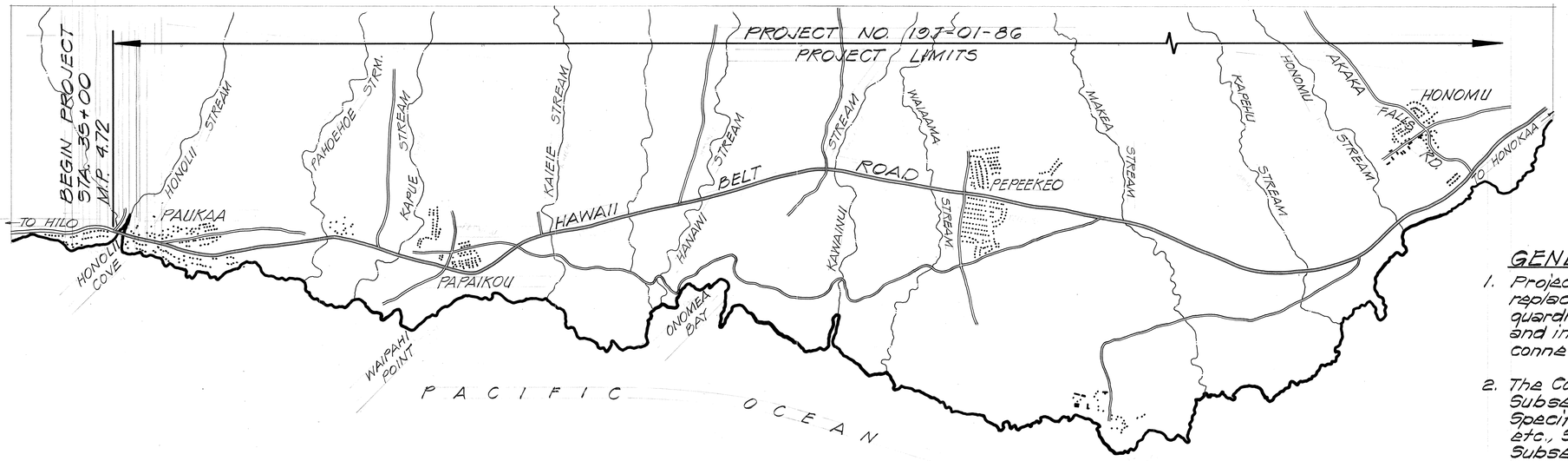
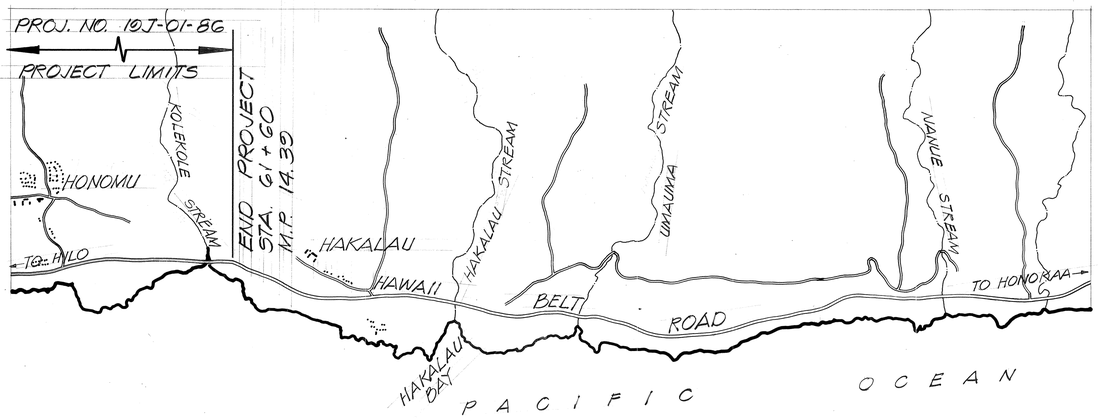
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	19J-01-86	1986	2	17

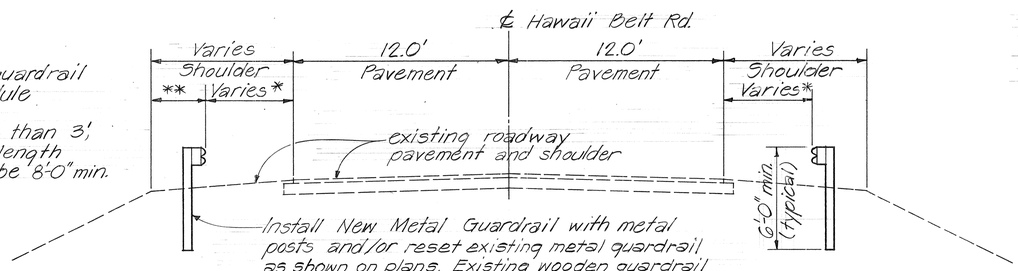




LAYOUT OF PROJECT
Scale: 1" = 2000'

GENERAL NOTES

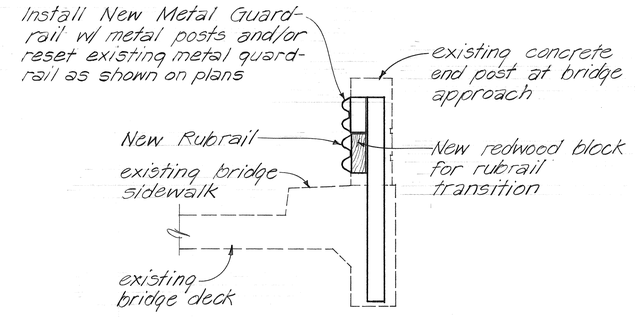
1. Project Description - This project consists of replacing substandard guardrails with all metal guardrails, extending existing standard guardrails and installing concrete ramps and guardrail connections to existing bridge end posts.
2. The Contractor's attention is directed to Subsection 102.05 - Examination of Plans, Specifications, Special Provisions, Site of Work, etc., Subsection 104.09 - Availability of Funds, Subsection 107.13 - Public Convenience and Safety and Section 645 - Traffic Control of the Special Provisions.
3. The locations and limits of guardrails as shown on plans are approximate. The exact locations and limits will be determined in the field by the Engineer.



* = See guardrail schedule

** = If less than 3', post length shall be 8'-0" min.

TYPICAL SECTION
Scale: 1/4" = 1'-0"



TYPICAL SECTION @ BRIDGE APPROACH
Scale: 1/2" = 1'-0"

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
NOTE BOOK	TRACED BY	
	DESIGNED BY	
No.	QUANTITIES BY	
	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

LAYOUT OF PROJECT
& TYPICAL SECTIONS
HAWAII BELT ROAD - ROUTE 19
GUARDRAIL IMPROVEMENTS
Project No. 19J-01-86

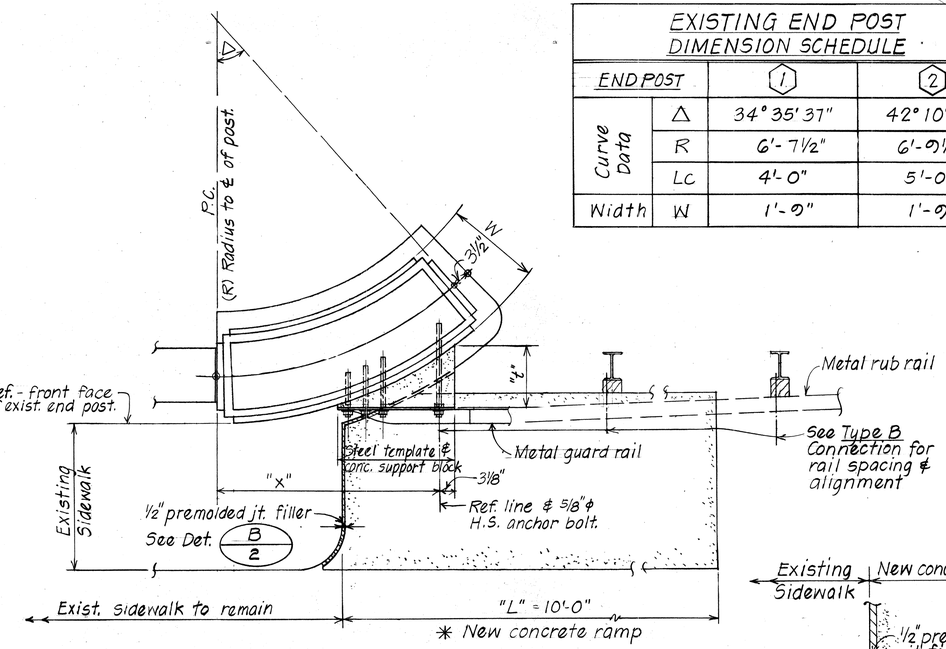
Scale: As Noted Date: April 1986

SHEET No. 1 OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	19J-01-86	1986	3	17

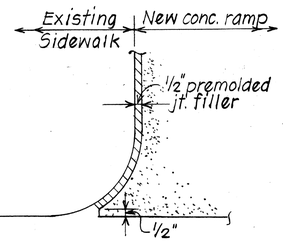
EXISTING END POST DIMENSION SCHEDULE

END POST		①	②
Curve Data	Δ	34° 35' 37"	42° 10' 51"
	R	6'-7½"	6'-0½"
	Lc	4'-0"	5'-0"
Width	W	1'-0"	1'-0"



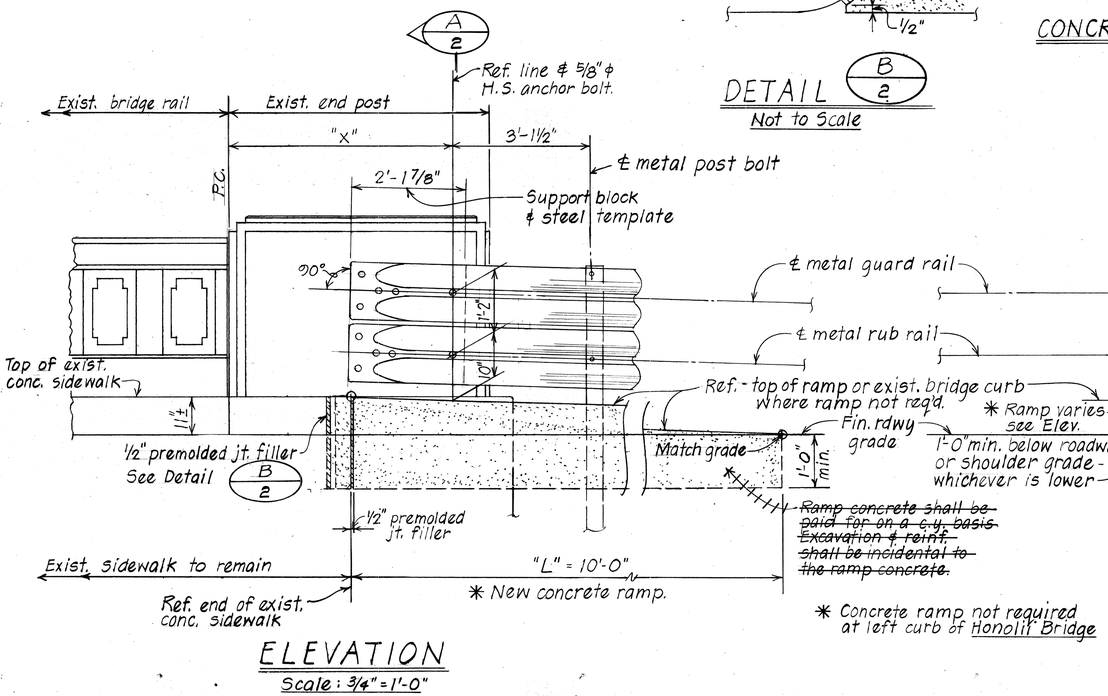
PLAN

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



DETAIL B/2

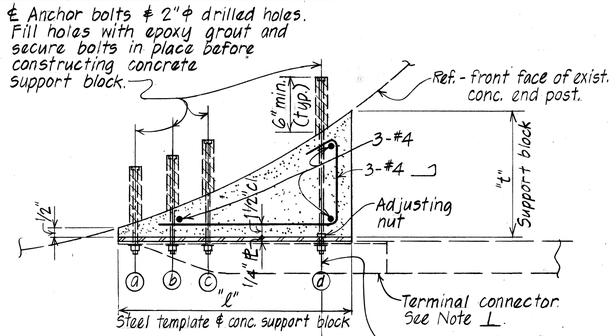
Not to Scale



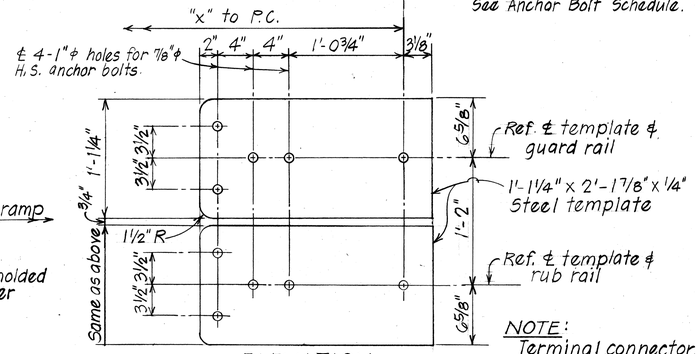
ELEVATION

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

* Concrete ramp not required at left curb of Honolii Bridge



PLAN

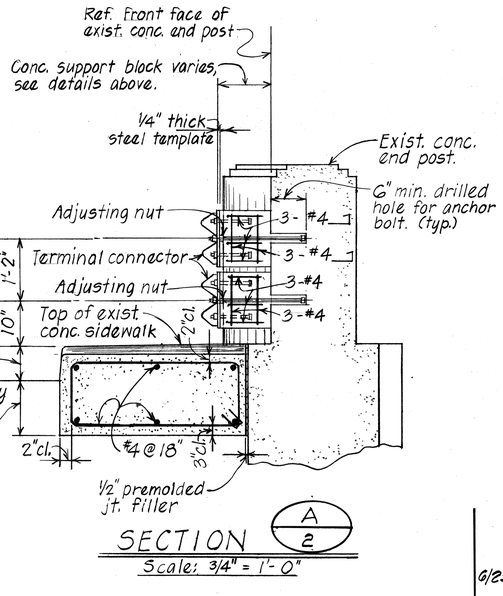


NOTE: Terminal connector, metal guard rail & rub rail not shown.

ELEVATION

STEEL TEMPLATE AND CONCRETE SUPPORT BLOCK DETAILS

Scale: 1½" = 1'-0"



SECTION A/2

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

CONCRETE SUPPORT BLOCK & ANCHOR BOLT SCHEDULE

ITEM / END POST	CONC. SUPPORT BLOCK "x"	CONC. SUPPORT BLOCK "ℓ"	CONC. SUPPORT BLOCK "t"	ANCHOR BOLT * (Length under head) ⓐ	ⓑ	ⓒ	ⓓ
①	2'-10¾"	2'-1 7/8"	8 1/16"	4-⅞"ϕ x 8½"	2-⅞"ϕ x 9"	2-⅞"ϕ x 10¼"	2-⅝"ϕ x 1'-2½"
②	4'-2 3/16"	2'-1 7/8"	1'-1 5/16"	4-⅞"ϕ x 9"	2-⅞"ϕ x 10½"	2-⅞"ϕ x 1'-0"	2-⅝"ϕ x 1'-7"

NOTES

1. See Standard Specifications for Road & Bridges Construction, (Hawaii, 1985) and Special Provisions.
2. See Standard Detail Sht. # DT 501 for terminal connector details and information. "Terminal Connector" shall be incidental to "Guard Rail Connection to Existing End Post."
3. Anchor bolts shall be high strength bolts conforming to the requirements of ASTM A325.
4. "Terminal Connector" shall be fabricated from 10 gauge steel conforming to the requirements of AASHTO M180.
5. Steel template shall be A36 steel.
6. "Terminal Connector", steel template, anchor bolts, nuts and washers shall be galvanized.
7. Construction of ramp shall conform to the requirements of Section 608 - sidewalks, of the Standard Specifications.
8. First 25'-0" of guard rail adjoining "Terminal Connector" shall be of galvanized steel and supports spaced at 3'-1½" o.c. See Standard Detail Sht. # DT 500 for metal guard rail details.
9. Large impacting or vibratory type of equipment will not be permitted for drilling.
10. Any damage to the existing structures due to the Contractor's operation shall be repaired at his expense, to the satisfaction of the Engineer.
11. The work necessary to connect guard rail to concrete end post shall include all labor, materials, tools, equipment and incidentals necessary to complete the work. This work will be measured and paid for in units of one.
12. The Contractor shall verify all dimensions in field before commencing with work.
13. The Contractor shall verify the location of all existing utility lines near structures and notify their respective owners before commencing with work.

END POST ① = Honolii Bridge
② = Kawainui Bridge

14. The payment limits for End Post Connection, Type "A" shall be the same as the payment limits for End Post Connection, Type "B".

DATE	REVISION
6/25/86	Deleted phrase from Elevation view of End Post and added Note No. 14, per Addendum No. 1.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

GUARD RAIL CONNECTION TO EXIST. END POST TYPE A

HAWAII BELT ROAD - ROUTE 19
GUARD RAIL IMPROVEMENTS
Proj. No. 19J-01-86

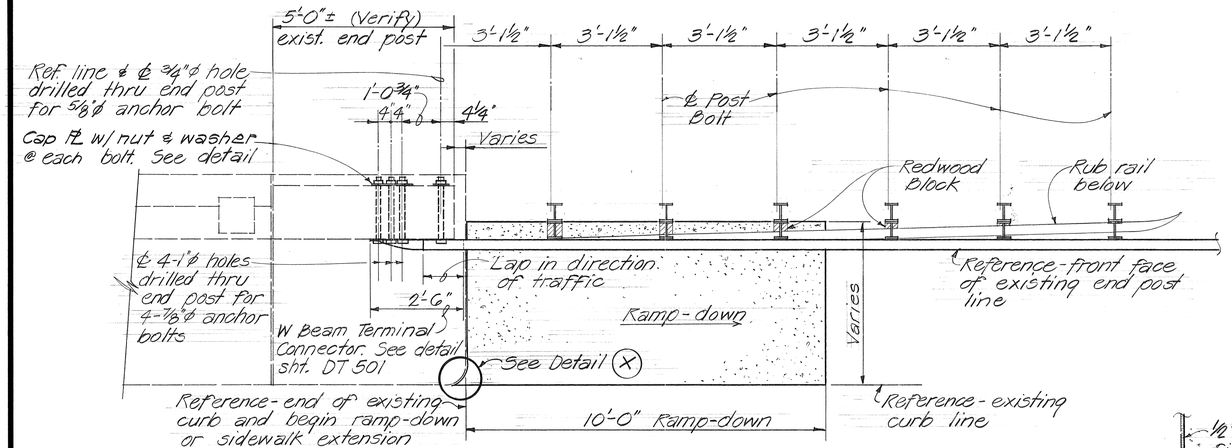
Scale: As Shown Date: May 1986

SHEET No. 2 OF 3 SHEETS

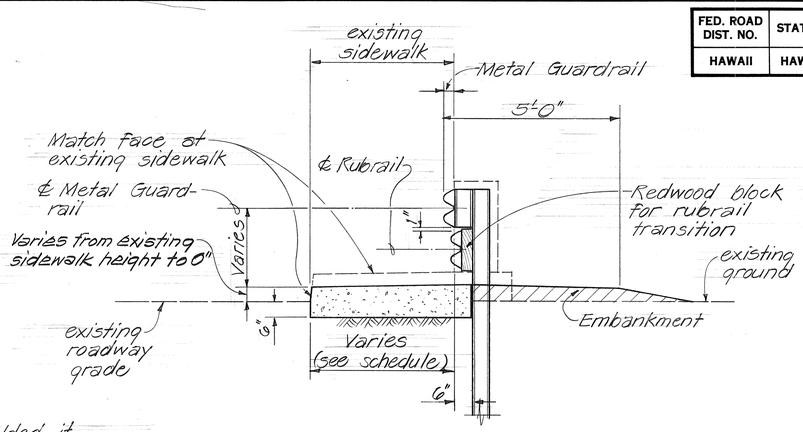
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
NOTE BOOK	TRACED BY	
No.	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

ADD. 3R

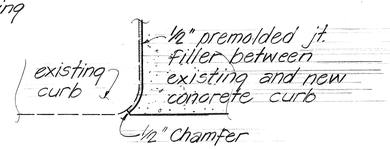
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	19J-01-86	1986	4	17



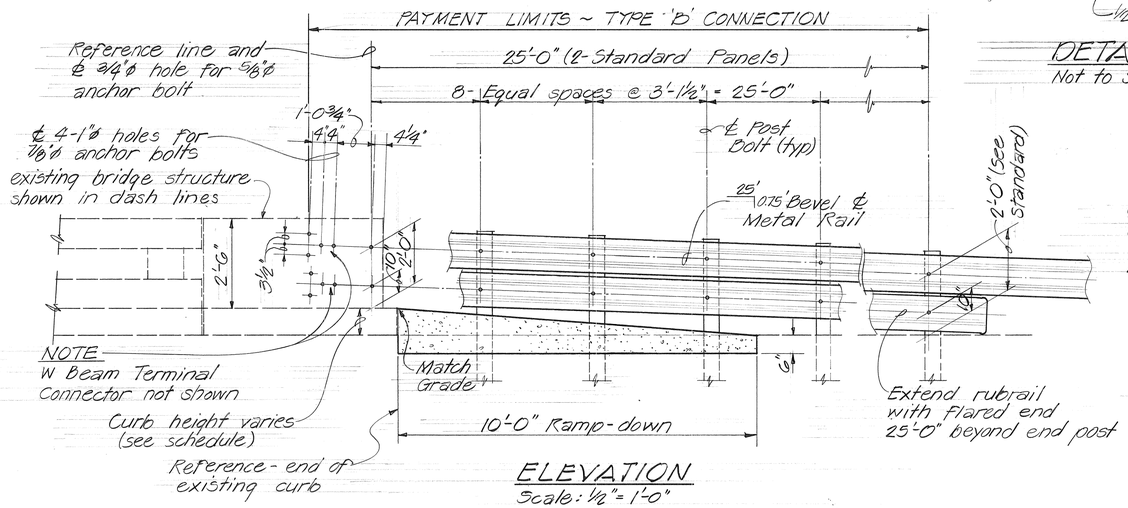
PLAN
Scale: ½"= 1'-0"



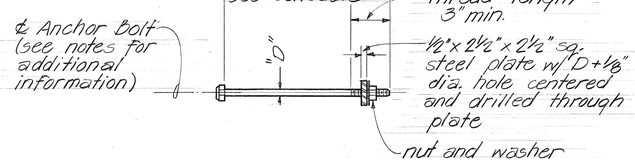
TYPICAL SECTION THRU RAMP DOWN
Scale: ½"= 1'-0"



DETAIL (X)
Not to Scale



ELEVATION
Scale: ½"= 1'-0"



END POST ANCHOR BOLT & CAP PLATE DETAIL
Not to Scale

NOTES

1. All anchor bolts shall be high strength bolts conforming to the requirements of ASTM A-325.
2. All anchor bolts, nuts, washers and structural steel shapes and plates shall be hot dip galvanized after fabrication.
3. The Contractor shall install 2-#6 x 2'-0" dowels per each ramp-down between the existing concrete walk and new concrete ramp-down. Dowels shall be installed in 1¾" diameter drilled holes 12" into the existing concrete walk and sealed with epoxy grout, with a minimum of 3" clear from edge of walk.
4. The Contractor shall construct the 10'-0" concrete ramp-down with Class A Concrete reinforced with 6x6-W2.9xW2.9 Galvanized Welded Wire Fabric and shall construct a ½" radius edge rounding where the ramp-down matches the existing ground.
5. The concrete ramp-down shall be broom finish.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	TRACED BY	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

END POST CONNECTION TYPE B

HAWAII BELT ROAD ROUTE 19
GUARDRAIL IMPROVEMENTS
Project No. 19J-01-86

Scale: As Noted Date: April 1986

SHEET No. 3 OF 3 SHEETS