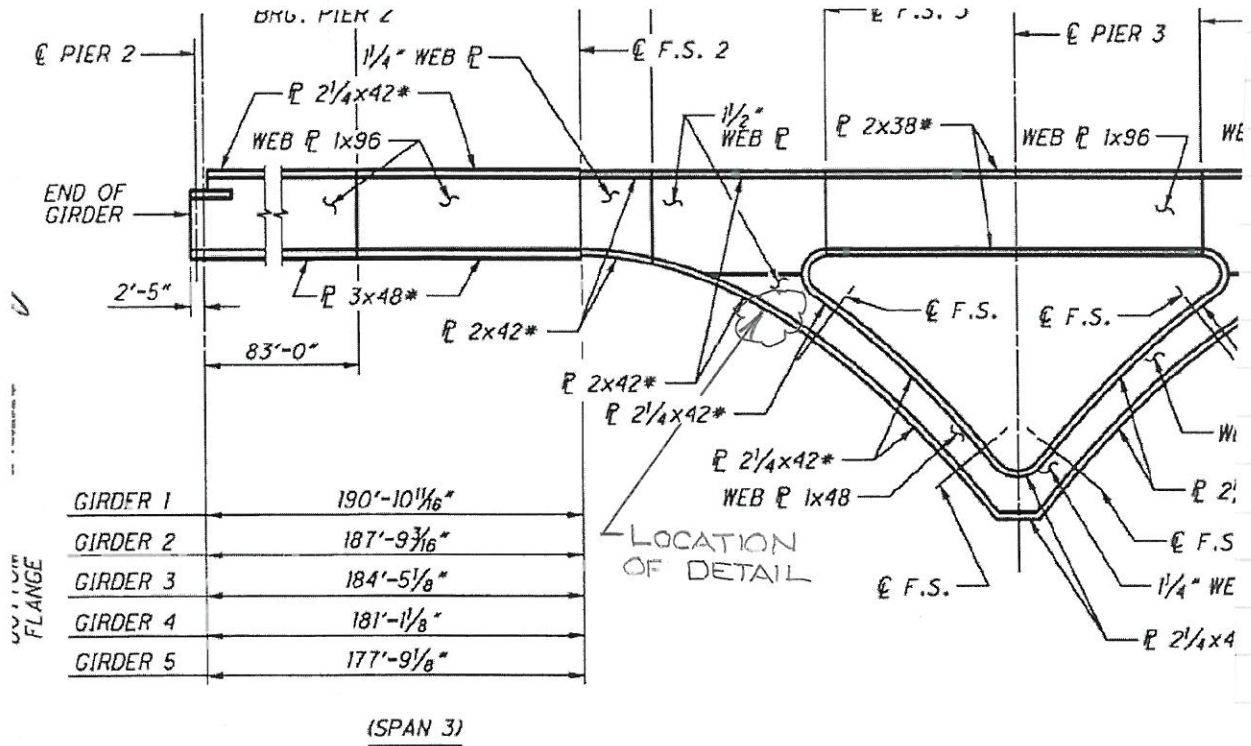


OBJECTIVE: EVALUATE CHANGE IN GIRDER PROPOSED IN RFI 459.

SKETCH: SEE ALSO ATTACHED SHOP DRAWINGS



CALCULATIONS:

THE FLANGE IS PRIMARILY IN COMPRESSION. THE LARGER HOLES WILL NOT AFFECT THE COMPRESSION CAPACITY OF THE FLANGE.

CHECK TENSILE CAPACITY OF THE FLANGE:

$$\text{YIELD OF GROSS SECTION} = \phi_y * F_y * A_g = 0.95 * 70 \text{ ksc} * 2" * 42" = 5586 \text{ k}$$

$$\text{FRACTURE OF NET SECTION} = \phi_u * F_u * A_n = 0.80 * 85 \text{ ksc} * 2" * (42" - 4 * \frac{13}{16}) = 5270 \text{ k} < 5586 \text{ k}$$

⇒ FRACTURE CONTROLS

$$\text{MAX. TENSILE STRESS IN BOT. FLG.} = 7.02 \text{ ksc}$$

$$\text{MAX. TENSILE FORCE IN BOT. FLG.} = 7.02 \text{ ksc} * 2" * 42" = 590 \text{ k} < 5270 \text{ k } \phi_k$$

For INNERBELT RFI 459

Job no. 49633

Sheet no. 2

Made by HRH

Checked by SJL

Backchecked by

Date 7-17-13

Date 7-17-13

Date

HNTB

CALCULATIONS - CONT.

CHECK EDGE DISTANCE:  $21'' - 19.5'' = 1.5'' = 1.25'' + 0.25'' = \text{MIN. EDGE DISTANCE}$   
FOR  $\frac{3}{4}'' \varnothing$  BOLT IN  
PLATE W/  
SHEARED EDGE.

FATIGUE CATEGORY DOES NOT CHANGE, NO NEED TO CHECK.

RESULT: CHANGE PROPOSED IN RFI 459 IS ACCEPTABLE.  
 $\frac{5}{8}'' \varnothing$  BOLT MAY BE USED PROVIDED A HARDENED  
WASHER IS INSTALLED OVER THE  $\frac{13}{16}'' \varnothing$  HOLE.  
OTHERWISE, A  $\frac{3}{4}''$  BOLT SHALL BE INSTALLED.