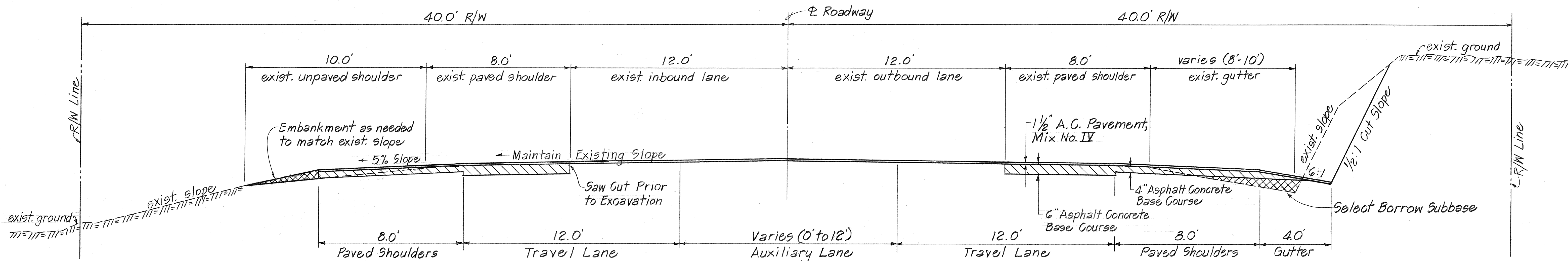


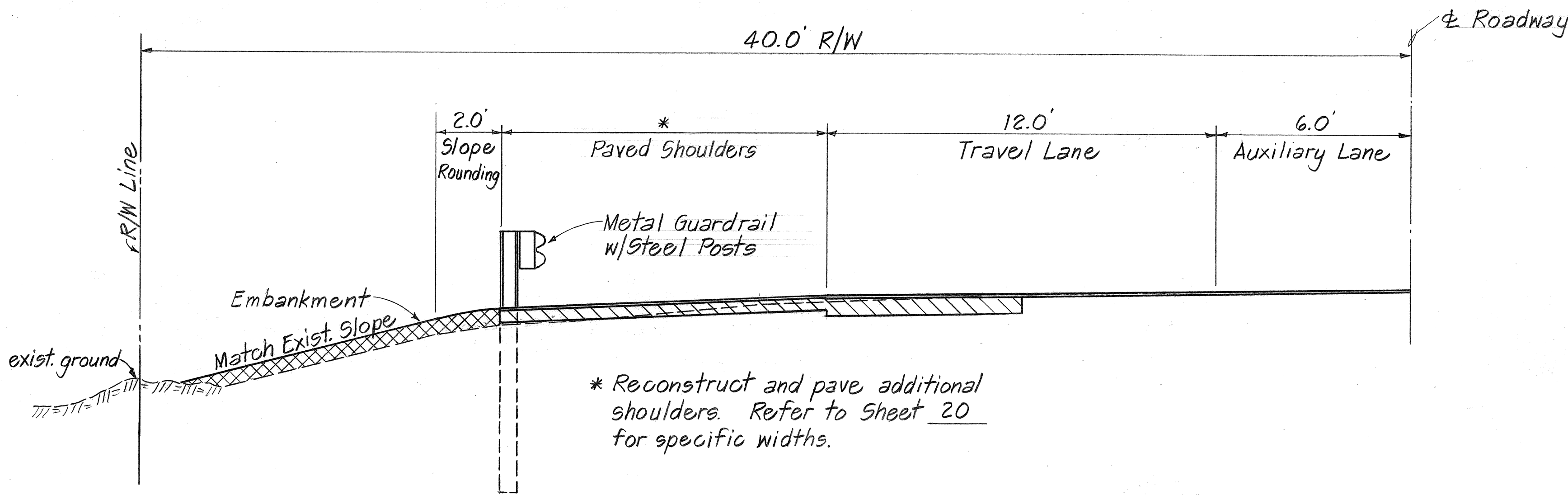
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(25)	1993	15	21



TYPICAL SECTION
Scale: 3/8" = 1'-0"

NOTES FOR CHANNELIZATION

1. Items shown on plans are estimated locations based on available "as-built" construction plans and field observations. Exact locations of work item shall be verified in the field by the contractor prior to start of construction.
2. Sideroads shall be reconstructed to match existing alignments.
3. Type G Bituminous Curbs shall be painted with white reflectorized paint. Painting shall be considered incidental to curb item and no separate payment shall be provided.
4. Mailboxes within the limits of channelization shall be relocated by the Contractor as needed. Relocation of mailboxes shall be considered incidental to contract items and no separate payment shall be provided.
5. Relocation of water meter boxes shall include relocating of all water service laterals and providing consumer pipeline connections with like material.
6. Placing of excavated materials for backfill and embankment shall be considered incidental to roadway excavation, per Section 203-Excavation and Embankment.



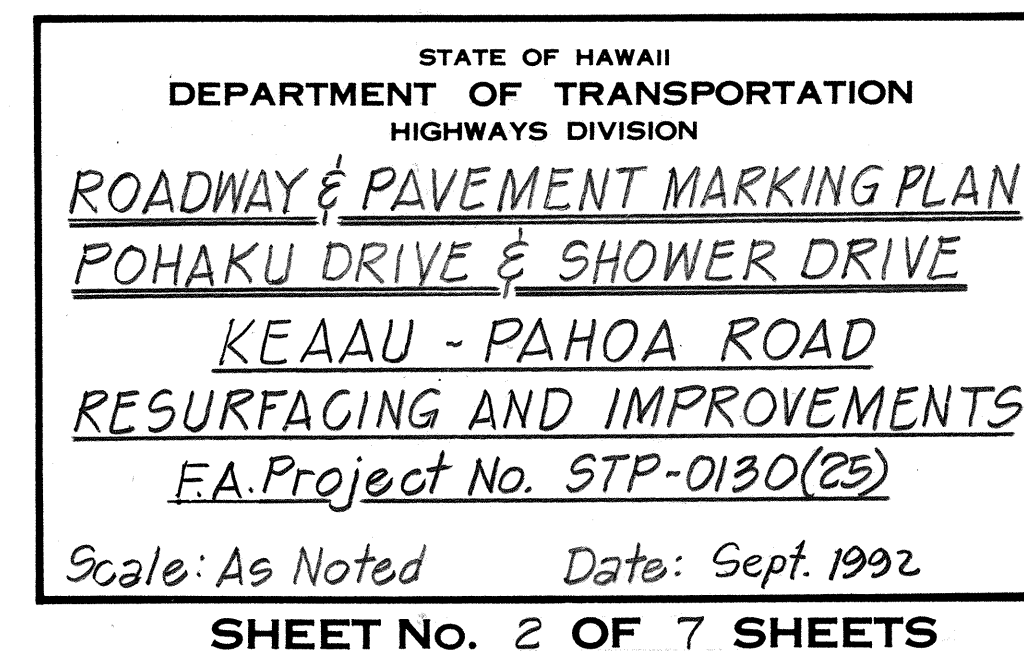
TYPICAL GUARDRAIL SECTION
Scale: 3/8" = 1'-0"

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL CHANNELIZATION &
GUARDRAIL SECTIONS
KEAAU-PAHOA ROAD
RESURFACING AND IMPROVEMENTS
F.A. Project No. STP-0130(25)
Scale: As Noted Date: Sept. 1992
SHEET NO. 1 OF 7 SHEETS

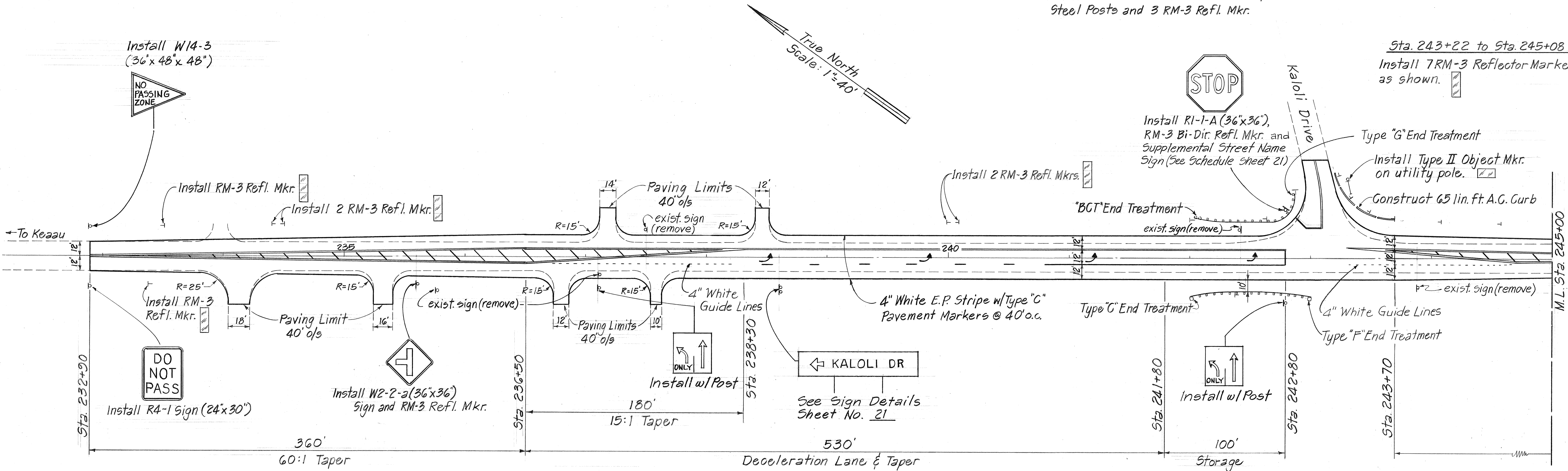
ORIGINAL PLAN	SURVEY PLOTTED BY _____ DATE _____
NOTE BOOK	DRAWN BY _____
	TRACED BY _____
	DESIGNED BY _____
	QUANTITIES BY _____
No. _____	CHECKED BY _____



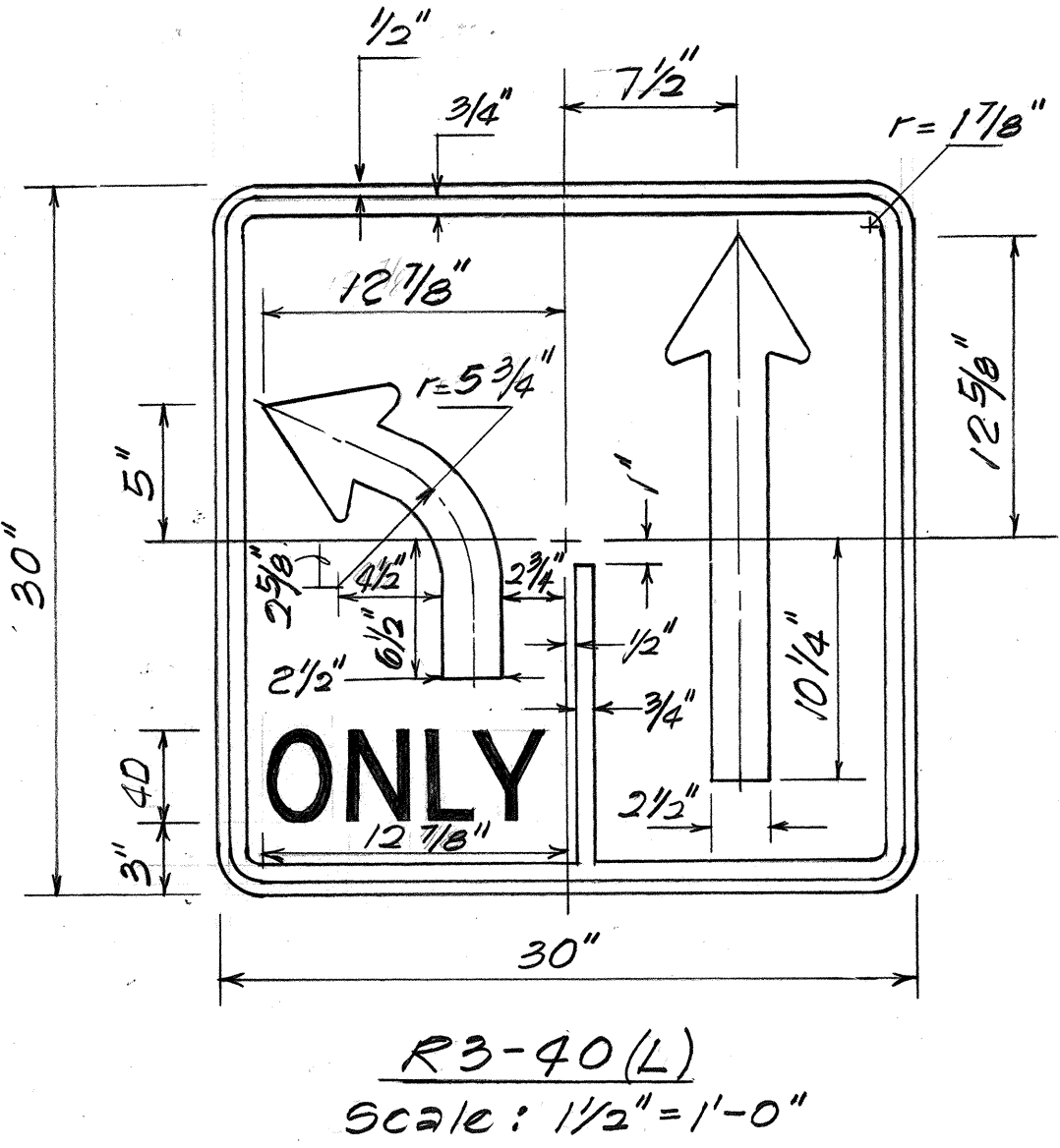
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(25)	1993	17	21

Sta. 242+02 to Sta. 242+86 Lt.
Install 75 lin. ft. Metal Guardrail w/
Steel Posts and 3 RM-3 Refl. Mkr.

Sta. 243+22 to Sta. 245+08 Lt.
Install 7 RM-3 Reflector Markers
as shown.



Sta. 242+00 to Sta. 243+00 Rt.
Install 100 lin. ft. Metal Guardrail with
Steel Posts and 1 RM-3 Refl. Mkr.



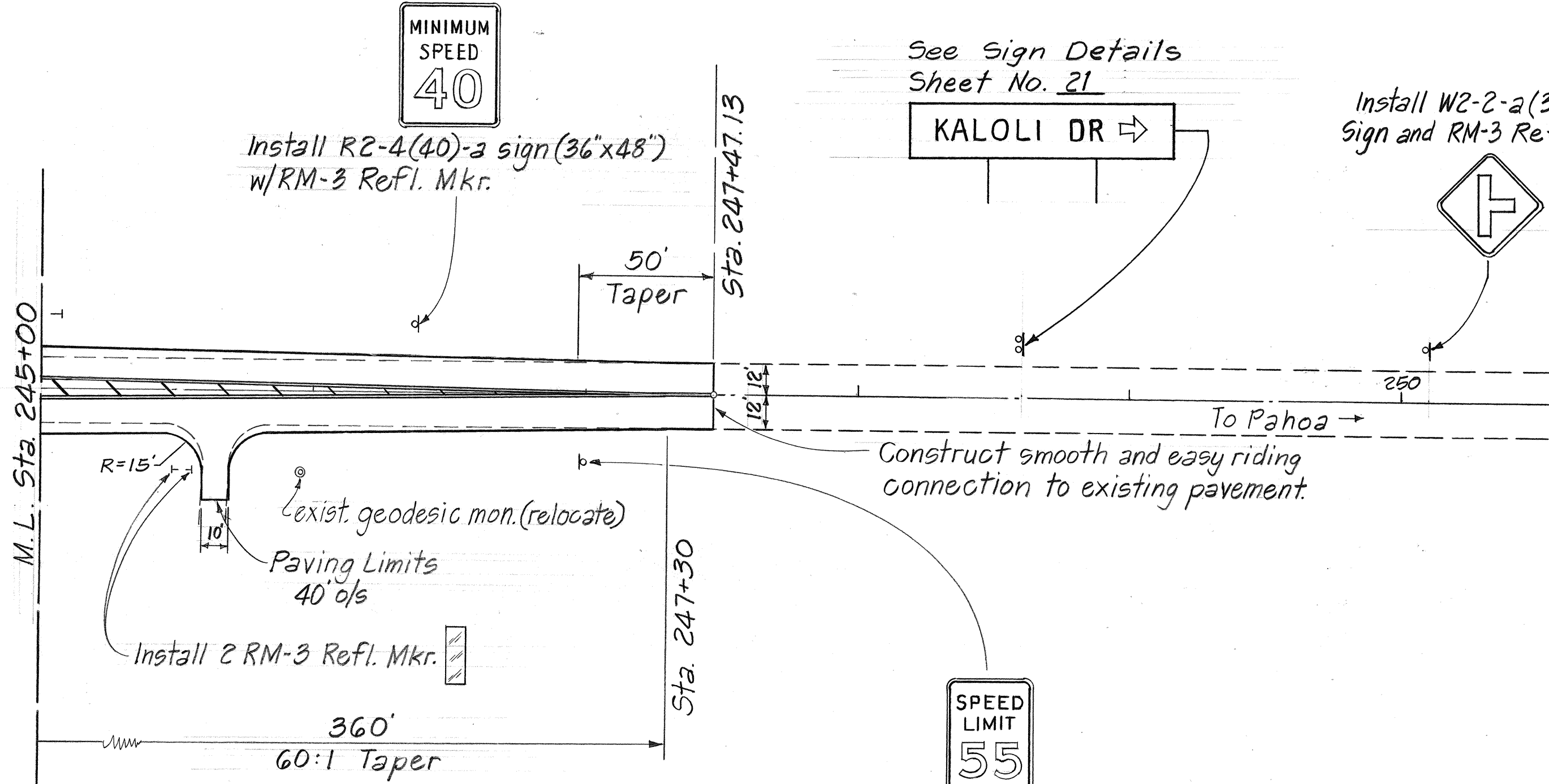
NOTE:
1. Sign R3-40(L) is a variation of sign
R3-8. Plate and arrow details
shall conform to sign R3-8.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY & PAVEMENT MARKING PLAN
KALOLI DRIVE
KEAAU-PAHOA ROAD
RESURFACING AND IMPROVEMENTS
EA Project No. STP-0130(25)
Scale: As Shown Date: Sept. 1992
SHEET NO. 3 OF 7 SHEETS

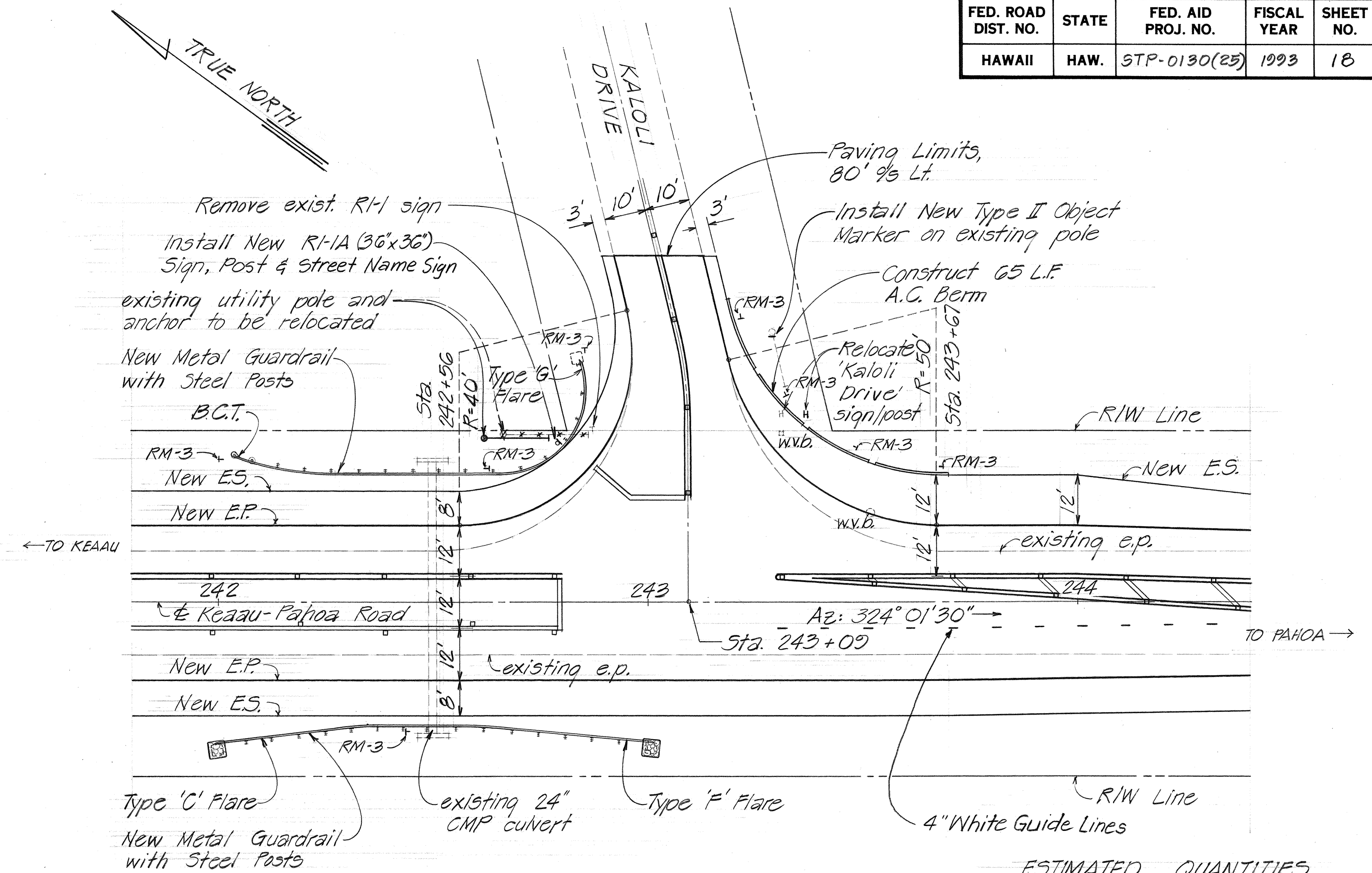
SURVEY PLOTTED BY	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NO.	

Sta. 245+95 o/s 30' Rt.
Contractor shall coordinate with U.S. Geological
Survey Office to relocate Geodesic Monument
"HVO 87-126".

Install R2-1(55)-a sign (36"x48")
w/RM-3 Refl. Mkr.

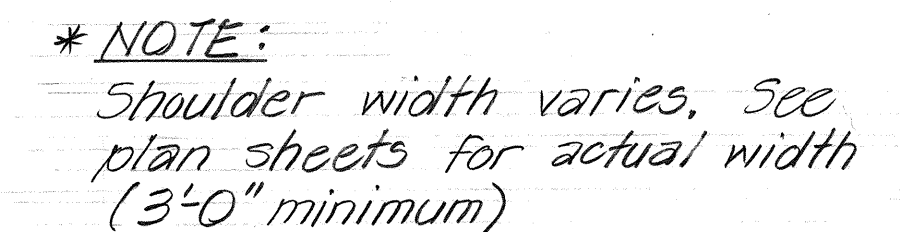


ORIGINAL PLAN	SURVEY PLOTTED BY _____	DATE _____
NOTE BOOK	DRAWN BY _____	_____
	TRACED BY _____	_____
	DESIGNED BY _____	_____
	QUANTITIES BY _____	_____
No. _____	CHECKED BY _____	_____



ESTIMATED QUANTITIES

<u>ITEM NO.</u>	<u>DESCRIPTION</u>	<u>QTY.</u>	<u>UNIT</u>
203.0100	- Roadway Excavation	670	C.Y.
203.0210	- Imported Borrow	0	C.Y.
301.0100	- Plant Mix A.C.B.	1,485	TONS
401.0400	- A.C. Mix No. IV	780	TONS
609.6000	- Bituminous Curb, Type G	65	L.F.



NOTE:
For Sign locations and information see Sheet 21.

18

SIGN SCHEDULE

STATION	LEFT	RIGHT	TYPE	REMOVE	INSTALL			
					1050 FT. or LESS		GREATER THAN 1050 FT.	
					w/POST	w/o POST	w/POST	w/o POST
176+10			R4-2 (24"x30")		1			
178+67			W2-1-a (36"x36")	1	1			
178+67			"POHAKU DR."	1		1		
185+86			R1-1-A (36"x36")	1	1			
186+62			R1-1-A (36"x36")	1	1			
192+65			W2-1-a (36"x36")	1	1			
192+65			"POHAKU DR."	1		1		
193+78			R1-1 (30"x30")	1	1			
232+90			R4-1 (24"x30")		1			
232+90			W14-3 (36"x48"x48")		1			
235+76			W2-2-a (36"x36")	1	1			
235+76			"KALOLI DR."	1		1		
237+10			R4-1 (24"x36")	1				
237+50			W14-3 (36"x48"x48")	1				
242+42			R4-2 (24"x30")	1				
242+80			R1-1-A (36"x36")	1	1			
243+88			R4-2 (24"x30")	1				
246+37			R2-4 (40)-a (36"x48")	1			1	
247+00			R2-1 (55)-a (36"x48")	1			1	
TOTALS				16	10	3	2	

PAVEMENT MARKER SCHEDULE

STATION	FROM	TO	DESCRIPTION	TYPE			
				A	C	D	H
176+00	181+40		No Passing - Both Sides		28	2	55
181+40	183+90		No Passing - Both Sides	24	19	13	
183+90	185+90		No Passing - Both Sides		20	10	
183+90	186+50		Open		12	8	
186+50	188+50		No Passing - Both Sides		20	10	
188+50	190+50		No Passing - Both Sides	16	15	10	
190+50	193+85		No Passing - Both Sides		18		34
193+85	194+35		Open		8	5	
194+35	195+90		No Passing - Both Sides		8	2	16
232+90	238+30		No Passing - Both Sides		28	2	55
238+30	240+80		No Passing - Both Sides	24	19	13	
240+80	242+80		No Passing - Both Sides		20	10	
242+80	243+30		Open		6	4	
243+30	247+30		No Passing - Both Sides		40	2	41
247+30	247+47		No Passing - Both Sides		2	1	
TOTALS				64	263	92	201

REFLECTOR AND OBJECT MARKER SCHEDULE

STATION	FROM	TO	LEFT	RIGHT	RM-2 w/POST		RM-3 w/POST		RM-3 (BI-DIRECTIONAL) w/o POST	OBJECT MARKER TYPE II w/o POST	REMARKS
					STEEL	FLEX	STEEL	FLEX			
176+00								1			Culvert
176+10								1			Culvert
177+33								1			Shoulder
178+67									1		W2-1-a
179+73	179+83							2			Fire Hydrant
185+37	185+47							2			Fire Hydrant
185+86									1		R1-1-A
185+86	185+90							3			A.C. Curb
186+30								1			End G.R. "G"
186+34	190+75				9						Behind G.R.
186+65									1		R1-1-A
187+00	189+50				4						Behind G.R.
189+95								1			End G.R. "BCT"
190+80								1			End G.R. "BCT"
191+43	191+53							2			Fire Hydrant
192+62									1		W2-1-a
193+78									1		R1-1
233+38								1			Culvert
233+51								1			Culvert
234+40	234+50							2			Fire Hydrant
235+76									1		W2-2-a
239+99	240+09							2			Fire Hydrant
242+00								1			End G.R. "BCT"
242+40								1			Behind G.R.
242+64								1			Behind G.R.
242+86								1			End G.R. "G"
242+80									1		R1-1-A
243+22	245+08							7			Shoulder
243+29										1	Utility Pole
245+48	245+58							2			Fire Hydrant
246+37									1		R2-4 (40)-a
247+00									1		R2-1 (55)-a
TOTALS					13		2	32	9	1	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(25)	1993	20	21

WATER NOTES:

1. All work shall conform to the Department of Water Supply's (DWS) "Water System Standards", Volume I and II, dated 1985, as amended.
2. All existing waterlines, waterline appurtenances, and other utilities shown on the plans reflect the most recent information made available to this department. The contractor shall be responsible for verification of all existing utilities in the field whether shown on the plans or not. The contractor shall bear all costs for damages done unto the affected utilities.
3. The contractor shall inform the DWS engineer 72 hours prior to beginning work on and testing of the service lateral.
4. All service laterals shall be of type "K" soft copper tubing with brass fittings.
5. All service laterals shall be done by a general contractor or plumber licensed to do so in the State of Hawaii.
6. All service laterals shall be flushed upon completions by the contractor under DWS supervision.
7. All solder and lead shall contain not more than 0.2 percent lead.
8. The pipe cushion material for copper pipes shall be no. 4 fine manufactured sand, as specified in "Water System Standards" Volume I, Part III, Section 2.2.2, Paragraph c2.
9. For valve box frame and cover details, see Hawaii County DWS Standard Details, sheet no.s 13 and 22.

MANHOLE, VALVE & METER BOX SCHEDULE									
	STATION	LEFT	RIGHT	± OFFSET	ADJUST			RELOCATED	
					MAN-HOLE	VALVE BOX	METER BOX	STATION	± OFFSET
POHAKU DR./SHOWER DR.	179+78	o		25.5'		1			
	180+60	o		27.0'			3		
	182+05	o		28.0'			4		
	185+42	o		33.5'		1			
	186+43	o		22.5'	1				
	186+45	o		23.7'		1			
	186+47	o		19.3'		1			
	186+51	o		23.7'		1			
	186+60	o		29.0'		1			
	186+38 - 186+47	o		36.0'				9	186+40 - 186+49
	186+50 - 186+62	o		28.0'				14	186+50 - 186+64
	189+13 - 186+20	o		24.5'			3		
	191+49	o		20.0'		1			
	194+99	o		22.0'	1				
KALOLI DR.	234+45	o		25.0'		1			
	235+00	o		23.0'	1				
	237+98	o		22.0'	1				
	240+04	o		25.0'		1			
	243+31	o		40.0'		1			
	243+48	o		22.0'	1				
TOTALS					5	10	10	23	

CENTERLINE & REFERENCE SURVEY MONUMENT SCHEDULE				
STATION	ADJUST EXISTING (Item No. 613.0300)	± OFFSET (Ft.)	EXIST. DEPTH (Ft.)	REMARKS
185+84.23	1	0.20 Lt.	0.10	P.T.
189+59.87	1	0.00	0.10	P.C.
247+47.13			0.00	Exist. to Remain
TOTALS	2 Each			

PAVEMENT MARKING SUMMARY	
DESCRIPTION	QUANTITY
TAPE - TYPE I OR THERMOPLASTIC EXTRUSION Double 4-Inch Pavement Stripe (Yellow) 8-Inch Pavement Stripe (White) Pavement Arrow	1,577 L.F. 600 L.F. 12 EA.
TAPE - TYPE II OR THERMOPLASTIC EXTRUSION 4-Inch Pavement Stripe (White) 12-Inch Pavement Stripe (Yellow) Double 4-Inch Pavement Stripe (Yellow)	7,154 L.F. 845 L.F. 3,985 L.F.
TAPE - TYPE III OR THERMOPLASTIC EXTRUSION 4-Inch Guide Lines (White) 12-Inch Pavement Stripe (White)	910 L.F. 155 L.F.

GUARDRAIL SCHEDULE									
KALOLI DR. POHAKU DR./SHOWER DR.	STATION		LEFT	RIGHT	GUARDRAIL, TYPE 3 SINGLE w/POST	SHOULDER WIDTH(FT.)	END TREATMENT		Remarks
	FROM	TO					LEAD	TRAIL	
	186+30	190+75	o		437.50' *	9.0'	BCT	G (41'r)	Sta. 187+75 to Sta. 190+50 Install 8-Foot Posts.
	187+00	189+87.5		o	262.50' *	12.0'	C	BCT	
	242+00	243+00		o	100.00'	10.0'	C	F	
	242+02	242+86		o	75.00'	12.0'	G (20'r)	BCT	
TOTALS					875.00'	3 Each BCT's			

Note: * Length does not include 25 Lin. Ft. for BCT pay limit.

5/7/93 Pavement Marking Material Revised

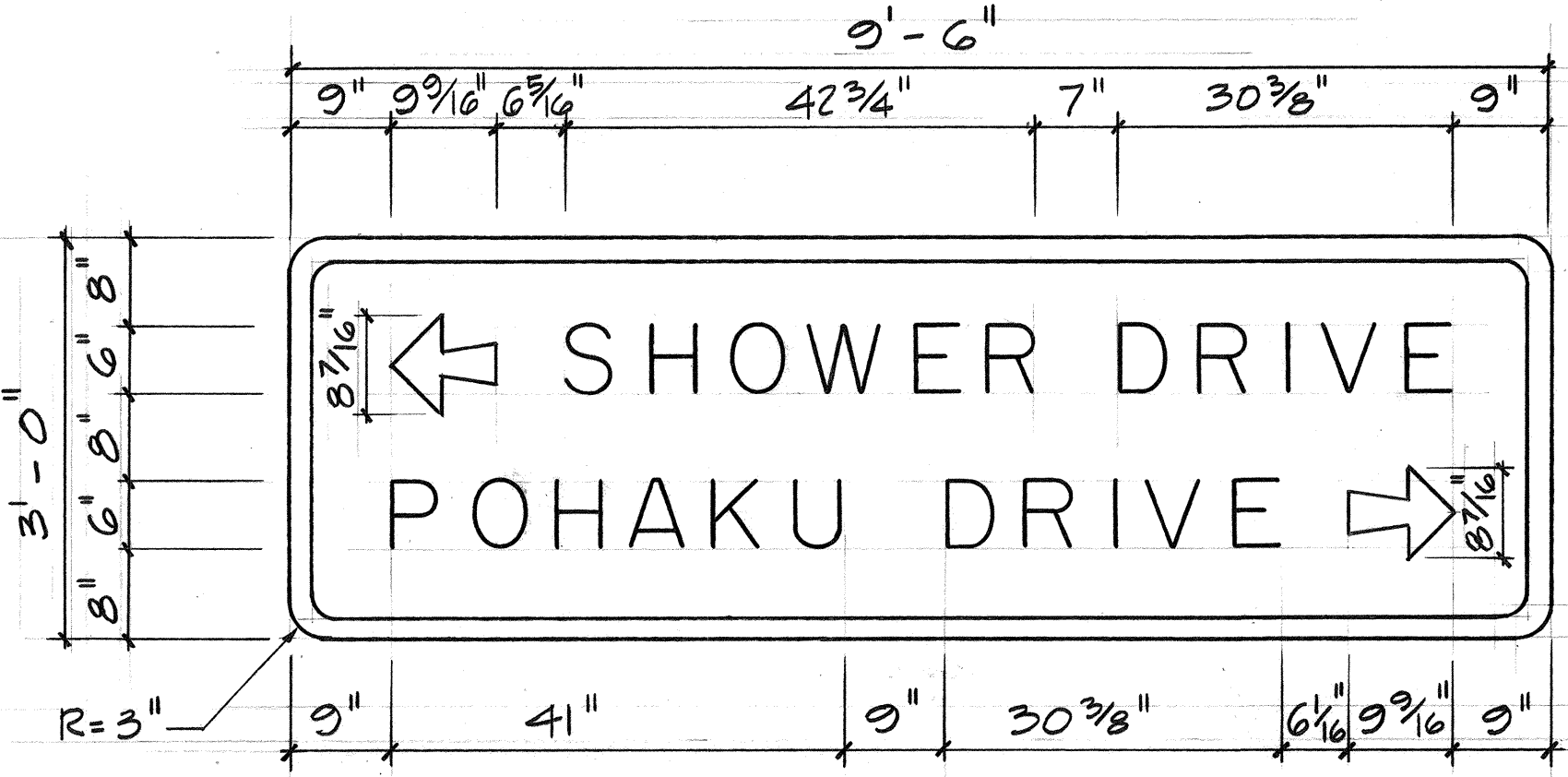
DATE REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
MANHOLE, VALVE, METER BOX; GUARDRAIL;
& REFERENCE SURVEY MON. SCHEDULES;
PAVEMENT MARKING SUMMARY
KEAAU - PAHOA ROAD
RESURFACING AND IMPROVEMENTS
F.A. Project No. STP-0130(25)
Scale: As Noted Date: Sept. 1992
SHEET NO. 6 OF 7 SHEETS

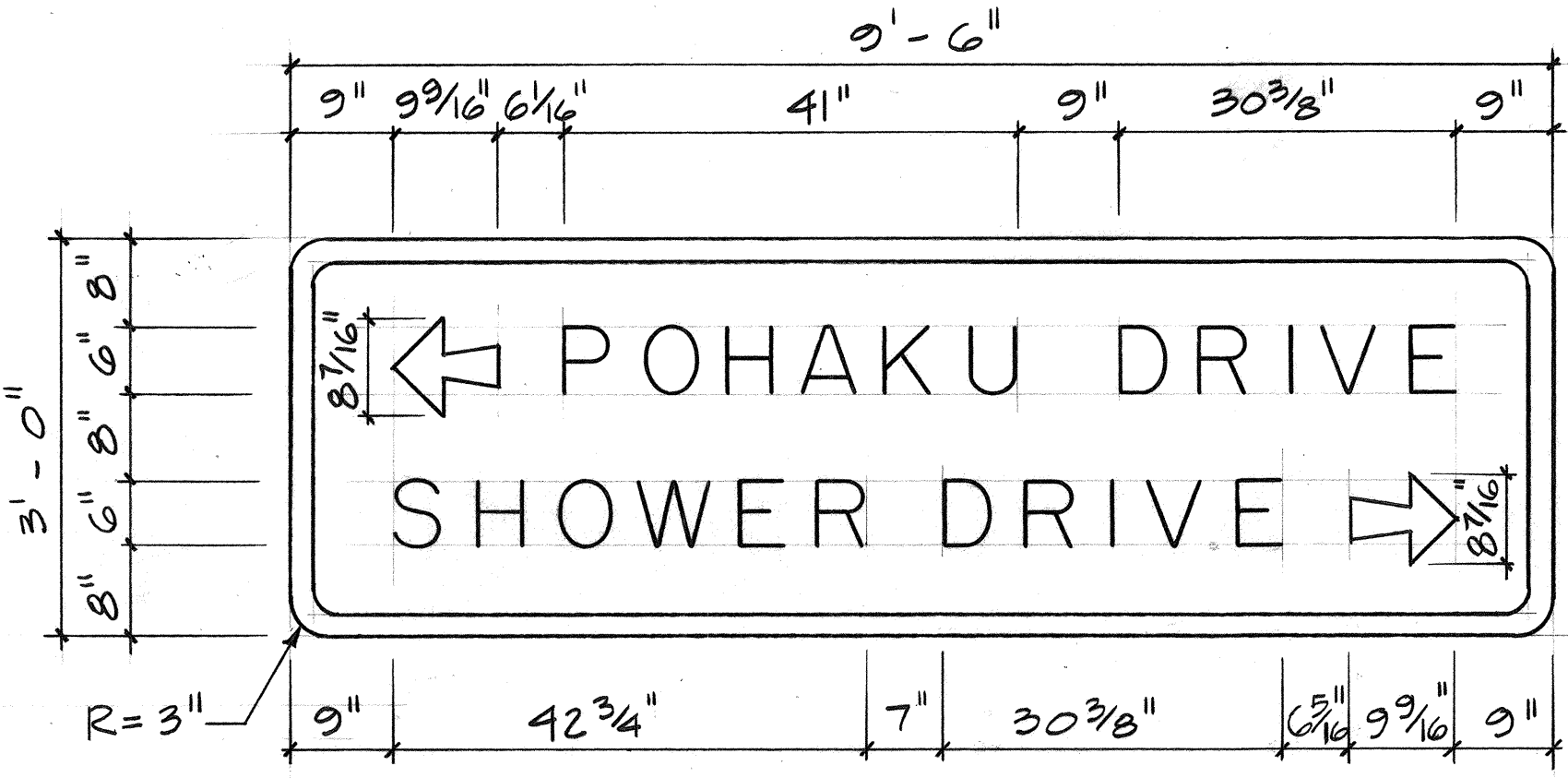
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(25)	1993	21	21

DESTINATION (D) SIGN NOTES

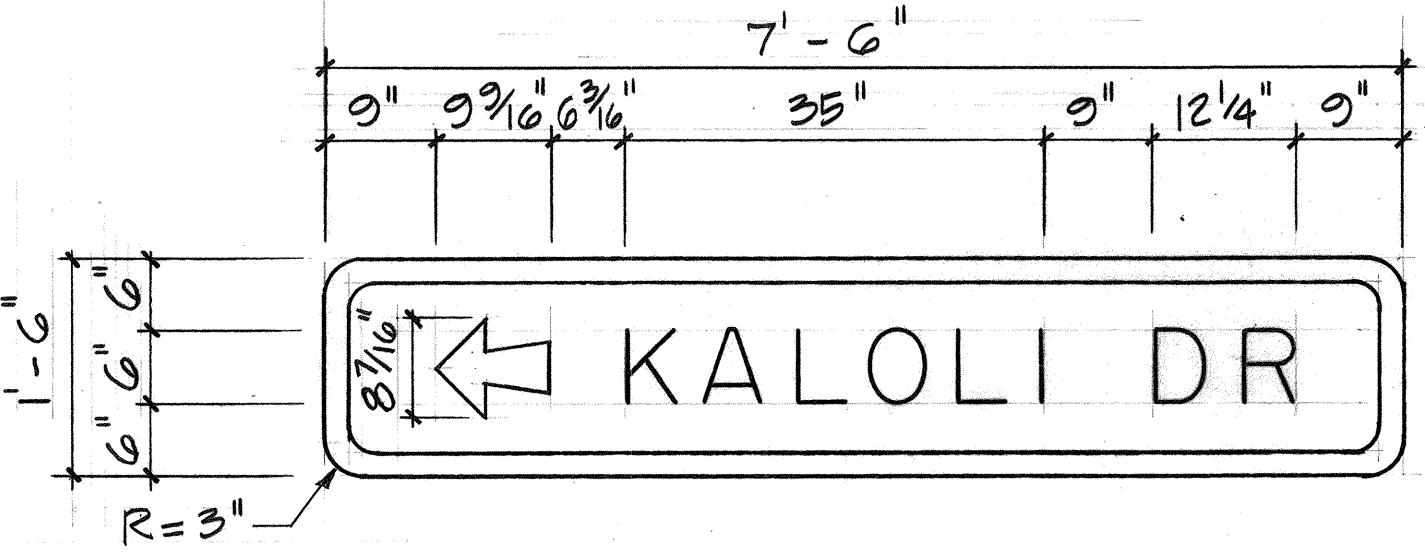
- Background for destination (D) sign panels shall be reflectorized with Type III or II retroreflective sheeting (High Intensity or High Performance Grade).
- The message, arrows and borders of destination (D) sign panels shall be reflectorized with porcelain enameled aluminum cut-outs with acrylic plastic reflex reflectors or Type III or II retroreflective sheeting (High Intensity or High Performance Grade).
- All sign panels shall conform to Section 621 of the Special Provisions and the latest editions and amendments of the following FHWA publications:
 - "Manual on Uniform Traffic Control Devices for Streets and Highways" (MUTCD)
 - "Standard Highway Signs"
 - "Standard Alphabets for Highway Signs"
- New sign panels shall be laminated aluminum or extruded aluminum.
- Letter Size:
 - When letters are all uppercase, use series "E"
 - When initial uppercase letter is used in conjunction with lowercase letters, use series "E"(M) for uppercase
- The Contractor shall submit all sign splicing details to the Engineer for approval. All backing for signs 4 feet by 6 feet or less shall be of one sheet.
- Incidental parts and services not shown on the plans or specified but deemed necessary for the sign installation shall be furnished and installed by the Contractor as part of the work contracted.
- Removal and disposal of existing sign panels, post with foundation will not be paid for separately, but shall be considered incidental to the various signing items.



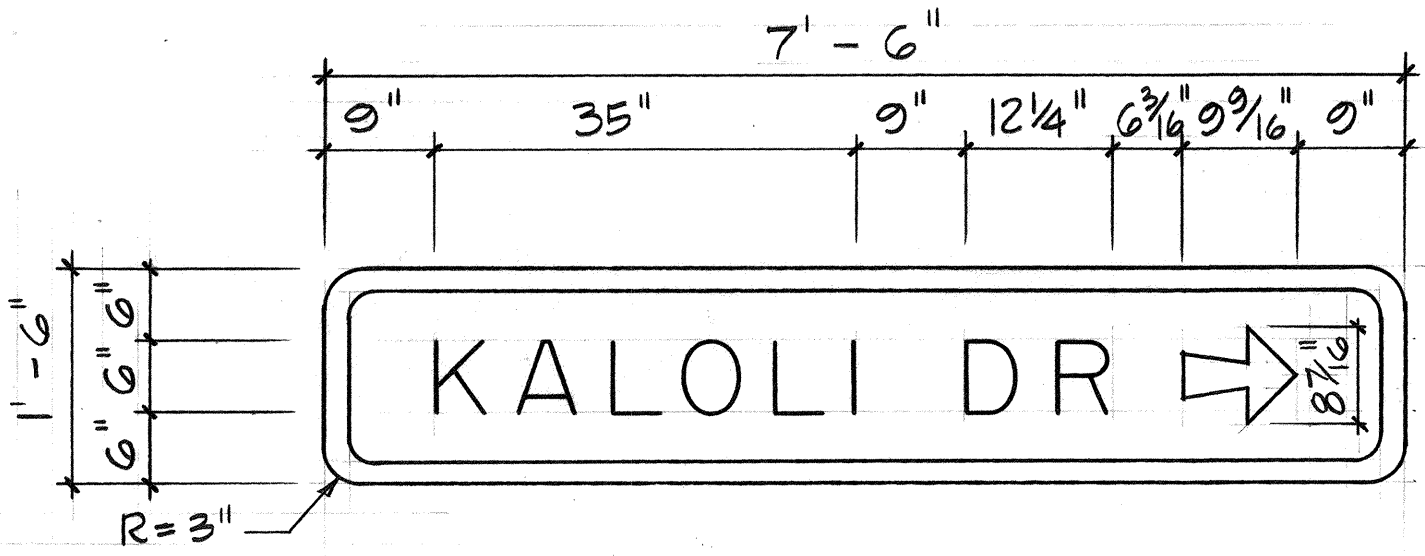
SIGN D-1 (R)



SIGN D-1 (L)



SIGN D-2 (R)



SIGN D-2 (L)

SIGN SCHEDULE								
STATION	LEFT	RIGHT	TYPE	REMOVE	INSTALL			
					10 SQ. FT. w/ POST	or LESS w/o POST	GREATER THAN 10 SQ. FT. w/ POSTS	GREATER THAN 10 SQ. FT. w/o POSTS
POHAKU DR./ SHOWER DR.								
176 + 10	○		R4-2 (24" x 30")		1			
178 + 67	○		W2-1-a (36"x36") & S (POHAKU DRIVE)	2	1			
180 + 20	○		R (36"x36")		1			
181 + 70	○		D-1(R) (POHAKU DRIVE & SHOWER DRIVE)				1	
185 + 80	○		R (36"x36")		1			
185 + 86	○		R1-1-A (36"x36") + D-3 (SHOWER DRIVE)	1	1	1		
186 + 60	○		R (36"x36")		1			
186 + 62	○		R1-1-A (36"x36") + D-3 (POHAKU DRIVE)	1	1	1		
189 + 70	○		D-1(L) (SHOWER DRIVE & POHAKU DRIVE)				1	
191 + 20	○		R (36"x36")		1			
192 + 65	○		W2-1-a (36"x36") + S (POHAKU DRIVE)	2				
193 + 78	○		R1-1 (30"x30")	1	1			
195 + 50	○		R4-2	1				
KALOLI DR.								
232 + 90	○		R4-1 (24" x 30")		1			
232 + 90	○		W14-3 (36" x 48" x 48")		1			
235 + 60	○		W2-2-a (36" x 36")		1			
235 + 76	○		W2-2-a (36"x36") + S (KALOLI DRIVE)	2	1			
237 + 10	○		R (36"x36")		1			
237 + 10	○		R4-1 (24" x 36")	1				
237 + 50	○		W14-3 (36" x 48" x 48")	1				
238 + 60	○		D-2(R) (KALOLI DRIVE)				1	
242 + 42	○		R4-2 (24" x 30")	1				
242 + 80	○		R (36"x36")		1			
242 + 80	○		R1-1-A (36"x36") + D-3 (KALOLI DRIVE)	1	1	1		
243 + 88	○		R4-2 (24" x 30")	1				
246 + 37	○		R2-4(40)-a (36" x 48")	1			1	
247 + 00	○		R2-1(55)-a (36" x 48")	1			1	
248 + 60	○		D-2(L) (KALOLI DRIVE)				1	
250 + 10	○		W2-2a (36"x36")		1			
TOTALS				17	17	3	6	

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN SCHEDULE AND
DESTINATION SIGN DETAILS

KEAAU - PAHOA ROAD
RESURFACING AND IMPROVEMENTS
F.A. Project No. STP-0130(25)

Scale: As Noted Date: Sept. 1992

SHEET No. 7 OF 7 SHEETS