FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-076-1(5)	2000	71	83

INDEX TO DRAWINGS

ESTIMATED QUANTITIES

ITEM NO.	ITEM DESCRIPTION	UNIT	HONOULIULI STRM. BR.	EWA CANE HAUL UNDERPASS	TOTAL
507.7600	Type "A" End Post Upgrade	Ea.	1		1
507.7601	Type "B" End Post Upgrade	Ea.	2		2
507.7602	Type "C" End Post Upgrade	Ea.	1		1
507.7603	Type "D" End Post Upgrade	Ea.		2	2
507.7604	Type "E" End Post Upgrade	Ea.		2	2
606.3112	Guardrail Type 3 Thrie Beam Transition to End Post	L.F.	100	100	200

GENERAL NOTES

DESIGN SPECIFICATIONS:

A. AASHTO LRFD Bridge Design Specifications, 1994

MATERIALS:

A. Reinforced Concrete: Class A
B. Reinforced 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 welding shall be in accordance with the current edition of Reinforcing Steel Welding Code AWS D 1.4.

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 the ACI Detailing Manual, 1994.
E. For cast-in-place concrete, minimum reinforcement cover: Concrete cast against earth: 3"
Walls: 2"
F. At time concrete is placed, reinforcing shall be free from mud, oil latance or other coatings adversely affecting bond capacity.
G. Reinforcement, dowels and other embedded items shall be positively secured before pouring.
H. Minimum clear spacing between parallel bars shall be one and one-half (1½) times the diameter of the bars (for non-bundled bars). But in no case shall the clear distance between the bars be less than one and one-half (1½) times the maximum size of the course aggregate.
I. All dimensions relating to reinforcing bars (e.g. spacing of bars, etc.) are to centers of bars unless noted otherwise.
J. All footings shall bear on firm undisturbed natural soils or properly compacted structural fill.
K. 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.
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 grade and the area patched with mortar.
M. Alll existing concrete face receivng new concrete in the finish product shall be roughened, cleaned and have concrete epoxy adhesive applied prior to placement of new pour, unless indicated otherwise or as ordered by the Engineer.
N. Existing structure shown by dashed lines. Removal limits of existing structure shown by hatched lines. Saw-cut one (1) inch deep along cut line of existing structure. Removal shall be done in such a manner as to preclude any damage to the existing structures. 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 exisiting structure due to the Contractor's operation or negligence shall be repaired at his expense with no cost to the State.
O. Epoxy fill shall be "Double Cartridge" type. Epoxies that require manual measuring or mixing shall not be allowed.

REFERENCE:

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

GENERAL:

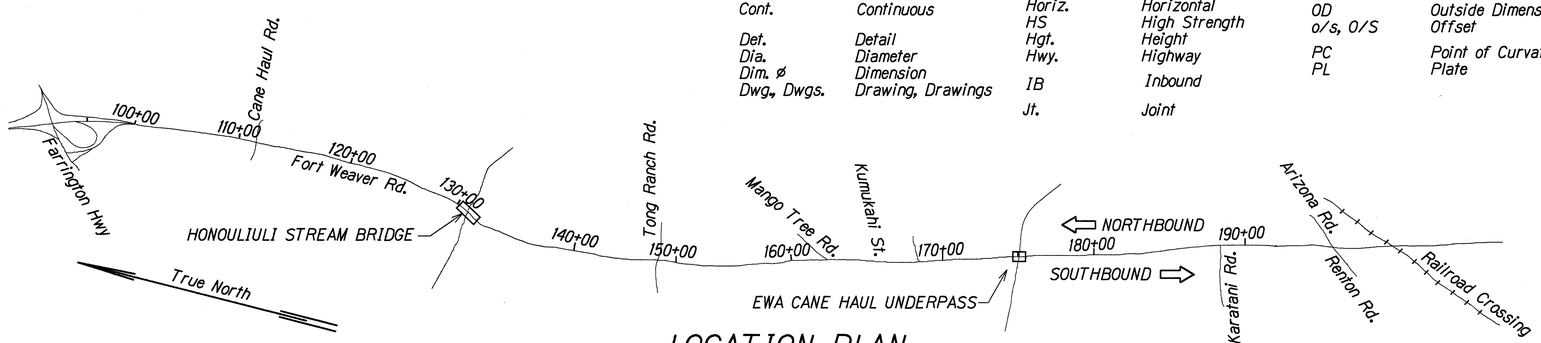
A. All items noted incidental will not be paid for separately.
B. The location of the existing utilities shown on the plans are approximate.
C. The Contractor shall verify the locations of all existing utility lines and notify their respective owners before commencing with any work.
D. The Contractor shall verify all grades and dimensions in the field before commencing with any work.
E. 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.
F. The Contractor 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.
G. In the event of over-excavation, the space between the footing or footing key and ground shall be filled with minimum of Class D concrete at no cost to the State.
H. Unless noted otherwise, chamfer all exposed concrete edges three-quarters (¾) of an inch.

ABBREVIATION AND SYMBOLS

AB	Anchor Bolt	EA, Ea., ea.	Each	LC	Length of Curve	R	Radius	T&B	Top and Bottom
Abut.	Abutment	EF	Each Face	LF, Lin. Ft.	Linear Feet	Rdwy.	Roadway	Thk.	Thick, Thickness
Alum.	Aluminum	Elec.	Electrical	Lg.	Long	Ref.	Reference	TS	Tubular Steel
Approx.	Approximate	Exist.	Existing	Longit.	Longitudinal	Reinf.	Reinforcement	Typ.	Typical
Az.	Azimuth	Exp., (E)	Expansion	LS	Lump Sum	Req'd	Required	Var.	Varies
								Vert.	Vertical
℄	Baseline	FF	Front Face	Max.	Maximum	S	South		
Bal.	Balance	FWR	Fort Weaver Road	Min.	Minimum	Sect.	Section	w/	With
Beg.	Begin, Beginning	Fin.	Finish	MP	Mile Post	Sht.	Sheet		
Bm.	Beam	Ftg.	Footing			Spcs.	Spaces		
Brg., Brgs.	Bearing, Bearings			N	North	Spcd.	Spaced		
		GDI	Grated Drain Inlet	No., #	Number	Spcg.	Spacing		
℄	Center Line	Ga.	Gage, Gauge	NTS	Not To Scale	Sta.	Station		
Cl., Clr.	Clear	Galv.	Galvanized			Std.	Standard		
Conc.	Concrete	Gr.	Grade	OB	Outbound	Str.	Straight		
Cont.	Continuous			oc	On Center	Struct.	Structural		
		Horiz.	Horizontal	OD	Outside Dimension	Symm.	Symmetrical		
Det.	Detail	HS	High Strength	o/s, O/S	Offset				
Dia.	Diameter	Hgt.	Height						
Dim. ø	Dimension	Hwy.	Highway	PC	Point of Curvature				
Dwg., Dwgs.	Drawing, Drawings			PL	Plate				
		IB	Inbound						
		Jt.	Joint						

Detail or Section designation → XXX / XXX|XXX ← Sheet No. Detail is drawn

Sheet No. Section is cut or Detail Location



LOCATION PLAN

Not to Scale

ORIGINAL PLAN	SURVEY PLOTTED BY	KSG	DATE	MAR 1999
	DRAWN BY			
	TRACED BY	AHF, ST		MAR 1999
NOTE BOOK	DESIGNED BY	AHF, ST		MAR 1999
	QUANTITIES BY	DCO		MAR 1999
	CHECKED BY			
No.				

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

END POST UPGRADE

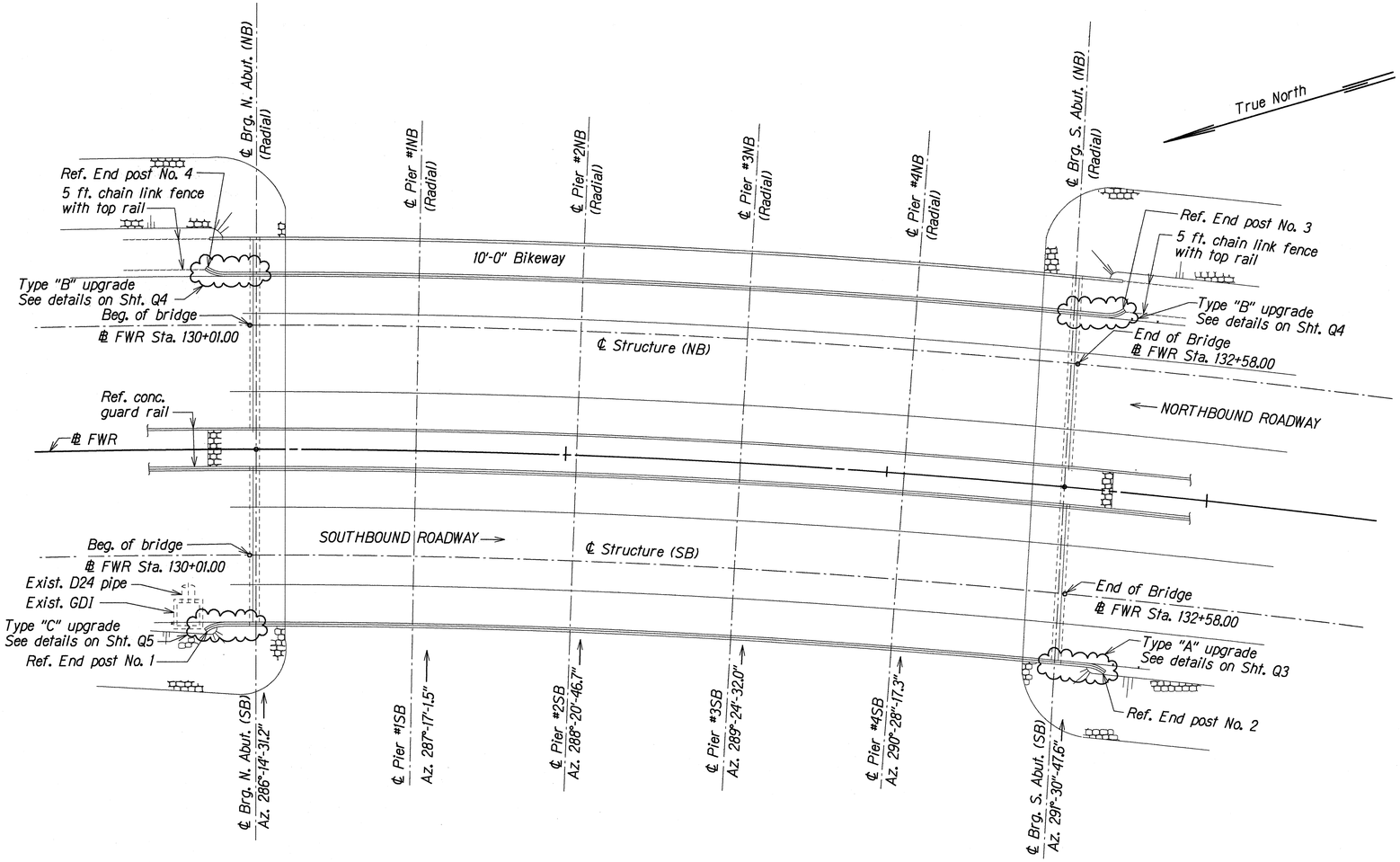
INDEX, LOCATION PLAN, GENERAL NOTES, ESTIMATED QUANTITIES AND ABBREVIATIONS

FORT WEAVER ROAD RESURFACING
N. of Laulaunui St. to the Vicinity of Hanakahi St.
F. A. Project No. STP-076-1(5)

Scale: As Noted Date: Mar. 1999

SHEET No. Q1 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-076-1(5)	2000	72	83



LAYOUT PLAN - HONOULIULI STREAM BRIDGE

Scale: 1"=20'-0"

ORIGINAL PLAN	SURVEY PLOTTED BY		DATE
	DRAWN BY	TKM	MAR 1999
NOTE BOOK	TRACED BY		MAR 1999
	DESIGNED BY	ST	MAR 1999
	QUANTITIES BY	ST	MAR 1999
No.	CHECKED BY	DCO	MAR 1999

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

END POST UPGRADE

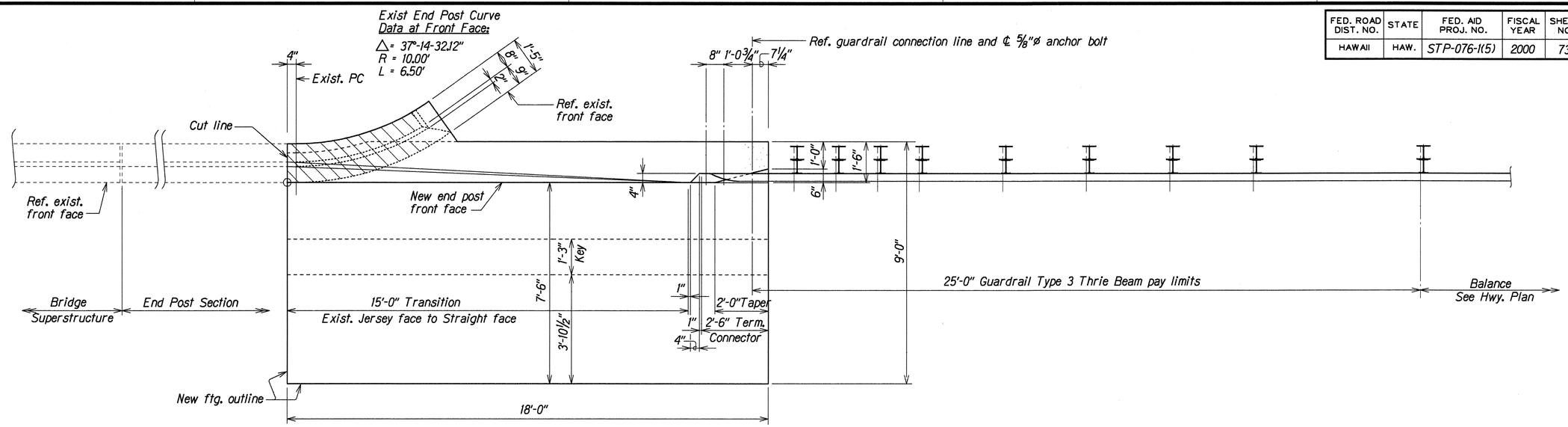
LAYOUT PLAN - HONOULIULI STREAM BRIDGE

FORT WEAVER ROAD RESURFACING
N. of Laulaunui St. to the Vicinity of Hanakahi St.
F. A. Project No. STP-076-1(5)

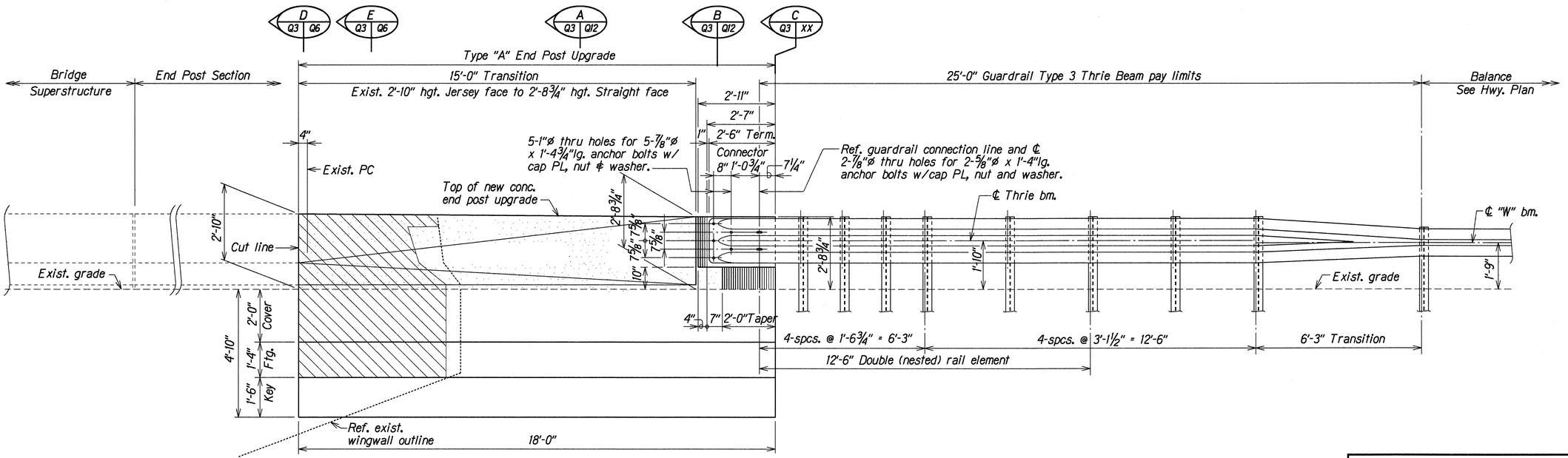
Scale: As Noted — Date: Mar. 1999

SHEET No. Q2 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-076-1(5)	2000	73	83



PLAN
Scale: 1/2" = 1'-0"



ELEVATION
Scale: 1/2" = 1'-0"

Note:
See Sht.#Q13 for Metal Guardrail Type 3 Thrie Beam and Appurtenances details.

Denotes existing structure to be removed

Denotes new concrete

ORIGINAL PLAN	SURVEY PLOTTED BY		DATE
	DRAWN BY	TKM	MAR 1999
NOTE BOOK	TRACED BY		
No.	DESIGNED BY	ST	MAR 1999
	QUANTITIES BY	ST	MAR 1999
	CHECKED BY	DCO	MAR 1999

TYPE "A" ENDPOST UPGRADE PLAN AND ELEVATION

HONOULIULI STREAM BRIDGE, ENDPOST NO. 2

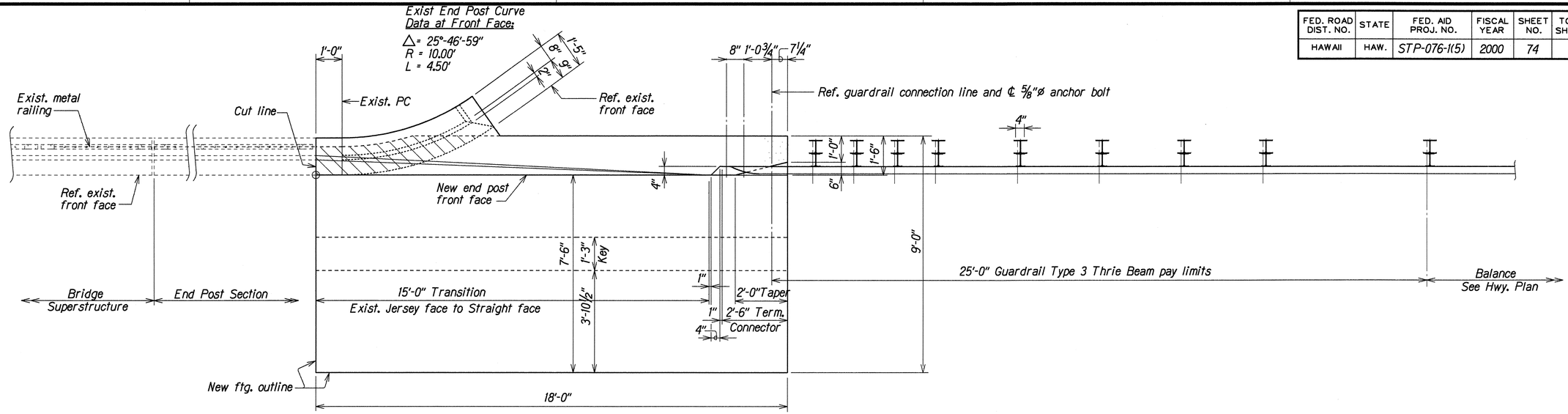
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ENDPOST UPGRADE
TYPE "A" ENDPOST UPGRADE
PLAN AND ELEVATION
FORT WEAVER ROAD RESURFACING
N. of Laulaunui St. to the Vicinity of Hanakahi St.
F. A. Project No. STP-076-1(5)

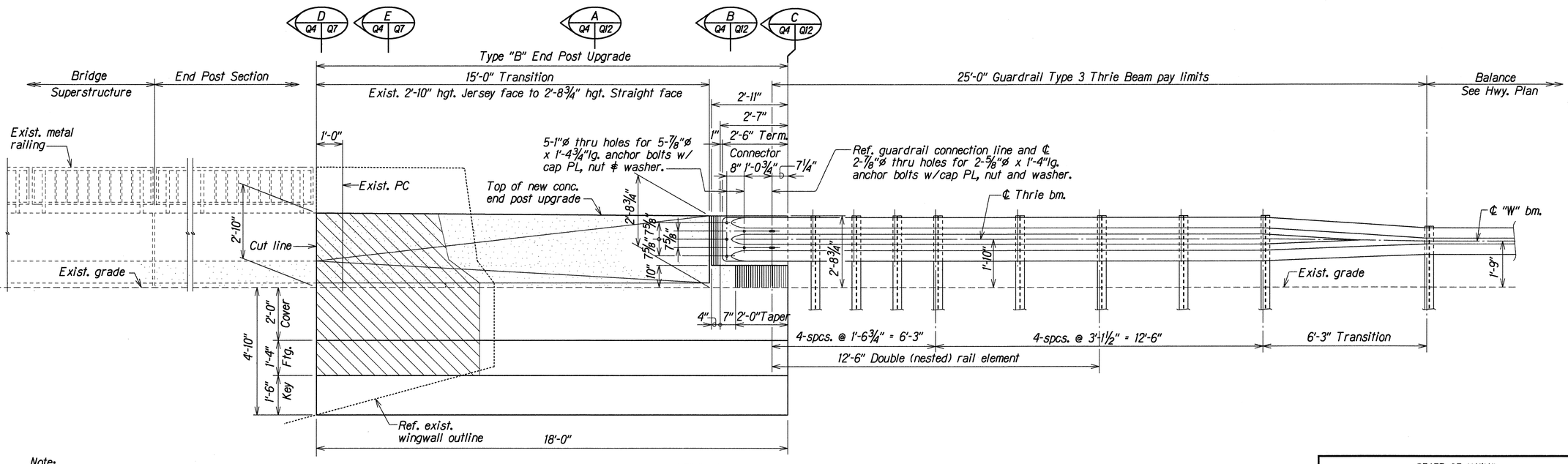
Scale: As Noted Date: Mar. 1999

SHEET No. Q3 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-076-1(5)	2000	74	83



PLAN
Scale: 1/2" = 1'-0"



ELEVATION
Scale: 1/2" = 1'-0"

Note:
See Sht.#Q13 for Metal Guardrail Type 3 Thrie Beam and Appurtenances details.

Denotes existing structure to be removed

Denotes new concrete

ORIGINAL PLAN	SHEET PLOTTED BY	TKM	DATE	MAR 1999
	DRAWN BY			
NOTE BOOK	TRACED BY			
	DESIGNED BY	SY		MAR 1999
	QUANTITIES BY	DCO		MAR 1999
No.	CHECKED BY			

TYPE "B" END POST UPGRADE PLAN AND ELEVATION
HONOULIULI STREAM BRIDGE ENDPOST 3 & 4

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

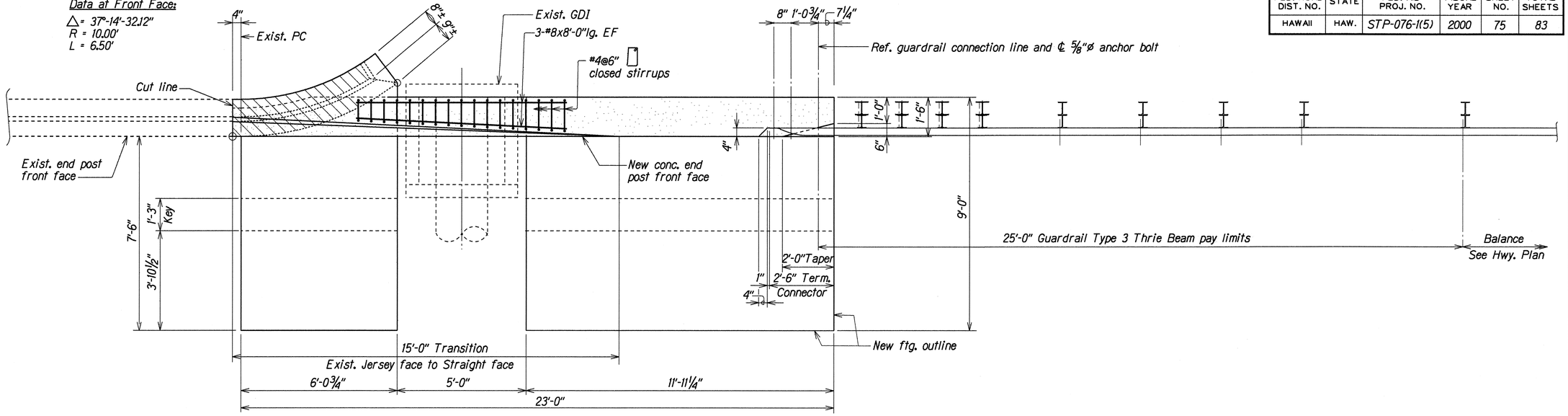
ENDPOST UPGRADE
TYPE "B" END POST UPGRADE PLAN AND ELEVATION
FORT WEAVER ROAD RESURFACING
N. of Laulaunui St. To the Vicinity of Hanakahi St.
F. A. Project No. STP-076-1(5)

Scale: As Noted Date: Mar. 1999

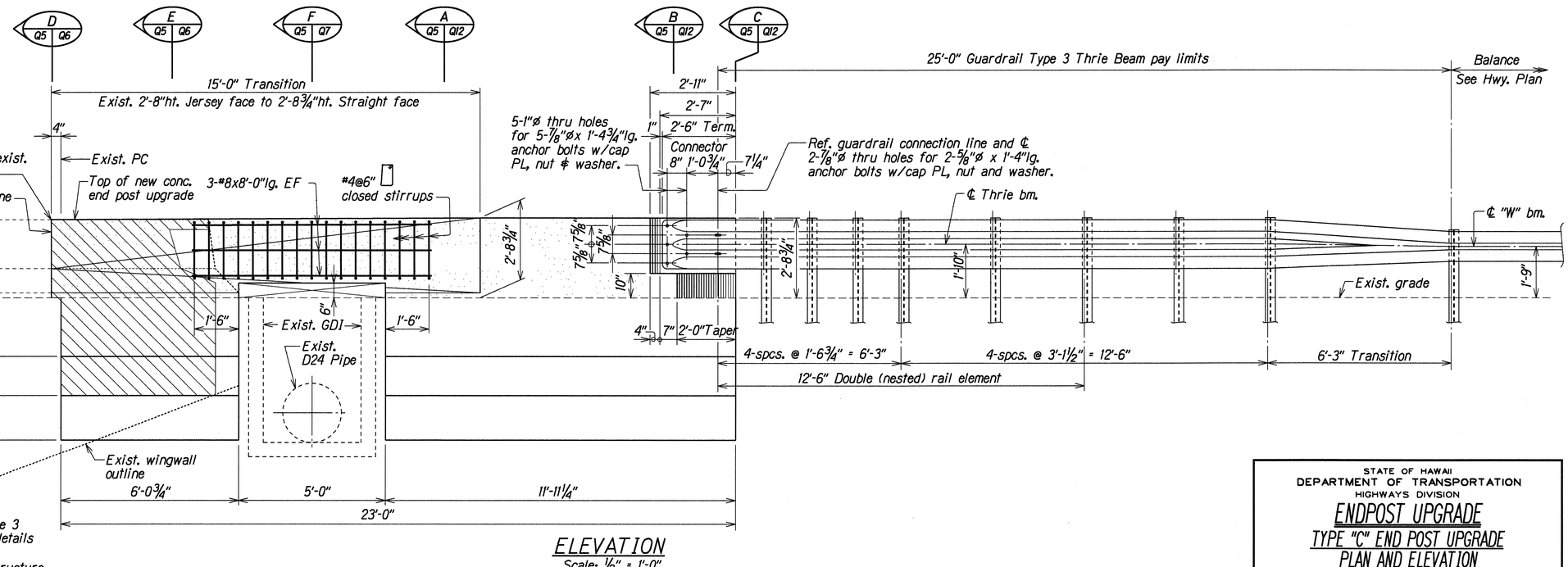
SHEET No. Q4 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-076-1(5)	2000	75	83

Exist End Post Curve
Data at Front Face:
△ = 37°-14'-32.12"
R = 10.00'
L = 6.50'



PLAN
Scale: ½" = 1'-0"



ELEVATION
Scale: ½" = 1'-0"

Note:
See Sht.#Q13 for Metal Guardrail Type 3 Thrie Beam and Appurtenances details

Denotes existing structure to be removed

Denotes new concrete

ORIGINAL PLAN		DATE
	SURVEY PLOTTED BY	MAR 1999
	DRAWN BY TKM	MAR 1999
	TRACED BY ST	MAR 1999
NOTE BOOK	DESIGNED BY ST	MAR 1999
No.	CHECKED BY DDO	MAR 1999

TYPE "C" END POST UPGRADE PLAN AND ELEVATION
HONOULIULI STREAM BRIDGE, END POST NO. 1

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

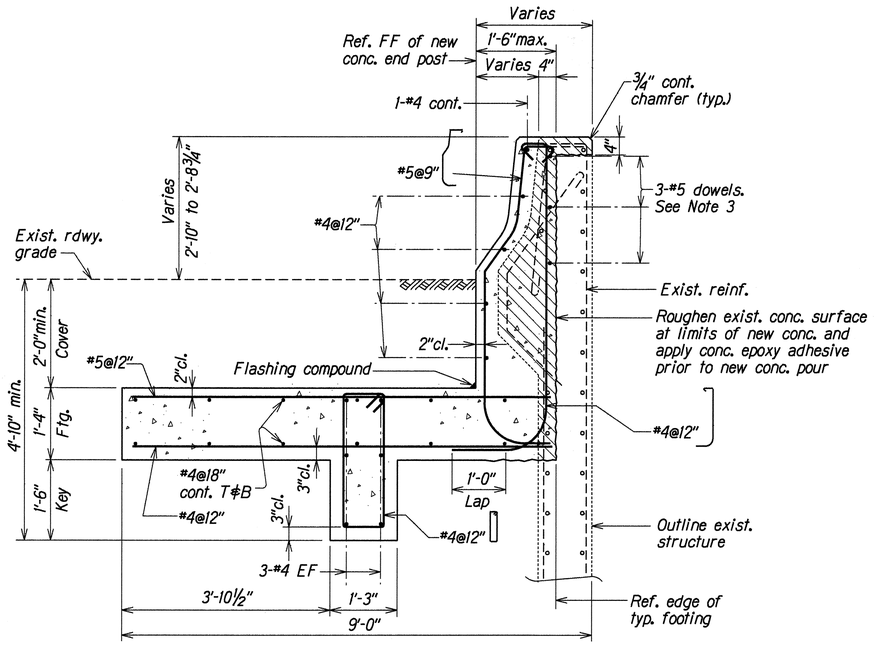
ENDPOST UPGRADE
TYPE "C" END POST UPGRADE PLAN AND ELEVATION

FORT WEAVER ROAD RESURFACING
N. of Laulaunui St. to the Vicinity of Hanakahi St.
F. A. Project No. STP-076-1(5)

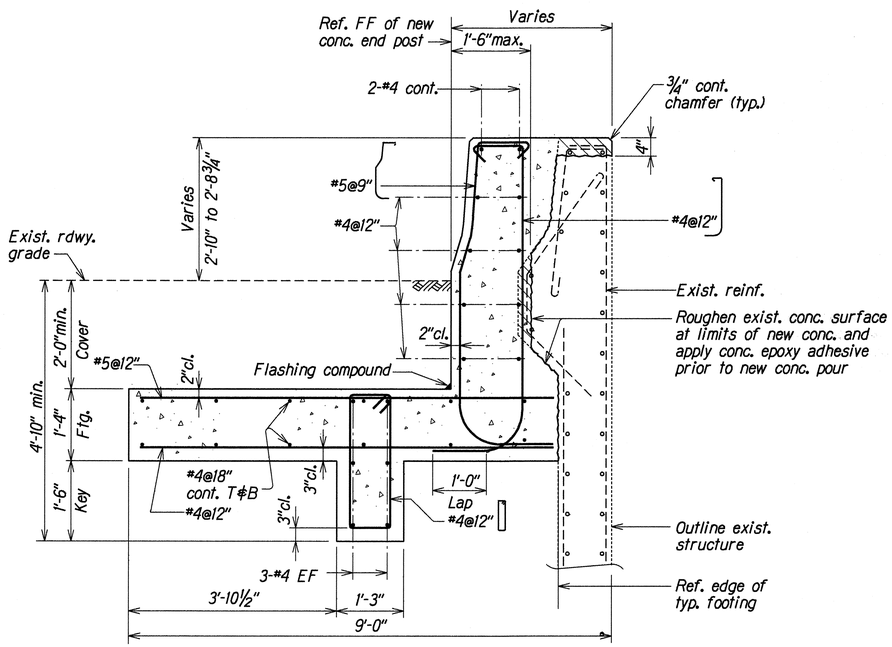
Scale: As Noted — Date: Mar. 1999

SHEET No. Q5 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-076-1(5)	2000	76	83



SECTION D
Scale: 3/4" = 1'-0"
Q3 | Q6
Q5



SECTION E
Scale: 3/4" = 1'-0"
Q3 | Q6
Q5

Denotes existing structure to be removed

Denotes new concrete

Denotes exist. reinf. (typ.)

NOTES:

1. Roughen existing concrete surface at limits of new concrete and apply concrete epoxy adhesive prior to new concrete pour.
2. Epoxy fill shall be "Double Cartridge" type. Epoxies that require manual measuring or mixing will not be allowed.
3. Drill 3- 3/4"øx2'-0"deep holes into exist. end post for 3- 5/8"ø x4'-0"lg. #5 dowels. Secure dowels w/epoxy fill.
4. #5 dowels shall be secured w/epoxy fill in 3/4"ø x10"deep drilled holes.

TYPE "A" ENDPOST UPGRADE DETAILS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE MAR 1999
	DRAWN BY	
	TRACED BY	DATE MAR 1999
NOTE BOOK	DESIGNED BY ST	DATE MAR 1999
	QUANTITIES BY	DATE
No.	CHECKED BY RCO	DATE MAR 1999

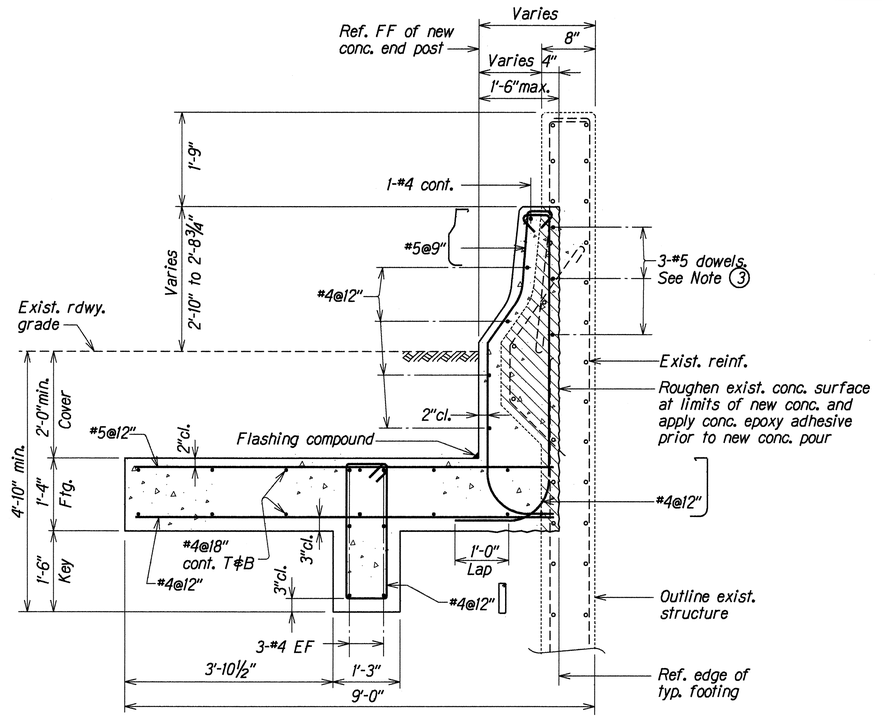
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ENDPOST UPGRADE
TYPE "A" END POST UPGRADE
ENDPOST SECTIONS
FORT WEAVER ROAD RESURFACING
N. of Laulaunui St. to the Vicinity of Hanakahi St.
F. A. Project No. STP-076-1(5)

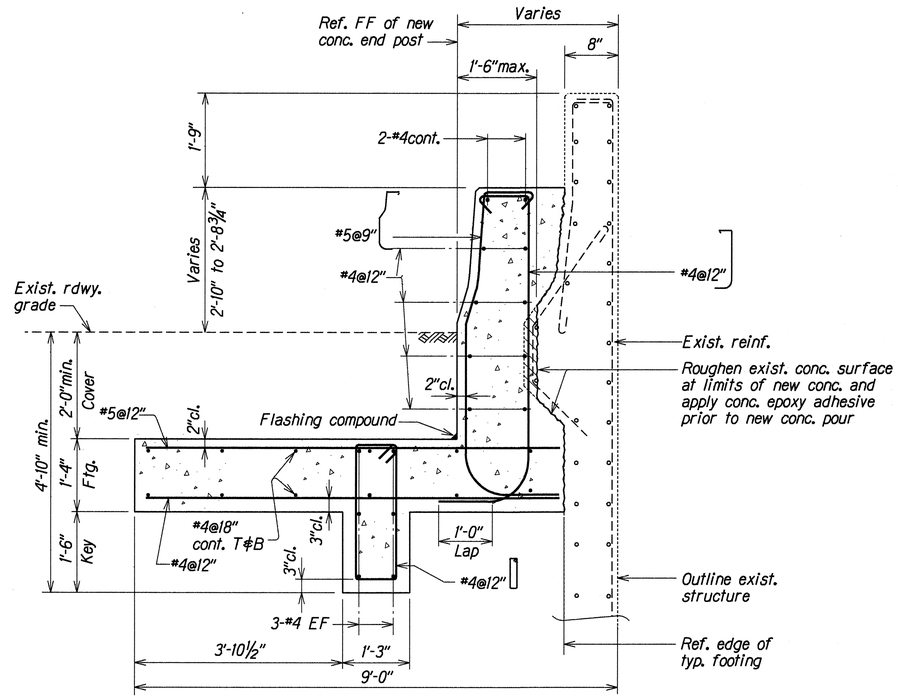
Scale: As Noted Date: Mar. 1999

SHEET No. Q6 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-076-1(5)	2000	77	83



SECTION D (Q4 | Q7)
Scale: ¾" = 1'-0"



SECTION E (Q4 | Q7)
Scale: ¾" = 1'-0"

Denotes existing structure to be removed

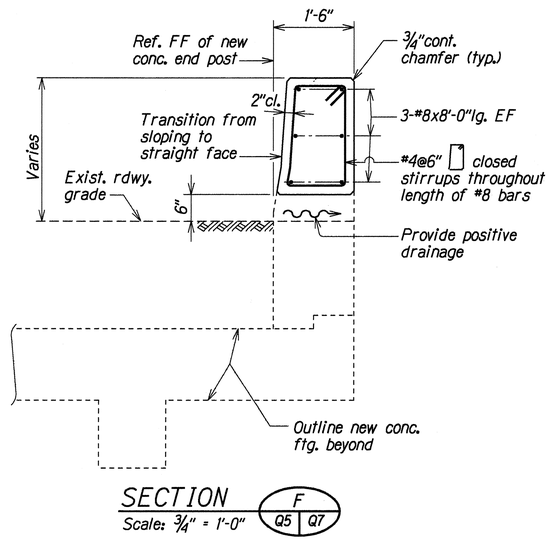
Denotes new concrete

Denotes exist. reinf. (typ.)

NOTES:

1. Roughen existing concrete surface at limits of new concrete and apply concrete epoxy adhesive prior to new concrete pour.
2. Epoxy fill shall be "Double Cartridge" type. Epoxies that require manual measuring or mixing will not be allowed.
3. Drill 3- ¾"ø x2'-0"deep holes into exist. end post for 3- ⅝"ø x4'-0"lg. #5 dowels. Secure dowels w/epoxy fill.
4. #5 dowels shall be secured w/epoxy fill in ¾"ø x10"deep drilled holes.

TYPE "B" ENDPOST UPGRADE DETAILS



SECTION F (Q5 | Q7)
Scale: ¾" = 1'-0"

TYPES "C" ENDPOST UPGRADE DETAIL

ORIGINAL PLAN	SURVEY PLOTTED BY	TKM	DATE	MAR 1999
	DRAWN BY			MAR 1999
	TRACED BY			MAR 1999
NOTE BOOK	DESIGNED BY	ST		MAR 1999
No. (TWO)	QUANTITIES BY	ST		MAR 1999
	CHECKED BY	DOO		MAR 1999

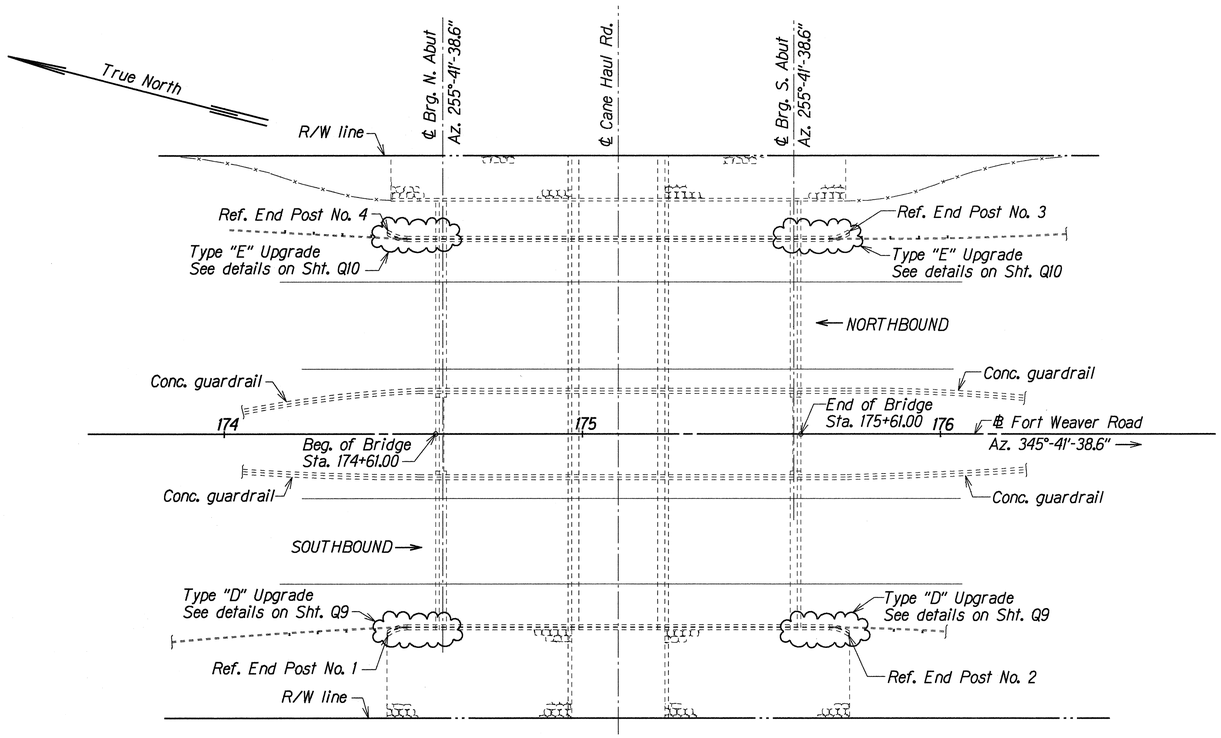
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ENDPOST UPGRADE
TYPE "B" & TYPE "C" END POST UPGRADE
ENDPOST SECTIONS
FORT WEAVER ROAD RESURFACING
N. of Laulaunui St. to the Vicinity of Hanakahi St.
F. A. Project No. STP-076-1(5)

Scale: As Noted — Date: Mar. 1999

SHEET No. Q7 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-076-1(5)	2000	78	83



LAYOUT PLAN - EWA CANE HAUL UNDERPASS

Scale: 1"=20'-0"

ORIGINAL PLAN			
NOTE BOOK			
No.			
	SURVEY PLOTTED BY	TKM	DATE MAR 1999
	DRAWN BY	TKM	MAR 1999
	TRACED BY		
	DESIGNED BY	ST	MAR 1999
	QUANTITIES BY	ST	MAR 1999
	CHECKED BY	ST	MAR 1999

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

END POST UPGRADE

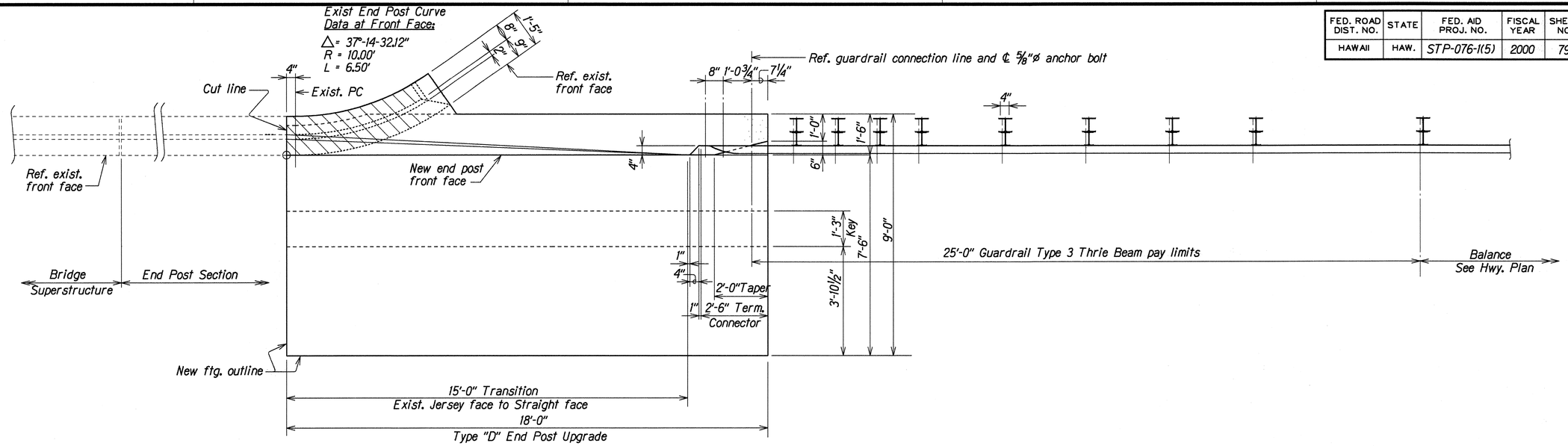
LAYOUT PLAN - EWA CANE HAUL UNDERPASS

FORT WEAVER ROAD RESURFACING
N. of Laulaunui St. to the Vicinity of Hanakahi St.
F. A. Project No. STP-076-1(5)

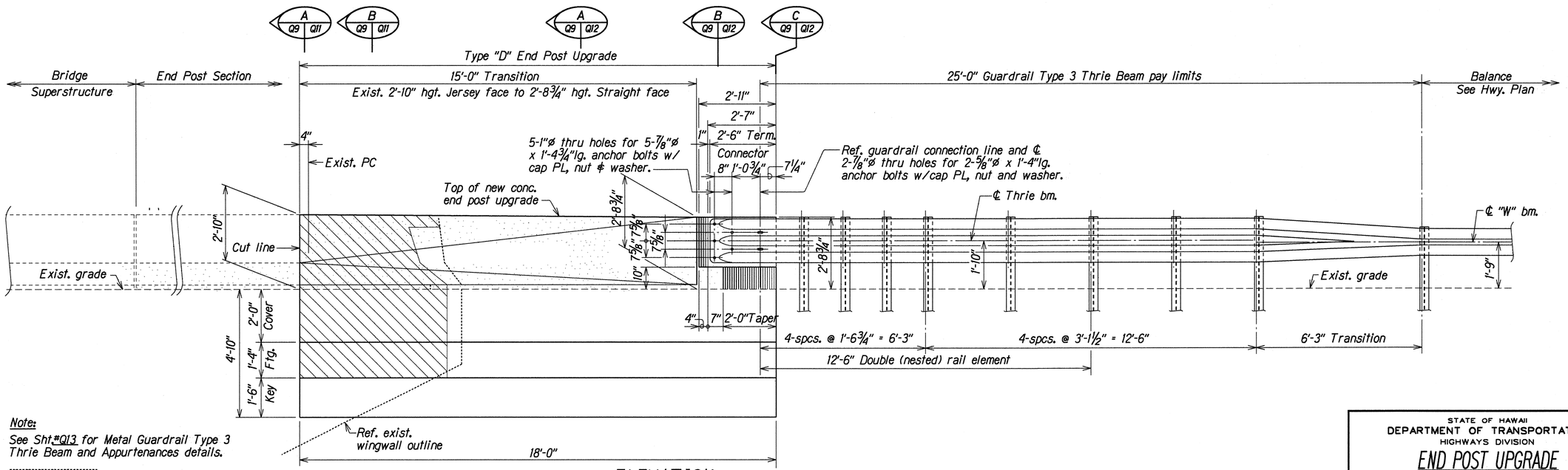
Scale: As Noted Date: Mar. 1999

SHEET No. Q8 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-076-1(5)	2000	79	83



PLAN
Scale: 1/2" = 1'-0"



ELEVATION
Scale: 1/2" = 1'-0"

Note:
See Sht.#Q13 for Metal Guardrail Type 3 Thrie Beam and Appurtenances details.

Denotes existing structure to be removed

Denotes new concrete

ORIGINAL PLAN	SURVEY PLOTTED BY		DATE
	DRAWN BY	TKM	MAR 1999
NOTE BOOK	TRACED BY		MAR 1999
No.	DESIGNED BY	ST	MAR 1999
	QUANTITIES BY	ST	MAR 1999
	CHECKED BY	DCO	MAR 1999

TYPE "D" END POST UPGRADE PLAN AND ELEVATION
EWA CANE HAUL UNDERPASS 1 & 2

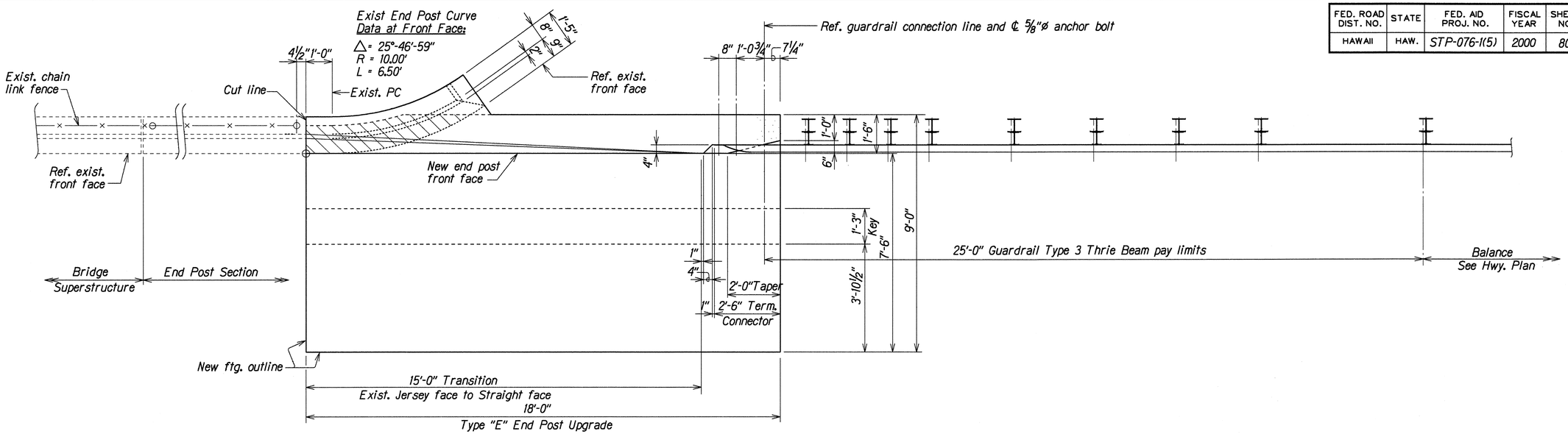
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

END POST UPGRADE
TYPE "D" ENDPOST UPGRADE PLAN AND ELEVATION
FORT WEAVER ROAD RESURFACING
N. of Laulaunui St. to the Vicinity of Hanakahi St.
F. A. Project No. STP-076-1(5)

Scale: As Noted Date: Mar. 1999

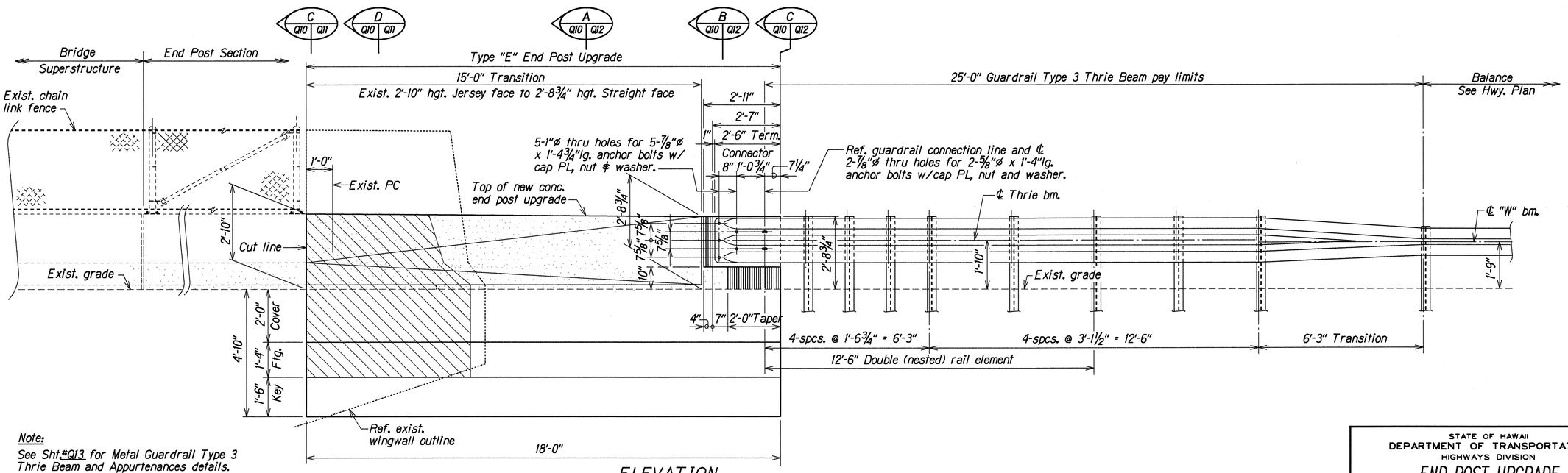
SHEET No. Q9 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-076-1(5)	2000	80	83



PLAN

Scale: ½" = 1'-0"



ELEVATION

Scale: ½" = 1'-0"

Note:

See Sht. #Q13 for Metal Guardrail Type 3 Thrie Beam and Appurtenances details.

Denotes existing structure to be removed

Denotes new concrete

ORIGINAL PLAN	REVISED PLAN	BY	DATE
	PLOTTED BY	TKM	MAR 1999
	DRAWN BY	ST	MAR 1999
	TRACED BY	ST	MAR 1999
NOTE BOOK	DESIGNED BY	DOO	MAR 1999
	QUANTITIES BY	DOO	MAR 1999
No.	CHECKED BY	DOO	MAR 1999

TYPE "E" END POST UPGRADE PLAN AND ELEVATION

EWA CANE HAUL UNDERPASS, END POST 3 & 4

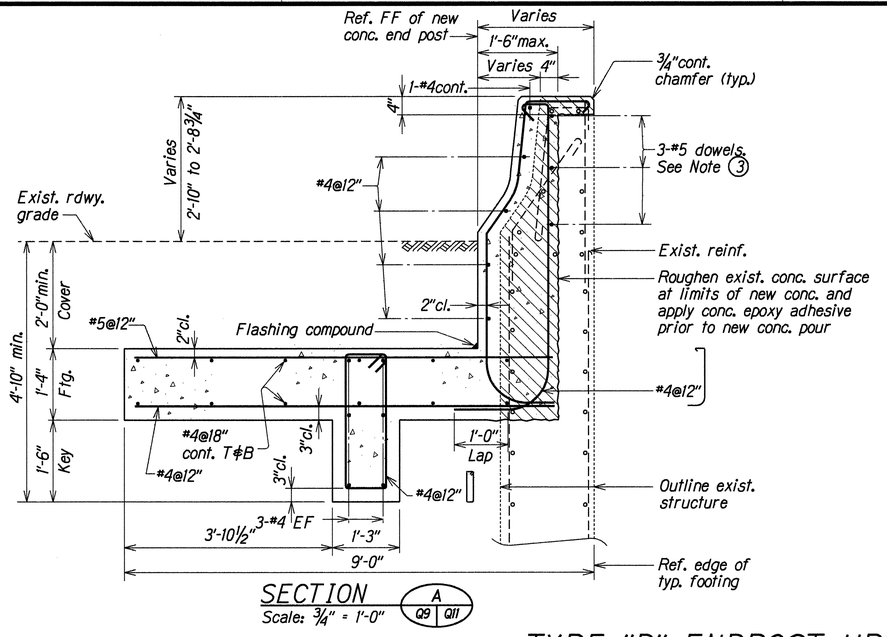
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

END POST UPGRADE
TYPE "E" END POST UPGRADE
PLAN AND ELEVATION
FORT WEAVER ROAD RESURFACING
N. of Laulaunui St. to the Vicinity of Hanakahi St.
F. A. Project No. STP-076-1(5)

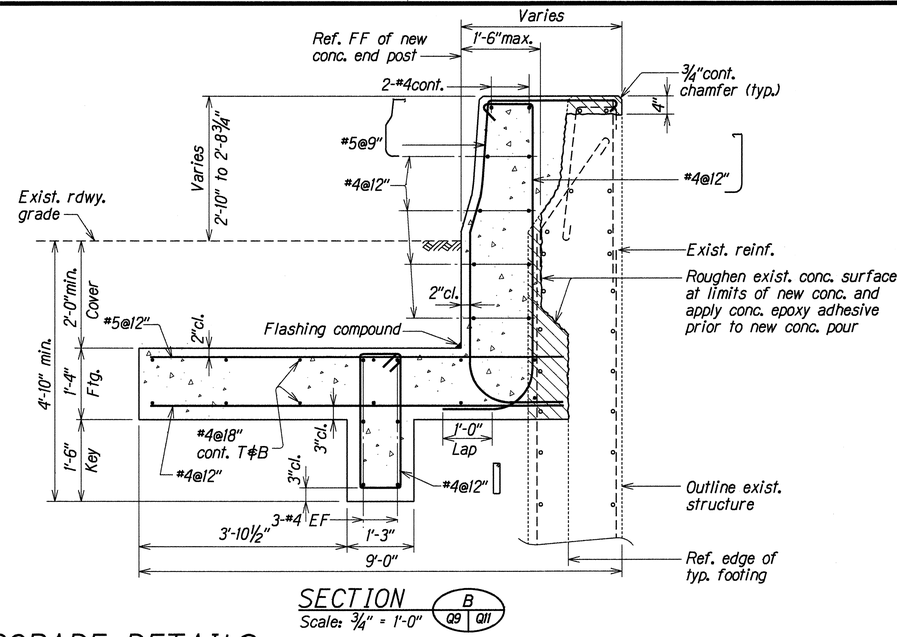
Scale: As Noted Date: Mar. 1999

SHEET No. Q10 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-076-1(5)	2000	81	83



SECTION A
Scale: 3/4" = 1'-0"
Q9 | Q11



SECTION B
Scale: 3/4" = 1'-0"
Q9 | Q11

NOTES:

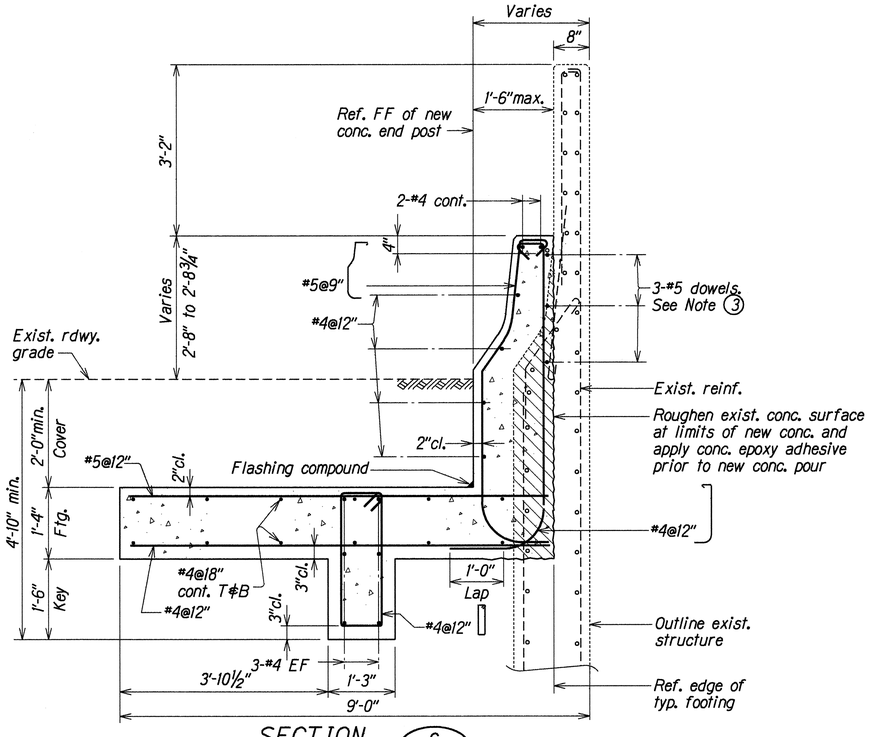
1. Roughen existing concrete surface at limits of new concrete and apply concrete epoxy adhesive prior to new concrete pour.
2. Epoxy fill shall be "Double Cartridge" type. Epoxies that require manual measuring or mixing will not be allowed.
3. Drill 3- 3/4"øx2'-0"deep holes into exist. end post for 3- 5/8"ø x4'-0"lg. #5 dowels. Secure dowels w/epoxy fill.
4. #5 dowels shall be secured w/epoxy fill in 3/4"ø x10"deep drilled holes.

Denotes existing structure to be removed

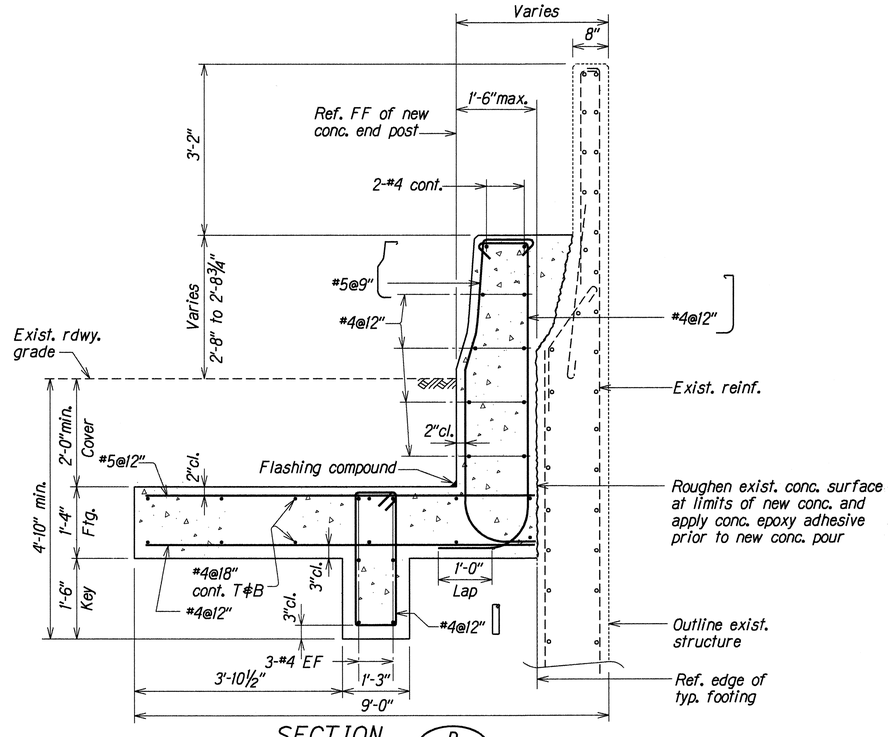
Denotes new concrete

Denotes exist. reinf. (typ.)

TYPE "D" ENDPOST UPGRADE DETAILS



SECTION C
Scale: 3/4" = 1'-0"
Q10 | Q11



SECTION D
Scale: 3/4" = 1'-0"
Q10 | Q11

TYPE "E" ENDPOST UPGRADE DETAILS

ORIGINAL PLAN	SURVEY PLOTTED BY	TKM	DATE	MAR 1999
	DRAWN BY	TKM		MAR 1999
	TRACED BY			MAR 1999
NOTE BOOK	DESIGNED BY	ST		MAR 1999
	QUANTITIES BY	ST		MAR 1999
No. [illegible] Q11	CHECKED BY	DCO		MAR 1999

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

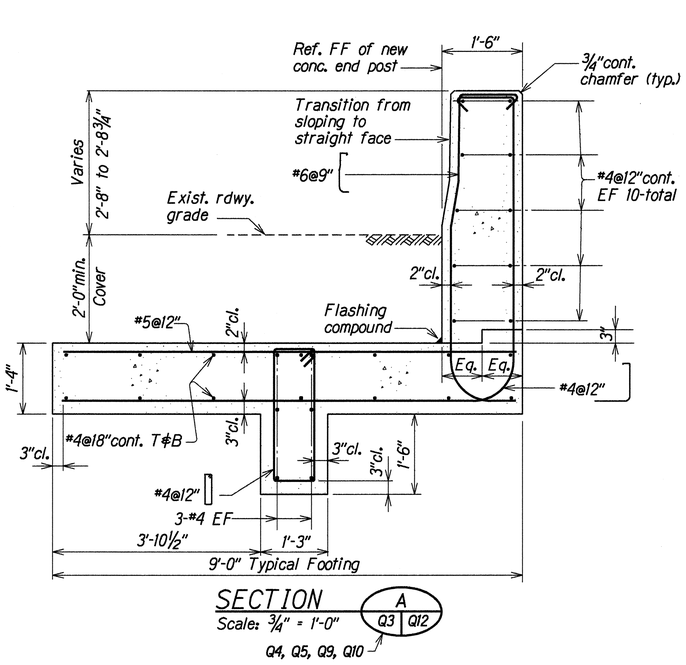
ENDPOST UPGRADE
TYPE "D" AND TYPE "E" END POST UPGRADE
END POST SECTIONS

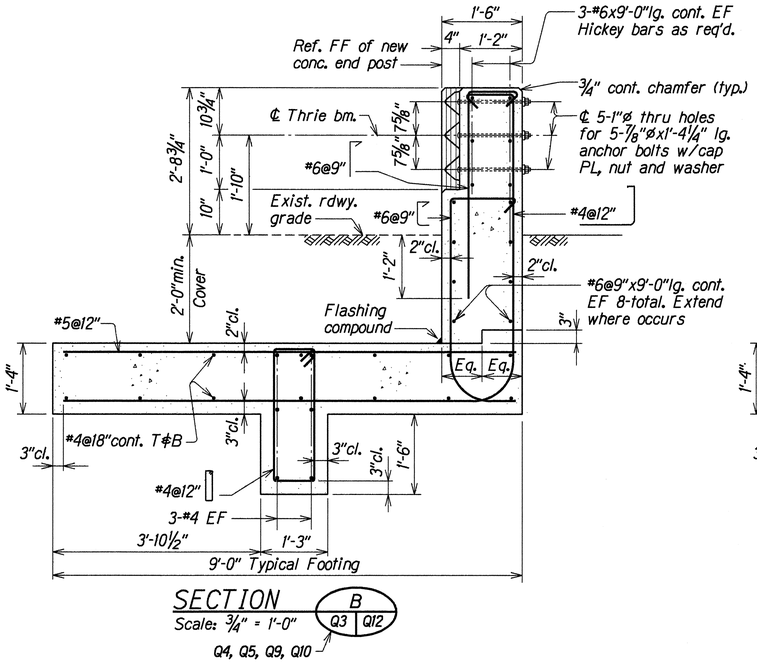
FORT WEAVER ROAD RESURFACING
N. of Laulaunui St. to the Vicinity of Hanakahi St.
F. A. Project No. STP-076-1(5)

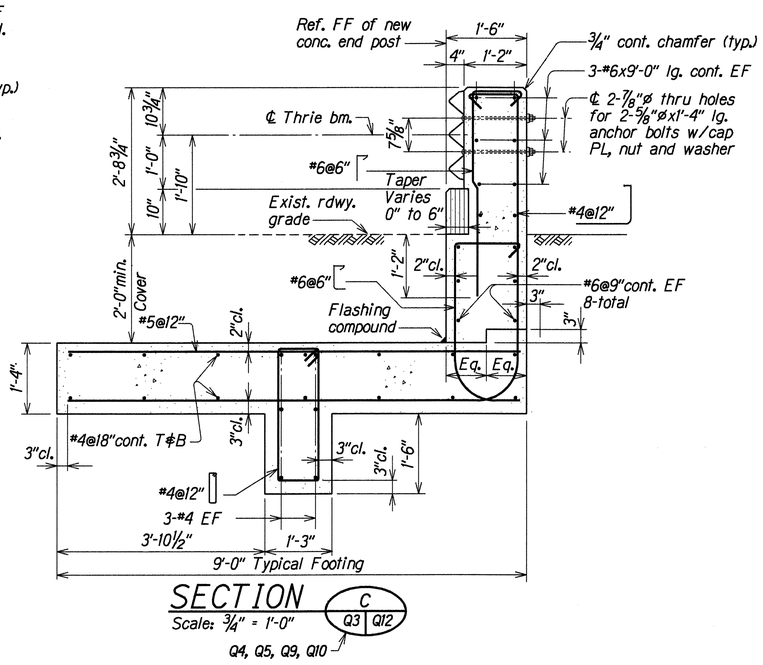
Scale: As Noted Date: Mar. 1999

SHEET No. Q11 OF 13 SHEETS

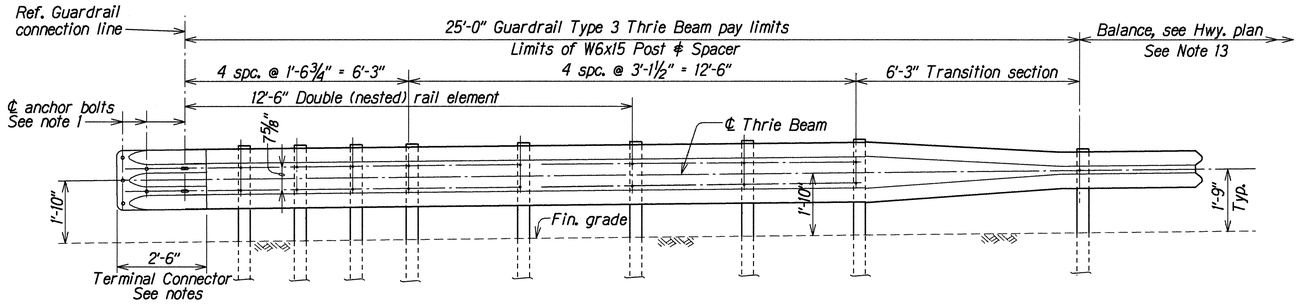
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-076-1(5)	2000	82	83







TYPICAL SECTIONS - ENDPOST UPGRADE DETAILS



ELEVATION

TYPICAL TYPE 3 THRIE BEAM METAL GUARDRAIL UPGRADE

Scale: ½"=1'-0"

ORIGINAL PLAN	SURVEY PLOTTED BY	TKM	DATE MAR 1999
	DRAWN BY		MAR 1999
	TRACED BY		MAR 1999
NOTE BOOK	DESIGNED BY	SF	MAR 1999
	QUANTITIES BY		
No. [illegible]	CHECKED BY	DDD	

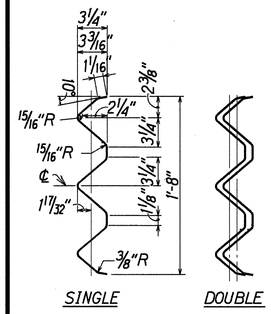
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ENDPOST UPGRADE
TYPICAL ENDPOST UPGRADE DETAILS
TYPICAL TYPE 3 THRIE BEAM UPGRADE
FORT WEAVER ROAD RESURFACING
N. of Laulaunui St. to the Vicinity of Hanakahi St.
F. A. Project No. STP-076-1(5)

Scale: As Noted Date: Mar. 1999

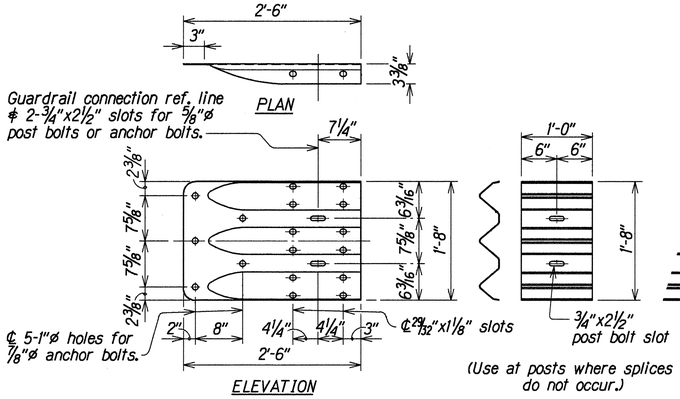
SHEET No. Q12 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-076-1(5)	2000	83	83



SECTION THRU RAIL ELEMENT

Scale: 1½" = 1'-0"

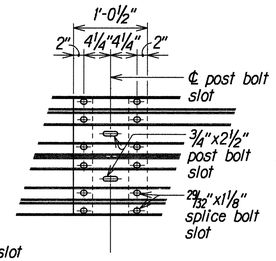


TERMINAL CONNECTOR

Scale: 1" = 1'-0"

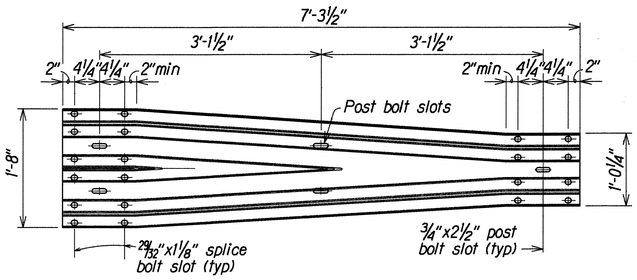
BACKUP PLATE

Scale: 1" = 1'-0"



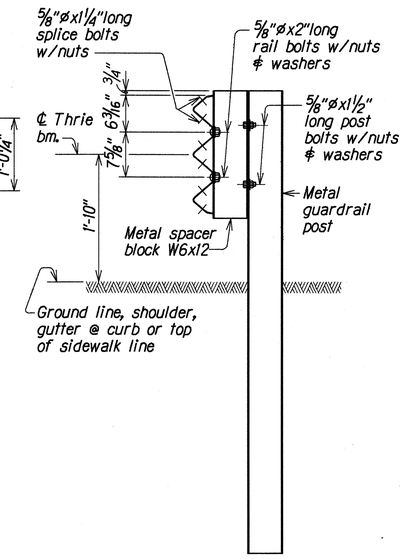
RAIL SPLICE

Scale: 1" = 1'-0"



TRANSITION SECTION

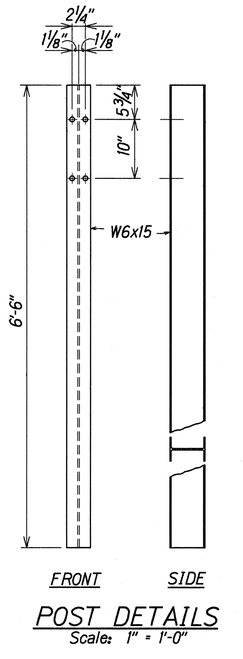
Scale: 1" = 1'-0"



TYPICAL SECTION

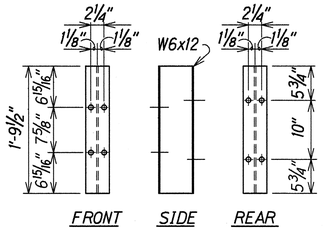
METAL GUARDRAIL ON METAL POST WITH METAL SPACER BLOCK

Scale: 1" = 1'-0"



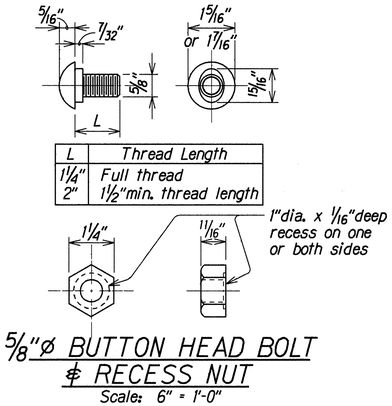
POST DETAILS

Scale: 1" = 1'-0"



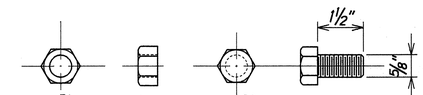
SPACER BLOCK DETAILS

Scale: 1" = 1'-0"



⅝"ø BUTTON HEAD BOLT ℄ RECESS NUT

Scale: 6" = 1'-0"

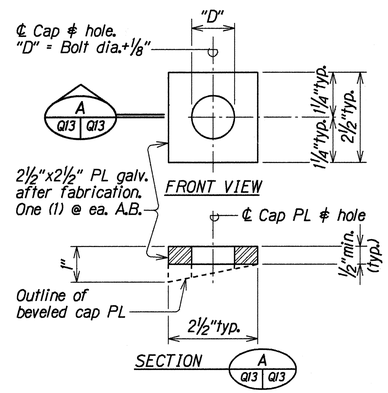


⅝"ø HEX BOLT ℄ NUT

Scale: 6" = 1'-0"

STEEL WASHER FOR ⅝"ø BOLT

Scale: 6" = 1'-0"



CAP (BEARING) PLATE DETAIL

Scale: 6" = 1'-0"

NOTES:

1. 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 shall be incidental to Item No. 606.3112, Guardrail Type 3 Thrie Beam Transition to Endpost and will not be paid for separately.
2. See "DOT Standard Plan" Sht.#TE-57 for guardrail Type 3 thrie beam details and Sht.#TE-50 ℄ #TE-51 for W beam metal guardrail details. Lap terminal connector and rail element in direction of traffic to prevent snagging.
3. See "General Notes" on Sht.#01 for additional guardrail and drilling information.
4. All anchor bolts shall be high strength bolts conforming to the requirements of ASTM 325 and Standard Specification, Section 713.04.
5. Anchor bolt length shall be such that a snug fit of the elements and full thread engagement plus ¼" (max) is attained.
6. "Terminal Connector" shall be fabricated from 10 gauge steel conforming to the requirements of AASHTO M 180.
7. "Terminal Connector" and standard spacer, including all anchor bolts, cap PL, nuts and washers, shall be hot-dip galvanized after fabrication.
8. Cap PL shall be fabricated from ASTM A 36.
9. 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.
10. 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.
11. Where double (nested) beam occur, 12" "Back-up Plate" not required.
12. Heads of through anchor bolts shall be placed on the traffic side of the rail.
13. Drilling of thru holes shall be done in such a manner as to prevent cone puncturing of the daylighting end.

ORIGINAL PLAN	SURVEY PLOTTED BY	TKM	DATE	MAR 1999
	DRAWN BY			
	TRACED BY	SJF		MAR 1999
NOTE BOOK	DESIGNED BY			MAR 1999
	QUANTITIES BY	KKO		MAR 1999
No.	CHECKED BY			

METAL GUARDRAIL TYPE 3 THRIE BEAM AND APPURTENANCES DETAILS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ENDPOST UPGRADE
METAL GUARDRAIL TYPE 3 THRIE BEAM AND APPURTENANCES DETAILS
FORT WEAVER ROAD RESURFACING
N. of Laulaunui St. to the Vicinity of Hanakahi St.
F. A. Project No. STP-076-1(5)

Scale: As Noted — Date: Mar. 1999

SHEET No. 013 OF 13 SHEETS