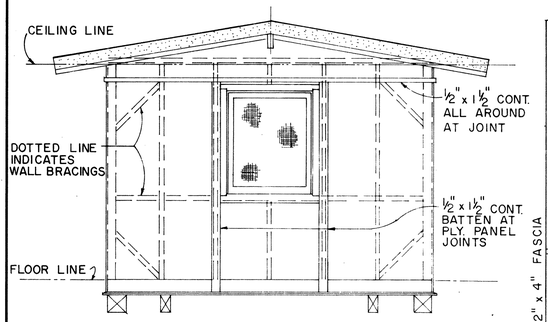
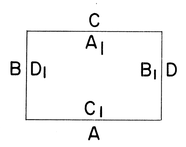
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	HES-0100(28)	1986	34	67



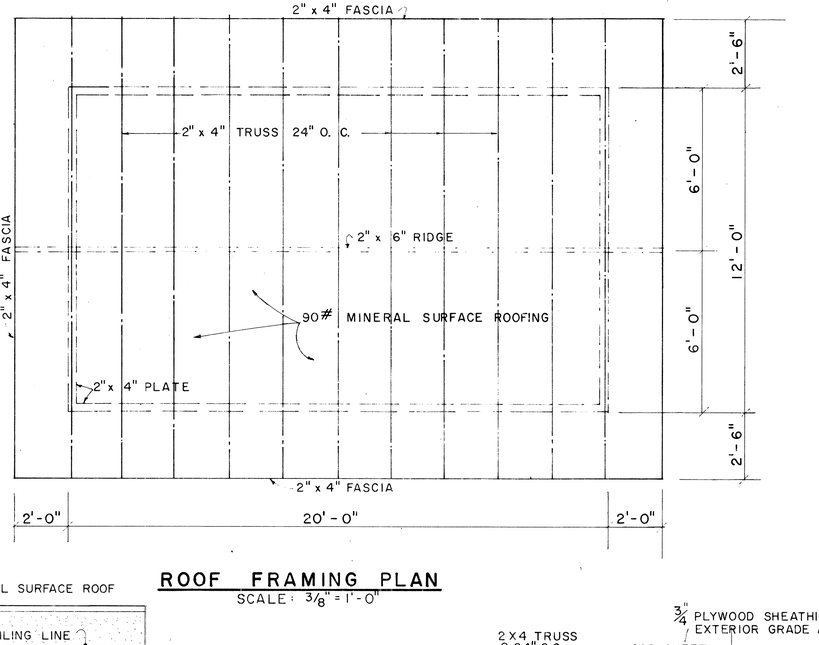
ELEVATION (B)

ELEVATION (D) SIMILAR

SCALE: 3/8" = 1'-0"

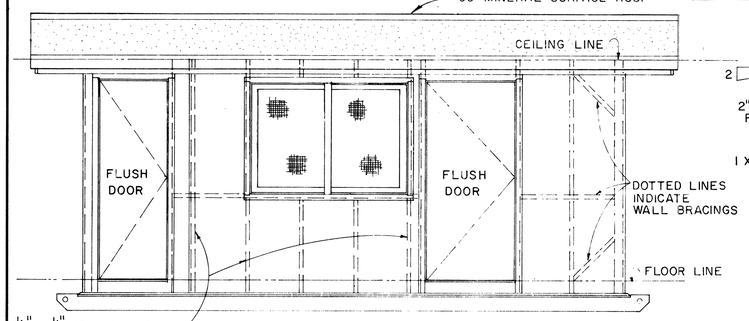


EXTERIOR & INTERIOR KEY



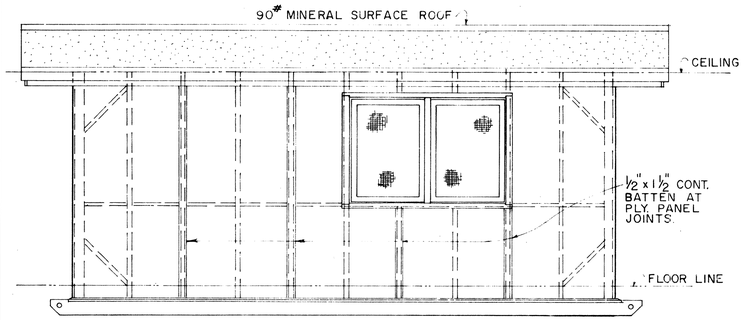
ROOF FRAMING PLAN

SCALE: 3/8" = 1'-0"



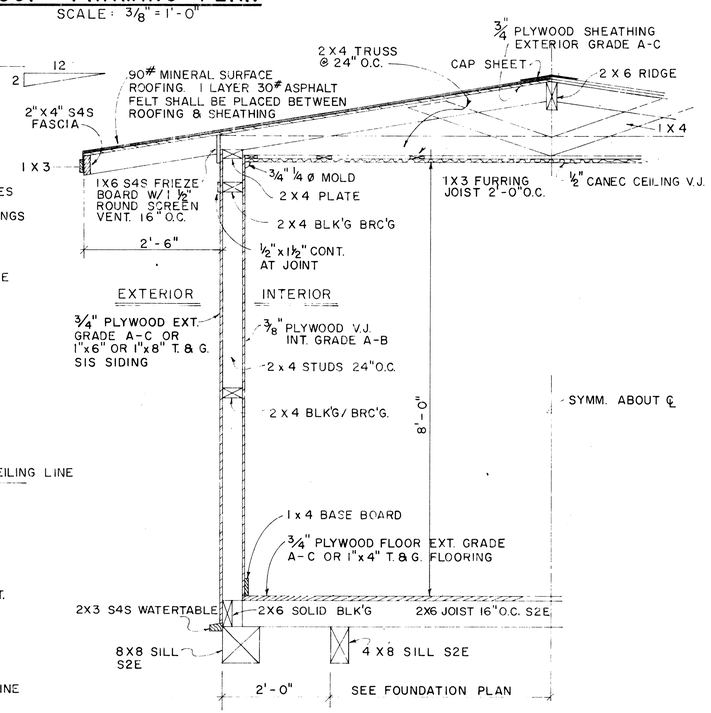
ELEVATION (A)

SCALE: 3/8" = 1'-0"



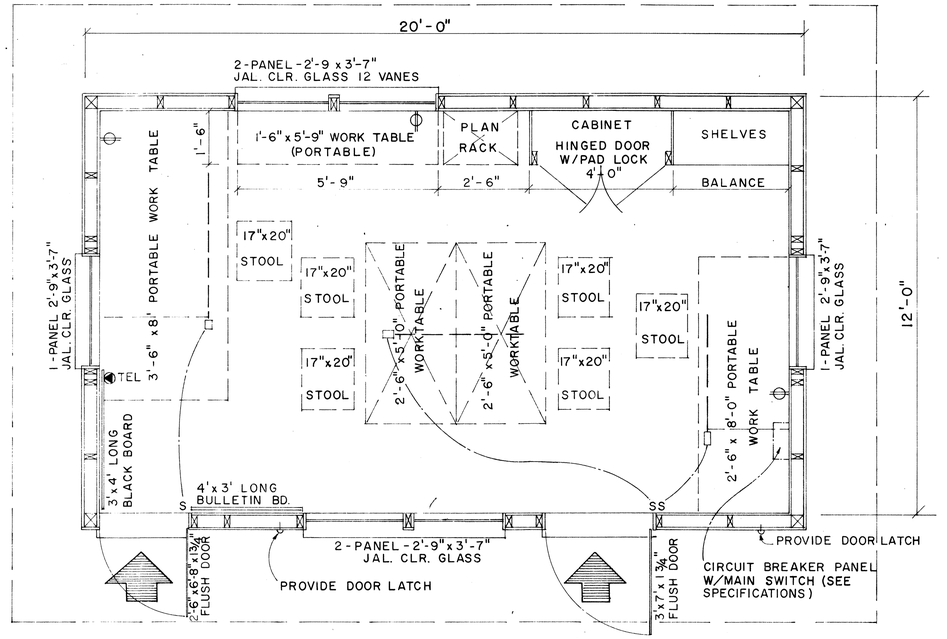
ELEVATION (C)

SCALE: 3/8" = 1'-0"



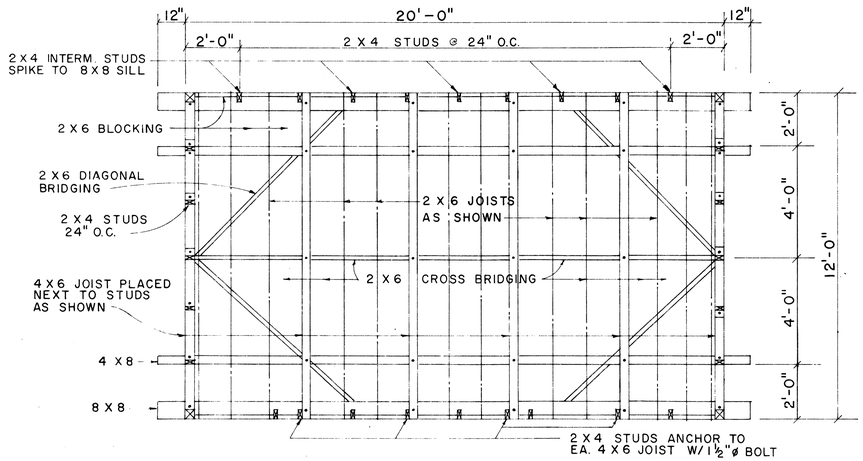
TYPICAL WALL SECTION

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



FLOOR PLAN

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



FOUNDATION FRAMING PLAN

SCALE: 3/8" = 1'-0"

APPROVAL RECOMMENDED:

M. Hirozawa — HIGHWAY DESIGN ENGINEER — 12-4-69 DATE

APPROVED:

Andrew B. Bodnar — ASSISTANT CHIEF, ENGINEERING — 12-10-69 DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

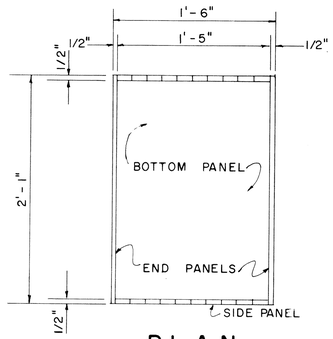
FIELD OFFICE

Scale : As Noted

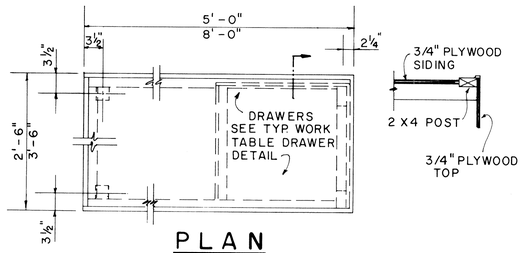
SHEET NO. 34 OF SHEETS | DD 636 I

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

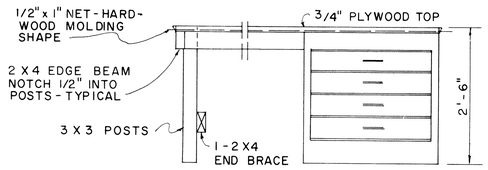
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	HES-0100(20)	1986	35	67



PLAN



PLAN

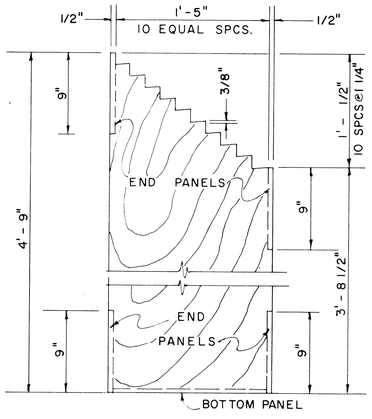


ELEVATION

2'-6" x 5'-0" 2 REQ'D.
3'-6" x 8'-0" 1 REQ'D
2'-6" x 8'-0" 1 REQ'D

PORTABLE WORK TABLE DETAIL

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

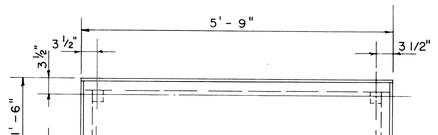


END ELEVATION

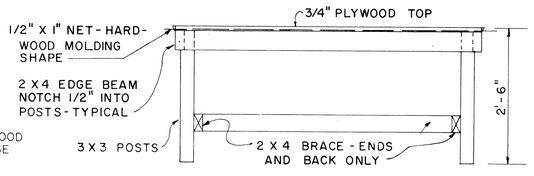
PLAN RACK DETAIL

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

(ONE REQUIRED)



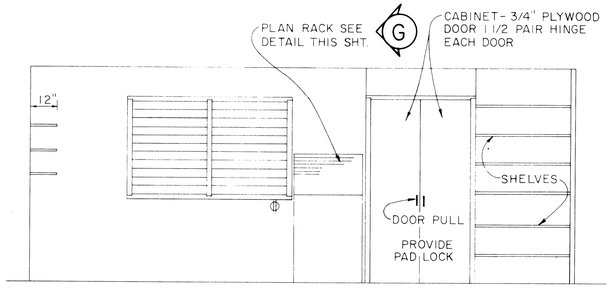
PLAN



ELEVATION

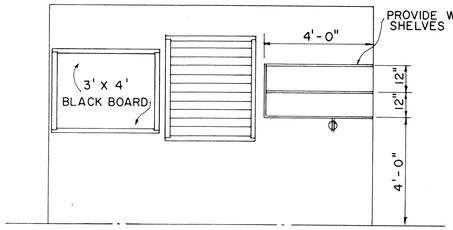
1'-6" x 5'-9" PORTABLE WORK TABLE DETAIL

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



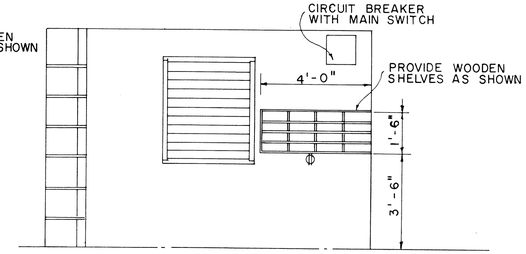
ELEVATION (A1)

SCALE: 3/8" = 1'-0"



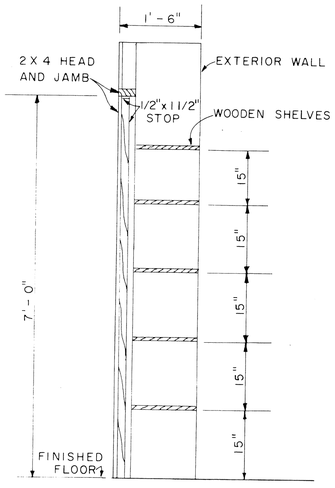
ELEVATION (D1)

SCALE: 3/8" = 1'-0"



ELEVATION (B1)

SCALE: 3/8" = 1'-0"



SECTION (G)

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

APPROVAL RECOMMENDED

HIGHWAY DESIGN ENGINEER — DATE 12-4-69

APPROVED

ASSISTANT CHIEF, ENGINEERING — DATE 12-10-69

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

FIELD OFFICE

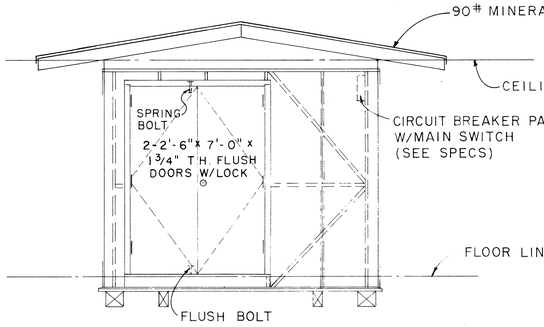
Scale: As Noted

SHEET No. OF SHEETS | DD 636.2

35

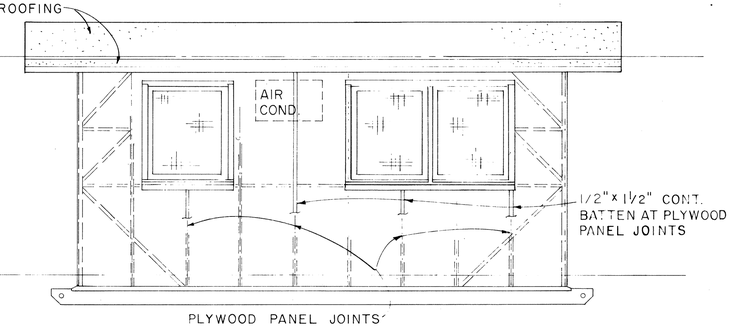
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	"
NOTE BOOK	TRACED BY	"
No.	DESIGNED BY	"
	QUANTITIES BY	"
	CHECKED BY	"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-0100(28)	1986	36	67



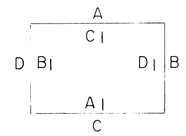
ELEVATION (B)

SCALE: 3/8" = 1'-0"

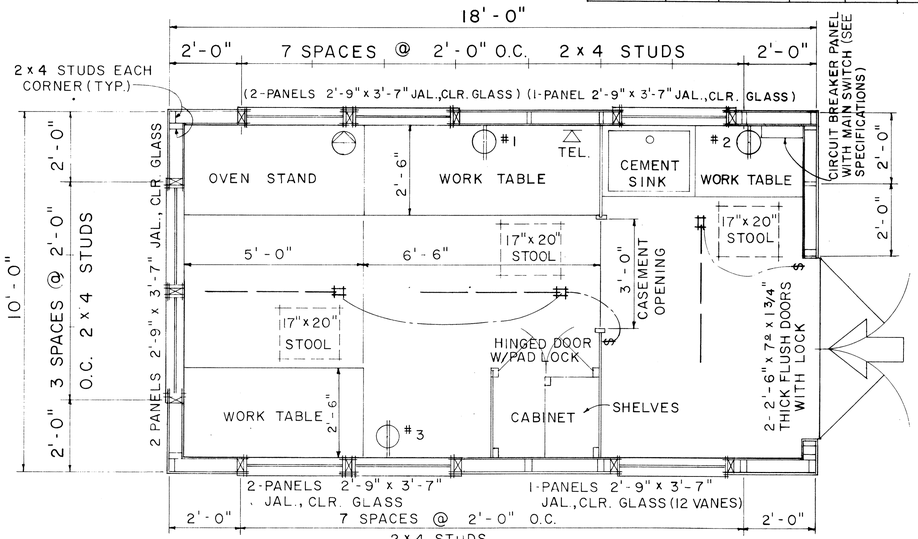


ELEVATION (A)

SCALE: 3/8" = 1'-0"



EXTERIOR & INTERIOR KEY



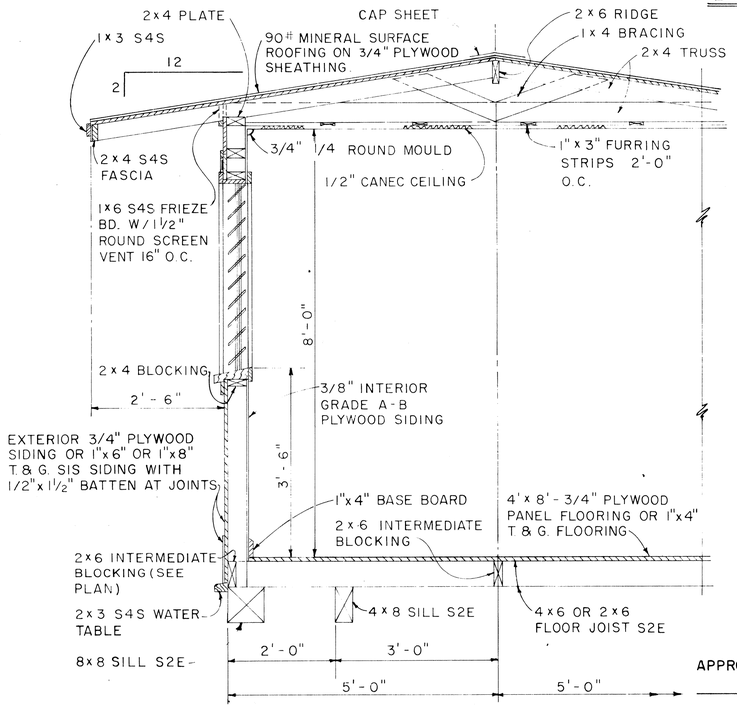
FLOOR PLAN

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

NOTE:

1. FLUORESCENT FIXTURE SHALL BE 48", 2 LAMP, 40 WATT, RAPID START.
2. TELEPHONE AND WALL OUTLET 4'-0" ABOVE FLOOR.

1-LAYER 30# ASPHALT FELT SHALL BE PLACED BETWEEN ROOFING AND SHEATHING.

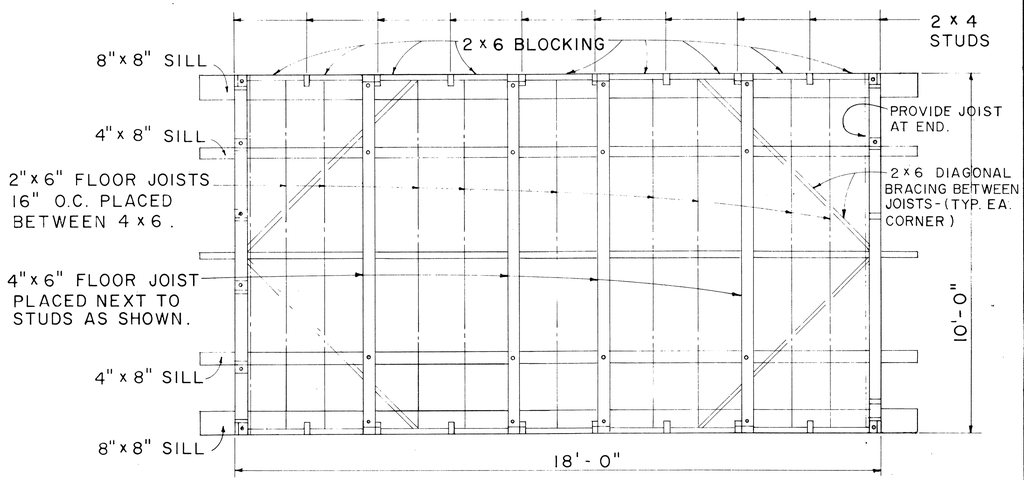


TYPICAL SECTION

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

NOTE:

ALL 3/4" PLYWOOD SHALL BE EXTERIOR GRADE A-C OR BETTER.



FLOOR FRAMING PLAN

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

APPROVAL RECOMMENDED:

HIGHWAY DESIGN ENGINEER — DATE 12-4-69

APPROVED:

ASSISTANT CHIEF, ENGINEERING — DATE 12-10-69

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PROJECT SITE LABORATORY

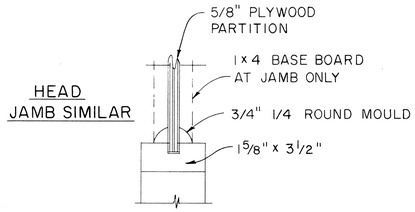
Scale: As Noted

SHEET No. OF SHEETS | DD 636.3

36

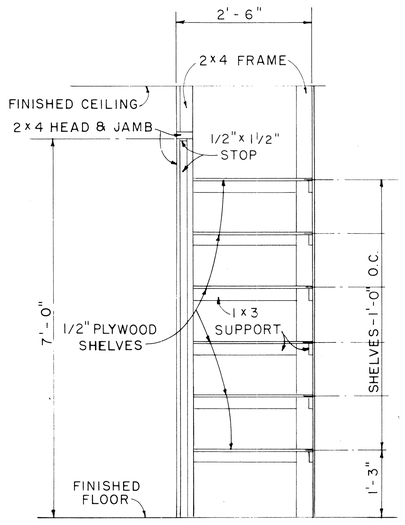
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	" " "
NOTE BOOK	TRACED BY	" " "
	DESIGNED BY	" " "
No.	QUANTITIES BY	" " "
	CHECKED BY	" " "

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-0100(28)	1986	37	67



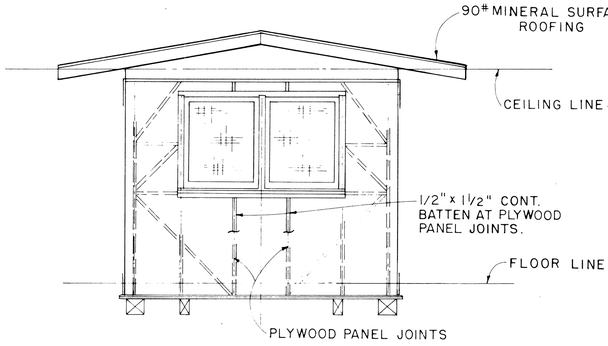
CASEMENT DETAIL

SCALE: 3" = 1'-0"



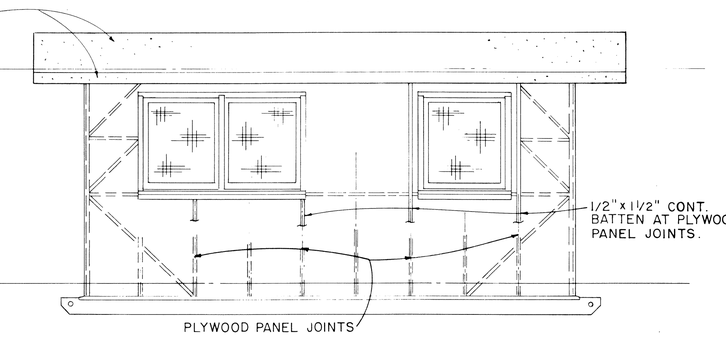
CABINET DETAIL

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



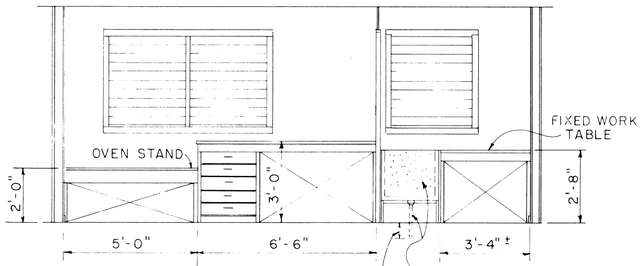
ELEVATION (D)

SCALE: 3/8" = 1'-0"



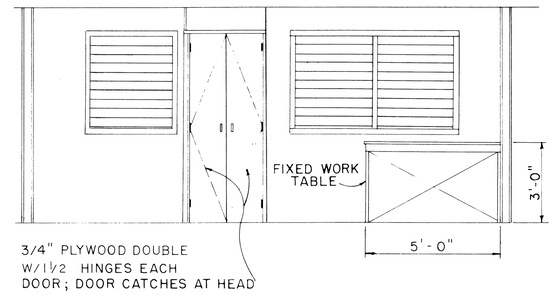
ELEVATION (C)

SCALE: 3/8" = 1'-0"



ELEVATION (C1)

SCALE: 3/8" = 1'-0"



ELEVATION (A1)

SCALE: 3/8" = 1'-0"

APPROVAL RECOMMENDED:

HIGHWAY DESIGN ENGINEER — DATE 12-4-69

APPROVED:

ASSISTANT CHIEF, ENGINEERING — DATE 12-10-69

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PROJECT SITE LABORATORY

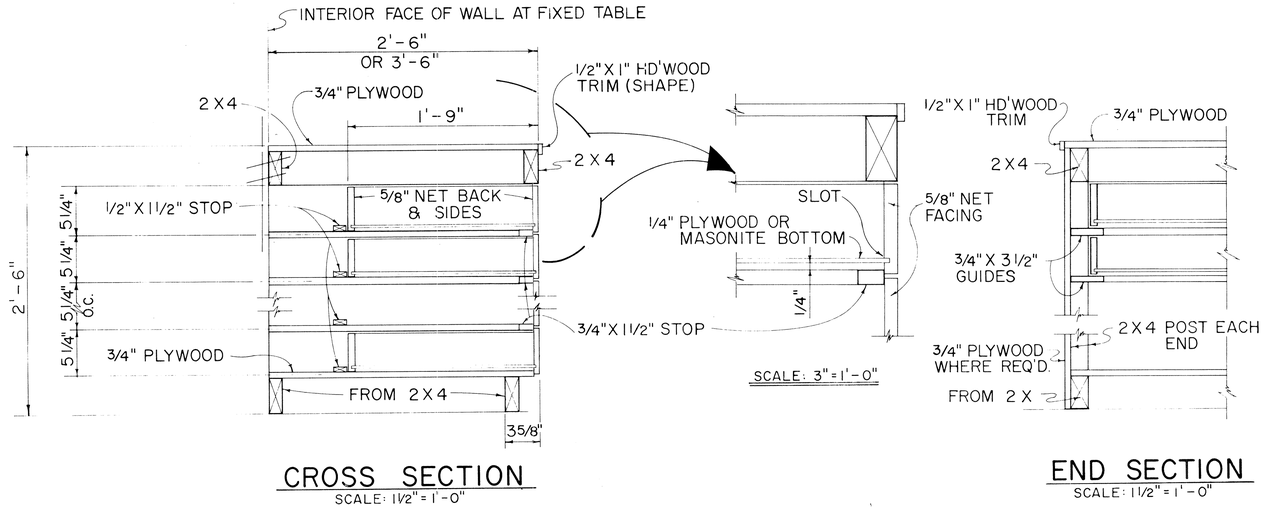
Scale: As Noted

SHEET No. OF SHEETS | DD 636.4

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

37

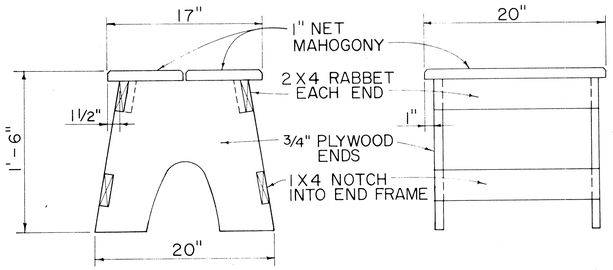
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	HES-0100(28)	1986	38	67



CROSS SECTION
SCALE: 1 1/2" = 1'-0"

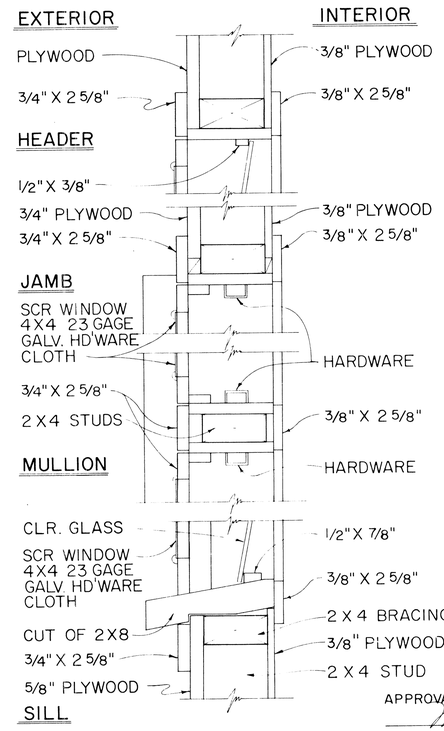
END SECTION
SCALE: 1 1/2" = 1'-0"

TYPICAL WORK TABLE DRAWER DETAIL

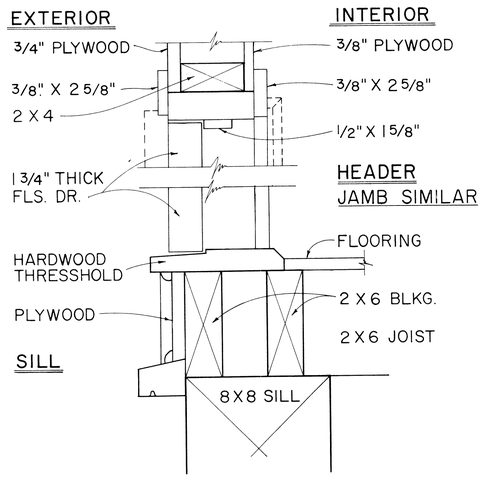


TYPICAL STOOL DETAIL
SCALE: 1 1/2" = 1'-0"

NOTE: CONTRACTOR MAY WITH THE APPROVAL OF THE ENGINEER FURNISH THE FIELD OFFICE OR PROJECT SITE LABORATORY WITH STOOLS OTHER THAN THE TYPE SHOWN IN THE DETAIL.

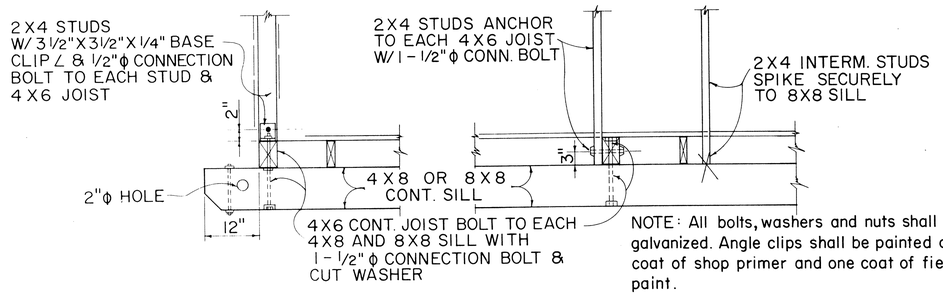


TYPICAL DETAIL JALOUSIES WINDOWS
SCALE: 3" = 1'-0"



TYP. SWING OUT DOOR

TYPICAL SINGLE OR DOUBLE EXTERIOR DOOR DETAIL



NOTE: All bolts, washers and nuts shall be galvanized. Angle clips shall be painted one coat of shop primer and one coat of field paint.

AT ENDS OF BLDG. ALONG SIDES OF BLDG.

TYPICAL 2X4 STUD & 4X6 FLOOR JOIST BASE CONNECTION DETAILS

APPROVAL RECOMMENDED:
HIGHWAY DESIGN ENGINEER — DATE 12-4-69

APPROVED:
ASSISTANT CHIEF, ENGINEERING — DATE 12-10-69

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

FIELD OFFICE
&
PROJECT SITE LABORATORY

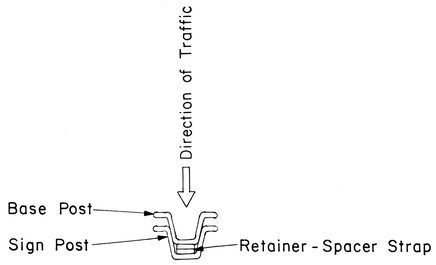
Scale: As Noted

SHEET No. OF SHEETS | DD 636.5

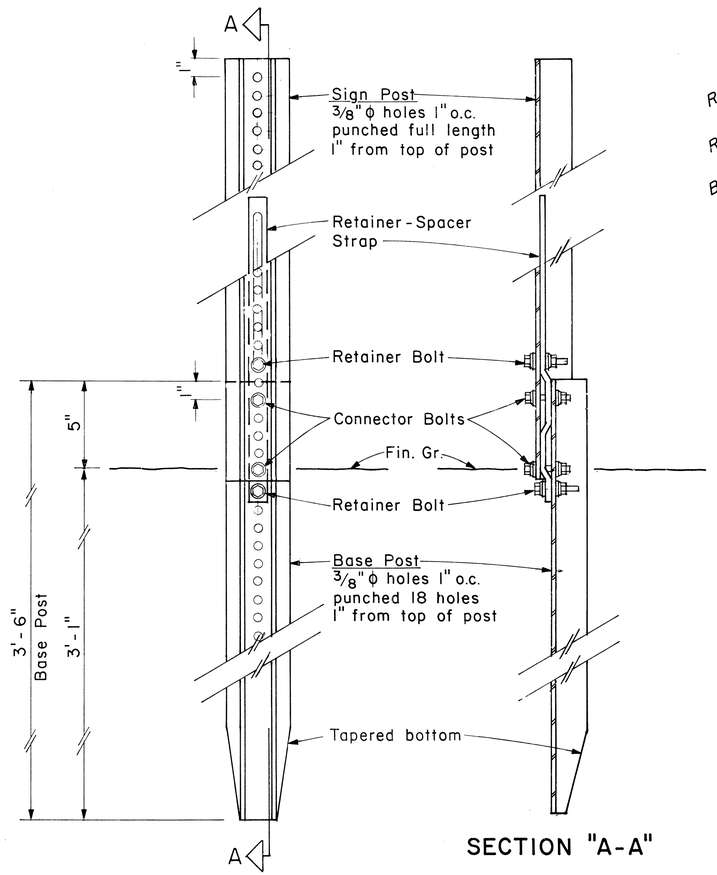
38

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.	HES-0100(28)	1986	39	67



TOP VIEW

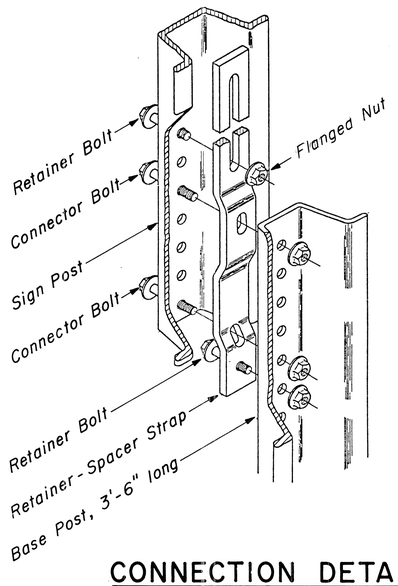


BACK VIEW

SECTION "A-A"

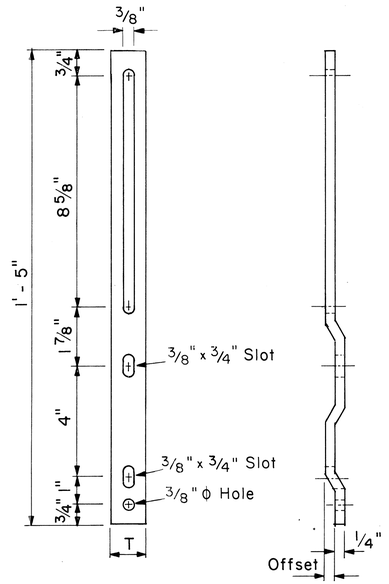
ANCHOR BASE DETAIL

Scale: 3" = 1'-0"



CONNECTION DETAIL

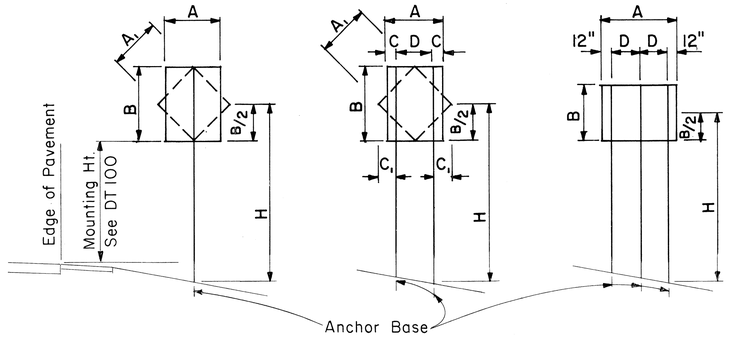
Not to Scale



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 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 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

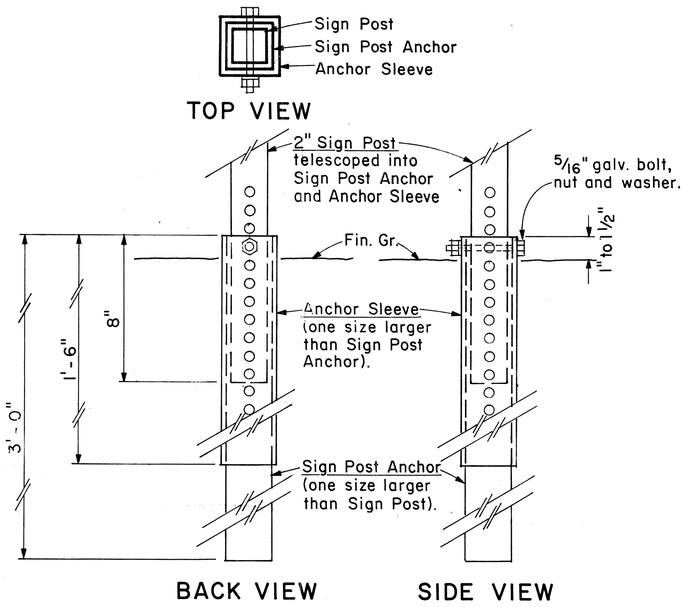
GALVANIZED FLANGED CHANNEL SIGN POST MOUNTING

Scale: As Shown — Date: Sept. 1982

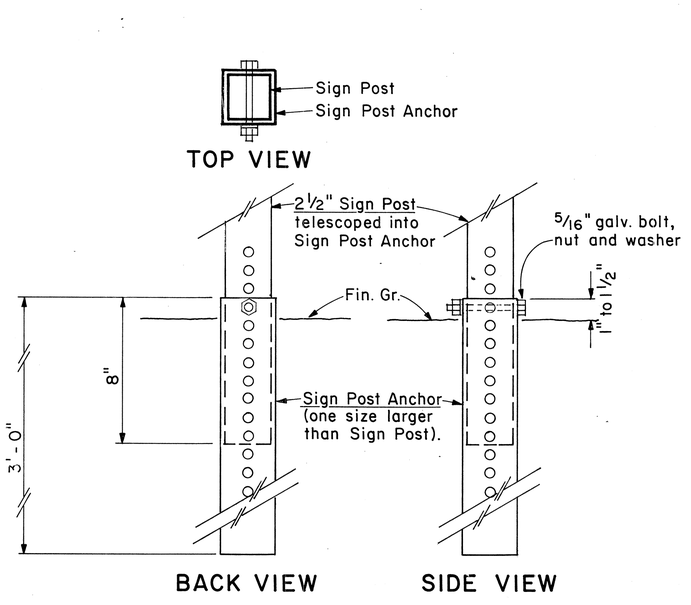
SHEET No. OF SHEETS DT 100A

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-0100(28)	1986	40	67



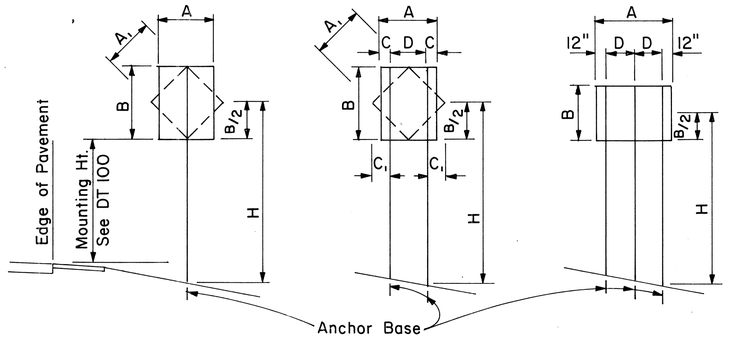
2" SIGN POST INSTALLATION



2 1/2" SIGN POST INSTALLATION

ANCHOR BASE DETAIL

Scale: 3" = 1'-0"



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 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 2.

SQUARE TUBE: 1 - POST INSTALLATION								
Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (ft.)						
		7	8	9	10	11	12	
2"	62	8.8	7.7	6.8	6.1	5.6	4.8	A x B (Area, sq. ft.)
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.)						
		7	8	9	10	11	12	
2"	122	17.4	15.2	13.5	12.2	11.0	10.1	A x B (Area, sq. ft.)
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.)						
		7	8	9	10	11	12	
2"	183	26.0	22.8	20.3	18.2	16.6	15.2	A x B (Area, sq. ft.)
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 = 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:

Herbert 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

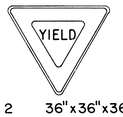
Scale: As Shown — Date: Sept. 1982

SHEET NO. OF SHEETS DT100B

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-0100(28)	1986	41	67

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



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

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 4 "x4f"
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"

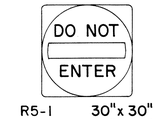
R4-3 24"x30"
R4-3-A 48"x60"

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"x6"
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 Zadoski 3-20-72
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 101 Approved 12-30-69	H.I.	8/30/72
2	Revised General Note 1	H.I.	10/10/74
3	Added General Note 5	H.I.	8/3/77
4	Revised Signs and General Note 1	E.T.	3/15/82

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

REGULATORY SIGNS

NOT TO SCALE

SHEET No. OF SHEETS DT 101

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.	HES-0100(28)	1986	42	67

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"

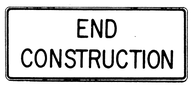
CW21-6 30"x30"

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:
Ericka Tanaka
TRAFFIC ENGINEER — 3/21/72 DATE

APPROVED:
Walter Ralston
ASSISTANT CHIEF, ENGINEERING — 3/23/72 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.	10/16/74
3	Revised General Note 2	MF	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.	9/19/85

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

CONSTRUCTION SIGNS

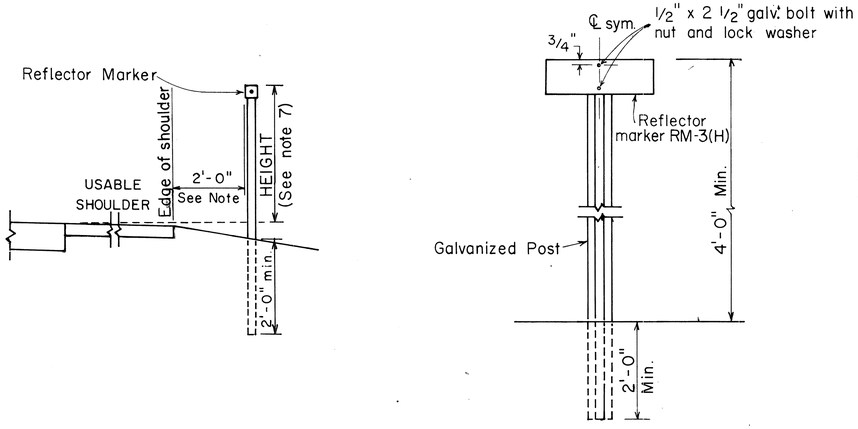
NOT TO SCALE

SHEET No. 42 OF SHEETS DT 104

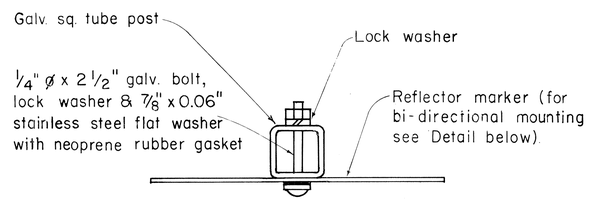
ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE
NOTE BOOK | No.

K&E IMPERIAL LA 3207

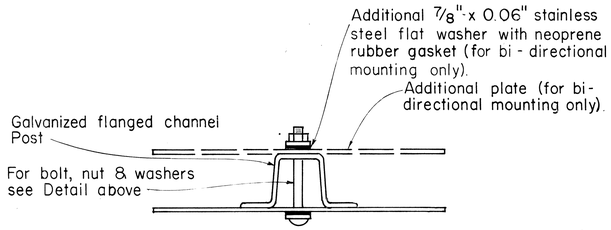
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-0100(28)	1986	43	67



REFLECTOR MARKER MOUNTING DETAIL



GALVANIZED SQUARE TUBE POST

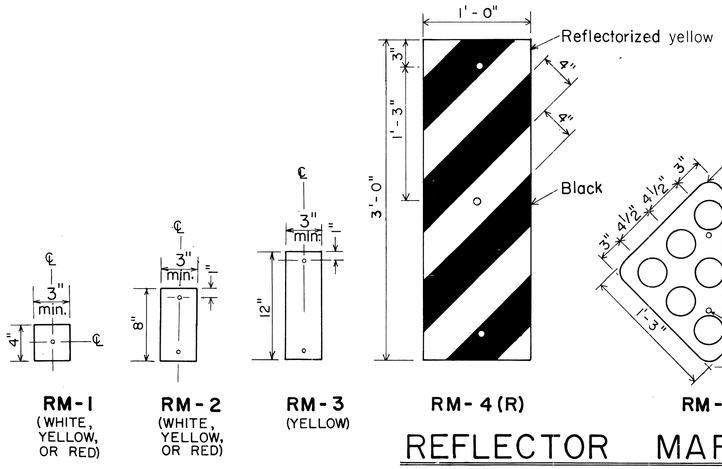


GALVANIZED FLANGED CHANNEL POST

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	[illegible]	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 R. Takeuchi — ASSISTANT CHIEF, ENGINEERING — 11/15/77 DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

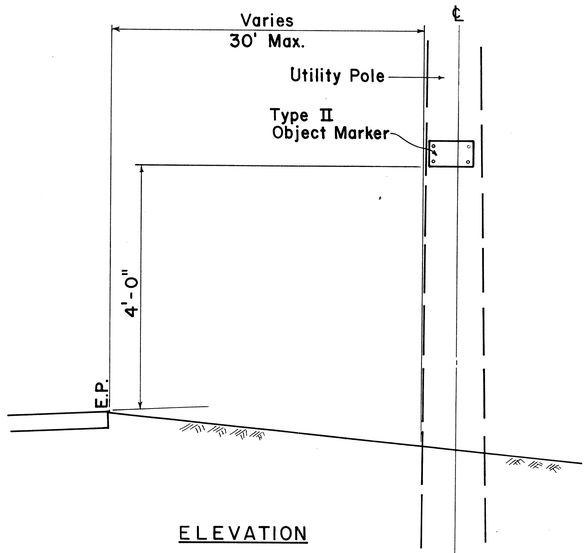
STANDARD DETAILS
MISCELLANEOUS REFLECTOR MARKERS

Not to scale — June, 1977

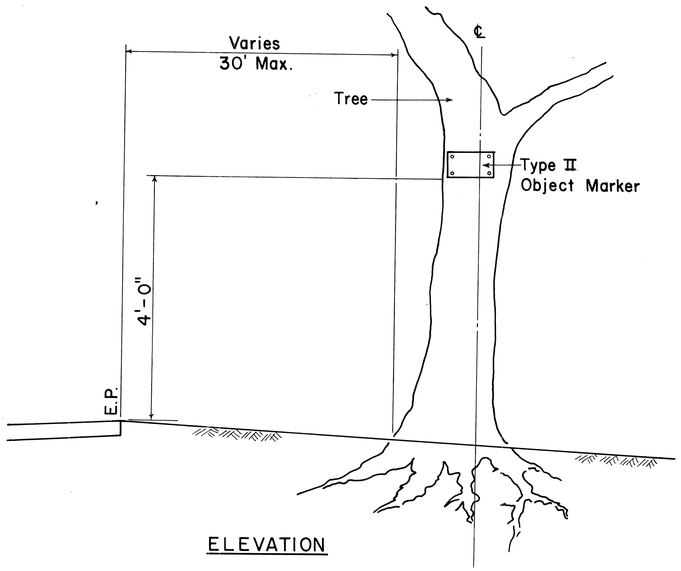
SHEET No. OF SHEETS DT 110

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

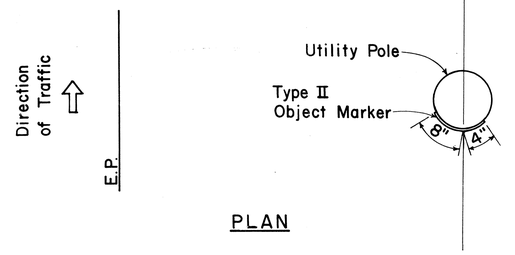
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-0100(28)	1986	44	67



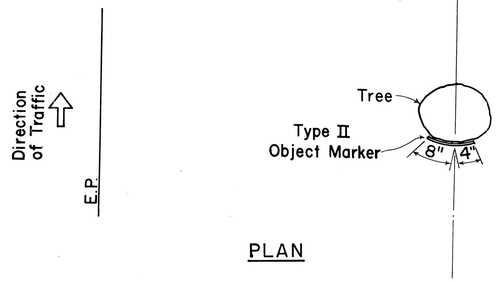
ELEVATION



ELEVATION



PLAN

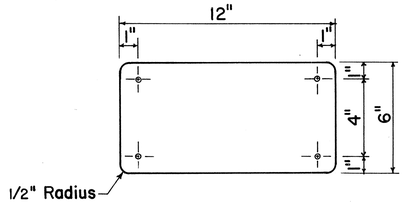


PLAN

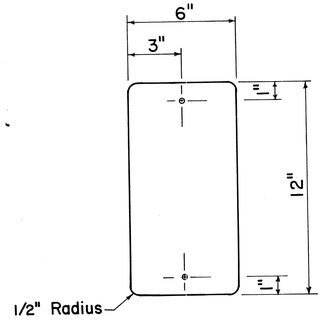
TYPICAL TYPE II OBJECT MARKER MOUNTING DETAIL

GENERAL NOTES

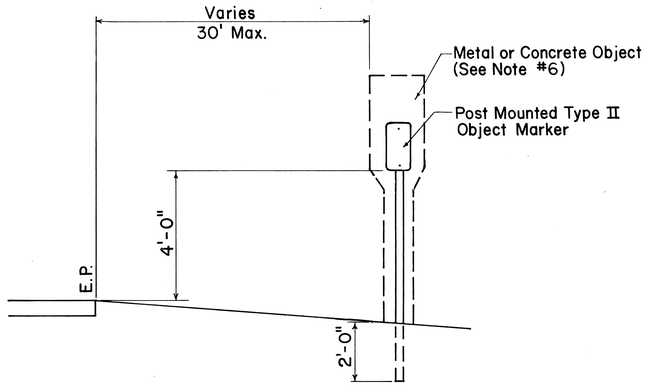
1. All objects (utility poles or trees) that are within the State highway right of way and within 30 feet of the roadway edge of pavement shall be marked as directed by the Engineer.
2. The Contractor shall prepare the mounting surface of each object as directed by the Engineer and place the Type II Object Marker as shown on this plan.
3. Type II Object Markers shall be mounted on utility poles and trees with 1¾" galv. roofing nails (4 ea.).
4. Branches of trees which obscure the object markers shall be trimmed. (Payment shall be incidental to Type II Object Markers as shown in the proposal).
5. Type II Object Markers for utility poles and trees, etc., shall be made of amber reflective sheeting material overlayed on 0.020" aluminum sheeting.
6. Objects such as concrete posts, concrete or rock walls and boxes, metal posts (greater than 2" in diameter), or metal boxes shall be marked with post mounted object markers. Post mounted Type II Object Markers shall conform to the following requirements:
   a. It shall consist of amber reflective sheeting material overlayed on 0.063" thick sheet aluminum backing of the dimensions shown on the plans.
   b. It shall be mounted on either metal posts or flexible delineator posts with ¼"x2" galv. bolts, nuts and washers. Metal posts shall be galvanized and shall be either 1½"x1½", 12 gage square tube posts or 1.12 lbs. per ft. flanged channel posts.



TYPE II OBJECT MARKER



TYPE II OBJECT MARKER
POST MOUNTED



POST MOUNTED TYPE II OBJECT MARKER DETAIL

APPROVAL RECOMMENDED:

Eiichi Tanaka — 3/30/83
TRAFFIC ENGINEER — DATE

APPROVED:

S I Fujiyama — 3-31-83
ASSISTANT CHIEF, ENGINEERING — DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

TYPE II OBJECT MARKERS

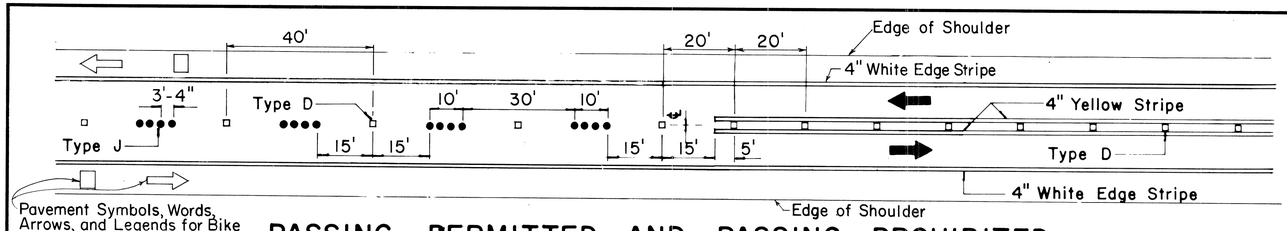
Scale: Not to scale — Date: March 1983

SHEET NO. OF SHEETS DT III

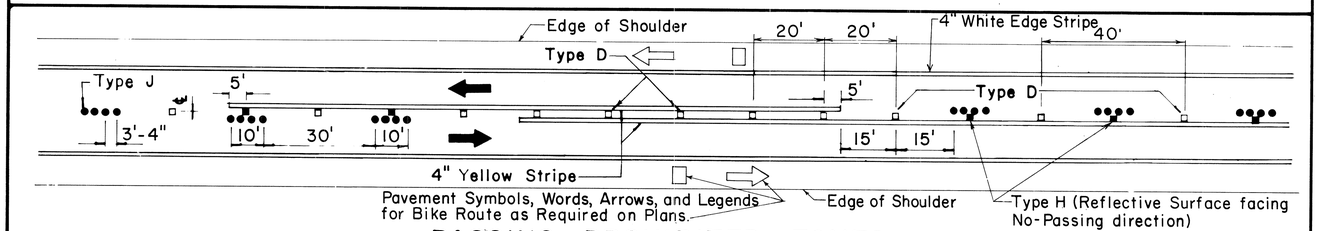
ORIGINAL PLAN | NOTE BOOK | No.
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-0100(28)	1986	45	67

TWO - LANE

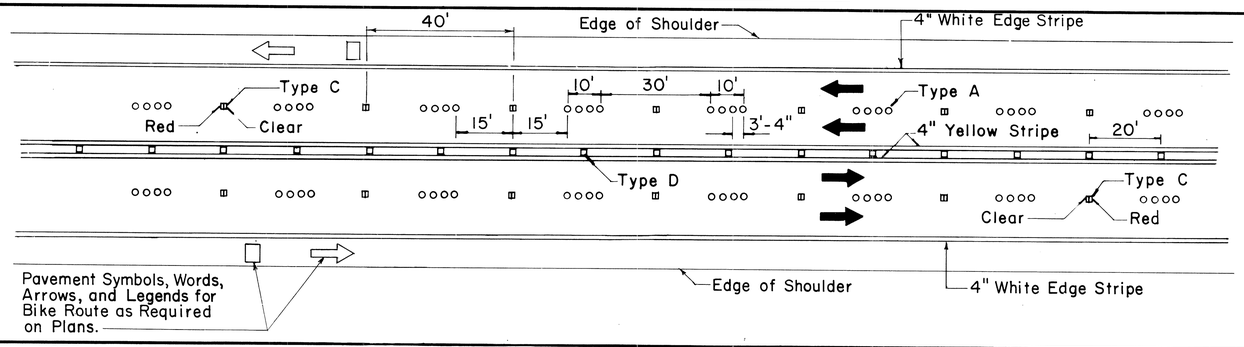


PASSING PERMITTED AND PASSING PROHIBITED

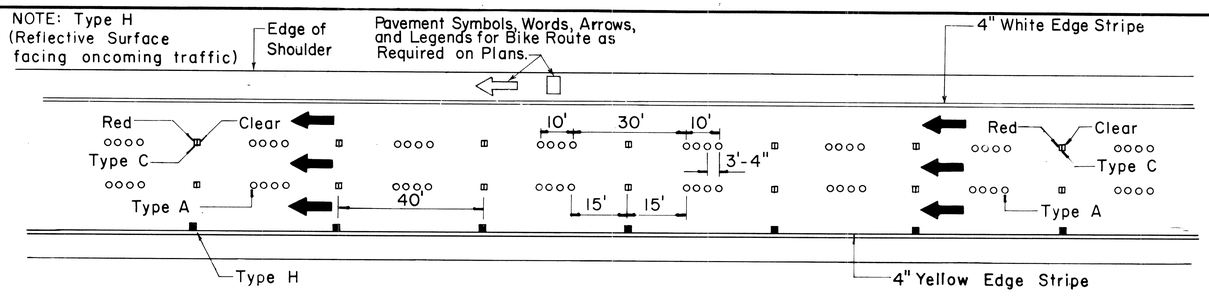


PASSING PROHIBITED ZONES

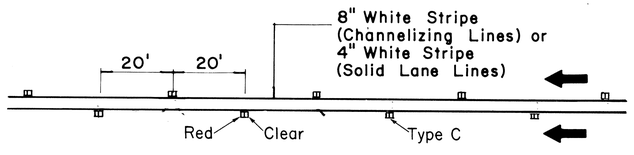
MULTI - LANE



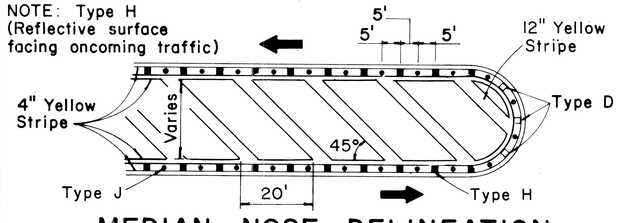
DIVIDED HIGHWAY AND FREEWAY



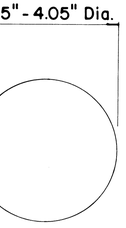
MISCELLANEOUS



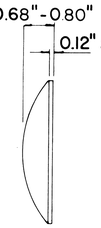
CHANNELIZING LINES OR SOLID LANE LINES

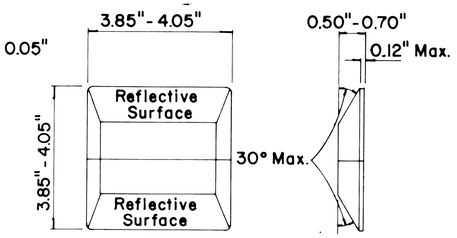


MEDIAN NOSE DELINEATION



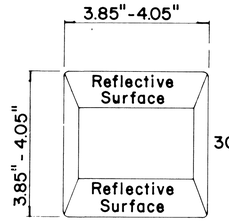
TYPE A
NON - REFLECTIVE WHITE MARKER

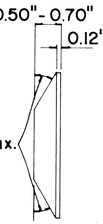




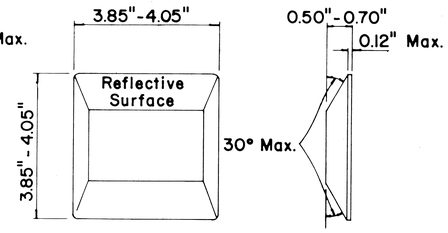
TYPE C
RED - CLEAR REFLECTIVE MARKER

TYPE J
NON - REFLECTIVE YELLOW MARKER





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:

Eiichi 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.	[illegible]	9/18/85

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
RAISED PAVEMENT MARKERS AND STRIPING

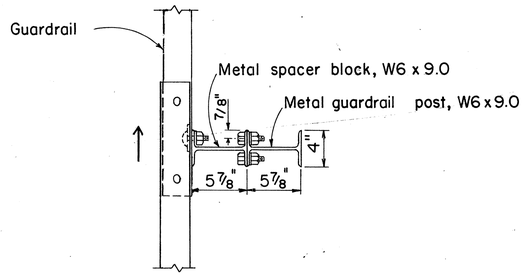
Not to Scale — July 1978

SHEET No. OF SHEETS DT 300

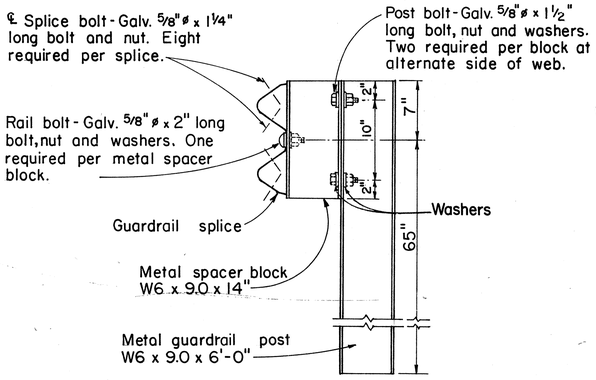
ORIGINAL PLAN	NOTE BOOK	No.	DATE
SURVEY PLOTTED BY			
DRAWN BY			
TRACED BY			
DESIGNED BY			
QUANTITIES BY			
CHECKED BY			

K-E IMPERIAL LA 3207

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-0100(28)	1986	46	67



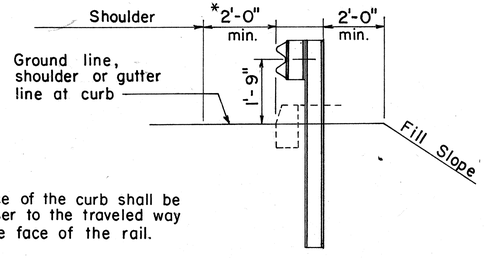
PLAN



ELEVATION

SINGLE METAL GUARDRAIL ON METAL POST WITH METAL SPACER BLOCK

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

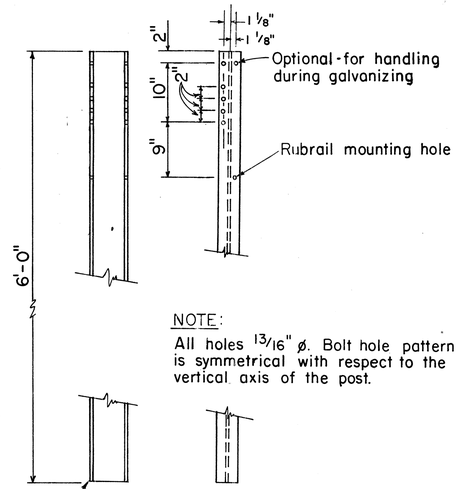


Note:
The face of the curb shall be no closer to the traveled way than the face of the rail.

AT SHOULDER SECTION

TYPICAL METAL GUARDRAIL DETAIL

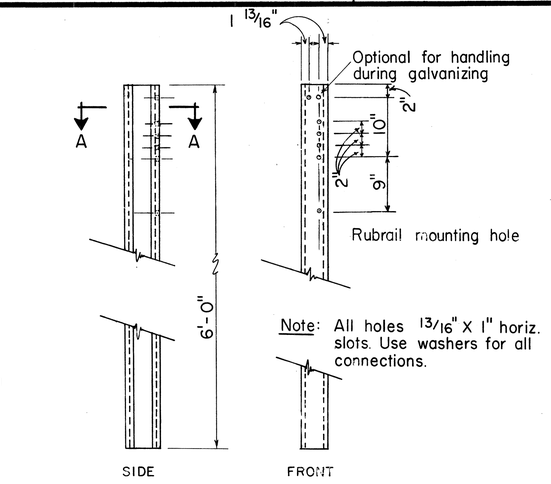
SCALE: 1/2" = 1'-0"



NOTE:
All holes 13/16" ø. Bolt hole pattern is symmetrical with respect to the vertical axis of the post.

STRUCTURAL SHAPE POST AND BLOCK

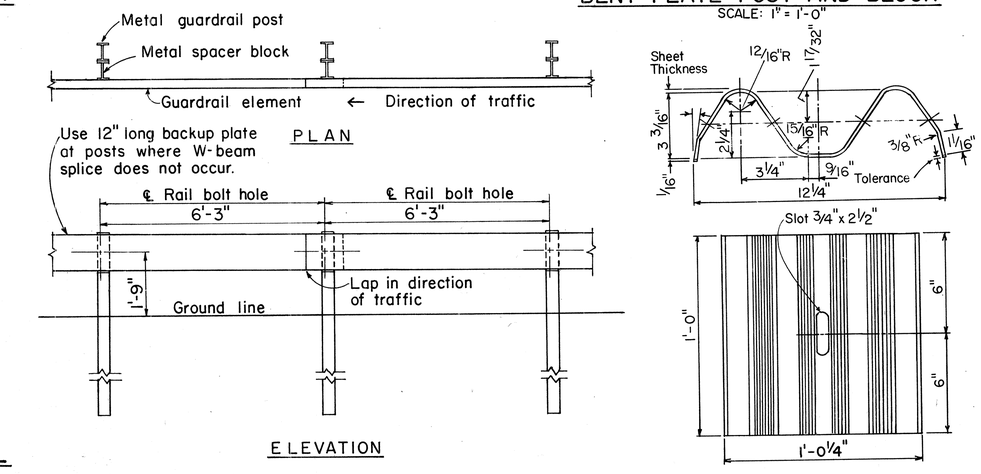
SCALE: 1" = 1'-0"



SECTION A-A
N.T.S.

BENT PLATE POST AND BLOCK

SCALE: 1" = 1'-0"



ELEVATION

METAL GUARDRAIL ON METAL POST WITH METAL SPACER BLOCK

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

BACK-UP-PLATE

N.T.S.

GENERAL NOTES

1. Both of the alternate type posts may be used on any one project however, only one type of post shall be used in any single run of guardrail.
2. All hardware, posts and blocks shall be galvanized. No punching, drilling or cutting will be permitted after galvanizing.
3. Connection details for bent plate post and block shall be similar to the details shown for sfructural shape post, and block.
4. Where conditions require, special post lengths in increments of 6 inches may be specified.
5. For details of rail elements, bolts and nuts, see sheet DT 501.
6. All fasteners, posts, blocks and rail elements shall conform to the latest edition and amendments of "A Guide to Standardized Highway Barrier Rail Hardware", a report prepared and approved by the AASHTO-AGC-ARTBA Joint Cooperative Committee.

APPROVAL RECOMMENDED:
Eiichi Tanaka — TRAFFIC ENGINEER — 9/7/82 DATE

APPROVED:
Herbert Sakoshi — ASSISTANT CHIEF, ENGINEERING — 9/22/82 DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes sht. DT 500 approved 12/30/69.	H.F.	9/22/82
2	Added General Notes No. 6	[illegible]	9-28-83
3	Added details for adjusting guardrail height and added Back-up Plate and washer	E.T.	9/18/85

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

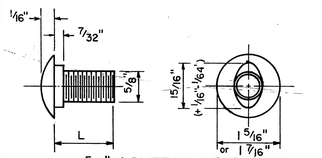
STANDARD DETAILS
METAL GUARDRAIL

Scale: As Shown — July, 1982

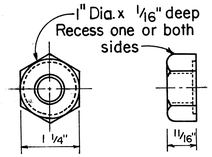
SHEET No. OF SHEETS DT 500

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-0100(28)	1986	47	67



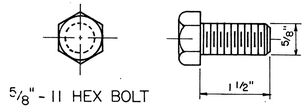
5/8" ø BUTTON HEAD BOLT



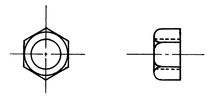
5/8" ø RECESS NUT

L	Thread Length	Intended Use
1 1/4"	Full length thread	Splice rail elements
2"	1 1/2" min. thread len.	Fasten rails to posts

5/8" BUTTON HEAD BOLT AND RECESS NUT
Scale: NTS

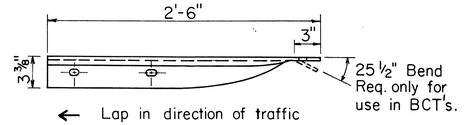


5/8"-11 HEX BOLT

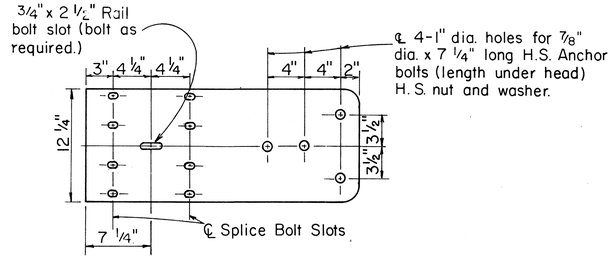


5/8"-11 HEX NUT

5/8" HEX POST BOLT AND NUT
Scale: N.T.S.

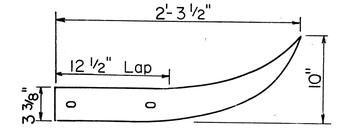


← Lap in direction of traffic

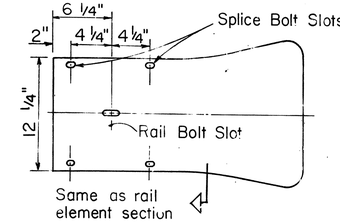


W BEAM TERMINAL CONNECTOR
Scale: 1 1/2" = 1'-0"

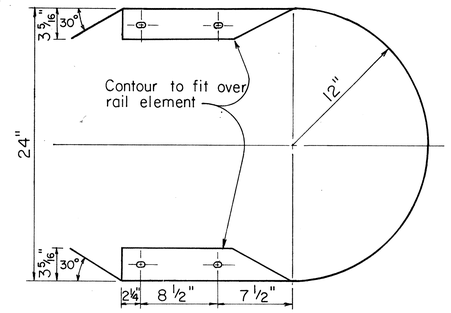
← Lap in direction of traffic

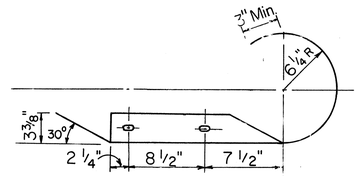


← Lap in direction of traffic

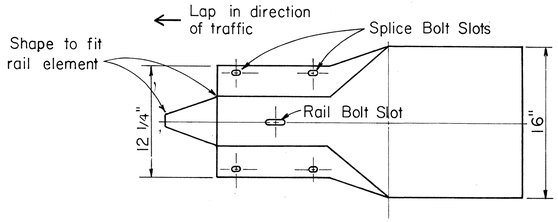


W BEAM END SECTION (FLARED)
Scale: 1 1/2" = 1'-0"



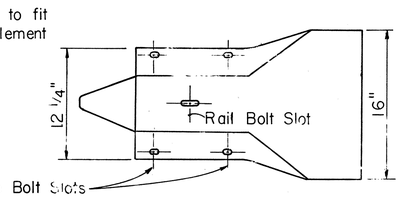


← Lap in direction of traffic

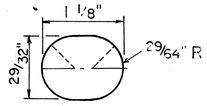


W BEAM END SECTION (BUFFER)
Scale: 1 1/2" = 1'-0"

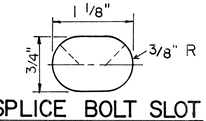
Shape to fit rail element



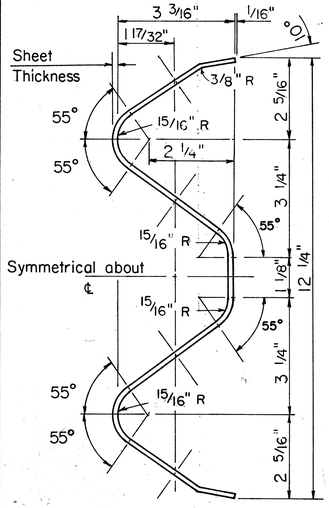
W BEAM END SECTION (ROUNDED)
Scale: 1 1/2" = 1'-0"



SPLICE BOLT SLOT

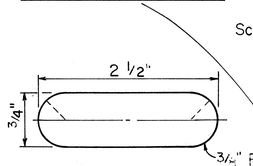


SPLICE BOLT SLOT FOR ALL ENDS

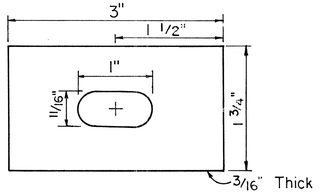


RAIL ELEMENT SECTION
Scale: 6" = 1'-0"

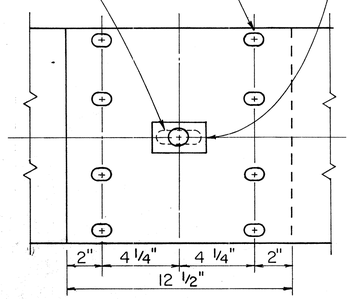
Scale: Full Size



RAIL BOLT SLOT



RAIL BOLT WASHER



RAIL SPLICE
Scale: 3" = 1'-0"

APPROVAL RECOMMENDED:
Eiichi Tanaka — TRAFFIC ENGINEER — 9/20/82 DATE

APPROVED:
Herbert Takishin — ASSISTANT CHIEF, ENGINEERING — 9/22/82 DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes sht. DT 501 approved 12/30/69	H.T.	9/22/82

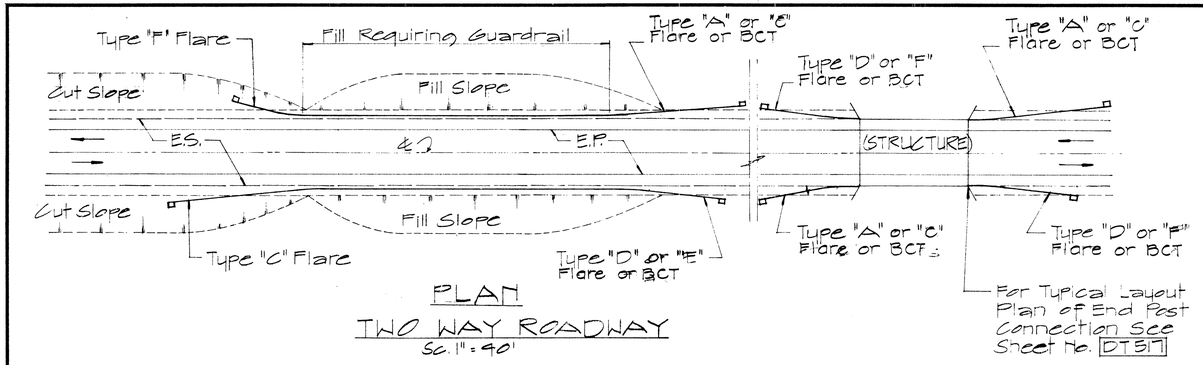
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
METAL GUARDRAIL

Scale: As Noted — July, 1982

SHEET No. OF SHEETS DT 501

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



PLAN

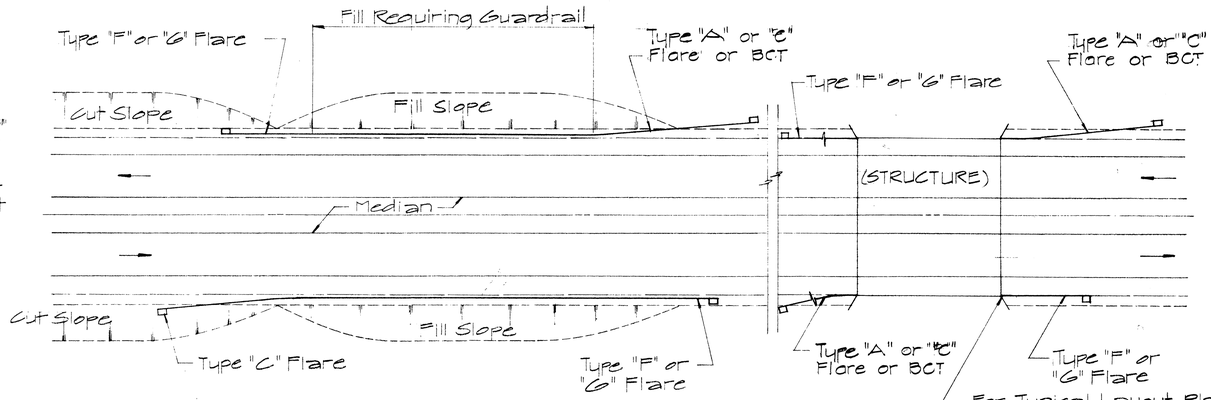
TWO WAY ROADWAY

Sc. 1" = 40'

NOTE:

1. Metal guard rail connection to structures requires End Post Connection. See structure plans.
2. For detail of Breakaway Cable Terminal (BCT) See Sheet No. DT 519

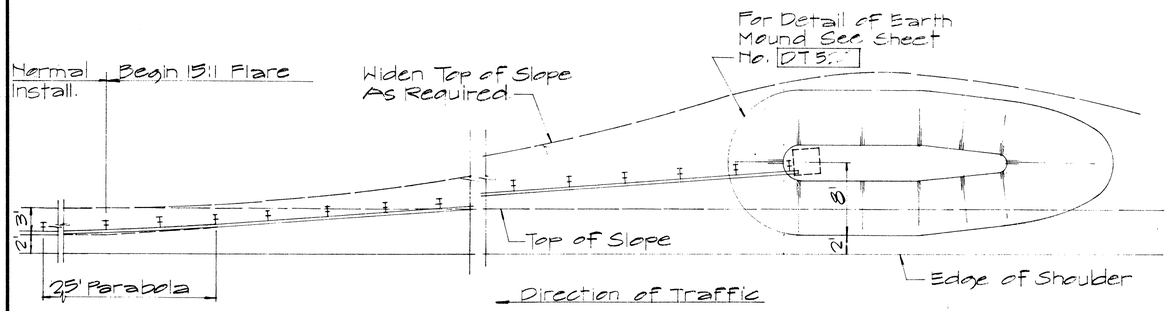
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-0100(28)	1986	48	67



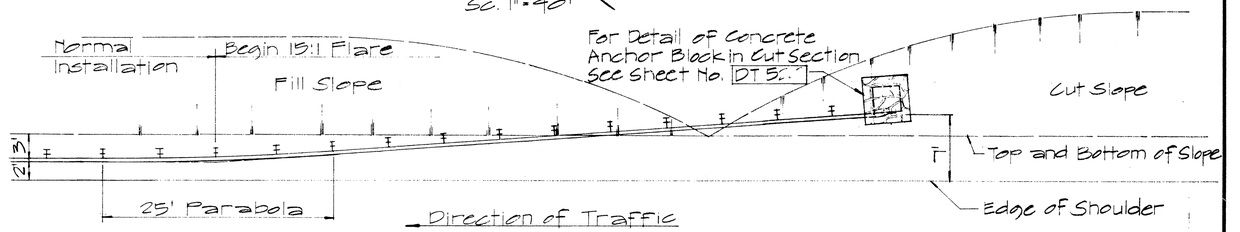
PLAN

ONE WAY ROADWAY (DIVIDED HIGHWAY)

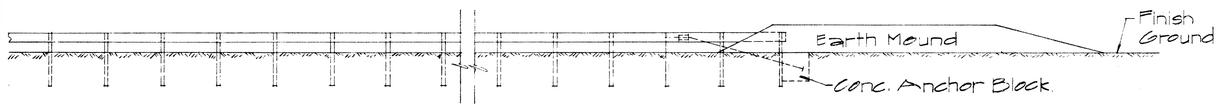
Sc. 1" = 40'



PLAN



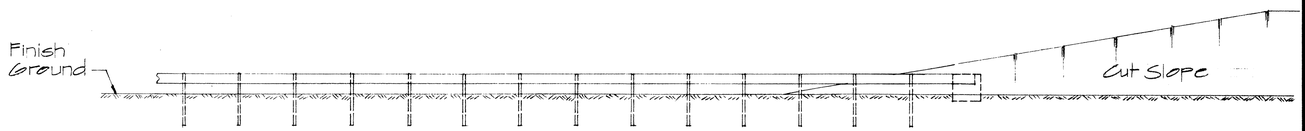
PLAN



ELEVATION

TYPE "A" FLARE

Sc. 1/8" = 1'-0"



ELEVATION

TYPE "C" FLARE

Sc. 1/8" = 1'-0"

APPROVAL RECOMMENDED:

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

APPROVED

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

NO.	REVISION	APPROVED BY	DATE
1	Delete Type "B" Flare and Type "E" Flare	H.T.	6/15/98

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS OF APPROACH END FLARE - ONE & TWO WAY ROADWAY

Sc. As Noted — April 1960

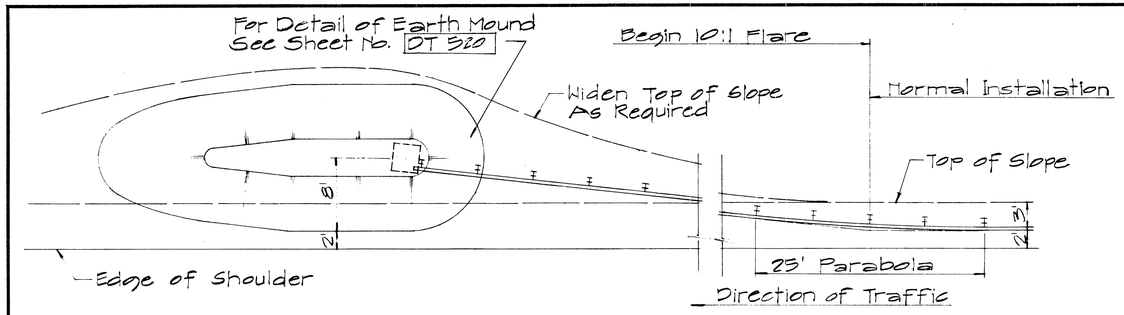
SHEET No. OF SHEETS DT 516

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

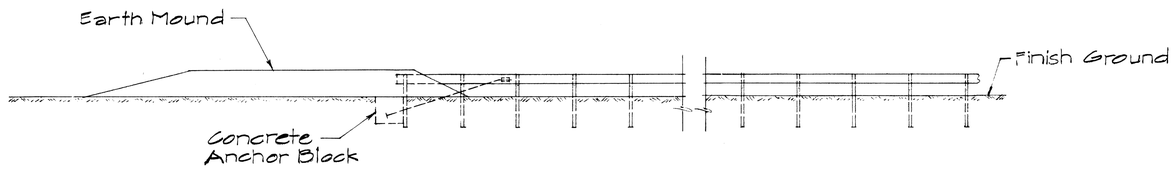
PRINTED ON NO. 1000H CLEARPRINT

48

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-0100(28)	1986	49	67



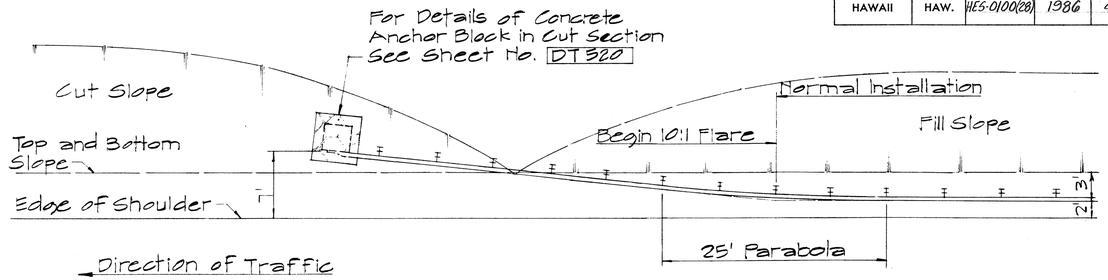
PLAN



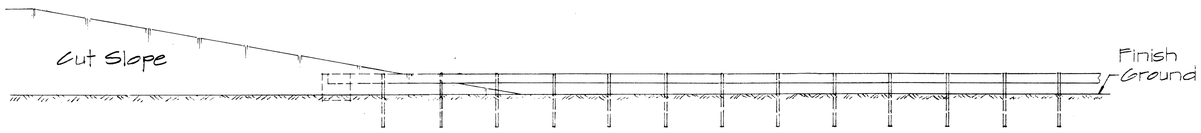
ELEVATION

TYPE "D" FLARE

Sc. 1/8" = 1'-0"



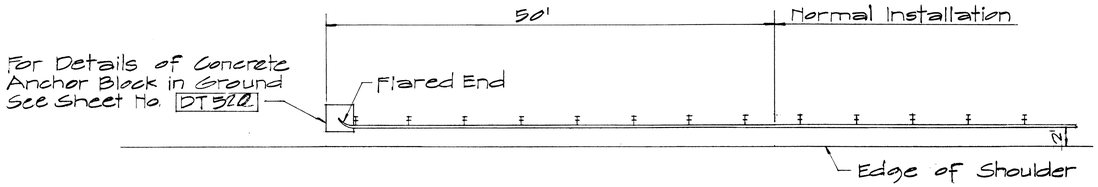
PLAN



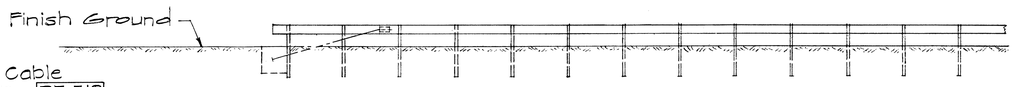
ELEVATION

TYPE "F" FLARE

Sc. 1/8" = 1'-0"



PLAN

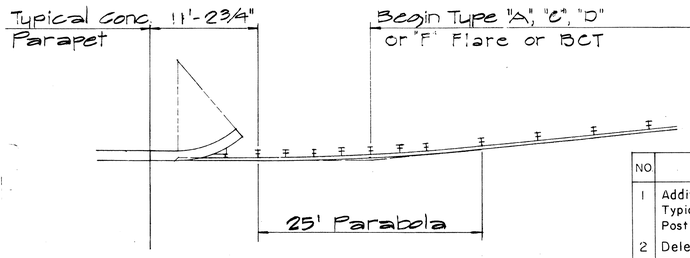


NOTE:
For detail of Breakaway Cable Terminal (BCT) See Sheet No. DT 519

ELEVATION

TYPE "G" FLARE

Sc. 1/8" = 1'-0"



TYPICAL LAYOUT PLAN OF END POST CONNECTION

Sc. 1/8" = 1'-0"

APPROVAL RECOMMENDED:
Eiichi Tanaka — TRAFFIC ENGINEER — 12/29/69 DATE

APPROVED:
[signature] — ASSISTANT CHIEF, ENGINEERING — 12-30-69 DATE

NO.	REVISION	APPROVED BY	DATE
1	Additional Posts Added to Typical Layout Plan Of End Post Connection	H.C.	4-12-72
2	Delete Type "B" Flare and Type "E" Flare	H.C.	6-15-78

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS TRAILING END FLARE - ONE & TWO WAY ROADWAY

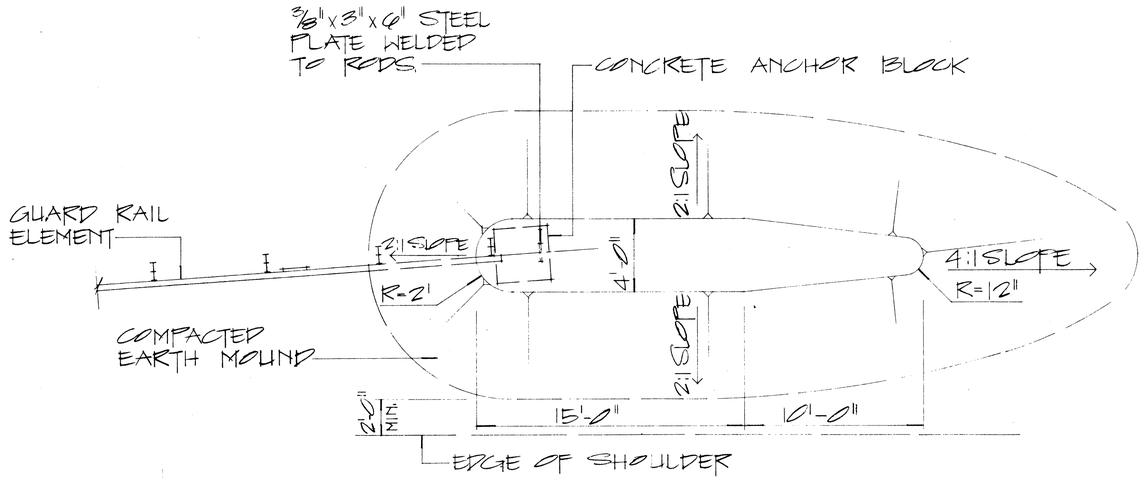
Scale: As Noted — April 1969

SHEET No. OF SHEETS DT 517

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

PRINTED ON NO. 1000H CLEARPRINT

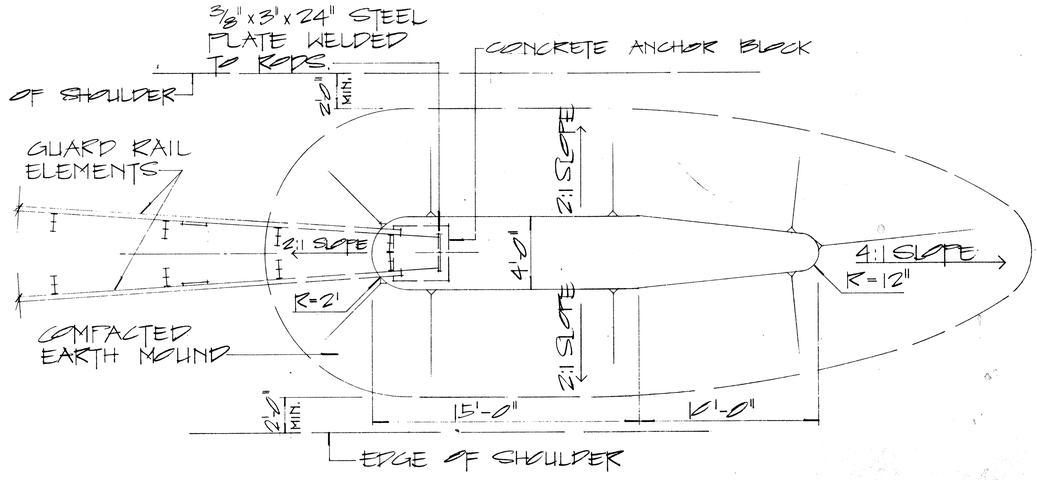
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-0100(28)	1986	50	67



PLAN

EARTH MOUND DETAIL (SINGLE GUARD RAIL)

SCALE: 1/4" = 1'-0"

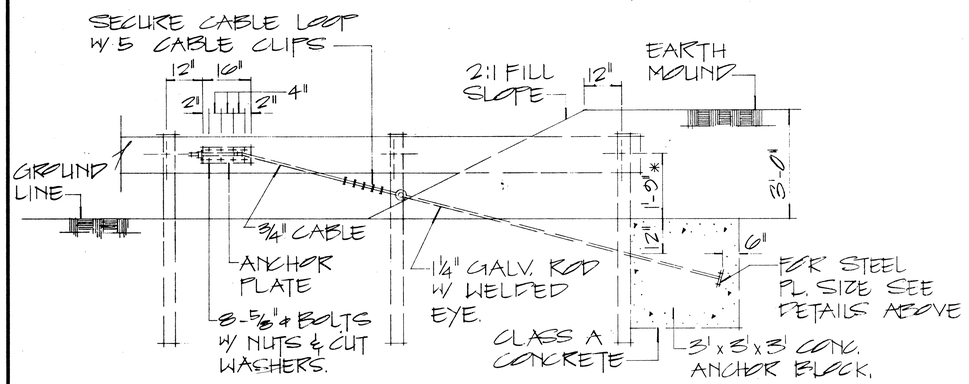


PLAN

EARTH MOUND DETAIL (DOUBLE GUARD RAIL)

SCALE: 1/4" = 1'-0"

*NOTE: 2'-0" WHEN INSTALLED WITH RUB RAIL.

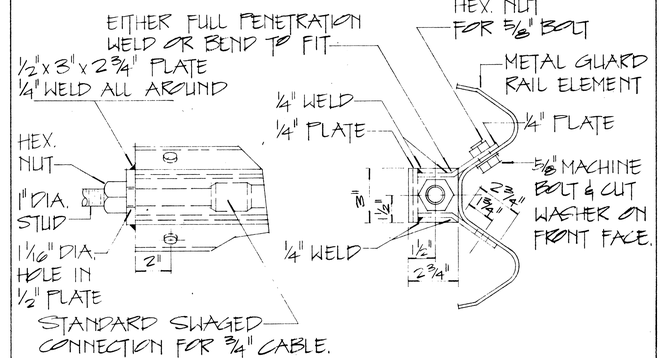


ANCHOR BLOCK DETAIL IN EARTH MOUND

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

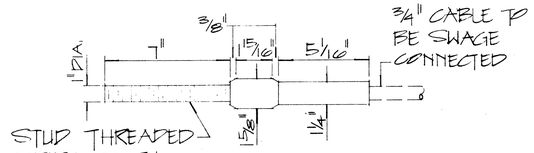
NOTE:

1. GALVANIZED ANCHOR ROD, METAL GUARD RAIL AND POST BURIED IN GROUND SHALL BE COVERED WITH a Min. 20-Mil thickness of Coal TAR ENAMEL. Conforming to AWWA Standard: C 203
2. CONCRETE, GRP., EXCAVATION, EARTH MOUND, ANCHOR RODS AND MISCELLANEOUS APPURTENANCES NECESSARY TO ANCHOR THE GUARD RAIL ENDS SHALL BE INCIDENTAL TO THE METAL GUARD RAIL.



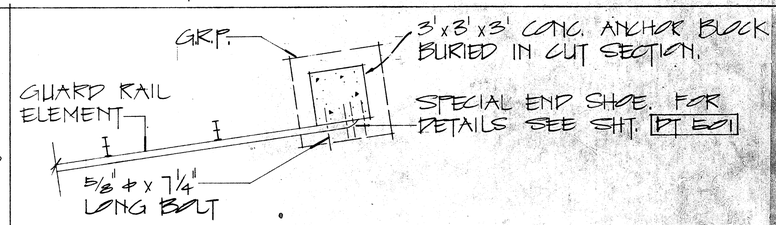
ANCHOR PLATE DETAILS

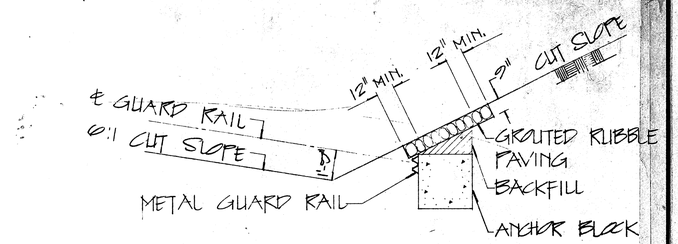
SCALE: 1" = 3"



STANDARD SWAGED FITTING AND STUD

SCALE: 1" = 3"





ANCHOR BLOCK IN CUT SECTION

SCALE: 1/4" = 1'-0"

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
HIGHWAYS DIVISION

STANDARD DETAILS

EARTH MOUND AND ANCHOR BLOCK DETAILS

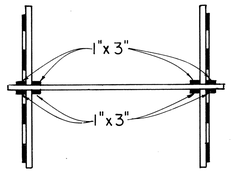
SCALE: AS SHOWN OCT 1969

SHEET No. OF SHEETS PT 920

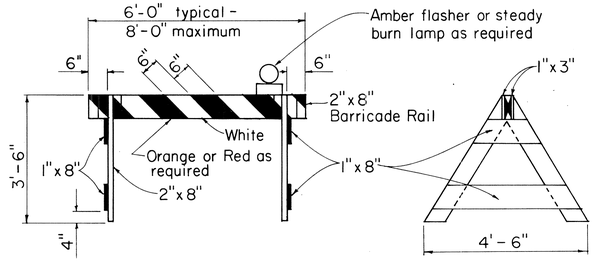
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
	TRACED BY	
NOTE BOOK	DESIGNED BY	
No.	QUANTITIES BY	
	CHECKED BY	

K+E CRYSTALENE® LA 2020 TRACING PAPER

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-0100(28)	1986	51	61



PLAN VIEW

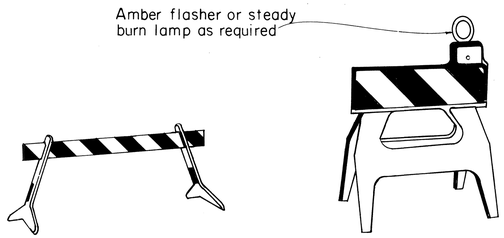


FRONT VIEW

END VIEW

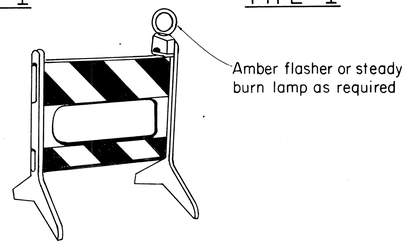
TYPE I BARRICADE

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



TYPE I

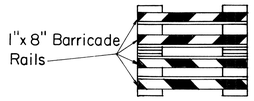
TYPE I

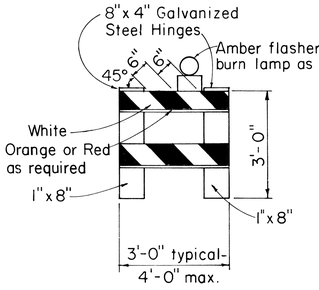


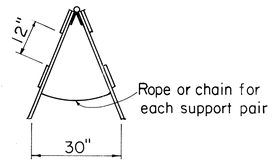
TYPE II

GENERAL NOTES

1. The front and back faces of each barricade rail shall be reflectorized with stripes sloping downward toward the same side (traveled way) of each barricade.
2. Contractor may submit alternate barricade designs for approval.
3. Sandbags or other approved weights shall not be placed on top of any striped rail.
4. The Contractor is directed to Section 626.







PLAN VIEW FRONT VIEW END VIEW

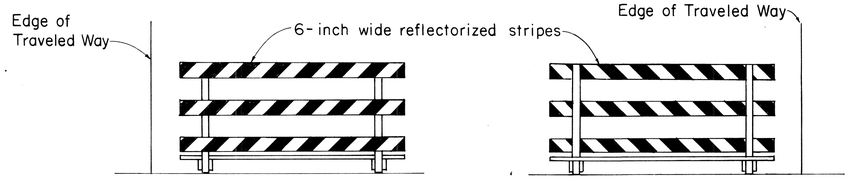
TYPE II BARRICADE

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

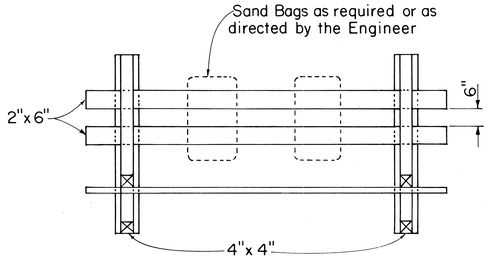
PLASTIC MOLDED BARRICADE OPTIONS*

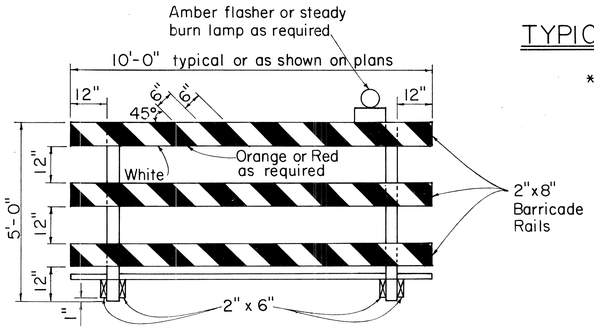
Not to Scale

* Shop Drawings must be submitted for approval.



FRONT FACE BACK FACE



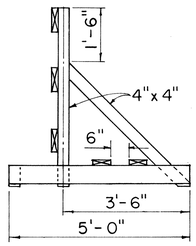


PLAN VIEW FRONT VIEW

TYPICAL BARRICADE STRIPING DETAILS**

Not to Scale

** Similar for Types I & II



END VIEW

TYPE III BARRICADE

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

APPROVAL RECOMMENDED:

Eiichi Tanaka — TRAFFIC ENGINEER — 10/21/81 DATE

APPROVED:

Herbert S. Sakaishi — ASSISTANT CHIEF, ENGINEERING — 10/23/81 DATE

NO.	REVISION	APPROVED BY	DATE
1	Supercedes DT 800 Approved 12/30/69	HT.	10/23/81

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

BARRICADES

SCALE: As Shown

SHEET No. OF SHEETS DT 800

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