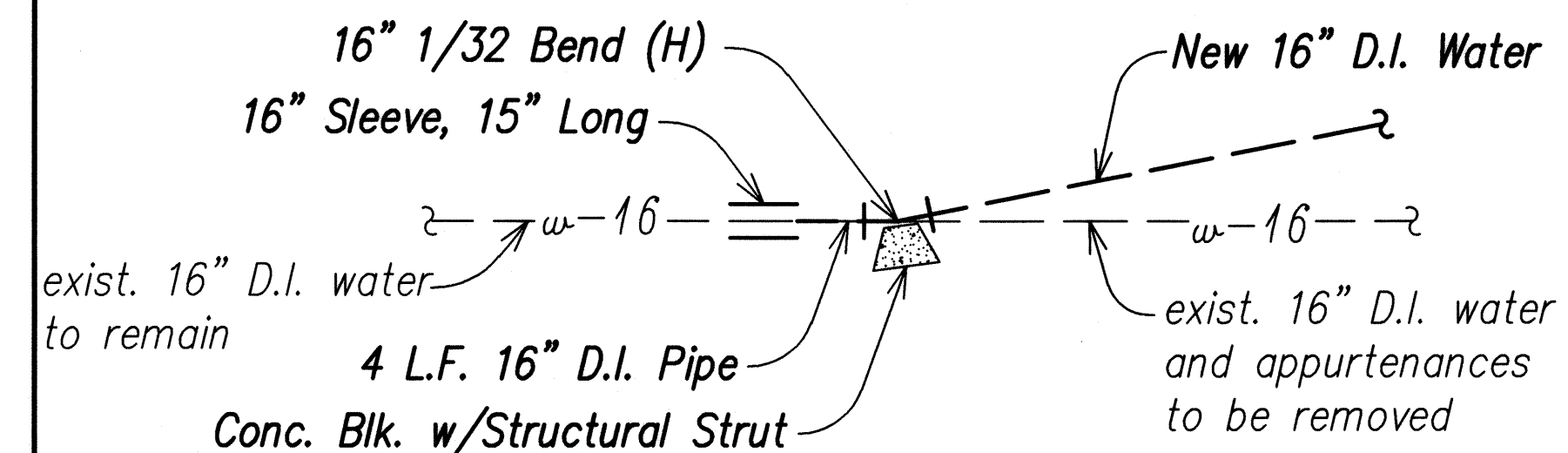
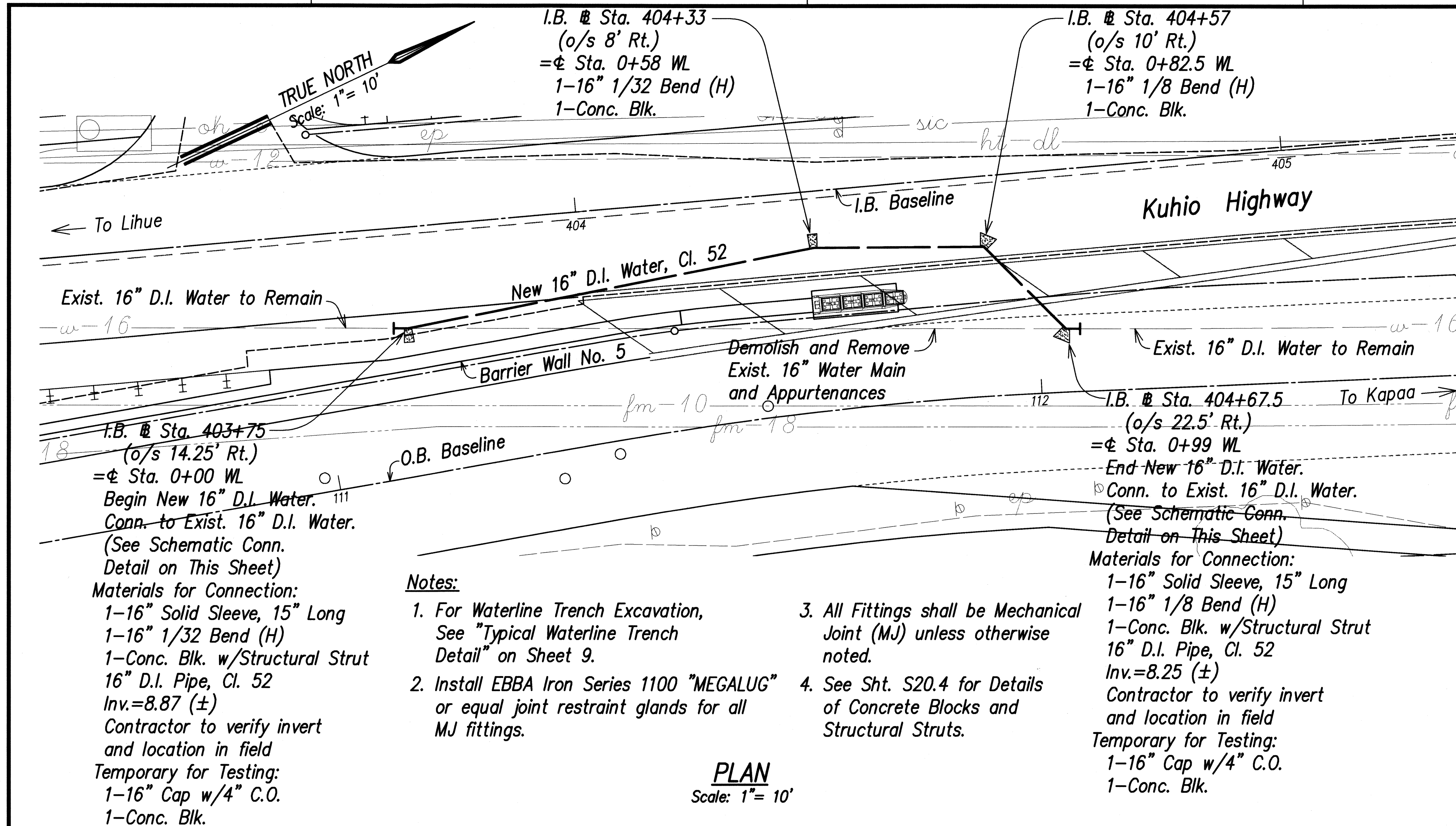
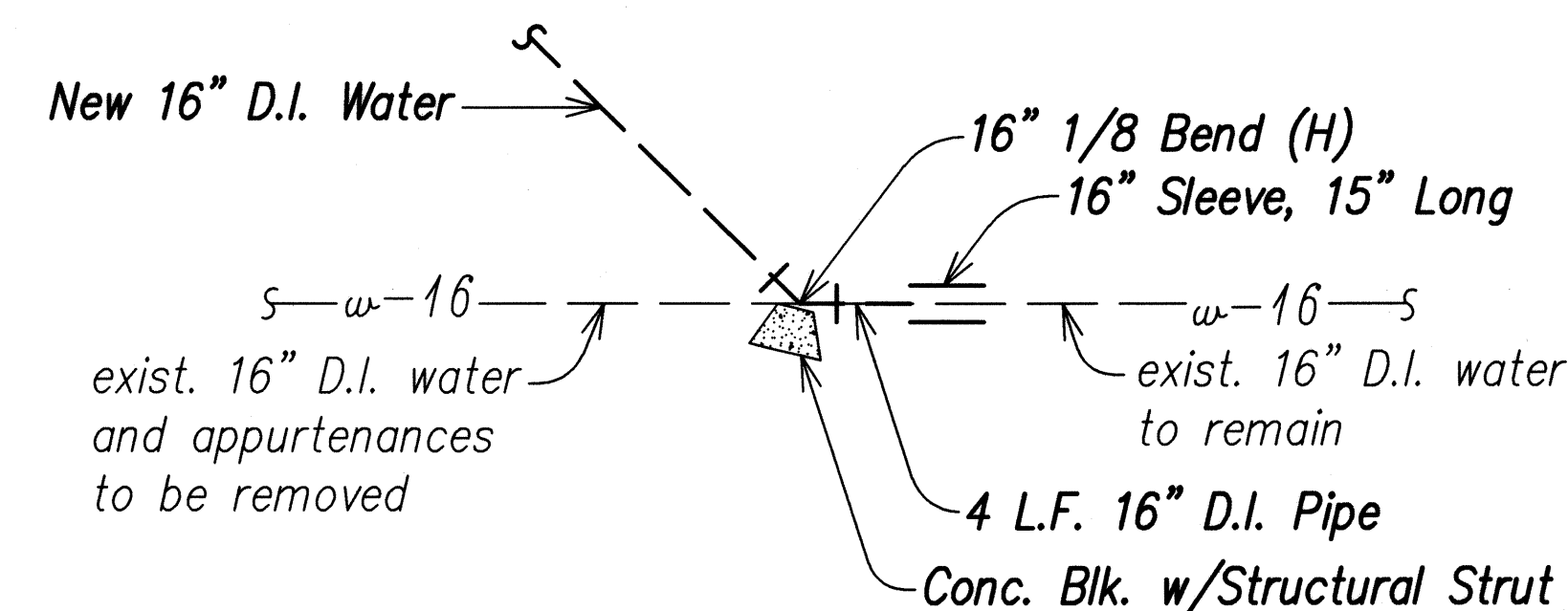


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-056-1(51)	2008	57	284



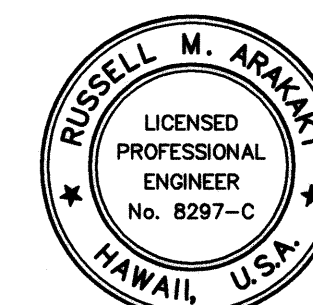
SCHEMATIC CONNECTION
@ Sta. 403+75 = Sta. 0+00 WL-A
SCALE: 1" = 10'



SCHEMATIC CONNECTION
@ Sta. 404+67.5 = Sta. 0+99 WL-A
SCALE: 1" = 10'

APPROVED:

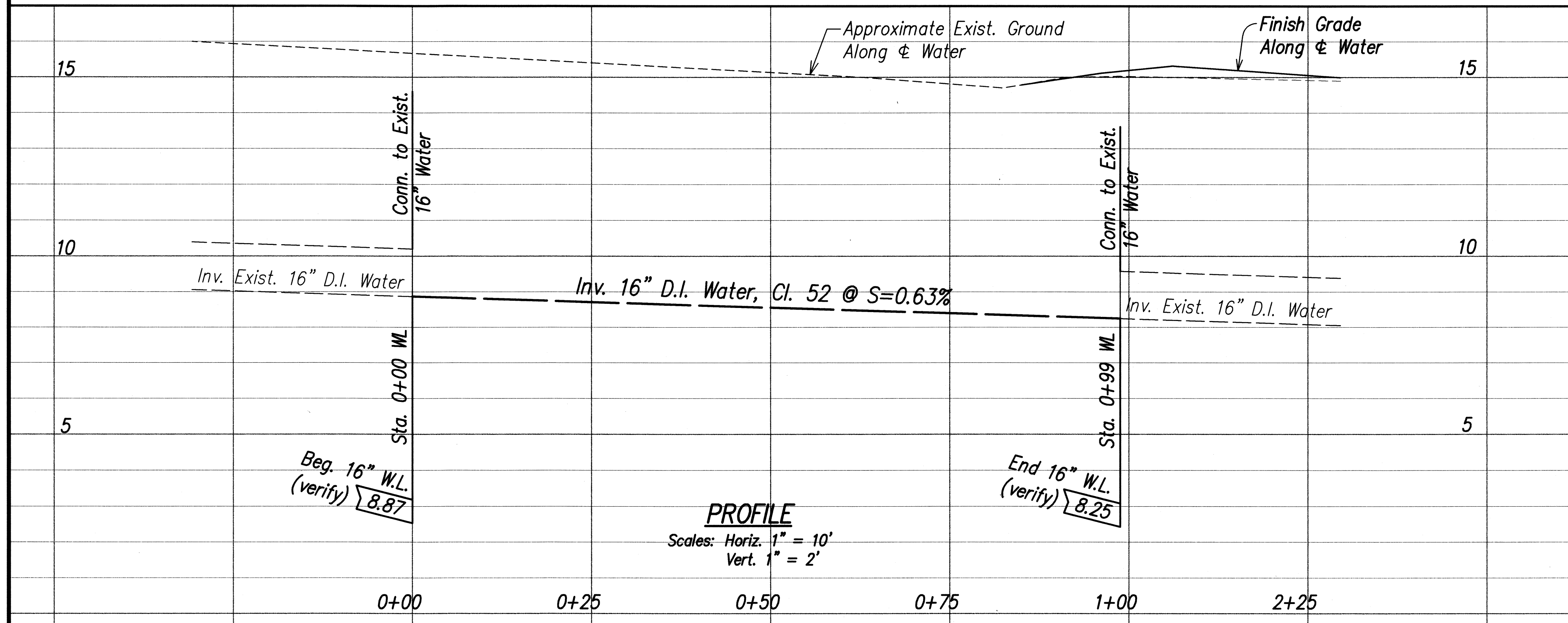
Bruce Inoué 5/16/08
for Manager and Chief Engineer Date
Dept. of Water, County of Kauai

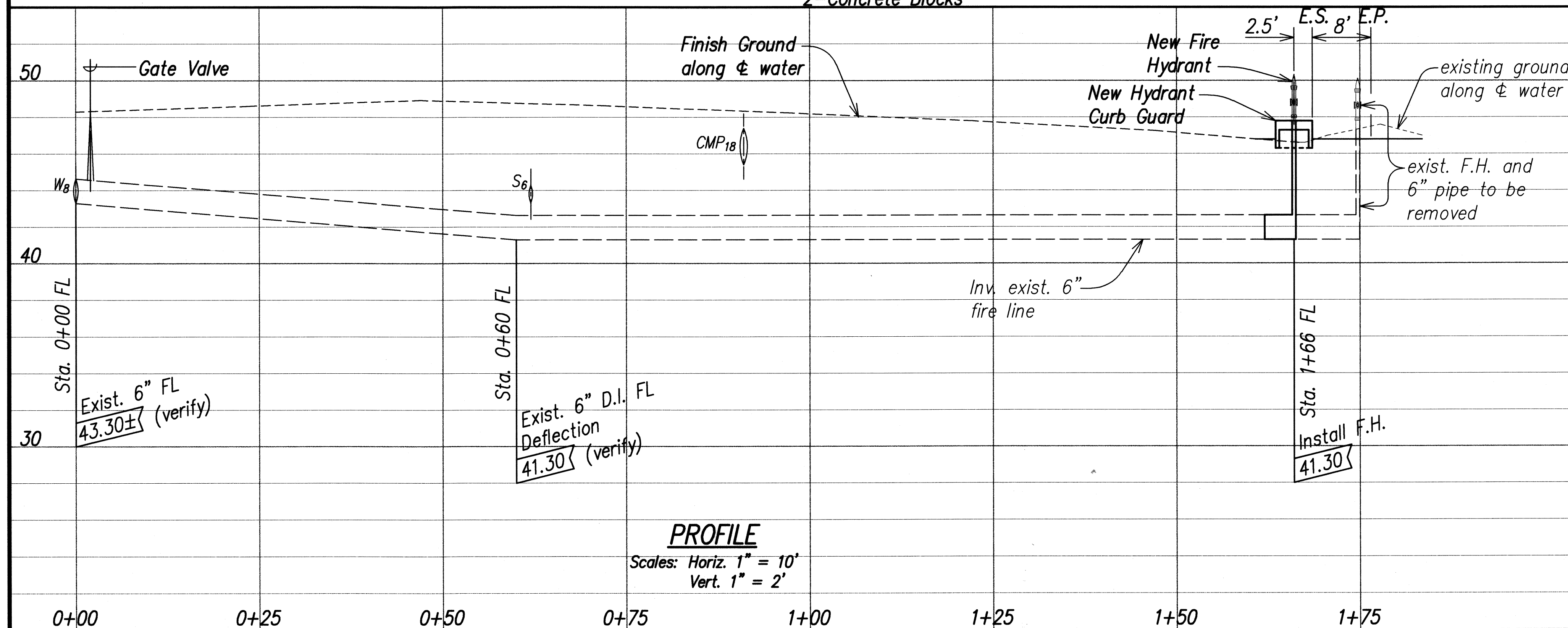
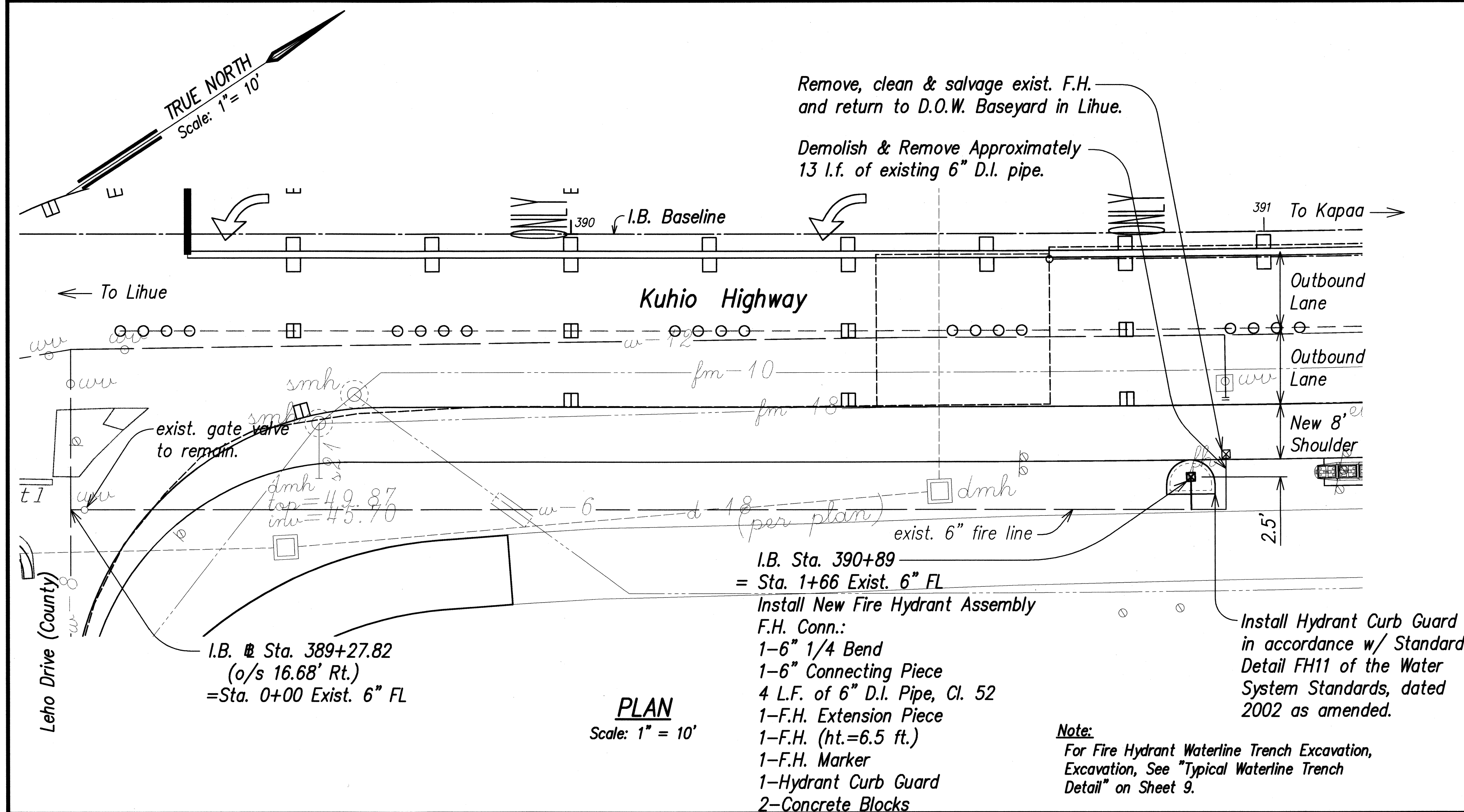


THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION
Russell M. Araki
P.E., Inc.
400 PARK ENGINEERING
LICENSE EXPIRES 4-30-10

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
RELOCATION OF 16" WATER LINE
PLAN AND PROFILE
KUHIU HIGHWAY, SHORT TERM IMPROVEMENTS
Wailua Cane Haul Bridge Widening
Fed. Aid Project No. BR-056-1(51)
Scale: As Noted Date: MAY 2008
SHEET No. U1 OF U10 SHEETS

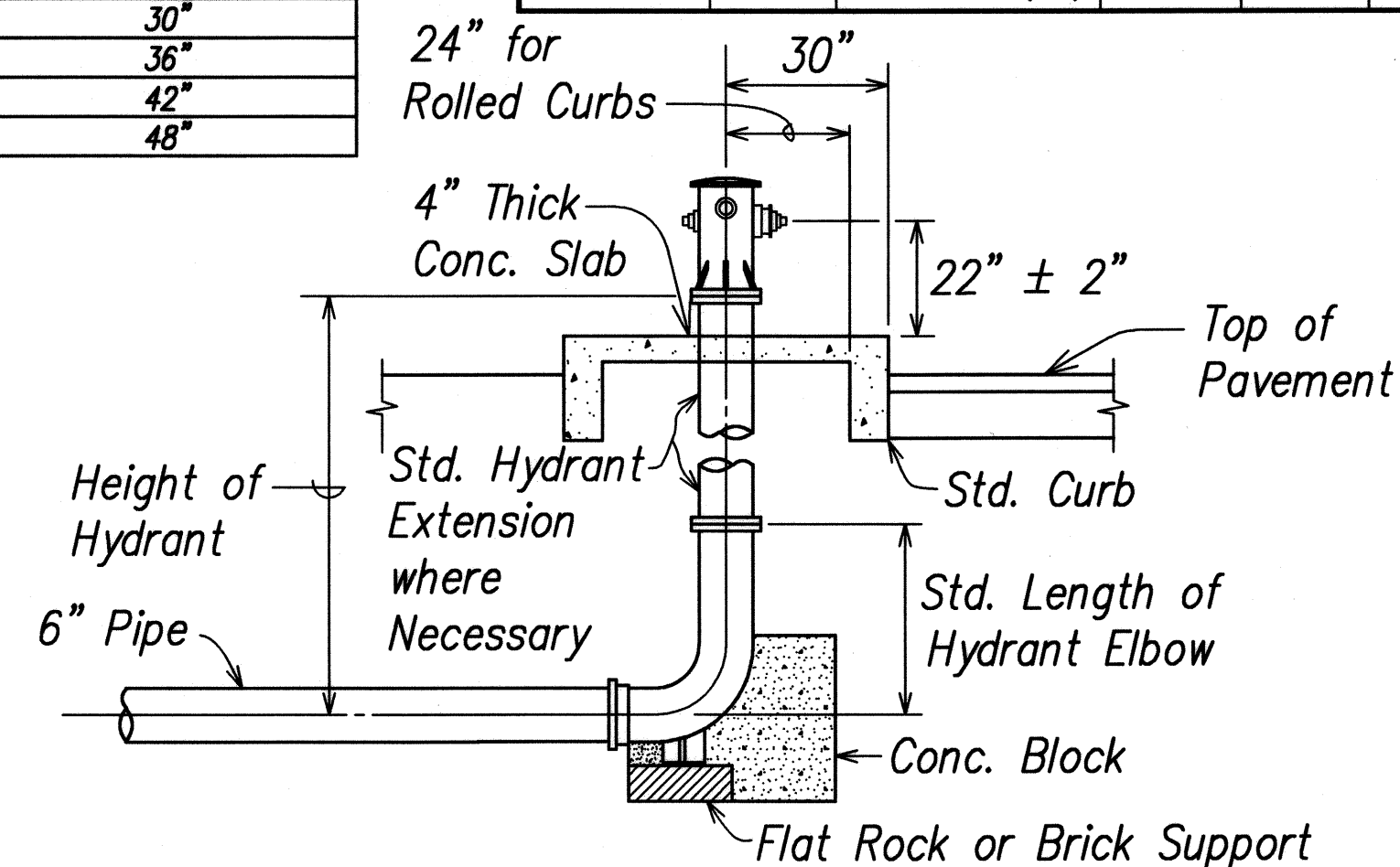
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
NOTED BY	
CHECKED BY	



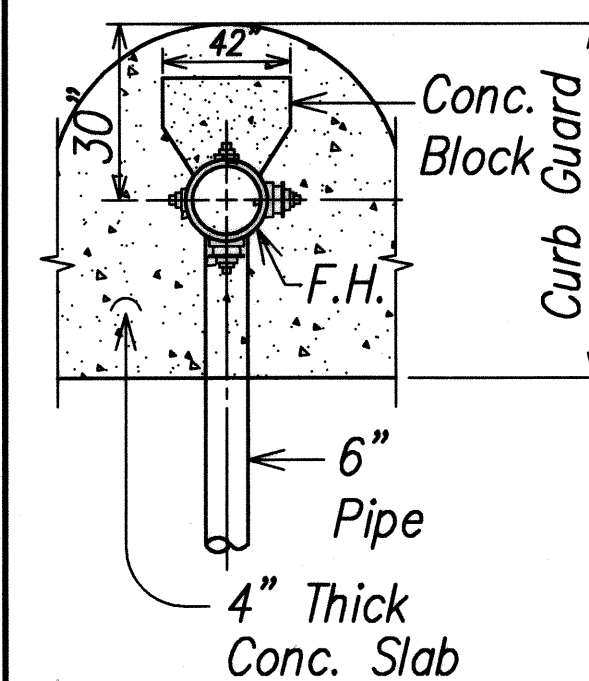


STANDARD LENGTHS FOR HYDRANT ELBOWS	
30"	
36"	
42"	
48"	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-056-1(51)	2008	58	284



SECTION



PLAN

NOTES:

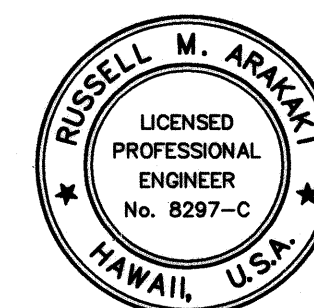
- Gaskets for Flanged Joints shall be 1/8" Duck-Insert Rubber Packing Garlock No. 19.
- Bolts shall be Break-Off Type, 5/8" ϕ x 3" Long Machine Bolts with Cut Threads American Std. Heavy Hexagon Heads, Silicon Bronze. Install Bolts with Threads Facing Down.
- Nuts shall be American Std. Heavy Cold Punched Hexagon Nuts, Silicon Bronze.
- Conc. shall be DOW 2500.
- Refer to Plate F11 of the Water System Stds. for Fire Hydrant Installation with Curb Guard.
- Flanged Tee is mandatory for Kauai.
- Tapping Sleeve with Tapping Valve Assembly may be used for connection to exist. mains.
- Lubricate Hydrant nozzle threads with non-toxic grease.
- Install Hydrant Marker (See Plate FH13 of the Water System Standards)

TYP. FIRE HYDRANT DETAIL

Not to Scale

APPROVED:

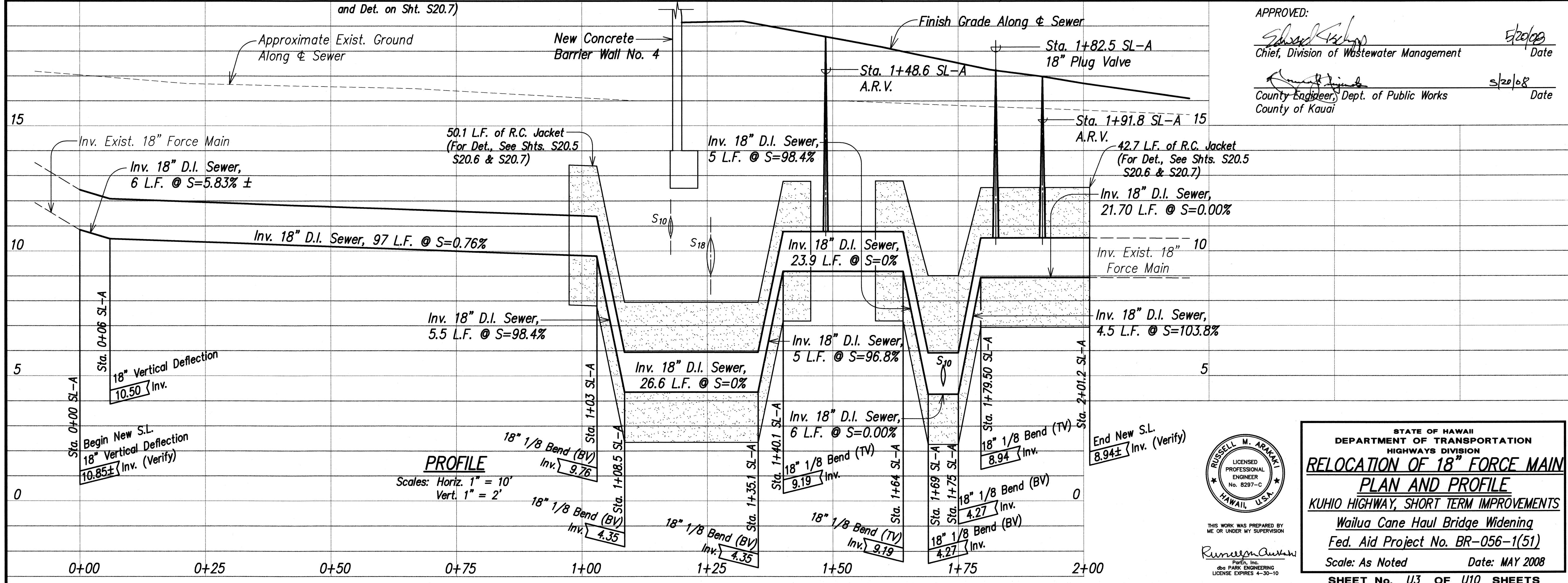
Bruce Inoué 5/16/08
For Manager and Chief Engineer Date
Dept. of Water, County of Kauai



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Russell M. Arakawa
ParEn, Inc.
dba PARK ENGINEERING
LICENSE EXPIRES 4-30-10

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
FIRE HYDRANT RELOCATION
PLAN AND PROFILE
KUHO HIGHWAY, SHORT TERM IMPROVEMENTS
Wailua Cane Haul Bridge Widening
Fed. Aid Project No. BR-056-1(51)
Scale: As Noted Date: MAY 2008
SHEET No. U2 OF U10 SHEETS



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



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ME OR UNDER MY SUPERVISION

Russell M. Arakawa
ParEn, Inc.
dba PARK ENGINEERING
LICENSE EXPIRES 4-30-10

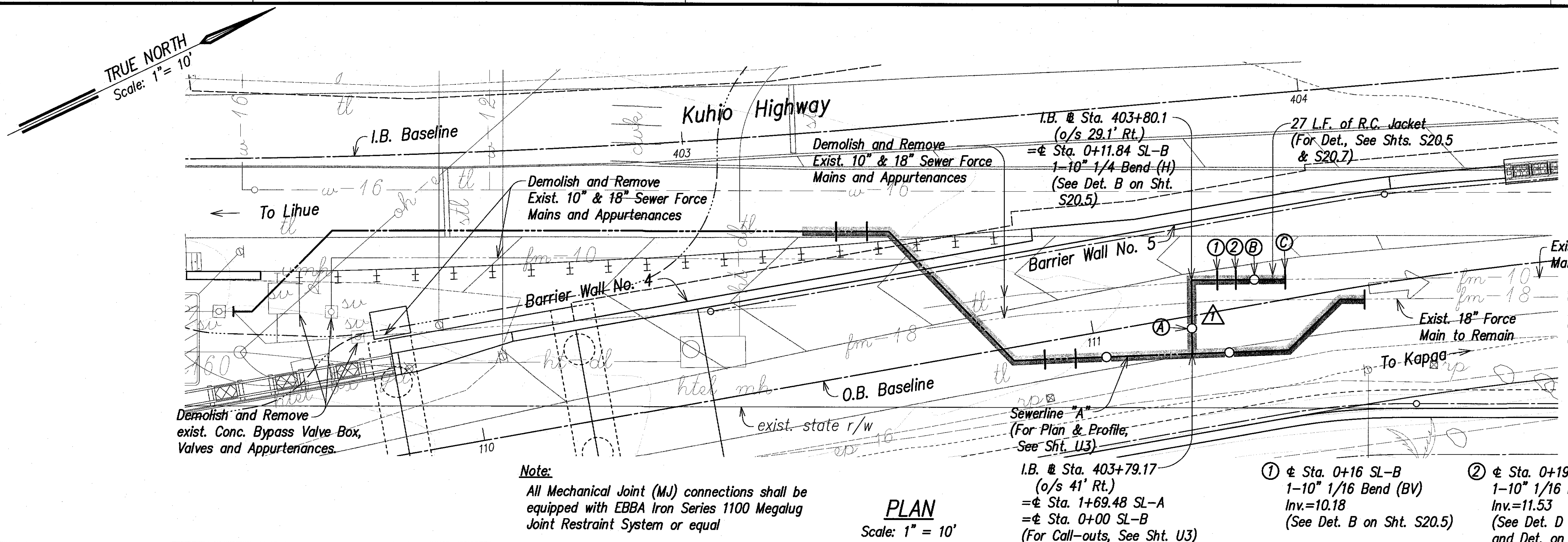
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

RELOCATION OF 18" FORCE MAIN
PLAN AND PROFILE
KUHIO HIGHWAY, SHORT TERM IMPROVEMENTS
Wailua Cane Haul Bridge Widening
Fed. Aid Project No. BR-056-1(51)

Scale: As Noted Date: MAY 2008

SHEET No. 113 OF 110 SHEETS

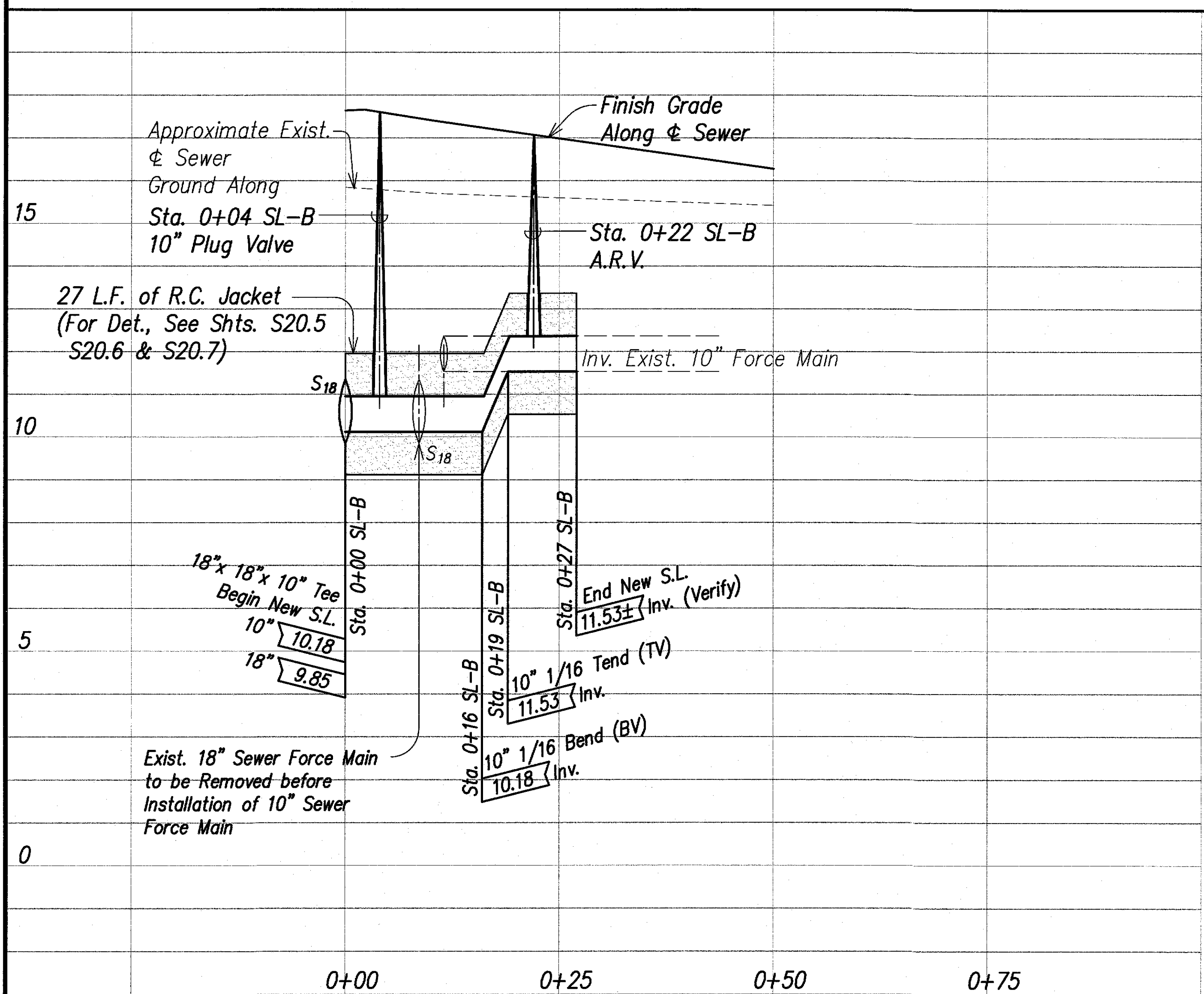
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-056-1(51)	2008	CO 60	284



- ① I.B. @ Sta. 403+79.5 (o/s 36.9' Rt.)
= Sta. 0+04 SL-B
1-10" Plug Valve
1-C.I. Valve Box
(See Sht. U5 for Det.)
- ② I.B. @ Sta. 403+90.25 (o/s 29.9' Rt.)
= Sta. 0+22 SL-B
1-A.R.V. (APCO Model 400 SARV)
1-~~Valve Box~~ Manhole
- ③ I.B. @ Sta. 403+95.23 (o/s 30.3' Rt.)
= Sta. 0+27 SL-B
End New 10" D.I. Sewer.
Conn. to Exist. 10" ~~Sewer~~ Sewer.
Materials for Connection:
4 L.F. of 10" D.I. Pipe, Cl. 52
1-10" MJ Sleeve, 12" Long
Temporary for Testing:
1-10" Cap w/4" C.O.
1-Conc. Blk.
- See Details on Sht. Nos. C.O. 61 S-1, C.O. 61 S-2 and C.O. 61 S-3
- Asbestos Cement
- ① @ Sta. 0+16 SL-B
1-10" 1/16 Bend (BV)
Inv.=10.18
(See Det. B on Sht. S20.5)
- ② @ Sta. 0+19 SL-B
1-10" 1/16 Bend (TV)
Inv.=11.53
(See Det. D on Sht. S20.5 and Det. on Sht. S20.7)

Note:
All Mechanical Joint (MJ) connections shall be equipped with EBBA Iron Series 1100 Megalug Joint Restraint System or equal

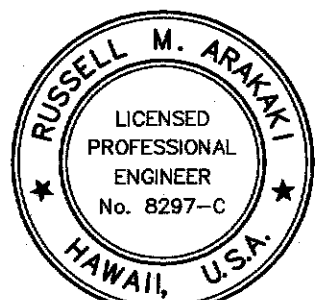
PLAN
Scale: 1" = 10'



LEGEND FOR AS-BUILT POSTINGS

- Squiggly line for as-built deletion
- Double line for as-built deletion
- Text for as-built posting

10/26/09		Revised SL-B
DATE		REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION RELOCATION OF 10" FORCE MAIN PLAN AND PROFILE KUHIO HIGHWAY, SHORT TERM IMPROVEMENTS Wailua Cane Haul Bridge Widening Fed. Aid Project No. BR-056-1(51) Scale: As Noted Date: MAY 2008 SHEET No. U4 OF U10 SHEETS		



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
RUSSELL M. ARAKAWA
PARE, INC.
dba PARK ENGINEERING
LICENSE EXPIRES 4-30-20

APPROVED:

Chief, Division of Wastewater Management Date

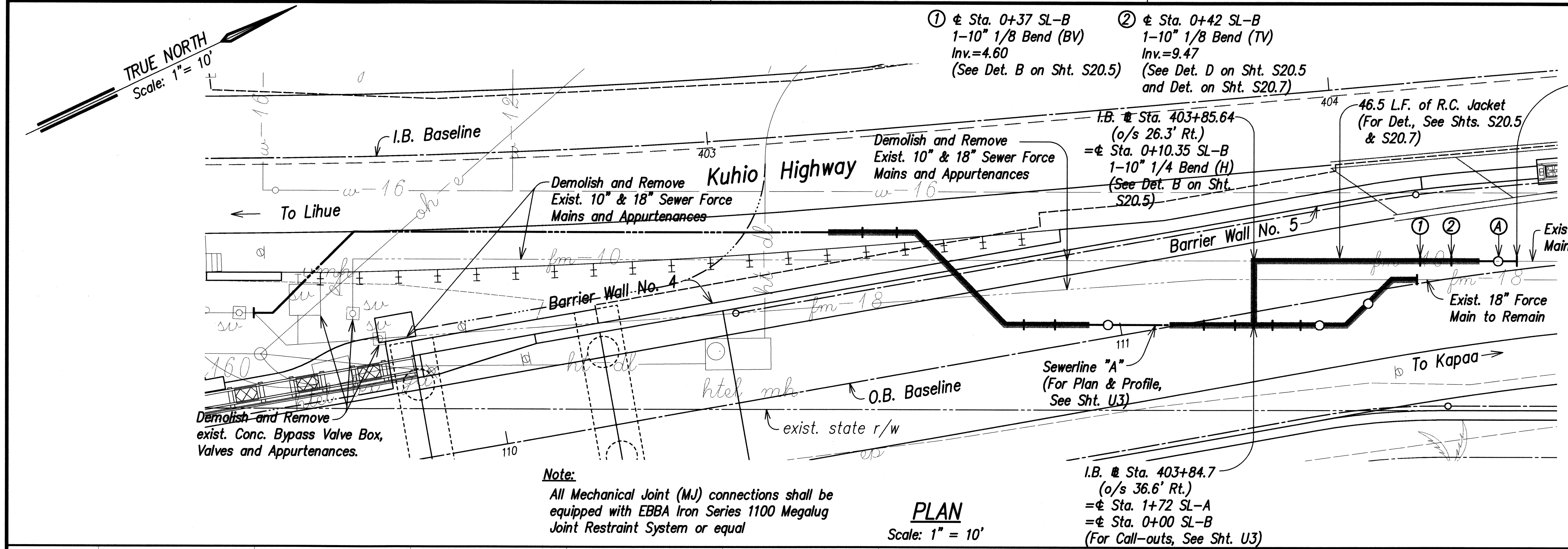
County Engineer, Dept. of Public Works Date
County of Kauai

"AS-BUILT"

C.O. 60

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

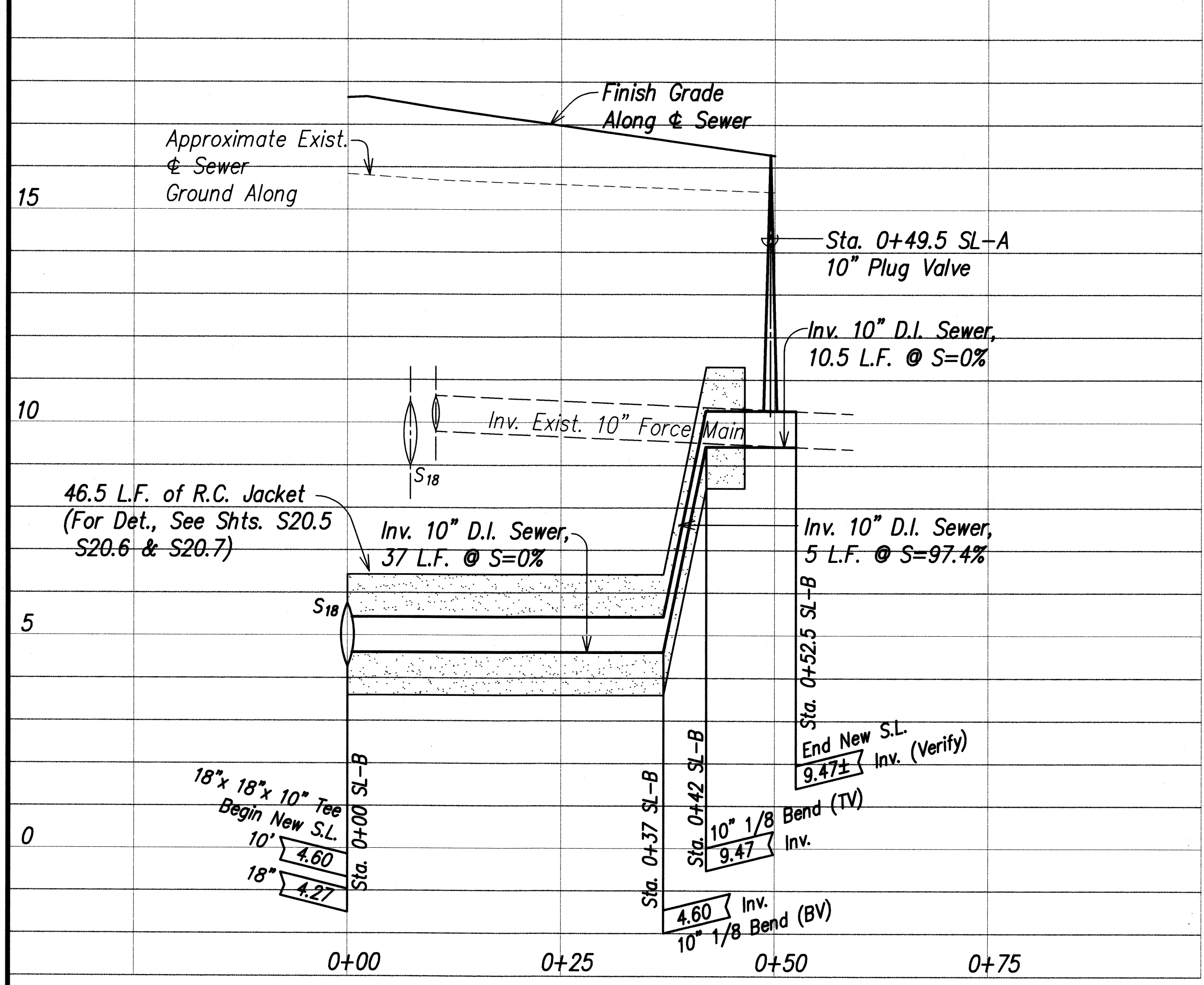
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-056-1(51)	2008	60	284



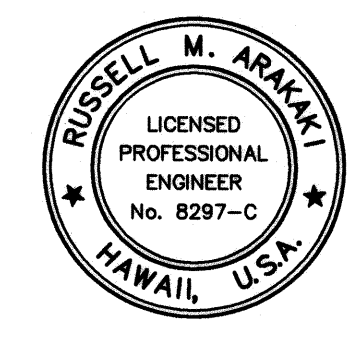
- I.B. @ Sta. 404+27.64 (o/s 30' Rt.)
= Sta. 0+52.5 SL-B
End New 10" D.I. Sewer.
Conn. to Exist. 10" D.I. Sewer.
Materials for Connection:
6 L.F. of 10" D.I. Pipe, Cl. 52
1-10" MJ Sleeve, 12" Long
Temporary for Testing:
1-10" Cap w/4" C.O.
1-Conc. Blk.
- A I.B. @ Sta. 404+24.65 (o/s 29.7' Rt.)
= Sta. 0+49.5 SL-B
1-10" Plug Valve
1-C.I. Valve Box
(See Det., This Sht.)

Note:
All Mechanical Joint (MJ) connections shall be equipped with EBBA Iron Series 1100 Megalug Joint Restraint System or equal

PLAN
Scale: 1" = 10'

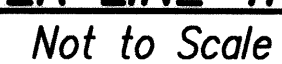
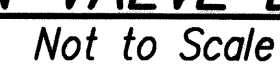


APPROVED:
Edward P. [Signature] 5/20/08
Chief, Division of Wastewater Management Date
[Signature] 5/20/08
County Engineer, Dept. of Public Works Date
County of Kauai



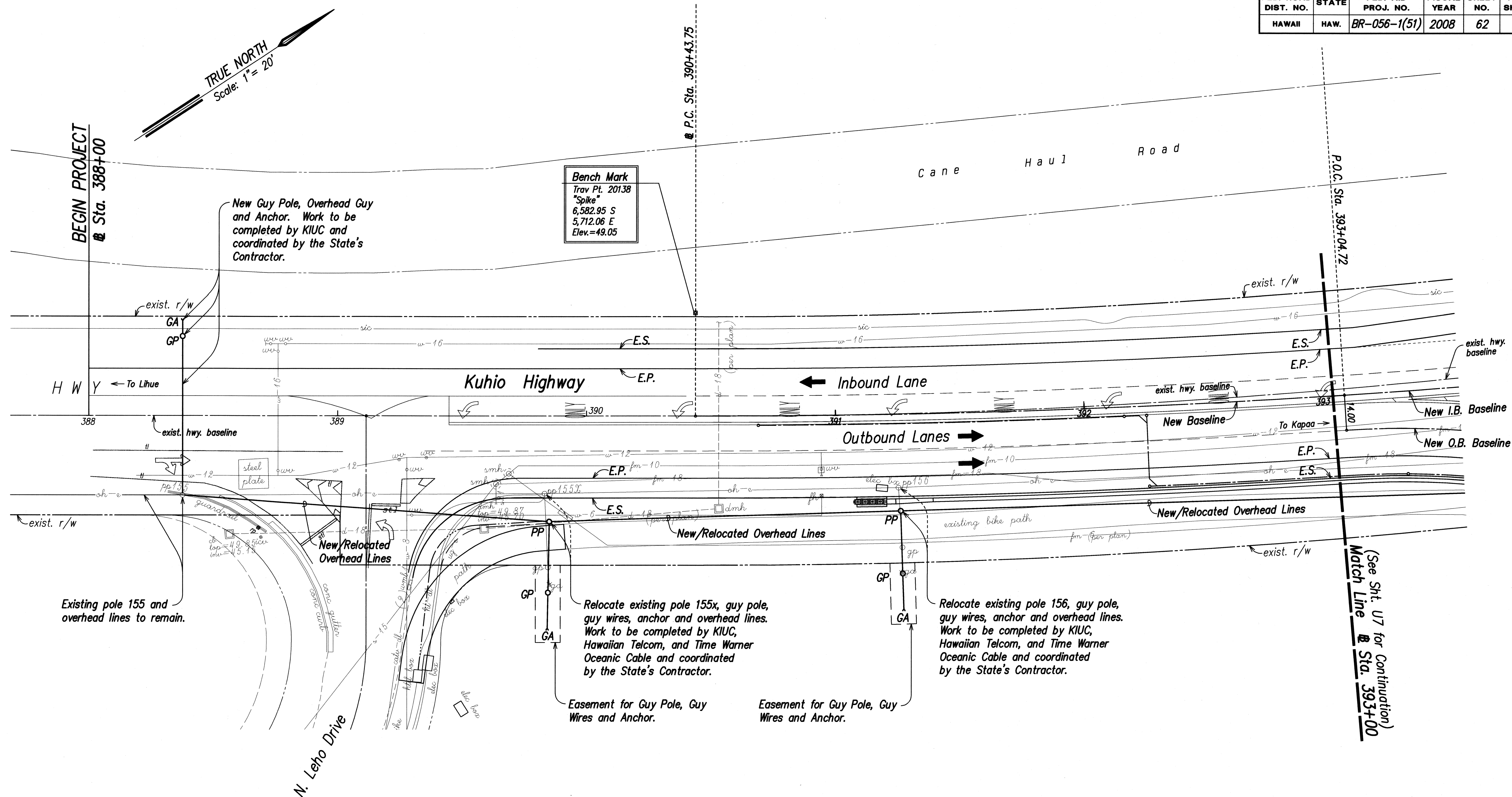
THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION
Parelli, Inc.
dba PARK ENGINEERING
LICENSE EXPIRES 4-30-10

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
RELOCATION OF 10" FORCE MAIN
PLAN AND PROFILE
KUHIO HIGHWAY, SHORT TERM IMPROVEMENTS
Wailua Cane Haul Bridge Widening
Fed. Aid Project No. BR-056-1(51)
Scale: As Noted Date: MAY 2008
SHEET No. U4 OF U10 SHEETS



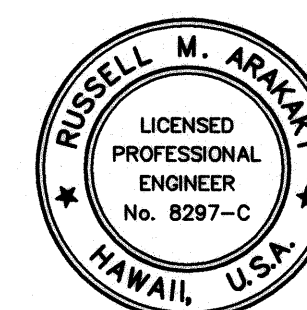
SHEET No. *U5* OF *U10* SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-056-1(51)	2008	62	284



NOTE:
Relocation of Overhead Lines to be completed by the Various Utility Companies.

UTILITY PLAN
Scale: 1" = 20'



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ME OR UNDER MY SUPERVISION

Russell M. Arakawa
ParEn, Inc.
dba PARK ENGINEERING
LICENSE EXPIRES 4-30-10

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UTILITY PLAN

KUHIO HIGHWAY, SHORT TERM IMPROVEMENTS

Wailua Cane Haul Bridge Widening

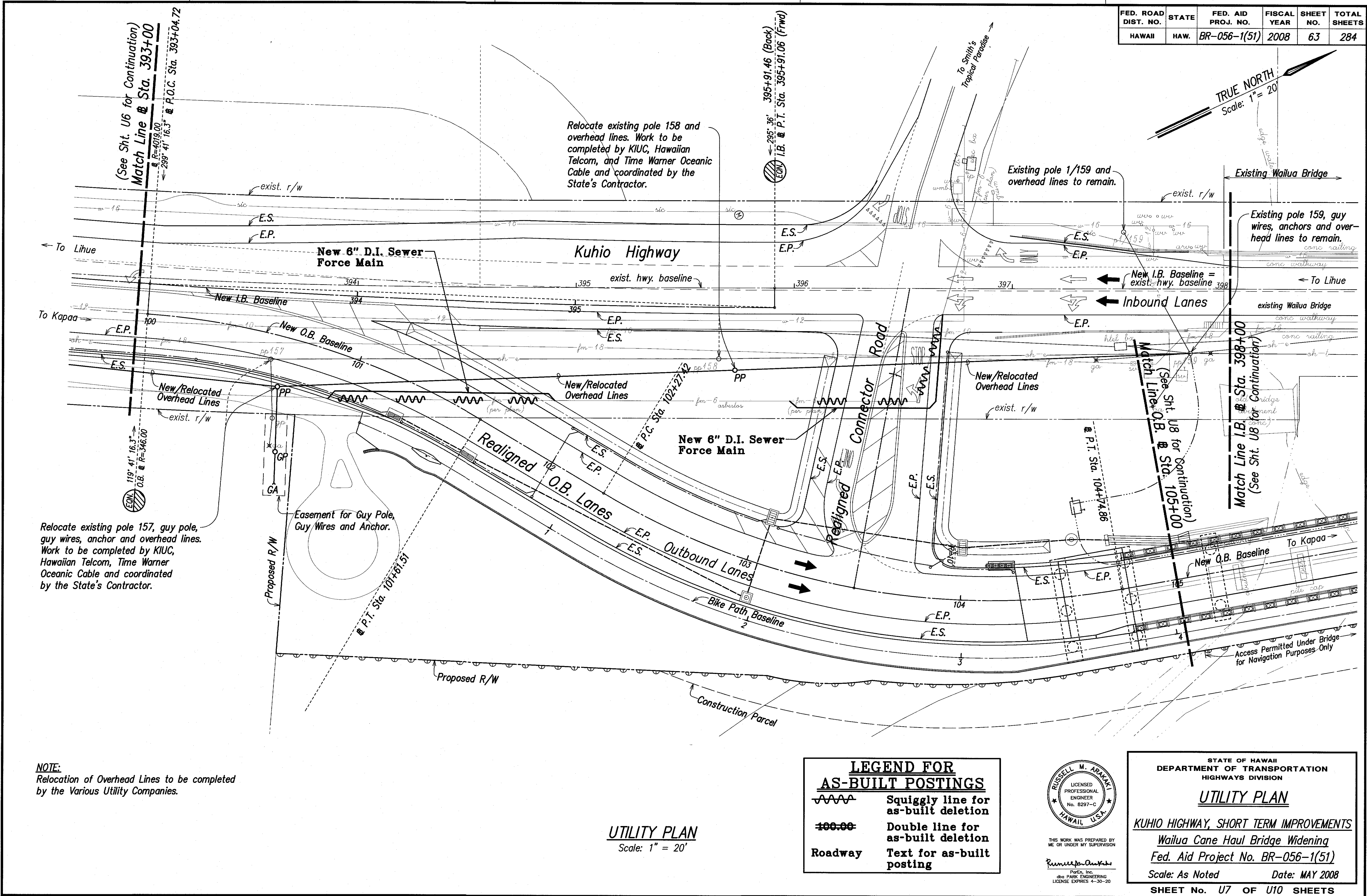
Fed. Aid Project No. BR-056-1(51)

Scale: As Noted

Date: MAY 2008

SHEET No. U6 OF U10 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-056-1(51)	2008	63	284



DATE	_____
DESIGNED BY	_____
TRACED BY	_____
NOTED BY	_____
CHECKED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
NO.	_____

NOTE:
Relocation of Overhead Lines to be completed by the Various Utility Companies.

LEGEND FOR AS-BUILT POSTINGS

Double line for as-built deletion

Text for as-built posting

Roadway

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Russell M. Araki
ParEn, Inc.
dba PARK ENGINEERING
LICENSE EXPIRES 4-30-20

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UTILITY PLAN

KUHIO HIGHWAY, SHORT TERM IMPROVEMENTS

Wailua Cane Haul Bridge Widening

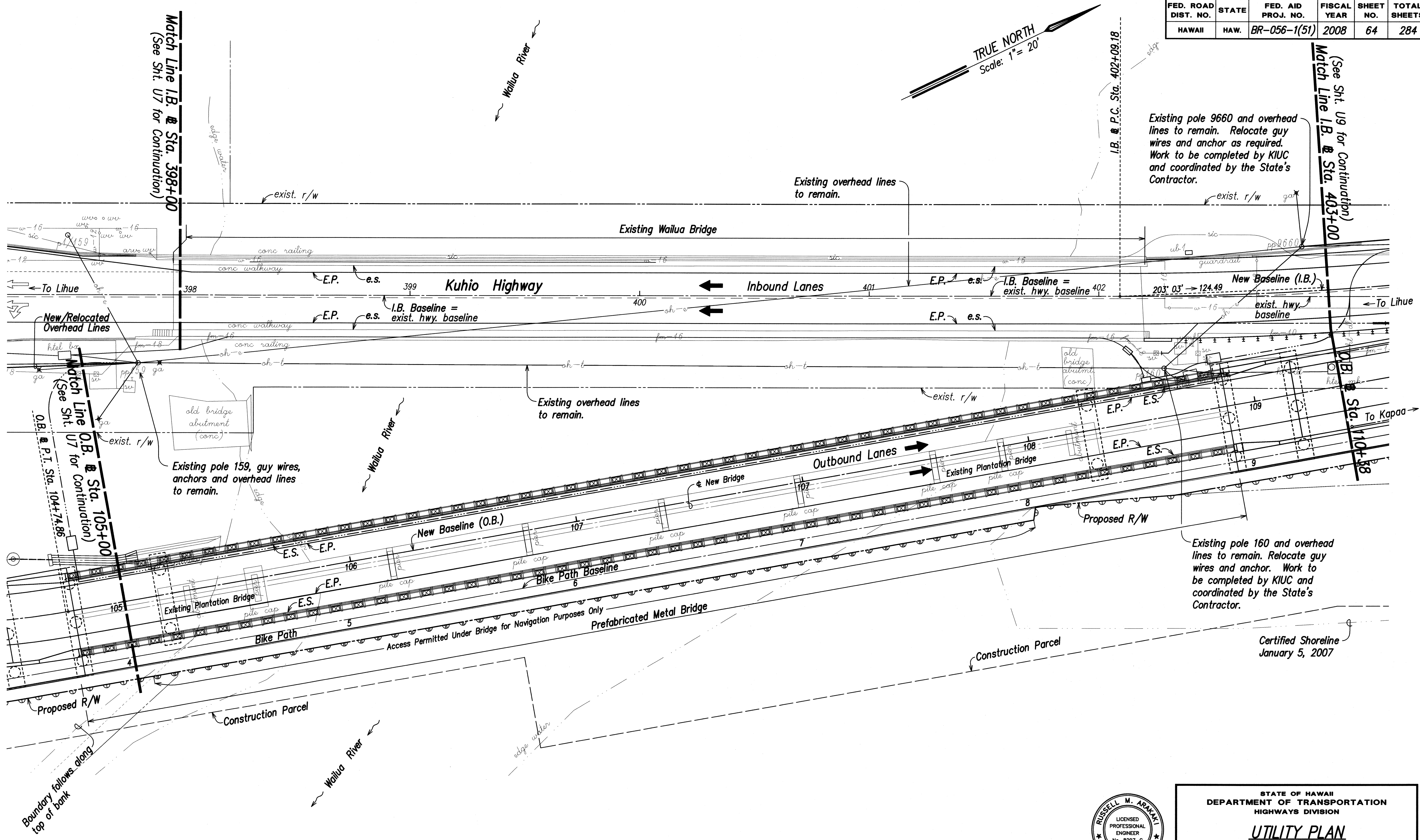
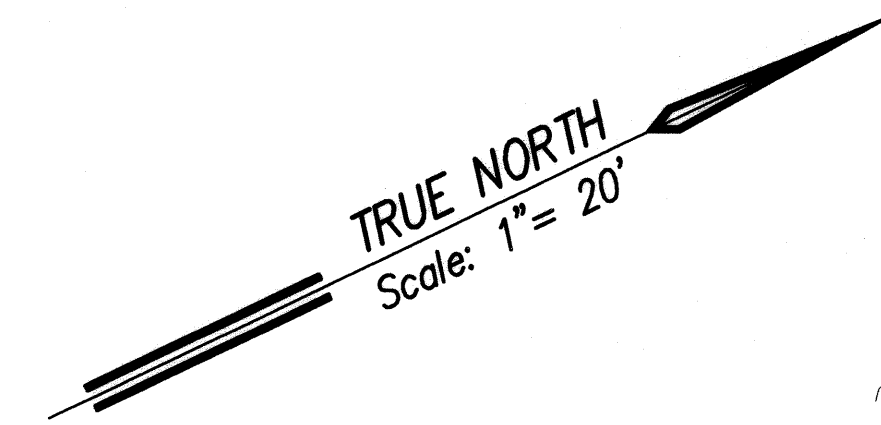
Fed. Aid Project No. BR-056-1(51)

Scale: As Noted Date: MAY 2008

SHEET No. U7 OF U10 SHEETS

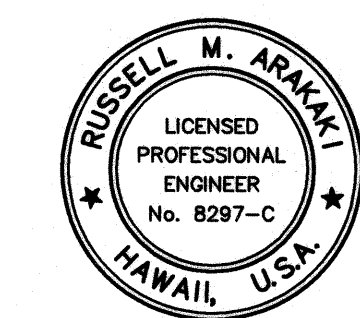
63

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-056-1(51)	2008	64	284



NOTE:
Relocation of Overhead Lines to be completed by the Various Utility Companies.

UTILITY PLAN
Scale: 1" = 20'



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Russell M. Araki
P.E., Inc.
dba PARK ENGINEERING
LICENSE EXPIRES 4-30-10

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UTILITY PLAN

KUHIO HIGHWAY, SHORT TERM IMPROVEMENTS

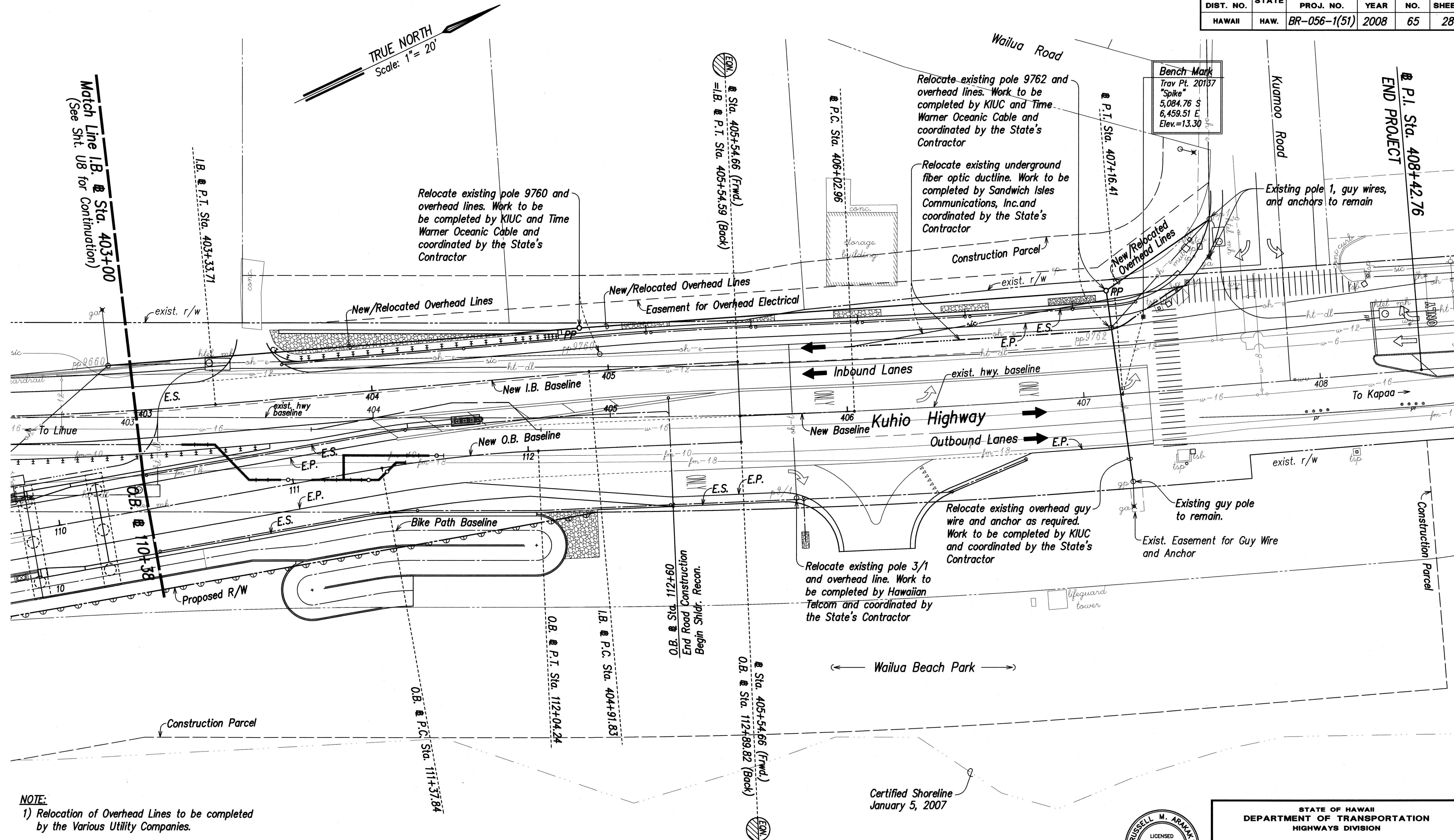
Wailua Cane Haul Bridge Widening
Fed. Aid Project No. BR-056-1(51)

Scale: As Noted Date: MAY 2008

SHEET No. U8 OF U10 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.	BR-056-1(51)	2008	65	284

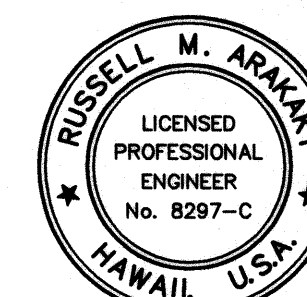


NOTE:

- 1) Relocation of Overhead Lines to be completed by the Various Utility Companies.
- 2) The Fiber Optic Ductline relocation work by Sandwich Isles Communication, Inc. is shown on separate plans entitled "Relocation of Fiber Optics Ductline, Kuhio Highway at the Vicinity of Kuamoo Road to Wailua River Bridge, Wailua, Kauai, Hawaii".

UTILITY PLAN
Scale: 1" = 20'

Certified Shoreline
January 5, 2007



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Russell M. Araki
P.E., Inc.
dba PARK ENGINEERING
LICENSE EXPIRES 4-30-10

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UTILITY PLAN

KUHIU HIGHWAY, SHORT TERM IMPROVEMENTS

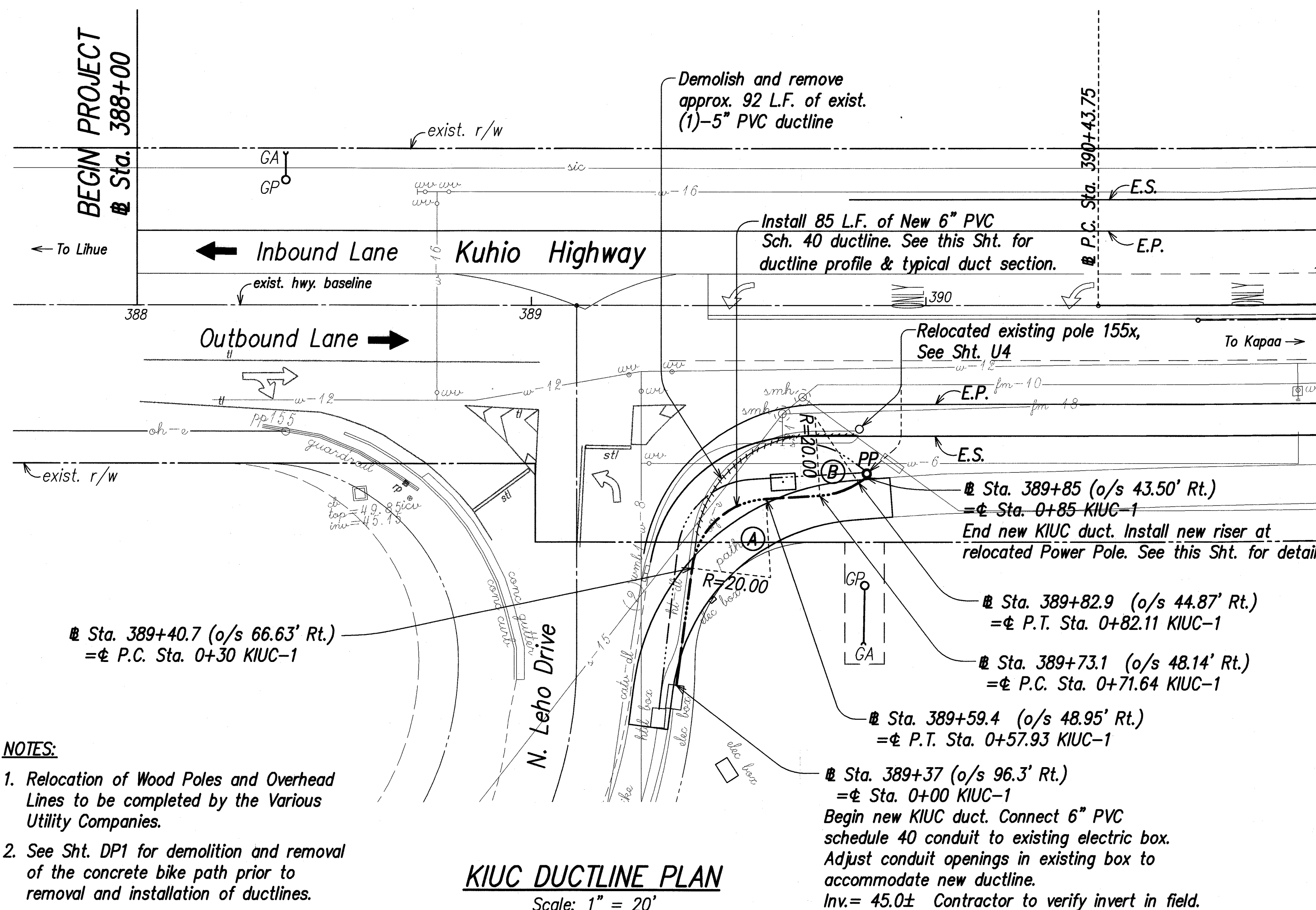
Wailua Cane Haul Bridge Widening
Fed. Aid Project No. BR-056-1(51)

Scale: As Noted Date: MAY 2008

SHEET No. U9 OF U10 SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-056-1(51)	2008	ADD. 66	284

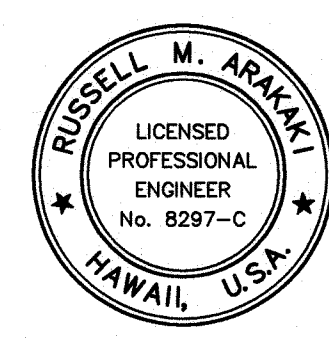
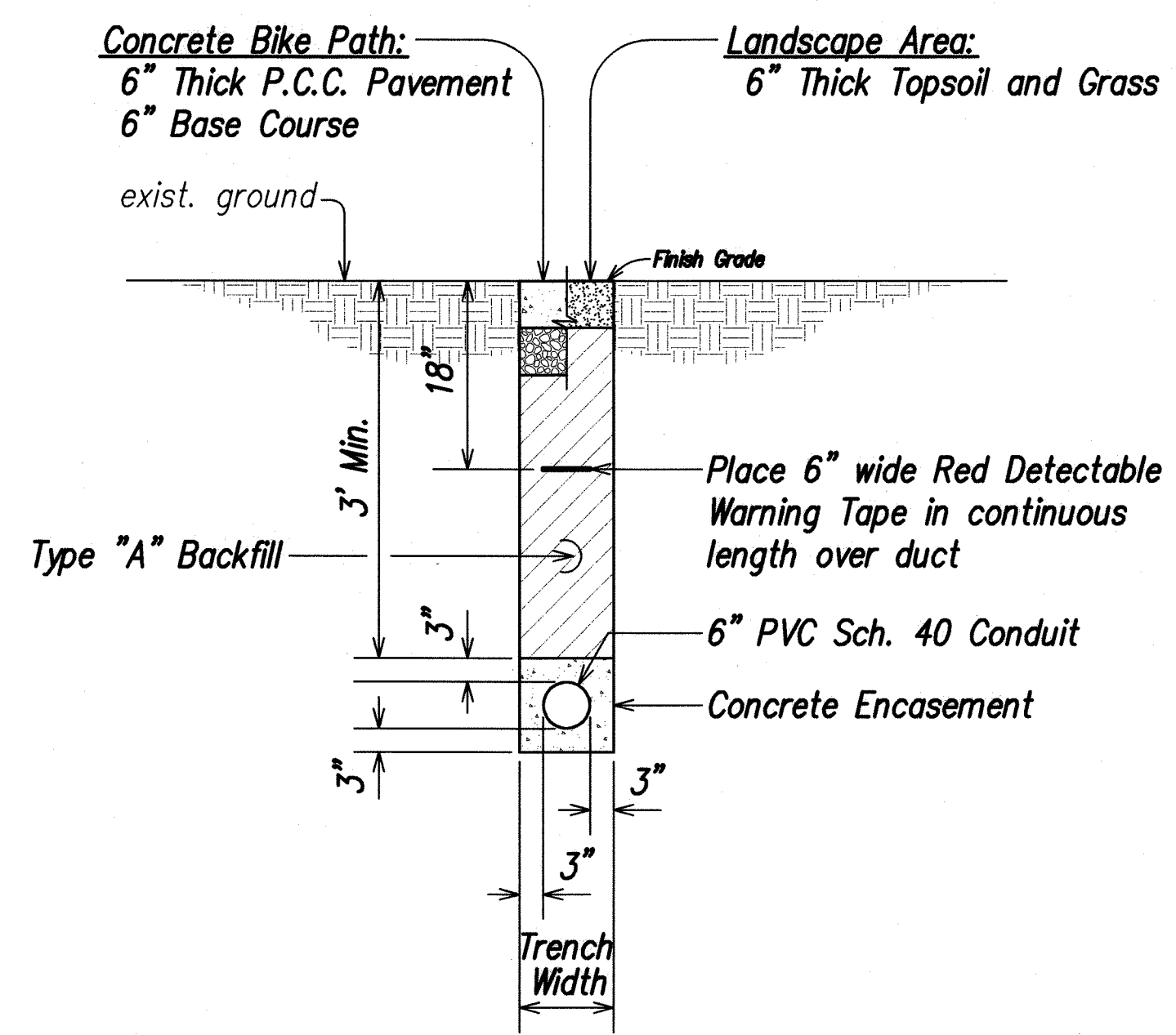
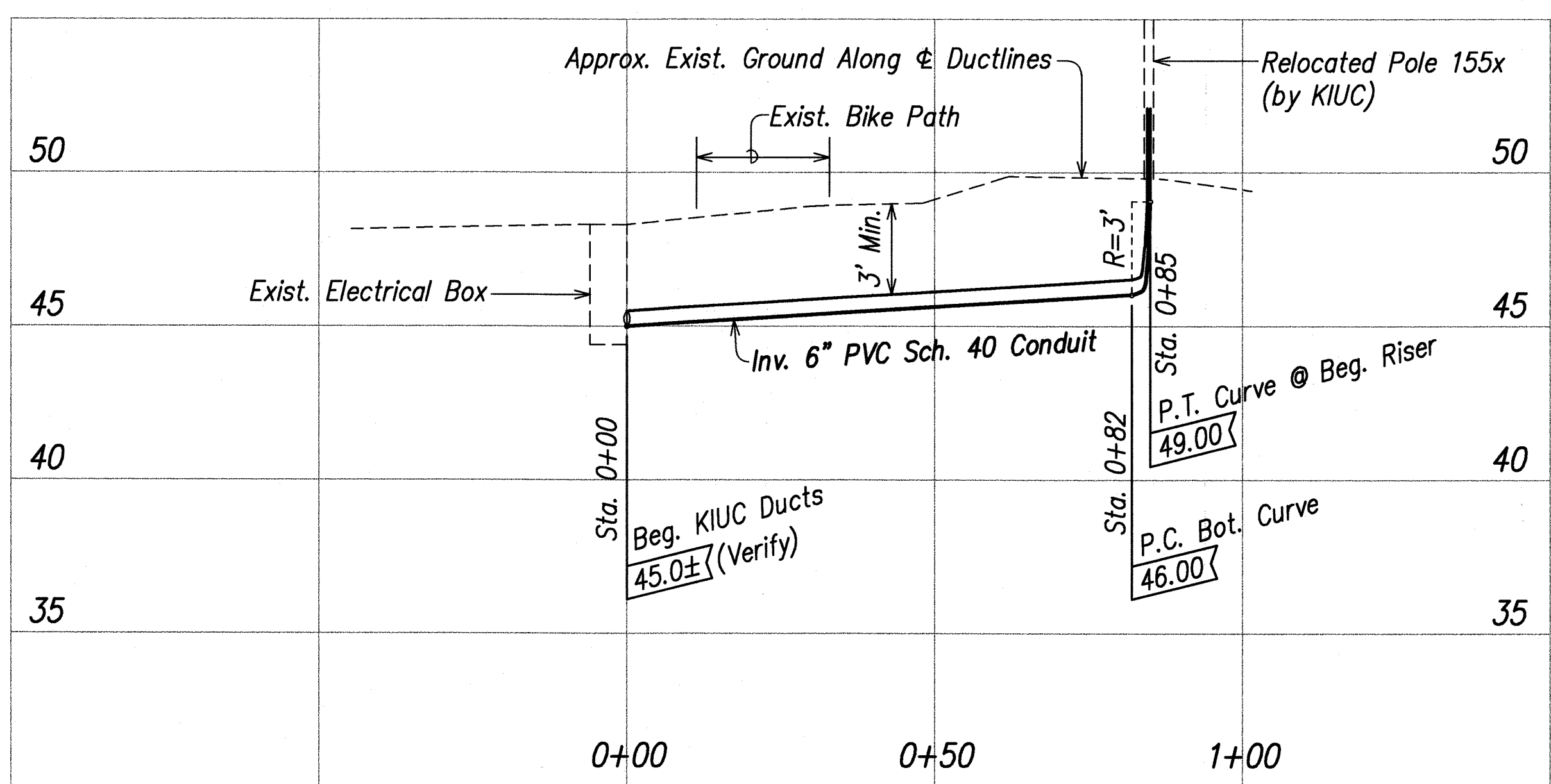
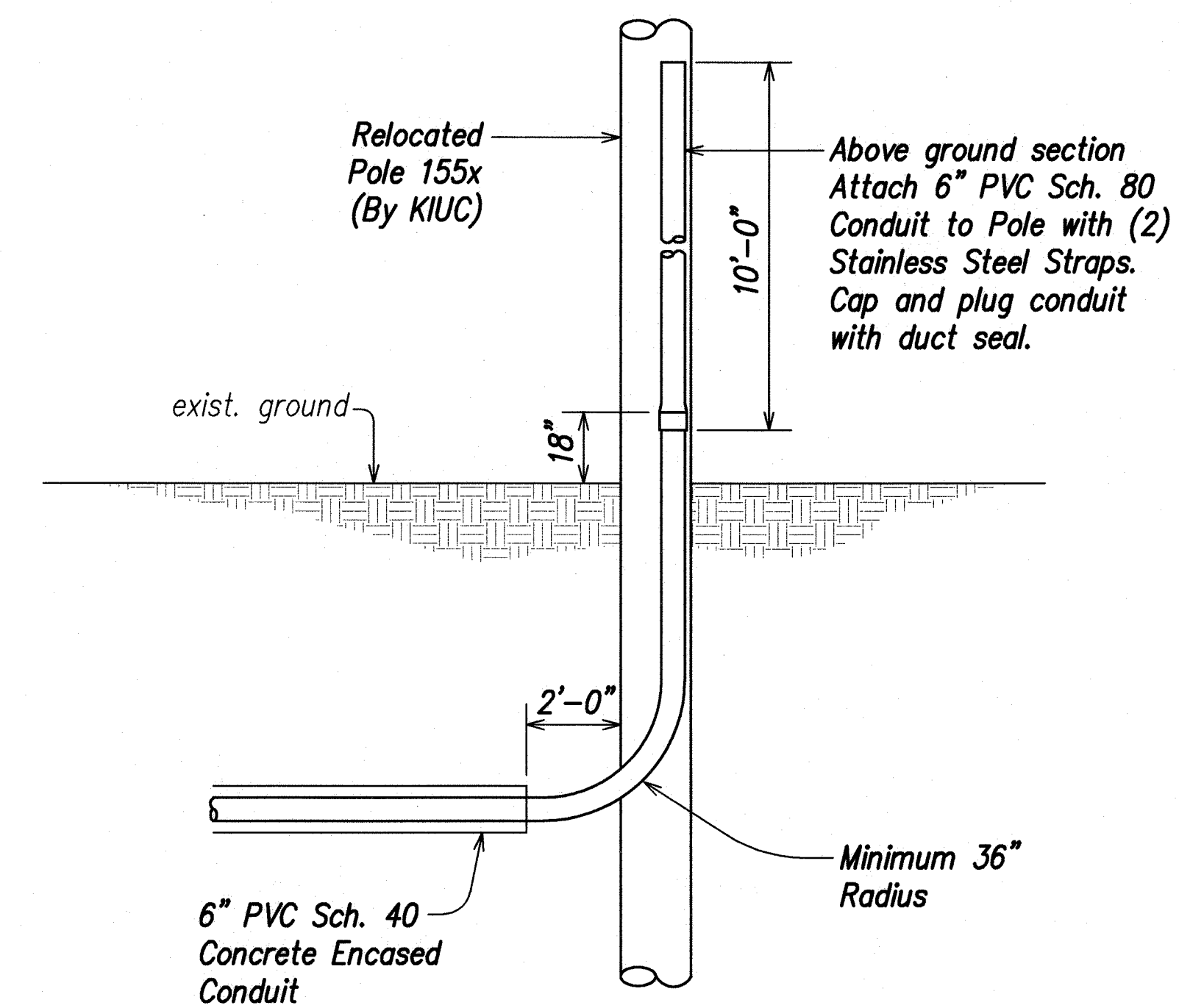


(A) Ductline Curve Data

$\Delta = 80^\circ 00'$
 $\Delta/2 = 40^\circ 00'$
 $R = 20.00$
 $T = 16.78$
 $C = 25.71$
 $Lc = 27.93$

(B) Ductline Curve Data

$\Delta = 30^\circ 00'$
 $\Delta/2 = 15^\circ 00'$
 $R = 20.00$
 $T = 5.36$
 $C = 10.35$
 $Lc = 10.47$



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 Russell M. Araki
 RAE, INC.
 400 PARK ENGINEERING
 LICENSE EXPIRES 4-30-10

8/07/08 Sheet revised to show (1) new 6" duct, conc. encasement and riser extension.

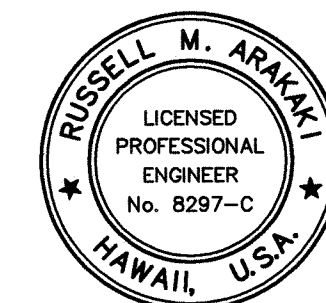
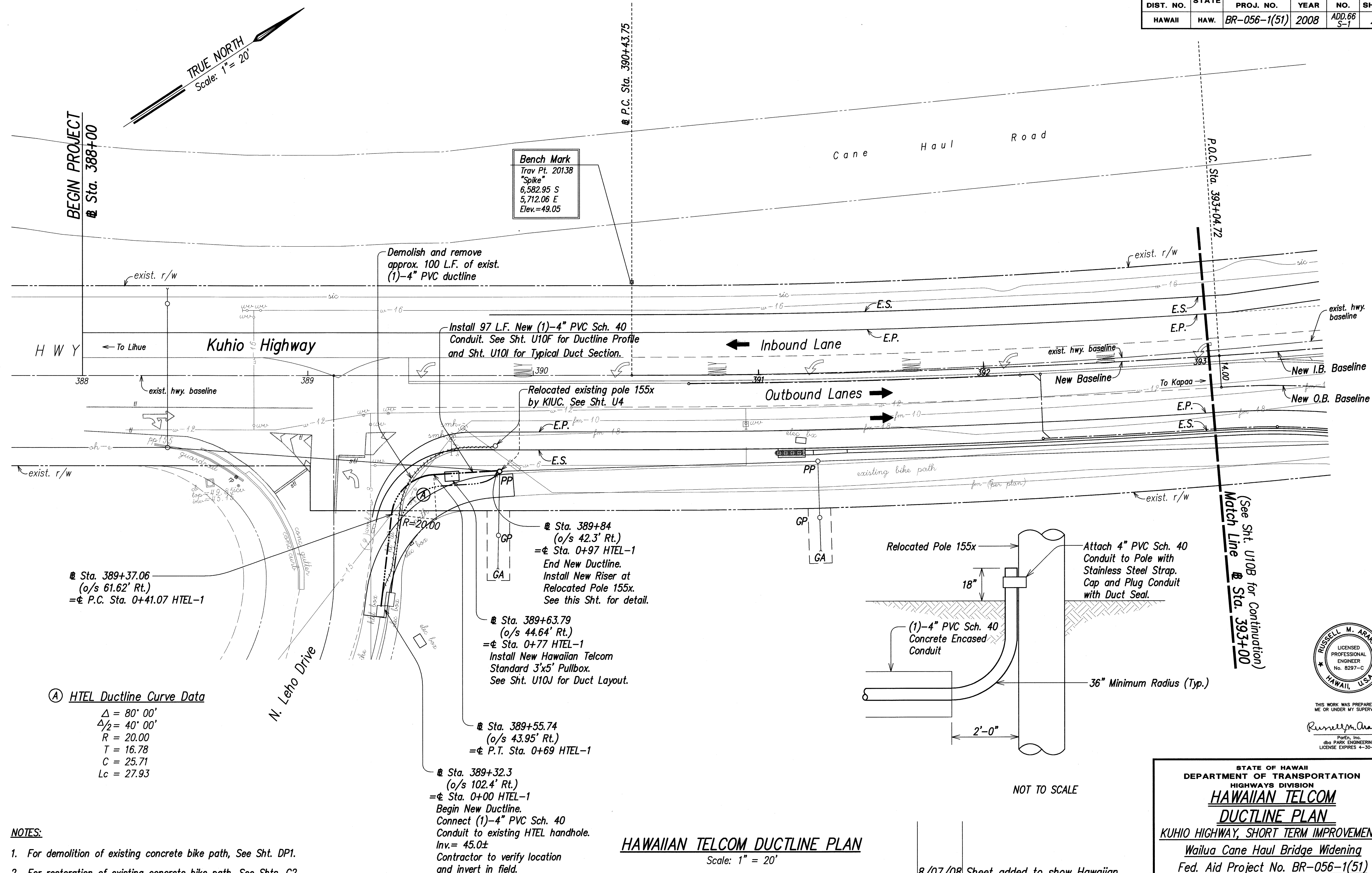
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

KIUC DUCTLINE PLAN

KUHIO HIGHWAY, SHORT TERM IMPROVEMENTS
 Wailua Cane Haul Bridge Widening
 Fed. Aid Project No. BR-056-1(51)
 Scale: As Noted Date: MAY 2008
 SHEET No. U10 OF U10 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-056-1(51)	2008	ADD.66 S-1	284



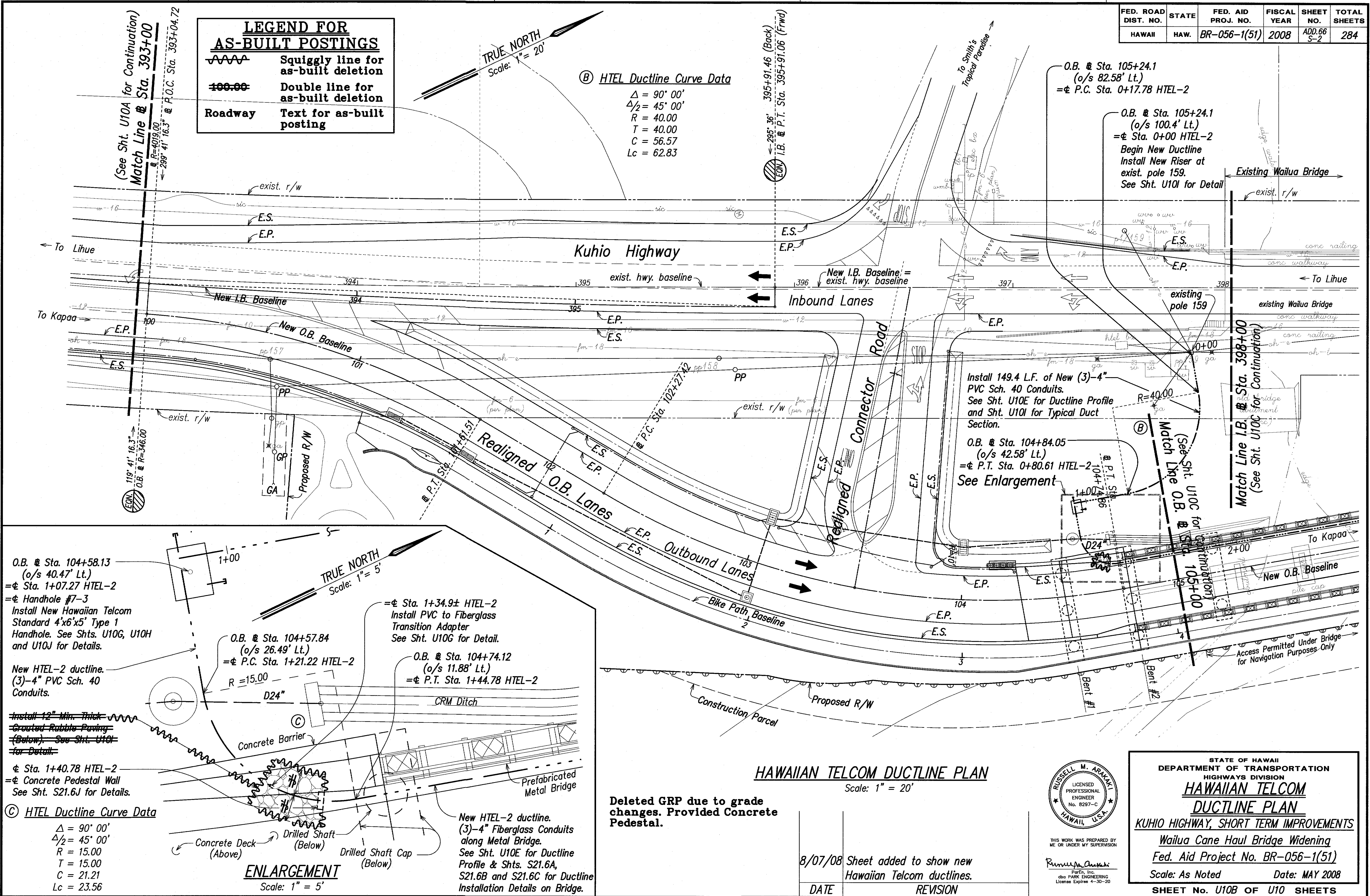
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Russell M. Araki
PerEn, Inc.
dba PARK ENGINEERING
LICENSE EXPIRES 4-30-10

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION HAWAIIAN TELCOM DUCTLINE PLAN KUHIU HIGHWAY, SHORT TERM IMPROVEMENTS Wailua Cane Haul Bridge Widening Fed. Aid Project No. BR-056-1(51) Scale: As Noted Date: MAY 2008 SHEET No. U10A OF U10 SHEETS

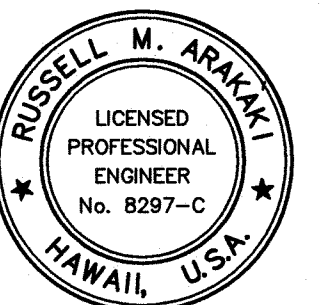
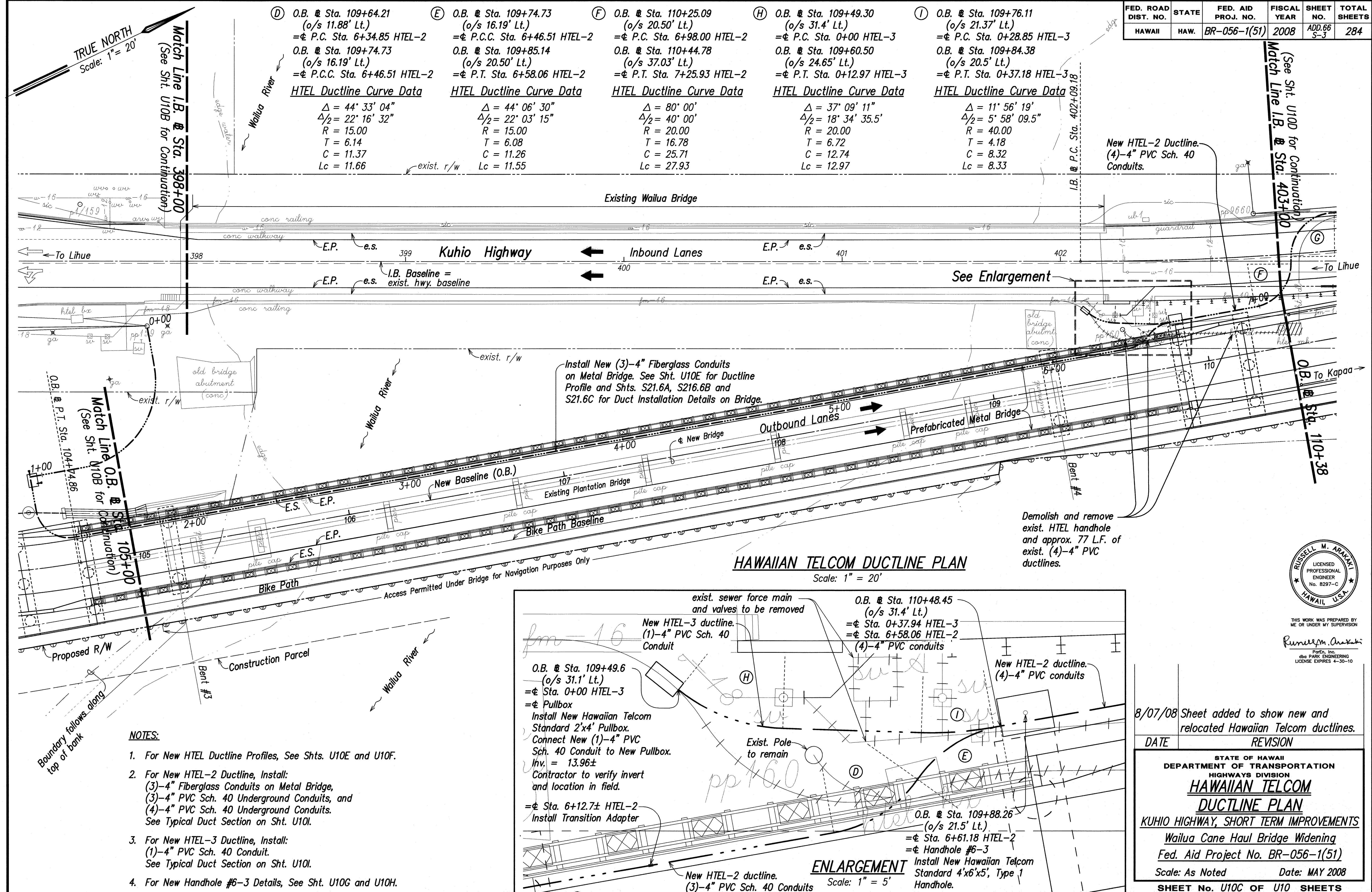
ADD. 66 S-1

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-056-1(51)	2008	ADD.66 S-2	284



SURVEY PLOTTED BY	DATE
DESIGNED BY	
TRACED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	
NO.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-056-1(51)	2008	ADD.66 S-3	284



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Russell M. Araki

Parks, Inc.
dbs PARK ENGINEERING
LICENSE EXPIRES 4-30-10

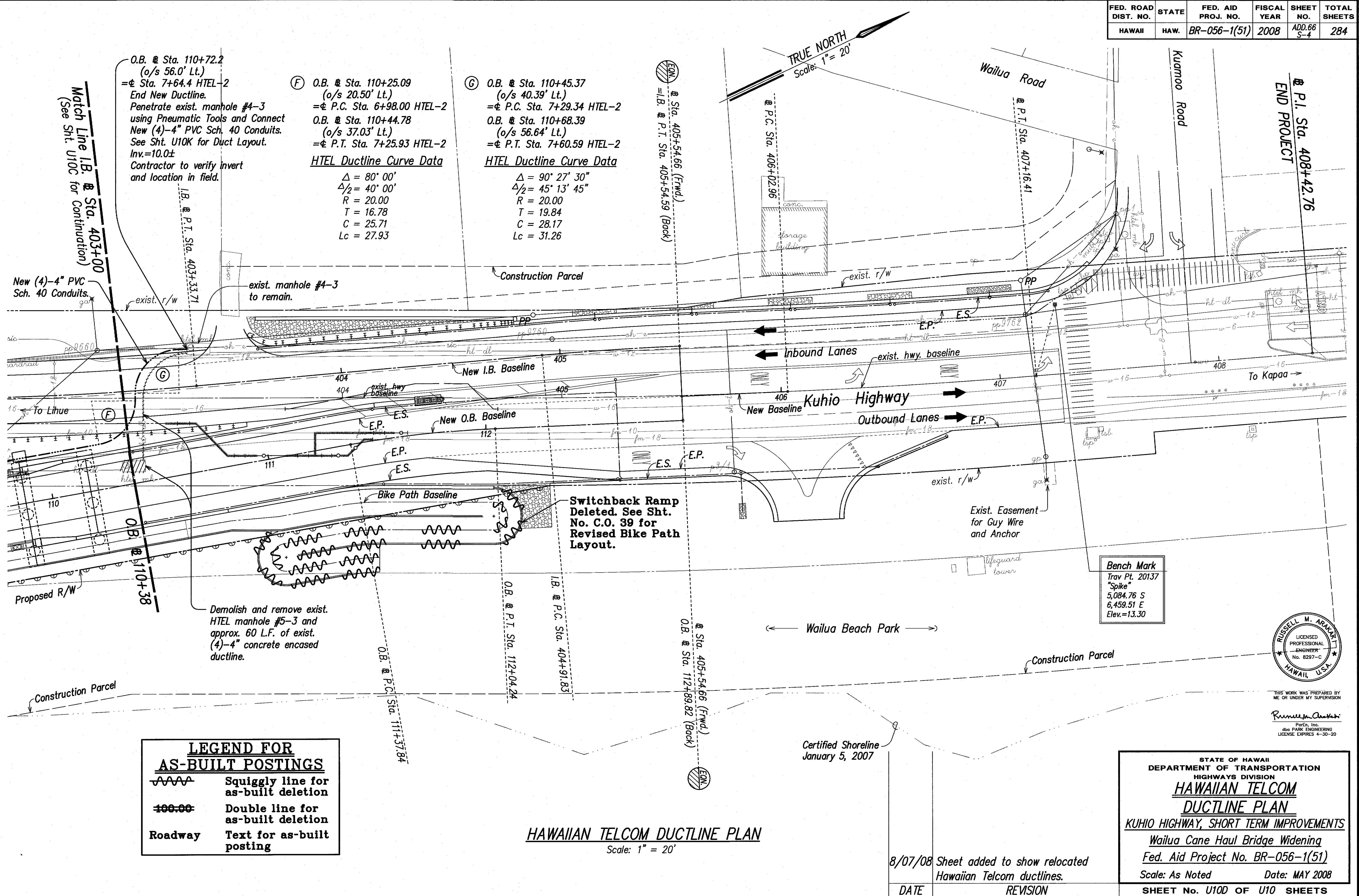
8/07/08 Sheet added to show new and relocated Hawaiian Telcom ductlines.

DATE REVISION

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION HAWAIIAN TELCOM DUCTLINE PLAN KUHO HIGHWAY, SHORT TERM IMPROVEMENTS Wailua Cane Haul Bridge Widening Fed. Aid Project No. BR-056-1(51) Scale: As Noted Date: MAY 2008 SHEET No. U10C OF U10 SHEETS
--

ADD. 66 S-3

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-056-1(51)	2008	ADD.66 S-4	284

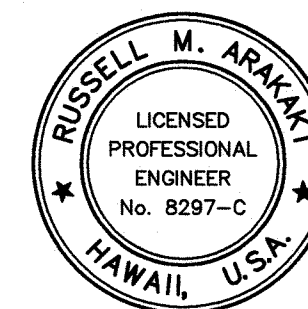
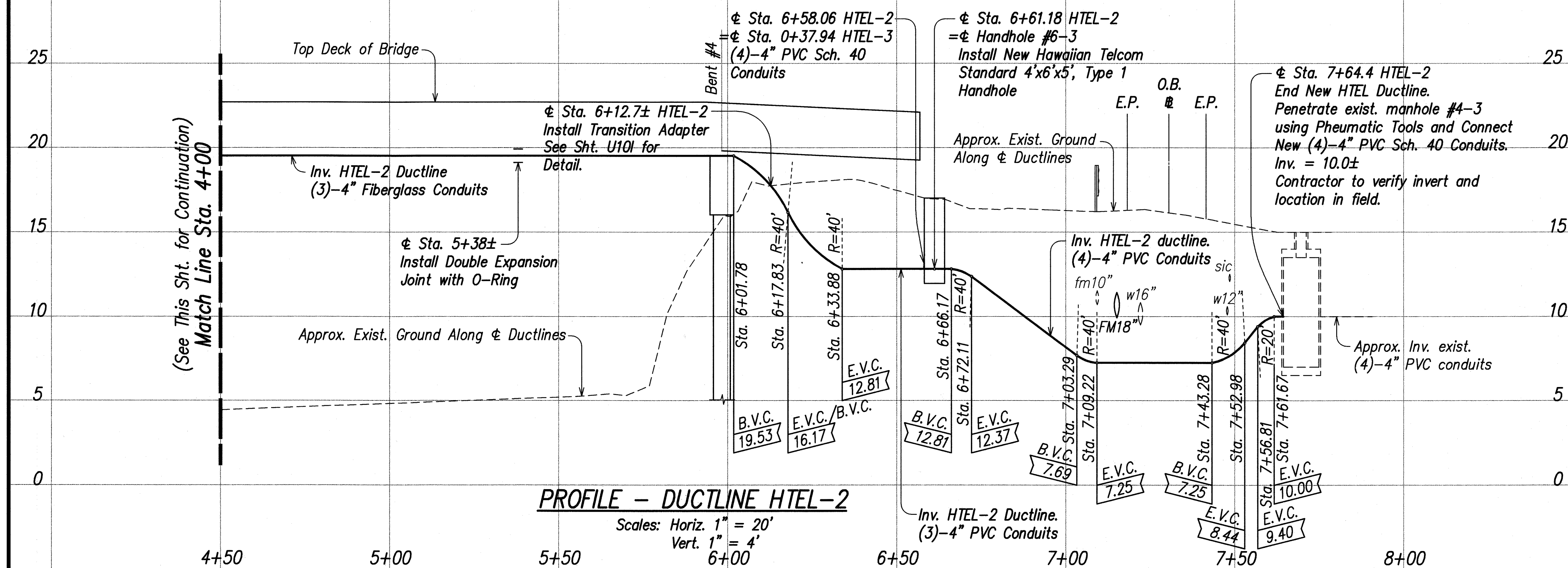
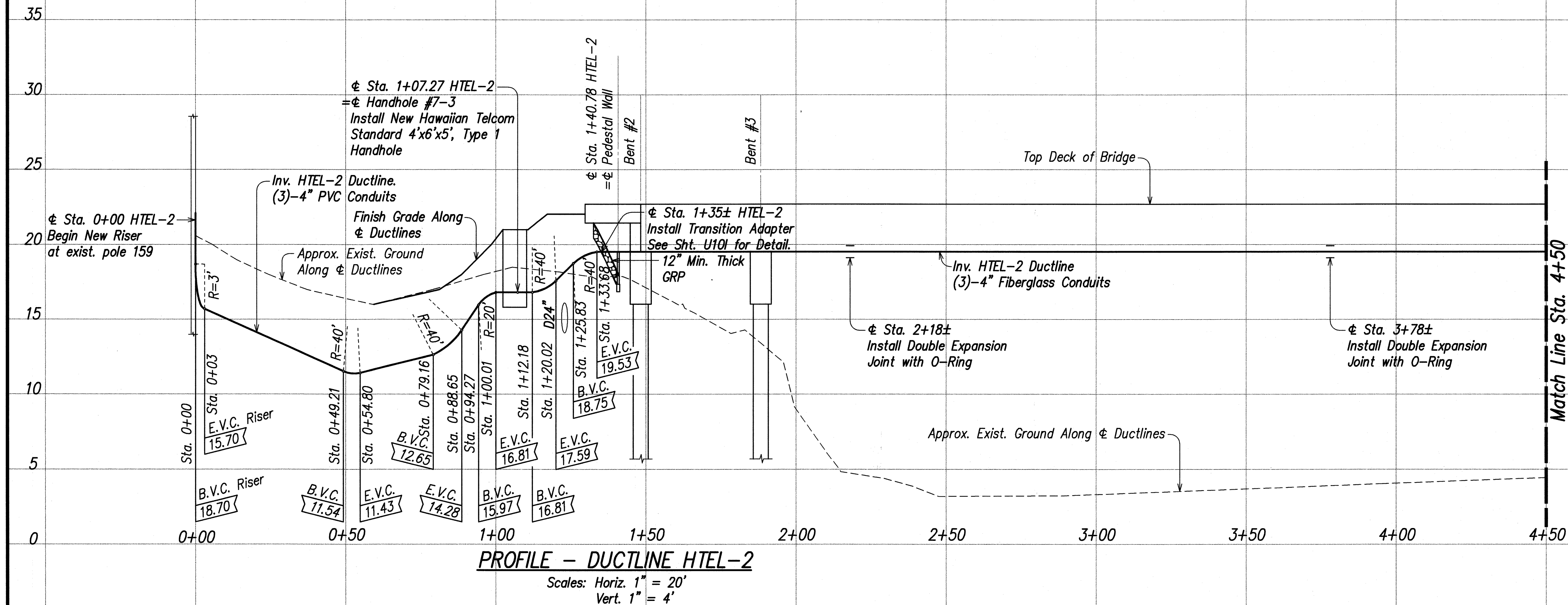


DATE	DESIGNED BY	CHECKED BY
DESIGNED BY	TRACED BY	QUANTITIES BY
NOTE BOOK	DESIGNED BY	CHECKED BY
NO.	DESIGNED BY	CHECKED BY

"AS-BUILT"

ADD. 66 S-4

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-056-1(51)	2008	ADD. 66 S-5	284



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LICENSE EXPIRES 4-30-10

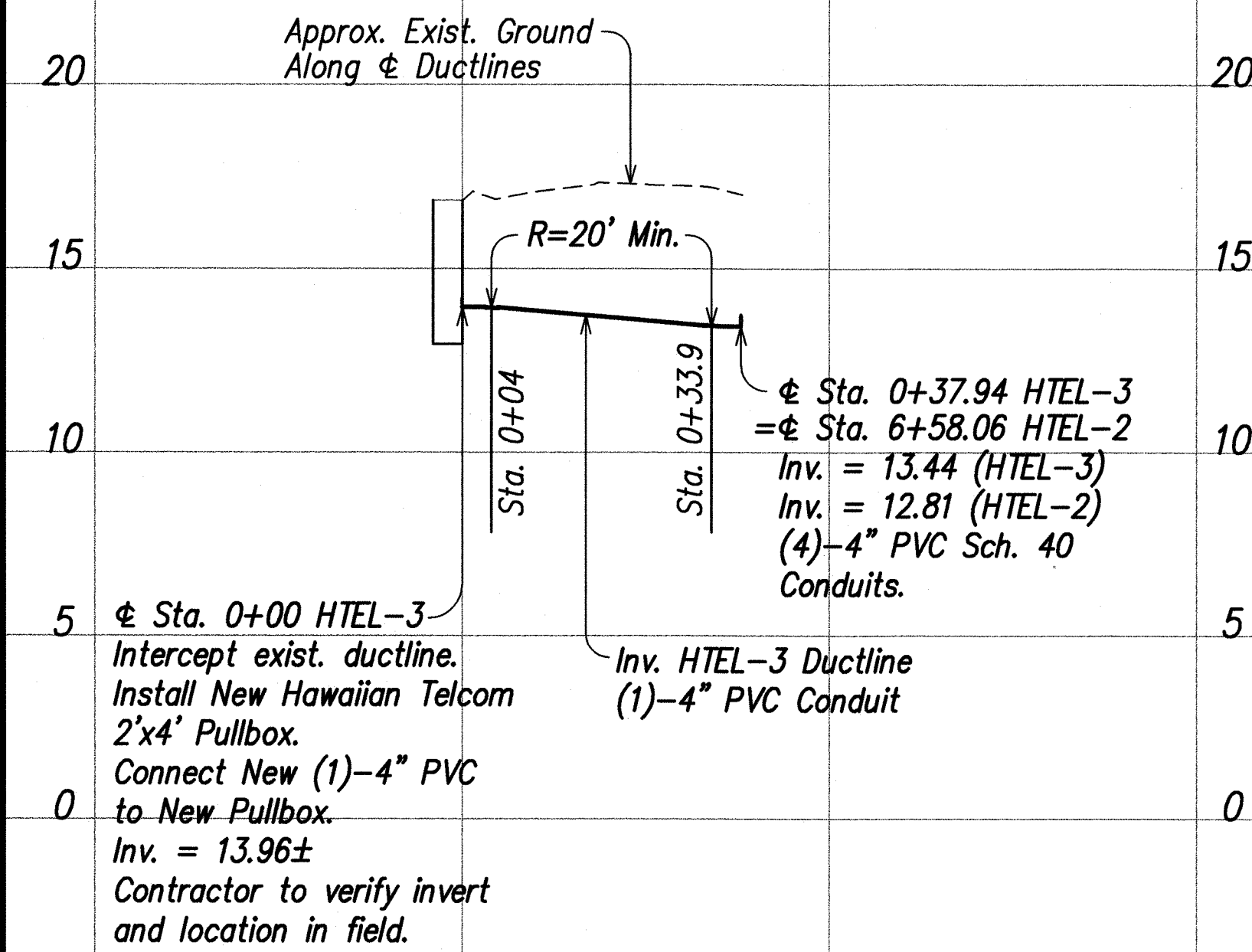
8/07/08 Sheet added to show new Hawaiian Telecom ductline profile.

DATE REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HAWAIIAN TELCOM
DUCTLINE PROFILE
KUHO HIGHWAY, SHORT TERM IMPROVEMENTS
Wailua Cane Haul Bridge Widening
Fed. Aid Project No. BR-056-1(51)
Scale: As Noted Date: MAY 2008
SHEET No. U10E OF U10 SHEETS

ADD. 66 S-5

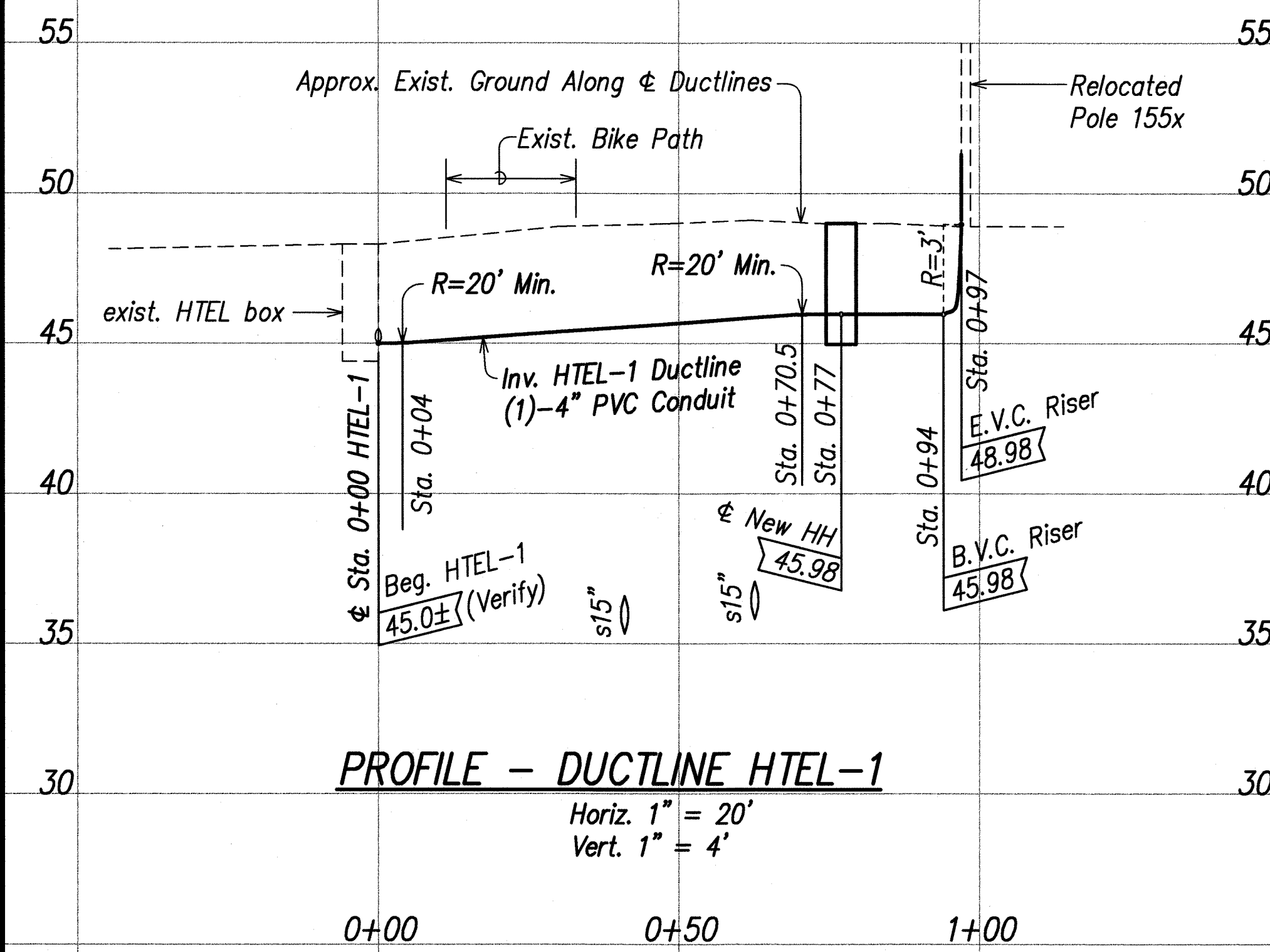
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HAWAII	HAW.	BR-056-1(51)	2008	ADD. 66 S-6	284



PROFILE - DUCTLINE HTEL-3

Horiz. 1" = 20'
Vert. 1" = 4'

0+00 0+50 1+00

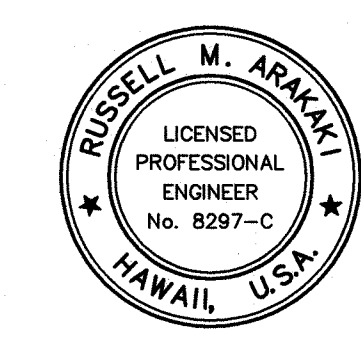


PROFILE - DUCTLINE HTEL-1

Horiz. 1" = 20'
Vert. 1" = 4'

0+00 0+50 1+00

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

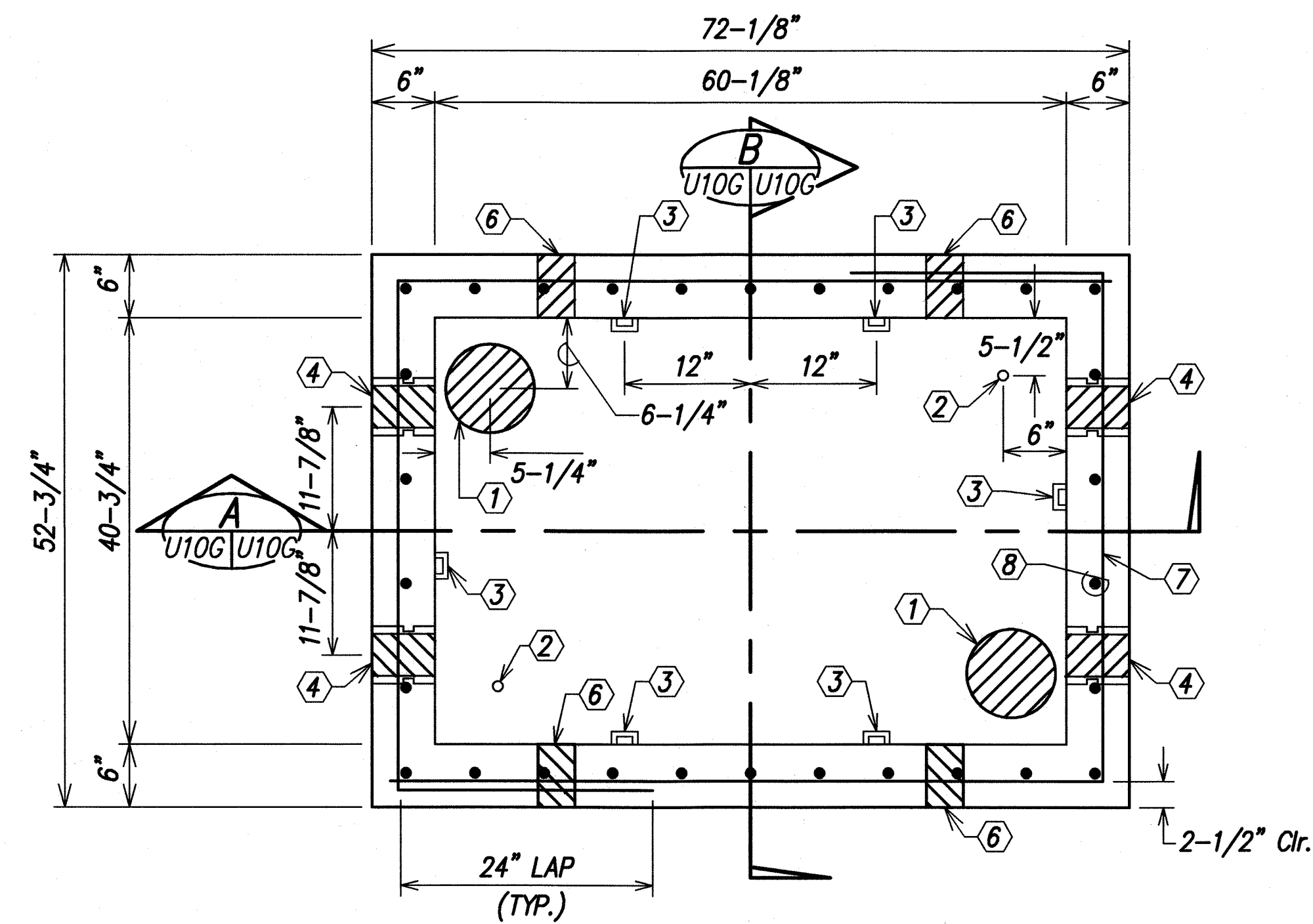


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RPAE, Inc.
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LICENSE EXPIRES 4-30-08

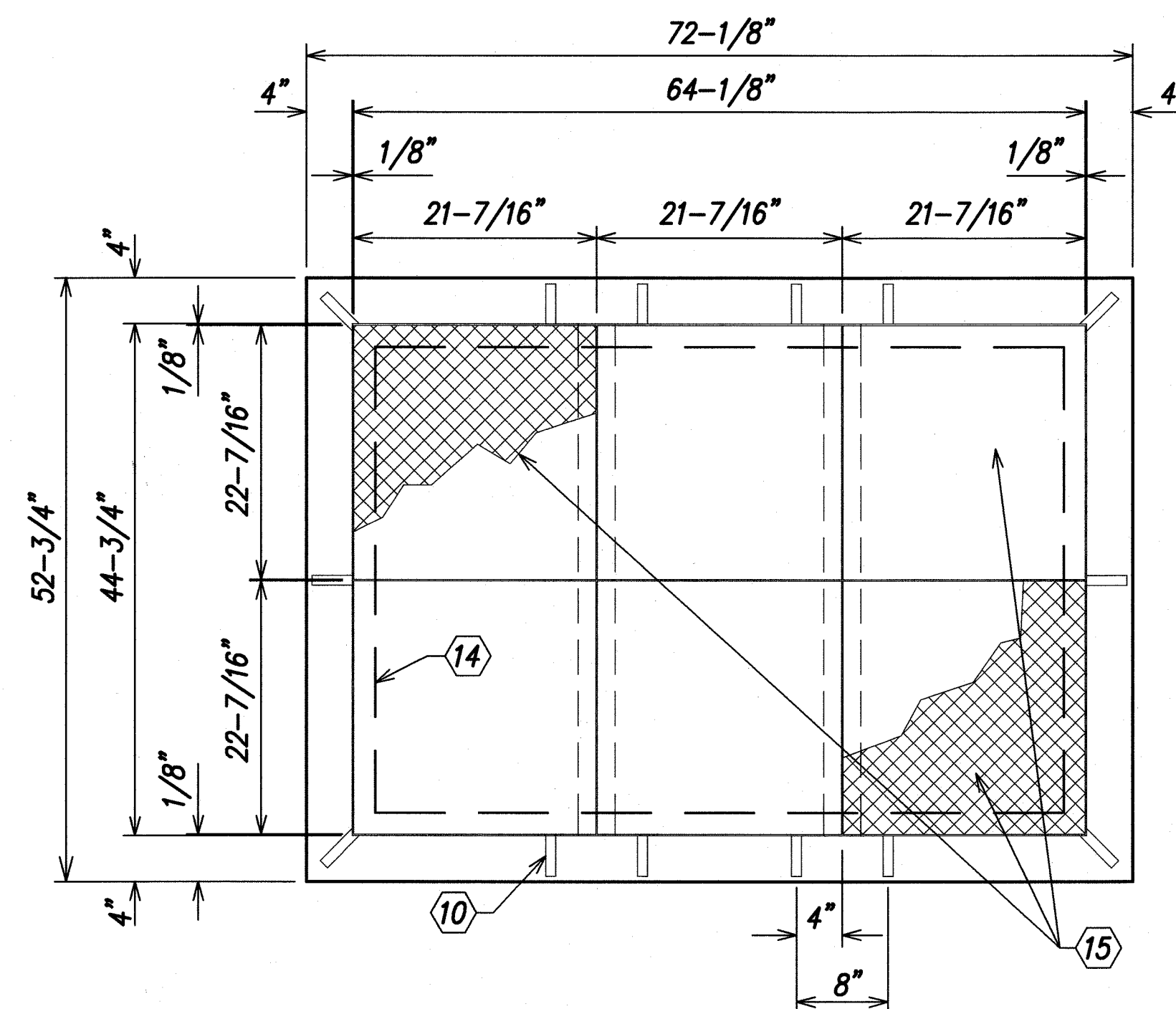
8/07/08	Sheet added to show Hawaiian Telcom ductline profiles.
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HAWAIIAN TELCOM
DUCTLINE PROFILE
KUHO HIGHWAY, SHORT TERM IMPROVEMENTS
Wailua Cane Haul Bridge Widening
Fed. Aid Project No. BR-056-1(51)
Scale: As Noted Date: MAY 2008
SHEET No. U10F OF U10 SHEETS

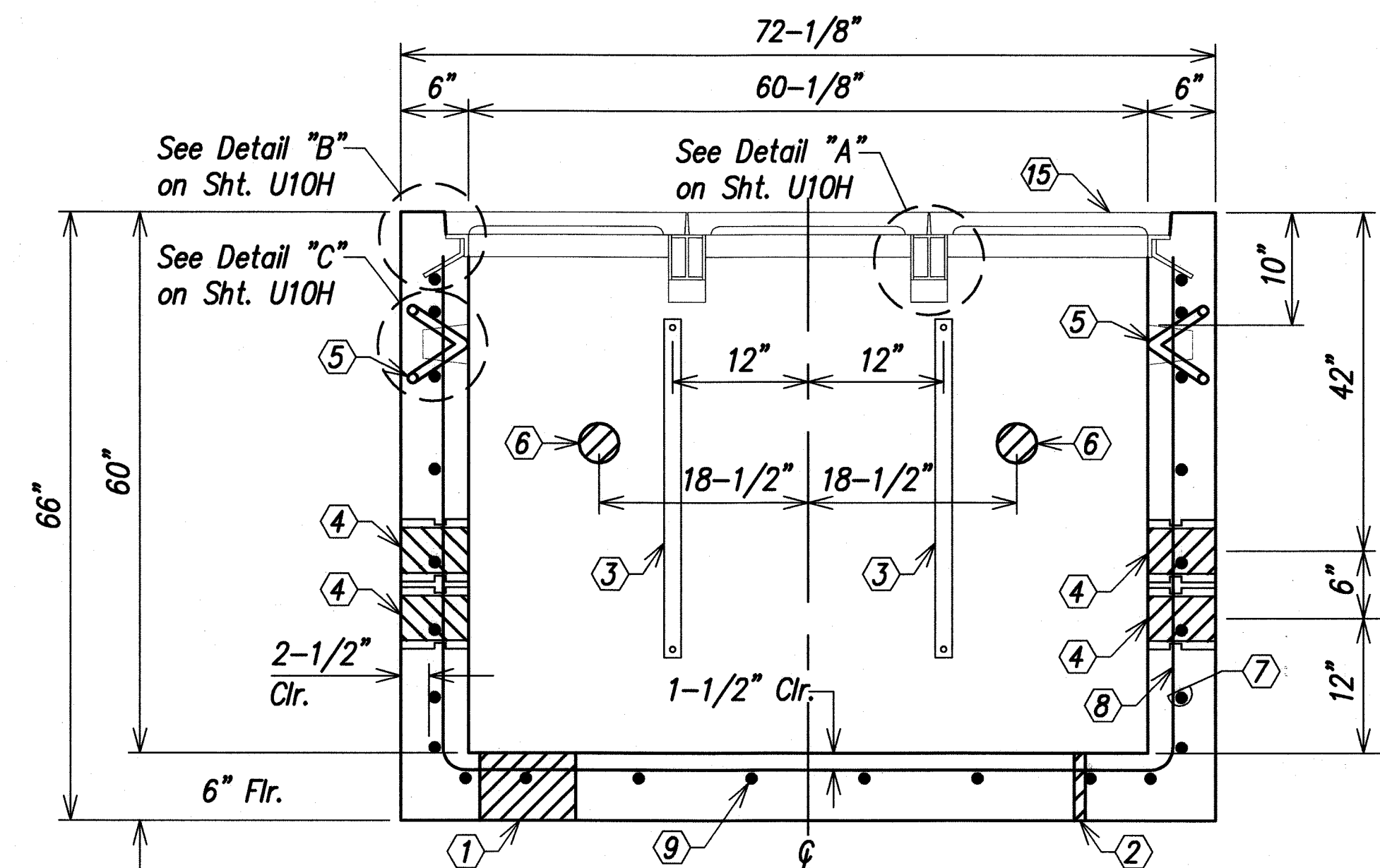
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HAWAII	HAW.	BR-056-1(51)	2008	ADD.66 S-7	284



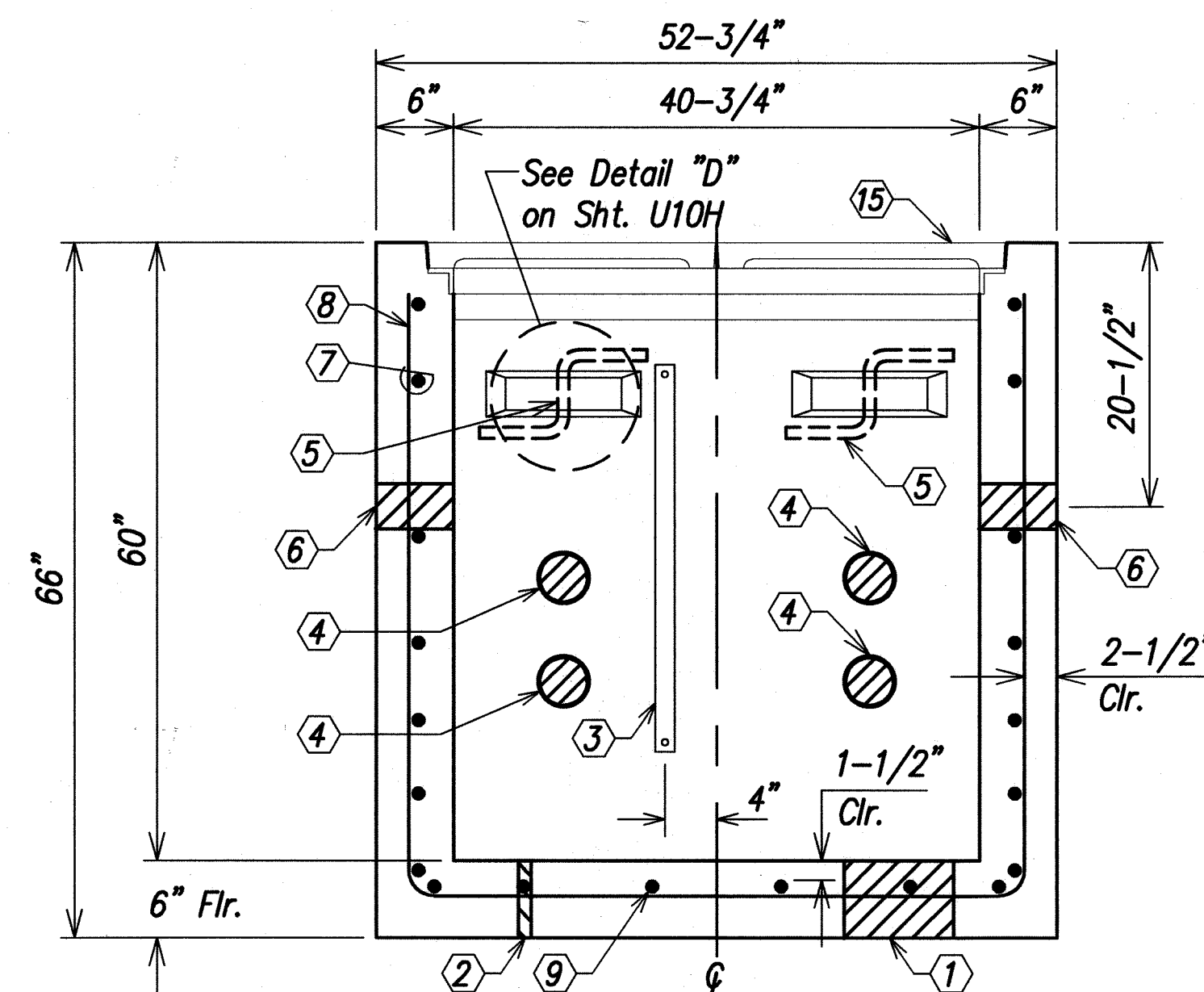
PLAN - HANDHOLE



PLAN - COVER



SECTION "A"



SECTION "B"

4'-0" x 6'-0" x 5'-0" DEEP TYPE 1 HANDHOLE

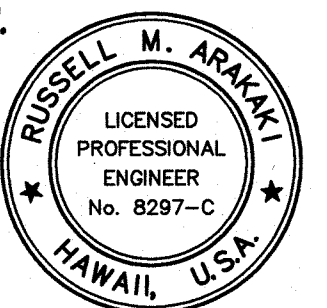
Not to Scale

Handhole Material List:

- ① 8-1/2" Diameter Sump Hole
- ② 1" Diameter Ground Rod Hole
- ③ 18 Hole Cable Rack with 1/2" Cable Rack Insert (Dayton Superior Threaded Inserts THC50 or equal)
- ④ 4" Terminators (Typ.)
- ⑤ 7/8" Diameter Galvanized Pulling Iron
- ⑥ 3-1/2" dia. x 6" Lifting Hole (Contractor to grout Solid after Placement of Section)
- ⑦ #4 Bars @ 8" o.c. Horizontal
- ⑧ #4 Bars @ 8" o.c. Vertical
- ⑨ #4 Bars @ 8" o.c. Both Ways
- ⑩ 3/8" Dia. x 6" Long Anchor Bar
- ⑪ 2" x 4" x 1/4" Galvanized Flat Bar
- ⑫ 3" x 2" x 1/4" Galvanized Angle, 3'-3" Long
- ⑬ S4 x 7.7 Galvanized Steel Beam
- ⑭ 2" x 2" x 3/8" Galvanized Angle Frame.
- ⑮ Armorcast Polymer Cover, Non-Skid Surface (6 total).

NOTES:

- Concrete shall have a minimum 28 day compressive strength of 4,000 psi. Reinforcing shall have a yield strength of 60,000 psi.
- All concrete and reinforced concrete work shall be done in accordance with applicable provisions of the American Concrete Institute's building code requirements for reinforced concrete (ACI 318-77).
- Handhole shall be placed on a 6" min. thick course aggregate material conforming to ASTM C33, No. 67
- Product shall be stenciled:
Manufacturer
Date of Pour
Product Mark No.
- Steel frame, beam, angle, flat bar, anchor and pulling iron shall be hot-dipped galvanized after fabrication.
- The following materials shall be shipped with each handhole:
(a) Armorcast Polymer Cover, Non-skid Surface (6 required).
(b) S4 x 7.7 Galvanized Steel Beam (2 required).



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HAWAIIAN TELCOM
HANDHOLE DETAILS
KUHIO HIGHWAY, SHORT TERM IMPROVEMENTS
Wailua Cane Haul Bridge Widening
Fed. Aid Project No. BR-056-1(51)
Scale: As Noted Date: MAY 2008
SHEET No. U10G OF U10 SHEETS

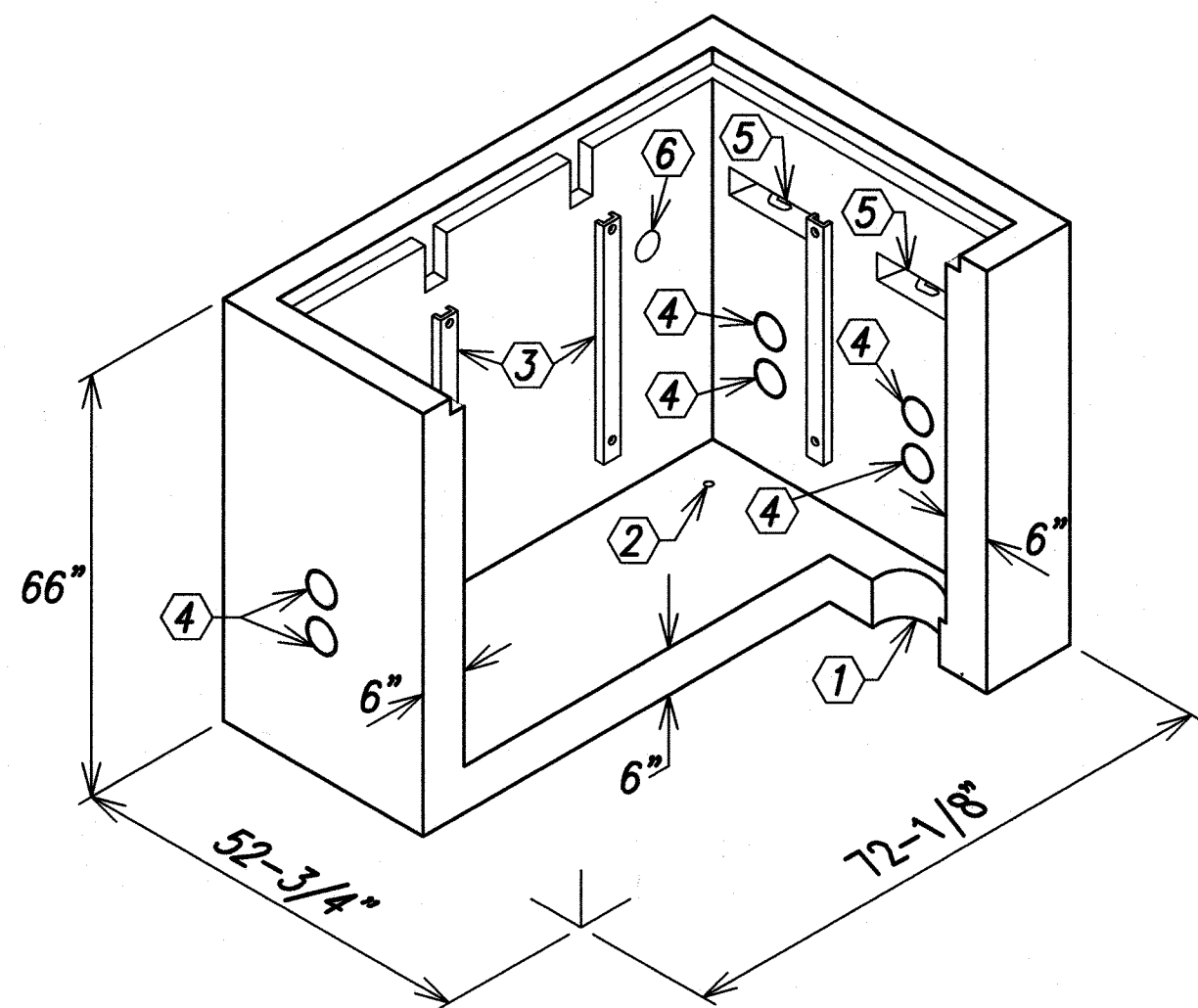
8/07/08 Sheet added to show Hawaiian Telcom Handhole details.

DATE REVISION

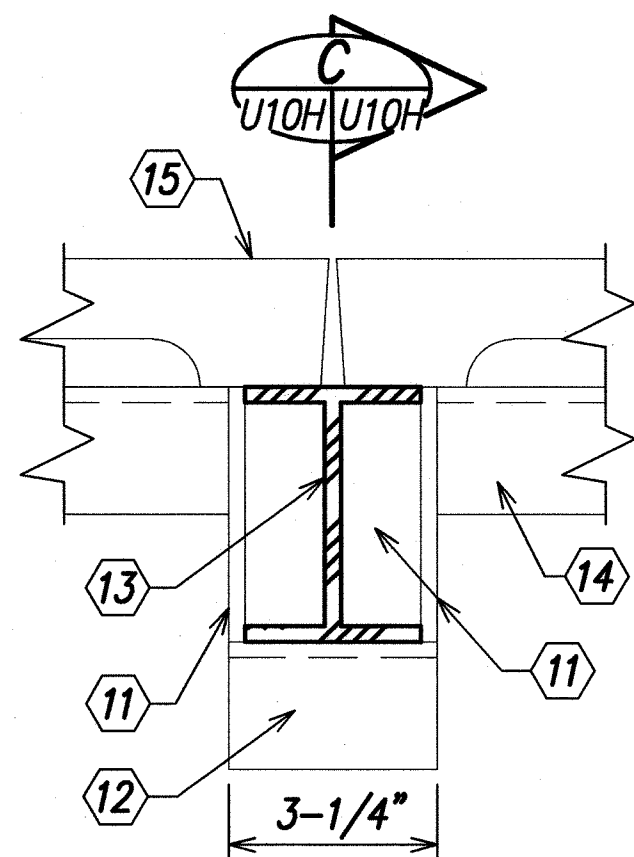
ADD. 66 S-7

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

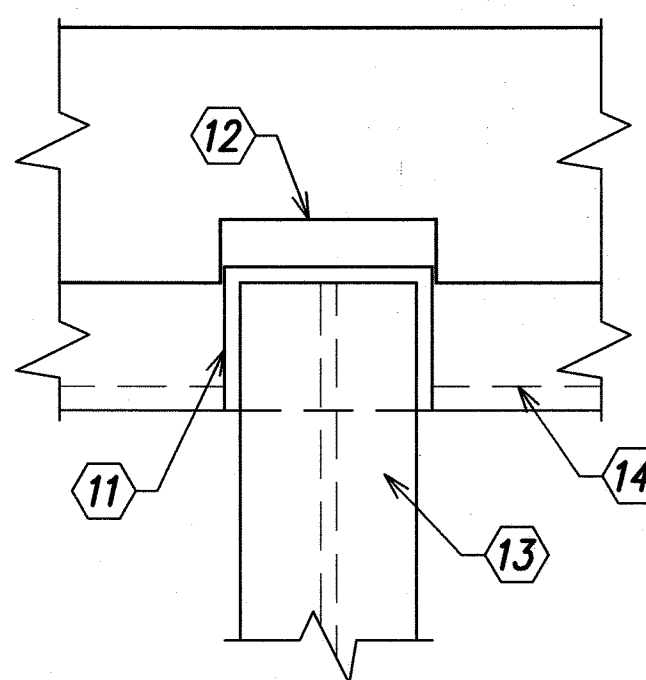
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-056-1(51)	2008	ADD.66 S-8	284



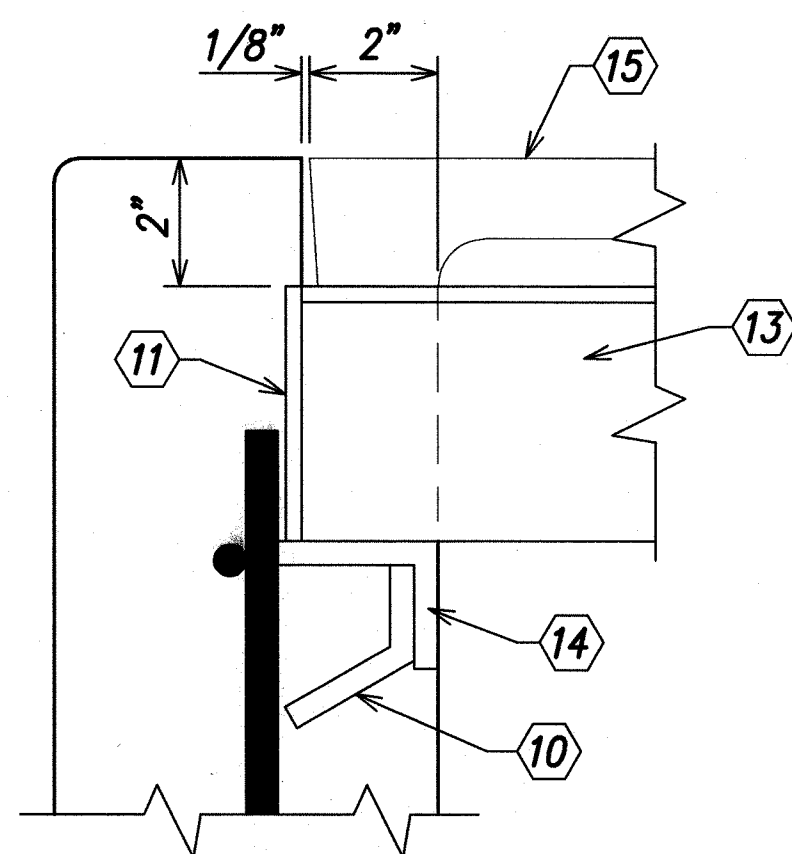
ISOMETRIC VIEW
Scale: 1/4" = 1'-0"



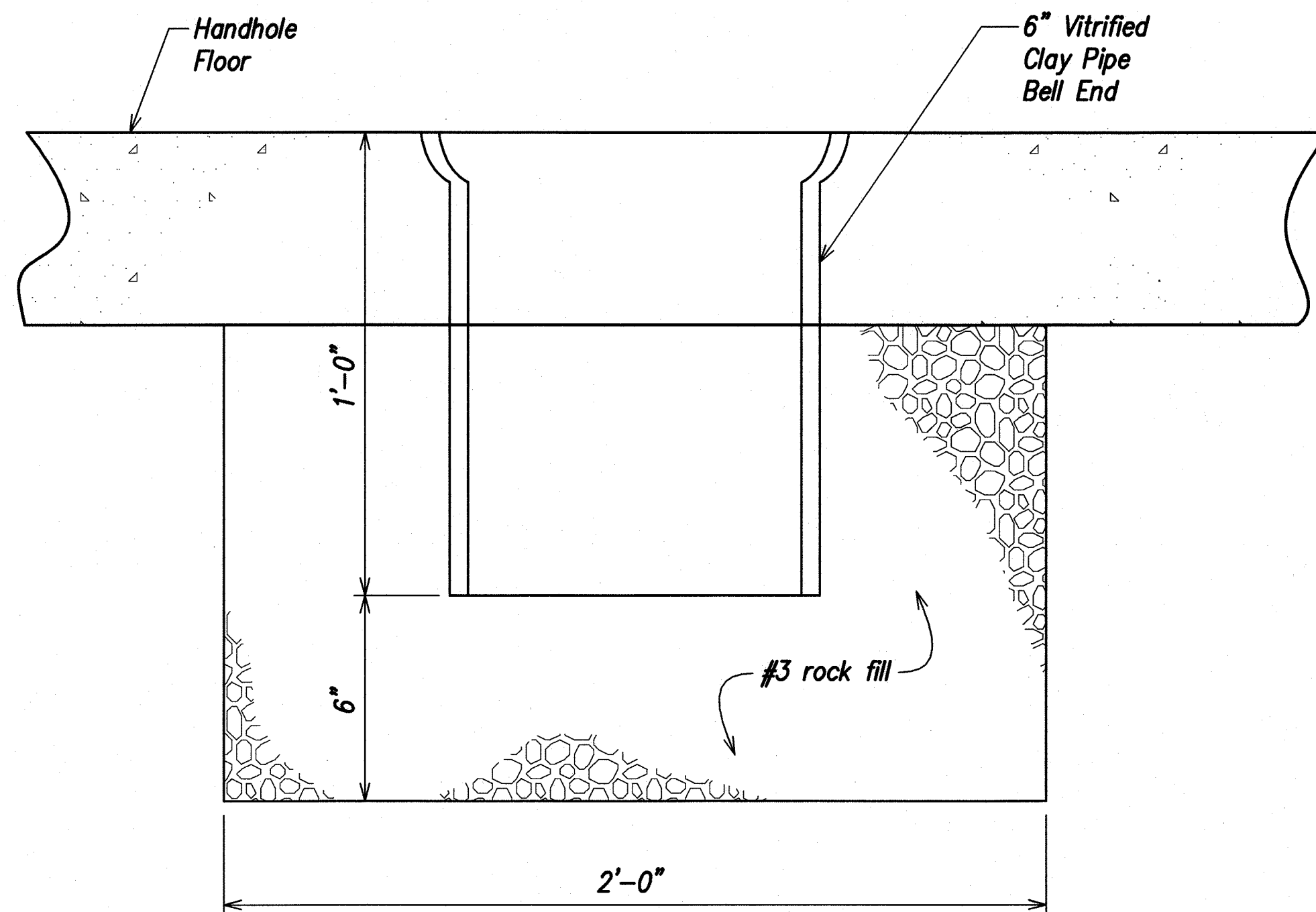
DETAIL "A"



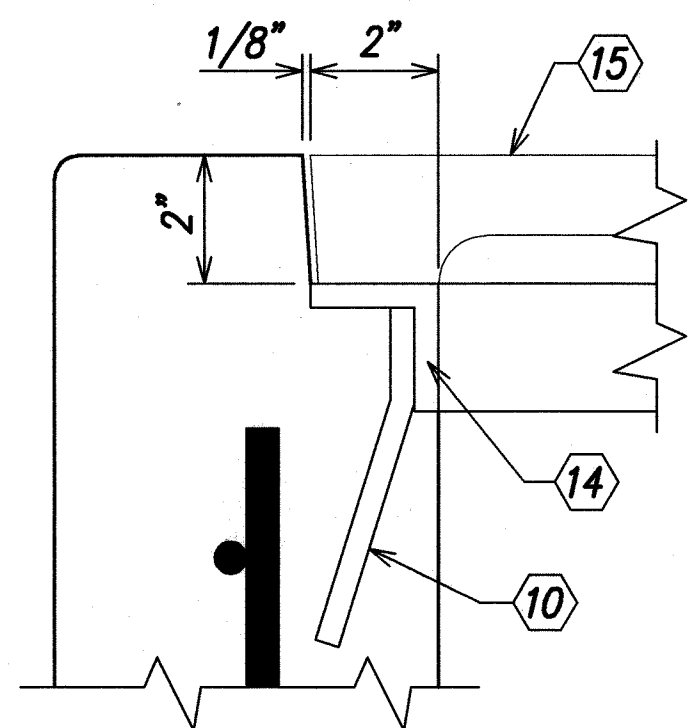
DETAIL "A" TOP VIEW



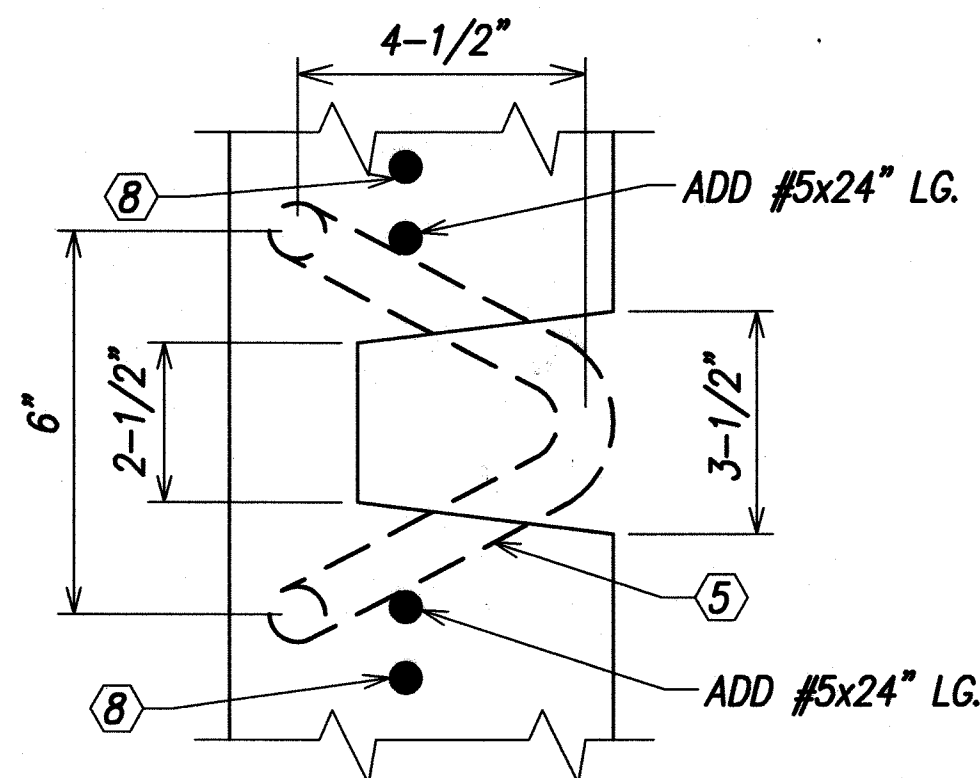
SECTION "C"



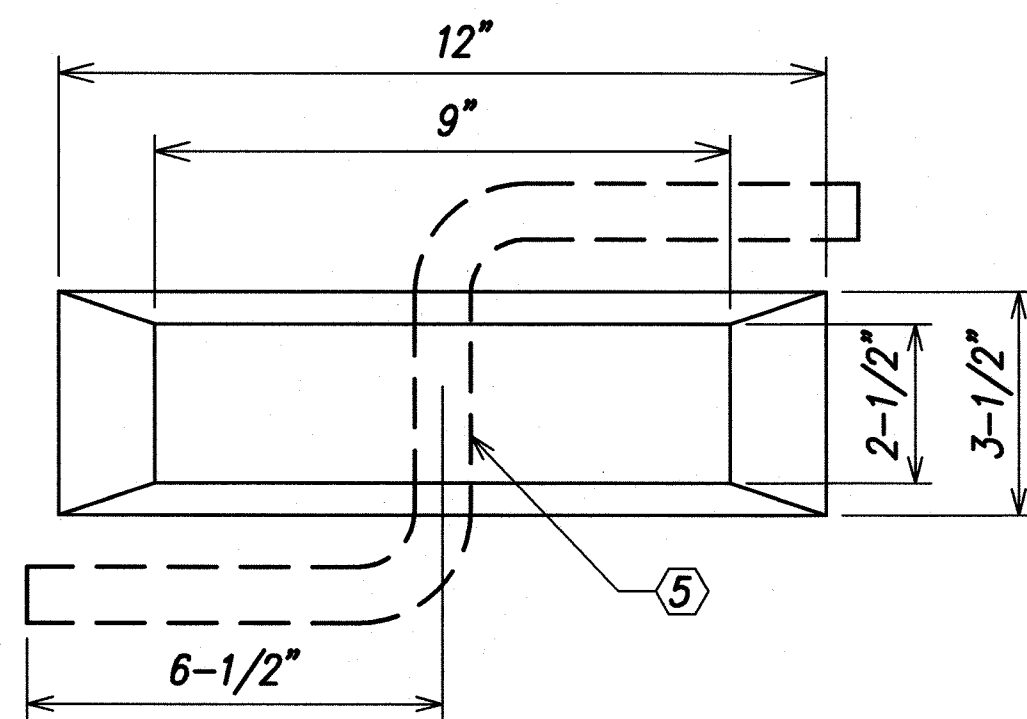
DETAIL OF SUMP
NOT TO SCALE



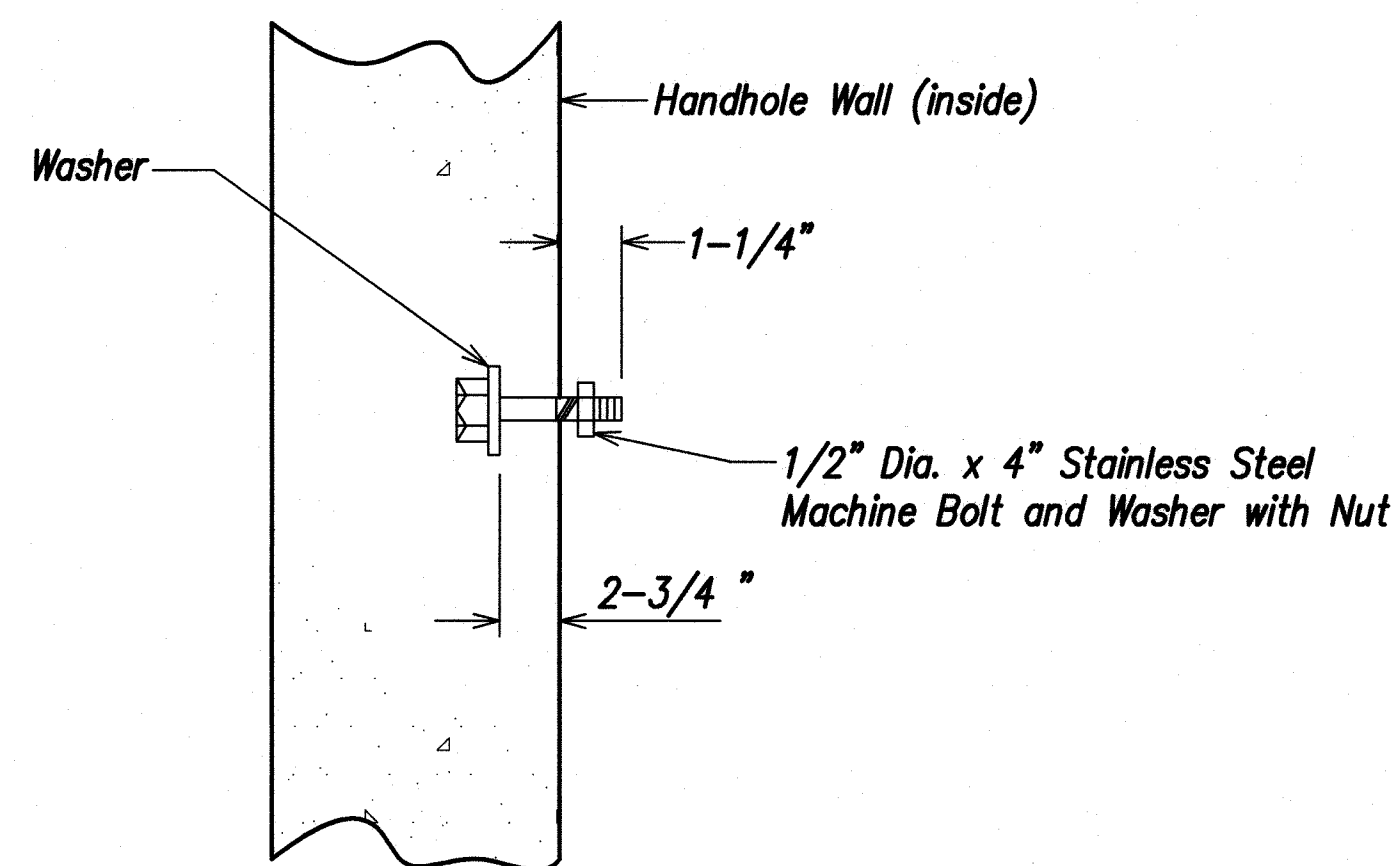
DETAIL "B"



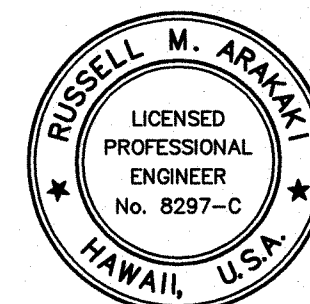
DETAIL "C"



DETAIL "D"



CABLE RACK STUD BOLT DETAIL
NOT TO SCALE



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LICENSE EXPIRES 4-30-10

4'-0" x 6'-0" x 5'-0" DEEP TYPE 1 HANDHOLE
Not to Scale

8/07/08 Sheet added to show Hawaiian Telcom Handhole details.

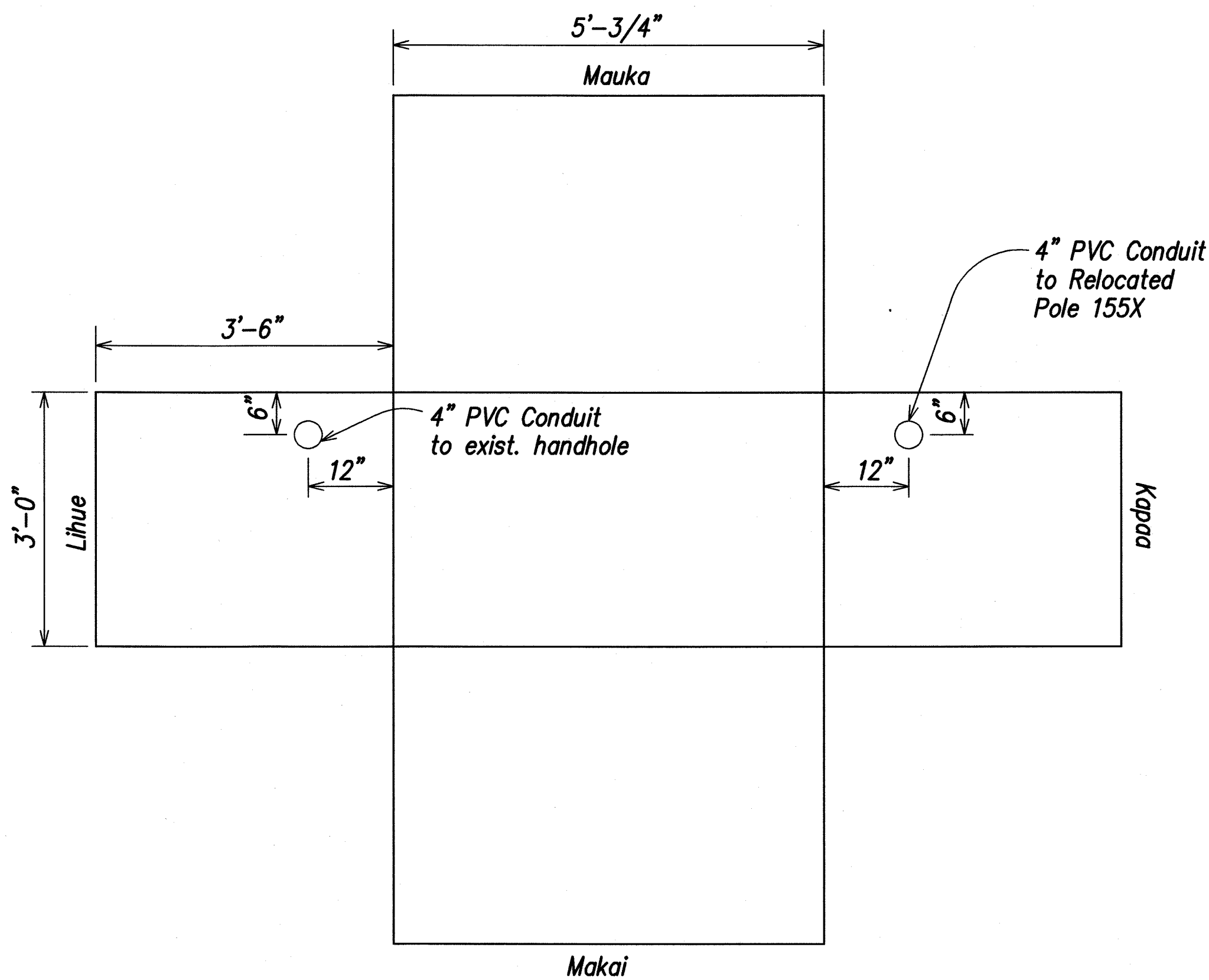
DATE REVISION

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION HAWAIIAN TELCOM HANDHOLE DETAILS KUHO HIGHWAY, SHORT TERM IMPROVEMENTS Wailua Cane Haul Bridge Widening Fed. Aid Project No. BR-056-1(51) Scale: As Noted Date: MAY 2008 SHEET No. U10H OF U10 SHEETS

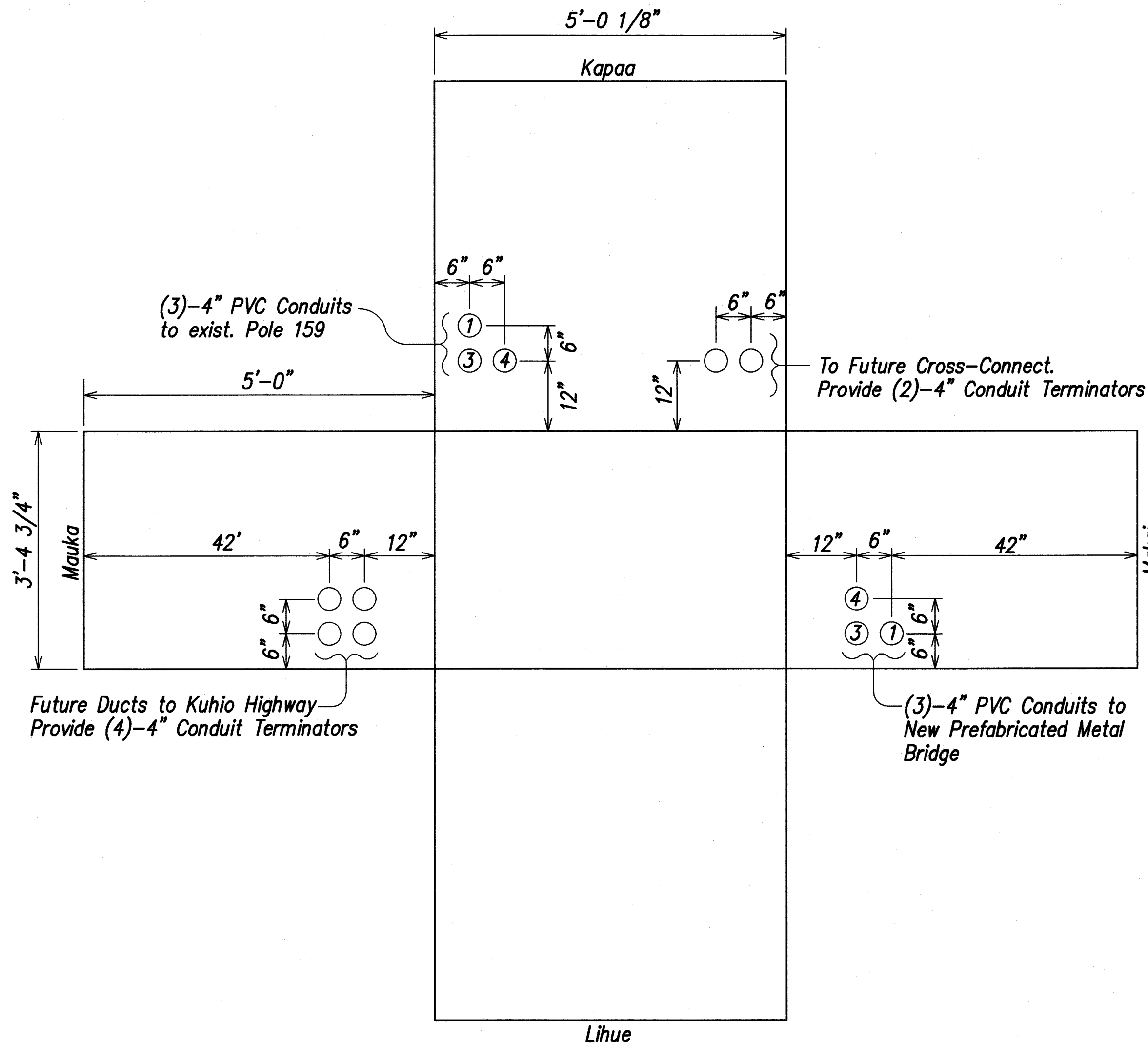
ADD. 66 S-8

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

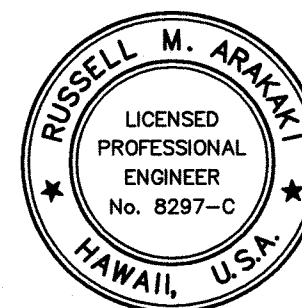
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-056-1(51)	2008	ADD. 66 S-10	284



NEW 3' x 5' PULLBOX
DUCTLINE STATION 0+77 HTL-1
NOT TO SCALE



NEW HANDHOLE #7-3, TYPE I, 4' x 6' x 5'
DUCTLINE STATION 1+07.27 HTL-2
NOT TO SCALE



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ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
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	QUANTITIES BY	
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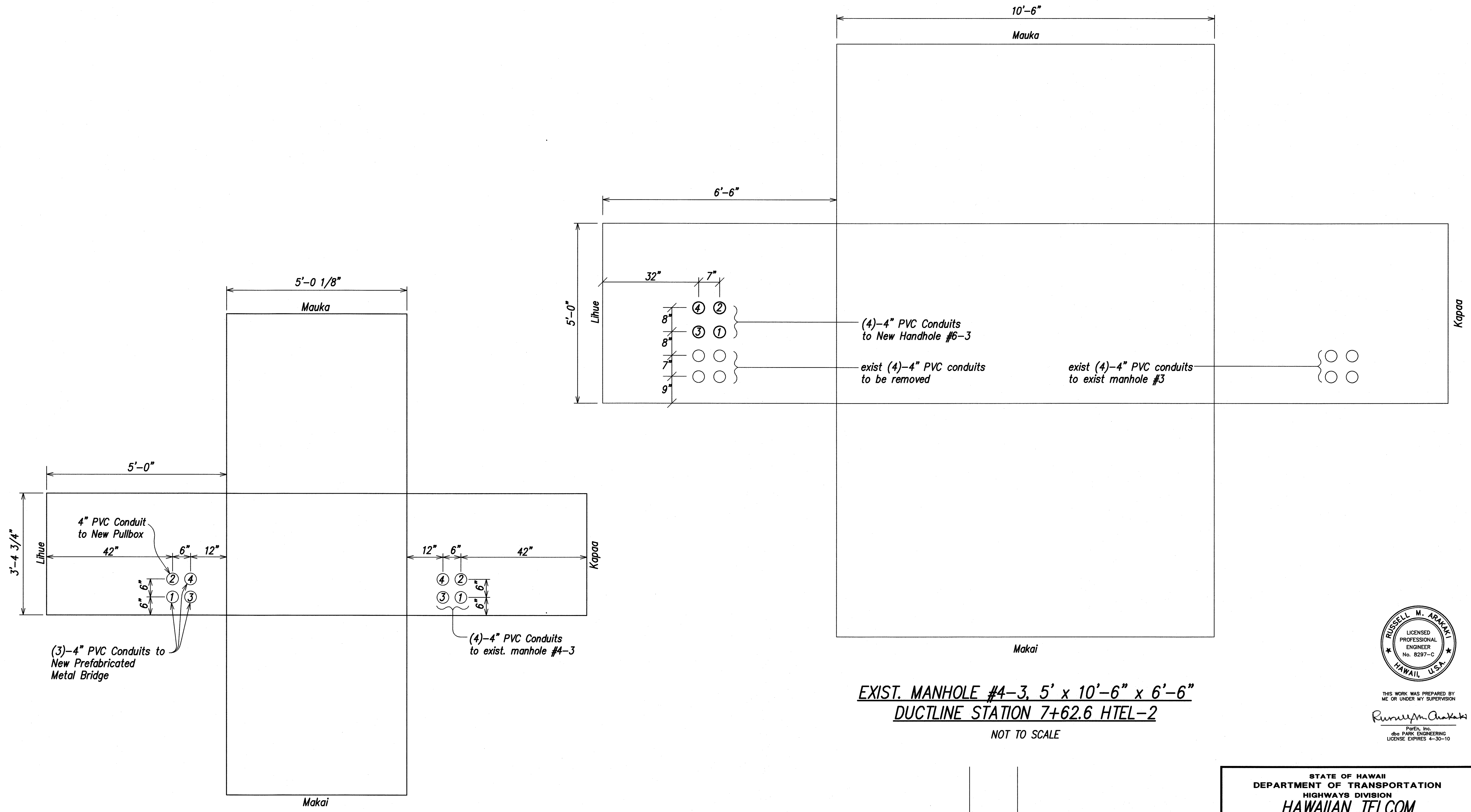
8/07/08 Sheet added to show ductline layout
at new handholes.

DATE REVISION

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION HAWAIIAN TELCOM DETAILS KUHIO HIGHWAY, SHORT TERM IMPROVEMENTS Wailua Cane Haul Bridge Widening Fed. Aid Project No. BR-056-1(51) Scale: As Noted Date: MAY 2008 SHEET No. U10J OF U10 SHEETS
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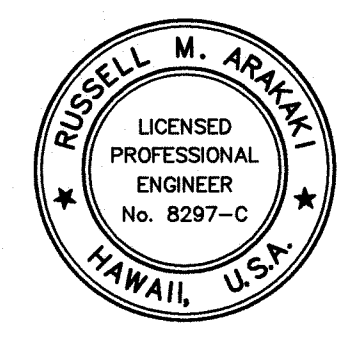
ADD. 66 S-10

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-056-1(51)	2008	ADD.66 S-11	284



NEW HANDHOLE #6-3, TYPE I, 4' x 6' x 5'
DUCTLINE STATION 6+61.18 HTL-2
NOT TO SCALE

EXIST. MANHOLE #4-3, 5' x 10'-6" x 6'-6"
DUCTLINE STATION 7+62.6 HTL-2
NOT TO SCALE



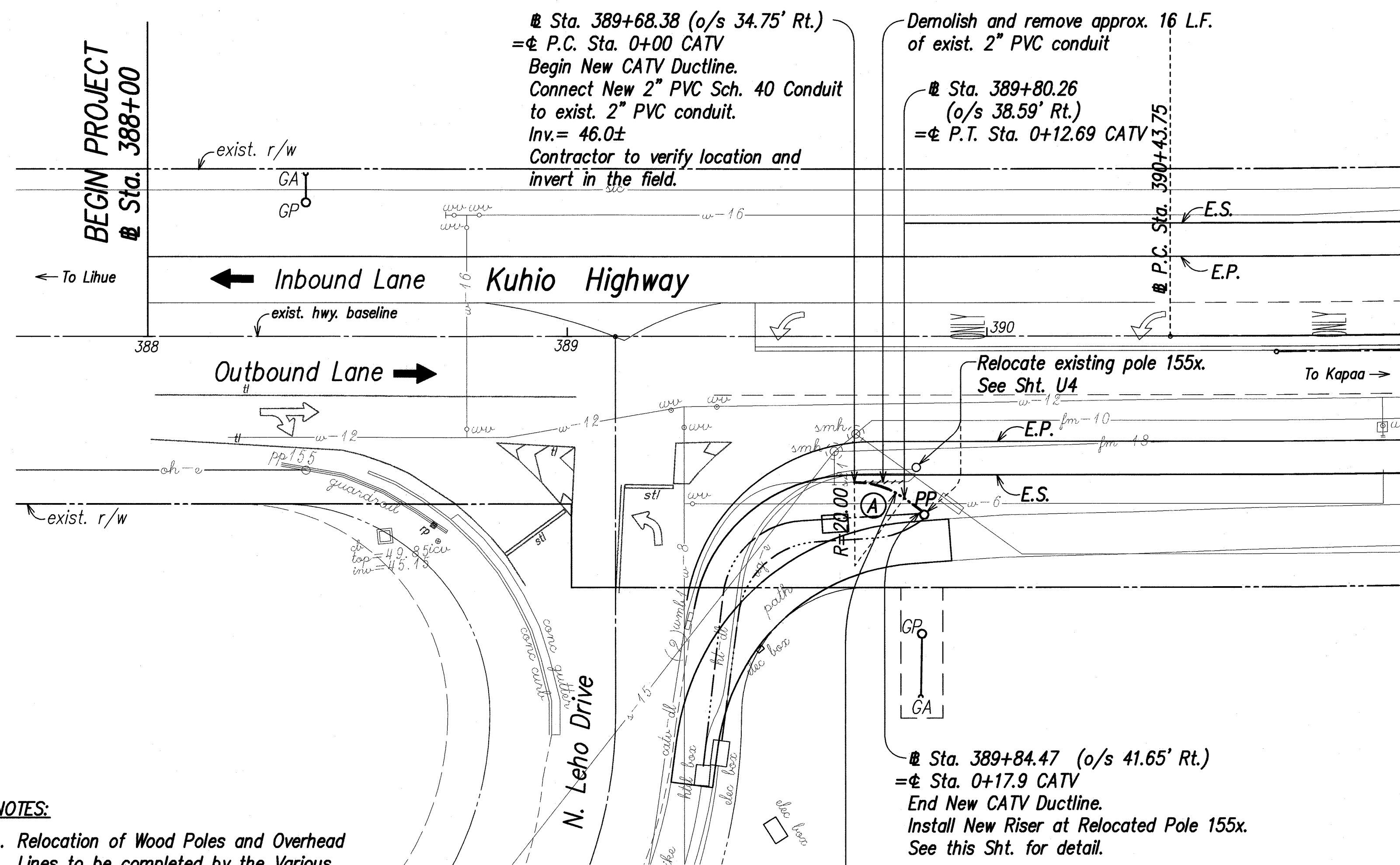
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ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	DESIGNED BY	
	CHECKED BY	

8/07/08	Sheet added to show ductline layout at new handhole and exist. manhole.
DATE	REVISION

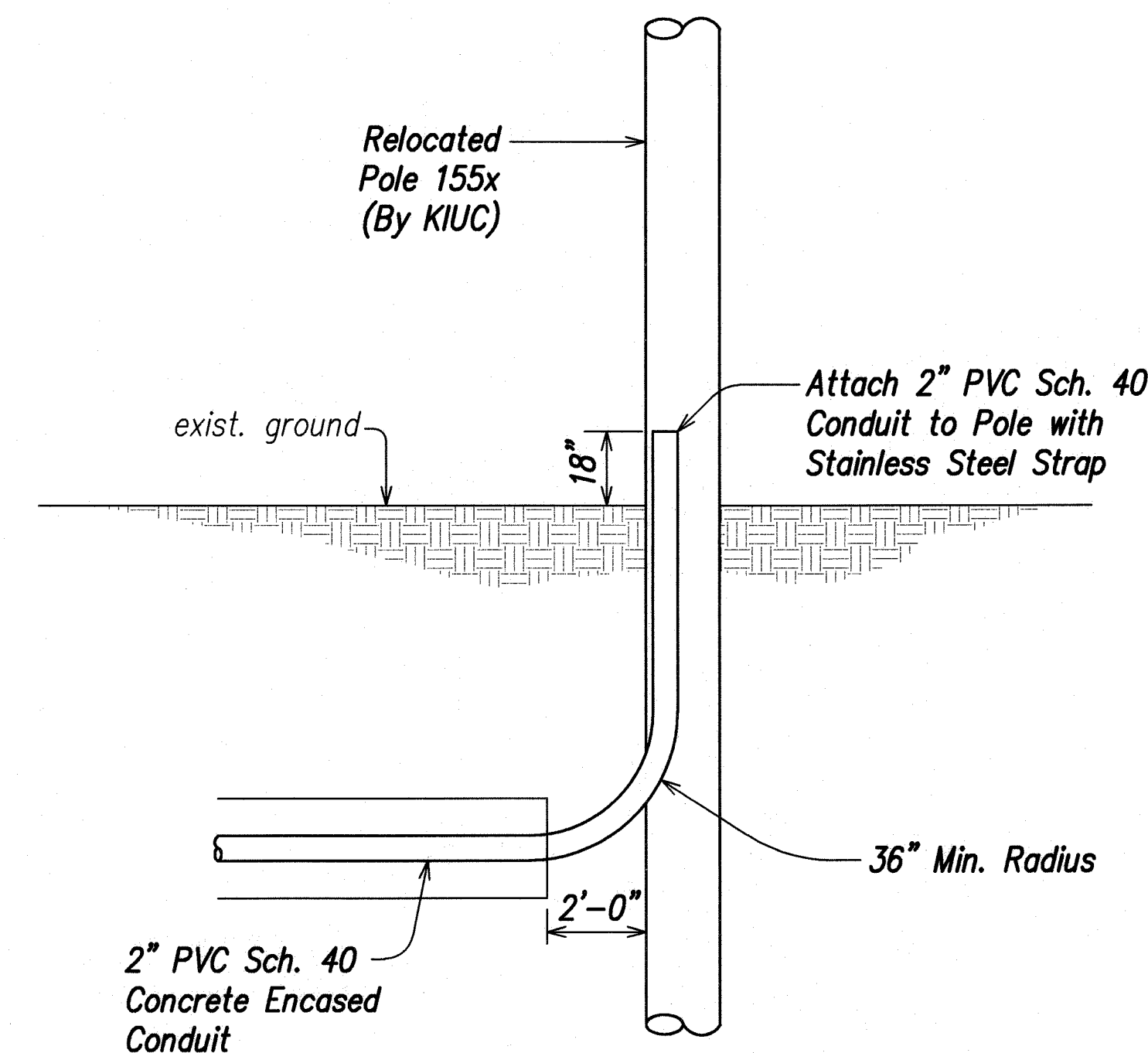
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HAWAIIAN TELCOM
DETAILS
KUHIO HIGHWAY, SHORT TERM IMPROVEMENTS
Wailua Cane Haul Bridge Widening
Fed. Aid Project No. BR-056-1(51)
Scale: As Noted Date: MAY 2008
SHEET No. U10K OF U10 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-056-1(51)	2008	ADD.66 S-12	284

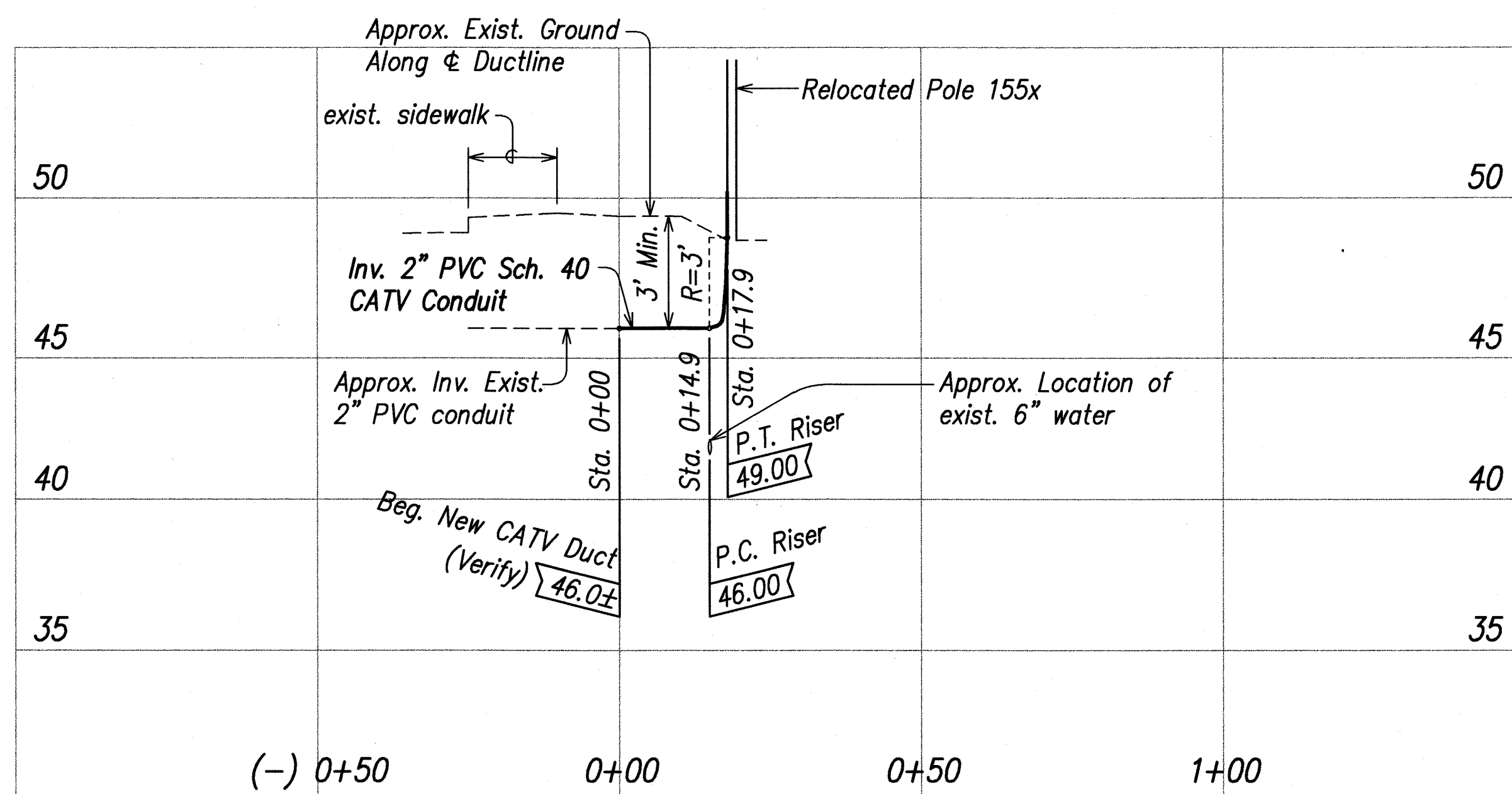


① Ductline Curve Data

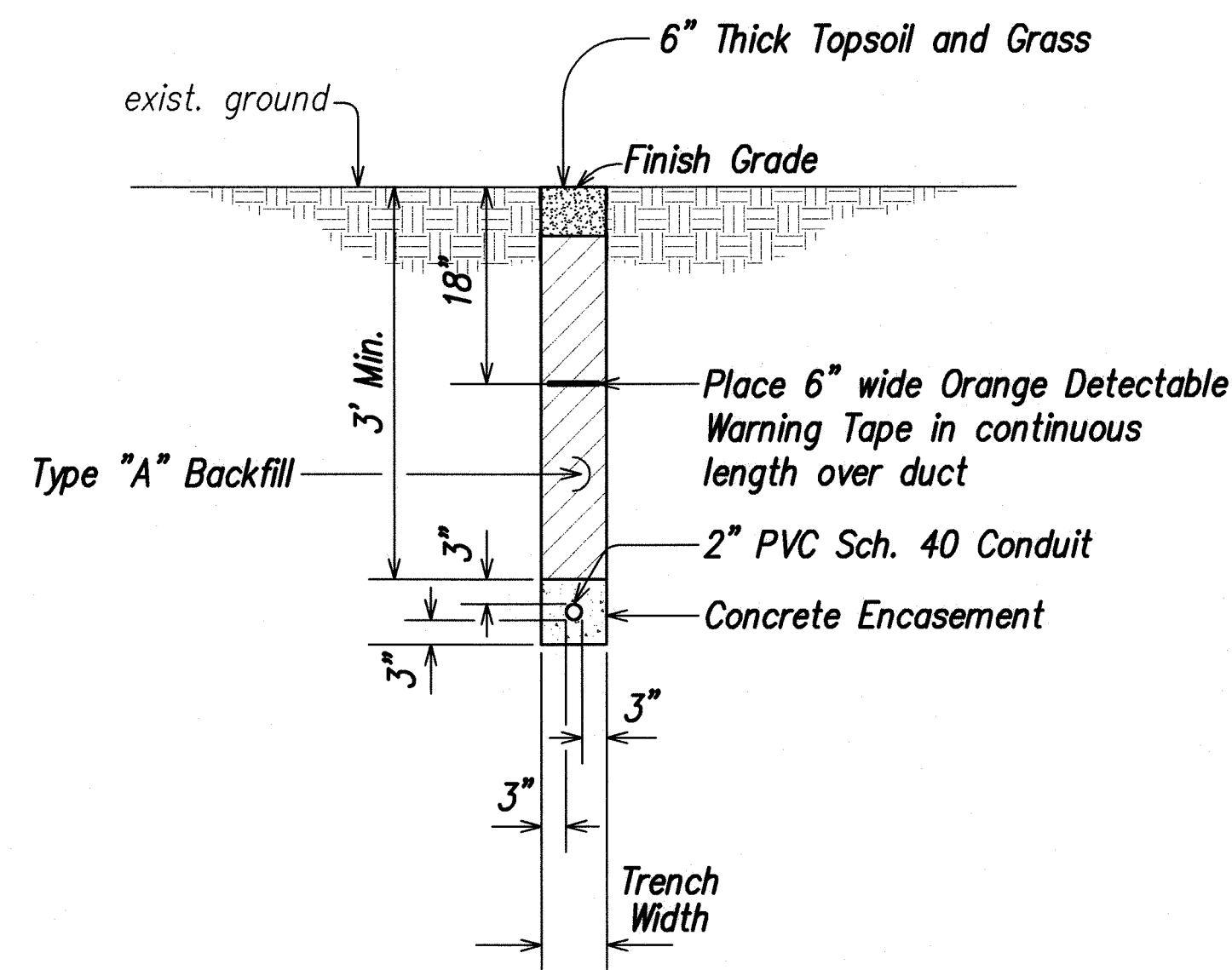
$\Delta = 36^\circ 20' 47''$
 $\Delta/2 = 18^\circ 10' 23.5''$
 $R = 20.00$
 $T = 6.57$
 $C = 12.48$
 $L_c = 12.69$



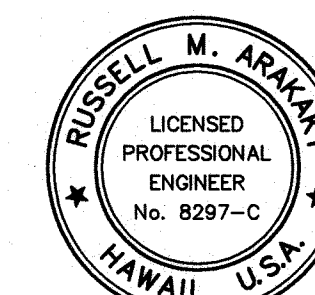
TYPICAL RISER DETAIL
Not To Scale



PROFILE - CATV DUCTLINE
Scales: Horiz. 1" = 20'
Vert. 1" = 4'



TYPICAL DUCT SECTION
Scale: 1" = 1'-0"



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8/07/08 Sheet added to show Oceanic Time Warner Cable ductline relocation.

DATE REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CATV DUCTLINE PLAN

KUHIU HIGHWAY, SHORT TERM IMPROVEMENTS

Wailua Cane Haul Bridge Widening

Fed. Aid Project No. BR-056-1(51)

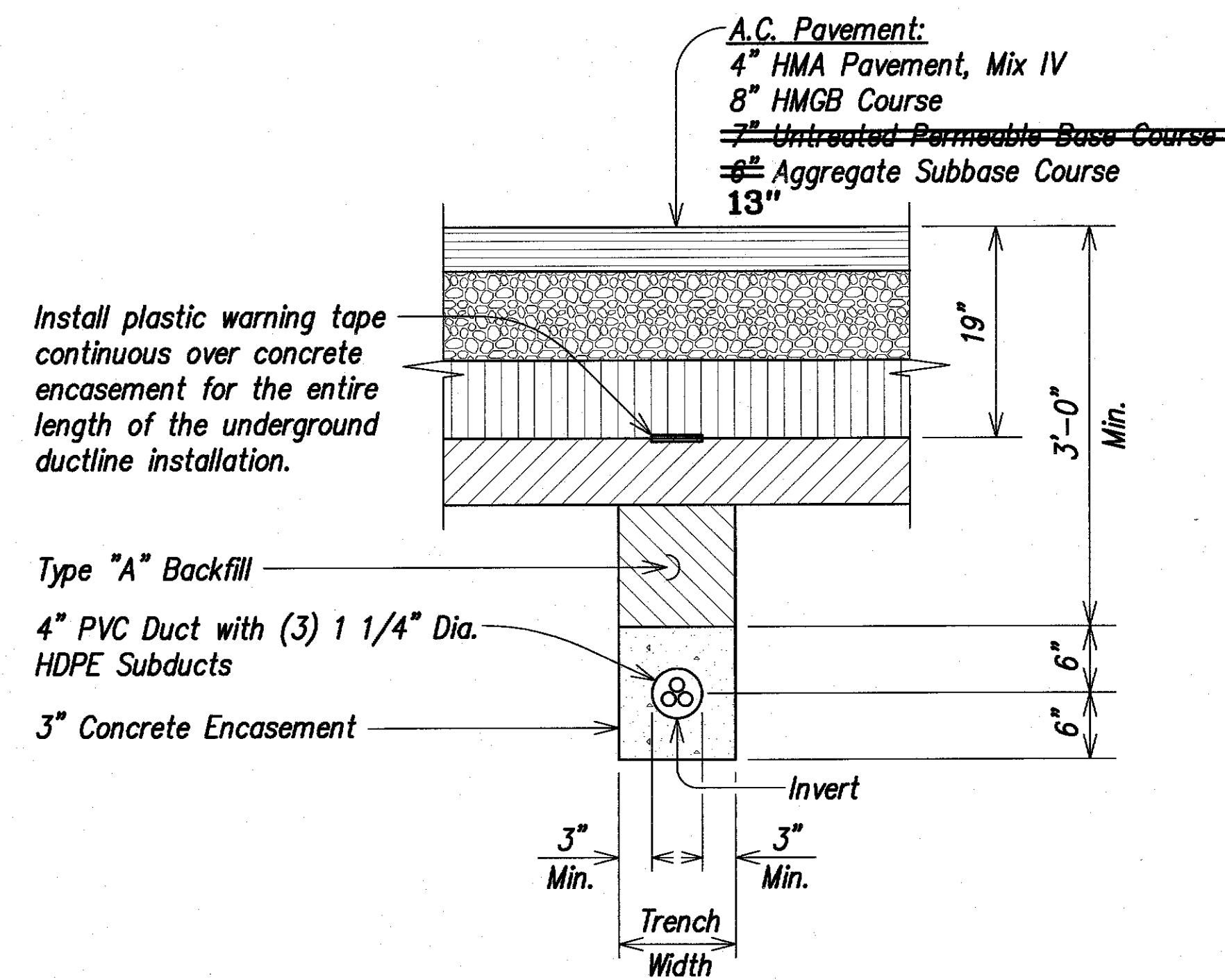
Scale: As Noted

Date: MAY 2008

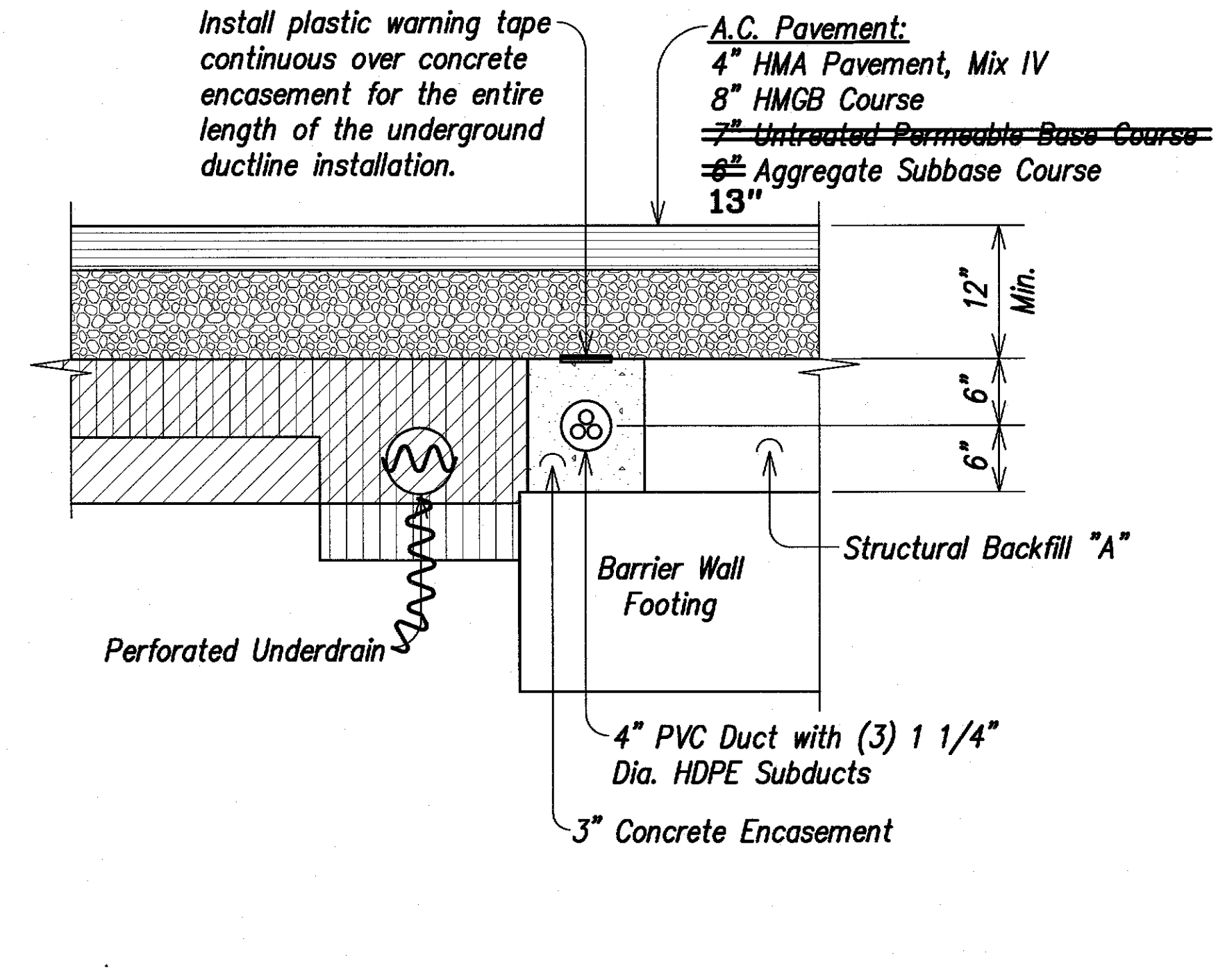
SHEET No. U10L OF U10 SHEETS

ADD. 66 S-12

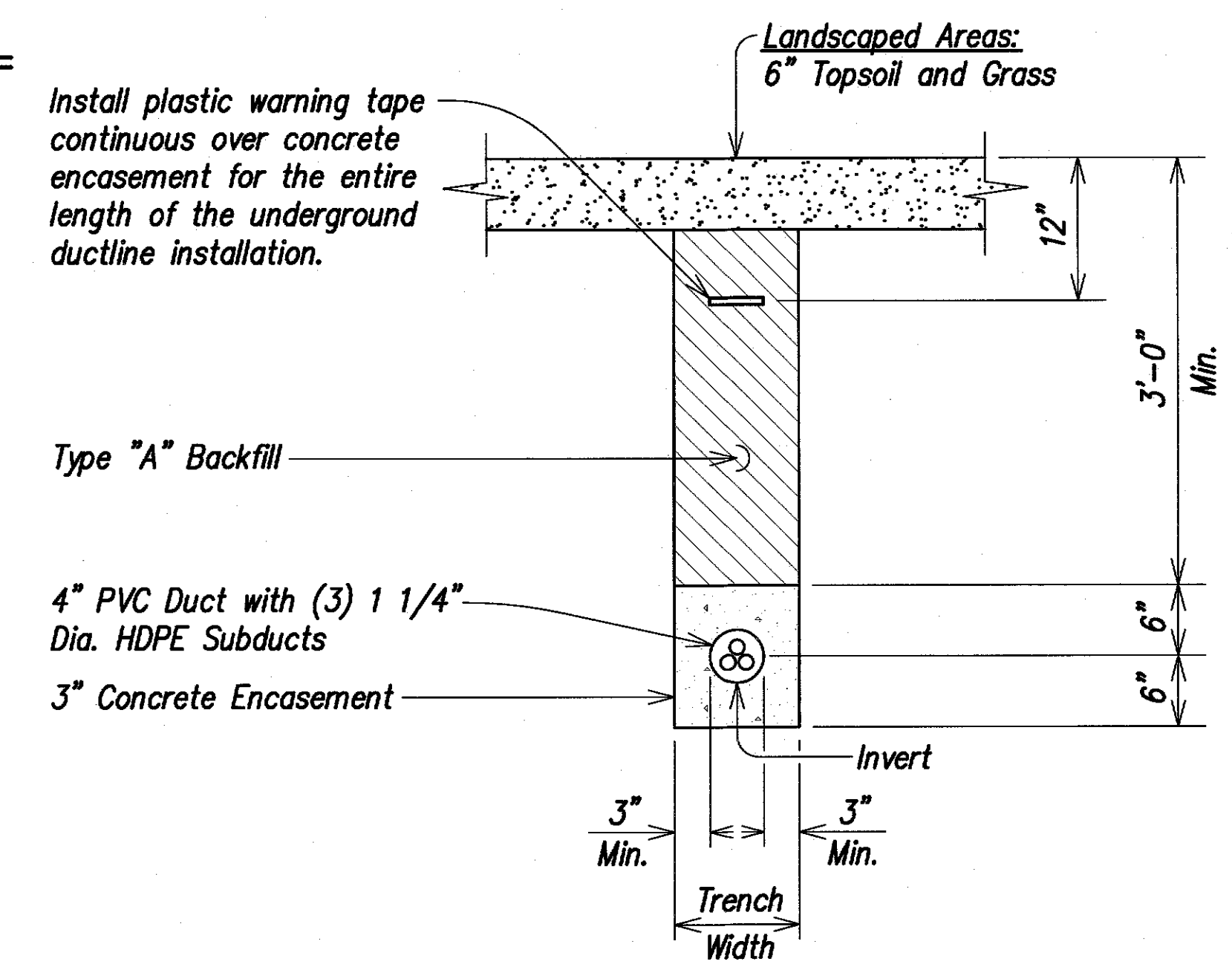
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-056-1(51)	2008	C.O. 66 S-17	284



WITHIN TRAVEL LANES AND SHOULDER
(1)-4" DUCT SECTION
Scale: 1" = 1'-0"



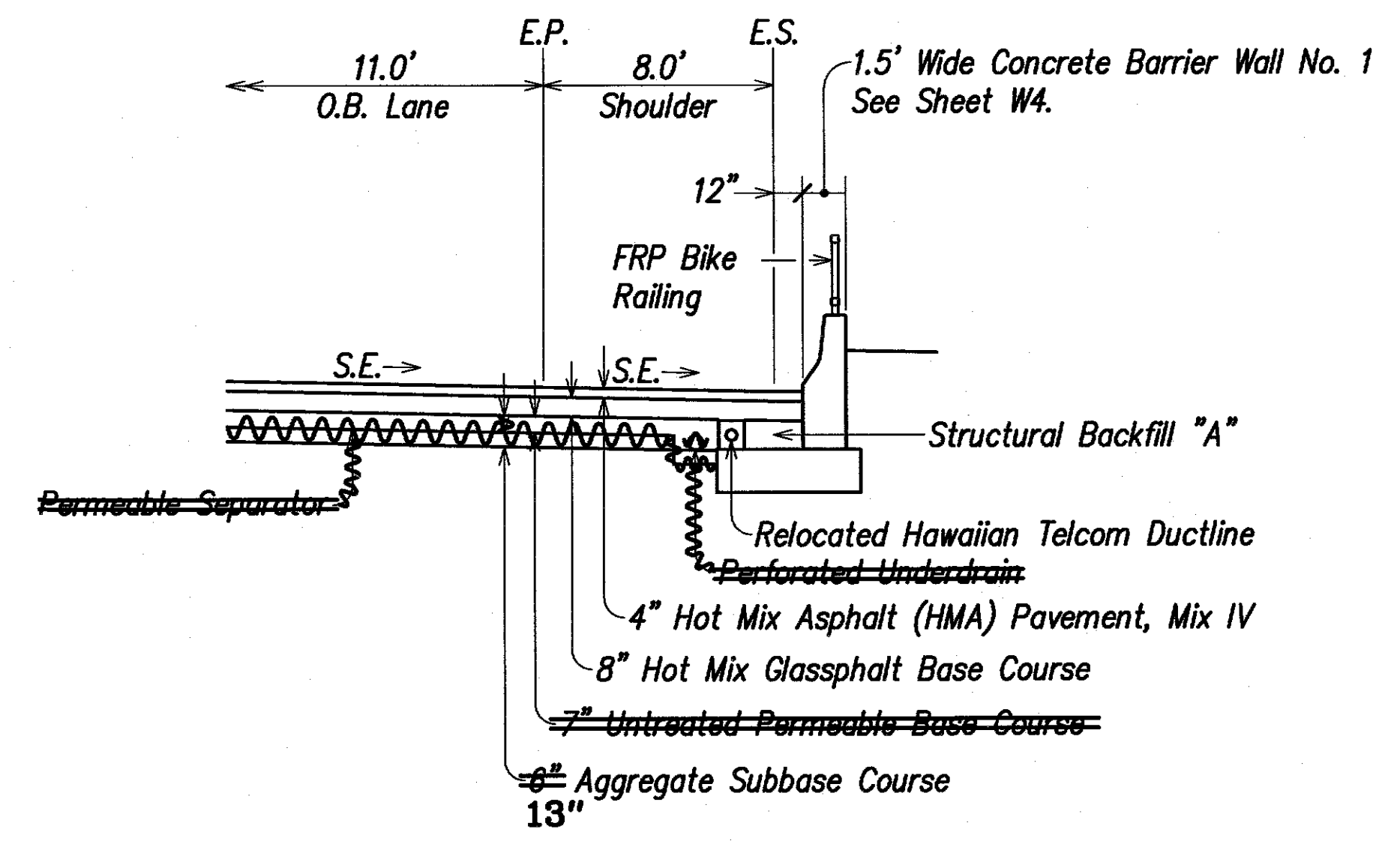
WITHIN SHOULDER NEXT TO BARRIER WALL NO. 1
(1)-4" DUCT SECTION
Scale: 1" = 1'-0"



Landscaped Areas
(1)-4" DUCT SECTION
Scale: 1" = 1'-0"

TYPICAL DUCT SECTION NOTES:

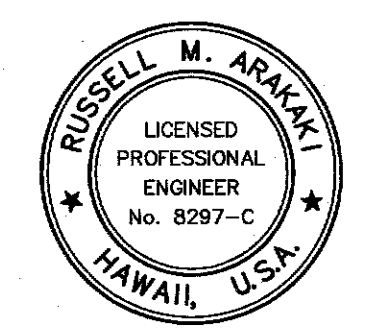
- 4" PVC Duct shall be GTE Telephone Duct conforming to the requirements of GTE Spec. GTS 8342.
- 1 1/4" Subducts shall be HDPE Smooth Interior and Exterior Wall Pipe, Type III, SDR 11.5 having an inside diameter of 1.225", an outside diameter of 1.488" and a minimum wall thickness of 0.1315".
- Plastic warning tape shall be 4-inches (minimum) wide, 8-mil. thick, orange in color with a black imprinted message that reads "WARNING - STOP DIGGING - CALL HAWAIIAN TELCOM, COMMUNICATIONS CABLE BURIED BELOW, FAILURE TO COMPLY COULD RESULT IN LEGAL ACTION".



TYPICAL SECTION ALONG BARRIER WALL NO. 1
SCALE: 1"=5'

**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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P.E., Inc.
dbs PARK ENGINEERING
LICENSE EXPIRES 4-30-20

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HAWAIIAN TELCOM
DUCTLINE DETAILS
KUHIO HIGHWAY, SHORT TERM IMPROVEMENTS
Wailua Cane Haul Bridge Widening
Fed. Aid Project No. BR-056-1(51)
Scale: As Noted Date: MAY 2008
SHEET No. U10R OF U10 SHEETS

5/27/10 Sheet added to show Hawaiian Telcom ductline details.
DATE REVISION

"AS-BUILT"

C.O. 66 S-17