



## **Fracture Critical Member and Fatigue Prone Connection Identification Plan**

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**District:** 12  
**County-Route-SLM:** CUY-480-0647  
**Structural File Number:** 1812831  
**Access:** Snooper and climbing

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**Fatigue Life Study:** **Year of Study:** not calculated  
**Remaining Fatigue Life:** not calculated

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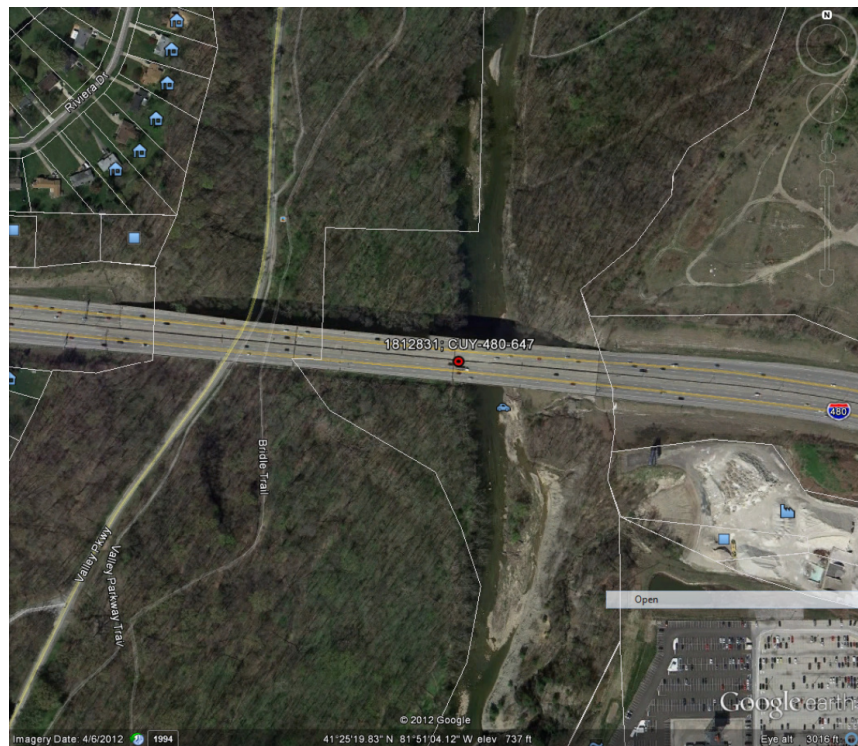
**Load Path Redundant:** No, structure is fracture critical; inspect FCM's every 24 months.

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**Structurally Redundant:** No, Continuous Spans

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**Location:** The CUY-480-0647 bridge spans the Rocky River Valley north of Cleveland Hopkins International Airport (Figure 1). The bridge carries traffic on Interstate 480 between the cities of Fairview Park and Cleveland, Ohio.



**Figure 1: CUY-480-0647 – between the cities of Fairview Park and Cleveland in ODOT District 12 over the Rocky River Valley**

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Figure 2: CUY-480-0647 – Profile view

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**Structure Description:**

This structure is 9 spans, 1571 feet long (a maximum span of 200 feet) three girder bridge with floor beams and stringers (Figure 2). It carries eight lanes of traffic with a 84 foot roadway width and a 142 foot overall width. The average daily traffic for the bridge is 109,150 vehicles with average truck traffic of 5,460 vehicles (2015).

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**Additional Instructions:**

Fracture Critical Members (FCM) must be inspected at an arm's length distance, 18"-35", on each face of the FCM tension zones. A combination of snooper and climbing techniques were used in previous inspections.

When using a snooper, traffic control is needed on the outside lane of Interstate 480, since the superstructure is unable to be accessed from the median.

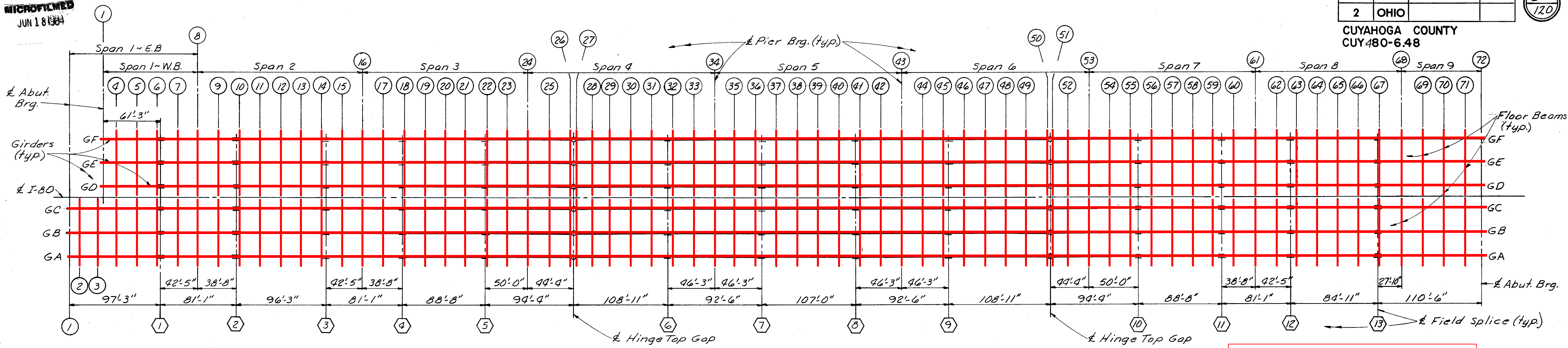
When using climbing techniques, the girders have handrail bars and safety cables for use by the inspector.

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JUN 18 1984

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

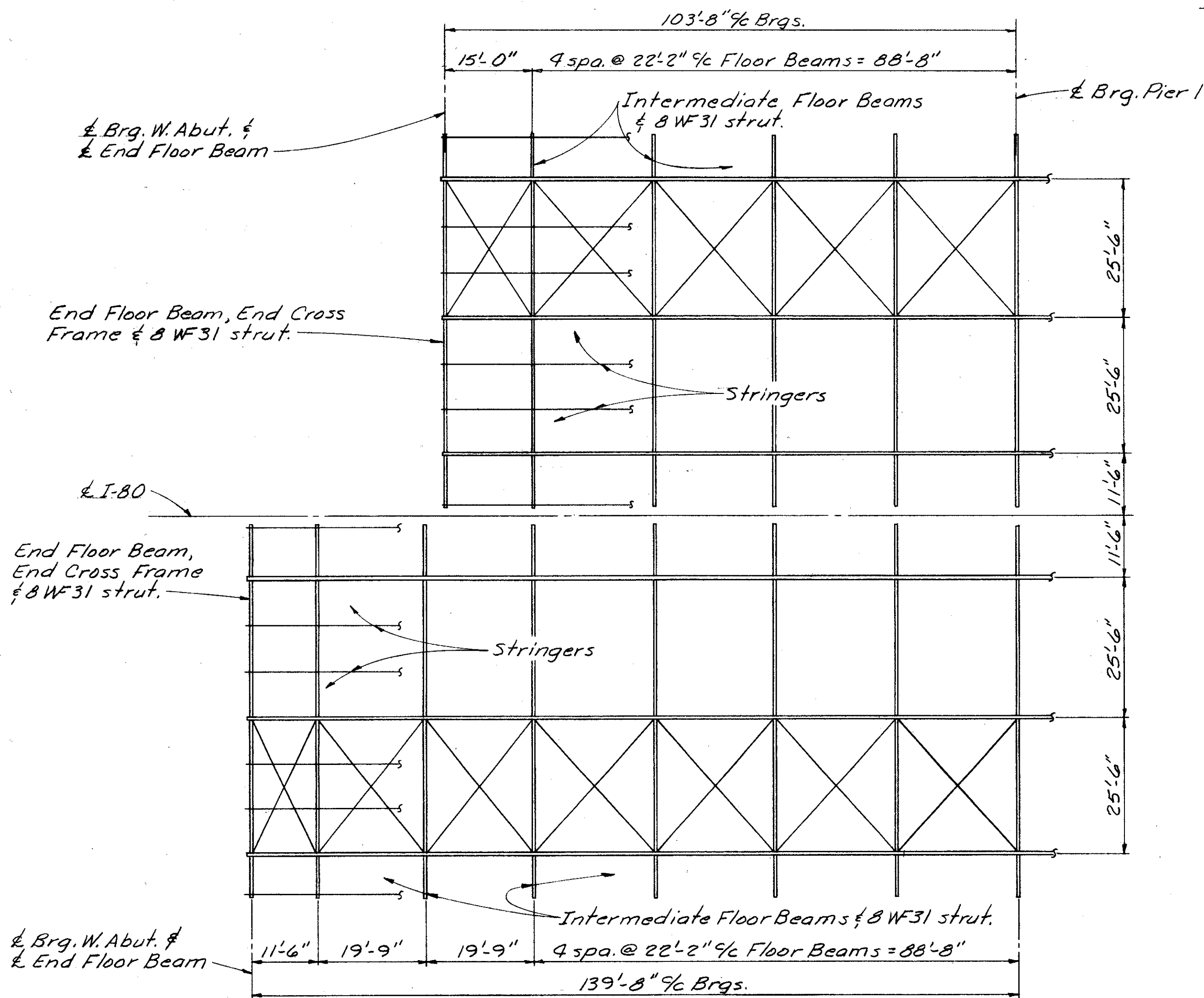
89  
120

CUYAHOGA COUNTY  
CUY480-648

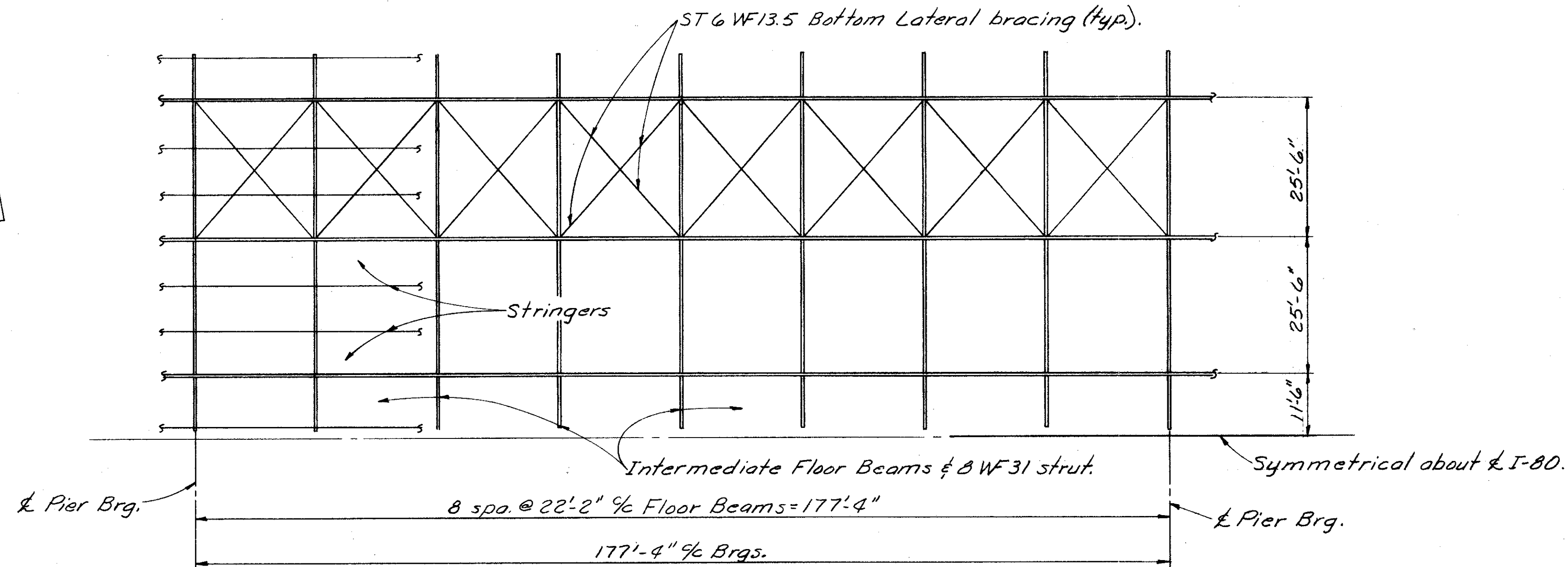


GENERAL FRAMING PLAN  
(Stringers & Lateral system not shown.)

Girders and floor beams are fracture critical members



SPAN 1 FRAMING PLAN  
(Stringer intermediate crossframes not shown.)



SPANS 2,3 & 7 FRAMING PLAN  
(Stringer intermediate crossframes not shown.)

BEARING UNITS	
Location (& Bearing)	Unit
W. Abutment ~ All Girders	R-425
Pier 1 ~ " "	R-1125
Piers 2 & 7 ~ " "	B-1125
Piers 3 thru 6 ~ " "	B-1250
Pier 8 ~ " "	R-850
E. Abutment ~ " "	R-300

For details of Bearing Units, see sheets 40 & 41/53

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CONSULTING ENGINEERS  
COLUMBUS, OHIO 30/53

FRAMING PLAN

BRIDGE No. CUY480-0648  
OUTERBELT SOUTH over ROCKY RIVER  
CUYAHOGA COUNTY STA. 441+96.50 E.B.  
STA. 457+67.50

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
GEA	JER	DW	RWE	JEN.	2/23/68	

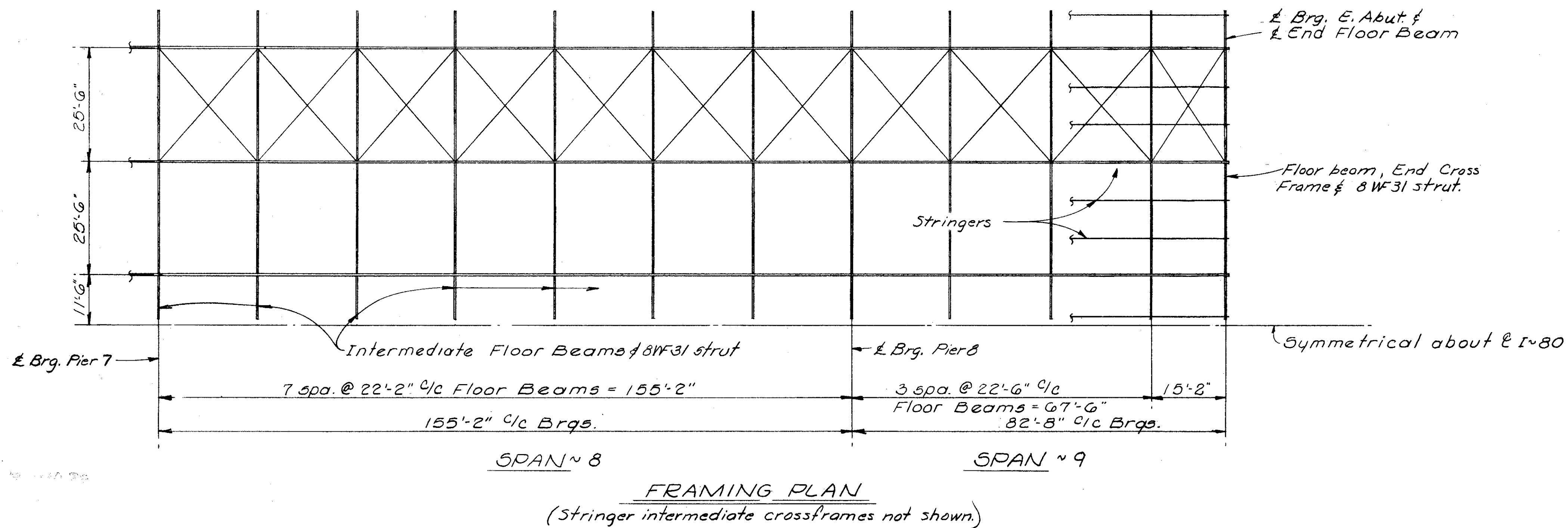
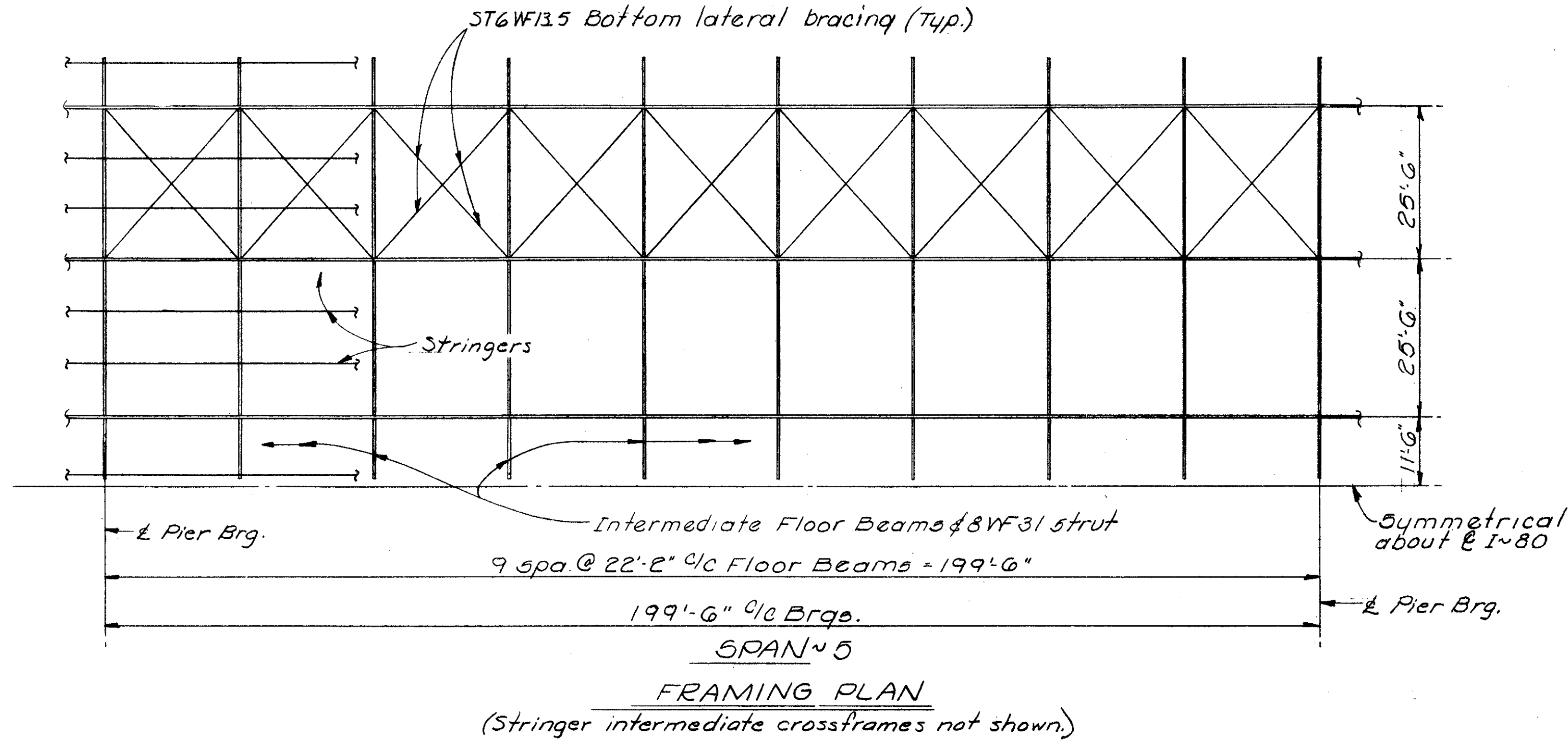
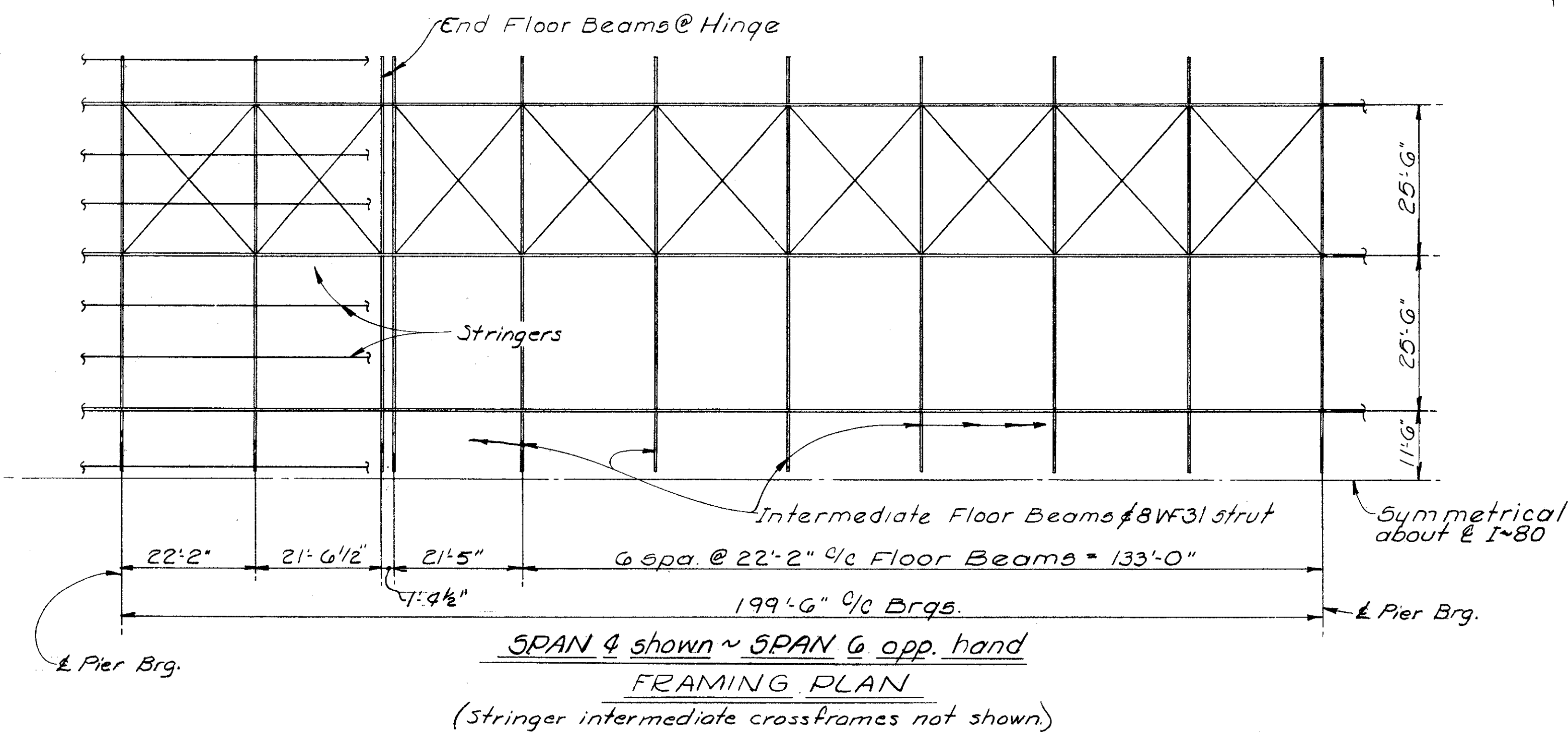
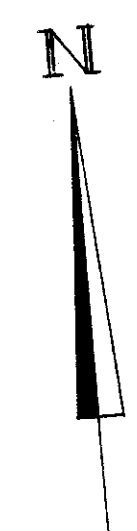
Rev. 10-22-70

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JUN 18 1984

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

90  
120

CUYAHOGA COUNTY  
CUY 480-6.48



NOTE  
For Bearing Units, see sheets 41742/53

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<b>FRAMING PLAN</b>							
BRIDGE No. CUY480-0648 OUTERBELT SOUTH over ROCKY RIVER CUYAHOGA COUNTY							
STA. 441+96.50 E.B. STA. 457+67.50							
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED	
GEA	JEK		RUE	J.E.V.	2/23/60		

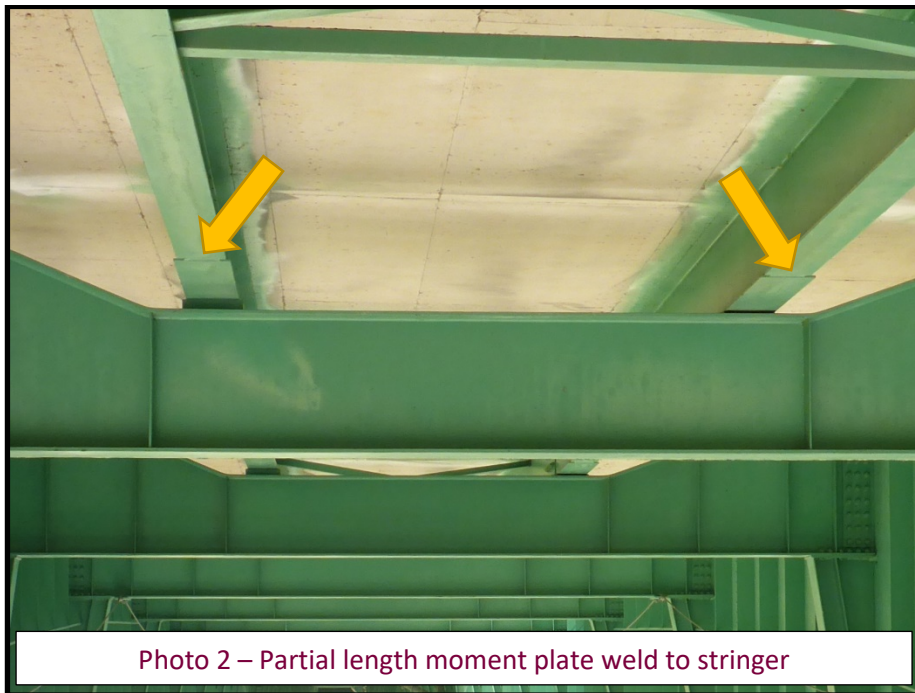
Rev. 10-22-70

APPENDIX VI – Fatigue Prone Details

## Fatigue Prone Details

Category Reference: AASHTO LRFD Bridge Design Specs Table 6.6.1.2.3-1

Photo Reference (photos on following pages)	Category (E, E', or R for Retrofit)	Distribution	Description
Photo 1	E		The stringer bottom flange to floorbeam top flange weld, flange thickness $\leq 0.8$ in.
Photo 2	E'		Partial length moment plate weld to stringer
Photo 3	E'		Tri-axial weld of the roller seat flange to the girder web at the expansion hinge
Photo 4	E		The end termination of the longitudinal stiffener weld to the web of the girder without a radius termination
Photo 5	R		Overcut of dogbone retrofit



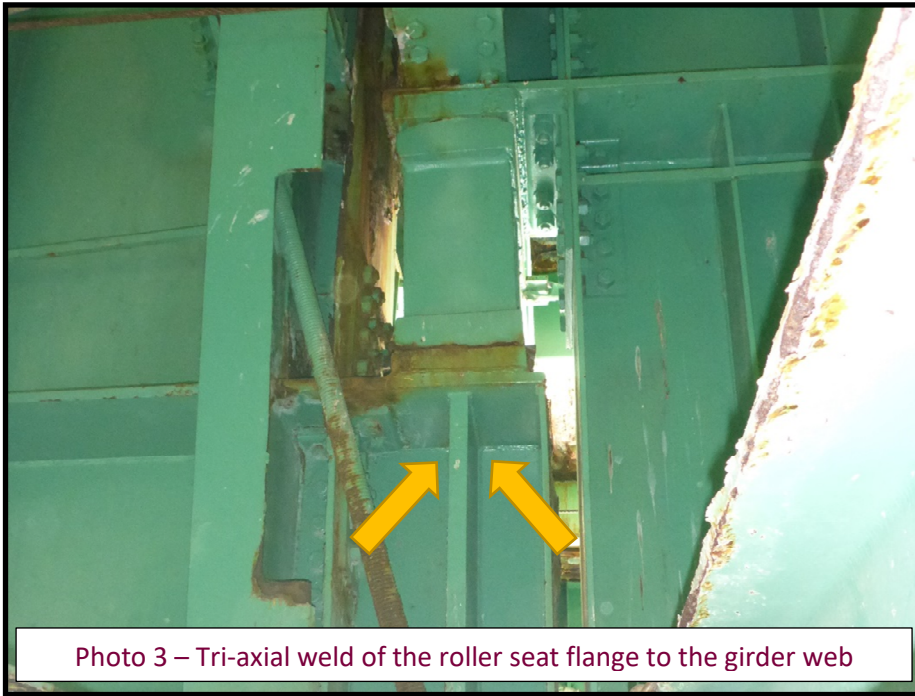


Photo 3 – Tri-axial weld of the roller seat flange to the girder web



Photo 4 – End termination of longitudinal stiffener weld without radius





Photo 5 – Overcut of dogbone retrofit

APPENDIX VII – Dogbone Retrofit Table

**Location of Dogbone Overcuts**

**CUY-480-0647**

2020 Inspection

Bridge	Span	Girder	Floorbeam	Side of FB	Location
Right	1E	B (south face)	2	West	Bottom
Right	1E	A (north face)	3	East	Bottom
Right	1E	B (south face)	4	West	Top
Right	1E	B (south face)	5	West	Bottom
Right	1E	C (south face)	5	West	Bottom
Right	1E	B (south face)	6	West	Top
Right	1E	C	6	East	
Right	1E	C	6	West	
Right	2E	A (north face)	13	West	Top
Right	2E	C (south face)	14	East	Top
Right	2E	B (south face)	15	West	
Right	4E	A (north face)	25	West	Bottom
Right	4E	A (north face)	29	East	Bottom
Right	4E	B (south face)	29	East	Top
Right	4E	B (north face)	30	East	Bottom
Right	5E	C	35	West	
Right	5E	C (south face)	38	East	Bottom
Right	5E	A	40	West	
Right	5E	C (north face)	40	West	Top
Right	6E	B (south face)	46	West	Top
Right	6E	C (south face)	48	West	Bottom
Right	6E	C (south face)	53	East	Bottom
Right	6E	C (south face)	53	West	Bottom
Right	7E	B (south face)	56	East	Top
Right	7E	C (south face)	56	East	Bottom
Right	7E	C (south face)	59	East	Bottom
Right	7E	C (south face)	59	West	Bottom
Right	8E	B (south face)	66	East	Bottom
Right	8E	B (south face)	66	East	Top
Left	1W	F (north face)	5	West	Top
Left	1W	F (south face)	8	West	Bottom
Left	2W	E (north face)	12	West	Bottom
Left	2W	E (north face)	13	East	Bottom
Left	3W	F (north face)	17	West	Top
Left	3W	F (north face)	17	West	Bottom
Left	3W	F (south face)	19	West	Top
Left	3W	F (south face)	21	East	Bottom
Left	3W	F (south face)	23	West	Bottom
Left	4W	E (north face)	30	West	Bottom
Left	4W	F (south face)	31	East	Top
Left	4W	F (north face)	33	West	Top
Left	5W	D (north face)	37	East	Bottom
Left	7W	E (north face)	55	West	Top
Left	7W	F (south face)	56	East	Bottom
Left	7W	D (north face)	60	West	Top
Left	7W	F (south face)	60	West	Top
Left	8W	F (south face)	66	West	Bottom

\*\* NO sawcut between holes

\*\* NO sawcut between holes

\*\* Incomplete sawcut between holes

\*\* NO sawcut between holes

\*\* Incomplete sawcut between holes

Left	8W	D (north face)	67	East	Bottom
Left	9W	F (north face)	71	West	Bottom

Documented in 2020 inspection

Total Overcuts:                      Top Locations:    17  
   Bottom Locations:    28