

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H11-01-09	2009	68	73

LEGEND

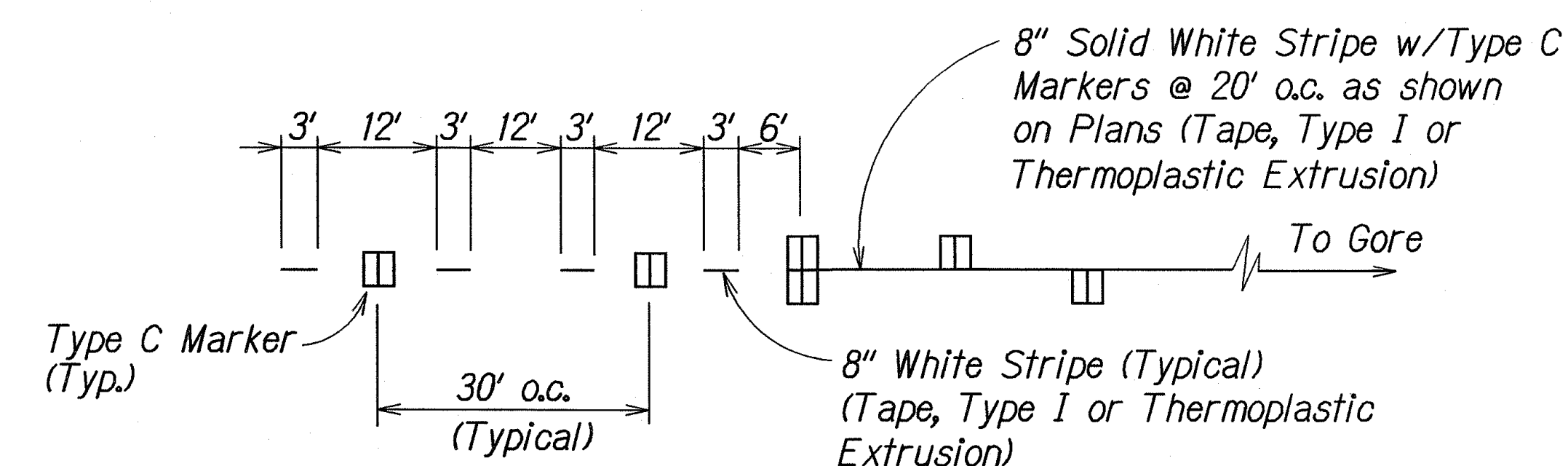
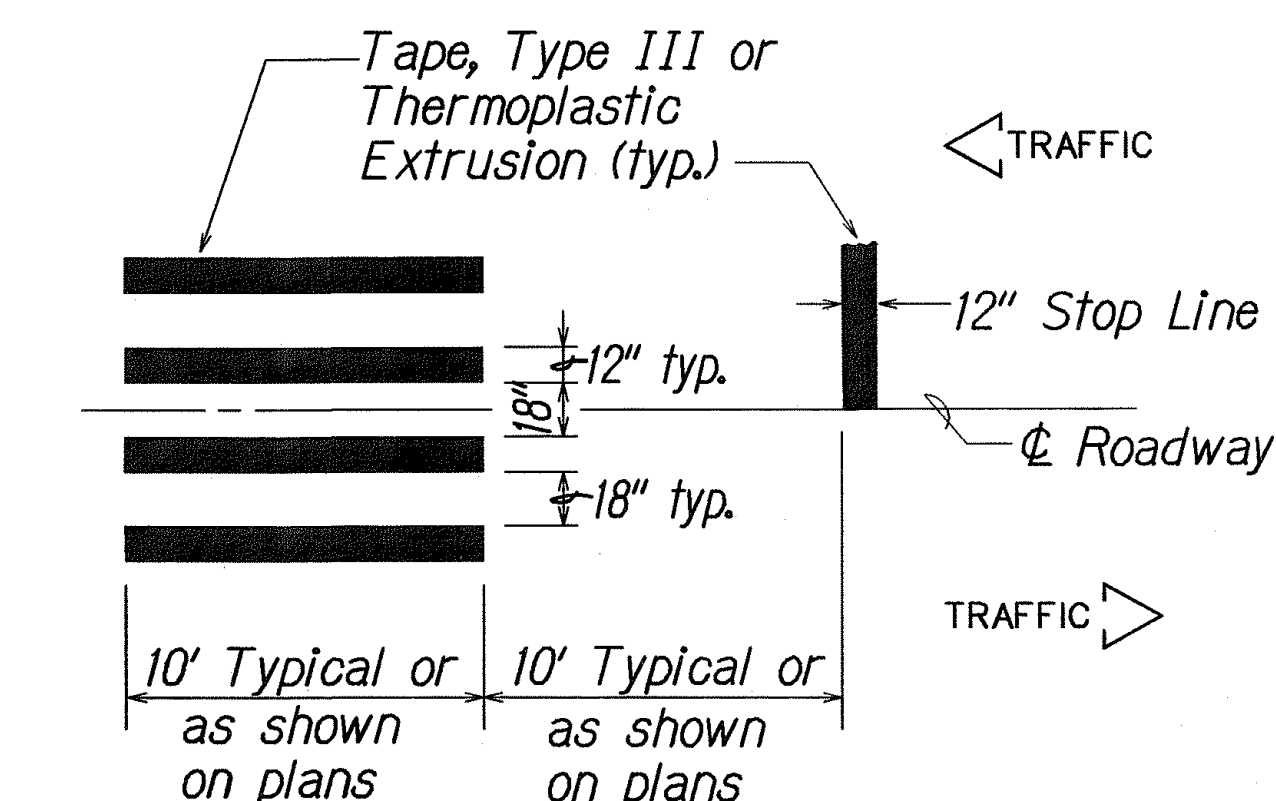
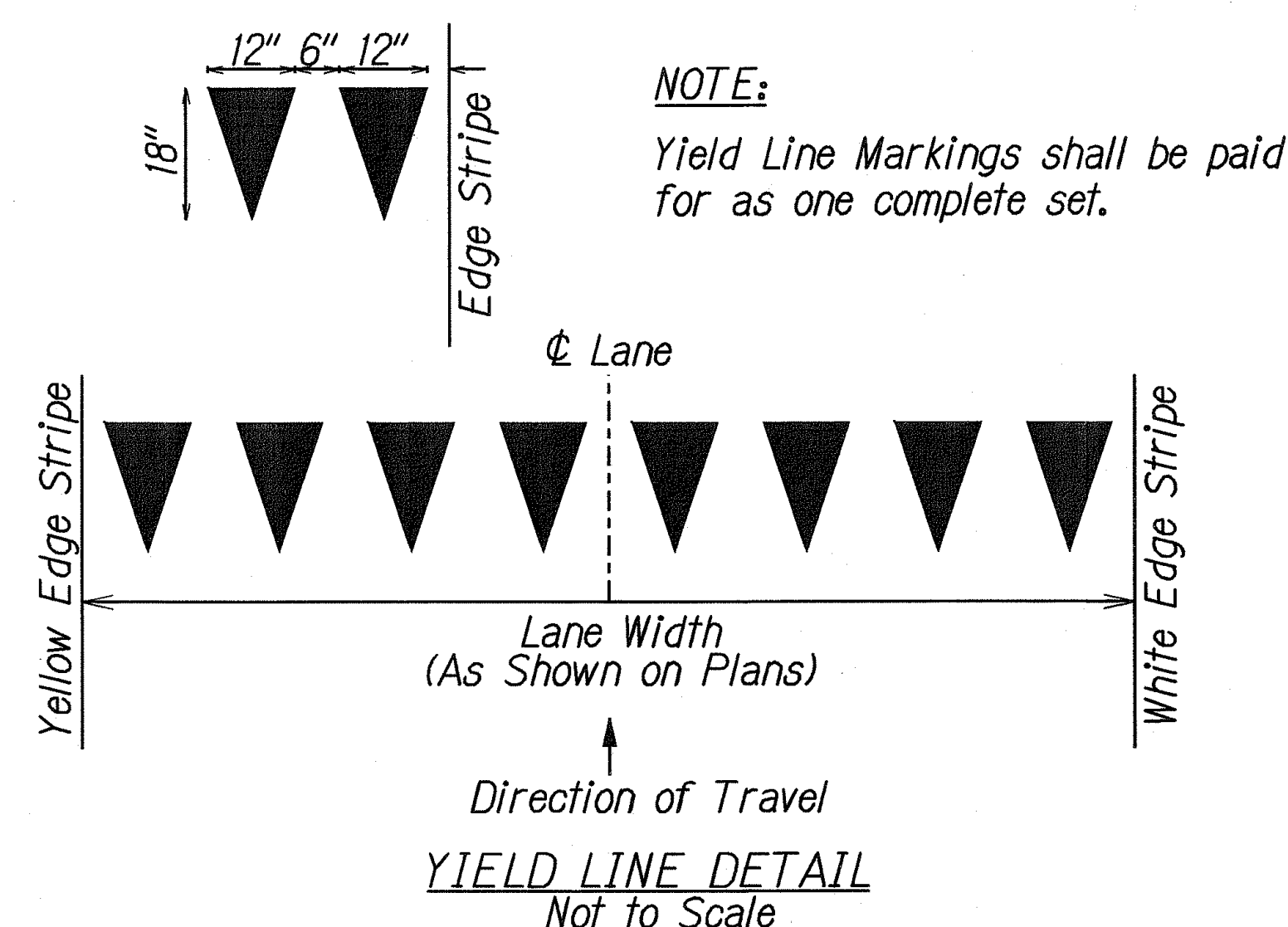
- 4 each Type A Raised Pavement Markers
Type C Raised Pavement Markers @ 40'-0" o.c.
- 4 each Type J Raised Pavement Markers
Type D Raised Pavement Markers @ 40'-0" o.c.
- 8" White Stripe with Type C Raised Pavement Markers @ 20'-0" o.c. (Tape, Type I or Thermoplastic Extrusion)
- 4" Double Solid Yellow with Type D Raised Pavement Markers @ 20'-0" o.c. (Tape, Type I or Thermoplastic Extrusion)
- 4" Double Solid Yellow Stripes with Type H Raised Pavement Markers @ 20'-0" o.c. (Tape, Type II or Thermoplastic Extrusion)
- 4" Yellow Edge Stripe with Type H Raised Pavement Markers @ 40'-0" o.c. (Tape, Type II or Thermoplastic Extrusion)
- 4" Double Solid White Stripes with Type C Raised Pavement Markers @ 20'-0" o.c. (Tape, Type I or Thermoplastic Extrusion)
- Lane Change Restriction Marking
4 each Type A Raised Pavement Markers
Type C Raised Pavement Markers @ 20'-0" o.c.
4" White Stripe (Tape, Type I or Thermoplastic Extrusion)
- 4" or 8" White Edge Stripe with Type C Raised Pavement Markers @ 40'-0" o.c. (Tape, Type II or Thermoplastic Extrusion)
- 4" White Guide Lines (Tape, Type III or Thermoplastic Extrusion except for bus bays)
- Transverse Median Marking (Tape, Type II or Thermoplastic Extrusion)
- Transverse Shoulder Marking (Tape, Type II or Thermoplastic Extrusion)
- Channelizing Island or Deceleration Lane Gore (Tape, Type II or Thermoplastic Extrusion)
- Crosswalk and Stop Line. All Stop Lines shall be 10'-0" from Crosswalk unless otherwise noted. The circled number indicates the number of lanes for payment (Tape, Type III or Thermoplastic Extrusion)
- Pavement Arrow (Tape, Type III or Thermoplastic Extrusion)
- STOP
- 4 Each Type J Raised Pavement Markers
Type D Raised Pavement Markers @ 40'-0" o.c.
Type H Raised Pavement Markers (Reflective Surface facing no-passing direction)
4" Single Solid Yellow Stripe (Tape, Type I or Thermoplastic Extrusion)
- Extension of Edge Line, 4" Wide x 2'-0" Long White Stripe @ 10'-0" o.c. w/Type C Markers @ 40'-0" o.c. (Tape, Type III or Thermoplastic Extrusion)

NOTES

- Layout of pavement markings and striping shall be done by the Contractor and approved by the Engineer prior to any installation work.
- Existing pavement markings not incorporated in the final traffic pattern shall be removed as directed by the Engineer. Costs shall be incidental to the various pavement marking items.
- Raised pavement markers shall not be installed within crosswalks.
- Final locations of all signs shall be approved by the Engineer prior to any installation work.
- Existing signs not shown on these plans shall remain as posted unless otherwise directed by the Engineer. Removal and disposal of existing signs and/or posts as designated on these plans shall be incidental to the various signing items.
- Final locations of all Stop Lines shall be approved by the Engineer prior to installation.
- All pavement striping shall be as noted on the legend or plans.
- All preformed pavement marking tapes over existing pavement shall be applied with an approved primer as recommended by the tape manufacturer and as approved by the Engineer. The primer shall be allowed to dry to the tacky stage prior to tape application.
- All pedestrian warning signs with supplemental sign shall be on a fluorescent yellow-green retroreflective background with a black legend and border.

LEGEND:

- SW Reflector Marker (RM-2, White) w/ steel post
- FW Reflector Marker (RM-2, White) w/ flexible post



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

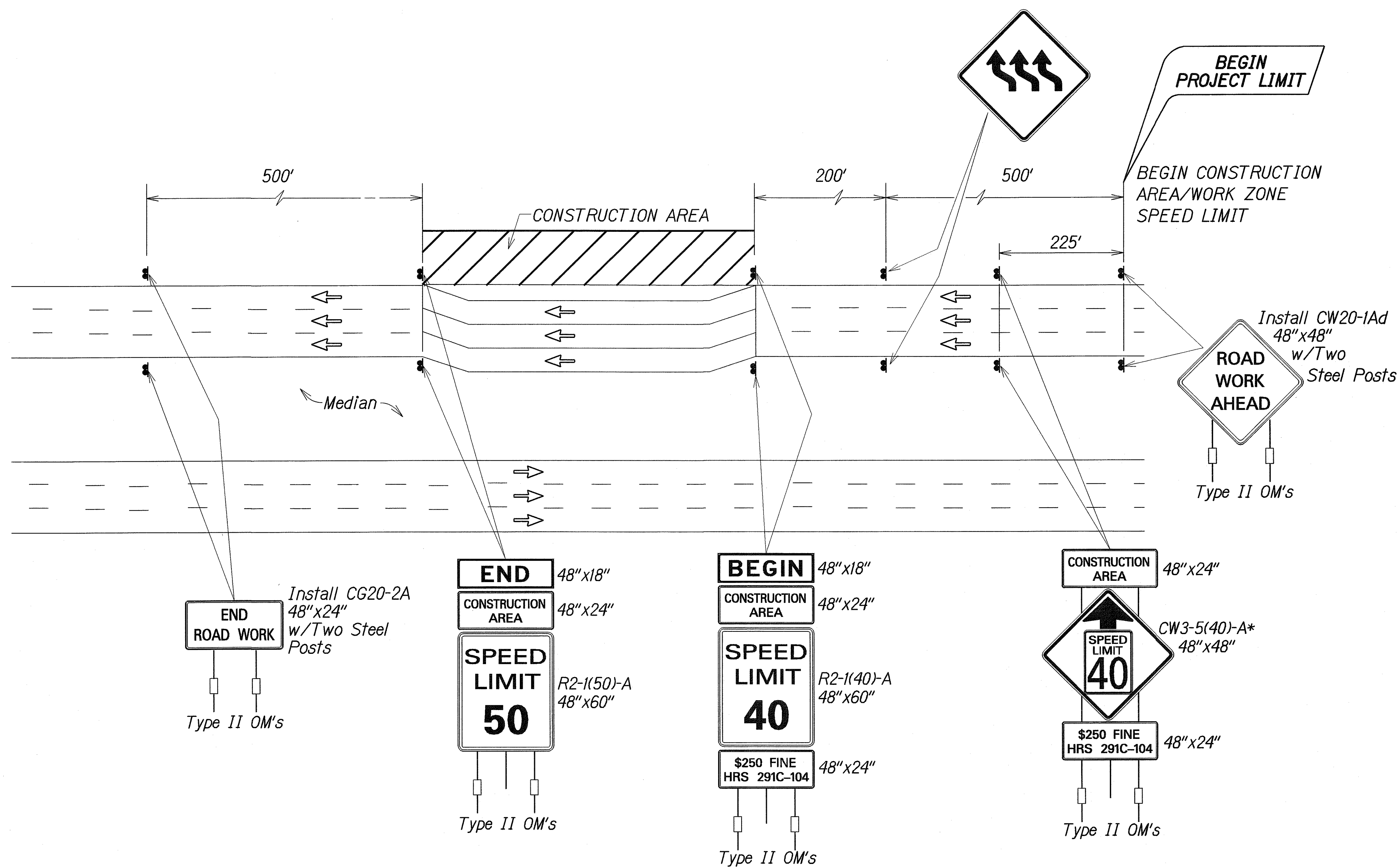
PAVEMENT MARKING
LEGEND, DETAILS & NOTES

INTERSTATE ROUTE H-1
Drainage Improvement
Vicinity of School Street Off-Ramp
Project No. H11-01-09

Scale: As Shown Date: February 2009

SHEET No. 71 OF 6 SHEETS

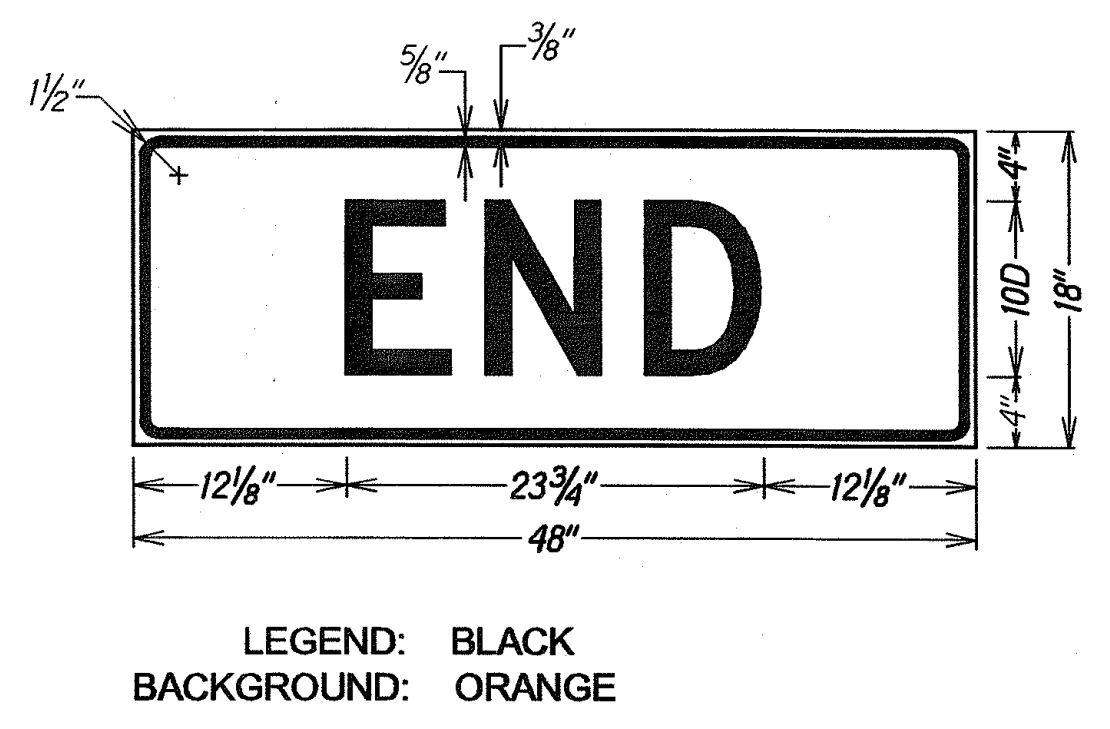
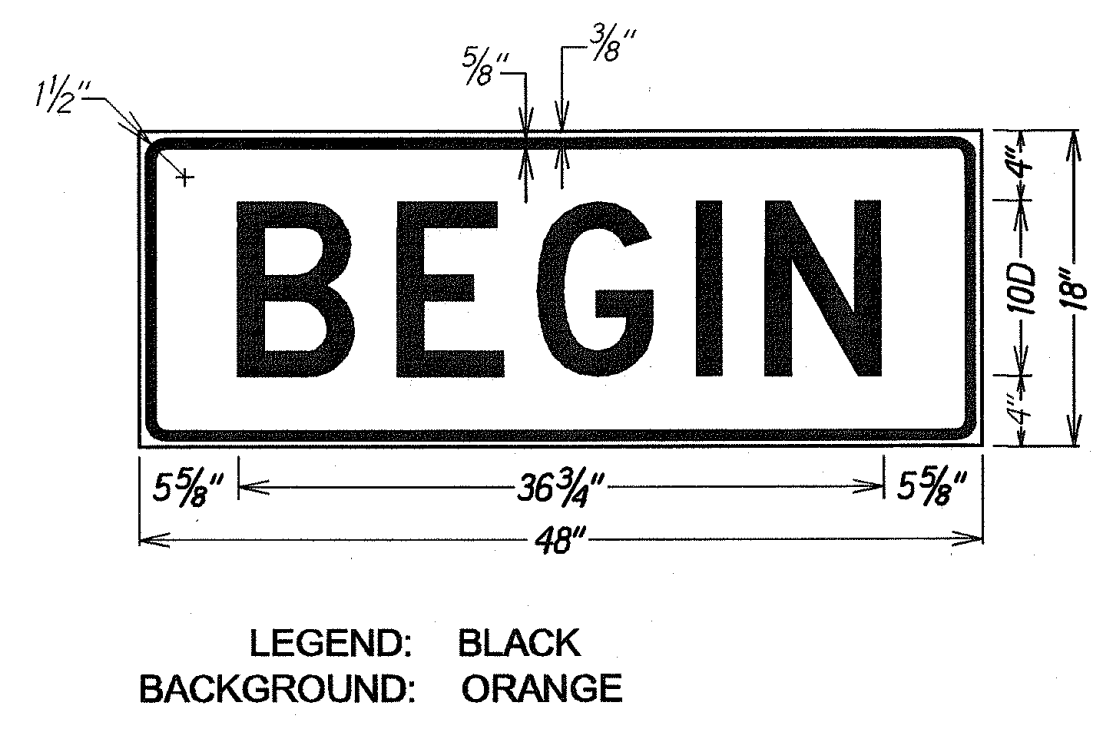
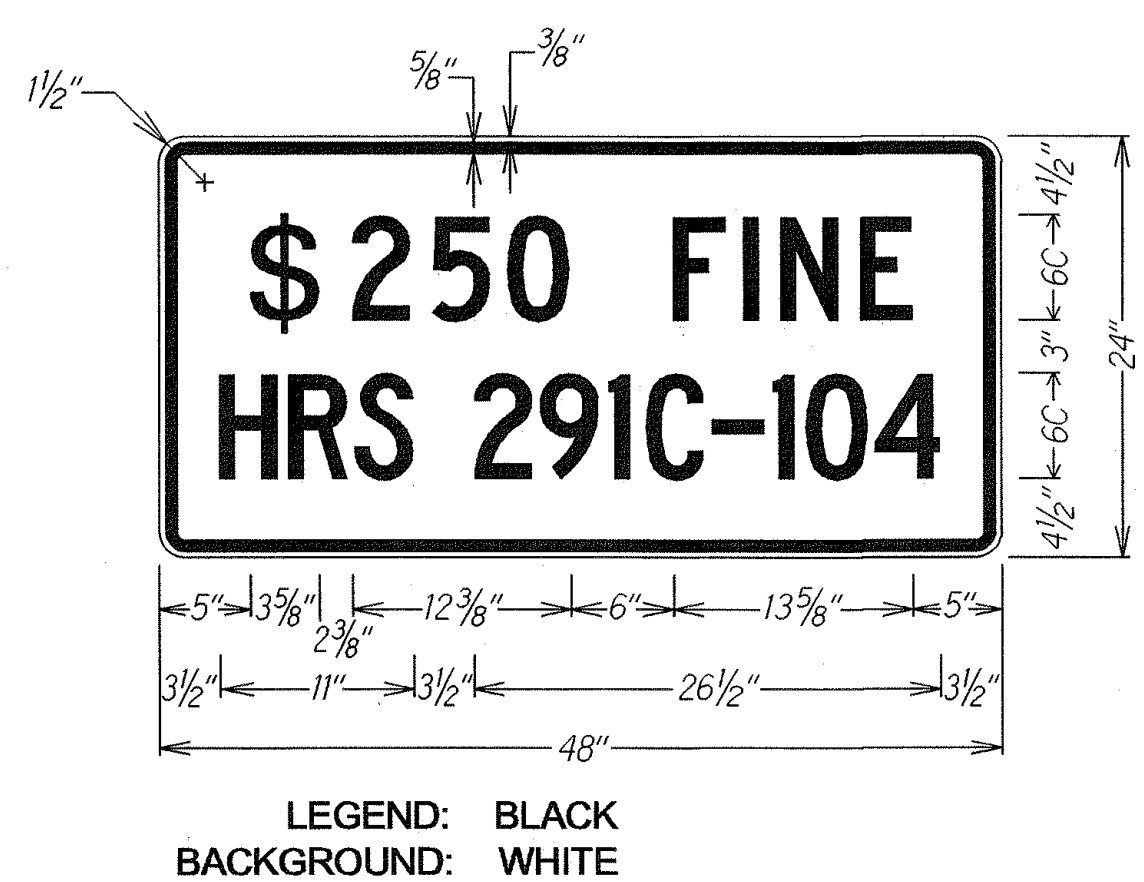
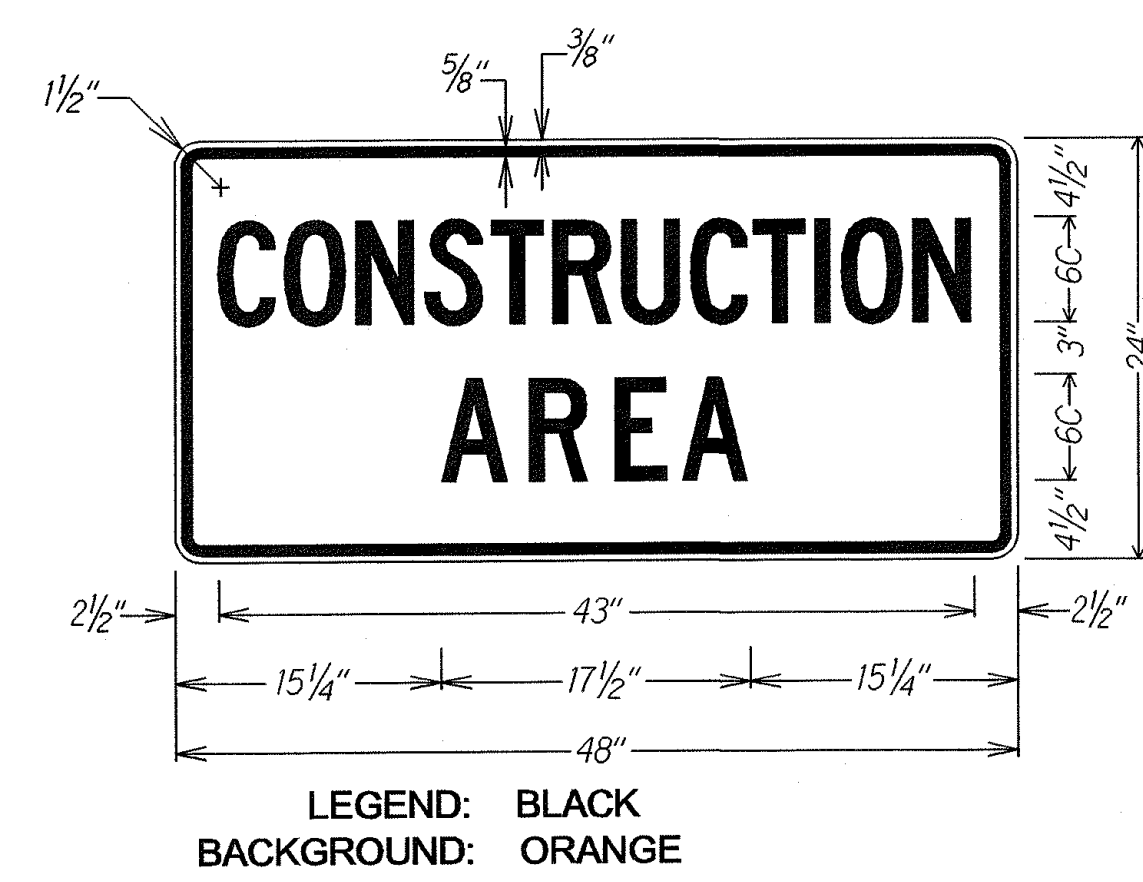
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HII-01-09	2009	69	73



- Work Zone Notes:**
1. This Work Zone Sign Plan is intended for use on long-term stationary work zones/construction phases (3 Days or more). All work zones or construction phases less than 3 days duration will use Traffic Control Plans shown in Section 645 of the Special Provisions.
 2. All existing regulatory speed limit signs within the work zone/project limits shall be covered and work zone speed limit sign assemblies (R2-1(40)-A and CW3-5(40)-A with "CONSTRUCTION AREA" and "\$250 FINE HRS 291C-104" Supplemental Signs) shall be displayed during lane closure hours.
 3. Upon the removal of the lane closure, all work zone speed limit signs shall be covered and existing speed limit signs within the work zone/project limits shall be restored.
 4. Construction signs shall be installed on both the approaching and trailing ends of each work zone.
 5. Each construction sign shall have a minimum of two (2) Type II OM. Installation of each Type II OM shall be considered incidental to Item No. 645.0101 - Traffic Control.
 6. All work zone speed sign assembly shall be mounted on three (3) 4.00 lbs./ft. galvanized flanged channel sign posts with a sign clearance height of five (5) feet.
 7. Sign stiffeners as specified by Standard Plan Sheet TE-02 shall be installed as needed or as directed by the Engineer.
 8. The daily covering and uncovering of existing regulatory speed limit signs along with the installation, maintenance, removal and daily covering and uncovering of work zone speed limit sign assemblies shall be considered incidental to Item No. 645.0101 - Traffic Control.

***Note:**
 Legend: Black
 Background: Orange
 Speed Limit: Black on White

**TYPICAL DETAIL FOR CONSTRUCTION SIGNS
 ON FREEWAY**



DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
QUANTITIES BY	
REVISIONS	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

FREEWAY WORK ZONE SIGNING

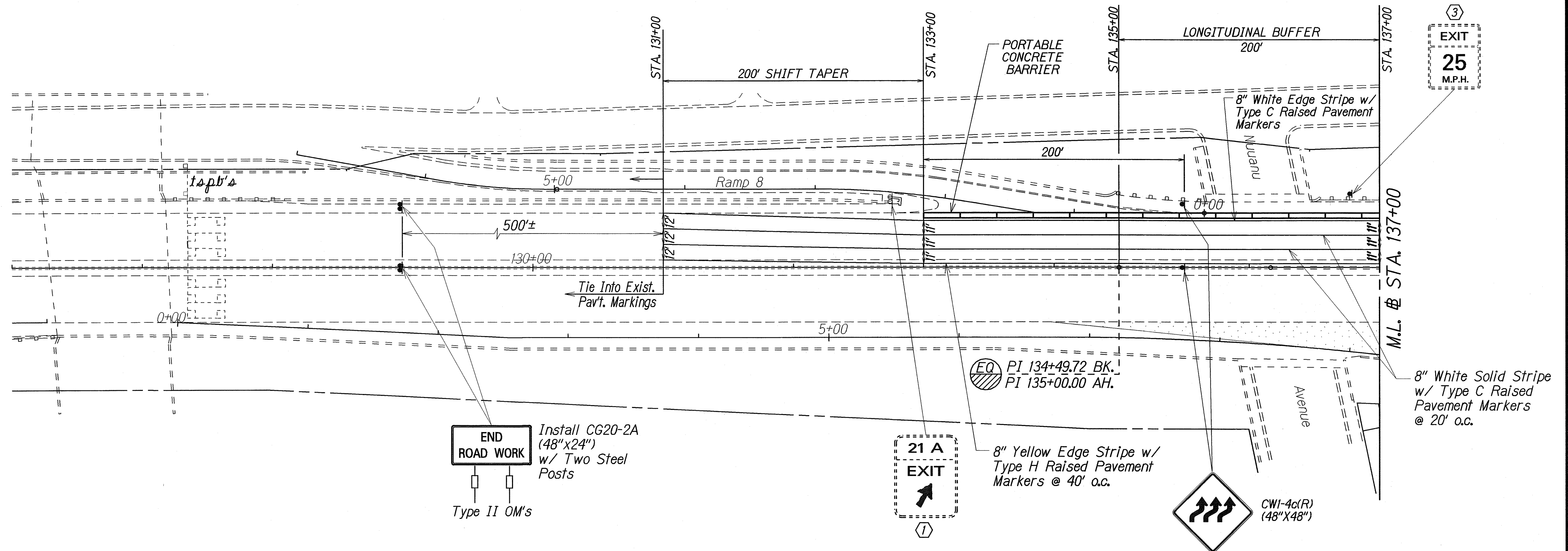
PLAN, NOTES & DETAILS

INTERSTATE ROUTE H-1
Drainage Improvements
Vicinity of School Street Off-Ramp
Project No. HII-01-09

Not To Scale
Date: February 2009

SHEET No.T2 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HII-01-09	2009	70	73

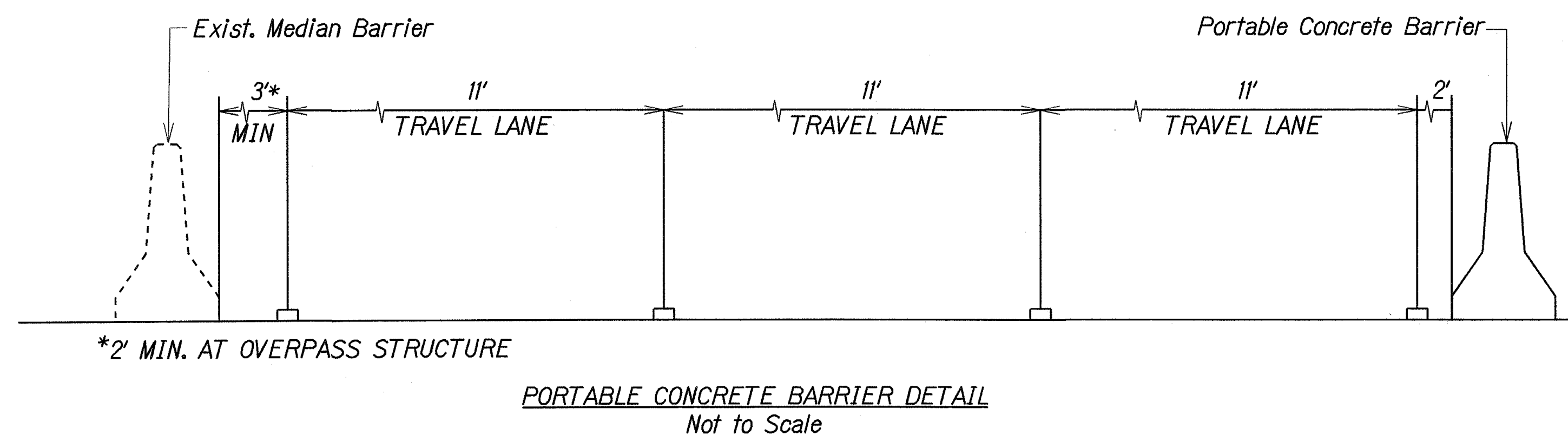


- NOTES:

1. Lane shift on H-1 (westbound) for the School Street Off-Ramp drainage work, if implemented by the Contractor, shall be removed and normal traffic pattern on H-1 (westbound) restored, before lane shift for the School Street On-Ramp retaining wall repair work would be allowed. Only one lane shift on H-1 westbound shall be allowed at all times.
2. Existing stripes that conflict with revised traffic pattern shall be eradicated completely prior to installation of new stripes.
3. All striping revision and restoration to existing conditions shall be the responsibility of the Contractor and shall be incidental to various contract items.
4. Minimum lane width: 11'

KEY:

- ① Exist. Sign(s) \nsubseteq Post(s) to Remain
- ② Install New Sign(s) w/ Post(s)
- ③ Exist. Sign(s) to Remain on Exist. Light Standard



ORIGINAL PLAN	SURVEY PLOTTED BY _____	DATE _____
	DRAWN BY <u>X</u>	<u>X</u>
NOTE BOOK	TRACED BY _____	•
<u>1d2mg</u>	DESIGNED BY <u>X</u>	•
<u>1ah1pl</u>	QUANTITIES BY _____	•
<u>2</u>	CHECKED BY _____	•

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

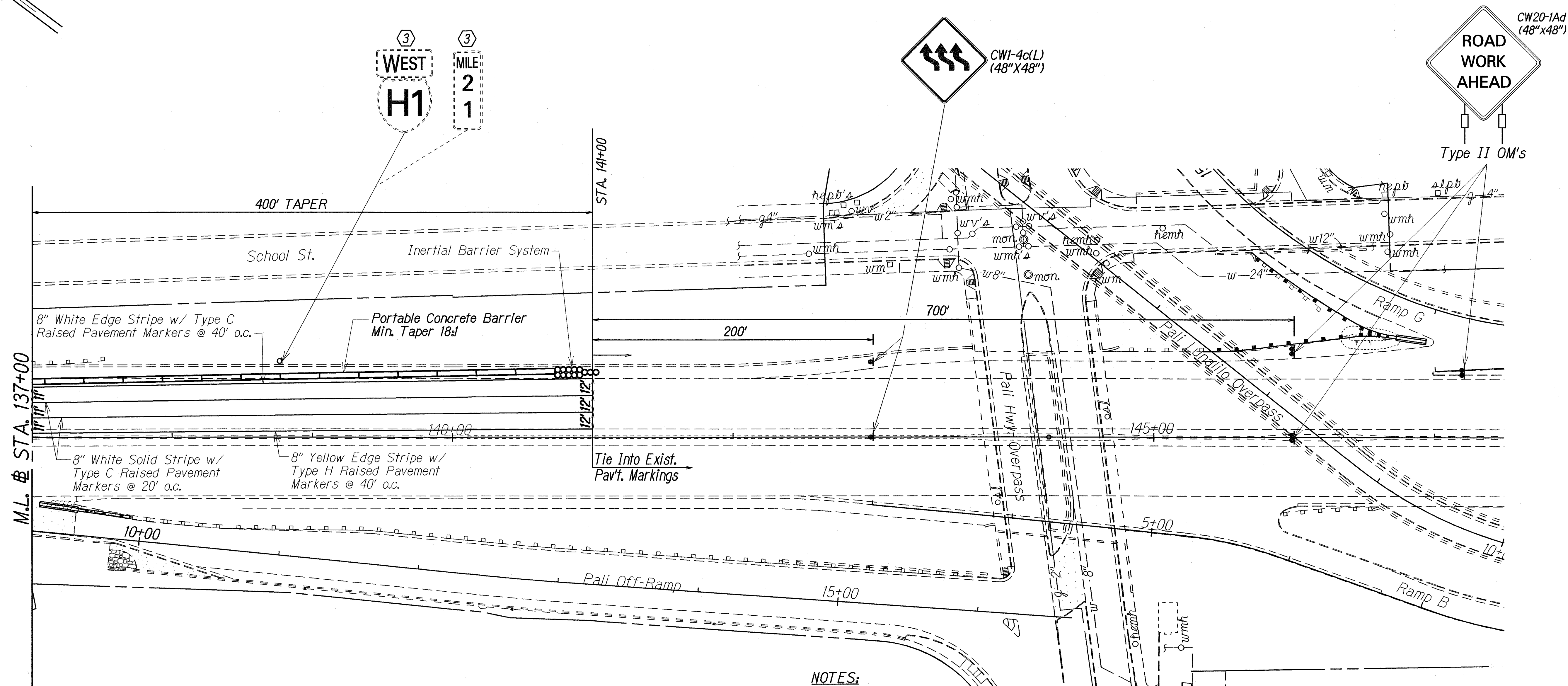
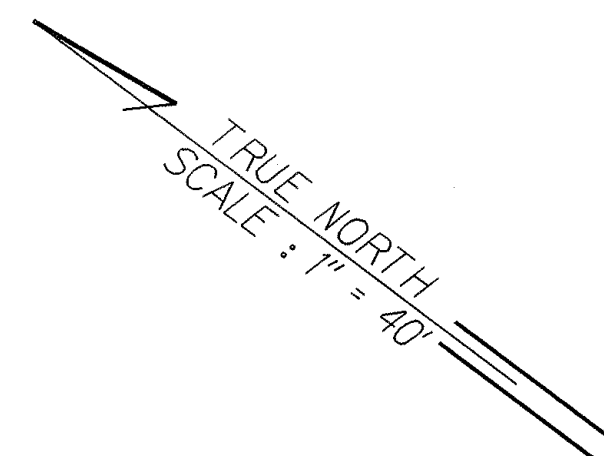
TEMPORARY LANE
SHIFT PLAN

INTERSTATE ROUTE H-1
Drainage Improvements
Vicinity of School Street Off-Ramp
Project No. HII-01-09

Scale: 1" = 40' Date: February 2009

SHEET NO. 73 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HII-01-09	2009	71	73



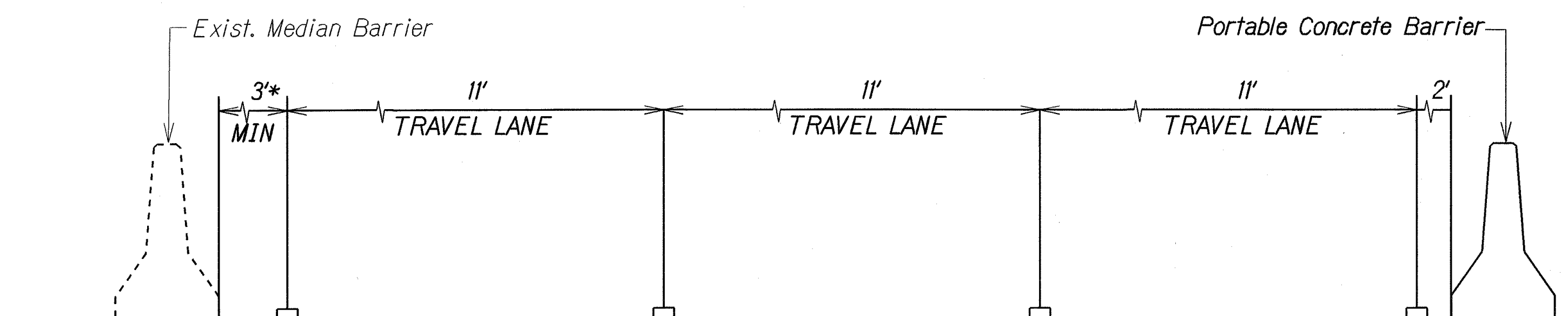
NOTES:

- Lane shift on H-1 (westbound) for the School Street Off-Ramp drainage work, if implemented by the Contractor, shall be removed and normal traffic pattern on H-1 (westbound) restored, before lane shift for the School Street On-Ramp retaining wall repair work would be allowed. Only one lane shift on H-1 westbound shall be allowed at all times.
- Existing stripes that conflict with revised traffic pattern shall be eradicated completely prior to installation of new stripes.
- All striping revision and restoration to existing conditions shall be the responsibility of the Contractor and shall be incidental to various contract items.
- Minimum lane width: 11'

KEY:

- Exist. Sign(s) & Post(s) to Remain
- Install New Sign(s) w/ Post(s)
- Exist. Sign(s) to Remain on Exist. Light Standard

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
IN CHARGE	
NOTED BY	
QUANTITIES BY	
CHECKED BY	
IN CHARGE	



*2' MIN. AT OVERPASS STRUCTURE

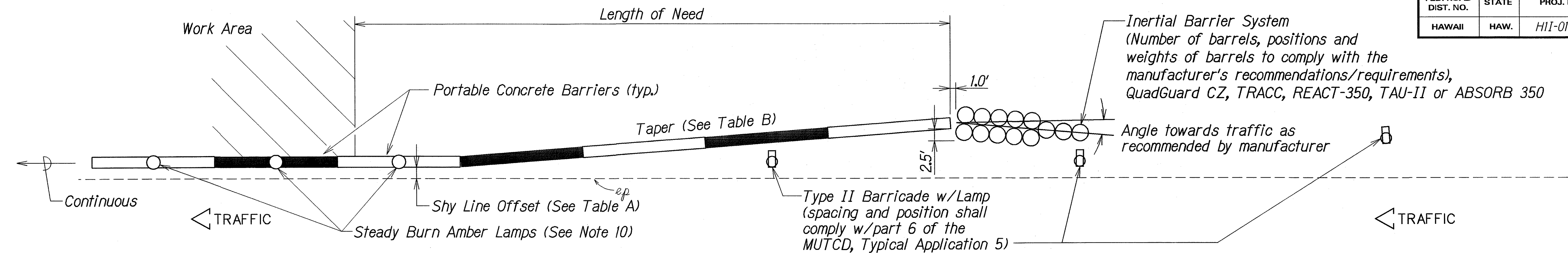
PORTABLE CONCRETE BARRIER DETAIL
Not to Scale

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**TEMPORARY LANE
SHIFT PLAN**
INTERSTATE ROUTE H-1
Drainage Improvements
Vicinity of School Street Off-Ramp
Project No. HII-01-09
Scale: 1" = 40' Date: February 2009

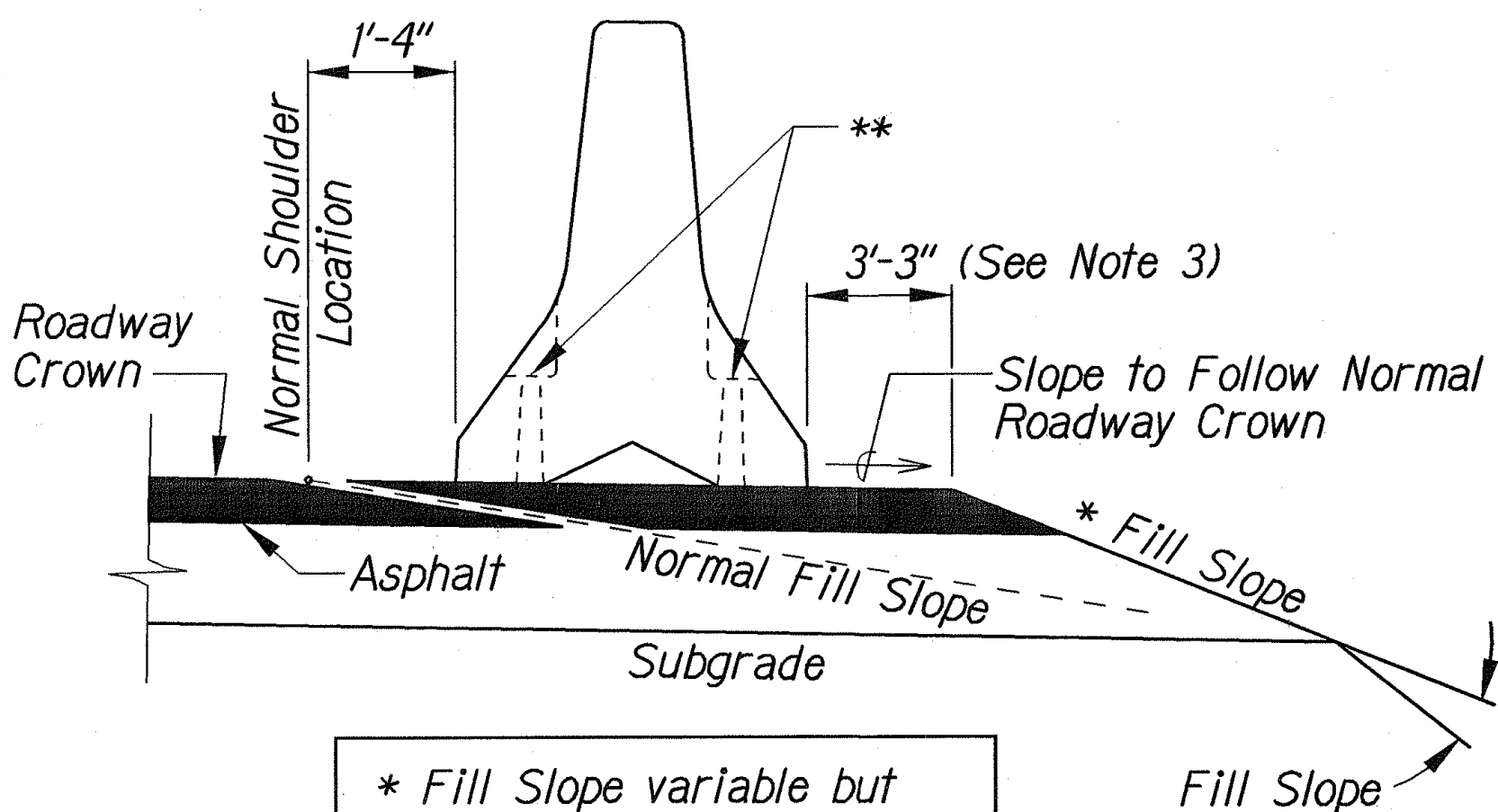
SHEET No. 74 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HII-01-09	2009	72	73



TYPICAL DETAIL - PORTABLE CONCRETE BARRIER END TREATMENT
Scale: 1" = 10'-0"

METAL REINFORCEMENT TABLE				
MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	Horizontal in Barrier Tied Inside V-1 Bars	#5	(6)	19'-3"
H-2	Centered Above Scuppers Long. & Transversely	#5	(6)	6'-6"
H-3	Tied Above H-1 Bars to Support H-2, Tied to V-1	#4	(2)	1'-6"
S-1	Horizontal in Top of Wing Wall & in Floor Back Wall	#4	(2)	
S-2	Horizontal Around Slots Between V-1's @ Scuppers	#4	(2)	
V-1	Vertical in Barrier (3) Each End & (2) at Each Scupper	#5	(16)	



* Fill Slope variable but not steeper than 2:1
** No Stabilization Pins (See Note Nos. 3 & 4)

STANDARD INSTALLATION
(See Note No. 1)

TABLE A SHY LINE OFFSETS *	
DESIGN SPEED (mph)	SHY LINE OFFSETS
70	10.0'
65	9.0'
60	8.5'
55	7.0'
50	6.5'
45	6.0'
40	5.0'
35	4.5'
30	3.5'
≤ 25	2.0'

TABLE B MAXIMUM TAPERS FOR CONCRETE BARRIER		
DESIGN SPEED (mph)	TAPER	
	INSIDE SHY LINE	BEYOND SHY LINE
70	30:1	20:1
65	28:1	19:1
60	26:1	18:1
55	24:1	16:1
50	21:1	14:1
45	18:1	12:1
40	17:1	11:1
35	15:1	9:1
≤ 30	13:1	8:1

* Note: Minimum shy line offset for tangent sections shall be 2'-0".

NOTES:

- For end treatment, layout, crash cushions and where needed see Project Plans or Special Provisions.
- Barriers must be pinned together and cannot exceed the Table of Maximum Tapers.
- The concrete barrier "Standard Installation" design allows for 3'-3" of outward lateral movement if the barrier is struck. Barrier installations that require less than the 3'-3" of outward lateral movement should have stabilization pins.
- ASTM A-36 steel shall be used for the connection pin, connection loops and stabilization pins. A one piece pin with a 3" rounded top may be used in place of the detailed connection pin if the one piece pin meets ASTM A-36 requirements.
- A 4" white PVC sleeve may be used to form the lifting hole and if used the sleeve is to be left in place.
- Concrete shall be Class A and reinforcing shall be Grade 60.
- Identification and date of design will be as follows:
**PROPERTY OF HDOT
OCT 2001**
Text letters and numbers shall be shown as on Standard Plan Sht. No. B-01. "PROPERTY OF HDOT" may be changed depending upon ownership. All Portable Concrete Barriers made for HDOT will be subject to rejection, if "PROPERTY OF HDOT" is not imprinted. The Contractor shall bear the cost of the rejected Portable Concrete Barriers.
- Minimum tangent length for portable Concrete Barrier System shall be 100' (5 units). This minimum does not include the required system length of the Inertial Barrier System.
- Install steady burn amber lamps on portable concrete barriers @ 20.0' o.c. Installing, maintaining and removing each steady burn amber lamp including changing of batteries and bulbs shall be considered incidental to applicable portable concrete barrier items.

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

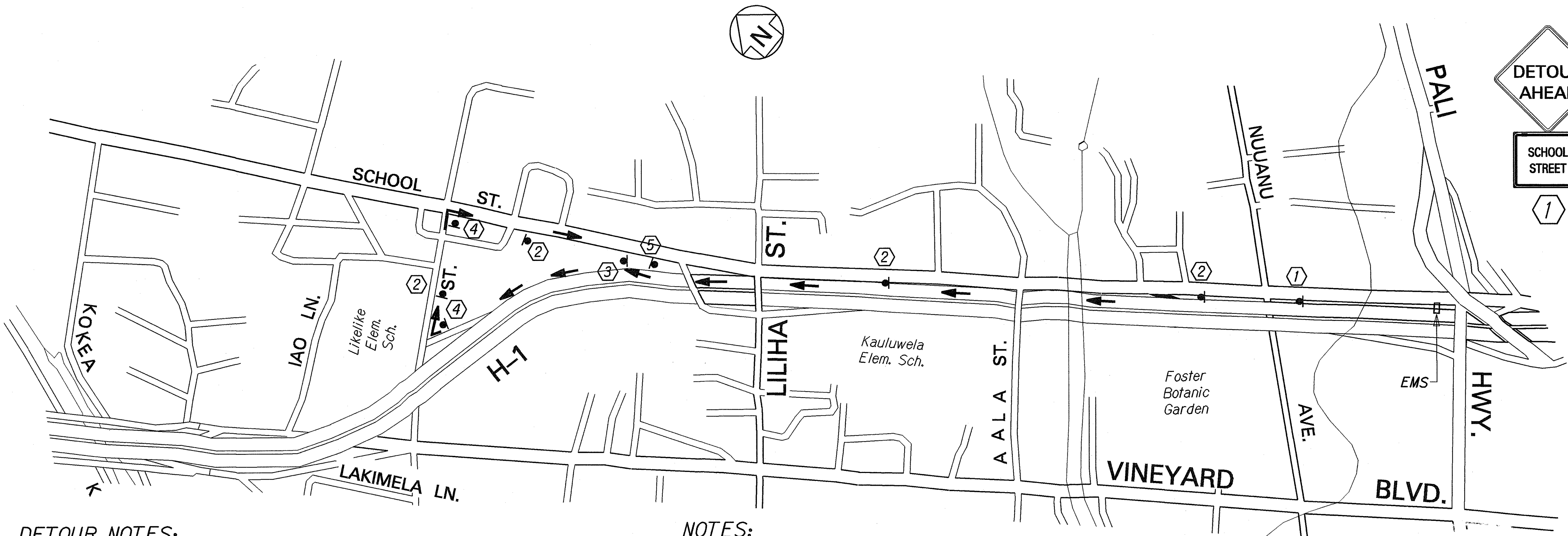
PORTABLE CONCRETE BARRIER

INTERSTATE ROUTE H-1
Drainage Improvements
Vicinity of School Street Off-Ramp
Project No. HII-01-09

Not To Scale Date: February 2009

SHEET No. 75 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H11-01-09	2009	73	73



DETOUR NOTES:

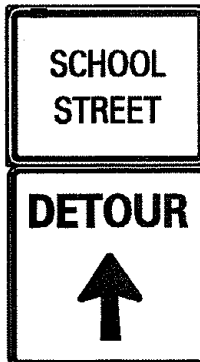
- Cones or delineators shall be installed at 10' o.c. max. in work area.
- Cones or delineators shall be installed at 20' o.c. max. along tapers and tangents.
- Minimum width of traffic lane through work area: 11' (H-1 & Ramp)
10' (City Street)
- Relocation and/or removal of temporary signs and posts used for Traffic Control shall be considered incidental to various contract items.
- Damage to signs, temporary pavement markers, delineators, barricades and lamps caused by the public shall be repaired or replaced by the Contractor as soon as possible, or as directed by the Engineer. This work shall be paid for under Item No. 645.0200 - Police Officers and/or Additional Traffic Control Devices. Damage caused by the Contractor's negligence shall be repaired or replaced at the Contractor's expense.
- All signs within the City and County right-of-way shall be installed on existing street light posts or temporary non-marring sign supports. This work shall be considered incidental to various contract items.
- The Type II and Type III Barricades with lamps used during construction shall be considered incidental to various contract items.
- Work required in the Detour/Traffic Control Plans will be paid under applicable contract items or otherwise specified herein. All other traffic control work shall be in accordance with Section 645 - Work Zone Traffic Control. Work required for lane closures during the working day will not be paid for but shall be considered incidental to various contract items. Advance Construction Warning Signs as required under Section 645 of the Special Provisions shall be installed on all approaches to construction areas. This work shall be considered incidental to various contract items.
- The Flashing Arrow Signal used during construction shall be considered incidental to various contract items.
- The Contractor shall publish "Notice to Motorists" 1 week prior to the start of construction. Public notice shall be coordinated with the Department of Transportation, Highways Division.
- The Contractor shall notify Lowell Tom (848-4578) at Oahu Transit Authority (The Bus) 4 weeks prior to start of construction.

NOTES:

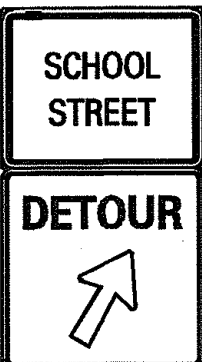
- Markers prefixed with "IM" shall have a white legend on a blue background except the Interstate shield which shall be a red, white and blue design.
- Markers prefixed with "C" shall have a black legend on orange background.
- Contractor to provide up to 2 changeable message boards per each road/ramp closure as part of the traffic control lump sum item. Message boards shall be set up one week prior to any road/ramp closure at the location specified by the Resident Engineer. Message boards will not be paid for separately, but shall be considered incidental to Contract Item No. 645.0101 - Traffic Control.
- In addition to the detour signs shown on this plan, Contractor shall install appropriate traffic controls for each road/ramp closure. All traffic control work will not be paid for separately, but shall be considered incidental to Contract Item No. 645.0101 - Traffic Control.
- Contractor shall furnish a minimum of one (1) uniformed police officer with vehicle equipped with blue strobe light at each roadway approach to the road/ramp closure area. The furnishing of a police officer with vehicle will not be paid for separately, but shall be considered incidental to Contract Item No. 645.0101 - Traffic Control.
- All signs shown within the City right-of-way shall be installed on existing street light posts or temporary non-marring sign supports. This work shall be considered incidental to various contract items.



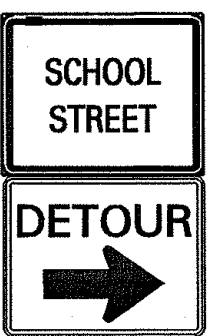
1



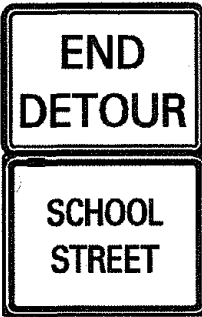
2



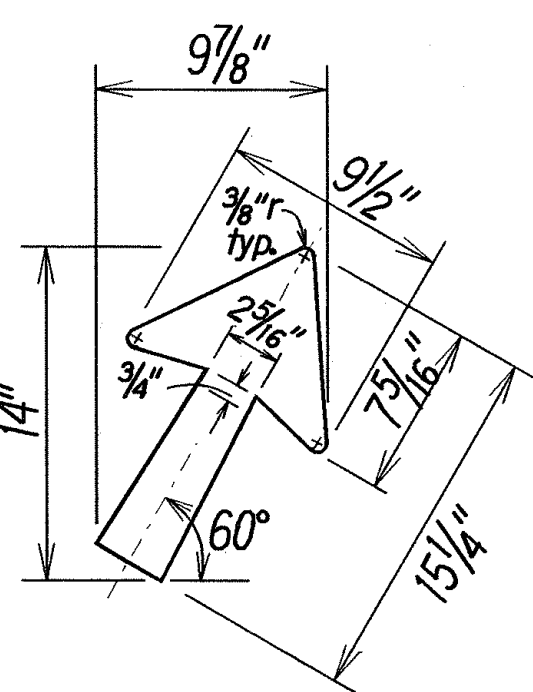
3



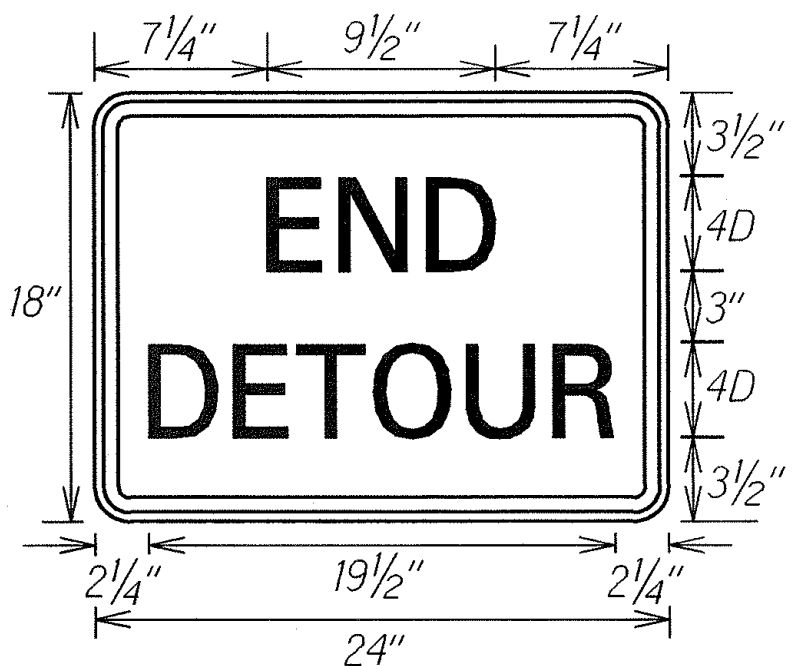
4



5



Type "A" Diagonal
Arrow Detail

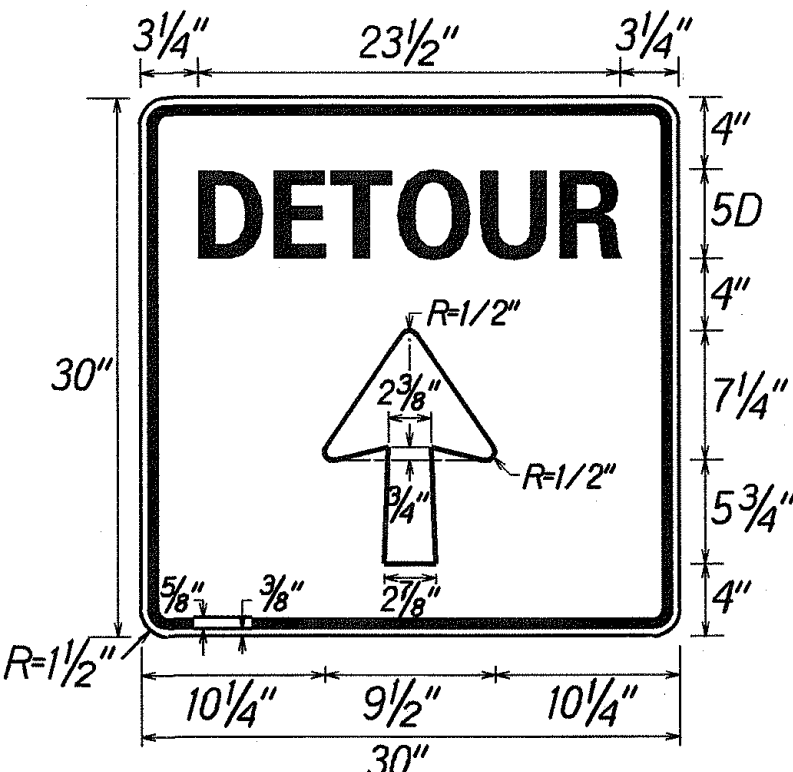


CM4-8a
Not to Scale

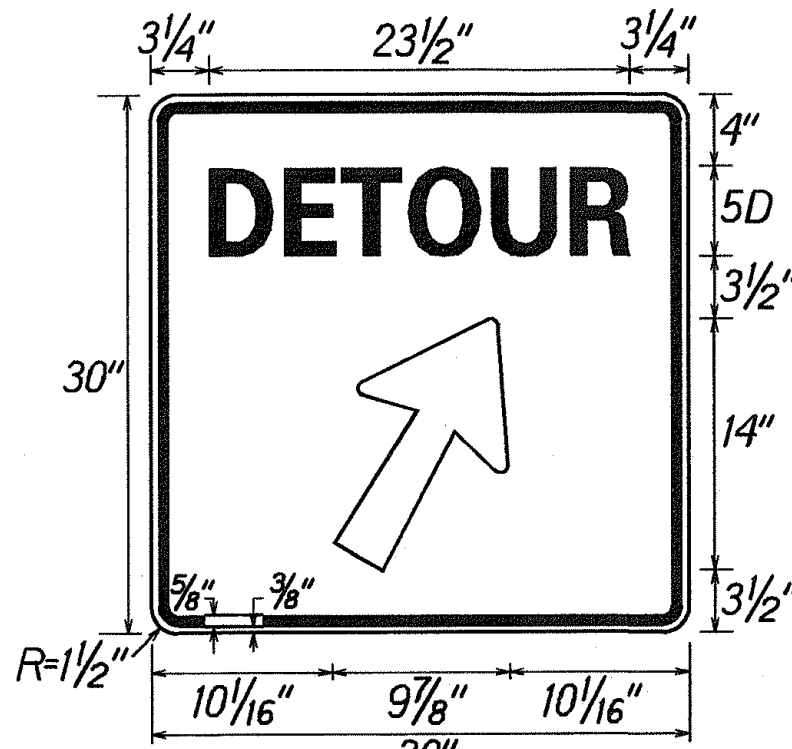
LEGEND:

- Temporary Construction Sign w/Post
- EMS Electronic Message Sign
- Road Closure Area
- Direction of Travel

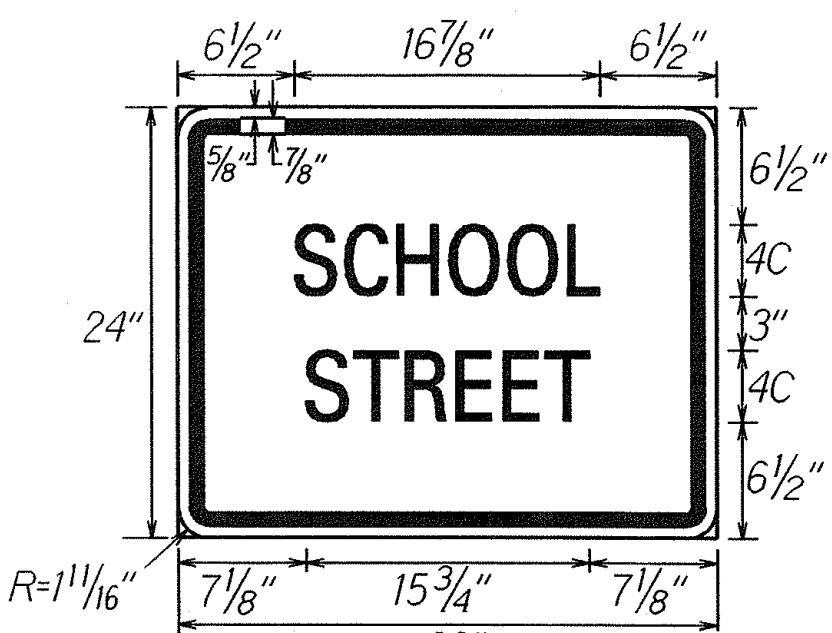
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
DESIGNED BY		
QUANTITIES BY		
CHECKED BY		



CM4-9(S)
Not to Scale



CM4-9(D)
Not to Scale



CM4-7 Supplement (School Street)
Not to Scale

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**HI-SCHOOL STREET OFF-RAMP
DETOUR PLANS & NOTES**

INTERSTATE ROUTE H-1
Drainage Improvements
Vicinity of School Street Off-Ramp
Project No. H11-01-09

Scale: As Shown Date: February 2009

SHEET No. 76 OF 6 SHEETS