**NOTES**

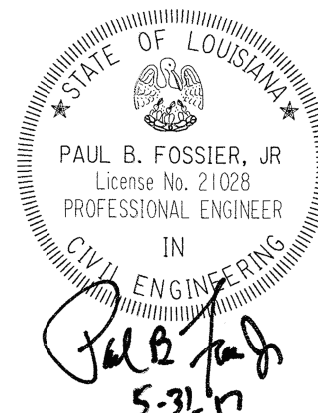
FOR ADDITIONAL INFORMATION ON GUARD RAIL, SEE STD. PLAN GR-200 & GR-202.

ALL WORK AND MATERIALS REQ'D. TO INSTALL GUARD RAIL ON BOX CULVERTS SHALL BE PAID FOR UNDER ITEM 704-01-01000 GUARD RAIL (SINGLE THRIE BEAM) (3'-1 1/2" POST SPACING).

GUARD RAIL SPLICES SHALL BE MADE AT POST LOCATIONS ONLY.

- USE 7/8" Ø MECHANICAL SYSTEM AS LISTED ON DOTD APPROVED MATERIALS LIST, PRODUCT CATEGORY "CONCRETE ANCHOR SYSTEMS." PLACE BOLT IN HOLES IMMEDIATELY AND WAIT FOR MANUFACTURERS CURE TIME.

ALL STRUCTURAL STEEL SHALL BE ASTM A-36 AND GALVANIZED. ALL 5/8" Ø BOLTS SHALL BE ASTM A307.



SIDE MOUNT GUARD RAIL
(FOR BOX CULVERT)

STANDARD
DETAIL

BD.2.6.4.1.01



4-8-16

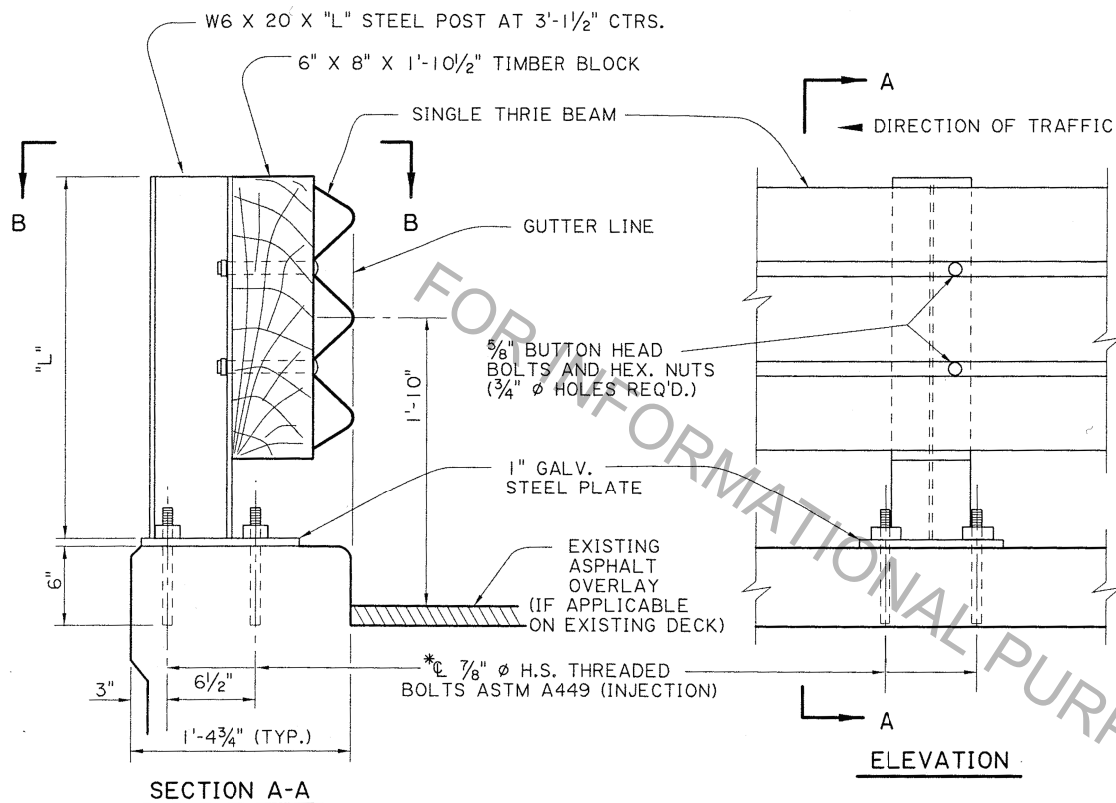
GUARDRAIL HEIGHT, ANCHOR BOLT NOTE AND
BASE PLATE

P. F.
BY

DESIGNED P. FOSSIER
CHECKED C. GAUDRY
DETAILED J. BENTON
CHECKED P. FOSSIER
REVIEWED K. BRAUNER
SERIES #

PARISH
CONTROL
SECTION
STATE
PROJECT

SHEET
NUMBER

**NOTES**

FOR ADDITIONAL INFORMATION ON GUARD RAIL, SEE STD. PLAN GR-200 AND GR-202.

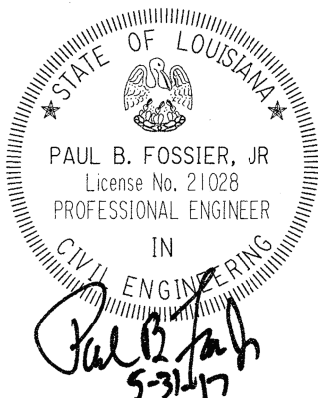
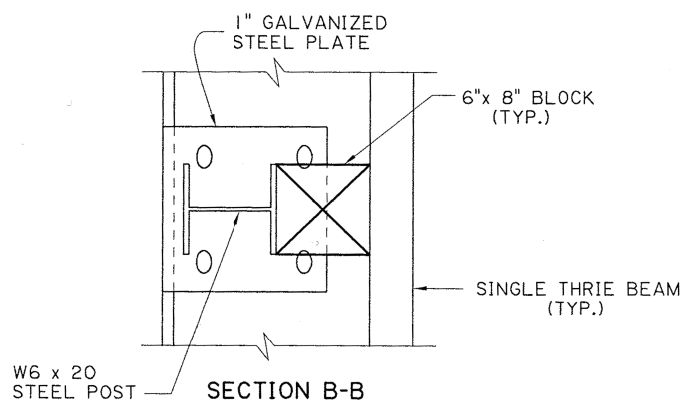
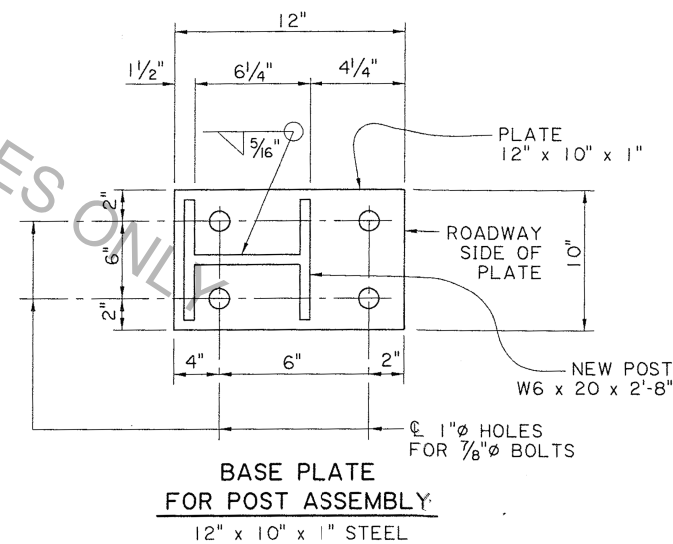
ALL WORK AND MATERIALS REQ'D. TO INSTALL GUARD RAIL ON BOX CULVERTS SHALL BE PAID FOR UNDER ITEM 704-01-01000 GUARD RAIL (SINGLE THRIE BEAM) (3'-1 1/2" POST SPA.)

GUARD RAIL SPLICES SHALL BE MADE AT POST LOCATIONS ONLY.

* DRILL 1" Ø HOLES, 6" DEEP FOR 7/8" Ø GALVANIZED BOLT. USE 7/8" GALVANIZED NUT WITH GALVANIZED CUT WASHER.

ALL HOLES DRILLED INTO AN EXISTING CONCRETE STRUCTURE SHALL BE CLEANED WITH COMPRESSED AIR AND MADE FREE OF ANY OIL OR RESIDUE. HOLES SHALL BE FILLED WITH 7/8" Ø INJECTION SYSTEM AS LISTED ON APPROVED MATERIALS LIST, PRODUCT CATEGORY "CONCRETE ANCHOR SYSTEMS." PLACE BOLT IN HOLE IMMEDIATELY AND WAIT FOR MANUFACTURERS CURE TIME.

ALL STRUCTURAL STEEL SHALL BE ASTM A-36 AND GALVANIZED. ALL 5/8" Ø BOLTS SHALL BE ASTM A307.



TOP MOUNTED GUARD RAIL

(FOR BOX CULVERTS)

STANDARD
DETAILS

BD.2.6.4.1.02



4-8-16

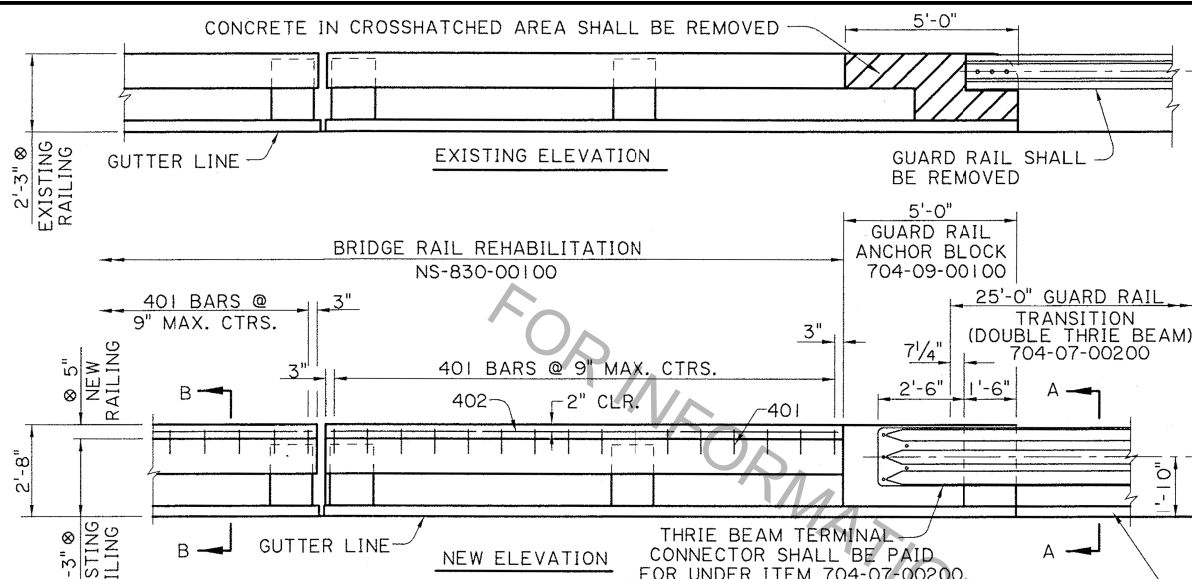
GUARDRAIL HEIGHT, ANCHOR BOLT NOTE,
& BASE PLATE

P.F.

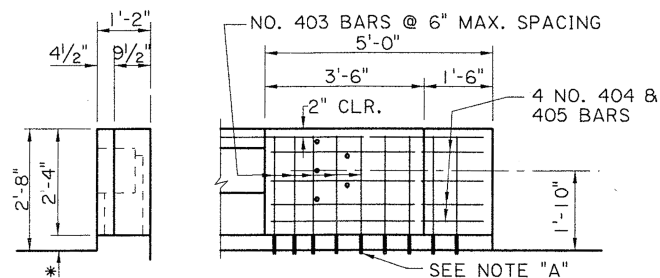
DESIGNED P. FOSSIER
CHECKED C. GAUDRY
DETAILED J. BENTON
CHECKED P. FOSSIER
REVIEWED K. BRAUNER
SERIES #

PARISH
CONTROL
SECTION
STATE
PROJECT

SHEET
NUMBER

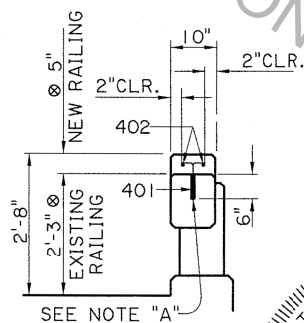


* 4" EXISTING RAILING PARAPET

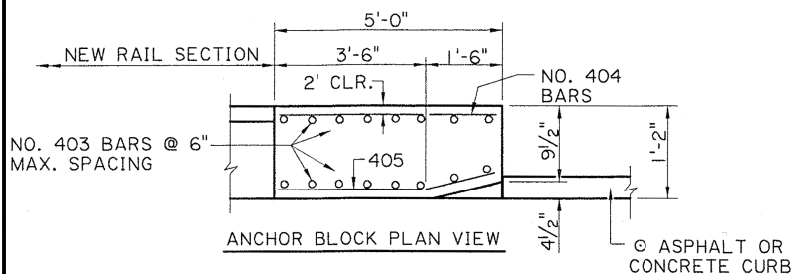


SECTION A-A

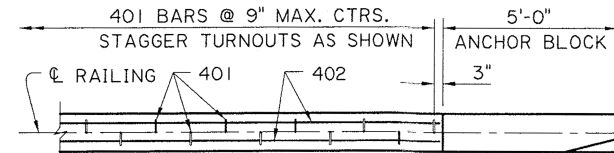
ANCHOR BLOCK ELEVATION



SECTION B-B



ANCHOR BLOCK PLAN VIEW



PART PLAN SHOWING LAYOUT OF 401 BARS

NOTE: HOLES FOR 401 BARS SHALL BE DRILLED ON C RAIL

GENERAL NOTES

FOR ADDITIONAL INFORMATION ON GUARD RAIL, SEE STD. PLAN GR-200. ALL DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR AND APPROVED BY THE PROJECT ENGINEER.
Ø FOR CURB & TRANSITION INFORMATION, SEE SHEET 3 OF 10, GR-200.
Ø 2'-3" & 5" DIMENSION MAY VARY.

BARRIER RAIL REHABILITATION

ALL WORK AND MATERIALS REQUIRED TO RAISE THE EXISTING BARRIER RAIL TO THE REQUIRED HEIGHT OF 2'-8" SHALL BE PAID FOR UNDER: BARRIER RAIL REHABILITATION, PER LIN. FT.

GUARD RAIL ANCHOR BLOCKS

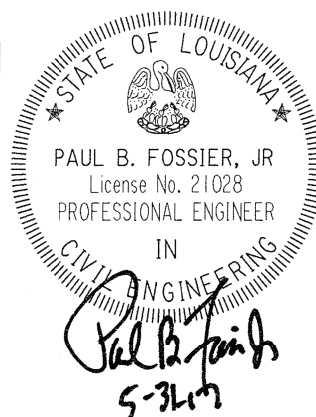
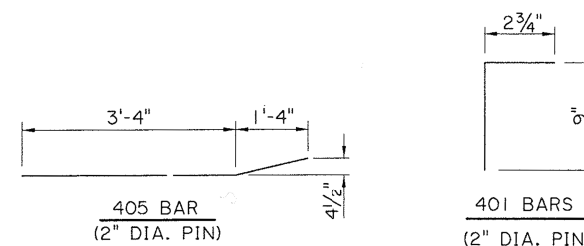
ALL WORK AND MATERIALS REQUIRED TO REMOVE EXISTING RAILING AND CONSTRUCT THE ANCHOR BLOCK SHALL BE PAID FOR UNDER: GUARD RAIL ANCHOR BLOCK, PER EACH, ITEM 704-09-00100. CONCRETE IN CROSS HATCHED AREA SHALL BE REMOVED. THE EXISTING REINFORCING STEEL SHALL REMAIN IN PLACE AND SHALL BE CLEANED AND STRAIGHTENED TO THE SATISFACTION OF THE PROJECT ENGINEER BEFORE POURING NEW CONCRETE.

CONCRETE

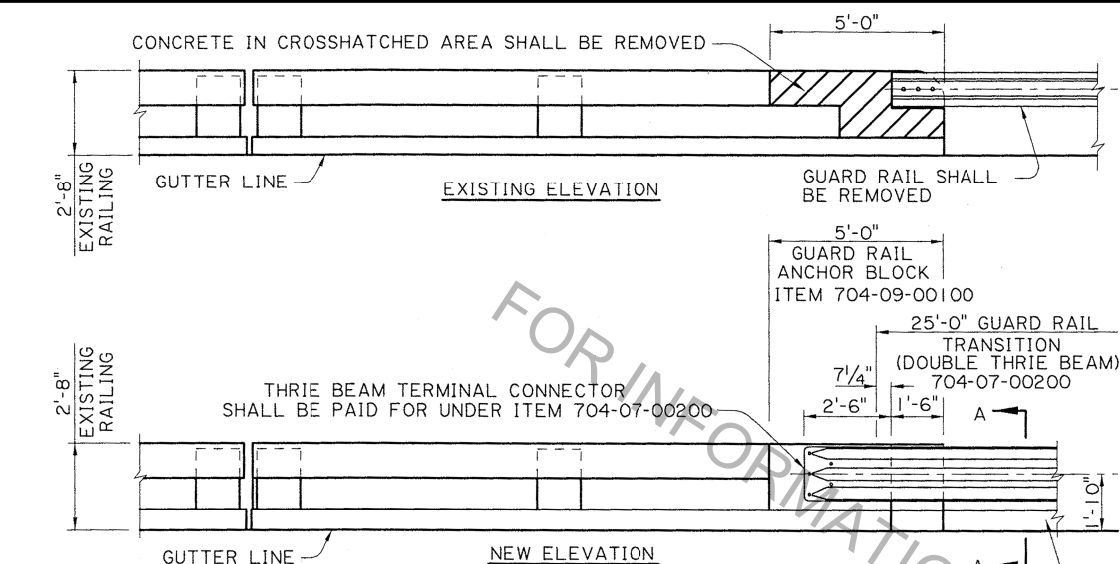
NEW CONCRETE SHALL BE CLASS "AA"

NOTE "A"

NO. 401 & 403 BARS SET IN 3/4" Ø DRILLED HOLES. CLEAN HOLES WITH COMPRESSED AIR AND MAKE THEM FREE OF ANY OIL OR RESIDUE. FILL HOLES WITH TYPE V, GRADE 2 OR 3 EPOXY LISTED ON APPROVED MATERIALS LIST, PRODUCT CATEGORY "EPOXY RESIN SYSTEMS FOR CONCRETE". PLACE BARS IN HOLES AND WAIT THE MANUFACTURERS CURE TIME BEFORE POURING NEW CONCRETE.

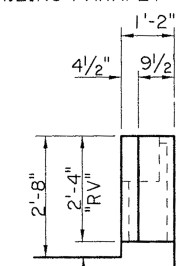


BRIDGE AND STRUCTURAL DESIGN		ANCHOR BLOCK & BRIDGE RAIL REHABILITATION FOR LOW CONCRETE POST & RAIL		4-8-16	GUARDRAIL HEIGHT, ANCHOR BOLT NOTE AND	DESIGNED	P. FOSSIER	PARISH		SHEET NUMBER
					BASE PLATE	CHECKED	C. GAUDRY	CONTROL SECTION		
						REVIEWED	J. BENTON	STATE PROJECT		
						SERIES #	P. FOSSIER			

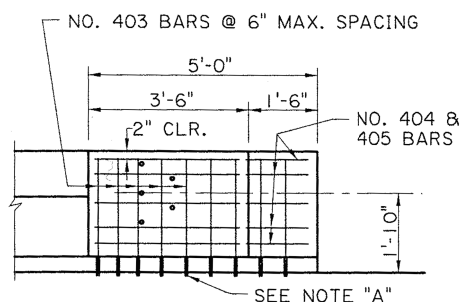


* 4" EXISTING
RAILING PARAPET

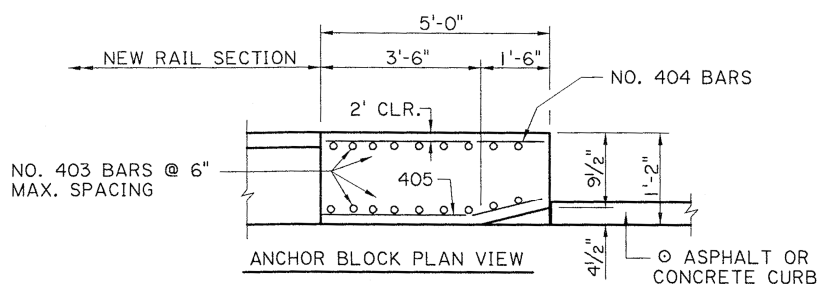
○ ASPHALT OR
CONCRETE CURB



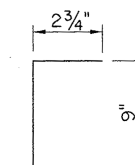
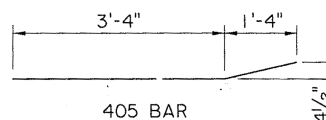
SECTION A-A



ANCHOR BLOCK ELEVATION



ANCHOR BLOCK PLAN VIEW

401 BARS
(2" DIA. PIN)405 BAR
(2" DIA. PIN)

GENERAL NOTES

FOR ADDITIONAL INFORMATION ON GUARD RAIL, SEE STD. PLAN GR 200.
ALL DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR AND
APPROVED BY THE PROJECT ENGINEER.

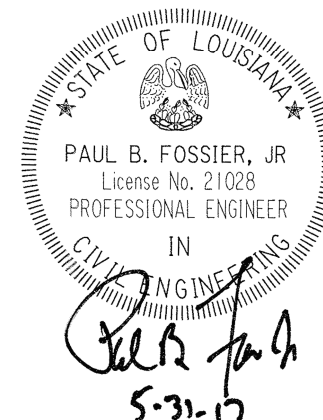
○ FOR CURB & TRANSITION INFORMATION, SEE SHEET 3 OF 10, GR-200.

GUARD RAIL ANCHOR BLOCKS

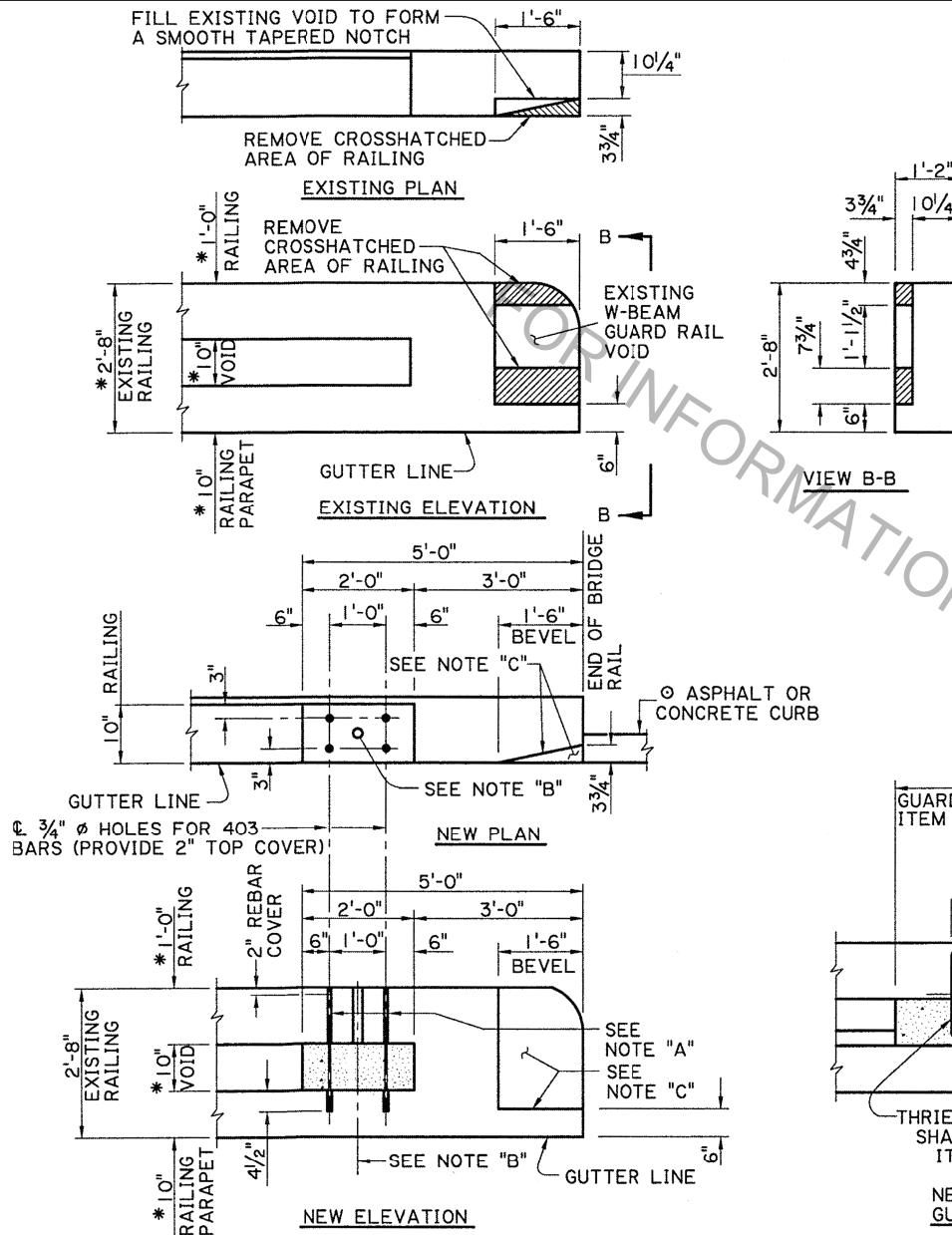
ALL WORK AND MATERIALS REQUIRED TO REMOVE EXISTING RAILING AND
CONSTRUCT THE ANCHOR BLOCK SHALL BE PAID FOR UNDER: GUARD RAIL
ANCHOR BLOCK, PER EACH, ITEM 704-09-00100
CONCRETE IN CROSS HATCHED AREA SHALL BE REMOVED. THE EXISTING
REINFORCING STEEL SHALL REMAIN IN PLACE AND SHALL BE CLEANED AND
STRAIGHTENED TO THE SATISFACTION OF THE PROJECT ENGINEER BEFORE
POURING NEW CONCRETE.

NOTE "A"

NO. 401 & 403 BARS SET IN 3/4" Ø DRILLED HOLES. CLEAN HOLES WITH
COMPRESSED AIR AND MAKE THEM FREE OF ANY OIL OR RESIDUE. FILL HOLES
WITH A TYPE V, GRADE 2 OR 3 EPOXY LISTED ON APPROVED MATERIALS LIST,
PRODUCT CATEGORY "EPOXY RESIN SYSTEMS FOR CONCRETE." PLACE BARS IN
HOLES AND WAIT THE MANUFACTURERS CURE TIME BEFORE POURING NEW
CONCRETE.



BRIDGE AND STRUCTURAL DESIGN		GUARD RAIL ANCHOR BLOCK REHABILITATION FOR CONCRETE POST & RAIL (ALTERNATE 1)		NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY	DESIGNED	P. FOSSIER	PARISH		SHEET NUMBER
				4-8-16		GUARDRAIL HEIGHT, ANCHOR BOLT NOTE AND BASE PLATE	P. F.	CHECKED	C. GAUDRY	CONTROL SECTION		
	STANDARD DETAIL	BD.2.6.4.1.04						REVIEWED	K. BRAUNER	STATE PROJECT		

**GENERAL NOTES**

FOR ADDITIONAL INFORMATION ON GUARD RAILS, SEE STANDARD PLAN GR 200.
 *THESE DIMENSIONS MAY VARY. THE NON-SHRINK GROUT QUANTITY AND 403 BAR LENGTH SHALL BE ADJUSTED ACCORDINGLY.

ALL DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR AND APPROVED BY THE PROJECT ENGINEER.

Ø FOR CURB & TRANSITION, SEE SHEET 3 OF 10, GR-200.

GUARD RAIL ANCHOR BLOCKS

ALL WORK AND MATERIALS REQUIRED TO MODIFY EXISTING RAILING SHALL BE PAID FOR UNDER: GUARD RAIL ANCHOR BLOCK, PER EACH, ITEM 704-09-00100.

NOTE "A"

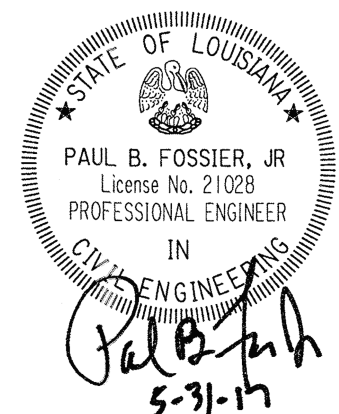
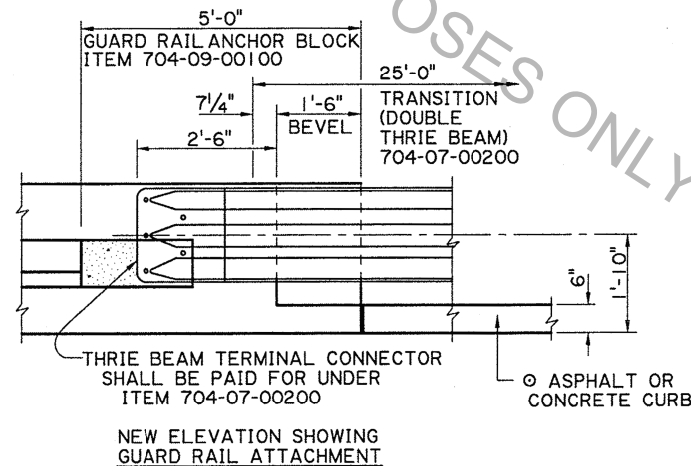
DRILL $\frac{3}{4}$ " Ø HOLES THRU THE RAILING AND INTO THE RAILING PARAPET AS SHOWN. CLEAN HOLES WITH COMPRESSED AIR TO REMOVE ALL OIL AND RESIDUE. FILL HOLES WITH TYPE I, GRADE "C" EPOXY LISTED ON APPROVED MATERIALS LIST, PRODUCT CATEGORY "EPOXY RESIN SYSTEMS." PLACE 403 BARS (2'-2" LONG) IN HOLES AND WAIT THE MANUFACTURERS CURE TIME BEFORE POURING NEW CONCRETE.

NOTE "B"

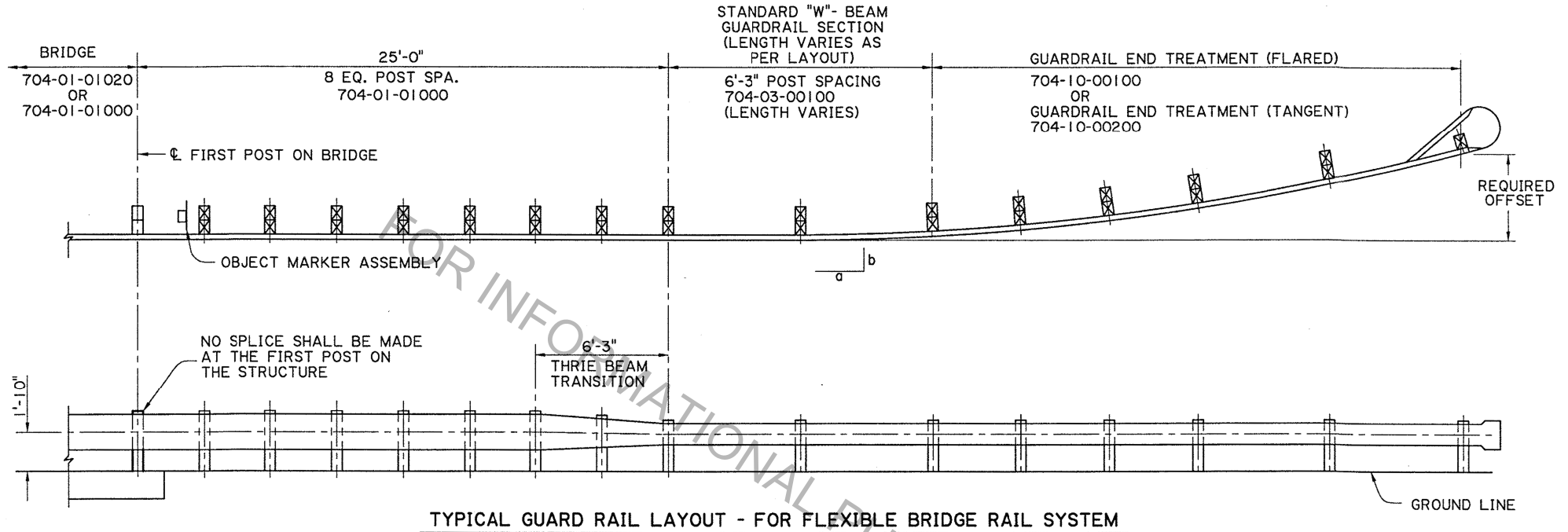
DRILL A 2" Ø HOLE THRU THE DEPTH OF RAILING. FILL VOID BETWEEN RAILING AND RAILING PARAPET THRU THE 2" Ø HOLE WITH AN APPROVED FLOWABLE NON-SHRINK GROUT LISTED ON APPROVED MATERIALS LIST, PRODUCT CATEGORY "NON-SHRINK GROUT."

NOTE "C"

AFTER REMOVING THE EXISTING CONCRETE TO CONSTRUCT THE 1'-6" BEVEL FULL HEIGHT, PREPARE THE VERTICAL SURFACE OF THE EXISTING VOID FOR AN EPOXY RESIN JOINT ACCORDING TO SUBSECTION 805.05.8.2 AND PLACE CONCRETE IN VOID. REDRESS AND FORM THE ENTIRE SURFACE OF THE BEVEL TO GIVE A SMOOTH APPEARANCE BY USING A FLOWABLE NON-SHRINK GROUT LISTED ON APPROVED MATERIALS LIST, PRODUCT CATEGORY "NON-SHRINK GROUT."

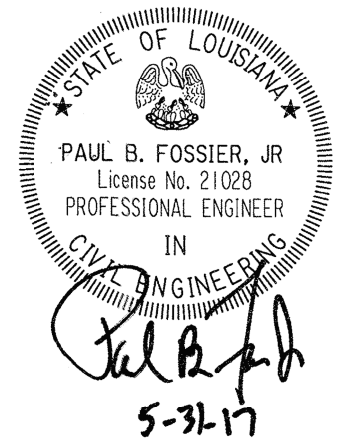


BRIDGE AND STRUCTURAL DESIGN		GUARD RAIL ANCHOR BLOCK REHABILITATION FOR CONCRETE POST & RAIL (ALTERNATE II)		NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY	DESIGNED	P. FOSSIER	PARISH	
				4-8-16		GUARDRAIL HEIGHT, ANCHOR BOLT NOTE AND BASE PLATE	P. F.	CHECKED	C. GAUDRY	CONTROL SECTION	
		STANDARD DETAIL	BD.2.6.4.1.05					Detailed	J. BENTON	STATE PROJECT	
								Reviewed	K. BRAUNER		

**NOTES**

LAYOUTS SHOWN ARE FOR BRIDGE STRUCTURES WHICH
HAVE FLEXIBLE BRIDGE RAILING (W-BEAM OR THRIE BEAM).

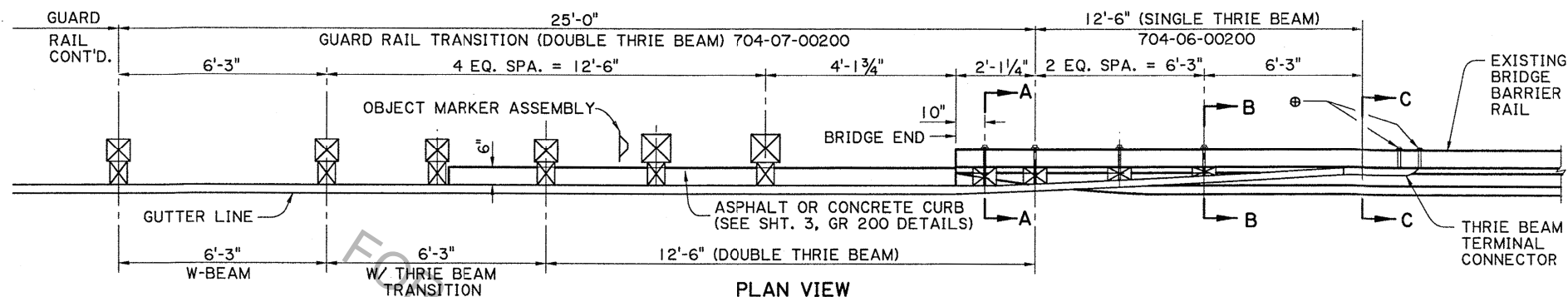
FOR ADDITIONAL INFORMATION ON GUARD
RAILS, SEE STANDARD PLAN GR-200.



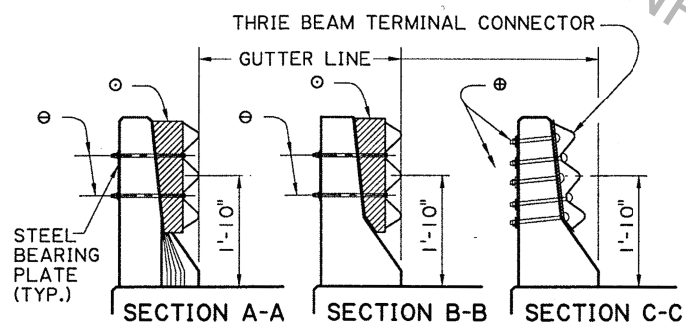
	APPROACH GUARD RAIL FOR STRUCTURES WITH FLEXIBLE RAILS		NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY	DESIGNED CHECKED	P. FOSSIER C. GAUDRY	PARISH		SHEET NUMBER
			4-8-16		GUARDRAIL HEIGHT, ANCHOR BOLT NOTE AND BASE PLATE	P. F.	REVIEWED SERIES #	K. BRAUNER	CONTROL SECTION		

STANDARD
DETAILS

BD.2.6.4.1.06



PLAN VIEW



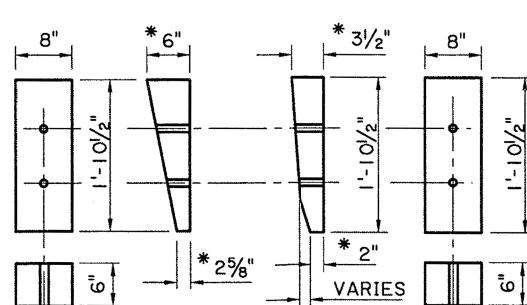
⊕ 5-7/8" Ø H.S. ASTM A449 HEX THROUGH BOLTS WITH 5/8" BEARING PLATE (SEE STD. PLAN GR 200, SHT. 9 OF 10).

⊕ 2-5/8" Ø BUTTON HEAD BOLTS WITH 5/8" BEARING PLATE, NUTS, & WASHERS

⊕ 6" x 8" x 1'-10 1/2" TREATED TIMBER BLOCK (CUT & SHAPE IN THE FIELD TO FIT).

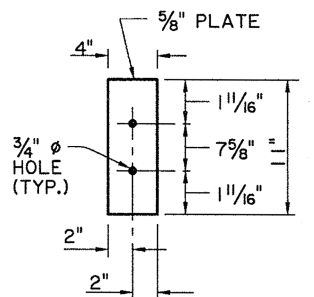
NOTES:

1. FOR ADDITIONAL INFORMATION ON GUARD RAIL TRANSITION, SEE STD. PLAN GR-200, SHEET 3 OF 10.
2. ALL HARDWARE AND TIMBER USED FOR CONNECTING THE SINGLE THRIE BEAM TO THE EXISTING BRIDGE RAIL SHALL BE PAID FOR UNDER ITEM 704-06-00200, GUARD RAIL BRIDGE ATTACHMENTS (SINGLE THRIE BEAM), PER LIN. FT.
3. ANY DAMAGE DONE TO THE EXISTING STRUCTURE DURING INSTALLATION OF THE GUARD RAIL SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE AND TO THE SATISFACTION OF THE PROJECT ENGINEER.
4. GALV. STEEL OGGEE WASHER MAY BE USED IN LIEU OF THE STEEL BEARING PLATE.
5. ALL H.S. BOLTS SHALL BE ASTM A449. ALL 5/8" Ø BOLTS SHALL BE ASTM A307.
6. A 25'-0" SECTION OF THRIE BEAM RAIL (WITH NO SPLICE) SHALL BE INSTALLED SYMMETRICALLY WITH RESPECT TO THE SECOND TIMBER BLOCK USED AT THE END OF THE STRUCTURE.
7. THE WOOD SHIM BLOCKS SHALL BE CUT & SHAPED IN THE FIELD TO FIT THE LOCATION WITH A SNUG FIT.
8. THE BOLT HOLES SHALL BE FIELD DRILLED THRU THE GUARD RAIL, SHIM BLOCKS AND THE BARRIER RAIL AT THE SAME TIME.
9. THE GUARD RAIL SHALL NOT PROTRUDE BEYOND THE GUTTER LINE.



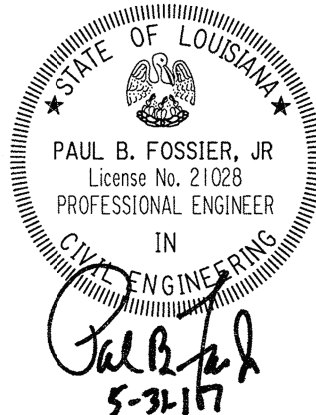
SHIM BLOCK FOR SECTION A-A

SHIM BLOCK FOR SECTION B-B

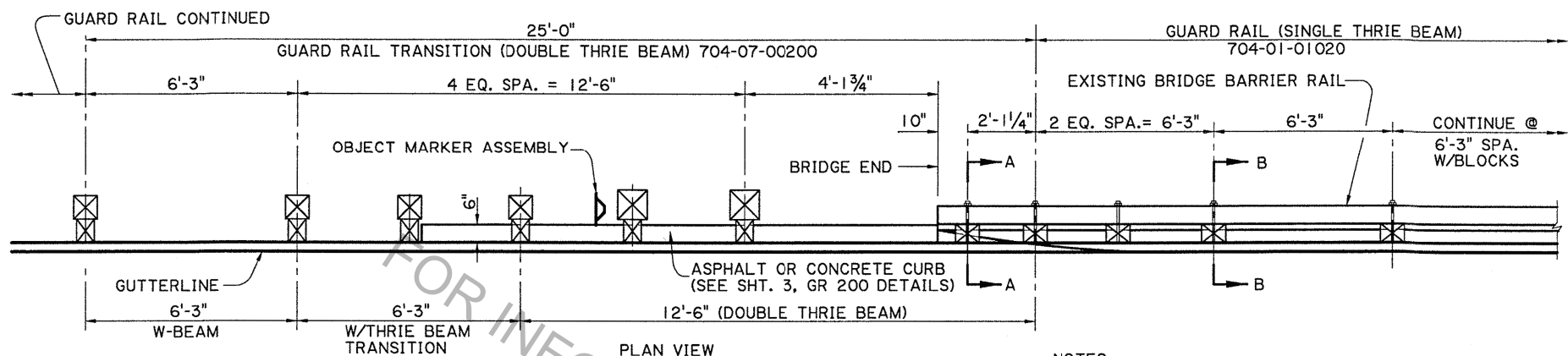


STEEL BEARING PLATE

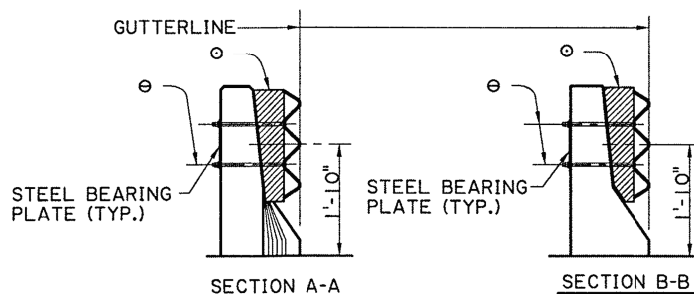
* DIMENSIONS ARE ASSUMED. ADJUST IN THE FIELD AS REQUIRED. HOLES SHALL BE DRILLED IN THE FIELD. SEE NOTE NO. 8.



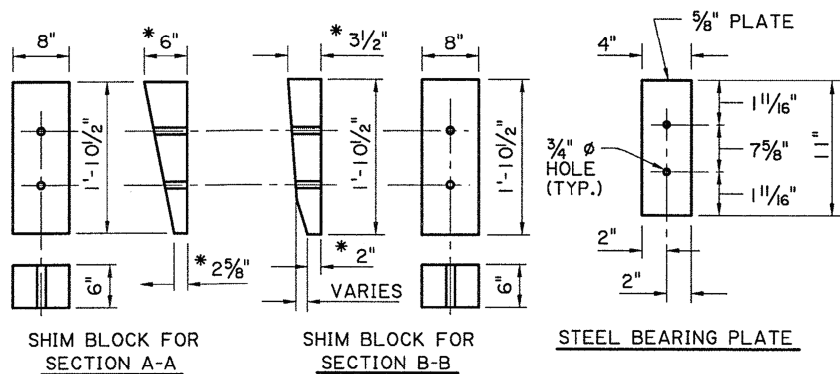
BRIDGE AND STRUCTURAL DESIGN	NEW JERSEY BARRIER RAIL RETROFIT FOR STRUCTURES GREATER THAN 60 FT. B.D.2.6.4.1.07	STATE OF LOUISIANA PAUL B. FOSSIER, JR. LICENSE NO. 21028 PROFESSIONAL ENGINEER IN CIVIL ENGINEERING	DESIGNED	P. FOSSIER	PARISH		SHEET NUMBER
			CHECKED	K. BRAUNER	CONTROL SECTION		
			DETAILED	C. OWENS	STATE PROJECT		
			CHECKED	P. FOSSIER			
	4-8-16	GUARDRAIL HEIGHT, ANCHOR BOLT NOTE AND BASE PLATE	P. F.	REVIEWED	C. GUIDRY		
	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY	SERIES #			



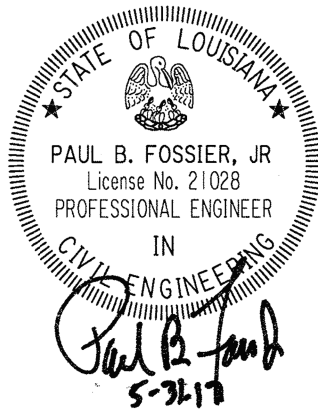
PLAN VIEW



- Ø 2" - 5/8" Ø BUTTON HEAD BOLTS
WITH 5/8" BEARING PLATE, NUTS,
& WASHERS. (TYP.)
- Ø 6" X 8" X 1'-10 1/2" TREATED TIMBER
BLOCK (CUT & SHAPE IN THE FIELD
TO FIT).


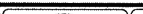


* DIMENSIONS ARE ASSUMED. ADJUST IN THE FIELD AS REQUIRED.
HOLES SHALL BE DRILLED IN THE FIELD. SEE NOTE NO. 8.



NOTES:

1. FOR ADDITIONAL INFORMATION ON GUARD RAIL TRANSITION, SEE STD. PLAN GR-200, SHEET 3 OF 10.
2. ALL HARDWARE AND TIMBER USED FOR CONNECTING THE SINGLE THRIE BEAM TO THE EXISTING BRIDGE RAIL SHALL BE PAID FOR UNDER ITEM 704-01-01020, GUARD RAIL (SINGLE THRIE BEAM), (6'-3" POST SPACING) PER LIN. FT.
3. ANY DAMAGE DONE TO THE EXISTING STRUCTURE DURING INSTALLATION OF THE GUARD RAIL SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE AND TO THE SATISFACTION OF THE PROJECT ENGINEER.
4. GALV. STEEL OGEE WASHER MAY BE USED IN LIEU OF THE STEEL BEARING PLATE.
5. ALL $\frac{5}{8}$ " \emptyset BOLTS SHALL BE ASTM A307.
6. A 25'-0" SECTION OF GUARD RAIL (WITH NO SPLICE) SHALL BE INSTALLED SYMMETRICALLY WITH RESPECT TO THE SECOND POST ON EACH END OF THE STRUCTURE.
7. THE WOOD SHIM BLOCKS SHALL BE CUT & SHAPED IN THE FIELD TO FIT THE LOCATION WITH A SNUG FIT.
8. THE BOLT HOLES SHALL BE FIELD DRILLED THRU THE GUARD RAIL, SHIM BLOCKS AND THE BARRIER RAIL AT THE SAME TIME.
9. THE GUARD RAIL SHALL NOT PROTRUDE BEYOND THE GUTTER LINE.

BRIDGE AND STRUCTURAL DESIGN		NEW JERSEY BARRIER RAIL RETROFIT						DESIGNED	P. FOSSIER	PARISH		SHEET NUMBER	
		FOR STRUCTURES LESS THAN 60 FT.						CHECKED	K. BRAUNER				
		B.D.2.6.4.1.08											
				4-8-16			GUARDRAIL HEIGHT, ANCHOR BOLT NOTE AND BASE PLATE			P. F.			
				NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION			BY	REVIEWED	C. GUIDRY	STATE PROJECT	
										CHECKED	C. OWENS P. FOSSIER	CONTROL SECTION	

NOTES

ALL HARDWARE INVOLVED SHALL BE REPLACED BY NEW HARDWARE.

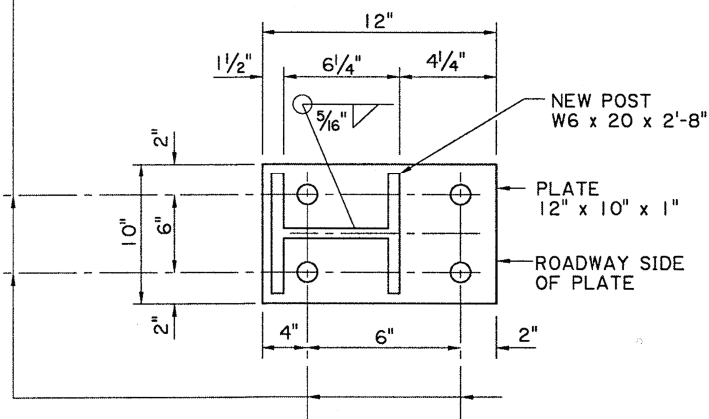
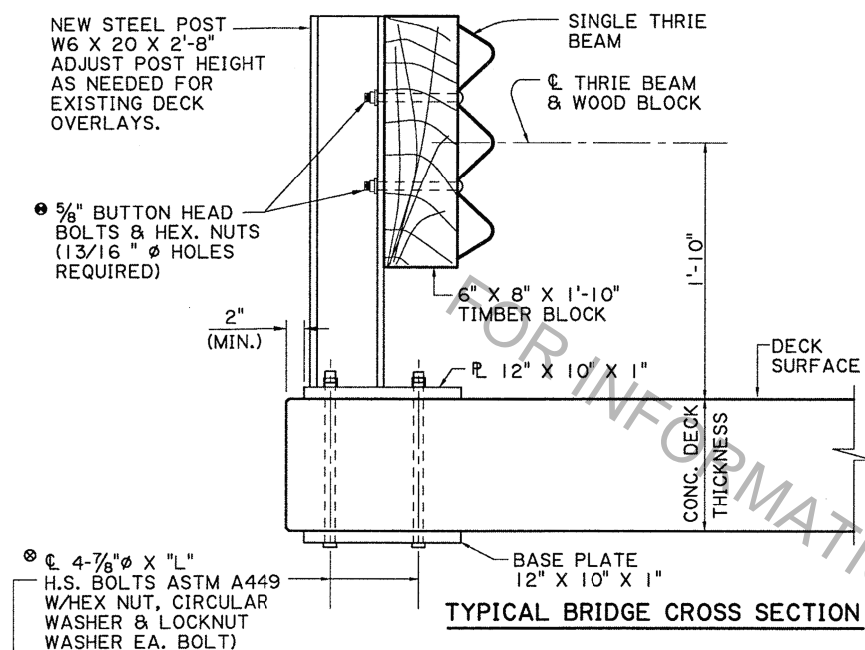
FOR ADDITIONAL INFORMATION ON GUARD RAIL, SEE STD. PLAN GR-200.

ALL STRUCTURAL STEEL, POST AND PLATES, SHALL BE ASTM A-36 AND GALVANIZED. ALL $\frac{5}{8}$ " BOLTS SHALL BE ASTM A307.

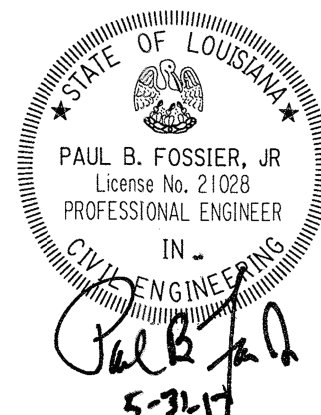
- THE BOLTS IN THE GUARD RAIL SHALL BE LOCATED ON THE ONCOMING FLANGE TRAFFIC SIDE.

ALTHOUGH ITEM 704-01-01020 CALLS FOR 6'-3" MAX. POST SPACING, THE NEW POST FOR EXISTING PRECAST BRIDGES SHALL BE INSTALLED AT THE SAME LOCATION AS THE OLD ONES. ALL GUARD RAIL SPLICES SHALL BE MADE AT POST LOCATIONS ONLY.

ALL WORK AND MATERIALS REQUIRED TO INSTALL THE NEW GUARD RAIL SHALL BE PAID FOR UNDER ITEM 704-01-01020 GUARD RAIL (SINGLE THRIE BEAM) (6'-3" POST SPA.) PER LIN. FT.

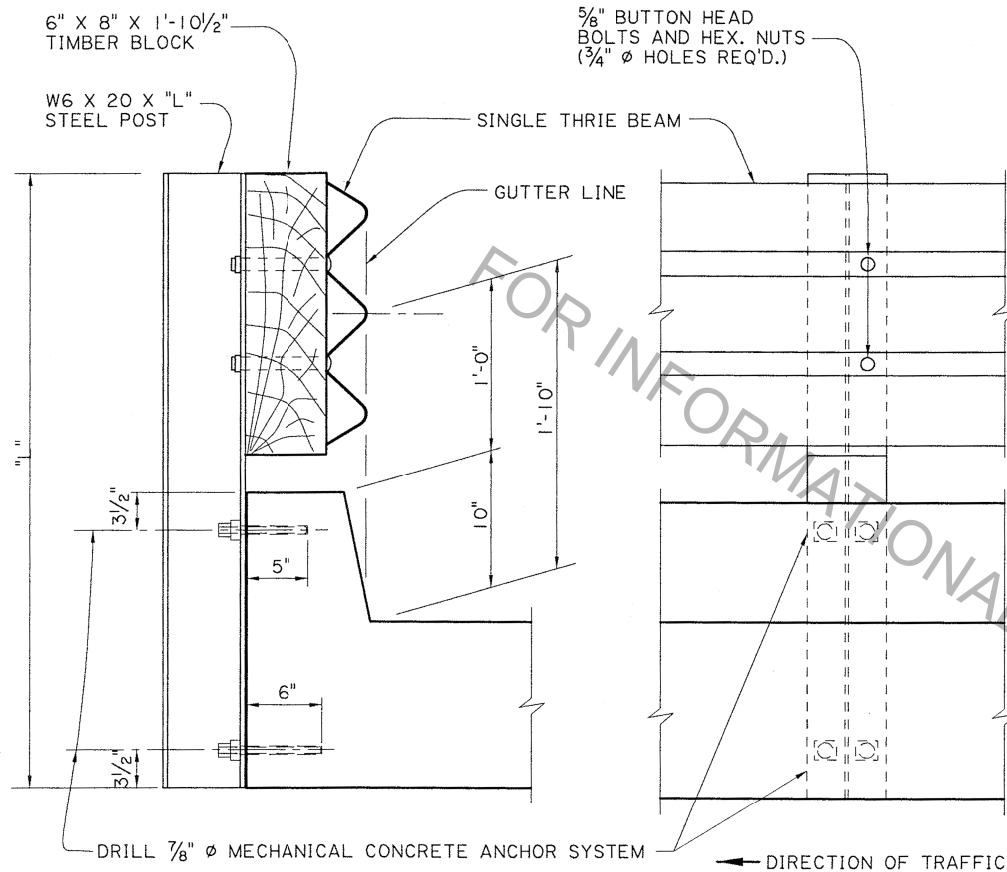


• BOLTS LENGTH TO BE FIELD MEASURED AND ADJUSTED BASED ON ACTUAL DECK THICKNESS. SUBMIT TO DOTD BRIDGE DESIGN ENGINEER FOR REVIEW BEFORE INSTALLATION



BRIDGE AND STRUCTURAL DESIGN		GUARD RAIL REHABILITATION (FLAT DECK PRECAST BRIDGES)		NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY	DESIGNED CHECKED	P. FOSSIER C. GAUDRY	PARISH	
				4-8-16		GUARDRAIL HEIGHT, ANCHOR BOLT NOTE AND BASE PLATE	P. F.	REVIEWED	K. BRAUNER	STATE PROJECT	
STANDARD DETAIL		BD.2.6.4.1.09									

SHEET
NUMBER



SECTION THRU RAIL

VIEW FROM ROADWAY

NOTES

FOR ADDITIONAL INFORMATION ON GUARD RAIL, SEE STD. PLAN GR-200 & GR-202.

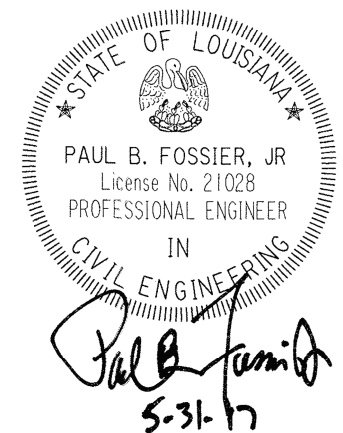
ALL WORK AND MATERIALS REQ'D. TO INSTALL GUARD RAIL ON THIS TYPE STRUCTURE SHALL BE PAID FOR UNDER ITEM 704-01-01020 GUARD RAIL (SINGLE THRIE BEAM).

ALTHOUGH ITEM 704-01-01020 CALLS FOR 6'-3\"/>

GUARD RAIL SPLICES SHALL BE MADE AT POST LOCATIONS ONLY.

USE $\frac{7}{8}$ \"/>

ALL STRUCTURAL STEEL SHALL BE ASTM A-36 AND GALVANIZED. ALL $\frac{5}{8}$ \"/>



SIDE MOUNTED GUARD RAIL (FOR BRIDGES)

STANDARD
DETAILS

BD.2.6.4.1.10



4-8-16

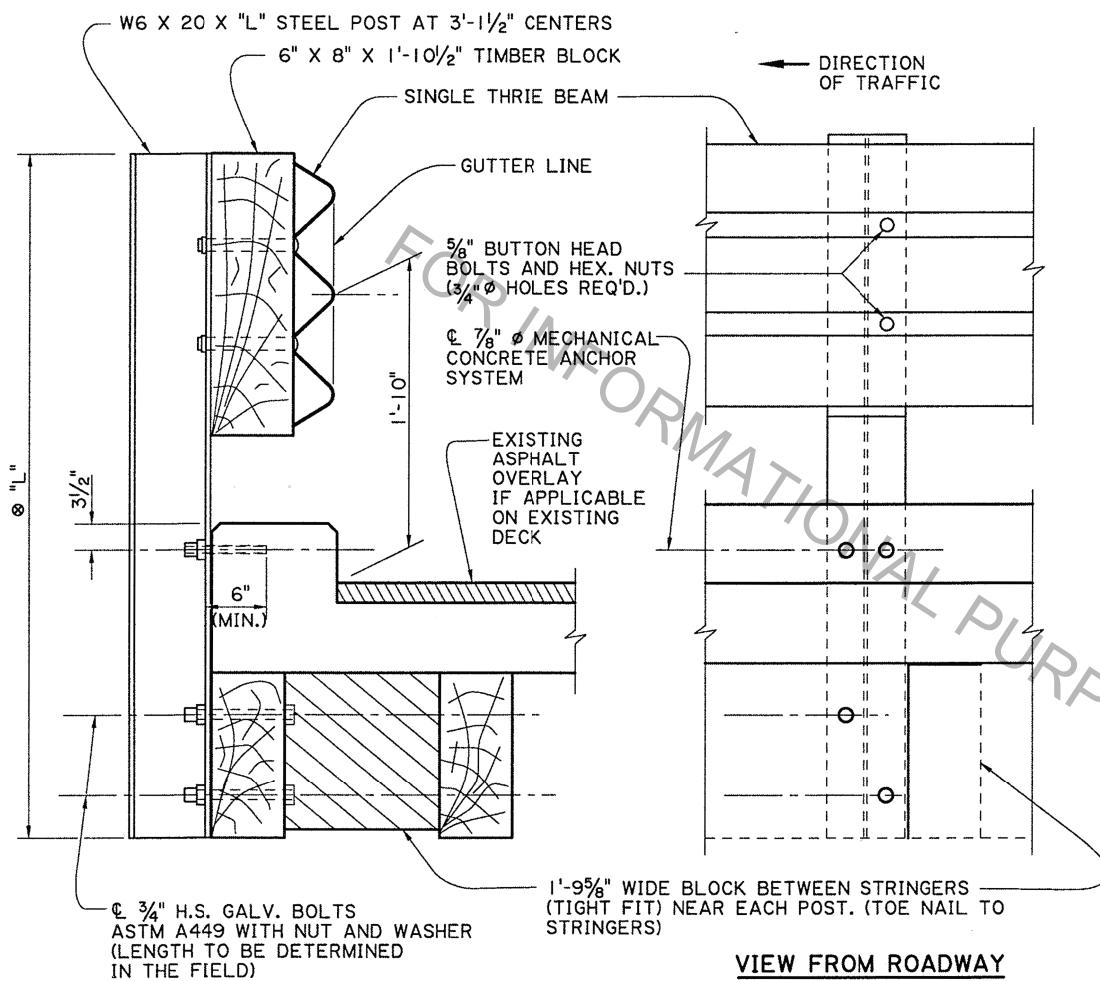
GUARDRAIL HEIGHT, ANCHOR BOLT NOTE AND
BASE PLATE

P. F.

DESIGNED P. FOSSIER
CHECKED C. GAUDRY
DETAILED J. BENTON
CHECKED P. FOSSIER
REVIEWED K. BRAUNER
SERIES #

PARISH
CONTROL
SECTION
STATE
PROJECT

SHEET
NUMBER



SECTION THRU RAIL

NOTES

FOR ADDITIONAL INFORMATION ON GUARD RAIL, SEE STD. PLAN GR-200.

ALL WORK AND MATERIALS REQ'D. TO INSTALL GUARD RAIL ON BRIDGE SHALL BE PAID FOR UNDER ITEM 704-01-01020 GUARD RAIL (SINGLE THRIE BEAM) (6'-3" POST SP.).

GUARD RAIL SPLICES SHALL BE MADE AT POST LOCATIONS ONLY.

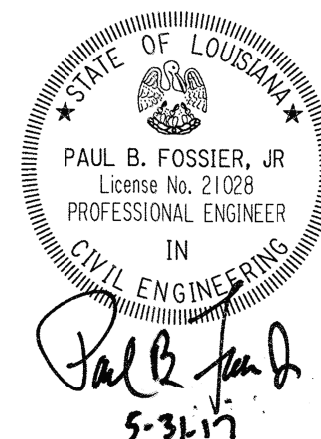
DRILL 1" Ø HOLES, 5" DEEP AT THE TOP OF CURB FOR 3/4" Ø GALVANIZED BOLT.

USE 3/4" GALV. NUT WITH GALV. CUT WASHER.

USE 7/8" Ø MECHANICAL CONCRETE ANCHOR SYSTEM AS LISTED ON APPROVED MATERIALS LIST, PRODUCT CATEGORY "CONCRETE ANCHOR SYSTEMS."

ALL STEEL SHALL BE ASTM A-36 AND GALVANIZED. ALL 5/8" Ø BOLTS SHALL BE ASTM A307.

⊗ W6x20 POST TO BE FIELD MEASURED TO DETERMINE LENGTH "L" BY CONTRACTOR.

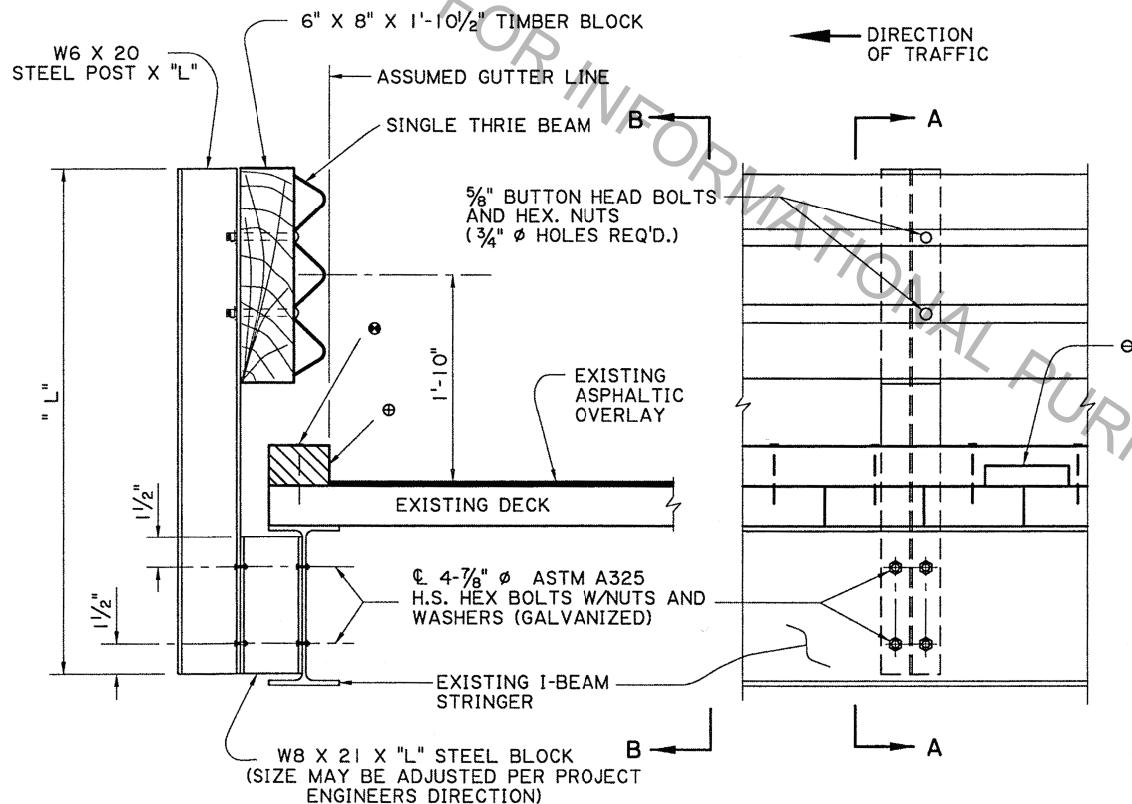


BRIDGE AND STRUCTURAL DESIGN		SIDE MOUNTED GUARD RAIL (CONCRETE DECK-TIMBER STRINGERS)		DESIGNED	P. FOSSIER	PARISH		SHEET NUMBER
				CHECKED	C. GAUDRY	CONTROL SECTION		
				DATE	4-8-16	REVISION OR CHANGE ORDER DESCRIPTION	GUARDRAIL HEIGHT, ANCHOR BOLT NOTE AND BASE PLATE	
				NO.		BY		
				REVIEWED	K. BRAUNER	STATE PROJECT		
				SERIES #				

⊙ 2" X 1'-0" NOTCH FOR DRAINAGE

• 6 $\frac{7}{8}$ " SPIKE AT EACH FLOOR PLANK

⊕ 4" X 6" X LGTH. OF BRIDGE FELLOE GUARD (NEW) (NOTCH FOR DRAINAGE)



SECTION A-A

SECTION B-B

NOTES

ALL WORK AND MATERIAL (INCLUDING THE NEW FELLOE GUARD) REQUIRED TO INSTALL THE NEW BRIDGE RAIL SHALL BE PAID FOR UNDER ITEM 704-01-01020 GUARDRAIL (SINGLE THRIE BEAM) (6'-3" POST SPA.)

EXISTING ASPHALT SHALL BE CLEARED FROM AREA WHERE FELLOE GUARD IS TO BE PLACED SO THAT THE FELLOE GUARD WILL BE ON THE TIMBER DECK.

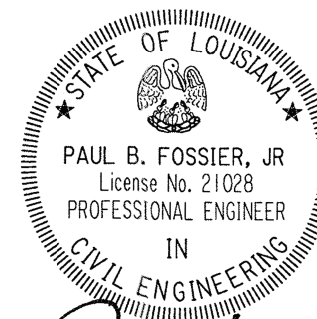
POST SHALL BE LOCATED AT EACH BENT AND AT INTERMEDIATE POINTS NOT TO EXCEED 6'-3" (EQUALLY SPACED)

IF DIRECTED BY THE PROJECT ENGINEER, A DIAPHRAGM SHALL BE PLACED AT EACH INTERMEDIATE POST BETWEEN THE FIRST AND SECOND STRINGER. (TO BE INCLUDED IN 704-01-01020.

"L" (POST HEIGHT & STEEL BLOCK) SHALL BE DETERMINED IN THE FIELD.

FOR ADDITIONAL INFORMATION ON GUARDRAIL, SEE STD. PLAN GR-200.

ALL STRUCTURAL STEEL SHALL BE ASTM A36 AND GALVANIZED. ALL 5/8" Ø BOLTS SHALL BE ASTM A307.



Paul B. Fossier, Jr.
5-31-17

SIDE MOUNTED BRIDGE RAIL

STANDARD
DETAIL

BD.2.6.4.1.12



4-8-16

GUARDRAIL HEIGHT, ANCHOR BOLT NOTE AND
BASE PLATE

P. F.

NO. DATE

REVISION OR CHANGE ORDER DESCRIPTION

BY

DESIGNED	P. FOSSIER
CHECKED	C. GAUDRY
DETAILED	J. BENTON
CHECKED	P. FOSSIER
REVIEWED	K. BRAUNER
SERIES #	

PARISH	
CONTROL SECTION	
STATE PROJECT	

SHEET
NUMBER



IF THE EXISTING CONCRETE IS DAMAGED DUE TO DRILLING HOLES FOR BOLTS AND RODS, THE CONTRACTOR SHALL REPAIR THE DAMAGE WITH THE APPROPRIATE MATERIALS AT HIS EXPENSE AND TO THE SATISFACTION OF THE PROJECT ENGINEER.

EXISTING HANDRAIL SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR AS DIRECTED BY THE PROJECT ENGINEER.

ALL HOLES (VERTICAL OR HORIZONTAL) DRILLED INTO AN EXISTING CONCRETE STRUCTURE SHALL BE $\frac{3}{4}$ " IN DIA. THEY SHALL BE CLEANED WITH COMPRESSED AIR AND MADE FREE OF ANY OIL OR RESIDUE. HOLES SHALL BE FILLED WITH EPOXY INJECTION SYSTEM AS LISTED ON APPROVED MATERIALS LIST, PRODUCT CATEGORY "CONCRETE ANCHOR SYSTEMS." PLACE ROD IN HOLE IMMEDIATELY AND WAIT FOR THE MANUFACTURERS CURE TIME.

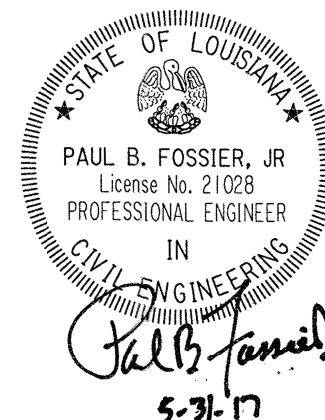
THE LOWER BOLTS IN THE GUARD RAIL AT EACH POST SHALL BE ON THE ONCOMING TRAFFIC SIDE.



IF TIMBER BLOCKS ARE LESS THAN 3" ABOVE THE CONCRETE RAIL IN THE SOLID RAIL ALTERNATE, THE METHOD SHOWN IN THE POST AND RAIL BRIDGE RAIL ALTERNATE SHALL BE UTILIZED.

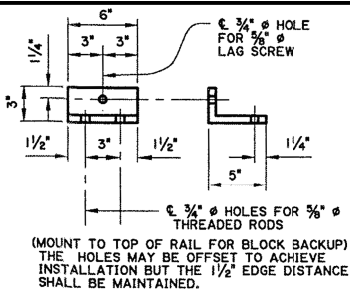
THE LENGTHS OF THE LAG SCREWS SHALL BE VERIFIED BY THE PROJECT ENGINEER BEFORE INSTALLATION TO ACHIEVE THE PENETRATION CALLED FOR IN THE SOLID WALL ALTERNATE.

● IF APPROACH SLAB FLARES EXIST, A 1'-0" X 1'-0" HOLE SHALL BE CUT THRU THE CONCRETE IN THE PROPER LOCATION TO INSTALL POST. AFTER POST IS IN PLACE, COMPACT SOIL AROUND POST AND REDRESS THE SLAB WITH CONCRETE TO THE FINISHED ELEVATION. (NO DIRECT PAY).

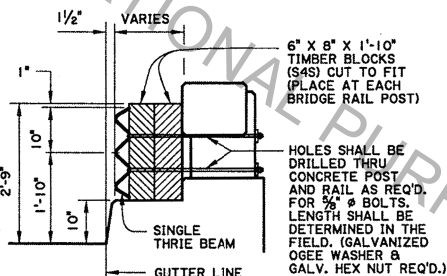
ALL $\frac{5}{8}"\phi$ BOLTS SHALL BE ASTM A307.



BRIDGE AND STRUCTURAL DESIGN		GUARD RAIL TERMINATING ON BRUSH CURB BRIDGE RAIL (TIMBER POST OPTION)								DESIGNED CHECKED	P. FOSSIER C. GAUDRY	PARISH		SHEET NUMBER	
	STANDARD DETAIL	BD.2.6.4.1.13			4-8-16	GUARDRAIL HEIGHT, ANCHOR BOLT NOTE AND BASE PLATE			P. F.	REVIEWED	K. BRAUNER	STATE			
					NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION			BY	SERIES #	PROJECT			

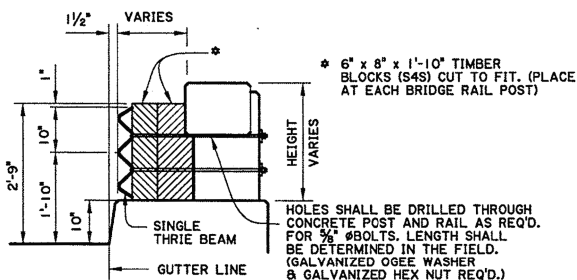


SUPPORT ANGLE



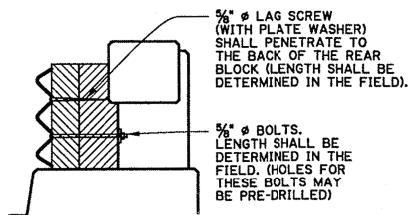
SECTION A-A

POST AND RAIL BRIDGE RAIL

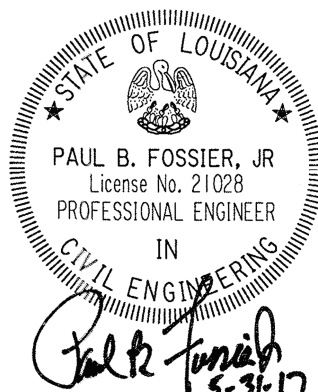


SECTION A-A

POST AND RAIL BRIDGE RAIL



VIEW AT GUARD RAIL SPLICES



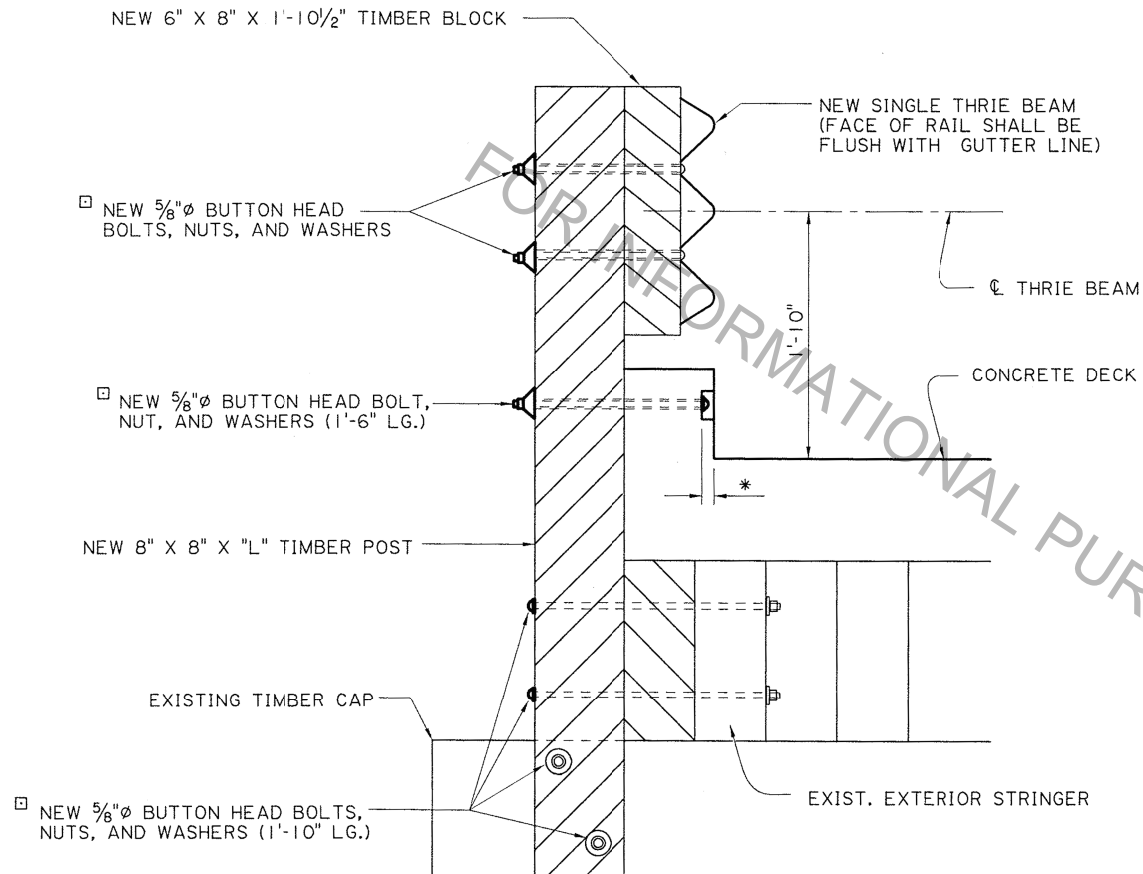
ALL $\frac{5}{8}"$ ϕ BOLTS SHALL BE ASTM A307.

STANDARD DETAIL	BD.2.6.4.1.14
--------------------	---------------



	4-8-16	GUARDRAIL HEIGHT, ANCHOR BOLT NOTE AND BASE PLATE	P. F.
NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

DESIGNED	P. FOSSIER	PARISH	SHEET NUMBER
CHECKED	C. GAUDRY		
DETAILED	J. BENTON	CONTROL	
CHECKED	P. FOSSIER	SECTION	
REVIEWED	K. BRAUNER	STATE	
SERIES #		PROJECT	



CROSS SECTION
TIMBER BRIDGE RAIL
(NOT TO SCALE)

NOTES

FOR ADDITIONAL INFORMATION ON GUARD RAIL, SEE STD. PLAN GR-200.

ALL TIMBER SHALL BE TREATED SOUTHERN YELLOW PINE OR DOUGLAS FIR. (CUT TO FIT). ALL HARDWARE & NAILS INVOLVED SHALL BE REPLACED WITH NEW MATERIALS AND SHALL BE GALVANIZED.

POST SPACING VARIES FROM STRUCTURE TO STRUCTURE. ORIGINAL POST SPACING SHALL BE VERIFIED BY THE PROJECT ENGINEER AND NEW POSTS SHALL BE PLACED AT THESE LOCATIONS. ANY POST AT OTHER THAN THE ORIGINAL POST SPACING SHALL BE REMOVED.

GUARD RAIL SPLICES SHALL BE MADE AT POST LOCATIONS ONLY.

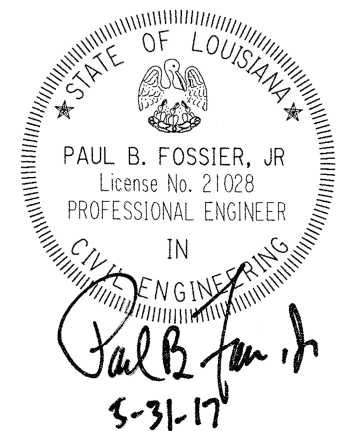
- * HOLES IN CONCRETE CURB SHALL BE COUNTER-SUNK SO THE BOLT HEAD WILL NOT PROTRUDE OUTSIDE THE FACE OF CURB. GROUT HOLES WITH APPROPRIATE MATERIAL AFTER BOLT HAS BEEN TIGHTENED.

ALL WORK AND MATERIALS REQ'D. TO COMPLETE GUARD RAIL ON BRIDGE SHALL BE PAID FOR UNDER ITEM 704-01-01020 GUARD RAIL, (SINGLE THRIE BEAM) (6'-3" POST SPA.) PER LIN. FT.

WHEN EXTERIOR STRINGER IS REQ'D. TO BE REPLACED IT SHALL BE DONE AS DIRECTED BY THE PROJECT ENGINEER AND PAID FOR UNDER FORCE ACCOUNT.

- ALL $\frac{5}{8}$ " Ø BOLTS SHALL BE ASTM A307.

ALL BOLT LENGTHS SHALL BE VERIFIED BY FIELD MEASUREMENTS.



BRIDGE RAIL REHABILITATION (CONCRETE DECK)

STANDARD
DETAIL

BD.2.6.4.1.15



4-8-16

GUARDRAIL HEIGHT, ANCHOR BOLT NOTE AND
BASE PLATE

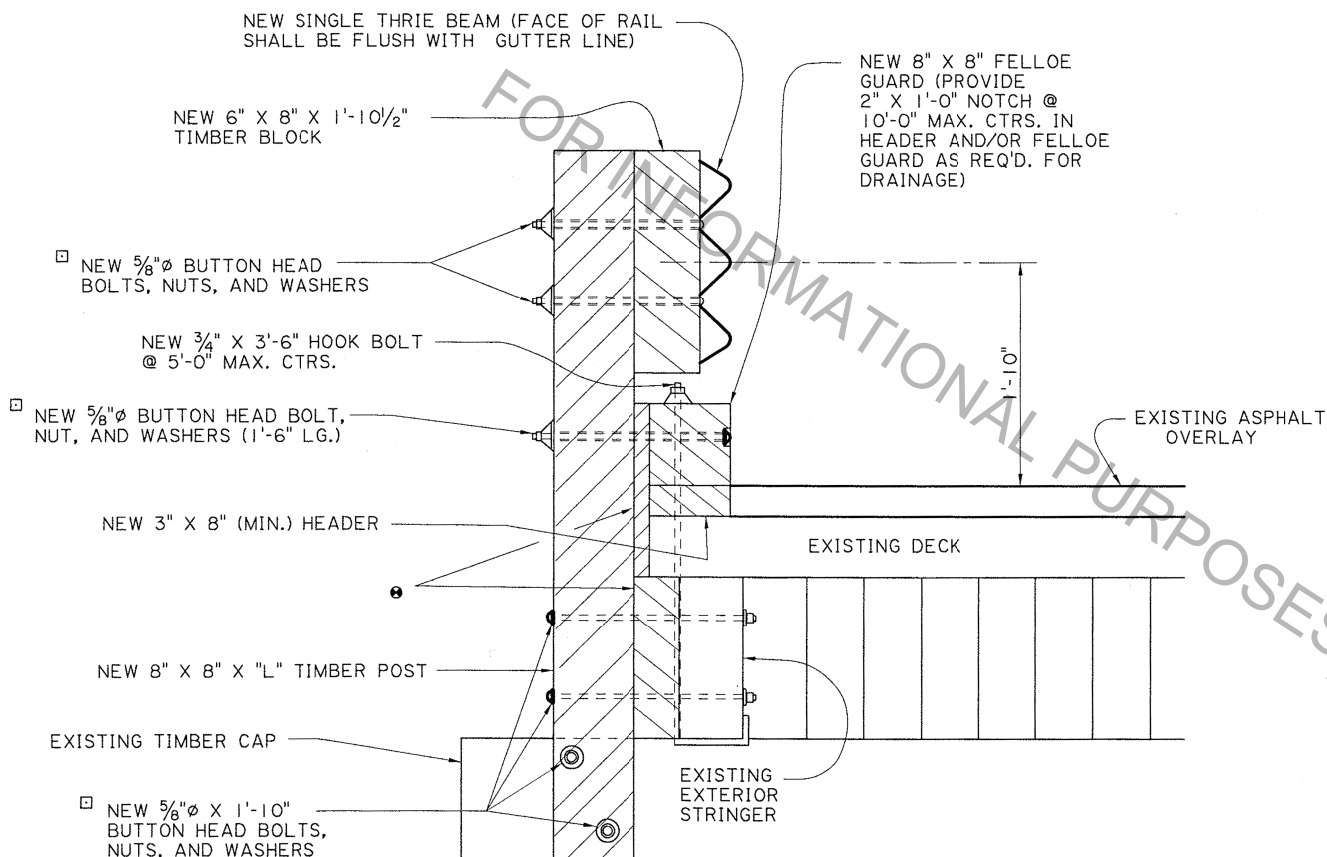
P. F.

DESIGNED
CHECKED
P. FOSSIER
C. GAUDRY
DETAILED
CHECKED
J. BENTON
P. FOSSIER
REVIEWED
K. BRAUNER

PARISH
CONTROL
SECTION
STATE
PROJECT

SHEET
NUMBER

- NEW 8" WIDE X 1'-4" LONG TIMBER SHIM BLOCKS (IF REQ'D.) AT EACH 8" X 8" POST. THICKNESS TO BE DETERMINED BY THE CONTRACTOR AND VERIFIED BY THE PROJECT ENGINEER.



TYPICAL SECTION

NOTES

FOR ADDITIONAL INFORMATION ON GUARD RAIL, SEE STD. PLAN GR-200.

ALL TIMBER SHALL BE TREATED SOUTHERN YELLOW PINE OR DOUGLAS FIR. (CUT TO FIT) ALL HARDWARE & NAILS INVOLVED SHALL BE REPLACED WITH NEW MATERIALS AND SHALL BE GALVANIZED.

POST SPACING VARIES FROM STRUCTURE TO STRUCTURE. ORIGINAL POST SPACING SHALL BE VERIFIED BY THE PROJECT ENGINEER AND NEW POST SHALL BE PLACED AT THESE LOCATIONS. ANY POST OTHER THAN THE ORIGINAL POST SPACING SHALL BE REMOVED.

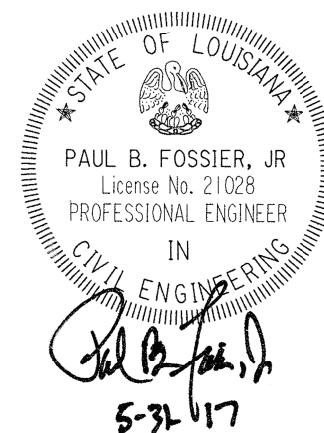
GUARD RAIL SPLICES SHALL BE MADE AT POST LOCATIONS ONLY.

ALL WORK AND MATERIALS REQ'D. TO COMPLETE GUARD RAIL ON BRIDGE SHALL BE PAID FOR UNDER ITEM 704-01-01020 GUARD RAIL, (SINGLE THRIE BEAM) (6'-3" POST SPA.) PER LIN. FT.

WHEN EXTERIOR STRINGER IS REQ'D. TO BE REPLACED IT SHALL BE DONE AS DIRECTED BY THE PROJECT ENGINEER AND PAID FOR UNDER FORCE ACCOUNT.

- ALL 5/8" Ø BOLTS SHALL BE ASTM A307.

ALL BOLT LENGTHS SHALL BE VERIFIED BY FIELD MEASUREMENTS.



GUARD RAIL REHABILITATION
(TIMBER DECK)

STANDARD
DETAIL

BD.2.6.4.1.16



4-8-16

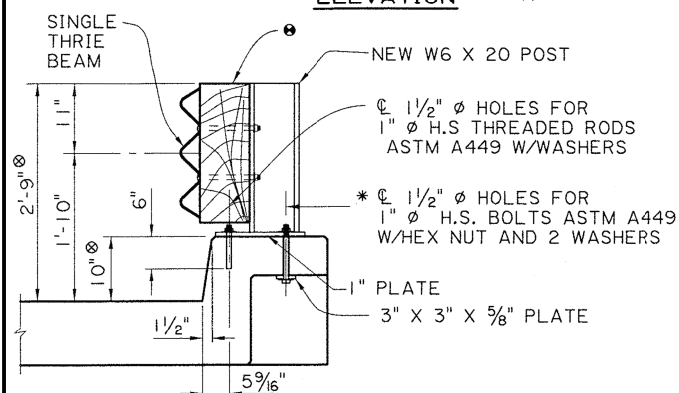
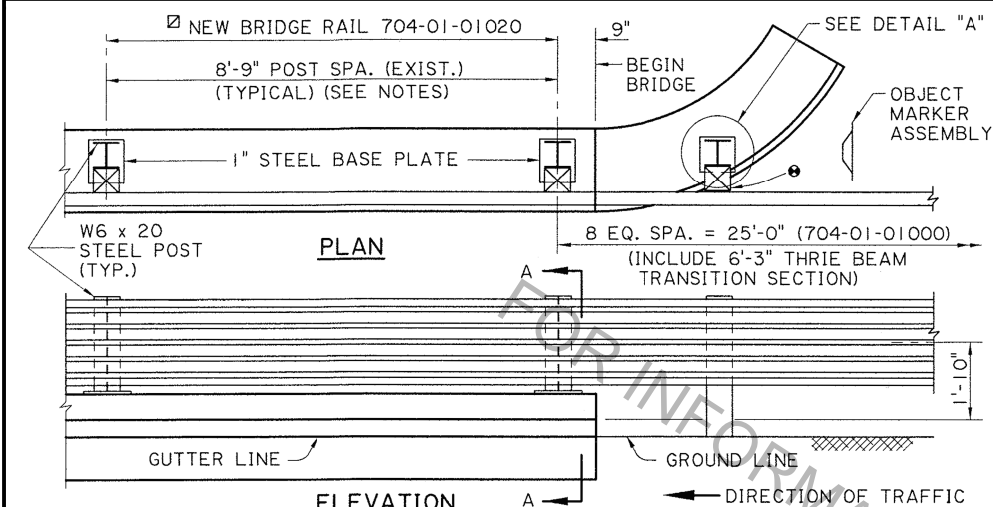
GUARDRAIL HEIGHT, ANCHOR BOLT NOTE AND
BASE PLATE

P. F.
BY

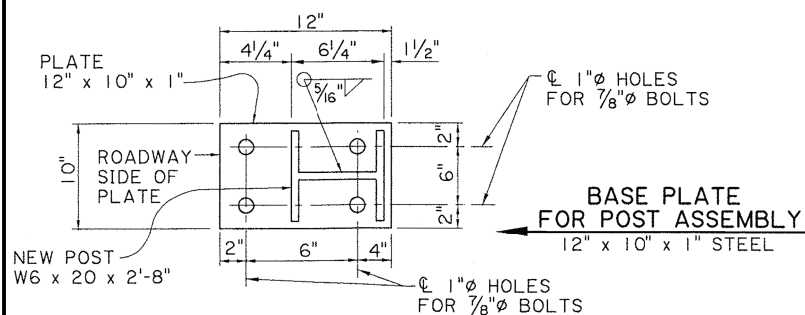
DESIGNED P. FOSSIER
CHECKED C. GAUDRY
DETAILED J. BENTON
CHECKED P. FOSSIER
REVIEWED K. BRAUNER
SERIES #

PARISH
CONTROL
SECTION
STATE
PROJECT

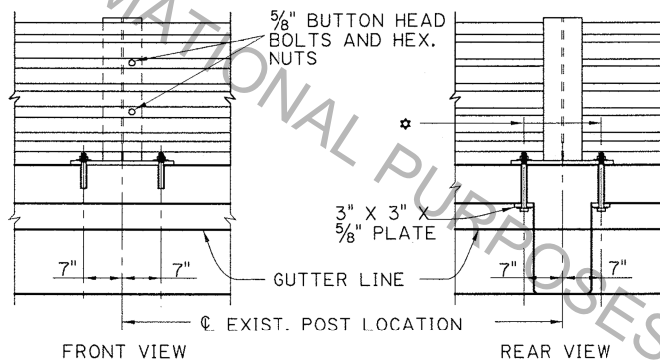
SHEET
NUMBER



SECTION A-A

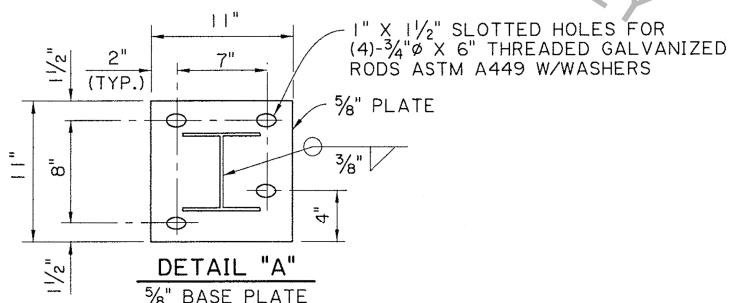
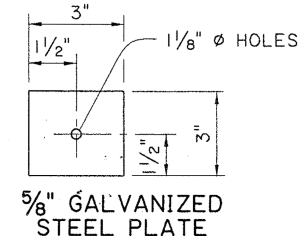
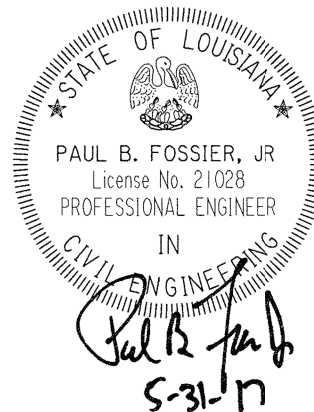
NEW POST
W6 x 20 x 2'-8"

1" Ø HOLES FOR 7/8" Ø BOLTS



FRONT VIEW

REAR VIEW

DETAIL "A"
5/8" BASE PLATE5/8" GALVANIZED
STEEL PLATE**NOTES:**

FOR ADDITIONAL INFORMATION ON GUARD RAIL, SEE STD. PLAN GR-200.

ALL WORK AND MATERIALS REQ'D. TO INSTALL GUARD RAIL ON THE STRUCTURE SHALL BE PAID FOR UNDER ITEM 704-01-01020

ANY DAMAGE DONE TO THE STRUCTURE DURING CONSTRUCTION NOT RELATED TO THE WORK REQUIRED SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE AND TO THE SATISFACTION OF THE PROJECT ENGINEER.

ALL HOLES (VERTICAL OR HORIZONTAL) DRILLED INTO AN EXISTING CONCRETE STRUCTURE SHALL BE CLEANED WITH COMPRESSED AIR AND MADE FREE OF ANY OIL OR RESIDUE. HOLES SHALL BE FILLED WITH INJECTION SYSTEM AS LISTED ON APPROVED MATERIALS LIST, PRODUCT CATEGORY "CONCRETE ANCHOR SYSTEMS." PLACE ROD IN HOLE IMMEDIATELY AND WAIT FOR THE MANUFACTURERS CURE TIME.

NOMINAL POST SPACING ON THIS SPAN IS 8'-9" (ORIGINAL DESIGN). NEW POST ARE REQUIRED AND SHALL BE INSTALLED AS SHOWN. GUARD RAIL SPLICES SHALL BE MADE AT POST LOCATIONS ONLY. THE POST LOCATED ON THE FLARED BRIDGE END SHALL BE INSTALLED AS SHOWN. IF A FLARED END DOES NOT EXIST A NORMAL 6" X 8" TIMBER POST OR A APPROVED ALTERNATE SHALL BE USED.

* NOTE: (AT END SPAN POST LOCATION ONLY) THE INTERIOR BOLT SHALL BE AS SHOWN. THE OUTER BOLT NEARER TO END JOINT) SHALL BE DRILLED IN THE SAME MANNER AS THE FRONT ANCHOR BOLTS.

ALL STRUCTURAL STEEL SHALL BE ASTM A36 AND GALVANIZED.



Ø THE EXISTING POST SHALL BE REMOVED AND NEW POST BE MOUNTED ON THE TOP OF THE STRUCTURE AS SHOWN AND AT THE SAME SPACING.

Ø 6" X 8" X 1'-10" TIMBER BLOCK

* 1 1/2" Ø HOLES FOR 1" Ø H.S. BOLTS ASTM A449 W/HEX NUT AND 2 WASHERS

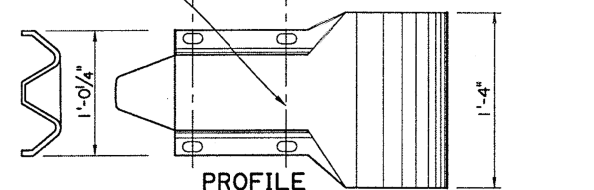
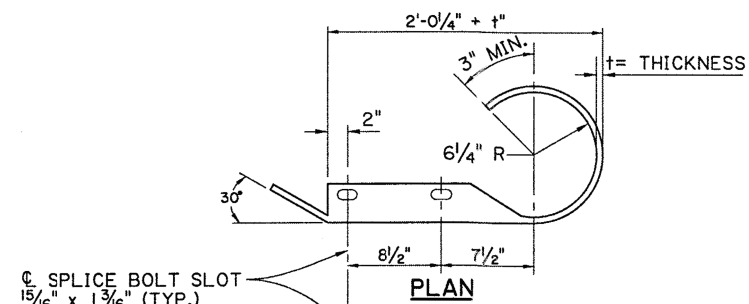
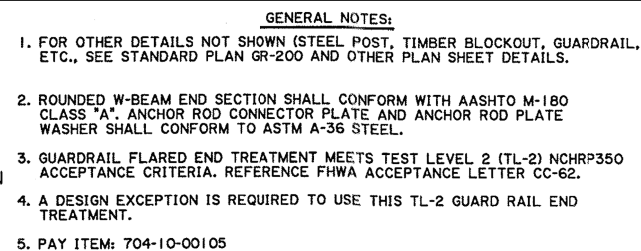
ALL 5/8" Ø BOLTS SHALL BE ASTM A307.

Ø CURB HEIGHT MAY VARY, ADJUST W6x20 POST LENGTH AS NEEDED TO MEET 2'-9" DIMENSION.

BRIDGE AND STRUCTURAL DESIGN		BRIDGE RAIL REHABILITATION (WASKEY BRIDGES)							DESIGNED CHECKED	P. FOSSIER C. GAUDRY	PARISH		SHEET NUMBER
									DETAILED CHECKED	J. BENTON P. FOSSIER	CONTROL SECTION		
					4-8-16	GUARDRAIL HEIGHT, ANCHOR BOLT NOTE AND BASE PLATE	P. F.	REVIEWED	K. BRAUNER	STATE PROJECT			
		NO.	DATE		REVISION OR CHANGE ORDER DESCRIPTION		BY	SERIES #					
STANDARD DETAIL		BD.2.6.4.1.17											

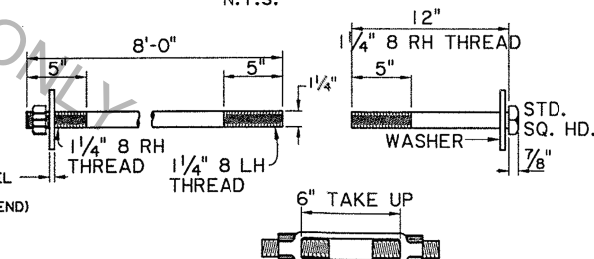
STANDARD
DETAIL

BD.2.6.4.1.17



ROUNDED "W" BEAM END

N.T.S.

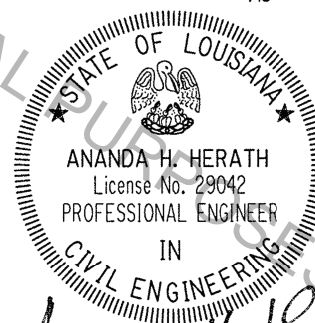


TURNBUCKLE

MIN. TENSILE STRENGTH 60,000 LBS.
LOAD APPLIED THROUGH ASSEMBLY
(ANCHOR ROD AND TURNBUCKLE)



ANCHOR ROD

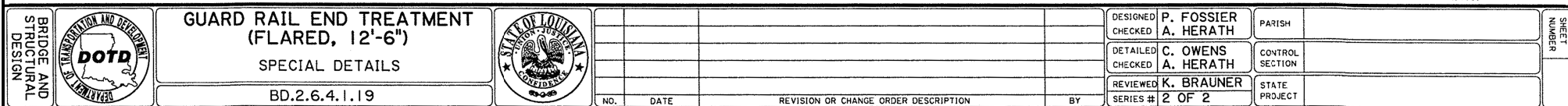
N.T.S.



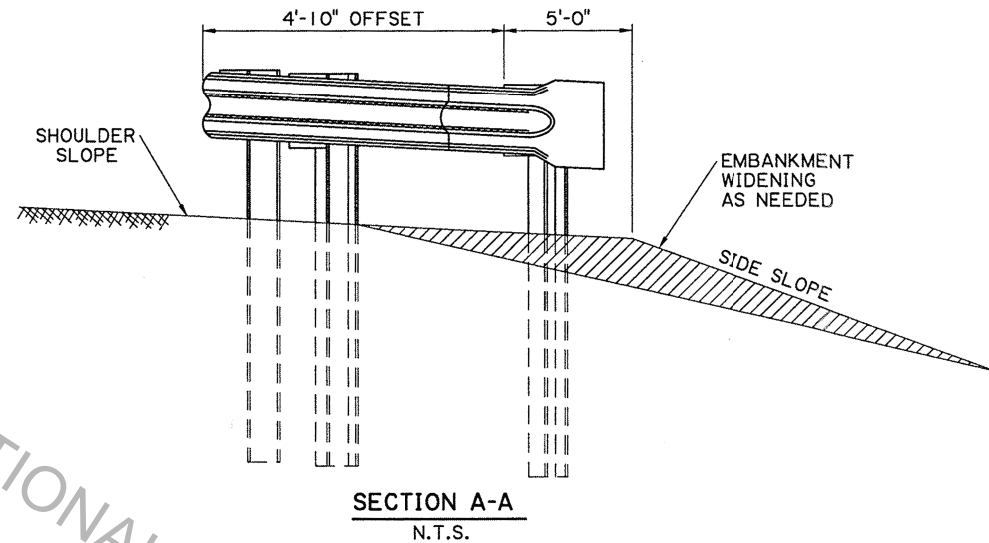
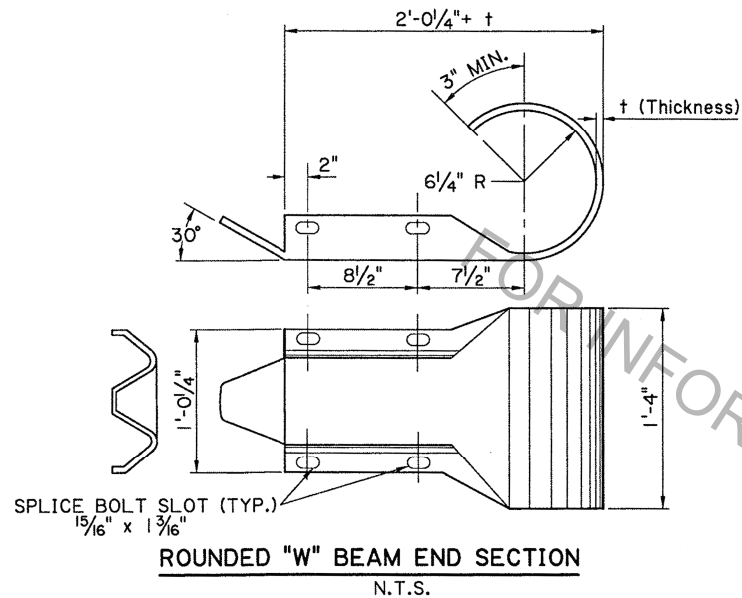
05/30/2017

3/8"x 5" SQUARE STEEL -
PLATE WASHER
(CONCRETE ANCHOR END

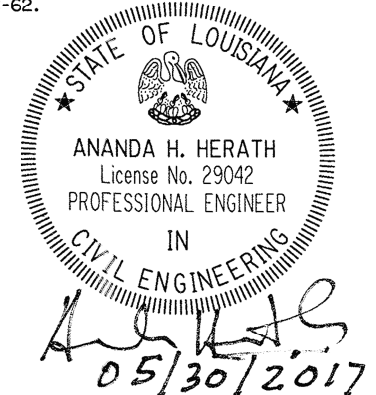
BRIDGE AND STRUCTURAL DESIGN		GUARD RAIL END TREATMENT (FLARED, 12'-6")					DESIGNED CHECKED	P. FOSSIER A. HERATH	PARISH		NUMBER
		SPECIAL DETAILS					DETAILED CHECKED	C. OWENS A. HERATH	CONTROL SECTION		
		BD.2.6.4.1.18					REVIEWED SERIES #	K. BRAUNER 1 OF 2	STATE PROJECT		
				NO.	DATE	REVISION OR CHANGE, ORDER DESCRIPTION	BY				





**NOTES:**

- 1.) FOR ANCHOR PLATE ASSEMBLY, $\frac{3}{4}$ " ϕ CABLE ASSEMBLY, STEEL BEARING PLATE, STEEL TUBE, SOIL PLATE, AND TIMBER BREAKAWAY POST, W-BEAM RAIL, POST TIMBER BLOCKOUT, AND OTHER MISC. DETAILS SEE STANDARD PLAN GR-200.
- 2.) GUARD RAIL END TREATMENT (FLARED, 18'-9") MEETS TEST LEVEL TWO (TL-2) AS PER NCHRP 350, REFERENCE FHWA ACCEPTANCE LETTER CC-62.
- 3.) ROUNDED W-BEAM END SECTION SHALL CONFORM WITH AASHTO M-180 CLASS "A".
- 4.) FOR OTHER PAY ITEMS OR LAYOUT DETAILS NOT SHOWN, SEE OTHER PLAN SHEET, AND STANDARD PLAN GR-200.
- 5.) A DESIGN EXCEPTION IS REQUIRED TO USE THIS TL-2 GUARD RAIL END TREATMENT.



	GUARD RAIL END TREATMENT FLARED (18'-9")		NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY	DESIGNED CHECKED	P. FOSSIER A. HERATH	PARISH	
									DETAILED CHECKED	J. KOEMPEL P. FOSSIER
	BD.2.6.4.1.21						REVIEWED SERIES #	K. BRAUNER 2 OF 2	STATE PROJECT	