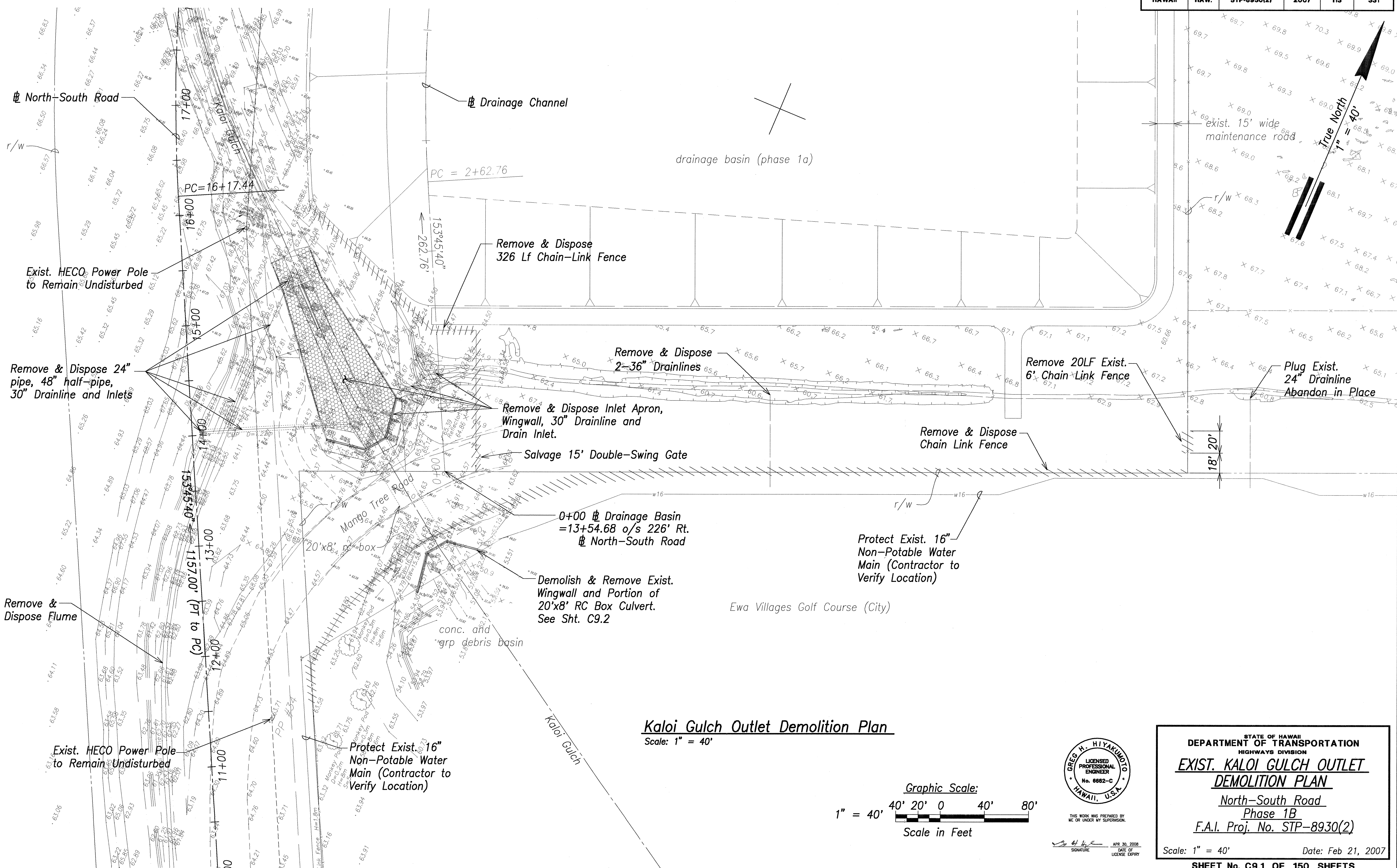
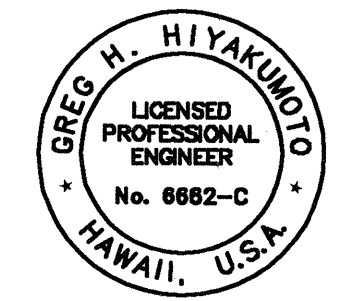
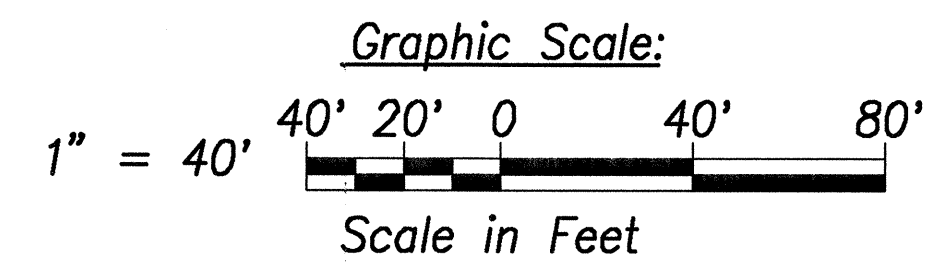


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	113	331

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



Kaloi Gulch Outlet Demolition Plan
Scale: 1" = 40'



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DATE OF LICENSE EXPIRY: APR 30, 2008

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

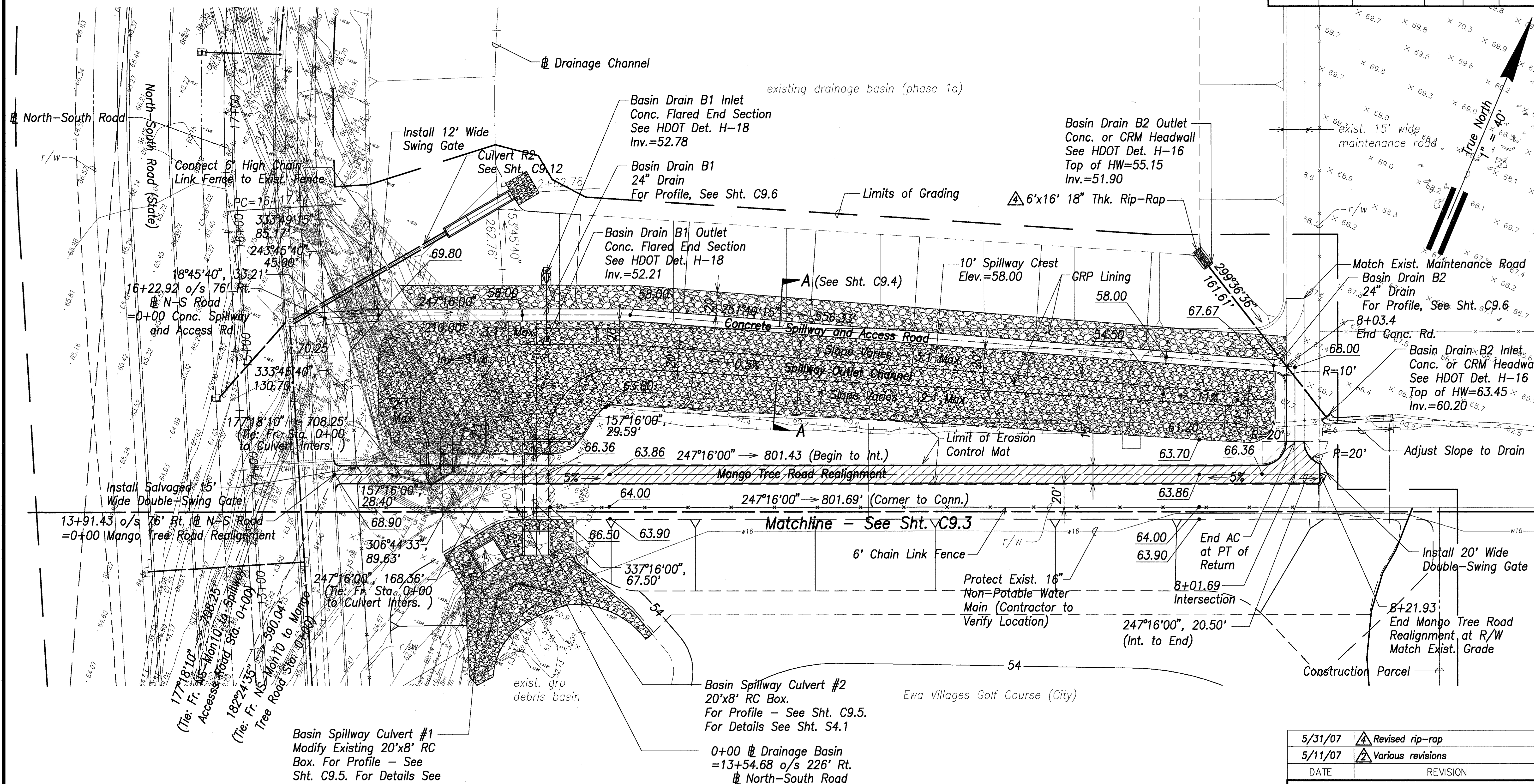
**EXIST. KALOI GULCH OUTLET
DEMOLITION PLAN**

North-South Road
Phase 1B
F.A.I. Proj. No. STP-8930(2)

Scale: 1" = 40' Date: Feb 21, 2007

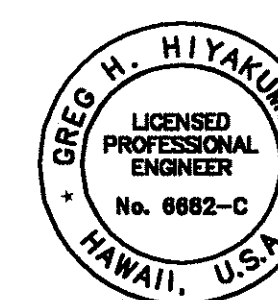
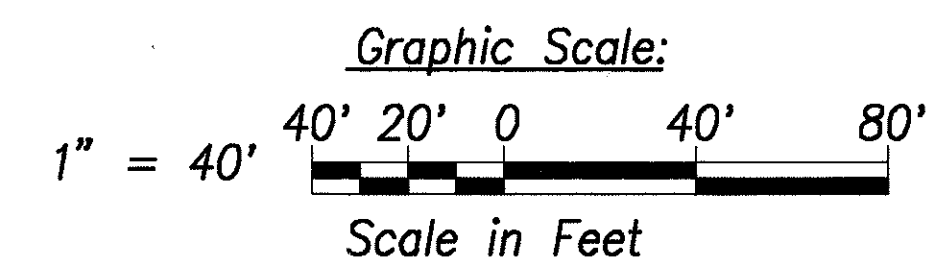
SHEET No. C9.1 OF 150 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	ADD. 114	331



Basin Spillway & Outlet Plan

Scale: 1" = 40'

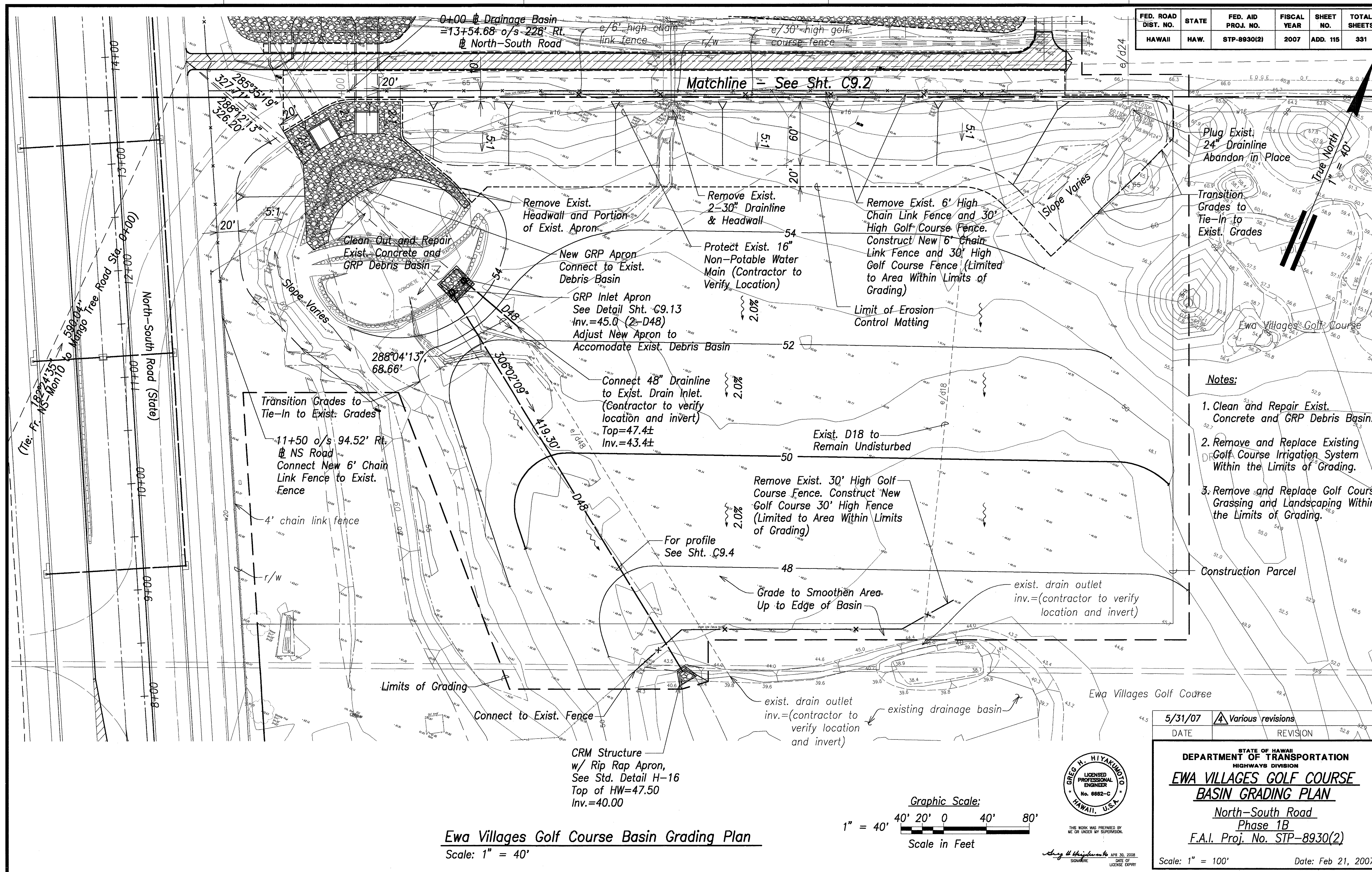


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 DATE OF LICENSE EXPIRY: APR 30, 2008
 SIGNATURE: *Greg H. Hiyaundo*

5/31/07	Revised rip-rap
5/11/07	Various revisions
DATE	REVISION

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
BASIN SPILLWAY & OUTLET PLAN
North-South Road
Phase 1B
 F.A.I. Proj. No. STP-8930(2)
 Scale: 1" = 40' Date: Feb 21, 2007
 SHEET No. C9.2 OF 150 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	ADD. 115	331



Plug Exist.
24" Drainline
Abandon in Place

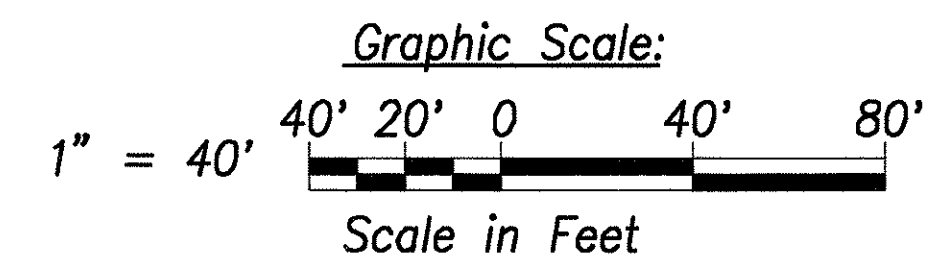
Transition
Grades to
Tie-In to
Exist. Grades

- Notes:**
1. Clean and Repair Exist. Concrete and GRP Debris Basin.
 2. Remove and Replace Existing Golf Course Irrigation System Within the Limits of Grading.
 3. Remove and Replace Golf Course Grassing and Landscaping Within the Limits of Grading.

Construction Parcel

Ewa Villages Golf Course

CRM Structure
w/ Rip Rap Apron,
See Std. Detail H-16
Top of HW=47.50
Inv.=40.00

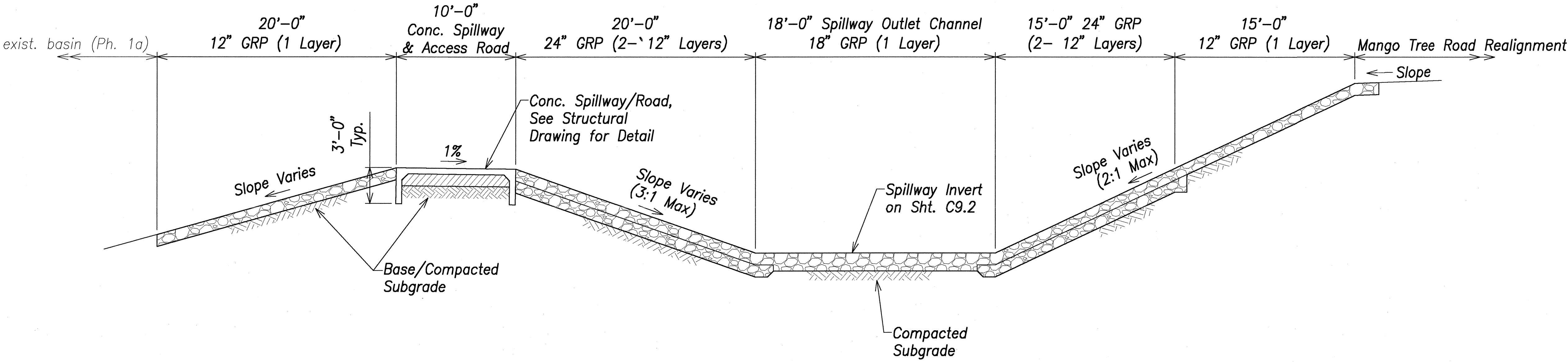


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DATE OF LICENSE EXPIRY

Ewa Villages Golf Course Basin Grading Plan
Scale: 1" = 40'

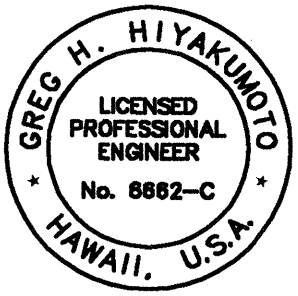
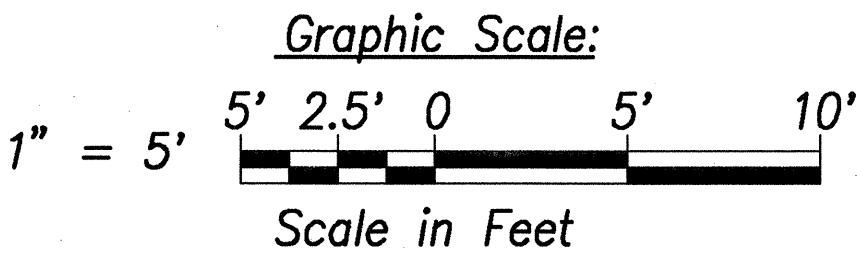
5/31/07	Various revisions
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION EWA VILLAGES GOLF COURSE BASIN GRADING PLAN North-South Road Phase 1B F.A.I. Proj. No. STP-8930(2)	
Scale: 1" = 100'	Date: Feb 21, 2007
SHEET No. C9.3 OF 150 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	116	331



Section "A-A" - Basin Spillway
Scale: 1" = 5'

SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
CHECKED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	No.

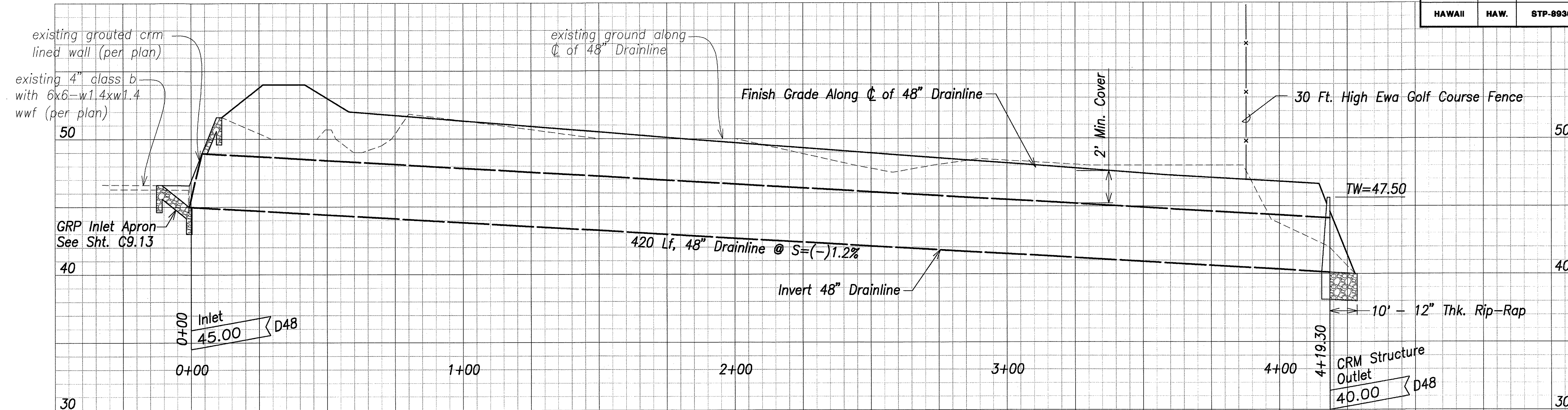


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ME OR UNDER MY SUPERVISION.
DATE OF LICENSE EXPIRY
APR 30, 2008
SIGNATURE

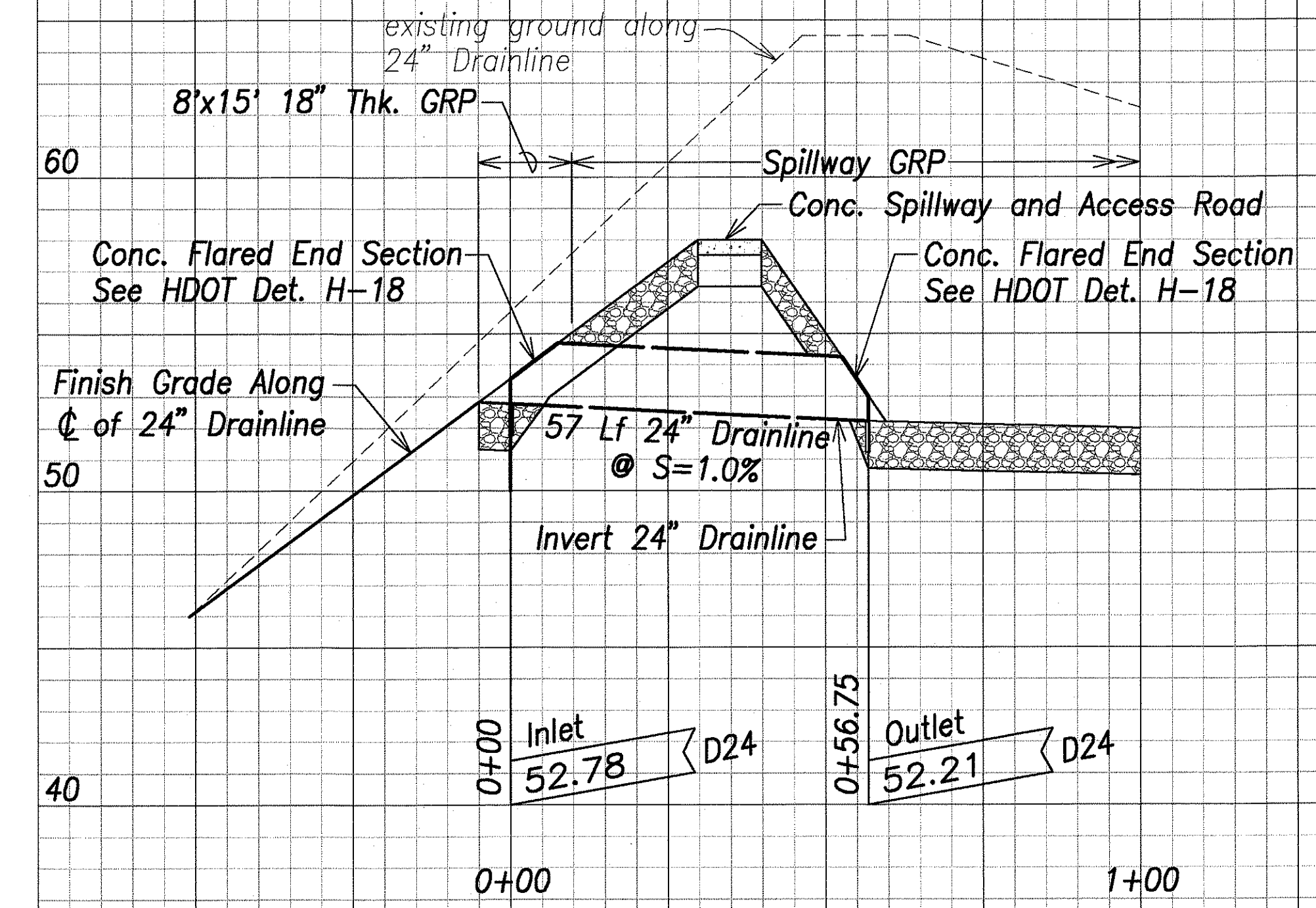
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
BASIN SPILLWAY
SECTION
North-South Road
Phase 1B
F.A.I. Proj. No. STP-8930(2)

Scale: As Shown
Date: Feb 21, 2007
SHEET No. C9.4 OF 150 SHEETS

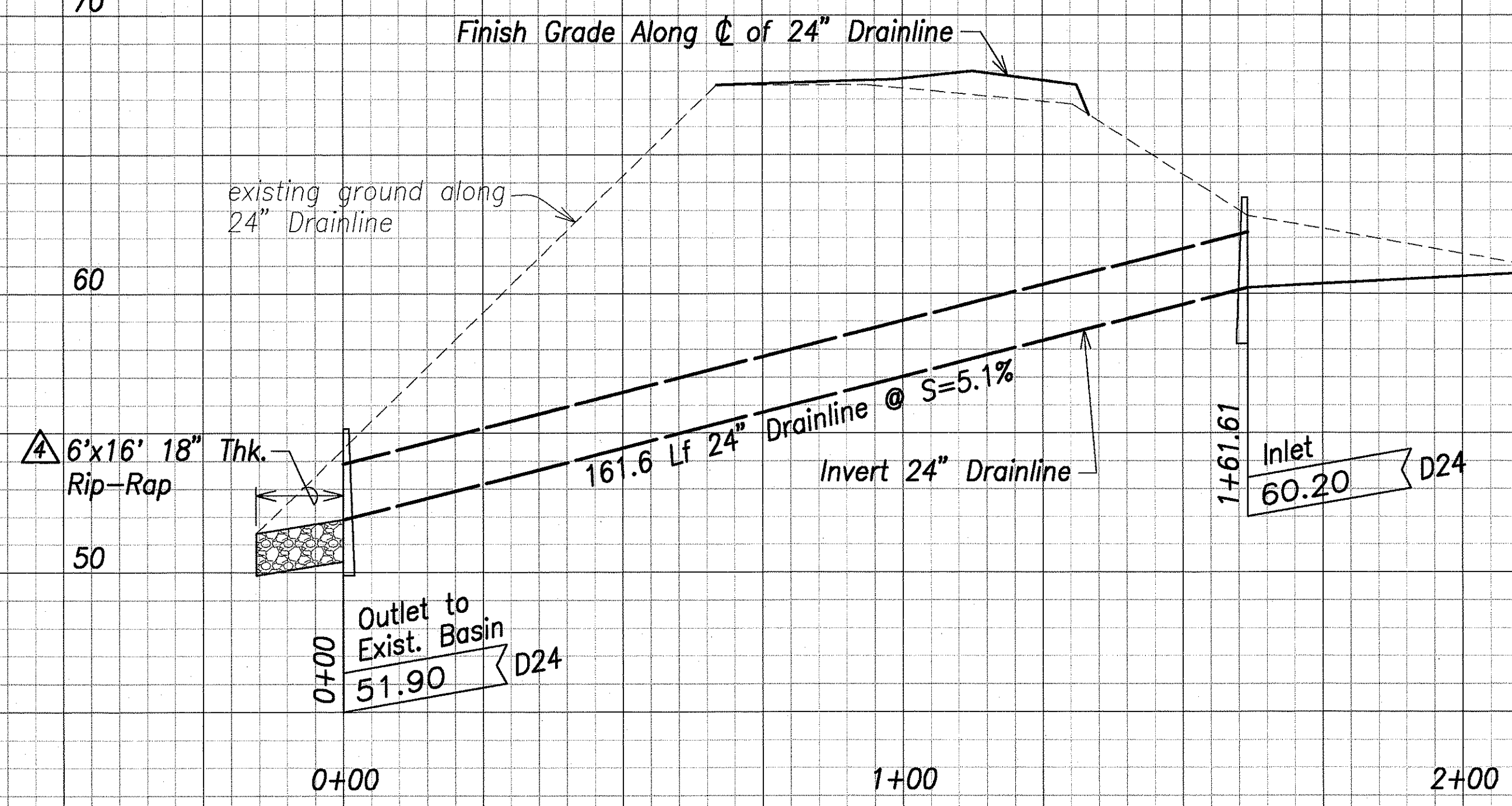
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	ADD. 118	331



Ewa Villages Golf Course Basin 48" Drainline Profile
 Scale: Hor: 1" = 20' For 48" Drain Plan, See Sht. C9.3
 Vert: 1" = 4'

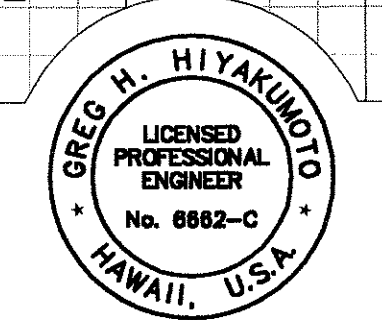
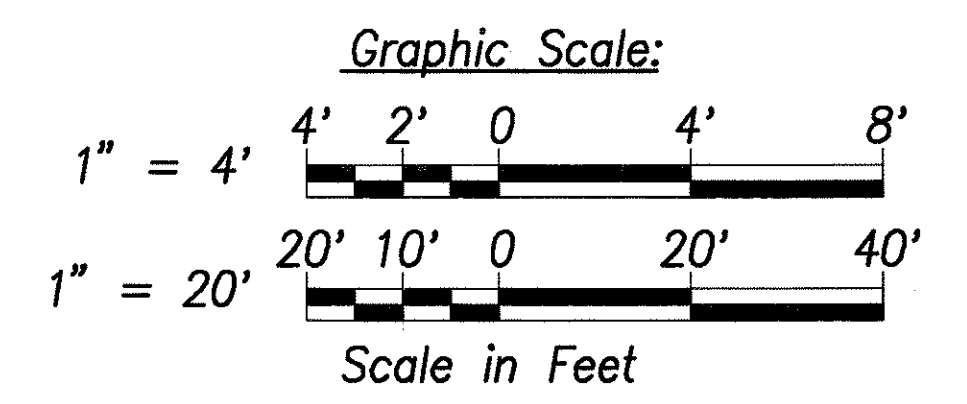


Profile - Ewa Villages Golf Course Basin Drain B1
 Scale: Hor: 1" = 20' For Basin Drain B1 Plan, See Sht. C9.2
 Vert: 1" = 4'



Profile - Ewa Villages Golf Course Basin Drain B2
 Scale: Hor: 1" = 20' For Basin Drain B2 Plan, See Sht. C9.2
 Vert: 1" = 4'

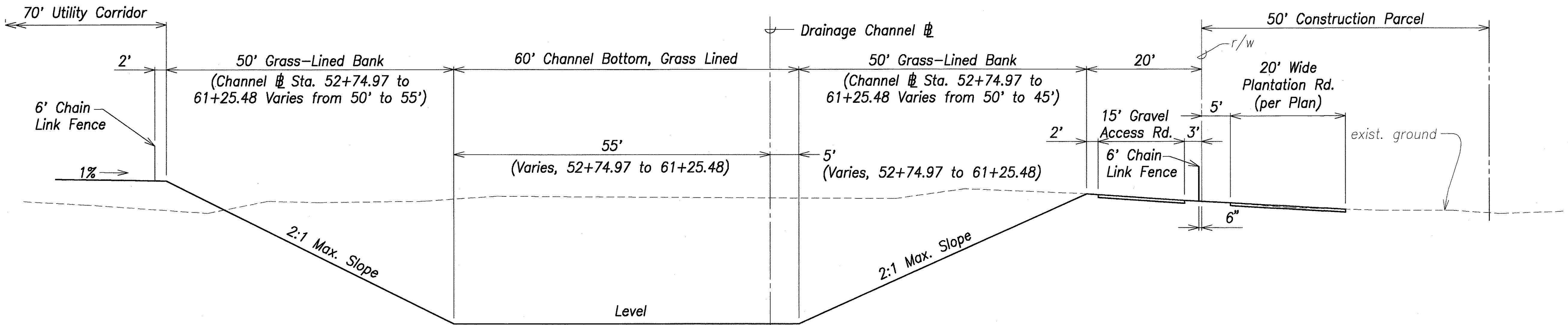
5/31/07	Revised profile
5/11/07	Added profiles
DATE	REVISION



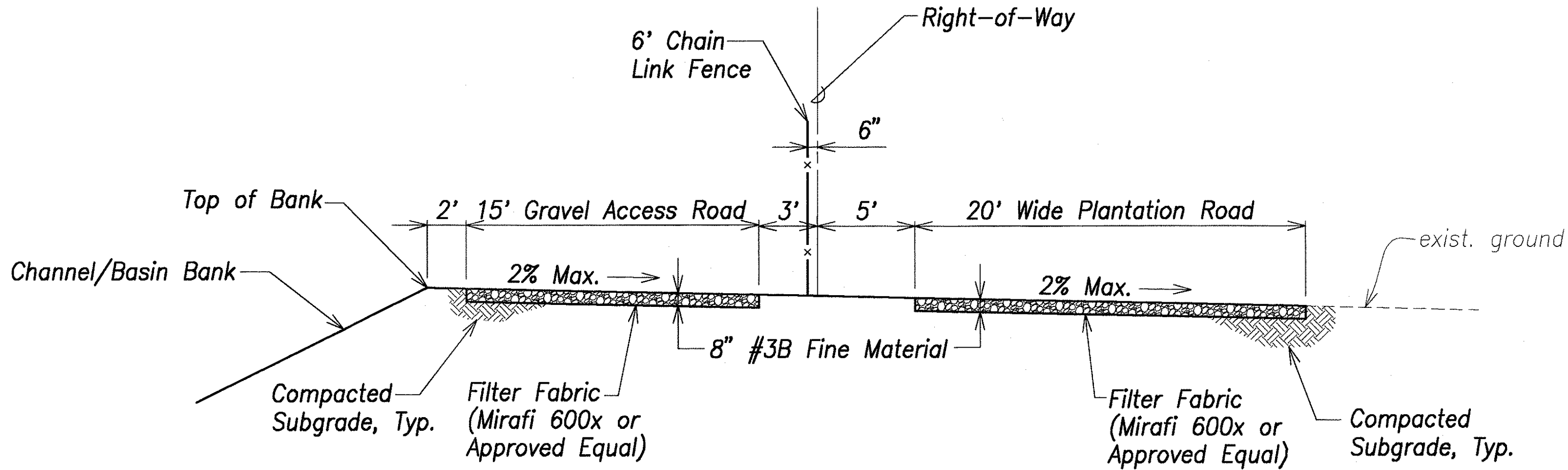
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
BASIN & GOLF COURSE DRAINLINE PROFILES
 North-South Road
 Phase 1B
 F.A.I. Proj. No. STP-8930(2)
 Scale: 1" = 100' Date: Feb 21, 2007
 SHEET No. C9.6 OF 150 SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	ADD. 119	331

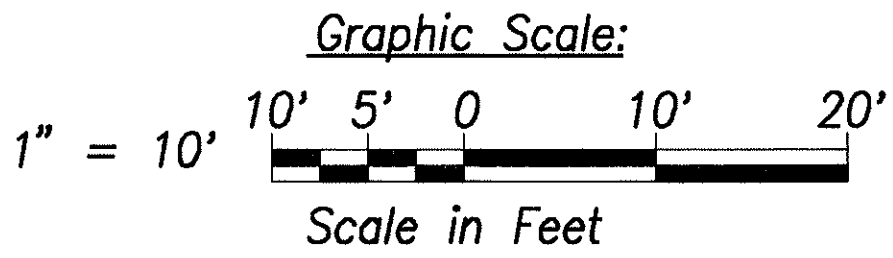


Drainage Channel Typical Section - 160' Width
Drainage Channel B Sta. 45+45± to 84+94.66
 Scale: 1" = 10'



Gravel Access Road & Plantation Road Detail
 Scale: 1" = 5'

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



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 DATE OF SIGNATURE 5/11/07
 APR 30, 2008
 DATE OF LICENSE EXPIRY

5/11/07	Revised detail
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION DRAINAGE CHANNEL TYPICAL SECTION North-South Road Phase 1B F.A.I. Proj. No. STP-8930(2)	
Scale: As Shown	Date: Feb 21, 2007
SHEET No. C9.7 OF 150 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	ADD. 120	331

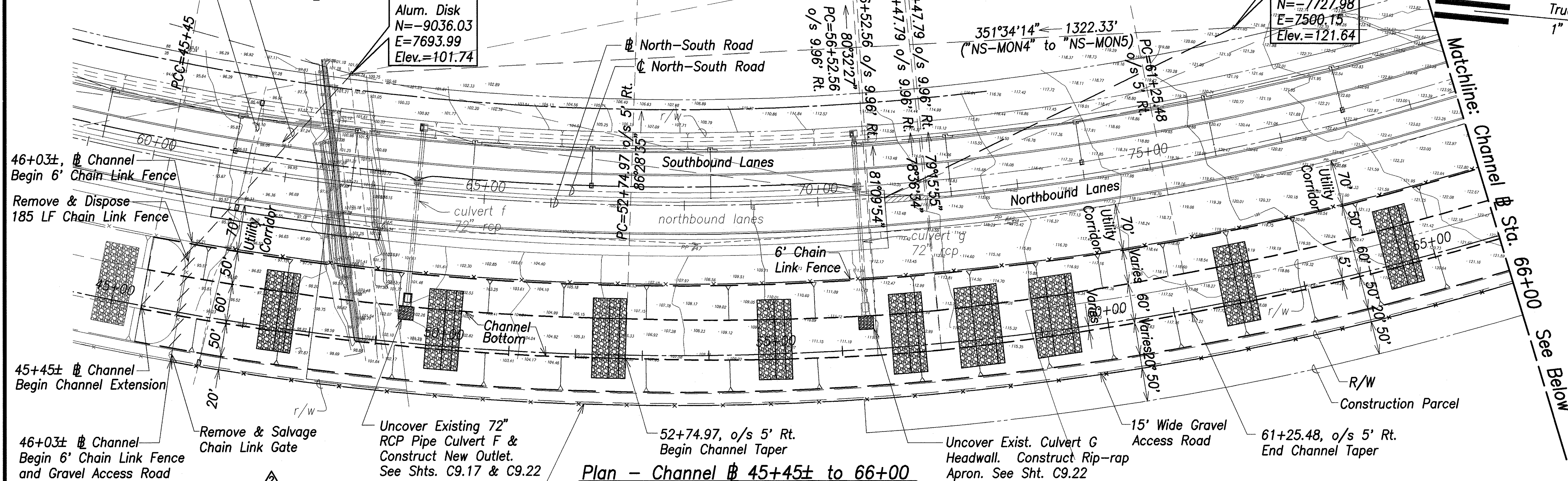
Alignment of JTS Cable Conduits See Sht. C11.1

306°42'50", 469.10'
Tie: "NS-MON5" to 45+45 Channel

Benchmark "NS-MON5"
Alum. Disk
N=-9036.03
E=7693.99
Elev.=101.74

Benchmark "NS-MON4"
Alum. Disk
N=-7727.98
E=7500.15
Elev.=121.64

True North
1" = 80'



Plan - Channel # 45+45 to 66+00

Scale: 1" = 80'

Channel # Curve Data

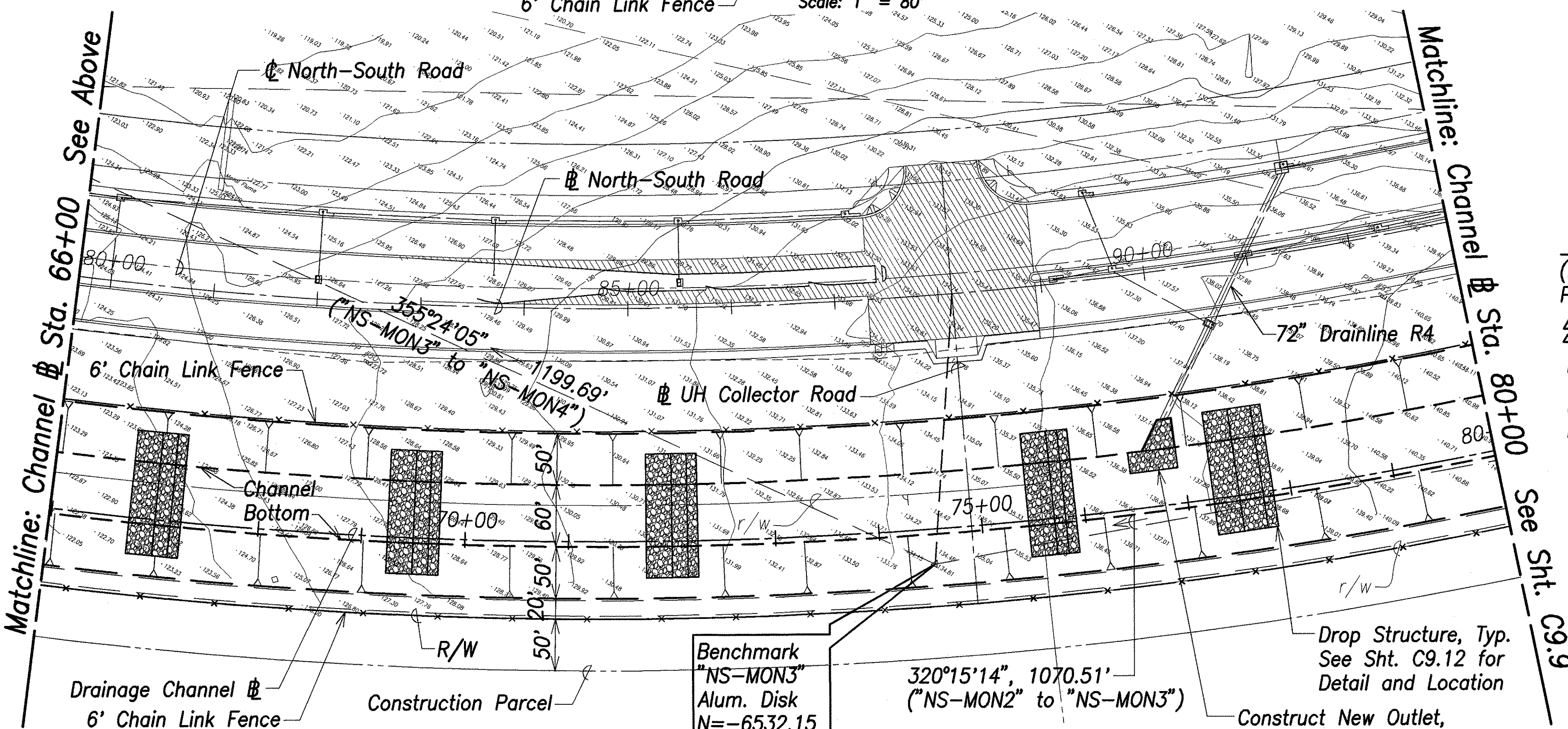
(PCC=45+45 to PT=84+30.02)

Δ = 52°02'41"
 $\Delta/2$ = 26°01'20.5"
R = 4277.00'
T = 2088.10'
C = 3752.82'
Lc = 3885.02'

Channel Bottom (Rt.) Curve Data

(PC=52+74.97 to PT=56+52.56)	(PC=56+52.56 to PT=57+47.79)	(PC=57+47.79 to PT=61+25.48)
Δ = 5°18'41"	Δ = 1°16'32"	Δ = 5°14'59"
$\Delta/2$ = 2°39'20.5"	$\Delta/2$ = 0°38'16"	$\Delta/2$ = 2°37'29.5"
R = 4080.78'	R = 4286.96'	R = 4129.70'
T = 189.28'	T = 47.72'	T = 189.33'
C = 378.16'	C = 95.44'	C = 378.26'
Lc = 378.30'	Lc = 95.45'	Lc = 378.39'

Note:
Stations refer to Drainage Channel # unless otherwise noted.



Plan - Channel # 66+00 to 80+00

Scale: 1" = 80'

Benchmark "NS-MON3"
Alum. Disk
N=-6532.15
E=7403.96
Elev.=134.82

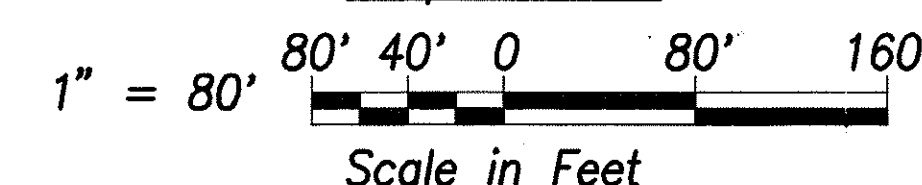
Drop Structure, Typ. See Sht. C9.12 for Detail and Location
Construct New Outlet, See Shts. C9.17 & C9.22



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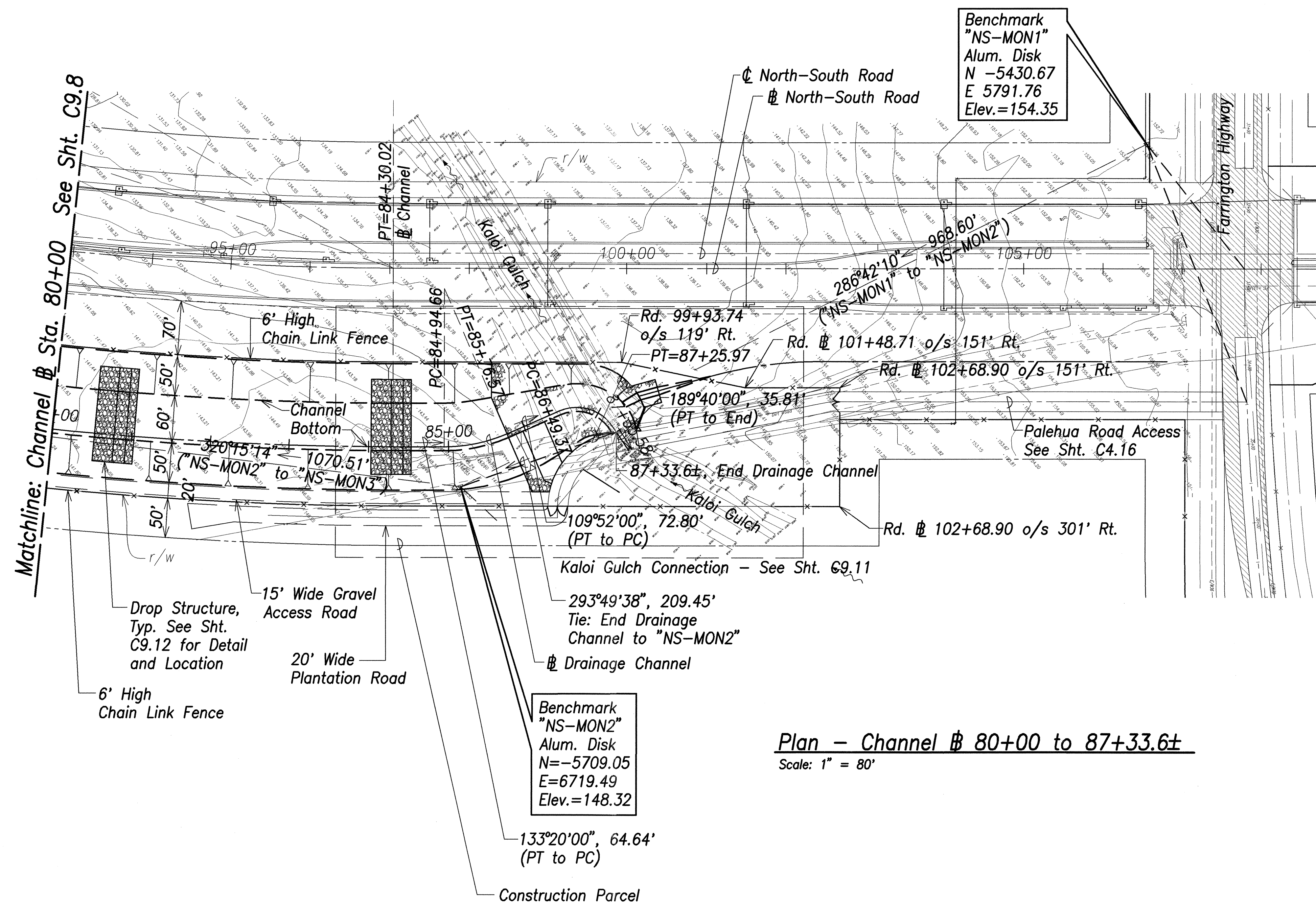
APR 30, 2008
DATE OF LICENSE EXPIRY

Graphic Scale:



5/11/07	Deleted inlet structure
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
DRAINAGE CHANNEL PLAN - 1	
North-South Road Phase 1B F.A.I. Proj. No. STP-8930(2)	
Scale: 1" = 80'	Date: Feb 21, 2007
SHEET No. C9.8 OF 150 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	121	331

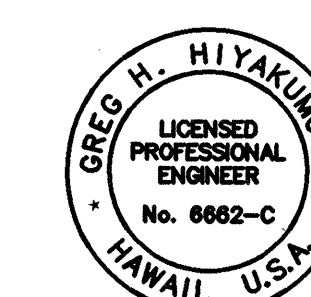
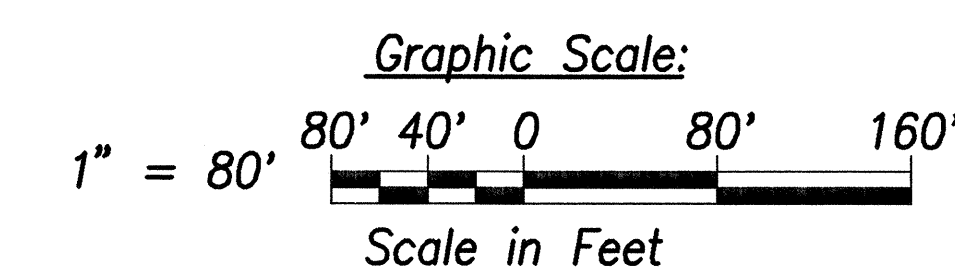


Channel & Curve Data	
(PC=84+94.66 to PT=85+76.57)	(PC=86+49.37 to PT=87+25.97)
$\Delta = 23^{\circ}28'00''$	$\Delta = 79^{\circ}48'00''$
$\Delta_2 = 11^{\circ}44'00''$	$\Delta_2 = 39^{\circ}54'00''$
$R = 200.00'$	$R = 55.00'$
$T = 41.54'$	$T = 45.99'$
$C = 81.34'$	$C = 70.56'$
$L_c = 81.91'$	$L_c = 76.60'$

Note:
Stations refer to Drainage Channel & unless otherwise noted.

Plan - Channel & 80+00 to 87+33.6±
Scale: 1" = 80'

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



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DATE OF LICENSE EXPIRY: APR 30, 2009

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

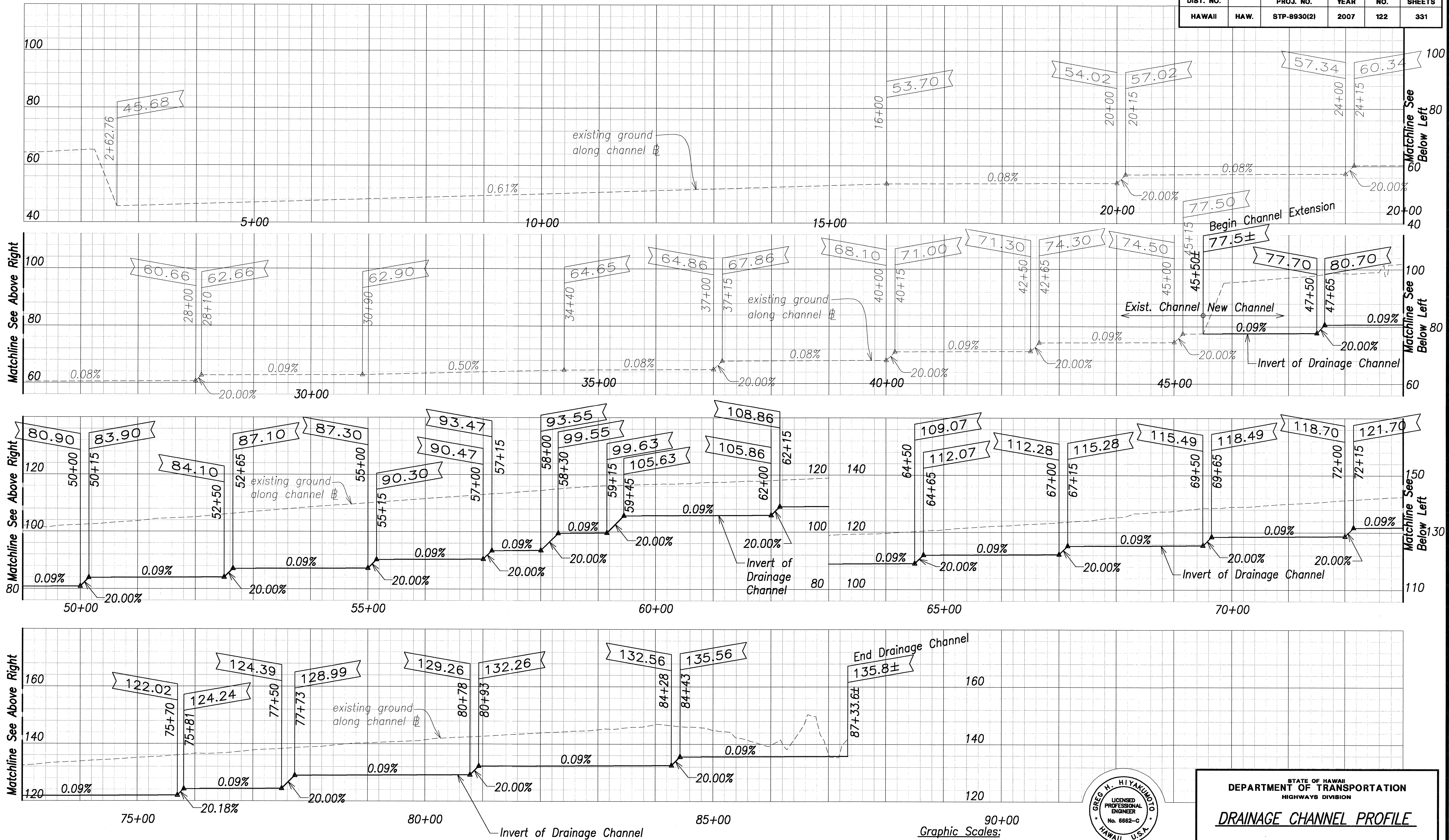
DRAINAGE CHANNEL PLAN - 2

North-South Road
Phase 1B
F.A.I. Proj. No. STP-8930(2)

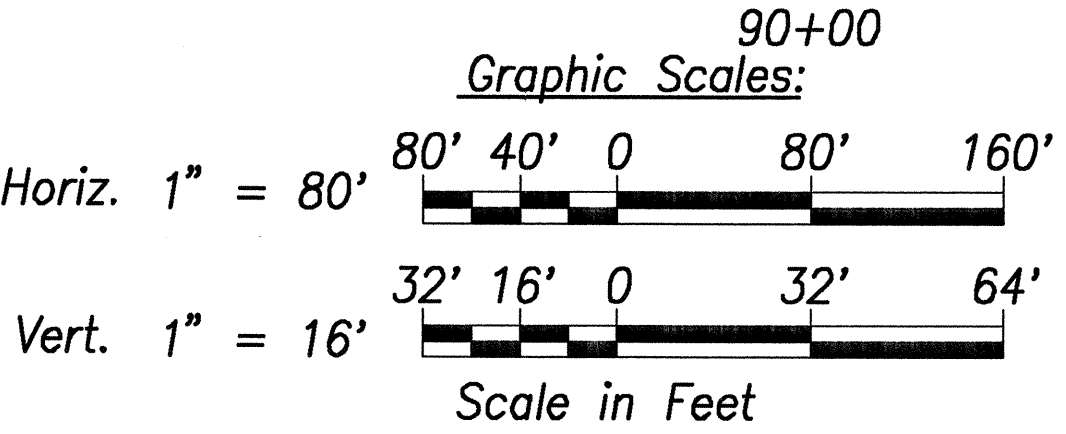
Scale: 1" = 80' Date: Feb 21, 2007

SHEET No. C9.9 OF 150 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	122	331



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



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE CHANNEL PROFILE

North-South Road
Phase 1B
F.A.I. Proj. No. STP-8930(2)

Scale: 1" = 80' Date: Feb 21, 2007

SHEET No. C9.10 OF 150 SHEETS

Drop Structure
(See Sht. 9.12)

Utility Corridor
70' Utility Corridor
PC=84+94.66
PT=85+76.57

End Rip-rap
144.74

Rip-rap, See Sht. C9.25

6' Chain Link Fence

Rip-rap Apron, See Sht. C9.25

Swale

Drainage Channel

15' Wide Gravel Access Road

20' Wide Plantation Road

50' Wide Construction Parcel

6' Chain Link Fence

North-South Road

Northbound Lanes

Kaloi Gulch

Palehua Road Access
See Sht. C4.16

Graphic Scale:
1" = 20'

Scale in Feet

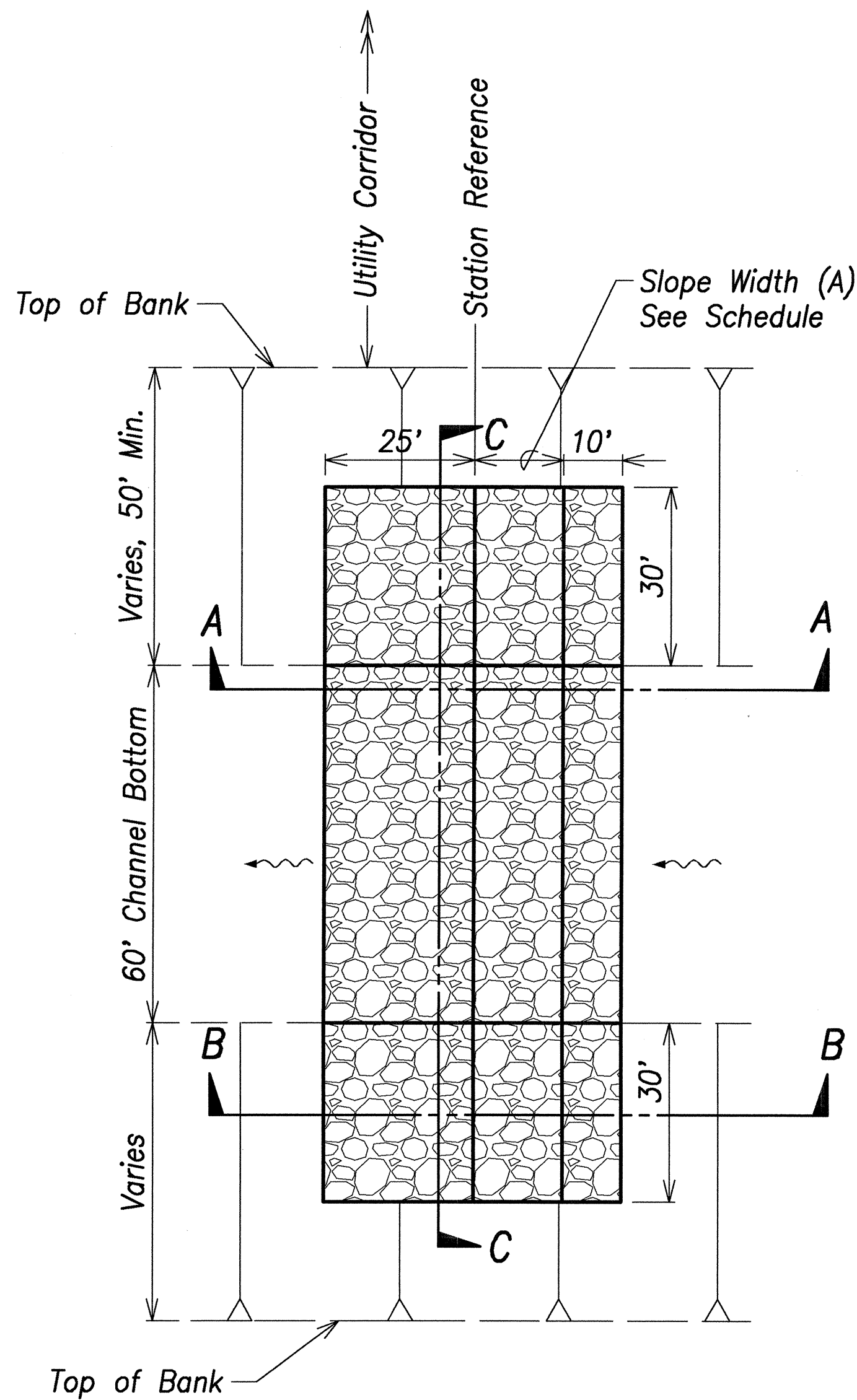
**STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
KALOI GULCH CONNECTION -
DETAILED GRADING PLAN
North-South Road
Phase 1B**

Scale: 1" = 20'

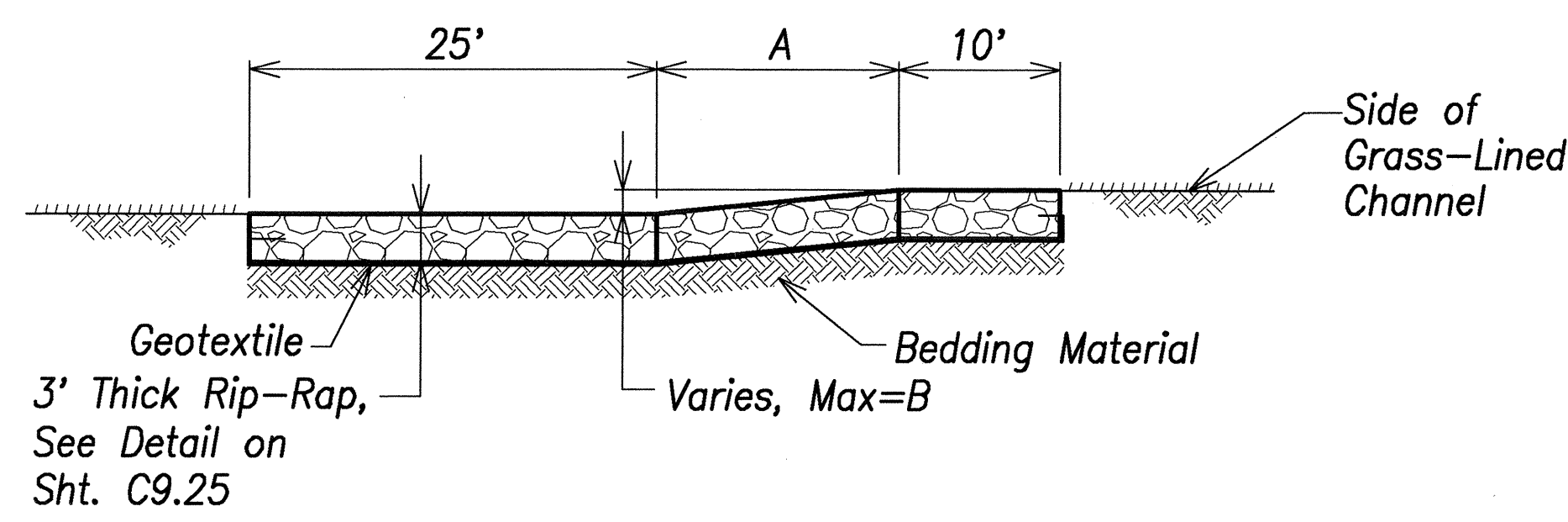
Scale: 1" = 20' Date: Feb 21, 2007

SHEET No. C9.11 OF 150 SHEETS

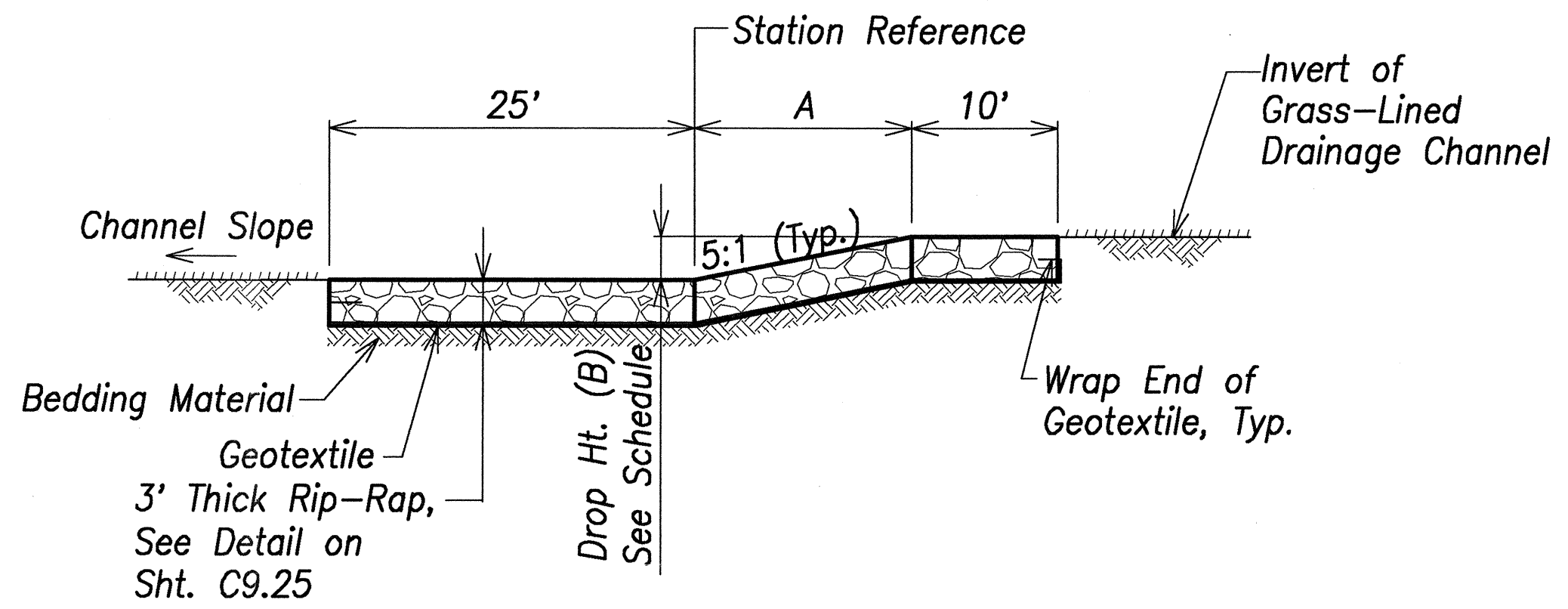
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	124	331



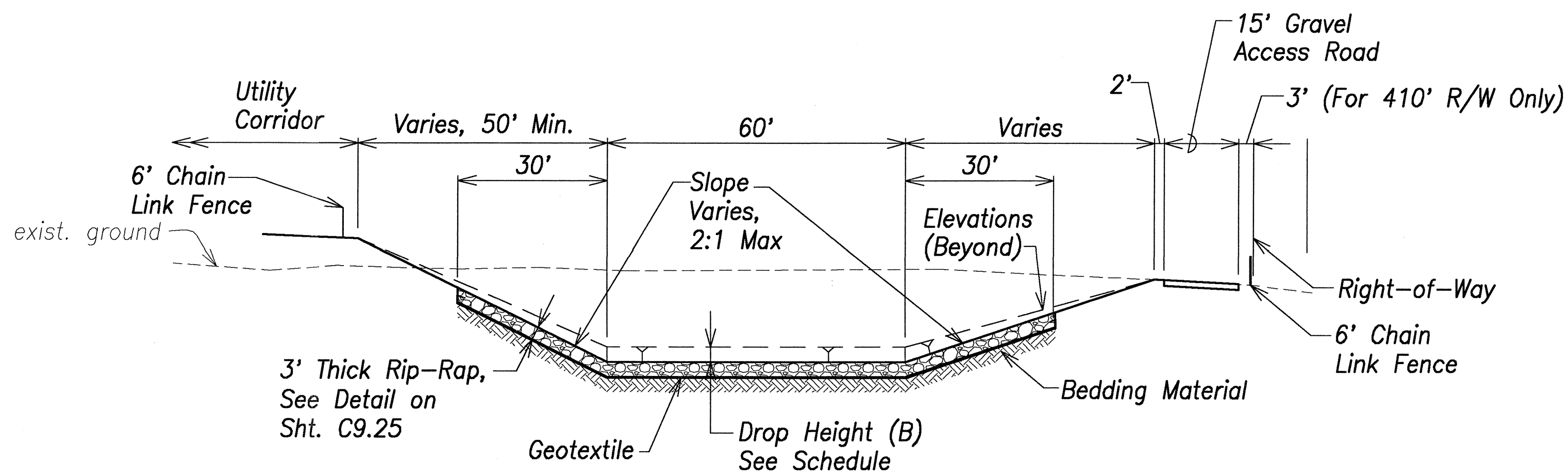
Plan - Channel Drop Structure
Scale: 1" = 20'



Section "B-B" - Along Side Slopes
Scale: 1" = 10'



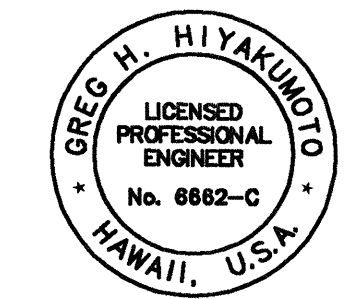
Section "A-A" - Along Bottom
Scale: 1" = 10'



Section "C-C" - Across Channel Drop Structure
Scale: 1" = 20'

Drop Structure Schedule

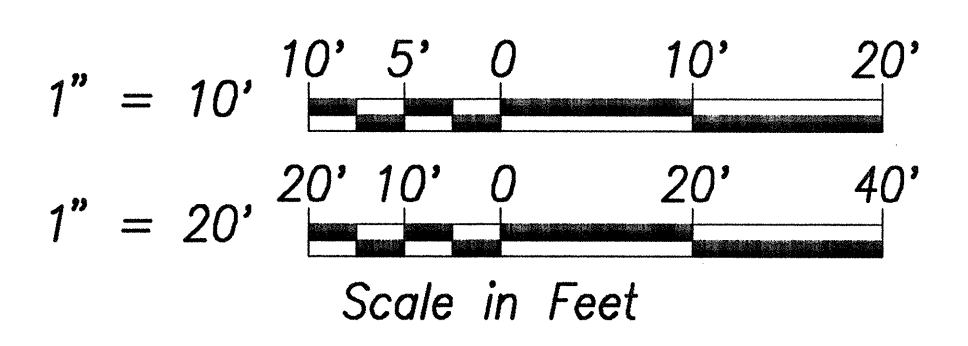
Station	Width (A)	Height (B)
47+50	15'	3'
50+00	15'	3'
52+50	15'	3'
55+00	15'	3'
57+00	15'	3'
58+00	30'	6'
59+15	30'	6'
62+00	15'	3'
64+50	15'	3'
67+00	15'	3'
69+50	15'	3'
72+00	15'	3'
75+70	11'	2.22'
77+50	23'	4.6'
80+78	15'	3'
84+28	15'	3'



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SIGNATURE DATE OF LICENSE EXPIRY

Graphic Scales:



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

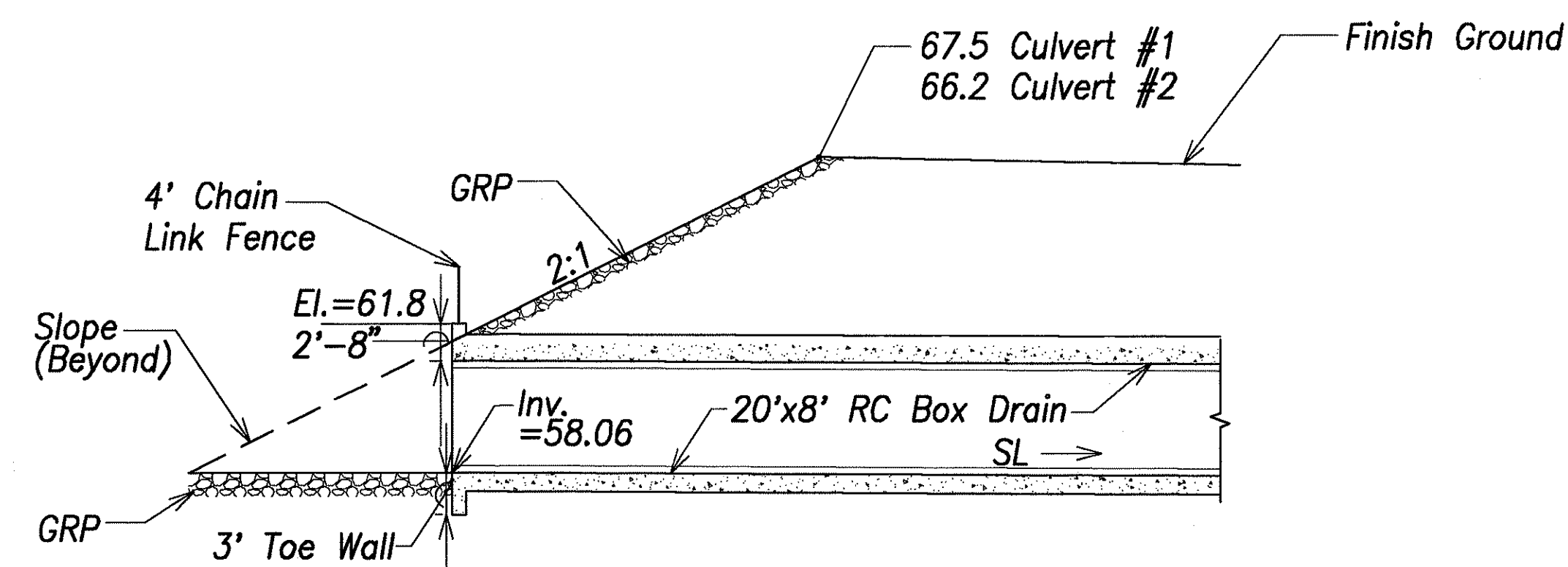
DROP STRUCTURE DETAIL

North-South Road
Phase 1B
F.A.I. Proj. No. STP-8930(2)

Date: Feb 21, 2007

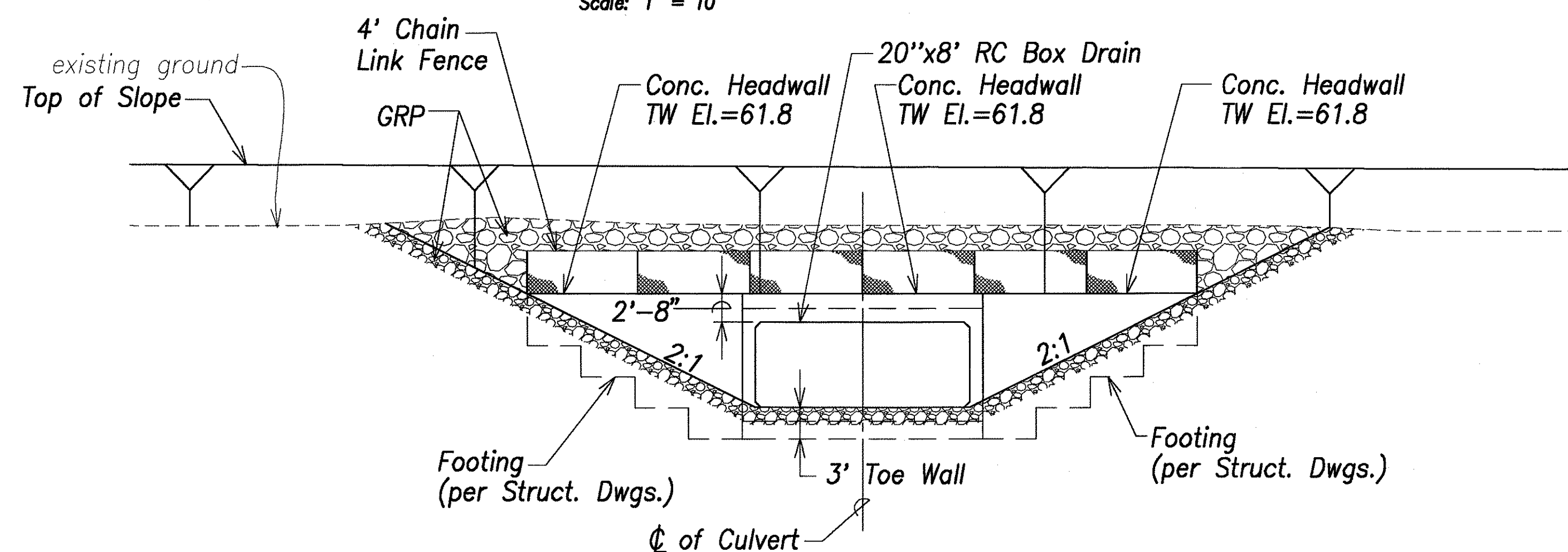
SHEET No. C9.12 OF 150 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	ADD. 125	331



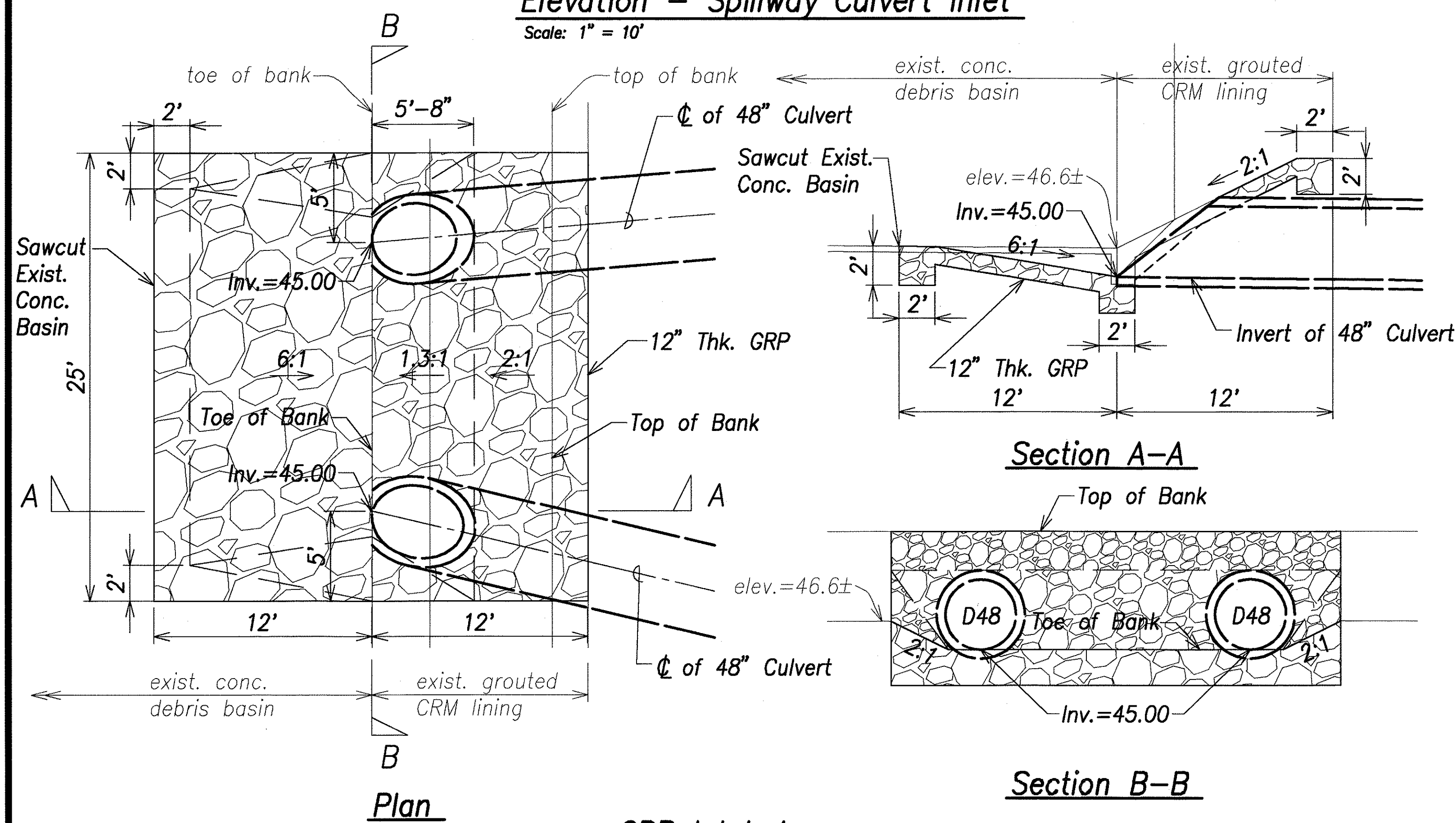
Section - Spillway Culvert Inlet

Scale: 1" = 10'



Elevation - Spillway Culvert Inlet

Scale: 1" = 10'

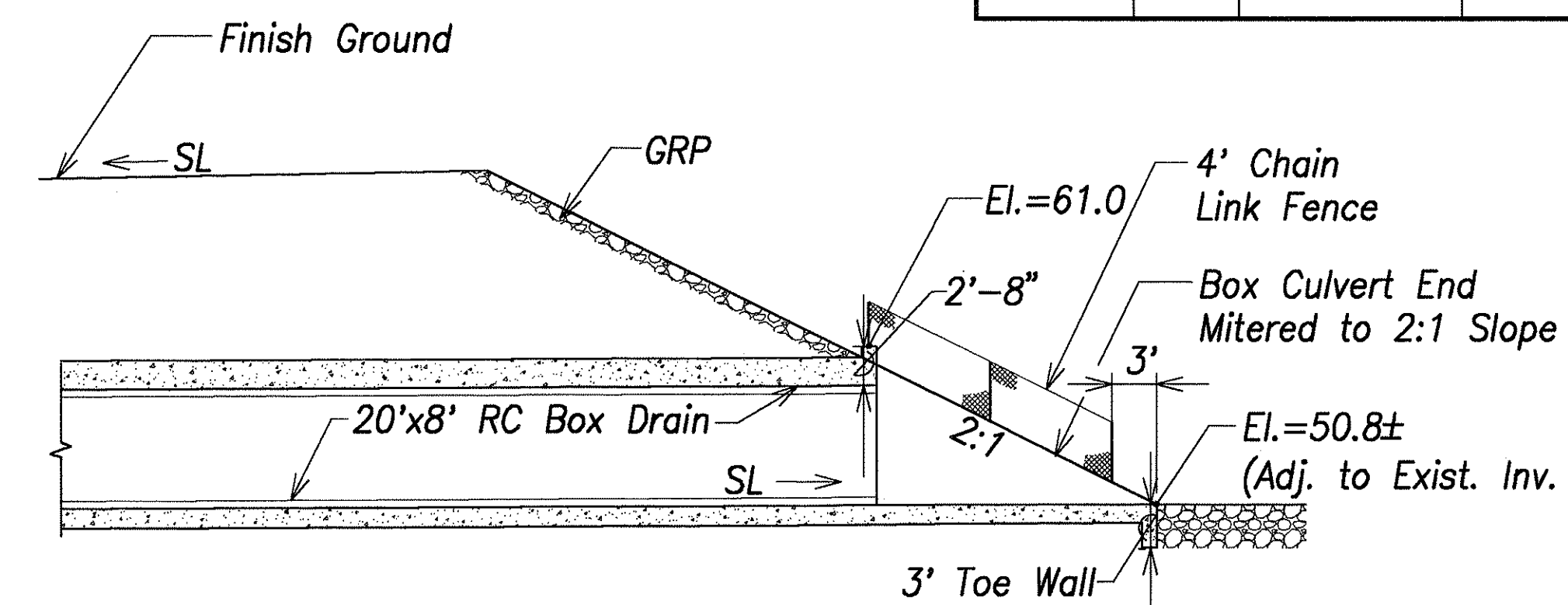


Plan

GRP Inlet Apron
Scale: 1" = 5'

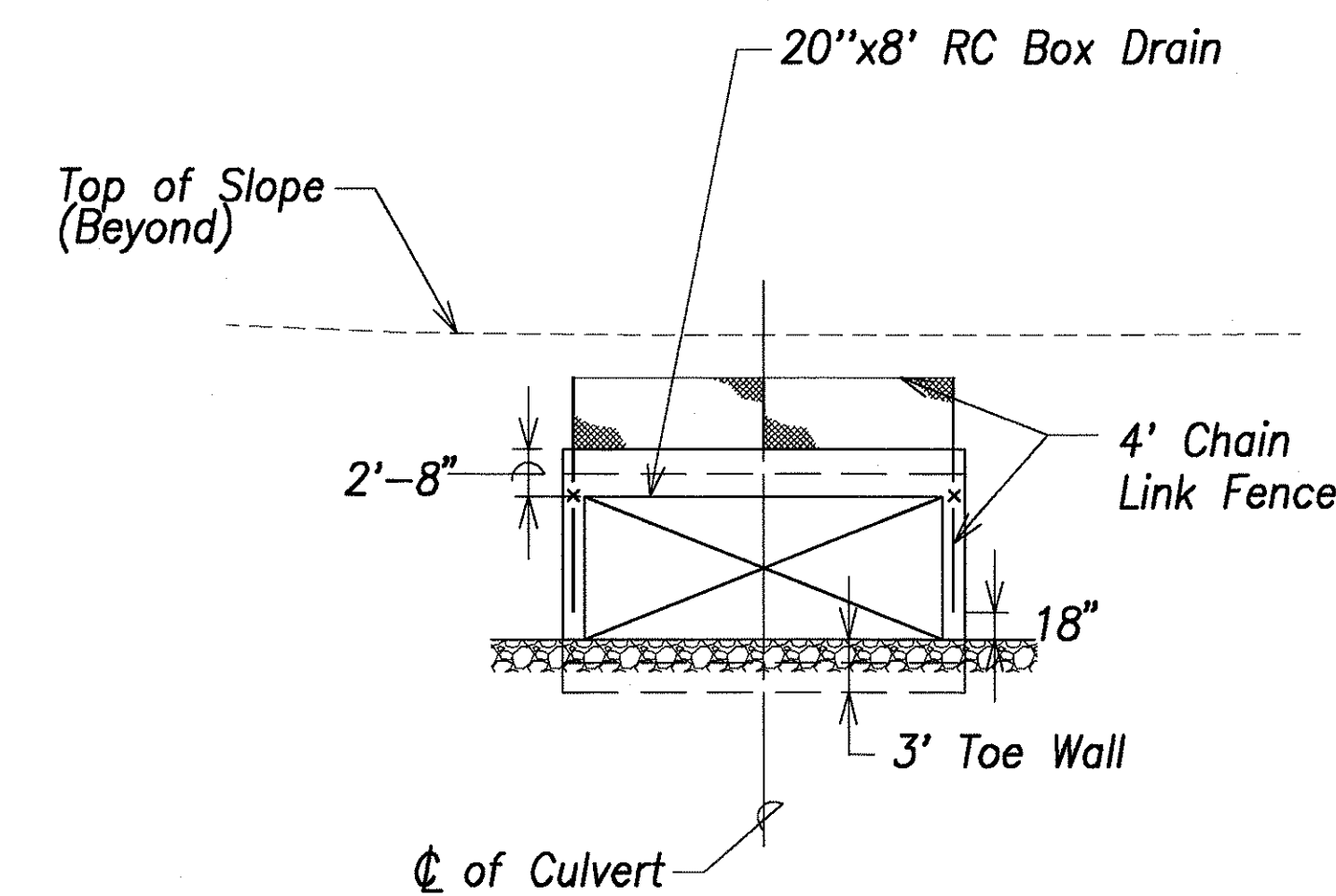
Section A-A

Section B-B



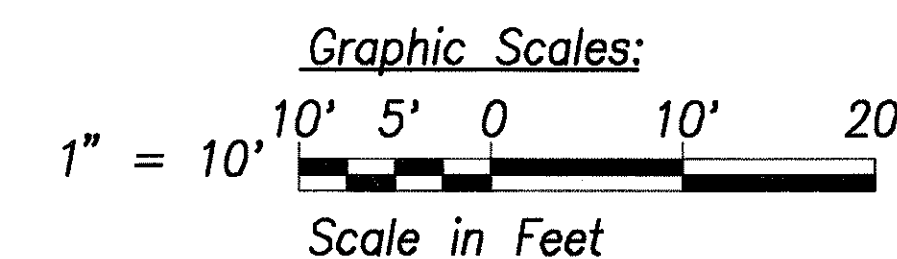
Section - Spillway Culvert Outlet

Scale: 1" = 10'



Elevation - Spillway Culvert Outlet

Scale: 1" = 10'

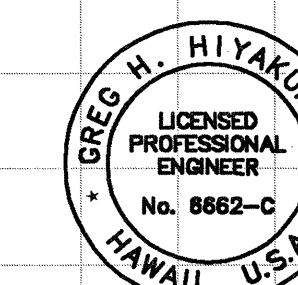
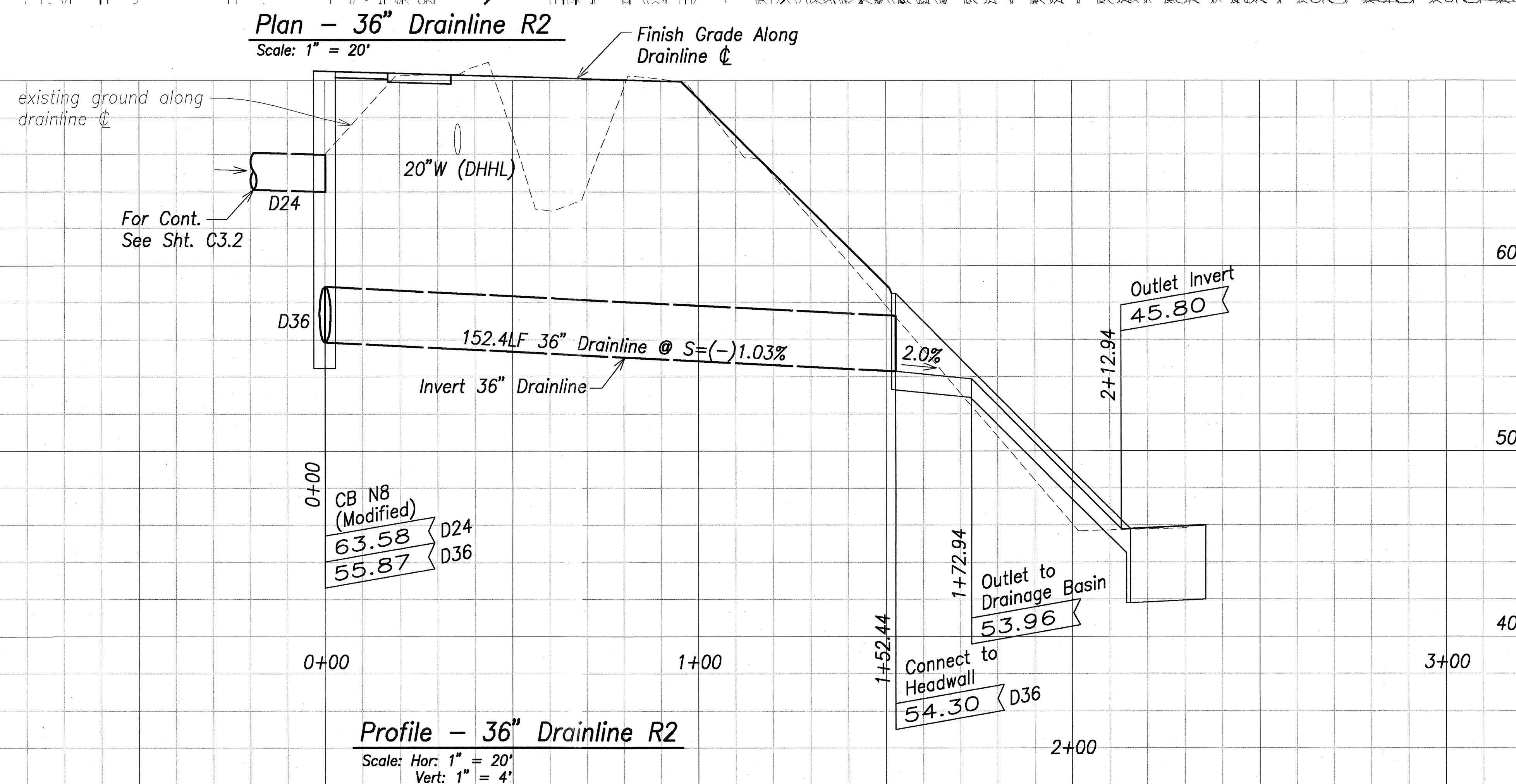
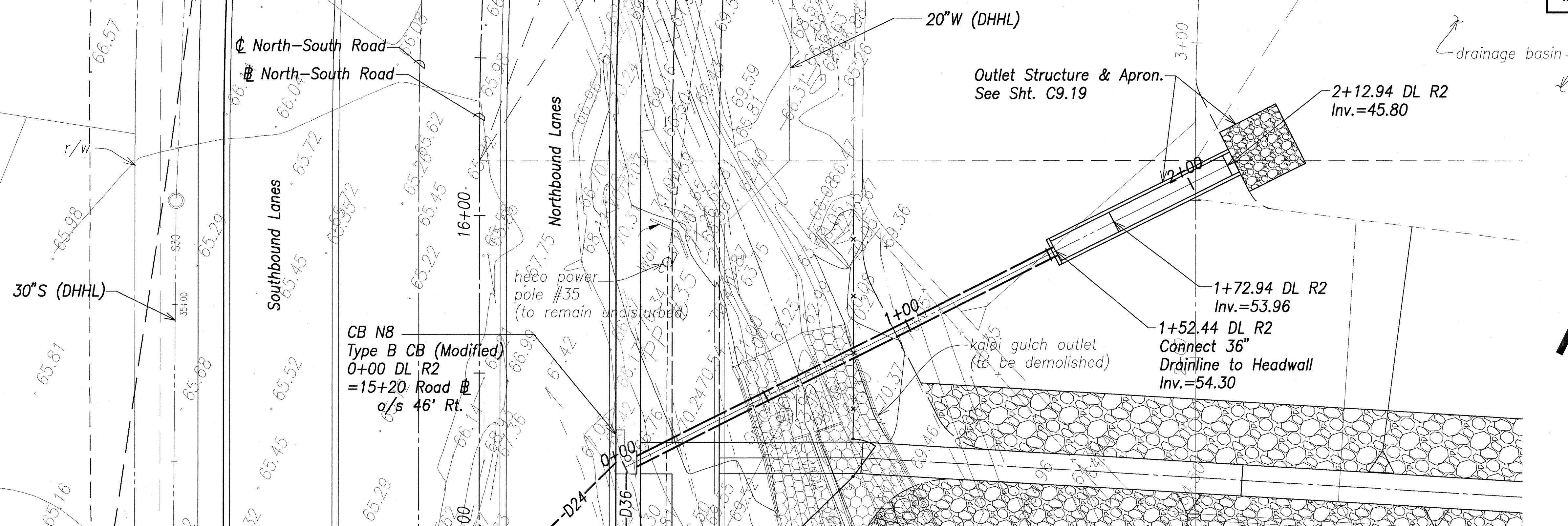


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DATE OF LICENSE EXPIRY: APR 30, 2008

5/31/07	Added detail
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION BASIN SPILLWAY SECTIONS & DETAILS North-South Road Phase 1B F.A.I.-Proj. No. STP-8930(2)	
Scale: As Shown	Date: Feb 21, 2007
SHEET No. C9.13 OF 150 SHEETS	

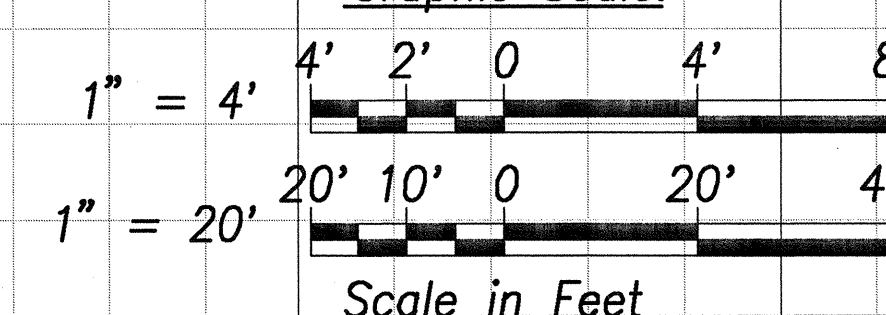
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	126	331



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SIGNATURE DATE OF LICENSE EXPIRY

Graphic Scale:



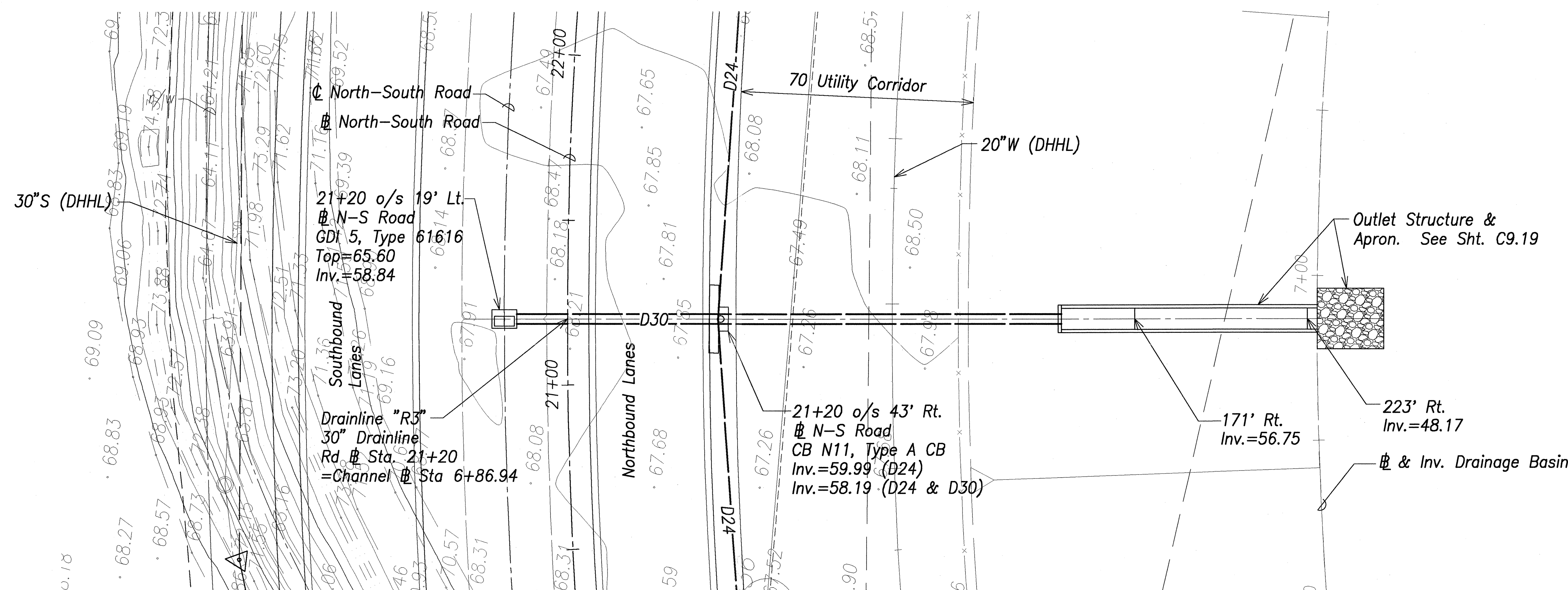
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
36" DRAINLINE R2
PLAN AND PROFILE
North-South Road
Phase 1B
F.A.I. Proj. No. STP-8930(2)

Scale: As Shown Date: Feb 21, 2007

SHEET No.C9.14 OF 150 SHEETS

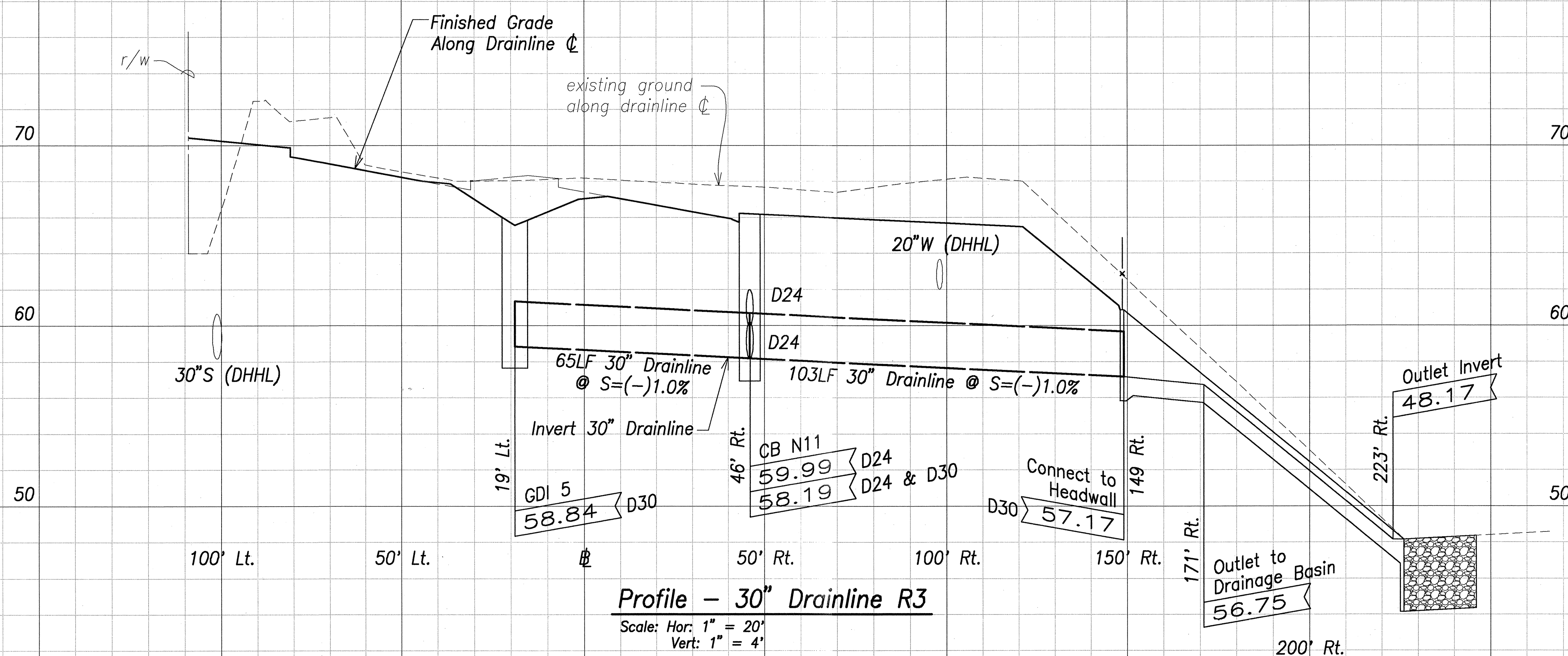
ORIGINAL PLAN	DATE
NOTED BY	
DESIGNED BY	
CHECKED BY	
QUANTITIES BY	
NO.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	127	331



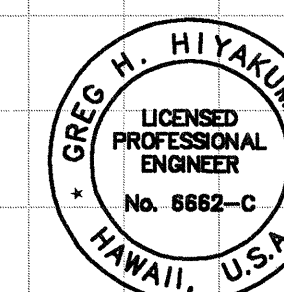
Plan - 30" Drainline R3

Scale: 1" = 20'



Profile - 30" Drainline R3

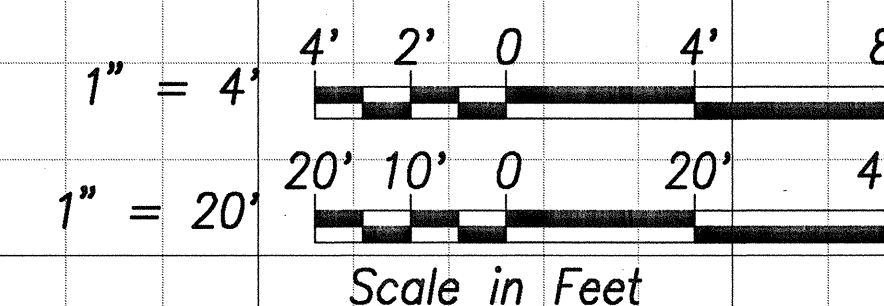
Scale: Hor: 1" = 20'
Vert: 1" = 4'



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Graphic Scale:



Scale in Feet

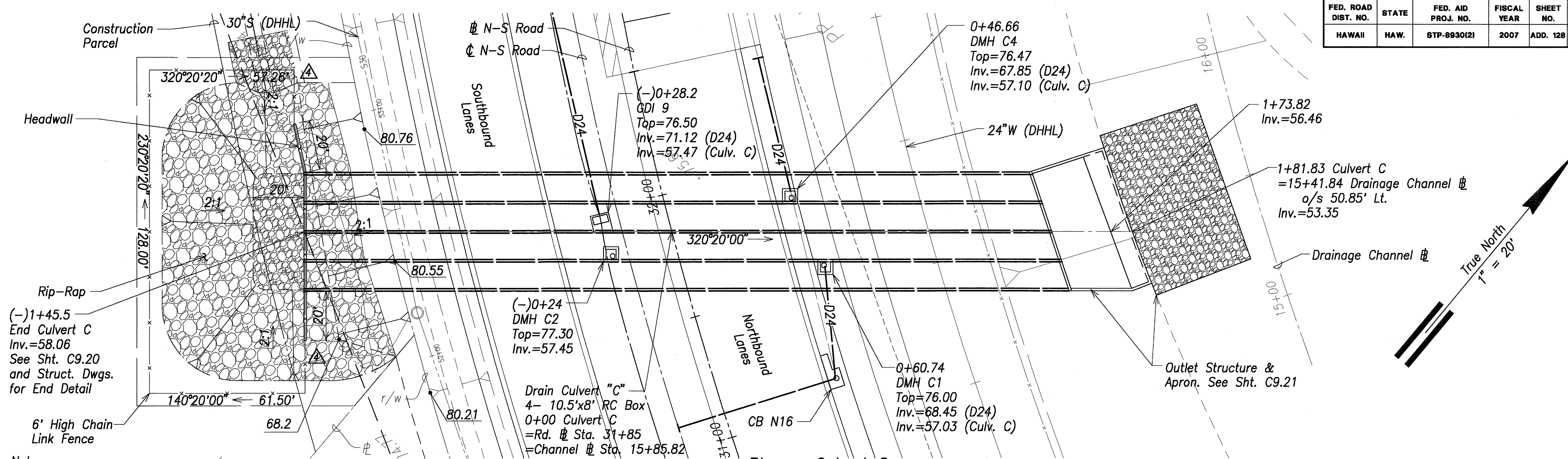
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
30" DRAINLINE R3
PLAN AND PROFILE
North-South Road
Phase 1B
F.A.I. Proj. No. STP-8930(2)

Scale: As Shown Date: Feb 21, 2007

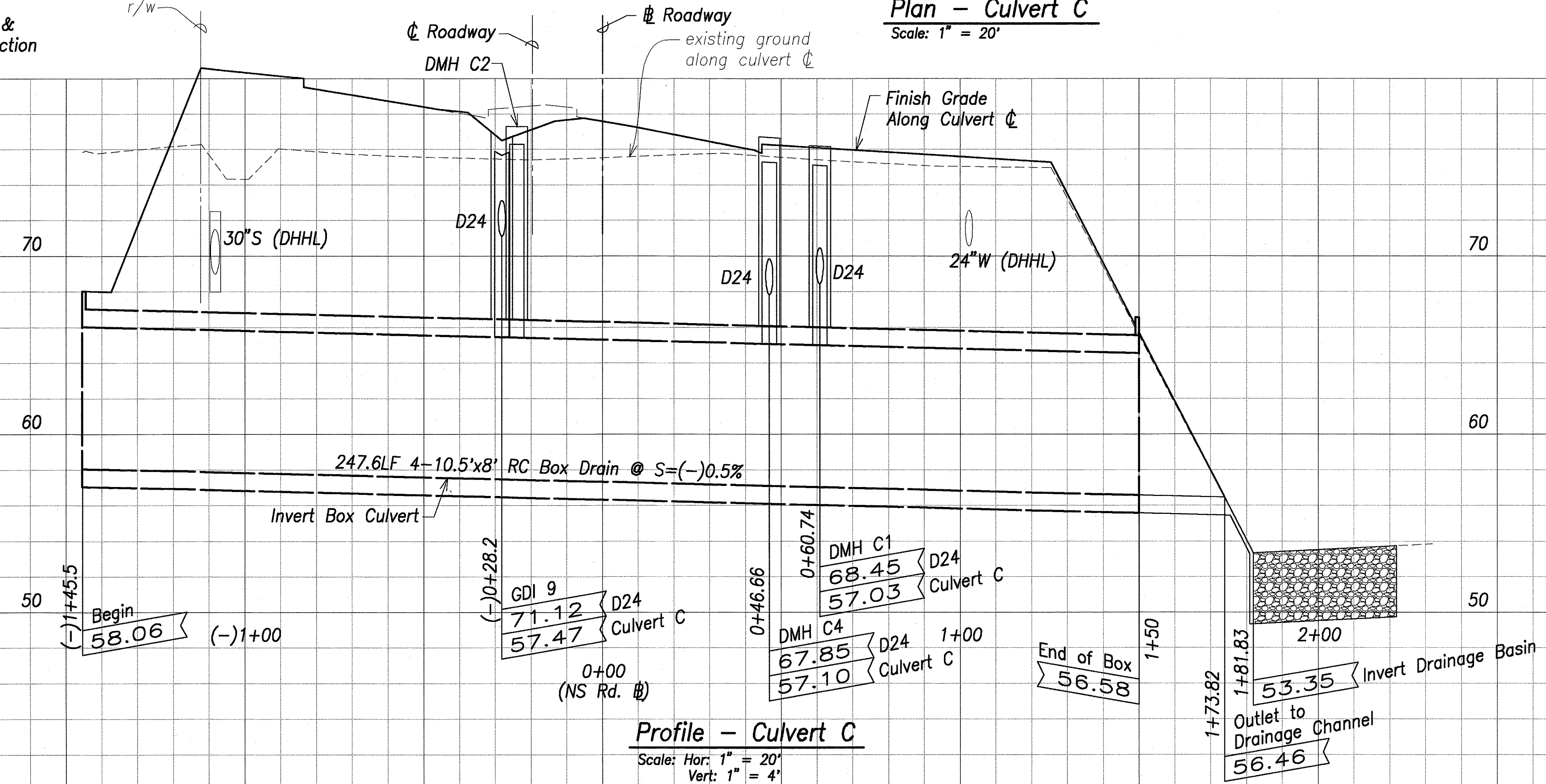
SHEET No. C9.15 OF 150 SHEETS

DESIGNED BY	DATE
CHECKED BY	
NOTED BY	
QUANTITIES BY	
NO.	

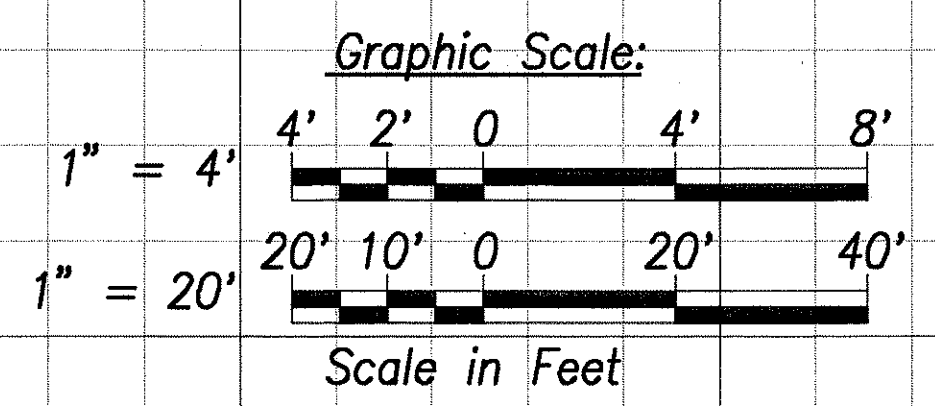
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	ADD. 128	331



Note:
See Struct. Dwgs & Sht. C9.20 for Section and Elevation



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Signature: _____ DATE OF LICENSE EXPIRY: APR 30, 2008



5/31/07	Revised fence
DATE	REVISION

**STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION**

**CULVERT C
PLAN AND PROFILE**

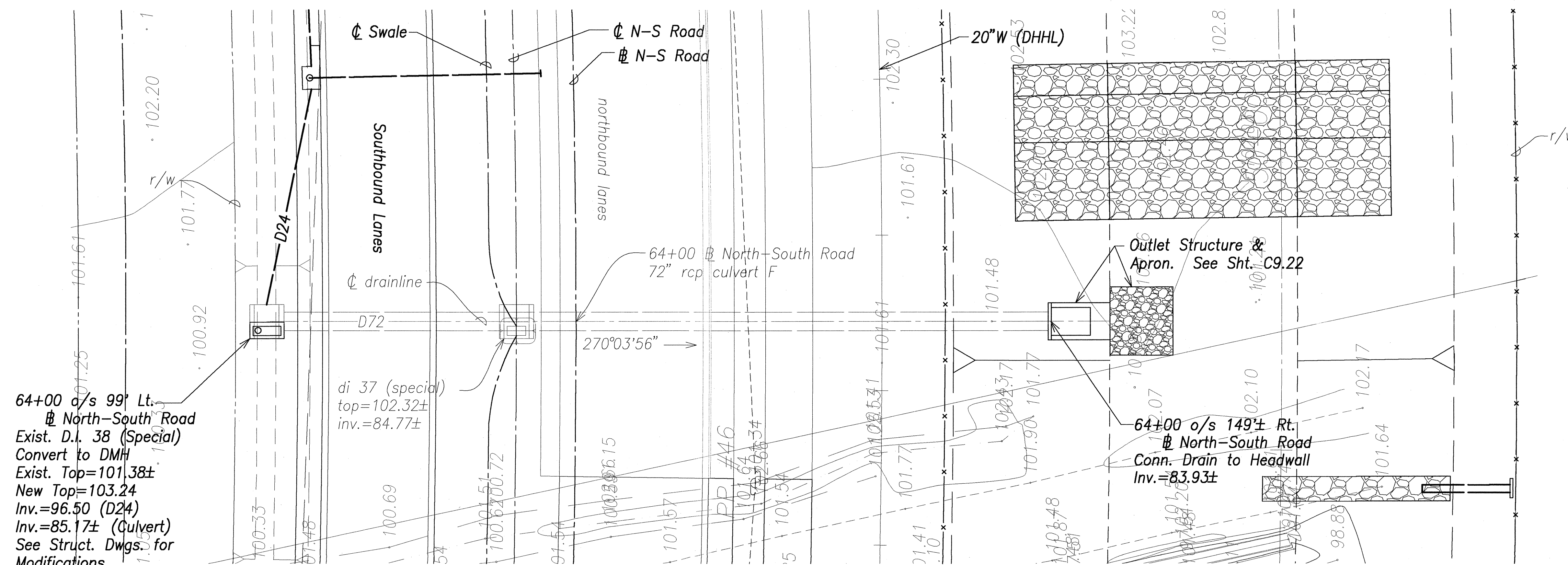
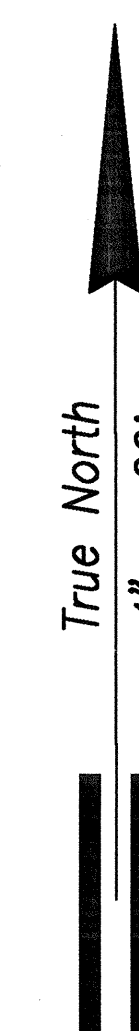
**North-South Road
Phase 1B
F.A.I. Proj. No. STP-8930(2)**

Scale: As Shown Date: Feb 21, 2007

SHEET No. C9.16 OF 150 SHEETS

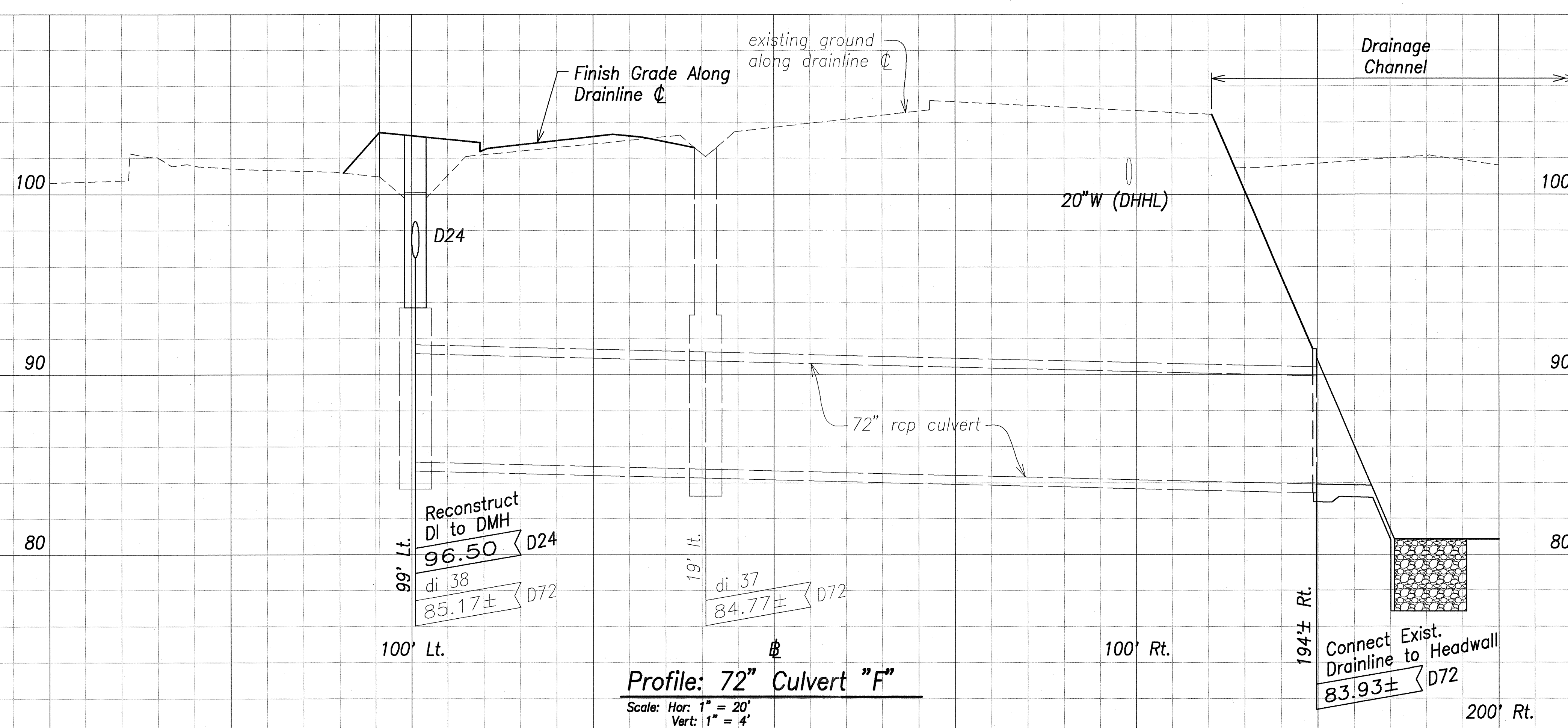
SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
CHECKED BY	
QUANTITIES BY	
NO.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	129	331



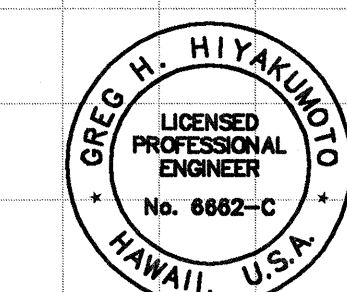
Plan - 72" Culvert "F"

Scale: 1" = 20'



Profile: 72" Culvert "F"

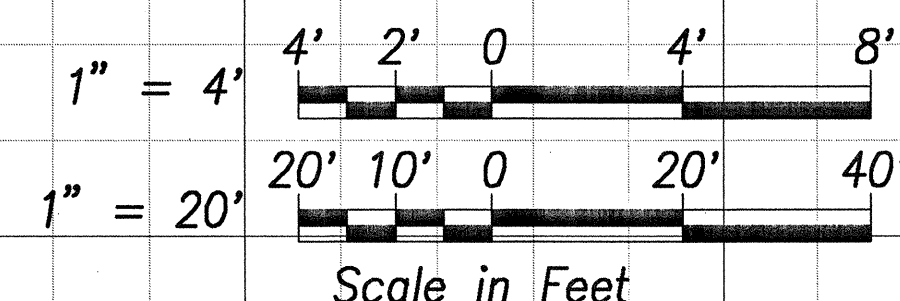
Scale: Hor: 1" = 20'
Vert: 1" = 4'



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CULVERT F
PLAN AND PROFILE

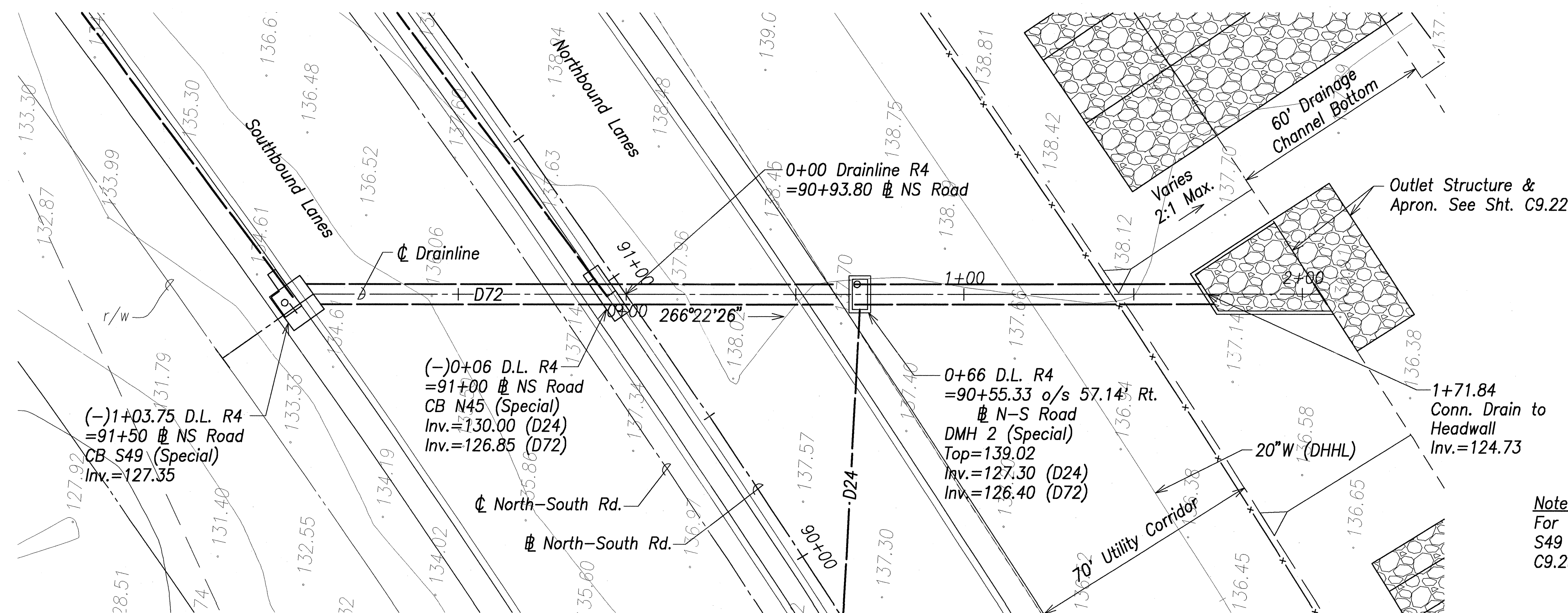
North-South Road
Phase 1B
F.A.I. Proj. No. STP-8930(2)

Scale: As Shown Date: Feb 21, 2007

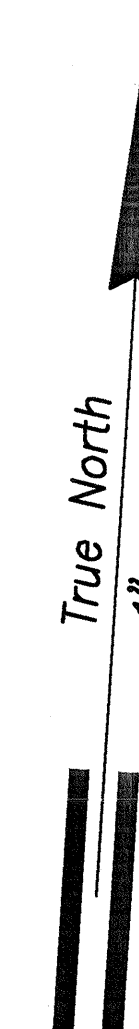
SHEET No. C9.17 OF 150 SHEETS

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

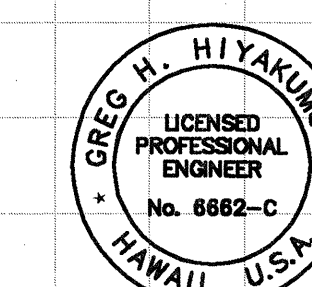
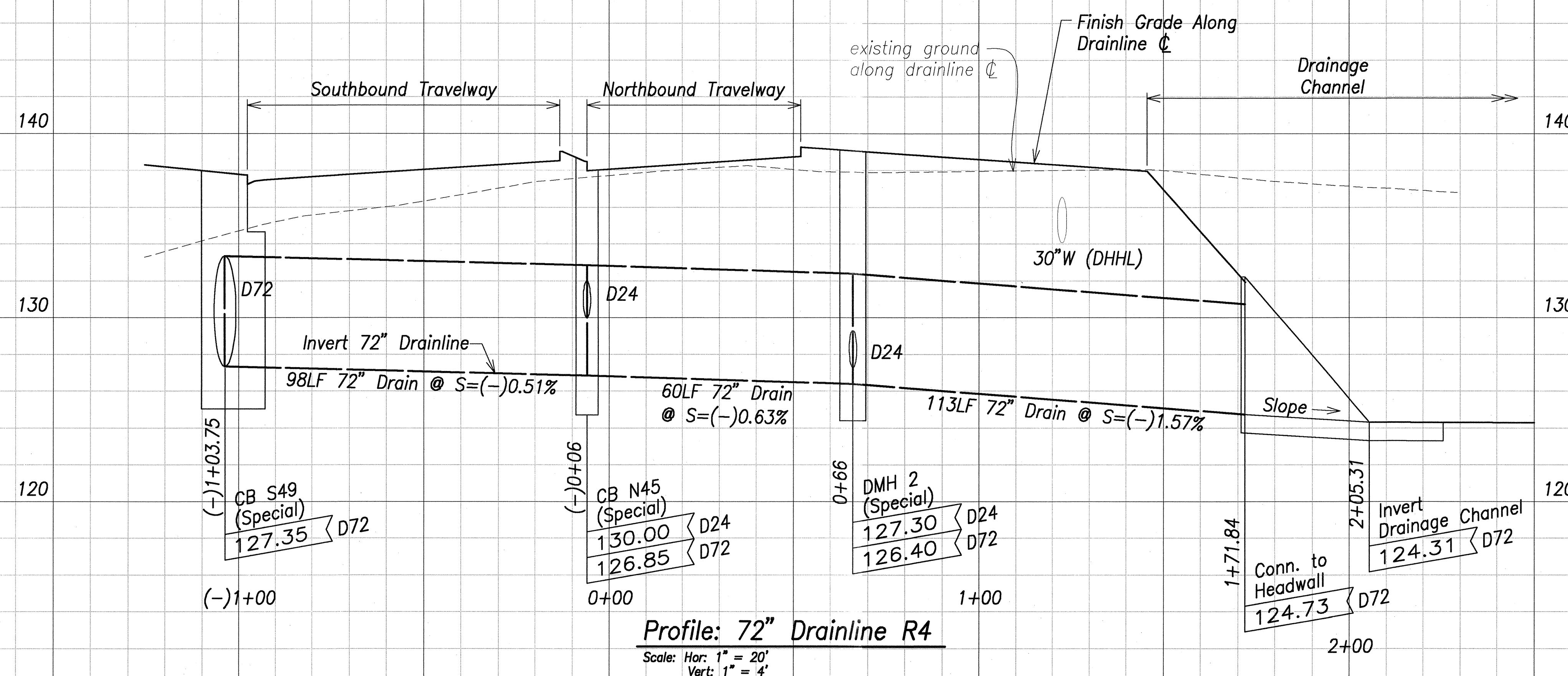
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	130	331



Note:
For Detail on Special CB's N45 & S49 and Special DMH 2 See Sht. C9.23 & 9.24.



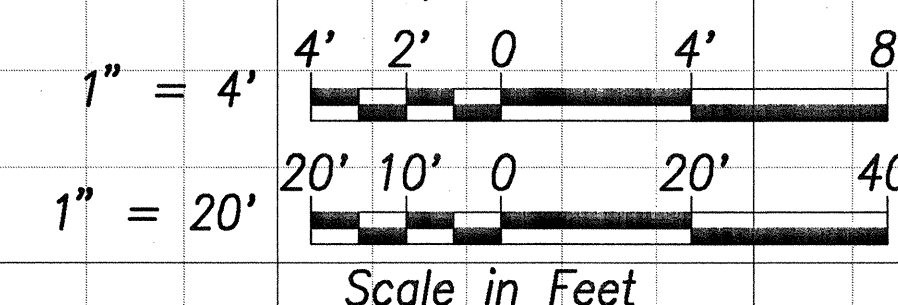
DATE	_____
SURVEY PLOTTED BY	_____
DESIGNED BY	_____
CHECKED BY	_____
NOTE BOOK	_____
QUANTITIES BY	_____
ORIGINAL PLAN	_____
No.	_____



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SIGNATURE DATE LICENSE EXPIRY

Graphic Scale:

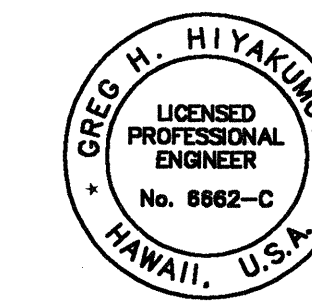
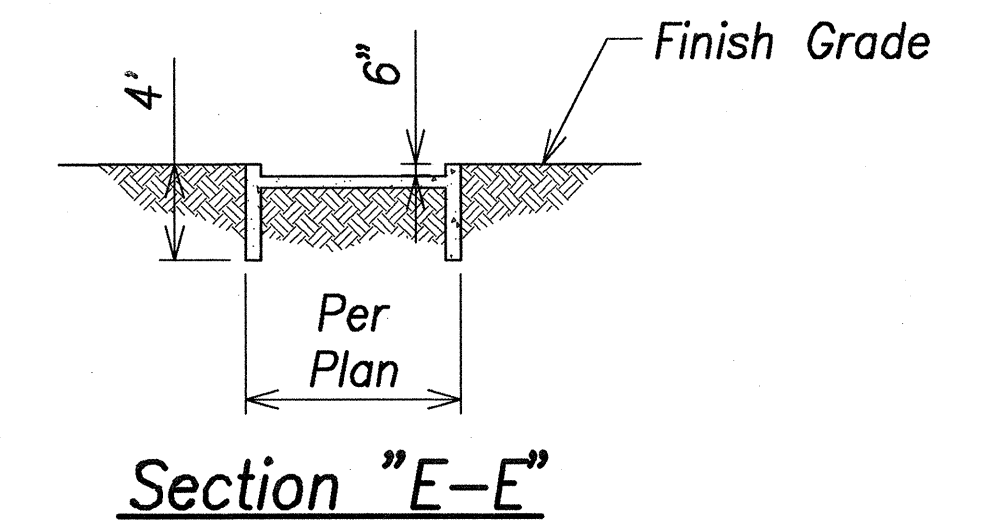
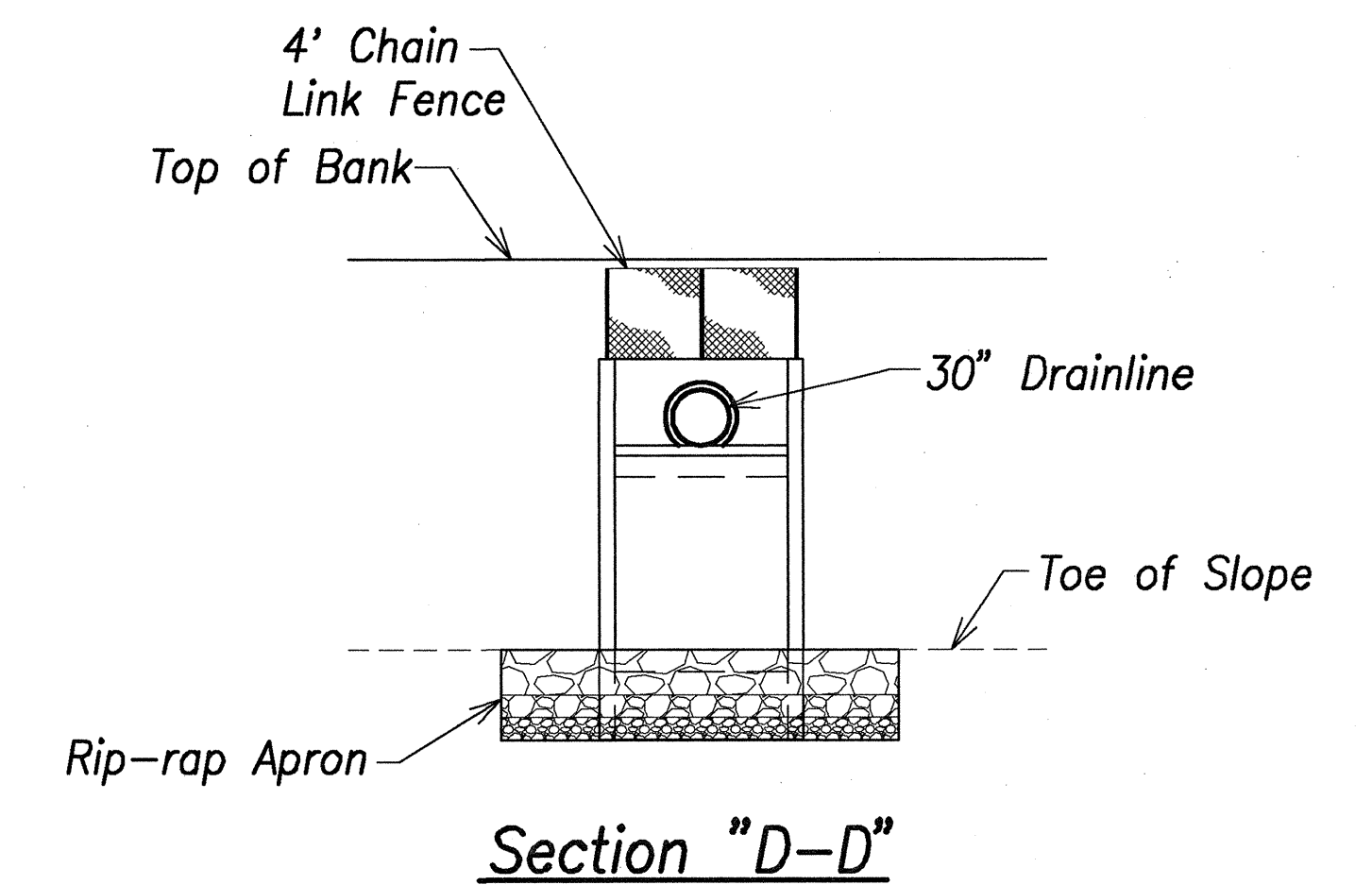
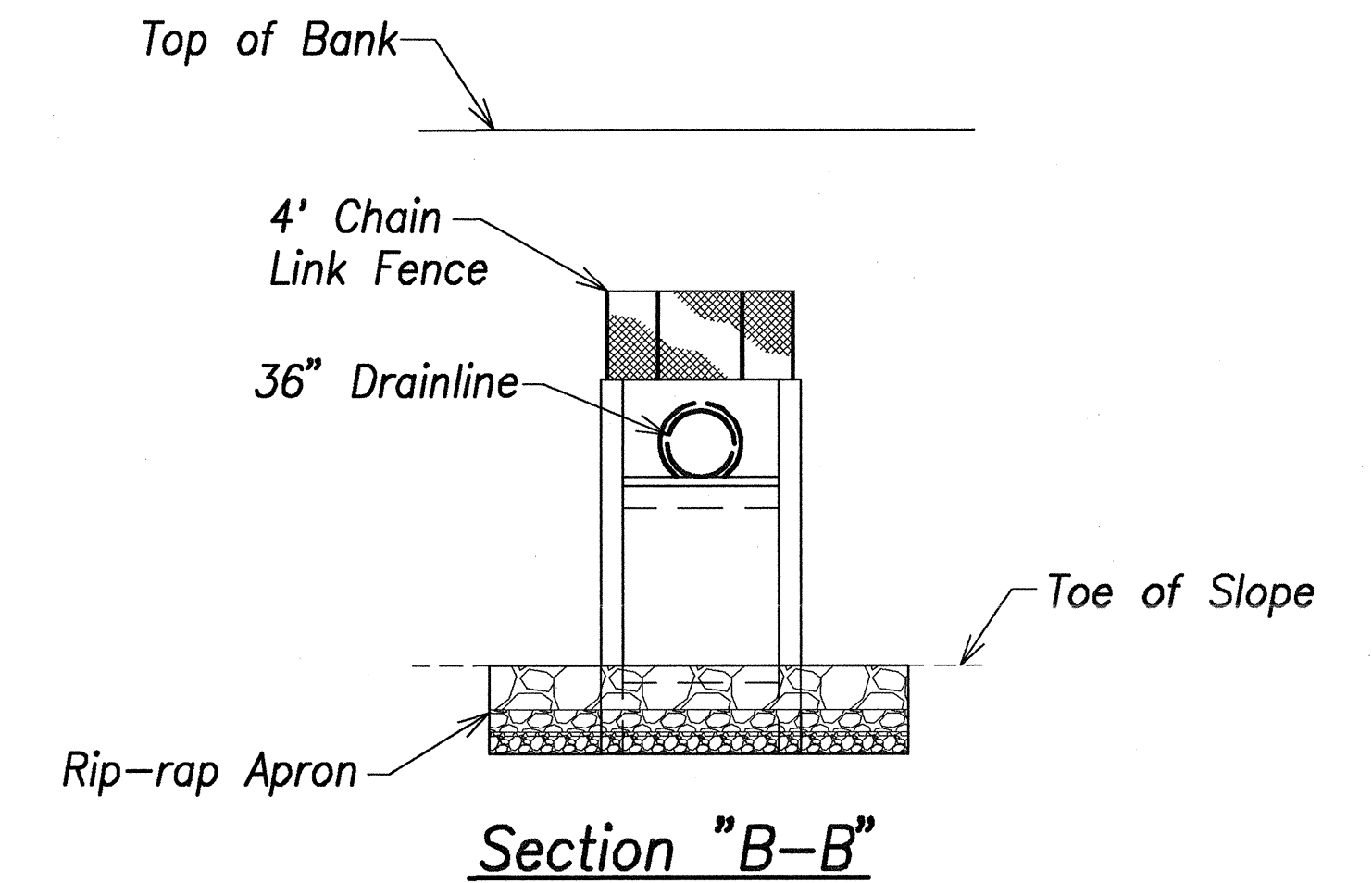
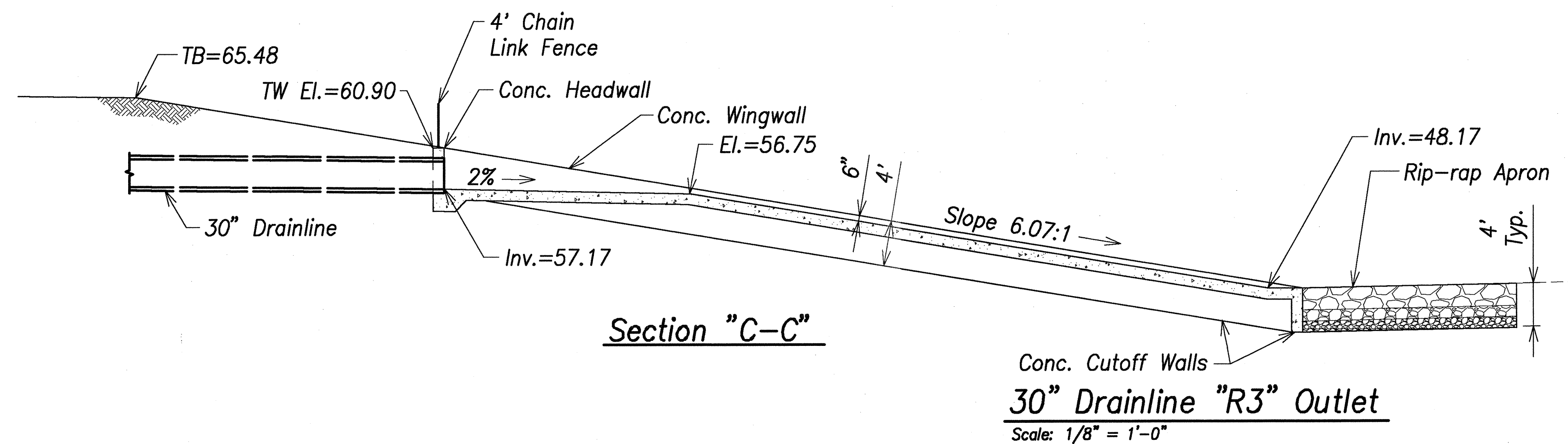
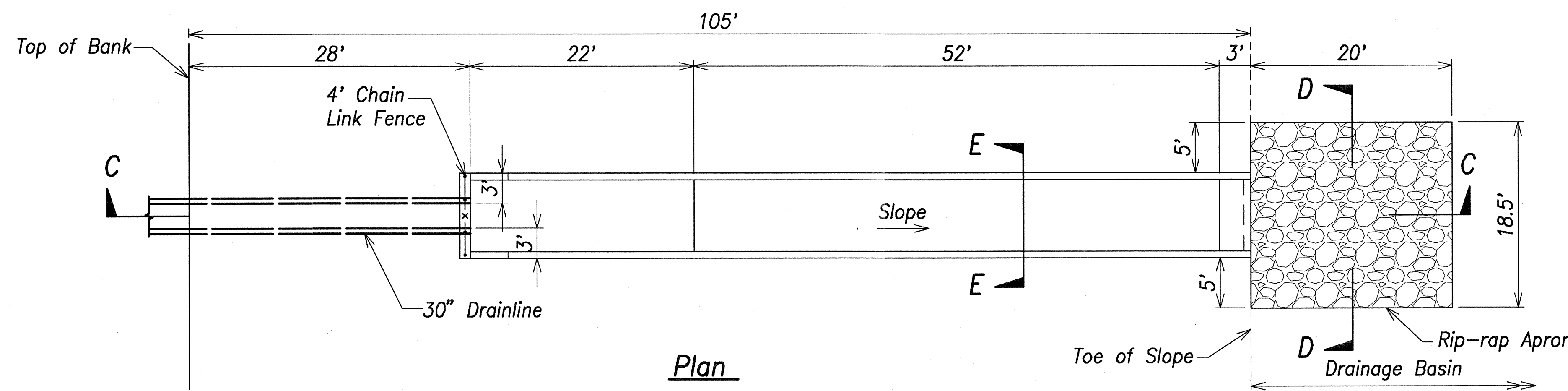
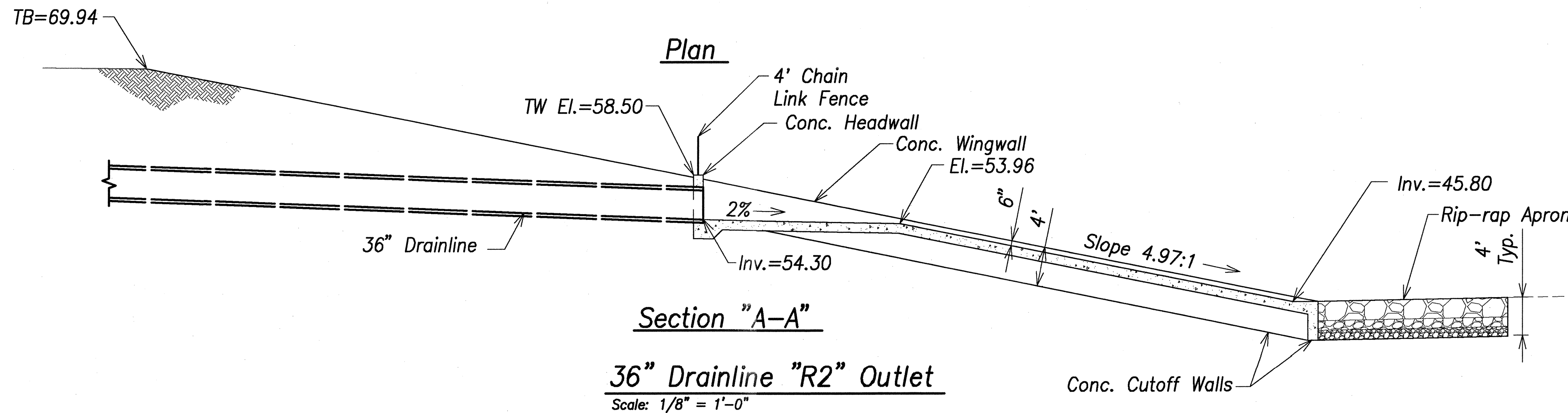
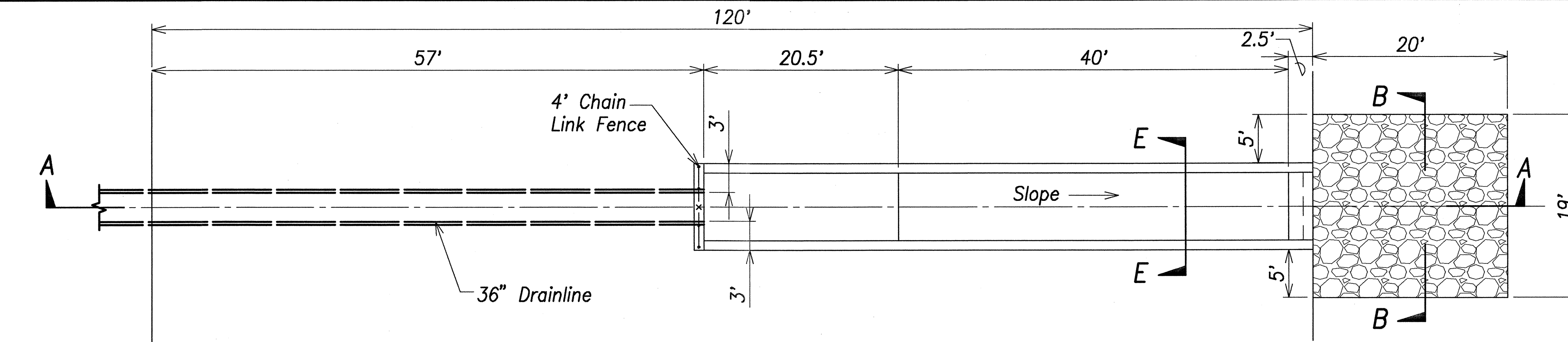


STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
72" DRAINLINE R4
PLAN AND PROFILE
North-South Road
Phase 1B
F.A.I. Proj. No. STP-8930(2)

Scale: As Shown Date: Feb 21, 2007

SHEET No. C9.18 OF 150 SHEETS

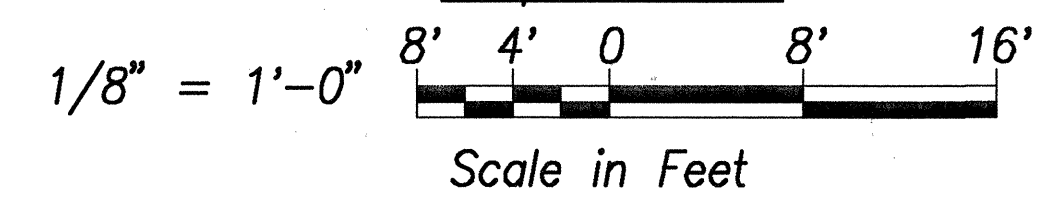
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	131	331



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Graphic Scales:



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**OUTLET DETAILS -
DRAINLINE R2 & R3**

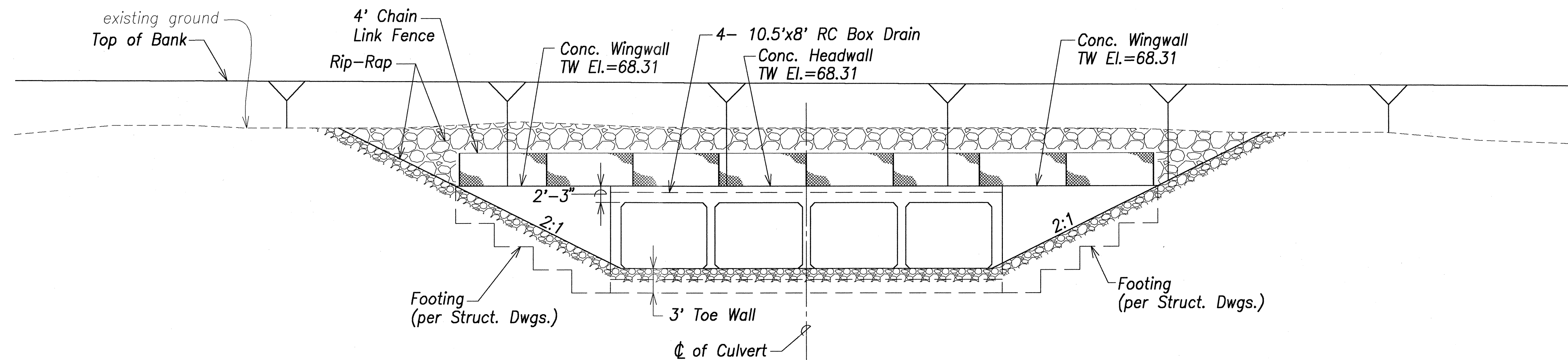
North-South Road
Phase 1B
F.A.I. Proj. No. STP-8930(2)

Scale: As Shown Date: Feb 21, 2007

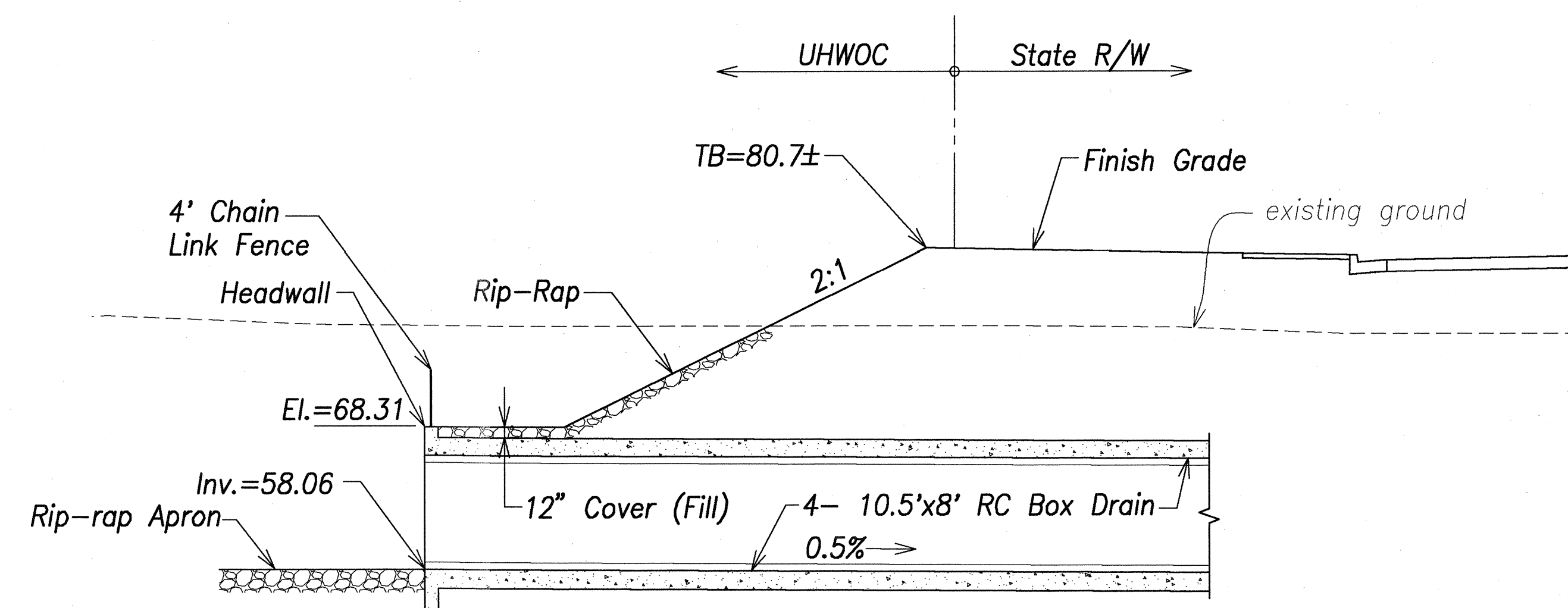
SHEET No. C9.19 OF 150 SHEETS

SURVEY PLOTTED BY	DATE
DESIGNED BY	
TRACED BY	
NOTED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	132	331



West Elevation



Longitudinal Section

Culvert "C" Inlet Details

Scale: 1/8" = 1'-0"

ORIGINAL PLAN	DATE
NOTE BOOK	DESIGNED BY
No.	QUANTITIES BY
	CHECKED BY

Graphic Scales:
1/8" = 1'-0" 8' 4' 0 8' 16'
Scale in Feet



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

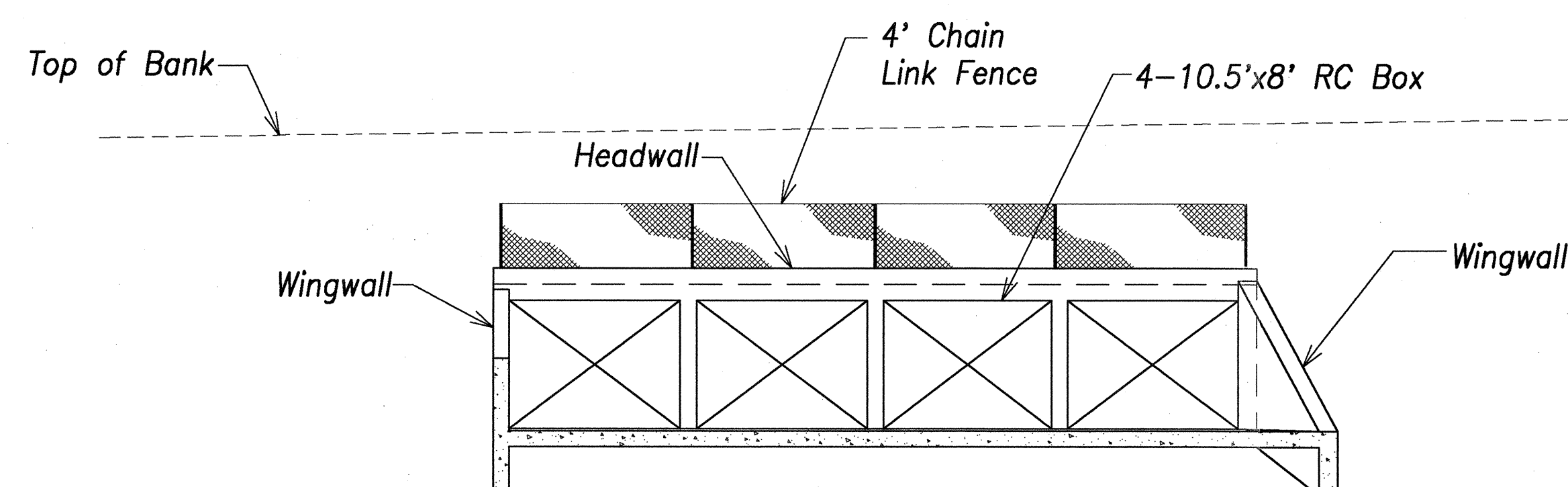
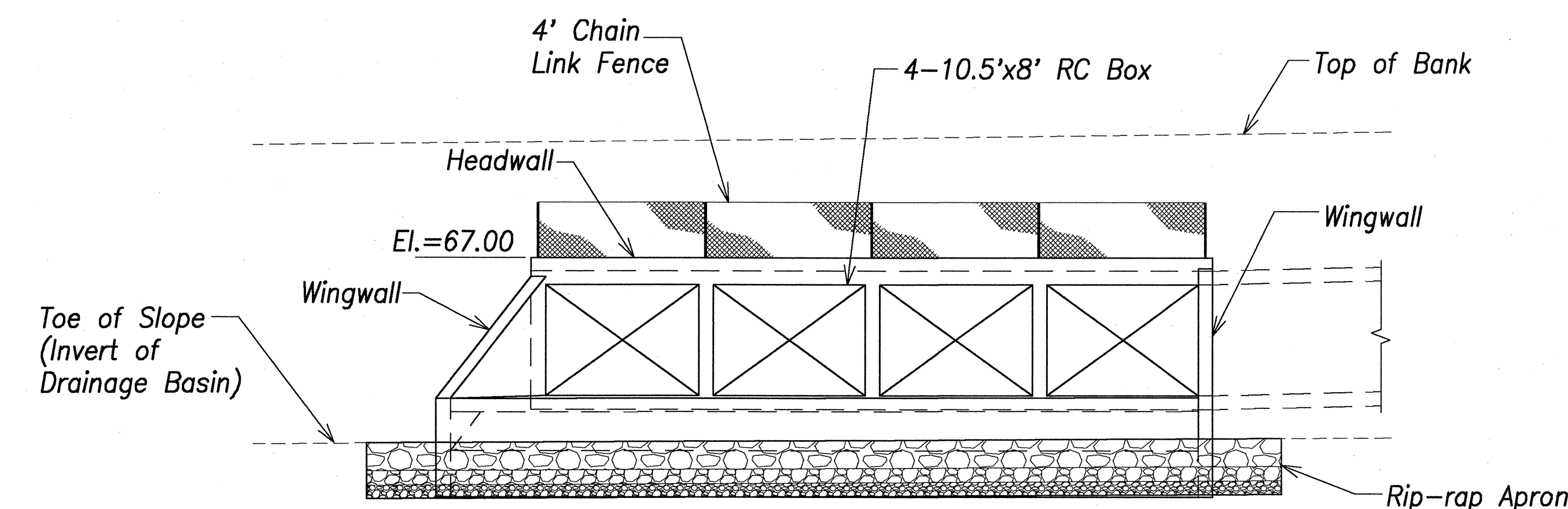
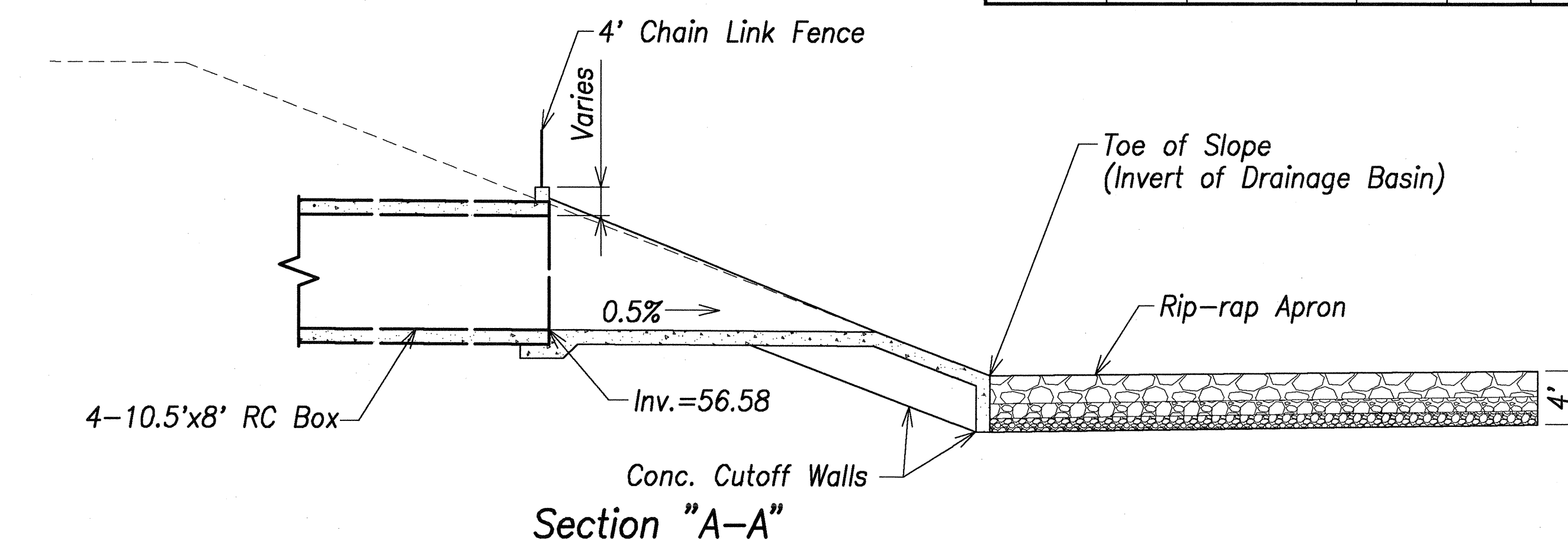
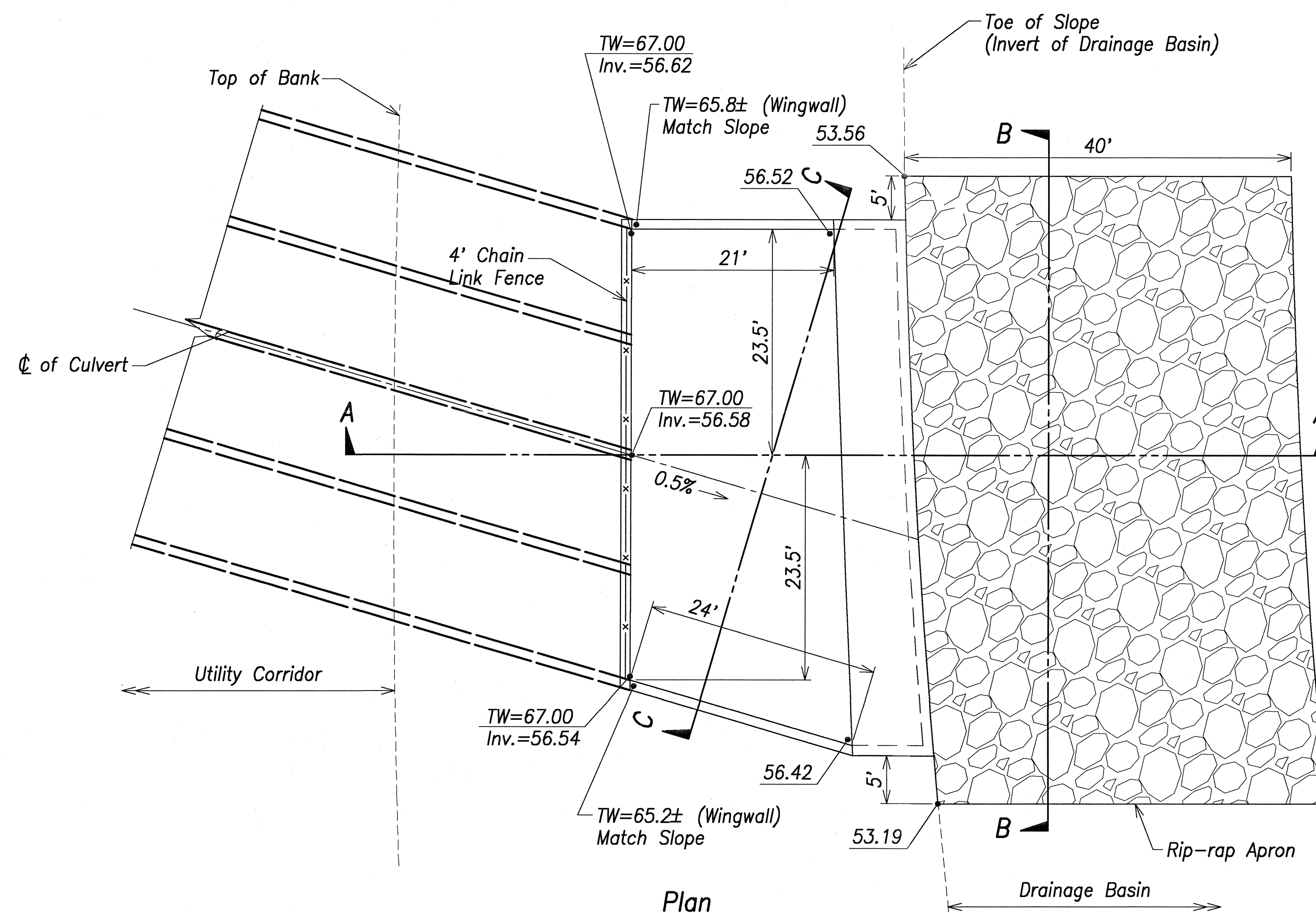
INLET DETAILS - CULVERT C

North-South Road
Phase 1B
F.A.I. Proj. No. STP-8930(2)

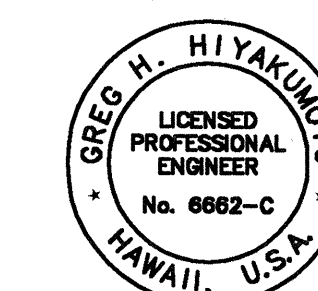
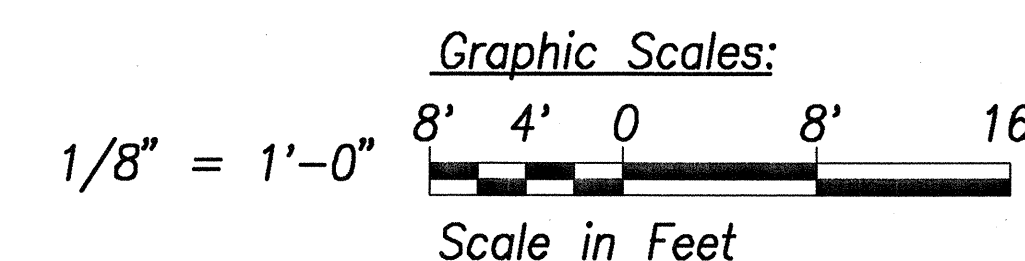
Scale: As Shown Date: Feb 21, 2007

SHEET No.C9.20 OF 150 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	133	331



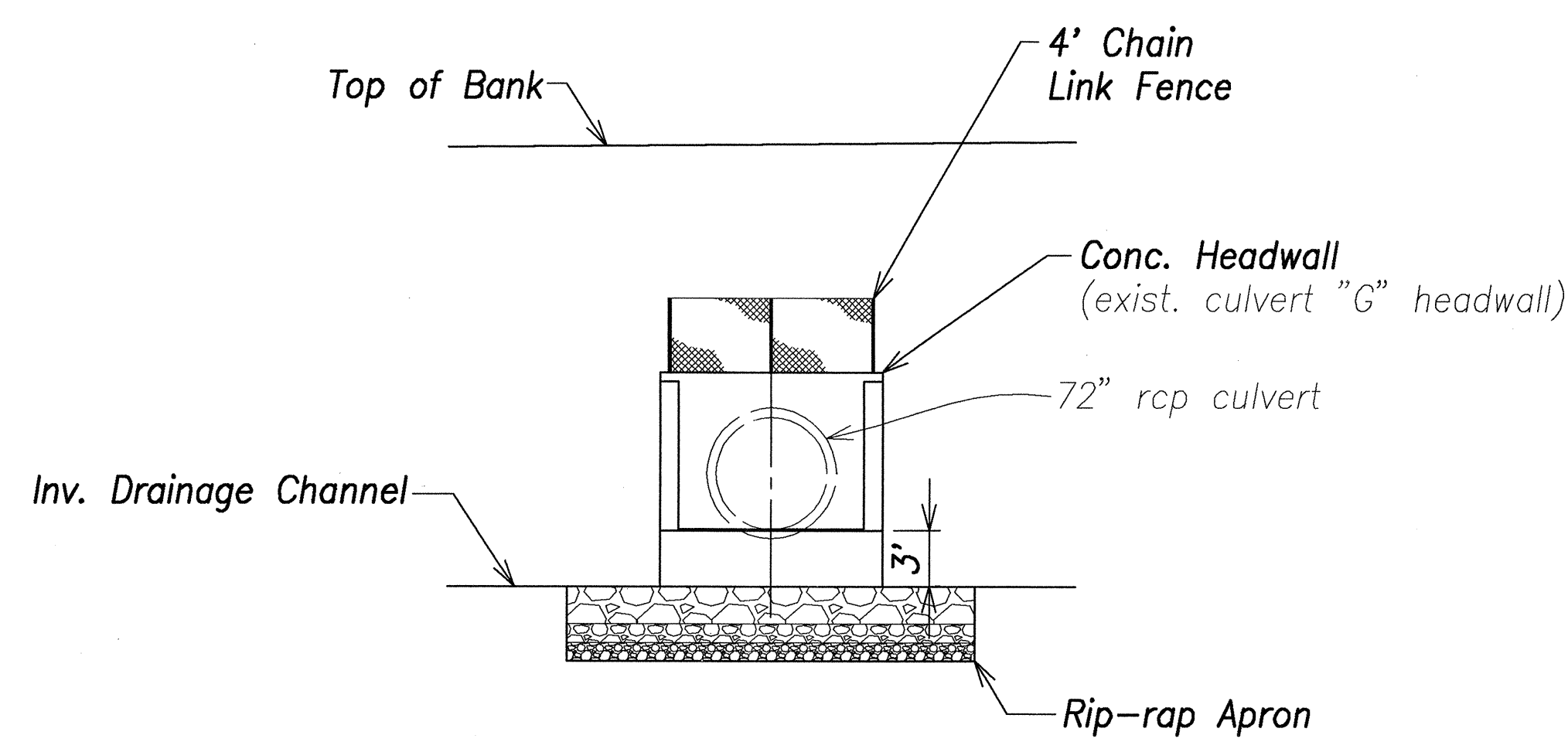
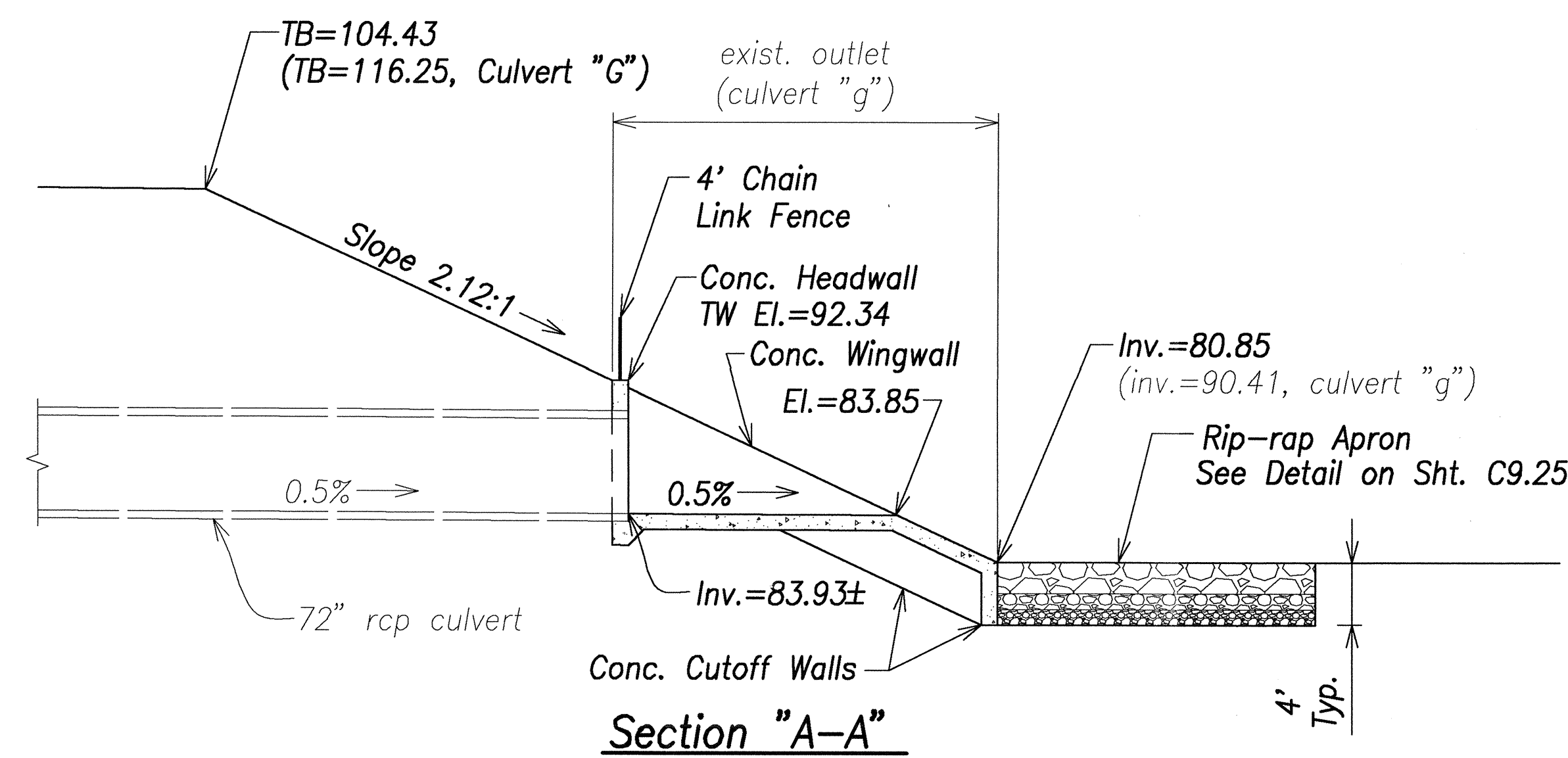
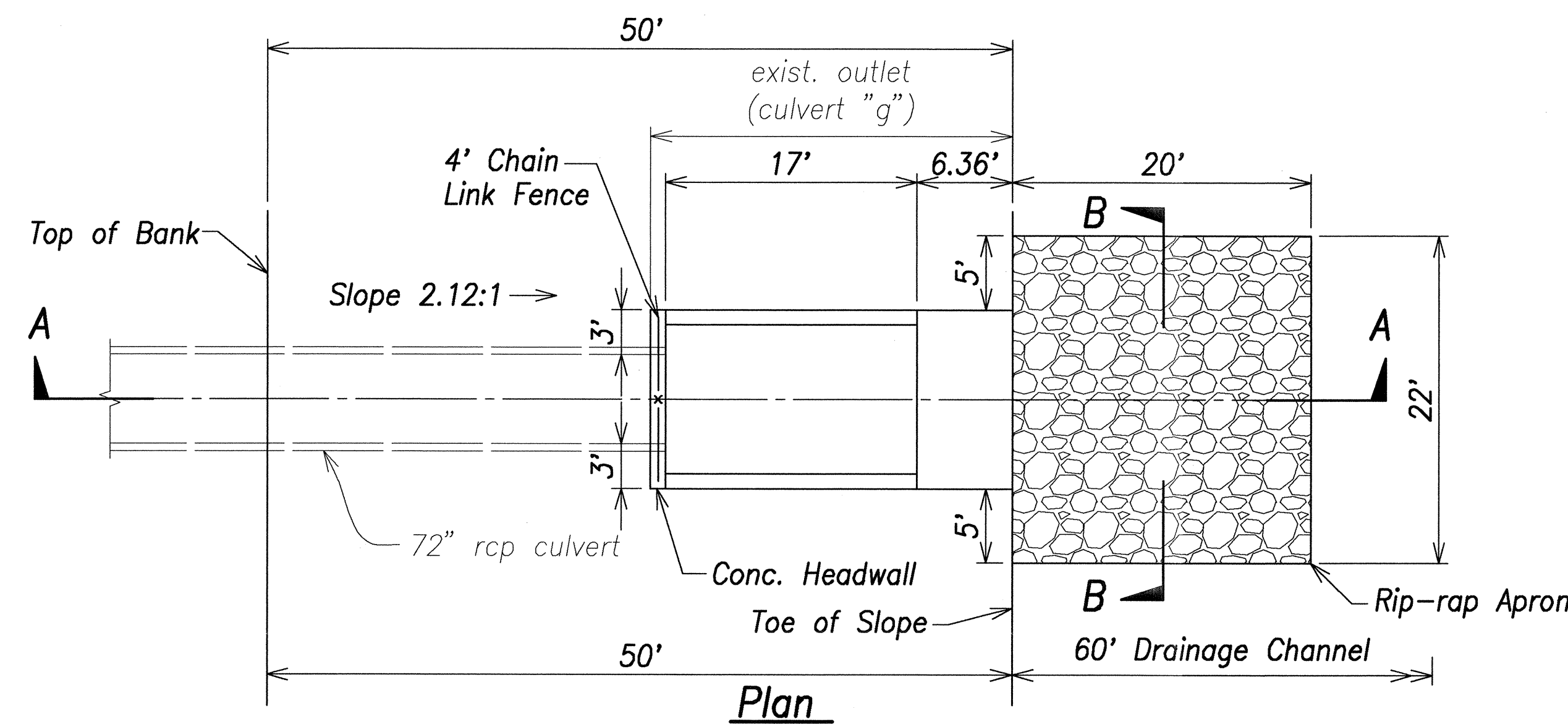
Culvert "C" Outlet Details
Scale: 1/8" = 1'-0"



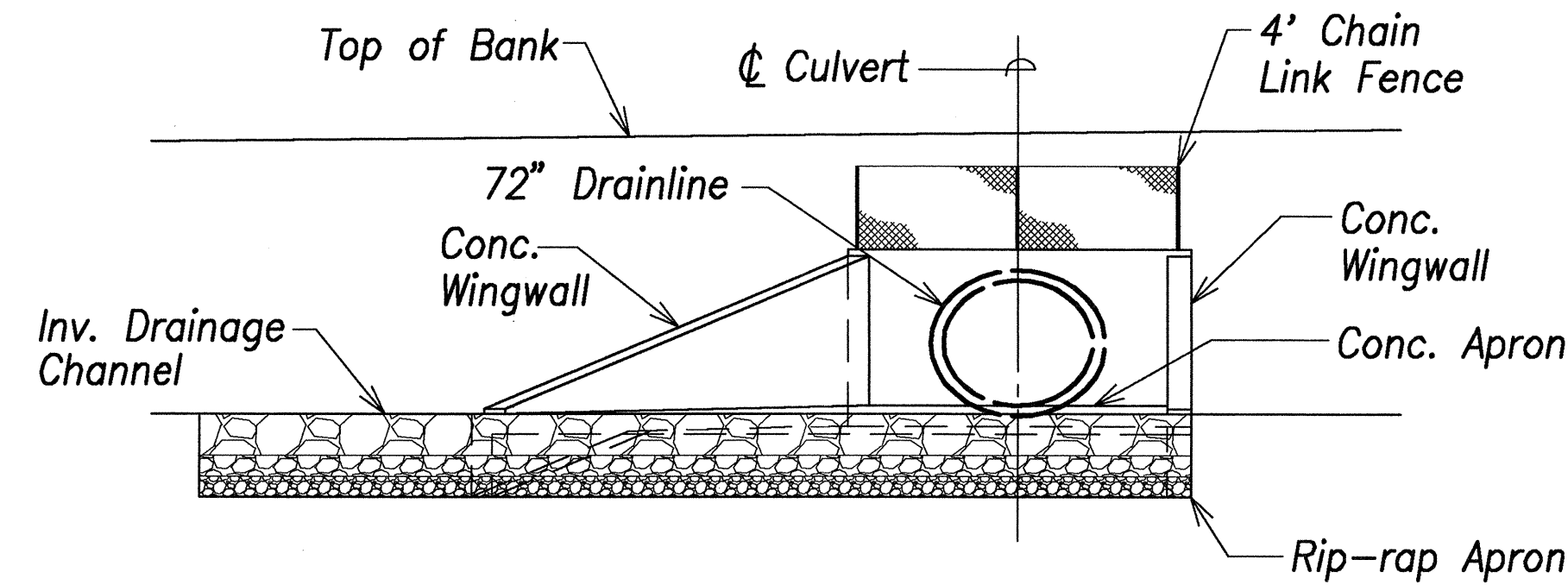
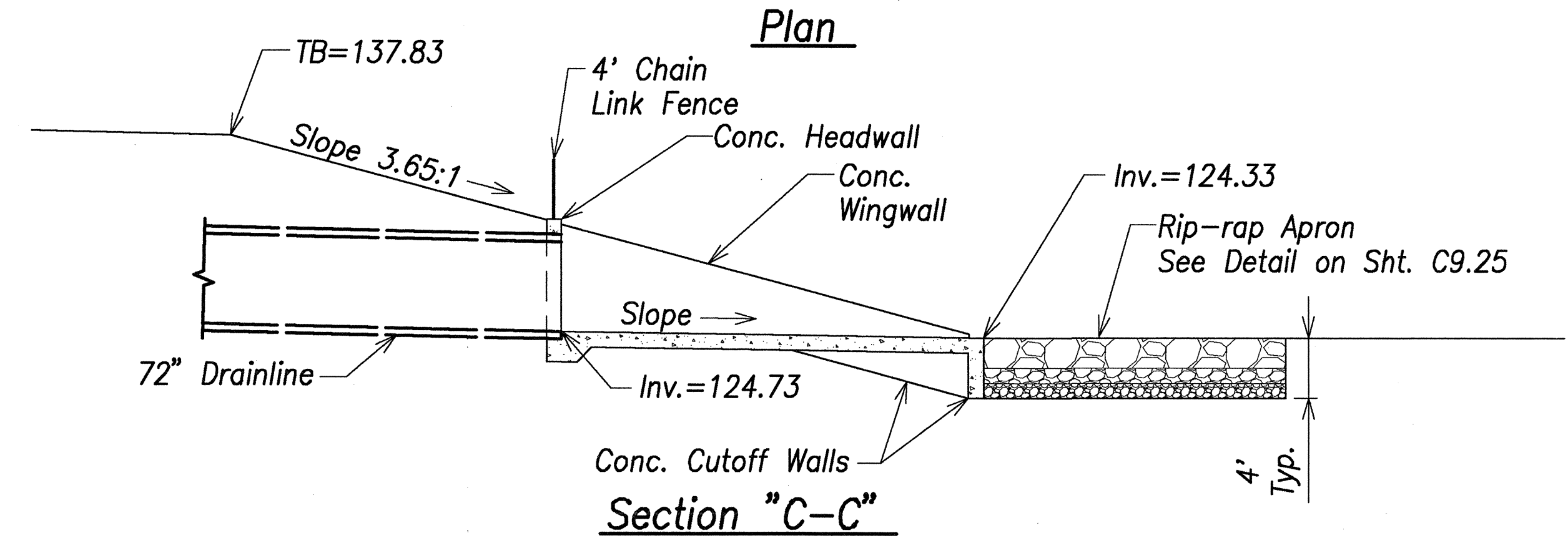
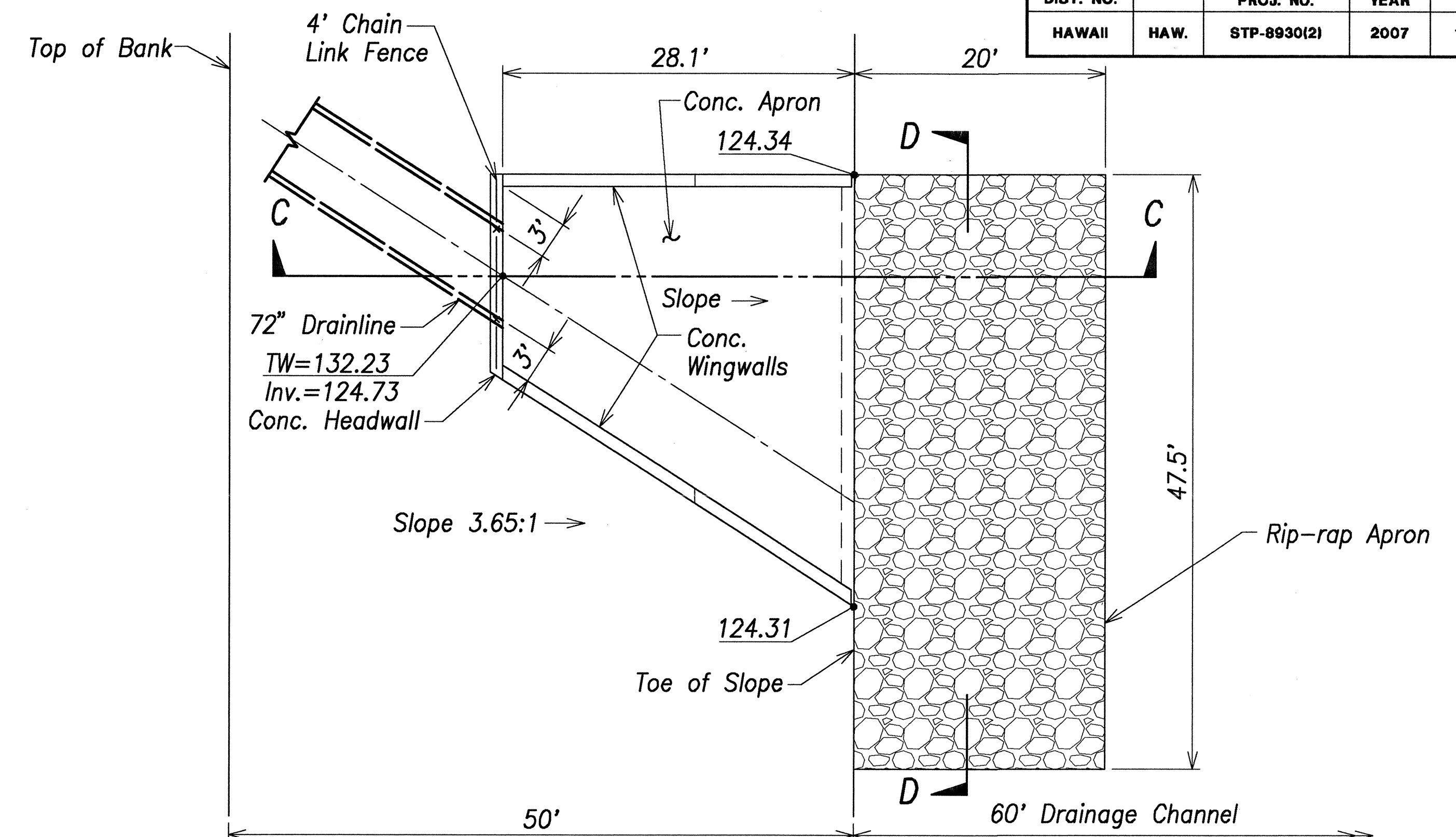
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DATE OF LICENSE EXPIRY
APR 30, 2008
SIGNATURE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
OUTLET DETAILS -
CULVERT C
North-South Road
Phase 1B
F.A.I. Proj. No. STP-8930(2)
Scale: As Shown Date: Feb 21, 2007
SHEET No. C9.21 OF 150 SHEETS

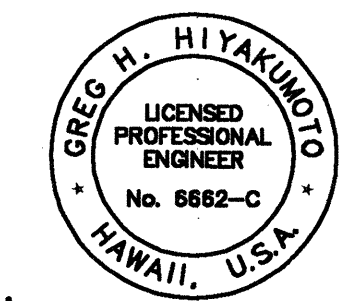
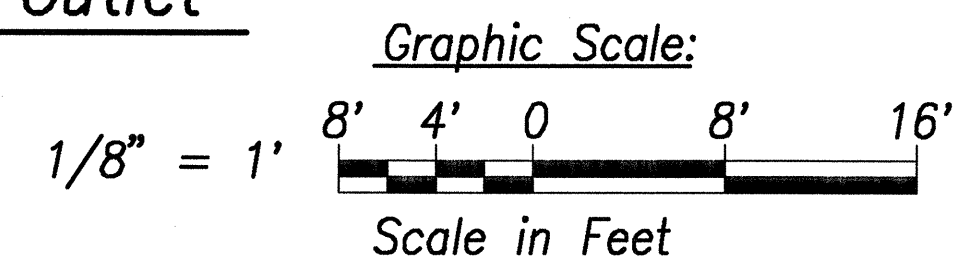
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	134	331



Section "B-B"
Culvert "F" & "G" Outlet Details
 Scale: 1/8" = 1'-0"



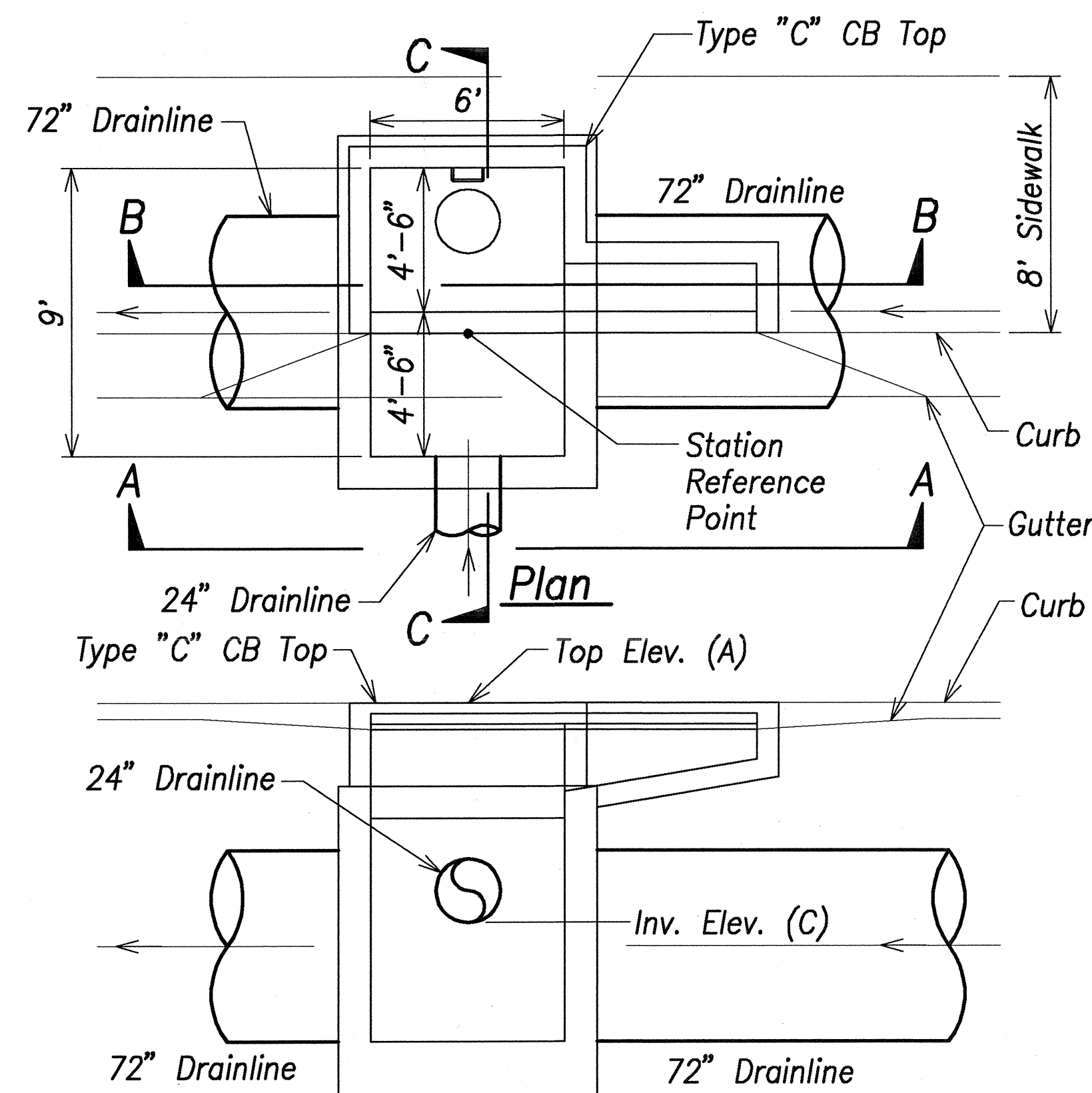
Section "D-D"
72" Drainline "R4" Outlet
 Scale: 1/8" = 1'-0"



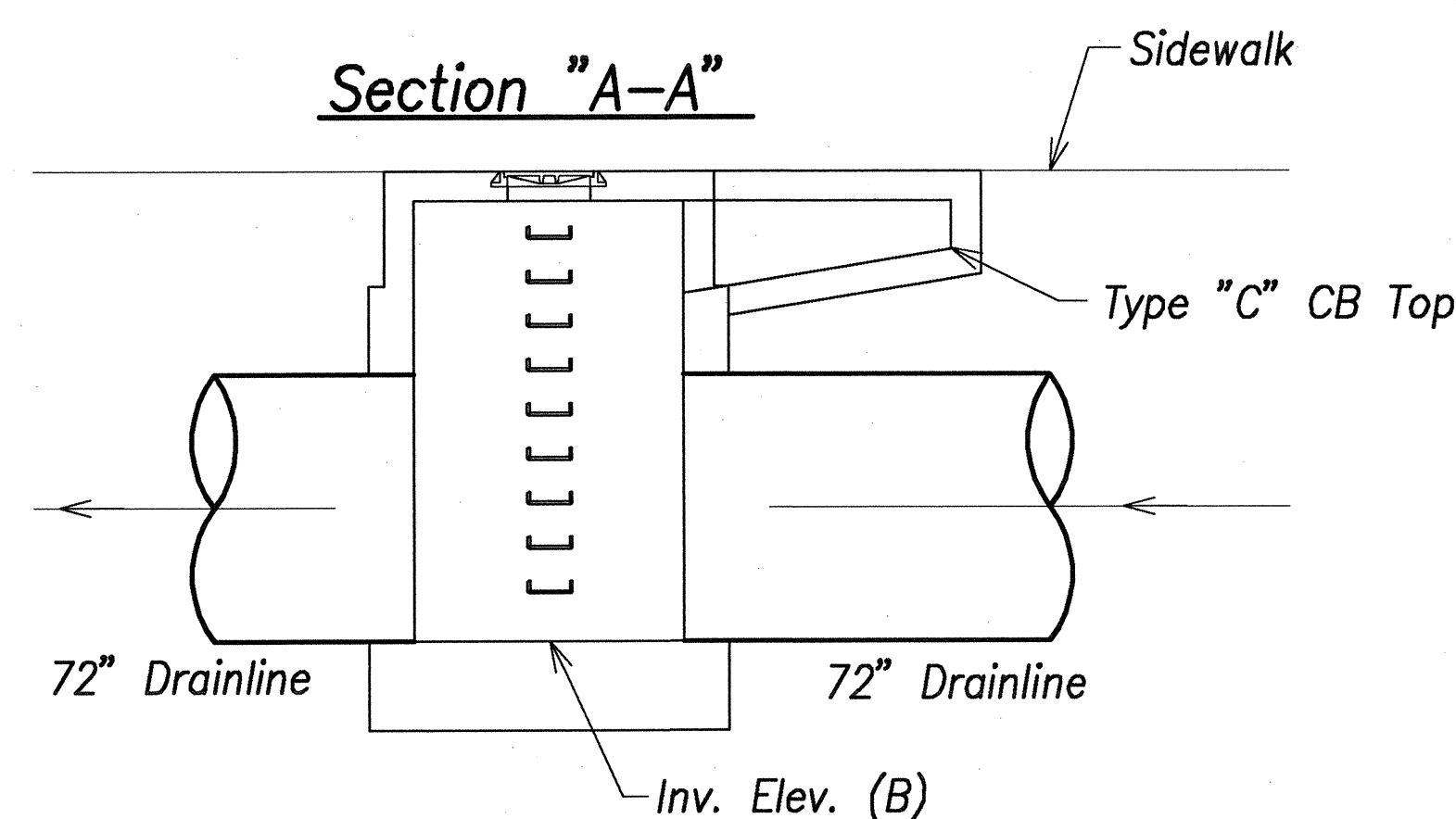
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
**OUTLET DETAILS - CULVERT F,
 CULVERT G & DRAINLINE R4**
 North-South Road
 Phase 1B
 F.A.I. Proj. No. STP-8930(2)
 Scale: As Shown Date: Feb 21, 2007
 SHEET No.C9.22 OF 150 SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	135	331

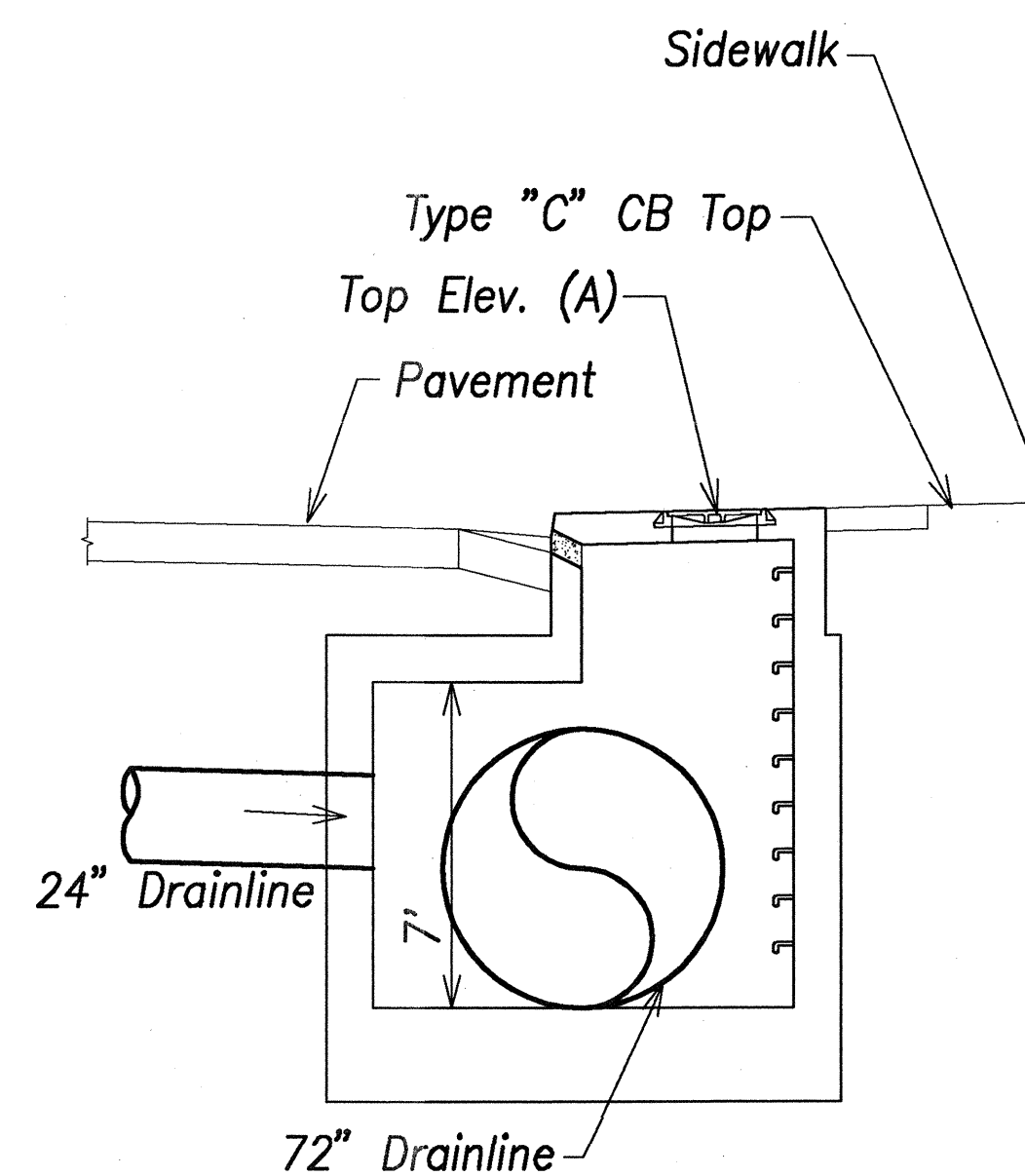


Section "A-A"



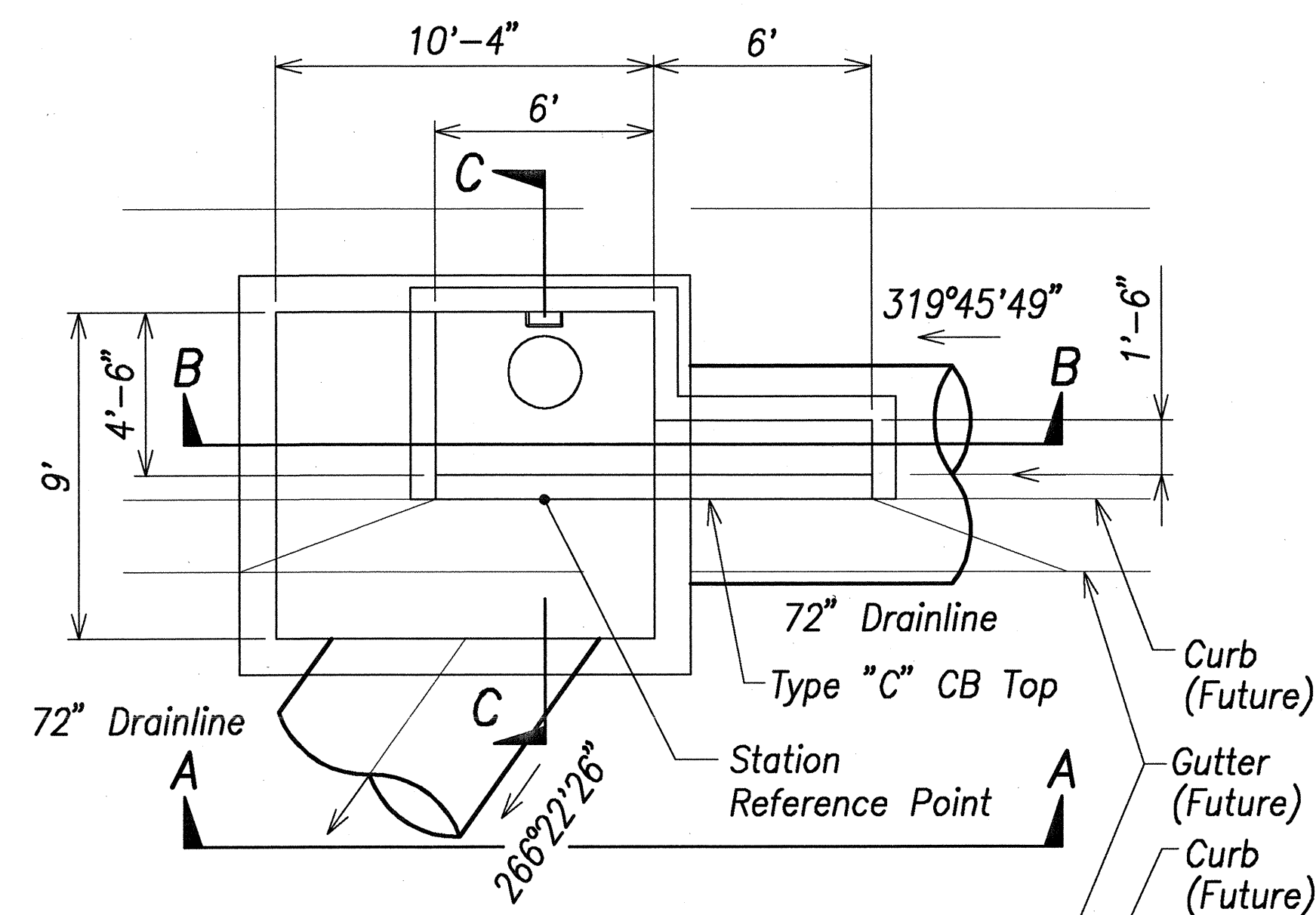
Section "B-B"

Special Catch Basins S50 to S56
Scale: 1/4" = 1'-0"

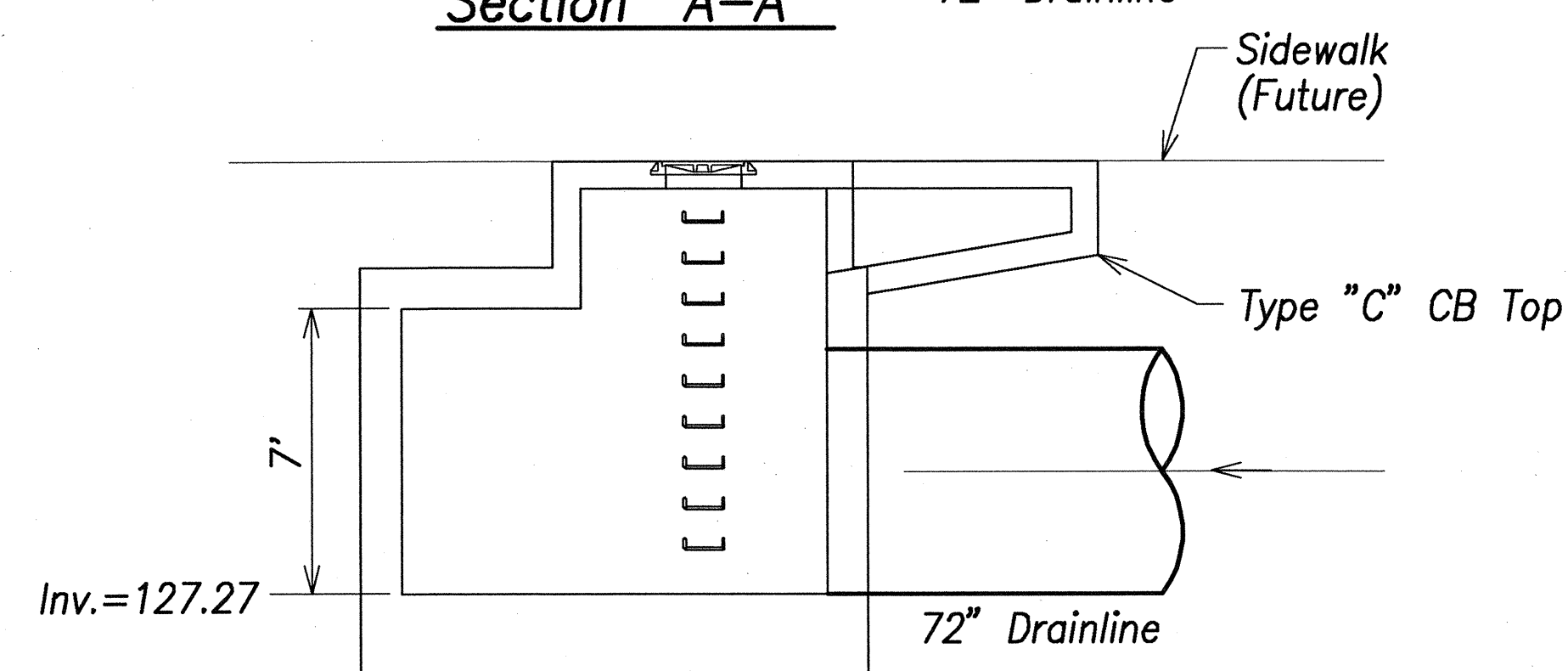


Section "C-C"

Catch Basin Elevations				
CB #	Sta.	A	B	C
S50	93+50	139.29	129.35	na
S51	95+50	141.29	131.35	na
S52	97+50	143.43	133.35	na
S53	99+00	145.43	134.85	137.65
S54	101+50	148.29	137.44	140.24
S55	104+00	152.21	138.69	145.00
S56	106+45	156.01	139.90	na

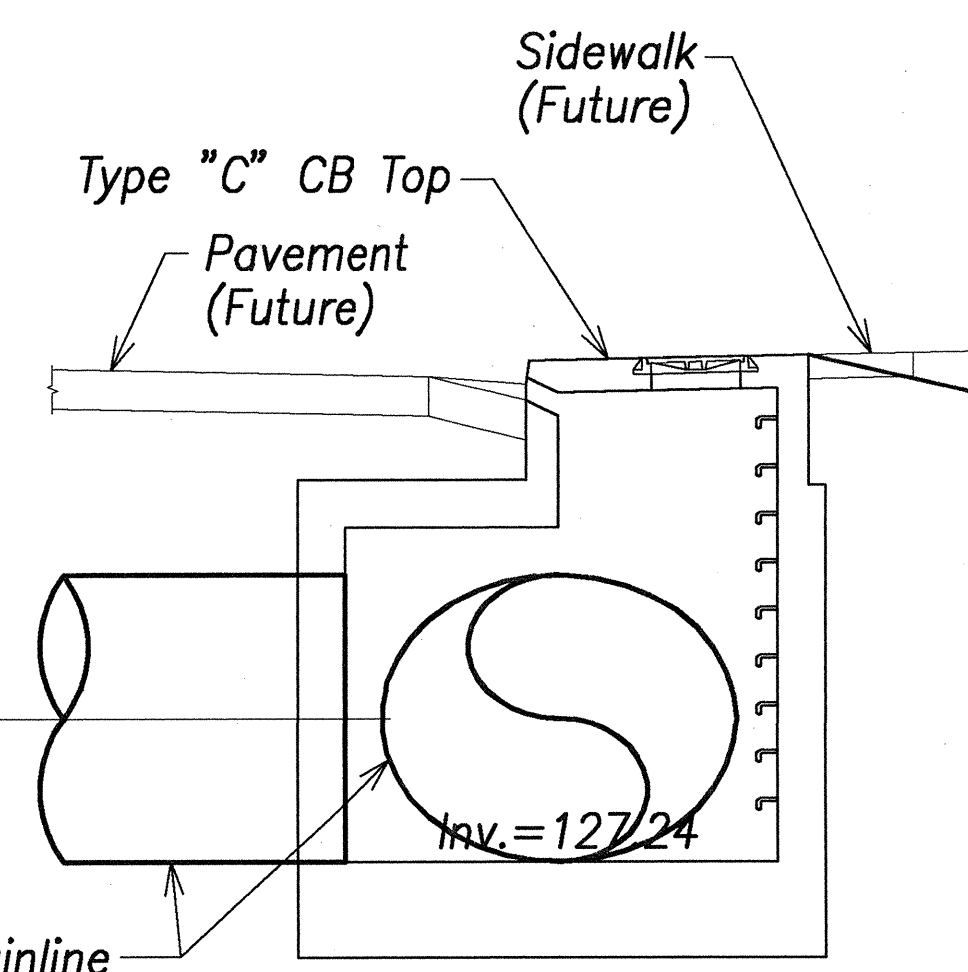


Section "A-A"



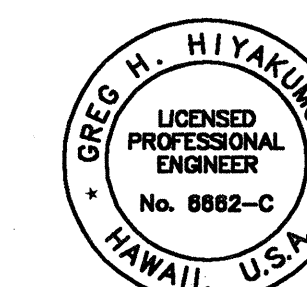
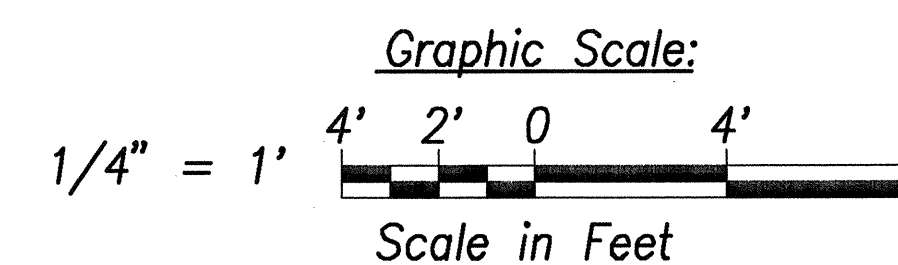
Section "B-B"

Special Catch Basin S49
Scale: 1/4" = 1'-0"



Section "C-C"

SURVEY PLOTTED BY	DATE
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ORIGINAL PLAN	
NOTE BOOK	
No.	



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

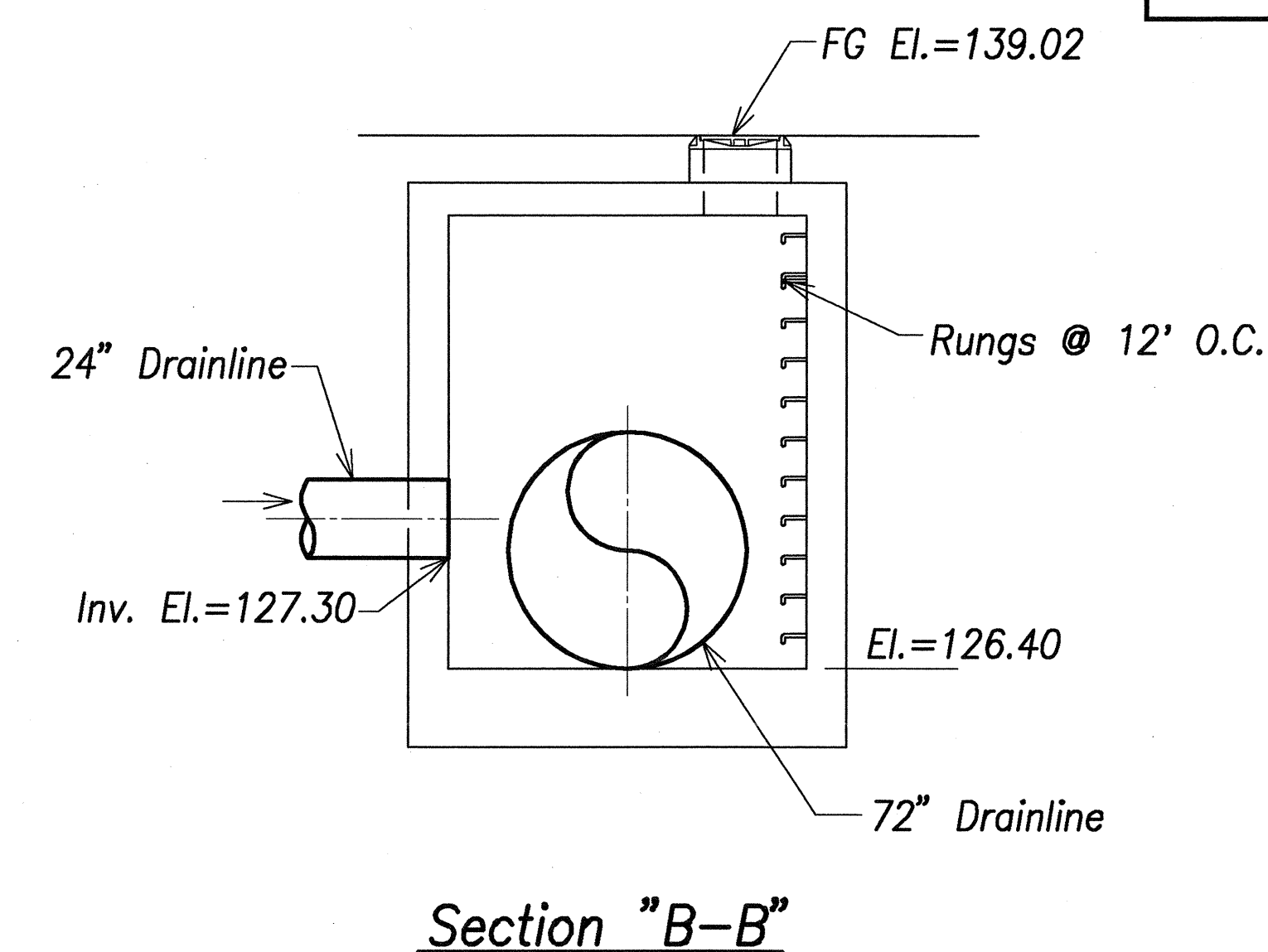
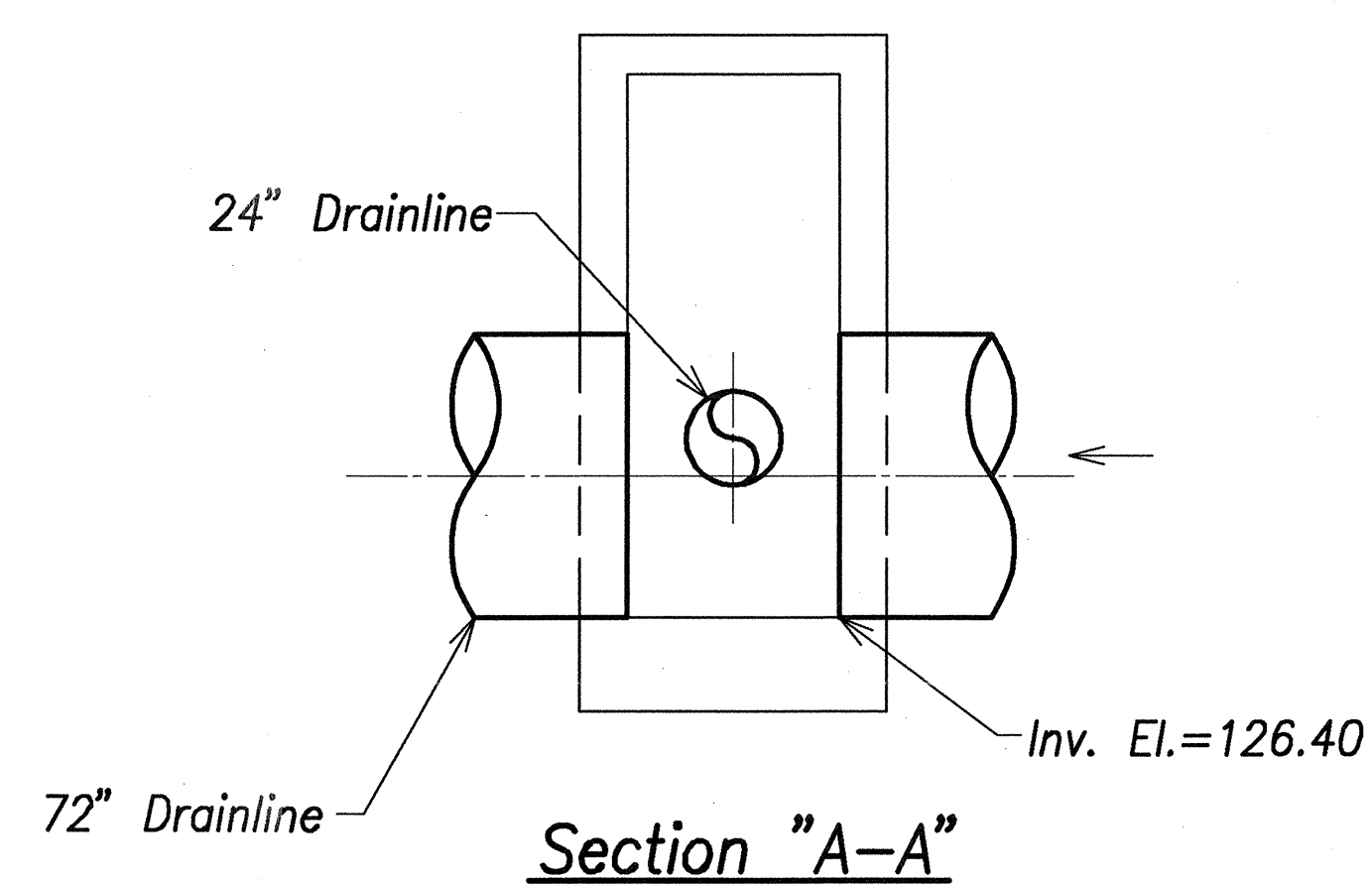
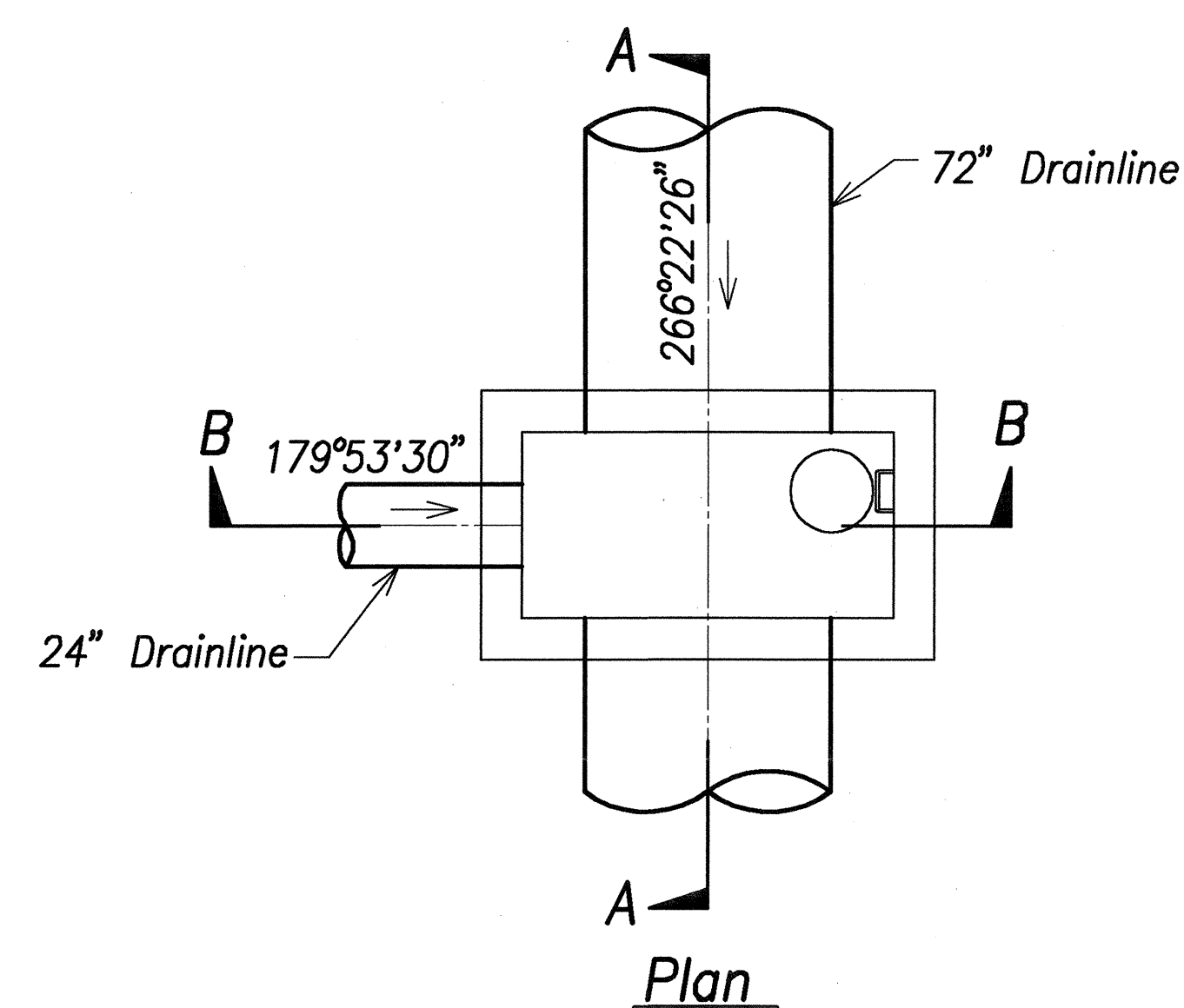
SPECIAL CATCH BASIN DETAILS

North-South Road
Phase 1B
F.A.I. Proj. No. STP-8930(2)

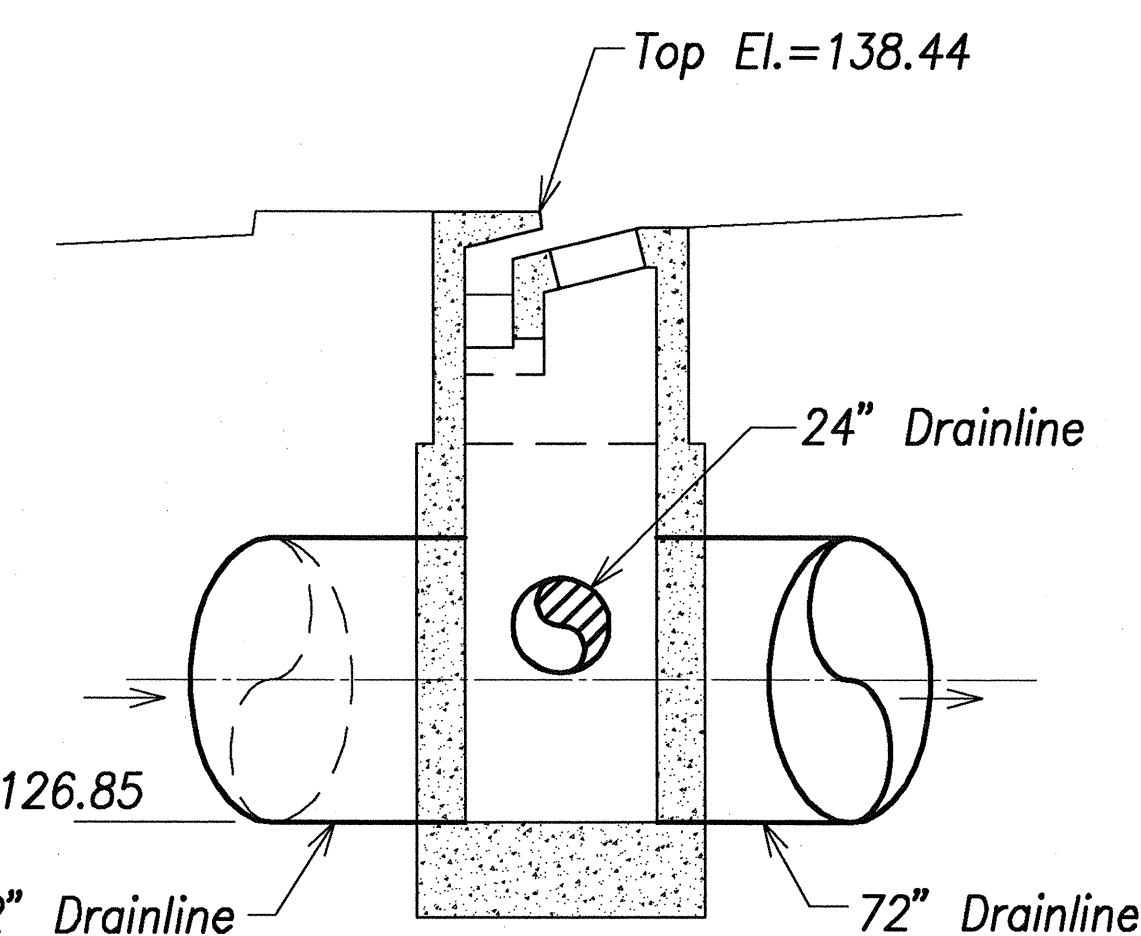
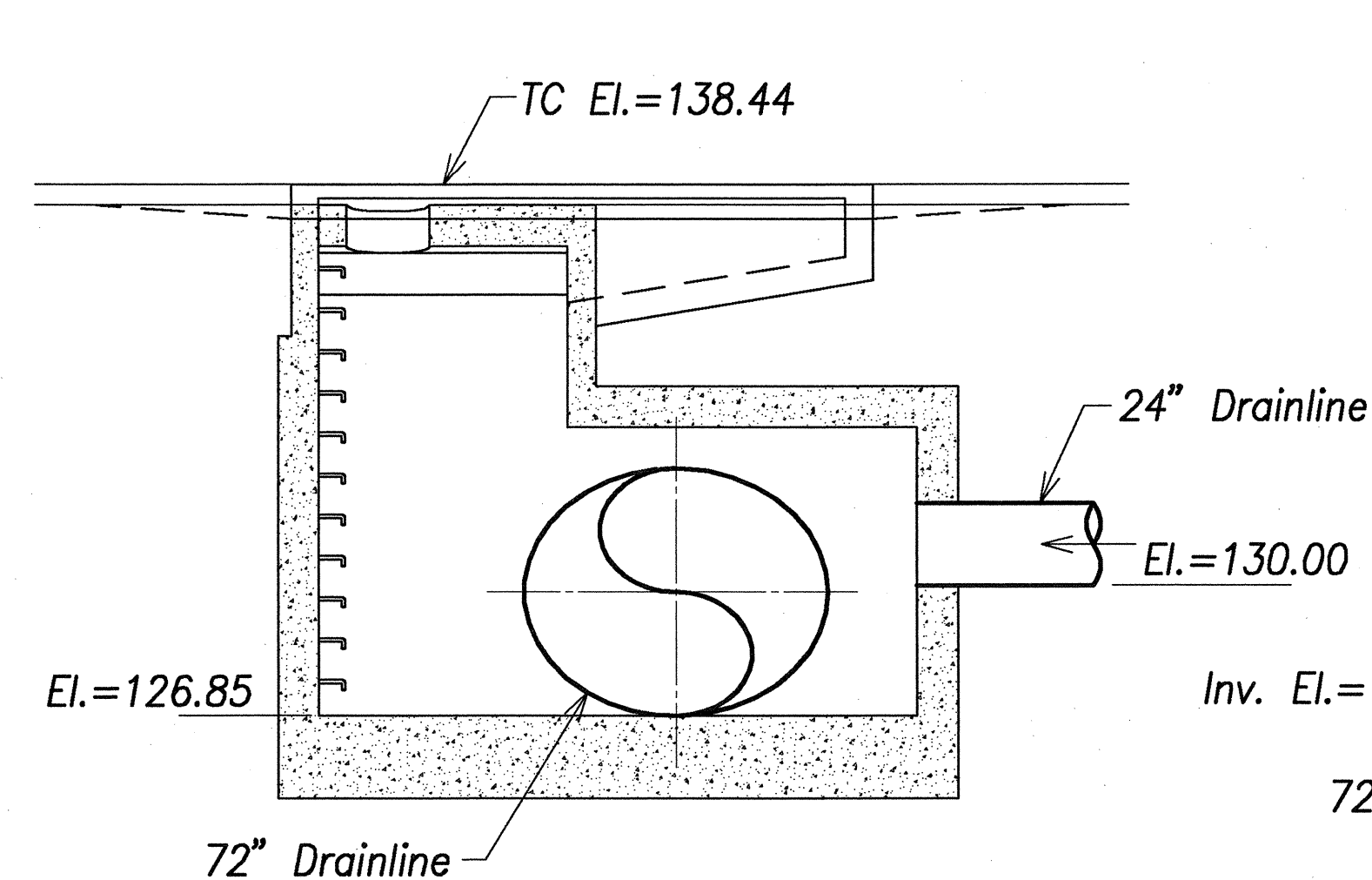
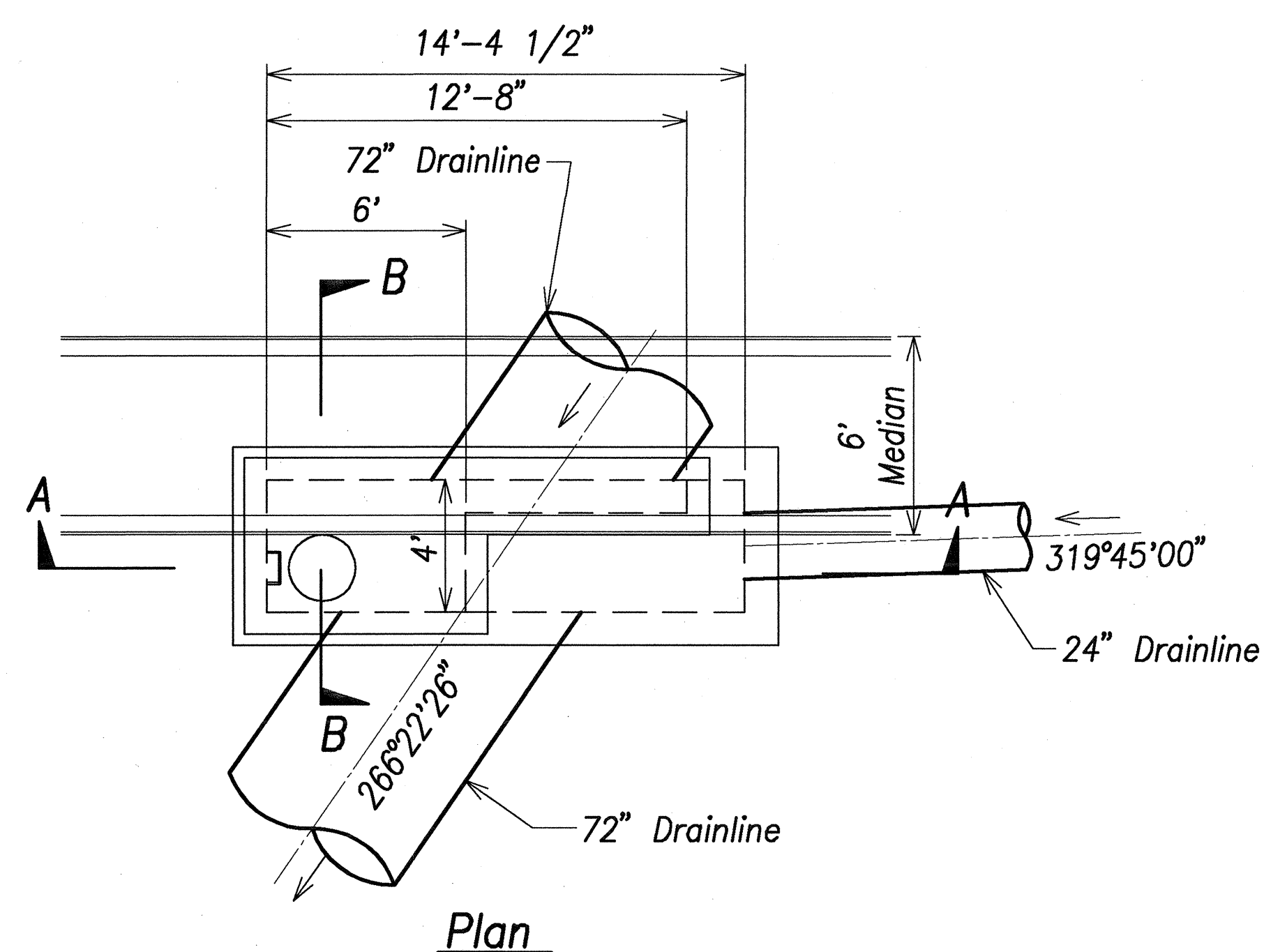
Scale: As Shown Date: Feb 21, 2007

SHEET No.C9.23 OF 150 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	136	331

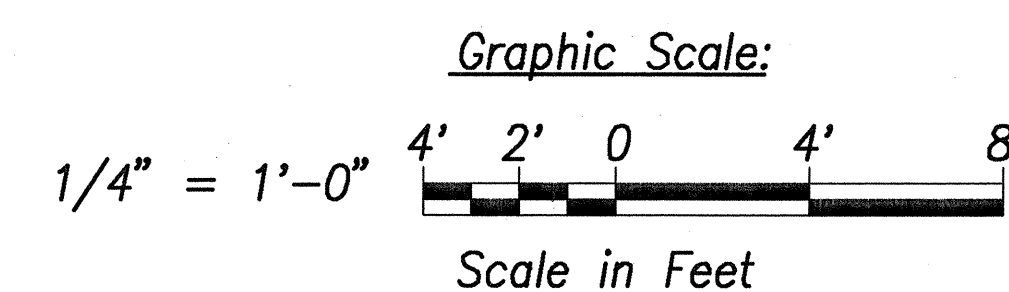


Special Drain Manhole #2
Scale: 1/4" = 1'-0"



Special Catch Basin N45
Scale: 1/4" = 1'-0"

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



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SIGNATURE DATE OF
LICENCE EXPIRY

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

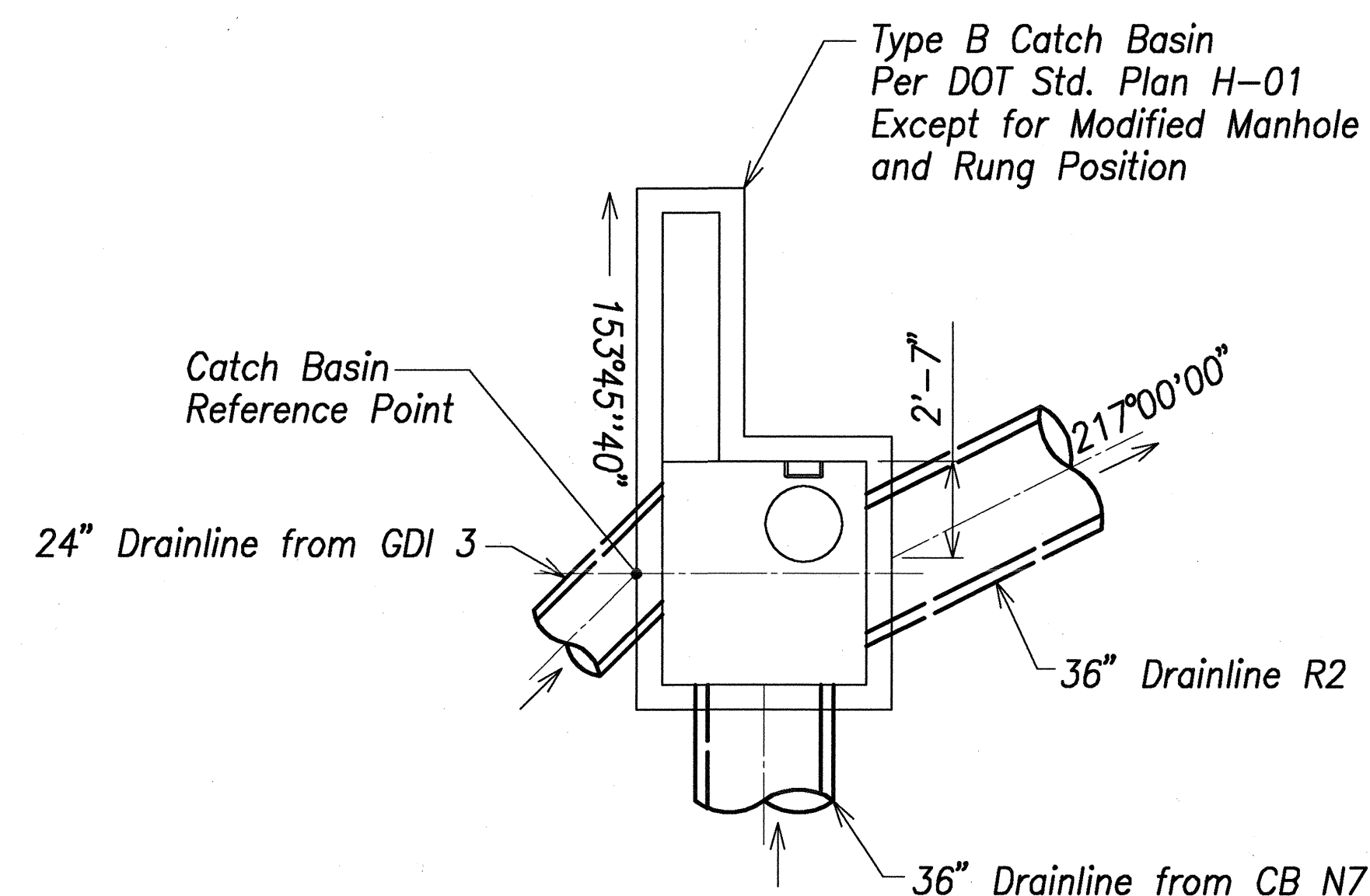
DRAIN DETAILS - 1

North-South Road
Phase 1B
F.A.I. Proj. No. STP-8930(2)

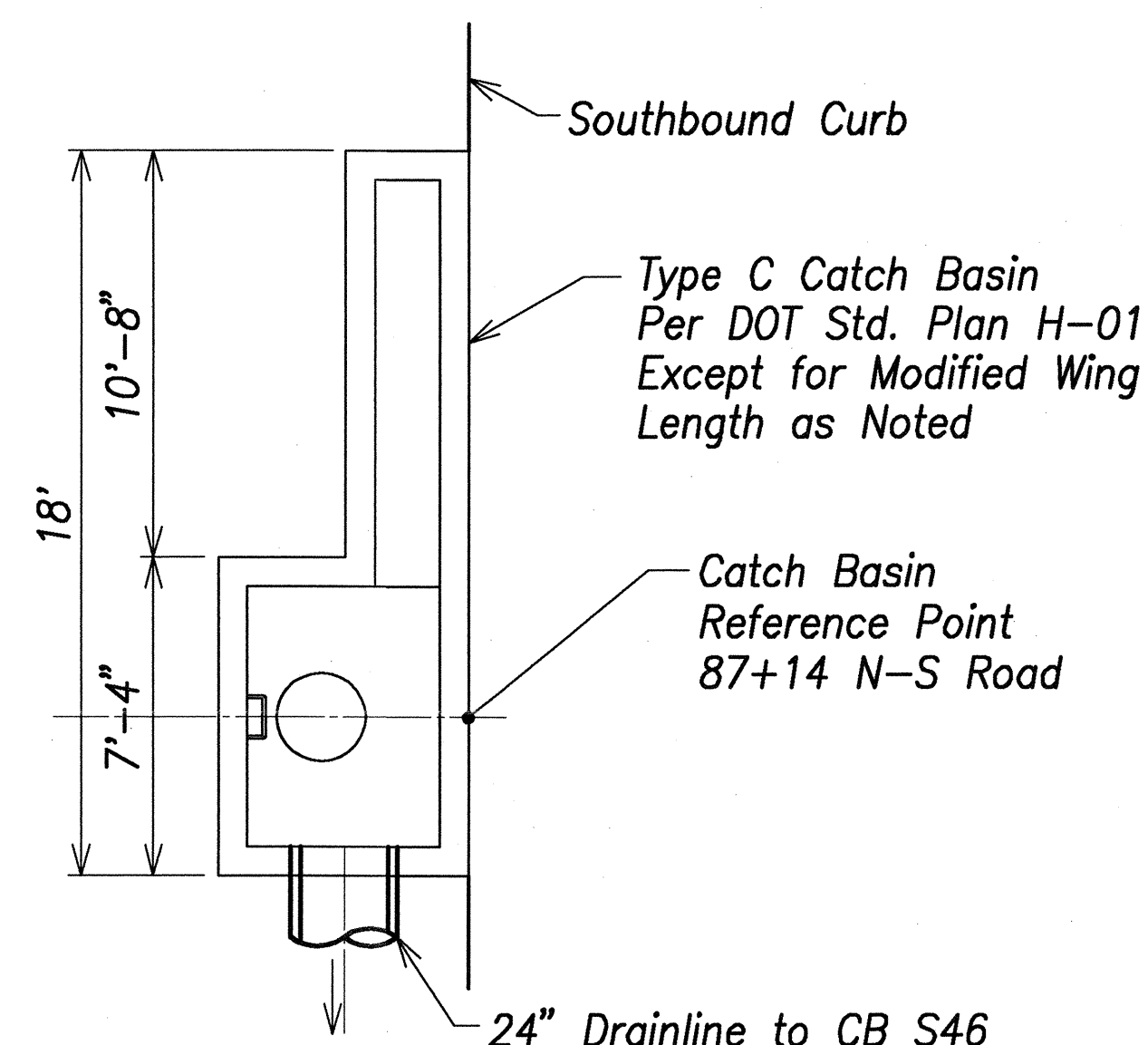
Scale: As Shown Date: Feb 21, 2007

SHEET No. C9.24 OF 150 SHEETS

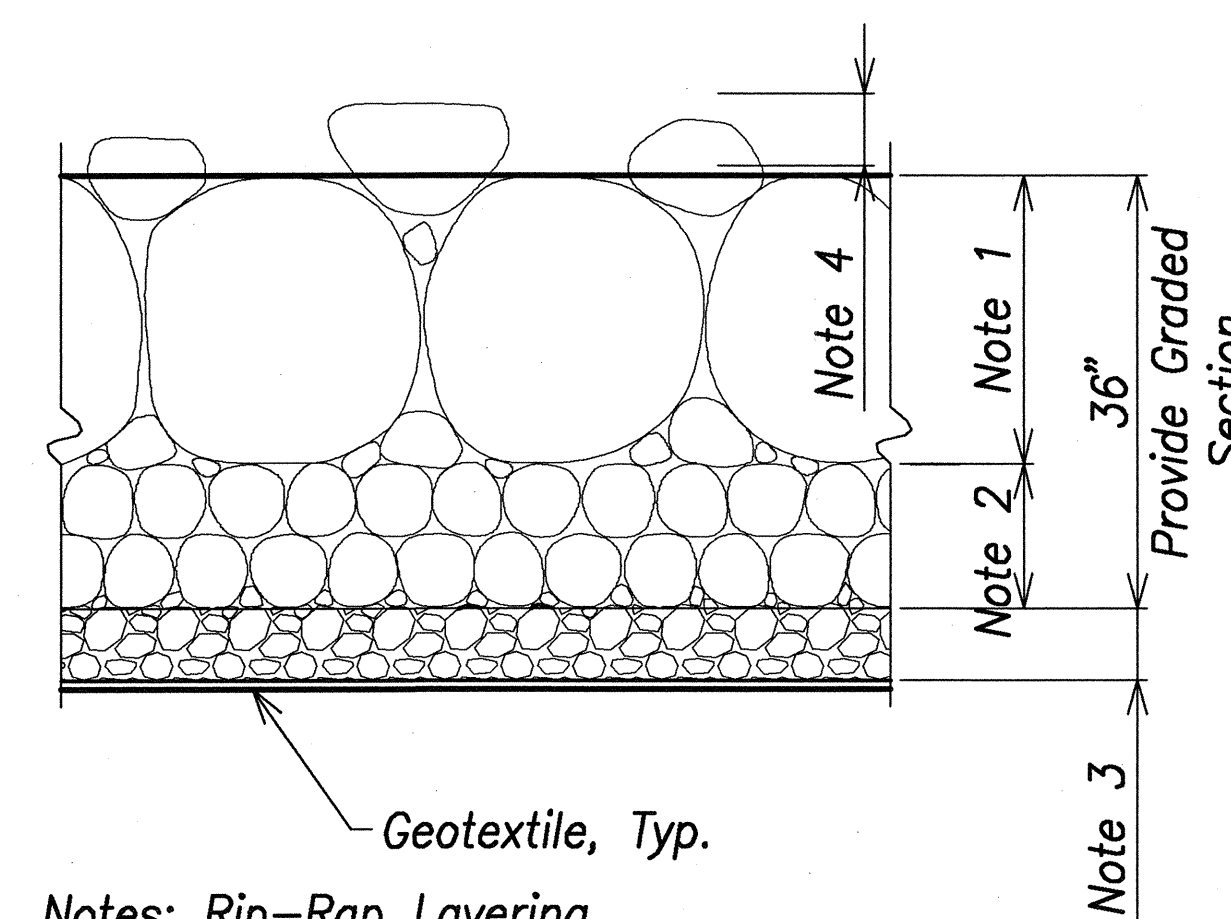
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	137	331



Catch Basin N8 (Modified)
Scale: 1/4" = 1'-0"



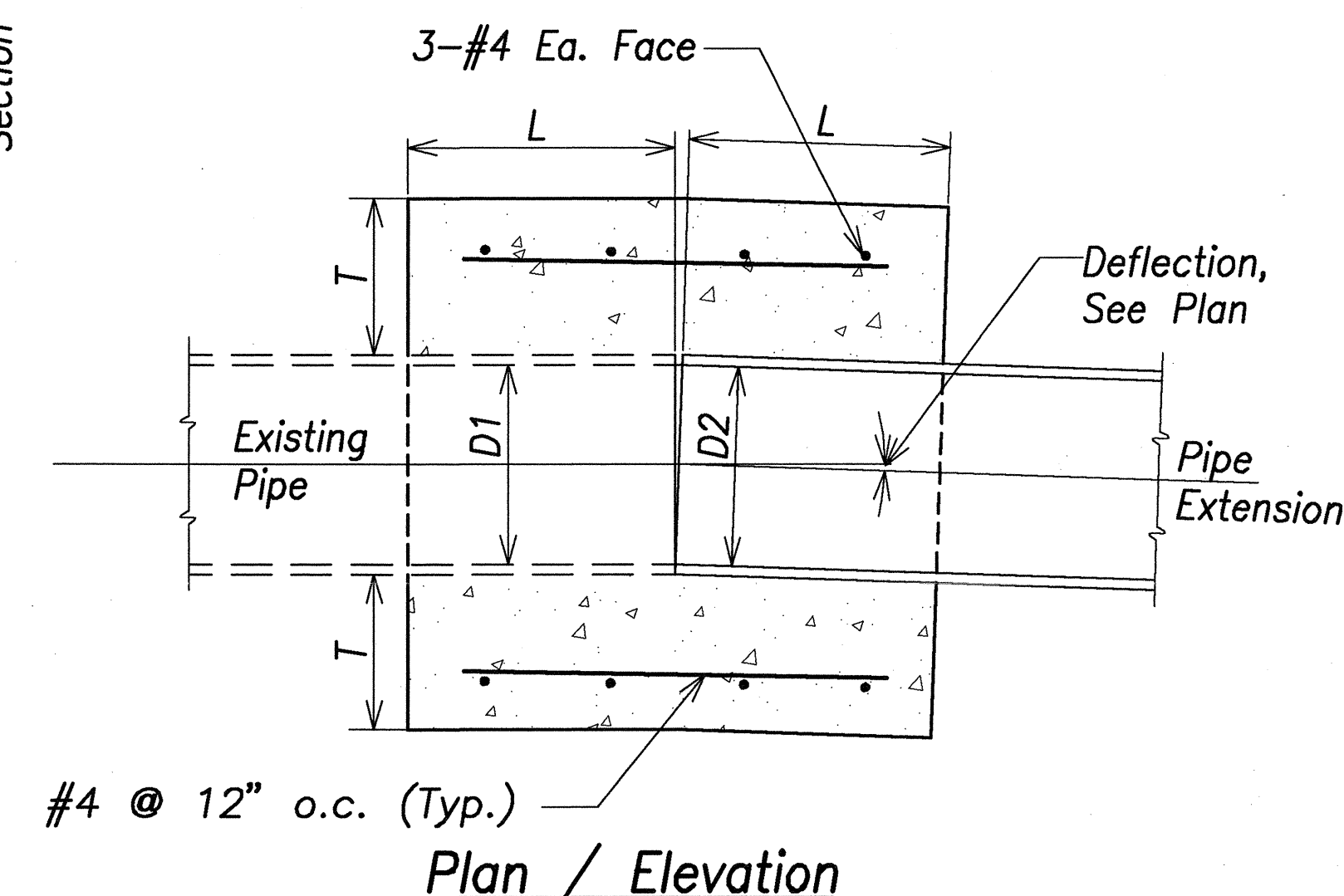
Catch Basin S47 (Modified)
Scale: 1/4" = 1'-0"



Notes: Rip-Rap Layering

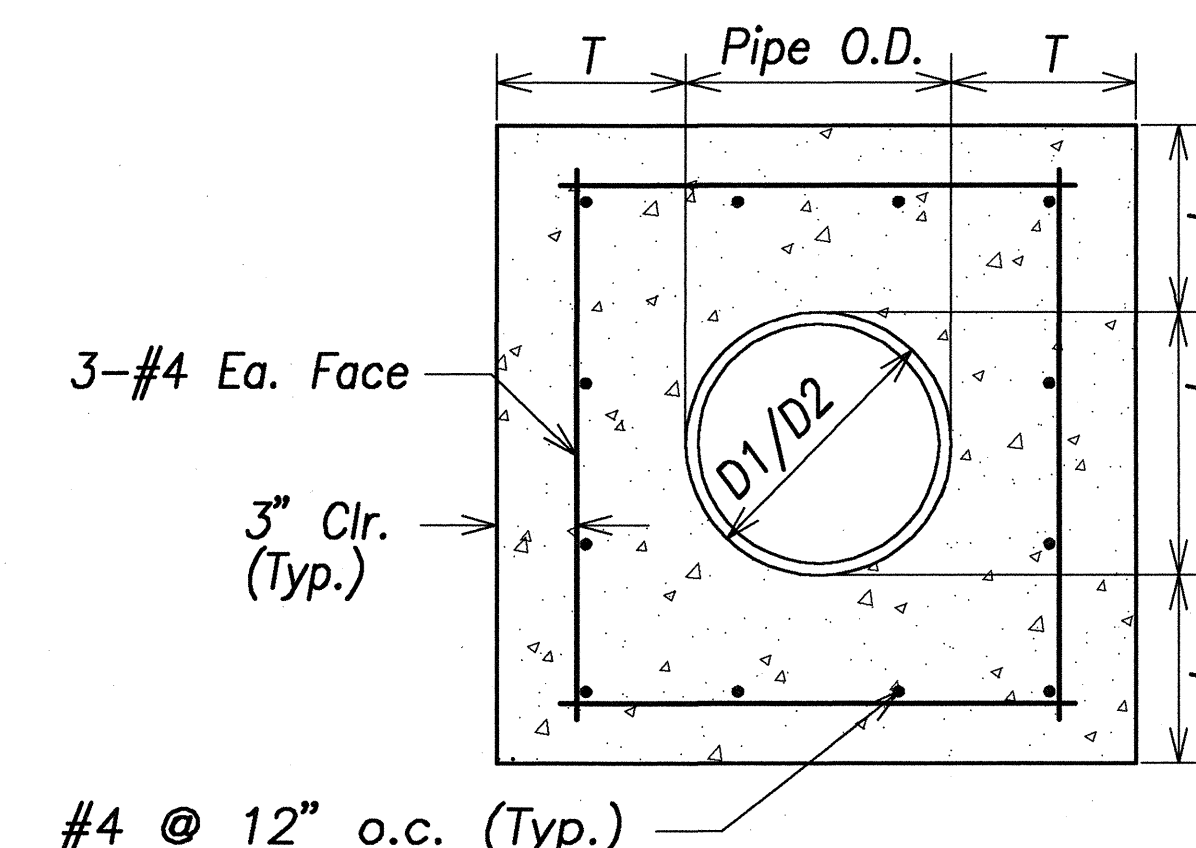
1. Upper 24" Layer: 8"-9" Average Stone Size 24" Maximum Stone Size
2. Mid 12" Layer: 6" Min. to 12" Max. Stone Size
3. Lower 6" Layer: Stone Filter Bed 3/4" to 2" Rocks.
4. 6" Max. From Highest Adjacent Rock Finish Top.

Rip-Rap Detail
Not to Scale



#4 @ 12" o.c. (Typ.)

Plan / Elevation



#4 @ 12" o.c. (Typ.)

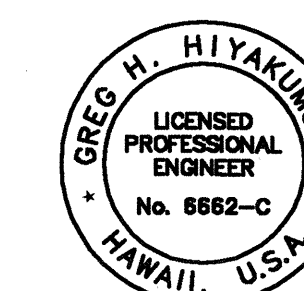
Section

D	L	T
24"	12"	6"
36"	18"	8"
48"	18"	10"

Concrete Collar
Not to Scale

Notes:

1. Where pipes of different diameters are joined with a concrete collar, L and T shall be of those of the larger pipe D=D1 or D2 whichever is greater.
2. Join pipes at Inverts.
3. Reinforcement shall be placed 1-1/2" clear from outside diameter of pipe.



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DATE OF LICENSE EXPIRY: APR 30, 2008

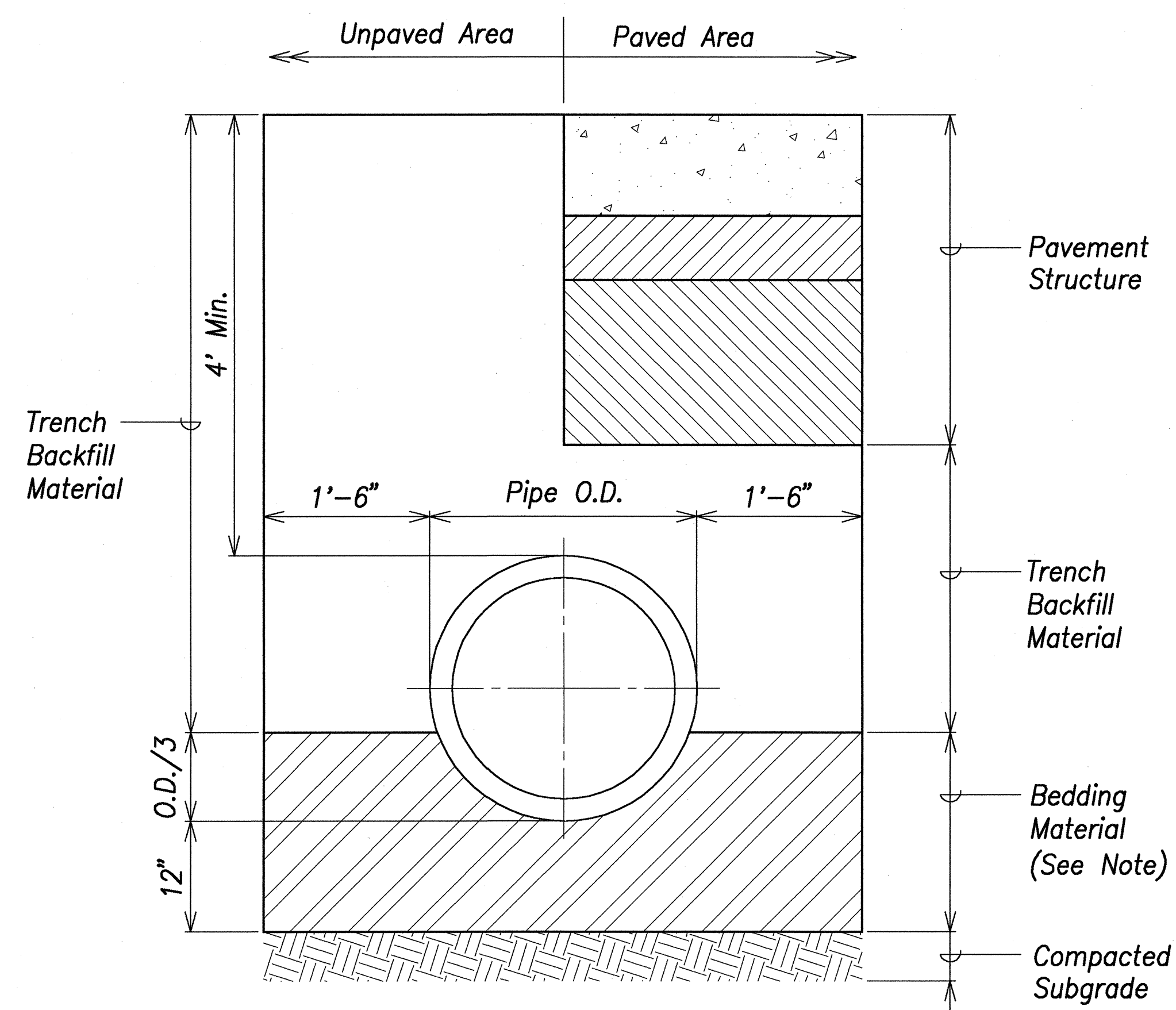
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAIN DETAILS - 2

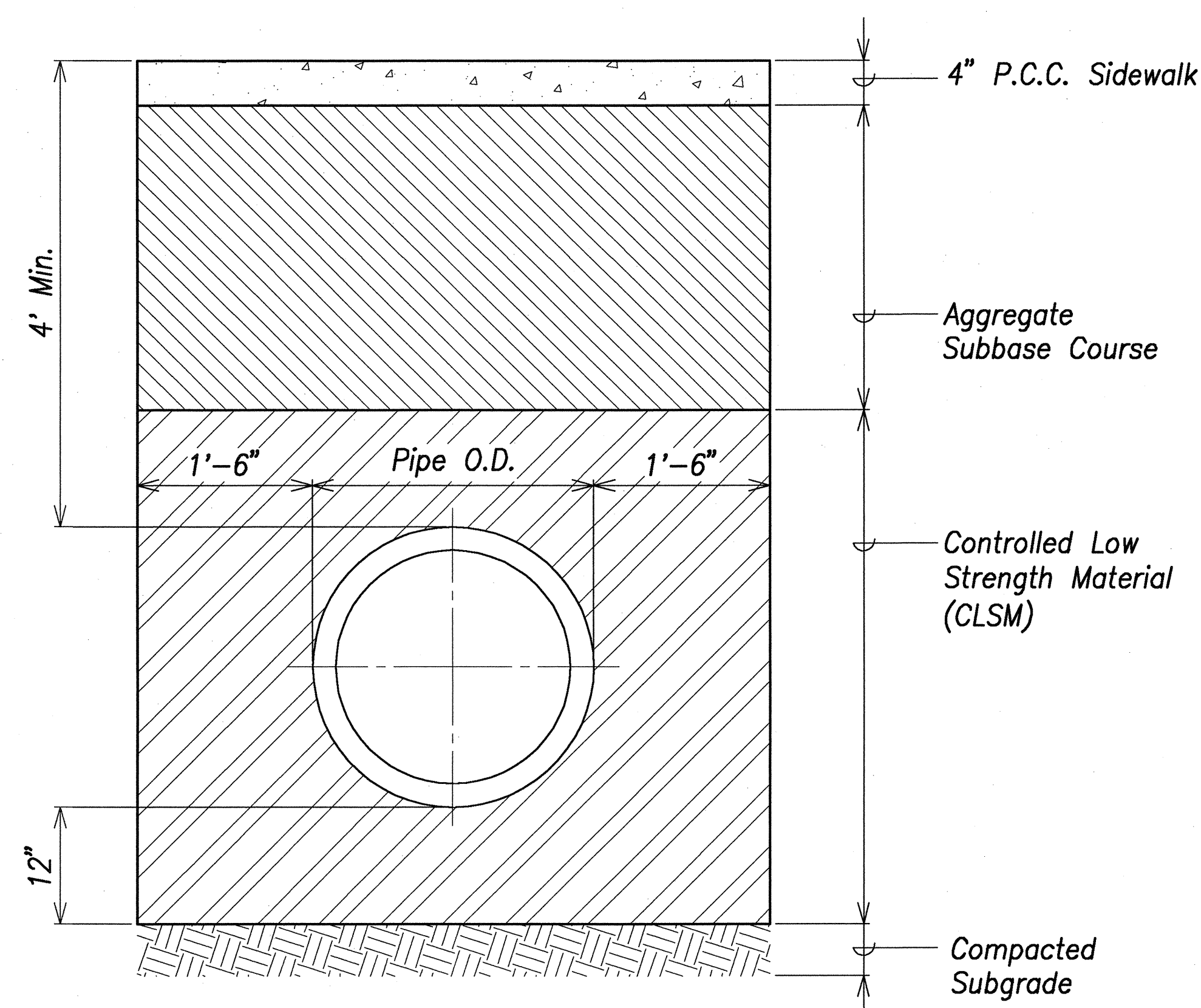
North-South Road
Phase 1B
F.A.I. Proj. No. STP-8930(2)

Scale: As Shown Date: Feb 21, 2007

SHEET No.C9.25 OF 150 SHEETS



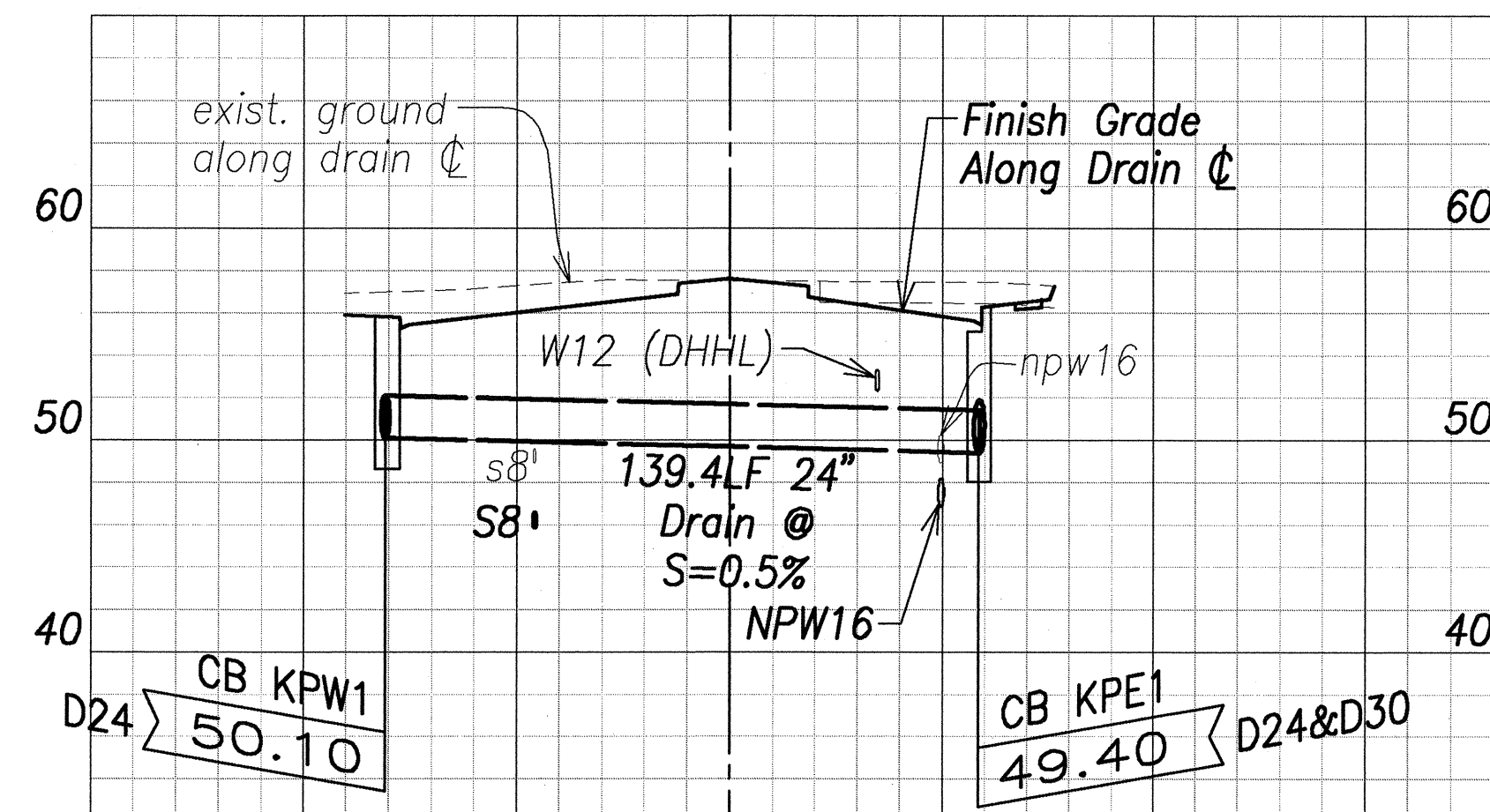
Drain Pipe Trenching Detail
Not to Scale



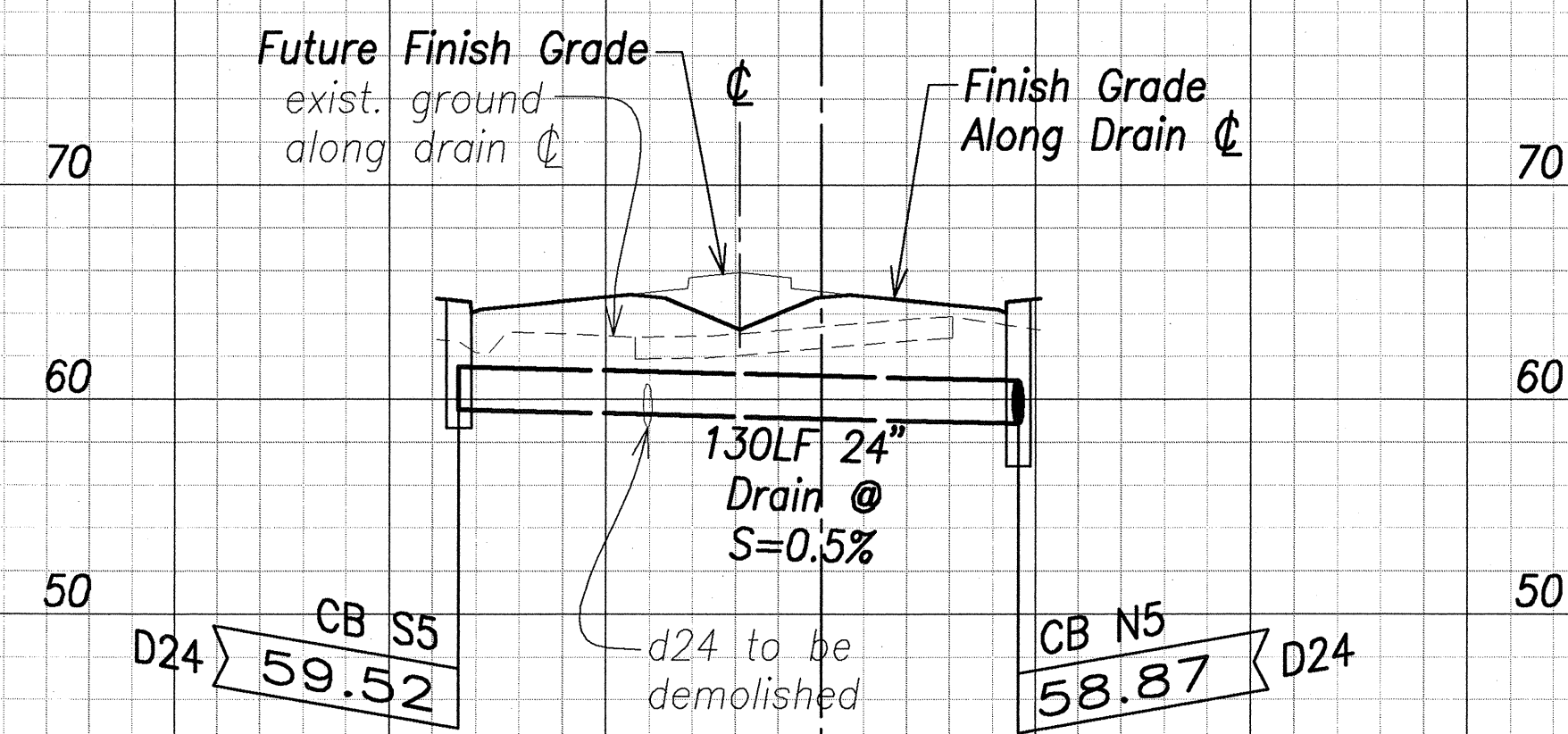
Drain Pipe Trenching Detail
(For Pipe Around Light Standards)
Not to Scale

SURVEY PLOTTED BY	DATE
DESIGNED BY	
NOTED BY	
CHECKED BY	
NO.	

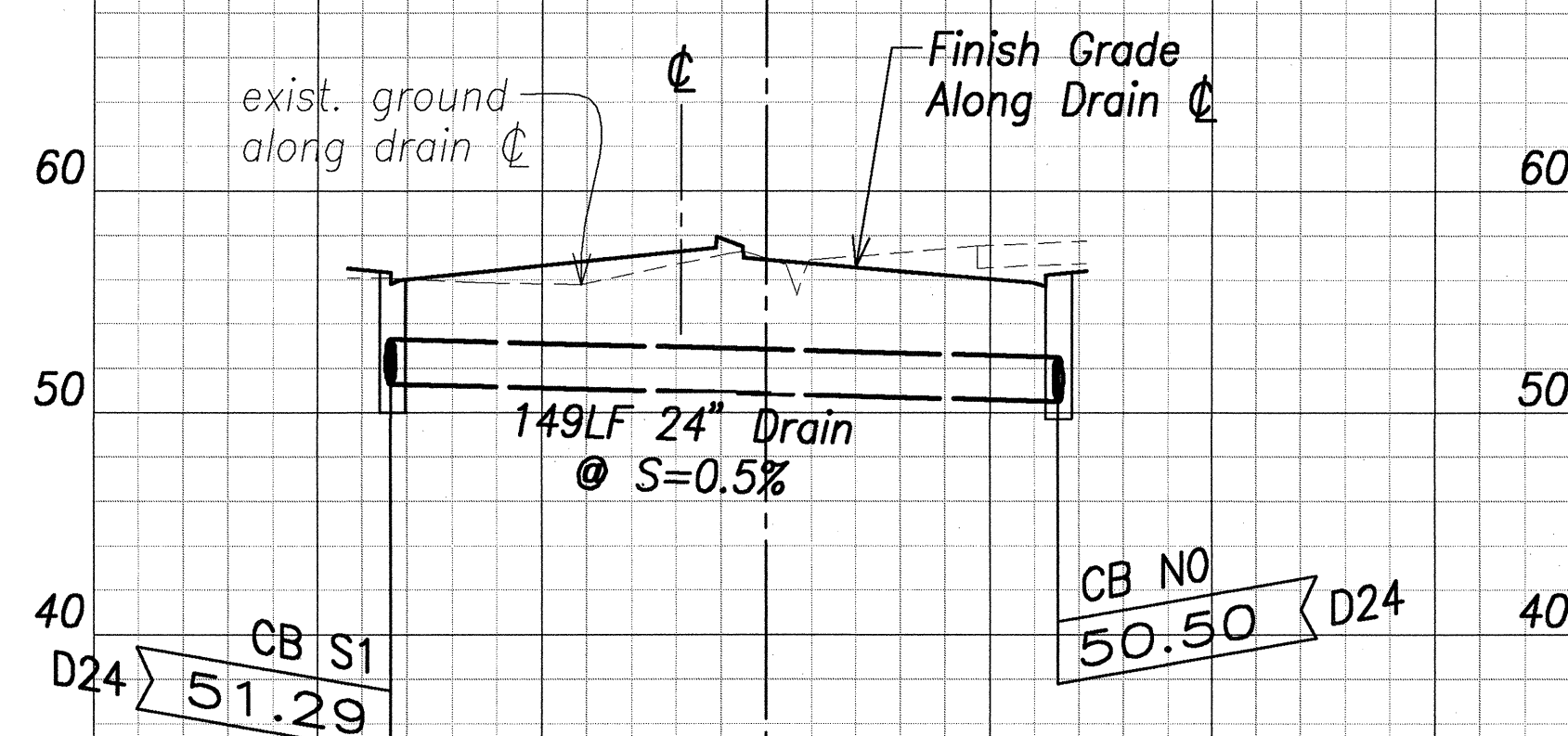
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	138	331



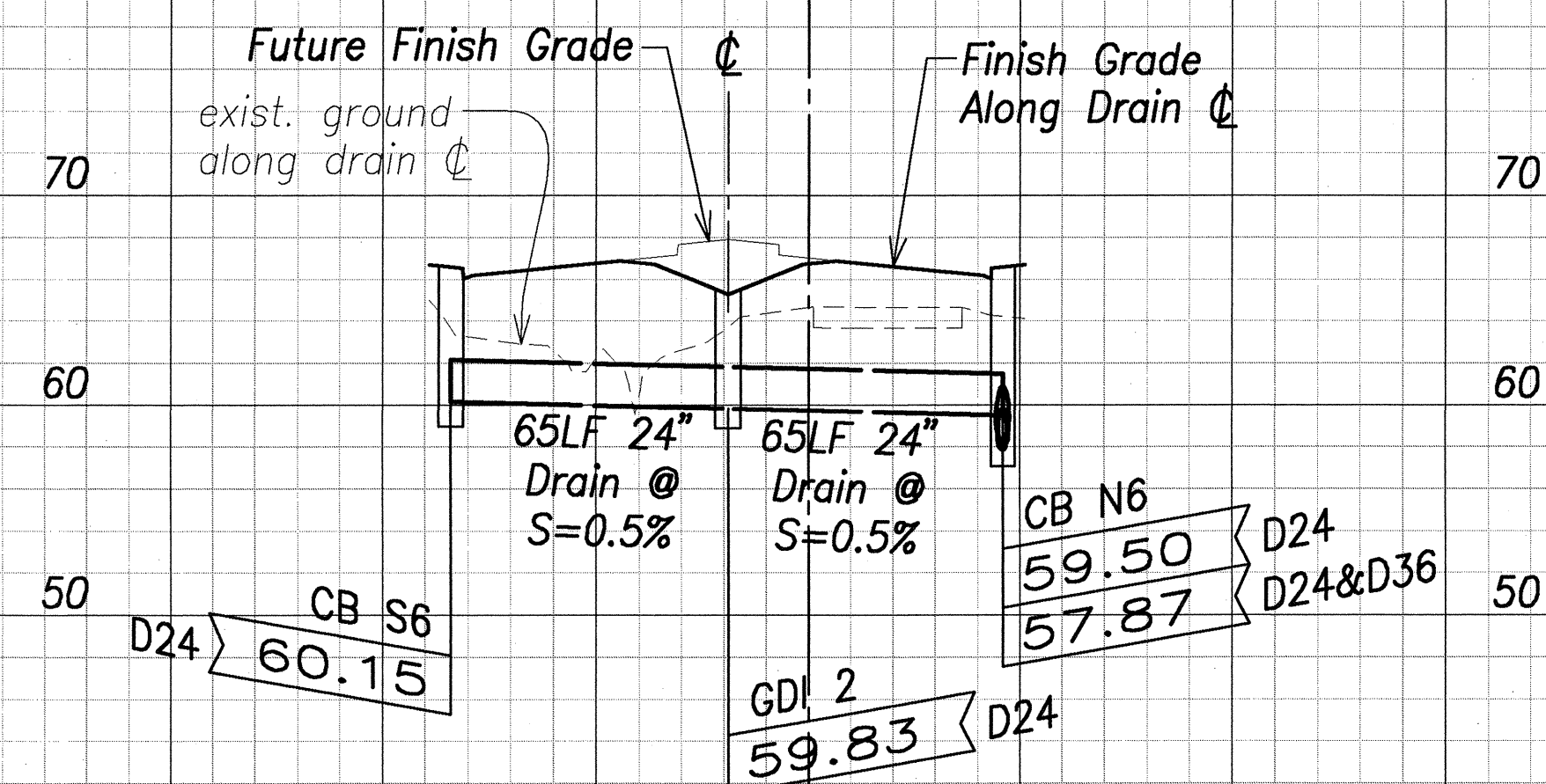
Sta. 130+93 Kapolei Parkway



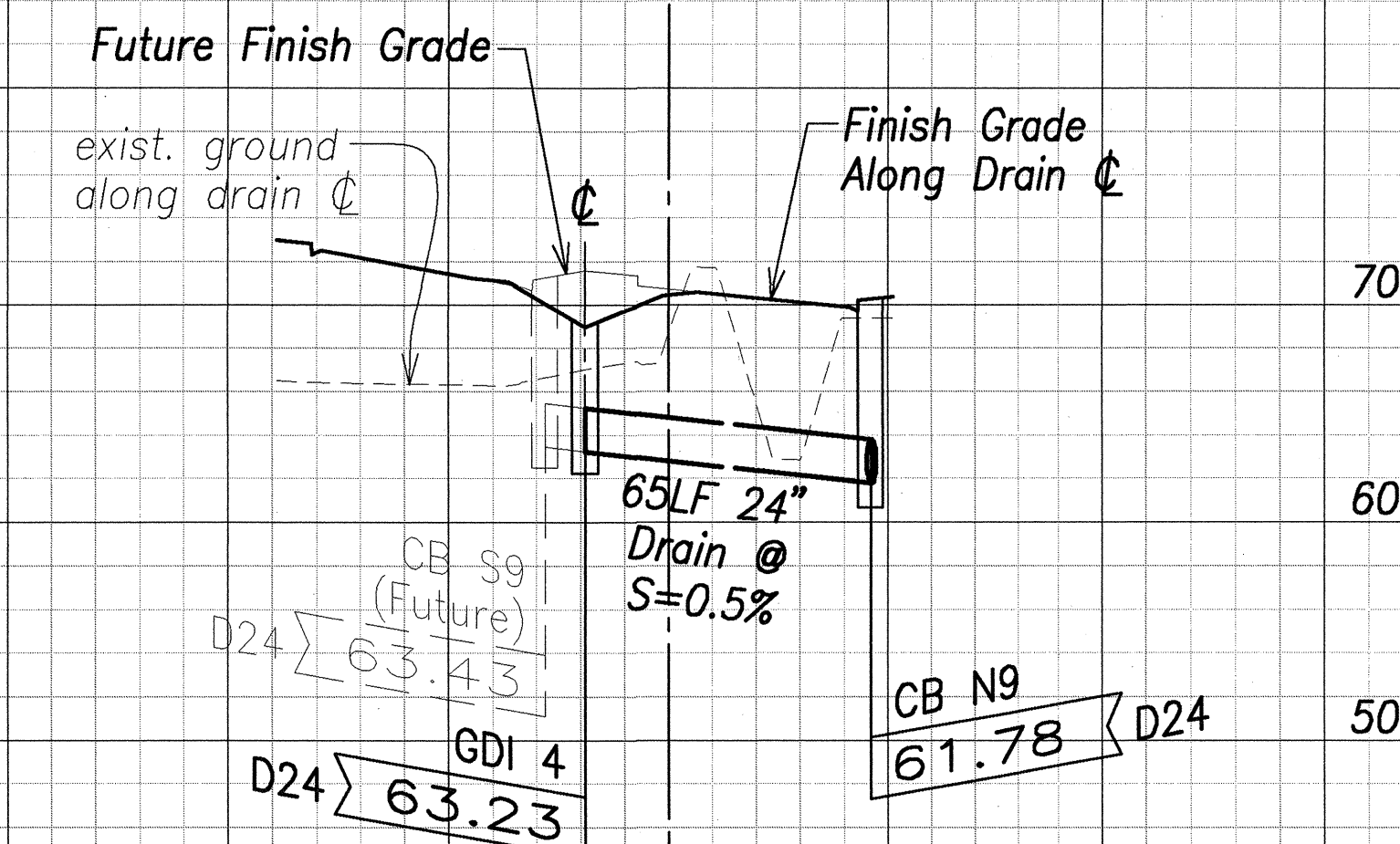
Sta. 9+20 North-South Rd.



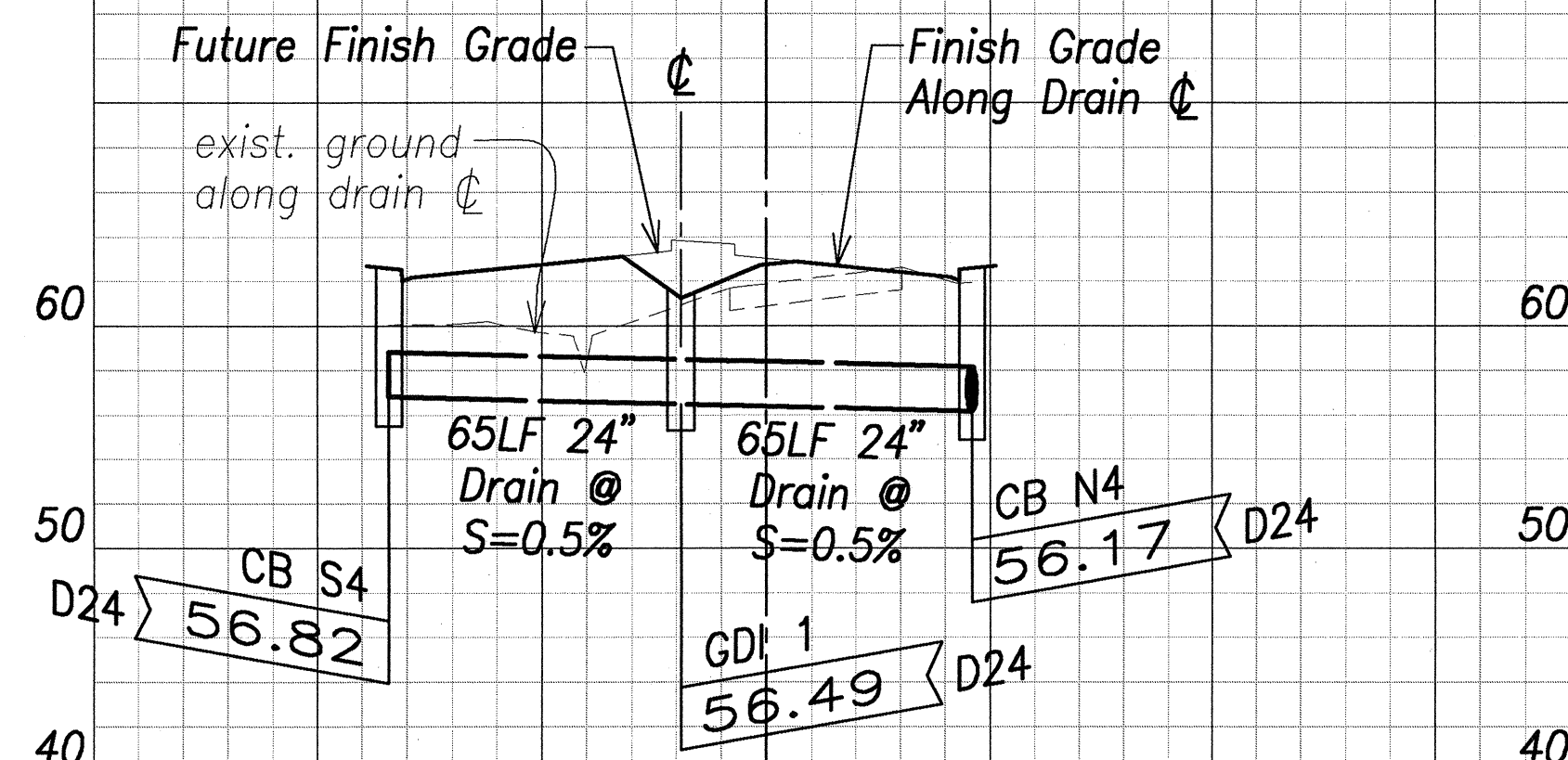
Sta. 1+05.6 North-South Rd.



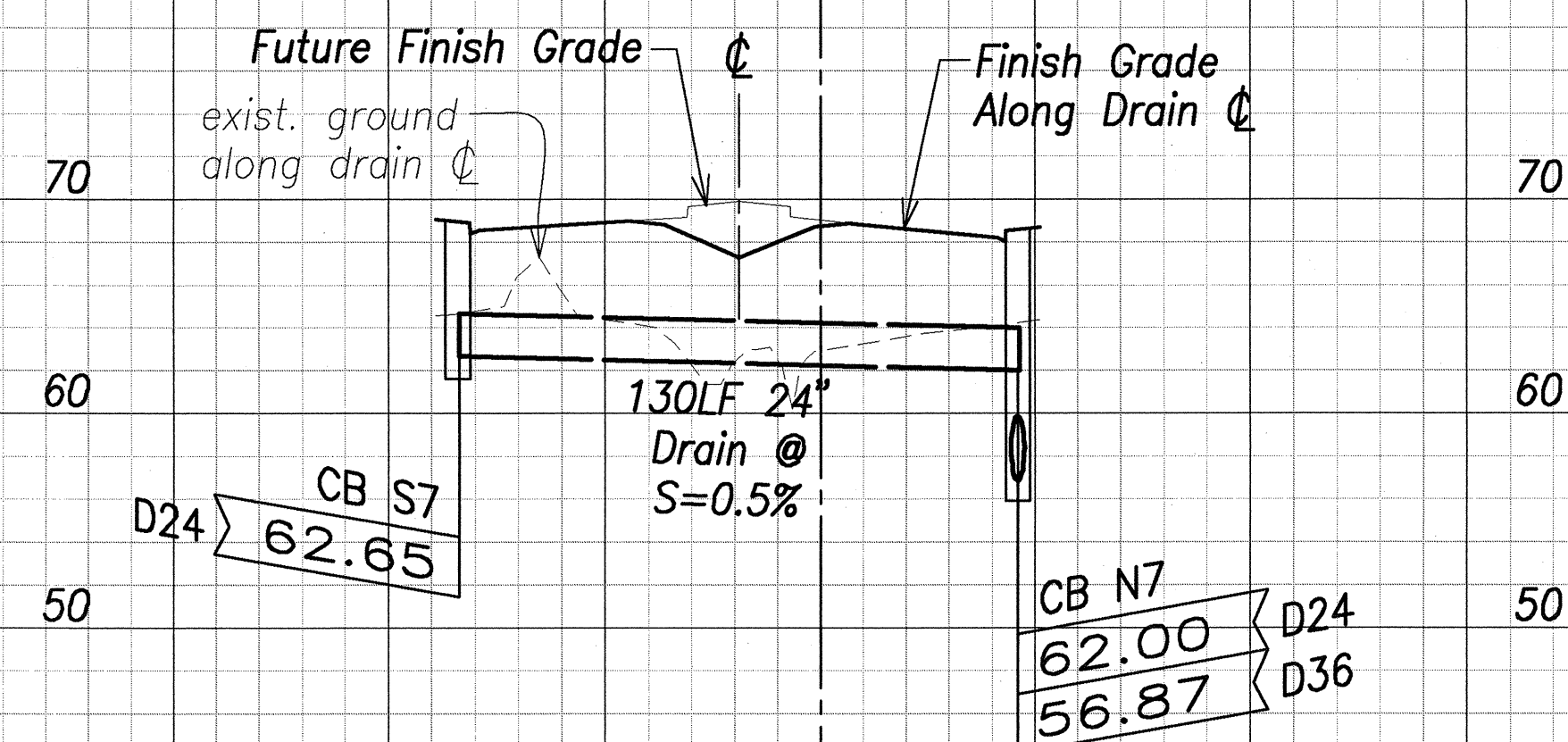
Sta. 11+20 North-South Rd.



Sta. 17+50 North-South Rd.

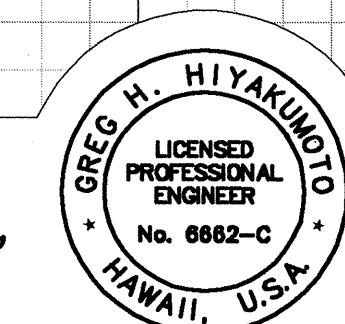
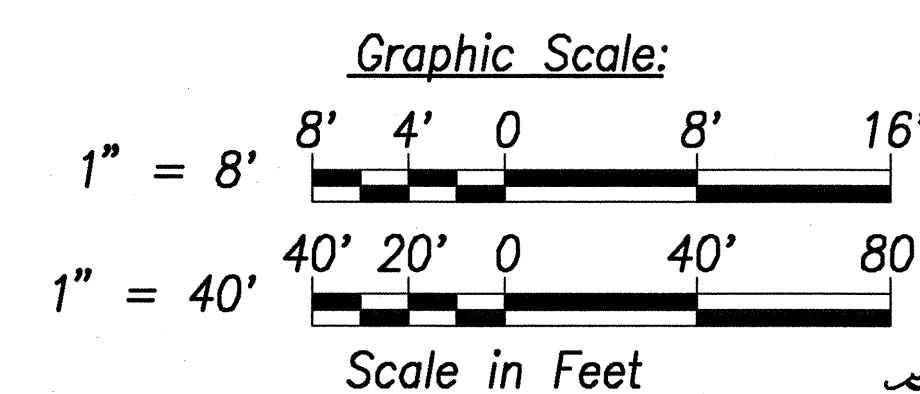


Sta. 7+20 North-South Rd.



Sta. 13+20 North-South Rd.

SURVEY PLOTTED BY	DATE
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DATE OF LICENSE EXPIRY
APR 30, 2008

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

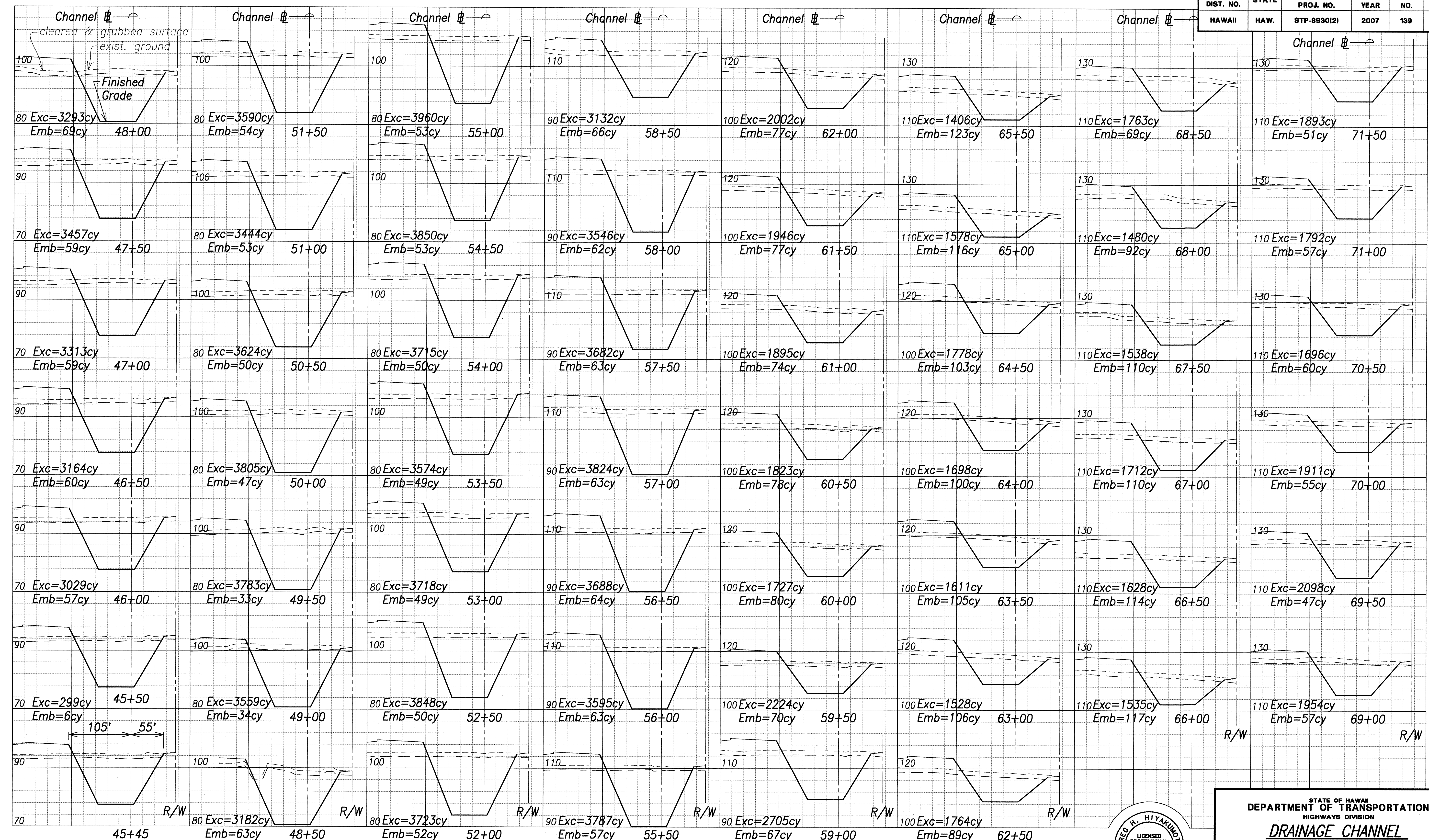
CROSSDRAIN PROFILES

North-South Road
Phase 1B
F.A.I. Proj. No. STP-8930(2)

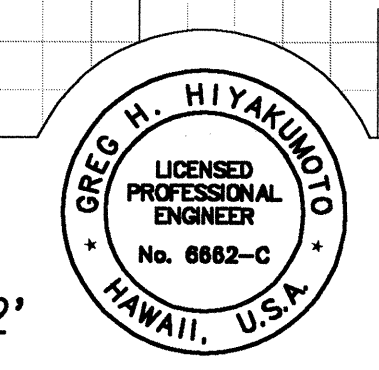
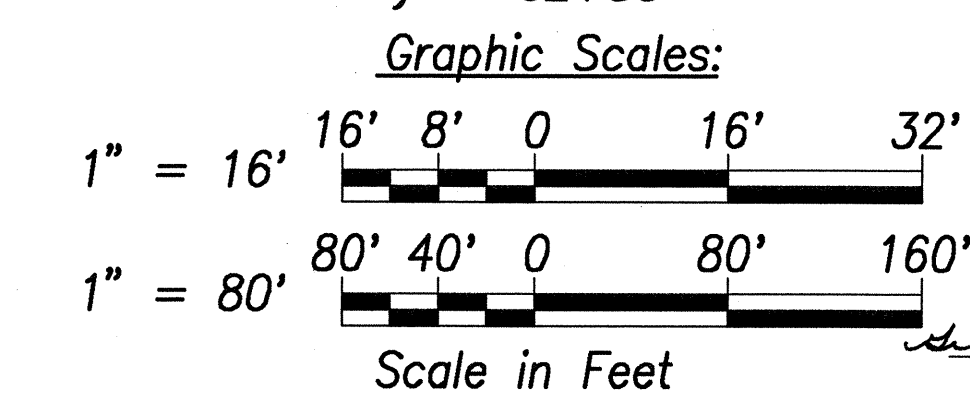
Scale: As Shown Date: Feb 21, 2007

SHEET No. C9.26 OF 150 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	139	331

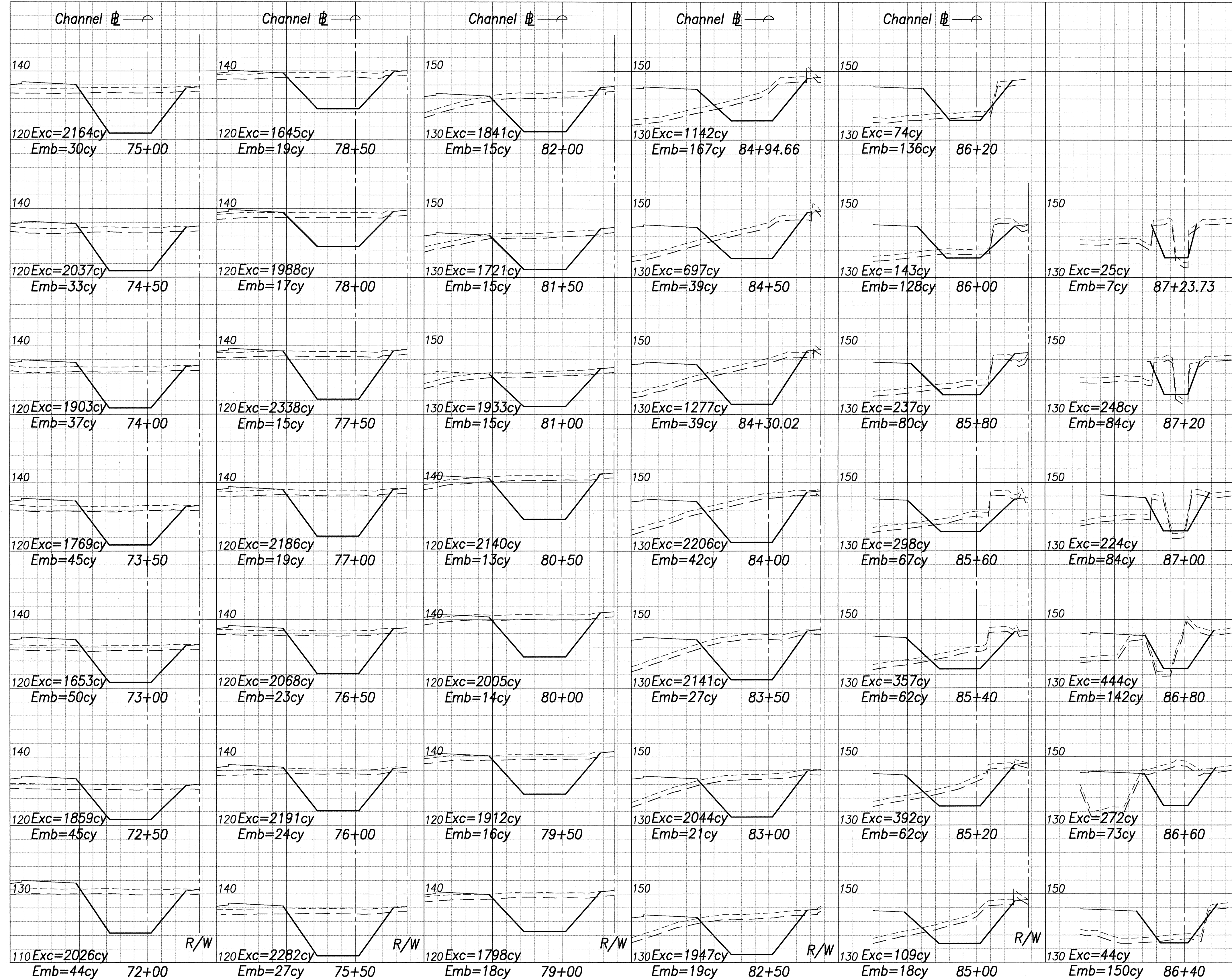


SURVEY PLOTTED BY: _____ DATE: _____
 DRAWN BY: _____
 CHECKED BY: _____
 ORIGINAL PLAN: _____
 NOTE BOOK: _____
 No. _____

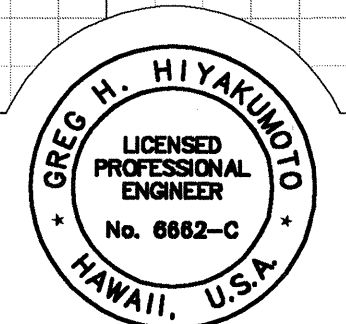
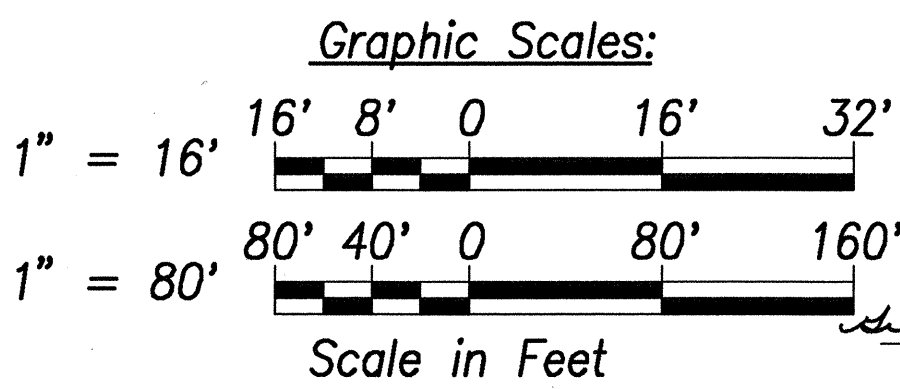


STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
DRAINAGE CHANNEL
CROSS SECTIONS - 1
 North-South Road
 Phase 1B
 F.A.I. Proj. No. STP-8930(2)
 Date: Feb 21, 2007
 SHEET No. C9.27 OF 150 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-8930(2)	2007	140	331



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



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE CHANNEL
CROSS SECTIONS - 2
North-South Road
Phase 1B
F.A.I. Proj. No. STP-8930(2)

Date: Feb 21, 2007

SHEET No. C9.28 OF 150 SHEETS