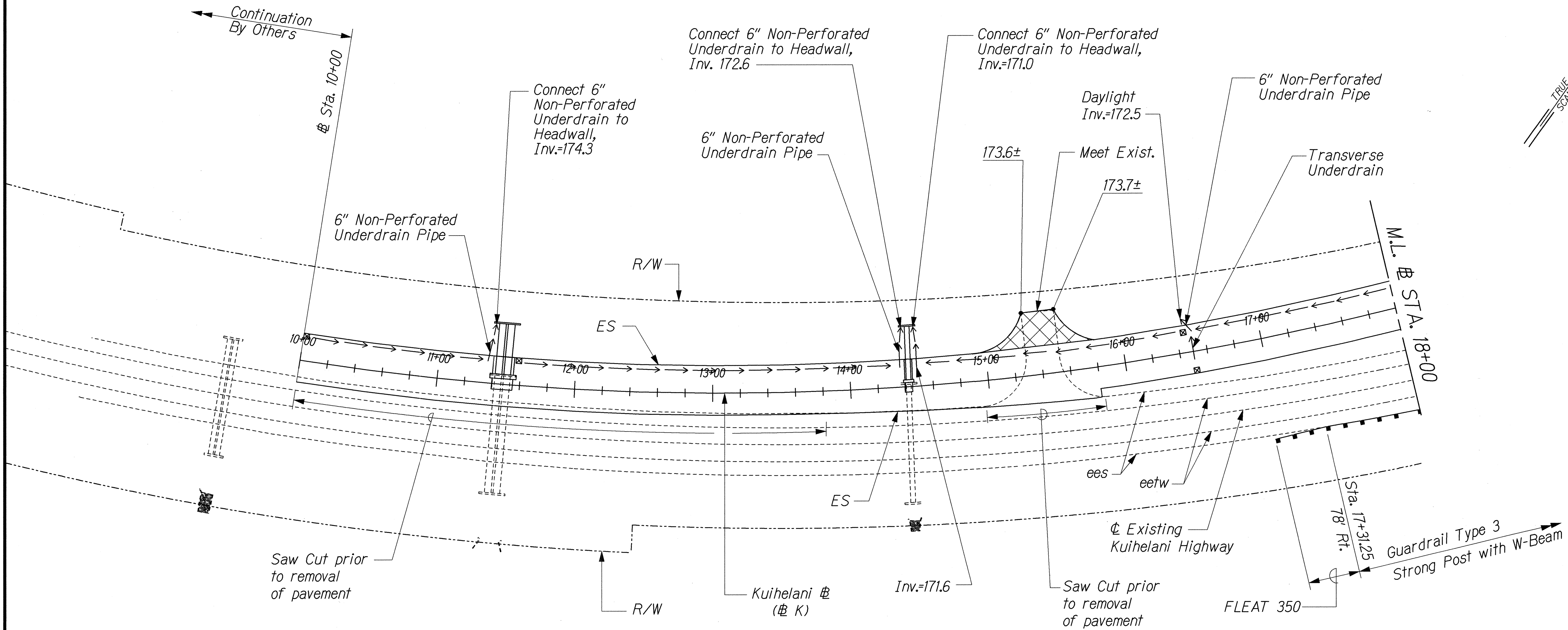
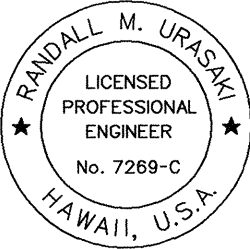


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	56	380



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

JK/KUIHELANI/ROAD/RC-01.dgn



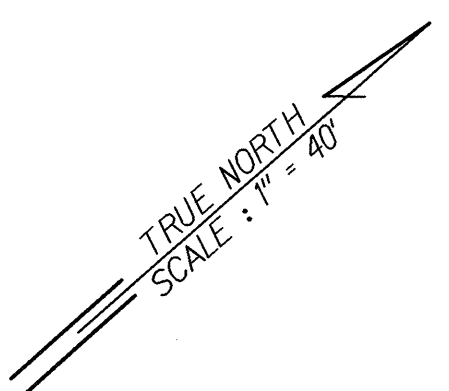
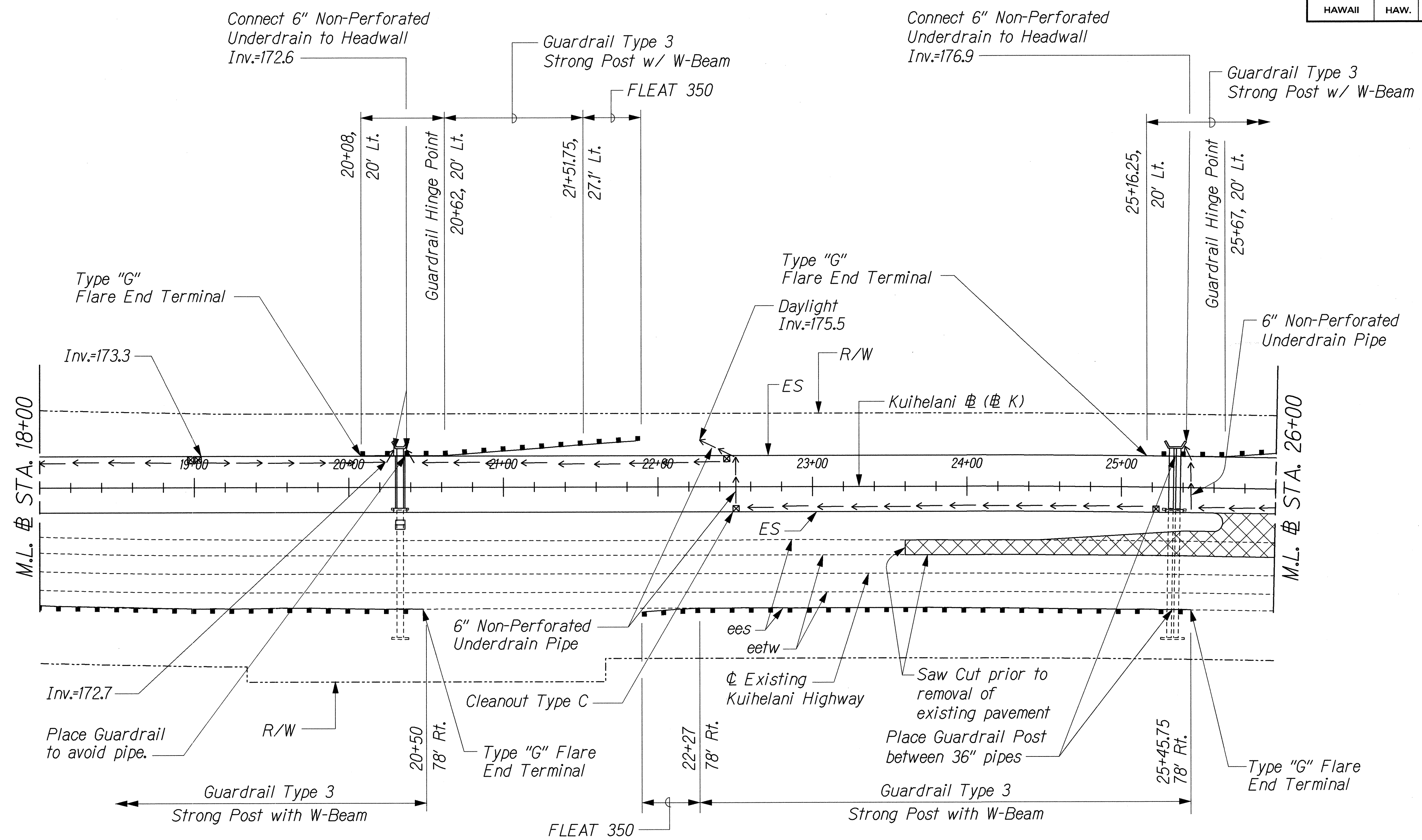
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R. M. Urakami 9/14/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY CONSTRUCTION

**KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)**

Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	57	380



SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	
NOTED BY	
DATE	

3-KUIHELANI/ROAD/RC-02.dgn

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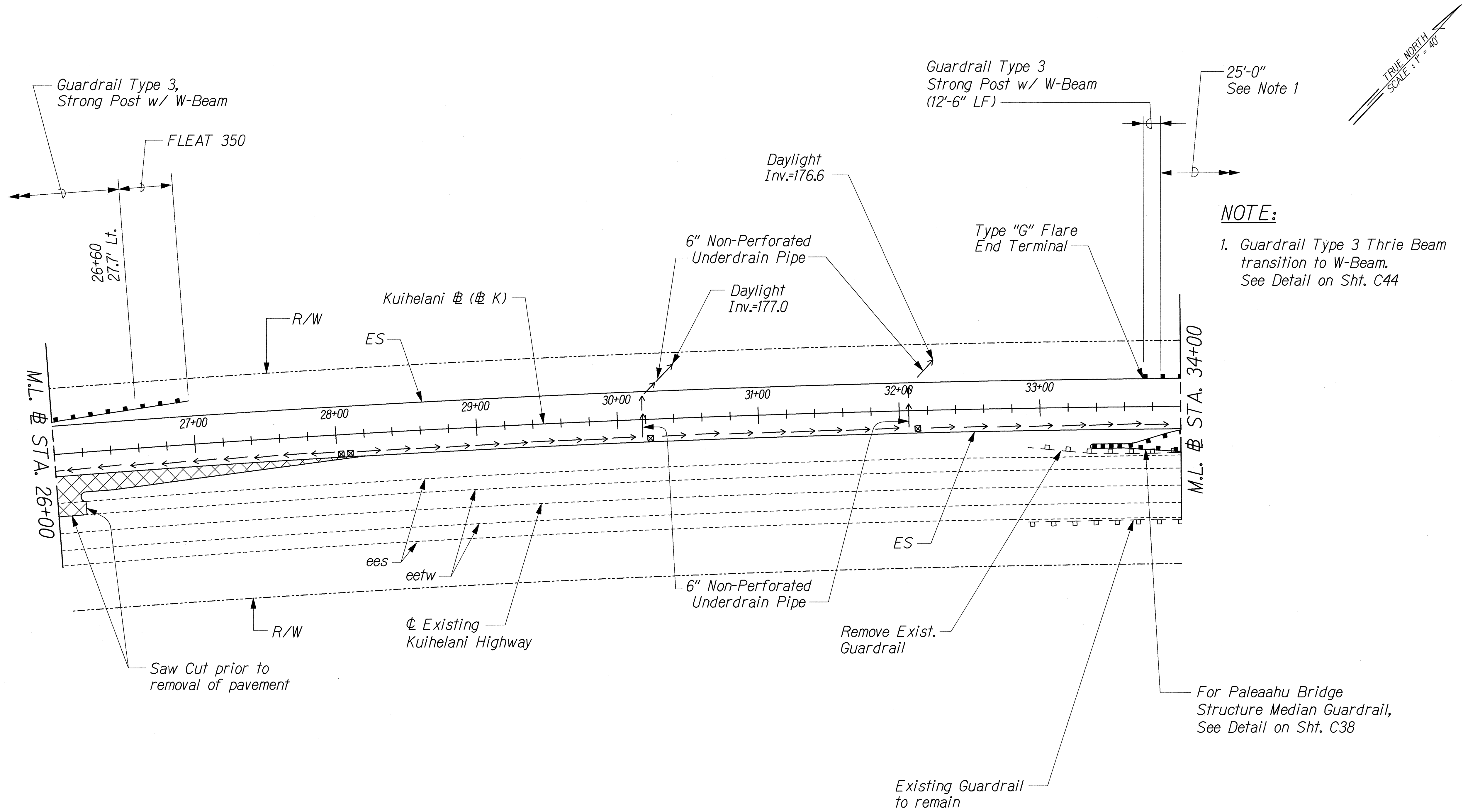
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY CONSTRUCTION

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)

Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	58	380



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
DESIGNED BY	DRAWN BY	
CHECKED BY	DESIGNED BY	
NO.	CHECKED BY	

16/KUIHELANI/ROAD/RC-03d9n

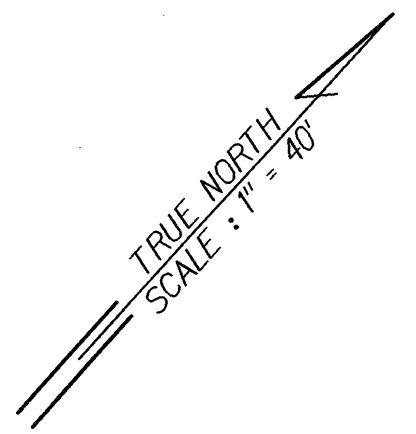
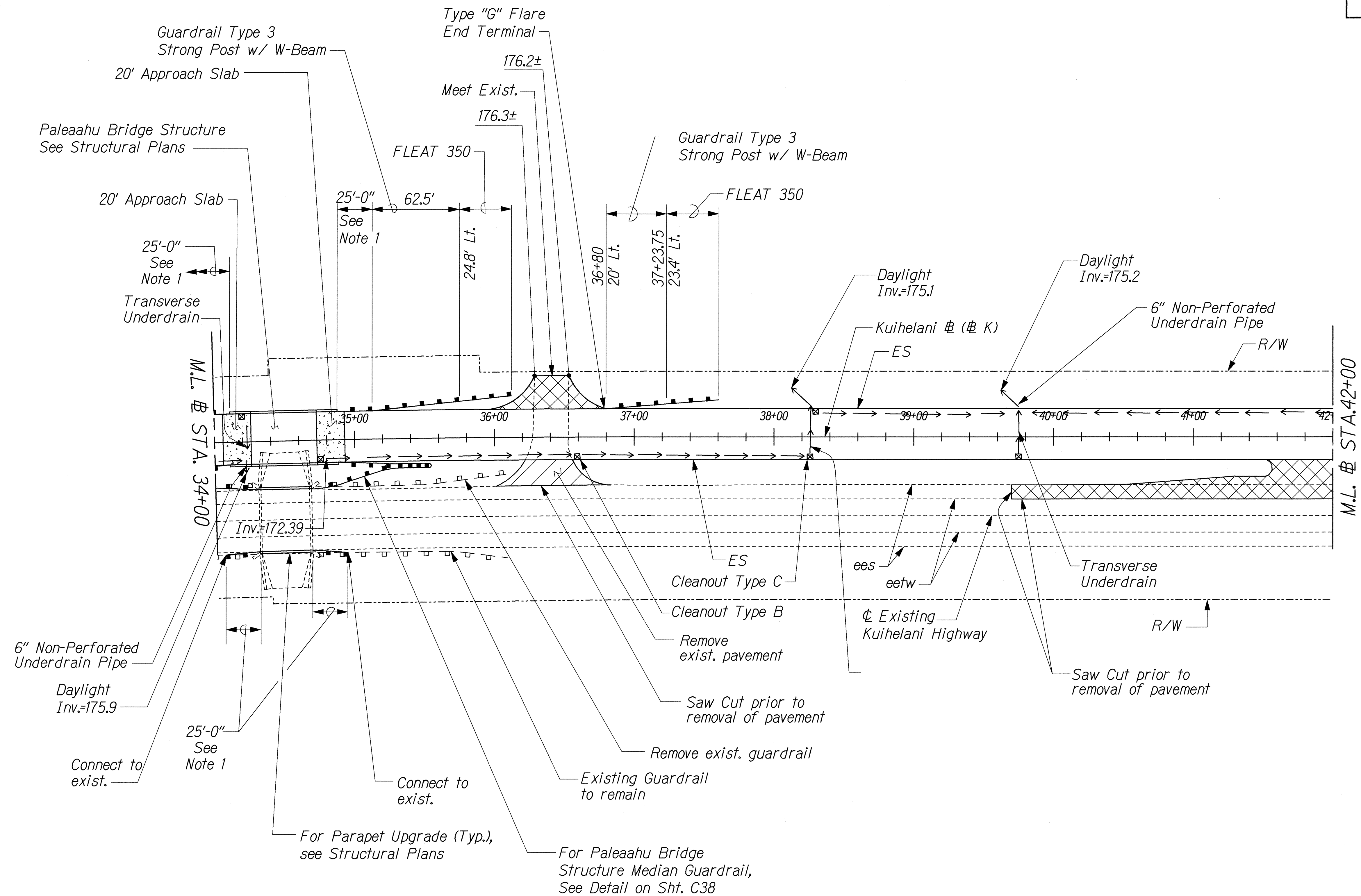
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY CONSTRUCTION

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	59	380



NOTE:

- Guardrail Type 3 Thrie Beam transition to W-Beam. See Detail on Sht. C44

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

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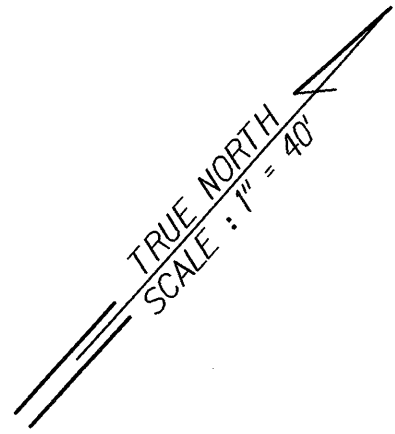
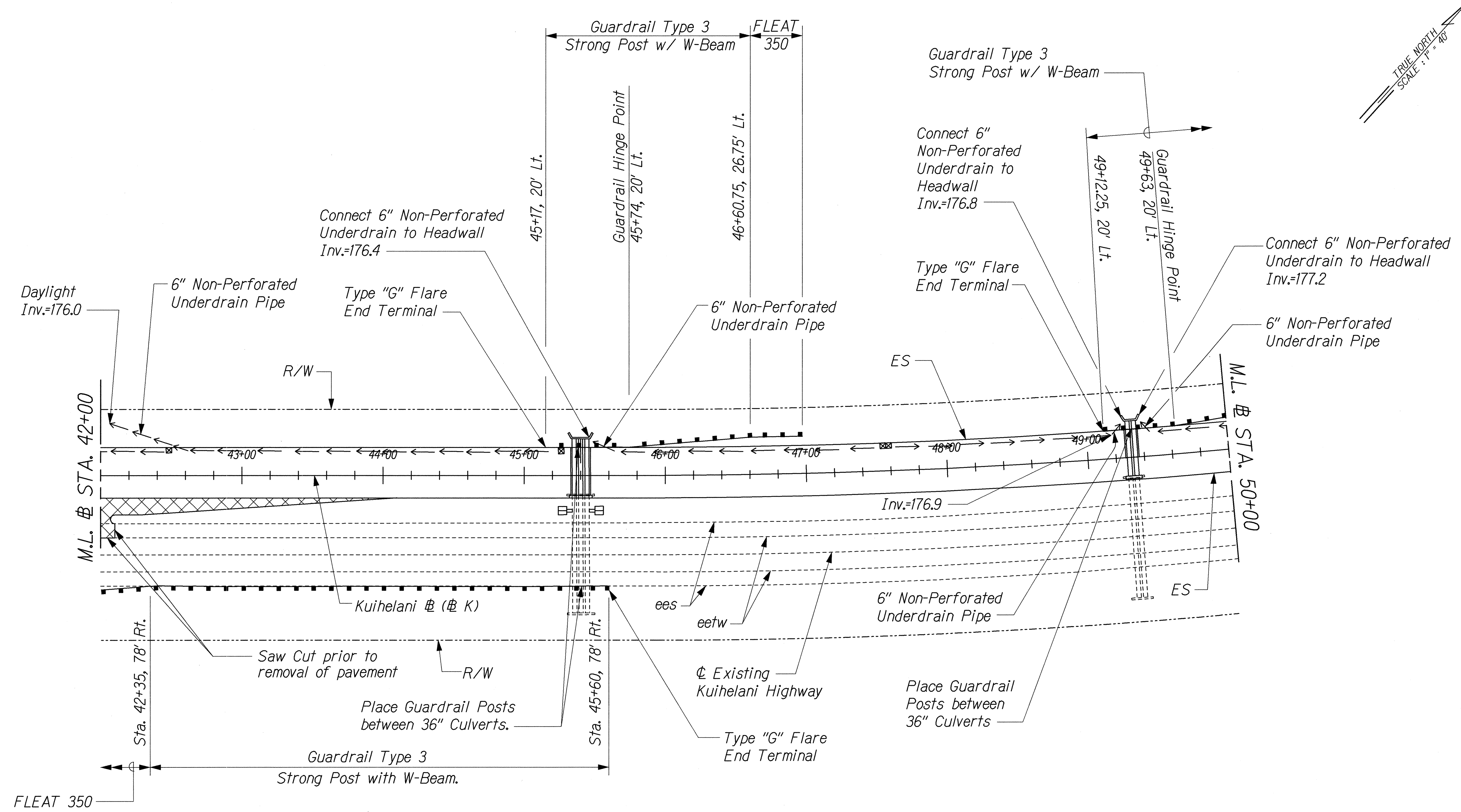
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY CONSTRUCTION

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	60	380



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

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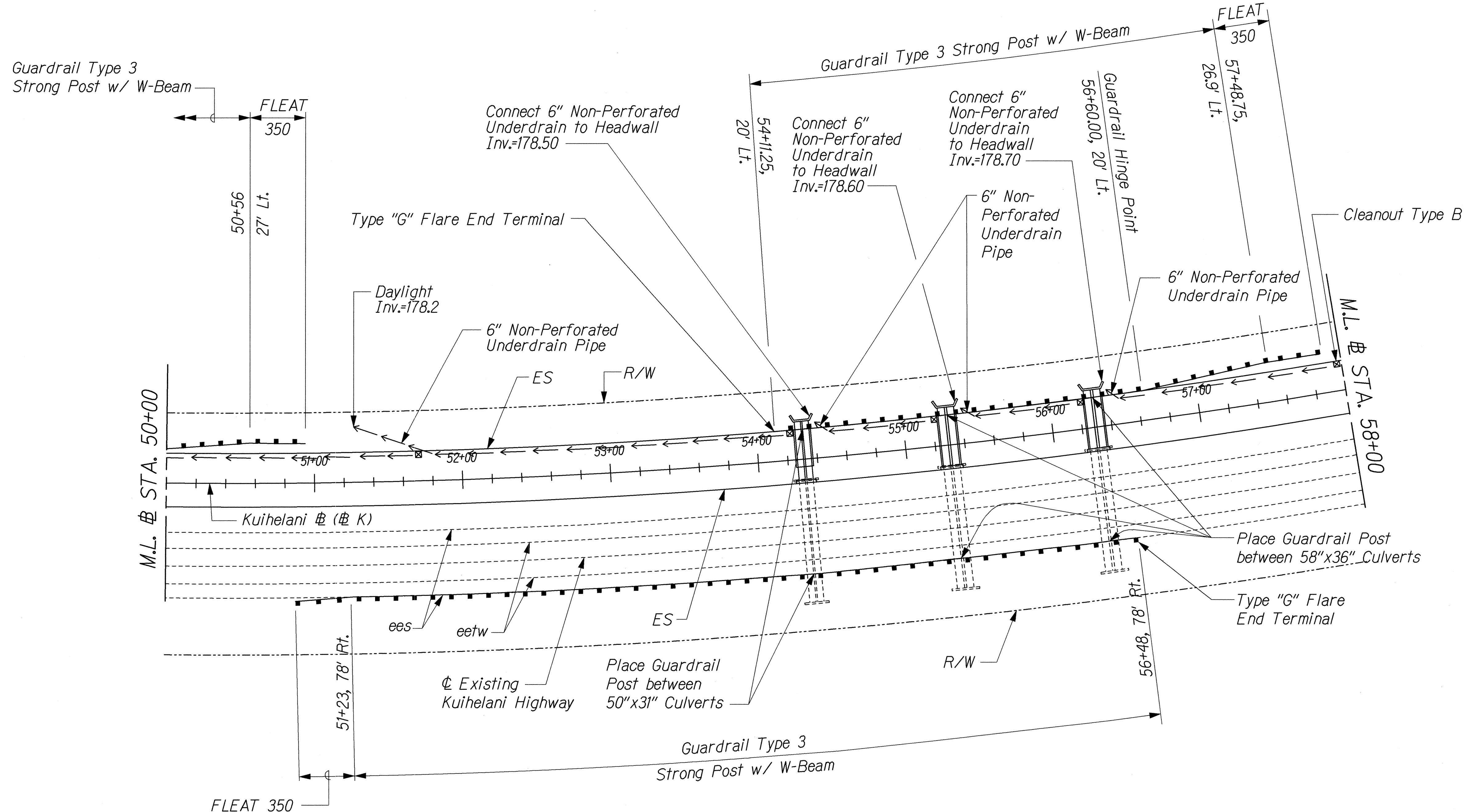
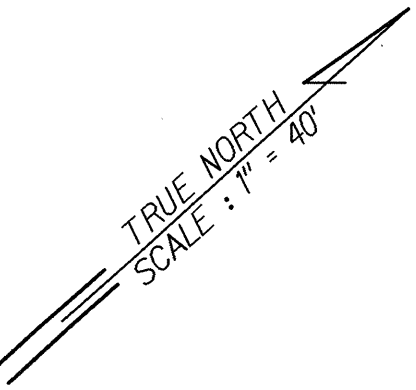
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY CONSTRUCTION

**KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)**

Scale: 1"=40' Date: Sept. 14, 2001

SHEET No. C5 OF 53 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	61	380



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
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61 KUIHELANI ROAD/RC-06.dgn

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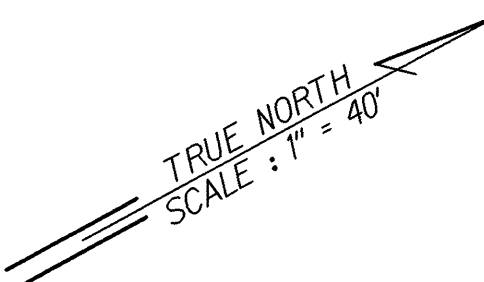
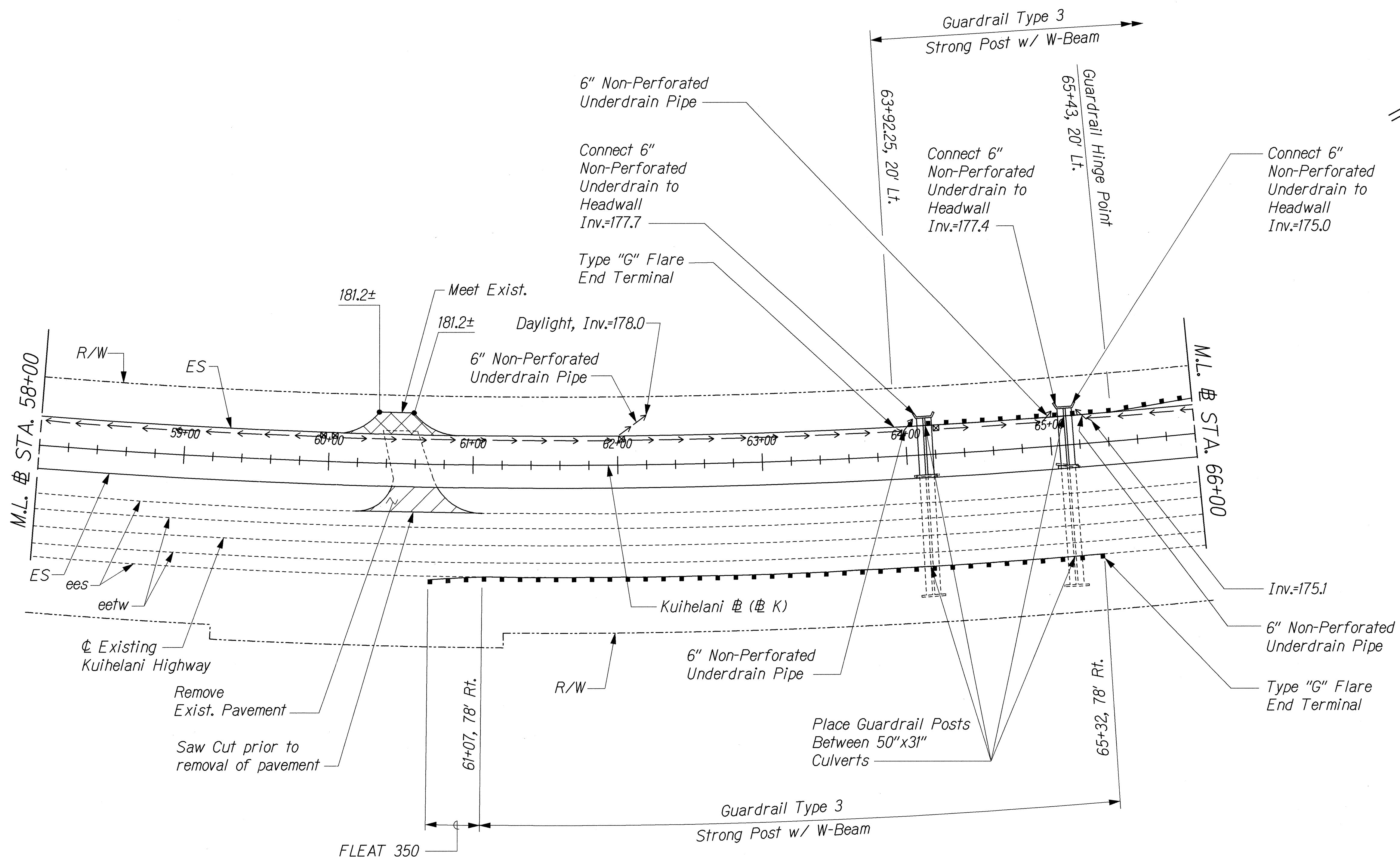
R. M. Urasani 7/14/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY CONSTRUCTION

**KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)**

Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	62	380



SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
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62 KUIHELANI ROAD/RC-07.dgn

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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY CONSTRUCTION

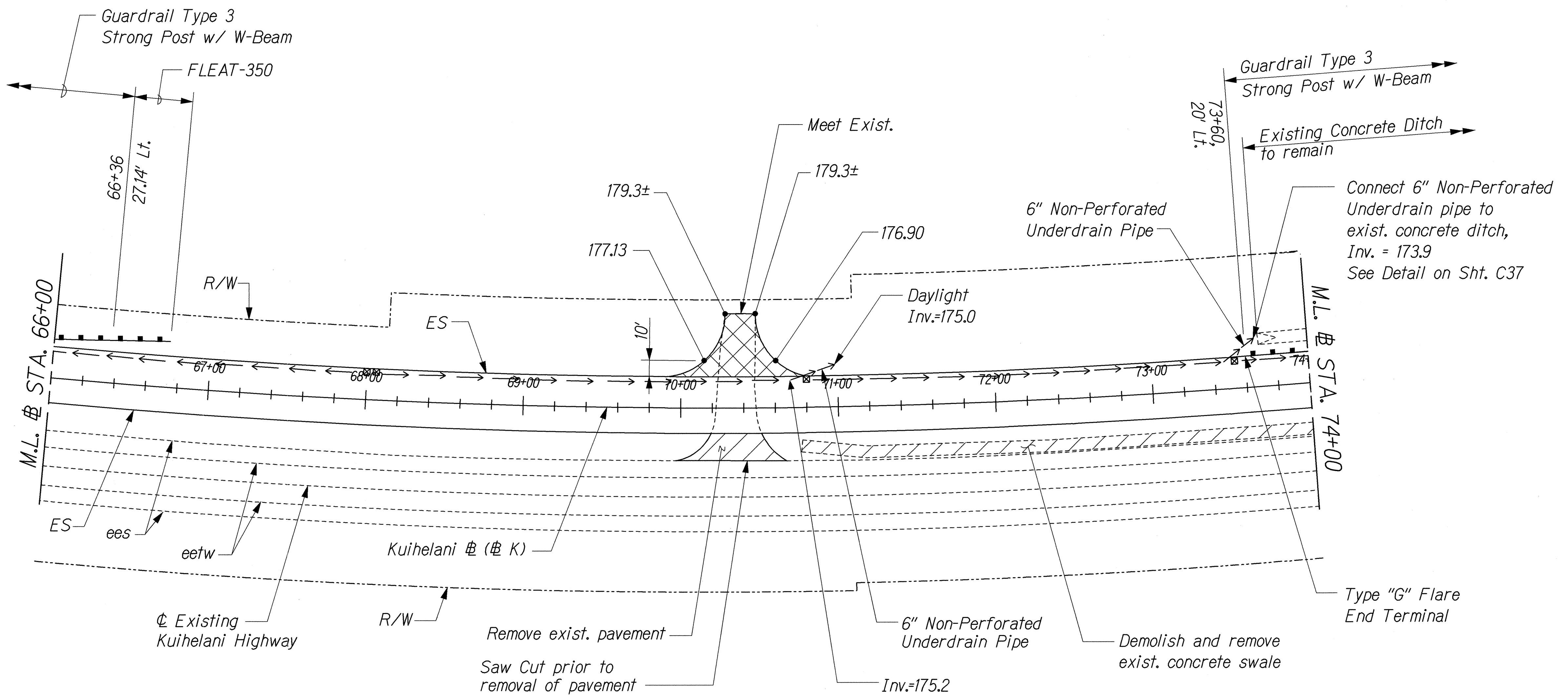
**KUIHELANI HIGHWAY WIDENING
HONOAPILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)**

Scale: 1"=40' Date: Sept. 14, 2001

SHEET No. C7 OF 53 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	63	380

TRUE NORTH
SCALE: 1" = 40'



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

J4/KUIHELANI/ROAD/RC-08.dgn

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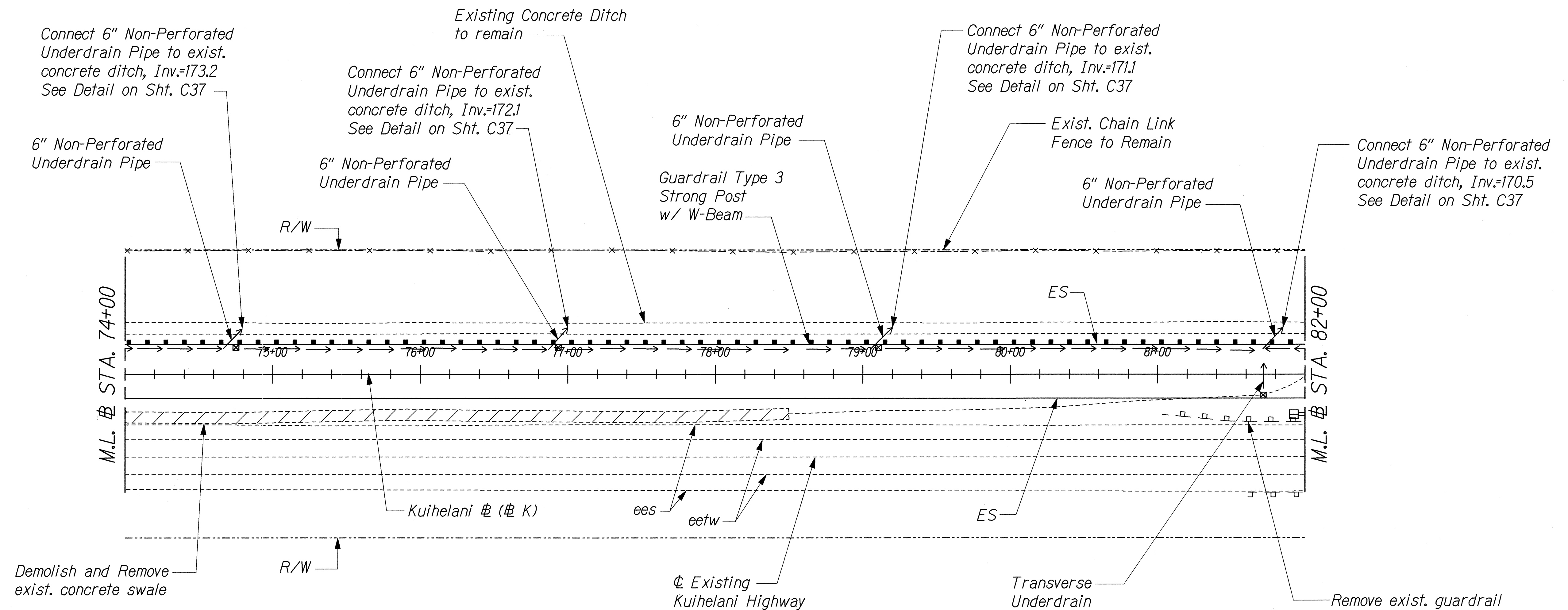
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY CONSTRUCTION

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

SHEET No. 08 OF 53 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	64	380

TRUE NORTH
SCALE: 1" = 40'



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTED BOOK	DRAWN BY	
	DESIGNED BY	
	CHECKED BY	

3/2 KUIHELANI ROAD/RC-09.dgn

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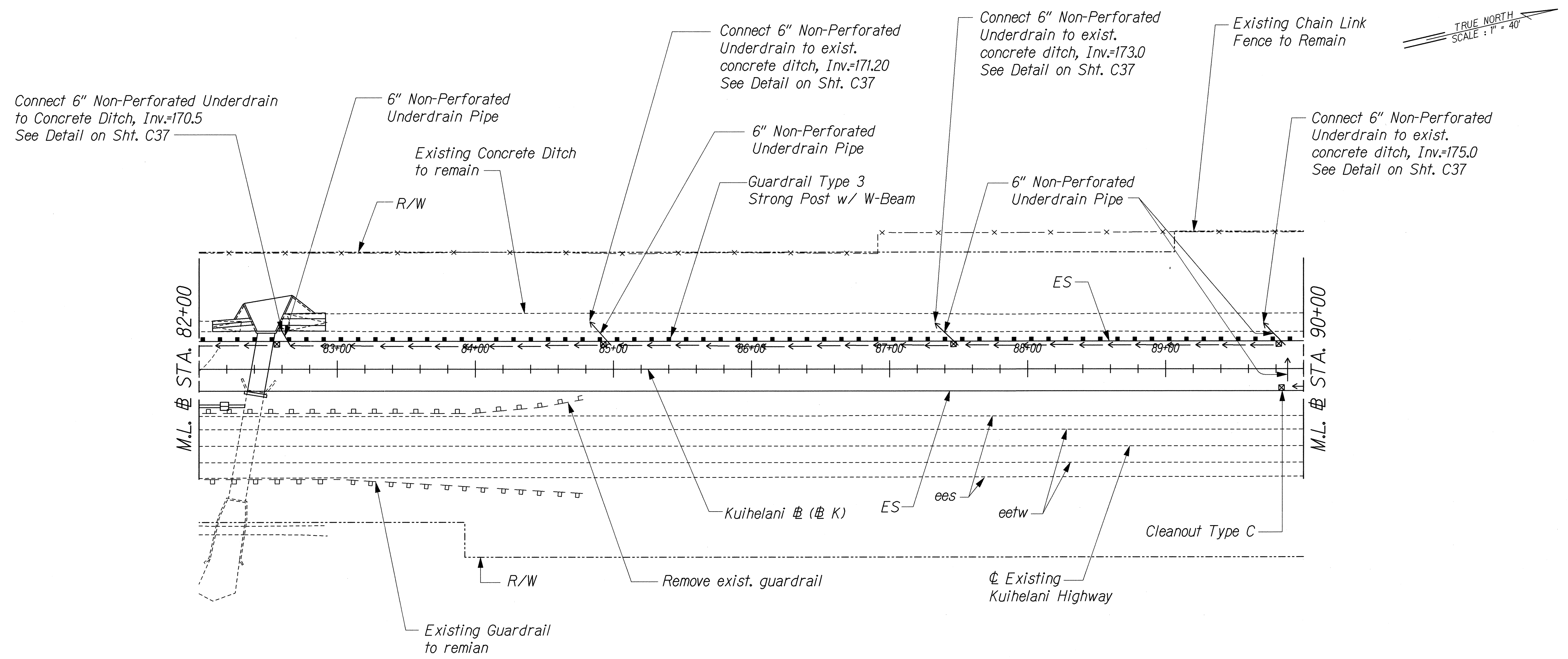
R. M. Urasaku 7/14/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY CONSTRUCTION

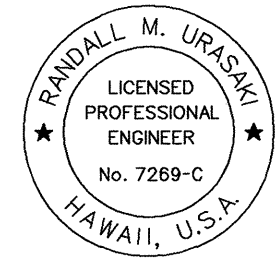
KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	65	380

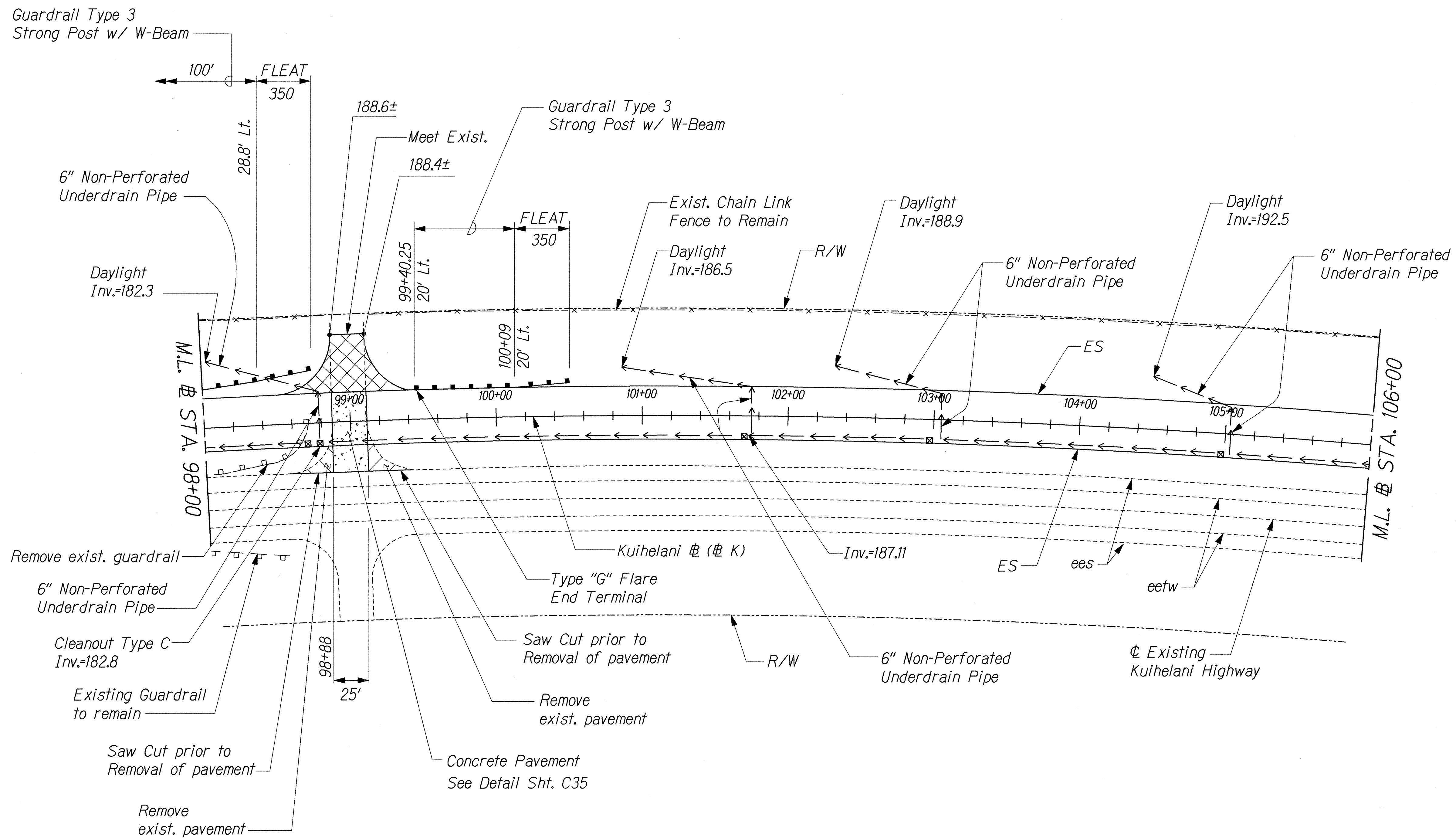
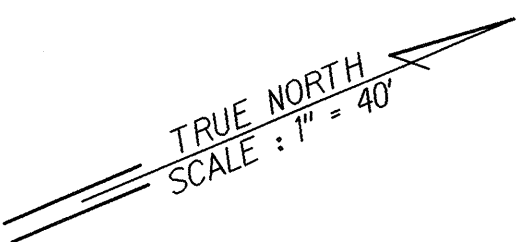


ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	DESIGNED BY	
	CHECKED BY	
	NO.	

J6/KUIHELANI/ROAD/RC-10.dgn

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	SHEET No. C10 OF 53 SHEETS
	65

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	67	380



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

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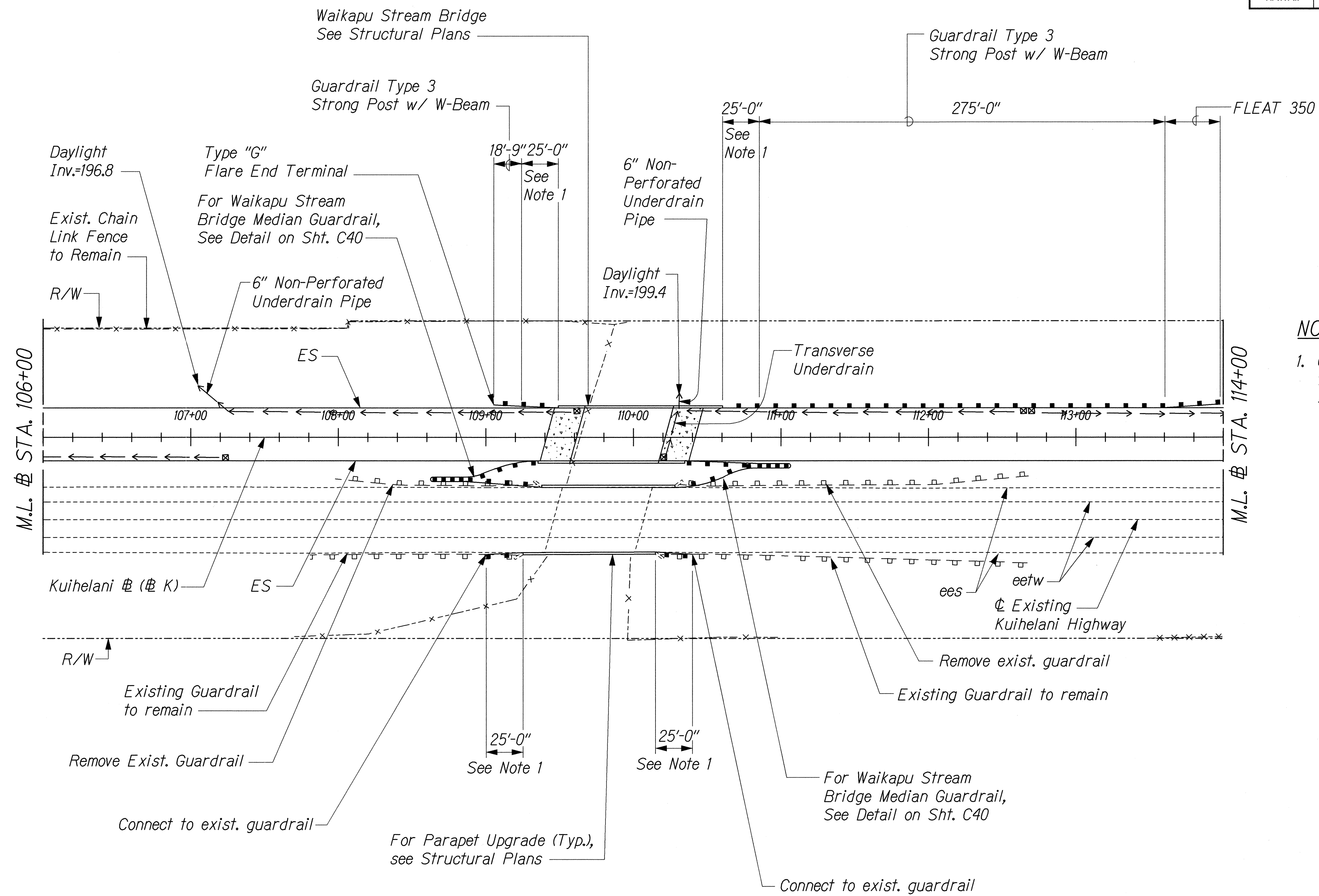
R. M. Urasaki 9/14/00

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY CONSTRUCTION

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	68	380



NOTE:
 1. Guardrail Type 3 Thrie Beam transition to W-Beam. See Detail on Sht. C44

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

W/KUIHELANI/ROAD/RC-13.dgn

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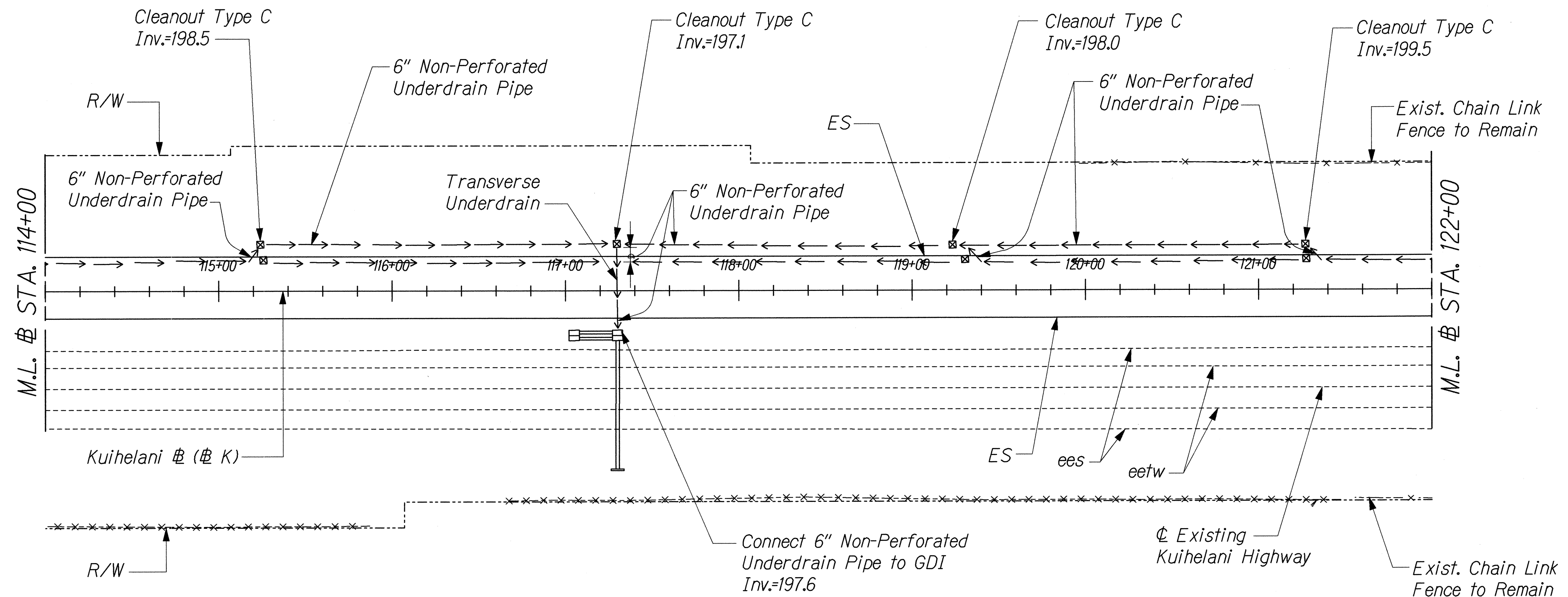
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
ROADWAY CONSTRUCTION

**KUIHELANI HIGHWAY WIDENING
 HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
 FEDERAL-AID PROJECT NO. NH-0380(9)**

Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	69	380

TRUE NORTH
SCALE: 1" = 40'



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	DESIGNED BY	
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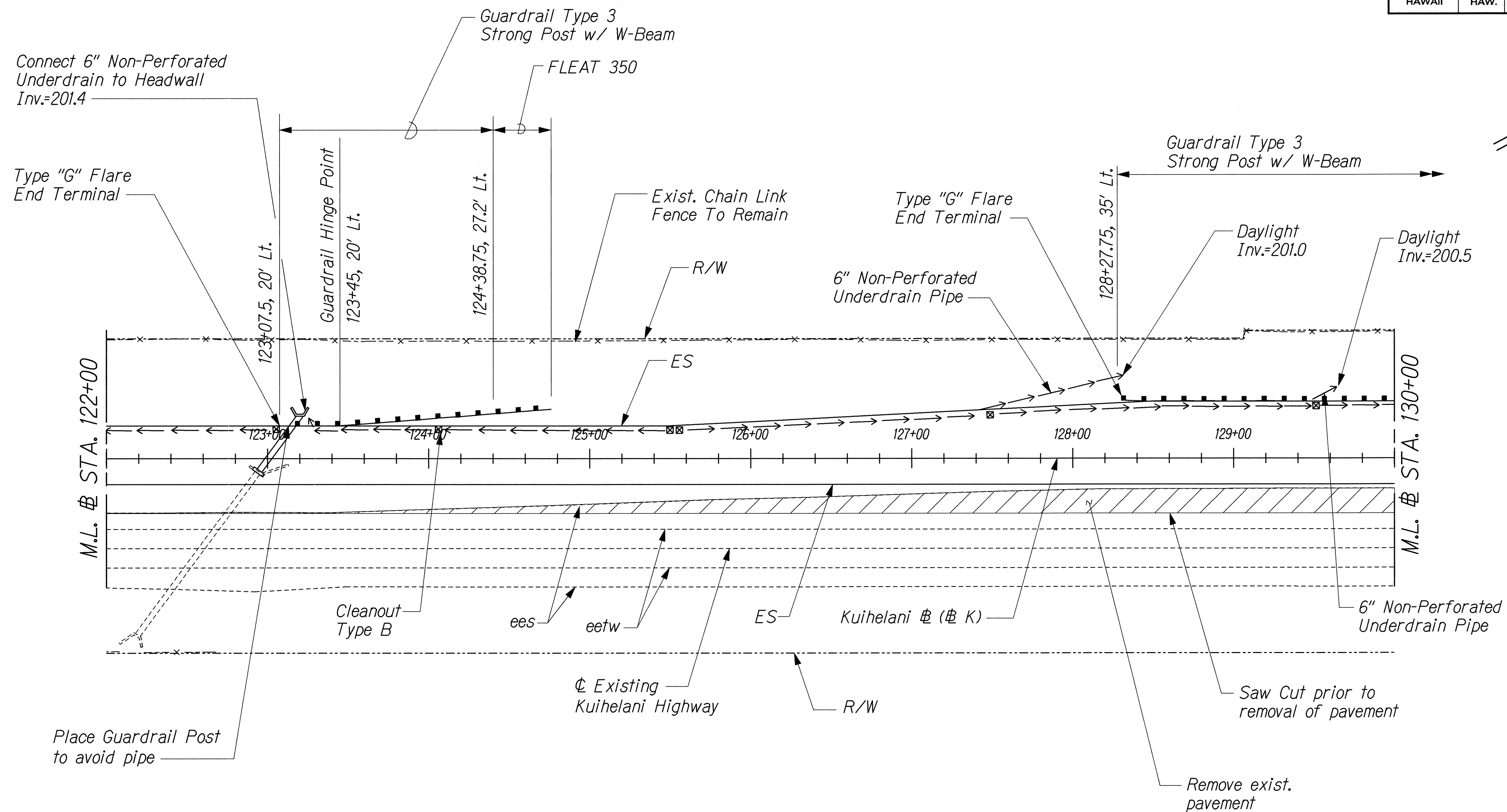
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY CONSTRUCTION

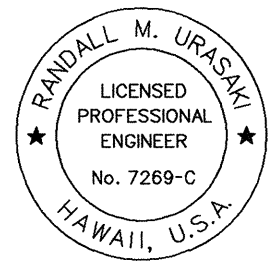
KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	70	380



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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NOTE BOOK		
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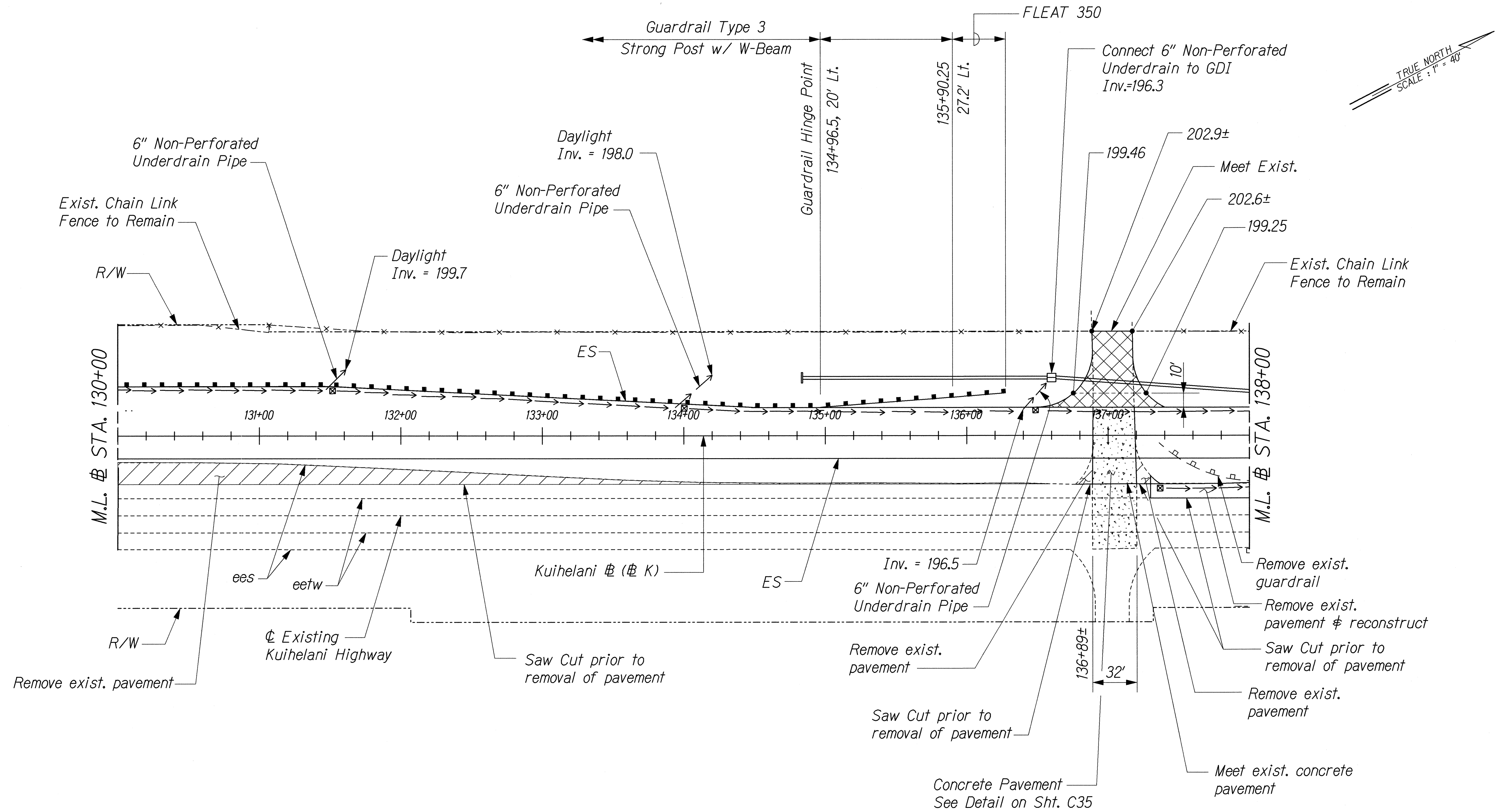
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY CONSTRUCTION

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

SHEET No. C15 OF 53 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	71	380



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

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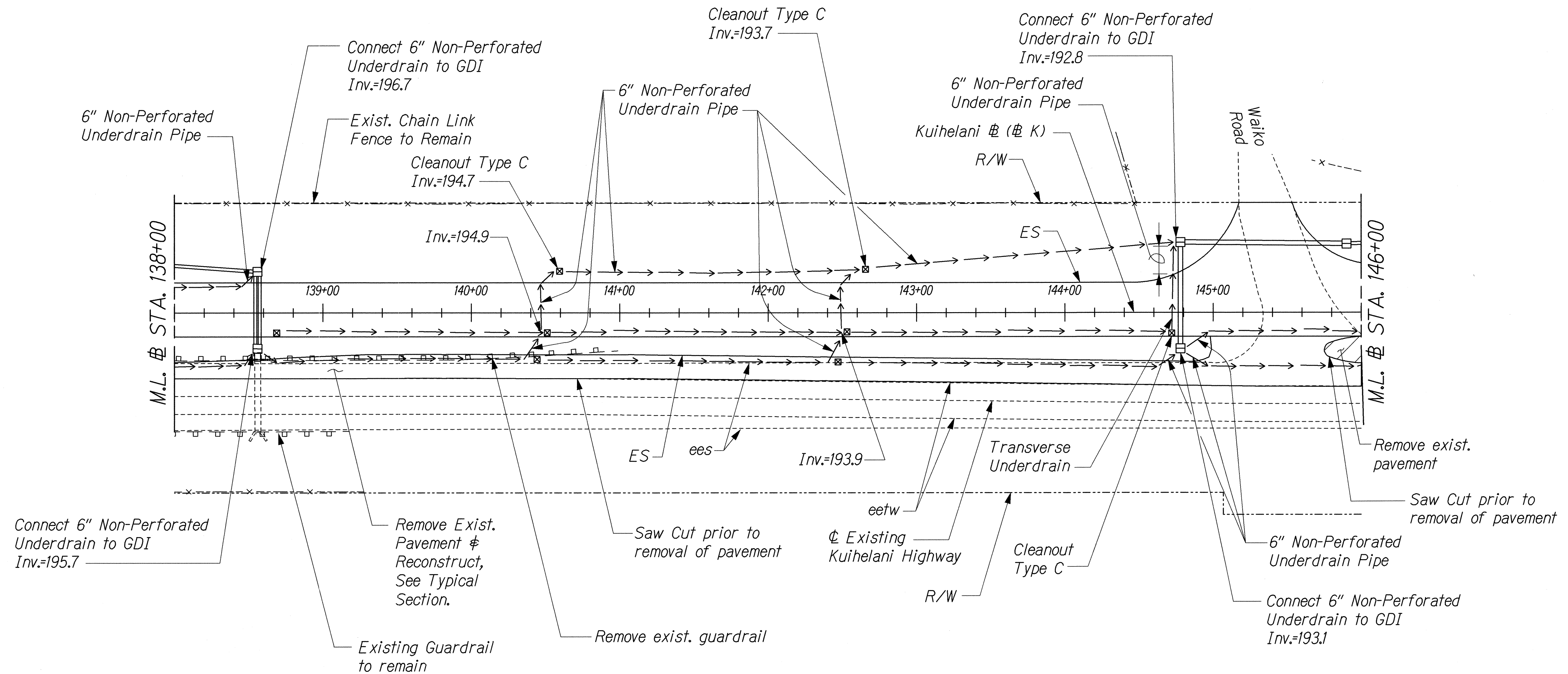
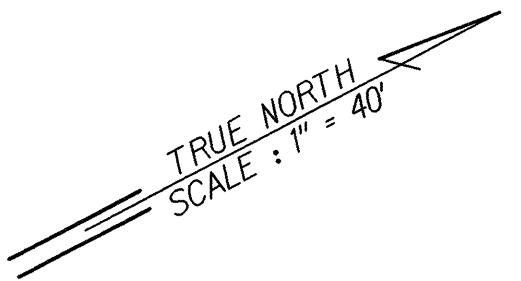
R. M. Urasani

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY CONSTRUCTION

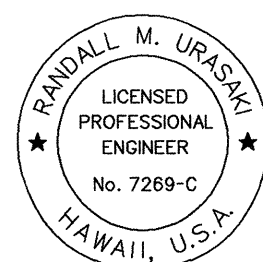
KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	72	380



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

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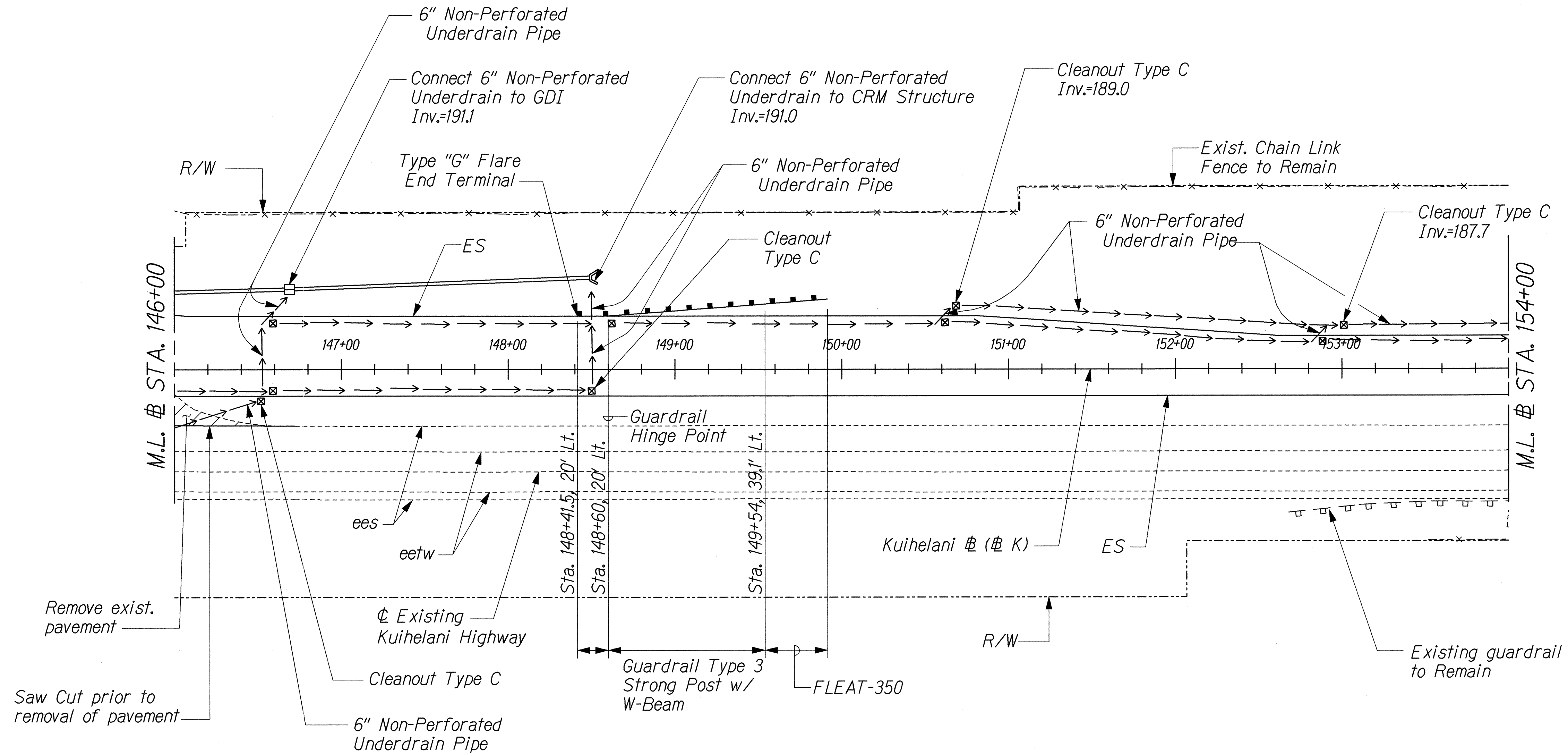
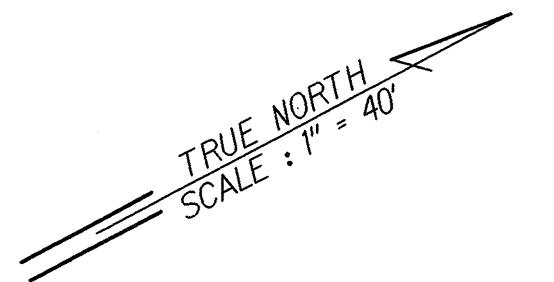
R. M. Urasaka 1/1/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY CONSTRUCTION

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

SHEET No. C17 OF 53 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	73	380



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
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	DESIGNED BY	
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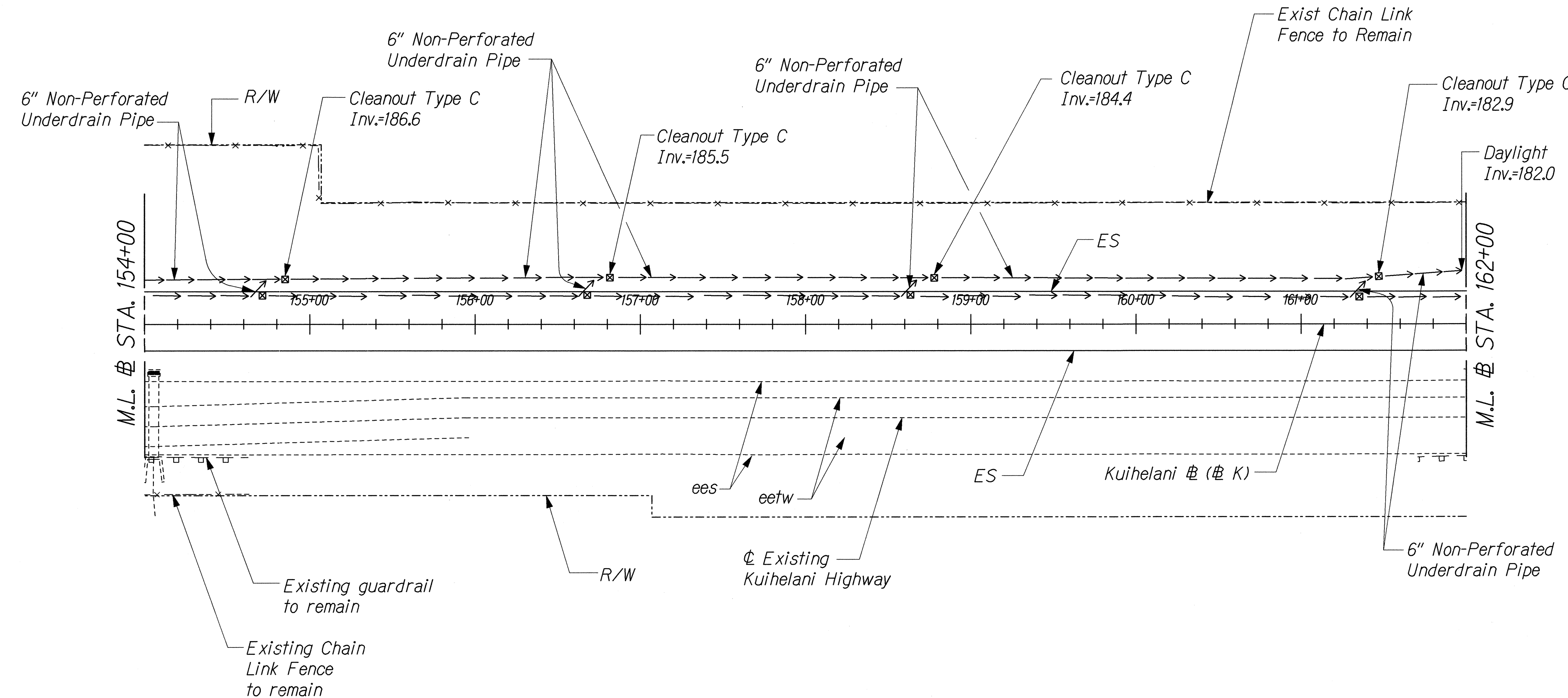
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY CONSTRUCTION

**KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE**
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

SHEET No. C18 OF 53 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	74	380

TRUE NORTH
SCALE: 1" = 40'



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

J-1 KUIHELANI / ROAD / RC-19.dgn

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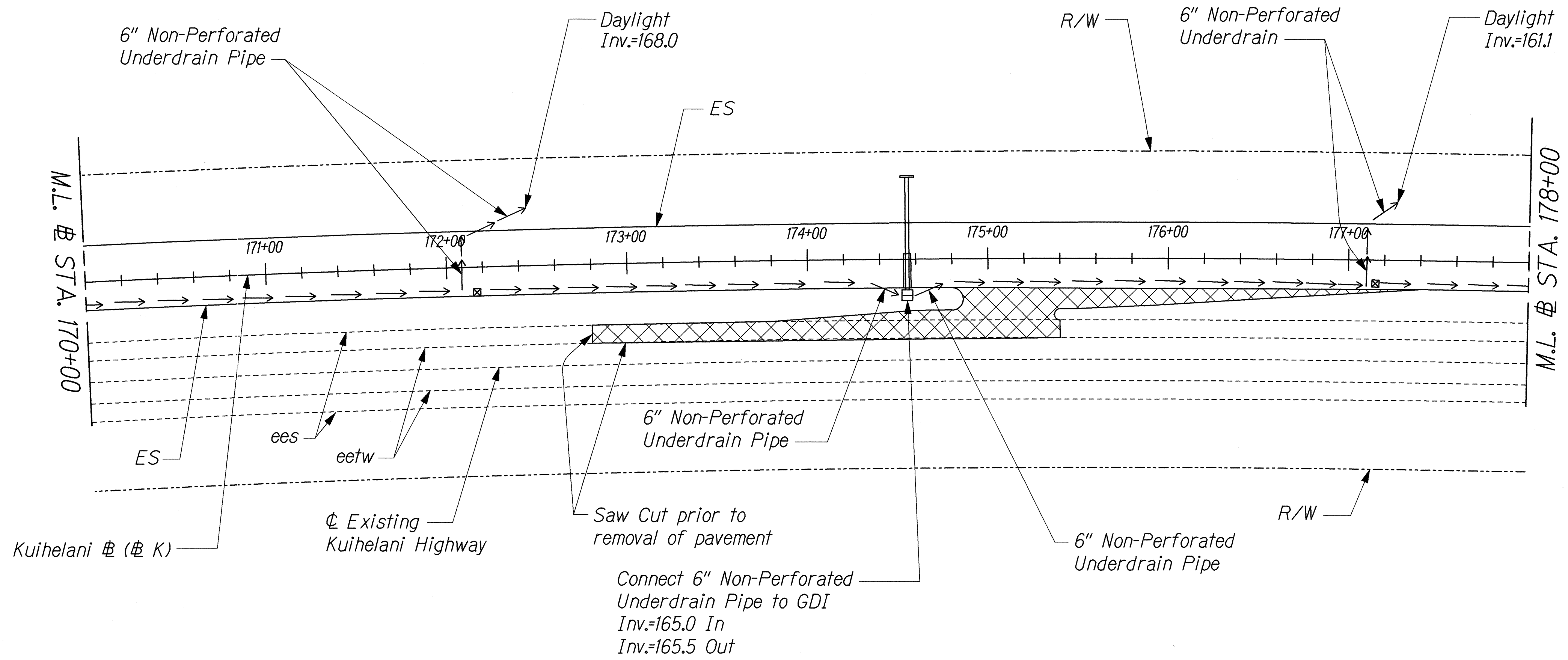
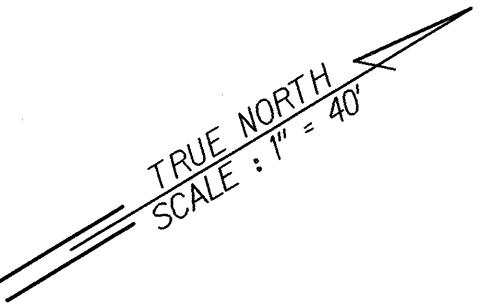
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY CONSTRUCTION

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	76	380



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

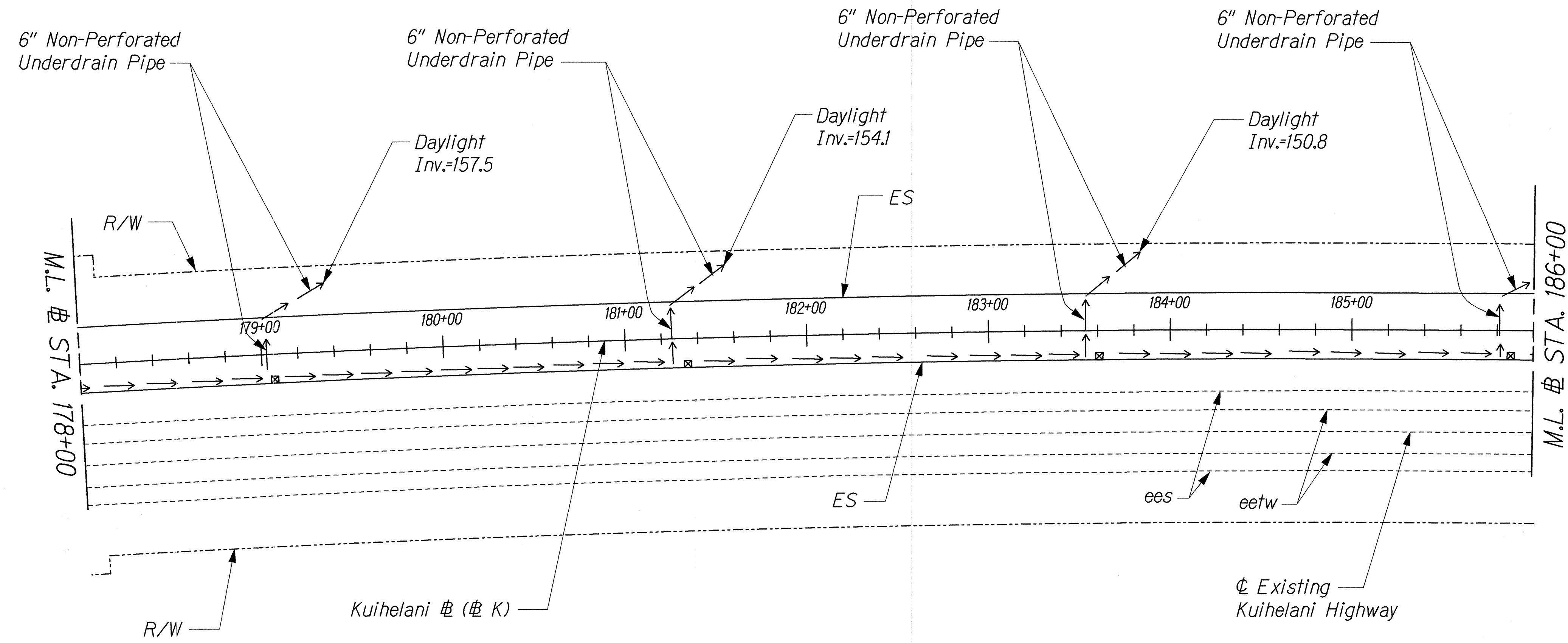
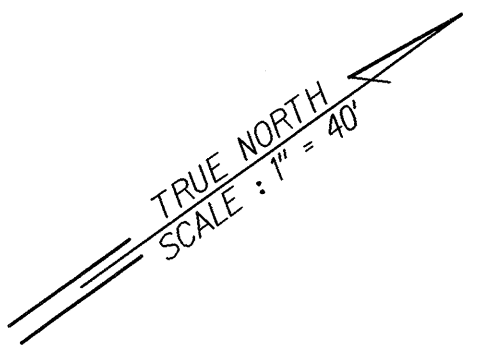
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STATE OF HAWAII
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HIGHWAYS DIVISION
ROADWAY CONSTRUCTION

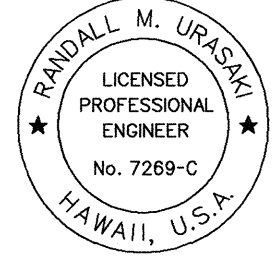
**KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE**
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	77	380



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTED BOOK	DRAWN BY	
No.	CHECKED BY	

J: KUIHELANI/ROAD/RC-22.dgn



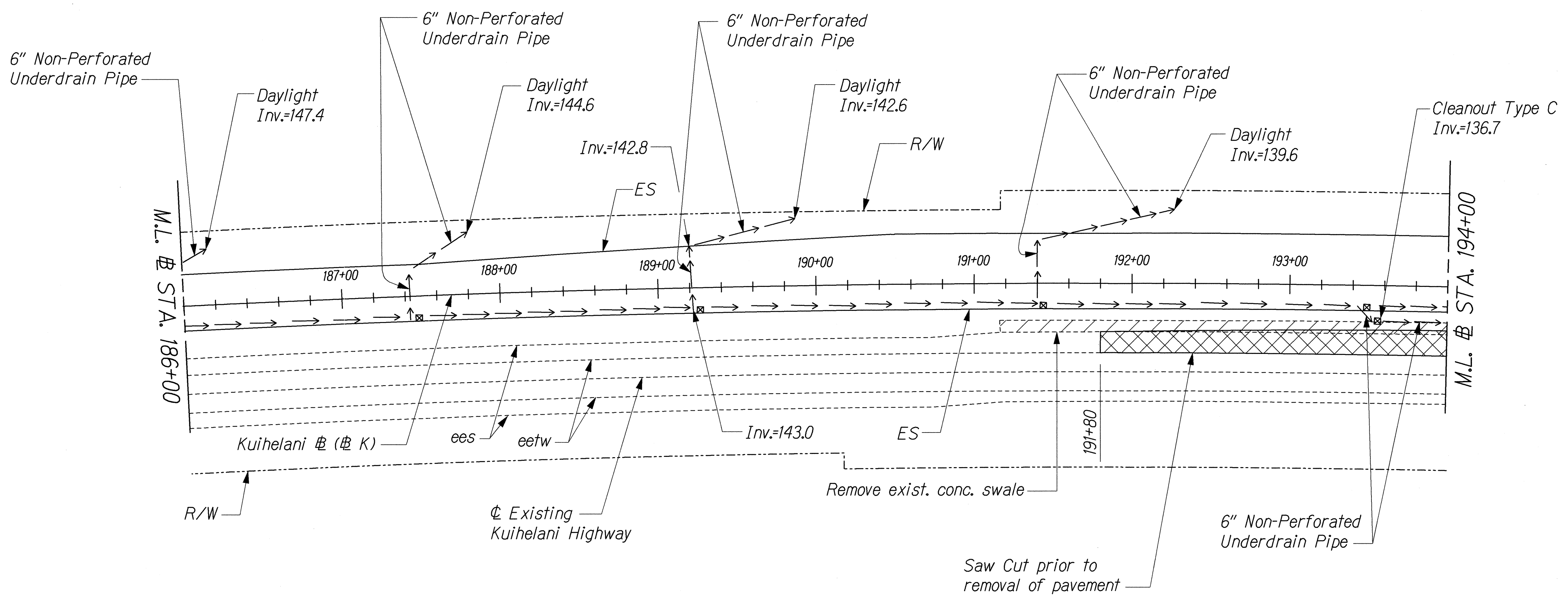
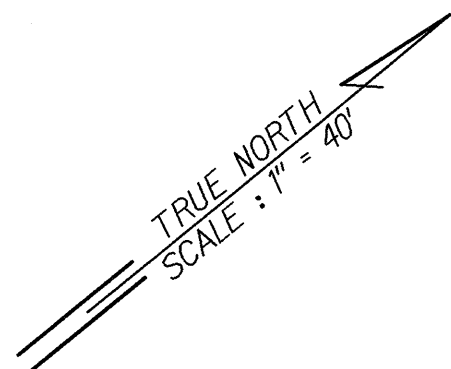
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R. M. Urasak 9/14/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY CONSTRUCTION

**KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)**

Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	78	380



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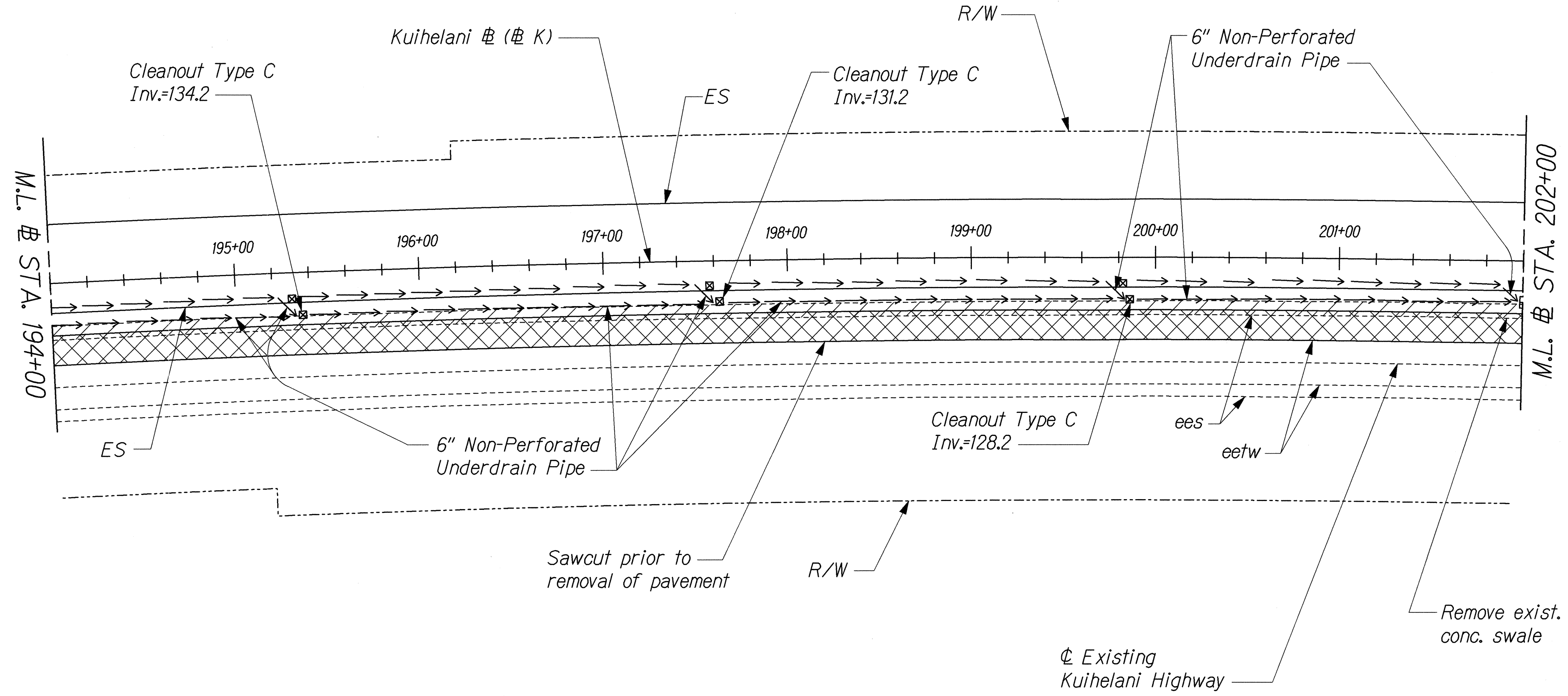
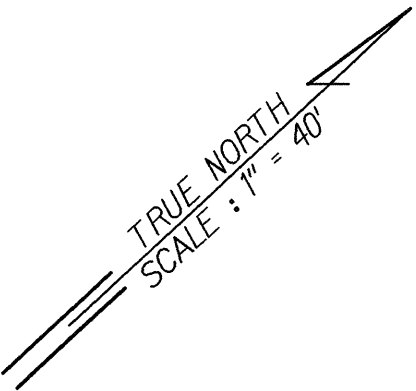
R. M. Urayama
7/1/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY CONSTRUCTION

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

SHEET No. C23 OF 53 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	79	380



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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J6/KUIHELANI/ROAD/RC-24dgn

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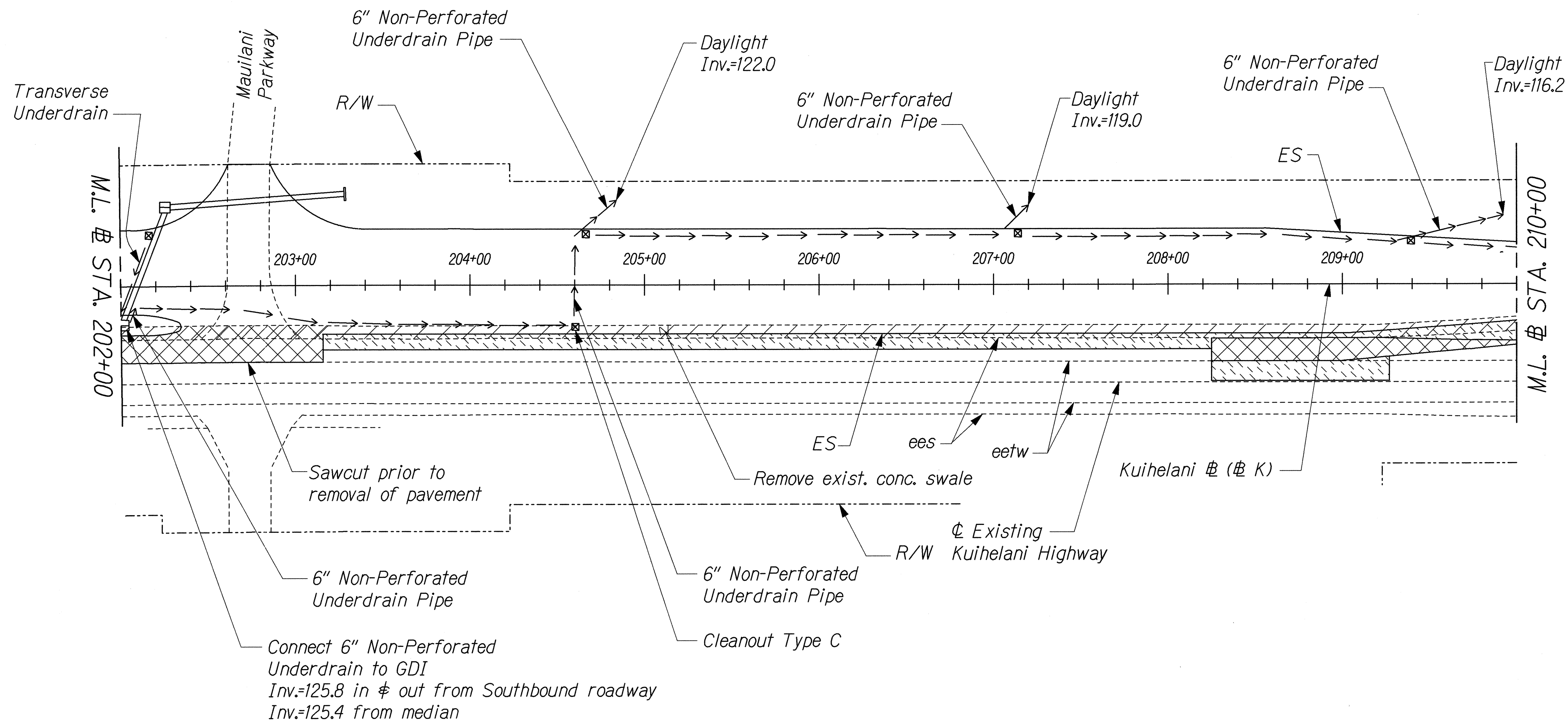
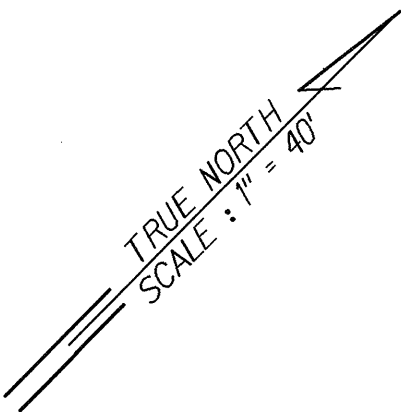
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY CONSTRUCTION

**KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)**

Scale: 1"=40' Date: Sept. 14, 2001

SHEET No. C24 OF 53 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	80	380



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J:\KUIHELANI/ROAD/RC-25.dgn

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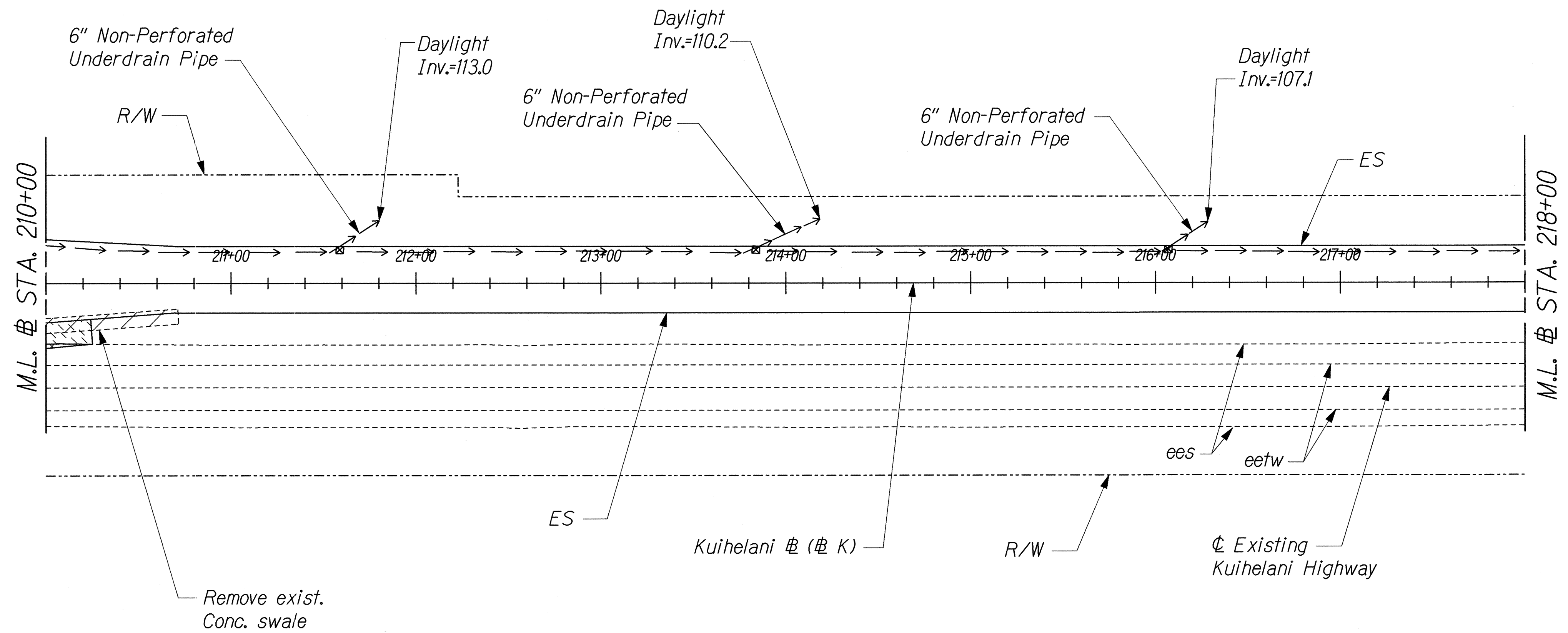
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY CONSTRUCTION

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	81	380

TRUE NORTH
SCALE: 1" = 40'



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
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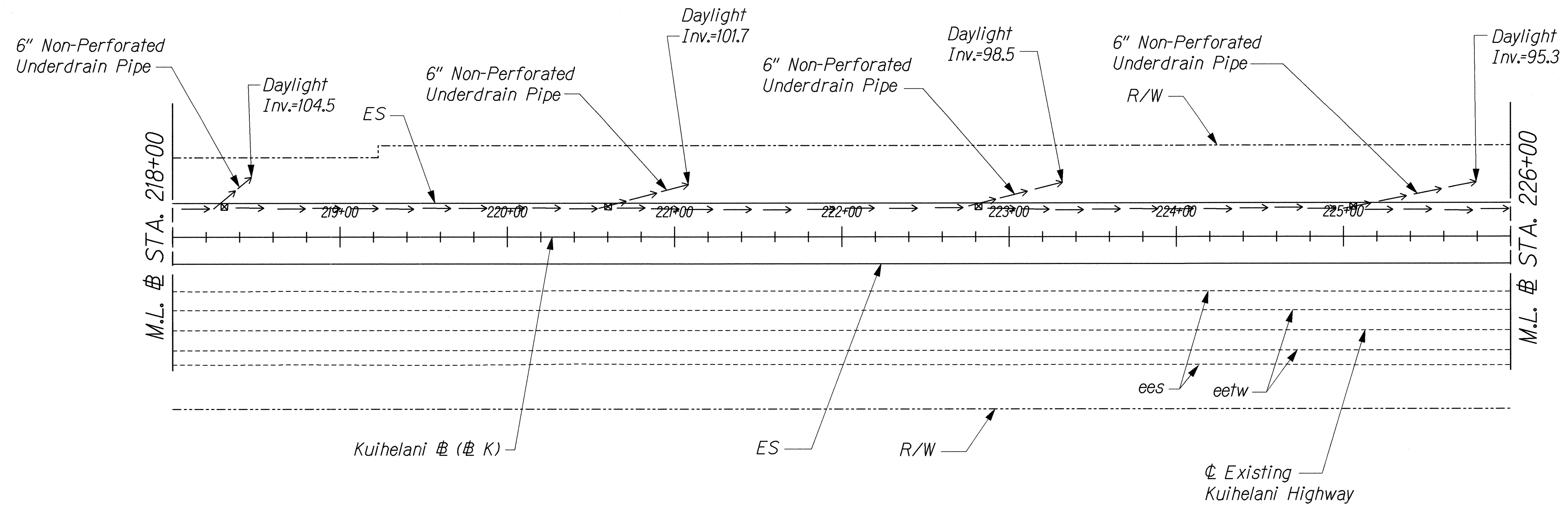
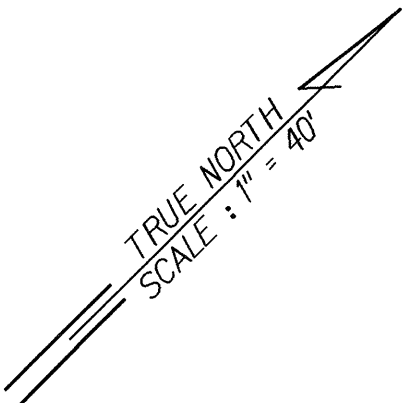
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY CONSTRUCTION

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	82	380



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
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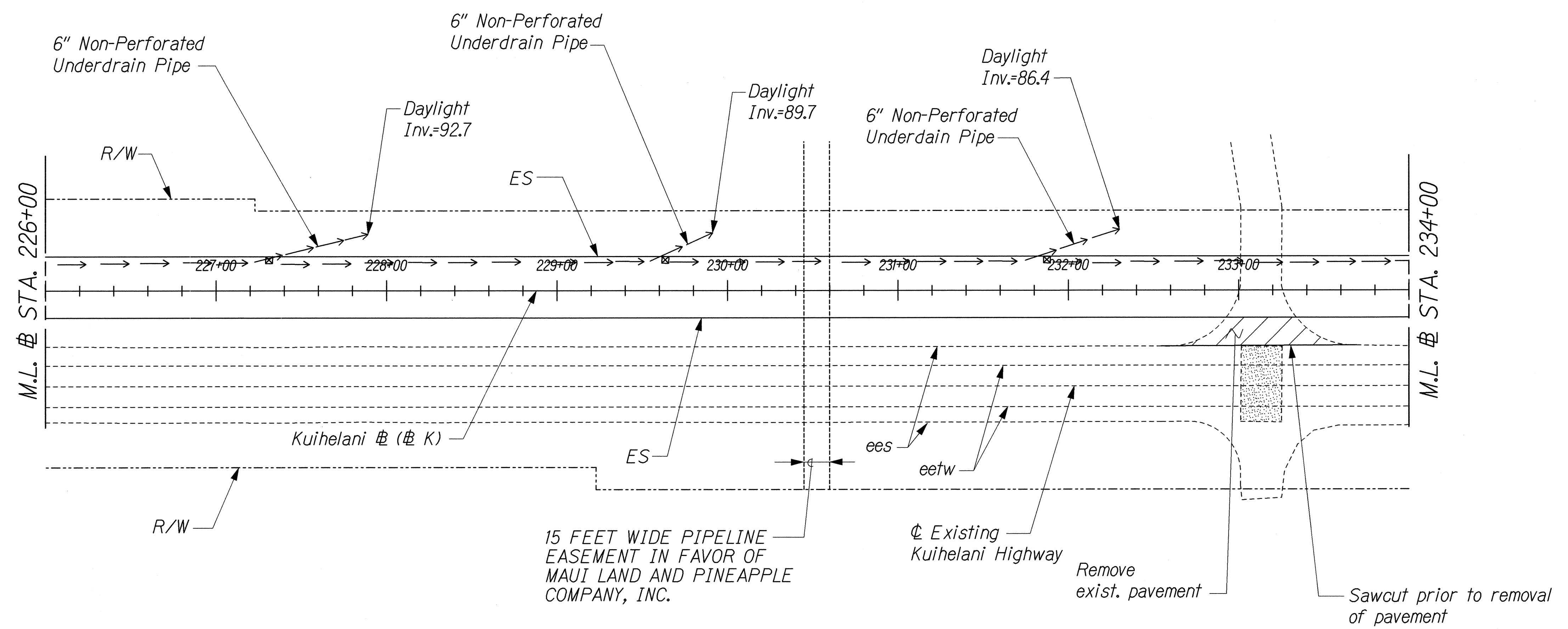
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY CONSTRUCTION

**KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)**

Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	83	380

TRUE NORTH
SCALE: 1"=40'



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

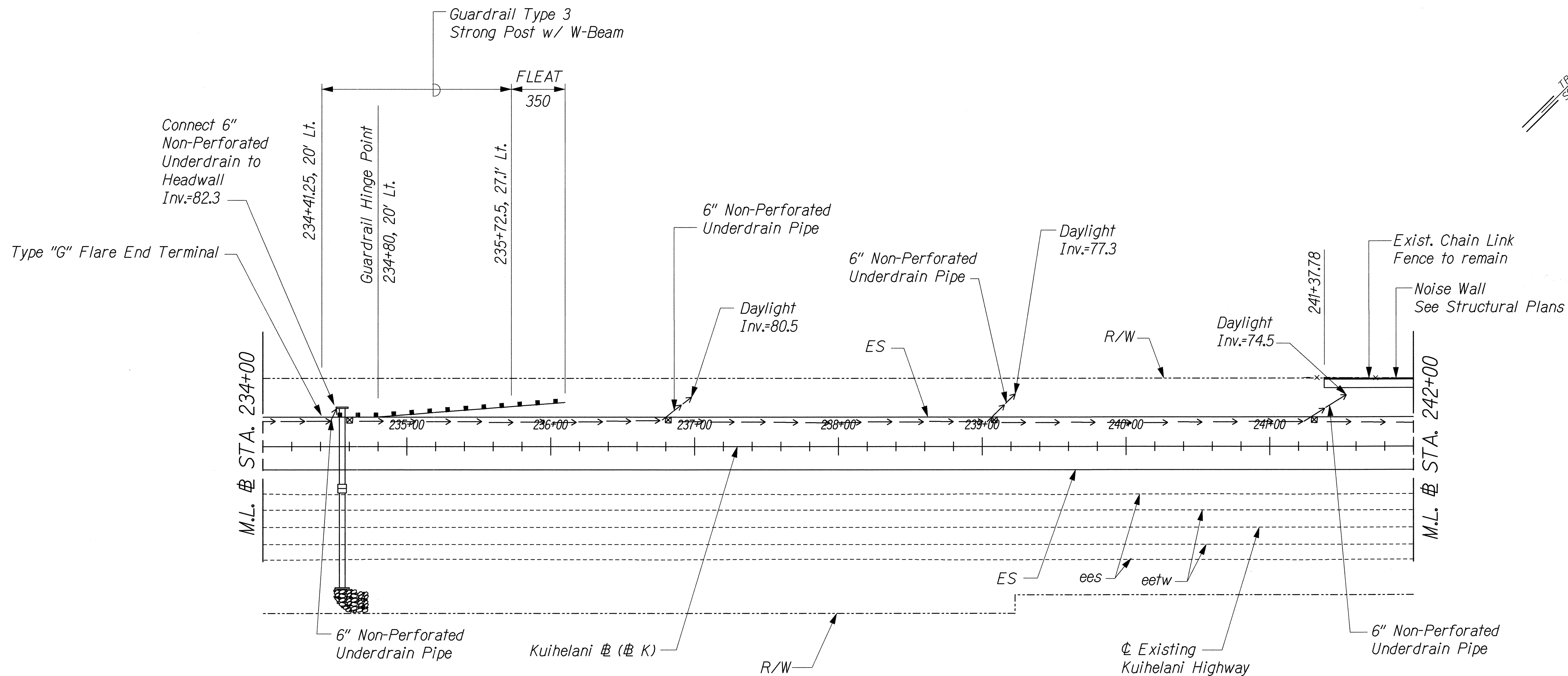
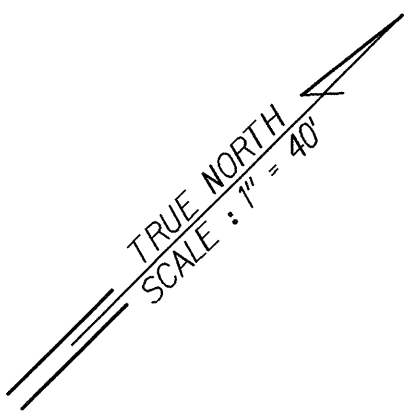
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY CONSTRUCTION

**KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE**
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	84	380



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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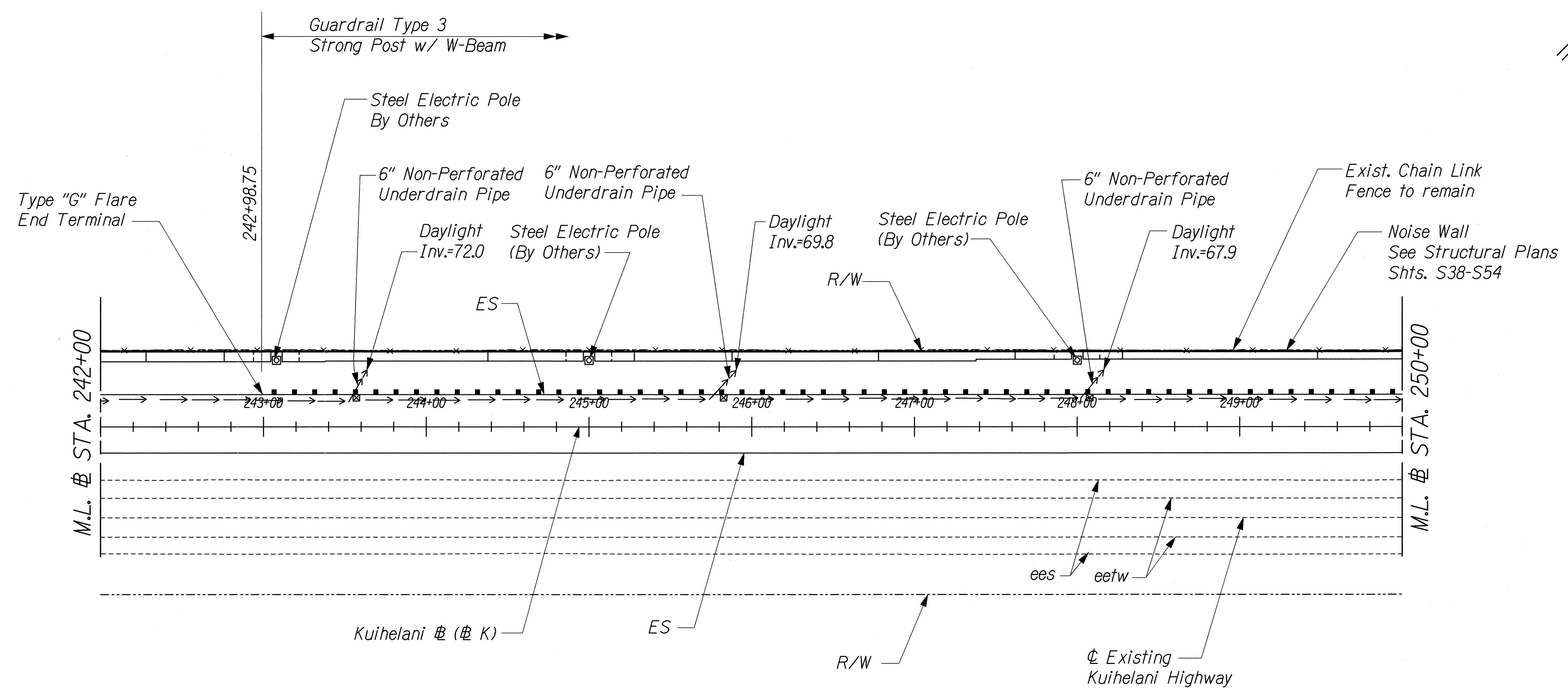
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STATE OF HAWAII
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ROADWAY CONSTRUCTION

**KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)**

Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	85	380



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
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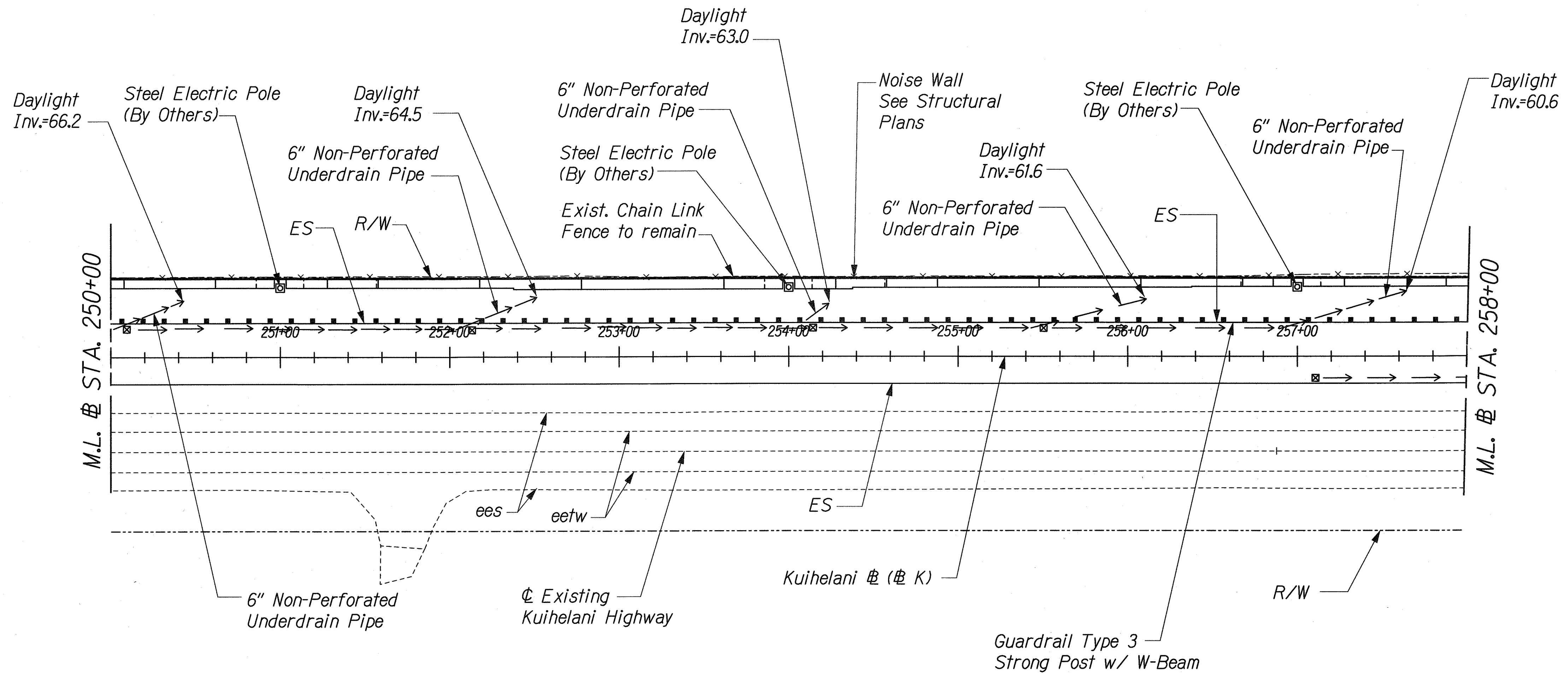
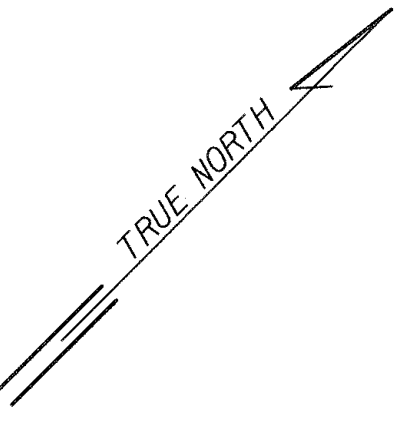
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY CONSTRUCTION

**KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)**

Scale: 1"=40' Date: Sept. 14, 2001

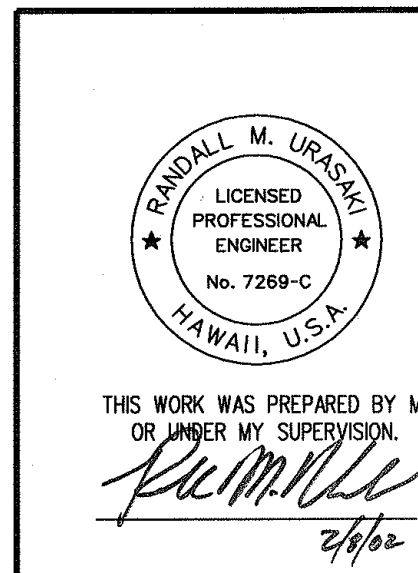
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HAWAII	HAW.	NH-0380(9)	2000	86	380



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	DESIGNED BY	
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NOTE:
See Sheets C36 and C37 for Underdrain and Cleanout Details.



2/8/02	Revised Underdrains from Sta. 255+00 to 258+00
Date	Revision

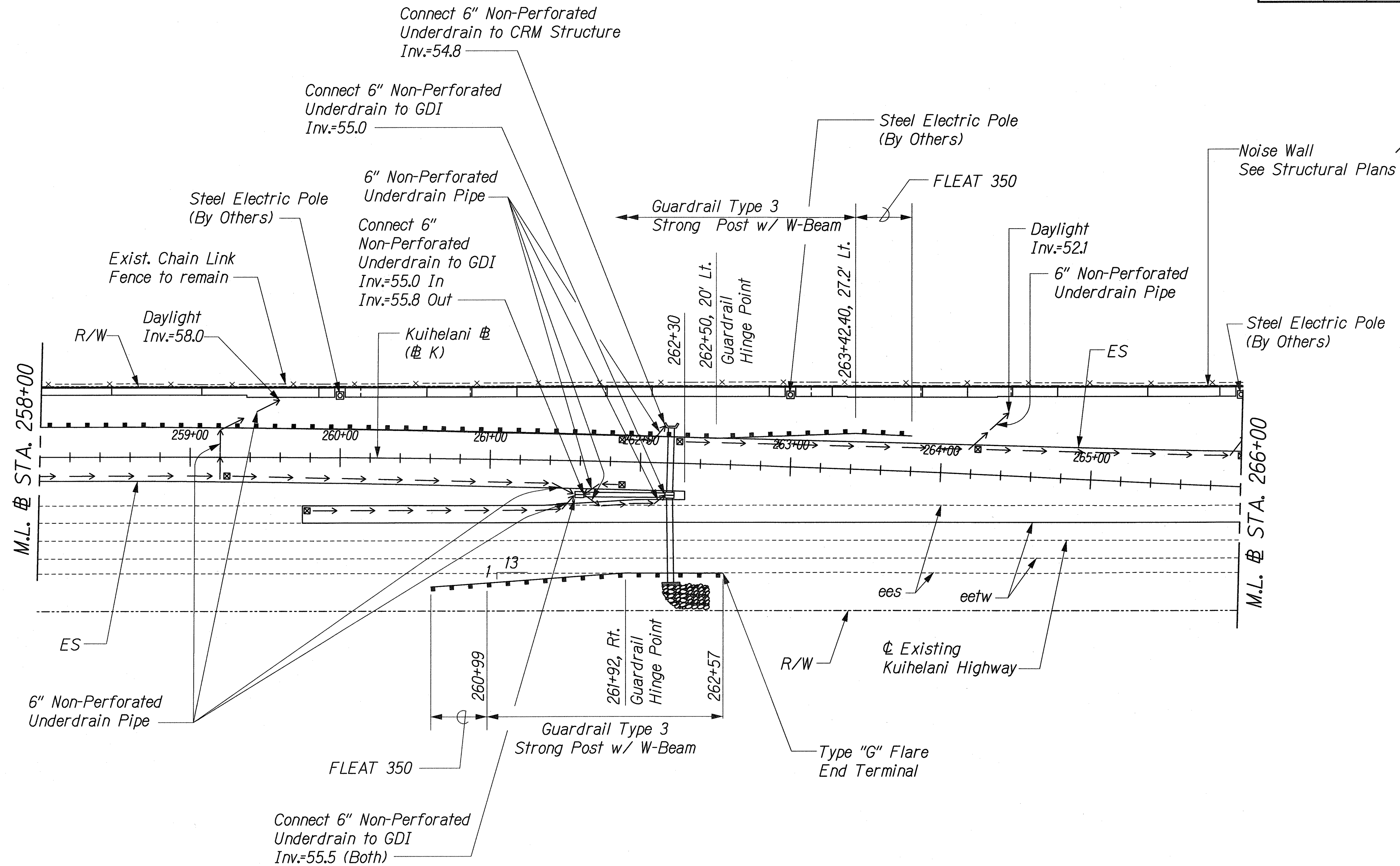
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY CONSTRUCTION

**KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)**

Scale: 1"=40' Date: Feb. 8, 2002

SHEET No. C31 OF 53 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	87	380



NOTES:

1. See Sheets C36 and C37 for Underdrain and Cleanout Details.
2. See Sheet C50 for FLEAT 350 Details.
3. See Sheets C45-C47 for Guardrail Type 3 Details.

SURVEY PLOTTED BY	DATE
DESIGNED BY	
NOTED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
N.	

6-KUIHELANI CHANGE ORDER/PARK-AND-RIDE/ROAD/RC-3200.dgn

2/8/02	Revised Sheet
Date	Revision

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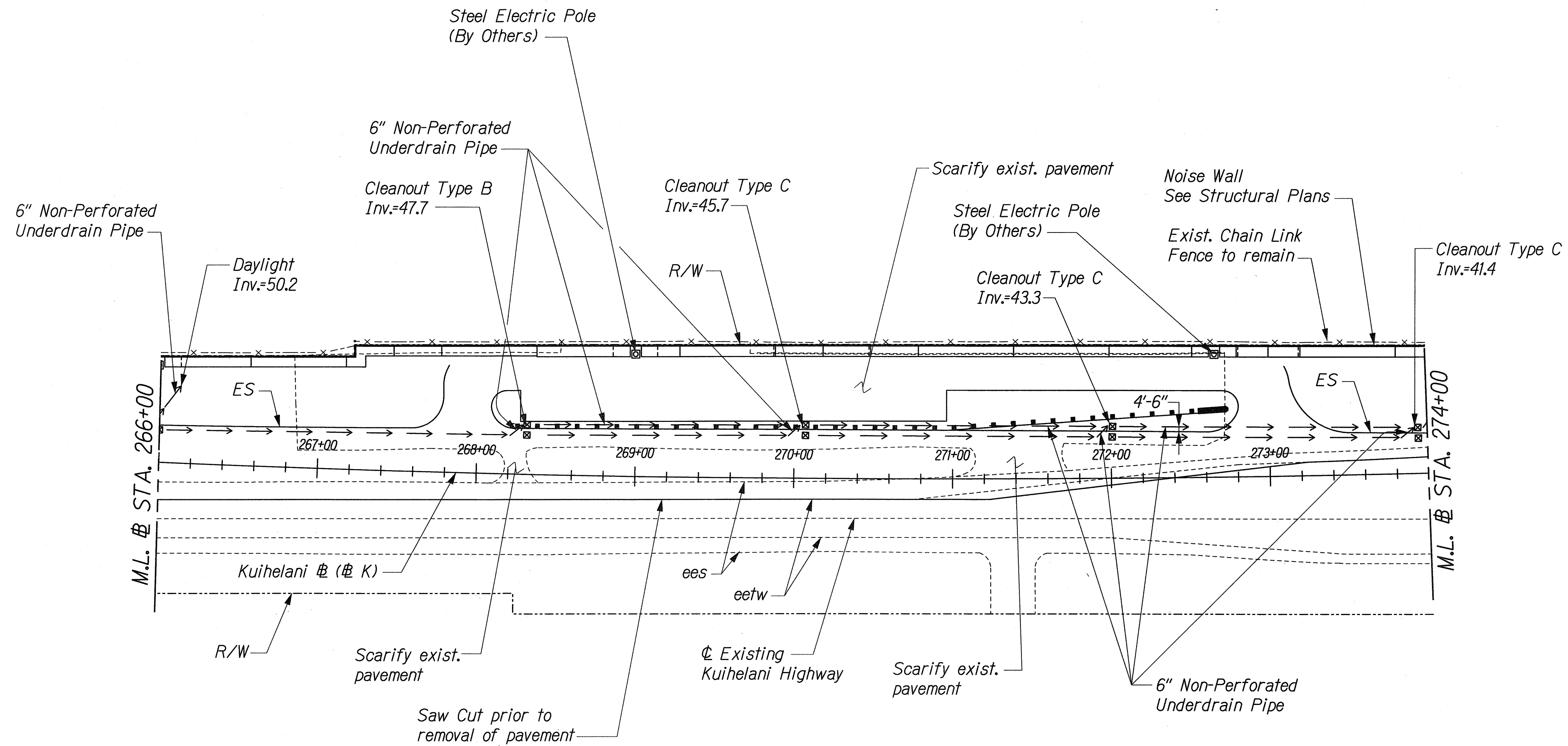
2/8/02

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY CONSTRUCTION

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Feb. 8, 2002

SHEET No. C32 OF 53 SHEETS

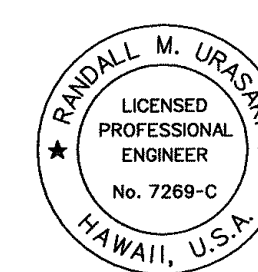
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	88	380



NOTES:

1. See Sheets C36 and C37 for Underdrain and Cleanout Details.
2. Contractor shall scarify existing park-and-ride pavement.
3. Contractor shall exercise caution in placing guardrail posts to avoid conflict with underdrain pipes and cleanouts.
4. 6" Non-perforated Underdrain Pipe shall be located 4'-6" from Edge of Shoulder.

2/8/02	Revised Sheet
Date	Revision



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R. M. Urasaki
2/8/02

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY CONSTRUCTION

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Feb. 8, 2002

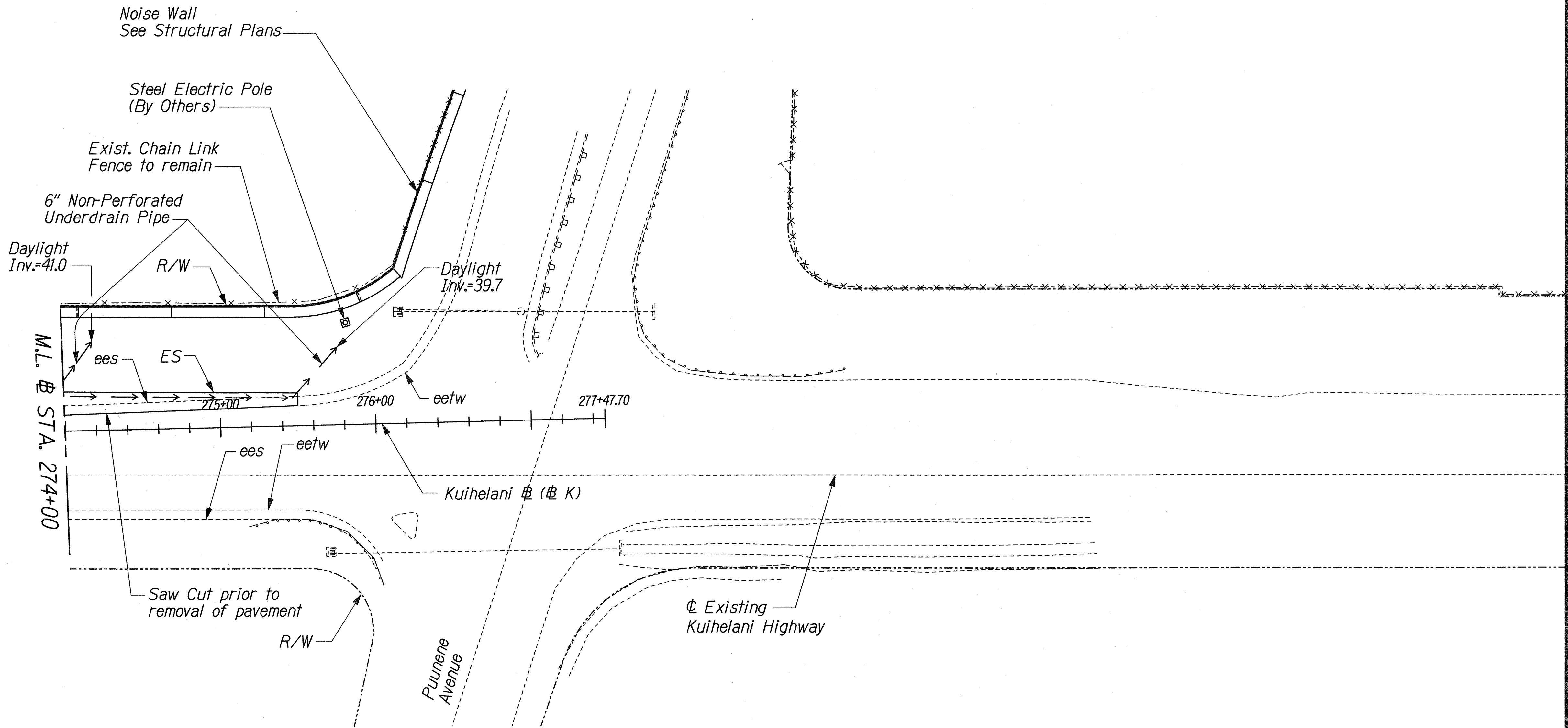
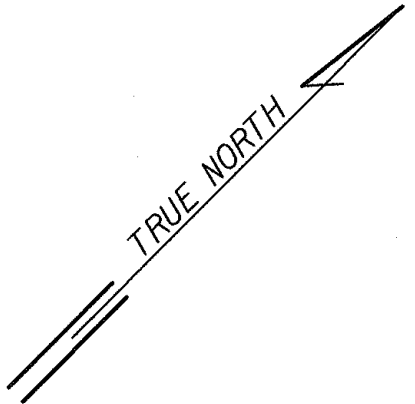
SHEET No. C33 OF 53 SHEETS

C.O. 88

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DESIGNED BY	
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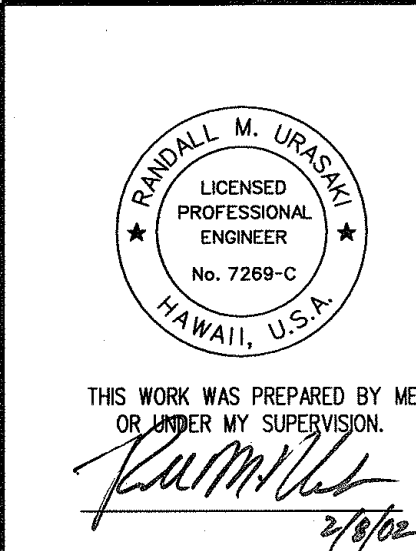
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HAWAII	HAW.	NH-0380(9)	2000	89	380



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

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NOTE:
See Sheets C36 and C37 for Underdrain and Cleanout Details



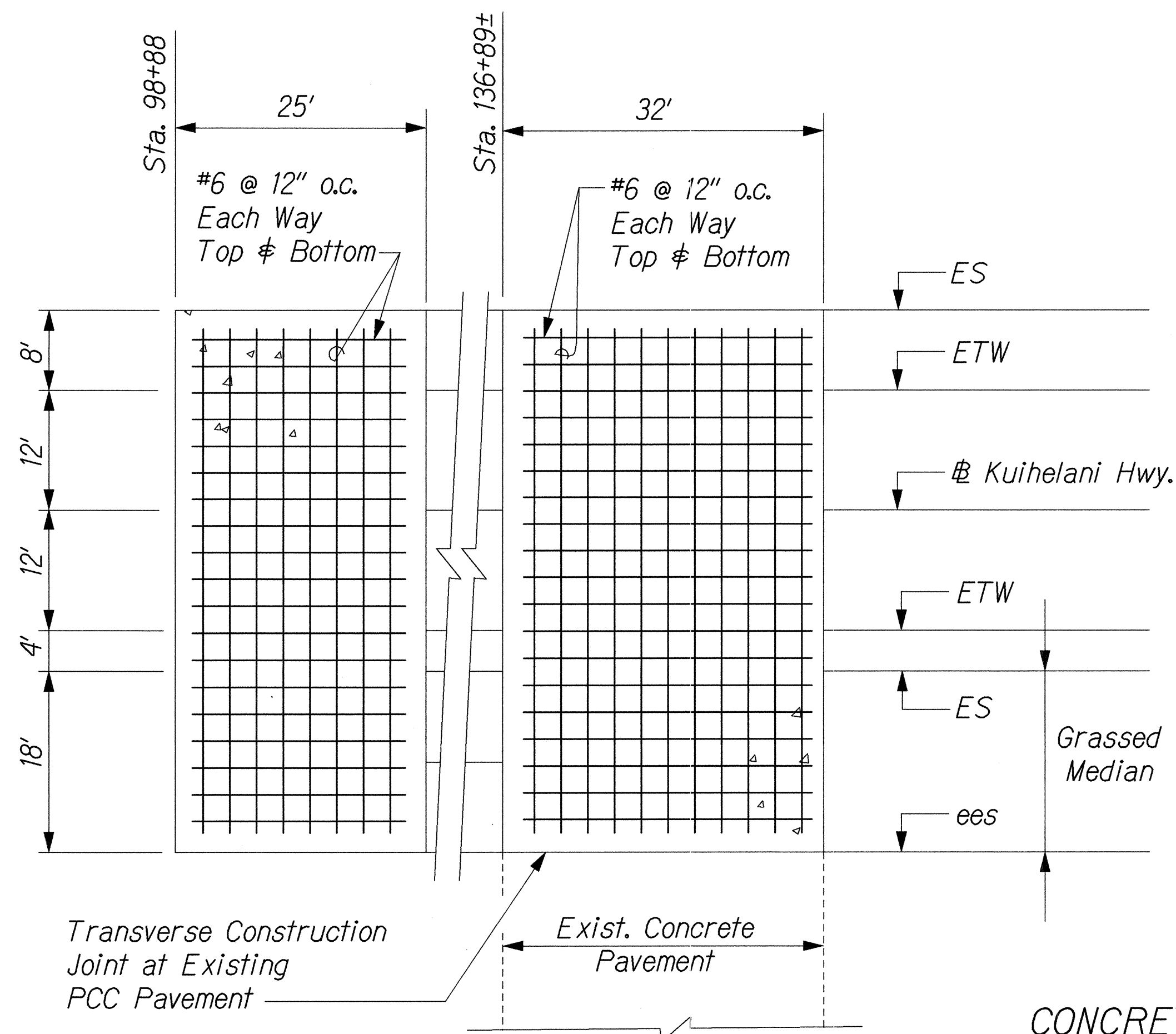
2/8/02	Revised Sheet
Date	Revision

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY CONSTRUCTION

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Feb. 8, 2002

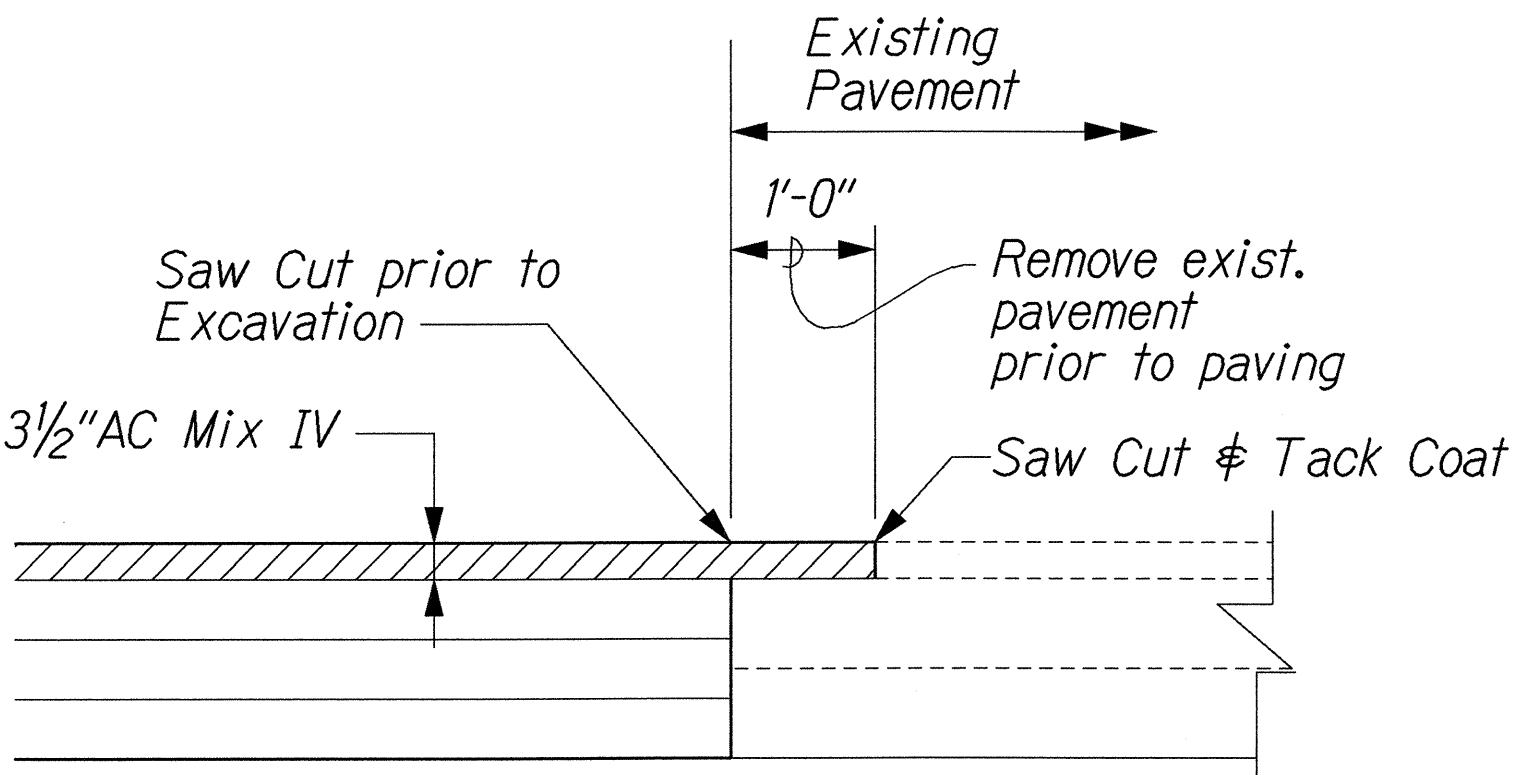
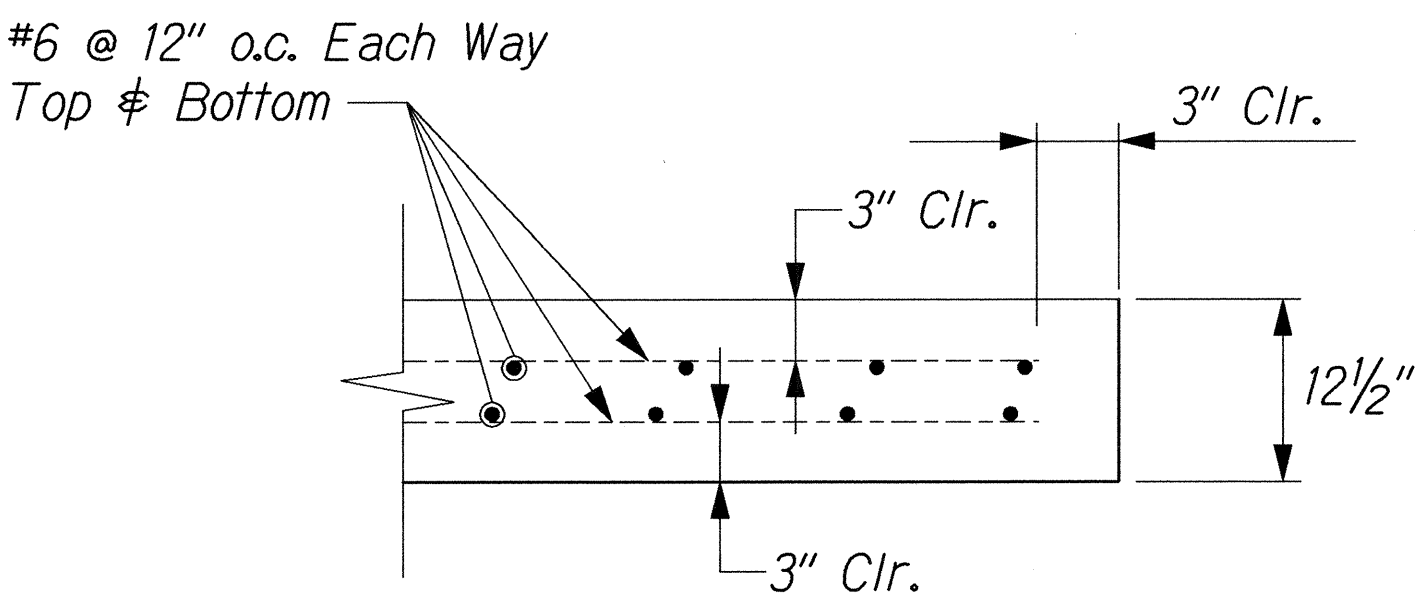
SHEET No. C34 OF 53 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	90	380

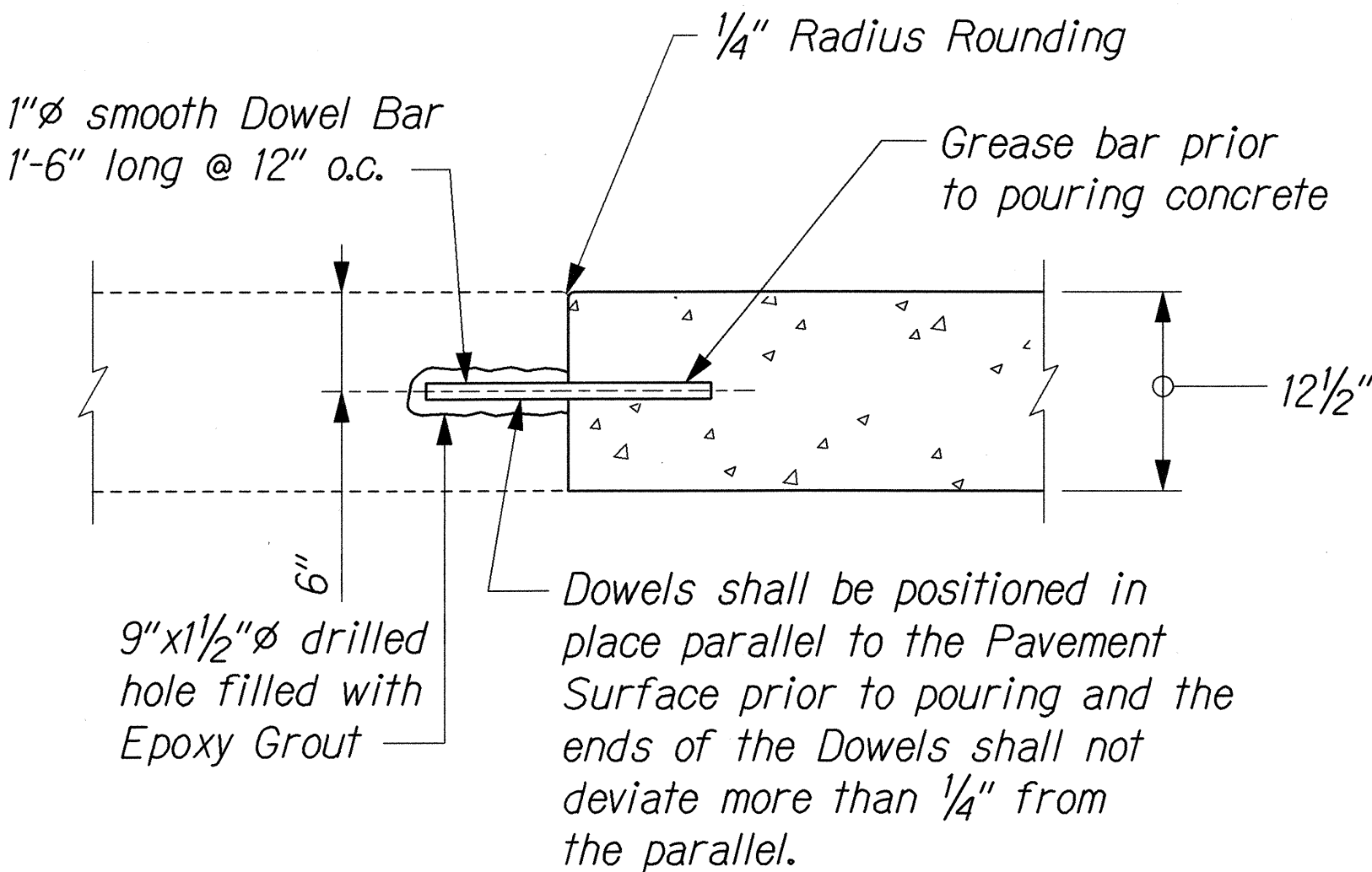


CONCRETE PAVEMENT
@ Sta. 98+88 & Sta. 136+89±
Not To Scale

NOTE:
Refer to Legend on Sht. G1 for PCC Pavement Structure.



PAVEMENT INTERFACE DETAIL
(Longitudinal or Transverse Interface)
Not To Scale



TRANSVERSE CONSTRUCTION JOINT
AT EXISTING P.C.C. PAVEMENT
Not to Scale

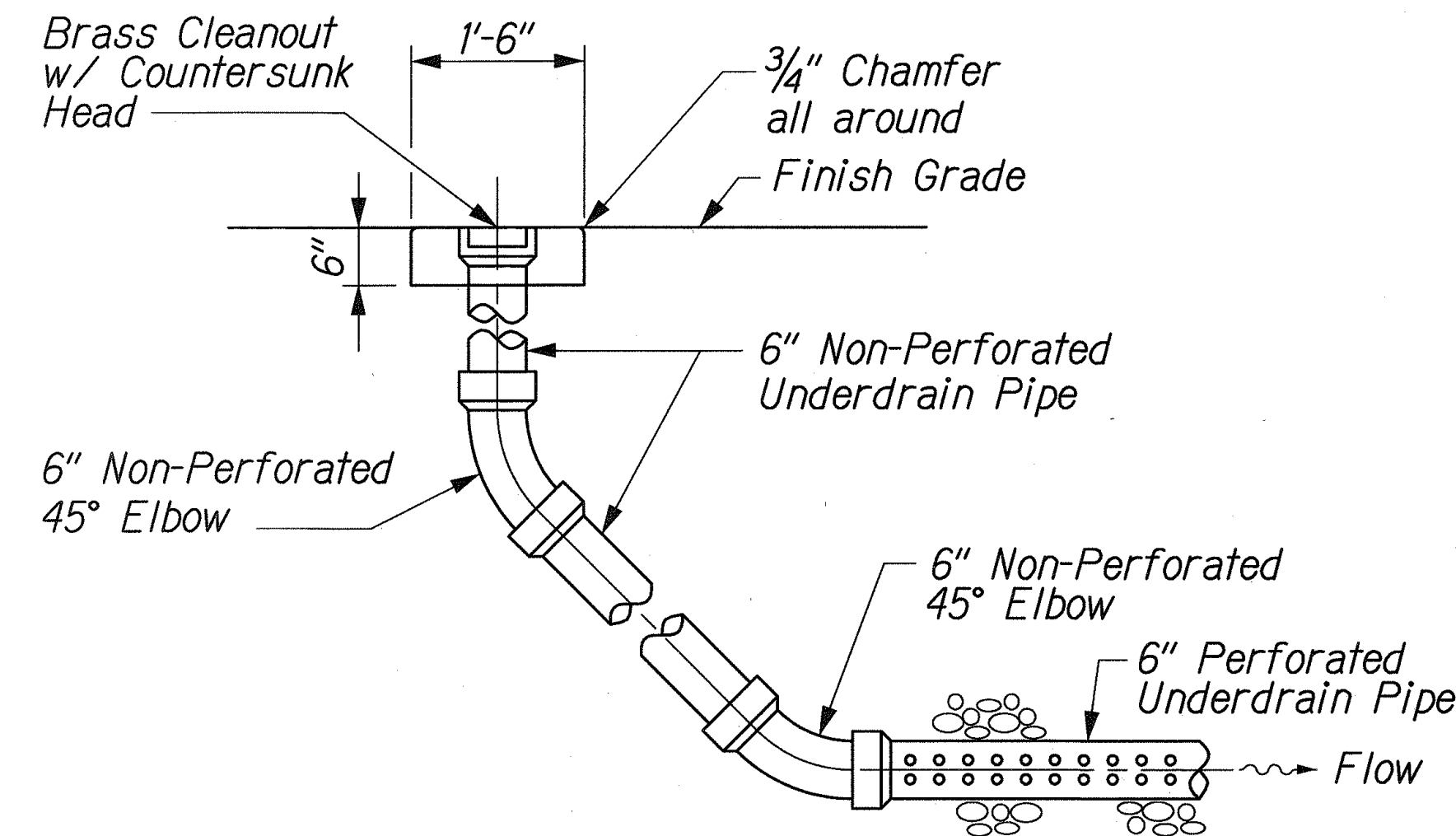
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DESIGNED BY	DRAWN BY	
CHECKED BY	DESIGNED BY	
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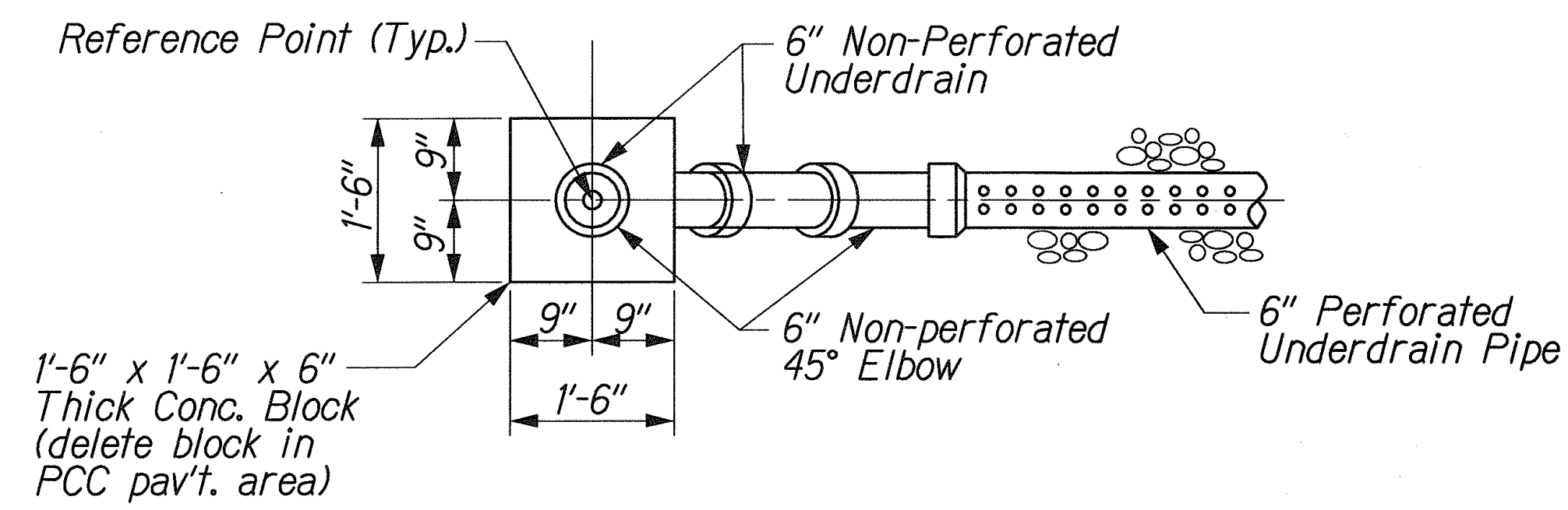
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**ROADWAY CONSTRUCTION
PAVEMENT DETAILS**
KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: As Shown Date: Sept. 14, 2001

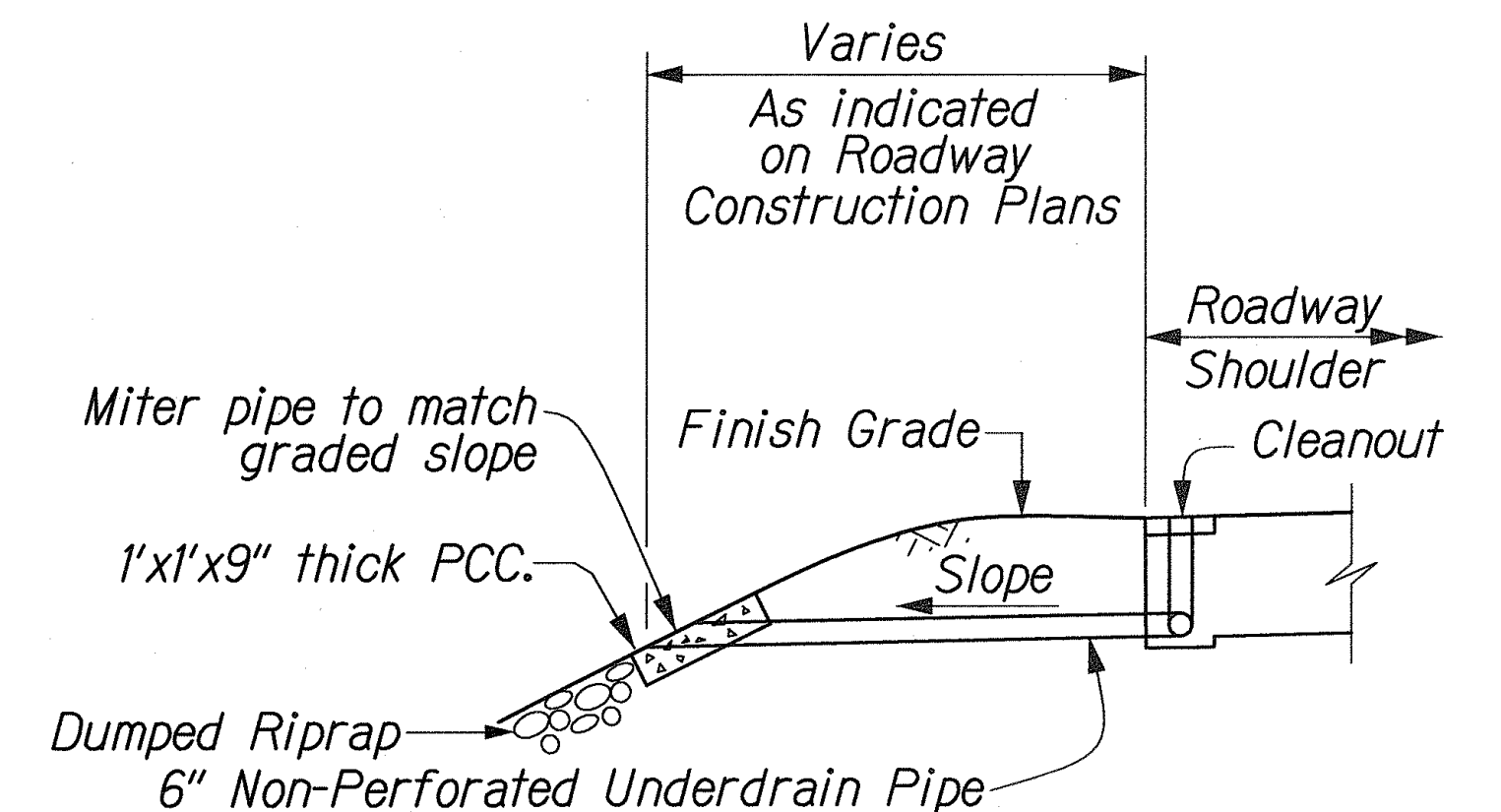
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HAWAII	HAW.	NH-0380(9)	2000	91	380



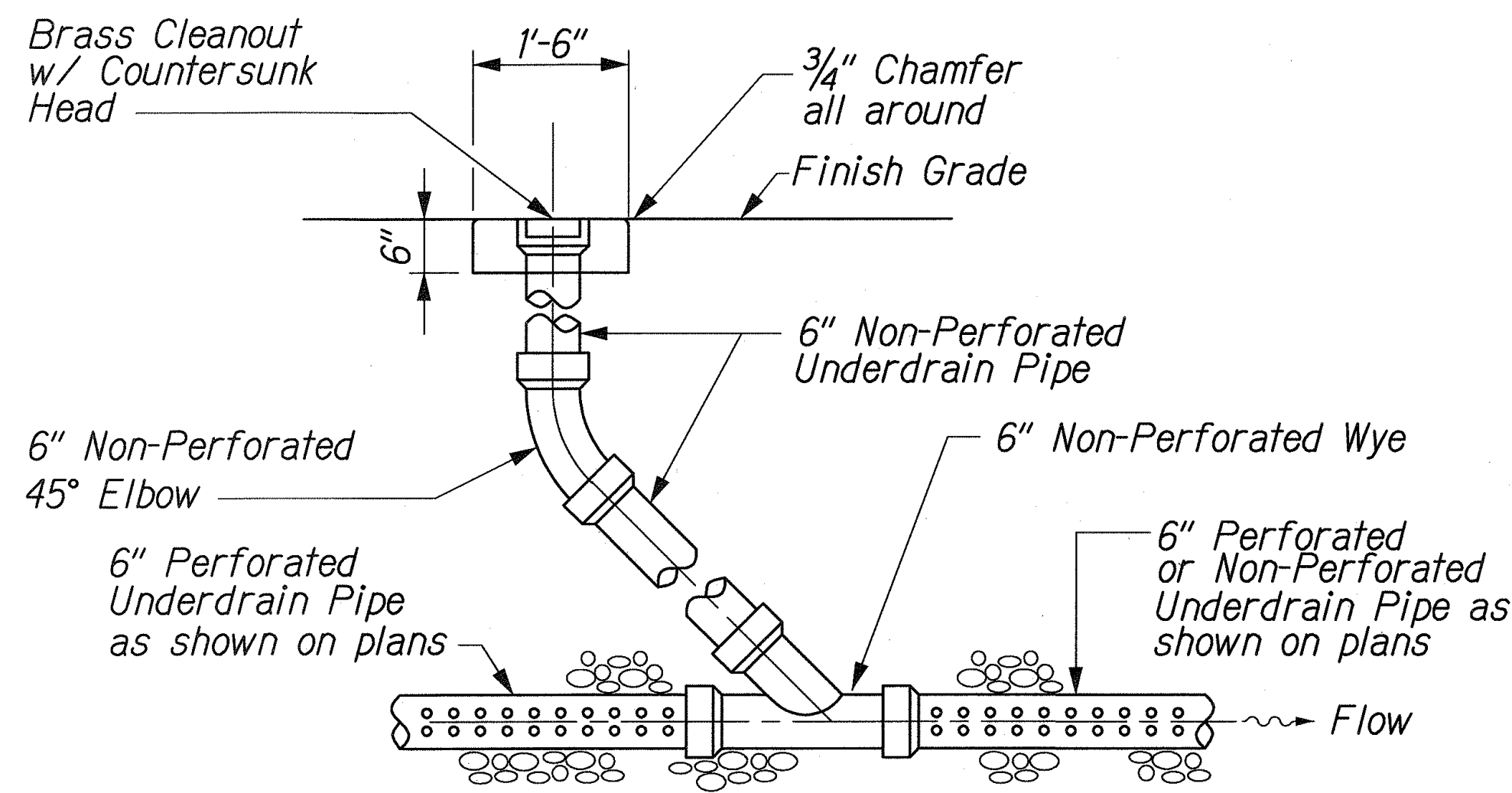
CLEANOUT TYPE A
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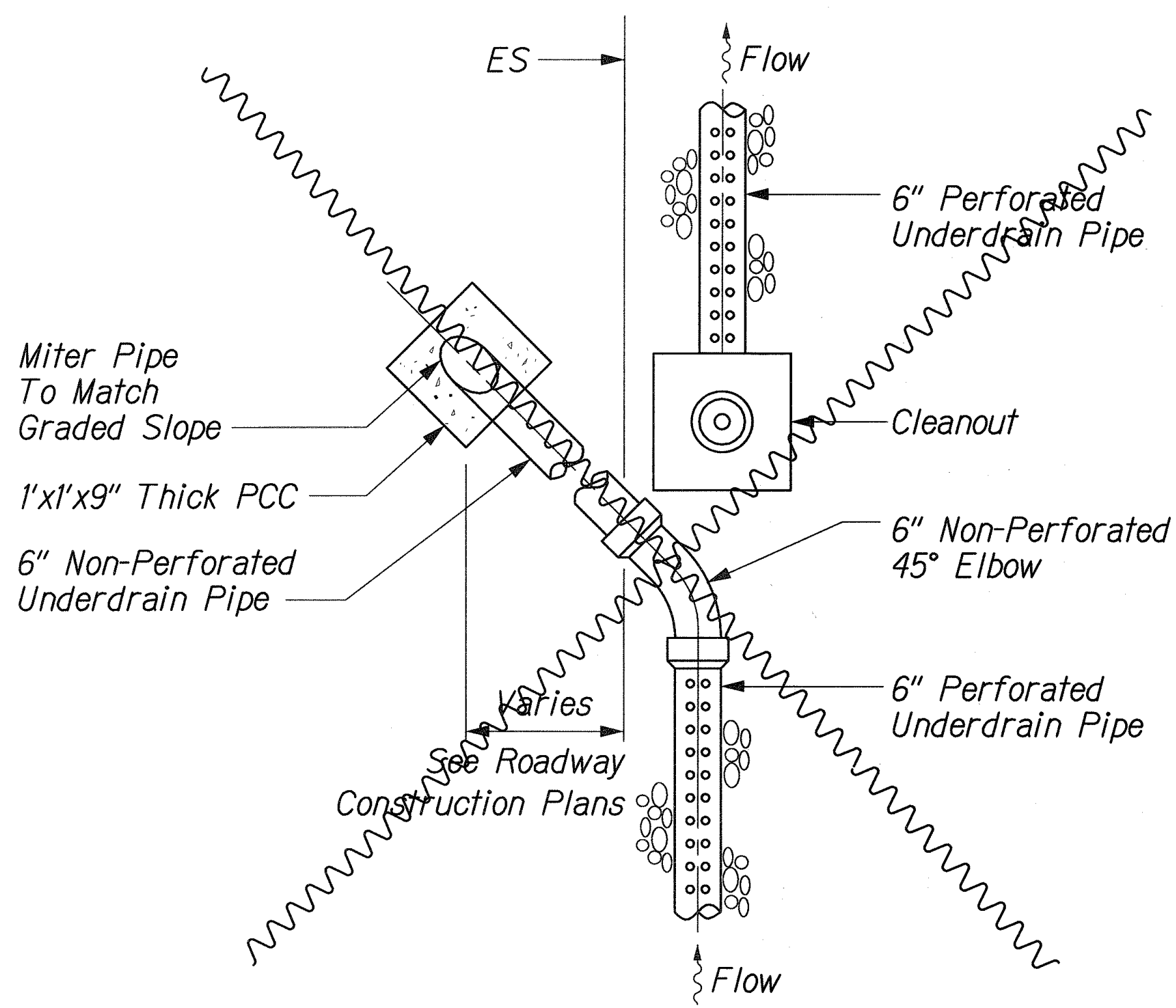
TYPICAL CLEANOUT PLAN
Not to Scale



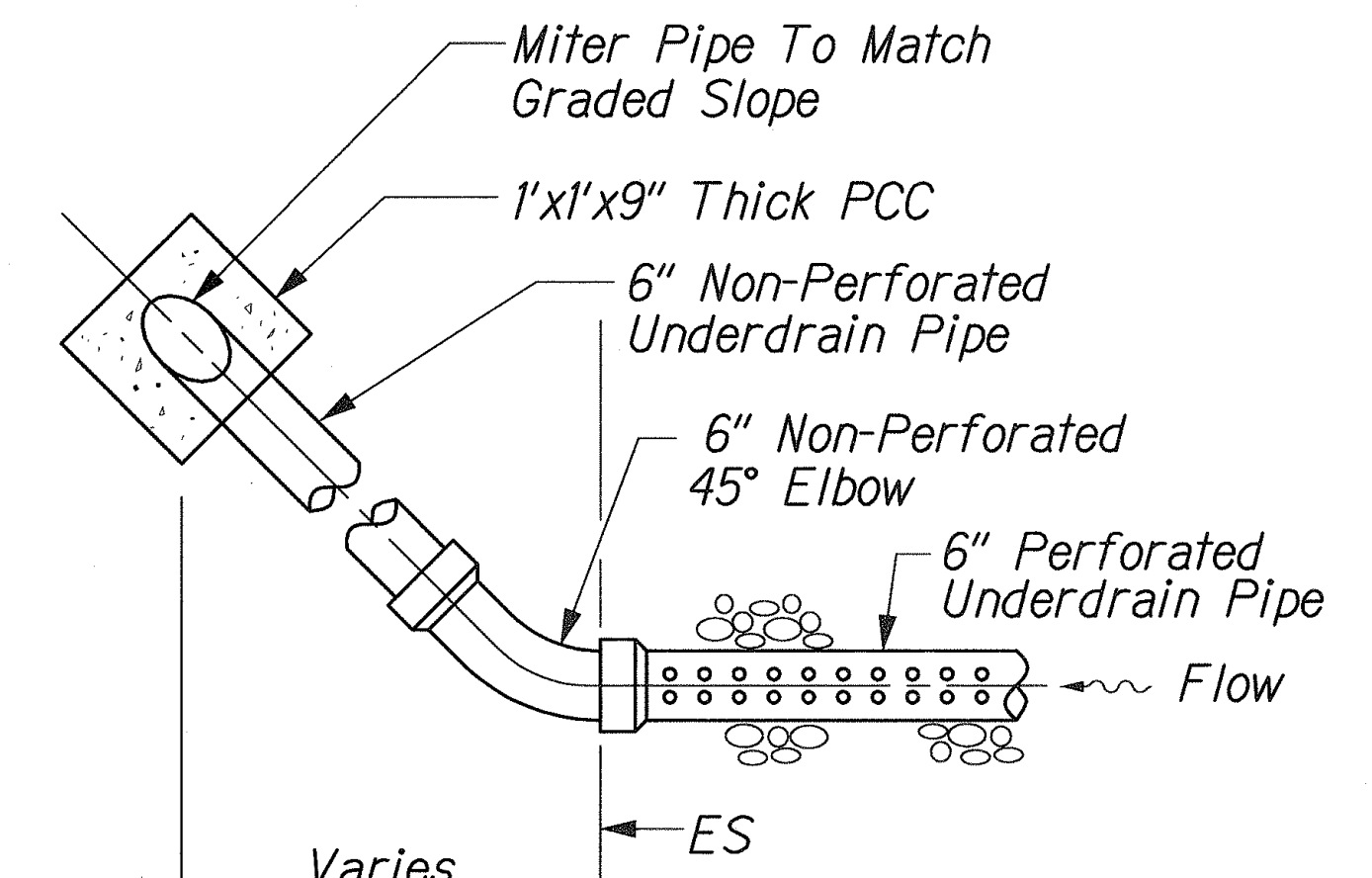
DAYLIGHTING UNDERDRAIN IN GRADED AREAS
Not to Scale



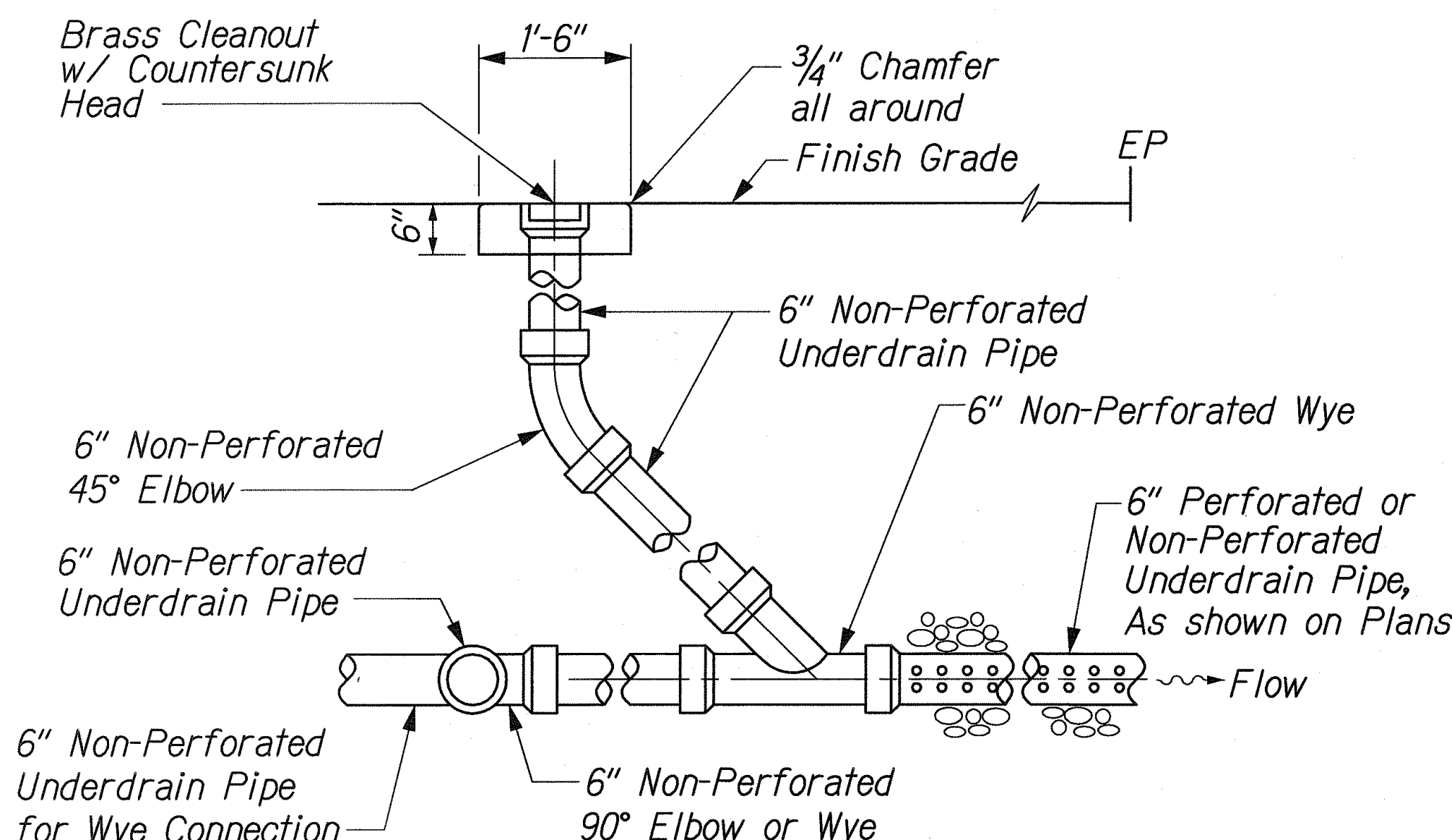
CLEANOUT TYPE B
Not to Scale



TYPICAL DAYLIGHT PLAN FOR LONGITUDINAL PIPE
Not to Scale



TYPICAL DAYLIGHT PLAN FOR PERPENDICULAR PIPE
Not to Scale



CLEANOUT TYPE C
Not to Scale

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

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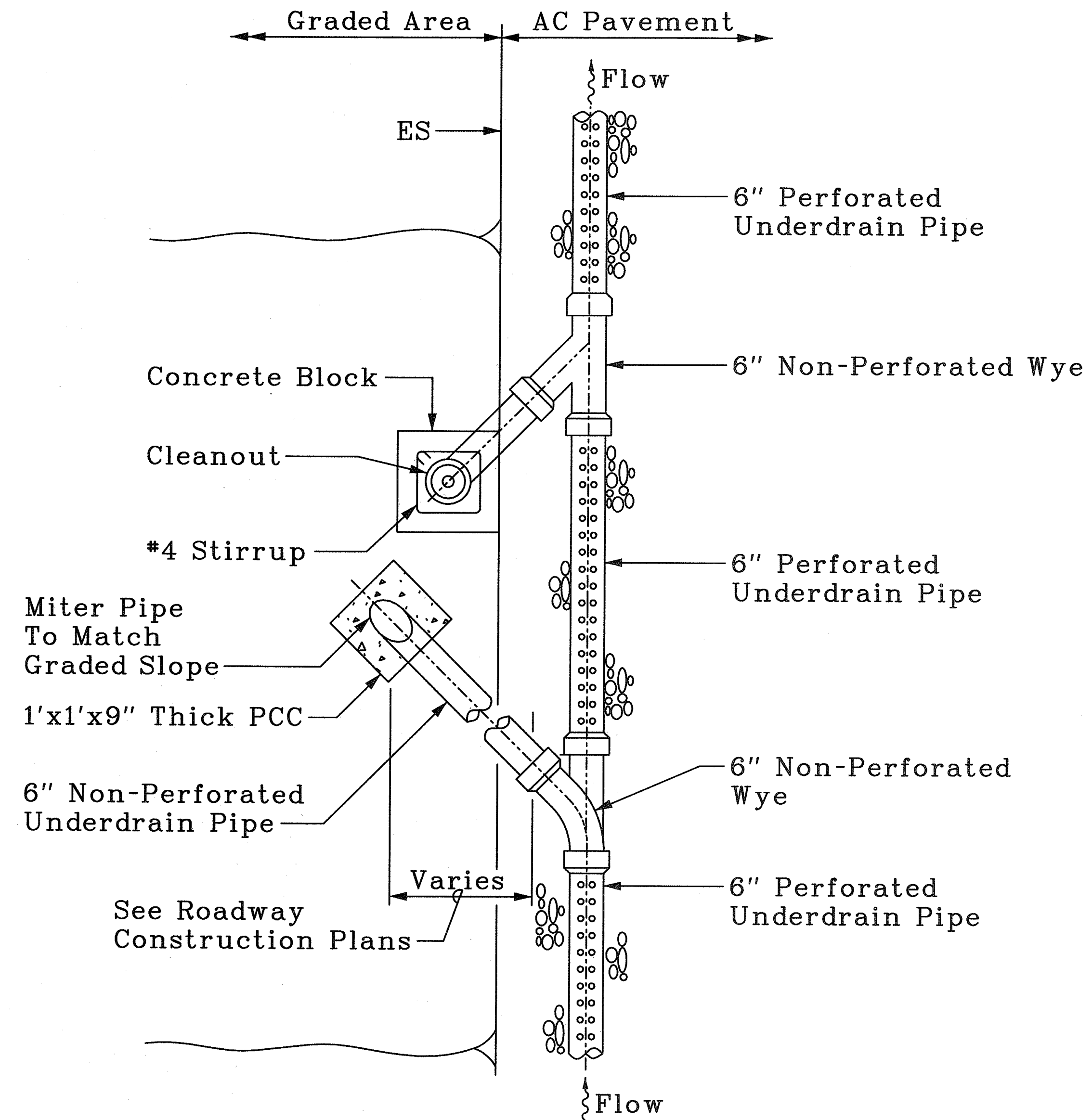
9/14/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY CONSTRUCTION UNDERDRAIN DETAILS
KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: AS SHOWN Date: Sept. 14, 2001

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TRACED BY	
NOTE BOOK	
CHECKED BY	
NO.	

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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	91 S-1	380



TYPICAL DAYLIGHT PLAN FOR
LONGITUDINAL PIPE AND
CLEANOUT LOCATION
Not to Scale

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

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STATE OF HAWAII
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HIGHWAYS DIVISION

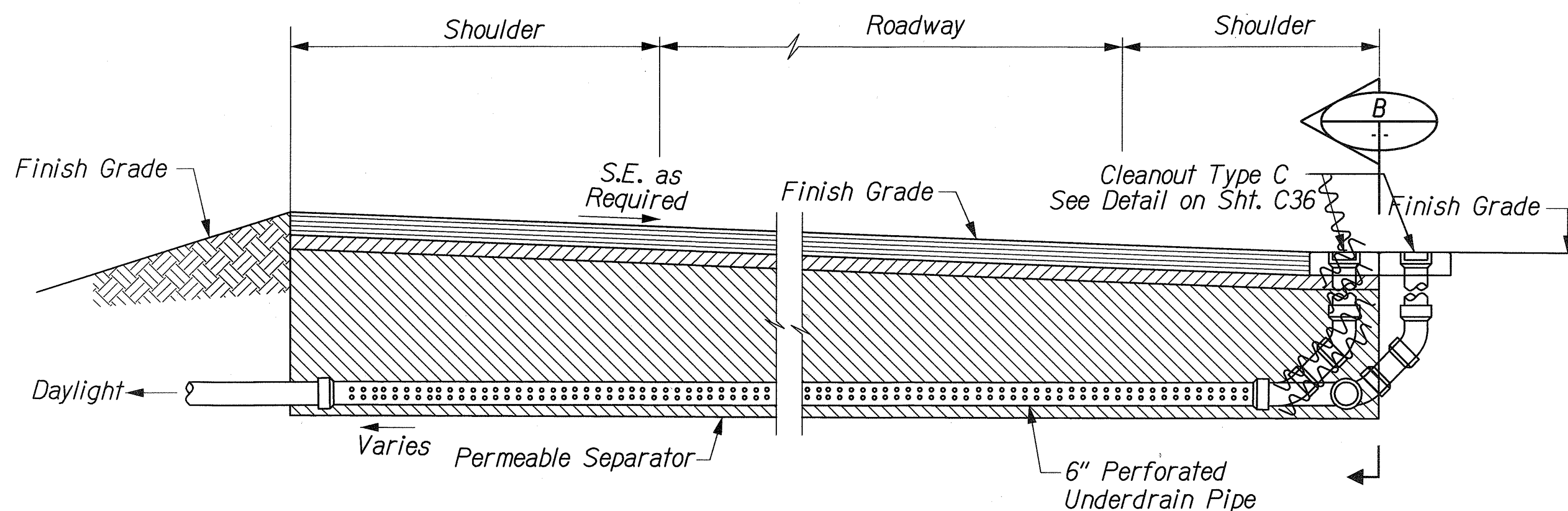
**ROADWAY CONSTRUCTION
UNDERDRAIN DETAILS**

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: AS SHOWN Date: Sept. 14, 2001

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CHECKED BY	
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NOTE BOOK	
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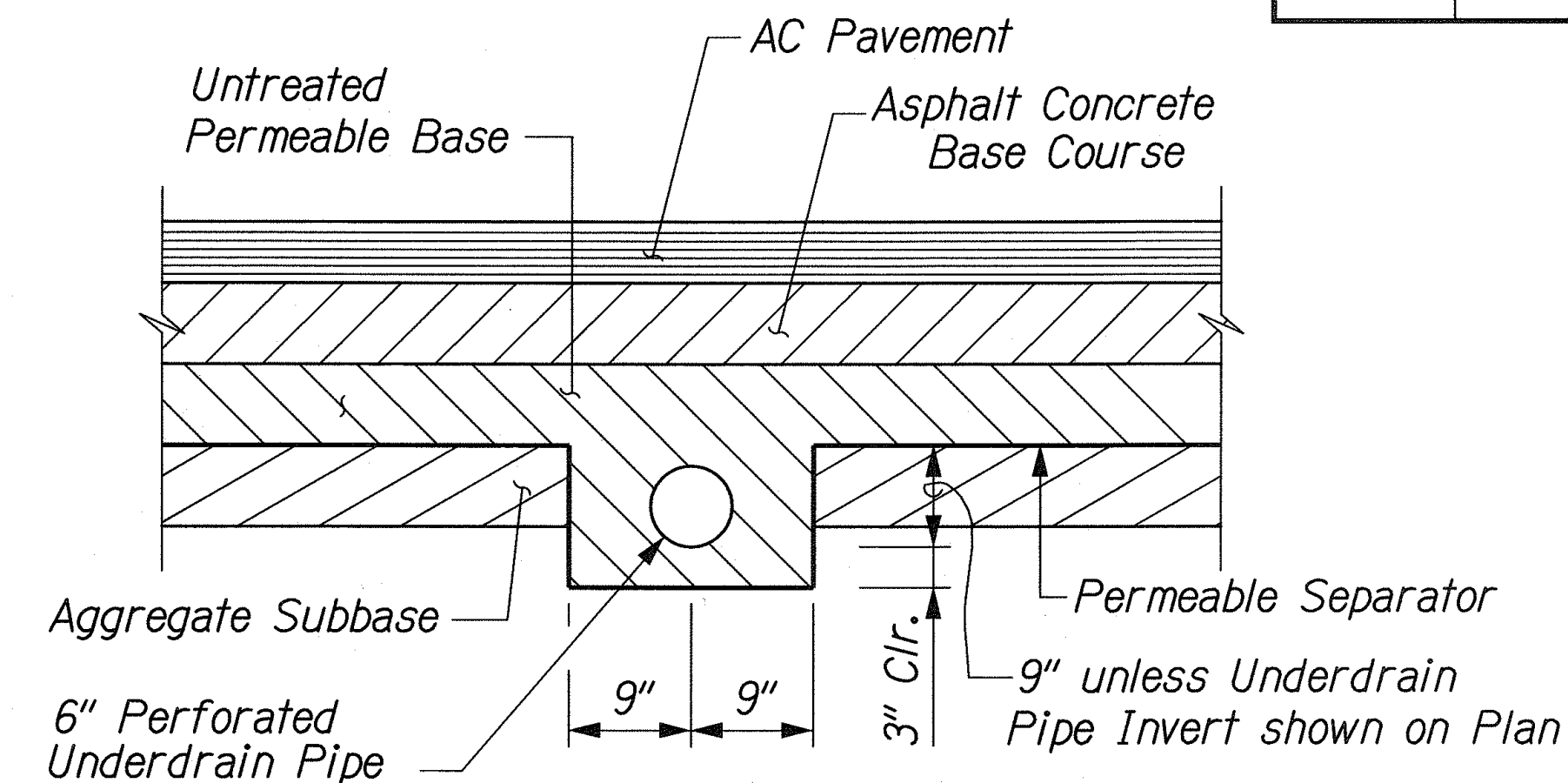
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	92	380

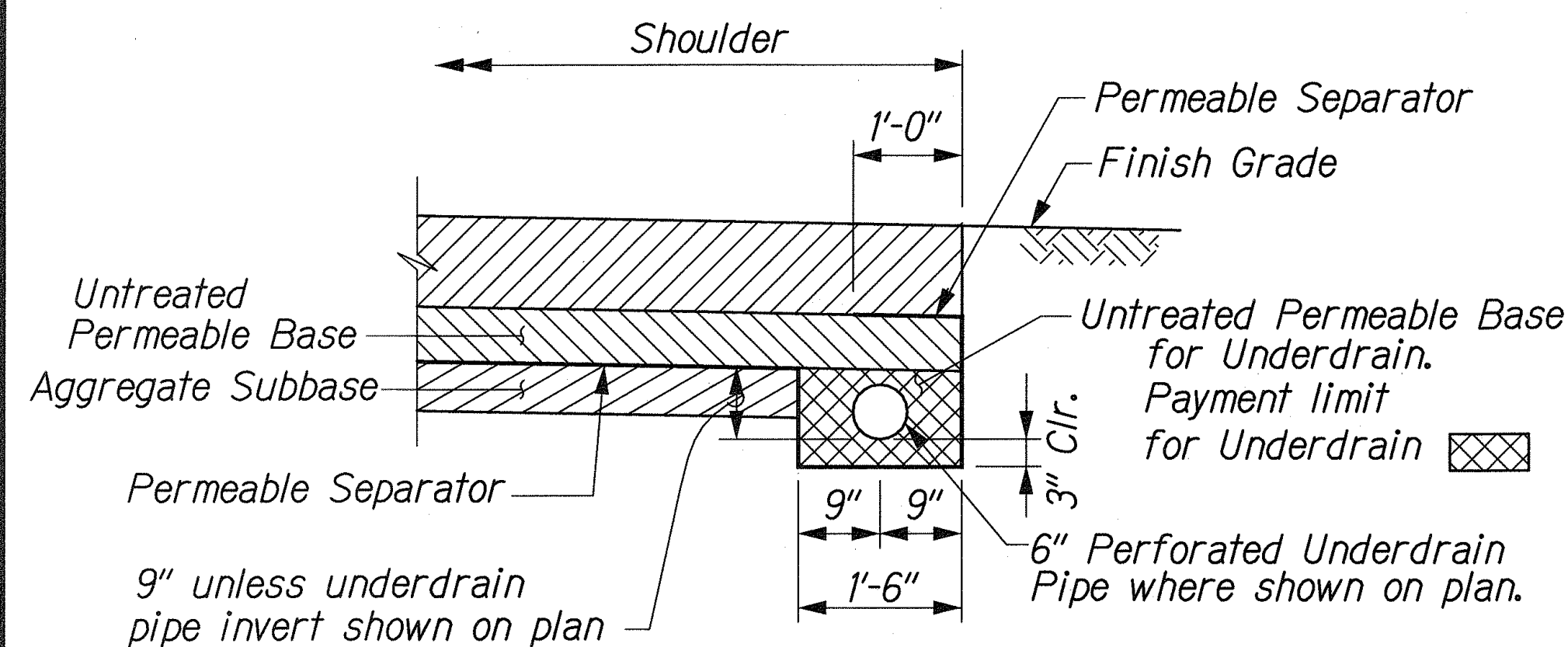


*Transverse Underdrain shall be paid under 6" Perforated Underdrain Pipe

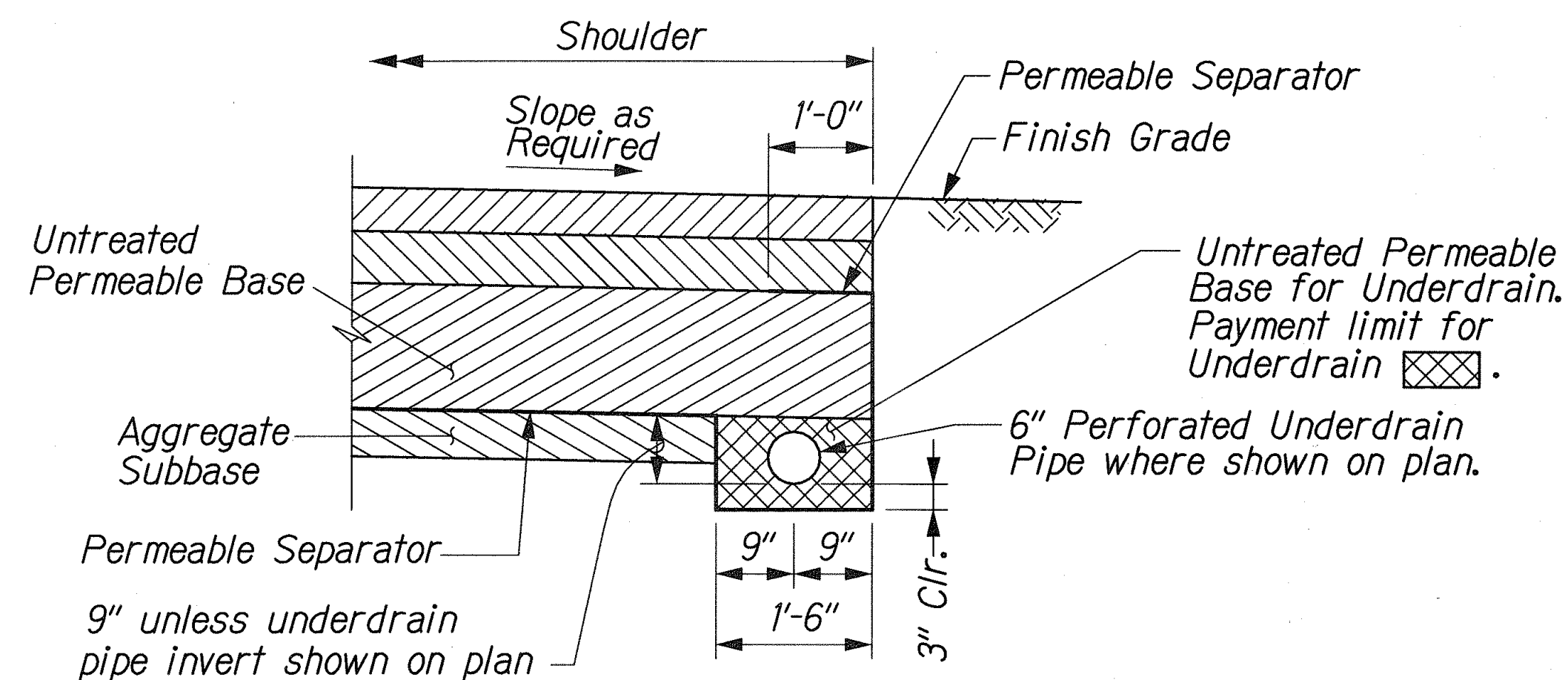
TRANSVERSE UNDERDRAIN*
Not to Scale



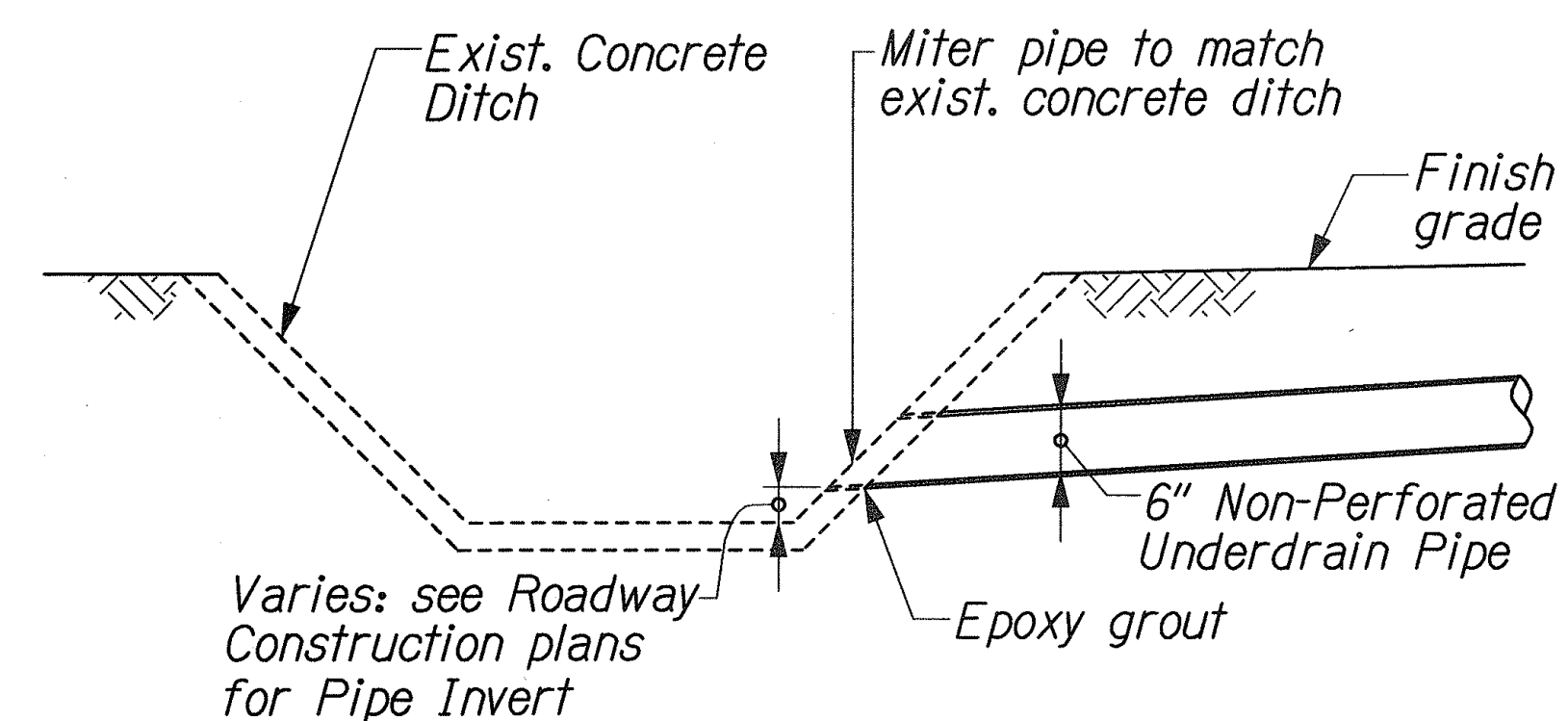
SECTION B



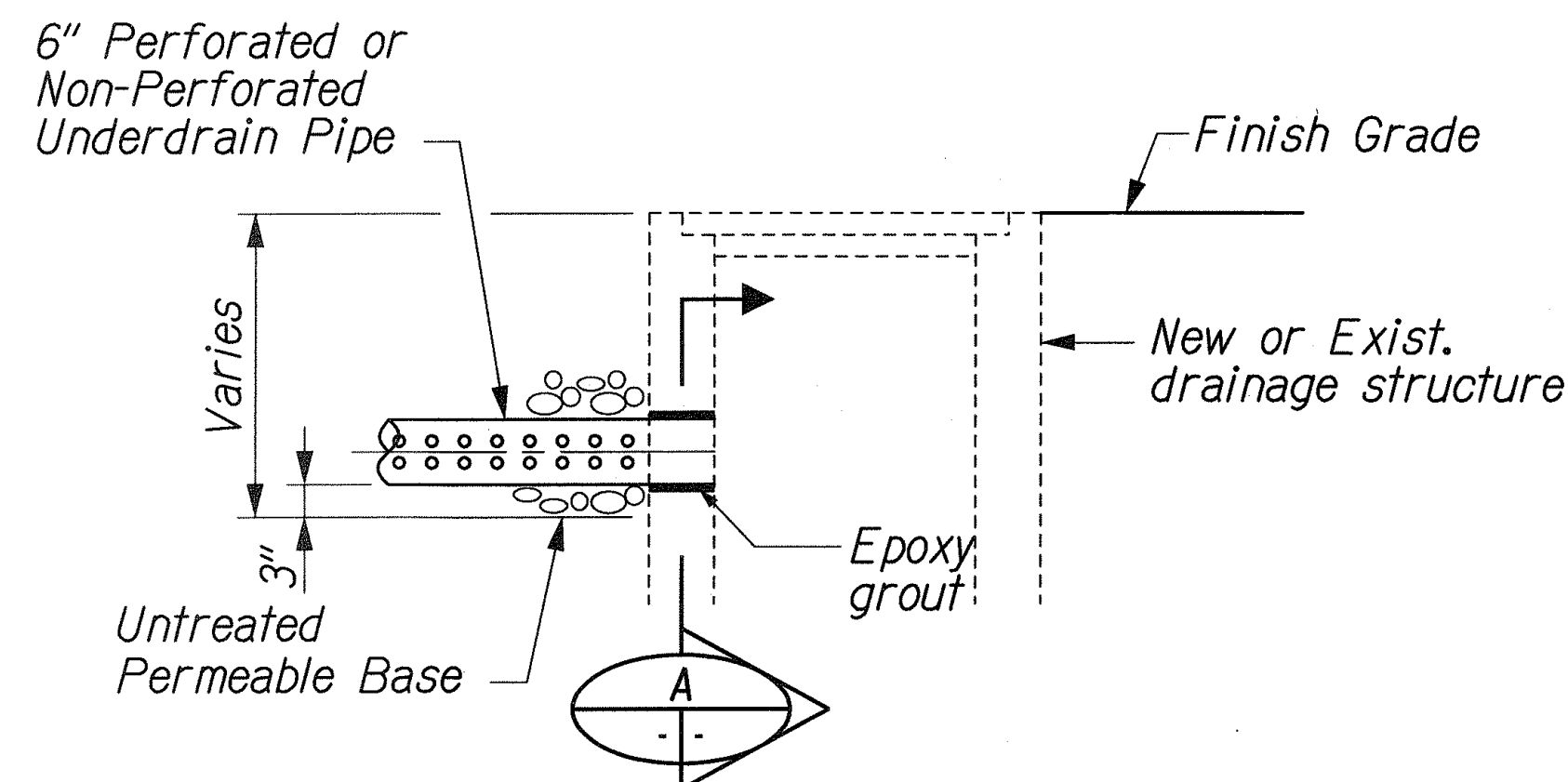
UNDERDRAIN DETAIL FOR PCC PAVEMENT
Not to Scale



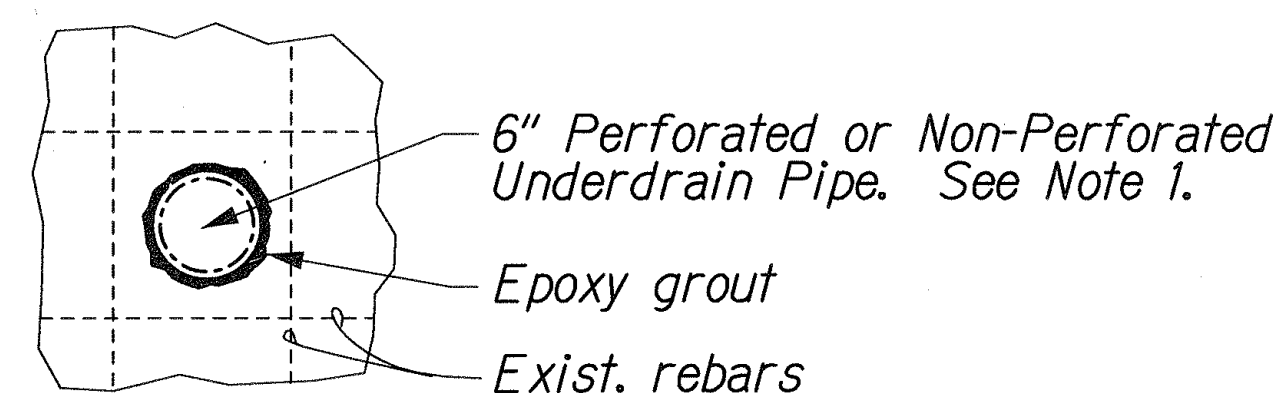
UNDERDRAIN DETAIL FOR AC PAVEMENT
Not to Scale



UNDERDRAIN CONNECTION TO EXIST. CONCRETE DITCH
Not to Scale



CONNECTION DETAIL FOR DRAINAGE STRUCTURES
Not to Scale



- NOTE:**
- The Contractor shall avoid cutting the existing rebar. In case the pipe opening interferes with the existing rebar, the opening shall be enlarged and the location of the pipe shall be adjusted to pass between the existing rebar as shown. The enlarged hole shall be patched with epoxy grout.

SECTION A

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

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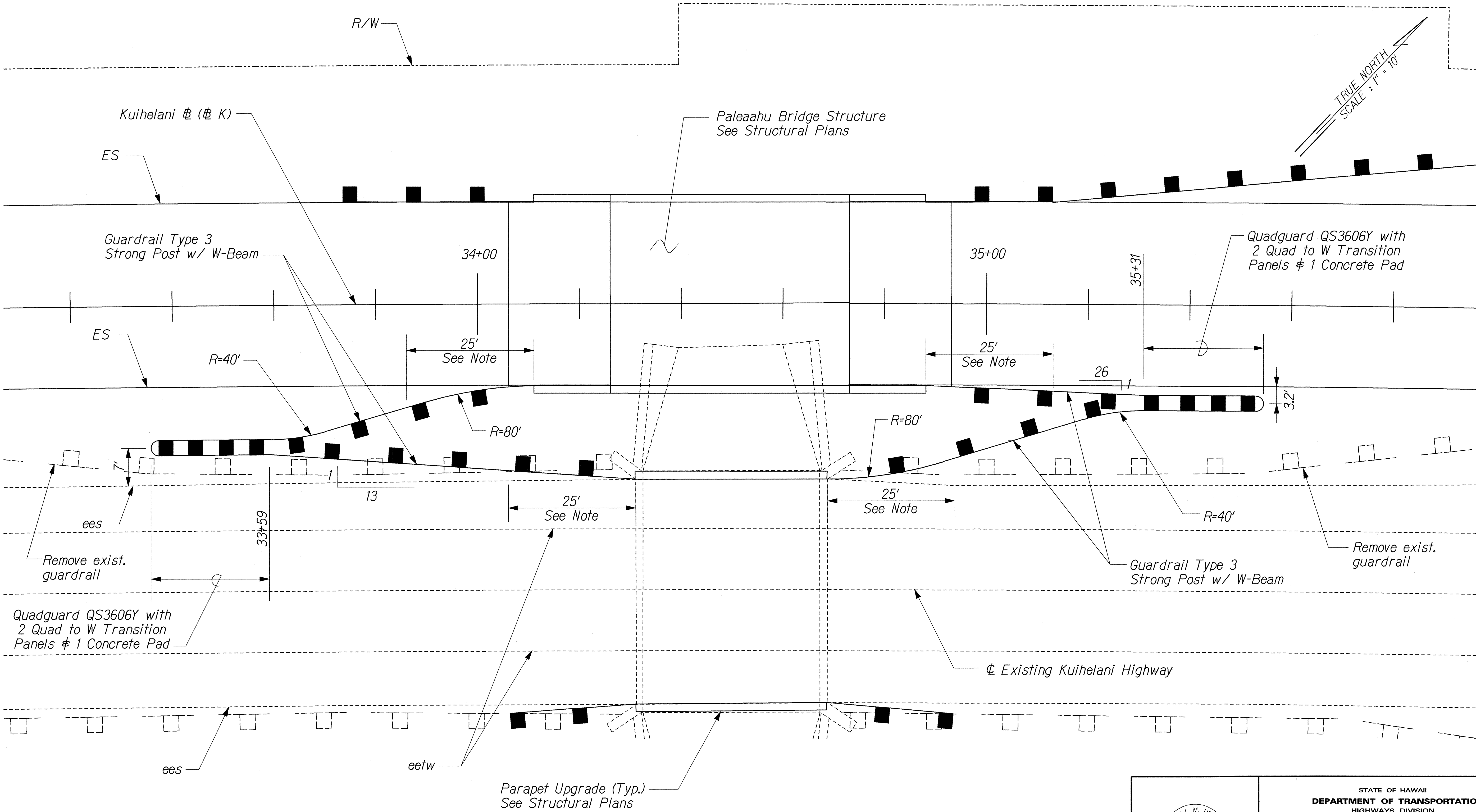
R. M. Urasaki

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY CONSTRUCTION UNDERDRAIN DETAILS

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: AS SHOWN Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	93	380



NOTE:
Guardrail Type 3 Thrie Beam
Transition to W-Beam.
See Detail on Sht. C44

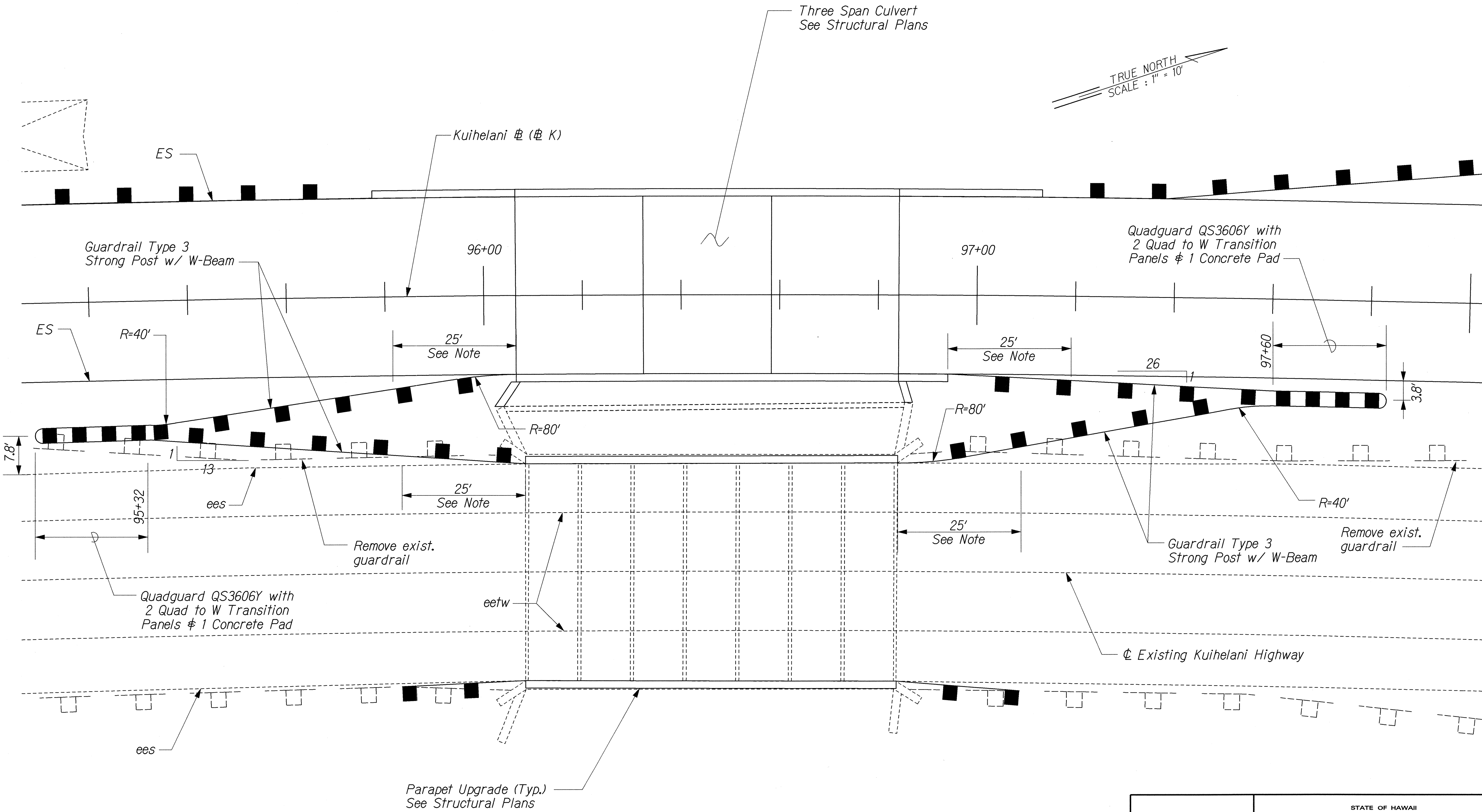
**PALEAAHU BRIDGE STRUCTURE
MEDIAN GUARDRAIL DETAIL**

ORIGINAL PLAN	DATE
NOTED BY	DATE
DESIGNED BY	DATE
CHECKED BY	DATE
IN CHARGE	DATE

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R. M. Urasak 7/14/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**ROADWAY CONSTRUCTION
GUARDRAIL DETAILS**
KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=10' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	94	380

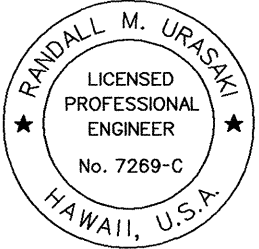


NOTE:
Guardrail Type 3 Thrie Beam
Transition to W-Beam.
See Detail on Sht. C44

THREE SPAN CULVERT
MEDIAN GUARDRAIL DETAIL

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
DESIGNED BY	DRAWN BY	
CHECKED BY	NOTED BY	

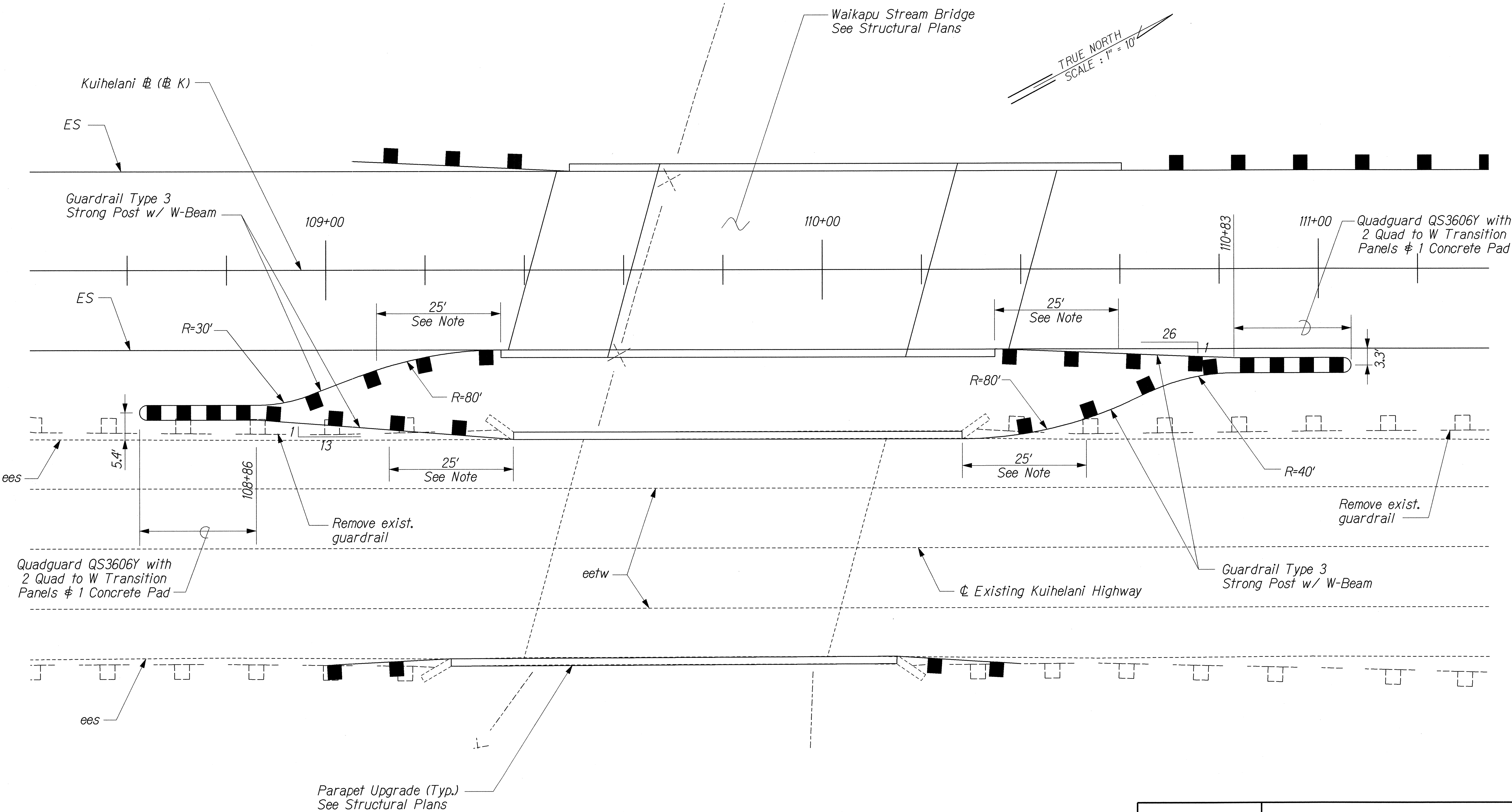
J:\KUIHELANI\ROAD\RD-07.dgn



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY CONSTRUCTION
GUARDRAIL DETAILS
KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=10' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	95	380



NOTE:
Guardrail Type 3 Thrie Beam
Transition to W-Beam
See Detail on Sht. C44

**WAIKAPU STREAM BRIDGE
MEDIAN GUARDRAIL DETAIL**

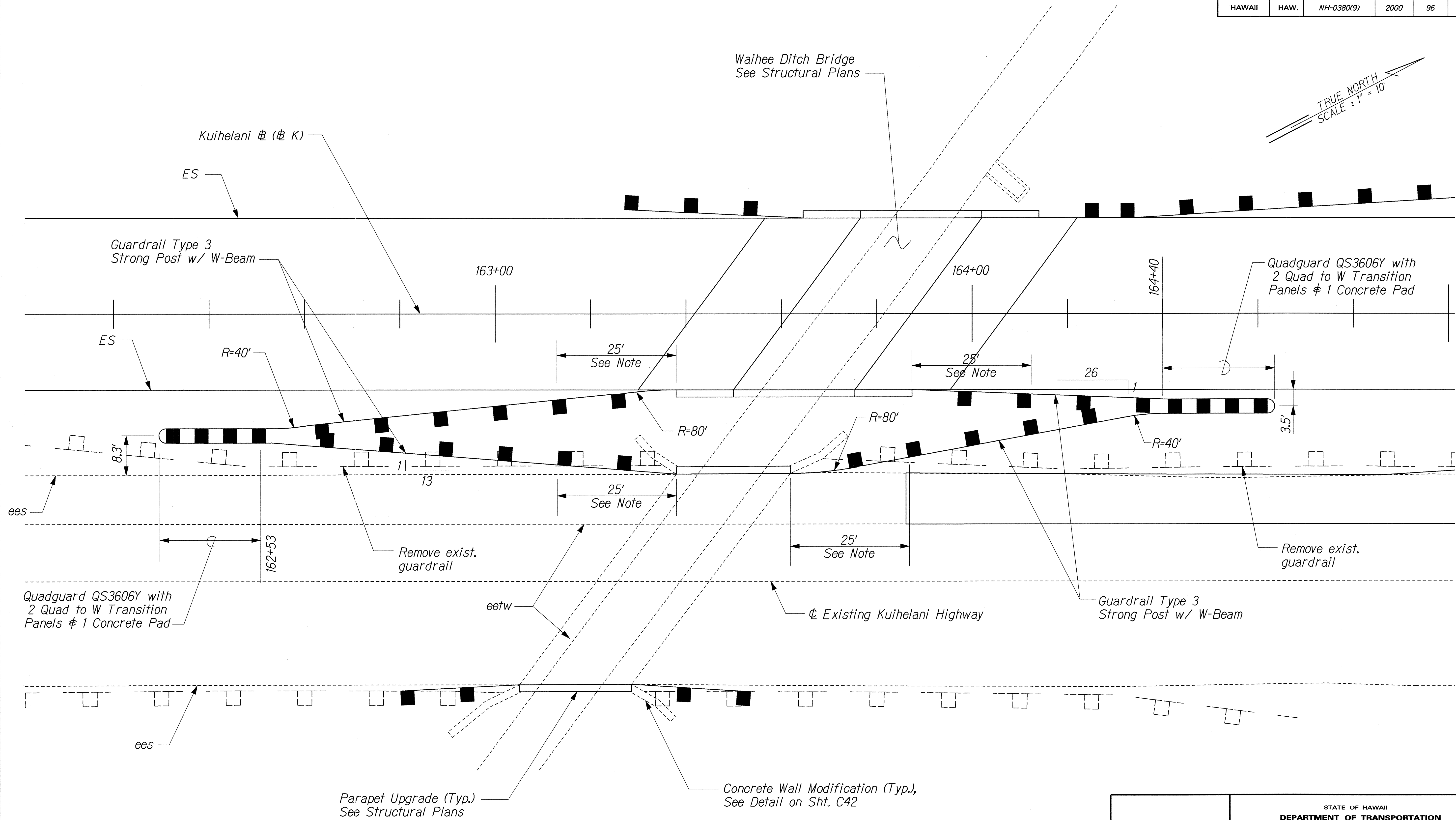
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
DRAWN BY	DESIGNED BY	
NOTE BOOK	CHECKED BY	
NO.		

J:\KUIHELANI\ROAD\RD-08.dgn

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**ROADWAY CONSTRUCTION
GUARDRAIL DETAILS**
KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=10' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	96	380



NOTE:
Guardrail Type 3 Thrie Beam
Transition to W-Beam.
See Detail on Sht. C44

**WAIHEE DITCH BRIDGE
MEDIAN GUARDRAIL DETAIL**

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

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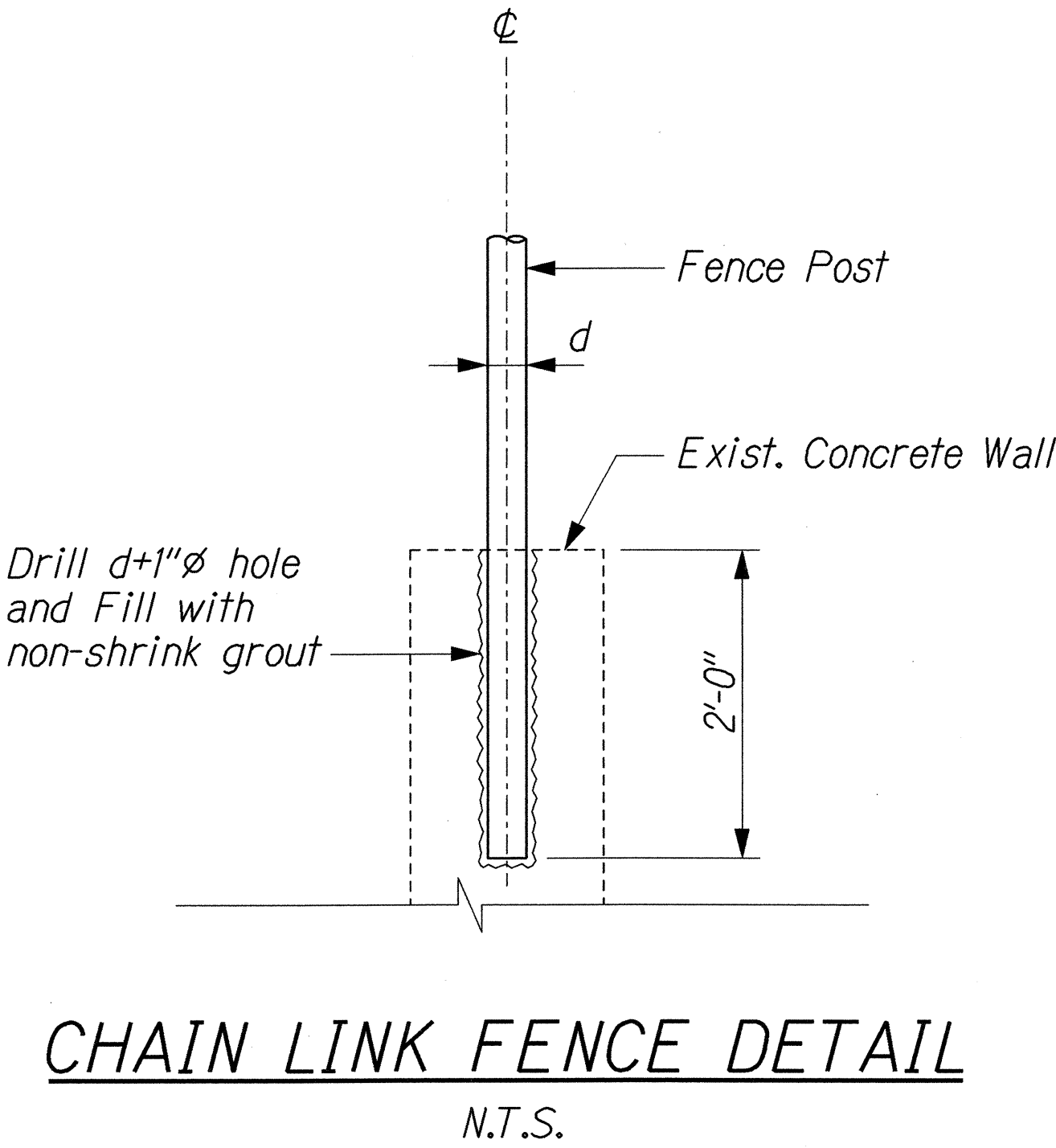
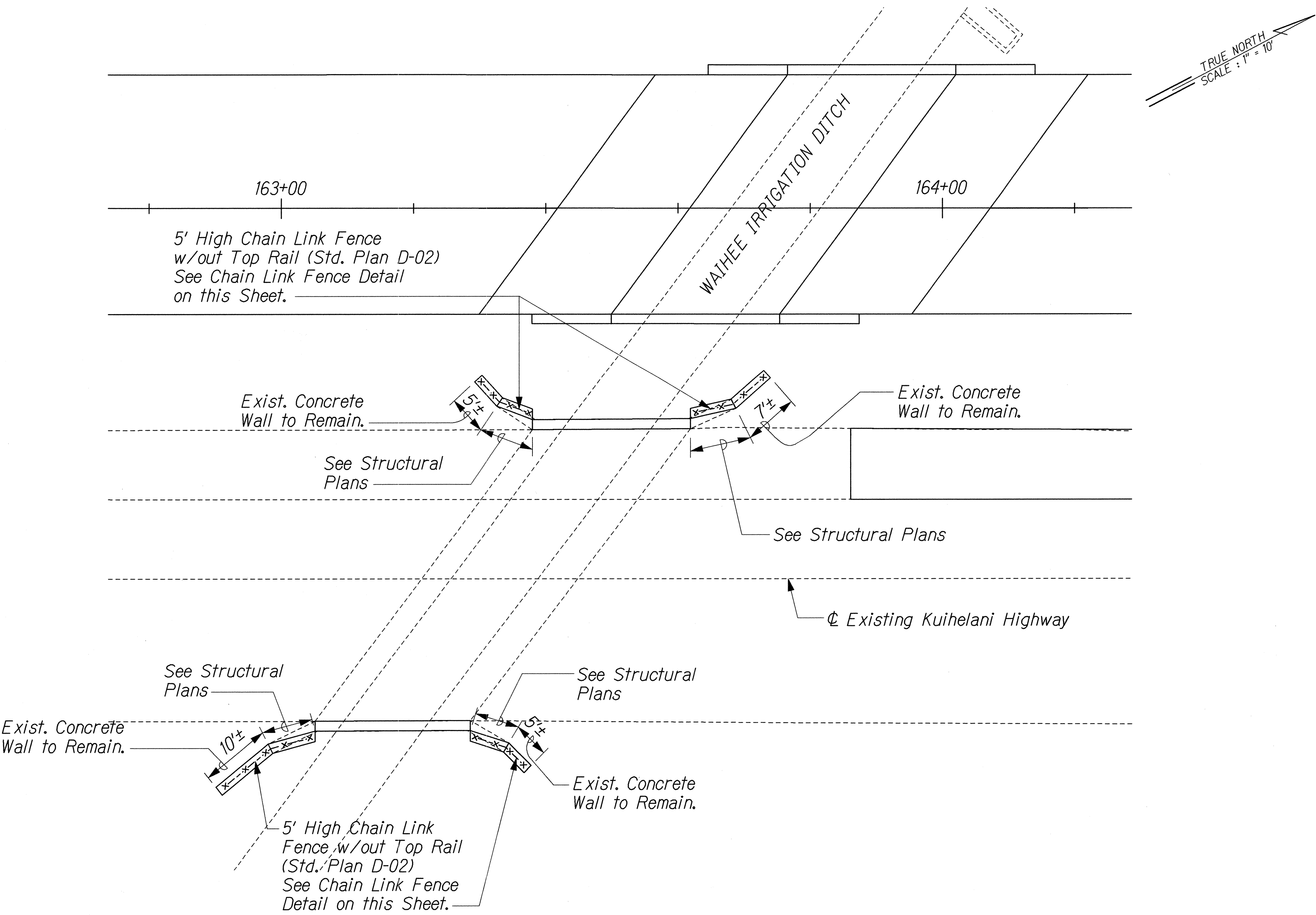
R. Urasak 7/1/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**ROADWAY CONSTRUCTION
GUARDRAIL DETAILS**

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=10' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	97	380



CONCRETE WALL MODIFICATION
Scale: 1" = 10'

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTED BOOK	DRAWN BY	
N.	DESIGNED BY	
	CHECKED BY	

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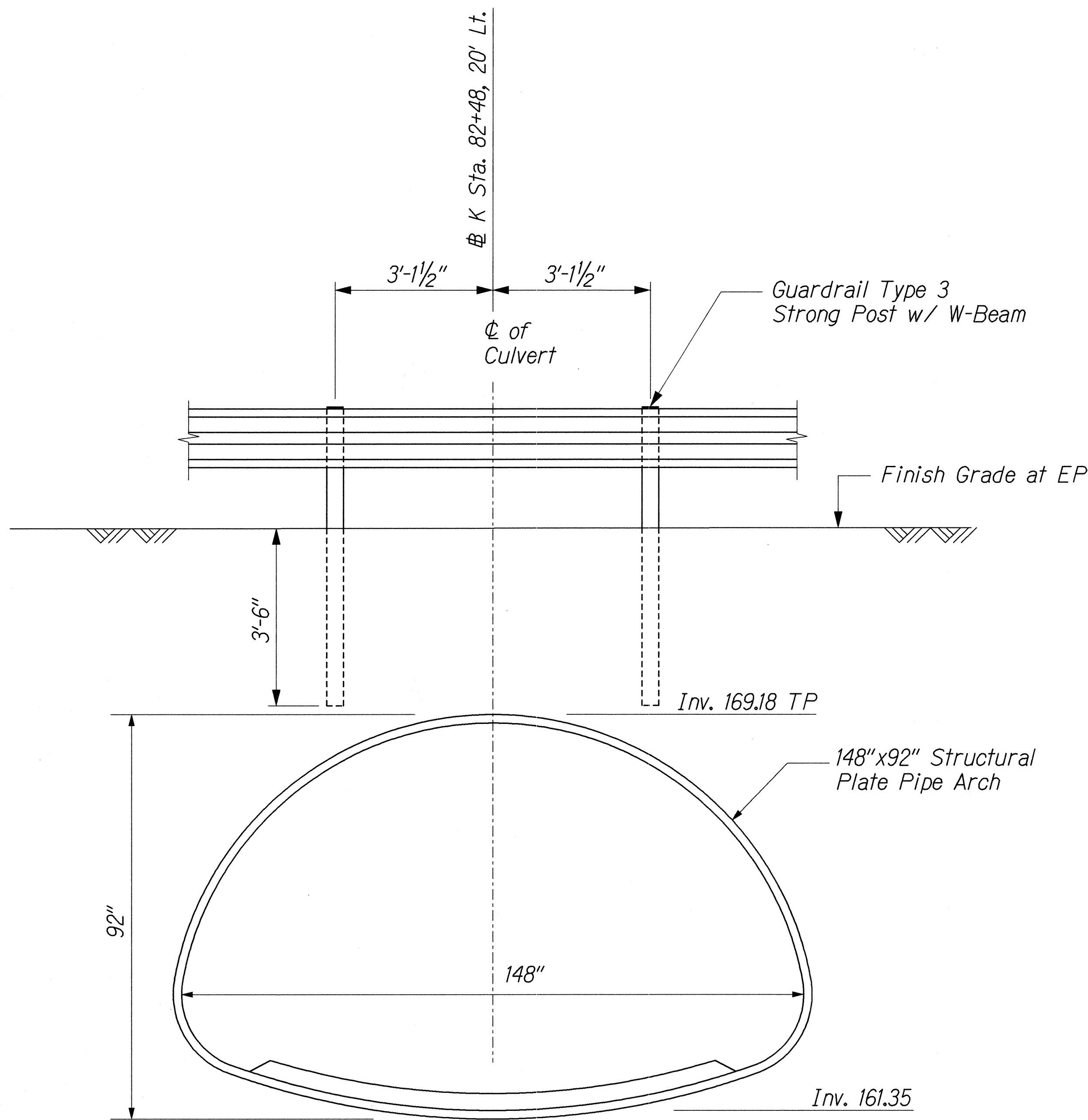
R. M. Uragami 9/14/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY CONSTRUCTION
CONCRETE WALL MODIFICATION

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: As Shown Date: Sept. 14, 2001

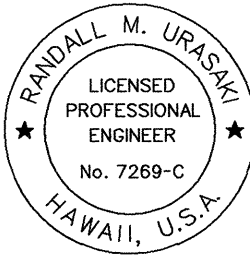
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	98	380



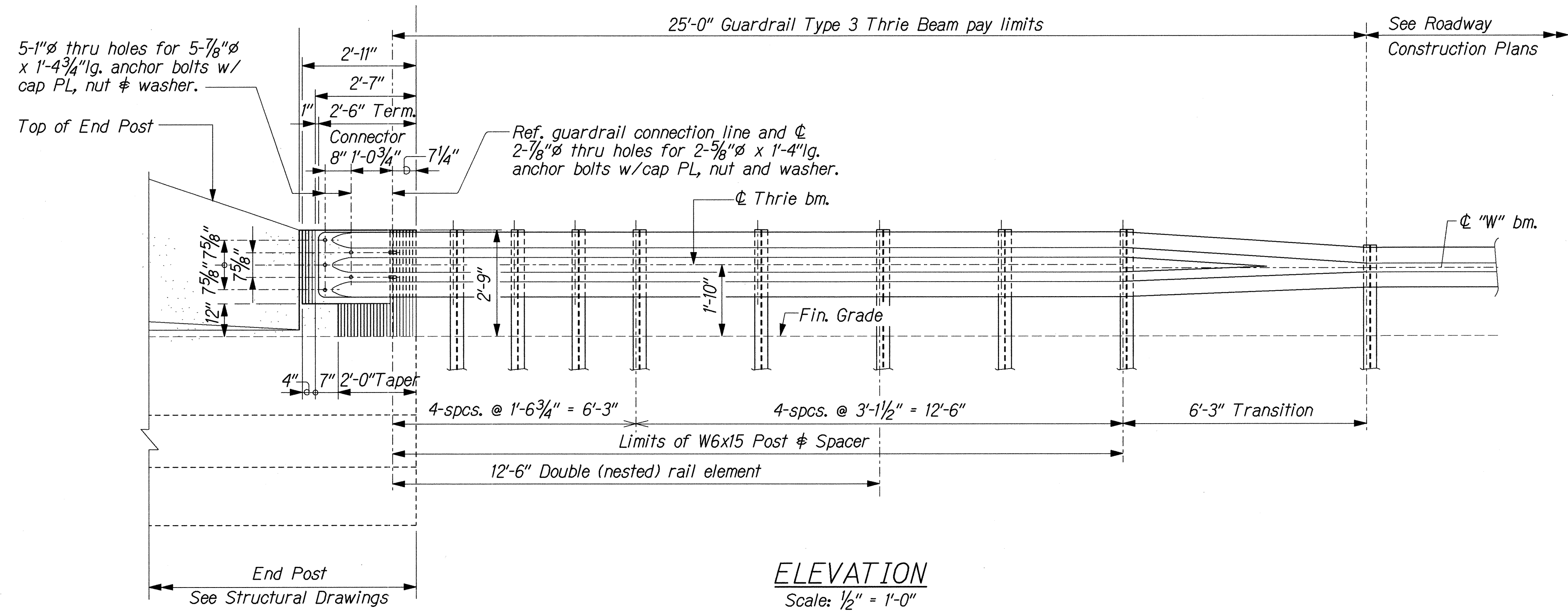
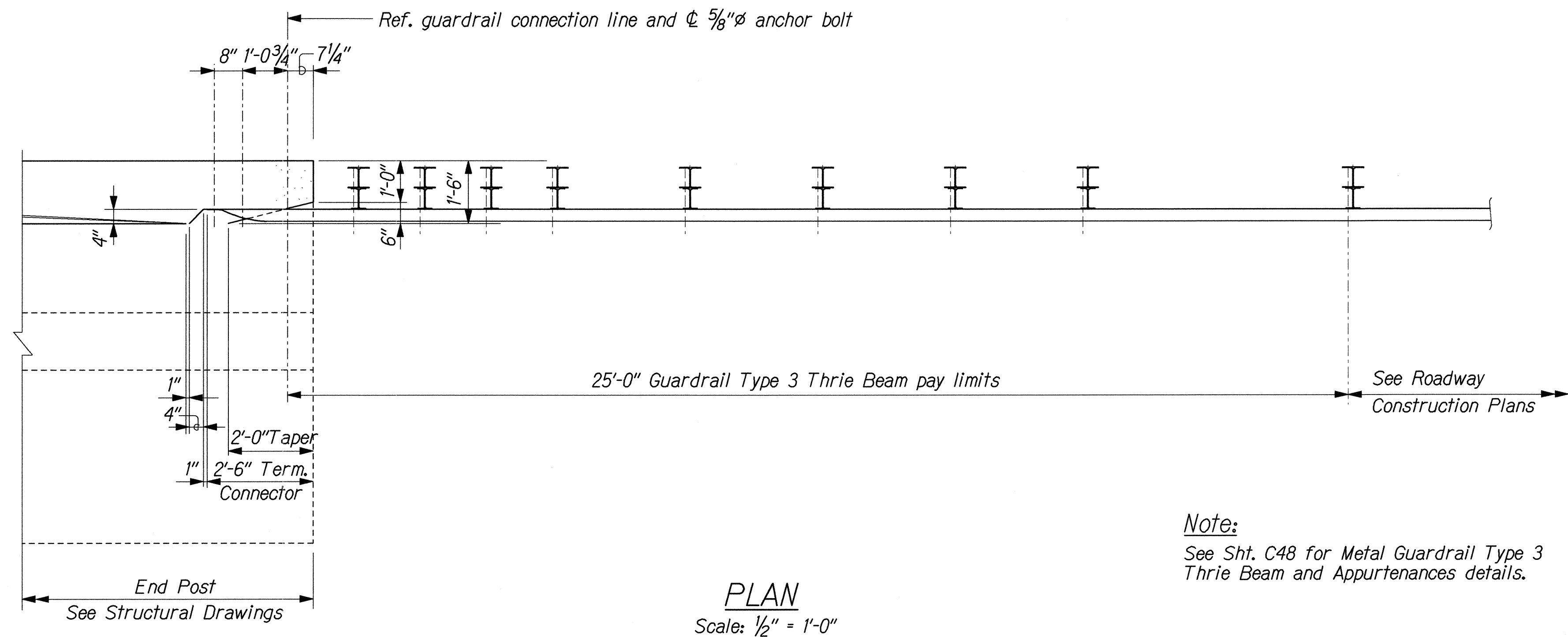
GUARDRAIL INSTALLATION AT 148"x92"
STRUCTURAL PLATE PIPE ARCH
Not To Scale

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTED BOOK	DRAWN BY	
N.	DESIGNED BY	
	CHECKED BY	

U:\KUIHELANI\ROAD\RD-03dgn

 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. <i>R. M. Urasaki</i>	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION ROADWAY CONSTRUCTION GUARDRAIL INSTALLATION AT STA. 82+48 KUIHELANI HIGHWAY WIDENING HONOAPIILANI HIGHWAY TO PUUNENE AVENUE FEDERAL-AID PROJECT NO. NH-0380(9) Scale: Not To Scale Date: Sept. 14, 2001
	SHEET No. C43 OF 53 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	99	380



**GUARDRAIL TYPE 3 THRIE BEAM
TRANSITION TO W-BEAM**

DESIGNED BY	DATE
TRACED BY	
NOTED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
DATE	

16/KUIHELANI/ROAD/RD-10-000

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**THRIE BEAM AND
APPURTENANCE DETAILS**

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE

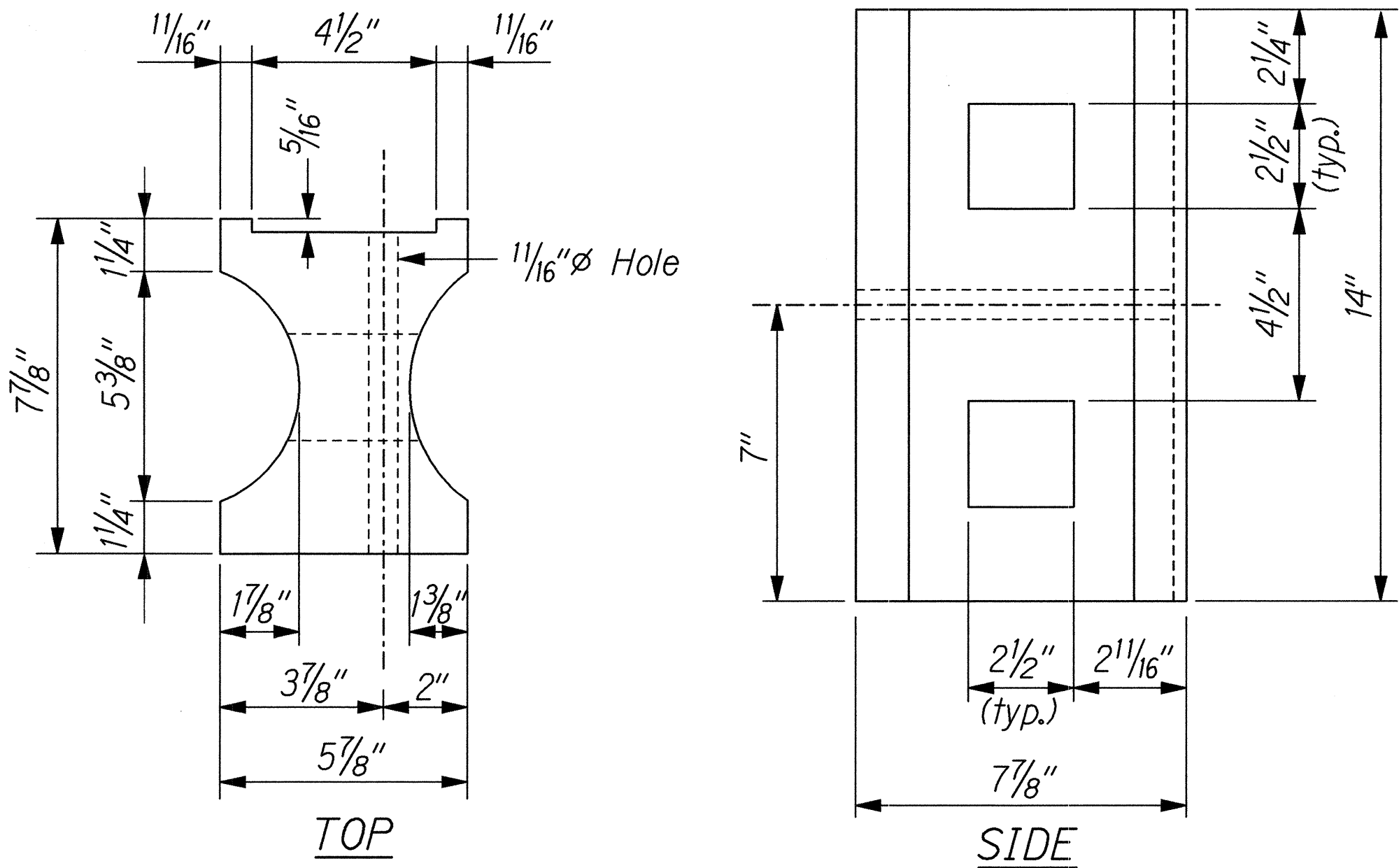
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: Not To Scale Date: Sept. 14, 2001

SHEET No. C44 OF 53 SHEETS

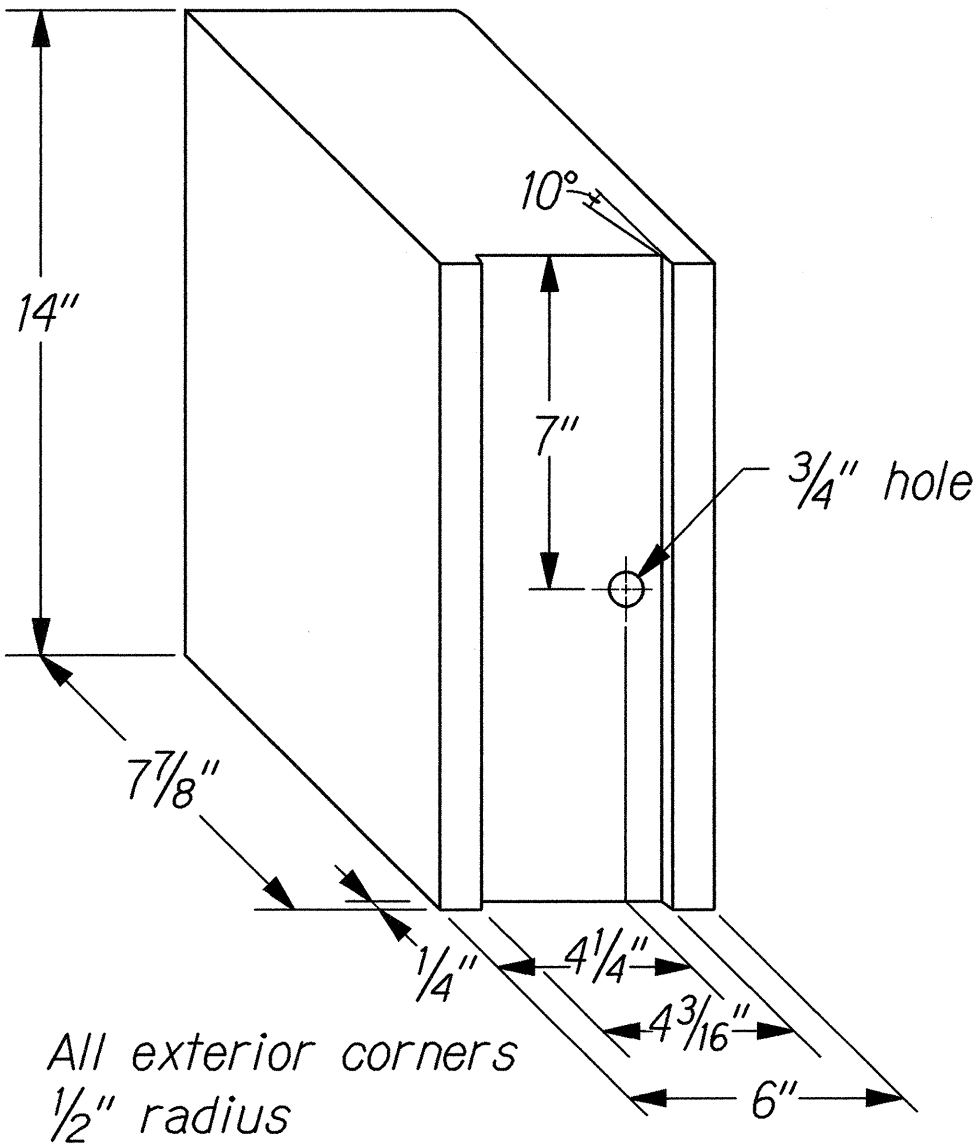
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	100	380

GENERAL NOTES:

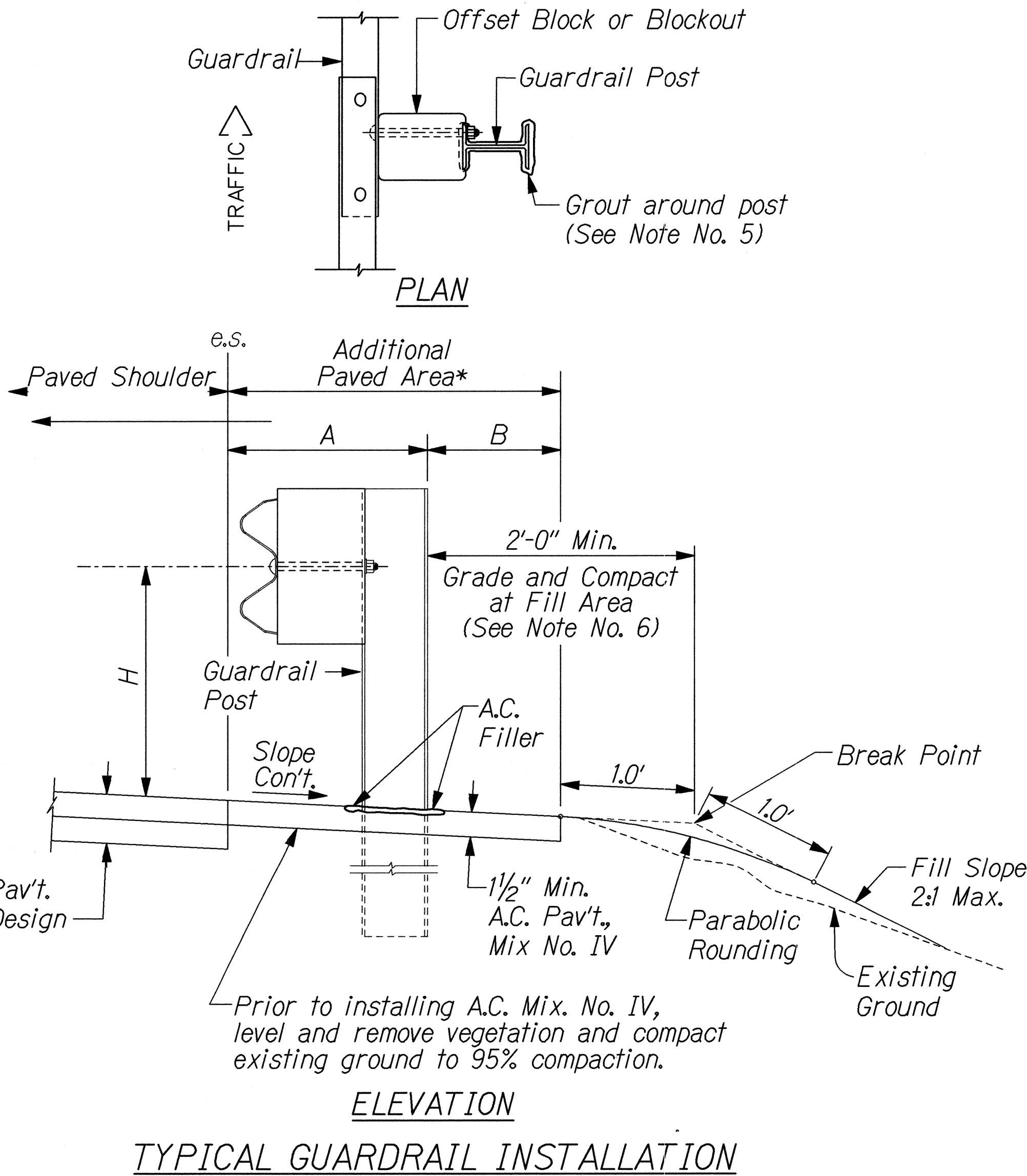
1. All hardware, posts and fasteners shall be hot-dip zinc coated galvanized after fabrication. No punching, drilling or cutting will be permitted after galvanizing.
2. Where conditions require, special post lengths in increments of 6 inches may be specified.
3. All fasteners, posts, and rail elements (i.e. FBB03, PWE01, RWM02b, etc.) shall conform to the latest edition and amendments of "A Guide to Standardized Highway Barrier Rail Hardware", a report prepared and approved by the AASHTO-AGC-ARTBA Joint Cooperative Committee, Subcommittee On New Highway Materials, Task Force 13 Report. Dimensions of fasteners, posts and rail elements have been converted from metric units into their present form.
4. The Recycled Plastic Block or Offset Block shall be approved by the Engineers.
5. All new guardrail systems (system consists of total length of guardrail including both end treatments) shall include the Additional Paved Area.
6. After the guardrail posts are installed in the paved area, the Contractor shall fill/seal around each guardrail post and all cracks in the paved area caused during the guardrail post installation. If required by the Engineer, the Contractor shall tamp the paved area around the guardrail post prior to filling/sealing. All costs associated with this work shall not be paid for separately, but shall be considered incidental to the various guardrail items.



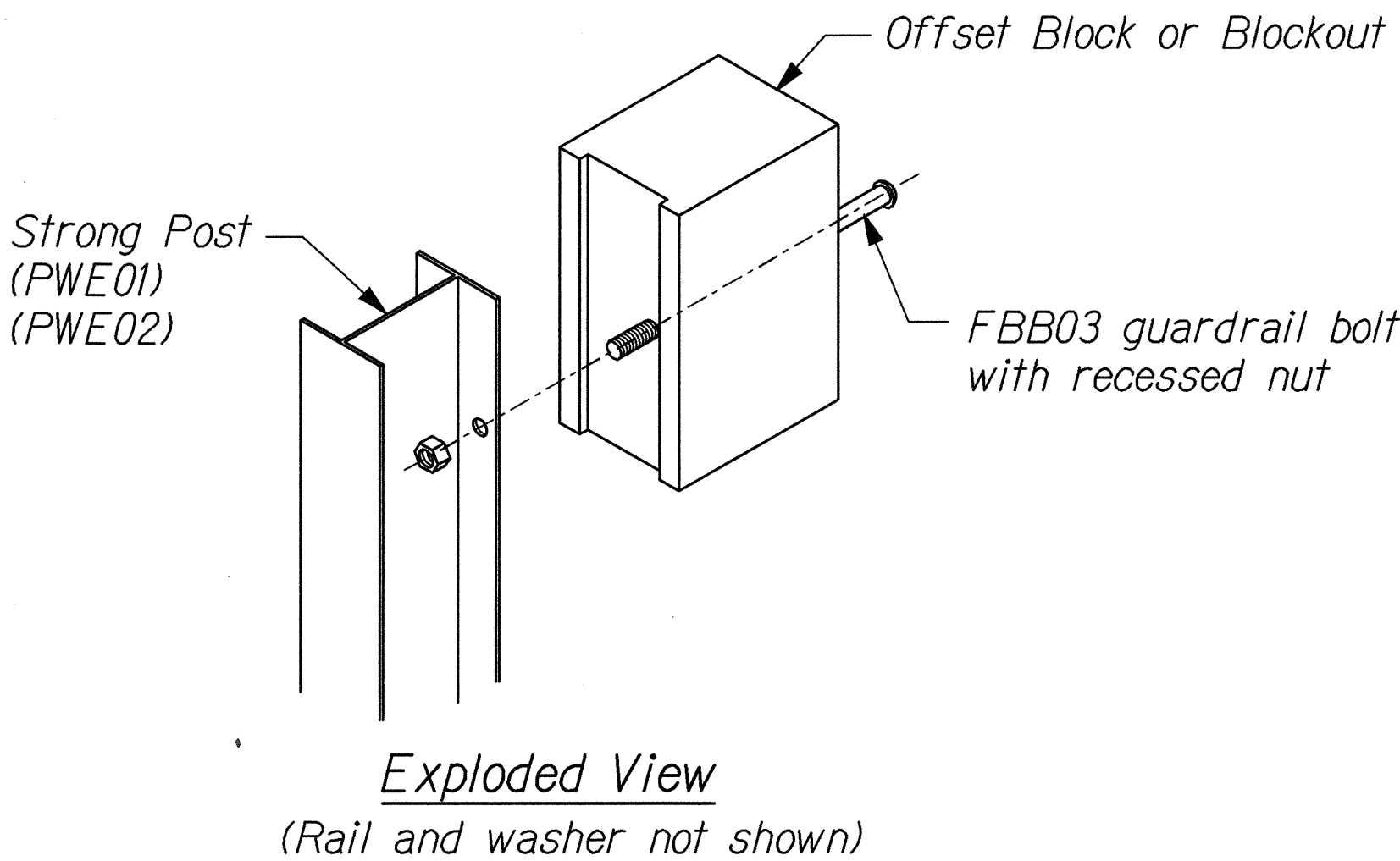
RECYCLED PLASTIC BLOCKOUT (TYPE I)



RECYCLED POLYETHYLENE
OFFSET BLOCK (TYPE II)



TYPICAL GUARDRAIL INSTALLATION



STEEL POST AND BLOCK DETAIL

GUARDRAIL TYPE	DIMENSION		
	H	A	B
Strong Post w/W Beam	1'-9 5/8"	1'-6"	1'-0"
Rubrail	2'-0"	1'-6"	2'-0"
Modified Thrie Beam	2'-0"	2'-0"	1'-0"

DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
DESIGNED BY	_____
CHECKED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
NO.	_____

SEE KUIHELANI/MS/C/NWG/DFL/09

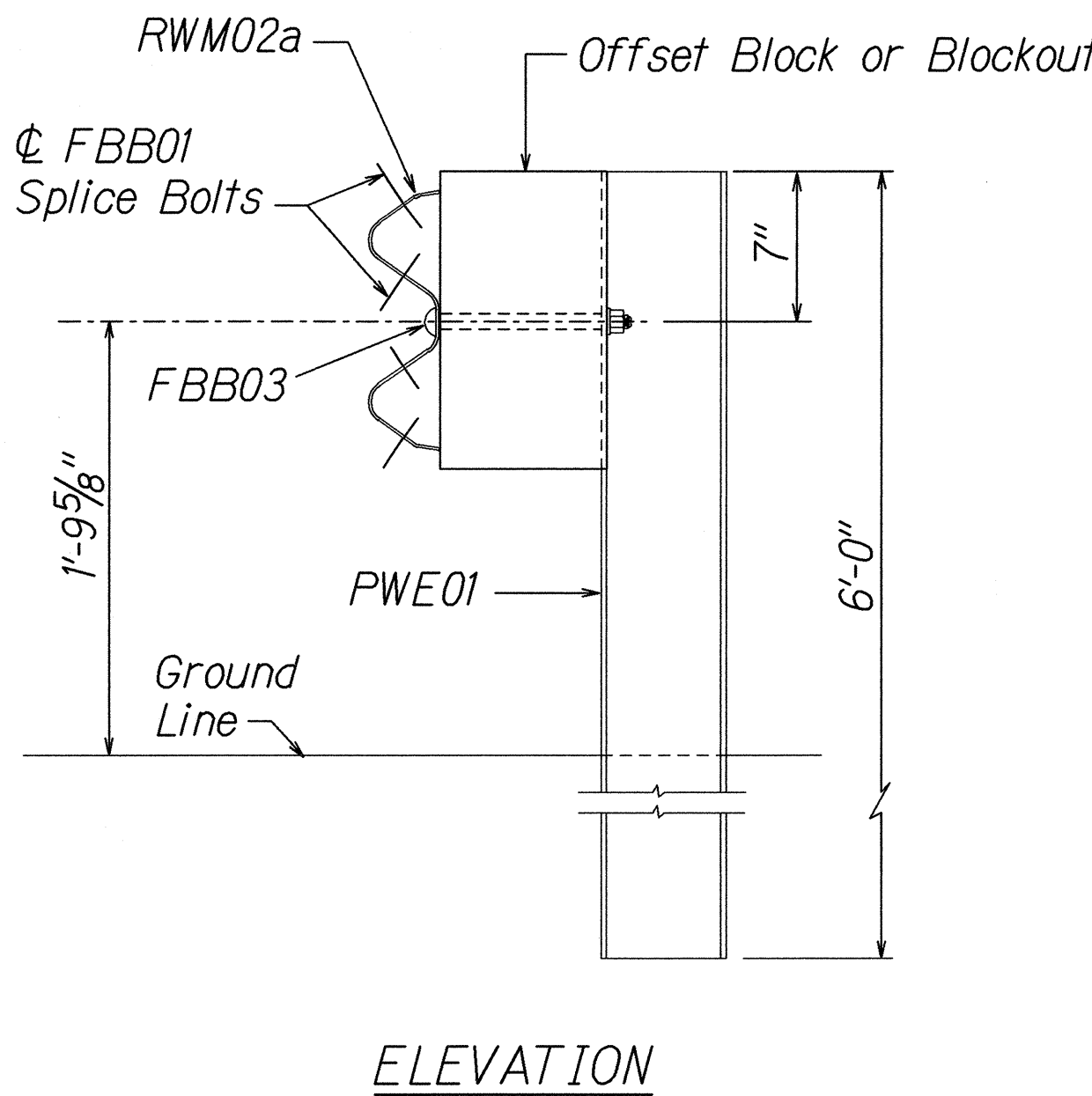
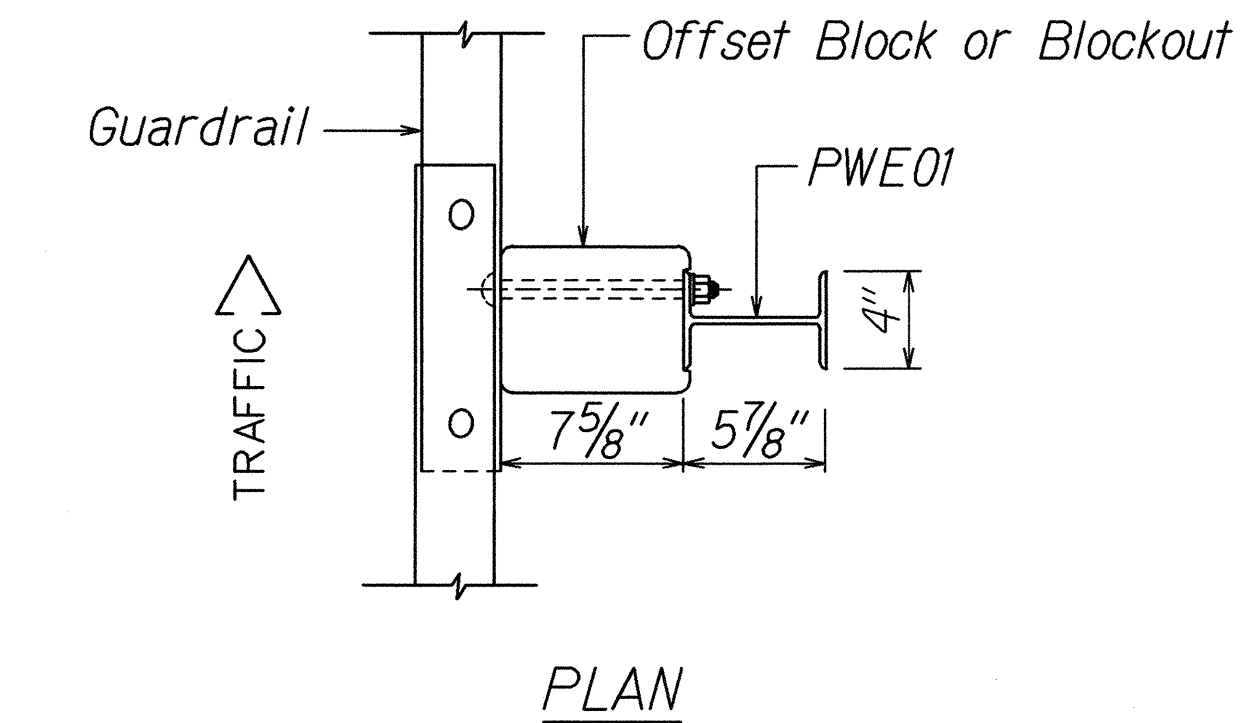
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

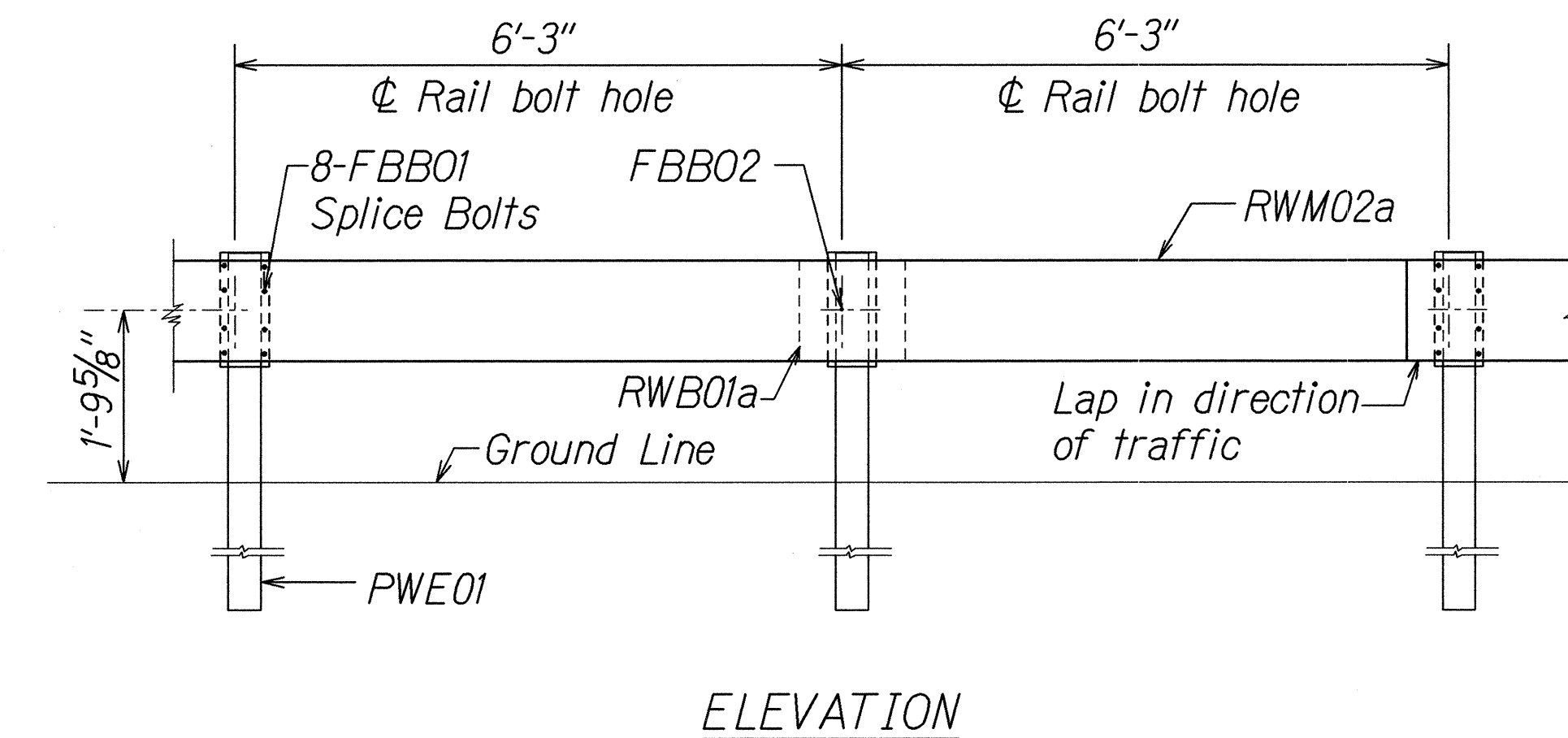
GUARDRAIL DETAILS AND NOTES

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: None Date: Sept. 14, 2001

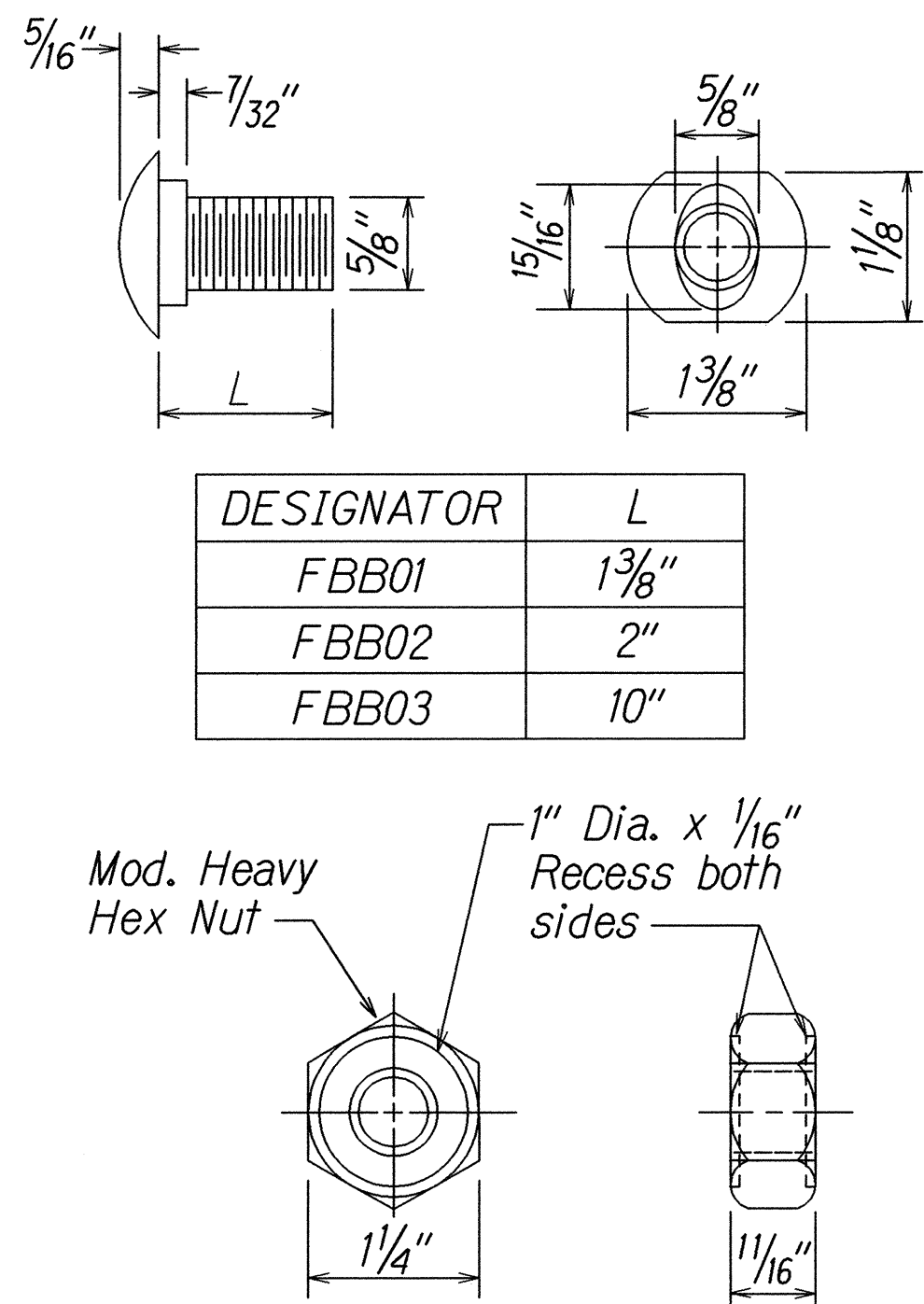
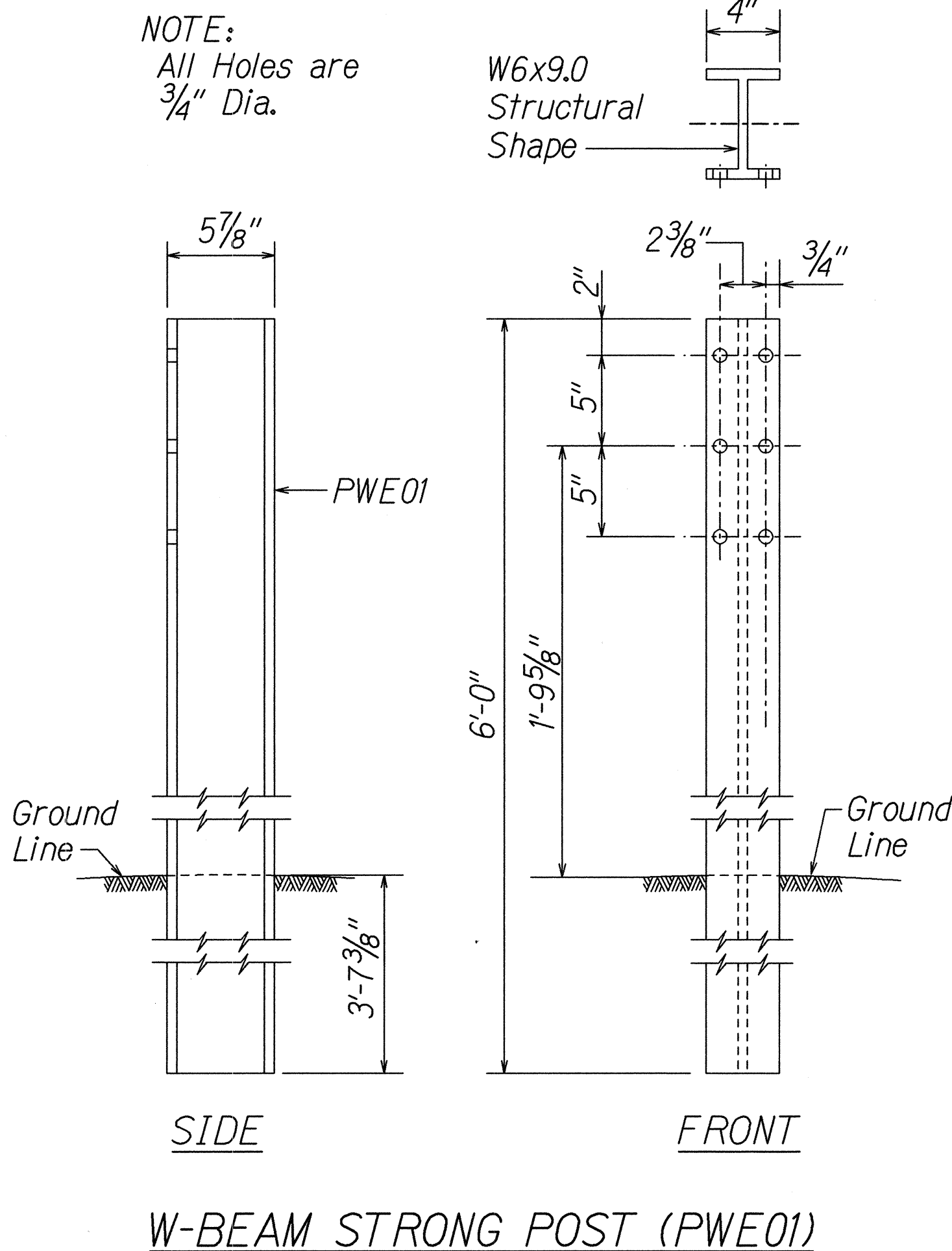
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	101	380



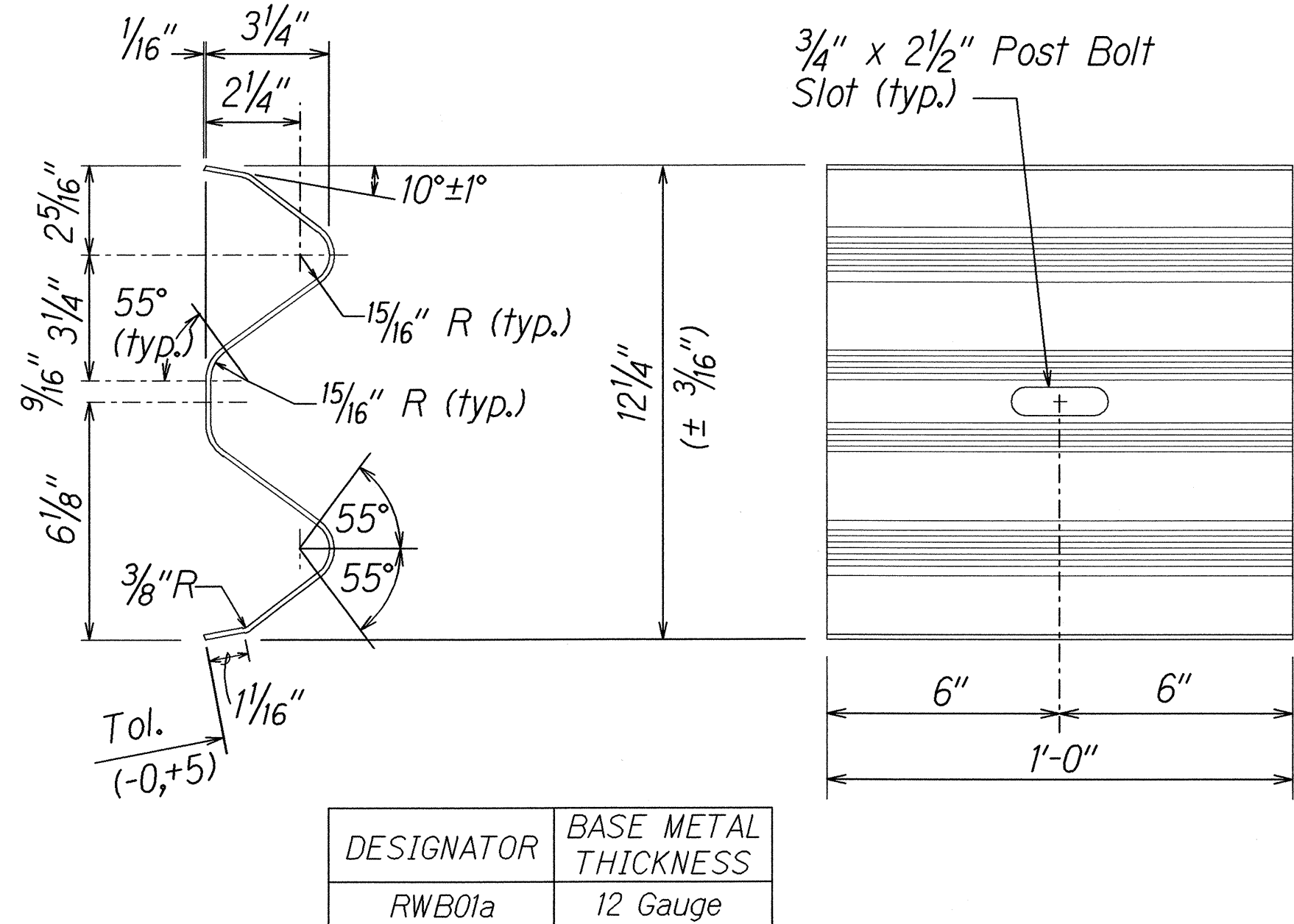
STRONG POST W-BEAM GUARDRAIL (SGR04a)



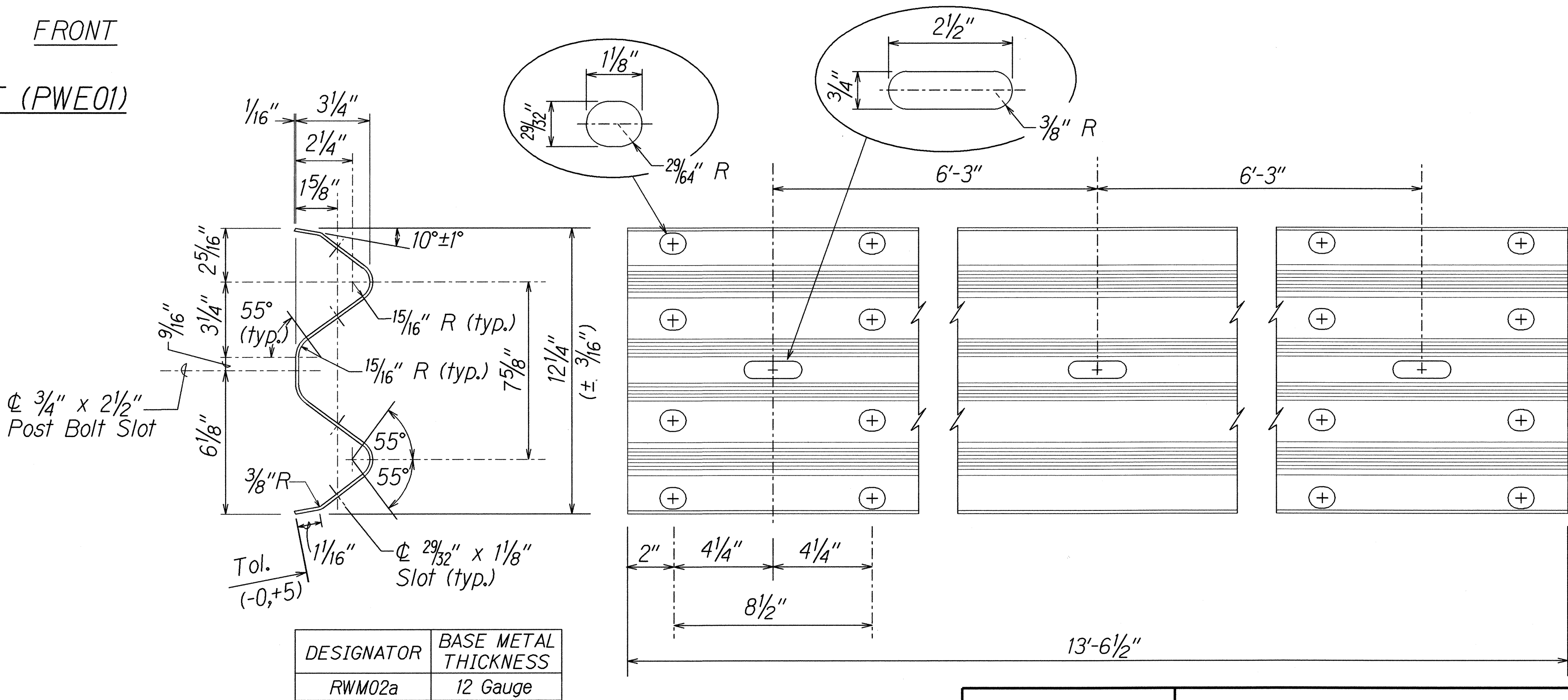
STRONG POST W-BEAM GUARDRAIL WITH RECYCLED OFFSET BLOCK OR PLASTIC BLOCKOUT



GUARDRAIL BOLTS AND RECESSED NUT



W-BEAM BACK-UP-PLATE (RWB01a)



2 SPACE W-BEAM GUARDRAIL (RWM02a)

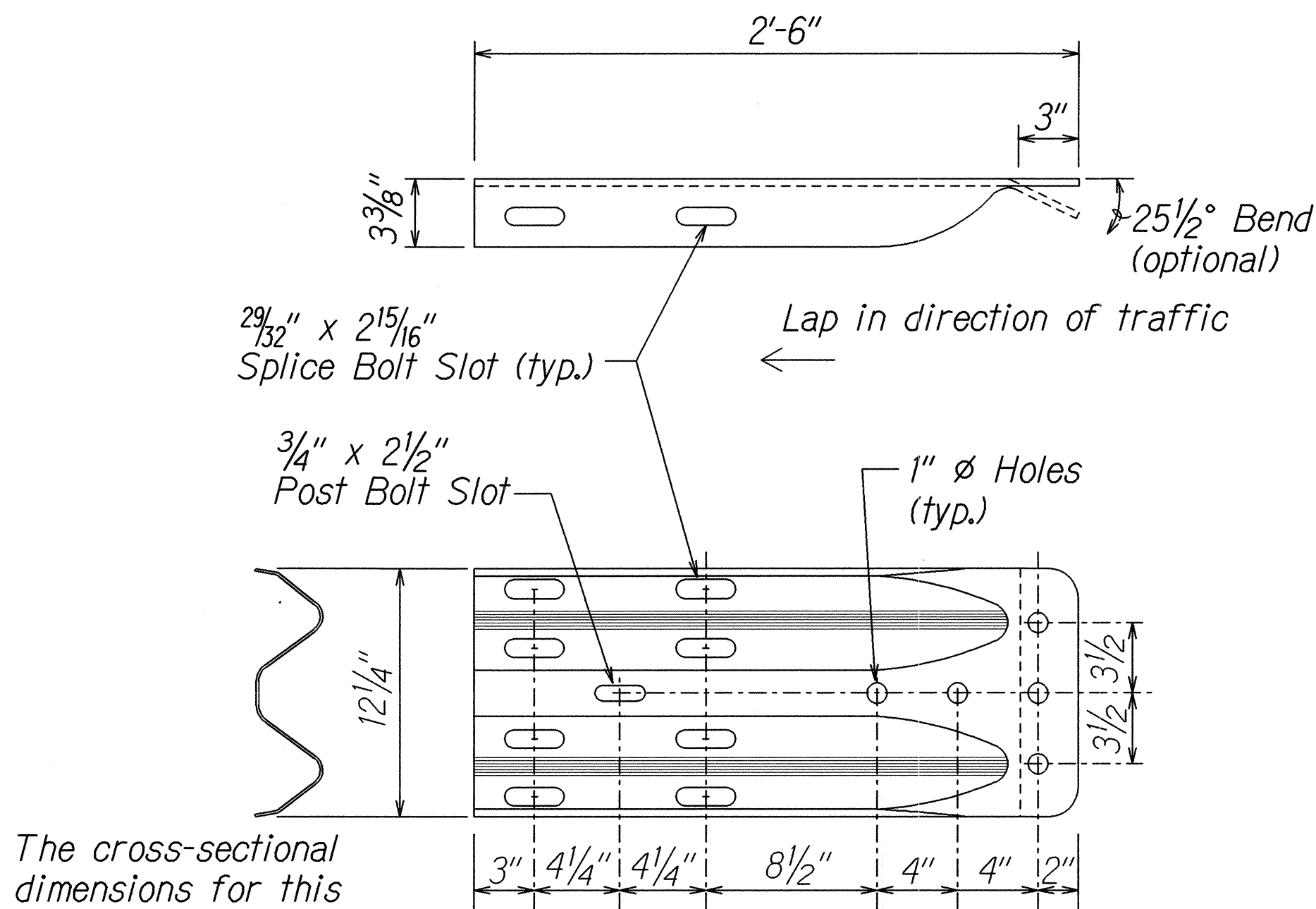
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Date: 9/14/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRONG POST W-BEAM GUARDRAIL

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: Not To Scale Date: Sept. 14, 2001

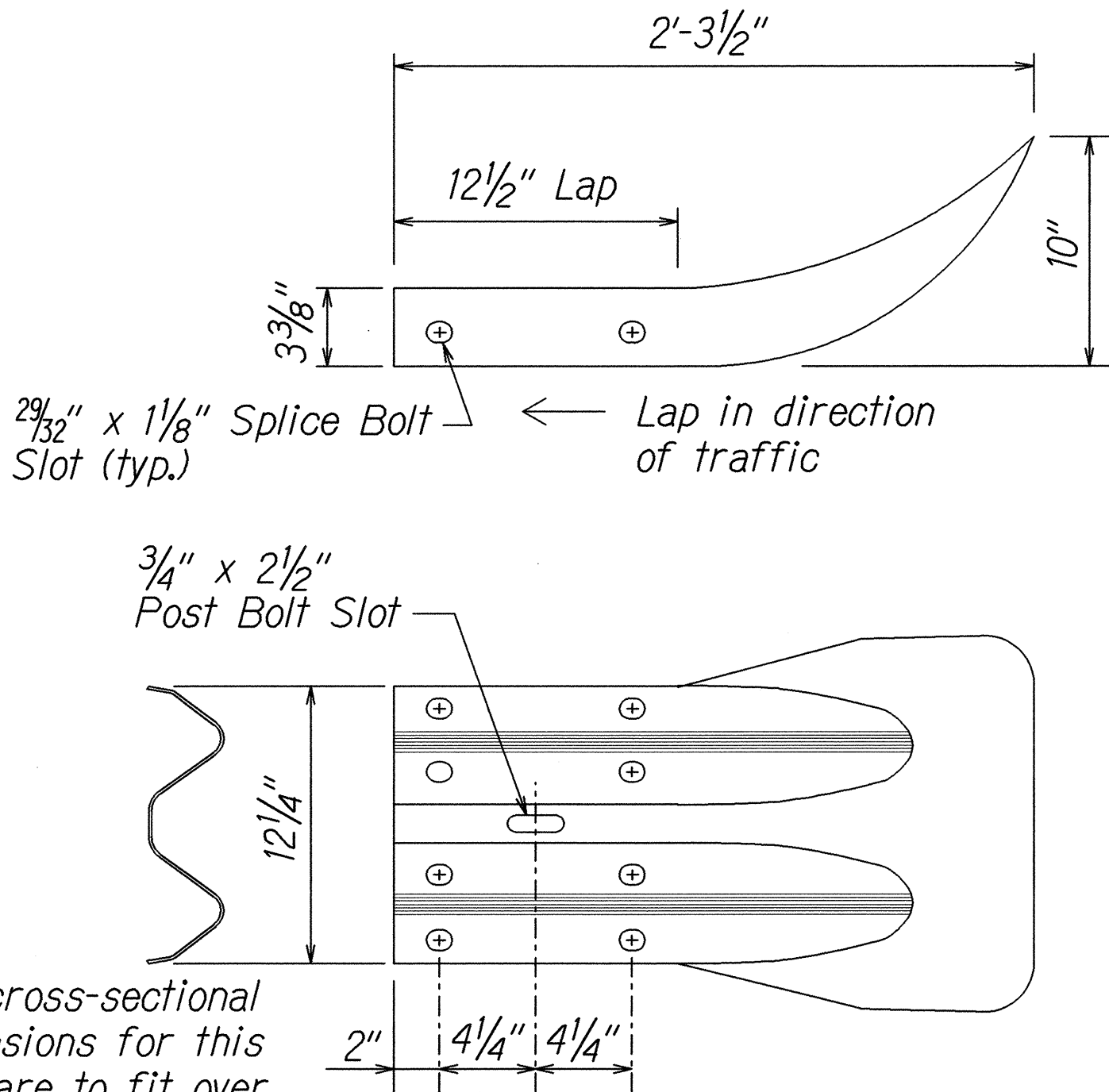
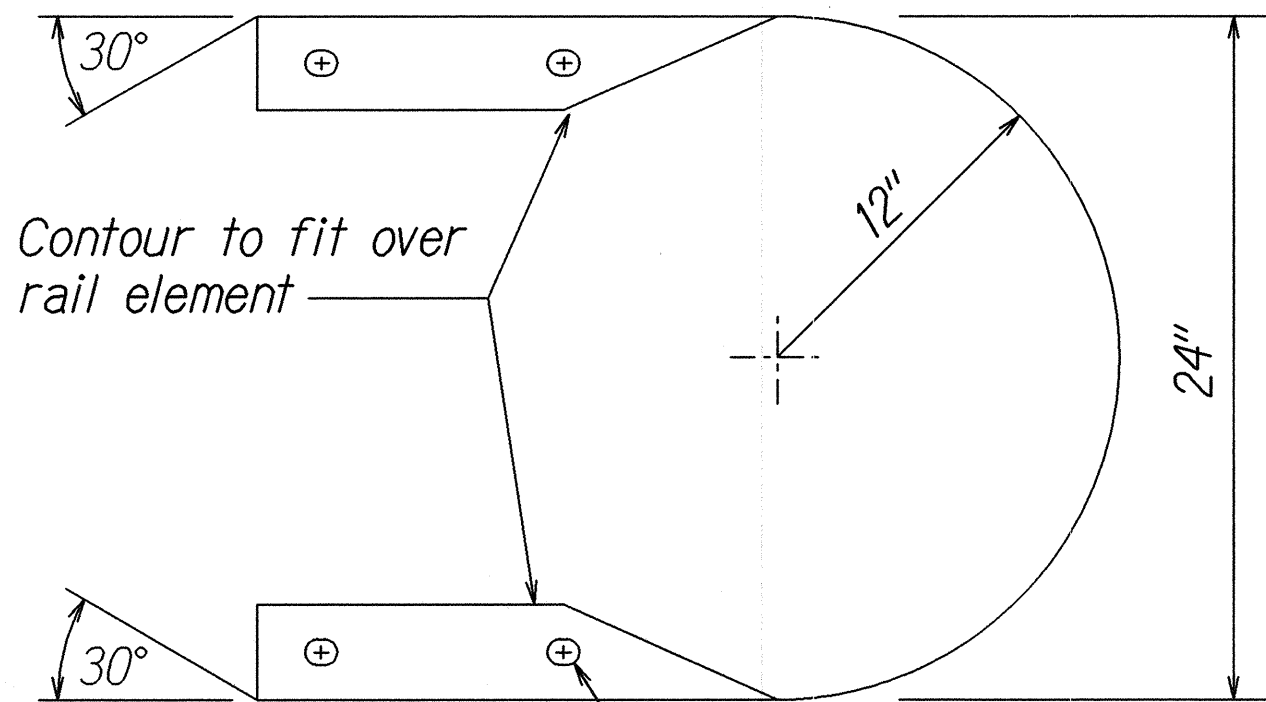
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	102	380



The cross-sectional dimensions for this part are to fit over part RWM02b on the approach end and under part RWM02b on the trailing end.

DESIGNATOR	BASE METAL THICKNESS
RWE02b	10 Gauge

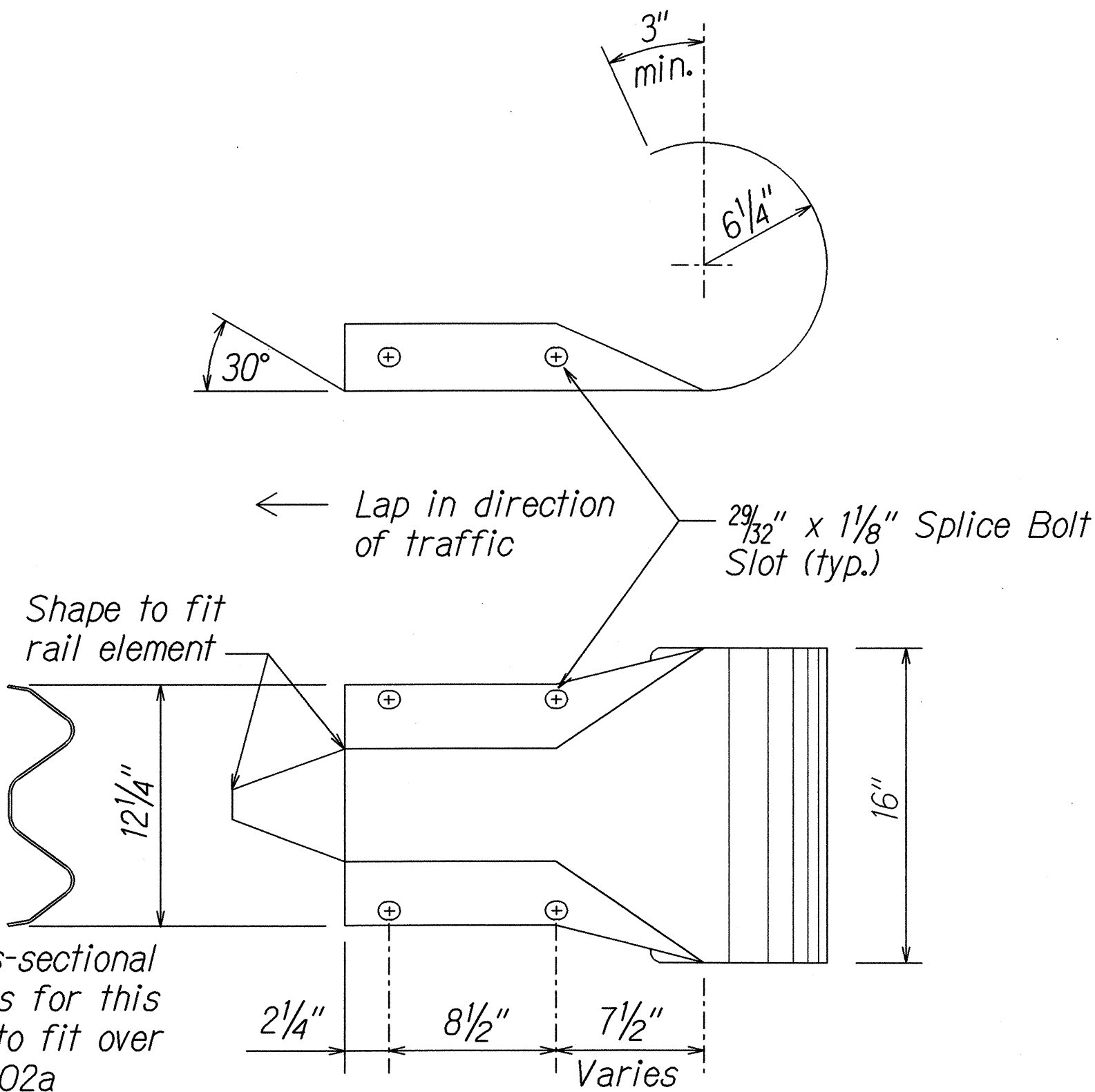
W-BEAM TERMINAL CONNECTOR (RWE02b)



The cross-sectional dimensions for this part are to fit over part RWM02a on the approach end and under part RWM02a on the trailing end.

DESIGNATOR	BASE METAL THICKNESS
RWE01a	12 Gauge

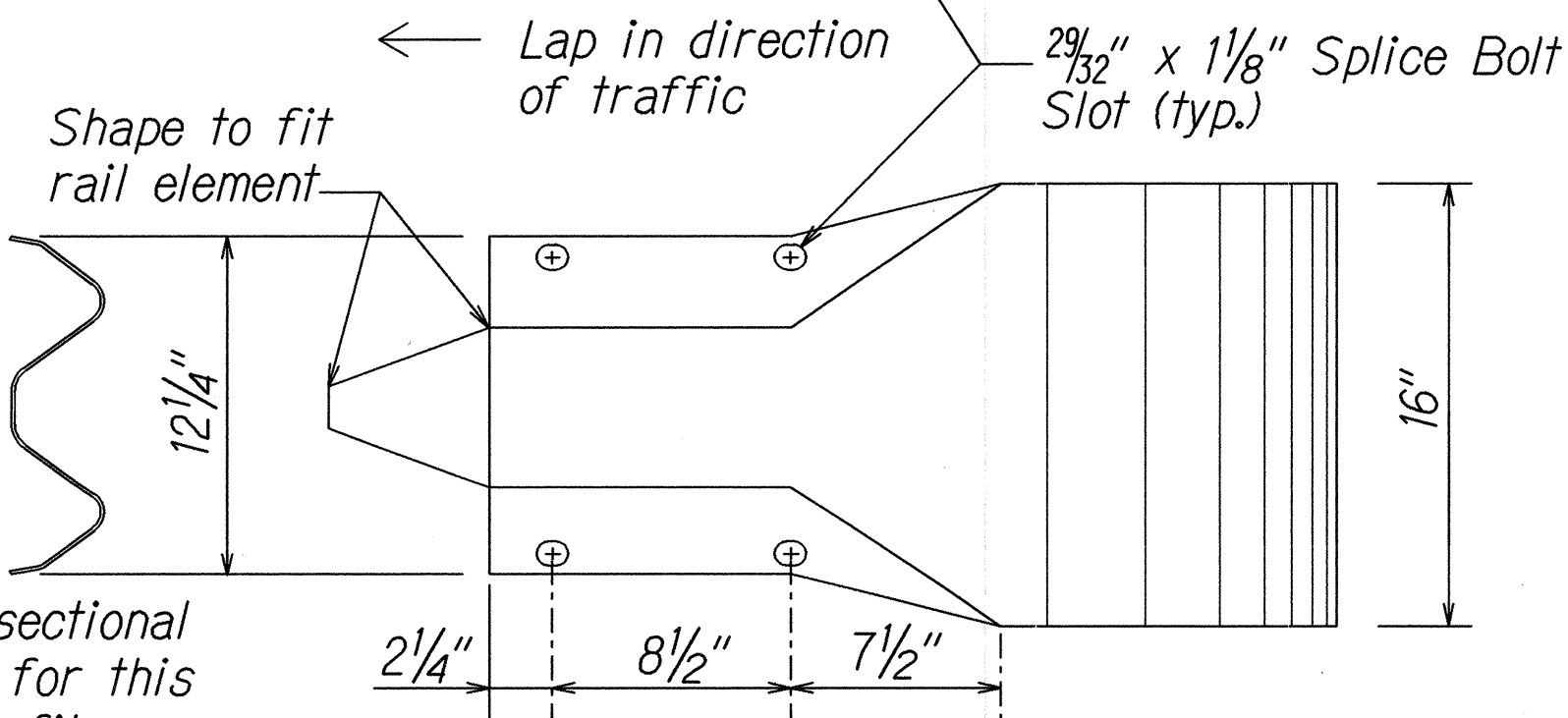
W-BEAM END SECTION (FLARED RWE01a)



The cross-sectional dimensions for this part are to fit over part RWM02a

DESIGNATOR	BASE METAL THICKNESS
RWE03a	12 Gauge

W-BEAM END SECTION (ROUNDED RWE03a)



The cross-sectional dimensions for this part are to fit over part RWM02a

DESIGNATOR	BASE METAL THICKNESS
RWE06a	12 Gauge

W-BEAM END SECTION (BUFFER RWE06a)

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

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Randall M. Urazaei 7/1/01

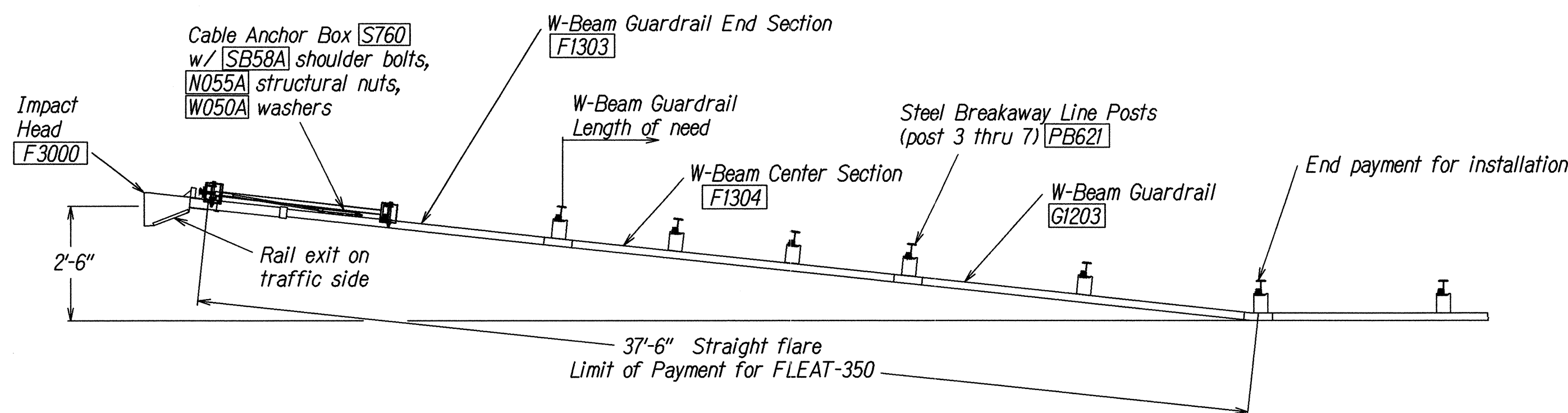
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRONG POST W-BEAM GUARDRAIL

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: Not To Scale Date: Sept. 14, 2001

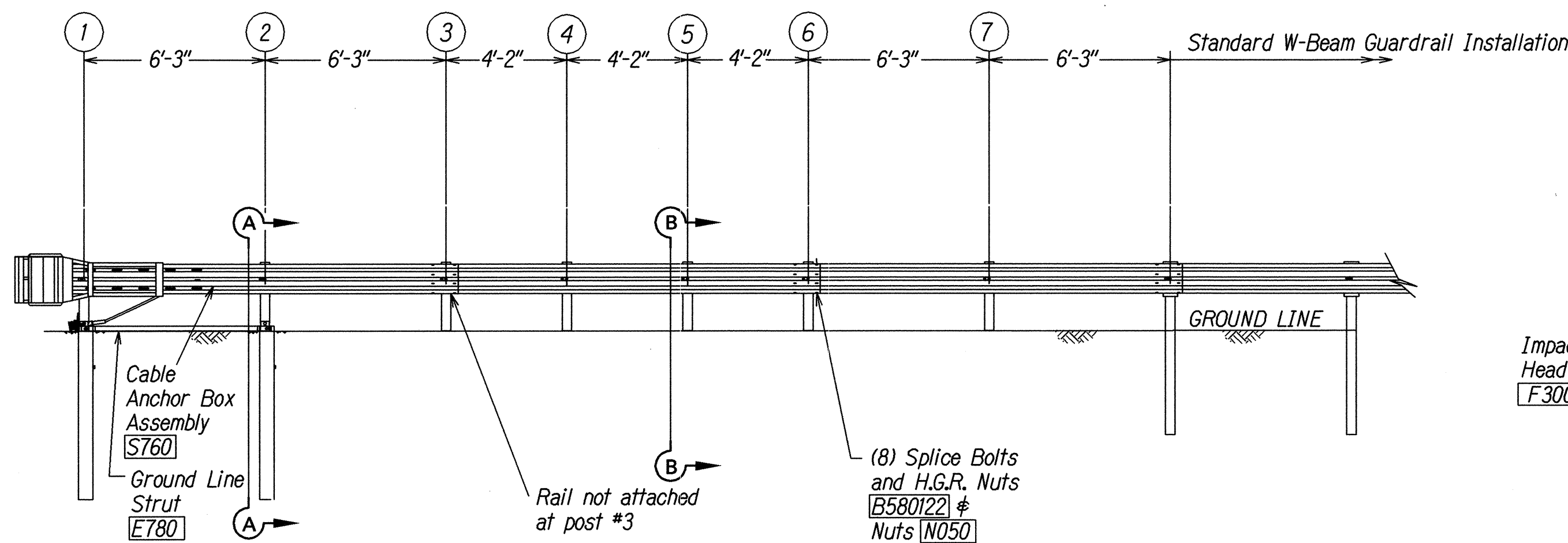
SHEET No. C47 OF 53 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	105	380

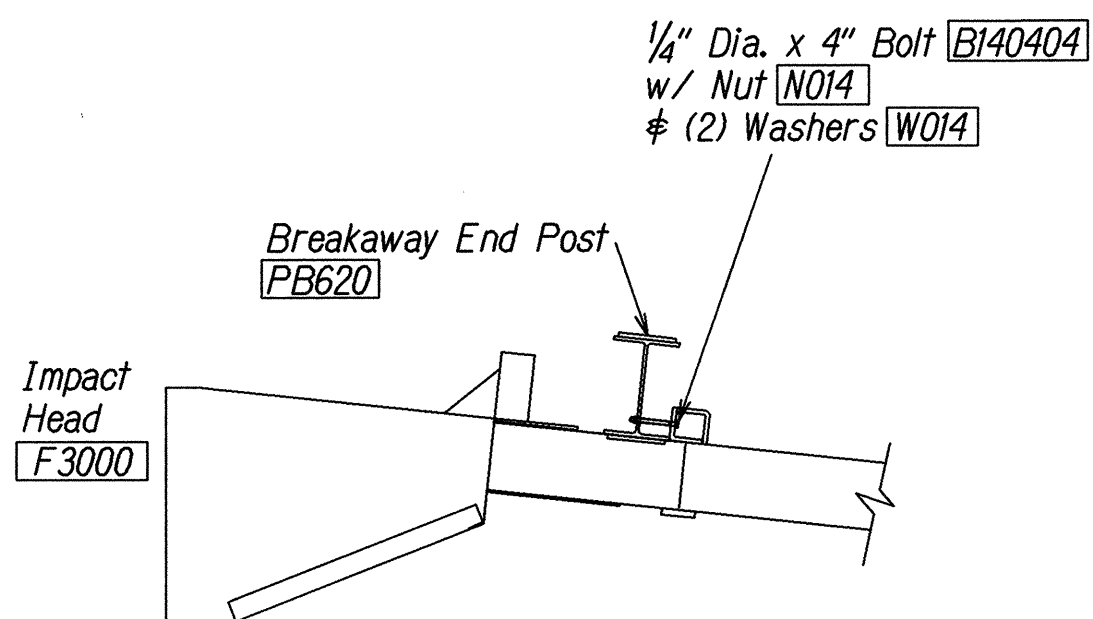


PLAN

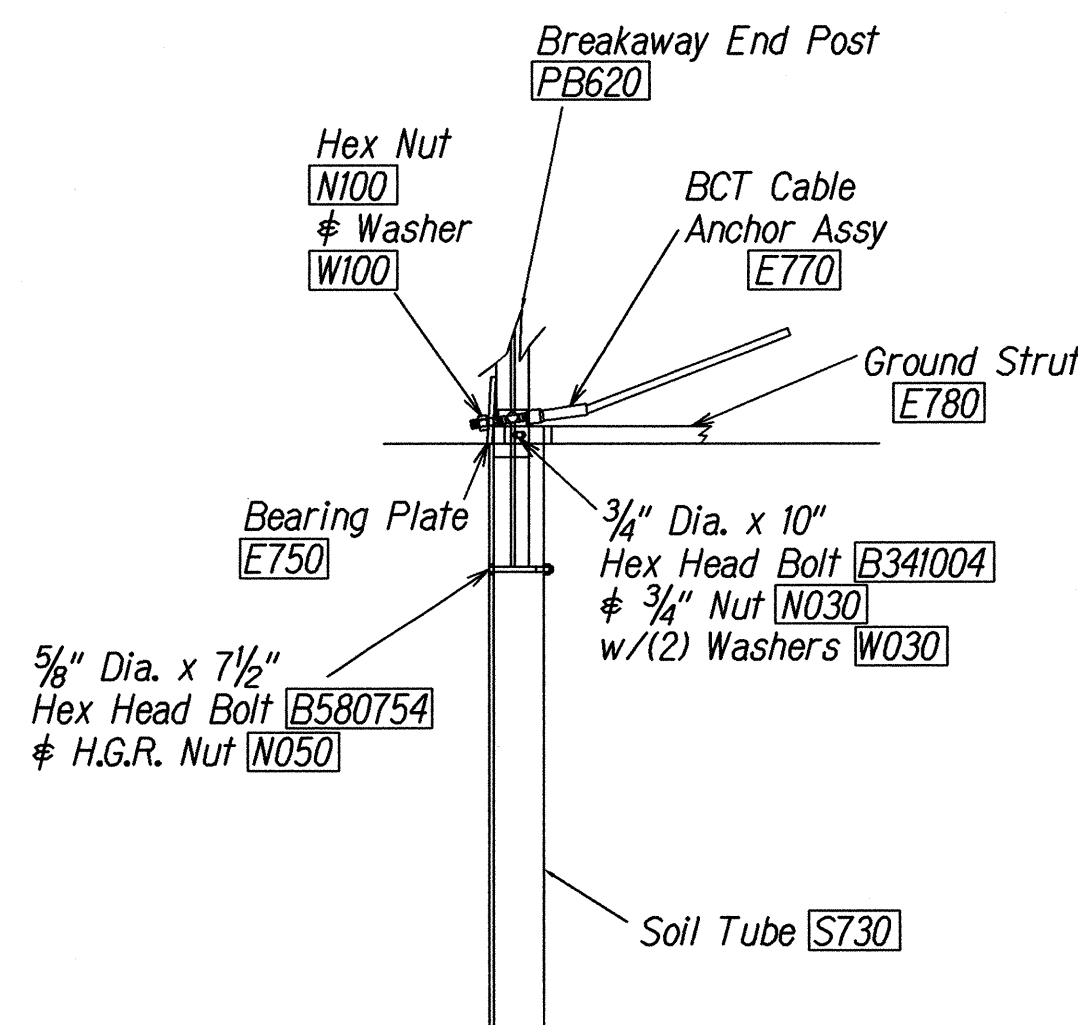
TRAFFIC →



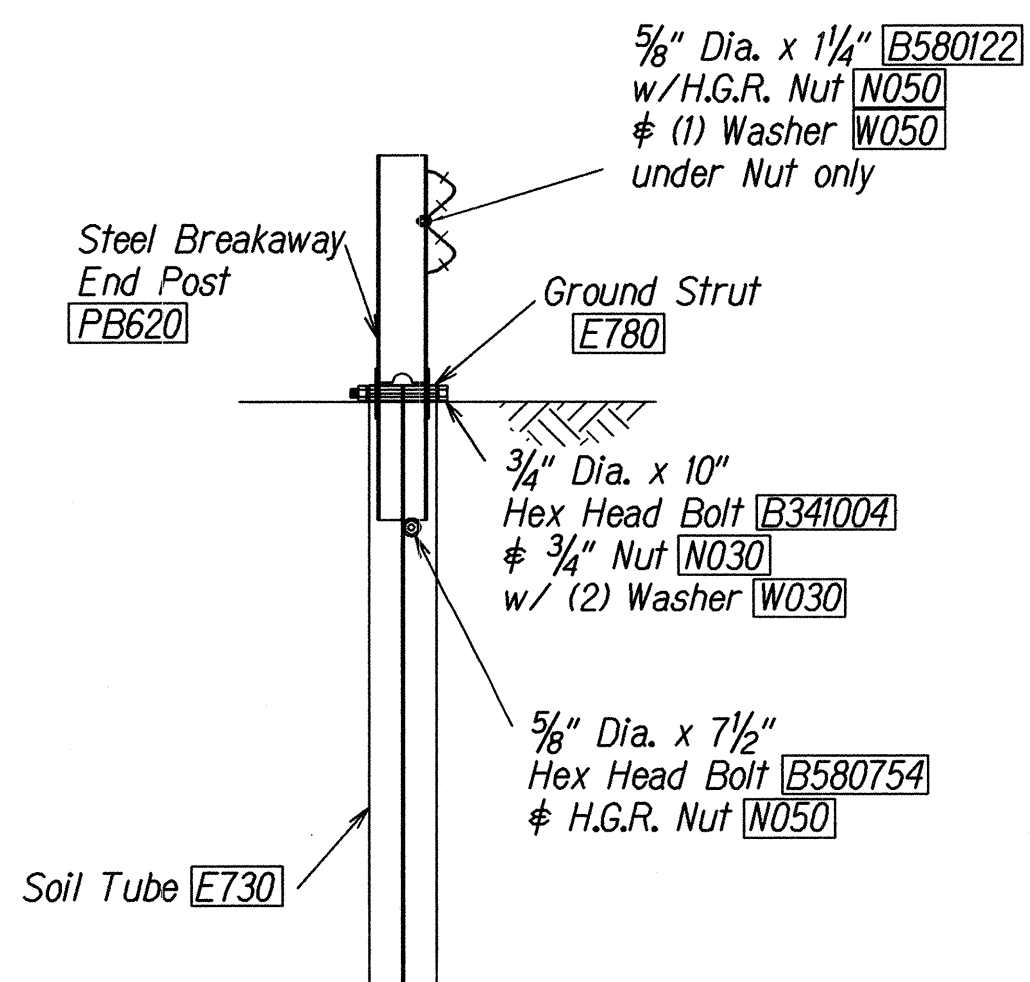
ELEVATION



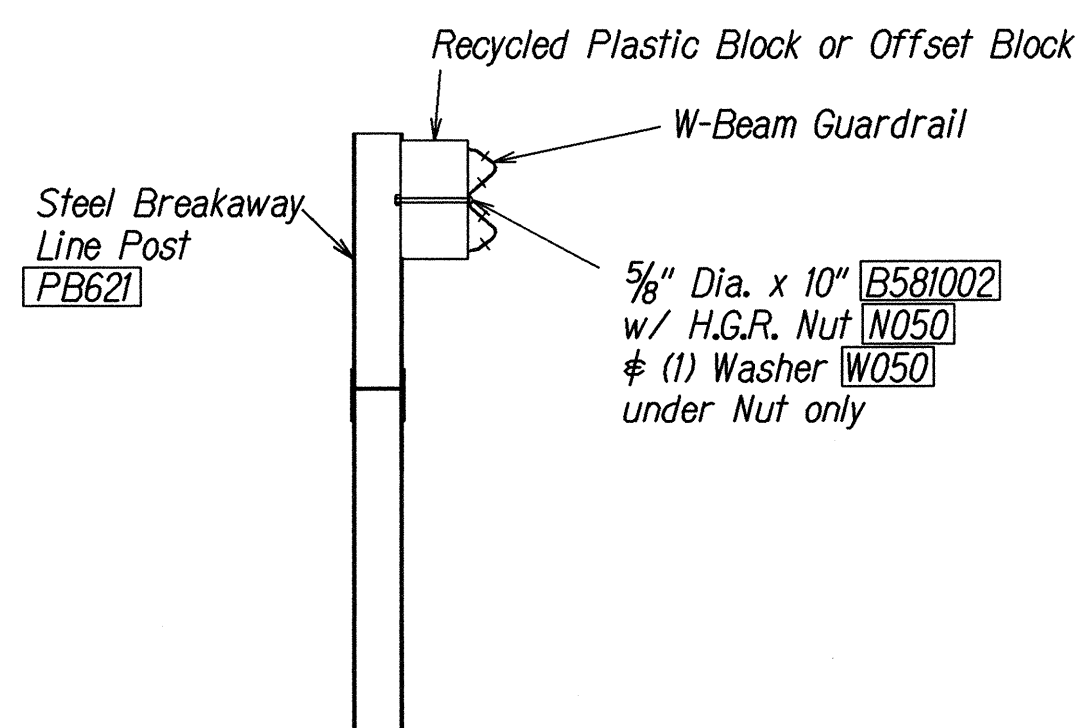
IMPACT HEAD CONNECTING DETAIL



PARTIAL VIEW OF POST 1



SECTION A-A
(@ Post #2)



SECTION B-B
(Typical @ Post 3 - 7)
NOTE: RAIL NOT BOLTED @ POST #3

GENERAL NOTES:

- Breakaway posts are required with the FLEAT Terminal.
- All bolts, nuts, cable assemblies, cable anchors and bearing plates shall be galvanized.
- The soil tubes shall not protrude more than 4" above ground (measured along a 5' cord). Site grading may be necessary to meet this requirement.
- The soil tubes may be driven with an approved driving head. Soil tubes should not be driven with the post in the tube. If the tubes are placed in drilled holes, the backfill material must be satisfactorily compacted to prevent settlement.
- When rock is encountered during excavation, a 12" Dia. post hole, 20" deep may be used if approved by the engineer. Granular material will be placed in the bottom of the hole approx. 2 1/2" deep to provide drainage. The soil tubes will be field cut to length, placed in the hole and backfilled with adequately compacted material excavated from the hole.
- The breakaway cable assembly must be taut. A locking device, (vice grips or channel lock pliers) should be used to prevent the cable from twisting when tightening nuts.

ITEM NO.	QTY	BILL OF MATERIALS
F3000	1	IMPACT HEAD
F1303	1	W-BEAM GUARDRAIL END SECTION, 12 GA.
F1304	1	W-BEAM GUARDRAIL CENTER SECTION, 12 GA.
G1203	1	W-BEAM GUARDRAIL, 12 GA.
S730	2	*FOUNDATION SOIL TUBE, 6" x 8" x 72"
E750	1	BEARING PLATE
S760	1	CABLE ANCHOR BOX
E770	1	BCT CABLE ANCHOR ASSEMBLY
E780	1	GROUND STRUT
PB620	2	STEEL BREAKAWAY END POST
PB621	5	STEEL BREAKAWAY LINE POST
	5	RECYCLED PLASTIC BLOCKOUT OR OFFSET BLOCK
HARDWARE		
B580122	25	5/8" Dia. x 1 1/4" SPLICE BOLT, POST #2
B580754	2	5/8" Dia. x 7 1/2" HEX BOLT
B341004	2	3/4" Dia. x 10" HEX BOLT
B581002	5	5/8" Dia. x 10" H.G.R. BOLT (POST 3 THRU 7)
N050	32	5/8" Dia. H.G.R. NUT (SPLICE 24, SOIL TUBES 2, POST 2 THRU 7, 6)
N030	2	3/4" Dia. HEX NUT
W050	6	H.G.R. WASHER
W030	4	3/4" ID WASHER
N100	2	1" ANCHOR CABLE HEX NUT
W100	2	1" ANCHOR CABLE WASHER
B140404	2	1/4" x 4" HEX BOLT
N014	2	1/4" HEX NUT
W014	4	1/4" WASHER
SB58A	8	CABLE ANCHOR BOX SHOULDER BOLT
N055A	8	1/2" A325 STRUCTURAL NUT
W050A	16	1 1/16" OD x 9/16" ID A325 STR. WASHER

Foundation Tube Options For Posts 1 & 2

- *6'-0" Split Foundation Tubes S730
- *6'-0" Solid Foundation Tubes E731
- *5'-0" Foundation Tubes S735 W/Soil Plates SP600
- *4'-6" Foundation Tubes E735 W/Soil Plates SP600

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
NO.	

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R. M. Urasaki 7/14/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
FLEAT-350
FLARED ENERGY ABSORBING TERMINAL
KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: Not to Scale Date: Sept. 14, 2001

UNDERDRAIN SUMMARY				
FROM BASELINE STATION NO.	TO BASELINE STATION NO.	LOCATION	6-INCH NON-PERFORATED UNDERDRAIN PIPE	6-INCH PERFORATED UNDERDRAIN PIPE
UNIT			LIN FT	LIN FT
10+00	11+40	LT.	30	140
11+60	14+40	LT.	30	280
14+50	16+50	LT.	30	200
16+50	19+00	LT.	10	285
19+00	20+30	LT.	10	130
20+40	22+50	LT.	10	210
22+50	25+20	RT.	60	270
25+40	28+05	RT.	40	265
28+05	30+20	RT.	65	215
30+20	32+05	RT.	55	185
32+05	34+25	RT.	10	260
34+75	36+60	RT.		185
36+60	38+25	RT.	55	165
38+25	39+75	LT.	20	185
39+75	42+50	LT.		275
42+50	45+25	LT.	50	275
45+50	47+60	LT.	10	210
47+60	49+25	LT.	10	165
49+40	51+75	LT.	10	235
51+75	54+25	LT.	50	250
54+40	55+20	LT.	10	80
55+40	56+20	LT.	10	80
56+40	58+00	LT.	10	160
58+00	60+00	LT.		200
60+00	62+00	LT.	30	200
62+00	64+05	LT.	10	205
64+20	65+05	LT.	10	85
65+20	68+00	LT.	10	280
68+00	70+80	LT.	25	280
70+80	73+55	LT.	25	275
73+55	74+75	LT.	20	120
74+75	76+90	LT.	20	215
76+90	79+10	LT.	20	220
79+10	81+75	LT.	20	265
81+75	82+55	LT.		115
82+55	84+90	LT.	20	235

UNDERDRAIN SUMMARY				
FROM BASELINE STATION NO.	TO BASELINE STATION NO.	LOCATION	6-INCH NON-PERFORATED UNDERDRAIN PIPE	6-INCH PERFORATED UNDERDRAIN PIPE
UNIT			LIN FT	LIN FT
84+90	87+50	LT.	20	260
87+50	89+80	LT.	20	230
89+80	92+00	RT.	55	220
92+00	94+00	RT.	50	200
94+00	96+00	RT.	55	200
96+85	98+75	RT.	10	225
98+75	101+70	RT.	120	295
101+70	103+00	RT.	125	130
103+00	105+00	RT.	120	200
105+00	107+25	RT.	95	225
107+25	109+60	LT.	25	235
110+20	112+65	LT.	10	280
112+65	115+25	LT.	10	260
115+25	117+30	LT.	220	240
117+30	119+30	LT.	200	200
119+30	121+30	LT.	210	200
121+30	123+05	LT.	10	175
123+20	124+05	LT.	10	85
124+05	125+50	LT.		145
125+50	127+50	LT.	90	200
127+50	129+50	LT.	25	200
129+50	131+50	LT.	25	200
131+50	134+00	LT.	35	250
134+00	136+50	LT.	30	250
136+50	138+55	LT.	10	205
137+35	138+55	RT.-NB	10	120
138+55	140+45	RT.-NB	30	190
138+70	140+45	RT.	50	175
140+45	142+50	RT.	50	205
140+45	142+50	RT.-NB	20	205
140+60	142+65	LT.	205	
142+50	144+75	RT.	20	265
142+50	144+75	RT.-NB	10	225
142+65	144+75	LT.	210	
144+75	146+50	RT.-NB	75	100
144+80	146+55	RT.	70	175

UNDERDRAIN SUMMARY				
FROM BASELINE STATION NO.	TO BASELINE STATION NO.	LOCATION	6-INCH NON-PERFORATED UNDERDRAIN PIPE	6-INCH PERFORATED UNDERDRAIN PIPE
UNIT			LIN FT	LIN FT
146+55	148+50	RT.	50	195
146+55	148+50	LT.	15	200
148+55	150+60	LT.	10	205
150+60	152+90	LT.	10	230
150+60	153+00	LT.	240	
152+90	154+70	LT.	10	180
153+00	154+85	LT.	185	
154+70	156+70	LT.	10	200
154+85	156+80	LT.	195	
156+70	158+60	LT.	10	190
156+80	158+80	LT.	200	
158+60	161+30	LT.	10	270
158+80	161+45	LT.	265	
161+30	163+70	LT.	10	280
161+45	162+00	LT.	55	
164+00	166+05	LT.	35	205
166+05	167+45	LT.	50	140
167+45	169+80	RT.	55	235
169+80	172+15	RT.	75	235
172+15	174+50	RT.	10	235
174+60	177+15	RT.	65	255
177+15	179+10	RT.	75	195
179+10	181+30	RT.	75	220
181+30	183+60	RT.	75	230
183+60	185+85	RT.	75	225
185+85	187+45	RT.	80	160
187+45	189+25	RT.	105	180
189+25	191+40	RT.	135	215
191+40	193+45	RT.	10	205
193+45	195+30	RT.	190	185
195+30	197+55	RT.	235	225
197+55	199+80	RT.	235	225
199+80	202+00	RT.	230	270
202+00	204+60	RT.	100	260
204+60	207+15	LT.	20	255
207+15	209+40	LT.	60	225
209+40	211+60	LT.	30	220

UNDERDRAIN SUMMARY				
FROM BASELINE STATION NO.	TO BASELINE STATION NO.	LOCATION	6-INCH NON-PERFORATED UNDERDRAIN PIPE	6-INCH PERFORATED UNDERDRAIN PIPE
UNIT			LIN FT	LIN FT
211+60	213+80	LT.	45	220
213+80	216+05	LT.	30	225
216+05	218+30	LT.	30	225
218+30	220+60	LT.	55	230
220+60	222+80	LT.	60	220
222+80	225+05	LT.	80	225
225+05	227+30	LT.	65	225
227+30	229+65	LT.	40	235
229+65	231+85	LT.	60	220
231+85	234+50	LT.	10	265
234+60	236+80	LT.	25	220
236+80	239+10	LT.	25	230
239+10	241+30	LT.	35	220
241+30	243+60	LT.	25	230
243+60	245+80	LT.	25	220
245+80	248+05	LT.	25	225
248+05	250+10	LT.	45	205
250+10	252+10	LT.	50	200
252+10	254+15	LT.	20	205
254+15	256+00	LT.	25	185
256+00	257+80	LT.	25	180
257+80	258+85	RT.	55	105
258+85	260+95	RT.	70	210
260+95	262+80	RT.	10	185
262+80	263+50	RT.	10	70
263+50	264+95	RT.	80	145
264+95	267+20	LT.	25	225
267+20	269+40	LT.	25	220
269+40	271+75	LT.	25	235
271+75	273+75	LT.	25	200
273+75	275+00	LT.		125
TOTAL			7,545	27,450
ROUNDED TOTAL			7,600	27,500

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	DESIGNED BY	
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UNDERDRAIN SUMMARY

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: None Date: Sept. 14, 2001

SHEET No. C51 OF 53 SHEETS

CLEANOUT SUMMARY				
BASELINE STATION NO.	LOCATION	CLEANOUT TYPE A	CLEANOUT TYPE B	CLEANOUT TYPE C
UNIT		EACH	EACH	EACH
10+00	LT.	1		
11+60	LT.	1		
16+50	LT.	1		
16+50	RT.	1		
19+00	LT.	1		
19+00	LT.	1		
22+50	LT.	1		
22+50	RT.			1
25+20	RT.	1		
28+05	RT.	2		
30+25	RT.	1		
32+10	RT.	1		
34+25	LT.	1		
34+75	RT.	1		
36+60	RT.		1	
38+25	RT.			1
38+25	LT.	1		
39+75	RT.	1		
42+50	LT.	1		
45+25	LT.	1		
47+60	LT.	2		
51+75	LT.	1		
54+25	LT.	1		
55+20	LT.	1		
56+20	LT.	1		
58+00	LT.		1	
60+00	LT.	2		
62+00	LT.	1		
64+20	LT.	1		
68+00	LT.	2		
70+80	LT.	1		
73+55	LT.	1		
74+75	LT.	1		
76+90	LT.	1		
79+10	LT.	1		
81+75	RT.	1		
82+55	LT.	1		

CLEANOUT SUMMARY				
BASELINE STATION NO.	LOCATION	CLEANOUT TYPE A	CLEANOUT TYPE B	CLEANOUT TYPE C
UNIT		EACH	EACH	EACH
84+90	LT.	1		
87+50	LT.	1		
89+80	LT.	1		
89+80	RT.			1
92+00	RT.	1		
94+00	RT.	1		
96+00	RT.	1		
96+85	LT.	1		
98+75	RT.	1		1
101+70	RT.	1		
103+00	RT.	1		
105+00	RT.	1		
107+25	RT.	1		
109+60	LT.	1		
110+20	RT.	1		
112+65	LT.	2		
115+25	LT.	1		1
117+30	LT.			1
119+30	LT.	1		1
121+30	LT.	1		1
123+05	LT.	1		
124+05	LT.		1	
125+50	LT.	2		
127+50	LT.	1		
129+50	LT.	1		
131+50	LT.	1		
134+00	LT.	1		
136+50	LT.	1		
137+35	RT.-NB	1		
138+70	RT.	1		
140+45	RT.	1		
140+45	RT.-NB	1		
140+60	LT.			1
142+50	RT.	1		
142+50	RT.-NB	1		
142+65	LT.			1
144+75	RT.			1

CLEANOUT SUMMARY				
BASELINE STATION NO.	LOCATION	CLEANOUT TYPE A	CLEANOUT TYPE B	CLEANOUT TYPE C
UNIT		EACH	EACH	EACH
146+50	RT.-NB			1
146+55	RT.	1		
146+55	LT.	1		
148+50	RT.			1
148+55	LT.	1		
150+60	LT.	1		1
152+90	LT.	1		
153+00	LT.			1
154+70	LT.	1		
154+85	LT.			1
156+70	LT.	1		
156+80	LT.			1
158+60	LT.	1		
158+80	LT.			1
161+30	LT.	1		
161+45	LT.			1
163+50	RT.	1		
164+00	LT.	1		
166+05	LT.	1		
167+45	RT.	1		
169+80	RT.	1		
172+15	RT.	1		
177+15	RT.	1		
179+10	RT.	1		
181+30	RT.	1		
183+60	RT.	1		
185+85	RT.	1		
187+45	RT.	1		
189+25	RT.	1		
191+40	RT.	1		
193+45	RT.	1		1
195+30	RT.	1		1
197+55	RT.	1		1
199+80	RT.	1		1
202+15	LT.	1		
204+60	RT.			1
204+60	LT.	1		

CLEANOUT SUMMARY				
BASELINE STATION NO.	LOCATION	CLEANOUT TYPE A	CLEANOUT TYPE B	CLEANOUT TYPE C
UNIT		EACH	EACH	EACH
207+15	LT.	1		
209+40	LT.	1		
211+60	LT.	1		
213+80	LT.	1		
216+05	LT.	1		
218+30	LT.	1		
220+60	LT.	1		
222+80	LT.	1		
225+05	LT.	1		
227+30	LT.	1		
229+65	LT.	1		
231+85	LT.	1		
234+60	LT.	1		
236+80	LT.	1		
239+10	LT.	1		
241+30	LT.	1		
243+60	LT.	1		
245+80	LT.	1		
248+05	LT.	1		
250+10	LT.	1		
252+10	LT.	1		
254+15	LT.	1		
256+00	LT.	1		
257+80	RT.	1		
258+85	RT.	1		
260+95	RT.	1		
262+80	RT.	1		
264+95	RT.			1
264+95	LT.	1		
267+20	LT.	1		
269+40	LT.	1		
271+75	LT.	1		
275+00	LT.	1		
TOTAL		131	3	25

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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Radall M. Urashima 9/14/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CLEANOUT SUMMARY

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: None Date: Sept. 14, 2001

SHEET No. C52 OF 53 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	108	380

GUARDRAIL SUMMARY						
FROM BASELINE STATION NO.	TO BASELINE STATION NO.	LOCATION	GUARDRAIL TYPE 3 STRONG POST W/ W-BEAM	THREE BEAM CONNECTION	FLEAT 350	TYPE "G" FLARE END TERMINAL
UNIT			LIN FT	EACH	EACH	EACH
17+31.25	20+50	Rt.	318.75		1	1
20+08	21+51.75	Lt.	143.75		1	1
22+27	25+45.75	Rt.	318.75		1	1
25+16.25	26+60	Lt.	143.75		1	1
33+73.50±	33+86±	Lt.	12.50	1		1
33+59	33+86±	Rt.	27.00	1		
33+59	34+06±	Rt.	47.00	1		
34+06±	-	Rt.		1		
35+13±	35+75.5±	Lt.	62.50	1	1	
35+13±	35+31	Rt.	18.00	1		
34+94±	35+31	Rt.	37.00	1		
34+94±	-	Rt.		1		
36+80	37+23.75	Lt.	43.75		1	1
42+35	45+60	Rt.	325.00		1	1
45+17	46+60.75	Lt.	143.75		1	1
49+12.25	50+56	Lt.	143.75		1	1
51+23	56+48	Rt.	525.00		1	1
54+11.25	57+48.75	Lt.	337.50		1	1
61+07	65+32	Rt.	425.00		1	1
63+92.25	66+36	Lt.	243.75		1	1
73+60	95+52.5±	Lt.	2192.5	1		1
95+32	95+81.50±	Rt.	49.50	1		
95+32	95+83±	Rt.	51.00	1		
95+82±	-	Rt.		1		
97+09±	97+60	Rt.	51.00	1		
97+09±	-	Rt.		1		
97+19±	97+60	Rt.	41.00	1		
97+38.5±	98+38.5±	Lt.	100.00	1	1	
99+40.25	100+09	Lt.	68.75		1	1
108+86	109+10.5±	Rt.	24.50	1		
108+86	109+13±	Rt.	27.00	1		
109+05.25±	109+24±	Lt.	18.75	1		1
109+00±	-	Rt.		1		
110+40±	-	Rt.		1		

FROM BASELINE STATION NO.	TO BASELINE STATION NO.	LOCATION	GUARDRAIL TYPE 3 STRONG POST W/ W-BEAM	THRIE BEAM CONNECTION	FLEAT 350	TYPE "G" FLARE END TERMINAL
UNIT			LIN FT	EACH	EACH	EACH
110+53	110+83	Rt.	30.00	1		
110+59.5±	110+83	Rt.	23.50	1		
110+85.5±	113+60.5±	Lt.	275.00	1	1	
123+07.50	124+38.75	Lt.	131.25		1	1
128+27.75	135+90.25	Lt.	762.50		1	1
148+41.50	149+54	Lt.	112.50		1	1
162+53	163+13±	Rt.	60.00	1		
162+53	163+13±	Rt.	60.00	1		
162+80±	-	Rt.		1		
163+27.5±	163+40±	Lt.	12.50	1		
163+53.5±	-	Rt.		1		
163+86.5±	164+40	Rt.	53.50	1		
164+12.5±	164+40	Rt.	27.50	1		
164+39±	165+70.25±	Lt.	131.25	1	1	
234+41.25	235+72.50	Lt.	131.25		1	1
262+37	263+62	Rt.	125.00		1	1
242+98.75	264+67.50	Lt.	2168.75		1	1
TOTAL			10,045	32	23	22
ROUNDED TOTAL			10,050	32	23	22

<i>QUADGUARD SUMMARY</i>	
<i>LOCATION</i>	<i>QS3606Y</i>
<i>Paleaahu Bridge</i>	<i>2</i>
<i>Three Span Culvert</i>	<i>2</i>
<i>Waikapu Stream Bridge</i>	<i>2</i>
<i>Waihee Ditch Bridge</i>	<i>2</i>
<i>TOTAL</i>	<i>8 EA</i>

ORIGINAL PLAN	SURVEY PLOTTED BY _____ DATE _____
NOTE BOOK	DRAWN BY _____
	TRACED BY _____
	DESIGNED BY _____
	QUANTITIES BY _____
No. _____	CHECKED BY _____

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	STATE OF HAWAII
	DEPARTMENT OF TRANSPORTATION
	HIGHWAYS DIVISION
	<u>GUARDRAIL & QUADGUARD SUMMARY</u>
	<u>KUIHELANI HIGHWAY WIDENING</u>
	<u>HONOAPIILANI HIGHWAY TO PUUNENE AVENUE</u>
	<u>FEDERAL-AID PROJECT NO. NH-0380(9)</u>
	Scale: None Date: Sept. 14, 2001