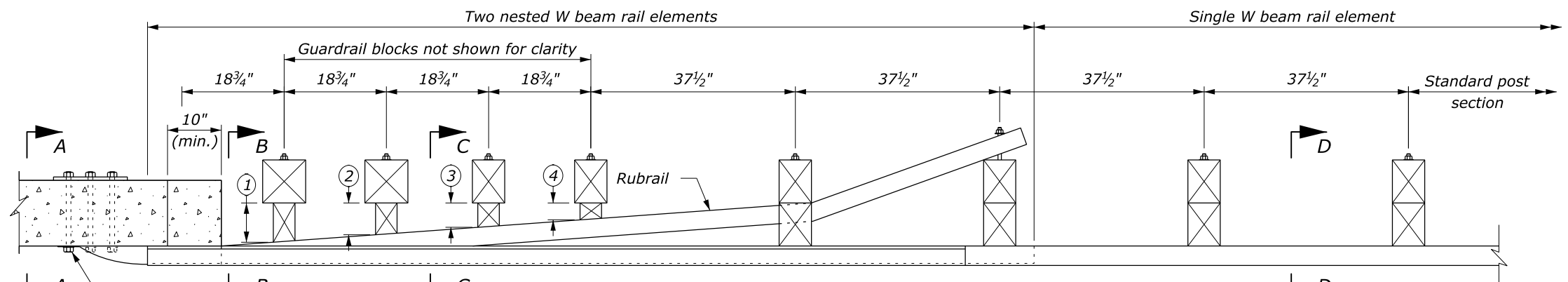
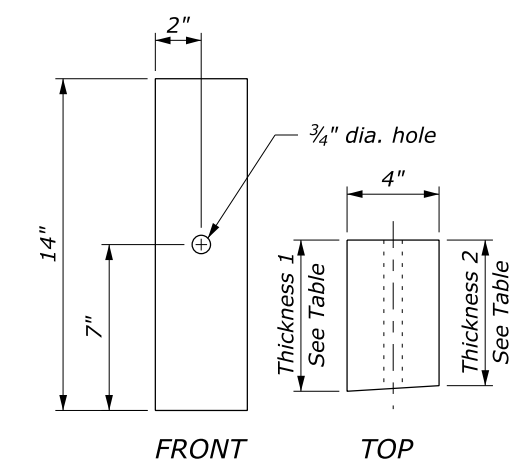
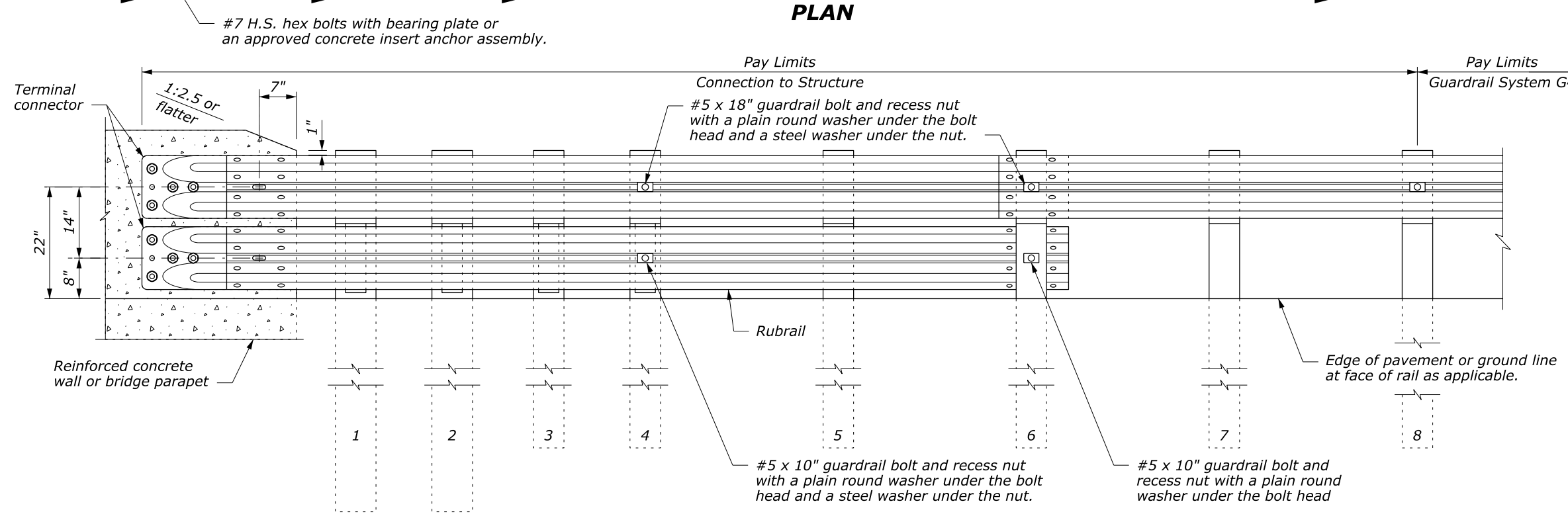


- NOTE:**
- The rubrail may be shop bent in the last 37 1/2" to facilitate installation.
 - CENTER drill wood blocks for rubrail located on posts 1 through 4. Secure blocks to post 1 through 3 with M16 carriage bolts.
 - Posts 1, 2, 3, 4 and 6 require an additional hole to attach lower wood blocks and/or the rubrail.
 - Do not bolt nested W beam or rubrail W beam to posts and blocks on posts 1, 2, 3 and 5. Bolt blocks directly to posts.
 - Reinforced concrete wall or bridge parapet must be capable of developing a 59.6 kip pull out strength.



WOOD BLOCKS FOR RUBRAIL		
POST	THICKNESS 1	THICKNESS 2
①	6 1/2"	6 1/4"
②	5 3/8"	5"
③	4"	3 5/8"
④	2 5/8"	2 7/16"
⑤	NO BLOCK	NO BLOCK



U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION
 FEDERAL LANDS HIGHWAY

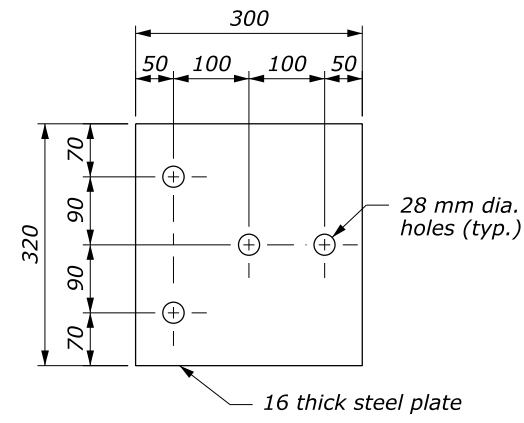
U.S. CUSTOMARY STANDARD
G4 W-BEAM GUARDRAIL CONNECTION TO VERTICAL FACE STRUCTURE WOOD POSTS

STANDARD APPROVED FOR USE --/--
 REVISED: DRAFT: 9/2013

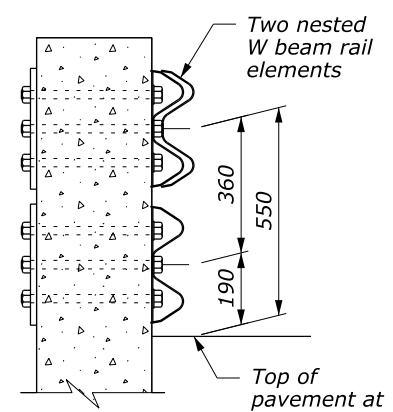
STANDARD 617-25

30 September 2013 4:29 PM c:\myfiles\pw_production\dms67487\Standard_617-25.DRAFT.dgn [USC]

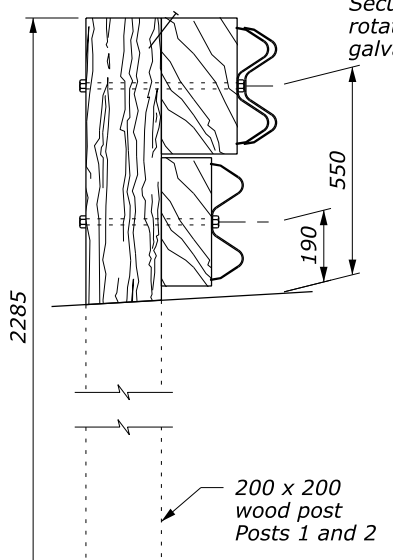
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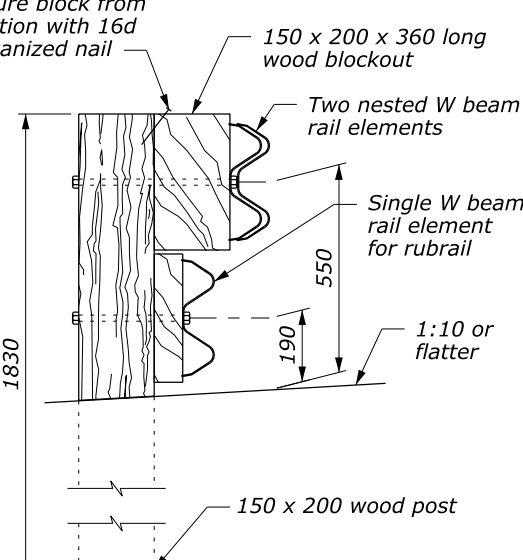
BEARING PLATE



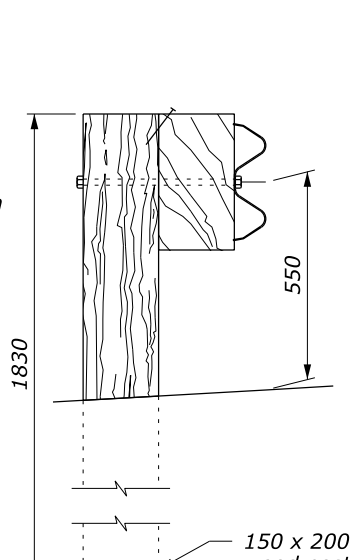
SECTION A-A



SECTION B-B



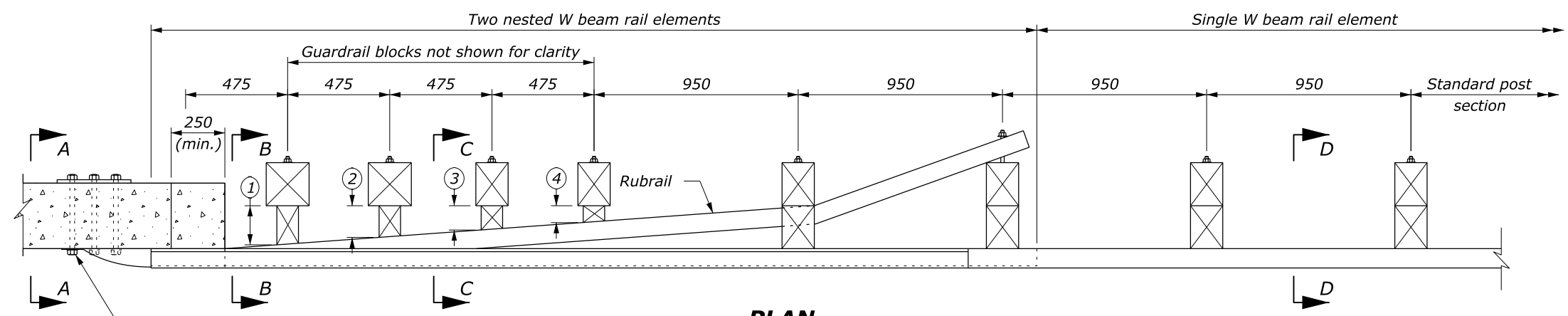
SECTION C-C



SECTION D-D

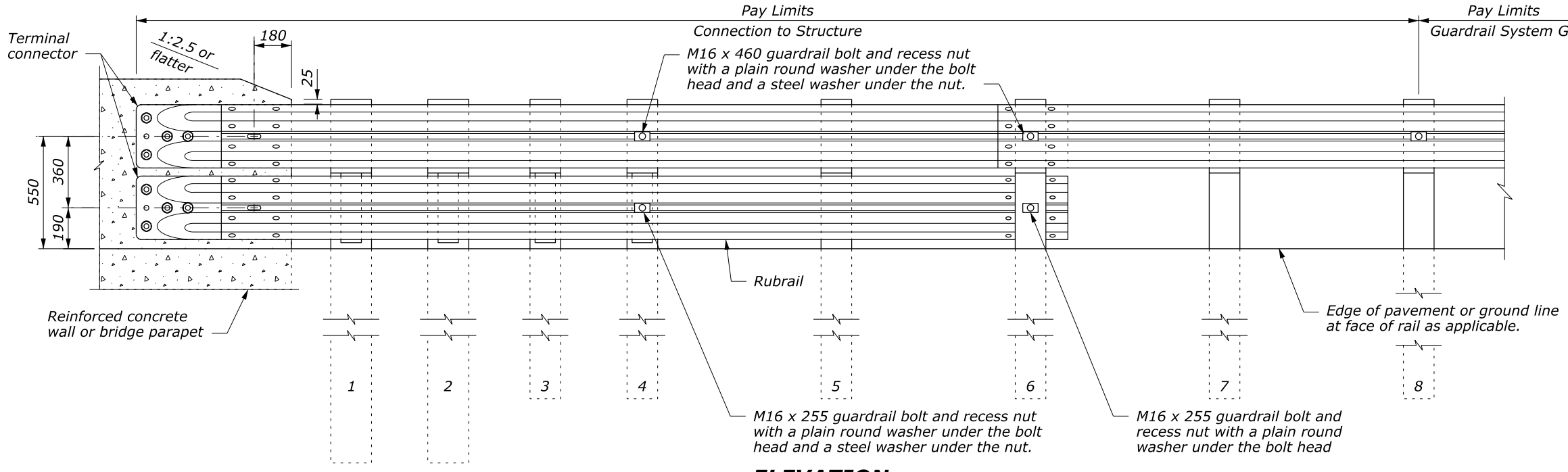
NOTE:

1. The rubrail may be shop bent in the last 950 mm to facilitate installation.
2. CENTER drill wood blocks for rubrail located on posts 1 through 4. Secure blocks to post 1 through 3 with M16 carriage bolts.
3. Posts 1, 2, 3, 4 and 6 require an additional hole to attach lower wood blocks and/or the rubrail.
4. Do not bolt nested W beam or rubrail W beam to posts and blocks on posts 1, 2, 3 and 5. Bolt blocks directly to posts.
5. Reinforced concrete wall or bridge parapet must be capable of developing a 265 kN pull out strength.
6. Furnish hardware in the metric sizes shown. Equivalent US Customary sizes may be used when metric sizes are unavailable.
7. Dimensions without units are millimeters.

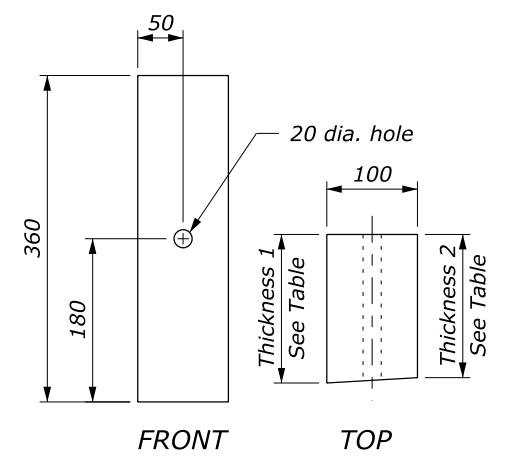


PLAN

WOOD BLOCKS FOR RUBRAIL		
POST	THICKNESS 1	THICKNESS 2
①	164	158
②	131	125
③	99	93
④	67	61
⑤	NO BLOCK	NO BLOCK



ELEVATION



WOOD BLOCK FOR RUBRAIL

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
FEDERAL LANDS HIGHWAY

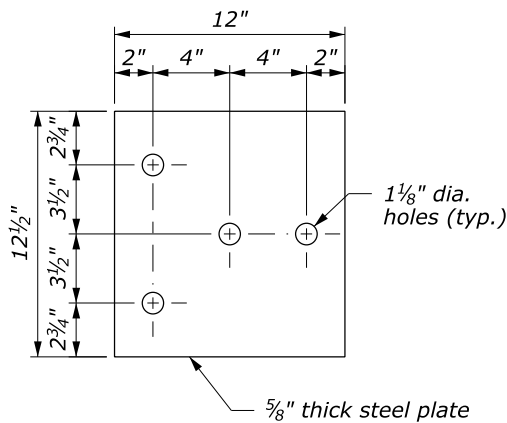
METRIC STANDARD
G4 W-BEAM GUARDRAIL CONNECTION TO VERTICAL FACE STRUCTURE WOOD POSTS

STANDARD APPROVED FOR USE 3/1996
REVISED: 9/2013
DRAFT: 9/2013

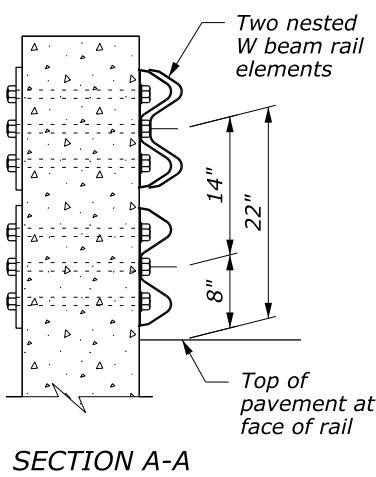
STANDARD
M617-25

NO SCALE

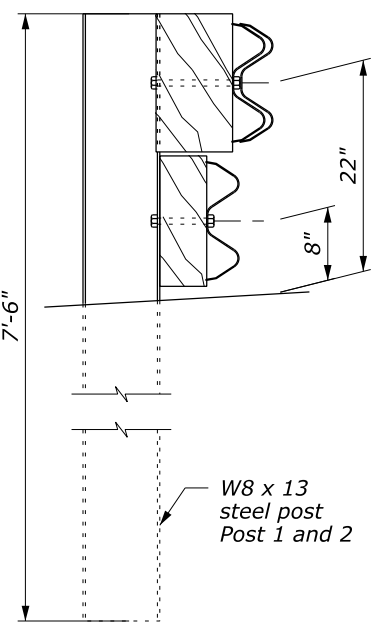
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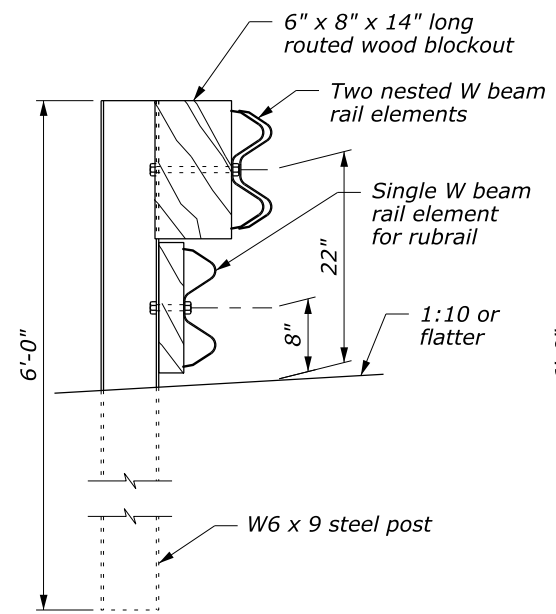
BEARING PLATE



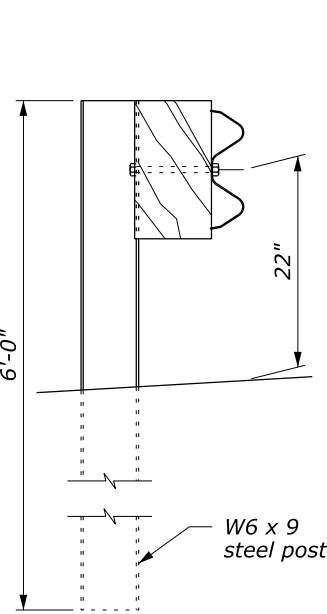
SECTION A-A



SECTION B-B



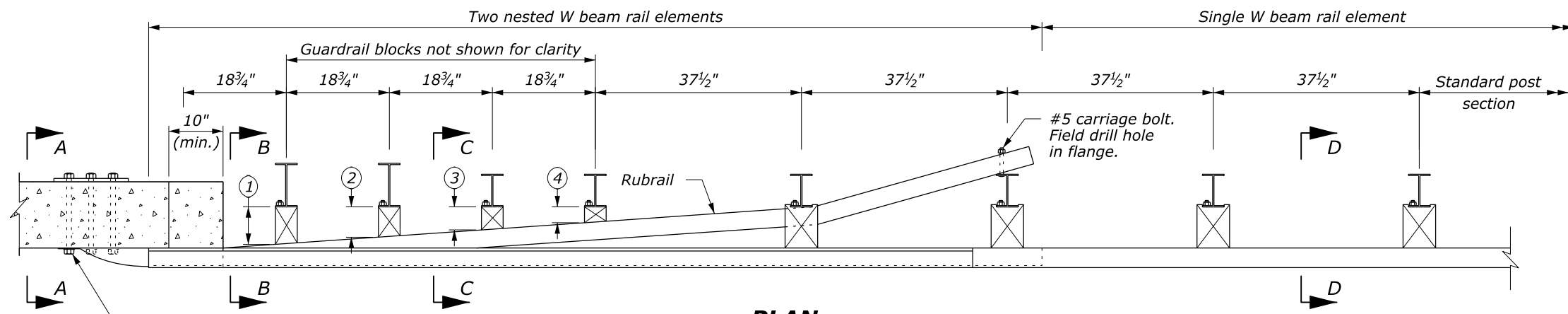
SECTION C-C



SECTION D-D

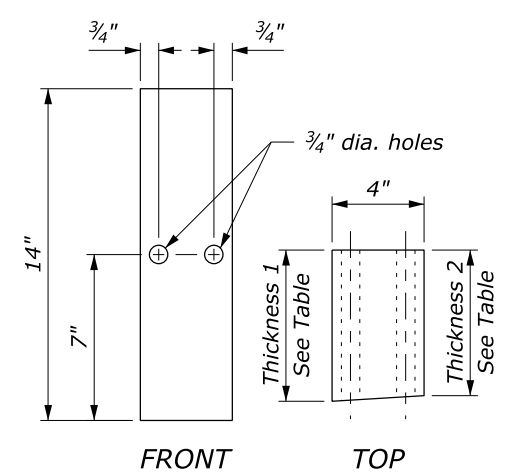
NOTE:

1. The rubrail may be shop bent in the last 37 1/2" to facilitate installation.
2. Offset drill wood blocks for rubrail to sit squarely on the post flange posts 1 through 4. Secure blocks to post 1 through 3 with #5 carriage bolts.
3. Posts 1, 2, 3, 4 and 6 require an additional hole to attach lower wood blocks and/or the rubrail.
4. Do not bolt nested W beam or rubrail W beam to posts and blocks on posts 1, 2, 3 and 5. Bolt blocks directly to posts.
5. Reinforced concrete wall or bridge parapet must be capable of developing a 59.6 kip pull out strength.

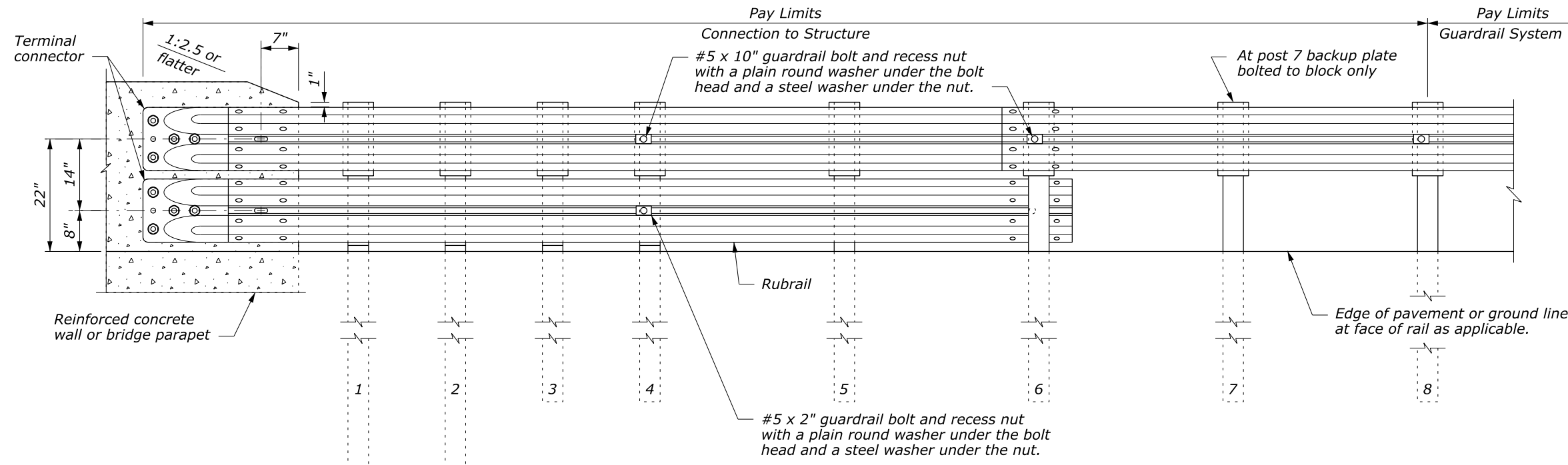


PLAN

WOOD BLOCKS FOR RUBRAIL		
POST	THICKNESS 1	THICKNESS 2
①	6 1/2"	6 1/4"
②	5 3/8"	5"
③	4"	3 5/8"
④	2 5/8"	2 7/16"
⑤	NO BLOCK	NO BLOCK



WOOD BLOCK FOR RUBRAIL



ELEVATION

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
FEDERAL LANDS HIGHWAY

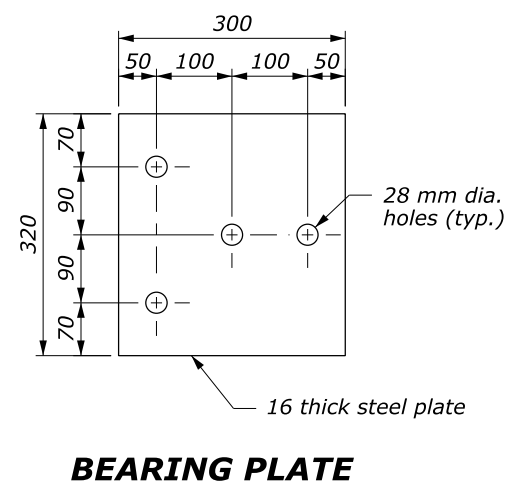
U.S. CUSTOMARY STANDARD
G4 W-BEAM GUARDRAIL CONNECTION TO VERTICAL FACE STRUCTURE STEEL POSTS

STANDARD APPROVED FOR USE --/--

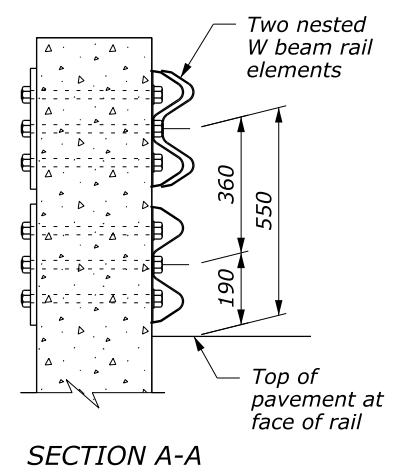
REVISOR: 9/2013

STANDARD 617-26

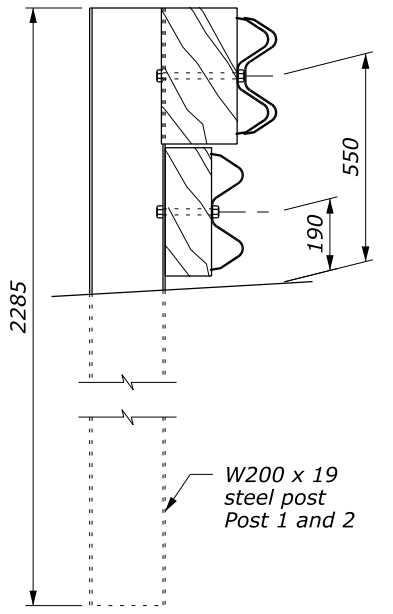
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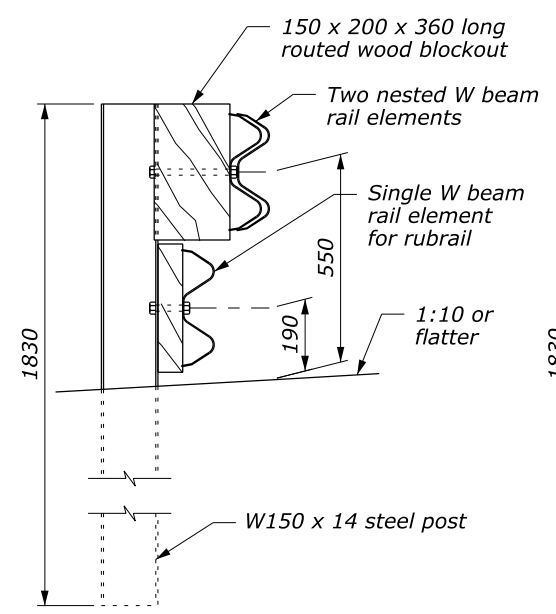
BEARING PLATE



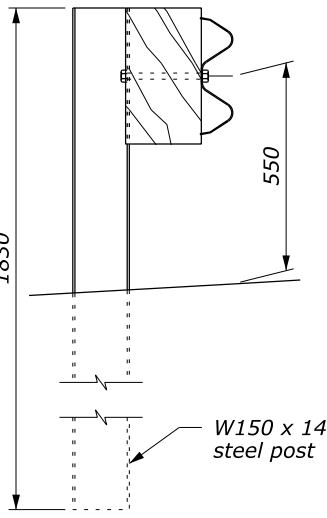
SECTION A-A



SECTION B-B



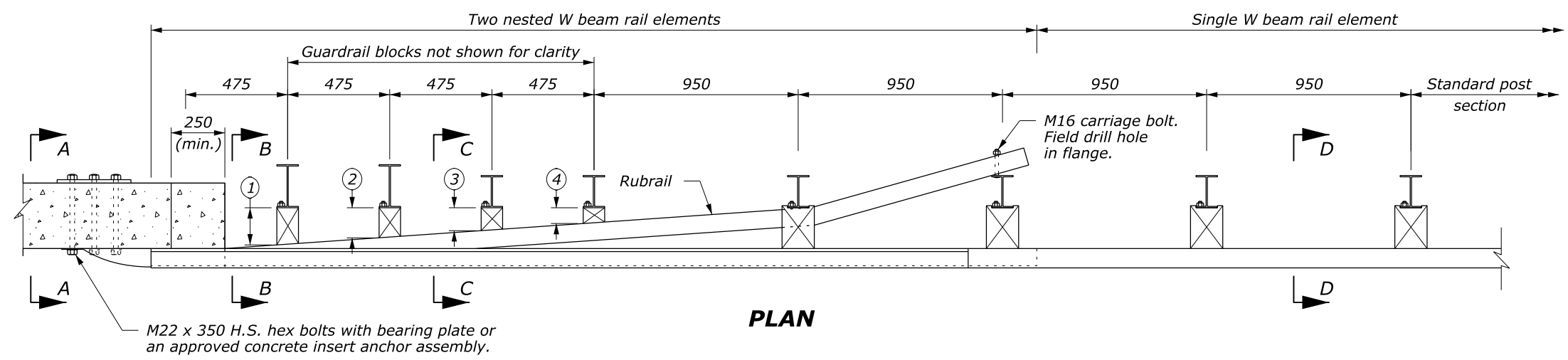
SECTION C-C



SECTION D-D

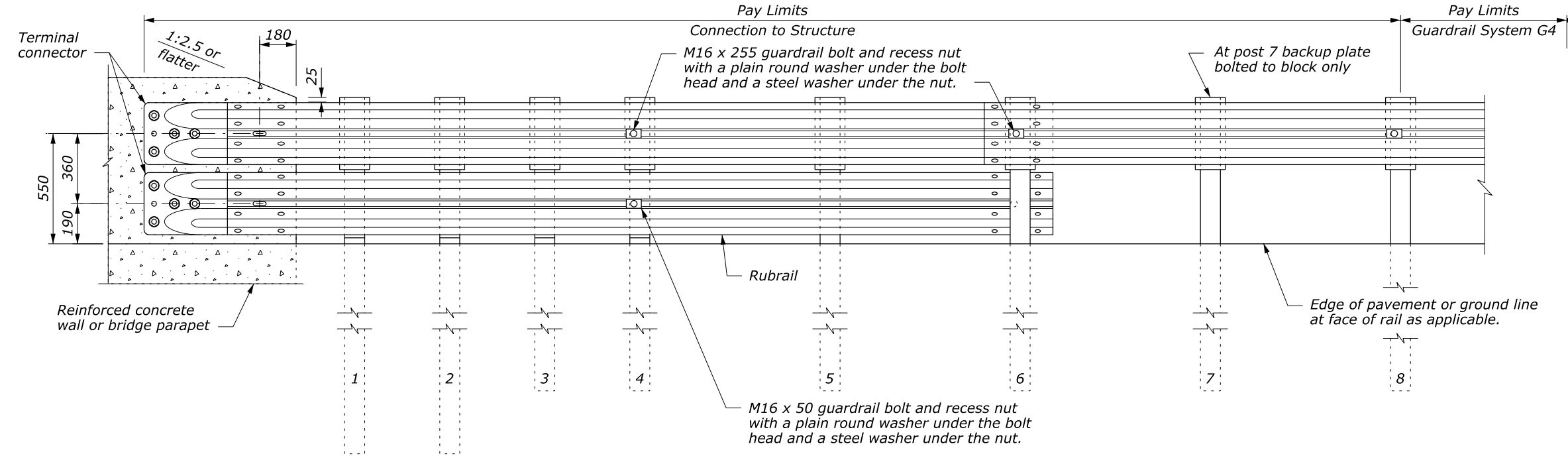
NOTE:

1. The rubrail may be shop bent in the last 950 mm to facilitate installation.
2. Offset drill wood blocks for rubrail to sit squarely on the post flange posts 1 through 4. Secure blocks to post 1 through 3 with M16 carriage bolts.
3. Posts 1, 2, 3, 4 and 6 require an additional hole to attach lower wood blocks and/or the rubrail.
4. Do not bolt nested W beam or rubrail W beam to posts and blocks on posts 1, 2, 3 and 5. Bolt blocks directly to posts.
5. Reinforced concrete wall or bridge parapet must be capable of developing a 265 kN pull out strength.
6. Furnish hardware in the metric sizes shown. Equivalent US Customary sizes may be used when metric sizes are unavailable.
7. Dimensions without units are millimeters.

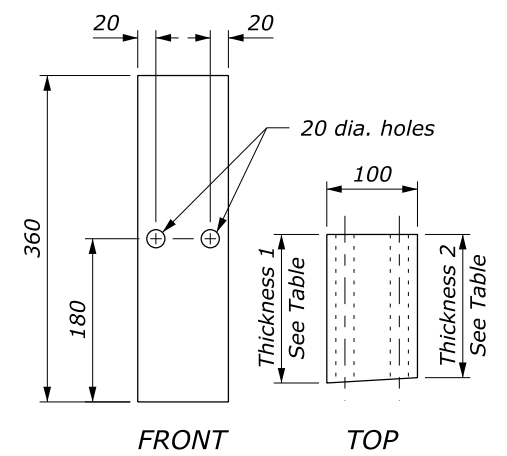


PLAN

WOOD BLOCKS FOR RUBRAIL		
POST	THICKNESS 1	THICKNESS 2
①	164	158
②	131	125
③	99	93
④	67	61
⑤	NO BLOCK	NO BLOCK



ELEVATION



WOOD BLOCK FOR RUBRAIL

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
FEDERAL LANDS HIGHWAY

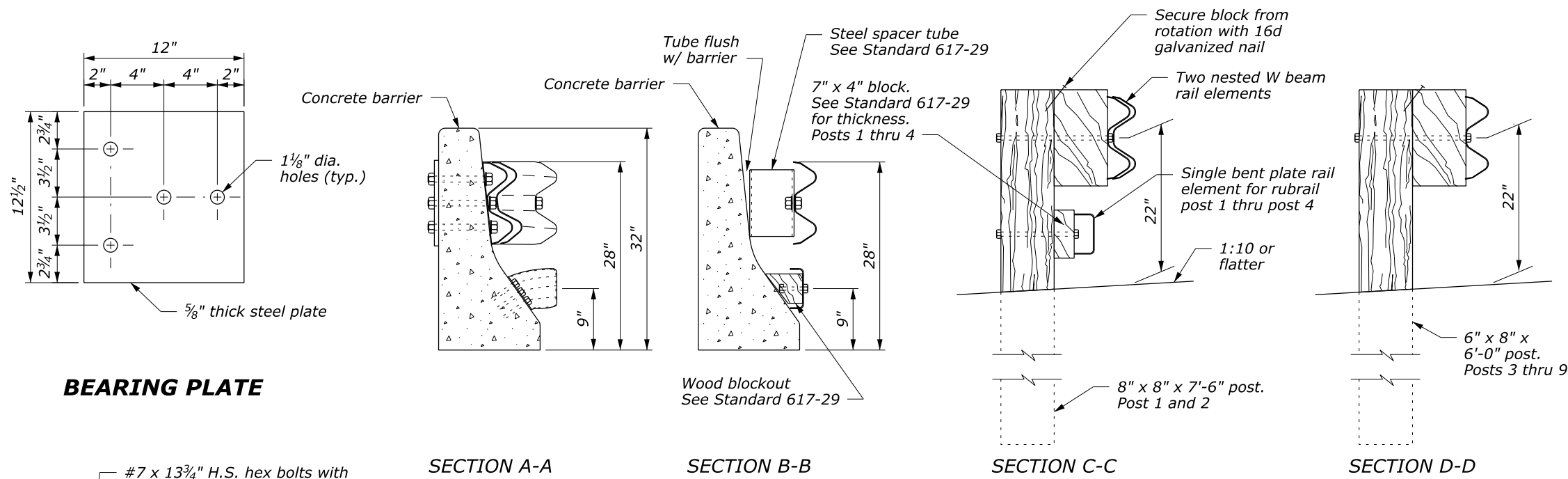
METRIC STANDARD
G4 W-BEAM GUARDRAIL CONNECTION TO VERTICAL FACE STRUCTURE STEEL POSTS

STANDARD APPROVED FOR USE 3/1996
REVISED: 1/1998
DRAFT: 9/2013

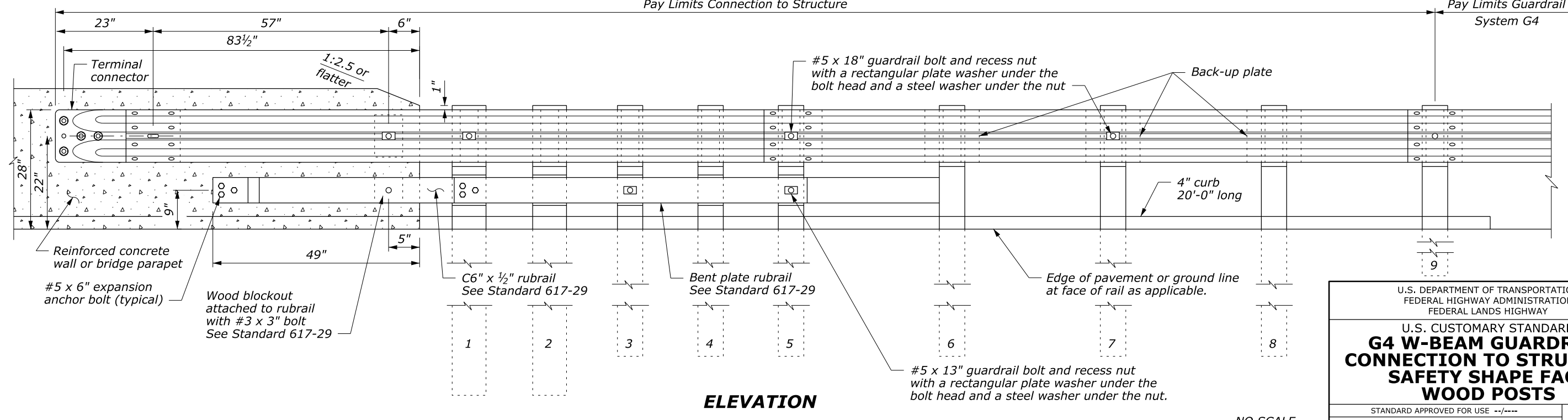
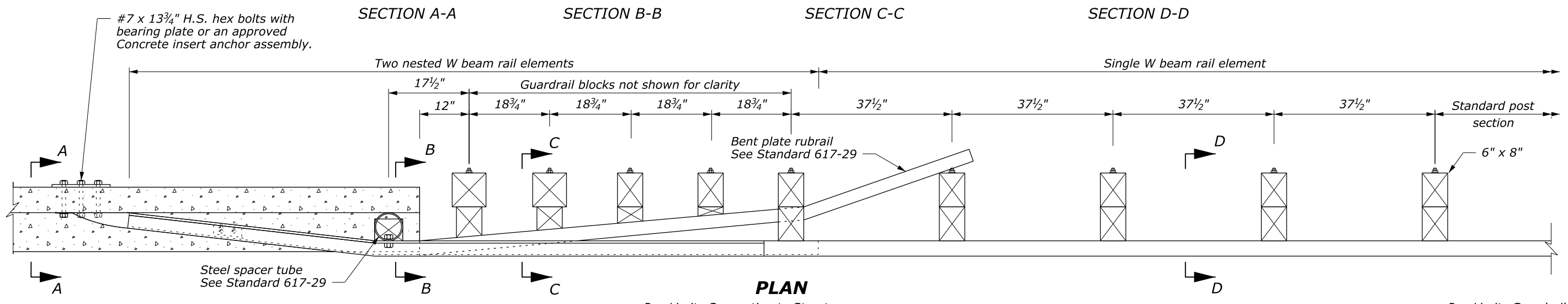
STANDARD
M617-26

NO SCALE

30 September 2013 1:09 PM c:\myfiles\pw_production\dms67487\Standard_617-26.DRAFT.dgn [Metric]



- NOTE:**
1. Posts 1 through 5 require an additional hole to attach lower wood blocks and/or rubrail.
 2. Center drill wood blocks for rubrail located on posts 1 through 4. Secure blocks to posts 2 and 4. Secure rubrail and blocks to posts 1, 3, and 5 using 5/8" carriage bolts.
 3. Do not bolt W beam to posts and blocks at posts 2 and 4.
 4. Reinforced concrete wall or bridge parapet must be capable of developing a 59.6 kip pull out strength.



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
FEDERAL LANDS HIGHWAY

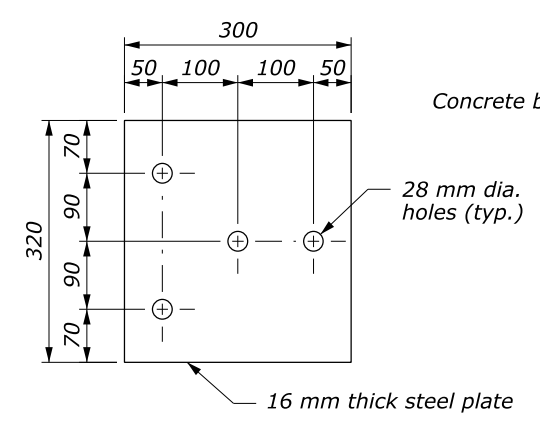
U.S. CUSTOMARY STANDARD
**G4 W-BEAM GUARDRAIL
CONNECTION TO STRUCTURE
SAFETY SHAPE FACE
WOOD POSTS**

STANDARD APPROVED FOR USE --/---
REVISED: DRAFT: 9/2013

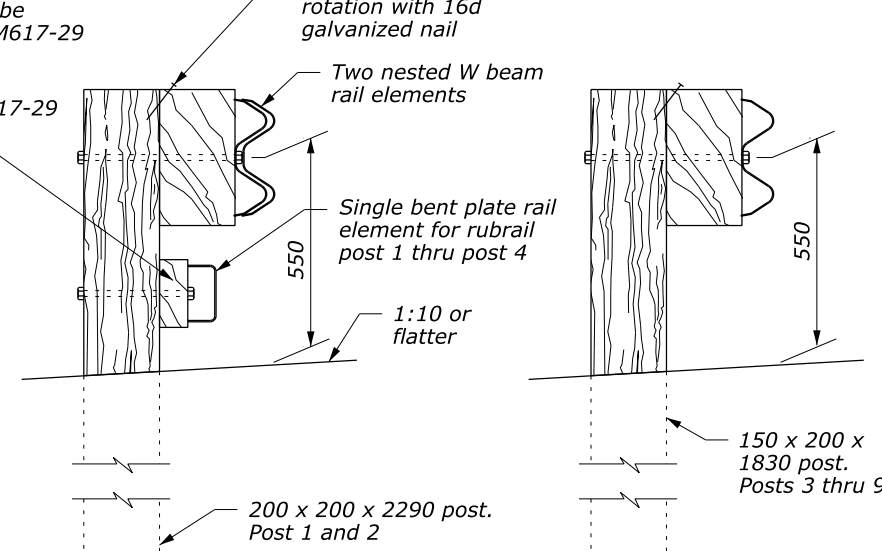
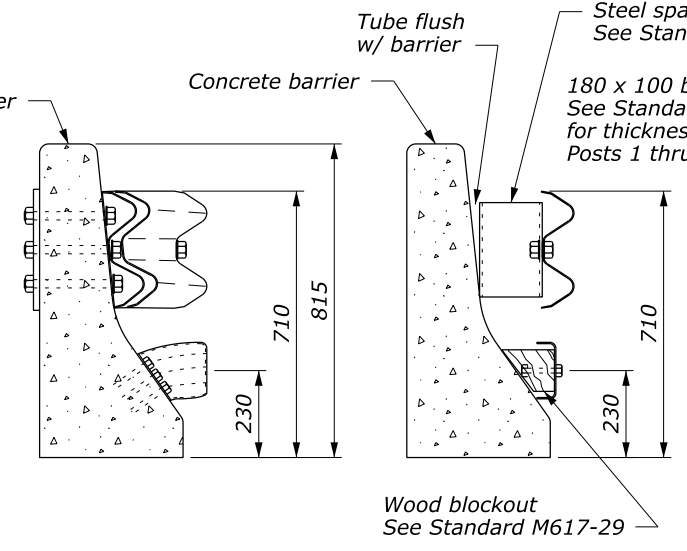
STANDARD
617-27

NO SCALE

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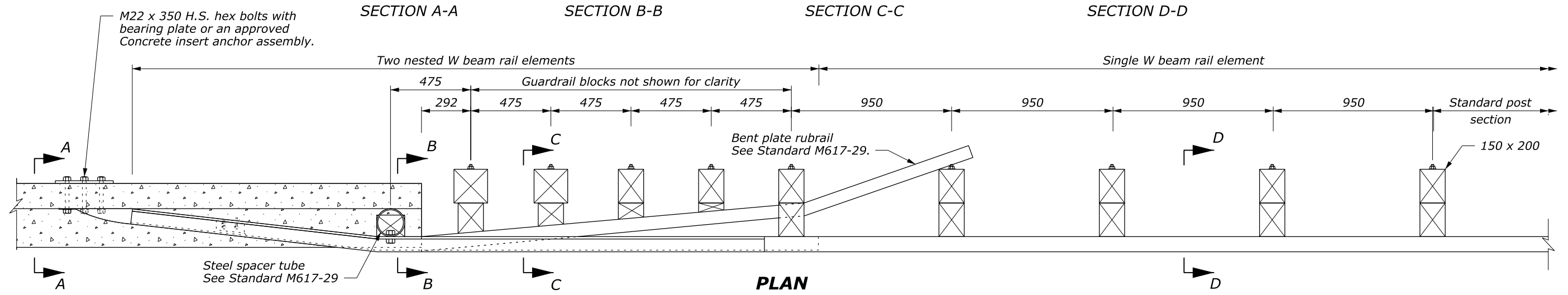


BEARING PLATE

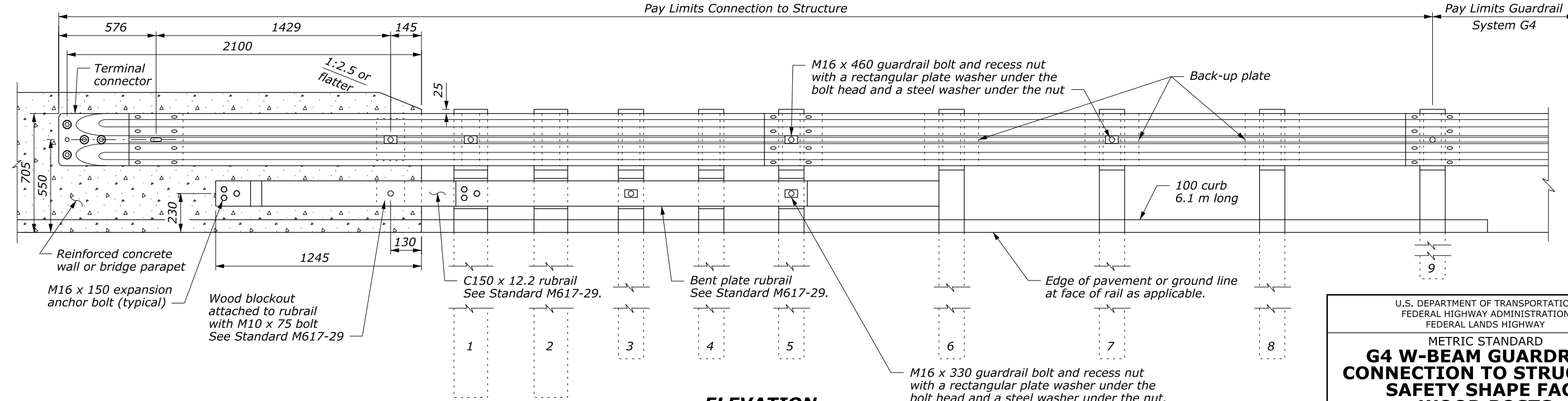


NOTE:

1. Posts 1 through 5 require an additional hole to attach lower wood blocks and/or rubrail.
2. Center drill wood blocks for rubrail located on posts 1 through 4. Secure blocks to posts 2 and 4. Secure rubrail and blocks to posts 1, 3, and 5 using M16 carriage bolts.
3. Do not bolt W beam to posts and blocks at posts 2 and 4.
4. Reinforced concrete wall or bridge parapet must be capable of developing a 265 kN pull out strength.
5. Furnish hardware in the metric sizes shown. Equivalent U.S. Customary sizes may be used when metric sizes are unavailable.
6. Dimensions without units are millimeters.



PLAN



ELEVATION

NO SCALE

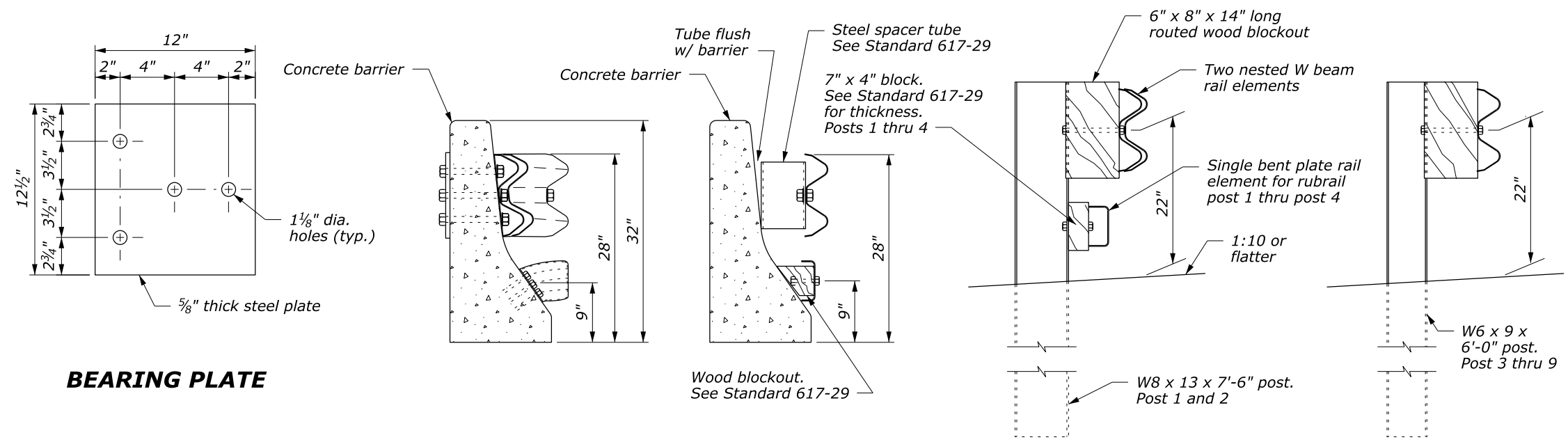
U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION
 FEDERAL LANDS HIGHWAY

**METRIC STANDARD
 G4 W-BEAM GUARDRAIL
 CONNECTION TO STRUCTURE
 SAFETY SHAPE FACE
 WOOD POSTS**

STANDARD APPROVED FOR USE 3/1996
 REVISD: 1/1998
 DRAFT: 9/2013

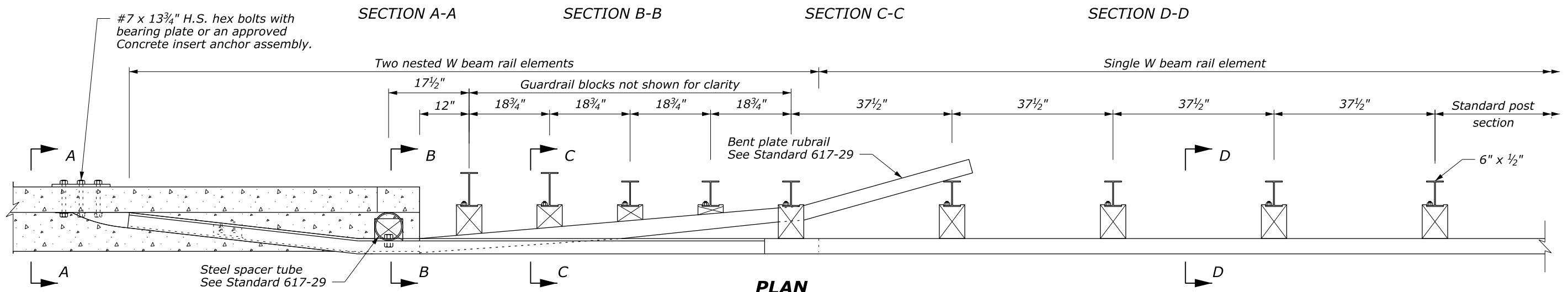
STANDARD
M617-27

30 September 2013 10:45 AM c:\myfiles\pw_production\dms67487\Standard_617-27.DRAFT.dgn [Metric]

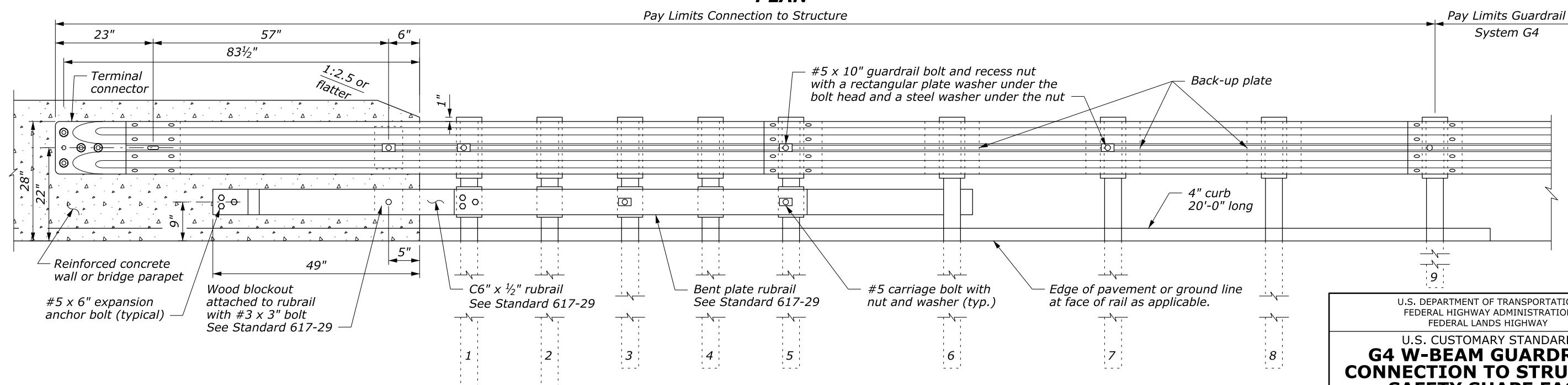


BEARING PLATE

- NOTE:**
1. Posts 1 through 5 require an additional hole to attach lower wood blocks and/or rubrail.
 2. Offset drill wood blocks for rubrail to sit squarely on the post flange on posts 1 through 4. Secure blocks to posts 2 and 4. Secure rubrail and blocks to post flange on posts 1, 3, and 5 using #5 carriage bolts.
 3. Do not bolt W beam to posts and blocks at posts 2 and 4.
 4. Reinforced concrete wall or bridge parapet must be capable of developing a 59.6 kip pull out strength.



PLAN



ELEVATION

U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION
 FEDERAL LANDS HIGHWAY

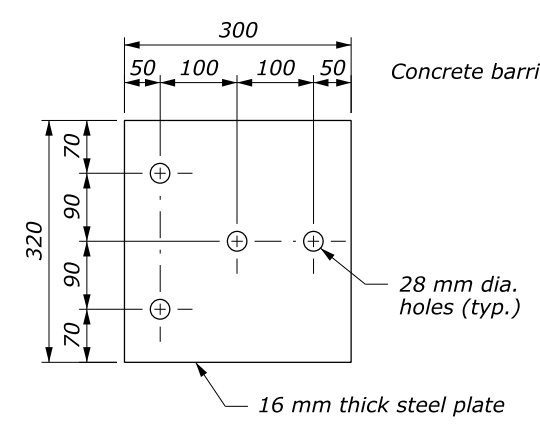
U.S. CUSTOMARY STANDARD
**G4 W-BEAM GUARDRAIL
 CONNECTION TO STRUCTURE
 SAFETY SHAPE FACE
 STEEL POSTS**

STANDARD APPROVED FOR USE --/---
 REVISED: DRAFT: 9/2013

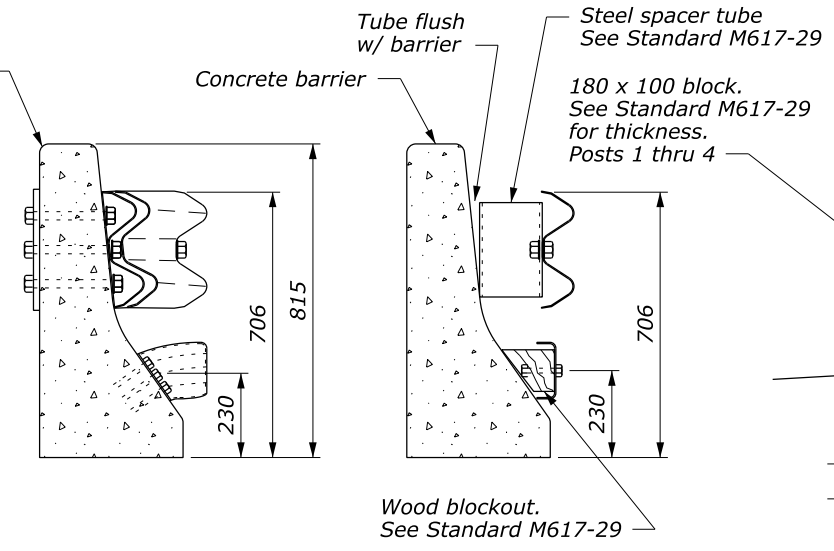
STANDARD
 617-28

NO SCALE

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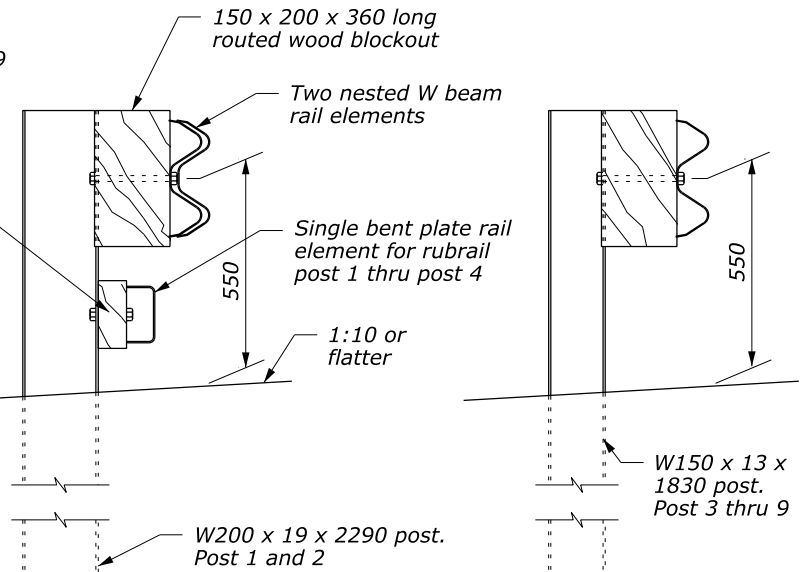


BEARING PLATE



SECTION A-A

SECTION B-B

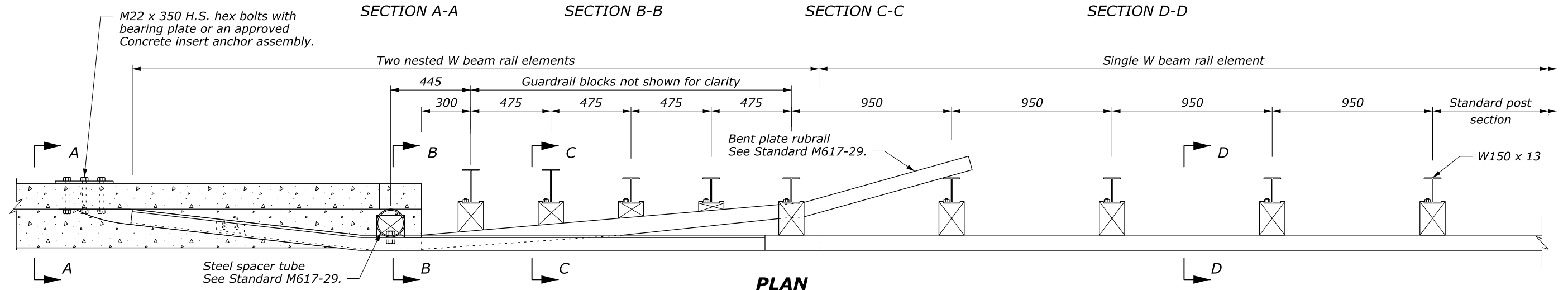


SECTION C-C

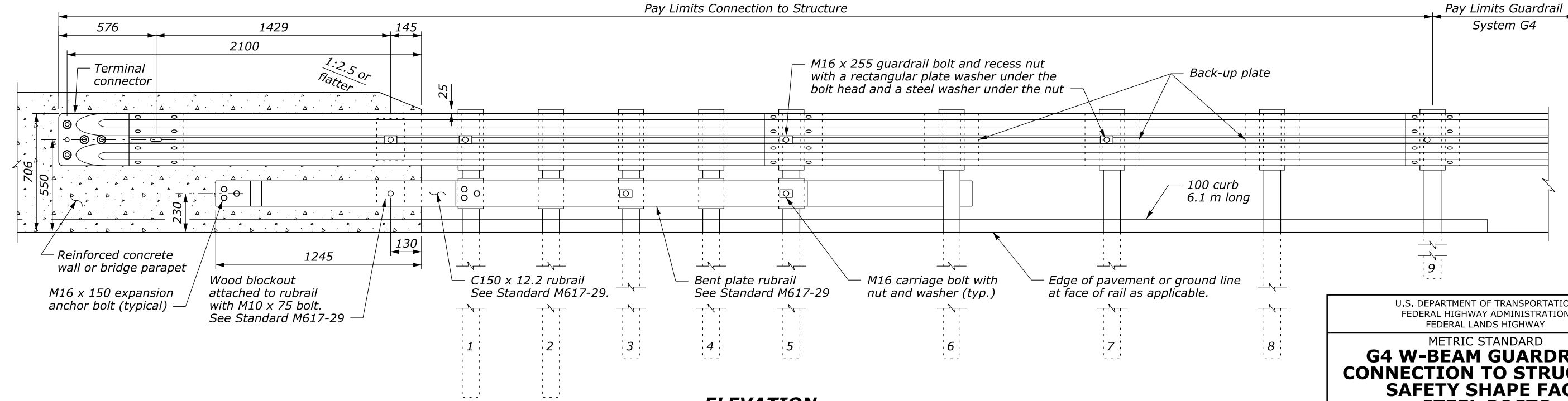
SECTION D-D

NOTE:

1. Posts 1 through 5 require an additional hole to attach lower wood blocks and/or rubrail.
2. Offset drill wood blocks for rubrail to sit squarely on the post flange on posts 1 through 4. Secure blocks to posts 2 and 4. Secure rubrail and blocks to post flange on posts 1, 3, and 5 using M16 carriage bolts.
3. Do not bolt W beam to posts and blocks at posts 2 and 4.
4. Reinforced concrete wall or bridge parapet must be capable of developing a 265 kN pull out strength.
5. Furnish hardware in the metric sizes shown. Equivalent U.S. Customary sizes may be used when metric sizes are unavailable.
6. Dimensions without units are millimeters.



PLAN

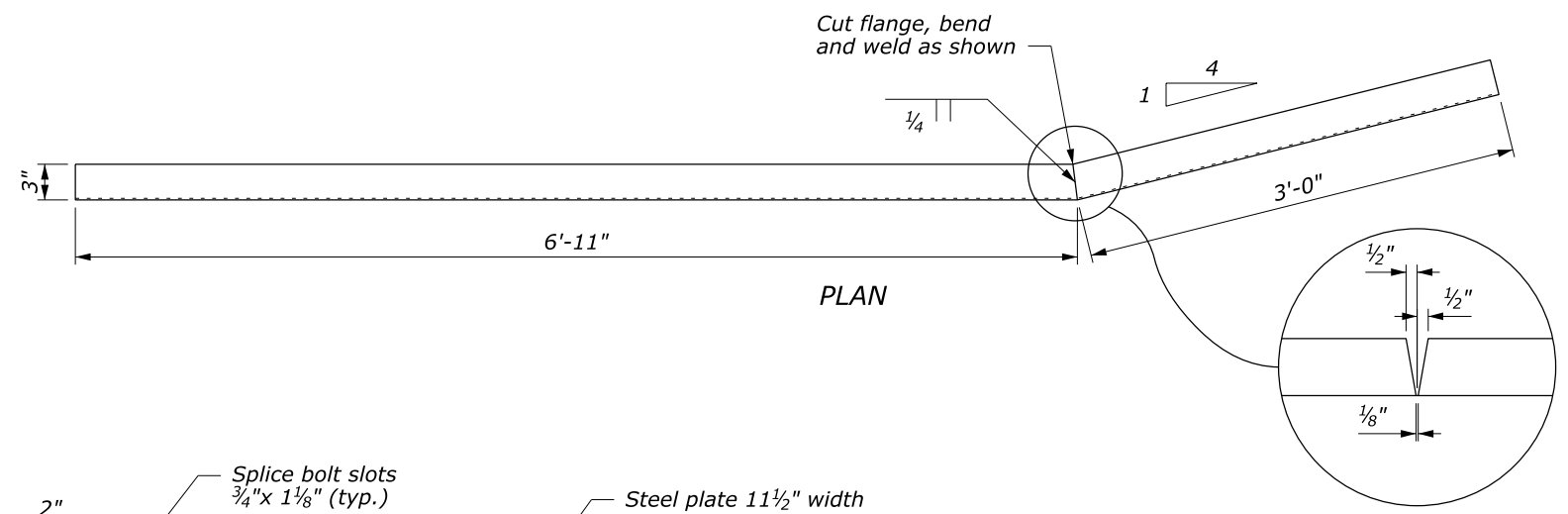


ELEVATION

NO SCALE

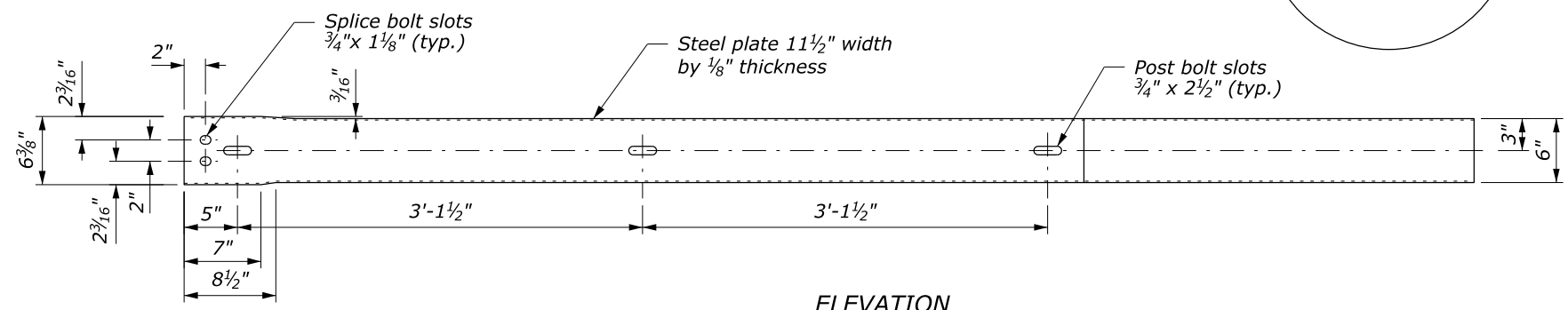
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION FEDERAL LANDS HIGHWAY	
METRIC STANDARD G4 W-BEAM GUARDRAIL CONNECTION TO STRUCTURE SAFETY SHAPE FACE STEEL POSTS	
STANDARD APPROVED FOR USE 3/1996	STANDARD
REVISED: 1/1998 DRAFT: 9/2013	M617-28

30 September 2013 11:01 AM c:\myfiles\pw_production\dms67487\Standard_617-28_DRAFT.dgn [Metric]

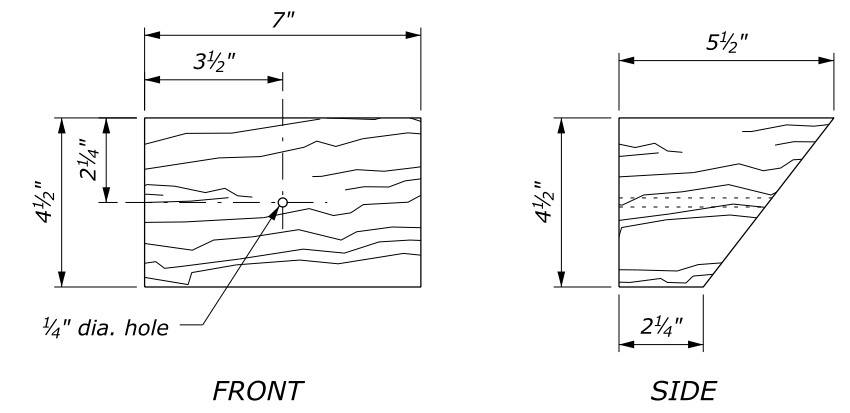


NOTE:

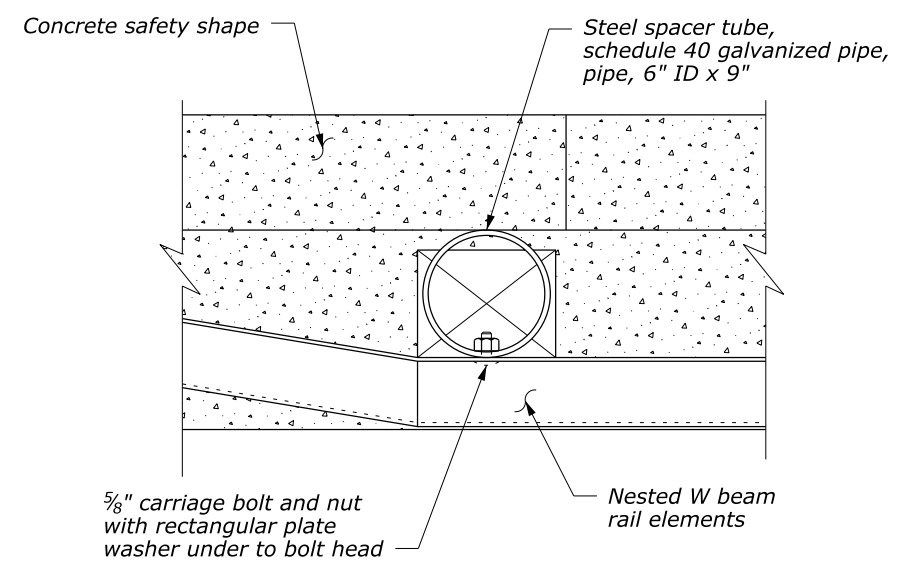
1. Attach rubrail end flush with sloped tow of safety shape. Shop fabricate the C6 x 8.2 rubrail end to be consistent with the slope of safety shape. Both clockwise and counterclockwise fabrications may be required.
2. Dimensional tolerances not shown or implied are intended to be those consistent with the proper functioning of the part, including its appearance, and accepted manufacturing practices.



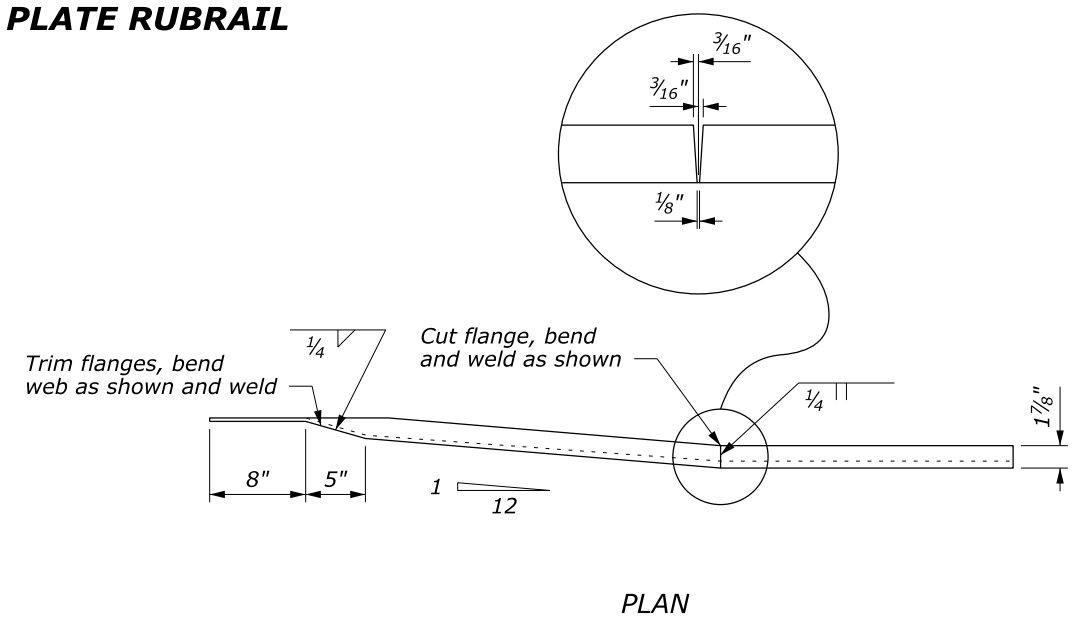
**ELEVATION
BENT PLATE RUBRAIL**



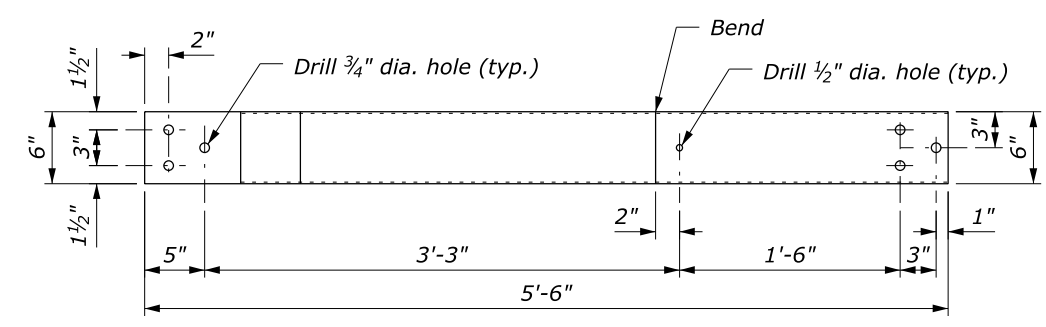
**WOOD BLOCKOUT FOR RUBRAIL
ON CONCRETE SAFETY SHAPE**



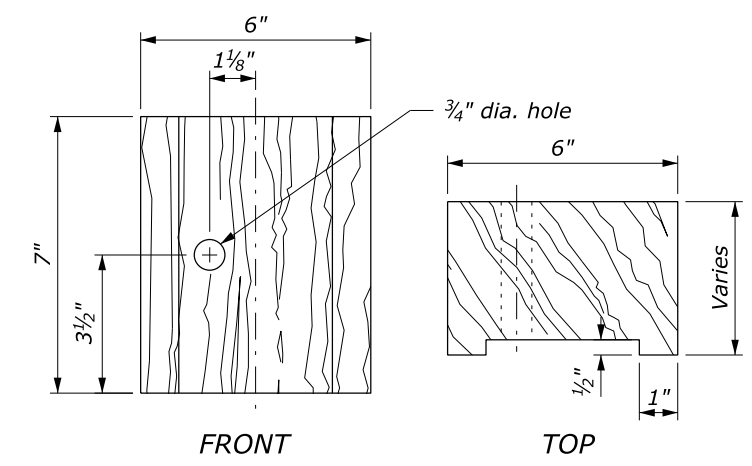
STEEL SPACER BLOCK



**PLAN
C6X8.2 RUBRAIL**



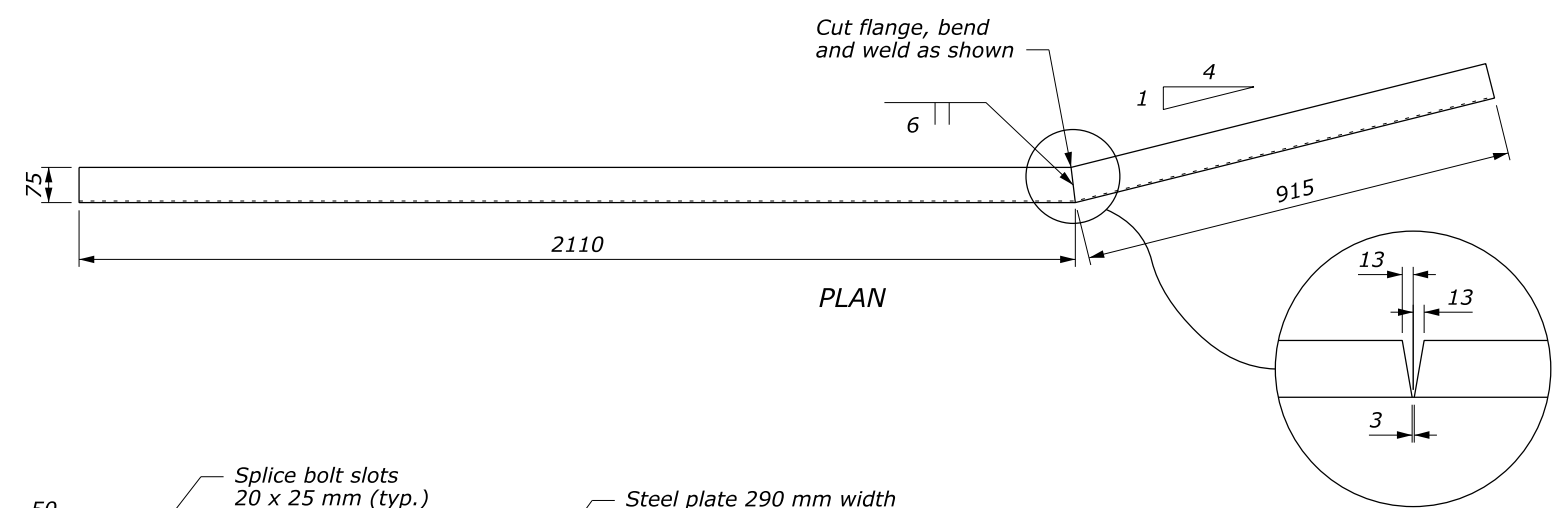
**ELEVATION
C6X8.2 RUBRAIL**



**WOOD BLOCKOUT FOR
RUBRAIL ON STEEL POSTS**

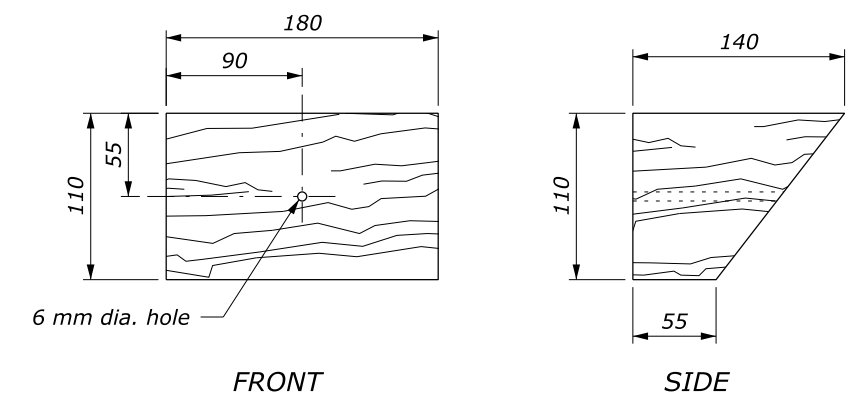
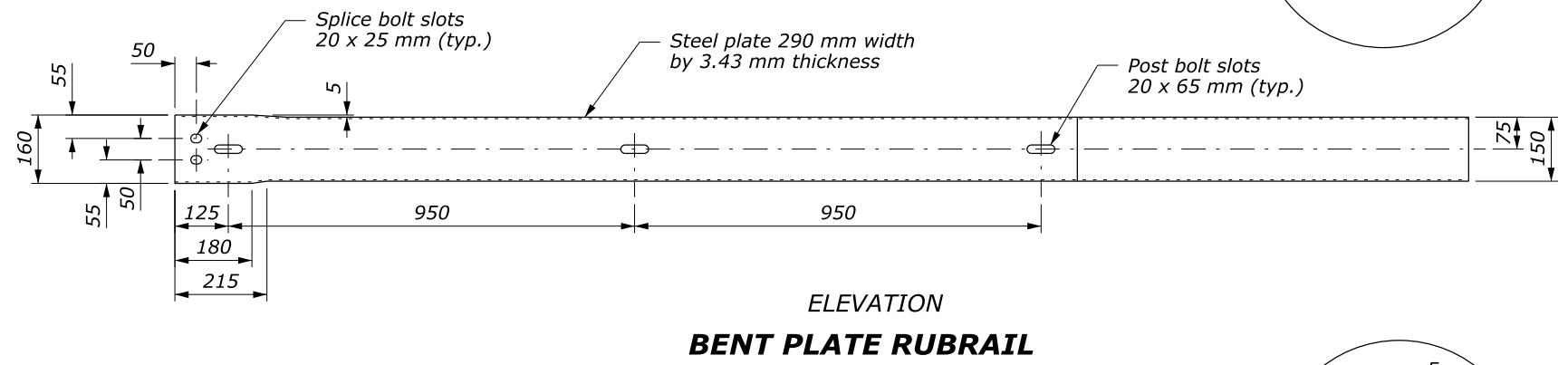
NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION FEDERAL LANDS HIGHWAY	
U.S. CUSTOMARY STANDARD G4 BEAM GUARDRAIL CONNECTION TO STRUCTURE SAFETY SHAPE FACE RUBRAIL	
STANDARD APPROVED FOR USE --/---	STANDARD 617-29
REVISED: DRAFT: 9/2013	

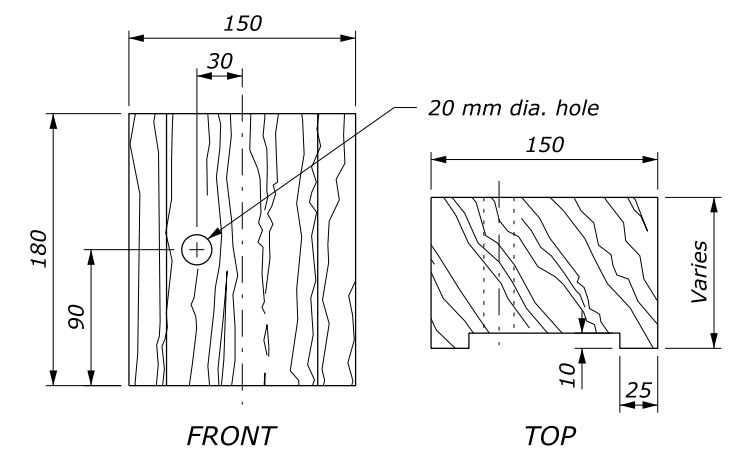


NOTE:

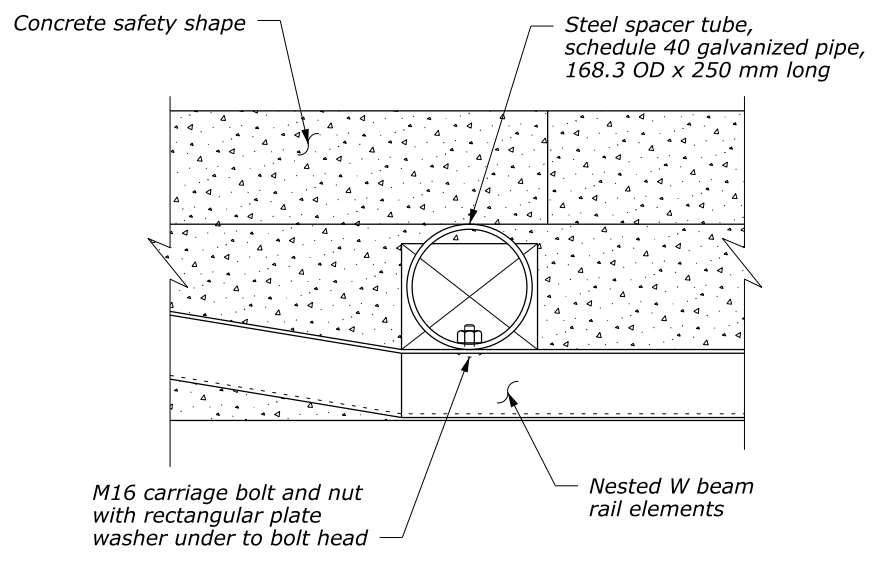
1. Attach rubrail end flush with sloped tow of safety shape. Shop fabricate the C150 x 12.2 rubrail end to be consistent with the slope of safety shape. Both clockwise and counterclockwise fabrications may be required.
2. Dimensional tolerances not shown or implied are intended to be those consistent with the proper functioning of the part, including its appearance, and accepted manufacturing practices.
3. Dimensions without units are millimeters.



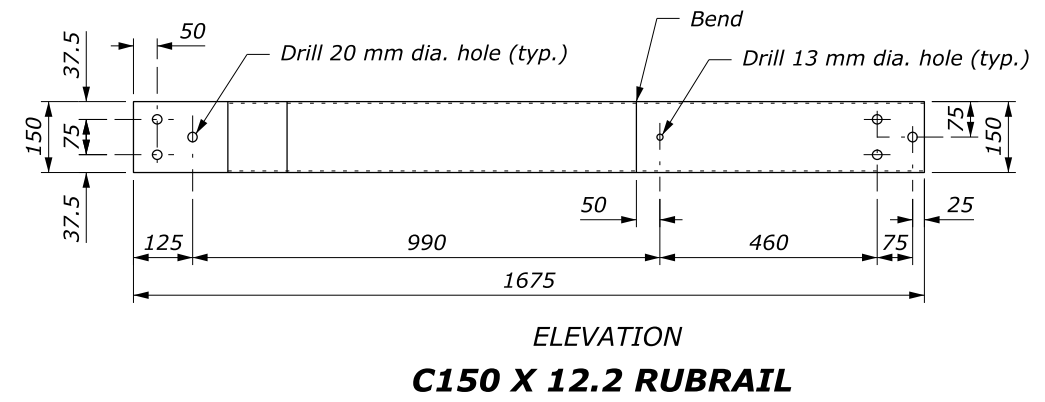
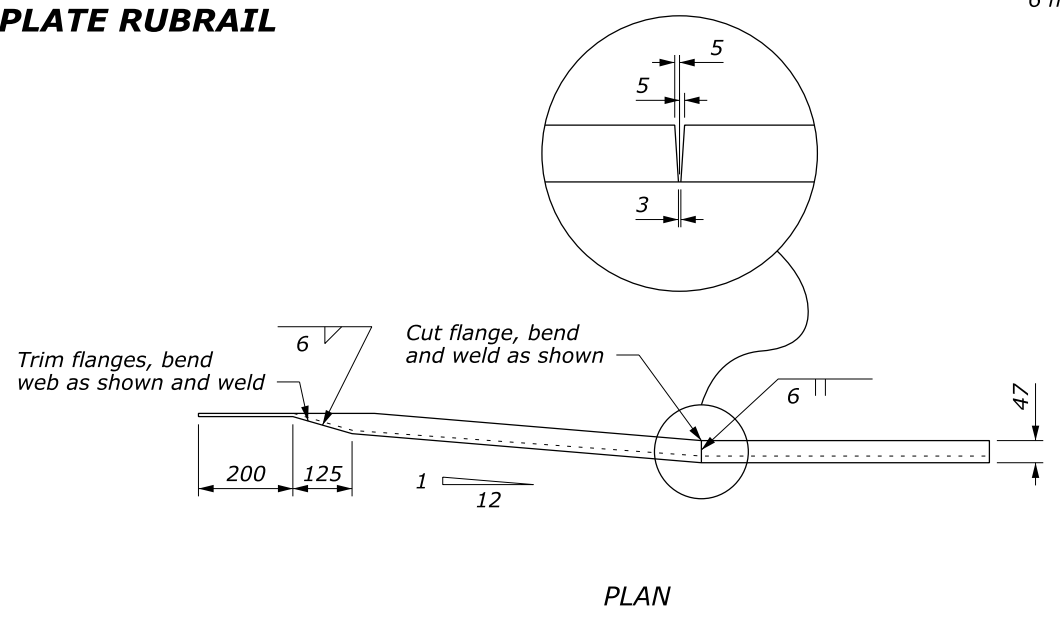
WOOD BLOCKOUT FOR RUBRAIL ON CONCRETE SAFETY SHAPE



WOOD BLOCKOUT FOR RUBRAIL ON STEEL POSTS



STEEL SPACER BLOCK



NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION FEDERAL LANDS HIGHWAY	
METRIC STANDARD	
G4 W BEAM GUARDRAIL CONNECTION TO STRUCTURE SAFETY SHAPE FACE RUBRAIL	
STANDARD APPROVED FOR USE 3/1996	STANDARD
REVISED: 1/1998 DRAFT: 9/2013	M617-29