FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H2-1(33)	2007	65	168

GENERAL NOTES

DESIGN SPECIFICATIONS:

A. AASHTO LRFD Bridge Design Specifications, Third Edition, including all interim revisions

MATERIALS:

A. Concrete: 4,000 psi
B. Reinforcement Steel: ASTM A 615, Grade 60
C. Admixture in concrete: See Special Provisions
D. All expansion and premolded joint filler shall be incidental to concrete and will not be paid for separately.
E. All structural steel shall be ASTM A 36, hot-dip galvanized after fabrication.
F. All anchor bolts, washers and nuts shall be ASTM A 325, hot-dip galvanized after fabrication, unless noted otherwise.
G. All studs and threaded rods shall be ASTM A 449, galvanized, unless noted otherwise.
H. All welding shall be in accordance with the current edition of Reinforcing Steel Welding Code AWS D 1.4. Welding electrodes for structural steel shall be E 70.
I. Steel tubes shall be ASTM A 500 Grade B, hot-dip galvanized after fabrication.

CONSTRUCTION METHODS:

A. Refer to Hawaii Standard Specifications for Road, Bridge and Public Works Construction, 1994 Edition and Special Provisions.
B. Except as noted otherwise, all vertical dimensions are measured plumb.
C. For steel reinforcing, stagger all splices where possible.
D. Steel reinforcing shall be supported, bent and placed as per ACI Detailing Manual, 1994.
E. For cast-in-place concrete, minimum reinforcement cover:
Concrete cast against earth: 3"
Concrete cast against a smooth surface or finished to a smooth surface: 2"
F. At time concrete is placed, reinforcing shall be free from mud, oil, laitance or other coatings adversely affecting bond capacity.
G. Reinforcement, dowels and other embedded items shall be positively secured before pouring.
H. All dimensions relating to reinforcing bars (e.g. spacing of bars, etc.) are to centers of bars unless noted otherwise.
I. All footings shall bear on firm undisturbed natural soils or properly compacted structural fill.
J. All existing reinforcing and anchor bolts that can be incorporated in the new work shall be bent or cut as required and cleaned before being utilized in the new work.
K. All reinforcement bars shown with bends shall conform to standard ACI hooks unless noted otherwise.
L. All existing reinforcing and anchor bolts that cannot be incorporated in the new work shall be completely removed or removed to a minimum depth of one and one-half (1½) inches below finish surface and the area patched with mortar.
M. Existing structure to be removed shown by hatched lines. Removal shall be done in such a manner as to preclude any damage to the existing structure(s). Large vibratory type of equipment will not be permitted in the removal operation, nor for drilling of holes. Only small vibratory hand tools accepted by the Engineer will be allowed. Any damage to the existing structure(s) due to the Contractor's operation or negligence shall be repaired at his expense with no cost to the State.
N. Where the plans call for reinforcement bars or studs to be embedded or anchored into existing concrete, see Special Provisions Section 676--Concrete Retrofit for the Use of Adhesive Anchors.
O. Where the plans call for placing fresh plastic concrete against existing concrete, see Special Provisions Section 676--Concrete Retrofit for the Use of Bonding Agent.

REFERENCE:

A. Refer to Standard Plans for additional details and notes not covered by details and typical drawings.

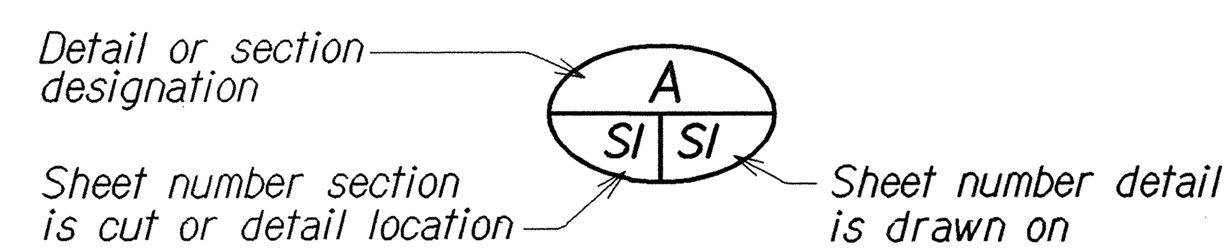
GENERAL:

A. All items noted incidental will not be paid for separately.
B. The Contractor shall verify the locations of all existing utility lines and notify their respective owners before commencing with any work.
C. The Contractor shall verify all grades and dimensions before commencing with any work.
D. The Contractor shall be solely responsible for the protection of adjacent property, utilities and existing and new structures from damage due to construction. Repairing any damage shall be at no cost to the State.
E. The Conctractor shall conduct his work in such a manner and provide such temporary shoring or other measures as may be necessary to insure the safety of all concerned and to protect existing structures.
F. Unless noted otherwise, all exposed concrete edges shall be chamfered ¾".

ESTIMATED QUANTITIES

Item No.	Item	Unit
507.4000	Metal Bike Railing (589 LF)	Lump Sum
507.5500	Concrete Bridge Railing Upgrade (553 LF)	Lump Sum
507.5600	Concrete Bridge Railing Light Standard Support Upgrades (4 EA)	Lump Sum

SYMBOLS AND ABBREVIATIONS

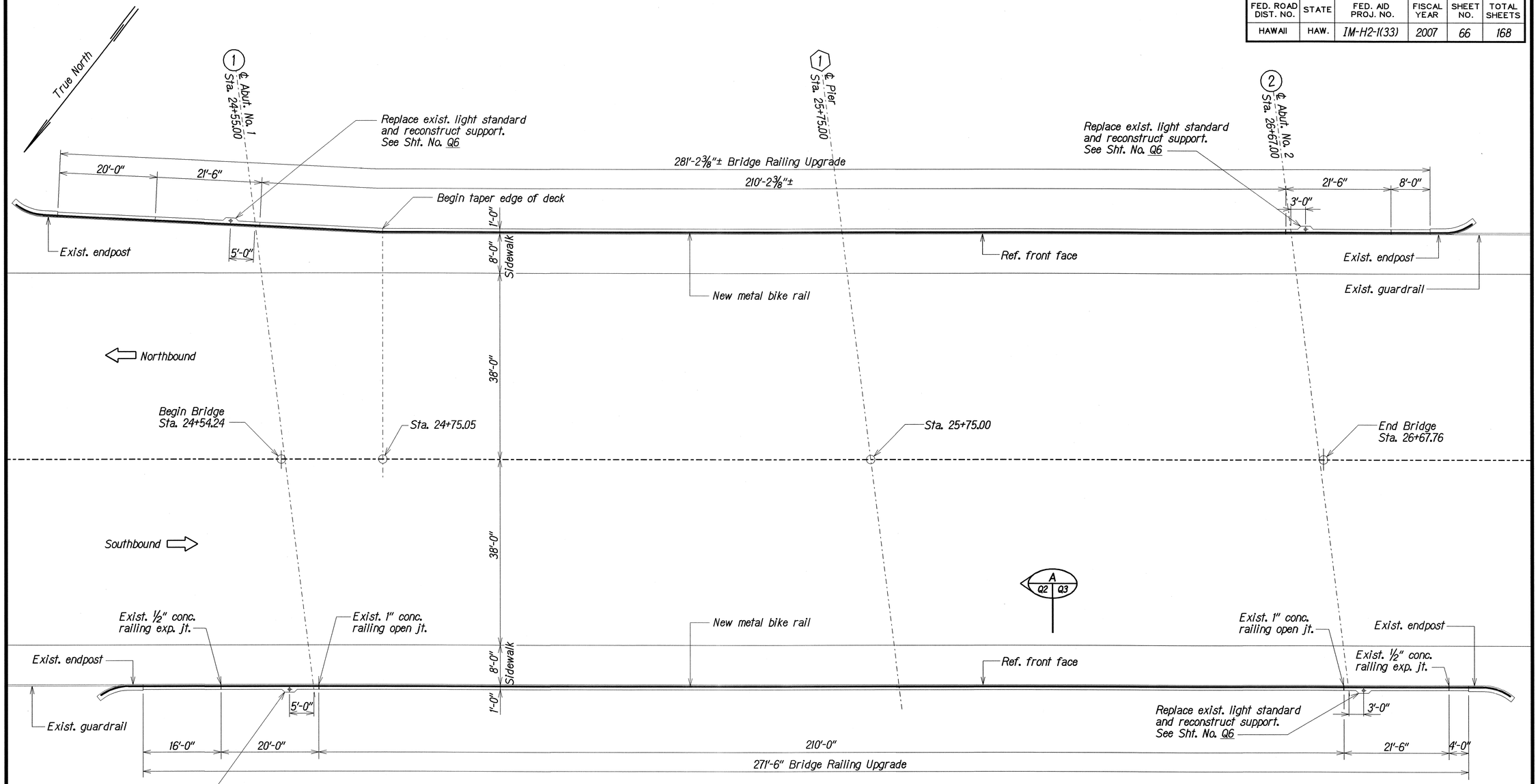


Constr. - Construction
Exist. - Existing
Exp. - Expansion
jt. - Joint
L.F. - Linear feet
PL - Plate
S.F. or sq. ft. - Square feet
thk. - thick
vert. - Vertical
w/ - with

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
MEHEULA PARKWAY SEPARATION
GENERAL NOTES, ESTIMATED QUANTITIES, SYMBOLS AND ABBREVIATIONS
Interstate Route H-2 Rehabilitation
Waipio Interchange & Mililani Interchange On/Off Ramps, Ka Uka Blvd & Meheula Prkwy Overpasses, & Kipapa Stream Bridge
Fed. Aid Project No. IM-H2-1(33)
Scale: As Noted Date: Dec. 2006
SHEET No. Q1 OF 7 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY XXX	DEC 2006
No. 4ih2b_q1.dgn	TRACED BY	
	DESIGNED BY XXX	DEC 2006
	QUANTITIES BY XXX	DEC 2006
	CHECKED BY XXX	DEC 2006

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H2-1(33)	2007	66	168



LAYOUT PLAN

Scale: 1" = 10'-0"

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE DEC 2006
	DRAWN BY XXX	
	TRACED BY XXX	DEC 2006
NOTE BOOK	DESIGNED BY XXX	DEC 2006
	QUANTITIES BY XXX	DEC 2006
	CHECKED BY XXX	DEC 2006

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MEHEULA PARKWAY SEPARATION

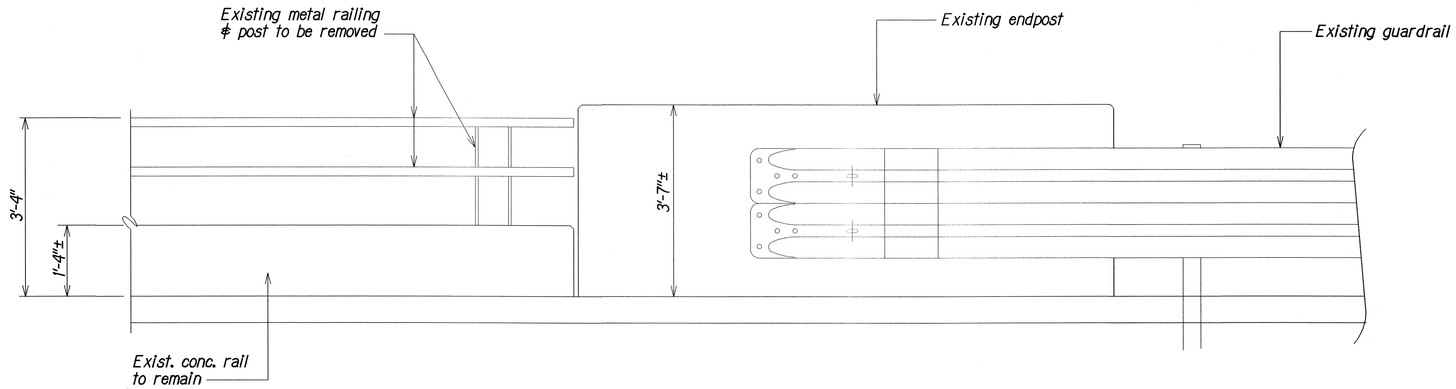
LAYOUT PLAN

Interstate Route H-2 Rehabilitation
Waipio Interchange & Mililani Interchange On/Off Ramps,
Ka Uka Blvd & Meheula Prkwy Overpasses & Kipapa Stream Bridge
Fed. Aid Project No. IM-H2-1(33)

Scale: As Noted Date: Dec, 2006

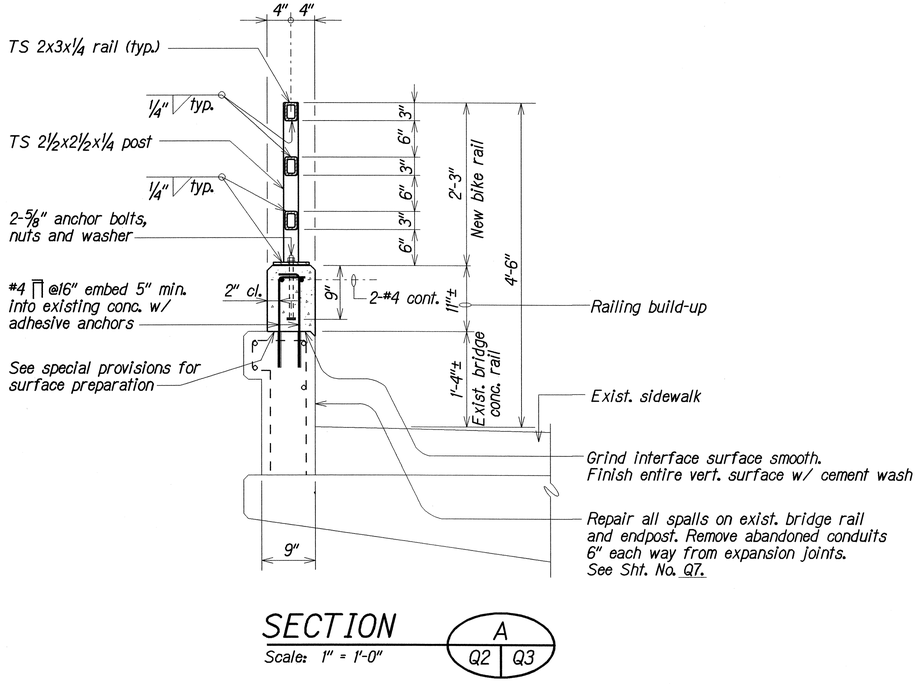
SHEET No. Q2 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H2-1(33)	2007	67	168



EXISTING PARTIAL ELEVATION

Not to Scale



SECTION A

Scale: 1" = 1'-0"

Q2 | Q3

ORIGINAL PLAN		DATE
	SURVEY PLOTTED BY XXX	
	DRAWN BY	
	TRACED BY XXX	DEC 2006
NOTE BOOK	DESIGNED BY XXX	DEC 2006
	QUANTITIES BY XXX	DEC 2006
	CHECKED BY XXX	DEC 2006

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MEHEULA PARKWAY SEPARATION

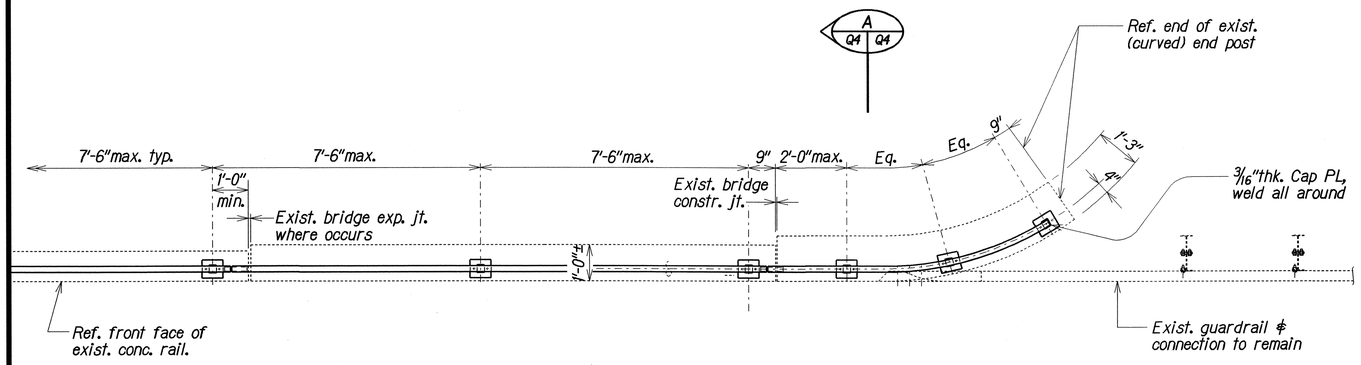
SECTIONS

Interstate Route H-2 Rehabilitation
Waipio Interchange & Mililani Interchange On/Off Ramps,
Ka Uka Blvd & Meheula Prkwy Overpasses, & Kipapa Stream Bridge
Fed. Aid Project No. 1M-H2-1(33)

Scale: As Noted Date: Dec, 2006

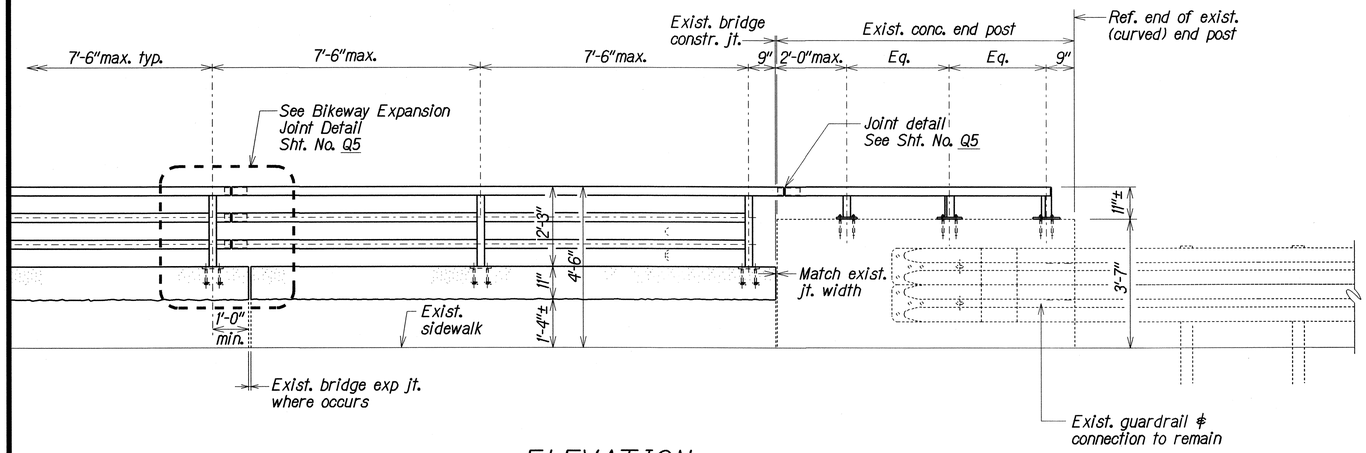
SHEET No. Q3 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H2-1(33)	2007	68	168



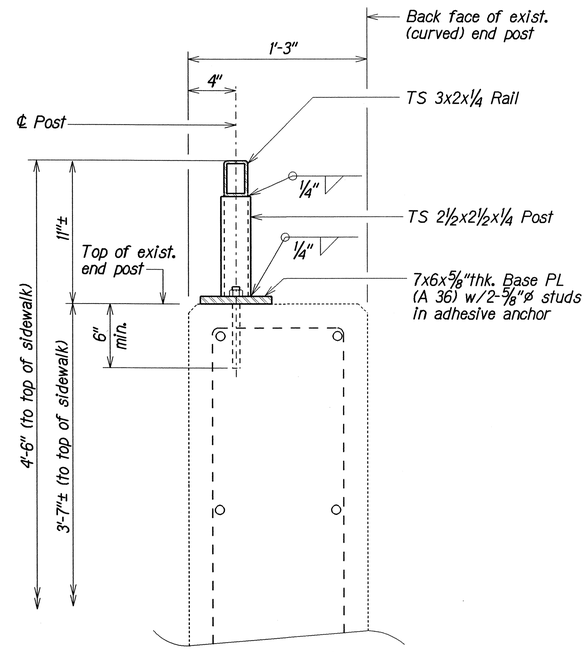
PLAN

Scale: ½" = 1'-0"



ELEVATION

Scale: ½" = 1'-0"



SECTION A (Q4 | Q4)

Not to Scale

ORIGINAL PLAN	SURVEY PLOTTED BY	XXX	DATE DEC. 2006
NOTE BOOK	DRAWN BY	XXX	DEC. 2006
	TRACED BY	XXX	DEC. 2006
	DESIGNED BY	XXX	DEC. 2006
	QUANTITIES BY	XXX	DEC. 2006
	CHECKED BY	XXX	DEC. 2006

TYPICAL BRIDGE RAILING UPGRADE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

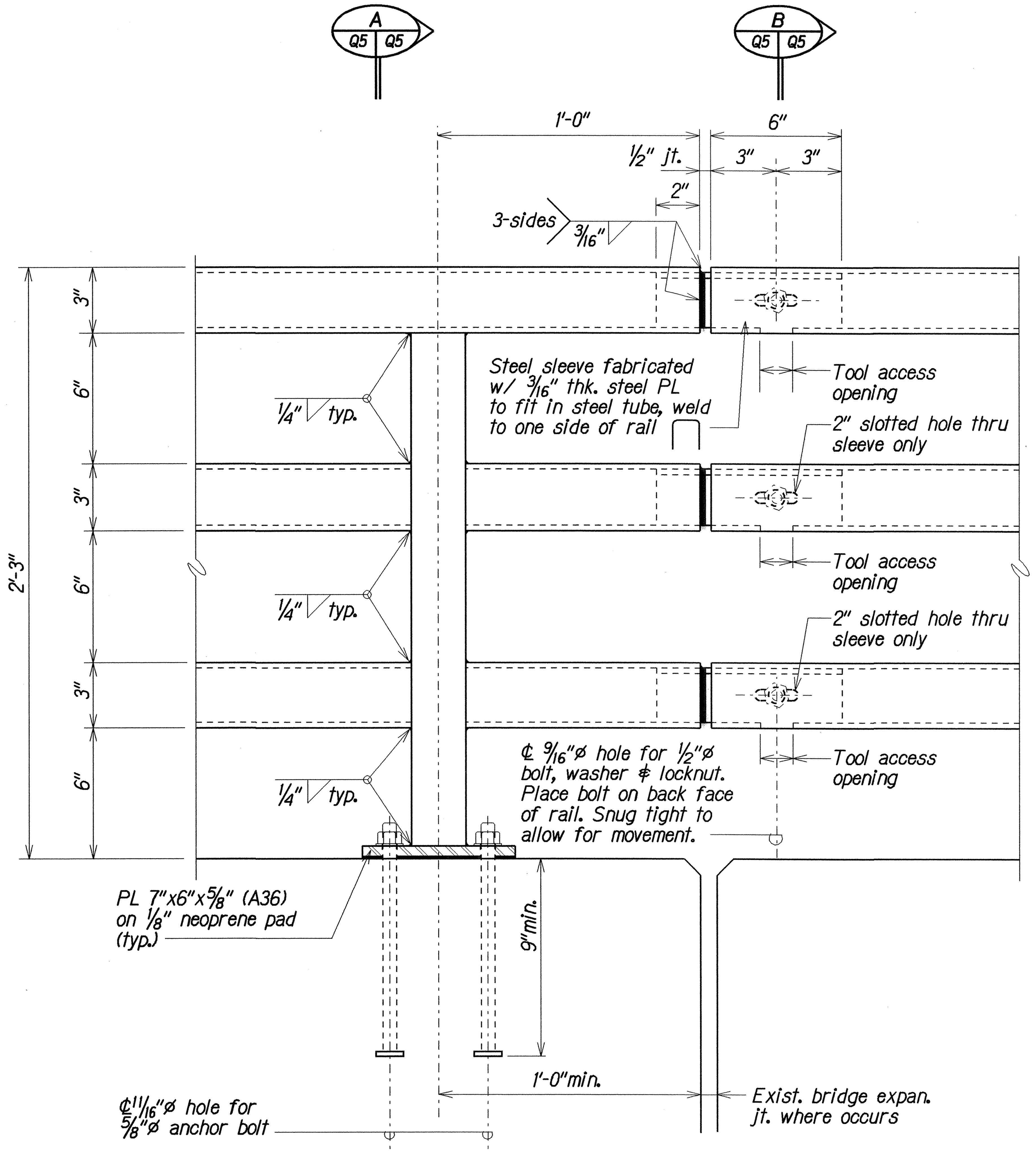
MEHEULA PARKWAY SEPARATION
TYPICAL BRIDGE RAILING UPGRADE PLAN, ELEVATION AND SECTIONS

Interstate Route H-2 Rehabilitation
Waipio Interchange & Mililani Interchange On/Off Ramps, Ka Uka Blvd & Meheula Prkwy Overpasses, & Kipapa Stream Bridge
Fed. Aid Project No. IM-H2-1(33)

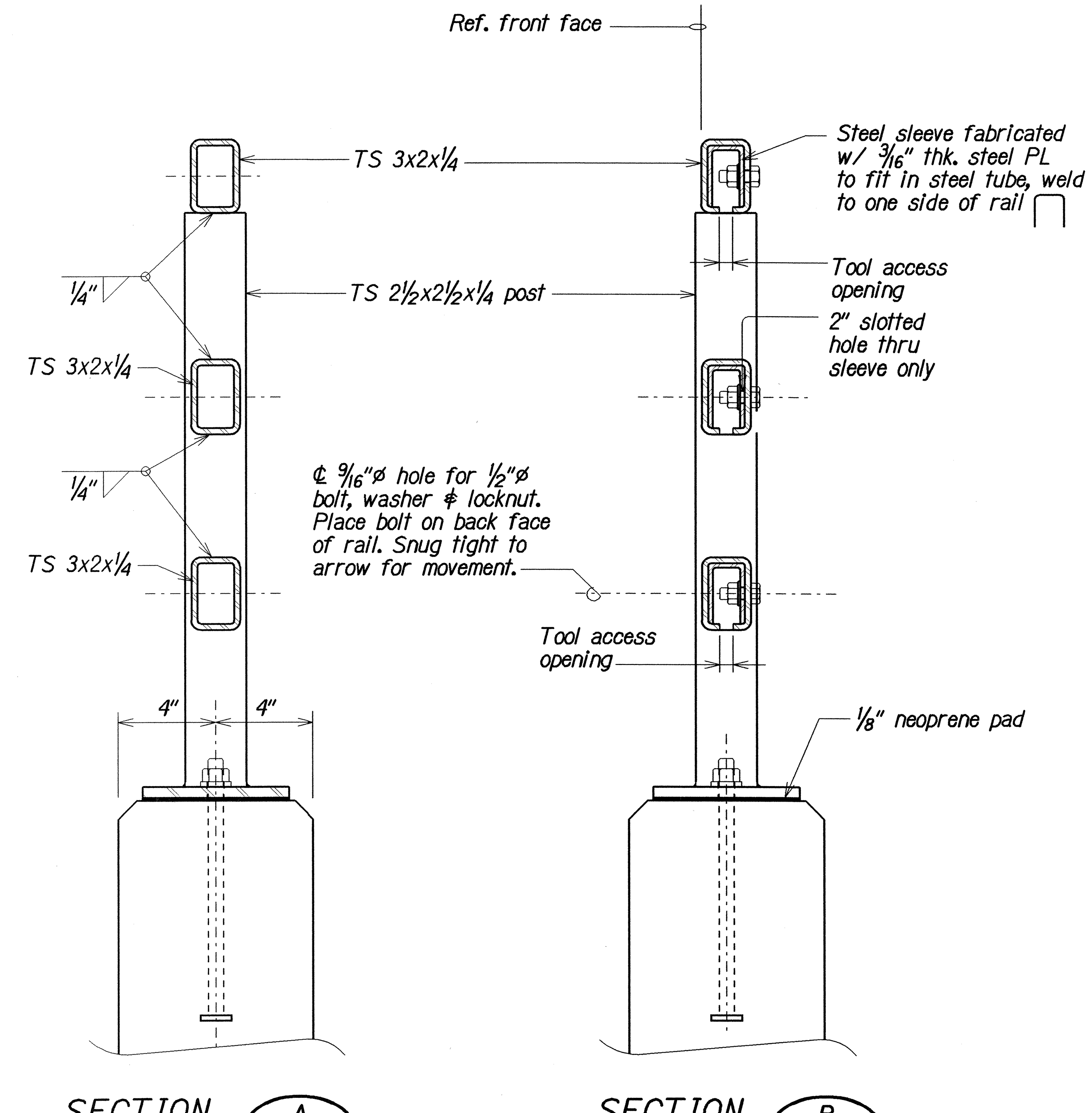
Scale: As Noted Date: Dec, 2006

SHEET No. Q4 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H2-1(33)	2007	69	168



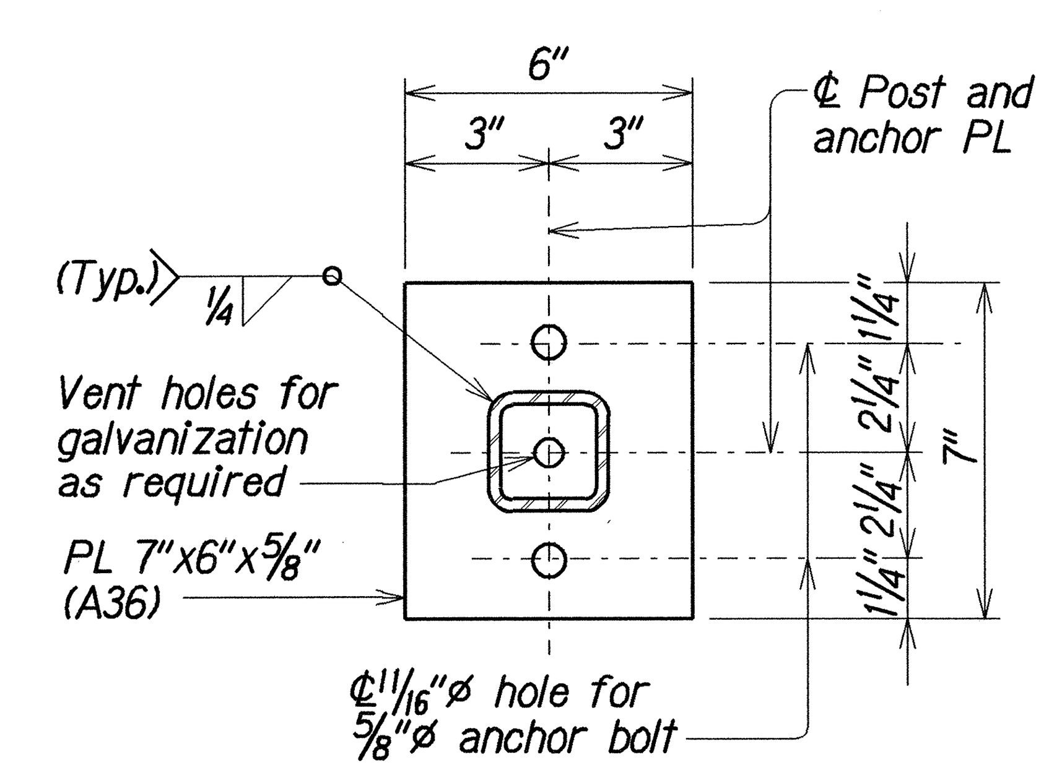
ELEVATION
Scale: 3" = 1'-0"



SECTION A (Q5 Q5)
Scale: 3" = 1'-0"

SECTION B (Q5 Q5)
Scale: 3" = 1'-0"

BIKEWAY EXPANSION JOINT DETAIL



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

NOTES:

1. Steel plates to be ASTM A 36.
2. Tubing to be ASTM A 500, Grade B.
3. Steel railing to be hot-dip galvanized after fabrication.
4. Anchor bolts and bolts to be ASTM F 593, Group 2; nuts and locknuts to be ASTM F 594, Group 2.
5. Use bikerail expansion jt. detail for all rails splices.

ORIGINAL PLAN	SURVEY PLOTTED BY XXX	DATE DEC 2006
	DRAWN BY	
	TRACED BY	
NOTE BOOK	DESIGNED BY XXX	DEC 2006
	QUANTITIES BY XXX	DEC 2006
	CHECKED BY XXX	DEC 2006

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

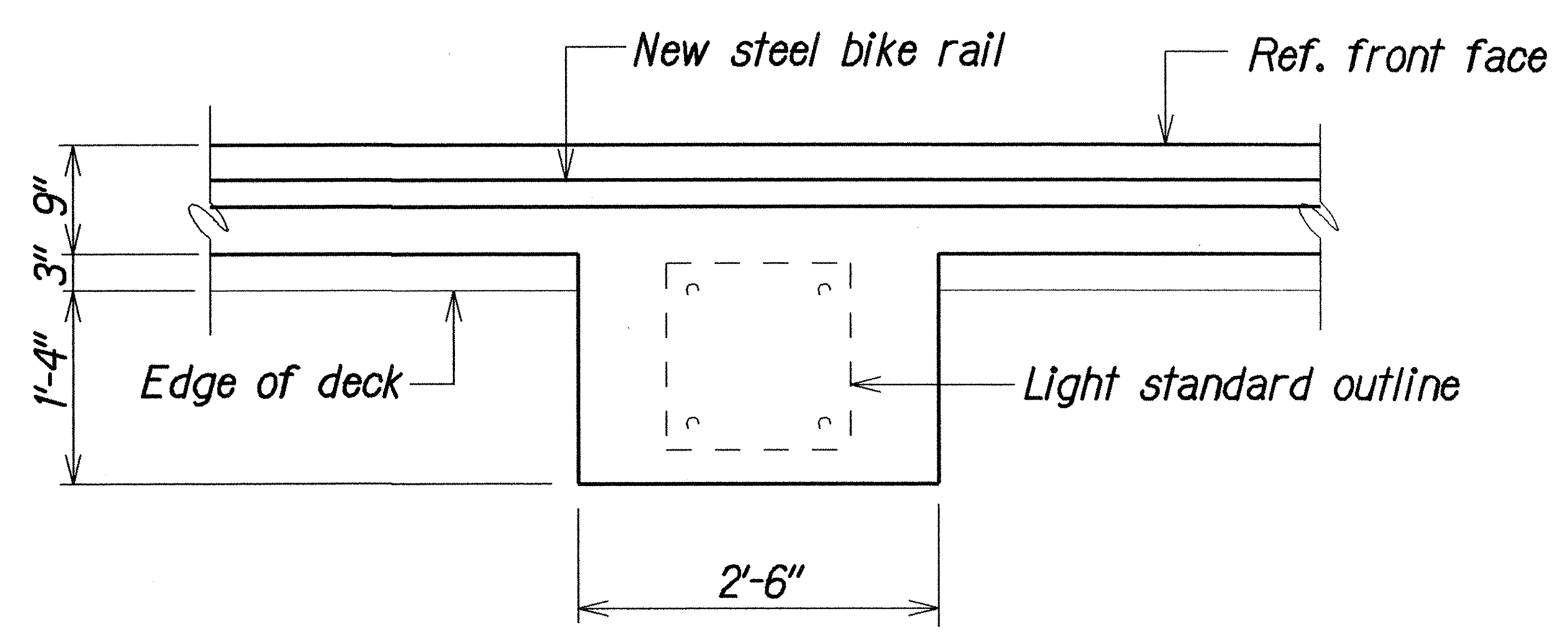
MEHEULA PARKWAY SEPARATION
BIKERAIL EXPANSION JOINT DETAIL

Interstate Route H-2 Rehabilitation
Waipio Interchange & Mililani Interchange On/Off Ramps,
Ka Uka Blvd & Meheula Prkwy Overpasses, & Kipapa Stream Bridge
Fed. Aid Project No. IM-H2-1(33)

Scale: As Noted   Date: Dec. 2006

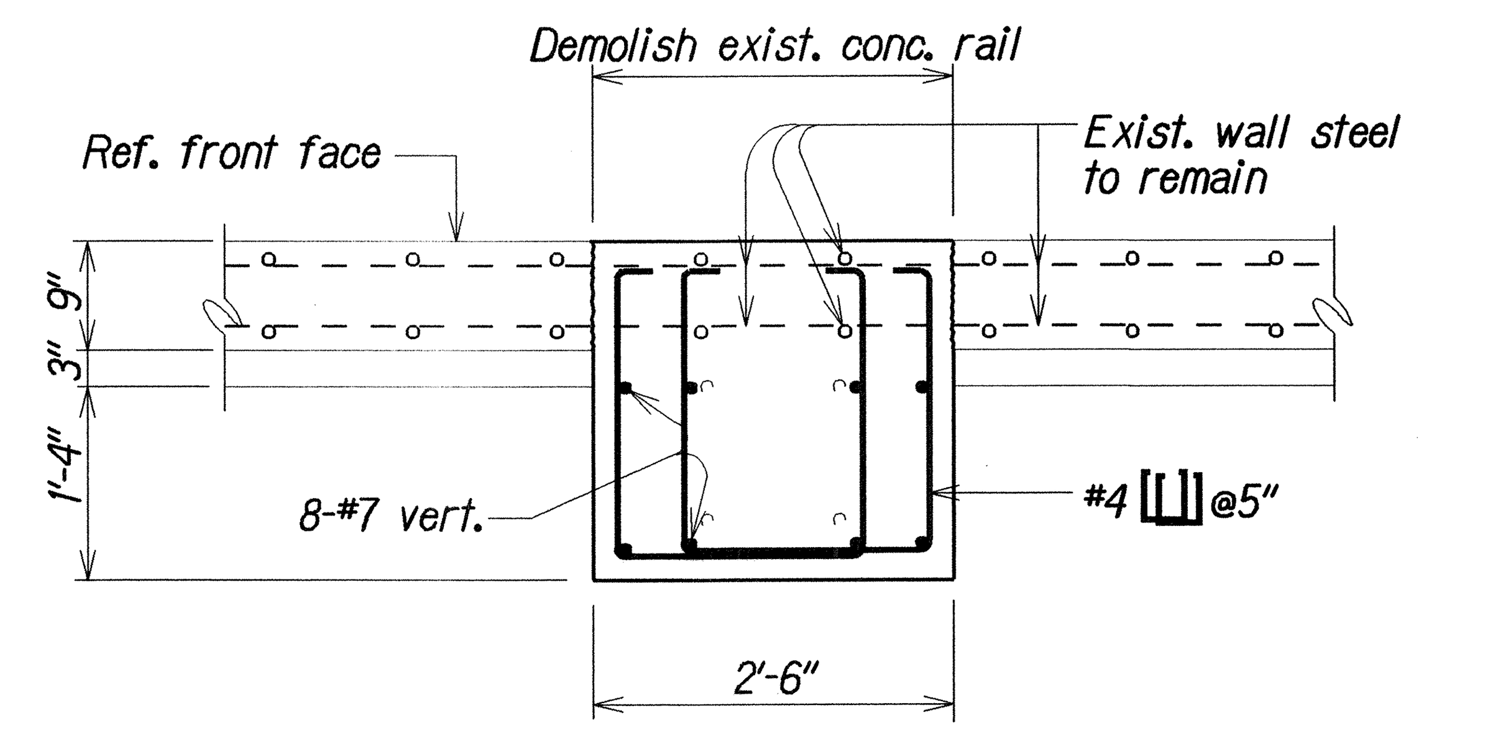
SHEET No. Q5 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H2-1(33)	2007	70	168



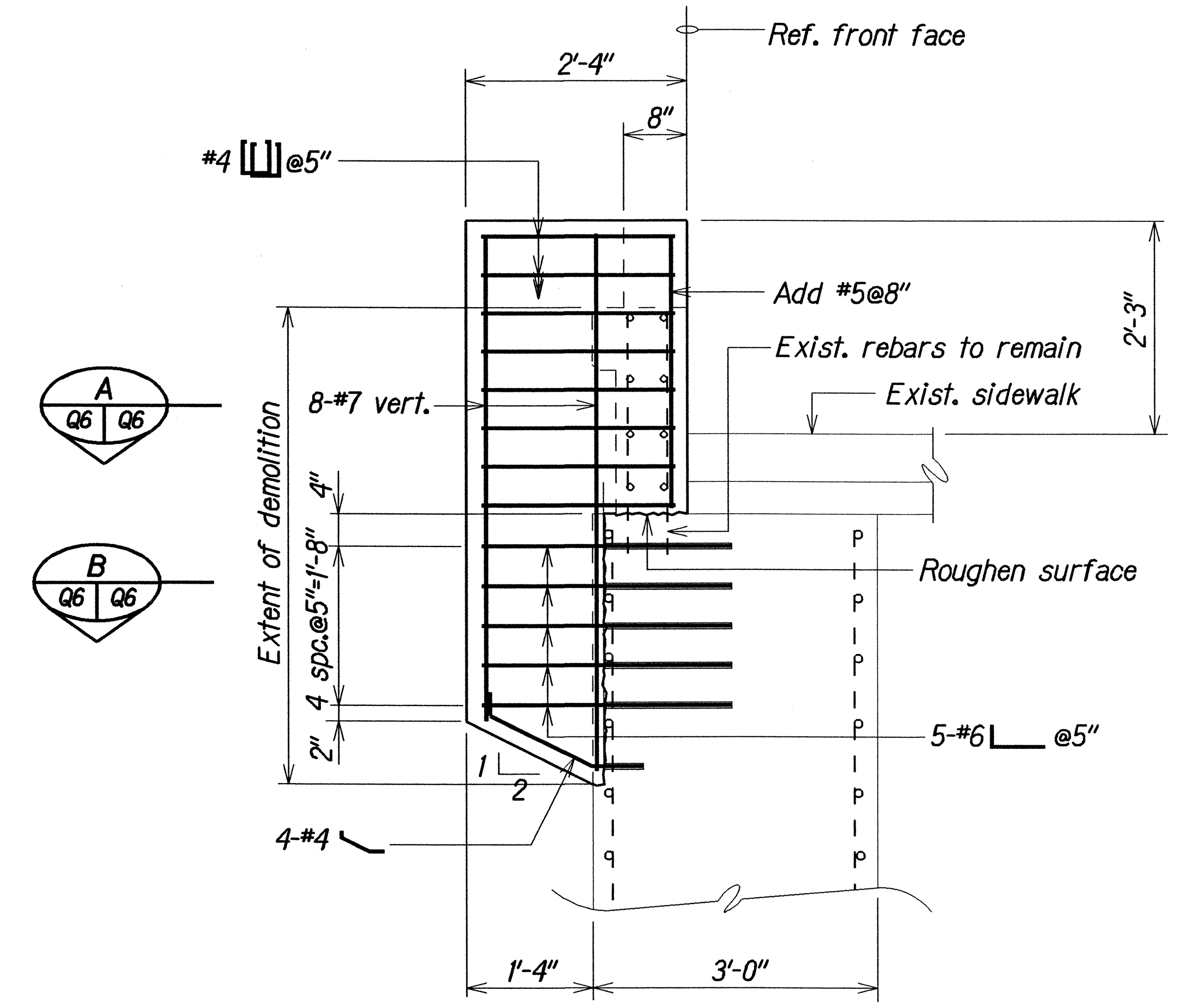
LIGHT STANDARD SUPPORT BASE PLAN

Scale: 3/4" = 1'0"



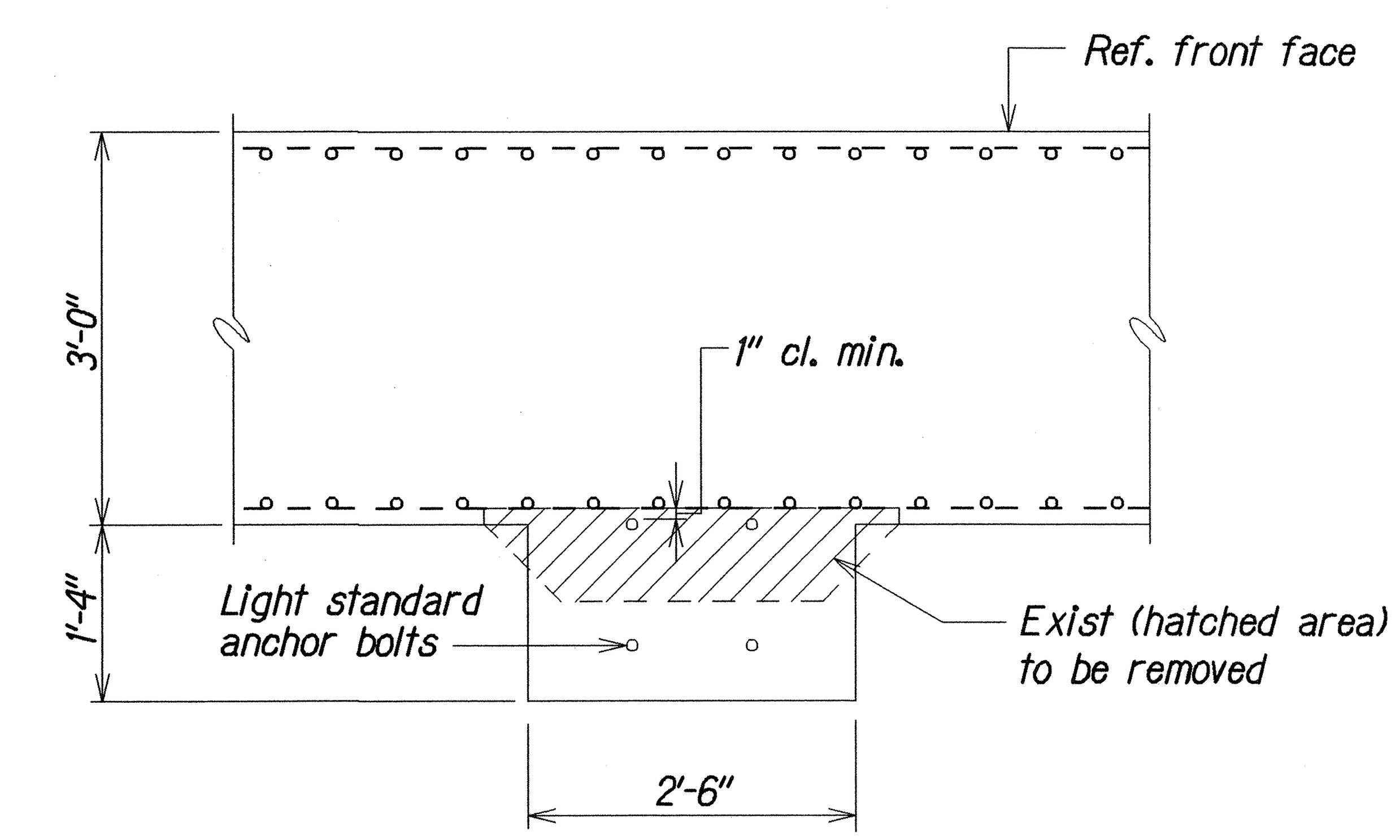
SECTION A Q6|Q6

Scale: 3/4" = 1'0"



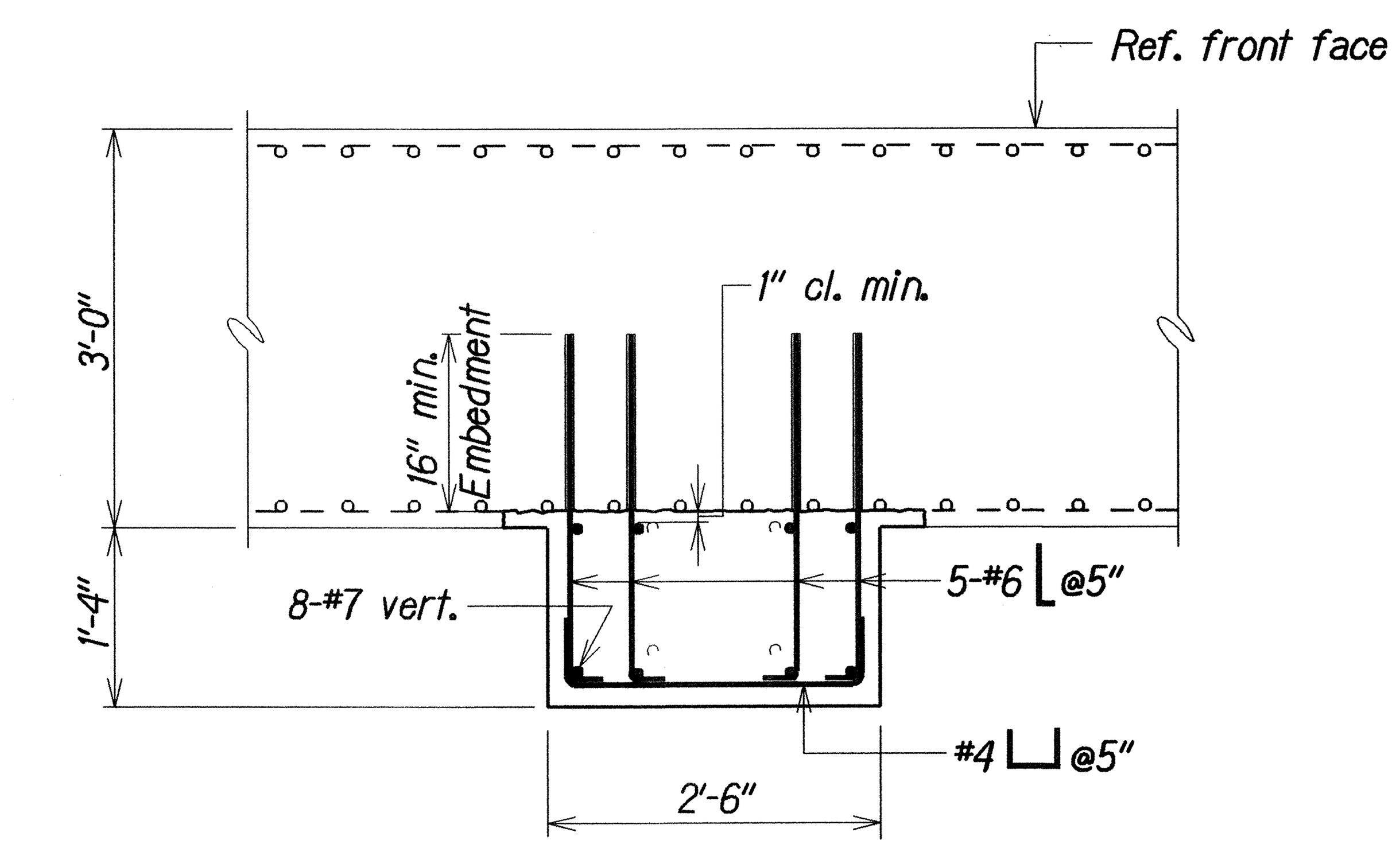
LIGHT STANDARD SUPPORT SECTION

Scale: 3/4" = 1'0"



DEMOLITION PLAN

Scale: 3/4" = 1'0"



SECTION B Q6|Q6

Scale: 3/4" = 1'0"

ORIGINAL PLAN
NOTE BOOK
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SURVEY PLOTTED BY XXX DATE DEC 2006
DRAWN BY
TRACED BY
DESIGNED BY XXX DEC 2006
QUANTITIES BY XXX DEC 2006
CHECKED BY XXX DEC 2006

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MEHEULA PARKWAY SEPARATION

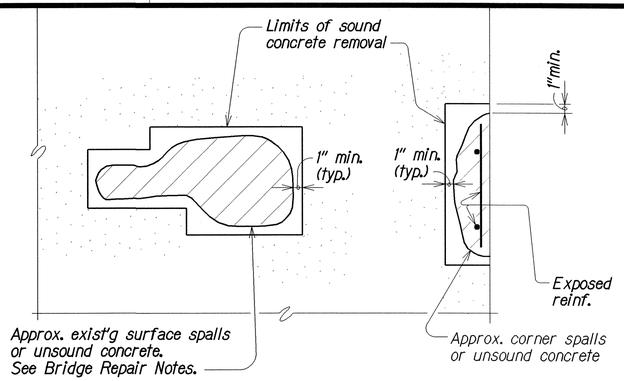
LIGHT STANDARD SUPPORT
PLANS AND SECTIONS

Interstate Route H-2 Rehabilitation
Waipio Interchange & Mililani Interchange On/Off Ramps,
Ka Uka Blvd & Meheula Prkwy Overpasses, & Kipapa Stream Bridge
Fed. Aid Project No. IM-H2-1(33)

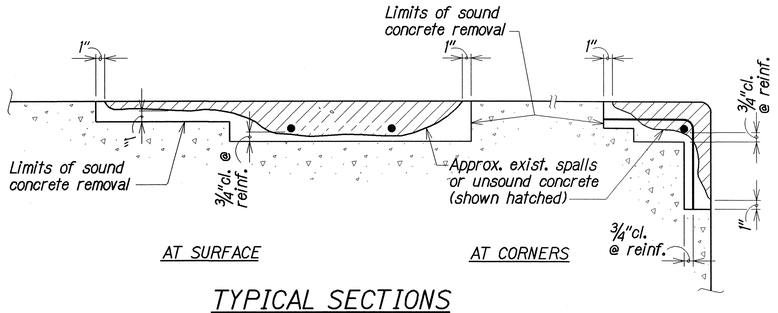
Scale: As Noted   Date: Dec. 2006

SHEET No. Q6 OF 7 SHEETS

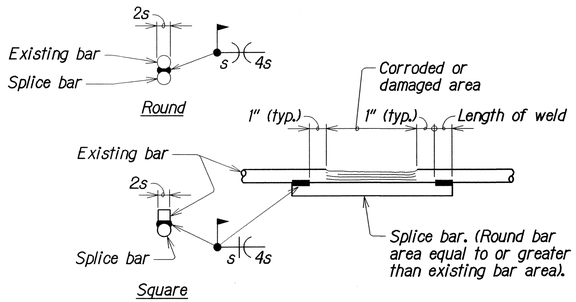
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H2-1(33)	2007	71	168



PLAN OR ELEVATION

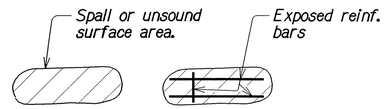


TYPICAL SECTIONS



REINFORCING BAR
REPAIR SPLICE DETAIL

LEGEND:

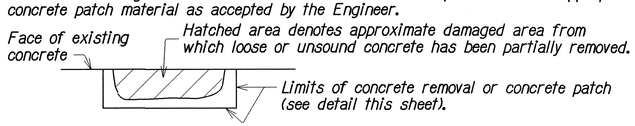


SPALL REPAIR DETAILS

Not to Scale

BRIDGE RAIL REPAIR NOTES:

1. All deteriorated, damaged, cracked, spalled, honeycombed concrete or concrete around rusted reinforcing bars shall be removed as shown and repaired with an appropriate concrete patch material as accepted by the Engineer.



2. Remove rusted conduits in the vicinity of spalls and repair with patch material.
3. Clean reinforcing steel by oil-free abrasive blasting down to sound metal.
4. Provide minimum 1½" concrete cover over reinforcement.
5. Reinforcing bars that have rusted more than 25% of their original cross sectional area shall be strengthened as shown on "Reinforcing Bar Repair Splice Detail", this sheet.
6. Apply bonding agent per Manufacturer's recommendations and instructions.
7. Apply patch material per manufacturer's recommendations and instructions.
8. The Contractor shall sound and mark all locations to be repaired. The Contractor shall sound with a hammer or other suitable device and mark the location with paint the exact perimeter of the repairs. The Engineer will verify the locations prior to the Contractor starting the work.
9. Saw cut limits of repair area in ½ inch deep, or to top of reinforcing steel if depth of cover is less than ½ inch.
10. Produce a surface roughness of ¼ inch amplitude for the bottom and sides of the repair area substrate.
11. For repair materials extended with aggregate greater than ½ inch, increase clearance at reinforcement to ¼ inch greater than the largest aggregate.

INCIDENTAL ITEMS:

The following items shall be considered incidental to concrete bridge railing upgrade and will not be paid for separately:

1. Cleaning of all exposed, corroded reinforcing steel to sound metal.
2. Repair of reinforcing bars.
3. Any work platforms required for access.
4. Any formwork required.
5. Grout.
6. Removal of abandoned conduits.

ORIGINAL PLAN	SURVEY PLOTTED BY	XXX	DATE	DEC 2006
	DRAWN BY			
NOTE BOOK	TRACED BY			DEC 2006
	DESIGNED BY	XXX		DEC 2006
	QUANTITIES BY	XXX		DEC 2006
	CHECKED BY	XXX		DEC 2006

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MEHEULA PARKWAY SEPARATION
SPALL REPAIR DETAILS
Interstate Route H-2 Rehabilitation
Waipio Interchange ⊄ Mililani Interchange On/Off Ramps, Ka Uka Blvd ⊄ Meheula Prkwy Overpasses, ⊄ Kipapa Stream Bridge
Fed. Aid Project No. IM-H2-1(33)

Scale: As Noted Date: Dec, 2006

SHEET No. Q7 OF 7 SHEETS