


Engineering Quality
Assurance Division
B04-925.142

Port Authority Facility Condition Survey Program

George Washington Bridge
2015 Inspection Report of
Main Span Upper Level

Volume 1 of 2

January 2016


Engineering Department

THE PORT AUTHORITY OF NY & NJ



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January 04, 2016

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Attention: Mr. Camille Dagher, P.E., Project Manager

**Re: 2015 Biennial Inspection of GWB Upper & Lower Levels
PA Agreement No. 405-15-005; P.O. 4900011453**

Gentlemen:

We are forwarding herewith ten (10) copies of the 2015 Final Condition Survey Report of the George Washington Bridge - Main Span Upper Level.

The thoroughness and accuracy of all work on this project has been ensured by independent quality control by our senior technical and management staff.

Should you have any questions, please do not hesitate to contact us.

Very truly yours,

STANTEC CONSULTING SERVICES INC.

A handwritten signature in black ink, appearing to read 'Stelios N. Bertos'.

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SNB/ga
Attachments

EXECUTIVE SUMMARY

Stantec Consulting Services Inc. in association with PK Engineering, P.C. (PKE) and American Structural Engineering, P.C. (ASE) performed the 2015 Biennial Inspection of the George Washington Bridge Upper Level (BIN 5522508), from April through October of 2015. The inspection included upper level roadway and framing, the stiffening trusses (except for the bottom gusset plates and bottom chord members that were included in the George Washington Bridge Lower Level inspection), the main cables, suspender ropes, towers and anchorages. Underwater inspection was performed for the New Jersey Tower by ECM Engineers, Inc. The purpose of this inspection was to determine the overall condition of the structures and to identify structural and non-structural deficiencies.

The George Washington Bridge Upper Level is in overall good condition with the exception of the steel orthotropic deck, due to severely corroded and cracked deck ribs occurring primarily adjacent to the deck joint areas, and the suspender ropes, due to broken wire strands noted at the lower socket areas, that were found in fair condition.

During the inspection, there were 5 conditions found that required immediate action. Repairs have been completed. Repairs involved fifteen severely corroded and cracked deck ribs and 31 locations of cracked and delaminated concrete on the south sidewalk concrete fascia above the top flange of the steel fascia stringer (see Appendix B for Immediate Action correspondence).

Out of the 36 priority repairs at 5,713 locations recommended in the previous inspection report, 5 priority repairs recommended at 155 locations have been completed and 15 priority repairs were partially completed at 4,353 locations. As a result, there are 31 priority repairs recommended at 1,205 locations that remain outstanding. There are 8 new priority repairs at 1,122 locations recommended during this inspection for a total of 39 priority repairs at 2,327 locations recommended in this report. The majority of these recommendations include the repair of cracked welds between the deck ribs (tees) and the deck strap plate at the top of the secondary floorbeams, replacement of missing tie down bolts and plates that connect the deck strap plate to the secondary floorbeams, missing or sheared off rivets/bolts at the secondary floorbeam to stringer connections and repair of cracked and/or holed webs of the secondary floorbeams and orthotropic deck ribs (tees).

The replacement of the deck joint systems directly over the main floorbeams was completed during this inspection under Contract GWB244.022. This work included the removal of deck panels, end secondary floorbeams and riser beams near the deck joints which resulted in the completion of majority of the priority repair recommendations noted in the previous inspection report.

Additionally, 19 non-structural safety repairs at 121 locations and 137 routine repairs at 3,280 locations are recommended in this report.

All conditions are listed in the Inspection Findings, Conclusions and Recommendations section and are located on the Deficiency & Photo Location Plans.

An in-depth inspection of all gusset plate connections at the upper chord of the stiffening truss was performed and all gusset plates were found to be in good overall condition.

The engineering assessment used to determine the overall condition rating and to recommend repairs was based on the deficiencies found at the time of the inspection. This assessment is not intended to imply long-term viability.

The report contains conclusions concerning the causes of the noted deterioration and recommendations for the rehabilitation of the structure. The repair procedures contained in the recommendation section of the report outline the general extent of the required rehabilitation work. The presentation of these conceptual repairs does not preclude the necessity of performing further investigation and preliminary design work for the purpose of establishing the complete scope of work and the final rehabilitation design.

SUMMARY AND CONDITION STATUS TABLE OF PRIORITY REPAIR RECOMMENDATIONS

2015 Biennial Inspection of the George Washington Bridge Upper Level

QAD Repair Reference Number	Repair Recommendation 2013 Inspection	Current Status	Repair Recommendation 2015 Inspection	Dwg. No. (Photo No.)
	None	None	None	
Top of Deck				
Underside of Deck				
GWB-BR002-054	Repair the severely spalled pedestal of floorbeam at Panel Point 1E and pedestal of stringer S1 at Cap Beam 10 of the New York Anchorage.	Completed (1 Location) Outstanding (1 Location)	Repair the severely spalled pedestal of floorbeam at Panel Point 1E of the New York Anchorage.	U-6 (Photo A3)
GWB-BR002-122 (This includes all outstanding recommendations from QAD Ref.# GWB-BR002-104)	Repair the cracked welds between the deck ribs (tees) and the deck strap plate at the top of the secondary floorbeam.	Completed (1,414 Locations) Outstanding (249 Locations)	Repair the cracked welds between the deck ribs (tees) and the deck strap plate at the top of the secondary floorbeam.	U-2 thru U-5 (Photo A4)
GWB-BR002-123 (This includes all outstanding recommendations from QAD Ref.# GWB-BR002-105)	Replace the missing tie down bolt and plate that connect the deck strap plate to the secondary floorbeam at or near the following Panel Points of the main span: 3W-9W, 11W, 15W, 17W, 18W, between 18W-19W, 20W, 22W, 23W, 24W, 26W, 29W, 30W, 32W-34W, 36W, 39W, 40W, 41W, 42W, 42E, 37E, 36E, 34E, 30E, 29E, 26E, 25E, 23E, 21E, 19E, 18E, 17E, 16E, 15E, 14E, 11E, 10E, 9E, 8E, 7E, 6E, 5E, 4E & 2E.	Completed (102 Locations, 205 Bolts) Outstanding (4 Locations, 5 Bolts)	Replace the missing tie down bolt and plate that connect the deck strap plate to the secondary floorbeam at or near the following Panel Points of the main span: 11W, 17W, between 18W-19W and 7E.	U-2 and U-5 (Photo A5)
GWB-BR002-141	Repair the cracks and/or holes in the web or flange of the orthotropic deck rib (tee) at Panel Points 2W, 11W, 14W, 19W, 22W, 15E, 14E and 11E.	Completed (40 Locations) Outstanding (14 Locations) 2 Locations cannot be verified due to tarp clamped to steel members.	Repair the cracks and/or holes in the web or flange of the orthotropic deck rib (tee) at Panel Points 2W and 11W.	U-2 and U-5 (Photo A1)
GWB-BR002-155	Repair the cracked welds between the deck ribs (tees) and the deck strap plate at the top of the secondary floorbeam.	Completed (1,750 Locations) Outstanding (487 Locations)	Repair the cracked welds between the deck ribs (tees) and the deck strap plate at the top of the secondary floorbeam.	U-2 thru U-5 (Photo A6)

SUMMARY AND CONDITION STATUS TABLE OF PRIORITY REPAIR RECOMMENDATIONS

2015 Biennial Inspection of the George Washington Bridge Upper Level

QAD Repair Reference Number	Repair Recommendation 2013 Inspection	Current Status	Repair Recommendation 2015 Inspection	Dwg. No. (Photo No.)
Underside of Deck (cont'd)				
GWB-BR002-156	Replace the missing tie down bolt and plate that connect the deck strap plate to the secondary floorbeam at or near the following Panel Points of the main span: 3W-9W, 11W, 15W, 17W, 18W, 20W, 21W, 24W, 31W, 36W, 40W, 41W, 42W, 38E, 32E, 31E, 30E, 25E, 20E, 19E, 18E, 16E, 15E, 11E, 10E, 6E, 3E, 3W, 5W, 8W, 11W, 18W, 24W, 30W, 32W, 35W, 36W, 41W, 42W, 43, 35E, 34E, 30E, 29E, 28E, 24E, 23E, 21E, 20E, 9E, 8E, 7E and 5E.	Completed (85 Locations, 173 Bolts) Outstanding (3 Locations, 3 Bolts)	Replace the missing tie down bolt and plate that connect the deck strap plate to the secondary floorbeam at or near the following Panel Points of the main span: 11W, 38E and 11E.	U-2, U-4 and U-5 (Photo A7)
GWB-BR002-157	Repair the cracks and/or holes in the web or flange of the orthotropic deck rib (tee) at Panel Points 7W, 19W, 22W, 43, 36E, 15E, 11E, 6E 4E, 2W, 11W, 14W, 22W, 14E, 11E and 6E.	Completed (45 Locations) Outstanding (6 Locations) 1 Location cannot be verified due to tarp clamped to steel members.	Repair the cracks and/or holes in the web or flange of the orthotropic deck rib (tee) at Panel Points 2W, 11W and 11E.	U-2 and U-5 (Photo A8)
GWB-BR002-167	Repair the cracked welds between the deck ribs (tees) and the deck strap plate at the top of the secondary floorbeam.	Completed (711 Locations) Outstanding (285 Locations) New (2 Locations)	Repair the cracked welds between the deck ribs (tees) and the deck strap plate at the top of the secondary floorbeam.	U-2 thru U-5 (Photo A2)
GWB-BR002-172	---	New (2 Locations)	Replace the missing or sheared off tie down bolt and plate that connect the deck strap plate to the secondary floorbeam.	U-2 and U-4 (Photo A9)
GWB-BR002-173	---	New (1050 Locations)	Repair the cracked welds between the deck ribs (tees) and the deck strap plate at the top of the secondary floorbeam.	U-2 thru U-5 (Photo A10)
GWB-BR002-174	---	New (60 Locations)	Repair the cracks and/or holes in the web or flange of the orthotropic deck rib (tee).	U-2 thru U-5 (Photo A11)

SUMMARY AND CONDITION STATUS TABLE OF PRIORITY REPAIR RECOMMENDATIONS

2015 Biennial Inspection of the George Washington Bridge Upper Level

QAD Repair Reference Number	Repair Recommendation 2013 Inspection	Current Status	Repair Recommendation 2015 Inspection	Dwg. No. (Photo No.)
Superstructure Steel				
GWB-BR002-062	Repair the severe rust and hole in the bearing stiffener and the bottom flange of the bearing system of Stringers S6 and S7, east of PP 14E.	Outstanding (2 Locations)	Repair the severe rust and hole in the bearing stiffener and the bottom flange of the bearing system of Stringers S6 and S7, east of PP 14E.	S-6 (Photo A24)
GWB-BR002-124 (This includes all outstanding recommendations from QAD Ref.# GWB-BR002-106)	Replace the missing or sheared off rivets or bolts at the secondary floorbeam to stringer top flange connection.	Completed (142 Locations) Outstanding (36 Locations)	Replace the missing or sheared off rivets or bolts at the secondary floorbeam to stringer top flange connection.	S-2 thru S-8 (Photo A16)
GWB-BR002-125 (This includes all outstanding recommendations from QAD Ref.# GWB-BR002-107)	Repair the cracks and/or holes in the web or flanges of the secondary floorbeam at or near the following Panel Points of the main span: 3W, 4W, 5W, 6W, 7W, 8W, 9W, 15W, 16W, 17W, 18W, 20W, 21W, 22W, 26W, 27W, 29W, 31W, 32W, 36W, 37W, 39W, 40W, 41W, 43, 41E, 40E, 39E, 38E, 34E, 30E, 29E, 28E, 27E, 26E, 25E, 21E, 20E, 19E, 17E, 16E, between 15E-14E, 9E, 8E, 5E and 2E.	Completed (65 Locations)	---	---
GWB-BR002-126 (This includes all outstanding recommendations from QAD Ref.# GWB-BR002-108)	Replace the severely corroded or sheared off tie down bolts/rivets connecting the stringer bottom flange to the seated angle at the floorbeam.	Completed (4 Locations) Outstanding (11 Locations)	Replace the severely corroded or sheared off tie down bolts/rivets connecting the stringer bottom flange to the seated angle at the floorbeam.	S-4, S-6 and S-8 (Photo A25)

SUMMARY AND CONDITION STATUS TABLE OF PRIORITY REPAIR RECOMMENDATIONS

2015 Biennial Inspection of the George Washington Bridge Upper Level

QAD Repair Reference Number	Repair Recommendation 2013 Inspection	Current Status	Repair Recommendation 2015 Inspection	Dwg. No. (Photo No.)
Superstructure Steel (cont'd)				
<p>GWB-BR002-127 (This includes all outstanding recommendations from QAD Ref.# GWB-BR002-059, GWB-BR002-109)</p>	<p>Repair the cracked or holed through web of riser beam supporting the deck above the floorbeam at Panel Points 7W, 10W, 17W, 25W, 28W, 32W, 34W, 35W, 39W, 38E, 36E, 19E, 10E, 7E, 6E, 5E and 3E.</p>	<p>Completed (19 Locations)</p>	<p align="center">---</p>	<p align="center">---</p>
<p>GWB-BR002-128 (This includes all outstanding recommendations from QAD Ref.# GWB-BR002-014, GWB-BR002-057, GWB-BR002-089, GWB-BR002-110)</p>	<p>Repair the stringers that exhibit thru holes with moderate corrosion in the web over the bearings at the following locations: Web of S1 east of 10W, Web of S2 west of 11W, Web of S3 west of 14W, Web of S7 west of 14W, Web of S1 east of 26W, Web of S1 east of 40W, Web of S1 west of 31E, Web of S1 west of 25E, Web of S1 & S8 east of 15E, Web of S1 & S3 west of 14E, Web of S1, S3 through S7 east of 14E, Web of S1 west of 11E, Web of S1 west of 9E, Web of S8 east of 2E, Web of S1 west of 1E.</p>	<p>Completed (8 Locations) Outstanding (15 Locations)</p>	<p>Repair the stringers that exhibit thru holes with moderate corrosion in the web over the bearings at the following locations: Web of S2 west of 11W, Web of S3 west of 14W, Web of S7 west of 14W, Web of S1 east of 26W, Web of S1 west of 31E, Web of S1 & S3 west of 14E, Web of S1, S3 through S7 east of 14E, Web of S1 west of 9E, and Web of S1 west of 1E.</p>	<p>S-2 and S-4 thru S-7 (Photo A14)</p>
<p>GWB-BR002-129 (This includes all outstanding recommendations from QAD Ref.# GWB-BR002-027, GWB-BR002-111)</p>	<p>Replace the sheared anchor bolts and anchor bolt nuts which exhibit severe corrosion at the following locations: south column at Capbeams 4 & 8 in the New York Anchorage.</p>	<p>Outstanding (2 Locations)</p>	<p>Replace the sheared anchor bolts and anchor bolt nuts which exhibit severe corrosion at the following locations: south column at Capbeams 4 & 8 in the New York Anchorage.</p>	<p>S-8 (Photo A17)</p>

SUMMARY AND CONDITION STATUS TABLE OF PRIORITY REPAIR RECOMMENDATIONS

2015 Biennial Inspection of the George Washington Bridge Upper Level

QAD Repair Reference Number	Repair Recommendation 2013 Inspection	Current Status	Repair Recommendation 2015 Inspection	Dwg. No. (Photo No.)
Superstructure Steel (cont'd)				
GWB-BR002-131 (This includes all outstanding recommendations from QAD Ref.# GWB-BR002-114)	Repair the stringer bearings that have the bearing sliding plate bouncing under live load and/or are frozen due to pack rust at Panel Points 25W, 27W and 1E.	Completed (2 Locations) Outstanding (7 Locations)	Repair the stringer bearings that have the bearing sliding plate bouncing under live load and/or are frozen due to pack rust at Panel Point 1E.	S-7 (Photo A21)
GWB-BR002-133	Repair the main floorbeam with extensive section loss and/or holes in web at the following locations: Panel Points 2W, 40W, 3E and 1E.	Outstanding (5 Locations)	Repair the main floorbeam with extensive section loss and/or holes in web at the following locations: Panel Points 2W, 40W, 3E, 1E and Capbeam 7.	S-2, S-4, S-7 and S-8 (Photo A15)
GWB-BR002-153	Repair the worn thru bottom flange of Stringer S2 at the diagonal bracing connection between Panel Points 9W & 10W, 30E & 31E, 25E & 26E and 20E & 21E.	Outstanding (4 Locations)	Repair the worn thru bottom flange of Stringer S2 at the diagonal bracing connection between Panel Points 9W & 10W, 30E & 31E, 25E & 26E and 20E & 21E.	S-2, S-5 and S-6 (Photo A27)
GWB-BR002-158	Repair the cracked or holed through web of riser beam supporting the deck above the floorbeam at Panel Points 9W, 17W, 20W, 21W, 25W, 37W, 40W, 42E, 27E, 23E, 21E, 19E, 9E, 6E, 3E, 3W-8W, 10W, 16W, 22W, 27W-29W, 32W, 34W, 36W, 39W, 40W, 42W, 41E, 37E, 35E, 31E, 29E, 26E, 25E, 21E, 20E, 18E and 9E.	Completed (64 Locations)	---	---
GWB-BR002-159	Repair the stringer that exhibits thru holes with moderate corrosion in the web over the bearing at web of S2 east of 14E.	Outstanding (1 Location)	Repair the stringer that exhibits thru holes with moderate corrosion in the web over the bearing at web of S2 east of 14E.	S-6 (Photo A19)
GWB-BR002-160	Replace the missing or sheared off rivets or bolts at the secondary floorbeam to stringer top flange connection.	Completed (18 Locations) Outstanding (4 Locations)	Replace the missing or sheared off rivets or bolts at the secondary floorbeam to stringer top flange connection.	S-2, S-3 and S-5 (Photo A20)

SUMMARY AND CONDITION STATUS TABLE OF PRIORITY REPAIR RECOMMENDATIONS

2015 Biennial Inspection of the George Washington Bridge Upper Level

QAD Repair Reference Number	Repair Recommendation 2013 Inspection	Current Status	Repair Recommendation 2015 Inspection	Dwg. No. (Photo No.)
Superstructure Steel (cont'd)				
GWB-BR002-162	Repair Stringer S8 bearing that has the bearing sliding plate bouncing under live load and is frozen due to pack rust at Panel Point 1E.	Outstanding (1 Location)	Repair Stringer S8 bearing that has the bearing sliding plate bouncing under live load and is frozen due to pack rust at Panel Point 1E.	S-7 (Photo A28)
GWB-BR002-163	Repair the cracks and/or holes in the web or flanges of the secondary floorbeam at or near the following Panel Points 6W, 7W, 9W, 11W-14W, 22W, 26W, 29W, 37W-38W, 41W, 41E, 37E, 30E, 22E, 20E, 17E, 28E, 27E, 24E, 23E, 21E, 19E, 18E, 16E and 6E.	Completed (28 Locations) Outstanding (1 Location)	Repair the cracks in the web of the secondary floorbeam near Panel Point 11W.	S-2 (Photo A26)
GWB-BR002-164	Replace the severely corroded or sheared off tie down bolts/rivets connecting the stringer bottom flange to the seated angle at the floorbeam.	Outstanding (1 Location)	Replace the severely corroded or sheared off tie down bolts/rivets connecting the stringer bottom flange to the seated angle at the floorbeam.	S-3 (Photo A18)
GWB-BR002-165	Repair the bent angle on the girder bearing connection of Stringer S5 to Capbeam 7 at the New York Anchorage.	Outstanding (1 Location)	Repair the bent angle on the girder bearing connection of Stringer S5 to Capbeam 7 at the New York Anchorage.	S-8 (Photo A23)
GWB-BR002-168	Replace the cracked shim plate and sheared off tie down bolt connecting Stringer S9 bottom flange to the seated angle at Capbeam 4.	Outstanding (1 Location)	Replace the cracked shim plate and sheared off tie down bolt connecting Stringer S9 bottom flange to the seated angle at Capbeam 4.	S-8 (Photo A12)
GWB-BR002-169	Replace the severely corroded or sheared off tie down bolts/rivets connecting the stringer bottom flange to the seated angle at the floorbeam.	Outstanding (3 Locations)	Replace the severely corroded or sheared off tie down bolts/rivets connecting the stringer bottom flange to the seated angle at the floorbeam.	S-5 and S-6 (Photo A13)
GWB-BR002-170	Repair the stringer that exhibits thru holes with moderate corrosion in the web over the bearing at web of S5 west of 14W and S7 west of 14E.	Outstanding (2 Locations)	Repair the stringer that exhibits thru holes with moderate corrosion in the web over the bearing at web of S5 west of 14W and S7 west of 14E.	S-2 and S-6 (Photo A22)

SUMMARY AND CONDITION STATUS TABLE OF PRIORITY REPAIR RECOMMENDATIONS

2015 Biennial Inspection of the George Washington Bridge Upper Level

QAD Repair Reference Number	Repair Recommendation 2013 Inspection	Current Status	Repair Recommendation 2015 Inspection	Dwg. No. (Photo No.)
Superstructure Steel (cont'd)				
GWB-BR002-175	---	New (1 Location)	Replace the cracked shim plate and loose tie down bolts connecting the stringer bottom flange to the seated angle of the capbeam.	S-8 (Photo A29)
GWB-BR002-176	---	New (6 Locations)	Replace the missing or sheared off rivets or bolts at the deck to stringer top flange connection.	S-8 (Photo A30)
GWB-BR002-177	---	New (1 Location)	Repair the cracked connection angle between main floorbeam and deck truss top chord.	S-6 (Photo A31)
Towers				
GWB-BR002-147	Repair the severe corrosion and holes on the catwalk support members at Level 3M on the south leg of the New Jersey Tower.	Completed (1 Location)	---	---
GWB-BR002-171	Repair the severe corrosion and holes on the catwalk support members at Level 3M on the south leg of the New York Tower.	Outstanding (1 Location)	Repair the severe corrosion and holes on the catwalk support members at Level 3M on the south leg of the New York Tower.	TW-1 (Photo B2)
GWB-BR002-178	---	New (1 Location)	Repair the severe corrosion and holes on the catwalk support members at Level 3M on the north leg of the New York Tower.	TW-1 (Photo B1)
Cables and Suspension Ropes				
GWB-BR002-042	Replace or reinstall the missing, slipped or non-protruding galvanized steel liners under the suspender collars.	Outstanding (42 Locations)	Replace or reinstall the missing, slipped or non-protruding galvanized steel liners under the suspender collars.	(Photo C3)

SUMMARY AND CONDITION STATUS TABLE OF PRIORITY REPAIR RECOMMENDATIONS

2015 Biennial Inspection of the George Washington Bridge Upper Level

QAD Repair Reference Number	Repair Recommendation 2013 Inspection	Current Status	Repair Recommendation 2015 Inspection	Dwg. No. (Photo No.)
Cables and Suspension Ropes (cont'd)				
GWB-BR002-098 (This includes all outstanding recommendations from QAD Ref.# GWB-BR002-097)	Seal the leaking upper level sidewalk / roadway joint over Cables B and C near the splay saddle castings at the New York Anchorage.	Outstanding (2 Locations)	Seal the leaking upper level sidewalk / roadway joint over Cables B and C near the splay saddle castings at the New York Anchorage.	(Photo C1)
GWB-BR002-101	Remove the remaining protective wrapping left in place around the suspender ropes, from previous painting operation, above the socket area but below the sidewalk slab.	Completed (3 Locations) Outstanding (12 Locations)	Remove the remaining protective wrapping left in place around the suspender ropes, from previous painting operation, above the socket area but below the sidewalk slab.	(Photo C4)
GWB-BR002-135		Outstanding (1 Location)		(Photo C5)
GWB-BR002-148	Repair the leaking pipe above the upper cable strands of Cable B in the New York Anchorage.	Outstanding (1 Location)	Repair the leaking pipe above the upper cable strands of Cable B in the New York Anchorage.	(Photo C2)
GWB-BR002-166	Repair the severely deteriorated diagonal bracing members at the base of the strand shoes of Cables C and D in the New Jersey Anchorage.	Completed (6 Locations)	---	---
GWB-BR002-179		New (1 Location)	Replace or reinstall the slipped galvanized steel liner under the suspender collar of Cable B, Suspender Rope 7 at PP 30E.	(Photo C6)

SUMMARY OF SAFETY REPAIR RECOMMENDATIONS

2015 Biennial Inspection of the George Washington Bridge Upper Level

Repair Recommendation 2015 Inspection	Dwg. No. (Photo No.)
<u>Top of Deck</u>	
1. Repair the disconnected conduit or secure the loose electrical box covers with exposed wires on the lighting standard or railing posts. (18 Locations)	T-2 thru T-6 (Photo A32)
2. Replace the missing, severely deteriorated, and/or secure the disconnected rails from posts along the roadway and sidewalk railings. (15 Locations)	T-2, T-5 and T-6 (Photo A33)
3. Secure the railing posts that are loose, cracked or disconnected at its base over the New York or New Jersey Anchorage. (4 Locations)	T-1 and T-6 (Photo A34)
4. Repair or replace the uplifted joint plates causing a tripping hazard. (3 Locations)	T-2 and T-5 (Photo A35)
<u>Underside of Deck</u>	
5. Replace 1 of 2 missing bolts at the bottom of the vertical railing post of the catwalk at Panel Point 14E over the westbound center lane. (1 Location)	U-5 (Photo A36)
6. Remove the excessive debris accumulated on the steel members at Panel Point 14E and Stringer S8. (1 Location)	U-5 (Photo A37)
7. Repair the severely deteriorated and partially missing flooring at the mid-level of New York Anchorage. (1 Location)	U-6 (Photo A38)
8. Replace the severely deteriorated maintenance platform grating at its south support below the south sidewalk access hatch between Panel Points 10W & 11W. (1 Location)	U-2 (Photo A39)
9. Secure the utility conduits and utility conduit supports which are partially detached. (31 Locations)	U-2 thru U-5 (Photo A40)
10. Secure the loose support for the underdeck lighting fixture. (2 Locations)	U-3 and U-5 (Photo A41)
11. Repair the deteriorated section of catwalk grating inside the New York Anchorage. (1 Location)	U-6 (Photo A42)
12. Repair or replace the loose junction box cover. (1 Location)	U-3 (Photo A43)
<u>Towers</u>	
1. Repair the loose bolt at the connection to the ladder between Levels 10 and 11 at the north leg of the New York Tower. (1 Location)	TW-1 (Photo B3)
2. Repair the corrosion and holes in the railing of the catwalk at Level 3M at the south leg of the New Jersey Tower. (1 Location)	TW-2 (Photo B4)
3. Repair the crack in the stair between Levels 3M and 4 at the south leg of the New Jersey Tower. (1 Location)	TW-2 (Photo B5)
4. Replace the severely deteriorated or missing bolts in the catwalk support members at Level 3M on the New Jersey Tower. (2 Locations)	TW-2 (Photos B6)

SUMMARY OF SAFETY REPAIR RECOMMENDATIONS

2015 Biennial Inspection of the George Washington Bridge Upper Level

Repair Recommendation 2015 Inspection	Dwg. No. (Photo No.)
<u>Main Cables and Suspender Ropes</u>	
1. Tighten the bolts connecting the stanchions to the cable bands that are not fully engaged. (32 Locations)	<i>(Photo C7)</i>
2. Replace the missing, loose or worn bolts/nuts that connect the messenger (utility) cable bracket to the main cable band at PP 35E, 23E, 21E, and 18E on Cable A. (4 Locations)	<i>(Photo C8)</i>
3. The stanchion bar is corroded and disconnected from the bolt connection to the cable band at PP2E on Cable C. (1 Location)	<i>(Photo C9)</i>

Table of Contents

Volume 1

	PAGE
Executive Summary	i
Summary and Condition Status Table of Priority Repair Recommendations.....	iii
Summary of Safety Repair Recommendations	xi
Table of Contents	xiii
Location Plan	xiv
General Plan, Elevation and Cross-Section	xv
I. Scope of Work, Inspection Procedures and Terminology	
A. Scope of Work.....	I-1
B. Inspection Procedures	I-1
C. Condition Survey Definitions and Terminology	I-10
II. Inspection Findings, Conclusions and Recommendations	
A. Upper Level	
Major Inspection Findings	A-1
List of Recommended Repairs.....	A-7
Key Condition Notes and Legend	A-17
Typical Deficiencies	A-19
Deficiency & Photo Location Plans	A-20
Photographs.....	A-40
B. Towers	
Major Inspection Findings	B-1
List of Recommended Repairs.....	B-4
Deficiency & Photo Location Plans	B-6
Photographs.....	B-10
C. Cables and Suspender Ropes	
Major Inspection Findings	C-1
List of Recommended Repairs.....	C-24
Photographs.....	C-27
D. Bridge Mounted Sign Structures	
Major Inspection Findings	D-1
List of Recommended Repairs.....	D-2
Surveyed Sign Structures – Upper Level	D-3
Surveyed Sign Structures – Lower Level	D-8
Deficiency & Photo Location Plans	D-15
Photographs.....	D-17
Inventory Photos – Upper Level.....	D-21
Inventory Photos – Lower Level.....	D-33

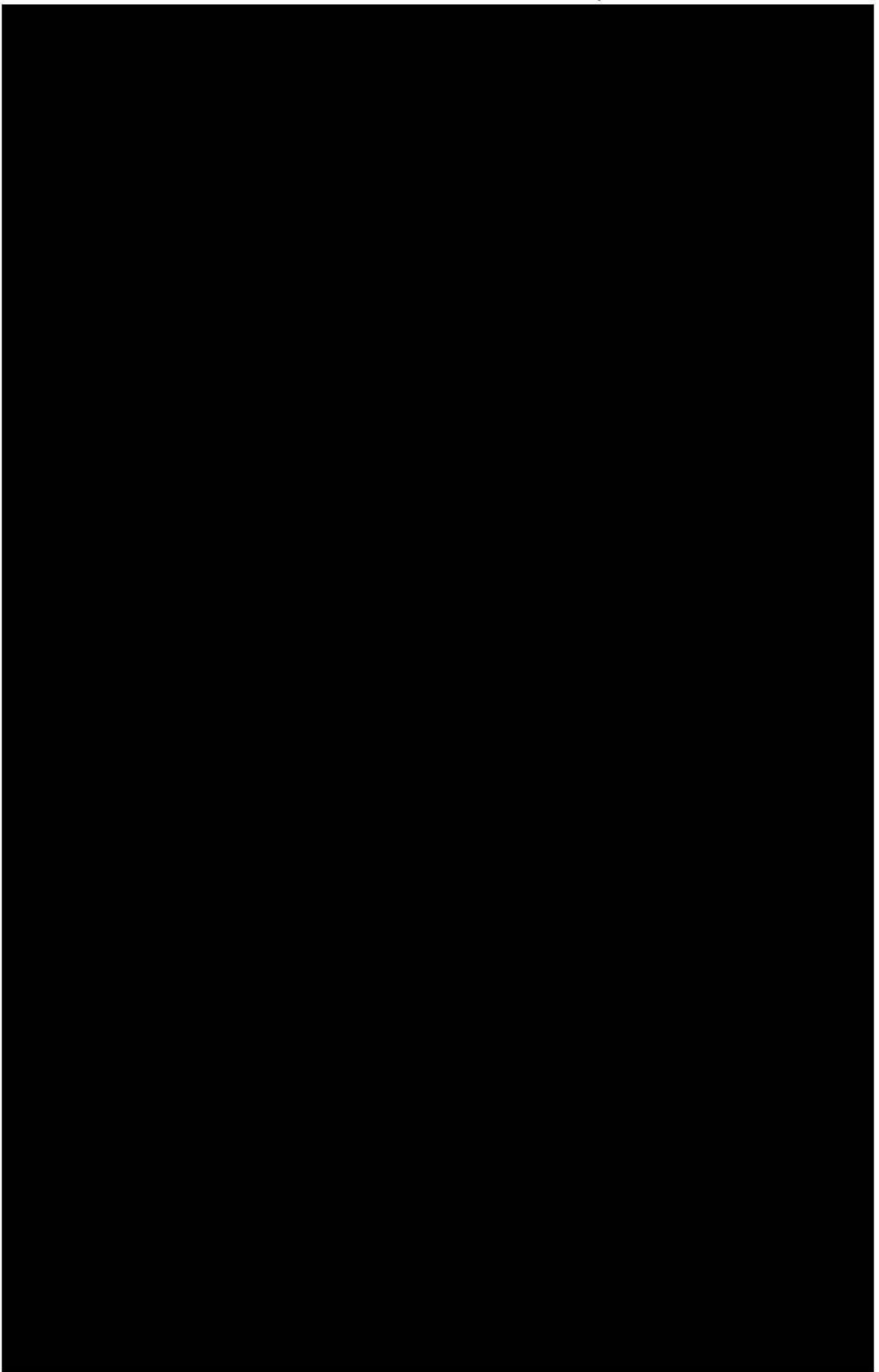
Volume 2

APPENDICES

Appendix A – Orthotropic Deck – Cracked Rib Welds Table	A-1
Appendix B – Immediate Action Correspondence	B-1

Location Plan

General Plan, Elevation and Cross-Section



I. Scope of Work, Inspection Procedures and Terminology

Scope of Work, Inspection Procedures and Terminology

A. SCOPE OF WORK

Stantec Consulting Services Inc. in association with PK Engineering, P.C. (PKE) and American Structural Engineering, P.C. (ASE) performed the 2015 Biennial Inspection of the George Washington Bridge Upper Level (BIN 5522508), from April through October of 2015. The inspection was performed with the assistance of SEMAC personnel. The inspection included upper level roadway and framing, the stiffening trusses (except for the bottom gusset plates and bottom chord members which were included in the George Washington Bridge Lower Level inspection), the main cables, suspender ropes, towers and anchorages. Underwater inspection was performed for the New Jersey Tower by ECM Engineers, Inc. The purpose of this inspection was to determine the overall condition of the structures and to identify structural and non-structural deficiencies.

The limits of the condition survey for the George Washington Bridge Upper Level extends between the New York and New Jersey Anchorages at Stations 29+28 to Station 80+10.

The inspections were performed in compliance with the latest requirements of New York State Department of Transportation and included the preparation and the submittal of a state Biennial Bridge Inspection Report.

B. INSPECTION PROCEDURES

The structural inspection was performed between April and October 2015, utilizing at least two inspection teams each led by a professional engineer licensed in the state of New York. The field work included a 100% hands-on inspection of all non-redundant, fracture-critical members and fatigue prone details, including the underside of the orthotropic deck as well as a thorough visual inspection of all the remaining structural and non-structural elements. Dye penetrant tests were performed where cracks were suspected in critical areas. Additionally, all concrete elements, which included the underside of the sidewalks, both fascias and portions of the anchorage walls, were sounded by hammer and all areas of loose concrete were removed during this inspection. All structural and non-structural deficiencies were recorded, photographed and located on the Deficiency & Photo Location Plans, which are included in this report.

This report is divided into four sections; upper level roadway and framing, towers, cables and suspender ropes and bridge mounted sign structures. Inspection access and procedures for each section is as follows:

1. Upper Level Roadway and Framing

The upper level roadway framing and upper truss chords and gusset plates were inspected using 35' and 50' bucket trucks, during weekdays and weeknights (see Photos 1 & 2). Main floorbeams and the ends of panels were inspected during the daytime, utilizing temporary scaffolding platform installed as part of Contract GWB-244.022 (see Photos 3 & 4). The temporary platforms are 15' wide and span between the north and south

stiffening trusses below the main floorbeams between Panel Points 3W to 10W, 15W to 15E and 10E to 2E. A 100% hands-on inspection was performed on all non-redundant, fracture critical and primary structural elements of the bridge, including main floorbeams, stringers, secondary floorbeams, upper truss chords, verticals and diagonals, gusset plates, fatigue details, and the underside of the steel orthotropic deck and concrete sidewalks. The right lane of lower level roadways were typically closed to traffic by contractors during daytime hours from 9:00 am to 3:00 pm and fully closed at nighttime hours from 11:00 pm to 5:00 am for Contract GWB-244.022 and other concurrent bridge rehabilitation projects. These roadway closures were utilized for the inspection of the upper level. Generators were used to provide sufficient lighting and a shadow vehicle with an impact attenuator and a flashing arrow board protected the inspection crews at all times. Inspection of the upper level roadway within the anchorage chambers was performed with step and extension ladders and by tethered climbing. A 135' manlift was used to inspect portions of the interior (see Photo 7) and exterior faces of the New York Anchorage walls (see Photo 8). The top of deck elements were inspected from both sidewalks and within day-time right lane closings on the upper level and daytime and night-time closings on the lower level roadway.

2. Towers

The tower framing was inspected visually from tower elevators, sidewalks, catwalks and upper and lower struts. A hands-on inspection was performed at localized areas with suspect deficiencies via tethered climbing (see Photo 5). At the base of the tower, the eight main vertical box members comprising each of the four tower legs were inspected hands-on using an extension ladder. At select locations, the lowest hatch cover was removed by SEMAC personnel to inspect the interiors at the base of the columns (see Photo 6). The concrete encased steel pedestals and lower stone faced portions of the tower pedestals were inspected.

3. Cables and Suspender Ropes

The four main cables were inspected hands-on by walking the entire length of each cable from anchorage to anchorage. The condition of the cable wrapping wire, cable bands, suspender ropes, safety ropes, stanchions, lighting components, as well as the condition of the protective paint coating throughout were assessed. The wire strands were inspected and assigned the appropriate corrosion Stage I through IV. The underside of the main cables, cable bands and upper portions of the suspender ropes were inspected utilizing tethered pole-mounted mirrors (see Photo 9). The cable wire wrapping was checked for soft spots, wire breaks, corrosion and general integrity. The cable bands were inspected for missing, ruptured or de-bonded caulking, rust or oil staining, water leakage and general integrity. The safety ropes, stanchions and lighting components were inspected for loose or missing connectors/hardware. The unwrapped portions of the main cables at the tower saddle assemblies and inside the anchorages from the splay saddles to the strand shoes were closely examined for any defects. Inside the anchorages, the cable strands were inspected hands-on at all strand shoes and eyebar connections. The lower portions of the cable strands were closely examined for wire breaks and corrosion by climbing (see Photo 10).

Below sidewalk level, select suspender ropes, including lower socket areas, were inspected hands-on utilizing temporary scaffolding platform installed as part of Contract GWB-244.022 and a 50' bucket truck. The steel blast protection encasements at the lower suspender sockets were opened at selected locations to inspect these areas of the suspenders (see Photo 11).

4. Bridge Mounted Sign Structures

All bridge mounted sign structures were inspected as part of the bridge inspection survey. Only sign panels measuring 10SF or more received 100% hands-on inspection, including those of combined panels with directional value, and are included in the tables of Surveyed Sign Structures in Section D of this report. On the upper level roadway, all sign panels affixed to the lighting standards along both sidewalks and the overhead cantilever sign structure framed into at the New York tower were inspected. On the lower level, all sign panels and sign structures attached to the upper level framing, vertical members of the stiffening truss and drainage downspouts, and lower level deck/median-grating framing were inspected. Inspection access was obtained by walking and utilizing a 35' bucket truck with impact attenuator trucks on the upper level and lower level lane closures (see Photo 12).

Photo No.: 1

Location: Lower Level westbound roadway, looking east.

Description: Inspection of the underside of the Upper Level roadway using a 35' bucket truck with an attenuator truck in lane closure.

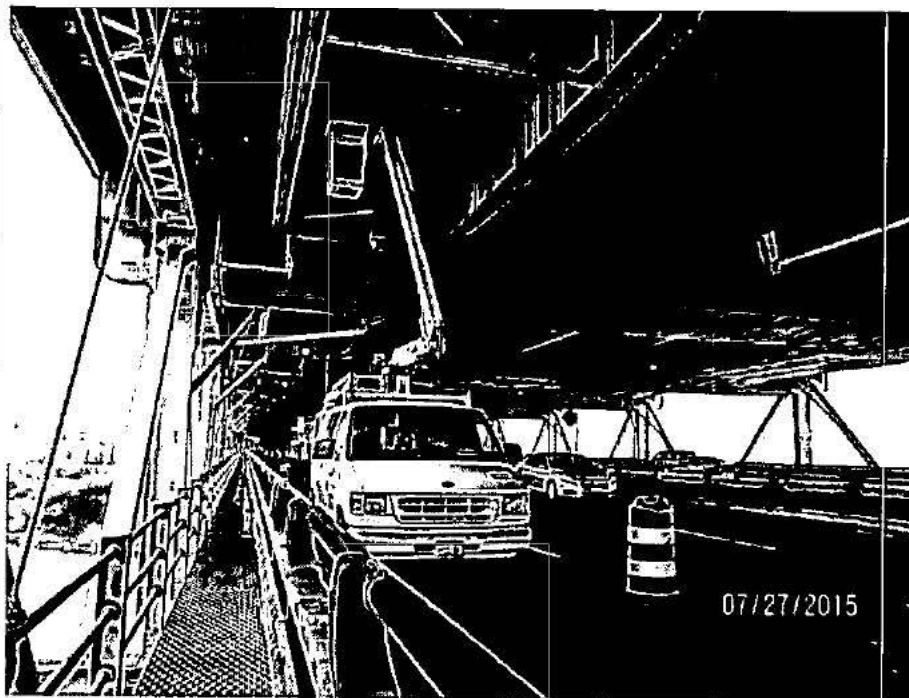


Photo No.: 2

Location: Lower Level westbound roadway, looking east.

Description: Inspection of the underside of the Upper Level sidewalk and fascia using a 50' bucket truck with an attenuator truck in lane closure.

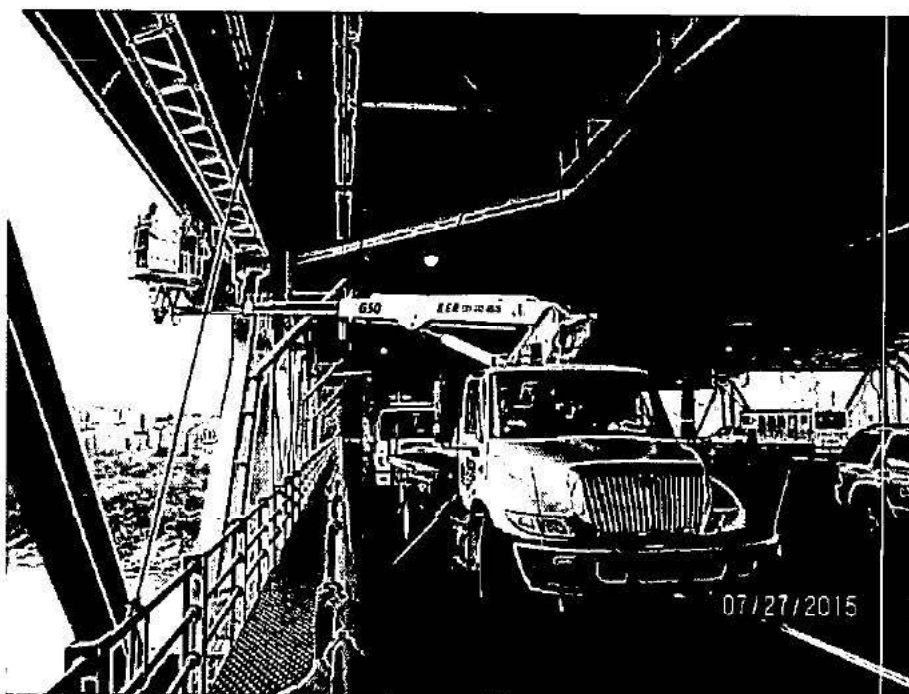


Photo No.: 3

Location: Lower Level westbound roadway at Panel Point 6W, looking east.

Description: Inspection of steel framing and end of stiffening truss panel utilizing temporary scaffolding platform accessed with an extension ladder.

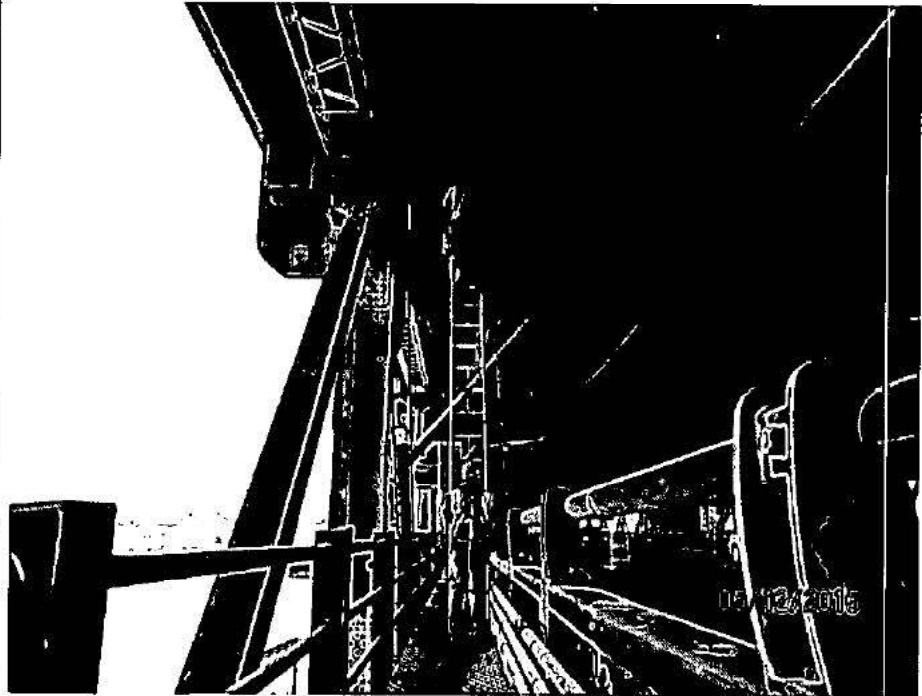


Photo No.: 4

Location: Underside of Upper Level roadway at Panel Point 9W, looking southwest.

Description: Inspection of steel framing utilizing an extension ladder from the temporary scaffolding platform.

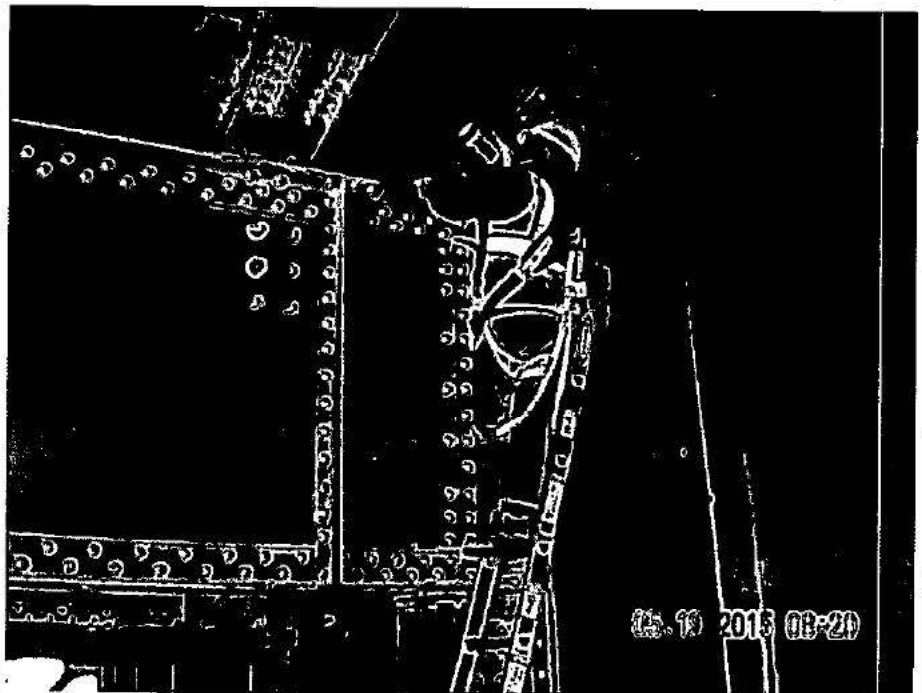


Photo No.: 5

Location: South leg of New York Tower between northwest and southwest interior columns, looking northeast.

Description: Inspection of diagonals and vertical connection plates via tethered climbing.

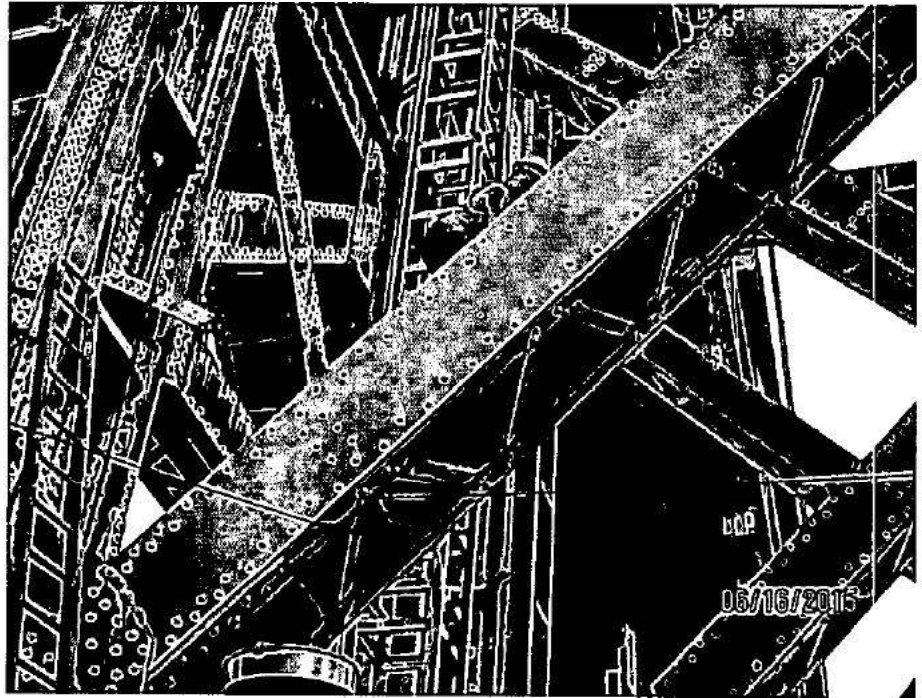


Photo No.: 6

Location: South leg of New Jersey Tower at northeast exterior column, looking northeast.

Description: Inspection of interior column base performed with SEMAC assistance involving removal of access hatches.

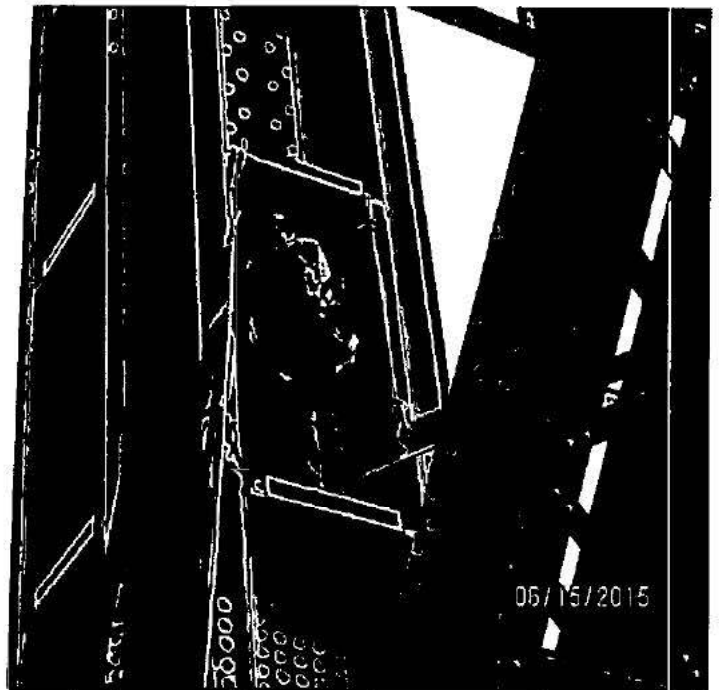


Photo No.: 7

Location: New York Anchorage, interior walls, looking east.

Description: Inspection of the concrete anchorage walls utilizing a 135' manlift.

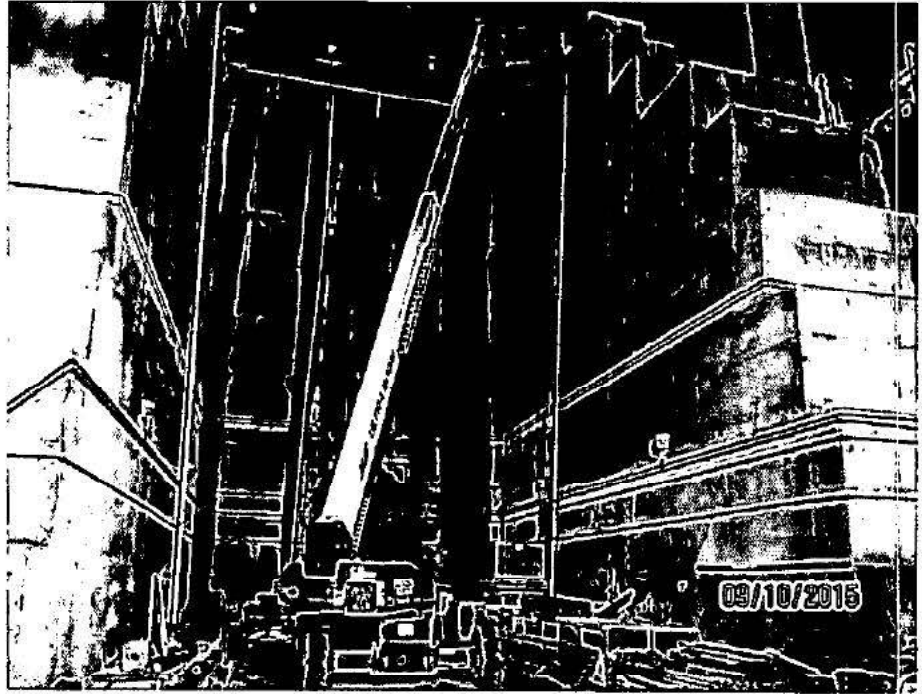


Photo No.: 8

Location: New York Anchorage, exterior walls, looking east.

Description: Inspection of the anchorage walls utilizing a 135' manlift.

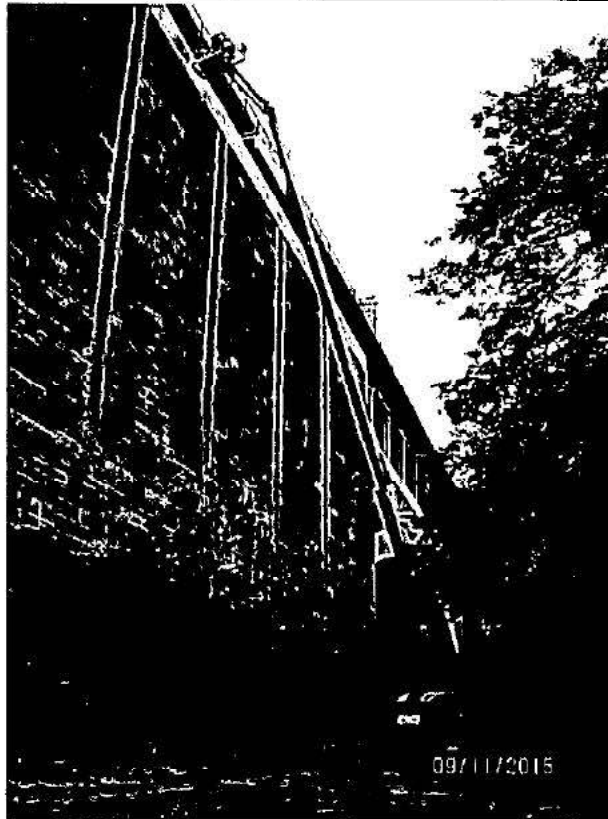


Photo No.: 9

Location: Main Cables C & D of the Main Span, looking west.

Description: Inspection of the main suspension cables using pole-mounted mirrors.

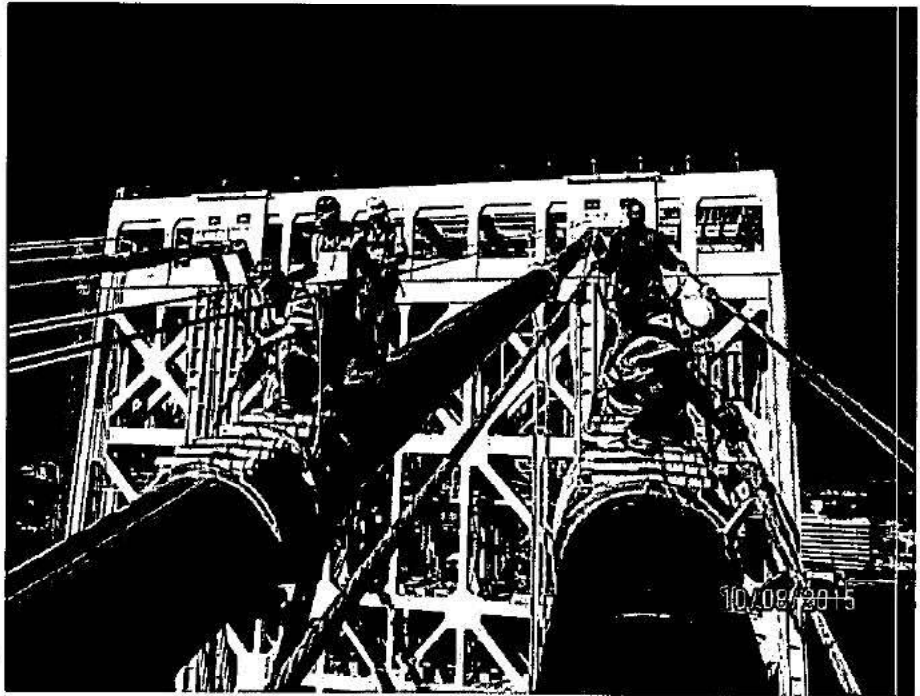


Photo No.: 10

Location: New Jersey Anchorage, Cable A looking north.

Description: Inspection of the cable strands by climbing.



Photo No.: 11

Location: Main Cable C, lower socket at Panel Point 15W, looking west.

Description: Inspection of lower suspender rope and socket area requiring opening of steel blast protection encasement door utilizing hand tools.

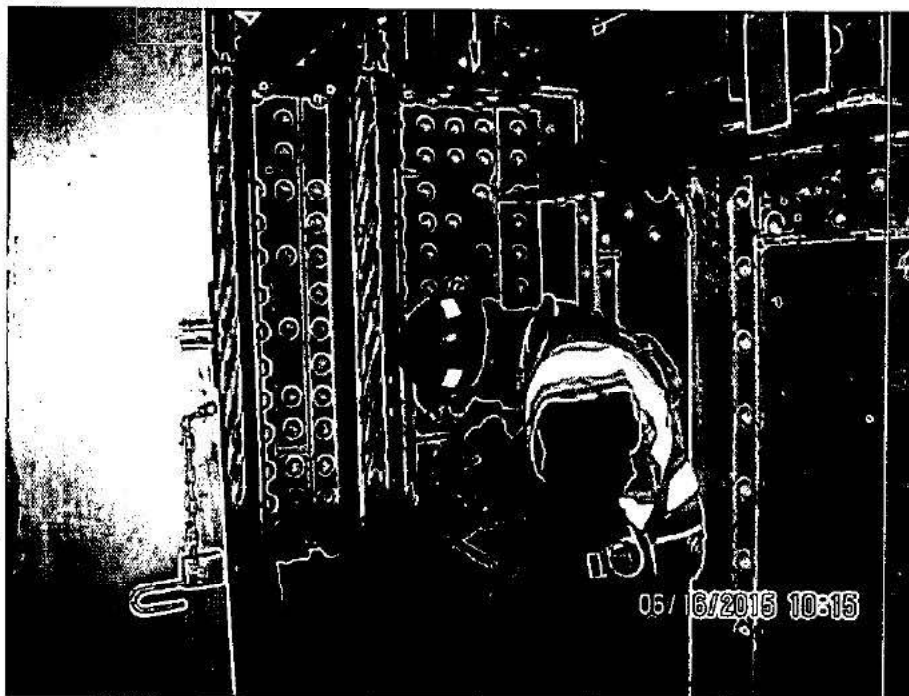
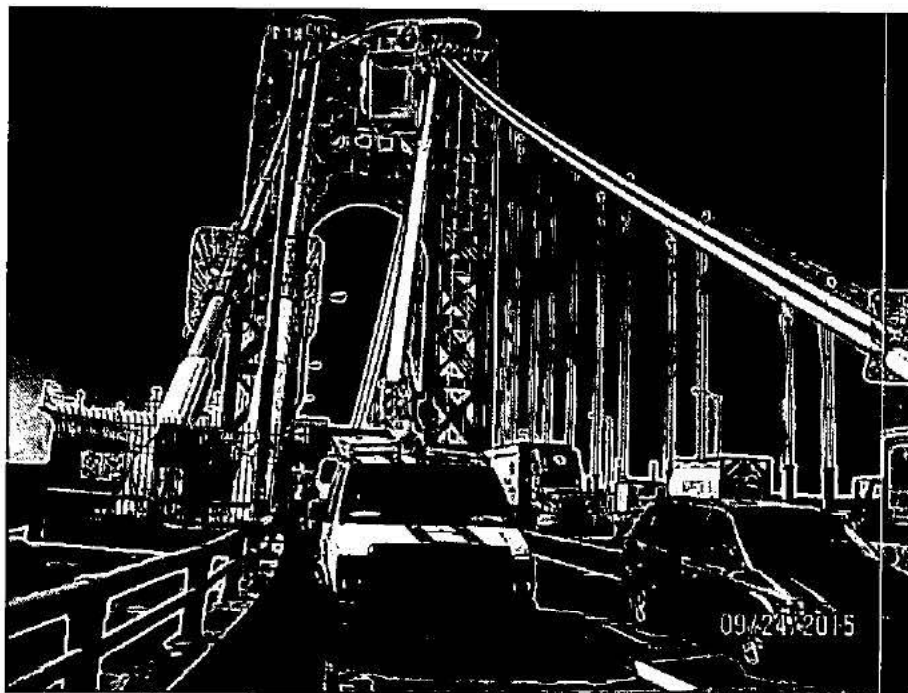


Photo No.: 12

Location: Upper Level eastbound roadway at Panel Point 2E, looking west.

Description: Inspection of the lighting standards utilizing a 35' bucket truck with an attenuator truck in lane closure.



C. CONDITION SURVEY DEFINITIONS AND TERMINOLOGY

DEFINITIONS OF RECOMMENDATION CATEGORIES

The inspection involves one of the following methods:

- | | |
|----------------------------|--|
| Hands-on Inspection | Close-up inspection from no further away than arm's length where the member or element can be physically touched. |
| Visual Inspection | The inspection from a reasonable distance of a member or element where initial determination of the condition can be made. |

Four categories of recommendations are identified and defined as follows:

- | | |
|------------------|--|
| Immediate | Requires immediate action including possible closing of the structure or areas affected for safety reasons until interim remedial measures, such as shoring or removal of potentially unsafe structures (or elements), can be implemented. These closings or interim remedial actions, if any, always require immediate action upon discovery. |
| Priority | Conditions for which no immediate action may be required or for which immediate action has been completed, but further investigations, design and implementation of interim or long-term repairs should be undertaken on a priority basis, i.e., taking precedence over all other scheduled work. |
| Safety | Conditions that present a potential hazard and which should be repaired as soon as possible. |
| Routine | Conditions requiring further investigation or remedial work, which can be undertaken as part of a scheduled maintenance program, other scheduled project, or routine facility maintenance, depending on the action required. |

RATING CRITERIA

Terms used to describe the condition of a structural system or component are listed and defined below. When the term is applied to an overall structure or system, this does not indicate that all elements of the structure or system are in the same condition.

Excellent	“As New” Condition
Good	The structure system is sound and performing its function, although it shows signs of wear and may require some minor repairs, mostly routine.
Fair	The structure system is still performing adequately at this time, but needs “priority” and/or “routine” repair to prevent future deterioration and to restore it to good condition.
Poor	The structure system cannot be relied upon to continue to perform its original function without “immediate” and/or “priority” repair.

INSPECTION TERMINOLOGY

The following terms may be used during inspection to describe the condition of structural members.

1) STEEL MEMBERS

a) Corrosion

- Minor (or Light) – A light surface rust.
- Moderate – Rust that is loose and flaking with some pitting. This scaling, or exfoliation, can be removed with some effort by use of a scraper or chipping hammer. Element exhibits measurable but not significant loss of section.
- Severe – Heavy, stratified rust or rust scales with extensive pitting. Removal requires exerted effort and may require mechanical means. Significant loss of section.

b) Pack Rust – Rust collected between two interfacing surfaces, usually two steel plates. Pack rust can be minor, moderate, or severe as described above. Pack rust can severely deform the steel members due to the expansive nature of rust.

c) Pitting – Formation of cavities due to corrosion. Minor, moderate, and severe pitting categories are used based upon depth and density of cavities.

- Minor – Typically less than ¼ inch diameter and $\frac{1}{32}$ inch deep.
- Moderate – ¼ inch to ½ inch diameter and up to $\frac{1}{8}$ inch deep.
- Severe – Greater than ½ inch diameter and over $\frac{1}{8}$ inch deep.

2) CONCRETE MEMBERS

a) **Cracking** – A separation into two or more parts with a space between the fractured concrete surfaces.

- Hairline- Crack width less than $\frac{1}{32}$ inch.
- Fine – Crack width between $\frac{1}{32}$ inch and $\frac{1}{16}$ inch.
- Medium – Crack width between $\frac{1}{16}$ inch and $\frac{1}{8}$ inch.
- Wide – Crack width greater than $\frac{1}{8}$ inch.

The above definitions for cracks can be modified, depending on the type of structural element. Other terminology, such as map cracking, pattern cracking, etc., may be used as appropriate.

b) **Efflorescence** – A white deposit caused by crystallization of soluble salts brought to the surface by moisture leaching through concrete.

c) **Delamination** – A layered separation of the concrete. When a delaminated area of concrete is struck (sounded) with a hammer, a hollow sound will be emitted.

d) **Leaching** – The dissolution and washing away of the calcium hydroxide in concrete. The moisture enters the concrete through exposed cracks in the surface.

e) **Spall** – A roughly circular, oval, or elongated depression in the surface of a concrete element caused by separation of a portion of the surface concrete.

- Small (Pop-out) – Less than 6 inches in diameter and 1 inch deep.
- Medium – Between 6 inches and 12 inches in diameter and up to 2 inches deep.
- Large – Over 12 inches in diameter and any depth.

f) **Scaling** – The gradual loss of surface mortar and aggregates.

- Light Scaling – Loss of surface mortar up to $\frac{1}{4}$ inch deep.
- Medium Scaling – Loss of surface mortar between $\frac{1}{4}$ inch and $\frac{1}{2}$ inch deep, including loss between large aggregate.
- Heavy Scaling – Loss of mortar greater than $\frac{1}{2}$ inch in depth significantly exposing large aggregate.

g) **Hollow area** – An area of concrete which emits a hollow sound when struck with a hammer and indicates the existence of a fracture plane beneath the surface.

h) **Honeycomb** – Typically small pocket voids formed by the entrapment of air during the placement of the concrete.

3) **CABLES**

- a) **Corrosion Stages of Zinc-coated Wires as per National Cooperative Highway Research Program (NCHRP) Report 534 "Guidelines for Inspection and Strength Evaluation of Suspension Bridge Parallel Wire Cables (Section 1.4.2.2), dated 2004:**

Wire corrosion is categorized visually by corrosion stage. The four corrosion stages are characterized by the presence of the following:

Stage 1: Spots of zinc oxidation on the wires.

Stage 2: Zinc oxidation on the entire wire surface; wire may have white surface dust indicating zinc oxidation, but that does not necessarily imply depleted zinc. Depletion is indicated by a dull gray color or a dark gray to black color if sulfur is involved.

Stage 3: Spots of brown rust covering up to 30% of the surface of a 3-inch to 6-inch length of wire; Laboratory tests have shown that 5% to 20% of Stage 3 wires may have cracks.

Stage 4: Brown rust covering more than 30% of the surface of a 3-inch to 6-inch length of wire; Laboratory tests have shown that 60% of Stage 4 wires may have cracks.

II. Inspection Findings, Conclusions and Recommendations

A. Upper Level

Inspection Findings, Conclusions and Recommendations

A. UPPER LEVEL

Major Inspection Findings

The upper level framing is in overall good condition. Since the previous inspection, several structural steel repairs have been completed which includes: cracked welds between the deck ribs (tees) and the deck strap plate, severely corroded support for the access catwalk at the New Jersey Tower, cracked and/or holed through webs/flanges of the secondary floorbeam/orthotropic deck rib (tee), missing or sheared bolts/rivets at connections of secondary floorbeam to stringer/deck strap plate, cracked with section loss connections of main floorbeam to deck truss top chord, bent/severely deteriorated seated bearing angle connections of stringer to floorbeam/capbeam, cracked and holed through web of the riser beams, holes with corrosion in the web of stringers over the bearing, and section loss and/or holes in the web of floorbeams/capbeams.

During the inspection, there were 5 conditions found that required immediate action. Repairs have been completed involving repairs of the severely corroded and cracked deck ribs at Panel Points 4W (West side), 27W (East side), 36W (East side) and 15E (East side), and cracked/delaminated concrete on the south sidewalk concrete fascia above the top flange of the steel fascia stringer between Panel Points 24W-25W, 27W-28W, 29W-37W, 38W-41W, 42W-40E, 38E-32E, 31E-29E, 28E-26E, 25E-23E, 22E-21E, 10E-9E, 6E-5E and 3E-2E (see Appendix B for Immediate Action correspondence).

Out of the 28 priority repairs at 5,644 locations recommended in the previous inspection report, 3 priority repairs recommended at 148 locations have been completed and 14 priority repairs were partially completed at 4,350 locations. As a result, there are 25 priority repairs recommended at 1,146 locations that remain outstanding, where 3 of the locations could not be verified due to tarp clamped to the steel members. There are 6 new priority repairs at 1,120 locations recommended during this inspection for a total of 31 priority repairs at 2,266 locations recommended in this report section. The majority of these recommendations include the repair of cracked welds between the deck ribs (tees) and the deck strap plate at the top of the secondary floorbeams, replace the missing tie down bolts and plates that connect the deck strap plate to the secondary floorbeams, and missing or sheared off rivets/bolts at the secondary floorbeam to stringer connections, and repair the cracked and/or holed webs of the secondary floorbeams and orthotropic deck ribs (tees).

Additionally, 12 non-structural safety repairs at 79 locations and 100 routine repairs at 2,463 locations are recommended in this report section.

Below are inspection findings for major bridge components in the Upper Level. Although the inspection findings do not affect the overall structural integrity, they are noted as follows:

Stringers, Columns, Bearings & Pedestals

The stringers are in overall good condition.

Several stringers in the main suspended spans exhibit moderate section loss at isolated locations with or without small corrosion holes in their webs above the bearings below the deck joint areas (see Photos A14, A19 and A22). Several stringers exhibit moderate section loss at the framed connection to the capbeams over the New York Anchorage. Some stringers within this area also exhibit fine cracks in the web which were previously arrested by a drilled hole near the top or bottom coping at the connections. No crack propagation was observed during this inspection in the locations where arrestor holes were previously drilled.

The tie-down bolts/rivets at numerous locations, for the seated bearing connection of the stringer to floorbeam within the suspended spans and stringer to capbeams at the New York Anchorage, exhibit severe corrosion with section loss or are sheared off (see Photos A13, A18 and A25). At Stringer S5 to Capbeam 7, the stringer bearing seat is bent due to pack rust at the stiffener angles (see Photo A23). At two isolated locations within the New York Anchorage, the shim plate is cracked and the tie down bolt is loose or sheared off (see Photos A12 and A29). Within the suspended spans, there are isolated locations of pack rust noted between sliding plates of the stringer bearing limiting the bearing movement (see Photos A21 and A28).

In the New York Anchorage at two locations, the capbeam bearing anchor bolts are either sheared off or exhibit severely corroded anchor bolt nuts (see Photo 17).

The lateral bracing connection at the stringers has worn into the stringer bottom flange up to 1/8" deep between Panel Points 9W-10W, 31E-30E, 26E-25E and 21E & 20E (see Photo A27).

The stringer pedestals/bearing stools at the New York Tower exhibit localized section loss on the bottom flange, bearing stiffeners and anchor bolts below Stringers S6 and S7 at Panel Point 14E (see Photo A24).

The stringers are connected to the floorbeam via a pinned-connection within truss panels adjacent to the towers and end panels of suspended spans. At some of these locations, the pins exhibit moderate corrosion with section losses up to 1/4" on the exterior surface. Section loss due to corrosion at the pins is not significant (<5%). However, it is recommended ultrasonic pin testing to be performed during next biennial inspection at locations where pins exhibit section losses.

The concrete pedestals are in overall fair condition.

The intermediate bearing at south sidewalk pedestal of floorbeam at Panel Point 1E inside the New York Anchorage is spalled resulting in approximately 10% undermining below the masonry plate (see Photo A3).

The columns are in overall good condition.

Several columns exhibit minor to moderate section loss at their base or at their base connections over the New York Anchorage.

Primary Floorbeams, Capbeams and Upper Truss Chords

The floorbeams, upper truss chords, verticals, diagonals and gusset plate connections to the floorbeams, are in overall good condition.

The webs of several main floorbeams in the main suspended spans exhibit areas of localized heavy pitting and up to 1/4" section loss with small corrosion holes mostly occurring below the joints, median areas, and curb lines (see Photo A15). Isolated rivet heads along the floorbeam bottom flanges exhibit up to 50% head loss. The capbeams in the New York Anchorage exhibit large areas of pitting up to 1/4" deep with small localized corrosion holes in the web.

The "box shaped" upper chords comprising the stiffening trusses are in overall good condition.

Evidence of water ponding was noted on top of the upper chord ends, near the connections to the floorbeams. The top plate exhibits localized pitting of up to 1/4" deep and various rivet heads exhibit up to 50% head loss at isolated locations.

At the west side of Panel Point 15E, the connection angle between the main floorbeam and south deck truss top chord exhibits a 1 1/4" crack past the previously drilled arrestor hole (see Photo A31).

Secondary Floorbeams and Riser Beams

The secondary floorbeams are in overall fair condition.

Between PP11W-14W, crack arrestor holes were previously drilled at the ends of the web cracks in secondary floorbeam SFB2 (see Photo A26). The replacement of all end Secondary Floorbeams SFB1 & SFB12 (or SFB13) was completed during this inspection under Contract GWB244.022.

There are a few locations throughout the main suspended spans and the New York Anchorage with missing or sheared off rivets/bolts at the connection of the deck or secondary floorbeam bottom flanges to the stringer top flanges (see Photos A16, A20 and A30).

The installation of the new deck joint system was completed during this inspection under Contract GWB244.022, which eliminated all riser beams over the end floorbeams.

Secondary Members

The secondary members which include diaphragms, lateral bracings and connecting gusset plates are in overall good condition.

Isolated areas of localized heavy corrosion, small corrosion holes, and pack rust were evident mostly below the deck joints and median areas. The end diaphragm inside the New Jersey Anchorage, below the abutment joint between Stringers S18-S19, exhibits a 5'L x 1'H corrosion hole. All other diaphragms at this location are in good condition. Localized moderate pitting and corrosion, and extensive dirt and debris accumulation were typically noted on the horizontal connection plates for the main lateral bracings below the median. There is heavy pack rust build-up and heavy corrosion to the lateral bracing members at the bottom flange of the stringer at

numerous locations, particularly where the main lateral bracing angles connect to the bottom flanges of the stringers.

Orthotropic Deck

The steel orthotropic deck panels are in overall fair condition.

There are numerous partial and full length cracks noted at the welded connection of the orthotropic deck rib and the strap plate, which is bolted to the top flange of the secondary floorbeam (see Photos A2, A4, A6 and A10). The tie down bolts and plates connecting the strap plate to the secondary floorbeam top flange are missing or sheared off at isolated locations (see Photo A5, A7 and A9).

Numerous deck ribs exhibit severe corrosion, holes and/or cracks in the web or bottom flanges (see Photos A1, A8 and A11). The severely corroded deck ribs at Panel Points 4W, 27W, 36W and 15E, were recommended as an immediate repair (see Appendix B for Immediate Action correspondence). At the New Jersey Tower between Panel Points 11W and 14W, a temporary support beam was installed for the consecutively cracked orthotropic deck ribs between Stringers S4 and S5 near Secondary Floorbeam SFB1 (see Photo A44).

Superstructure Paint Condition

The paint system protecting the superstructure steel in the suspended spans is in overall good condition.

Moderate corrosion was observed at the lower suspender rope sockets below the joint areas, and at many locations due to leakage through the deck joints.

The condition of the paint on the superstructure steel over the New Jersey and New York Anchorage is in overall good condition.

The columns and isolated locations of the superstructure exhibit areas of peeling paint and moderate corrosion due to leakage through the joints. The paint is in poor condition at most column bases.

The paint for all four main cables was found to be in very good condition.

Deck Joints

The new deck joints within the main suspended spans are in overall fair condition.

All deck joints, with exception of finger joints at the towers, were replaced during this inspection under Contract GWB244.022 on the main suspended spans. The deck joints exhibit segments of debonded, depressed, torn or missing joint sealers allowing water leakage on steel members below. The joints on the sidewalks typically exhibit slightly torn and depressed sealers.

The transverse support beams for the finger joints exhibit localized section losses on the web plate and small corrosion holes at the base of numerous intermediate stiffeners. The joint troughs remain completely clogged and are overflowing with dirt and debris onto other structural members (see Photo A37). Audible banging noises of the finger joints were heard under live load at PP11W and PP14E. No loose tie-down bolts were noted in the joints but slight misalignment of the finger joint plates was noted above deck.

The deck joints within the New Jersey and New York Anchorages are in overall fair condition and exhibit minor to moderate leakage due to missing or torn sections of joint sealer and minor deficiencies to the joint troughs below.

Sidewalks and Fascias

The sidewalks are in overall fair to good condition.

Several shallow spalls exist at various locations throughout the bridge particularly along the joints. The south sidewalk fascia is in overall poor condition exhibiting numerous areas of spalled concrete with or without exposed rebar ranging from 1' to 25' long x up to 1' wide. The north sidewalk fascia is in overall good condition with small isolated spalls. Areas of cracked and/or delaminated concrete along the south sidewalk fascia could not be safely removed during the inspection and was recommended for removal on an immediate basis (see Appendix B for Immediate Action correspondence).

There are a few locations on the sidewalks where the joint plates are uplifted causing a tripping hazard (see Photo A35).

Curbs, Parapets, Medians and Railings

The curbs, parapets and median are in overall fair to good condition.

The built-up steel curbs and parapets in the main suspended spans exhibit small to medium localized holes in the vertical or horizontal faces allowing water to penetrate onto the structural steel below, primarily near the joints. The parapets exhibit numerous missing, sheared off or deteriorated connection bolts throughout the exterior face. The north concrete parapet over the New Jersey and New York Anchorages exhibit a few large spalls with exposed corroded rebar. The steel median barrier within the main suspended spans exhibit areas of pitting up to 1/4" deep, scrape marks and localized corrosion holes up to 3" diameter at isolated locations. Since the previous inspection, the misaligned median barrier at Panel Point 11W was repaired.

The steel bridge railings along both sidewalks within the main suspended spans and over the New York Anchorage are in overall fair condition.

The railings exhibit minor to moderate section loss and localized corrosion holes in the railing posts and horizontal rails. The railings also exhibit several disconnected horizontal rails, broken or cracked collar plates, missing bolts connecting the horizontal rails to the posts, and broken rail post caps (see Photo A33). At the New York Anchorage, one of the posts is disconnected at the base of the south railing (see Photo A34).

Bridge Lighting & Misc. Utilities

The bridge lighting and utilities are in overall fair condition.

The electrical box covers at the base of several lighting standards are loose or missing with exposed electrical wires (see Photo A32). Since the last inspection, the exposed electrical wires at the base of the missing light standard at the north sidewalk over the New York Anchorage were removed. In addition, there is one missing light standard at the north side of the New York Tower. One lighting standard at the north sidewalk over the New York Anchorage is missing an arm. Also, an

emergency light is missing from the post at the north sidewalk between Panel Points 28W-29W.

The underside of deck bridge lighting deficiencies typically consist of non-functioning, disconnected, loose, broken or abandoned lighting fixtures, hanging electric wires, deteriorated conduits, and open/deteriorated or loose junction boxes. In between Panel Points 42W and 43, under the north sidewalk, the junction box cover is loose (see Photo A43). Several locations of disconnected conduits and partially detached conduit supports were also noted (see Photo A40). One underdeck lighting fixture support at the New York Tower is missing (1 of 2) nuts at the U-bolt connection (see Photo A41).

The maintenance platform gratings are deteriorated at a few locations, particularly at Panel Points 10W and 11W, and inside the New York Anchorage (see Photos A39 and A42). Also, the timber flooring inside the New York Anchorage is deteriorated (see Photo A38).

The bottom of the vertical post of the catwalk over the westbound center lane is missing 1 of 2 bolts (see Photo A36).

Drainage

The drainage system throughout the structure is in overall fair condition.

The tower finger joint troughs are heavily clogged and are overflowing with dirt and debris which is accumulating onto structural members below (see Photo A37). Several of the vertical supports for the troughs and sloped deflector shields exhibit severe corrosion with through holes. Numerous roadway scuppers are clogged at several locations across the bridge. Corrosion holes were noted in several downspouts and drainage troughs at various locations. The installation of the new drainage scuppers were completed throughout the main suspended spans under Contract GWB244.022. Some of the troughs below the joints at the anchorages are clogged with dirt and debris and exhibit missing sections.

RECOMMENDATIONS

Immediate: None

Priority: The following priority repairs are recommended:

<u>No.</u>	<u>Priority Repair Description</u>	<u>Dwg. No.</u>
Underside of Deck		
1*	Repair the cracks and/or holes in the web or flange of the orthotropic deck rib (tee) at Panel Points 2W and 11W. <i>(Photo A1)</i> (14 Locations, where 2 locations cannot be verified due to tarp clamped to steel members)	U-2 and U-5
2*	Repair the cracked welds between the deck ribs (tees) and the deck strap plate at the top of the secondary floorbeam. <i>(Photo A2)</i> (285 Locations)	U-2 thru U-5
3*	Repair the severely spalled pedestal of floorbeam at Panel Point 1E of the New York Anchorage. <i>(Photo A3)</i> (1 Location)	U-6
4*	Repair the cracked welds between the deck ribs (tees) and the deck strap plate at the top of the secondary floorbeam. <i>(Photo A4)</i> (249 Locations)	U-2 thru U-5
5*	Replace the missing tie down bolt and plate that connect the deck strap plate to the secondary floorbeam at or near the following Panel Points of the main span: 11W, 17W, 18W-19W and 7E. <i>(Photo A5)</i> (4 Locations, 5 Bolts)	U-2 and U-5
6*	Repair the cracked welds between the deck ribs (tees) and the deck strap plate at the top of the secondary floorbeam. <i>(Photo A6)</i> (487 Locations)	U-2 thru U-5
7*	Replace the missing tie down bolt and plate that connect the deck strap plate to the secondary floorbeam at or near the following Panel Points of the main span: 11W, 38E and 11E. <i>(Photo A7)</i> (3 Locations, 3 Bolts)	U-2, U-4 and U-5
8*	Repair the cracks and/or holes in the web or flange of the orthotropic deck rib (tee) at Panel Points 2W, 11W and 11E. <i>(Photo A8)</i> (6 Locations, where 1 location cannot be verified due to tarp clamped to steel members)	U-2 and U-5
9	Replace the missing or sheared off tie down bolt and plate that connect the deck strap plate to the secondary floorbeam between Panel Points 18W-19W and 37E-36E. <i>(Photo A9)</i> (2 Locations)	U-2 and U-4
10	Repair the cracked welds between the deck ribs (tees) and the deck strap plate at the top of the secondary floorbeam. <i>(Photo A10)</i> (1050 Locations)	U-2 thru U-5
11	Repair the cracks and/or holes in the web or flange of the orthotropic deck rib (tee) at Panel Points 2W, 4W, 9W, 11W, 19W, 27W, 29W, 30W, 32W thru 43, 41E, 40E, 36E, 34E, 32E, 31E, 28E, 26E thru 24E, 22E, 19E, 18E, 15E, 10E, and 6E thru 2E. <i>(Photo A11)</i> (60 Locations)	U-2 thru U-5

No.	Priority Repair Description	Dwg. No.
Superstructure Steel		
12*	Replace the cracked shim plate and sheared off tie down bolt connecting Stringer S9 bottom flange to the seated angle at Capbeam 4. <i>(Photo A12)</i> (1 Location)	S-8
13*	Replace the severely corroded or sheared off tie down bolts/rivets connecting the stringer bottom flange to the seated angle at the floorbeam. <i>(Photo A13)</i> (3 Locations)	S-5 and S-6
14*	Repair the stringers that exhibit thru holes with moderate corrosion in the web over the bearings at the following locations: Web of S2 west of 11W, Web of S3 west of 14W, Web of S7 west of 14W, Web of S1 east of 26W, Web of S1 west of 31E, Web of S1 & S3 west of 14E, Web of S1, S3 through S7 east of 14E, Web of S1 west of 9E, and Web of S1 west of 1E. <i>(Photo A14)</i> (15 Locations)	S-2 and S-4 thru S-7
15*	Repair the main floorbeam with extensive section loss and/or holes in web at the following locations: Panel Points 2W, 40W, 3E, 1E and Capbeam 7. <i>(Photo A15)</i> (5 Locations)	S-2, S-4, S-7 and S-8
16*	Replace the missing or sheared off rivets or bolts at the secondary floorbeam to stringer top flange connection. <i>(Photo A16)</i> (36 Locations)	S-2 thru S-8
17*	Replace the sheared anchor bolts and anchor bolt nuts which exhibit severe corrosion at the following locations: south column at Capbeams 4 & 8 in the New York Anchorage. <i>(Photo A17)</i> (2 Locations)	S-8
18*	Replace the severely corroded or sheared off tie down bolts/rivets connecting the stringer bottom flange to the seated angle at the floorbeam. <i>(Photo A18)</i> (1 Location)	S-3
19*	Repair the stringer that exhibits thru holes with moderate corrosion in the web over the bearing at web of S2 east of 14E. <i>(Photo A19)</i> (1 Location)	S-6
20*	Replace the missing or sheared off rivets or bolts at the secondary floorbeam to stringer top flange connection. <i>(Photo A20)</i> (4 Locations)	S-2, S-3 and S-5
21*	Repair the stringer bearings that have the bearing sliding plate bouncing under live load and/or are frozen due to pack rust at Panel Point 1E. <i>(Photo A21)</i> (7 Locations)	S-7
22*	Repair the stringer that exhibits thru holes with moderate corrosion in the web over the bearing at web of S5 west of 14W and S7 west of 14E. <i>(Photo A22)</i> (2 Locations)	S-2 and S-6
23*	Repair the bent angle on the girder bearing connection of Stringer S5 to Capbeam 7 at the New York Anchorage. <i>(Photo A23)</i> (1 Location)	S-8
24*	Repair the severe rust and hole in the bearing stiffener and the bottom flange of the bearing system of Stringers S6 and S7, east of PP 14E. <i>(Photo A24)</i> (2 Locations)	S-6

<u>No.</u>	<u>Priority Repair Description</u>	<u>Dwg. No.</u>
Superstructure Steel (continued)		
25*	Replace the severely corroded or sheared off tie down bolts/rivets connecting the stringer bottom flange to the seated angle at the floorbeam. <i>(Photo A25)</i> (11 Locations)	S-4, S-6 and S-8
26*	Repair the crack in the web of the secondary floorbeam near Panel Point 11W. <i>(Photo A26)</i> (1 Location)	S-2
27*	Repair the worn thru bottom flange of Stringer S2 at the diagonal bracing connection between Panel Points 9W & 10W, 30E & 31E, 25E & 26E and 20E & 21E. <i>(Photo A27)</i> (4 Locations)	S-2, S-5 and S-6
28*	Repair Stringer S8 bearing that has the bearing sliding plate bouncing under live load and is frozen due to pack rust at Panel Point 1E. <i>(Photo A28)</i> (1 Location)	S-7
29	Replace the cracked shim plate and loose tie down bolts connecting the stringer bottom flange to the seated angle of the capbeam. <i>(Photo A29)</i> (1 Location)	S-8
30	Replace the missing or sheared off rivets or bolts at the deck to stringer top flange connection. <i>(Photo A30)</i> (6 Locations)	S-8
31	Repair the cracked connection angle between the main floorbeam and deck truss top chord. <i>(Photo A31)</i> (1 Location)	S-6
* Previously recommended as a "Priority Repair" in the 2013 inspection report.		

Safety: The following safety repairs are recommended:

<u>No.</u>	<u>Safety Repair Description</u>	<u>Dwg. No.</u>
Top of Deck		
1	Repair the disconnected conduit or secure the loose electrical box covers with exposed wires on the lighting standard or railing posts. <i>(Photo A32)</i> (18 Locations)	T-2 and T-6
2	Replace the missing, severely deteriorated, and/or secure the disconnected rails from posts along the roadway and sidewalk railings. <i>(Photo A33)</i> (15 Locations)	T-2, T-5 and T-6
3	Secure the railing posts that are loose, cracked or disconnected at its base over the New York or New Jersey Anchorage. <i>(Photo A34)</i> (4 Locations)	T-1 and T-6
4	Repair or replace the uplifted joint plates causing a tripping hazard. <i>(Photo A35)</i> (3 Locations)	T-2 and T-5

<u>No.</u>	<u>Safety Repair Description</u>	<u>Dwg. No.</u>
Underside of Deck		
5	Replace 1 of 2 missing bolts at the bottom of the vertical railing post of the catwalk at Panel Point 14E over the westbound center lane. (Photo A36) (1 Location)	U-5
6	Remove the excessive debris accumulated on the steel members at Panel Point 14E and Stringer S8. (Photo A37) (1 Location)	U-5
7	Repair the severely deteriorated and partially missing flooring at the mid-level of New York Anchorage. (Photo A38) (1 Location)	U-6
8	Replace the severely deteriorated maintenance platform grating at its south support below the south sidewalk access hatch between Panel Points 10W & 11W. (Photo A39) (1 Location)	U-2
9	Secure the disconnected utility conduits and utility conduit supports which are partially detached. (Photo A40) (31 Locations)	U-2 thru U-5
10	Secure the loose support for the underdeck lighting fixture. (Photo A41) (2 Locations)	U-3 and U-5
11	Repair the deteriorated section of catwalk grating inside the New York Anchorage. (Photo A42) (1 Location)	U-6
12	Repair or replace the loose junction box cover. (Photo A43) (1 Location)	U-3

Routine: The following routine repairs are recommended:

<u>No.</u>	<u>Routine Repair Description</u>	<u>Dwg. No.</u>
Top of Deck		
1	Repair the vertical and/or horizontal faces of the steel curb & parapet that exhibit thru holes allowing water to penetrate onto the steel below. (22 Locations)	T-2 thru T-5
2	Replace the elastomeric joint filler material that is either missing or deteriorated at the top of the deck joints. (232 Locations)	T-1 thru T-6
3	Repair the spalled concrete of the parapet or curb with exposed rebars. (18 Locations)	T-1 and T-6
4	Repair the bridge railing and/or vertical support post which exhibits moderate localized section loss and/or thru holes, or is damaged due to impact. (193 Locations)	T-1 thru T-6
5	Replace the missing bolts or cracked collar plate connecting the horizontal bridge rails to the support posts. (13 Locations)	T-2 and T-5
6	Seal the medium to wide cracks in the concrete parapet. (1 Location)	T-6
7	Replace the missing cap at the top of the light poles. (3 Locations)	T-6
8	Replace the missing or broken bridge railing post caps and/or countersunk flat head screws. (73 Locations)	T-1 thru T-6

No.	Routine Repair Description	Dwg. No.
Top of Deck (continued)		
9	Repair the cracked weld at one of two supports, to the bridge railing, for telephone pole. (2 Locations)	T-3 and T-4
10	Replace the missing or deteriorated curb joint filler or steel plate. (67 Locations)	T-2 thru T-6
11	Replace the missing bolts or detached plates on the outside face of the steel parapet. (158 Locations)	T-2 thru T-5
12	Replace the missing bolt at the connection angle at the base of the post. (1 Location)	T-5
13	Repair the spalled asphalt overlay in the roadway or spalled concrete in joint header. (7 Locations)	T-1 thru T-3 and T-5
14	Repair the steel median barrier section which is broken or exhibits extensive section loss. (8 Locations)	T-2, T-3, T-5 and T-6
15	Replace the 3 of 6 missing bolts at the steel expansion plate connection to the median over the New Jersey Anchorage. (1 Location)	T-1
16	Repair the shallow spalls in the sidewalk slab or the spalled fascia overhang with or without exposed rebars. (111 Locations)	T-2 thru T-6
17	Replace the missing blue emergency light. (1 Location)	T-3
18	Secure the granite stones atop the anchorage wall over terrain. (3 Locations)	T-1 and T-6
19	Replace the missing light standard. (2 Locations)	T-5 and T-6
20	Remove debris from 100% clogged scupper. (3 Locations)	T-6
21	Redirect the sign which is not visible to traffic. (1 Location)	T-2
Underside of Deck		
22	Remove debris from top of seat/pedestal area hindering bearing movement. (10 Locations)	U-1, U-2 and U-5
23	Seal the medium to wide horizontal and vertical cracks in the abutment seat or capbeam. (4 Locations)	U-1
24	Repair severely cracked and spalled encasement around the deteriorated and leaking catch basin at the New Jersey Anchorage. (1 Location)	U-1
25	Repair the spalled, hollow sounding and/or delaminated concrete on the backwall or abutment seat at the west abutment. (7 Locations)	U-1
26	Repair the small holes (1"-2" diameter typ.) in the deck and/or sidewalk allowing water to penetrate onto the steel below. (25 Locations)	U-1, U-3 and U-6
27	Repair the spalled concrete with or without exposed rebars and hollow sounding areas on the underside of the deck. (12 Locations)	U-1 and U-6

No.	Routine Repair Description	Dwg. No.
Underside of Deck (continued)		
28	Seal the wide cracks and/or repair the spalled and hollow sounding concrete with or without exposed rebars on the anchorage wall. (14 Locations)	U-1, U-5 and U-6
29	Repair the spalled grout of the column or girder and stringer pedestals with minor undermining of bearing. (6 Locations)	U-1
30	Replace the missing, deteriorated, disconnected, or broken scupper downspout/drainage trough or trough support. (17 Locations)	U-1, U-5 and U-6
31	Repair the spalled concrete on the deck haunch above the girders in the New Jersey Anchorage. (6 Locations)	U-1
32	Seal the medium to wide cracks along the deck haunch or on the underside of deck in the New Jersey Anchorage. (18 Locations)	U-1
33	Repair the drainage trough or debris shield supports at the towers which exhibit section loss and thru holes. (8 Locations)	U-2 and U-5
34	Replace the missing fencing or secure the disconnected fencing supports for drainage trough housing at the towers. (7 Locations)	U-2 and U-5
35	Repair the severely deteriorated section of metal deck pan below the sidewalk. (131 Locations)	U-2 thru U-5
36	Replace the missing or sheared off bolts connecting the deck plates along the longitudinal joints. (53 Locations)	U-6
37	Secure the disconnected union coupling of the protective cover for the high voltage conduit in areas not accessible to pedestrians. (2 Locations)	U-5
38	Replace the joint filler which is dislodged and hanging. (2 Locations)	U-5
39	Replace the missing vent covers and/or cleanouts of the scupper downspouts or replace the missing bolts at these locations. (1 Location)	U-6
40	Tighten or replace the loose tie down bolts that connect the deck strap plate at the top of the secondary floorbeam. (1 Location)	U-2
41	Broken/missing electrical junction box with exposed wires. (3 Locations)	U-1
42	Repair or replace the broken light fixture. (2 Locations)	U-6
Superstructure Steel		
43	Repair the web or flanges of the secondary floorbeams which exhibit small holes and/or 1/8"-1/4" section loss at critical areas. (69 Locations)	S-2 thru S-7
44	Replace the north sidewalk beam that supports the steel joint plate which exhibits more than 50% section loss to its top flange at PP 14W. (1 Location)	S-3
45	Repair the partial connection angle that is cracked but terminates at an open rivet hole. (1 Location)	S-1

<u>No.</u>	<u>Routine Repair Description</u>	<u>Dwg. No.</u>
Superstructure Steel (continued)		
46	Replace the broken sole plate below stringer resulting in slight undermining of bearing. (1 Location)	S-1
47	Replace the missing bolts connecting the top flange of floorbeam to deck. (21 Locations)	S-1
48	Repair the bearing assembly for the retrofit beam at Capbeam 10 which exhibits cracked welds along the edge of the shim plates. (1 Location)	S-8
49	Repair the vertical, horizontal, and/or diagonal legs of the angles of the cross frame with thru holes and section loss and/or severe pack rust. (33 Locations)	S-2 thru S-7
50	Replace the missing grating or secure loose grating beneath the median barrier between stringer S4 and S5. (3 Locations)	S-2 and S-7
51	Repair the anchor bolt nuts on both sides of the sidewalk fascia stringer bearing. (4 Locations)	S-2 and S-7
52	Tighten the anchor bolt nut of the bearing assembly. (3 Locations)	S-1
53	Replace the missing bolts and/or support brackets for the finger joint deflective shield. (5 Locations)	S-2 and S-6
54	Repair the small holes and/or minor to moderate section loss in the stringer at critical areas. (36 Locations)	S-1 thru S-7
55	Replace the sheared off rivet at the base of the stiffening angles of the stringer seated connection to the floorbeam. (1 Location)	S-8
56	Repair the bearing stiffener at sidewalk stringers with extensive section loss, pack rust, holes, and/or cracks. (45 Locations)	S-2 thru S-7
57	Repair the intermediate stiffeners with thru holes and/or extensive section loss. (21 Locations)	S-2 thru S-7
58	Repair the severely deteriorated intermediate diaphragm that exhibits thru holes. (7 Locations)	S-1 thru S-3 and S-6
59	Repair the stringer bearing assembly which exhibits extensive section loss and pack rust on the web plate, bearing stiffeners and the countersunk bolt nuts. (26 Locations)	S-5 thru S-7
60	Repair the spalled and cracked concrete encasement of stringers. (2 Locations)	S-8
61	Replace the missing bolts on the gusset plate connection of the utility platform to the bottom flange of the sidewalk stringer. (4 Locations)	S-5 and S-7
62	Repair the sidewalk stringer web plate(s) which exhibits extensive section loss and/or thru holes. (5 Locations)	S-2 thru S-6
63	Repair the sliding plate of the bearing of S1 at PP 14W which exhibits a 3" long broken edge. (1 Location)	S-3
64	Repair the missing section of keeper rod on the underside of finger joint. (4 Locations)	S-2 and S-6

No.	Routine Repair Description	Dwg. No.
Superstructure Steel (continued)		
65	Replace the missing, deteriorated, and/or loose bolts/rivets of the cross frame to secondary floorbeam connection. (5 Locations)	S-7
66	Replace the rivets with over 50% head loss. (93 Locations)	S-1 thru S-8
67	Replace the anchor bolt to the stringer bearing with over 50% section loss. (9 Locations)	S-2, S-6 and S-7
68	Repair the cracked weld at sidewalk stringer connection to the floorbeam. (1 Location)	S-2
69	Replace the deteriorated bearing plate below the sidewalk stringer which exhibits severe section loss. (1 Location)	S-2
70	Repair the vertical stiffeners on the stringer bearing stool that exhibit extensive section loss, pack rust, holes and/or cracks. (20 Locations)	S-4 thru S-6
71	Repair the bottom flange of the main floorbeam/capbeam which exhibits up to 3/16" localized section loss at non-critical areas. (1 Location)	S-8
72	Replace the missing rivet at the stringer bearing stiffener angle. (2 Locations)	S-6
73	Repair the wind brace to stringer connection that exhibits pack rust and/or missing filler plate causing the bracing angles to bounce under live loads resulting in wear and section loss to the stringer bottom flange. (207 Locations)	S-2 thru S-7
74	Repair the horizontal gusset plate that connects the wind brace to the main floorbeam and/or truss chord which exhibits localized severe section loss and/or thru holes and/or cracks. (38 Locations)	S-2 and S-4 thru S-7
75	Replace the rivets on the horizontal gusset plate that connects the wind brace to the main floorbeam and/or truss chord with over 50% head loss. (4 Locations)	S-5 and S-7
76	Repair the top and bottom lattice plates of the top chord of the truss at PP 2W that exhibit significant section loss and/or thru holes. (2 Locations)	S-2
77	Repair the bracket with thru holes on S8 east of PP 14W. (1 Location)	S-3
78	Clean and paint the top and bottom plates of the top chord of the stiffening truss and gusset plates at connections. Also replace missing caulk at the joint between the top and bottom plates and the web plates of the same members. In addition, install methods to prevent ponding on top of the top chord. (16 Locations)	S-2 thru S-7
79	Repair the north platform support angle between PP 11W & 14W that exhibits severe corrosion. (1 Location)	S-2
80	Replace the missing rivet at the top of the stiffener at stringer. (40 Locations)	S-2 thru S-7
81	Replace the missing or loose bolts at the sidewalk fascia stringer to deck connection. (69 Locations)	S-2 thru S-7

No.	Routine Repair Description	Dwg. No.
Superstructure Steel (continued)		
82	Repair the transverse support beams for the finger joint which exhibit areas of 1/8" – 1/4" localized section loss on the web and numerous interior vertical stiffeners with up to 100% section loss near the bottom flange. (4 Locations)	S-2 and S-6
83	Repair the connection angle between main floorbeam and deck truss top chord which exhibits extensive section loss with or without a crack that has been arrested by a drill hole. (163 Locations)	S-2 thru S-7
84	Replace the missing bolt or tighten loose bolt in web of stringer, secondary floorbeam, or sidewalk beam. (16 Locations)	S-2 and S-4 thru S-7
85	Repair the web of the main floorbeam which exhibits 1/8" localized section loss near connection. (146 Locations)	S-2 thru S-8
86	Repair the lateral or diagonal bracing member in panel 14E/11E which exhibits extensive section loss and thru holes. (3 Locations)	S-6
87	Repair the gusset plate at the pin connection between stringer and main floorbeam which exhibits extensive section loss. (1 Location)	S-6
88	Clean the exposed portions of the pins and lubricate the stringer web bearing areas. (3 Locations)	S-7
89	Repair the vertical gusset plate of the deck truss top chord at connection to the main floorbeam which exhibits localized 1/8" – 3/16" section loss. (4 Locations)	S-3 and S-6
90	Repair the support for the median longitudinal beam which exhibits a crack or is severely deteriorated. (10 Locations)	S-2, and S-4 thru S-6
91	Repair the longitudinal beams supporting the median barrier between stringers S4 and S5 with section loss and/or missing bolts. (32 Locations)	S-2 thru S-4, S-6 and S-7
92	Repair the gusset plate of the cross frame connection to the stringer flange with extensive section loss and thru holes. (13 Locations)	S-2, S-6 and S-7
93	Repair the secondary floorbeam which exhibits pack rust between the web and vertical stiffener causing localized buckling of the web. (3 Locations)	S-4
94	Repair or replace the broken connection at the light fixture. (1 Location)	S-4
95	Repair the spalled concrete in the anchorage wall with or without exposed rebars. (4 Locations)	S-8
96	Replace the missing or loose bolts at the stringer to capbeam connection. (1 Location)	S-8
97	Replace the missing bolts in the vertical splice bars which are producing excessive vibrations. (1 Location)	S-8
98	Replace the sheared off bolt at the bottom flange of the secondary floorbeam splice plate. (1 Location)	S-5

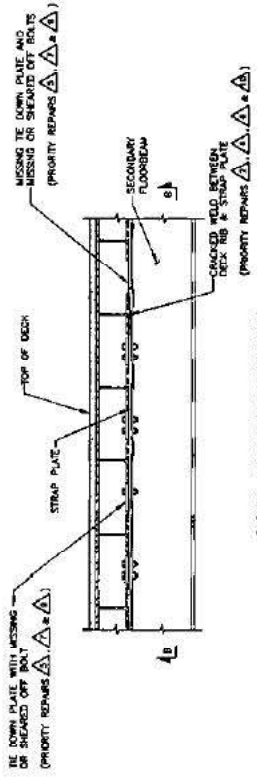
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Superstructure Steel (continued)		
99	Repair the holes in the web or flanges of the secondary floorbeam between Panel Points 23W-24W and 34W-35W. (2 Locations)	S-3 and S-4
100	Repair the bent angle at Stringer S8 sliding bearing plate due to pack rust at Panel Point 33E floorbeam. (1 Location)	S-5

No.	Date	Revision	Approved
Engineering Department			
GEORGE WASHINGTON BRIDGE			

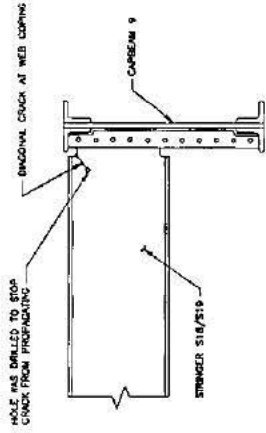
QUALITY ASSURANCE DIVISION
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BIN 6622608
UPPER LEVEL

TYPICAL DEFICIENCIES

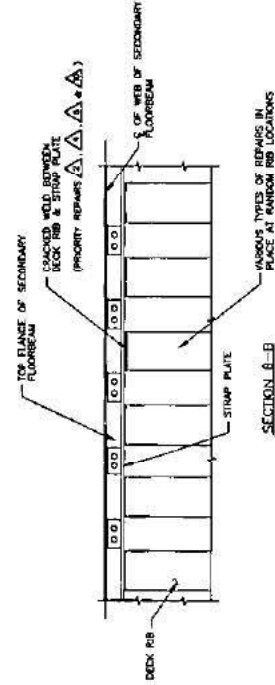
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DRAWING NO.: D-1



TYPICAL SECTION THROUGH DECK AT SECONDARY FLOORBEAM

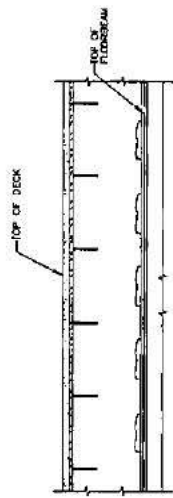


TYPICAL CRACK AT CEILING NEW YORK ANCHORAGE WEST OF CAPBEAM 9 (LOOKING NORTH)

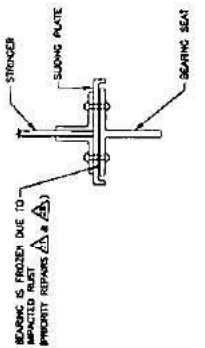


TYPICAL SECTIONS AND DETAILS

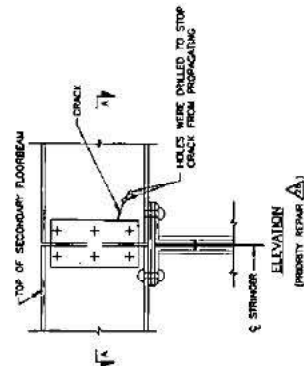
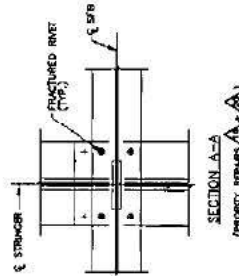
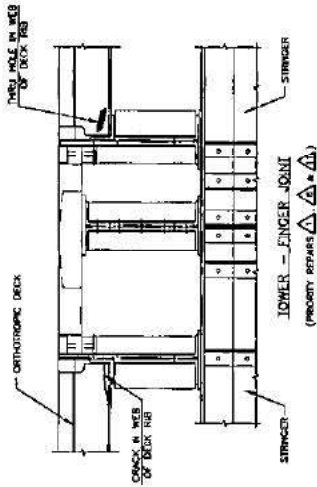
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TYPICAL SECTION THROUGH DECK AT MAIN FLOORBEAM



STRINGER CONNECTION AT WEST FACE OF PANEL POINT 1E



TYPICAL SECONDARY FLOORBEAM TO STRINGER CONNECTION

KEY CONDITION NOTES — TOP OF DECK

SAFETY REPAIRS

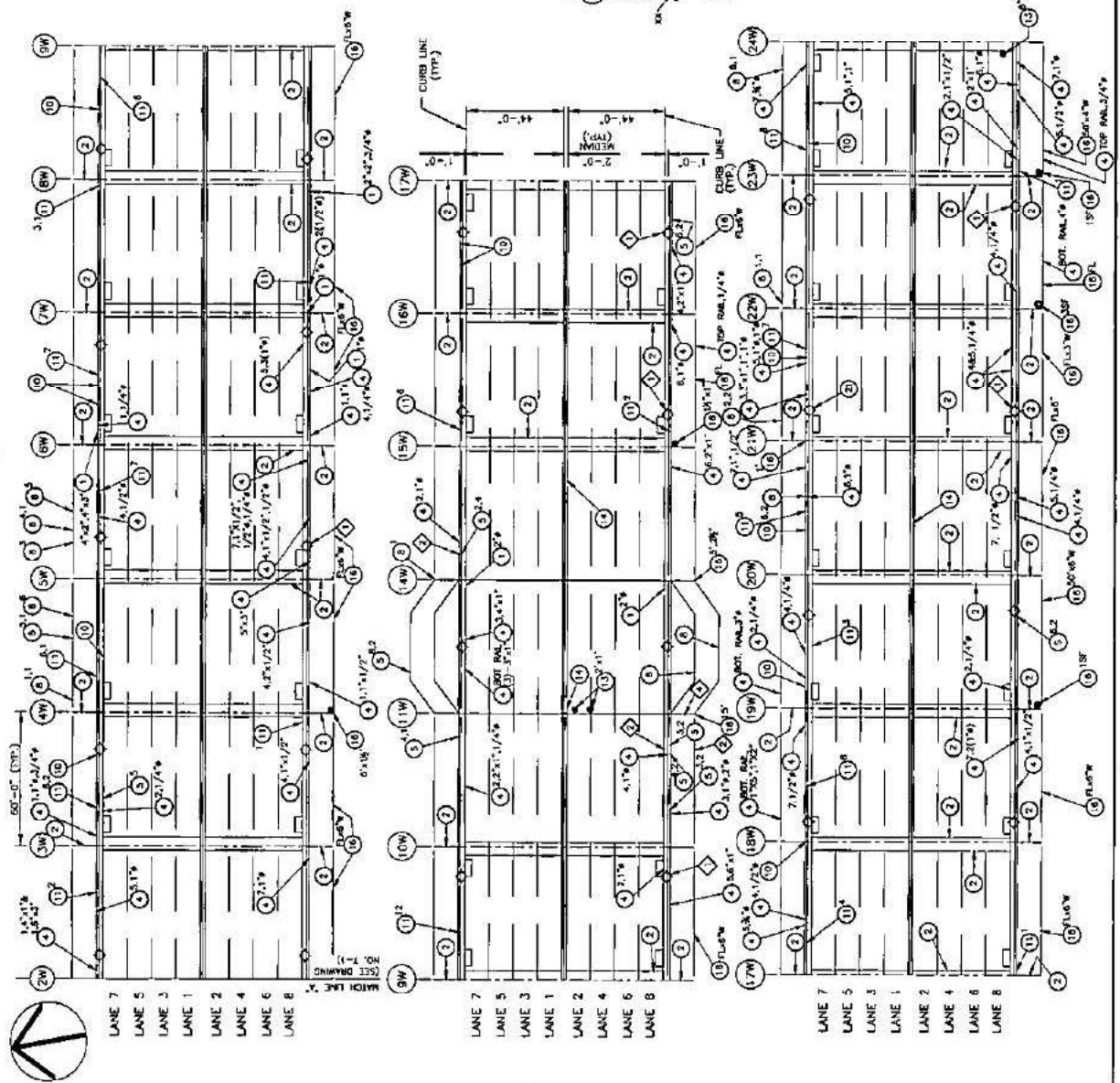
- 1. REPAIR THE MISPLACED CONCRETE OR SCOUR THE EDGE OR MISSING ELECTRICAL BOX COVERS WITH EXPOSED WIRES ON THE LIGHTING STANDARD OR RAILING POSTS.
- 2. REPLACE THE MISSING, SEVERELY DETERIORATED, AND/OR SECURE THE DISCONNECTED PANEL FROM POSTS OF THE RAILING AND SIGNPOST RAILING.
- 3. REPAIR OR REPLACE THE UNFASTENED JOINT PLATES CAUSING A TRIPPING HAZARD.

ROUTINE REPAIRS

- 4. REPAIR THE VERTICAL AND/OR HORIZONTAL FACES OF THE STEEL CURB & PARAPET THAT EXHIBIT CRACKS ALLOWING WATER TO PENETRATE INTO THE STEEL BELOW. 'Y' INDICATES SIDE OF HOLE.
- 5. REPAIR THE CRACKS THAT ARE FULL WIDTH THAT IS OTHER MISSING OR DETERIORATED AT THE TOP OF THE DECK JOINT.
- 6. REPAIR THE BRIDGE DECK AND/OR CURB, SURFACE ROSE WHICH COBERTS, WOODRIFE LOCATED SECTION LOSS FROM BEGINNING OF PANEL. 'Y' INDICATES SIDE OF HOLE IN POST, (UNLESS OTHERWISE NOTED).
- 7. REPLACE THE MISSING BOLTS ON CRACKED COLLAR PLATE CONNECTING THE PARAPET TO THE STEEL CURB. 'Y' INDICATES NUMBER OF MISSING BOLTS, UNLESS APPLICABLE.
- 8. REPLACE THE MISSING OR BROKEN BRIDGE RAILING POST CAPS AND/OR COUNTERSUNK 'L' & 'H' HEAD BOLTS. 'Y' INDICATES NUMBER OF RAIL POSTS FROM BEGINNING OF PANEL. 'Y' INDICATES NUMBER OF MISSING BOLTS, UNLESS APPLICABLE.
- 9. REPLACE THE MISSING OR DETERIORATED CURB JOINT FILLER OR STEEL PLATE.
- 10. REPLACE THE MISSING BOLTS OR DETACHED PLATES ON THE OUTSIDE FACE OF THE STEEL PARAPET. 'X' INDICATES NUMBER OF MISSING CONNECTORS. 'Y' INDICATES NUMBER OF DETACHED PLATES. 'Y' APPLICABLE.
- 11. REPAIR THE SPALLED ASPHALT OVERLAY IN THE ROADWAY OR SPALLED CONCRETE IN JOINT ROADWAY. 'X' INDICATES SIZE OF SPALL.
- 12. REPAIR THE SPALLS WITHIN SECTION WHICH IS BROKEN OR EXHIBITS EXTENSIVE SECTION LOSS.
- 13. REPAIR THE SHALLOW SPALLS IN THE SIDEWALK OR ON THE SPALLED AREA OVERLAP WITH OR WITHOUT EXPOSED REBAR. 'X' INDICATES LENGTH OF SPALL. 'Y' WIDE, (UNLESS OTHERWISE NOTED).
- 14. REDIRECT THE SIGN WHICH IS NOT VISIBLE TO TRAFFIC.

LEGEND

- (BE) PANEL POINT (AS PER PANY&NJ SYSTEM)
- ◇ INDICATES SAFETY REPAIRS
- INDICATES ROUTINE REPAIRS
- SCUMPER
- ◇ NOT STAIRWELL
- BT - BOTTOM
- DP - DEEP
- W - WIDE
- PL - FULL LENGTH



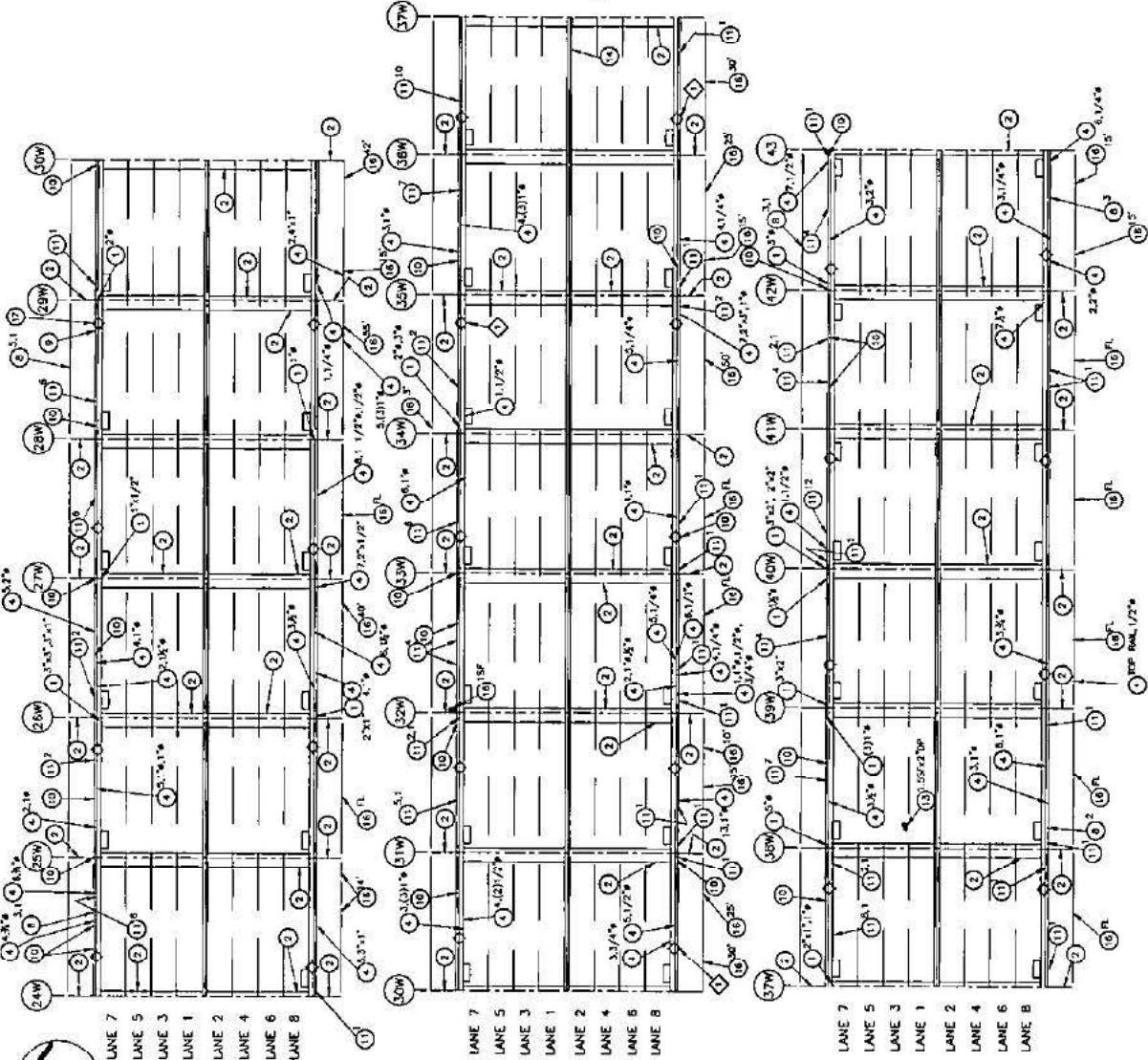
No.	Date	Revised	Approved
ENGINEERING DEPARTMENT			
GEORGE WASHINGTON BRIDGE			
QUALITY ASSURANCE DIVISION FACILITY CONDITION SURVEYS			
THIS GENERAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE			
BIN 6622608			
UPPER LEVEL TOP OF DECK LOCATION PLAN PP 2W TO PP 24W			
Developed By	Drawn By	Checked by	DATE
			8/22/08, JPS
Contract Number	405-15-005		
Drawing Number	T-2		

KEY CONDITION NOTES -- TOP OF DECK

- SAFETY - REPAIRS**
- 1. REPAIR THE DISCONNECTED CONDUIT OR SECURE THE LOOSE OR MISSING ELECTRICAL BOX COVERS WITH EXPOSED WIRES ON THE LOWER STANDARD OF RAILING SYSTEM.
- ROUTINE REPAIRS**
- 1. REPAIR THE VERTICAL AND/OR HORIZONTAL FACES OF THE STEEL CURB & PARAPET THAT EXHIBIT TYPICAL HOLES ALLOWING WATER TO PENETRATE ONTO THE STEEL BELOW. "X" INDICATES SIZE OF HOLE.
 - 2. REPLACE THE ELECTROMAGNETIC JOINT FULLEY MATERIAL THAT IS EITHER MISSING OR DETRIORATED AT THE TOP OF THE DECK JOINTS.
 - 3. REPAIR THE BRIDGE WALKING AND/OR VERTICAL SUPPORT POST WHICH EXHIBITS MODERATE LOCALIZED SECTION LOSS AND/OR TYPICAL HOLES, OR IS DAMAGED DUE TO COLLISION WITH TRUCKS OR TRAILERS FROM REBOUND OF PANEL. "Y" INDICATES SIZE OF HOLE IN POST. (UNLESS OTHERWISE NOTED).
 - 4. REPLACE THE MISSING OR BROKEN BRIDGE WALKING POST CHAIRS AND/OR COUNTERSINKING THE BROKEN CHAIRS TO THE ORIGINAL DESIGN POSITION BEGINNING OF PANEL.
 - 5. "Y" INDICATES NUMBER OF MISSING SCISSOR WALKING APPLICATIONS.
 - 6. REPAIR THE CHECKED WELD AT ONE OF TWO SUPPORTS, TO THE BRIDGE WALKING FOR TELEPHONE PULL.
 - 7. REPLACE THE MISSING OR DETRIORATED CURB JOINT TELLER ON STEEL PLATE.
 - 8. REPLACE THE MISSING BOLTS OR DETACHED PLATES ON THE OUTSIDE FACE OF THE TELEPHONE PULL.
 - 9. REPAIR THE SHALLOW ASPHALT OVERLAY IN THE ROADWAY OR SPALLED CONCRETE IN JOINT HEADER. "X" INDICATES SIZE OF SPALL.
 - 10. REPAIR THE STEEL URBAN BARRED SECTION WHICH IS BROKEN OR EXHIBITS EXTENSIVE SECTION LOSS.
 - 11. REPAIR THE SHALLOW SPALLS IN THE SIDEWALK SLAB OR THE SPALLED (AS PER OVERLAYING WITH OR WITHOUT EXPOSED REBAR). "X" INDICATES LENGTH OF SPALL X 1/2 WIDE. (UNLESS OTHERWISE NOTED).
 - 12. REPLACE THE MISSING BLUE EMERGENCY LIGHT.

LEGEND

- (BE) PANEL POINT (AS PER PANY&NJ SYSTEM)
- ◇ INDICATES SAFETY REPAIRS
- INDICATES ROUTINE REPAIRS
- DEAMERATED/SPALLED CONCRETE AND/OR ASPHALT OVERLAY WITH OR WITHOUT EXPOSED REBAR. (SEE DENOTES SIZE OF SPALL) (ROUTINE REPAIR)
- SCUPPER
- LIGHT STANDARD
- DEEP
- FL - FULL LENGTH



No.	Date	Revised	Approved
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THE QUALITY ASSURANCE DIVISION
QUALITY CONTROL SURVEYS

THE
GEORGE WASHINGTON BRIDGE

BIN 5622508
UPPER LEVEL
TOP OF DECK
DEFICIENCY & PHOTO
LOCATION PLAN
PP 24W TO PP 43

Site General Inspection of the
George Washington Bridge

Designed by: [Signature] Checked by: [Signature]
Date: 08/11/11

Contract Number: 405-15-005

Drawing Number: T-3

THE PORT AUTHORITY
OF NY & NJ

NO.	DATE	REVISION	APPROVED
ENGINEERING DEPARTMENT			
GEOFFREY WASHINGTON			
BRIDGE			

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS
SP1 NORMAL INSPECTOR OF THE
GEOFFREY WASHINGTON BRIDGE
BIN 55225008

UPPER LEVEL
TOP OF DECK
DEFICIENCY & PHOTO
LOCATION PLAN
PP 43 TO PP 23E

Designed by: [Name]
Checked by: [Name]
Date: [Date]
Contract Number: 405-15-005
Drawing Number: T-4

KEY CONDITION NOTES - TOP OF DECK

SAFETY REPAIRS

REPAIR THE DISCONNECTED CONTACT OR SECURE THE LOOSE OR MISSING ELECTRICAL BOX COVERS WITH EXPOSED WIRES ON THE LIGHTING STANDARD OR RAILING POSTS.

ROUTINE REPAIRS

REPAIR THE METAL AND/OR WELDMENT FACES OF THE STEEL GIRDERS & MOMENT THAT CROSS THEMSELVES ALLOWING WATER TO PENETRATE ONTO THE STEEL BELOW. 'X' INDICATES SIZE OF HOLE.

REPLACE THE ELONGATED JOINT FILLER MATERIAL THAT IS EITHER MISSING OR DETRIMENTED AT THE TOP OF THE DECK JOINTS.

REPAIR THE BRIDGE RAILING AND/OR VERTICAL SUPPORT POST WHICH EXHIBITS INADEQUATE LOCALIZED SECTION LOSS AND/OR THIN HOLES, OR IS DAMAGED DUE TO IMPACT. 'X' INDICATES DISTANCE FROM REPAIRS TO NEAREST JOINT. 'Y' INDICATES SIZE OF HOLE IN POST. (UNLESS OTHERWISE NOTED).

REPLACE THE MISSING OR DAMAGED BRIDGE RAILING POSTS AND/OR COUNTERPLATE PLATE HEAD SCREWS. 'X' INDICATES NUMBER OF RAIL POSTS FROM BEGINNING OF PANEL. 'Y' INDICATES NUMBER OF MISSING SCREWS, WHERE APPLICABLE.

REPAIR THE DETACHED WELD AT ONE OF TWO SUPPORTS TO THE BRIDGE RAILING FOR TELEPHONE WIRE.

REPLACE THE MISSING OR DETRIMENTED CURB JOINT FILLER OR STEEL PLATE.

REPAIR THE MISSING BOLTS OR DETACHED PLATES ON THE OUTSIDE FACE OF THE STEEL MOMENT. 'X' INDICATES NUMBER OF MISSING CONNECTORS. 'Y' INDICATES NUMBER OF DETACHED PLATES, IF APPLICABLE.

REPAIR THE SHALLOW SPALLS IN THE SIDEWALK SLAB OR THE SPALLS AREA OVERHANGING WITH OR WITHOUT EXPOSED REBAR. 'X' INDICATES LENGTH OF SPALL. 'Y' IND. (UNLESS OTHERWISE NOTED).

LEGEND

PANEL POINT (AS PER PANY&NJ SYSTEM)

○ INDICATES ROUTINE REPAIRS

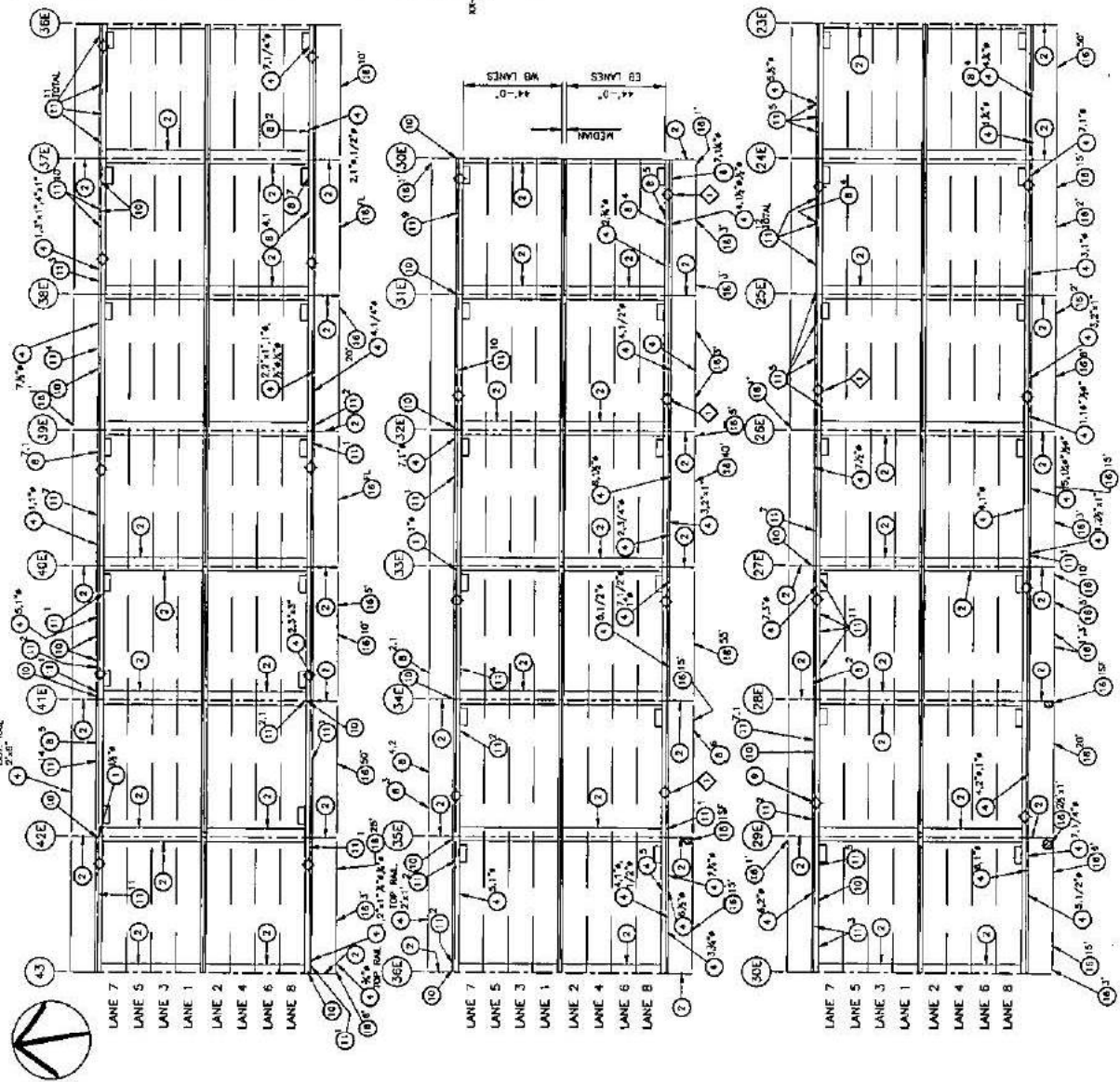
◇ DELAMINATED/SPALLED CONCRETE AND/OR ASPHALT OVERLAY WITH OR WITHOUT EXPOSED REBAR. (X: DENOTES SIZE OF SPALL) (ROUTINE REPAIR)

□ SCOUR

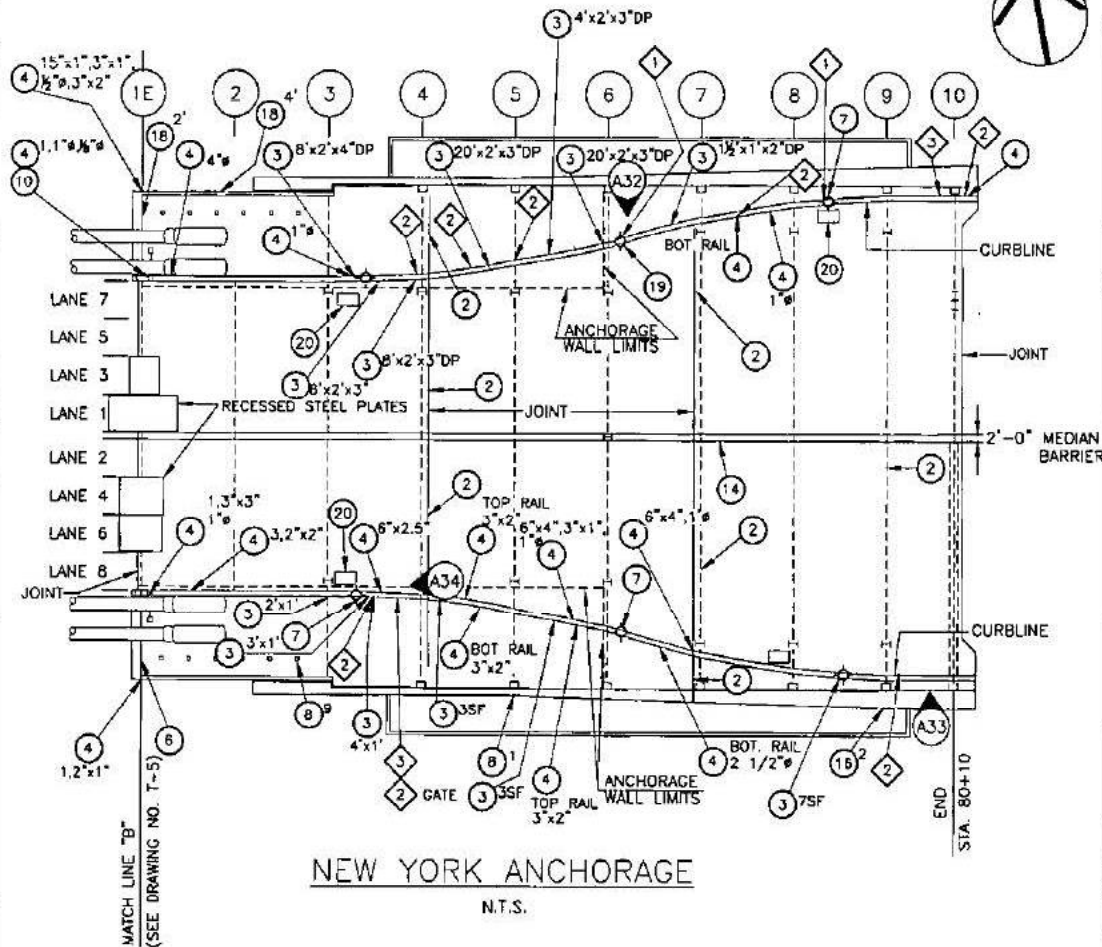
◇ LIGHT STANDARD

BTZ - BOTTOM

FL - FULL LENGTH



**THE PORT AUTHORITY
OF NY & NJ**



NEW YORK ANCHORAGE

N.T.S.

KEY CONDITION NOTES - TOP OF DECK

SAFETY REPAIRS

- ① REPAIR THE DISCONNECTED CONDUIT OR SECURE THE LOOSE OR MISSING ELECTRICAL BOX COVERS WITH EXPOSED WIRES ON THE LIGHTING STANDARD OR RAILING POSTS.
- ② REPLACE THE MISSING, SEVERELY DETERIORATED, AND/OR SECURE THE DISCONNECTED RAILS FROM POSTS OF THE ROADWAY AND SIDEWALK RAILINGS.
- ③ SECURE THE RAILING POSTS THAT ARE LOOSE, CRACKED OR DISCONNECTED AT ITS BASE OVER THE NEW YORK OR NEW JERSEY ANCHORAGE.

ROUTINE REPAIRS

- ② REPLACE THE ELASTOMERIC JOINT FILLER MATERIAL THAT IS EITHER MISSING OR DETERIORATED AT THE TOP OF THE DECK JOINTS.
- ③^X REPAIR THE SPALLED CONCRETE OF THE PARAPET OR CURB WITH EXPOSED REBARS. 'X' INDICATES SIZE OF SPALL.
- ④^{X,Y} REPAIR THE BRIDGE RAILING AND/OR VERTICAL SUPPORT POST WHICH EXHIBITS MODERATE LOCALIZED SECTION LOSS AND/OR THRU HOLES, OR IS DAMAGED DUE TO IMPACT. 'X' INDICATES POST NUMBER FROM BEGINNING OF PANEL. 'Y' INDICATES SIZE OF HOLE IN POST, (UNLESS OTHERWISE NOTED).
- ⑥ SEAL THE MEDIUM TO WIDE CRACKS IN THE CONCRETE PARAPET.
- ⑦ REPLACE THE MISSING CAP AT THE TOP OF THE LIGHT POLES.
- ⑧^{X,Y} REPLACE THE MISSING OR BROKEN BRIDGE RAILING POST CAPS AND/OR COUNTERSUNK FLAT HEAD SCREWS. 'X' INDICATES NUMBER OF RAIL POSTS FROM BEGINNING OF PANEL. 'Y' INDICATES NUMBER OF MISSING SCREWS, WHERE APPLICABLE.
- ⑩ REPLACE THE MISSING OR DETERIORATED CURB JOINT FILLER OR STEEL PLATE.
- ⑭ REPAIR THE STEEL MEDIAN BARRIER SECTION WHICH IS BROKEN OR EXHIBITS EXTENSIVE SECTION LOSS.
- ⑯^X REPAIR THE SHALLOW SPALLS IN THE SIDEWALK SLAB OR THE SPALLED FASCIA OVERHANG WITH OR WITHOUT EXPOSED REBARS. 'X' INDICATES LENGTH OF SPALL X 1' WIDE, (UNLESS OTHERWISE NOTED).
- ⑰^X SECURE THE GRANITE STONES ATOP THE ANCHORAGE WALL OVER TERRAIN. 'X' INDICATES LENGTH OF MISSING GROUT, IF APPLICABLE.
- ⑲ REPLACE THE MISSING LIGHT STANDARD.
- ⑳ REMOVE DEBRIS FROM 100% CLOGGED SCUPPER.

LEGEND

- ⑧ CAPBEAM NUMBER (AS PER PANY&NJ SYSTEM)
- ◇ INDICATES SAFETY REPAIRS
- INDICATES ROUTINE REPAIRS
- PHOTO TAKEN ABOVE DECK
- SCUPPER
- ◇ LIGHT STANDARD
- DP - DEEP
- BOT. - BOTTOM

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

**GEORGE
WASHINGTON
BRIDGE**

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

Title
**2015 BIENNIAL INSPECTION OF THE
GEORGE WASHINGTON BRIDGE
BIN 5522508
UPPER LEVEL
TOP OF DECK
DEFICIENCY & PHOTO
LOCATION PLAN
NEW YORK ANCHORAGE**

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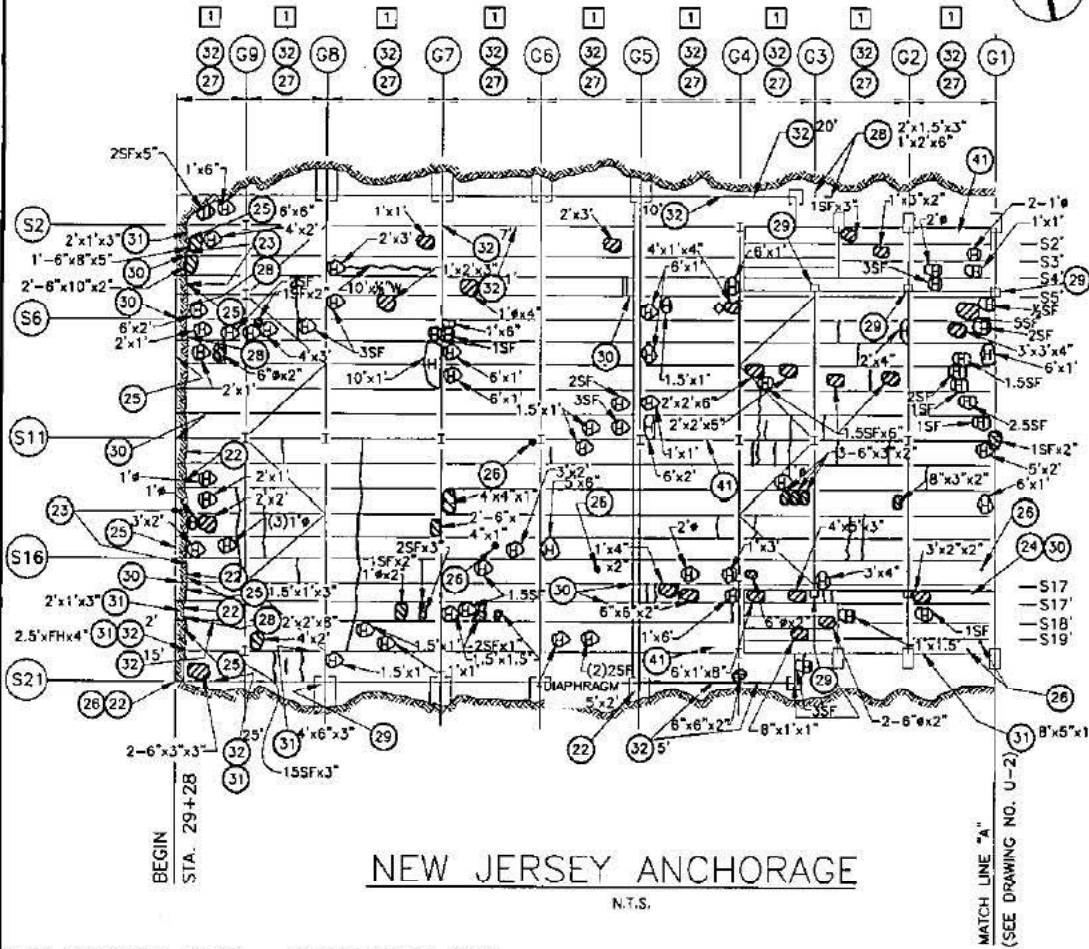
LM	RD	CA
Designed by	Drawn by	Checked by

Date: DECEMBER, 2015

Contract Number: 405-15-005

Drawing Number: T-6

**THE PORT AUTHORITY
OF NY & NJ**



KEY CONDITION NOTES - UNDERSIDE OF DECK

ROUTINE REPAIRS

- 22 REMOVE DEBRIS FROM TOP OF SEAT/PEDESTAL AREA HINDERING BEARING MOVEMENT.
- 23 SEAL THE MEDIUM TO WIDE HORIZONTAL AND VERTICAL CRACKS IN THE ABUTMENT SEAT OR CAPBEAM.
- 24 REPAIR SEVERELY CRACKED AND SPALLED ENCASEMENT AROUND THE DETERIORATED AND LEAKING CATCH BASIN AT THE NEW JERSEY ANCHORAGE.
- 25 REPAIR THE SPALLED, HOLLOW SOUNDING, AND/OR DELAMINATED CONCRETE ON THE BACKWALL OR ABUTMENT SEAT AT THE WEST ABUTMENT. SIZE AS SHOWN.
- 26 REPAIR THE SMALL HOLES (1"-2" TYP.) IN THE DECK AND/OR SIDEWALK ALLOWING WATER TO PENETRATE ONTO THE STEEL BELOW.
- 27 REPAIR THE SPALLED CONCRETE WITH OR WITHOUT EXPOSED REBARS AND HOLLOW SOUNDING AREAS ON THE UNDERSIDE OF THE DECK. SIZE AS SHOWN.
- 28 SEAL THE WIDE CRACKS AND/OR REPAIR THE SPALLED AND HOLLOW SOUNDING CONCRETE WITH OR WITHOUT EXPOSED REBARS ON THE ANCHORAGE WALL. SIZE AS SHOWN.
- 29 REPAIR THE SPALLED GROUT OF THE COLUMN OR GIRDER AND STRINGER PEDESTALS WITH MINOR UNDERMINING OF BEARING.
- 30 REPLACE THE MISSING, DETERIORATED, DISCONNECTED OR BROKEN SCUPPER DOWNSPOUT/DRAINAGE TROUGH OR TROUGH SUPPORT.
- 31 REPAIR THE SPALLED CONCRETE ON THE DECK HAUNCH ABOVE THE GIRDERS IN THE NEW JERSEY ANCHORAGE. SIZE AS SHOWN.
- 32 SEAL THE MEDIUM TO WIDE CRACKS ALONG THE DECK HAUNCH OR ON THE UNDERSIDE OF DECK IN THE NEW JERSEY ANCHORAGE.
- 41 BROKEN/MISSING ELECTRICAL JUNCTION BOX WITH EXPOSED WIRES.

FINDINGS WITH NO RECOMMENDATION

- 1 THE UNDERSIDE OF DECK EXHIBITS A MODERATE AMOUNT OF MAPCRACKING, SCALING WITH A MINOR AMOUNT OF EFFLORESCENCE AT THE NEW JERSEY ANCHORAGE.

LEGEND

- G2 CAPBEAM NUMBER (AS PER PANY&NJ SYSTEM)
- INDICATES ROUTINE REPAIRS
- INDICATES FINDING WITH NO RECOMMENDATION
- HOLE IN DECK (SEE ROUTINE REPAIR 26)
- XX DELAMINATED/SPALLED CONCRETE AND/OR ASPHALT OVERLAY WITH OR WITHOUT EXPOSED REBARS. (XX DENOTES SIZE OF SPALL) (ROUTINE REPAIR)
- XX HOLLOW CONCRETE. (XX DENOTES SIZE OF HOLLOW CONCRETE) (ROUTINE REPAIR)
- CRACK IN UNDERSIDE OF DECK. (SEE ROUTINE REPAIR 32)
- FL - FULL LENGTH

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

**GEORGE
WASHINGTON
BRIDGE**

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

Title
2015 BIENNIAL INSPECTION OF THE
GEORGE WASHINGTON BRIDGE

**BIN 5522508
UPPER LEVEL
UNDERSIDE OF DECK
DEFICIENCY & PHOTO
LOCATION PLAN
NEW JERSEY ANCHORAGE**

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LM	RD	CA
Designed by	Drawn by	Checked by

Date: DECEMBER, 2015

Contract Number: 405-15-005

Drawing Number: U-1

THE PORT AUTHORITY
OF NY & NJ

KEY CONDITION NOTES — UNDERSIDE OF DECK

- EMERGENCY REPAIRS**
- △ REPAIR THE CRACKED WELDS BETWEEN THE DECK BEES (TEES) AND THE DECK STRIP PLATE AT THE TOP OF THE SECONDARY FLOORBEAM SHOWN IN NOTE 1 BELOW. FOR SPECIFIC LOCATIONS, SEE TABLE IN APPENDIX A.
 - △ REPAIR THE CRACKED WELDS BETWEEN THE DECK BEES (TEES) AND THE DECK STRIP PLATE AT THE TOP OF THE SECONDARY FLOORBEAM SHOWN IN NOTE 1 BELOW. FOR SPECIFIC LOCATIONS, SEE TABLE IN APPENDIX A.
 - △ REPAIR THE CRACKED WELDS BETWEEN THE DECK BEES (TEES) AND THE DECK STRIP PLATE AT THE TOP OF THE SECONDARY FLOORBEAM SHOWN IN NOTE 1 BELOW. FOR SPECIFIC LOCATIONS, SEE TABLE IN APPENDIX A.
 - △ REPLACE THE MISSING OR DOWN BOLT AND PLATE 1/4" X CONNECT THE DECK STRIP PLATE TO THE SECONDARY FLOORBEAM "X" DENOTES NUMBER OF BOLTS NOT LOCATED.
 - △ REPLACE THE MISSING OR DAMAGED OFF THE DOWN BOLT AND PLATE THAT CONNECTS THE DECK STRIP PLATE TO THE SECONDARY FLOORBEAM "X" DENOTES NUMBER OF BOLTS PER LOCATION.
 - △ REPAIR THE CRACKED WELDS BETWEEN THE DECK BEES (TEES) AND THE DECK STRIP PLATE AT THE TOP OF THE SECONDARY FLOORBEAM SHOWN IN NOTE 1 BELOW. FOR SPECIFIC LOCATIONS, SEE TABLE IN APPENDIX A.
 - △ REPAIR THE CRACKS AND/OR HOLES IN THE WEB OR FLANGE OF THE ORTHOTROPIC DECK BEE (TEE).
- SAFETY ISSUES**
- ◇ SECURE THE DISCONNECTED UTILITY COMPONENTS AND UTILITY COMPONENT SUPPORTS WHICH ARE PARTIALLY DETACHED.
- ROUTINE REPAIRS**
- ② REPAIR THE SEVERELY DETERIORATED SECTION OF METAL DECK PAN BELOW THE SEEWALK.

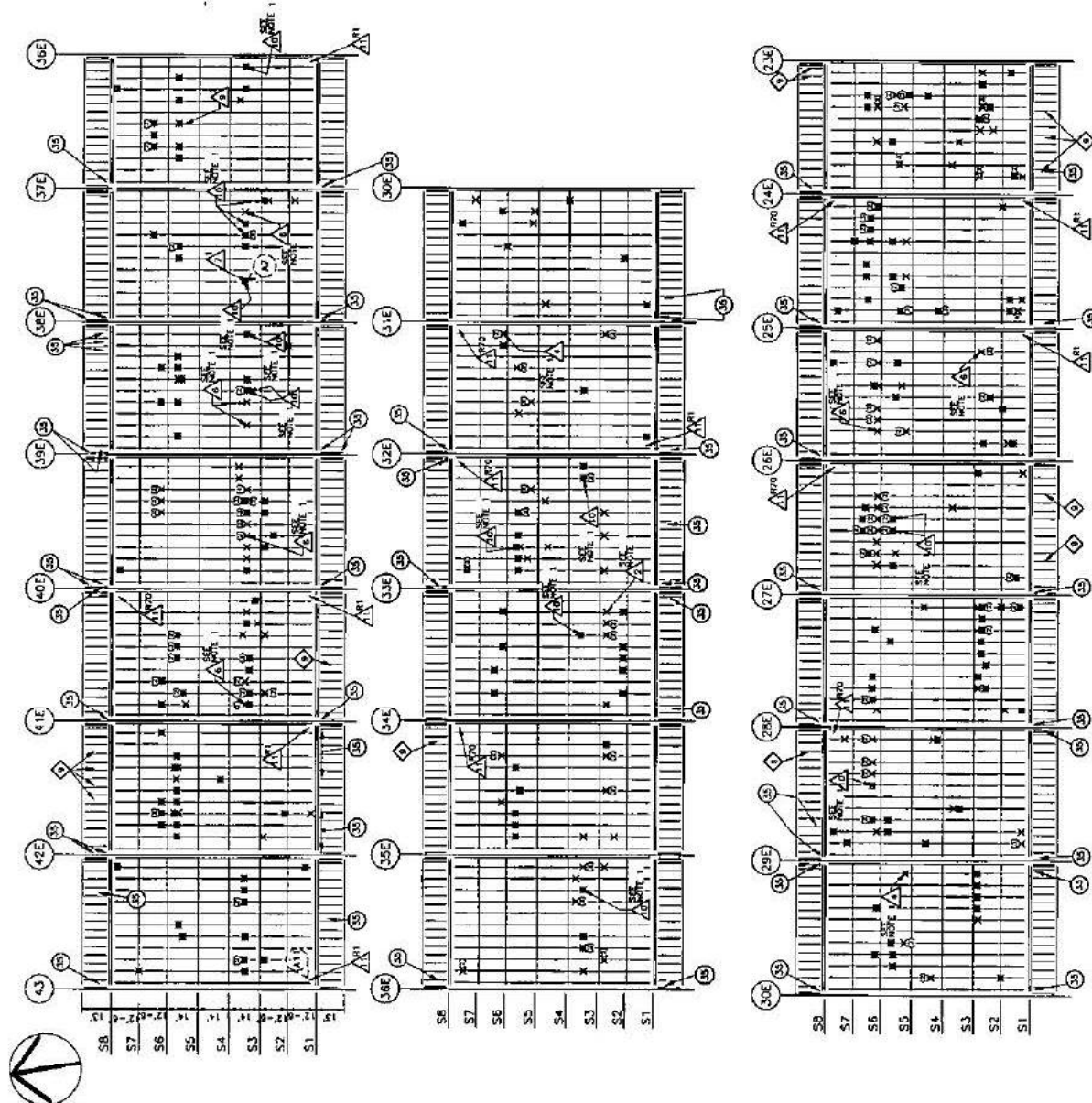
By	Date	Revision	Approved
ENGINEERING DEPARTMENT			
GEORGE WASHINGTON BRIDGE			

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS
THE PORT AUTHORITY OF NY & NJ
BIN 6522608

UPPER LEVEL
UNDERSIDE OF DECK
DEFICIENCY & PHOTO
LOCATION PLAN
PP 43 TO PP 23E

DESIGNED BY: [Signature]
CHECKED BY: [Signature]
DATE: [Date]

Contract Number: 405-15-005
Drawing Number: U-4



- LEGEND**
- ◇ PANEL POINT (AS PER PAINTING SYSTEM)
 - △ INDICATES PRIORITY REPAIRS
 - INDICATES ROUTINE REPAIRS
 - ② PHOTO TAKEN BELOW DECK
 - X PREVIOUS CRACKED WELD NUMBER IN PARENTHESES INDICATES NUMBER OF CRACKS (SEE PRIORITY REPAIR △ & △)
 - X NEW CRACKED WELD NUMBER IN PARENTHESES INDICATES NUMBER OF CRACKED WELDS (SEE PRIORITY REPAIR △)
 - RB - DECK RIB # (FROM SOUTH TO NORTH)

NOTE:
1. AT THESE SPECIFIC LOCATIONS, ALSO REPAIR THE CRACKS IN THE DECK STRIP PLATE. (PRIORITY REPAIR)

THE PORT AUTHORITY
OF NY & NJ

KEY CONDITION NOTES - UNDERSIDE OF DECK

PRIORITY REPAIRS

- △ REPAIR THE CRACKS AND/OR HOLES IN THE WEB OR FLANGE OF THE ORTHOTROPIC DECK WEB (RD).
- △ REPAIR THE CRACKED WELDS BETWEEN THE DECK WEB (TEES) AND THE DECK STRAP PLATE AT THE TOP OF THE SECONDARY FLOORBEAM, SHOWN WITH AN 'X'. (SEE NOTE 1 BELOW) FOR SPECIFIC LOCATIONS. SEE TABLE IN APPENDIX A.
- △ REPAIR THE CRACKED WELDS BETWEEN THE DECK REES (TEES) AND THE DECK STRAP PLATE AT THE TOP OF THE SECONDARY FLOORBEAM, SHOWN WITH AN 'X'. (SEE NOTE 1 BELOW) FOR SPECIFIC LOCATIONS. SEE TABLE IN APPENDIX A.
- △ REPAIR THE MISSING THE DOWN BOLT AND PLATE THAT CONNECT THE DECK STRAP PLATE TO THE SECONDARY FLOORBEAM. 'Y' DENOTES NUMBER OF BOLTS PER LOCATION.
- △ REPAIR THE CRACKED WELDS BETWEEN THE DECK REES (TEES) AND THE DECK STRAP PLATE AT THE TOP OF THE SECONDARY FLOORBEAM, SHOWN WITH AN 'X'. (SEE NOTE 1 BELOW) FOR SPECIFIC LOCATIONS. SEE TABLE IN APPENDIX A.
- △ REPAIR THE MISSING THE DOWN BOLT AND PLATE THAT CONNECT THE DECK STRAP PLATE TO THE SECONDARY FLOORBEAM. 'Y' DENOTES NUMBER OF BOLTS PER LOCATION.
- △ REPAIR THE CRACKS AND/OR HOLES IN THE WEB OR FLANGE OF THE ORTHOTROPIC DECK WEB (TEE).
- △ REPAIR THE CRACKED WELDS BETWEEN THE DECK REES (TEES) AND THE DECK STRAP PLATE AT THE TOP OF THE SECONDARY FLOORBEAM, SHOWN WITH AN 'X'. (SEE NOTE 1 BELOW) FOR SPECIFIC LOCATIONS. SEE TABLE IN APPENDIX A.
- △ REPAIR THE CRACKS AND/OR HOLES IN THE WEB OR FLANGE OF THE ORTHOTROPIC DECK WEB (TEE).

SAFETY REPAIRS

- ◇ REPLACE 1 OF 2 MISSING BOLTS AT THE BOTTOM OF THE VERTICAL WALKING POST OF THE GATEWAY AT PANEL POINT 142 OVER THE RETROGRADE CENTER LINE.
- ◇ REMOVE THE EXCESSIVE DEBRIS ACCUMULATED ON THE STEEL MEMBERS AT PANEL POINT 142 AND STRONG FLOOR.
- ◇ REPAIR THE CRACKED WELDS BETWEEN THE DECK REES (TEES) AND THE DECK STRAP PLATE AT THE TOP OF THE SECONDARY FLOORBEAM, SHOWN WITH AN 'X'. (SEE NOTE 1 BELOW) FOR SPECIFIC LOCATIONS. SEE TABLE IN APPENDIX A.
- ◇ SECURE THE LUXE SUPPORT FOR THE UNDERDECK LIGHTING FEATURE.

ROUTINE REPAIRS

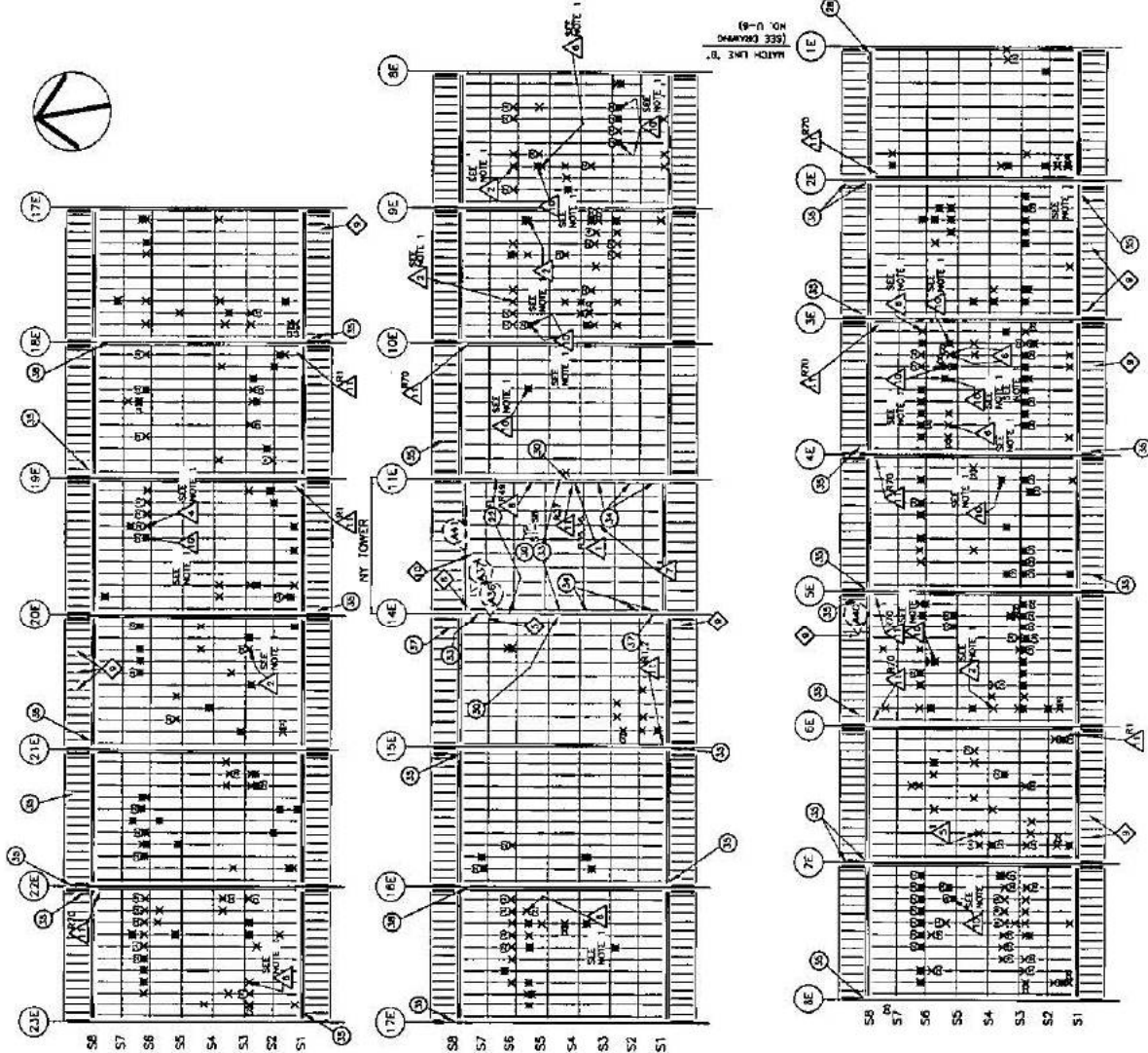
- ② REMOVE DEBRIS FROM TOP OF SEA/STRUCTURAL AREA INCLUDING DEBRIS MOVEMENT.
- ③ SEAL THE WEIR CRACKS AND/OR REPAIR THE SPALLS AND FLOW DAMPING CONCRETE WITH OR WITHOUT EXPOSED REBAR ON THE WEIR/DAMAGE WALL. SET AS SHOWN.
- ④ REPAIR THE MISSING, DETERIORATED, DISCONNECTED OR BROKEN SOUNDER COMPONENT/DRAINAGE INLET OR THROUGH SUPPORT.
- ⑤ REPAIR THE DRAINAGE THROUGH OR DEBRIS SHIELD SUPPORTS AT THE TOWERS WHICH EXHIBIT SECTION LOSS AND THRU HOLES.
- ⑥ REPAIR THE MISSING FENCING OR SECURE THE DISCONNECTED FENCING SUPPORTS FOR DRAINAGE THROUGH FENCING AT THE TOWER.
- ⑦ REPAIR THE SEVERELY DETERIORATED SECTION OF METAL DECK PAN BELOW THE STRAP.
- ⑧ REPLACE THE DISCONNECTED LUXE SCRAMS AS THE PROGRESSIVE ORDER FOR THE WEIR WALLS CONTACT IN AREAS NOT ACCESSIBLE TO PEDESTRIANS.
- ⑨ REPLACE THE JOINT FILLER WHICH IS DISLOGGED AND HANGING.

LEGEND

- ⑨E PANEL POINT (AS PER PANTHAM SYSTEM)
- △ INDICATES PRIORITY REPAIRS
- ◇ INDICATES SAFETY REPAIRS
- INDICATES ROUTINE REPAIRS
- ⊗ PHOTO TAKEN BELOW DECK
- ⊗ PRESUMED CRACKED WELD. MEMBER IN PARENTHESES INDICATES NUMBER OF CRACKED WELDS (SEE PRIORITY REPAIR △) (SEE PRIORITY REPAIR △)
- ⊗ NEW CRACKED WELD. NUMBER IN PARENTHESES INDICATES NUMBER OF CRACKED WELDS (SEE PRIORITY REPAIR △)
- ⊗ - DECK WEB FROM SOUTH TO NORTH
- ⊗ - TYPICAL

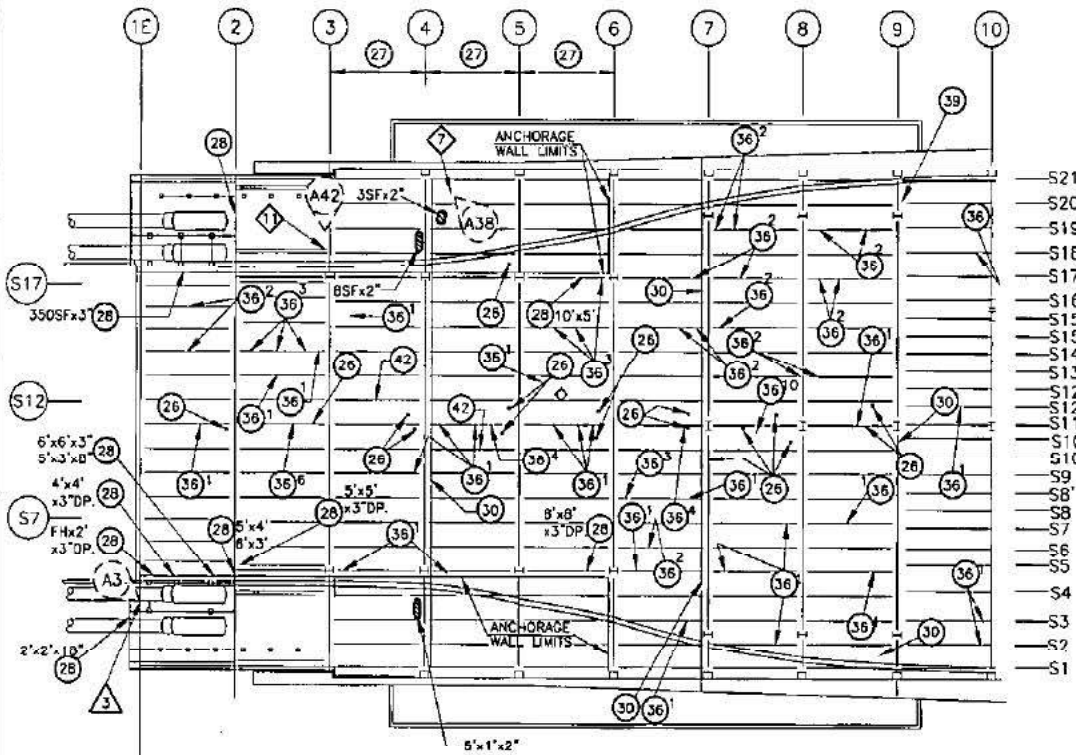
NOTE:

1. AT THESE SPECIFIC LOCATIONS, ALSO REPAIR THE CRACKS IN THE DECK STRAP PLATE. (PRIORITY REPAIR)



No.	Date	Revision	Approval
ENGINEERING DEPARTMENT			
GEORGE WASHINGTON BRIDGE			
QUALITY ASSURANCE DIVISION FACILITY CONDITION SURVEYS			
SUBSISTENTIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE			
BIN 6022508			
UPPER LEVEL UNDERSIDE OF DECK DEFICIENCY & PHOTO LOCATION PLAN PP 23E TO PP 1E			
DEVELOPED BY: [Signature] CHECKED BY: [Signature] DATE: 08/20/2015			
CONTROL NUMBER: 405-15-005			
DRAWING NUMBER: U-5			

**THE PORT AUTHORITY
OF NY & NJ**



NEW YORK ANCHORAGE

N.T.S.

MATCH LINE "B"
(SEE DRAWING NO. U-5)

KEY CONDITION NOTES - UNDERSIDE OF DECK

PRIORITY REPAIRS

△ REPAIR THE SEVERELY SPALLED PEDESTAL OF FLOORBEAM AT PANEL POINT 1E OF THE NEW YORK ANCHORAGE.

SAFETY REPAIRS

◇ REPAIR THE SEVERELY DETERIORATED AND PARTIALLY MISSING FLOORING AT THE MID-LEVEL OF NEW YORK ANCHORAGE (BASE LEVEL OF CABLE STRAND SHOE DIAGONAL BRACE).

◇ REPAIR THE DETERIORATED SECTION OF CATWALK GRATING INSIDE THE NEW YORK ANCHORAGE.

ROUTINE REPAIRS

○ REPAIR THE SMALL HOLES (1"-2" Ø TYP.) IN THE DECK AND/OR SIDEWALK ALLOWING WATER TO PENETRATE ONTO THE STEEL BELOW.

○ REPAIR THE SPALLED CONCRETE WITH OR WITHOUT EXPOSED REBARS AND HOLLOW SOUNDING AREAS ON THE UNDERSIDE OF THE DECK. SIZE AS SHOWN.

○ SEAL THE WIDE CRACKS AND/OR REPAIR THE SPALLED AND HOLLOW SOUNDING CONCRETE WITH OR WITHOUT EXPOSED REBARS ON THE ANCHORAGE WALL. SIZE AS SHOWN.

○ REPLACE THE MISSING, DETERIORATED, DISCONNECTED OR BROKEN SCUPPER DOWNSPOUT/DRAINAGE TROUGH OR TROUGH SUPPORT.

○^X REPLACE THE MISSING OR SHEARED OFF BOLTS CONNECTING THE DECK PLATES ALONG THE LONGITUDINAL JOINTS. 'X' DENOTES THE NUMBER OF BOLTS.

○^X REPLACE THE MISSING VENT COVERS AND/OR CLEANOUTS OF THE SCUPPER DOWNSPOUTS OR REPLACE THE MISSING BOLTS AT THESE LOCATIONS. 'X' DENOTES THE NUMBER OF BOLTS, IF APPLICABLE.

○ REPAIR OR REPLACE THE BROKEN LIGHT FIXTURE.

LEGEND

○ 8 CAPBEAM NUMBER (AS PER PANY&NJ SYSTEM)

△ INDICATES PRIORITY REPAIRS

◇ INDICATES SAFETY REPAIRS

○ INDICATES ROUTINE REPAIRS

○ PHOTO TAKEN BELOW DECK

○^{XX} HOLE IN DECK (SEE ROUTINE REPAIR ○²⁶)

○ DELAMINATED/SPALLED CONCRETE AND/OR ASPHALT OVERLAY WITH OR WITHOUT EXPOSED REBARS. (XX DENOTES SIZE OF SPALL) (ROUTINE REPAIR)

No.	Date	Revision	Approved
ENGINEERING DEPARTMENT			
GEORGE WASHINGTON BRIDGE			
QUALITY ASSURANCE DIVISION FACILITY CONDITION SURVEYS			
Title			
2015 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE			
BIN 5522508			
UPPER LEVEL			
UNDERSIDE OF DECK			
DEFICIENCY & PHOTO			
LOCATION PLAN			
NEW YORK ANCHORAGE			
<small>This drawing is subject to modification to correct all omissions, errors, and conflicts. Such are reserved to Port Authority and may not be used without the written consent of the Port Authority. This drawing is not to be used for any other purpose without the written consent of the Port Authority. The Port Authority is not responsible for any damage or injury to persons or property resulting from the use of this drawing. The Port Authority is not responsible for any damage or injury to persons or property resulting from the use of this drawing. The Port Authority is not responsible for any damage or injury to persons or property resulting from the use of this drawing.</small>			
LM	RQ	GI	
Designed by	Drawn by	Checked by	
Date	DECEMBER, 2015		
Contract Number	405-15-005		
Drawing Number	U-6		

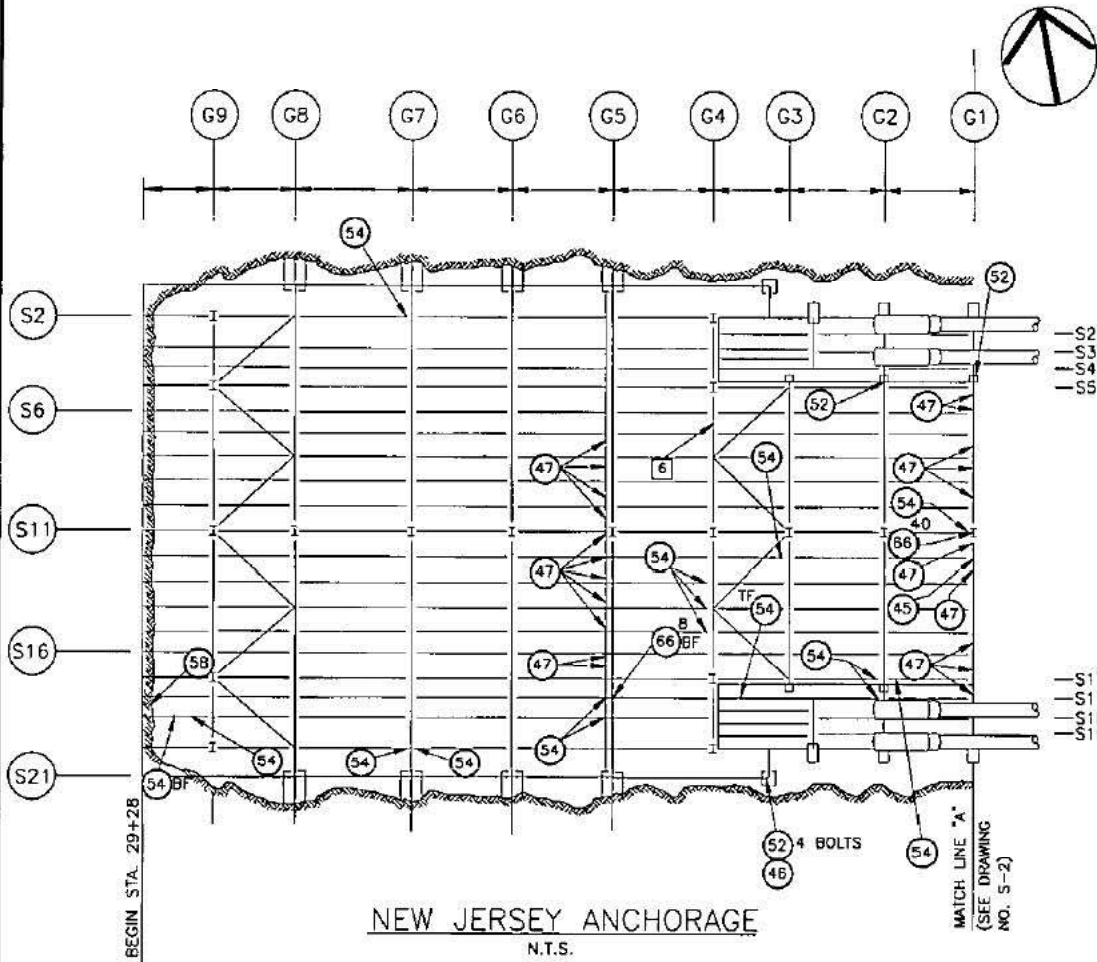
ENGINEERING DEPARTMENT			
GEORGE WASHINGTON BRIDGE			
QUALITY ASSURANCE DIVISION FACILITY CONDITION SURVEYS			
Title			
2015 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE			
BIN 5522508			
UPPER LEVEL			
UNDERSIDE OF DECK			
DEFICIENCY & PHOTO			
LOCATION PLAN			
NEW YORK ANCHORAGE			

QUALITY ASSURANCE DIVISION FACILITY CONDITION SURVEYS			
Title			
2015 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE			
BIN 5522508			
UPPER LEVEL			
UNDERSIDE OF DECK			
DEFICIENCY & PHOTO			
LOCATION PLAN			
NEW YORK ANCHORAGE			

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Designed by	Drawn by	Checked by
Date	DECEMBER, 2015	
Contract Number	405-15-005	
Drawing Number	U-6	

**THE PORT AUTHORITY
OF NY & NJ**



**KEY CONDITION NOTES - SUPERSTRUCTURE STEEL
ROUTINE REPAIRS**

- (45) REPAIR THE PARTIAL CONNECTION ANGLE THAT IS CRACKED BUT TERMINATES AT AN OPEN RIVET HOLE.
- (46) REPLACE THE BROKEN SOLE PLATE BELOW STRINGER RESULTING IN SLIGHT UNDERMINING OF BEARING.
- (47) REPLACE THE MISSING BOLTS CONNECTING THE TOP FLANGE OF FLOORBEAM TO DECK.
- (52) TIGHTEN THE ANCHOR NUT OF THE BEARING ASSEMBLY.
- (54) REPAIR THE SMALL HOLES AND/OR MINOR TO MODERATE SECTION LOSS IN THE STRINGER AT CRITICAL AREAS. SHOWN FOR WEB UNLESS OTHERWISE NOTED.
- (58) REPAIR THE SEVERELY DETEIORATED INTERMEDIATE DIAPHRAGM THAT EXHIBITS THRU HOLES.
- (66)^x REPLACE THE RIVETS WITH OVER 50% HEAD LOSS. 'x' DENOTES NUMBER OF AFFECTED RIVETS.

FINDINGS WITH NO RECOMMENDATIONS

- [6] THE STRUCTURAL STEEL MEMBER EXHIBITS MINOR IMPACT DAMAGE.

LEGEND

- (G2) CAPBEAM NUMBER (AS PER PANY&NJ SYSTEM)
- () INDICATES ROUTINE REPAIRS
- [] INDICATES FINDING WITH NO RECOMMENDATION
- TF - TOP FLANGE
- BF - BOTTOM FLANGE

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT			
GEORGE WASHINGTON BRIDGE			

**QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS**

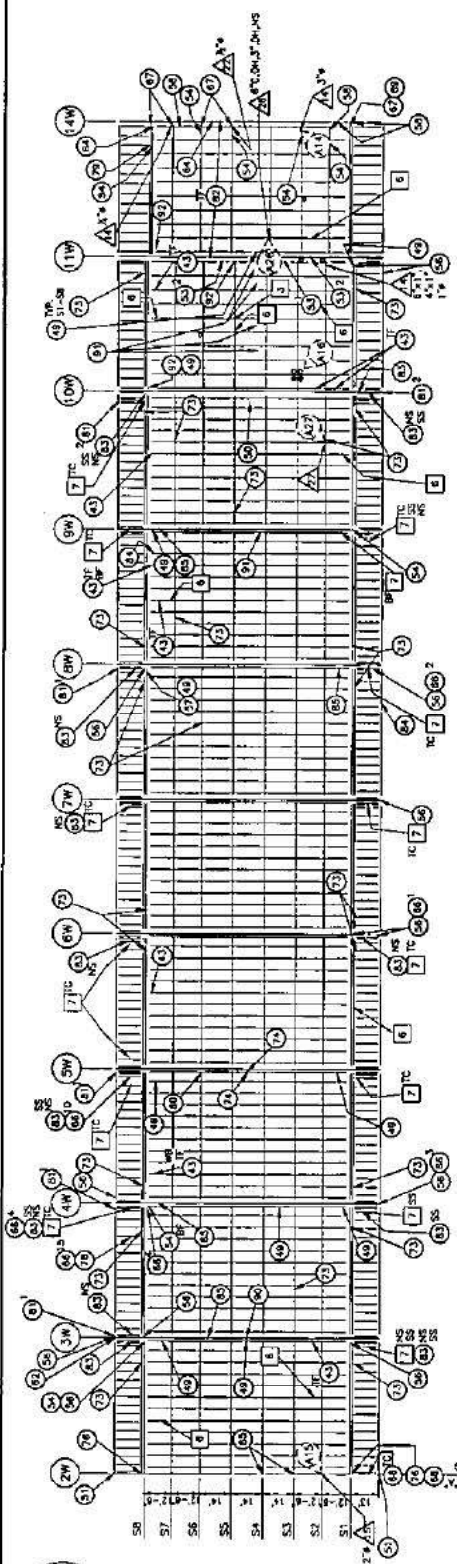
Title
**2015 BIENNIAL INSPECTION OF THE
GEORGE WASHINGTON BRIDGE**

BIN 6522503

**UPPER LEVEL
SUPERSTRUCTURE
DEFICIENCY & PHOTO
LOCATION PLAN
NEW JERSEY ANCHORAGE**

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LM	RO	GA
Designed by	Drawn by	Checked by
Date	DECEMBER, 2015	
Contract Number	405-15-005	
Drawing Number	S-1	



KEY CONDITION NOTES - SUPERSTRUCTURE STEEL

- △ REPAIR THE STRINGERS THAT EXHIBIT THROUGH HOLES WITH MODERATE CORROSION IN THE WEB OVER THE BEARINGS. 'X' INDICATES SIZE OF HOLE.
- △ REPAIR THE MAIN FLOORBEAM WITH EXTENSIVE SECTION LOSS AND/OR HOLES IN WEB. 'X' INDICATES THE SIZE OF HOLE.
- △ REPLACE THE MISSING OR SHEARED OFF PARTS OF BOLTS AT THE SECONDARY FLOORBEAM TO STRINGER TOP FLANGE CONNECTION WITH A '6'.
- △ REPLACE THE MISSING OR SHEARED OFF PARTS OF BOLTS AT THE SECONDARY FLOORBEAM TO STRINGER TOP FLANGE CONNECTION WITH A '6'.
- △ REMOVE THE STRINGERS THAT EXHIBIT THROUGH HOLES WITH MODERATE CORROSION IN THE WEB OVER THE BEARINGS. 'X' DENOTES SIZE OF HOLE.
- △ REPLACE THE CHAINS IN THE WEB OF THE SECONDARY FLOORBEAM NEAR PANEL POINT 11K BETWEEN SP 49-10K, 50E-51E, 52E-53E AND 54E-55E.

ROUTINE REPAIRS

- ① REPAIR THE WEB OR FLANGES OF THE SECONDARY FLOORBEAMS WHICH EXHIBIT SMALL HOLES AND/OR 1/8" - 1/4" SECTION LOSS AT CORNERS, APICES, SLOTTING AS WELL AS UNLESS OTHERWISE NOTED.
- ② REPAIR THE VERTICAL, HORIZONTAL, AND/OR DIAGONAL LEGS OF THE ANGLES OF THE CROSS FRAME WITH THRU HOLES AND SECTION LOSS AND/OR SEVERE PAINT LOSS.
- ③ REPLACE THE MISSING COATING OR SECURE LOOSE BRACING BEHIND THE MEDIAN BARRIER BETWEEN STRINGER EA & SA.
- ④ REPAIR THE ANCHOR BOLT NUTS ON BOTH SIDES OF THE SIDEWALK FASCIA STRINGER BEARING.
- ⑤ REPLACE THE MISSING BOLTS AND/OR SUPPORT BRACKETS FOR THE FINGER JOINT DEFLECTING SHIELD. 'X' DENOTES NUMBER OF BOLTS.
- ⑥ REPAIR THE SMALL HOLES AND/OR WEAR TO MODERATE SECTION LOSS IN THE FINGER JOINT AT CORNERS, APICES, SLOTTING FOR WEB UNLESS OTHERWISE NOTED.
- ⑦ REPAIR THE INTERMEDIATE STIFFENERS WITH EXTENSIVE SECTION LOSS, PAINT LOSS, THROUGH HOLES AND/OR CRACKS.
- ⑧ REPAIR THE INTERMEDIATE STIFFENERS WITH THRU HOLES AND/OR EXTENSIVE SECTION LOSS.
- ⑨ REMOVE THE INTERMEDIATE STIFFENERS THAT EXHIBIT THROUGH HOLES AND/OR THRU HOLES.
- ⑩ REPAIR THE SIDEWALK STRINGER WEB PLATES WHICH EXHIBIT EXTENSIVE SECTION LOSS AND/OR THRU HOLES.
- ⑪ REPLACE THE RIVETS WITH OVER SIZE HEAD LOSS. 'X' DENOTES NUMBER OF AFFECTED RIVETS.
- ⑫ REPLACE THE ANCHOR BOLT TO THE STRINGER BEARING WITH OVER SIZE SECTION LOSS.
- ⑬ REPLACE THE CRACKED WELD AT SIDEWALK STRINGER CONNECTION TO THE FLOORBEAM.

ROUTINE REPAIRS (CONTINUED)

- ⑭ REPLACE THE DETACHED BEARING PLATE BELOW THE SIDEWALK STRINGER WHICH EXHIBITS SEVERE SECTION LOSS.
- ⑮ REPAIR THE WIND BRACE TO STRINGER CONNECTION THAT EXHIBITS PINNAC BUST AND/OR MISSING FILLER PLATE CAUSING THE BRACING ANGLE TO BEAR UNDER LIVE LOAD.
- ⑯ REPAIR THE HOLES IN THE GUSSET PLATE THAT EXHIBIT THROUGH HOLES IN MANY FLOORBEAM AND/OR TRUSS CHORD WHICH EXHIBITS LOCALIZED SEVERE SECTION LOSS AND/OR THRU HOLES AND/OR CRACKS.
- ⑰ REPAIR THE TOP AND BOTTOM LATTICE PLATES OF THE TOP CHORD OF THE TRUSS AT PP 2W THAT EXHIBIT SUBSTANTIAL SECTION LOSS AND/OR THRU HOLES.
- ⑱ CLEAN AND PAINT THE TOP AND BOTTOM PLATES OF THE TOP CHORD OF THE TRUSSING TRUSS AND GUSSET PLATES AT CONNECTIONS. ALSO REPLACE MISSING PLATES OF THE SAME DIMENSIONS IN ADDITIONAL INSTALL METHODS TO PRESENT PONDING ON TOP OF THE TOP CHORD.
- ⑲ REPAIR THE NORTH PLATFORM SUPPORT ANGLE BETWEEN PP 11W & 11W THAT EXHIBITS SEVERE CORROSION.
- ⑳ REPLACE THE MISSING RIVET AT THE TOP OF THE STRINGER AT STRINGER.
- ㉑ REPLACE THE MISSING OR LOOSE BOLTS AT THE SIDEWALK FASCIA STRINGER TO DECK CONNECTION. 'X' DENOTES NUMBER OF BOLTS.
- ㉒ REPAIR THE WEAR AND/OR CORROSION OF THE FINGER JOINT WHICH EXHIBIT THROUGH HOLES AND/OR CRACKS. LOCALIZED SECTION LOSS ON THE MAIN FLOORBEAM INTERIOR VERTICAL STIFFENERS WITH UP TO 100% SECTION LOSS NEAR THE BOTTOM FLANGE.
- ㉓ TRUSS TOP CHORD WHICH EXHIBITS EXTENSIVE SECTION LOSS WITH OR WITHOUT A CRACK THAT HAS BEEN AFFECTED BY A SMALL HOLE.
- ㉔ REPLACE THE MISSING BOLT OR TIGHTEN LOOSE BOLT IN WEB OF STRINGER.
- ㉕ REPAIR THE WEB OF THE MAIN FLOORBEAM WHICH EXHIBITS 1/4" LOCALIZED SECTION LOSS NEAR CONNECTION.
- ㉖ REPAIR THE SUPPORT FOR THE MEDIAN LONGITUDINAL BEAM WHICH EXHIBITS A CRACK OR IS SEVERELY DETERIORATED.
- ㉗ REPLACE THE WEAR AND/OR CORROSION OF THE MEDIAN BARRIER BETWEEN STRINGERS AND/OR WITH SECTION LOSS AND/OR CRACKS.
- ㉘ REPAIR THE GUSSET PLATE OF THE CROSS FRAME CONNECTION TO THE STRINGER FLANGE WITH EXTENSIVE SECTION LOSS AND THRU HOLES.

FINDINGS WITH NO RECOMMENDATIONS

- ① THE SECONDARY FLOORBEAMS EXHIBIT MINOR SECTION LOSS.
- ② THE STRUCTURAL STEEL MEMBER EXHIBITS MINOR WEAR DAMAGE.
- ③ THE REMAINS OF THE SUPERIOR BEARING WELDS SECTION LOSS. 'X' DENOTES THE AFFECTED MEMBER. SHOW FOR FLOORBEAM UNLESS OTHERWISE NOTED.

LEGEND

- ④ CAPBEAM NUMBER/PANEL POINT (AS PER PARTMAN SYSTEM)
- INDICATES PROPERTY REMOVAL
- △ INDICATES ROUTINE REPAIRS
- INDICATES FINDING WITH NO RECOMMENDATION
- PHOTO TAKEN BELOW DECK
- MISSING RIVET/BOLT (SEE PRIORITY REPAIR 12A)
- MISSING RIVET/BOLT (SEE PRIORITY REPAIR 12A)
- CRACK
- DRILL HOLE
- TOP FLANGE
- BOTTOM FLANGE
- WEB
- TRUSS CHORD/TOP OF CHORD
- NORTH SIDE
- SOUTH SIDE
- BOTTOM FLANGE
- WEB AGAIN TOP FLANGE
- TYPICAL

No.	Date	Revision	Approved
ENGINEERING DEPARTMENT			
GEORGE WASHINGTON BRIDGE			
QUALITY ASSURANCE DIVISION FACILITY CONDITION SURVEYS			
THE DISTRICT AUTHORITY OF N.Y. & N.J.			
BIN 60225008			
UPPER LEVEL SUPERSTRUCTURE DEFICIENCY PHOTO LOCATION PLAN PP 2W TO PP 14W			
DEVELOPED BY: [Name]			
CHECKED BY: [Name]			
DATE: 02/08/05, 013			
DRAWING NUMBER: 405-15-005			
SHEET: S-2			

KEY CONDITION NOTES - SUPERSTRUCTURE STEEL

- PRIORITY REPAIRS**
- REPAIR THE STRINGERS THAT CHORD THROUGH HOLES WITH MODERATE CORROSION IN THE WEB OVER THE CHORDS. 'X' DENOTES SIZE OF HOLE.
 - REPAIR THE MAIN FLOORBEAM WITH EXTENSIVE SECTION LOSS AND/OR HOLES IN WEB. 'X' DENOTES THE SIZE OF HOLE.
 - REPLACE THE WELDING OR SHARDED OFF RIVETS ON BOLTS AT THE SECONDARY FLOORBEAM TO STRINGER TOP FLANGE CONNECTION SHOWN WITH A 'X'.
 - REPLACE THE SEVERELY CORRODED OR SHARDED OFF THE DOWN BOLTS/RIVETS CONNECTING THE STRINGER BOTTOM FLANGE TO THE SEATED ANGLE AT THE FLOORBEAM.

ROUTINE REPAIRS

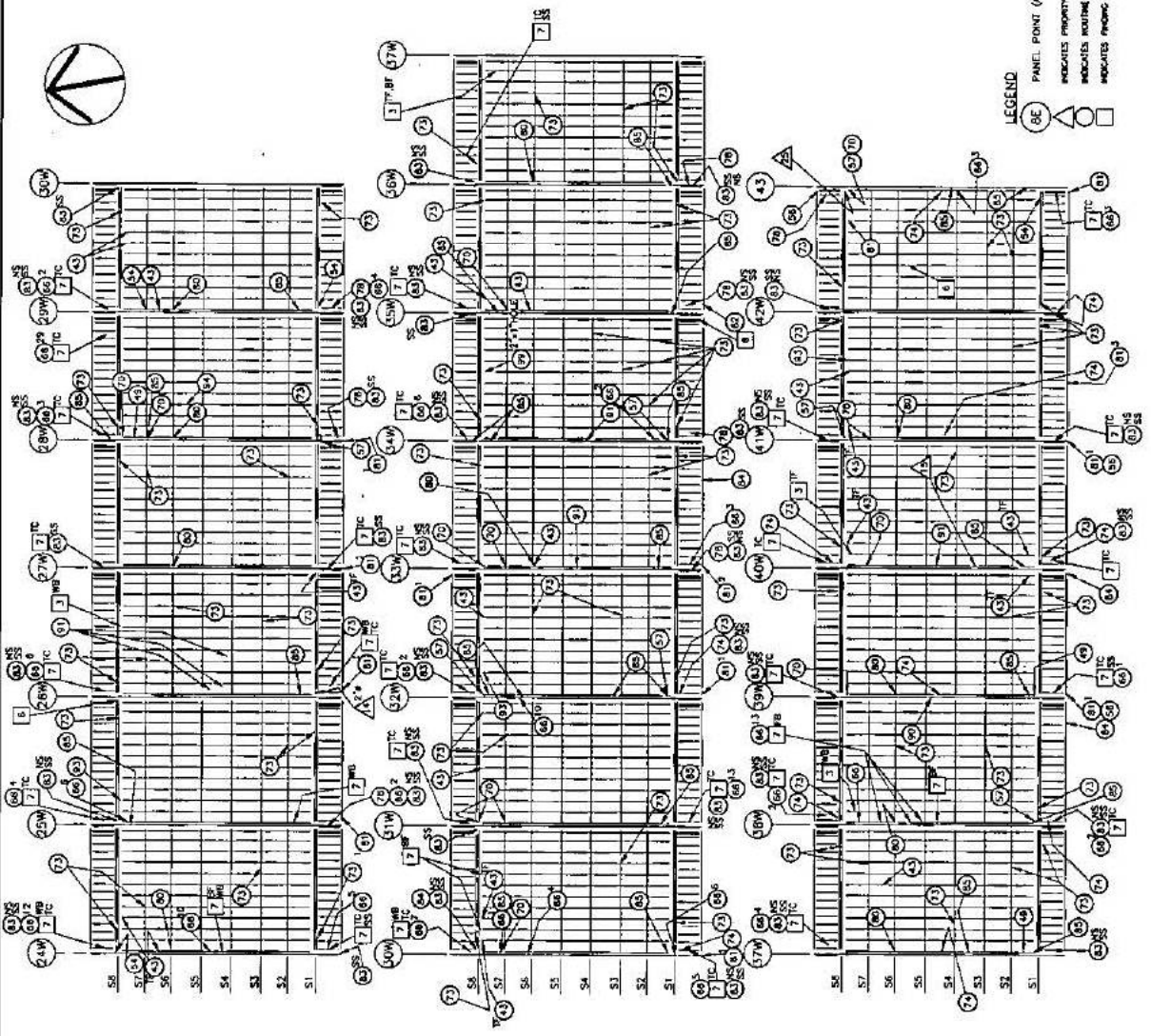
- REPAIR THE WEB OR FLANGES OF THE SECONDARY FLOORBEAMS WHICH EXHIBIT SMALL HOLES AND/OR 1/8" - 1/4" SECTION LOSS AT CRITICAL AREAS. SHOWN AS WEB UNLESS OTHERWISE NOTED.
- REPAIR THE VERTICAL, HORIZONTAL, AND/OR DIAGONAL LEGS OF THE ANGLES WHICH ARE PART OF THE MAIN FLOORBEAM WITH THRU HOLES AND SECTION LOSS AND/OR SEVERE PACK RUST.
- REPAIR THE SMALL HOLES AND/OR MODERATE TO MODERATE SECTION LOSS IN THE STRINGER AT CRITICAL AREAS. SHOWN FOR WEB UNLESS OTHERWISE NOTED.
- REPAIR THE BEARING STIFFENER AT SIDEWALK STRINGERS WITH EXTENSIVE SECTION LOSS, PACK RUST, HOLES, AND/OR CRACKS.
- REPAIR THE INTERMEDIATE STIFFENERS WITH THRU HOLES AND/OR EXTENSIVE SECTION LOSS.
- REPAIR THE MAIN FLOORBEAM WEB PLATES WHICH EXHIBITS EXTENSIVE SECTION LOSS AND/OR THRU HOLES.
- REPLACE THE RIVETS WITH LOWER SIZE HEAD LOSS. 'X' DENOTES NUMBER OF AFFECTED RIVETS.
- REPAIR THE VERTICAL STIFFENERS ON THE STRINGER BEARING STIFF THAT EXHIBIT EXTENSIVE SECTION LOSS, PACK RUST, HOLES AND/OR CRACKS.
- REPAIR THE WELD CONNECTION TO STRINGER THAT EXHIBITS PACK RUST AND/OR CRACKS. IN ADDITION, REPAIR THE BEARING ANGLE TO BOLTS UNDER LINE WELDING. IN ADDITION, REPAIR THE BEARING ANGLE TO BOLTS UNDER LINE WELDING.
- REPAIR THE HORIZONTAL GUSSET PLATE THAT CONNECTS THE WIND BRACE TO THE MAIN FLOORBEAM AND/OR TRUSS CHORD WHICH EXHIBITS LOCALIZED SEVERE SECTION LOSS AND/OR THRU HOLES AND/OR CRACKS.
- CLEAN AND PAINT THE TOP AND BOTTOM PLATES OF THE TOP CHORD OF THE TRUSS AND THE TOP AND BOTTOM PLATES OF THE WIND BRACE AND THE WIND BRACE OF THE SAME MEMBER. IN ADDITION, INSTALL ANCHORS TO PREVENT PULLING ON TOP OF THE TOP CHORD.
- REPLACE THE MISSING RIVET AT THE TOP OF THE STIFFENER AT STRINGER.
- REPLACE THE MISSING OR LOOSE BOLTS AT THE SIDEWALK FACSA STRINGER TO DECK CONNECTION. 'X' DENOTES NUMBER OF BOLTS.
- REPAIR THE CONNECTION ANGLE BETWEEN MAIN FLOORBEAM AND DECK WHICH IS CRACKED AND/OR EXHIBITS EXTENSIVE SECTION LOSS WITH OR WITHOUT CRACKS AND/OR HOLES.
- REPLACE THE MISSING BOLT OR TIGHTEN LOOSE BOLT IN WEB OF STRINGER, SECONDARY FLOORBEAM, OR SIDEWALK BEAM.
- REPAIR THE WEB OF THE MAIN FLOORBEAM WHICH EXHIBITS 1/8" LOCALIZED SECTION LOSS NEAR CONNECTION.
- REPAIR THE SUPPORT FOR THE MAIN LONGITUDINAL BEAM WHICH EXHIBITS A CRACK OR IS SEVERELY DETERIORATED.
- REPAIR THE MAIN FLOORBEAM SUPPORTING THE MAIN BEAMS BETWEEN STRINGERS 54 AND 55 WITH SECTION LOSS AND/OR MISSING BOLTS.
- REPAIR THE SECOND FLOORBEAM SUPPORTING THE MAIN BEAMS BETWEEN THE WEB AND VERTICAL STIFFENER CAUSING LOCALIZED BUCKLING OF THE WEB.
- REPAIR OR REPLACE THE BROKEN CONNECTION AT THE LIGHT FIXTURE.
- REPAIR THE HOLES IN THE WEB OR FLANGES OF THE SECONDARY FLOORBEAM BETWEEN STRINGERS 54 AND 55 AND 57 AND 58. 'X' DENOTES SIZE OF HOLE IN WEB UNLESS OTHERWISE NOTED.

REPAIRS WITH NO RECOMMENDATIONS

- THE SECONDARY FLOORBEAM EXHIBIT MINOR SECTION LOSS.
- THE STRUCTURAL STEEL MEMBER EXHIBITS MINOR IMPACT DAMAGE.
- THE MAIN STEEL MEMBER EXHIBITS SECTION LOSS. 'X' DENOTES THE AFFECTED MEMBER SHOWN FOR FLOORBEAM UNLESS OTHERWISE NOTED.
- THE STRINGER WEB EXHIBITS A SMALL PARTIAL PENETRATION CRACK IN THE TOP FLANGE CORNER.

LEGEND

- BE - PANEL POINT (AS PER PANY&NJ SYSTEM)
- INDICATES PRIORITY REPAIRS
- INDICATES ROUTINE REPAIRS
- INDICATES REPAIRS WITH NO RECOMMENDATION
- TC - CRACK
- SH - SHEAR HOLE
- SS - SECTION LOSS
- DF - BOTTOM FLANGE
- WF - WEB
- TC - TRUSS CHORD/TOP OF CHORD
- NS - NORTH SIDE
- SS - SOUTH SIDE
- DF - BOTTOM FLANGE
- WF - WEB



No.	Date	Revision	Approved
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Engineering: *[Signature]*
GEORGE WASHINGTON BRIDGE
 QUALITY ASSURANCE DIVISION
 FACILITY CONDITION SURVEYS
 THE PORT AUTHORITY OF NY & NJ
 BRIDGE INSPECTION OFFICE
 BIN 5622B08
 UPPER LEVEL
 SUPERSTRUCTURE DEFICIENCY PHOTO LOCATION PLAN
 PP 24W TO PP 43

Checked by:	Checked by:
Date:	Date:
Number:	Number:
Quantity:	Quantity:

405-15-005
 S-4

Photo No.: A1

Location:

Panel Point 11W-14W,
orthotropic deck rib R21
between main
floorbeam and
secondary floorbeam
SFB1, looking
northwest.

Description:

Cracked web of
orthotropic deck rib
(tee).

(Priority Repair No. 1)



Photo No.: A2

Location:

Panel Point 18W-19W,
between Stringers S1-
S2, deck rib R3 over
secondary floorbeam
SFB2, looking up and
east.

Description:

Typical cracked weld
between the deck rib
and the deck strap
plate.

(Priority Repair No. 2)

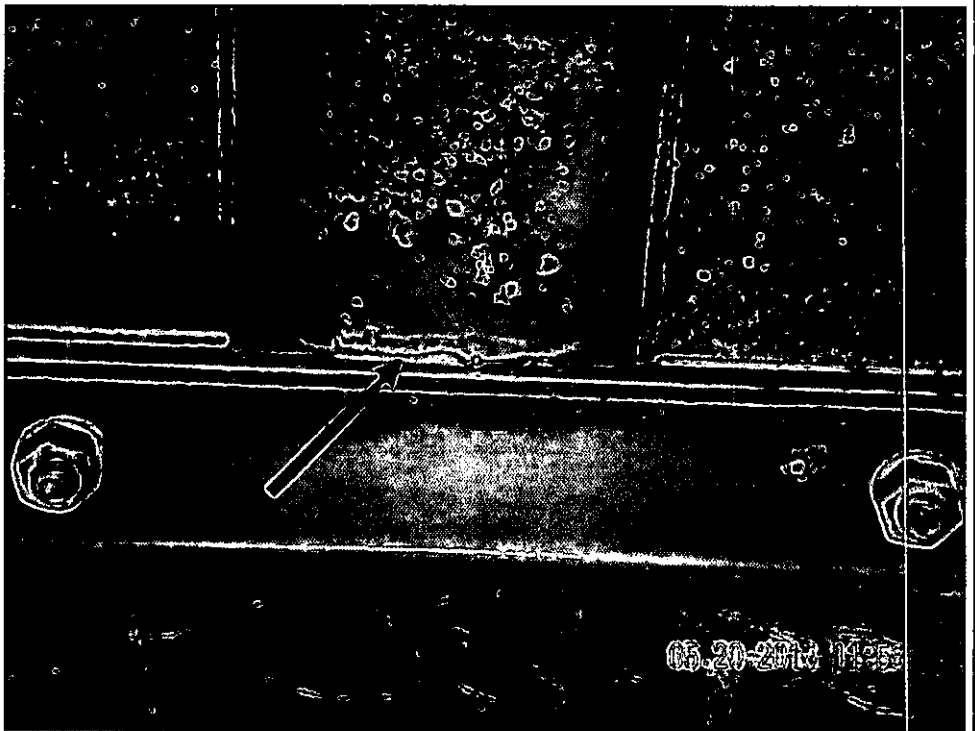


Photo No.: A3

Location:

New York Anchorage, south sidewalk pedestal of floorbeam at Panel Point 1E, looking southeast.

Description:

Severely spalled bearing pedestal resulting in undermining below the masonry plate.

(Priority Repair No. 3)



Photo No.: A4

Location:

Panel Point 15W-16W, between Stringers S6-S7, deck rib over secondary floorbeam SFB5, looking up and east.

Description:

Typical cracked weld between the deck rib (tees) and the deck strap plate.

(Priority Repair No. 4)



Photo No.: A5

Location:

Panel Point 17W-18W,
Between Stringers S1-
S2, deck rib over
secondary floorbeam
SFB2, looking up and
northeast.

Description:

Missing tie down bolt
connecting the deck
strap plate to the top
flange of the secondary
floorbeam.

(Priority Repair No. 5)

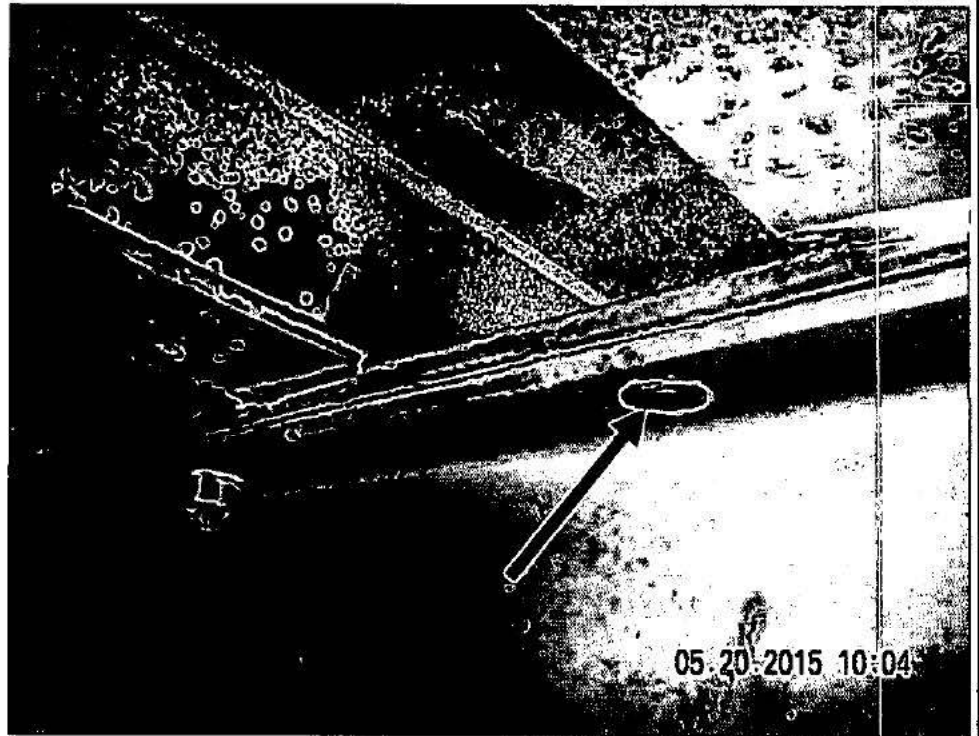


Photo No.: A6

Location:

Panel Point 26W-27W,
between Stringers S3-
S4, deck rib R23 over
secondary floorbeam
SFB5, looking up and
east.

Description:

Typical cracked weld
between the deck rib
(tee) and the deck strap
plate.

(Priority Repair No. 6)

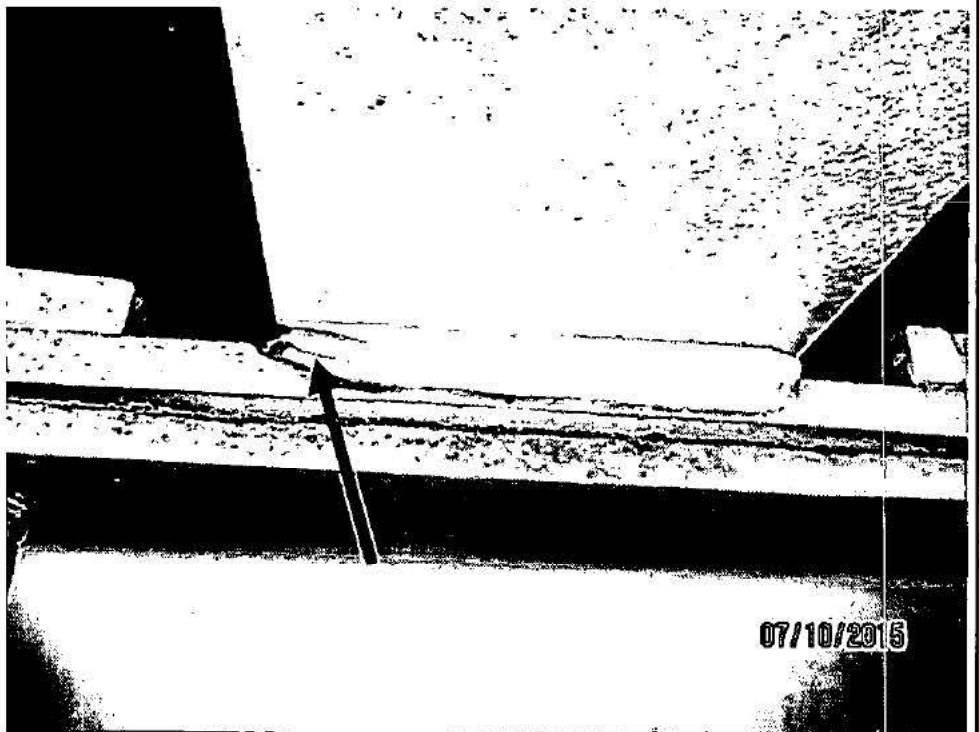


Photo No.: A7

Location:

Panel Point 38E-37E,
between Stringers S3-
S4, deck rib over
secondary floorbeam
SFB4, looking up and
northwest.

Description:

Missing tie down bolt
connecting the deck
strap plate to the top
flange of the secondary
floorbeam.

(Priority Repair No. 7)

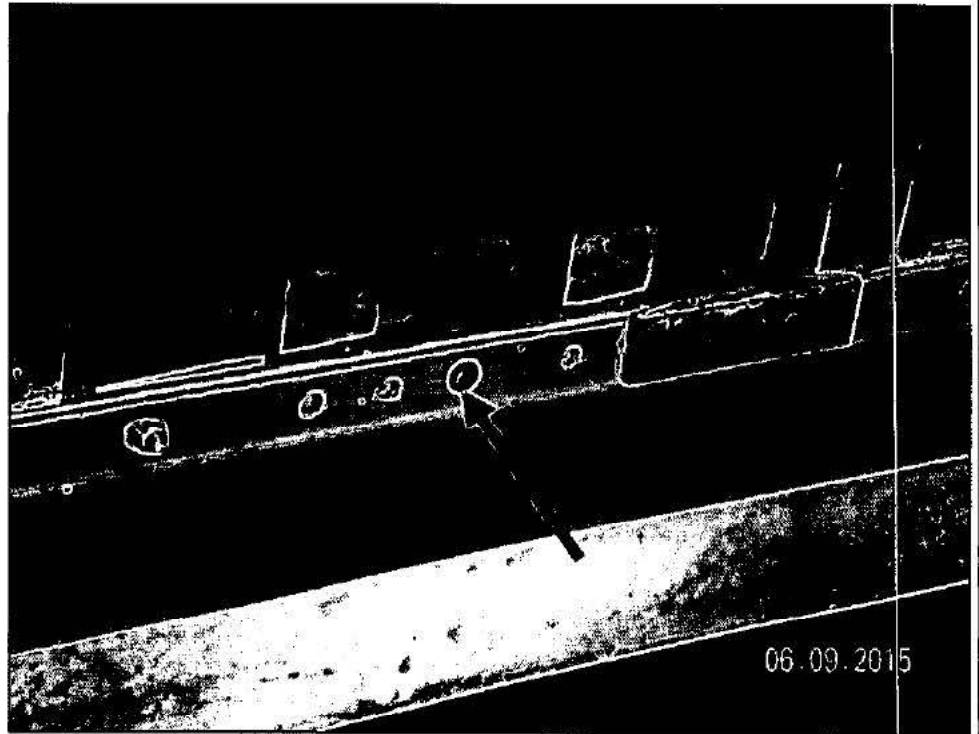


Photo No.: A8

Location:

Panel Point 11W-14W,
orthotropic deck rib R67
between main
floorbeam and
secondary floorbeam
SFB1, looking
southwest.

Description:

Corrosion holes in the
web of orthotropic deck
rib (tee).

(Priority Repair No. 8)

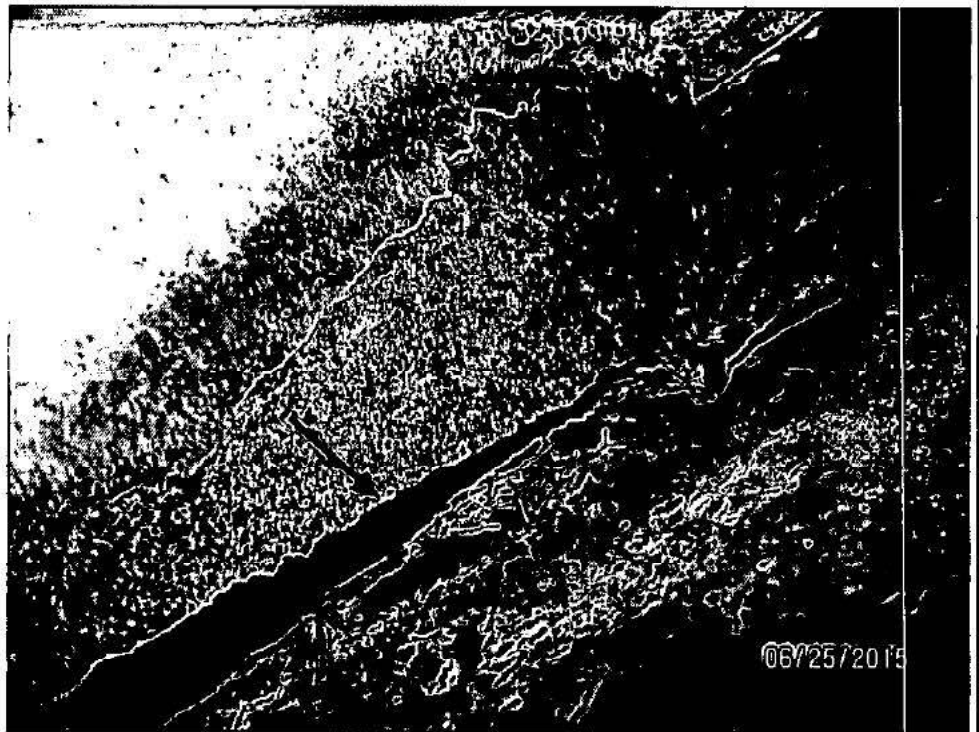


Photo No.: A9

Location:

Panel Point 18W-19W,
Between Stringers S3-
S4, deck rib over
secondary floorbeam
SFB6, looking up and
northeast.

Description:

Sheared off tie down
bolt connecting the deck
strap plate to the top
flange of the secondary
floorbeam.

(Priority Repair No. 9)

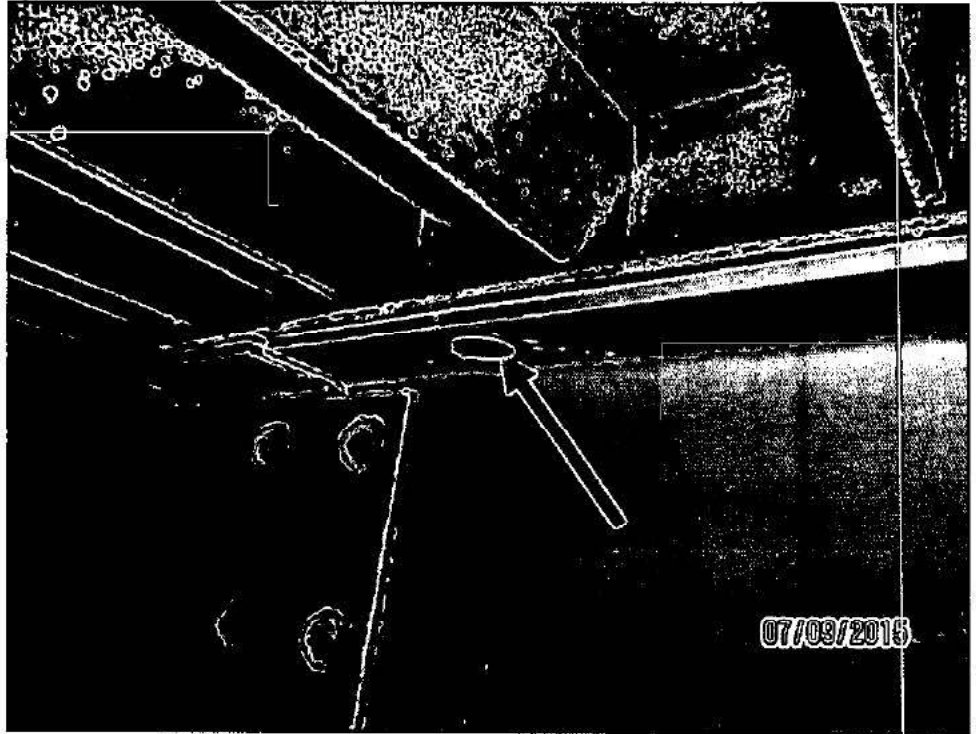


Photo No.: A10

Location:

Panel Point 8W-9W,
between Stringers S7-
S8, deck rib R69 over
secondary floorbeam
SFB8, looking up and
west.

Description:

Typical cracked weld
between the deck rib
(tee) and the deck strap
plate.

(Priority Repair No. 10)

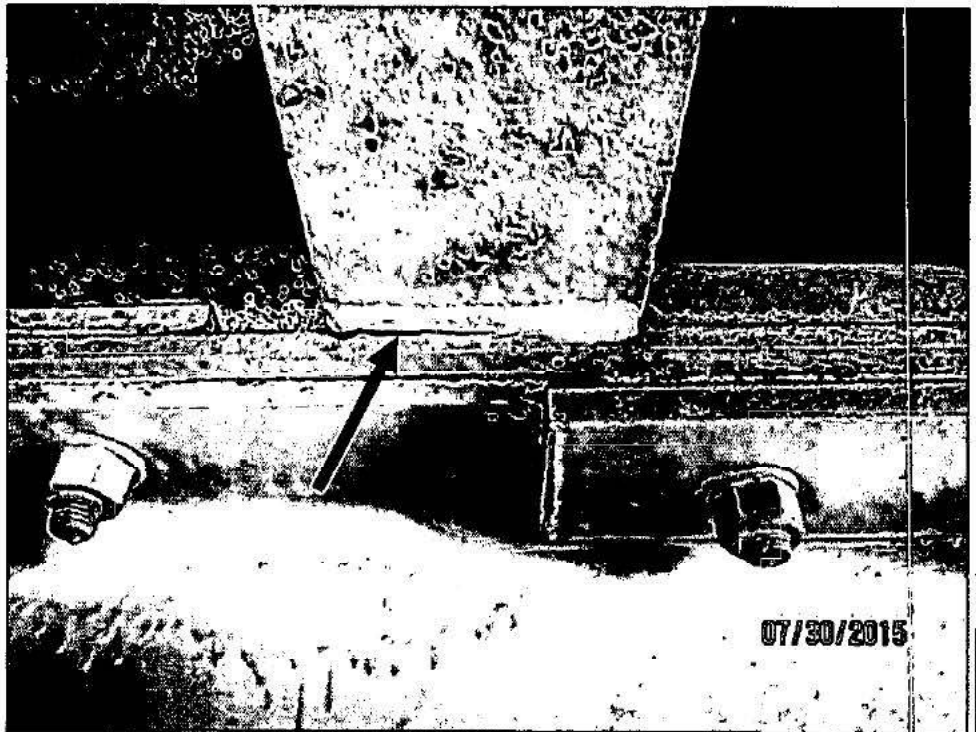


Photo No.: A11

Location:

Panel Points 43-42E,
orthotropic deck rib R1
between secondary
floorbeams SFB1-2,
looking southwest.

Description:

Cracked web of
orthotropic deck rib
(tee).

(Priority Repair No. 11)

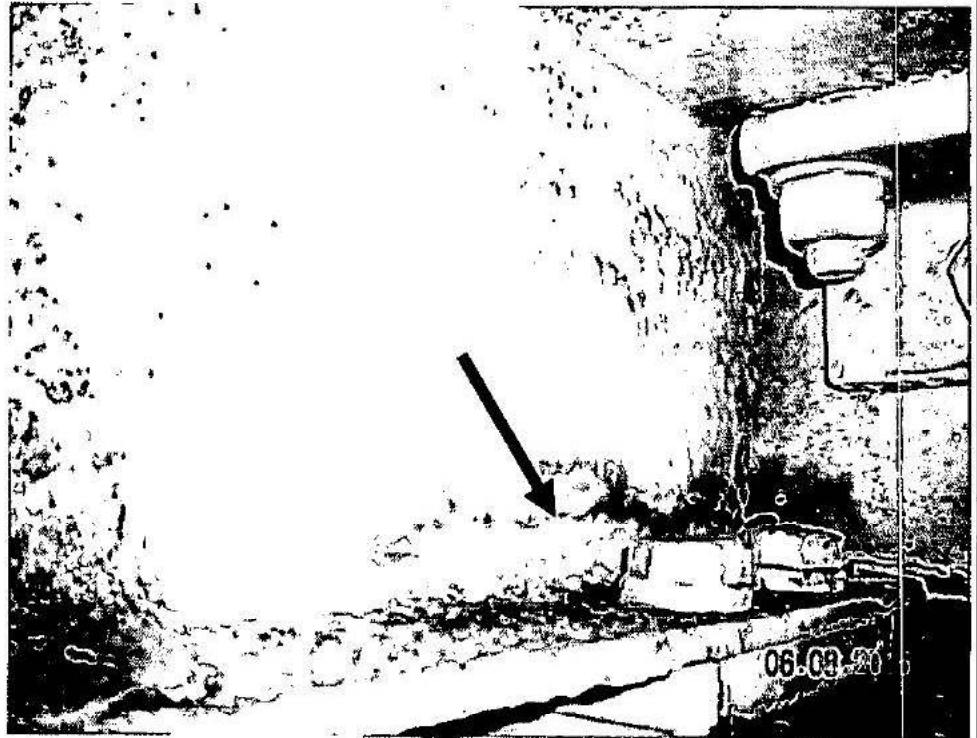


Photo No.: A12

Location:

New York Anchorage,
Stringer S9, east side of
Capbeam 4, looking up
and northwest.

Description:

Cracked shim plate and
sheared off tie down bolt
connecting stringer
bottom flange to the
seated angle.

(Priority Repair No. 12)



Photo No.: A13

Location:

Stringer S6, west of
Panel Point 33E
floorbeam, looking east.

Description:

Severely corroded tie
down bolts at the
stringer seated angle.

(Priority Repair No. 13)

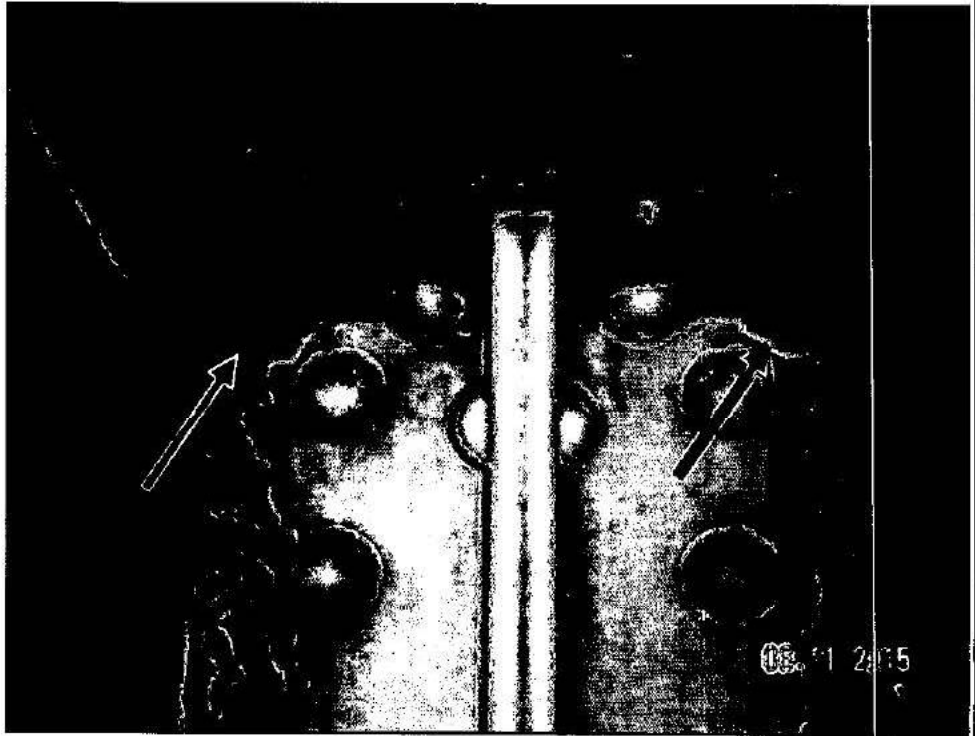


Photo No.: A14

Location:

Stringer S3, west side of
Panel Point 14W,
looking up and
northeast.

Description:

Web of stringer exhibits
a 3" diameter corrosion
hole with moderate
section loss near the
bearing area.

(Priority Repair No. 14)



Photo No.: A15

Location:

Panel Point 2W, Main Floorbeam at Stringer S2, looking down and southwest.

Description:

Extensive section loss and 2" diameter hole in the bottom of the web.

(Priority Repair No. 15)

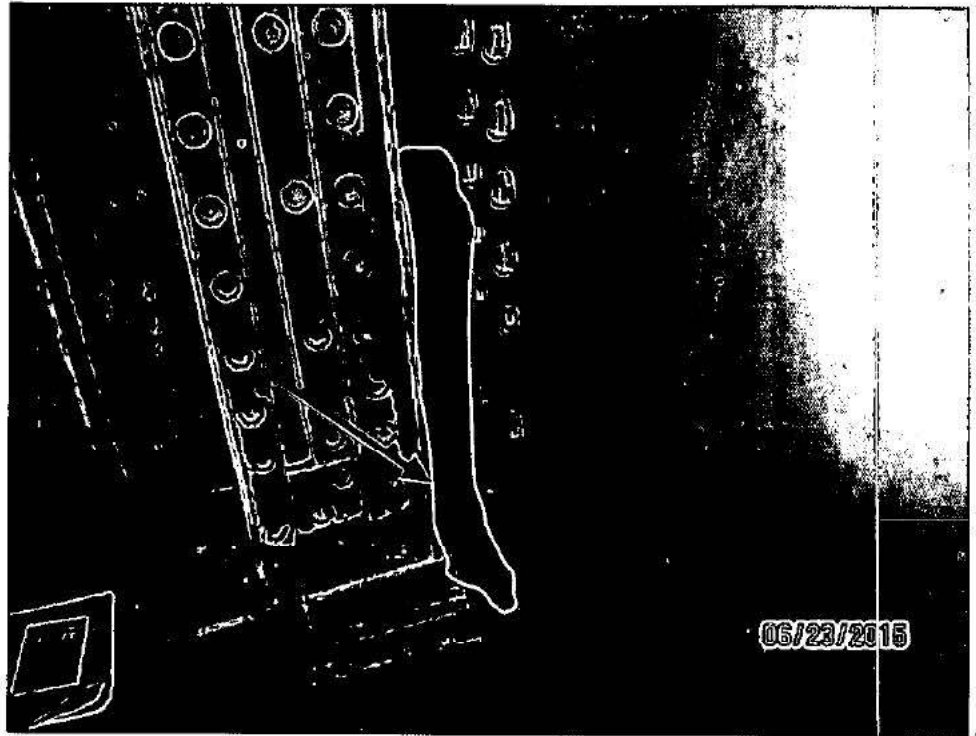


Photo No.: A16

Location:

Secondary floorbeam SFB2 over Stringer S3 between Panel Points 10W-11W, looking northwest.

Description:

2 of 2 sheared rivets/bolts at the east side of secondary floorbeam to stringer top flange connection. West side similar.

(Priority Repair No. 16)

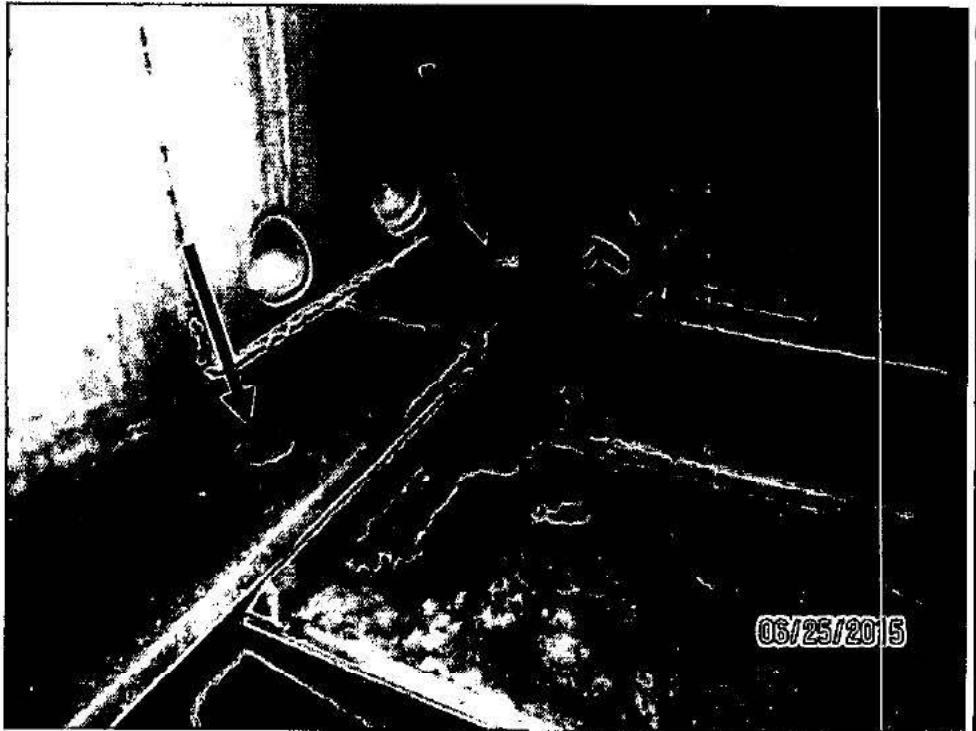


Photo No.: A17

Location:

New York Anchorage,
south bearing below
Capbeam 4, looking
southwest.

Description:

Severe corrosion with
approximately 50%
section losses to the
anchor bolt nuts at the
capbeam bearing.

(Priority Repair No. 17)

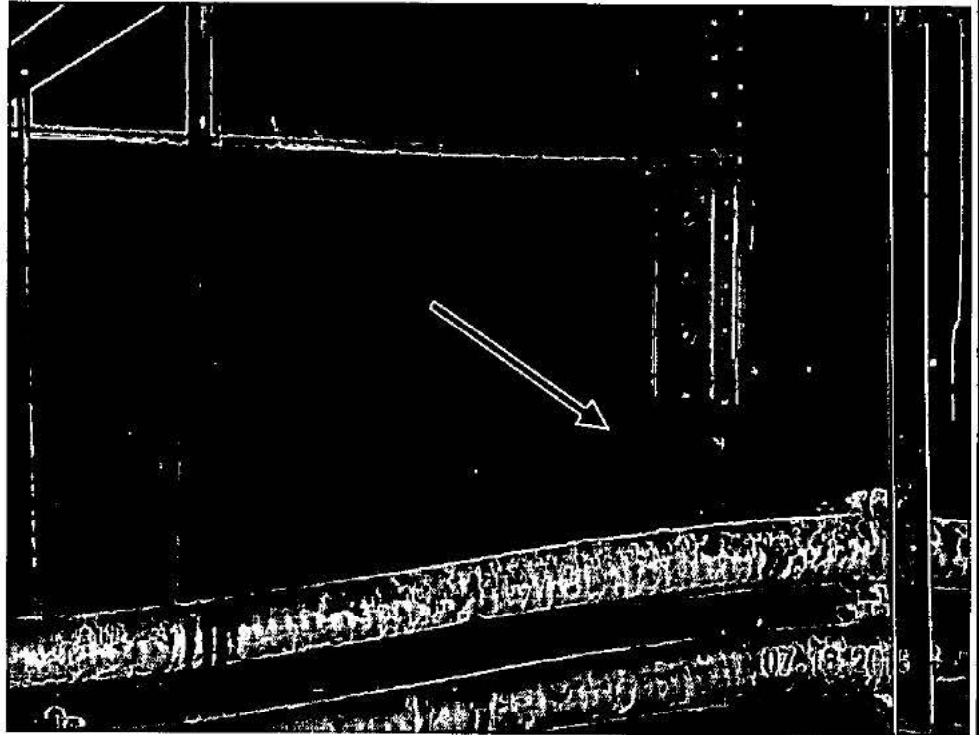


Photo No.: A18

Location:

Stringer S1, east of
Panel Point 18W,
looking south.

Description:

Severely corroded tie
down rivet connecting
the stringer bottom
flange to the seated
angle at the floorbeam.

(Priority Repair No. 18)

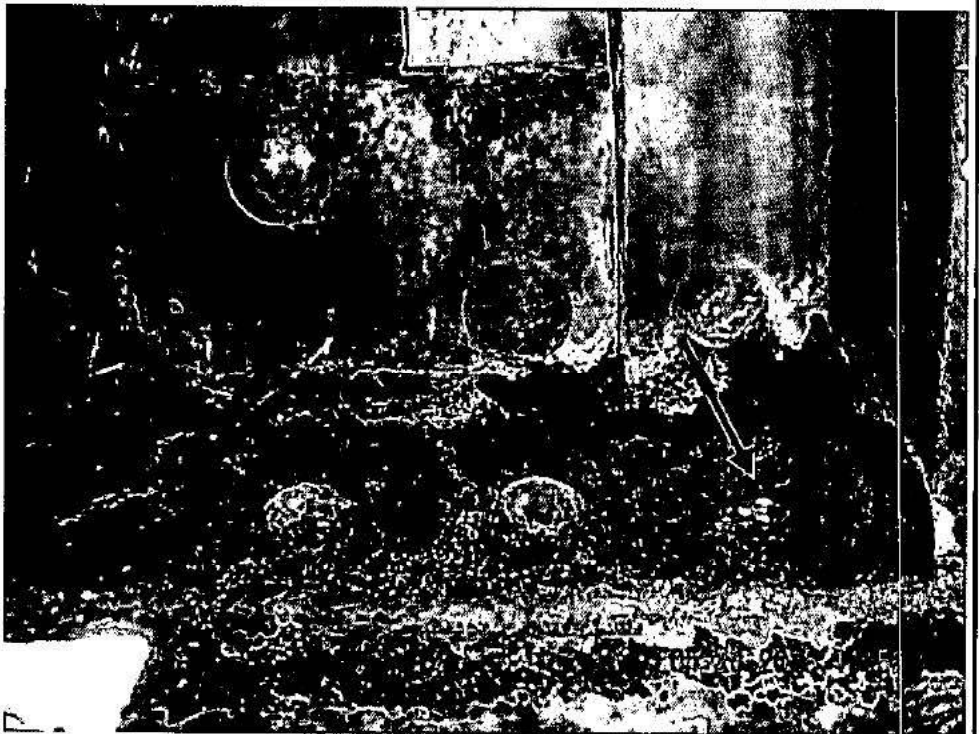


Photo No.: A19

Location:

Stringer S2 east of Panel Point 14E, looking south.

Description:

Web of stringer exhibits a 3" x 2" corrosion hole with moderate section loss near the bearing area.

(Priority Repair No. 19)

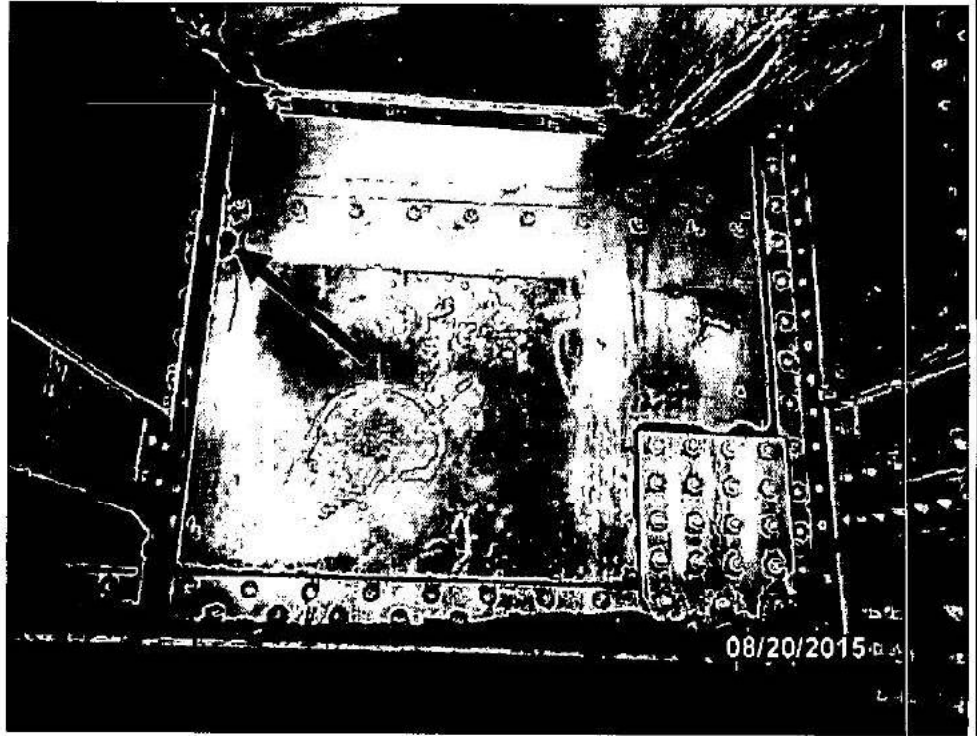


Photo No.: A20

Location:

Secondary floorbeam SFB11 over Stringer S4 between Panel Points 25E-24E, looking up and south.

Description:

(1 of 4) sheared rivets/bolt at the secondary floorbeam to stringer top flange connection.

(Priority Repair No. 20)

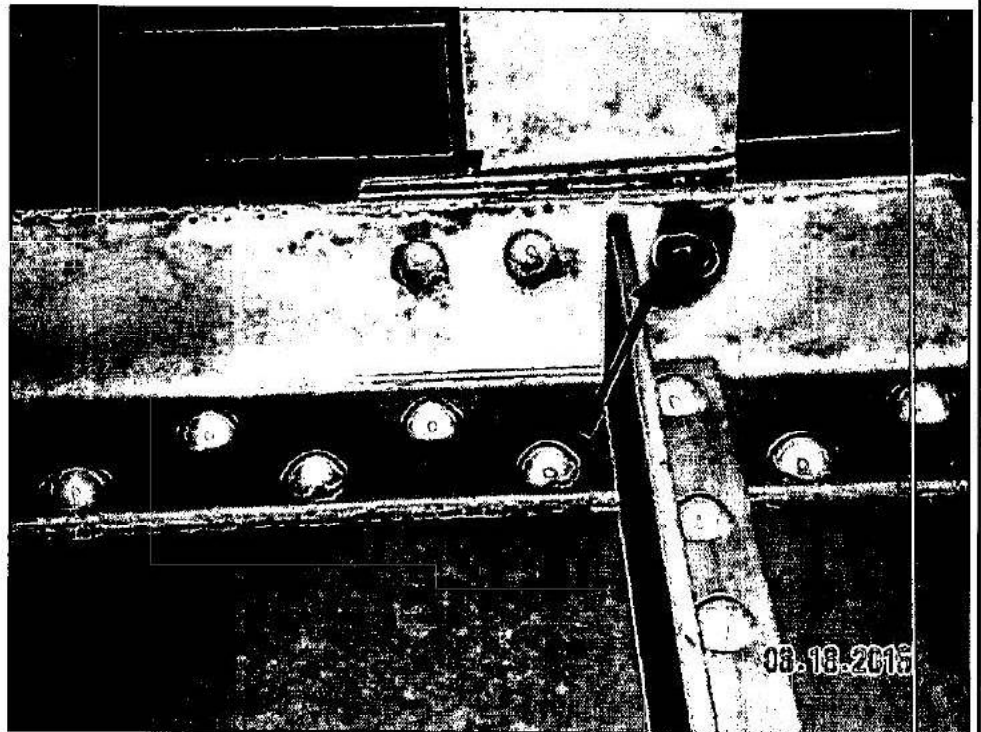


Photo No.: A21

Location:

Stringer S7, west side of Panel Point 1E, looking southeast.

Description:

Frozen sliding plate bearing due to pack rust.

(Priority Repair No. 21)

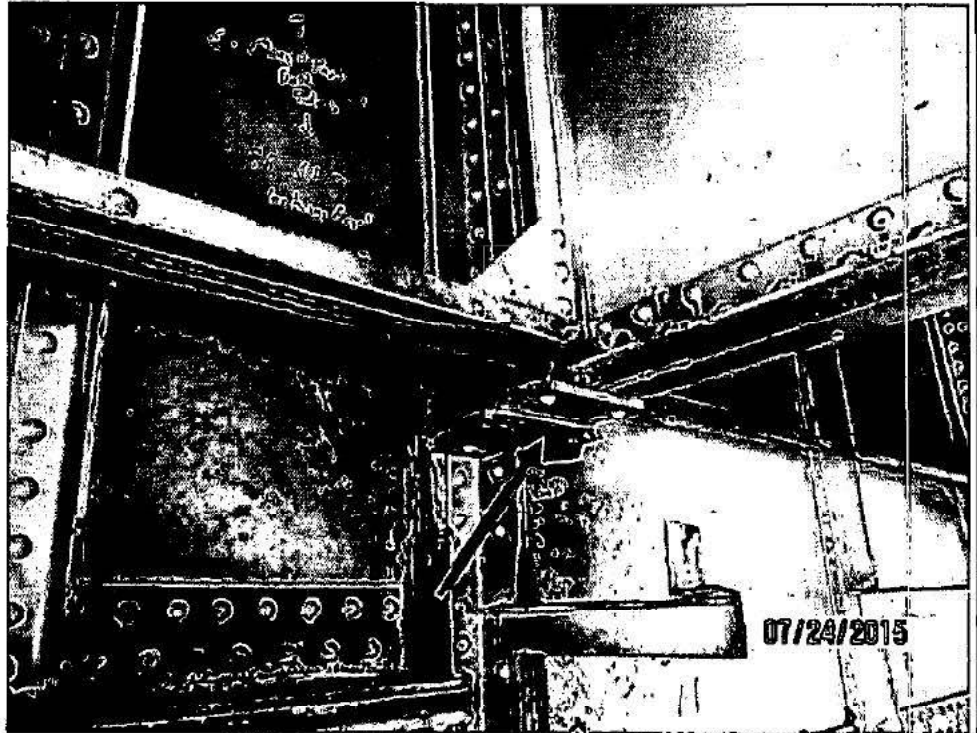


Photo No.: A22

Location:

Stringer S7, west side of Panel Point 14E, looking down and north.

Description:

Web of stringer exhibits 3" and 1/4" diameter corrosion holes with moderate section loss above the bearing area.

(Priority Repair No. 22)



Photo No.: A23

Location:

New York Anchorage,
Stringer S5, west side of
Capbeam 7, looking up
and east.

Description:

Bent angle at stringer
bearing connection due
to pack rust.

(Priority Repair No. 23)

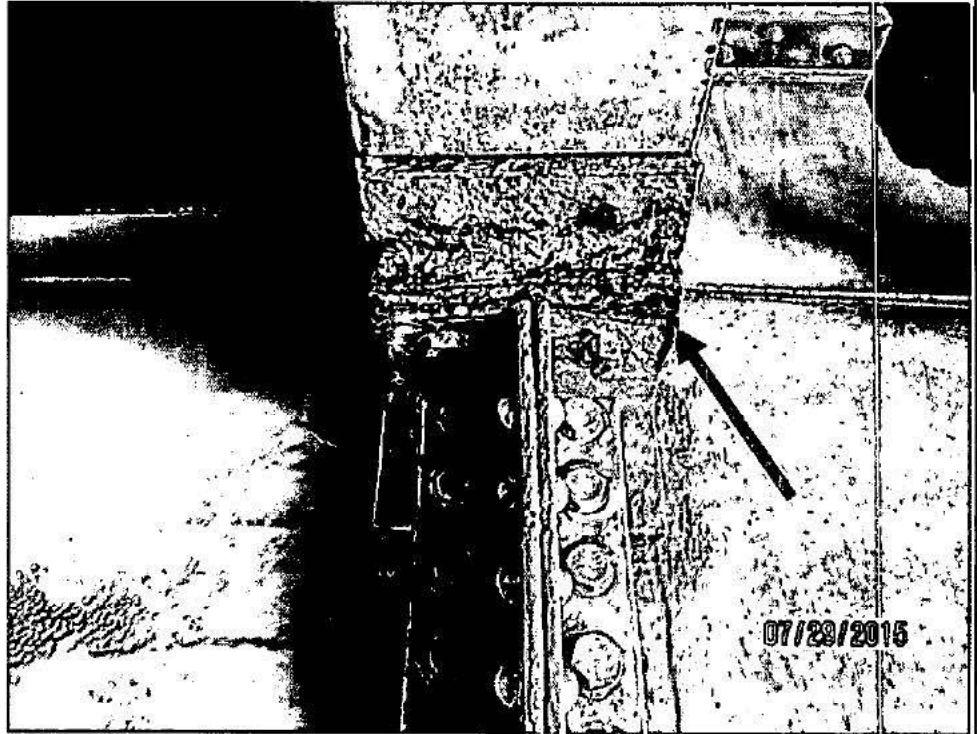


Photo No.: A24

Location:

Pedestal/bearing stool
of Stringer S6, east side
of Panel Point 14E,
looking northwest.

Description:

Corrosion holes and
section loss to bearing
stiffener.

(Priority Repair No. 24)

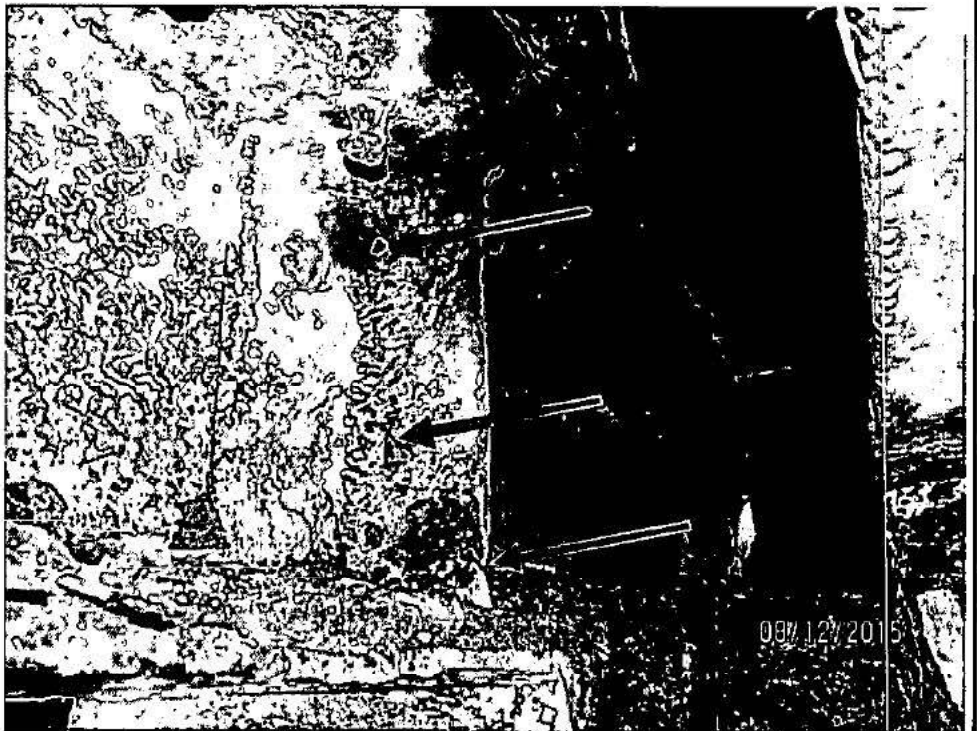


Photo No.: A25

Location:

New York Anchorage,
Stringer S8', west side
of Capbeam 7, looking
up and east.

Description:

(1 of 2) sheared off tie
down bolts at the
stringer seated angle.

(Priority Repair No. 25)

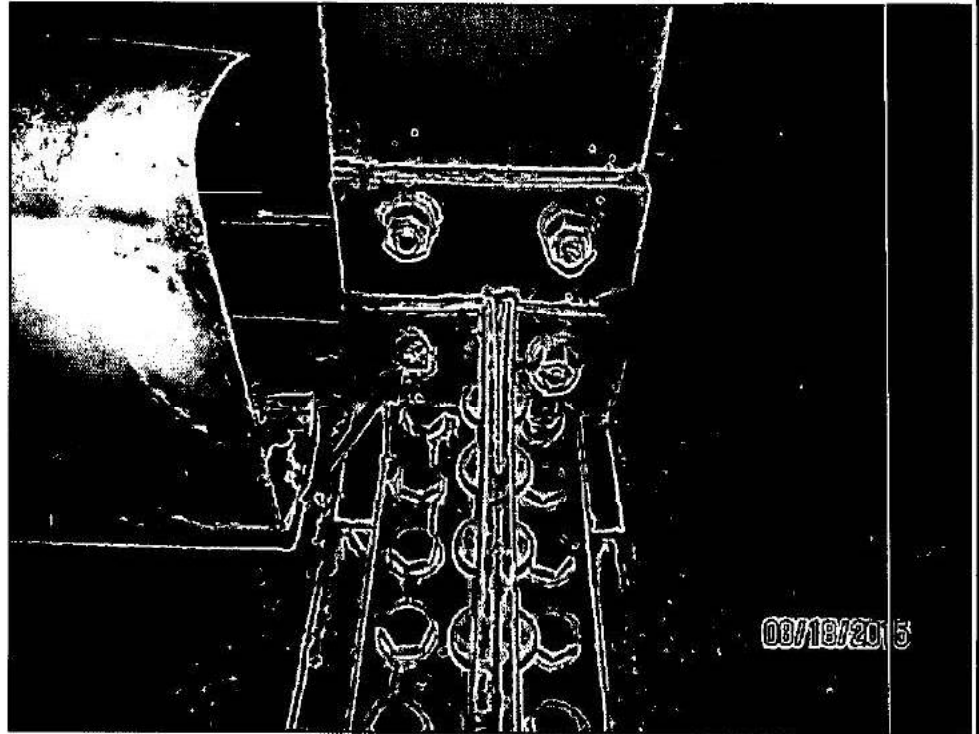


Photo No.: A26

Location:

Secondary floorbeam
SFB2 over Stringer S4
between Panel Points
11W-14W, looking east.

Description:

Crack with arrestor
holes in the lower web
of the secondary
floorbeam above the
stringer connection.

(Priority Repair No. 26)



Photo No.: A27

Location:

Panel Point 9W-10W,
Stringer S2, looking
down and southwest.

Description:

The lateral bracing
connection to the
stringer has worn into
the stringer bottom
flange up to 1/8" deep.

(Priority Repair No. 27)

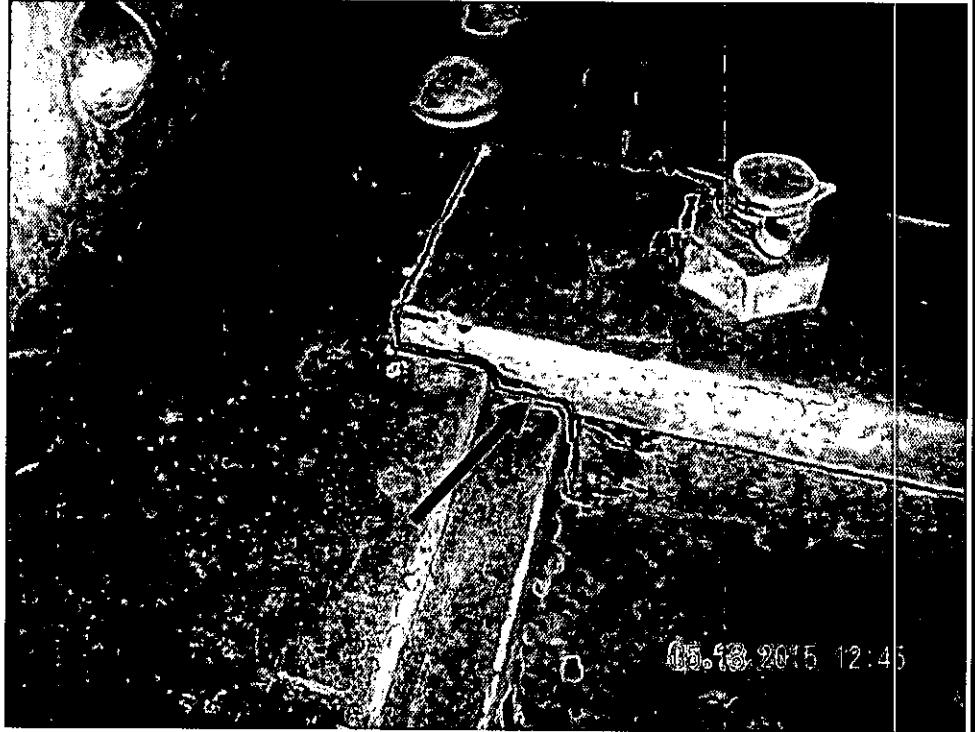


Photo No.: A28

Location:

Panel Point 1E, Stringer
S8 bearing, looking
southwest.

Description:

Frozen sliding plate
bearing due to pack
rust.

(Priority Repair No. 28)

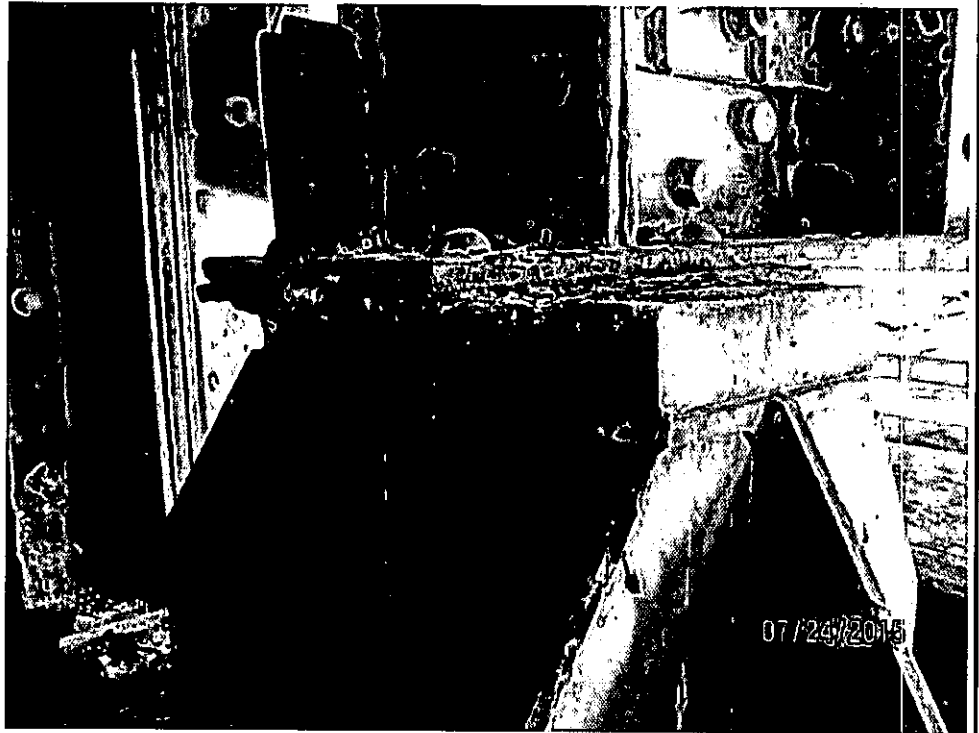


Photo No.: A29

Location:

New York Anchorage,
Stringer S7, east side of
Capbeam 4, looking
north.

Description:

Cracked shim plate and
loose tie down bolts
connecting stringer
bottom flange to the
seated angle.

(Priority Repair No. 29)

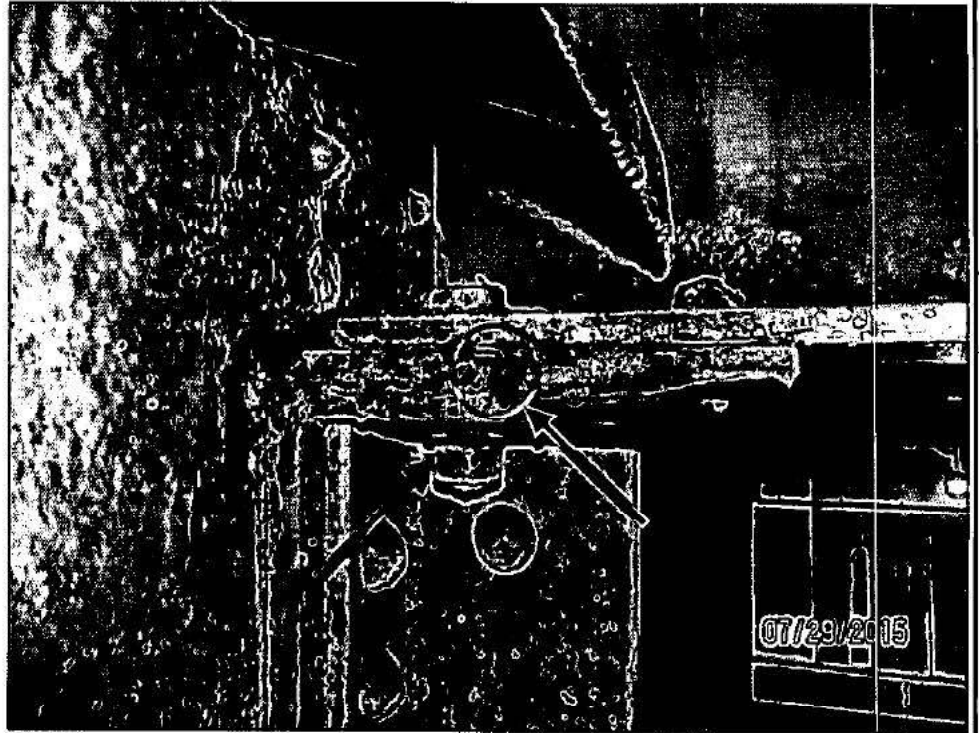


Photo No.: A30

Location:

Deck over Stringer S12'
between Capbeams 9-
10, near Capbeam 9,
looking up and
northwest.

Description:

2 of 2 sheared
rivets/bolts at the south
side of deck to stringer
top flange connection.
North side similar.

(Priority Repair No. 30)

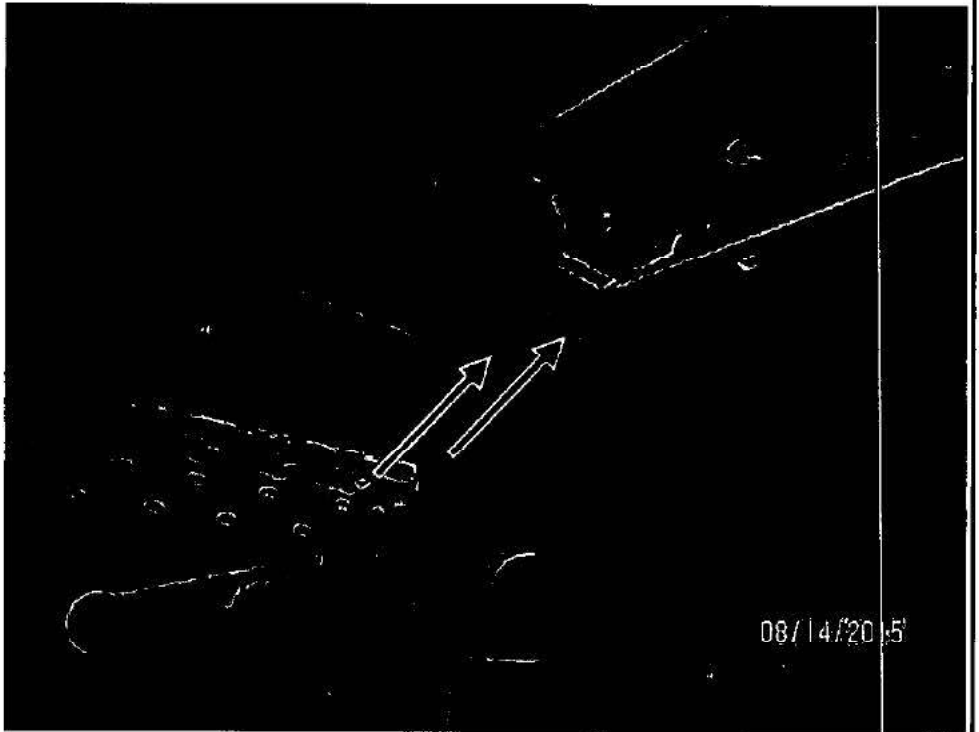


Photo No.: A31

Location:

Panel Point 15E,
between main
floorbeam and south top
chord, looking
southeast.

Description:

Connection angle
exhibits a 1¼" crack
past the previously
drilled arrestor hole.

(Priority Repair No. 31)

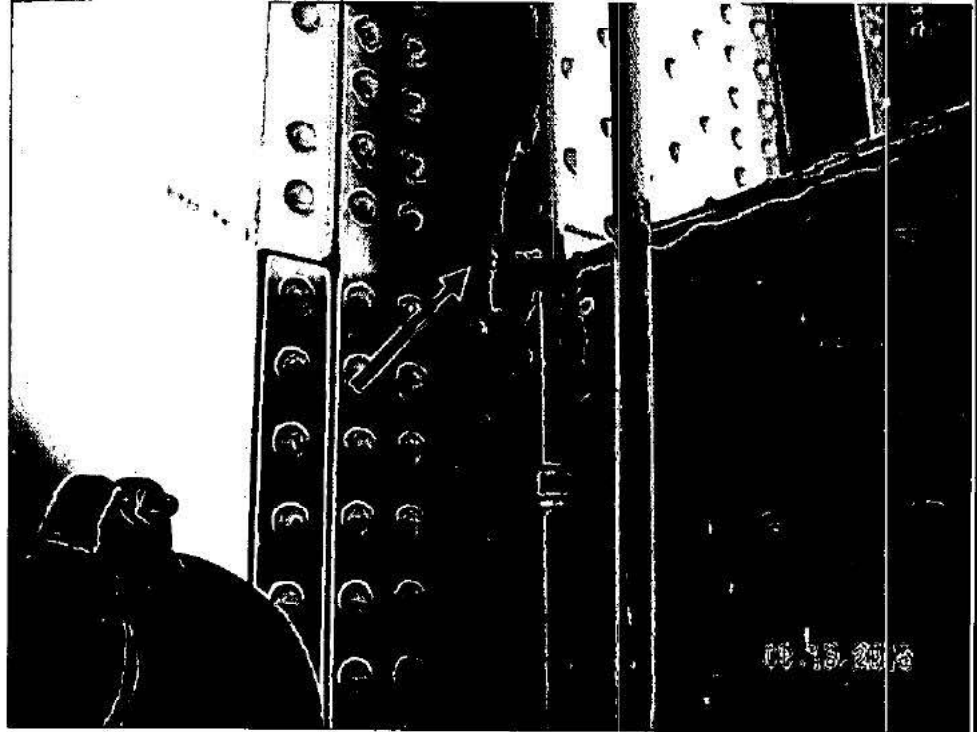


Photo No.: A32

Location:

New York Anchorage,
between Capbeams 6
and 7, north sidewalk,
looking south.

Description:

Unsecured electrical
box cover at the base of
the light standard with
exposed wires.

(Safety Repair No. 1)

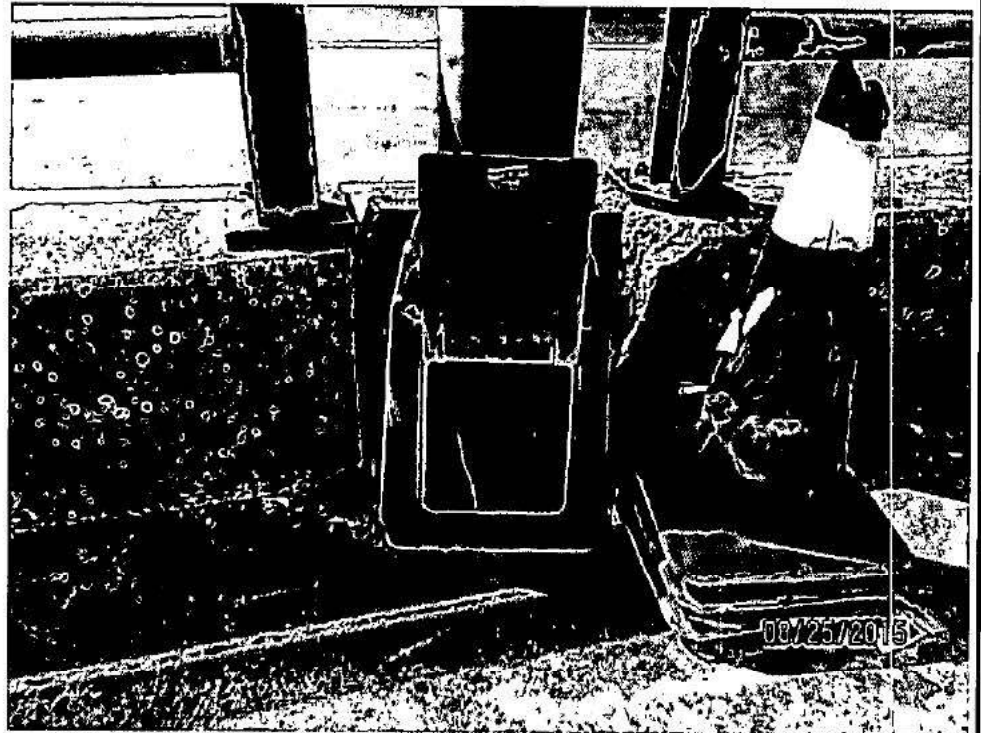


Photo No.: A33

Location:

New York Anchorage
between Capbeams 9
and 10, south railing,
looking north.

Description:

Horizontal rail is
disconnected from the
railing post.

(Safety Repair No. 2)

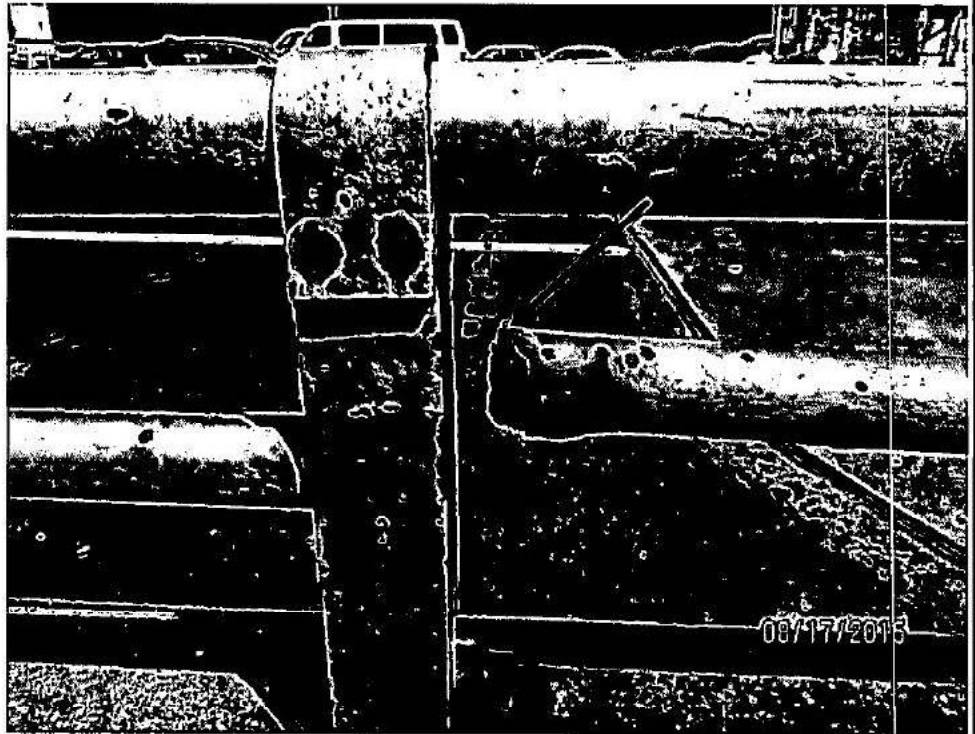


Photo No.: A34

Location:

New York Anchorage
between Capbeams 3
and 4, south railing,
looking west.

Description:

Railing post is
disconnected at the
base due to (2 of 2)
sheared anchor bolts.

(Safety Repair No. 3)

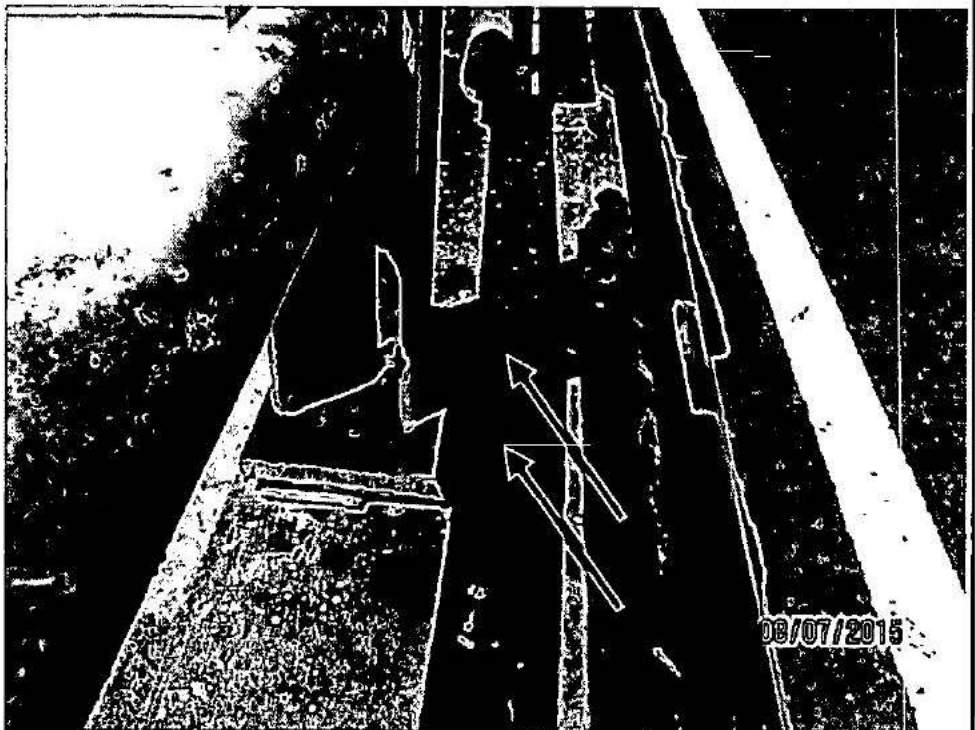


Photo No.: A35

Location:

Panel Point 10E over north sidewalk, looking west.

Description:

1" uplifted joint plate causing a tripping hazard.

(Safety Repair No. 4)

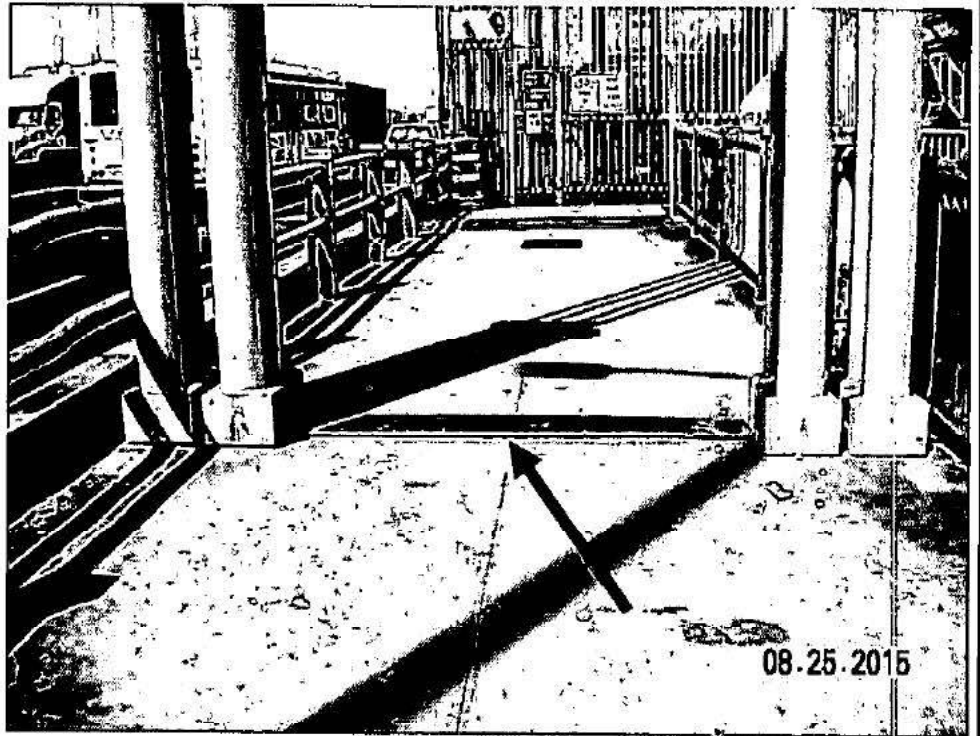


Photo No.: A36

Location:

Catwalk at Panel Point 14E over westbound roadway, looking west.

Description:

1 of 2 missing bolts at the bottom of the vertical railing post of the catwalk.

(Safety Repair No. 5)

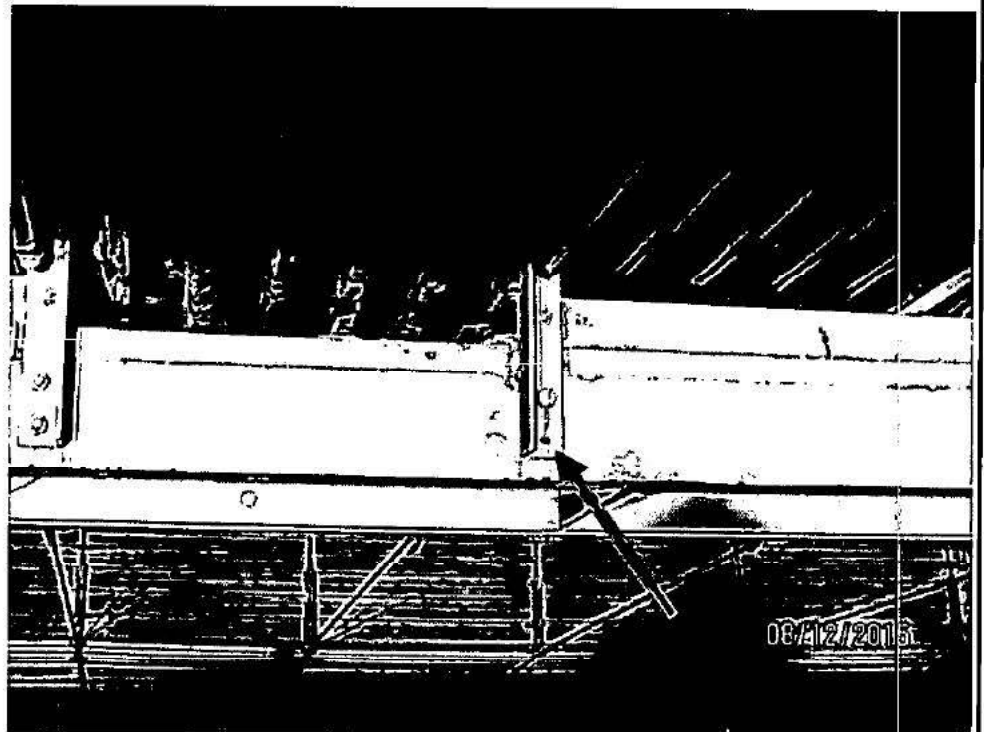


Photo No.: A37

Location:

New York Tower at Panel Point 14E and Stringer S8, looking northwest.

Description:

Heavy overflowing debris accumulation on horizontal connection plate and tower strut.

(Safety Repair No. 6)

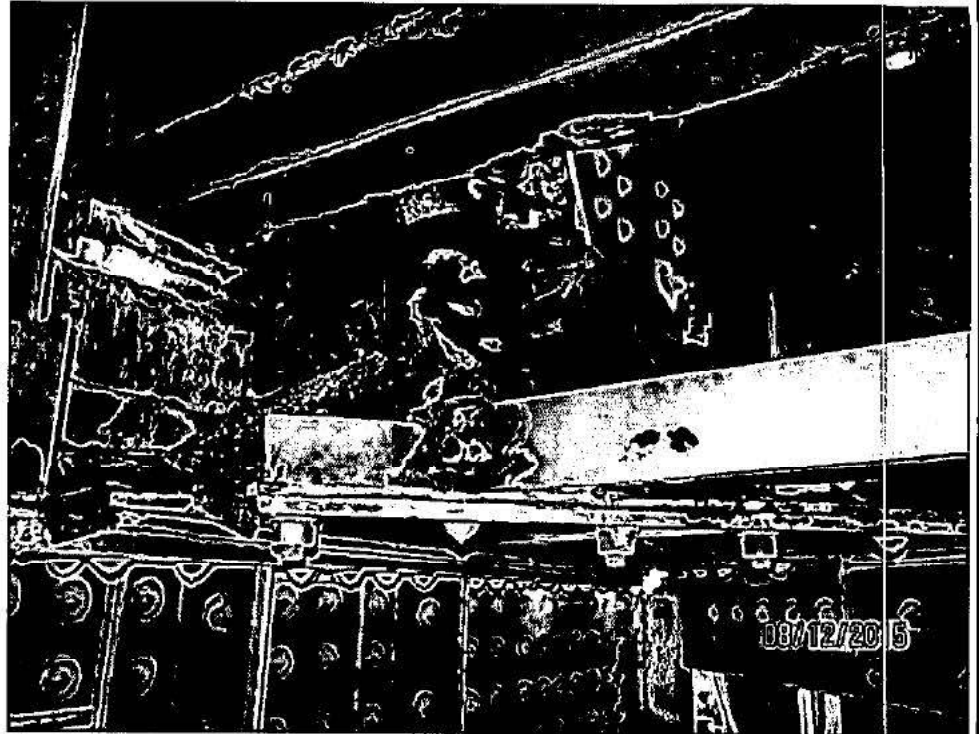


Photo No.: A38

Location:

New York Anchorage, at mid-level between Capbeams 4-5, looking northwest.

Description:

Deteriorated and partially missing temporary timber flooring inside the New York Anchorage.

(Safety Repair No. 7)



Photo No.: A39

Location:

Panel Point 10W-11W,
below south sidewalk,
looking up and east.

Description:

Deteriorated
maintenance platform
grating.

(Safety Repair No. 8)

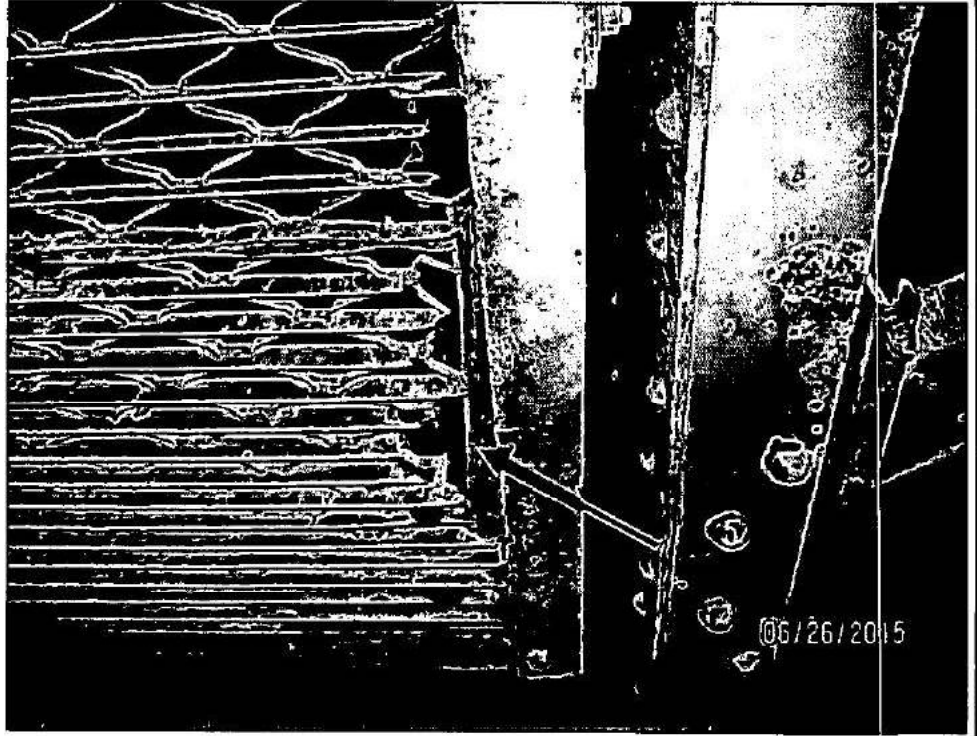


Photo No.: A40

Location:

Panel Point 5E-6E,
below north sidewalk,
looking up and west.

Description:

Partially detached utility
support angle.

(Safety Repair No. 9)

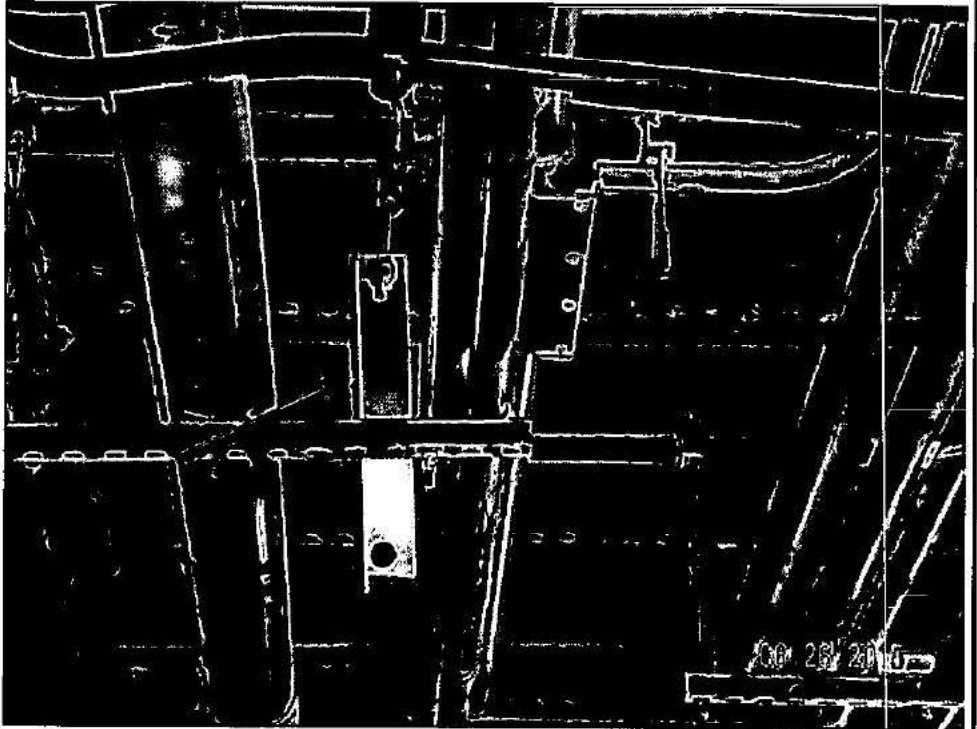


Photo No.: A41

Location:

NY Tower, Panel Points 11E-14E, between Stringers S7-S8, looking up and southeast.

Description:

Loose support for underdeck light fixture due to (1 of 2) missing nuts at the U-bolt connection.

(Safety Repair No. 10)

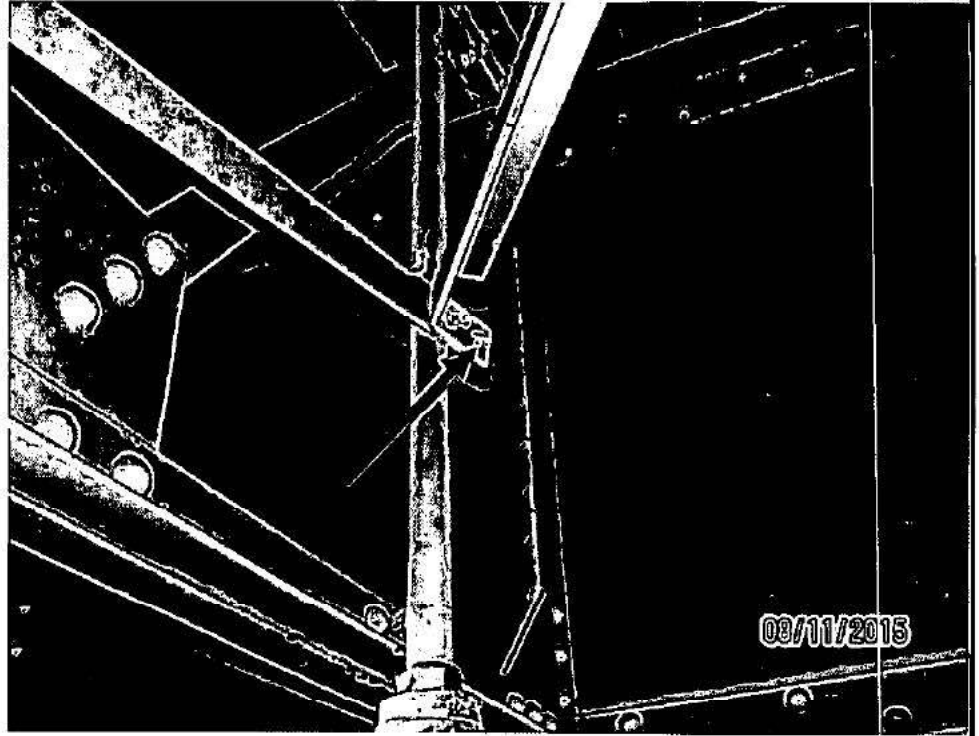


Photo No.: A42

Location:

New York Anchorage, mid-level between Capbeams 2-3, looking south.

Description:

Severely corroded section of catwalk grating.

(Safety Repair No. 11)

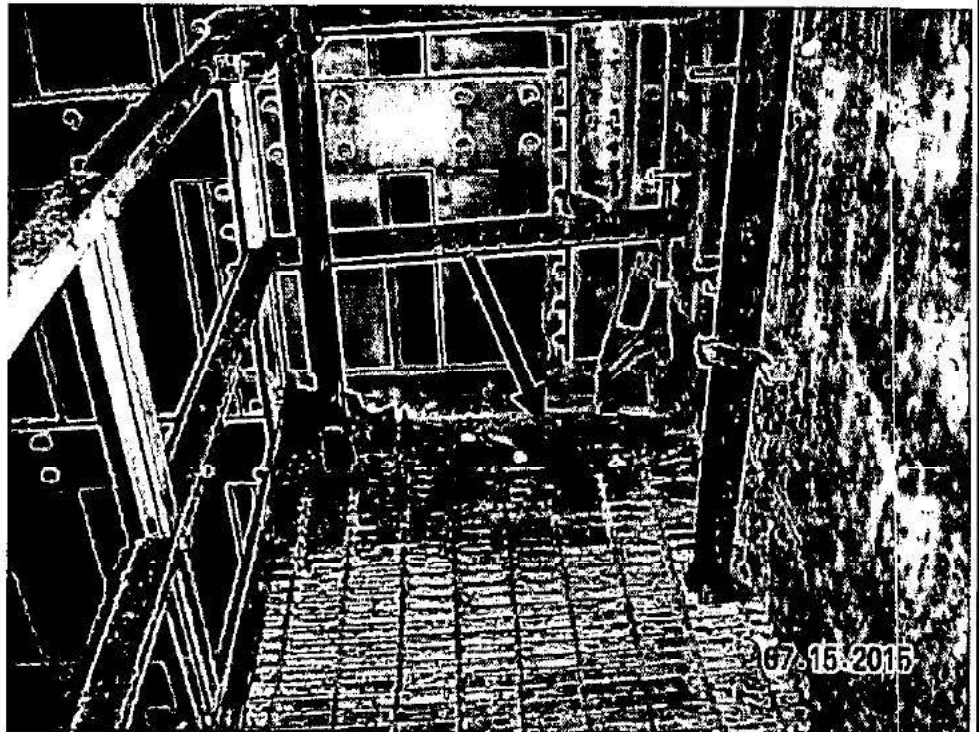


Photo No.: A43

Location:

Panel Point 42W-43,
below north sidewalk,
looking up and south.

Description:

Junction box is missing
7 of 12 screws and is
loose.

(Safety Repair No. 12)

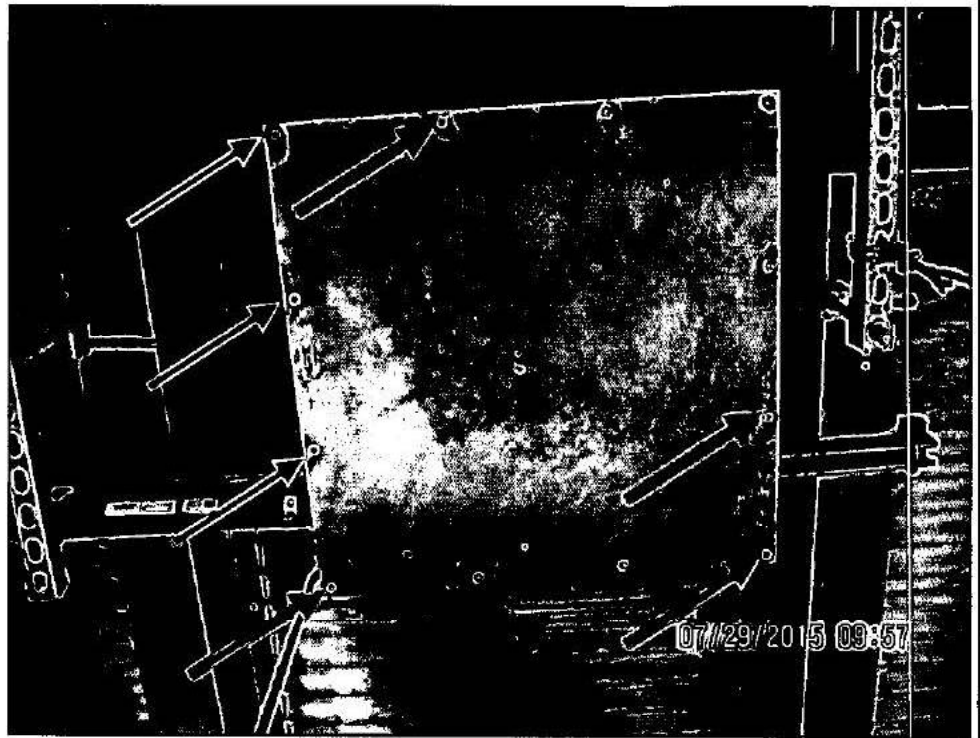


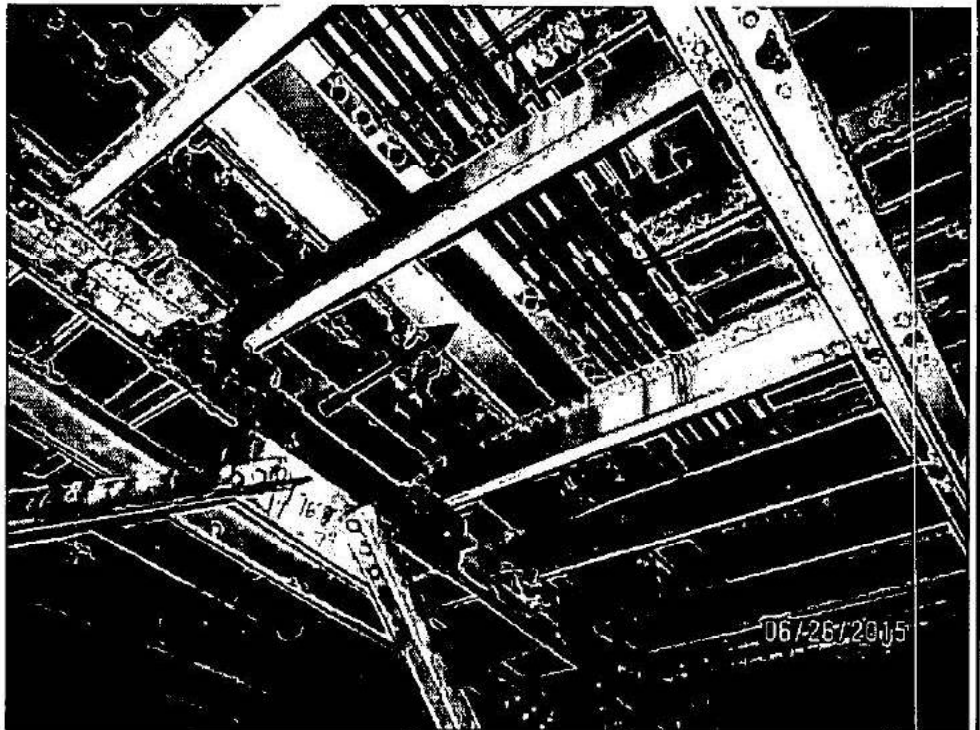
Photo No.: A44

Location:

Panel Point 11W-14W,
between stringers S4
and S5 near secondary
floorbeam SFB1,
looking northwest.

Description:

Temporary support
beam installed for the
cracked orthotropic deck
ribs.



B. Towers

Inspection Findings, Conclusions and Recommendations

B. TOWERS

Major Inspection Findings

Inspection access to the New York and New Jersey towers was obtained utilizing tower elevators, sidewalks, catwalks, struts, tethered climbing and extension ladders at the base of the tower legs.

Out of the 2 priority repairs at 2 locations recommended in the previous inspection report, 1 priority repair recommended at 1 location has been completed. As a result, there is 1 priority repair recommended at 1 location that remains outstanding. There is 1 new priority repair at 1 location recommended during this inspection for a total of 2 priority repairs at 2 locations recommended in this report section.

Additionally, 4 non-structural safety repairs at 5 locations and 13 routine repairs at 145 locations are recommended in this report section.

New York Tower

A full visual and partial hands-on inspection was performed on the New York Tower. The tower is in overall good condition. The paint system above the lower level roadway is good with only isolated areas of minor surface corrosion noted at the steel members. The paint at and below Level 3M is in fair condition especially at tower base which exhibit peeling paint with moderate to localized heavy corrosion and minor rivet head losses.

The support beams for the maintenance catwalks at Level 3M of the north and south tower legs exhibit severe corrosion and holes near the connections (see Photos B1 and B2).

The ladder between Levels 10 and 11 at the north leg, exhibits a loose bolt at the connection (see Photo B3).

The horizontal cross members, connection plates, and rivet heads, along the lower strut at Levels 3 and 3M, typically exhibit areas of pack rust, section losses up to ¼" deep, and small to medium corrosion holes in the top and bottom flanges, webs, and lacing bars (see Drawing TW-3 and Photo B8). This deterioration is primarily due to leakage through the finger joints in the roadway above. Similar deterioration to a lesser extent was noted between Levels 2M and 3. The flanges and lacing bars on the bracing members, exhibit localized areas of up to ⅛" deep pitting and small holes at isolated locations. The horizontal connection plates at Levels 3 and 4 exhibit heavy debris accumulations (see Photo B17). The bases of the tower legs exhibit a failed paint system with pitting and section losses evident on the vertical members and rivet heads (see Photo B7). The strut between the west interior columns of the south leg exhibits a fine crack in the outstanding angle leg and a small corrosion hole near the top flange at Level 0 (see Photo B9). There is a 1" diameter hole in the lower angle of the diagonal bracing between the southwest exterior and southwest interior column at the north leg of the New York Tower at Level 0, and two 2" diameter holes in the lower flange of the horizontal bracing between the southwest and northwest exterior columns of the south tower leg (see Photo B18). These conditions do not significantly affect the structural integrity of the tower.

There are areas of pack rust between the vertical connection plates and the tower members at Levels 0 to 3.

The concrete encasement protecting steel pedestals at the base of the towers exhibits few medium to wide cracks. The encasement also exhibits spalls allowing water penetration onto the encased steel (see Photo B10).

Several access hatch covers for the box columns at the south and north tower legs exhibit missing or sheared off bolts. An interior inspection was performed within the base of the northeast and southwest exterior columns at the north tower leg and within the northwest and southeast interior column legs at the south tower leg. The weep holes at the base of several box columns of the tower legs are partially or fully clogged due to debris found within the base of the box columns. No water was found inside the columns and few areas of light to moderate corrosion were noted near the base of the columns.

Since the last inspection, all the broken light fixtures have been repaired.

New Jersey Tower

A full visual and partial hands-on inspection was performed on the New Jersey Tower. The tower is in overall good condition. The paint system is in good condition with only isolated areas of light surface corrosion noted at the exterior tower bases.

Since the last inspection, the support beam for the maintenance catwalks at Level 3M of the south tower leg which exhibited severe corrosion and holes near the connections has been repaired. The support beams of the north tower leg exhibit severely deteriorated or missing bolts at the connections (see Photo B6).

The railing of the catwalk at Level 3M at the south leg exhibits corrosion and holes (see Photo B4). There is also a crack in the stair, 11th from the bottom, between Levels 3M and 4 at the south leg (see Photo B5).

The horizontal cross members, connection plates, and rivet heads, along the lower strut at Levels 3 and 3M, typically exhibit areas of pack rust and minor pitted section losses, and small to medium corrosion holes in the bottom flange, and connection plates (see Drawing TW-4). The horizontal connection plates at Levels 3 and 4 exhibit debris accumulations.

There are areas of pack rust between the vertical connection plates and the tower members at Levels 0 to 3 (see Photo B14).

The concrete encasement protecting steel pedestals at the base of the towers exhibit few medium to wide cracks. The encasement also exhibits spalls allowing water penetration onto the encased steel.

The drainage downspout at the base of northwest exterior column at the south leg is deteriorated and is missing a section of the pipe (see Photo B11).

Several access hatch covers for the box columns at the south and north tower legs exhibit missing or sheared off bolts (see Photo B13). An interior inspection was performed within the base of the northeast and southeast exterior columns at the north tower leg and within the southeast interior and northeast exterior column legs at the south tower leg. The weep holes at the base of several box columns of the tower leg are partially or fully clogged due to debris accumulation within the base of the box columns (see Photo B12). No water was found inside the columns and few areas of light to moderate corrosion were noted near the base of the columns.

The stone masonry base pedestals are partially covered with soft marine growth. The joints between the granite blocks typically exhibit missing mortar (see Photo B15).

The foot bridge which connects the north and south tower pedestals remains slightly shifted to the south. Keeper angles previously attached to the underside of the foot bridge support girders remain in place.

Since the last inspection, all the broken light fixtures have been repaired.

RECOMMENDATIONS

Immediate: None.

Priority: The following priority repairs are recommended:

<u>No.</u>	<u>Description</u>	<u>Dwg. No.</u>
1	Repair the severe corrosion and holes on the catwalk support members at Level 3M on the north leg of the New York Tower. <i>(Photo B1)</i> (1 Location)	TW-1
2*	Repair the severe corrosion and holes on the catwalk support members at Level 3M on the south leg of the New York Tower. <i>(Photo B2)</i> (1 Location)	TW-1

* Previously recommended as a "Priority Repair" in the 2013 inspection report.

Safety: The following safety repairs are recommended:

<u>No.</u>	<u>Description</u>	<u>Dwg. No.</u>
1	Repair the loose bolt at the connection to the ladder between Levels 10 and 11 at the north leg of the New York Tower. <i>(Photo B3)</i> (1 Location)	TW-1
2	Repair the corrosion and holes in the railing of the catwalk at Level 3M at the south leg of the New Jersey Tower. <i>(Photo B4)</i> (1 Location)	TW-2
3	Repair the crack in the stair between Levels 3M and 4 at the south leg of the New Jersey Tower. <i>(Photo B5)</i> (1 Location)	TW-2
4	Replace the severely deteriorated or missing bolts in the catwalk support members at Level 3M on the New Jersey Tower. <i>(Photos B6)</i> (2 Locations)	TW-2

Routine: The following routine repairs are recommended:

<u>No.</u>	<u>Description</u>	<u>Dwg. No.</u>
1	Clean and spot paint the New York and New Jersey Tower column bases. <i>(Photo B7)</i> (32 Locations).	---
2	Repair, clean and paint the deteriorated horizontal bracing members at Levels 3 and 3M of the New York and New Jersey Towers. <i>(Photo B8)</i> (29 Locations)	TW-3 and TW-4
3	Repair the cracked and holed thru outstanding angle leg at the east upper flange of the horizontal strut between west interior columns of the south leg at Level 0 of the New York Tower. <i>(Photo B9)</i> (1 Location)	---

<u>No.</u>	<u>Description</u>	<u>Dwg. No.</u>
4	Repair the spalled concrete encasement around the steel column bases of the New York Tower at the north leg, south face of the northwest exterior column, northeast corner of the northwest interior column, northwest corner of the northeast interior column, and west face of the southwest exterior column; at the south leg, east face of the northeast exterior column, west face of the southwest exterior column, southwest corner of the southeast interior column, southeast corner of the southwest interior column, and north face of the southeast exterior column. <i>(Photo B10)</i> (10 Locations)	---
5	Repair the spalled concrete encasement around the steel column bases of the New Jersey Tower at the north leg, south and west face of the southeast exterior column, northwest corner of the southeast interior column, west face of the southwest interior column, east face of the southwest exterior column; at the south leg, west face of the northeast exterior column, northwest corner of the northeast interior column, north face of the northwest interior column, north face of the northwest exterior column, west face of the southwest exterior column, west face of the southwest interior column, and east face of the southeast exterior column. (13 Locations)	---
6	Remove the deteriorated and missing section of drainage downspout at the base of the northwest exterior column at the south leg of the New Jersey Tower. <i>(Photo B11)</i> (1 Location)	---
7	Remove the debris causing partially or fully clogged weep holes at the base of the box columns at the New Jersey and New York Towers. <i>(Photo B12)</i> (5 Locations)	---
8	Replace the missing or sheared off bolts on the box column access hatch covers located on the interior faces of the columns at the New Jersey and New York Towers. <i>(Photo B13)</i> (24 Locations)	---
9	Clean and paint the areas of pack rust between the vertical connection plate and tower members at Levels 0 to 3 at the New Jersey and New York Towers. <i>(Photo B14)</i> (13 Locations)	---
10	Replace the missing mortar at the base pedestals of the New Jersey and New York Towers. <i>(Photo B15)</i> (4 Locations)	---
11	Replace the missing handhole cover for the electrical conduit at the New York Tower, north leg, southwest interior column at Level 0. <i>(Photo B16)</i> (1 Location)	---
12	Remove the debris on the horizontal connection plate at Levels 3 and 4 of the New Jersey and New York Towers. <i>(Photo B17)</i> (10 Locations)	---
13	Repair the 1" diameter hole in the lower angle of the diagonal bracing between the New York Tower, north leg, southwest exterior column and the southwest interior column at Level 0, and the two 2" diameter holes in the lower flange, south leg of the horizontal bracing between the southwest exterior column and northwest exterior column. <i>(Photo B18)</i> (2 Locations)	---

Photo No.: B1

Location: New York Tower, Level 3M, catwalk support near the north leg of the tower at Panel Point 11E, looking northwest.

Description: Severe corrosion and holes in the catwalk support member at the connection to west support beam of finger joint.

(Priority Repair 1)



Photo No.: B2

Location: New York Tower, Level 3M, catwalk support near the south leg of the tower at Panel Point 11E, looking southeast.

Description: Severe corrosion and holes in the catwalk support member at the connection to tower column.

(Priority Repair 2)

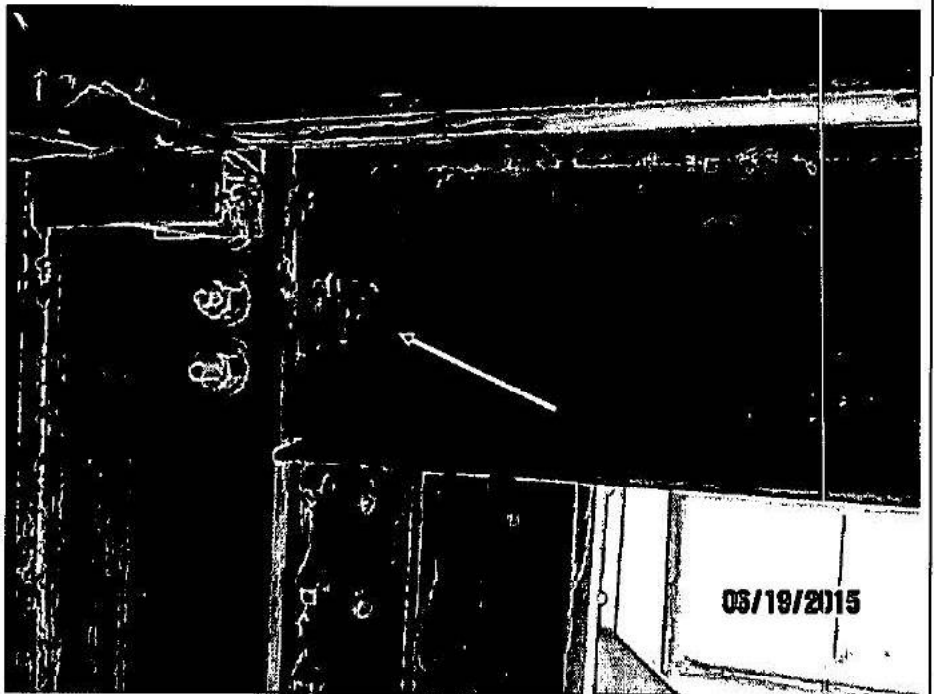


Photo No.: B3

Location: New York Tower, between Levels 10 and 11, ladder at north leg of the tower, looking southeast.

Description: Loose bolt at the connection to the ladder.

(Safety Repair 1)



Photo No.: B4

Location: New Jersey Tower, Level 3M, catwalk railing at the south leg of the tower, looking northeast.

Description: Corrosion and holes in the railing of the catwalk.

(Safety Repair 2)



Photo No.: B5

Location: New Jersey Tower, between Levels 3M and 4, catwalk stairs at the south leg of the tower, looking south.

Description: Crack in the stair.

(Safety Repair 3)

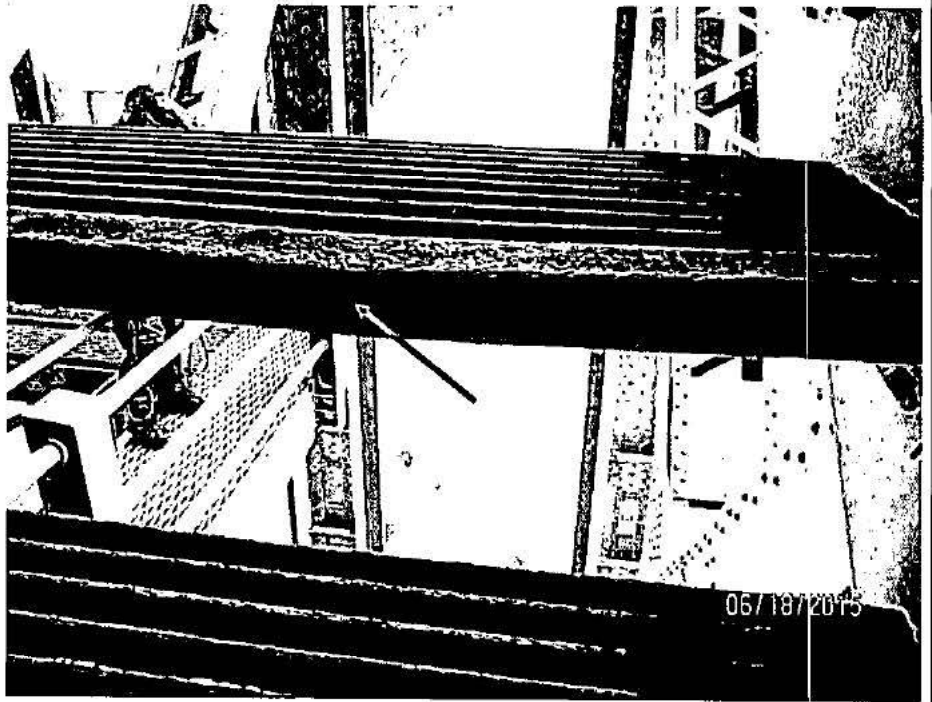


Photo No.: B6

Location: New Jersey Tower, Level 3M, catwalk support near the south leg of the tower, looking up and northwest.

Description: Severely deteriorated bolts in the catwalk support member at the connection.

(Safety Repair 4)

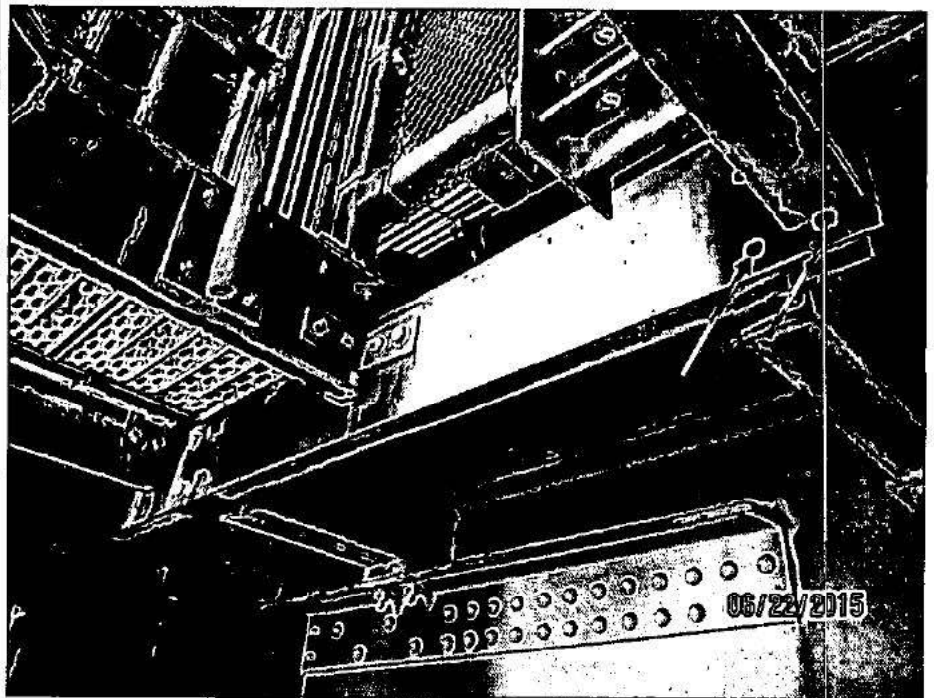


Photo No.: B7

Location: New York Tower, south leg, northeast corner of the northwest exterior column base, looking southwest.

Description: Moderate corrosion of exposed steel surfaces.

(Routine Repair 1)

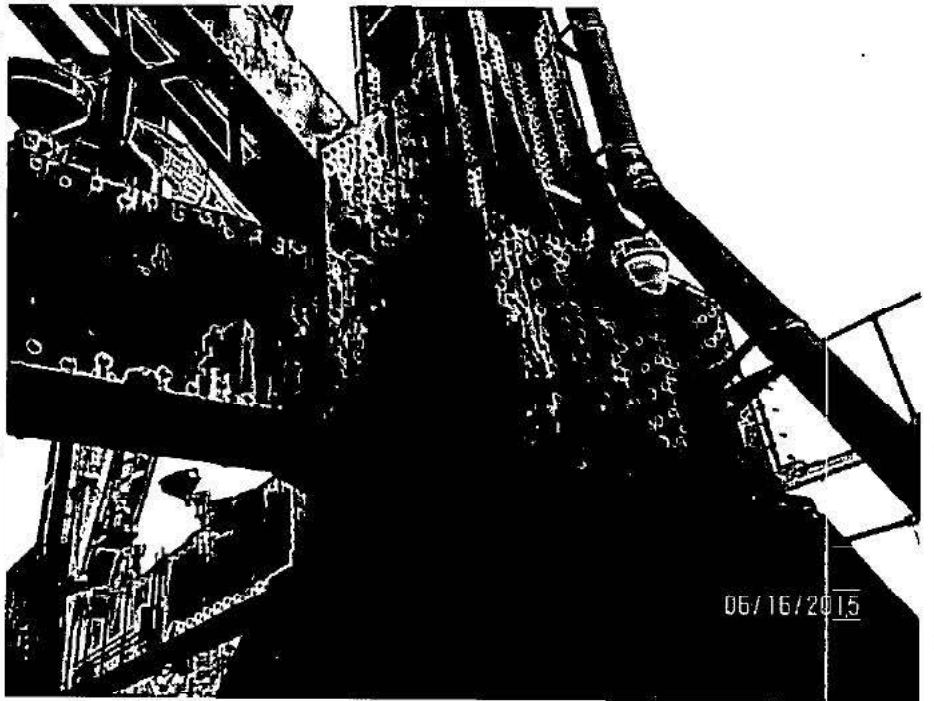


Photo No.: B8

Location: New York Tower, Level 3, diagonal bracing between Panel Points 13E and 14E, looking northwest.

Description: Small holes and moderate section loss along the flanges of the horizontal bracing members.

(Routine Repair 2)

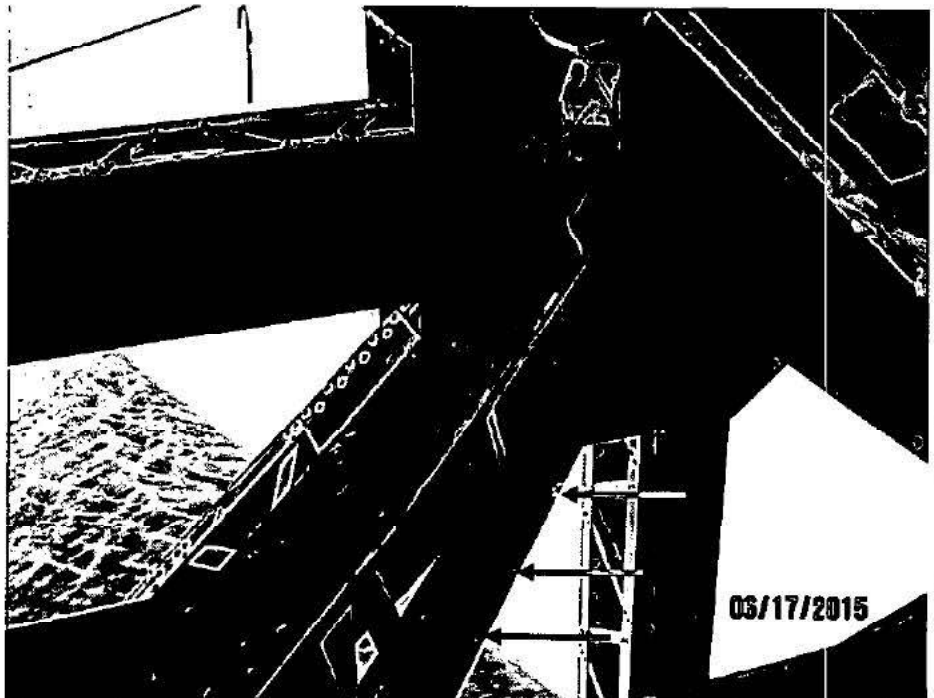


Photo No.: B9

Location: New York Tower, south leg at Level 0, horizontal strut between west interior columns, looking up and east.

Description: Small corrosion hole and fine crack in the outstanding leg of the east upper flange angle of the horizontal strut.

(Routine Repair 3)

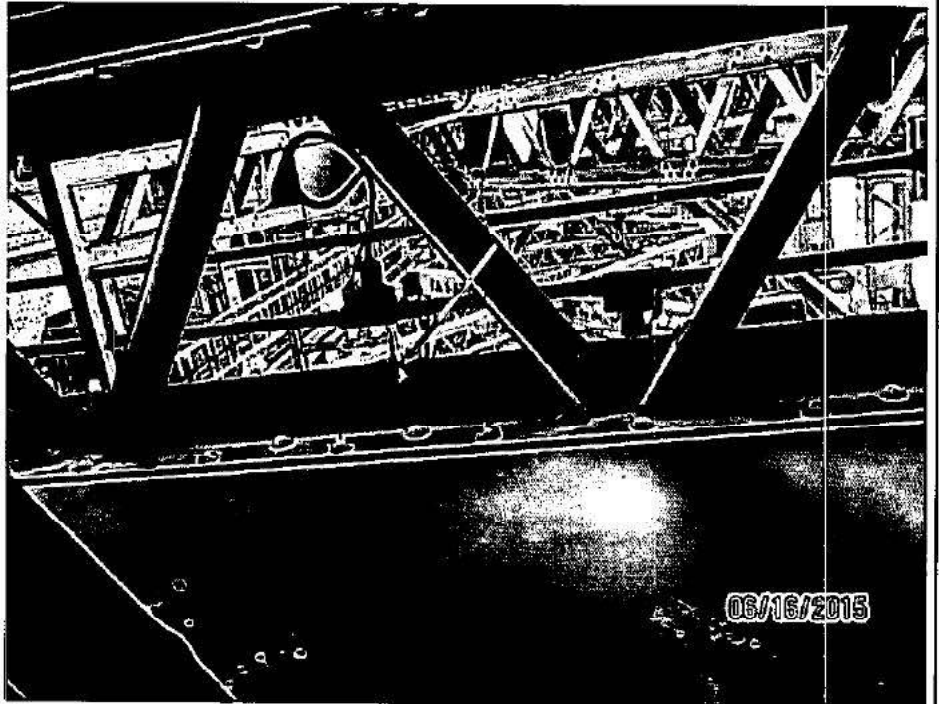


Photo No.: B10

Location: New York Tower, north leg, northwest corner of northeast interior column base and northeast corner of northwest interior column base, looking southwest.

Description: Localized spall in the concrete encasement at steel bearing pedestal.

(Routine Repair 4)

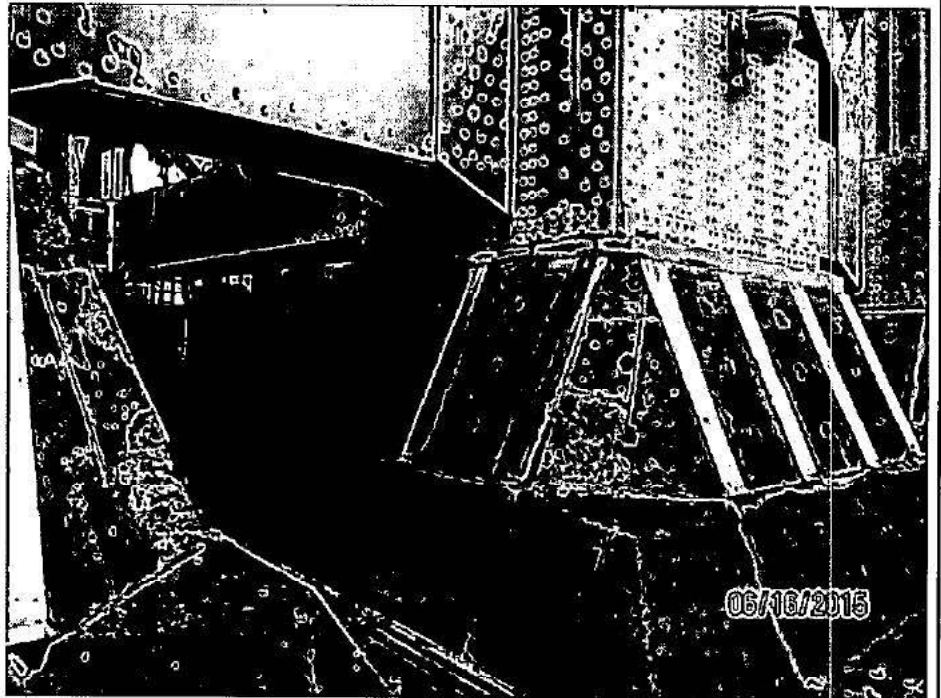


Photo No.: B11

Location: New Jersey Tower, south leg, northwest exterior column, looking north.

Description: Deteriorated drainage pipe with missing section near base of tower.

(Routine Repair 6)

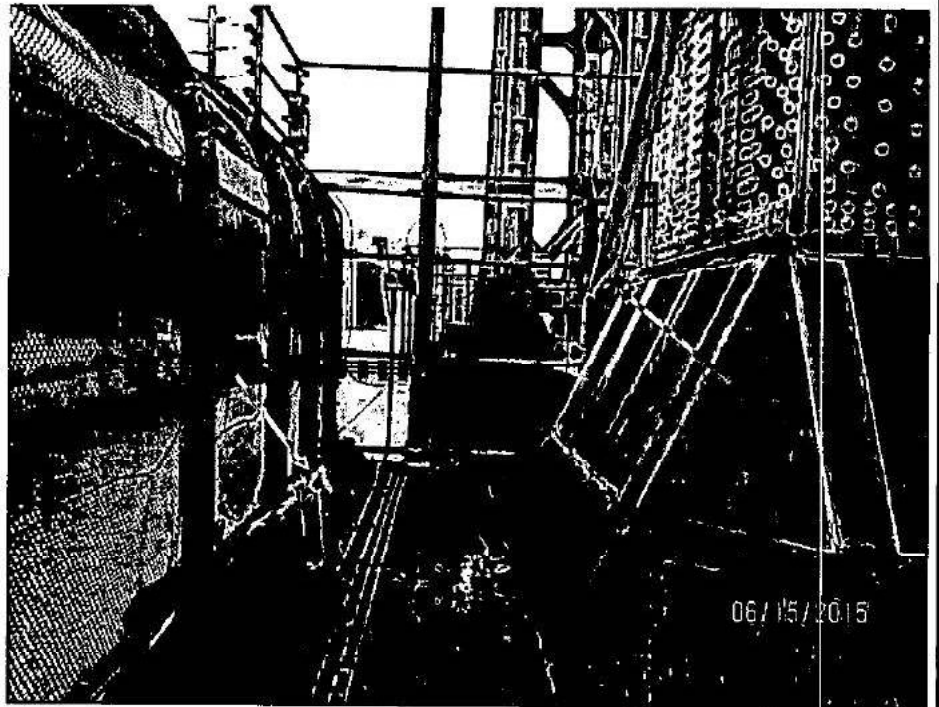


Photo No.: B12

Location: New Jersey Tower, south leg, northeast exterior column, looking down.

Description: Debris within base of column causing clogging of drainage weephole.

(Routine Repair 7)

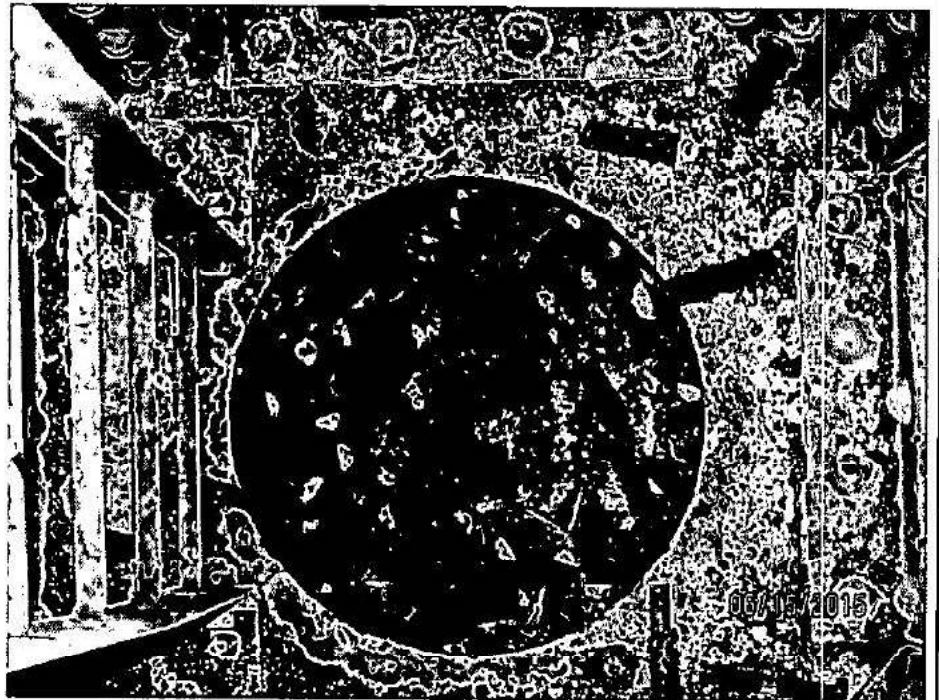


Photo No.: B13

Location: New Jersey Tower, north leg between Levels 0-1, southwest interior column, looking southeast.

Description: Missing (2 of 4) bolts for the box column access hatch cover located on the interior face of the column.

(Routine Repair 8)

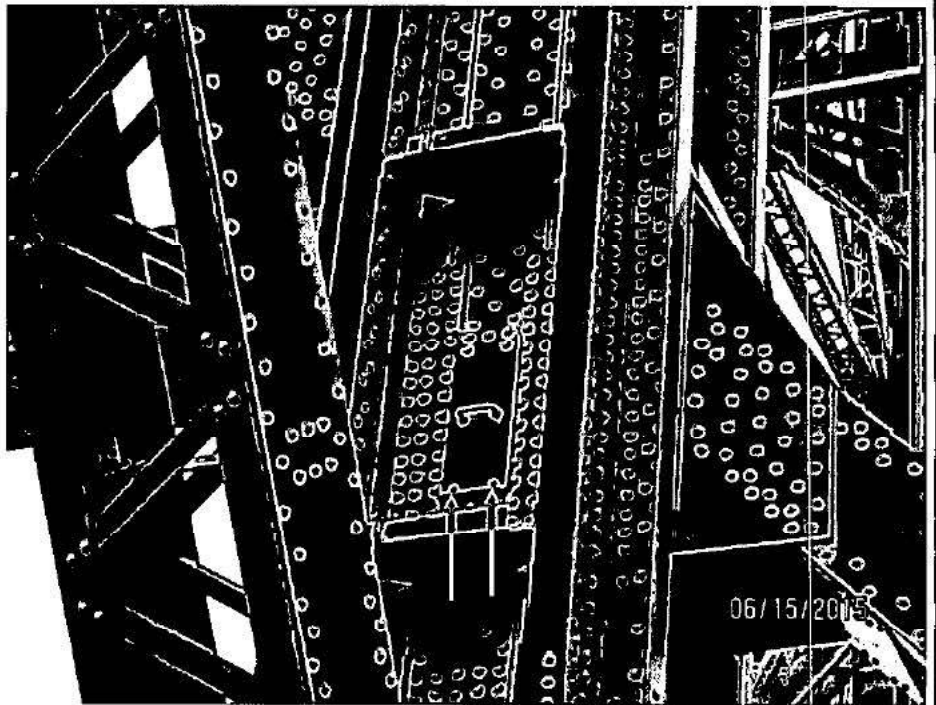


Photo No.: B14

Location: New Jersey Tower, south leg between levels 0 and 1, between northeast and southeast exterior column, looking southwest.

Description: Pack rust between the vertical connection plate and diagonal tower member.

(Routine Repair 9)



Photo No.: B15

Location: New Jersey Tower, south leg, looking northeast.

Description: Missing mortar between stones at the base.

(Routine Repair 10)

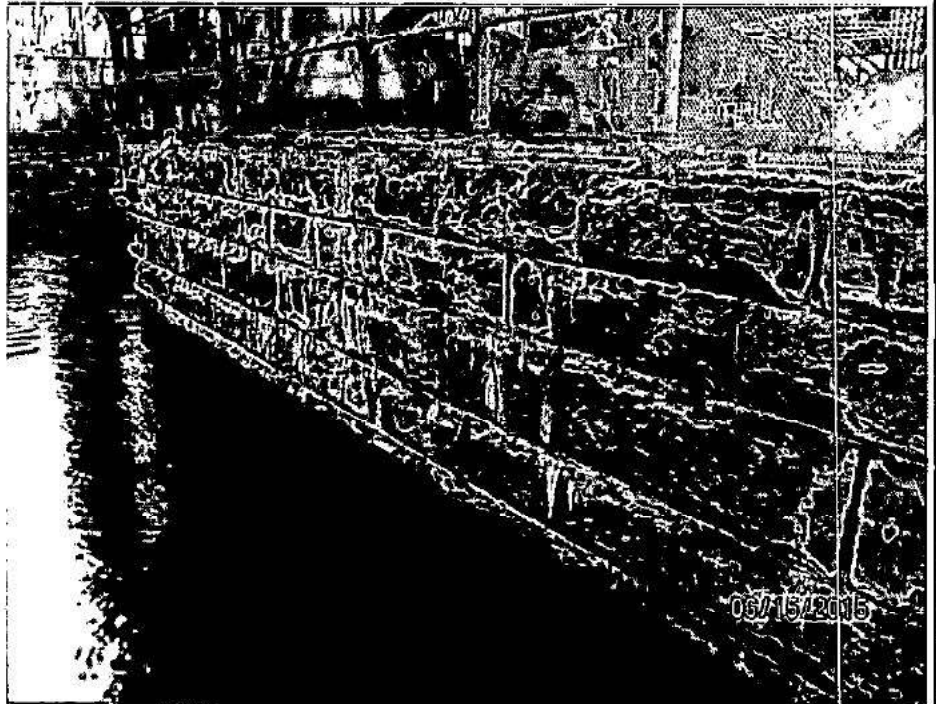


Photo No.: B16

Location: New York Tower, north leg at Level 0, southwest interior column, looking southwest.

Description: Missing handhole cover for the electrical conduit.

(Routine Repair 11)

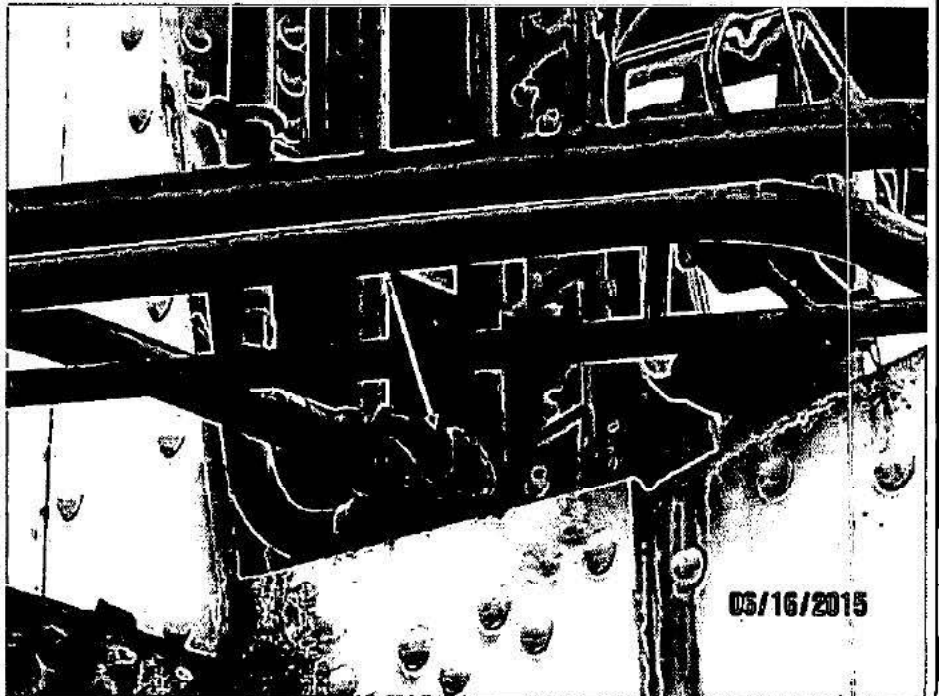


Photo No.: B17

Location: New York Tower, Level 3, Panel Point 11E, looking northeast.

Description: Heavy debris accumulation on horizontal connection plate.

(Routine Repair 12)

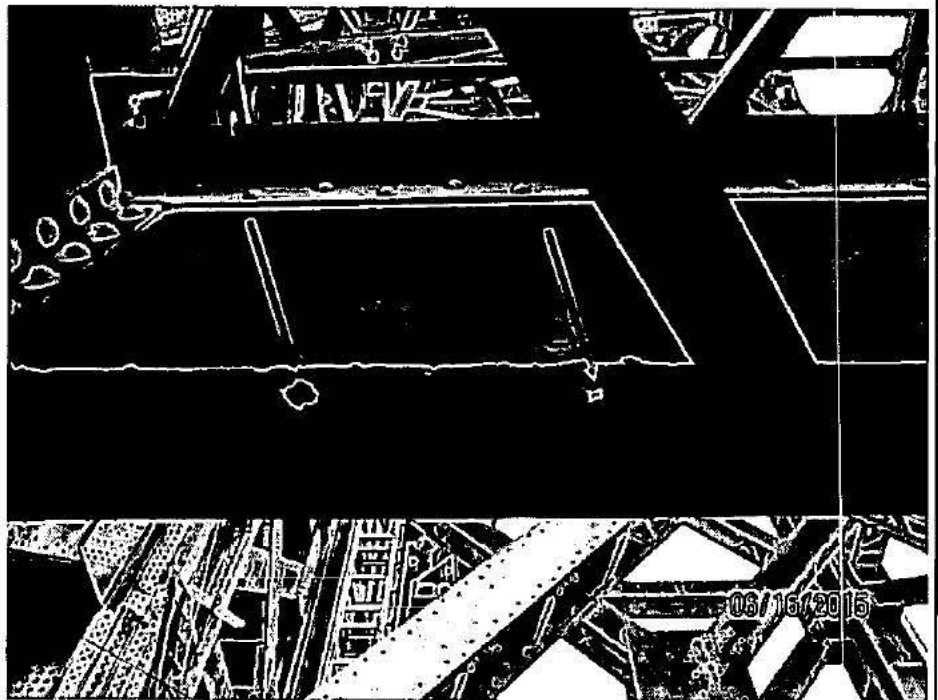


Photo No.: B18

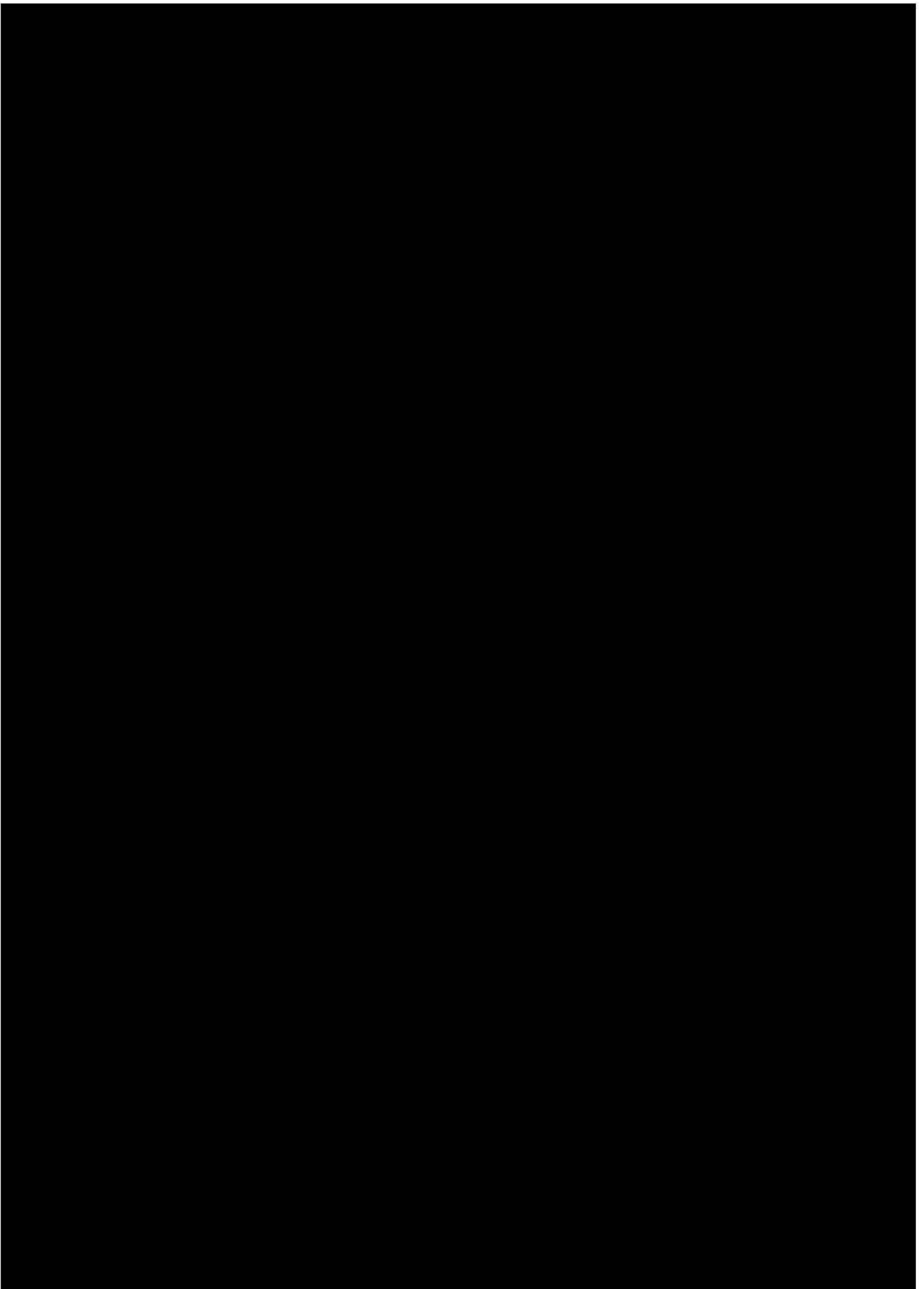
Location: New York Tower, south leg at Level 0, southwest exterior column to northwest exterior column, looking up and east.

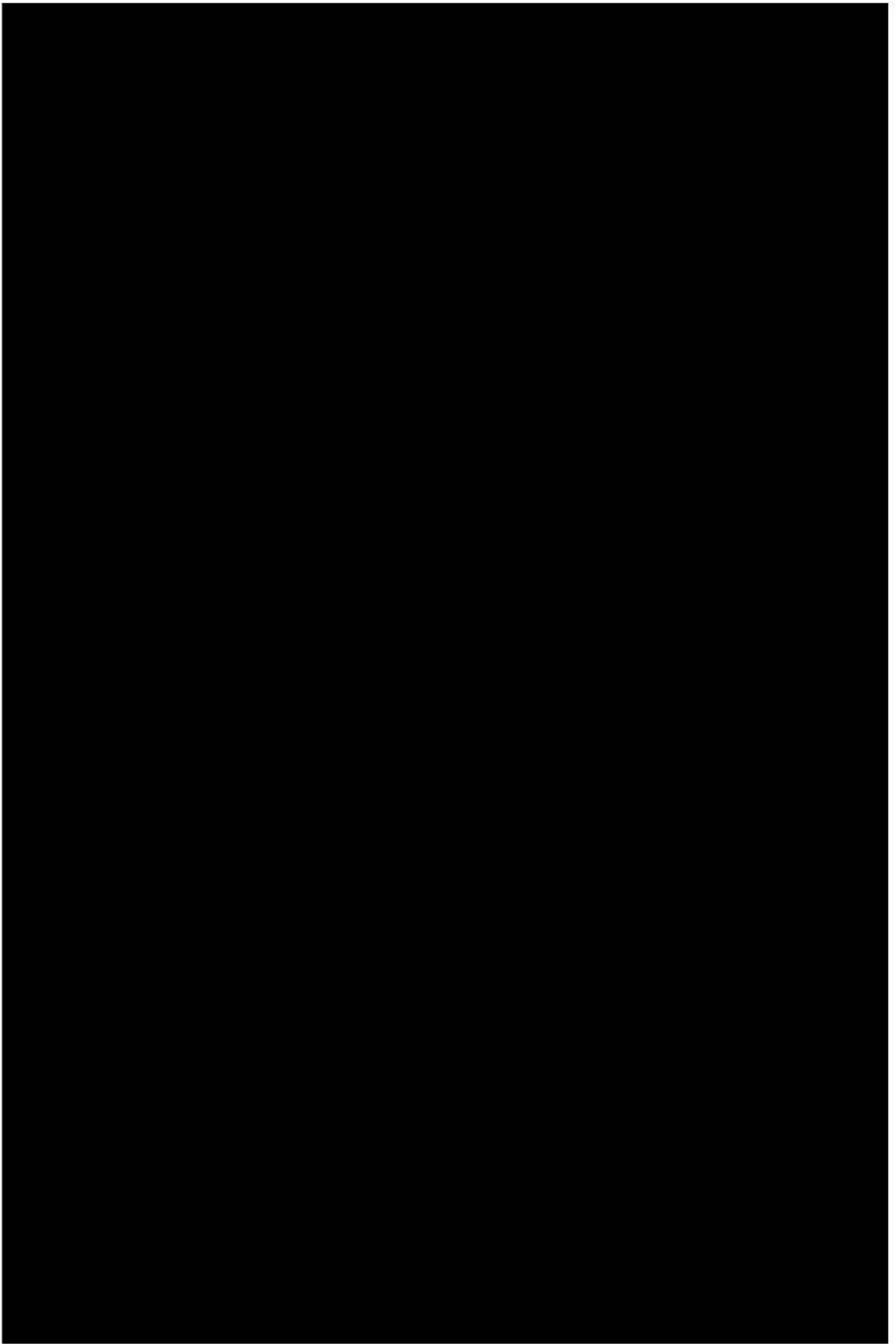
Description: Two 2" diameter holes in the lower flange of the horizontal bracing member between the exterior columns.

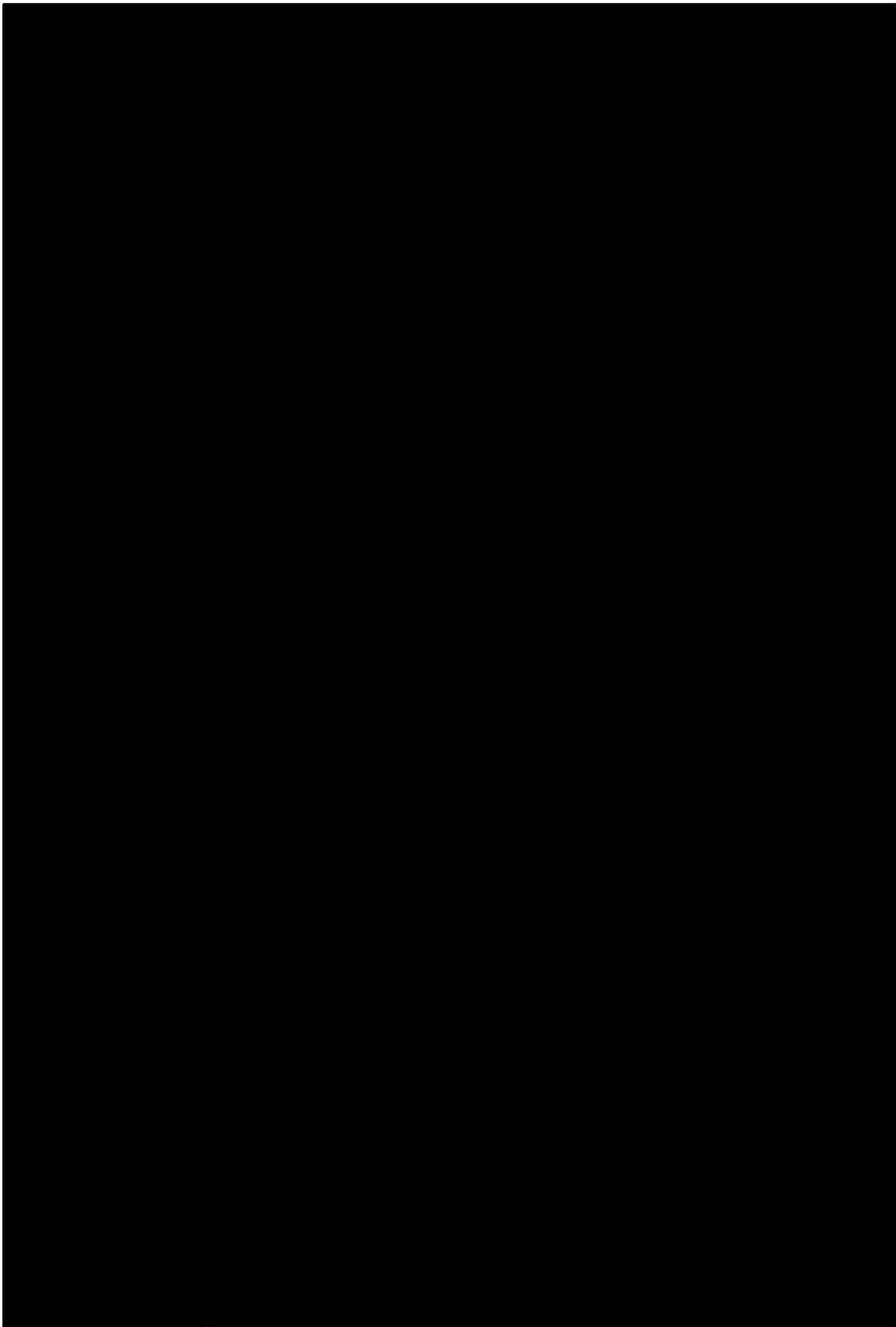
(Routine Repair 13)

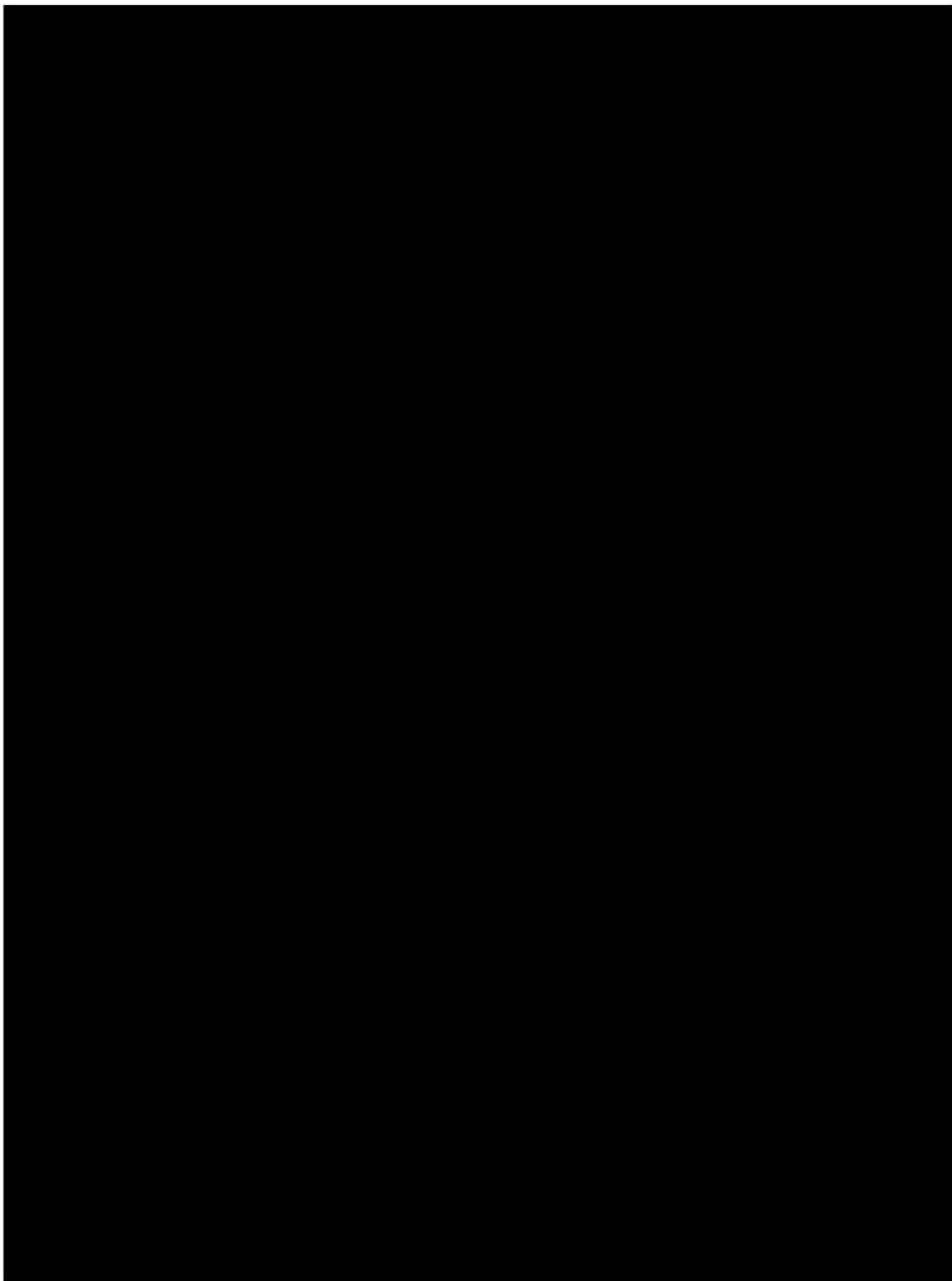


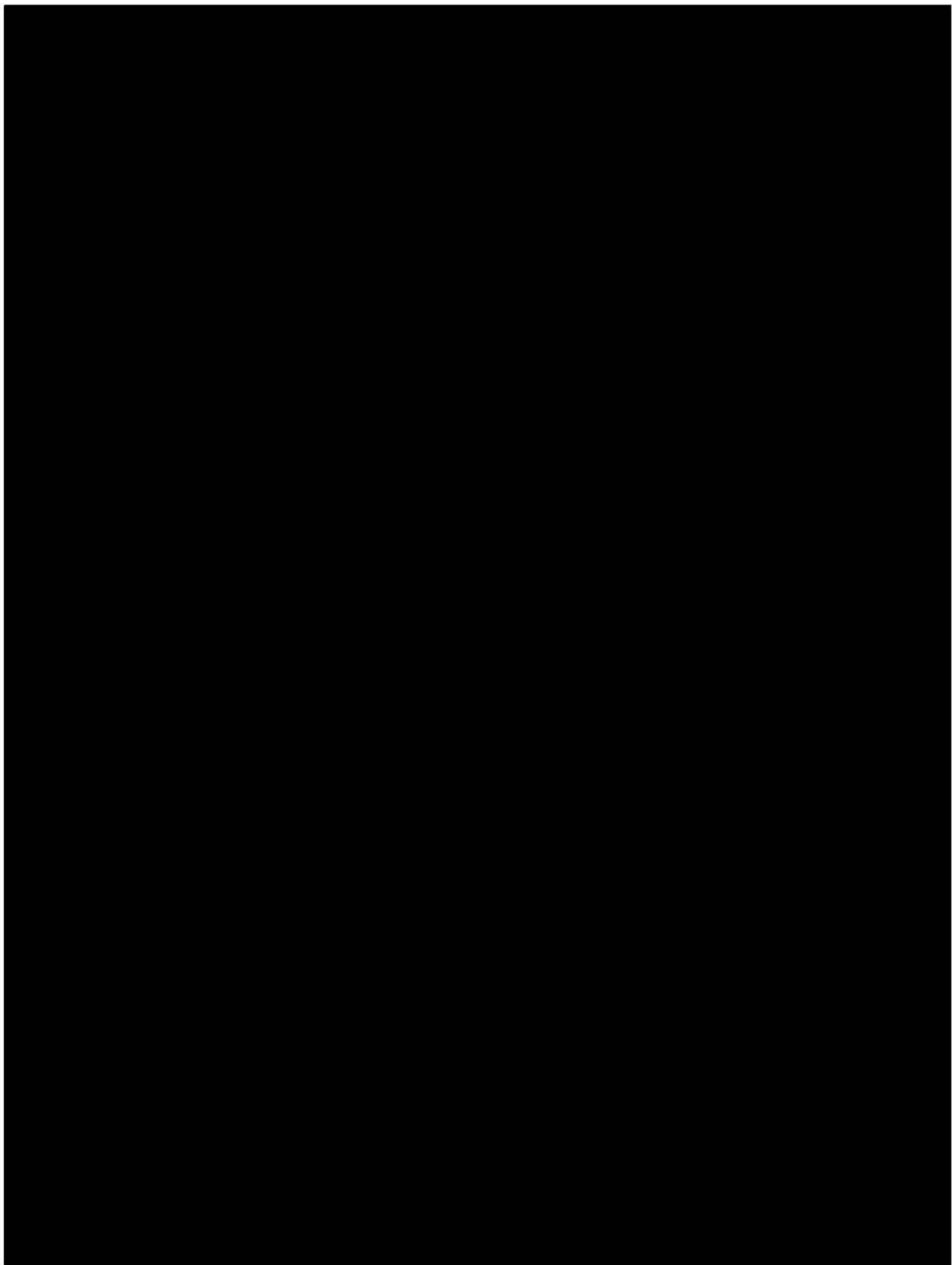
C. Cables and Suspender Ropes

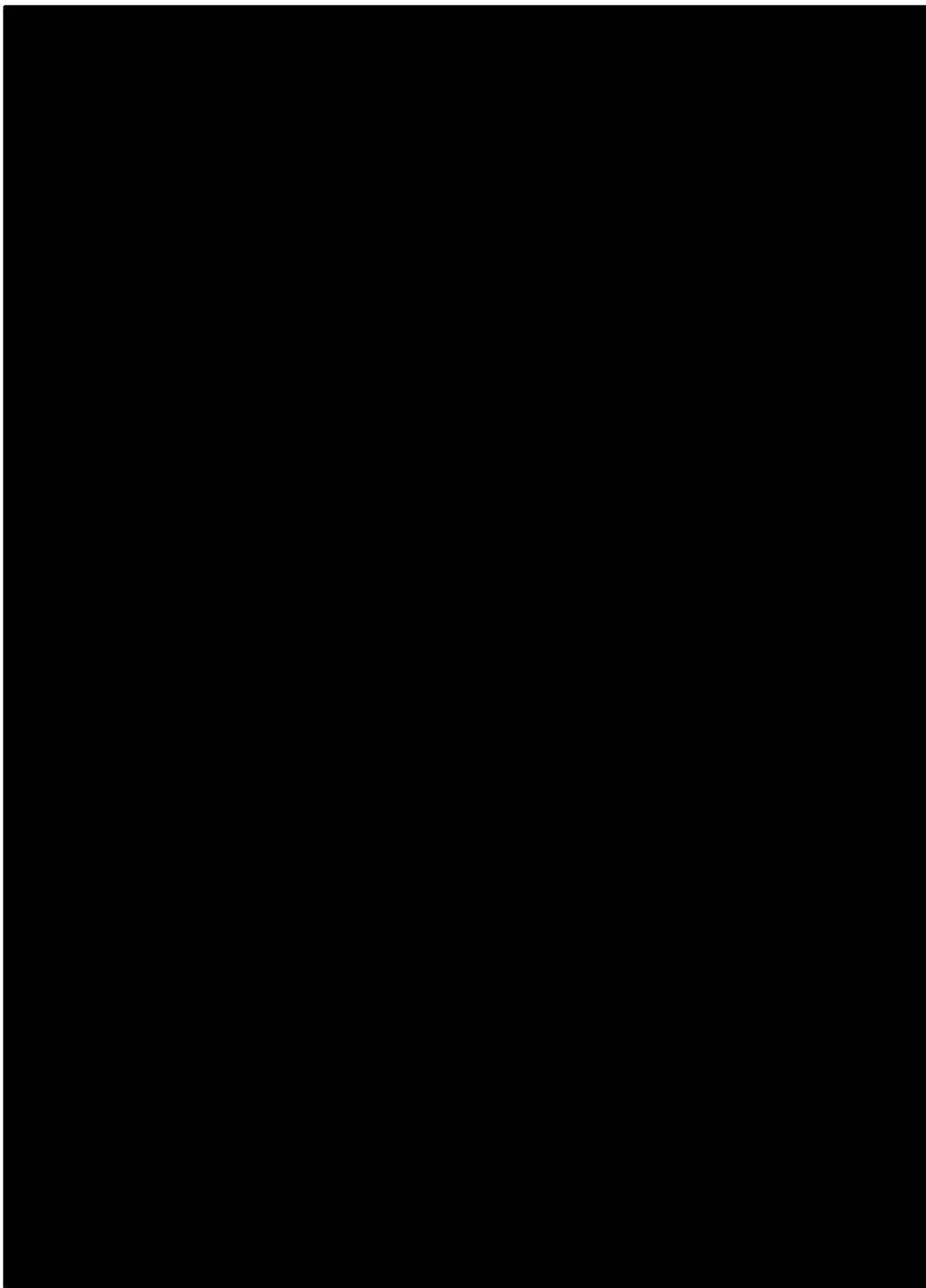


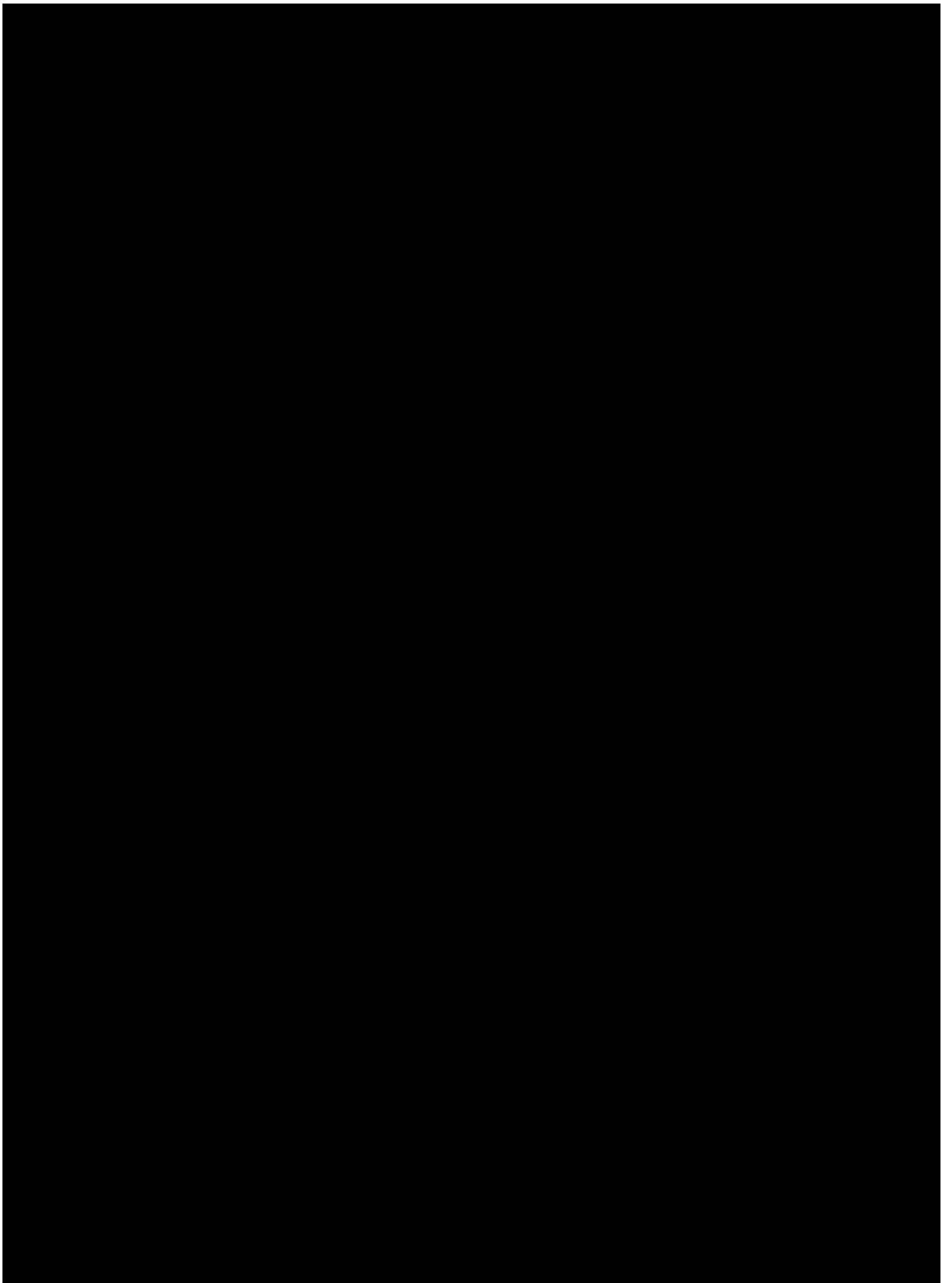


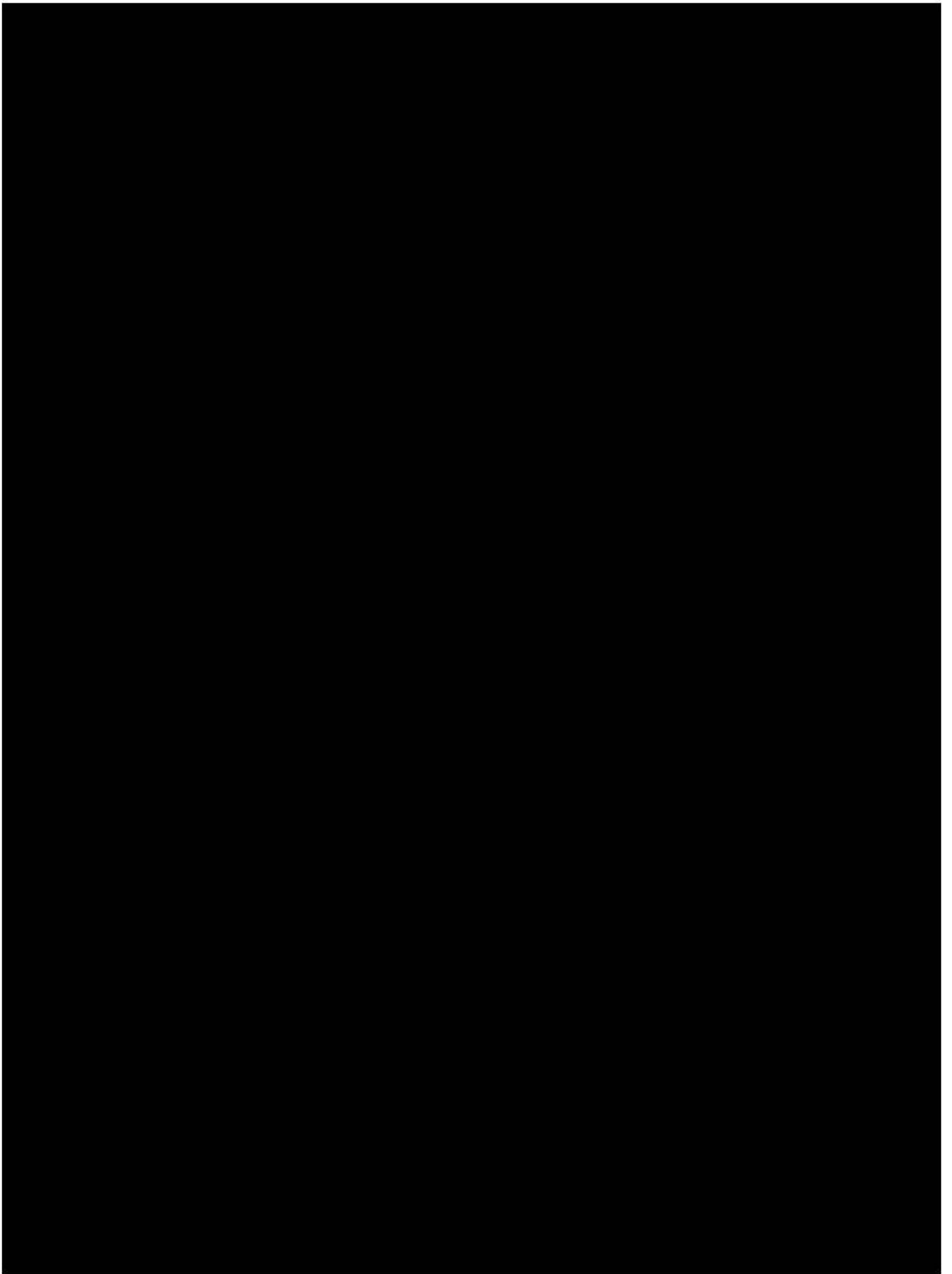


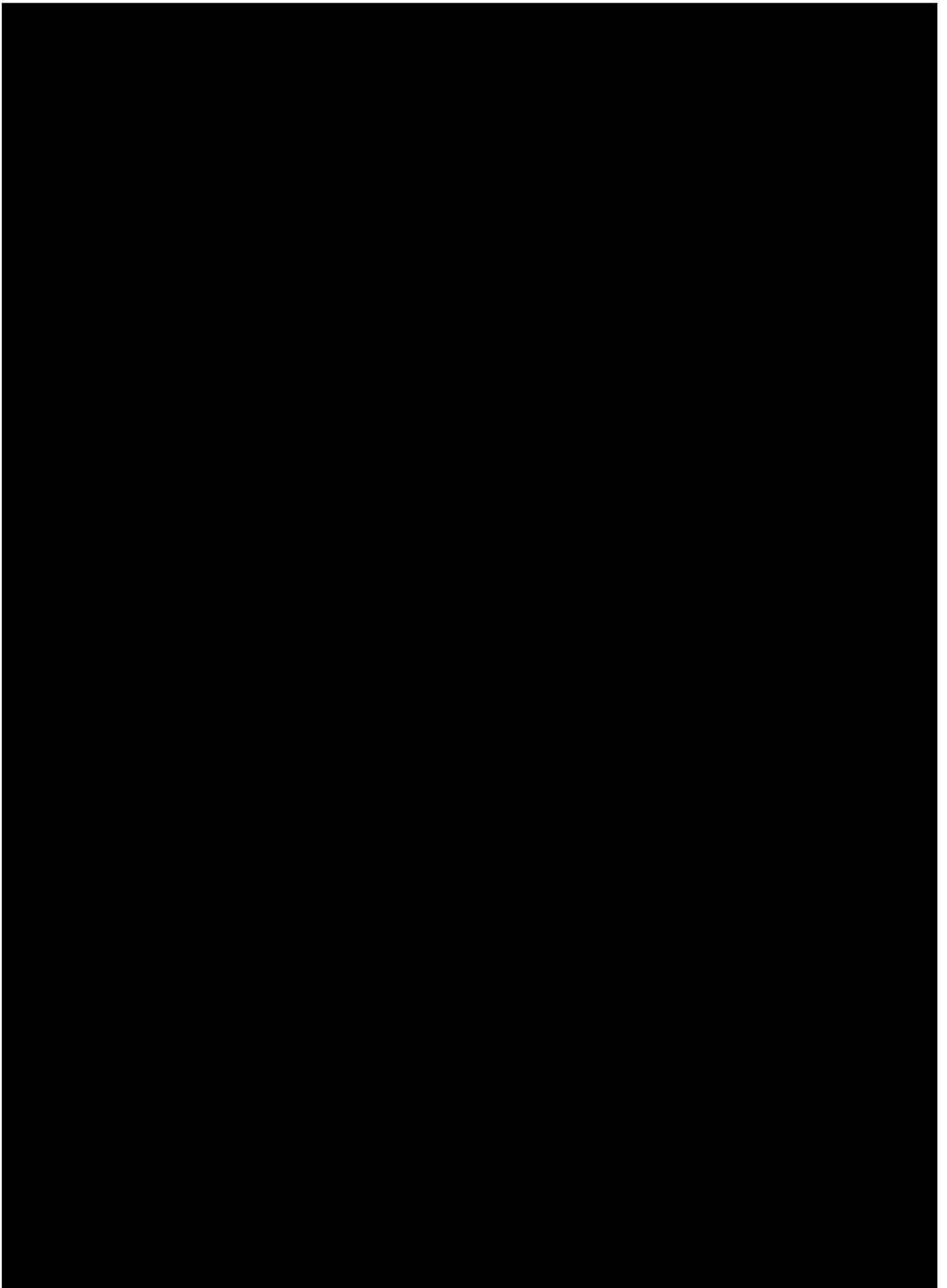












Cables – Suspended Main Span and Side Spans

The four main cables were found to be in overall good condition.

The main cables inside the towers are in good condition with the exception of one loose (possibly broken) wire at the bottom of Cable C in the New York Tower at the east side of the saddle. The saddle rooms of both towers are in good condition. The rubber cable sleeves at the face of tower walls within all tower saddle rooms are typically torn, cracked or deteriorated at the cable entry points (see Photo C18). There are several guide block bolts and nuts on the saddles of Cables C and D that are missing within the saddle room of the New York Tower (see Photo C19).

The cable wrapping and cable bands are in good condition. The caulking of the joints adjacent to the cable bands is in generally good condition with only isolated locations of debonding and light rust staining. The light standards that are flared at the top to accommodate the installation of blast protection on the main cables are in good condition.

All cable bridge light fixtures are in good condition.

The messenger utility cable alongside the cable bridge light fixtures provides service to the light fixtures. It is attached by bulldog clamps to steel brackets, which are then bolted to the cable band. On Cable A, Panel Points 35E, 23E, 21E and 18E, there are missing, loose or worn bolts/nuts that connect the messenger utility cable bracket to the main cable band (see Photo C8).

There is a hanging wire between PP 10W-11W on Cable A and at PP 10W on Cable B (see Photo C22).

All sixteen security fan fences along the main cables were also inspected. The security fan fences are generally in fair condition. On Cable D, one connection bolt between the circular angle and the fence was found to be missing between Panel Points 1W-2W. Other isolated loose connection bolts were found between the circular clamping angles and between the circular angle and fence. They are located in the following table:

LOOSE BOLTS ON SECURITY FAN FENCES			
PANEL POINT	CABLE	# BOLTS LOOSE BETWEEN CIRCULAR CLAMPING ANGLES	# BOLTS LOOSE BETWEEN CIRCULAR ANGLE AND FENCE
1E-2E	A	0	0
1E-2E	B	0	0
1E-2E	C	(2 OF 4)	0
1E-2E	D	(1 OF 4)	0
40E	A	0	0
40E	B	0	0
40E	C	(2 OF 4)	0
40E	D	0	(1 OF 8)
40W	A	0	0
40W	B	0	0
40W	C	(1 OF 4)	0
40W	D	0	0
1W-2W	A	0	0
1W-2W	B	0	0
1W-2W	C	0	0
1W-2W	D	0	(1 OF 8) MISSING

Cables – Safety Ropes

The safety ropes are in overall good condition.

The paint on the safety ropes throughout the main span is in good condition. Inside the New York Anchorage, minor corrosion was noted on the safety ropes below the deck where the cables pass through the sidewalks.

All safety ropes are missing their protective rubber sleeve at the opening in the towers. The north safety rope of Cable C is rubbing against the steel walls as it enters the saddle room at both sides of the New York Tower (see Photo C21). Additionally, the north safety rope of Cable B was found to be rubbing against the steel walls as it enters west wall of the saddle room at the New Jersey Tower.

At Cable D, Panel Point 15E, one broken wire remains at the hand rope adjacent to the stanchion bracket, however, no corrosion is evident.

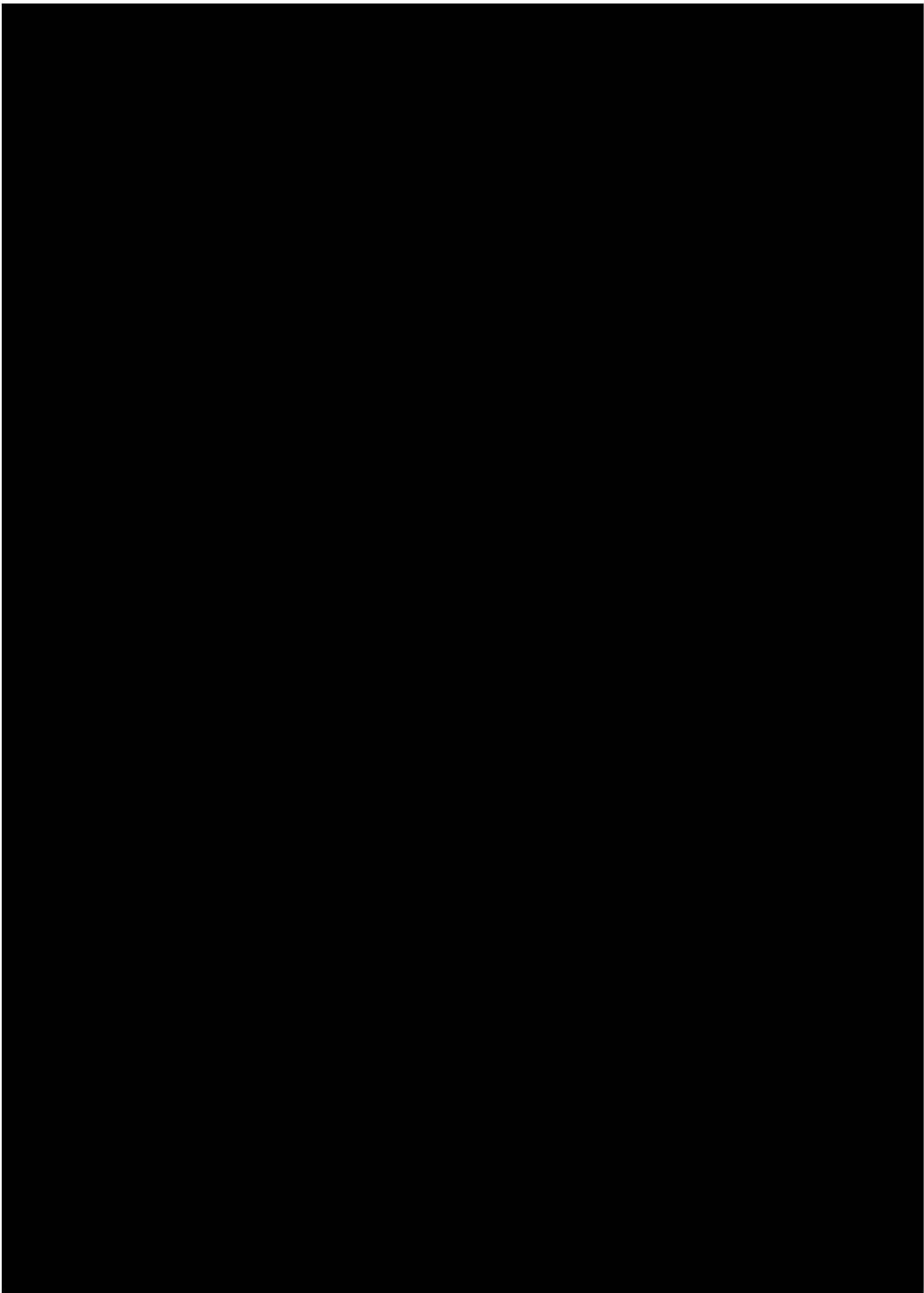
At Cable C, Panel Point 2E, the stanchion bar is corroded and disconnected from the bolt connection to the cable band (see Photo C9).

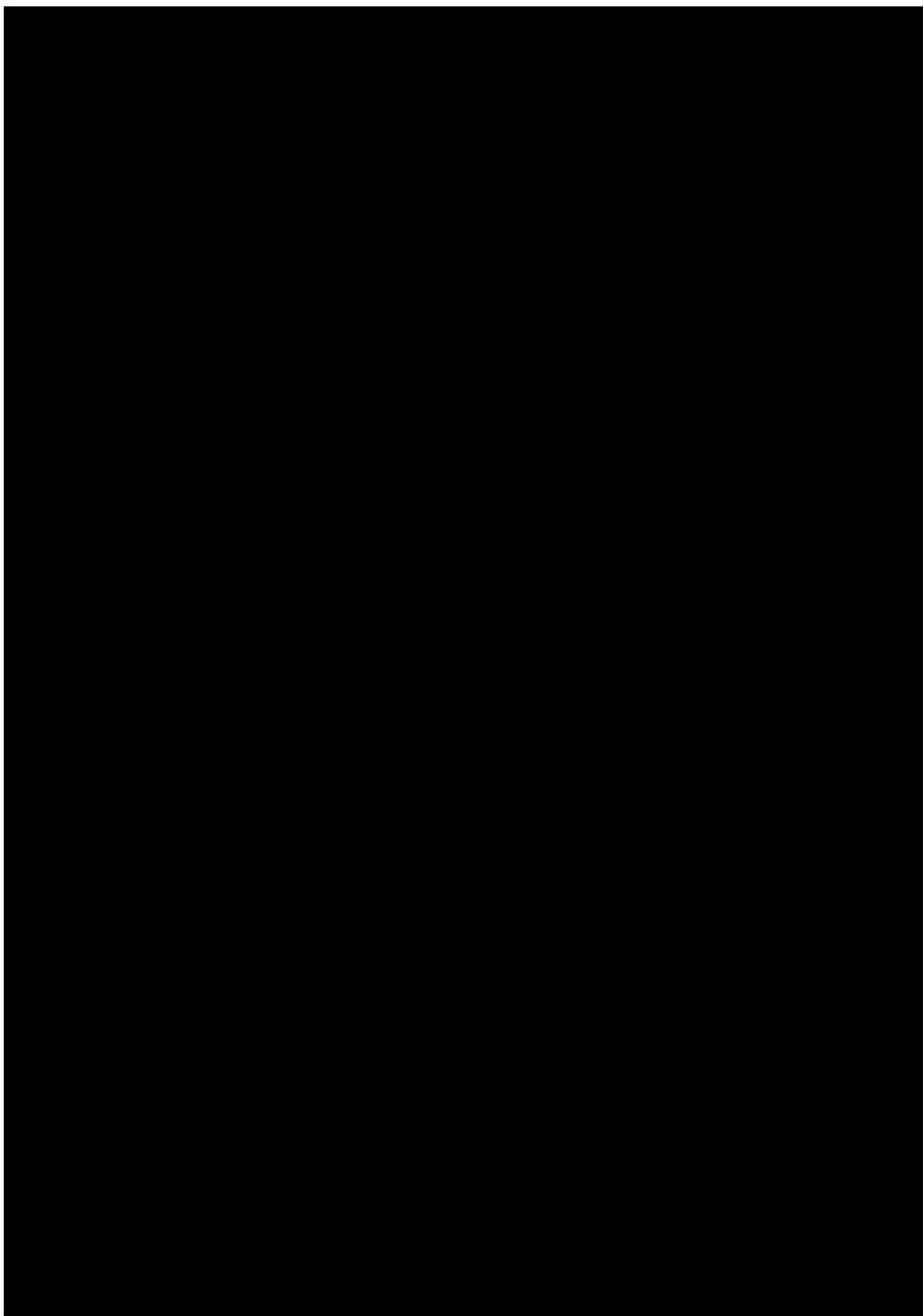
The bolts connecting the stanchions to the cable bands are not fully engaged at various locations (see Photo C7). The following table denotes these locations:

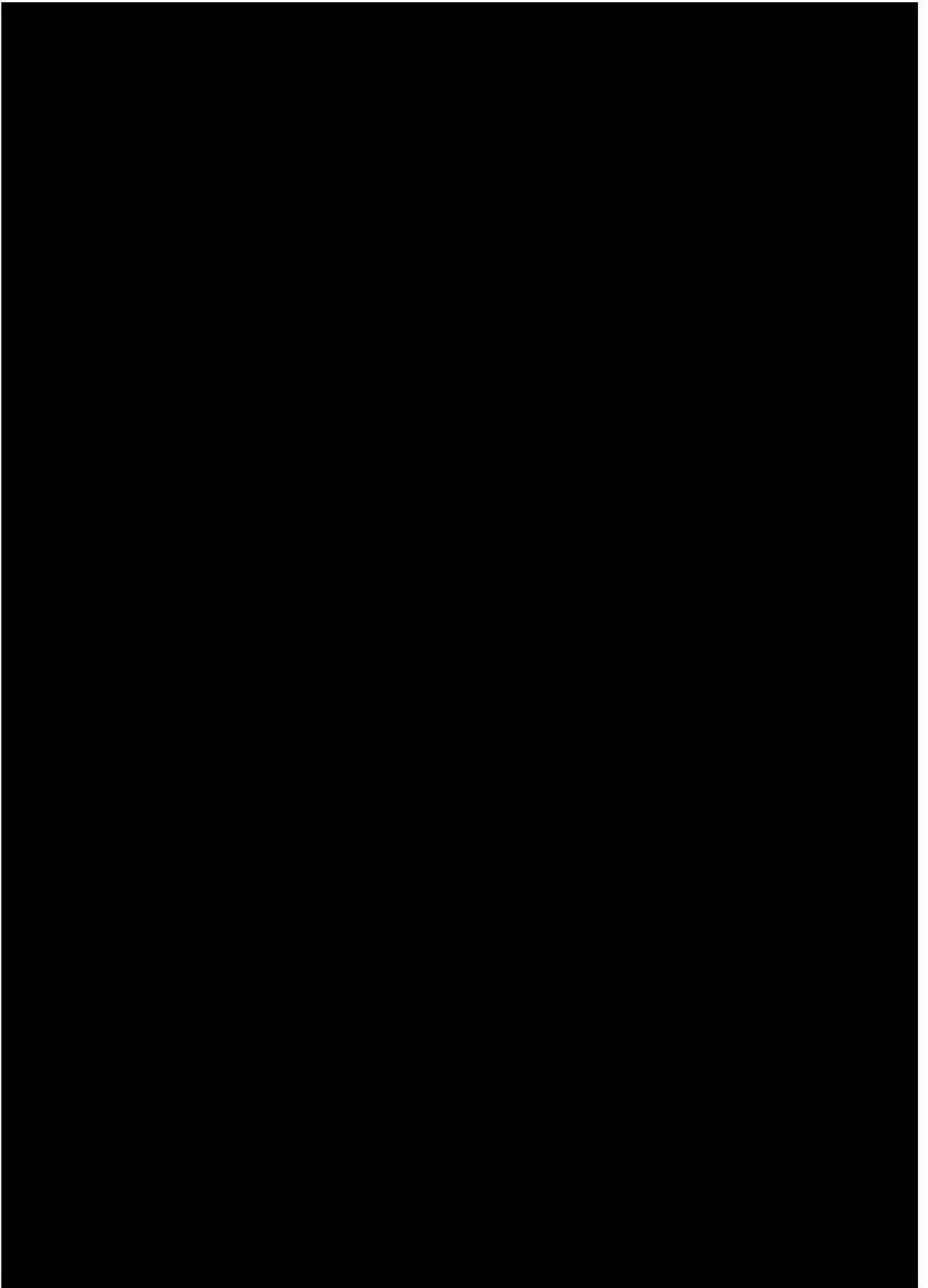
List of Not Fully Engaged Bolts Connecting the Stanchions to the Cable Bands							
CABLE A		CABLE B		CABLE C		CABLE D	
PANEL POINT	SAFETY ROPE	PANEL POINT	SAFETY ROPE	PANEL POINT	SAFETY ROPE	PANEL POINT	SAFETY ROPE
1E	BOTH	1E	BOTH	1E	BOTH	1E	BOTH
17E	BOTH	7E	SOUTH	2E	NORTH	15E	NORTH
27E	NORTH	9E	SOUTH	5E	NORTH	38W	SOUTH
30E	SOUTH	15E	SOUTH	6E	NORTH	33W	NORTH
32E	NORTH	16E	SOUTH	10E	NORTH	27W	SOUTH
34E	NORTH						
36E	SOUTH						
38E	NORTH						
38W	NORTH						
24W	NORTH						
22W	SOUTH						
16W	SOUTH						

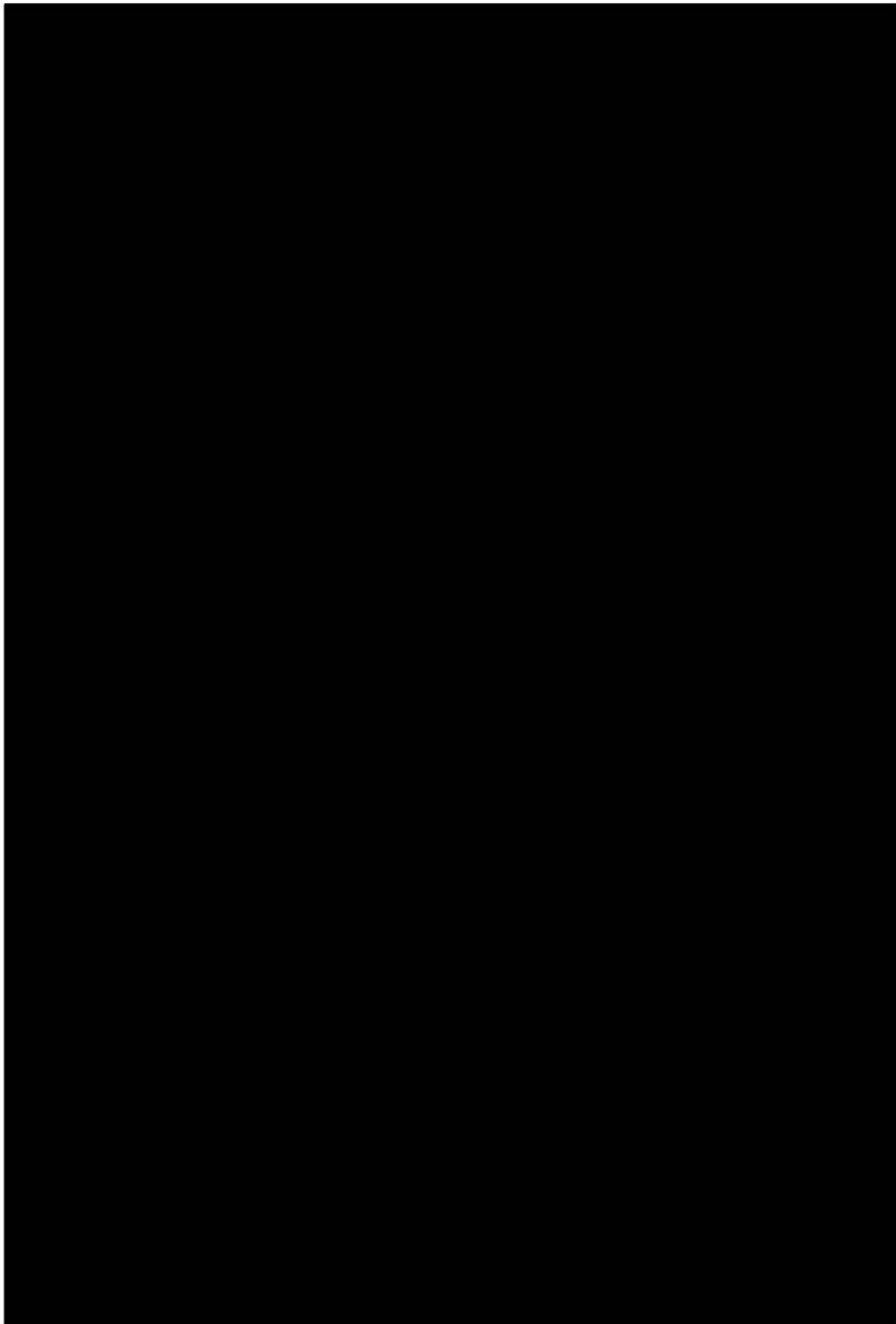
At numerous locations, the stanchion bars remain slightly bent (see Photos C9 and C20). The following table denotes the locations of the slightly bent stanchion bars:

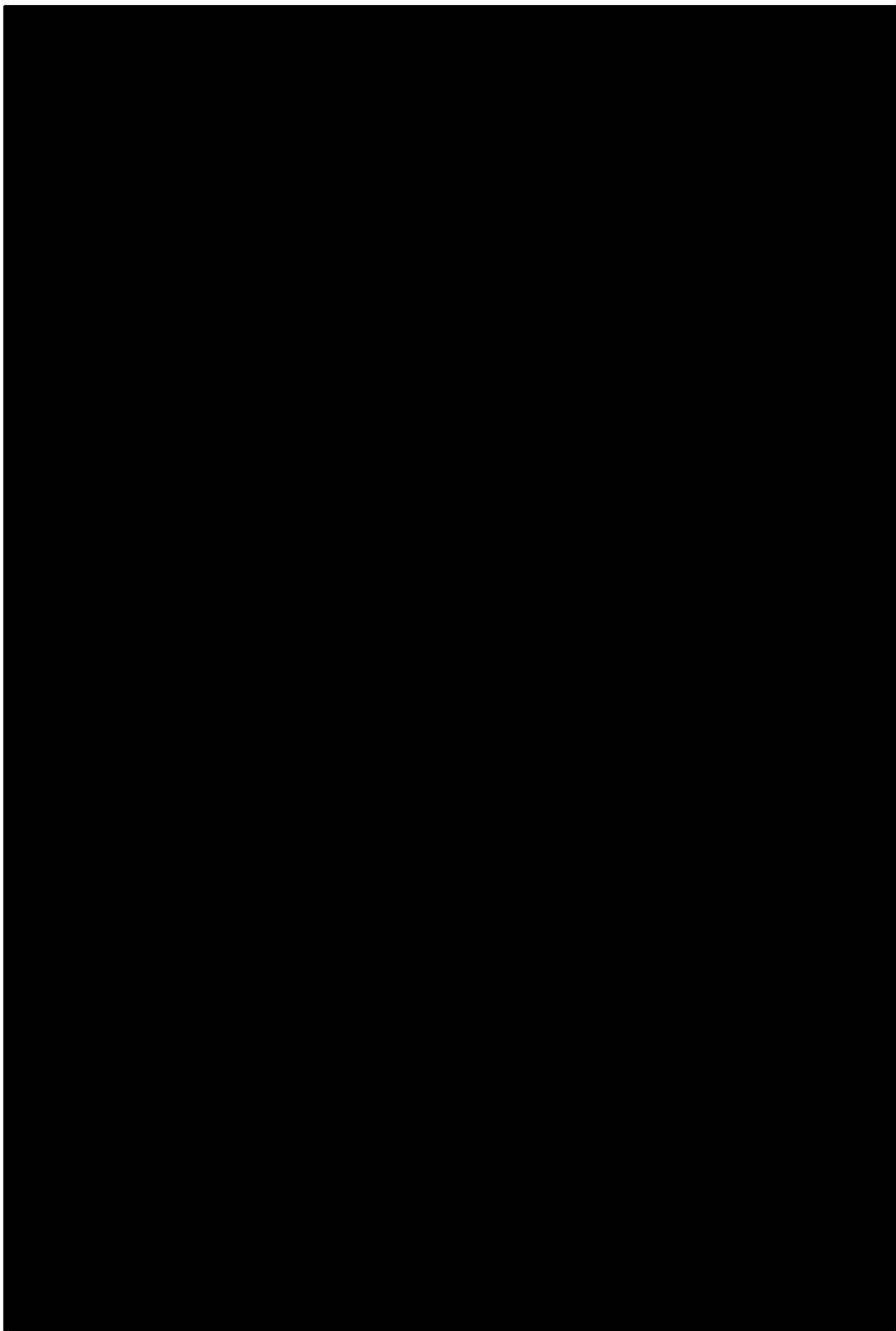
Locations of Slightly Bent Stanchion Bars							
CABLE A		CABLE B		CABLE C		CABLE D	
PANEL POINT	SAFETY ROPE	PANEL POINT	SAFETY ROPE	PANEL POINT	SAFETY ROPE	PANEL POINT	SAFETY ROPE
31E	SOUTH	1E	BOTH	1E	BOTH	2E	SOUTH
32E	SOUTH	5E	SOUTH	2E	NORTH	17E	SOUTH
33E	SOUTH	21E	SOUTH	4E	BOTH	22E	NORTH
37E	SOUTH	30E	SOUTH	9E	NORTH	25E	NORTH
39E	SOUTH	31E	SOUTH	19E	NORTH	28E	BOTH
38W	SOUTH	34E	SOUTH	37E	NORTH	29E	BOTH
37W	BOTH	37E	SOUTH	40E	SOUTH	30E	NORTH
36W	SOUTH	38E	SOUTH	40W	SOUTH	31E	NORTH
32W	SOUTH	40E	BOTH	32W	SOUTH	32E	NORTH
28W	NORTH	41E	BOTH	31W	NORTH	36E	NORTH
27W	NORTH	41W	BOTH	30W	SOUTH	39E	SOUTH
20W	NORTH	36W	SOUTH	29W	SOUTH	36W	NORTH
18W	NORTH	33W	SOUTH	27W	NORTH	37W	NORTH
16W	NORTH	26W	SOUTH	22W	BOTH	35W	NORTH
		20W	SOUTH	21W	NORTH	34W	SOUTH
		19W	SOUTH	20W	NORTH	32W	BOTH
				18W	NORTH	29W	BOTH
				17W	NORTH	28W	BOTH
						26W	NORTH
						21W	NORTH

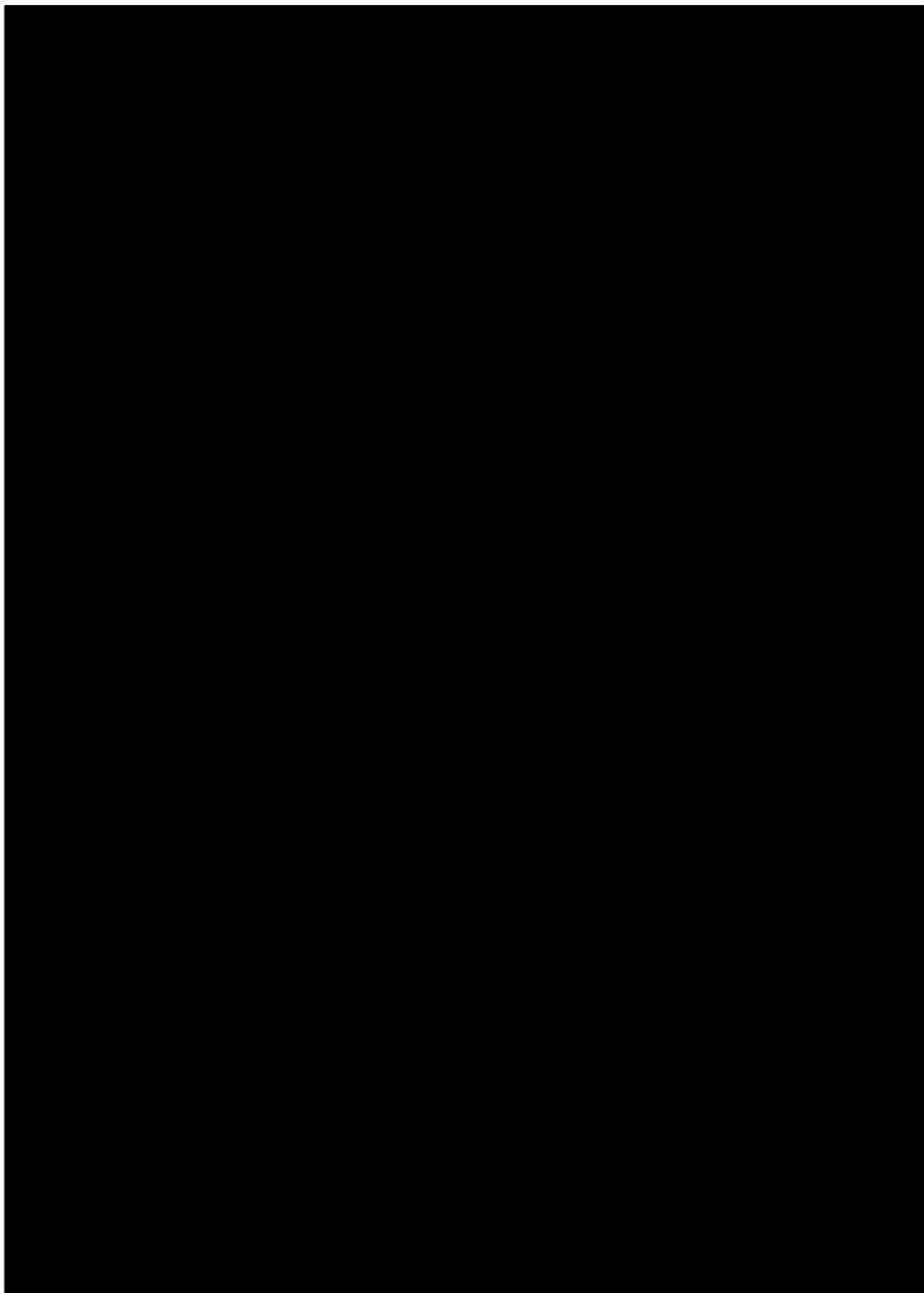


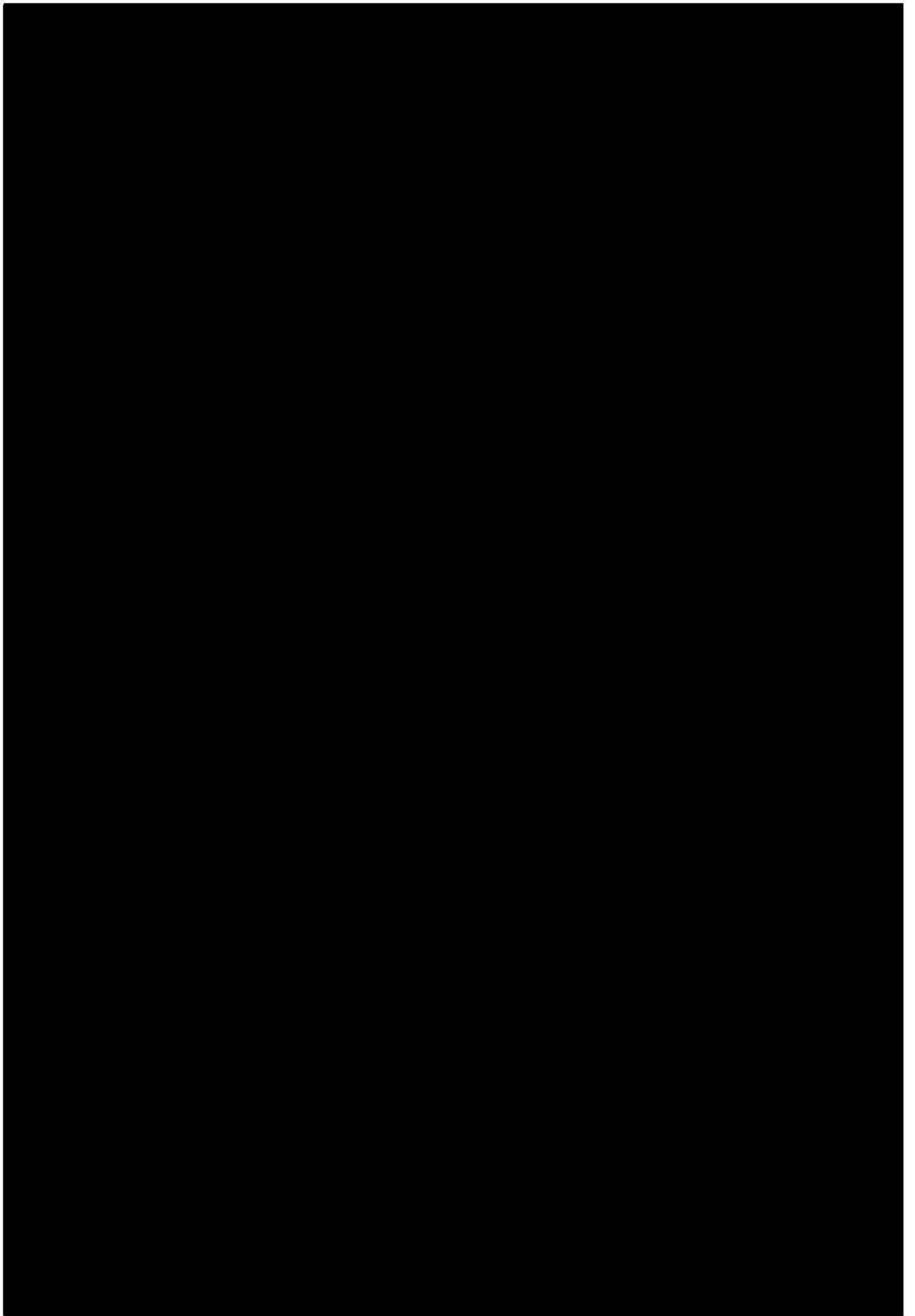


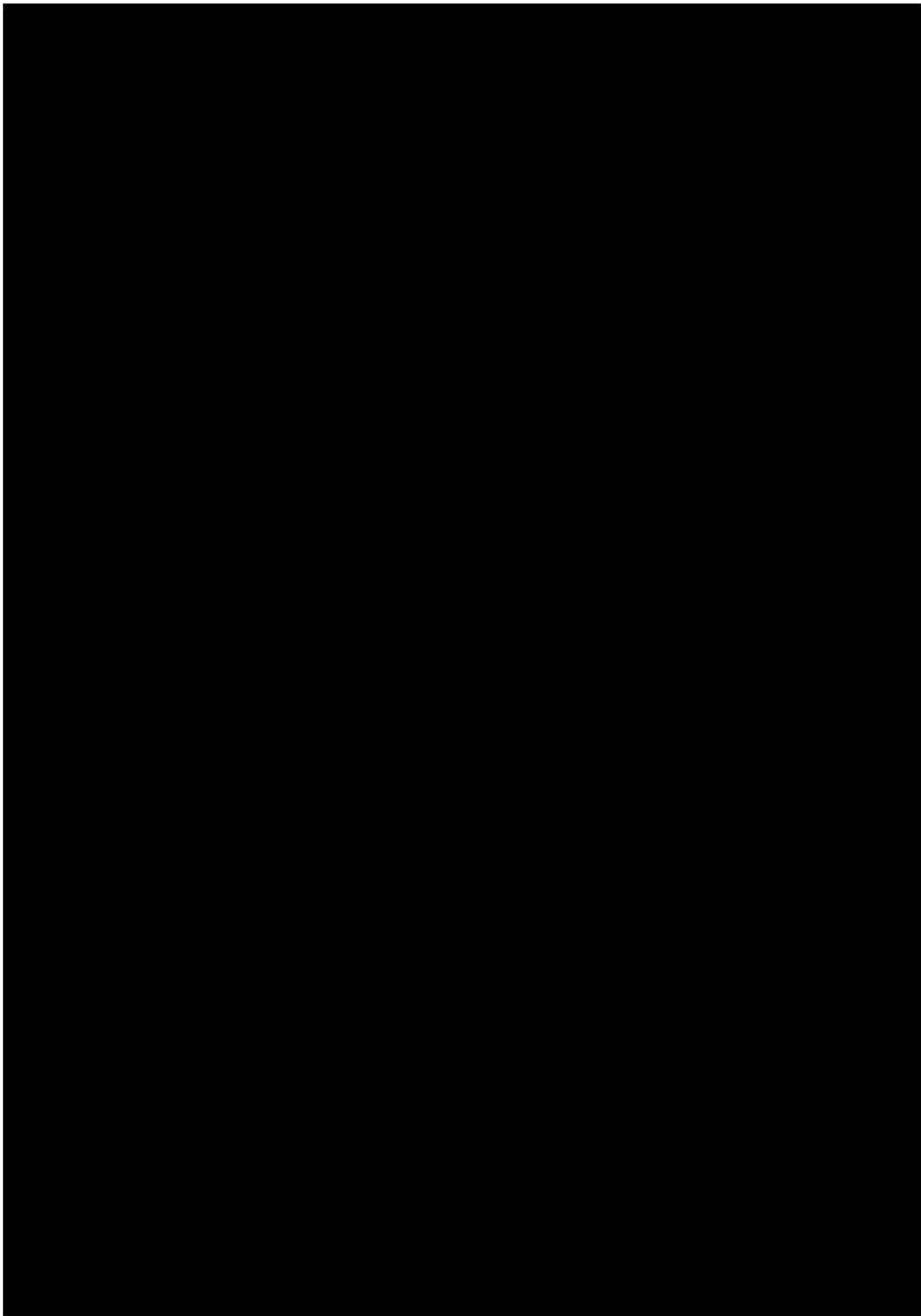


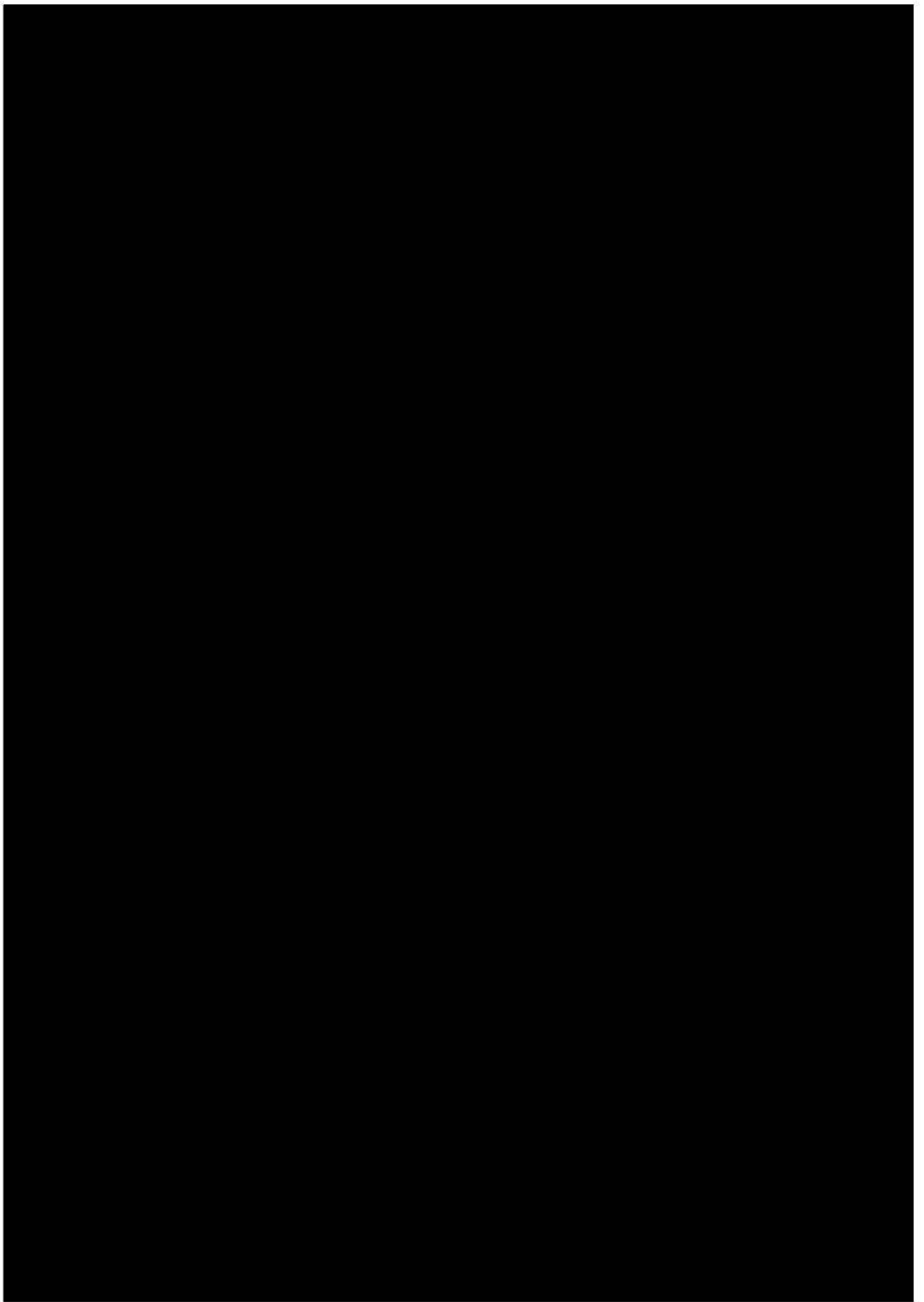


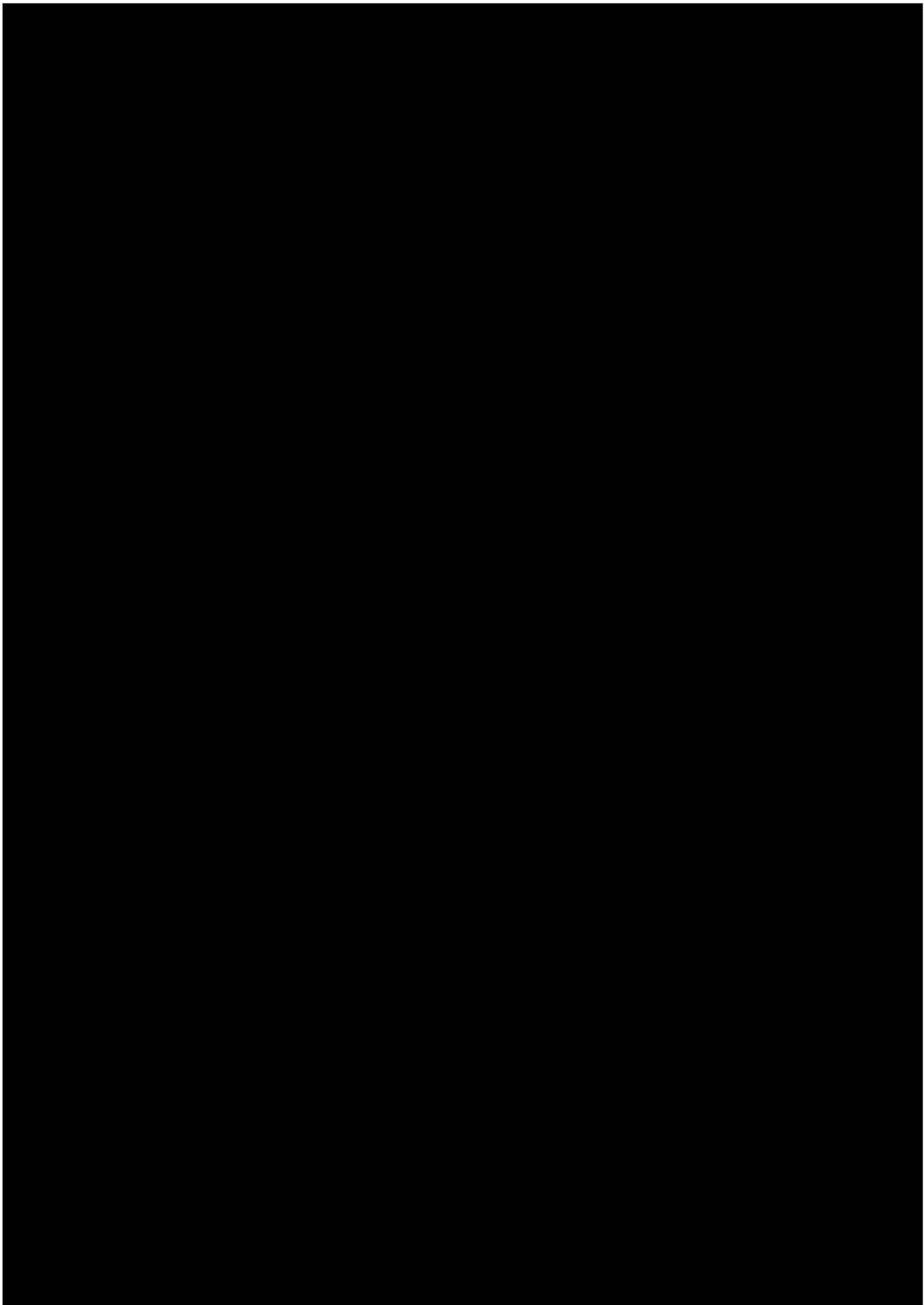


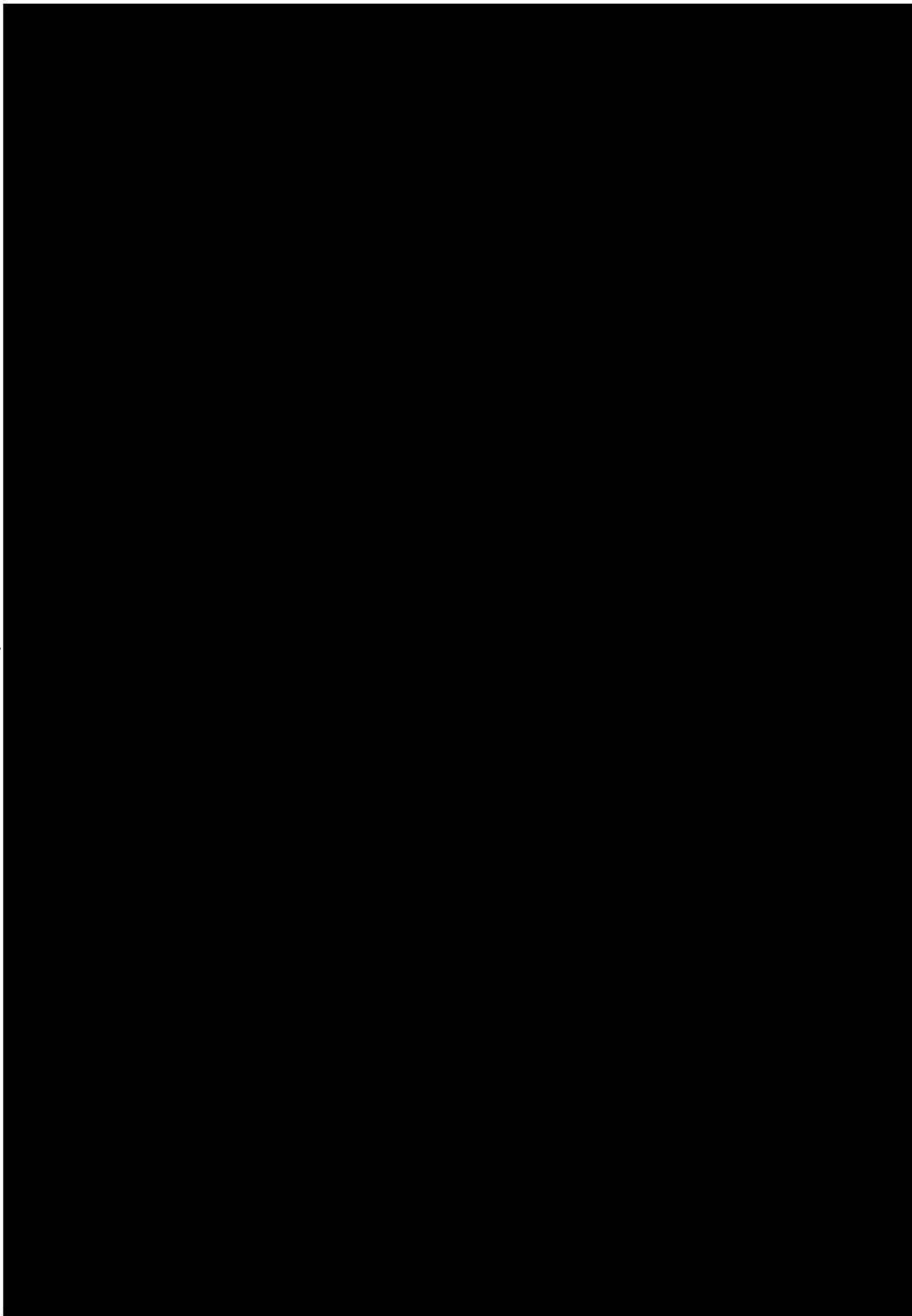


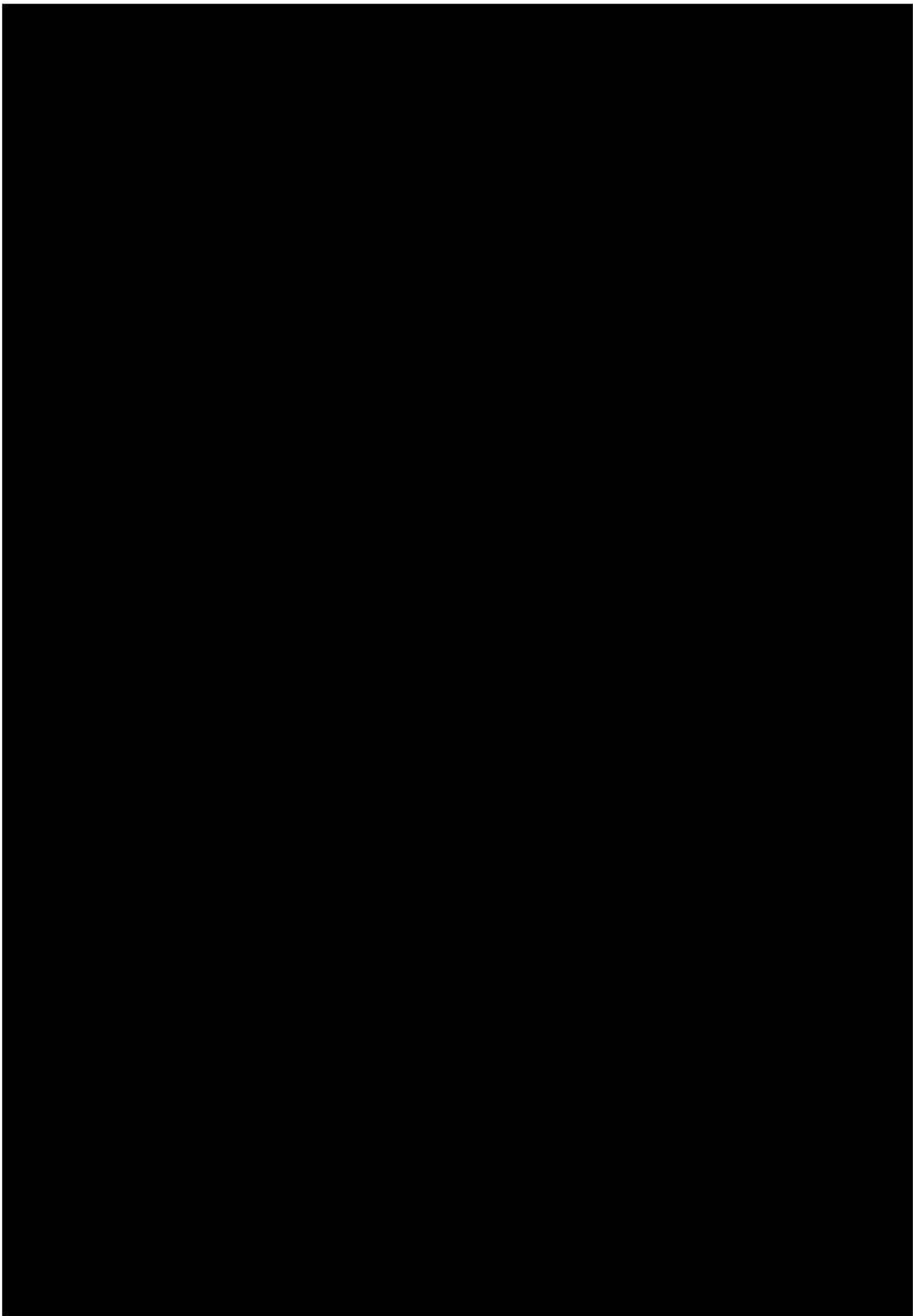


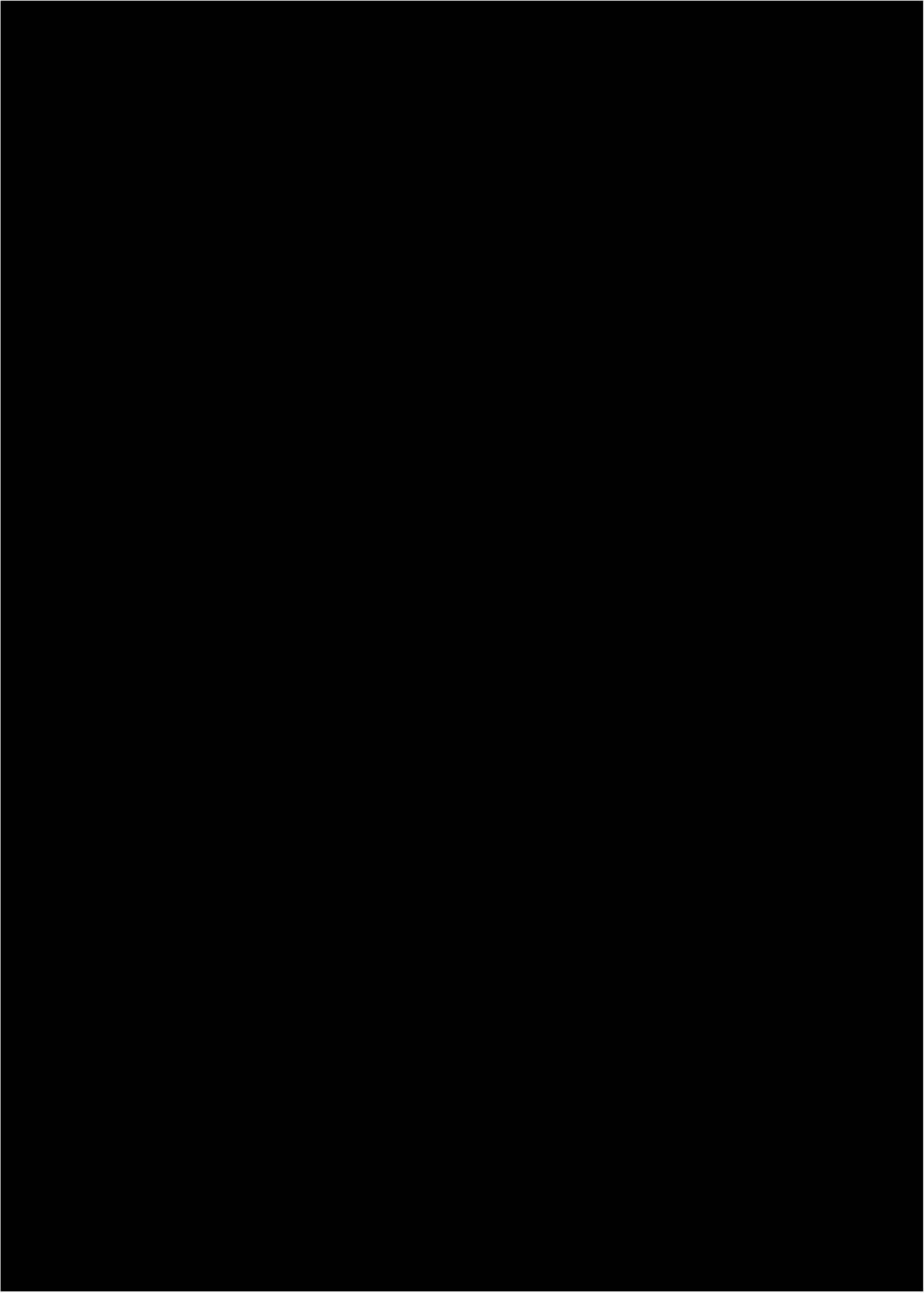












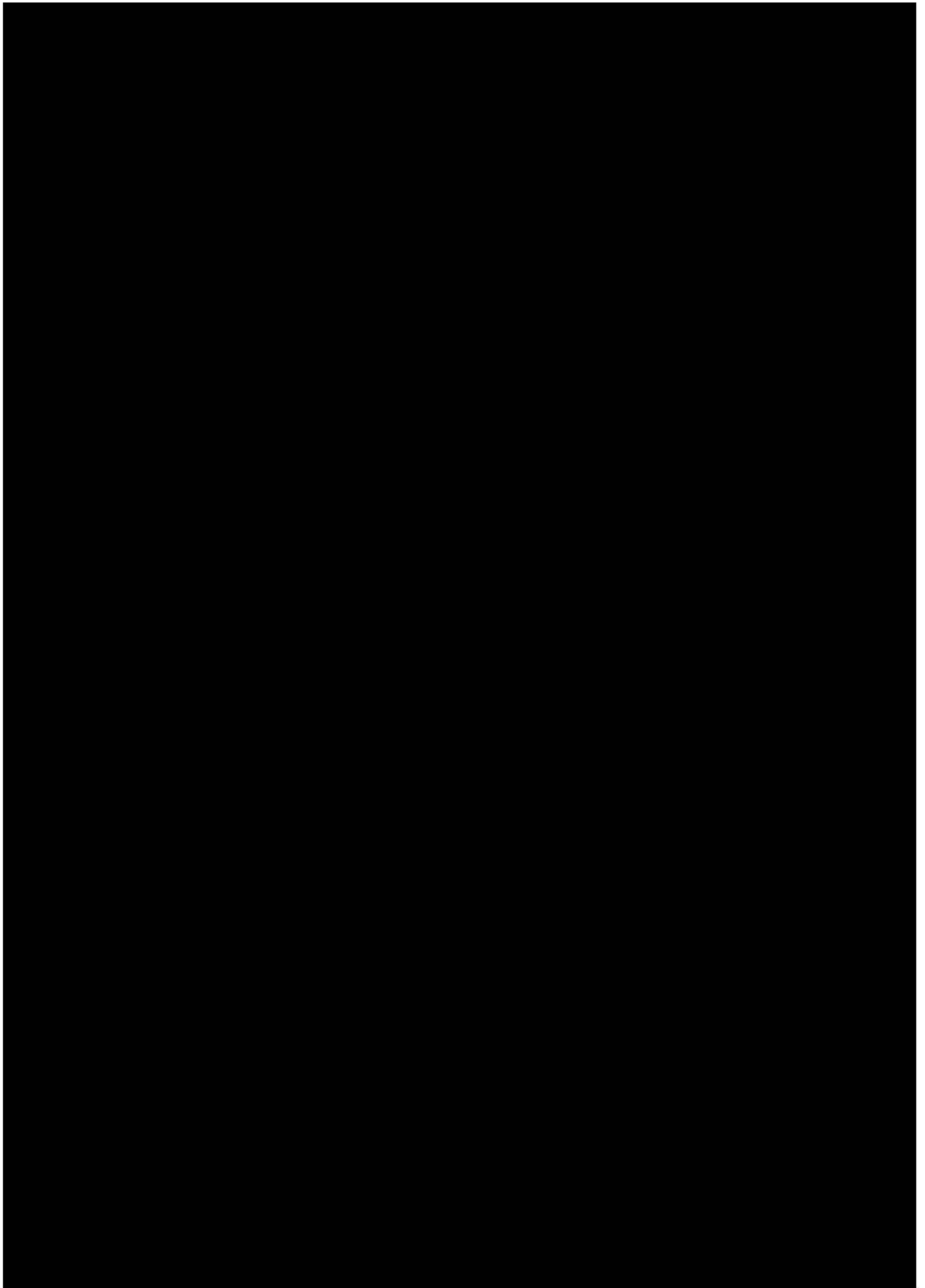


Photo No.: C1

Location: New York Anchorage, west face of Capbeam 4 over Cable B, looking southeast.

Description: Water leakage through upper level sidewalk joint over Cable B.

(PRIORITY REPAIR 1)



Photo No.: C2

Location: New York Anchorage, west of Capbeam 3 over Cable B, looking up and north.

Description: Leaking and corroded drainage pipe over saddle.

(PRIORITY REPAIR 2)

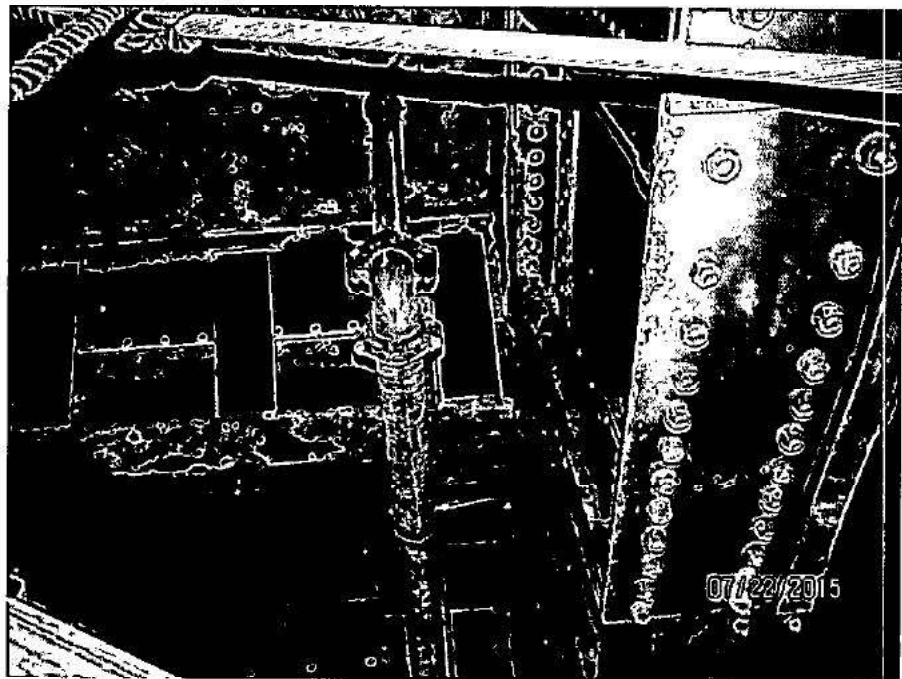


Photo No.: C3

Location: Panel Point 41E, Cable B, Suspenders Rope 5 and 6, looking west.

Description: Missing galvanized steel liner under the suspender collar.

(PRIORITY REPAIR 3)

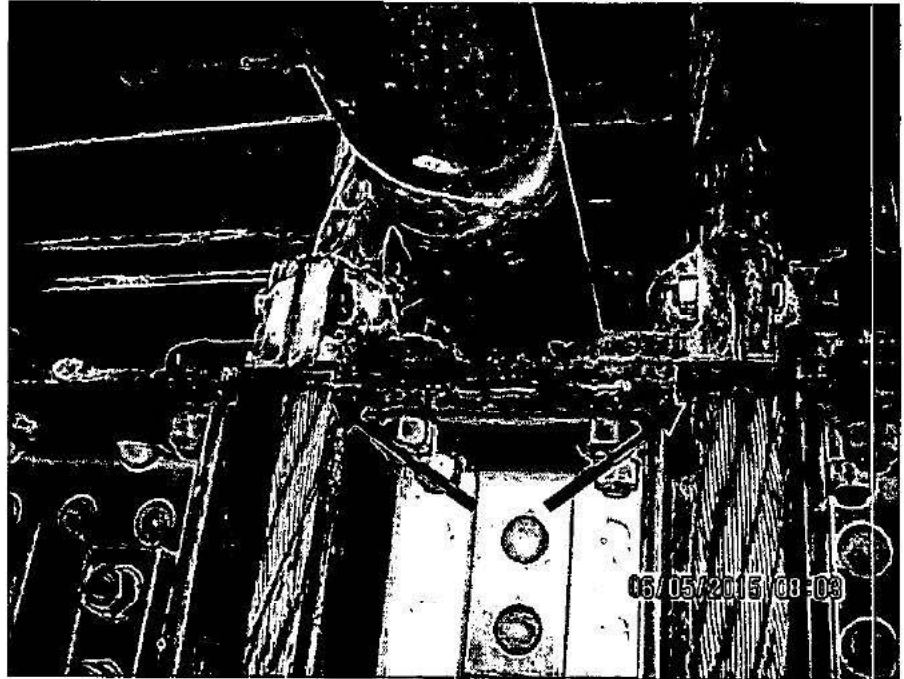


Photo No.: C4

Location: Panel Point 36E, Cable A, Suspenders Rope 1 and 2, looking west.

Description: Protective wrapping from previous painting contract left in place.

(PRIORITY REPAIR 4)

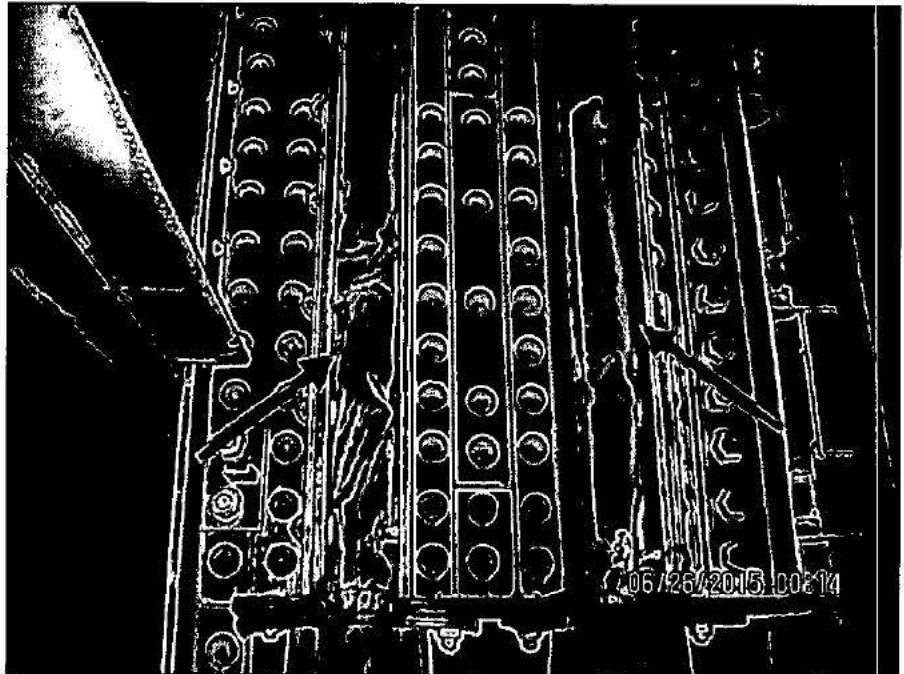


Photo No.: C5

Location: Panel Point 20E, Cable D, northeast Suspenders Rope 14, looking northwest.

Description: Missing collar at the top flange of the floorbeam.

(PRIORITY REPAIR 5)

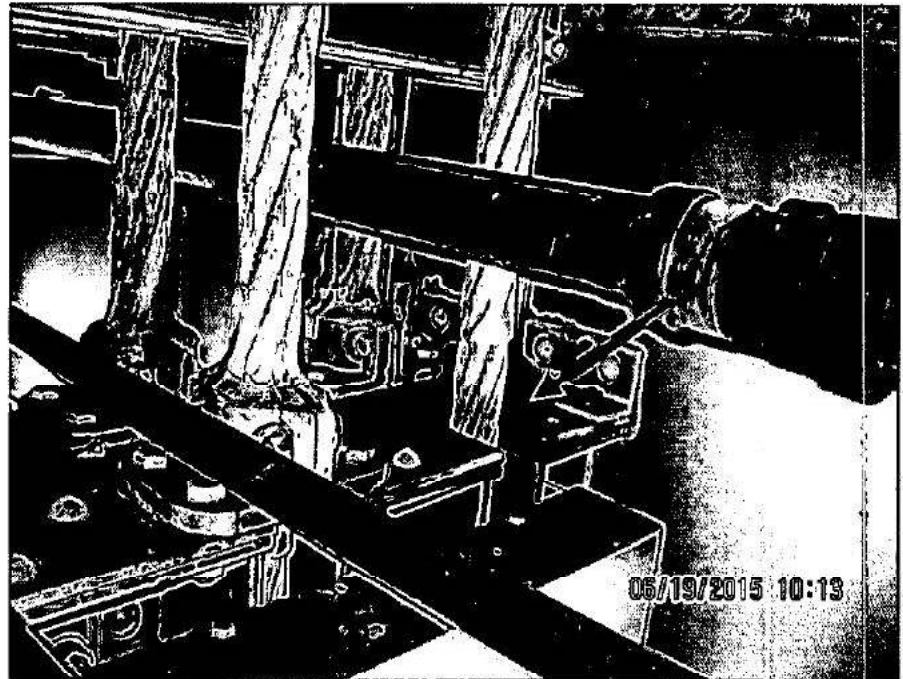
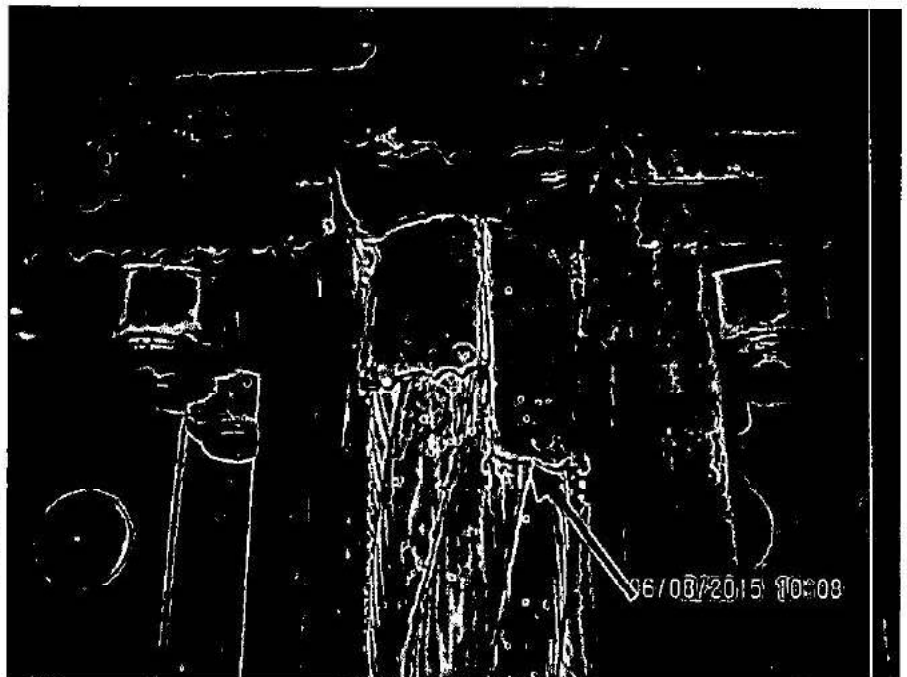


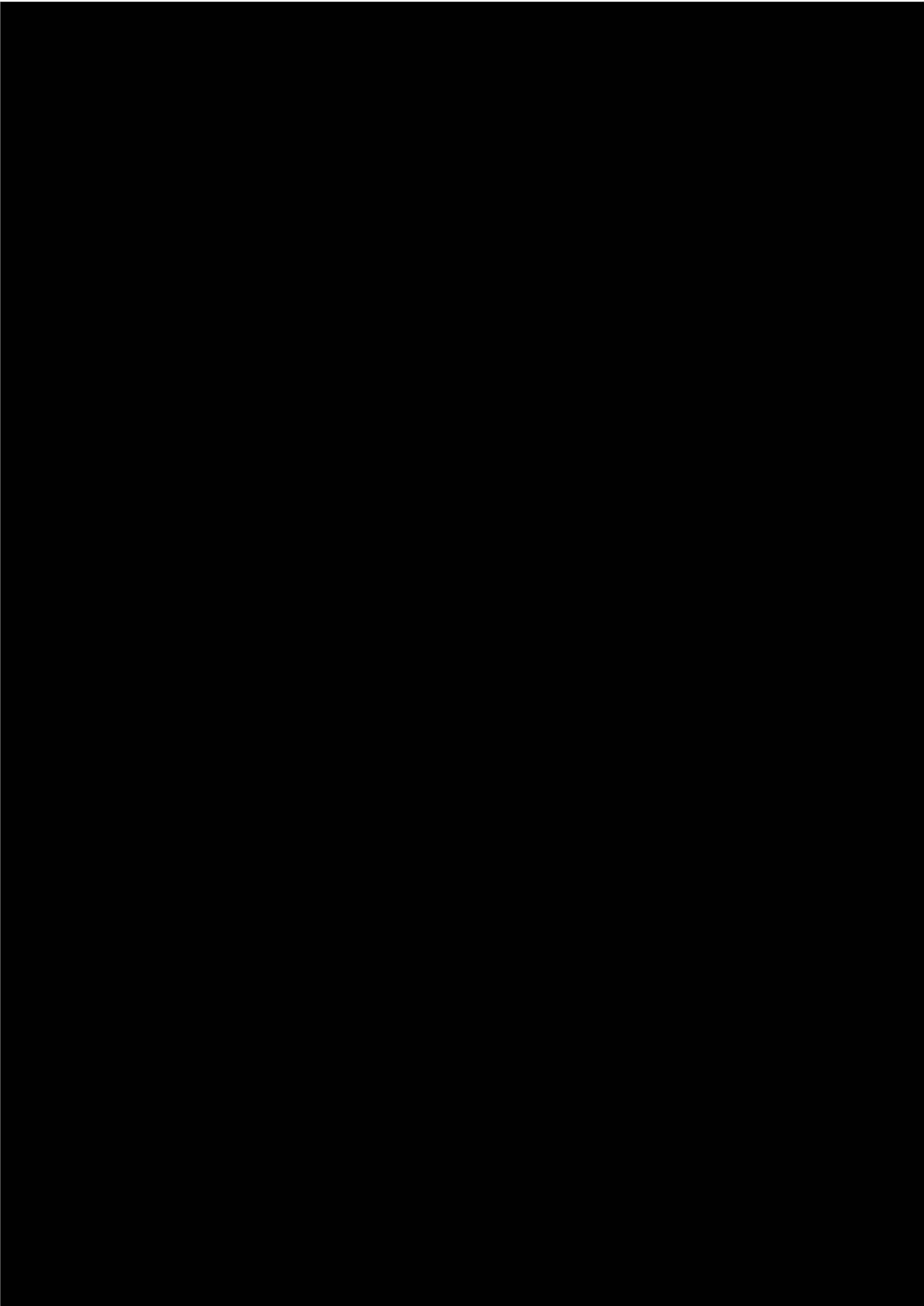
Photo No.: C6

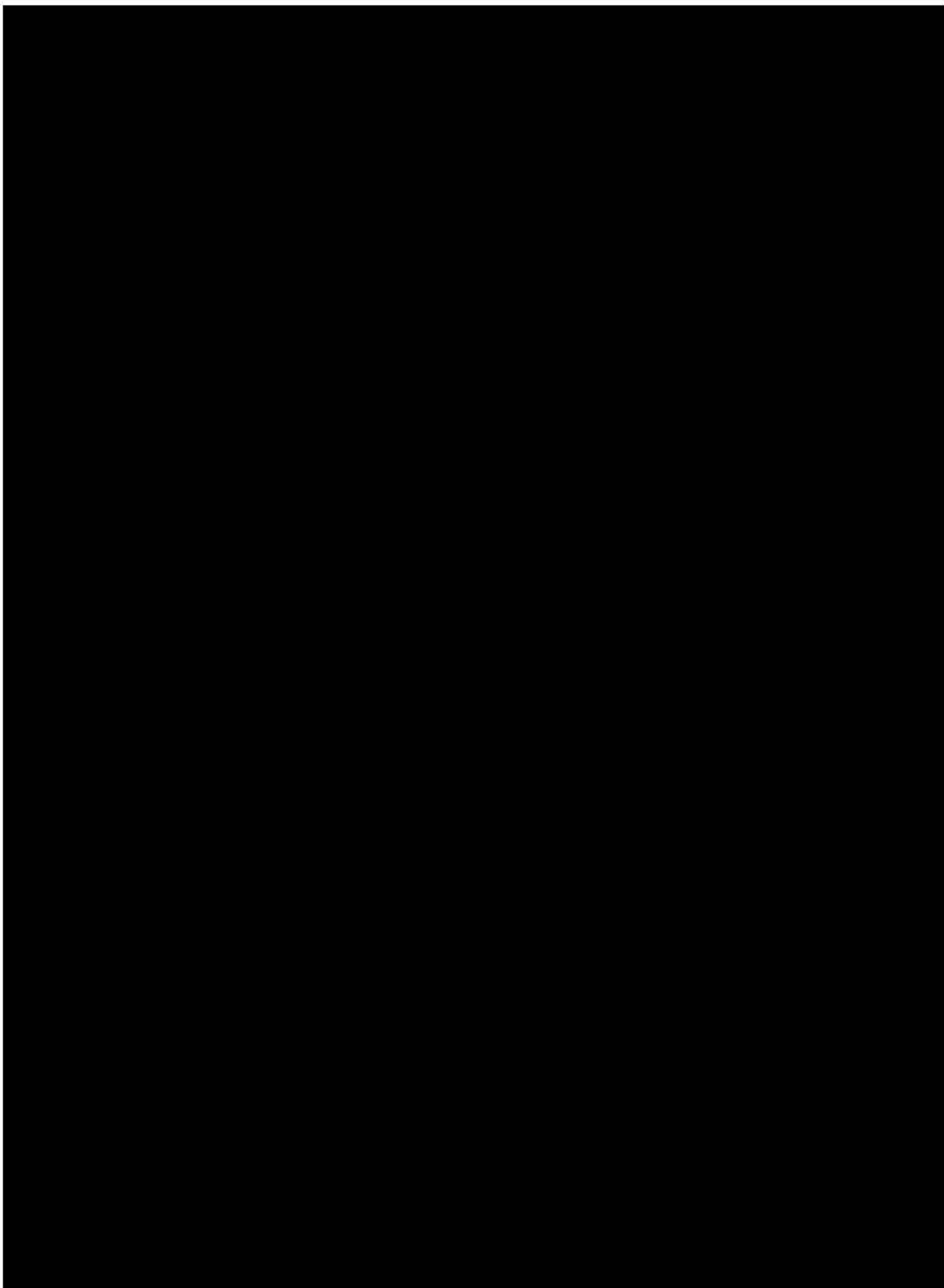
Location: Panel Point 30E, Cable B, Suspenders Rope 7, looking west.

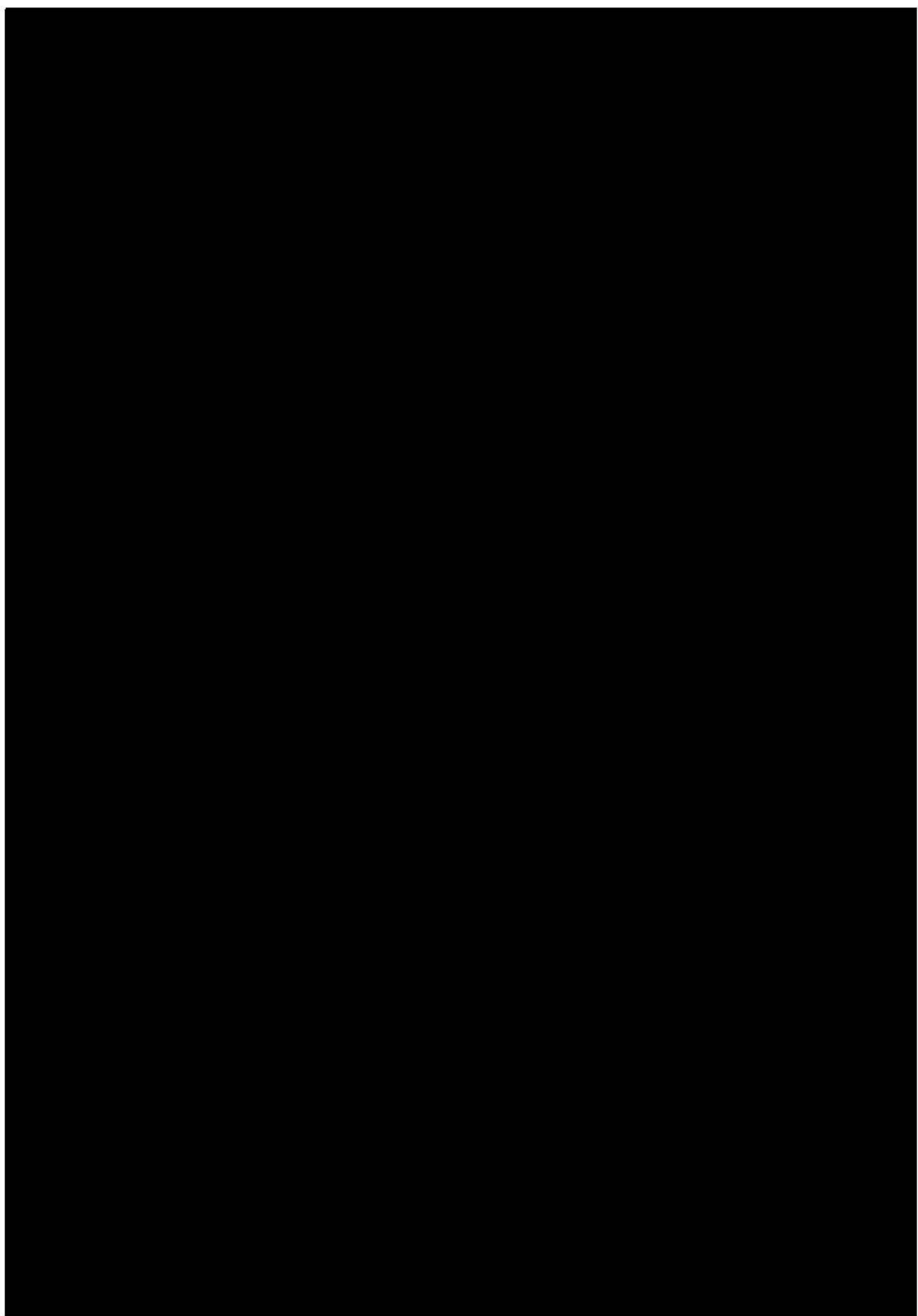
Description: Partially slipped galvanized steel liner under the suspender collar.

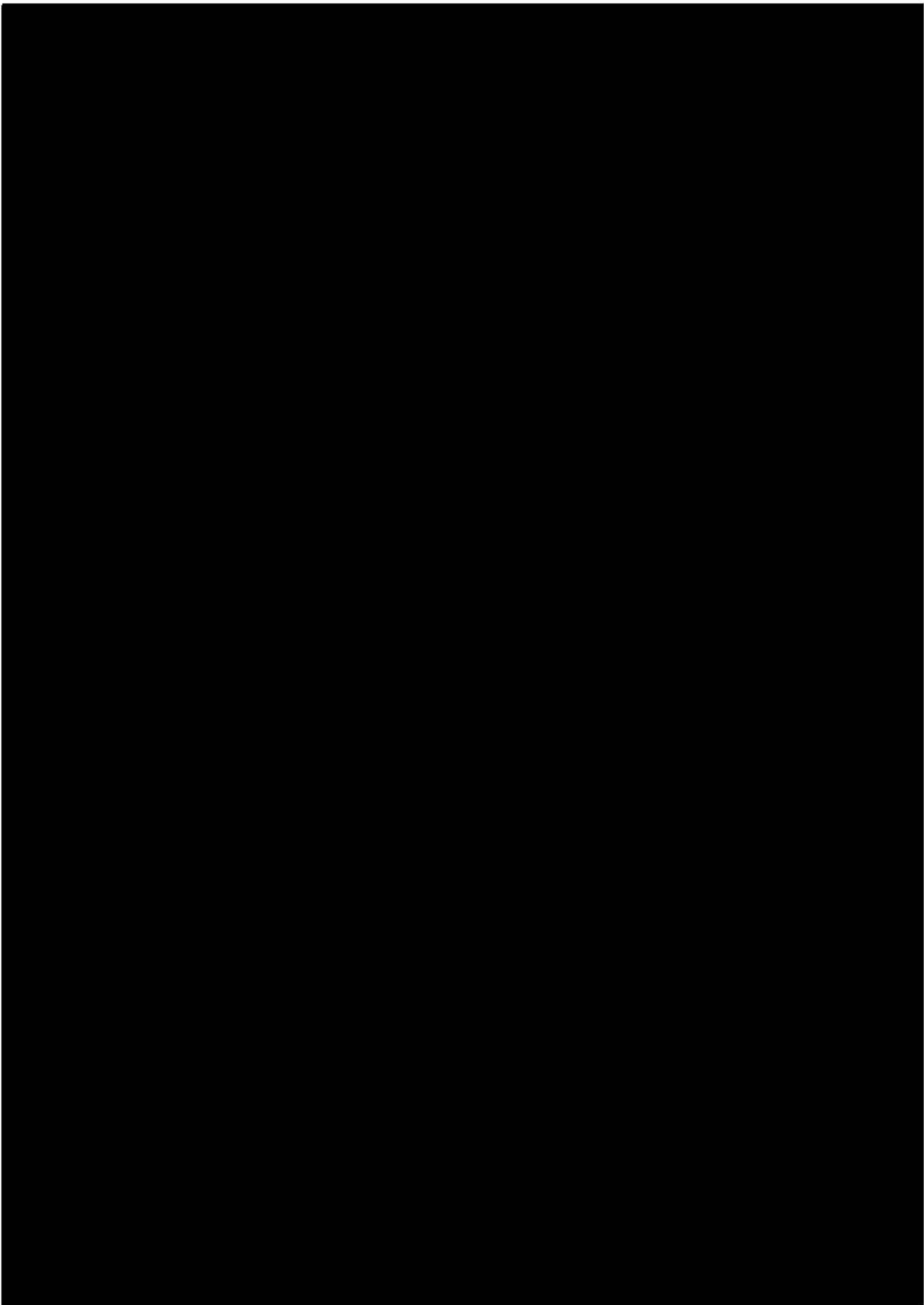
(PRIORITY REPAIR 6)

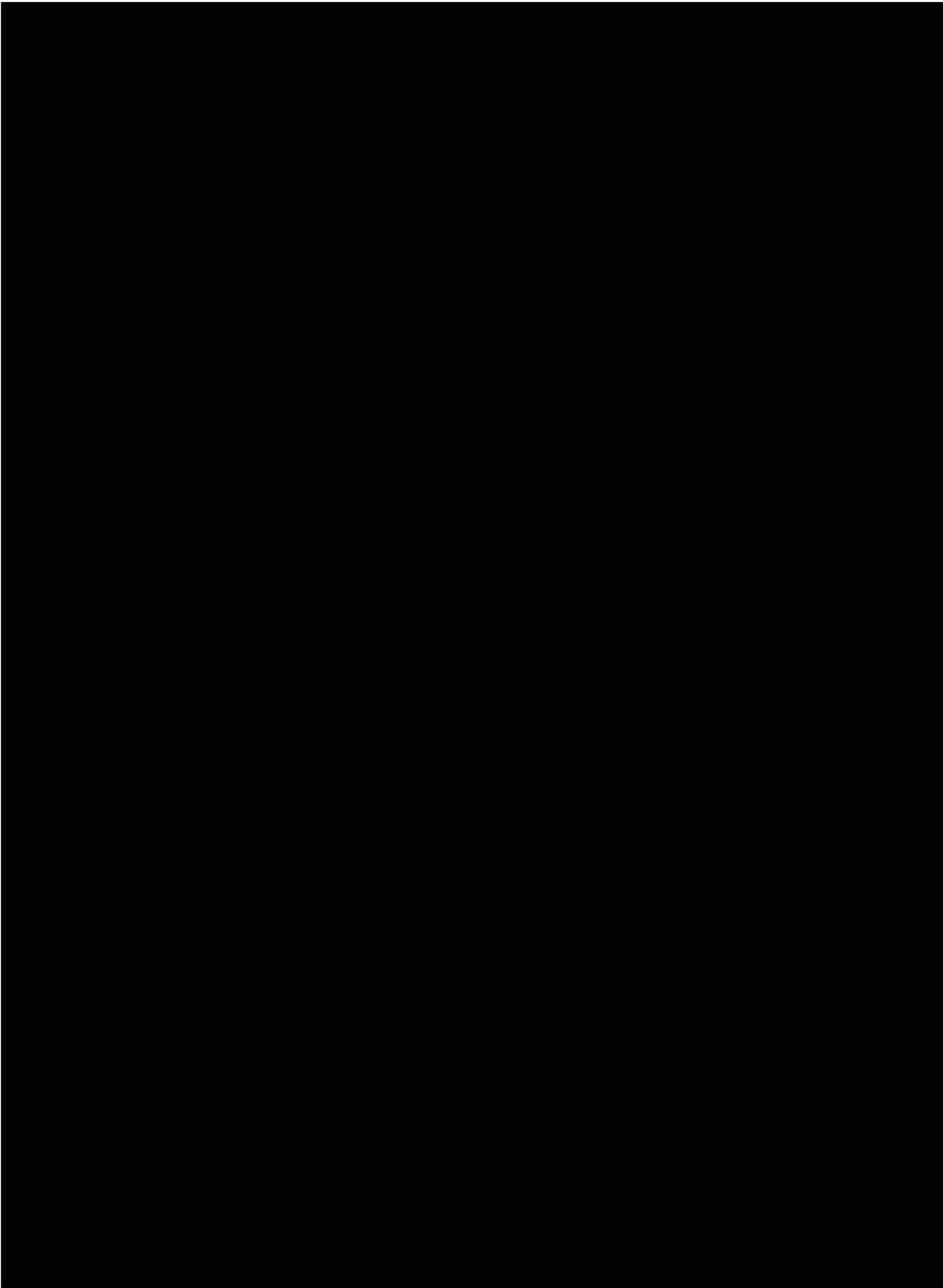


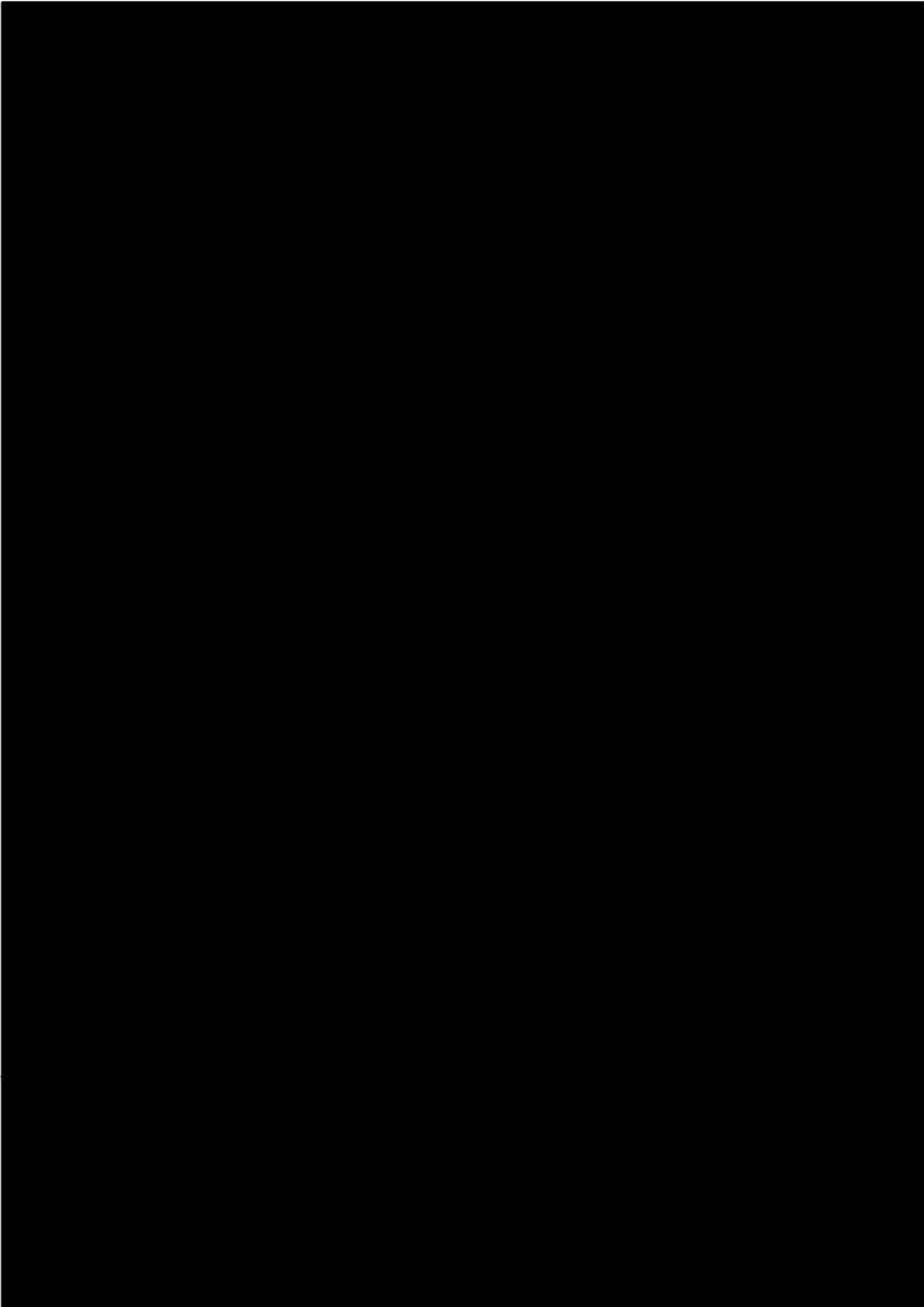


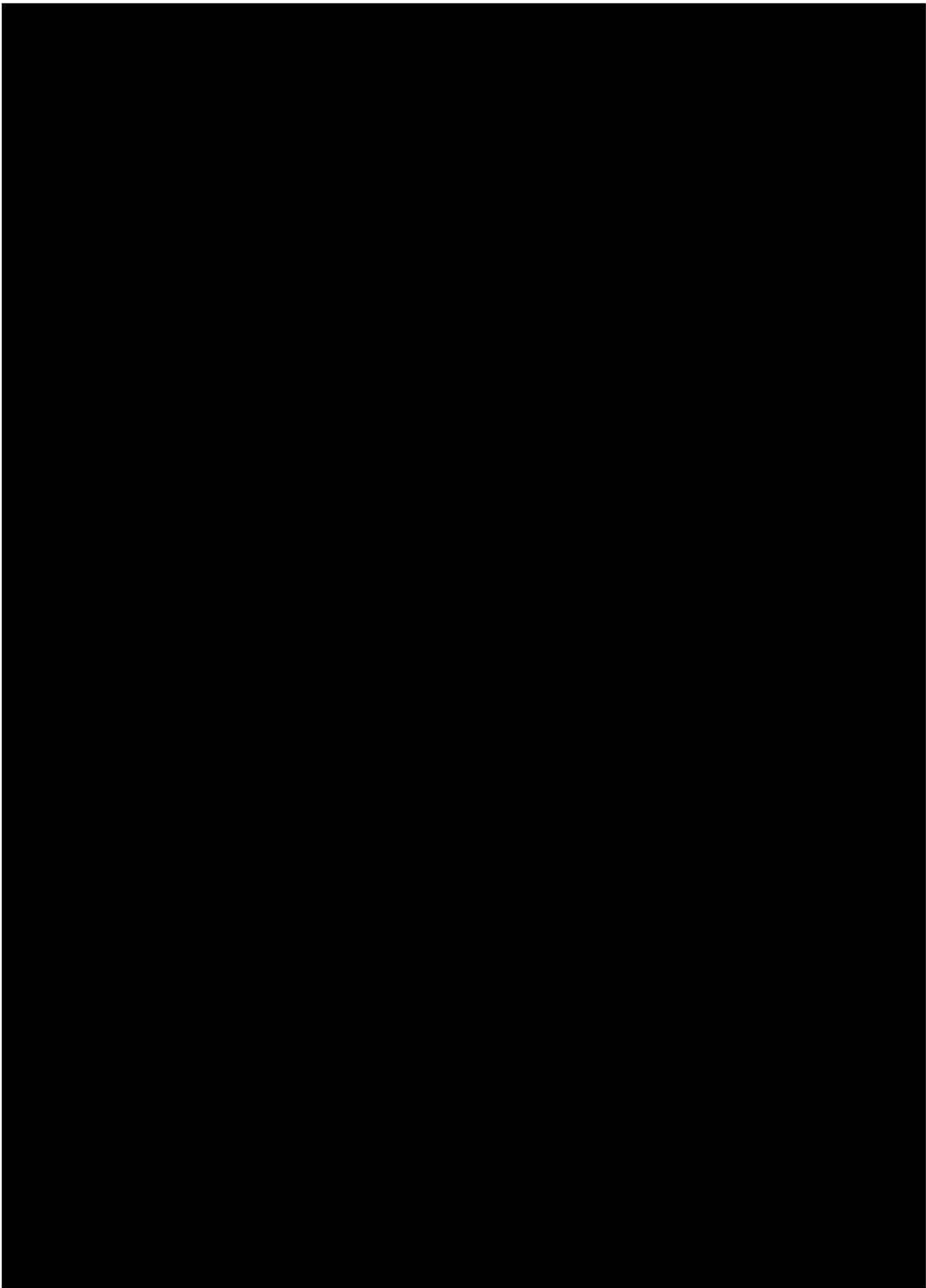












D. Bridge Mounted Sign Structures

Inspection Findings, Conclusions and Recommendations

D. BRIDGE MOUNTED SIGN STRUCTURES

Major Inspection Findings

The sign structures on the Upper and Lower Levels are in overall good condition. There are a total of 62 sign structures inspected as part of this condition survey. Only those sign panels which measure approximately 10SF and over, including those of combined panels with directional value, were inspected 100% hands-on, and are included in the tables of surveyed sign structures for the Upper and Lower Levels (See tables on pages D-3 through D-14). The sign number listed in the tables is either the sign identification number which was found during the inspection or an arbitrary number designated for those signs which did not display identification labels.

The inspection of the Upper Level roadway signs included all sign panels attached to the lighting standards along the north and south sidewalks and one cantilevered sign structure framed into the New York Tower between Panel Points 11E-14E spanning over the eastbound roadway. The inspection of the Lower Level roadway signs included all sign panels and sign structures either attached to the upper level framing (main floorbeams/capbeams), vertical members of the stiffening truss and drainage downspouts, or lower level deck/median-grating framing.

Four types of sign structures were found during this condition survey and the corresponding quantity are as follows:

<i>Type</i>	<i>Description</i>	<i>Quantity</i>
AUP	Sign Attached to Utility Pole	23
CS	Cantilever Sign Structure	1
PS	Pole Structure	8
SABR	Sign Structure Attached to Bridge	30
TOTAL		62

Several temporary sign panels were noted along both roadways due to construction work. The temporary sign panels are in good condition, however, they were not included in the list of surveyed sign structures.

There are a total of 62 signs included in this survey. Fifty four signs were found in good condition and 8 were found in fair condition due to the following deficiencies: minor impact damaged signs; missing or broken bolts connecting the sign panel to the sign structure/light standard or sign structure to the bridge, graffiti on the sign panel, and non-functioning light fixtures or signal at the sign structure or electronic lane status indicator signals. Since the last inspection, the three signs (19A, S26 and S31) that were temporarily covered due to construction were uncovered.

Since the previous inspection, 4 signs were removed, 5 new signs were added and 2 signs were reinstalled.

During this inspection, there were no conditions found requiring immediate action. There were no priority or non-structural safety repairs recommended in the previous report and no new priority or safety repairs are recommended in this report. There are a total of 8 routine repairs at 12 locations recommended in this inspection report section.

RECOMMENDATIONS

Immediate: None.

Priority: None.

Safety: None.

Routine: The following routine repairs are recommended:

<u>No.</u>	<u>Description</u>	<u>Dwg. No.</u>
1	Repair the impact damaged signs attached to the light standards or sign structures. <i>(Photos D1 and D4)</i> (4 Locations)	SS-1, SS-2
2	Replace missing (1 of 4) bolts which connects the sign structure to the Capbeam. <i>(Photo D2)</i> (1 Location)	SS-2
3	Replace non-functioning light fixtures at the sign structure. <i>(Photo D3)</i> (1 Location)	SS-1
4	Replace missing (1 of 3) U-bolts which attach the sign panel to the light standard. <i>(Photo D4)</i> (1 Location)	SS-1
5	Replace broken (1 of 6) U-bolts which attach the sign panel to the sign structure. <i>(Photo D1)</i> (1 Location)	SS-2
6	Clean the graffiti on the sign panel. <i>(Photo D5)</i> (2 Locations)	SS-1
7	Replace non-functioning signal at the electronic lane status indicator signals. <i>(Photo D6)</i> (1 Location)	SS-2
8	Replace bent bracing members between light fixture arms at the sign structure. <i>(Photo D7)</i> (1 Location)	SS-1

Surveyed Sign Structures Upper Level

**GEORGE WASHINGTON BRIDGE - UPPER LEVEL SIGNS
SURVEYED SIGN STRUCTURES**

Sign No.	Type	Sidewalk	Panel Point	Number of Panels	Sign Text	Overall Condition	Repair Recommendation	Repair Category
S15	AUP	NORTH	9W-10W	1	RIGHT LANE MUST EXIT	GOOD	NONE	NONE
40H	AUP	NORTH	18W-19W	1	SPEED LIMIT 45	GOOD	NONE	NONE
S4	AUP	SOUTH	19W-20W	1	NO STOPPING ON BRIDGE	GOOD	NONE	NONE
40D	AUP	NORTH	21W-22W	1	RIGHT LANE MUST EXIT	GOOD	NONE	NONE
S5A	AUP	SOUTH	24W-25W	1	MANHATTAN EAST SIDE USE HARLEM RIVER DR CARS ONLY	FAIR	R1: Repair the impact damaged sign attached to the lighting standard (see Photo D4). R4: Replace missing (1 of 3) U-bolts which attach the sign panel to the lighting standard (see Photo D4).	ROUTINE
S6	AUP	SOUTH	34W-35W	1	TRUCK ROUTE MANHATTAN WEST SIDE USE 178 ST TO BROADWAY	GOOD	NONE	NONE

**GEORGE WASHINGTON BRIDGE - UPPER LEVEL SIGNS
SURVEYED SIGN STRUCTURES**

Sign No.	Type	Sidewalk	Panel Point	Number of Panels	Sign Text	Overall Condition	Repair Recommendation	Repair Category
S16	AUP	NORTH	34W-35W	1	OCCUPANTS MUST REMAIN WITH DISABLED VEHICLES	GOOD	NONE	NONE
40C	AUP	NORTH	36W-37W	1	TRUCKS PROHIBITED ON PALISADES PARKWAY	GOOD	NONE	NONE
18R	AUP	SOUTH	37W-38W	1	MANHATTAN WEST SIDE USE "ROUTE 9A" CARS ONLY	FAIR	R1: Repair the impact damaged sign attached to the lighting standard.	ROUTINE
S17	AUP	NORTH	37W-38W	1	FOR "ROUTE 17" USE "ROUTE 4"	GOOD	NONE	NONE
72C	AUP	NORTH	39W-40W	1	WELCOME TO NEW JERSEY THE GARDEN STATE	GOOD	NONE	NONE
18S	AUP	SOUTH	38E-37E	1	WELCOME TO NEW YORK THE EMPIRE STATE	GOOD	NONE	NONE

**GEORGE WASHINGTON BRIDGE - UPPER LEVEL SIGNS
SURVEYED SIGN STRUCTURES**

Sign No.	Type	Sidewalk	Panel Point	Number of Panels	Sign Text	Overall Condition	Repair Recommendation	Repair Category
19A	AUP	SOUTH	32E-31E	1	SPEED LIMIT 45	GOOD	NONE	NONE
41H	AUP	SOUTH	28E-27E	1	TRUCK ROUTE MANHATTAN WEST SIDE USE 178 ST TO BROADWAY	FAIR	R6: Clean the graffiti on the sign panel.	ROUTINE
41L	AUP	SOUTH	23E-22E	1	RIGHT LANE FOR EXIT ONLY	GOOD	NONE	NONE
18P	AUP	NORTH	20E-19E	1	NO STOPPING ON BRIDGE	GOOD	NONE	NONE
S11	AUP	SOUTH	19E-18E	2	HOSPITAL "RIGHT ARROW" NEW YORK PRESBYTERIAN	FAIR	R1: Repair the impact damaged sign attached to the lighting standard. R6: Clean the graffiti on the sign panel (see Photo D5).	ROUTINE
18I	AUP	SOUTH	17E-16E	1	MANHATTAN WEST SIDE USE "ROUTE 9A" CARS ONLY	GOOD	NONE	NONE

**GEORGE WASHINGTON BRIDGE - UPPER LEVEL SIGNS
SURVEYED SIGN STRUCTURES**

Sign No.	Type	Sidewalk	Panel Point	Number of Panels	Sign Text	Overall Condition	Repair Recommendation	Repair Category
S12	AUP	SOUTH	16E-15E	1	OCCUPANTS MUST REMAIN WITH DISABLED VEHICLES	GOOD	NONE	NONE
41	CS	SOUTH	14E-11E	2	EXIT 1 NORTH "I-95" TO "I-87" CLEARANCE 13'-6"; "STRAIGHT ARROW & RIGHT ARROW"; W 178TH ST "ROUTE 9A" HUDSON PKWY RIGHT LANE MUST EXIT	FAIR	R3: Replace non-functioning (7 of 7) light fixtures (see Photo D3). R8: Replace bent bracing members between light fixture arms at the sign structure (see Photo D7).	ROUTINE
S13	AUP	SOUTH	9E-8E	1	TRUCKS PROHIBITED ON HUDSON PARKWAY	GOOD	NONE	NONE
18M	AUP	NORTH	7E-6E	1	SPEED LIMIT 45	GOOD	NONE	NONE
41D	AUP	SOUTH	6E-5E	1	RIGHT LANE FOR EXIT ONLY	GOOD	NONE	NONE

**GEORGE WASHINGTON BRIDGE - UPPER LEVEL SIGNS
SURVEYED SIGN STRUCTURES**

Sign No.	Type	Sidewalk	Panel Point	Number of Panels	Sign Text	Overall Condition	Repair Recommendation	Repair Category
S18	AUP	NORTH	NEW YORK ANCHORAGE BENTS 6-7	1	EMERGENCY AID (201) 346-4000	GOOD	NONE	NONE

Surveyed Sign Structures Lower Level

**GEORGE WASHINGTON BRIDGE - LOWER LEVEL SIGNS
SURVEYED SIGN STRUCTURES**

Sign No.	Type	Roadway	Panel Point	Number of Panels	Sign Text	Overall Condition	Repair Recommendation	Repair Category
L1	SABR	WESTBOUND	3W	3	"ELECTRONIC LANE STATUS INDICATOR SIGNALS"	FAIR	R7: Replace the non-functioning (1 of 3) signal at the electronic lane status indicator signals (see Photo D6).	ROUTINE
S35	PS	MEDIAN (WB)	5W-6W	1	TRAFFIC MAY BE STOPPED AHEAD "SUDDEN STOP SYMBOL" SLOW DOWN	FAIR	R1: Repair the impact damaged sign attached to the sign structure (see Photo D1). R5: Replace broken (1 of 6) U-bolts which attach the sign panel to the sign structure (see Photo D1).	ROUTINE
S36	PS	WESTBOUND	6W-7W	1	G W BRIDGE HIGHWAY ADVISORY AND EMERGENCY (877) PA-ROADS	GOOD	NONE	NONE
S19	SABR	EASTBOUND	8W	1	SPEED LIMIT 45	GOOD	NONE	NONE
140	SABR	EASTBOUND	9W	1	"ROUTE 9A" H HUDSON PKWY KEEP LEFT	GOOD	NONE	NONE
S35A	PS	MEDIAN (EB)	9W	1	"ROUTE 9A" H HUDSON PKWY KEEP LEFT	GOOD	NONE	NONE

**GEORGE WASHINGTON BRIDGE - LOWER LEVEL SIGNS
SURVEYED SIGN STRUCTURES**

Sign No.	Type	Roadway	Panel Point	Number of Panels	Sign Text	Overall Condition	Repair Recommendation	Repair Category
S37	SABR	WESTBOUND	9W	1	SPEED LIMIT 45	GOOD	NONE	NONE
127	SABR	WESTBOUND	17W	1	"ROUTE 1" "ROUTE 9" "ROUTE 46" "ROUTE 4" KEEP LEFT	GOOD	NONE	NONE
128	N/A	MEDIAN (WB)	17W	N/A	N/A	N/A	REMOVED	N/A
S35B*	PS	MEDIAN (EB)	18W	2	SUDDEN STOPS STAY ALERT "SUDDEN STOP SYMBOL"	GOOD	NONE	NONE
S35C*	SABR	EASTBOUND	18W	2	SUDDEN STOPS STAY ALERT "SUDDEN STOP SYMBOL"	GOOD	NONE	NONE
S38*	PS	WESTBOUND	25W-26W	1	OCCUPANTS MUST REMAIN WITH DISABLED VEHICLES	GOOD	NONE	NONE
S23	SABR	EASTBOUND	27W	1	SPEED LIMIT 45	GOOD	NONE	NONE

* Indicates newly installed signs since the previous inspection.

**GEORGE WASHINGTON BRIDGE - LOWER LEVEL SIGNS
SURVEYED SIGN STRUCTURES**

Sign No.	Type	Roadway	Panel Point	Number of Panels	Sign Text	Overall Condition	Repair Recommendation	Repair Category
S39*	SABR	WESTBOUND	28W	1	SPEED LIMIT 45	GOOD	NONE	NONE
141	SABR	EASTBOUND	40W	1	"I-95" TO "I-87" KEEP RIGHT	GOOD	NONE	NONE
141A	PS	MEDIAN (EB)	40W	1	"I-95" TO "I-87" KEEP RIGHT	GOOD	NONE	NONE
S40	SABR	WESTBOUND	40W	1	"ROUTE 9W" TO "ROUTE 67" "PIP" RIGHT LANE	GOOD	NONE	NONE
72A	SABR	MEDIAN (WB)	42W	1	WELCOME "STATE LOGO" NEW JERSEY	GOOD	NONE	NONE
72B	SABR	MEDIAN (EB)	42E	1	WELCOME "STATE LOGO" NEW YORK	GOOD	NONE	NONE

* Indicates newly installed signs since the previous inspection.

**GEORGE WASHINGTON BRIDGE - LOWER LEVEL SIGNS
SURVEYED SIGN STRUCTURES**

Sign No.	Type	Roadway	Panel Point	Number of Panels	Sign Text	Overall Condition	Repair Recommendation	Repair Category
S23A*	SABR	EASTBOUND	40E	2	"SUDDEN STOP SYMBOL" SUDDEN STOPS STAY ALERT	GOOD	NONE	NONE
S26	SABR	EASTBOUND	37E	1	SPEED LIMIT 45	GOOD	NONE	NONE
S41	SABR	WESTBOUND	37E	1	SPEED LIMIT 45	GOOD	NONE	NONE
66	SABR	MEDIAN (EB)	29E-28E	1	EXIT 1 H HUDSON PKWY W 178 ST; THRU TRAFFIC I-95; 1/4 MILE "UP ARROWS" 1/4 MILE	GOOD	NONE	NONE
66B	SABR	MEDIAN (WB)	28E	2	"SUDDEN STOP SYMBOL" SUDDEN STOPS STAY ALERT	GOOD	NONE	NONE

* Indicates newly installed signs since the previous inspection.

**GEORGE WASHINGTON BRIDGE - LOWER LEVEL SIGNS
SURVEYED SIGN STRUCTURES**

Sign No.	Type	Roadway	Panel Point	Number of Panels	Sign Text	Overall Condition	Repair Recommendation	Repair Category
S26A	SABR	EASTBOUND	27E	1	ALT TO WESTCHESTER AND CONNECTICUT USE HUDSON PKWY NORTH	GOOD	NONE	NONE
S28	N/A	EASTBOUND	24E	N/A	N/A	N/A	REMOVED	N/A
S29	SABR	EASTBOUND	22E	3	HOSPITAL NEW YORK PRESBYTERIAN NEXT LEFT	GOOD	NONE	NONE
66G	SABR	WESTBOUND	22E	1	"I-95" "I-80" "NJ TURNPIKE" KEEP RIGHT	GOOD	NONE	NONE
S30	SABR	EASTBOUND	20E	1	"ROUTE 1" USE "I-95"	GOOD	NONE	NONE
S29A	SABR	MEDIAN (EB)	19E	3	HOSPITAL NEW YORK PRESBYTERIAN NEXT LEFT	GOOD	NONE	NONE
S41A	SABR	WESTBOUND	16E	2	"SUDDEN STOP SYMBOL" STOPS STAY ALERT	GOOD	NONE	NONE

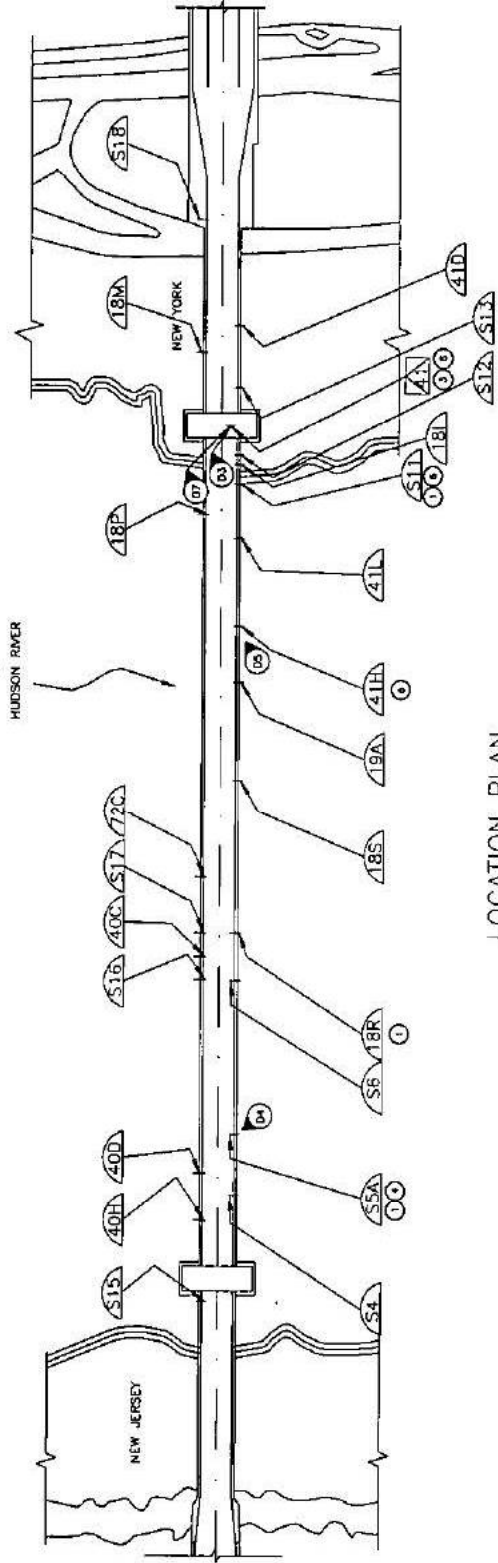
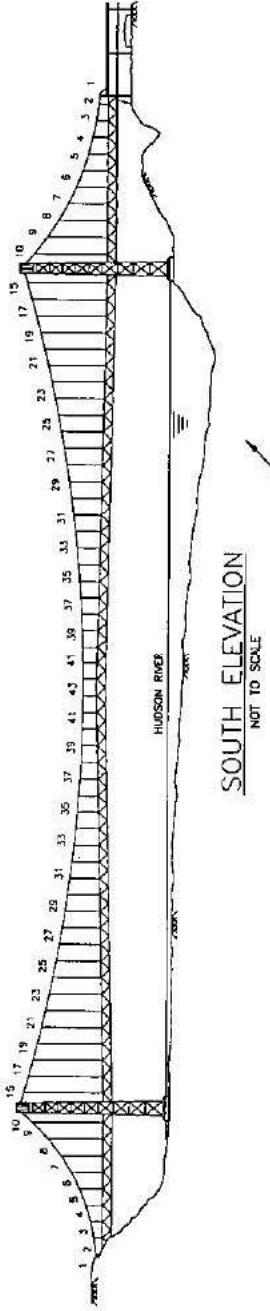
**GEORGE WASHINGTON BRIDGE - LOWER LEVEL SIGNS
SURVEYED SIGN STRUCTURES**

Sign No.	Type	Roadway	Panel Point	Number of Panels	Sign Text	Overall Condition	Repair Recommendation	Repair Category
S31	SABR	EASTBOUND	9E	N/A	SPEED LIMIT 45	GOOD	NONE	NONE
S43	SABR	WESTBOUND	9E	1	SPEED LIMIT 45	GOOD	NONE	NONE
S44	PS	WESTBOUND	5E	1	OCCUPANTS MUST REMAIN WITH DISABLED VEHICLES	GOOD	NONE	NONE
S31A*	PS	MEDIAN (EB)	3E	1	H HUDSON PKVY W 178 ST "UP ARROWS"	GOOD	NONE	NONE
S31B*	SABR	EASTBOUND	3E	1	"I-95" THRU TRAFFIC "REVERSE TURN ARROWS"	GOOD	NONE	NONE
67B	SABR	EASTBOUND	1E	3	SLOW "REVERSE TURN ARROWS" 30 M.P.H.	GOOD	NONE	NONE
67C	N/A	MEDIAN (EB)	1E	N/A	N/A	N/A	REMOVED	N/A
67D	N/A	MEDIAN (EB)	1E	N/A	N/A	N/A	REMOVED	N/A

* Indicates newly installed signs since the previous inspection.

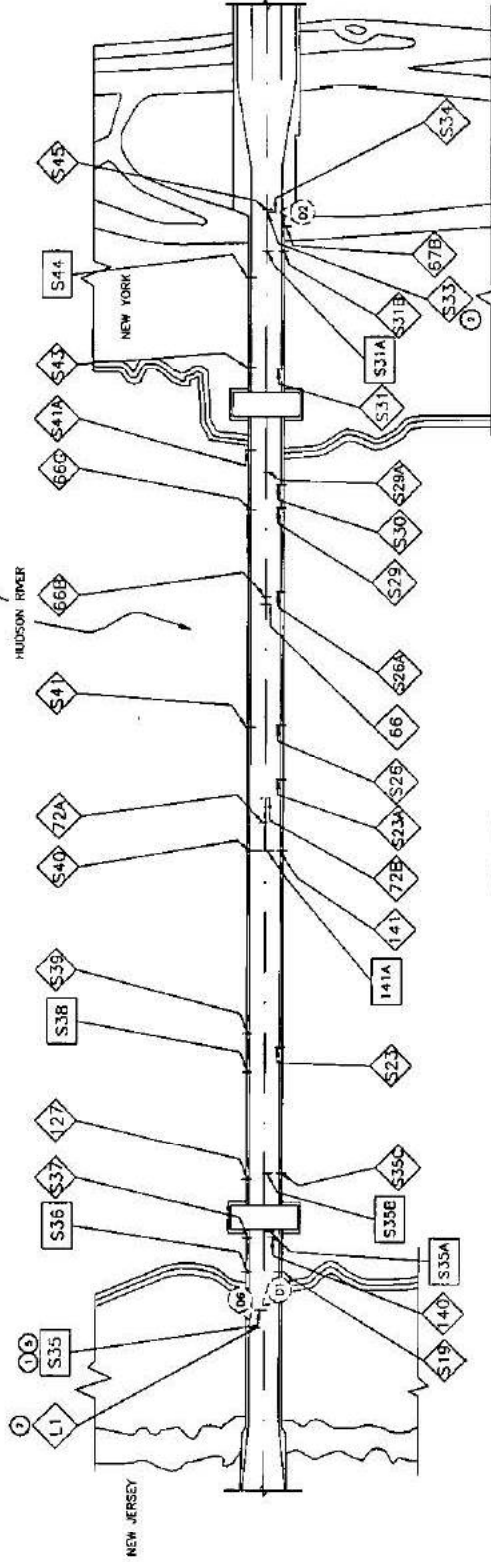
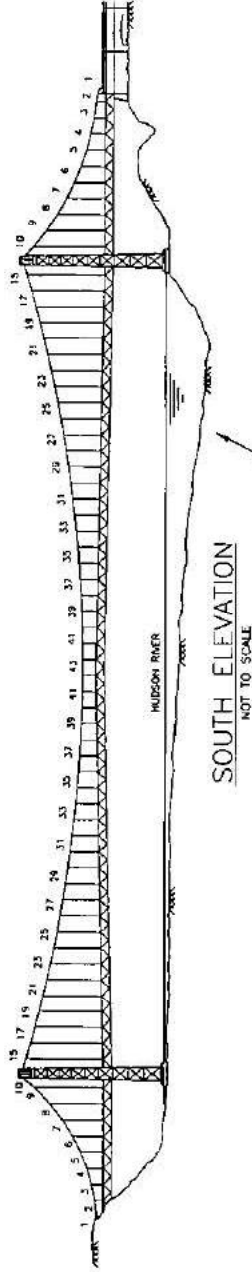
**GEORGE WASHINGTON BRIDGE - LOWER LEVEL SIGNS
SURVEYED SIGN STRUCTURES**

Sign No.	Type	Roadway	Panel Point	Number of Panels	Sign Text	Overall Condition	Repair Recommendation	Repair Category
S45	SABR	WESTBOUND	NEW YORK ANCHORAGE BENT 7	1	"ADDED LANE SIGN"	GOOD	NONE	NONE
S33	SABR	EASTBOUND	NEW YORK ANCHORAGE CAPBEAM 9	2	EXIT 1 "ROUTE 9A" H HUDSON PKWY W 178 ST "DOWN ARROWS"	FAIR	R2: Replace missing (1 of 4) bolts which connects the sign panel to the capbeam (see Photo D2).	ROUTINE
S34	SABR	EASTBOUND	NEW YORK ANCHORAGE CAPBEAM 9	1	"I-95" THRU TRAFFIC "RIGHT ARROWS"	GOOD	NONE	NONE



- KEY CONNECTION NOTES**
- ROUTINE REPAIRS**
- 1. REPAIR THE IMPACT DAMAGED SIGNS ATTACHED TO THE LIGHT STANDARDS OR SIGN STRUCTURES.
 - 2. REPLACE NON-FUNCTIONING LIGHT FIXTURES.
 - 3. REPLACE MISSING (1 OF 3) J-BOLTS WHICH ATTACH THE SIGN PANEL TO THE LIGHTING STANDARD.
 - 4. CLEAN THE GRAFFITI ON THE SIGN PANEL.
 - 5. REPLACE BENT BRACING MEMBERS BETWEEN LIGHT FIXTURE ARMS AT THE SIGN STRUCTURE.
- LEGEND**
- INDICATES ROUTINE REPAIRS
 - PHOTO TAKEN ABOVE DECK
 - ⊠ CANTILEVER SIGN STRUCTURE (CS)
 - △ SIGN ATTACHED TO UTILITY POLE (AUP)

No.	Date	Revisions	Approved
			ENGINEERING DEPARTMENT
			GEORGE WASHINGTON BRIDGE
			QUALITY ASSURANCE DIVISION FACILITY CONDITION SURVEYS
			FOR PERSONAL INFORMATION OF THE GEORGE WASHINGTON BRIDGE UPPER LEVEL.
			BIN 65225008
			UPPER LEVEL
			DEFICIENCY & PHOTO LOCATION PLAN SIGN STRUCTURES ON UPPER LEVEL.



KEY CONDITION NOTES
ROUTINE REPAIRS

- ① REPAIR THE IMPACT DAMAGED SIGN ATTACHED TO THE LIGHT STANDARDS OF SIGN STRUCTURES
- ② REPLACE MISSING (1 OF 4) BOLTS WHICH CONNECTS THE SIGN STRUCTURE TO THE CAPBEAM.
- ③ REPLACE BROKEN (1 OF 6) U-BOLTS WHICH ATTACH THE SIGN PANEL TO THE SIGN STRUCTURE.
- ④ REPLACE NON-FUNCTIONING SIGNAL AT THE ELECTRONIC LANE STATUS INDICATOR SIGNALS.

LEGEND

- INDICATES ROUTINE REPAIRS
- ◌ PHOTO TAKEN BELOW DECK
- ◇ SIGN STRUCTURE ATTACHED TO BRIDGE (SMB)
- POLE STRUCTURE (PS)

No.	Date	Revised	By	Approved
ENGINEERING DEPARTMENT				
GEORGE WASHINGTON BRIDGE				
QUALITY ASSURANCE DIVISION FACILITY CONDITION SURVEYS				
THE 2016 ANNUAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE				
BIN 65225R08 UPPER LEVEL				
DEFICIENCY & PHOTO LOCATION PLAN SIGN STRUCTURES ATTACHED TO UPPER LEVEL FRAMING OVER LOWER LEVEL				
<p>THIS PLAN IS THE PROPERTY OF THE PORT AUTHORITY OF NY & NJ. IT IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON. IT IS NOT TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF THE PORT AUTHORITY OF NY & NJ. THE PORT AUTHORITY OF NY & NJ ACCEPTS NO LIABILITY FOR ANY INACCURACIES OR OMISSIONS IN THIS PLAN. THE USER OF THIS PLAN SHALL BE RESPONSIBLE FOR VERIFYING THE ACCURACY OF THE INFORMATION CONTAINED HEREIN.</p>				
Developed By	DR	Checked By	DR	
Date	02/02/2016			
Contract Number	405-15-006			
Drawing Number	SS-2			

Photo No.: D1

Location:

Sign panel (#S35) for westbound roadway at Lower Level median area between Panel Points 5W-6W, looking northwest.

Description:

Impact damage to sign panel and broken (1 of 4) U-bolt at the connection to the sign structure.

(Routine Repair No. 1 and Routine Repair No. 5)

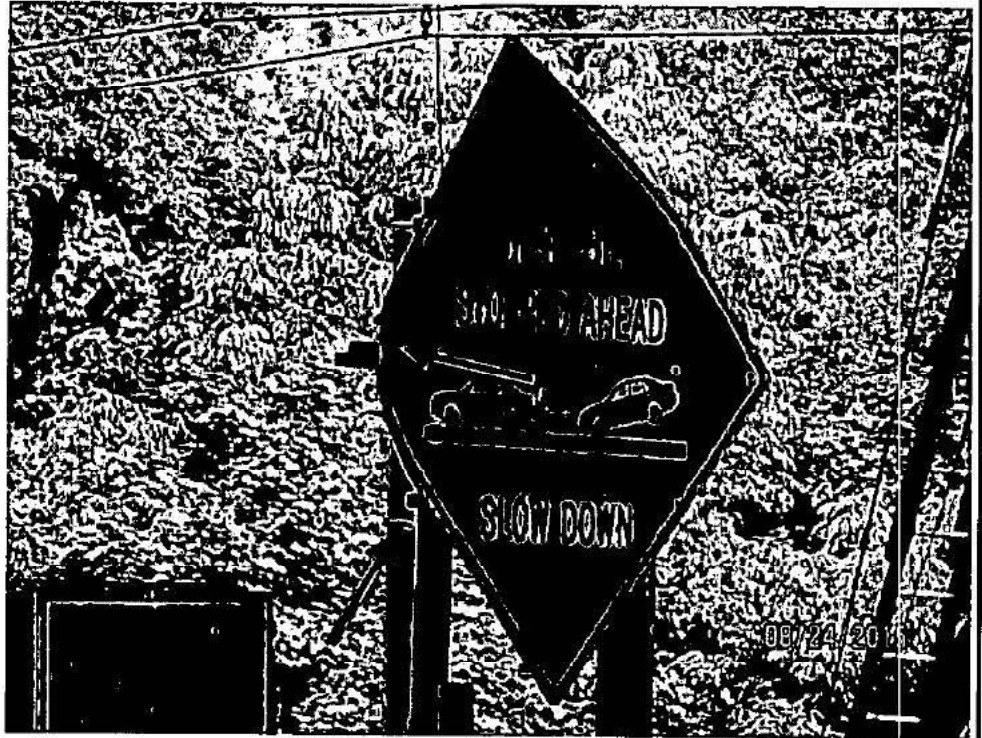


Photo No.: D2

Location:

Sign structure (#S33) over the eastbound Lower Level roadway attached to Capbeam 9 at the New York Anchorage, looking north.

Description:

Missing (1 of 4) bolts at the connection to the bottom flange of the capbeam.

(Routine Repair No. 2)



Photo No.: D3

Location:

Sign structure (#41)
over the eastbound
roadway at Upper Level
between Panel Points
14E-11E, looking
northeast.

Description:

Non-functioning (7 of 7)
light fixtures total at the
sign structure.

(Routine Repair No. 3)



Photo No.: D4

Location:

Sign panel (#S5A) for
eastbound roadway at
Upper Level between
Panel Points 24W-25W,
looking northwest.

Description:

Minor impact damage to
sign panel and missing
(1 of 3) U-bolts at the
connection to the light
standard.

(Routine Repair No. 1
and Routine Repair
No. 4)

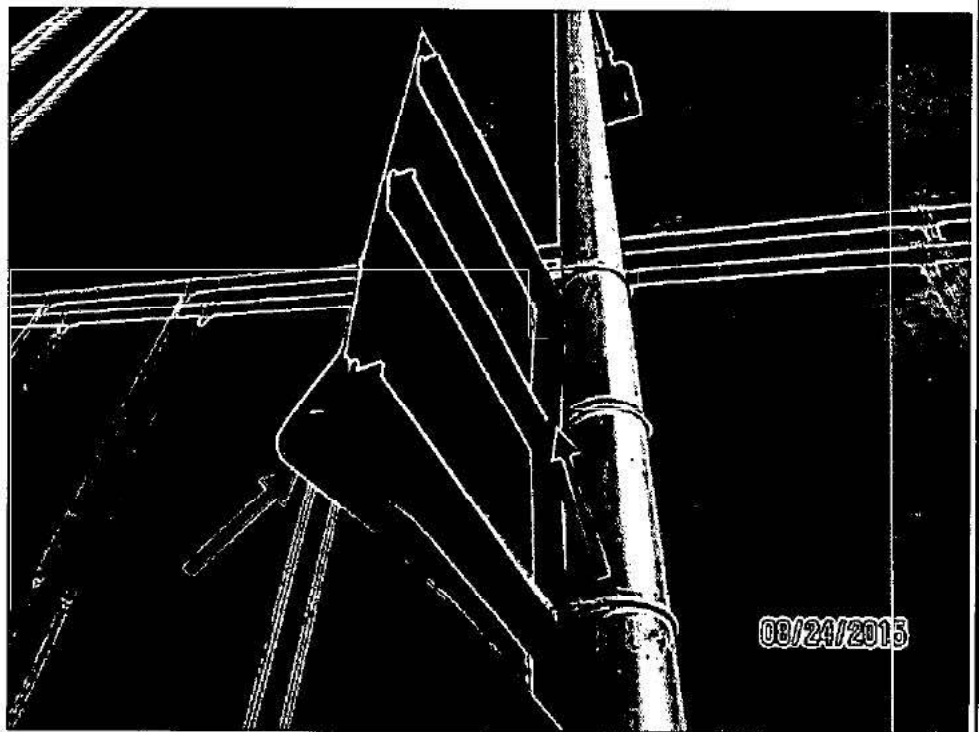


Photo No.: D5

Location:

Sign panel (#41H) for eastbound roadway at Upper Level between Panel Points 28E-27E, looking northeast.

Description:

Graffiti on the sign panel.

(Routine Repair No. 6)



Photo No.: D6

Location:

Electronic lane status indicator signals (#L1) over westbound roadway at Lower Level at Panel Point 3W, looking southwest.

Description:

Non-functioning signal (1 of 3) at the electronic lane status indicator signals.

(Routine Repair No. 7)

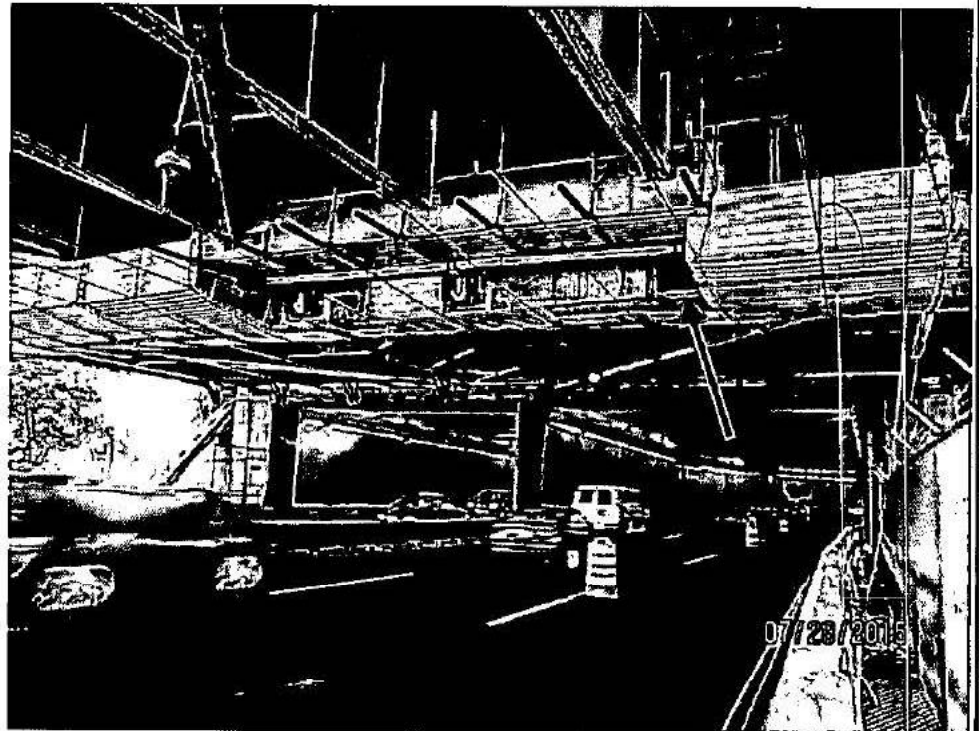


Photo No.: D7

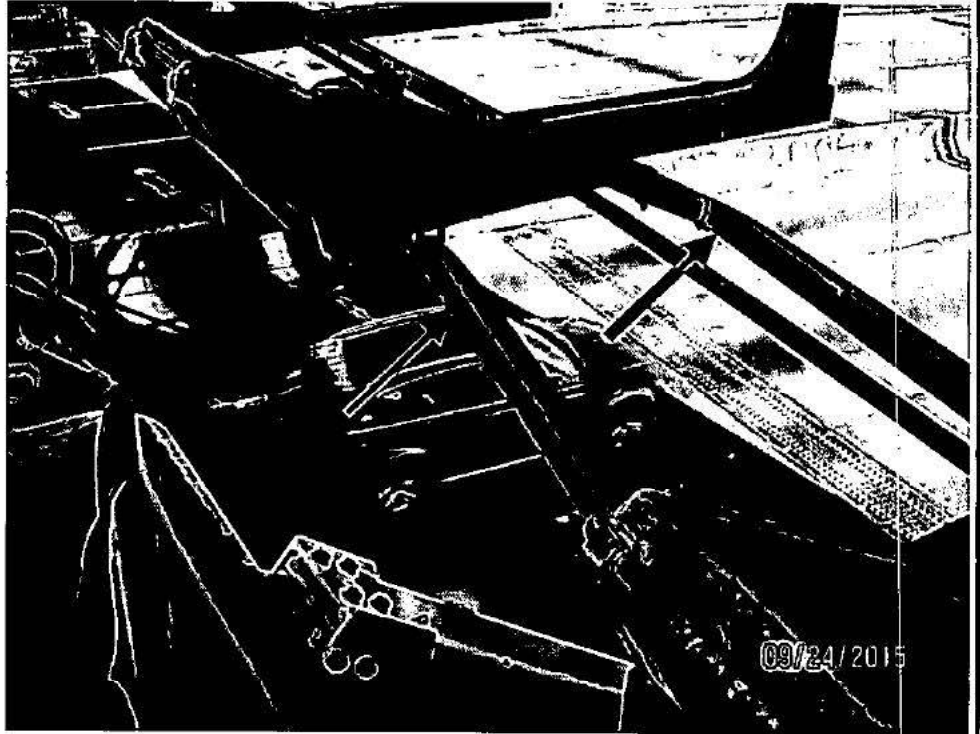
Location:

Sign structure (#41) for eastbound roadway at Upper Level between Panel Points 14E-11E, looking northeast.

Description:

Bent bracing members between light fixture arms at the sign structure.

(Routine Repair No. 8)

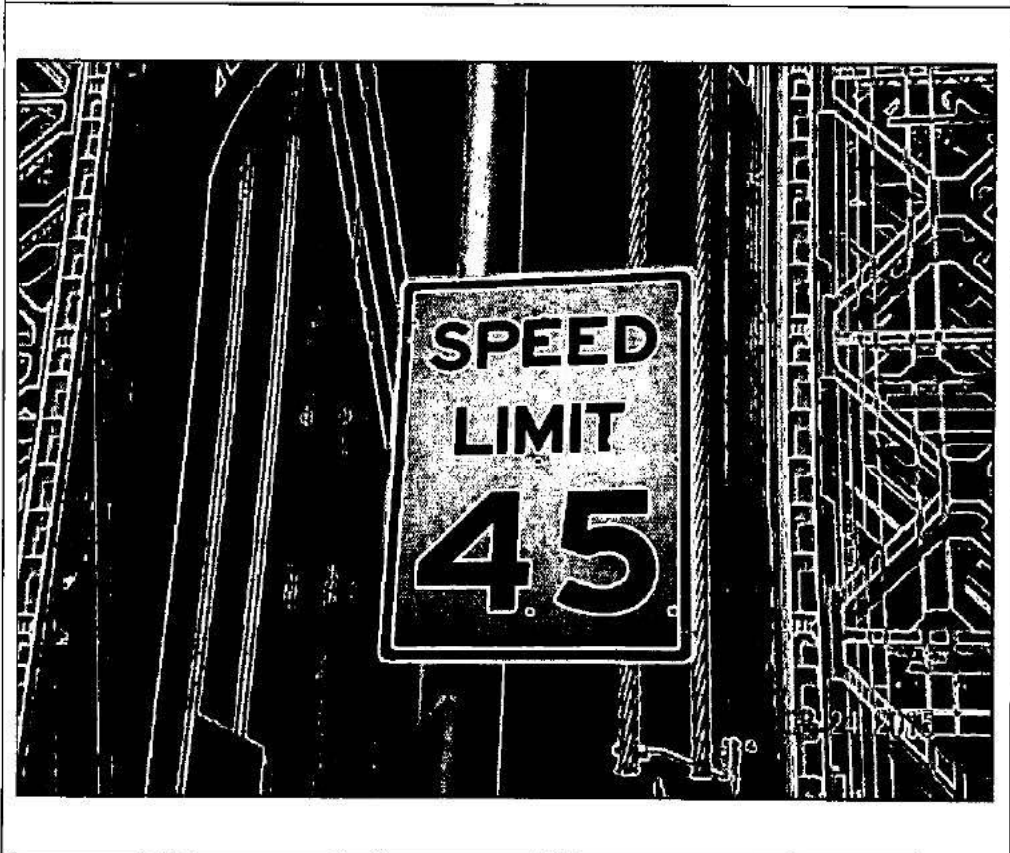


Inventory Photos Upper Level

GEORGE WASHINGTON BRIDGE UPPER LEVEL – SIGN STRUCTURES

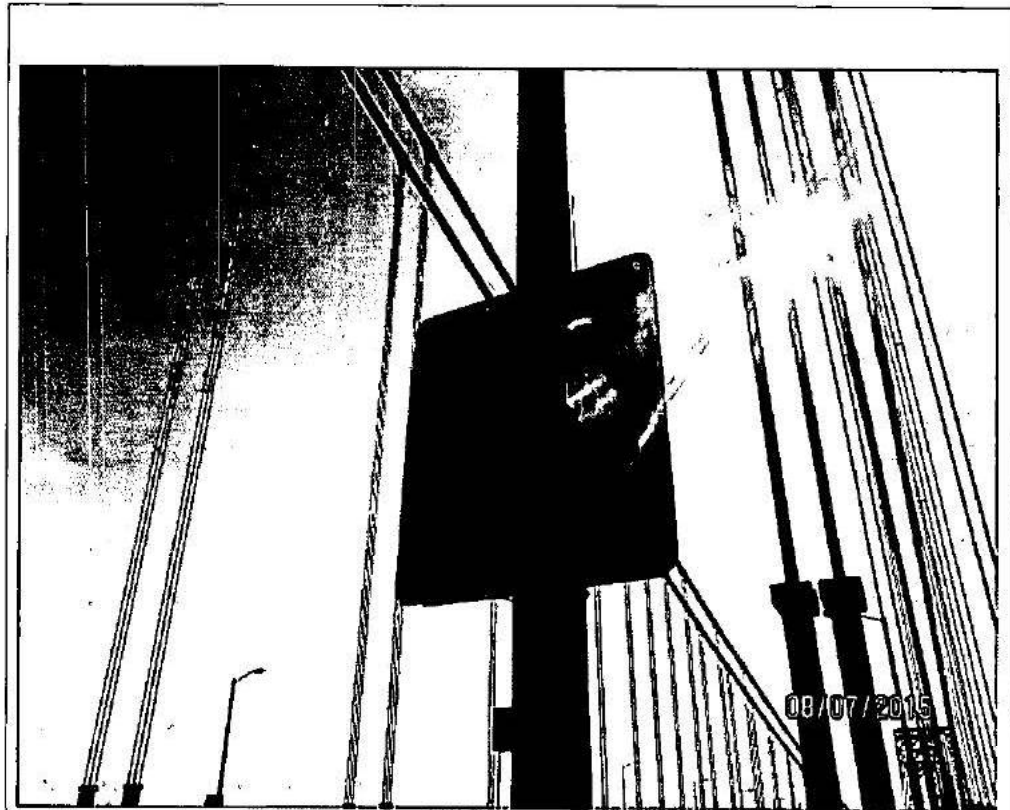


S15

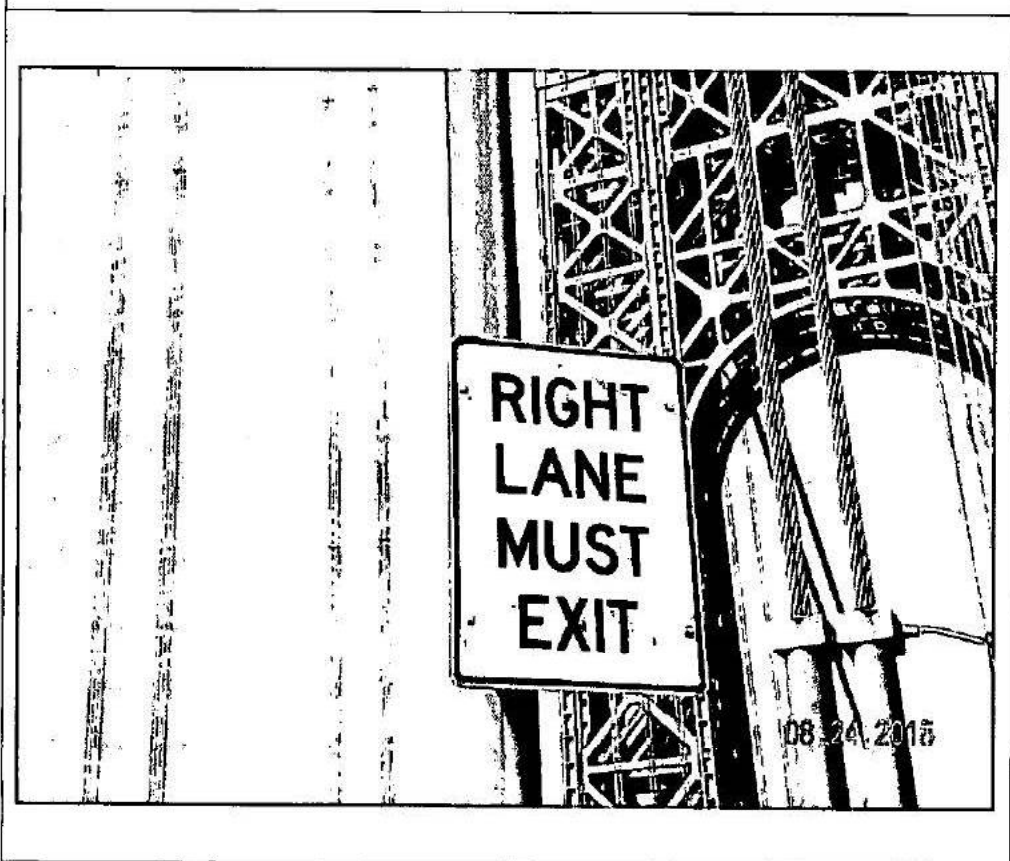


40H

GEORGE WASHINGTON BRIDGE UPPER LEVEL – SIGN STRUCTURES

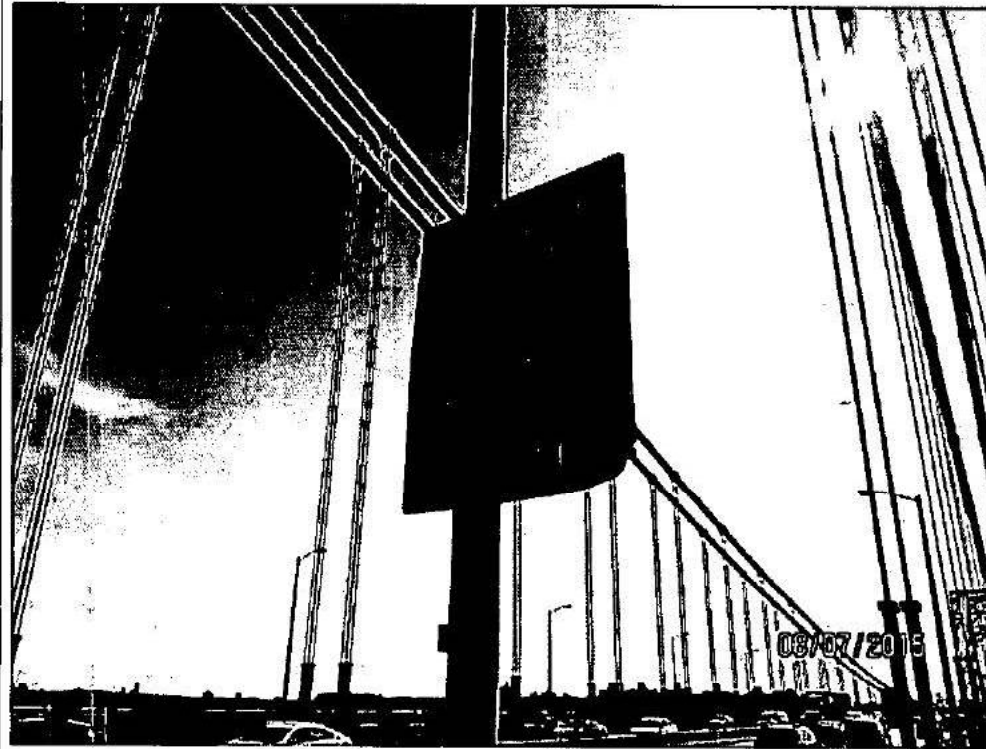


S4



40D

GEORGE WASHINGTON BRIDGE UPPER LEVEL - SIGN STRUCTURES



S5A

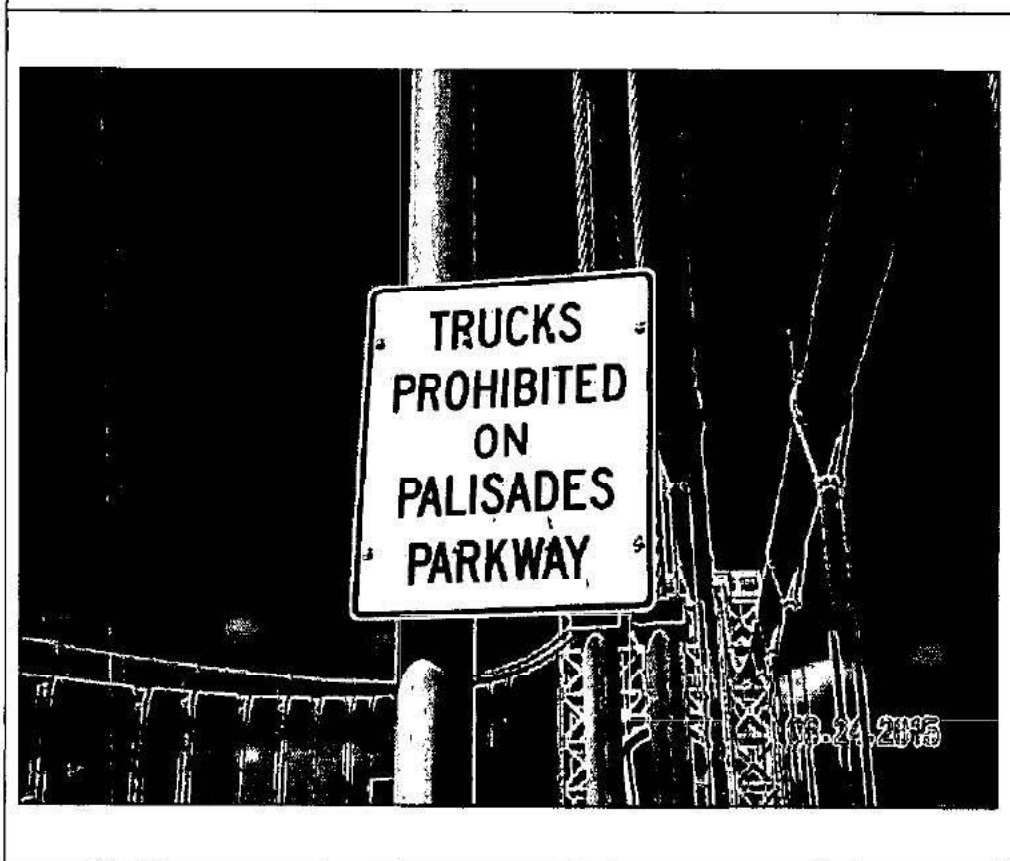


S6

GEORGE WASHINGTON BRIDGE UPPER LEVEL – SIGN STRUCTURES



S16



40C

GEORGE WASHINGTON BRIDGE UPPER LEVEL – SIGN STRUCTURES

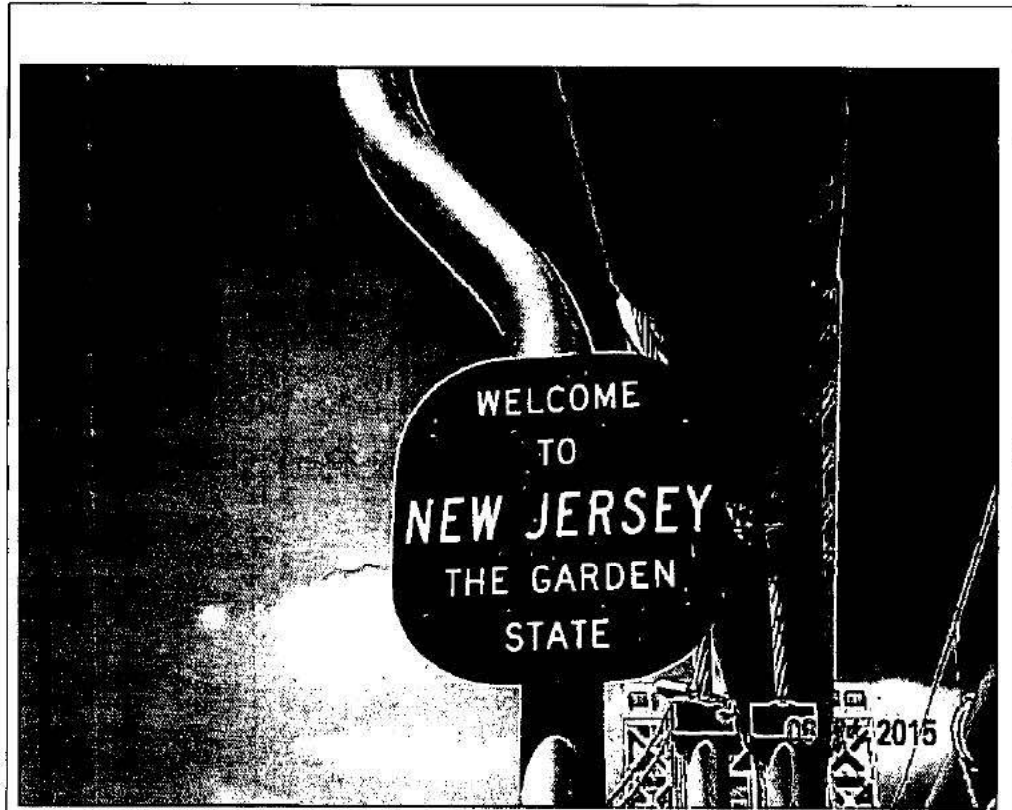


18R

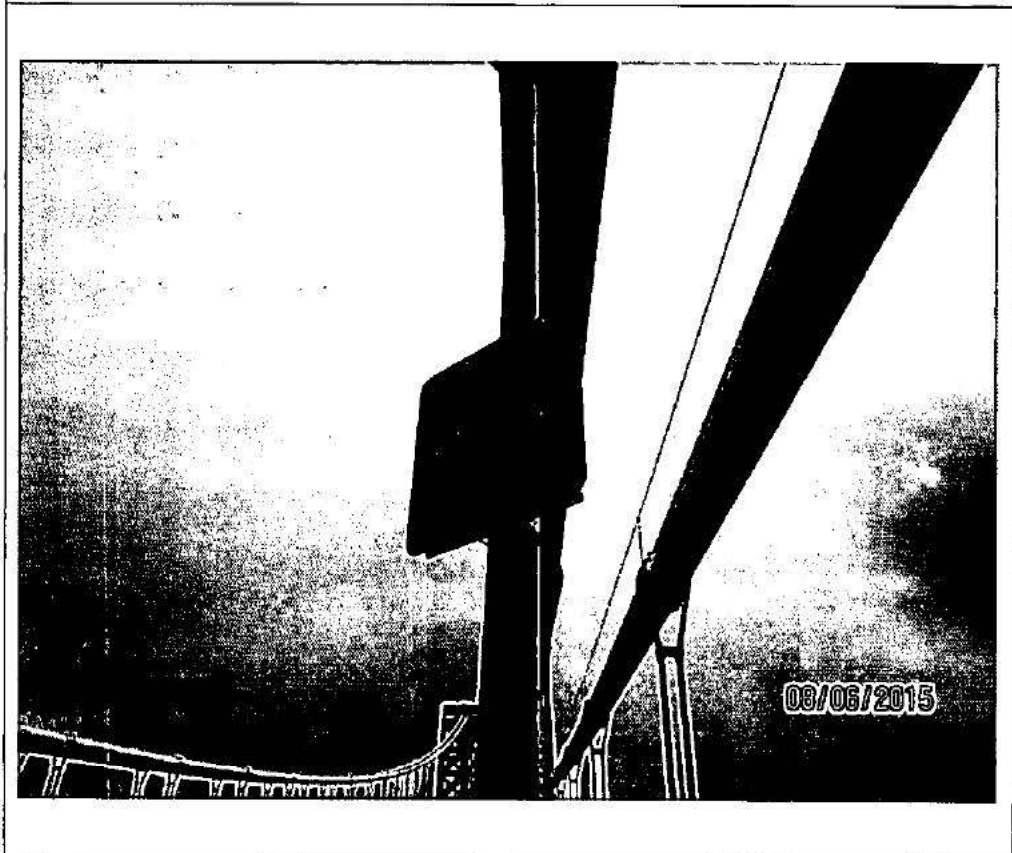


S17

GEORGE WASHINGTON BRIDGE UPPER LEVEL – SIGN STRUCTURES

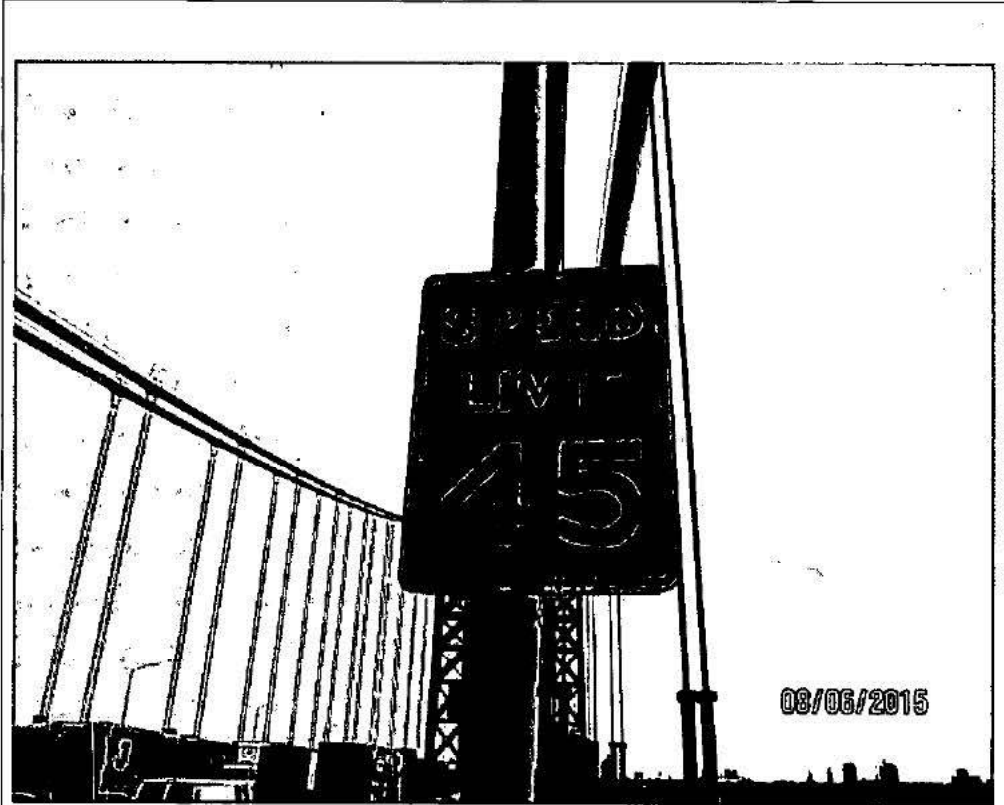


72C

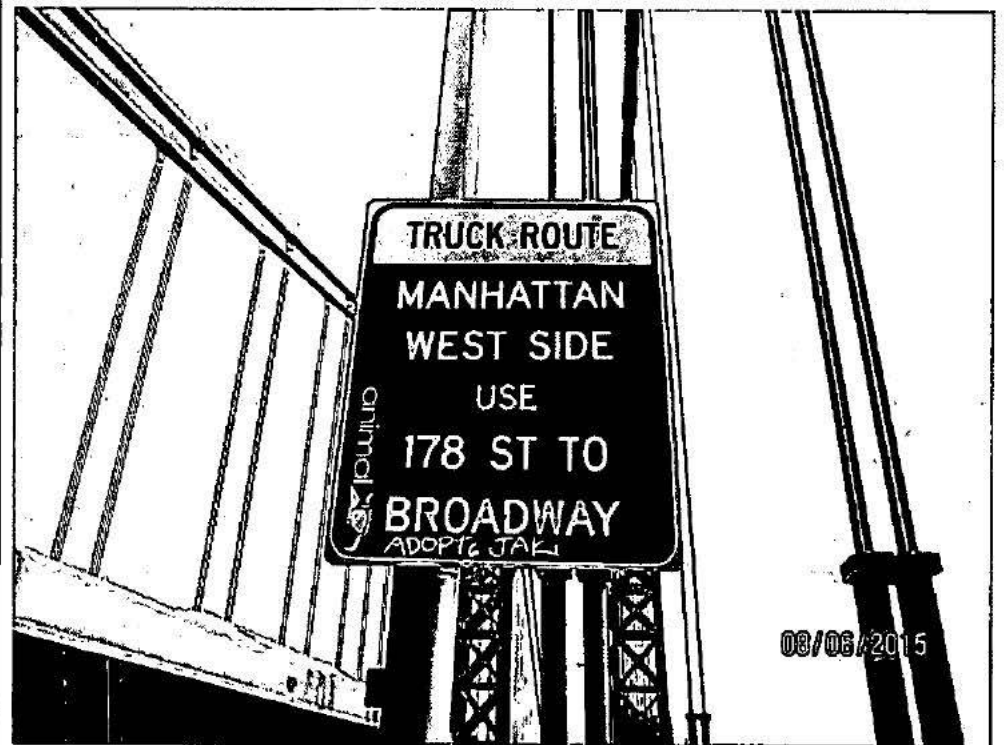


18S

GEORGE WASHINGTON BRIDGE UPPER LEVEL – SIGN STRUCTURES



19A

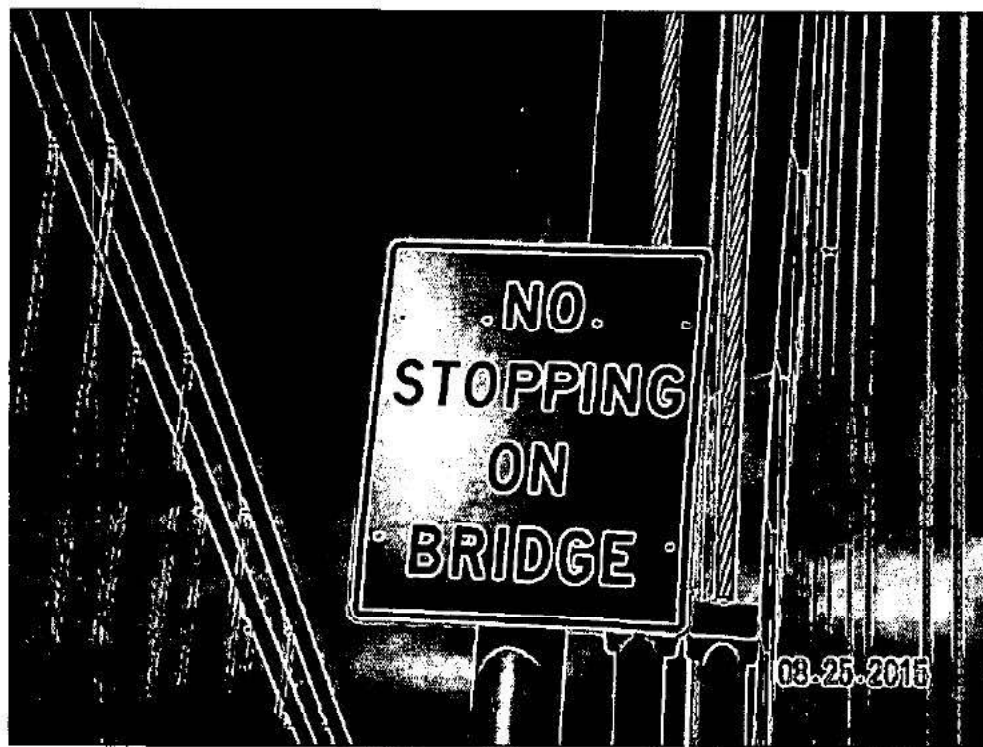


41H

GEORGE WASHINGTON BRIDGE UPPER LEVEL – SIGN STRUCTURES



41L

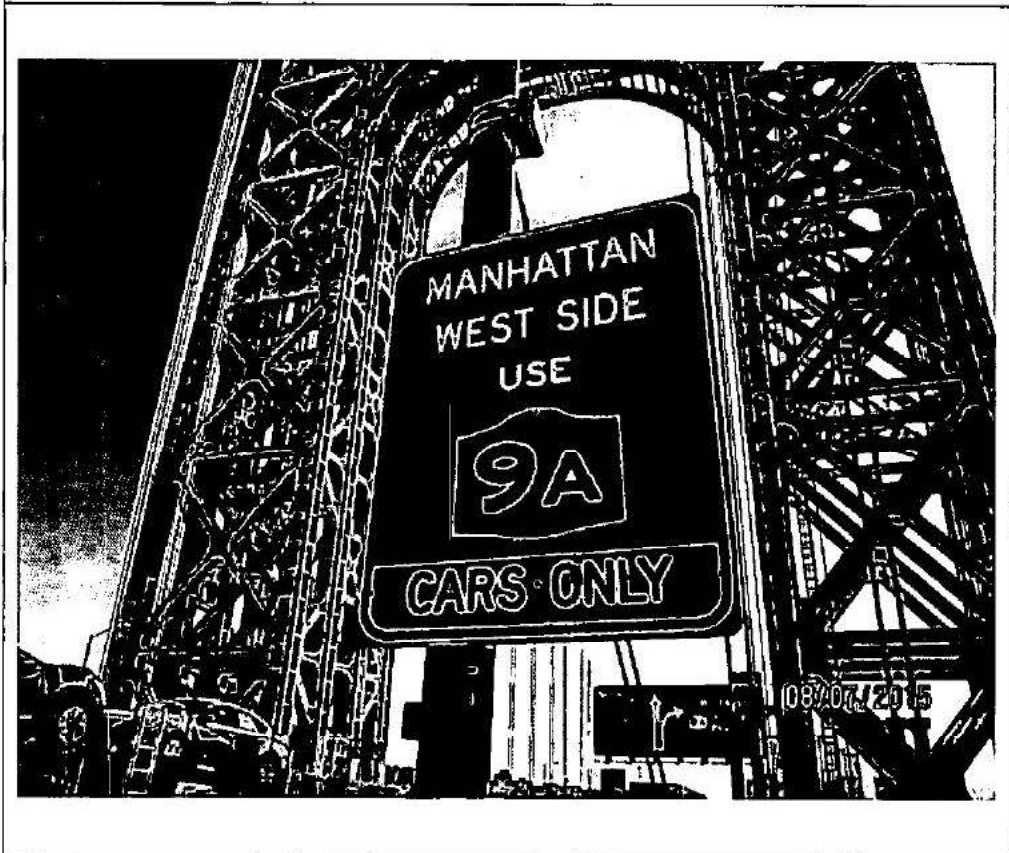


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GEORGE WASHINGTON BRIDGE UPPER LEVEL – SIGN STRUCTURES



S11

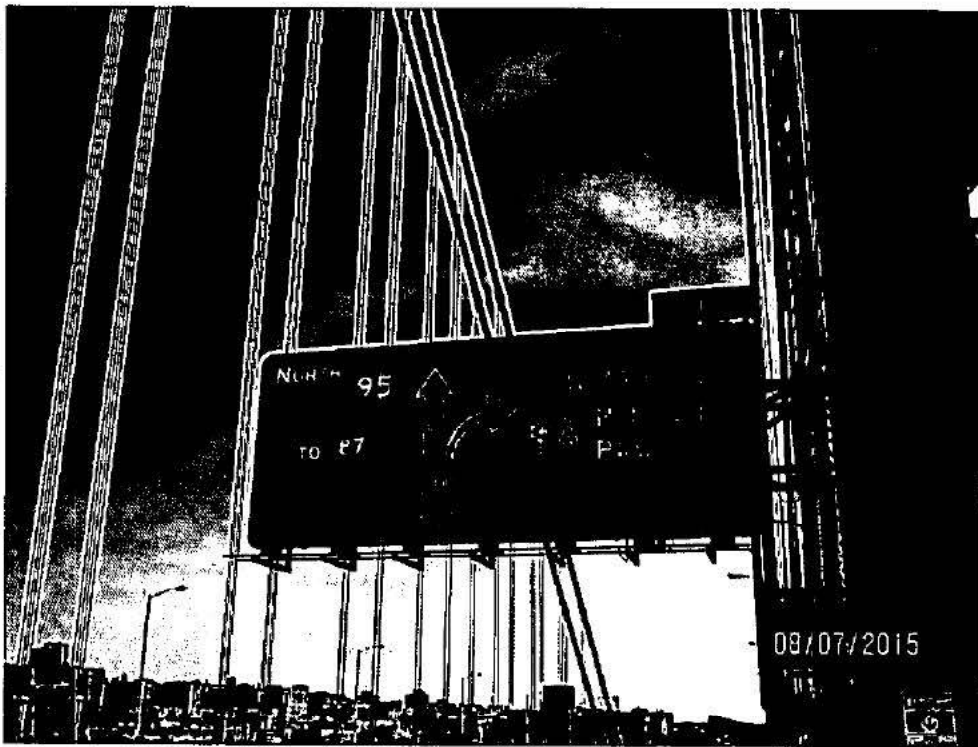


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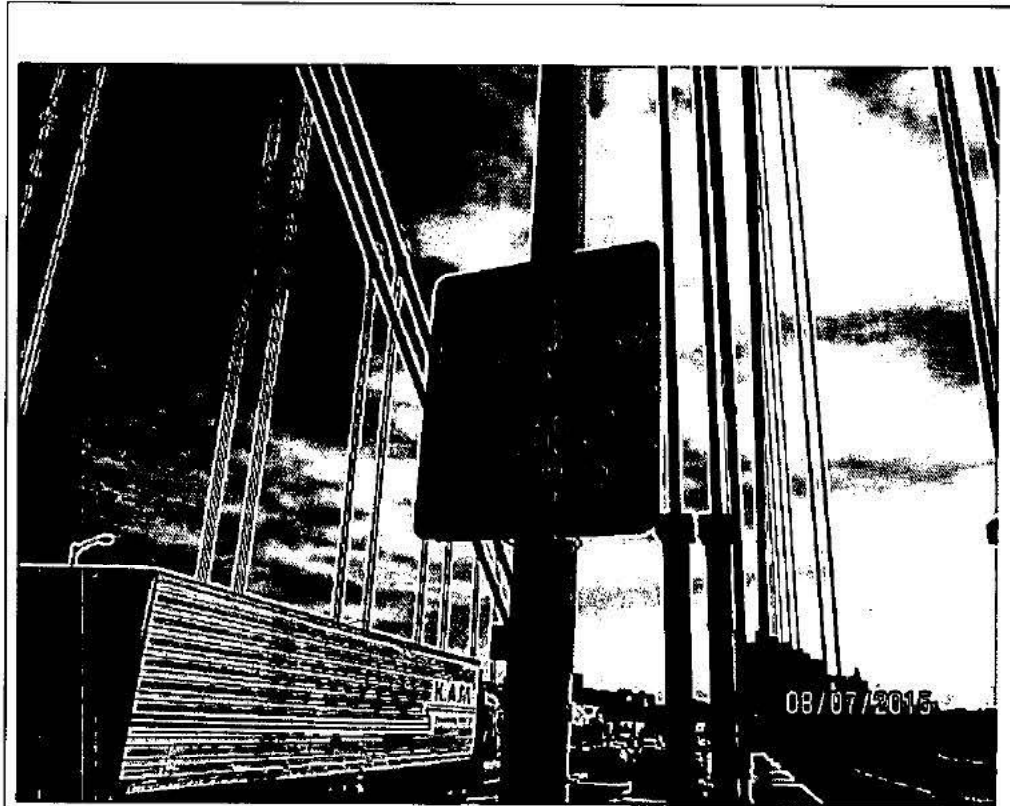


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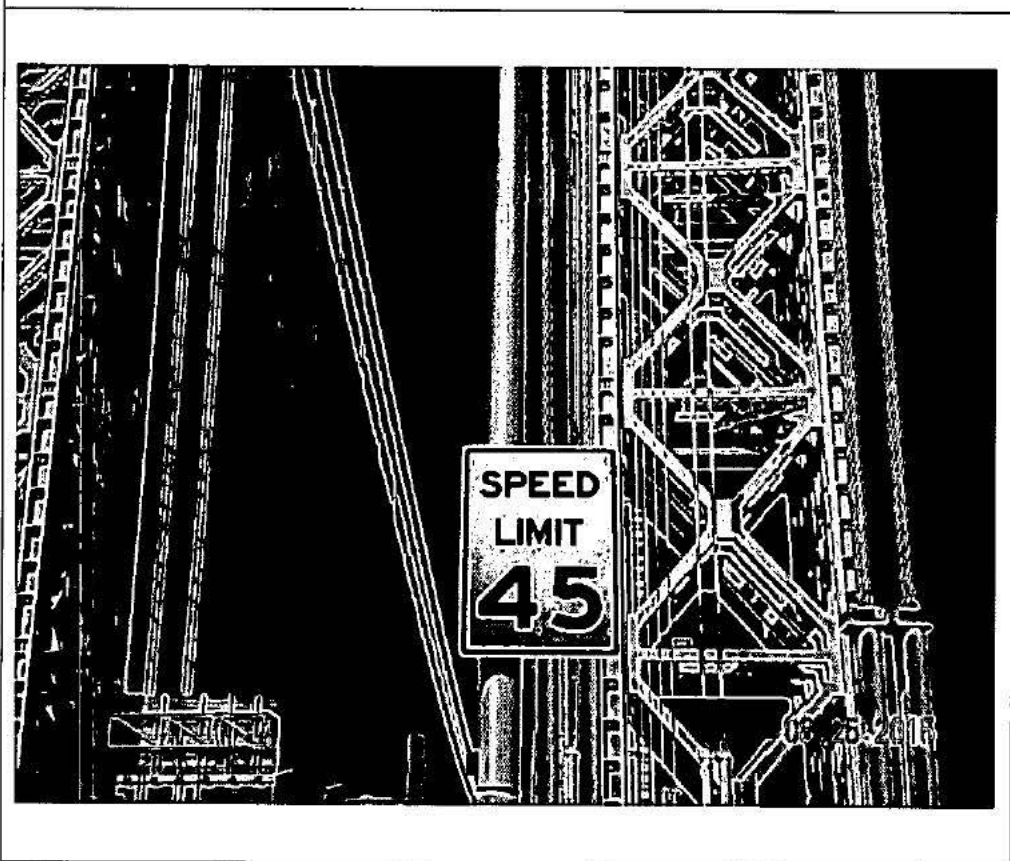


41

GEORGE WASHINGTON BRIDGE UPPER LEVEL – SIGN STRUCTURES



S13

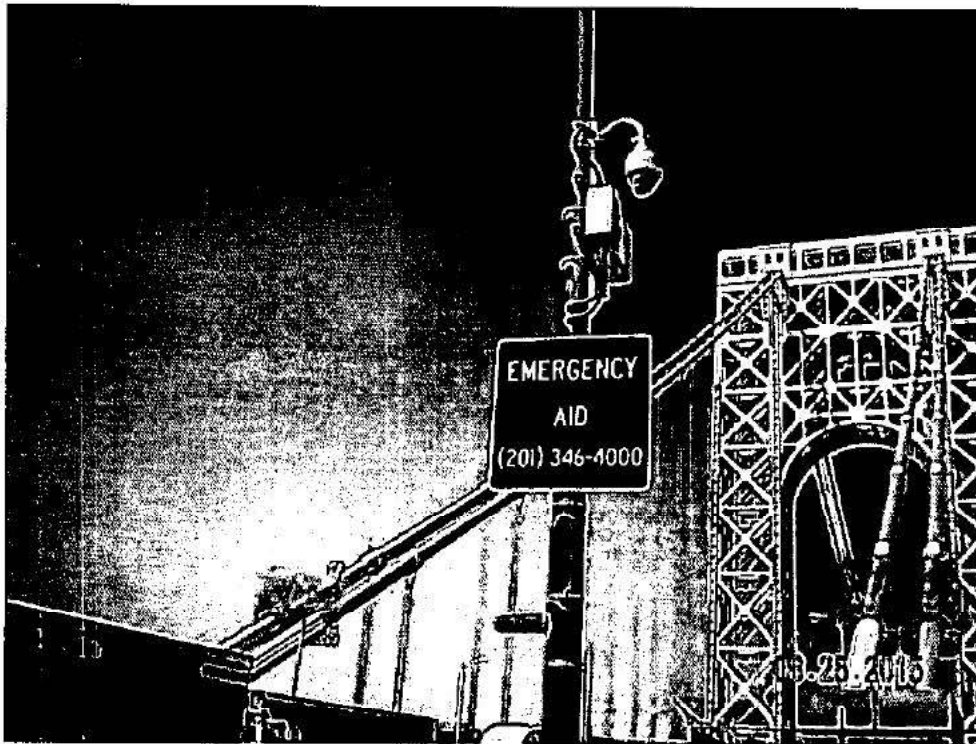


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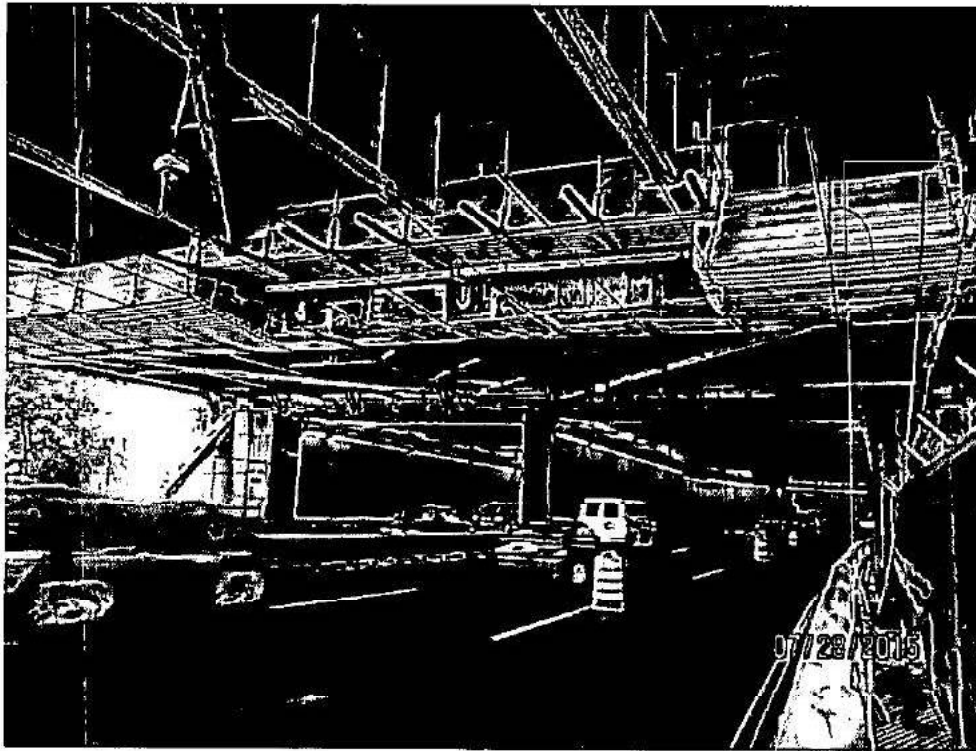
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S18

Inventory Photos Lower Level

GEORGE WASHINGTON BRIDGE UPPER LEVEL – SIGN STRUCTURES

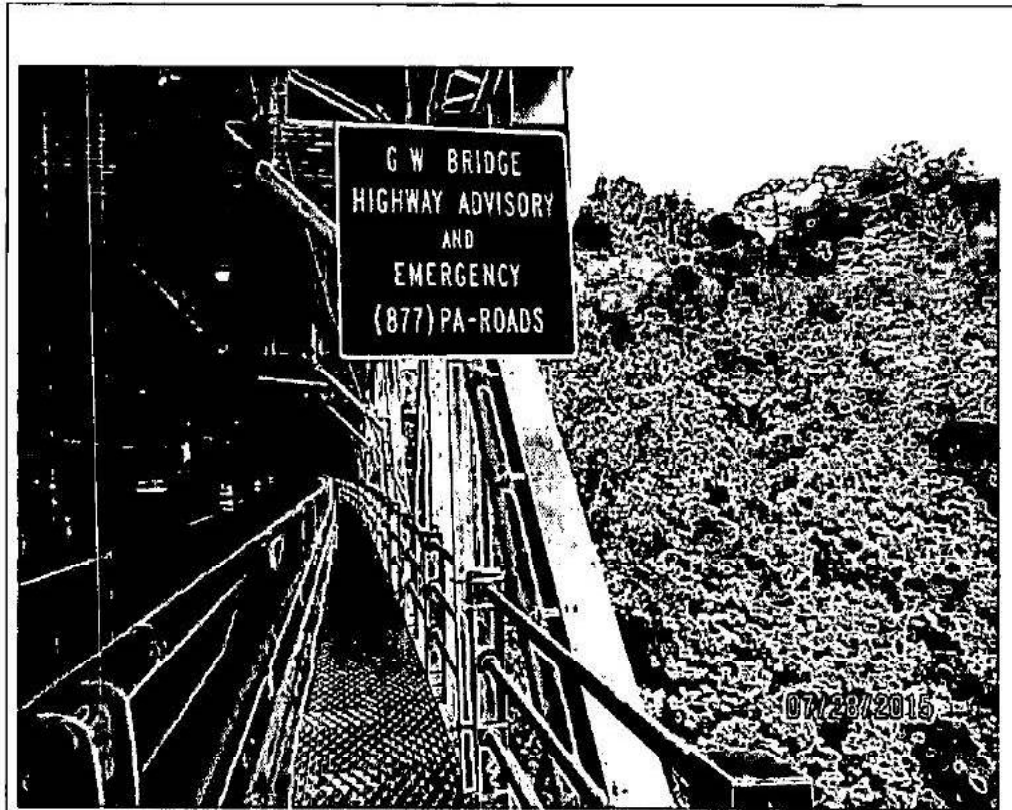


L1



S35

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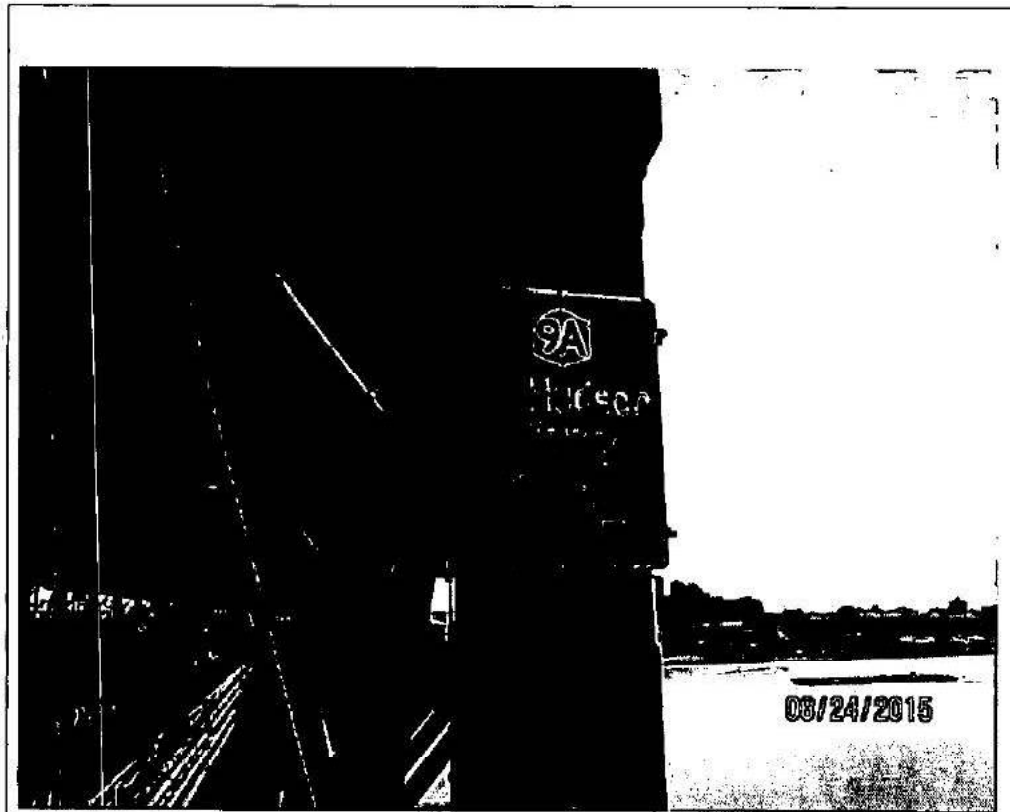


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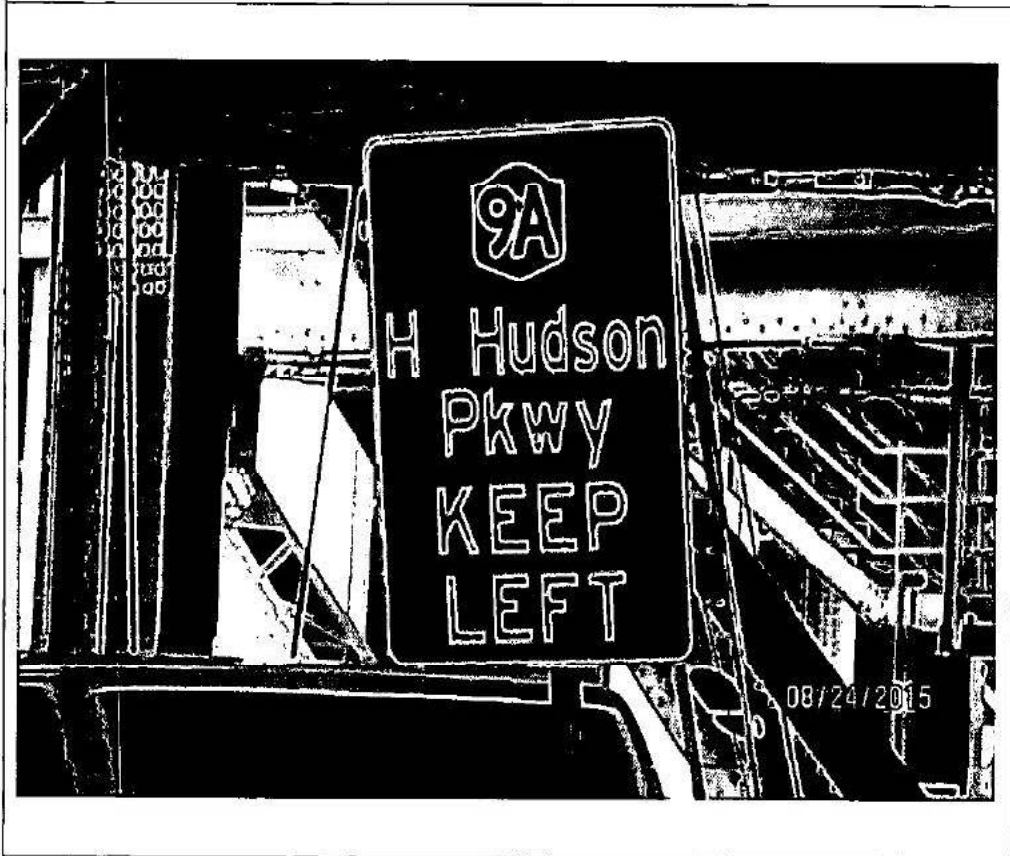


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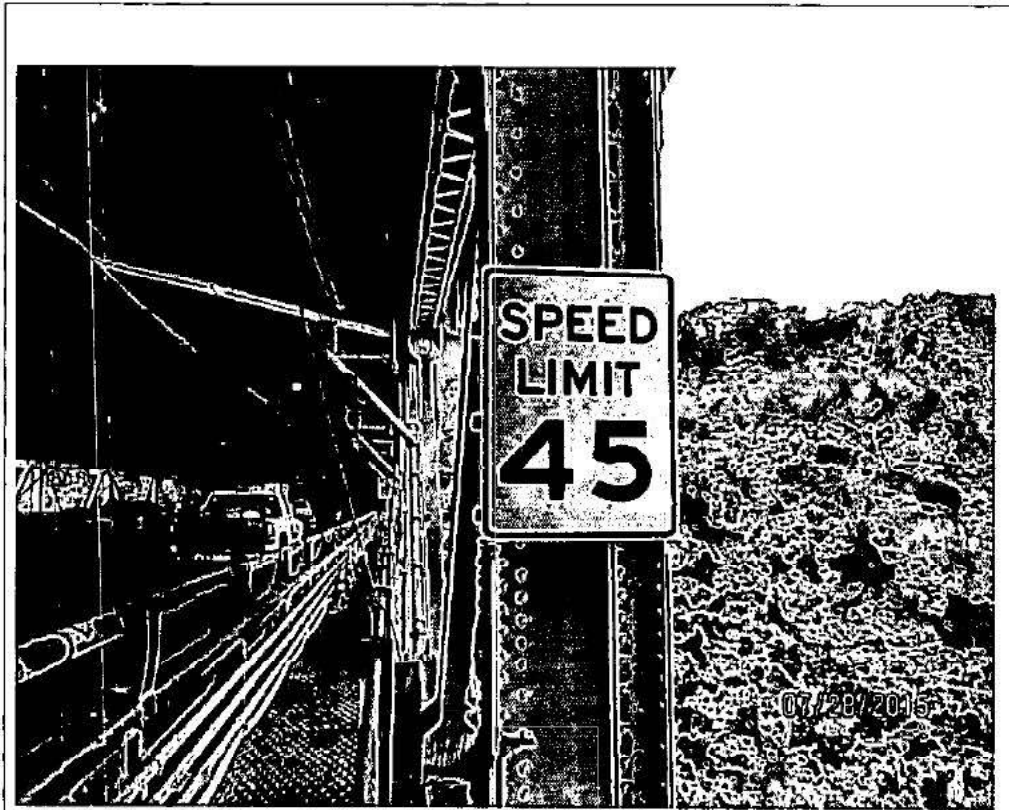


140



S35A

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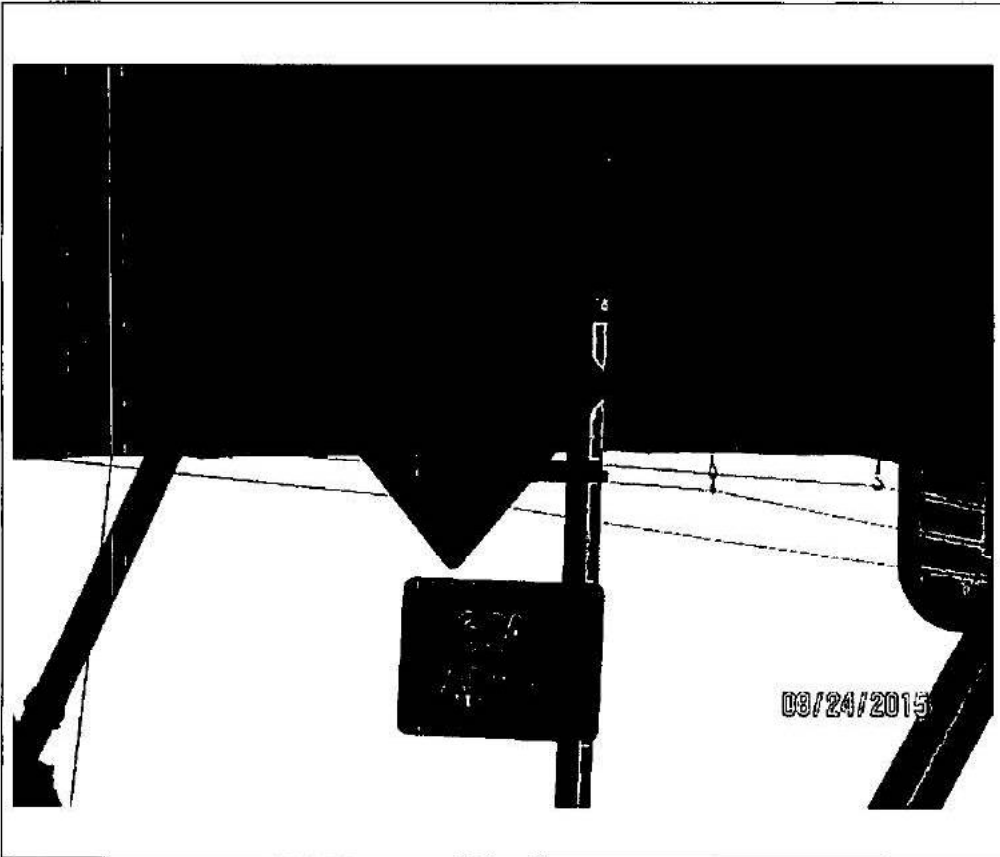


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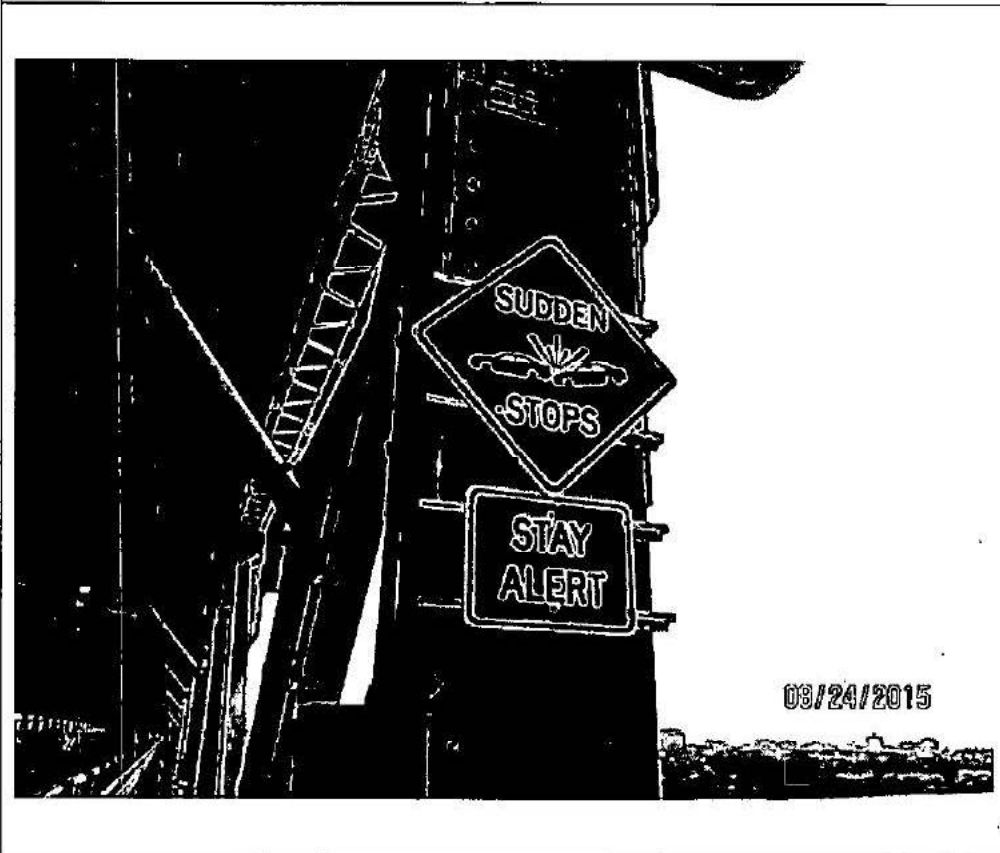


127

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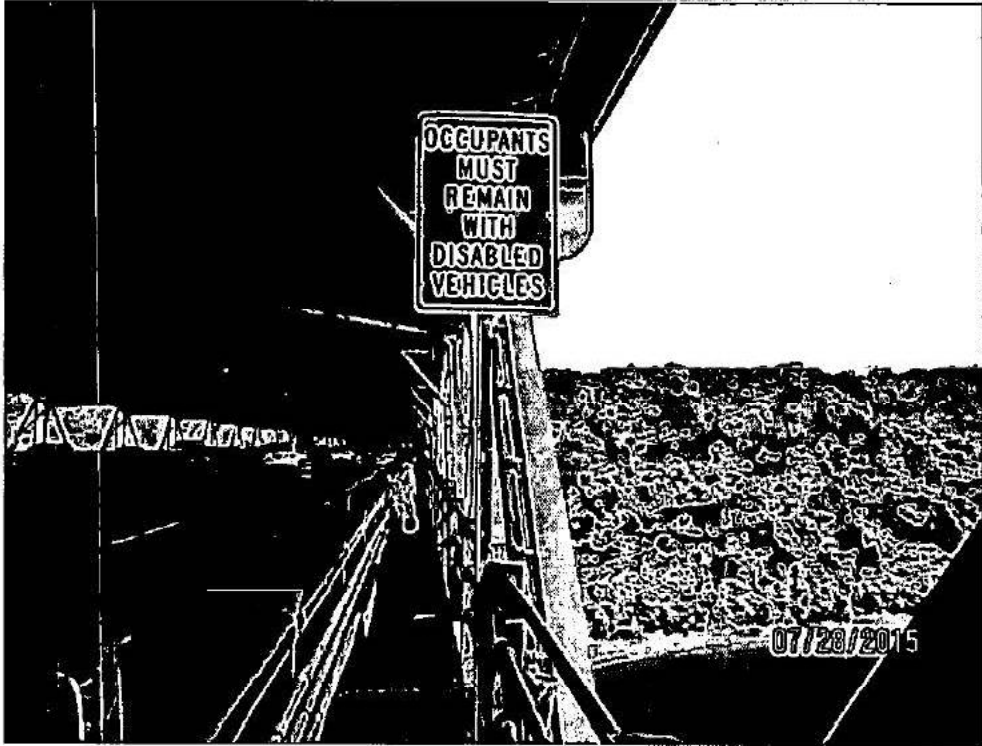


S35B

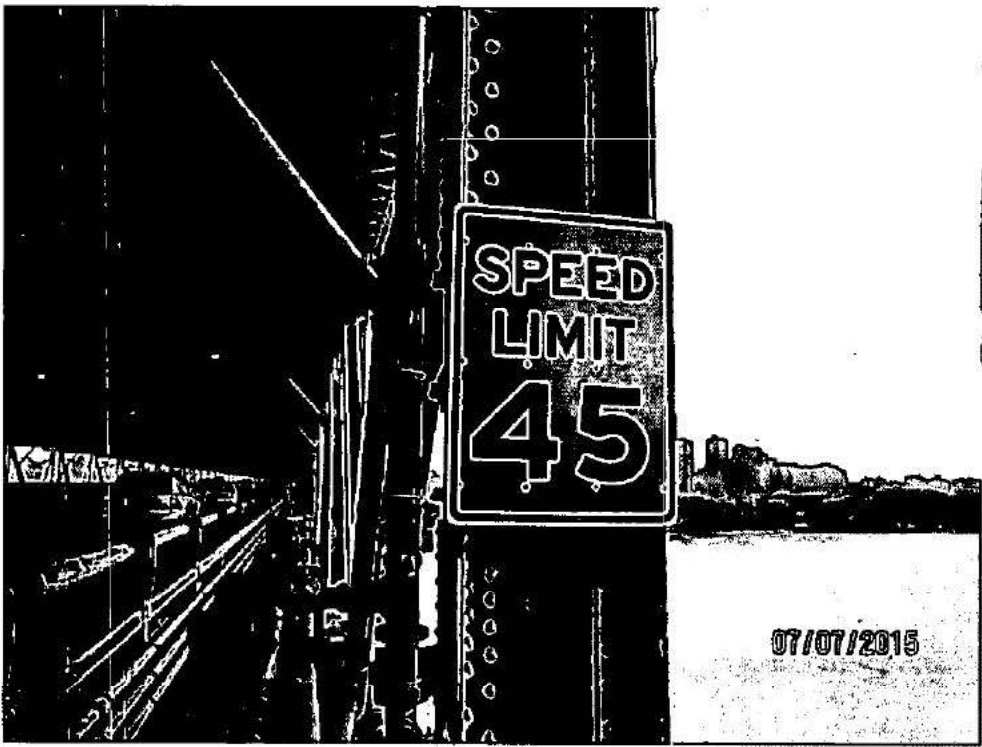


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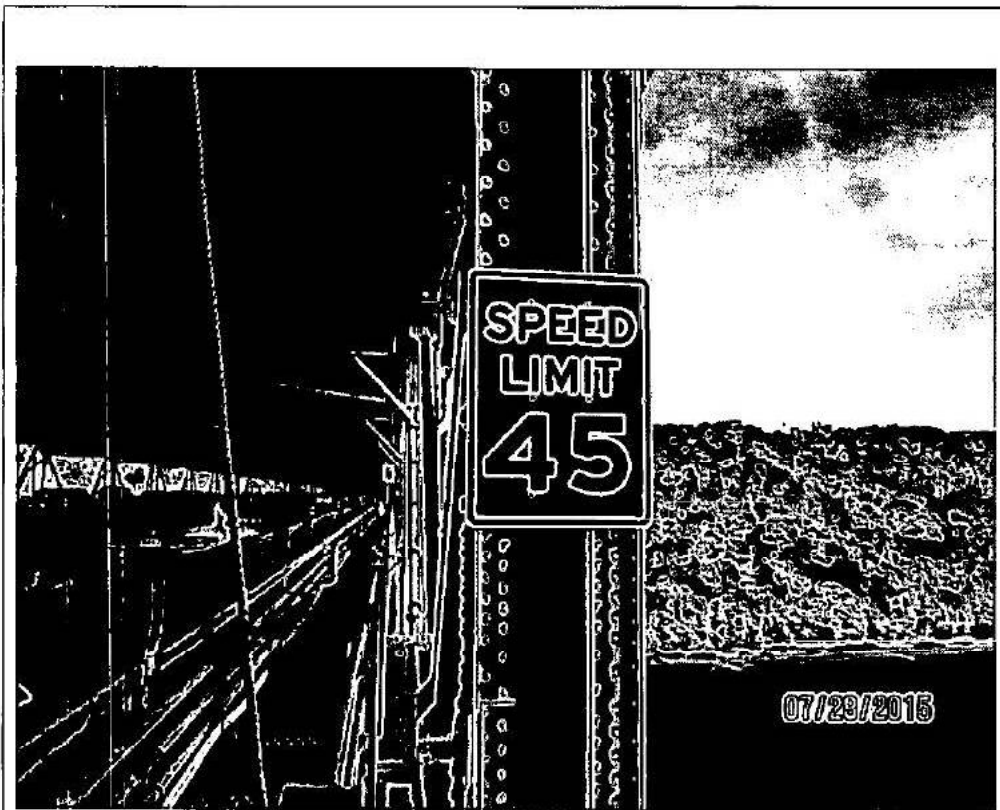


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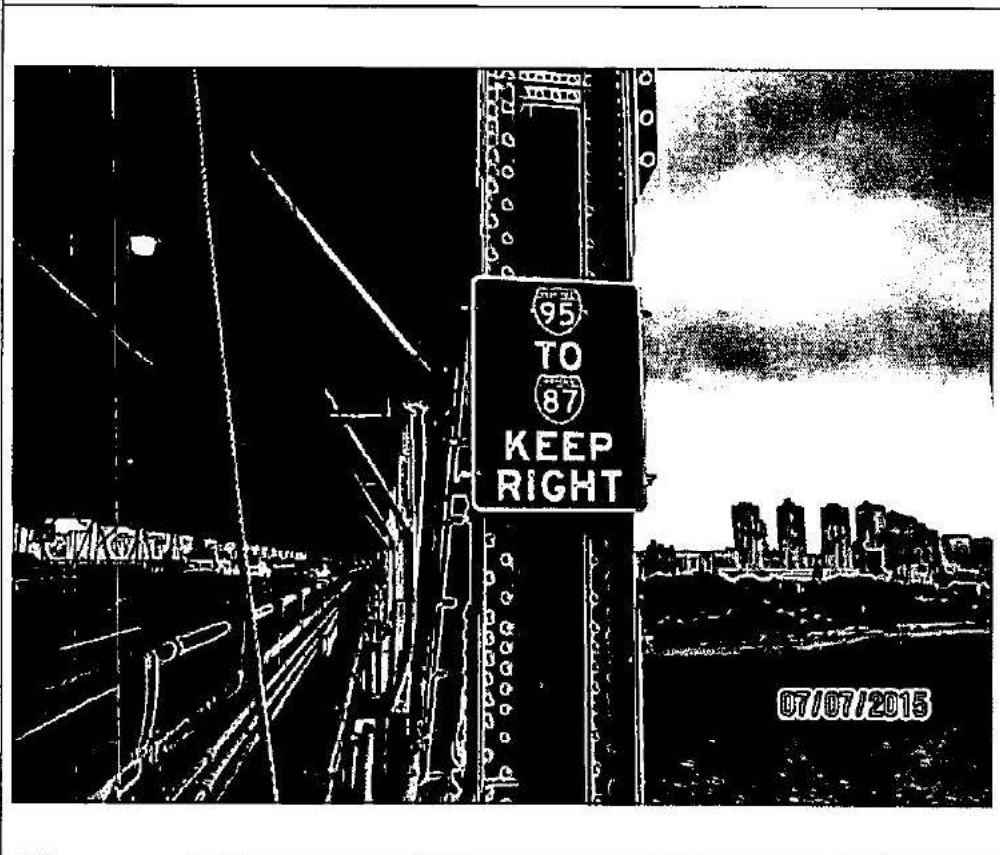


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S39

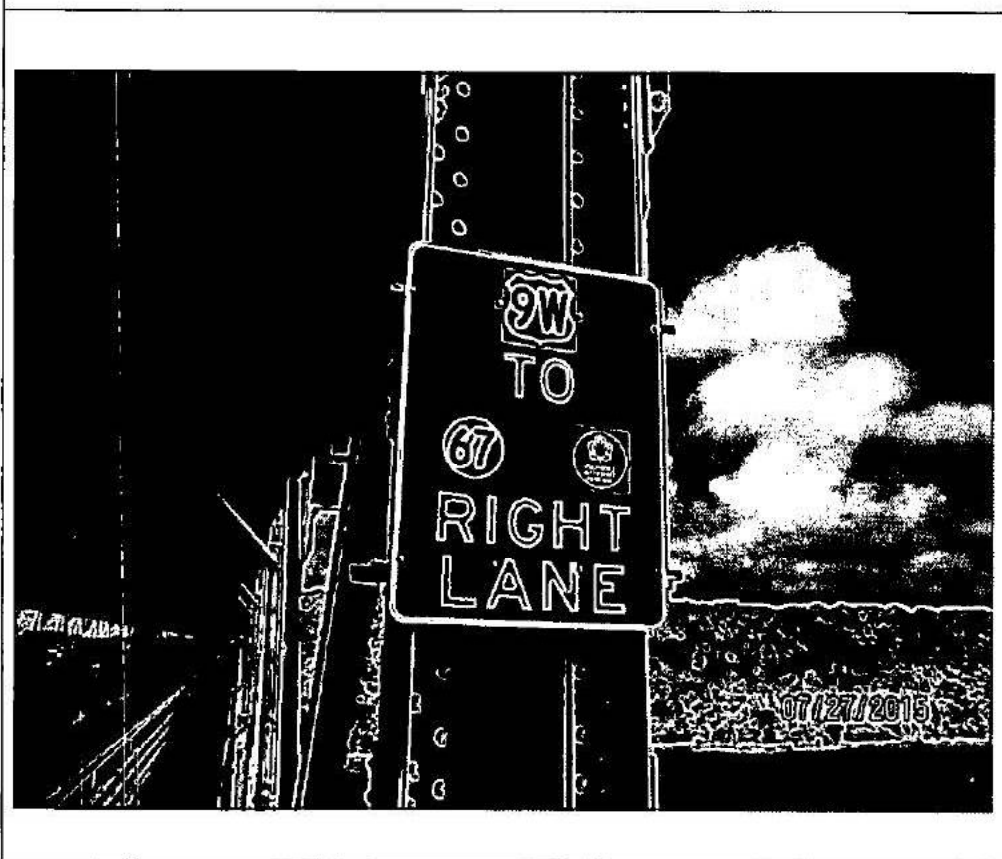


141

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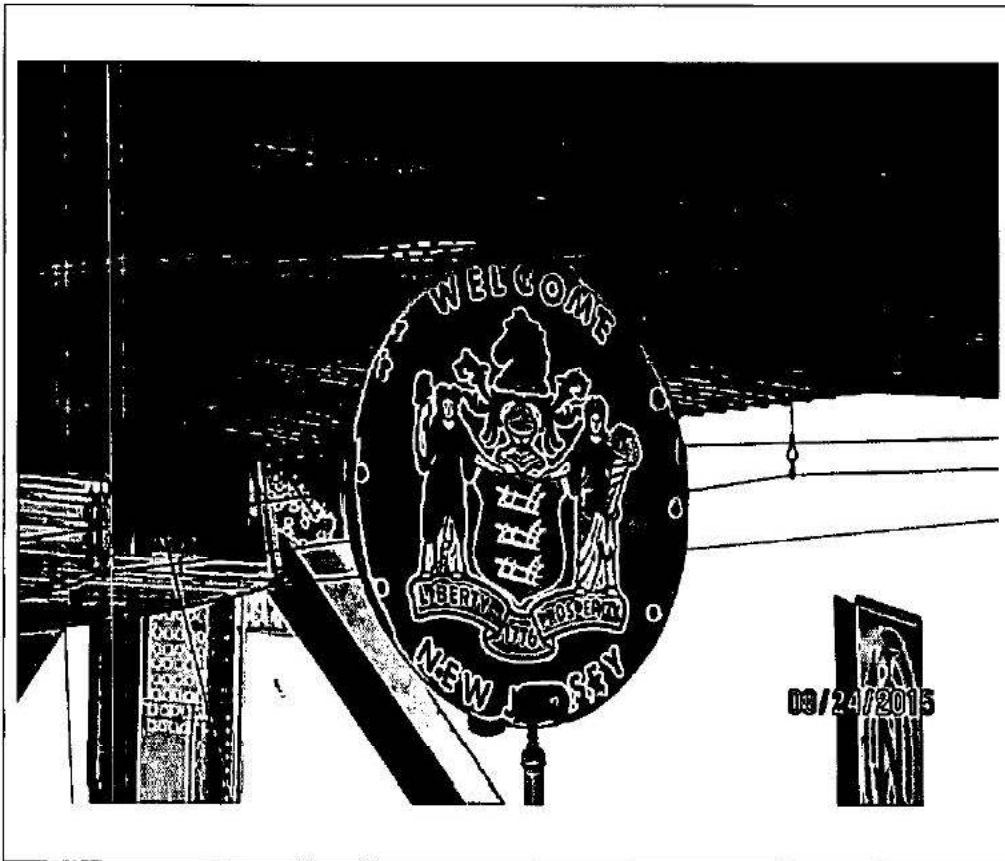


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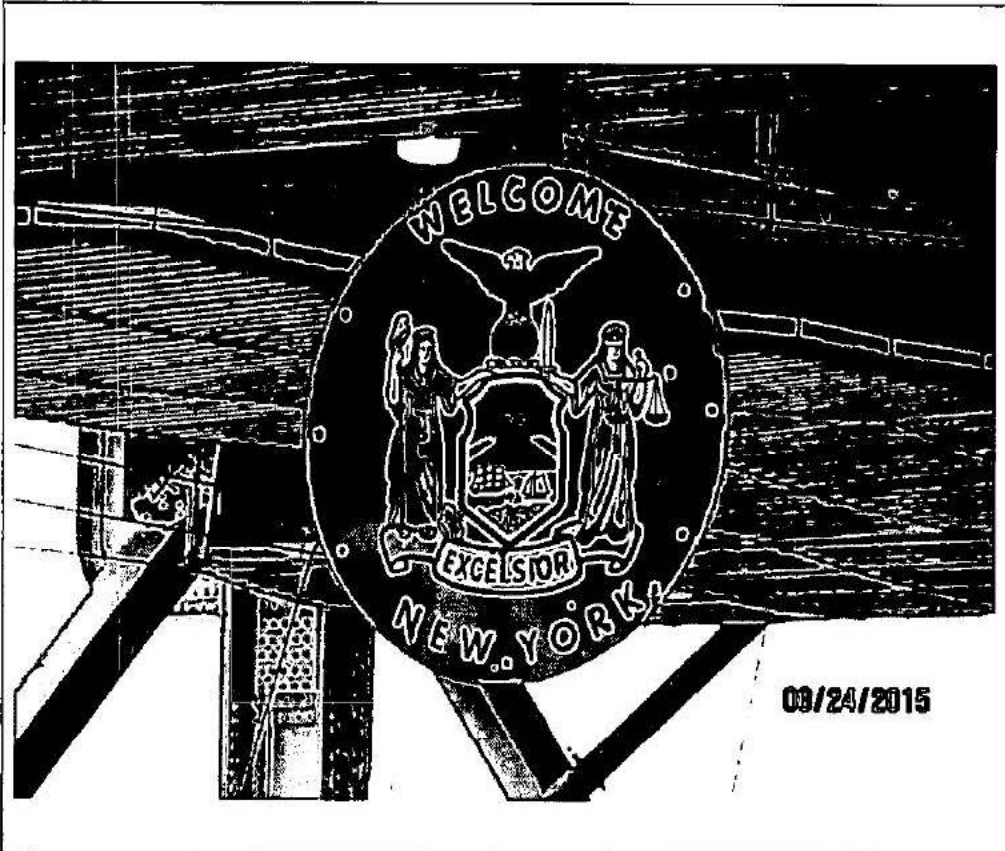


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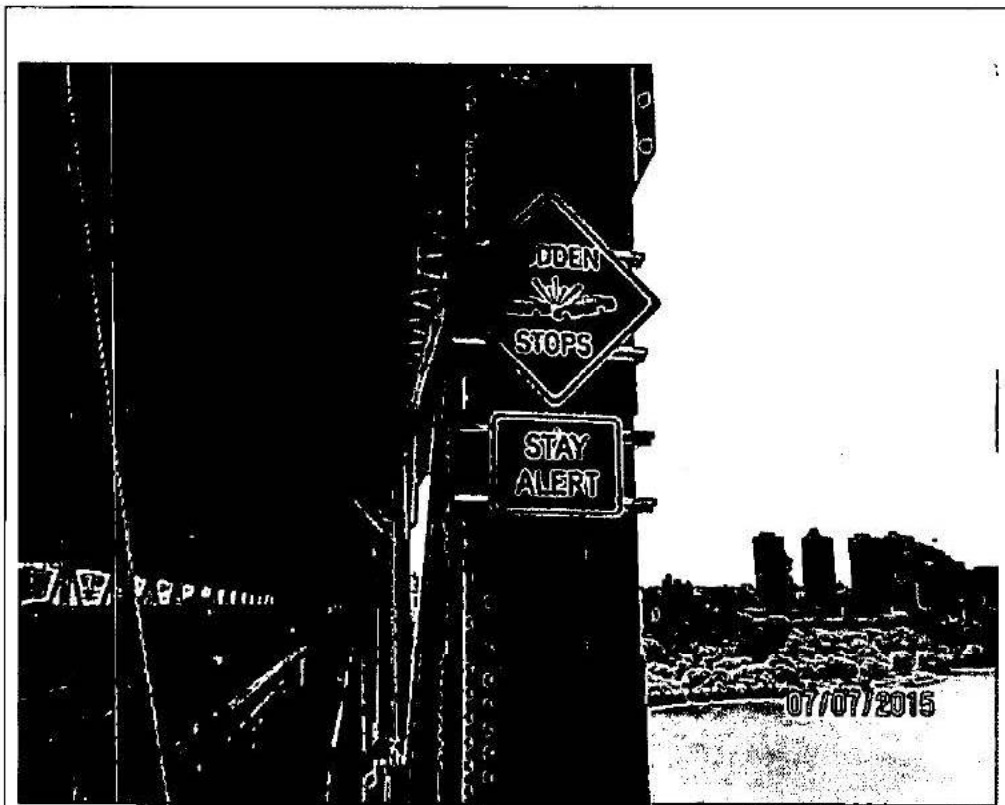


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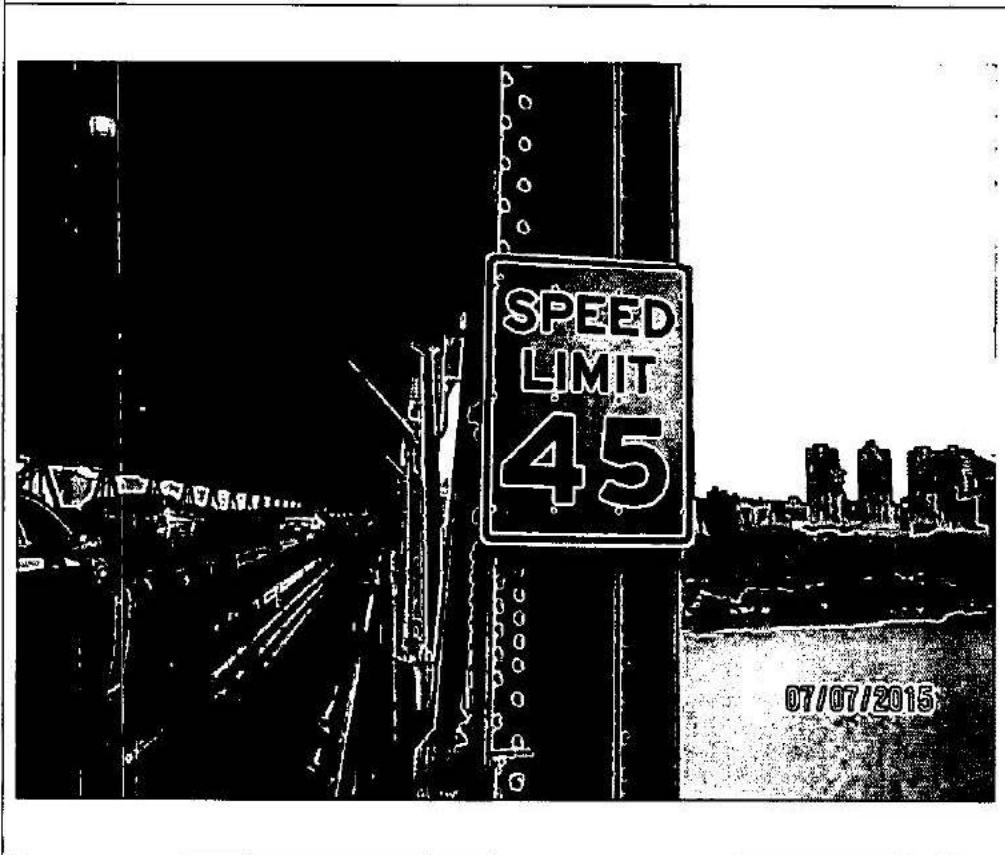


72B

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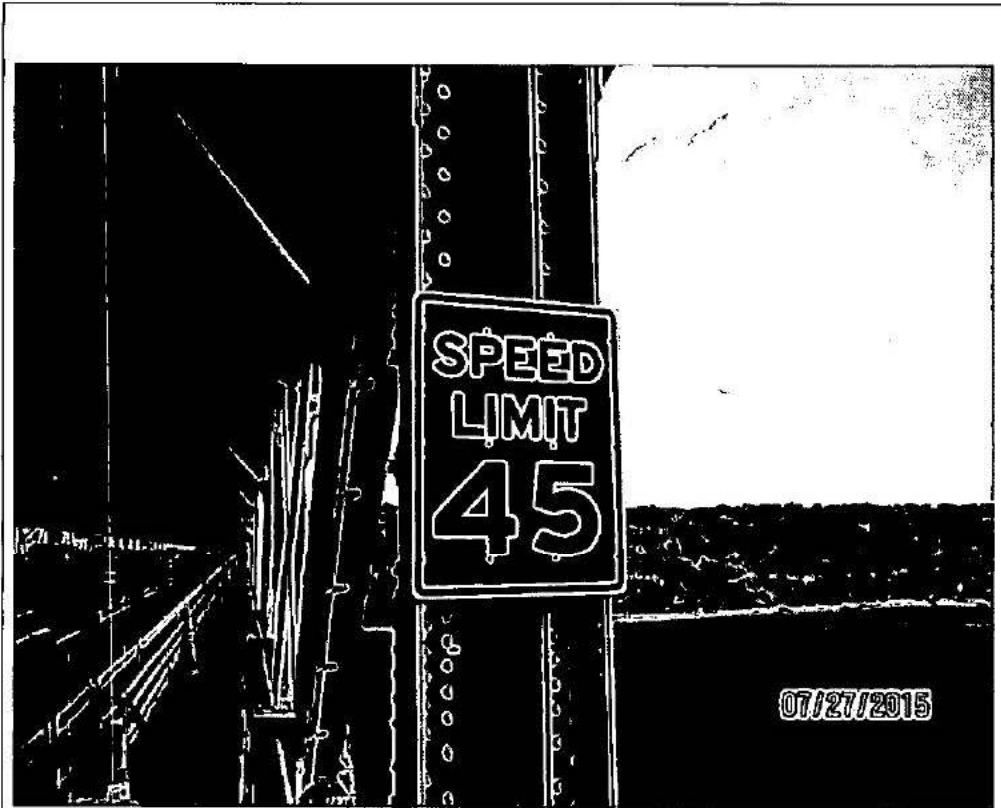


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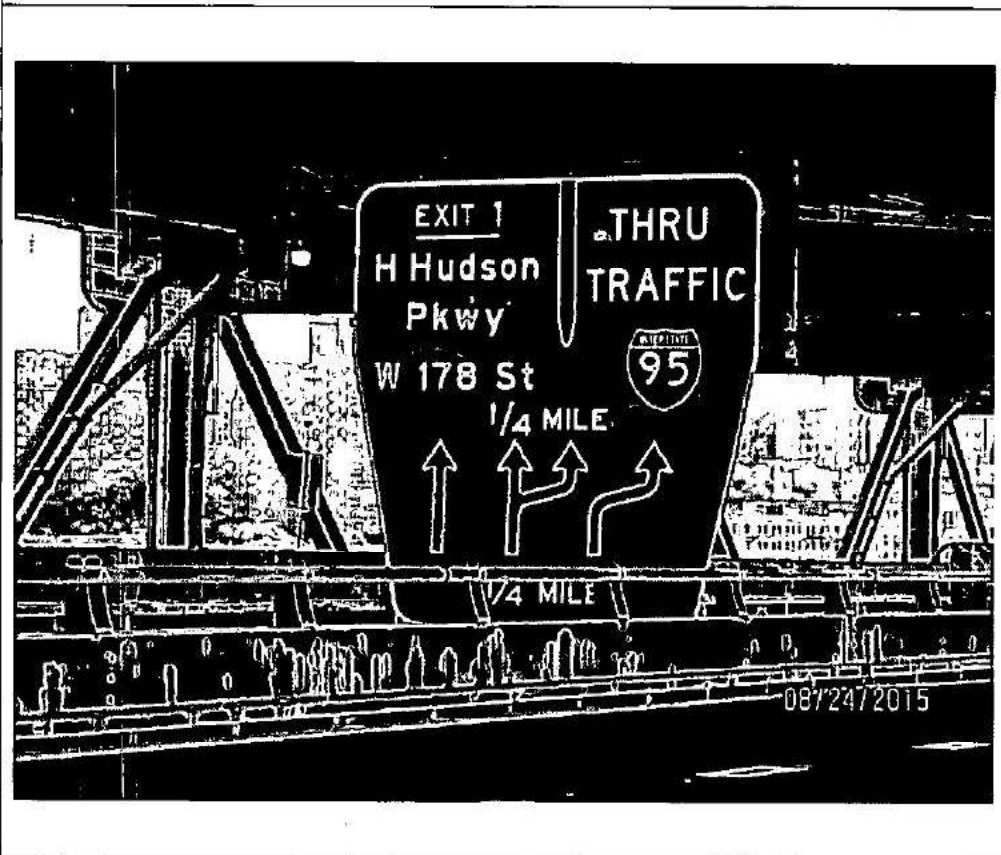


S26

GEORGE WASHINGTON BRIDGE UPPER LEVEL – SIGN STRUCTURES



S41



66

GEORGE WASHINGTON BRIDGE UPPER LEVEL – SIGN STRUCTURES

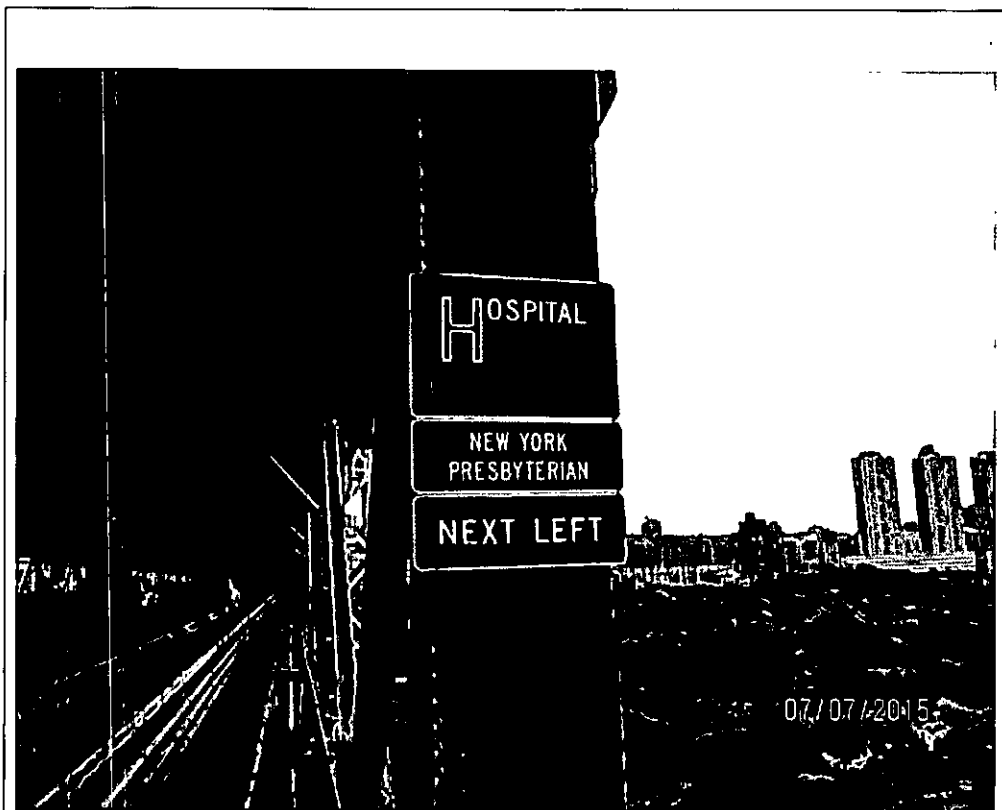


66B

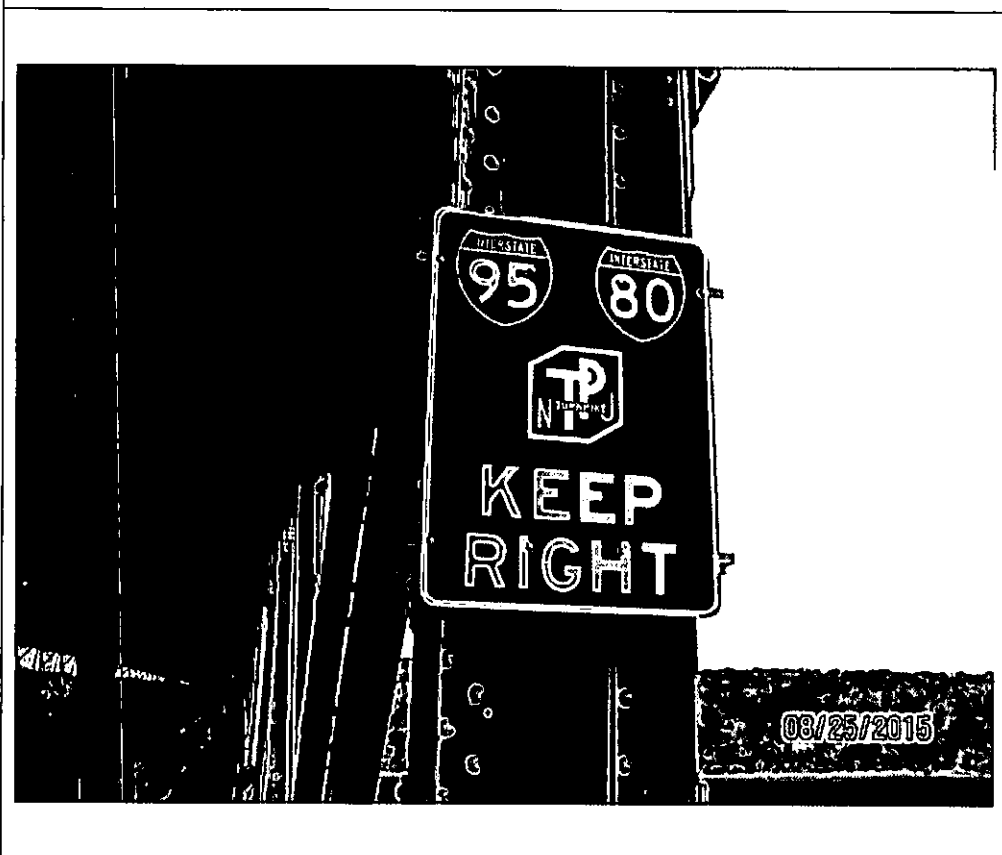


S26A

GEORGE WASHINGTON BRIDGE UPPER LEVEL – SIGN STRUCTURES



S29

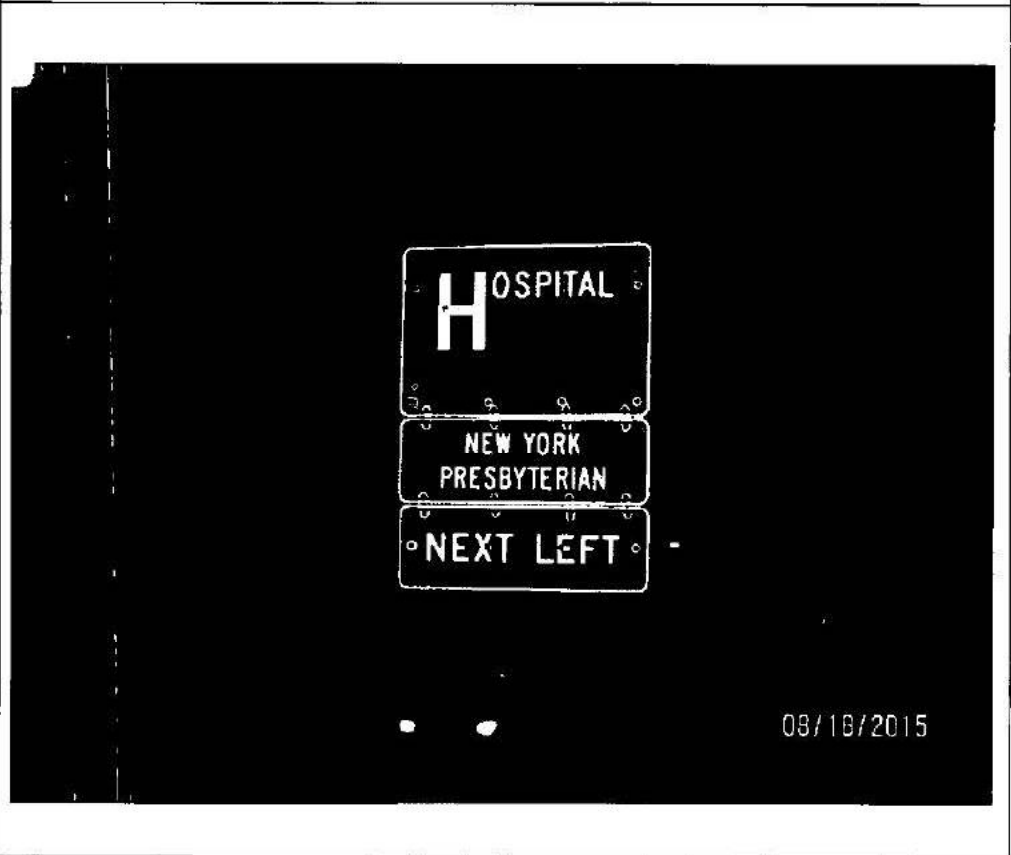


66G

GEORGE WASHINGTON BRIDGE UPPER LEVEL – SIGN STRUCTURES



S30

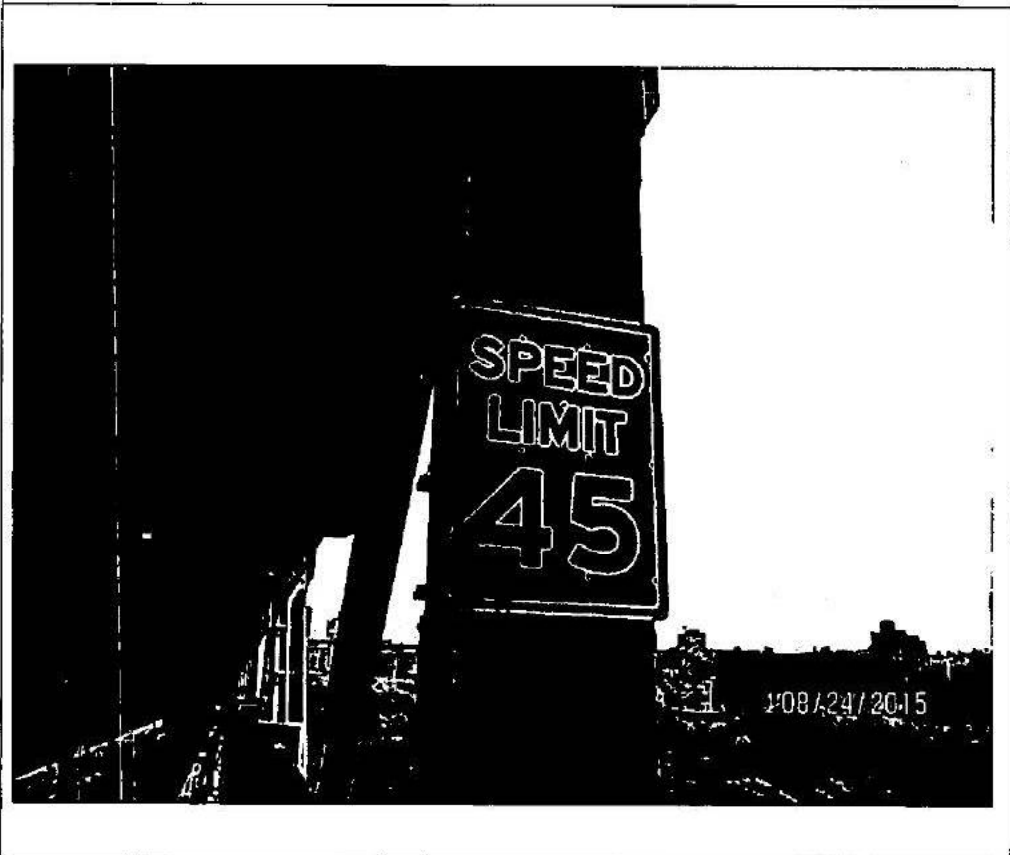


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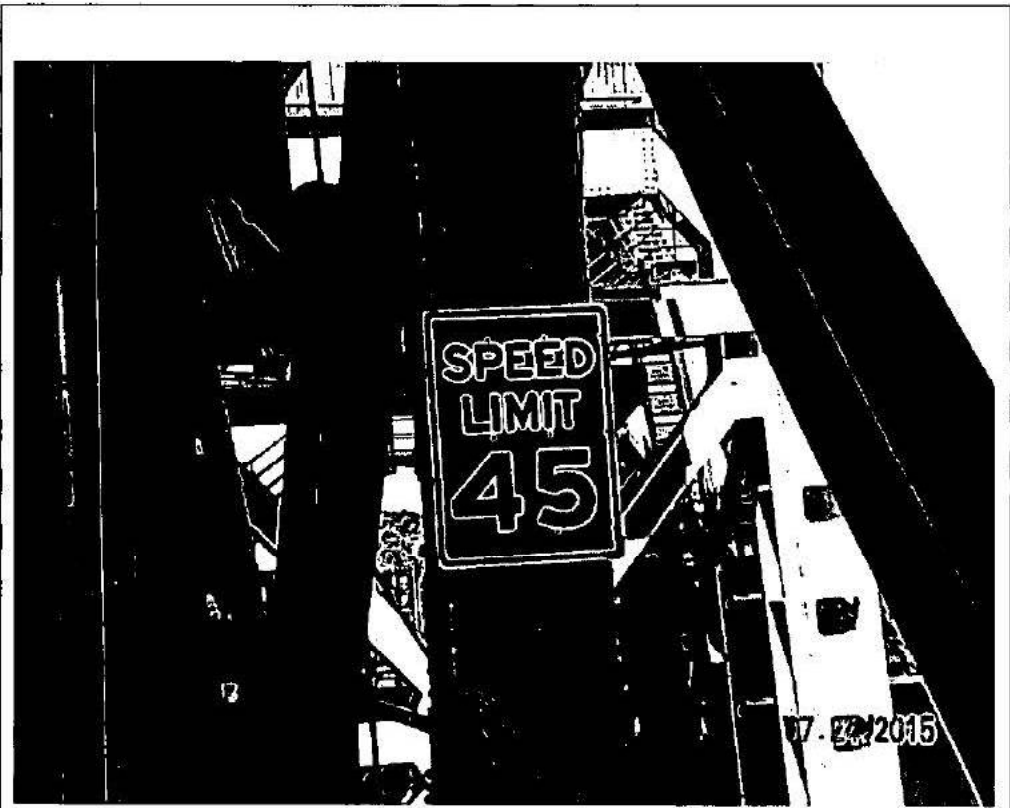


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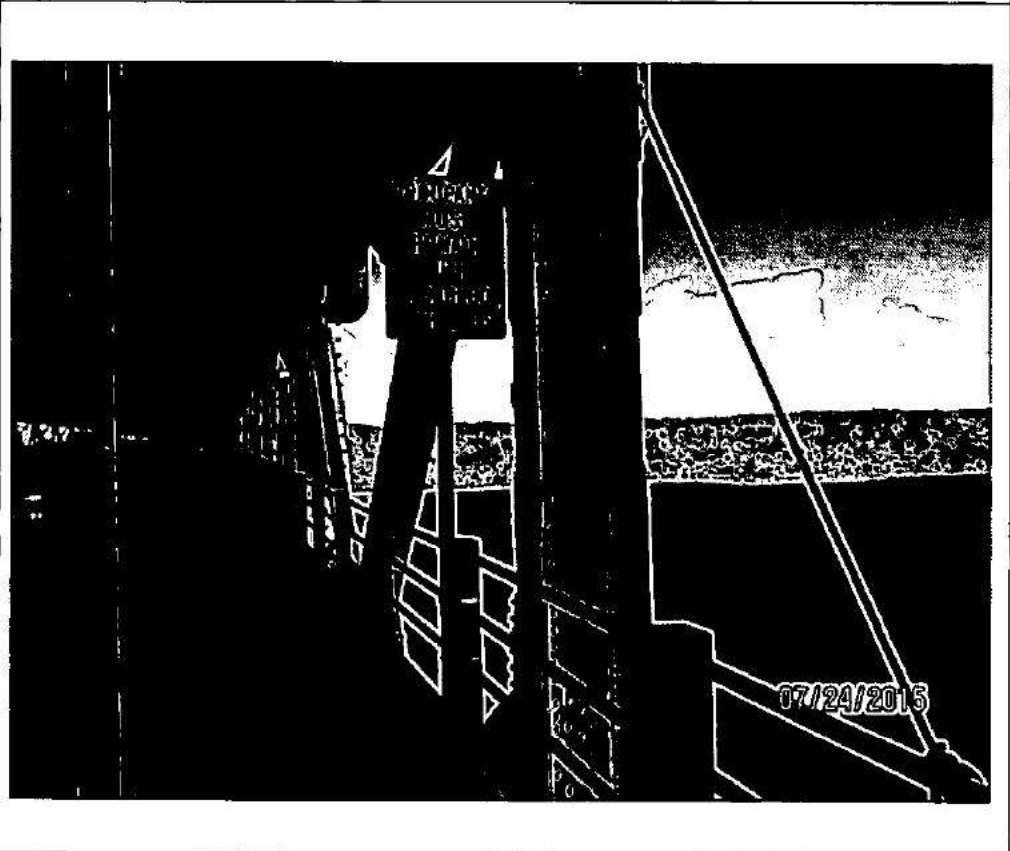


S31

GEORGE WASHINGTON BRIDGE UPPER LEVEL - SIGN STRUCTURES



S43

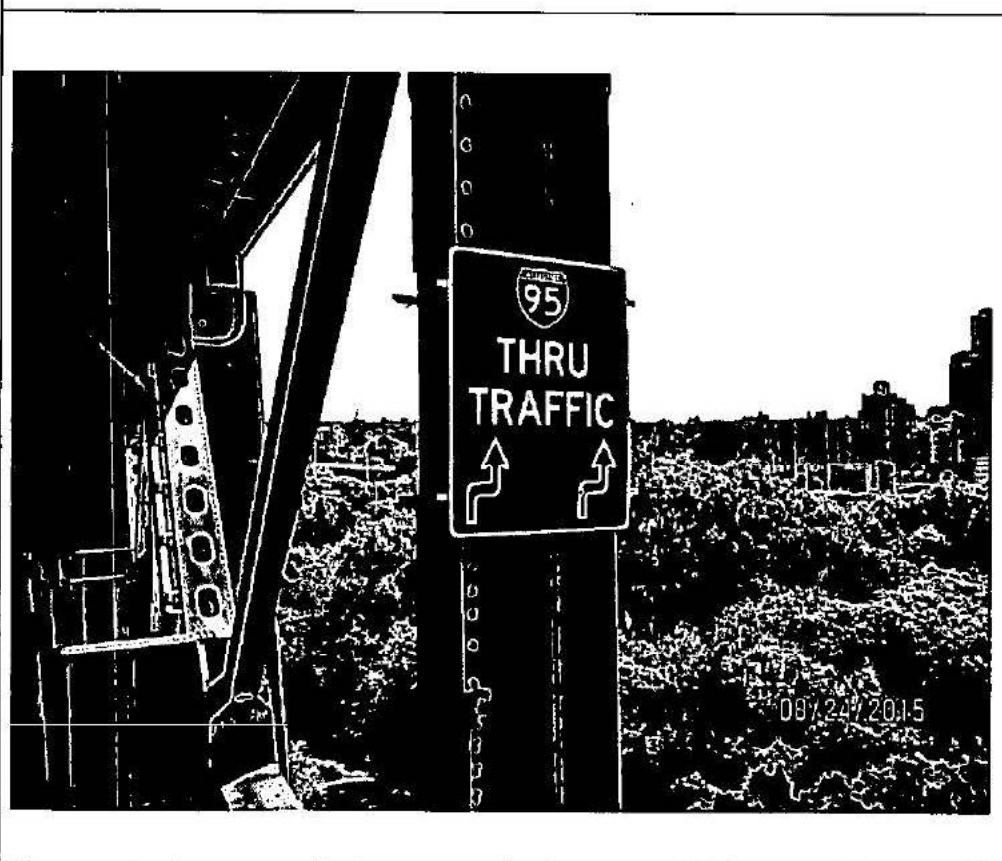


S44

GEORGE WASHINGTON BRIDGE UPPER LEVEL – SIGN STRUCTURES



S31A



S31B

GEORGE WASHINGTON BRIDGE UPPER LEVEL – SIGN STRUCTURES

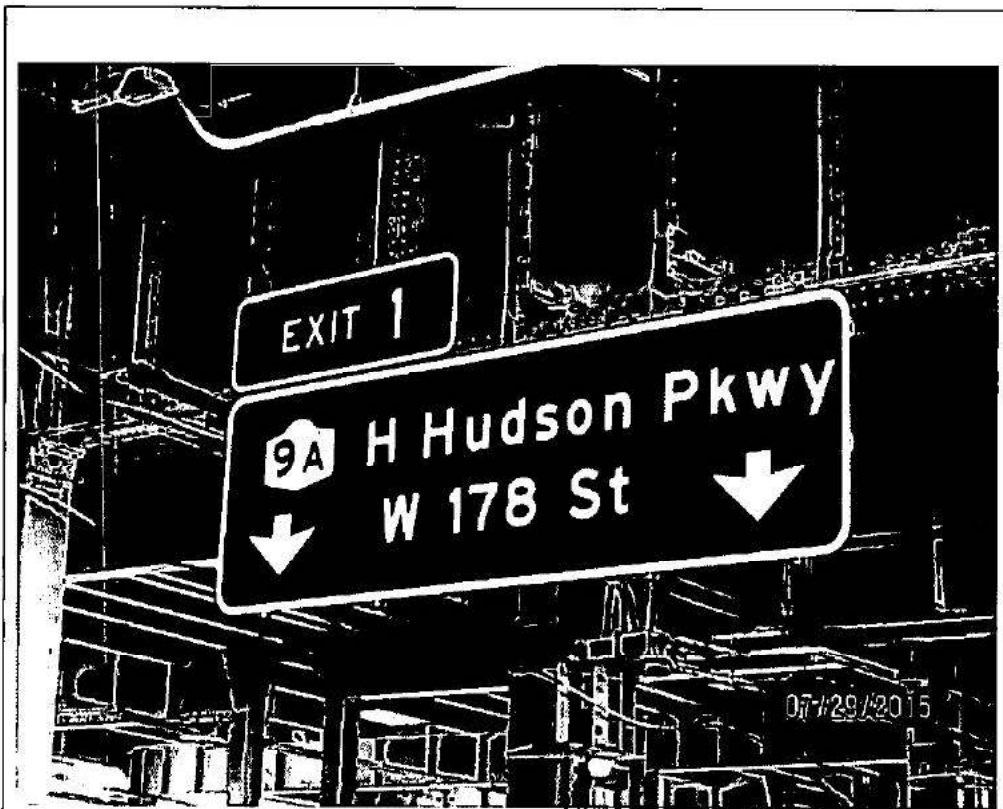


67B



S45

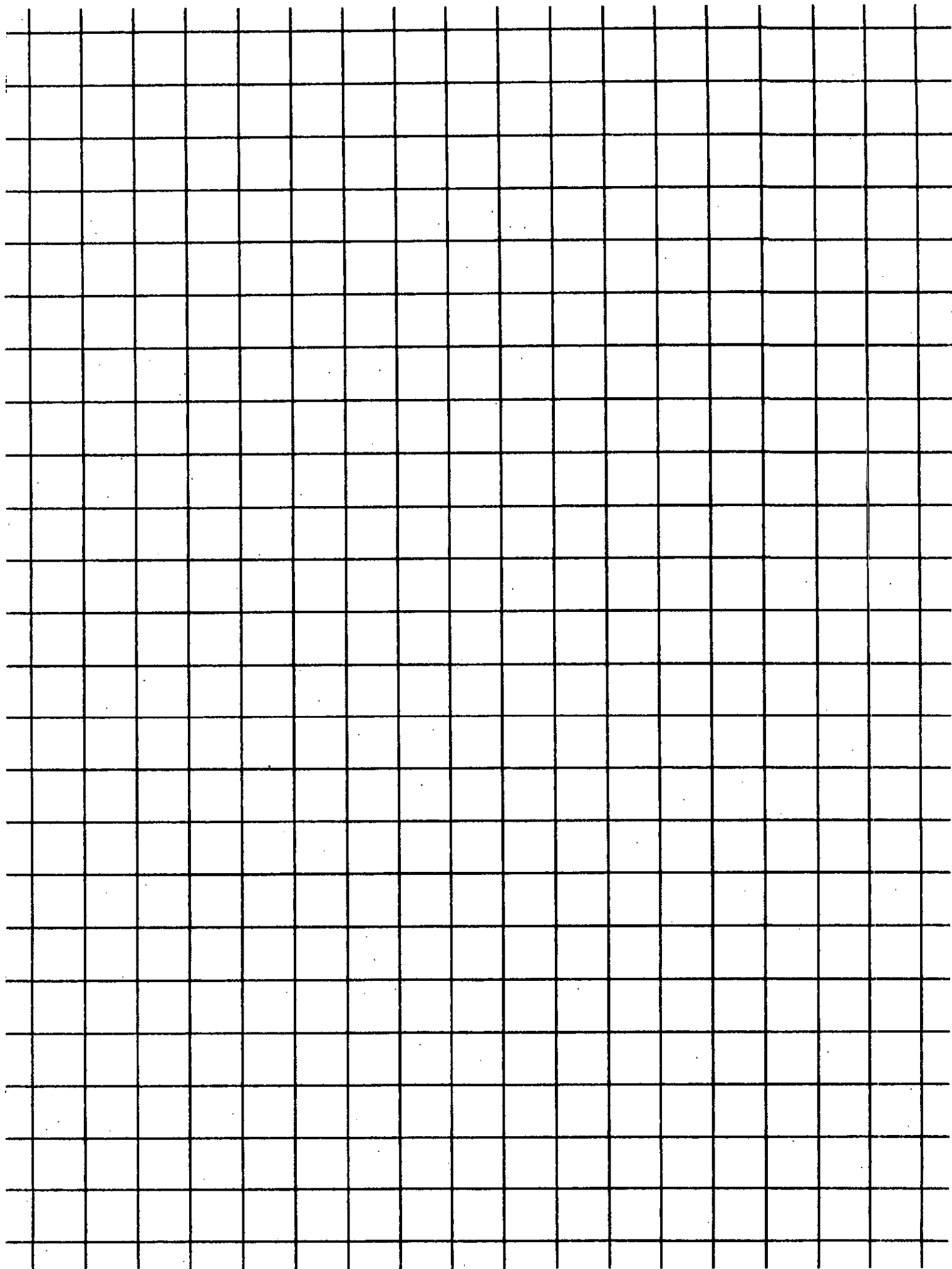
GEORGE WASHINGTON BRIDGE UPPER LEVEL – SIGN STRUCTURES



S33



S34



**Engineering Quality
Assurance Division**
B04-925.142

Port Authority Facility Condition Survey Program

**George Washington Bridge
2015 Inspection Report of
Main Span Upper Level**

Volume 2 of 2

January 2016

Engineering Department

THE PORT AUTHORITY OF NY & NJ

Table of Contents

Volume 1

	PAGE
Executive Summary	i
Summary and Condition Status Table of Priority Repair Recommendations	iii
Summary of Safety Repair Recommendations	xi
Table of Contents	xiii
Location Plan	xiv
General Plan, Elevation and Cross-Section	xv
I. Scope of Work, Inspection Procedures and Terminology	
A. Scope of Work	I-1
B. Inspection Procedures	I-1
C. Condition Survey Definitions and Terminology	I-10
II. Inspection Findings, Conclusions and Recommendations	
A. Upper Level	
Major Inspection Findings	A-1
List of Recommended Repairs	A-7
Key Condition Notes and Legend	A-17
Typical Deficiencies	A-19
Deficiency & Photo Location Plans	A-20
Photographs	A-40
B. Towers	
Major Inspection Findings	B-1
List of Recommended Repairs	B-4
Deficiency & Photo Location Plans	B-6
Photographs	B-10
C. Cables and Suspender Ropes	
Major Inspection Findings	C-1
List of Recommended Repairs	C-24
Photographs	C-27
D. Bridge Mounted Sign Structures	
Major Inspection Findings	D-1
List of Recommended Repairs	D-2
Surveyed Sign Structures – Upper Level	D-3
Surveyed Sign Structures – Lower Level	D-8
Deficiency & Photo Location Plans	D-15
Photographs	D-17
Inventory Photos – Upper Level	D-21
Inventory Photos – Lower Level	D-33

Volume 2

APPENDICES

Appendix A – Orthotropic Deck – Cracked Rib Welds Table	A-1
Appendix B – Immediate Action Correspondence	B-1

Appendix A

Orthotropic Deck – Cracked Rib Welds Table

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
2W-3W	B2	R10	W	FW	10
2W-3W	B2	R52	E	1	4
2W-3W	B3	R24	E	½	10
2W-3W	B7	R2	W	½	6
2W-3W	B7	R69	E	¾	10
2W-3W	B8	R67	E	¾	10
2W-3W	B9	R54	E	1	10
2W-3W	B10	R24	W	½	10
2W-3W	B11	R55	E	¼	10
2W-3W	B11	R55	W	¼	10
3W-4W	B2	R61	E	3	2
3W-4W	B4	R55	E	¼	10
3W-4W	B4	R55	W	⅙	10
3W-4W	B5	R55	E	¼	10
3W-4W	B5	R55	W	¼	10
3W-4W	B6	R55	E	¼	10
3W-4W	B7	R55	E	½	10
3W-4W	B8	R54	E	⅙	10
3W-4W	B8	R55	E	¾	10
3W-4W	B8	R55	W	¼	10
3W-4W	B9	R52	E	¼	10
3W-4W	B9	R54	E	¼	10
3W-4W	B9	R55	E	¼	10
3W-4W	B9	R55	W	¼	10
3W-4W	B10	R60	E	⅙	10
3W-4W	B11	R25	E	1 ½	10
3W-4W	B11	R26	E	4	10
3W-4W	B11	R38	E	FW	4
3W-4W	B11	R41	W	3	10
3W-4W	B11	R42	W	1	10
3W-4W	B11	R43	W	1 ¾	10
3W-4W	B11	R45	W	1 ½	10
3W-4W	B11	R54	W	1 ½	10
3W-4W	B11	R55	E	¼	10
3W-4W	B11	R55	W	½	10
3W-4W	B11	R56	E	2 ¼	6
3W-4W	B11	R56	W	2	10
3W-4W	B11	R58	W	2 ½	10
3W-4W	B11	R64	E	3	6
3W-4W	B11	R66	E	1	10
3W-4W	B11	R66	W	½	2
4W-5W	B2	R10	W	2 ½	2
4W-5W	B2	R19	E	½	2

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
4W-5W	B2	R19	W	FW	2
4W-5W	B2	R28	W	FW	2
4W-5W	B2	R29	W	1 ½	2
4W-5W	B2	R30	W	2 ½	2
4W-5W	B3	R19	E	½	10
4W-5W	B3	R19	W	¼	10
4W-5W	B4	R17	W	¼	2
4W-5W	B4	R19	E	¼	2
4W-5W	B4	R19	W	½	2
4W-5W	B4	R31	W	1	10
4W-5W	B4	R63	W	1	2
4W-5W	B5	R19	E	¼	2
4W-5W	B5	R19	W	¼	2
4W-5W	B5	R61	E	1 ¼	2
4W-5W	B6	R21	E	1 ¼	2
4W-5W	B6	R25	W	½	10
4W-5W	B7	R21	W	2	2
4W-5W	B7	R25	E	½	10
4W-5W	B8	R19	E	¼	2
4W-5W	B8	R20	E	2 ½	2
4W-5W	B8	R45	W	⅛	10
4W-5W	B9	R19	E	¼	2
4W-5W	B9	R45	W	⅛	10
4W-5W	B11	R20	W	FW	4
4W-5W	B11	R21	E	3 ½	10
4W-5W	B11	R23	E	FW	10
4W-5W	B11	R26	E	2 ½	2
4W-5W	B11	R28	E	FW	10
4W-5W	B11	R32	E	½	10
4W-5W	B11	R33	E	FW	10
4W-5W	B11	R39	E	FW	10
4W-5W	B11	R43	E	2 ½	10
4W-5W	B11	R46	W	⅛	10
4W-5W	B11	R66	E	½	10
4W-5W	B11	R69	E	½	10
5W-6W	B2	R18	W	1 ¼	10
5W-6W	B2	R62	E	3	2
5W-6W	B3	R19	E	1 ¼	10
5W-6W	B3	R25	E	½	10
5W-6W	B3	R34	W	2 ½	10
5W-6W	B4	R25	E	½	10
5W-6W	B4	R25	W	½	10
5W-6W	B4	R69	W	1	10

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
5W-6W	B5	R25	E	½	10
5W-6W	B5	R25	W	½	10
5W-6W	B9	R9	W	1	6
5W-6W	B9	R23	E	½	10
5W-6W	B9	R25	E	½	10
5W-6W	B9	R25	W	¼	10
5W-6W	B10	R13	E	1	10
5W-6W	B10	R13	W	½	10
5W-6W	B10	R14	W	1	6
5W-6W	B11	R5	E	2 ½	4
5W-6W	B11	R6	E	3	4
5W-6W	B11	R7	E	4	4
5W-6W	B11	R8	E	FW	4
5W-6W	B11	R9	W	½	10
5W-6W	B11	R10	W	FW	10
5W-6W	B11	R11	E	4	10
5W-6W	B11	R12	E	FW	4
5W-6W	B11	R13	E	2 ½	4
5W-6W	B11	R33	E	2	10
5W-6W	B11	R37	E	2	6
5W-6W	B11	R37	W	1	6
5W-6W	B11	R38	W	1 ½	6
5W-6W	B11	R43	E	FW	4
5W-6W	B11	R44	E	1	4
5W-6W	B11	R66	E	1	10
5W-6W	B11	R66	W	2 ½	2
5W-6W	B11	R67	E	¾	10
5W-6W	B13	R34	W	2 ½	10
6W-7W	B2	R2	W	FW	10
6W-7W	B2	R3	W	1 ¼	10
6W-7W	B2	R12	W	3 ½	4
6W-7W	B2	R19	E	¾	4
6W-7W	B2	R19	W	FW	4
6W-7W	B2	R45	E	¼	10
6W-7W	B2	R62	W	3	4
6W-7W	B3	R24	E	¼	10
6W-7W	B3	R25	W	¼	10
6W-7W	B3	R45	W	⅛	10
6W-7W	B4	R24	W	¼	10
6W-7W	B4	R45	W	⅛	10
6W-7W	B5	R2	E	½	10
6W-7W	B5	R19	E	¼	10
6W-7W	B6	R2	E	FW	2

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
6W-7W	B6	R16	W	1 ½	10
6W-7W	B6	R59	E	½	2
6W-7W	B7	R2	W	1	6
6W-7W	B7	R10	W	1 ½	10
6W-7W	B7	R19	E	¾	6
6W-7W	B7	R25	W	¼	10
6W-7W	B7	R47	E	¼	10
6W-7W	B8	R2	E	½	10
6W-7W	B8	R10	E	3	6
6W-7W	B8	R24	W	¼	10
6W-7W	B8	R46	E	½	10
6W-7W	B8	R62	W	2	4
6W-7W	B9	R6	W	1	10
6W-7W	B9	R47	W	¼	10
6W-7W	B10	R19	W	½	4
6W-7W	B10	R25	W	½	10
6W-7W	B11	R2	W	FW	4
6W-7W	B11	R3	W	3½	4
6W-7W	B11	R6	E	2 ¼	10
6W-7W	B11	R12	E	4	2
6W-7W	B11	R15	W	¾	10
6W-7W	B11	R24	E	3 ½	10
6W-7W	B11	R25	E	FW	10
6W-7W	B11	R26	E	1	10
6W-7W	B11	R28	E	2 ¾	10
7W-8W	B1	R11	W	FW	2
7W-8W	B1	R12	W	FW	2
7W-8W	B1	R13	E	½	6
7W-8W	B1	R19	W	1 ½	2
7W-8W	B1	R30	W	3	4
7W-8W	B1	R31	E	2	4
7W-8W	B1	R46	E	2 ½	4
7W-8W	B1	R62	E	1 ½	4
7W-8W	B1	R63	W	2 ½	2
7W-8W	B1	R64	E	1 ¼	4
7W-8W	B1	R65	E	¼	4
7W-8W	B1	R66	E	2	4
7W-8W	B2	R12	E	2 ½	4
7W-8W	B2	R19	E	½	2
7W-8W	B3	R2	E	3 ½	2
7W-8W	B3	R2	W	3	2
7W-8W	B3	R19	E	3 ¾	10
7W-8W	B3	R19	W	2 ½	4

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
7W-8W	B3	R25	E	3	6
7W-8W	B4	R24	W	FW	6
7W-8W	B4	R25	E	FW	6
7W-8W	B4	R25	W	FW	6
7W-8W	B5	R19	E	FW	4
7W-8W	B5	R19	W	FW	4
7W-8W	B8	R10	W	2 ¾	6
7W-8W	B8	R11	E	2 ½	2
7W-8W	B8	R19	E	FW	2
7W-8W	B8	R19	W	FW	2
7W-8W	B8	R30	W	1	10
7W-8W	B9	R19	E	4	2
7W-8W	B9	R19	W	FW	2
7W-8W	B9	R28	W	½	10
7W-8W	B9	R29	W	½	6
7W-8W	B10	R10	W	FW	4
7W-8W	B10	R16	W	1	2
7W-8W	B10	R19	W	1	2
7W-8W	B11	R2	E	FW	6
7W-8W	B11	R2	W	4	4
7W-8W	B11	R3	W	4 ¼	6
7W-8W	B11	R5	E	FW	10
7W-8W	B11	R5	W	1	10
7W-8W	B11	R6	E	1 ¼	10
7W-8W	B11	R6	W	3	6
7W-8W	B11	R7	E	4	10
7W-8W	B11	R8	E	3 ½	10
7W-8W	B11	R8	W	1 ¼	6
7W-8W	B11	R10	E	FW	4
7W-8W	B11	R16	E	2	4
7W-8W	B11	R24	E	2 ½	4
7W-8W	B11	R30	E	1	2
7W-8W	B11	R31	E	4	2
7W-8W	B11	R32	E	¾	10
7W-8W	B11	R33	E	¾	10
8W-9W	B2	R2	W	1	10
8W-9W	B2	R8	W	1	10
8W-9W	B2	R26	E	2	2
8W-9W	B2	R61	E	1 ¼	2
8W-9W	B3	R19	E	½	2
8W-9W	B3	R19	W	½	10
8W-9W	B3	R46	E	⅙	10
8W-9W	B3	R46	W	¼	10

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level					
Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
8W-9W	B4	R19	E	1	10
8W-9W	B4	R46	E	1/2	10
8W-9W	B4	R47	E	1/8	10
8W-9W	B4	R61	E	1	10
8W-9W	B5	R46	E	1/4	10
8W-9W	B5	R46	W	1/4	10
8W-9W	B5	R61	E	1	10
8W-9W	B5	R61	W	1/4	10
8W-9W	B6	R46	E	1/2	10
8W-9W	B6	R46	W	1/4	10
8W-9W	B7	R46	E	1/4	10
8W-9W	B7	R46	W	1/8	10
8W-9W	B8	R46	E	1/2	10
8W-9W	B8	R46	W	1/4	10
8W-9W	B8	R47	E	1/8	10
8W-9W	B8	R62	W	1	4
8W-9W	B8	R69	E	3 1/2	10
8W-9W	B9	R19	E	3/4	10
8W-9W	B9	R46	E	1/2	10
8W-9W	B9	R46	W	1/4	10
8W-9W	B9	R69	W	1/2	10
8W-9W	B10	R19	E	1/2	10
8W-9W	B10	R19	W	1/2	2
8W-9W	B10	R20	W	1	10
8W-9W	B10	R46	E	1/4	10
8W-9W	B10	R46	W	3/4	4
8W-9W	B11	R21	E	FW	10
8W-9W	B11	R21	W	3 1/2	10
8W-9W	B11	R34	E	2 3/4	10
8W-9W	B11	R37	E	3	10
8W-9W	B11	R46	W	FW	4
8W-9W	B11	R47	W	1/4	10
9W-10W	B2	R3	W	2	2
9W-10W	B2	R47	E	1/4	10
9W-10W	B2	R47	W	1/4	10
9W-10W	B4	R24	W	1/4	10
9W-10W	B4	R25	W	1/4	10
9W-10W	B5	R25	W	1/2	10
9W-10W	B6	R25	E	1/2	10
9W-10W	B6	R25	W	1/4	10
9W-10W	B6	R52	W	1	10
9W-10W	B6	R53	W	1/4	4
9W-10W	B7	R19	E	1/2	2

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
9W-10W	B7	R25	W	¼	10
9W-10W	B7	R46	W	¼	10
9W-10W	B8	R25	E	½	10
9W-10W	B8	R25	W	¼	10
9W-10W	B8	R46	E	¼	10
9W-10W	B8	R46	W	¼	10
9W-10W	B8	R51	E	½ + ¼	2
9W-10W	B8	R51	W	½	2
9W-10W	B9	R24	E	¼	10
9W-10W	B9	R25	E	¼	10
9W-10W	B9	R46	E	¼	10
9W-10W	B9	R46	W	¼	10
9W-10W	B9	R51	E	FW	2
9W-10W	B10	R25	E	1	4
9W-10W	B10	R46	E	¼	10
9W-10W	B10	R47	E	¼	10
9W-10W	B10	R47	W	⅙	10
9W-10W	B11	R47	W	¼	10
10W-11W	B3	R37	E	1	6
10W-11W	B4	R24	E	¼	10
10W-11W	B4	R46	E	⅙	10
14W-15W	B3	R12	E	¼	10
14W-15W	B5	R46	E	½	10
14W-15W	B6	R46	E	⅙	10
14W-15W	B8	R46	W	⅙	10
15W-16W	B3	R18	E	¼	10
15W-16W	B3	R18	W	¼	10
15W-16W	B3	R20	E	¾	10
15W-16W	B3	R20	W	¼	10
15W-16W	B4	R52	E	1 ½	10
15W-16W	B5	R20	E	¼	10
15W-16W	B5	R52	W	FW	4
15W-16W	B5	R52	E	FW	2
15W-16W	B7	R47	E	⅙	10
15W-16W	B8	R47	E	⅙	10
15W-16W	B9	R47	E	⅙	10
15W-16W	B10	R19	E	¾	6
15W-16W	B10	R47	E	⅙	10
15W-16W	B10	R47	W	⅙	10
16W-17W	B2	R2	W	1 ¼	4
16W-17W	B2	R3	W	3 ½	4
16W-17W	B3	R11	E	¾	6
16W-17W	B3	R11	W	1	10

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
16W-17W	B4	R11	E	¾	10
16W-17W	B7	R11	E	¾	10
17W-18W	B2	R5	W	2 ¼	10
17W-18W	B2	R11	E	1	6
17W-18W	B2	R61	W	1	10
17W-18W	B4	R46	W	⅙	10
17W-18W	B5	R24	E	½	10
17W-18W	B5	R47	E	⅙	10
17W-18W	B5	R47	W	⅙	10
17W-18W	B6	R46	W	⅙	10
17W-18W	B6	R47	E	⅙	10
17W-18W	B6	R47	W	⅙	10
17W-18W	B7	R47	E	⅙	10
17W-18W	B7	R47	W	⅙	10
17W-18W	B8	R47	E	⅙	10
17W-18W	B9	R47	W	⅙	10
18W-19W	B2	R2	W	FW	2
18W-19W	B2	R2	E	FW	2
18W-19W	B2	R3	W	FW	2
18W-19W	B2	R3	E	1 ½	2
18W-19W	B2	R4	W	1 & 1 ¼	2
18W-19W	B2	R8	W	1	2
18W-19W	B2	R9	W	1	2
18W-19W	B2	R9	E	2	2
18W-19W	B2	R10	E	1	2
18W-19W	B2	R11	W	1	2
18W-19W	B2	R11	E	1	2
18W-19W	B2	R12	W	½	2
18W-19W	B2	R12	E	1 & 1 ½	2
18W-19W	B2	R13	W	½	2
18W-19W	B2	R13	E	1	2
18W-19W	B2	R16	E	½	2
18W-19W	B2	R18	E	1	2
18W-19W	B3	R10	W	1	2
18W-19W	B3	R10	E	1	2
18W-19W	B3	R11	W	1	2
18W-19W	B3	R11	E	1	2
18W-19W	B3	R12	W	1 + 1 ½	2
18W-19W	B3	R12	E	2 & 1	2
18W-19W	B3	R13	W	1	2
18W-19W	B3	R13	E	1	2
18W-19W	B3	R14	W	1	2
18W-19W	B3	R16	W	1 & 1	10

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

**2015 Biennial Inspection of the GWB - Main Span Upper Level
Orthotropic Deck - Cracked Rib Welds**

Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
18W-19W	B3	R17	W	½	10
18W-19W	B3	R17	E	1	2
18W-19W	B3	R47	E	⅙	10
18W-19W	B3	R47	W	⅙	10
18W-19W	B4	R1	E	4	10
18W-19W	B4	R2	E	FW	10
18W-19W	B4	R3	E	2	10
18W-19W	B4	R10	E	½	10
18W-19W	B4	R10	W	1	2
18W-19W	B4	R15	W	1 ¼	2
18W-19W	B4	R15	E	1	2
18W-19W	B4	R16	W	1	2
18W-19W	B4	R16	E	1	2
18W-19W	B5	R1	E	3	10
18W-19W	B5	R2	E	4	2
18W-19W	B5	R2	W	2	10
18W-19W	B5	R3	E	1	2
18W-19W	B5	R3	W	2	10
18W-19W	B5	R10	E	1 ¼	10
18W-19W	B5	R10	W	1	2
18W-19W	B5	R11	E	1 ¼	10
18W-19W	B5	R11	W	1	2
18W-19W	B5	R12	E	1 ¼	10
18W-19W	B5	R12	W	½ & 1	2
18W-19W	B5	R13	E	1 ¼	10
18W-19W	B5	R14	E	1 ¼ & ½	10
18W-19W	B5	R14	W	1	2
18W-19W	B5	R15	W	1 ½	2
18W-19W	B5	R17	E	¾	10
18W-19W	B5	R18	E	1	10
18W-19W	B5	R18	W	½	2
18W-19W	B5	R47	E	⅙	10
18W-19W	B6	R1	W	2	2
18W-19W	B6	R2	E	FW	2
18W-19W	B6	R2	W	2	2
18W-19W	B6	R3	E	2	2
18W-19W	B6	R3	W	2	2
18W-19W	B6	R10	W	1	2
18W-19W	B6	R10	E	1	2
18W-19W	B6	R11	E	1	2
18W-19W	B6	R12	W	1 ½	2
18W-19W	B6	R12	E	1	2
18W-19W	B6	R13	E	1	2

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
18W-19W	B6	R14	E	½	2
18W-19W	B6	R18	E	½	2
18W-19W	B7	R1	W	FW	10
18W-19W	B7	R2	E	3 ½ & 2	2
18W-19W	B7	R2	W	3 ½	2
18W-19W	B7	R3	E	2	2
18W-19W	B7	R3	W	2	2
18W-19W	B7	R47	E	⅛	10
18W-19W	B7	R47	W	⅛	10
18W-19W	B8	R1	E	FW	2
18W-19W	B8	R1	W	FW	10
18W-19W	B8	R2	E	FW	2
18W-19W	B8	R2	W	1 ½	2
18W-19W	B8	R3	E	3	2
18W-19W	B8	R3	W	2	2
18W-19W	B8	R5	E	2	10
18W-19W	B8	R12	E	1 ½	10
18W-19W	B8	R12	W	1 ½	10
18W-19W	B8	R13	E	1 ½	10
18W-19W	B8	R13	W	1	10
18W-19W	B8	R14	E	1	10
18W-19W	B8	R47	E	⅛	10
18W-19W	B9	R1	W	2 ½ & 2	2
18W-19W	B9	R2	W	2	10
18W-19W	B9	R5	W	2	10
18W-19W	B9	R10	E	½ & 2	10
18W-19W	B9	R10	W	1	10
18W-19W	B9	R11	E	½ & 1	10
18W-19W	B9	R11	W	1 ½	10
18W-19W	B9	R12	E	2 ½	10
18W-19W	B9	R12	W	2	10
18W-19W	B9	R13	E	1	10
18W-19W	B9	R13	W	1	10
18W-19W	B9	R14	W	1	10
18W-19W	B9	R16	E	½	10
18W-19W	B9	R17	E	1 & ¾	10
18W-19W	B9	R18	E	¾	10
18W-19W	B9	R18	W	1	10
18W-19W	B9	R43	E	½	10
18W-19W	B10	R1	W	2	2
18W-19W	B10	R5	E	1	10
18W-19W	B10	R5	W	2	10
18W-19W	B10	R10	E	1 & ½	10

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
18W-19W	B10	R11	E	1	10
18W-19W	B10	R11	W	½	10
18W-19W	B10	R12	W	1	10
18W-19W	B10	R13	E	½	10
18W-19W	B10	R13	W	½	10
18W-19W	B10	R14	E	½	10
18W-19W	B10	R14	W	¾	10
18W-19W	B10	R15	W	¾ + ¾	10
18W-19W	B10	R17	W	¼	10
18W-19W	B10	R18	E	½	10
18W-19W	B10	R18	W	1	10
18W-19W	B11	R2	W	FW	10
18W-19W	B11	R4	W	2 ½	10
18W-19W	B11	R5	W	1 & 1	10
18W-19W	B11	R8	W	2 ½	10
18W-19W	B11	R9	E	1 ½	10
18W-19W	B11	R9	W	1	10
18W-19W	B11	R10	E	¾	10
18W-19W	B11	R10	W	¼	10
18W-19W	B11	R11	E	FW	10
18W-19W	B11	R11	W	1 & 1	10
18W-19W	B11	R12	E	1	10
18W-19W	B11	R12	W	1 ¼	10
18W-19W	B11	R13	E	¾	10
18W-19W	B11	R14	E	1	10
18W-19W	B11	R15	E	1	10
18W-19W	B11	R15	W	½	10
18W-19W	B11	R16	E	½	10
18W-19W	B11	R47	W	⅞	10
19W-20W	B2	R54	E	¼	10
19W-20W	B2	R54	W	¼	10
19W-20W	B2	R63	E	3	6
19W-20W	B2	R63	W	½	6
19W-20W	B2	R64	W	2 ½	4
19W-20W	B2	R65	E	2	4
19W-20W	B2	R65	W	3	4
19W-20W	B2	R66	W	3	4
19W-20W	B4	R25	E	¼	10
19W-20W	B5	R19	W	FW	2
19W-20W	B5	R19	E	FW	2
19W-20W	B5	R25	W	¼	10
19W-20W	B6	R19	W	FW	2
19W-20W	B6	R19	E	FW	2

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
19W-20W	B6	R24	W	½	10
19W-20W	B7	R24	E	¼	10
19W-20W	B7	R24	W	½	10
19W-20W	B7	R25	E	¼	10
19W-20W	B8	R24	W	¼	10
19W-20W	B8	R25	E	¼	10
19W-20W	B8	R25	W	¼	10
19W-20W	B8	R46	W	⅛	10
19W-20W	B9	R25	W	¼	10
19W-20W	B9	R43	E	½	10
19W-20W	B10	R24	W	¼	10
19W-20W	B10	R25	W	¼	10
19W-20W	B11	R2	W	4	10
19W-20W	B11	R4	W	2 ½	10
19W-20W	B11	R46	W	½	10
19W-20W	B11	R66	E	½	10
19W-20W	B11	R66	W	FW	10
20W-21W	B2	R3	E	2	6
20W-21W	B2	R6	E	¼	10
20W-21W	B2	R7	E	1 ½	6
20W-21W	B2	R8	E	1	6
20W-21W	B2	R10	W	1	4
20W-21W	B2	R39	W	1 ¼	10
20W-21W	B2	R40	W	¼	10
20W-21W	B2	R41	W	¼ & 1	10
20W-21W	B5	R19	W	1	6
20W-21W	B6	R25	W	¼	10
20W-21W	B11	R2	E	2	10
20W-21W	B11	R62	E	¾	10
21W-22W	B2	R11	W	½	10
21W-22W	B2	R19	E	2	4
21W-22W	B2	R19	W	2	4
21W-22W	B2	R25	W	½	10
21W-22W	B2	R52	W	¼	2
21W-22W	B2	R61	W	2	6
21W-22W	B2	R66	W	½	6
21W-22W	B3	R19	E	FW	10
21W-22W	B3	R19	W	FW	10
21W-22W	B4	R19	E	FW	4
21W-22W	B4	R19	W	FW	4
21W-22W	B5	R19	E	FW	4
21W-22W	B5	R19	W	FW	4
21W-22W	B6	R19	W	1	6

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
21W-22W	B7	R25	W	¼	10
21W-22W	B8	R9	W	¾	10
21W-22W	B8	R52	E	¼	10
21W-22W	B8	R52	W	¼	10
21W-22W	B9	R25	W	¼	10
22W-23W	B2	R36	W	2	6
22W-23W	B2	R69	W	3 ½	6
22W-23W	B3	R12	W	¾	6
22W-23W	B3	R19	E	FW	4
22W-23W	B3	R19	W	FW	4
22W-23W	B4	R17	E	¼	10
22W-23W	B4	R19	E	FW	4
22W-23W	B4	R19	W	FW	4
22W-23W	B5	R19	E	FW	4
22W-23W	B5	R19	W	FW	2
22W-23W	B5	R47	E	⅛	10
22W-23W	B5	R52	W	2	2
22W-23W	B6	R19	E	FW	4
22W-23W	B6	R19	W	FW	4
22W-23W	B6	R47	E	⅛	10
22W-23W	B7	R51	W	2 ½	10
22W-23W	B8	R19	E	½	2
22W-23W	B8	R47	W	¼	10
22W-23W	B9	R19	W	¾	2
22W-23W	B9	R19	E	¾	4
22W-23W	B9	R52	W	½	10
22W-23W	B10	R19	E	½	4
22W-23W	B10	R47	W	⅛	10
23W-24W	B2	R2	E	¾	10
23W-24W	B2	R3	E	1	10
23W-24W	B2	R3	W	1	4
23W-24W	B2	R5	E	4 ½	6
23W-24W	B2	R6	E	3 ½	10
23W-24W	B2	R7	E	3 ¼	6
23W-24W	B2	R10	W	¾	2
23W-24W	B2	R52	W	¼	2
23W-24W	B2	R61	E	1 ½	10
23W-24W	B2	R63	W	½	10
23W-24W	B2	R64	W	½	10
23W-24W	B4	R19	W	1 ¼	4
23W-24W	B5	R19	E	1	4
23W-24W	B5	R19	W	1	10
23W-24W	B5	R47	E	⅛	10

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
23W-24W	B6	R19	W	1 ¼	4
23W-24W	B9	R51	W	¼	10
23W-24W	B9	R52	E	¼	10
23W-24W	B9	R52	W	¼	10
23W-24W	B9	R54	E	¼	10
23W-24W	B9	R54	W	¼	10
23W-24W	B10	R19	W	1 ½	4
23W-24W	B10	R52	E	¼	10
23W-24W	B10	R52	W	¼	10
23W-24W	B11	R19	W	1	4
23W-24W	B11	R47	W	⅛	10
24W-25W	B2	R37	W	3	6
24W-25W	B2	R62	W	½	10
24W-25W	B2	R65	W	½	10
24W-25W	B2	R66	W	½	10
24W-25W	B2	R67	E	3	2
24W-25W	B2	R67	W	½	10
24W-25W	B3	R19	E	1	10
24W-25W	B4	R19	E	FW	6
24W-25W	B4	R19	W	FW	6
24W-25W	B5	R19	E	FW	6
24W-25W	B5	R19	W	FW	6
24W-25W	B5	R24	W	¼	10
24W-25W	B5	R25	W	½	10
24W-25W	B6	R25	W	¼	10
24W-25W	B7	R47	W	¼	10
24W-25W	B8	R62	E	2	2
24W-25W	B9	R19	E	½	10
24W-25W	B9	R45	E	¾	4
24W-25W	B11	R2	E	½	10
24W-25W	B11	R69	E	1	10
25W-26W	B2	R6	W	¾	2
25W-26W	B2	R19	E	¼	10
25W-26W	B2	R19	W	½ & ¼	10
25W-26W	B2	R61	W	½	4
25W-26W	B5	R52	W	¼	10
25W-26W	B6	R19	W	½	10
25W-26W	B7	R45	E	½	10
25W-26W	B7	R46	E	½	10
25W-26W	B8	R19	E	½	10
25W-26W	B8	R19	W	¾	10
25W-26W	B8	R46	E	⅛	10
25W-26W	B9	R46	W	½	10

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
25W-26W	B11	R3	E	¼	10
25W-26W	B11	R42	W	½	10
25W-26W	B11	R43	W	½	10
25W-26W	B11	R46	W	½	10
26W-27W	B2	R10	E	¼	6
26W-27W	B2	R43	E	1	4
26W-27W	B2	R64	W	½	2
26W-27W	B3	R47	W	⅛	10
26W-27W	B5	R23	W	1	6
26W-27W	B5	R46	E	¼	10
26W-27W	B5	R46	W	⅛	10
26W-27W	B5	R47	E	¼	10
26W-27W	B6	R46	E	½	10
26W-27W	B6	R46	W	¼	10
26W-27W	B6	R47	E	¼	10
26W-27W	B9	R19	W	½	10
26W-27W	B10	R65	E	½	4
26W-27W	B11	R4	E	¼	10
26W-27W	B11	R5	E	½	10
26W-27W	B11	R7	E	1 ¼	10
27W-28W	B2	R37	W	¾	2
27W-28W	B2	R61	E	3	4
27W-28W	B2	R66	W	1 ½	6
27W-28W	B2	R67	W	¾	6
27W-28W	B2	R69	E	½	2
27W-28W	B3	R19	W	½	10
27W-28W	B4	R19	W	¼	10
27W-28W	B4	R45	E	¾	10
27W-28W	B5	R19	W	½	10
27W-28W	B5	R46	E	⅛	10
27W-28W	B5	R47	E	¼	10
27W-28W	B5	R47	W	⅛	10
27W-28W	B6	R46	E	¼	10
27W-28W	B6	R46	W	¼	10
27W-28W	B6	R47	E	⅛	10
27W-28W	B8	R45	E	½	4
27W-28W	B8	R46	W	¾	10
27W-28W	B9	R47	W	⅛	10
27W-28W	B11	R19	W	½	6
28W-29W	B2	R45	W	½	10
28W-29W	B2	R63	E	¾	6
28W-29W	B2	R63	W	2 ½	6
28W-29W	B2	R64	W	¾	6

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
28W-29W	B2	R65	E	FW	6
28W-29W	B2	R65	W	1 ¼	6
28W-29W	B2	R66	E	3	6
28W-29W	B2	R66	W	1	6
28W-29W	B2	R67	E	2	6
28W-29W	B2	R68	E	1	6
28W-29W	B2	R69	E	2 ½	6
28W-29W	B3	R19	E	½	10
28W-29W	B3	R19	W	¼	10
28W-29W	B4	R46	W	1	6
28W-29W	B5	R19	E	2	2
28W-29W	B5	R24	W	¼	10
28W-29W	B5	R46	E	¼	10
28W-29W	B6	R19	W	FW	2
28W-29W	B6	R19	E	FW	2
28W-29W	B6	R46	W	¾	6
28W-29W	B8	R19	W	¼ & ¼	2
28W-29W	B8	R19	E	¼	2
28W-29W	B8	R52	E	FW	4
28W-29W	B8	R52	W	FW	6
28W-29W	B9	R52	E	FW	4
28W-29W	B9	R52	W	FW	4
28W-29W	B10	R19	W	¼ & ¼	10
28W-29W	B10	R52	E	¼	10
28W-29W	B11	R2	E	¾	10
28W-29W	B11	R19	E	¼	10
28W-29W	B11	R43	W	¾	6
28W-29W	B11	R60	E	¼	10
28W-29W	B11	R68	E	¼	2
28W-29W	B11	R69	E	2	2
29W-30W	B2	R2	W	½	2
29W-30W	B2	R3	W	FW	2
29W-30W	B2	R3	E	¾	6
29W-30W	B2	R4	W	1 ½	2
29W-30W	B2	R4	E	1	6
29W-30W	B2	R53	W	2	6
29W-30W	B9	R19	W	½	6
29W-30W	B9	R19	E	½	4
29W-30W	B11	R43	W	1	4
30W-31W	B2	R61	E	1	10
30W-31W	B2	R63	W	½	6
30W-31W	B2	R64	W	¾	2
30W-31W	B2	R66	W	½	2

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
30W-31W	B2	R67	W	¼	2
30W-31W	B2	R68	W	1	2
30W-31W	B2	R69	W	¼	2
30W-31W	B3	R25	E	½	10
30W-31W	B5	R19	E	1	4
30W-31W	B6	R19	E	¼	2
30W-31W	B6	R25	W	½	10
30W-31W	B8	R19	W	¼	10
30W-31W	B8	R52	W	¼	2
30W-31W	B8	R54	W	¼	10
30W-31W	B9	R19	W	½	4
30W-31W	B9	R52	E	2 ½	6
30W-31W	B9	R55	W	¼	2
30W-31W	B10	R19	E	FW	4
30W-31W	B10	R52	E	1	2
30W-31W	B11	R26	W	1	6
30W-31W	B11	R66	W	¼	6
31W-32W	B2	R39	W	1	10
31W-32W	B2	R43	E	½	6
31W-32W	B2	R44	E	½ & ½	2
31W-32W	B2	R63	E	½	6
31W-32W	B2	R63	W	FW	4
31W-32W	B2	R64	W	1	4
31W-32W	B2	R64	E	FW	6
31W-32W	B2	R65	W	2 ¼	6
31W-32W	B2	R65	E	FW	6
31W-32W	B2	R66	E	FW	4
31W-32W	B2	R67	W	1 ½	6
31W-32W	B2	R67	E	FW	4
31W-32W	B2	R68	E	FW	6
31W-32W	B2	R69	E	1	6
31W-32W	B3	R47	E	⅞	10
31W-32W	B3	R67	W	1 ¼	2
31W-32W	B3	R70	E	3	4
31W-32W	B4	R19	E	½	6
31W-32W	B4	R47	E	⅞	10
31W-32W	B5	R19	E	¼	6
31W-32W	B5	R19	W	½	6
31W-32W	B5	R47	E	⅞	10
31W-32W	B5	R70	E	1	4
31W-32W	B6	R47	E	¾	6
31W-32W	B6	R47	W	⅞	10
31W-32W	B7	R47	E	⅞	10

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
31W-32W	B7	R47	W	1/8	10
31W-32W	B8	R29	W	1/2	10
31W-32W	B8	R47	E	1/2	2
31W-32W	B8	R47	W	3/4	10
31W-32W	B9	R19	E	1/2	4
31W-32W	B9	R43	E	1/2	10
31W-32W	B9	R47	E	1	6
31W-32W	B9	R47	W	1/4	10
31W-32W	B10	R19	E	1/2	4
31W-32W	B10	R19	W	1/2	4
31W-32W	B10	R47	E	1/8	10
31W-32W	B10	R47	W	1/8	10
31W-32W	B10	R60	W	1	10
31W-32W	B11	R47	W	1/2	10
32W-33W	B2	R5	E	3/4	6
32W-33W	B2	R7	E	1/4	2
32W-33W	B2	R38	W	3/4	10
32W-33W	B2	R39	W	3	10
32W-33W	B2	R69	E	2	6
32W-33W	B3	R52	E	1/4	10
32W-33W	B4	R19	E	1/4	6
32W-33W	B4	R19	W	3/4	6
32W-33W	B4	R47	W	1/2	4
32W-33W	B4	R52	E	1/4	10
32W-33W	B5	R19	E	1/4	4
32W-33W	B6	R46	E	1/2	4
32W-33W	B6	R52	E	1/2	6
32W-33W	B10	R46	E	3/4	10
33W-34W	B2	R10	W	FW	6
33W-34W	B2	R19	E	1 1/2	6
33W-34W	B2	R41	E	1	6
33W-34W	B2	R41	W	2 1/2	6
33W-34W	B2	R46	W	1/4	10
33W-34W	B2	R62	E	1/2	2
33W-34W	B2	R63	E	1/2	10
33W-34W	B2	R63	W	1	6
33W-34W	B2	R64	W	1	6
33W-34W	B2	R65	W	3 1/2	6
33W-34W	B2	R66	E	3/4	6
33W-34W	B2	R67	E	3/4	6
33W-34W	B2	R68	E	3/4	6
33W-34W	B2	R69	E	3 1/2	6
33W-34W	B3	R46	E	1/4	10

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
33W-34W	B4	R46	E	¼	10
33W-34W	B5	R46	W	1	10
33W-34W	B7	R16	E	1	10
33W-34W	B7	R24	W	½	10
33W-34W	B7	R46	W	¼	10
33W-34W	B9	R28	W	¾	10
34W-35W	B2	R39	E	1	2
34W-35W	B2	R45	E	1	10
34W-35W	B2	R54	W	1 ½	10
34W-35W	B2	R57	E	¾	6
34W-35W	B2	R57	W	1 ½	10
34W-35W	B2	R60	E	½	6
34W-35W	B2	R60	W	3 ½	6
34W-35W	B2	R62	E	4	10
34W-35W	B2	R63	E	FW	6
34W-35W	B2	R64	E	1	6
34W-35W	B2	R66	W	1	10
34W-35W	B2	R69	W	½	10
34W-35W	B2	R69	E	FW	6
34W-35W	B3	R62	E	2	6
34W-35W	B4	R52	E	¼	10
34W-35W	B4	R62	E	½	6
34W-35W	B5	R46	W	⅙	10
34W-35W	B5	R52	E	FW	4
34W-35W	B5	R52	W	FW	6
34W-35W	B5	R62	W	½	2
34W-35W	B5	R62	E	1 ¾	6
34W-35W	B6	R62	W	1	6
34W-35W	B6	R69	W	2 ½	10
34W-35W	B6	R70	W	3	10
34W-35W	B7	R46	W	⅙	10
34W-35W	B8	R46	W	⅙	10
34W-35W	B8	R62	E	2 ½	6
34W-35W	B9	R47	W	⅙	10
34W-35W	B10	R46	E	¼	10
34W-35W	B10	R46	W	⅙	10
34W-35W	B10	R47	E	⅙	10
34W-35W	B10	R47	W	⅙	10
34W-35W	B11	R65	E	1 ¼	6
35W-36W	B2	R39	E	3 ½	6
35W-36W	B2	R40	W	FW	2
35W-36W	B2	R40	E	3	6
35W-36W	B2	R41	W	3	2

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
35W-36W	B2	R52	E	½	10
35W-36W	B2	R60	E	FW	4
35W-36W	B2	R61	E	FW	6
35W-36W	B2	R62	W	FW	4
35W-36W	B2	R63	W	3	10
35W-36W	B2	R64	E	½	10
35W-36W	B2	R66	E	1 ½	2
35W-36W	B2	R68	E	3	2
35W-36W	B2	R69	E	¾	2
35W-36W	B3	R41	W	1	4
35W-36W	B4	R46	E	⅙	10
35W-36W	B4	R54	W	½	10
35W-36W	B6	R47	E	⅙	10
35W-36W	B9	R21	W	1 ½	6
35W-36W	B9	R43	E	¼	10
35W-36W	B9	R46	E	⅙	10
35W-36W	B9	R46	W	⅙	10
35W-36W	B9	R47	E	⅙	10
35W-36W	B9	R47	W	⅙	10
35W-36W	B10	R45	W	¼	10
35W-36W	B11	R25	W	1	6
35W-36W	B11	R45	W	½	10
36W-37W	B2	R37	E	3	6
36W-37W	B2	R38	W	2 ¼	2
36W-37W	B2	R40	W	FW	2
36W-37W	B2	R40	E	3 ½	6
36W-37W	B2	R41	E	FW	6
36W-37W	B2	R46	E	⅙	10
36W-37W	B2	R51	E	2 ½	6
36W-37W	B2	R63	W	4	2
36W-37W	B2	R65	E	¾	10
36W-37W	B2	R66	E	3	2
36W-37W	B2	R68	E	4	2
36W-37W	B2	R69	E	1	2
36W-37W	B4	R19	E	1	6
36W-37W	B5	R19	W	1 ½	10
36W-37W	B5	R24	W	1	10
36W-37W	B5	R47	W	⅙	10
36W-37W	B6	R19	W	FW	4
36W-37W	B6	R19	E	FW	4
36W-37W	B7	R44	E	3 ½	6
36W-37W	B7	R44	W	3	6
36W-37W	B7	R47	E	¼	10

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
36W-37W	B8	R52	E	½	10
36W-37W	B10	R19	E	½	6
36W-37W	B11	R67	W	¼	4
37W-38W	B2	R6	E	½	6
37W-38W	B2	R16	E	½	10
37W-38W	B2	R19	E	¼	10
37W-38W	B2	R60	E	3	10
37W-38W	B2	R61	W	1 ½	6
37W-38W	B2	R62	W	3	2
37W-38W	B2	R63	W	1	6
37W-38W	B2	R63	E	2 ½ & ¼	2
37W-38W	B2	R64	E	2 ¼	6
37W-38W	B2	R66	E	1	6
37W-38W	B2	R66	W	2 ¼	4
37W-38W	B2	R67	E	1 ½	6
37W-38W	B2	R67	W	1 ¼	6
37W-38W	B2	R68	E	4	6
37W-38W	B2	R69	W	4 ½	6
37W-38W	B5	R19	W	¼	10
37W-38W	B5	R46	E	⅙	10
37W-38W	B5	R46	W	¼	10
37W-38W	B6	R46	W	⅙	10
37W-38W	B6	R52	W	¼	10
37W-38W	B7	R43	E	¼	10
37W-38W	B8	R46	E	¼	10
37W-38W	B8	R46	W	¼	10
37W-38W	B8	R52	E	1	6
37W-38W	B9	R46	E	¼	10
37W-38W	B9	R46	W	⅙	10
37W-38W	B10	R39	E	3	6
37W-38W	B10	R39	W	1 ½	6
37W-38W	B10	R50	E	1 ½	2
37W-38W	B11	R38	W	FW	2
37W-38W	B11	R39	E	2 ¾	10
37W-38W	B11	R39	W	4	2
38W-39W	B2	R25	E	¼	10
38W-39W	B2	R25	W	½	10
38W-39W	B2	R40	W	FW	10
38W-39W	B2	R41	E	3 ½	6
38W-39W	B2	R42	E	1	2
38W-39W	B2	R43	E	1 ¼	2
38W-39W	B2	R46	E	½	10
38W-39W	B2	R52	W	1 ½	2

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

**2015 Biennial Inspection of the GWB - Main Span Upper Level
Orthotropic Deck - Cracked Rib Welds**

Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
38W-39W	B2	R52	E	2 ½	2
38W-39W	B2	R63	W	1	6
38W-39W	B2	R64	W	1 ½	6
38W-39W	B2	R65	W	4 ½	6
38W-39W	B2	R65	E	1	2
38W-39W	B2	R66	E	¼	10
38W-39W	B2	R67	E	1 ¾	10
38W-39W	B2	R67	W	½ + ½	10
38W-39W	B2	R68	E	3 ¾	6
38W-39W	B2	R69	E	1 ½	2
38W-39W	B2	R69	W	½	10
38W-39W	B3	R25	E	¼	10
38W-39W	B3	R25	W	¼	10
38W-39W	B4	R25	W	⅙	10
38W-39W	B4	R46	E	⅙	10
38W-39W	B4	R46	W	⅙	10
38W-39W	B4	R47	E	⅙	10
38W-39W	B5	R19	E	2 ½	10
38W-39W	B5	R19	W	½	2
38W-39W	B5	R25	E	¼	10
38W-39W	B5	R25	W	¼	10
38W-39W	B6	R19	W	FW	4
38W-39W	B6	R19	E	FW	4
38W-39W	B6	R25	E	¼	10
38W-39W	B6	R25	W	¼	10
38W-39W	B6	R46	E	¼	10
38W-39W	B6	R47	W	⅙	10
38W-39W	B6	R52	W	½	10
38W-39W	B7	R25	E	¼	10
38W-39W	B7	R25	W	¼	10
38W-39W	B7	R46	E	⅙	10
38W-39W	B7	R46	W	¼	10
38W-39W	B8	R19	E	FW	10
38W-39W	B8	R19	W	FW	10
38W-39W	B8	R25	E	¼	10
38W-39W	B8	R25	W	¼	10
38W-39W	B9	R19	W	FW	4
38W-39W	B9	R19	E	FW	4
38W-39W	B9	R25	W	¼	10
38W-39W	B10	R19	W	FW	4
38W-39W	B10	R19	E	FW	4
38W-39W	B10	R46	E	½	10
38W-39W	B10	R46	W	⅙	10

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
38W-39W	B10	R47	E	1/8	10
38W-39W	B10	R60	E	3 1/2	2
38W-39W	B10	R66	E	3/4	2
38W-39W	B10	R67	E	1/2	6
38W-39W	B11	R46	W	1/2	2
39W-40W	B2	R8	W	4	6
39W-40W	B2	R25	W	1/4	10
39W-40W	B2	R52	E	1/4	10
39W-40W	B2	R63	W	3 1/2	6
39W-40W	B3	R2	E	3/4	6
39W-40W	B3	R2	W	FW	2
39W-40W	B3	R52	E	1/4	10
39W-40W	B4	R2	W	1	6
39W-40W	B4	R19	W	FW	4
39W-40W	B4	R19	E	FW	4
39W-40W	B4	R28	E	1/2	6
39W-40W	B5	R2	W	1	6
39W-40W	B5	R19	W	FW	4
39W-40W	B5	R19	E	FW	4
39W-40W	B5	R28	E	1/2	6
39W-40W	B5	R45	W	1/4	10
39W-40W	B5	R46	E	1/4	10
39W-40W	B5	R47	E	1/8	10
39W-40W	B5	R52	W	1/2	6
39W-40W	B5	R52	E	1/4	2
39W-40W	B6	R19	W	FW	4
39W-40W	B6	R19	E	FW	4
39W-40W	B6	R45	E	1/2	10
39W-40W	B6	R47	E	1/4	10
39W-40W	B6	R54	W	1/4	10
39W-40W	B7	R19	W	FW	4
39W-40W	B7	R19	E	FW	4
39W-40W	B7	R24	E	1/2	10
39W-40W	B7	R24	W	FW	10
39W-40W	B7	R25	W	1/4	10
39W-40W	B8	R45	W	1/4 + 1/4	10
39W-40W	B9	R43	E	1/4	10
39W-40W	B9	R45	W	1/4 + 1/4	6
39W-40W	B9	R45	E	1/2	2
39W-40W	B9	R47	E	1/4	10
39W-40W	B9	R54	W	1/4	10
39W-40W	B10	R45	E	1/8	10
40W-41W	B2	R7	E	1/2	10

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
40W-41W	B2	R63	W	1 ½	2
40W-41W	B2	R66	W	1	10
40W-41W	B2	R67	W	1	10
40W-41W	B3	R46	E	⅛	10
40W-41W	B4	R46	E	¼	10
40W-41W	B4	R46	W	1	6
40W-41W	B5	R19	E	1	6
40W-41W	B5	R46	E	⅛	10
40W-41W	B5	R46	W	⅛	10
40W-41W	B6	R19	E	¼	10
40W-41W	B6	R19	W	¾	6
40W-41W	B6	R46	E	¼	10
40W-41W	B6	R46	W	1	6
40W-41W	B7	R34	E	½	6
40W-41W	B8	R46	E	1	6
40W-41W	B8	R46	W	1	6
40W-41W	B9	R19	W	¼	10
40W-41W	B9	R26	W	¼	10
40W-41W	B9	R54	E	¼	10
40W-41W	B10	R19	E	¾	10
40W-41W	B10	R45	E	½	10
40W-41W	B11	R19	W	FW	4
40W-41W	B11	R19	E	FW	4
40W-41W	B11	R68	W	½	10
40W-41W	B11	R69	E	½	10
40W-41W	B11	R69	W	¾	10
41W-42W	B2	R37	W	¾	2
41W-42W	B2	R39	E	1	6
41W-42W	B2	R41	E	1	2
41W-42W	B2	R42	W	¼	2
41W-42W	B2	R60	E	1 ½	6
41W-42W	B2	R61	E	FW	6
41W-42W	B2	R61	W	FW	6
41W-42W	B2	R62	W	3 ½	2
41W-42W	B2	R63	W	¼	2
41W-42W	B2	R64	W	1	2
41W-42W	B2	R65	W	1	2
41W-42W	B2	R65	E	¼	2
41W-42W	B2	R66	W	¾	2
41W-42W	B2	R67	W	¾	2
41W-42W	B2	R68	E	1 ½	6
41W-42W	B3	R46	E	¼	10
41W-42W	B3	R55	W	¼	10

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
41W-42W	B4	R19	E	¼	10
41W-42W	B4	R21	E	¼	6
41W-42W	B4	R54	W	¼	6
41W-42W	B4	R55	W	1	4
41W-42W	B5	R2	E	4	6
41W-42W	B5	R19	W	¼	10
41W-42W	B5	R24	W	½	10
41W-42W	B5	R25	W	¼	10
41W-42W	B5	R28	W	3 ¼	6
41W-42W	B5	R47	E	¼	10
41W-42W	B5	R55	E	½	10
41W-42W	B6	R25	W	¼	10
41W-42W	B6	R55	E	¼	10
41W-42W	B6	R55	W	¼	10
41W-42W	B8	R34	E	½	6
41W-42W	B8	R42	E	¼	6
41W-42W	B8	R43	E	½	6
41W-42W	B8	R46	W	½	10
41W-42W	B9	R47	E	⅛	10
41W-42W	B9	R55	W	½	6
41W-42W	B10	R19	E	¼	4
41W-42W	B10	R42	E	¼	6
41W-42W	B10	R43	E	½	10
41W-42W	B10	R46	E	¼	10
41W-42W	B10	R46	W	⅛	10
41W-42W	B11	R45	W	½	2
42W-43	B2	R31	E	1	10
42W-43	B2	R33	E	½	10
42W-43	B2	R62	W	1 ¼	6
42W-43	B2	R63	W	3 ½	6
42W-43	B2	R67	W	¾	10
42W-43	B2	R68	W	1 ½	2
42W-43	B2	R69	W	1	2
42W-43	B3	R19	E	2	6
42W-43	B3	R46	E	¼	10
42W-43	B4	R19	W	1	4
42W-43	B4	R46	E	⅛	10
42W-43	B5	R19	E	½	6
42W-43	B5	R19	W	¾	4
42W-43	B5	R21	W	1	2
42W-43	B5	R46	E	⅛	10
42W-43	B6	R19	W	½	6
42W-43	B6	R25	W	½	10

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
42W-43	B6	R28	E	¼	6
42W-43	B7	R25	E	1	10
42W-43	B7	R25	W	½	10
42W-43	B7	R46	E	¼	10
42W-43	B8	R25	W	¼	10
42W-43	B8	R28	E	1	6
42W-43	B8	R46	E	¼	10
42W-43	B8	R46	W	¼	10
42W-43	B9	R11	E	¼	10
42W-43	B9	R28	E	¼	10
42W-43	B9	R46	E	¼	10
42W-43	B10	R19	W	½	4
42W-43	B10	R46	W	¼	10
42W-43	B11	R28	W	½	6
42W-43	B11	R46	E	½	10
42W-43	B11	R46	W	1	6
42W-43	B12	R2	E	FW	2
42W-43	B12	R3	E	2 ½	2
42W-43	B12	R21	W	¾	6
42W-43	B12	R24	W	¼	10
42W-43	B12	R33	W	½	6
42W-43	B12	R34	W	½	6
42W-43	B12	R61	E	1 ½	2
42E-43	B2	R25	E	¼	10
42E-43	B2	R61	E	½	6
42E-43	B3	R19	W	¼	10
42E-43	B3	R25	E	¼	10
42E-43	B3	R29	W	½	10
42E-43	B5	R25	W	½	10
42E-43	B5	R46	E	⅛	10
42E-43	B6	R47	W	⅛	10
42E-43	B8	R25	W	¼	10
42E-43	B8	R25	E	1	10
42E-43	B9	R25	E	¼	10
42E-43	B10	R25	W	¼	10
42E-43	B11	R3	W	¼	10
42E-43	B11	R69	E	½	10
41E-42E	B2	R19	E	½	4
41E-42E	B2	R47	E	¼	10
41E-42E	B3	R47	E	¼	10
41E-42E	B3	R52	E	¼	10
41E-42E	B4	R1	W	1 ½	6
41E-42E	B4	R11	E	¼	10

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
41E-42E	B4	R47	E	¼	6
41E-42E	B4	R47	W	¼	10
41E-42E	B4	R52	E	¼	10
41E-42E	B4	R52	W	¼	10
41E-42E	B5	R47	E	¼	10
41E-42E	B5	R52	E	¼	10
41E-42E	B6	R47	W	¼	10
41E-42E	B7	R32	E	1 ½	10
41E-42E	B7	R47	E	4	6
41E-42E	B8	R47	E	⅙	10
41E-42E	B8	R47	W	½	6
41E-42E	B9	R47	E	⅙	10
41E-42E	B11	R2	W	¼	10
41E-42E	B11	R52	W	½	10
40E-41E	B2	R24	W	¼	10
40E-41E	B2	R25	E	2 ¼	6
40E-41E	B2	R25	W	1 ¼	6
40E-41E	B2	R44	W	1 ½	6
40E-41E	B2	R52	E	¼	10
40E-41E	B3	R19	E	FW	4
40E-41E	B3	R19	W	FW	4
40E-41E	B3	R24	W	¼	10
40E-41E	B3	R28	W	1	10
40E-41E	B3	R46	E	⅙	10
40E-41E	B3	R47	E	¼	10
40E-41E	B4	R25	E	FW	6
40E-41E	B4	R25	W	FW	6
40E-41E	B4	R52	E	¼	10
40E-41E	B4	R52	W	¼	10
40E-41E	B5	R25	W	¼	10
40E-41E	B6	R24	W	¼	10
40E-41E	B6	R25	E	¼	10
40E-41E	B6	R25	W	¼	10
40E-41E	B6	R46	W	⅙	10
40E-41E	B6	R47	W	¼	10
40E-41E	B7	R46	E	⅙	10
40E-41E	B7	R46	W	½	10
40E-41E	B7	R47	E	⅙	10
40E-41E	B8	R19	W	½	4
40E-41E	B8	R25	W	1 ¼	6
40E-41E	B8	R46	E	⅙	10
40E-41E	B8	R47	E	⅙	10
40E-41E	B9	R21	W	½	6

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
40E-41E	B9	R25	E	1 ½	10
40E-41E	B10	R25	W	1	6
40E-41E	B11	R21	E	¼	10
40E-41E	B11	R21	W	1	6
39E-40E	B2	R25	W	¼	10
39E-40E	B2	R68	E	½	10
39E-40E	B3	R25	W	¾	6
39E-40E	B4	R19	E	2	10
39E-40E	B4	R25	W	1	6
39E-40E	B5	R16	E	¼	10
39E-40E	B5	R25	E	1	6
39E-40E	B5	R25	W	1	6
39E-40E	B6	R25	E	½	6
39E-40E	B6	R25	W	1	6
39E-40E	B7	R19	W	¼	10
39E-40E	B7	R25	E	¼	10
39E-40E	B7	R25	W	¼	10
39E-40E	B7	R28	E	1	10
39E-40E	B7	R52	E	1 ½	6
39E-40E	B7	R52	W	¾	4
39E-40E	B8	R19	E	½	10
39E-40E	B8	R24	W	1	10
39E-40E	B8	R25	E	1	6
39E-40E	B8	R25	W	1	6
39E-40E	B8	R28	E	1	10
39E-40E	B8	R28	W	¼	10
39E-40E	B8	R52	E	FW	4
39E-40E	B8	R52	W	FW	6
39E-40E	B9	R25	E	1	6
39E-40E	B9	R25	W	1	6
39E-40E	B9	R28	E	1	6
39E-40E	B9	R28	W	½	6
39E-40E	B9	R52	E	FW	10
39E-40E	B9	R52	W	FW	10
39E-40E	B10	R28	W	1 ¼	6
39E-40E	B11	R28	W	½	6
38E-39E	B2	R46	E	½	10
38E-39E	B3	R25	E	1 ½	6
38E-39E	B5	R25	W	½	6
38E-39E	B5	R46	E	⅞	10
38E-39E	B5	R52	W	¼	10
38E-39E	B6	R25	E	1	10
38E-39E	B6	R25	W	¼	10

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
38E-39E	B7	R25	W	½	10
38E-39E	B7	R46	E	¼	10
38E-39E	B7	R46	W	1	6
38E-39E	B8	R47	E	¼	10
38E-39E	B8	R52	W	¼	10
38E-39E	B9	R47	E	¼	10
38E-39E	B10	R10	W	¼	2
38E-39E	B11	R25	W	¼	10
37E-38E	B4	R25	W	½	10
37E-38E	B6	R46	E	⅛	10
37E-38E	B7	R25	W	½	10
37E-38E	B7	R46	W	⅛	10
37E-38E	B7	R47	E	¼	10
37E-38E	B8	R25	E	½	10
37E-38E	B8	R25	W	¼	10
37E-38E	B8	R55	E	¼	10
37E-38E	B9	R25	W	½	10
37E-38E	B10	R25	E	1	6
37E-38E	B11	R7	W	2	6
37E-38E	B11	R19	E	1	2
37E-38E	B11	R19	W	1 ¾	10
36E-37E	B3	R46	E	¼	10
36E-37E	B4	R46	E	¼	10
36E-37E	B4	R55	E	¼	10
36E-37E	B4	R55	W	¼	10
36E-37E	B5	R55	E	¼	10
36E-37E	B6	R46	E	¼	10
36E-37E	B6	R55	E	¾	10
36E-37E	B6	R55	W	¼	10
36E-37E	B8	R27	W	1	6
36E-37E	B8	R46	E	¼	10
36E-37E	B9	R25	W	⅛	10
36E-37E	B9	R70	W	½	10
36E-37E	B10	R47	W	¼	10
36E-37E	B11	R25	W	1 ½	10
35E-36E	B2	R25	E	½	6
35E-36E	B2	R62	W	1	4
35E-36E	B2	R69	W	FW	2
35E-36E	B3	R19	E	FW	6
35E-36E	B3	R19	W	FW	4
35E-36E	B4	R24	W	¼	10
35E-36E	B4	R25	W	¼	10
35E-36E	B5	R25	E	¼	10

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
35E-36E	B8	R26	W	½	6
35E-36E	B8	R28	E	1 ¼	6
35E-36E	B9	R25	W	½	10
35E-36E	B10	R28	W	FW	6
35E-36E	B11	R19	W	¾	6
35E-36E	B11	R25	W	1 ½	6
35E-36E	B11	R26	W	½	6
34E-35E	B2	R15	W	½	6
34E-35E	B2	R25	E	½	4
34E-35E	B2	R47	E	⅛	10
34E-35E	B3	R47	E	½	10
34E-35E	B4	R47	E	⅛	10
34E-35E	B5	R52	W	FW	4
34E-35E	B6	R19	E	FW	6
34E-35E	B6	R19	W	FW	6
34E-35E	B6	R46	E	⅛	10
34E-35E	B8	R47	W	⅛	10
34E-35E	B9	R19	E	FW	4
34E-35E	B9	R19	W	FW	4
34E-35E	B9	R52	W	¼	2
34E-35E	B9	R52	E	½	6
34E-35E	B10	R19	W	½	10
33E-34E	B2	R19	E	¼	6
33E-34E	B3	R11	W	¼	10
33E-34E	B3	R54	W	¼	10
33E-34E	B5	R11	W	¼	10
33E-34E	B5	R54	W	¼	10
33E-34E	B6	R11	W	¼	10
33E-34E	B7	R11	E	¼	10
33E-34E	B7	R52	E	¼	10
33E-34E	B8	R19	E	FW	4
33E-34E	B8	R19	W	FW	4
33E-34E	B8	R28	E	3	10
33E-34E	B9	R19	E	FW	4
33E-34E	B9	R19	W	FW	4
33E-34E	B10	R11	E	¼	10
33E-34E	B10	R19	W	2	2
33E-34E	B11	R52	E	¼	10
32E-33E	B2	R19	W	FW	4
32E-33E	B2	R47	E	½	10
32E-33E	B2	R64	E	1 ½	10
32E-33E	B2	R65	E	1 ½	10
32E-33E	B3	R43	E	½	6

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
32E-33E	B3	R47	E	¼	10
32E-33E	B4	R37	W	1	6
32E-33E	B4	R47	E	1 ½	10
32E-33E	B4	R47	W	1	4
32E-33E	B5	R19	E	¼	6
32E-33E	B5	R47	E	⅙	10
32E-33E	B7	R19	E	¼	6
32E-33E	B7	R47	E	½	10
32E-33E	B7	R47	W	¼	10
32E-33E	B8	R38	E	1 ¼	2
32E-33E	B9	R43	E	FW	6
32E-33E	B9	R43	W	FW	6
32E-33E	B10	R25	E	½	10
32E-33E	B10	R25	W	¼	10
32E-33E	B11	R25	W	¼	10
31E-32E	B2	R3	W	¾	10
31E-32E	B4	R47	W	½	2
31E-32E	B5	R43	W	FW	2
31E-32E	B5	R43	E	FW	2
31E-32E	B6	R25	E	⅙	10
31E-32E	B8	R47	E	1	6
31E-32E	B8	R48	E	1	6
31E-32E	B10	R52	W	¼	10
31E-32E	B11	R19	W	½	2
31E-32E	B11	R19	E	½	2
31E-32E	B11	R52	E	FW	4
31E-32E	B11	R52	W	FW	4
30E-31E	B2	R2	W	1	10
30E-31E	B2	R37	E	¾	6
30E-31E	B6	R11	E	¼	10
30E-31E	B7	R50	E	½	2
30E-31E	B9	R43	E	¼	6
30E-31E	B9	R67	E	½	10
30E-31E	B10	R42	W	½	6
30E-31E	B10	R52	W	1	10
30E-31E	B11	R30	E	¼	10
30E-31E	B11	R61	E	1 ½	6
29E-30E	B2	R10	E	1	6
29E-30E	B2	R34	W	2 ½	2
29E-30E	B2	R34	E	½ & ¼	6
29E-30E	B3	R46	E	¼	10
29E-30E	B4	R46	E	¼	10
29E-30E	B4	R52	E	¼	10

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
29E-30E	B5	R42	E	¼	2
29E-30E	B5	R43	E	½	6
29E-30E	B5	R46	E	¼	10
29E-30E	B7	R19	E	1	6
29E-30E	B8	R19	W	¼	10
29E-30E	B8	R52	E	¼	10
29E-30E	B9	R19	E	½	10
29E-30E	B10	R19	W	¼	10
29E-30E	B11	R19	W	3	10
29E-30E	B11	R43	W	1	4
28E-29E	B2	R2	E	FW	4
28E-29E	B2	R2	W	1 ¾	6
28E-29E	B2	R3	E	2 ½	6
28E-29E	B2	R34	W	½	10
28E-29E	B2	R62	W	1 ¼	10
28E-29E	B3	R2	W	¾	6
28E-29E	B3	R47	E	½	10
28E-29E	B3	R52	W	¼	4
28E-29E	B3	R68	W	½	10
28E-29E	B4	R47	E	1	10
28E-29E	B4	R52	W	¼	10
28E-29E	B4	R54	E	¼	10
28E-29E	B5	R25	W	1	10
28E-29E	B5	R26	W	1	6
28E-29E	B7	R52	E	1	10
28E-29E	B8	R52	E	FW	4
28E-29E	B8	R52	W	FW	6
28E-29E	B9	R52	E	FW	6
28E-29E	B9	R52	W	FW	6
28E-29E	B11	R31	E	1	10
28E-29E	B11	R31	W	3 ½	6
28E-29E	B11	R52	E	1	6
28E-29E	B11	R52	W	1	6
28E-29E	B11	R62	E	1	6
27E-28E	B2	R2	W	¼	10
27E-28E	B2	R10	E	1	2
27E-28E	B2	R52	E	¼	4
27E-28E	B3	R54	E	¼	10
27E-28E	B3	R55	E	¼	10
27E-28E	B4	R16	E	½	10
27E-28E	B4	R19	E	½	2
27E-28E	B4	R52	E	½	10
27E-28E	B5	R19	E	¼	10

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
27E-28E	B5	R52	E	¼	10
27E-28E	B6	R16	E	½	10
27E-28E	B7	R17	W	¼	10
27E-28E	B8	R17	E	¼	10
27E-28E	B8	R47	E	½	10
27E-28E	B9	R16	E	¼	10
27E-28E	B9	R17	E	½	10
27E-28E	B9	R19	E	1	2
27E-28E	B9	R52	W	¼	10
27E-28E	B10	R17	E	¼	10
27E-28E	B11	R3	E	2 ¼	10
27E-28E	B11	R6	E	1	10
27E-28E	B11	R10	E	¼	10
27E-28E	B11	R16	E	¼	10
27E-28E	B11	R17	E	¼	10
27E-28E	B11	R19	E	¾	2
27E-28E	B11	R36	E	FW	2
26E-27E	B2	R5	W	¼	10
26E-27E	B2	R7	W	¼	10
26E-27E	B3	R46	W	¼	10
26E-27E	B3	R52	W	½	6
26E-27E	B4	R45	W	¼	2
26E-27E	B4	R52	E	¼	10
26E-27E	B4	R52	W	¾	6
26E-27E	B4	R54	W	¼	10
26E-27E	B5	R52	E	½	2
26E-27E	B6	R47	E	½	10
26E-27E	B6	R47	W	¾	10
26E-27E	B6	R52	E	FW	4
26E-27E	B6	R52	W	FW	4
26E-27E	B6	R54	W	¼	10
26E-27E	B6	R55	W	¼	10
26E-27E	B7	R47	E	½	10
26E-27E	B7	R47	W	2	10
26E-27E	B7	R52	E	FW	4
26E-27E	B7	R52	W	FW	4
26E-27E	B7	R54	W	¼	10
26E-27E	B8	R28	E	½	6
26E-27E	B8	R52	E	FW	4
26E-27E	B8	R52	W	FW	4
26E-27E	B8	R54	W	¼	10
26E-27E	B9	R52	E	FW	4
26E-27E	B9	R52	W	FW	4

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
26E-27E	B11	R2	W	1	6
26E-27E	B11	R19	E	¼	10
25E-26E	B2	R6	E	¼	10
25E-26E	B2	R8	E	¾	6
25E-26E	B2	R17	E	¼	10
25E-26E	B3	R42	W	½	6
25E-26E	B3	R43	W	¾	4
25E-26E	B3	R52	E	1 ½	6
25E-26E	B4	R52	E	FW	4
25E-26E	B4	R52	W	FW	4
25E-26E	B5	R10	E	¼	10
25E-26E	B5	R52	W	¼	6
25E-26E	B5	R52	E	¼	2
25E-26E	B6	R16	E	¼	10
25E-26E	B6	R16	W	¼	10
25E-26E	B6	R47	E	½	10
25E-26E	B7	R44	W	½	2
25E-26E	B7	R52	E	⅛	2
25E-26E	B7	R52	W	¼	10
25E-26E	B9	R46	W	¼	10
25E-26E	B9	R52	W	⅛	2
25E-26E	B9	R52	E	¼ & ¼	2
25E-26E	B9	R69	W	½	10
25E-26E	B10	R19	E	1	6
25E-26E	B10	R19	W	½	6
25E-26E	B11	R52	E	1	6
25E-26E	B11	R52	W	FW	4
24E-25E	B2	R2	E	3	6
24E-25E	B2	R2	W	FW	4
24E-25E	B2	R6	W	2	4
24E-25E	B2	R7	W	1 ½	10
24E-25E	B2	R8	W	FW	6
24E-25E	B2	R31	W	3	10
24E-25E	B2	R32	W	½	10
24E-25E	B2	R34	W	½	10
24E-25E	B2	R43	E	¾	10
24E-25E	B2	R46	W	¼	10
24E-25E	B2	R66	E	½	10
24E-25E	B3	R2	W	½	6
24E-25E	B3	R7	W	1 ¼	10
24E-25E	B3	R55	E	¼	10
24E-25E	B4	R54	E	¼	10
24E-25E	B4	R55	E	¼	10

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
24E-25E	B5	R43	E	½	2
24E-25E	B5	R46	E	¼	10
24E-25E	B5	R55	E	¼	10
24E-25E	B6	R55	W	¼	10
24E-25E	B8	R43	E	1	4
24E-25E	B8	R46	E	1	10
24E-25E	B8	R54	W	¼	10
24E-25E	B8	R60	W	¼	10
24E-25E	B9	R52	W	¼	10
24E-25E	B9	R55	W	¼	10
24E-25E	B10	R52	E	¼	10
24E-25E	B10	R55	E	½	10
24E-25E	B10	R55	W	¼	10
24E-25E	B11	R10	E	½	2
24E-25E	B11	R52	E	¼	10
24E-25E	B11	R52	W	¼	10
23E-24E	B2	R2	E	2	10
23E-24E	B2	R2	W	1 ¼	2
23E-24E	B2	R5	W	¼	10
23E-24E	B2	R19	W	¾	2
23E-24E	B2	R19	E	1	2
23E-24E	B3	R28	E	¼	6
23E-24E	B3	R43	W	FW	4
23E-24E	B3	R43	E	FW	2
23E-24E	B3	R44	E	1	2
23E-24E	B5	R25	E	¾	6
23E-24E	B5	R48	E	¾	10
23E-24E	B5	R52	W	½	4
23E-24E	B6	R14	W	1	6
23E-24E	B6	R19	W	1	6
23E-24E	B7	R19	E	½	10
23E-24E	B7	R19	W	¾	10
23E-24E	B8	R16	E	1 & ½	2
23E-24E	B8	R16	W	¼	10
23E-24E	B8	R18	W	FW	6
23E-24E	B8	R18	E	FW	2
23E-24E	B8	R43	W	FW	2
23E-24E	B8	R43	E	FW	2
23E-24E	B8	R52	E	¾	4
23E-24E	B8	R52	W	½	4
23E-24E	B8	R55	E	¼	10
23E-24E	B9	R38	E	FW	10
23E-24E	B9	R42	E	FW	10

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
23E-24E	B9	R42	W	FW	10
23E-24E	B9	R43	E	FW	2
23E-24E	B9	R43	W	FW	2
23E-24E	B9	R55	W	¼	10
23E-24E	B10	R19	E	½	10
23E-24E	B11	R8	E	¼	10
23E-24E	B11	R19	W	FW	4
22E-23E	B2	R2	W	3	6
22E-23E	B2	R19	E	FW	6
22E-23E	B2	R19	W	FW	6
22E-23E	B2	R32	W	2	6
22E-23E	B3	R19	W	FW	2
22E-23E	B3	R19	E	FW	6
22E-23E	B3	R25	W	FW	6
22E-23E	B3	R52	W	½	6
22E-23E	B4	R19	W	1 ½	6
22E-23E	B4	R52	E	⅙	10
22E-23E	B5	R52	E	⅙	10
22E-23E	B6	R52	E	⅙	10
22E-23E	B6	R52	W	⅙	10
22E-23E	B7	R17	W	⅙	10
22E-23E	B7	R52	E	¼	6
22E-23E	B7	R52	W	½	4
22E-23E	B8	R8	W	2	6
22E-23E	B8	R19	E	⅙	10
22E-23E	B8	R43	E	½	10
22E-23E	B8	R52	E	1	4
22E-23E	B8	R54	W	¼	10
22E-23E	B9	R19	E	¼	10
22E-23E	B9	R47	E	1	6
22E-23E	B9	R52	E	FW	4
22E-23E	B9	R52	W	FW	4
22E-23E	B10	R26	W	¼	6
22E-23E	B10	R47	E	1	2
22E-23E	B10	R52	E	FW	4
22E-23E	B10	R52	W	FW	4
22E-23E	B11	R19	W	1	2
22E-23E	B11	R19	E	FW	4
22E-23E	B11	R26	E	½	6
22E-23E	B11	R26	W	¼	4
22E-23E	B11	R52	E	FW	4
22E-23E	B11	R52	W	FW	4
21E-22E	B2	R2	E	½	6

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
21E-22E	B2	R2	W	¼	10
21E-22E	B2	R24	W	¾	6
21E-22E	B3	R52	E	⅙	10
21E-22E	B3	R52	W	¼	10
21E-22E	B4	R43	W	¼	10
21E-22E	B4	R52	E	¼	10
21E-22E	B4	R52	W	¼	6
21E-22E	B5	R10	W	1	10
21E-22E	B5	R52	E	½	10
21E-22E	B5	R52	W	½	10
21E-22E	B6	R46	W	¼	10
21E-22E	B6	R55	E	¼	10
21E-22E	B7	R1	E	2	10
21E-22E	B7	R7	E	2	10
21E-22E	B7	R54	E	⅙	10
21E-22E	B7	R54	W	⅙	10
21E-22E	B8	R52	E	¼	10
21E-22E	B8	R52	W	½	6
21E-22E	B9	R16	E	¼	10
21E-22E	B9	R19	E	FW	10
21E-22E	B9	R19	W	4 ½	6
21E-22E	B9	R26	E	½	6
21E-22E	B10	R19	E	¼	10
21E-22E	B10	R19	W	¼	6
21E-22E	B10	R26	W	FW	6
21E-22E	B10	R28	E	1 ½	6
21E-22E	B10	R29	E	1	6
21E-22E	B11	R27	E	1 ½	6
20E-21E	B2	R3	W	½	6
20E-21E	B2	R8	W	½	6
20E-21E	B2	R23	W	½	10
20E-21E	B3	R43	E	FW	6
20E-21E	B3	R43	W	FW	6
20E-21E	B4	R32	E	¼	10
20E-21E	B5	R42	E	3	6
20E-21E	B6	R19	E	¼	10
20E-21E	B7	R26	E	½	6
20E-21E	B7	R54	E	¼	10
20E-21E	B7	R55	E	¼	10
20E-21E	B8	R54	W	¼	10
20E-21E	B9	R19	W	1	2
20E-21E	B9	R19	E	1 ½	2
20E-21E	B9	R34	E	1 ½	6

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
20E-21E	B9	R55	W	¼	10
20E-21E	B10	R19	W	⅙	10
20E-21E	B11	R2	E	½	10
20E-21E	B11	R34	W	½	6
20E-21E	B11	R52	E	¼	10
20E-21E	B11	R52	W	¼	10
19E-20E	B2	R2	W	FW	4
19E-20E	B2	R3	E	1 ½	6
19E-20E	B2	R3	W	¼	10
19E-20E	B2	R6	W	1 ½	6
19E-20E	B2	R28	W	½	6
19E-20E	B2	R68	W	1 ½	10
19E-20E	B3	R1	W	1	6
19E-20E	B3	R16	W	¼	10
19E-20E	B3	R19	E	1	6
19E-20E	B3	R28	E	¾	6
19E-20E	B6	R2	W	2	10
19E-20E	B7	R52	E	1	10
19E-20E	B7	R52	W	⅙	10
19E-20E	B8	R2	W	2	10
19E-20E	B8	R52	E	FW	4
19E-20E	B8	R52	W	FW	4
19E-20E	B8	R54	W	¼	10
19E-20E	B9	R52	E	FW	4
19E-20E	B9	R52	W	FW	4
19E-20E	B10	R10	W	¼	10
19E-20E	B10	R52	E	FW	4
19E-20E	B10	R52	W	FW	4
19E-20E	B11	R11	W	½	10
19E-20E	B11	R19	W	½	6
19E-20E	B11	R52	W	¼	6
18E-19E	B2	R8	W	1	6
18E-19E	B2	R10	E	3	6
18E-19E	B2	R10	W	1	6
18E-19E	B2	R11	W	2 ½	6
18E-19E	B2	R28	E	1	6
18E-19E	B3	R12	E	2 ¾	10
18E-19E	B4	R52	E	FW	4
18E-19E	B4	R52	W	FW	4
18E-19E	B4	R60	W	¼	10
18E-19E	B5	R19	E	½	6
18E-19E	B5	R19	W	½	6
18E-19E	B7	R17	E	FW	6

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
18E-19E	B7	R17	W	1 ½	10
18E-19E	B7	R52	W	¼	10
18E-19E	B7	R54	W	¼	10
18E-19E	B7	R55	E	¼	10
18E-19E	B7	R58	E	FW	2
18E-19E	B8	R16	W	3 & ¾	6
18E-19E	B8	R17	W	FW	6
18E-19E	B8	R52	E	¾	10
18E-19E	B8	R52	W	¼	10
18E-19E	B9	R19	E	½	10
18E-19E	B10	R10	E	¼	10
18E-19E	B10	R28	E	1	6
18E-19E	B11	R7	W	¾	6
18E-19E	B11	R8	W	¼	10
18E-19E	B11	R52	E	¾	4
18E-19E	B11	R52	W	½	6
17E-18E	B2	R2	W	FW	4
17E-18E	B2	R2	E	¼	2
17E-18E	B2	R3	E	1	6
17E-18E	B2	R3	W	½ & ½	10
17E-18E	B2	R4	W	1	10
17E-18E	B2	R5	W	¾	10
17E-18E	B2	R19	E	½	6
17E-18E	B2	R28	E	2	6
17E-18E	B2	R52	W	½	6
17E-18E	B3	R19	W	1	2
17E-18E	B3	R19	E	1	6
17E-18E	B3	R26	E	1	10
17E-18E	B3	R42	E	1 ½	6
17E-18E	B4	R6	E	½	10
17E-18E	B4	R28	E	1	6
17E-18E	B4	R52	W	½	6
17E-18E	B4	R63	E	1	10
17E-18E	B8	R52	W	¼	6
17E-18E	B9	R52	W	¼	10
17E-18E	B11	R28	E	4	6
17E-18E	B11	R52	E	¼	10
17E-18E	B11	R52	W	½	6
16E-17E	B2	R47	E	½	10
16E-17E	B3	R47	E	½	10
16E-17E	B3	R47	W	¼	6
16E-17E	B4	R47	E	½	10
16E-17E	B4	R52	W	1 ⅛	4

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
16E-17E	B5	R54	E	¼	10
16E-17E	B6	R52	E	1 ½	6
16E-17E	B7	R19	E	½	10
16E-17E	B7	R47	E	½	6
16E-17E	B7	R47	W	½	10
16E-17E	B7	R52	E	FW	4
16E-17E	B7	R52	W	FW	4
16E-17E	B8	R47	E	½	6
16E-17E	B8	R47	W	½	6
16E-17E	B8	R52	E	FW	4
16E-17E	B8	R52	W	FW	4
16E-17E	B9	R28	W	¼	10
16E-17E	B9	R34	E	FW	6
16E-17E	B9	R34	W	FW	6
16E-17E	B9	R43	E	FW	4
16E-17E	B9	R47	E	1	10
16E-17E	B9	R52	W	FW	6
16E-17E	B10	R47	W	1	2
16E-17E	B10	R47	E	1	6
16E-17E	B10	R52	E	FW	6
16E-17E	B10	R52	W	FW	6
16E-17E	B11	R52	E	FW	6
16E-17E	B11	R52	W	FW	6
15E-16E	B2	R26	E	1 ½	10
15E-16E	B2	R62	E	2	10
15E-16E	B2	R62	W	FW	10
15E-16E	B3	R27	E	1 ½	10
15E-16E	B3	R28	W	½	6
15E-16E	B3	R61	W	½	10
15E-16E	B4	R52	E	FW	4
15E-16E	B4	R52	W	FW	4
14E-15E	B2	R3	W	½	10
14E-15E	B2	R9	E	3	2
14E-15E	B2	R14	W	½	6
14E-15E	B2	R18	E	FW	6
14E-15E	B3	R9	W	FW	6
14E-15E	B3	R18	W	3 ½	6
14E-15E	B4	R18	E	2	6
14E-15E	B5	R9	E	1 ½	6
14E-15E	B8	R52	E	FW	10
14E-15E	B8	R52	W	FW	6
10E-11E	B1	R33	W	2 ½	4
10E-11E	B7	R47	E	2	10

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
9E-10E	B2	R19	W	½	6
9E-10E	B2	R26	E	½	6
9E-10E	B2	R28	W	½	10
9E-10E	B2	R47	E	¾	10
9E-10E	B2	R47	W	1	10
9E-10E	B2	R52	E	FW	4
9E-10E	B2	R52	W	FW	4
9E-10E	B3	R26	W	4 ½	6
9E-10E	B3	R28	E	½	6
9E-10E	B3	R28	W	½	6
9E-10E	B3	R30	E	½	6
9E-10E	B3	R52	E	FW	4
9E-10E	B3	R52	W	FW	4
9E-10E	B4	R19	W	¼	6
9E-10E	B4	R30	W	1	6
9E-10E	B4	R35	W	FW	6
9E-10E	B4	R52	W	1	2
9E-10E	B5	R28	E	1	6
9E-10E	B5	R28	W	½	6
9E-10E	B5	R52	W	¾	2
9E-10E	B7	R26	W	½	6
9E-10E	B8	R19	E	½	2
9E-10E	B8	R19	W	½	2
9E-10E	B8	R35	W	1	6
9E-10E	B8	R37	W	½	2
9E-10E	B8	R39	W	¼	2
9E-10E	B8	R47	E	1	2
9E-10E	B8	R52	E	¼	10
9E-10E	B8	R52	W	¼	6
9E-10E	B9	R19	E	½	2
9E-10E	B9	R19	W	½	2
9E-10E	B9	R26	E	FW	6
9E-10E	B9	R26	W	FW	6
9E-10E	B9	R52	E	¼	2
9E-10E	B10	R19	W	½	2
9E-10E	B10	R24	W	1	6
9E-10E	B10	R26	E	4	6
9E-10E	B10	R27	W	¾	2
9E-10E	B10	R28	W	1	6
9E-10E	B11	R2	E	3	6
9E-10E	B11	R19	W	½	10
9E-10E	B11	R25	E	FW	6
9E-10E	B11	R25	W	FW	10

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
9E-10E	B11	R26	E	FW	10
9E-10E	B11	R26	W	FW	6
9E-10E	B11	R47	E	¼	10
9E-10E	B11	R47	W	FW	2
8E-9E	B2	R34	W	1	10
8E-9E	B2	R52	E	FW	4
8E-9E	B2	R52	W	FW	4
8E-9E	B3	R35	E	1	6
8E-9E	B4	R1	W	2	6
8E-9E	B4	R28	E	2 ½	6
8E-9E	B4	R28	W	1	6
8E-9E	B4	R35	W	1	6
8E-9E	B4	R43	E	1	10
8E-9E	B4	R43	W	½	6
8E-9E	B4	R52	W	½	2
8E-9E	B5	R1	W	1 ½	6
8E-9E	B5	R43	E	FW	6
8E-9E	B5	R43	W	FW	6
8E-9E	B5	R52	W	½	2
8E-9E	B6	R19	E	½	10
8E-9E	B6	R19	W	¾	10
8E-9E	B7	R19	E	FW	4
8E-9E	B7	R19	W	FW	4
8E-9E	B8	R1	W	1 ¼	6
8E-9E	B8	R19	E	FW	10
8E-9E	B8	R19	W	FW	10
8E-9E	B8	R52	E	FW	4
8E-9E	B8	R52	W	FW	4
8E-9E	B9	R19	E	¾	10
8E-9E	B9	R19	W	½	10
8E-9E	B9	R43	E	½	6
8E-9E	B9	R52	E	FW	4
8E-9E	B9	R52	W	FW	4
8E-9E	B11	R19	E	FW	2
8E-9E	B11	R19	W	FW	10
7E-8E	B2	R2	E	FW	6
7E-8E	B2	R2	W	3	6
7E-8E	B2	R3	E	½	10
7E-8E	B2	R7	E	2 ½	2
7E-8E	B2	R19	E	FW	4
7E-8E	B2	R19	W	FW	4
7E-8E	B2	R52	E	¾	10
7E-8E	B3	R17	E	½	4

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
7E-8E	B3	R19	E	FW	4
7E-8E	B3	R19	W	FW	4
7E-8E	B3	R47	W	1 ½	4
7E-8E	B3	R47	E	FW	2
7E-8E	B3	R52	W	¾	10
7E-8E	B4	R19	E	FW	4
7E-8E	B4	R19	W	FW	4
7E-8E	B4	R25	E	4	6
7E-8E	B4	R25	W	4	6
7E-8E	B5	R25	E	2 ½	6
7E-8E	B5	R25	W	4 ½	6
7E-8E	B5	R52	E	FW	10
7E-8E	B5	R52	W	FW	10
7E-8E	B6	R19	E	FW	4
7E-8E	B6	R19	W	FW	10
7E-8E	B6	R25	E	3	6
7E-8E	B6	R25	W	FW	6
7E-8E	B6	R47	E	1	6
7E-8E	B6	R47	W	FW	4
7E-8E	B6	R52	E	FW	10
7E-8E	B6	R52	W	FW	10
7E-8E	B7	R2	E	1 ½	6
7E-8E	B7	R19	W	FW	2
7E-8E	B7	R21	E	2 ½	6
7E-8E	B7	R24	E	3	6
7E-8E	B7	R24	W	4	6
7E-8E	B7	R25	E	FW	6
7E-8E	B7	R25	W	FW	6
7E-8E	B7	R26	E	4	6
7E-8E	B7	R26	W	4	4
7E-8E	B7	R42	E	½	6
7E-8E	B7	R45	W	1 ¼	6
7E-8E	B7	R47	W	1	4
7E-8E	B7	R52	E	FW	10
7E-8E	B7	R52	W	FW	10
7E-8E	B8	R19	W	½	2
7E-8E	B8	R24	E	FW	6
7E-8E	B8	R24	W	3	6
7E-8E	B8	R25	E	FW	6
7E-8E	B8	R25	W	4	6
7E-8E	B8	R26	E	3	6
7E-8E	B8	R26	W	2	6
7E-8E	B8	R52	E	FW	10

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
7E-8E	B8	R52	W	FW	10
7E-8E	B9	R19	E	4 ¾	4
7E-8E	B9	R25	E	FW	6
7E-8E	B9	R25	W	FW	6
7E-8E	B9	R26	E	4	6
7E-8E	B9	R26	W	FW	6
7E-8E	B9	R29	E	¾	2
7E-8E	B9	R42	W	1	10
7E-8E	B9	R43	E	½	10
7E-8E	B9	R43	W	½	10
7E-8E	B9	R45	E	½	10
7E-8E	B9	R45	W	½	10
7E-8E	B9	R52	E	FW	10
7E-8E	B9	R52	W	FW	10
7E-8E	B10	R19	E	FW	4
7E-8E	B10	R19	W	FW	4
7E-8E	B10	R25	E	3	6
7E-8E	B10	R25	W	FW	6
7E-8E	B10	R42	W	½	10
7E-8E	B10	R45	W	½	10
7E-8E	B10	R52	E	FW	10
7E-8E	B10	R52	W	FW	10
7E-8E	B11	R25	E	½	10
7E-8E	B11	R25	W	½	6
7E-8E	B11	R26	W	½	6
7E-8E	B11	R52	E	FW	10
7E-8E	B11	R52	W	FW	10
6E-7E	B2	R3	E	1 ½	10
6E-7E	B2	R6	E	2 ½	6
6E-7E	B2	R6	W	2	6
6E-7E	B2	R19	E	1	4
6E-7E	B2	R19	W	1	4
6E-7E	B2	R28	E	FW	10
6E-7E	B2	R28	W	FW	10
6E-7E	B2	R33	W	½	4
6E-7E	B2	R34	W	2	4
6E-7E	B2	R35	E	2	4
6E-7E	B2	R35	W	1 ½	4
6E-7E	B3	R16	E	1 ½	6
6E-7E	B3	R35	E	1	6
6E-7E	B4	R16	W	FW	2
6E-7E	B5	R28	E	1 ½	6
6E-7E	B5	R47	W	¾	6

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

**2015 Biennial Inspection of the GWB - Main Span Upper Level
Orthotropic Deck - Cracked Rib Welds**

Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
6E-7E	B6	R34	W	FW	6
6E-7E	B7	R19	E	½	6
6E-7E	B7	R19	W	½	6
6E-7E	B8	R24	E	3	10
6E-7E	B8	R25	E	3	10
6E-7E	B8	R46	E	½	2
6E-7E	B9	R34	E	FW	6
6E-7E	B9	R47	E	¼	10
6E-7E	B10	R34	E	FW	4
6E-7E	B10	R34	W	FW	4
6E-7E	B11	R3	W	½	10
6E-7E	B11	R6	E	½	10
6E-7E	B11	R7	E	1 ½	6
5E-6E	B2	R2	W	1 ½	6
5E-6E	B2	R7	E	¾	6
5E-6E	B2	R7	W	2	6
5E-6E	B2	R8	W	3 ¼	6
5E-6E	B2	R10	W	½	10
5E-6E	B2	R19	E	¼	10
5E-6E	B2	R21	W	FW	6
5E-6E	B2	R28	W	½	2
5E-6E	B2	R34	W	½ & ¾	10
5E-6E	B2	R47	E	½	10
5E-6E	B2	R52	W	¾	6
5E-6E	B2	R64	W	2	6
5E-6E	B3	R19	W	2	6
5E-6E	B3	R29	E	1 ¼	6
5E-6E	B4	R19	E	¼	10
5E-6E	B4	R26	E	¼	2
5E-6E	B4	R28	E	½	2
5E-6E	B4	R30	W	¼	2
5E-6E	B4	R52	W	⅙	10
5E-6E	B5	R19	W	¼	10
5E-6E	B5	R52	E	⅙	10
5E-6E	B5	R52	W	⅙	10
5E-6E	B6	R19	E	¼	10
5E-6E	B6	R47	W	½	10
5E-6E	B6	R48	E	1	6
5E-6E	B7	R19	E	FW	10
5E-6E	B7	R19	W	FW	10
5E-6E	B7	R21	E	2 ½	2
5E-6E	B7	R21	W	1	10
5E-6E	B7	R52	W	1	4

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
5E-6E	B8	R17	E	¼	10
5E-6E	B8	R19	E	FW	10
5E-6E	B8	R19	W	FW	10
5E-6E	B8	R21	W	FW	4
5E-6E	B8	R21	E	3	2
5E-6E	B9	R19	E	FW	10
5E-6E	B9	R19	W	FW	10
5E-6E	B9	R43	E	FW	10
5E-6E	B9	R43	W	FW	10
5E-6E	B10	R19	E	FW	10
5E-6E	B10	R19	W	FW	10
5E-6E	B10	R20	E	4	6
5E-6E	B10	R21	E	1 ½	6
5E-6E	B10	R21	W	1	10
5E-6E	B10	R43	E	FW	10
5E-6E	B10	R43	W	FW	10
5E-6E	B10	R52	W	⅛	10
5E-6E	B11	R19	E	FW	10
5E-6E	B11	R19	W	FW	10
5E-6E	B11	R50	E	½	10
5E-6E	B11	R52	W	1	6
4E-5E	B2	R1	W	¾	10
4E-5E	B2	R19	E	¼	10
4E-5E	B2	R19	W	¼	10
4E-5E	B2	R24	W	⅛	10
4E-5E	B2	R25	W	⅛	10
4E-5E	B3	R19	E	FW	10
4E-5E	B3	R19	W	FW	10
4E-5E	B3	R52	W	1	6
4E-5E	B4	R19	E	FW	10
4E-5E	B4	R19	W	FW	10
4E-5E	B4	R35	W	2 ½	6
4E-5E	B4	R52	W	1	6
4E-5E	B5	R52	E	1	10
4E-5E	B6	R26	W	FW	10
4E-5E	B7	R52	E	¼	10
4E-5E	B8	R52	E	⅛	10
4E-5E	B8	R52	W	⅛	10
4E-5E	B9	R16	E	3	10
4E-5E	B9	R16	W	3	10
4E-5E	B9	R17	E	3	10
4E-5E	B10	R1	W	1 ½ & ½	6
4E-5E	B10	R19	E	¼	10

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
4E-5E	B10	R19	W	¾	10
4E-5E	B10	R26	W	½	10
4E-5E	B10	R52	W	⅙	10
4E-5E	B11	R34	E	¾	6
4E-5E	B11	R35	E	1 ¼	6
3E-4E	B2	R2	W	FW	6
3E-4E	B2	R43	E	FW	4
3E-4E	B2	R43	W	FW	4
3E-4E	B2	R52	E	¼	10
3E-4E	B3	R19	E	½	10
3E-4E	B3	R19	W	½	10
3E-4E	B3	R43	W	1	6
3E-4E	B3	R52	E	¼	10
3E-4E	B3	R52	W	¼	10
3E-4E	B4	R19	E	½	10
3E-4E	B4	R43	W	½	6
3E-4E	B4	R52	W	⅙	10
3E-4E	B5	R19	E	⅙	10
3E-4E	B5	R19	W	⅙	10
3E-4E	B5	R52	W	⅙	10
3E-4E	B6	R19	W	⅙	10
3E-4E	B6	R52	W	⅙	10
3E-4E	B7	R19	E	½	6
3E-4E	B7	R19	W	¾	10
3E-4E	B7	R43	E	1	10
3E-4E	B8	R2	E	FW	4
3E-4E	B8	R19	E	2 ½	10
3E-4E	B8	R42	E	1	10
3E-4E	B8	R43	E	FW	6
3E-4E	B8	R43	W	FW	6
3E-4E	B8	R47	W	¼	10
3E-4E	B8	R52	E	½	4
3E-4E	B8	R52	W	2	4
3E-4E	B9	R2	W	1 ½	6
3E-4E	B9	R19	E	FW	10
3E-4E	B9	R19	W	FW	10
3E-4E	B9	R36	E	1	6
3E-4E	B9	R43	E	FW	6
3E-4E	B9	R43	W	FW	6
3E-4E	B9	R52	E	FW	6
3E-4E	B9	R52	W	FW	6
3E-4E	B10	R16	E	¼	10
3E-4E	B10	R19	E	FW	4

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
3E-4E	B10	R19	W	FW	4
3E-4E	B10	R36	W	¾	6
3E-4E	B10	R43	E	FW	10
3E-4E	B10	R52	W	1	10
3E-4E	B11	R19	E	FW	4
3E-4E	B11	R19	W	FW	4
3E-4E	B11	R25	E	¾	10
3E-4E	B11	R52	E	1	10
3E-4E	B11	R52	W	1 ½	6
2E-3E	B2	R19	E	¼	10
2E-3E	B2	R28	W	¼	10
2E-3E	B2	R35	W	½	10
2E-3E	B3	R19	E	¼	10
2E-3E	B3	R19	W	1	6
2E-3E	B3	R29	W	¼	6
2E-3E	B5	R2	W	1 ½	6
2E-3E	B7	R19	W	¼	10
2E-3E	B7	R47	E	¾	2
2E-3E	B8	R19	W	¼	10
2E-3E	B8	R43	E	½	10
2E-3E	B9	R19	W	⅙	10
2E-3E	B9	R43	E	½	10
2E-3E	B9	R47	E	1	10
2E-3E	B9	R52	W	½	10
2E-3E	B10	R19	E	FW	10
2E-3E	B10	R19	W	FW	10
2E-3E	B10	R43	W	½	10
2E-3E	B10	R45	W	½	10
2E-3E	B11	R19	W	¾	10
1E-2E	B2	R3	E	2	6
1E-2E	B2	R3	W	¾	10
1E-2E	B2	R4	E	1	6
1E-2E	B2	R4	W	1	10
1E-2E	B2	R5	E	2 ½	6
1E-2E	B2	R5	W	1 ¼	10
1E-2E	B2	R6	E	½	10
1E-2E	B2	R7	E	2	6
1E-2E	B2	R7	W	2 ¼	10
1E-2E	B2	R8	E	1 ¼	10
1E-2E	B2	R12	E	½	10
1E-2E	B2	R24	W	½	10
1E-2E	B2	R26	E	1	4
1E-2E	B2	R62	W	FW	4

LEGEND: FW – FULL WIDTH; W – WEST; E – EAST; **NEW CRACKS**

2015 Biennial Inspection of the GWB - Main Span Upper Level Orthotropic Deck - Cracked Rib Welds					
Panel Point	Secondary Floorbeam	Rib Number	E / W Weld	Crack Length (in.)	Priority Repair
1E-2E	B3	R19	W	1 ¼	6
1E-2E	B3	R62	W	2	6
1E-2E	B10	R11	E	FW	10
1E-2E	B11	R24	W	½	6
1E-2E	B11	R25	E	FW	4
1E-2E	B11	R25	W	FW	6
1E-2E	B12	R26	W	FW	4

Appendix B

Immediate Action Correspondence



Stantec Consulting Services Inc.
50 West 23rd Street, 8th Floor
New York, NY 10010
Tel: (212) 366-5600
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May 29, 2015

Mr. C. John Lin, P.E.
Assistant Chief Engineer - Quality Assurance
Engineering Department
The Port Authority of New York & New Jersey
100 Mulberry Street
2 Gateway Center, 16th Floor
Newark, NJ 07102

Attention: Mr. Camille Dagher, P.E., Project Manager

Reference: Expert Professional Services for the Performance of Biennial Inspection of the George Washington Bridge, Main Span Upper & Lower Levels PA Agreement No. 405-15-005; P.O. 4900011453

Subject: Immediate Action – Severely Deteriorated and Cracked Orthotropic Deck Ribs Between Stringers S1 & S2 near Panel Point 27W

Gentlemen:

During the course of the biennial inspection of the George Washington Bridge – Main Span Upper Level, conditions were found on the orthotropic deck involving cracks and severe corrosion at the web of deck ribs below the deck joint requiring immediate action. The following summarizes the findings:

- Near Panel Point 27W (East side), Ribs 1 thru 5 exhibit severely corroded web bottom with up to 12" long cracks and corrosion holes between Secondary Floorbeams SFB1 and SFB2.

It is recommended to drill a 3/4" hole at the end of each crack as illustrated on QAD-1504-02 and repair selected severely deteriorated and cracked ribs on an immediate basis (See attached QAD-1504-01 & QAD-1504-02).

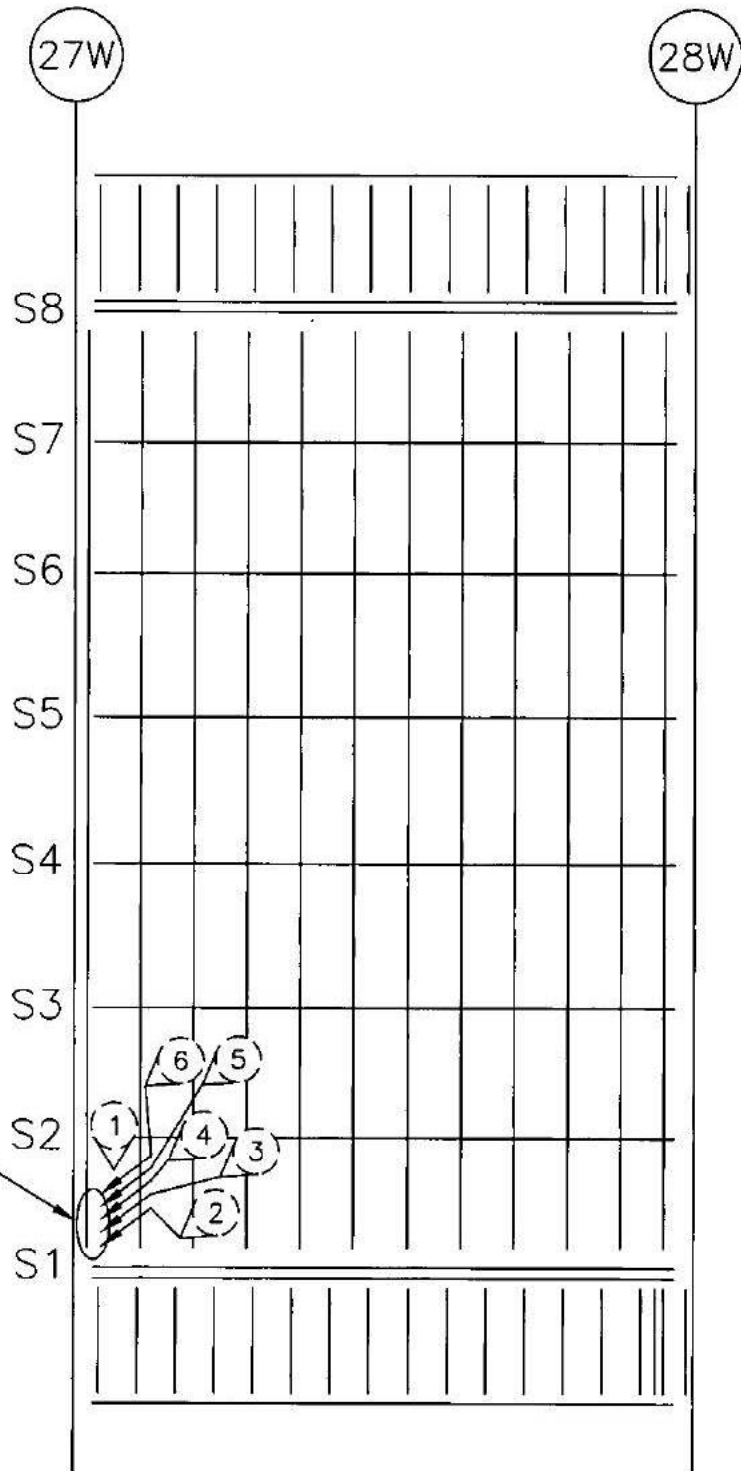
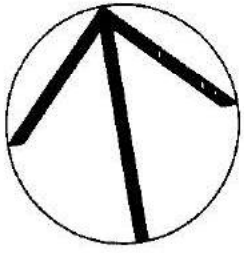
If you have any questions or need additional information, please contact us.

Sincerely,

STANTEC CONSULTING SERVICES INC.

A handwritten signature in black ink, appearing to read "Garen Apanosian".

Garen Apanosian, P.E.
Principal
Tel: (212) 366-5600
Fax: (212) 366-5629
Garen.Apanosian@stantec.com



SEVERELY DETERIORATED
AND CRACKED WEB OF
RIBS R1 THRU R5.

GEORGE WASHINGTON BRIDGE
UPPER LEVEL
UNDERSIDE OF DECK FRAMING

Photo No.: 1

Location:

Between Stringers S1 & S2 and Secondary Floorbeams SFB1 & SFB2 near PP 27W. (Looking South)

Description:

Severely deteriorated deck ribs 1 thru 5 with cracks and/or corrosion holes in the web.

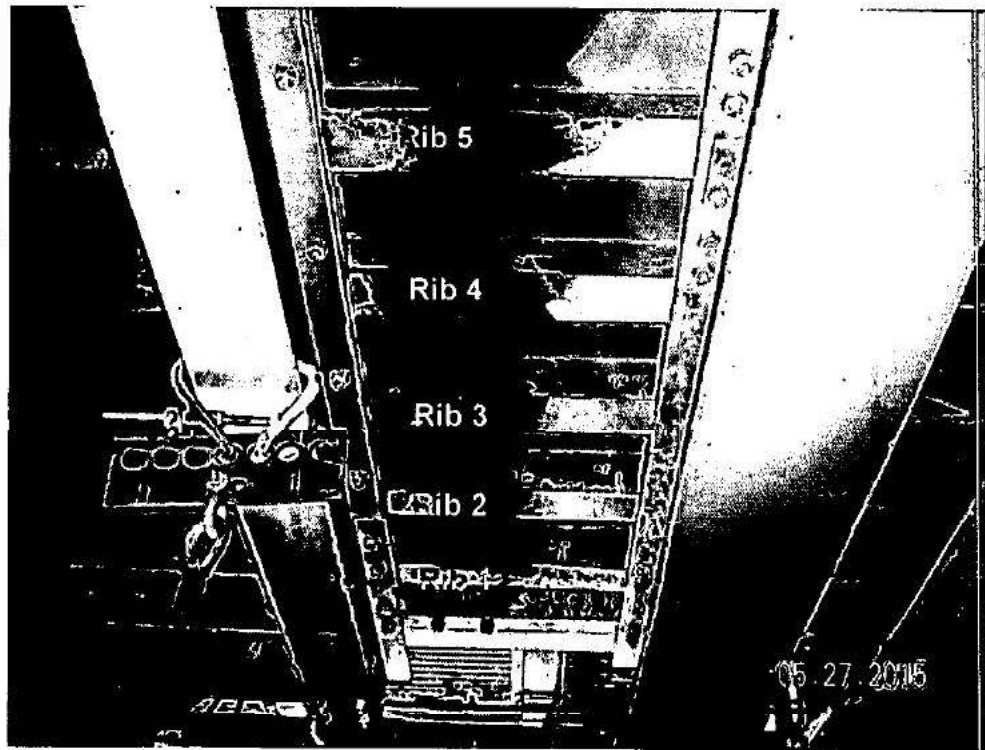


Photo No.: 2

Location:

Deck rib 1, between Stringers S1 & S2 and Secondary Floorbeams SFB1 & SFB2 near PP 27W. (Looking Southwest)

Description:

Severely deteriorated deck rib with 12" long crack at the bottom of the web.

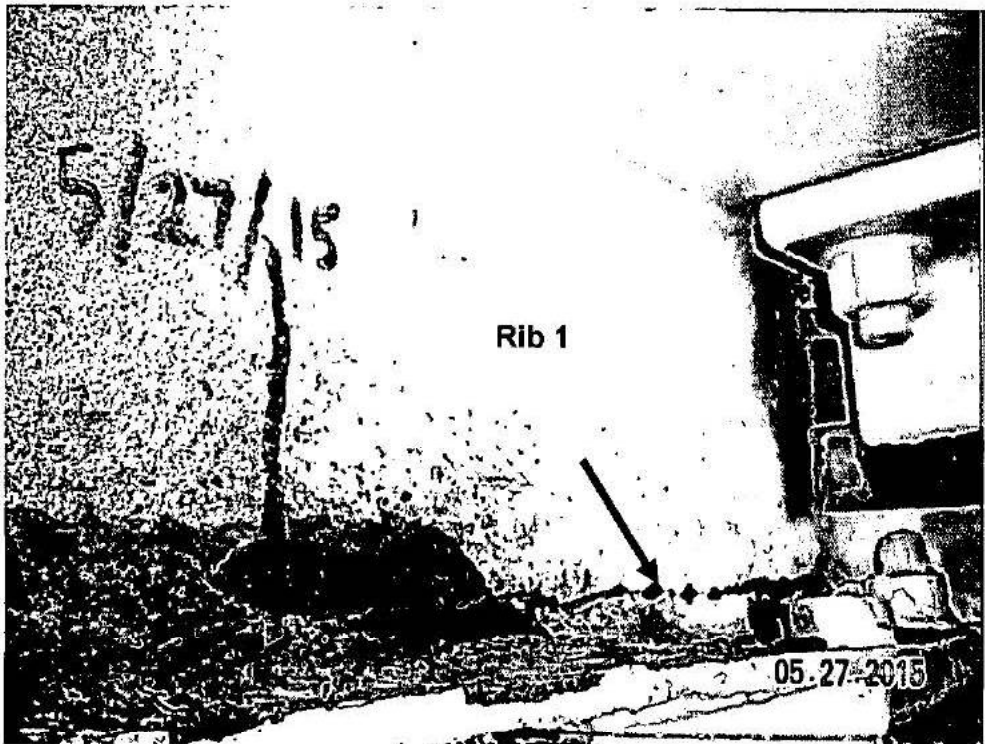


Photo No.: 3

Location:

Deck rib 2, between Stringers S1 & S2 and Secondary Floorbeams SFB1 & SFB2 near PP 27W.
(Looking Southwest)

Description:

Severely deteriorated deck rib with 7 1/2" long crack at the bottom of the web.

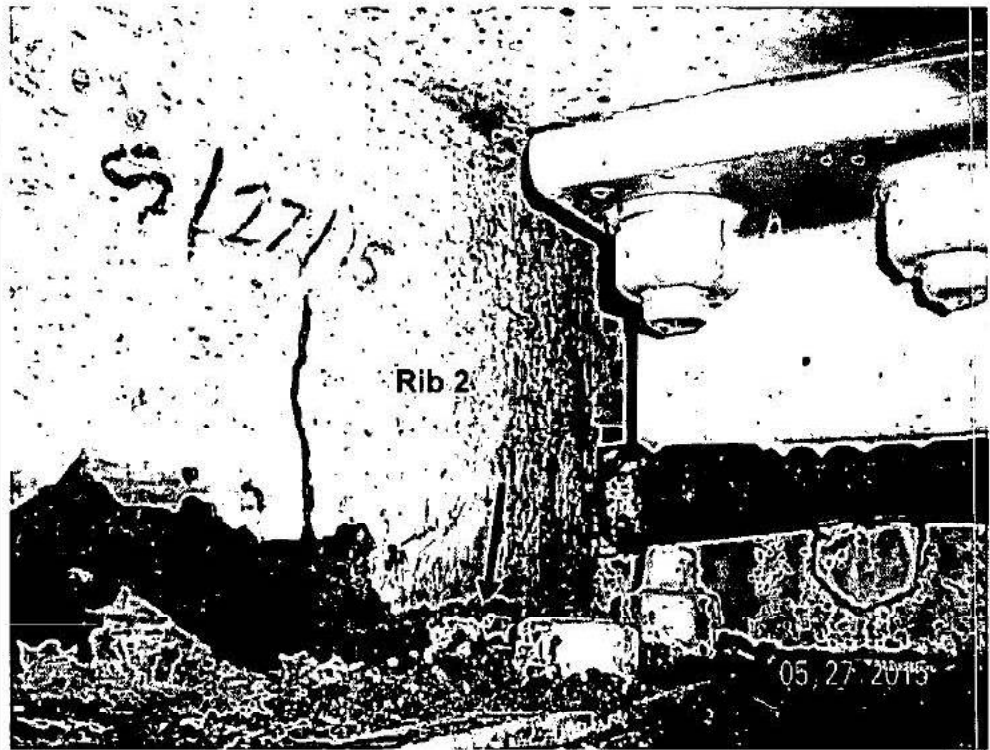


Photo No.: 4

Location:

Deck rib 3, between Stringers S1 & S2 and Secondary Floorbeams SFB1 & SFB2 near PP 27W.
(Looking Southwest)

Description:

Severely deteriorated deck rib with 6" long crack at the bottom of the web.



Photo No.: 5

Location:

Deck rib 4, between Stringers S1 & S2 and Secondary Floorbeams SFB1 & SFB2 near PP 27W.
(Looking Southwest)

Description:

Severely deteriorated deck rib with 4" long crack at the bottom of the web.

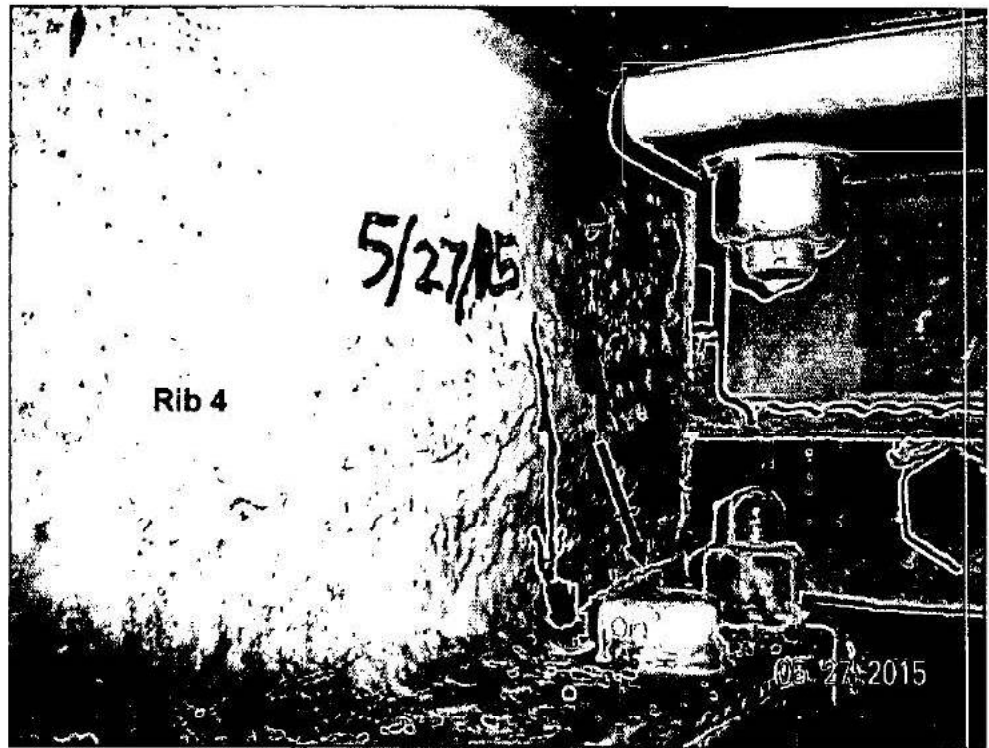


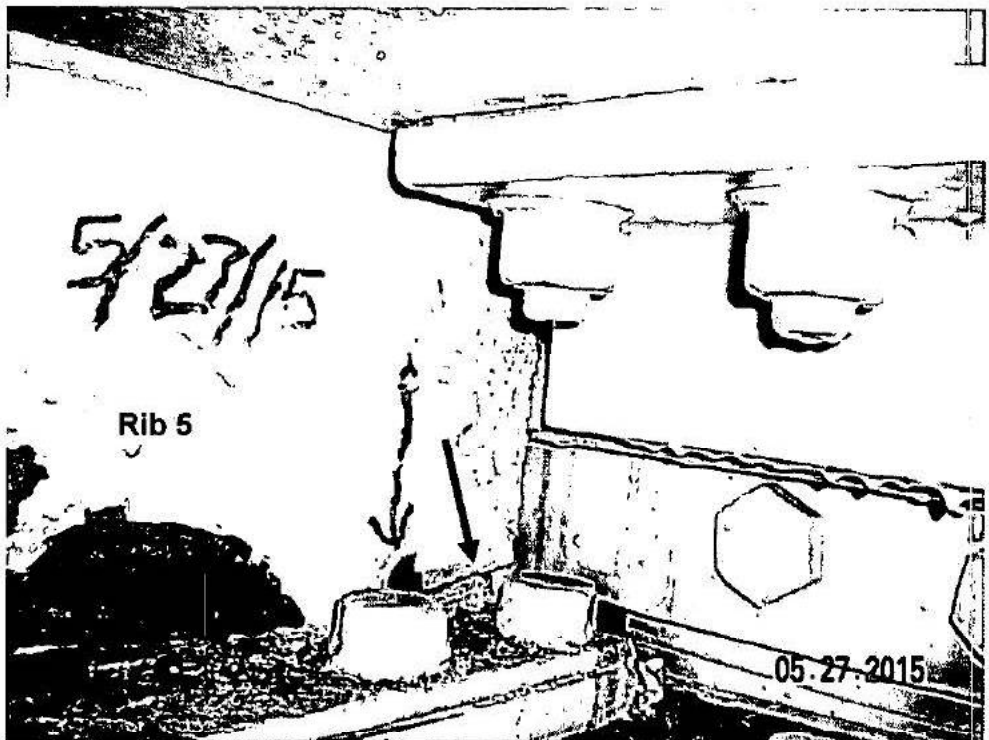
Photo No.: 6

Location:

Deck rib 5, between Stringers S1 & S2 and Secondary Floorbeams SFB1 & SFB2 near PP 27W.
(Looking Southwest)

Description:

Severely deteriorated deck rib with 2" long crack at the bottom of the web.



GENERAL NOTES

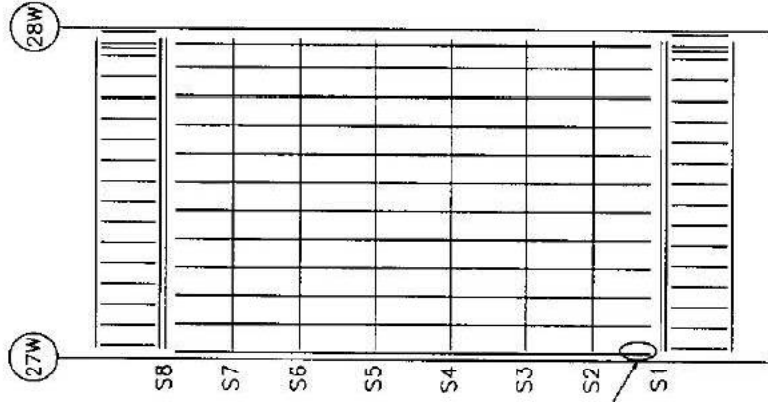
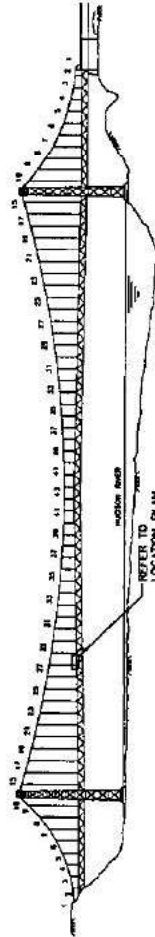
1. ALL STEEL WORK SHALL CONFORM TO REQUIREMENTS IN CURRENT EDITIONS OF THE FOLLOWING PUBLICATIONS.
 - A. STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES ADAPTED BY THE AMERICAN ASSOCIATION OF STATE TRANSPORTATION OFFICIALS (AASHTO), INCLUDING INTERIM SPECIFICATION.
2. MATERIALS SHALL BE AS FOLLOW:
 - A. ALL BOLTS SHALL CONFORM TO AASHTO M164 (ASTM A325) UNLESS NOTED OTHERWISE.
 - B. ALL STRUCTURAL STEEL SHALL BE AASHTO M270 (GRADE 50) UNLESS NOTED OTHERWISE.
3. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD AND SHALL OBTAIN ALL REQUIRED MEASUREMENTS TO COMPLETE THE WORK PRIOR TO COMMENCING WORK. ANY VARIATIONS FROM THIS DRAWING SHALL BE REVIEWED AND APPROVED BY THE STATE ENGINEER FOR REVIEW PRIOR TO THE COMMENCEMENT OF ANY WORK.
4. THE CONTRACTOR SHALL PROVIDE MEANS OF CATCHING DEBRIS THAT MAY FALL BENEATH THE WORK AREA. ALL DEBRIS SHALL BE REMOVED FROM THE LOCATION BEYOND THE FACILITY LIMITS APPROVED BY THE ENGINEER.
5. ANY DAMAGE TO THE EXISTING STRUCTURAL MEMBER TO REMAIN SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE AUTHORITY OF THE CONTRACTOR AT NO COST TO THE PORT AUTHORITY.

STEEL REPAIRS

1. STEEL REPAIRS WILL REQUIRE FIELD DRILLING OF EXISTING STEEL.
2. FOLLOW ALL PROCEDURES FOR SLIP CRITICAL CONNECTIONS FOR ALL BOLTS, EVEN WHERE THE CONDITION OF THE EXISTING STEEL IS SUCH THAT THE CONNECTIONS ARE NOT BEING REPAIRED. ACHIEVED FINAL TORQUING OF BOLTS SHALL BE DONE WITH NO LIVE LOAD IN THE TRAFFIC LANES ABOVE THE REPAIR.
3. BOLTS SHALL BE TIGHTENED TO A TORQUE OF 335 FT-LBS.

CLEANING AND PAINTING NOTES

1. ALL EXISTING METAL SURFACES WITHIN A PERIMETER 3 INCHES BEYOND THE LIMIT OF REPAIR STEEL AND WITHIN 3 INCHES RADIUS AROUND FASTENERS SHALL BE CLEANED TO A ONE TO TWO MIL PROTRUSION FREE SURFACE. POWER TOOL CLEANING TO BARE METAL USING TOOLS EQUIPPED WITH NEPA VACUUM ATTACHMENTS. INSTALLED STEEL SHALL BE SHOP CLEANED TO SSPC-SP10.
2. AFTER TEMPORARY REPAIR IS COMPLETED ALL STEEL SHALL RECEIVE A MINIMUM OF THREE COATS OF PRIMER, INTERMEDIATE AND FINISH COAT. SPECIFICATION 08910 (PRIME, INTERMEDIATE AND FINISH COAT).
3. APPLY PRIME COAT TO FIELD PAINTED SURFACES WITHIN THE SAME WORK PERIOD AS SURFACE PREPARATION. IN THE EVENT THAT PRIMER IS NOT APPLIED DURING THE SAME WORK PERIOD, RECLEAN AS PER SSPC-SP11 PRIOR TO PRIMER APPLICATION.
4. APPLY PRIMER AND SUBSEQUENT PAINT COATS TO A DRY FILM THICKNESS (DFT) RECOMMENDED BY THE MANUFACTURER. DO NOT PAINT CONTACT SURFACES.
5. EXTEND PAINT SYSTEM APPLICATION 3 INCHES BEYOND LIMITS OF SURFACE CLEANED TO SSPC-SP11 ONTO EXISTING PAINT. CLEAN 3 INCHES OVERLAP IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS PRIOR TO PAINTING.
6. DO NOT STOP OR RESUME PAINTING AT EDGES OR CORNERS. ALWAYS STOP AND PAINT A MINIMUM OF 12 INCHES AND CORNERS BEFORE STOPPING AND WHEN RESUMING PAINTING.
7. PRIMER AND INTERMEDIATE COLORS SHALL BE DISTINCTLY DIFFERENT FROM EACH OTHER AND DISTINCTLY DIFFERENT FROM COAT OF PAINT. COAT OF PAINT SHALL BE PEWTER CUP GRAY. TO MATCH THE EXISTING PEWTER CUP GRAY.
8. SHOP PAINTING OF STEEL IS NOT REQUIRED.



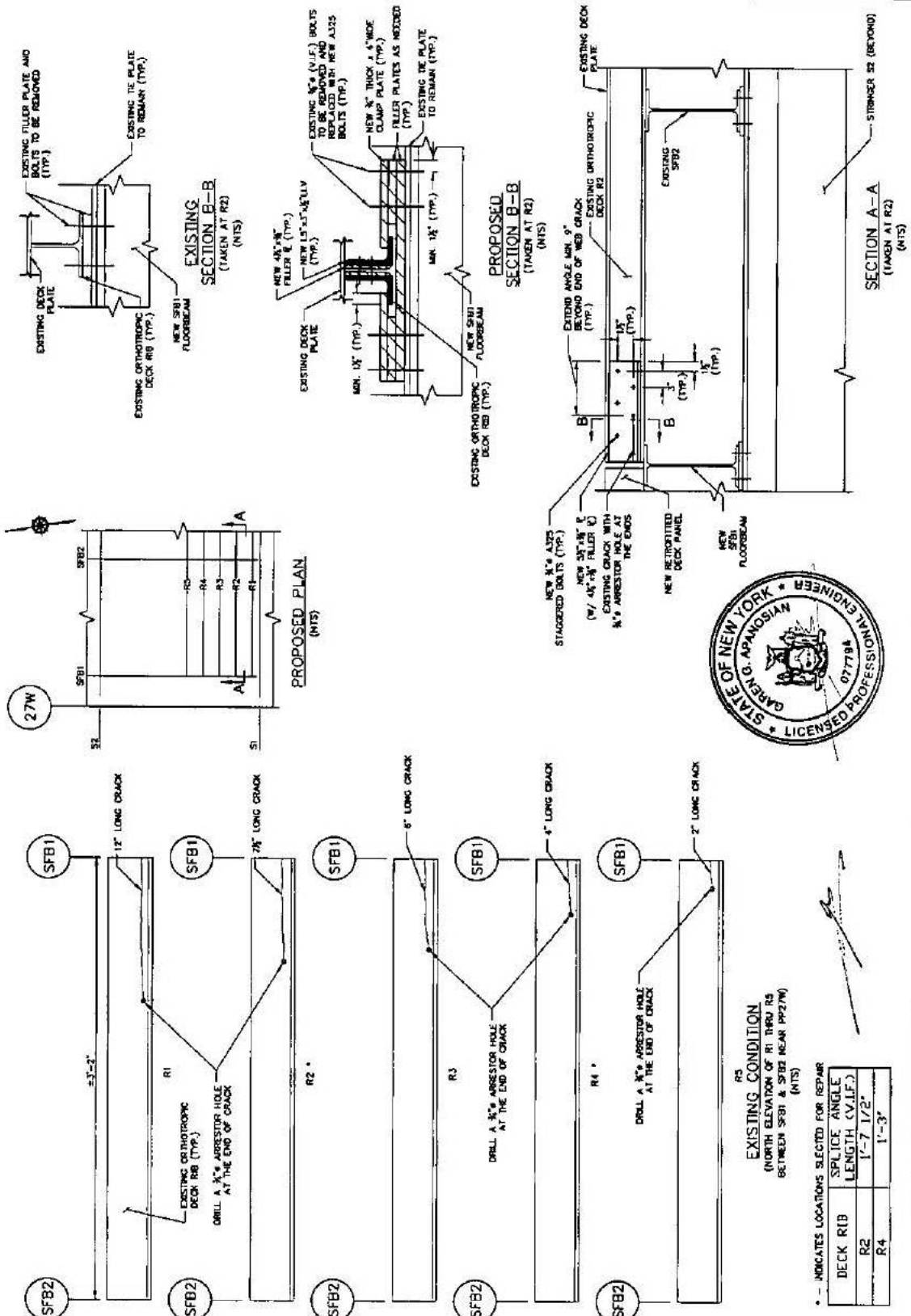
No.	Date	Revision	Approved
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QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS
BIN 5522-908
UPPER LEVEL
BETWEEN S1 & S2
AND SFB1 & SFB2
NEAR PP27W
(1 OF 2)

2015 REMAINS INSPECTION OF THE
GEORGE WASHINGTON BRIDGE

Designated by: Drawn by: Checked by:
Date: MAY 28, 2015

Contract Number: **405-15-005**
Drawing Number: **QAD-1504-01**



NO.	DATE	DESCRIPTION	BY	CHKD.
1		ISSUED FOR PERMIT		
2		ISSUED FOR CONSTRUCTION		
3		ISSUED FOR AS-BUILT		

GEORGE WASHINGTON BRIDGE
 FACILITY ASSURANCE PROGRAM
 2015 GENERAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE
 BIN 5522508
 UPPER LEVEL BETWEEN S1 & S2 AND SFB1 & SFB2 NEAR PP27W (2 OF 2)

Checked by: [Signature] Date: MAY 25, 2015
 Drawn by: [Signature] Date: 4-05-15-005
 Project: QAD-1504-02



EXISTING CONDITION
 (NORTH ELEVATION OF R1 THRU R4
 BETWEEN SFB1 & SFB2 NEAR PP27W)
 (NTS)

• - INDICATES LOCATIONS SELECTED FOR REPAIR

DECK RIB	SPLICE ANGLE LENGTH (V.I.F.)
R2	1'-7" 1/2"
R4	1'-3"



Stantec Consulting Services Inc.
50 West 23rd Street, 8th Floor
New York, NY 10010
Tel: (212) 366-5600
Fax: (212) 366-5629

June 2, 2015

Mr. C. John Lin, P.E.
Assistant Chief Engineer - Quality Assurance
Engineering Department
The Port Authority of New York & New Jersey
100 Mulberry Street
2 Gateway Center, 16th Floor
Newark, NJ 07102

Attention: Mr. Camille Dagher, P.E., Project Manager

Reference: Expert Professional Services for the Performance of Biennial Inspection of the George Washington Bridge, Main Span Upper & Lower Levels PA Agreement No. 405-15-005; P.O. 4900011453

Subject: Immediate Action – Severely Deteriorated and Cracked Orthotropic Deck Ribs Between Stringers S1 & S2 near Panel Point 36W

Gentlemen:

During the course of the biennial inspection of the George Washington Bridge – Main Span Upper Level, conditions were found on the orthotropic deck involving cracks and severe corrosion at the web of deck ribs below the deck joint requiring immediate action. The following summarizes the findings:

- Near Panel Point 36W (East side), Ribs 1 thru 4 exhibit severely corroded web bottom with up to 17" long cracks between Secondary Floorbeams SFB1 and SFB2.

It is recommended to drill a 3/4" hole at the end of each crack as illustrated on QAD-1505-02 and repair selected severely deteriorated and cracked ribs on an immediate basis (See attached QAD-1505-01 & QAD-1505-02).

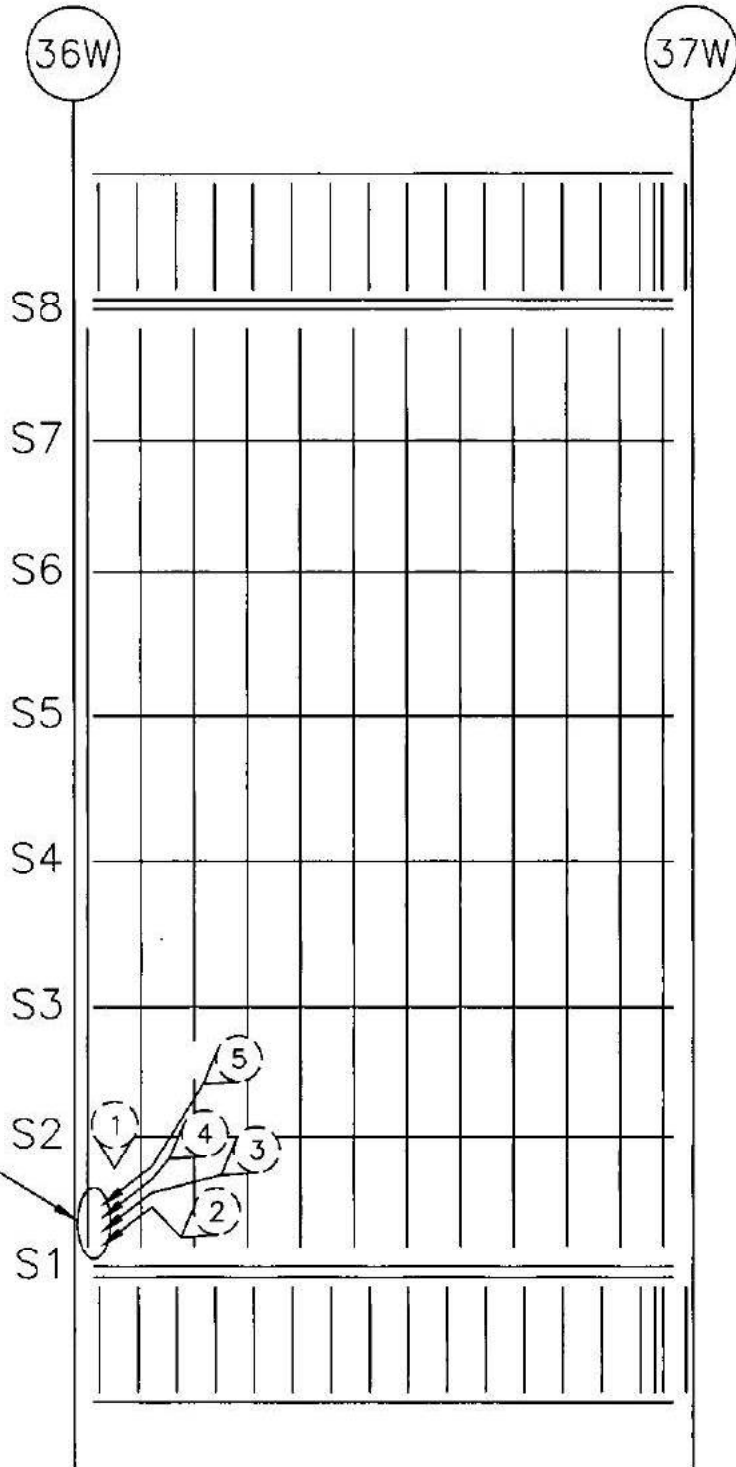
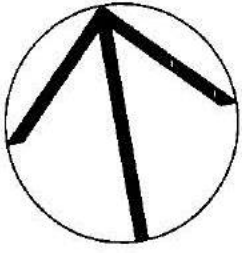
If you have any questions or need additional information, please contact us.

Sincerely,

STANTEC CONSULTING SERVICES INC.

A handwritten signature in black ink, appearing to read 'Garen Apanosian', written over a horizontal line.

Garen Apanosian, P.E.
Principal
Tel: (212) 366-5600
Fax: (212) 366-5629
Garen.Apanosian@stantec.com



SEVERELY DETERIORATED
AND CRACKED WEB OF
RIBS R1 THRU R4.

GEORGE WASHINGTON BRIDGE
UPPER LEVEL
UNDERSIDE OF DECK FRAMING

Photo No.: 1

Location:

Between Stringers S1 & S2 and Secondary Floorbeams SFB1 & SFB2 near PP 36W.
(Looking South)

Description:

Severely deteriorated deck ribs 1 thru 4 with cracks in the web.

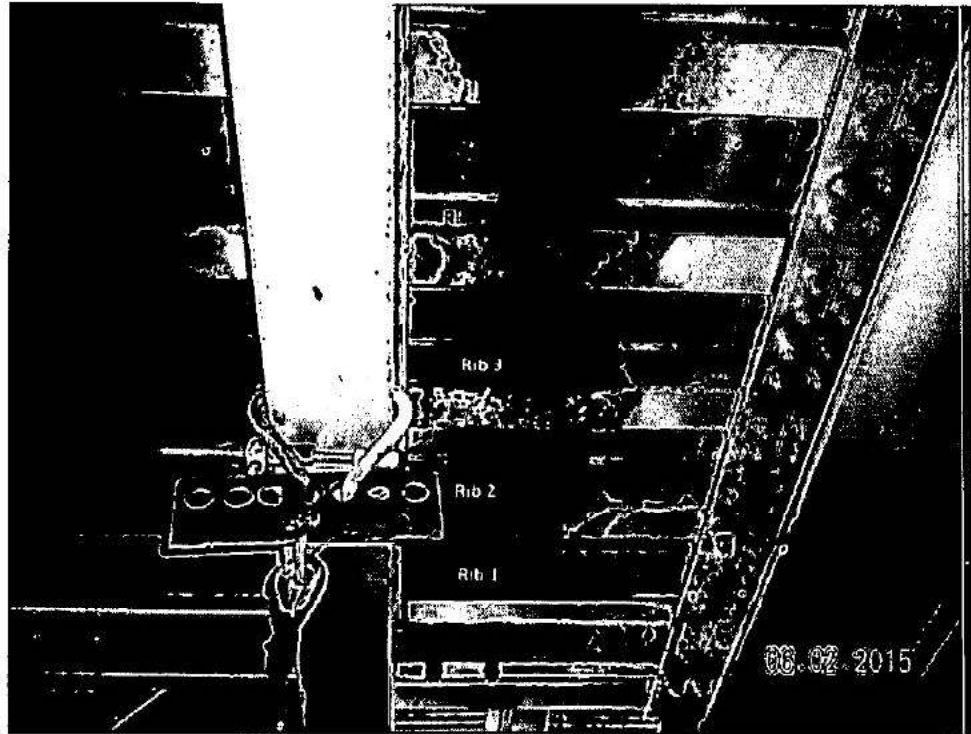


Photo No.: 2

Location:

Deck rib 1, between Stringers S1 & S2 and Secondary Floorbeams SFB1 & SFB2 near PP 36W.
(Looking Southwest)

Description:

Severely deteriorated deck rib with 17" long crack at the bottom of the web.

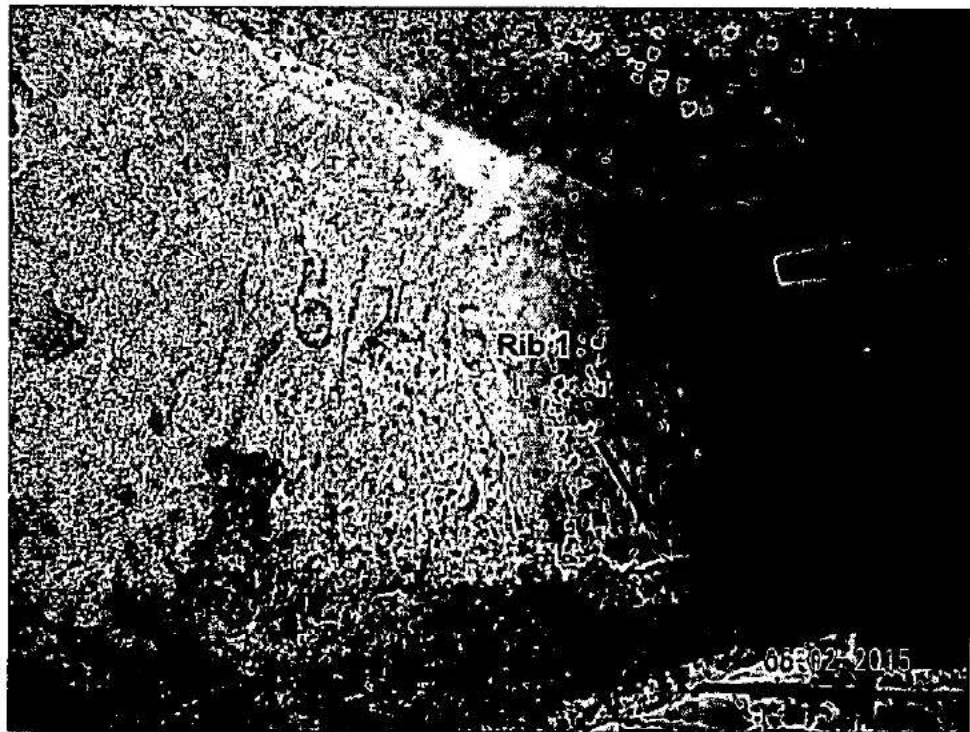


Photo No.: 3

Location:

Deck rib 2, between Stringers S1 & S2 and Secondary Floorbeams SFB1 & SFB2 near PP 36W.
(Looking Southwest)

Description:

Severely deteriorated deck rib with 7" long crack at the bottom of the web.



Photo No.: 4

Location:

Deck rib 3, between Stringers S1 & S2 and Secondary Floorbeams SFB1 & SFB2 near PP 36W.
(Looking Southwest)

Description:

Severely deteriorated deck rib with 5 1/2" long crack at the bottom of the web.

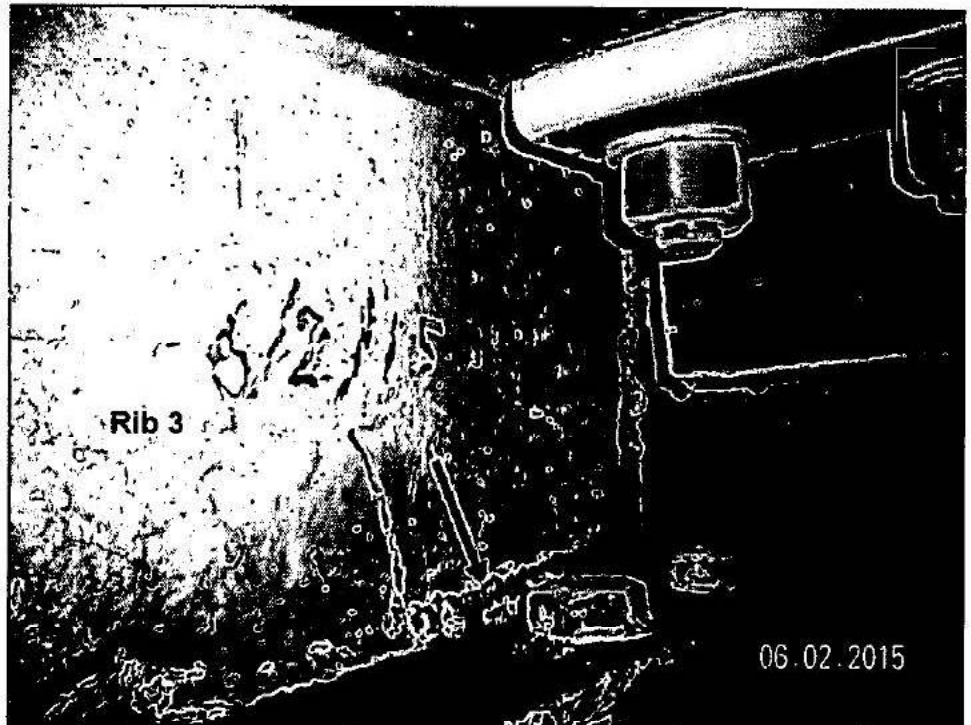


Photo No.: 5

Location:

Deck rib 4, between Stringers S1 & S2 and Secondary Floorbeams SFB1 & SFB2 near PP 36W.
(Looking Southwest)

Description:

Severely deteriorated deck rib with 3" long crack at the bottom of the web.

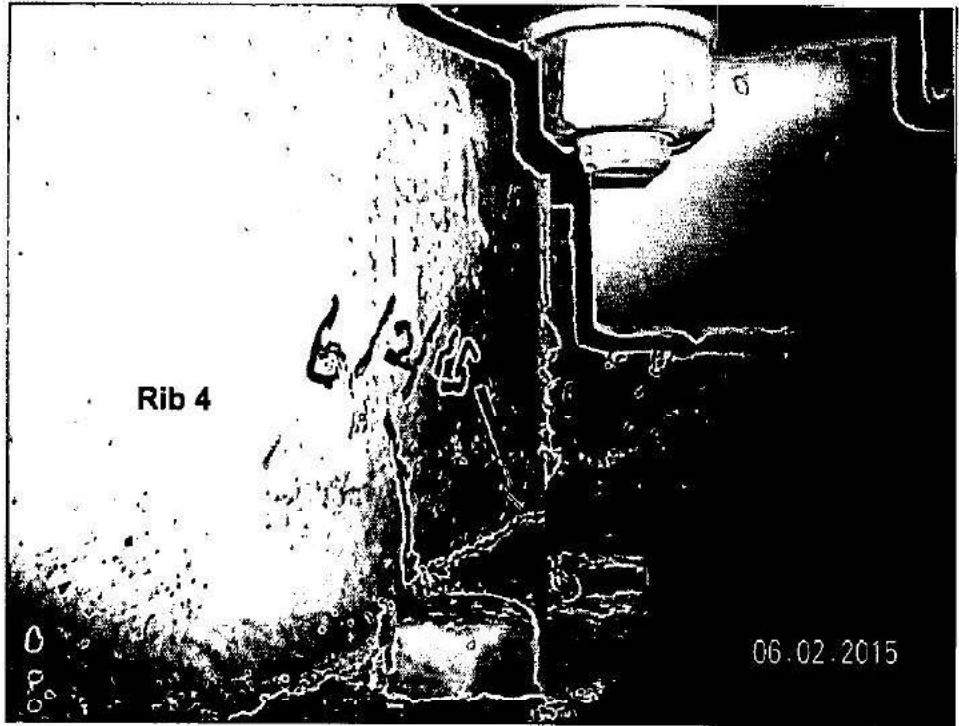
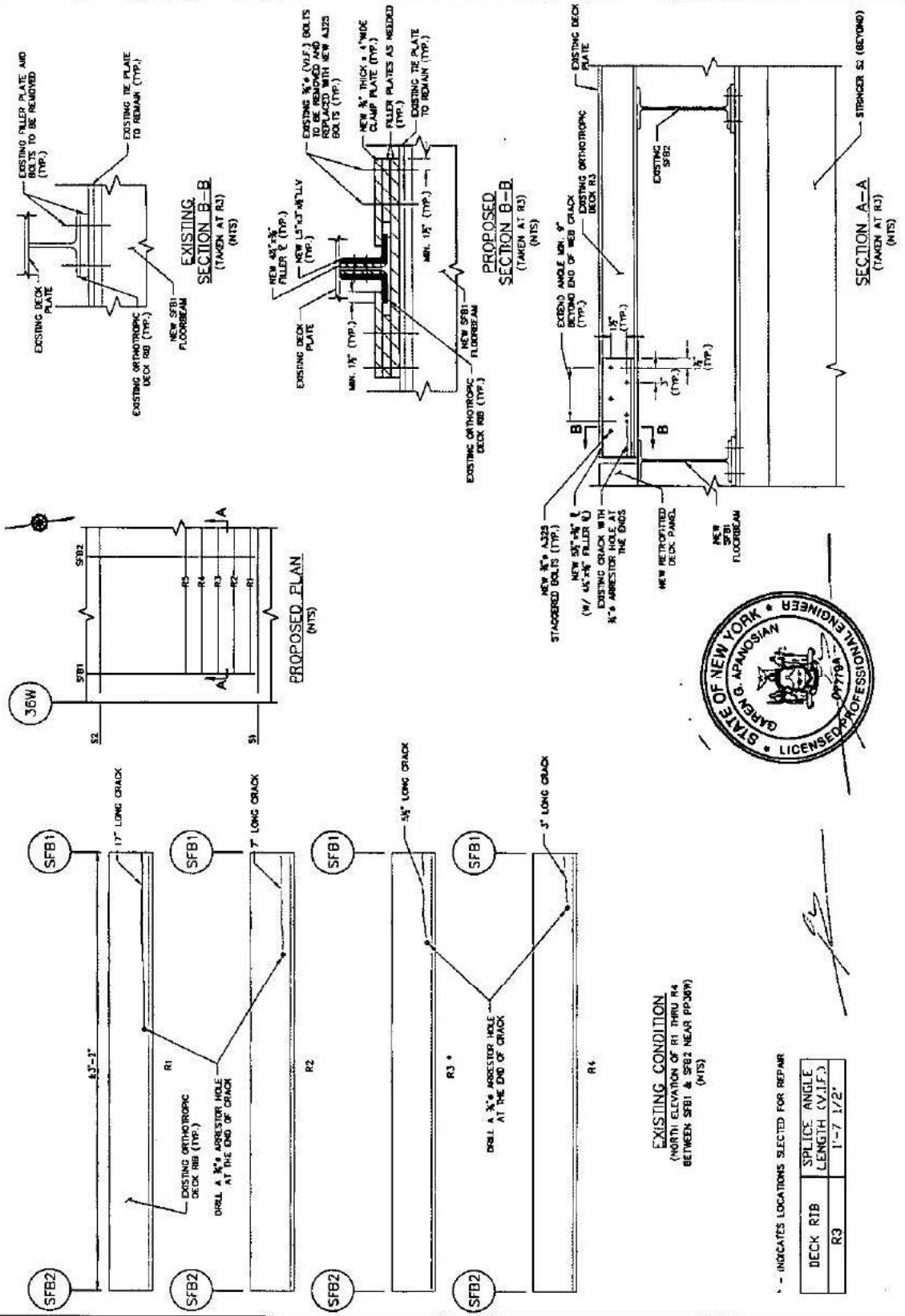


Photo No.:

Location:

Description:

Not Used



Project No.	405-15-005
Contract No.	QAD-1505-02
Drawn by	DATE 3. 2015
Checked by	DATE 3. 2015
Scale	
Project Name	GEORGE WASHINGTON BRIDGE
Location	UPPER LEVEL BETWEEN S1 & S2 AND SFB1 & SFB2 NEAR PP36W (2 OF 2)
Contractor	QUALITY ASSURANCE SERVICES FACILITY CONSTRUCTION DIVISION
Bin No.	BIN 5522508
Remarks	2015 GENERAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE





Stantec Consulting Services Inc.

50 West 23rd Street, 8th Floor

New York, NY 10010

Tel: (212) 366-5600

Fax: (212) 366-5629

June 22, 2015

Mr. C. John Lin, P.E.
Assistant Chief Engineer - Quality Assurance
Engineering Department
The Port Authority of New York & New Jersey
100 Mulberry Street
2 Gateway Center, 16th Floor
Newark, NJ 07102

Attention: Mr. Camille Dagher, P.E., Project Manager

**Reference: Expert Professional Services for the Performance of Biennial Inspection of the George Washington Bridge, Main Span Upper & Lower Levels
PA Agreement No. 405-15-005; P.O. 4900011453**

Subject: Immediate Action – Severely Deteriorated and Cracked Orthotropic Deck Ribs Between Stringers S1 & S2 near Panel Point 15E

Gentlemen:

During the course of the biennial inspection of the George Washington Bridge – Main Span Upper Level, conditions were found on the orthotropic deck involving cracks and severe corrosion at the web of deck ribs below the deck joint requiring immediate action. The following summarizes the findings:

- Near Panel Point 15E (East side), Ribs 1 thru 3 exhibit severely corroded web bottom with up to 14 1/2" long cracks between Secondary Floorbeams SFB1 and SFB2.

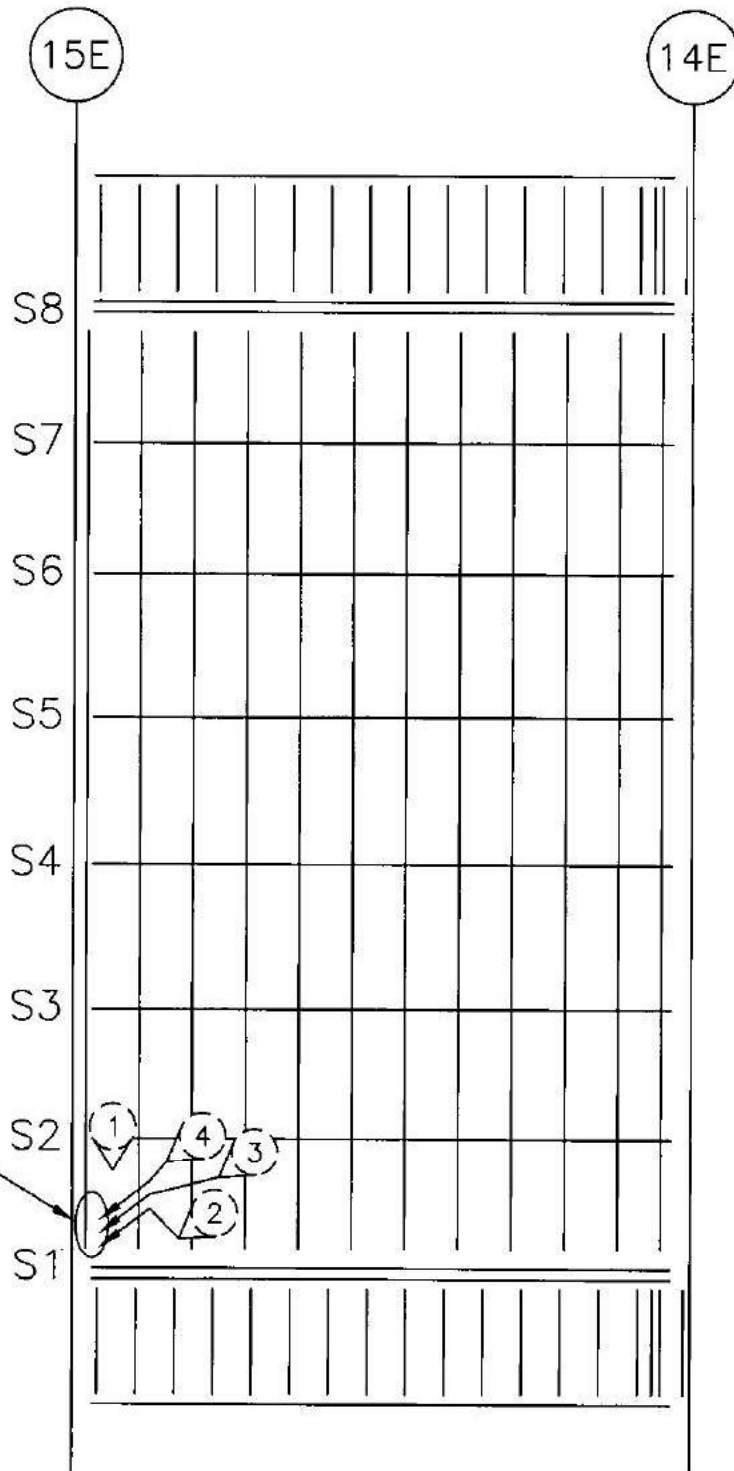
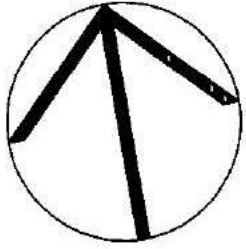
It is recommended to drill a 3/4" hole at the end of each crack as illustrated on QAD-1506-02 and repair selected severely deteriorated and cracked ribs on an immediate basis (See attached QAD-1506-01 & QAD-1506-02).

If you have any questions or need additional information, please contact us.

Sincerely,

STANTEC CONSULTING SERVICES INC.

Garen Apanosian, P.E.
Principal
Tel: (212) 366-5600
Fax: (212) 366-5629
Garen.Apanosian@stantec.com



SEVERELY DETERIORATED
AND CRACKED WEB OF
RIBS R1 THRU R3.

GEORGE WASHINGTON BRIDGE
UPPER LEVEL
UNDERSIDE OF DECK FRAMING

Photo No.: 1

Location:

Between Stringers S1 & S2 and Secondary Floorbeams SFB1 & SFB2 near PP 15E.
(Looking South)

Description:

Severely deteriorated deck ribs 1 thru 3 with cracks in the web.

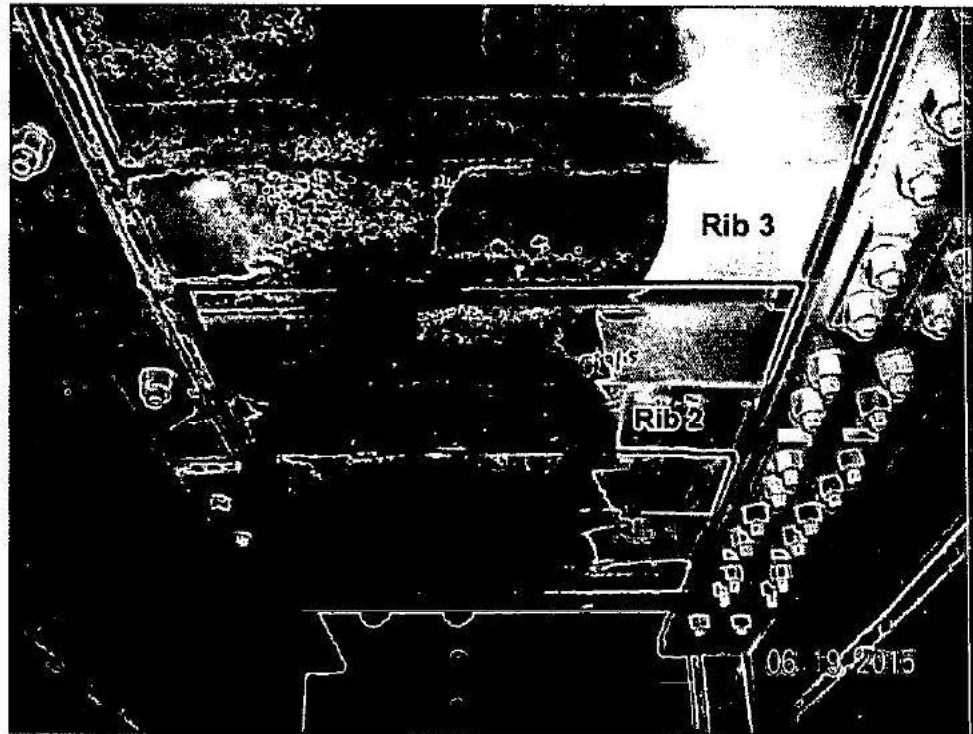


Photo No.: 2

Location:

Deck rib 1, between Stringers S1 & S2 and Secondary Floorbeams SFB1 & SFB2 near PP 15E.
(Looking Southwest)

Description:

Severely deteriorated deck rib with 14 1/2" long crack at the bottom of the web.

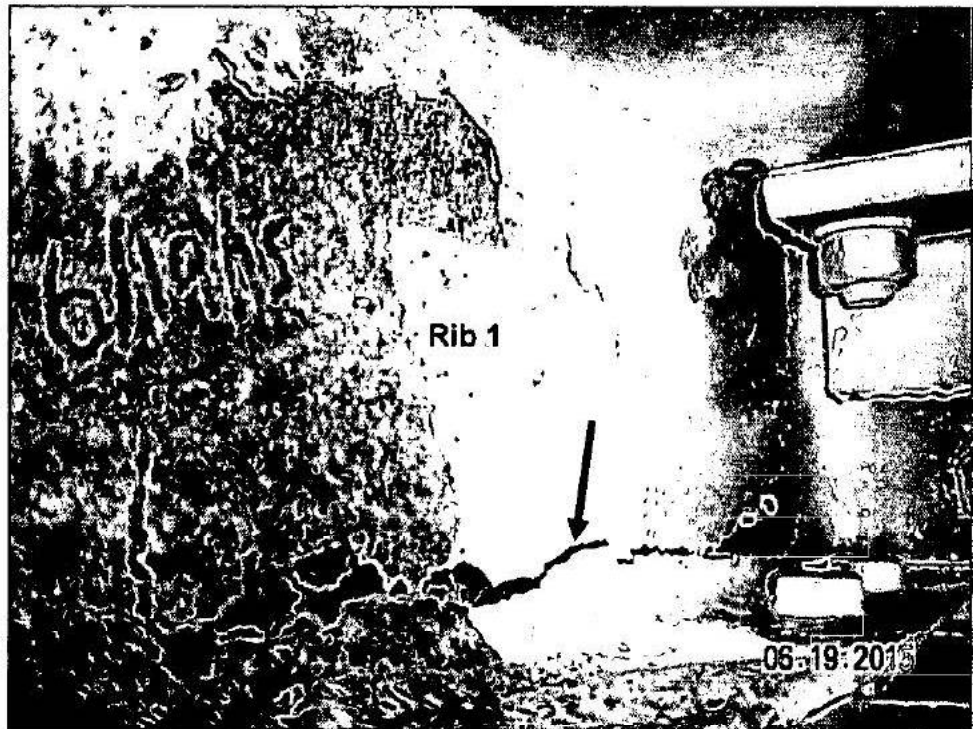


Photo No.: 3

Location:

Deck rib 2, between Stringers S1 & S2 and Secondary Floorbeams SFB1 & SFB2 near PP 15E.
(Looking Southwest)

Description:

Severely deteriorated deck rib with 13 1/2" long crack at the bottom of the web.

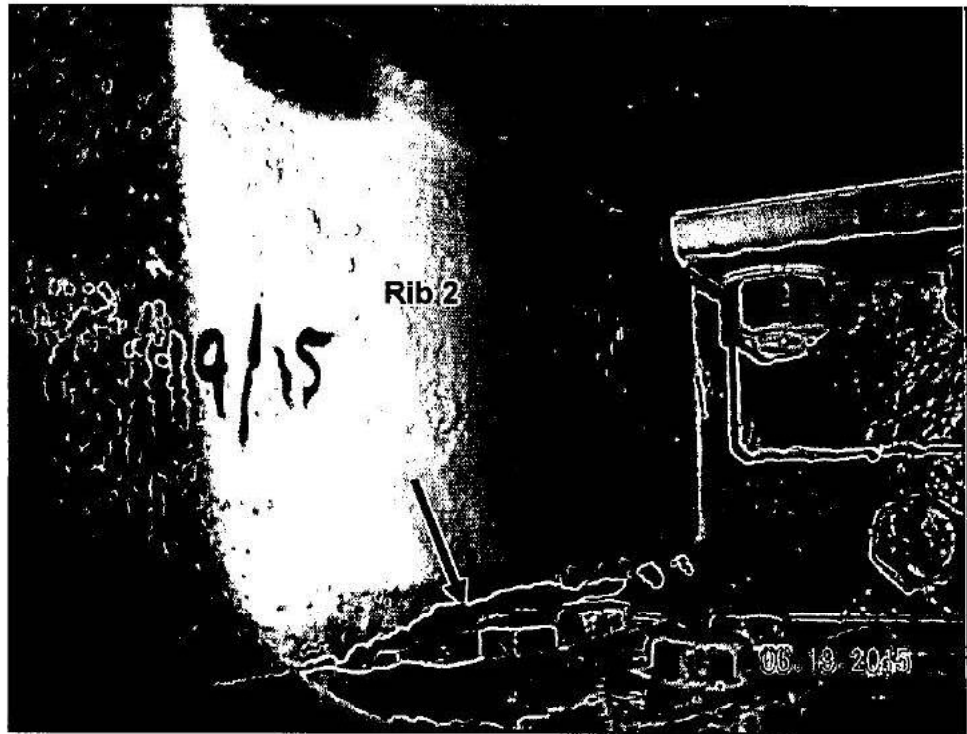


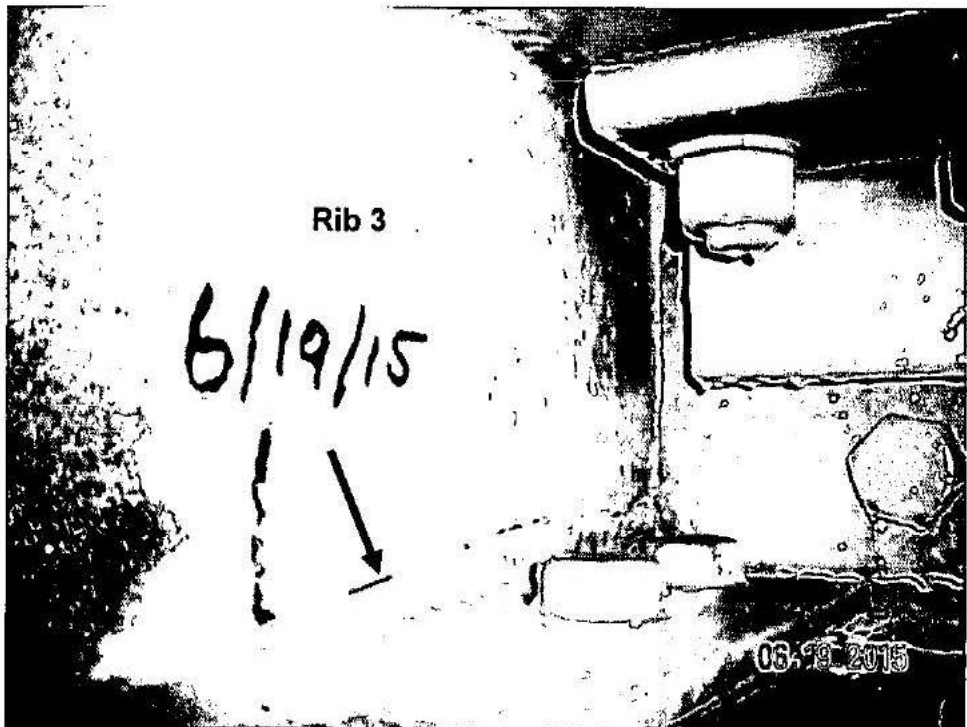
Photo No.: 4

Location:

Deck rib 3, between Stringers S1 & S2 and Secondary Floorbeams SFB1 & SFB2 near PP 15E.
(Looking Southwest)

Description:

Severely deteriorated deck rib with 9" long crack at the bottom of the web.



GENERAL NOTES

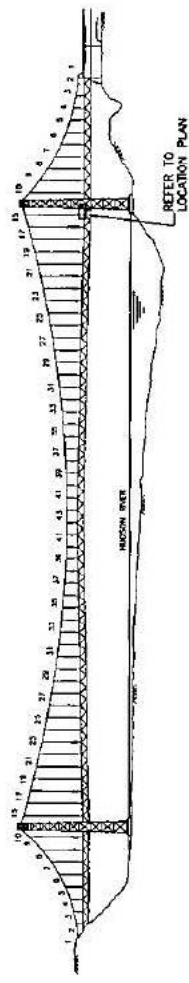
- ALL STEEL WORK SHALL CONFORM TO REQUIREMENTS IN CURRENT EDITIONS OF THE FOLLOWING PUBLICATIONS.
 - STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES ADAPTED BY THE AMERICAN ASSOCIATION OF STATE TRANSPORTATION OFFICIALS (AASHTO), INCLUDING INTERIM SPECIFICATION.
- MATERIALS SHALL BE AS FOLLOW:
 - ALL BOLTS SHALL CONFORM TO AASHTO M164 (ASTM A325) UNLESS NOTED OTHERWISE.
 - ALL STRUCTURAL STEEL SHALL BE AASHTO M270 (GRADE 50) UNLESS NOTED OTHERWISE.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD AND SHALL OBTAIN ALL REQUIRED MEASUREMENTS TO COMPLETE THE WORK PRIOR TO COMMENCING WORK. ANY VARIATIONS FROM THIS DRAWING SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR REVIEW PRIOR TO THE COMMENCEMENT OF ANY WORK.
- THE CONTRACTOR SHALL PROVIDE MEANS OF CATCHING DEBRIS THAT MAY FALL BENEATH THE WORK AREA. ALL DEBRIS SHALL BE REMOVED TO A LOCATION BEYOND THE FACILITY LIMITS APPROVED BY THE ENGINEER.
- ANY DAMAGE TO THE EXISTING STRUCTURAL MEMBER TO REMAIN SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER BY THE CONTRACTOR AT NO COST TO THE PORT AUTHORITY.

STEEL REPAIRS

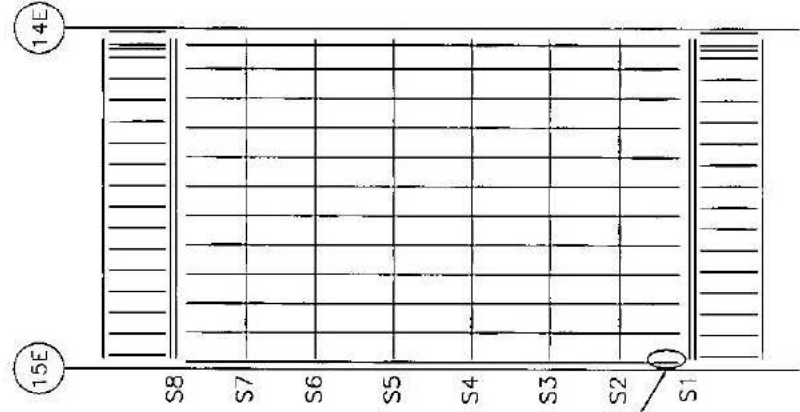
- STEEL REPAIRS WILL REQUIRE FIELD DRILLING OF EXISTING STEEL.
- FOLLOW ALL PROCEDURES FOR SLIP CRITICAL CONNECTIONS FOR ALL BOLTS, EVEN WHERE THE CONDITION OF THE EXISTING STEEL MAY PREVENT A TIGHTENING TO PREVENT SLIP CRITICAL CONNECTION FROM BEING MADE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING LIVE LOAD IN THE TRAFFIC LANES ABOVE THE REPAIR.
- BOLTS SHALL BE TIGHTENED TO A TORQUE OF 335 FT-LBS.

CLEANING AND PAINTING NOTES

- ALL EXISTING METAL SURFACES WITHIN A PERIMETER 3 INCHES BEYOND THE LIMIT OF REPAIR STEEL AND WITHIN 3 INCHES RADIUS OF ALL REPAIRS SHALL BE CLEANED TO A ONE TO TWO MIL PROFILE (SPPC-S01) (PERMANENT CLEANING TO BARE METAL) USING TOOLS EQUIPPED WITH HEPA VACUUM ATTACHMENTS.
- INSTALLED STEEL SHALL BE SHOP CLEANED TO SSPC-SP10.
- AFTER TEMPORARY REPAIR IS COMPLETED ALL STEEL SHALL RECEIVE A 3 COAT PAINT SYSTEM PER PAINT DESIGNATION S-15 OF SPECIFICATION D9910 (PRIME, INTERMEDIATE AND FINISH COAT).
- APPLY PRIME COAT TO FIELD PAINTED SURFACES WITHIN THE SAME WORK PERIOD AS SURFACE PREPARATION. IN THE EVENT THAT PRIMER IS NOT APPLIED DURING THE SAME WORK PERIOD, RECLEAN AS PER SSPC-SP11 PRIOR TO PRIMER APPLICATION.
- APPLY PRIMER AND SUBSEQUENT PAINT COATS TO A DRY FILM THICKNESS (DFT) RECOMMENDED BY THE MANUFACTURER. DO NOT PAINT CONTACT SURFACES.
- EXTEND PAINT SYSTEM APPLICATION 3 INCHES BEYOND LIMITS OF SURFACE CLEANED TO SSPC-SP11 ONTO EXISTING PAINT. CLEAN 3 INCHES OVERLAP IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS PRIOR TO PAINTING.
- DO NOT STOP OR RESUME PAINTING AT EDGES OR CORNERS. ALWAYS EXTEND PAINT A MINIMUM OF 11/32" BEYOND EDGES AND CORNERS BEFORE STOPPING AND WHEN RESUMING PAINTING.
- PRIMER AND INTERMEDIATE COLORS SHALL BE DISTINCTLY DIFFERENTIATED FROM EACH OTHER AND DISTINCTLY DIFFERENT FROM THE COLOR OF THE FINISH COAT. FINISH COAT SHALL BE PEWTER CUP GRAY TO MATCH THE EXISTING PEWTER CUP GRAY.
- SHOP PAINTING OF STEEL IS NOT REQUIRED.



SOUTH ELEVATION
N.T.S.

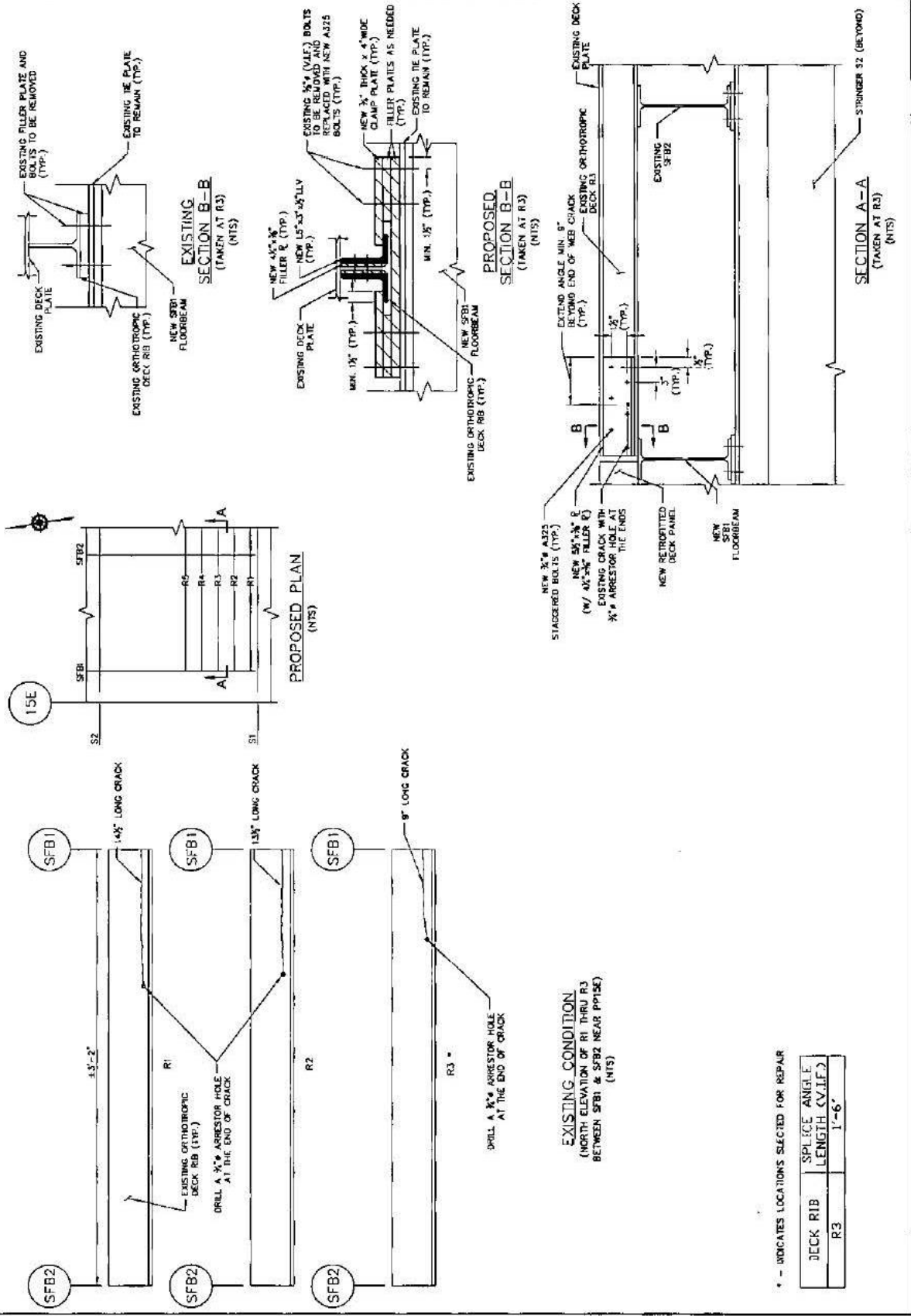


LOCATION PLAN
N.T.S.

No.	Date	Revision	Approved
1			
Description: GEORGIE WASHINGTON BRIDGE			

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS
THIS IS THE GENERAL SECTION OF THE GEORGIE WASHINGTON BRIDGE
BN 6022608
UPPER LEVEL
BETWEEN S1 & S2
AND SFB1 & SFB2
NEAR PFT15E
(1 OF 2)

Designed by	Checked by
Date	JUNE 21, 2015
Contract Number	405-15-006
Drawing Number	OAD-1508-01



App. Date	Revision	Approved
Engineering Department		
GEORGE WASHINGTON BRIDGE		
QUALITY ASSURANCE DIVISION FACILITY CONDITION SURVEYS		
3rd SEMINA INSPECTOR OF THE GEORGE WASHINGTON BRIDGE		
BIN 60226008		
UPPER LEVEL BETWEEN S1 & S2 AND SFB1 & SFB2 NEAR PP15E (2 OF 2)		
Designed by	Drawn by	Checked by
Date	JUNE 21, 2013	
Contract Number	406-15-006	
Drawing Number	QAD-1509-02	



Stantec

Stantec Consulting Services Inc.

50 West 23rd Street, 8th Floor

New York, NY 10010

Tel: (212) 366-5600

Fax: (212) 366-5629

July 10, 2015

Mr. C. John Lin, P.E.
Assistant Chief Engineer - Quality Assurance
Engineering Department
The Port Authority of New York & New Jersey
100 Mulberry Street
2 Gateway Center, 16th Floor
Newark, NJ 07102

Attention: Mr. Camille Dagher, P.E., Project Manager

Reference: Expert Professional Services for the Performance of Biennial Inspection of the George Washington Bridge, Main Span Upper & Lower Levels PA Agreement No. 405-15-005; P.O. 4900011453

Subject: Immediate Action – Severely Deteriorated and Cracked Orthotropic Deck Ribs Between Stringers S1 & S2 near Panel Point 4W

Gentlemen:

During the course of the biennial inspection of the George Washington Bridge – Main Span Upper Level, conditions were found on the orthotropic deck involving cracks and severe corrosion at the web of deck ribs below the deck joint requiring immediate action. The following summarizes the findings:

- Near Panel Point 4W (West Side), Ribs 1 thru 3 exhibit severely corroded web bottom with up to 30" long cracks between Secondary Floorbeams SFB11 and SFB12.

It is recommended to drill a $\frac{3}{4}$ " hole at the end of each crack as illustrated on QAD-1507-02 and repair selected severely deteriorated and cracked ribs on an immediate basis (See attached QAD-1507-01 & QAD-1507-02).

If you have any questions or need additional information, please contact us.

Sincerely,

STANTEC CONSULTING SERVICES INC.



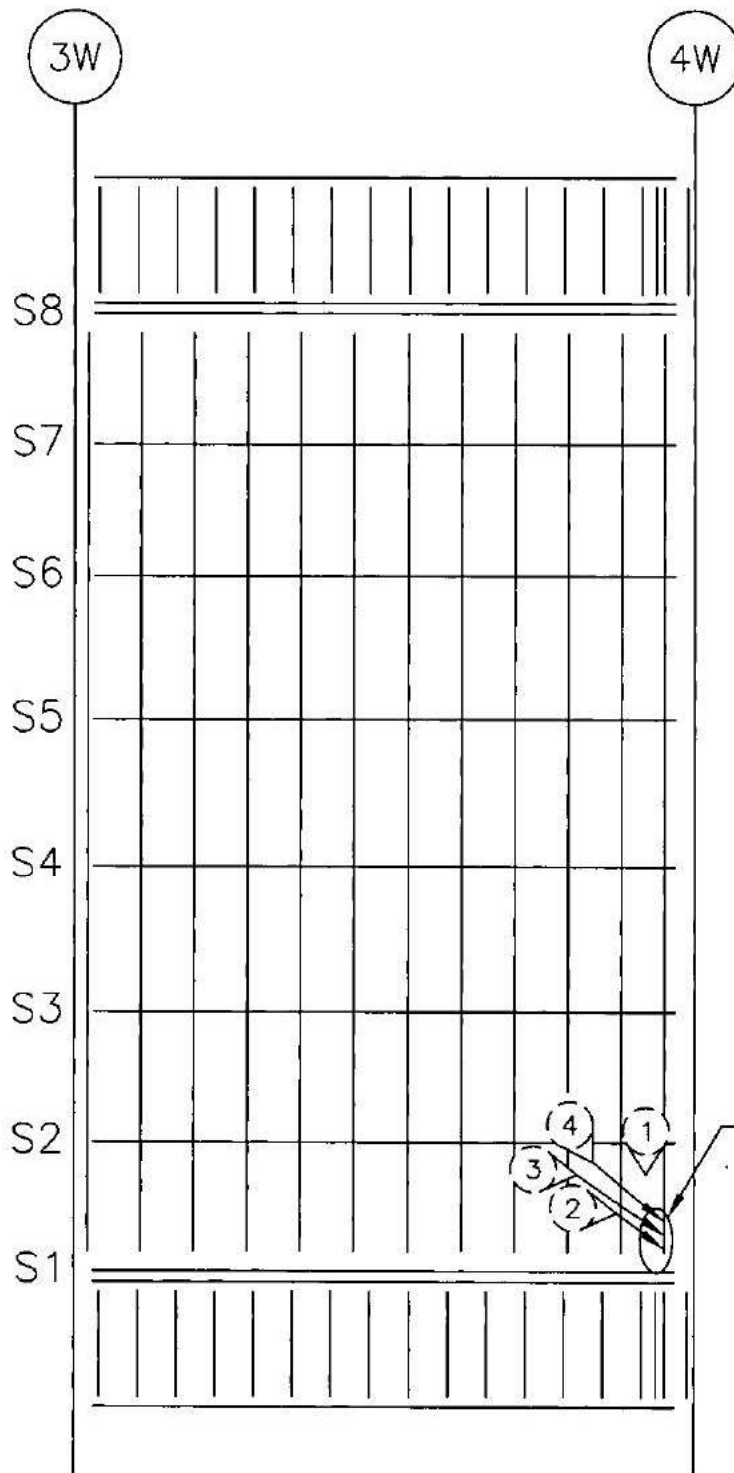
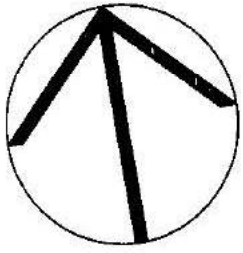
Garen Apanosian, P.E.

Principal

Tel: (212) 366-5600

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garen.apanosian@Stantec.com



SEVERELY
DETERIORATED AND
CRACKED WEB OF
RIBS R1 THRU R3.

GEORGE WASHINGTON BRIDGE
UPPER LEVEL
UNDERSIDE OF DECK FRAMING

Photo No.: 1

Location:

Between Stringers S1 & S2 and Secondary Floorbeams SFB11 & SFB12 near PP 4W.
(Looking Up and South)

Description:

Severely deteriorated deck ribs 1 thru 3 with cracks in the web.

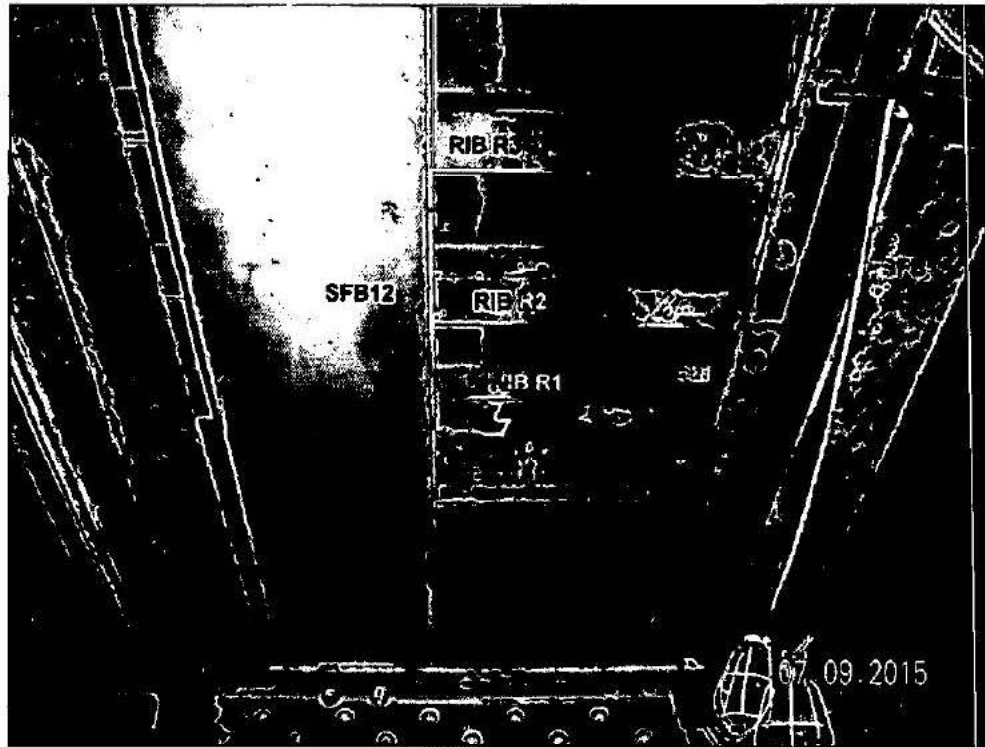


Photo No.: 2

Location:

Deck rib 1, between Stringers S1 & S2 and Secondary Floorbeams SFB11 & SFB12 near PP 4W.
(Looking Southeast)

Description:

Severely deteriorated deck rib with 30" long crack at the bottom of the web.

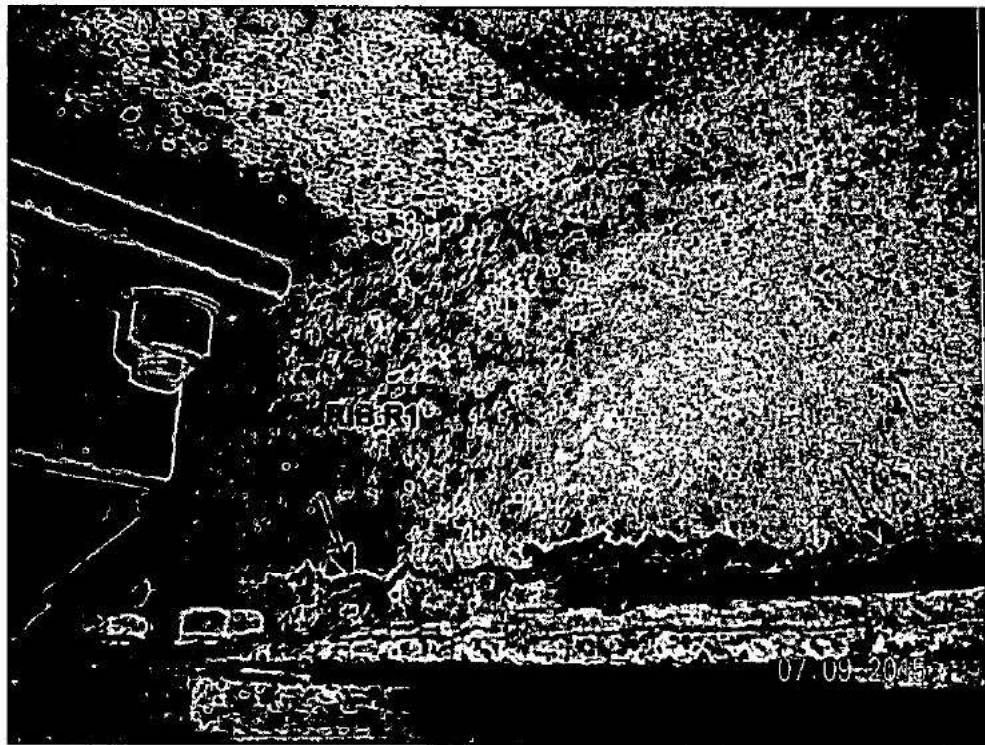


Photo No.: 3

Location:

Deck rib 2, between Stringers S1 & S2 and Secondary Floorbeams SFB11 & SFB12 near PP 4W.
(Looking Southeast)

Description:

Severely deteriorated deck rib with 9" long crack at the bottom of the web.

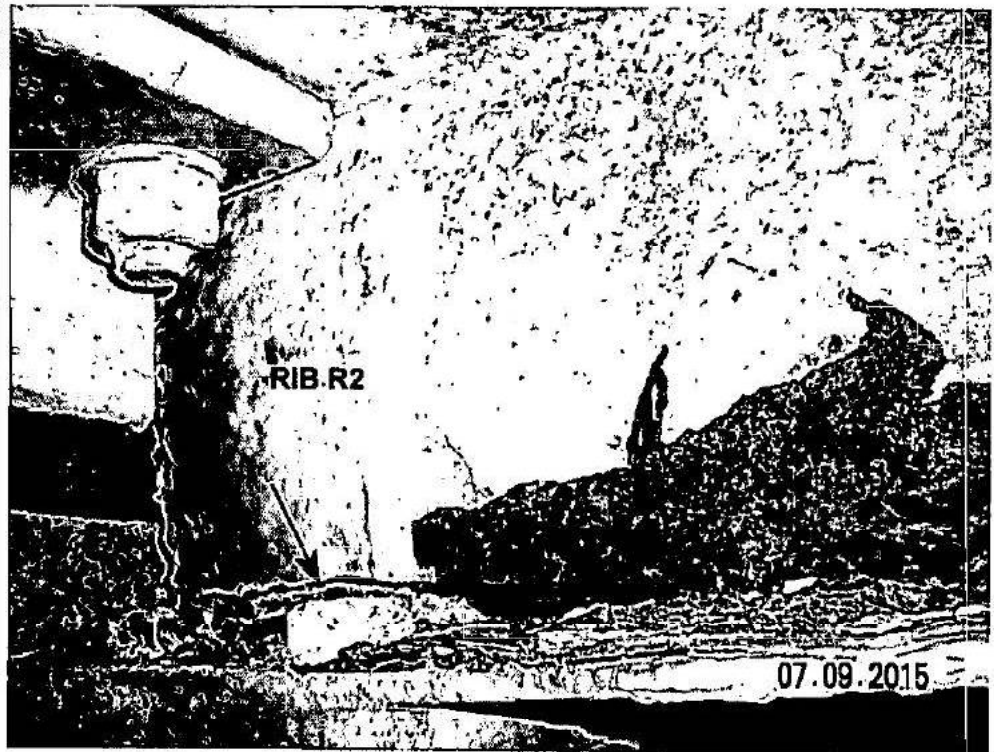


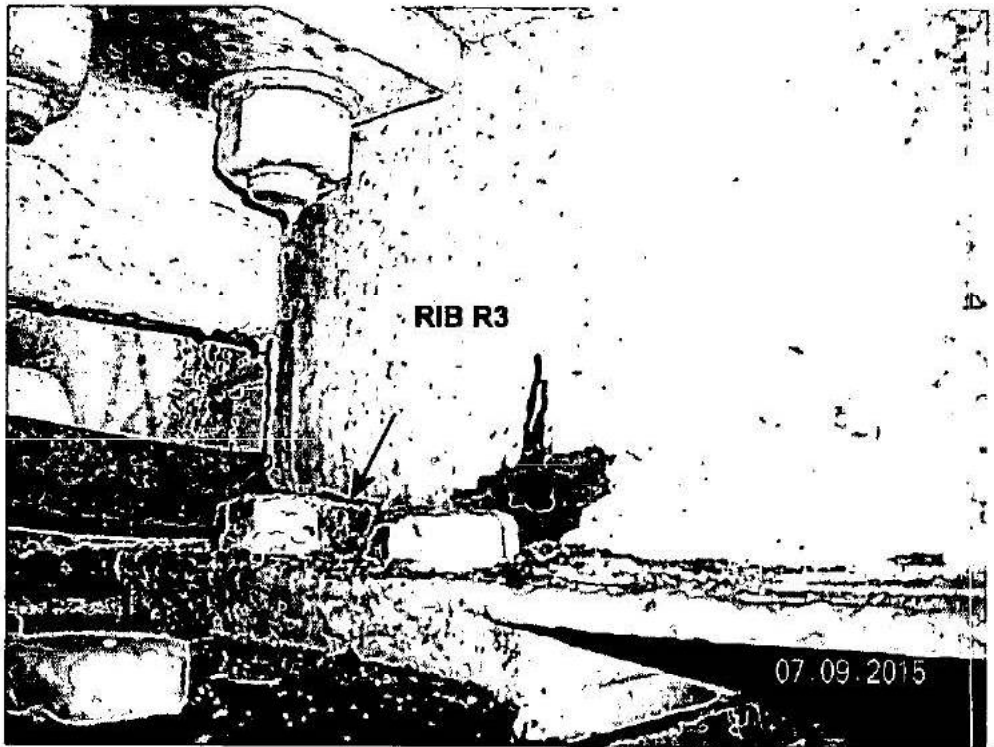
Photo No.: 4

Location:

Deck rib 3, between Stringers S1 & S2 and Secondary Floorbeams SFB11 & SFB12 near PP 4W.
(Looking Southeast)

Description:

Severely deteriorated deck rib with 5" long crack at the bottom of the web.



GENERAL NOTES

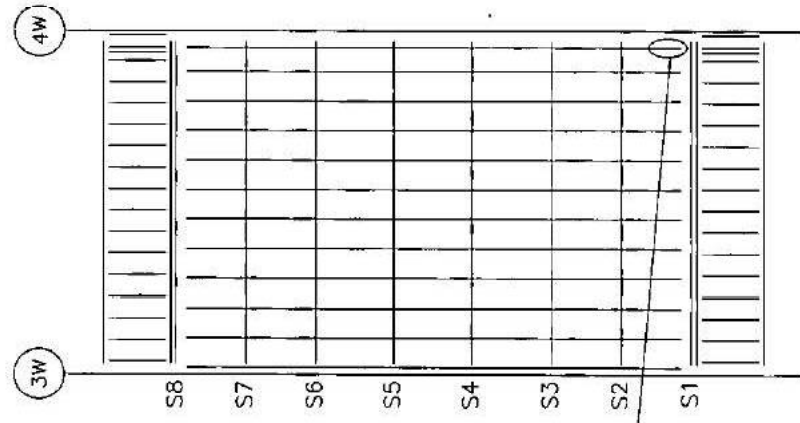
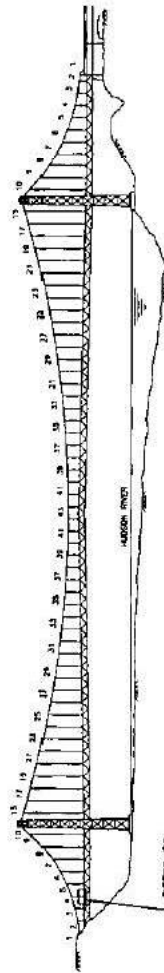
- ALL STEEL WORK SHALL CONFORM TO REQUIREMENTS IN CURRENT EDITIONS OF THE FOLLOWING PUBLICATIONS.
 - STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES ADAPTED BY THE AMERICAN ASSOCIATION OF STATE TRANSPORTATION OFFICIALS (AASHTO) INCLUDING INTERIM SPECIFICATION.
- MATERIALS SHALL BE AS FOLLOWS.
 - ALL BOLTS SHALL CONFORM TO AASHTO M164 (ASTM A325) UNLESS NOTED OTHERWISE.
 - ALL STRUCTURAL STEEL SHALL BE AASHTO M270 (GRADE 50) UNLESS NOTED OTHERWISE.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD AND SHALL OBTAIN ALL REQUIRED MEASUREMENTS TO COMPLETE THE WORK PRIOR TO COMMENCING WORK. ANY VARIATIONS FROM THIS DRAWING SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR REVIEW PRIOR TO THE COMMENCEMENT OF ANY WORK.
- THE CONTRACTOR SHALL PROVIDE MEANS OF CATCHING DEBRIS THAT MAY FALL FROM THE WORK AREA. ALL DEBRIS SHALL BE REMOVED TO A LOCATION BEYOND THE FACILITY LIMITS APPROVED BY THE ENGINEER.
- ANY DAMAGE TO THE EXISTING STRUCTURAL MEMBER TO REMAIN SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER BY THE CONTRACTOR AT NO COST TO THE PORT AUTHORITY.

STEEL REPAIRS

- STEEL REPAIRS WILL REQUIRE FIELD DRILLING OF EXISTING STEEL.
- FOLLOW ALL PROCEDURES FOR SLIP CRITICAL CONNECTIONS FOR ALL BOLTS, EVEN WHERE THE CONDITION OF THE EXISTING STEEL AND PREVIOUS FULLY SLIP CRITICAL CONNECTION FROM BEING REPAIRED. FULLY SLIP CRITICAL CONNECTIONS SHALL BE MADE WITH NO LIVE LOAD IN THE TRAFFIC LANES ABOVE THE REPAIR.
- BOLTS SHALL BE TIGHTENED TO A TORQUE OF 335 FT-LBS.

CLEANING AND PAINTING NOTES

- ALL EXISTING METAL SURFACES WITHIN A PERIMETER 3 INCHES BEYOND THE LIMIT OF REPAIR STEEL AND WITHIN 3 INCHES RADIUS OF ALL CORNERS SHALL BE CLEANED TO A ONE TO TWO MIL PROFILE USING LOG POWER FOR CLEANING TO BARE METAL USING TOOLS EQUIPPED WITH HEPA VACUUM ATTACHMENTS. INSTALLED STEEL SHALL BE SHOP CLEANED TO SSPC-SP10.
- AFTER TEMPORARY REPAIR IS COMPLETED ALL STEEL SHALL RECEIVE A 3 COAT PAINT SYSTEM PER PAINT DESIGNATION S-15 OF SPECIFICATION 09810 (PRIME, INTERMEDIATE AND FINISH COAT).
- APPLY PRIME COAT TO FIELD PAINTED SURFACES WITHIN THE SAME WORK PERIOD AS SURFACE PREPARATION. IN THE EVENT THAT PRIMER IS NOT APPLIED DURING THE SAME WORK PERIOD, RECLEAN AS PER SSPC-SP11 PRIOR TO PRIMER APPLICATION.
- APPLY PRIMER AND SUBSEQUENT PAINT COATS TO A DRY FILM THICKNESS (DFT) RECOMMENDED BY THE MANUFACTURER. DO NOT PAINT CONTACT SURFACES.
- EXTEND PAINT SYSTEM APPLICATION 3 INCHES BEYOND LIMITS OF SURFACE CLEANED TO SSPC-SP11 ONTO EXISTING PAINT. CLEAN 3 INCHES OVERLAP IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS PRIOR TO PAINTING.
- DO NOT STOP OR RESUME PAINTING AT EDGES OR CORNERS. ALWAYS EXTEND PAINT A MINIMUM OF 11/2" BEYOND EDGES AND CORNERS BEFORE STOPPING AND WHEN RESUMING PAINTING.
- PRIMER AND INTERMEDIATE COLORS SHALL BE DISTINCTLY IDENTIFIED FROM EACH OTHER AND DISTINCTLY DIFFERENT FROM THE EXISTING PAINT. THE COLOR OF THE PRIMER COAT OF PAINT SHALL BE POWDER CUP GRAY. WATCH THE EXISTING POWDER CUP GRAY.
- SHOP PAINTING OF STEEL IS NOT REQUIRED.

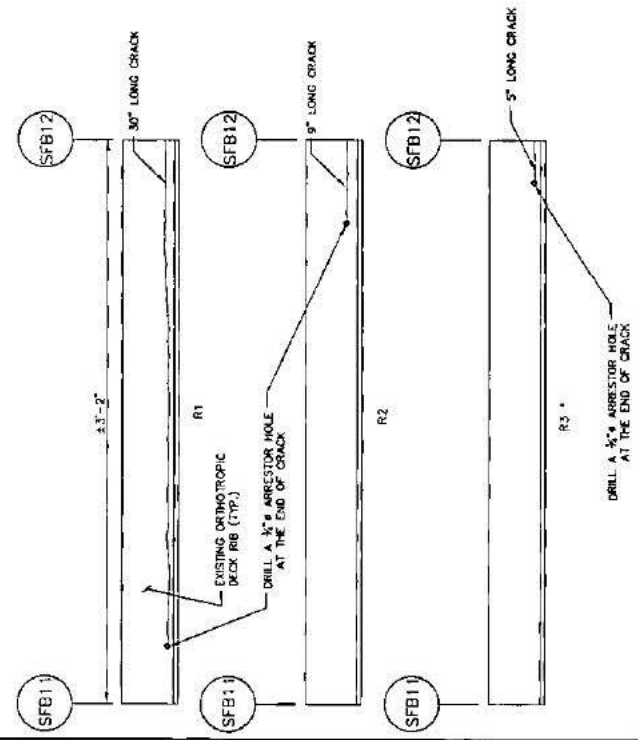
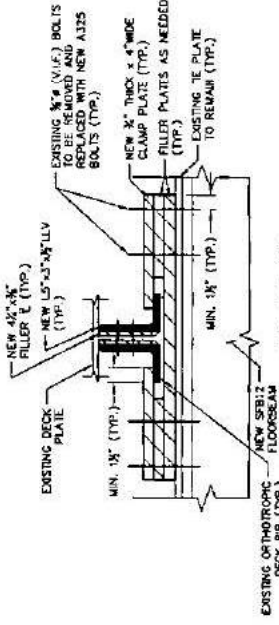
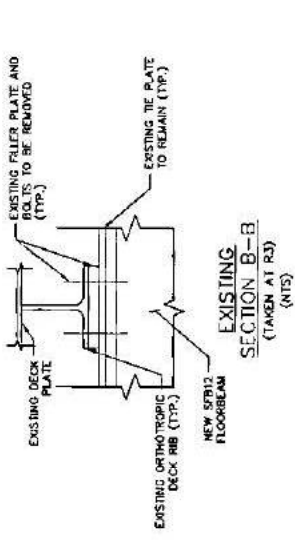
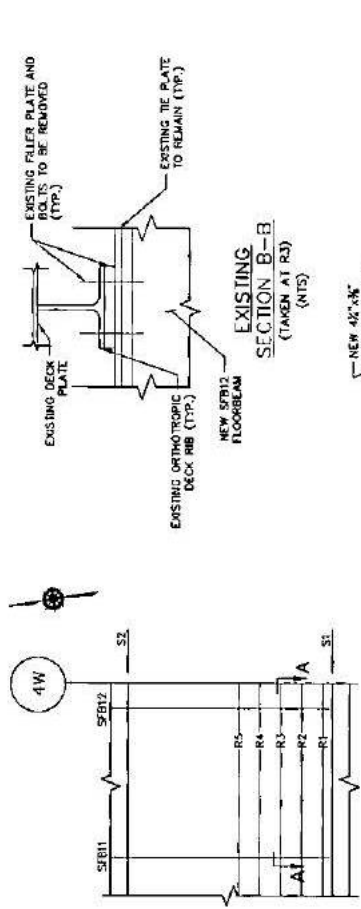


No.	Date	Revisions	Approved
Discontinued Submittals			
			GEORGE WASHINGTON BRIDGE

QUALITY ASSURANCE DIVISION
FACILITY CONSTRUCTION SURVEYS
THE
PORT AUTHORITY OF THE
STATE OF NEW YORK AND
NEW JERSEY
BIN 6622506
UPPER LEVEL
BETWEEN S1 & S2
AND S2B11 & S2B12
NEAR PWAY
(1 OF 2)

Designed by	Drawn by	Checked by	DATE
			APR 18, 2015
Contract Number	Drawing Number		
405-15-005	QAD-1507-01		

THE PORT AUTHORITY
OF NY & NJ



EXISTING CONDITION
(SOUTH ELEVATION OF R1 THRU R3
BETWEEN SFB11 & SFB12 NEAR PP4W)
(NTS)

* - INDICATES LOCATIONS SELECTED FOR REPAIR

DECK RIB	SPLICE ANGLE
R3	LENGTH (N/F)
	1'-2"

No.	Date	Revision	Prepared
			Engineering Department

**GEORGE
WASHINGTON
BRIDGE**

QUALITY ASSURANCE DIVISION
FACILITY CONDITION SURVEYS

THE
SOUTH BRANCH BRIDGE OF THE
GEORGE WASHINGTON BRIDGE
BIN 6622608
UPPER LEVEL
BETWEEN S1 & S2
AND SFB11 & SFB12
NEAR PP4W
(2 OF 2)

Designed by	Drawn by	Checked by
Date	JULY 10, 2013	
Sheet Number	406 - 16 - 006	
Quantity	QAD-1607-02	



STANTEC

Stantec Consulting Services Inc.
50 West 23rd Street, 8th Floor
New York, NY 10010
Tel: (212) 366-5600
Fax: (212) 366-5629

August 20, 2015

Mr. C. John Lin, P.E.
Assistant Chief Engineer - Quality Assurance
Engineering Department
The Port Authority of New York & New Jersey
2 Montgomery Street, 4th Floor
Jersey City, NJ 07302

Attention: Mr. Camille Dagher, P.E., Project Manager

**Reference: Expert Professional Services for the Performance of Biennial Inspection of the George Washington Bridge, Main Span Upper & Lower Levels
PA Agreement No. 405-15-006; P.O. 4900011453**

Subject: Immediate Action – South Sidewalk Concrete Fascia

Gentlemen:

During the course of the biennial inspection of the George Washington Bridge – Main Span Upper Level, multiple locations of cracked and delaminated concrete were observed on the south sidewalk concrete fascia, affecting a total number of 31 bridge panel points. Delamination of the sidewalk concrete fascia typically varies between 1' and 25' in length and is located along the concrete fascia above the top flange of the steel fascia stringer.

It is recommended that the cracked and delaminated concrete be removed on an immediate basis.

The attached plans identify all locations which were found to be cracked and delaminated at the time of inspection. Photographs of typical conditions are also included.

If you have any questions or need additional information, please contact us.

Sincerely,

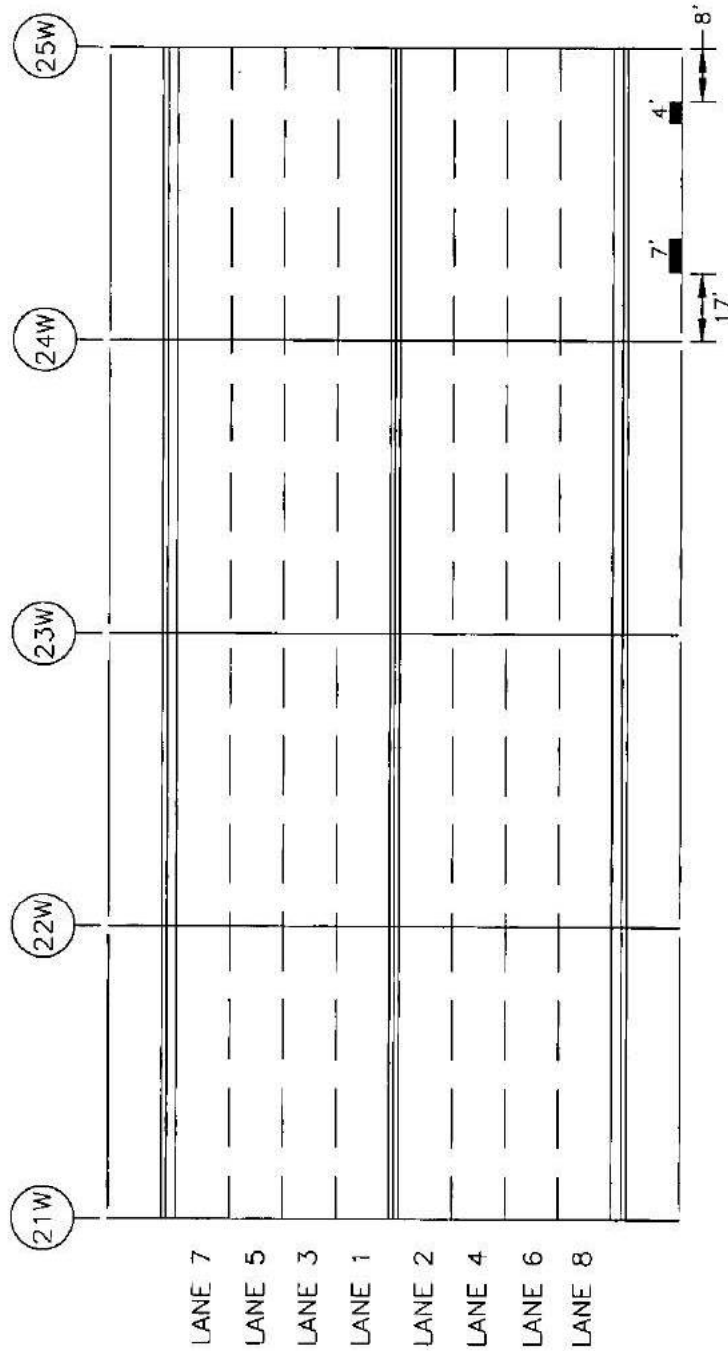
STANTEC CONSULTING SERVICES INC.

Garen Apanosian, P.E.
Principal
Tel: (212) 366-5600
Fax: (212) 366-5629
Garen.Apanosian@stantec.com

2015 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

LOCATION PLAN FOR CRACKED AND/OR DELAMINATING
CONCRETE ALONG SIDEWALK FASCIA

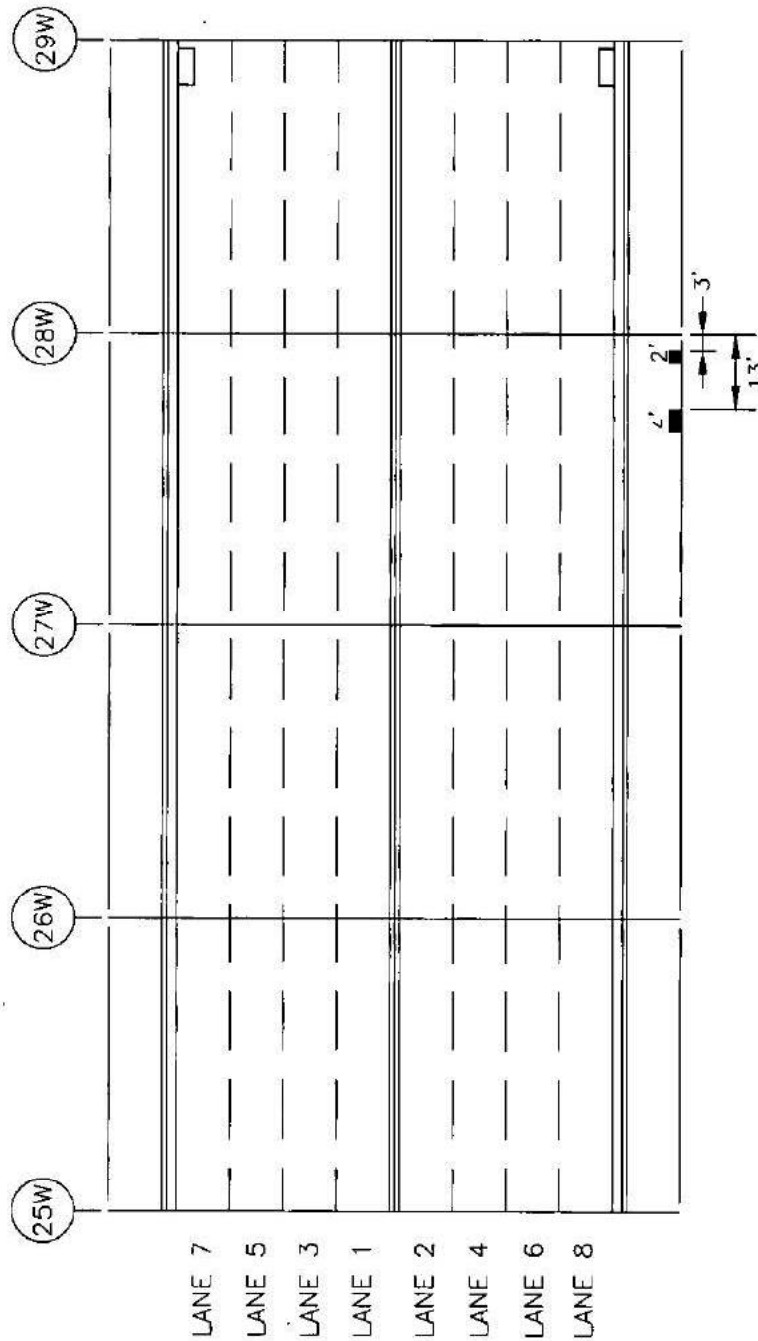
BIN 5522508



2015 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

LOCATION PLAN FOR CRACKED AND/OR DELAMINATING
CONCRETE ALONG SIDEWALK FASCIA

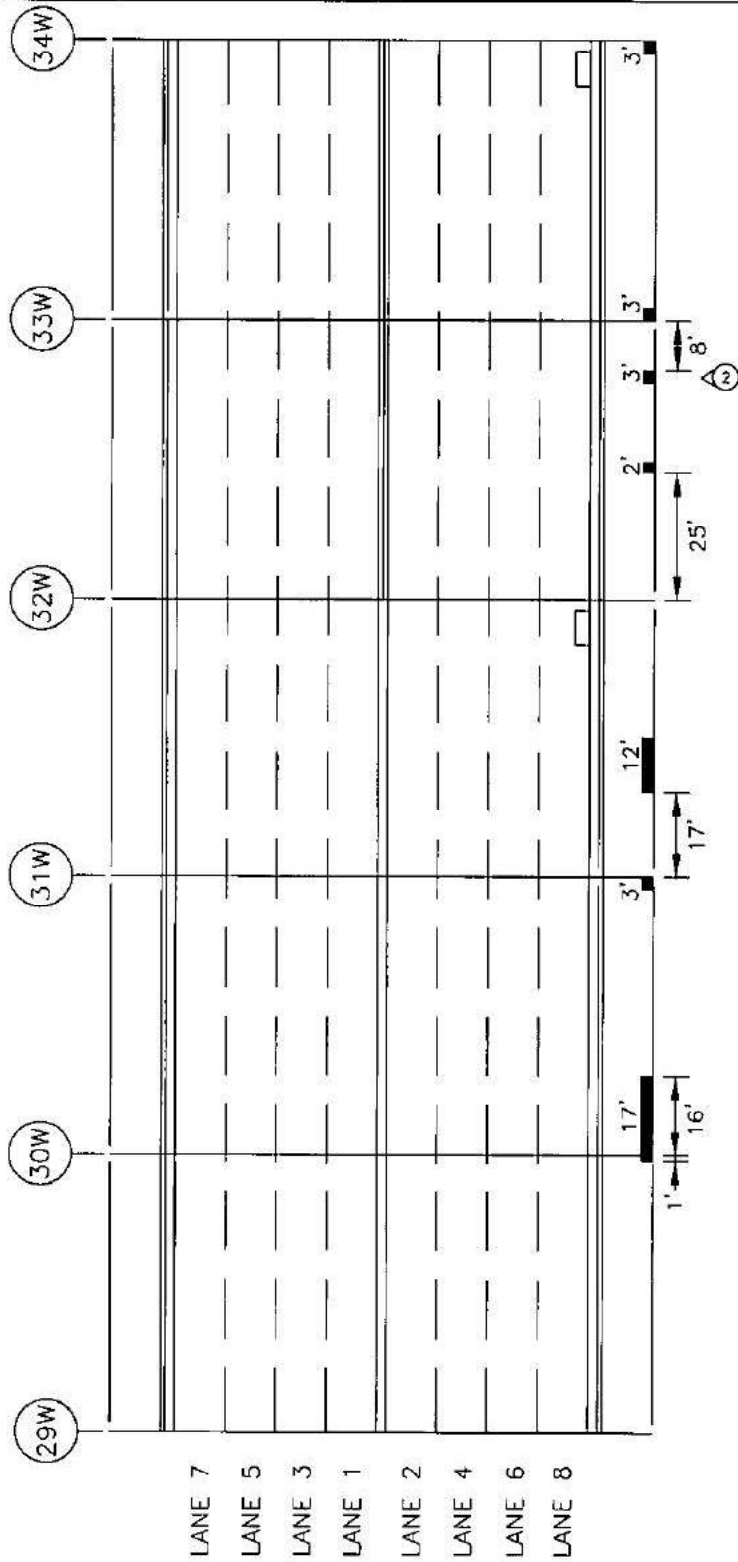
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2015 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

LOCATION PLAN FOR CRACKED AND/OR DELAMINATING
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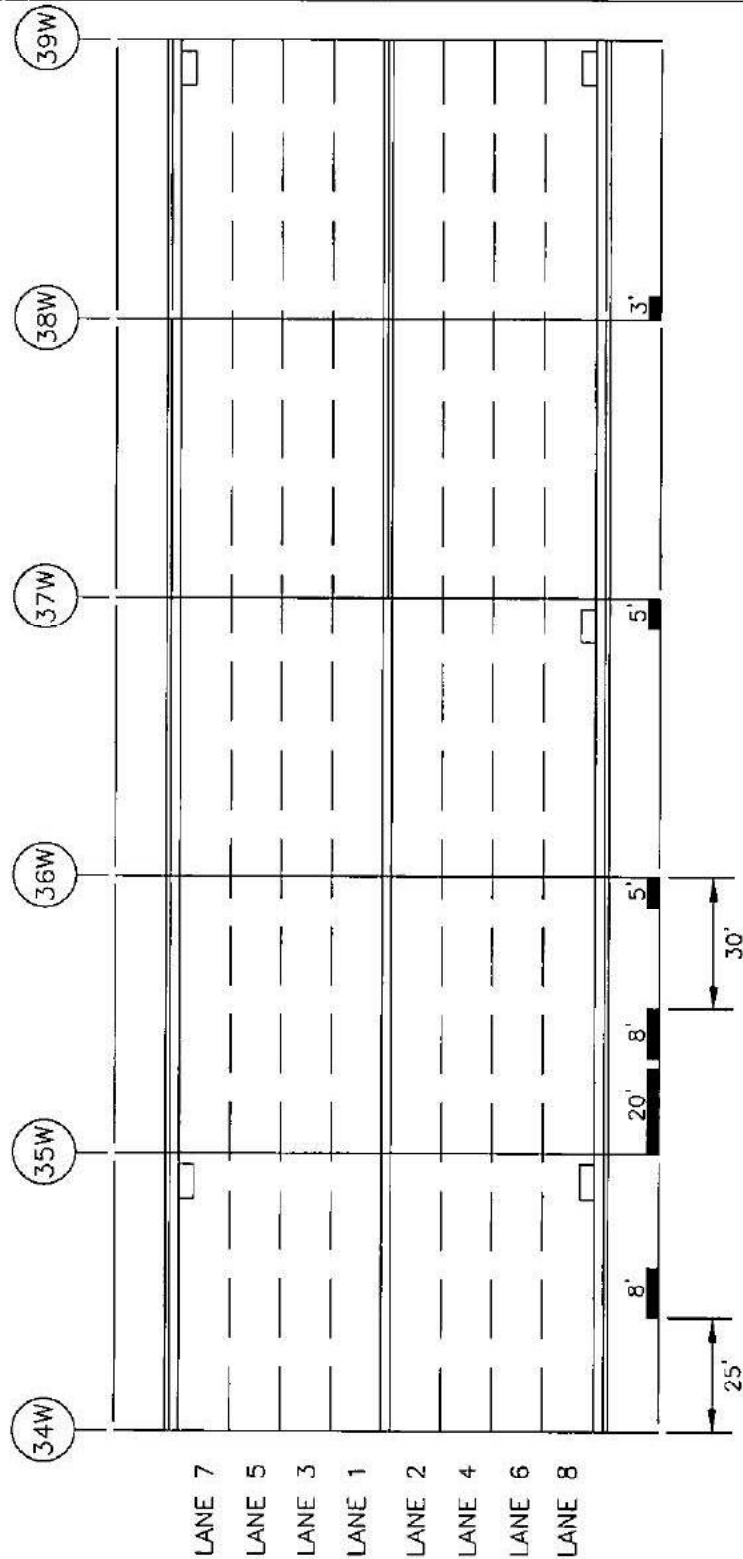
BIN 5522508



2015 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

LOCATION PLAN FOR CRACKED AND/OR DELAMINATING
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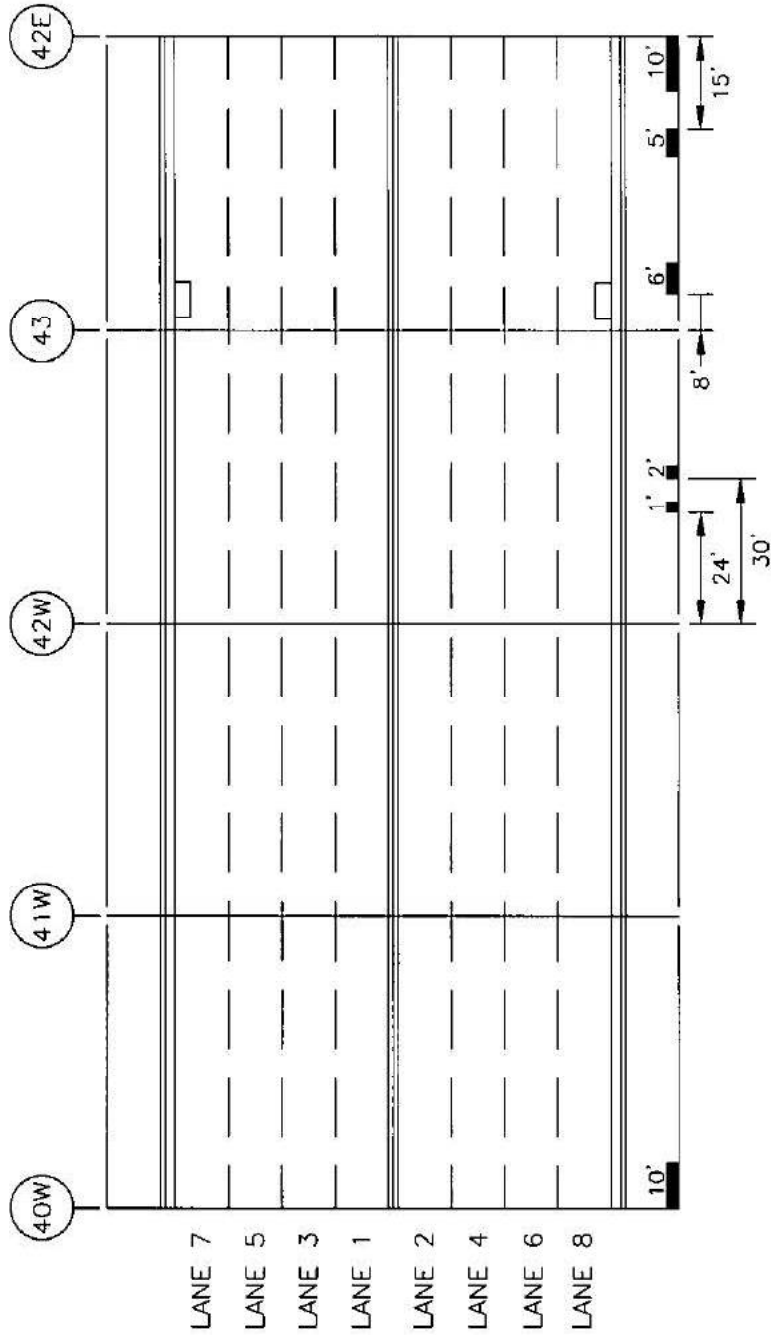
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2015 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

LOCATION PLAN FOR CRACKED AND/OR DELAMINATING
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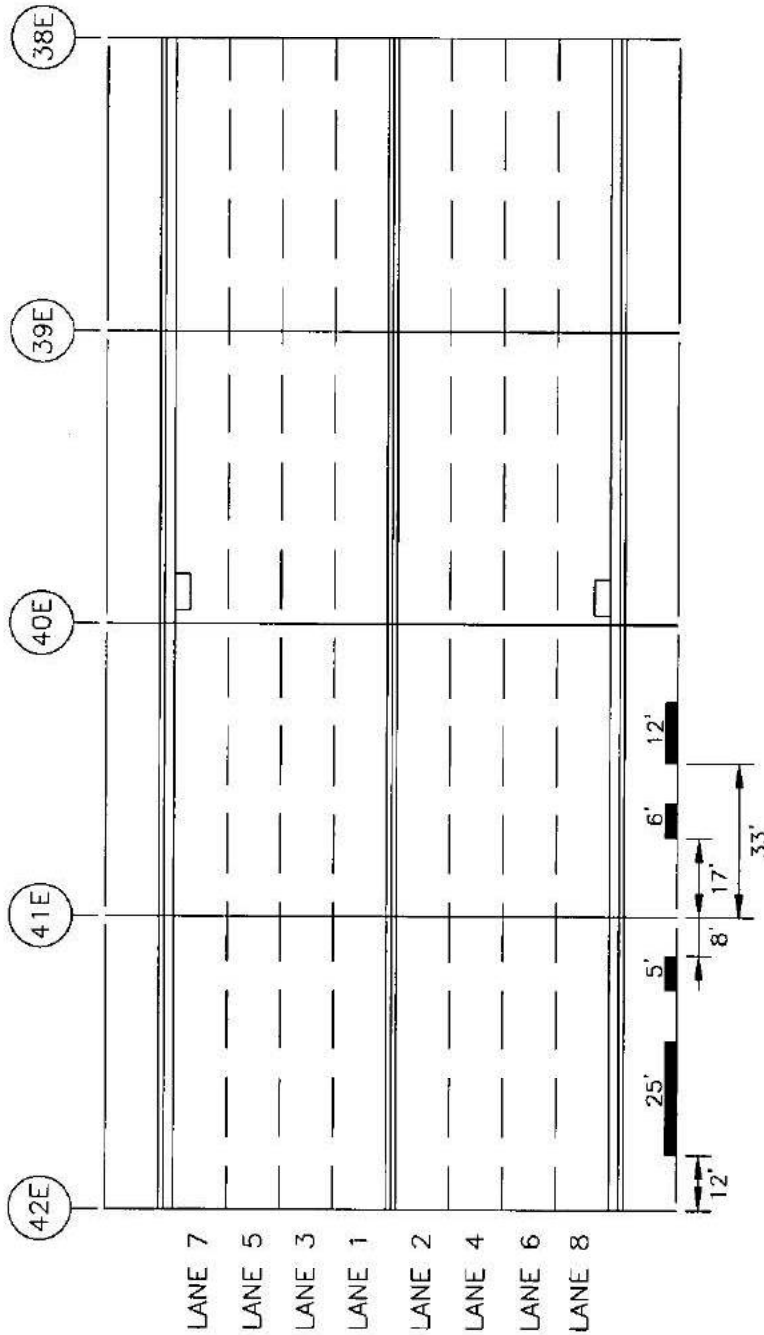
BIN 5522508



2015 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

LOCATION PLAN FOR LOOSE AND/OR DELAMINATING
CONCRETE ALONG SIDEWALK FASCIA

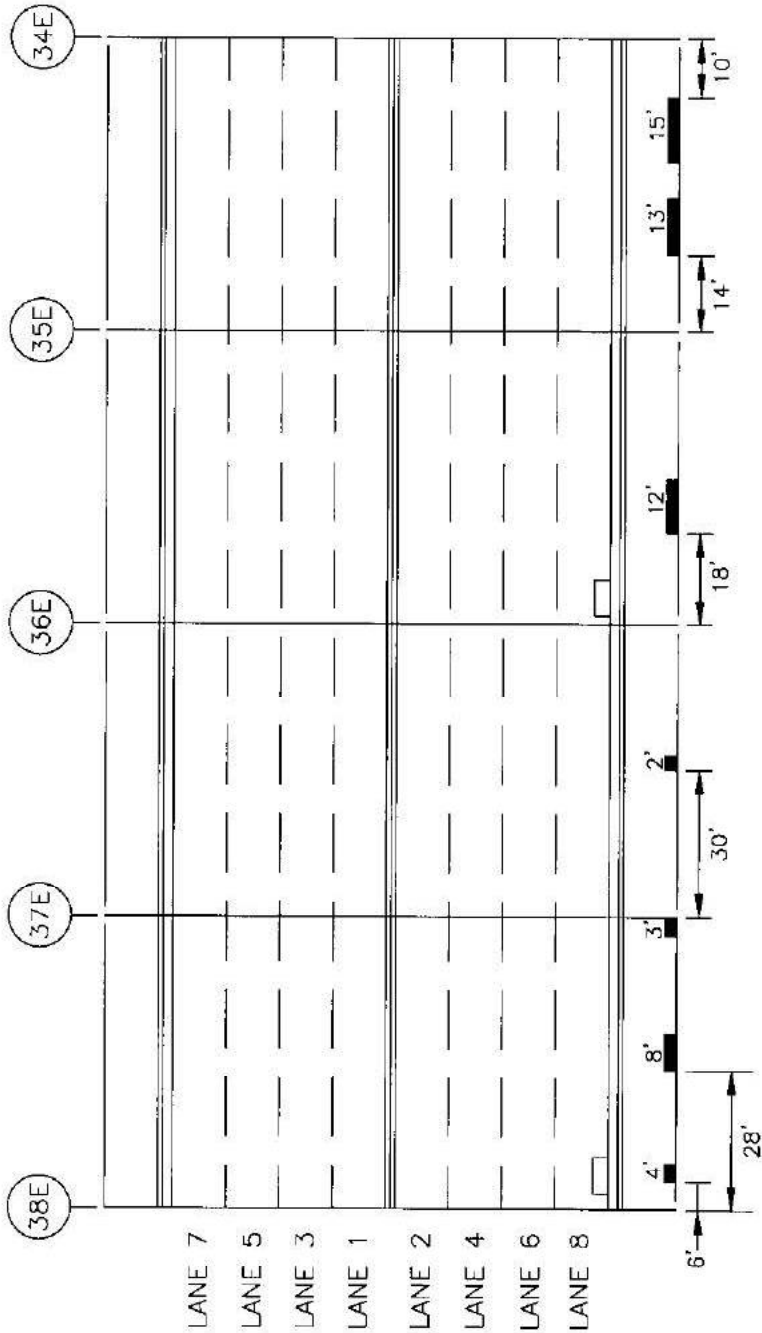
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2015 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

LOCATION PLAN FOR LOOSE AND/OR DELAMINATING
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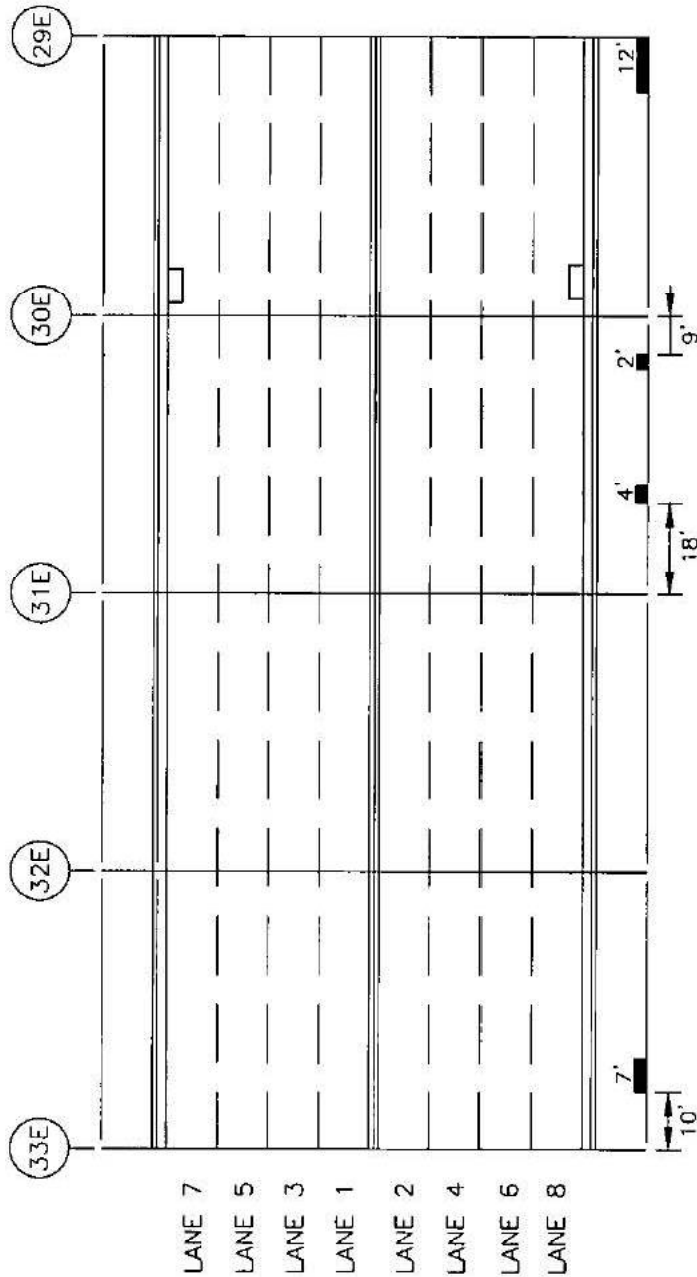
BIN 5522508



2015 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

LOCATION PLAN FOR CRACKED AND/OR DELAMINATING
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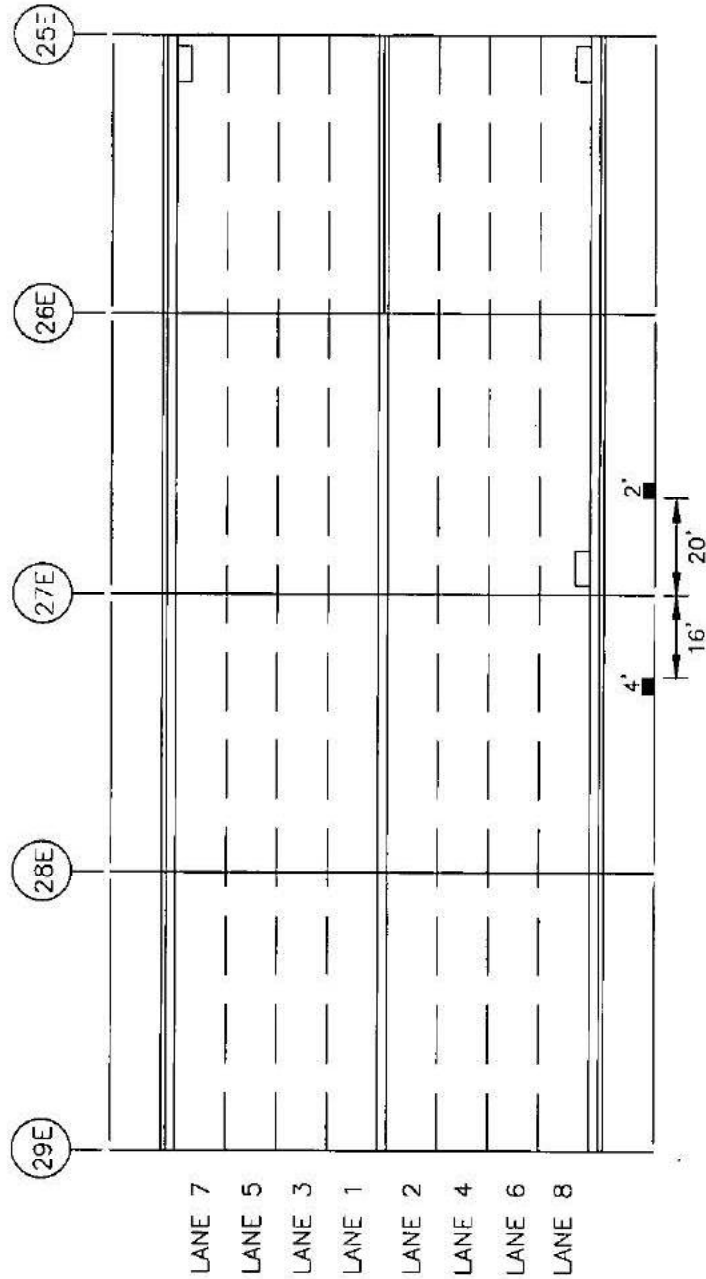
BIN 5522508



2015 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

LOCATION PLAN FOR LOOSE AND/OR DELAMINATING
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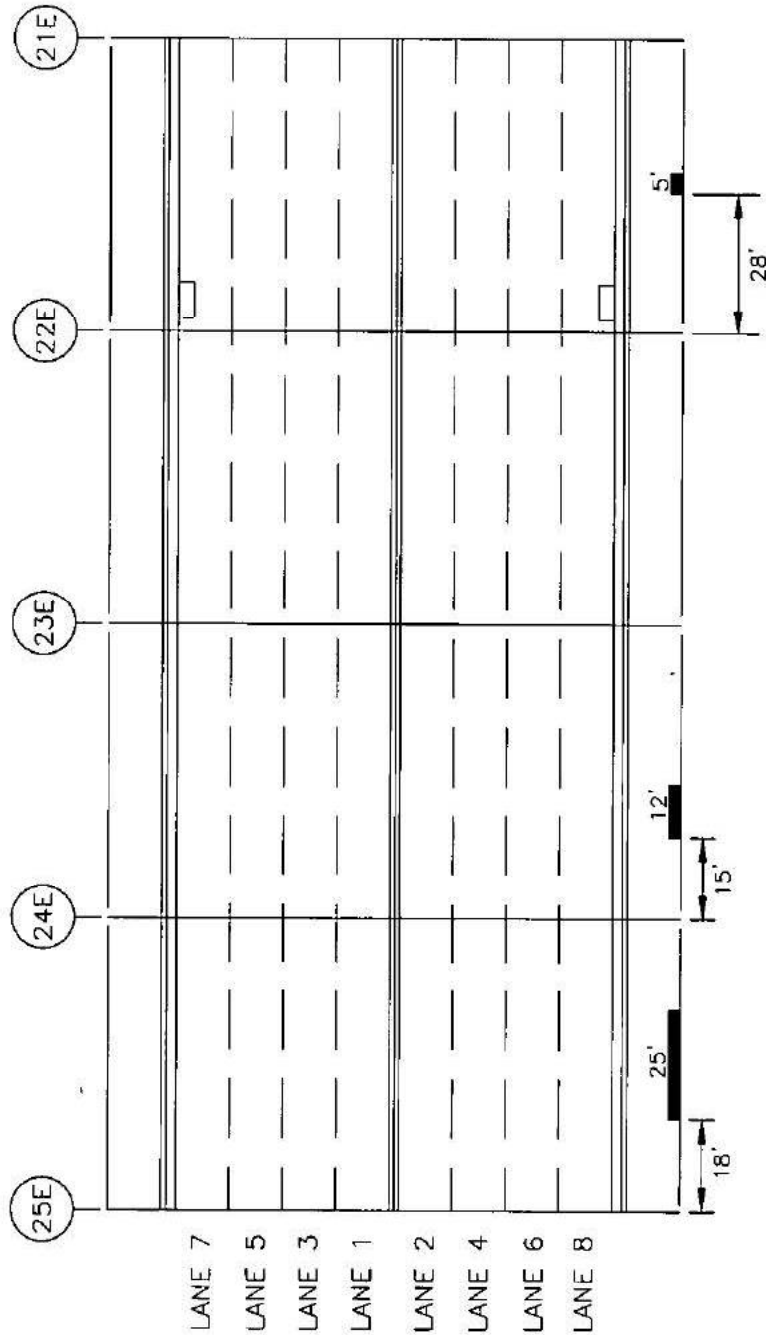
BIN 5522508



2015 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

LOCATION PLAN FOR CRACKED AND/OR DELAMINATING
CONCRETE ALONG SIDEWALK FASCIA

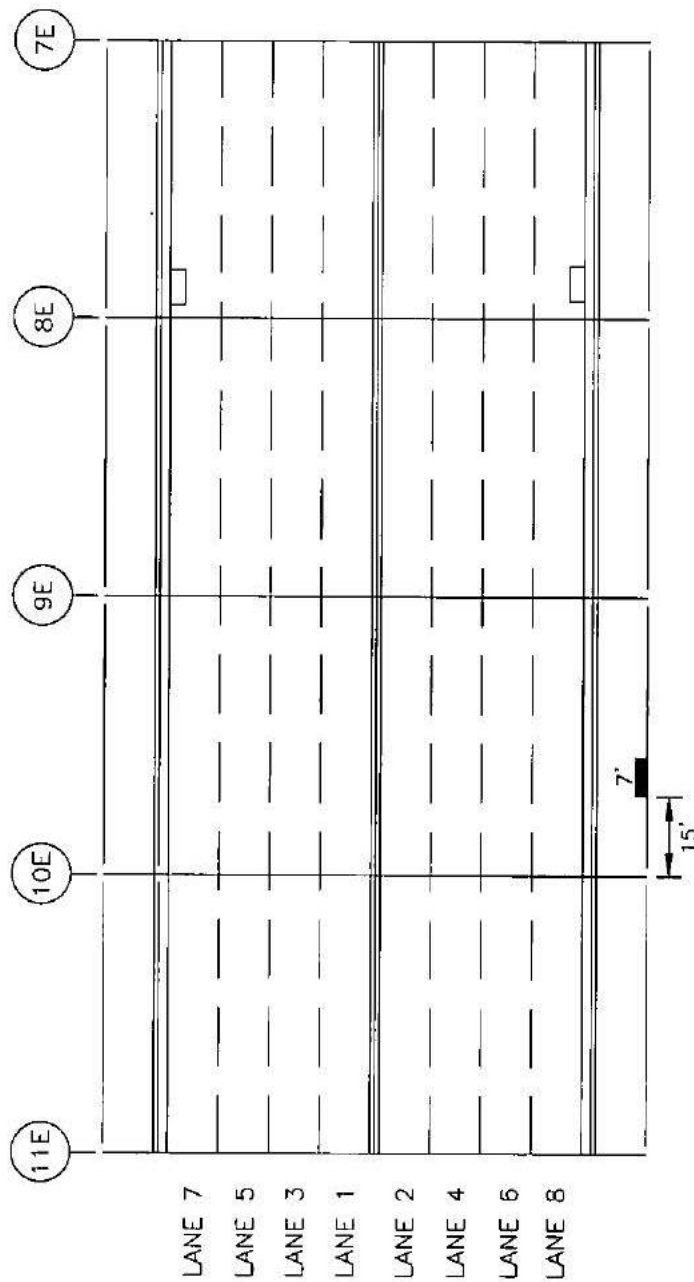
BIN 5522508



2015 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

LOCATION PLAN FOR LOOSE AND/OR DELAMINATING
CONCRETE ALONG SIDEWALK FASCIA

BIN 5522508



2015 BIENNIAL INSPECTION OF THE GEORGE WASHINGTON BRIDGE

LOCATION PLAN FOR CRACKED AND/OR DELAMINATING
CONCRETE ALONG SIDEWALK FASCIA

BIN 5522508

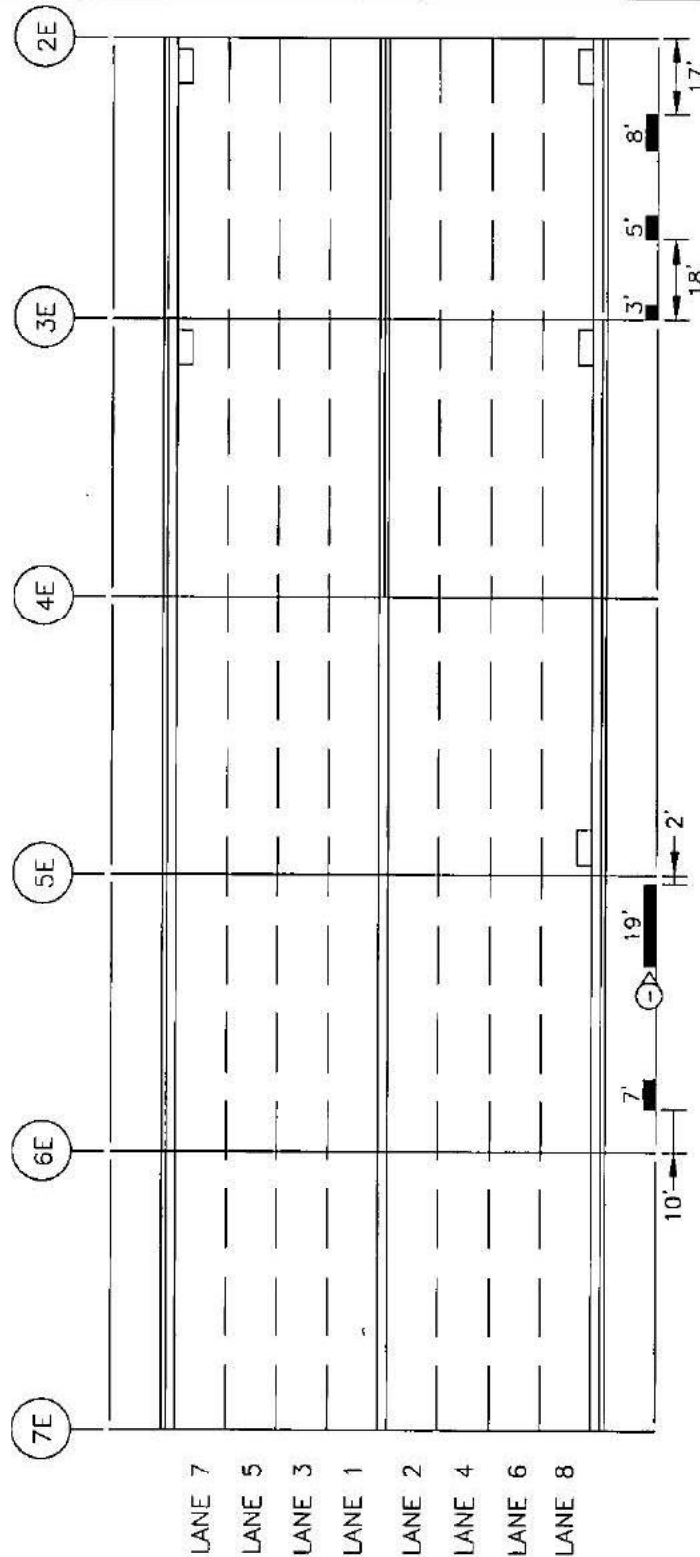


Photo No.: 1

Location:

South Sidewalk Fascia
Between Panel Points 5E
& 6E
(Looking Down and
East)

Description:

Cracked, delaminated,
and spalled concrete.



Photo No.: 2

Location:

South Sidewalk Fascia
Between Panel Points
32W & 33W
(Looking Up and North)

Description:

Cracked and delaminated
concrete.

