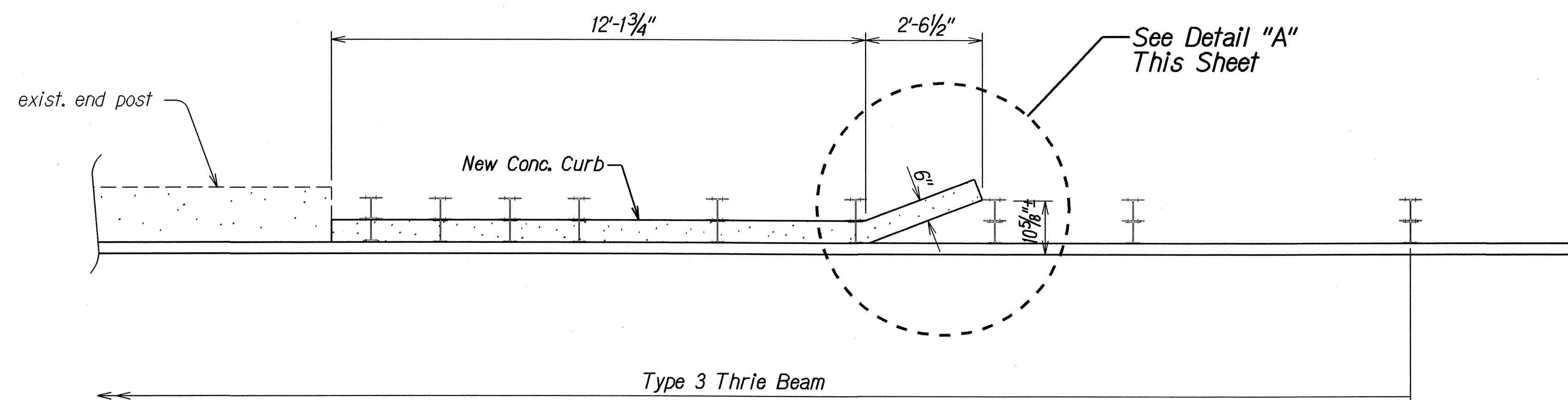
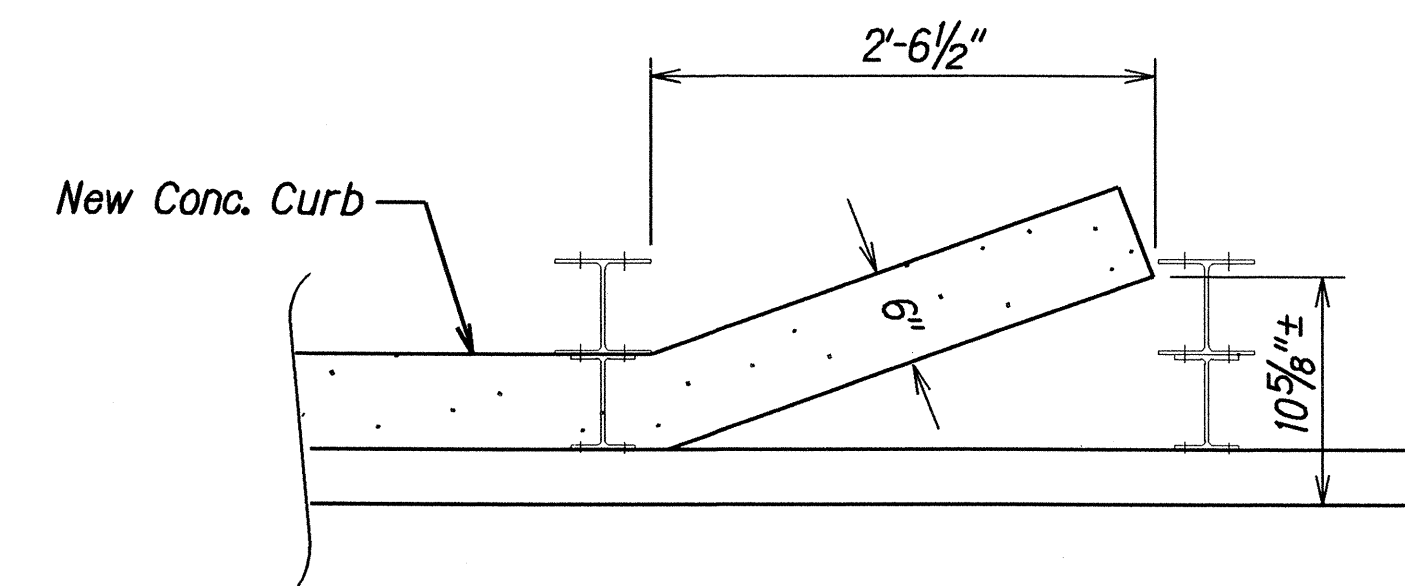


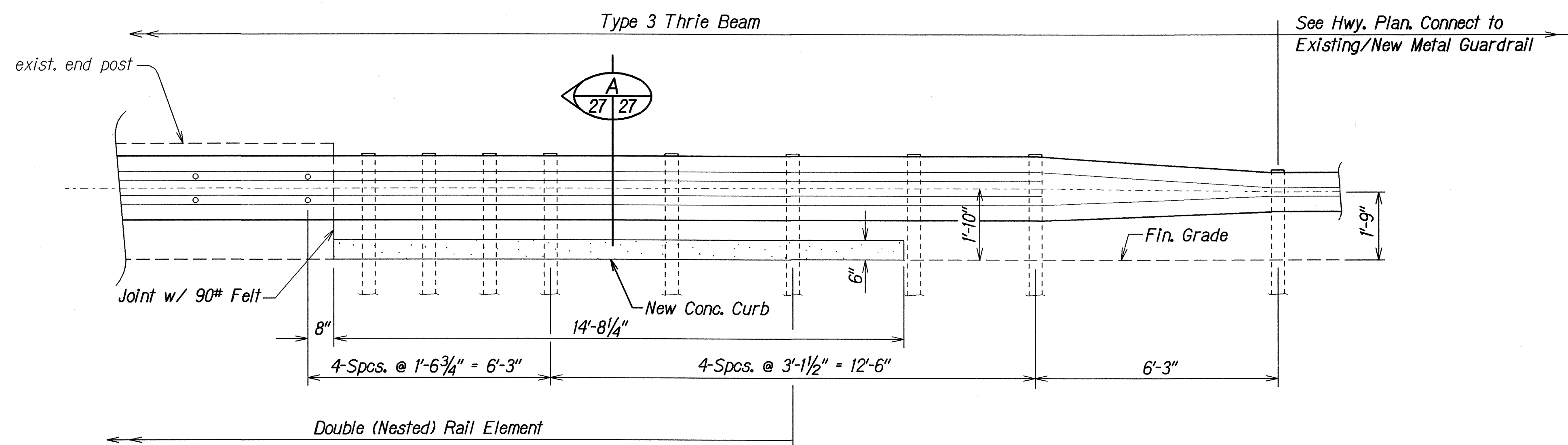
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-056-1(49)	2006	27	31



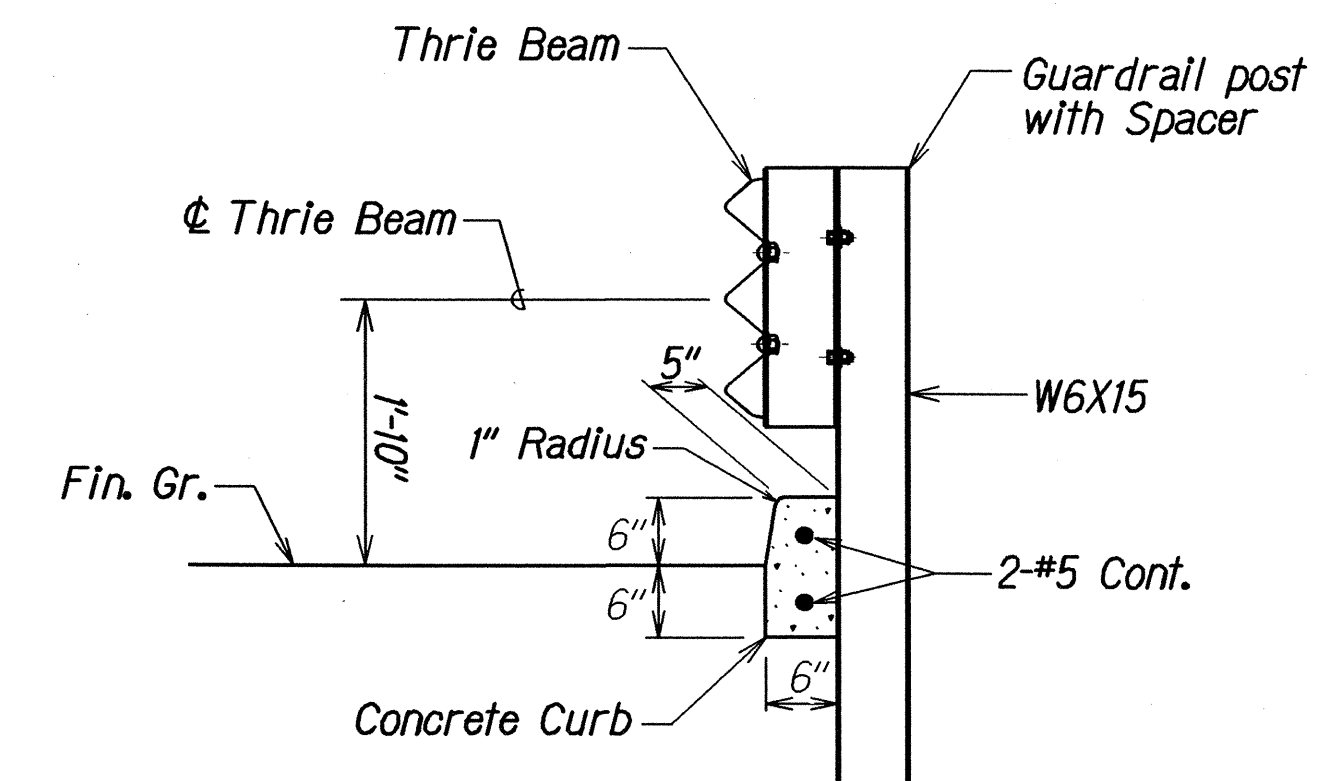
PLAN



DETAIL "A"
Scale : 1" = 1'-0"



PARTIAL ELEVATION



SECTION A
Scale : 3/4" = 1'-0"

THRIE BEAM METAL GUARDRAIL TRANSITION
Scale : 1/2" = 1'-0"

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
DESIGNED BY	DESIGNED BY	
CHECKED BY	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WAIAKALUA STREAM BRIDGE

MISCELLANEOUS DETAILS

KUHIO HIGHWAY - Guardrail and Shoulder
Improvements at Various Locations
Fed. Aid Project No. STP-056-1(49)

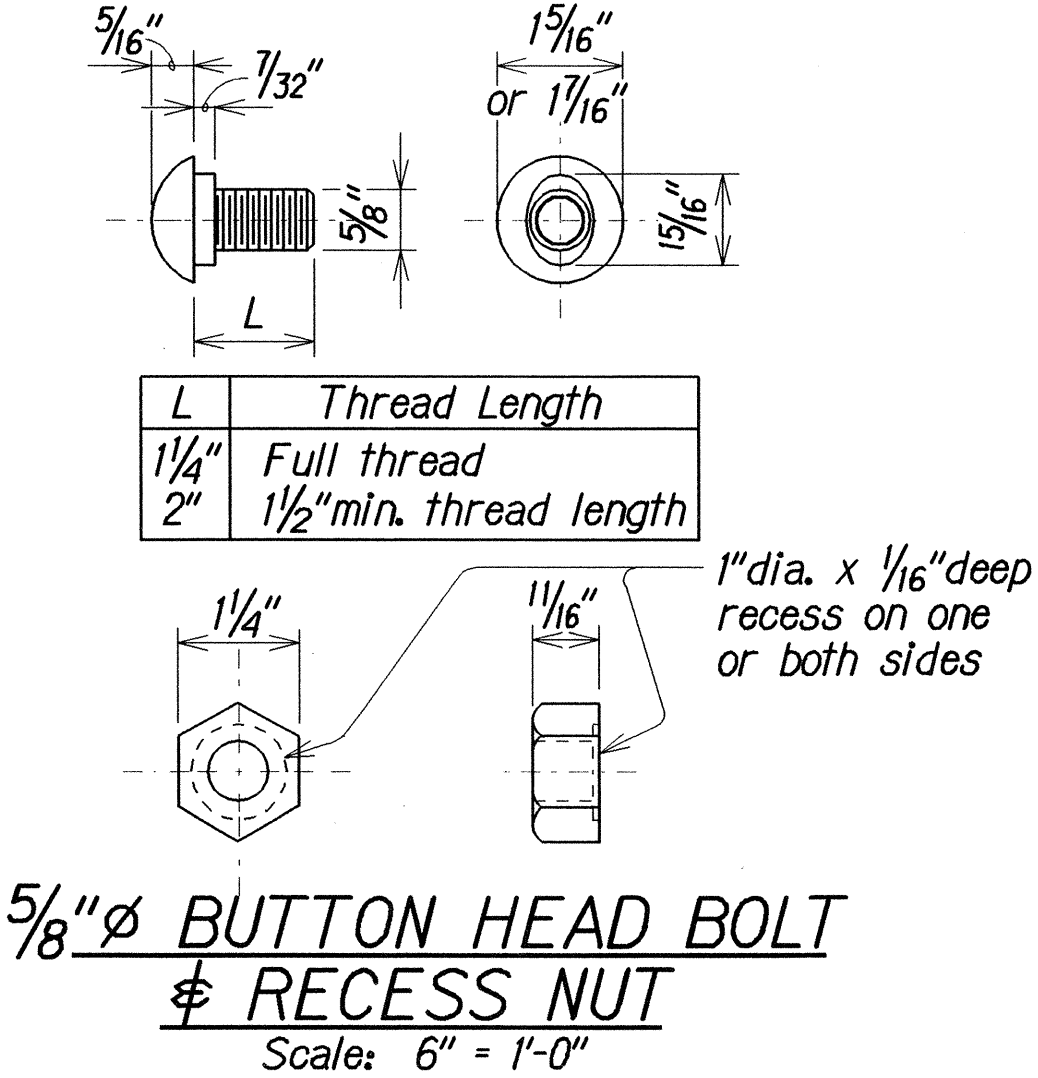
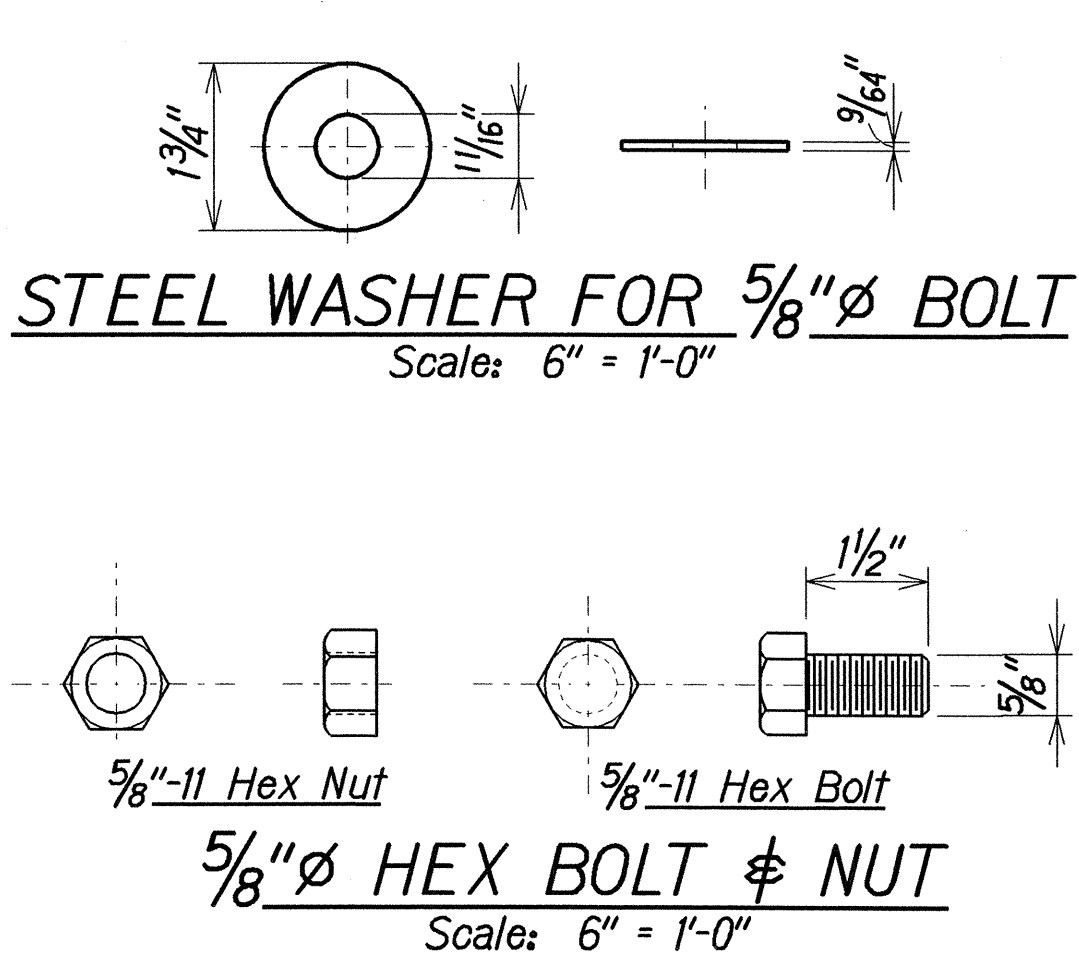
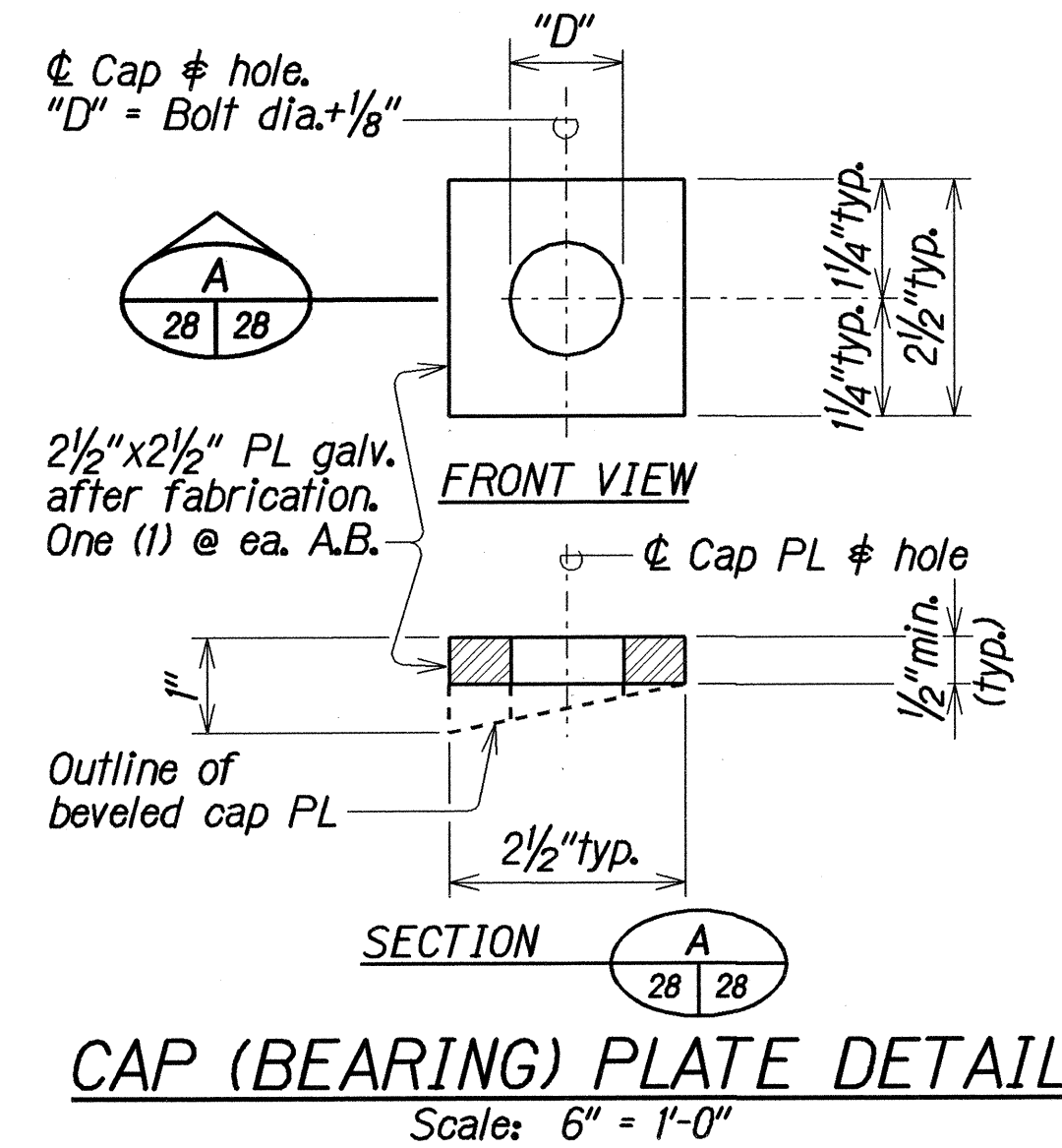
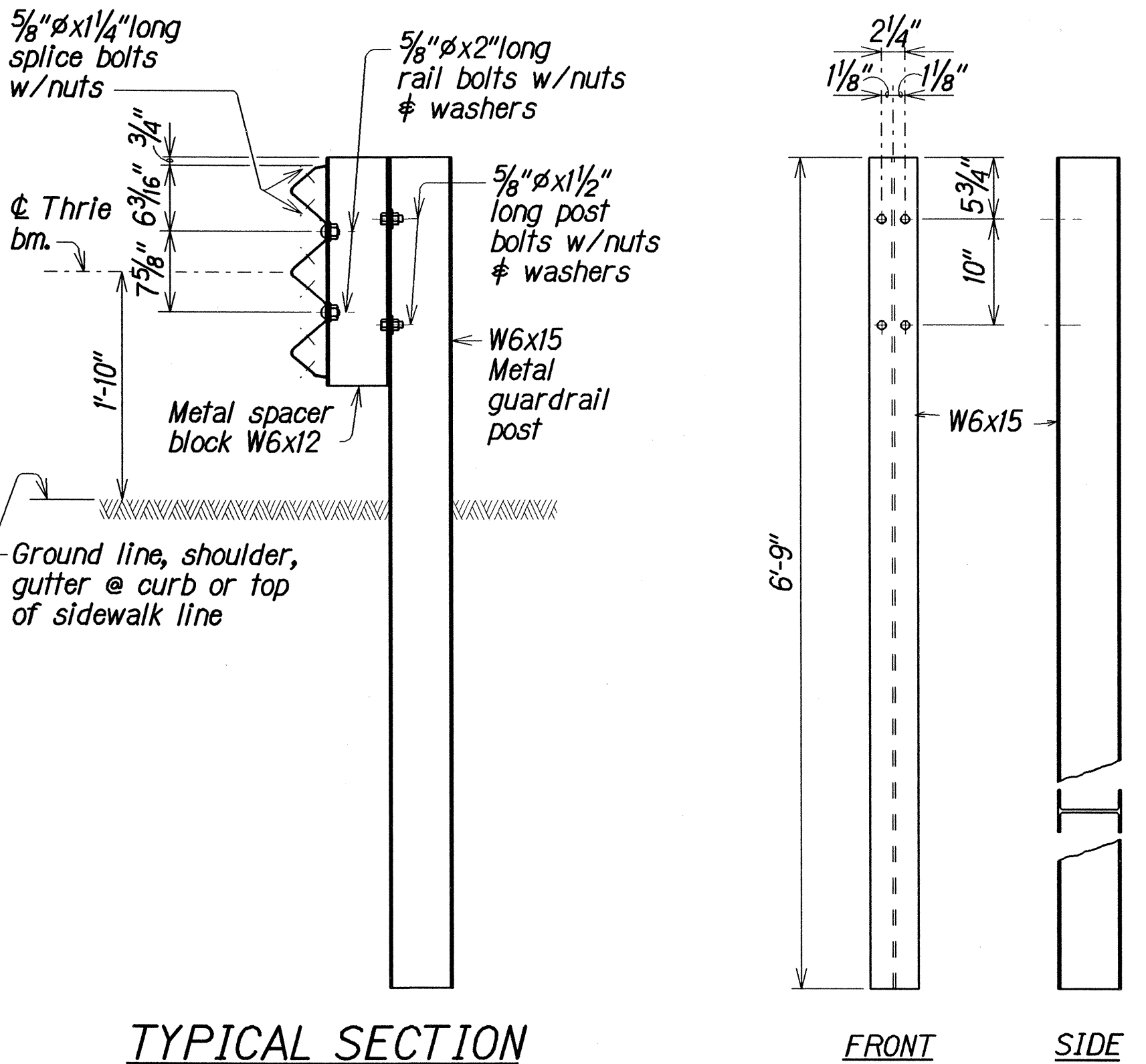
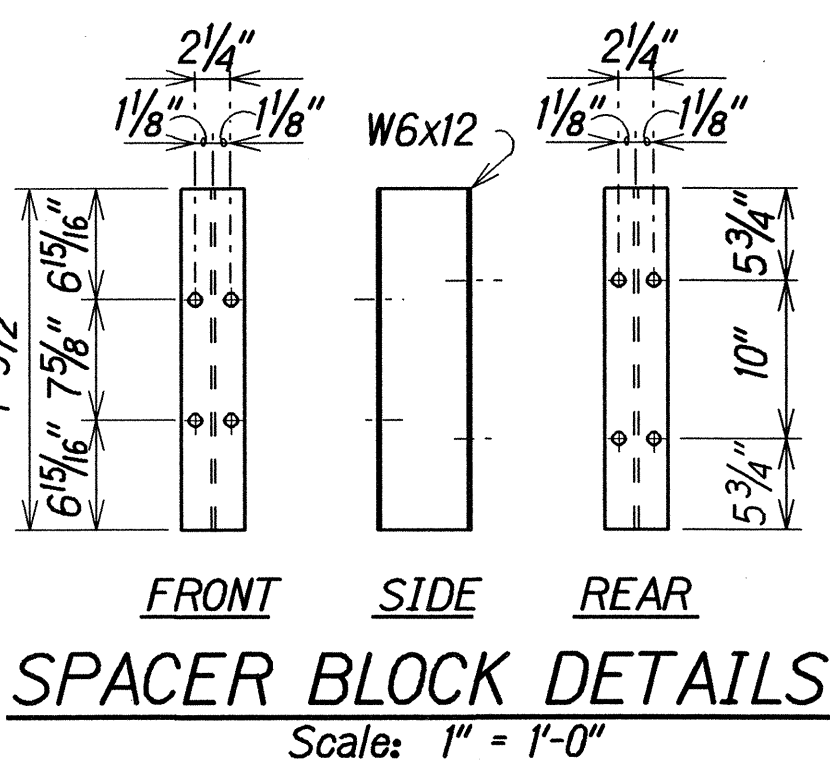
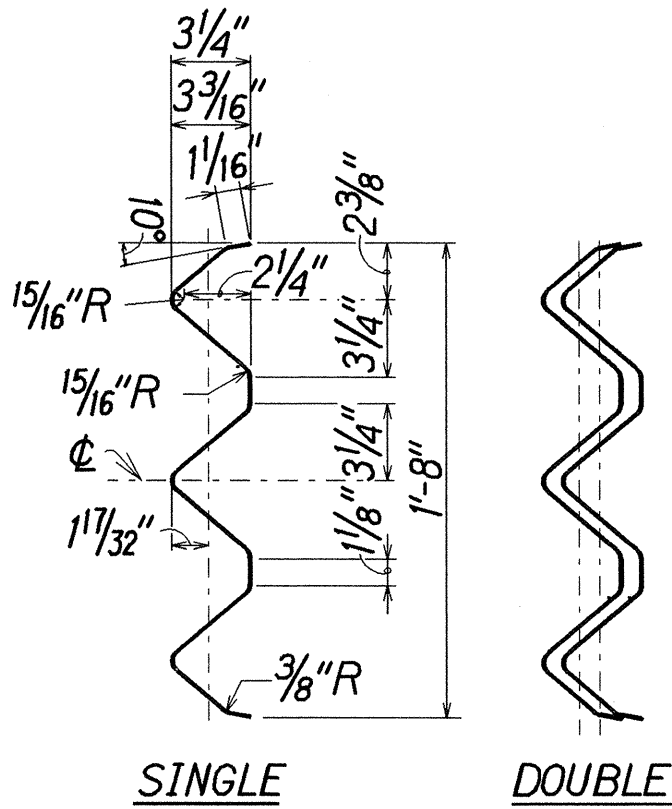
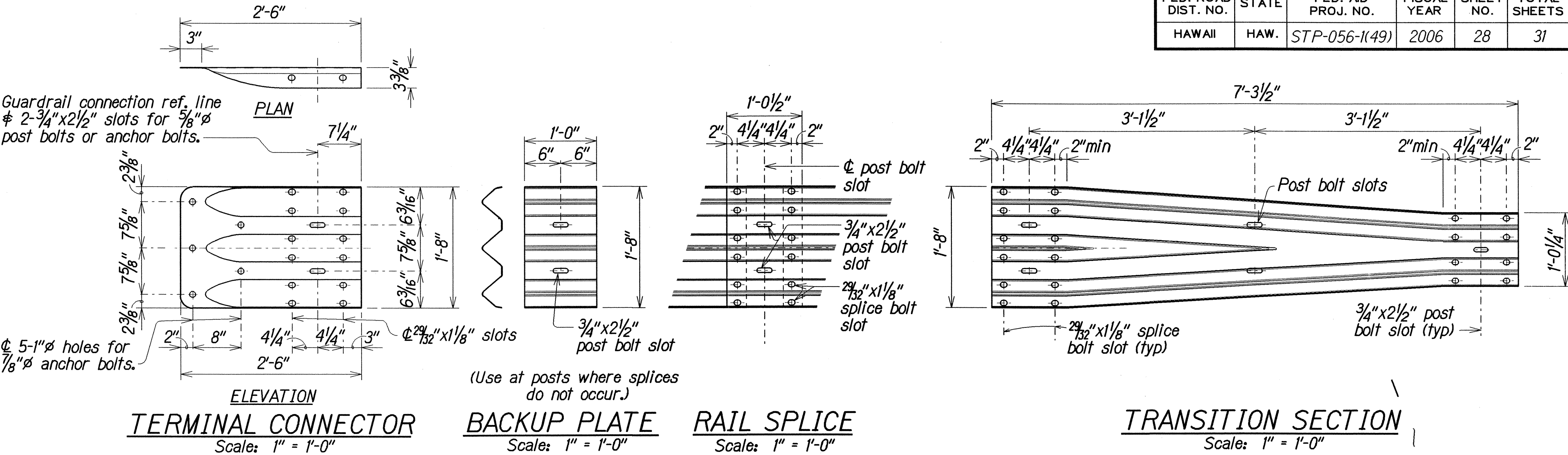
Scale: As Shown Date: Oct. 2005

SHEET No. 2 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-056-1(49)	2006	28	31

NOTES:

- The work necessary to connect guardrail to concrete end post shall include all labor, materials, tools, equipment and incidentals necessary to complete the work and will not be paid for separately.
- Lap terminal connector and rail element in direction of traffic to prevent snagging.
- All anchor bolts shall be high strength bolts conforming to the requirements of ASTM 325 and Standard Specification, Section 713.04.
- Anchor bolt length shall be such that a snug fit of the elements and full thread engagement plus 1/4" (max) is attained.
- "Terminal Connector", "Transition Section" and thrie beam shall be fabricated from 10gauge steel conforming to the requirements of AASHTO M 180, Type II, Class B.
- "Terminal Connector" and standard spacer, including all anchor bolts, cap PL, nuts and washers, shall be hot-dip galvanized after fabrication.
- Cap PL shall be fabricated from ASTM A 36.
- First 25'-0" of guardrail adjoining "Terminal Connector" shall be galvanized steel and supports spaced as shown on the detail drawings. This section of rail shall be placed on tangent to end post or parallel to roadway, unless conditions at site renders it impossible to do so. Flare point to be determined in field.
- Double (nest 1st panel) thrie beam elements at all end post connections, except on highways with one-way traffic pattern, use single thrie beam elements at end post on trailing end only.
- Where double (nested) beam occur, 12" "Back-up Plate" not required.
- Heads of through anchor bolts shall be placed on the traffic side of the rail.
- All steel shapes, rails and plates shall conform to ASTM A 36 specifications.

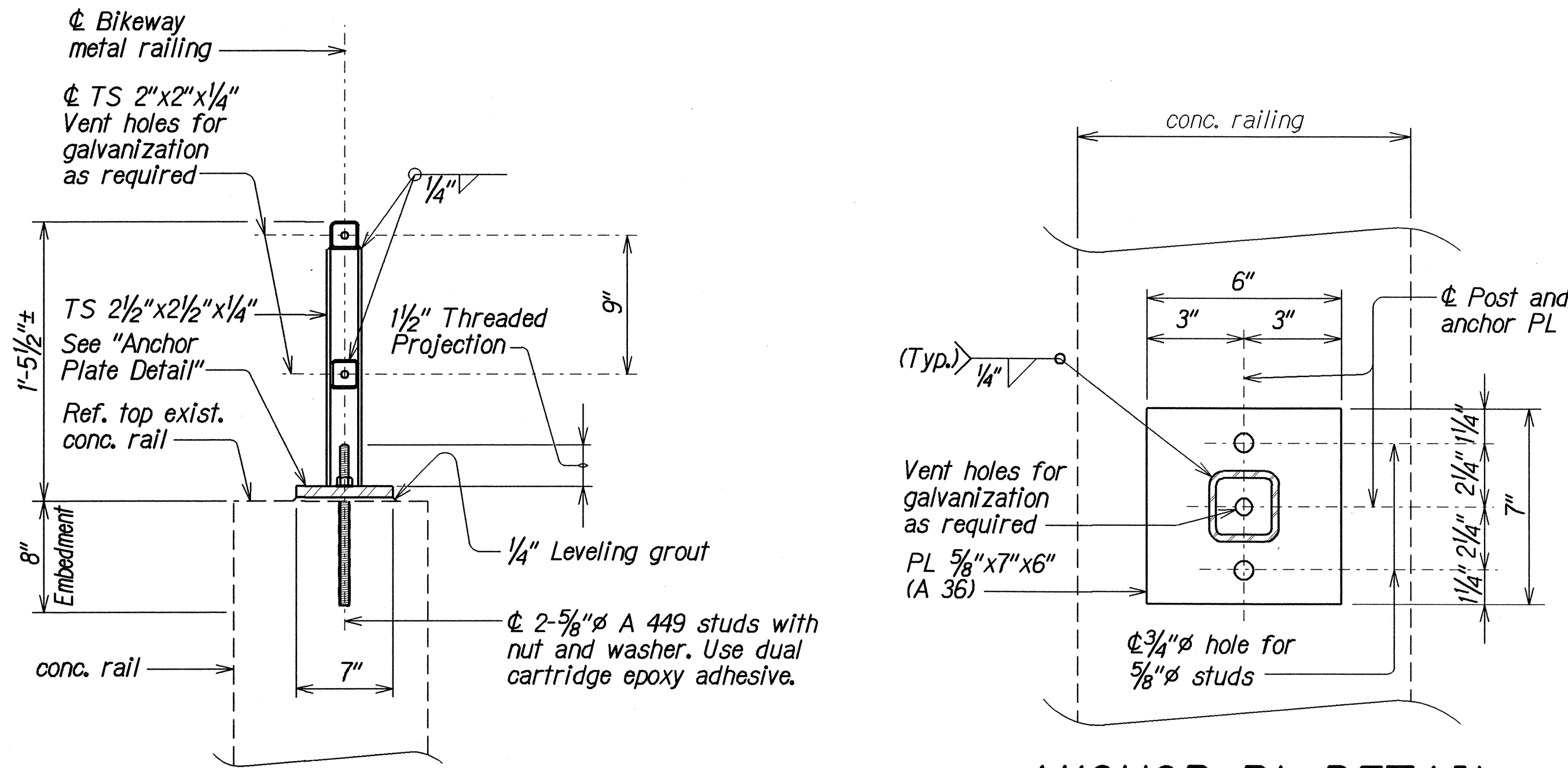


METAL GUARDRAIL TYPE 3 THRIE BEAM AND APPURTENANCES DETAILS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

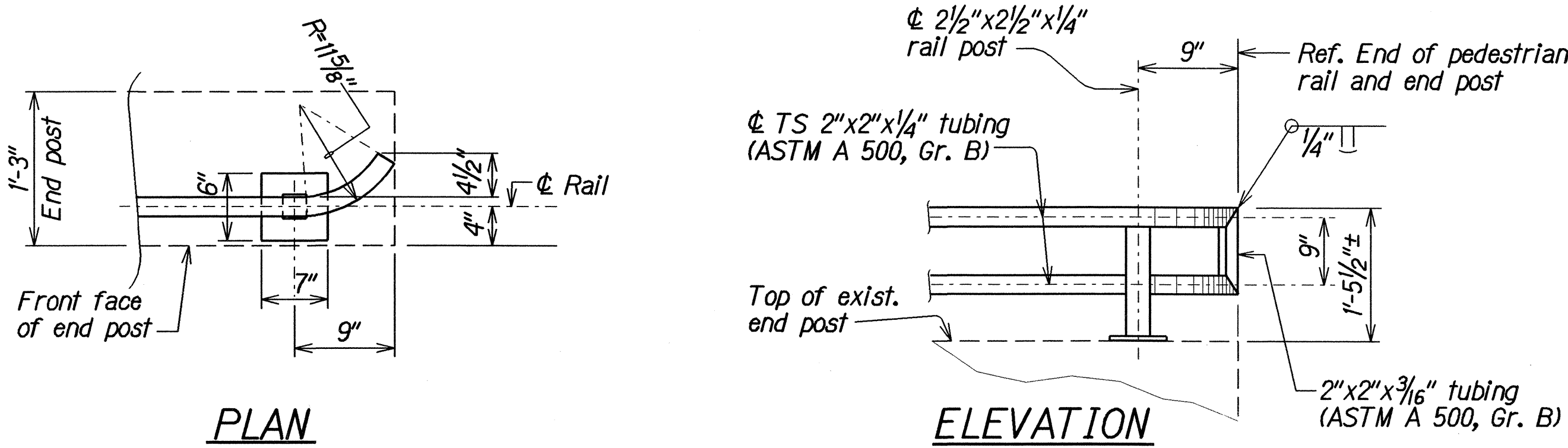
WAIKALUA STREAM BRIDGE
METAL GUARDRAIL TYPE 3 THRIE BEAM
and APPURTENANCES DETAILS
KUHIO HIGHWAY - Guardrail and Shoulder
Improvements at Various Locations
Fed. Aid Project No. STP-056-1(49)
Scale: As Shown Date: Oct. 2005

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-056-1(49)	2006	29	31

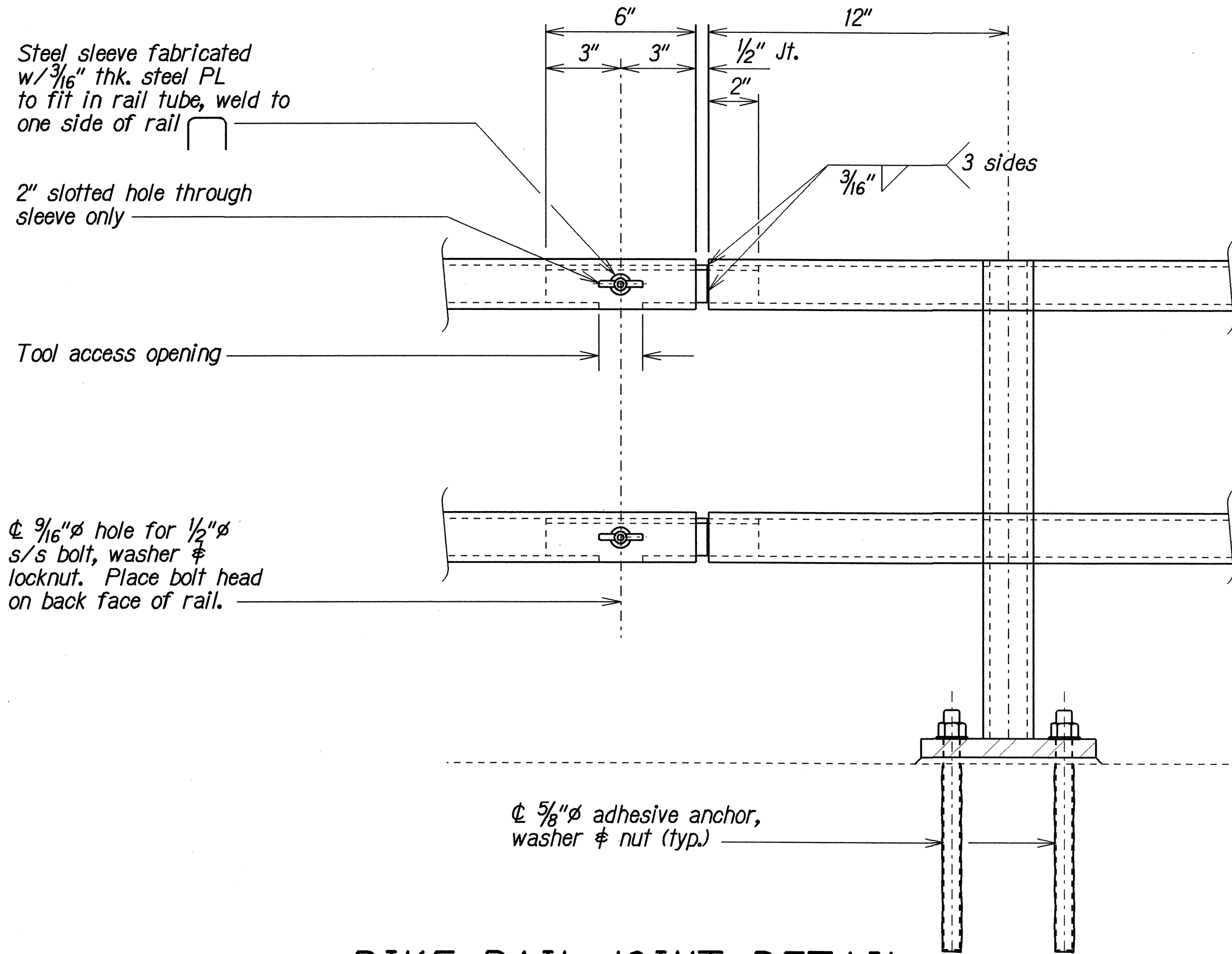


TYPICAL SECTION
BIKEWAY METAL RAILING
 Scale: 1 1/2"=1'-0"

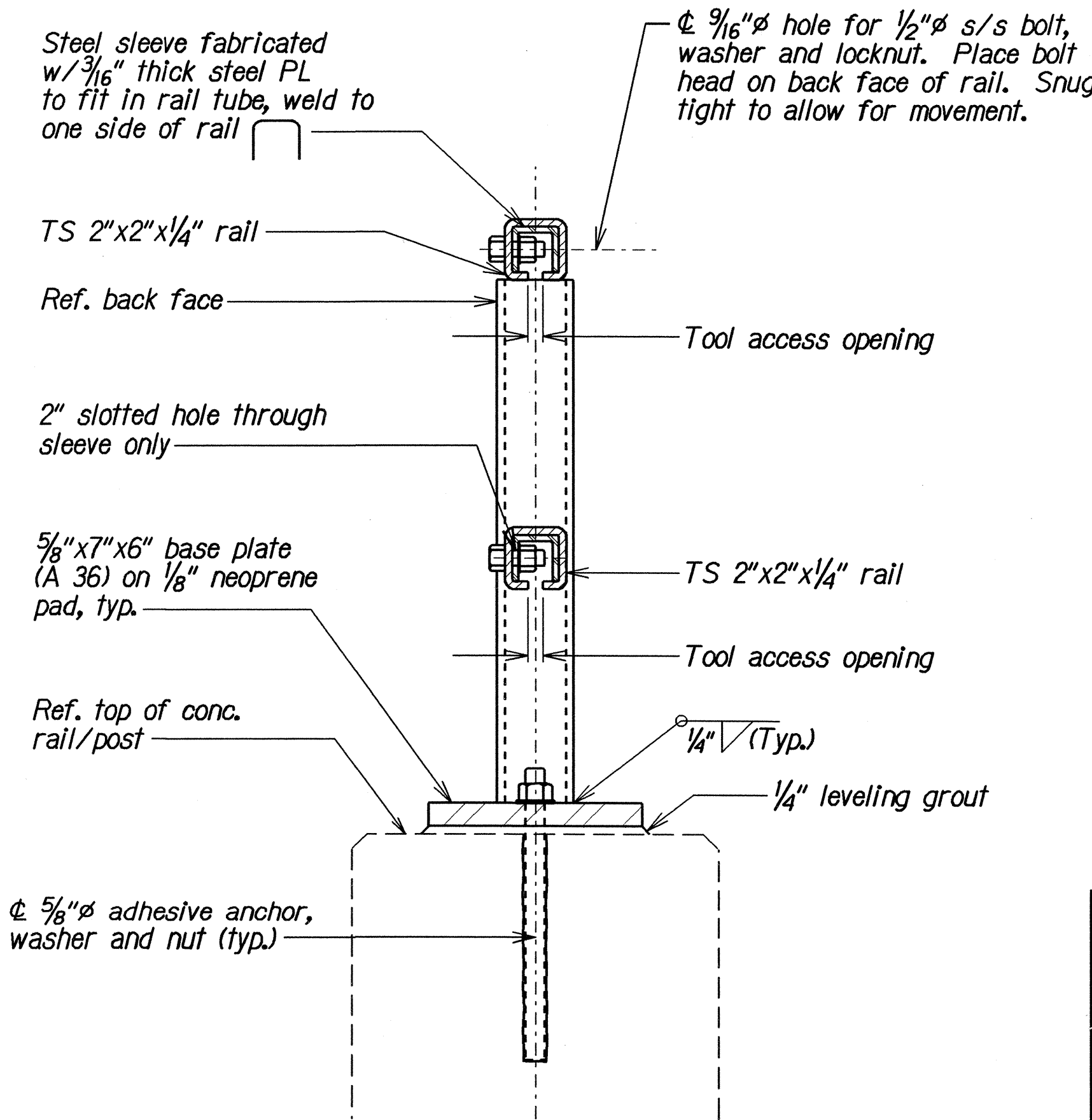
ANCHOR PL DETAIL
 Scale: 3"=1'-0"



TYPICAL END DETAIL AT BIKEWAY METAL RAILING
 Scale: 1"=1'-0"



BIKE RAIL JOINT DETAIL
(AT TWO LOCATIONS)
 Scale: 3"=1'-0"



BIKE RAIL SECTION
 Scale: 3"=1'-0"

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

WAIAKALUA STREAM BRIDGE

BIKEWAY METAL RAILING DETAILS

KUHIO HIGHWAY - Guardrail and Shoulder

Improvements at Various Locations

Fed. Aid Project No. STP-056-1(49)

Scale: As Shown

Date: Oct. 2005

SHEET No. 4 OF 4 SHEETS

ORIGINAL	SURVEY PLOTTED BY	DATE
PLAN	DRAWN BY	
NOTE BOOK	DESIGNED BY	
QUANTITIES BY	CHECKED BY	
THROU		