FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(189)	1986	78	99

CURVE DATA				
	B1	B1-A	SPIRAL	
Δ	31° 40' 30"	62° 23' 00"	D	2° 50'
Δ/2	15° 50' 15"	31° 11' 30"	θs	4° 15'
R	1,809.34'	2,022.20'	Ls	300.00'
T	514.27'	1,224.29'	LT	200.00'
C	987.57'	2,094.61'	ST	100.00'
L	1,000.26'	2,201.76'	Es	343.89'
SE		0.078 ft./ft.		

P.C. @ Sta 204+01.66

RAMP C

200

B1

@ Sta 206+01.54 Back
@ Sta 4+00 Ahead

RAMP B

205

7/8" ϕ Bolt Hole, 2 each Drilled

10"
1½" 3½" 3½" 1½"
2½" 5" 2½"
¼ Fillet Weld (Cont.)

4" O.D. Galv. Pipe Post welded to Base Plate before installation

BASE PLATE DETAIL
N.T.S.

Post Cap
Back Brace (3 each required) For Detail See Standard Plan TE-01
Sign
12'-0" x 4" O.D. Galv. Pipe
½" Thick Base Plate See Detail
Top of Barrier
¾" ϕ x 10" Long
N.I.C.

ELEVATION

SIGN MOUNTED ON CONCRETE BARRIER
(OUTBOUND SIGNS)
N.T.S.

INSTALL
END CONSTRUCTION
CG20-2

EXISTING
EXIT 1

INSTALL
LANE ENDS MERGE LEFT
W9-2(L)-A

EXISTING
EXIT 25 M.P.H.
RM-2

EXISTING ON BARRIER
W1-2(R)-A

N.I.C.
~~Install~~
EXPRESS LANE
~~R3-108~~
ENDS
~~On Barrier~~

EXISTING
EXIT 25 M.P.H.

TRUE NORTH
Scale: 1"=100'

N.I.C.
~~Install~~
EXPRESS LANE
1500 FT
~~R3-108~~
~~R3-30~~
~~w/Post~~

INSTALL
THRU TRAFFIC MERGE LEFT
W9-3(L)

Sign D-1 Location (See Sht. C.O. 79)

S.T. @ Sta 64+01.88

M.L.

FARRINGTON HWY.

C.S. @ Sta 61+01.88

STA 65+00

RAMP F

12" White Diagonal Lines (See Detail for Channelizing Island

8" White Stripes w/Type C Pavement Markers @ 20' O.C.

4" White Guide Line

R/W & Control of Access Line

40'

45

50

55

60

OUTBOUND LANES

INBOUND LANES

B1-A

Type A & C Pav't. Markers

4" Yellow Stripe w/ Type H Pavement Markers @ 40' O.C.

8" White Stripe w/Type C Pavement Markers @ 20' O.C.

Tie into existing striping

4" White Edge Stripe

Type A & C Pavement Markers

4" Yellow Stripe w/Type H Pavement Markers @ 40' O.C.

RAMP C1

INSTALL
ON COLUMN
W4-2(R)-A
~~R11-2~~

INSTALL
ROAD CONSTRUCTION AHEAD
CW20-1d

EXISTING
EXIT 1B

EXISTING ON LIGHT POLE
SLOWER TRAFFIC KEEP RIGHT

EXISTING ON LIGHT POLE
MERGE

~~Install~~
EXPRESS LANE
~~R3-108~~
AHEAD
~~w/Post~~
N.I.C.

INSTALL
ROAD CONSTRUCTION AHEAD
CW20-1d

Edge of Pavement
20'-0"±
N.I.C.

TYPICAL LATERAL LOCATION OF INBOUND SIGN INSTALLATION
N.T.S.

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

DD-C-3-4

DATE	REVISION
3/3/88	Added Express Lane Signs & Details

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING, PAVEMENT MARKING PLAN

INTERSTATE ROUTE H-1
Palailai Interchange to Kunia Interchange
Construction of Additional Lanes
F.A.I. PROJ. No. IR-HI-1(189)

Scale: 1"=100' Date: July, 1985

SHEET No. 1 OF 6 SHEETS

C.O. 78

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(189)	1986	79	99

CURVE DATA B2	
Δ	6° 50' 00"
Δ/2	3° 25' 00"
R	10,000.00'
T	597.03'
L	1,192.64'
C	1,191.93'
SE	0.015 ft/ft

(C.C.O. No. 18) Installed

W11-2(R)-A

Type A & C Raised Pav't. Marker

4" Yellow Stripe w/Type H Pavement Markers @ 40' O.C.

Sign D-1 is located at Sta. 61+20±, LT. (See Sht. C.O. 78

EXIT 1
Campbell Industrial Park
SIGN D-1

EXIT ↗ ONLY
Install Overlay Panel See Detail Sht. 84

R/W & Control of Access Line

STA. 65+00

4" White Edge Stripe

M. L.

SLOWER TRAFFIC KEEP RIGHT (C.C.O. No. 18) Installed RA-3-A

N.I.C. ~~Install~~ EXPRESS LANE R3-10e 500 FT R3-20 ~~w/Post~~

N.I.C. ~~Install~~ EXPRESS LANE R3-10e BEGIN ~~w/Post~~

N.I.C. ~~Install~~ EXPRESS LANE R3-10b 1000 FT R3-20 ~~w/Post~~

N.I.C. ~~Install~~ CAR POOLS 3 OR MORE MOTORCYCLES OK R3-18 ~~on Barrier~~

N.I.C. ~~Install~~ LEFT LANE BUSES AND CAR POOLS ONLY 6-8 AM 3:30-5:30 PM EXC SAT SUN HOL R3-11a ~~on Column~~

INSTALL END CONSTRUCTION CG20-2

(C.C.O. No. 18) Installed SPEED LIMIT 55 R2-1(55)-A

N.I.C. ~~Install~~ ~~R3-11a~~ ~~on Barrier~~

~~RELOCATE~~ (C.C.O. No. 18) New R2-4a(55/45) A Installed SPEED LIMIT 55 MINIMUM 45

P.C. @ Sta. 84+93.36

Existing EXIT 25 M.P.H.

Existing EXIT 2 Barbers Pt. NAS Makakilo

Existing EXIT 2

4" Yellow Stripe w/Type H Pavement Markers @ 40' O.C.

8" White Stripe w/Type C Pavement Markers @ 20' O.C.

12" White Diagonal Lines (See Detail for Channelizing Island)

4" White Edge Stripe

4" White Guide Line

N.I.C. ~~Install~~ ~~R3-18~~ ~~w/Post~~

4" Yellow Stripe w/Type H Pav't. Markers @ 40' O.C.

Type A & C Raised Pavement Markers

4" White Edge Stripe

STA. 96+00

EXIT 1
Campbell Industrial Park
RIGHT LANE EXIT ONLY
Install SIGN D-2 See Detail Sht. 84

Existing 4" White Edge Stripe

MERGE

N.I.C. ~~Install~~ EXPRESS LANE R3-19 6-8 AM 3:30-5:30 PM EXC SAT SUN & HOL ~~w/Post~~

TRUE NORTH Scale: 1" = 100'

4" White Edge Stripe

Type A & C Raised Pavement Markers

STA. 126+00

M. L.

Continuous →

← Continuous

4" Yellow Stripe w/Type H Markers @ 40' O.C.

Type A & C Raised Pavement Markers

8" White Stripe w/Type C Pavement Markers @ 20' O.C.

Lane Width

N.I.C. ~~Install~~ ~~R3-18~~ ~~w/Post~~

4" Yellow Stripe w/Type H Pav't. Markers @ 40' O.C.

INSTALL ROAD CONSTRUCTION AHEAD CW20-1d

P.T. @ Sta. 96+89.00

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING, PAVEMENT MARKING PLAN

INTERSTATE ROUTE H-1
Palailai Interchange to Kunia Interchange
Construction of Additional Lanes
F.A.I. PROJ. No. IR-HI-1(189)

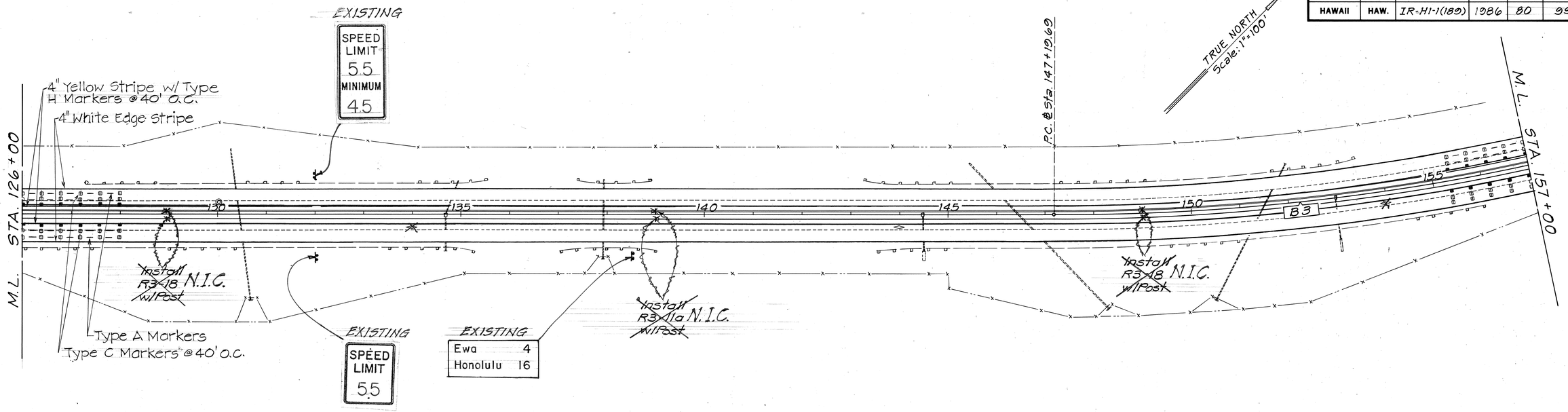
Scale: 1" = 100' Date: July, 1985

SHEET No. 2 OF 6 SHEETS

DATE	REVISION
3/3/88	Added Express Lane Signs

C.O. 79

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(189)	1986	80	99



CURVE DATA B3	
Δ	34° 44' 30"
Δ/2	17° 22' 15"
R	4,583.66'
T	1,433.87'
L	2,779.33'
C	2,736.95'
SE	0.035 ft./ft.

ORIGINAL PLANS	NOTE BOOK	No.

SURVEY PLOTTED BY ____ DATE ____
DRAWN BY .....
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY

DATE	REVISION
3/3/88	Added Express Lane Signs

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING, PAVEMENT MARKING PLAN

INTERSTATE ROUTE H-1
Palailai Interchange to Kunia Interchange
Construction of Additional Lanes
F.A.I. PROJ. No. IR-HI-1(189)

Scale: 1"=100' Date: July, 1985

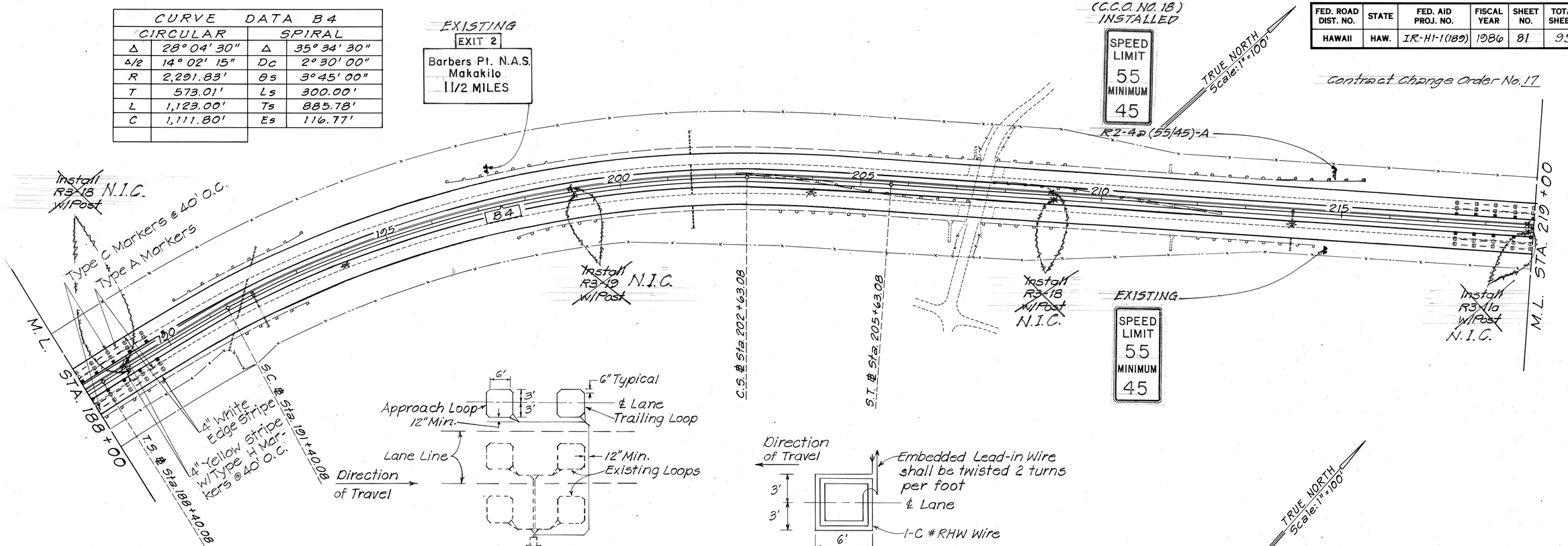
SHEET No. 3 OF 6 SHEETS

C.O. 80

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(189)	1986	81	99

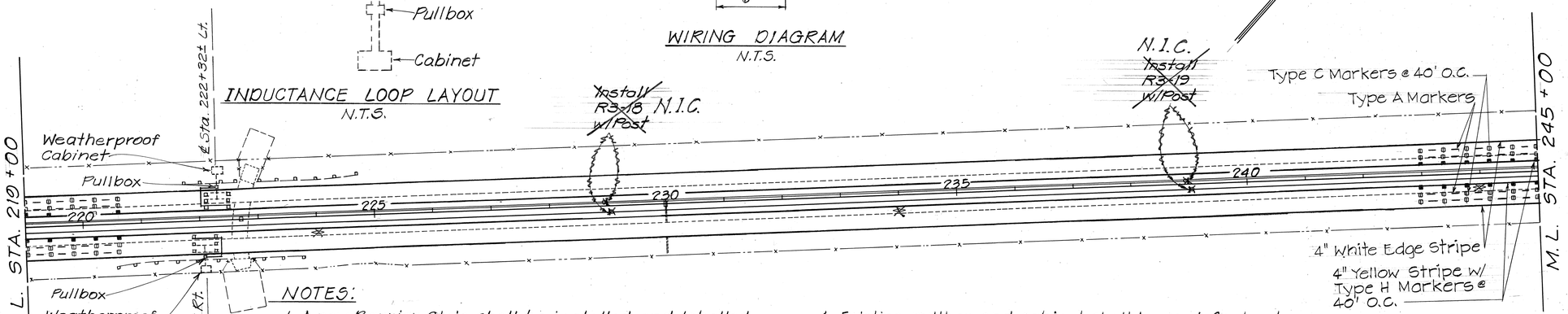
CURVE DATA B4			
CIRCULAR		SPIRAL	
Δ	28° 04' 30"	Δ	35° 34' 30"
Δ/2	14° 02' 15"	Dc	2° 30' 00"
R	2,291.83'	θs	3° 45' 00"
T	573.01'	Ls	300.00'
L	1,123.00'	Ts	885.78'
C	1,111.80'	Es	116.77'

Contract Change Order No. 17



INDUCTANCE LOOP LAYOUT
N.T.S.

WIRING DIAGRAM
N.T.S.



NOTES:

1. A new Barrier Strip shall be installed and labelled in each cabinet for the new inductance loop.
2. In each cabinet, the Contractor shall label the new inductance loop cable to differentiate what lane it is from and whether it is an approach or trailing cable. The approach cable is the first cable encountered in the direction of travel. The new lane, which is farthest from the cabinet, shall be labelled #1 and each lane approaching the cabinet shall be re-numbered in successive numerical order, one number per lane, i.e. #1 approach and #1 trailing.
3. New and existing loops shall not be spliced together.
4. Existing pullbox and cabinet shall be used. Contractor shall be responsible for any damage to existing cables and connections.
5. New conduits, if necessary, shall be steel or PVC Schedule 80.
6. Engineer will conduct test of all existing loops, inbound and outbound lanes prior to any work being performed. Upon completion of work, the Engineer will conduct tests to insure that the inductance loops have not been disturbed. Testing will be conducted by HWY-T. Contractor to notify HWY-T at 548-7467 at least 48 hrs. prior to work or after completion to allow for testing.

DATE	REVISION
6/13/86	Added Loop detector notes, details, and DT405 — C.C.O. NO. 17
3/3/88	Added Express Lane Signs

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

SIGNING, PAVEMENT MARKING PLAN

INTERSTATE ROUTE H-1

Palailai Interchange to Kunia Interchange

Construction of Additional Lanes

F.A.I. PROJ. No. IR-HI-1(189)

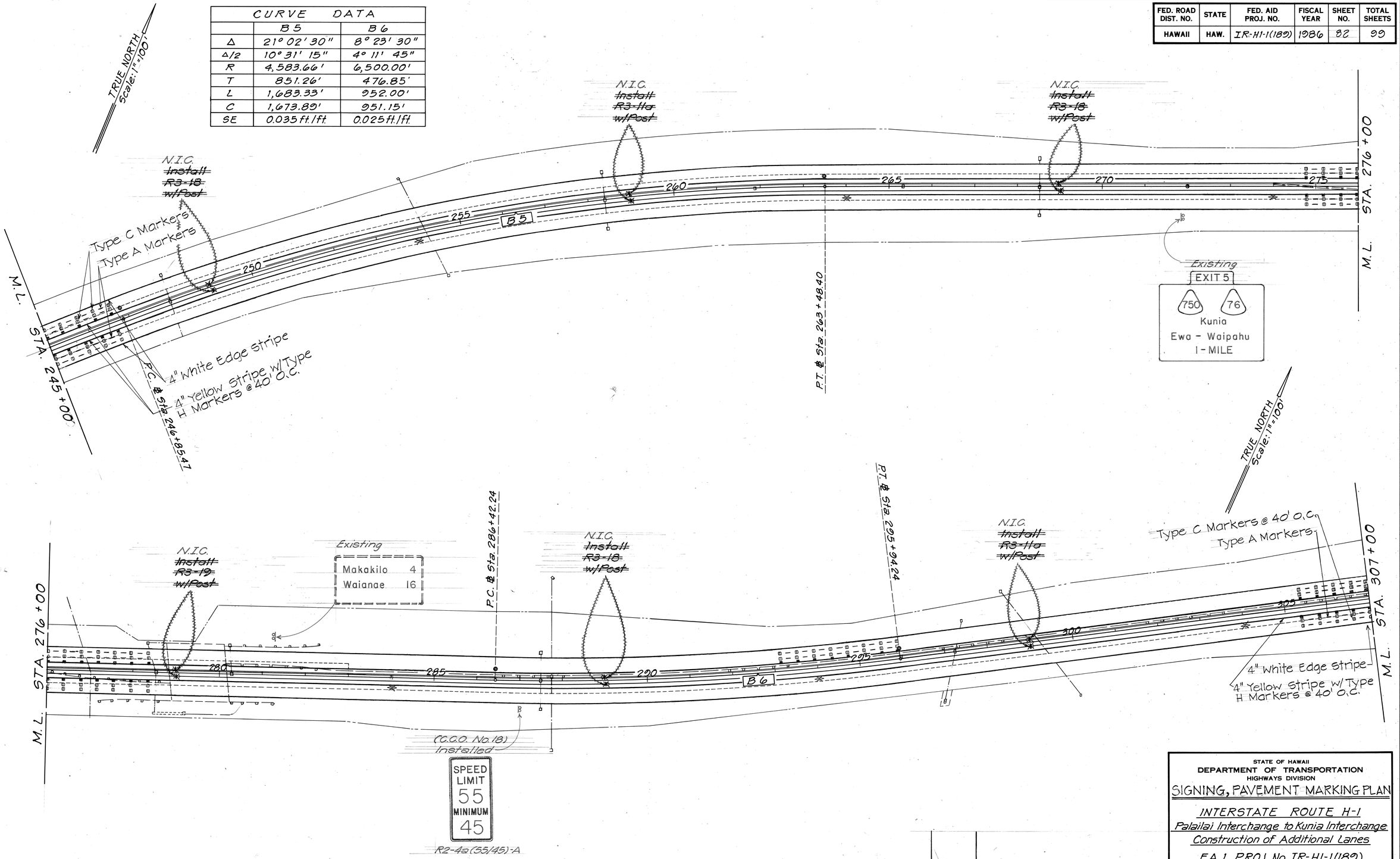
Scale: 1"=100' Date: July, 1985

SHEET No. 4 OF 6 SHEETS

C.O. 81

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(189)	1986	82	99

CURVE DATA		
	B 5	B 6
Δ	21° 02' 30"	8° 23' 30"
Δ/2	10° 31' 15"	4° 11' 45"
R	4,583.66'	6,500.00'
T	851.26'	476.85'
L	1,683.33'	952.00'
C	1,673.89'	951.15'
SE	0.035 ft./ft.	0.025 ft./ft.



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

DATE	REVISION
3/3/88	Added Express Lane Signs

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING, PAVEMENT MARKING PLAN

INTERSTATE ROUTE H-1
Palailai Interchange to Kunia Interchange
Construction of Additional Lanes
F.A.I. PROJ. No. IR-HI-1(189)

Scale: 1"=100' Date: July, 1985

SHEET No. 5 OF 6 SHEETS

C.O. 82

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(183)	1986	83	99

~~ADDITIONAL SIGNS FOR OUTBOUND LANES~~

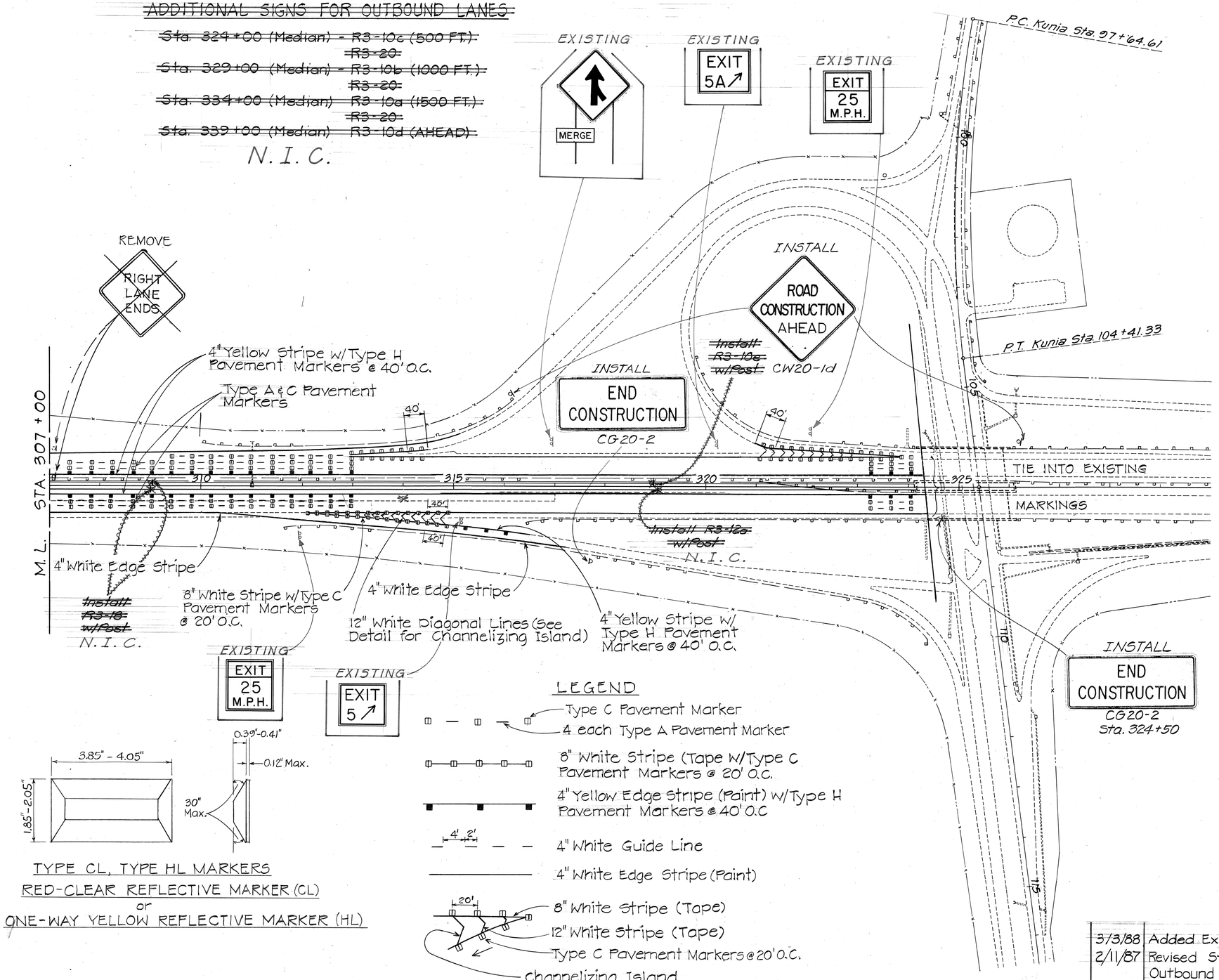
~~Sta. 324+00 (Median) - R3-10c (500 FT.) R3-20~~

~~Sta. 329+00 (Median) - R3-10b (1000 FT.) R3-20~~

~~Sta. 334+00 (Median) R3-10a (1500 FT.) R3-20~~

~~Sta. 339+00 (Median) R3-10d (AHEAD)~~

N.I.C.



TYPE CL, TYPE HL MARKERS

RED-CLEAR REFLECTIVE MARKER (CL)

or

ONE-WAY YELLOW REFLECTIVE MARKER (HL)

LEGEND

- Type C Pavement Marker
- 4 each Type A Pavement Marker
- 8" White Stripe (Tape W/Type C Pavement Markers @ 20' O.C.
- 4" Yellow Edge Stripe (Paint) W/Type H Pavement Markers @ 40' O.C
- 4' 2' 4" White Guide Line
- 4" White Edge Stripe (Paint)
- 20' 8" White Stripe (Tape)
- 12" White Stripe (Tape)
- Type C Pavement Markers @ 20' O.C.
- Channelizing Island

GENERAL NOTES

1. Remove and replace all existing regulatory and warning signs at location shown on plans or as directed by the Engineer.
2. Existing pavement markers, striping and markings not incorporated into the final traffic pattern shall be removed as directed by the Engineer.
3. For additional Pavement Marking details, see Standard Detail Sheets DT 300, DT 302, and DT 304.
4. All striping will be either tape or thermoplastic extrusion except for 4" edge stripe.
5. Channelizing Island detail as shown on legend supercedes detail shown on Standard Detail DT 300 and DT 302.
6. All overlay panels shall conform to Section 621 of the Special Provisions and the latest editions and amendments of the following FHWA Publications:
   a. "Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD)
   b. "Standard Highway Signs."
   c. "Standard Alphabets for Highway Signs."
7. Overlay panels shall be installed on the existing sign panels with 1/8" blind rivets with a maximum spacing of 1'-0" O.C.
8. Details of Type C and Type H Markers on Plan Sht. shall be deleted and replaced with details of Type CL and Type HL Markers as shown on this sheet. All references to Type C and Type H Markers in the plans shall mean Type CL and Type HL Markers.

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

DATE	REVISION
3/3/88	Added Express Lane Signs
2/11/87	Revised Striping of Outbound Lanes between H-1 Off Ramp to Kunia Rd. and On Ramp from Kunia Rd.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING, PAVEMENT MARKING PLAN

INTERSTATE ROUTE H-1

Palailai Interchange to Kunia Interchange

Construction of Additional Lanes

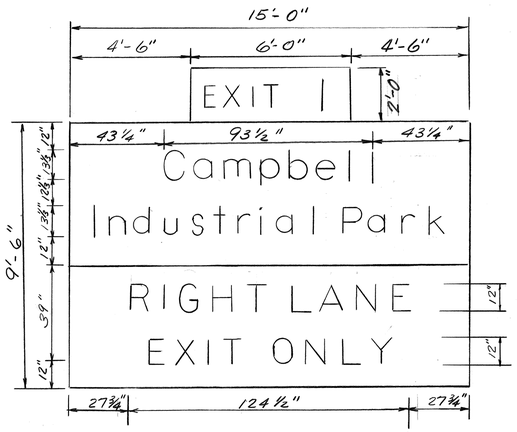
F.A.I. PROJ. No. IR-HI-1(189)

Scale: 1"=100' Date: July, 1985

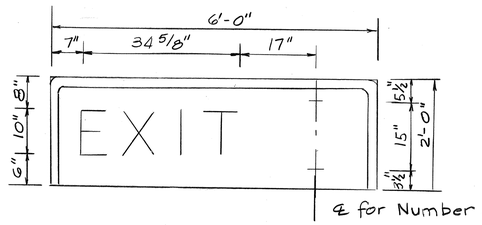
SHEET No. 6 OF 6 SHEETS

C.O. 83

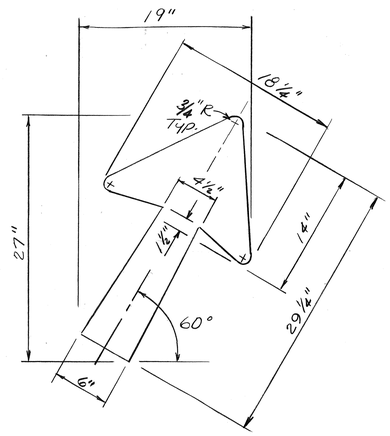
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(189)	1986	84	99



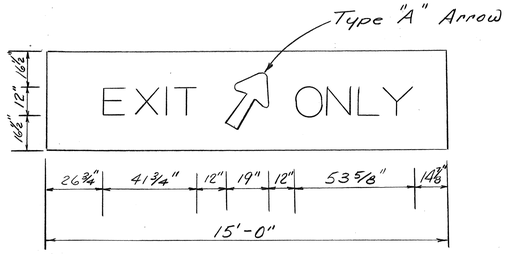
DESTINATION SIGN D-2
3/8" = 1'-0"



EXIT NUMBER PANEL
SINGLE NUMBER



TYPE "A" DIAGONAL
ARROW DETAIL
n.t.s.



OVERLAY
SIGN D-1
3/8" = 1'-0"

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

GENERAL NOTES

1. Sign messages shall be lettered according to "Standard Alphabets for Highway Signs", Bureau of Public Roads, 1966. Use Modified Series "E" capital letters and numerals unless otherwise specified.
2. All Guide Signs shall have borders.
3. Arrows, borders and route markers shall conform with details as shown on plans.
4. The special panel reading "EXIT ONLY" or "RIGHT LANE EXIT ONLY" shall have black legends on a yellow high intensity reflective sheeting background mounted on a flat aluminum cut-out.
5. Design of Exit Number Panels shall conform to all plans and specifications for either Destination or Expressway sign to which the Exit Number Panel will be attached.

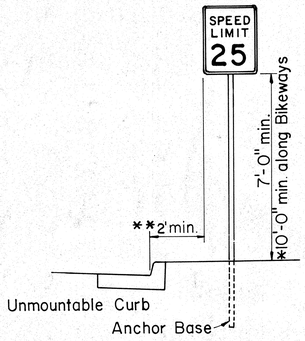
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

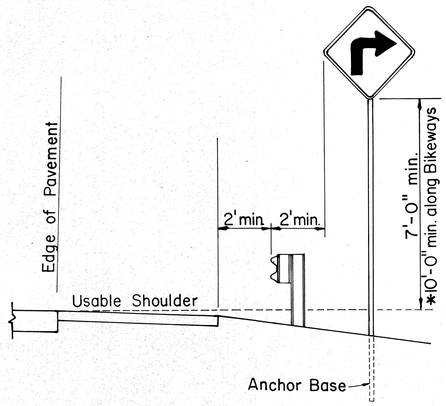
SIGN PANEL LAYOUT

INTERSTATE ROUTE H-1
Palailai Interchange to Kunia Interchange
Construction of Additional Lanes
F.A.I. Proj. No. IR-HI-1(189)
Scale: As Noted Date: Aug. 1985

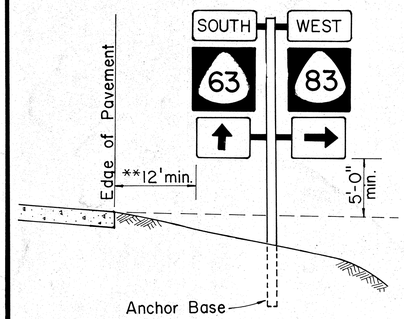
SHEET No. OF SHEETS

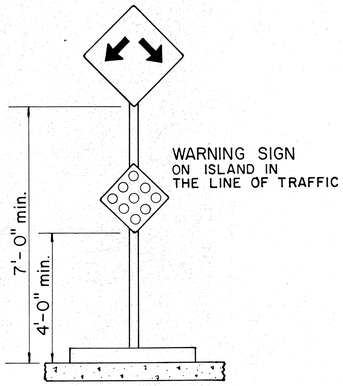
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(189)	1986	85	99

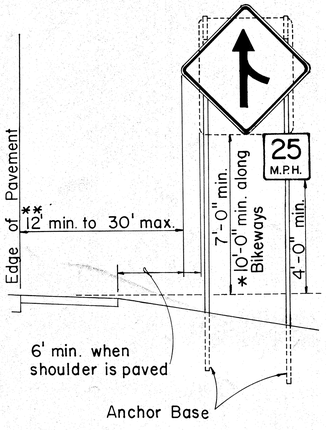


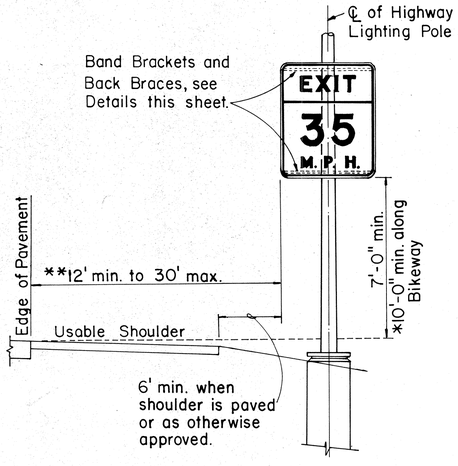


ROADSIDE ASSEMBLY
RURAL DISTRICT

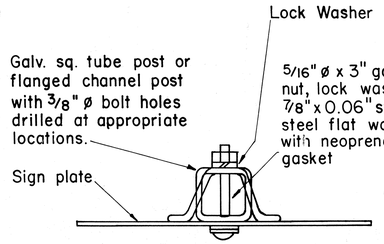








HEIGHT AND LATERAL LOCATION OF SIGNS
TYPICAL INSTALLATION



GALVANIZED SQUARE TUBE
OR FLANGED CHANNEL POST

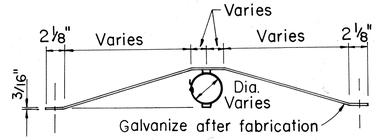
GENERAL NOTES

1. Signs shall be placed in conformance with positions shown and described in the "Manual on Uniform Traffic Control Devices for Streets and Highways", 1978, Part II, Section 2A-21, as amended, and as supplemented herein.
2. Sign 48" and wider or larger than 10 sq. ft. in area shall be mounted on two or more sign posts except as noted below.
3. Signs 48" and wider or larger than 10 sq. ft. in area may be mounted on objects other than sign posts (i.e. on highway lighting poles) as follows:
   a. Signs 48" and wider but less than 10 sq. ft. in area shall be mounted with a minimum of two sets of band bracket and back braces.
   b. Signs larger than 10 sq. ft. and less than 28 sq. ft. in area shall be mounted with a minimum of two sets of band brackets and back braces.
   c. Signs larger than 28 sq. ft. in area shall be mounted with a minimum of three sets of band bracket and back braces.
4. All parking restriction signs with arrows shall be mounted 45° to the line of traffic flow.
5. Sign posts shall extend 3 1/2" above each sign, where required, for attachment of City and County street name signs.
6. (R) or (L) indicates right or left and shown on the plans.

* 7. See plans for special details of signs along bikeways.

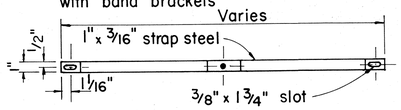
** 8. The minimum lateral distances shown are guidelines and shall be exceeded whenever possible. The Contractor shall place signs at the maximum practical lateral distance from the edge of the traveled way up to 30 feet and shall utilize protected locations whenever possible. Final locations of all signs shall be approved by the Engineer.

9. Signs in medians shall be placed at midpoint of median up to a maximum distance of 30 feet from the edge of traveled way. When appropriate, signs for opposing directions shall be placed back to back.
10. Anchor bases shall be installed for all signpost installations, unless otherwise shown or directed. See sheets DT 100A and DT 100B.



PLAN

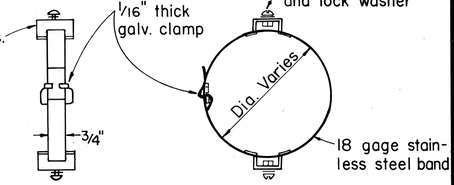
Back braces shall be used in conjunction with band brackets



ELEVATION

BACK BRACE

Additional. Required for bidirectional mounting or when used in conjunction with band brackets.



LEFT SIDE VIEW PLAN

BAND BRACKET

TYPICAL MOUNTING DETAILS

NO.	REVISION	APPROVED BY	DATE
1	Supercedes Sht. DT 100 approved 11/15/77		10-18-83

APPROVAL RECOMMENDED:
Eiichi Tanaka — TRAFFIC ENGINEER — 10/14/83 DATE

APPROVED:
[signature] — ASSISTANT CHIEF, ENGINEERING — 10-18-83 DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

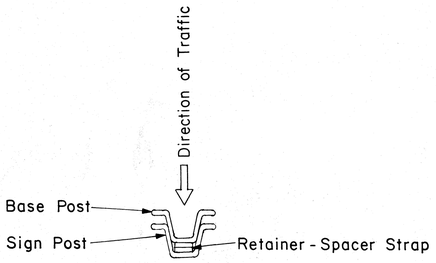
MISCELLANEOUS SIGN DETAILS

Not to Scale: Oct. 1983

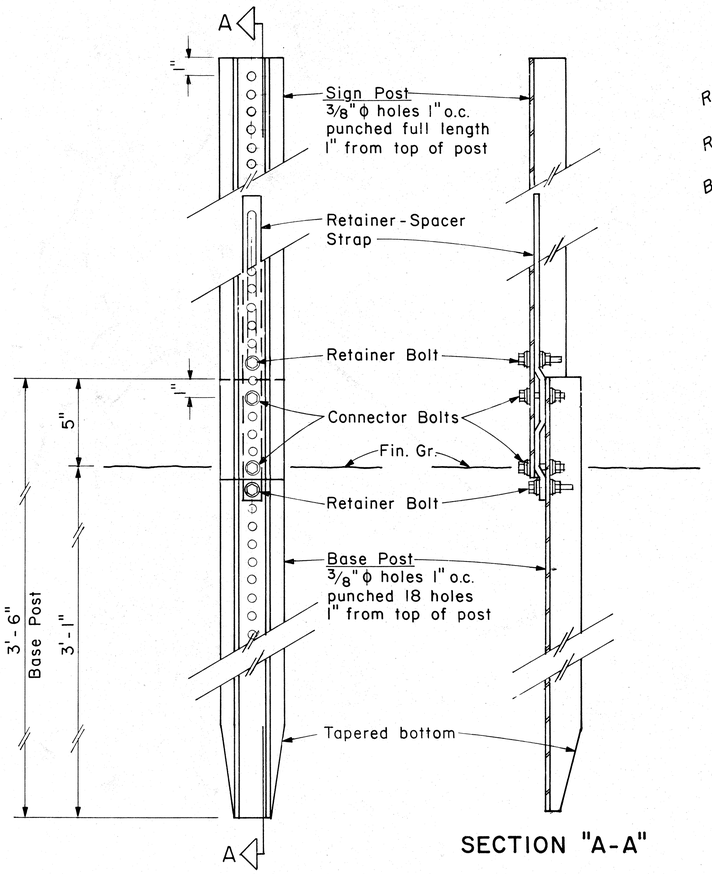
SHEET No. OF SHEETS DT 100

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(189)	1986	86	99



TOP VIEW

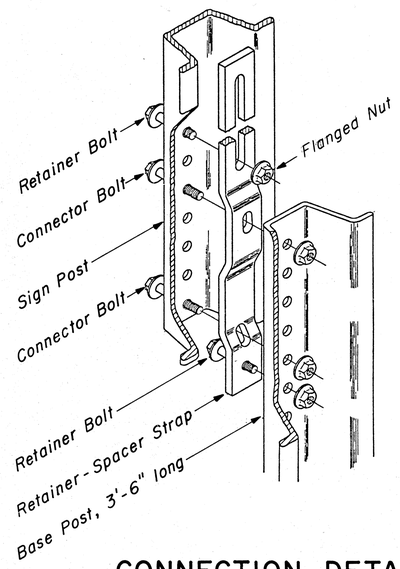


BACK VIEW

SECTION "A-A"

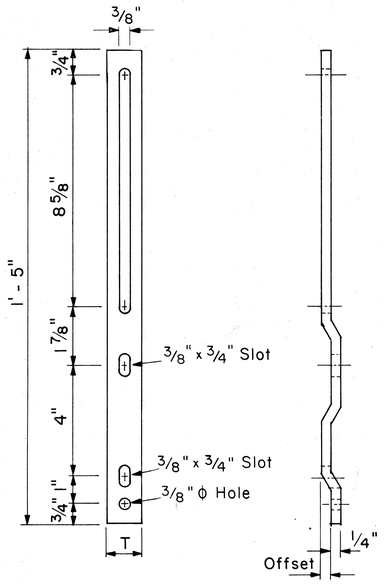
ANCHOR BASE DETAIL

Scale: 3" = 1'-0"



CONNECTION DETAIL

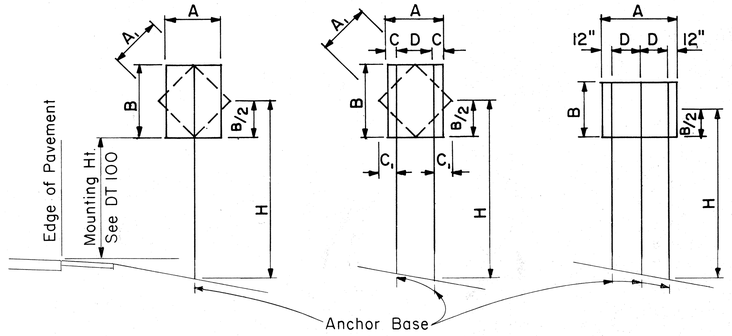
Not to Scale



RETAINER-SPACER STRAP

Not to Scale

RETAINER-SPACER STRAP		
Post Size	T	Offset
2.50 lbs./ft.	1.00"	0.145"
4.00 lbs./ft.	1.12"	0.280"



1-POST
Sign area 10 sq. ft. and less

2-POST
Sign area greater than 10 sq. ft. or A = 48" - 60"

3-POST
A = greater than 60"

TYPICAL INSTALLATION

Not to Scale

FLANGED CHANNEL: 1-POST INSTALLATION								
Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (ft.)						A x B (Area, sq. ft.)
		7	8	9	10	11	12	
2.50 lbs./ft.	57	8.14	7.13	6.33	5.70	5.18	4.75	
4.00 lbs./ft.	112	–	–	–	–	–	9.33	

FLANGED CHANNEL: 2-POST INSTALLATION								
Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (ft.)						A x B (Area, sq. ft.)
		7	8	9	10	11	12	
2.50 lbs./ft.	124	17.71	15.50	13.77	12.40	11.27	10.33	
4.00 lbs./ft.	241	34.43	30.13	26.78	24.10	21.91	20.08	

FLANGED CHANNEL: 3-POST INSTALLATION								
Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (ft.)						A x B (Area, sq. ft.)
		7	8	9	10	11	12	
2.50 lbs./ft.	187	26.71	23.38	20.78	18.70	17.00	15.58	
4.00 lbs./ft.	362	51.71	45.25	40.22	36.20	32.91	30.17	

WINDLOAD CHARTS

A or A_1	C	C_1
36"	6"	–
48"	9"	19"
60"	12"	24"

NOTE: Frame stiffeners are required when D is greater than 24". See Gen. Note 4.

GENERAL NOTES

1. Sign posts and base posts shall be flanged channel type structural steel conforming to ASTM A 499 and galvanized in accordance with ASTM A 123.
   NOMINAL DIMENSIONS:
   2.50 lbs./ft. - 3.125" x 1.562"
   4.00 lbs./ft. - 3.500" x 1.750"
2. Retainer - Spacer Strap shall be AISI 1020 steel and galvanized in accordance with ASTM A 123.
3. Retainer and Connector Bolts shall be 5/16 - 18 UNC x 1.75" long hex. head, integral flange conforming to ASTM A 354 Grade BC. Nuts shall be 5/16 - 18 UNC hex. head, integral flange conforming to ASTM A 563 Grade D. All bolts and nuts shall be cadmium plated per Federal spec. QQP 416 B, Class 2, Type 2.
4. All accessories, fittings and stiffener details (as required) shall be submitted to Engineer for approval 20 days prior to installation.
5. For additional details see sht. DT 100.
6. Basic formulas for use with the windload charts:
   Factor = A x B x H
   Therefore, if sign area (A x B) is known,
   Maximum H = Factor / sign area (A x B)
   and if H is known,
   Maximum sign area (A x B) = Factor / H

APPROVAL RECOMMENDED:

Eiichi Tanaka — 9/21/82
TRAFFIC ENGINEER — DATE

APPROVED:

ASSISTANT CHIEF, ENGINEERING — DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

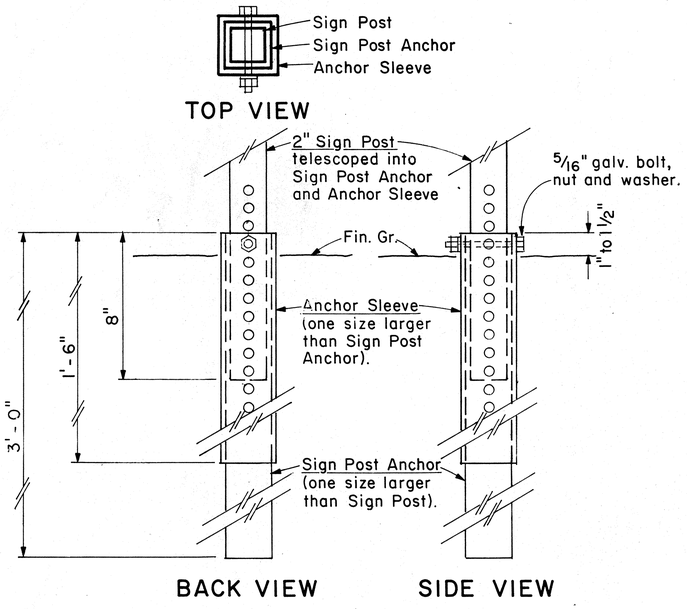
GALVANIZED FLANGED CHANNEL SIGN POST MOUNTING

Scale: As Shown — Date: Sept. 1982

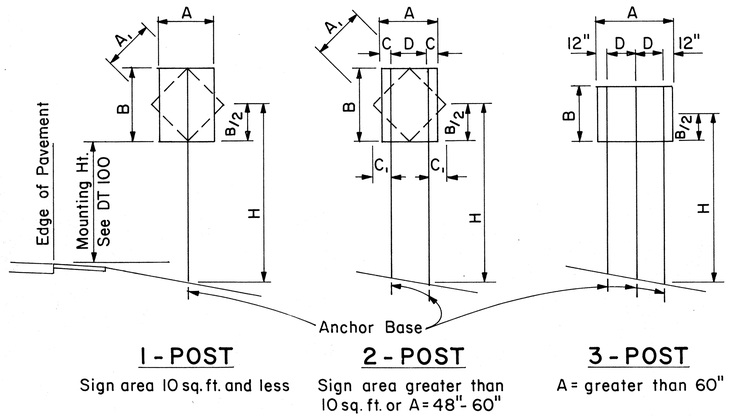
SHEET No. OF SHEETS DT 100A

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(189)	1986	87	99



2" SIGN POST INSTALLATION



1 - POST
Sign area 10 sq. ft. and less

2 - POST
Sign area greater than 10 sq. ft. or A = 48" - 60"

3 - POST
A = greater than 60"

TYPICAL INSTALLATION

Not to Scale

A or A1	C	C1
36"	6"	-
48"	9"	19"
60"	12"	24"

NOTE: Frame stiffeners are required when D is greater than 24". See Gen. Note 2.

SQUARE TUBE: 1 - POST INSTALLATION								
Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (ft.)						A x B (Area, sq. ft.)
		7	8	9	10	11	12	
2"	62	8.8	7.7	6.8	6.1	5.6	4.8	
2 1/2"	107	-	-	-	-	9.6	8.8	

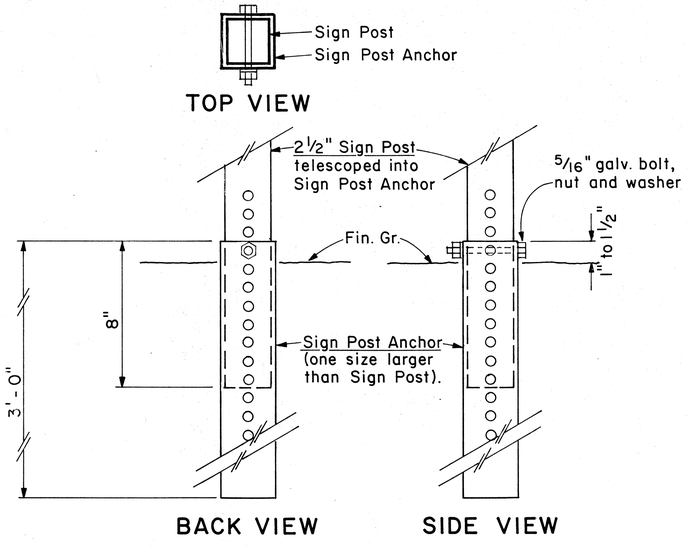
SQUARE TUBE: 2 - POST INSTALLATION								
Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (ft.)						A x B (Area, sq. ft.)
		7	8	9	10	11	12	
2"	122	17.4	15.2	13.5	12.2	11.0	10.1	
2 1/2"	212	30.2	26.5	23.5	21.1	19.2	17.6	
2 1/2", 10 ga.	260	37.0	32.0	28.6	26.0	23.5	21.5	

SQUARE TUBE: 3 - POST INSTALLATION								
Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (ft.)						A x B (Area, sq. ft.)
		7	8	9	10	11	12	
2"	183	26.0	22.8	20.3	18.2	16.6	15.2	
2 1/2"	318	45.4	39.5	35.2	31.5	28.8	26.5	
2 1/2", 10 ga.	388	55.0	48.5	43.0	38.5	35.0	32.0	

WINDLOAD CHARTS

GENERAL NOTES

1. Square tube sign posts shall conform to Subsection 713.11(C) Square Tube Posts of the Specifications.
2. All accessories, fittings and stiffener details (as required) shall be submitted to Engineer for approval 20 days prior to installation.
3. Square tube posts shall be perforated with 7/16" ϕ holes, 1" o.c., 4 sides, along entire length of post.
4. All posts shall be 12 gage unless otherwise specified or shown on the plans.
5. For additional details see sht. DT 100.
6. Basic formulas for use with the windload charts:
   Factor = A x B x H
   Therefore, if sign area (A x B) is known,
   Maximum $H = \frac{\text{Factor}}{\text{sign area (A x B)}}$
   and if H is known,
   Maximum sign area $(A \times B) = \frac{\text{Factor}}{H}$



2 1/2" SIGN POST INSTALLATION

ANCHOR BASE DETAIL

Scale: 3" = 1'-0"

APPROVAL RECOMMENDED:

Eiichi Tanaka — 9/21/82
TRAFFIC ENGINEER — DATE

APPROVED:

Herbert R. Takeishi — 9/22/82
ASSISTANT CHIEF, ENGINEERING — DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

GALVANIZED SQUARE TUBE SIGN POST MOUNTING

Scale: As Shown — Date: Sept 1982

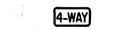
SHEET No. OF SHEETS DT100B

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1 (189)	1986	88	99

R1-1 30"x30"
R1-1-A 36"x36"

R1-2 36"x36"x36"
R1-2-A 48"x48"x48"



R1-3 12"x 6"
R1-3-A 18"x 9"

R2-1(50) 24"x30"
R2-1(50)-A 48"x60"

R2-2(40) 24"x24"
R2-2(40)-A 48"x48"

R2-4a(50/40) 24"x48"
R2-4a(50/40)-A 48"x96"

R2-5b(30) 24"x30"
R2-5b(30)-A 48"x60"

R3-1 24"x24"
24"x18"
R3-1-A 48"x48"
48"x36"

R3-2 24"x24"
24"x18"
R3-2-A 48"x48"
48"x36"

R3-3 24"x24"
R3-3-A 48"x48"

R3-4 24"x24"
24"x18"
R3-4-A 48"x48"
48"x36"

R3-5(L) 30"x36"
R3-5(L)-A 48"x60"

R3-6(L) 30"x36"
R3-6(L)-A 48"x60"

R3-7(R) 30"x30"
R3-7(R)-A 48"x48"

R3-8(L) 30"x30"
R3-8(L)-A 36"x36"
R3-8(L)-B 48"x48"

R3-9 24"x30"

R4-1 24"x30"
R4-1-A 48"x60"

R4-2 24"x30"
R4-2-A 48"x60"

R4-3 24"x30"
R4-3-A 48"x60"

R4-5 24"x30"
R4-5-A 48"x60"

R4-6(500) 24"x30"
R4-6(500)-A 48"x60"

R4-7 24"x30"
24"x18"
R4-7-A 48"x60"

R4-8 24"x30"
24"x18"
R4-8-A 48"x60"

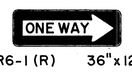
R5-1 30"x30"
R5-1-A 48"x48"

R5-2 24"x24"
24"x18"

R5-4 24"x30"
R5-4-A 48"x60"

R5-6 24"x24"
24"x18"

R5-9 36"x24"



R6-1(R) 36"x12"

R6-2(R) 18"x24"

R7-1 12"x18"
R7-1-A 24"x30"

R7-4 12"x18"
R7-4-A 24"x30"

R7-107(R) 12"x18"

R7-108 12"x18"

R7-201 12"x 6"
R7-201-A 24"x12"

R8-1 24"x30"
R8-1-A 48"x60"

R8-2 24"x30"
R8-2-A 48"x60"

R8-3 24"x30"
R8-3-A 48"x48"

R8-4 30"x24"
R8-4-A 48"x36"

R8-5 24"x30"
R8-5-A 48"x60"

R8-6 24"x30"
R8-6-A 48"x60"

R8-7 30"x24"
R8-7-A 48"x36"

R9-1 18"x24"

R9-2 12"x18"

R9-3 12"x18"

R9-4 18"x24"

R10-1 12"x18"

R10-2 12"x18"

R10-3 9"x12"

R10-4 9"x12"

R10-5 24"x30"

R10-6 24"x36"

R10-7 24"x30"

R10-8 24"x30"

R10-9 24"x30"

R10-10 24"x30"

R11-1 24"x30"

R11-2 48"x30"

R11-3(10) 60"x30"

R11-4 60"x30"

R12-1(10) 24"x30"

GENERAL NOTES

1. Sign details shall conform to the latest editions of FHWA publications "Manual on Uniform Traffic Control Devices for Streets and Highways," "Standard Alphabets for Highway Signs," and "Standard Highway Signs," and as amended.
2. All regulatory signs shall be reflectorized unless otherwise specified.
3. All regulatory signs shall have $^3/_8$" bolt holes drilled at appropriate locations.
4. Numerals in ( ) indicates numerals to be inserted for sign message. (R) or (L) indicates right or left.
5. All signs shall be erected without educational plaques unless called for in the plans.

APPROVAL RECOMMENDED:
Eiichi Tanaka 3/17/72
TRAFFIC ENGINEER DATE

APPROVED:
Julius Zatzkis 3-20-72
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 101 Approved 12-30-69	H.I	8/20/72
2	Revised General Note 1	H.I.	10/11-/14
3	Added General Note 5	H.I.	11/9/19
4	Revised Signs and General Note 1	E.T.	2/18/[illegible]

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

REGULATORY SIGNS

NOT TO SCALE

SHEET No. OF SHEETS DT 101

88

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

K&E IMPERIAL™ LA 3207

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IRH-1 (189)	1986	89	99

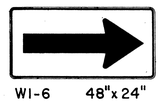
W1-1(R) 30"x30"
W1-1(R)-A 48"x48"

W1-2(R) 30"x30"
W1-2(R)-A 48"x48"

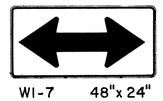
W1-3(R) 30"x30"
W1-3(R)-A 48"x48"

W1-4(R) 30"x30"
W1-4(R)-A 48"x48"

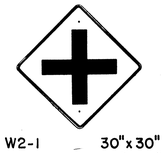
W1-5(R) 30"x30"
W1-5(R)-A 48"x48"



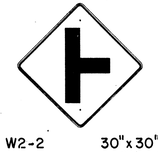
W1-6 48"x24"



W1-7 48"x24"

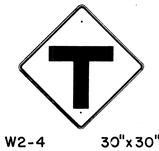


W2-1 30"x30"
W2-1-A 48"x48"

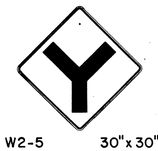


W2-2 30"x30"
W2-2-A 48"x48"

W2-3(R) 30"x30"
W2-3(R)-A 48"x48"



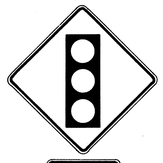
W2-4 30"x30"
W2-4-A 48"x48"



W2-5 30"x30"
W2-5-A 48"x48"

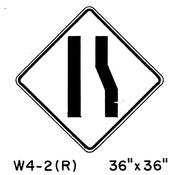
W3-1 30"x30"
W3-1-A 36"x36"

W3-2 30"x30"
W3-2-A 36"x36"



W3-3 36"x36"
24"x18"

W4-1(R) 30"x30"
24"x18"
W4-1(R)-A 48"x48"
24"x18"



W4-2(R) 36"x36"
W4-2(R)-A 48"x48"

W5-1 36"x36"
W5-1-A 48"x48"

W5-2 30"x30"
W5-2-A 36"x36"

W5-3 36"x36"
W5-3-A 48"x48"

W6-1 36"x36"
24"x18"
W6-1-A 48"x48"
24"x18"

W6-2 36"x36"
24"x18"
W6-2-A 48"x48"
24"x18"

W6-3 30"x30"
24"x18"
W6-3-A 36"x36"
24"x18"
W6-3-B 48"x48"
24"x18"

W7-1 30"x30"
24"x18"
W7-1-A 48"x48"
24"x18"

W7-2 24"x18"

W8-1 30"x30"
W8-1-A 36"x36"
W8-1-B 48"x48"

W8-2 30"x30"
W8-2-A 36"x36"
W8-2-B 48"x48"

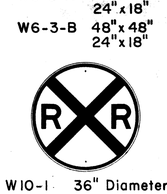
W8-3 30"x30"
W8-3-A 36"x36"

W8-4 30"x30"
W8-4-A 36"x36"

W8-5 30"x30"
24"x18"
W8-5-A 36"x36"
24"x18"

W9-1(R) 30"x30"
W9-1(R)-A 36"x36"
W9-1(R)-B 48"x48"

W9-2(L) 36"x36"
W9-2(L)-A 48"x48"



W10-1 36" Diameter

W11-1 30"x30"
24"x18"
W11-1-A 36"x36"
24"x18"
W11-1-B 48"x48"

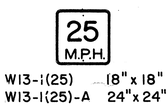
W11A-2 30"x30"
24"x18"
W11A-2-A 36"x36"
W11A-2-B 48"x48"
24"x18"

W11-4 30"x30"
24"x18"
W11-4-A 36"x36"
W11-4-B 48"x48"
24"x18"

W11-5 30"x30"
24"x18"
W11-5-A 36"x36"
24"x18"
W11-5-B 48"x48"

W12-1 24"x24"
W12-1-A 36"x36"
W12-1-B 48"x48"

W12-2(12'-6") 36"x36"
24"x18"
W12-2(12'-6") 48"x48"



W13-1(25) 18"x18"
W13-1(25)-A 24"x24"

W13-2(25) 48"x60"

W13-3(25) 48"x60"

W14-1 30"x30"
W14-1-A 36"x36"

W14-3 36"x48"x48"
W14-3-A 48"x64"x64"

NOTE

1. All signs shall be erected without educational plaques unless called for in the plans.

GENERAL NOTES

1. Sign details shall conform to the latest editions of FHWA publications "Manual on Uniform Traffic Control Devices for Streets and Highways", "Standard Alphabet for Highway Signs", and "Standard Highway Signs", and as amended.
2. All warning signs shall be reflectorized unless otherwise specified.
3. All warning signs shall have 3/8" bolt holes drilled at appropriate locations.
4. Numerals in ( ) indicates numerals to be inserted for sign message. (R) or (L) indicates right or left.
5. Signs prefixed with "CW" on the plans shall indicate orange and black construction signs, and shall be reflectorized.

APPROVAL RECOMMENDED:
Eiichi Tanaka 3/17/12
TRAFFIC ENGINEER DATE

APPROVED:
[signature] 3-20-12
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 102 Approved 12-30-69	H.T.	3/20/12
2	Revised General Note 1	H.T.	10/16/92
3	Revised General Note 5	M.K.	9-16-75
4	Revised General Note 5	H.T.	9-14-76
5	Added Note 1	H.T.	11-9-79
6	Revised Signs & General Note 1	E.T.	9/8/85

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
WARNING SIGNS

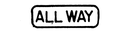
NOT TO SCALE

SHEET No. OF SHEETS DT 102

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

K&E IMPERIAL LA 3207

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1 (189)	1986	90	99



R1-4 18"x 6"

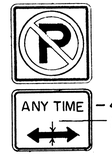
R2-5a 24" x 30"
R2-5a-A 48" x 60"

4" Series D
4" Series C
3" Series D
5" Series C
R2-10 24"x30"

R3-9b 24"x36"

R7-107 12" x 24"

R7-8 12"x18"
R7-8-A 24"x30"



4" Series C
1½"
R8-3a 24" x 24"
24" x 18"
R8-3a-A 48"x 48"

R9-3a 18"x18"
18"x12"
R9-3a-A 24"x24"
24"x18"

R9-3b(R) 18"x 12"

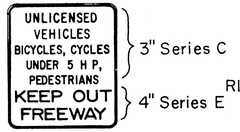
R9-3b(L) 18"x 12"

R10-11a 24"x30"

4" Series C
R16-1 24"x30"

4" Series D
3" Series D
2" Series D
3" Series D
R16-3 18"x24"

R16-4 18"x24"

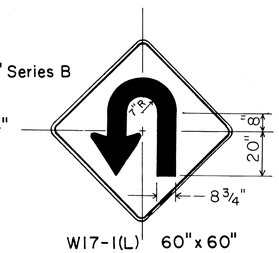


3" Series C
4" Series E
R16-5 36"x 42"

8" Series F
5" Series D
R16-6 24"x30"

8" Series F
5" Series D
R16-7 24"x30"

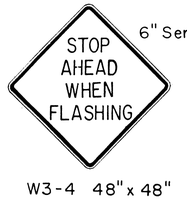
4" Series B
R5-8 30"x24"



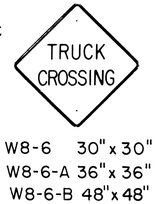
W17-1(L) 60"x60"

W3-1a 36"x36"
24 x 18"
W3-1a-A 48"x48"
24"x 18"

W3-2a 36"x36"
24"x 18"
W3-2a-A 48"x48"
24"x 18"

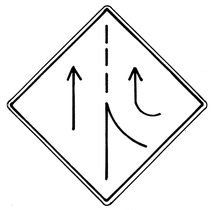


6" Series C
W3-4 48"x 48"



W8-6 30"x30"
W8-6-A 36"x36"
W8-6-B 48"x48"

6" Series E
W9-3(L) 48"x 48"

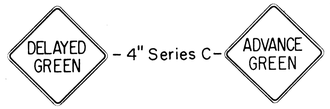

W4-3 36"x36"
W4-3-A 48"x48"

W11-7 36"x36"
24"x18"
W11-7-A 48"x48"
24"x 18"

W11-8 36"x36"
24"x18"
W11-8-A 48"x48"
24"x18"


W11-9 36"x36"
W11-9-A 48"x48"

W14-4 36"x36"
W14-4-A 48"x48"



W15-1 24"x24"
W15-2 24"x24"

CW16-1(½) 60"x60"

8" Series E
W18-1 48"x60"


S1-1 36"x36"
S1-1-A 48"x48"


S2-1 36"x36"
S2-1-A 48"x48"

S3-1 30"x30"
S3-1-A 36"x36"

S4-1 24"x10"

S4-2 24"x10"

S4-3 24"x8"

S4-4 24"x10"

CW23-4 48"x48"

4" Series C
R18-1 24"x18"

General Notes

1. Sign details shall conform to the latest editions of the following FHWA publications:
   a. "Standard Alphabets for Highway Signs," and as amended.
   b. "Standard Highway Signs," and as amended,
   c. "Manual on Uniform Traffic Control Devices for Streets and Highways," and as amended,
2. All signs shall be reflectorized with reflective sheeting, unless otherwise specified.
3. All signs shall have 3/8" bolt holes drilled at appropriate locations.
4. Numerals in ( ) indicate numerals to be inserted for sign message. (R) or (L) indicates right or left.
5. Signs prefixed with "CW" on the plans shall indicate orange and black construction signs, and shall be reflectorized with reflective sheeting.
6. All signs shall be erected without educational plaques unless called for in the plans.

APPROVAL RECOMMENDED:
Eiichi Tanaka 5/2/78
TRAFFIC ENGINEER DATE

APPROVED:
Herbert Y. Takeishi 5/3/78
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 103 approved 3/20/72	H.T.	5/3/78
2	Added General Note 6	H.T.	11/9/78
3	Revised Signs and added Sign W4-3	E.T.	9/18/85

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

MISCELLANEOUS SIGNS

NOT TO SCALE DATE: MAY, 1978

SHEET No. OF SHEETS DT 103

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	TR-HI-1 (189)	1986	91	99

CW20-1a 48"x48"

CW20-2d 48"x48"

CW20-3b 48"x48"

CW20-4d 48"x48"

CW20-5d(L) 48"x48"

CW20-7c 36"x36"
24"x18"
CW20-7c-A 48"x48"
24"x18"

CW21-1 30"x30"

CW21-2 30"x30"

CW21-3 36"x36"

CW21-4 36"x36"

CW21-5 30"x30"

CW21-6 30"x30"

CW22-1b 48"x48"

CW22-2 42"x36"

CW22-3 42"x36"

CG20-1(5) 60"x36"

CG20-2 60"x24"

CM4-9(R) 30"x24"

CM4-10(R) 48"x18"

CG20-4 36"x18"

CW23-1 36"x36"

CW23-2b 48"x48"

CW23-3(R) 48"x48"

GENERAL NOTES

1. Sign details shall conform to the latest editions of FHWA publications "Manual on Uniform Traffic Control Devices for Streets and Highways," "Standard Alphabets for Highway Signs," and "Standard Highway Signs," and as amended.
2. All construction signs shall be reflectorized.
3. All construction signs shall have $^{3}/_{8}$" bolt holes drilled at appropriate locations.
4. Numerals in ( ) indicates numerals to be inserted for sign message. (R) or (L) indicates right or left.
5. For "CW" series signs, suffixes a,b,c and d are as follows: a-1500 FT, b-1000 FT, c-500 FT and d-AHEAD.

APPROVAL RECOMMENDED:
Euchi Tanaka 3/21/12
TRAFFIC ENGINEER DATE

APPROVED:
Wilbur Kaleida 3/23/12
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 104 Approved 12-30-69	H.T.	3/23/72
2	Revised General Note 1	H.T.	10/10/74
3	Revised General Note 2	M.F.	9-16-75
4	Revised General Note 2 and sign CG20-1(5)	H.T.	9-14-76
5	Revised General Note 1 and sign CW20-7c	E.T.	9/19/86

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
CONSTRUCTION SIGNS

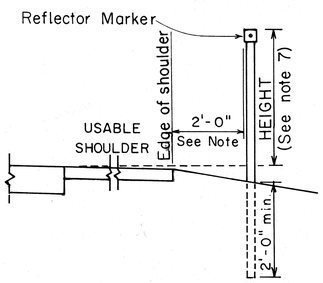
NOT TO SCALE

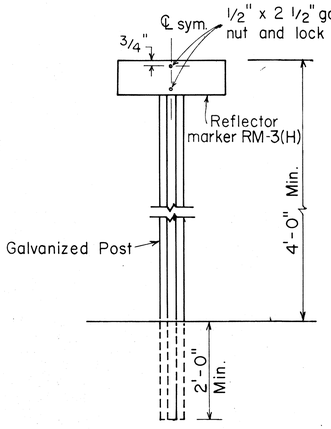
SHEET No. OF SHEETS DT 104

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

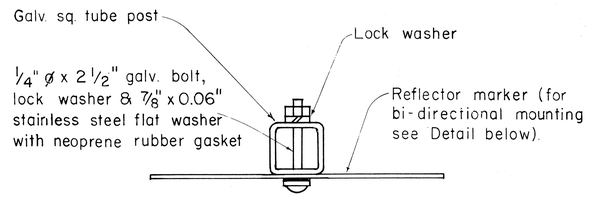
K&E IMPERIAL™ TRACING CLOTH LA 3207

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-H1-(189)	1986	92	99

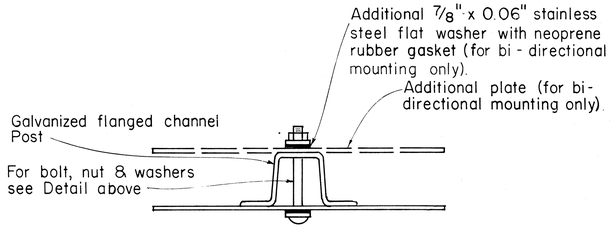




REFLECTOR MARKER MOUNTING DETAIL



GALVANIZED SQUARE TUBE POST

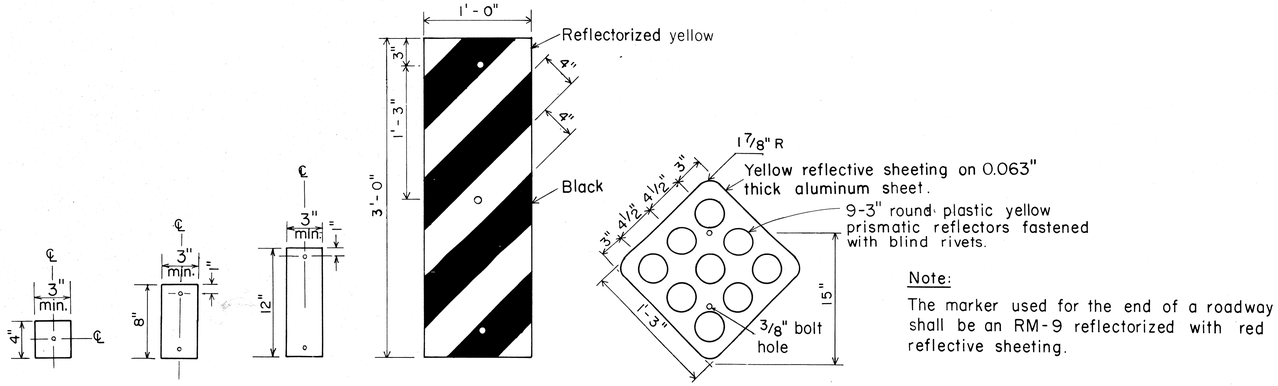


GALVANIZED FLANGED CHANNEL POST

TYPICAL MOUNTING DETAILS

GENERAL NOTES:

1. Clearance markers (RM-3, RM-4) shall be installed with the edge of the marker in line with the inner edge of the obstruction.
2. (R) or (L) indicates right or left and shall be as shown on the plans.
3. Reflector markers RM-1 and RM-2 shall be:
   a) Yellow if placed along the left edge of divided roadways, one-way roadways, and ramps in the direction of travel.
   b) White if placed along the right edge of divided roadways, one-way roadways, and ramps in the direction of travel.
4. For RM-4, the stripes shall slope downward at an angle of 45° toward the side of the obstruction that traffic is to pass.
5. For reflector marker RM-9, reflective sheeting material may be used as an alternate.
6. (H) indicates horizontal mounting of reflector marker.
7. Height = 4'-0" min. for RM-1, RM-2 and RM-3.
   Height = 5'-6" min. for RM-4 and RM-9.
8. Final locations of reflector markers shall be approved by the Engineer.



RM-1 (WHITE, YELLOW, OR RED)

RM-2 (WHITE, YELLOW, OR RED)

RM-3 (YELLOW)

RM-4 (R)

RM-9

Note:

The marker used for the end of a roadway shall be an RM-9 reflectorized with red reflective sheeting.

REFLECTOR MARKERS

NO.	REVISION	APPROVED BY	DATE
1	Revised Mounting Details	H.I.	4/23/80
2	Revised General Notes, Mounting Details and Reflector Markers.	[illegible]	3-28-83
3	Eliminated White for RM-4	[illegible]	1-30-85

APPROVAL RECOMMENDED:
Eiichi Tanaka — TRAFFIC ENGINEER — 11/7/77 DATE

APPROVED:
Herbert S. Nakamoto — ASSISTANT CHIEF, ENGINEERING — 11/15/77 DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

MISCELLANEOUS REFLECTOR MARKERS

Not to scale — June, 1977

SHEET No. 92 OF SHEETS DT 110

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

92

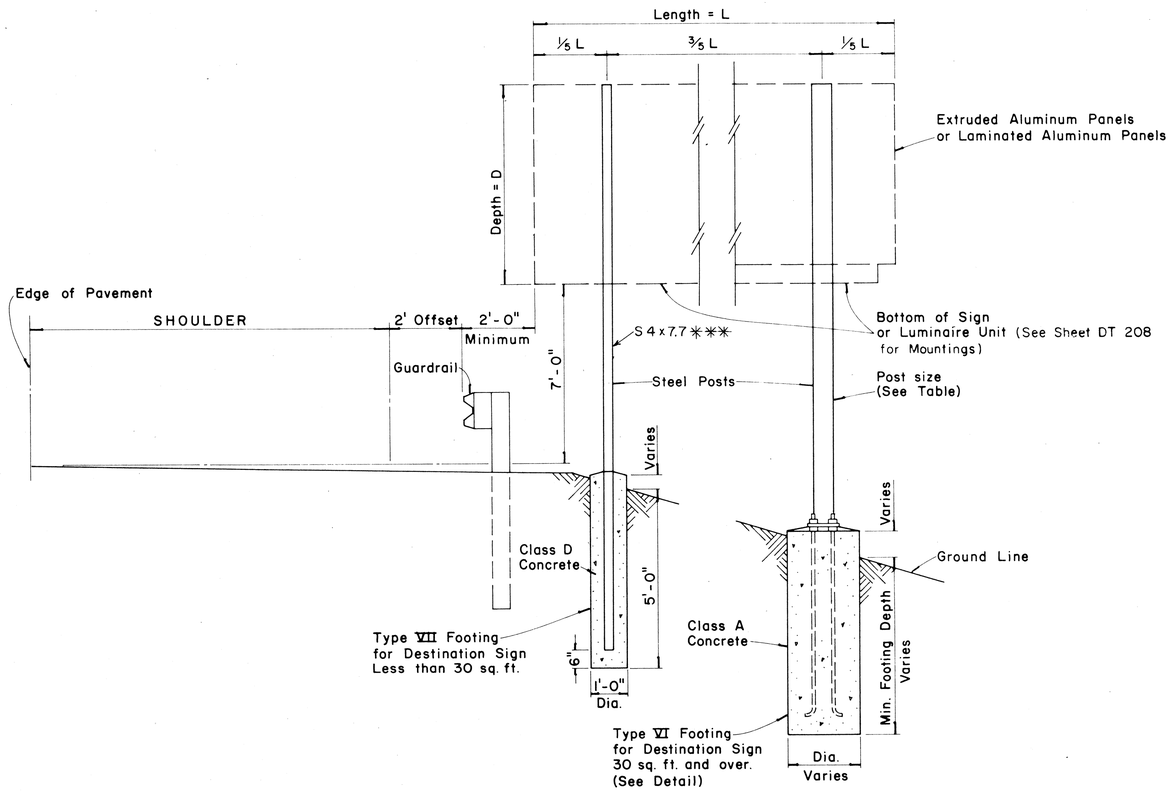
* For moment calculations only. Post shall be from top of foundation to top of sign.

** For fills with side slopes flatter than 4:1, Minimum Footing Depth shall be 4½ feet.

*** All posts shall conform to ASTM A36

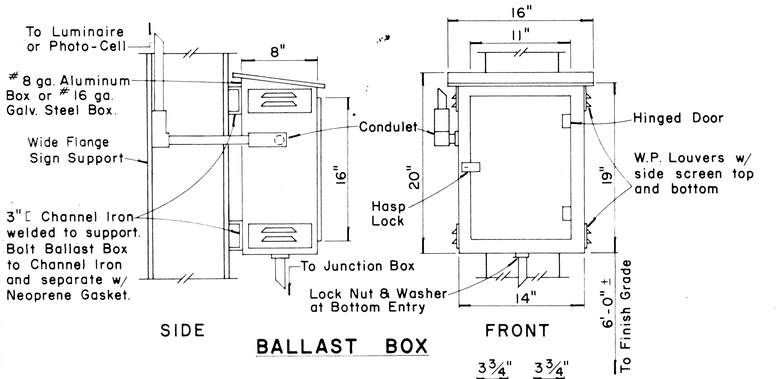
DATA TABLE FOR TYPE VI FOOTING

POST SIZE ***	MAXIMUM SIGN AREA	POST HEIGHT TOP OF FOUNDATION TO CENTER OF SIGN *	DIMENSIONS H	J	K	M	N	O	P	S	T	U	V	W	ANCHOR BOLT DIA.	MINIMUM FOOTING DEPTH CUT	FILL**	BARS Z SIZE
W6x12	70 sq.ft.	10'	14"	5"	24"	17¼"	1⅝"	6"	1¼"	9"	6"	10"	2"	1"	1⅛"ø	4½'	4½'	#7
W6x16	110 sq.ft.	13'							1⅜"					1¼"			5'	
W8x24	150 sq.ft.	16'	16½"	6¾"	30"	20"	1¾"			11¾"	6½"		1¾"	1½"	1¼"ø	5'	5½'	#8
W8x28	170 sq.ft.	20'							1½"					1¾"	1⅜"ø	5½'	6½'	
W8x31	190 sq.ft.	20'	16¼"	6⅞"			1⅞"		1⅝"	11⅞"	6¼"		1⅞"		1½"ø	6'		
W10x33	230 sq.ft.	20'	20¼"	4⅞"		24"				10⅞"	8¼"	12"		2"		7'	7'	
W10x39	250 sq.ft.	20'															7½'	

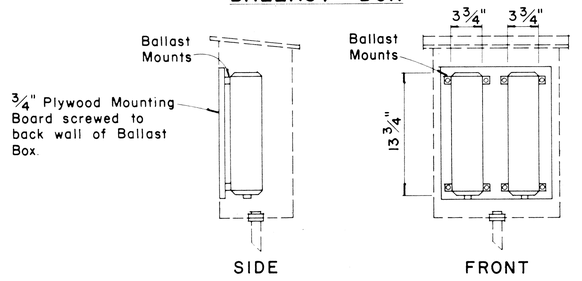


TYPICAL DESTINATION & GROUND MOUNTED EXPRESSWAY SIGN

Not to Scale



BALLAST BOX



BALLASTS

WEATHERPROOF BALLAST BOX

Scale: 1½" = 1'-0"

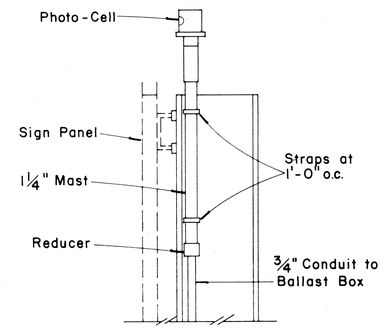
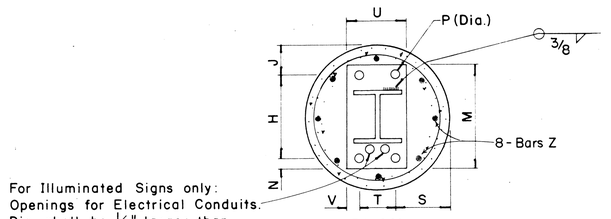
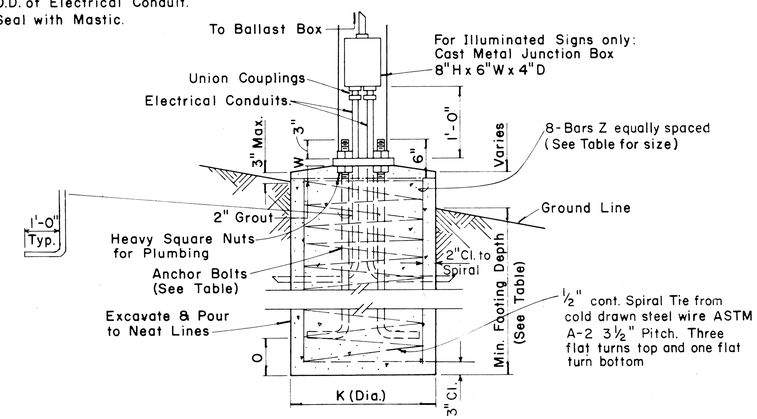


PHOTO-CELL DETAIL

Scale: 1½" = 1'-0"



PLAN



ELEVATION

TYPE VI FOOTING

Scale: 1" = 1'-0"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(189)	1986	93	99

APPROVAL RECOMMENDED:

Eiichi Tanaka — TRAFFIC ENGINEER — 12/29/89 DATE

APPROVED:

[signature] — ASSISTANT CHIEF, ENGINEERING — 12-30-89 DATE

NO.	REVISION	APPROVED BY	DATE
1	Add note for luminaire mounting.	[illegible]	6/15/88
2	Revised Data Table, Typical Expressway Sign, Ballasts and Footing	[illegible]	10/21/88

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

DESTINATION & GROUND MOUNTED EXPRESSWAY SIGN

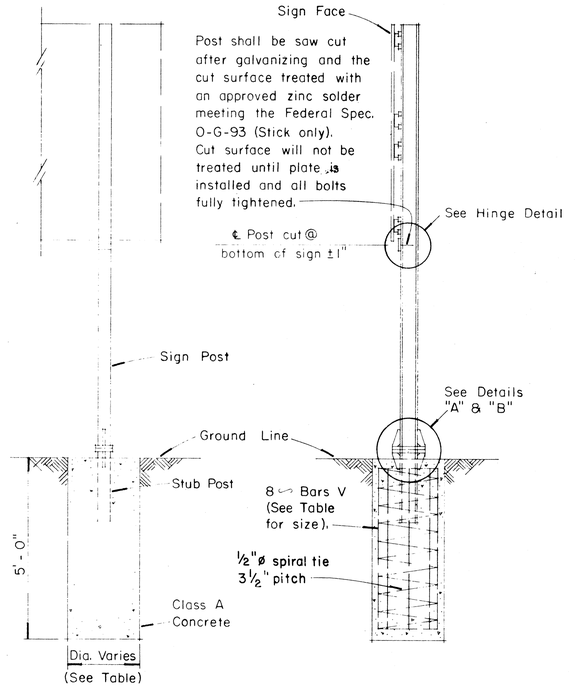
Scale: As Shown

SHEET No. OF SHEETS DT 203

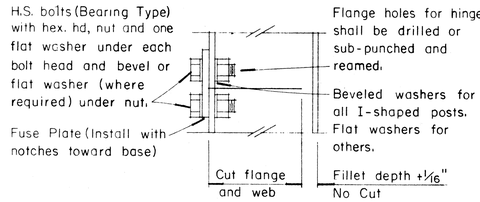
ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE | NOTE BOOK | No.

PRINTED ON NO. 1000H CLEARPRINT

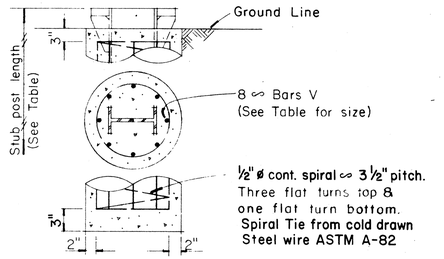
	BASE CONNECTION DATA TABLE									FUSE PLATE DATA TABLE										FOUNDATION DATA			
Post Size	Bolt Size & Torque	A	B	C	D	E	t1	t2	W	R	F	G	H	J	K	L	N	d1	t3	Bolt Dia.	Wt. of each Fuse Pl	Stub Length	Stub Projection	Footing Diameter	Bars V Size
W6x9	5/8"ø x 2 3/4" Torque = 450"#	5"	2"	1 1/4"	2 3/4"	1 1/8"	3/4"	1/2"	1/4"	11/32"	3 5/8"	2"	1 1/8"	4"	2 1/4"	7/8"	1/2"	9/16"	1/4"	1/2"ø	1.09#	2'-0"	3"	2'-0"	#7
W6x12											3 3/4"	2"	1 1/8"	4"	2 1/4"	7/8"	5/8"	11/16"	3/8"	5/8"ø	1.60#	2'-0"	3"	2'-0"	#7
W6x16											4 1/2"	2 1/2"	1 1/4"	6"	3 1/2"	1 1/4"	3/4"	13/16"	1/2"	3/4"ø	3.75#	2'-6"	3"	2'-0"	#7
W8x18											4 1/2"	2 1/2"	1 1/4"	5 1/4"	2 3/4"	1 1/4"	3/4"	13/16"	1/2"	3/4"ø	3.27#	2'-6"	3"	2'-0"	#7
W8x21	3/4"ø x 3 1/2" Torque = 750"#	6"	2 1/4"	1 3/8"	3 1/2"	1 1/4"	1"	3/4"	5/16"	13/32"	4 7/8"	2 1/2"	1 1/2"	5 1/4"	2 3/4"	1 1/4"	7/8"	15/16"	9/16"	7/8"ø	3.93#	3'-0"	2 1/2"	2'-0"	#8
W10x22											5 3/8"	3"	1 1/2"	5 3/4"	2 3/4"	1 1/2"	7/8"	15/16"	9/16"	7/8"ø	4.75#	3'-0"	2 1/2"	2'-0"	#9
W10x26											5 3/8"	3"	1 1/2"	5 3/4"	2 3/4"	1 1/2"	7/8"	15/16"	9/16"	7/8"ø	4.79#	3'-0"	2 1/2"	2'-0"	#10
W12x30											5 3/8"	3"	1 1/2"	6 1/2"	3 1/2"	1 1/2"	7/8"	15/16"	9/16"	7/8"ø	5.42#	3'-0"	2 1/2"	2'-0"	#11
S3x5.7	1/2"ø x 2 1/2" Torque = 200"#	SEE DETAIL "A"									3 1/8"	1 1/2"	1 1/8"	2 5/8"	1 1/2"	9/16"	1/2"	9/16"	1/4"	1/2"ø	0.64#	1'-6"	3 1/2"	1'-6"	#5
S4x7.7											3 1/8"	1 1/2"	1 1/8"	2 5/8"	1 1/2"	9/16"	1/2"	9/16"	1/4"	1/2"ø	0.64#	1'-6"	3 1/2"	1'-6"	#5



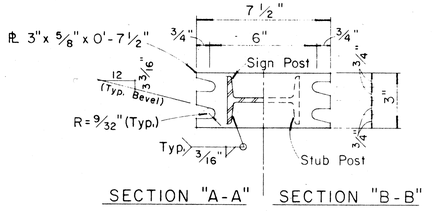
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(189)	1986	94	99



HINGE DETAIL

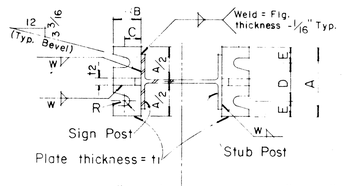


FOUNDATION DETAIL

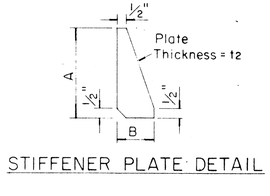


SECTION "A-A" SECTION "B-B"

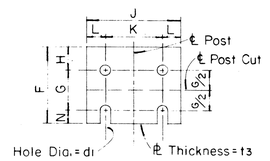
NOTE:
Sections shown are for installations on right shoulder and in gore. Reverse plate slot bevels for installations on left shoulder.



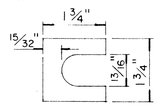
SECTION "C-C" SECTION "D-D"



STIFFENER PLATE DETAIL



FUSE PLATE DETAIL



SHIM DETAIL

Furnish 2-0.012" ± thick and 2-0.032" ± thick shims per post. Shims shall be fabricated from brass shim stock or strip conforming to ASTM-B36.

GENERAL NOTES

1. Design shall conform with AASHTO Specifications for the design and Construction of Structural Supports for Highway Signs, Luminaires and Traffic Signals.
2. Materials and Fabrication shall conform to the requirements of the Standard Specifications and Special Provisions.
3. All holes shall be drilled. All plate cuts shall preferably be saw cuts, however; flame cutting will be permitted provided all edges are ground. Metal projecting beyond the plane of the plate face will not be tolerated.
4. Tighten the high strength bolts in the base connection only to the torque shown, do not overtighten. All bolts other than high strength bolts shall conform to ASTM A 307, Class A.
5. All structural steel, bolts, nuts and washers shall be galvanized as per the Standard Specifications and Special Provisions. Structural steel to be galvanized after fabrication except as noted.
6. Structural steel shall conform to the requirements of ASTM A 441.
7. Galvanize all of the post projecting above the concrete plus 6 inches minimum.
8. All friction fuse bolts shall be tightened in the shop following a method approved by the Engineer. Tightening shall be to such a degree as to obtain the following minimum residual tension in each bolt:

Bolt Size	Min. Tension	Bolt Size	Min. Tension
1/2"ø	12050 Lbs.	3/4"ø	28400 Lbs.
5/8"ø	19200 Lbs.	7/8"ø	36050 Lbs.

9. Supplemental Sign shall not be installed below the Breakaway Hinges.

APPROVAL RECOMMENDED:
Eiichi Tanaka
TRAFFIC ENGINEER — 12/29/89 DATE

APPROVED:
ASSISTANT CHIEF, ENGINEERING — 12-30-89 DATE

NO.	REVISION	APPROVED BY	DATE
1	Added General Note No. 9	H.T.	6/3/90
2	Revised description of Post Size and Foundation Detail.	TMC	10/21/85

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

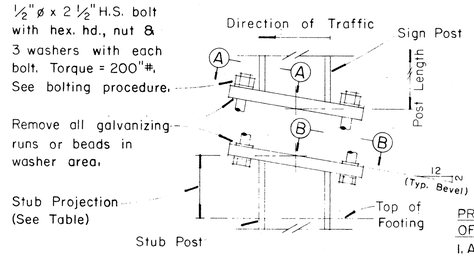
STANDARD DETAILS
BREAK-AWAY SIGN SUPPORTS FOR GROUND MOUNTED GUIDE SIGNS

Not to Scale

SHEET No. OF SHEETS DT204

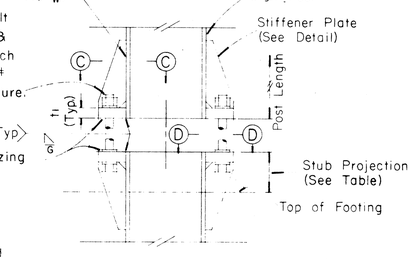
94

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



DETAIL "A"
SIGN POST & STUB POST
(For S4x7.7 and S3x5.7 Shapes)

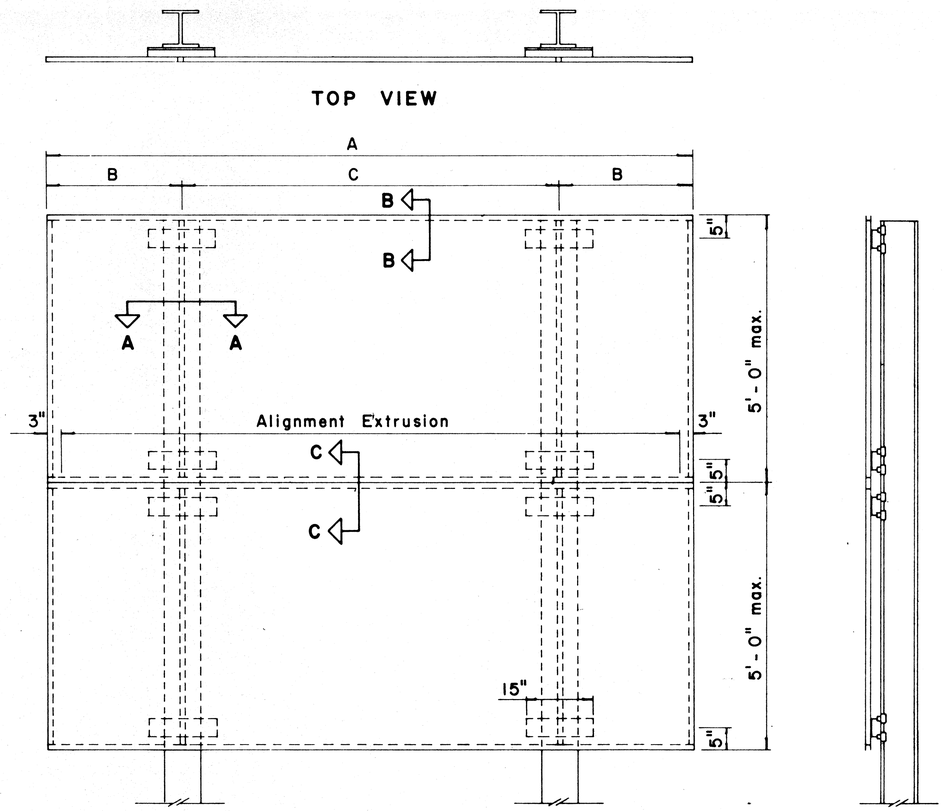
PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:
1. Assemble post to stub with bolts and with one flat washer on each bolt between plates.
2. Shim as required to plumb post.
3. Tighten all bolts the max. possible with 12" to 15" wrench to bed washers & shims and to clean bolt threads then loosen each bolt in turn & retighten bolts in systematic order to prescribed torque. (See Table)
4. Burr threads at junction with nut using a center punch to prevent nut loosening.



DETAIL "B"
SIGN POST & STUB POST
(For Wide Flange Shapes)

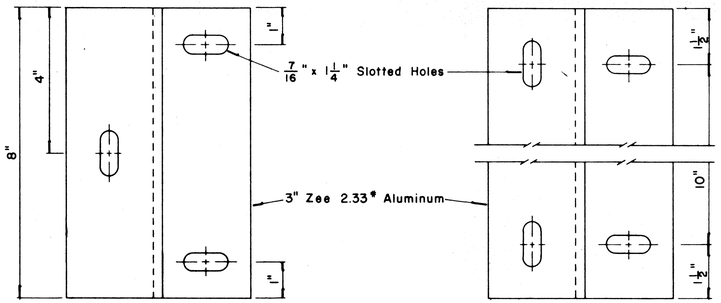
PRINTED ON NO. 1000H CLEARPRINT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(82)	1986	95	99



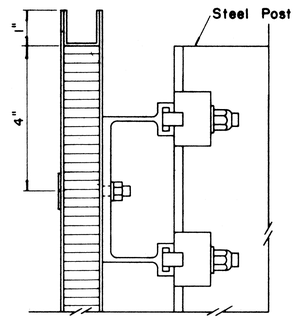
TYPICAL SIGN ASSEMBLY

Scale: $\frac{3}{4}$" = 1'-0"



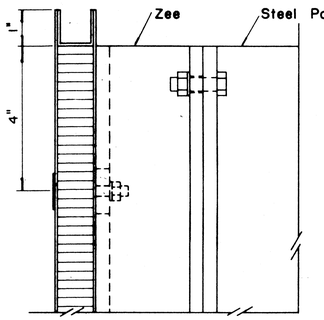
ZEE MOUNTING DETAILS

Scale: $\frac{1}{2}$" = 1"



SECTION "B-B"

Scale: $\frac{1}{2}$" = 1"

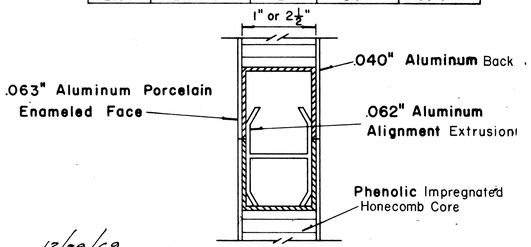


SECTION "B-B" (Alternate)

Scale: $\frac{1}{2}$" = 1"

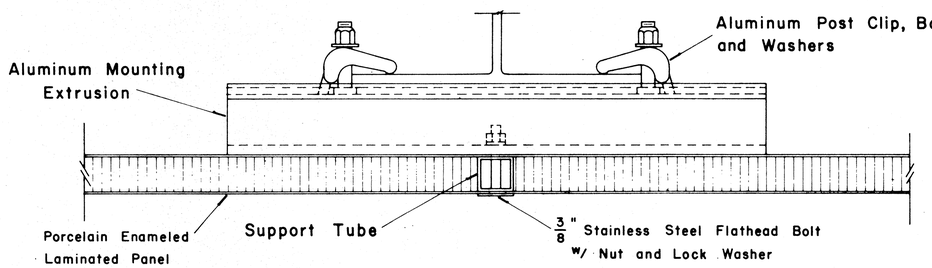
(GROUND MOUNTED SIGNS)
SUPPORT SPACING TABLE

PANEL THICK.	LENGTH OF SIGN A	NO. OF SUPPORTS	OVERHANG B	SUPPORT SPACING C
1"	6'-0"	2	12"	48"
1"	6'-6"	2	15"	48"
1"	7'-0"	2	15"	54"
1"	7'-6"	2	18"	54"
1"	8'-0"	2	18"	60"
1"	8'-6"	2	20"	62"
1"	9'-0"	2	22"	64"
1"	9'-6"	2	23"	68"
1"	10'-0"	2	24"	72"
1"	10'-6"	2	24"	78"
1"	11'-0"	2	24"	84"
1"	11'-6"	2	27"	84"
1"	12'-0"	2	30"	84"
1"	12'-6"	2	30"	90"
1"	13'-0"	2	30"	96"
1"	13'-6"	2	30"	102"
1"	14'-0"	2	30"	108"
1"	14'-6"	2	36"	102
1"	15'-0"	2	36"	108"
2.5"	15'-6"	2	36"	114"
2.5"	16'-0"	2	39"	114"
2.5"	16'-6"	2	39"	120"
2.5"	17'-0"	2	39"	126"
2.5"	17'-6"	2	42"	126"
2.5"	18'-0"	2	42"	132"
2.5"	18'-6"	2	45"	132"
2.5"	19'-0"	2	45"	138"
2.5"	19'-6"	2	45"	144"
2.5"	20'-0"	2	48"	144"
2.5"	20'-6"	2	48"	150"
2.5"	21'-0"	2	51"	150"
2.5"	21'-6"	2	51"	156"
2.5"	22'-0"	2	51"	162"
2.5"	22'-6"	2	54"	162"
2.5"	23'-0"	2	54"	168"
2.5"	23'-6"	2	54"	174"
2.5"	24'-0"	2	57"	174"



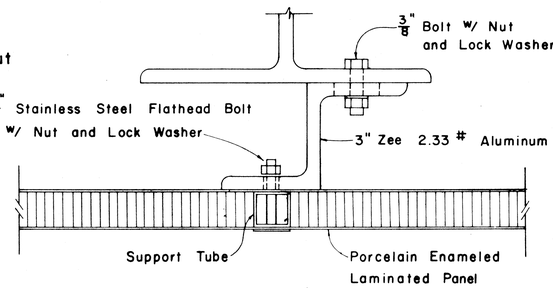
CLOSURE DETAIL SECTION "C-C"

FULL SCALE



SECTION "A-A"

Scale: $\frac{1}{2}$" = 1"



SECTION "A-A" (Alternate)

Scale: $\frac{1}{2}$" = 1"

APPROVAL RECOMMENDED:

Eiichi Tanaka — TRAFFIC ENGINEER — 12/29/69 DATE

APPROVED:

ASSISTANT CHIEF, ENGINEERING — 12-30-69 DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

STANDARD DETAILS
LAMINATED ALUMINUM SIGN PANELS (GROUND MOUNTED)

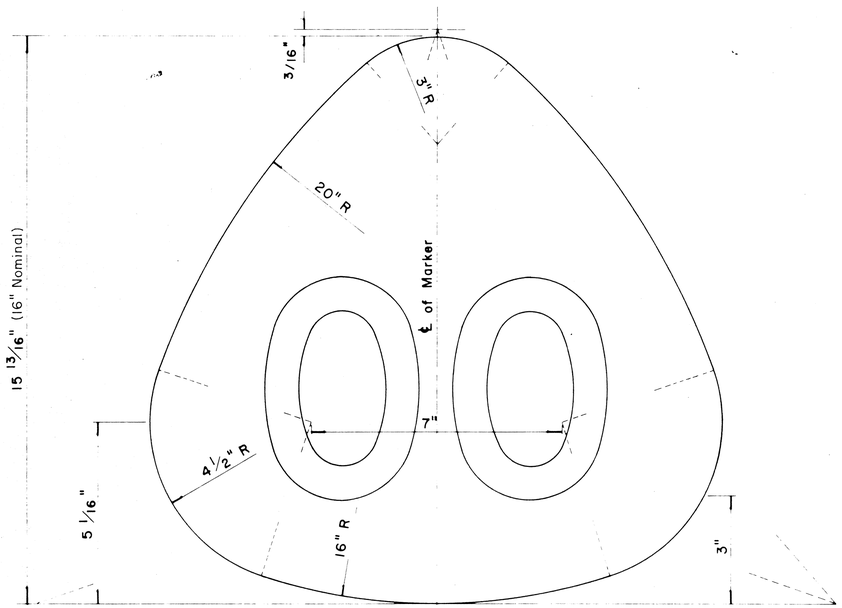
Scale: As Shown

SHEET No. OF SHEETS DT 206

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

PRINTED ON NO. 1000H CLEARPRINT

MARKER SIZE	MULTIPLY DIMENSIONS BY	NUMERAL SIZE
		2 Digit - Series D 3 Digit - Series C
21"	1.3	8"
32"	2.0	12"
42"	2.63	16"



STATE ROUTE MARKER FOR GUIDE SIGNS

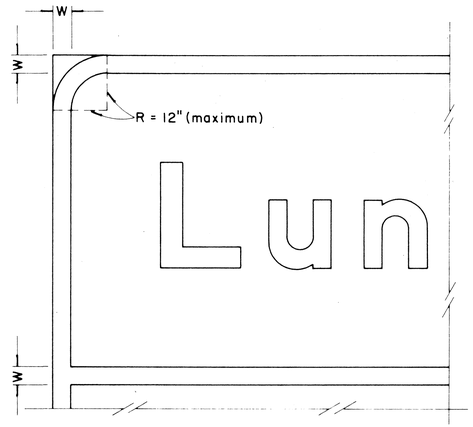
Scale: Half Size

NOTE:

1. State Route Markers on Guide signs shall have black numerals on a white reflectorized background mounted on a flat aluminum cut-out.
2. Numerals shall conform to the FHWA publication "Standard Alphabets for Highway Signs," 1966.
3. Cut-outs shall be fastened on sign panel with aluminum blind rivets. See Standard Specifications.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(182)	1986	96	99

RADII FOR SIGNS		
Least Dimension of Sign	W	R
2'-0" to 4'-6"	2"	3"
4'-9" to 5'-6"	2"	6"
5'-9" to 7'-6"	2"	9"
7'-9" and greater	2"	12"



BORDER DETAIL FOR GUIDE SIGNS

Not to Scale

NOTE:

1. Area outside corner radius need not be trimmed.
2. All borders shall be white reflectorized cut-outs.
3. All Guide signs shall have borders.

APPROVAL RECOMMENDED:

Eiichi Tanaka — TRAFFIC ENGINEER — 4/11/72 DATE

APPROVED:

K. Nakai for S. Takeishi — ASSISTANT CHIEF, ENGINEERING — 4/12/72 DATE

NO	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 209 Approved 12-30-69	H.T.	4/12/72
2	Revised Notes and Schedules	H.T.	9-14-76

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

STANDARD DETAILS

STATE ROUTE MARKER AND BORDER DETAIL FOR GUIDE SIGNS

Scale: As Shown

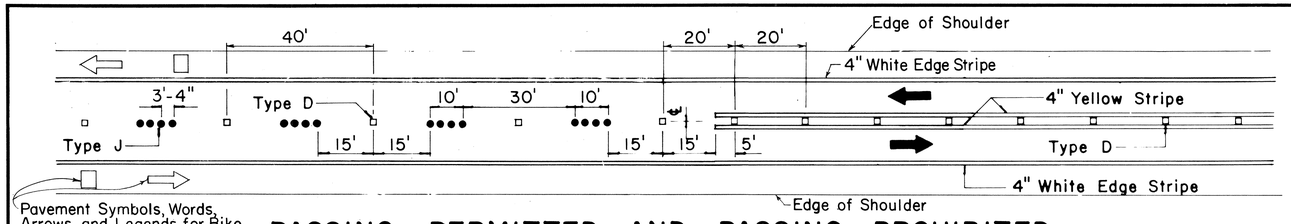
SHEET No. OF SHEETS DT 209

96

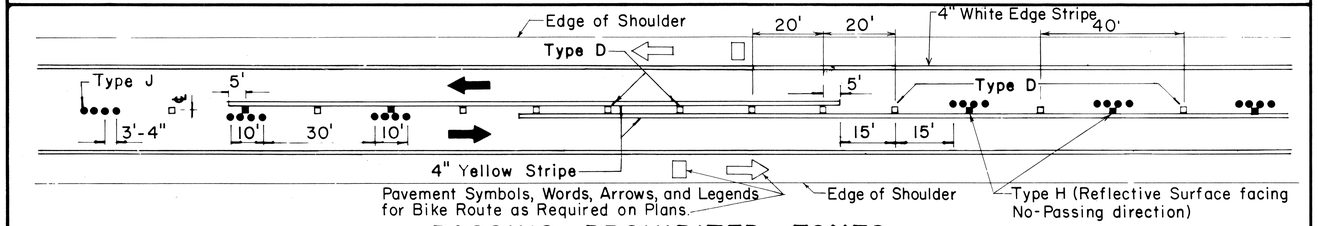
ORIGINAL PLAN | NOTE BOOK No. | SURVEY PLOTTED BY: DATE | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(189)	1986	97	99

TWO - LANE

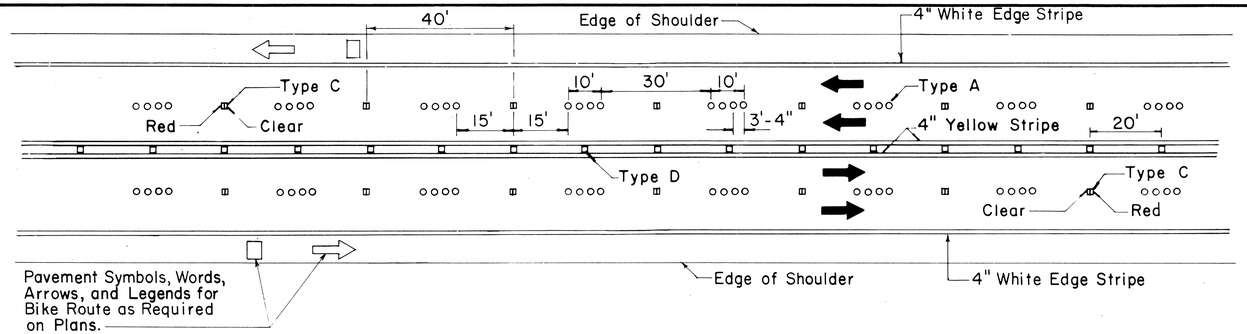


PASSING PERMITTED AND PASSING PROHIBITED

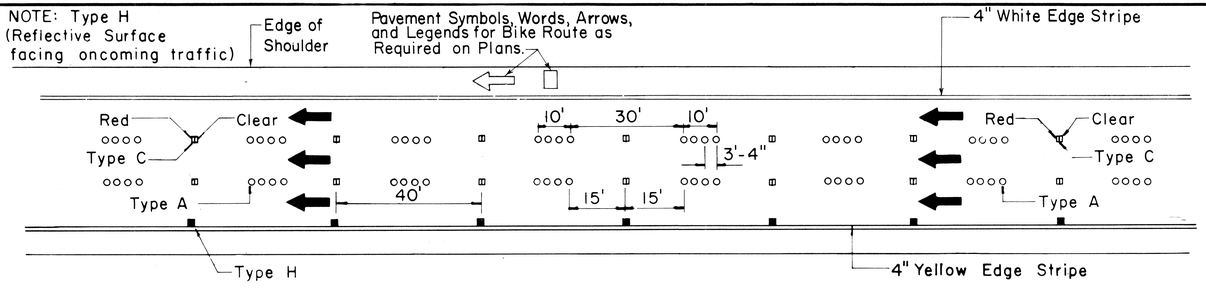


PASSING PROHIBITED ZONES

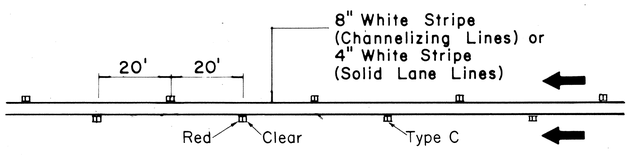
MULTI - LANE



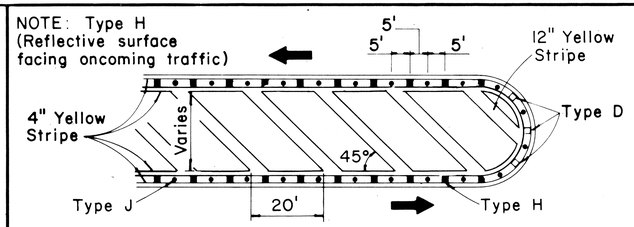
DIVIDED HIGHWAY AND FREEWAY



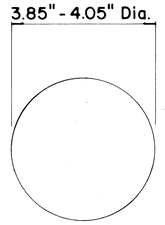
MISCELLANEOUS



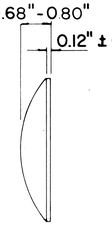
CHANNELIZING LINES OR SOLID LANE LINES



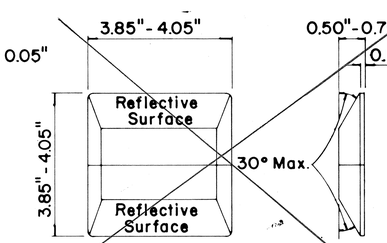
MEDIAN NOSE DELINEATION



TYPE A
NON - REFLECTIVE WHITE MARKER

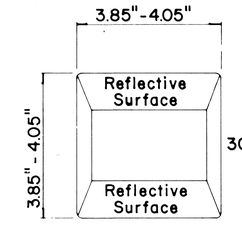


TYPE J
NON - REFLECTIVE YELLOW MARKER

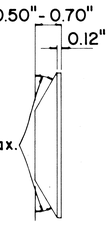


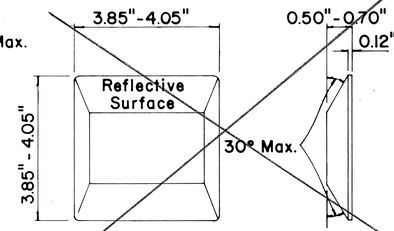
TYPE C
RED - CLEAR REFLECTIVE MARKER

DELETE TYPE C AND TYPE H, REPLACE WITH TYPE CL AND TYPE HL SEE PLAN SHT. 83, NOTE 8.



TYPE D
TWO - WAY YELLOW REFLECTIVE MARKER





TYPE H
ONE - WAY YELLOW REFLECTIVE MARKER

GENERAL NOTES

1. Pavement marking and striping shall conform to the latest "Manual on Uniform Traffic Control Devices for Streets and Highways," and as amended.
2. Layout and installation of pavement marking and striping shall be done by the Contractor. The Contractor shall check the layouts with the Engineer prior to performing work.
3. Edge lines shall not be continued through intersections and shall not be broken for driveways unless otherwise shown or directed.

LEGEND

- ○ Type A
- ⊞ Type C
- □ Type D
- ■ Type H
- ● Type J

APPROVAL RECOMMENDED:

Euichi Tanaka — TRAFFIC ENGINEER — 7/21/78 DATE

APPROVED:

Herbert J. Takeichi — ASSISTANT CHIEF, ENGINEERING — 7/24/78 DATE

No	REVISION	APPROVED BY	DATE
1	Supercedes DT 300 approved 11/18/71.	H.T.	7/24/78
2	Delete Type A Markers from Bike Route Delineation.	H.T.	10/15/79
3	Added General Note 3. Revised left edge stripe.	[illegible]	9-28-83
4	Revised Channelizing Lines or Solid Lane Lines.	E.T.	9/18/85

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

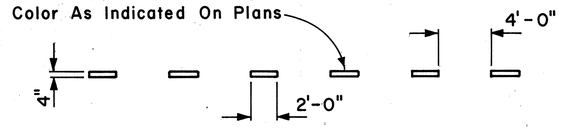
STANDARD DETAILS
RAISED PAVEMENT MARKERS AND STRIPING

Not to Scale — July 1978

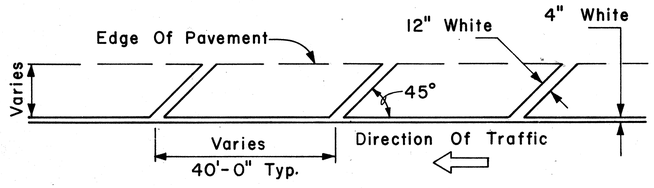
SHEET No. OF SHEETS DT 300

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

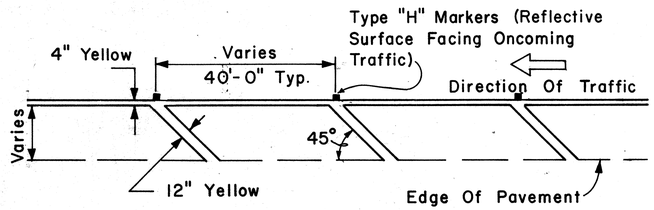
K+E IMPERIAL LA 3207



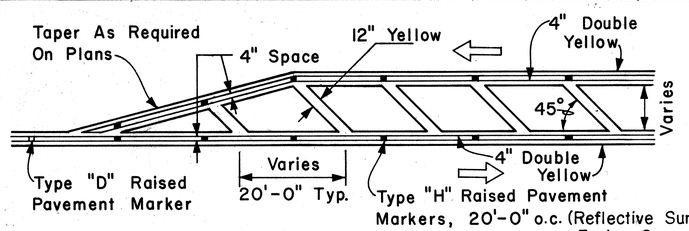
4" GUIDE LINE



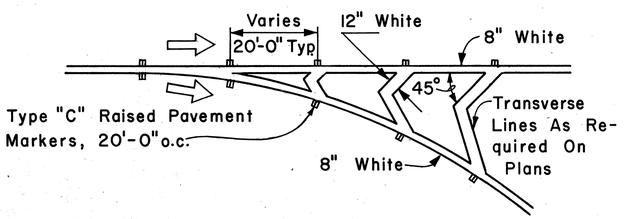
TRANSVERSE RIGHT SHOULDER MARKING



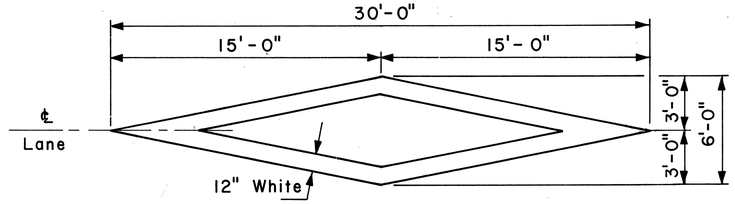
TRANSVERSE LEFT SHOULDER MARKING



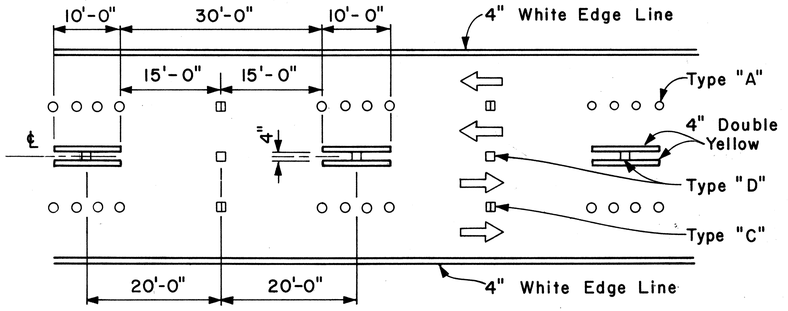
TRANSVERSE MEDIAN MARKING



CHANNELIZING ISLAND

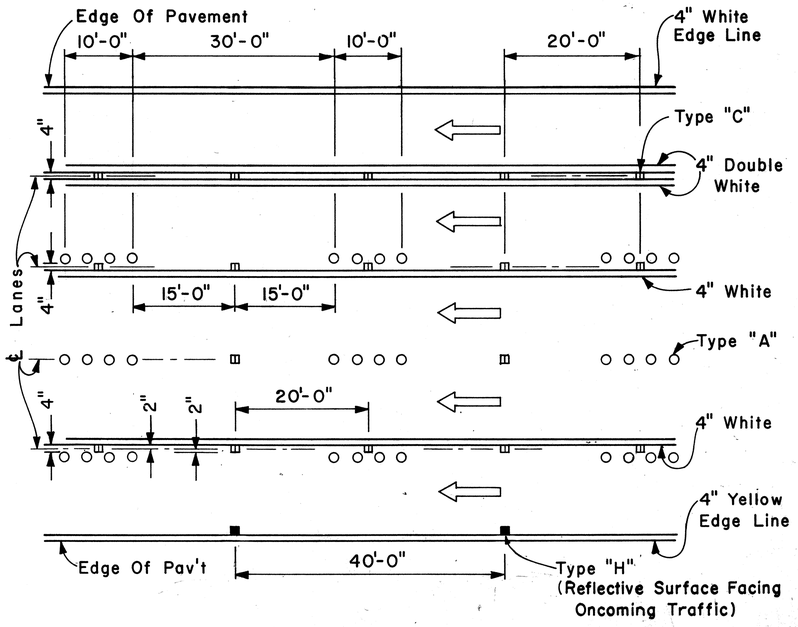


PAVEMENT DIAMOND



NOTE: Traffic Cone Usage Required.

MULTI-LANE REVERSIBLE LANES



MULTI-LANE LANE CHANGE RESTRICTION ZONES

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1 (189)	1986	98	99

GENERAL NOTES:

1. Pavement marking and striping shall conform to the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways," by the FHWA, and as amended.
2. Layout of pavement markings and striping shall be done by the Contractor. The Contractor shall check layout of markings and striping with the Engineer prior to performing work.
3. For additional pavement marking details, see sheet DT 300.

APPROVAL RECOMMENDED:
Eiichi Tanaka — TRAFFIC ENGINEER — 5/2/78 DATE

APPROVED:
Herbert Z. Takeichi — ASSISTANT CHIEF, ENGINEERING — 5/3/78 DATE

NO.	REVISION	APPROVED BY	DATE
1	Revised Transverse left Shoulder Marking, Channelizing Island & Lane Change Restriction Zones.	E.T.	9/19/85

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

MISCELLANEOUS PAVEMENT MARKINGS

Scale: Not to Scale Date: April, 1978

SHEET No. OF SHEETS DT 302

98

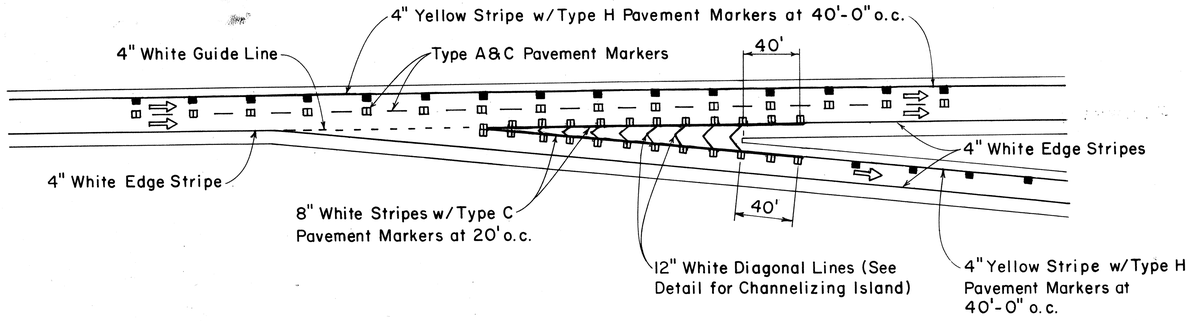
99

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

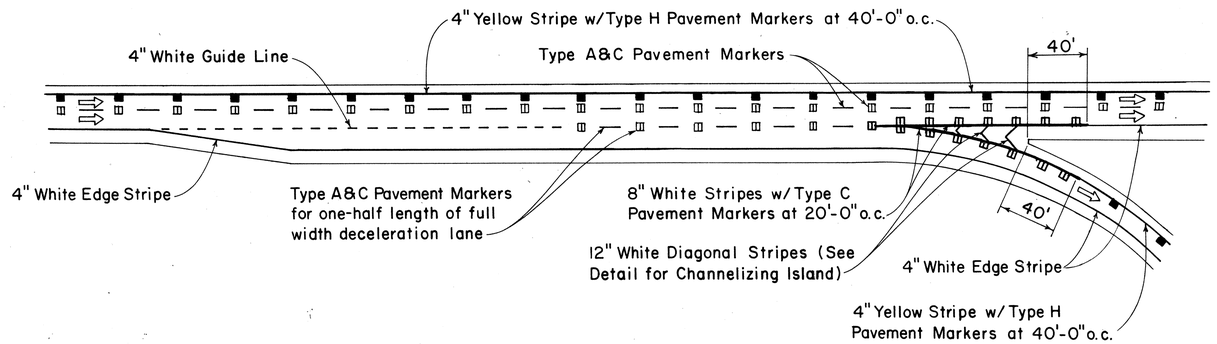
9

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	TR-HI-1 (189)	1980	99	99

TAPERED DECELERATION LANE



PARALLEL DECELERATION LANE

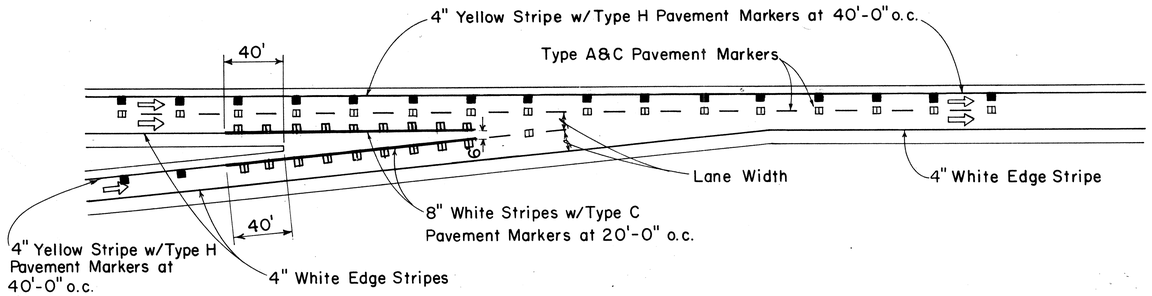


TYPICAL ROADWAY EXIT MARKINGS

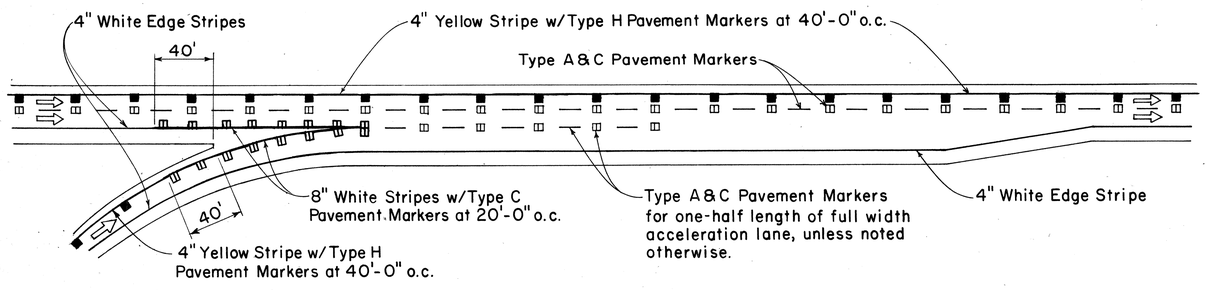
GENERAL NOTES:

1. Pavement Markings and Striping shall conform to the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways", by the FHWA, and as amended.
2. Layout of Pavement Markings and Striping shall be done by the Contractor. The Contractor shall check layout of markings and striping with the Engineer prior to performing work.
3. For additional details, see sheet DT 300.

TAPERED ACCELERATION LANE



PARALLEL ACCELERATION LANE



TYPICAL ROADWAY ENTRANCE MARKINGS

NO.	REVISION	APPROVED BY	DATE
1	Revised Typical Roadway Entrance Markings and Typical Roadway Exit Markings.	E.T.	9/18/85

APPROVAL RECOMMENDED:

Eiichi Tanaka — 7/21/78
TRAFFIC ENGINEER — DATE

APPROVED:

Herbert S. Takeuchi — 7/24/78
ASSISTANT CHIEF, ENGINEERING — DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

MISCELLANEOUS PAVEMENT MARKINGS

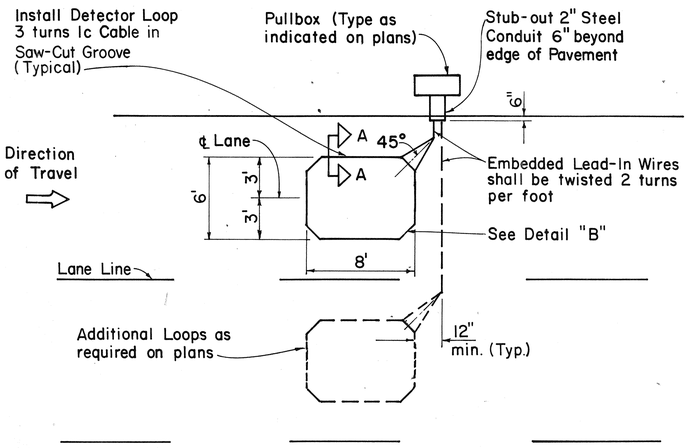
Not to Scale — July 1978

SHEET No. OF SHEETS DT 304

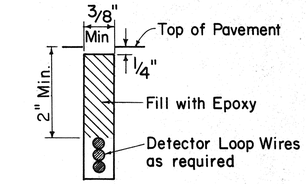
99

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

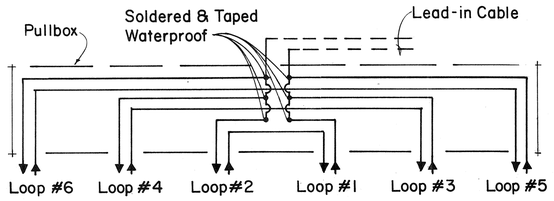
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(69)	1986	C.O. 099 S-1	099



SINGLE LOOP LAYOUT

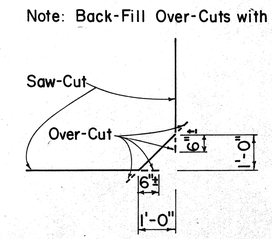


DETECTOR LOOP SAW-CUT
SECTION A-A (TYPICAL)

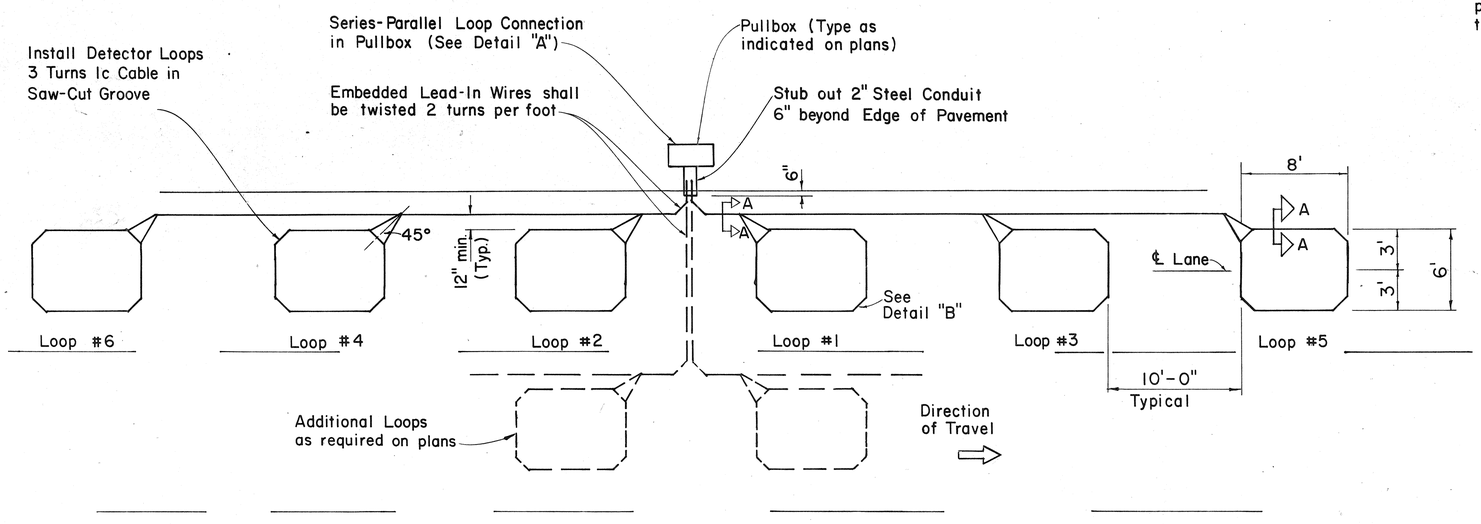


DETAIL "A"

TYPICAL SERIES-PARALLEL LOOP CONNECTION

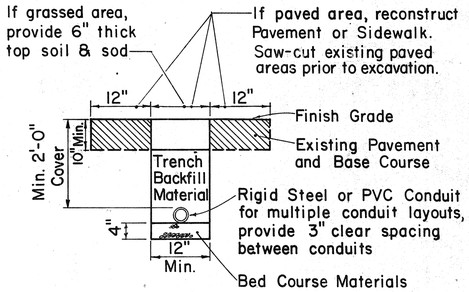


DETAIL "B"
SAW-CUT AT CORNERS



MULTIPLE LOOP LAYOUT

CONTRACT CHANGE ORDER NO. 17



TYPICAL TRENCH SECTION FOR CONDUIT

NOTE:

1. All conduits under roadways shall be steel or PVC schedule 80.

NO.	REVISION	APPROVED BY	DATE
1	Replaces Sht. DT 405 dated 3/5/76	H.T.	9/30/80
2	Revised Section A-A	H.T.	5/15/81
3	Revised Loop Design & Deleted Wiring Diagram	[illegible]	2-4-85
4	Revised Typical Section for conduit and note Deleted #14 from Loop Layout	E.T.	9/18/85

APPROVAL RECOMMENDED:

Eiichi Tanaka — TRAFFIC ENGINEER — 9/26/80 DATE

APPROVED:

Herbert Takeichi — ASSISTANT CHIEF, ENGINEERING — 9/30/80 DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
LOOP DETECTORS

Not to Scale

SHEET No. OF SHEETS DT 405

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

C.O.99 S-1