

NOTE:
RAIL JOINT TO BE
600mm MAXIMUM
FROM POST CENTERLINE.

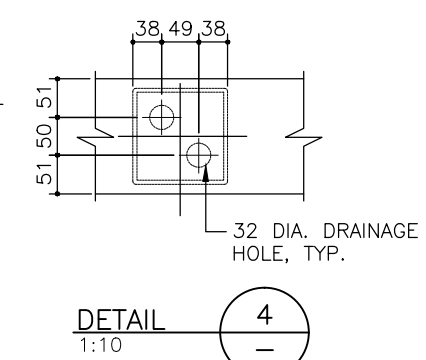
NOTES:

GENERAL

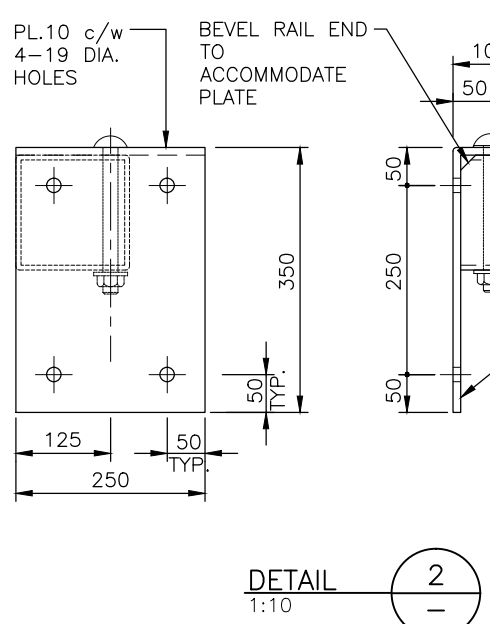
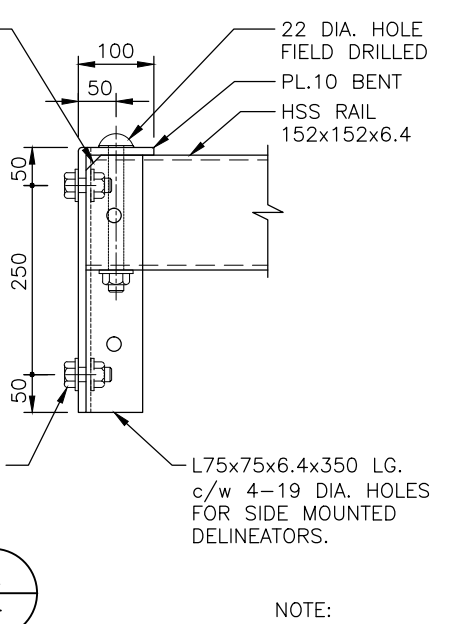
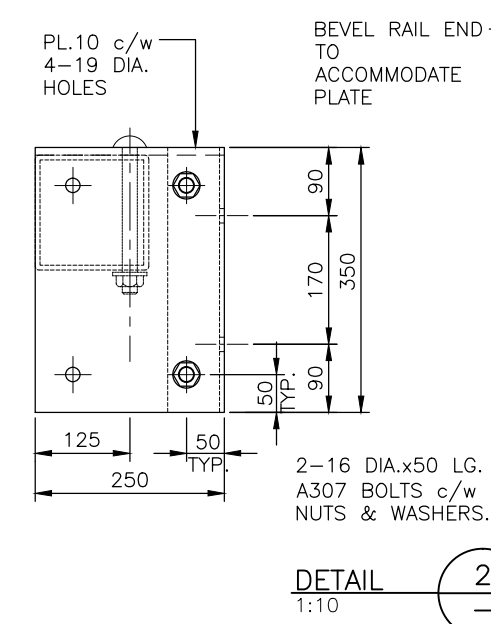
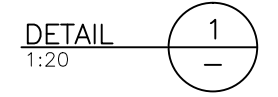
- GUARDRAILS HAVE BEEN DESIGNED TO MEET THE CRITERIA FOR CONTAINMENT LEVEL CL-2 AS DEFINED BY THE MINISTRY. GUARDRAILS HAVE NOT BEEN DESIGNED TO CONTAIN ERRANT VEHICLES.
- MAXIMUM POST SPACING = 3048 C/C.
- FOR GUARDRAIL ANCHOR DETAILS, SEE MINISTRY STANDARD DRAWINGS:
STD-EC-030-09 - COMPOSITE PRECAST DECK PANEL
STD-EC-040-08 - NON-COMPOSITE PRECAST DECK PANEL-DETAILS
STD-EC-070-03 - PRECAST CONCRETE SLAB DETAILS (SHEET 1)

MATERIALS

- STEEL:
 - RAILS AND POSTS
 - TO CSA G40.21M,
 - GRADE 350W (COATED)
 - GRADE 350A (UNCOATED)
 - OR TO ASTM
 - A500 GRADE C (COATED)
 - A847 (UNCOATED)
 - PLATE TO CSA G40.21M
 - GRADE 350W (COATED)
 - GRADE 350A (UNCOATED)
 - GRADE 300W (COATED)
- STEEL FABRICATION:
 - WELDING:
 - SHOP WELDING IN ACCORDANCE WITH CSA W59 FABRICATOR TO BE CERTIFIED FOR DIVISION 1, 2 OR 3 IN ACCORDANCE WITH CSA W47.1.
 - FIELD WELDING BY COMPANY CERTIFIED TO CSA W47.1, DIVISIONS 1, 2 OR 3.
 - MIN. 6mm FILLET WELD UNLESS OTHERWISE NOTED.
 - GUARDRAIL BRACKETS AND POST COATING TO BE EITHER:
 - GALVANIZED TO CSA G164 AS NOTED ON DRAWINGS. MINIMUM 610 g/m²; OR
 - PAINTED IN ACCORDANCE WITH MINISTRY STEEL GUARDRAIL COMPONENT PAINT STANDARD:
 - HSS RAIL TO BE PAINTED SAFETY YELLOW IN ACCORDANCE WITH MINISTRY STEEL GUARDRAIL COMPONENT PAINT STANDARD:
 - GALVANIZING WHERE SPECIFIED, TO CSA G164, MINIMUM 610 g/m².
- HARDWARE:
 - ALL HARDWARE (BOLTS, NUTS, WASHERS) TO BE GALVANIZED TO CSA G164, MINIMUM 610 g/m².
 - BOLTS TO ASTM A307 GRADE B GALVANIZED.



ASSUME NOT TO SCALE



NOTE:
DELINEATOR ORIENTATION
BY OWNER

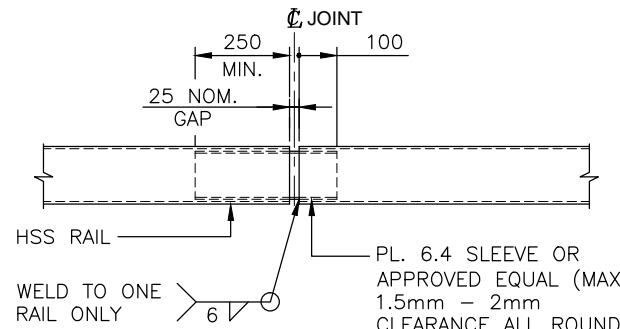
Rev	Date	DESCRIPTION	Init
1	2012/09/06	REVISED DIMENSIONS	
2	2015/12/01	CHANGE PLATE LENGTH FROM 35 TO 350	
3	2016/01/06	REVISED DIMENSIONS; REDUCED GAP DISTANCE & PLATE SIZE	
4	2016/10/15	CHANGE TO SUIT STEEL GIRDER & SLAB BRIDGES; REVISED DIMENSIONS	

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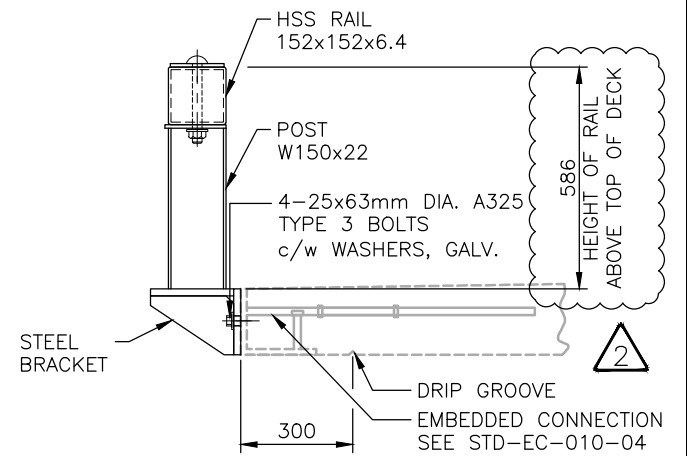
STANDARD BRIDGE DRAWING	
STANDARD BRIDGE GUARDRAIL - HSS RAIL	
CL - 2	
ORIGINAL SIGNED and SEALED BY: JULIEN HENLEY	APPROVED BY:
DESIGN ENGINEER	MOF ENGINEER
DATE JULIEN HENLEY	DATE
FILE No.	DRAWING No.
STD-EC-010-02	

700 MAX. POST SPACING 1500± 2348± 2448± 600 MAX. 3048± 2348± 1500± 700 MAX. POST SPACING

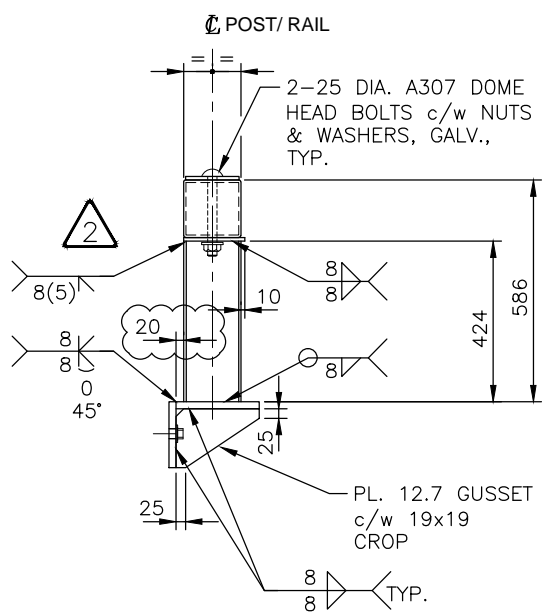
ELEVATION
1:100



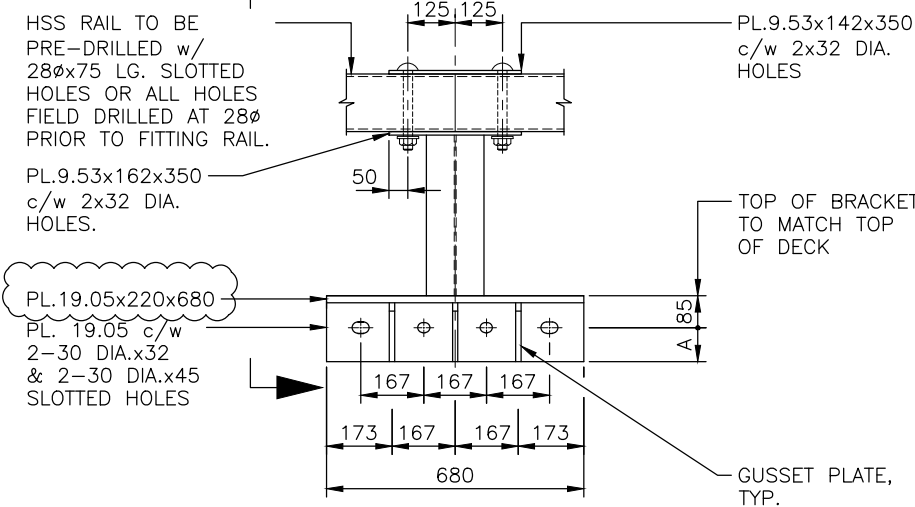
DETAIL 3
1:20



SECTION A
1:20



SECTION B
1:20



DETAIL 1
1:20

DECK THICKNESS	A
175	90
200	115
225	140

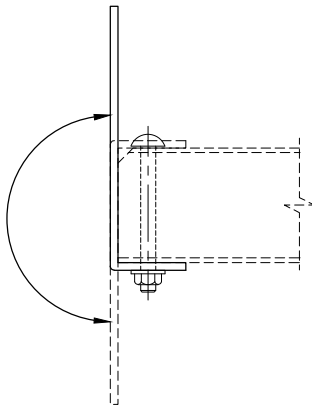
NOTES:

GENERAL

- GUARDRAILS HAVE BEEN DESIGNED TO MEET THE CRITERIA FOR CONTAINMENT LEVEL CL-3 AS DEFINED BY THE MINISTRY. GUARDRAILS HAVE NOT BEEN DESIGNED TO CONTAIN ERRANT VEHICLES.
- MAXIMUM POST SPACING = 3048 C/C.
- FOR GUARDRAIL ANCHOR DETAILS, SEE MINISTRY STANDARD DRAWINGS: STD-EC-010-04 - CL3 INSERT DETAILS

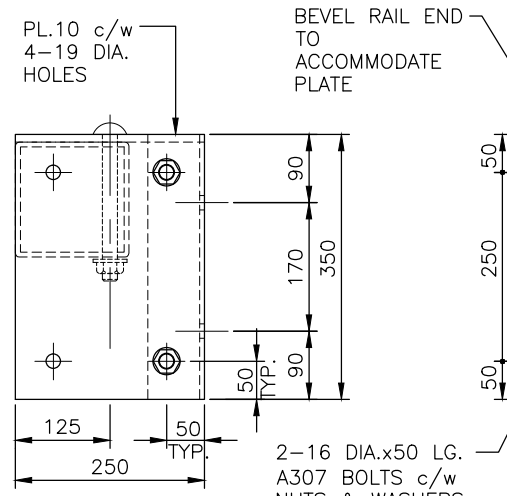
MATERIALS

- STEEL:
 - RAILS
 - TO CSA G40.21M
 - GRADE 350W (COATED)
 - GRADE 350A (UNCOATED)
 - OR TO ASTM
 - A500 GRADE C (COATED)
 - A847 (UNCOATED)
 - POSTS TO CSA G40.21M
 - GRADE 350W (COATED)
 - PLATE TO CSA G40.21M
 - GRADE 350W (COATED)
 - GRADE 350A (UNCOATED)
- STEEL FABRICATION:
 - WELDING:
 - SHOP WELDING IN ACCORDANCE WITH CSA W59 FABRICATOR TO BE CERTIFIED FOR DIVISION 1, 2 OR 3 IN ACCORDANCE WITH CSA W47.1.
 - FIELD WELDING BY COMPANY CERTIFIED TO CSA W47.1, DIVISIONS 1, 2 OR 3.
 - MIN. 6mm FILLET WELD UNLESS OTHERWISE NOTED.
 - GUARDRAIL BRACKETS AND POST COATING TO BE EITHER:
 - GALVANIZED TO CSA G164 AS NOTED ON DRAWINGS. MINIMUM 610 g/m²; OR
 - PAINTED IN ACCORDANCE WITH MINISTRY STEEL GUARDRAIL COMPONENT PAINT STANDARD:
 - HSS RAIL TO BE PAINTED SAFETY YELLOW IN ACCORDANCE WITH MINISTRY STEEL GUARDRAIL COMPONENT PAINT STANDARD:



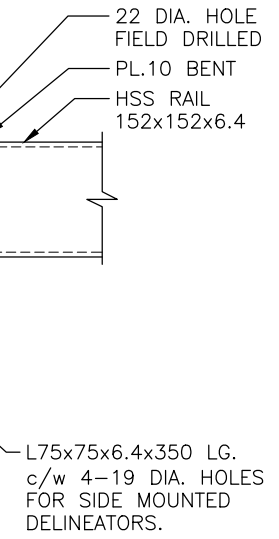
DETAIL 5
1:10

ASSUME NOT TO SCALE

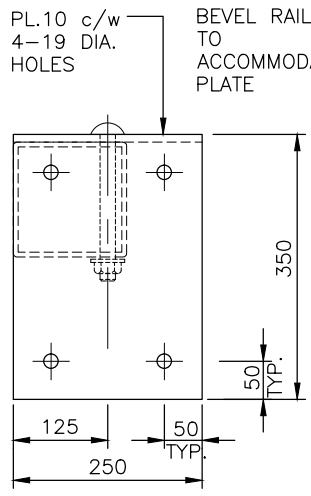


DETAIL 2
1:10

FOR SIDE MOUNTED DELINEATOR TAB OPTION



NOTE:
DELINEATOR ORIENTATION
BY OWNER



DETAIL 2
1:10

FOR FRONT MOUNTED DELINEATOR TAB OPTION



STANDARD BRIDGE DRAWING

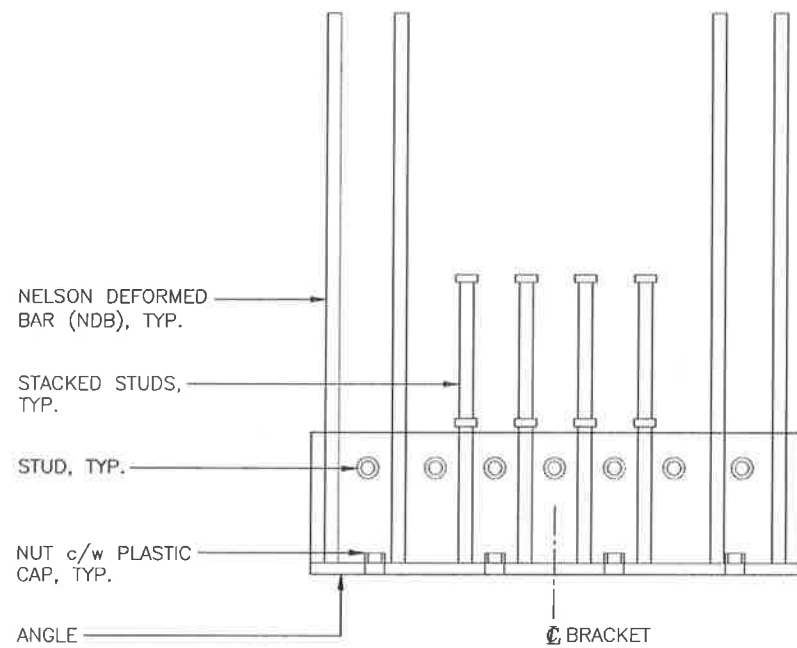
STANDARD BRIDGE GUARDRAIL - HSS RAIL
CL - 3

ORIGINAL SIGNED and SEALED BY: JULIEN HENLEY	APPROVED BY:
DESIGN ENGINEER	MOF ENGINEER
DATE JULIEN HENLEY	DATE
FILE No.	DRAWING No.

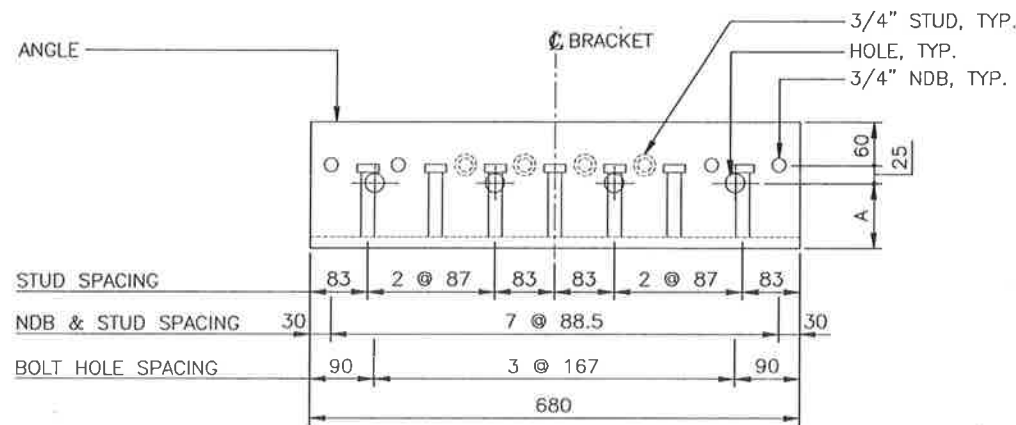
Rev	Date	DESCRIPTION	Init
1	2013/10/21	ISSUED TO CLIENT	
2	2016/01/06	REDUCED GAP DISTANCE & PLATE SIZE	

REVISIONS

STD-EC-010-03

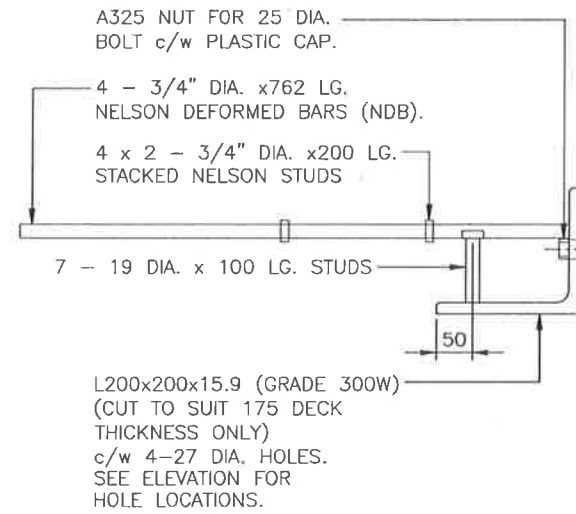


INSERT PLAN
1:10

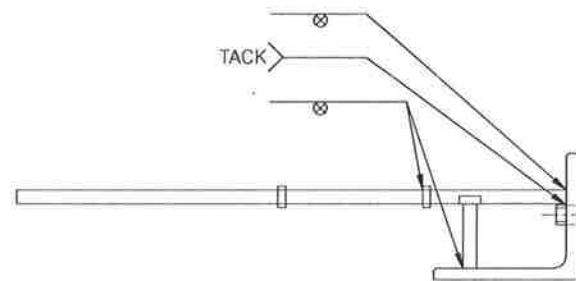


INSERT ELEVATION
1:10

DECK THICKNESS	A
175	90
200	115
225	140



DETAIL 1
1:10



DETAIL 1
1:10
(WELDING ONLY)

NOTES:

GENERAL

- INSERTS HAVE BEEN DESIGNED TO MEET THE CRITERIA FOR CONTAINMENT LEVEL CL-3 AS DEFINED BY THE MINISTRY.

MATERIALS

- STEEL: STUDS TO ASTM A108 - GRADE 1015, 1018 OR 1020.

NELSON DEFORMED BARS (NDB) TO ASTM A108 - GRADE 1010 - 1020, - MIN. Fy = 485 MPa.

ANGLE TO CSA G40.21M - GRADE 300W (GALVANIZED)

NUTS TO ASTM A325 TYPE 3

- STEEL FABRICATION:

WELDING:

- SHOP WELDING IN ACCORDANCE WITH CSA W59 FABRICATOR TO BE CERTIFIED FOR DIVISION 1, 2 OR 3 IN ACCORDANCE WITH CSA W47.1.

- HARDWARE:

- INSERTS TO BE GALVANIZED TO CSA G164, MINIMUM 610 g/m², AFTER FABRICATION.

ASSUME NOT TO SCALE

SCALE AS SHOWN

Designed J.H. Date 2013/08/02
Checked J.H. Date 2013/08/02
Drawn W.B. Date 2013/08/02

Rev	Date	DESCRIPTION	Init
1	2013/10/23	ISSUED TO CLIENT	

REVISIONS

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STANDARD BRIDGE DRAWING

STANDARD STEEL GIRDER BRIDGE WITH CL3 COMPOSITE DECK
CL - 3 INSERT DETAILS

ORIGINAL SIGNED and SEALED BY:
JULIEN HENLEY

DESIGN ENGINEER
DATE: JULIEN HENLEY

FILE No.:

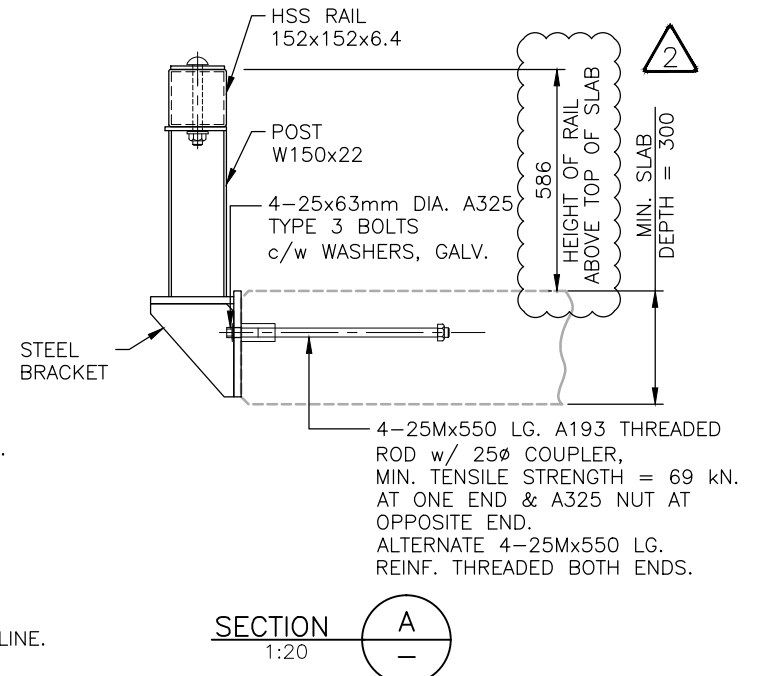
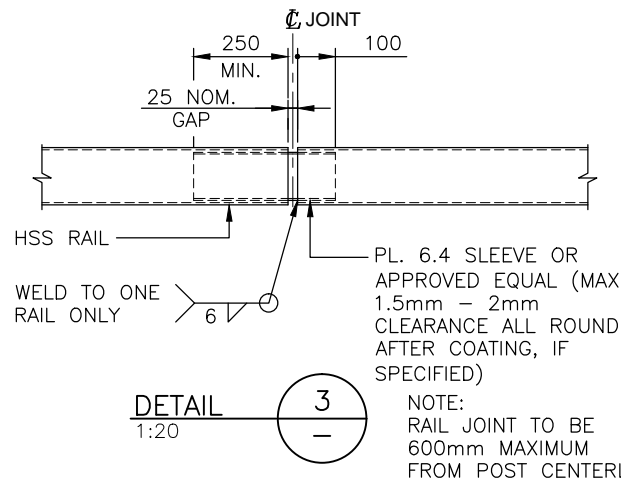
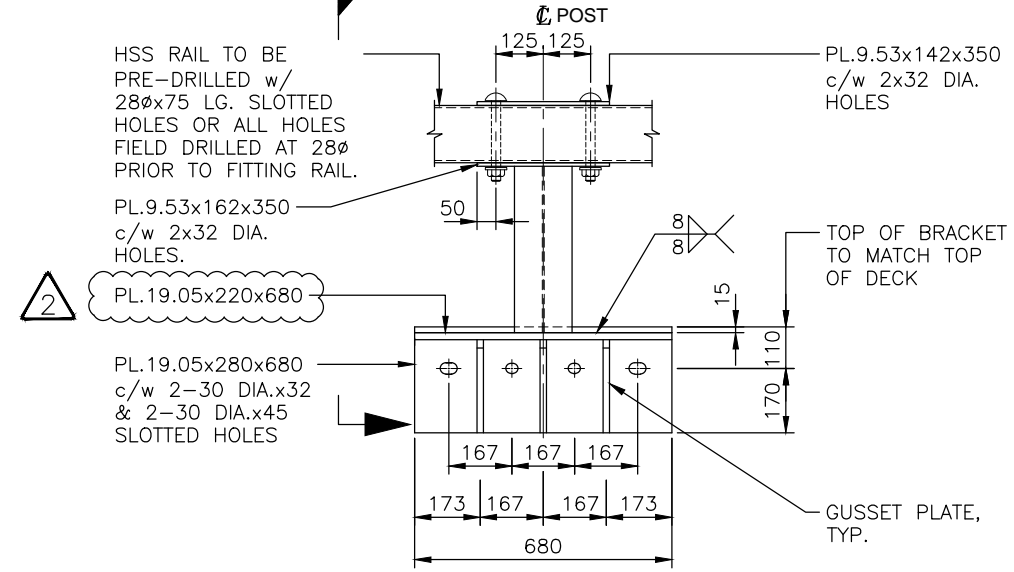
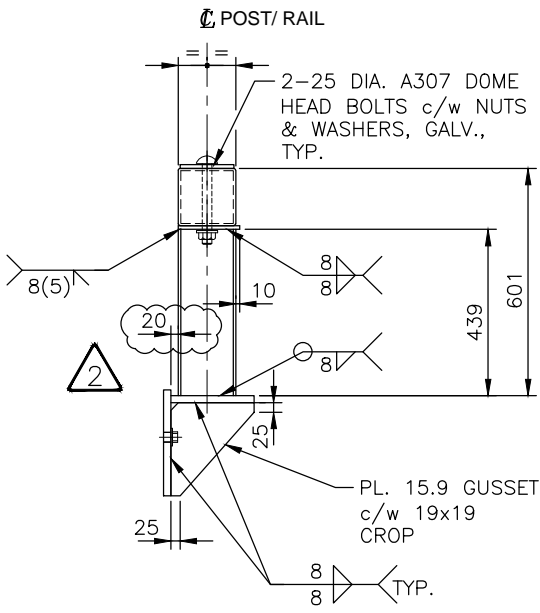
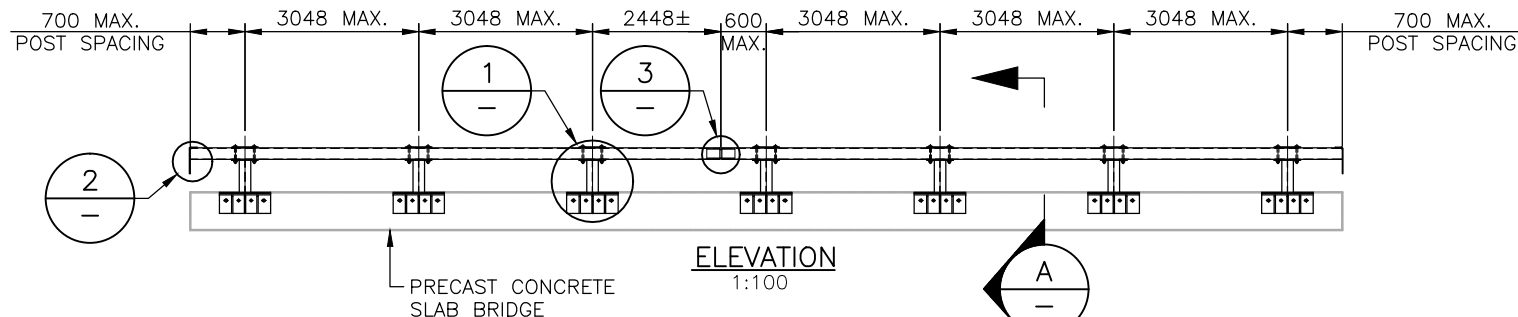
APPROVED BY:

MOF ENGINEER
DATE:

DRAWING No. STD-EC-010-04

1

CANCEL PRINTS BEARING PREVIOUS LETTER



ASSUME NOT TO SCALE

NOTES:

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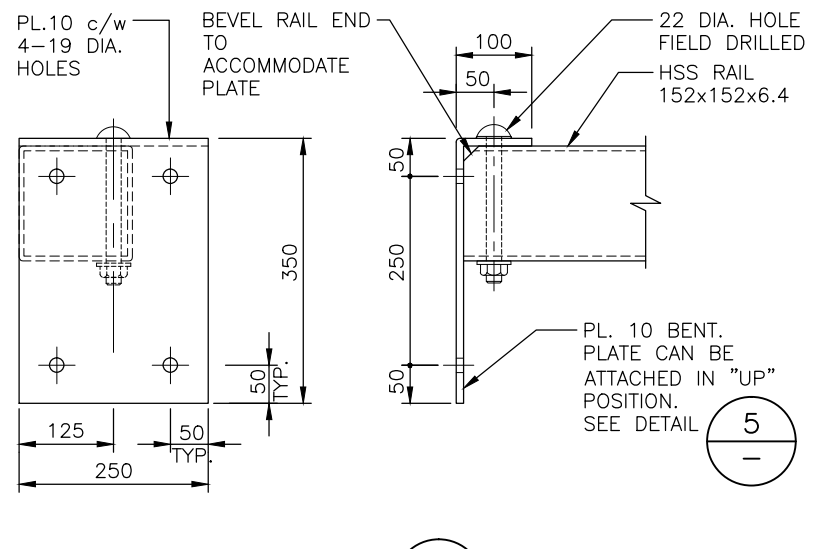
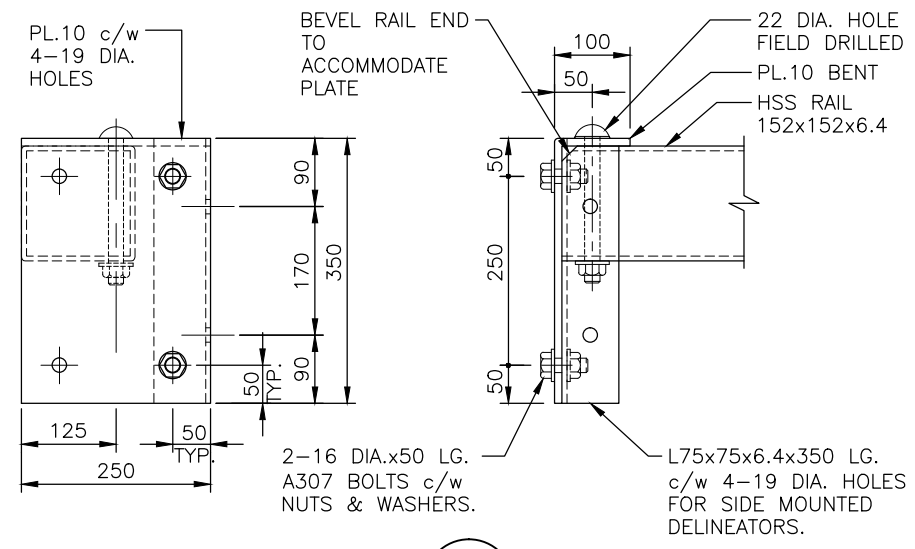
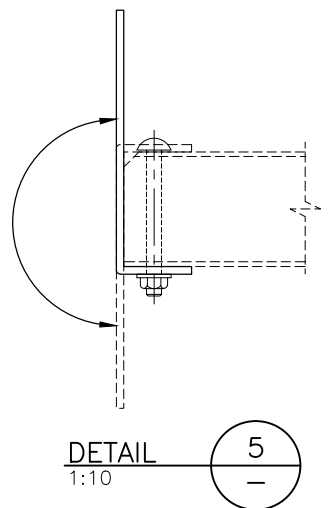
- MAXIMUM POST SPACING = 3048 C/C.

MATERIALS

- STEEL:
 - RAILS
 - TO CSA G40.21M
 - GRADE 350W (COATED)
 - GRADE 350A (UNCOATED)
 - OR TO ASTM
 - A500 GRADE C (COATED)
 - A847 (UNCOATED)
- POSTS TO CSA G40.21M
 - GRADE 350W (COATED)
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 - GRADE 350W (COATED)
 - GRADE 350A (UNCOATED)

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NOTE: DELINEATOR ORIENTATION BY OWNER

Rev	Date	DESCRIPTION	Init
1	2014/04/16	ISSUED TO CLIENT	
2	2016/05/10	REDUCED GAP DISTANCE & PLATE SIZE	

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STANDARD BRIDGE DRAWING

STANDARD HSS GUARDRAIL FOR PRECAST CONCRETE SLAB BRIDGES
 CL - 3

ORIGINAL SIGNED and SEALED BY: JULIEN HENLEY	APPROVED BY:
DESIGN ENGINEER DATE JULIEN HENLEY	MOF ENGINEER DATE
FILE No.	DRAWING No.

STD-EC-010-06