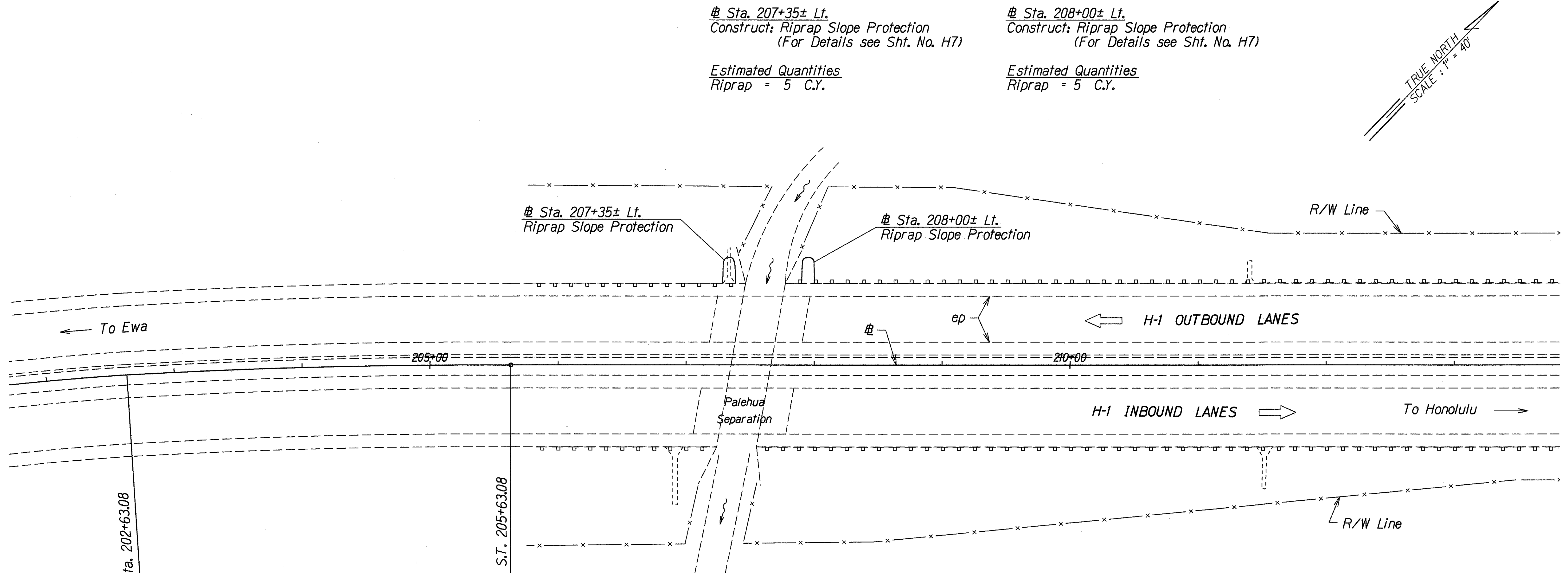


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(228)	1999	40	82



DRAINAGE NOTES:

- Existing drainage systems will be functional at all times during construction. The Contractor is to furnish materials, equipment, labor, tools and incidentals necessary to accomplish maintenance of flow. The cost shall be incidental to the various Contract Items.
- The Contractor shall verify the locations of all existing culverts and utilities in the field. Any existing culverts and utilities damaged during construction shall be repaired or replaced by the Contractor at his own expense.
- Only non-pneumatic type of drill as approved by the Engineer will be permitted for drilling holes in concrete. Where indicated on Plans, the approximate diameter of drilled holes for installation of dowels shall be $\frac{5}{8}$ ", and voids after installing dowels shall be filled with epoxy fill as directed by the Engineer.
- Demolishing, removing, and disposing existing structure at # Sta. 207+35 ± Lt. shall not be paid for separately, but shall be considered incidental to Contract Item No. 655.1000 - Riprap.
- For Culvert Trench and Backfill Detail, see Sheet No. H15.
- Concrete shall be Class A unless otherwise noted.
- Chamfer all exposed concrete edges $\frac{3}{4}$ ".
- For added reinforcing around existing and new culverts, see Standard Plan H-04.
- At Baseline Station 278+36 Lt, the gutter transition shall be measured and paid for under Item 609.2214 - Gutter, Type 2(61614). The concrete channel shall be measured and paid for under Item 640.1000 - Lined Concrete Drainage Ditch.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLAN

INTERSTATE ROUTE H-1

Guardrail & Shoulder Improvements
Palehua Separation to Waialea Bridge
Federal Aid Project No. IM-HI-1(228)

Scale: 1"=40' Date: Nov. 1997

ORIGINAL PLAN	DATE
NOTED BY	11/21/97
DESIGNED BY	
CHECKED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-K(228)	1999	41	82

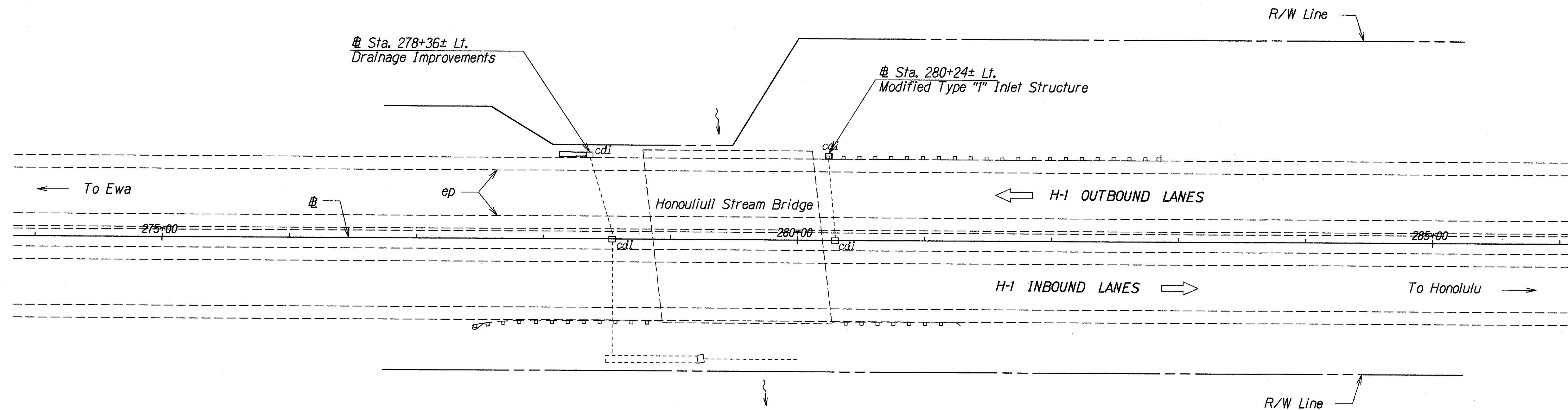
Sta. 278+36± Lt.
Construct: Gutter, Type 2(61614)
Lined Concrete Drainage Ditch
(For Details see Sht. No. H8)

Estimated Quantities
Gutter, Type 2(61614) = 13 L.F.
Lined Concrete Drainage Ditch = 8 L.F.
Borrow Excavation = 15 C.Y.

Sta. 280+24± Lt.
Construct: Modified Type "I" Inlet Structure
(For Details see Sht. No. H9)

Estimated Quantities
Modified Type "I" Inlet Structure = 1 EA.

TRUE NORTH
SCALE: 1" = 40'



ORIGINAL PLAN	SURVEY PLATTED BY	DATE
NOTE BOOK	DRAWN BY A. Manilla	11/21/97
4/31/98/4/31/98	DESIGNED BY C. Matsuda, P. Kawamura	
4/31/98/4/31/98	CHECKED BY	

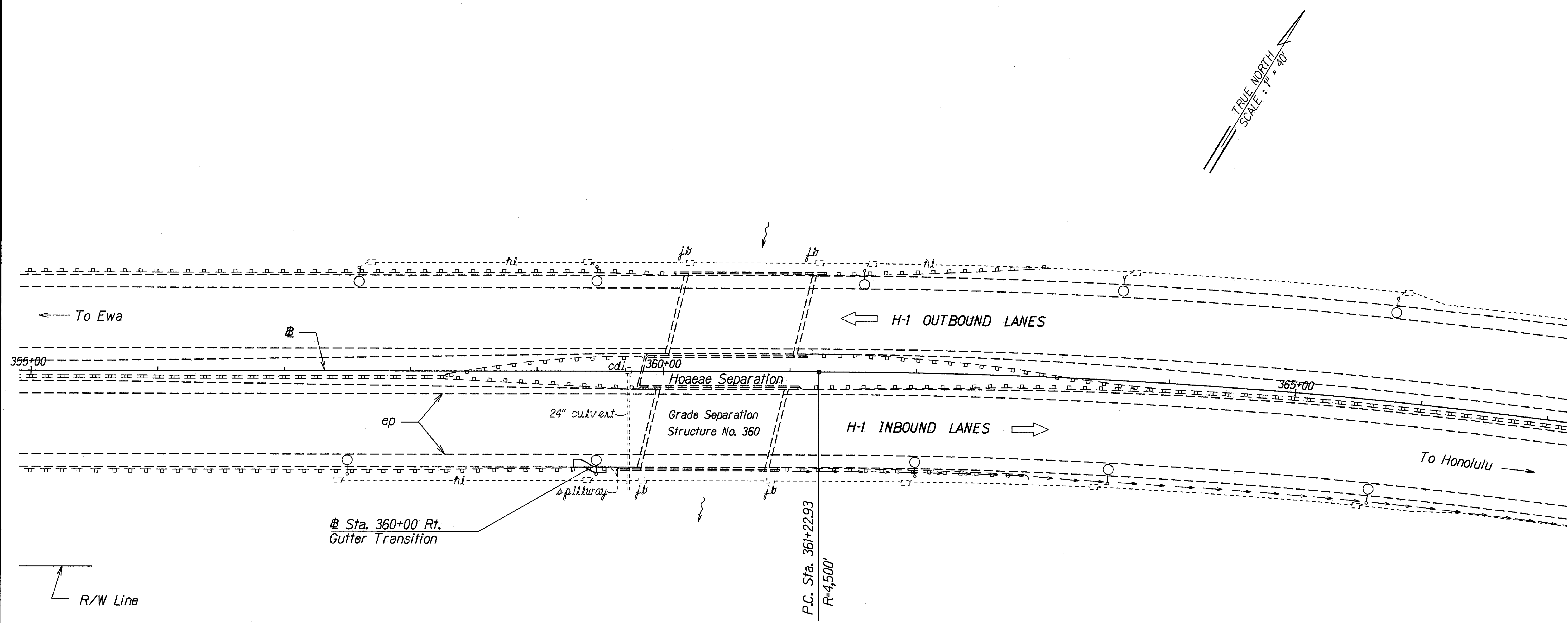
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLAN
INTERSTATE ROUTE H-1
Guardrail & Shoulder Improvements
Palehua Separation to Waikale Bridge
Federal Aid Project No. IM-HI-K(228)

Scale: 1"=40' Date: Nov. 1997

SHEET No. H2 OF 17 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(228)	1999	42	82



TRUE NORTH
SCALE: 1" = 40'

R/W Line

Sta. 360+00 Rt.
Gutter Transition

P.C. Sta. 361+22.93
R=4,500'

Sta. 360+00 Rt.
Construct: Gutter, Type 2(Type "A" Transition)
(For Details see Sht. No. H10)

Estimated Quantities
Gutter, Type 2(Type "A" Transition) = 36 L.F.

DESIGNED BY	DATE
DRAWN BY	1/5/98
CHECKED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLAN

INTERSTATE ROUTE H-1
Guardrail & Shoulder Improvements
Palehua Separation to Waialea Bridge
Federal Aid Project No. IM-HI-1(228)

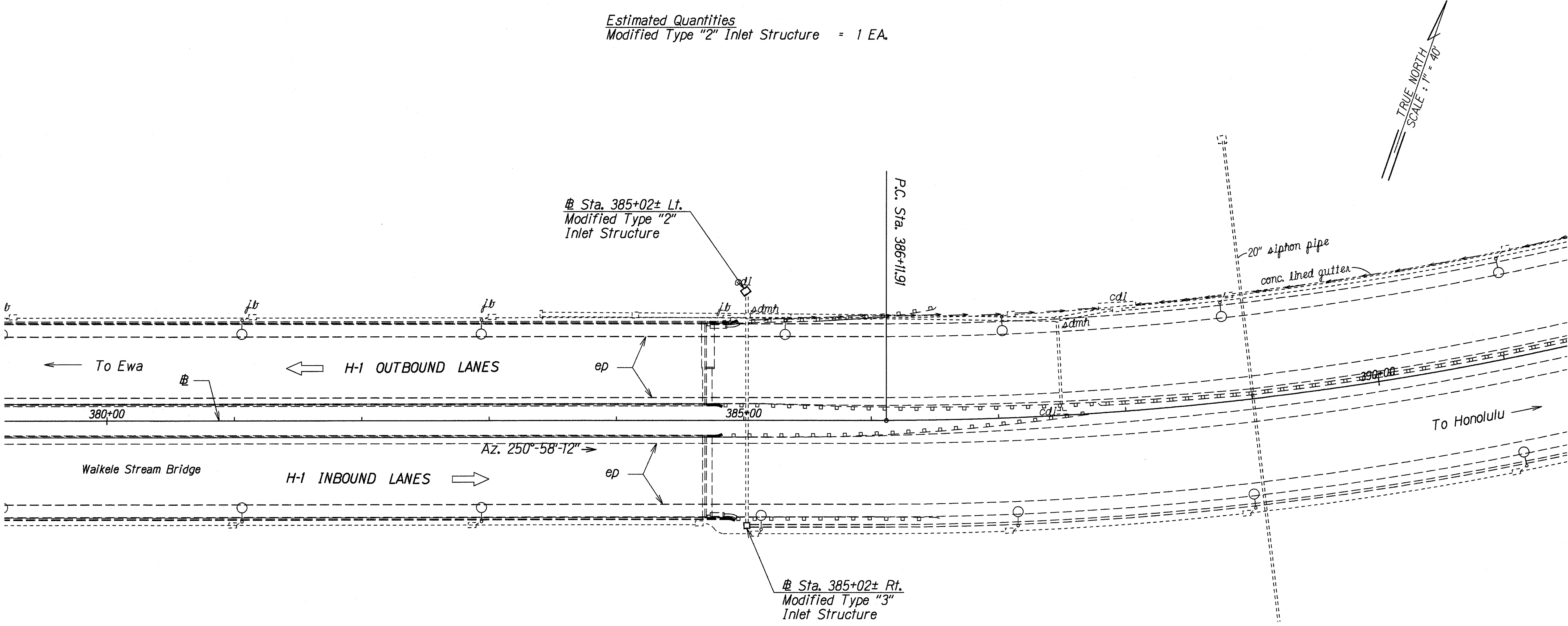
Scale: 1"=40' Date: Nov. 1997

SHEET No. H3 OF 17 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(228)	1999	43	82

Sta. 385+02± Lt.
Construct: Modified Type "2" Inlet Structure
(For Details see Sht. No. H11)

Estimated Quantities
Modified Type "2" Inlet Structure = 1 EA.



Sta. 385+02± Rt.
Construct: Modified Type "3" Inlet Structure
(For Details see Sht. No. H12)

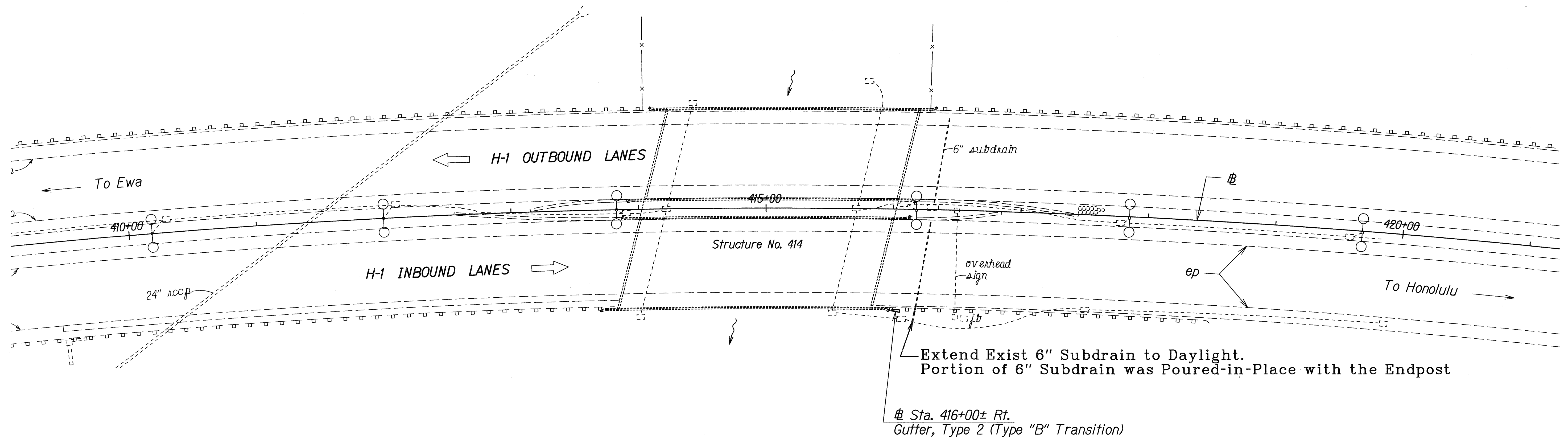
Estimated Quantities
Modified Type "3" Inlet Structure = 1 EA.

DESIGNED BY	DATE
TRACED BY	11/21/97
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DRAINAGE PLAN
INTERSTATE ROUTE H-1
Guardrail & Shoulder Improvements
Pahoa Separation to Waialele Bridge
Federal Aid Project No. IM-HI-1(228)
Scale: 1"=40' Date: Nov. 1997
SHEET No. H4 OF 17 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(228)	1999	44	82

TRUE NORTH
SCALE: 1" = 40'



LEGEND FOR AS-BUILT POSTINGS

~~~~~	Squiggly line for as-built deletion
==	Double line for as-built deletion
Roadway	Text for as-built posting

# Sta. 416+00± Rt.  
Construct: Gutter, Type 2(Type "B" Transition)  
(For Details see Sht. No. H13)

Estimated Quantities  
Gutter, Type 2(Type "B" Transition) = 6 L.F.

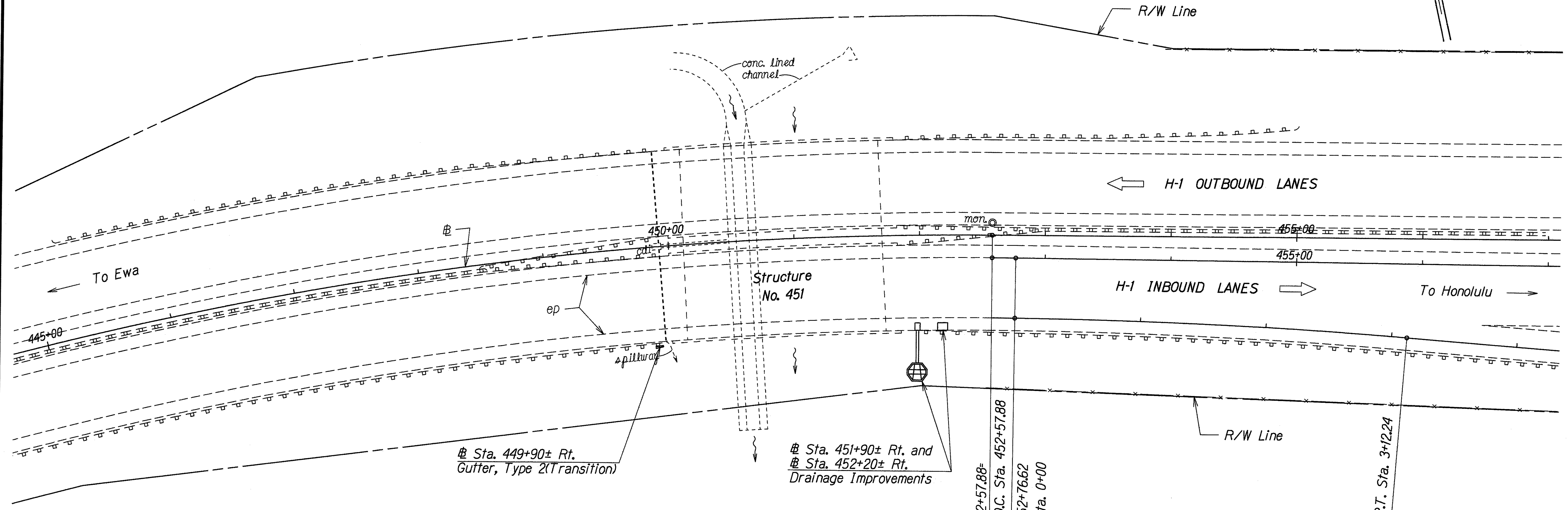
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**DRAINAGE PLAN**  
**INTERSTATE ROUTE H-1**  
**Guardrail & Shoulder Improvements**  
**Palehua Separation to Waialea Bridge**  
**Federal Aid Project No. IM-HI-1(228)**  
Scale: 1"=40' Date: Nov. 1997

SHEET No. H5 OF 17 SHEETS

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(228)	1999	45	82

TRUE NORTH  
SCALE: 1" = 40'



# Sta. 449+90± Rt.  
Gutter, Type 2(Transition)

# Sta. 451+90± Rt. and  
# Sta. 452+20± Rt.  
Drainage Improvements

# Sta. 451+90± Rt. and  
# Sta. 452+20± Rt.  
Install: 24" RCP  
Construct: Gutter, Type 2(201616)  
Type 201614 GDI  
Concrete Headwall  
Riprap Structure  
(For Details see Sht. Nos. H15-H17)

R=3,000'  
# P.T. Sta. 452+57.88±  
Beg. I.B. & P.O.C. Sta. 452+57.88  
I.B. & P.T. Sta. 452+76.62  
Ramp "D" P.C.C. Sta. 0+00

Ramp D P.T. Sta. 3+12.24

# Sta. 449+90± Rt.  
Construct: Gutter, Type 2(Type "B" Transition)  
(For Details see Sht. No. H14)

Estimated Quantities  
Gutter, Type 2(Type "B" Transition) = 6 L.F.

Estimated Quantities  
Structure Excavation = 26 C.Y.  
Borrow Excavation = 15 C.Y.  
Concrete in Headwall = 2 C.Y.  
Type 201614 GDI,  
3.00 ft. to 3.99 ft. = 1 EA.  
24" RCP, Cl. III = 30 L.F.  
Riprap = 20 C.Y.  
Gutter, Type 2(201616) = 8 L.F.

SURVEY PLOTTED BY	DATE
DRAWN BY A. Moulton	11/21/97
NOTED BY C. Matsuda, R. Kawamura	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
FILED	

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**DRAINAGE PLAN**

INTERSTATE ROUTE H-1

Guardrail & Shoulder Improvements

Palehua Separation to Waikale Bridge

Federal Aid Project No. IM-HI-1(228)

Scale: 1"=40'      Date: Nov. 1997

SHEET No. H6 OF 17 SHEETS