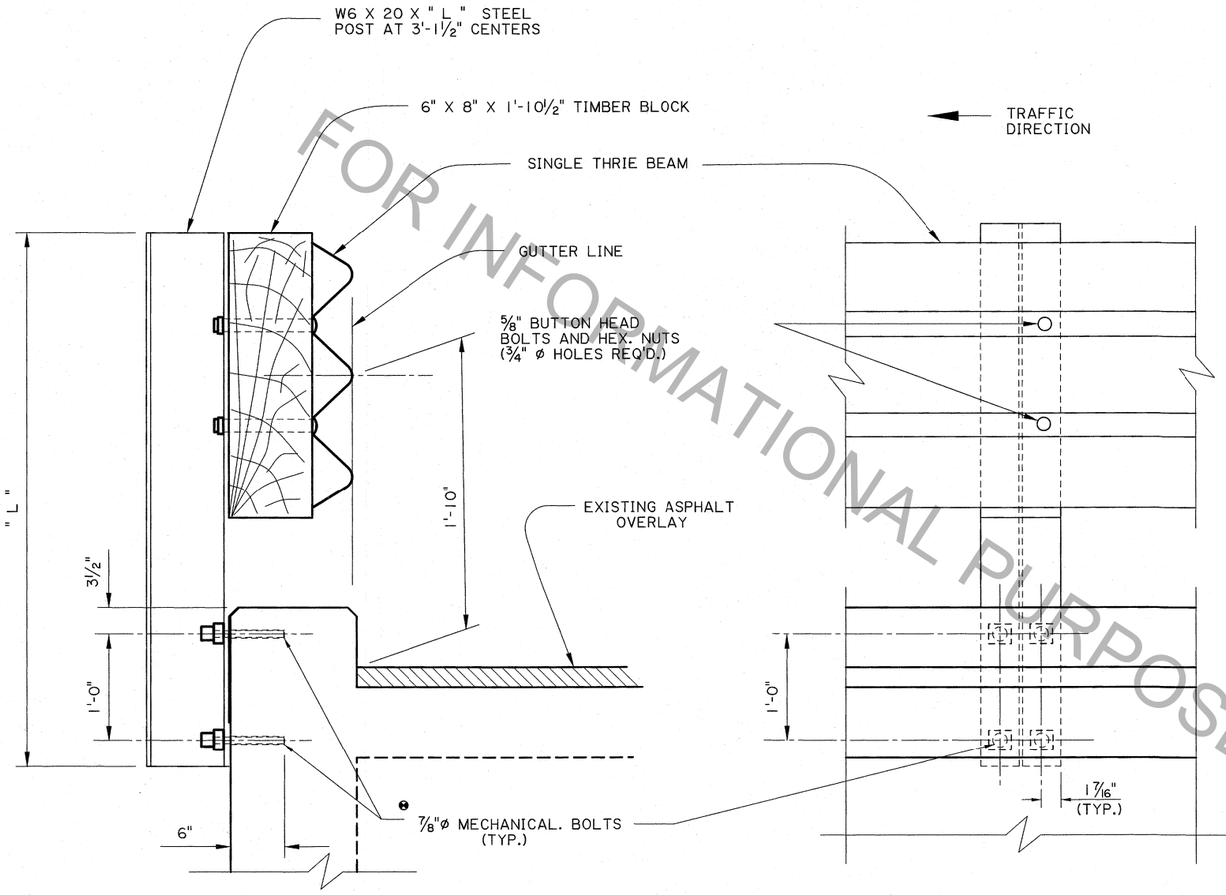


SECTION THRU RAIL

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 BOX CULVERTS SHALL BE PAID FOR UNDER ITEM 704-01-01000 GUARD RAIL (SINGLE THRIE BEAM) (3'-1½" POST SPACING).

GUARD RAIL SPLICES SHALL BE MADE AT POST LOCATIONS ONLY.

❷ 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.

STATE OF LOUISIANA
PAUL B. FOSSIER, JR
License No. 21028
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
5-31-17

SHEET NUMBER

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

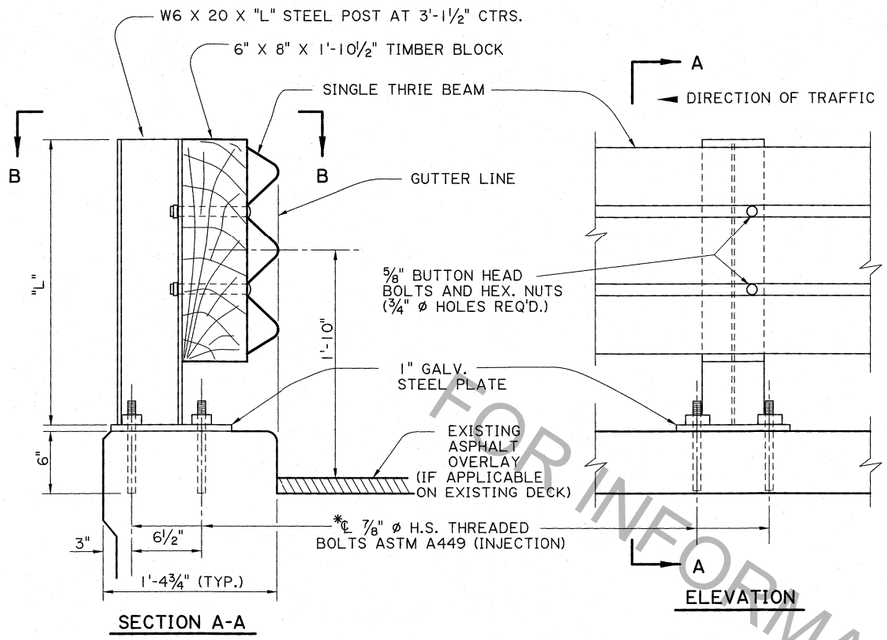
NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY
	4-8-16	GUARDRAIL HEIGHT, ANCHOR BOLT NOTE AND BASE PLATE	P. F.

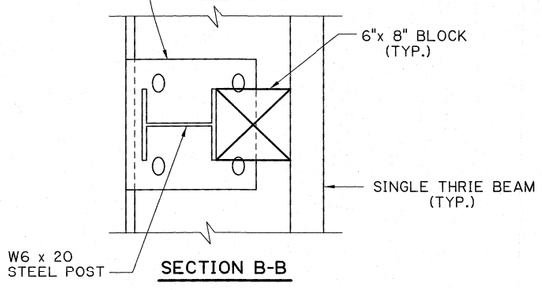
STATE OF LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

SIDE MOUNT GUARD RAIL (FOR BOX CULVERTS)

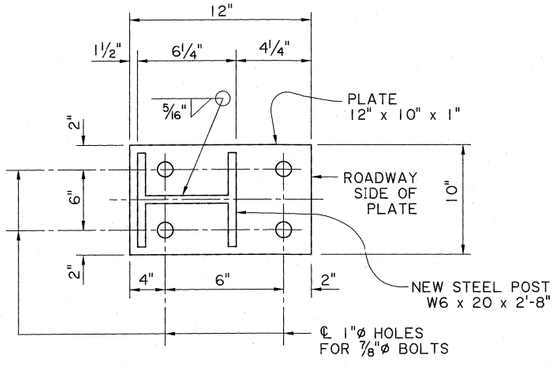
BD.2.6.4.2.01

BRIDGE AND STRUCTURAL DESIGN





SECTION B-B



BASE PLATE
FOR POST ASSEMBLY
12" x 10" x 1" STEEL

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'-1½" POST SPA.)

GUARD RAIL SPLICES SHALL BE MADE AT POST LOCATIONS ONLY.

*DRILL 1" ø HOLES, 6" DEEP FOR ⅞" ø GALVANIZED BOLT. USE ⅞" 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 ⅞"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 ⅝"ø BOLTS SHALL BE ASTM A307.

STATE OF LOUISIANA
PAUL B. FOSSIER, JR
License No. 21028
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
5-31-17

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

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

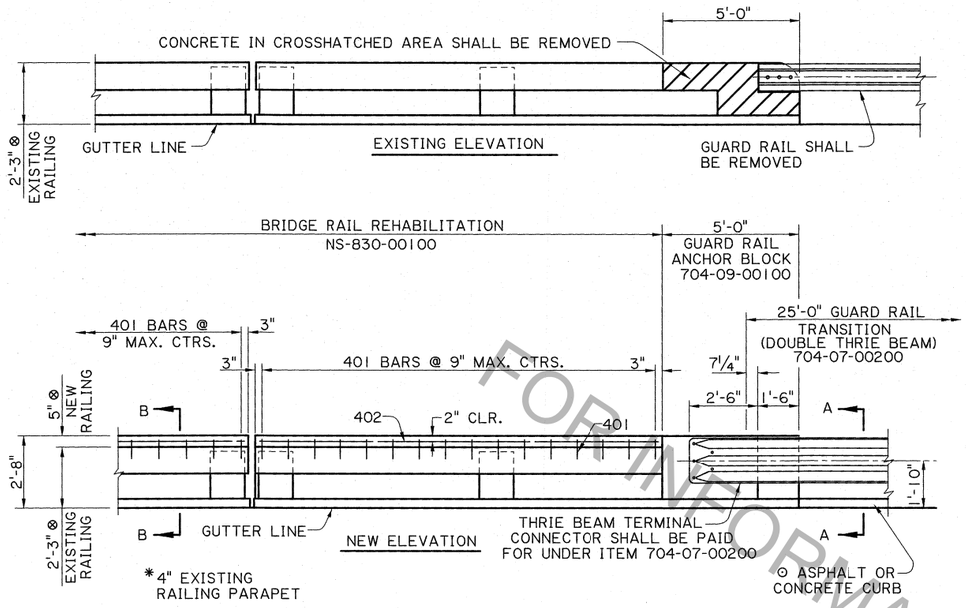
TOP MOUNTED GUARD RAIL
(FOR BOX CULVERTS)

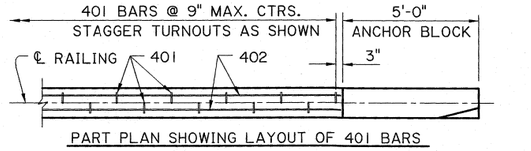
BD.2.6.4.2.02

BRIDGE AND STRUCTURAL DESIGN

7/18/2017 08:16

IP_PWP:d0695339\BD.2.6.4.2.02 - full-size guardrail boxcul4_raster.dgn





NOTE: HOLES FOR 401 BARS SHALL BE DRILLED ON ℄ 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.
⊙ FOR CURB & TRANSITION INFORMATION, SEE SHEET 3 OF 10, GR-200.
⊗ 2'-3" & 5" DIMENSIONS 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

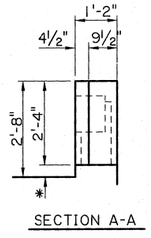
ALL WORK AND MATERIALS REQUIRED TO REMOVE EXISTING RAILING AND CONSTRUCT THE ANCHOR BLOCK SHALL BE PAID FOR UNDER: GUARD RAIL ANCHOR BLOCK, PER EACH, ITEM 704-09-00100
CONCRETE IN CROSS HATCHED AREA SHALL BE REMOVED. THE EXISTING REINFORCING STEEL SHALL REMAIN IN PLACE AND SHALL BE CLEANED AND STRAIGHTENED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

CONCRETE

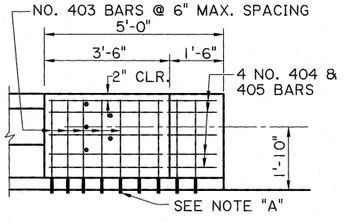
NEW CONCRETE SHALL BE CLASS "AA".

NOTE "A"

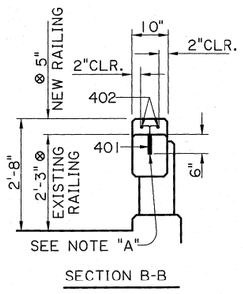
NO. 401 & 403 BARS SET IN ¾" ø DRILLED HOLES. CLEAN HOLES WITH COMPRESSED AIR AND MAKE THEM FREE OF ANY OIL OR RESIDUE. FILL HOLES WITH TYPE V, GRADE 2 OR 3 EPOXY LISTED ON APPROVED MATERIALS LIST, PRODUCT CATEGORY "EPOXY RESIN SYSTEMS FOR CONCRETE." PLACE BARS IN HOLES AND WAIT THE MANUFACTURERS CURE TIME BEFORE POURING NEW CONCRETE.



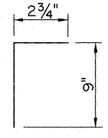
SECTION A-A



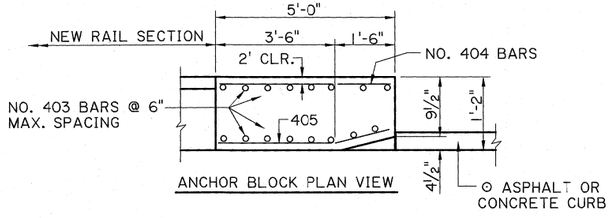
ANCHOR BLOCK ELEVATION



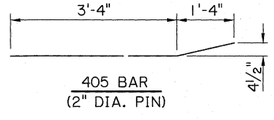
SECTION B-B



401 BARS
(2" DIA. PIN)



ANCHOR BLOCK PLAN VIEW



405 BAR
(2" DIA. PIN)

STATE OF LOUISIANA
PAUL B. FOSSIER, JR
License No. 21028
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
5-31-17

SHEET NUMBER

PARISH	CONTROL SECTION	STATE PROJECT

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

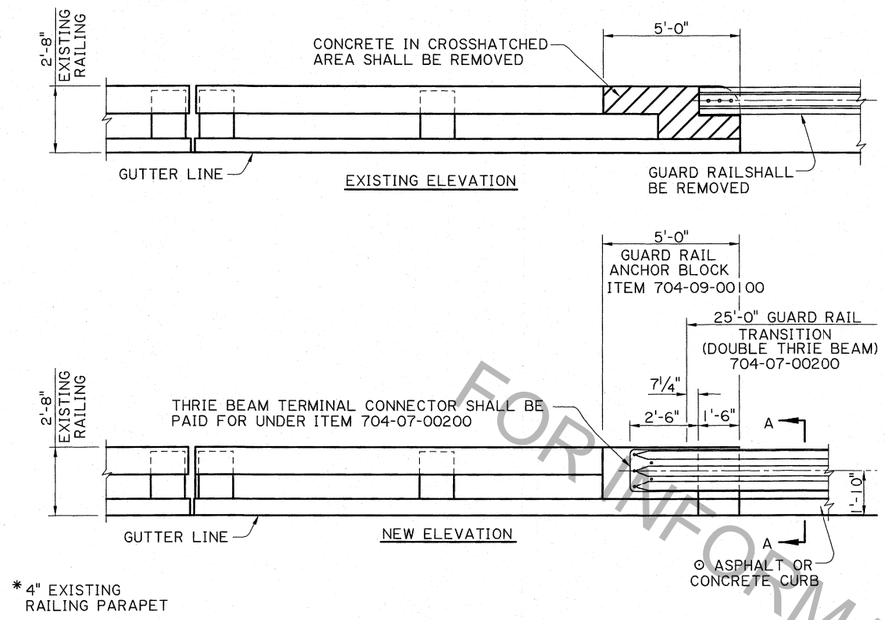
NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY
	4-8-16	GUARDRAIL HEIGHT, ANCHOR BOLT NOTE AND BASE PLATE	

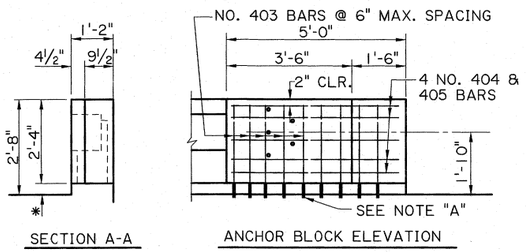
STATE OF LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
potra

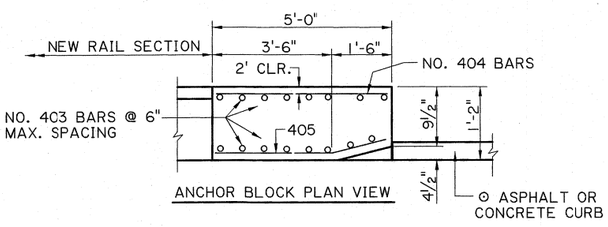
BRIDGE AND STRUCTURAL DESIGN

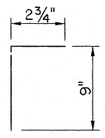
ANCHOR BLOCK & BRIDGE RAIL REHABILITATION FOR LOW CONCRETE POST & RAIL

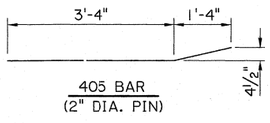
BD.2.6.4.2.03











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. THE REINFORCING STEEL IN THE 1'-6" X 4½" SLOT MAY BE CUT OR BENT TO ACCOMMODATE THIS SLOT.

NOTE "A"

NO. 401 & 403 BARS SET IN ¾" 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.

STATE OF LOUISIANA
PAUL B. FOSSIER, JR
License No. 21028
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
5-31-17

SHEET NUMBER

PARISH	CONTROL SECTION	STATE PROJECT

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

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

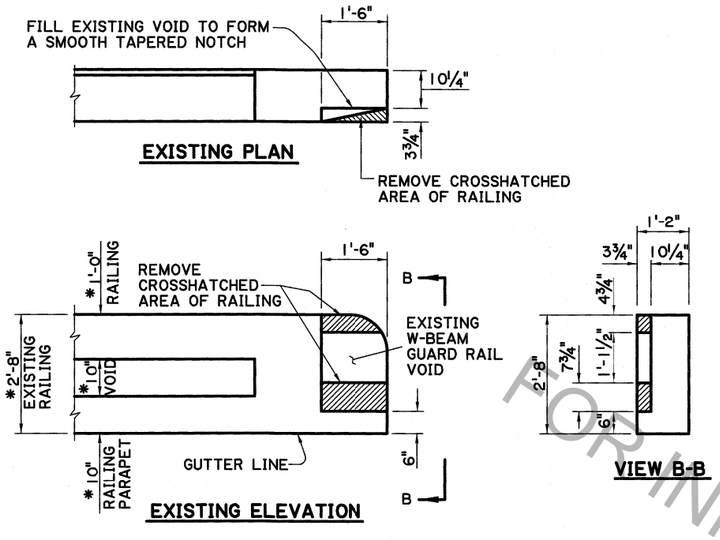
STATE OF LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
dotd

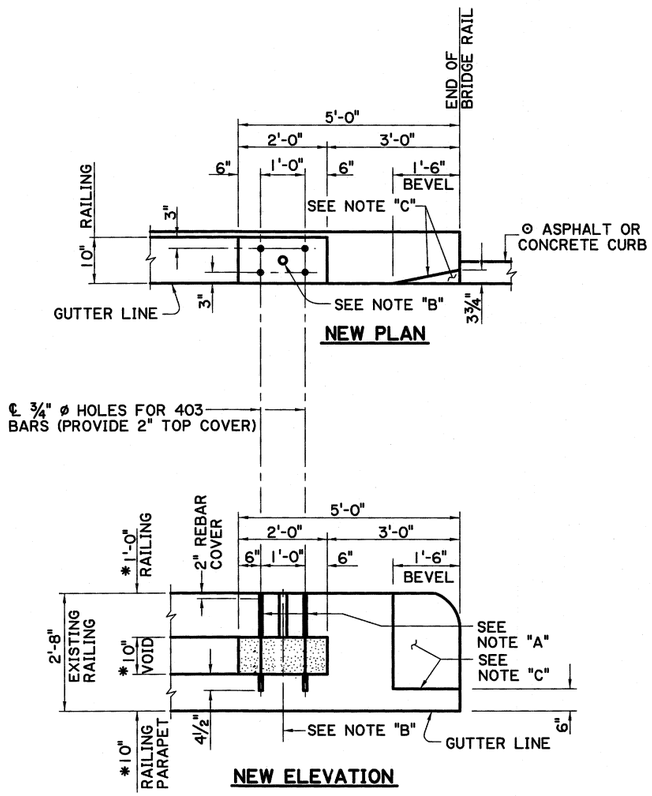
BRIDGE AND STRUCTURAL DESIGN

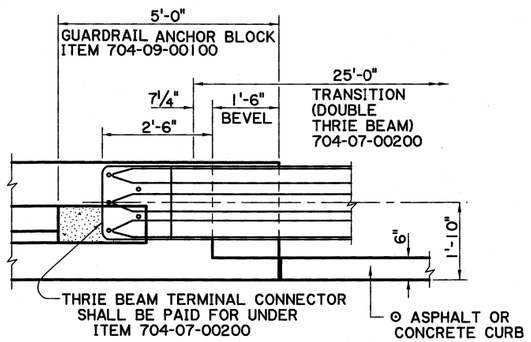
GUARD RAIL ANCHOR BLOCK REHABILITATION FOR CONCRETE POST & RAIL

ALTERNATE 1

BD.2.6.4.2.04







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.

⊙ 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 ¾" 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."

STATE OF LOUISIANA
PAUL B. FOSSIER, JR
License No. 21028
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
5-31-17

SHEET NUMBER

PARISH	CONTROL SECTION	STATE PROJECT

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

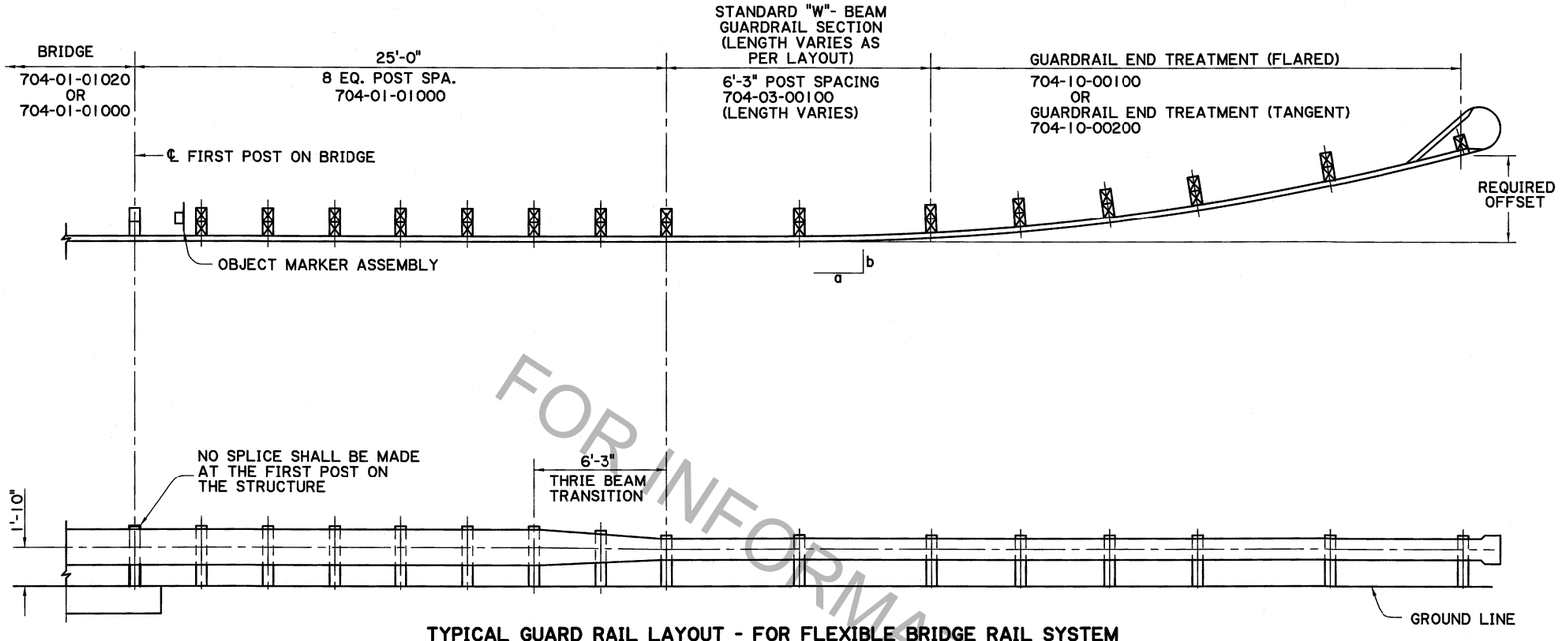
NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY
	4-8-16	GUARDRAIL HEIGHT, ANCHOR BOLT NOTE AND BASE PLATE	P. F.

GUARD RAIL ANCHOR BLOCK REHABILITATION FOR CONCRETE POST & RAIL

ALTERNATE II

BD.2.6.4.2.05

BRIDGE AND STRUCTURAL DESIGN



TYPICAL GUARD RAIL LAYOUT - FOR FLEXIBLE BRIDGE RAIL SYSTEM

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.

STATE OF LOUISIANA
PAUL B. FOSSIER, JR
License No. 21028
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
5-31-17

SHEET NUMBER

PARISH	CONTROL SECTION	STATE PROJECT

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

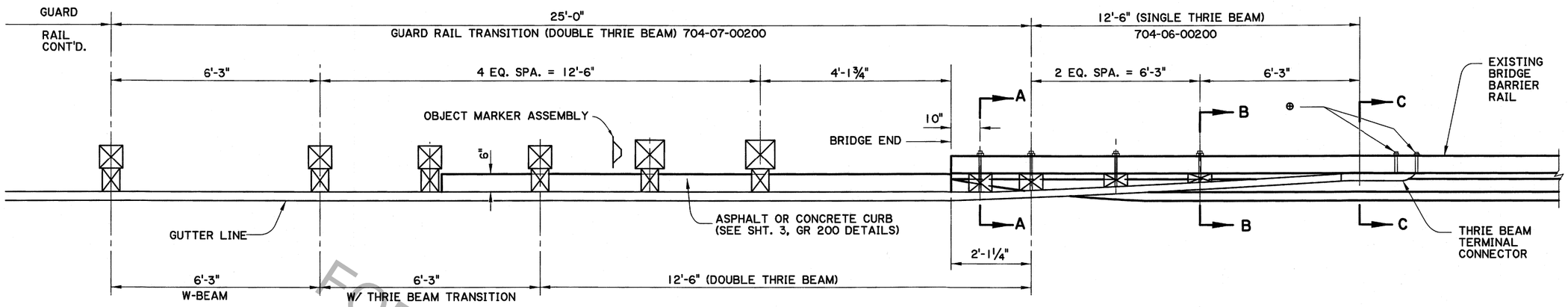
NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY
	4-8-16	GUARDRAIL HEIGHT, ANCHOR BOLT NOTE AND BASE PLATE	P. F.

STATE OF LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

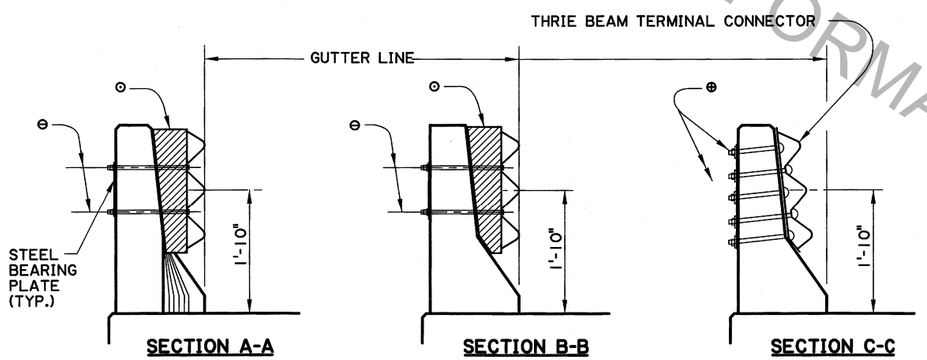
APPROACH GUARD RAIL
FOR STRUCTURES WITH FLEXIBLE RAILS

BD.2.6.4.2.06

BRIDGE AND STRUCTURAL DESIGN



PLAN VIEW



SECTION A-A **SECTION B-B** **SECTION C-C**

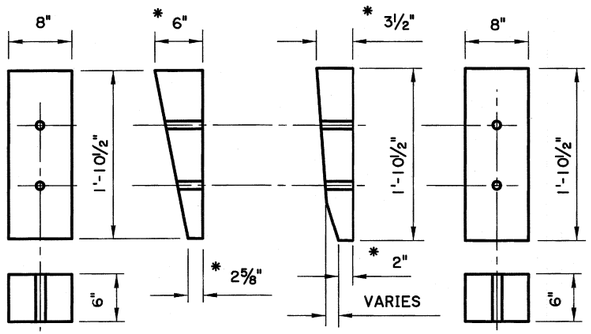
⊕ 5-⅞" ø H.S. ASTM A449 HEX THROUGH BOLTS WITH ⅝" BEARING PLATE (SEE STD. PLAN GR 200, SHEET 9 OF 10)

⊖ 2-⅝" ø BUTTON HEAD BOLTS WITH ⅝" BEARING PLATE, NUTS, & WASHERS

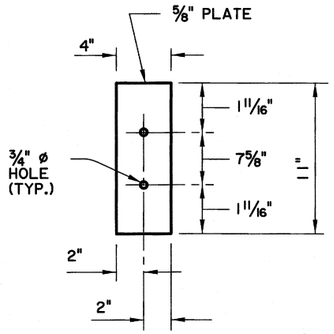
⊙ 6" x 8" x 1'-10½" TREATED TIMBER BLOCK (CUT & SHAPE IN THE FIELD TO FIT).

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 OGEE WASHER MAY BE USED IN LIEU OF THE STEEL BEARING PLATE.
5. ALL H.S. BOLTS SHALL BE ASTM A449. ALL ⅝" 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.

STATE OF LOUISIANA
PAUL B. FOSSIER, JR
License No. 21028
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
5-31-17

SHEET NUMBER

PARISH	CONTROL SECTION	STATE PROJECT

DESIGNED	P. FOSSIER
CHECKED	K. BRAUNER
DETAILED	C. OWENS
CHECKED	P. FOSSIER
REVIEWED	C. GUIDRY
SERIES #	

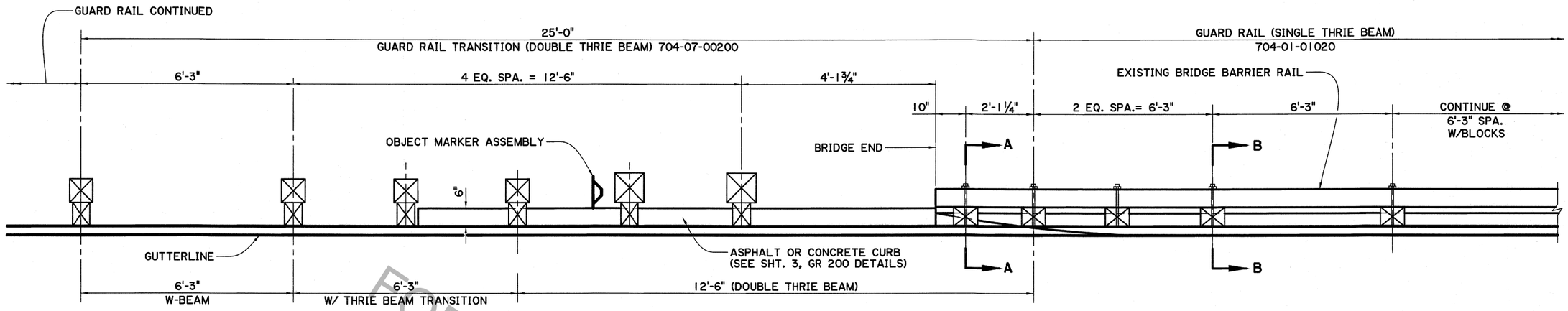
NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY
	4-8-16	GUARDRAIL HEIGHT, ANCHOR BOLT NOTE AND BASE PLATE	P. F.

NEW JERSEY BARRIER RAIL RETROFIT

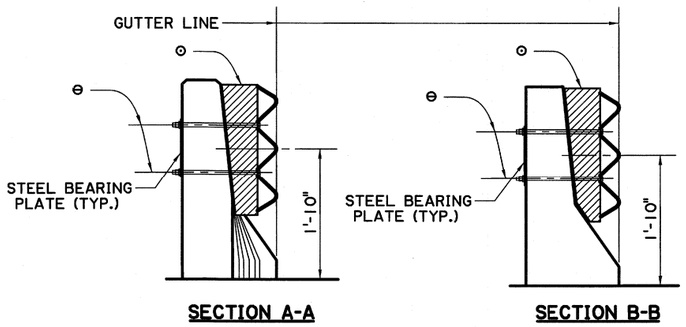
FOR STRUCTURES GREATER THAN 60 FEET

B.D.2.6.4.2.07

BRIDGE AND STRUCTURAL DESIGN



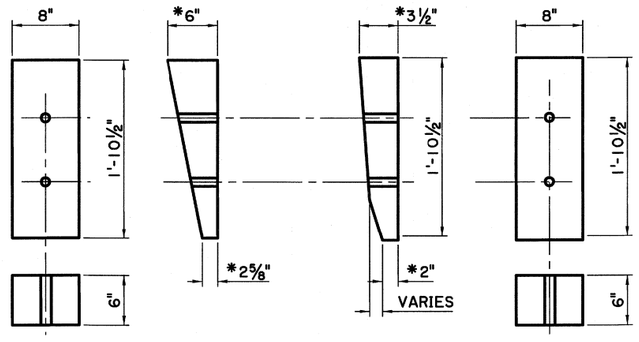
PLAN VIEW



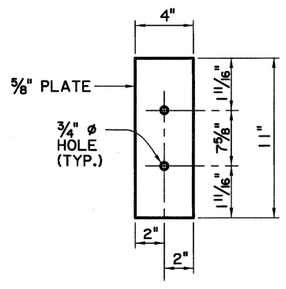
SECTION A-A **SECTION B-B**

⊖ 2 - ⅝" ø BUTTON HEAD BOLTS WITH ⅝" BEARING PLATE, NUTS, & WASHERS. (TYP.)

⊙ 6" X 8" X 1'-10½" TREATED TIMBER BLOCK (CUT & SHAPE IN THE FIELD TO FIT).



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.

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 ⅝"ø 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.

STATE OF LOUISIANA
PAUL B. FOSSIER, JR
License No. 21029
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
5-22-17

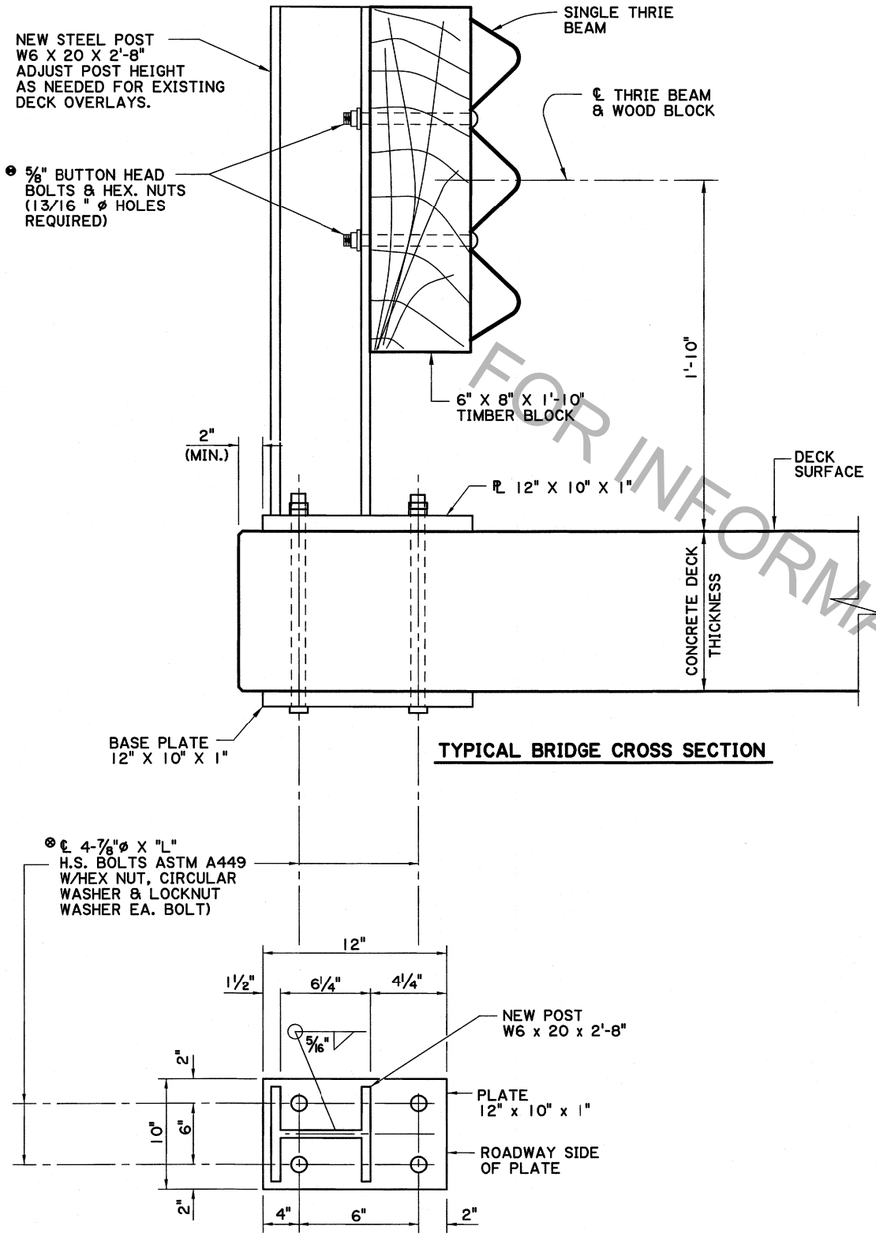
SHEET NUMBER

PARISH	CONTROL SECTION	STATE PROJECT
DESIGNED P. FOSSIER CHECKED K. BRAUNER	DETAILED C. OWENS CHECKED P. FOSSIER	REVIEWED C. GUIDRY SERIES #

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

NEW JERSEY BARRIER RAIL RETROFIT
FOR STRUCTURES LESS THAN 60 FEET
B.D.2.6.4.2.08

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
BRIDGE AND STRUCTURAL DESIGN



TYPICAL BRIDGE CROSS SECTION

BASE PLATE
FOR POST ASSEMBLY
12" x 10" x 1" STEEL

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

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 5/8"ø 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.

STATE OF LOUISIANA
PAUL B. FOSSIER, JR
License No. 21029
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
5-24-17

SHEET NUMBER

PARISH	CONTROL SECTION	STATE PROJECT

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

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

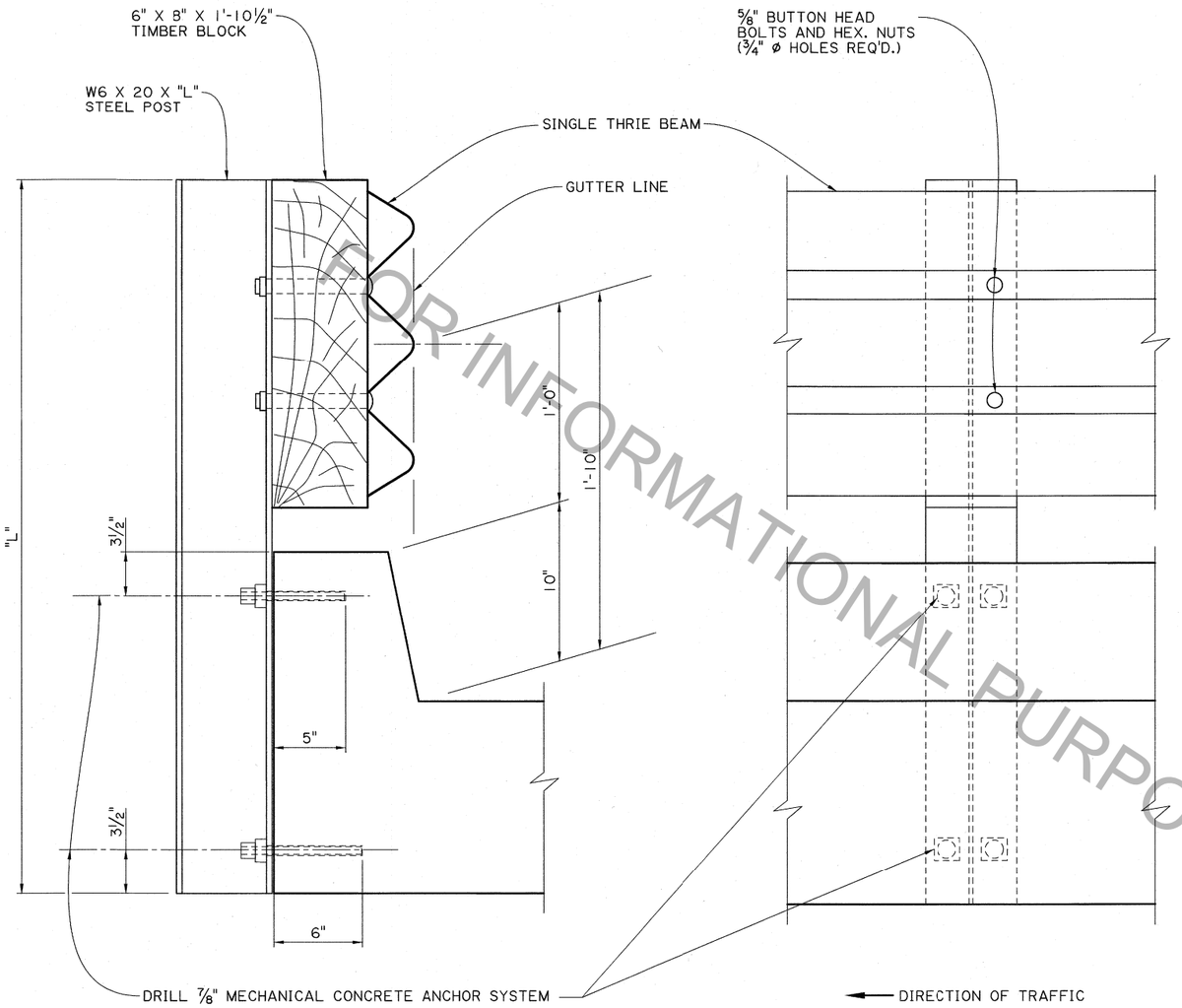
GUARD RAIL REHABILITATION

(FLAT DECK PRECAST BRIDGES)

BD.2.6.4.2.09

STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
DOTD

BRIDGE AND STRUCTURAL DESIGN



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" POST SPACING, THE NEW POST ON THIS TYPE STRUCTURE SHALL BE PLACED IN THE SAME LOCATION AS THE EXISTING ONES.

GUARD RAIL SPLICES SHALL BE MADE AT POST LOCATIONS ONLY.

USE ⅞" MECHANICAL SYSTEM AS LISTED ON APPROVED MATERIALS LIST, PRODUCT CATEGORY "CONCRETE ANCHOR SYSTEMS."

ALL STRUCTURAL STEEL SHALL BE ASTM A-36 AND GALVANIZED. ALL ⅝"ø BOLTS SHALL BE ASTM A307.

STATE OF LOUISIANA
PAUL B. FOSSIER, JR
License No. 21028
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
5-31-17

SHEET NUMBER

PARISH	CONTROL SECTION	STATE PROJECT

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

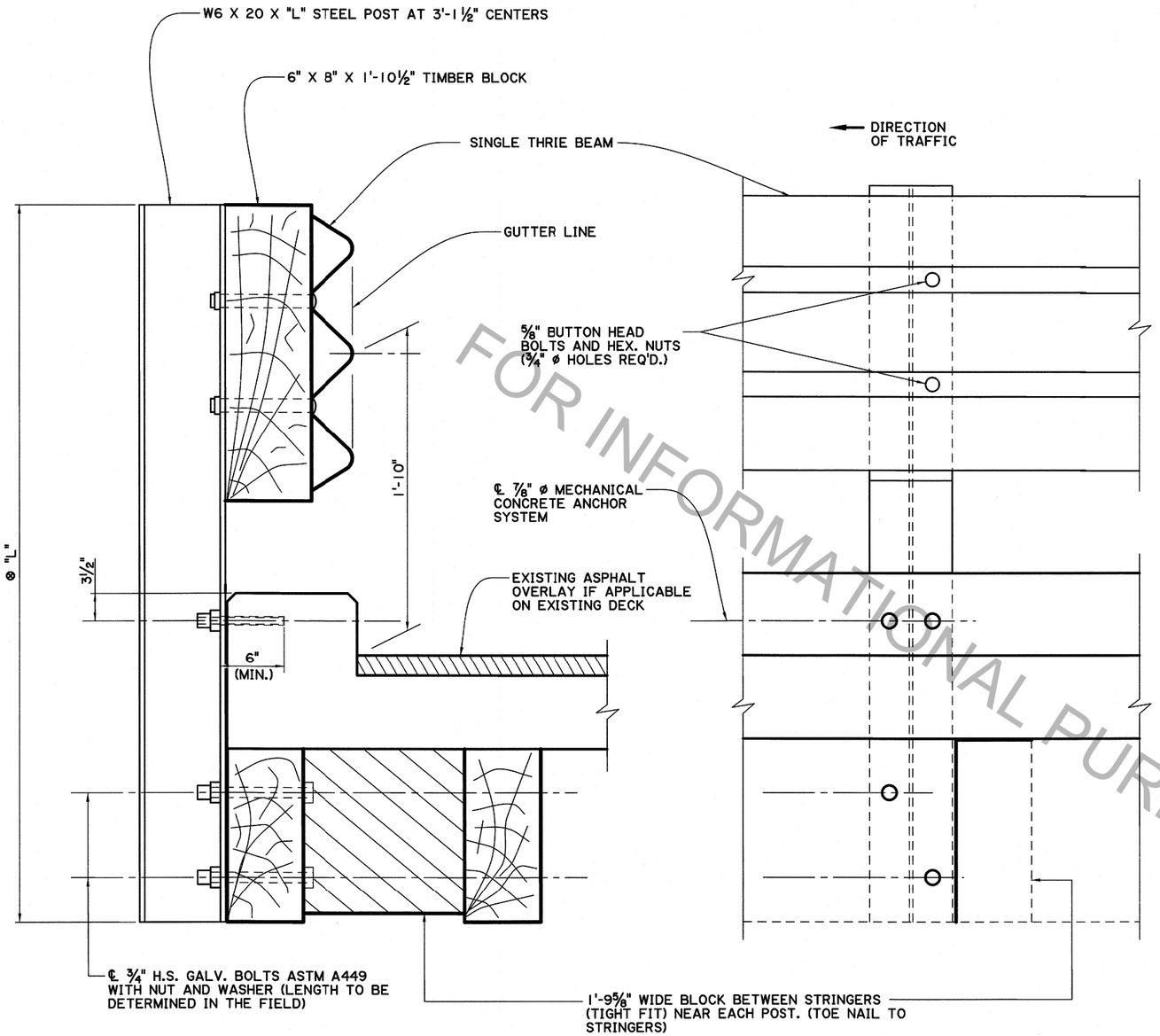
NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY
	4-8-16	GUARDRAIL HEIGHT, ANCHOR BOLT NOTE AND BASE PLATE	P. F.

STATE OF LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

SIDE MOUNTED GUARD RAIL FOR BRIDGES

BD.2.6.4.2.10

BRIDGE AND STRUCTURAL DESIGN



SECTION THRU RAIL

VIEW FROM ROADWAY

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 ¾" ø GALVANIZED BOLT.

USE ¾" GALV. NUT WITH GALV. CUT WASHER.

USE ⅞" 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 ⅝" ø BOLTS SHALL BE ASTM A307.

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

STATE OF LOUISIANA
PAUL B. FOSSIER, JR
License No. 21028
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
5-31-17

SHEET NUMBER

PARISH	CONTROL SECTION	STATE PROJECT

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

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

STATE OF LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

SIDE MOUNTED GUARD RAIL CONCRETE DECK TIMBER STRINGERS

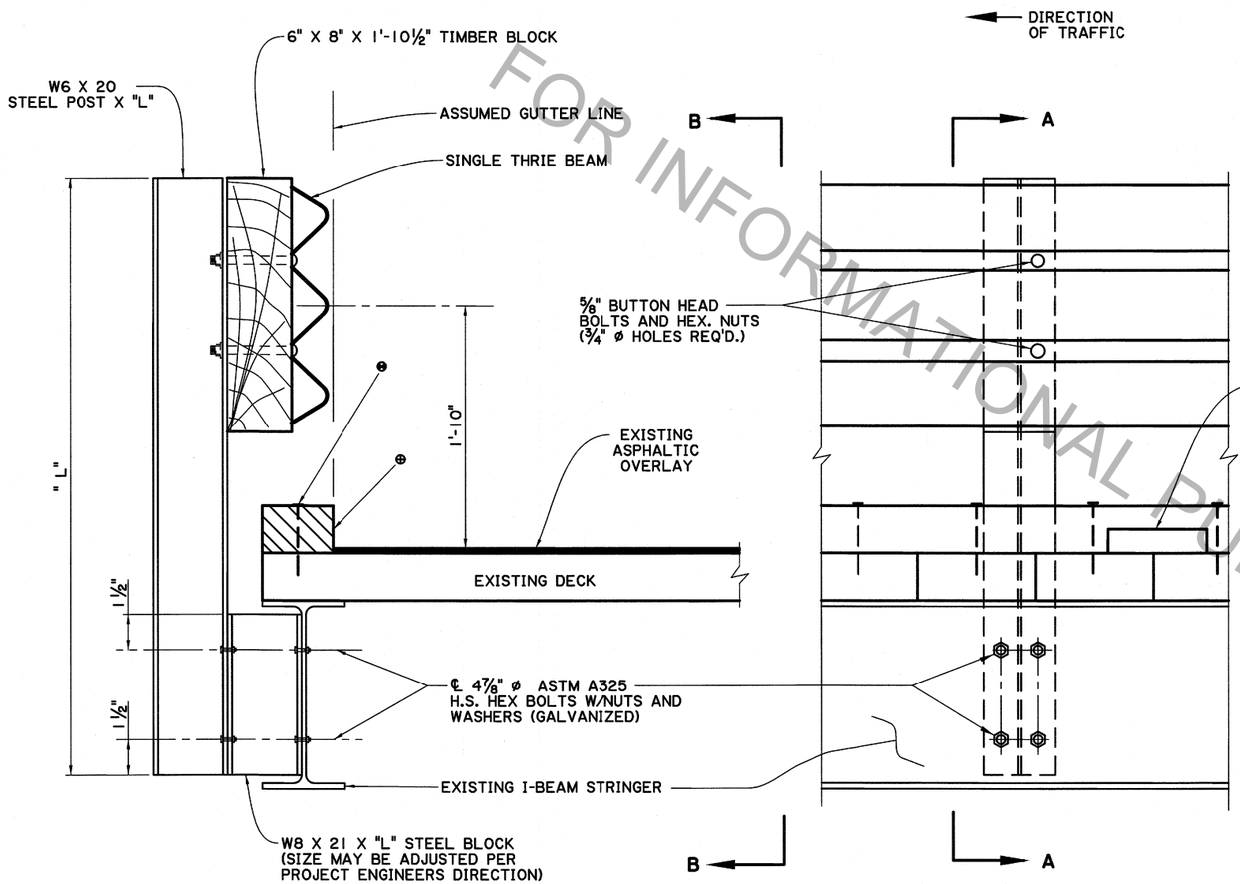
BD.2.6.4.2.11

BRIDGE AND STRUCTURAL DESIGN

⊖ 2" X 1'-0" NOTCH FOR DRAINAGE

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

● 6⅞" SPIKE AT EACH FLOOR PLANK



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 ⅝" ø BOLTS SHALL BE ASTM A307.

PAUL B. FOSSIER, JR
License No. 21029
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
5-31-17

SHEET NUMBER

PARISH	CONTROL SECTION	STATE PROJECT

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

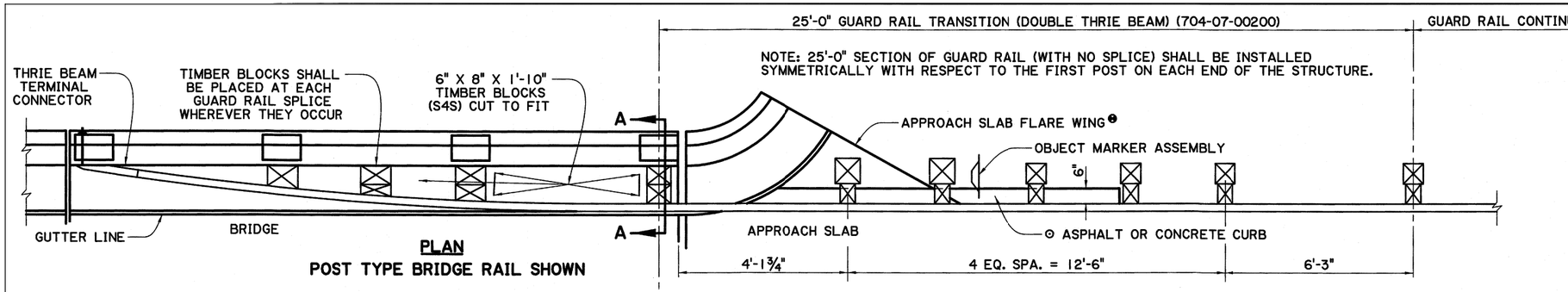
NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY
1	4-8-16	GUARDRAIL HEIGHT, ANCHOR BOLT NOTE AND BASE PLATE	P. F.

STATE OF LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

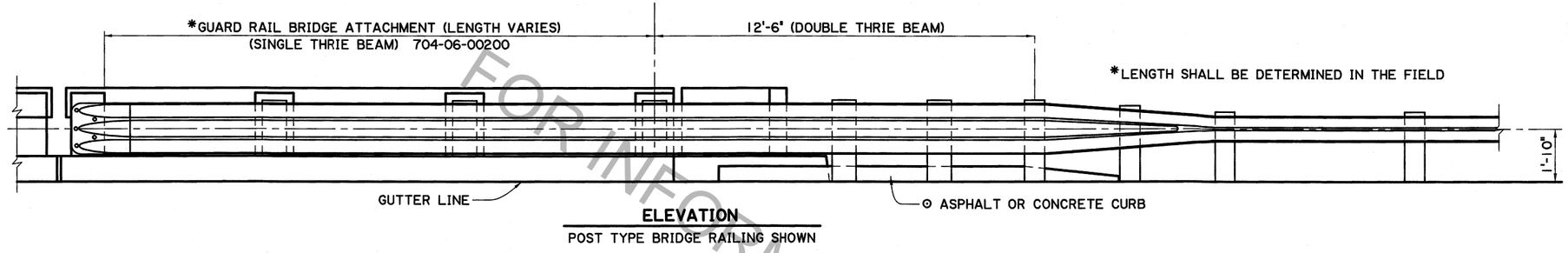
SIDE MOUNTED BRIDGE RAIL

BD.2.6.4.2.12

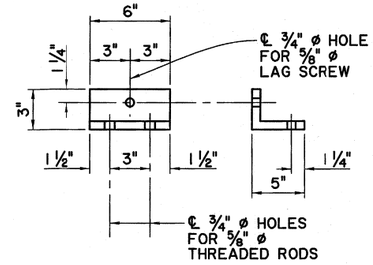
BRIDGE AND STRUCTURAL DESIGN



PLAN
POST TYPE BRIDGE RAIL SHOWN



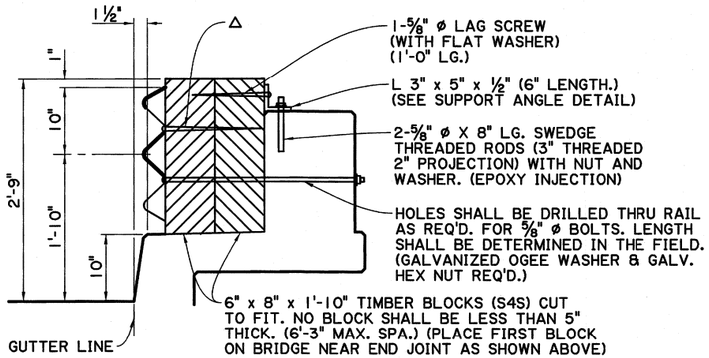
ELEVATION
POST TYPE BRIDGE RAILING SHOWN



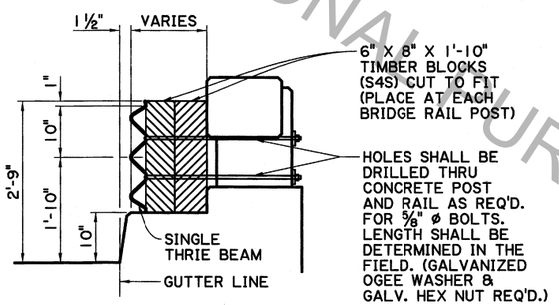
(MOUNT TO TOP OF RAIL FOR BLOCK BACKUP) THE HOLES MAY BE OFFSET TO ACHIEVE INSTALLATION BUT THE 1½" EDGE DISTANCE SHALL BE MAINTAINED.

SUPPORT ANGLE

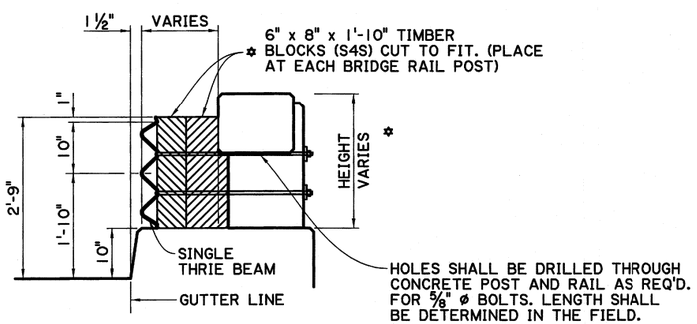
△ ⅝" ø LAG SCREW (WITH PLATE WASHER) SHALL PENETRATE TO THE BACK OF THE REAR BLOCK (LENGTH TO BE DETERMINED IN THE FIELD)



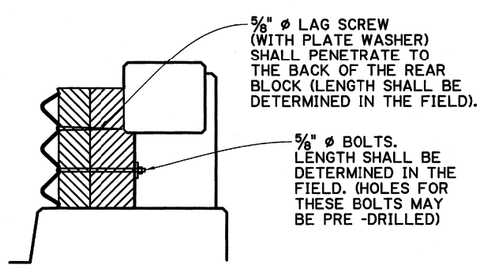
SECTION A-A
SOLID WALL RAILING



SECTION A-A
POST AND RAIL BRIDGE RAIL



SECTION A-A
POST AND RAIL BRIDGE RAIL



VIEW AT GUARD RAIL SPLICES

NOTES:

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

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

ALL MATERIALS AND LABOR REQ'D. TO PLACE THE GUARD RAIL THRU THE BRIDGE SHALL BE PAID FOR UNDER ITEM 704-06-00200.

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 ¾" 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.

❸ 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 ⅝" ø BOLTS SHALL BE ASTM A307.

STATE OF LOUISIANA
PAUL B. FOSSIER, JR
License No. 21028
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
5-31-17

SHEET NUMBER

PARISH	CONTROL SECTION	STATE PROJECT

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

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

STATE OF LOUISIANA

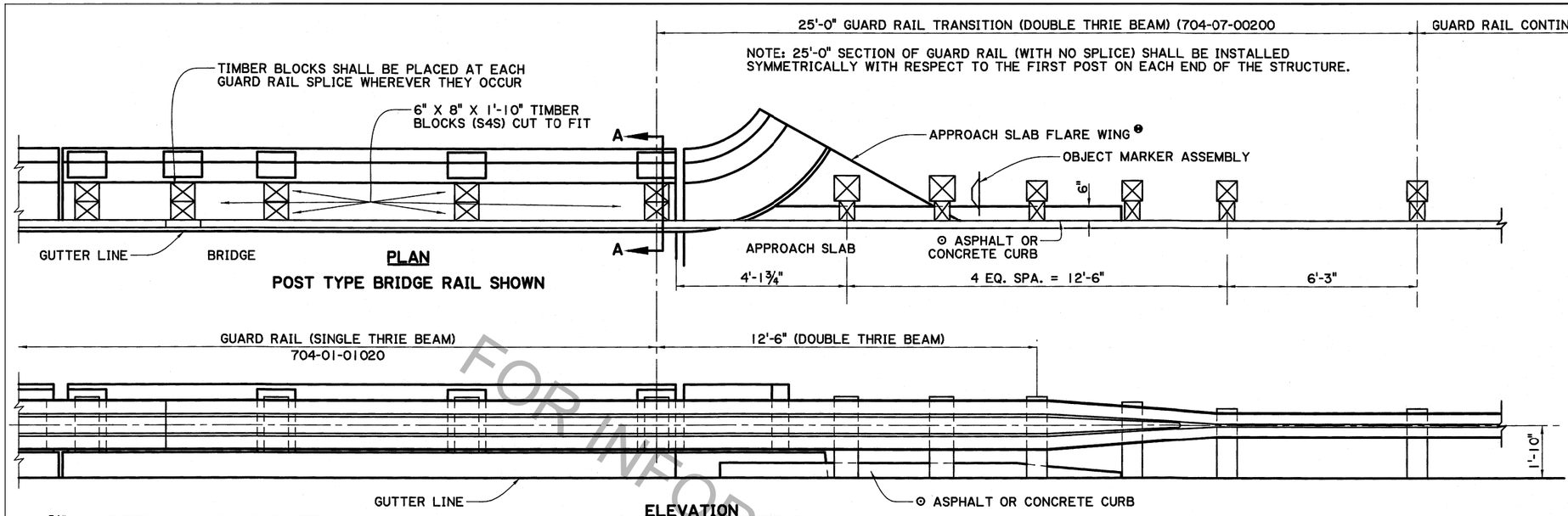
GUARD RAIL TERMINATING ON BRUSH CURB BRIDGE RAIL

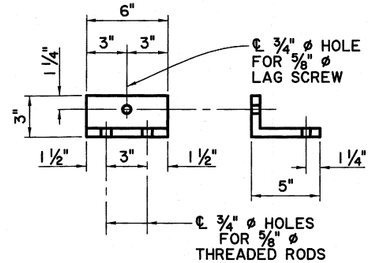
TIMBER POST OPTION

BD.2.6.4.2.13

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
DOTD

BRIDGE AND STRUCTURAL DESIGN

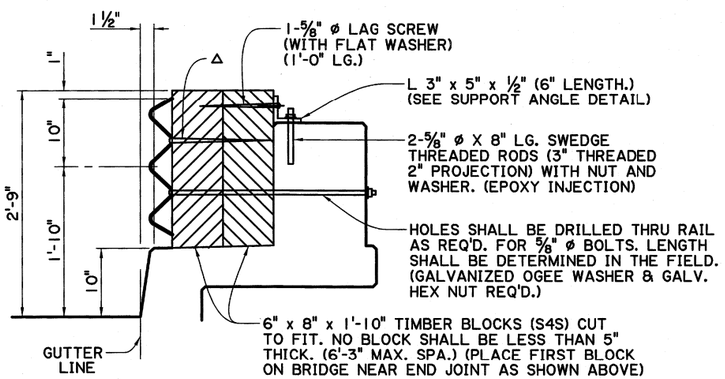




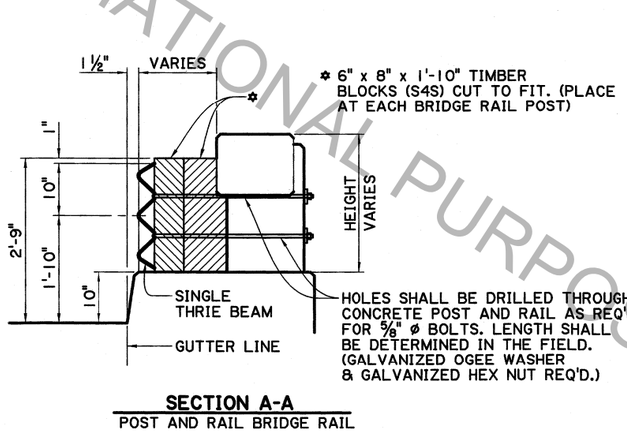
(MOUNT TO TOP OF RAIL FOR BLOCK BACKUP) THE HOLES MAY BE OFFSET TO ACHIEVE INSTALLATION BUT THE 1½" EDGE DISTANCE SHALL BE MAINTAINED.

SUPPORT ANGLE

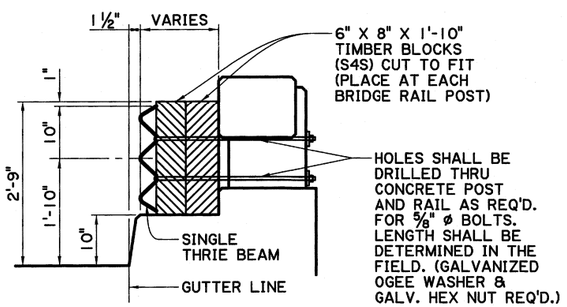
△ ⅝" ø LAG SCREW (WITH PLATE WASHER) SHALL PENETRATE TO THE BACK OF THE REAR BLOCK (LENGTH TO BE DETERMINED IN THE FIELD)



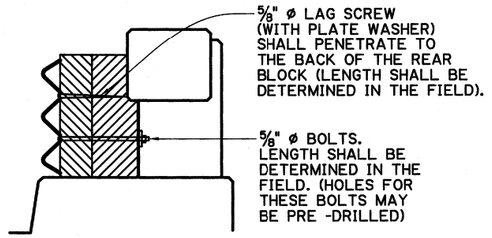
SECTION A-A
SOLID WALL RAILING



SECTION A-A
POST AND RAIL BRIDGE RAIL



SECTION A-A
POST AND RAIL BRIDGE RAIL



VIEW AT GUARD RAIL SPLICES

NOTES:

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

ALL MATERIALS AND LABOR REQ'D. TO PLACE THE GUARD RAIL THRU THE BRIDGE SHALL BE PAID FOR UNDER ITEM 704-01-01020

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

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 ¾" 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.

❷ 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 ⅝" ø BOLTS SHALL BE ASTM A307.

STATE OF LOUISIANA
PAUL B. FOSSIER, JR
License No. 21028
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
5-31-17

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

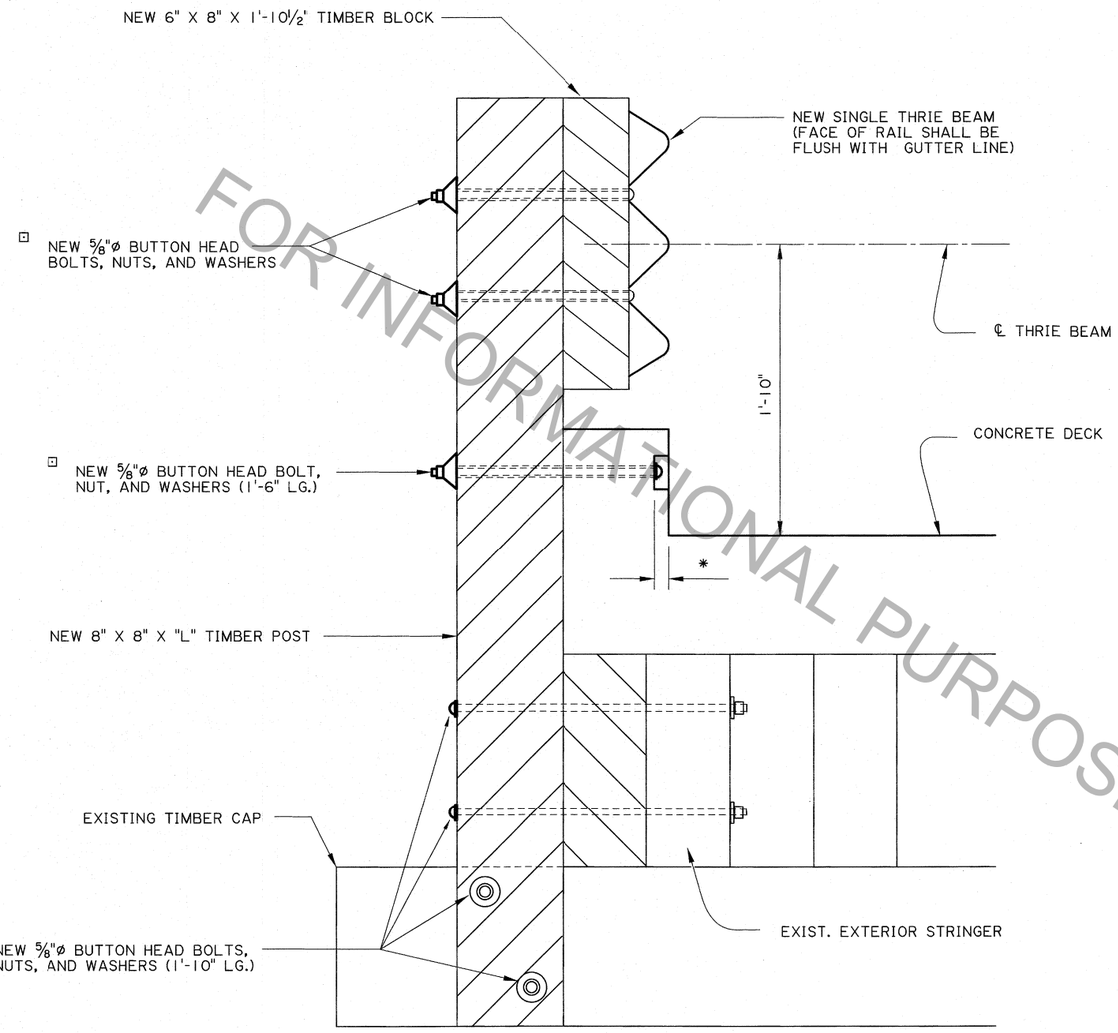
NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION

STATE OF LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

GUARD RAIL
CONTINUOUS ACCROSS BRUSH CURB BRIDGE RAIL
TIMBER POST OPTION

BD.2.6.4.2.14

BRIDGE AND STRUCTURAL DESIGN



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 ⅝" ø BOLTS SHALL BE ASTM A307.

ALL BOLT LENGTHS SHALL BE VERIFIED BY FIELD MEASUREMENTS.

STATE OF LOUISIANA
PAUL B. FOSSIER, JR
License No. 21028
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
5-31-17

SHEET NUMBER	

PARISH	CONTROL SECTION	STATE PROJECT

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

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

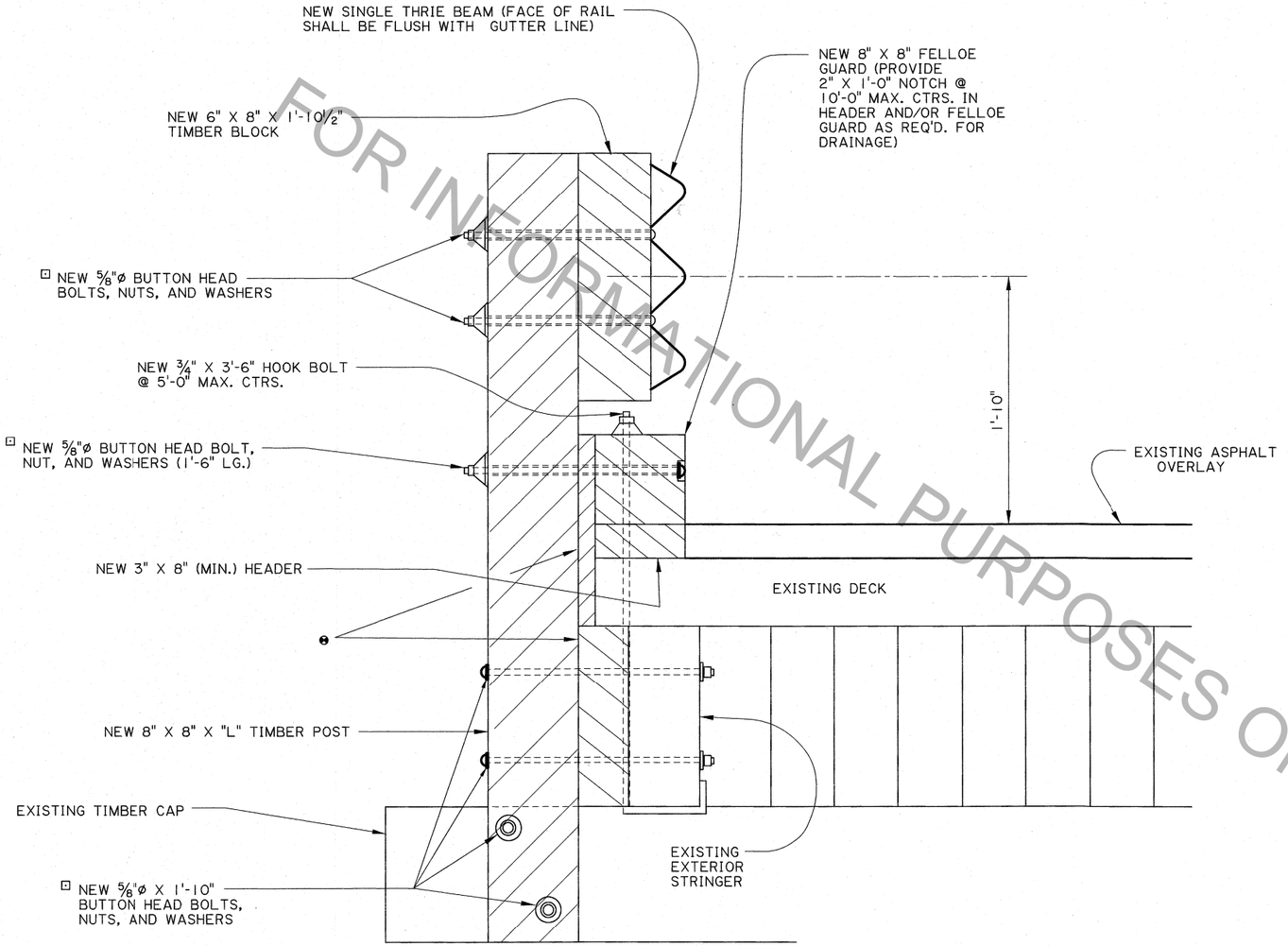
STATE OF LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

BRIDGE RAIL REHABILITATION
CONCRETE DECK

BD.2.6.4.2.15

BRIDGE AND STRUCTURAL DESIGN

❶ 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

(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 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 ⅝" ø BOLTS SHALL BE ASTM A307.

ALL BOLT LENGTHS SHALL BE VERIFIED BY FIELD MEASUREMENTS.

SHEET NUMBER

PARISH	CONTROL SECTION	STATE PROJECT

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

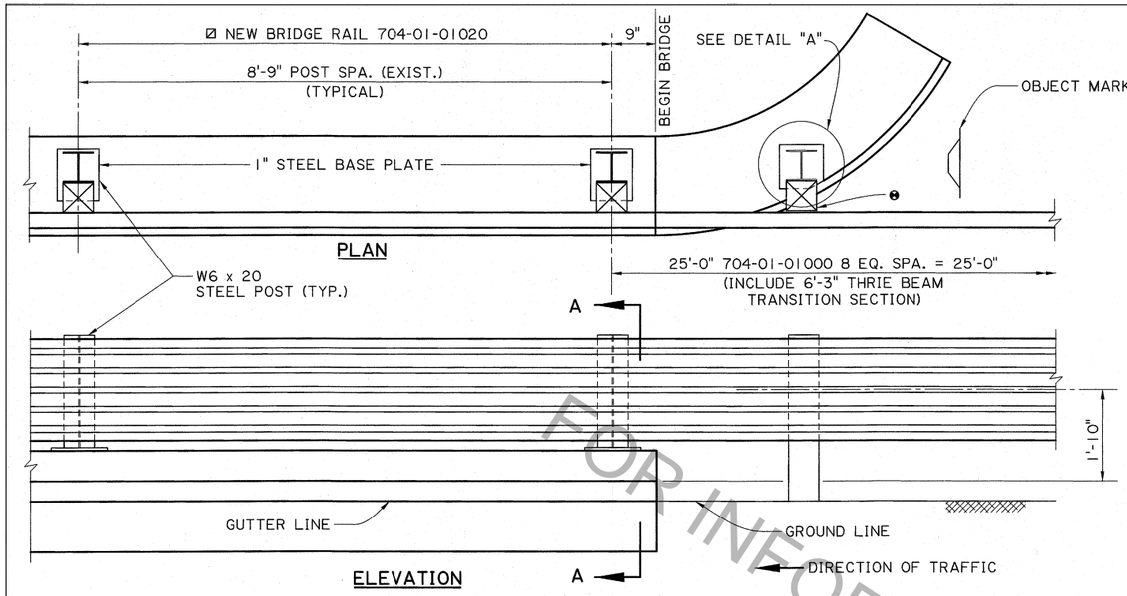
NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY
	4-8-16	GUARDRAIL HEIGHT, ANCHOR BOLT NOTE AND BASE PLATE	P. F.

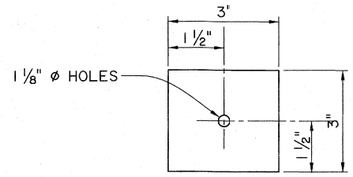
STATE OF LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

BRIDGE AND STRUCTURAL DESIGN

GUARD RAIL REHABILITATION TIMBER DECK

BD.2.6.4.2.16





5⁄8" 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.

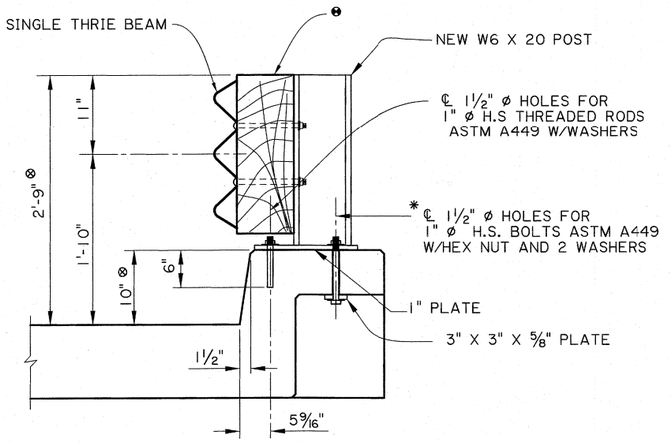
Ø THE EXISTING POST SHALL BE REMOVED AND NEW POST BE MOUNTED ON THE TOP OF THE STRUCTURE AS SHOWN AND AT THE SAME SPACING.

⊖ 6" X 8" X 1'-10" TIMBER BLOCK

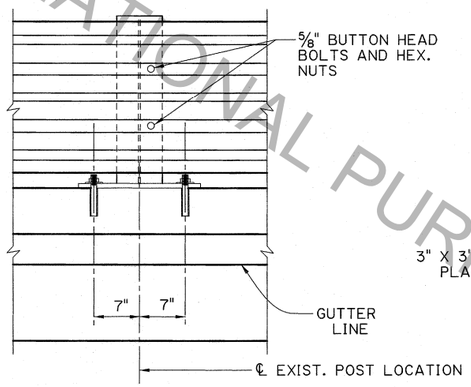
✡ ℄ 1½" ø HOLES FOR 1" ø H.S. BOLTS ASTM A449 W/HEX NUT AND 2 WASHERS

ALL 5⁄8"ø BOLTS SHALL BE ASTM A307.

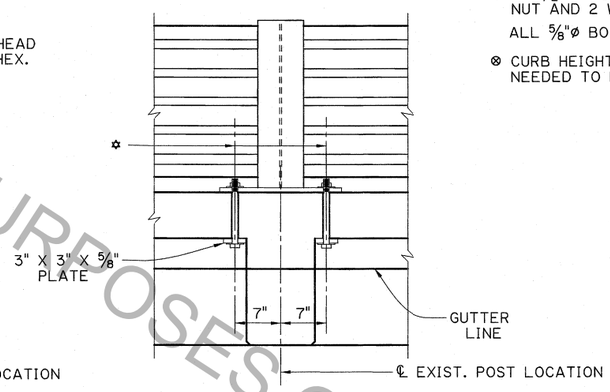
⊗ CURB HEIGHT MAY VARY, ADJUST W6x20 POST LENGTH AS NEEDED TO MEET 2'-9" DIMENSION.



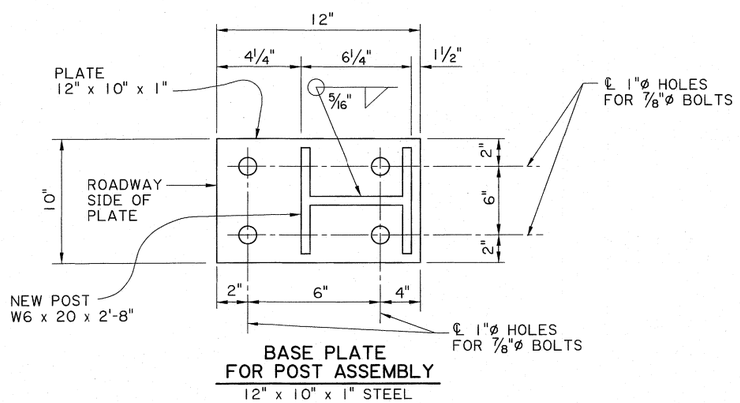
SECTION A-A



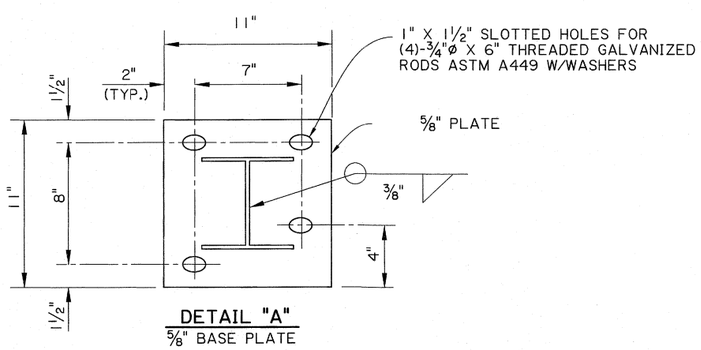
FRONT VIEW



REAR VIEW



BASE PLATE
FOR POST ASSEMBLY
12" x 10" x 1" STEEL



DETAIL "A"
5⁄8" BASE PLATE

STATE OF LOUISIANA
PAUL B. FOSSIER, JR
License No. 21028
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
5-31-17

SHEET NUMBER

PARISH	CONTROL SECTION	STATE PROJECT

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

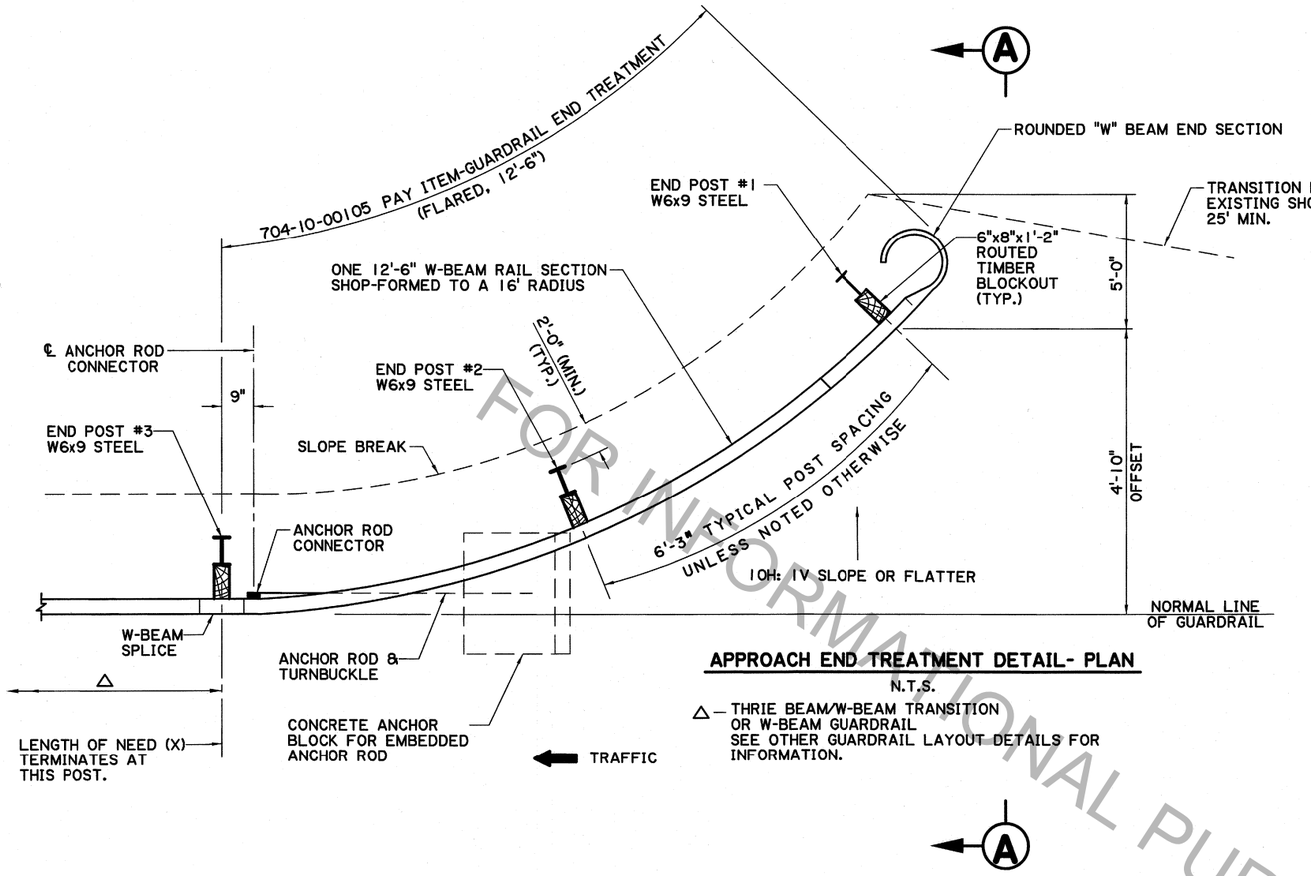
NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY
	4-8-16	GUARDRAIL HEIGHT, ANCHOR BOLT NOTE AND BASE PLATE	P. F.

STATE OF LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

BRIDGE AND STRUCTURAL DESIGN

BRIDGE RAIL REHABILITATION
WASKEY BRIDGES

BD.2.6.4.2.17



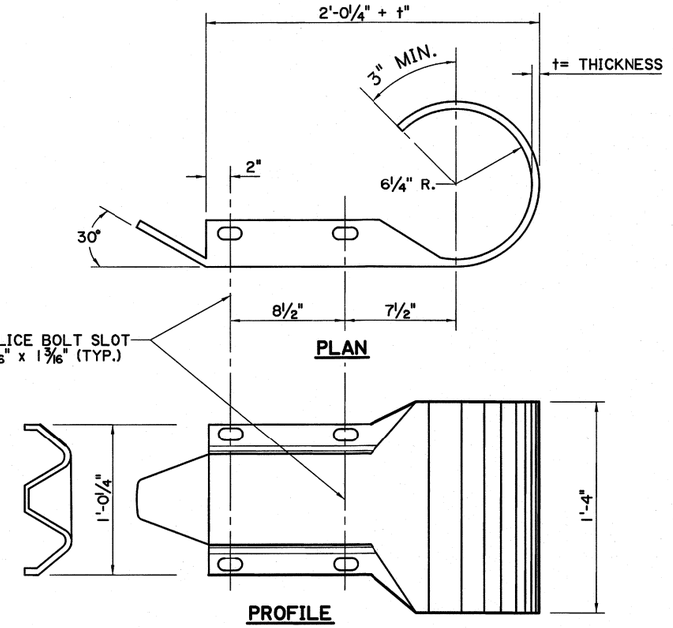
APPROACH END TREATMENT DETAIL- PLAN

N.T.S.

△ — THRIE BEAM/W-BEAM TRANSITION OR W-BEAM GUARDRAIL SEE OTHER GUARDRAIL LAYOUT DETAILS FOR INFORMATION.

GENERAL NOTES:

1. FOR OTHER DETAILS NOT SHOWN (STEEL POST, TIMBER BLOCKOUT, GUARDRAIL, ETC., SEE STANDARD PLAN GR-200 AND OTHER PLAN SHEET DETAILS.
2. ROUNDED W-BEAM END SECTION SHALL CONFORM WITH AASHTO M-180 CLASS "A". ANCHOR ROD CONNECTOR PLATE AND ANCHOR ROD PLATE WASHER SHALL CONFORM TO ASTM A-36 STEEL.
3. GUARDRAIL FLARED END TREATMENT MEETS TEST LEVEL 2 (TL-2) NCHRP350 ACCEPTANCE CRITERIA. REFERENCE FHWA ACCEPTANCE LETTER CC-62.
4. A DESIGN EXCEPTION IS REQUIRED TO USE THIS TL-2 GUARD RAIL END TREATMENT.
5. PAY ITEM: 704-10-00105

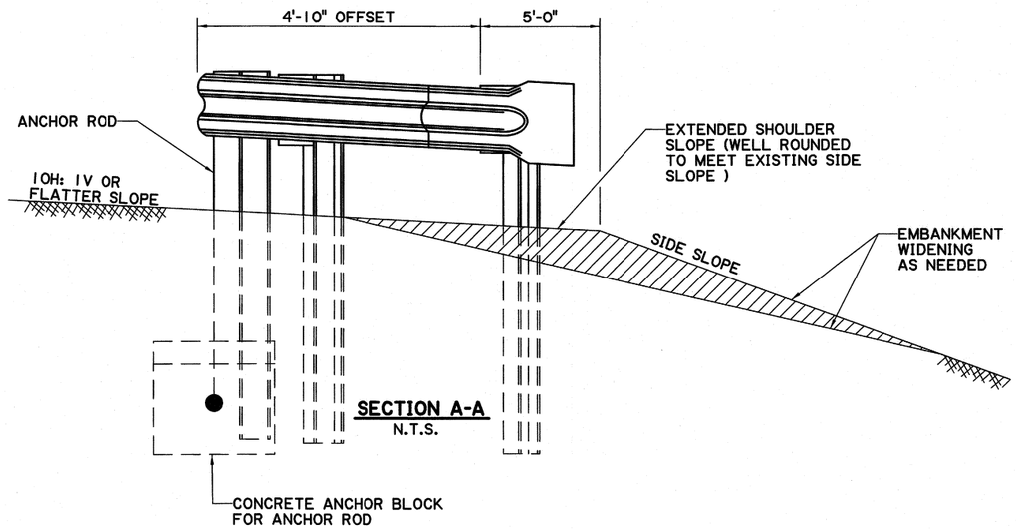


PLAN

PROFILE

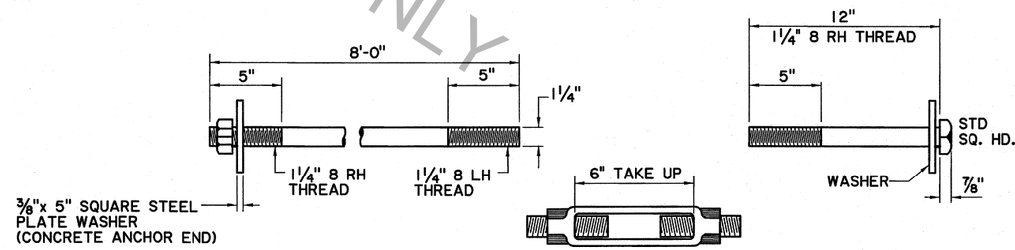
ROUNDED "W" BEAM END

N.T.S.



SECTION A-A

N.T.S.



TURNBUCKLE

N.T.S.

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

ANCHOR ROD

N.T.S.

STATE OF LOUISIANA
ANANDA H. HERATH
License No. 29042
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
05/30/2017

SHEET NUMBER

PARISH	CONTROL SECTION	STATE PROJECT

DESIGNED	P. FOSSIER	
CHECKED	A. HERATH	
DETAILED	C. OWENS	
CHECKED	A. HERATH	
REVIEWED	K. BRAUNER	
SERIES #	1 OF 2	BY

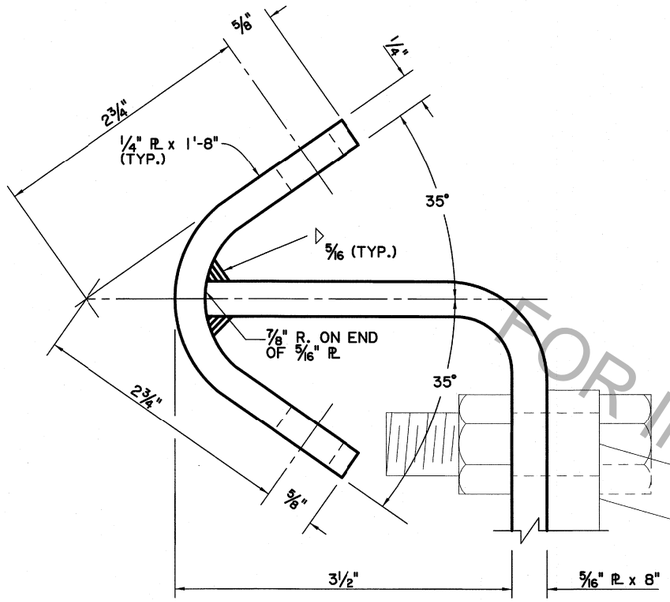
NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION

GUARD RAIL END TREATMENT (FLARED, 12'-6")

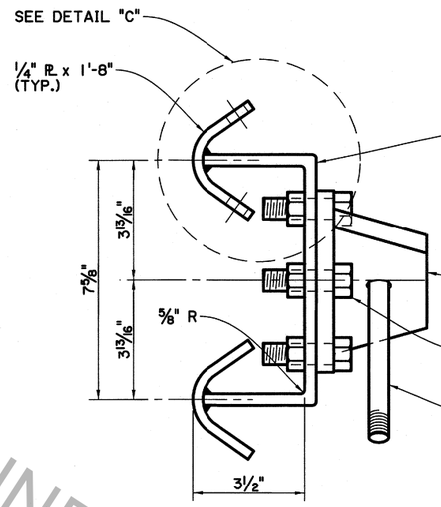
SPECIAL DETAILS

BD.2.6.4.2.18

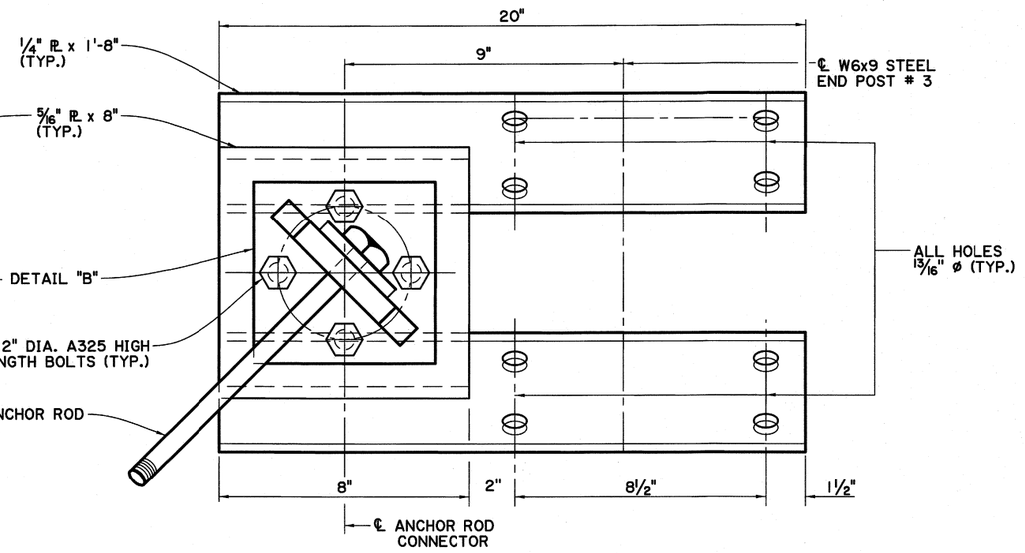
BRIDGE AND STRUCTURAL DESIGN



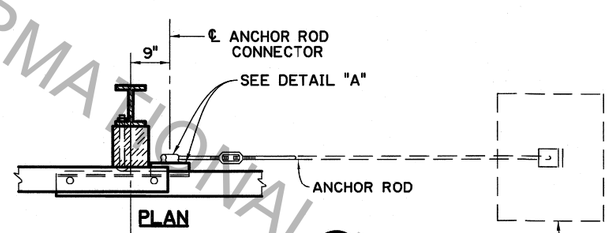
DETAIL "C"
N.T.S.



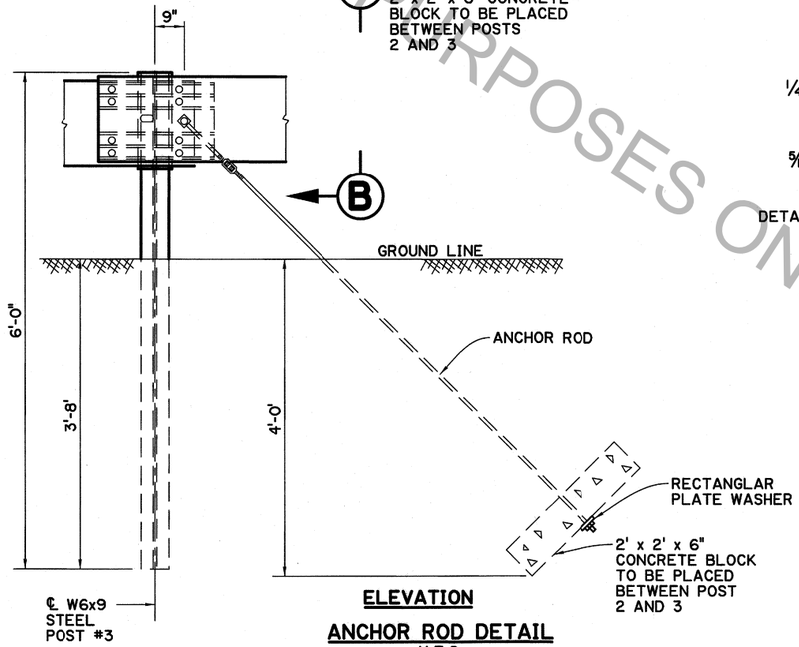
DETAIL "A"
N.T.S.



SECTION D-D
N.T.S.

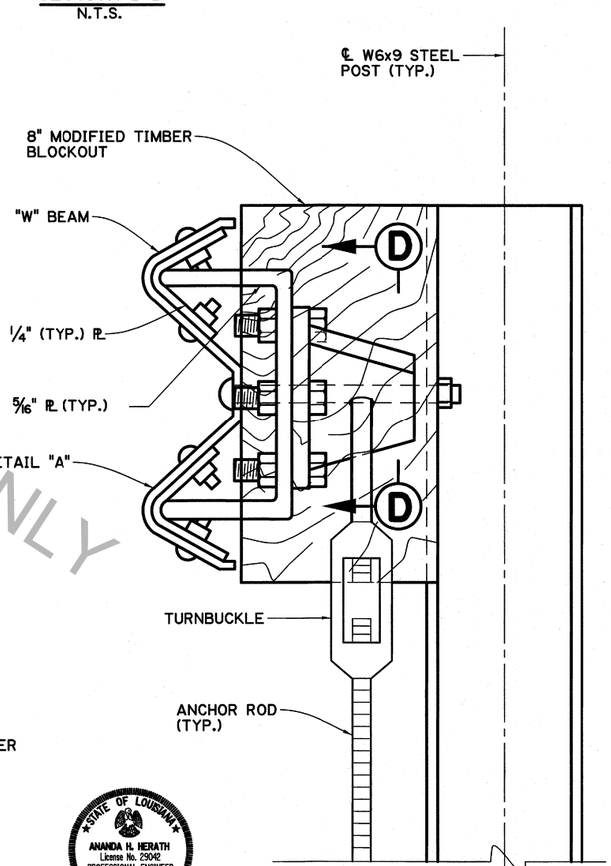


PLAN

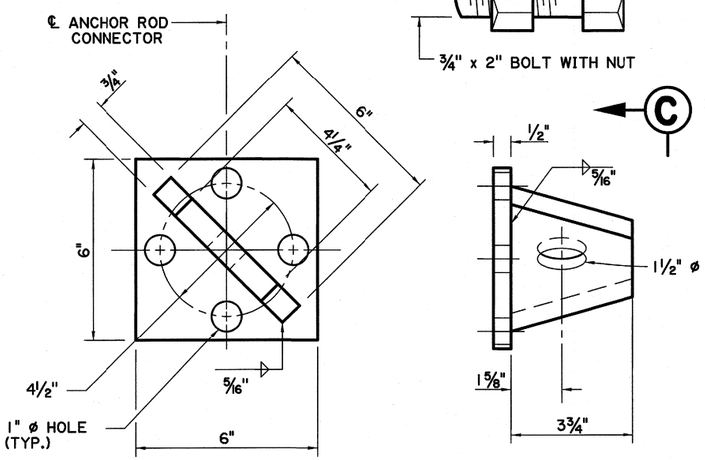


ELEVATION

ANCHOR ROD DETAIL
N.T.S.



SECTION B-B
N.T.S.



SECTION C-C

DETAIL "B"

ANCHOR ROD STEEL CONNECTOR PLATES
N.T.S.

STATE OF LOUISIANA
ANANDA H. HERATH
License No. 23042
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
05/30/2017

SHEET NUMBER		
PARISH	CONTROL SECTION	STATE PROJECT
DESIGNED P. FOSSIER CHECKED A. HERATH	DETAILED C. OWENS CHECKED A. HERATH	REVIEWED K. BRAUNER SERIES # 2 OF 2

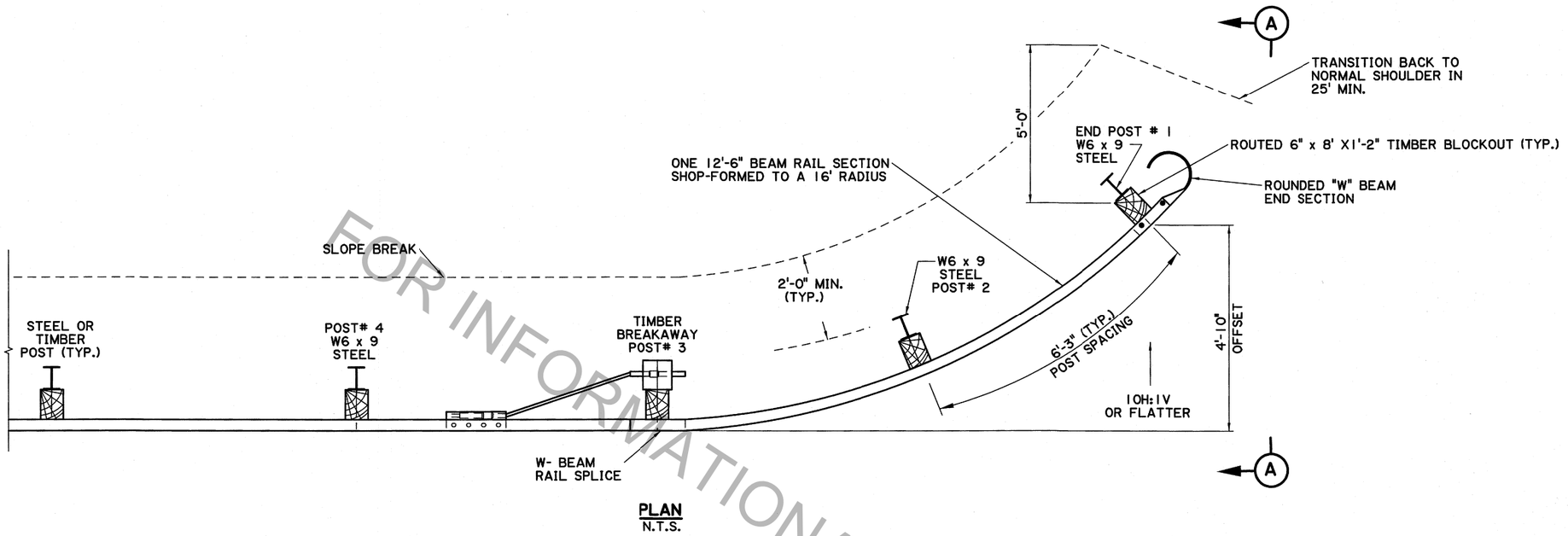
NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
bota
BRIDGE AND STRUCTURAL DESIGN

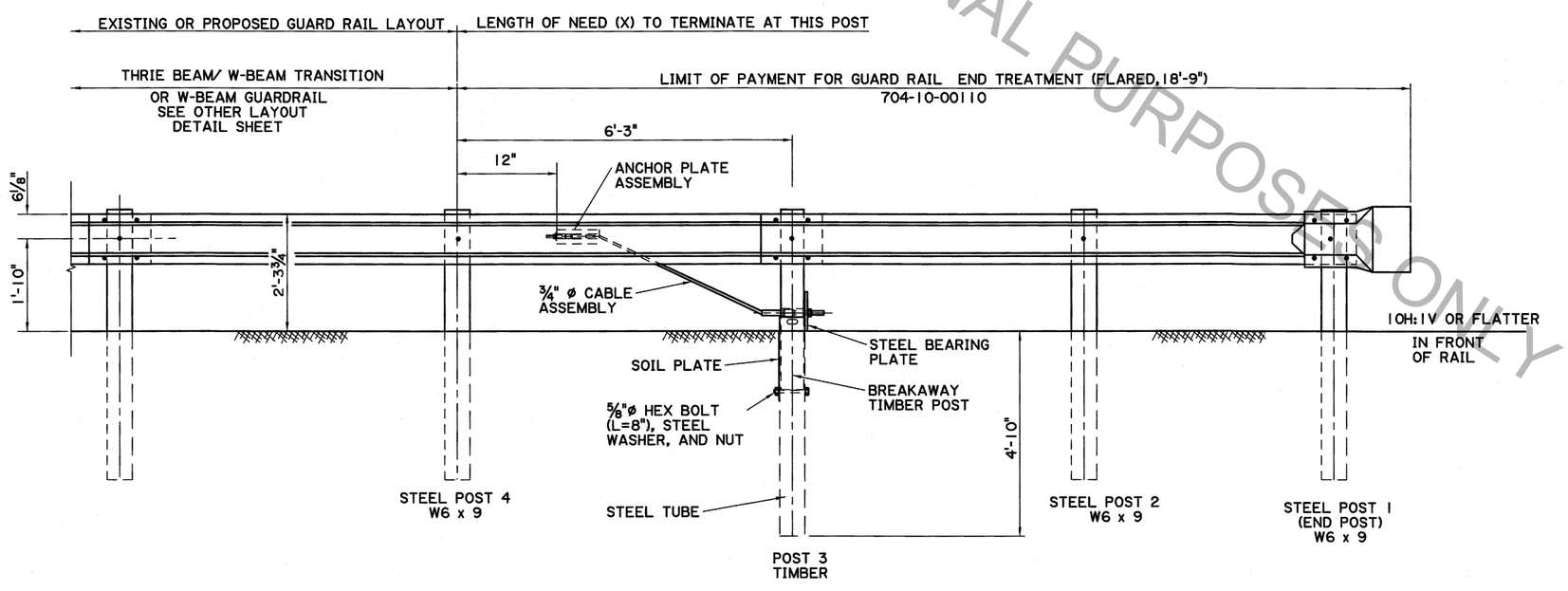
GUARD RAIL END TREATMENT (FLARED, 12'-6")

SPECIAL DETAILS

BD.2.6.4.2.19



PLAN
N.T.S.



ELEVATION
N.T.S.

STATE OF LOUISIANA
ANANDA H. HERATH
License No. 29042
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING

05/30/2017

SHEET NUMBER

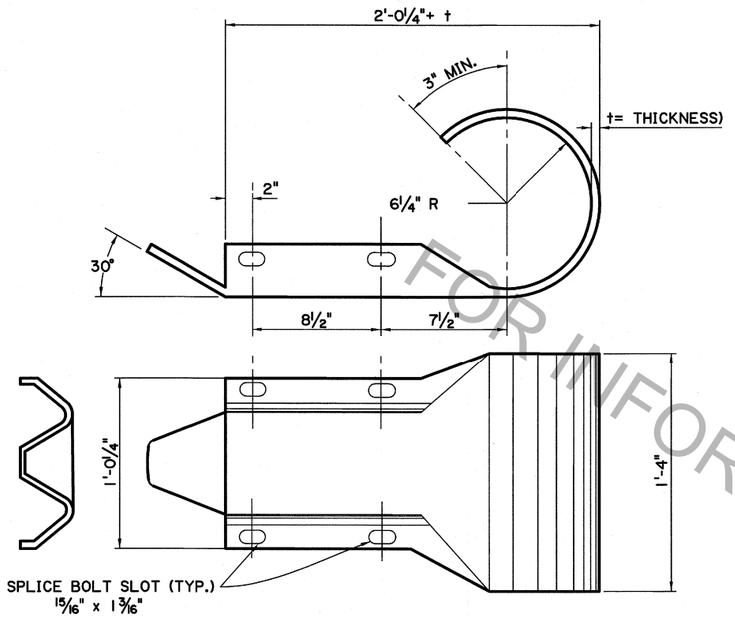
	PARISH	CONTROL SECTION	STATE PROJECT
DESIGNED P. FOSSIER / CHECKED A. HERATH			
DETAILED C. OWENS / CHECKED P. FOSSIER			
REVIEWED K. BRAUNER			
SERIES # 1 OF 2			

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

GUARD RAIL END TREATMENT FLARED (18'-9")

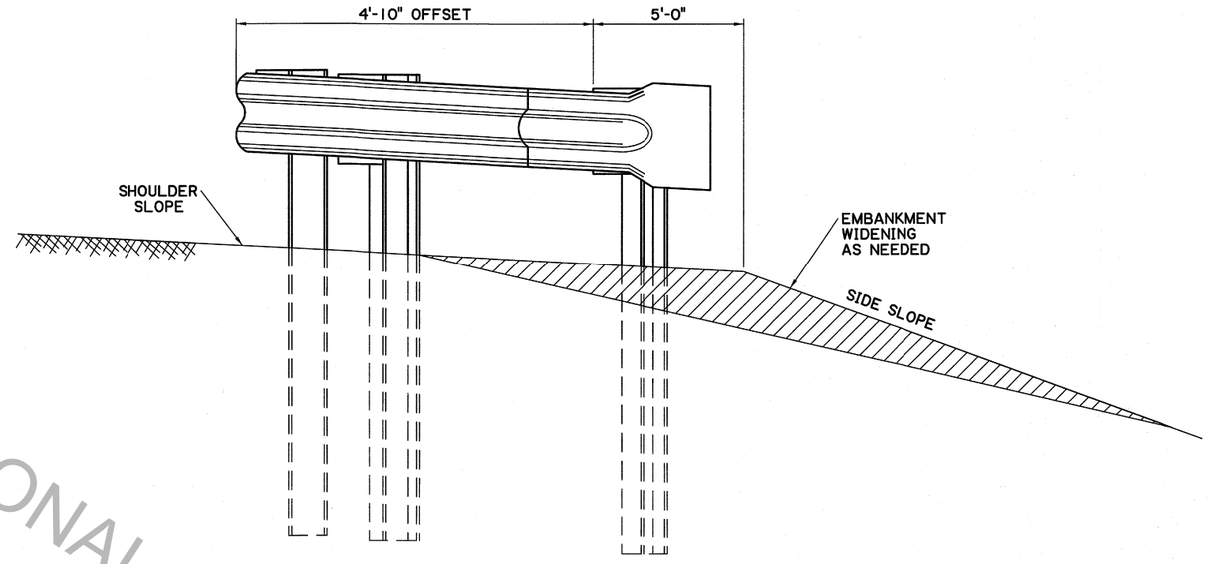
BD.2.6.4.2.20

BRIDGE AND STRUCTURAL DESIGN



ROUNDED "W" BEAM END SECTION

N.T.S.



SECTION A-A

N.T.S.

NOTES:

1.) FOR ANCHOR PLATE ASSEMBLY, ¾"ø 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.

STATE OF LOUISIANA
ANANDA H. HERATH
License No. 29042
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING

05/30/2017

SHEET NUMBER

DESIGNED	P. FOSSIER	PARISH	
CHECKED	A. HERATH		
DETAILED	J. KOEMPEL	CONTROL SECTION	
CHECKED	P. FOSSIER		
REVIEWED	K. BRAUNER	STATE PROJECT	
SERIES #	2 OF 2		

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY

GUARD RAIL END TREATMENT FLARED (18'-9")

BD.2.6.4.2.21

BRIDGE AND STRUCTURAL DESIGN