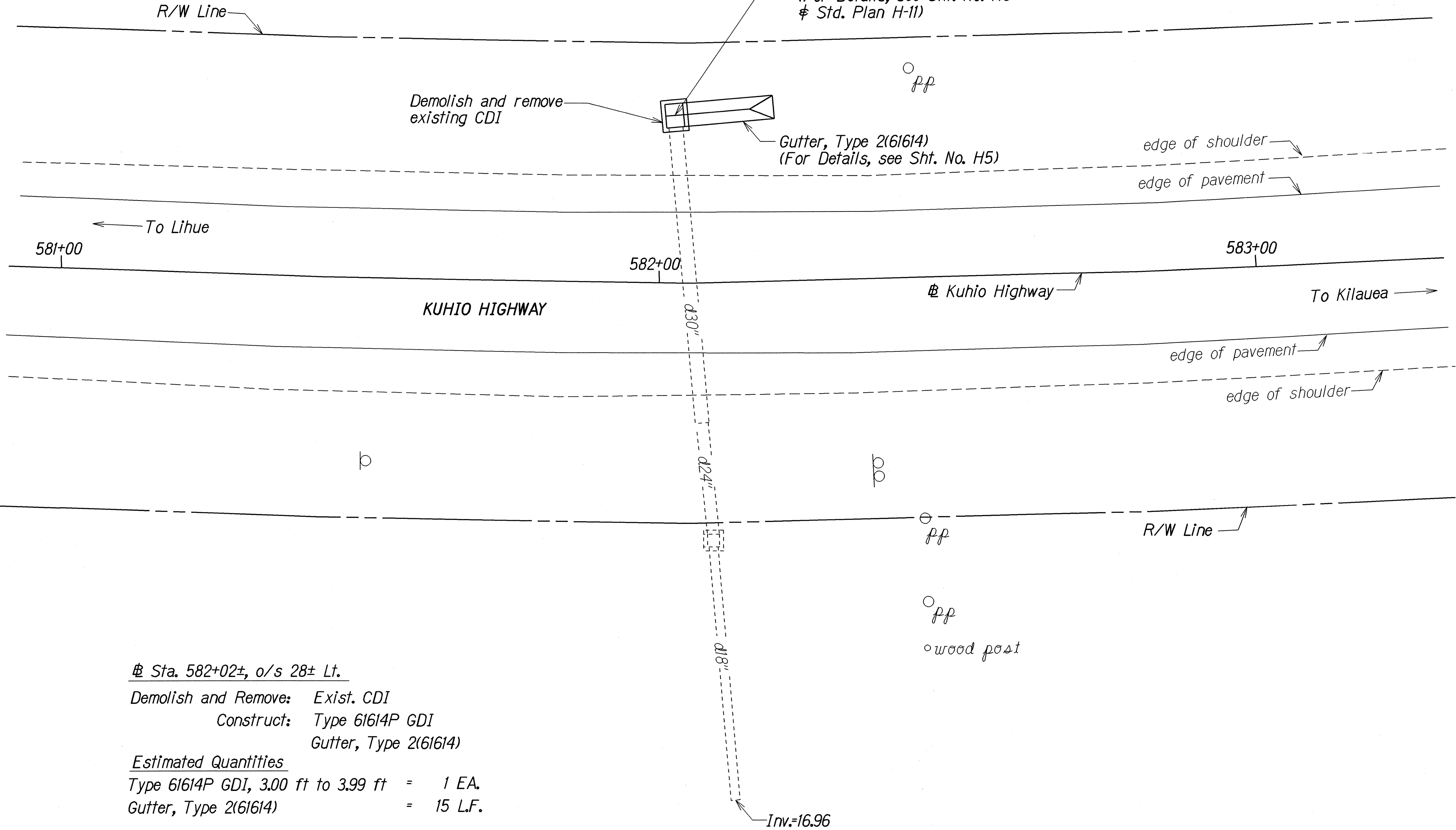
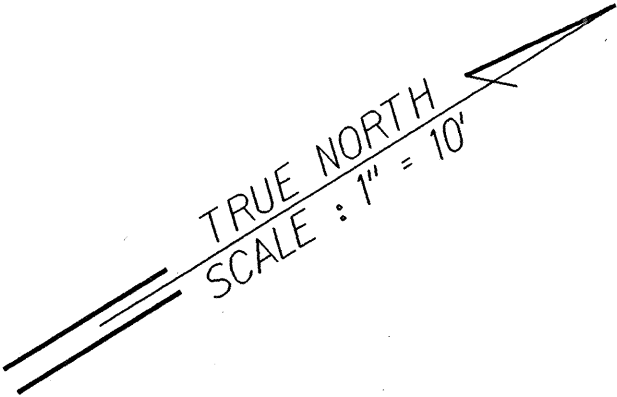


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	56AC-01-01	2002	6	13

CURVE DATA
 $\Delta = 24^{\circ}56'00''$
 $R = 2,000$
 $T = 442.17$
 $C = 863.49$
 $L_c = 870.34$
 $S. E. = 0.040 \text{ ft/ft}$

Sta. 582+02± o/s 28± Lt.
 Type 61614P GDI
 Top Elev.= 24.8
 Inv.=21.6±
 (For Details, see Sht. No. H5
 # Std. Plan H-11)



Sta. 582+02±, o/s 28± Lt.
 Demolish and Remove: Exist. CDI
 Construct: Type 61614P GDI
 Gutter, Type 2(61614)
Estimated Quantities
 Type 61614P GDI, 3.00 ft to 3.99 ft = 1 EA.
 Gutter, Type 2(61614) = 15 L.F.

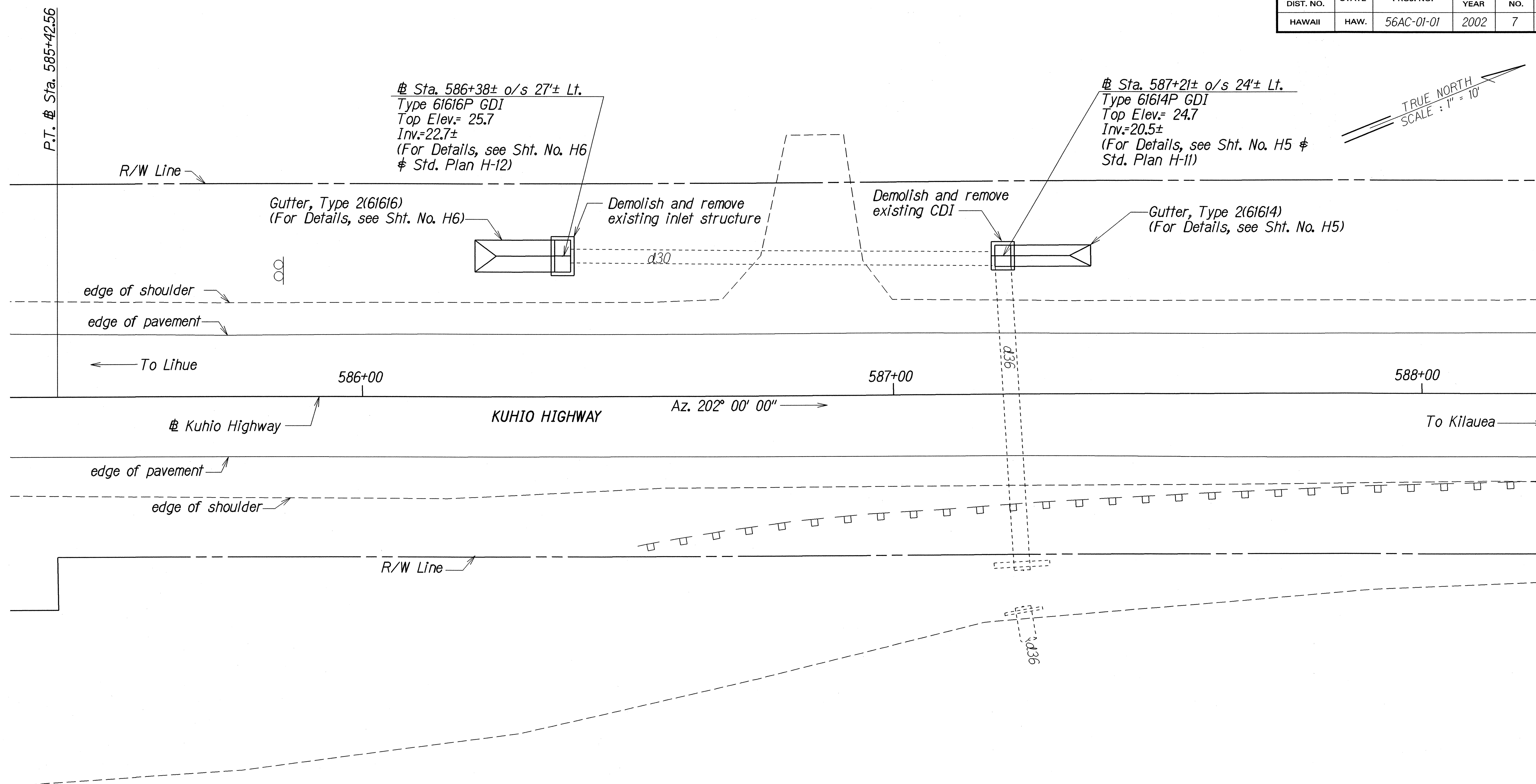
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	12/16/01
DESIGNED BY	CHECKED BY	
QUANTITIES BY		
CHECKED BY		

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLAN
KUHIO HWY MISCELLANEOUS DRAINAGE IMPROVEMENTS
Vicinity of Kapaa and Anahola
Project No. 56AC-01-01

Scale: 1"=10'
Date: Dec. 2001

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	56AC-01-01	2002	7	13



@ Sta. 586+38± to @ Sta. 587+21±
 Demolish and Remove: Exist. CDI's (2 Ea.)
 Construct: Type 61614P GDI
 Type 61616P GDI
 Gutter, Type 2(61614)
 Gutter, Type 2(61616)

Estimated Quantities
 Type 61614P GDI, 4.00 ft to 4.99 ft = 1 EA.
 Type 61616P GDI, 3.00 ft to 3.99 ft = 1 EA.
 Gutter, Type 2(61614) = 15 L.F.
 Gutter, Type 2(61616) = 15 L.F.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	12/16/01
DESIGNED BY	CHECKED BY	
QUANTITIES BY		
CHECKED BY		

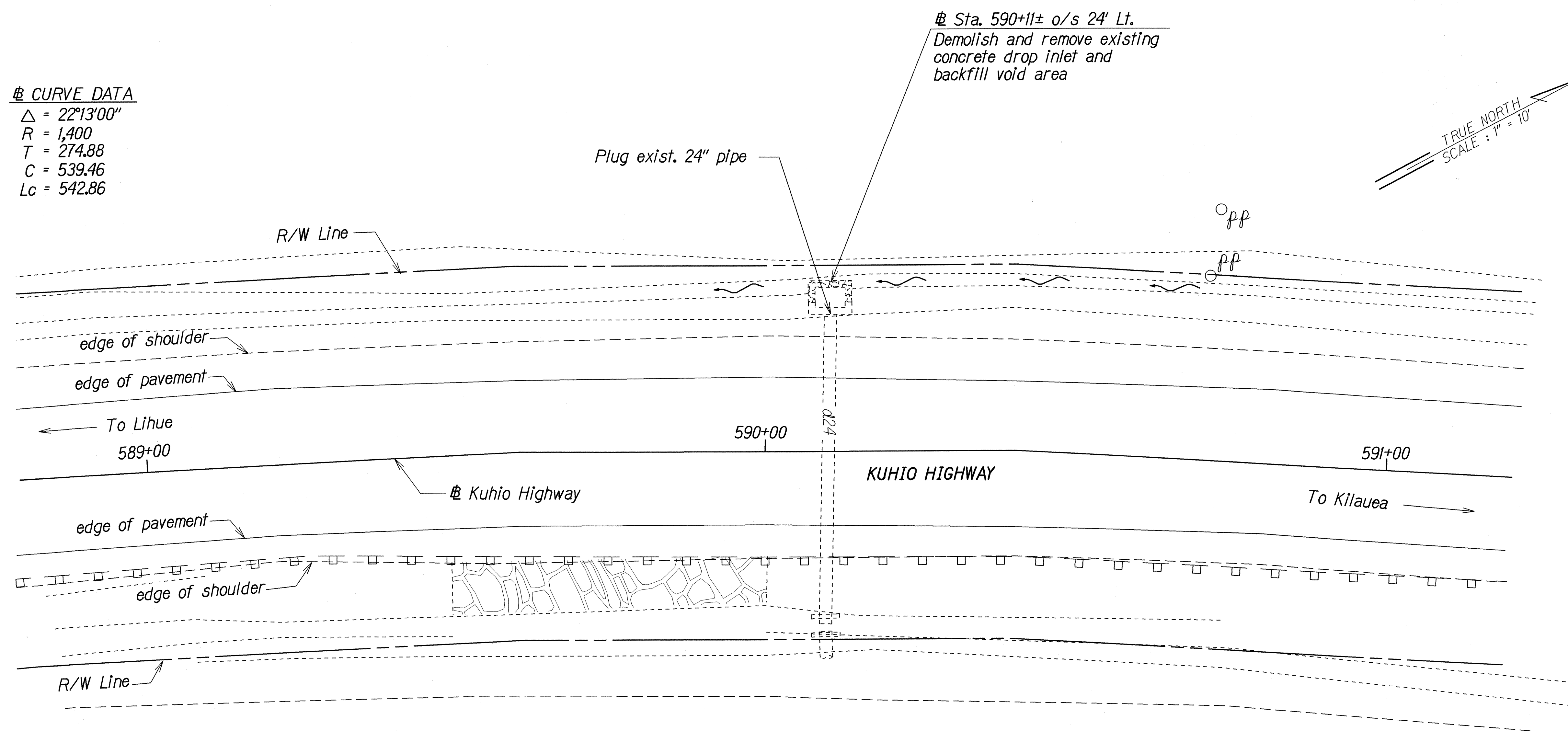
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
DRAINAGE PLAN
KUHIO HWY MISCELLANEOUS
DRAINAGE IMPROVEMENTS
Vicinity of Kapaa and Anahola
Project No. 56AC-01-01
 Scale: 1"=10' Date: Dec. 2001

SHEET No. H2 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	56AC-01-01	2002	8	13

Ⓔ CURVE DATA

$\Delta = 22^{\circ}13'00''$
 $R = 1,400$
 $T = 274.88$
 $C = 539.46$
 $L_c = 542.86$



Ⓔ Sta. 590+11±, o/s 24± Lt.

Demolish and Remove: Exist. CDI
 Plug: Exist. 24" pipe
 Install: Borrow Excavation

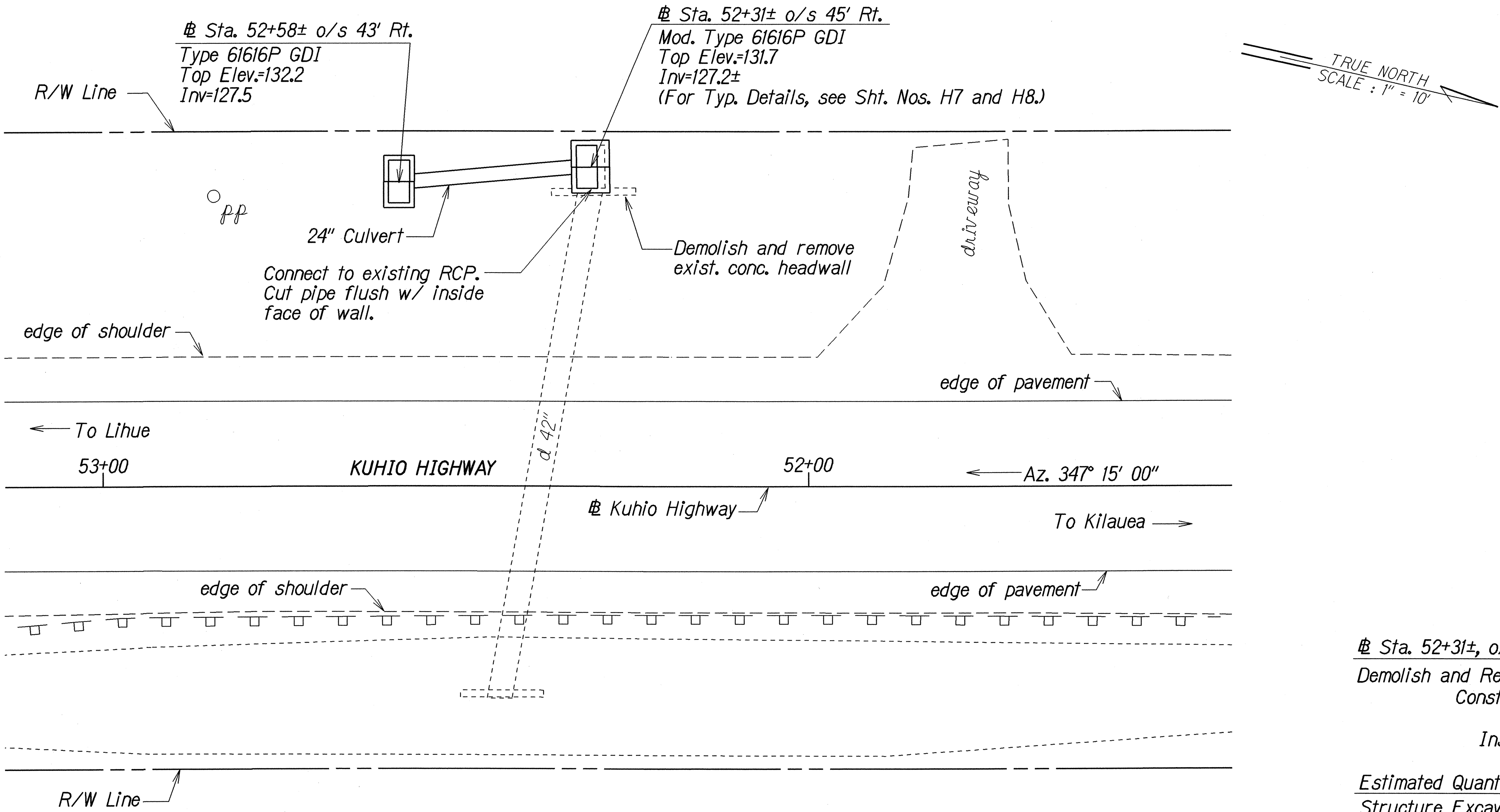
Estimated Quantities

Borrow Excavation = 12 C.Y.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	12/16/01
dh3/0003/00	DESIGNED BY	
dh3/0003/00	QUANTITIES BY	
dh3/0003/00	CHECKED BY	

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
DRAINAGE PLAN
KUHIO HWY MISCELLANEOUS
DRAINAGE IMPROVEMENTS
Vicinity of Kapaa and Anahola
Project No. 56AC-01-01
 Scale: 1"=10' Date: Dec. 2001
 SHEET No. H3 OF 8 SHEETS

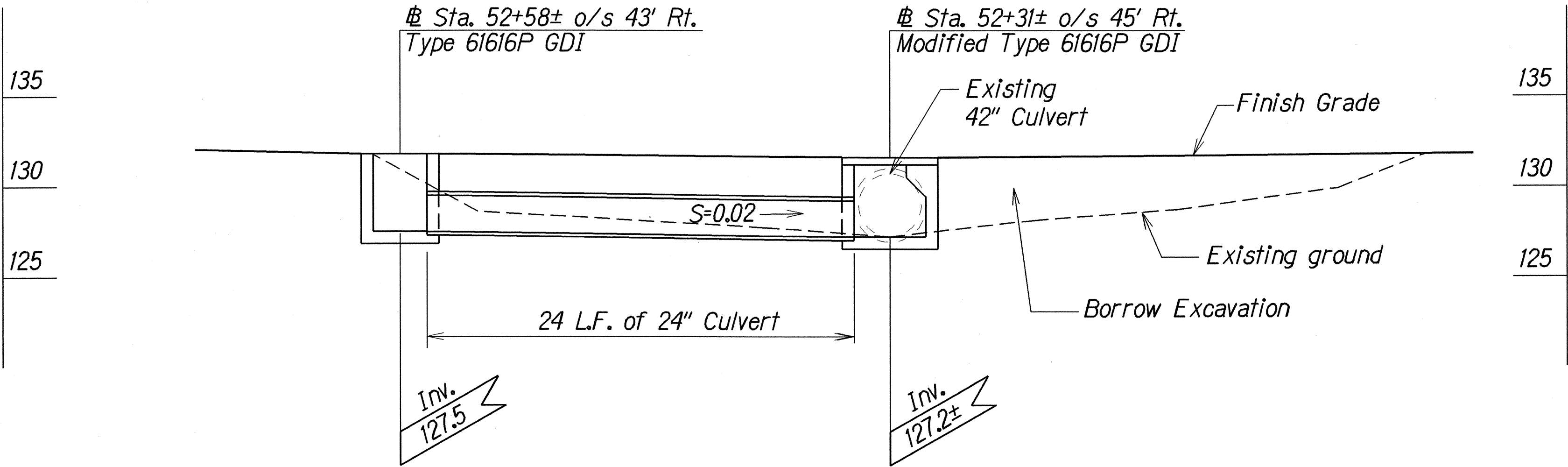
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	56AC-01-01	2002	9	13



- ± Sta. 52+31±, o/s 45± Rt. to ± Sta. 52+56±, o/s 43' Rt.
- Demolish and Remove: Exist. concrete headwall
- Construct: Type 61616P GDI
- Modified Type 61616P GDI
- Install: Borrow Excavation
- 24" Culvert

Estimated Quantities

Structure Excavation for Drainage System	=	7 C.Y.
Borrow Excavation	=	67 C.Y.
24" Culvert	=	24 L.F.
Type 61616P GDI, 4.00 ft to 4.99 ft	=	1 EA.
Modified Type 61616P GDI, 4.00 ft to 4.99 ft	=	1 EA.
Bedcourse Material	=	5 C.Y.



± PROFILE OF 24" CULVERT AT KUHIO HWY

Scale: 1"= 5'

SURVEY PLOTTED BY	DATE
DRAWN BY	12/2/01
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

ORIGINAL PLAN

NOTE BOOK

0131000400

0131000400

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

DRAINAGE PLAN

KUHIO HWY MISCELLANEOUS

DRAINAGE IMPROVEMENTS

Vicinity of Kapaa and Anahola

Project No. 56AC-01-01

Scale: As Shown Date: Dec. 2001

SHEET No. **H4** OF **8** SHEETS

The plan view shows a drainage structure with the following details:

- Dimensions:**
 - Overall width: 5'-4"
 - Overall length: 15'-0" (comprising 11'-0" gutter and 4'-0" transition).
 - Manhole spacing: 3'-0" between Manhole A and B, and 1'-4" between Manhole B and C.
 - Vertical dimensions on the left: 8" (top), 4'-0" (middle), and 8" (bottom).
 - Horizontal dimensions at the top: 8" (left of A), 3'-0" (between A and B), 1'-4" (between B and C), and 8" (right of C).
- Manholes:**
 - Manhole A (H5/H5) is located at the left end.
 - Manhole B (H5/H5) is located in the middle section.
 - Manhole C (H5/H5) is located at the right end.
- Flow and Structure:**
 - Flow direction is indicated by arrows pointing from right to left.
 - The structure has a 6:1 slope on both sides.
 - A "Manhole Rung" is shown within the structure.
 - The gutter is labeled "15'-0" Gutter, Type 2(6/6/4)".
 - The transition section is labeled "4'-0" Transition".
- Notes and Annotations:**
 - "Type 6/6/4P Steel Frame & Grates (For Details, see Sht. No. H7)" points to the top of the structure.
 - "Existing RCP to remain" points to the left and bottom sections.
 - "Demolish, remove and dispose of existing drainage structure." points to the right section.
 - "To Kuhio Hwy. Sta." is written vertically on the left side.
 - The word "PLAN" is centered at the bottom.

Diagram illustrating the cross-section of a gutter installation. The gutter is labeled "Gutter" with a symbol. The width of the gutter is 4'-0" (split into two 2'-0" sections). The gutter is installed on a 3" thick base. The gutter is labeled "6:1" on both sides. The gutter is labeled "6" thick concrete w/ 6x6 - W1.4 x W1.4 WWF". The gutter is labeled "6" Aggregate Bed Course". The gutter is labeled "Finish Grade". The gutter is labeled "2% min. 10:1 max. (Typ.)" with an arrow indicating the slope. The gutter is labeled "SECTION C H5/H5" at the bottom.

15'-0" Gutter, Type 2(616/4)

11'-0"

4'-0" Transition

5'-0"

3'-0"

1'-4"

8"

8"

1'-0"

8"

Varies

8"

6" thick concrete w/ 6 x 6 - W1.4 x W1.4 WWF

6" Aggregate Bed Course

Type 616/4P Steel Frame & Grates

Finish Grade

Exist. RCP to remain

Cut exist. RCP flush w/ wall face

For reinforcing details, see Std. Plan H-11

Culvert Seat, for details and added reinforcing see Standard Plan H-04

Exist. ground

Cut exist. w/ wall

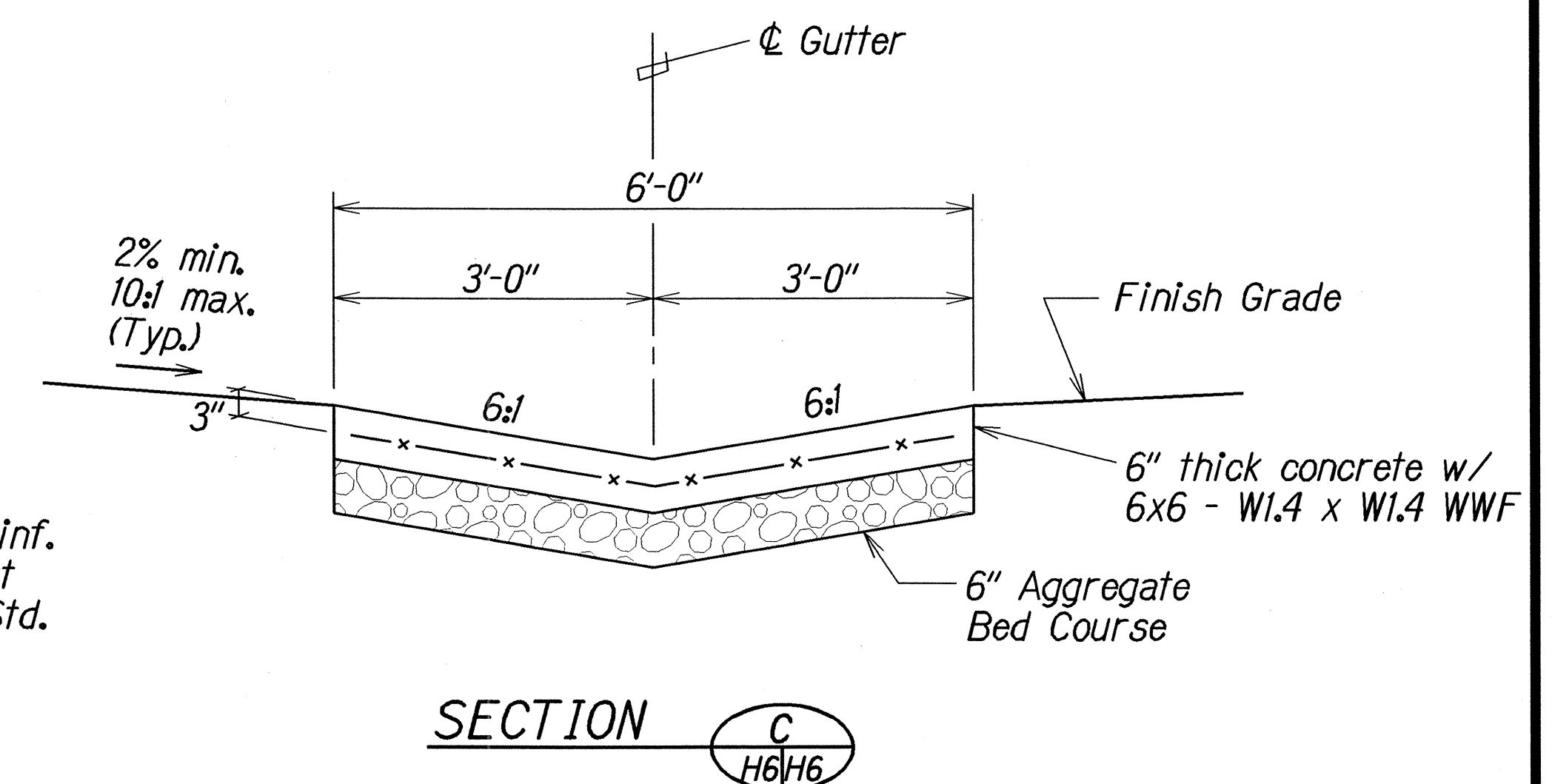
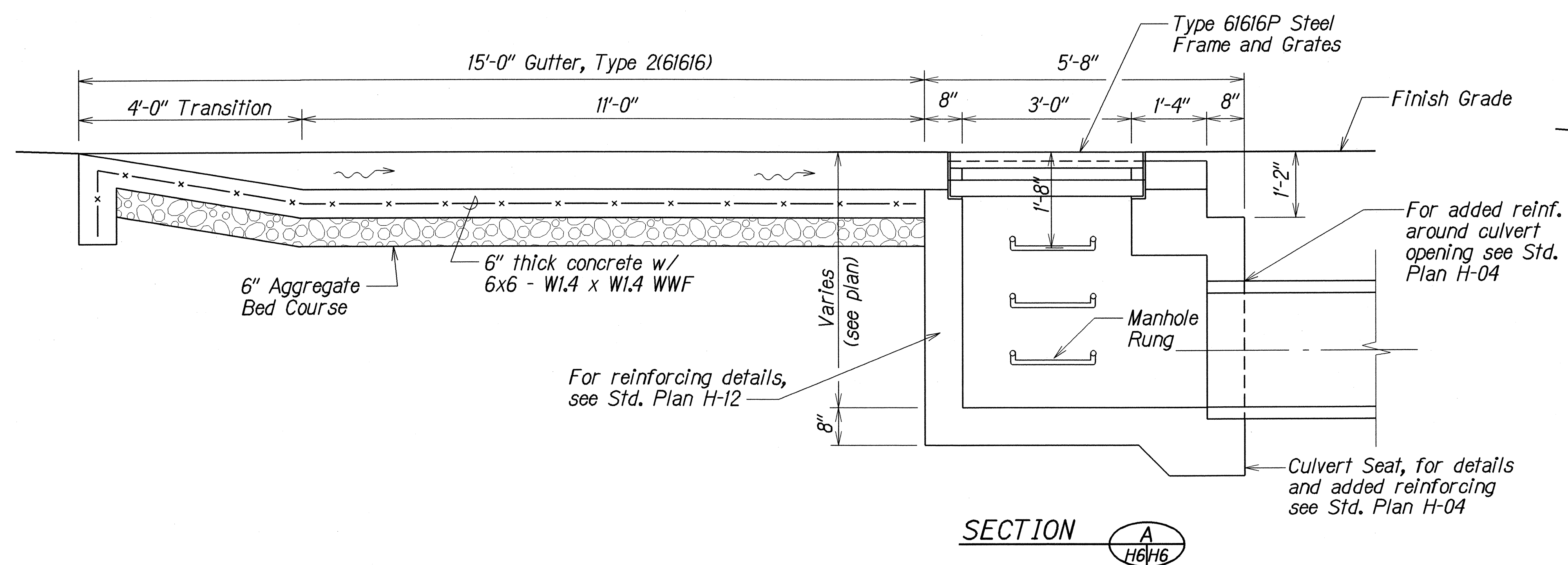
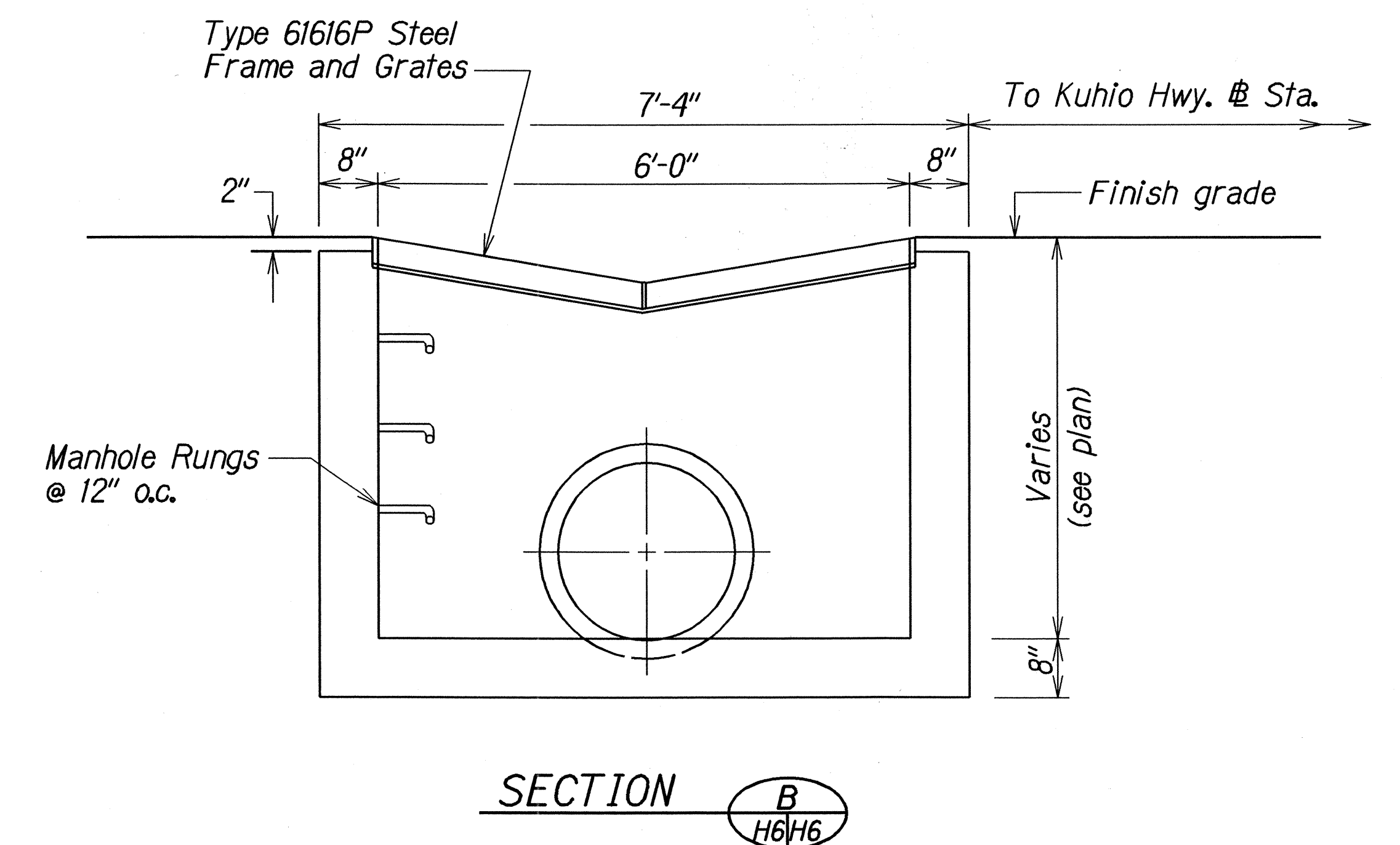
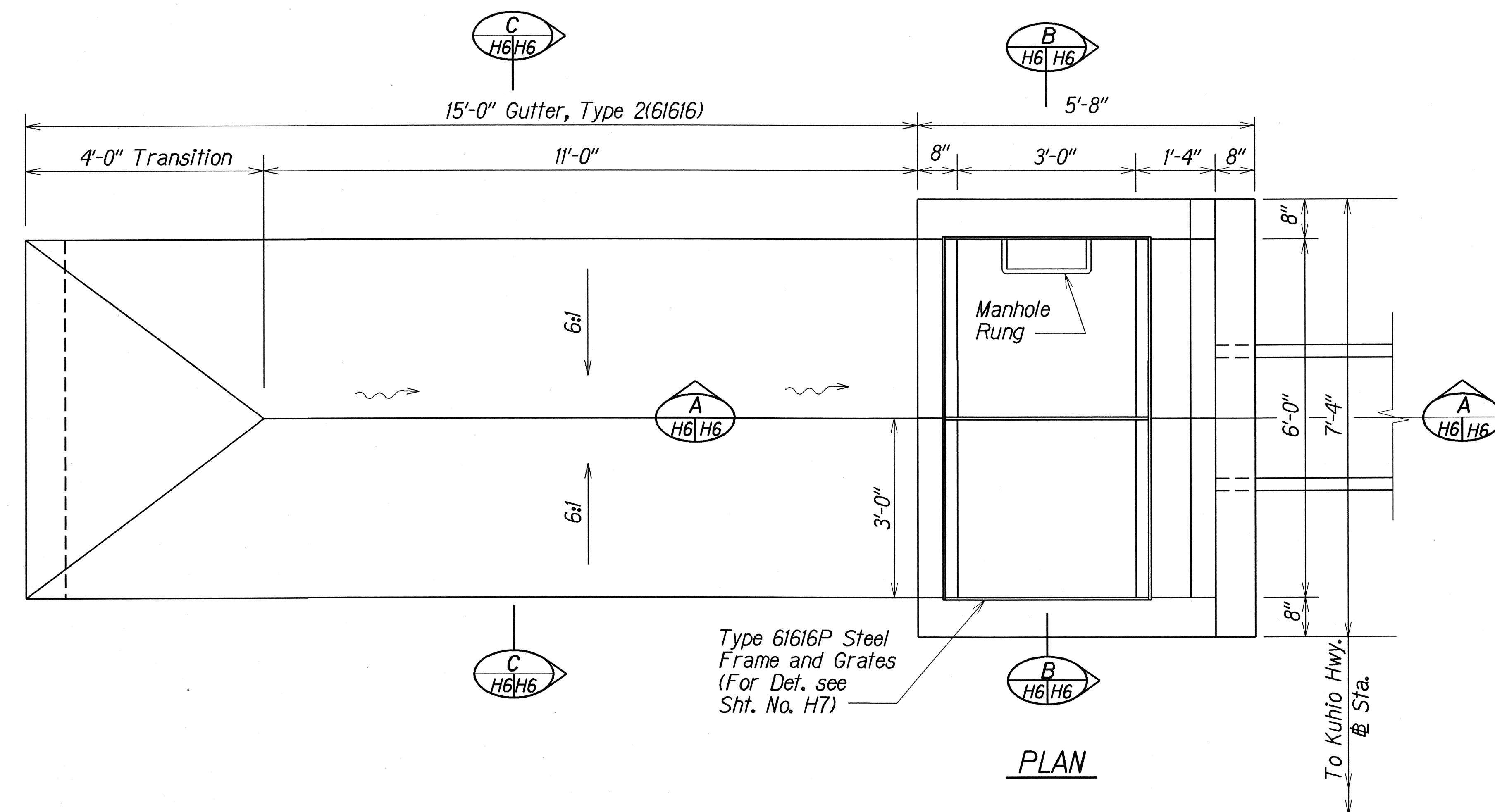
Culvert and a see S

SECTION A H5 H5

KUHIO HWY MISCELLANEOUS
DRAINAGE IMPROVEMENTS
Vicinity of Kapaa and Anahola
Project No. 56AC-01-01

ORIGINAL PLAN	SURVEY PLOTTED BY _____ DATE _____
NOTE BOOK	DRAWN BY <u>L.B.C.</u>
<u>413.1054.56</u>	TRACED BY _____
<u>413.1054.56</u>	DESIGNED BY <u>B.T. & C.M.</u>
<u>413.1054.56</u>	QUANTITIES BY _____
<u>413.1054.56</u>	CHECKED BY _____

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	56AC-01-01	2002	11	13



TYPICAL DETAILS OF TYPE 61616P GRATED DROP INLET AND GUTTER, TYPE 2(61616)

ORIGINAL PLAN	SURVEY PLOTTED BY _____	DATE <u>12/01</u>
	DRAWN BY <u>L.G.C. # B.S.</u>	
	TRACED BY _____	
	DESIGNED BY <u>E.T. # C.M.</u>	
	QUANTITIES BY _____	
	CHECKED BY <u>John M. Goff</u>	

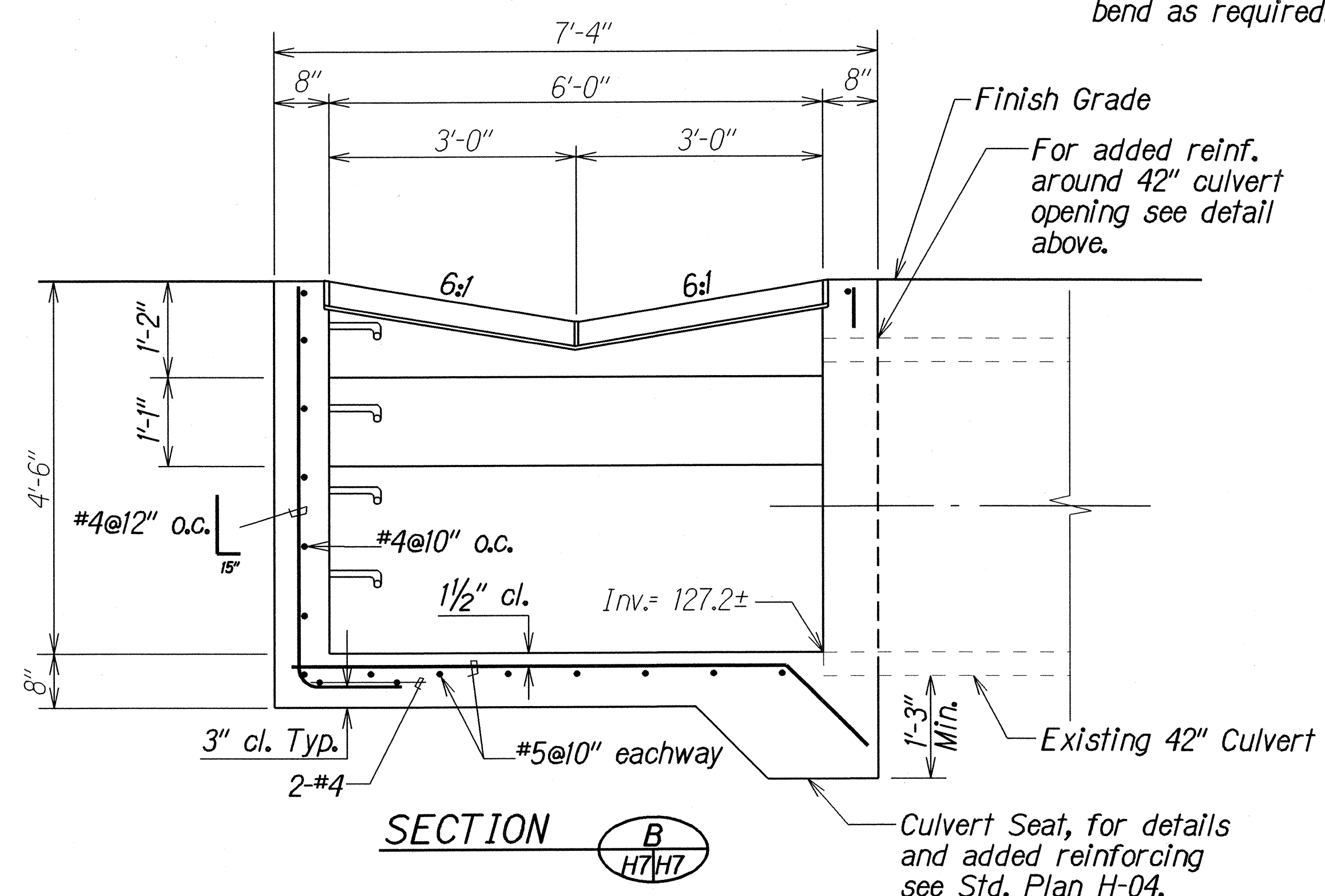
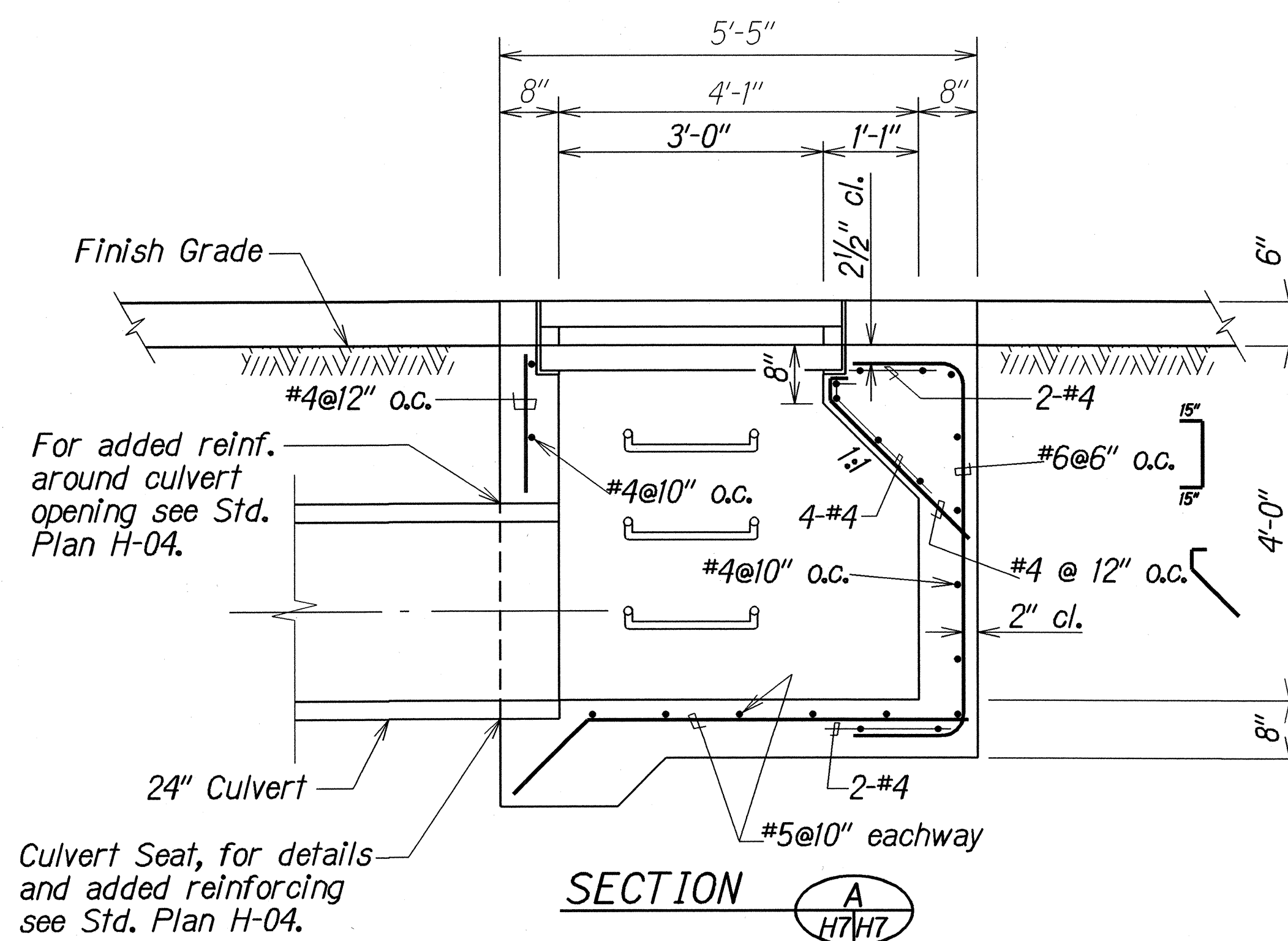
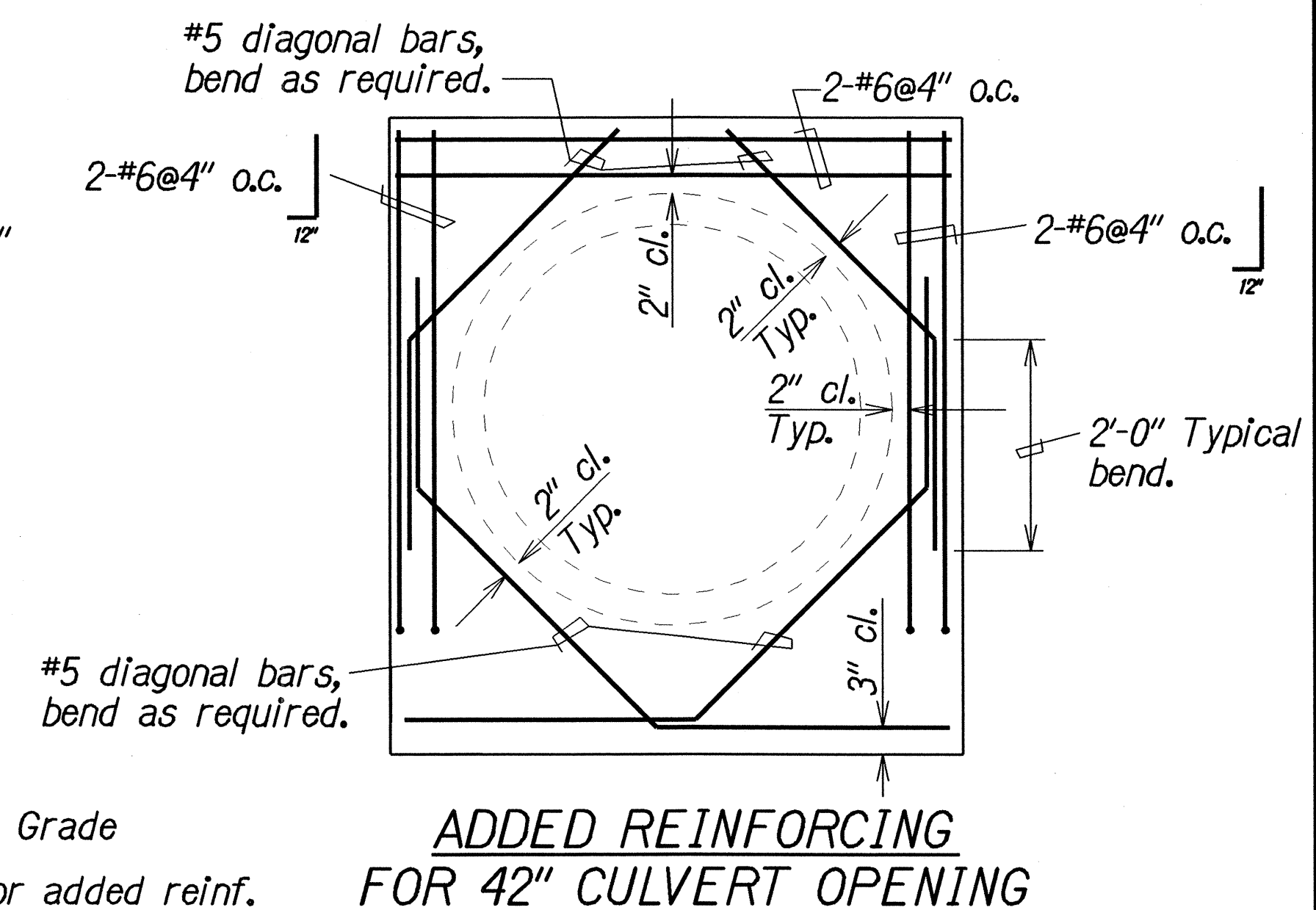
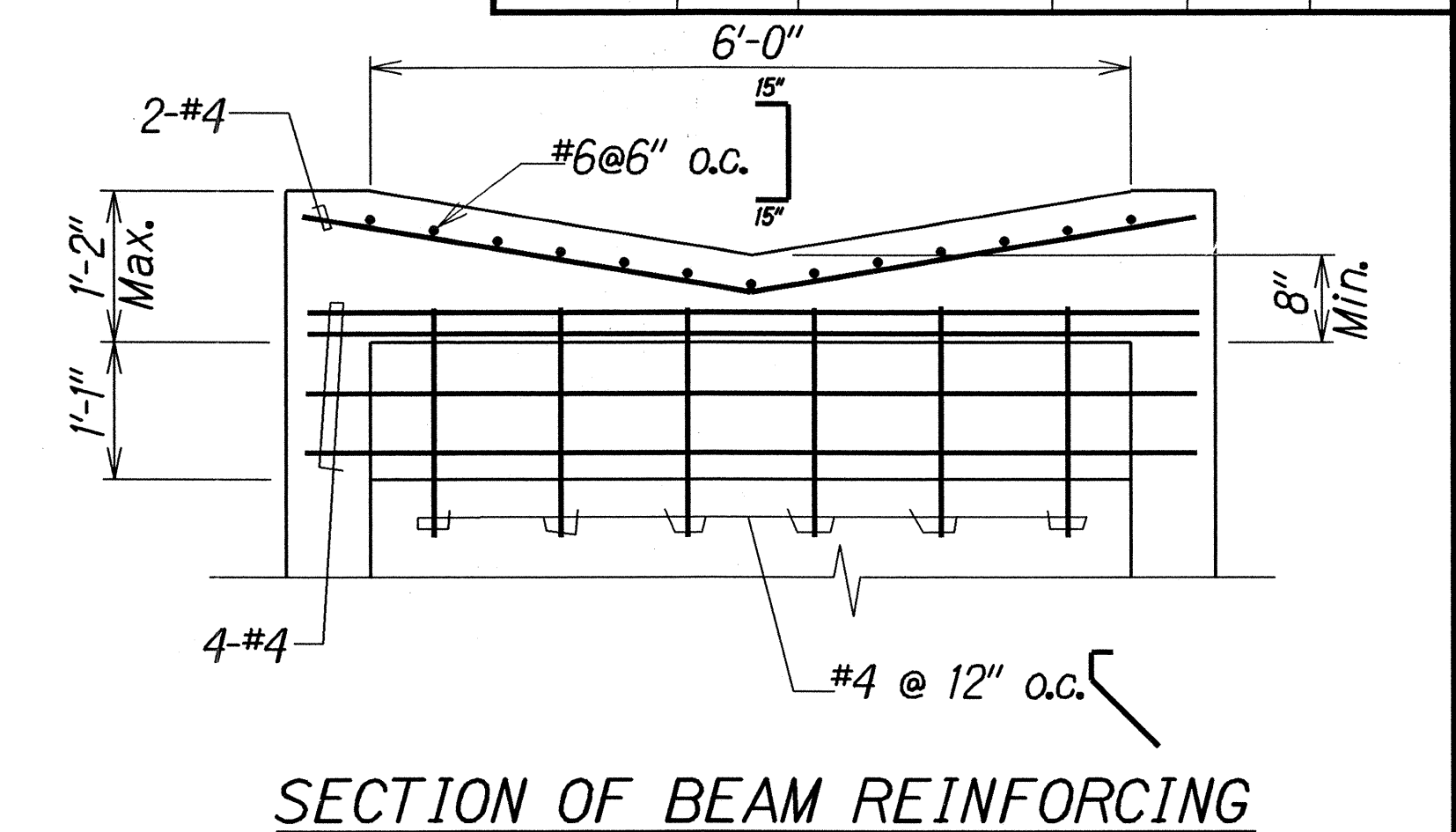
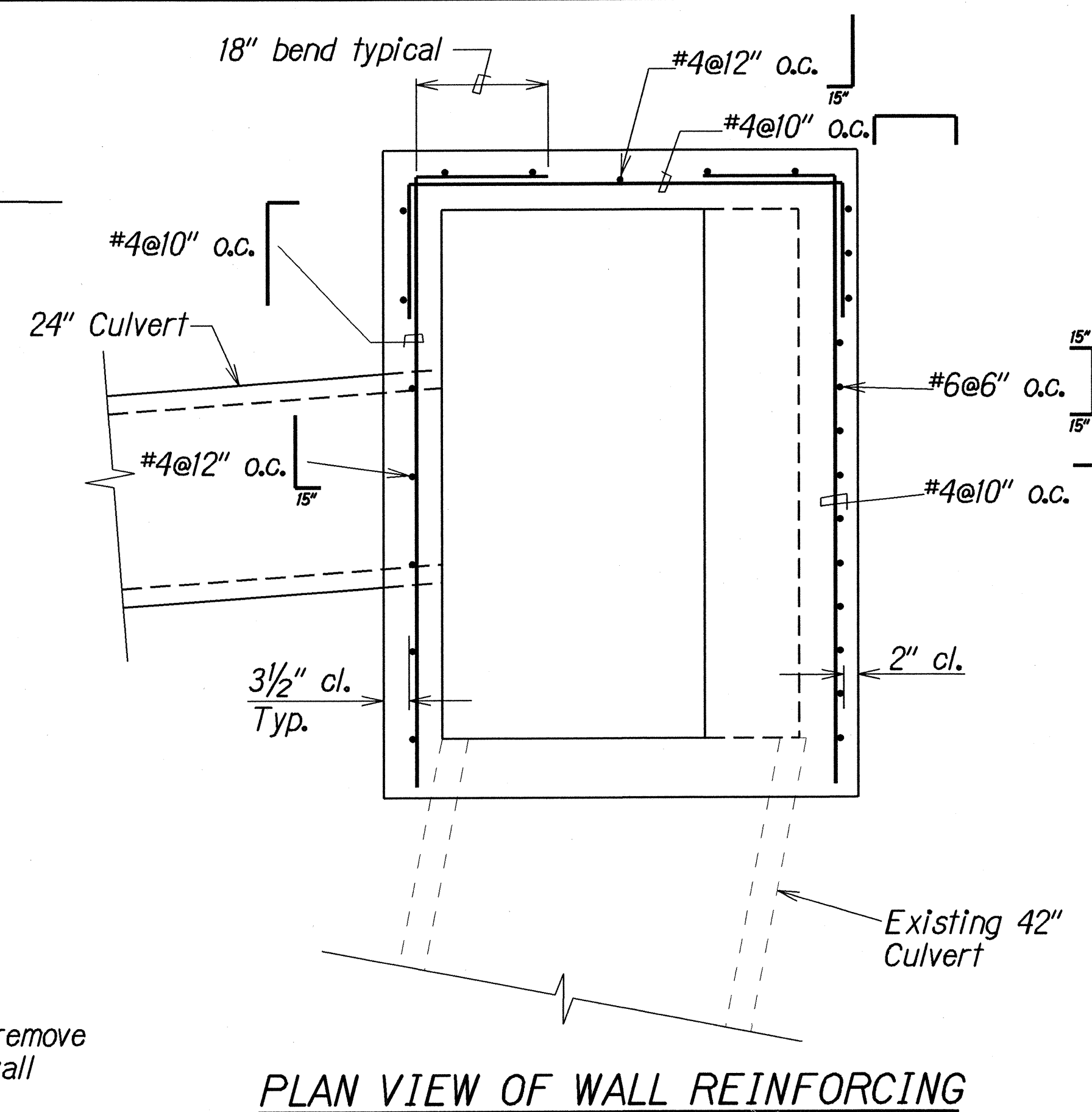
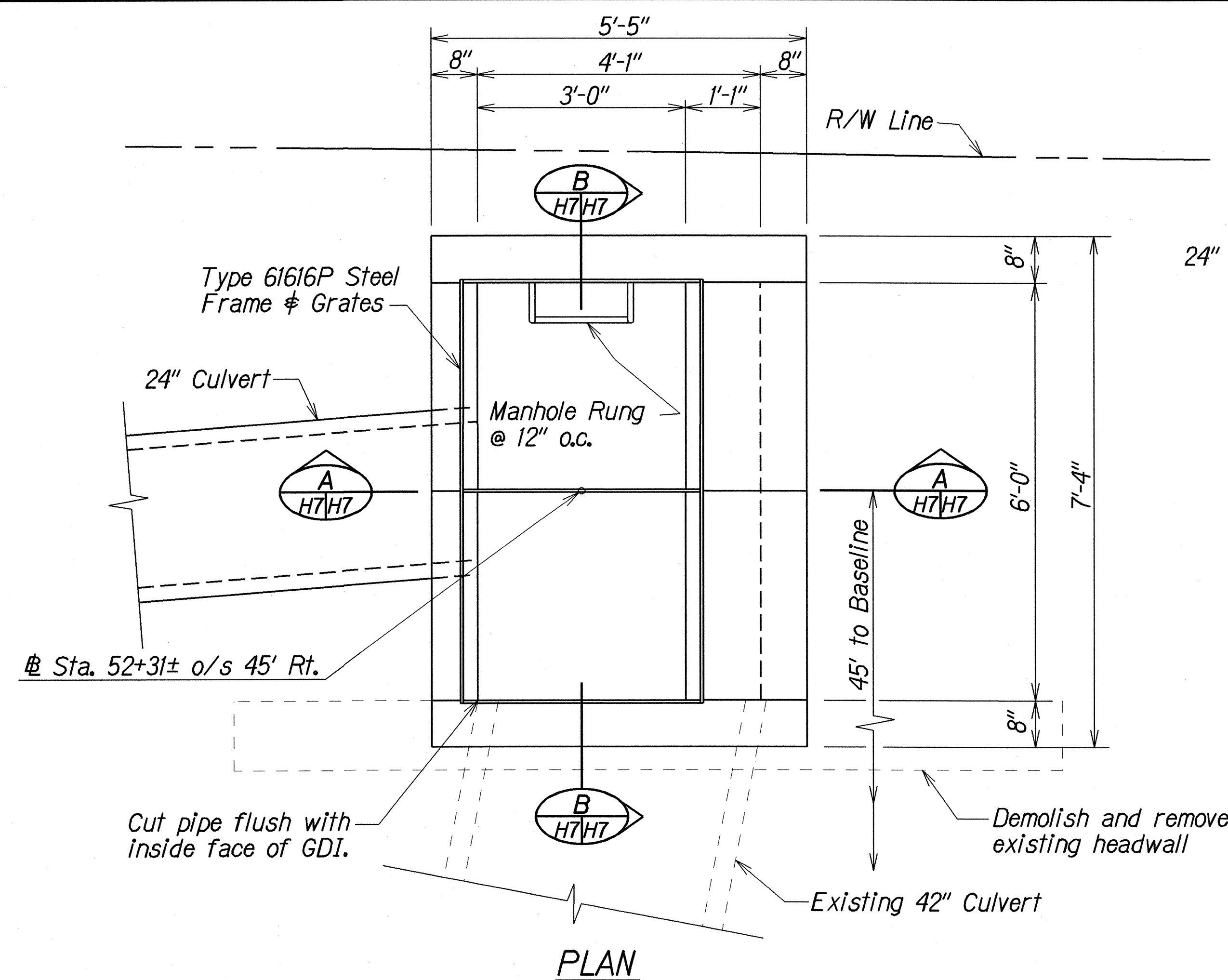
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS
KUHIO HWY MISCELLANEOUS
DRAINAGE IMPROVEMENTS
Vicinity of Kapaa and Anahola
Project No. 56AC-01-01

Scale: $\frac{3}{4}" = 1'-0"$ Date: Dec. 2001

SHEET No. *H6* OF *8* SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	56AC-01-01	2002	12	13



MODIFIED TYPE 61616P GRATED DROP INLET AT STA. 52+31± o/s 45' RT.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

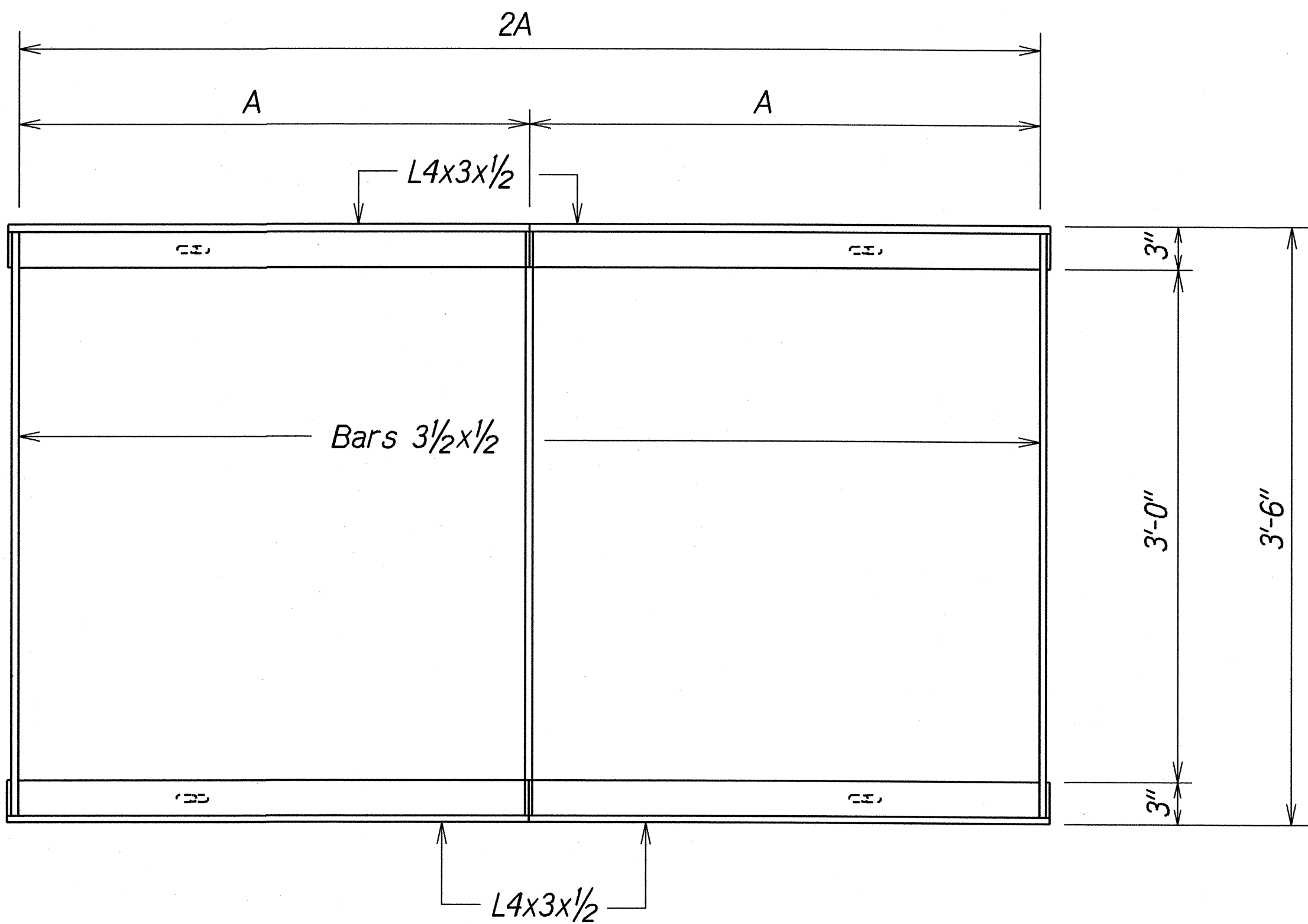
KUHIO HWY DRAINAGE IMP.
Vicinity of Kapaa and Anahola

Project No. 56AC-01-01

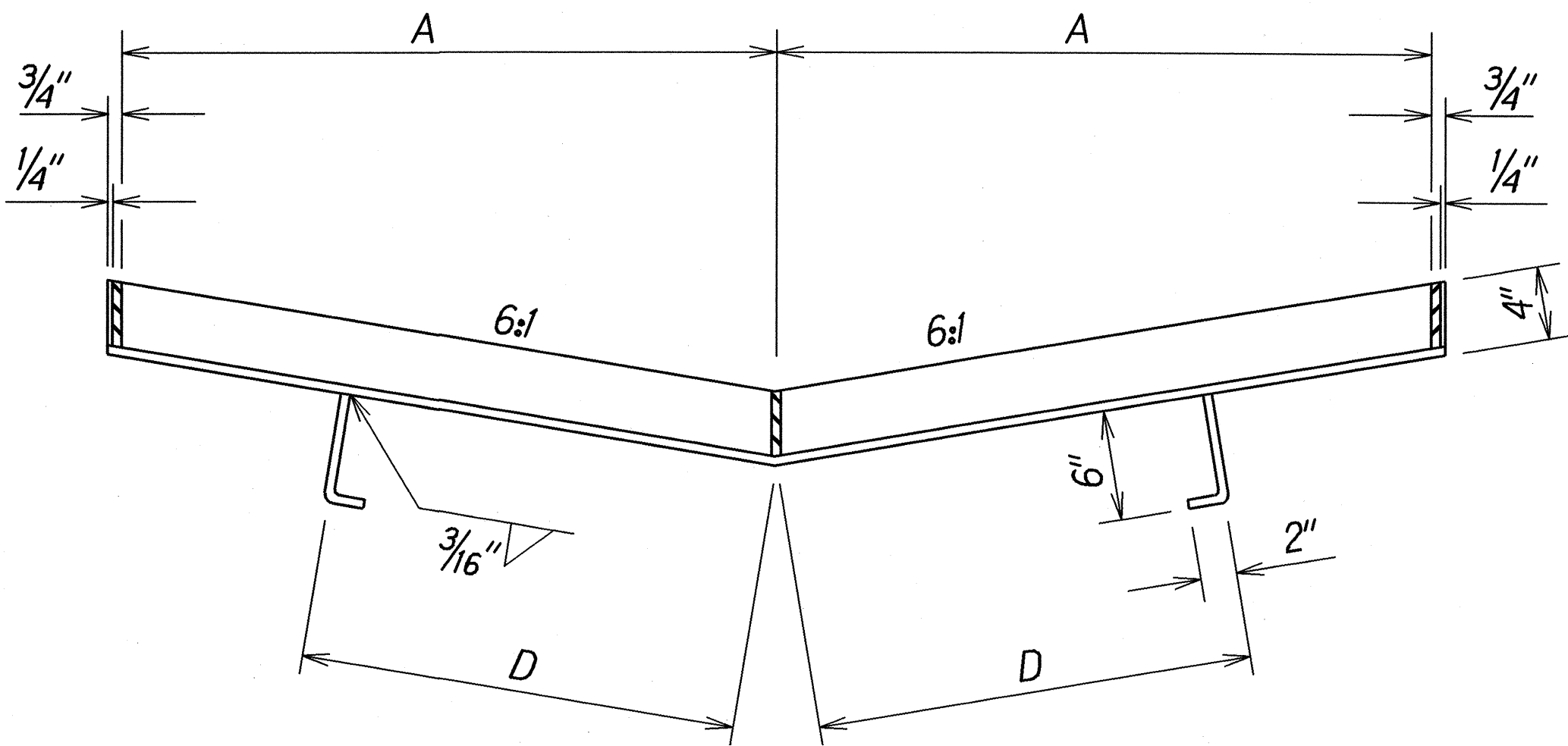
Scale: 3/4" = 1'-0" Date: Dec. 2001

SHEET No. H7 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	56AC-01-01	2002	13	13



PLAN

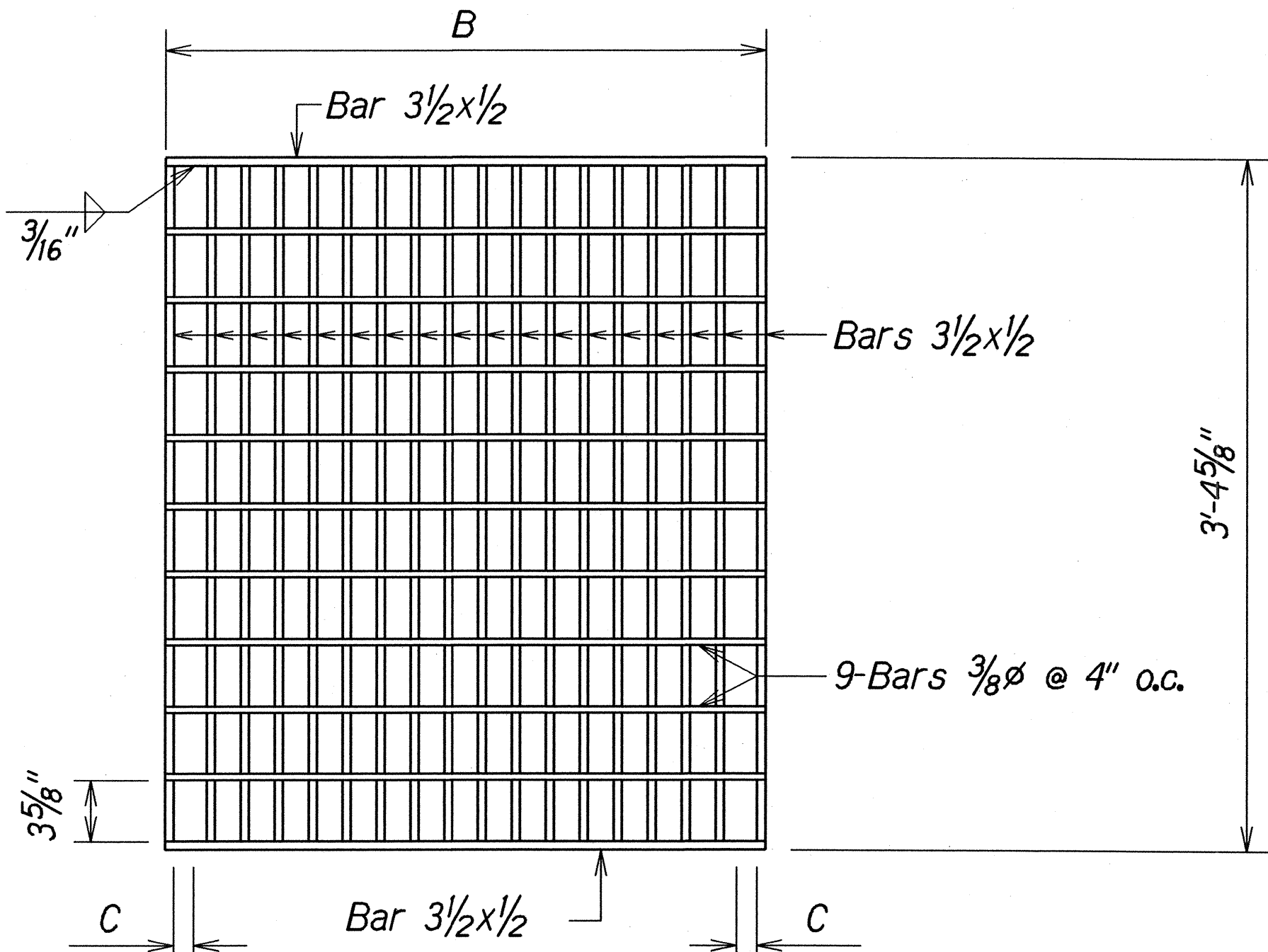


SECTION

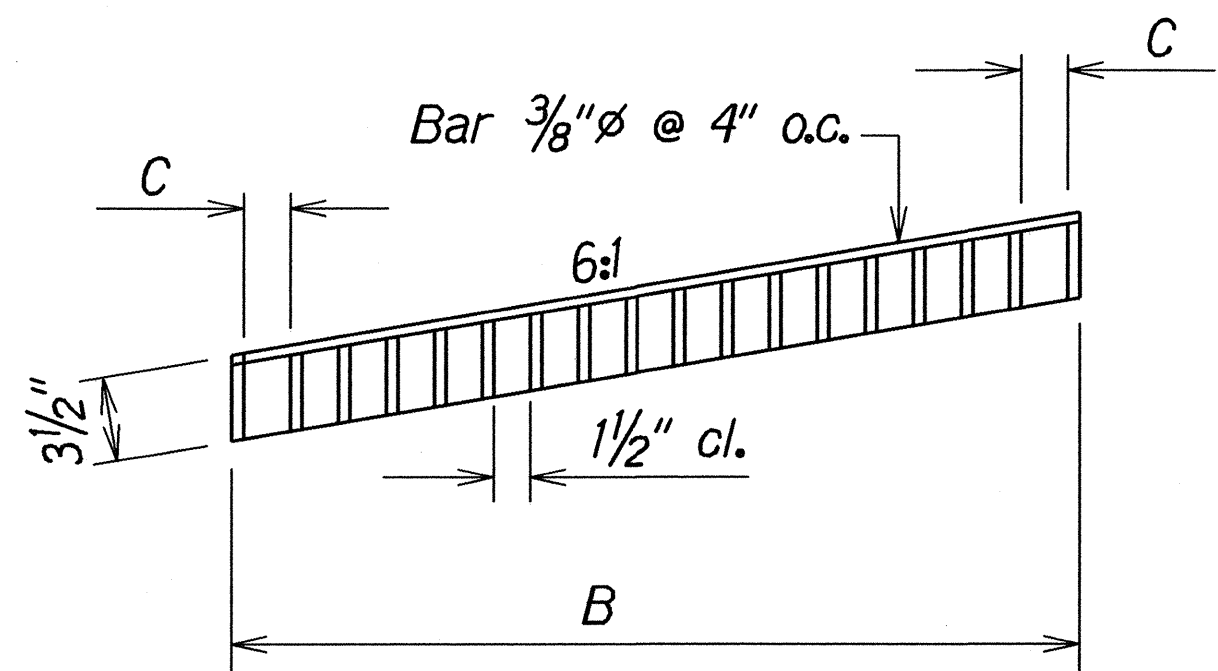
FRAME

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

- NOTE:
1. All welds 3/8" unless otherwise noted.
 2. Grates and Frames shall be hot dip galvanized after fabrication.



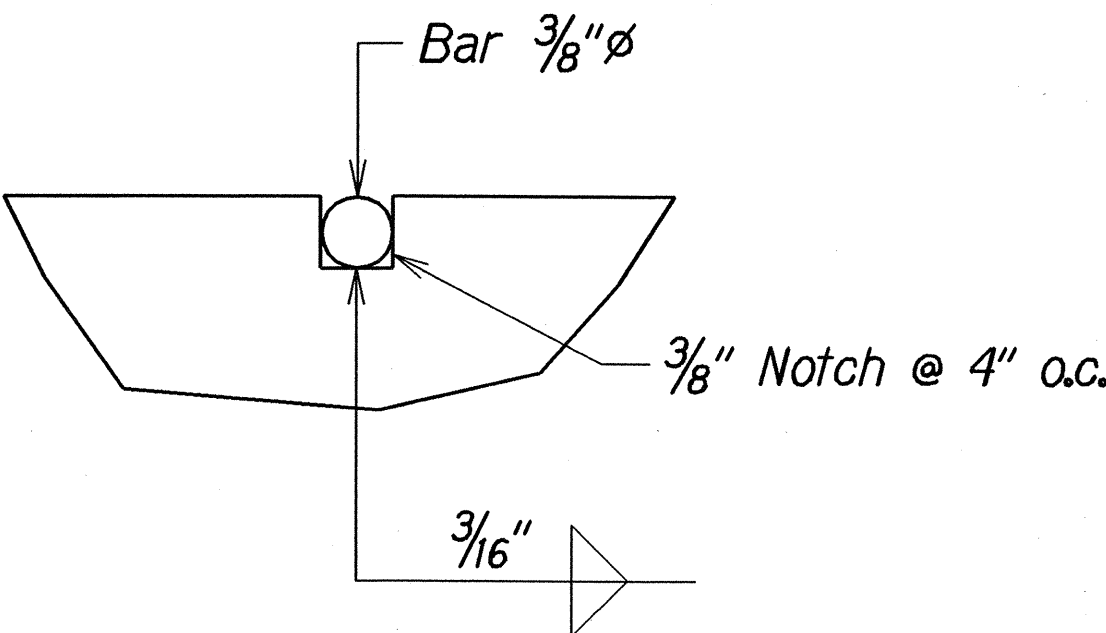
PLAN



SECTION

GRATES

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



NOTCH DETAIL

Full Size

TYPE	NO. OF BARS	A	B	C	D
61614P	12	2'-0"	1'-11 1/2"	2"	1'-6"
61616P	18	3'-0"	2'-11 3/8"	1 5/16"	2'-0"

ORIGINAL PLAN	DATE 12/01
DESIGNED BY	CHECKED BY
NOTED BY	DATE
QUANTITIES BY	DATE
BY	DATE

TYPICAL DETAILS OF TYPE 61614P AND TYPE 61616P STEEL FRAME AND GRATES

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS
KUHIO HWY. MISCELLANEOUS
DRAINAGE IMPROVEMENTS
Vicinity of Kapaa and Anahola
Project No. 56AC-01-01
Scale: As Shown Date: Dec. 2001