



## Hamilton County

### Regular Inspection Report

Location: 33-I0075-01.17-LEFT

Federal ID: 33I00750010

Maintenance Responsibility:

State of Tennessee

Description:

3 Span Bridge

I-75 - Southbound

OVER

Big Spring Creek

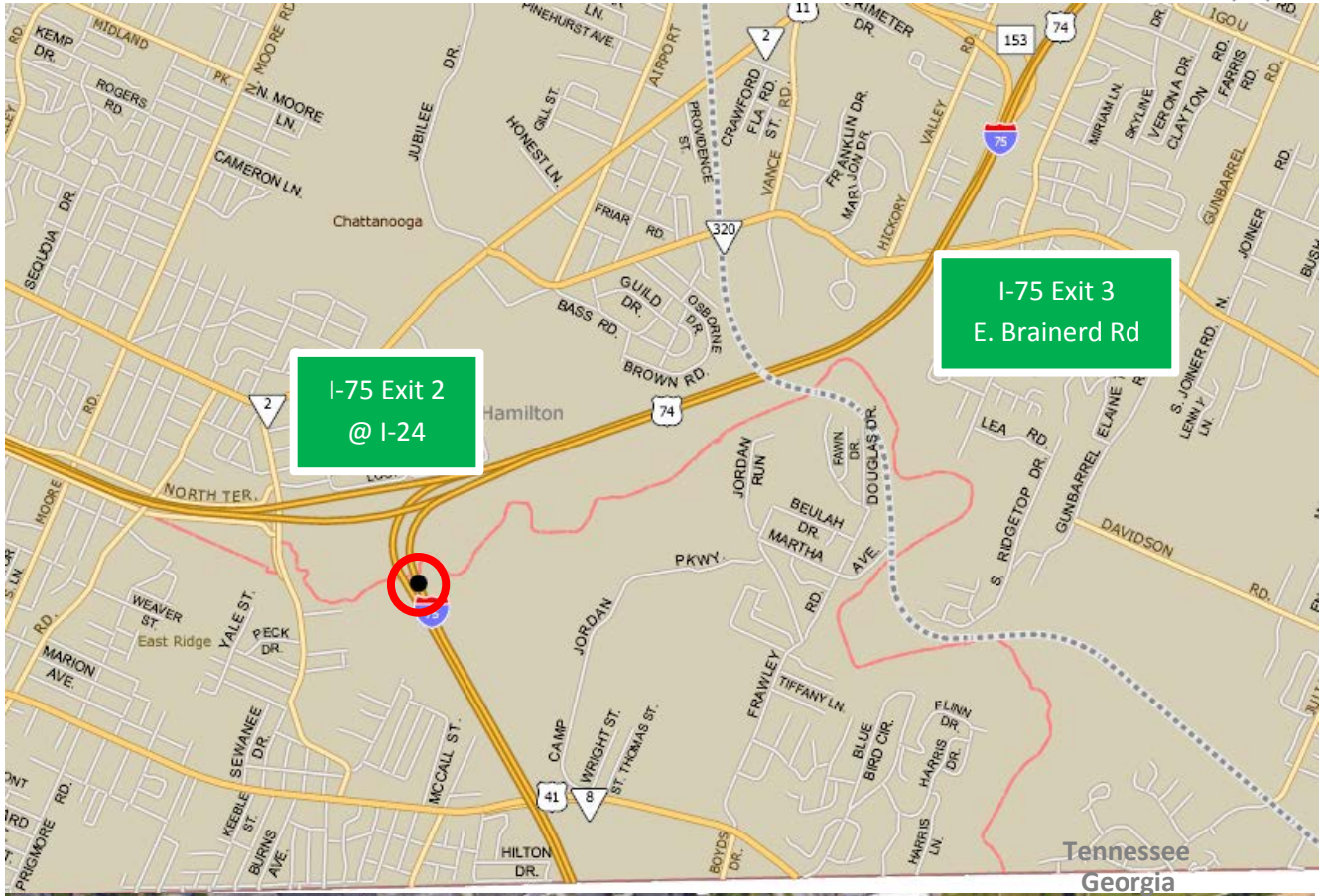
Inspection Date: July 19, 2016

Overall Condition Rating:

**FAIR**



# LOCATION MAP



- Route Direction ON Structure
- Direction of Waterway Flow
- Traffic Direction ON Structure

**BRIDGE MAINTENANCE RECOMMENDATIONS**



Tennessee Department  
of Transportation

COUNTY: HAMILTON

LOCATION: 33-I0075-01.17-L

CO. SEQ.: 1 SPEC. CASE: 0

MILEPOST: 1.11

CROSSING: BIG SPRING CREEK

FED. BRIDGE NO.: 33I00750010

MAINT. DIST.: 33

REPAIR LIST NO.: N

DATE ADDED:

REVISED: 07/25/2016

FACILITY CARRIED:	I75	NUMBER OF MAIN SPANS:	3
HIGHWAY SYSTEM:	02-INTERSTATE URBAN	NUMBER OF APPROACH SPANS:	0
BRIDGE WIDTH (CURB TO CURB):	71 FT 10 IN	BRIDGE LENGTH (FT):	107
BRIDGE WIDTH (OUT TO OUT):	75 FT 1 IN	MAXIMUM SPAN LENGTH (FT):	36
APPROACH ROADWAY (W/SHOULDERS):	65 FT 11 IN	SKEW ANGLE (DEGREES):	73
MAINTAINED BY:	STATE HIGHWAY AGENCY		
MAIN SPAN MATERIAL:	PRESTRESSED CONCRETE		
MAIN SPAN DESIGN TYPE:	BOX BEAM OR GIRDERS - MULTIPLE		
APPROACH SPAN MATERIAL:	OTHER OR NOT APPLICABLE		
APPROACH SPAN DESIGN TYPE:	OTHER OR NOT APPLICABLE		
INSPECTION DATE:	07/19/2016	GENERAL CONDITION:	FAIR
EVALUATION DATE:	08/11/2014	STRUCTURALLY DEFICIENT:	NO
PPRM PIN NUMBER:		SUFFICIENCY RATING:	91.9
H TRUCK RATING @ INV.:	20 TONS		

<b>SUGGESTED ROUTINE MAINTENANCE AND COMMENTS</b>
SEAL CRACKS IN DECK WEARING SURFACE, SPAN NO.ALL
REPAIR BRIDGERAIL ON RIGHT SIDE APPROACH 2

<b>GENERAL COMMENTS:</b>



STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

# Bridge Condition Coding Form

Revised 07/25/2016

Bridge Number:   
(Includes Item 5A)

Feature Intersected:

Evaluation Status:

County:

Route:

Special Case:

County Sequence:

Log Mile:

## CODE ONLY THOSE VALUES WHICH HAVE CHANGED

ITEM #	DESCRIPTION	VALUE	CONDITION CODING GUIDELINES
90	LAST INSPECTION DATE	<input type="text" value="07/19/2016"/>	(Values for Coding Items 58, 59, 60 and 62)
	EARLIEST DATE OF NEXT REGULAR INSPECTION	<input type="text" value="05/20/2018"/>	
		<input type="text" value="/ /"/>	
10	MINIMUM V.C. OVER DECK (ROADWAY + SHOULDERS)	99 FT. 99 IN.	N NOT APPLICABLE
520	MINIMUM V.C. OVER DECK (EXCLUDES SHOULDERS)	99 FT. 99 IN.	9 EXCELLENT CONDITION
36	TRAFFIC SAFETY FEATURES		8 VERY GOOD CONDITION - NO PROBLEMS NOTED.
	Br. Rail	1	7 GOOD CONDITION - SOME MINOR PROBLEMS.
	Trans.	1	6 SATISFACTORY CONDITION - MINOR DETERIORATION OF STRUCTURAL ELEMENTS.
	Appr. Rail	1	5 FAIR CONDITION - ALL PRIMARY STRUCTURAL ELEMENTS ARE SOUND BUT MAY HAVE MINOR SECTION LOSS, CRACKING, SPALLING OR SCOUR.
	Terminal	N	4 POOR CONDITION - ADVANCED SECTION LOSS, DETERIORATION, SPALLING OR SCOUR.
	SPEED LIMIT	55	3 SERIOUS CONDITION - LOSS OF SECTION, DETERIORATION, SPALLING OR SCOUR HAVE SERIOUSLY AFFECTED PRIMARY STRUCTURAL COMPONENTS. LOCAL FAILURES ARE POSSIBLE. FATIGUE CRACKS IN STEEL OR SHEAR CRACKS IN CONCRETE MAY BE PRESENT.
41	STRC OPEN/CLOSED/POSTED	A	2 CRITICAL CONDITION - ADVANCED DETERIORATION OF PRIMARY STRUCTURAL ELEMENTS. FATIGUE CRACKS IN STEEL OR SHEAR CRACKS IN CONCRETE MAY BE PRESENT OR SCOUR MAY HAVE REMOVED SUBSTRUCTURE SUPPORT. UNLESS CLOSELY MONITORED IT MAY BE NECESSARY TO CLOSE THE BRIDGE UNTIL CORRECTIVE ACTION IS TAKEN.
	A	K	1 "IMMINENT" FAILURE CONDITION - MAJOR DETERIORATION OR SECTION LOSS PRESENT IN CRITICAL STRUCTURAL COMPONENTS OR OBVIOUS VERTICAL OR HORIZONTAL MOVEMENT AFFECTING STRUCTURAL STABILITY. BRIDGE IS CLOSED TO TRAFFIC BUT CORRECTIVE ACTION MAY PUT IT BACK IN LIGHT SERVICE.
	P		0 FAILED CONDITION - OUT OF SERVICE AND BEYOND CORRECTIVE ACTION.
58	DECK	7	
59	SUPERSTRUCTURE	6	
60	SUBSTRUCTURE	7	
61	CHANL/CHANL PROTECTION	7	
62	CULVERT AND RETAIN WALL	N	
71	WATERWAY ADEQUACY	8	
72	APPROACH RDWY ALIGNMENT	8	
521	OVERALL CONDITION	FAIR	
16	LATITUDE	N 35° .0640'	
17	LONGITUDE	W 85° 12.6830'	

TEAM LEADER SIGNATURE

REVIEW DATE

# Photographs

Bridge ID#: 33I00750010

Date: 07/19/2016



BRIDGE # - SPAN 1 - RIGHT



LOOKING AHEAD I75 - SB

# Photographs



LOOKING BACK I75 - SB

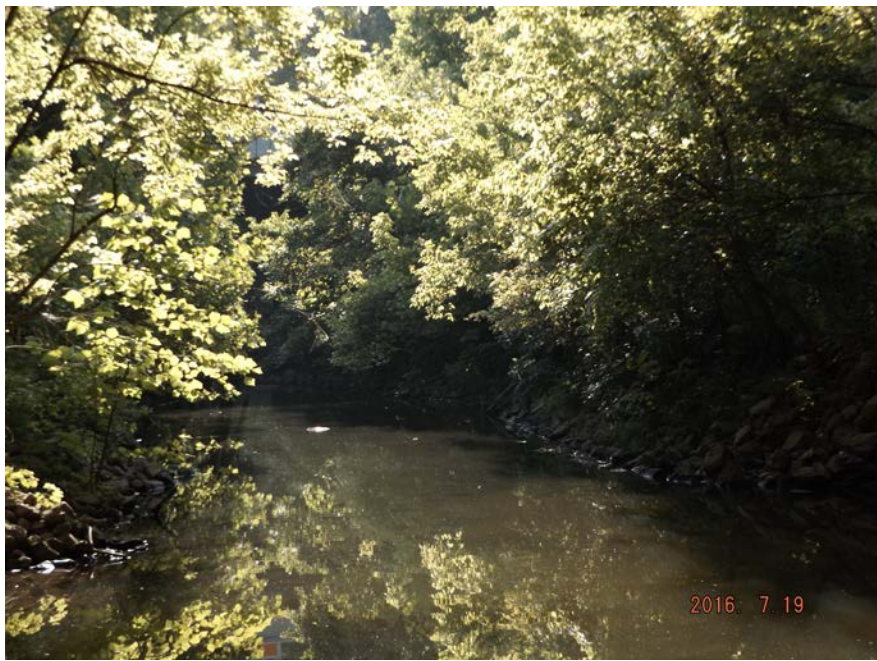


LEFT SIDEVIEW - INLET

# Photographs



UPSTREAM



DOWNSTREAM

## Photographs



SUPER/SUB STRUCTURE



BEARINGS - ABUTMENT



# Photographs



BEARINGS - BENT



APPROACH 1

# Photographs



WEARING SURFACE



APPROACH 2

## Photographs



ATTACHED TDOT FIBER



APPROACH 2 - RIGHT - RAIL DAMAGE

# Photographs



APPROACH 2 - RIGHT - RAIL DAMAGE



SPAN 2 - BEAM B - REBAR SPALL

## Photographs



SPAN 2 - BEAM B - REBAR SPALL



SPAN 3 - BEAM F - REBAR SPALL

# Photographs



SPAN 3 - BEAM F - REBAR SPALL



SPAN 3 - BEAM J - REBAR SPALL

## Photographs



SPAN 3 - BEAM J - REBAR SPALL

**BRIDGE INSPECTION REPORT**

Page No. \_\_\_\_\_

Form BIR 3.0  
(Rev. 9-22-98)  
DT-0069

Field Report No. 23 Date 7/19/2016  
Previous Report No. 22 Date 7/7/2014  
Plans: DESIGN

Bridge No. 33100750010  
Eleven Digit No.

Bridge Location No. 33 - I0075 - 0117 L  
Co. Route Log Mile

I75 over BIG SPRING CREEK \*  
Facility Carried by Structure Crossing Structure Name (If Named)  
Year Constructed 1959 ACTUAL County \_\_\_\_\_ Maintenance District 21  
Year Widened 1989 ACTUAL Year Rehabilitated 1989 ACTUAL

**FEATURES**

Wearing Surface CONCRETE Depth 8.0 (in.)  
Flared Width YES Median Width NONE  
Navigational Control NO Bridge Skew 73° LT  
Structure Type (Main Span) PCBB  
Structure Type (Appr.Spans) NA  
No. Main Spans 3 No. Approach Spans 0  
Maximum Span Length 35.7 (\*\*.\* ft.)  
Total Length 107.0 (\*\*.\* ft.)

**TEAM LEADER**

Tays

**INSPECTORS**

Haas

**WIDTHS** (\*.\* ft.)

Deck Out-to-Out 74.5  
Roadway Curb/Curb NA  
Roadway Rail/Rail 70.5  
Sidewalk Rt. NA Lt. NA  
\*Approach Roadway 48.0  
\*(Does Not Include Shoulders)  
Approach Shoulder Rt. 12.0  
Lt. 10.0

**CLEARANCES**

Min. Vertical Clearance over Deck 99-99 (ft.-in.)  
Min. Vertical Under Clearance NA (ft.-in.)  
Min. Lateral Under Clearance Rt. NA (\*.\* ft.)  
Min. Lateral Under Clearance Lt. NA (\*.\* ft.)

FRACTURE CRITICAL: NO  
(If Yes, Include BIR 3.9)

NBIS Bridge Length (<25 ft.) \_\_\_\_\_ (ft.-in.)

**UNDERWATER INSPECTION**

To Be Performed By: DOT FIELD TEAM Date \_\_\_\_\_

Change in Structural Condition: NO Major Repairs Made: NO BRIDGE is: OPEN

**COMMENTS:**

Supervising Bridge Inspector: Tays

BRIDGE RATING: FAIR



**PERFORMANCE EVALUATION**

Time of Day Inspected AM Weather Conditions Sunny 78F  
 Vehicles Observed ALL TYPES

**LIVE LOAD BEHAVIOR**

Substructure	Yes/No	Comments
Horiz./ Vert. Defl.	NO	
Vibration	NO	
Superstructure		
Horiz./ Vert. Defl.	NO	
Vibration	No	<i>None detected at this inspection</i>

**APPROACH**

	Rating	Comments
Alignment	GOOD	<i>No speed reduction required</i>
Slab	NA	
Joints	NA	
Pavement	FAIR	<i>SETTLED, CRACKS, POTHOLE, VOIDS, PATCHES</i>
Embankment	GOOD	
Drains	NA	<i>NONE</i>

**TRAFFIC SAFETY FEATURES**

	Rating	Standard/ SubStandard	Comments
Bridgerailing	F-P	STANDARD	<i>SIGNIFICANT COLLISION DAMAGE TO RIGHT PARAPET</i>
Transitions	GOOD	STANDARD	
Guardrail	GOOD	STANDARD	
Guardrail Terminal	N/A	STANDARD	<i>&gt;100 FEET</i>

**SIGNING**

	Yes/ No/ Needed
Paddleboards	NO
Vertical Clearance (<14'-6")	NO
Narrow Bridge Signs	NO
One Lane Bridge Signs	NO

Weight Limit Posted NO  
 Gross..... \_\_\_\_\_ Tons  
 2 Axle..... \_\_\_\_\_ Tons  
 3 or more Axles.. \_\_\_\_\_ Tons

Other Signs or Plaques:

Comments Regarding any  
 Problems with Signing:

**DECK**

	Rating	Comments
Wearing Surface	FAIR	<i>NUMEROUS NARROW CRACKS, FEW GOUGES. PATCHES AT BRIDGE ENDS.</i>
Deck - Structural Condition	FAIR	<i>HL CRACKS W/ EFF.</i>
Curbs	NA	
Median	NONE	
Sidewalks	NONE	
Parapet	N/A	
Railing	N/A	
Paint	NA	
Drains	GOOD	
Lighting Standards	NONE	
Utilities	NONE	
Joint Leakage	NA	
Expansion Joints	NONE	

**SUPERSTRUCTURE**

Bearing Devices	GOOD	<i>Abutments - N/A - Integral, Bents - Fixed</i>
Girders or Beams	G-F	<i>HL CRACKS, DELAMS, REBAR SPALL, PATCHES</i>
Floor Beams	NA	
Stringers	NA	
Diaphragms	GOOD	
Bracing	NA	
Trusses - General	NA	
Portals	NA	
Bracing	NA	
Paint	NA	
Alignment of Members	GOOD	

**TEXTURE COAT**

Condition Rating	<u>FAIR</u>	Needs Spot Painting	<u>NO</u>
Overall Appearance	<u>FAIR</u>	Needs Repainting	<u>NO</u>
Staining Rating	<u>FAIR</u>	Comments	
Fading Rating	<u>FAIR</u>		
Scaling Rating	<u>GOOD</u>		

**SUBSTRUCTURE**

**ABUTMENTS**

	Rating	Comments
Caps	G-F	
Breastwall	G-F	<i>HL-NARROW CRACKS. DELAMS</i>
Wings	GOOD	
Backwall	GOOD	
Plumb	GOOD	
Footing	NA	
Piles	GOOD	<i>MODERATE CORROSION</i>
Embankment	GOOD	<i>SETTLED</i>
Bearing Surface	GOOD	
Slope Paving	NA	
Rip Rap	GOOD	

**PIERS**

Caps	N/A	
Columns	N/A	
Plumb	N/A	
Footings	N/A	
Piles	N/A	
Bearing Surface	N/A	

**BENTS**

Caps	GOOD	<i>HL cracks</i>
Columns	GOOD	<i>HL cracks</i>
Plumb	GOOD	
Footings	NV	
Piles	NV	
Bearing Surface	GOOD	

Piles Need Replacement: \_\_\_\_\_

Piles To Be Replaced:

**STREAM CHANNEL DATA AND CONDITIONS**

Stream Crossing: BIG SPRING CREEK \*

- I. 1. Type of bed material? MUD, SEDIMENT
- 2. Has channel shifted? NO (Yes/ No/ Not Apparent)
- 3. Condition of rip-rap? GOOD Est. % failed        %
- 4. Overall condition of channel? GOOD
- 5. Item 61 - Code values 0 thru 9 according to the recording and coding guide currently in effect: 7
- 6. Underwater diver inspection recommended? NO  
If yes, why? \_\_\_\_\_

- II. Channel and bank stability conditions: (yes if applicable)
  - 1. Steep bank conditions: Failures upstream No Failures downstream No
  - 2. Moderate bank erosion No
  - 3. Bank vegetation: a. low growth YES b. large timber YES c. clear banks No  
d. dead trees upstream No e. dead trees downstream No
  - 4. Sediment or gravel accumulation: NO (Yes/ No/ Unknown)
  - 5. Channel altered or straightened: NO (Yes/ No/ Unknown)
  - 6. Stable conditions: a. live growth YES b. bedrock Yes  
c. boulders No d. flat slopes (<=2:1) No

- III. Waterway adequacy and debris characteristics: (yes if applicable)
  - 1. Bridge deck elevations:
    - a. level with approach roadway. . . . . YES
    - b. higher than approach roadway. . . . . No
    - c. roadway approach >= 2 ft. above natural ground line. . . . . YES
  - 2. Abutment encroaches into channel. . . . . No
  - 3. Large scour (blowhole) under bridge. . . . . No
  - 4. Indications that flood waters overtop bridge: NO (Yes/No)  
If YES, Answer: Occasionally, Frequently, or Unknown \_\_\_\_\_
  - 5. Debris characteristics:
    - a. debris/drift present No
    - b. debris/drift likely to accumulate No
    - c. dead trees upstream No dead trees downstream No

IV. Comments:

**SPECIAL INSPECTION DATA - FOR REASONS OTHER THAN FC OR SCOUR**

- I. Does this bridge need a special inspection? NO
- II. Reason for special inspection:

Inspection Team's Summary  
Bridge Location No. 33 - I0075 - 0117 L  
Inspection Date 7/19/2016  
Bridge Rating FAIR

TYPE SERVICE: I 75 SBL  
OVER: BIG SPRING CREEK \*

On Tuesday, July 19, 2016, a Region Two bridge inspection team inspected this structure and found it to be in FAIR condition.

**TOP OF DECK**

*Traffic Safety Features*

Bridge Rail:	F-P	STANDARD	SIGNIFICANT COLLISION DAMAGE TO RIGHT PARAPET
Transitions:	GOOD	STANDARD	
Approach Rail:	GOOD	STANDARD	
Terminals:	N/A	STANDARD	>100 FEET

*Wearing Surfaces*

Approach Pvmnt:	FAIR	SETTLED, CRACKS, POTHOLE, VOIDS, PATCHES
Deck - Wearing Surface:	FAIR	NUMEROUS NARROW CRACKS, FEW GOUGES. PATCHES AT BRIDGE ENDS.

**BOTTOM OF DECK**

Deck - Structural Condition: FAIR HL CRACKS W/ EFF.

**SUPERSTRUCTURE**

Beams:	G-F	HL CRACKS, DELAMS, REBAR SPALL, PATCHES
Bearings:	GOOD	Abutments - N/A - Integral, Bents - Fixed

**SUBSTRUCTURE**

*Abutments*

Caps:	G-F	
Breastwall:	G-F	HL-NARROW CRACKS. DELAMS
Wings:	GOOD	
Backwall	GOOD	
Bearing Surface:	GOOD	

*Bents*

Caps:	GOOD	HL cracks
Columns:	GOOD	HL cracks
Bearing Surface:	GOOD	

**UNDERCLEARANCE**

Min Vert Under Clear(ft-in): NA

**SPECIAL NOTES**

- Item 58 - 5 to 7 - Some minor issues - Cracks
- Item 60 - 6 to 7 - Some minor issues - Crack
- Item 72 - 6 to 8 - No reduction in speed required due to structure

BRIDGE LOCATION NO. 33 I-75 1.17 LT 1.88 DATE: 03/04/98  
 COUNTY ROUTE LOG MILE LOG km

STATION/ LOCATION	TOP OF LT. CURB/RAIL	GUTTER/ EDGE DECK	CENTERLINE	GUTTER/ EDGE DECK	TOP OF RT. CURB/RAIL
ABUT # 1	208.31	207.51		207.38	208.81
BENT # 1	208.31	207.48		207.99	208.82
BENT # 2	208.32	207.48		207.98	208.82
ABUT # 2	208.29	207.48		208.00	208.81

BENCH MARK LOCATION BRIDGE SEAT, ABUT. # 2, RT. SIDE. (NBL)

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BENCH MARK ELEVATION 678.32 ft - 206.75 m

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NOTE: ELEVATIONS TAKEN FROM PREVIOUS REPORT.

# RT. EDGE OF BRIDGE

**BRIDGE LOC. NO.:**

**33-I75-1.17 LT**

**DATE: 07/26/2012**

DOWNSTREAM

CROSSING: BIG SPRING CREEK

NO CHANGE 2010,  
2012

( m )	LOCATION	ELEV '98
ABUT #1	1.20	206.42
	3.00	206.12
	6.00	204.02
	9.00	202.22
PIER #1	11.00	201.07
	12.00	200.57
EDG WTR	13.00	200.12
	15.00	199.70
EDG WTR	18.00	199.53
	21.00	200.16
PIER #2	22.00	200.77
	24.00	202.51
	27.00	204.58
	30.00	206.11
ABUT #2	32.00	206.66

**BOTTOM FOOTING ELEVATIONS**

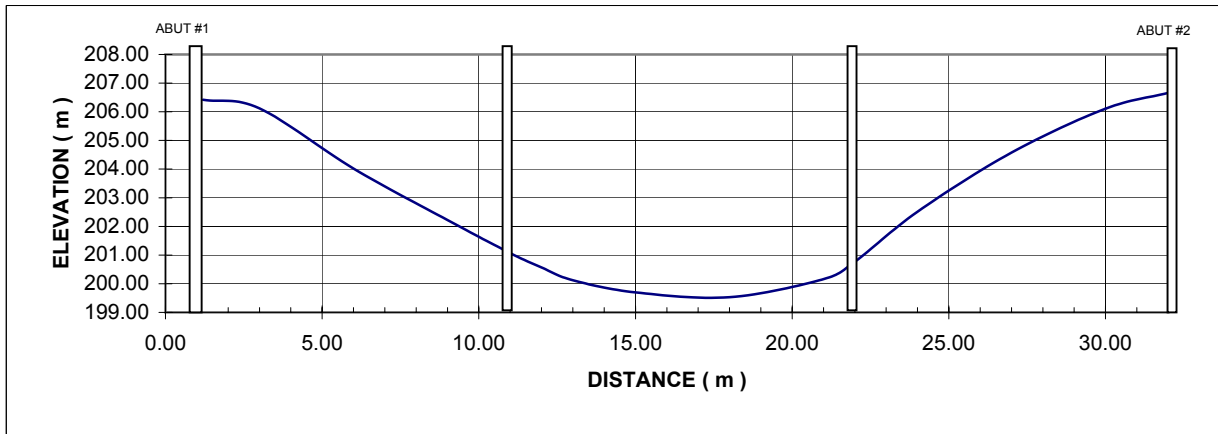
ABUT #1 197.21 m

ABUT #2 196.75 m

BENCH MARK ELEVATION 206.75 m

LOCATION : TOP OF PARAPET, BRIDGE SEAT, ABUT #2

BOTTOM VISIBLE



# LEFT EDGE OF BRIDGE

**BRIDGE LOC. NO.:**

**33-I75-1.17 LT**

**DATE: 07/26/2012**

UPSTREAM

CROSSING: BIG SPRING CREEK

NO CHANGE 2010,  
2012

( m )	LOCATION	ELEV.'98
ABUT. #1	1.20	206.21
	3.00	205.39
	6.00	203.58
	9.00	201.56
P1 EW	11.00	200.29
	12.00	199.82
	15.00	199.65
	18.00	199.94
EDG WTR	21.00	200.29
PIER #2	22.00	200.47
	24.00	201.55
	27.00	202.93
	30.00	204.94
ABUT. #2	32.00	205.78

BOTTOM FOOTING ELEVATIONS

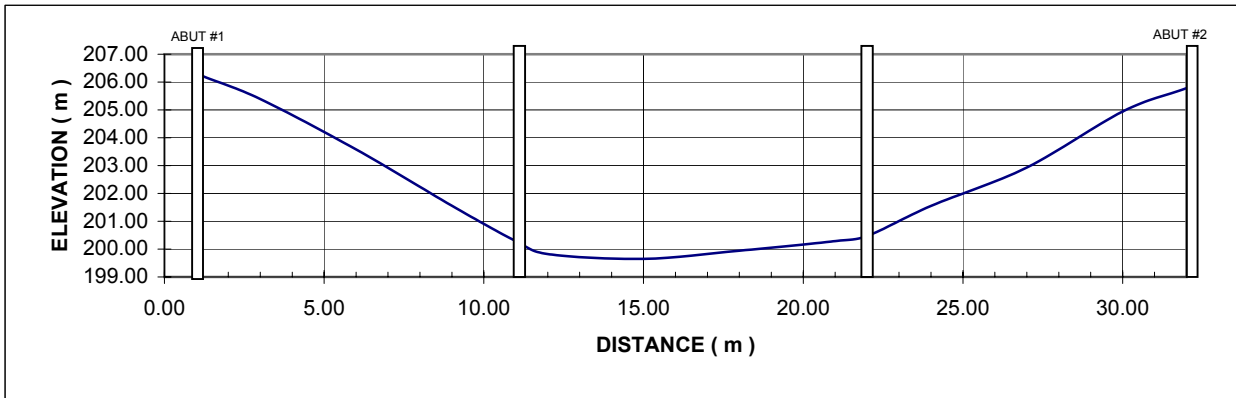
ABUT #1 197.21 m

ABUT #2 196.75 m

BENCH MARK ELEVATION 206.75 m

LOCATION : TOP OF PARAPET, BRIDGE SEAT, ABUT #2

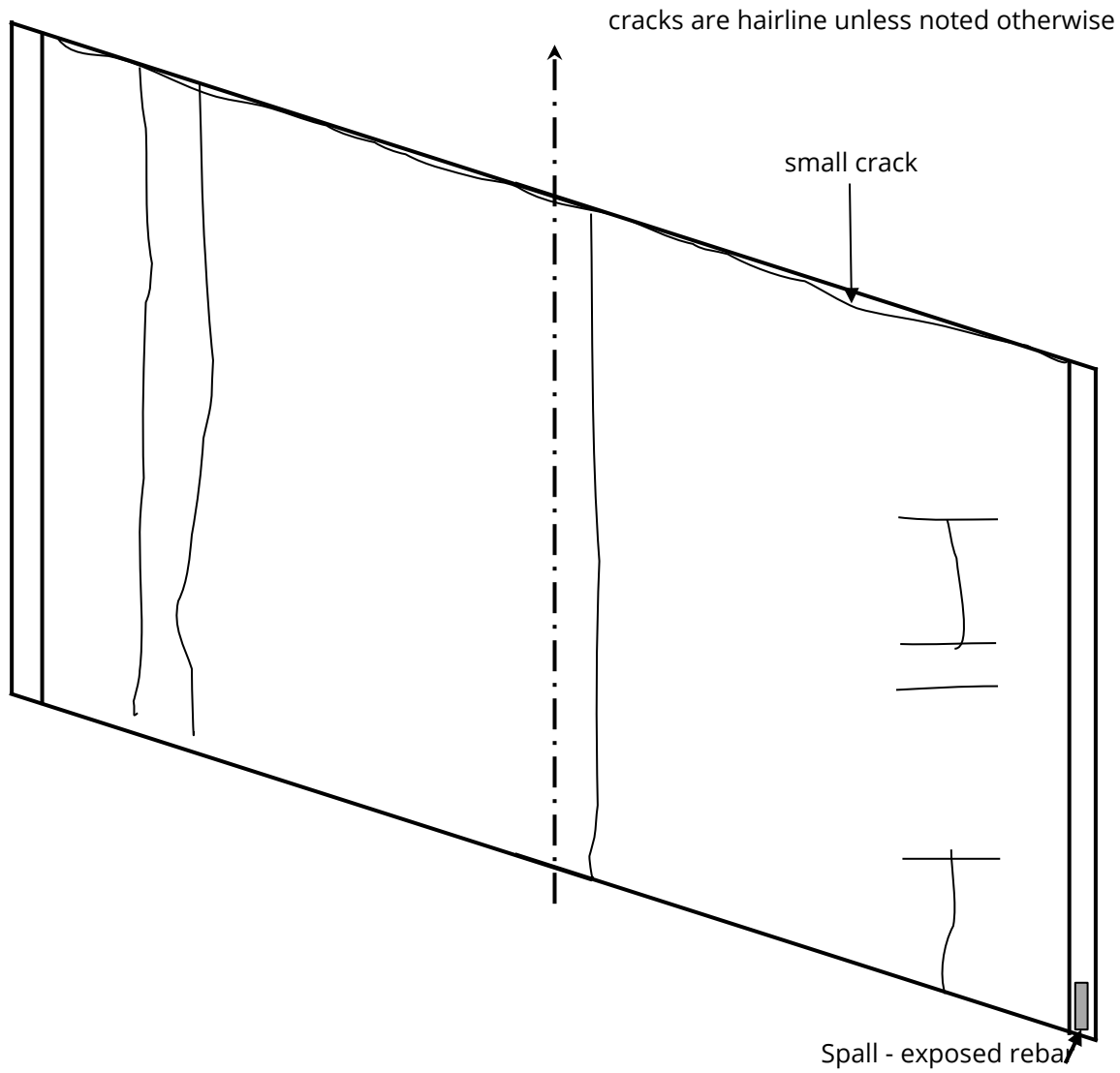
BOTTOM VISIBLE





2016 Changes in RED

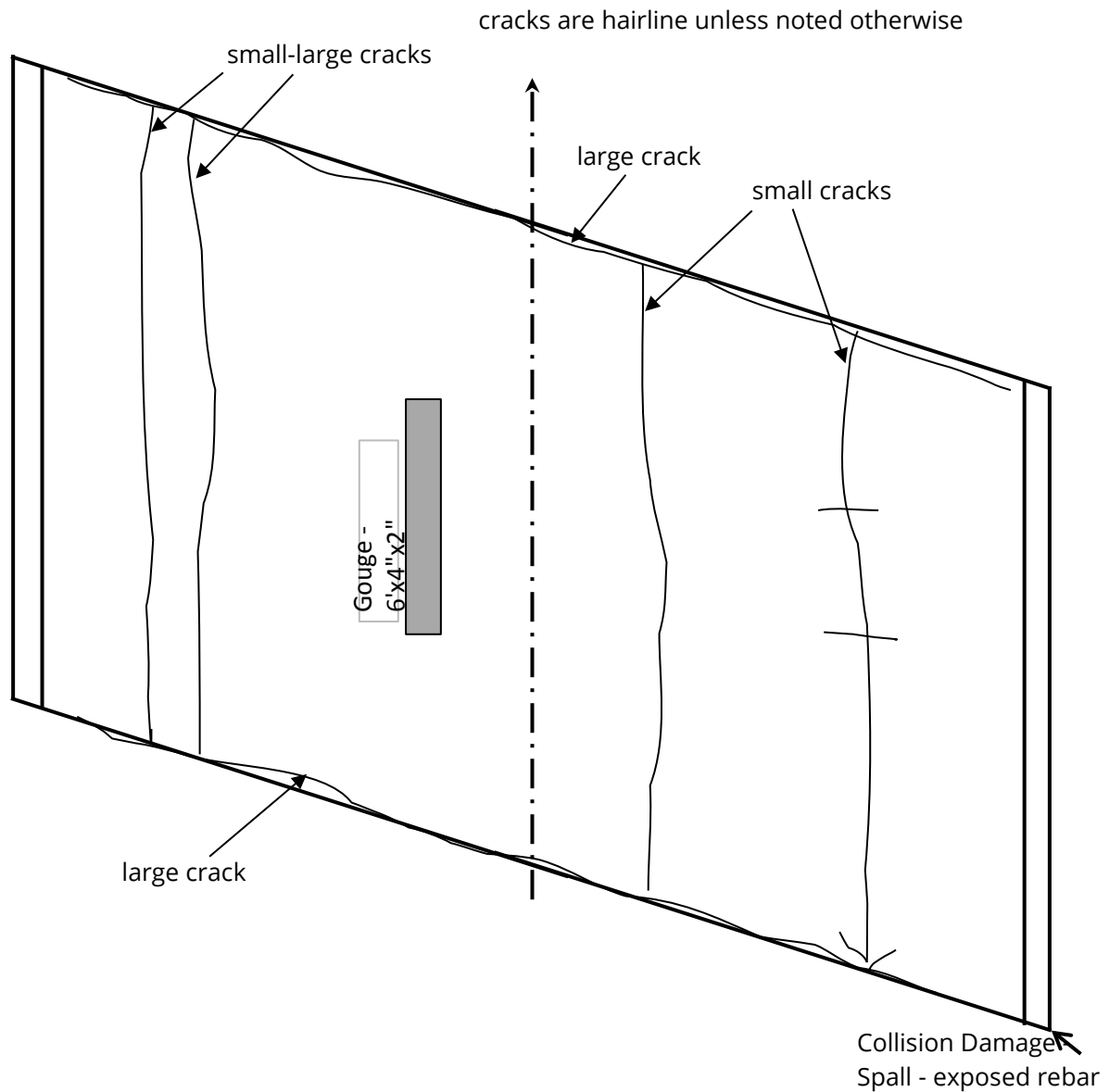
Embankment      G  
App Pvmt:        F  
App Rail:         G     Standard  
Wearing Surface: F  
Bridge Rail:     F     Collision damage -RT



2016 Changes in RED

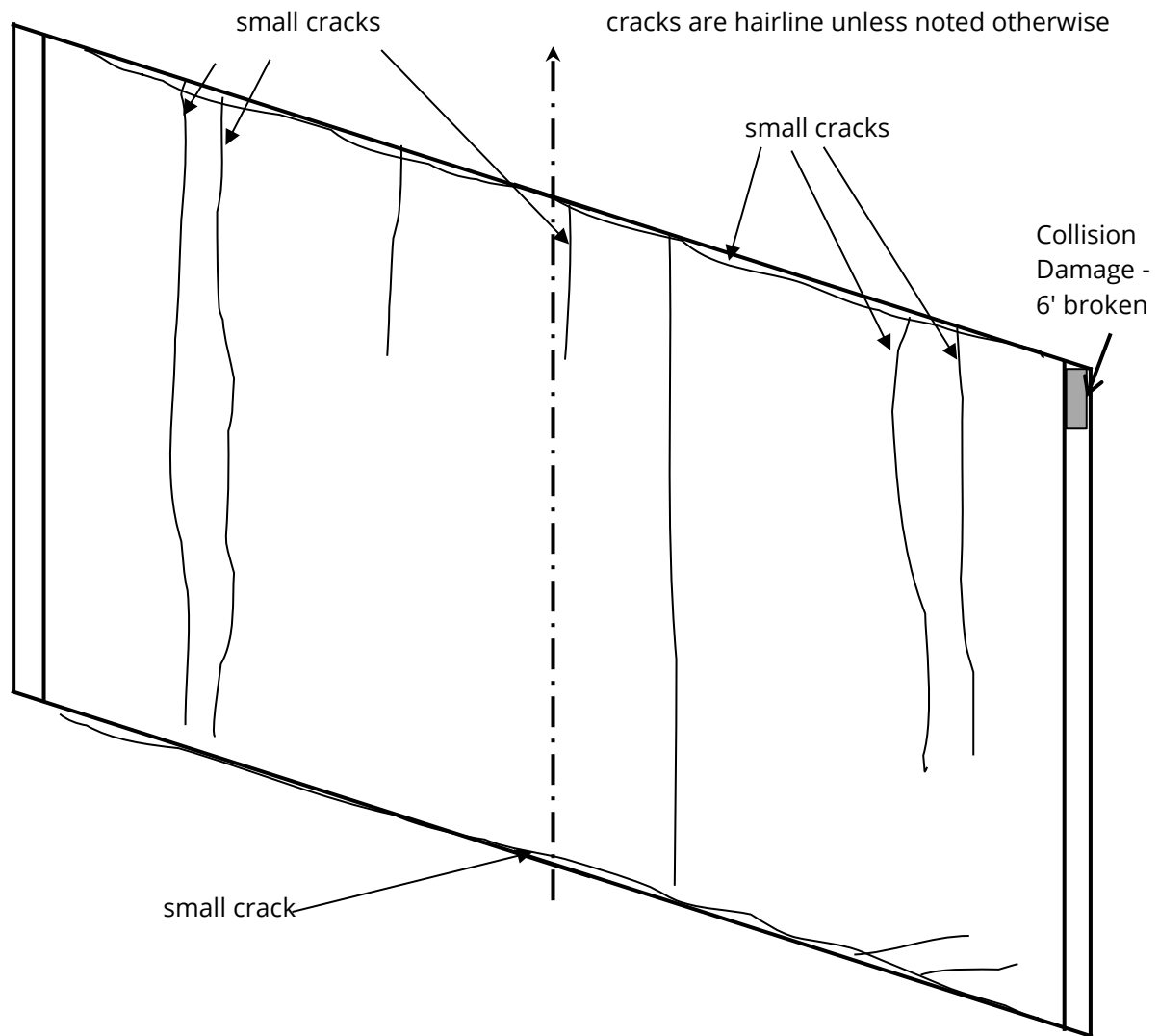
Wearings Surface: F

Bridge Rail: F Collision damage - RT



2016 Changes in RED

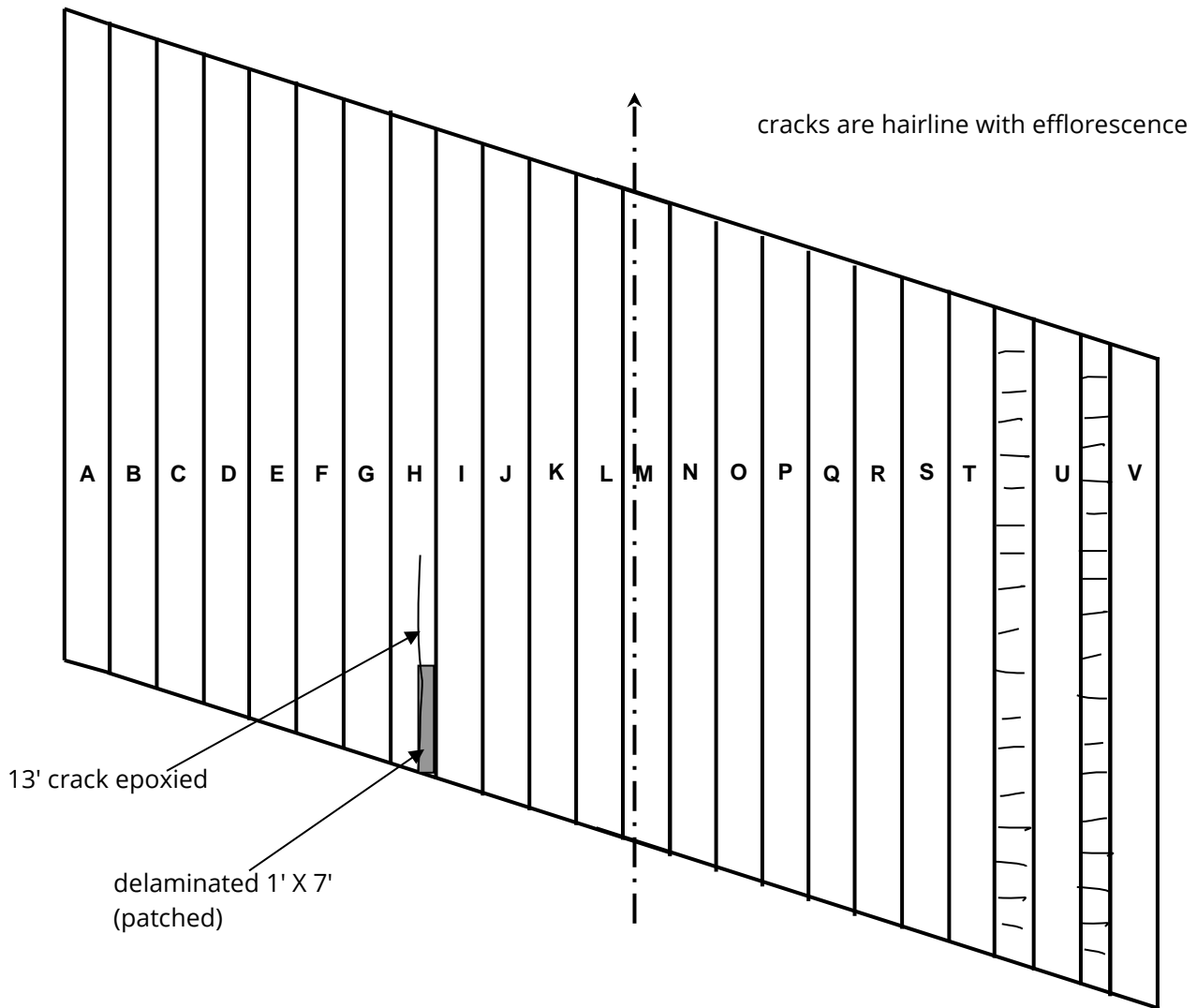
Embankment: G  
App Pvmt: F Settled  
App Rail: G  
Wearing Surface: F  
Bridge Rail: F Collision damage - RT



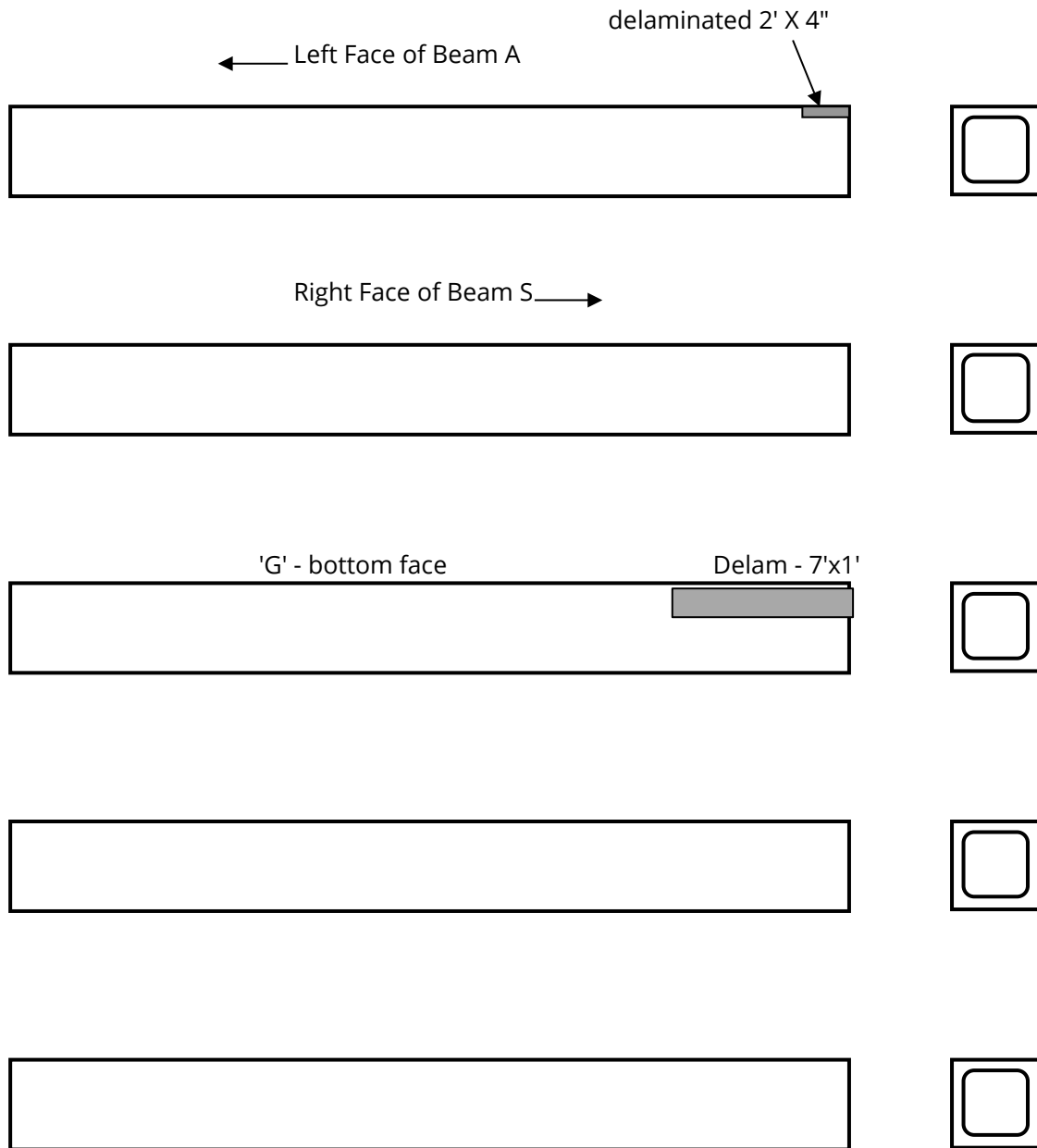
2016 Changes in RED

Beams: GF

Deck: GF



2016 Changes in RED

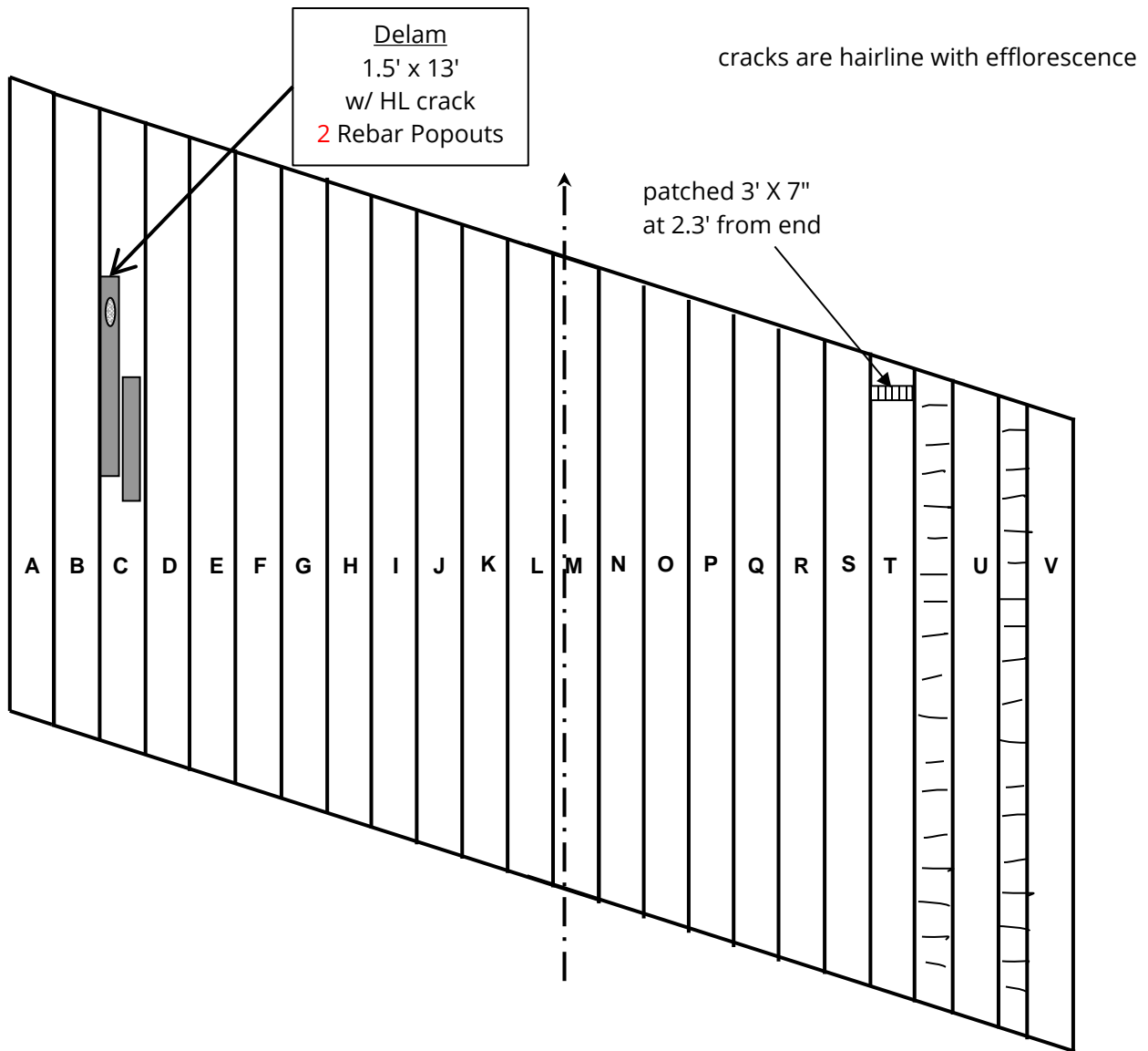


2016 Changes in RED

Beams: GF

Deck: GF

Utilities: G Between T and U

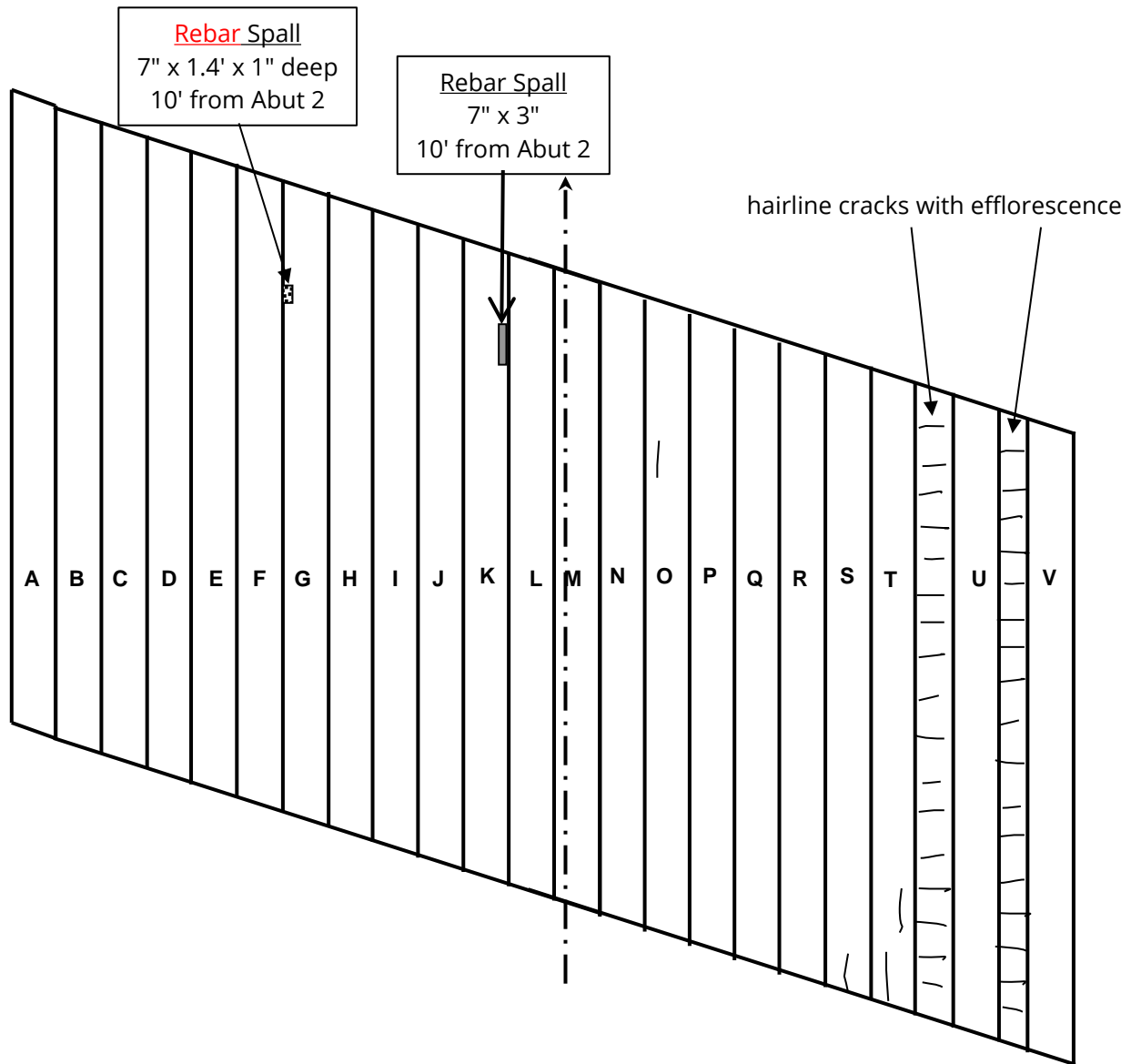


2016 Changes in RED

Beams: GF

Deck: GF

Utilities: G

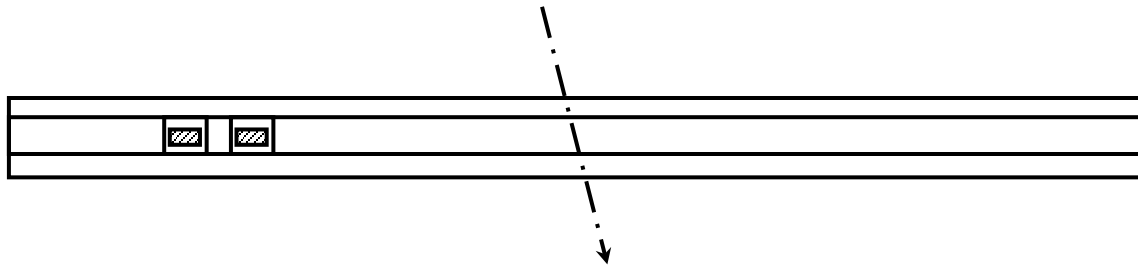


2016 Changes in RED

Wings: G

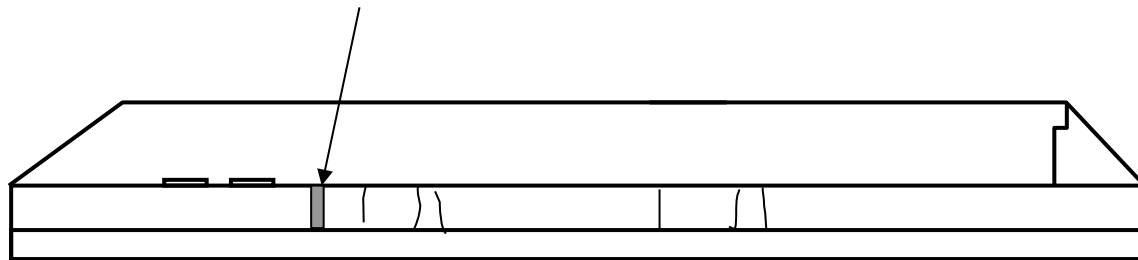
Walls: G

Bearings: None Integral



cracks are hairline

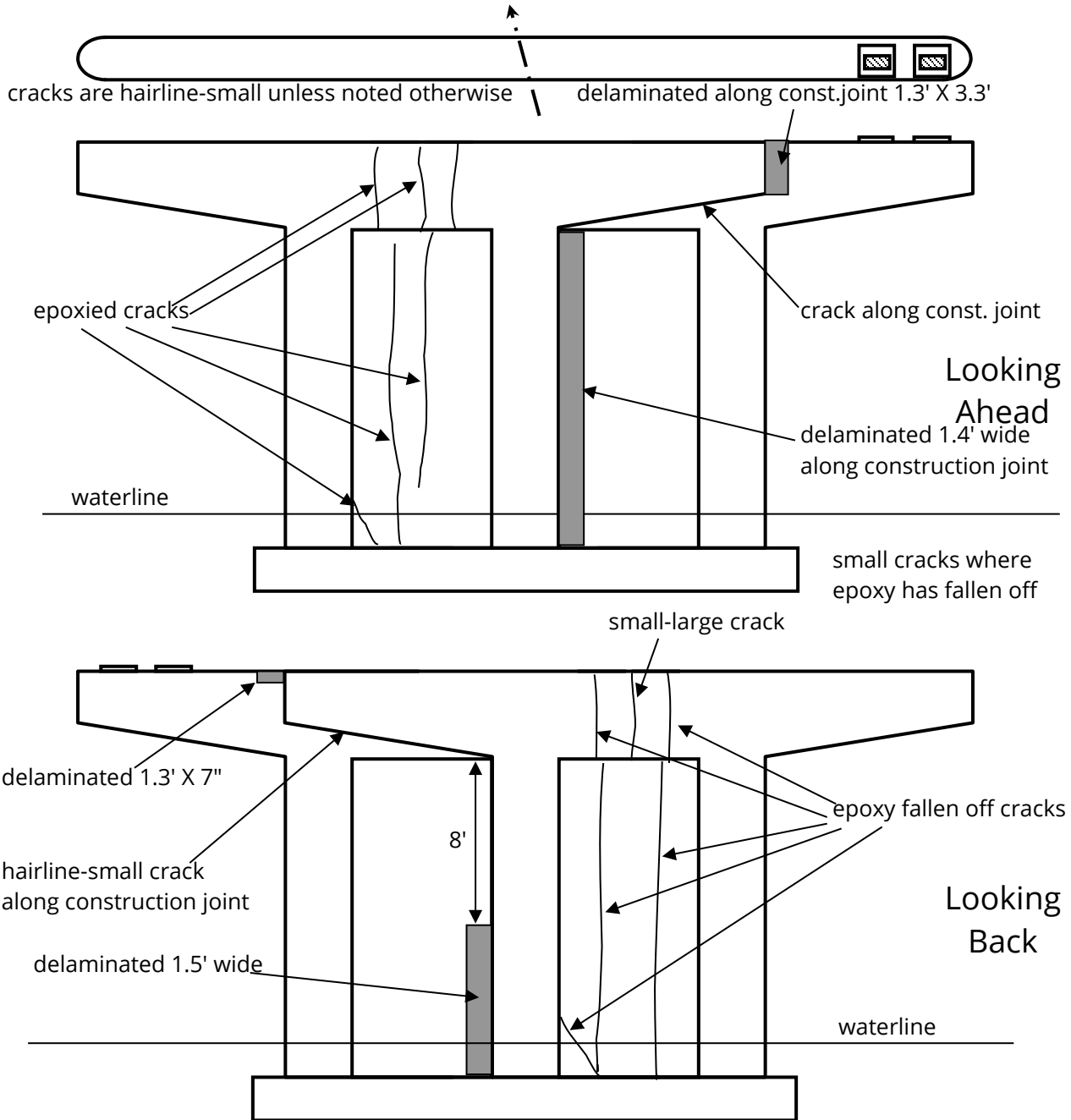
6" wide delaminated at construction joint





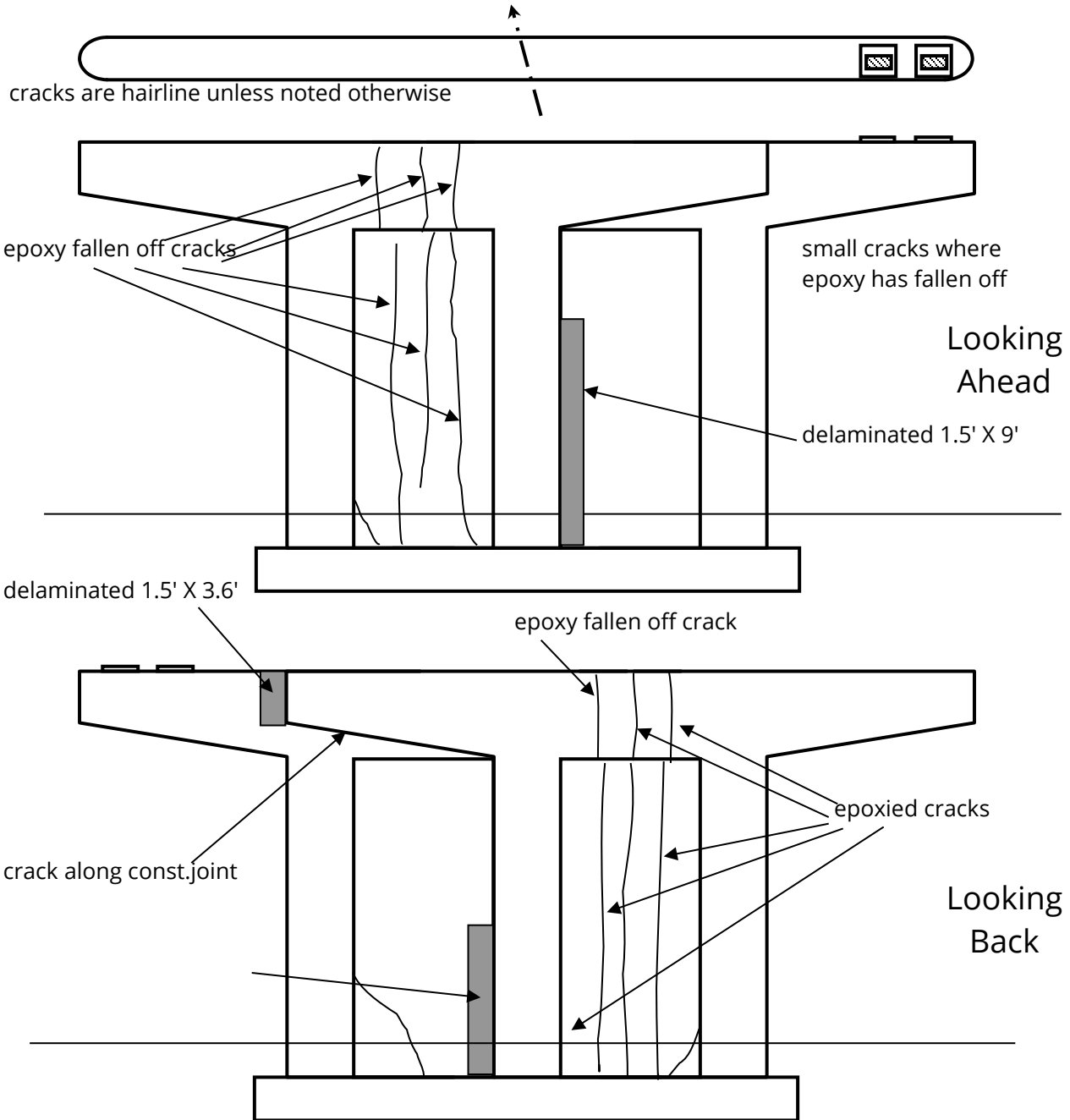
2016 Changes in RED

Pier Wall: G  
Cap: G  
Bearings: G Fixed



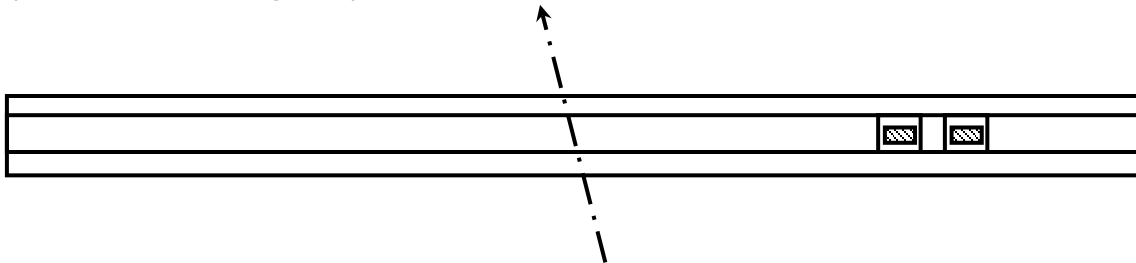
2016 Changes in RED

Pier Wall G  
Cap: G  
Bearings: G Fixed



2016 Changes in RED

Wings: G  
Walls: G  
Bearings: None Integral  
Slope: F Sliding, steep



cracks are hairline with efflorescence unless noted otherwise



This void has been filled with concrete and rip rap, but is still settling and some parts opened back up

### Structure Inventory and Appraisal Sheet (English Units)

ELEMENT CONDITION STATE DATA												
Str Unit	Elm/Env	Description	Units	Total Qty	% in 1	Qty. St. 1	% in 2	Qty. St. 2	% in 3	Qty. St. 3	% in 4	Qty. St. 4
0	12/1	Re Concrete Deck	sq.ft	8,132	100%	8,132	0%	0	0%	0	0%	0
0	510/1	Wearing Surfaces	sq.ft	7,704	100%	7,704	0%	0	0%	0	0%	0
0	104/1	Pre Clsd Box Girder	ft	2,354	100%	2,354	0%	0	0%	0	0%	0
0	210/1	Re Conc Pier Wall	ft	82	100%	82	0%	0	0%	0	0%	0
0	215/1	Re Conc Abutment	ft	178	100%	178	0%	0	0%	0	0%	0
0	313/1	Fixed Bearing	each	44	100%	44	0%	0	0%	0	0%	0
0	331/1	Re Conc Bridge Railing	ft	214	100%	214	0%	0	0%	0	0%	0