

DRAINAGE SUMMARY

PROJECT: HANA HIGHWAY RESURFACING, Waikani Bridge to Kapaula Bridge
PROJECT NO. : 360B-01-95M

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360B-01-95M	1995	24	43

ITEM NO.		206. 2020	207. 0100	503. 0020	508. 0100	602. 1020	603. 1010	603. 1014	603. 1044	604. 5002	604. 5005	612. 0100	640. 0100	
UNIT USED		C.Y.	C.Y.	C.Y.	C.Y.	Lbs.	L.F.	L.F.	L.F.	Ea.	Ea.	C.Y.	L.F.	
STRUCTURE	# STATION	Structure Excavation for Drainage System	Ditch and Channel Excavation	Class A Concrete for Drainage System	Cement Rubble Masonry	Reinforcing Steel for Drainage System	24-Inch Reinforced Concrete Pipe Class III	36-Inch Reinforced Concrete Pipe Class III	18-Inch Reinforced Concrete Pipe Class IV	Type 1 Grated Drop Inlet 1.00 Ft. to 1.99 Ft.	Type 2 Grated Drop Inlet 4.00 Ft. to 4.99 Ft.	Grouted Rubble Paving Slope Protection	1'-4"x8" Vee Ditch	
Spillway	882+40 Lt.	1	4	1									40	
Spillway	886+30 Lt.	1	4	1									40	
Spillway	888+75 Lt.	1	4	1									40	
Spillway	899+50 Lt.	1	4	1									40	
Spillway	900+70 Lt.	1	4	1									40	
Spillway	904+40 Lt.	1	4	1									40	
Spillway	907+50 Lt.	1	4	1									40	
Spillway	921+50 Lt.	1	4	1									40	
Spillway	927+50 Lt.	1	4	1									40	
Spillway	955+90 Lt.	1	4	1									40	
Spillway	962+60 Lt.	1	4	1									40	
Spillway	965+50 Lt.	1	4	1									40	
Spillway	966+80 Lt.	1	4	1									40	
Spillway	968+30 Lt.	1	4	1									40	
Spillway	970+50 Lt.	1	4	1									40	
Spillway	976+50 Lt.	1	4	1									40	
Spillway	979+50 Lt.	1	4	1									40	
Spillway	982+80 Lt.	1	4	1									40	
Spillway	984+90 Lt.	1	4	1									40	
Std. Conc. Headwall	985+00 Rt.	11		3		62								
Spillway	987+50 Lt.	1	4	1									40	
Inlet Structure	996+01 Rt.	12		2		138								
24" RCP	997+78.2	27					26				1	3		
Type 1 GDI	999+24 o/s 7± Rt.									1				
Spillway	1006+80 Lt.	1	4	1									40	

ITEM NO.		206. 2020	207. 0100	503. 0020	508. 0100	602. 1020	603. 1010	603. 1014	603. 1044	604. 5002	604. 5005	612. 0100	640. 0100	
UNIT USED		C.Y.	C.Y.	C.Y.	C.Y.	Lbs.	L.F.	L.F.	L.F.	Ea.	Ea.	C.Y.	L.F.	
STRUCTURE	# STATION	Structure Excavation for Drainage System	Ditch and Channel Excavation	Class A Concrete for Drainage System	Cement Rubble Masonry	Reinforcing Steel for Drainage System	24-Inch Reinforced Concrete Pipe Class III	36-Inch Reinforced Concrete Pipe Class III	18-Inch Reinforced Concrete Pipe Class IV	Type 1 Grated Drop Inlet 1.00 Ft. to 1.99 Ft.	Type 2 Grated Drop Inlet 4.00 Ft. to 4.99 Ft.	Grouted Rubble Paving Slope Protection	1'-4"x8" Vee Ditch	
Spillway	1012+50 Lt.	1	4	1									40	
36" RCP	1023+91	34	35	8		410		26						
Spillway	1026+00 Lt.	1	4	1									40	
Spillway	1032+80 Lt.	1	4	1									40	
18" RCP	1037+82.5 o/s 21± Rt.	5							12					
Spillway	1037+80 Lt.	1	4	1									40	
36" RCP	1043+99±	74	28	5	23	348		32						
Spillway	1051+50 Lt.	1	4	1									40	
Spillway	1059+20 Lt.	1	4	1									40	
Spillway	1075+60 Lt.	1	4	1									40	
36" RCP	1085+52	34	25	8		410		25						
	TOTAL	225	200	54	23	1368	26	83	12	1	1	3	1120	

ORIGINAL PLAN	SURVEY PLATTED BY	DATE
NOTE BOOK	DRAWN BY A. Nomura	5/25/95
QUANTITIES BY	CHECKED BY	

6/14/95	Corrected stationing and quantities.
DATE	REVISION

DRAINAGE SUMMARY

PROJECT: HANA HIGHWAY RESURFACING, Waikani Bridge to Kapaula Bridge
PROJECT NO. : 360B-01-95M

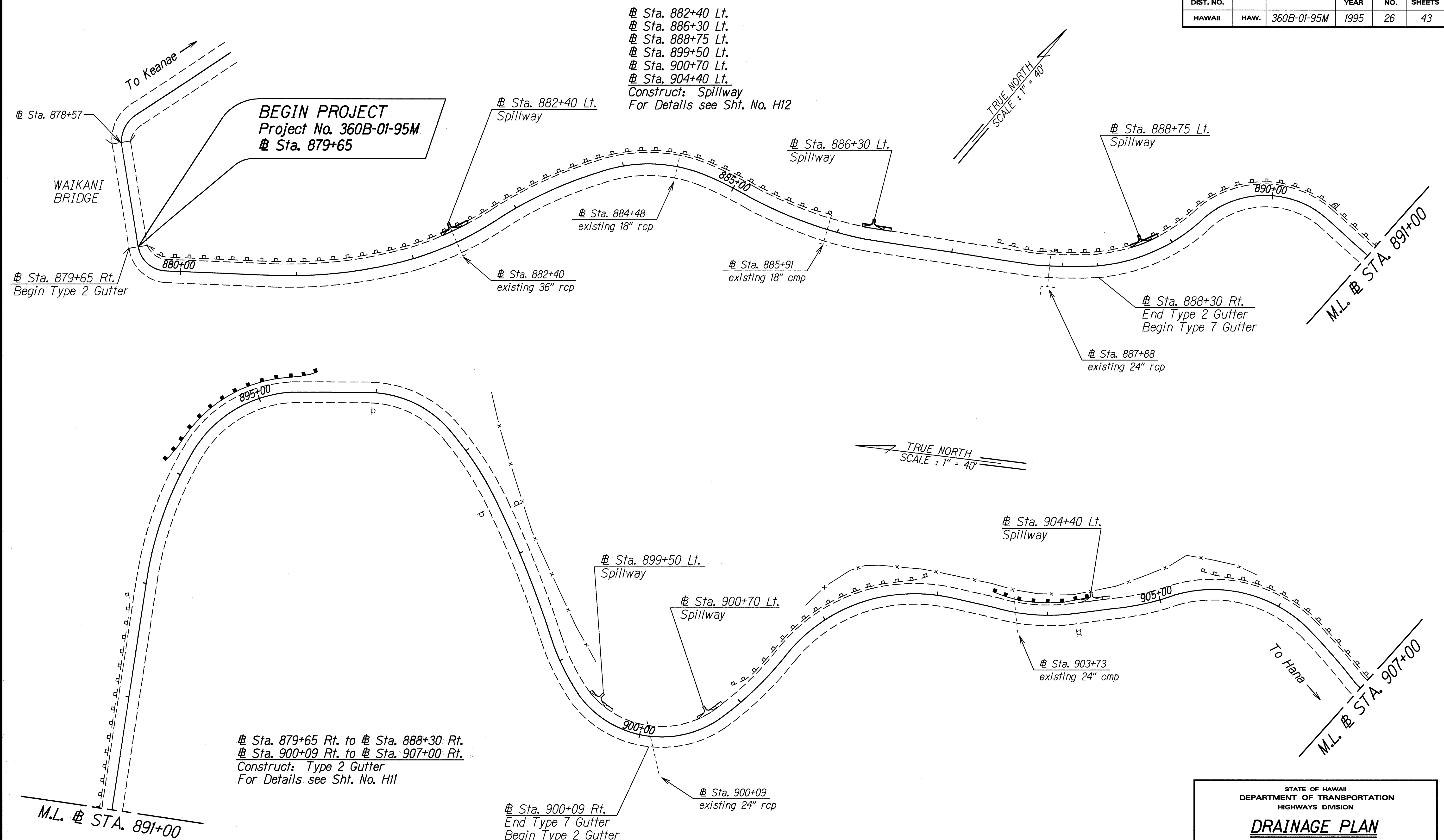
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360B-01-95M	1995	25	43

ITEM NO.		207. 0100	609. 2002	609. 7002	640. 2700	640. 6400
UNIT USED		C.Y.	L.F.	L.F.	L.F.	L.F.
FROM	TO	Ditch and Channel Excavation	Type 2 Gutter	Type 7 Gutter	2'-0"x2'-0" (SS .5/1) Lined Trapz. Ditch	2'-0"x2'-0" Lined Rectangular Ditch
Sta. 879+65 Rt.	Sta. 888+30 Rt.		865			
Sta. 888+30 Rt.	Sta. 900+09 Rt.			1179		
Sta. 900+09 Rt.	Sta. 912+50 Rt.		1241			
Sta. 912+50 Rt.	Sta. 915+80 Rt.			330		
Sta. 915+80 Rt.	Sta. 918+00 Rt.		220			
Sta. 918+00 Rt.	Sta. 923+33 Rt.			533		
Sta. 923+33 Rt.	Sta. 926+50 Rt.		317			
Sta. 926+50 Rt.	Sta. 929+20 Rt.			270		
Sta. 929+20 Rt.	Sta. 931+00 Rt.		180			
Sta. 931+00 Rt.	Sta. 936+30 Rt.			530		
Sta. 936+30 Rt.	Sta. 938+00 Rt.		170			
Sta. 938+00 Rt.	Sta. 944+12 Rt.			612		
Sta. 944+12 Rt.	Sta. 946+00 Rt.		188			
Sta. 946+00 Rt.	Sta. 948+89 Rt.			289		
Sta. 948+89 Rt.	Sta. 950+00 Rt.		111			
Sta. 950+00 Rt.	Sta. 954+80 Rt.			480		
Sta. 955+40 Rt.	Sta. 958+00 Rt.		260			
Sta. 958+00 Rt.	Sta. 960+53 Rt.			253		
Sta. 960+53 Rt.	Sta. 962+00 Rt.		147			
Sta. 962+00 Rt.	Sta. 966+00 Rt.			400		
Sta. 966+43 Rt.	Sta. 970+00 Rt.		357			
Sta. 970+00 Rt.	Sta. 972+41 Rt.			241		
Sta. 972+41 Rt.	Sta. 974+00 Rt.		159			
Sta. 974+00 Rt.	Sta. 978+54 Rt.			454		
Sta. 978+90 Rt.	Sta. 987+00 Rt.		810			

ITEM NO.		207. 0100	609. 2002	609. 7002	640. 2700	640. 6400
UNIT USED		C.Y.	L.F.	L.F.	L.F.	L.F.
FROM	TO	Ditch and Channel Excavation	Type 2 Gutter	Type 7 Gutter	2'-0"x2'-0" (SS .5/1) Lined Trapz. Ditch	2'-0"x2'-0" Lined Rectangular Ditch
Sta. 987+00 Rt.	Sta. 991+40 Rt.			440		
Sta. 991+40 Rt.	Sta. 993+00 Rt.		160			
Sta. 993+00 Rt.	Sta. 996+01 Rt.			301		
Sta. 996+01 Rt.	Sta. 1001+00 Rt.		499			
Sta. 1001+00 Rt.	Sta. 1005+40 Rt.			440		
Sta. 1006+16 Rt.	Sta. 1010+00 Rt.		384			
Sta. 1020+94 Rt.	Sta. 1037+51 Rt.		1657			
Sta. 1037+51 Rt.	Sta. 1037+76 Rt.	11				25
Sta. 1037+88 Rt.	Sta. 1043+22 Rt.		534			
Sta. 1045+48 Rt.	Sta. 1065+00 Rt.		1952			
Sta. 1065+65 Rt.	Sta. 1071+74 Rt.		609			
Sta. 1075+29 Rt.	Sta. 1080+00 Rt.		471			
Sta. 1080+00 Rt.	Sta. 1084+53 Rt.			453		
Sta. 1084+53 Rt.	Sta. 1088+00 Rt.		347			
Sta. 1088+00 Rt.	Sta. 1089+60 Rt.			160		
Sta. 1089+50 Rt.	Sta. 1090+00 Rt.	20			55	
	TOTALS	31	11,638	7,365	55	25

DESIGNED BY	DATE
DRAWN BY	1/25/95
CHECKED BY	
IN CHARGE	
NOTED BY	
QUANTITIES BY	
REVISIONS	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360B-01-95M	1995	26	43



ORIGINAL PLAN	DATE
5/15/95	
DESIGNED BY	
DRAWN BY	
CHECKED BY	
NOTES	
CHANGES	
QUANTITIES	
CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

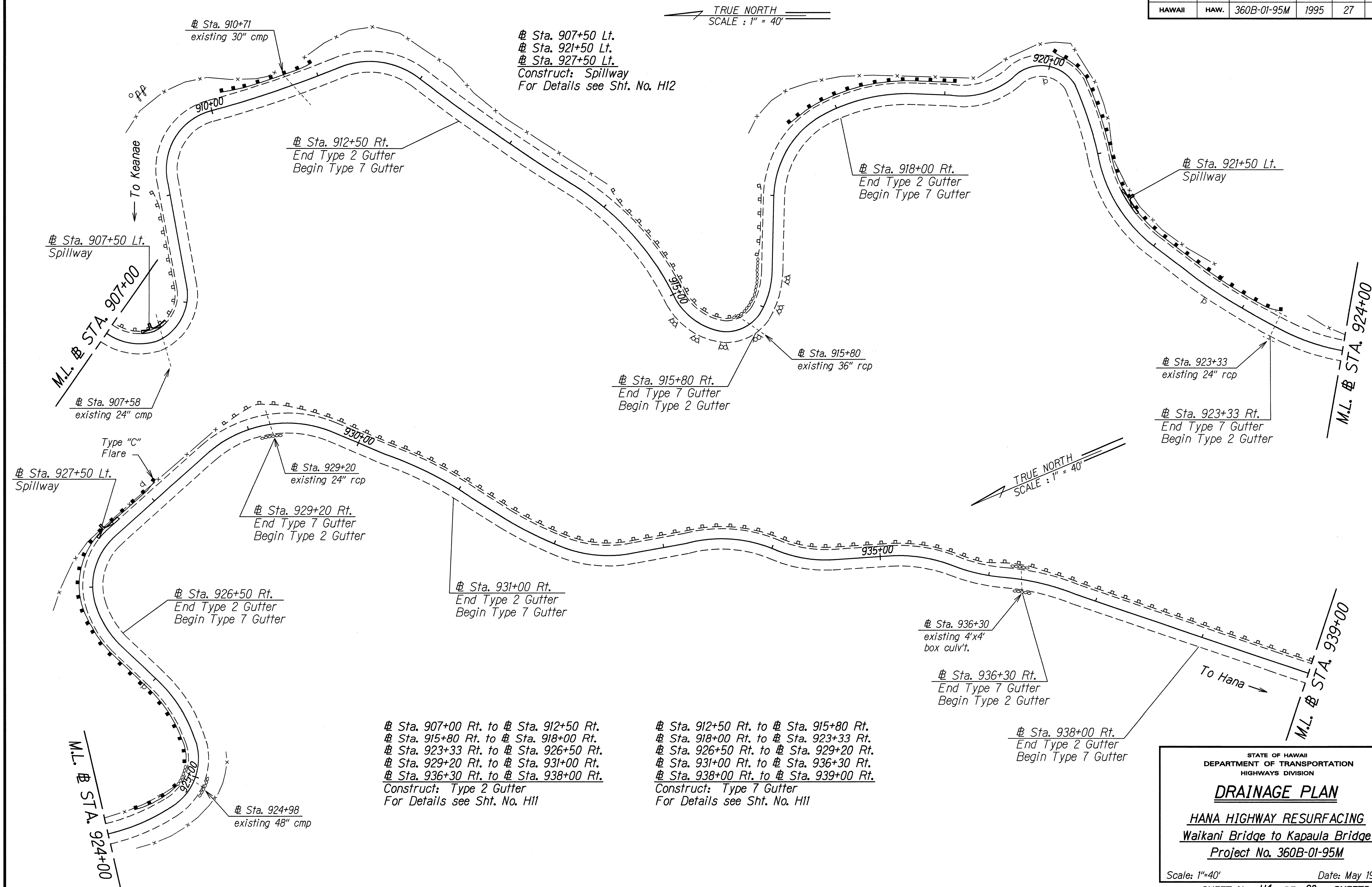
DRAINAGE PLAN

HANA HIGHWAY RESURFACING
Waikani Bridge to Kapaula Bridge
Project No. 360B-01-95M

Scale: 1"=40' Date: May 1995

SHEET No. H3 OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360B-01-95M	1995	27	43



ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	5/15/95
DRAWN BY	
NOTED BY	
CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

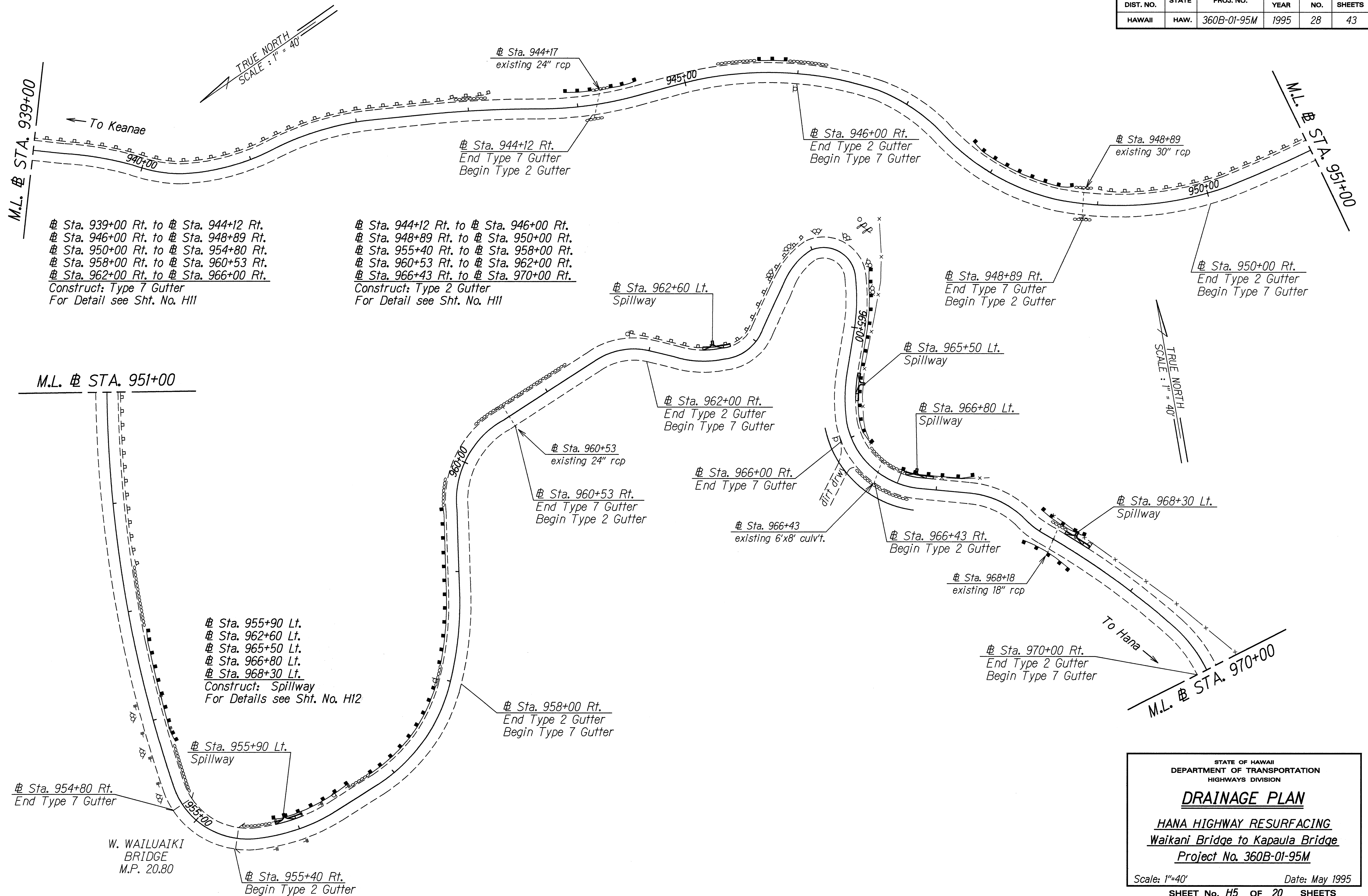
DRAINAGE PLAN

HANA HIGHWAY RESURFACING
Waikani Bridge to Kapaula Bridge
Project No. 360B-01-95M

Scale: 1"=40' Date: May 1995

SHEET No. H4 OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360B-01-95M	1995	28	43



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

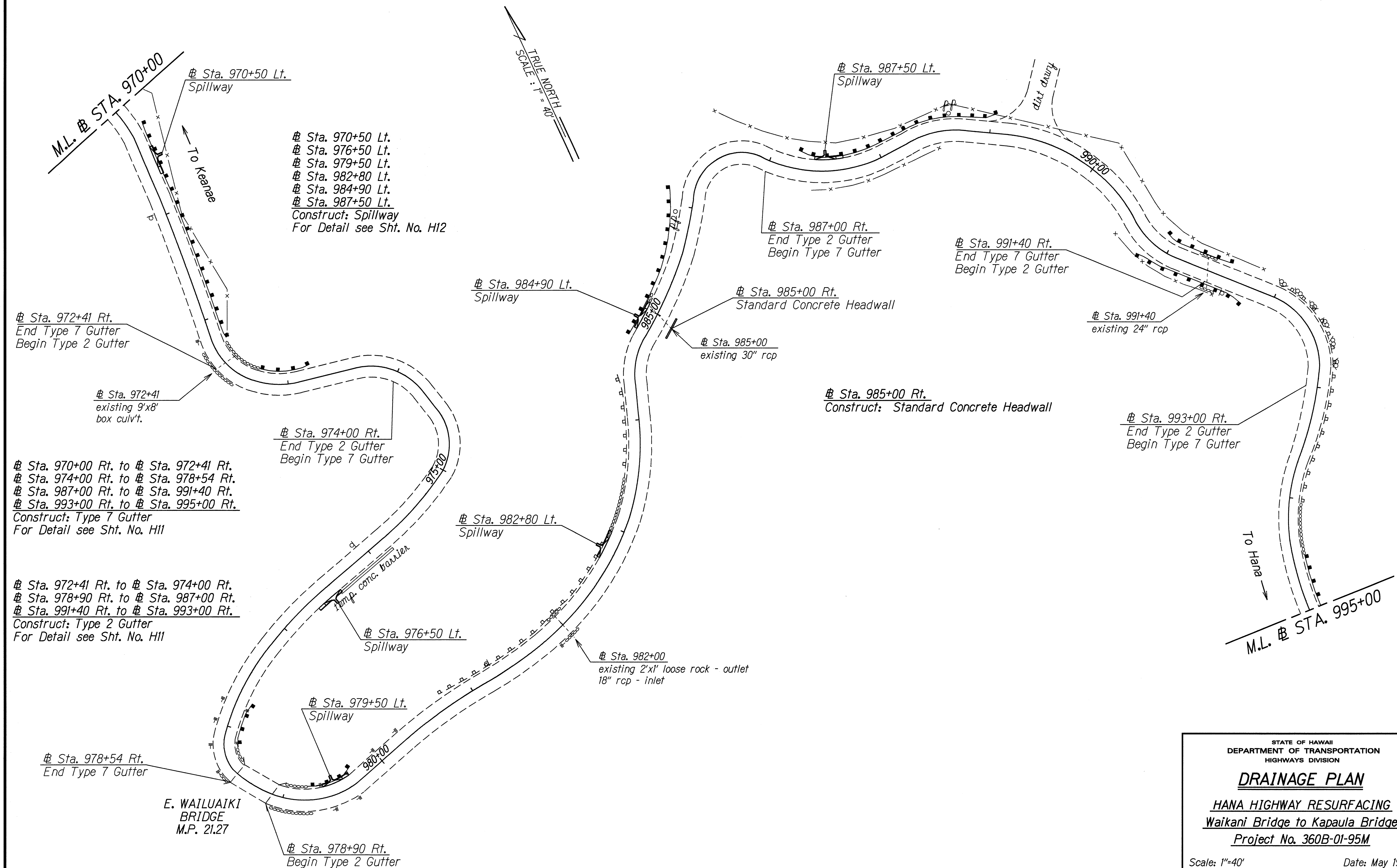
DRAINAGE PLAN

HANA HIGHWAY RESURFACING
Waikani Bridge to Kapaula Bridge
Project No. 360B-01-95M

Scale: 1"=40' Date: May 1995

SHEET No. H5 OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360B-01-95M	1995	29	43



ORIGINAL PLAN	DATE	5/15/95
SURVEY PLOTTED BY		
DRAWN BY	A. Manuila	
TRACED BY	B. Sakamoto	
QUANTITIES BY		
CHECKED BY		
NOTE BOOK		
REVISIONS		
DATE		
BY		

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

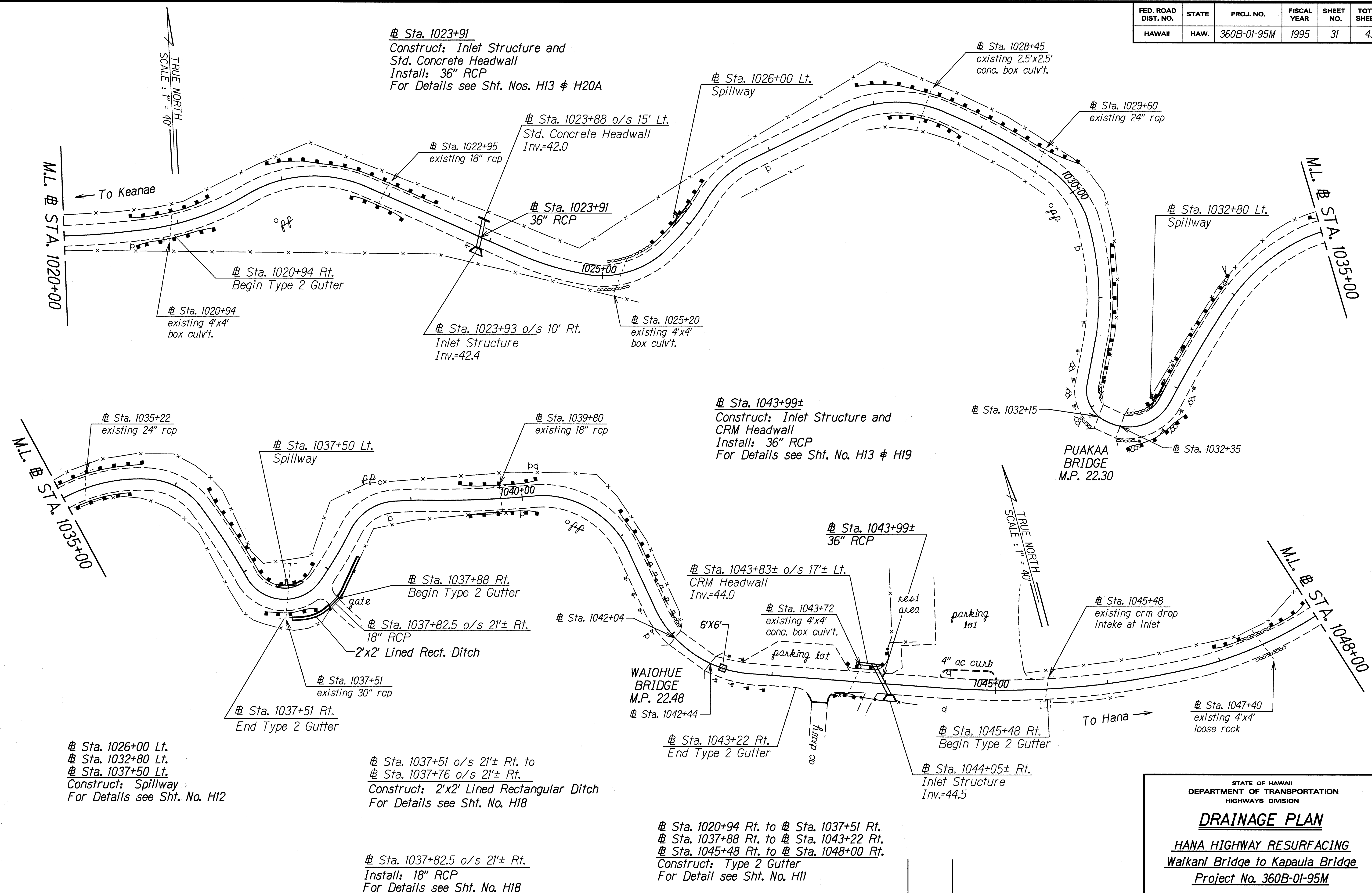
DRAINAGE PLAN

HANA HIGHWAY RESURFACING
Waikani Bridge to Kapaula Bridge
Project No. 360B-01-95M

Scale: 1"=40' Date: May 1995

SHEET No. H6 OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360B-01-95M	1995	31	43



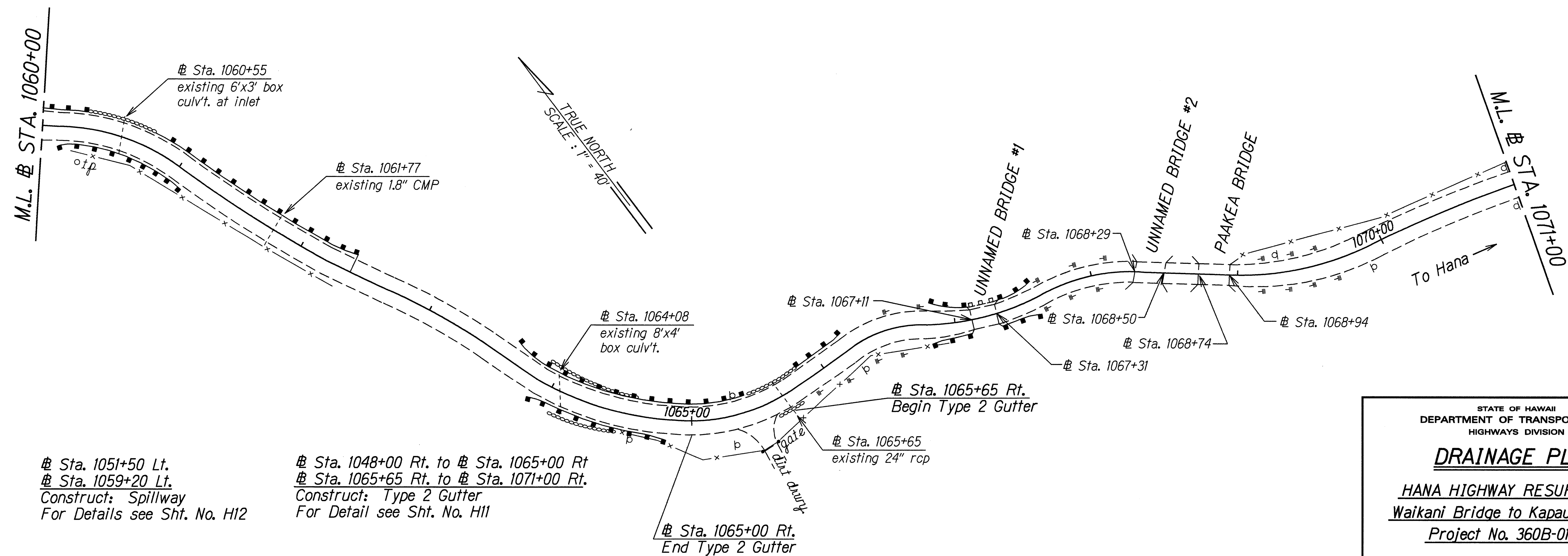
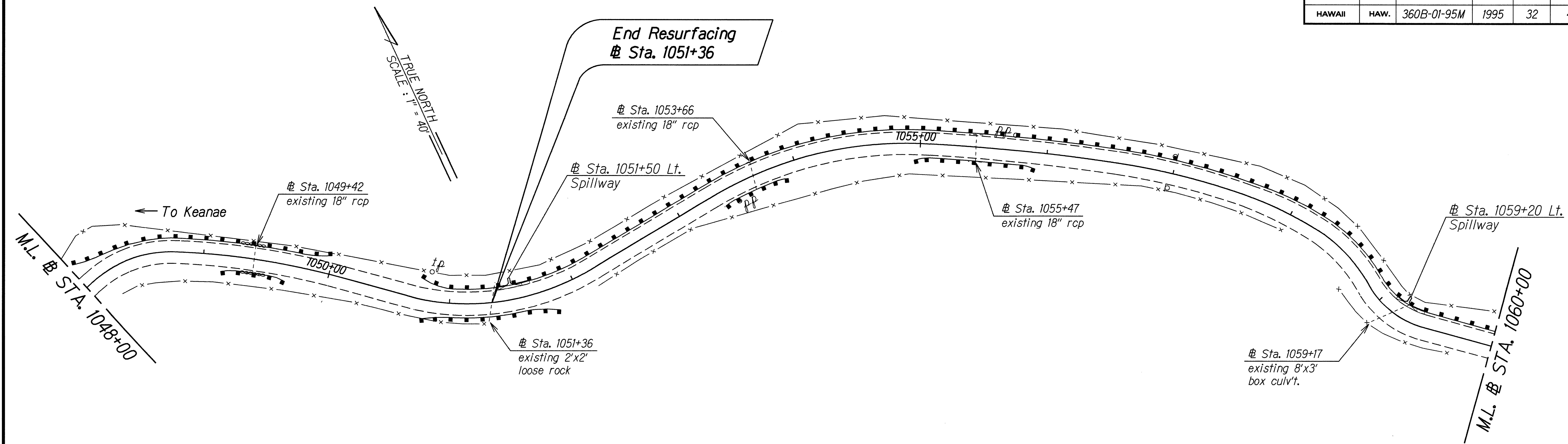
ORIGINAL PLAN	DATE: 5/15/95
DRAWN BY: A. Moulton	
TRACED BY: B. Sakamoto	
QUANTITIES BY: J. L. Luss	
CHECKED BY: J. L. Luss	

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
DRAINAGE PLAN
HANA HIGHWAY RESURFACING
Waikani Bridge to Kapaula Bridge
Project No. 360B-01-95M
Scale: 1"=40' Date: May 1995
SHEET No. H8 OF 20 SHEETS

6/14/95	Revised inverts for 36" culverts.
DATE	REVISION

ADD. 31

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360B-01-95M	1995	32	43



Sta. 1051+50 Lt.
Sta. 1059+20 Lt.
Construct: Spillway
For Details see Sht. No. H12

Sta. 1048+00 Rt. to Sta. 1065+00 Rt.
Sta. 1065+65 Rt. to Sta. 1071+00 Rt.
Construct: Type 2 Gutter
For Detail see Sht. No. H11

Sta. 1065+00 Rt.
End Type 2 Gutter

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	5/15/95
DRAWN BY A. Nomaia	
DESIGNED BY R. Sakamoto	
CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

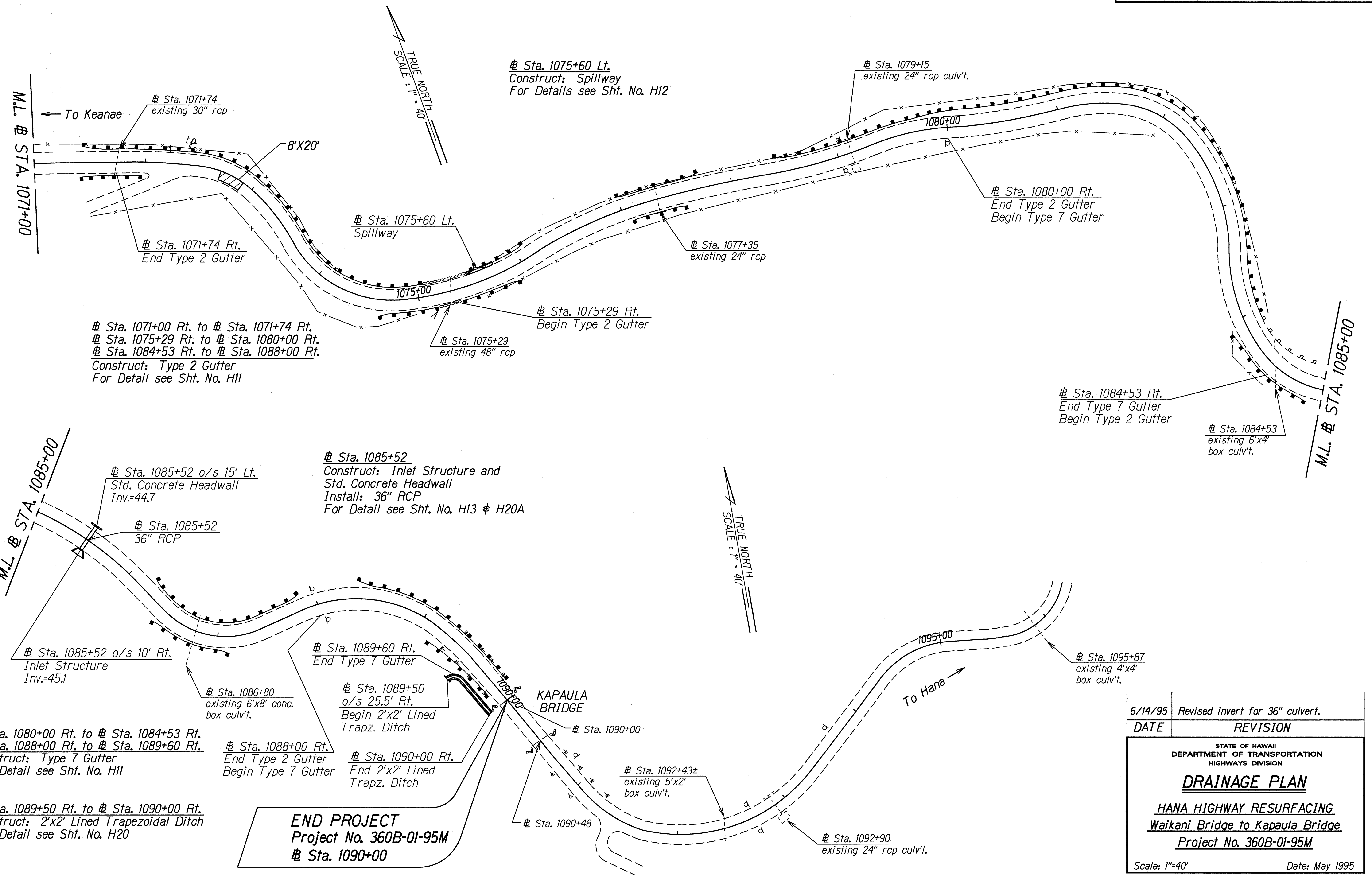
DRAINAGE PLAN

HANA HIGHWAY RESURFACING
Waikani Bridge to Kapaula Bridge
Project No. 360B-01-95M

Scale: 1"=40' Date: May 1995

SHEET No. H9 OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360B-01-95M	1995	33	43

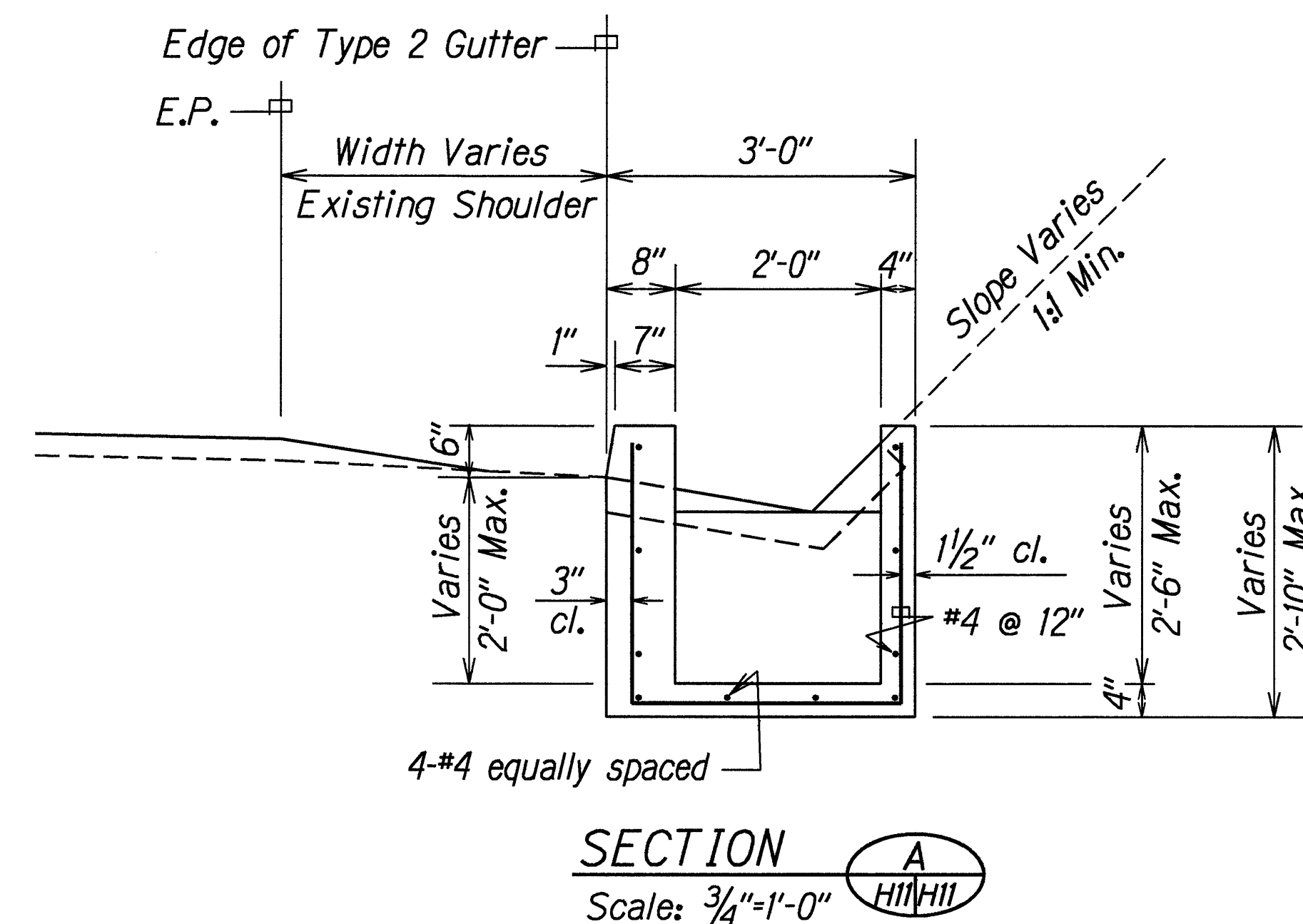
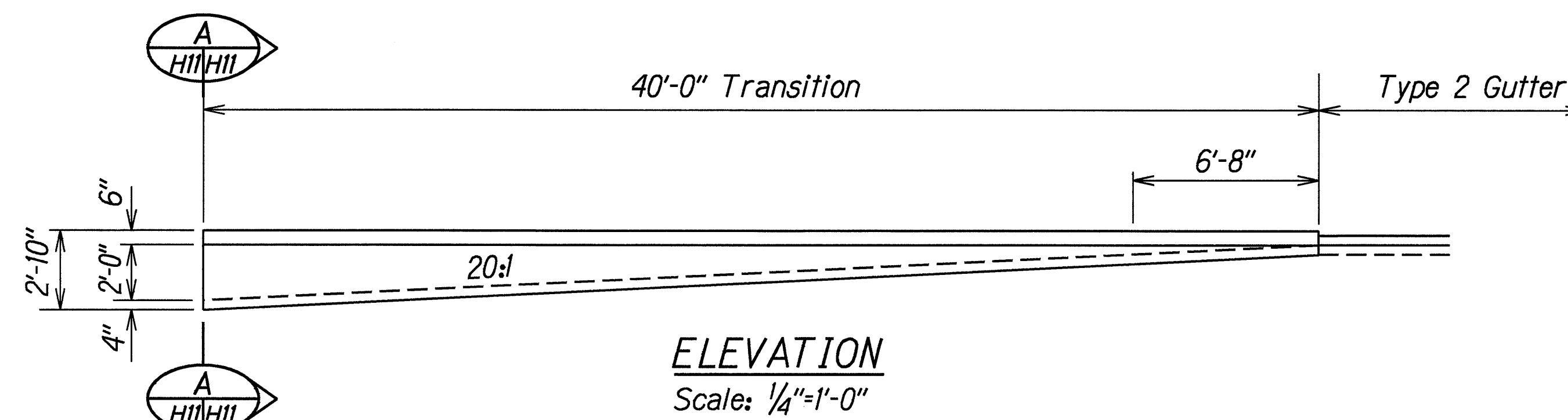
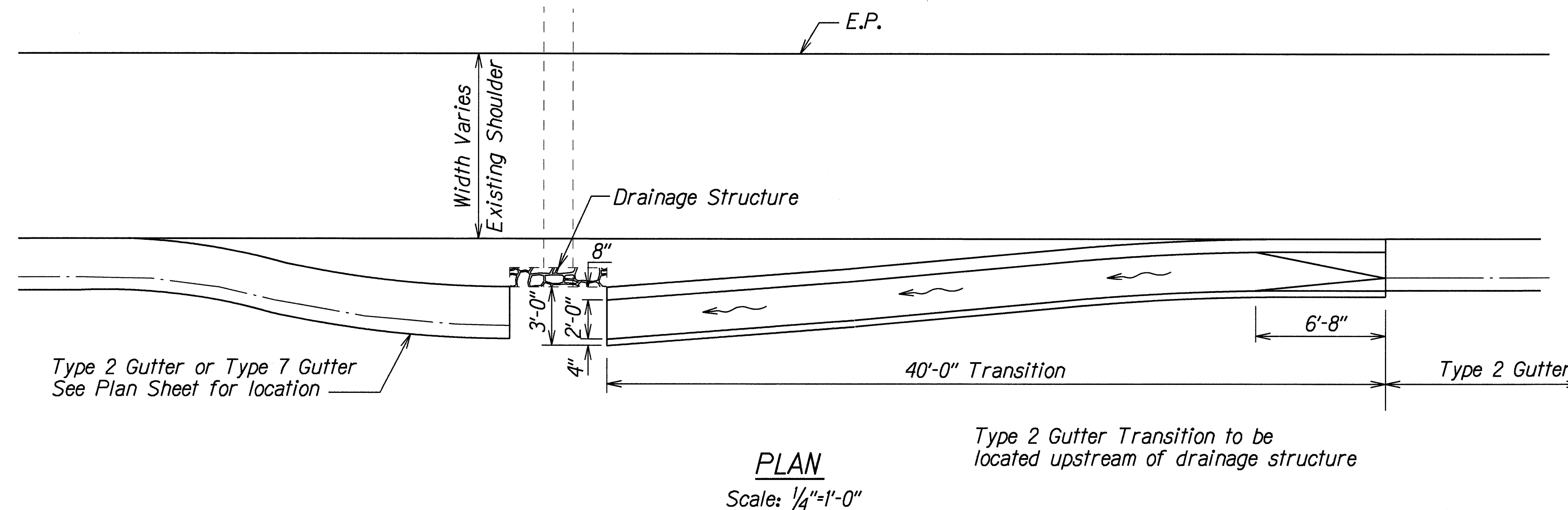


SURVEY PLOTTED BY	DATE	5/15/95
DRAWN BY A. MAMULA		
TRACED BY R. SAKAMOTO		
QUANTITIES BY		
CHECKED BY		
ORIGINAL PLAN		
NOTE BOOK		
CHANGES		
REVISIONS		

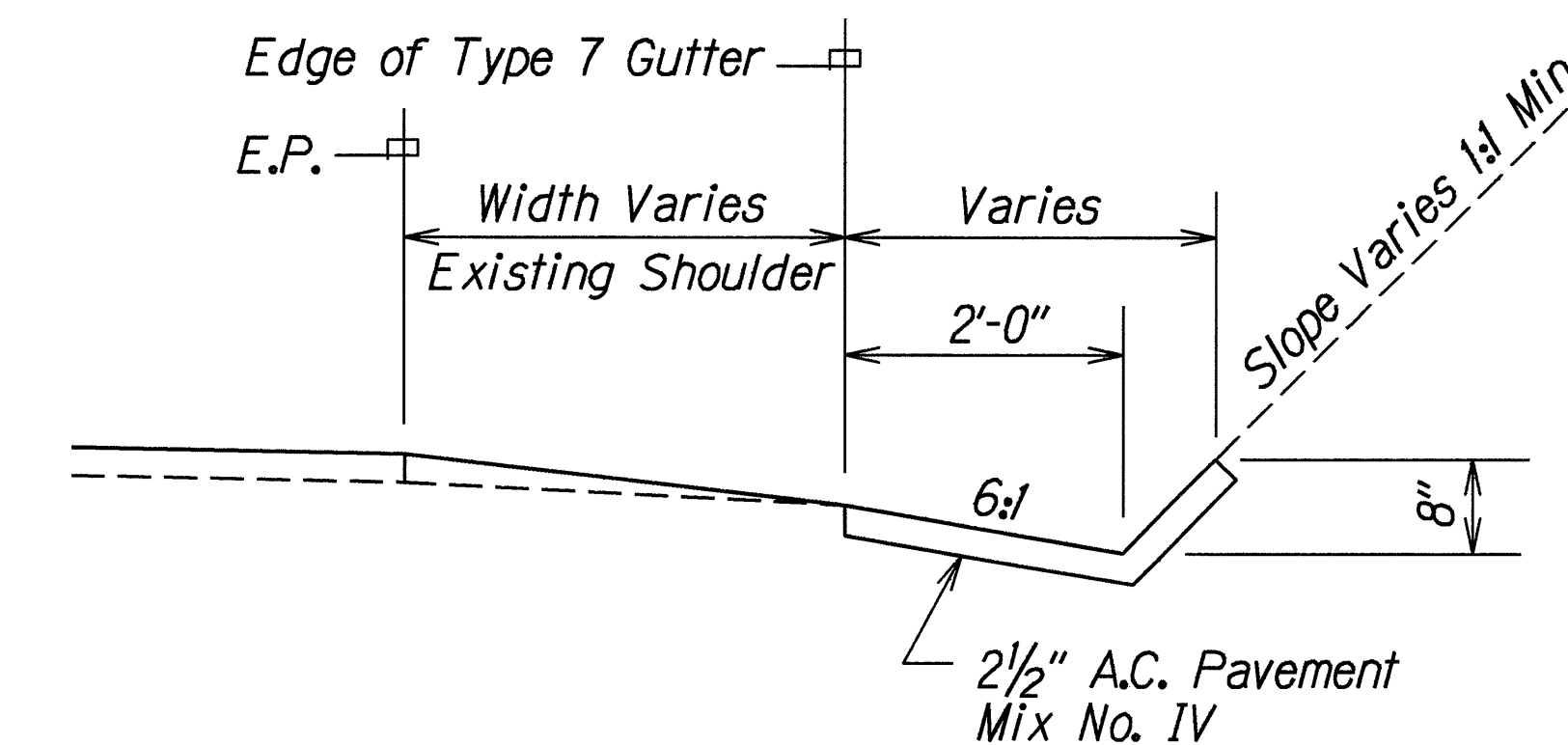
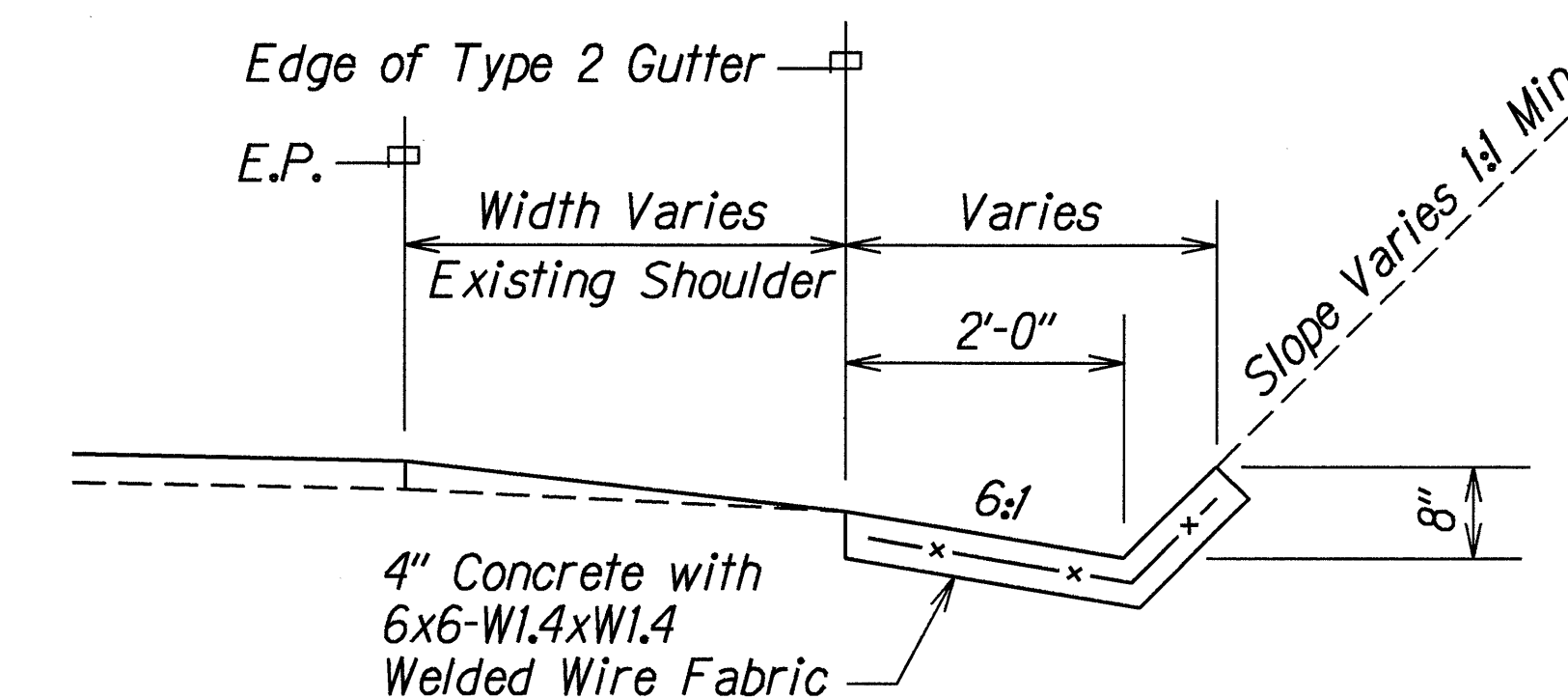
6/14/95	Revised invert for 36" culvert.
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
DRAINAGE PLAN	
HANA HIGHWAY RESURFACING Waikani Bridge to Kapaula Bridge Project No. 360B-01-95M	
Scale: 1"=40'	Date: May 1995
SHEET No. H10 OF 20 SHEETS	

ADD. 33

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360B-01-95M	1995	34	43



TYPICAL DETAILS OF TYPE 2 GUTTER TRANSITION



ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	5/19/95
DRAWN BY A. Manuwa	
TRACED BY	
DESIGNED BY R. Salgado	
CHECKED BY	
APPROVED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

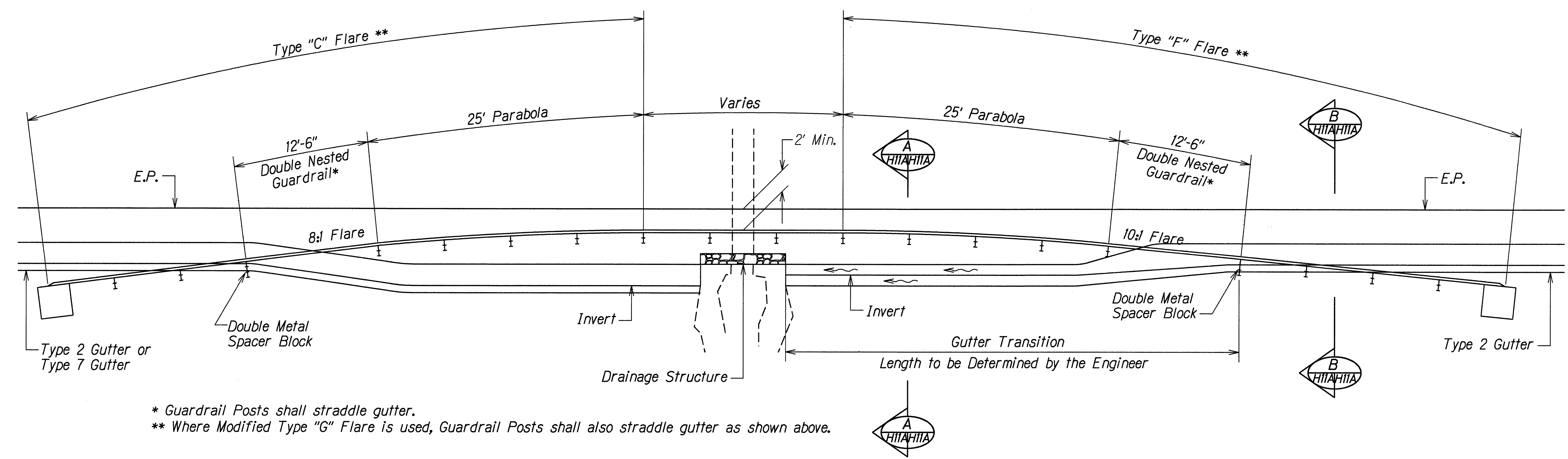
DRAINAGE DETAILS

HANA HIGHWAY RESURFACING
Waikane Bridge to Kapaula Bridge
Project No. 360B-01-95M

Scale: As Shown Date: May 1995

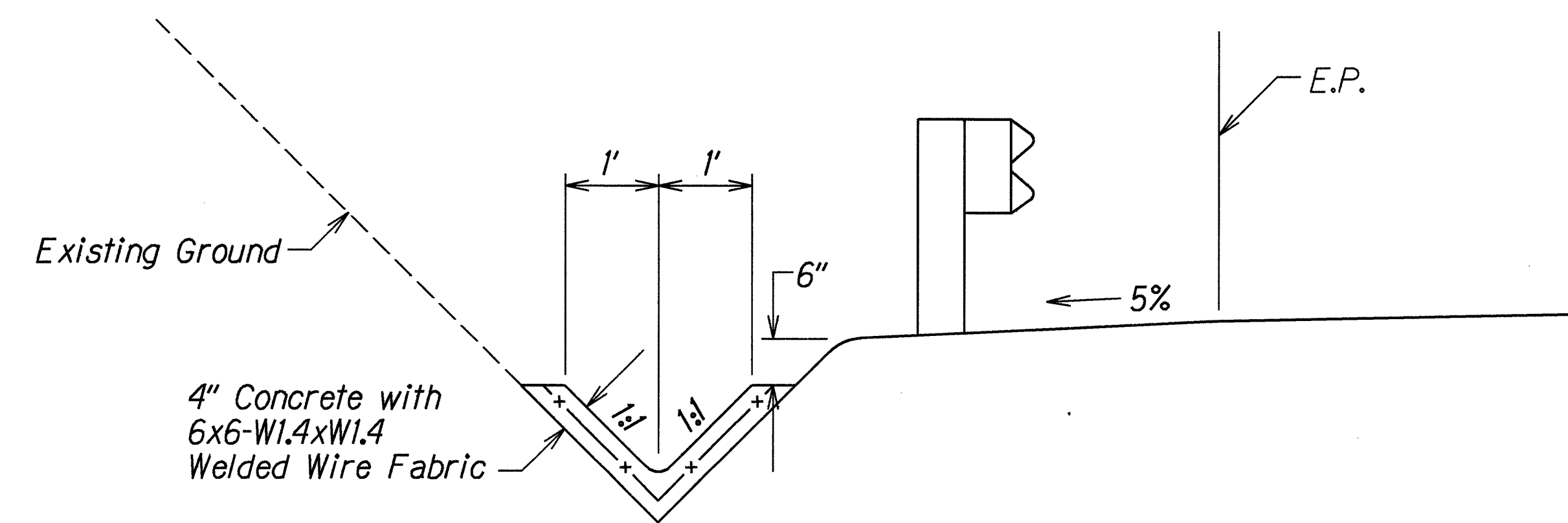
SHEET No. III OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360B-01-95M	1995	C.O.34S-1	43

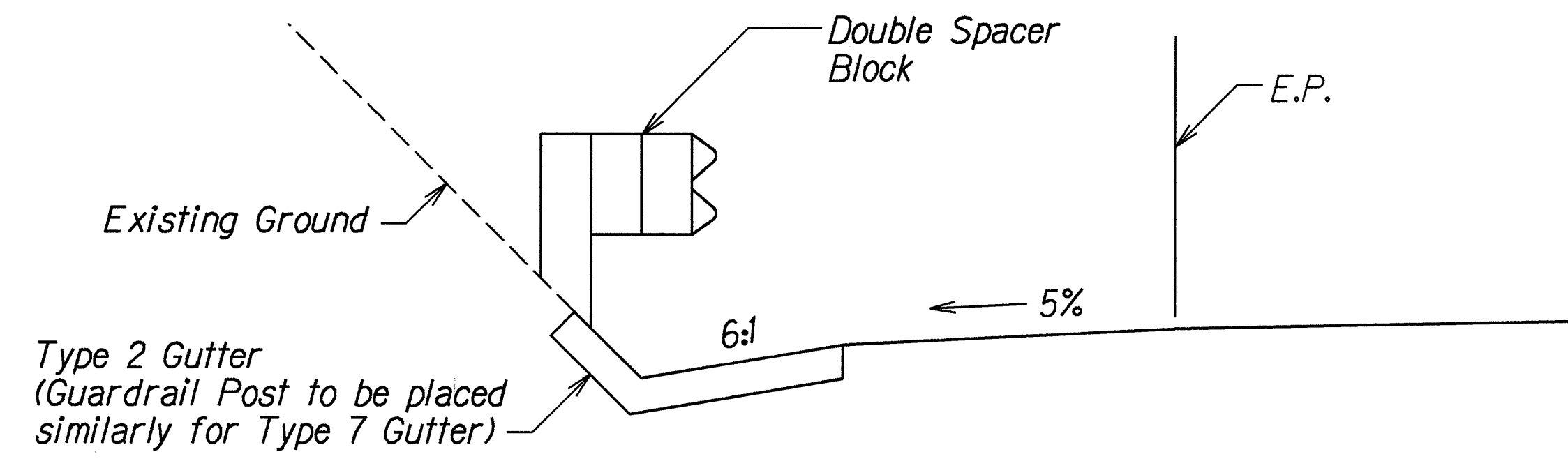


* Guardrail Posts shall straddle gutter.
 ** Where Modified Type "G" Flare is used, Guardrail Posts shall also straddle gutter as shown above.

PLAN
 Scale: 1"=5'-0"



SECTION A
 Scale: 3/4"=1'-0"



SECTION B
 Scale: 3/4"=1'-0"

TYPICAL DETAIL OF GUTTER THROUGH GUARDRAIL POSTS

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	DATE
DRAWN BY	DATE
TRACED BY	DATE
CHECKED BY	DATE

6-26-95	Add Detail of Gutter Through Guardrail Posts
DATE	REVISION

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

DRAINAGE DETAILS
 HANA HIGHWAY RESURFACING
 Waikani Bridge to Kapaula Bridge
 Project No. 360B-01-95M
 Scale: As Shown Date: June, 1995
 SHEET No. HIIA OF 20 SHEETS

The drawing illustrates the typical detail of a concrete spillway, including the plan view and two section views (A and B).

PLAN View: Shows the overall layout of the spillway. The total width is 25'-0". The spillway is 1'-4" wide at the base. The upstream side has a 6'-3" wide concrete apron. The downstream side has a 6'-9" wide concrete apron. The spillway itself is 5'-3" wide at the base. The downstream side has a 1'-4" x 8" Vee Ditch. The pay limits of the spillway are indicated on the right side, showing a 3'-10" width. The existing ground is shown on the right side.

SECTION A: A cross-section of the spillway. It shows a 4" concrete structure with 6x6-W1.4xW1.4 welded wire fabric. The upstream side has a 5% slope. The downstream side has a 4" concrete structure. The existing ground is shown on the right side.

SECTION B: A cross-section of the spillway. It shows a 4" concrete structure with 6x6-W1.4xW1.4 welded wire fabric. The downstream side has a 1'-4" x 8" Vee Ditch. The existing ground is shown on the right side.

DETAIL OF 1'-4" x 8" Vee Ditch: A detailed view of the Vee Ditch, showing a 6:1 slope and a 40° angle. The existing ground is shown on the right side.

TYPICAL DETAIL OF CONCRETE SPILLWAY
 Scale: 3/4" = 1'-0"

2'-4"

4"

2'-0"

E.P.

Finish Grade

5%

4 3/4"

Existing ground

4" Concrete with 6x6-W1.4xW1.4 welded wire fabric

SECTION A
H12/H12

SECTION 

The drawing consists of two parts: a Plan view and a Detail view.

PLAN

- Shows the bridge structure with a width of 3'-10".
- Pay Limits of Spillway are indicated.
- Dimensions for the spillway structure are 2'-4" and 4".
- The distance from the E.P. (End of Pier) to the spillway structure is 2'-0".
- The bridge structure is labeled with a 6:1 slope.
- The bridge structure is labeled with a 4" Concrete with 6x6-W1.4xW1.4 welded wire fabric.

DETAIL

- Shows a cross-section of the bridge structure.
- The structure is labeled with a 40± slope.
- The structure is labeled with a 1'-4" x 8" Vee Ditch.
- The structure is labeled with a 6:1 slope.
- The structure is labeled with a 4" Concrete with 6x6-W1.4xW1.4 welded wire fabric.
- The structure is labeled with a Finish Grade.
- The structure is labeled with a 4" Concrete with 6x6-W1.4xW1.4 welded wire fabric.

SECTION B
H12/H12

The diagram illustrates a cross-section of a VEE ditch. The top width of the ditch is labeled as 1'-4". The depth from the existing ground level to the bottom of the ditch is indicated by two vertical dimension lines: one for the total depth of 8" and another for the concrete thickness of 4". A dashed line represents the "Existing ground" surface. The ditch walls are sloped at approximately 1:1. The bottom of the ditch is reinforced with a layer of concrete, labeled as "4" Concrete with 6x6-W1.4xW1.4 welded wire fabric". Two small '+' symbols are shown on the inner slope of the ditch.

DETAIL OF 1'-4" x 8" VEE DITCH

Scale: $\frac{1}{2}" = 1'-0"$

TYPICAL DETAIL OF CONCRETE SPILLWAY
Scale: $\frac{3}{4}"=1'-0"$

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

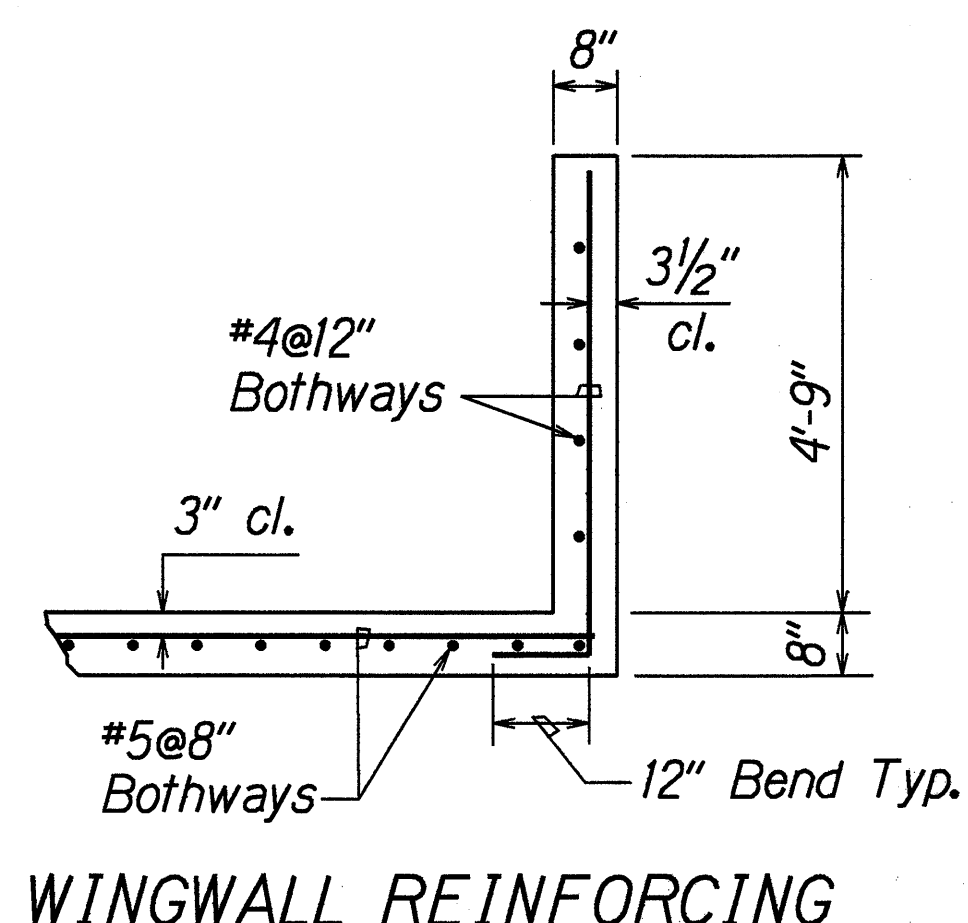
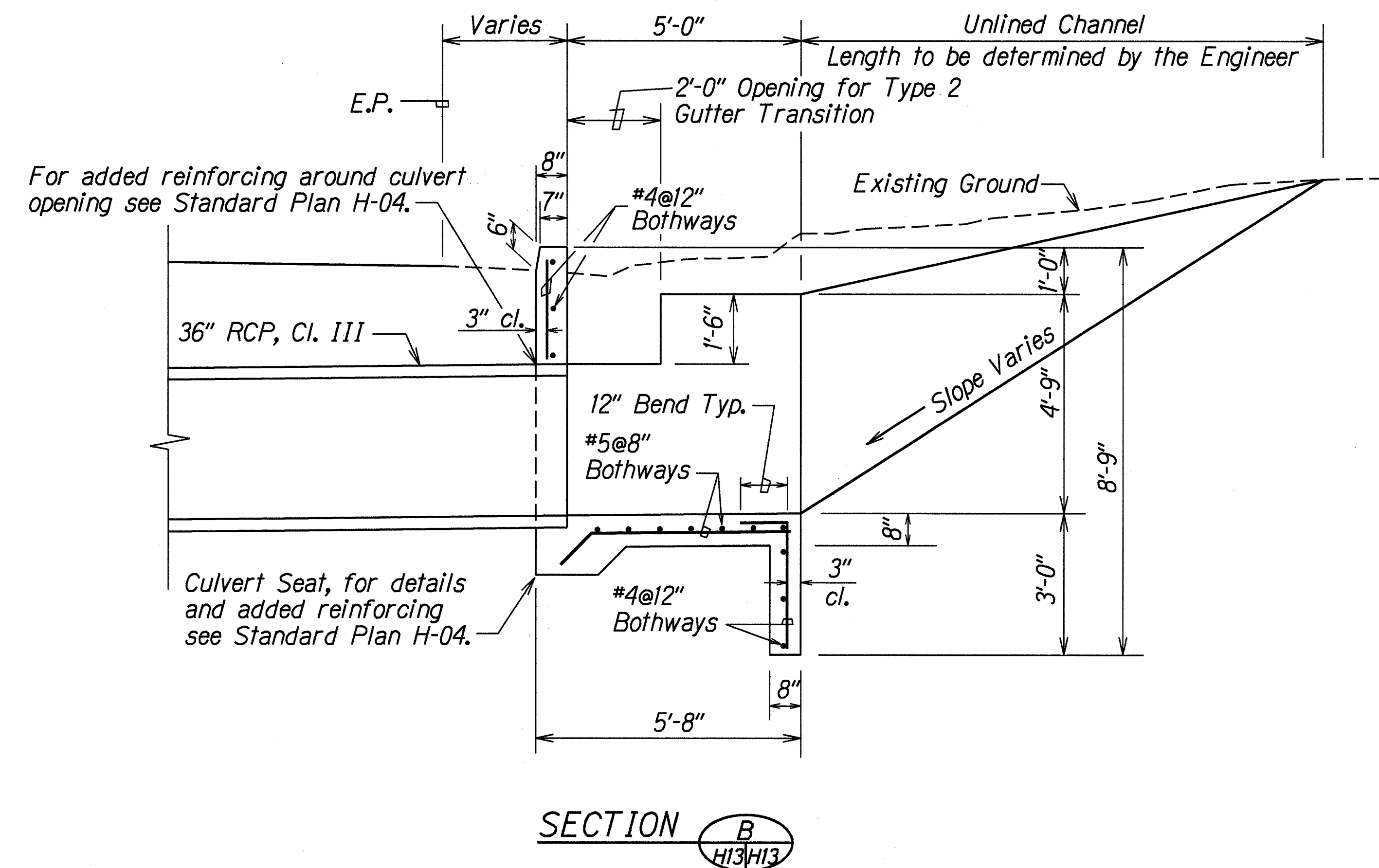
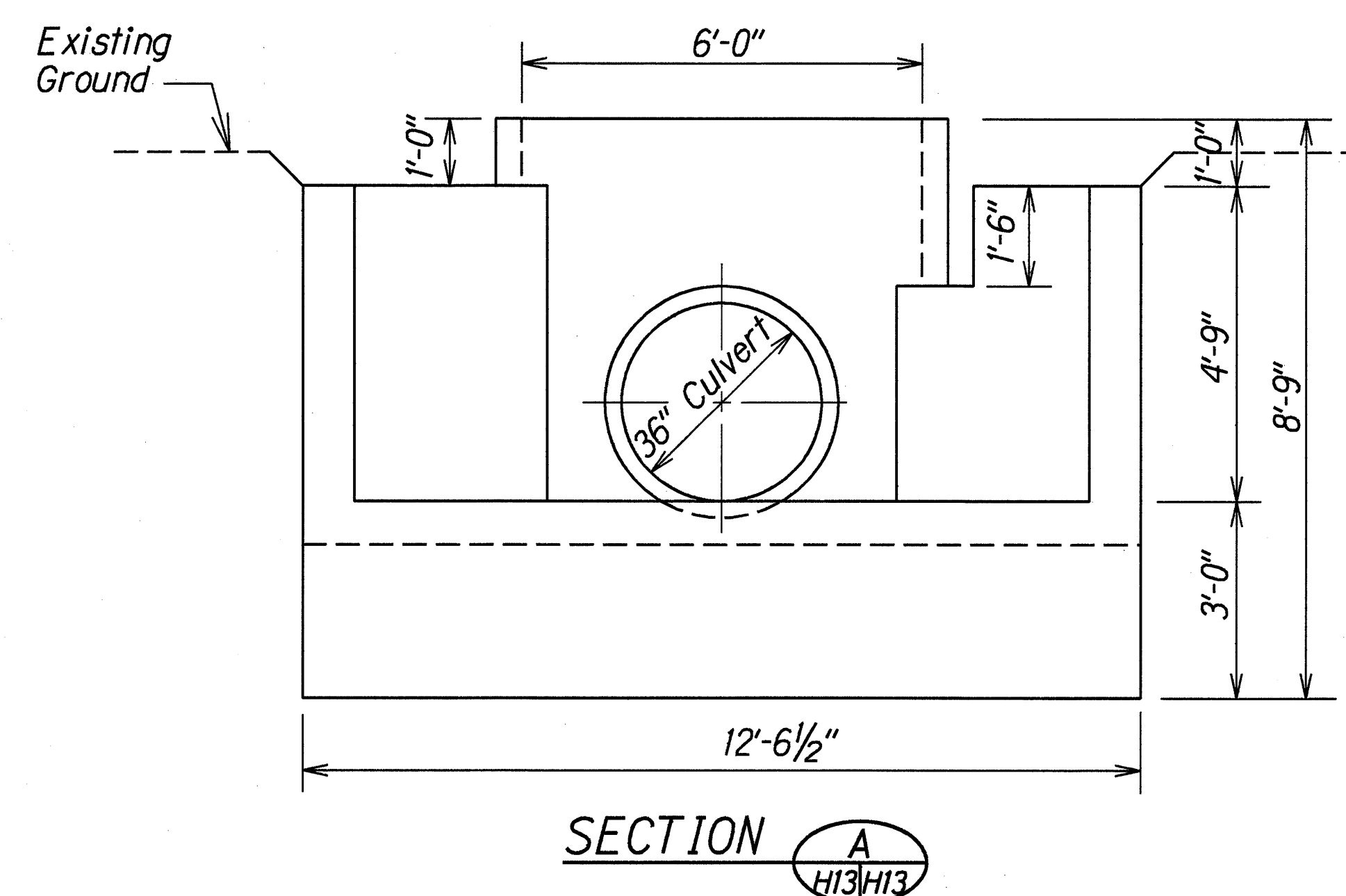
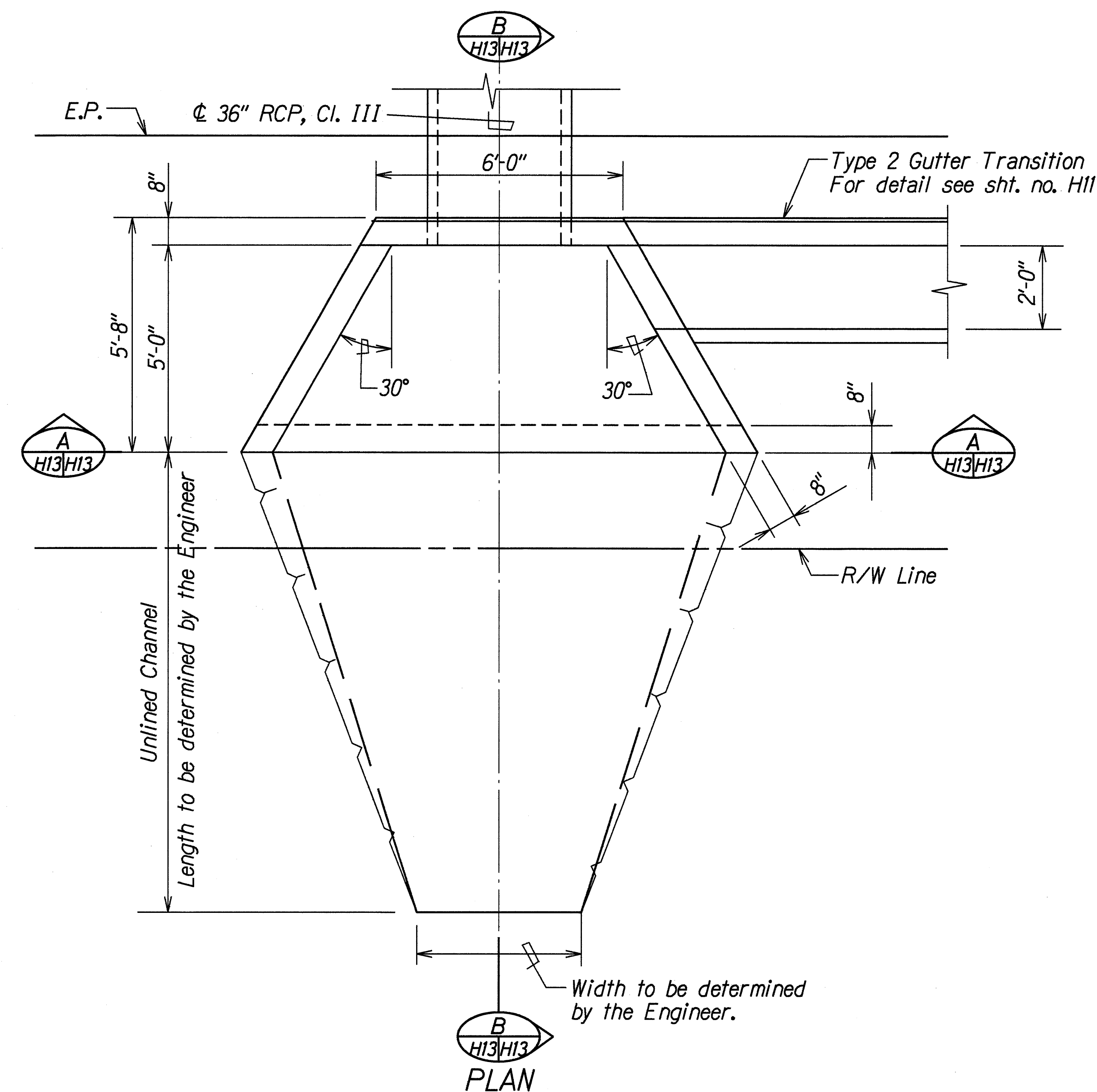
DRAINAGE DETAILS

HANA HIGHWAY RESURFACING
Waikane Bridge to Kapaula Bridge
Project No. 360B-01-95M

Scale: As Shown Date: May, 1995

SHEET No. *H12* OF *20* SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360B-01-95M	1995	36	43

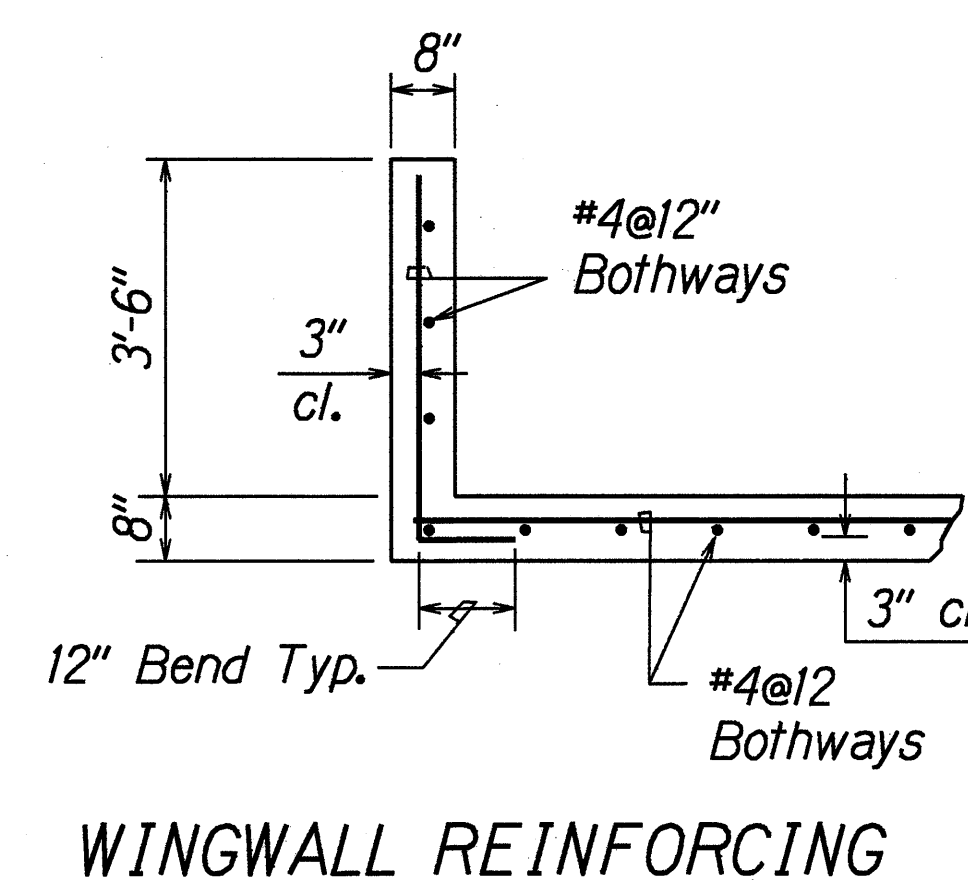
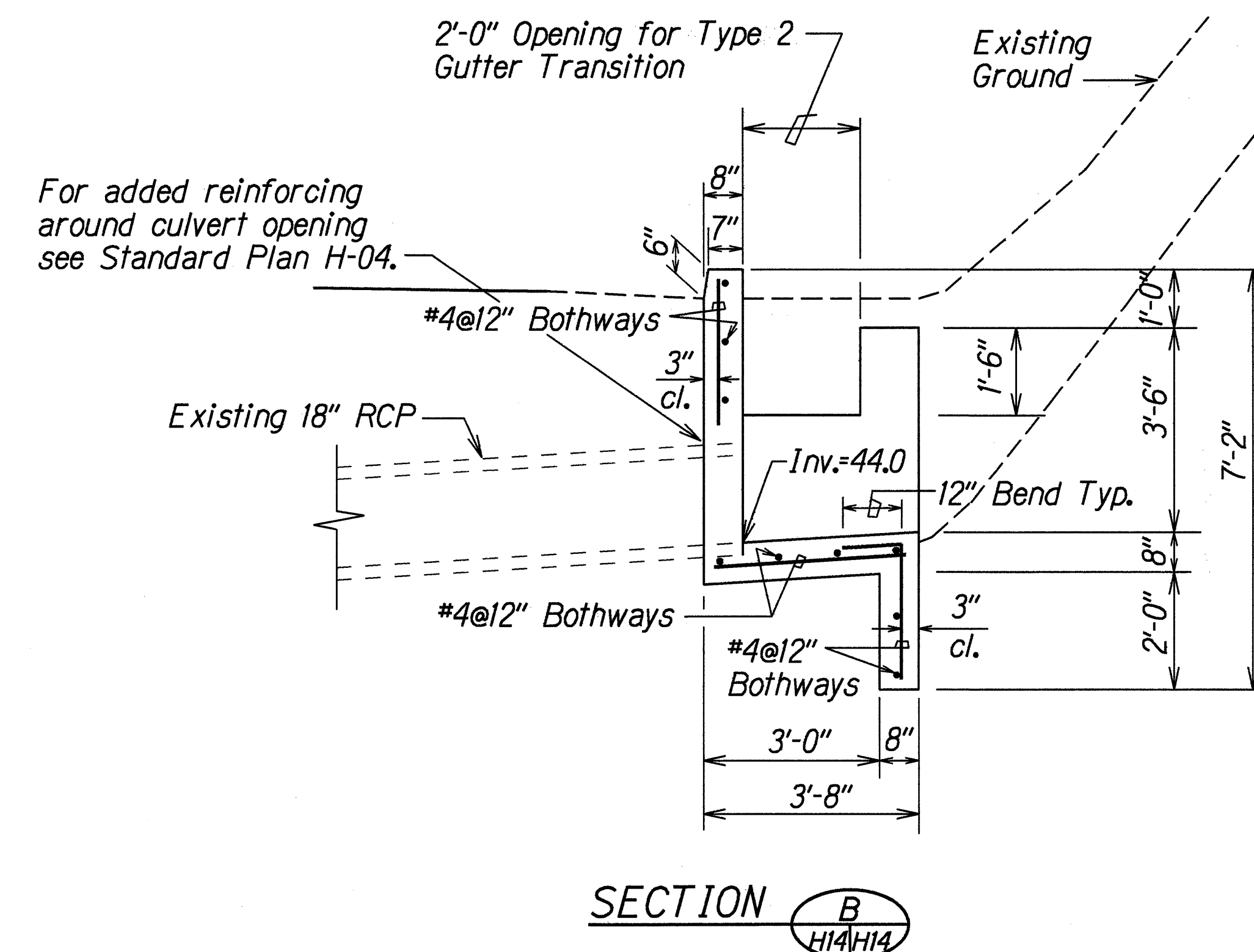
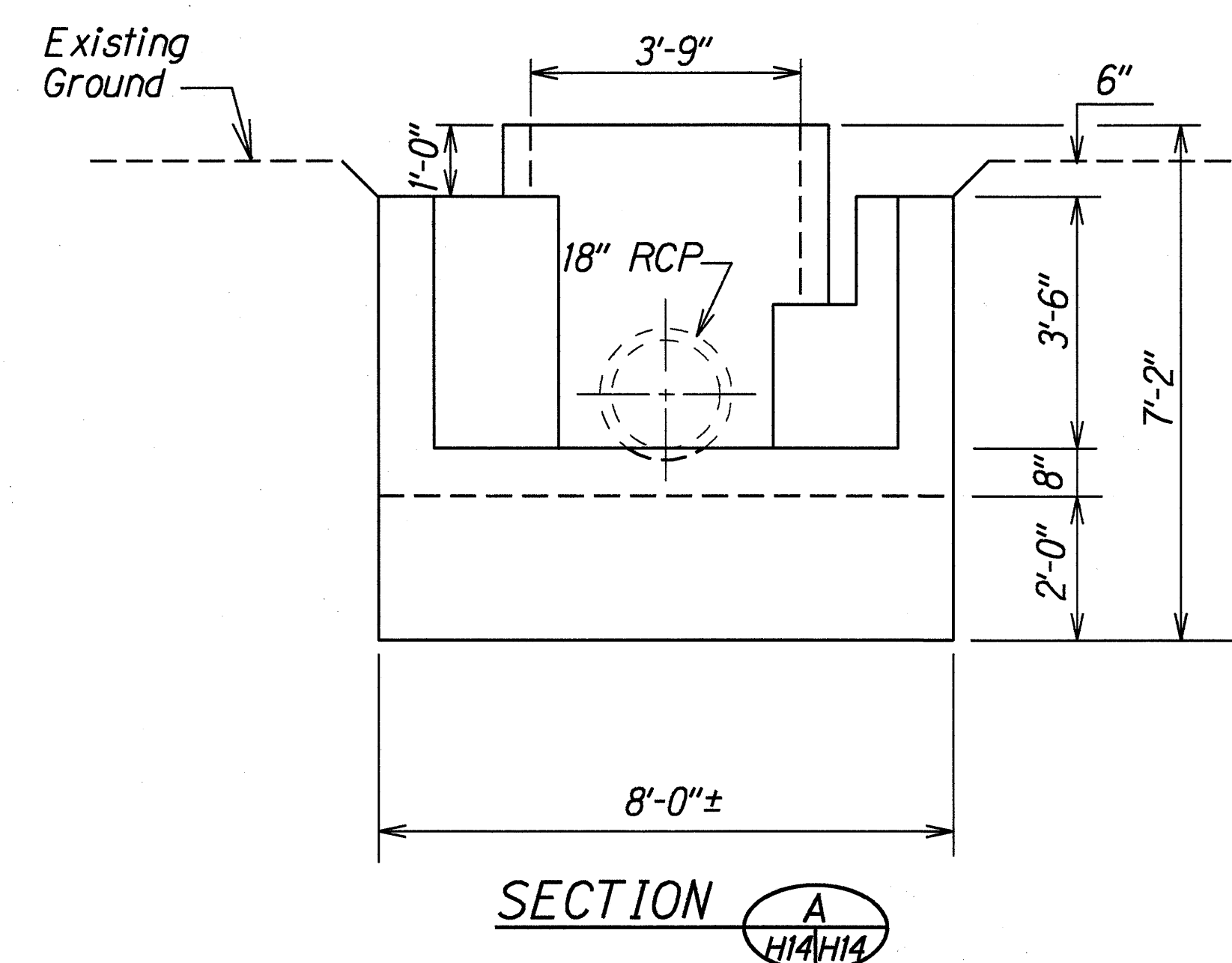
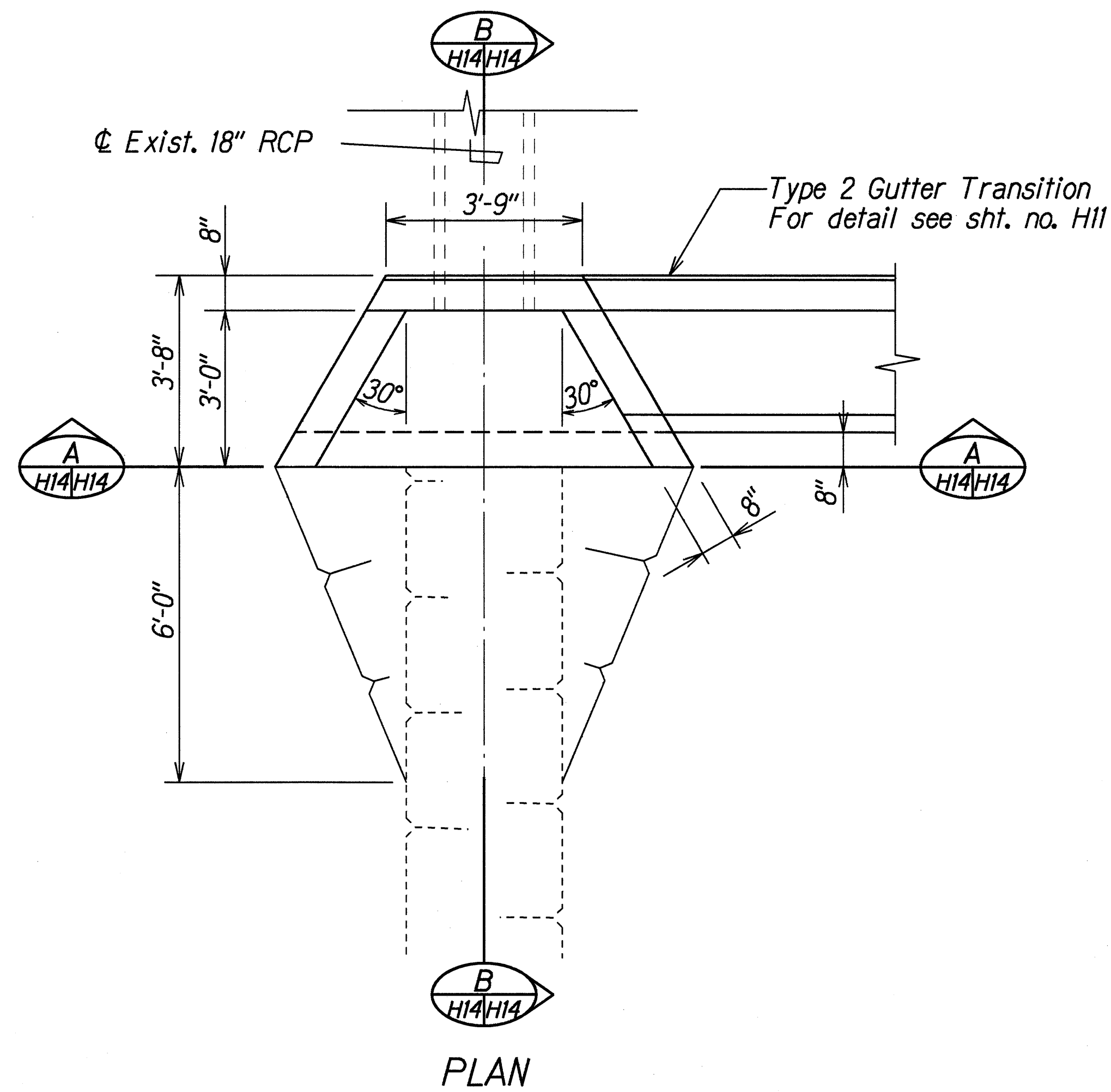


TYPICAL DETAIL OF INLET STRUCTURE

ORIGINAL PLAN	DATE
DRAWN BY L. Cocke, A. Naniwa	5/2/95
NOTES BOOK	
QUANTITIES BY	
CHECKED BY	

6/14/95	Revised slope for Unlined Channel.
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION DRAINAGE DETAILS HANA HIGHWAY RESURFACING Waikanī Bridge to Kapaula Bridge Project No. 360B-01-95M Scale: 1/2"=1'-0" Date: May, 1995 SHEET No. H13 OF 20 SHEETS	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360B-01-95M	1995	37	43



DETAILS OF INLET STRUCTURE AT # STA. 996+01 RT.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTES BOOK	DRAWN BY	5/22/95
DESIGNED BY	DESIGNED BY	
CHECKED BY	CHECKED BY	

6/14/95 Change sheet nos. to conform to Drainage Plan.

DATE REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

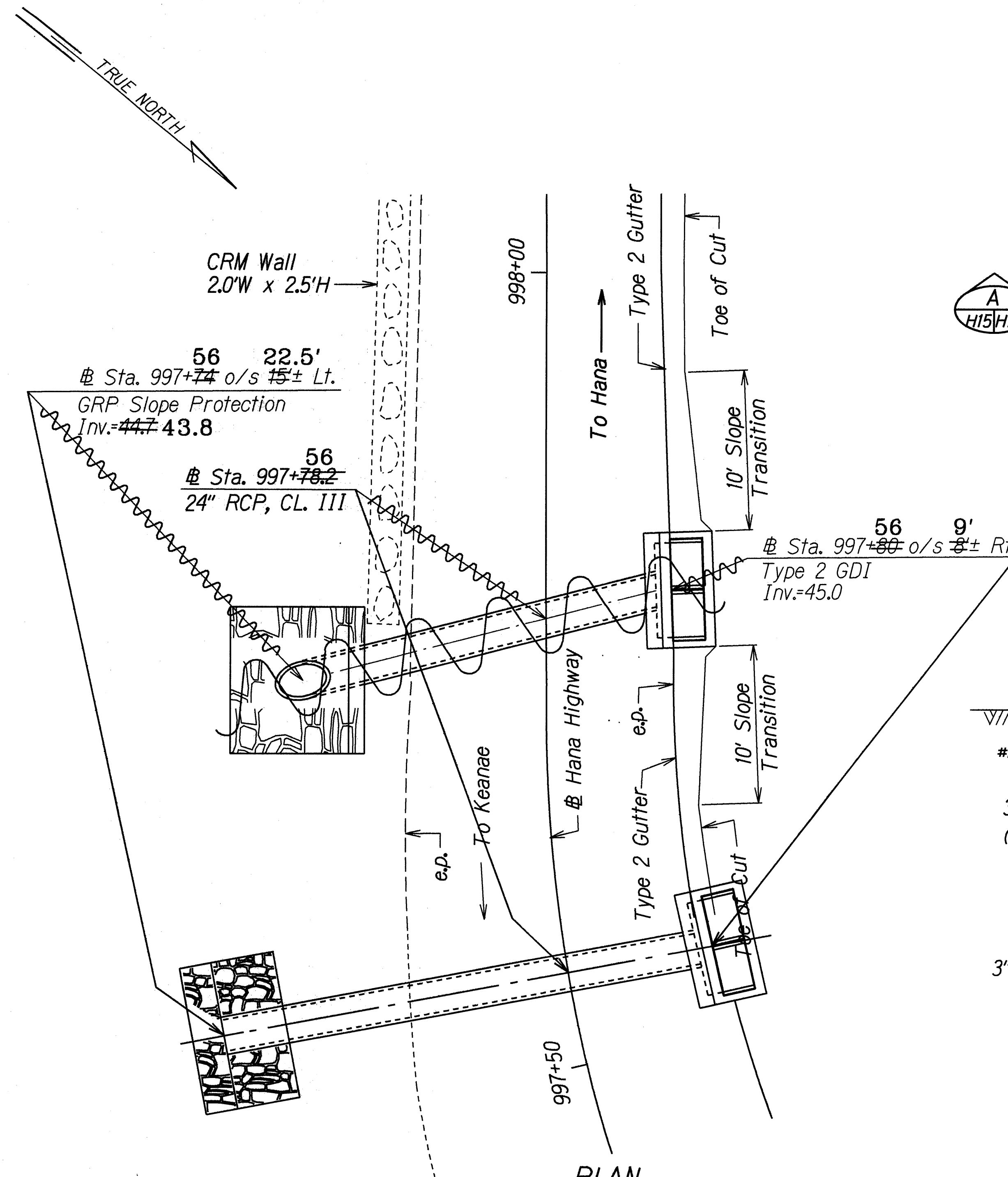
HANA HIGHWAY RESURFACING
Waikani Bridge to Kapaula Bridge
Project No. 360B-01-95M

Scale: 1/2"=1'-0" Date: May, 1995

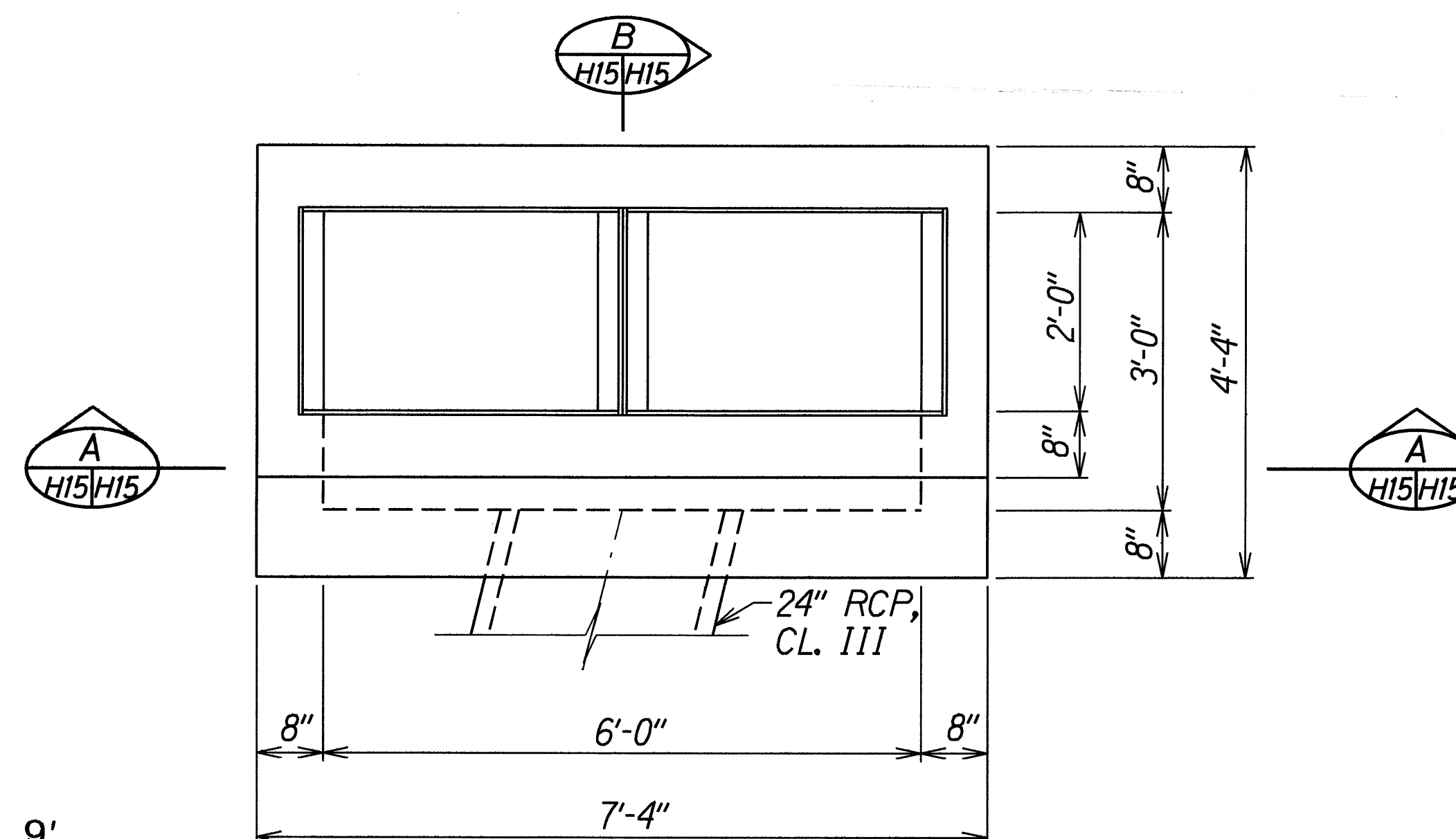
SHEET No. H14 OF 20 SHEETS

ADD. 37

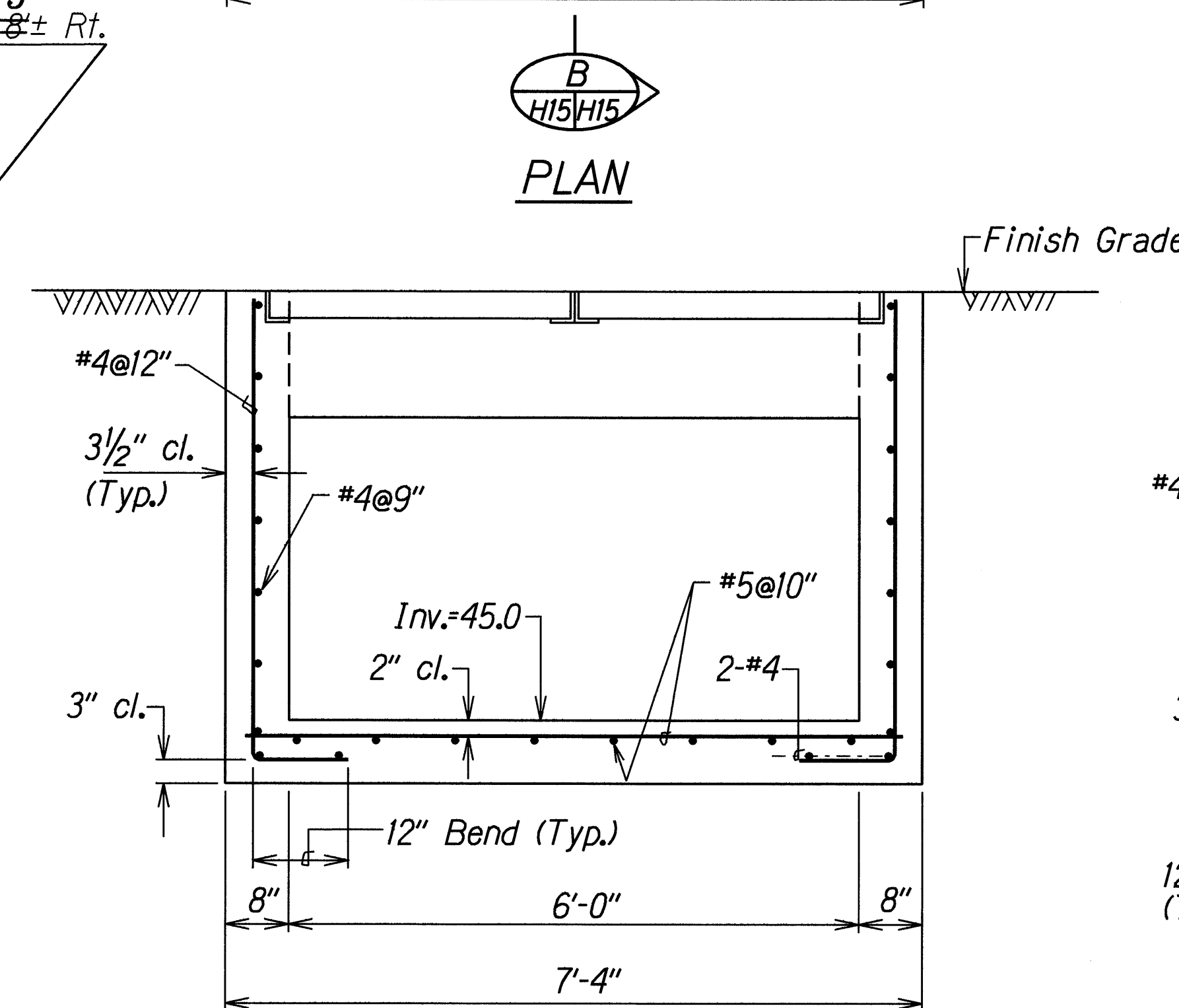
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360B-01-95M	1995	38	43



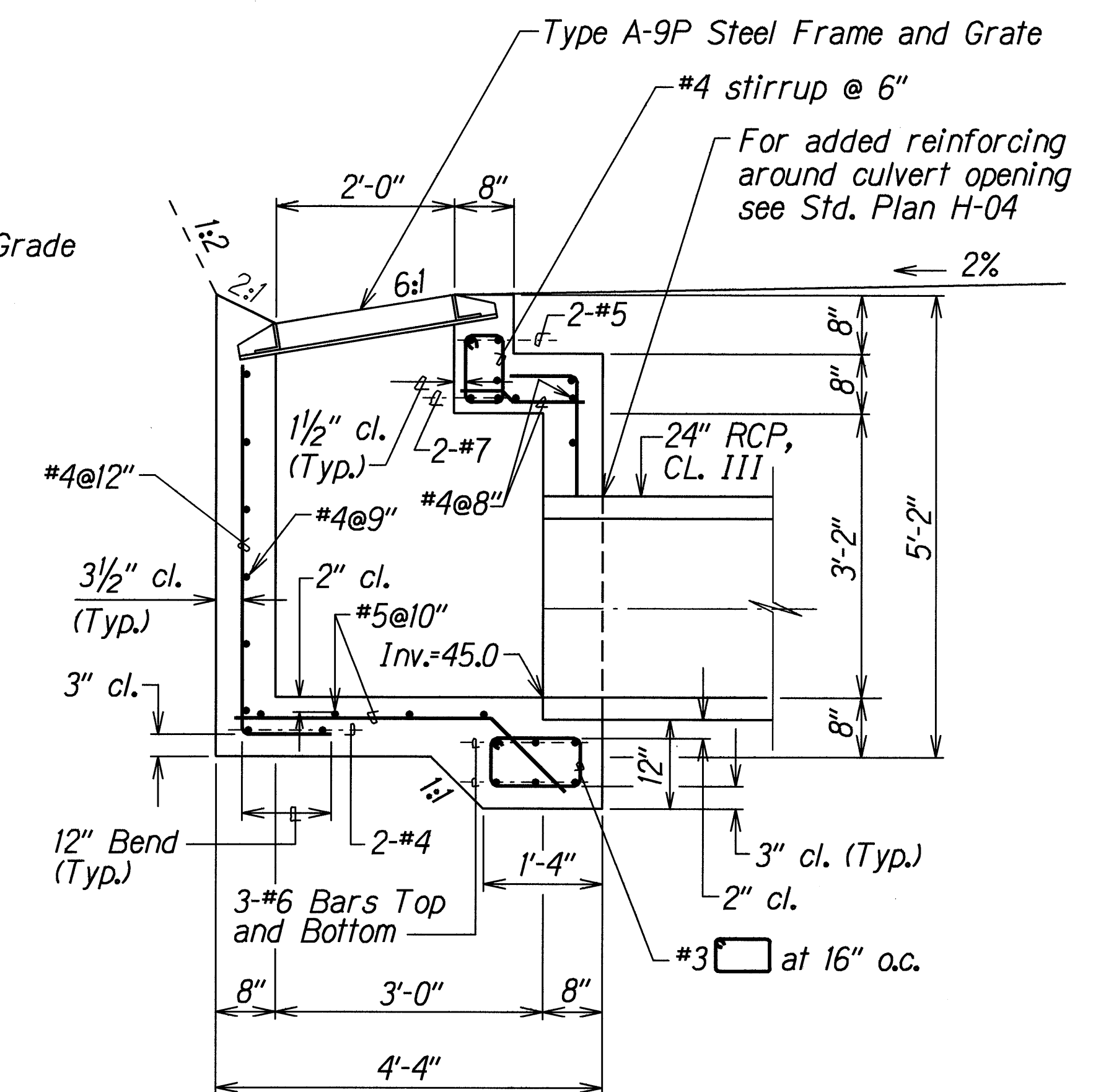
PLAN
Scale: 1"=5'



PLAN VIEW OF WALL REINFORCING



SECTION A
H15/H15



SECTION B
H15/H15

LEGEND FOR AS-BUILT POSTINGS	
	Squiggly line for as-built deletion
	Double line for as-built deletion
Roadway	Text for as-built posting

DETAIL OF TYPE 2 GRATED DROP INLET

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

DETAIL OF 24" CULVERT AT STA. 997+78.2

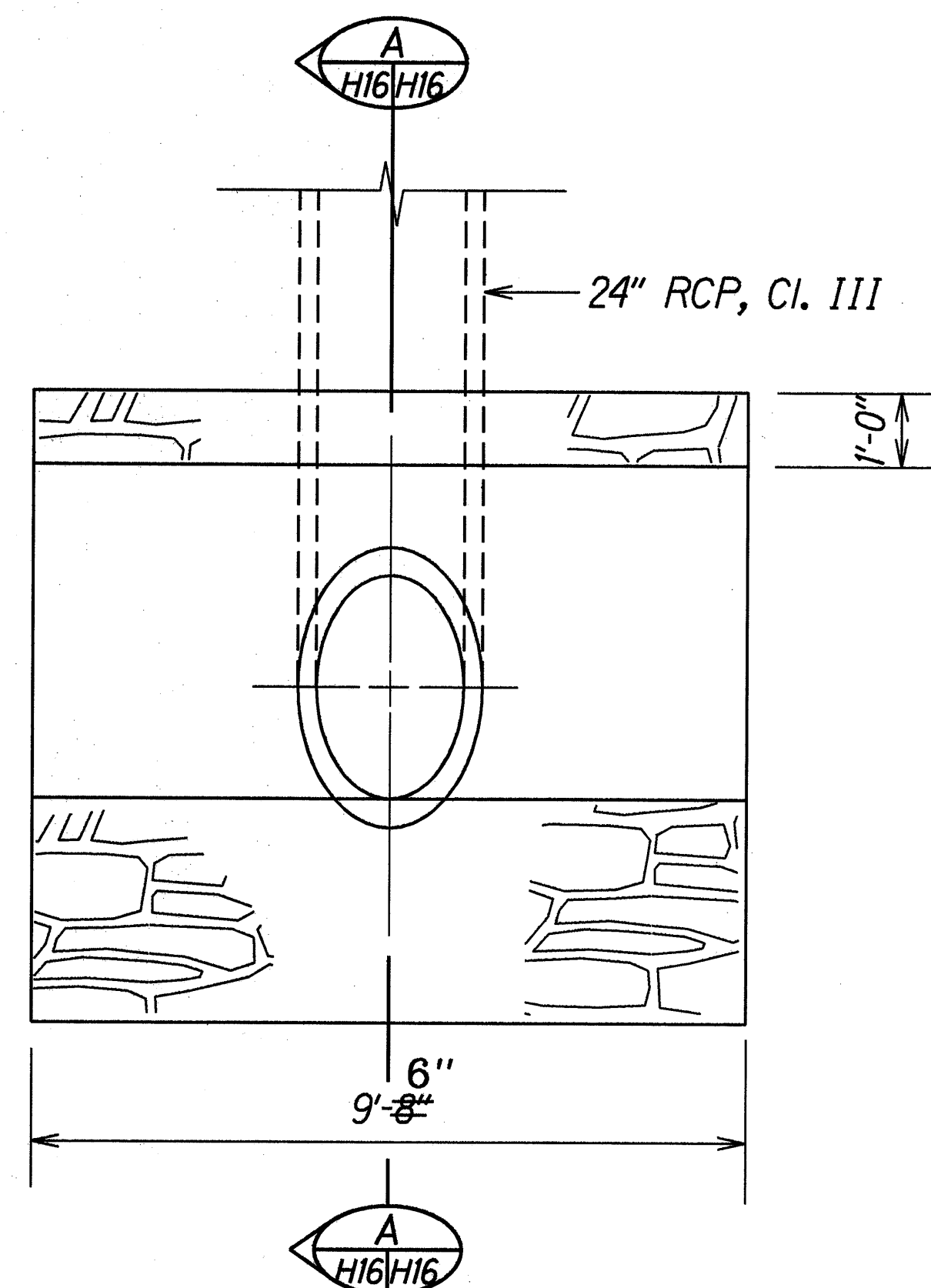
6/14/95	Change sheet no. to conform to Drainage Plan.
DATE	REVISION

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
DRAINAGE DETAILS	
Hana Highway Resurfacing Waikani Bridge to Kapaula Bridge Proj. No. 360B-01-95M	
Scale: As Shown	Date: May, 1995
SHEET No. H15 OF 20 SHEETS	

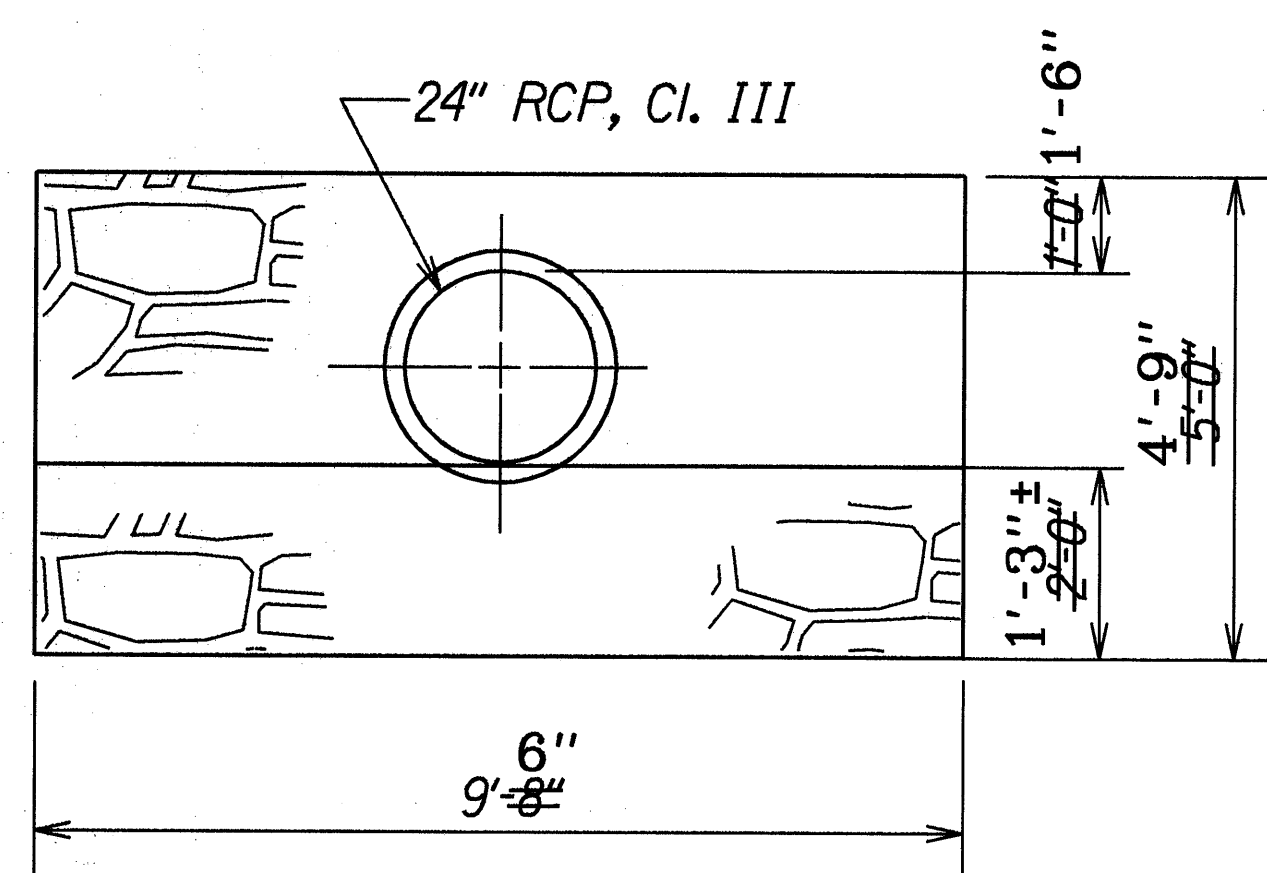
ADD. 38

SURVEY PLATTED BY	DATE
DRAWN BY Russell Sato	May, 1995
CHECKED BY	
NOTES	
1. This drawing is for informational purposes only.	
2. No warranty is made by the State of Hawaii for the use of this drawing.	

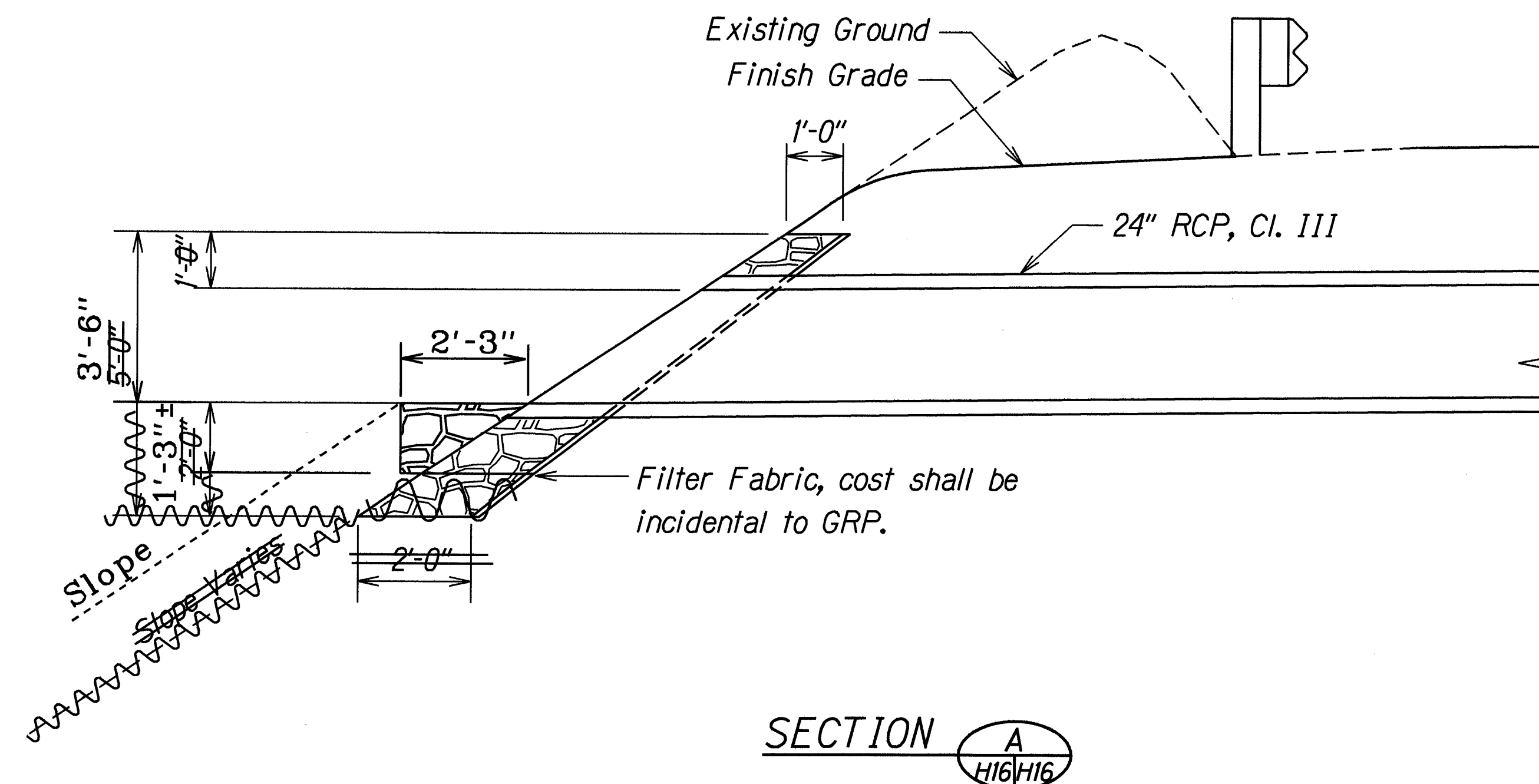
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360B-01-95M	1995	39	43



PLAN



ELEVATION



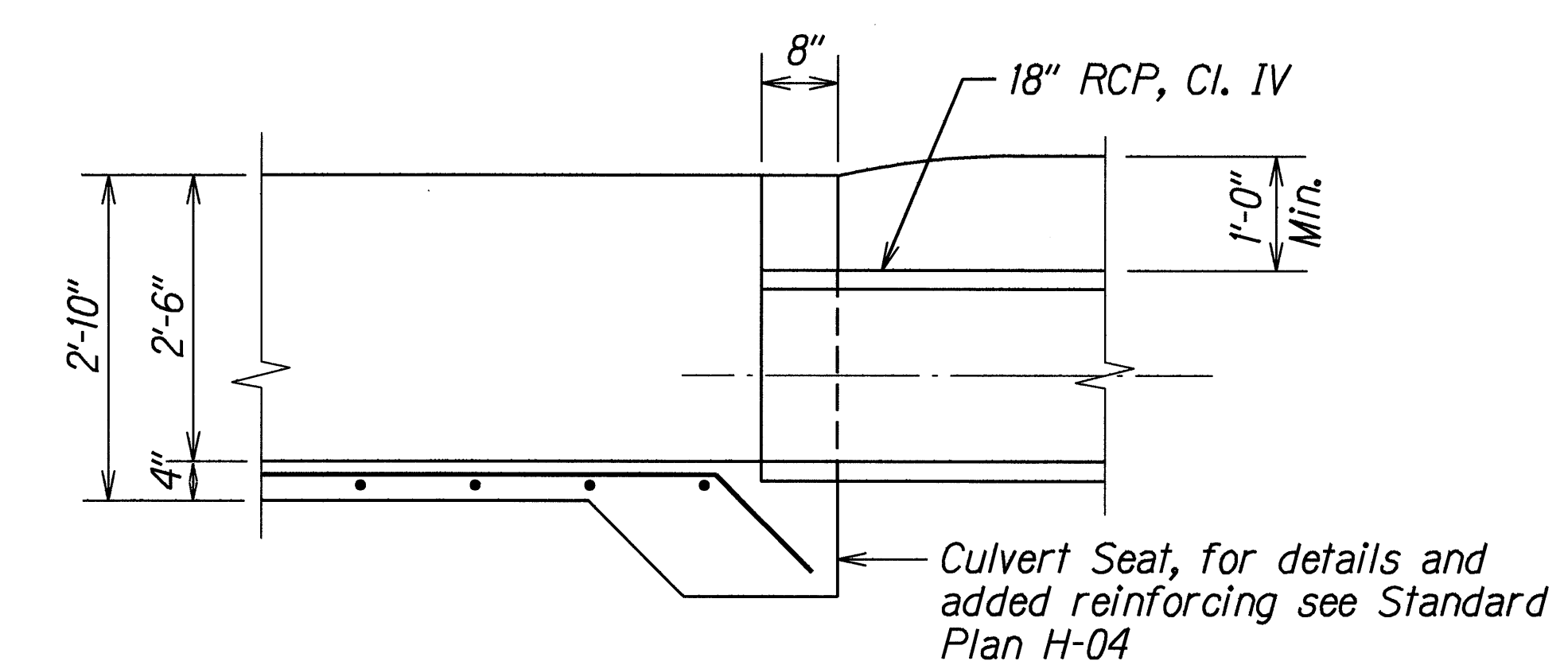
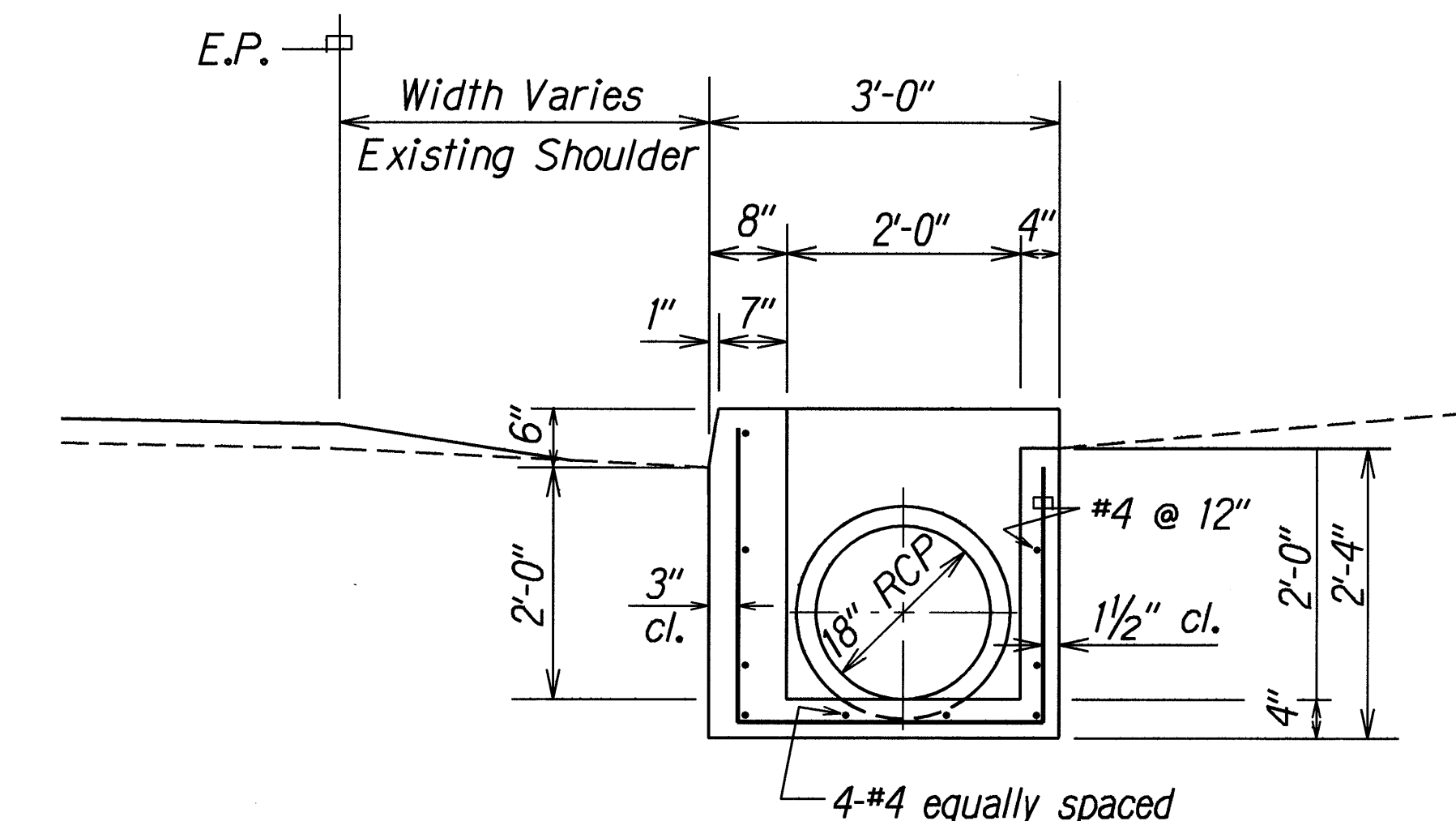
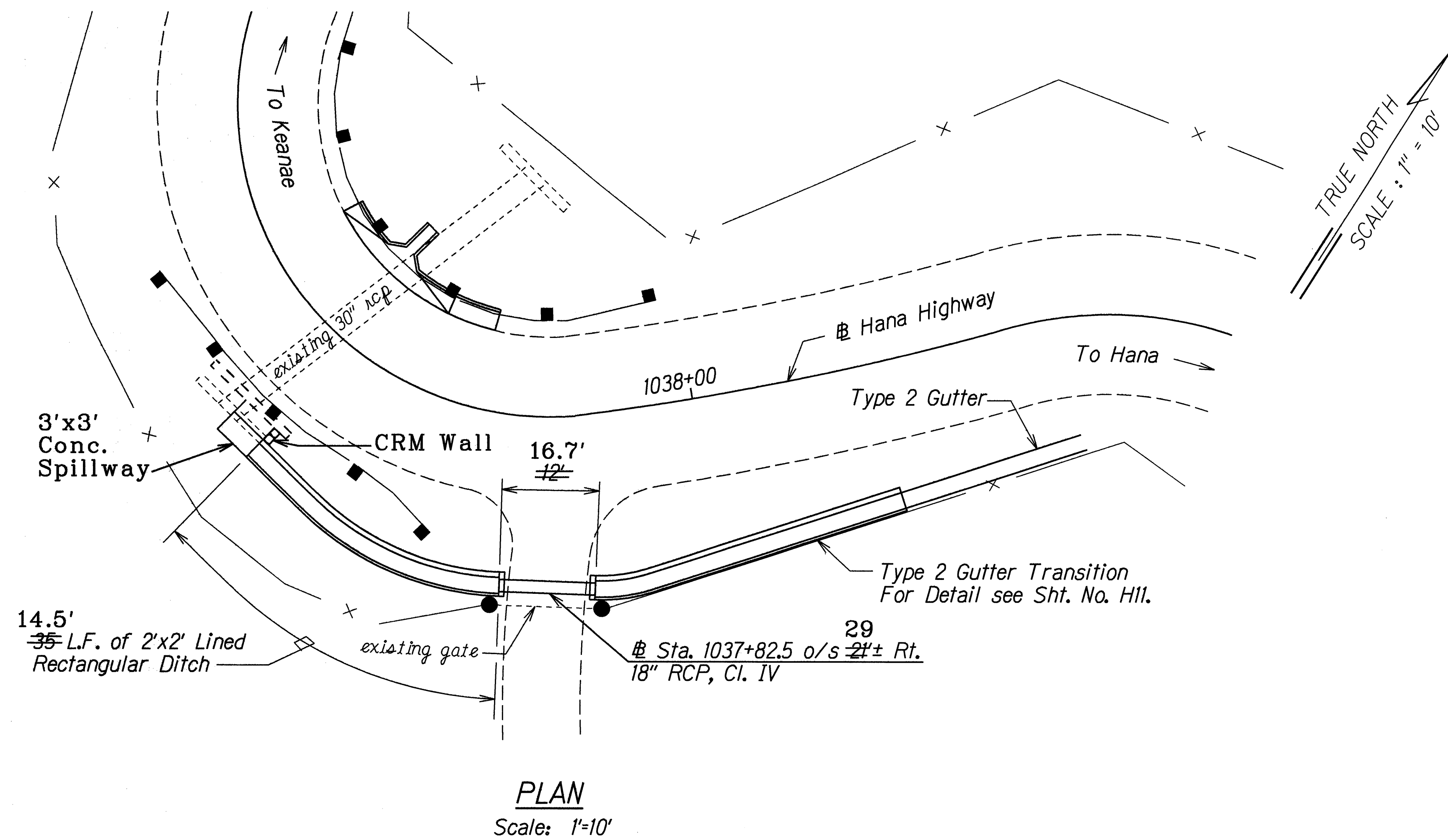
DETAIL OF GRP SLOPE PROTECTION AT STA. 997+⁵⁶₇₄ o/s ^{22.5'}_{15±} LT.

LEGEND FOR AS-BUILT POSTINGS	
	Squiggly line for as-built deletion
	Double line for as-built deletion
	Roadway Text for as-built posting

6/14/95	Revised details to conform to a 24" RCP.
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION DRAINAGE DETAILS HANA HIGHWAY RESURFACING Waikani Bridge to Kapaula Bridge Project No. 360B-01-95M Scale: 1/2"=1'-0" Date: May, 1995 SHEET No. H16 OF 20 SHEETS	

ADD. 39

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360B-01-95M	1995	41	43



DETAILS OF 2'-0"x2'-0" LINED RECTANGULAR DITCH
Scale: 3/4"=1'-0"

DETAILS OF 18" CULVERT AT STA. 1037+82.5 o/s 21± RT.

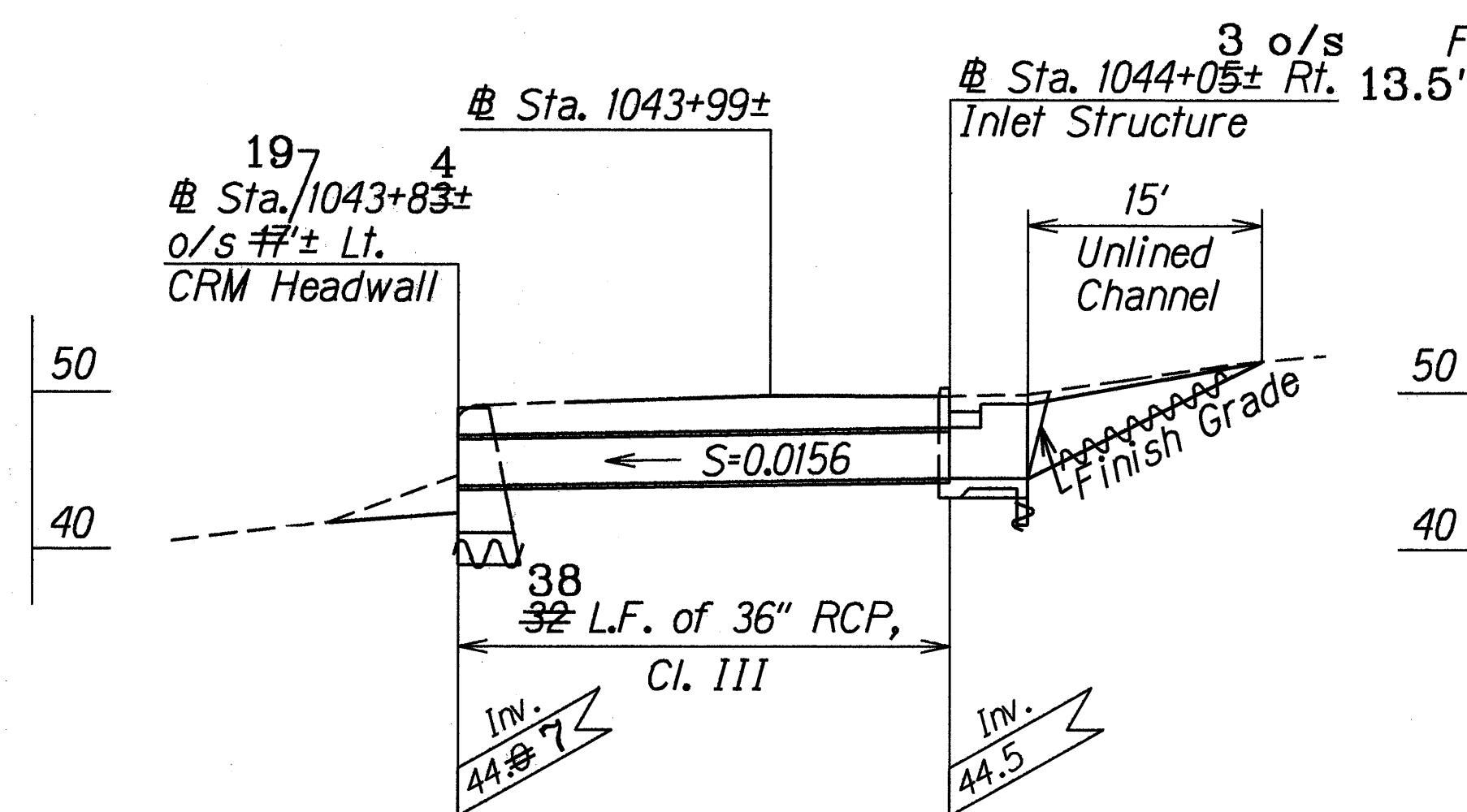
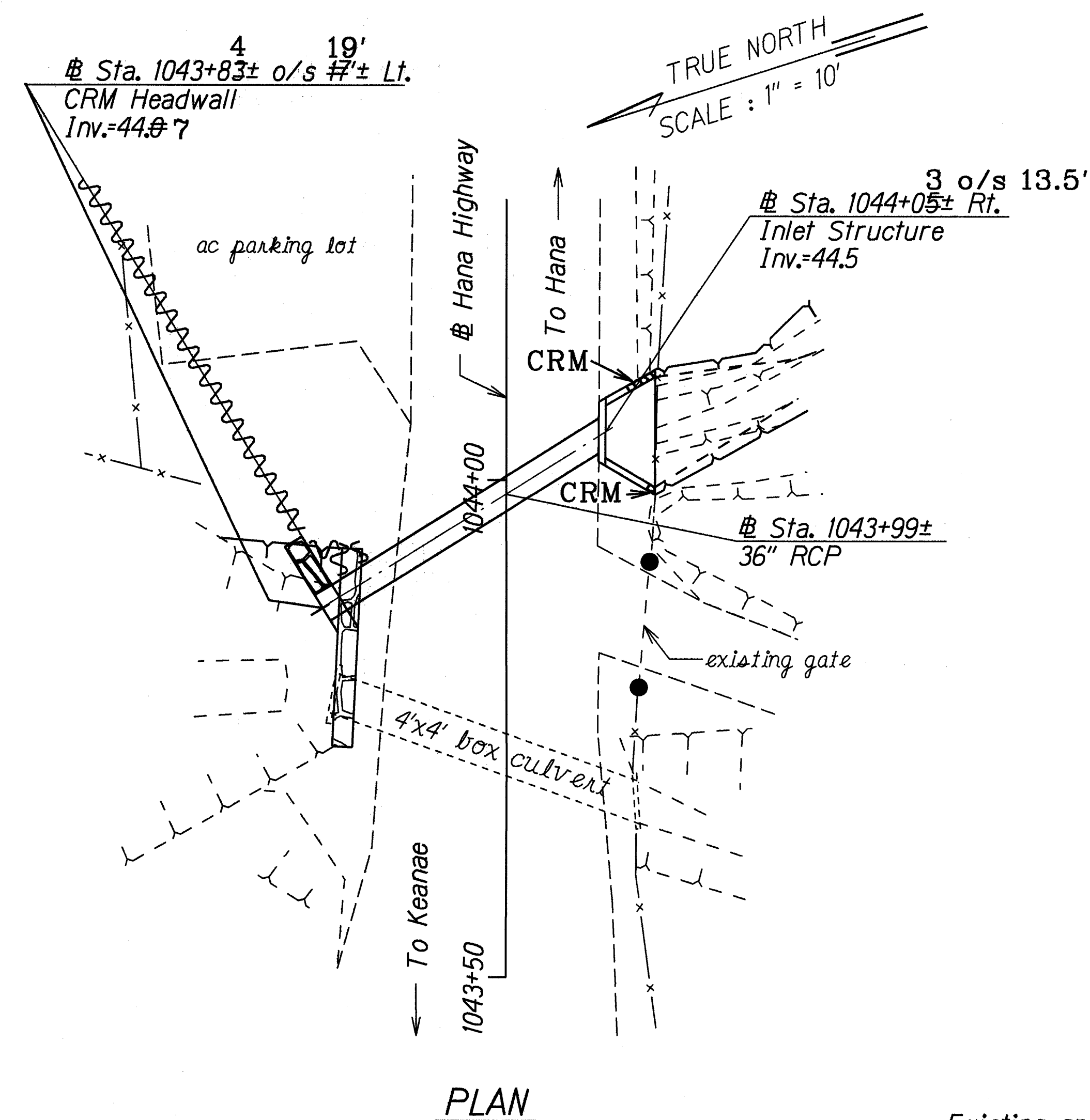
ORIGINAL PLAN	DATE
DESIGNED BY	5/25/95
CHECKED BY	
NOTED BY	
REVISIONS	

LEGEND FOR AS-BUILT POSTINGS	
	Squiggly line for as-built deletion
	Double line for as-built deletion
Roadway	Text for as-built posting

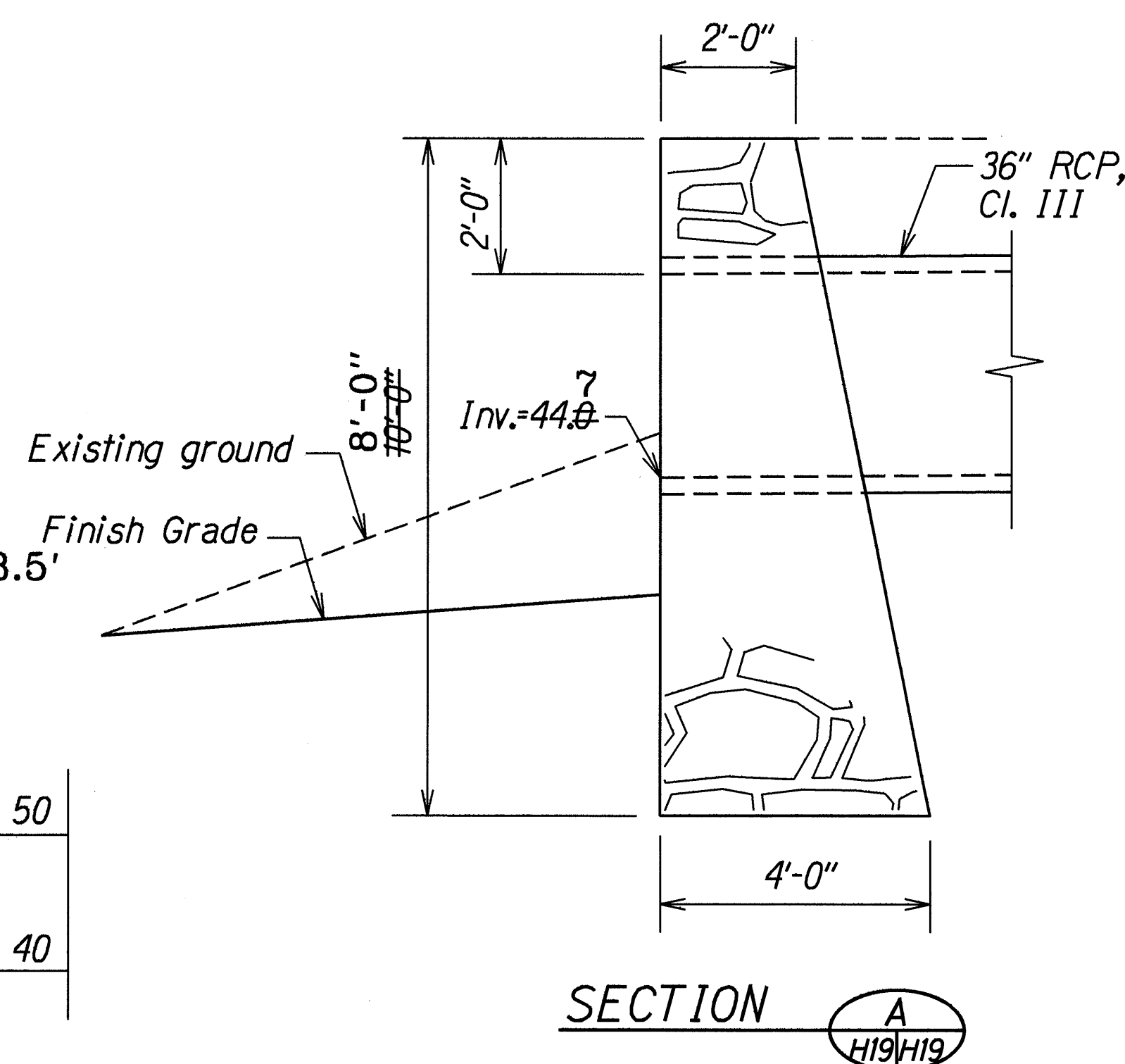
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS
HANA HIGHWAY RESURFACING
Waikani Bridge to Kapaula Bridge
Project No. 360B-01-95M
Scale: As Shown Date: May, 1995

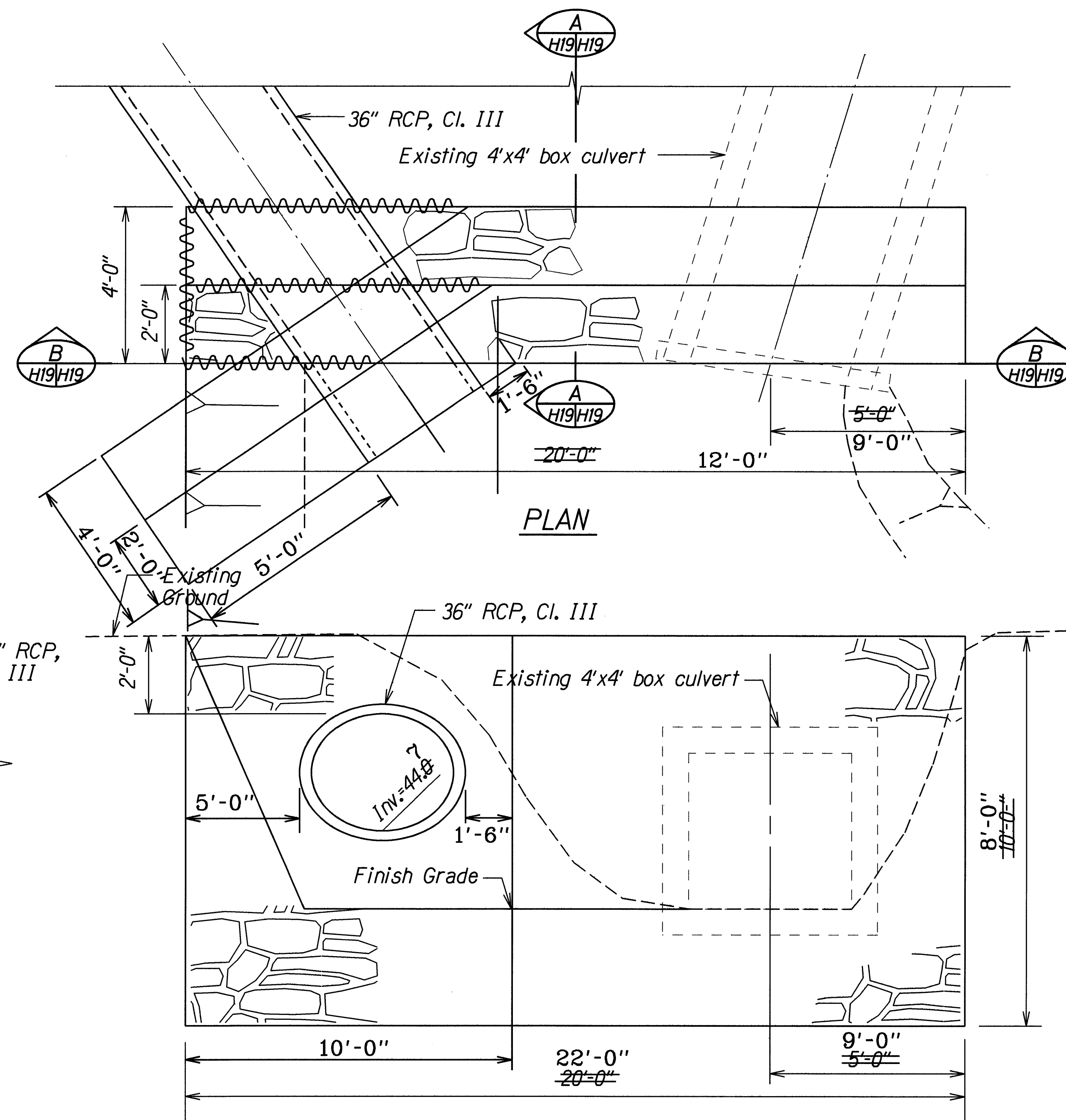
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360B-01-95M	1995	42	43



DETAILS OF 36" CULVERT AT STA. 1043+99±
Scale: 1"=10'



SECTION A-A
H19/H19



SECTION B-B
H19/H19

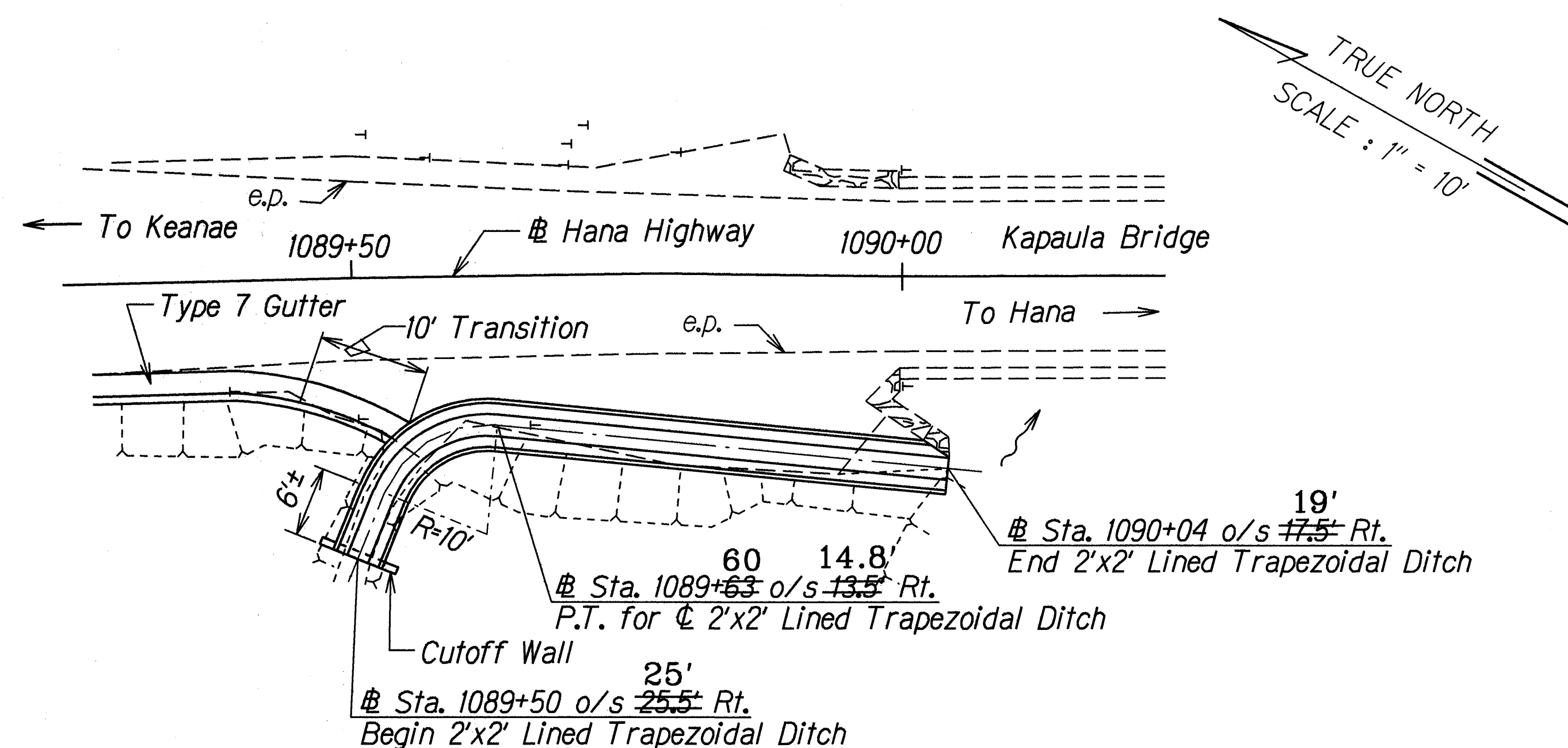
DETAILS OF CRM HEADWALL
Scale: 1/2"=1'-0"

LEGEND FOR AS-BUILT POSTINGS	
	Squiggly line for as-built deletion
	Double line for as-built deletion
Roadway	Text for as-built posting

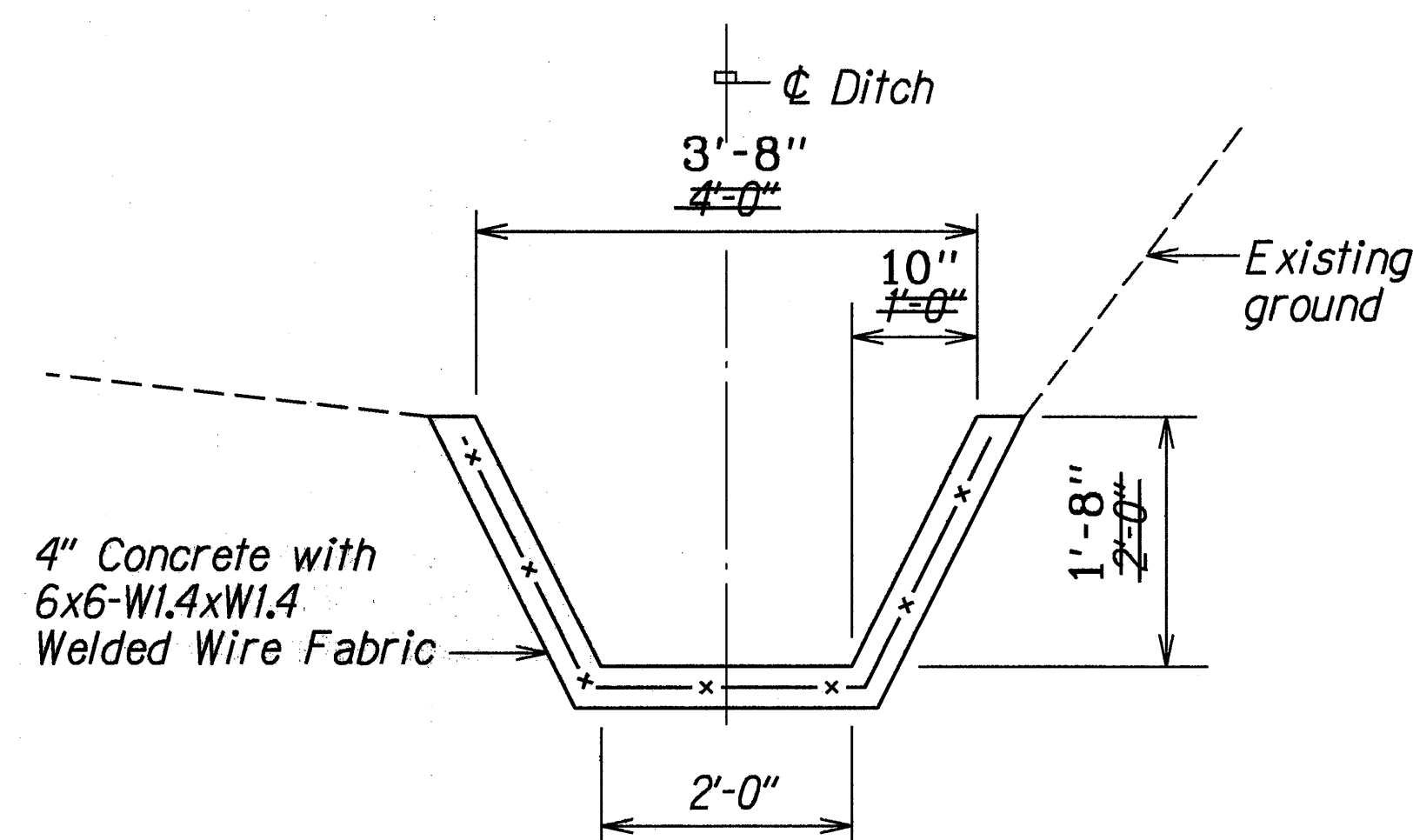
6/14/95	Revised invert and added profile for 36" culvert.
DATE	REVISION

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
DRAINAGE DETAILS	
HANA HIGHWAY RESURFACING Waikani Bridge to Kapaula Bridge Project No. 360B-01-95M	
Scale: As Shown	Date: May, 1995
SHEET No. H19 OF 20 SHEETS	

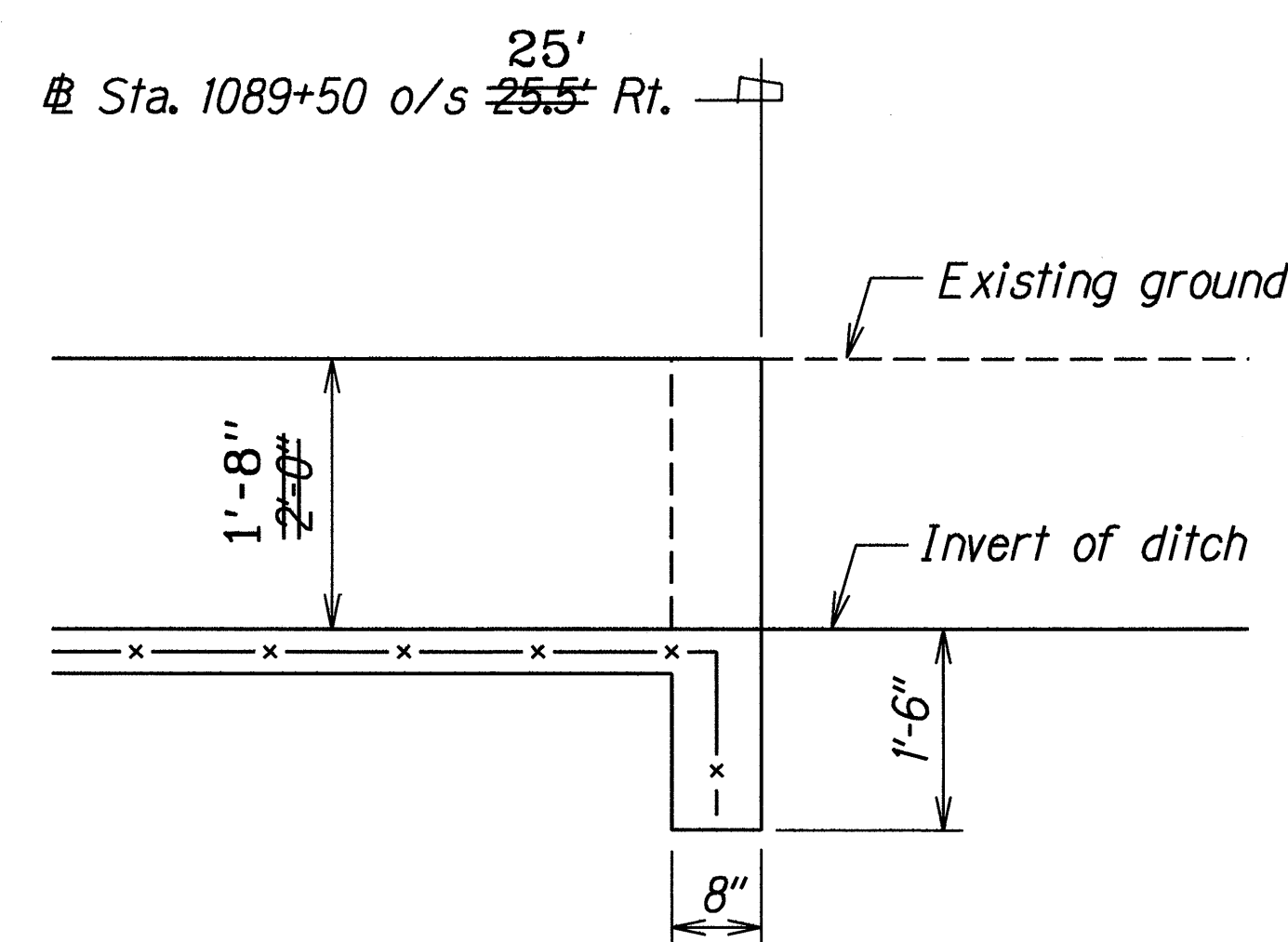
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360B-01-95M	1995	43	43



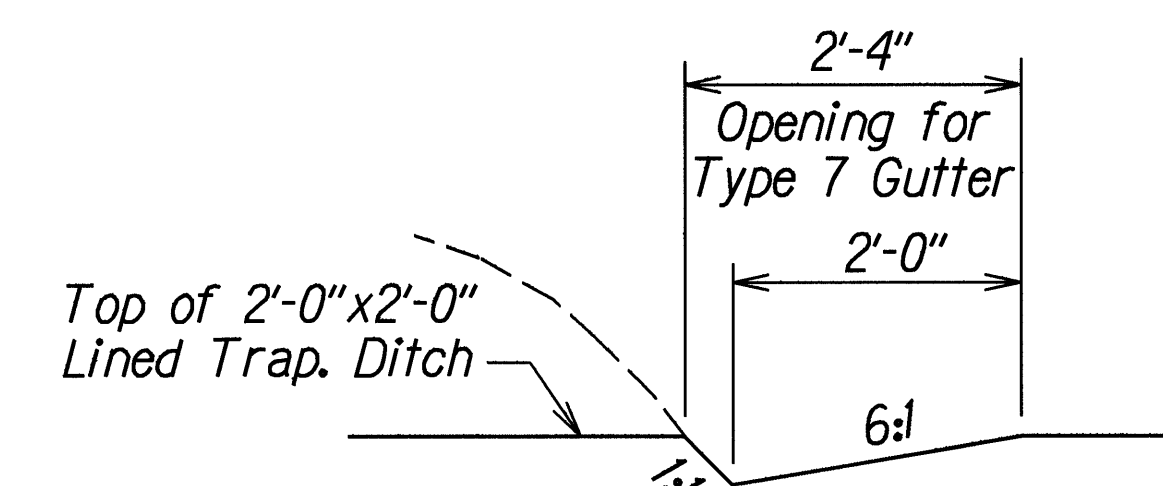
PLAN
Scale: 1"=10'



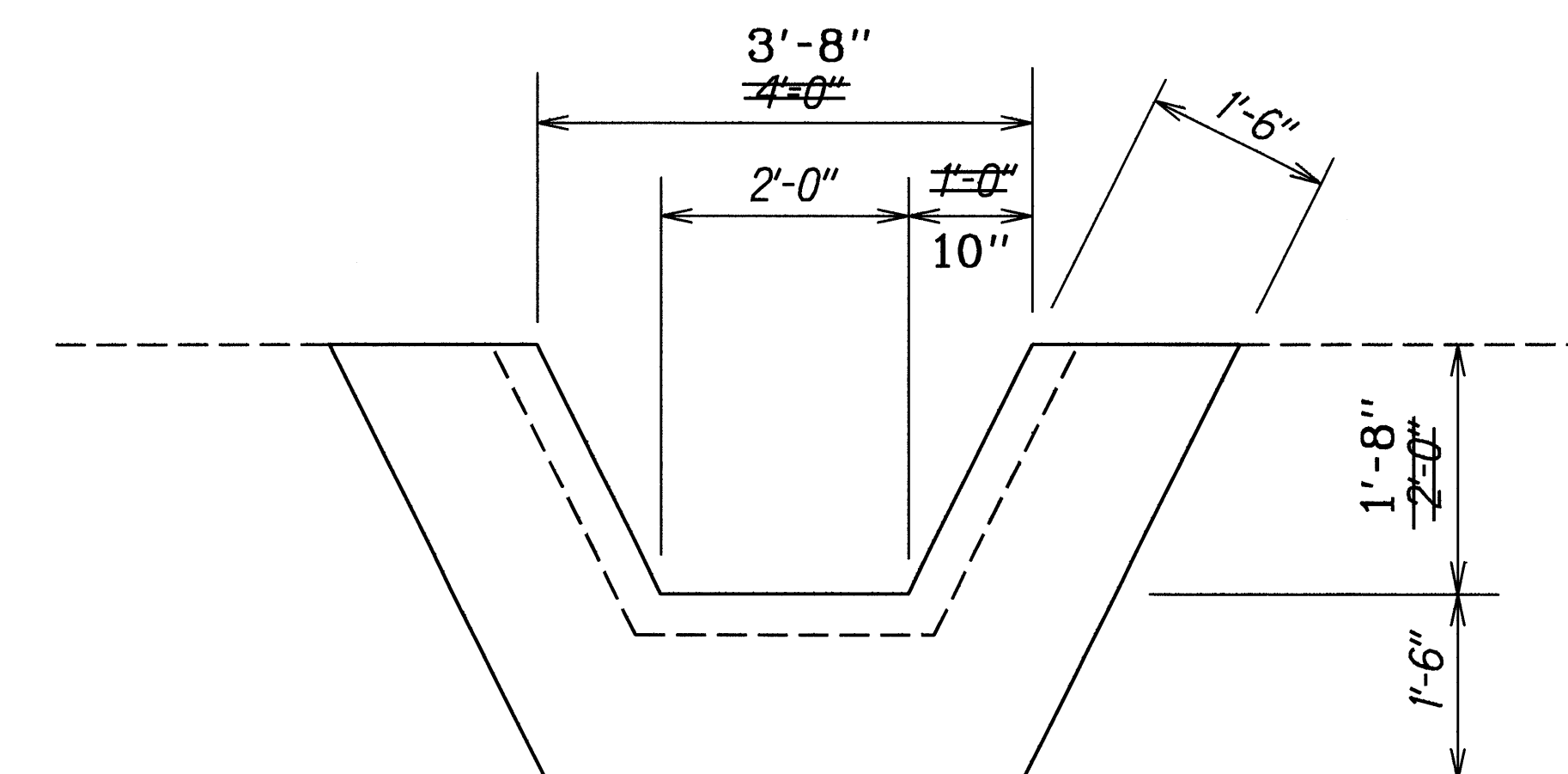
TYPICAL SECTION



SIDE ELEVATION



DETAIL OF OPENING FOR TYPE 7 GUTTER



FRONT VIEW

DETAIL OF CUTOFF WALL

DETAILS OF 2'-0"X2'-0" LINED TRAPEZOIDAL DITCH AT STA. 1089+50 RT.

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

LEGEND FOR AS-BUILT POSTINGS	
~~~~~	Squiggly line for as-built deletion
=====	Double line for as-built deletion
Roadway	Text for as-built posting

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**DRAINAGE DETAILS**

HANA HIGHWAY RESURFACING  
Waikani Bridge to Kapaula Bridge  
Project No. 360B-01-95M

Scale: As Shown Date: May, 1995

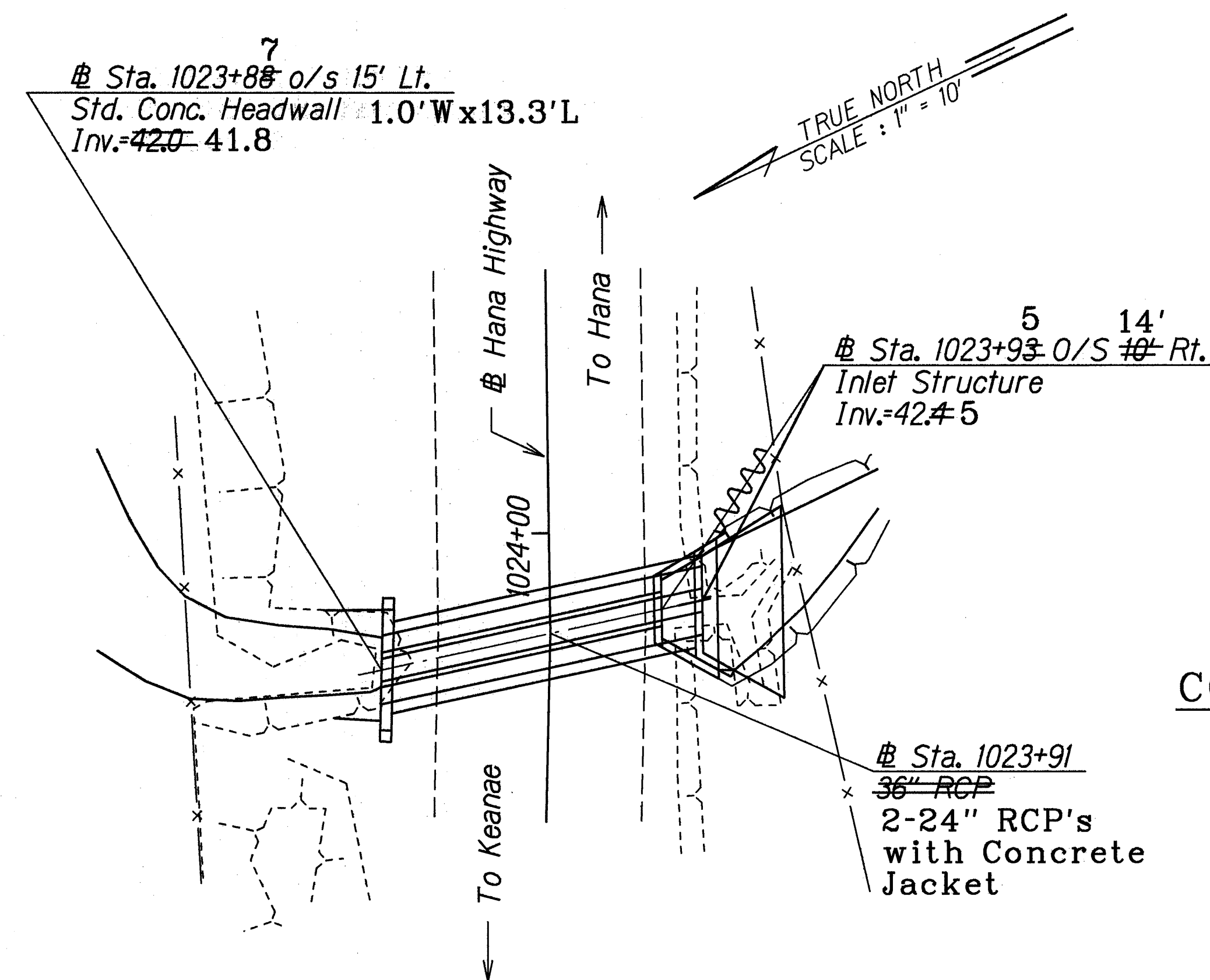
SHEET No. H20 OF 20 SHEETS

ORIGINAL	DATE
SEALY PLOTTED BY	5/16/95
DRAWN BY	A. Lomala
DESIGNED BY	Ray Salas
CHECKED BY	Shirley Lomala



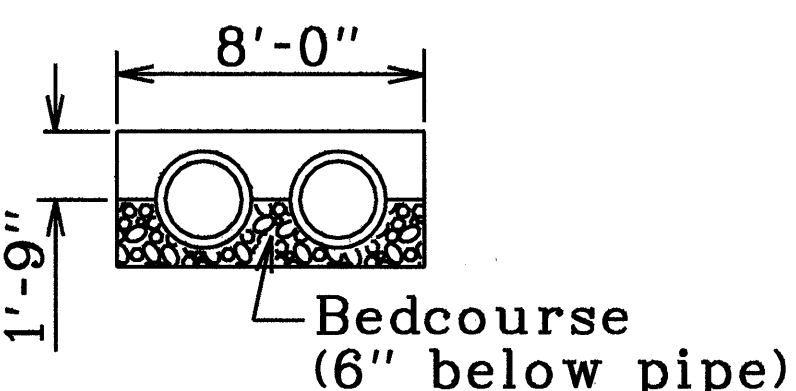
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360B-01-95M	1995		43

ADD.43S-1

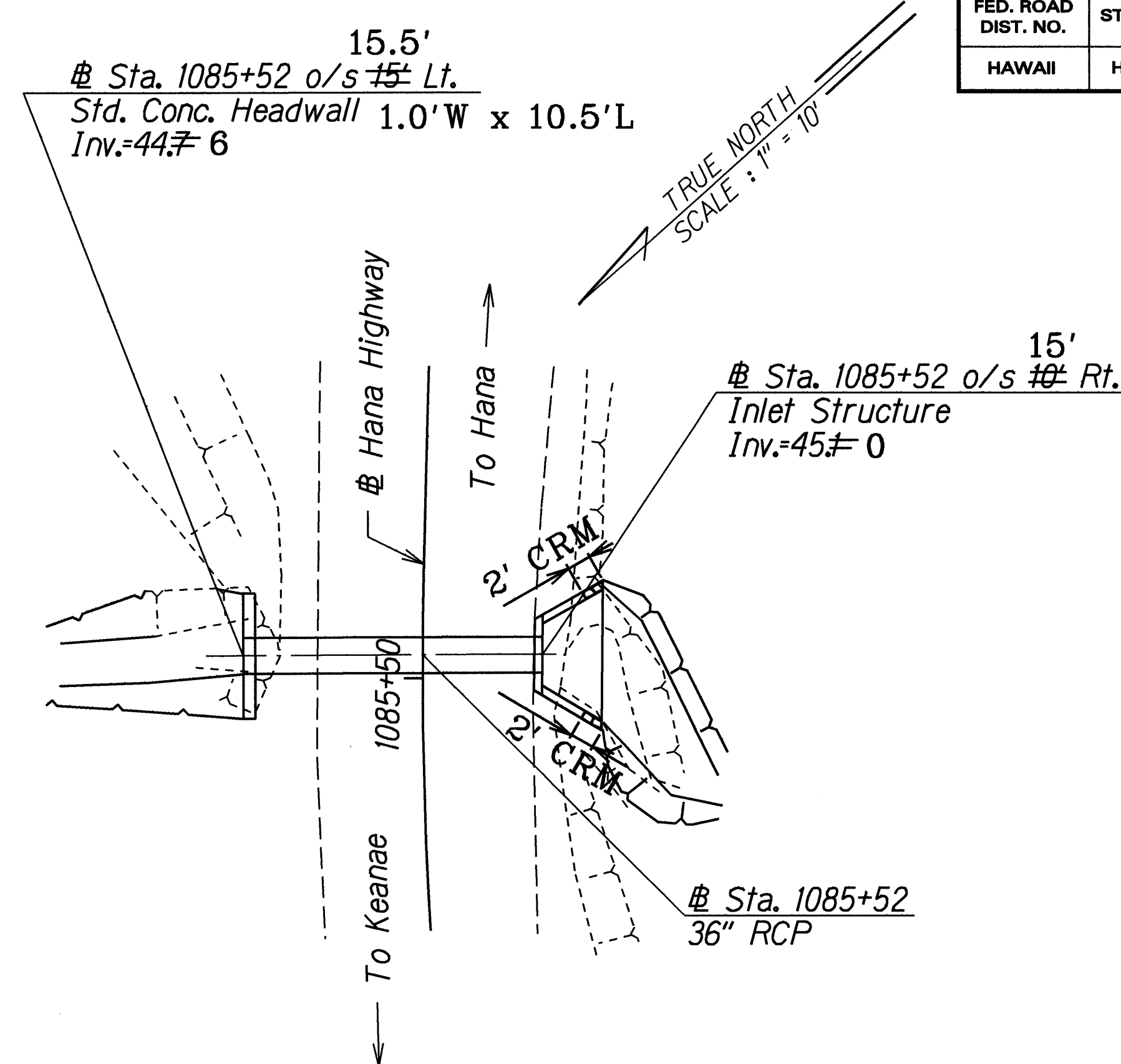


PLAN

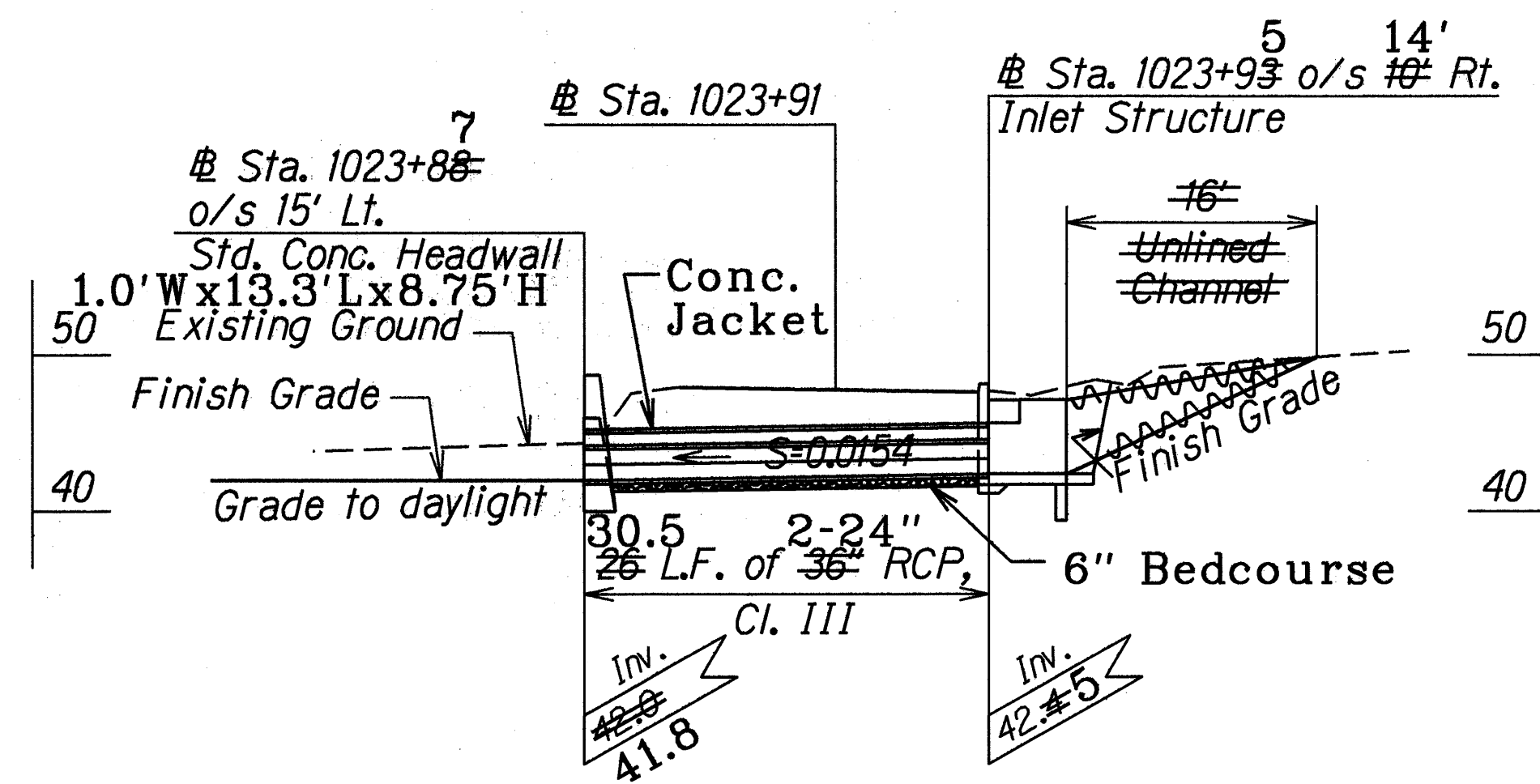
### CONCRETE JACKET DETAIL



(1'-9" x 8'-0")  
 Scale: 1" = 5'



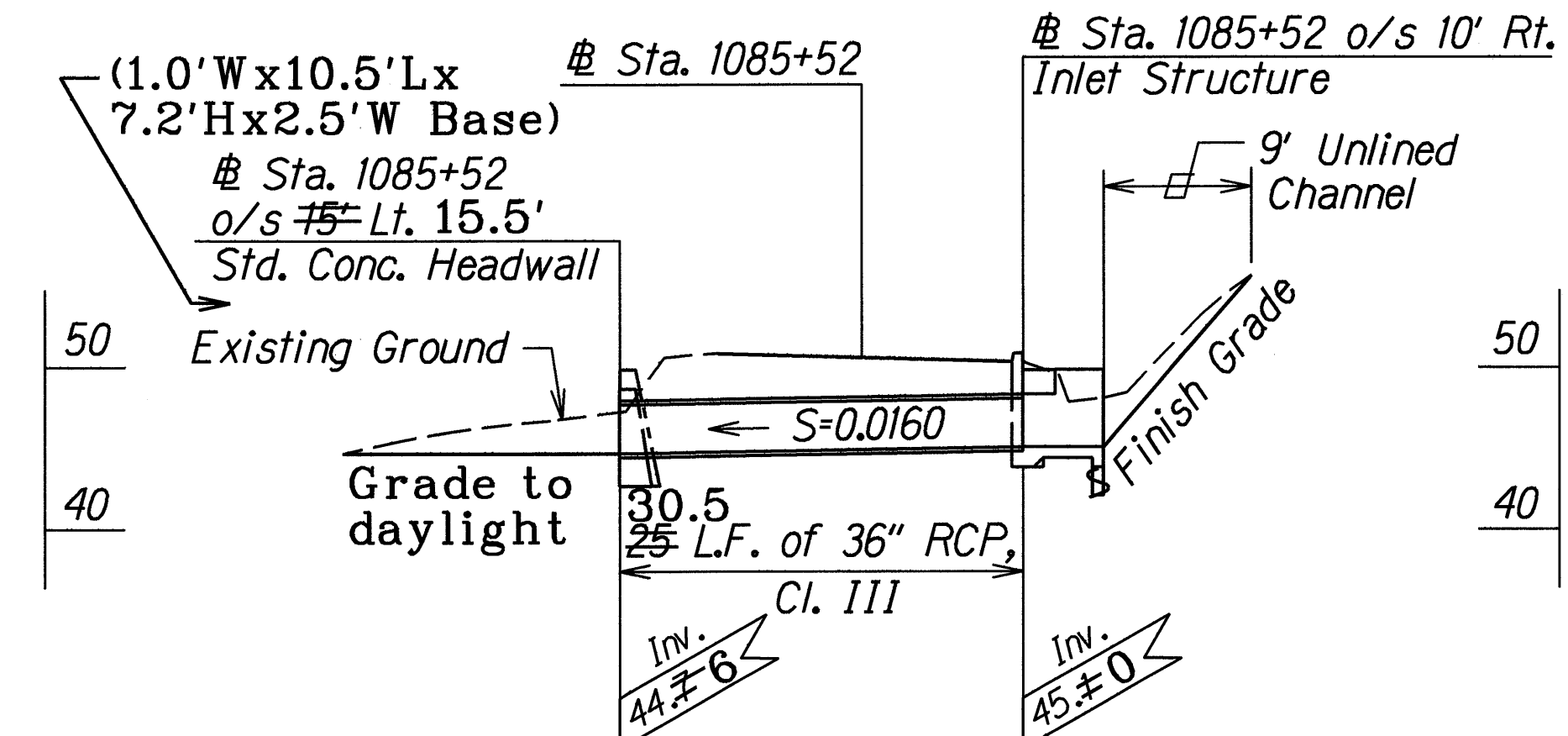
PLAN



PROFILE ALONG CULVERT

### DETAILS OF 36" CULVERTS AT STA. 1023+91

Scale: 1" = 10'



PROFILE ALONG CULVERT

### DETAILS OF 36" CULVERT AT STA. 1085+52

Scale: 1" = 10'

LEGEND FOR AS-BUILT POSTINGS	
	Squiggly line for as-built deletion
	Double line for as-built deletion
Roadway	Text for as-built posting

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
<b>DRAINAGE DETAILS</b>	
HANA HIGHWAY RESURFACING Waikani Bridge to Kapaula Bridge Project No. 360B-01-95M	
Scale: As Shown	Date: June 1995

6/14/95	Added sheet to show plans and profiles for 36" culverts.
DATE	REVISION

SHEET No. H20A OF 20 SHEETS

ADD. 43 S-1

ORIGINAL PLAN	DATE: 6/15/95
DESIGNED BY: Roy Sabando	CHECKED BY:
NOTES: 1. All work to be done in accordance with the plans and specifications.	
2. All work to be done in accordance with the plans and specifications.	
3. All work to be done in accordance with the plans and specifications.	
4. All work to be done in accordance with the plans and specifications.	
5. All work to be done in accordance with the plans and specifications.	
6. All work to be done in accordance with the plans and specifications.	
7. All work to be done in accordance with the plans and specifications.	
8. All work to be done in accordance with the plans and specifications.	
9. All work to be done in accordance with the plans and specifications.	
10. All work to be done in accordance with the plans and specifications.	