposes.

At least 15 to 20% of the timber scabs at the connections of the legs/columns between each level have 0.25 to 0.5 inch wide splits where the threaded rods, malleys, and nuts have compressed and distorted the wood (see Photos 2, 7 and 9 from the BIR dated 05/15/2012).

The galvanized steel straps located at every level, which connect/tie the timber legs/columns between each level to the ones above or below across the horizontal timber beams, have moderate to severe areas of corrosion (see Photos 1, 3, 5, 6 and 8 from the BIR dated 05/15/2012).

Approximately 800 of the bolts in some of the connections throughout the substructure of Spans 15 through 34 were replaced in 2016 under EA 01-E2004. Another project is planned for November 2021 to replace the remaining corroded substructure bolts in these spans. Until the work is completed, the Bridge Crew should closely monitor the integrity of the connections and continue replacing fasteners as needed.

SAFE LOAD CAPACITY

The load rating for this structure is being reviewed by SMI Ratings Branch. An updated Load Rating Summary Sheet will be archived when this review is complete. The current ratings are based on Midas computer program output dated 11/01/2011.

The steel deck truss main span was found to have lower Inventory, Operating and Permit Ratings than the timber truss spans, and therefore, to be the controlling portion of the structure. The load rating values shown are for the steel deck truss main span.

INSPECTION COMMENTARY

A work request (#9990) has also been submitted to SMI Ratings Branch to evaluate the affect of the termite infestation on the load bearing capacity of timber Column 4 at Bent 23. The extent of the infestation is documented under the respective parent element. Preliminary calculations indicate that the damage due to the termite infestation is not an immediate threat to the safe load capacity of the structure, however, the Load Ratings Branch will perform an in-depth review of the safe load capacity including the timber substructure elements.

WATERWAY

The ten year channel cross section is due for this structure. Due to the height of the structure and high winds, the ABME was unable to take the cross section during this inspection. A work request (#8305) has been submitted to the Hydraulics Division to complete this work.

STEEL INVESTIGATIONS

This structure qualifies for an in-depth Steel investigation because it possesses the following fracture critical or fatigue prone details:

Truss: FC Members with Category E Welds

Fracture Critical: Yes Inspection Freq.: 24 Next Inspection: 02/19/2022

ELEMENT INSPECTION RATINGS AND COMMENTARY

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
Element Group: 101 - Approach - Southern Spans 1-11 - Timber Deck Trusses										
31			**Deck-Timber**	3	651	sq.m	631	5	15	0
	1140		**Decay/Section Loss (Timber)**	3	20		0	5	15	0
	510		**Deck Wearing Surface-Asphalt**	3	594	sq.m	594	0	0	0

(31)
The spacer block in Bay 13 of Span 2 is loose and hanging down below the girders.

(31-1140)
The timber deck consists of two layers of 11.25 inch by 3 inch timber deck planks with the top layer oriented at a 30 degree angle to the bridge deck and the bottom layer oriented perpendicular to the top layer. There are several areas of white fungus present on the soffit of the timber deck (see Photo 1 from this report and Photos 4 - 8 from the BIR dated 10/11/2017). When these areas were drilled, the deck appeared to be sound without decay or rot.

Large areas of rotted and decayed timber deck planks were discovered along the edge of deck on both sides throughout the length of the structure. The rot was typically present in the area beneath the deck drains and extended approximately 18 to 24 inches into the deck on both layers of deck planks (see Photos 9 - 21 from the BIR dated 10/11/2017). The exact amount of decay (linear footage) was not measured but conservatively estimated at 15 to 20% of the total length of the deck.

(31-510)
There were no significant defects noted. A new AC overlay was placed on the bridge deck in 2016 under EA 01-E2004.

111			**Girder/Beam-Timber**	2	590	m	568	22	0	0
	1150		**Check/Shake (Timber)**	2	22		0	22	0	0

(111)
See Appendix A for detailed information on the element and associated defects.

ELEMENT INSPECTION RATINGS AND COMMENTARY

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
Element Group: 101 - Approach - Southern Spans 1-11 - Timber Deck Trusses										
117			**Stringer-Timber**	3	690	m	667	23	0	0
	1150		**Check/Shake (Timber)**	3	23		0	23	0	0

(111-1150)
Several timber girders display horizontal checks along their neutral axis that penetrate less than 50% of the member thickness (see Photo 2).

These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.

(117-1150)
Several timber stringers display horizontal checks along their neutral axis that penetrate less than 50% of the member thickness.

These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.

135			**Truss-Timber**	3	46	m	0	46	0	0
	1020		**Connection**	3	14		0	14	0	0
	1150		**Check/Shake (Timber)**	3	32		0	32	0	0

(135)
See Appendix A for detailed information on the element and associated defects.

(135-1020)
Approximately 30% of the threaded fasteners are exhibiting signs of corrosion. The marine environment has caused significant section loss of a large number of the nuts on the threaded rods that hold the timber members in place (see Photos 21 - 23 from the BIR dated 10/11/2017 for typical condition).

(135-1150)
Many of the vertical and diagonal members of the truss have checks approximately 0.125 to 0.25 inches wide that penetrate approximately 3 to 4 inches into the members' cross section (see Photos 6 - 10 from this report and Photos 24 - 31 from the BIR dated 10/11/2017).

These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.

156			**Floor Beam-Timber**	3	17	m	7	10	0	0
	1140		**Decay/Section Loss (Timber)**	3	2		0	2	0	0
	1150		**Check/Shake (Timber)**	3	8		0	8	0	0

(156)
See Appendix A for detailed information on the element and associated defects.

(156-1140)
There is rot and decay present for a length of 6 to 12 inches on the outer edges of the floor beams (see Photos 38 -39 from the BIR dated 10/11/2017). Several of the floor beams were drilled and determined to be sound. This currently does not warrant a work recommendation but will be monitored during future inspections.

(156-1150)

ELEMENT INSPECTION RATINGS AND COMMENTARY

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
Element Group: 101 - Approach - Southern Spans 1-11 - Timber Deck Trusses										
			Many of the floor beams exhibit horizontal checks along their neutral axis that penetrate less than 50% of the members thickness. These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.							
205		**Column-RC**		3	2	each	2	0	0	0
			(205) There were no significant defects noted.							
206		**Column-Timber**		3	24	each	15	9	0	0
	1150	**Check/Shake (Timber)**		3	9		0	9	0	0
			(206) See Appendix A from the BIR dated 11/11/2017 for detailed information on the element and associated defects.							
			(206-1150) There are 0.125 to 0.25 inch wide vertical checks that penetrate approximately 3 to 4 inches into the members' cross section (see Photo 11). These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.							
208		**Trestle-Timber**		3	116	m	0	116	0	0
	1020	**Connection**		3	23		0	23	0	0
	1150	**Check/Shake (Timber)**		3	93		0	93	0	0
			(208) See Appendix A from the BIR dated 11/11/2017 for detailed information on the element and associated defects.							
			(208-1020) Approximately 20% of the threaded connections have not been replaced and show signs of corrosion with surface rust throughout (see Photos 44 - 47 from the BIR dated 10/11/2017). Based on the observed corrosion of the connection bolts, it is logical to assume that the internal split ring, toothed ring and claw plate shear connectors are in an equal state of distress. The integrity of these split ring (and other types) of shear connections is critical to the load transfer ability of the connections.							
			(208-1150) There are 0.125 to 0.25 inch wide vertical checks that penetrate approximately 3 to 4 inches into the members' cross section throughout every member of the trestle (see Photos 52 - 62 from the BIR dated 10/11/2017). These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.							
215		**Abutment-RC**		3	11	m	11	0	0	0
			(215)							

ELEMENT INSPECTION RATINGS AND COMMENTARY

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
Element Group: 101 - Approach - Southern Spans 1-11 - Timber Deck Trusses										
There were no significant defects noted.										
220			**Pile Cap/Footing-RC**	2	30	m	30	0	0	0
(220) There were no significant defects noted. This element represents the concrete footing under each column of the trestle.										
234			**Pier Cap-RC**	3	8	m	8	0	0	0
(234) There were no significant defects noted.										
235			**Pier Cap-Timber**	3	52	m	10	42	0	0
	1150		**Check/Shake (Timber)**	3	42		0	42	0	0
(235) See Appendix A for detailed information on the element and associated defects.										
(235-1150) Many of the floor beams exhibit horizontal checks along their neutral axis that penetrate less than 50% of the members thickness (see Photos 16 and 17). These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.										
332			**Railing-Timber**	3	512	m	410	0	102	0
	1020		**Connection**	3	102		0	0	102	0
(332) The timber bridge rail was cleaned and painted in 2013 as part of EA 01-0A5904.										
(332-1020) The timber rail connection to the deck is affected by the deck rot that is present along the edge of the deck planks on both sides of the structure. The exact amount of decay (linear footage) was not measured but conservatively estimated at 15 to 20% of the total length of the deck.										
Element Group: 102 - Main - Main Span - Steel Deck Truss										
31			**Deck-Timber**	3	341	sq.m	331	2	8	0
	1140		**Decay/Section Loss (Timber)**	3	10		0	2	8	0
	510		**Deck Wearing Surface-Asphalt**	3	341	sq.m	341	0	0	0
(31-1140) The timber deck consists of two layers of 11.25 inch by 3 inch timber deck planks with the top layer oriented at a 30 degree angle to the bridge deck and the bottom layer oriented perpendicular to the top layer. There are areas of white fungus present on the soffit of the timber deck (see Photos 4 - 8 from the BIR dated 10/11/2017). When these areas were drilled, the deck appeared to be sound without decay or rot. Large areas of rotted and decayed timber deck planks were discovered along the edge of deck on both sides throughout the length of the structure. The rot was typically present in the area beneath the deck drains and extended approximately 18 to 24 inches into the deck on both layers of deck planks (see Photos 9 - 21 from the BIR dated 10/11/2017). The exact amount of decay (linear footage) was not measured but conservatively estimated at 15 to 20% of the total length of the deck.										

ELEMENT INSPECTION RATINGS AND COMMENTARY

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
Element Group: 102 - Main - Main Span - Steel Deck Truss										
(31-510)										
There were no significant defects noted. A new AC overlay was placed on the bridge deck in 2016 under EA 01-E2004.										
120			**Truss-Steel**	4	79	m	71	0	8	0
	1000		**Corrosion**	4	8		0	0	8	0
	515		**Steel Coating-Paint**	4	876	sq.m	876	0	0	0
(120)										
FCMI(02/19/2020): See the report narrative for a list of members that were inspected.										
(120-1000)										
FCMI(02/19/2020): See the report narrative for description of the defects (7.8 m in CS3).										
(120-515)										
The steel deck truss of the main span was cleaned and painted in the fall of 2013 as part of EA 01-0A5904. The paint system on the main span steel deck truss appears to be in good condition.										
156			**Floor Beam-Timber**	4	573	m	57	516	0	0
	1140		**Decay/Section Loss (Timber)**	4	58		0	58	0	0
	1150		**Check/Shake (Timber)**	4	458		0	458	0	0
(156-1140)										
There is rot and decay present for a length of 6 to 12 inches on the outer edges of the floor beams (see Photos 38 and 39 from the BIR dated 10/11/2017). This currently does not warrant a work recommendation but will be monitored during future inspections.										
(156-1150)										
Approximately 80% of the floor beams exhibit horizontal checks approximately 0.125 to 0.25 inches wide that penetrate 3 to 4 inches into the members' cross section (see Photos 40 - 43 from the BIR dated 10/11/2017).										
162			**Steel Gusset Plate**	2	40	each	40	0	0	0
(162)										
There were no significant defects noted. The gusset plates was cleaned and painted in the fall of 2013 as part of EA 01-0A5904. The paint system appears to be in good condition.										
205			**Column-RC**	3	4	each	3	1	0	0
	1080		**Delamination/Spall/Patched Area**	3	1		0	1	0	0
(205)										
There is a delamination measuring approximately 36 inches long by 18 inches high in the debris wall near Column 2 of Tower 13.										
(205-1080)										
There is a 6 inch diameter spall that has been patched on the east side of the south wall of the base of Tower 13-14.										
227			**Pile-RC**	2	1	ea.	1	0	0	0
(227)										
The pile element is included to indicate the presence of piles on this structure. The piles were not exposed for visual inspection. No indication of pile distress was noted in any substructure element.										
228			**Pile-Timber**	2	1	ea.	1	0	0	0
(228)										

ELEMENT INSPECTION RATINGS AND COMMENTARY

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
Element Group: 102 - Main - Main Span - Steel Deck Truss										
The pile element is included to indicate the presence of piles on this structure. The piles were not exposed for visual inspection. No indication of pile distress was noted in any substructure element.										
234			**Pier Cap-RC**	3	17	m	17	0	0	0
(234) There were no significant defects noted. New concrete bearing pedestals were constructed at each truss support tower in 2016 under EA 01-E2004.										
301			**Joint-Pourable Seal**	2	17	m	9	8	0	0
	2330		**Seal Damage (Joints)**	2	8		0	8	0	0
(301) New Type "A" pourable joint seals were installed at Bents 13 and 14 in 2016 under EA 01-E2004.										
(301-2330) The pourable joint seal at Bent 13 already exhibits small tears throughout its length but the seal at Bent 14 remains in good condition.										
304			**Joint-Open Expansion**	3	17	m	17	0	0	0
(304) There were no significant defects noted.										
311			**Bearing-Moveable**	4	2	each	2	0	0	0
(311) There were no significant defects noted.										
313			**Bearing-Fixed**	4	2	each	2	0	0	0
(313) There were no significant defects noted.										
332			**Railing-Timber**	3	79	m	63	0	16	0
	1020		**Connection**	3	16		0	0	16	0
(332) The timber bridge rail was cleaned and painted in 2013 as part of EA 01-0A5904.										
(332-1020) The timber rail connection to the deck may be affected by the deck rot that is present along the edge of the deck planks on both sides of the structure.										
Element Group: 103 - Approach - Northern Spans 13-34 - Timber Deck Trusses										
31			**Deck-Timber**	2	1557	sq.m	1511	10	36	0
	1140		**Decay/Section Loss (Timber)**	2	46		0	10	36	0
	510		**Deck Wearing Surface-Asphalt**	2	1420	sq.m	1420	0	0	0
(31-1140) The scuppers at the base of the wheel guards on both sides of the deck at the north end of the bridge are plugged with dirt and weeds.										
The timber deck consists of two layers of 11.25 inch by 3 inch timber deck planks with the top layer oriented at a 30 degree angle to the bridge deck and the bottom layer oriented perpendicular to the top layer. There are areas of white fungus present on the soffit of the timber deck (see Photos 4 - 8 from the BIR dated 10/11/2017). When these areas were drilled, the deck appeared to be sound										

ELEMENT INSPECTION RATINGS AND COMMENTARY

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
Element Group: 103 - Approach - Northern Spans 13-34 - Timber Deck Trusses										

without decay or rot.

Large areas of rotted and decayed timber deck planks were discovered along the edge of deck on both sides throughout the length of the structure. The rot was typically present in the area beneath the deck drains and extended approximately 18 to 24 inches into the deck on both layers of deck planks (see Photos 9 - 22 from the BIR dated 10/11/2017). The exact amount of decay (linear footage) was not measured but conservatively estimated at 15 to 20% of the total length of the deck.

(31-510)
There were no significant defects noted. A new AC overlay was placed on the bridge deck in 2016 under EA 01-E2004.

111		**Girder/Beam-Timber**	2	295	m	295	0	0	0

(111)
There were no significant defects noted.

117		**Stringer-Timber**	3	2757	m	2496	261	0	0
	1150	**Check/Shake (Timber)**	3	261		0	261	0	0

(117)
See Appendix A for detailed information on the element and associated defects.

(117-1150)
Several timber stringers display horizontal checks along their neutral axis that penetrate less than 50% of the member thickness.

These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.

135		**Truss-Timber**	3	208	m	3	195	10	0
	1020	**Connection**	3	62		0	62	0	0
	1140	**Decay/Section Loss (Timber)**	3	10		0	0	10	0
	1150	**Check/Shake (Timber)**	3	133		0	133	0	0

(135)
See Appendix A for detailed information on the element and associated defects.

The right 12 inch member in the third section of the catwalk of Span 20 is rotted in the middle and the right 12 inch member in the middle section of the catwalk in Span 22 is rotted around the connection points (see Photo 3).

Approximately 50 of the timber scabs located at the connections of the diagonal truss members to the bottom chord have been split (see Photos 33 - 37 from the BIR dated 10/11/2017).

(135-1020)
Approximately 30% of the threaded fasteners are exhibiting signs of corrosion. The marine environment has caused significant section loss of a large number of the nuts on the threaded rods that hold the timber members in place (see Photos 21 - 23 from the BIR dated 10/11/2017 for typical condition).

The threaded connector that bolts a 3 inch by 8 inch diagonal brace at Bent 17, which is attached to the left side of Column 3 at the catwalk level and extends to the top of Column 3 in Bent 18, has sheared off between the brace and the post.

ELEMENT INSPECTION RATINGS AND COMMENTARY

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
Element Group: 103 - Approach - Northern Spans 13-34 - Timber Deck Trusses										

(135-1140)
An area of decay was found at the top left horizontal between Bent 15 and Bent 16. The top 4 inches has core rot and extends 10 feet from Bent 15 towards Bent 16.

An area of decay was found at the top of horizontal member to the right (east) of the catwalk between Bent 23 and 24. The top 3 inches has core rot that extends 5 feet towards Bent 24.

An area of decay was found at the top of horizontal member to the right (east) of the catwalk between Bent 31 and 32. The top 3 inches has core rot that extends 15 feet towards Bent 32.

(135-1150)
All of the vertical and diagonal members of the truss have checks approximately 0.125 to 0.25 inches wide that penetrate approximately 3 to 4 inches into the members' cross section (see Photos 6 - 10 from this report and Photos 24 - 31 from the BIR dated 10/11/2017).

These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.

156		**Floor Beam-Timber**	3	77	m	19	58	0	0
	1140	**Decay/Section Loss (Timber)**	3	7		0	7	0	0
	1150	**Check/Shake (Timber)**	3	51		0	51	0	0

(156)
See Appendix A for detailed information on the element and associated defects.

(156-1140)
There is rot and decay present for a length of 6 to 12 inches on the outer edges of the floor beams (see Photos 38 -39 from the BIR dated 10/11/2017). Several of the floor beams were drilled and determined to be sound. This currently does not warrant a work recommendation but will be monitored during future inspections.

(156-1150)
Many of the floor beams exhibit horizontal checks along their neutral axis that penetrate less than 50% of the members thickness.

These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.

205		**Column-RC**	3	2	each	1	1	0	0
	1080	**Delamination/Spall/Patched Area**	3	1		0	1	0	0

(205)
See Appendix A for detailed information on the element and associated defects.

(205-1080)
The incipient spall located along the northeast corner of Column 2 at Bent 14 has been patched. The patch measures approximately 24 inches tall by 12 inches wide and is located 20 feet above the ground.

206		**Column-Timber**	3	8	each	6	2	0	0
	1150	**Check/Shake (Timber)**	3	2		0	2	0	0

(206)
See Appendix A from the BIR dated 11/11/2017 for detailed information on the element and associated

ELEMENT INSPECTION RATINGS AND COMMENTARY

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
Element Group: 103 - Approach - Northern Spans 13-34 - Timber Deck Trusses										

defects.

(206-1150)
There are 0.125 to 0.25 inch wide vertical checks that penetrate approximately 3 to 4 inches into the members' cross section (see Photo 11).

These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.

208		**Trestle-Timber**	3	600	m	0	515	0	85
	1020	**Connection**	3	120		0	120	0	0
	1140	**Decay/Section Loss (Timber)**	3	85		0	0	0	85
	1150	**Check/Shake (Timber)**	3	395		0	395	0	0

(208)
See Appendix A from the BIR dated 11/11/2017 for detailed information on the element and associated defects.

(208-1020)
Approximately 20% of the threaded connections have not been replaced and show signs of corrosion with surface rust throughout (see Photos 44 - 47 from the BIR dated 10/11/2017).

Based on the observed corrosion of the connection bolts, it is logical to assume that the internal split ring, toothed ring and claw plate shear connectors are in an equal state of distress. The integrity of these split ring (and other types) of shear connections is critical to the load transfer ability of the connections.

(208-1140)
There is a void measuring approximately 12 inches high by 8 inches wide by 4 inches deep located in the core of Column 4 at Bent 23 due to termite infestation (see Photos 12 and 13). The timber fibers adjacent to the void are soft and crumbly for about an inch in each direction around the affected area. The void is located approximately 2 feet above the concrete footing support.

There is another area of infestation present at Column 2 of Bent 24. The timber scab at the footing connection on the east face of the column has a void measuring approximately 10 inches high by 2 inches wide by 3.5 inches deep (see Photos 14 and 15). The infestation has not reached the column, but has penetrated the full depth of the timber scab.

(208-1150)
There are 0.125 to 0.25 inch wide vertical checks that penetrate approximately 3 to 4 inches into the members' cross section throughout every member of the trestle (see Photos 52 - 62 from the BIR dated 10/11/2017).

These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.

215		**Abutment-RC**	3	11	m	11	0	0	0

(215)
There were no significant defects noted.

220		**Pile Cap/Footing-RC**	2	90	m	90	0	0	0

(220)

ELEMENT INSPECTION RATINGS AND COMMENTARY

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
Element Group: 103 - Approach - Northern Spans 13-34 - Timber Deck Trusses										
There were no significant defects noted. This element represents the concrete footing under each column of the trestle.										
234			**Pier Cap-RC**	3	8	m	8	0	0	0
(234) There were no significant defects noted.										
235			**Pier Cap-Timber**	3	17	m	0	17	0	0
	1150		**Check/Shake (Timber)**	3	17		0	17	0	0
(235) See Appendix A for a detailed information on which members display checking.										
(235-1150) Many of the floor beams exhibit horizontal checks along their neutral axis that penetrate less than 50% of the members thickness (see Photos 16 and 17). These checks are throughout the timber elements. These checks represent a breach in the perimeter chemical preservative treatment that will allow moisture to initiate decay on the interior of the elements.										
332			**Railing-Timber**	3	358	m	286	0	72	0
	1020		**Connection**	3	72		0	0	72	0
(332) The timber bridge rail was cleaned and painted in 2013 as part of EA 01-0A5904.										
(332-1020) The timber rail connection to the deck is affected by the deck rot that is present along the edge of the deck planks on both sides of the structure. The exact amount of decay (linear footage) was not measured but conservatively estimated at 15 to 20% of the total length of the deck.										

WORK RECOMMENDATIONS

RecDate: 08/18/2020 Action : Sub-Epoxy Inject Work By: MAINT. CONTRACT Status : PROPOSED	EstCost: $500 StrTarget: 2 YEARS DistTarget: EA:	Epoxy inject the voids due to termite infestation at Column 4 of Bent 23 and at the east timber scab at Column 2 at Bent 24. The void at Column 4 of Bent 23 measures approximately 12 inches high by 8 inches wide by 4 inches deep and the void at the east timber scab at Column 2 at Bent 24 measures 10 inches high by 2 inches wide by 3.5 inches deep.
RecDate: 08/18/2020 Action : Super-Misc. Work By: BRIDGE CREW Status : PROPOSED	EstCost: $5,000 StrTarget: 1 YEAR DistTarget: EA:	Replace two rotted catwalk members. The right 12 inch member in the third section of the catwalk of Span 20 is rotted in the middle and the right 12 inch member in the middle section of the catwalk in Span 22 is rotted around the connection points.

WORK RECOMMENDATIONS

RecDate: 10/11/2017 Action : Super-Misc. Work By: MAINT. CONTRACT Status : PROGRAMMED	EstCost: $60,000 StrTarget: 2 YEARS DistTarget: EA: 0E201	Remove and replace the 53 split timber scabs located throughout the northern approach spans.
RecDate: 10/11/2017 Action : Bridge-Misc Work By: MAINT. CONTRACT Status : PROGRAMMED	EstCost: $25,000 StrTarget: 2 YEARS DistTarget: EA: 0E201	Remove and replace the rusted and failed pipe support along the right side of the bridge.
RecDate: 10/11/2017 Action : Sub-Misc. Work By: MAINT. CONTRACT Status : PROGRAMMED	EstCost: $500,000 StrTarget: 2 YEARS DistTarget: EA: 0E201	Continue the ongoing program of replacement of timber fasteners. Remove and replace the bolted connections and hardware (threaded rods, malleys, nuts, splice plates/straps, scabs, etc.) throughout the entire timber sub-structure.
RecDate: 10/11/2017 Action : Super-Epoxy Inject Work By: MAINT. CONTRACT Status : PROGRAMMED	EstCost: $7,500 StrTarget: 2 YEARS DistTarget: EA: 0E201	Epoxy inject the horizontal members to the right (east) of the catwalk at Bents 23 and 31 and to the left of the catwalk at Bent 15. The member at Bent 15 has an area of decay within the top 4 inches of the cross section by 15 feet in length. The member at Bent 23 has an area of decay within the top 3 inches of the cross section by 5 feet in length. The member at Bent 31 has an area of decay within the top 3 inches of the cross section by 15 feet in length.
RecDate: 10/11/2017 Action : Deck-Misc. Work By: MAINT. CONTRACT Status : PROPOSED	EstCost: $500,000 StrTarget: 2 YEARS DistTarget: EA:	Remove the rotted and decaying portions of the deck located along the edge of deck on both sides of the bridge. Large areas of rotted timber deck was encountered along the outermost 24 inches of the bridge deck, particularly in the areas underneath the deck drains. The entire deck may have to be removed and replaced due to the configuration of the timber deck planks.
RecDate: 03/28/2007 Action : Seismic-Retrofit Work By: SHOPP Status : LONG LEAD	EstCost: $1,270,000 StrTarget: 4 YEARS DistTarget: EA: 40110	Priority 181, This Bridge has been recommended for seismic retrofit by the screening of the Office of Earthquake Engingeering. Steel truss members may require strengthening. Priority 4. Final Score 2.8125. BELOW THE LINE.
RecDate: 04/05/1999 Action : Bridge-Replace(Bridg Work By: SHOPP Status : LONG LEAD	EstCost: $13,200,000 StrTarget: 2 YEARS DistTarget: EA: 40110	Replace the steel main span. Estimated at $2,000,000 (NOT including traffic handling costs). Or, replace the entire structure. Estimated at $13,200,000. THIS AGING STRUCTURE IS IN A MARGINAL AND DETERIORATING CONDITION. IT IS FUNCTIONALLY OBSOLETE, HAS A LOW LOAD RATING, AND IS AN INAPPROPRIATE DESIGN FOR THE ENVIRONMENT. THE LIFE CYCLE

WORK RECOMMENDATIONS

ECONOMIC COST OF ADEQUATE MAINTENANCE DOES NOT COMPARE FAVORABLY WITH COST OF REPLACEMENT WITH A STRUCTURE TYPE BETTER SUITED TO THE ENVIRONMENT.

IT IS THEREFORE URGENTLY RECOMMENDED THAT THIS STRUCTURE BE REPLACED. AN SM&I PEER REVIEW IN AUGUST 2007 REAFFIRMED THE RECOMMENDATION THAT THIS BRIDGE BE REPLACED.

RecDate: 07/01/1986
Action : Sub-Rehab
Work By: SHOPP
Status : LONG LEAD

EstCost: $1,500,000
StrTarget: 2 YEARS
DistTarget:
EA: 40110

Remove and replace the bolted connections and hardware (threaded rods, malleys, nuts, splice plates/straps, etc) throughout the entire timber sub-structure. Replace the top left horizontal timber element between Bent 15 and Bent 16.

RecDate: 02/10/1984
Action : Railing-Upgrade
Work By: SHOPP
Status : LONG LEAD

EstCost: $1,008,600
StrTarget: 2 YEARS
DistTarget:
EA: 40110

F1-10 / F2-6 / F3-1 / Rail Type-WOOD. Replace the bridge rail.

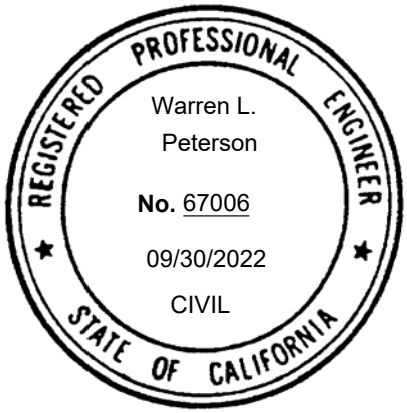
Team Leader : Warren L. Peterson

Report Author : Warren L. Peterson

Inspected By : WL.Peterson/M.O'Leary

10/28/2020

Warren L. Peterson (Registered Civil Engineer) (Date)



STRUCTURE INVENTORY AND APPRAISAL REPORT

********** IDENTIFICATION **********

(1) STATE NAME- CALIFORNIA 069
(8) STRUCTURE NUMBER **10 0136**
(5) INVENTORY ROUTE(ON/UNDER)- ON 131000010
(2) HIGHWAY AGENCY DISTRICT 01
(3) COUNTY CODE 045 (4) PLACE CODE 00000
(6) FEATURE INTERSECTED- ALBION RIVER
(7) FACILITY CARRIED- STATE ROUTE 1
(9) LOCATION- 01-MEN-001-43.74
(11) MILEPOINT/KILOMETERPOINT 43.74
(12) BASE HIGHWAY NETWORK- PART OF NET 1
(13) LRS INVENTORY ROUTE & SUBROUTE 000000000101
(16) LATITUDE 39 DEG 13 MIN 30.32 SEC
(17) LONGITUDE 123 DEG 46 MIN 09.83 SEC
(98) BORDER BRIDGE STATE CODE % SHARE %
(99) BORDER BRIDGE STRUCTURE NUMBER

******** STRUCTURE TYPE AND MATERIAL *********

(43) STRUCTURE TYPE MAIN:MATERIAL- STEEL
TYPE- TRUSS - DECK CODE 309
(44) STRUCTURE TYPE APPR:MATERIAL- WOOD OR TIMBER
TYPE- TRUSS - DECK CODE 709
(45) NUMBER OF SPANS IN MAIN UNIT 1
(46) NUMBER OF APPROACH SPANS 33
(107) DECK STRUCTURE TYPE- TIMBER CODE 8
(108) WEARING SURFACE / PROTECTIVE SYSTEM:
A) TYPE OF WEARING SURFACE- BITUMINOUS CODE 6
B) TYPE OF MEMBRANE- NONE CODE 0
C) TYPE OF DECK PROTECTION- NONE CODE 0

*********** AGE AND SERVICE ***********

(27) YEAR BUILT 1944
(106) YEAR RECONSTRUCTED 0000
(42) TYPE OF SERVICE: ON- HIGHWAY 1
UNDER- WATERWAY 5
(28) LANES:ON STRUCTURE 02 UNDER STRUCTURE 00
(29) AVERAGE DAILY TRAFFIC 2100
(30) YEAR OF ADT 2009 (109) TRUCK ADT 6 %
(19) BYPASS, DETOUR LENGTH 62 KM

*********** GEOMETRIC DATA ***********

(48) LENGTH OF MAXIMUM SPAN 39.6 M
(49) STRUCTURE LENGTH 295.4 M
(50) CURB OR SIDEWALK: LEFT 0.3 M RIGHT 0.3 M
(51) BRIDGE ROADWAY WIDTH CURB TO CURB 7.9 M
(52) DECK WIDTH OUT TO OUT 8.5 M
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 7.3 M
(33) BRIDGE MEDIAN- NO MEDIAN 0
(34) SKEW 0 DEG (35) STRUCTURE FLARED NO
(10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR 7.9 M
(53) MIN VERT CLEAR OVER BRIDGE RDWY 99.99 M
(54) MIN VERT UNDERCLEAR REF- NOT H/RR 0.00 M
(55) MIN LAT UNDERCLEAR RT REF- NOT H/RR 0.0 M
(56) MIN LAT UNDERCLEAR LT 0.0 M

*********** NAVIGATION DATA ***********

(38) NAVIGATION CONTROL- BR PERMIT REQ CODE 1
(111) PIER PROTECTION- NOT REQUIRED CODE 1
(39) NAVIGATION VERTICAL CLEARANCE 50.0 M
(116) VERT-LIFT BRIDGE NAV MIN VERT CLEAR M
(40) NAVIGATION HORIZONTAL CLEARANCE 35.7 M

****

SUFFICIENCY RATING = 31.3

PAINT CONDITION INDEX = 100.0

********** CLASSIFICATION ********** CODE

(112) NBIS BRIDGE LENGTH- YES Y
(104) HIGHWAY SYSTEM- NOT ON NHS 0
(26) FUNCTIONAL CLASS- MINOR ARTERIAL RURAL 06
(100) DEFENSE HIGHWAY- NOT STRAHNET 0
(101) PARALLEL STRUCTURE- NONE EXISTS N
(102) DIRECTION OF TRAFFIC- 2 WAY 2
(103) TEMPORARY STRUCTURE-
(105) FED.LANDS HWY- NOT APPLICABLE 0
(110) DESIGNATED NATIONAL NETWORK - NOT ON NET 0
(20) TOLL- ON FREE ROAD 3
(21) MAINTAIN- STATE HIGHWAY AGENCY 01
(22) OWNER- STATE HIGHWAY AGENCY 01
(37) HISTORICAL SIGNIFICANCE- ELIGIBLE 2

********** CONDITION ********** CODE

(58) DECK 5
(59) SUPERSTRUCTURE 4
(60) SUBSTRUCTURE 4
(61) CHANNEL & CHANNEL PROTECTION 8
(62) CULVERTS N

********* LOAD RATING AND POSTING ********* CODE

(31) DESIGN LOAD- M-13.5 OR H-15 2
(63) OPERATING RATING METHOD- ALLOWABLE STRESS 2
(64) OPERATING RATING- 30.8
(65) INVENTORY RATING METHOD- ALLOWABLE STRESS 2
(66) INVENTORY RATING- 22.7
(70) BRIDGE POSTING- EQUAL TO OR ABOVE LEGAL LOADS 5
(41) STRUCTURE OPEN, POSTED OR CLOSED- A
DESCRIPTION- OPEN, NO RESTRICTION

********** APPRAISAL ********** CODE

(67) STRUCTURAL EVALUATION 4
(68) DECK GEOMETRY 3
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N
(71) WATER ADEQUACY 9
(72) APPROACH ROADWAY ALIGNMENT 8
(36) TRAFFIC SAFETY FEATURES 0010
(113) SCOUR CRITICAL BRIDGES 5

********** PROPOSED IMPROVEMENTS **********

(75) TYPE OF WORK- CODE
(76) LENGTH OF STRUCTURE IMPROVEMENT M
(94) BRIDGE IMPROVEMENT COST
(95) ROADWAY IMPROVEMENT COST
(96) TOTAL PROJECT COST
(97) YEAR OF IMPROVEMENT COST ESTIMATE
(114) FUTURE ADT 5182
(115) YEAR OF FUTURE ADT 2040

********** INSPECTIONS **********

(90) INSPECTION DATE 08/20 (91) FREQUENCY 24 MO
(92) CRITICAL FEATURE INSPECTION: (93) CFI DATE
A) FRACTURE CRIT DETAIL- YES 24 MO A) 02/20
B) UNDERWATER INSP- NO MO B)
C) OTHER SPECIAL INSP- NO MO C)

Span 1

Girders

	West Face	East Face
G1		
G2		
G3		
G4		
G5		
G6		
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16		
G17		

Bent Cap 2

South Face	X
North Face	X
Bottom Face	X

Columns

	Bottom Face	West Face	Top Face	East Face
C1				
C2			X	
C3	X		X	
C4				

X - Condition State 2
Y - Condition State 3
(_") - Depth of check greater than 1"

Span 2

Girders

	West Face	East Face
G1	X	
G2		
G3		
G4		
G5		
G6		
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16		
G17		X

Note: Bay 13 spacer block is loose

X - Condition State 2
Y - Condition State 3
(_") - Depth of check greater than 1"

Bent Cap 3

South Face	X
North Face	
Bottom Face	

Columns

	South Face	West Face	North Face	East Face
C1	X		X	
C2	X		X	
C3				
C4	X		X	

Span 3

Girders

	West Face	East Face
G1		
G2		
G3		
G4		
G5		
G6		
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16		
G17		

Bent Cap 4

South Face	
North Face	
Bottom Face	

Columns

	South Face	West Face	North Face	East Face
C1	X			
C2				
C3				
C4				

X - Condition State 2
Y - Condition State 3
(_") - Depth of check greater than 1"

Span 4

Girders

	West Face	East Face
G1		
G2		
G3	X	
G4		
G5		
G6		
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16		
G17		

Bent Cap 5

South Face	
North Face	
Bottom Face	

Columns

	South Face	West Face	North Face	East Face
C1				
C2				
C3		X (2")		
C4		X (2")		

X - Condition State 2
Y - Condition State 3
(_") - Depth of check greater than 1"

Span 5

Girders

	West Face	East Face
G1		
G2		
G3		
G4		
G5		
G6		
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16		
G17		

Bent Cap 6

South Face	
North Face	
Bottom Face	

Columns

	South Face	West Face	North Face	East Face
C1	X (3")	X		
C2	X	X	X	
C3	X			
C4	X			

X - Condition State 2
Y - Condition State 3
(_") - Depth of check greater than 1"

Span 6

Girders

	West Face	East Face
G1		
G2		
G3		
G4		
G5		
G6		
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16		
G17		

Bent Cap 7

South Face	
North Face	
Bottom Face	X

Columns

	South Face	West Face	North Face	East Face
C1	X			
C2				
C3		X	X	
C4	X			

Horizontals

	Bottom Face	West Face	Top Face	East Face
H1				
H2				
H3				
H4				

X - Condition State 2
Y - Condition State 3
(_") - Depth of check greater than 1"

Span 7

Girders

	West Face	East Face
G1		
G2		
G3		
G4		
G5		
G6		
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16		
G17		

Bent Cap 8

South Face	
North Face	
Bottom Face	X

Columns

	South Face	West Face	North Face	East Face
C1	X			
C2				X
C3		X	X	
C4	X			

Horizontals

	Bottom Face	West Face	Top Face	East Face
H1		X	X	
H2		X	X	
H3			X	
H4			X	

X - Condition State 2
Y - Condition State 3
(_") - Depth of check greater than 1"

Span 8

Girders

	West Face	East Face
G1	X	
G2		
G3		
G4		
G5		
G6		
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16		
G17		X

Bent Cap 9

South Face	
North Face	
Bottom Face	

Columns

	South Face	West Face	North Face	East Face
C1				
C2				
C3				
C4				

Horizontals

	Bottom Face	West Face	Top Face	East Face
H1				
H2				
H3			X (2")	
H4			X (3")	

Truss Members

		Top Face	Bottom Face	East Face	West Face
1	U_{0-1}				
	L_{1-2}				
2	U_{0-1}	X			
	L_{1-2}		X		
3	U_{0-1}	X	X (3")		
	L_{1-2}	X	X		
4	U_{0-1}	X			
	L_{1-2}	X			

Floor Beam

South Face	
North Face	
Bottom Face	

X - Condition State 2

Y - Condition State 3

(_") - Depth of check greater than 1"

Span 9

Girders

	West Face	East Face
G1		
G2		
G3		
G4		
G5		
G6		
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16		
G17		

Bent Cap 10

South Face	
North Face	
Bottom Face	

Columns

	South Face	West Face	North Face	East Face
C1				X
C2				
C3			X	
C4	X			

Horizontals

	Bottom Face	West Face	Top Face	East Face
H1			X	
H2			X	
H3			X	
H4			X (2")	

X - Condition State 2
Y - Condition State 3
(_") - Depth of check greater than 1"

Span 10

Girders

	West Face	East Face
G1		
G2		
G3		
G4		
G5		
G6		
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16		
G17		

Bent Cap 11

South Face	
North Face	
Bottom Face	

Columns

	South Face	West Face	North Face	East Face
C1	X			
C2	X			
C3			X	
C4		X		

Horizontals

	Bottom Face	West Face	Top Face	East Face
H1				
H2				
H3				
H4			X	

Truss Members

		Top Face	Bottom Face	East Face	West Face
1	U_{0-1}		X		
	L_{1-2}	X(2")			
2	U_{0-1}	X (2")			
	L_{1-2}	X			
3	U_{0-1}	X			
	L_{1-2}	X (2")	X		
4	U_{0-1}	X			X
	L_{1-2}				

Floor Beam

South Face	
North Face	
Bottom Face	

X - Condition State 2

Y - Condition State 3

(_") - Depth of check greater than 1"

Span 11

Girders

	West Face	East Face
G1		
G2		
G3		
G4		
G5		
G6		
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16		
G17		

Bent Cap 12

South Face	X
North Face	
Bottom Face	

Columns

	South Face	West Face	North Face	East Face
C1				
C2	X			X
C3				
C4	X			

Horizontals

	Bottom Face	West Face	Top Face	East Face
H1			X (2")	
H2			X	
H3			X	
H4			X	

X - Condition State 2
Y - Condition State 3
(_") - Depth of check greater than 1"

Span 13

Girders

	West Face	East Face
G1		
G2		
G3		
G4		
G5		
G6		
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16		
G17		

Bent Cap 14

South Face	
North Face	
Bottom Face	X

Columns

	South Face	West Face	North Face	East Face
C1				
C2			X	
C3	X		X	
C4			X	

Horizontals

	Bottom Face	West Face	Top Face	East Face
H1			X	
H2			X	X
H3			X	
H4		X	X	

X - Condition State 2
Y - Condition State 3
(_") - Depth of check greater than 1"

Span 14

Girders

	West Face	East Face
G1		
G2		
G3		
G4		
G5		
G6		
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16		
G17		

Bent Cap 15

South Face	
North Face	
Bottom Face	X

Columns

	South Face	West Face	North Face	East Face
C1				
C2				
C3				
C4			X	

Horizontals

	Bottom Face	West Face	Top Face	East Face
H1				
H2			X	
H3				
H4			X	

Truss Members

		Top Face	Bottom Face	East Face	West Face
1	U_{0-1}	X (2")			
	L_{1-2}	X			
2	U_{0-1}	X (2")			
	L_{1-2}		X (3")	X (2")	
3	U_{0-1}				
	L_{1-2}	X (2")		X	
4	U_{0-1}	X (3")			
	L_{1-2}				

Floor Beam

South Face	
North Face	
Bottom Face	X

X - Condition State 2

Y - Condition State 3

(_") - Depth of check greater than 1"

Span 15

Girders

	West Face	East Face
G1		
G2		
G3		
G4		
G5		
G6		
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16		
G17		

Bent Cap 16

South Face	
North Face	
Bottom Face	X

Columns

	South Face	West Face	North Face	East Face
C1	X (2")			
C2	X			
C3	X		X	
C4	X	X (3")		X

Horizontals

	Bottom Face	West Face	Top Face	East Face
H1			X (2")	
H2			X (2")	X
H3		X	X	
H4		X	X	

X - Condition State 2
Y - Condition State 3
(_") - Depth of check greater than 1"

Span 16

Girders

	West Face	East Face
G1		
G2		
G3		
G4		
G5		
G6		
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16		
G17		

Bent Cap 17

South Face	
North Face	
Bottom Face	

Columns

	South Face	West Face	North Face	East Face
C1	X			
C2	X		X	X (2")
C3	X	X		
C4	X			

Horizontals

	Bottom Face	West Face	Top Face	East Face
H1			X	
H2			X	
H3			X	
H4			X	

Truss Members

		Top Face	Bottom Face	East Face	West Face
1	U_{0-1}	X (3")			
	L_{1-2}	X	X (2")	X	
2	U_{0-1}	X	X		
	L_{1-2}	X		X	
3	U_{0-1}	X (3")	X		
	L_{1-2}	X	X (2")		
4	U_{0-1}	X			
	L_{1-2}				X

Floor Beam

South Face	
North Face	X
Bottom Face	X

X - Condition State 2

Y - Condition State 3

(_") - Depth of check greater than 1"

Span 17

Girders

	West Face	East Face
G1		
G2		
G3		
G4		
G5		
G6		
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16		
G17		

Bent Cap 18

South Face	X
North Face	
Bottom Face	X

Columns

	South Face	West Face	North Face	East Face
C1	X			
C2				
C3			X	
C4	X			

Horizontals

	Bottom Face	West Face	Top Face	East Face
H1			X	X
H2			X	
H3			X (2")	
H4		X		

X - Condition State 2
Y - Condition State 3
(_") - Depth of check greater than 1"

Span 18

Girders

	West Face	East Face
G1		
G2		
G3		
G4		
G5		
G6		
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16		
G17		

Bent Cap 19

South Face	
North Face	
Bottom Face	

Columns

	South Face	West Face	North Face	East Face
C1	X			
C2	X			
C3				
C4	X			

Horizontals

	Bottom Face	West Face	Top Face	East Face
H1				
H2			X	
H3				
H4			X	

Truss Members

		Top Face	Bottom Face	East Face	West Face
1	U_{0-1}	X	X		
	L_{1-2}	X	X		
2	U_{0-1}	X	X		
	L_{1-2}		X	X	
3	U_{0-1}	X			X
	L_{1-2}	X	X		X
4	U_{0-1}	X	X (2")		
	L_{1-2}	X			X

Floor Beam

South Face	
North Face	X
Bottom Face	

X - Condition State 2

Y - Condition State 3

(_") - Depth of check greater than 1"

Span 19

Girders

	West Face	East Face
G1		
G2		
G3		
G4		
G5		
G6		
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16		
G17		

Bent Cap 20

South Face	
North Face	
Bottom Face	X

Columns

	South Face	West Face	North Face	East Face
C1	X			
C2	X		X	
C3	X	X (3")		
C4	X			

Horizontals

	Bottom Face	West Face	Top Face	East Face
H1			X	
H2			X	
H3			X (2")	
H4			X	

X - Condition State 2
Y - Condition State 3
(_") - Depth of check greater than 1"

Span 20

Girders

	West Face	East Face
G1		
G2		
G3		
G4		
G5		X
G6		X
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16	X	
G17		

Bent Cap 21

South Face	
North Face	
Bottom Face	

Columns

	South Face	West Face	North Face	East Face
C1	X			
C2				
C3			X	
C4	X (3")			

Horizontals

	Bottom Face	West Face	Top Face	East Face
H1			X	
H2				
H3				
H4			X	

Truss Members

		Top Face	Bottom Face	East Face	West Face
1	U_{0-1}	X (2")			
	L_{1-2}	X (2")			
2	U_{0-1}	X			
	L_{1-2}				
3	U_{0-1}	X (3")			
	L_{1-2}	X			
4	U_{0-1}	X			
	L_{1-2}		X (3")		

Floor Beam

South Face	
North Face	X
Bottom Face	

X - Condition State 2

Y - Condition State 3

(_") - Depth of check greater than 1"

Span 21

Girders

	West Face	East Face
G1	X	X
G2		
G3		X
G4		
G5		
G6		X
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16		
G17		

Bent Cap 22

South Face	X
North Face	
Bottom Face	

Columns

	South Face	West Face	North Face	East Face
C1	X			
C2	X (2")		X	X
C3				
C4	X (2")			

Horizontals

	Bottom Face	West Face	Top Face	East Face
H1			X	
H2			X	X
H3			X	
H4		X	X	

X - Condition State 2
Y - Condition State 3
(_") - Depth of check greater than 1"

Span 22

Girders

	West Face	East Face
G1		
G2		
G3		
G4		
G5		
G6		
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16	X	
G17		

Bent Cap 23

South Face	
North Face	
Bottom Face	

Columns

	South Face	West Face	North Face	East Face
C1	X (3")			
C2	X (3")		X	X
C3		X	X	
C4	X	X	X	

Horizontals

	Bottom Face	West Face	Top Face	East Face
H1				
H2			X	
H3			X	
H4			X	

Truss Members

		Top Face	Bottom Face	East Face	West Face
1	U_{0-1}		X		
	L_{1-2}		X (2")		
2	U_{0-1}	X (2")	X	X	
	L_{1-2}		X (2")		
3	U_{0-1}	X			X
	L_{1-2}		X		
4	U_{0-1}	X	X		X
	L_{1-2}	X (2")	X		X (2")

Floor Beam

South Face	
North Face	X
Bottom Face	

X - Condition State 2

Y - Condition State 3

(_") - Depth of check greater than 1"

Span 23

Girders

	West Face	East Face
G1		
G2		
G3		
G4		
G5		
G6		
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16		
G17		

Bent Cap 24

South Face	
North Face	
Bottom Face	X

Columns

	South Face	West Face	North Face	East Face
C1				X
C2			X (2")	
C3				
C4				

Horizontals

	Bottom Face	West Face	Top Face	East Face
H1			X	
H2			X	X
H3			X (4")	
H4			X	

X - Condition State 2
Y - Condition State 3
(_") - Depth of check greater than 1"

Span 24

Girders

	West Face	East Face
G1		
G2		
G3		
G4		
G5		
G6		X
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16	X	
G17		

Bent Cap 25

South Face	
North Face	
Bottom Face	X

Columns

	South Face	West Face	North Face	East Face
C1				X
C2	X (2")			
C3				
C4		X		

Horizontals

	Bottom Face	West Face	Top Face	East Face
H1			X	
H2				
H3			X	
H4		X	X	

Truss Members

		Top Face	Bottom Face	East Face	West Face
1	U_{0-1}	X	X	X	
	L_{1-2}	X			
2	U_{0-1}	X (2")	X	X	
	L_{1-2}	X		X	
3	U_{0-1}	X (2")	X		
	L_{1-2}	X (2")	X		X
4	U_{0-1}	X			
	L_{1-2}	X			

Floor Beam

South Face	
North Face	X
Bottom Face	X

X - Condition State 2

Y - Condition State 3

(_") - Depth of check greater than 1"

Span 25

Girders

	West Face	East Face
G1		
G2		
G3		
G4		
G5		
G6		
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16		
G17		

Bent Cap 26

South Face	
North Face	
Bottom Face	X

Columns

	South Face	West Face	North Face	East Face
C1			X	
C2				
C3				
C4	X (3")			

Horizontals

	Bottom Face	West Face	Top Face	East Face
H1				
H2			X	
H3				X
H4			X	

X - Condition State 2
Y - Condition State 3
(_") - Depth of check greater than 1"

Span 26

Girders

	West Face	East Face
G1	X	X
G2		
G3		
G4		
G5		
G6		
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16		
G17	X	

Bent Cap 27

South Face	X
North Face	
Bottom Face	

Columns

	South Face	West Face	North Face	East Face
C1				
C2				
C3				
C4				

Horizontals

	Bottom Face	West Face	Top Face	East Face
H1			X	
H2			X	
H3			X	
H4			X	

Truss Members

		Top Face	Bottom Face	East Face	West Face
1	U_{0-1}	X			
	L_{1-2}				
2	U_{0-1}	X			
	L_{1-2}	X (2")	X		
3	U_{0-1}		X		
	L_{1-2}	X (2")	X		X
4	U_{0-1}	X			
	L_{1-2}		X (2")		X

Floor Beam

South Face	
North Face	
Bottom Face	

X - Condition State 2

Y - Condition State 3

(_") - Depth of check greater than 1"

Span 27

Girders

	West Face	East Face
G1	X	X
G2		
G3		
G4		
G5		
G6		
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16		
G17	X	X

Bent Cap 28

South Face	
North Face	
Bottom Face	X (2")

Columns

	South Face	West Face	North Face	East Face
C1			X	
C2				
C3	X		X	
C4	X (2")			

Horizontals

	Bottom Face	West Face	Top Face	East Face
H1			X	X (2")
H2				X
H3			X	
H4		X	X	

X - Condition State 2
Y - Condition State 3
(_") - Depth of check greater than 1"

Span 28

Girders

	West Face	East Face
G1	X	X
G2		
G3		X
G4		X
G5		X
G6		
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16		
G17	X	X

Bent Cap 29

South Face	X
North Face	
Bottom Face	

Columns

	South Face	West Face	North Face	East Face
C1			X	
C2				
C3	X	X		
C4	X			

Horizontals

	Bottom Face	West Face	Top Face	East Face
H1			X	
H2			X	
H3				
H4				

Truss Members

		Top Face	Bottom Face	East Face	West Face
1	U_{0-1}	X (2")			
	L_{1-2}				
2	U_{0-1}	X (2")	X		
	L_{1-2}		X (2")	X	
3	U_{0-1}	X			X
	L_{1-2}		X (2")		X
4	U_{0-1}	X			
	L_{1-2}		X		X

Floor Beam

South Face	
North Face	
Bottom Face	

X - Condition State 2

Y - Condition State 3

(_") - Depth of check greater than 1"

Span 29

Girders

	West Face	East Face
G1		
G2		X
G3		
G4		
G5		
G6		
G7		
G8		
G9		
G10	X	
G11	X	
G12		
G13		
G14		
G15		
G16		
G17		

Bent Cap 30

South Face	X
North Face	
Bottom Face	

Columns

	South Face	West Face	North Face	East Face
C1			X	X
C2	X		X	X
C3		X		
C4	X			

Horizontals

	Bottom Face	West Face	Top Face	East Face
H1			X	
H2			X	X
H3		X	X	
H4			X	

X - Condition State 2
Y - Condition State 3
(_") - Depth of check greater than 1"

Span 30

Girders

	West Face	East Face
G1	X	X
G2		X
G3		
G4		
G5		
G6		X
G7		X
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16		
G17	X	X

Bent Cap 31

South Face	
North Face	
Bottom Face	X

Columns

	South Face	West Face	North Face	East Face
C1	X		X	
C2				
C3				
C4	X			

Horizontals

	Bottom Face	West Face	Top Face	East Face
H1				
H2				
H3				
H4				

Truss Members

		Top Face	Bottom Face	East Face	West Face
1	U_{0-1}	X			
	L_{1-2}	X	X (2")		
2	U_{0-1}	X (2")	X		
	L_{1-2}	X	X	X	
3	U_{0-1}	X	X		
	L_{1-2}	X	X		
4	U_{0-1}	X			
	L_{1-2}	X			

Floor Beam

South Face	
North Face	
Bottom Face	

X - Condition State 2

Y - Condition State 3

(_") - Depth of check greater than 1"

Span 31

Girders

	West Face	East Face
G1	X	X
G2		
G3		
G4		
G5		
G6		
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16		
G17	X	X

Bent Cap 32

South Face	X
North Face	
Bottom Face	X

Columns

	South Face	West Face	North Face	East Face
C1			X	X
C2	X		X	X
C3		X		
C4	X			

Horizontals

	Bottom Face	West Face	Top Face	East Face
H1				
H2			X (2")	X
H3		X		
H4			X (4")	

X - Condition State 2
Y - Condition State 3
(_") - Depth of check greater than 1"

Span 32

Girders

	West Face	East Face
G1		
G2		
G3		
G4		
G5		
G6		
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16		
G17		

Bent Cap 33

South Face	
North Face	
Bottom Face	X

Columns

	South Face	West Face	North Face	East Face
C1				
C2	X			
C3	X			
C4				

X - Condition State 2
Y - Condition State 3
(_") - Depth of check greater than 1"

Span 33

Girders

	West Face	East Face
G1		
G2		
G3		
G4		
G5		
G6		
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16		
G17		

Bent Cap 34

South Face	X
North Face	
Bottom Face	

Columns

	South Face	West Face	North Face	East Face
C1				
C2	X			
C3	X			
C4	X			

X - Condition State 2
Y - Condition State 3
(_") - Depth of check greater than 1"

Span 34

Girders

	West Face	East Face
G1		
G2		
G3		
G4		
G5		
G6		
G7		
G8		
G9		
G10		
G11		
G12		
G13		
G14		
G15		
G16		
G17		

Abutment 34

South Face	
North Face	
Bottom Face	

Columns

	South Face	West Face	North Face	East Face
C1				
C2				
C3				
C4				

X - Condition State 2
Y - Condition State 3
(_") - Depth of check greater than 1"

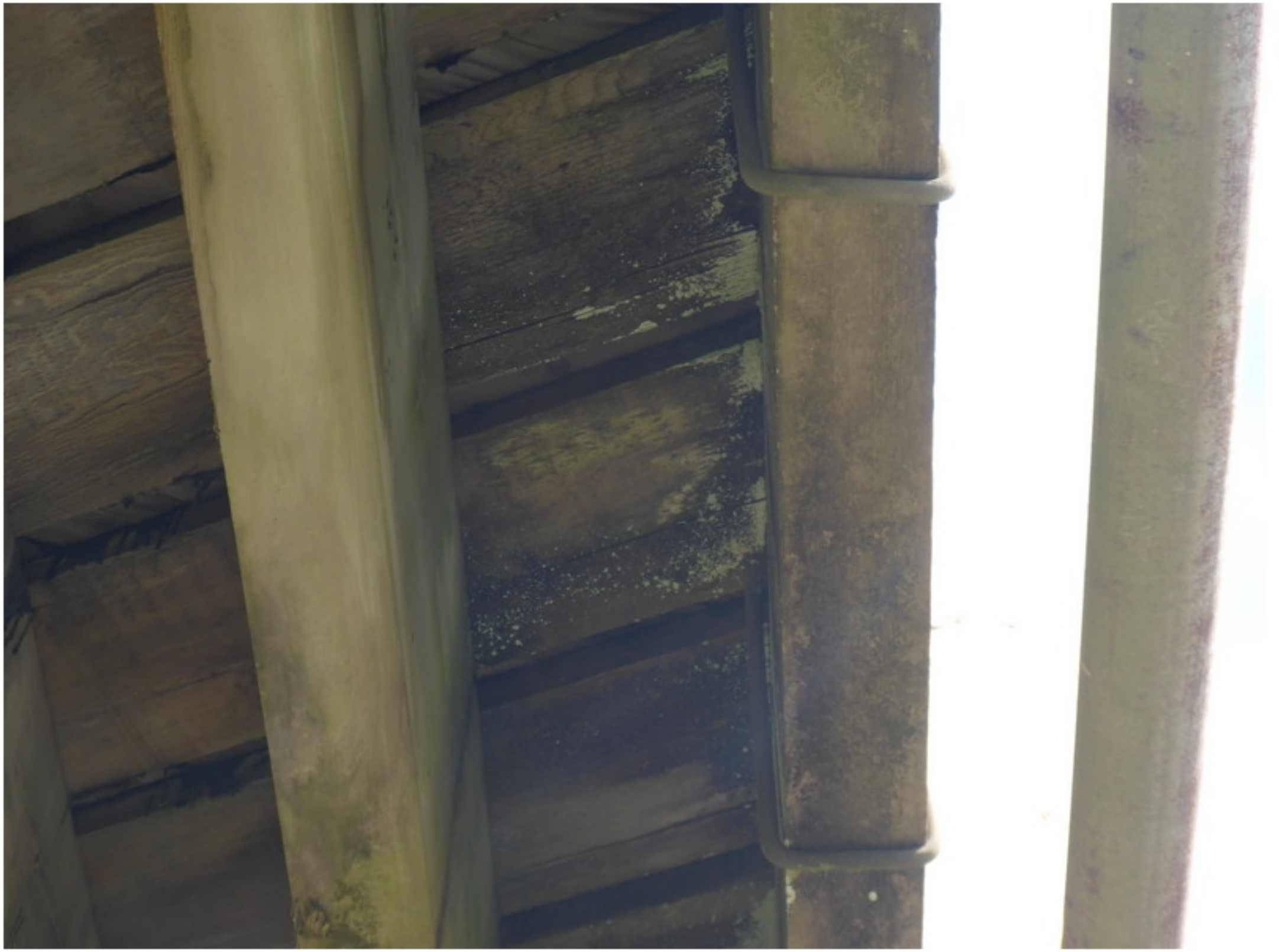


Photo No. 1
Typical mold and rot located along the edges of the timber deck.

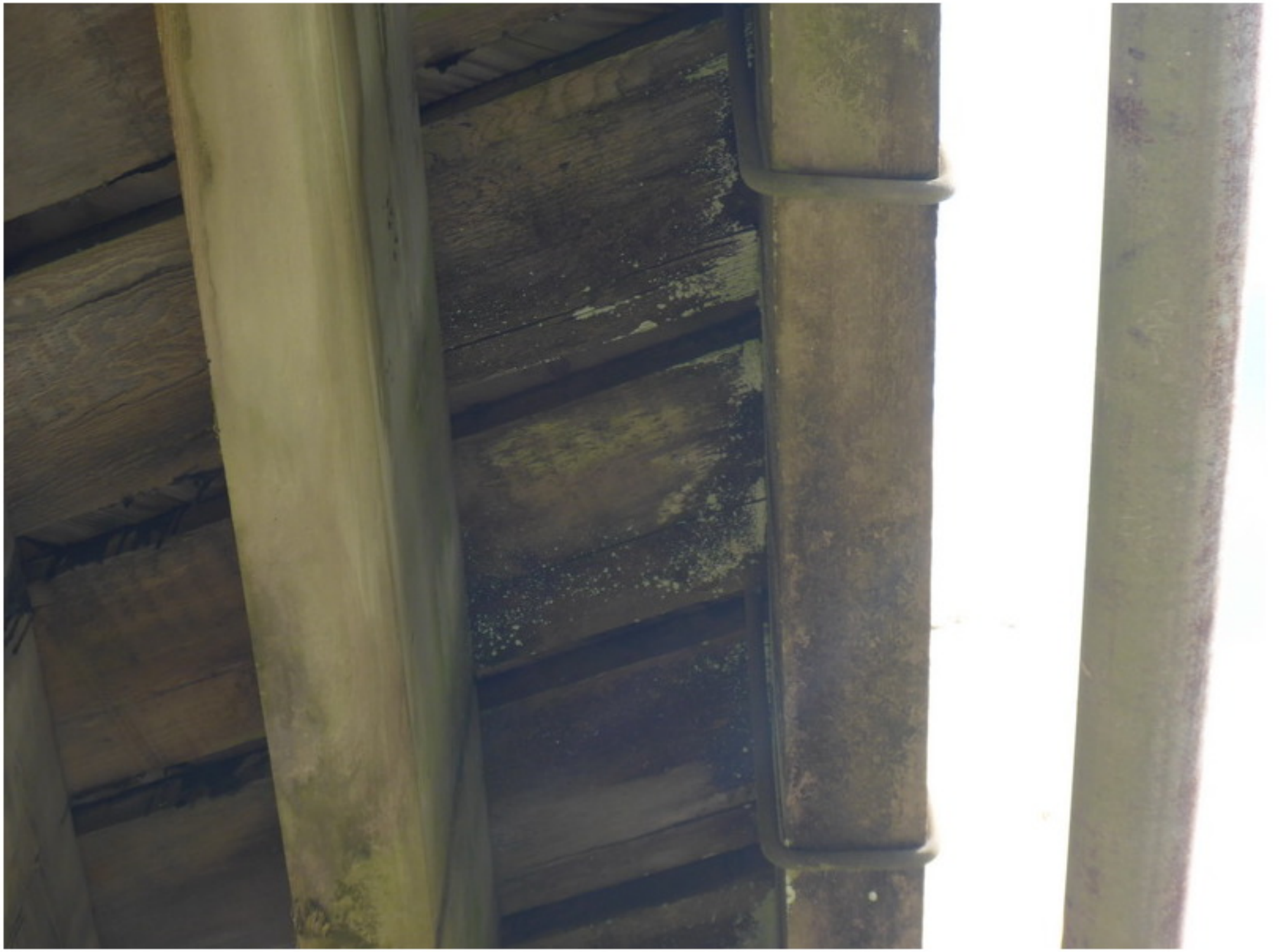


Photo No. 1
Typical mold and rot located along the edges of the timber deck.

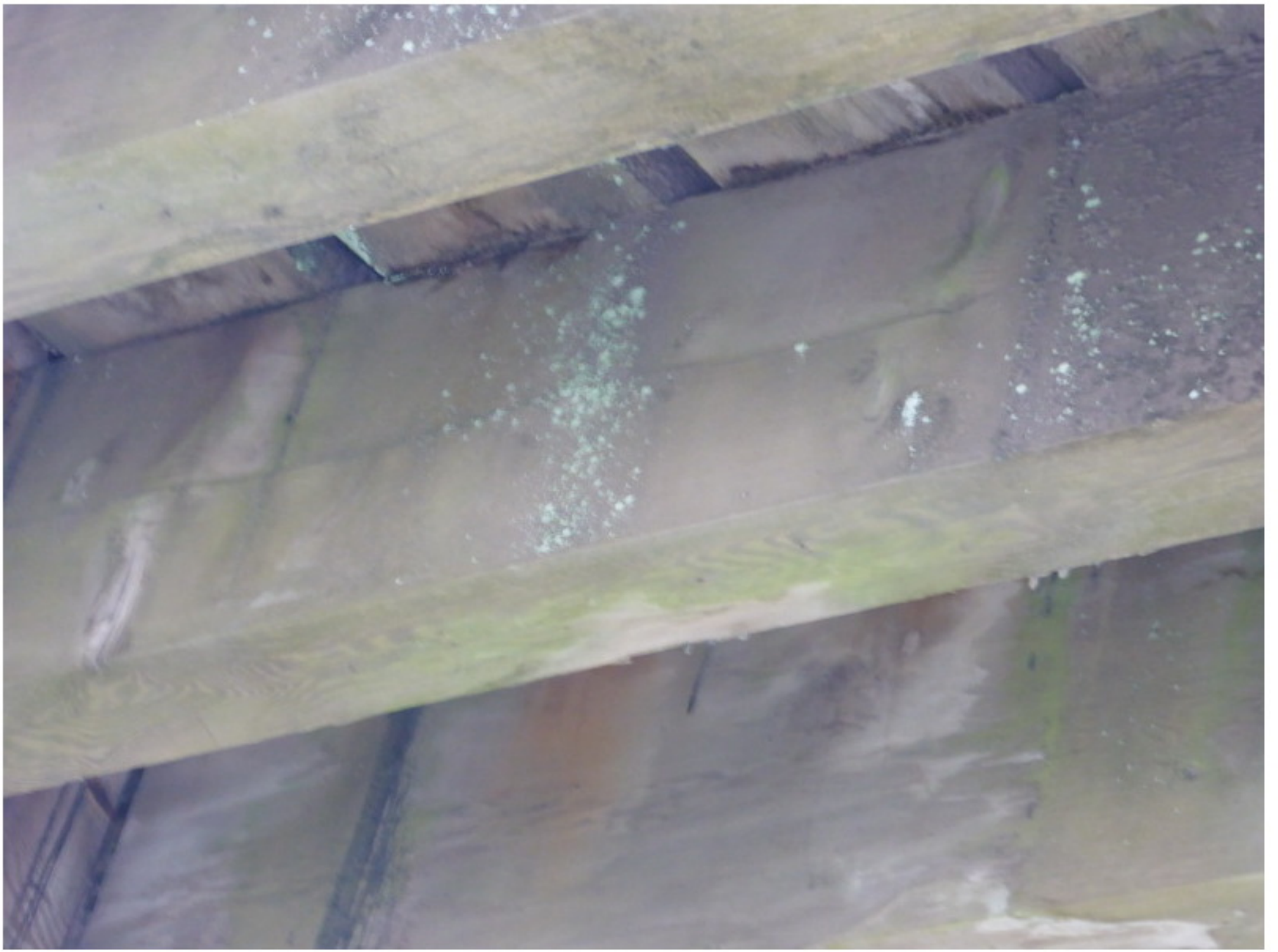


Photo No. 2
Typical horizontal check present in Girder 13 of Span 13.

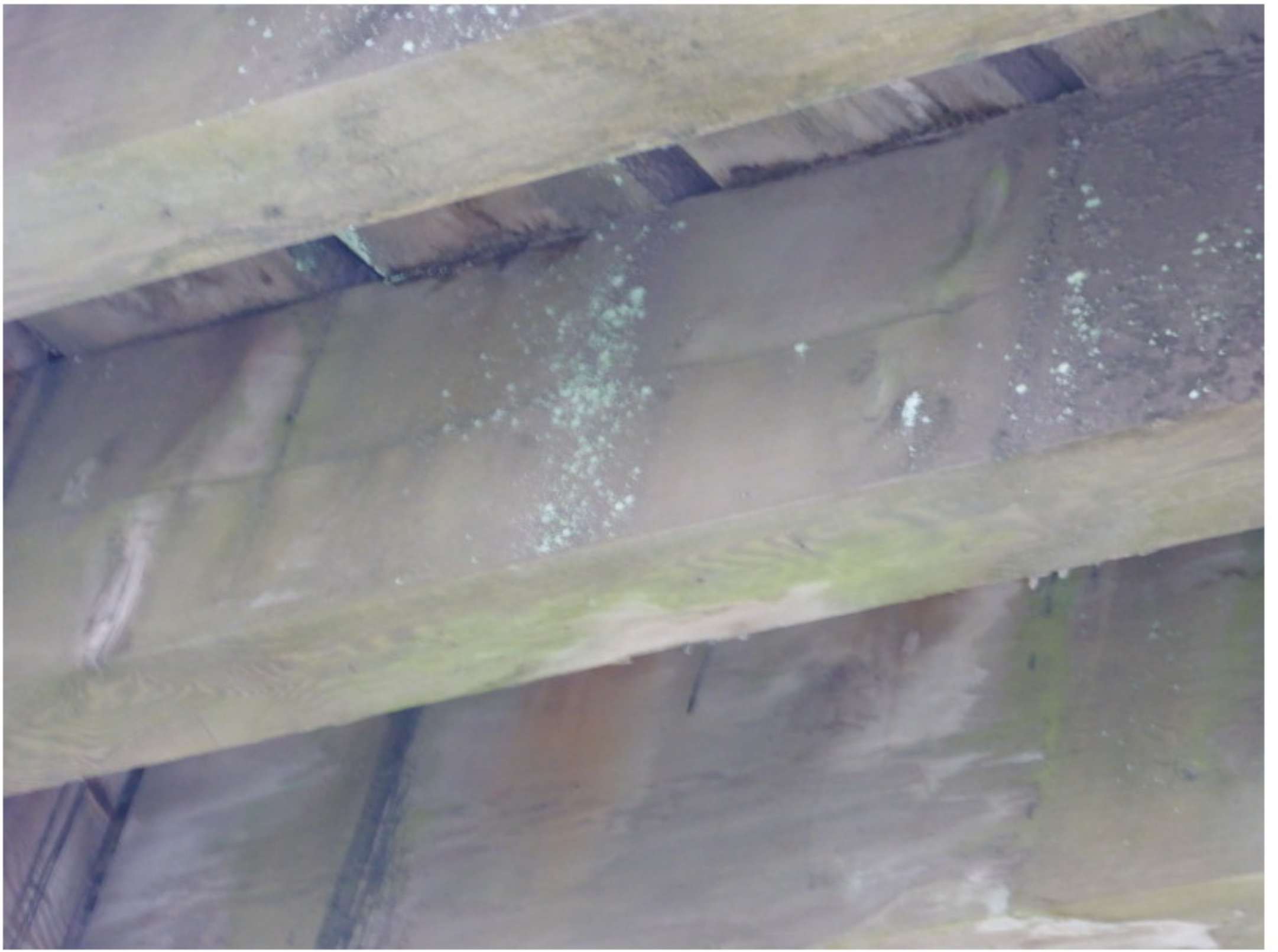


Photo No. 2
Typical horizontal check present in Girder 13 of Span 13.

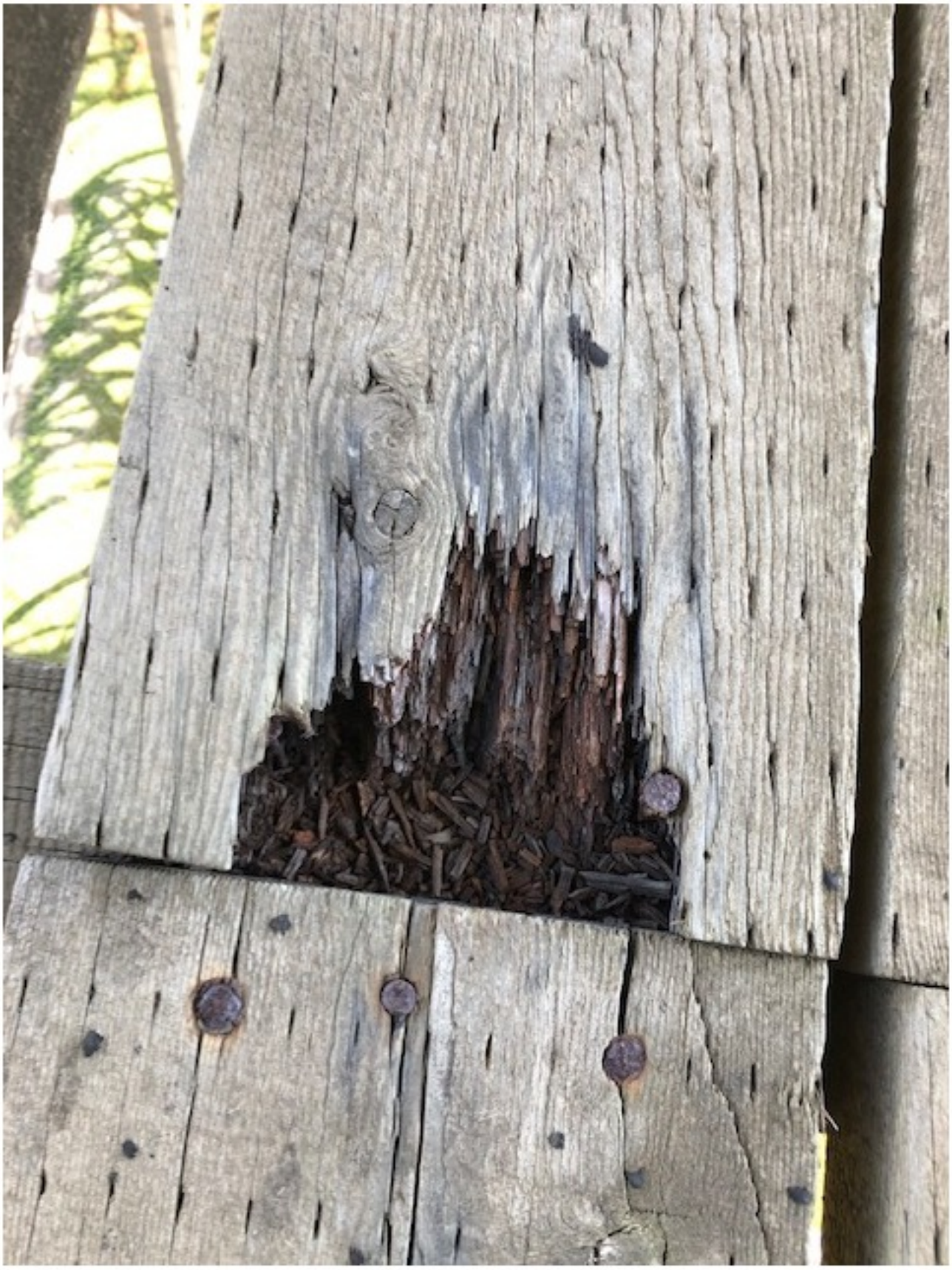


Photo No. 3
The right catwalk member in Span 22 is rotted around the connection points.

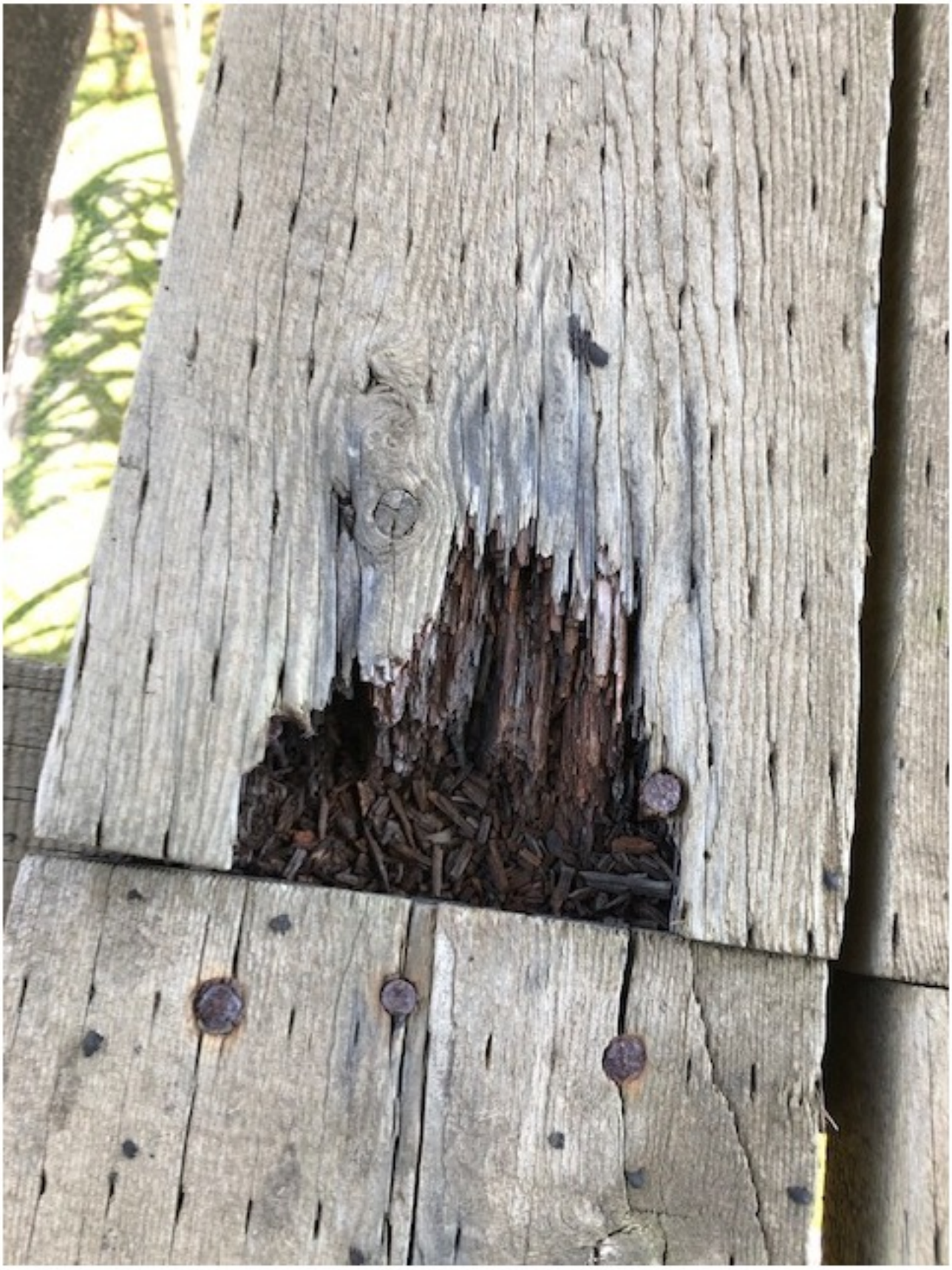


Photo No. 3
The right catwalk member in Span 22 is rotted around the connection points.

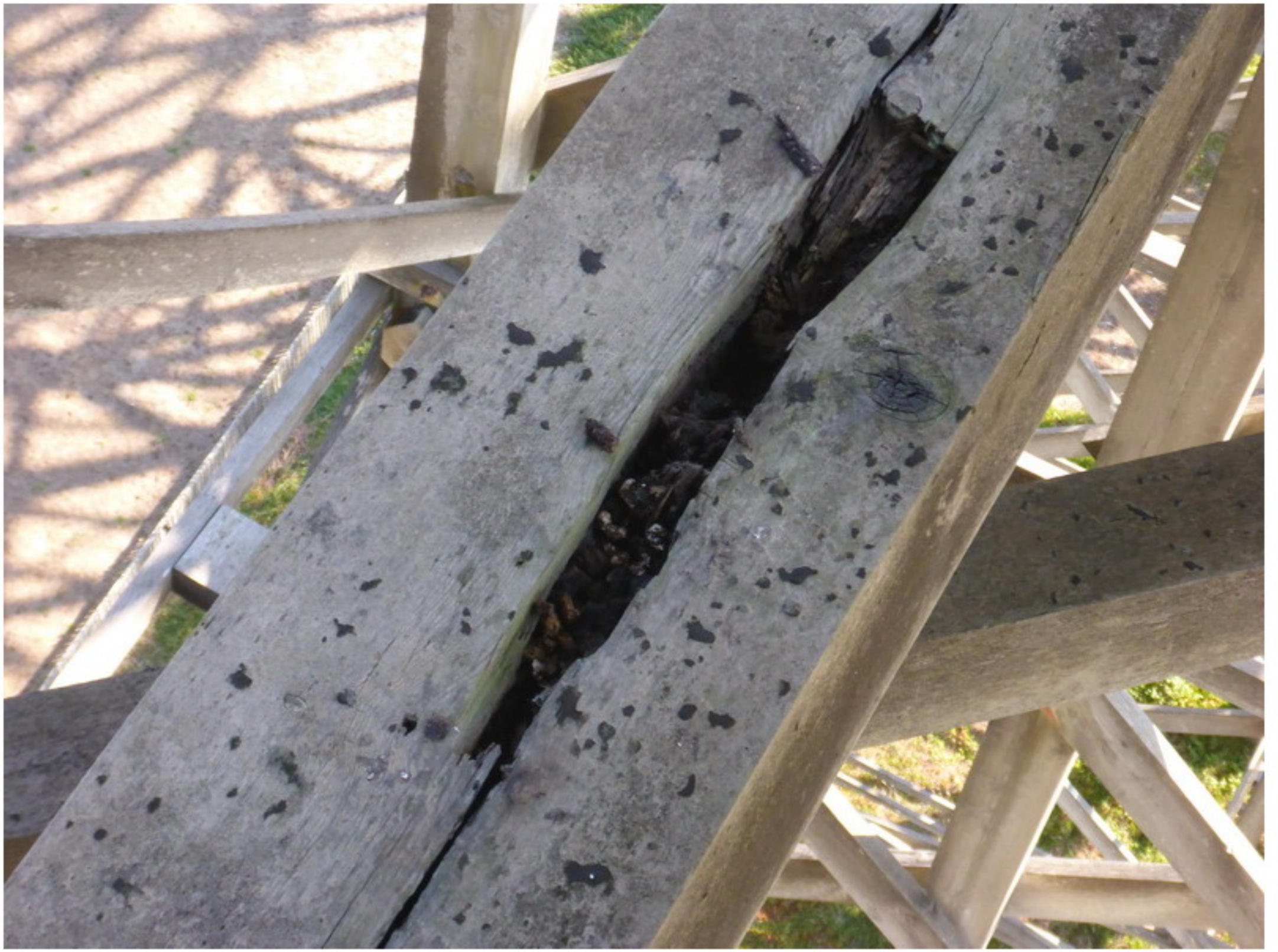


Photo No. 4
An area of decay was found at the top left horizontal between Bent 15 and Bent 16.

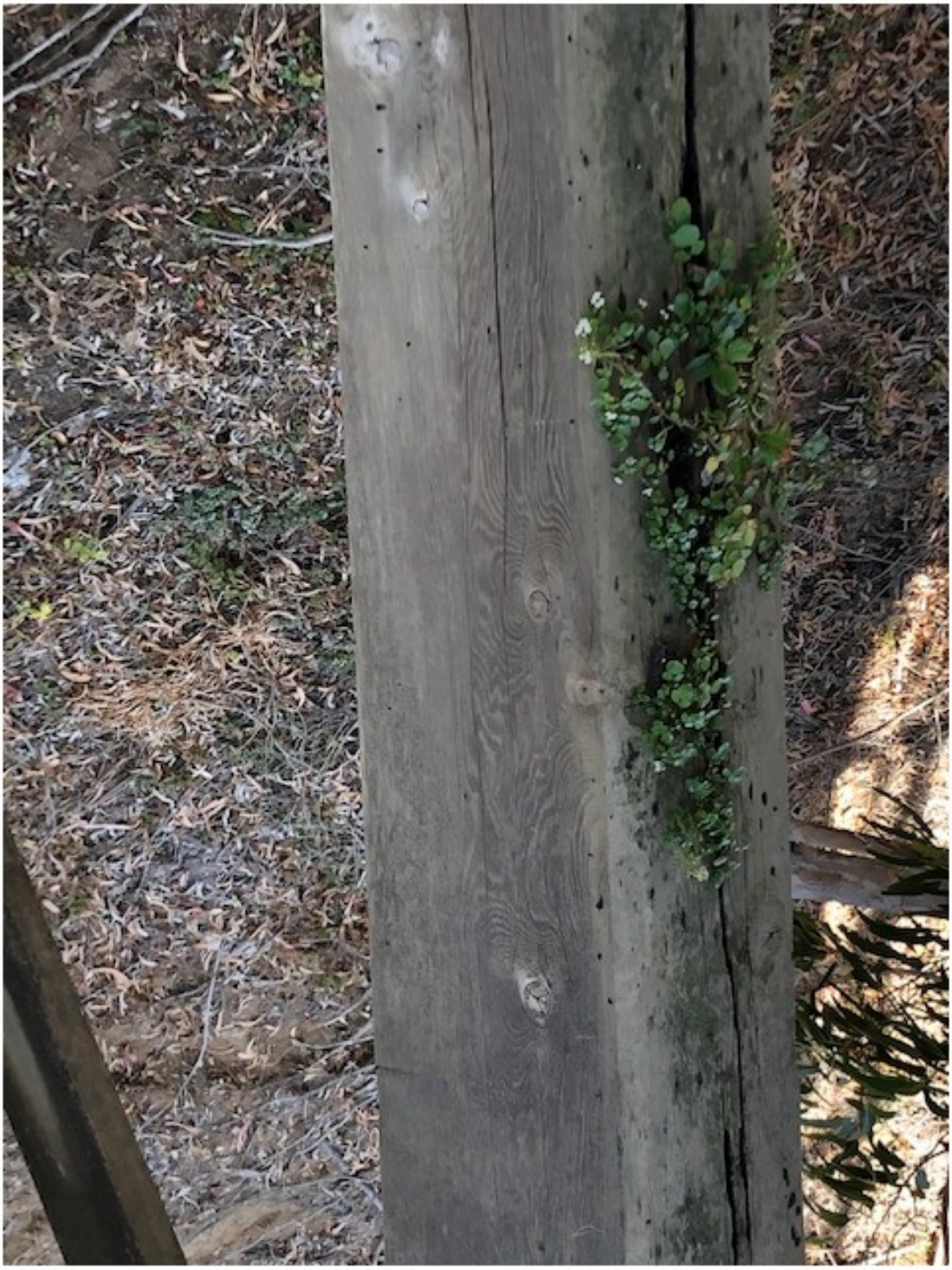


Photo No. 5
An area of decay was found at the top right horizontal between Bent 23 and Bent 246.

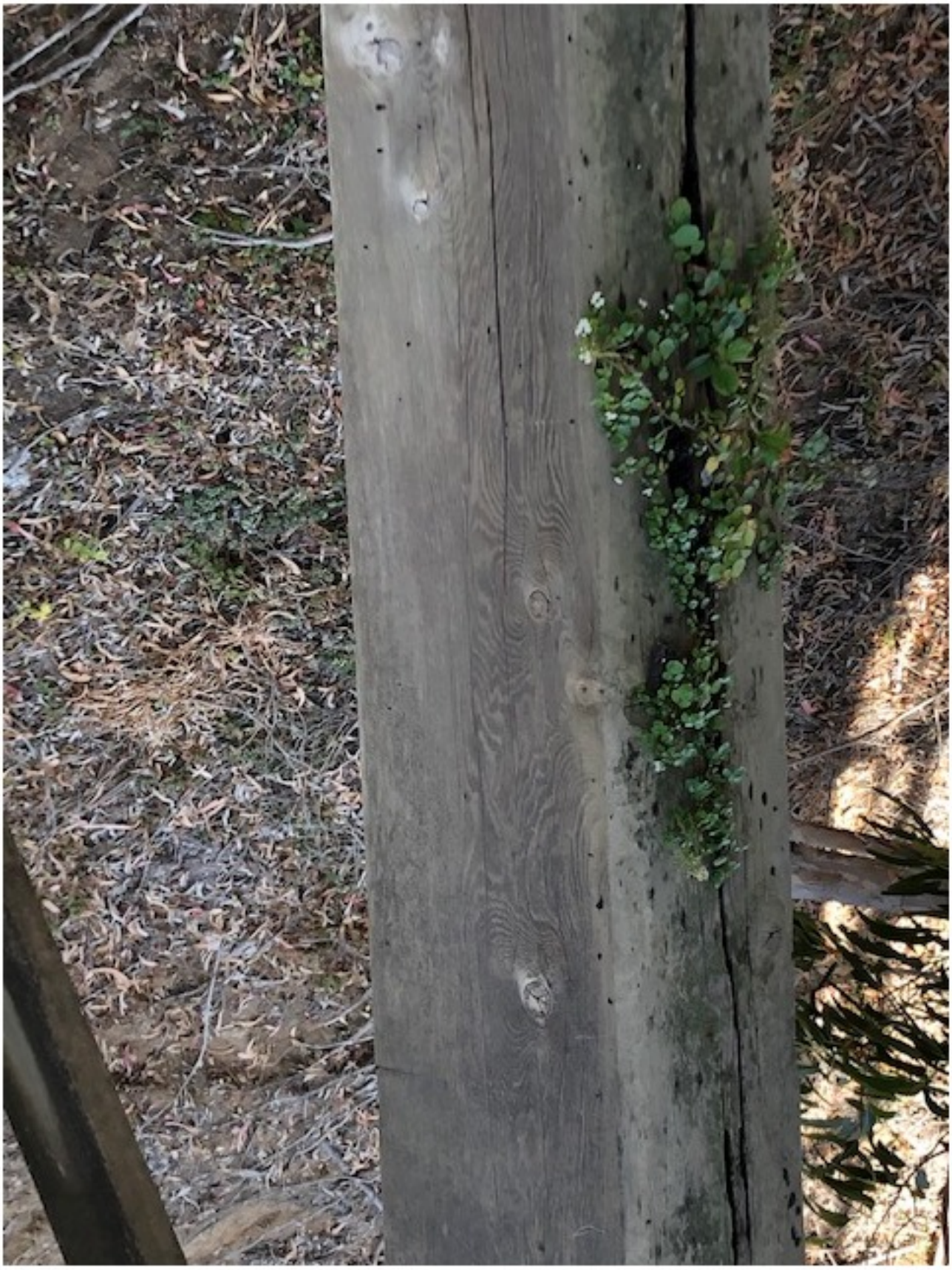


Photo No. 5
An area of decay was found at the top right horizontal between Bent 23 and Bent 246.

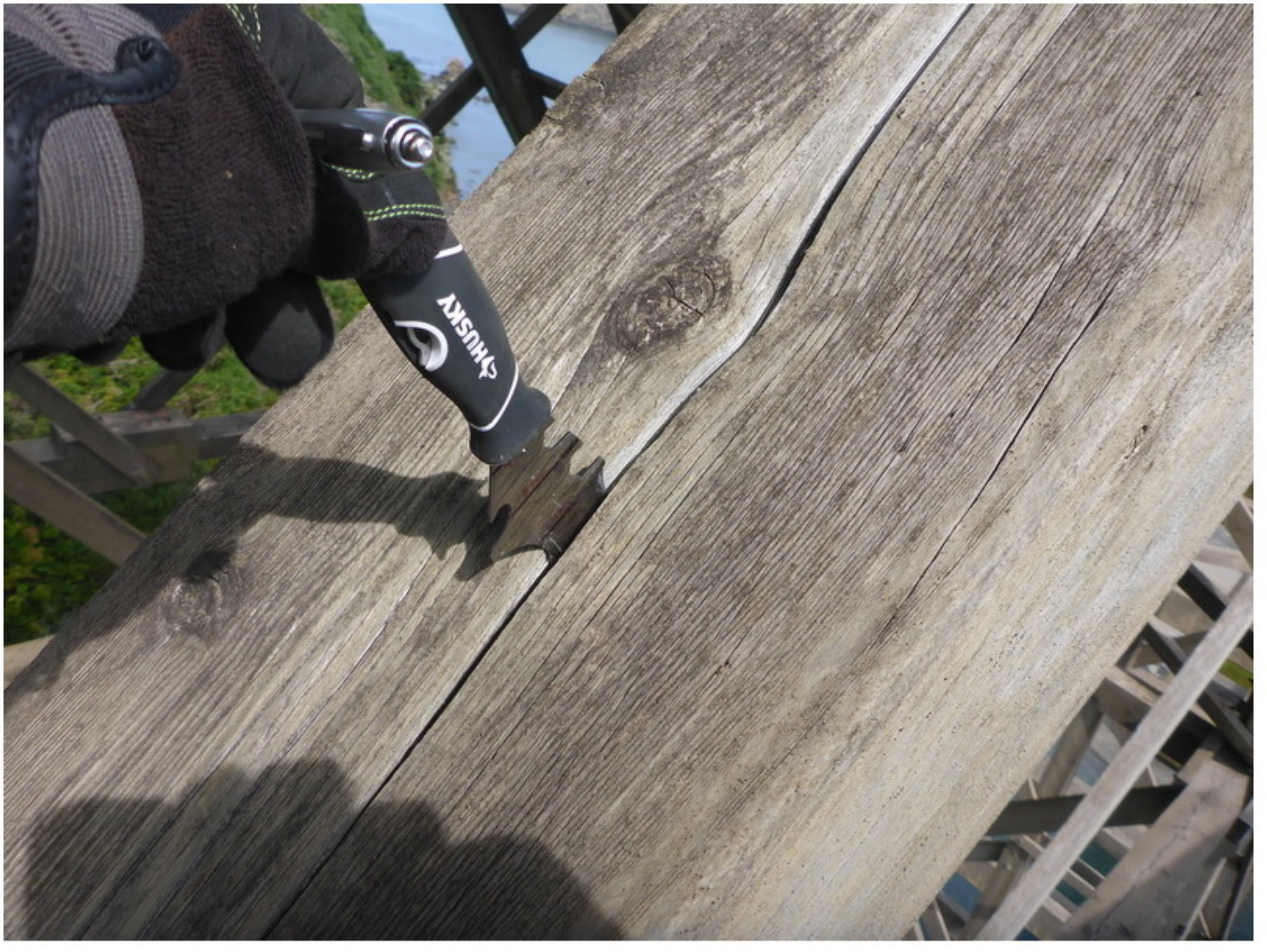


Photo No. 6
Large check along the fourth upper diagonal of the timber truss in Span 8.

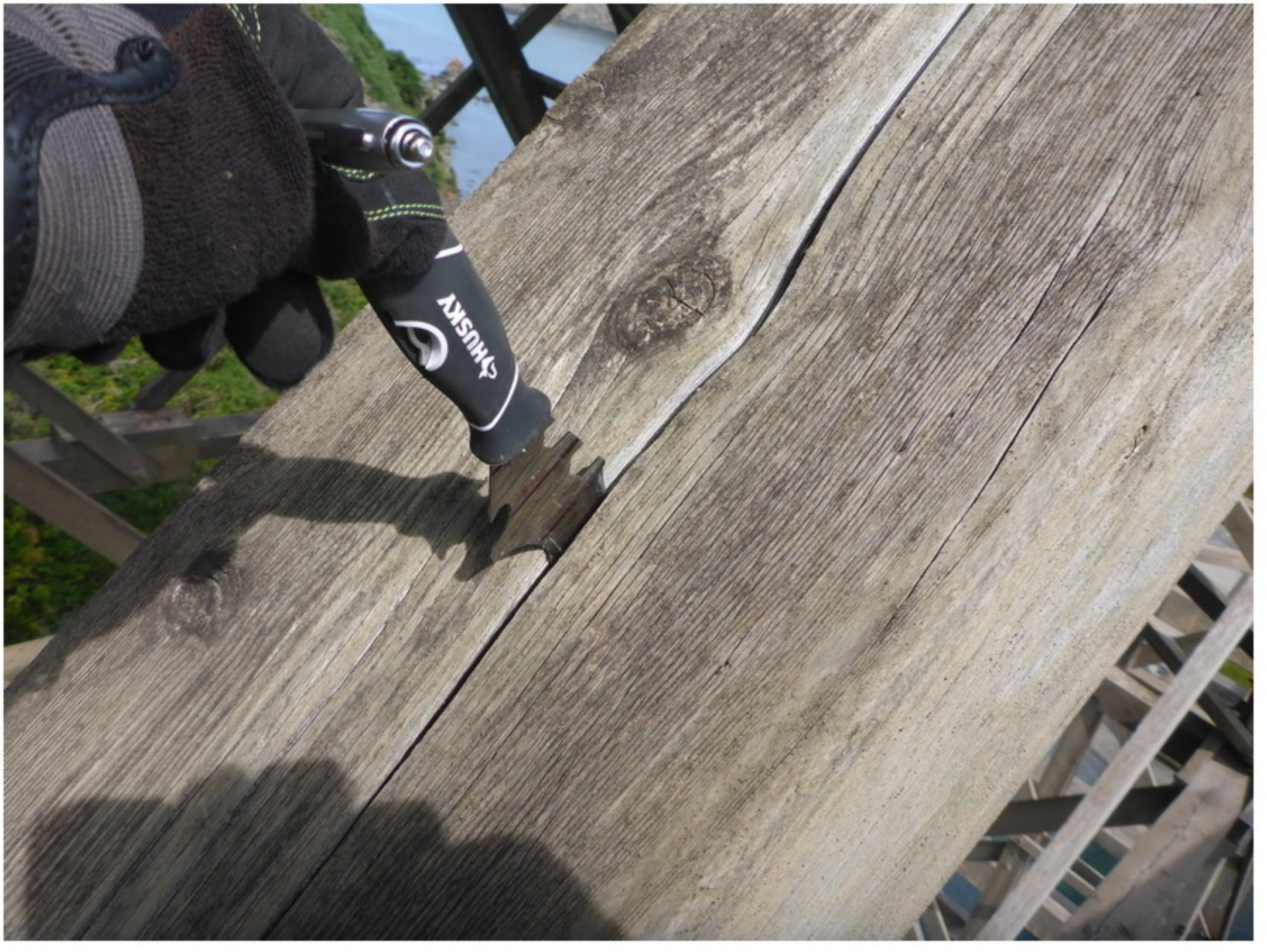


Photo No. 6
Large check along the fourth upper diagonal of the timber truss in Span 8.

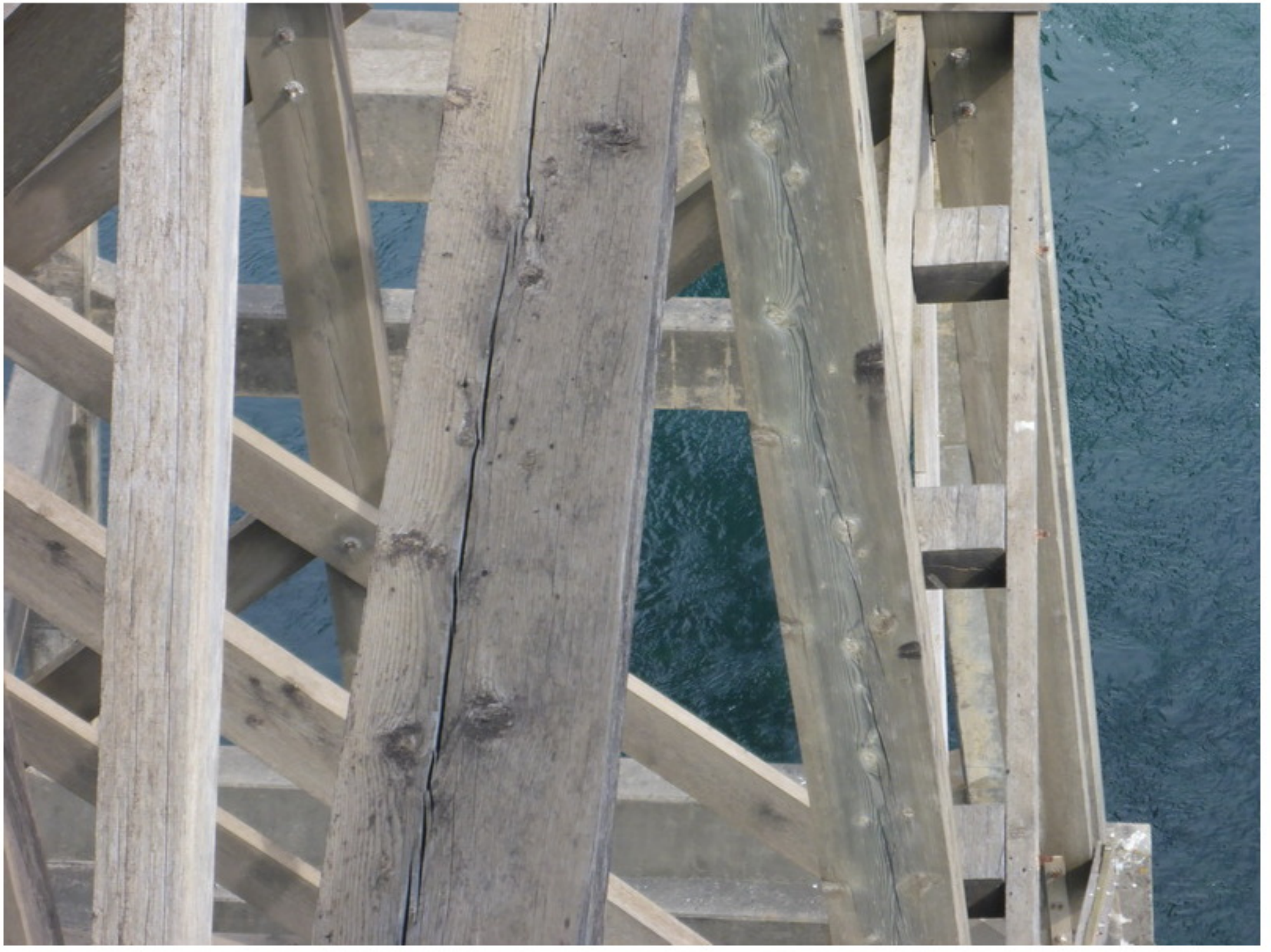


Photo No. 7
Large check present in the fourth horizontal member of Span 8.

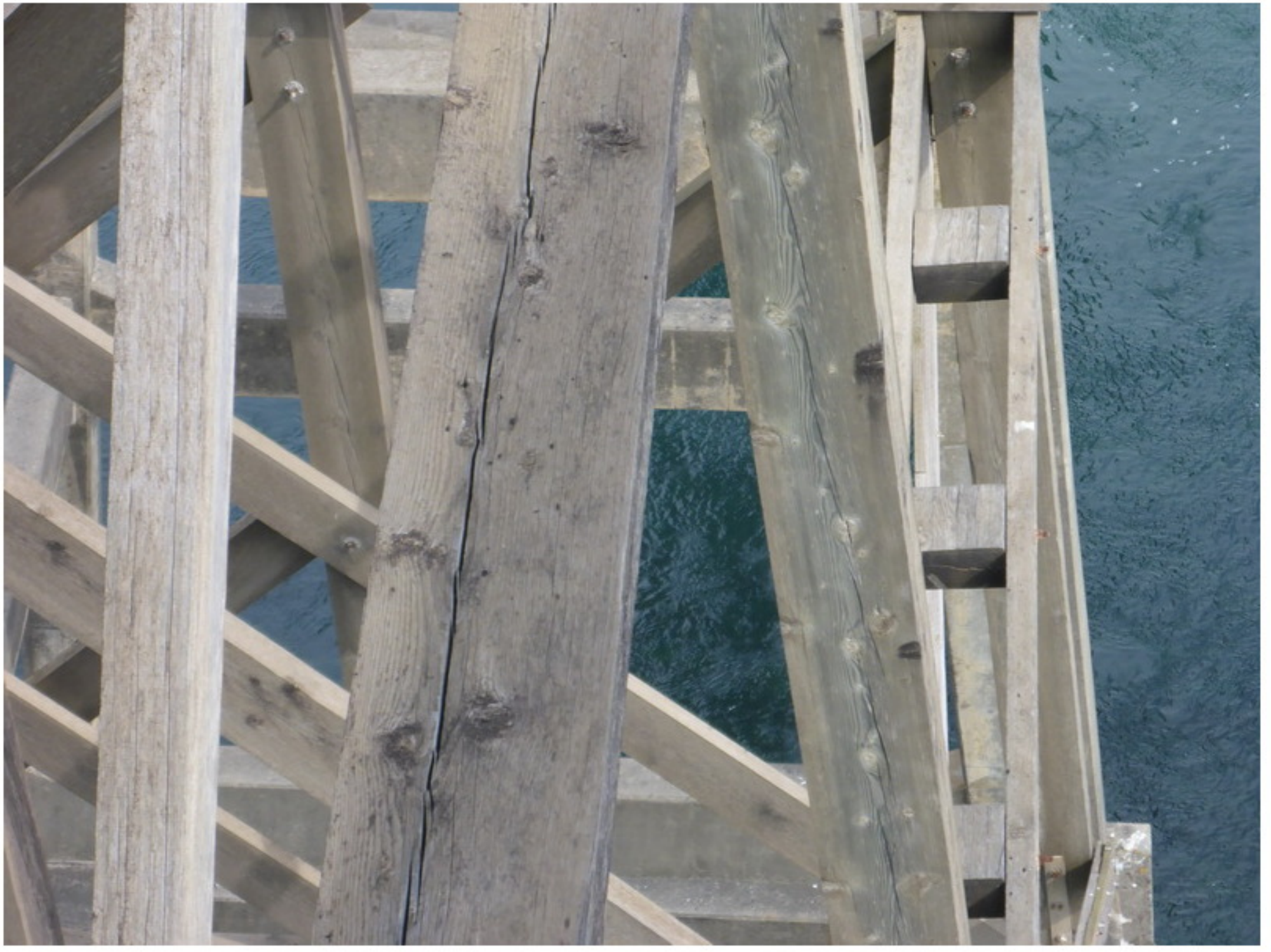


Photo No. 7
Large check present in the fourth horizontal member of Span 8.

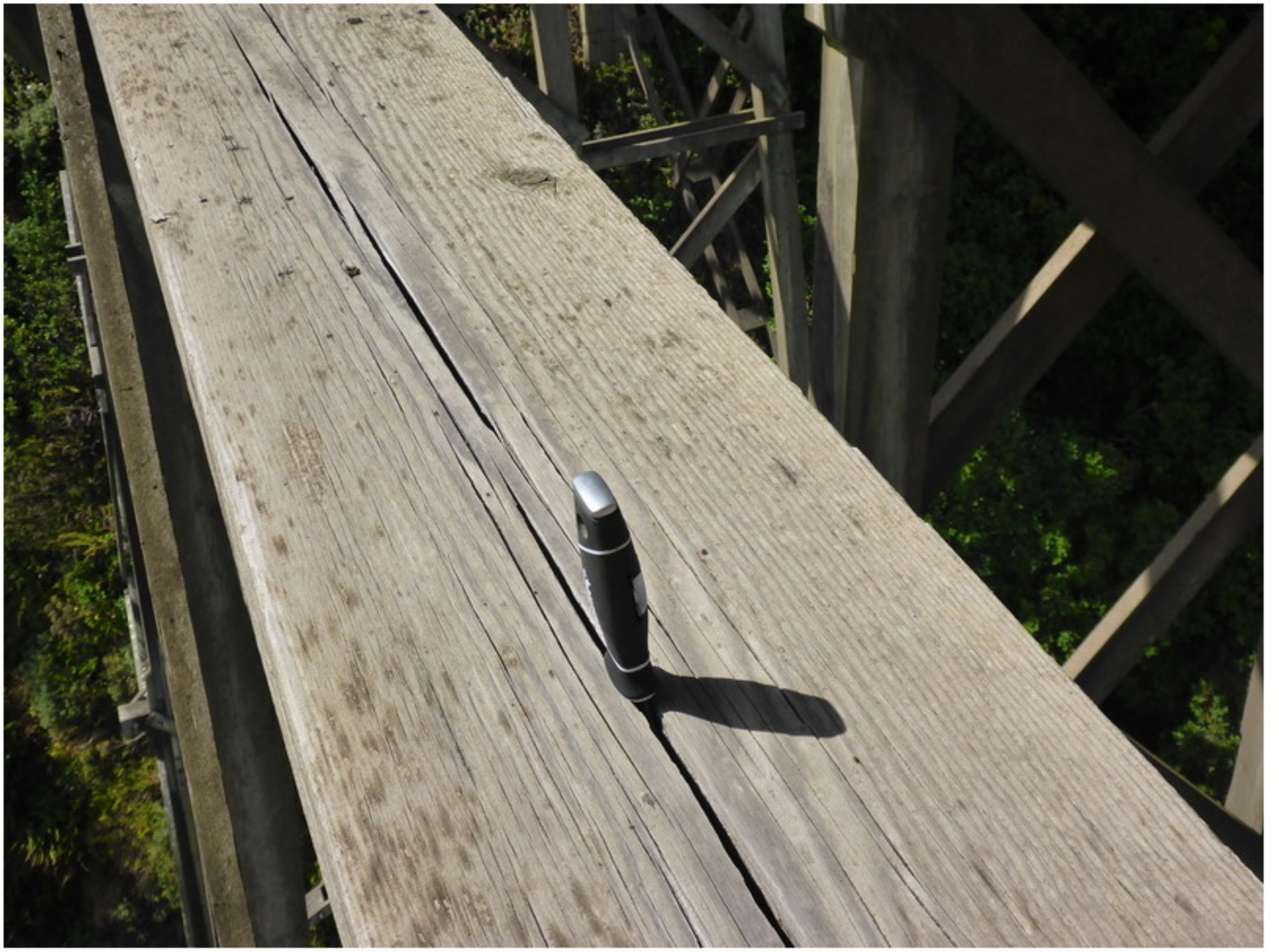


Photo No. 8
Large check along the fourth horizontal of the timber truss in Span 11.

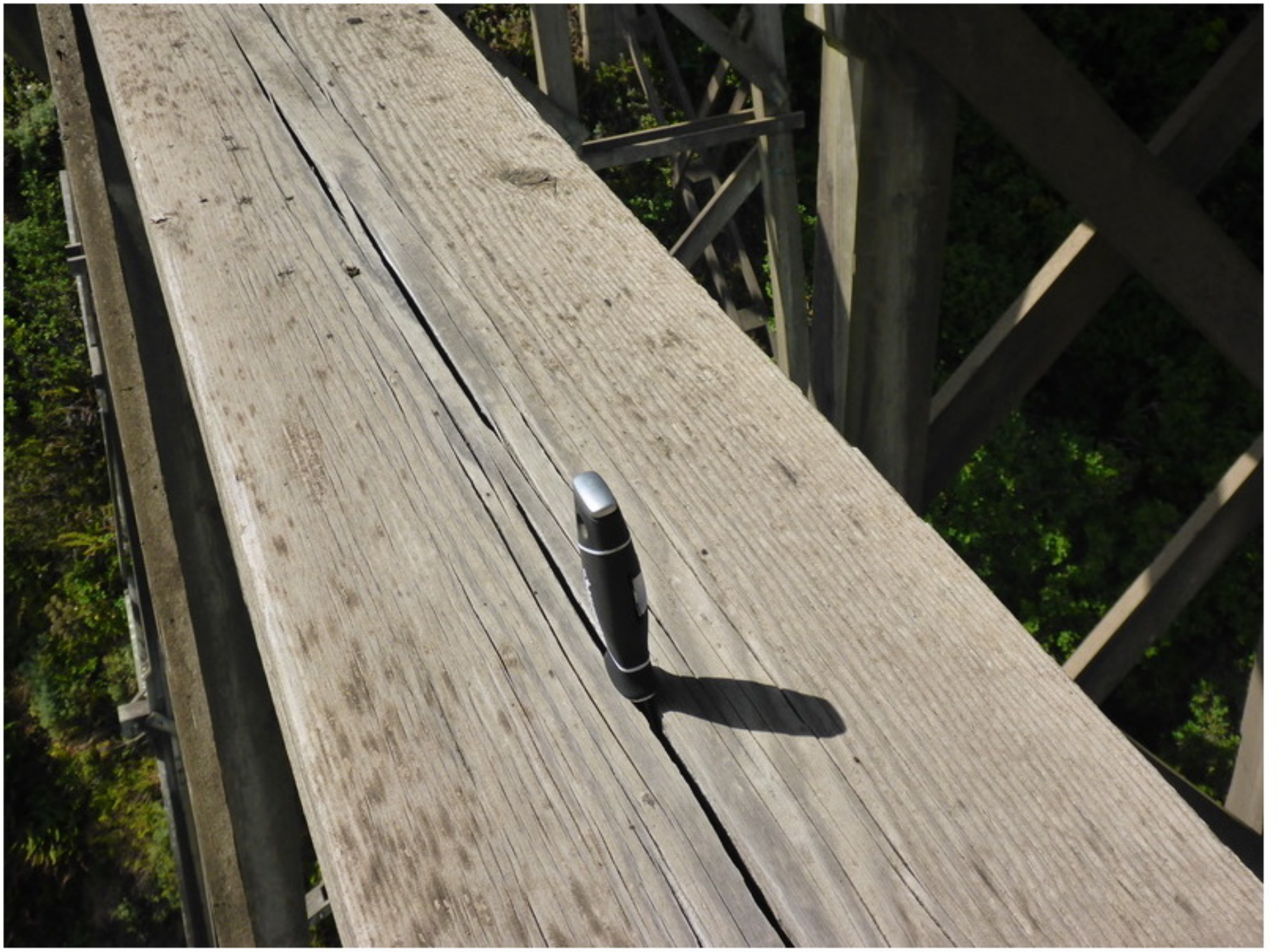


Photo No. 8
Large check along the fourth horizontal of the timber truss in Span 11.

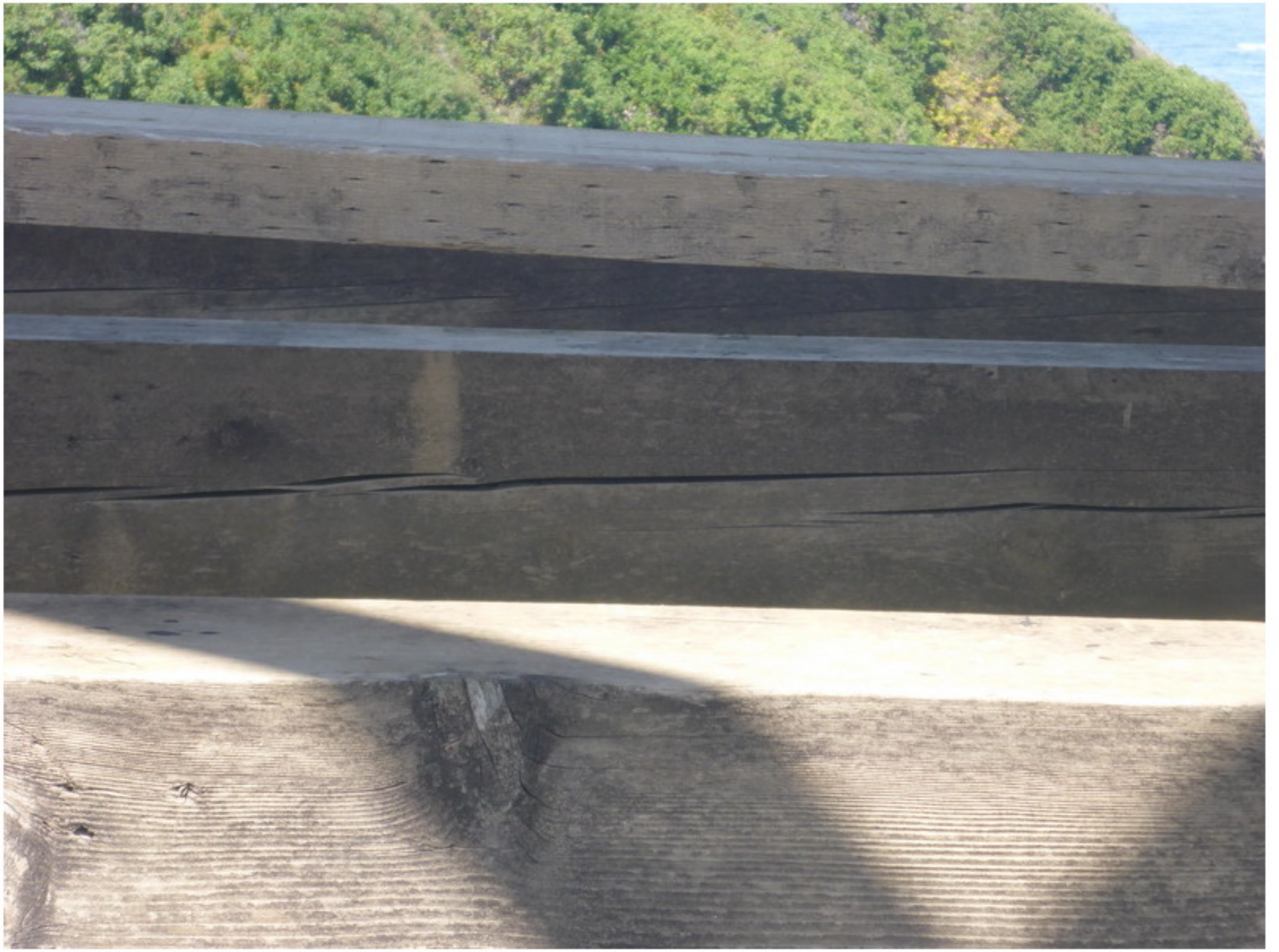


Photo No. 9
Check along the second horizontal of the timber truss in Span 13.

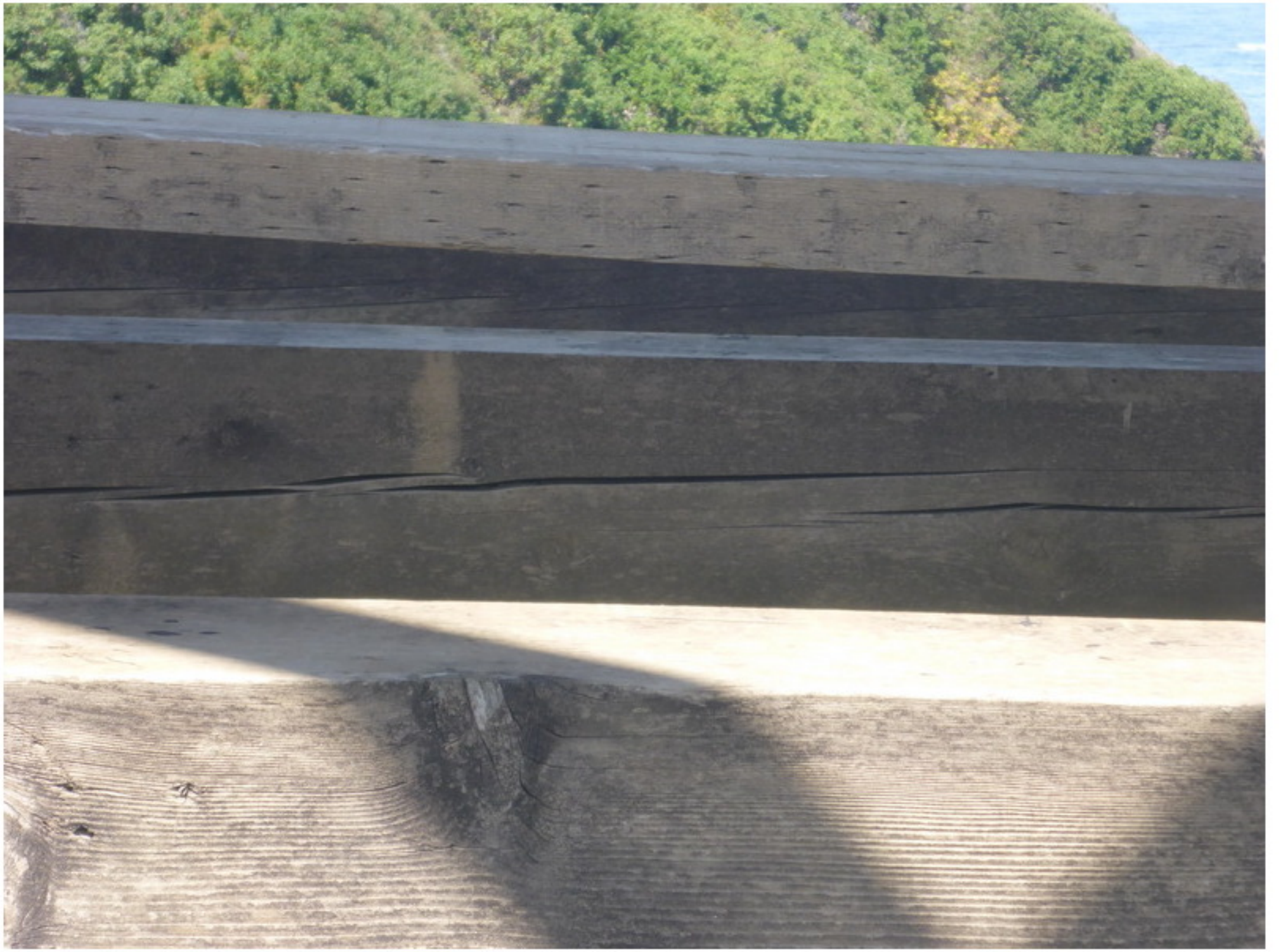


Photo No. 9
Check along the second horizontal of the timber truss in Span 13.

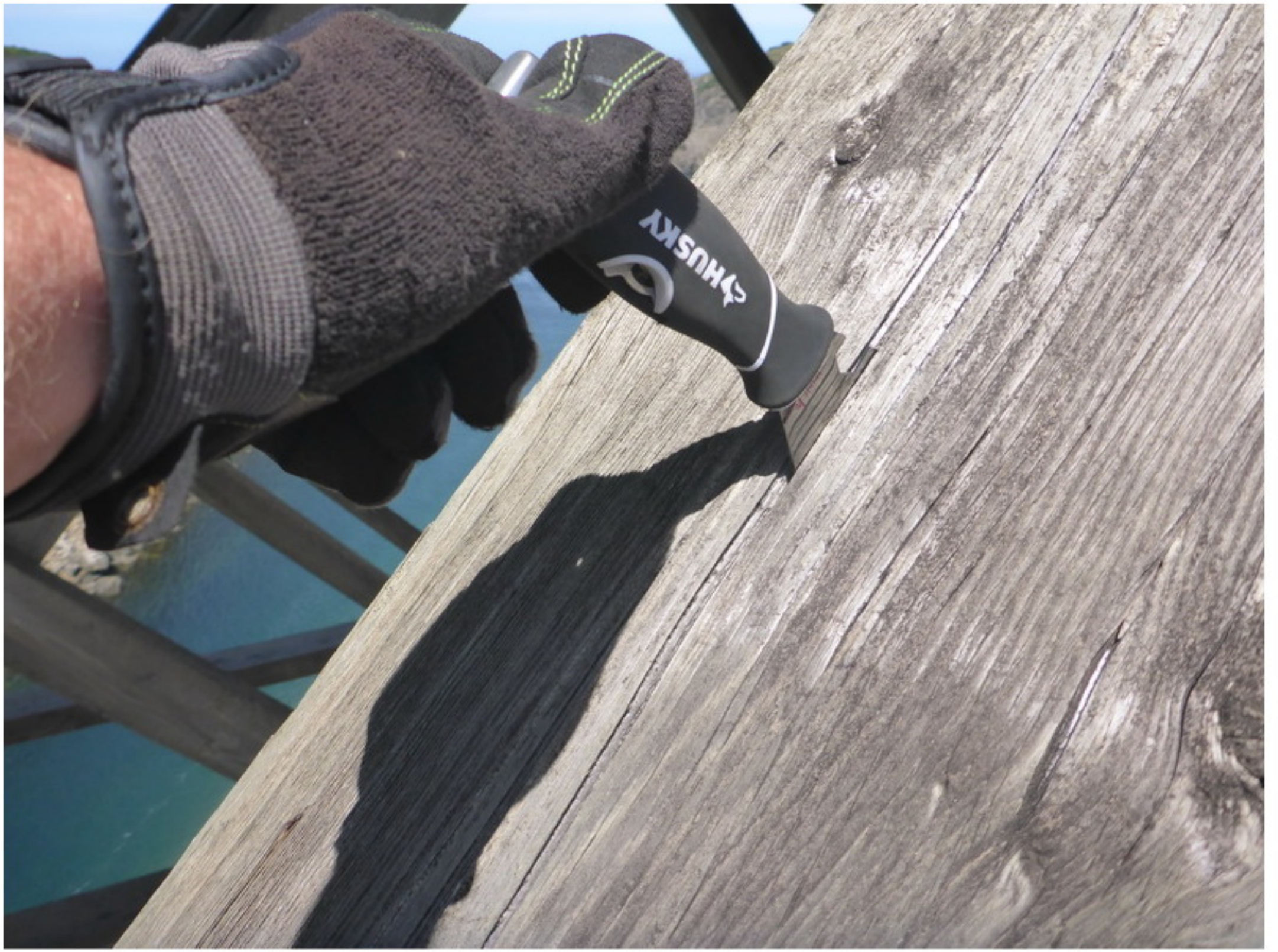


Photo No. 10
Large check along the fourth upper diagonal of the timber truss in Span 14.

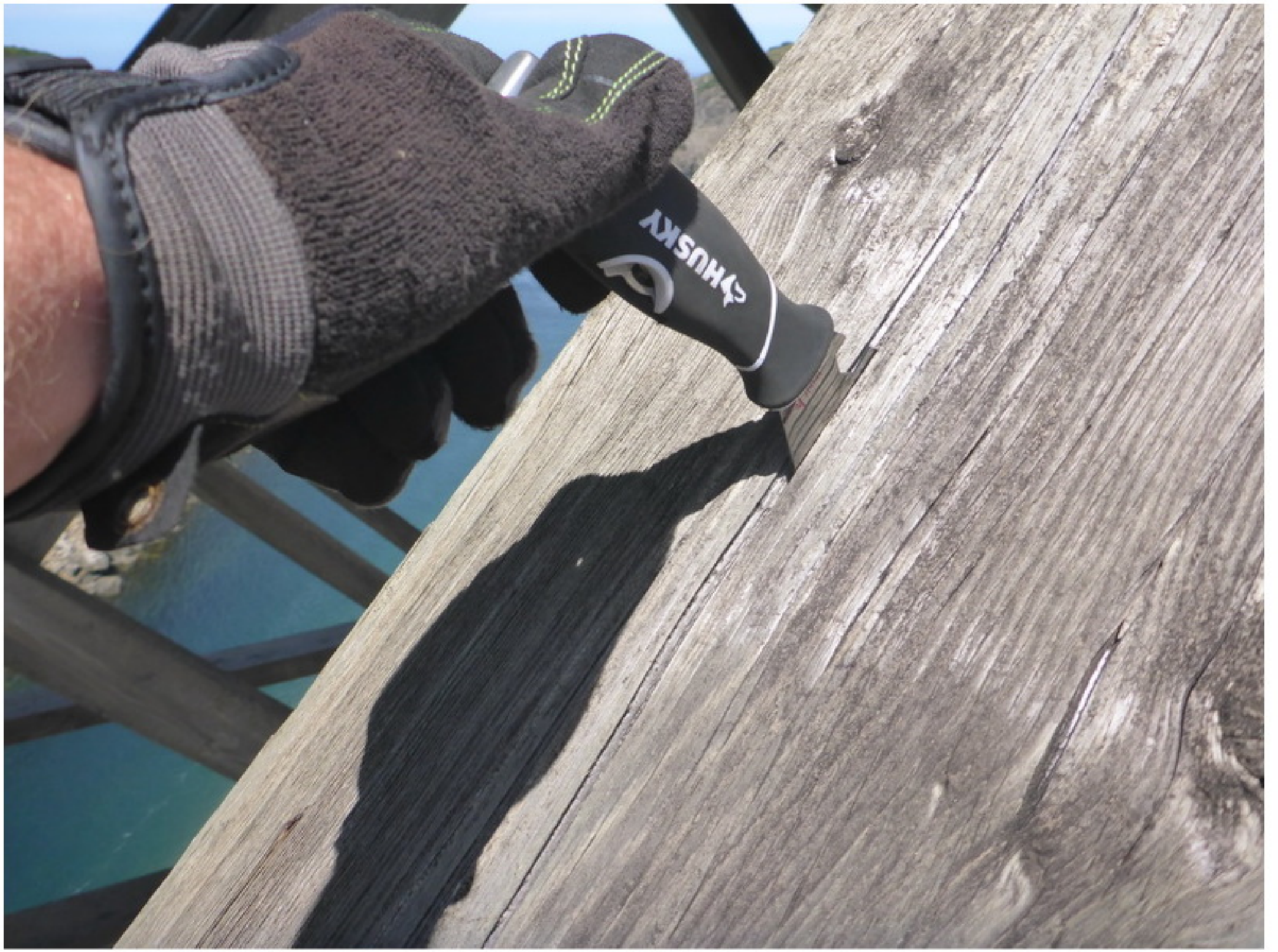


Photo No. 10
Large check along the fourth upper diagonal of the timber truss in Span 14.

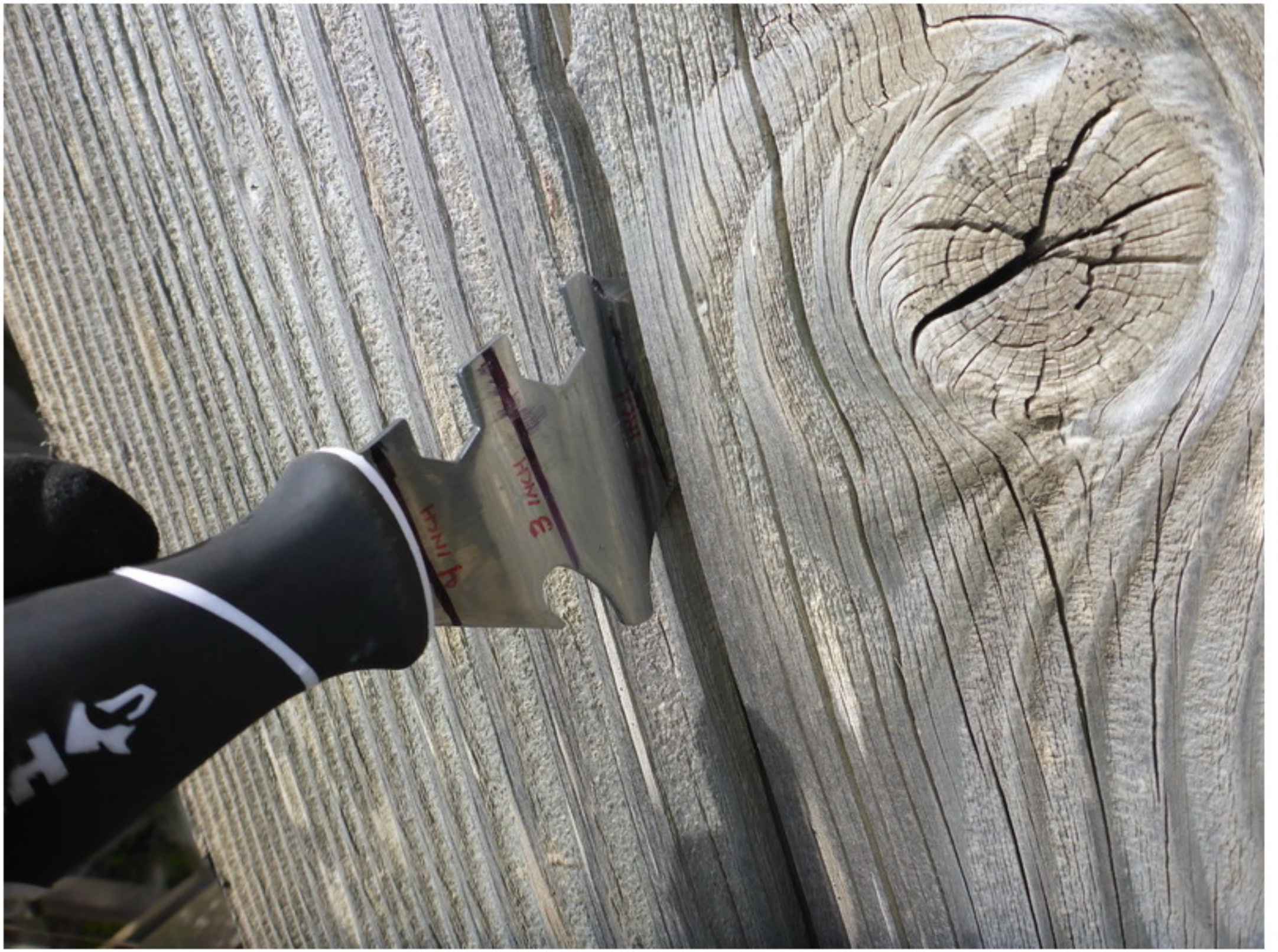


Photo No. 11
Large check along the fourth column of Bent 9.

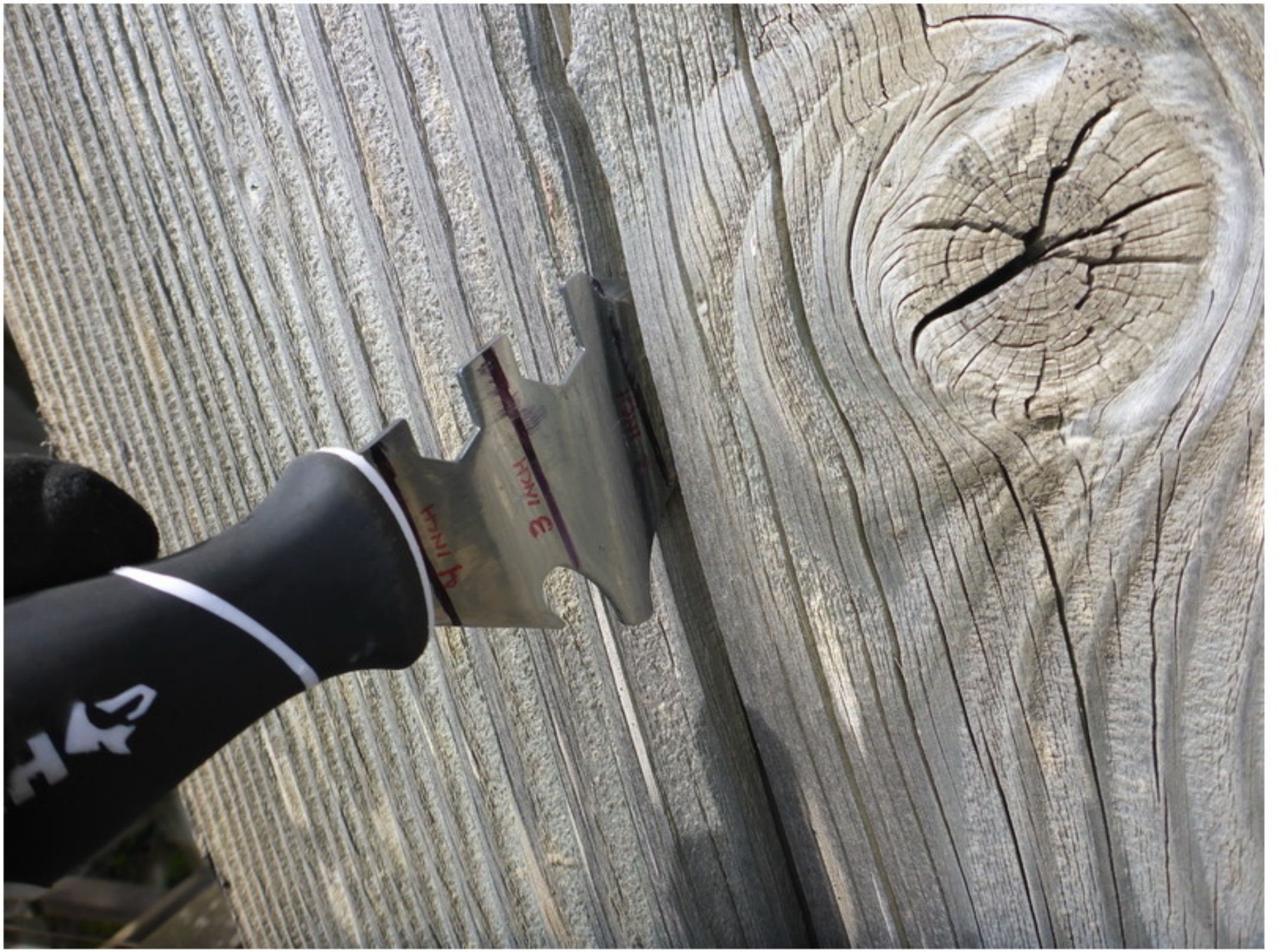


Photo No. 11
Large check along the fourth column of Bent 9.

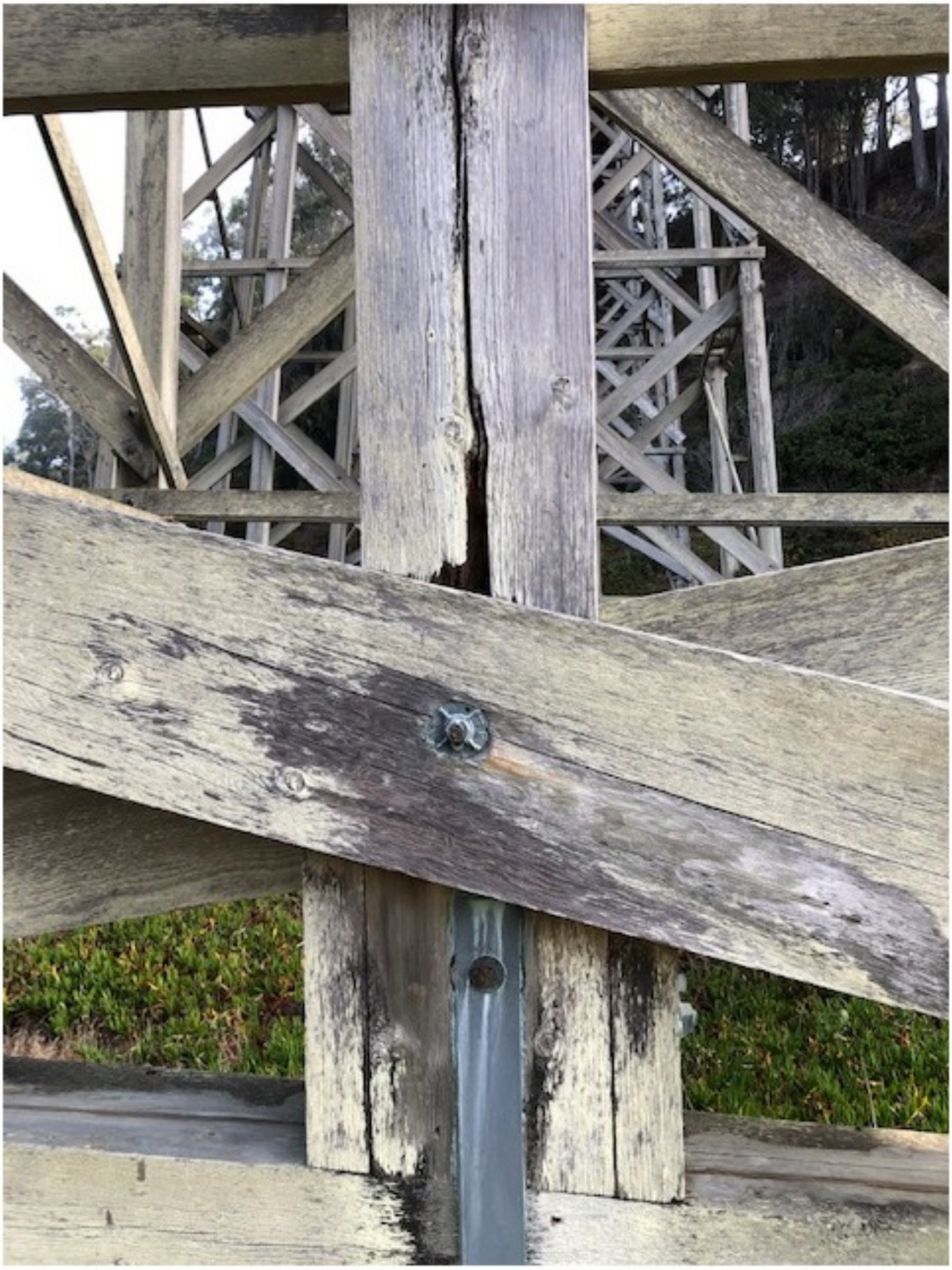


Photo No. 12
Column 4 at Bent 23 has a void and rot due to termite infestation.

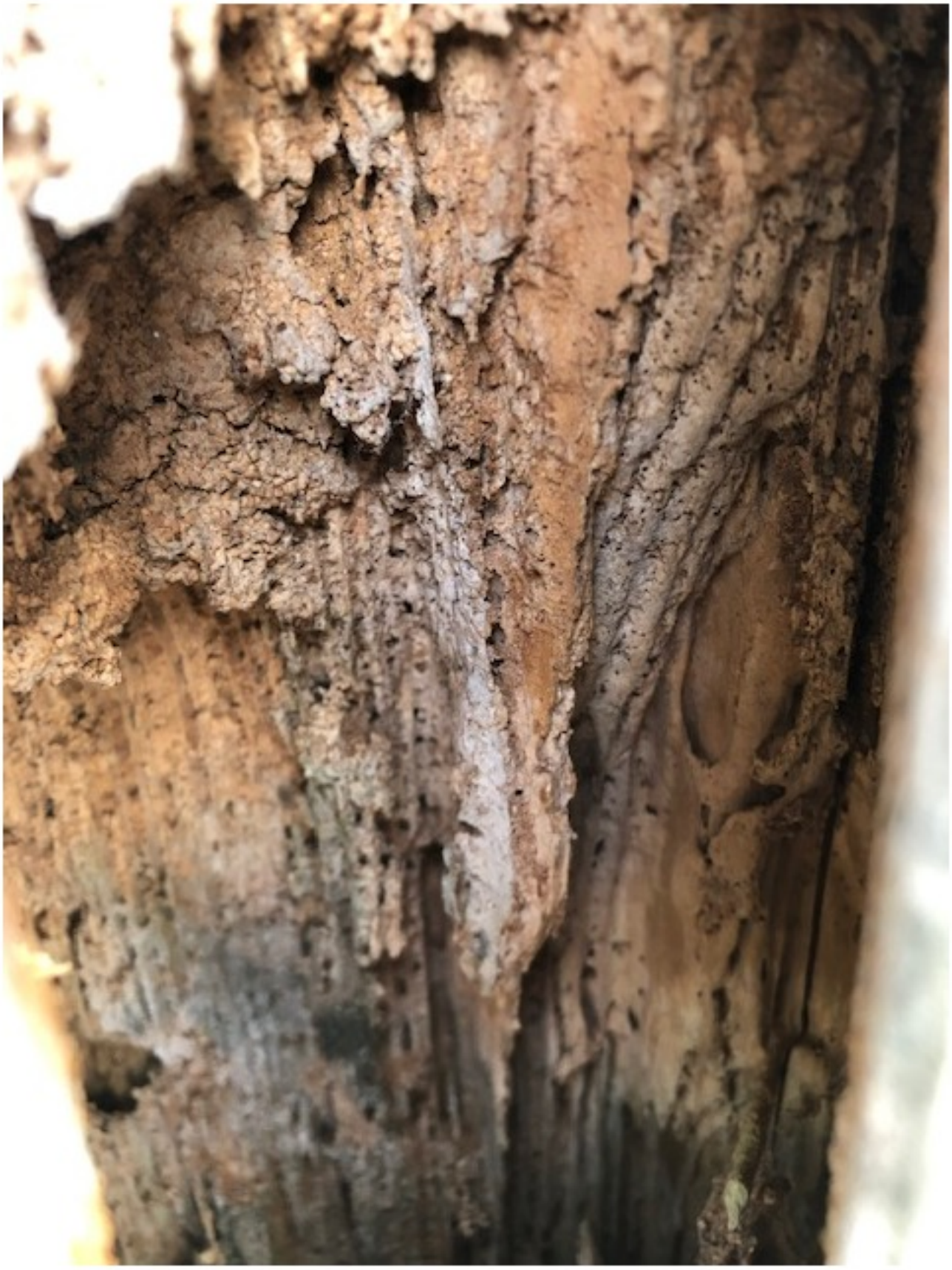


Photo No. 13
Core rot due to termites in Column 4 at Bent 23.

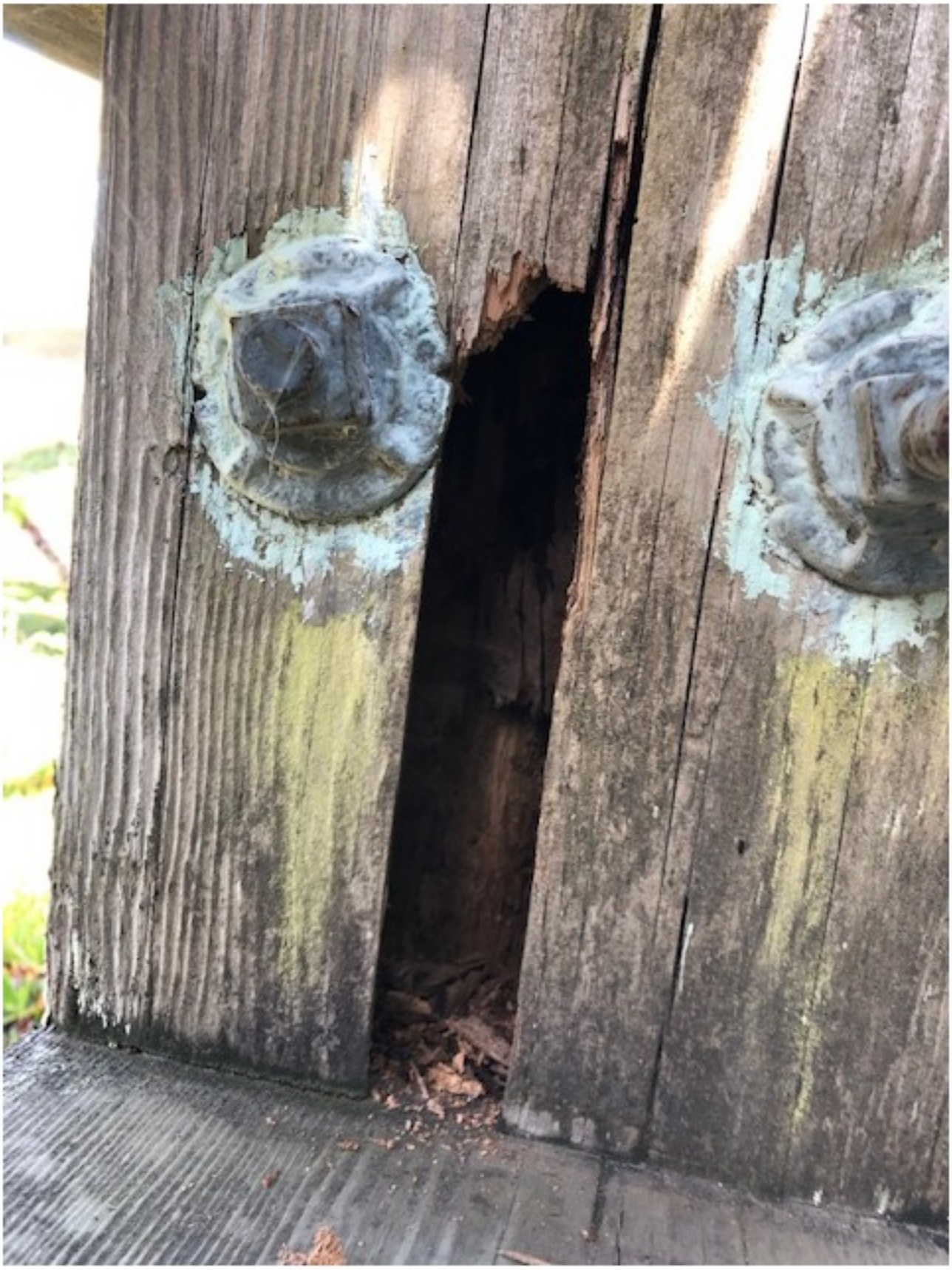


Photo No. 14
The east scab at Column 2 of Bent 24 has a void and rot due to termite infestation.

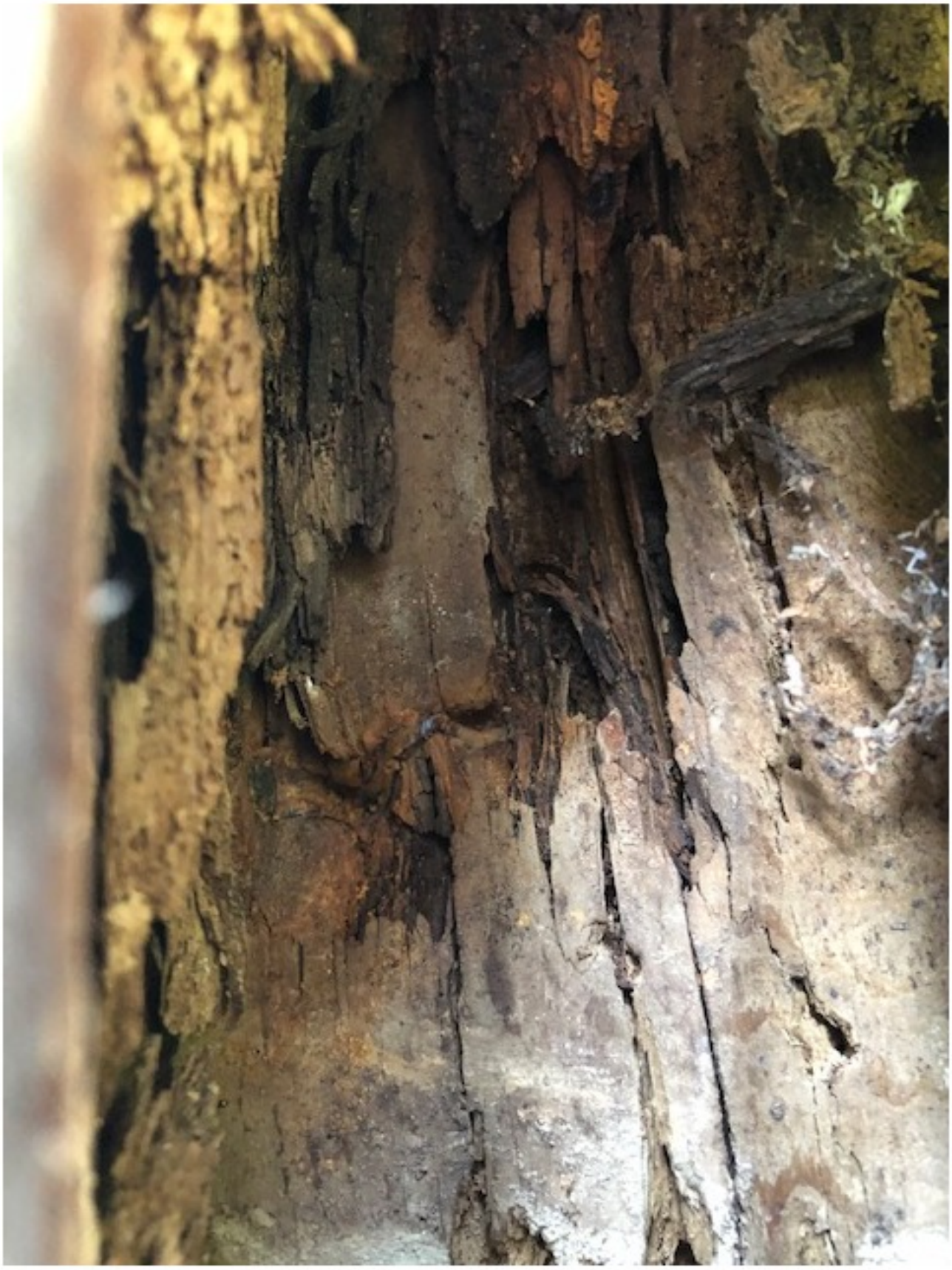


Photo No. 15
Core rot due to termites in the eastern timber scab at Column 2 of Bent 24.

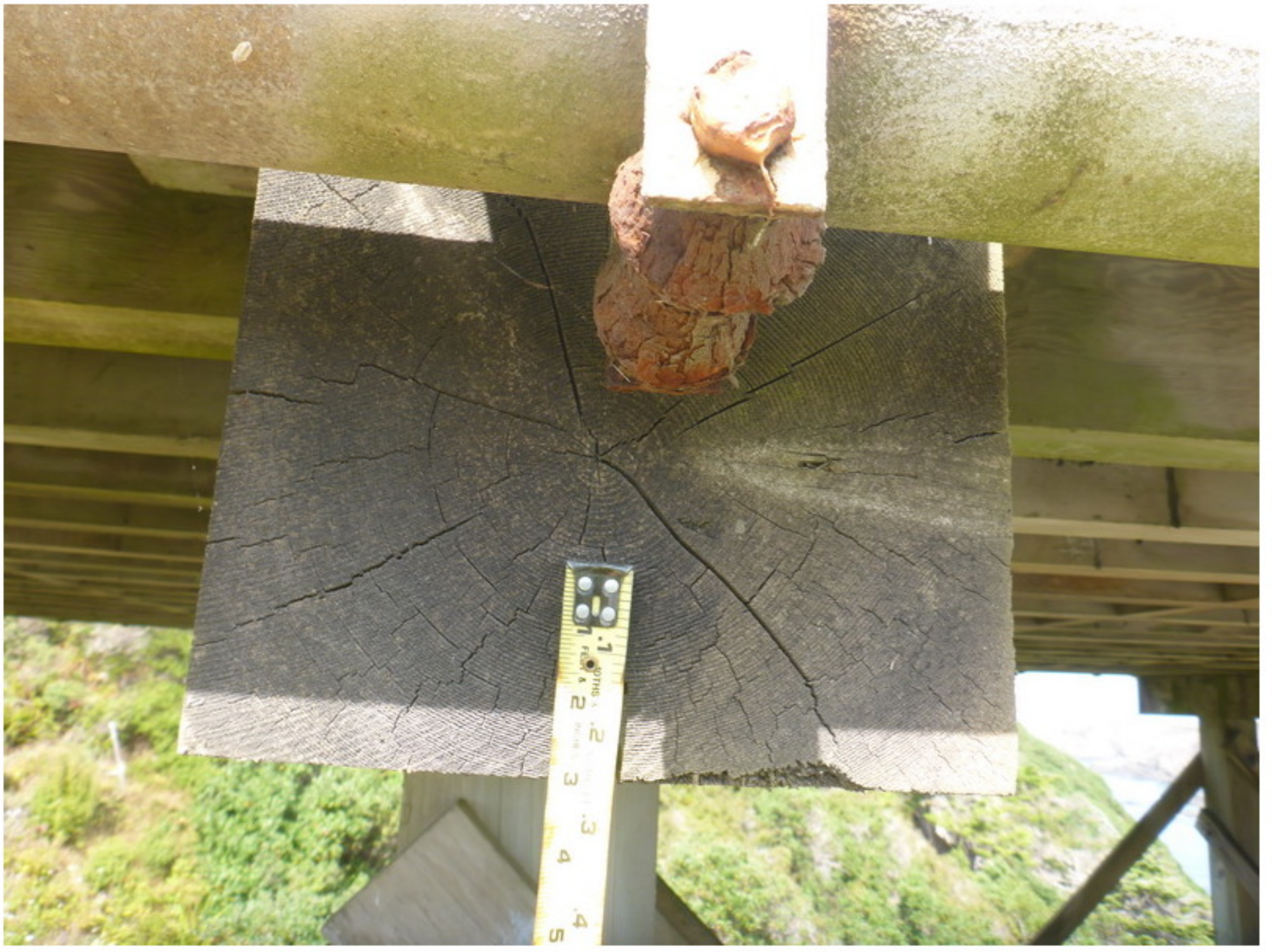


Photo No. 16
Typical checks visible at the end of the bent caps.

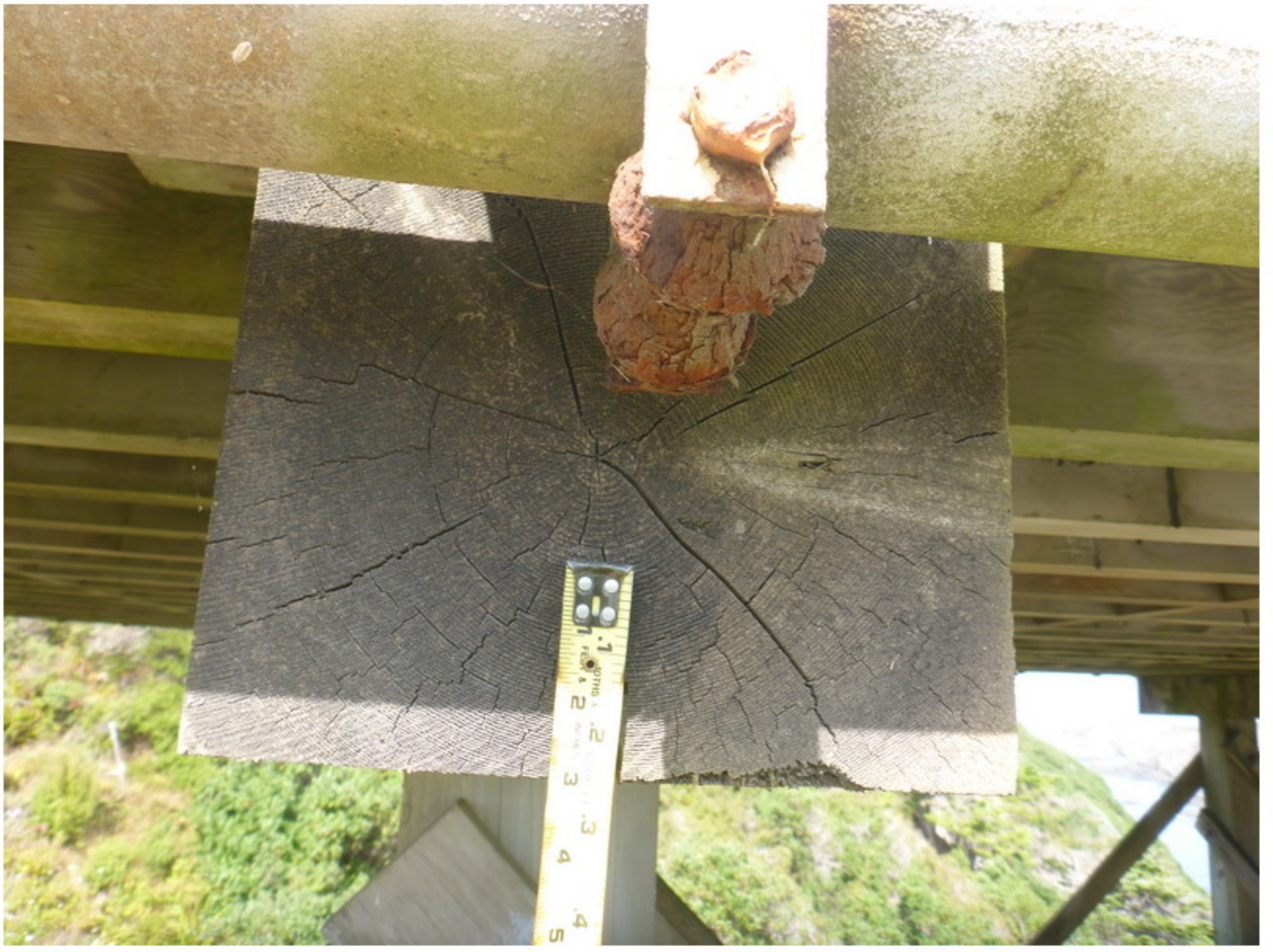


Photo No. 16
Typical checks visible at the end of the bent caps.

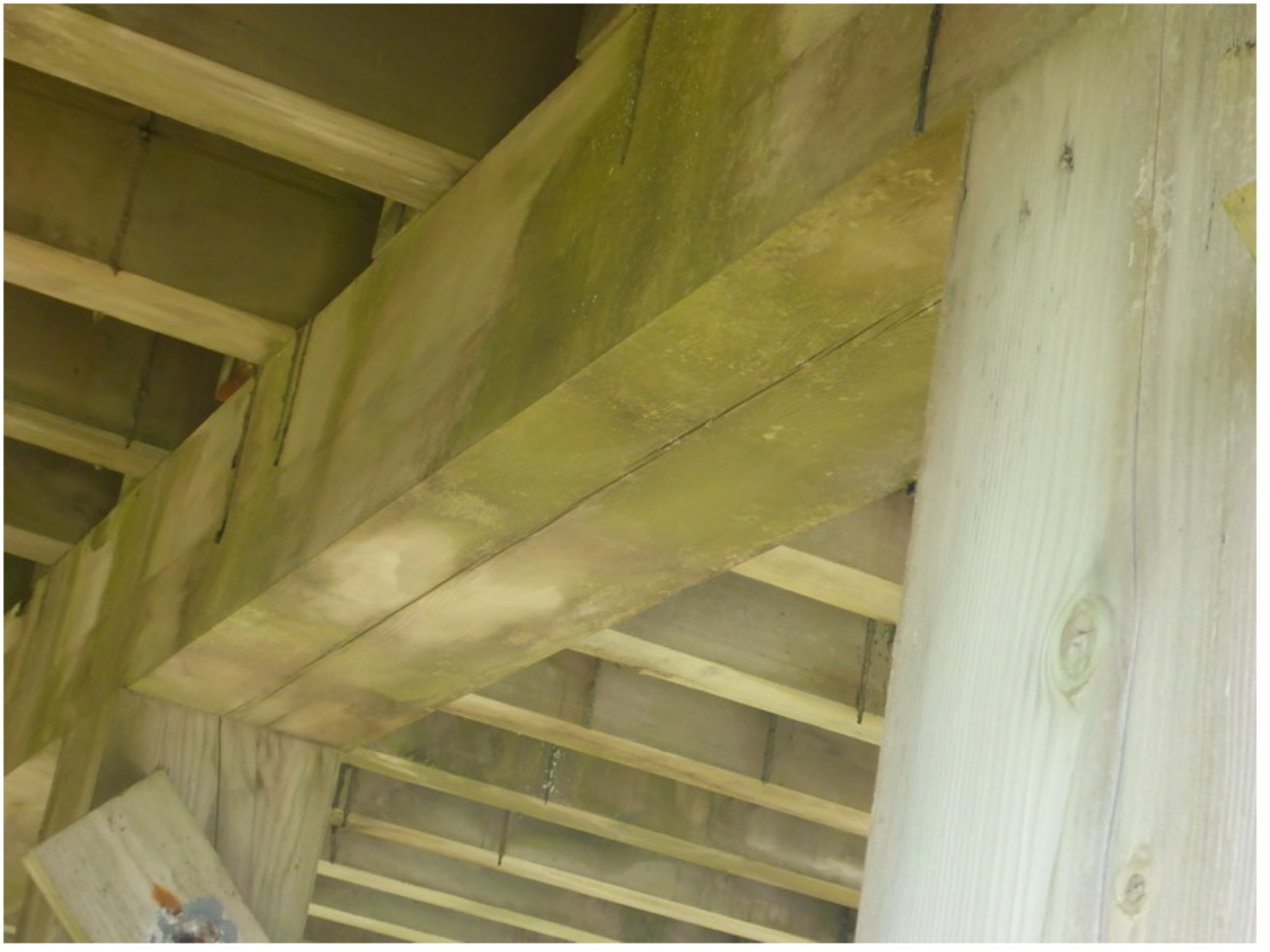


Photo No. 17
Horizontal check present along the bottom of Bent Cap 8.

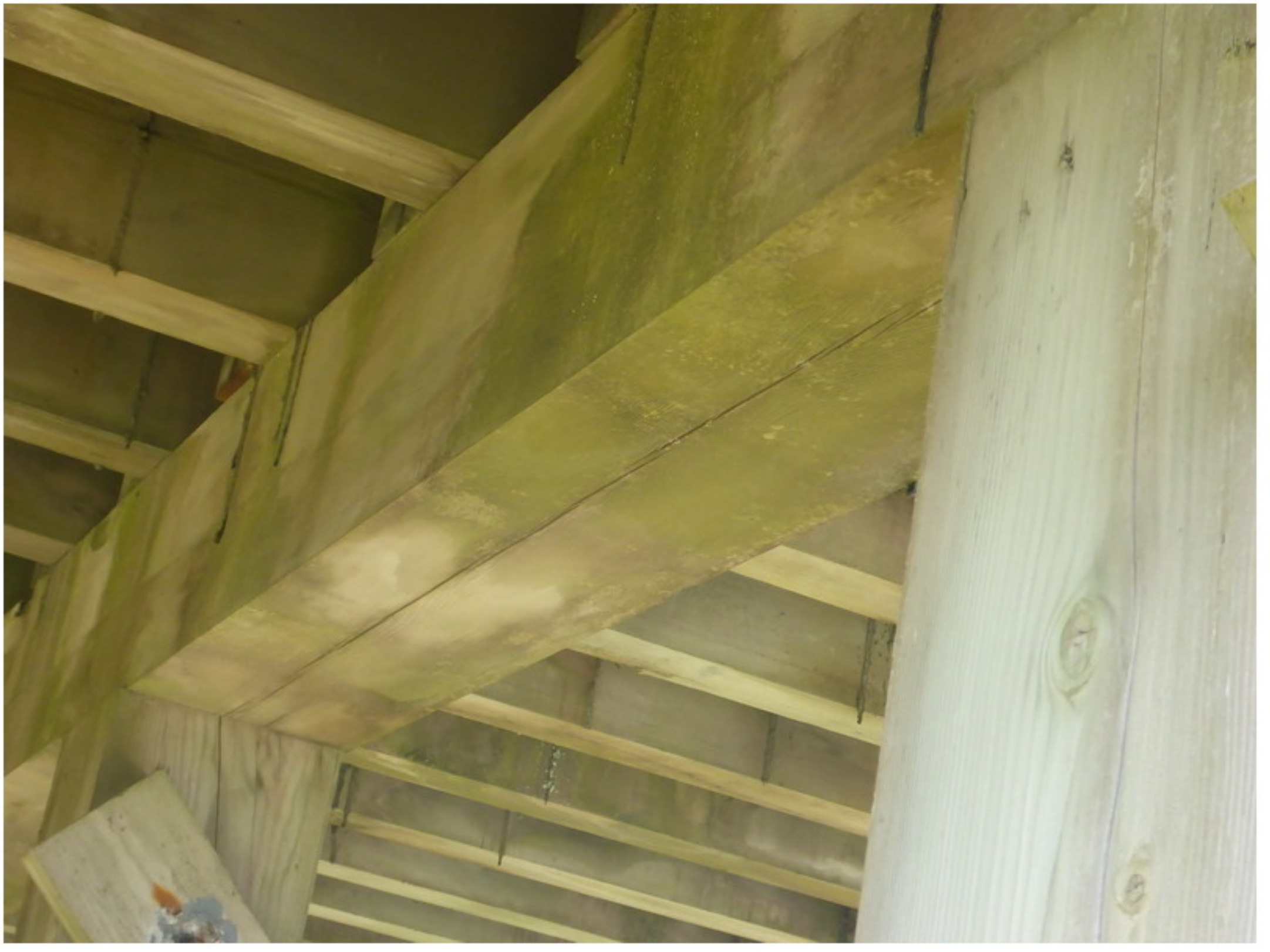


Photo No. 17
Horizontal check present along the bottom of Bent Cap 8.