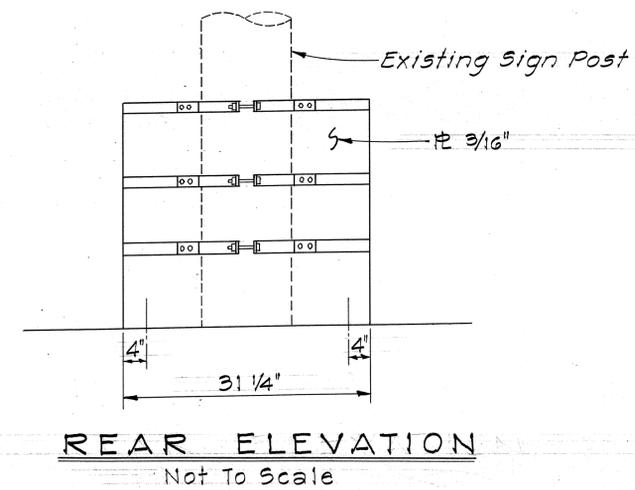
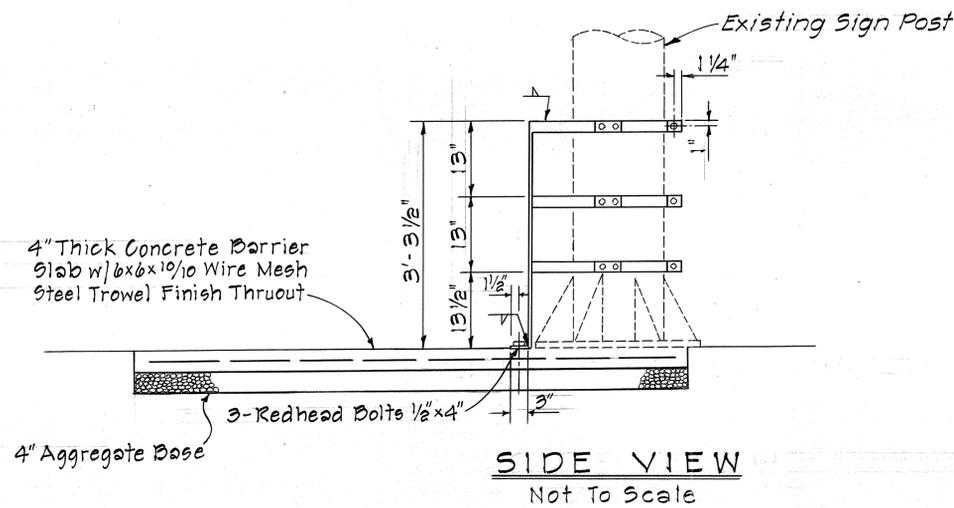
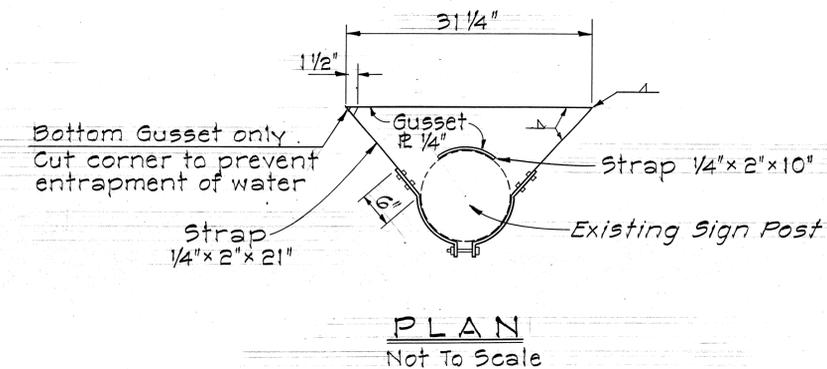
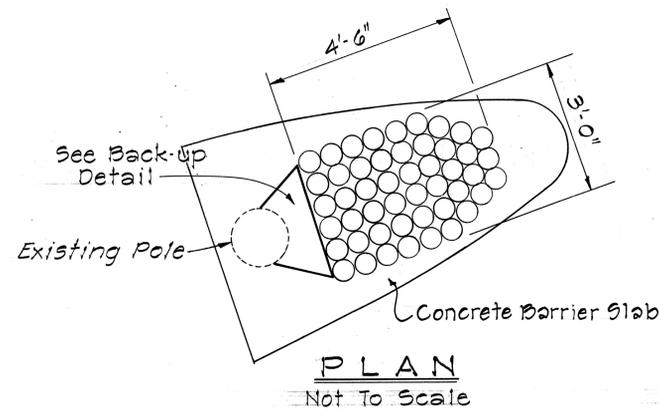


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(112)-19	1973	40	176



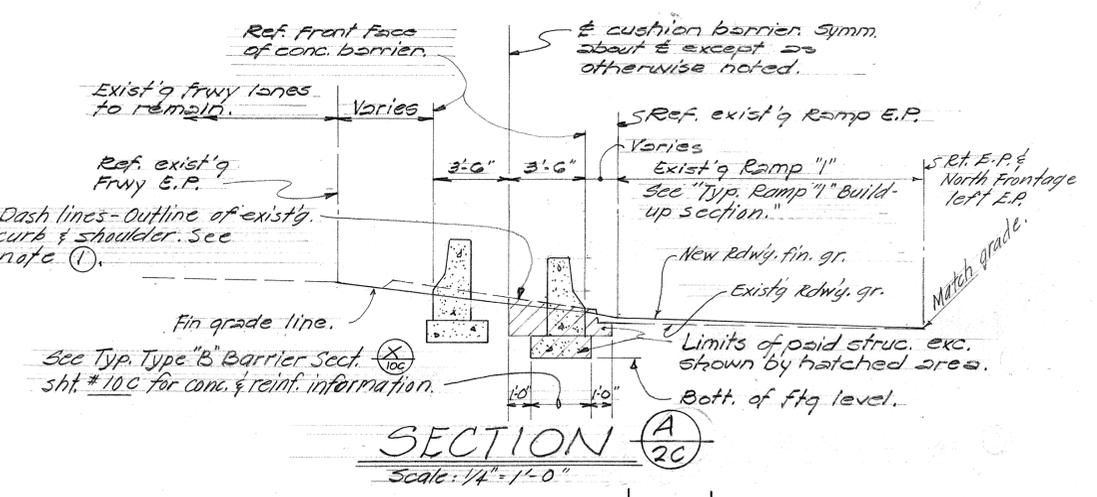
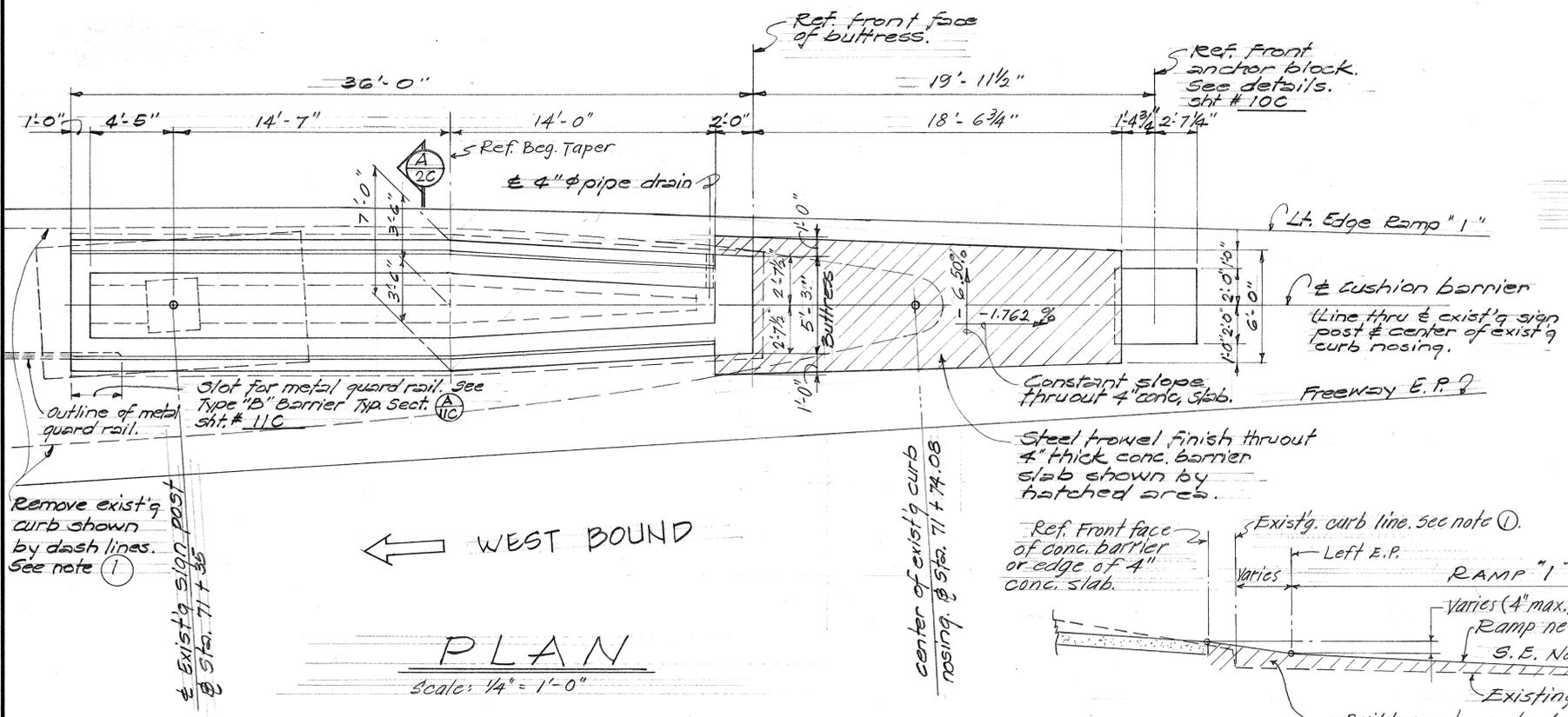
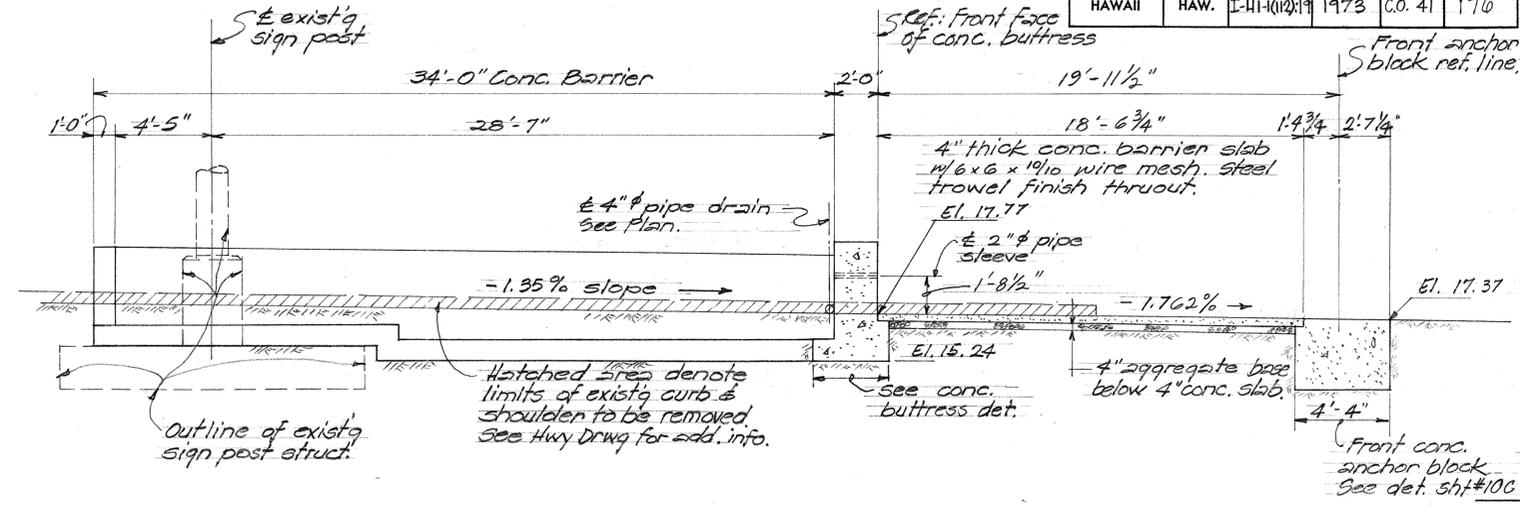
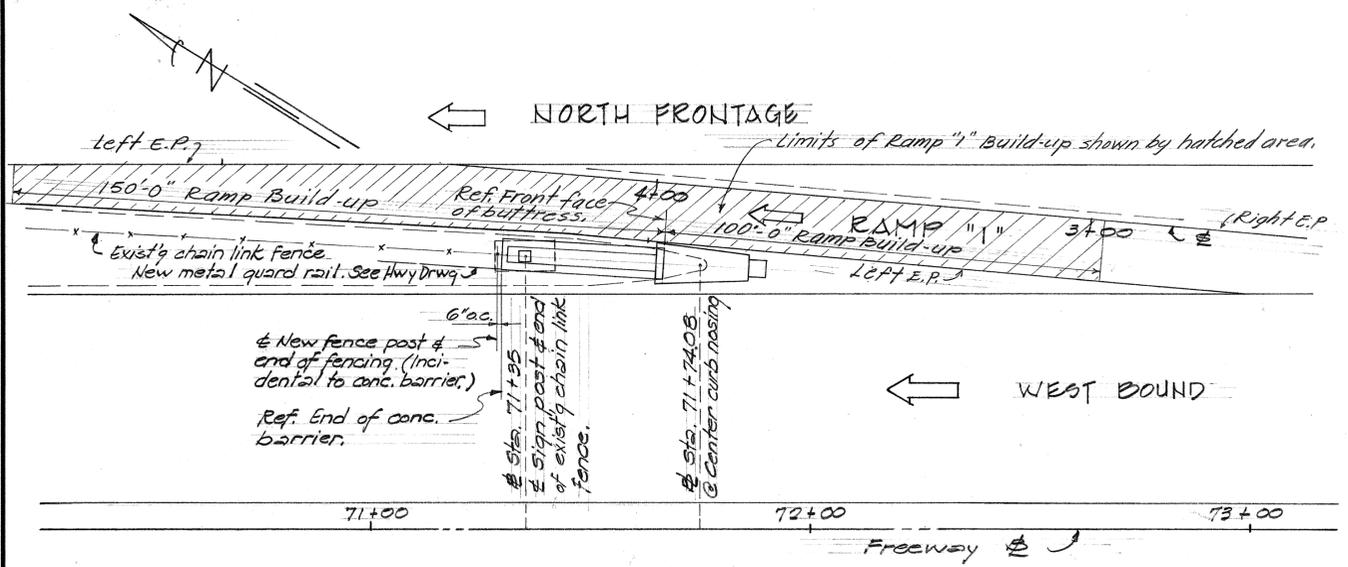
**NOTE:**

1. Details for the Cushion Barrier Assemblies shall be in accordance with the Manufacturer's recommendations.

DATE	_____
SYNOPSIS PLOTTED BY	_____
DRAWN BY	_____
DESIGNED BY	_____
CHECKED BY	_____
NOTE BOOK	_____
No.	_____

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**CUSHION BARRIER**  
AT  
**KALIHI INTERCHANGE**  
F.A.I. PROJECT NO. I-HI-1(112)-19  
Scale: As Shown  
SHEET No. 1C OF 11C SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-41-1(112)19	1973	C.O. 41	170



**NOTES**

- ① For limits of removal of existing curbs and shoulders see Hwy. drawings.
- ② See sht. # 10C for additional notes and "Estimated Quantities."

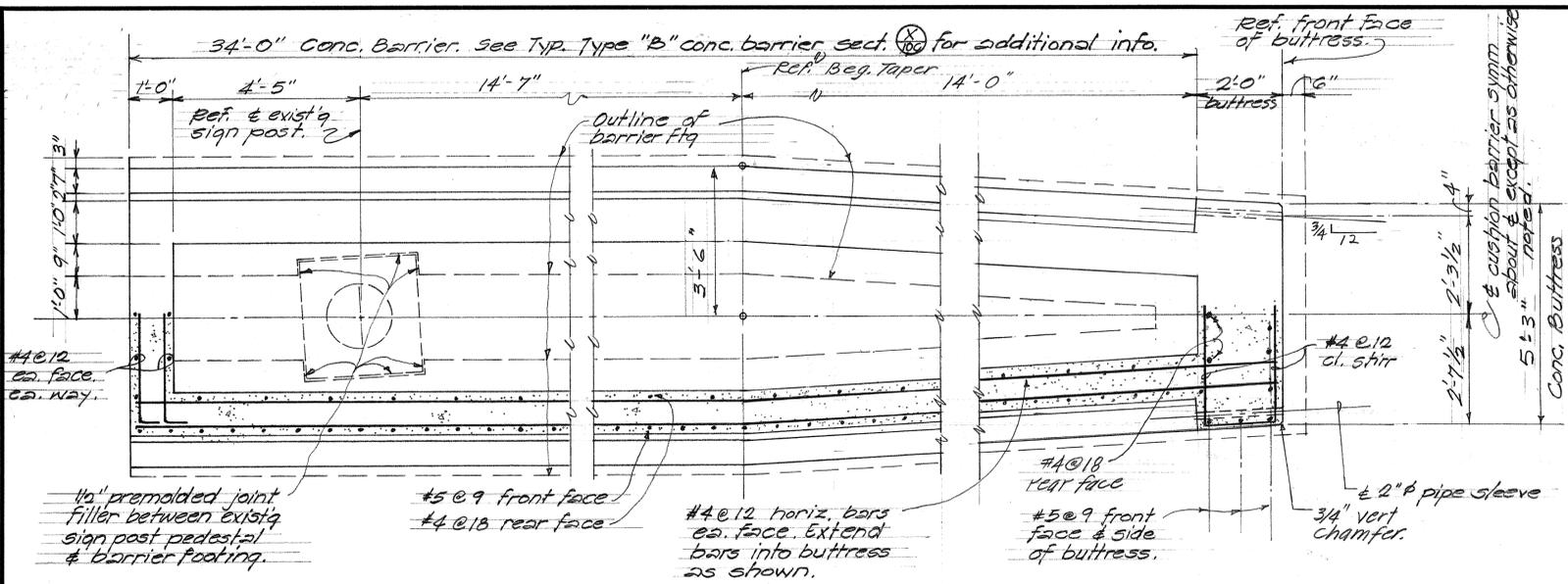
**TYP. RAMP "1" BUILD-UP SECTION**  
Scale: 1/2" = 1'-0"

DATE	REVISION

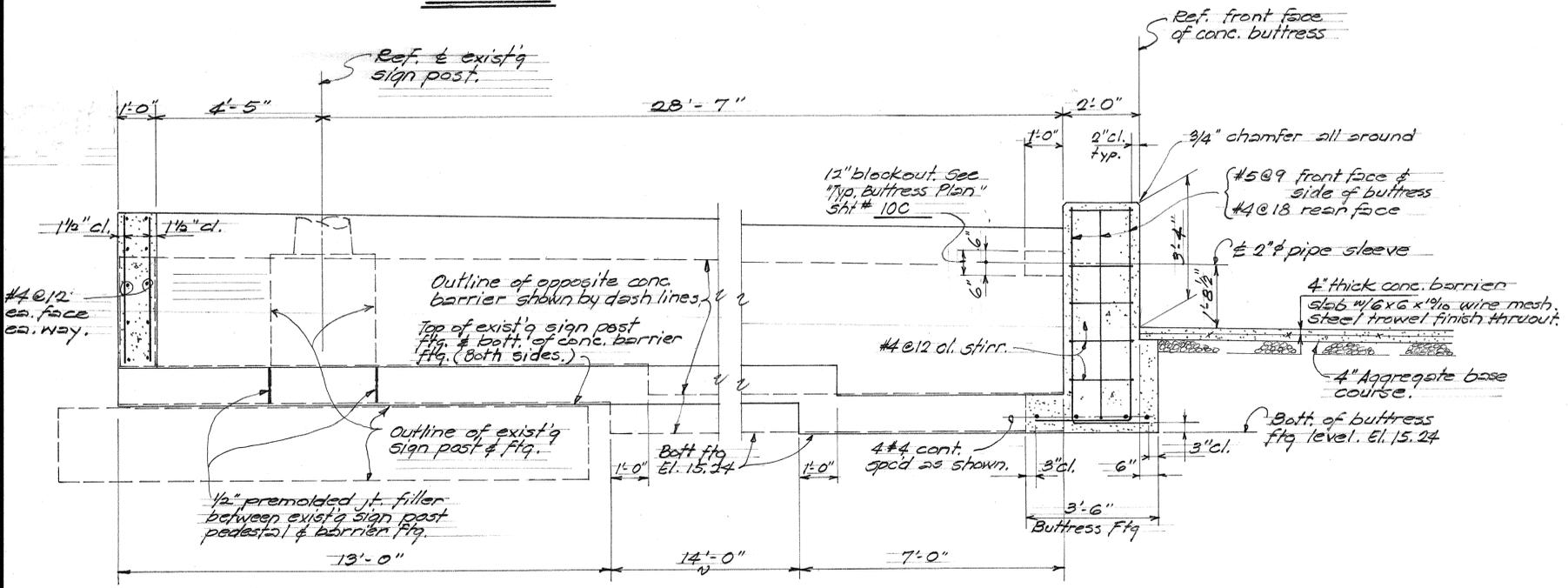
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**INSTALLATION OF CUSHION BARRIER**  
AT LUNALILO FWY & RAMP "1"  
Sta. 71 + 75  
SAFETY IMPROVEMENTS ALONG INTERSTATE H-1  
KALIHI ST TO FALL HIGHWAY  
Proj. No. I-H-1(112)19 DATE: April, 1973  
SHEET No. 20 OF 116 SHEETS

DATE  
SYNOPSIS PREPARED BY  
DRAWN BY  
DESIGNED BY  
CHECKED BY  
ORIGINAL PLAN  
NOTE BOOK  
No.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-41(112)19	1973	C.O.42	176



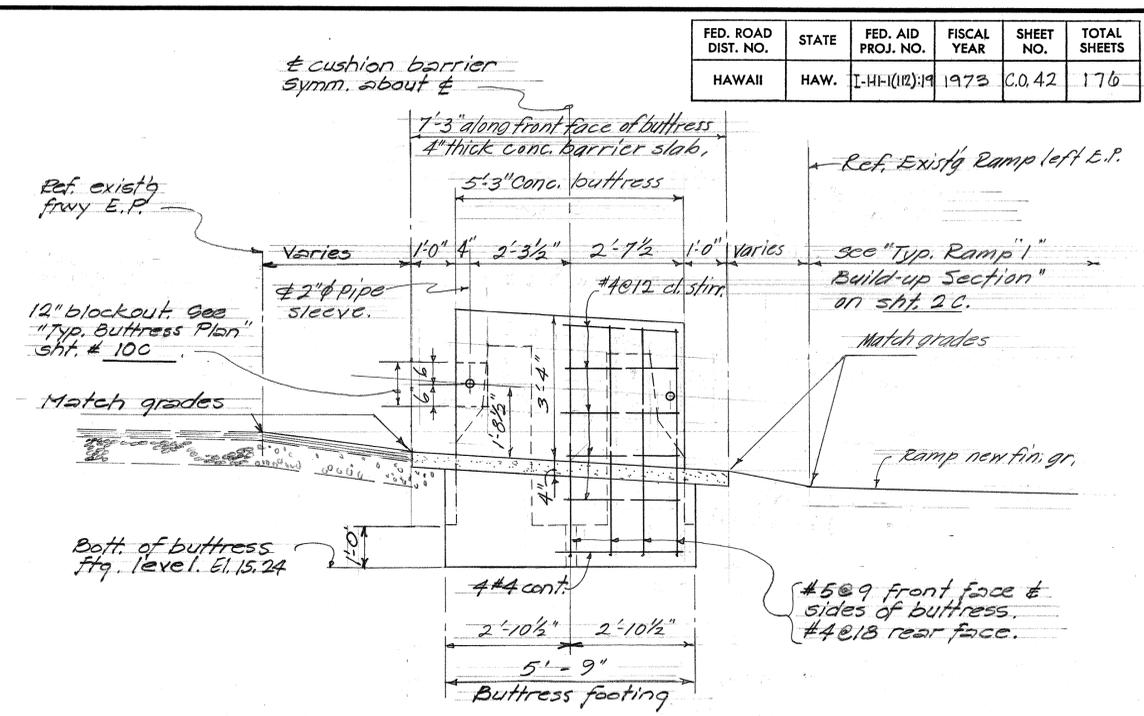
**PLAN**



**FRONT ELEVATION**

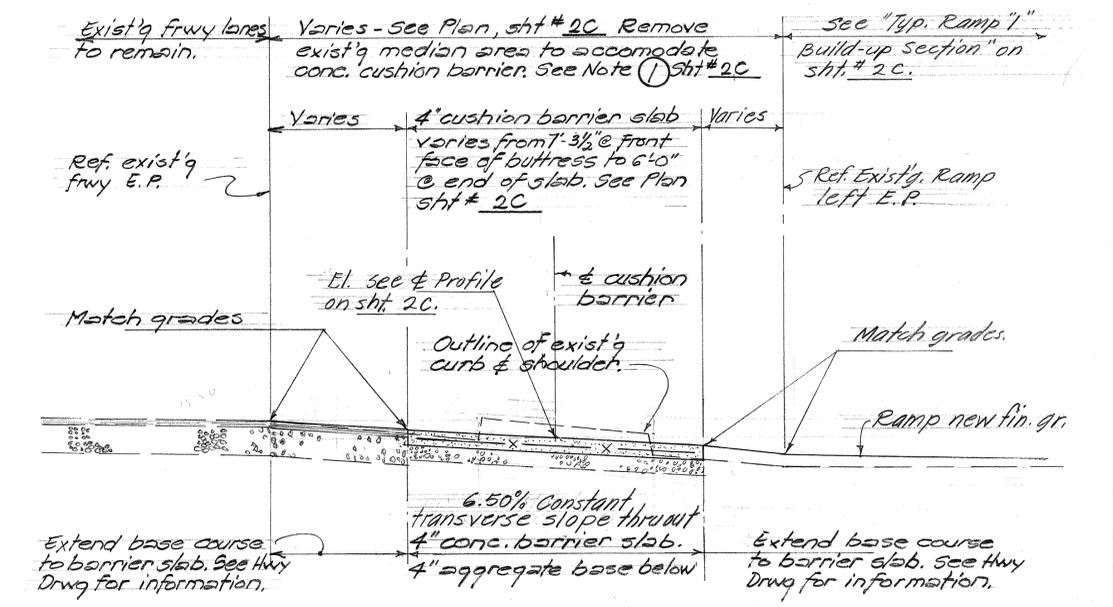
**CONC. BUTTRESS & CONC. BARRIER DETAILS**

Scale 1/2" = 1'-0"



**BUTTRESS ELEVATION**

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



**TYP. SECT. THRU 4" CONC. CUSHION BARRIER SLAB**

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

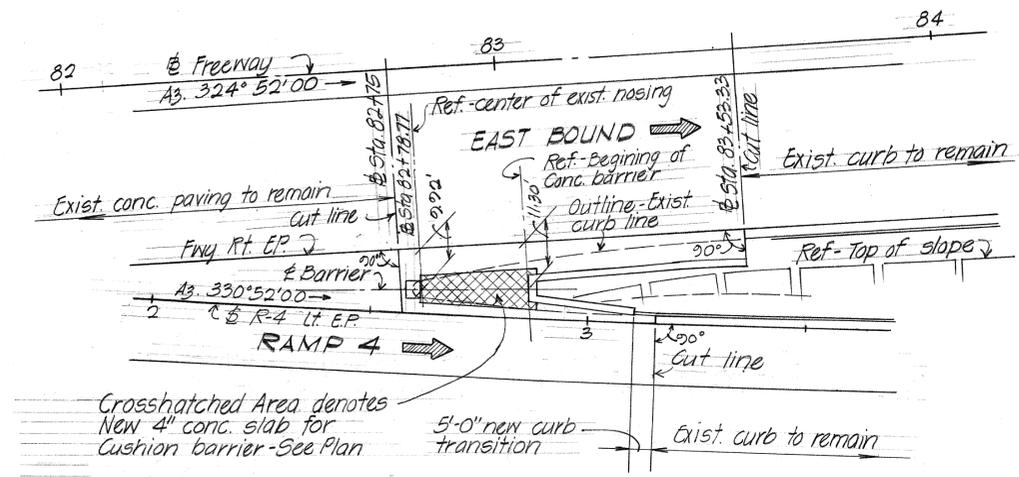
12-6-74 Buttness width decreased from 6'-0" to 5'-3" and restraining cable 2" diameter sleeve dimension changed from 2'-8 1/4" to 2'-3 1/2". Adjoining conc. barrier revised to have a tapered section to match into revised buttness.  
Ramp "1" built-up to decrease barrier slab cross slope. Cross slope of barrier slab changed from 13% to 6.50% and length of unit changed from 21'-2 1/4" to 19'-11 1/2".

DATE	REVISION

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**INSTALLATION OF CUSHION BARRIER**  
AT LUNALILO FRWY & RAMP "1"  
SHEET No. 3C OF 11C SHEETS

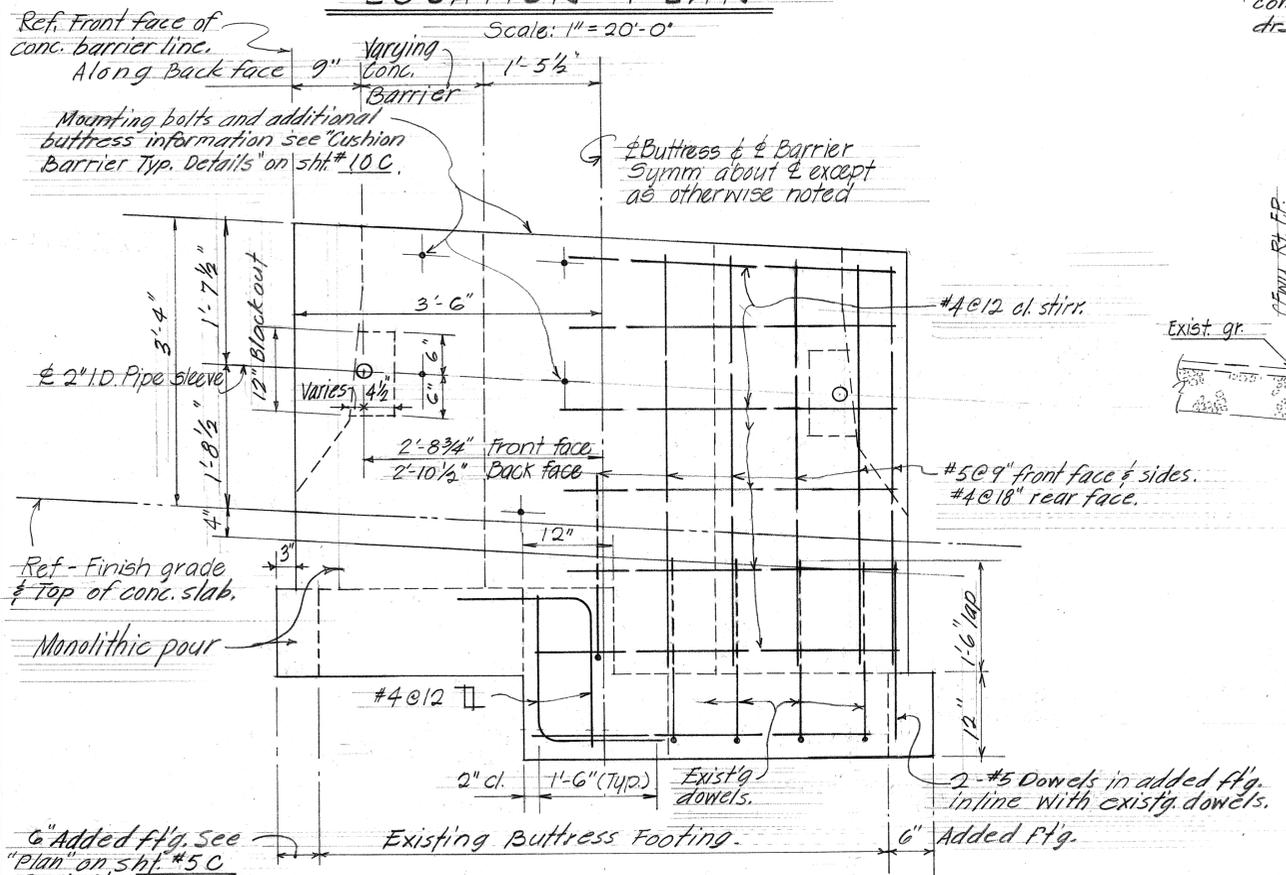
DATE	
SURVEY PLOTTED BY	
DRAWN BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(112):19	1973	0043	176



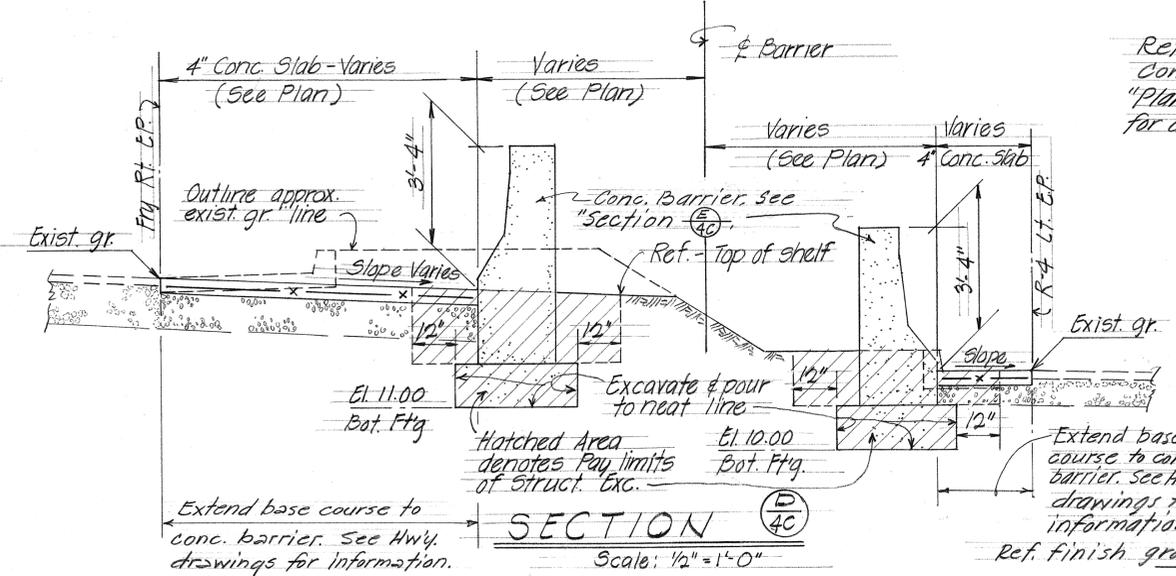
**LOCATION PLAN**

Scale: 1" = 20'-0"



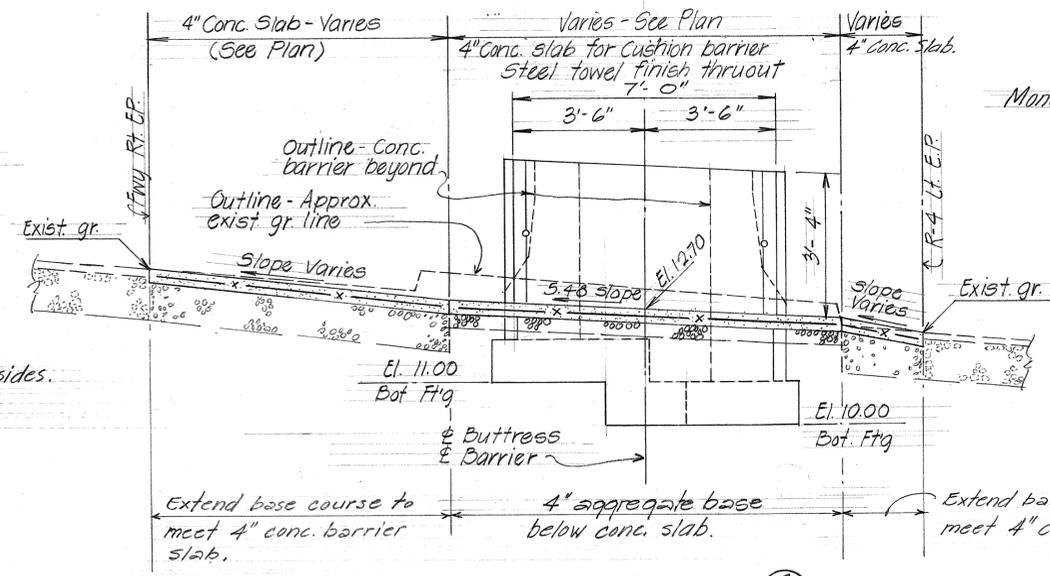
**BUTRESS ELEVATION**

Scale: 1" = 1'-0"



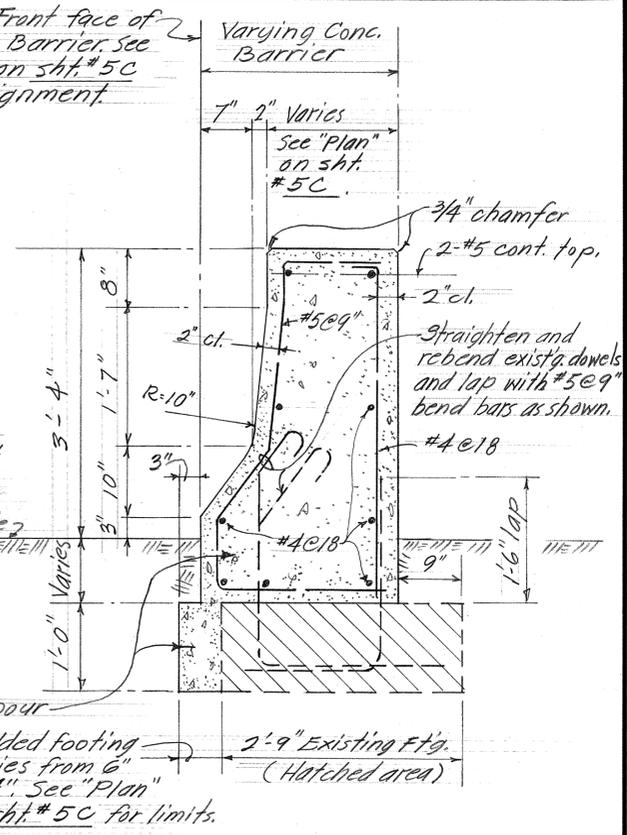
**SECTION D-40**

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



**SECTION C-40**

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



**SECTION E-40**

Scale: 1" = 1'-0"

- NOTES:
- 1 - For limits of removal of existing curb and shoulder, see Hwy. Drwg.
  - 2 - See sht. #10C for additional notes and "Estimated Quantities."

DATE	REVISION
11-27-'74	Buttress width increased from 6' to 7'-0" due to modification of cushion barrier system. Adjoining concrete barrier revised to match revised buttress.

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**INSTALLATION OF CUSHION BARRIER**  
**AT LUNALILO FRWY - VINEYARD (OFF-RAMP)**

Sta. 83+00

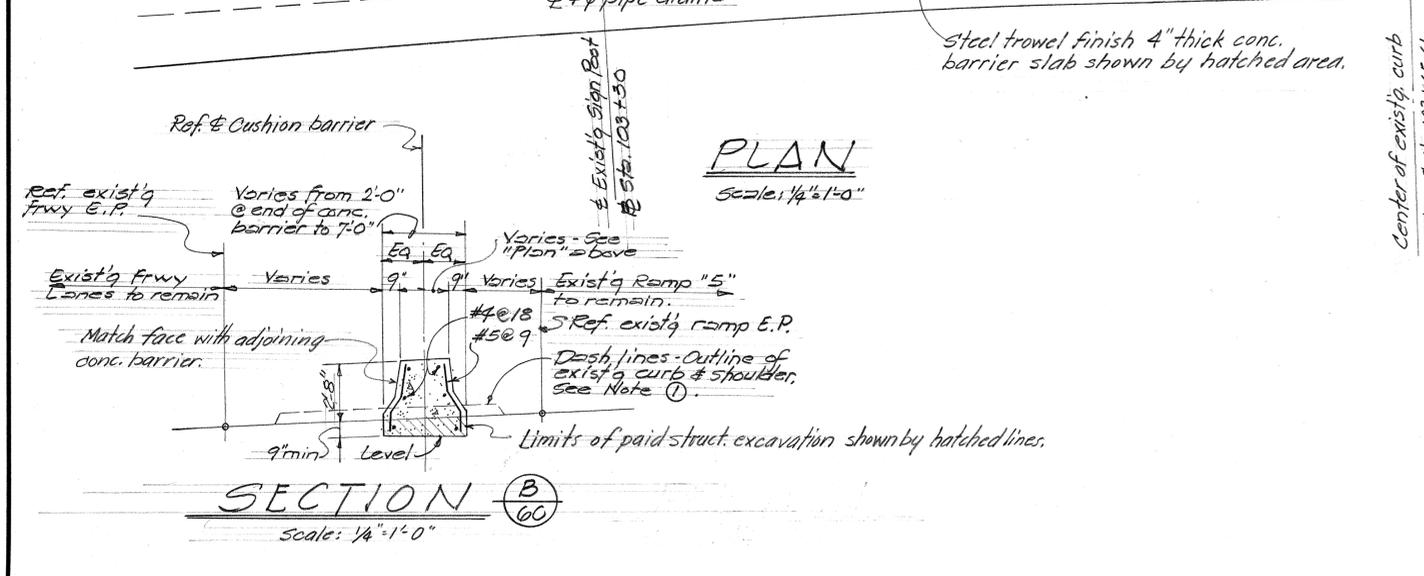
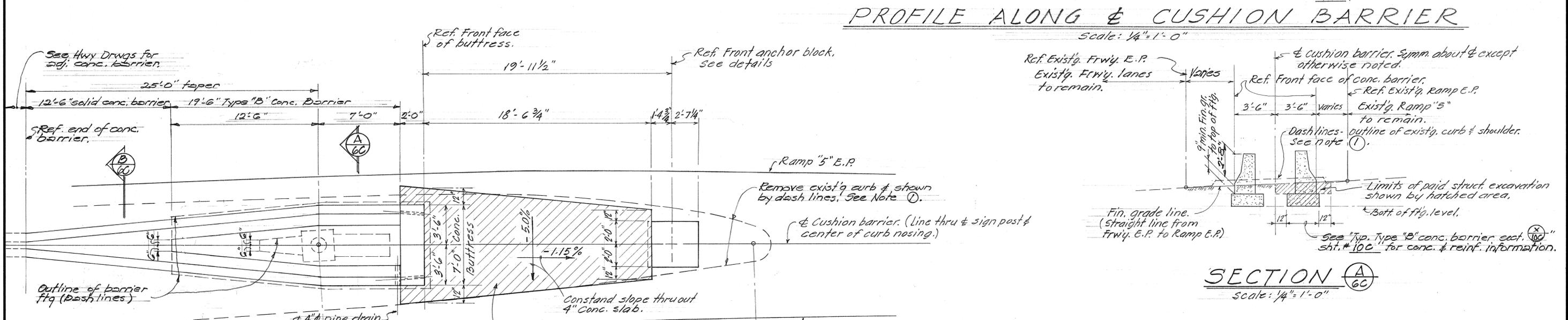
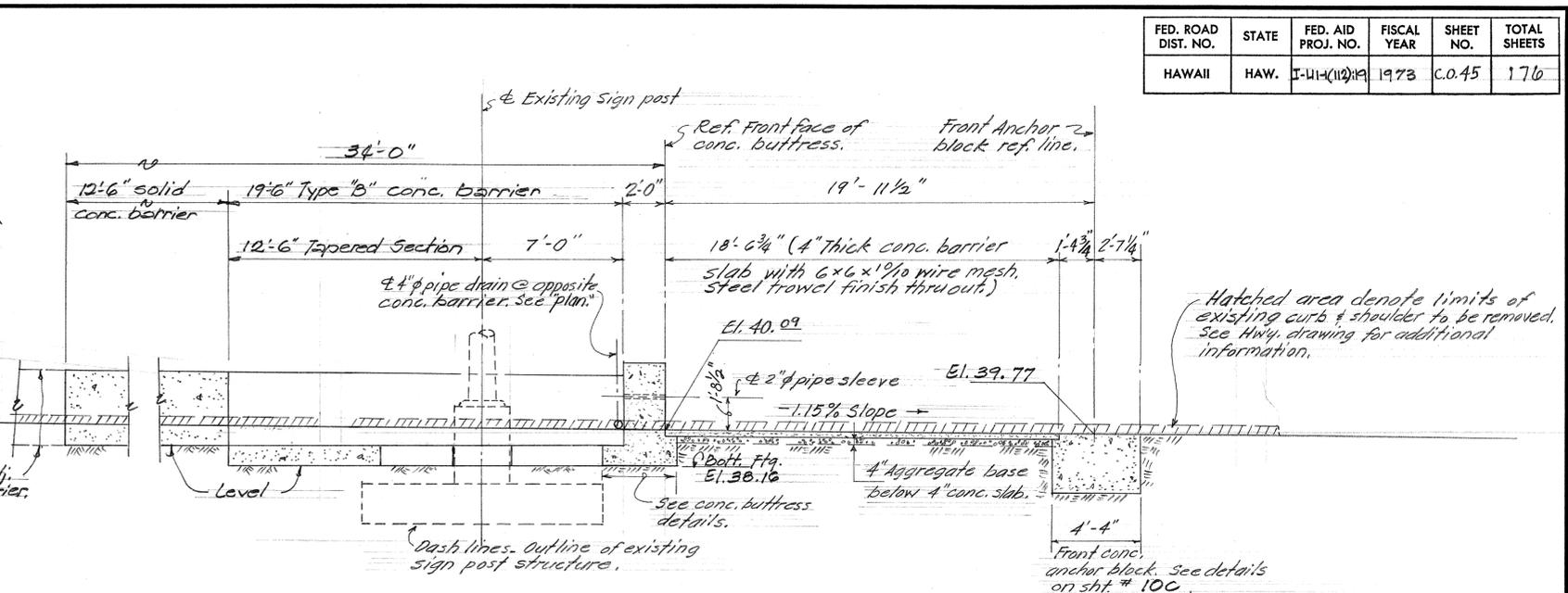
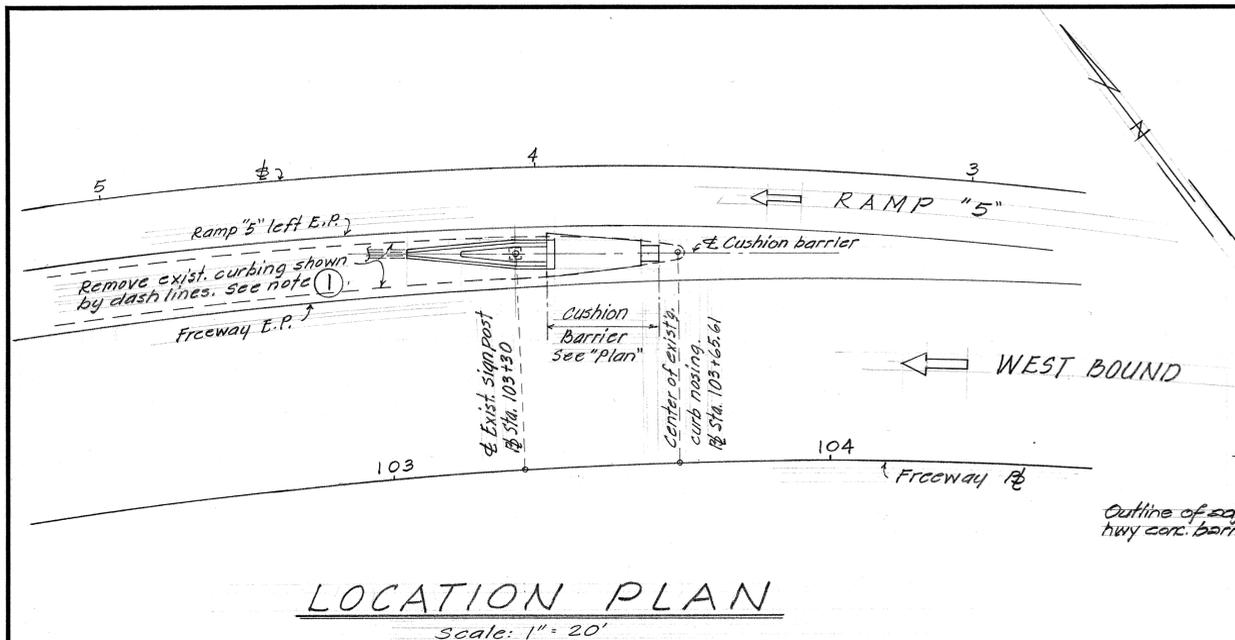
**SAFETY IMPROVEMENTS ALONG INTERSTATE H-1**  
KALIHI ST. TO PALI HIGHWAY  
Proj. No. I-HI-1(112):19 Date: April, 1973

**SHEET No. 4C OF 110 SHEETS**

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



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-111(112)19	1973	C.045	176



**NOTES**

- For limits of removal of existing curbs and shoulders see Highway drawings.
- See Sht # 100 for additional notes and "Estimated Quantities."

12-6-74 Height of 2" pipe sleeve changed from 1'-8" to 1'-8 1/2" and length of unit changed from 21'-2 1/4" to 19'-11 1/2".

DATE	REVISION

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**INSTALLATION OF CUSHION BARRIER**  
AT LUNALILO FRWY. & RAMP "5"  
# 574 103+50  
SAFETY IMPROVEMENTS ALONG  
INTERSTATE H-1  
KALIHI ST. TO PALI HIGHWAY  
Proj. No. I-HI-1(112)19 DATE: April, 1973  
SHEET No. 60 OF 110 SHEETS

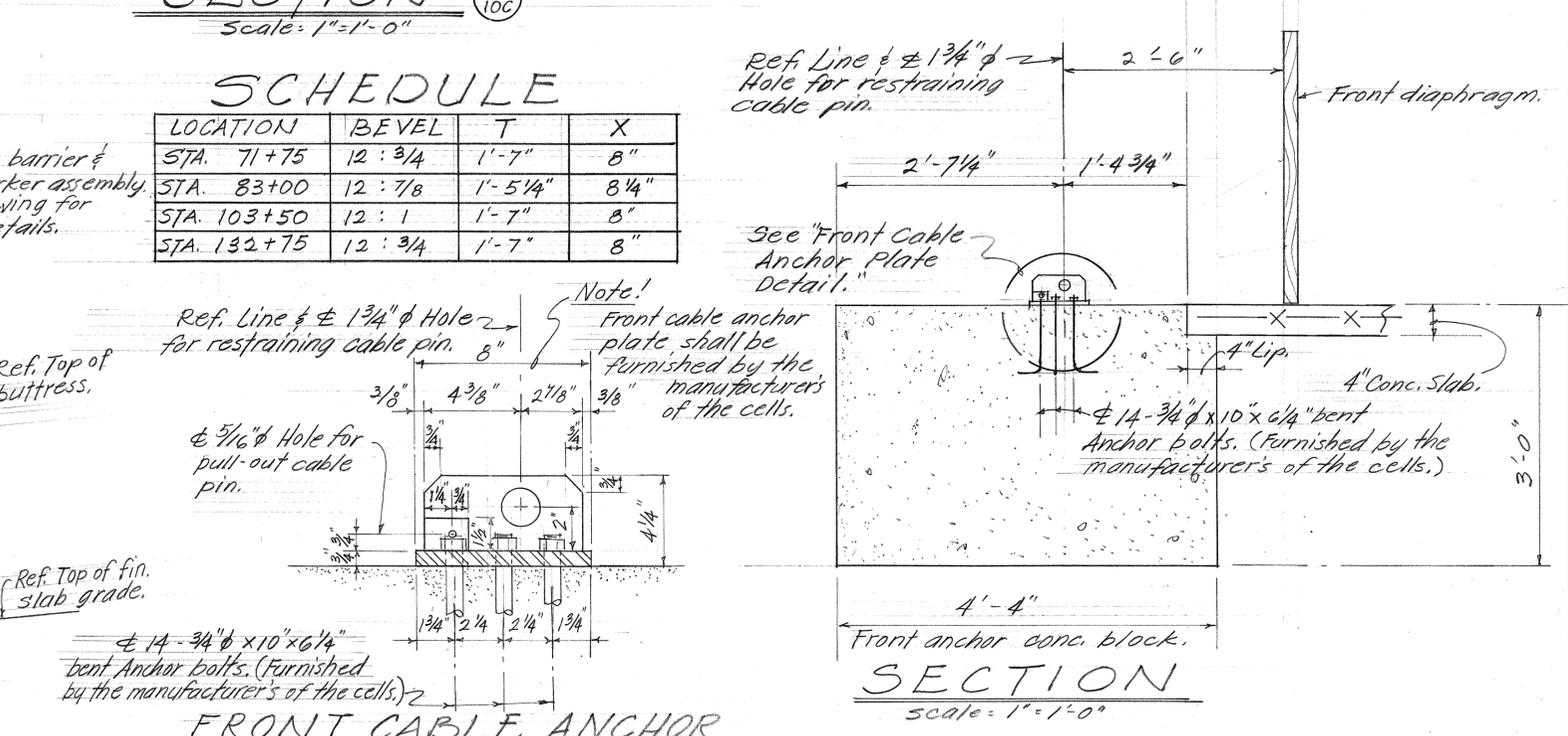
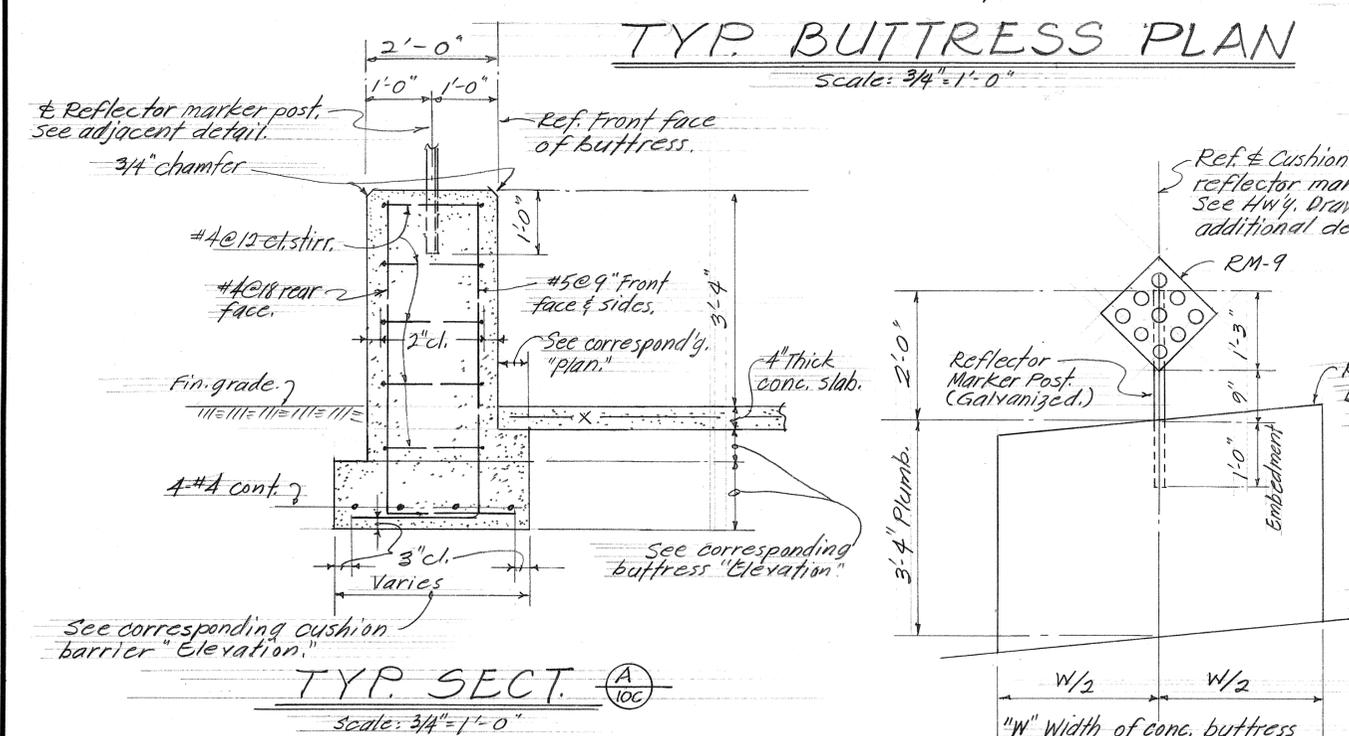
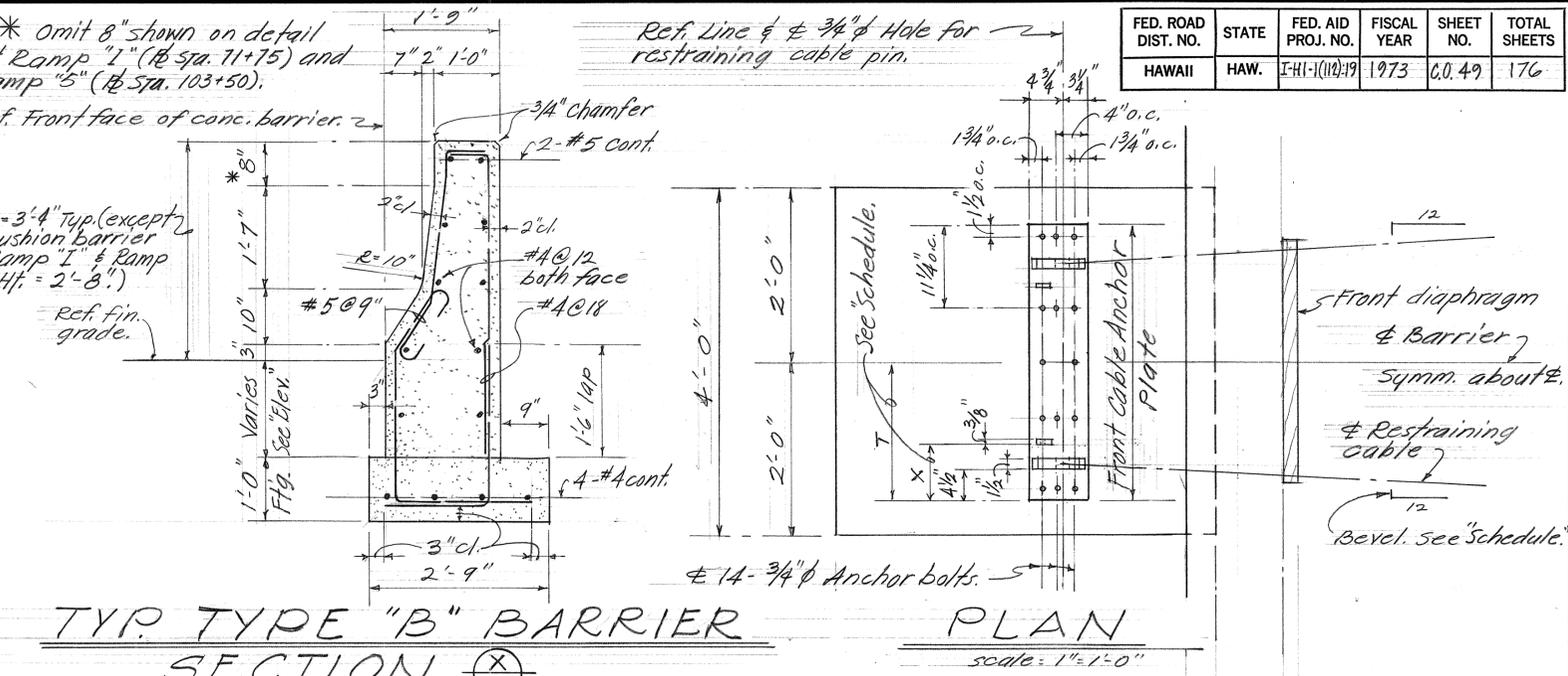
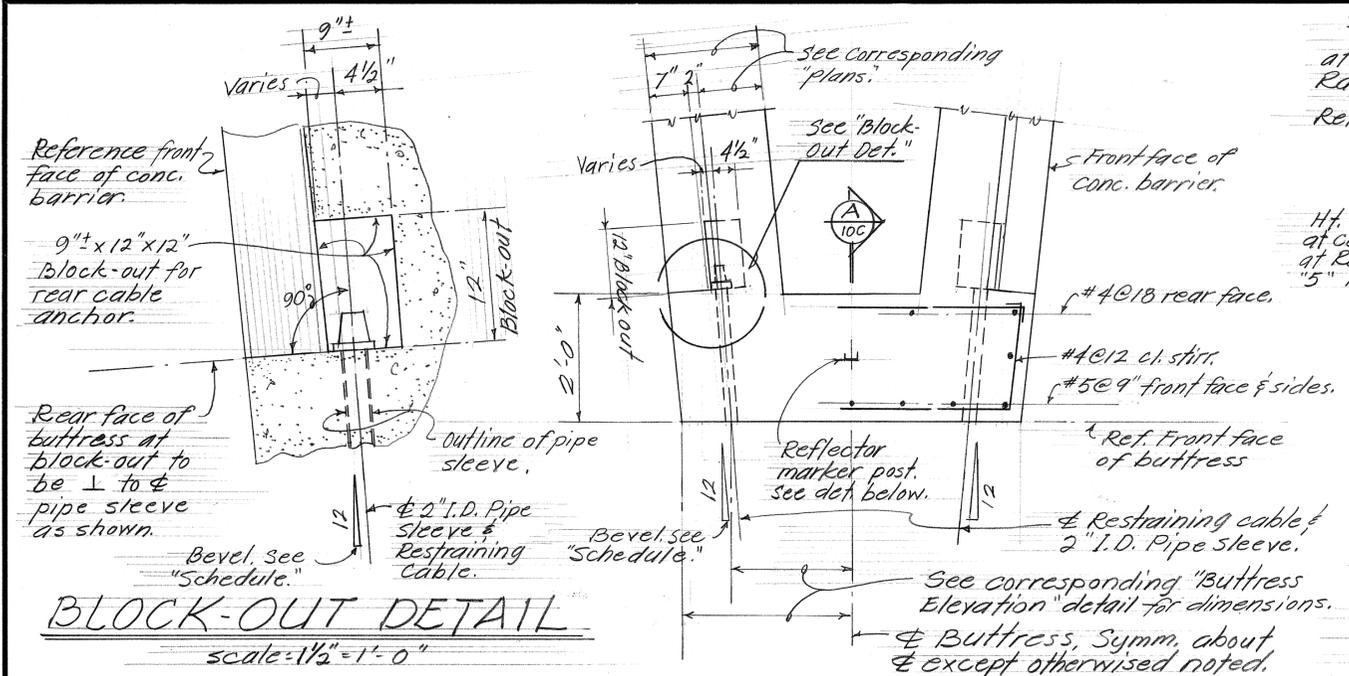
DATE  
SURVEY PLOTTED BY  
DRAWN BY  
DESIGNED BY  
QUANTITIES BY  
CHECKED BY  
ORIGINAL PLAN  
NOTE BOOK  
No.







FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(112):19	1973	60.49	176



**NOTE**

All materials and information necessary to properly construct and install the cells shall be furnished by the manufacturer's of the cells. All brackets, bolts, straps and other appurtenances necessary for the installation of the cushion barrier shall be placed in the structure that is being constructed in accordance with the manufacture's recommendations. The individual components, fastenings and overall installation shall reflect the latest designs and installation practices at the time of installation. Galvanize all anchor assemblies in front anchor block and buttress and all bolts, mounting straps, sleeves and other appurtenances used in the installation of the cushion barrier.

**INSTALLATION OF REFLECTOR MARKER "RM-9" DETAIL**  
scale: 3/4" = 1'-0"

**CUSHION BARRIER ESTIMATED QUANTITIES**

ITEM	LOCATION	CUSHION BARRIER AT 16 STA. 71+75	CUSHION BARRIER AT 16 STA. 83+00	CUSHION BARRIER AT 16 STA. 103+50	CUSHION BARRIER AT 16 STA. 132+75	CUSHION BARRIER COMBINED TOTAL
CONCRETE (INCLUDING 4" BARRIER SLAB)		26 c.y.	31 c.y.	26 c.y.	15 c.y.	Lump Sum (98 c.y.)
REINF. STEEL		2,150 #	2,130 #	1,625 #	560 #	Lump Sum (6,465 #)
STRUCT. EXC.		24 c.y.	33 c.y.	20 c.y.	20 c.y.	97 c.y.

**FRONT CABLE ANCHORAGE DETAILS**

12-3-74  
Conc. buttress & front anchor block revised in order to facilitate the use of present design, standard production run cushion barrier.

DATE REVISION

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**CUSHION BARRIER**  
**TYPICAL DETAILS**  
SAFETY IMPROVEMENTS ALONG  
INTERSTATE H-1  
KALIHI ST. TO PALI HIGHWAY  
Proj. No. I-HI-1(112):19 DATE: DEC. '74  
SHEET NO. 100 OF 110 SHEETS

DATE  
DRAWN BY  
CHECKED BY  
QUANTITIES BY  
NO.