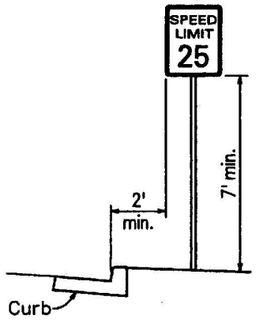
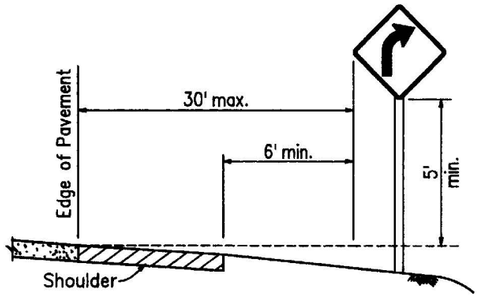
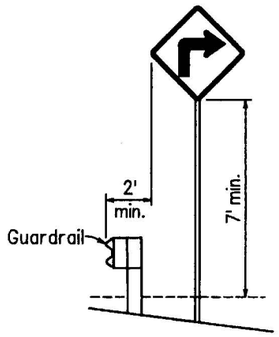
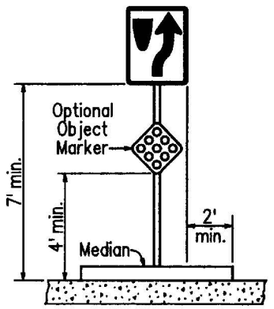
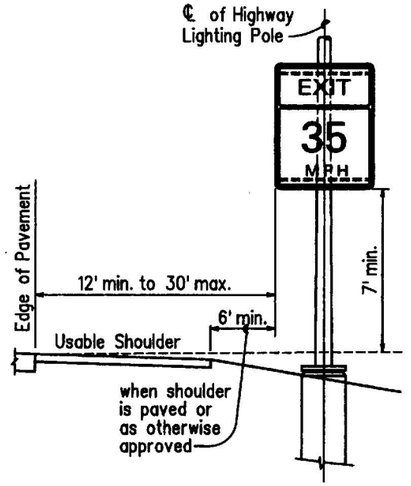
STATE	SADDLE ROAD PROJECT	SHEET NO.	TOTAL SHEETS
HI	HI SR 200(3)	P17	P40

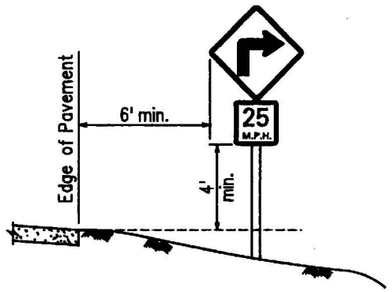


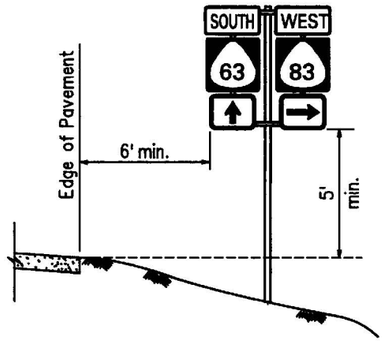


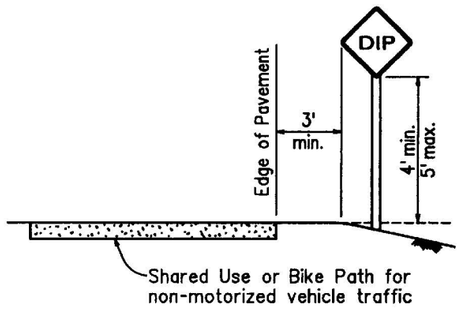


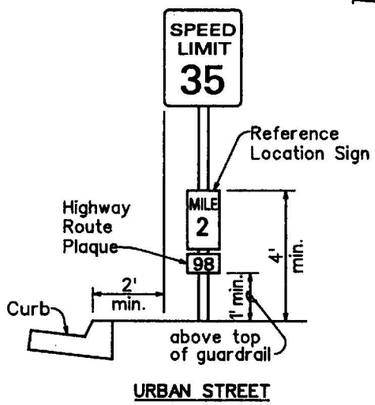




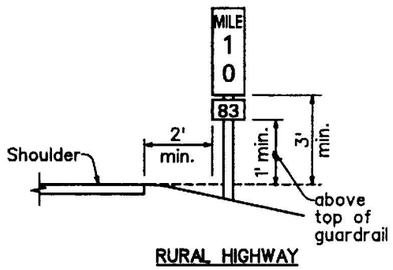




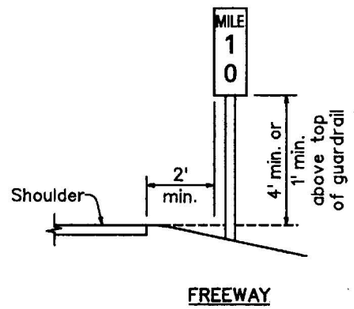




URBAN STREET

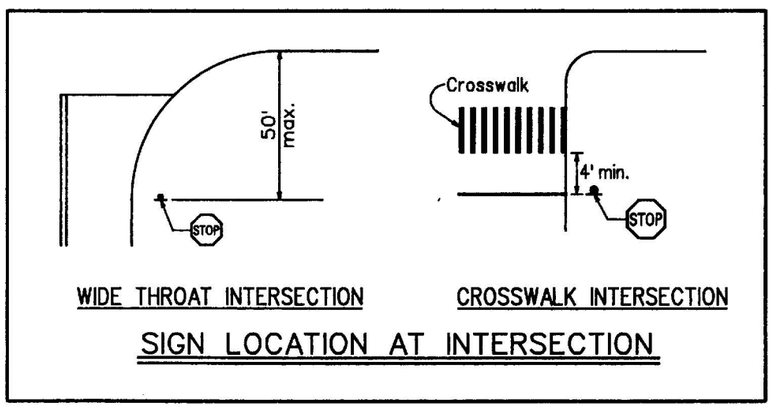


RURAL HIGHWAY



FREEWAY

HEIGHT AND LATERAL LOCATION OF SIGN



WIDE THROAT INTERSECTION

CROSSWALK INTERSECTION

SIGN LOCATION AT INTERSECTION

GENERAL NOTES

1. Sign shall be installed in conformance with the latest edition of Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD), as amended or supplemented by the contract documents.
2. The minimum lateral and vertical clearances are guidelines and shall be exceeded whenever practical. Sign shall be installed as consistent as possible with other existing and new signs to create an overall coordinated appearance that best command road users' attention and respect.
3. Unless otherwise shown, sign shall be vertically mounted at right angles to the direction of, and facing, the traffic that they are intended to serve. On curved alignment, the angle of placement should be determined by the directon of approachng traffic rather than by the roadway edge at the point where the sign is located.
4. Sign with arrow denoting extent of restrictive zone, such as parking, shall be mounted 45 degrees to the line of traffic flow.
5. Reference location sign may be moved in either direction as much as 50 feet when approved by the Engineer.

BRUCE K. MEYERS
Licensed Professional Engineer
No. 8336-C
HAWAII, U.S.A.

The work was prepared by me or under my supervision and construction of this project will be under my observation.

Expiration Date of License 4/16.

U.S DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

HDOT STD PLAN TE-01

SIGN HEIGHT AND LOCATION

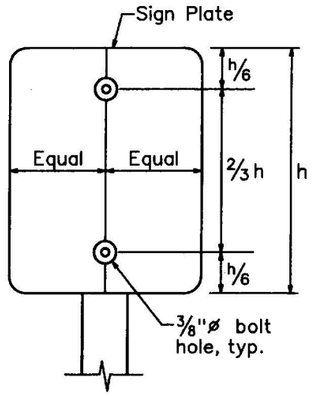
Scale: N/A Date: August 21, 2015

SHEET No. 1 OF 1

P17

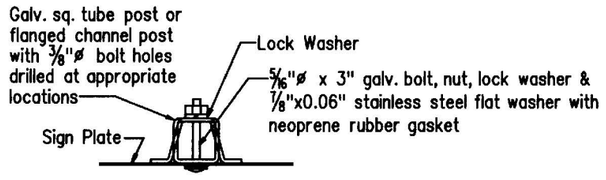
M:/Mproj/Lennie/Saddle East 11-6/sheets/shtp017.dgn

STATE	SADDLE ROAD PROJECT	SHEET NO.	TOTAL SHEETS
HI	HI SR 200(3)	P18	P40



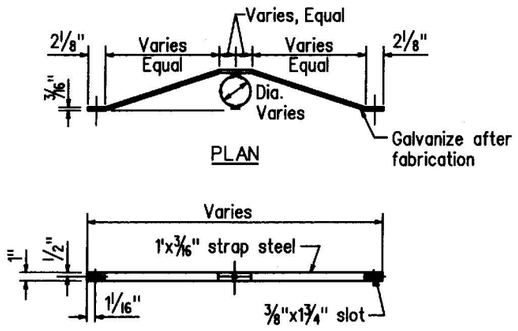
h = height of sign panel; If 2/3 h > 2', install one set of sign panel fastening hardware for every 18" increment of 2/3 h in equal spacing.

ELEVATION

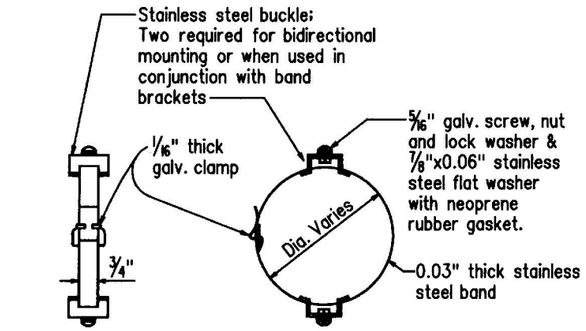


PLAN

POST MOUNTING INSTALLATION



BACK BRACE



BAND BRACKET

POLE MOUNTING INSTALLATION

GENERAL NOTES

1. Sign message, color, size, shape and reference shall be in conformance with the latest edition of Federal Highway Administration Standard Highway Signs (SHS), as amended or supplemented by the contract documents.
2. Sign post shall not exceed top of sign except where street name sign is attached above it. Where street name sign is required, sign post shall extend 3 1/2" above top of sign to accommodate street name sign post cap.
3. Unless otherwise shown, signs of unequal shape and size shall not be mounted back to back.
4. Signs sharing same post(s) shall not be overlapped. Each sign shall have on its own a minimum of two sets of fastening hardware per post. Maintain 1" clearance between signs.
5. Sign with lateral overhang more than 2' shall be installed with back brace or other support assembly approved by the Engineer.
6. Sign may be mounted on highway lighting or traffic signal poles as follows:
   a. Sign less than 10 square feet in area shall be installed with two sets of band brackets.
   b. Sign between 10 and 28 square feet shall be installed with two sets of band brackets and back braces.
   c. Sign larger than 28 square feet shall be reviewed and approved in writing by the Engineer prior to installation.
7. Anchor base shall be required for all sign post installations in accordance with the related Standard Plans sign mounting details.
8. Sign shall be installed with the required number of post(s), material and frame stiffeners in accordance with the related Standard Plans sign mounting details.

BRUCE K. MEYERS
Licensed Professional Engineer
No. 8336-C
HAWAII, U.S.A.

The work was prepared by me or under my supervision and construction of this project will be under my observation.

Bruce K. Meyers

Expiration Date of License 4/16.

U.S DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

HDOT STD PLAN TE-01A

SIGN INSTALLATION

Scale: N/A

Date: August 21, 2015

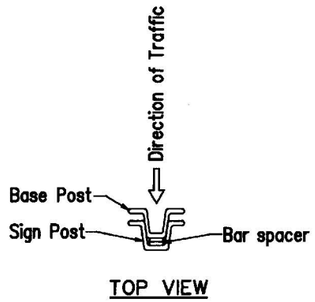
SHEET No. 1 OF 1

M:/Mproj/Lennie/Saddle East 11-6/sheets/shtp018.dgn

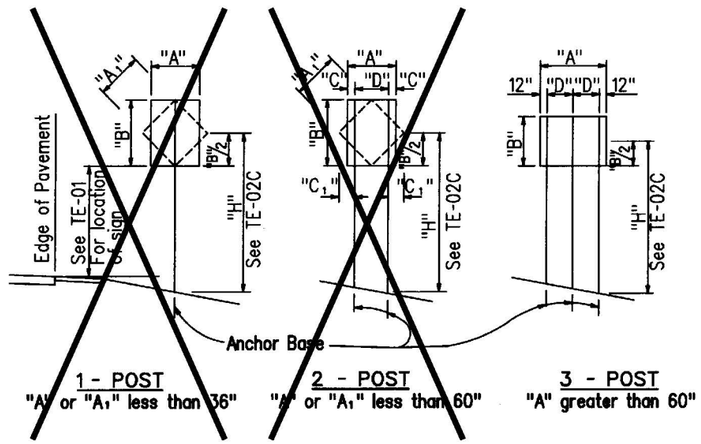
STATE	SADDLE ROAD PROJECT	SHEET NO.	TOTAL SHEETS
HI	HI SR 200(3)	P19	P40

GENERAL NOTES

1. Design Specifications:
   (A) Design shall conform w/ the latest AASHTO Standard Specifications for the Structural Supports for Highway Signs, Luminaires & Traffic Signals and its interim supplements and modifications by the Highways Division, Department of Transportation State of Hawaii.
   (B) Latest HDOT Memorandum with subject title "Design Criteria for Bridges and Structures."
2. Loads:
   (A) Basic Wind Speed: 105 mph.
   (B) Recurrence Interval of 10 years.
3. Materials:
   (A) Post shall conform to the Standard Specifications.
   (B) Post shall be zinc coated after fabrication in accordance with ASTM A-123.
   (C) All connection bolts shall be AASHTO M164 bolts and anchor bolts shall be AASHTO M314-105 bolt.
   (D) Lap splice nuts and bolts shall be M180, with an ultimate tensile strength of 180 ksi, min.
   (E) Aluminum members and surfaces in contact with structural steel shall be isolated with neoprene material as approved by the Engineer.
4. General:
   (A) See B-01, TE-01, TE-02B and TE-02C for additional information.
   (B) All accessories, fittings, connection details, and stiffener details (as required) shall be designed for the loads specified in the General Notes and submitted to the Engineer for approval 20 days prior to installation.
   (C) Alternate designs in accordance with the plans and specifications shall use the Service Load Design Method and shall be stamped by a registered engineer of the State of Hawaii in the related discipline and submitted to the Engineer for approval.
   (D) All sign support posts shall be outside of the clear zone or shielded by an appropriate traffic barrier system. The traffic barrier system shall be submitted to the Engineer for his approval.
   (E) The Contractor shall use templates while installing the anchor bolts. Anchor bolts shall be vertical.
   (F) Excavation and backfill costs shall be considered incidental to the cost of the sign foundation.
   (G) Sign post shall be punched their full length with 3/8" holes on 1" centers.
   (H) Base post shall be punched with a minimum of thirty-six 3/8" dia. holes on 1" centers with the first hole 1" from the top.
   (J) Base post shall be driven to a minimum embedment as shown on sheet TE-02C. The base post may protrude a maximum of 4" above the surrounding ground surface.
   (K) Base post damaged or deformed in the splice contact area shall be repaired or replaced at no additional cost to the State. Drive cap shall be used as required.



TOP VIEW



1 - POST
"A" or "A1" less than 36"

2 - POST
"A" or "A1" less than 60"

3 - POST
"A" greater than 60"

TYPICAL INSTALLATION

"A" or "A1"	"C"	"C1"
Less than 36"	6"	-
Greater than 36" and less than 48"	9"	19"
Greater than 48"	12"	24"

NOTE: Frame stiffeners are required when "D" is greater than 24". See General Notes.

M:/Mproj/Lennie/Saddle East 11-6/sheets/shtp019.dgn

BRUCE K. MEYERS
Licensed Professional Engineer
No. 8336-C
HAWAII, U.S.A.

The work was prepared by me or under my supervision and construction of this project will be under my supervision.

Bruce Meyers

Expiration Date of License 4/16.

U.S DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

HDOT STD PLAN TE-02A
GALVANIZED FLANGED CHANNEL SIGN POST MOUNTING

Scale: N/A Date: August 21, 2015

SHEET No. 1 OF 1

STATE	SADDLE ROAD PROJECT	SHEET NO.	TOTAL SHEETS
HI	HI SR 200(3)	P20	P40

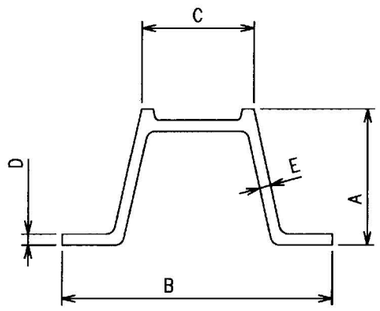
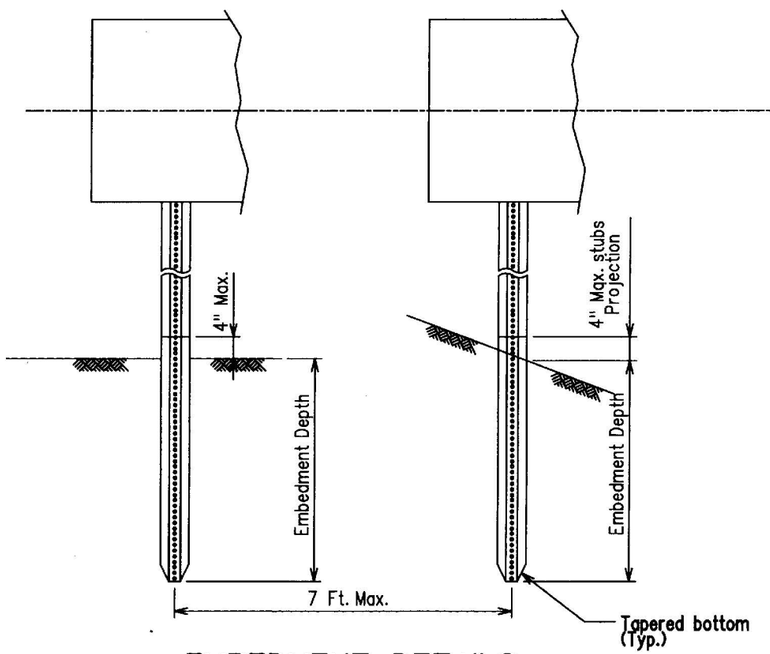


TABLE 1 : MINIMUM FLANGED CHANNEL POST PROPERTIES & DIMENSIONS

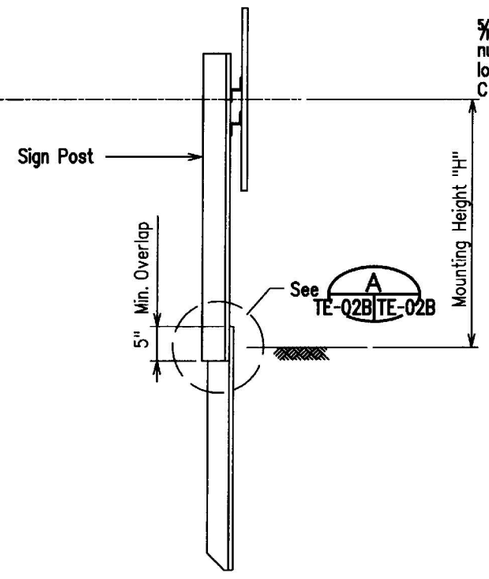
Post Size	Area (In^2)	I ($In.^2$)	S ($In.^2$)	A (In.)	B (In.)	C (In.)	D (In.)	E (In.)
2.50 lbs./ft.	0.70	0.21	0.25	1.516	3.062	1.278	0.176	0.117
4.00 lbs./ft.	1.11	0.54	0.47	1.968	3.500	1.336	0.272	0.143

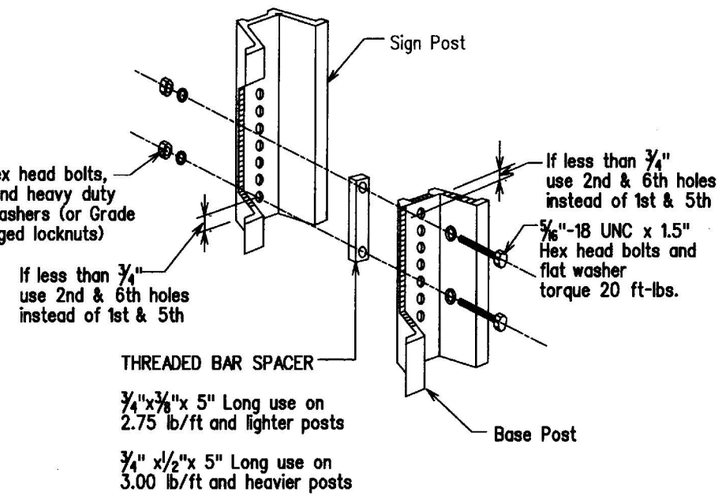
Note
The contractor shall submit shop drawings and catalog cuts to the Engineer for approval.



EMBEDMENT DETAILS

NOTE:
Three posts allowed within 7 feet swath.





SECTION A TE-02B TE-02B

BRUCE K. MEYERS
Licensed Professional Engineer
No. 8336-C
HAWAII, U.S.A.

The work was prepared by me or under my supervision and construction of this project will be under my observation.

Bruce K. Meyers

Expiration Date of License 4/16.

U.S DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

HDOT STD PLAN TE-02B

GALVANIZED FLANGED CHANNEL SIGN POST MOUNTING

Scale: N/A Date: August 21, 2015

SHEET No. 1 OF 1

M:/Mproj/Lennie/Saddle East 11-6/sheets/shtp020.dgn

STATE	SADDLE ROAD PROJECT	SHEET NO.	TOTAL SHEETS
HI	HI SR 200(3)	P21	P40

FLANGED CHANNEL: 1-POST INSTALLATION - STIFF CLAY												
Post Size W	"H" - Ground Level to Midpoint (ft.)											
	7		8		9		10		11		12	
	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)
2.50 lbs./ft.	6	3.17	5	3.17	4	3.17	4	3.17	3	3.17	2	3.17
4.00 lbs./ft.	-	-	-	-	-	-	7	4	7	4	6	4

FLANGED CHANNEL: 1-POST INSTALLATION - SAND AND GRAVEL												
Post Size W	"H" - Ground Level to Midpoint (ft.)											
	7		8		9		10		11		12	
	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)
2.50 lbs./ft.	6	6.5	5	6	4	5.5	4	5.5	3	5	2	4.5
4.00 lbs./ft.	-	-	-	-	-	-	7	7	7	7	6	7

FLANGED CHANNEL: 2-POST INSTALLATION - STIFF CLAY												
Post Size W	"H" - Ground Level to Midpoint (ft.)											
	7		8		9		10		11		12	
	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)
2.50 lbs./ft.	11	3.17	10	3.17	9	3.17	8	3.17	7	3.17	6	3.17
4.00 lbs./ft.	25	3.17	22	3.17	20	3.17	18	3.17	16	3.17	14	3.17

FLANGED CHANNEL: 2-POST INSTALLATION - SAND AND GRAVEL												
Post Size W	"H" - Ground Level to Midpoint (ft.)											
	7		8		9		10		11		12	
	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)
2.50 lbs./ft.	11	3.17	10	3.17	9	3.17	8	3.17	7	3.17	6	3.17
4.00 lbs./ft.	25	4	22	4	20	4	18	4	16	4	14	4

FLANGED CHANNEL: 3-POST INSTALLATION - STIFF CLAY												
Post Size W	"H" - Ground Level to Midpoint (ft.)											
	7		8		9		10		11		12	
	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)
2.50 lbs./ft.	19	3.17	16	3.17	14	3.17	12	3.17	10	3.17	8	3.17
4.00 lbs./ft.	37	3.17	32	3.17	28	3.17	24	3.17	22	3.17	20	3.17

FLANGED CHANNEL: 3-POST INSTALLATION - SAND AND GRAVEL												
Post Size W	"H" - Ground Level to Midpoint (ft.)											
	7		8		9		10		11		12	
	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)
2.50 lbs./ft.	19	3.17	16	3.17	14	3.17	12	3.17	10	3.17	8	3.17
4.00 lbs./ft.	37	3.17	32	3.17	28	3.17	24	3.17	22	3.17	20	3.17

Notes:

1. "H" dimension given in tables is the maximum Height "H" for the corresponding sign area.
2. Sign Area in tables is the maximum sign area for the corresponding "H".

POST EMBEDMENT DEPTH TABLES

M:/Mproj/Lennie/Saddle East 11-6/sheets/shtp021.dgn

BRUCE K. MEYERS
Licensed Professional Engineer
No. 8336-C
HAWAII, U.S.A.

The work was prepared by me or under my supervision and construction of this project will be under my observation.

Expiration Date of License 4/16.

U.S DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

HDOT STD PLAN TE-02C

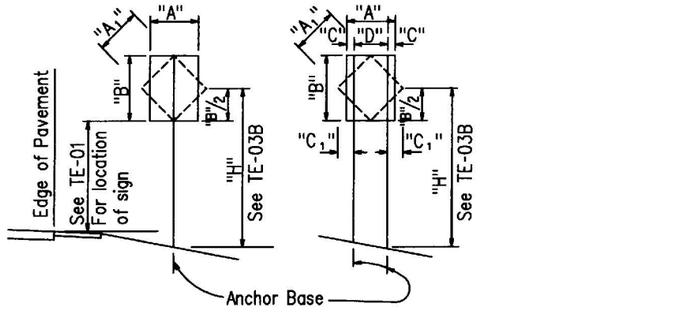
GALVANIZED FLANGED CHANNEL SIGN POST MOUNTING

Scale: N/A

Date: August 21, 2015

SHEET No. 1 OF 1

STATE	SADDLE ROAD PROJECT	SHEET NO.	TOTAL SHEETS
HI	HI SR 200(3)	P22	P40



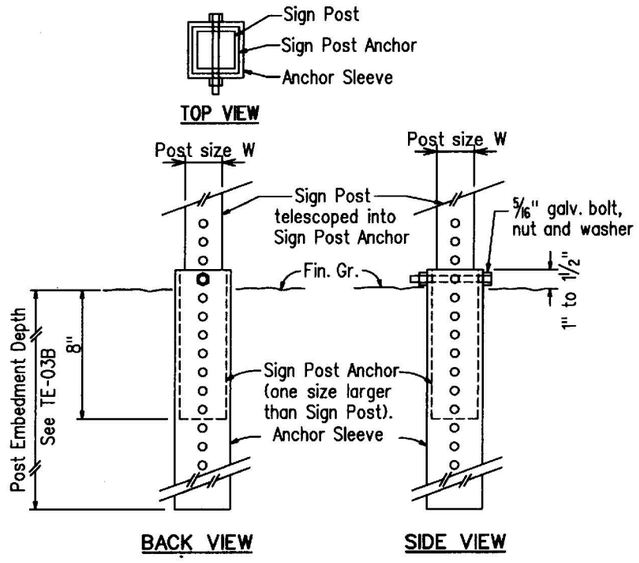
1 - POST
"A" or "A1" less than 36"

2 - POST
"A" or "A1" less than 60"

"A" or "A1"	"C"	"C1"
Less than 36"	6"	-
Greater than 36" and less than 48"	9"	19"
Greater than 48"	12"	24"

NOTE: Frame stiffeners are required when D is greater than 24" See General Notes.

TYPICAL INSTALLATION



SIGN POST INSTALLATION

ANCHOR BASE DETAIL

GENERAL NOTES

1. Design Specifications:
   (A) Design shall conform w/ the latest AASHTO Standard Specifications for the Structural Supports for Highway Signs, Luminaires & Traffic Signals and its interim supplements and modifications by the Highways Division, Department of Transportation State of Hawaii.
   (B) Latest HDOT Memorandum with subject title "Design Criteria for Bridges and Structures."
2. Loads:
   (A) Basic Wind Speed: 105 mph.
   (B) Recurrence Interval of 10 years.
3. Materials:
   (A) Post shall conform to the Standard Specifications.
   (B) Post shall be zinc coated after fabrication in accordance with ASTM A-123.
   (C) All connection bolts shall be AASHTO M164 bolts and anchor bolts shall be AASHTO M314-105 bolt.
   (D) Lap splice nuts and bolts shall be M180, with an ultimate tensile strength of 180 ksi, min.
   (E) Aluminum members and surfaces in contact with structural steel shall be isolated with neoprene material as approved by the Engineer.
4. General:
   (A) See B-01, TE-01, and TE-03B for additional information.
   (B) All posts shall be 12 gage unless otherwise specified or shown on the plans.
   (C) Square tube posts shall be perforated with 7/16"ø holes, 1" o.c., 4 sides, along entire length of post.
   (D) All accessories, fittings, connection details, and stiffener details (as required) shall be designed for the loads specified in the General Notes and submitted to the Engineer for approval 20 days prior to installation.
   (E) Alternate designs in accordance with the plans and specifications shall use the Service Load Design Method and shall be stamped by a registered engineer of the State of Hawaii in the related discipline and submitted to the Engineer for approval.
   (F) All sign support posts shall be outside of the clear zone or shielded by an appropriate traffic barrier system. The traffic barrier system shall be submitted to the Engineer for his approval.
   (G) The Contractor shall use templates while installing the anchor bolts. Anchor bolts shall be vertical.
   (H) Excavation and backfill costs shall be considered incidental to the cost of the sign foundation.

BRUCE K. MEYERS
Licensed Professional Engineer
No. 8336-C
HAWAII, U.S.A.

The work was prepared by me or under my supervision and construction of this project will be under my observation.

Bruce Meyers

Expiration Date of License 4/15.

U.S DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

HDOT STD PLAN TE-03A
GALVANIZED SQUARE TUBE SIGN POST MOUNTING

Scale: N/A Date: August 21, 2015

SHEET No. 1 OF 1

P22

M:/Mproj/Lennie/Saddle East 11-6/sheets/shtp022.dgn

STATE	SADDLE ROAD PROJECT	SHEET NO.	TOTAL SHEETS
HI	HI SR 200(3)	P23	P40

SQUARE TUBE: 1-POST INSTALLATION - STIFF CLAY												
Post Size W	"H" = Ground Level to Midpoint (ft.)											
	7		8		9		10		11		12	
	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)
2"	7.7	4.5	6.7	4	6.0	4	5.4	4	4.9	4	4.5	4
2½"	–	–	–	–	–	–	–	–	9.6	4	8.8	4

SQUARE TUBE: 2-POST INSTALLATION - STIFF CLAY												
Post Size W	"H" = Ground Level to Midpoint (ft.)											
	7		8		9		10		11		12	
	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)
2"	17.4	3	15.2	3	13.5	3	12.2	3	11.0	3	10.1	3
2½"	30.2	3	26.5	3	23.5	3	21.1	3	19.2	3	17.6	3

SQUARE TUBE: 1-POST INSTALLATION - SAND AND GRAVEL												
Post Size W	"H" = Ground Level to Midpoint (ft.)											
	7		8		9		10		11		12	
	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)
2"	7.7	4.5	6.7	4.5	6.0	4	5.4	4	4.9	4	4.5	4
2½"	–	–	–	–	–	–	–	–	9.6	5	8.8	5

SQUARE TUBE: 2-POST INSTALLATION - SAND AND GRAVEL												
Post Size W	"H" = Ground Level to Midpoint (ft.)											
	7		8		9		10		11		12	
	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)	Sign Area (Sq.Ft.)	Embed. Depth (Ft.)
2"	17.4	3	15.2	3	13.5	3	12.2	3	11.0	3	10.1	3
2½"	30.2	4	26.5	4	23.5	4	21.1	4	19.2	4	17.6	4

POST EMBEDMENT DEPTH TABLES

Notes:

1. "H" dimension given in tables is the maximum Height "H" for the corresponding sign area.
2. Sign Area in tables is the maximum sign area for the corresponding "H".

M:/Mproj/Lennie/Saddle East 11-6/sheets/shtp023.dgn

BRUCE K. MEYERS
Licensed Professional Engineer
No. 8336-C
HAWAII, U.S.A.

The work was prepared by me or under my supervision and construction of this project will be under my observation.

Expiration Date of License 4/15

U.S DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

HDOT STD PLAN TE-03B

GALVANIZED SQUARE TUBE SIGN POST MOUNTING

Scale: N/A Date: August 21, 2015

SHEET No. 1 OF 1

STATE	SADDLE ROAD PROJECT	SHEET NO.	TOTAL SHEETS
HI	HI SR 200(3)	P24	P40

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

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

R1-3 12"x6"
R1-3-A 18"x9"

R1-4 18"x6"
R1-4-A 24"x9"

R2-1(50)
24"x30"
R2-1(50)-A
48"x60"
R2-1(50)-B
36"x48"

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

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

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"

R3-9a
30"x36"

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"

R5-1a
36"x24"

R5-2
24"x24"
24"x18"

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

R5-6
24"x24"
24"x18"

R6-1(R)
36"x12"

R6-2(R)
24"x30"

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"

R10-12
24"x30"

R10-17a
30"x36"

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 ⅜" 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. All signs shall be erected without educational plaques unless called for in the plans.

BRUCE K. MEYERS
Licensed Professional Engineer
No. 8336-C
HAWAII, U.S.A.

The work was prepared by me or under my supervision and construction of this project will be under my observation.

Bruce K. Meyers

Expiration Date of License 4/15.

U.S DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

HDOT STD PLAN TE-04

REGULATORY SIGNS

Scale: N/A Date: August 21, 2015

SHEET No. 1 OF 1

M:/Mproj/Lennie/Saddle East 11-6/sheets/shtp024.dgn

STATE	SADDLE ROAD PROJECT	SHEET NO.	TOTAL SHEETS
HI	HI SR 200(3)	P25	P40

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(R)
30"x30"
W2-2(R)-A
48"x48"

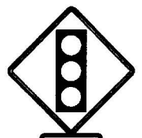
W2-3(R)
30"x30"
W2-3(R)-A
48"x48"

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

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

W3-1
36"x36"
24"x18"
W3-1-A
48"x48"
24"x18"

W3-2
36"x36"
24"x18"
W3-2-A
48"x48"
24"x18"



W3-3
36"x36"
24"x18"
W3-3-A
48"x48"
24"x18"

W3-5(25)
36"x36"
W3-5(25)-A
48"x48"

W4-1(R)
36"x36"
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
36"x36"
W5-2-A
48"x48"

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
36"x36"
24"x18"
W6-3-A
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
36"x36"
W8-3-A
48"x48"

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

W8-5
30"x30"
24"x18"
W8-5-A
48"x48"
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"

W11-2
36"x36"
W11-2-A
48"x48"

W16-9p
24"x12"
W16-9p-A
30"x18"
W16-9p-B
36"x24"

W16-7p(L)
24"x12"
W16-7p(L)-A
30"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
36"x36"
W12-1-A
48"x48"

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

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"

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 warning signs shall be reflectorized unless otherwise specified.
3. All warning signs shall have ⅜" 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.

BRUCE K. MEYERS
Licensed Professional Engineer
No. 8336-C
HAWAII, U.S.A.

The work was prepared by me or under my supervision and construction of this project will be under my observation.

Expiration Date of License 4/15

U.S DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

HDOT STD PLAN TE-05

WARNING SIGNS

Scale: N/A Date: August 21, 2015

SHEET No. 1 OF 1

M:/Mproj/Lennie/Saddle East 11-6/sheets/shtp025.dgn

STATE	SADDLE ROAD PROJECT	SHEET NO.	TOTAL SHEETS
HI	HI SR 200(3)	P26	P40

R2-5a
24"x30"
R2-5a-A
48"x60"

R2-10
24"x30"

R3-9b
24"x36"

R5-8
30"x24"

R7-107a
12"x30"

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

R8-3a
24"x24"
24"x18"
R8-3a-A
48"x48"
24"x18"

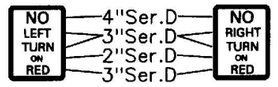
R9-3a
18"x18"
18"x12"
R9-3a-A
24"x24"
24"x18"

R9-3b(R)
18"x12"

R9-3b(L)
18"x12"

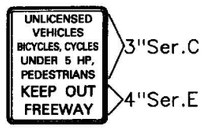
R10-11a
24"x30"

R16-2
24"x30"

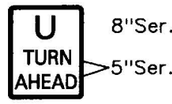


R16-3
18"x24"

R16-4
18"x24"



R16-5
36"x42"



R16-6
24"x30"

R16-7
24"x30"

R18-1
24"x18"

W1-8(R)
18"x24"
W1-8(R)-A
30"x36"
W1-8(R)-B
36"x48"

W3-4
48"x48"

W4-3(R)
36"x36"
W4-3(R)-A
48"x48"

W7-4
78"x48"

W7-4b
78"x60"

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

W4-7(L)
48"x48"

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

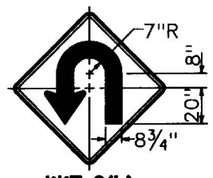
W11-8
36"x36"
24"x18"
W11-8-A
48"x48"
24"x18"

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

W14-2
30"x30"

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

W15-1
36"x36"



W17-2(L)
60"x60"

W18-1
48"x60"

CW16-1(1/2)
60"x60"

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

W16-9p
24"x12"
W16-9p-A
30"x18"
W16-9p-B
36"x24"

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"

GENERAL NOTES

1. Sign details shall conform to the latest editions of the following FHWA publications:
   a. "Standard Alphabets for Highway Signs," and as ammended.
   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 ⅜" 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.

BRUCE K. MEYERS
Licensed Professional Engineer
No. 8336-C
HAWAII, U.S.A.

The work was prepared by me or under my supervision and construction of this project will be under my supervision.

Expiration Date of License 4/15.

U.S DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

HDOT STD PLAN TE-06

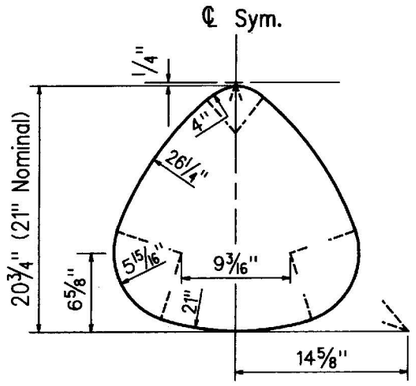
MISCELLANEOUS SIGNS

Scale: N/A Date: August 21, 2015

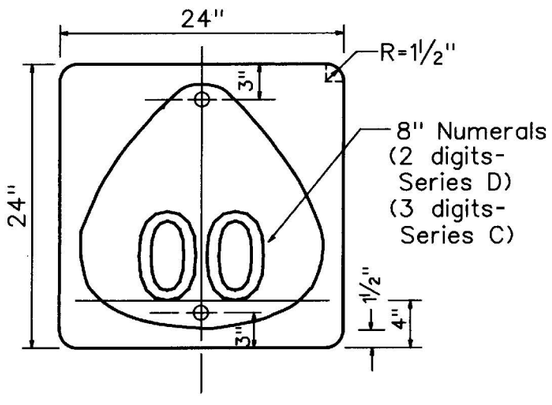
SHEET No. 1 OF 1

M:/Mproj/Lennie/Saddle East 11-6/sheets/shtp026.dgn

STATE	SADDLE ROAD PROJECT	SHEET NO.	TOTAL SHEETS
HI	HI SR 200(3)	P27	P40



STATE ROUTE MARKER DETAIL



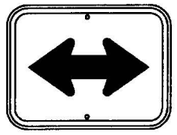
M1-6(00)
24"x24"

STATE ROUTE MARKER

M2-1
21"x15"

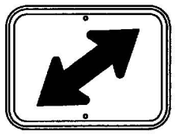
M6-3
21"x15"

M5-1(L)
21"x15"



M6-4
21"x15"

M5-2(L)
21"x15"

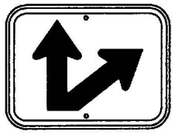


M6-5(R)
21"x15"

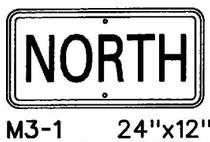
M6-1(R)
21"x15"

M6-6(R)
21"x15"

M6-2(R)
21"x15"



M6-7(R)
21"x15"



M3-1 24"x12"
M3-1-A 36"x18"

M4-1
24"x12"

M4-2
24"x12"

M4-3
24"x12"

M4-5
24"x12"

M4-7
24"x12"

M4-6
24"x12"

M4-8
24"x12"

AUXILIARY MARKERS

GENERAL NOTES

1. Marker 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 markers shall be reflectorized unless otherwise specified.
3. All markers shall have 3/8" bolt holes drilled at appropriate locations.
4. Numerals in ( ) indicate numerals to be inserted for marker message. (R) or (L) indicates right or left.
5. Sign message of Cardinal Direction Marker (M3 series) shall be denoted by the following:

   M3-1: NORTH
   M3-2: EAST
   M3-3: SOUTH
   M3-4: WEST

6. Markers prefixed with "IM" on the plans shall have a white legend on a blue background.

BRUCE K. MEYERS
Licensed Professional Engineer
No. 8336-C
HAWAII, U.S.A.

The work was prepared by me or under my supervision and construction of this project will be under my observation.

Bruce K. Meyers

Expiration Date of License 4/16.

U.S DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

HDOT STD PLAN TE-11

STATE ROUTE MARKER AND AUXILIARY MARKERS

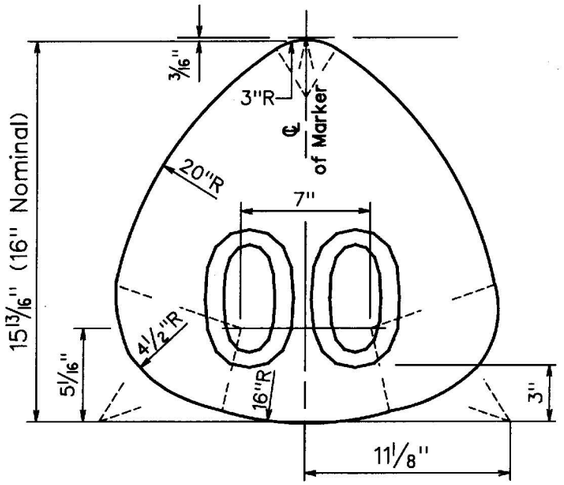
Scale: N/A Date: August 21, 2015

SHEET No. 1 OF 1

M:/Mproj/Lennie/Saddle East 11-6/sheets/shtp027.dgn

STATE	SADDLE ROAD PROJECT	SHEET NO.	TOTAL SHEETS
HI	HI SR 200(3)	P28	P40

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



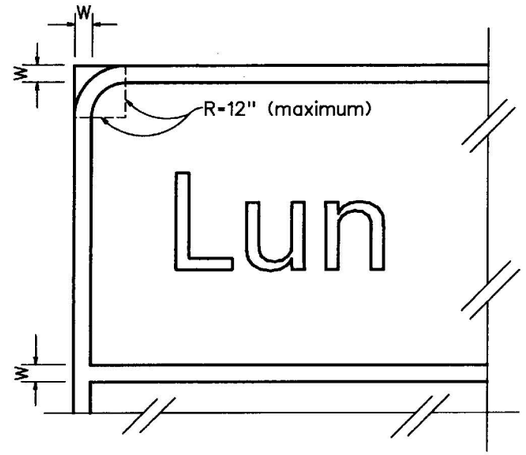
STATE ROUTE MARKER

FOR GUIDE SIGNS

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 latest editions of FHWA publication "Standard Alphabets for Highway Signs" and as amended.
3. Cut-outs shall be fastened on sign panel with aluminum blind rivets. See Standard Specificaitons.

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

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.

BRUCE K. MEYERS
Licensed Professional Engineer
No. 8336-C
HAWAII, U.S.A.

The work was prepared by me or under my supervision and construction of this project will be under my supervision.

Expiration Date of License 4/15.

U.S DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

HDOT STD PLAN TE-12

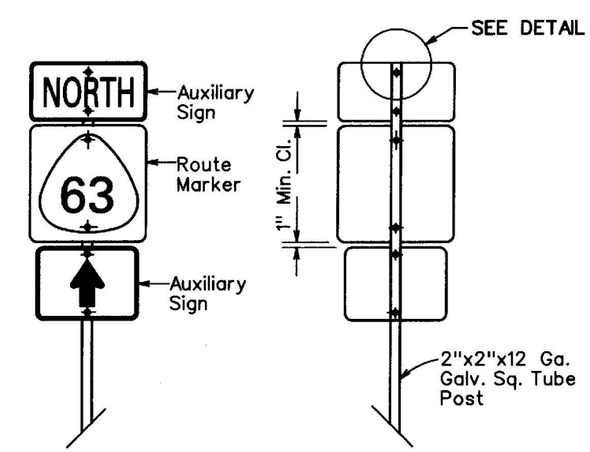
STATE ROUTE MARKER AND BORDER DET FOR GUIDE SIGNS

Scale: N/A Date: August 21, 2015

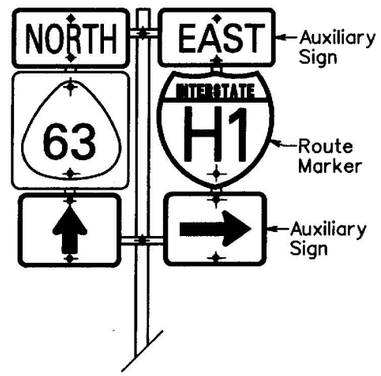
SHEET No. 1 OF 1

M:/Mproj/Lennie/Saddle East 11-6/sheets/shtp028.dgn

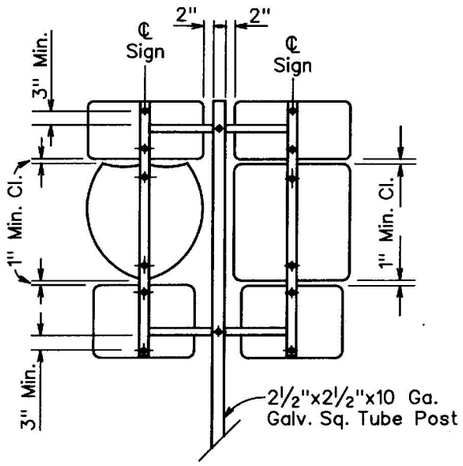
STATE	SADDLE ROAD PROJECT	SHEET NO.	TOTAL SHEETS
HI	HI SR 200(3)	P29	P40



FRONT VIEW BACK VIEW



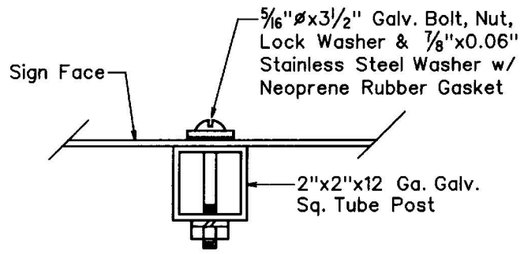
FRONT VIEW



BACK VIEW

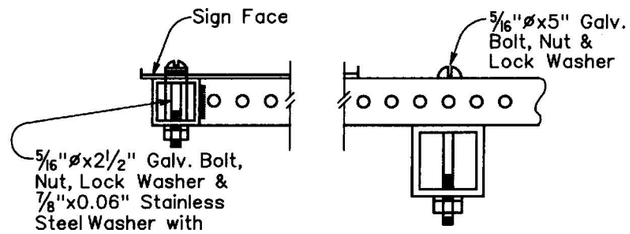
TYPE "A" ASSEMBLY

TYPE "B" ASSEMBLY

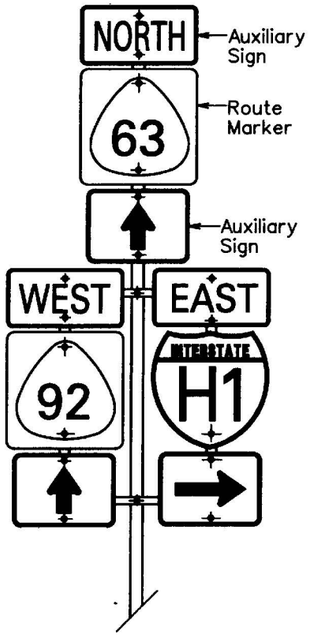


TOP VIEW

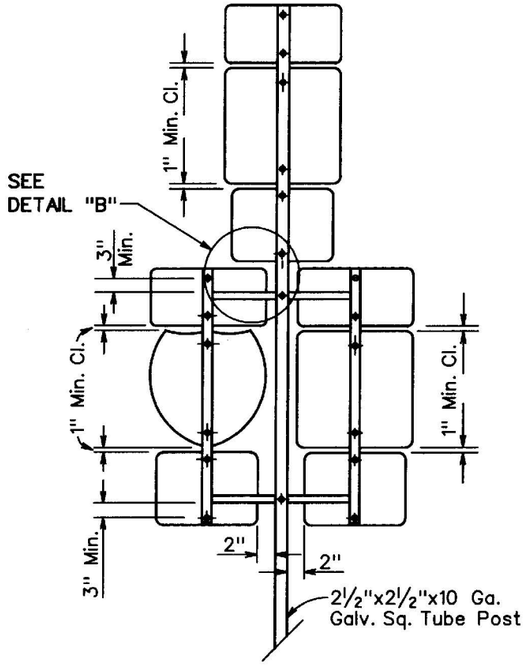
DETAIL "A"



TOP VIEW

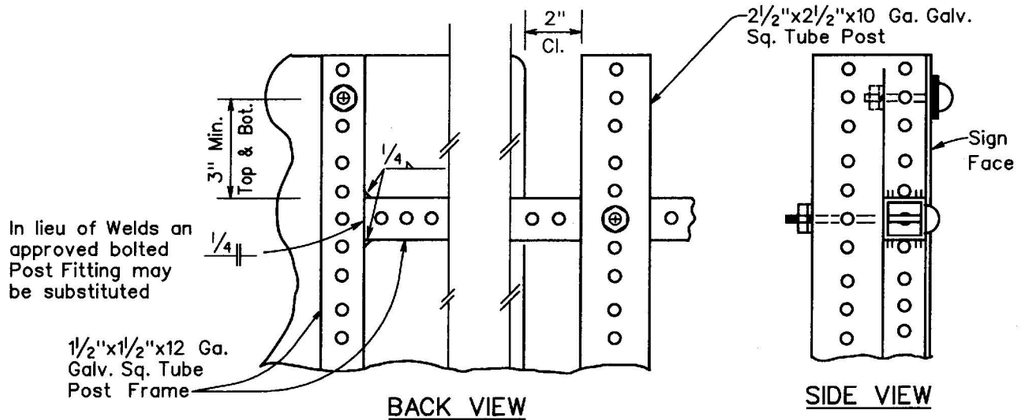


FRONT VIEW



BACK VIEW

TYPE "B" ASSEMBLY



BACK VIEW SIDE VIEW

DETAIL "B"

BRUCE K. MEYERS
Licensed Professional Engineer
No. 8336-C
HAWAII, U.S.A.

The work was prepared by me or under my supervision and construction of this project will be under my observation.

Expiration Date of License 4/15.

U.S DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

HDOT STD PLAN TE-12A

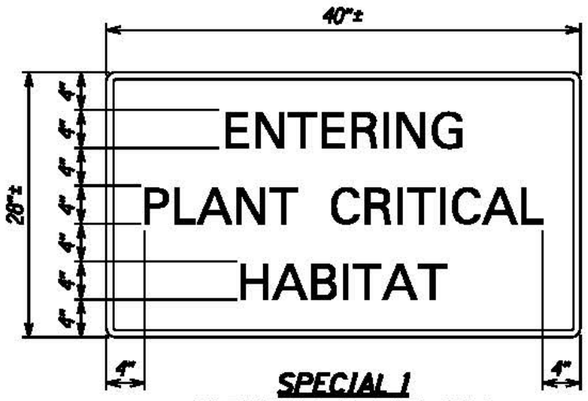
ROUTE SIGN ASSEMBLIES

Scale: N/A Date: August 21, 2015

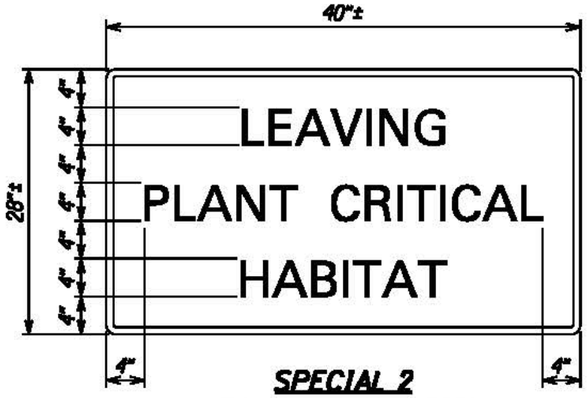
SHEET No. 1 OF 1

M:/Mproj/Lennie/Saddle East 11-6/sheets/shtp029.dgn

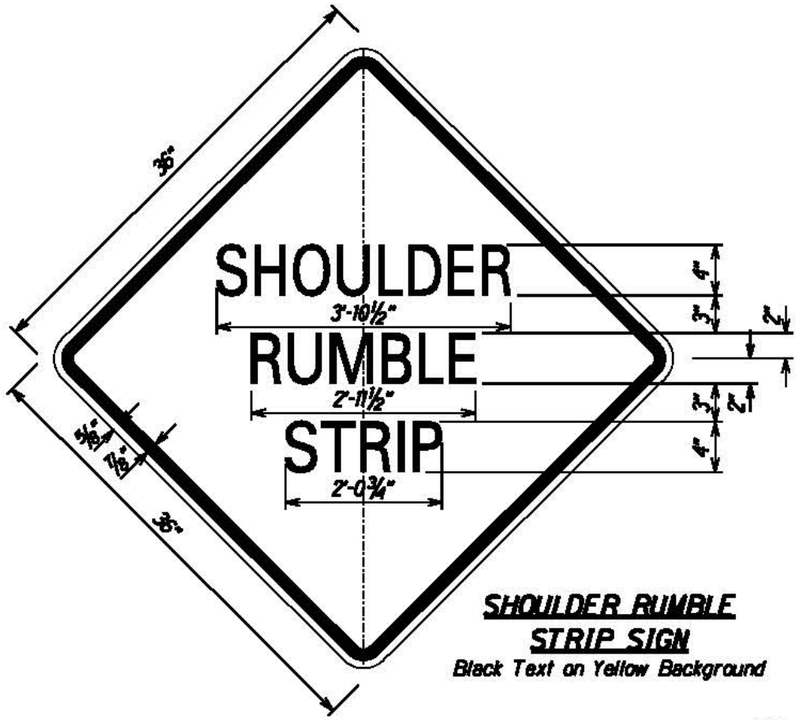
STATE	SADDLE ROAD PROJECT	SHEET NO.	TOTAL SHEETS
HI	HI SR 200(3)	P30	P40



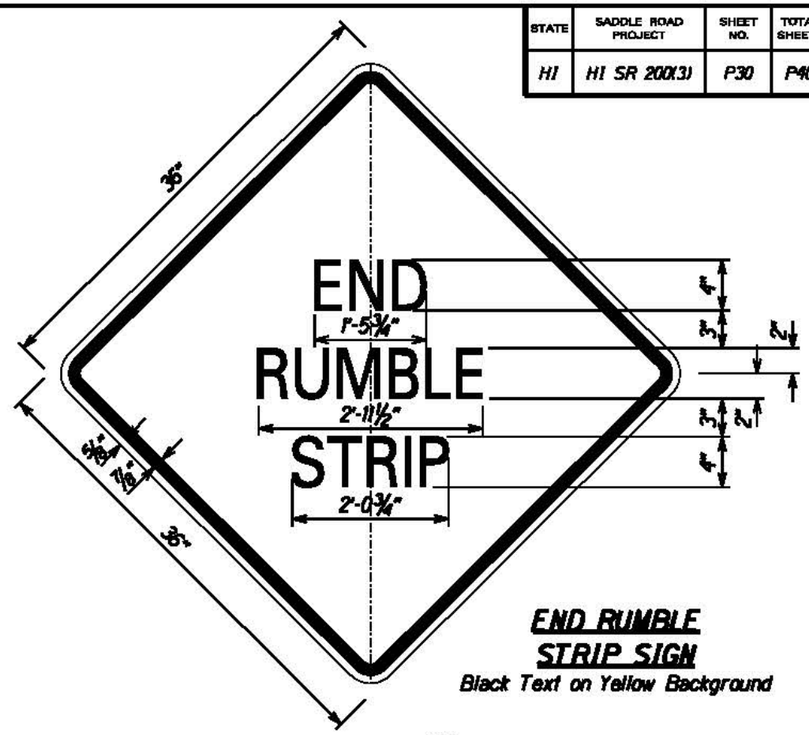
SPECIAL 1
ENTERING PLANT SIGN
White Text on Green Background



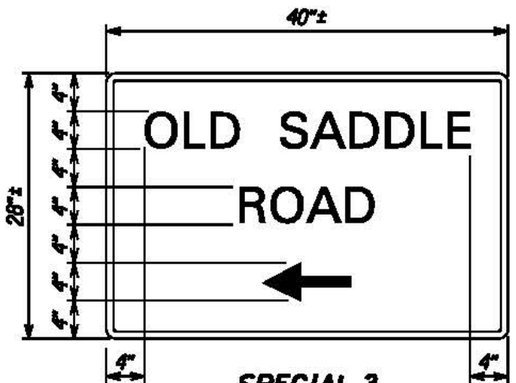
SPECIAL 2
LEAVING PLANT SIGN
White Text on Green Background



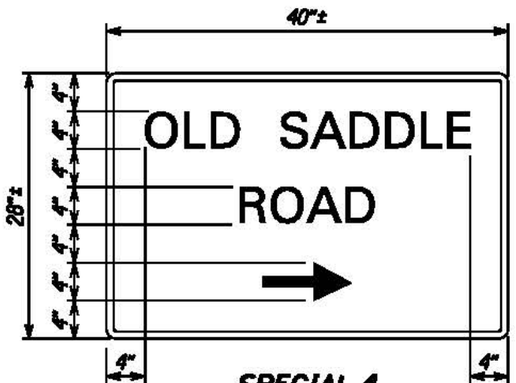
SHOULDER RUMBLE STRIP SIGN
Black Text on Yellow Background



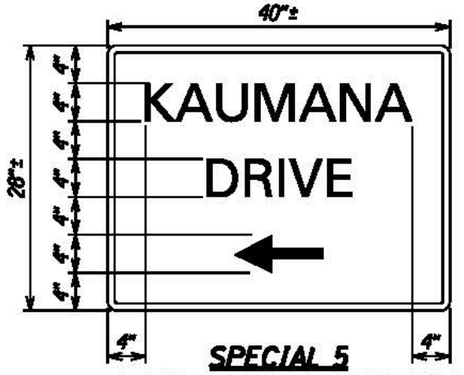
END RUMBLE STRIP SIGN
Black Text on Yellow Background



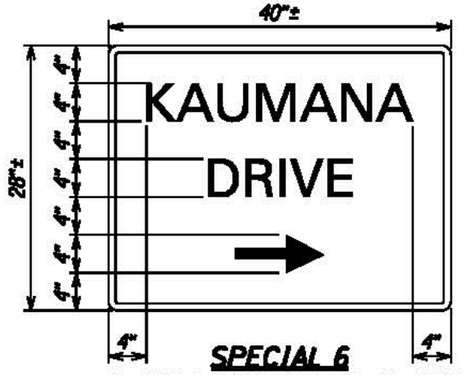
SPECIAL 3
OLD SADDLE ROAD LEFT SIGN
White Text on Green Background



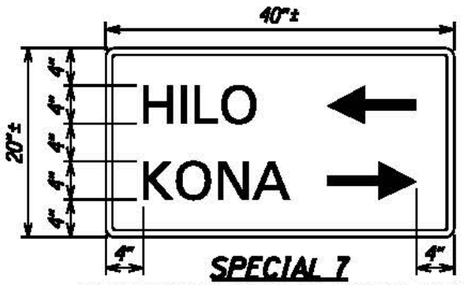
SPECIAL 4
OLD SADDLE ROAD RIGHT SIGN
White Text on Green Background



SPECIAL 5
KAUMANA DRIVE LEFT SIGN
White Text on Green Background



SPECIAL 6
KAUMANA DRIVE RIGHT SIGN
White Text on Green Background



SPECIAL 7
HILO/KONA DIRECTIONAL SIGN
White Text on Green Background

U.S DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

Licensed Professional Engineer No. 8336-C

The work was prepared by me or under my supervision and construction of this project will be under my supervision.

Expiration Date of License 4/15.

SADDLE ROAD SIGN DETAILS

Scale: N.T.S. Date: August 21, 2015

SHEET No. 1 OF 2

H:\Projs\Lennie\Saddle East II-5\sheets\shtp030.dgn

STATE	SADDLE ROAD PROJECT	SHEET NO.	TOTAL SHEETS
HI	HI SR 200(3)	P31	P40

SIGN NOTES

1. Letter Size:
   a. Use series "E" when letters are all uppercase.
   b. User series "E" (M) when initial uppercase letter is used in conjunction with lowercase letters.

2. All signs shall conform to Section 633 of the Special Contract Requirements and the latest editions and amendments of the following FHWA publications:
   a. "Manual on Uniform Traffic Control Devices for Streets and Highways" (MUTCD 2003)
   b. "Standard Highway Signs"

3. Borders, messages, arrows, symbols and shield shall conform to details as shown on the plans and as specified in the MUTCD.

4. Sign messages are as indicated on the plan.

5. All panels are Retroreflective in accordance with Section 718 of the Special Contract Requirements. Minimum width of panels are 2 ft. Abutting edges of panels are in only one direction if vertical abutting edges are used. No horizontal abutting edges are allowed and vice versa.

6. Contractor submits all sign splicing details to the Contracting Officer for approval. All backing for signs 4 feet by 6 feet or less are of one sheet.

7. Backing for all new Regulatory and Warning Signs are not spliced.

8. Final locations of all signs are approved by the Contracting Officer prior to any installation work.

9. Existing signs that are to be replaced, are not removed until new signs are installed as replacements, or the messages are no longer necessary.

10. Existing signs not shown on these plans are to remain as posted unless otherwise directed by the Contracting Officer. Removal and disposal of existing signs and/or posts as designated on these plans are incidental to the various signing items.

11. Removal of Existing Delineators and Posts are considered incidental to the various signing items.

12. All Destination, Street Name, and Non-Standard Signs, that are removed and installed at the same or new location, are identical to the existing sign in size and text. The Contractor submits Shop Drawings to the Contracting Officer for approval prior to fabricating the sign.

13. All 3-post signs are installed on flanged channel posts. All 1 & 2-post signs are installed on square tubing.

14. Mount Sign Posts with RM-3 reflector markers as directed in the field by the Contracting Officer.

15. Shoulder Rumble Strip signs shall be installed 50 feet before the first rumble strip depression. End Rumble Strip signs shall be installed 50 feet beyond the last rumble strip depression.

16. Use 4" series C letters black legend on retroreflectorized yellow background.

The work was prepared by me or under my supervision and construction of this project will be under my supervision.

Expiration Date of License 4/16

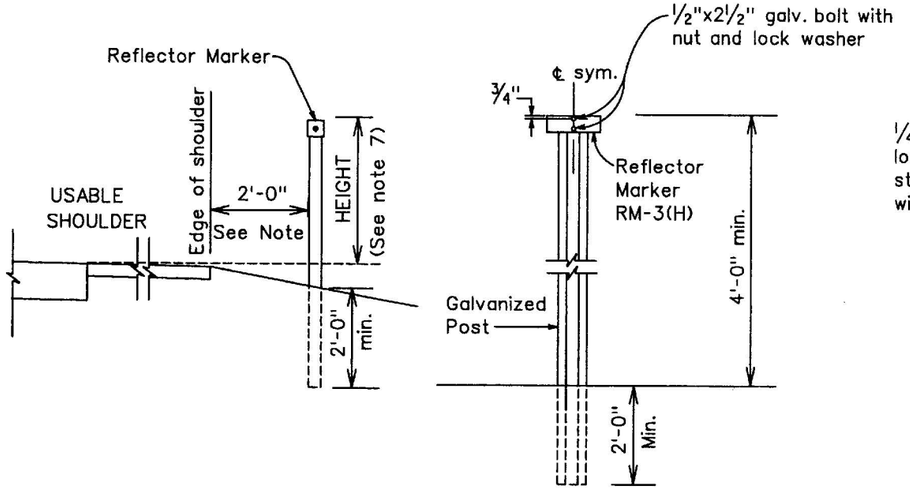
U.S DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

SADDLE ROAD SIGN NOTES

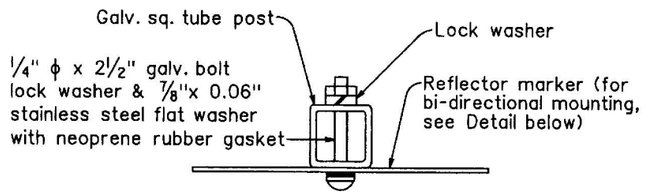
Scale: N.T.S. Date: August 21, 2015

SHEET No. 2 OF 2

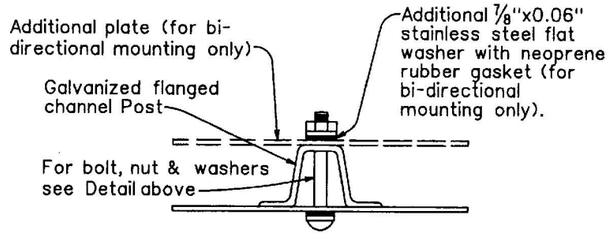
STATE	SADDLE ROAD PROJECT	SHEET NO.	TOTAL SHEETS
HI	HI SR 200(3)	P32	P40



REFLECTOR MARKER MOUNTING DETAIL

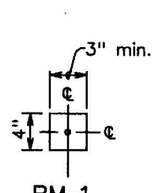


GALVANIZED SQUARE TUBE POST

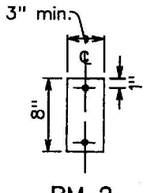


GALVANIZED FLANGED CHANNEL POST

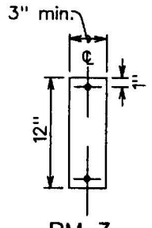
TYPICAL MOUNTING DETAILS



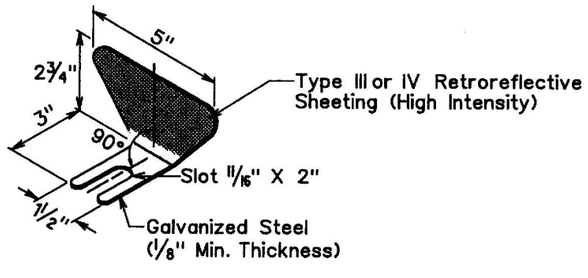
RM-1
(WHITE, YELLOW, OR RED)



RM-2
(WHITE, YELLOW, OR RED)



RM-3
(YELLOW)



RM-5
(WHITE, YELLOW)

REFLECTOR MARKERS

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.

BRUCE K. MEYERS Licensed Professional Engineer No. 8336-C HAWAII, U.S.A.

The work was prepared by me or under my supervision and construction of this project will be under my supervision.

Bruce K. Meyers

Expiration Date of License 4/16.

U.S DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

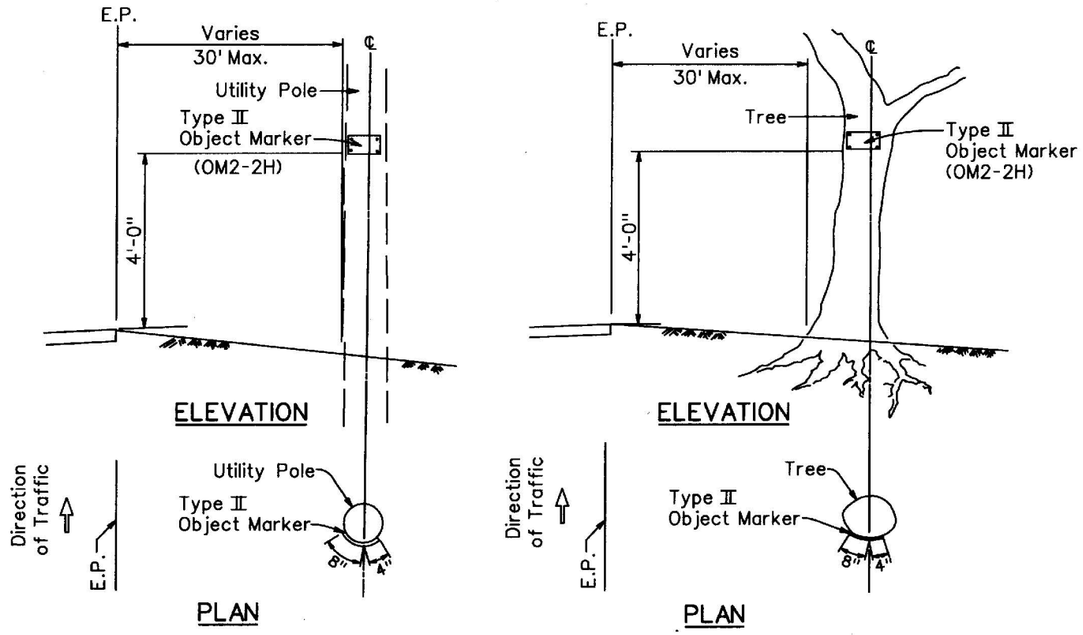
HDOT STD PLAN TE-14
MISCELLANEOUS REFLECTOR MARKERS

Scale: N/A Date: August 21, 2015

SHEET No. 1 OF 1

M:/Mproj/Lennie/Saddle East 11-6/sheets/shtp032.dgn

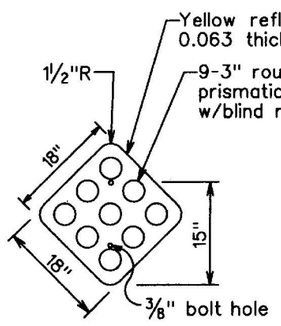
STATE	SADDLE ROAD PROJECT	SHEET NO.	TOTAL SHEETS
HI	HI SR 200(3)	P33	P40



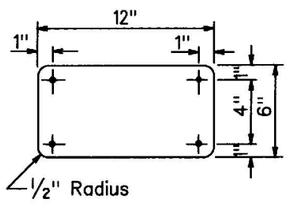
TYPICAL TYPE II OBJECT MARKER MOUNTING DETAIL

GENERAL NOTES

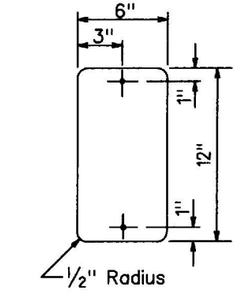
1. All objects (utility poles or trees) that are within the State highway right of way and within 30 feet of the roadway edge of pavement shall be marked as directed by the Engineer.
2. The Contractor shall prepare the mounting surface of each object as directed by the Engineer and place the Type II 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 aluminim 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 gauge square tube posts or 1.12 lbs. per ft. flanged channel posts.



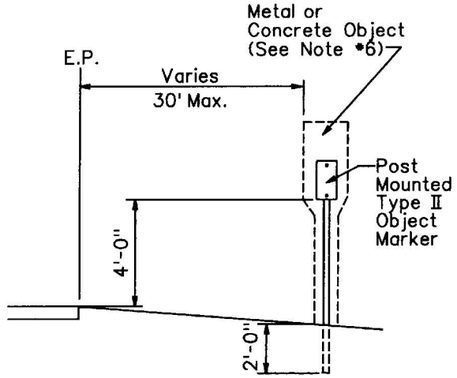
OM1-1
TYPE I
OBJECT MARKER



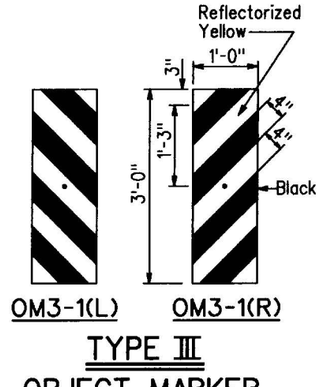
OM2-2H
TYPE II
OBJECT MARKER



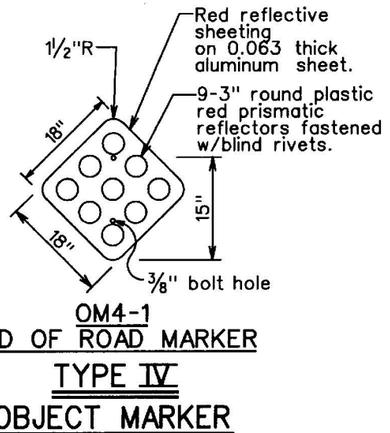
OM2-2V
TYPE II
POST MOUNTED
OBJECT MARKER



TYPE II
POST MOUNTED
OBJECT MARKER DETAIL



OM3-1(L) OM3-1(R)
TYPE III
OBJECT MARKER



OM4-1
END OF ROAD MARKER
TYPE IV
OBJECT MARKER

BRUCE K. MEYERS
Licensed Professional Engineer
No. 8336-C
HAWAII, U.S.A.

The work was prepared by me or under my supervision and construction of this project will be under my observation.

Bruce K. Meyers

Expiration Date of License 4/16.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

HDOT STD PLAN TE-15

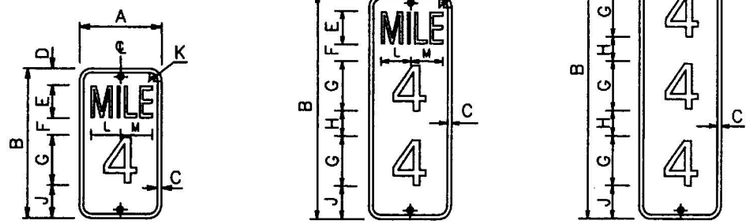
OBJECT MARKERS

Scale: N/A Date: August 21, 2015

SHEET No. 1 OF 1

M:/Mproj/Lennie/Saddle East 11-6/sheets/shtp033.dgn

STATE	SADDLE ROAD PROJECT	SHEET NO.	TOTAL SHEETS
HI	HI SR 200(3)	P34	P40



D10-1 10"x18"
D10-4 12"x24"

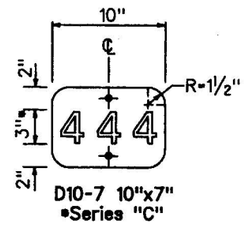
D10-2 10"x27"
D10-5 12"x36"

D10-3 10"x36"
D10-6 12"x48"

MILEPOST MARKER PLATE DETAILS

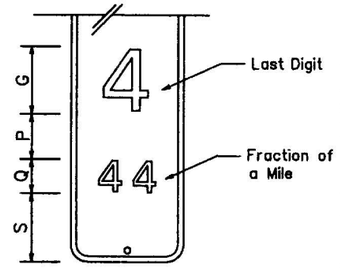
MILEPOST PLATE SCHEDULE
(INCHES)

NAME	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	LETTER SERIES	NUMERAL SERIES
D10-1	10X18	10	18	½	2	4	2	6	-	4	1½	3⅝	3⅞	B	C
D10-4	12x24	12	24	½	3	4	3	10	-	4	1½	4⅝	4⅞	C	C
D10-2	10x27	10	27	½	2	4	2	6	3	4	1½	3⅝	3⅞	B	C
D10-5	12x36	12	36	½	3	4	3	10	3	3	1½	4⅝	4⅞	C	C
D10-3	10x36	10	36	½	2	4	2	6	3	4	1½	3⅝	3⅞	B	C
D10-6	12x48	12	48	½	3	4	3	10	2½	3	1½	4⅝	4⅞	C	C



D10-7 10"x7"
•Series "C"

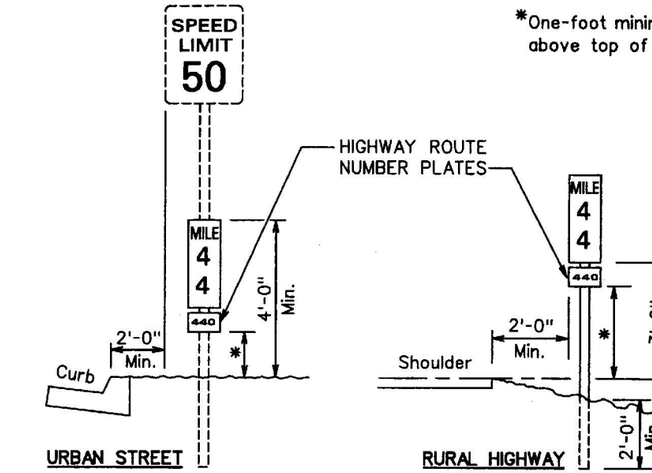
HIGHWAY ROUTE NUMBER PLATE DETAIL



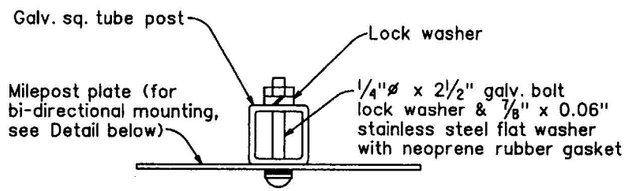
MILEPOST MARKER FRACTION DETAIL

MILEPOST PLATE SCHEDULE
WITH FRACTION OF A MILE

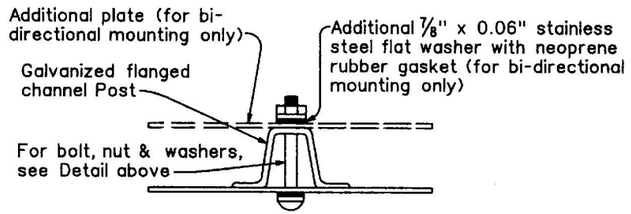
NAME	SIZE	G	P	Q	S	NUMERAL SERIES
D10-1a	10"x27"	6"	4"	3"	6"	C
D10-4a	12"x36"	10"	4"	5"	7"	C
D10-2a	10"x36"	6"	4"	3"	6"	C
D10-5a	12"x48"	10"	4"	5"	6"	C
D10-3a	10"x45"	6"	4"	3"	6"	C
D10-6a	10"x60"	10"	4"	5"	6"	C



TYPICAL ROADSIDE INSTALLATION



GALVANIZED SQUARE TUBE POST



GALVANIZED FLANGED CHANNEL POST

TYPICAL MOUNTING DETAILS

GENERAL NOTES

1. Milepost marker and highway route number plates 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. Milepost markers and highway route numbers shall be completely reflectorized w/reflective sheeting as follows:
   a. Milepost markers shall have white legends and border on a green background
   b. Highway route numbers shall have black numerals on a white background
3. The plate backings for milepost markers and highway route numbers shall conform to the requirements for standard highway signs. The plates shall have ⅜" bolt holes drilled at appropriate locations.
4. Highway route number plates shall be used in conjunction w/milepost marker plates on all roadways, except Interstate freeways. Fabrication and installation costs of highway route number plates shall be considered incidental to the milepost marker assembly.
5. Milepost markers shall be installed on all roadways as follows:
   a. One milepost on each side of multi-lane roadways
   b. Back-to-back mileposts on one side of 2-lane roadways (right side of roadway in direction of increasing mileage)

BRUCE K. MEYERS
Licensed Professional Engineer
No. 8336-C
HAWAII, U.S.A.

The work was prepared by me or under my supervision and construction of this project will be under my supervision.

Expiration Date of License 4/16.

U.S DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

HDOT STD PLAN TE-16

MILE POSTS

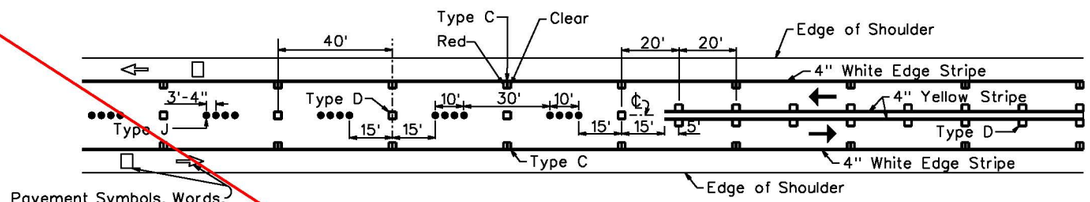
Scale: N/A Date: August 21, 2015

SHEET No. 1 OF 1

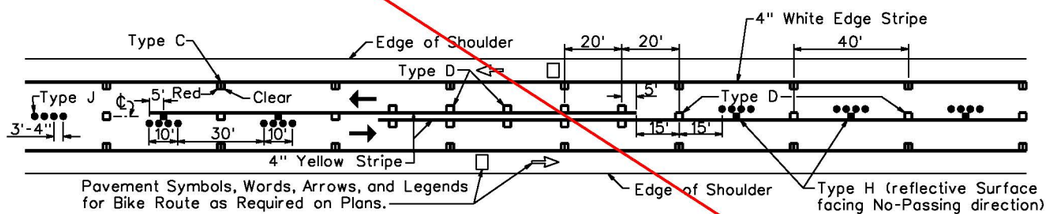
M:/Mproj/Lennie/Saddle East 11-6/sheets/shtp034.dgn

STATE	SADDLE ROAD PROJECT	SHEET NO.	TOTAL SHEETS
HI	HI SR 200(3)	P35	P40

TWO - LANE

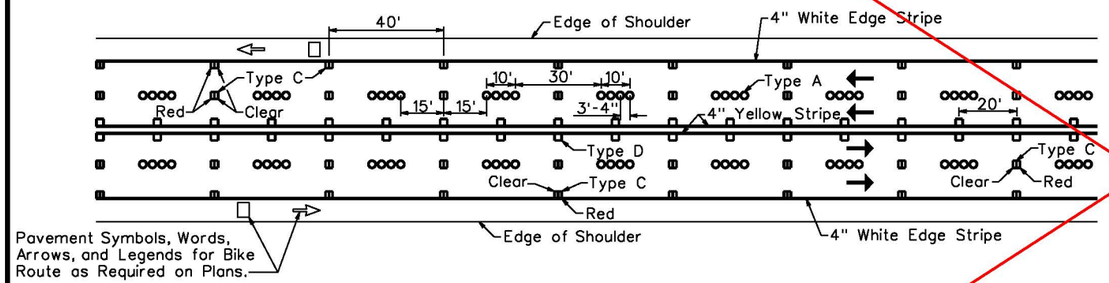


PASSING PERMITTED AND PASSING PROHIBITED

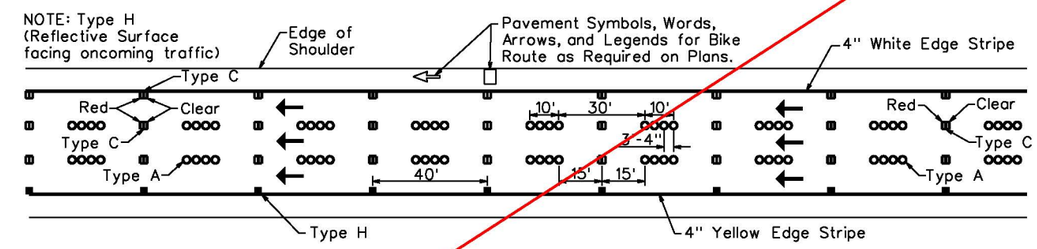


PASSING PROHIBITED ZONES

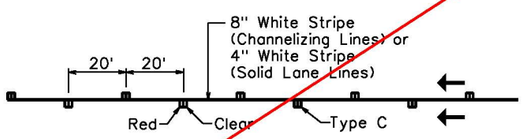
MULTI - LANE



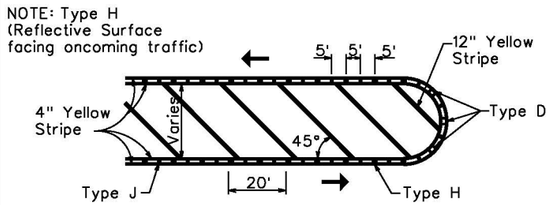
DIVIDED HIGHWAY AND FREEWAY



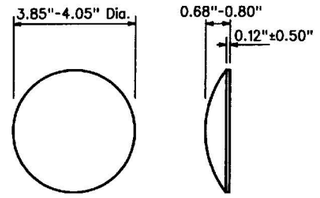
MISCELLANEOUS



CHANNELIZING LINES
OR SOLID LANE LINES



MEDIAN NOSE DELINEATION

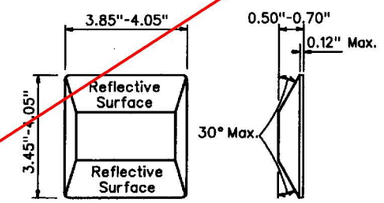


TYPE A

○ NON-REFLECTIVE WHITE MARKER

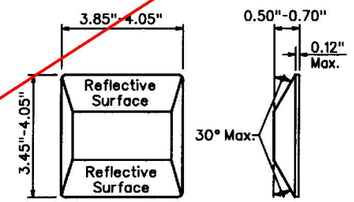
TYPE J

● NON-REFLECTIVE YELLOW MARKER



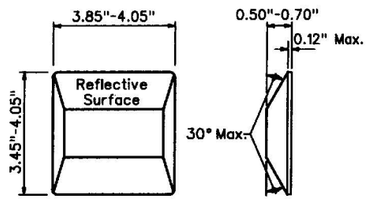
TYPE C

◫ RED - CLEAR REFLECTIVE MARKER



TYPE D

□ TWO-WAY YELLOW REFLECTIVE MARKER



TYPE H

■ ONE-WAY YELLOW REFLECTIVE MARKER

TYPE F

◩ TWO-WAY BLUE REFLECTIVE MARKER
(FIRE HYDRANT 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.

BRUCE K. MEYERS
Licensed Professional Engineer
No. 8336-C
HAWAII, U.S.A.

The work was prepared by me or under my supervision and construction of this project will be under my observation.

Bruce Meyers

Expiration Date of License 4/15.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

(SPECIAL) HDOT STD PLAN TE-26
RAISED PAVEMENT MARKERS AND STRIPING

Scale: N/A Date: August 21, 2015

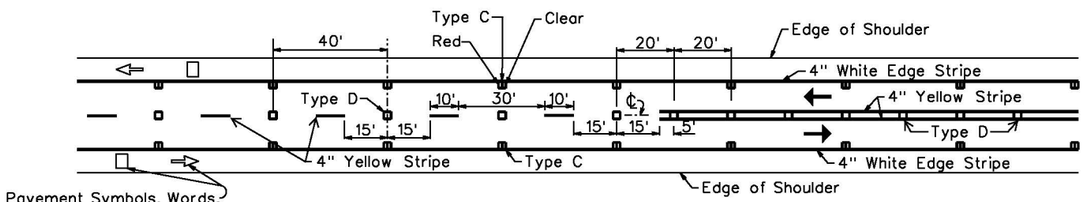
SHEET No. 1 OF 1

M:\Mproj\Lennie\Saddle East 11-6\sheets\shtp035.dgn

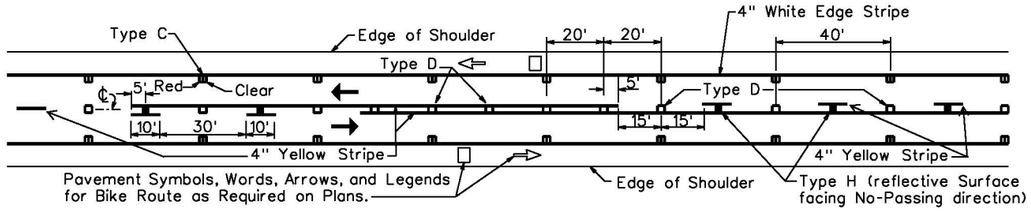
STATE	SADDLE ROAD PROJECT	SHEET NO.	TOTAL SHEETS
HI	HI SR 200(3)	P35	P40

Revised 03/15/18

TWO - LANE

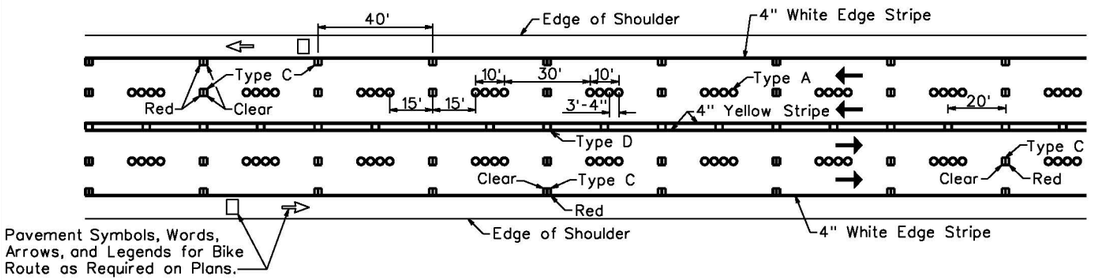


PASSING PERMITTED AND PASSING PROHIBITED

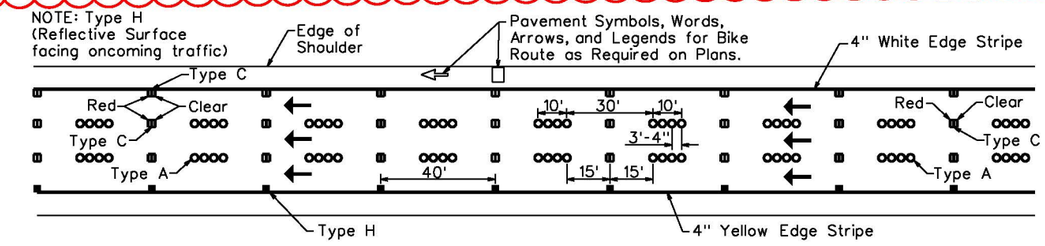


PASSING PROHIBITED ZONES

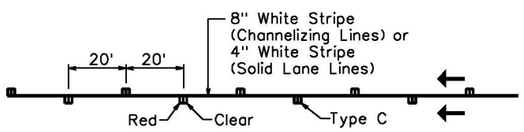
MULTI - LANE



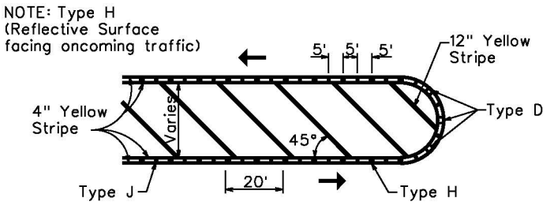
DIVIDED HIGHWAY AND FREEWAY



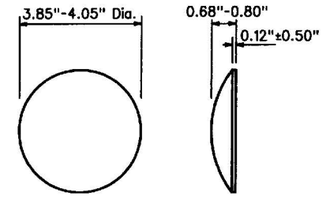
MISCELLANEOUS



CHANNELIZING LINES
OR SOLID LANE LINES



MEDIAN NOSE DELINEATION

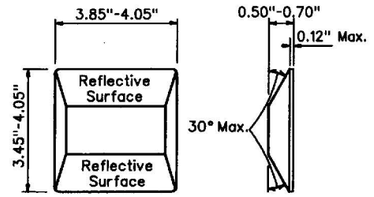


TYPE A

○ NON-REFLECTIVE WHITE MARKER

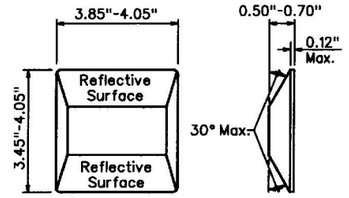
TYPE J

● NON-REFLECTIVE YELLOW MARKER



TYPE C

◫ RED - CLEAR REFLECTIVE MARKER

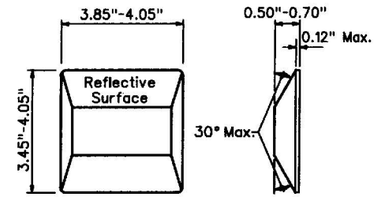


TYPE D

□ TWO-WAY YELLOW REFLECTIVE MARKER

TYPE F

◩ TWO-WAY BLUE REFLECTIVE MARKER
(FIRE HYDRANT 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.
4. STA 1545+00 to Mamalahoa Highway: Verify and document existing pavement markings (passing and non-passing zones) prior to removal. Replace in-kind.

BRUCE K. MEYERS
Licensed Professional Engineer
No. 8336-C
HAWAII, U.S.A.

The work was prepared by me or under my supervision and construction of this project will be under my observation.

Bruce Meyers

Expiration Date of License 4/15.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

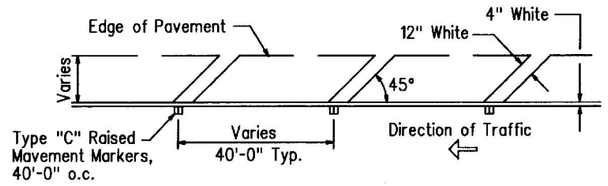
(SPECIAL) HDOT STD PLAN TE-26
RAISED PAVEMENT MARKERS AND STRIPING

Scale: N/A Date: August 21, 2015

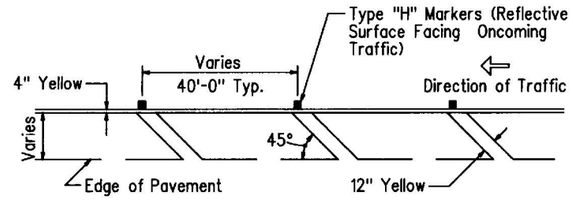
SHEET No. 1 OF 1

M:/Mproj/Lennie/Saddle East 11-6/sheets/shtp035.dgn

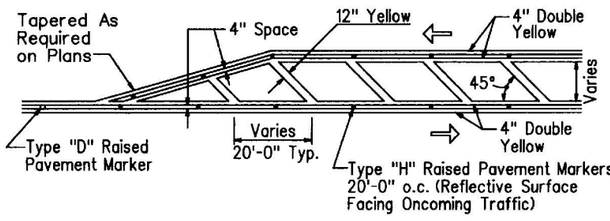
STATE	SADDLE ROAD PROJECT	SHEET NO.	TOTAL SHEETS
HI	HI SR 200(3)	P36	P40



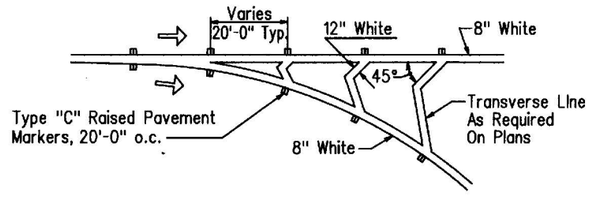
TRANSVERSE RIGHT SHOULDER MARKING



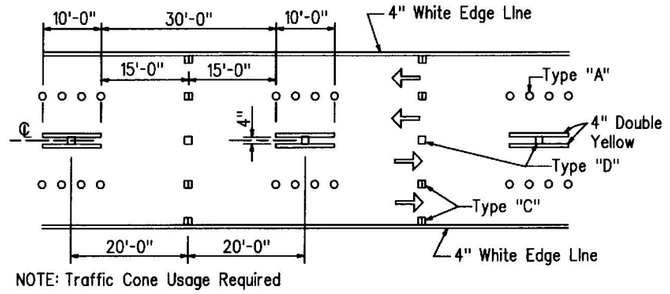
TRANSVERSE LEFT SHOULDER MARKING



TRANSVERSE MEDIAN MARKING

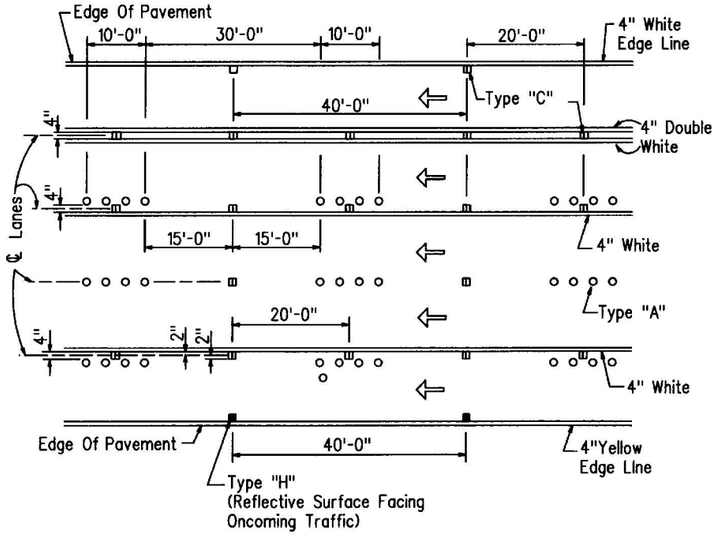


CHANNELIZING ISLAND

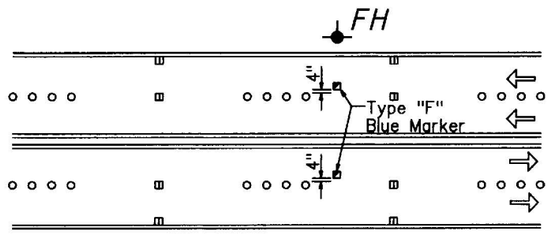


NOTE: Traffic Cone Usage Required

MULTI-LANE REVERSIBLE LANES



MULTI-LANE LANE CHANGE RESTRICTION ZONES



FIRE HYDRANT MARKER LOCATION

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 Standard Plan TE-26, TE-28 and TE-29.

BRUCE K. MEYERS Licensed Professional Engineer No. 8336-C HAWAII, U.S.A.

The work was prepared by me or under my supervision and construction of this project will be under my observation.

Bruce K. Meyers

Expiration Date of License 4/16.

U.S DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

HDOT STD PLAN TE-27

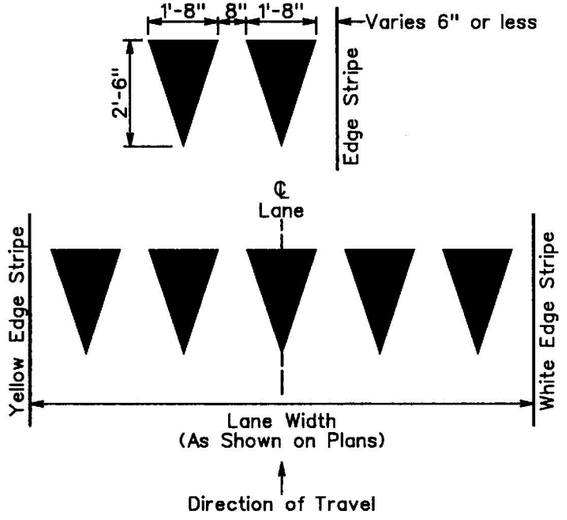
RAISED PAVEMENT MARKERS AND STRIPING

Scale: N/A Date: August 21, 2015

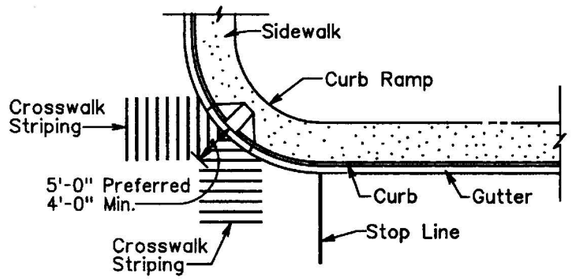
SHEET No. 1 OF 1

M:/Mproj/Lennie/Saddle East 11-6/sheets/shtp036.dgn

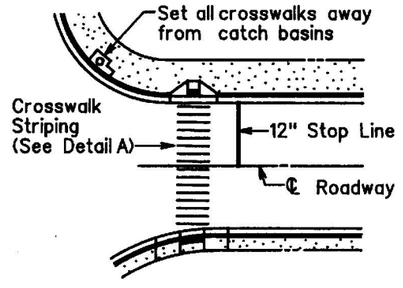
STATE	SADDLE ROAD PROJECT	SHEET NO.	TOTAL SHEETS
HI	HI SR 200(3)	P37	P40



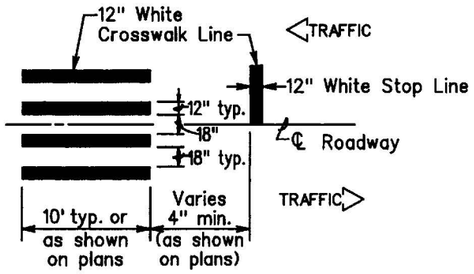
YIELD LINE



TYPICAL CROSSWALK STRIPING
AT DIAGONAL CURB RAMP

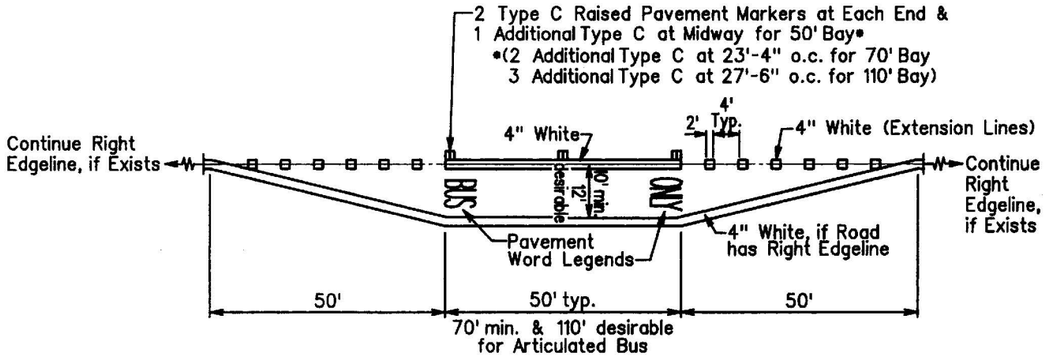


PLAN



DETAIL A

PEDESTRIAN CROSSWALK



BUS BAY

BRUCE K. MEYERS
Licensed Professional Engineer
No. 8336-C
HAWAII, U.S.A.

The work was prepared by me or under my supervision and construction of this project will be under my observation.

Expiration Date of License 4/16.

U.S DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

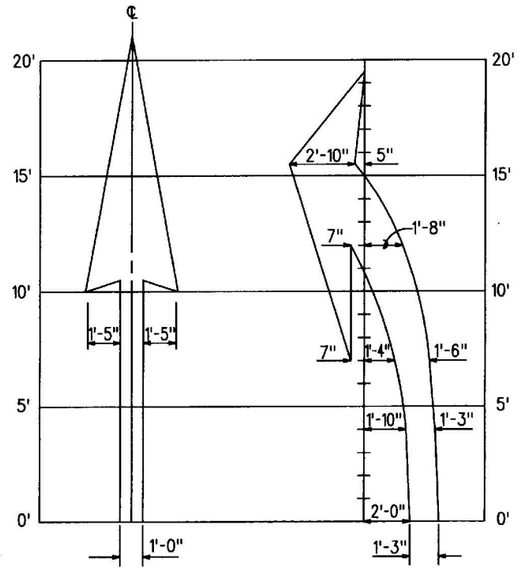
HDOT STD PLAN TE-28A
MISCELLANEOUS
PAVEMENT MARKINGS

Scale: N/A Date: August 21, 2015

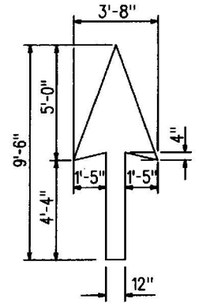
SHEET No. 1 OF 1

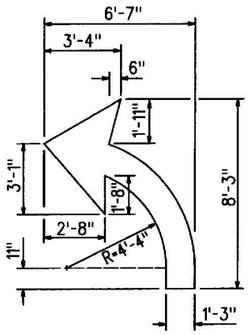
M:/Mproj/Lennie/Saddle East 11-6/sheets/shtp037.dgn

STATE	SADDLE ROAD PROJECT	SHEET NO.	TOTAL SHEETS
HI	HI SR 200(3)	P38	P40

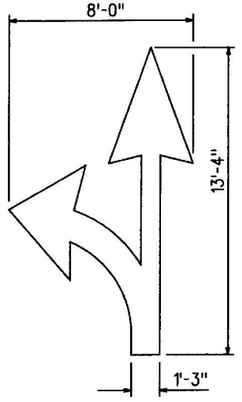


ELONGATED





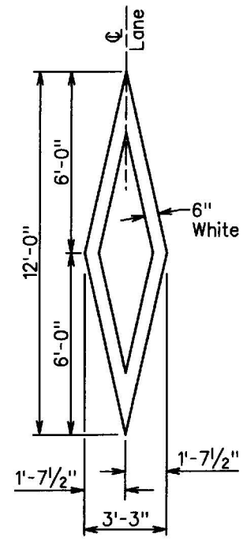
STANDARD



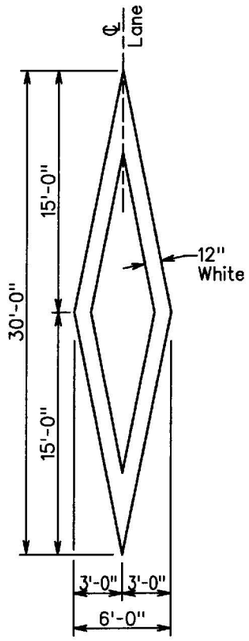
PAVEMENT ARROWS

GENERAL NOTES

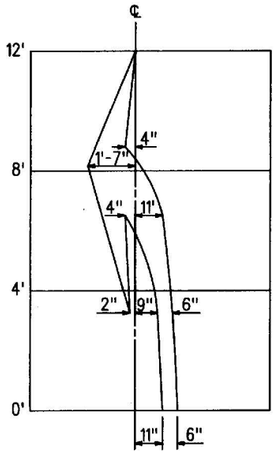
1. Pavement markings and striping shall conform to the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways" by the FHWA and as amended.
2. Layout of pavement markings and striping shall be done by the Contractor. The Contractor shall check layout of markings and striping with the Engineer prior to performing work.
3. For additional pavement marking details, see Standard Plan TE-26, TE-27 & TE-28.

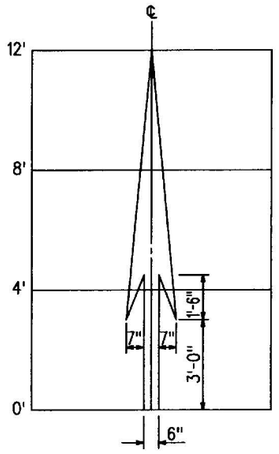


STANDARD HOV LANE DIAMOND

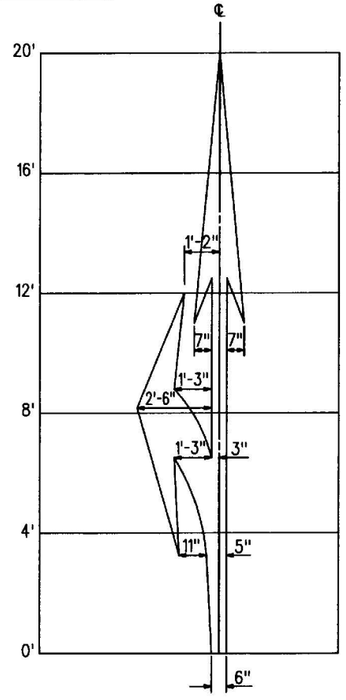


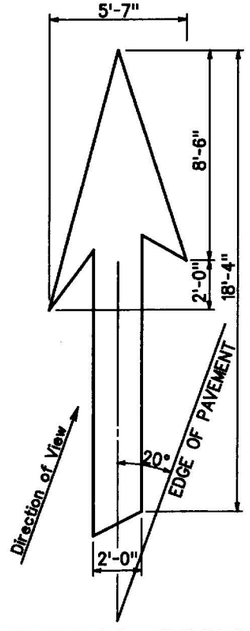
ELONGATED HOV LANE DIAMOND





ELONGATED ALTERNATE DESIGNS





TYPE VI ARROW
RIGHT LANE DROP ARROW
(FOR LEFT LANE DROP, USE MIRROR IMAGE)

Reference: FHWA -OTO-(HTO-21)
September, 1988

PAVEMENT ARROWS

BRUCE K. MEYERS
Licensed Professional Engineer
No. 8336-C
HAWAII, U.S.A.

The work was prepared by me or under my supervision and construction of this project will be under my observation.

Bruce K. Meyers

Expiration Date of License 4/15.

U.S DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

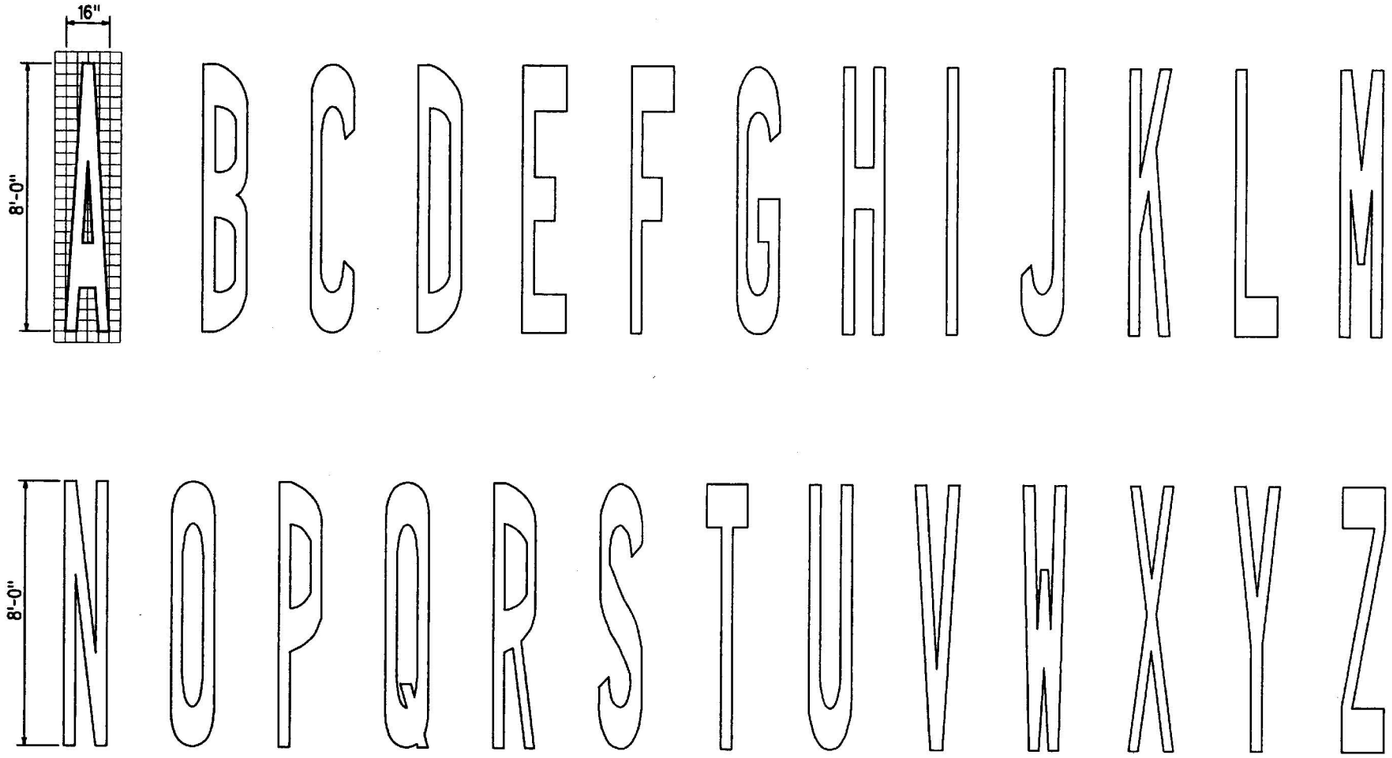
HDOT STD PLAN TE-29
PAVEMENT ARROWS AND SYMBOLS

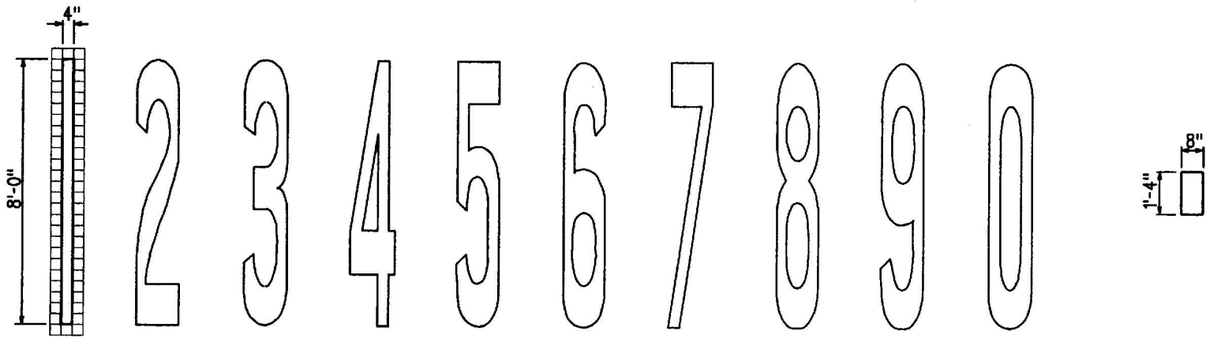
Scale: N/A Date: August 21, 2015

SHEET No. 1 OF 1

M:/Mproj/Lennie/Saddle East 11-6/sheets/shtp038.dgn

STATE	SADDLE ROAD PROJECT	SHEET NO.	TOTAL SHEETS
HI	HI SR 200(3)	P39	P40





GENERAL NOTES

1. Pavement marking alphabets, numbers and symbols shall conform to Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) and Standard Highway Signs (SHS), and as amended on this sheet.

2. Characters shall be based on a 24 units high and 4 units wide grid system. Each grid shall be equivalent to 4" in length. Typical height and width of each character shall respectively be 8' high and 1'-4" wide.

   Exceptions:
   a. Letter "I" and number "1" shall be only 1 unit wide.
   b. Dashed symbol shall be 4 units high and 2 units wide.

   Horizontal strokes shall be 4 units high. Vertical strokes are 1 unit wide.

3. The space between characters in a word shall be 1 unit.

4. Color of all pavement messages shall be white.

5. Pavement message shall be best centered longitudinally within the lane.

6. When applicable to bike lane without sufficient lane width, pavement marking alphabets, numbers and symbols shall be narrowed in accordance with MUTCD Part 9 Traffic Controls for Bicycle Facilities.

7. Minor variations in dimensions may be allowed when approved by the Engineer.

8. Unless otherwise approved by the Engineer, only the following standard pavement messages may be used:

   BIKE LANE
   BUS ONLY
   HOV (High Occupancy Vehicle)
   LEFT TURN ONLY
   PED XING
   RIGHT TURN ONLY
   SCHOOL XING
   SHLDR LANE
   SIGNAL AHEAD
   STOP
   STOP AHEAD
   YIELD AHEAD

BRUCE K. MEYERS
Licensed Professional Engineer
No. 8336-C
HAWAII, U.S.A.

The work was prepared by me or under my supervision and construction of this project will be under my observation.

Bruce Meyers

Expiration Date of License 4/15.

U.S DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

HDOT STD PLAN TE-30

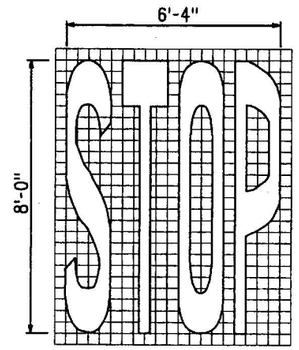
PAVEMENT ALPHABETS, NUMBERS & SYMBOLS

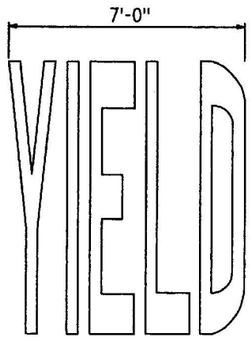
Scale: N/A Date: August 21, 2015

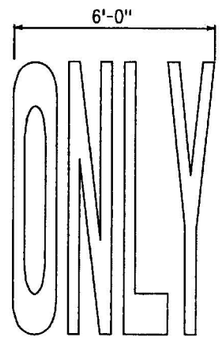
SHEET No. 1 OF 1

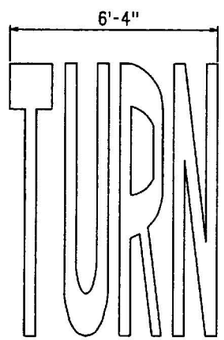
M:/Mproj/Lennie/Saddle East 11-6/sheets/shtp039.dgn

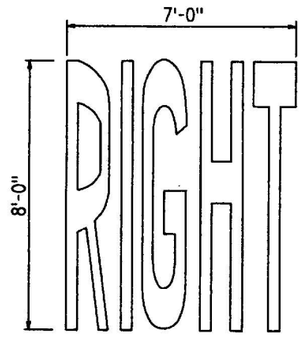
STATE	SADDLE ROAD PROJECT	SHEET NO.	TOTAL SHEETS
HI	HI SR 200(3)	P40	P40

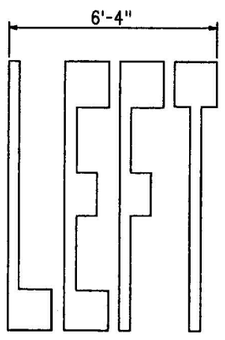


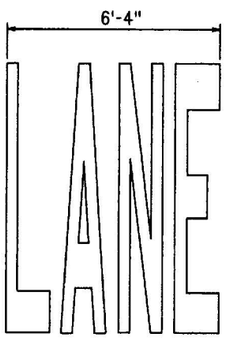


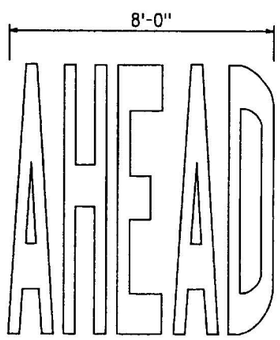


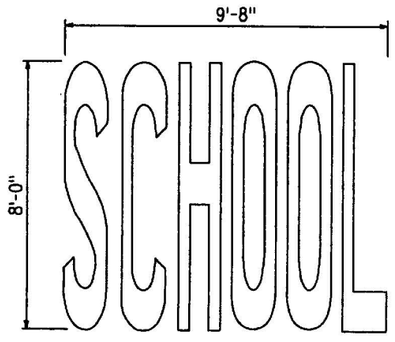


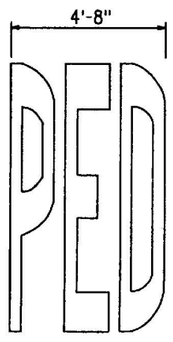


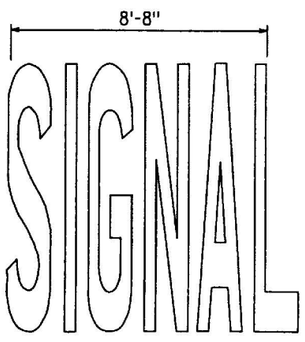












GENERAL NOTES

1. All messages not shown must be approved by the Engineer prior to installation.
2. The space between characters in a message shall be 1 grid unit unless otherwise shown or directed.
3. All pavement messages shall be white in color.

BRUCE K. MEYERS
Licensed Professional Engineer
No. 8336-C
HAWAII, U.S.A.

The work was prepared by me or under my supervision and construction of this project will be under my observation.

Expiration Date of License 4/15.

U.S DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

HDOT STD PLAN TE-31
PAVEMENT ALPHABETS, NUMBERS & SYMBOLS

Scale: N/A

Date: August 21, 2015

SHEET No. 1 OF 1

M:/Mproj/Lennie/Saddle East 11-6/sheets/shtp040.dgn