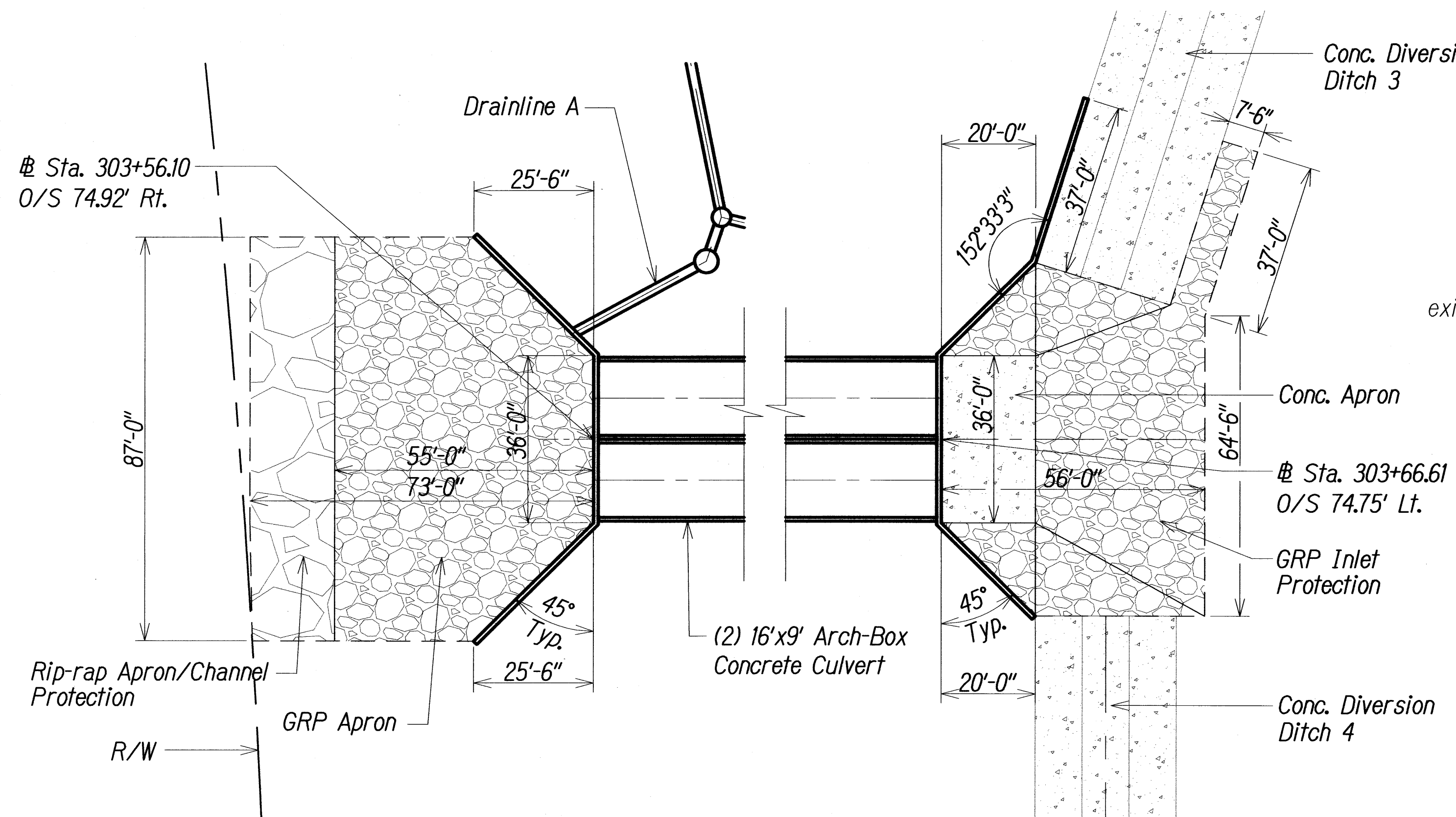


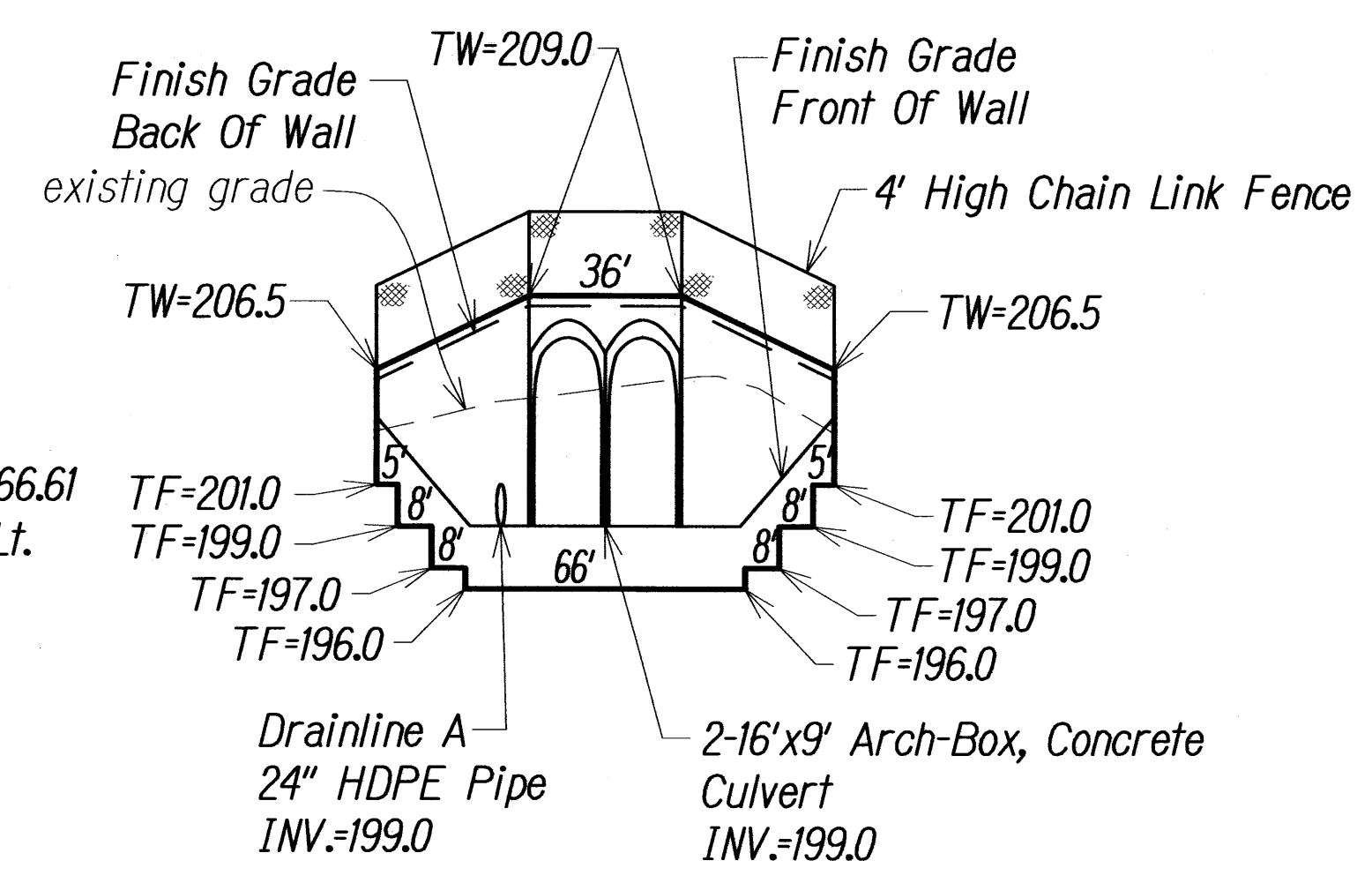
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-K(38)	2010	78	213



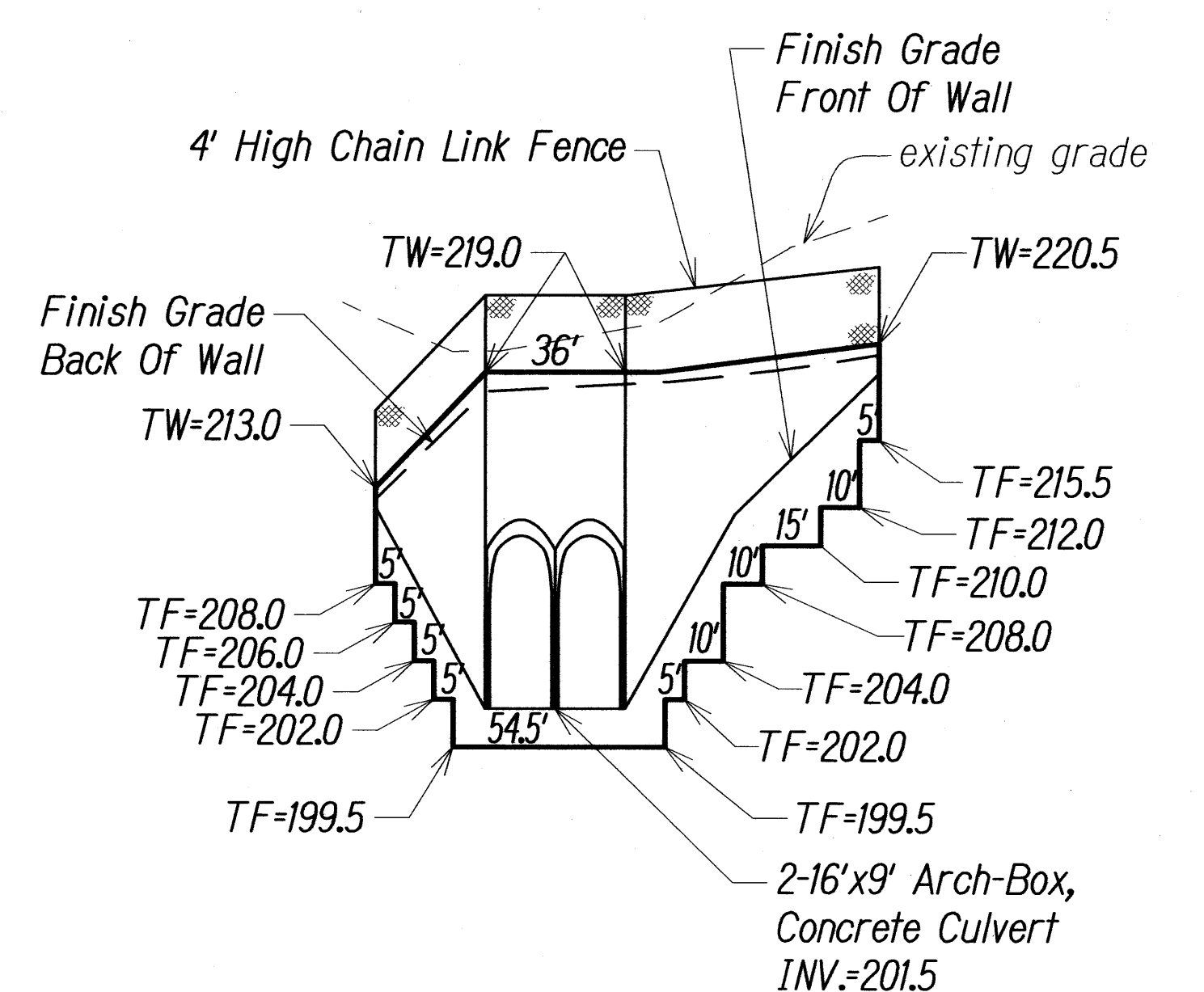
PLAN - OUTLET HEADWALL
Scale: Horiz. 1"=20'

PLAN - INLET HEADWALL
Scale: Horiz. 1"=20'

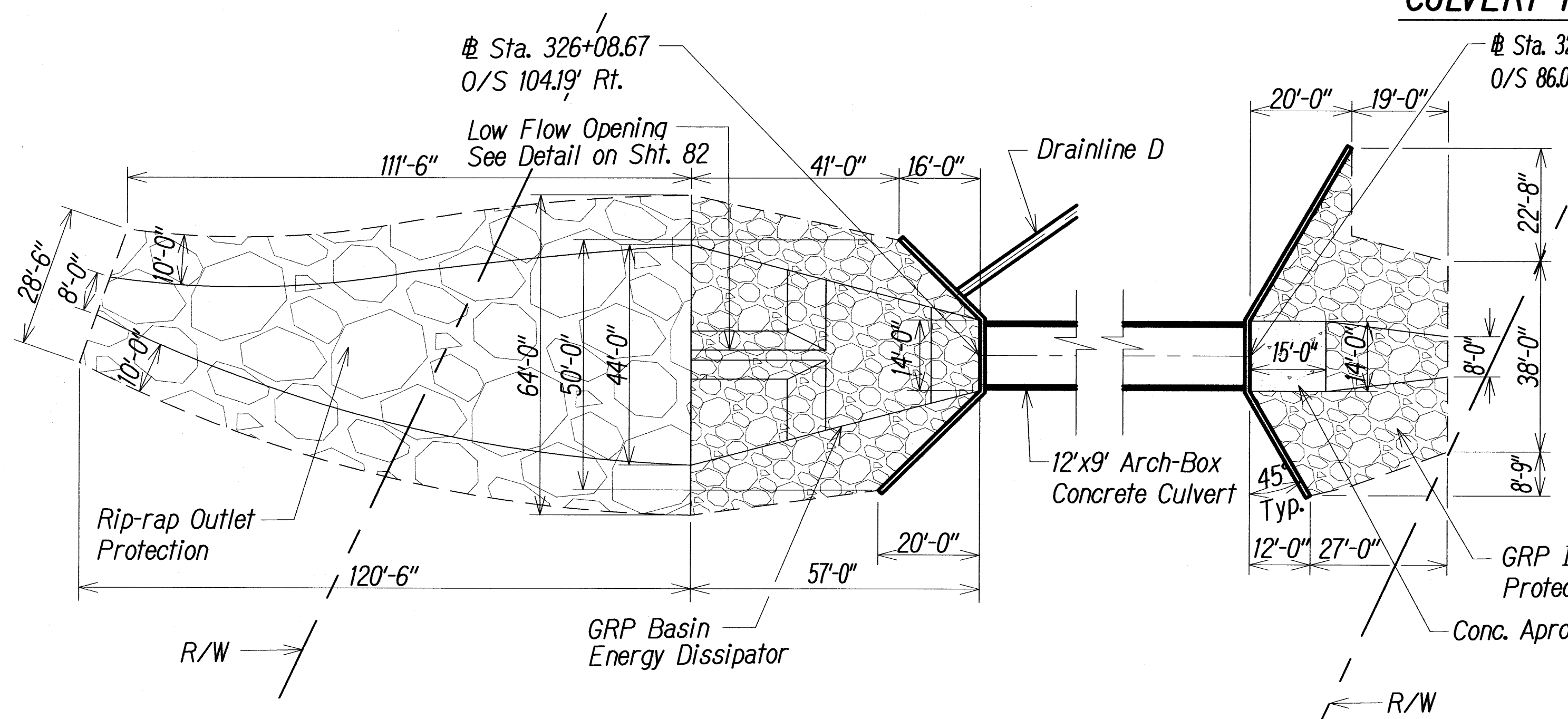
Note:
For Culvert Inlet and Outlet Headwalls, See Structural Plans



PROFILE - OUTLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'



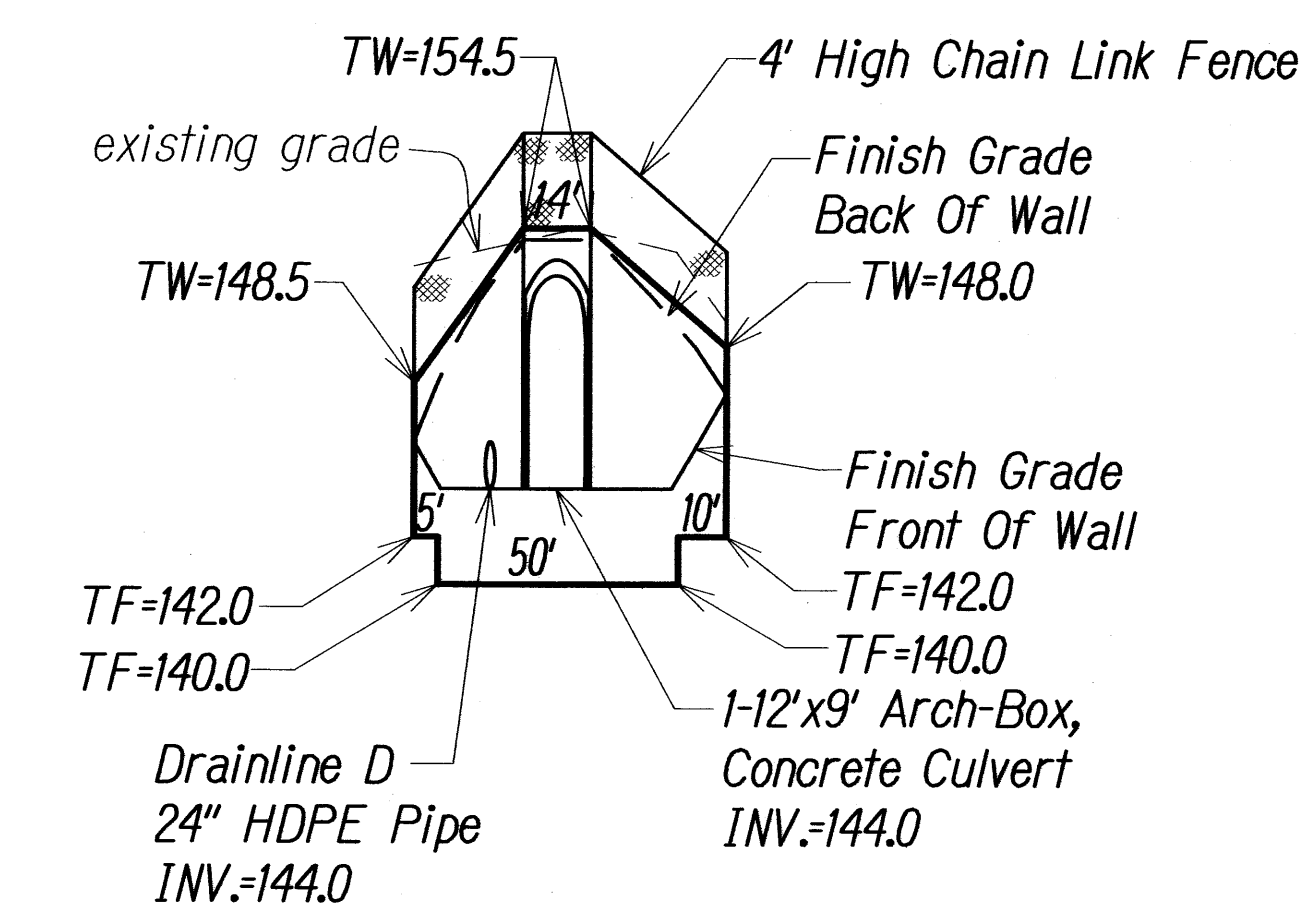
PROFILE - INLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'



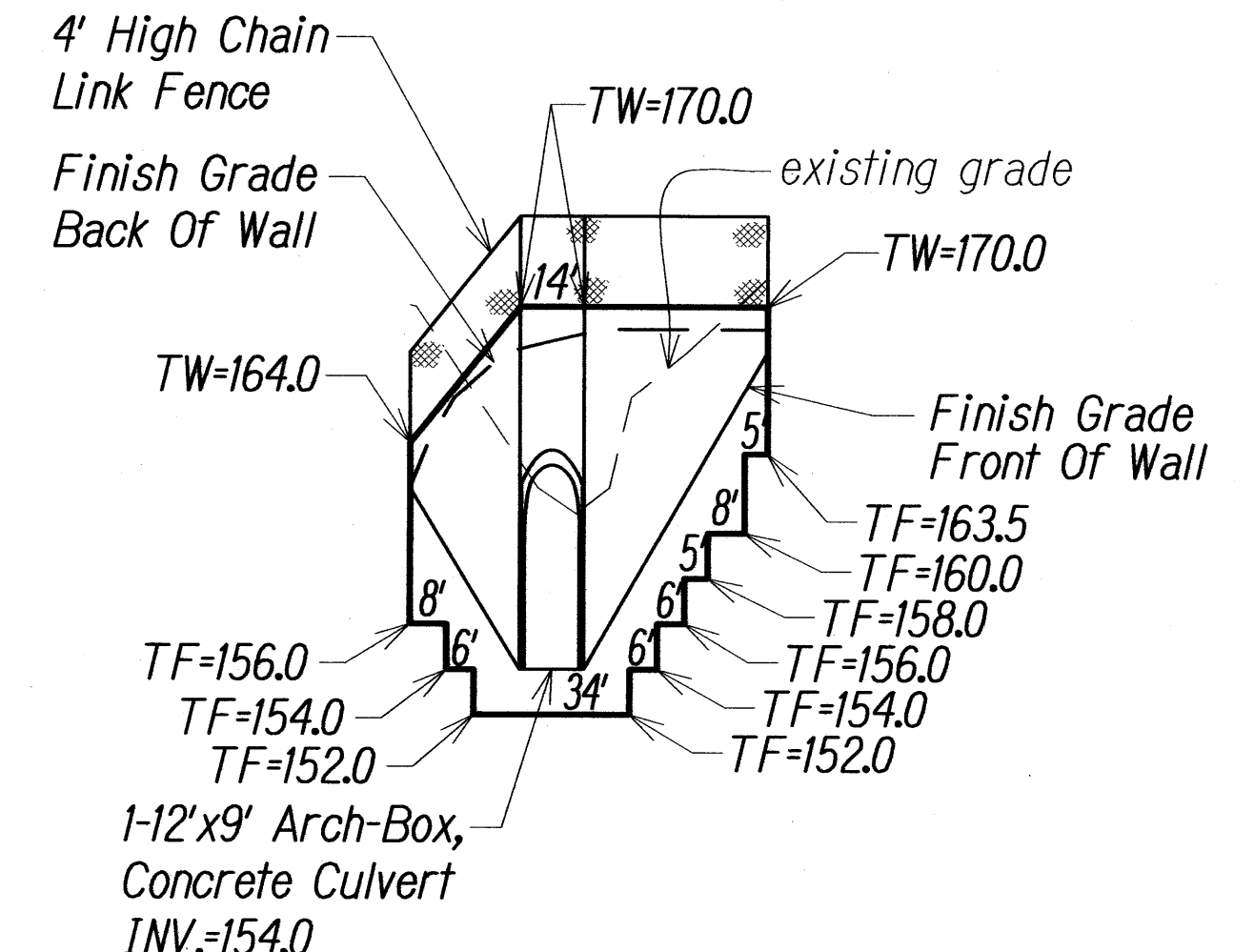
PLAN - OUTLET HEADWALL
Scale: Horiz. 1"=20'

PLAN - INLET HEADWALL
Scale: Horiz. 1"=20'

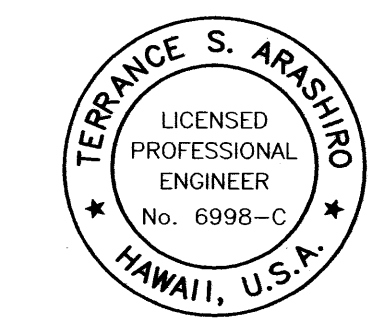
Note:
For Culvert Inlet and Outlet Headwalls, See Structural Plans



PROFILE - OUTLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'



PROFILE - INLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'



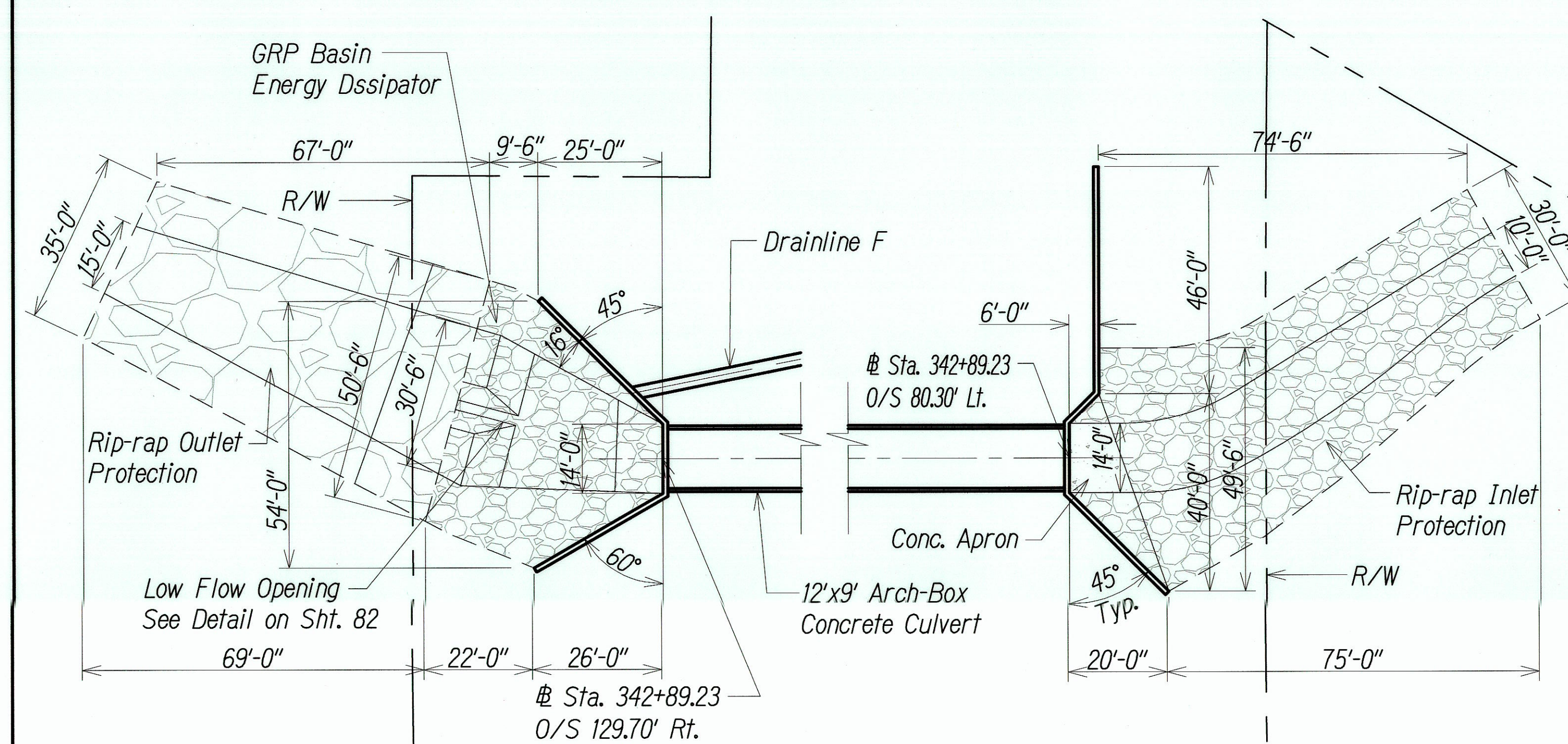
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE CULVERT DETAILS

HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-K(38)

Scale: As Shown Date: November 23, 2009

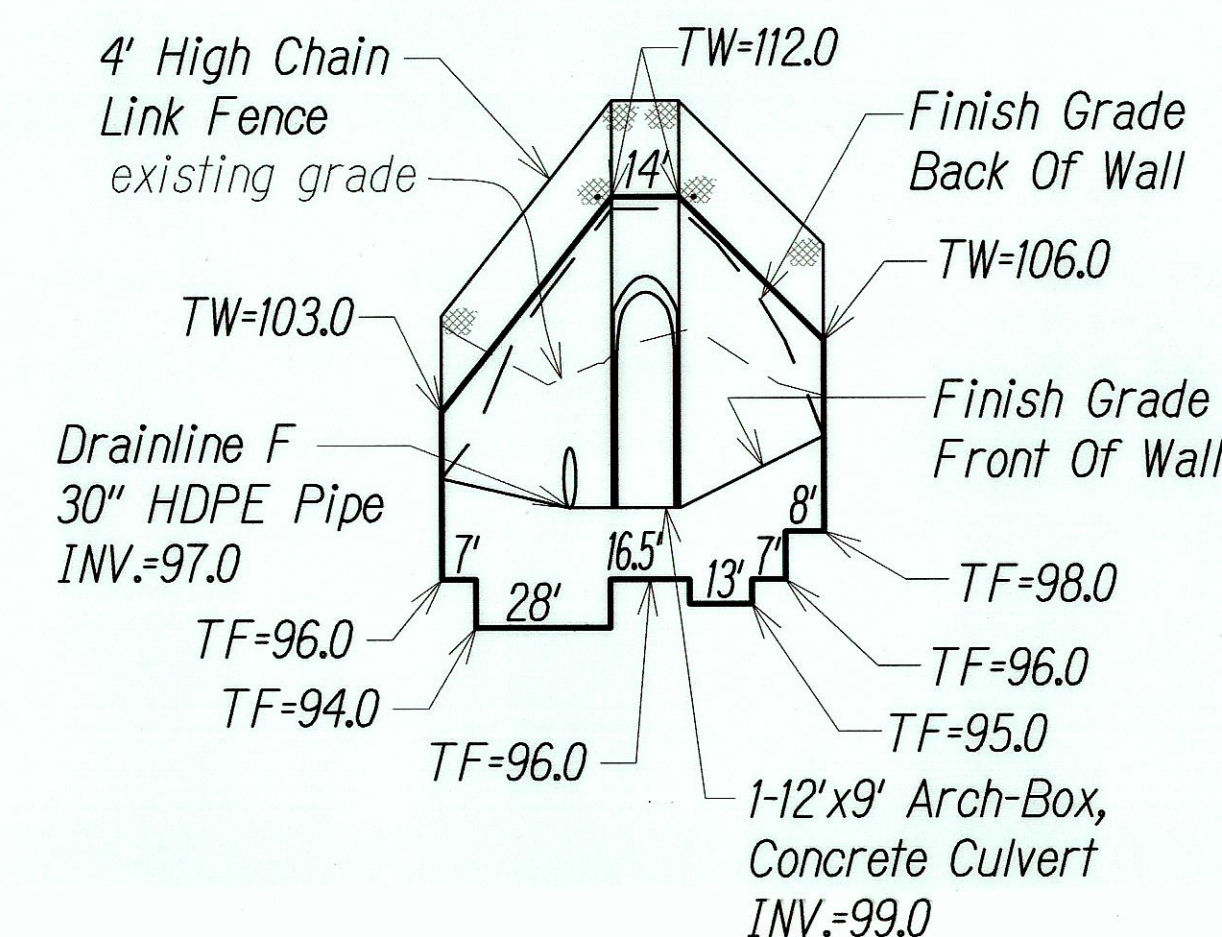
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-I(38)	2010	79	213



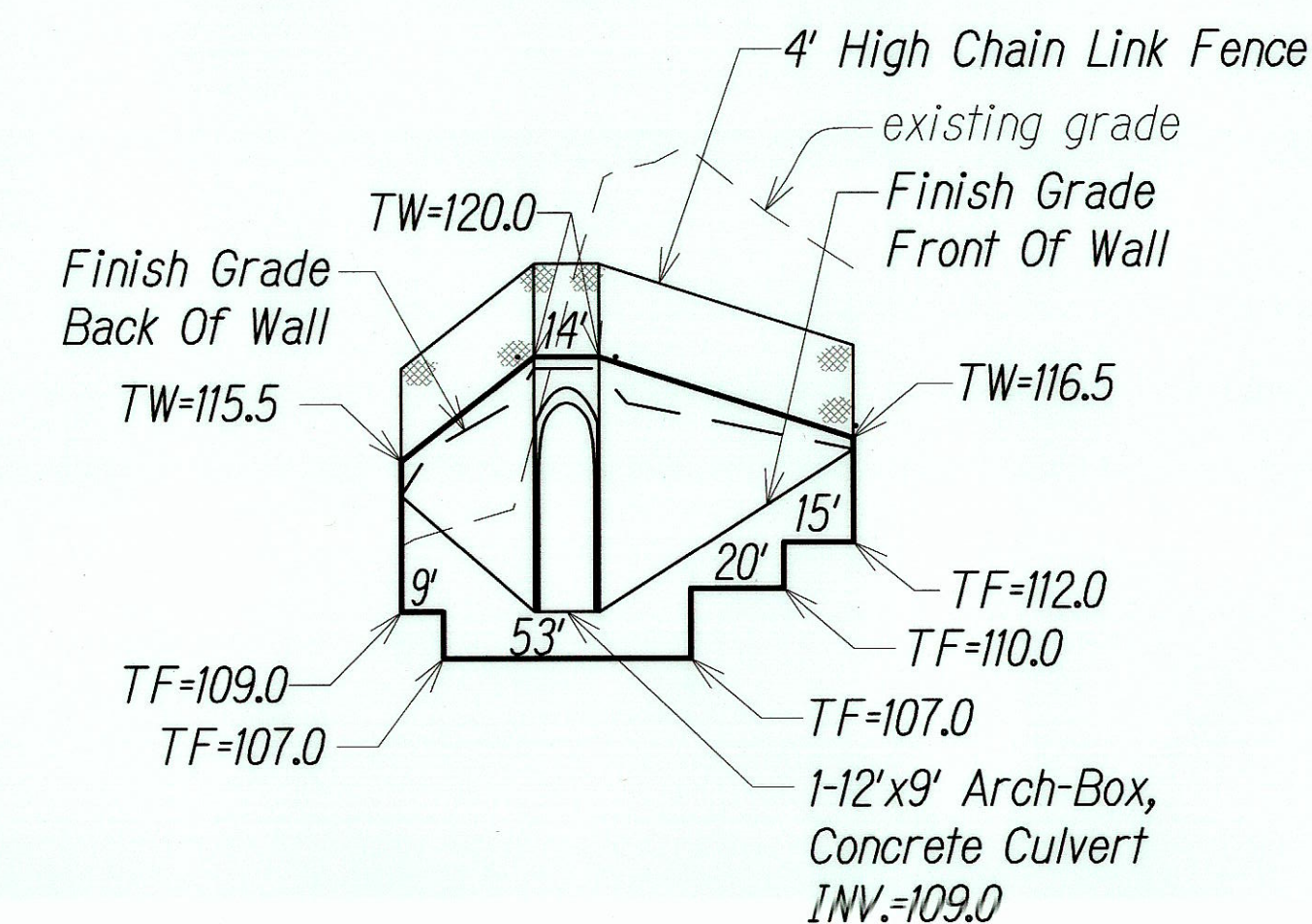
PLAN - OUTLET HEADWALL
Scale: Horiz. 1"=20'

Note:
For Culvert Inlet and Outlet
Headwalls, See Structural Plans

PLAN - INLET HEADWALL
Scale: Horiz. 1"=20'

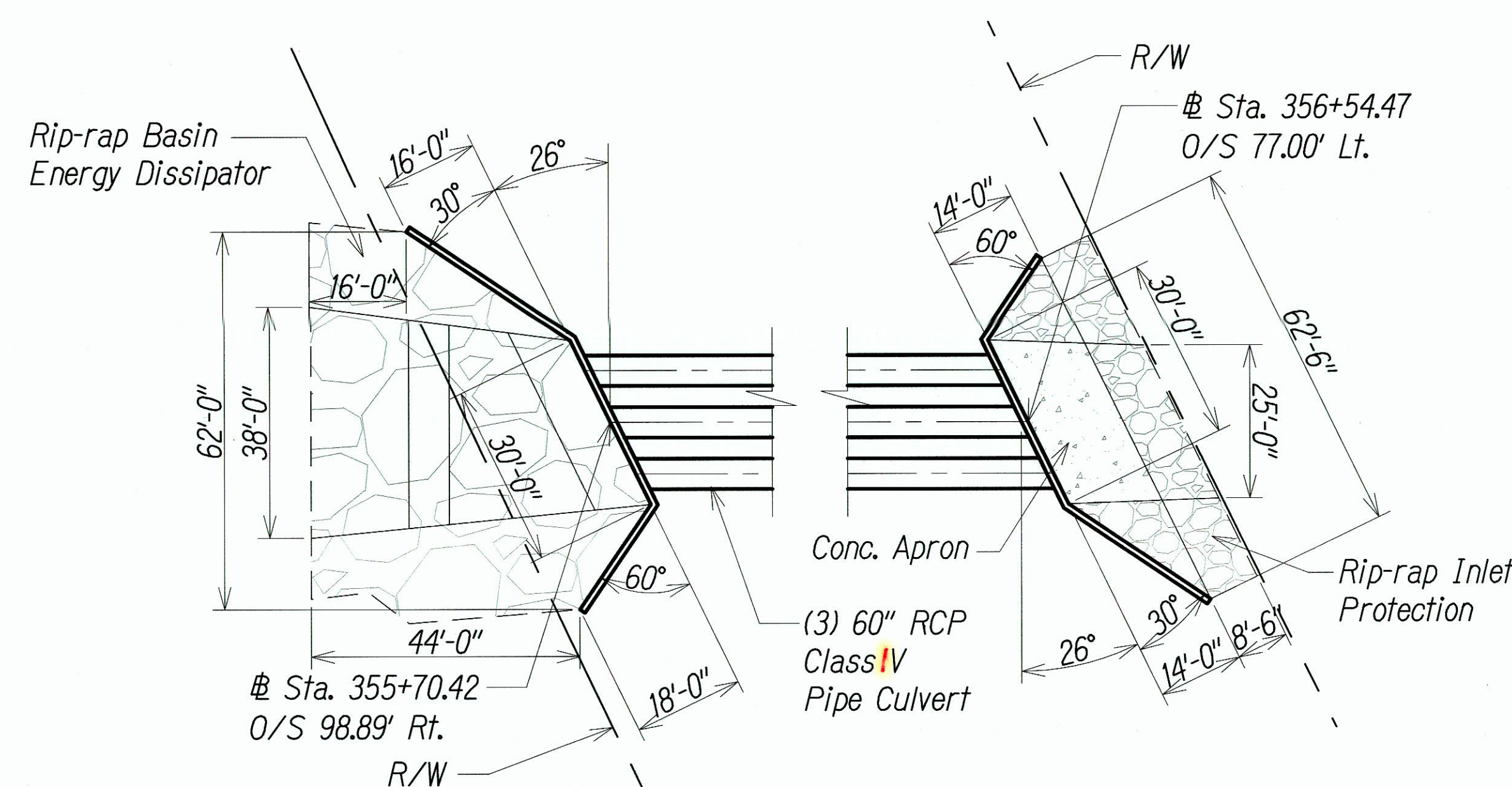


PROFILE - OUTLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'



PROFILE - INLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'

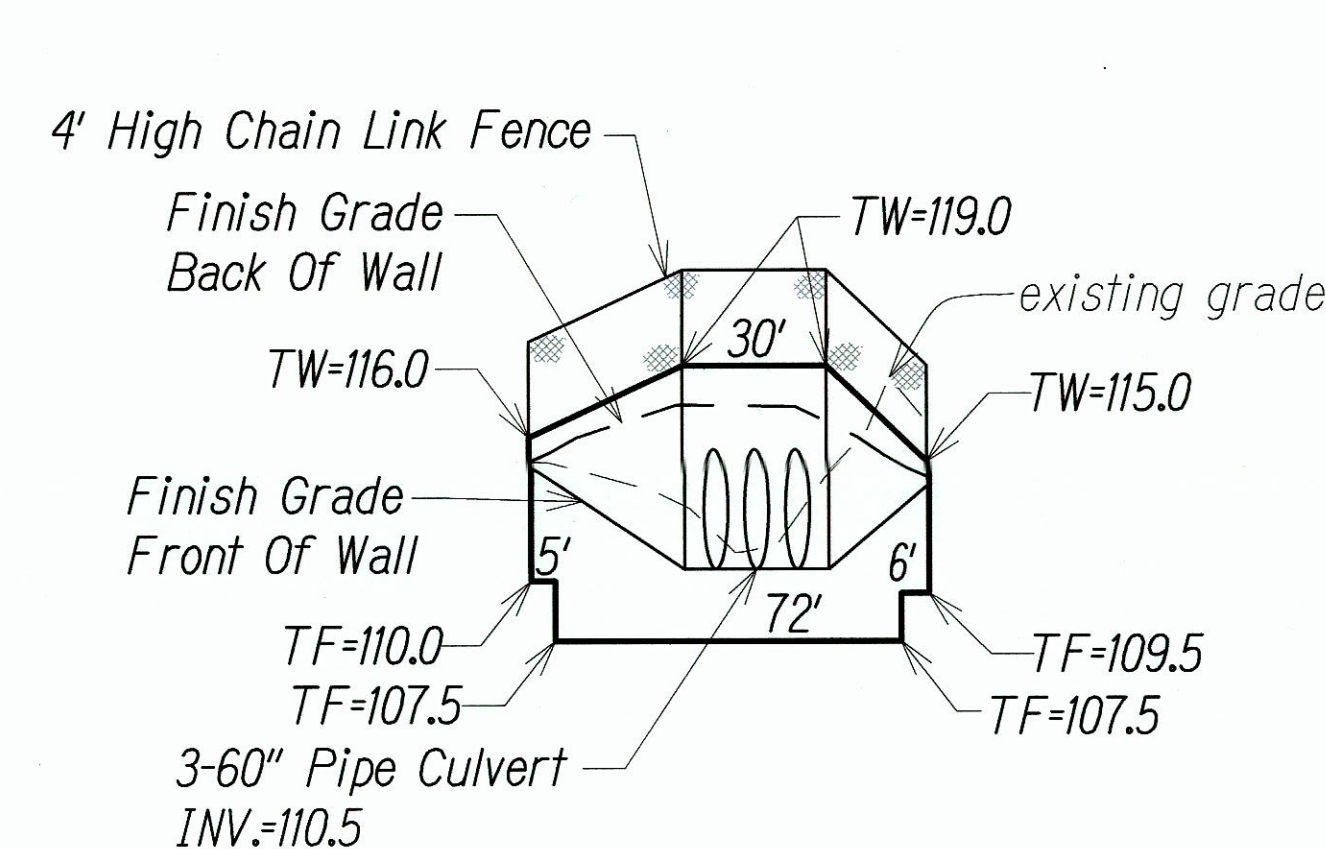
Sta. 342+89 CULVERT 3 - DETAIL



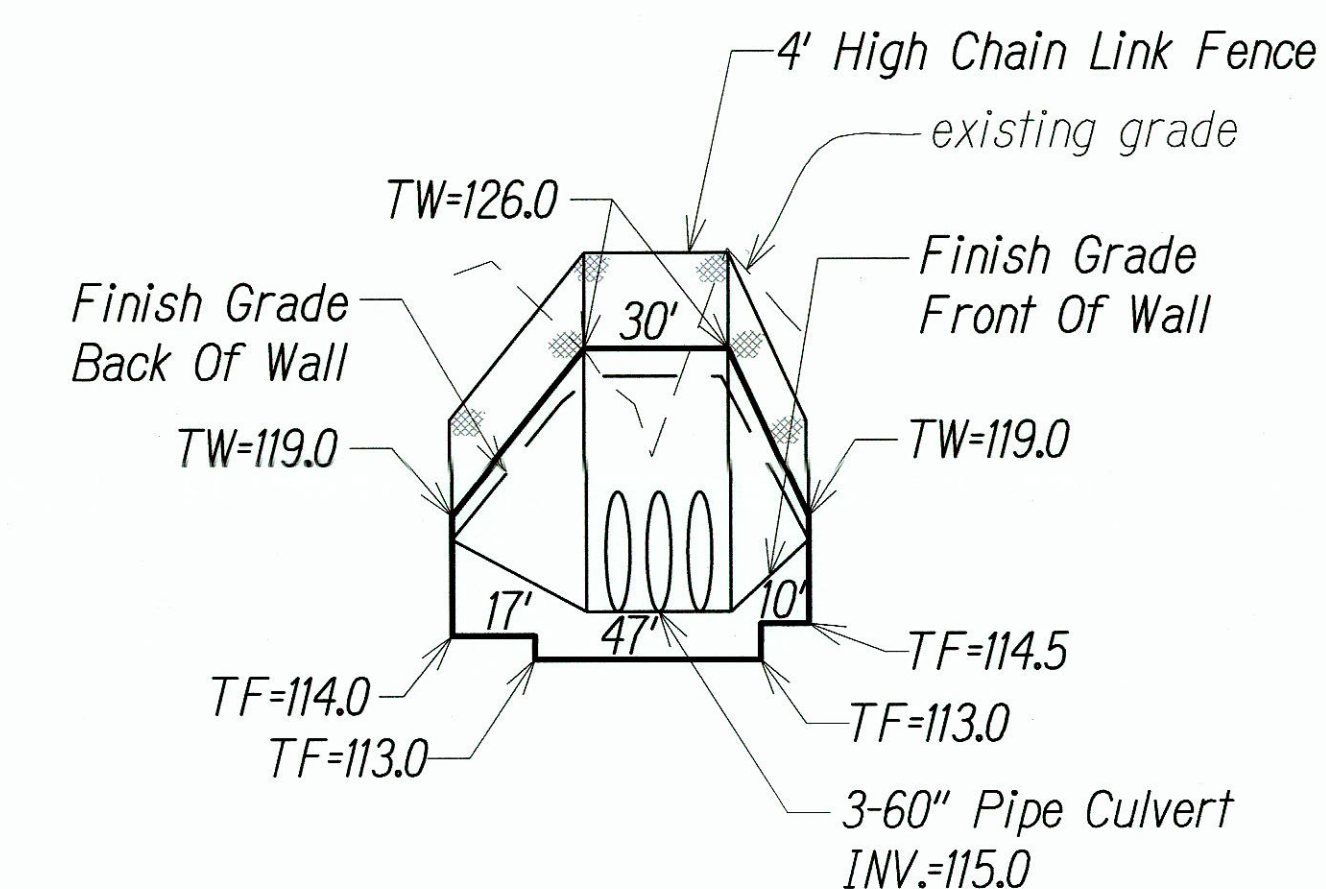
PLAN - OUTLET HEADWALL
Scale: Horiz. 1"=20'

Note:
For Culvert Inlet and Outlet
Headwalls, See Structural Plans

PLAN - INLET HEADWALL
Scale: Horiz. 1"=20'

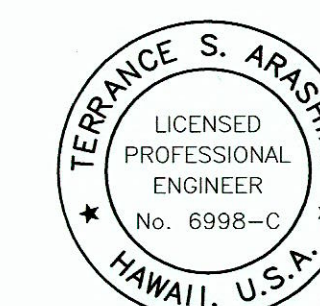


PROFILE - OUTLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'



PROFILE - INLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'

Sta. 356+17 CULVERT 6 - DETAIL



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EXP. 4/30/10

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE CULVERT DETAILS

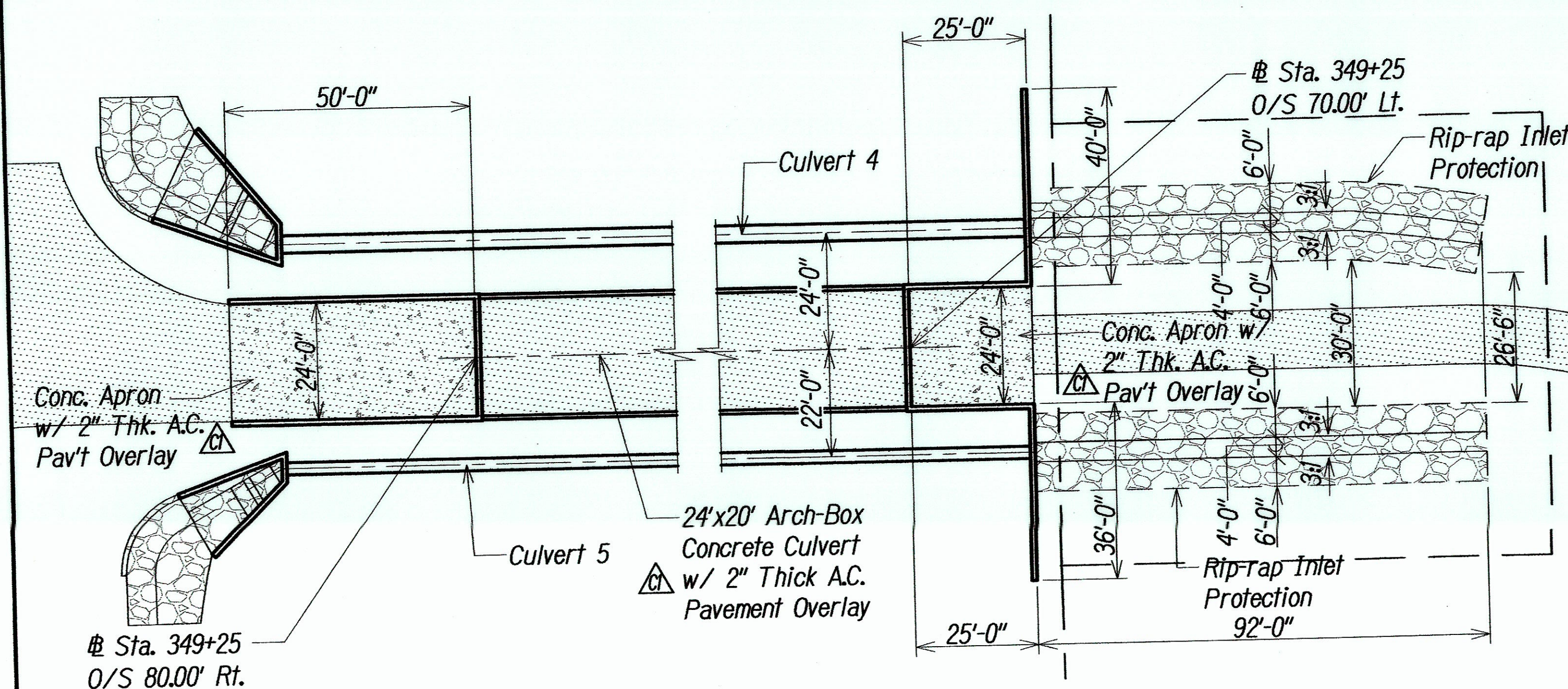
HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-I(38)

Scale: As Shown Date: November 23, 2009

SHEET No. 2 OF 5 SHEETS

"AS-BUILT"

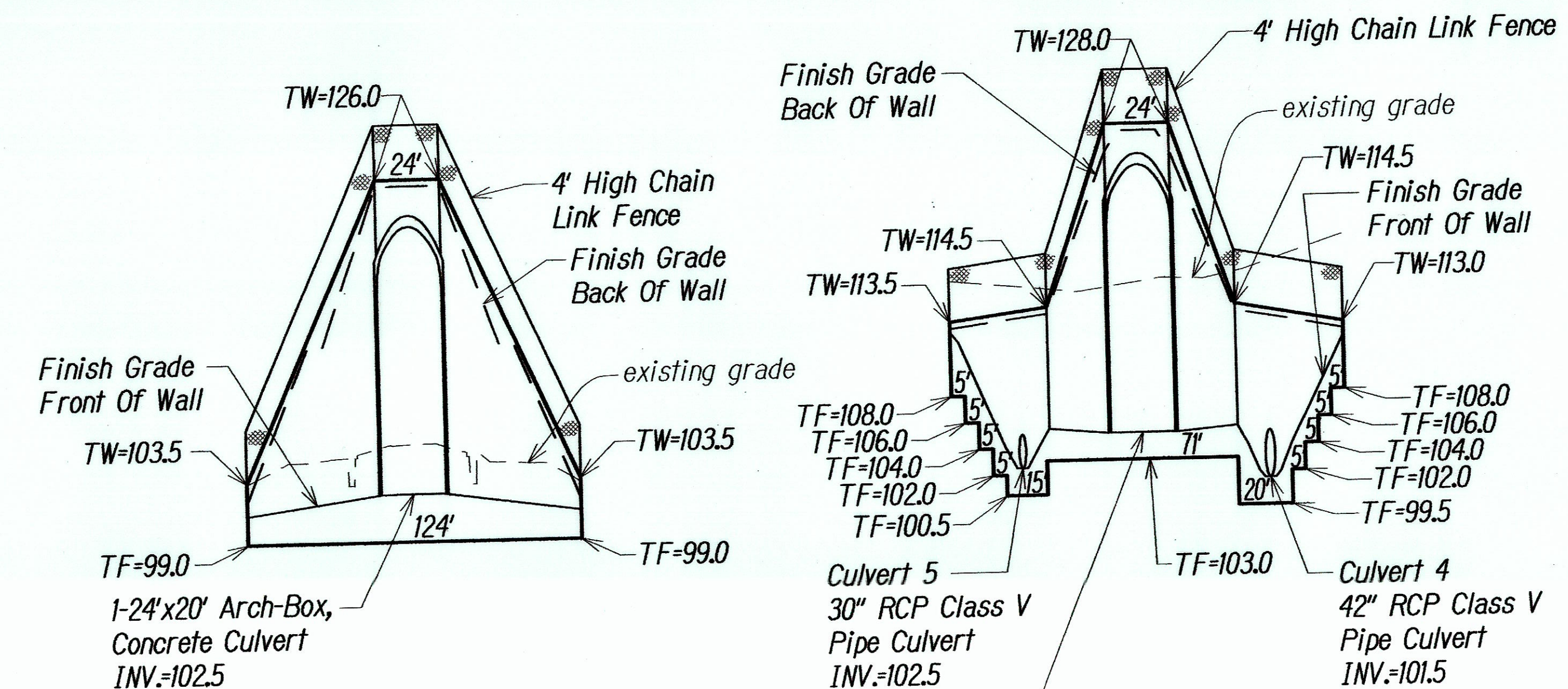
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	C.O. 80	213



PLAN - OUTLET HEADWALL
Scale: Horiz. 1"=20'

PLAN - INLET HEADWALL
Scale: Horiz. 1"=20'

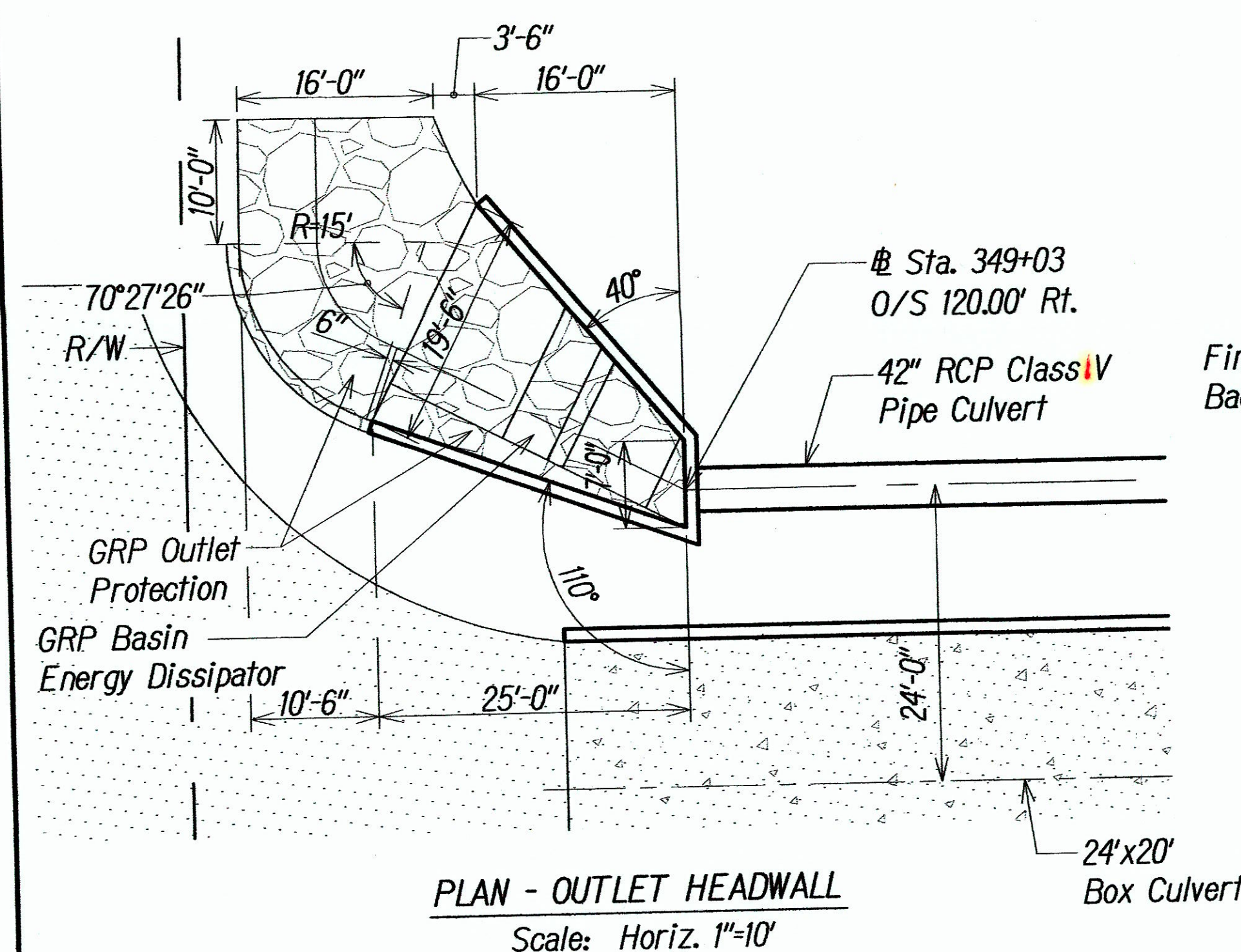
Note:
For Culvert Inlet and Outlet Headwalls, See Structural Plans



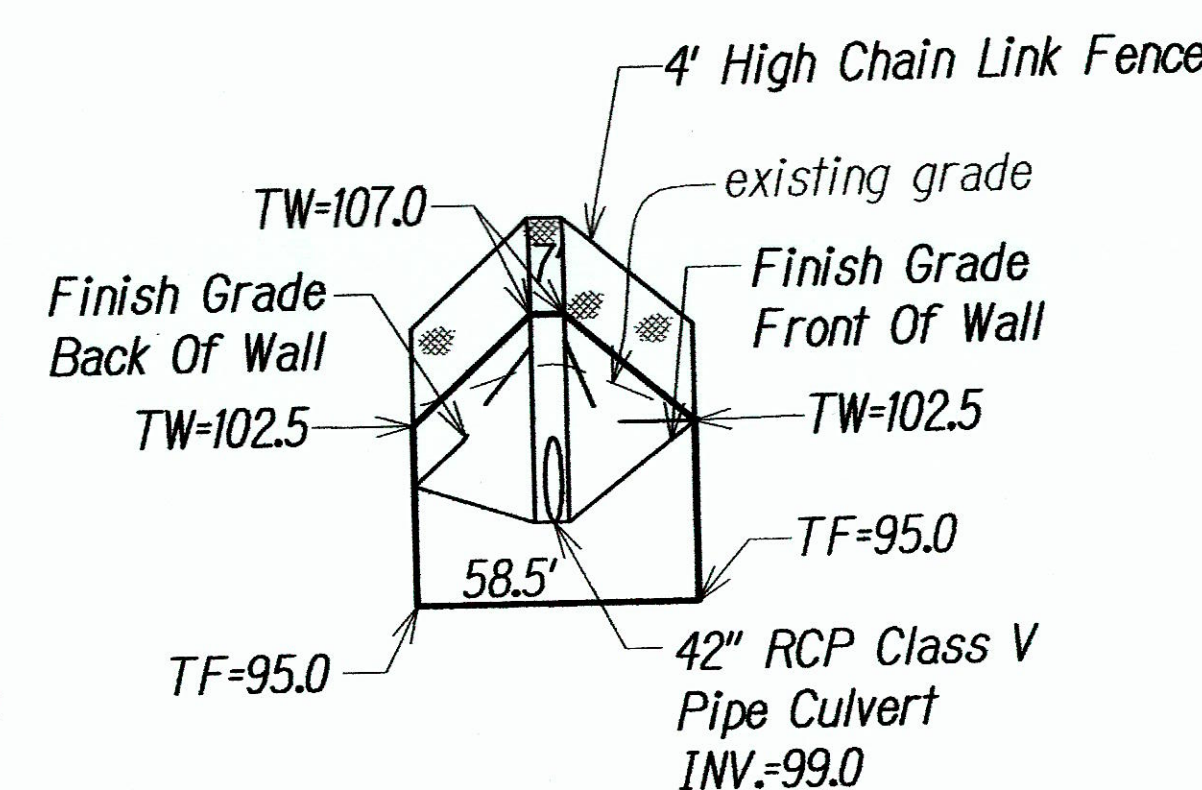
PROFILE - OUTLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'

PROFILE - INLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'

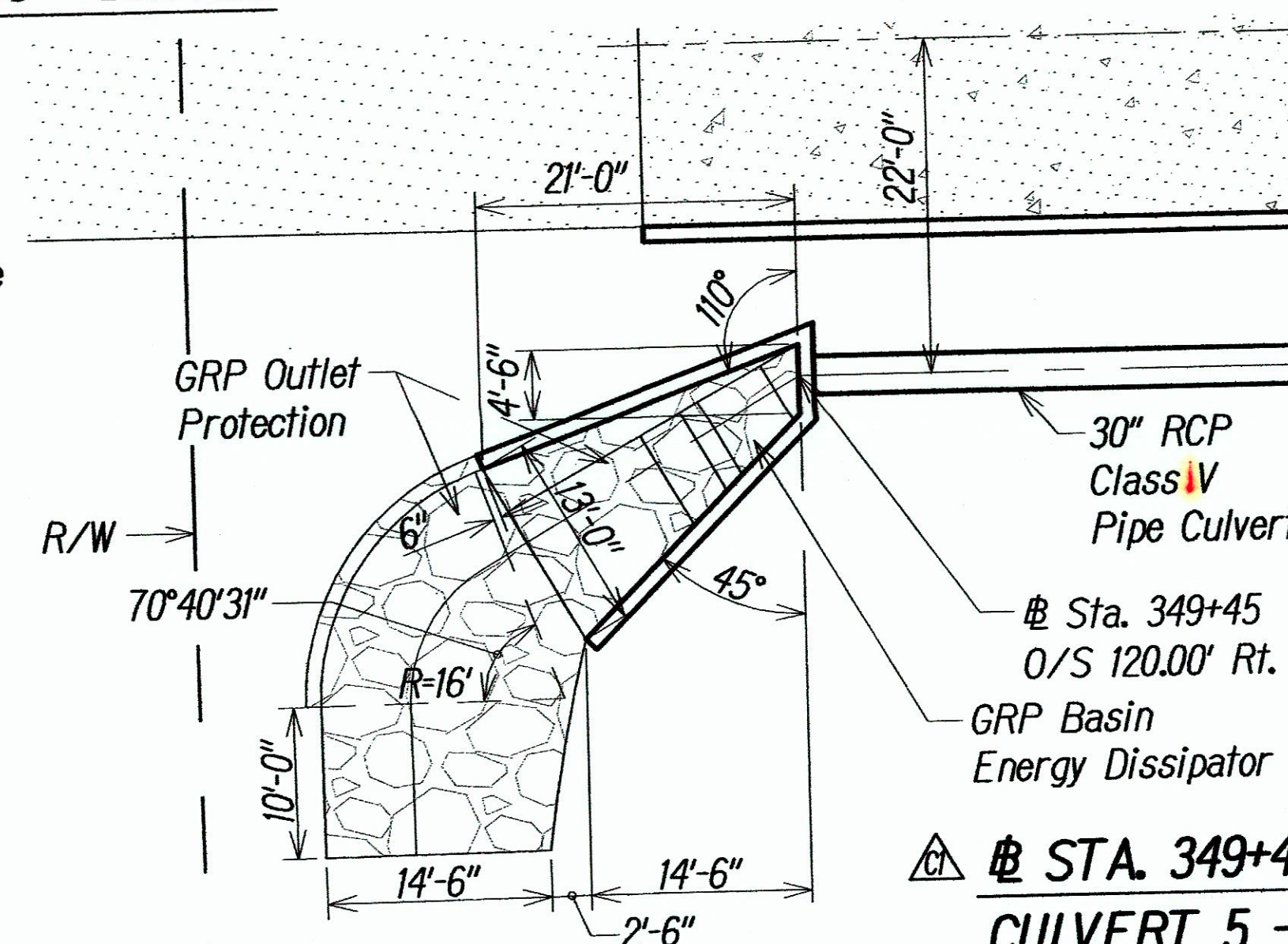
STATION 349+25 AG. CROSSING - DETAIL



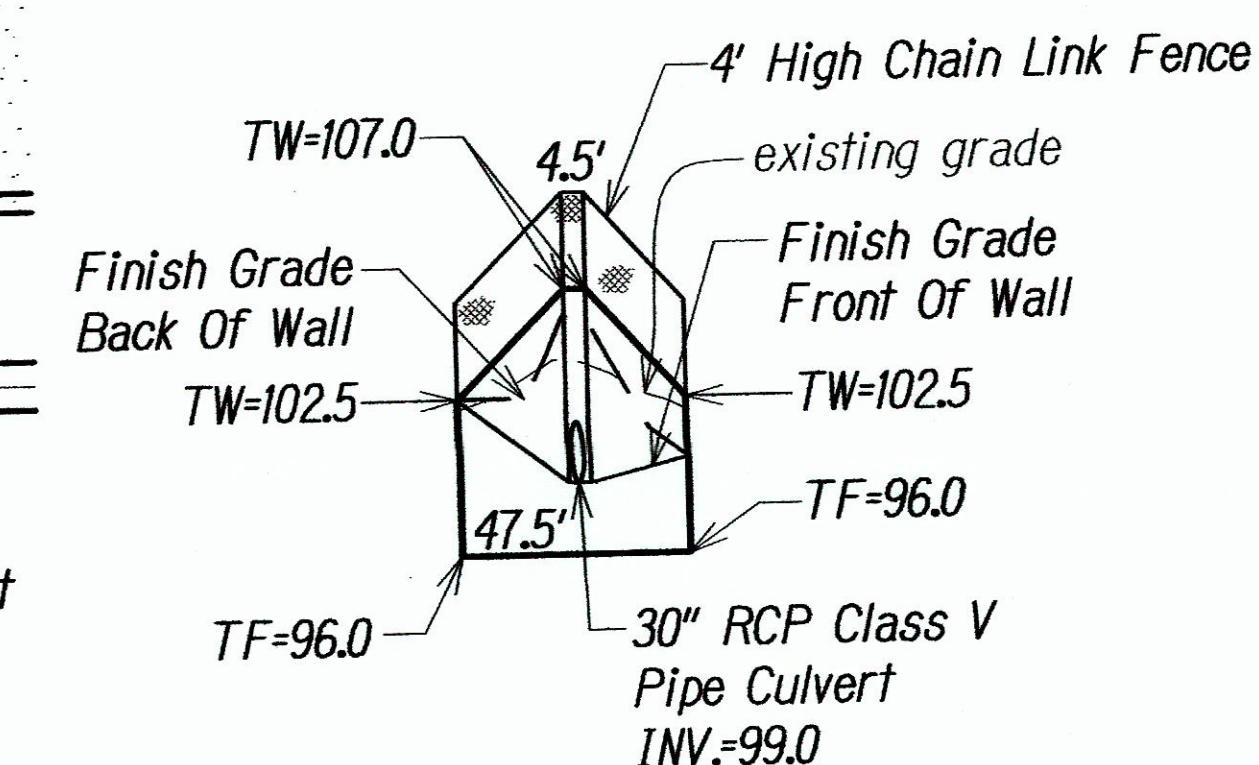
PLAN - OUTLET HEADWALL
Scale: Horiz. 1"=10'



PROFILE - OUTLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'



PLAN - OUTLET HEADWALL
Scale: Horiz. 1"=10'



PROFILE - OUTLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'

STATION 349+43.5 CULVERT 5 - DETAIL

Note:
For Culvert Outlet Headwall,
See Structural Plans

STATION 349+04.5 CULVERT 4 - DETAIL



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CONSTRUCTION OF THIS PROJECT
WILL BE UNDER MY OBSERVATION

DATE	REVISION
6/15/11	Revised Culverts 4 & 5 Outlet Protection, Wing Wall Heights, & Added A.C. Pav't To Ag. Crossing
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION DRAINAGE CULVERT DETAILS HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1 Lahainaluna Rd. to Hokiokio Pl. Federal Aid Project NO. NH-030-1(38) Scale: As Shown Date: November 23, 2009	

SHEET No. 3 OF 5 SHEETS

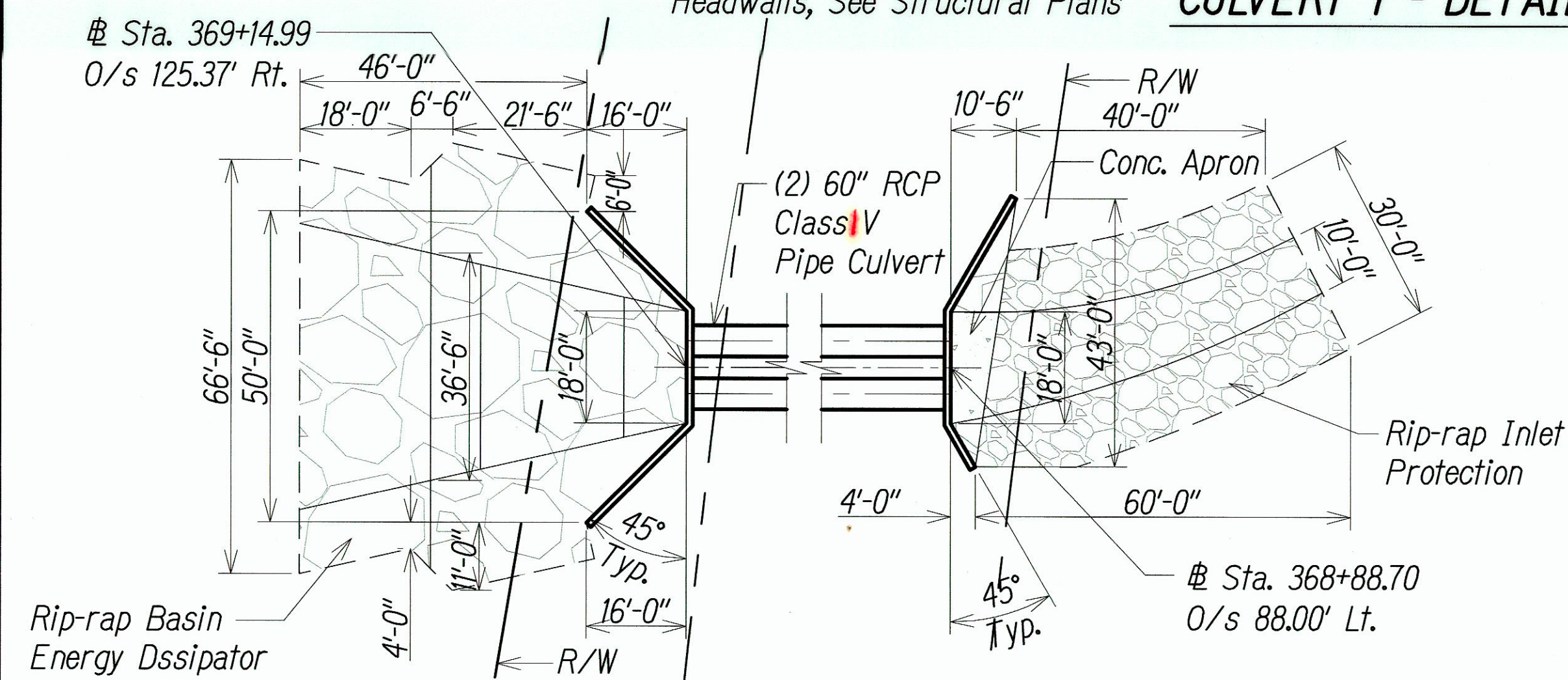
"AS-BUILT"

C.O.80

Plan view of the proposed drainage system. The diagram shows a 36-inch RCP Class IV Pipe Culvert (highlighted in red) running horizontally. To the left of the culvert is a GRP Basin Energy Dissipator. To the right is a concrete apron. The system is connected to a drainline labeled 'J'. Dimensions include a 30-degree angle for the basin, a 45-degree angle for the apron, and various lengths such as 5'-0", 9'-0", 4'-0", 35'-0", 12'-0", 5'-6", 6'-0", and 4'-0". Stationing is given as Sta. 361+28 and O/S 105.00' Rt. for the basin area, and Sta. 361+28 and O/S 89.00' Lt. for the apron area. The culvert is labeled '36" RCP Class IV Pipe Culvert'.

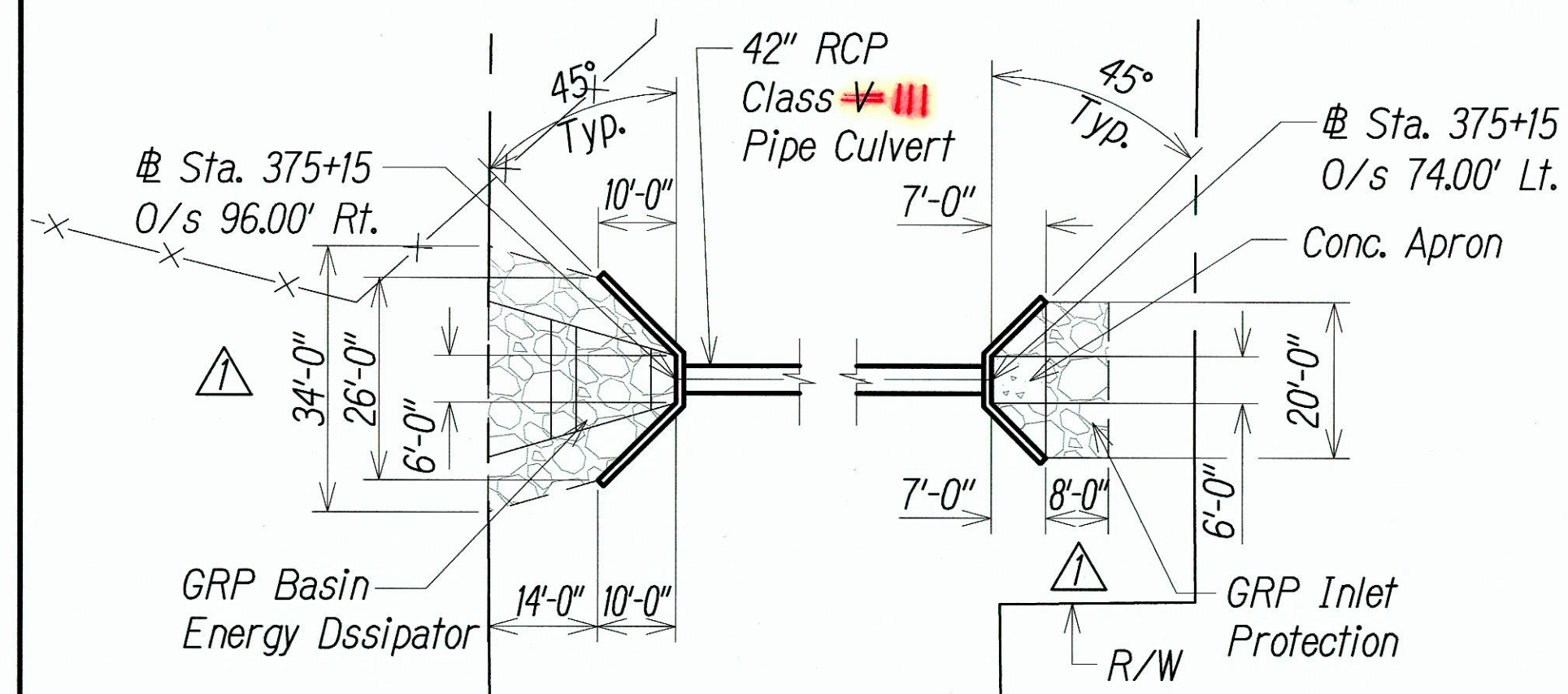
PLAN - INLET HEADWALL
Scale: Horiz. 1"=20'

STA. 361+28
CULVERT 7 - DETAIL



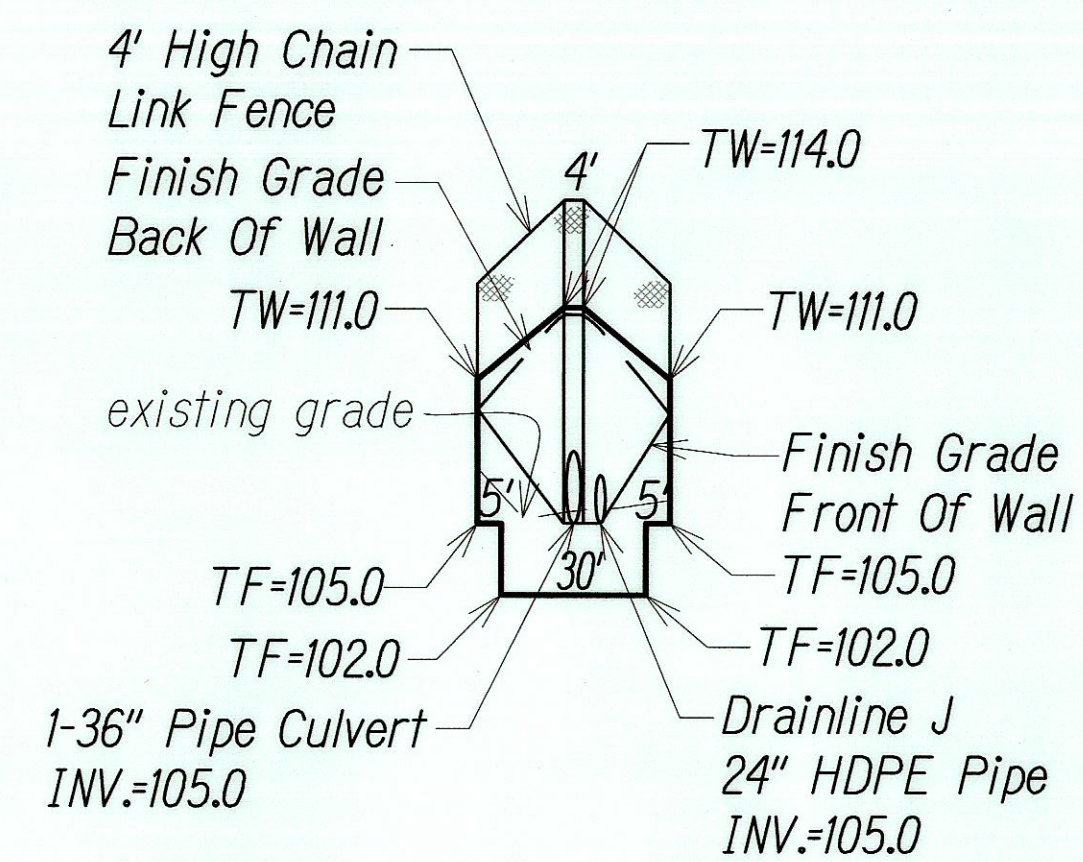
PLAN - INLET HEADWALL
Scale: Horiz. 1"=20'

STA. 369+00
CULVERT 8 - DETAIL

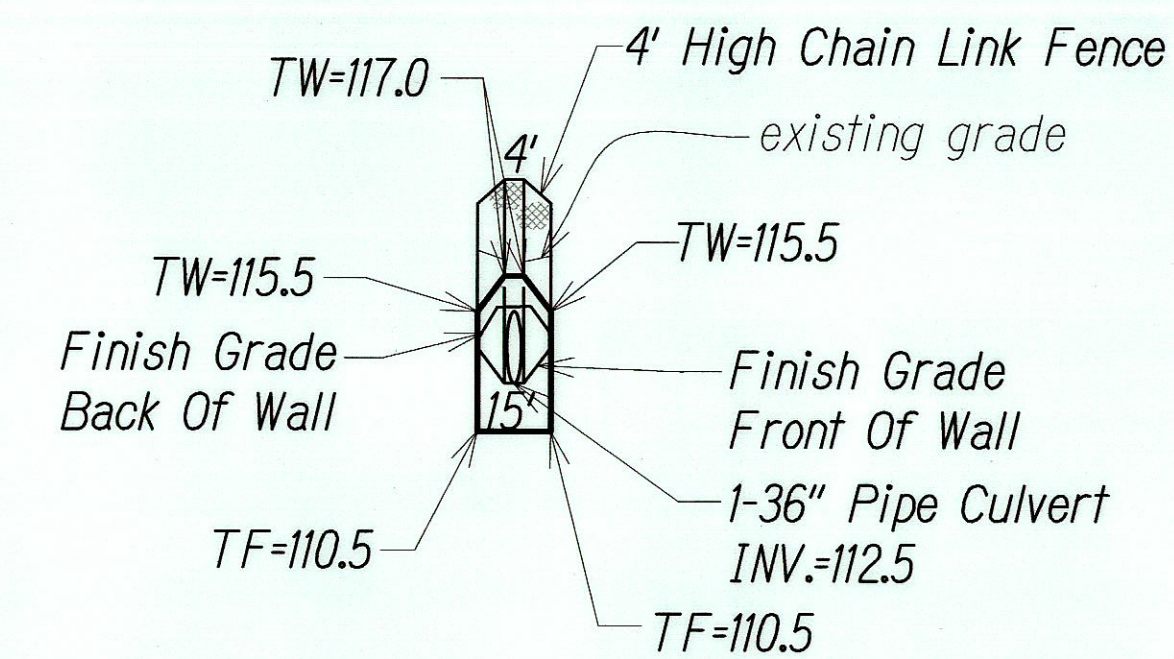


PLAN - INLET HEADWALL
Scale: Horiz. 1"=20'

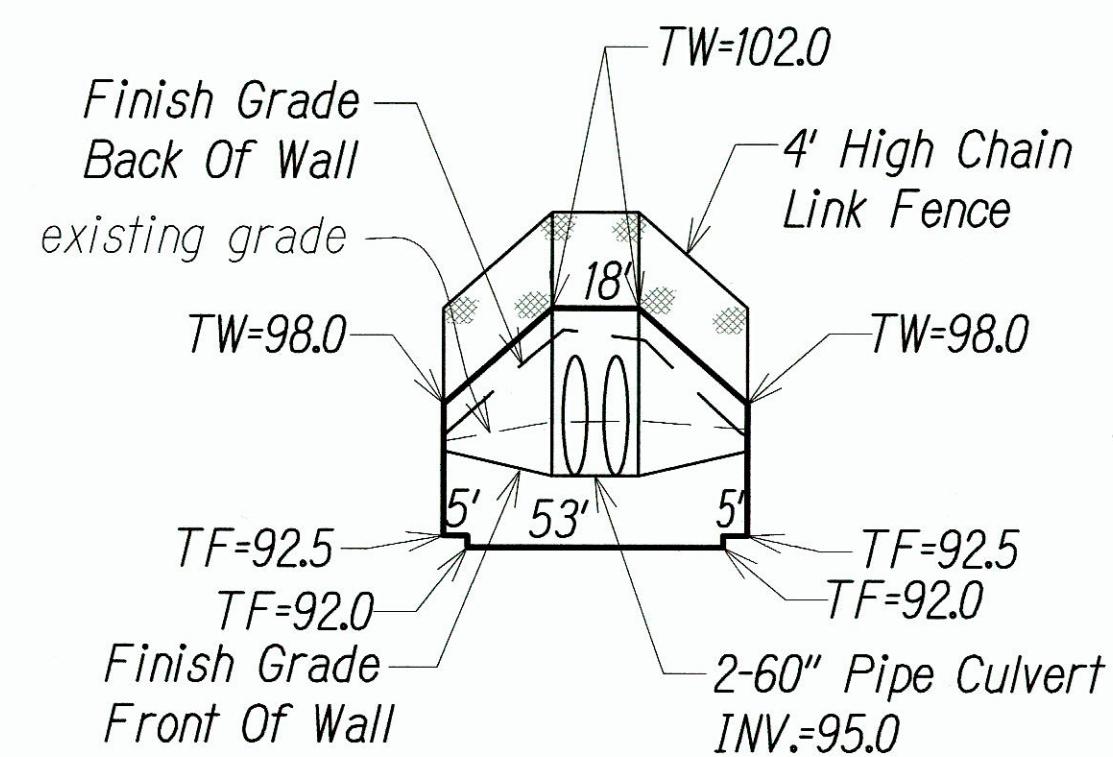
STA. 375+15
CULVERT 9 - DETAIL



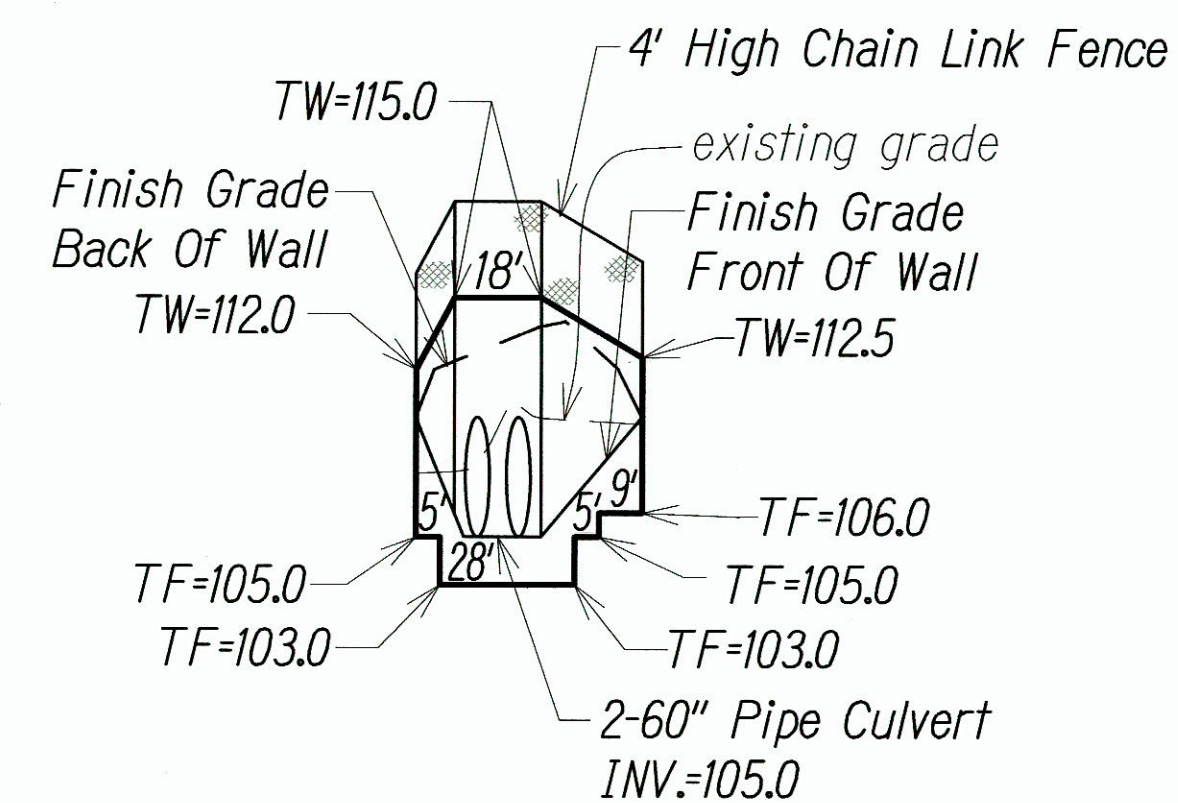
PROFILE - OUTLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'



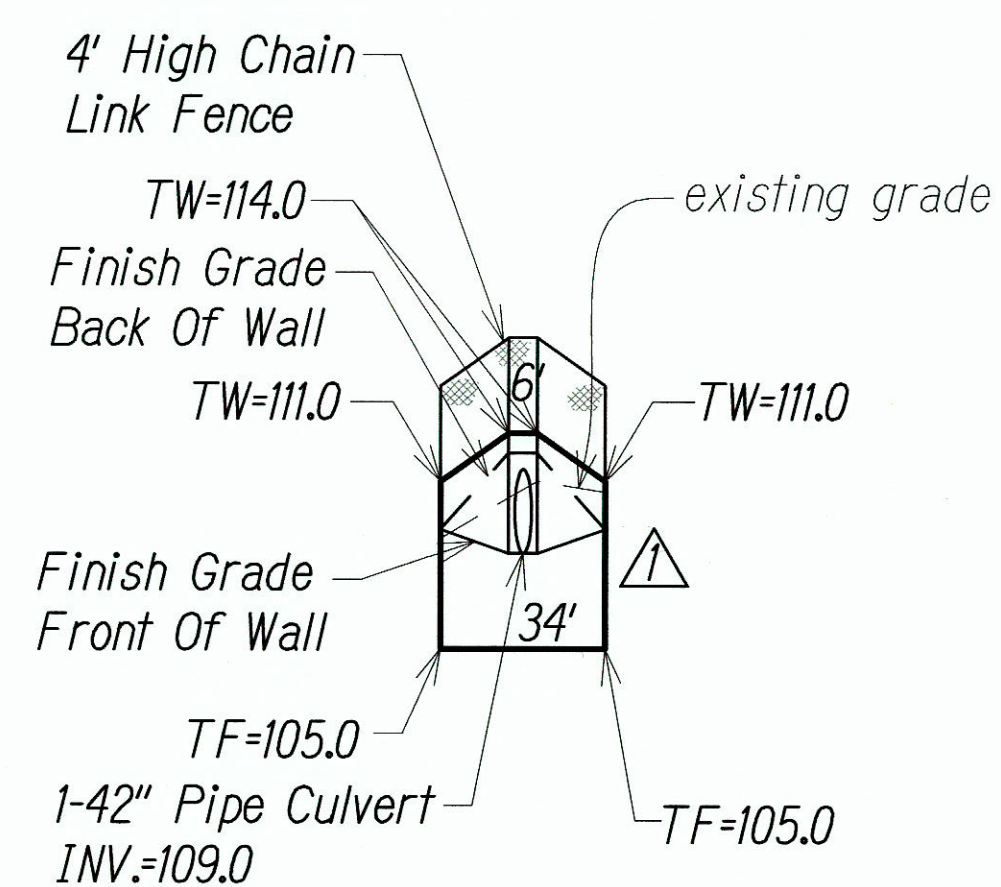
PROFILE - INLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'



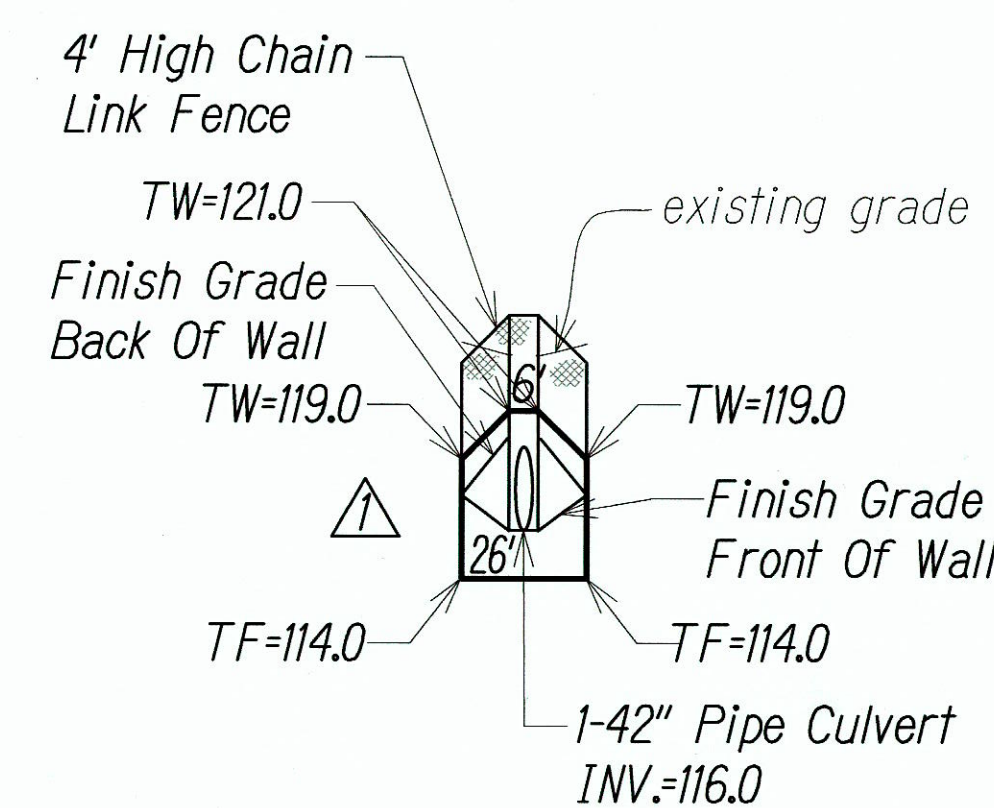
PROFILE - OUTLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'



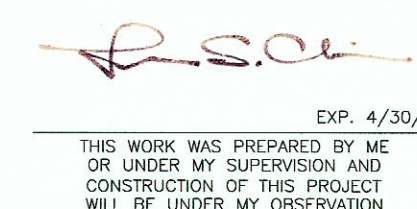
PROFILE - INLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'



PROFILE - OUTLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'

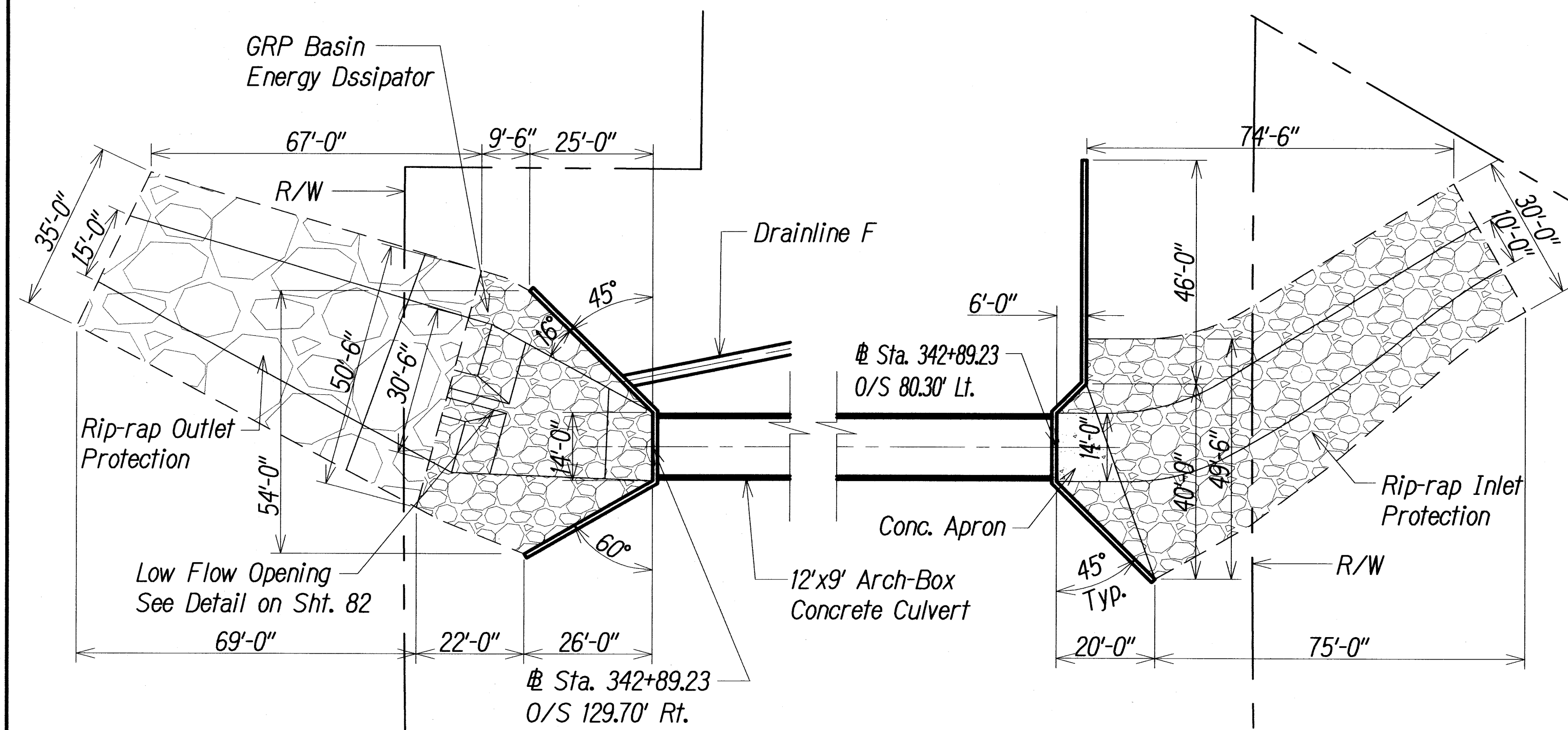


PROFILE - INLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'



"AS-BUILT"

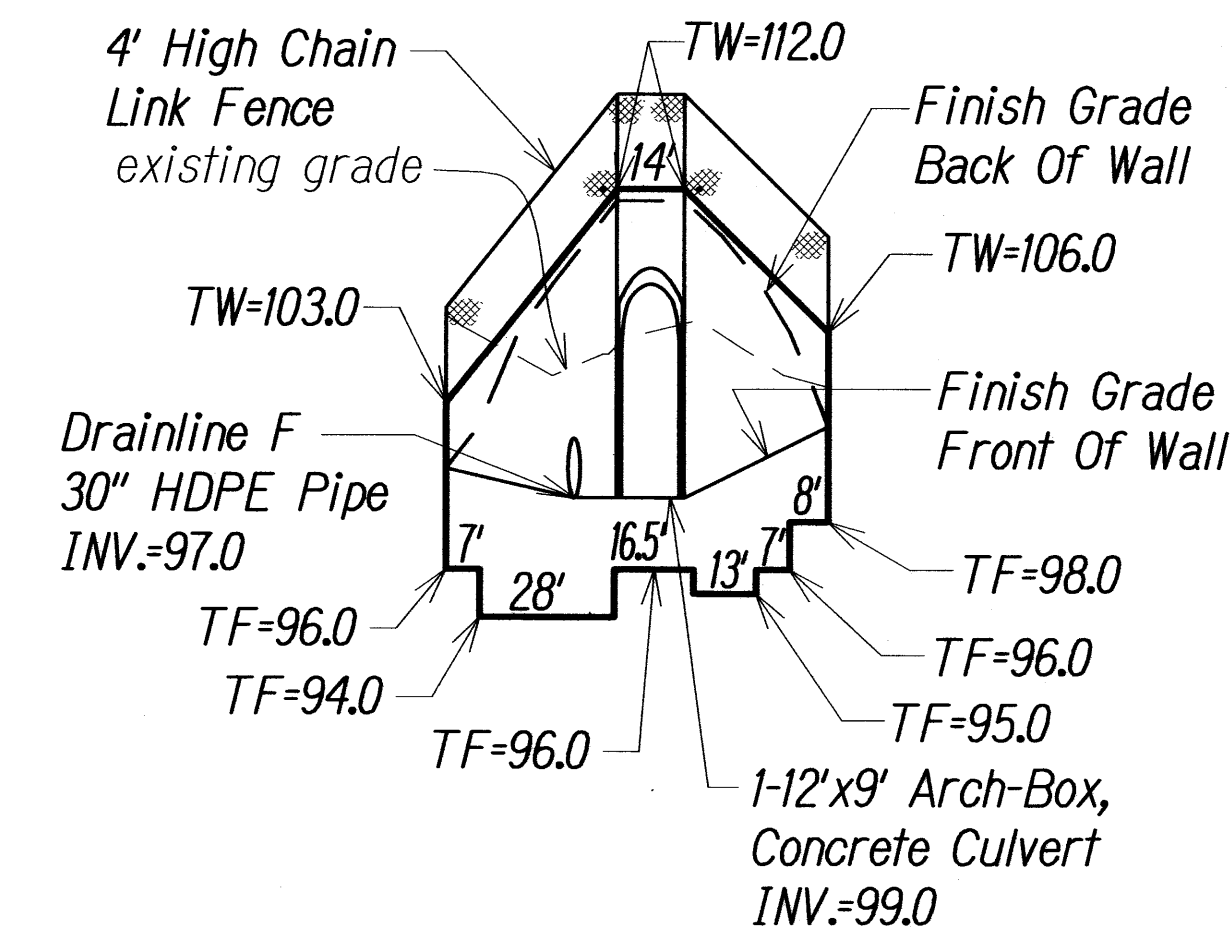
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	79	213



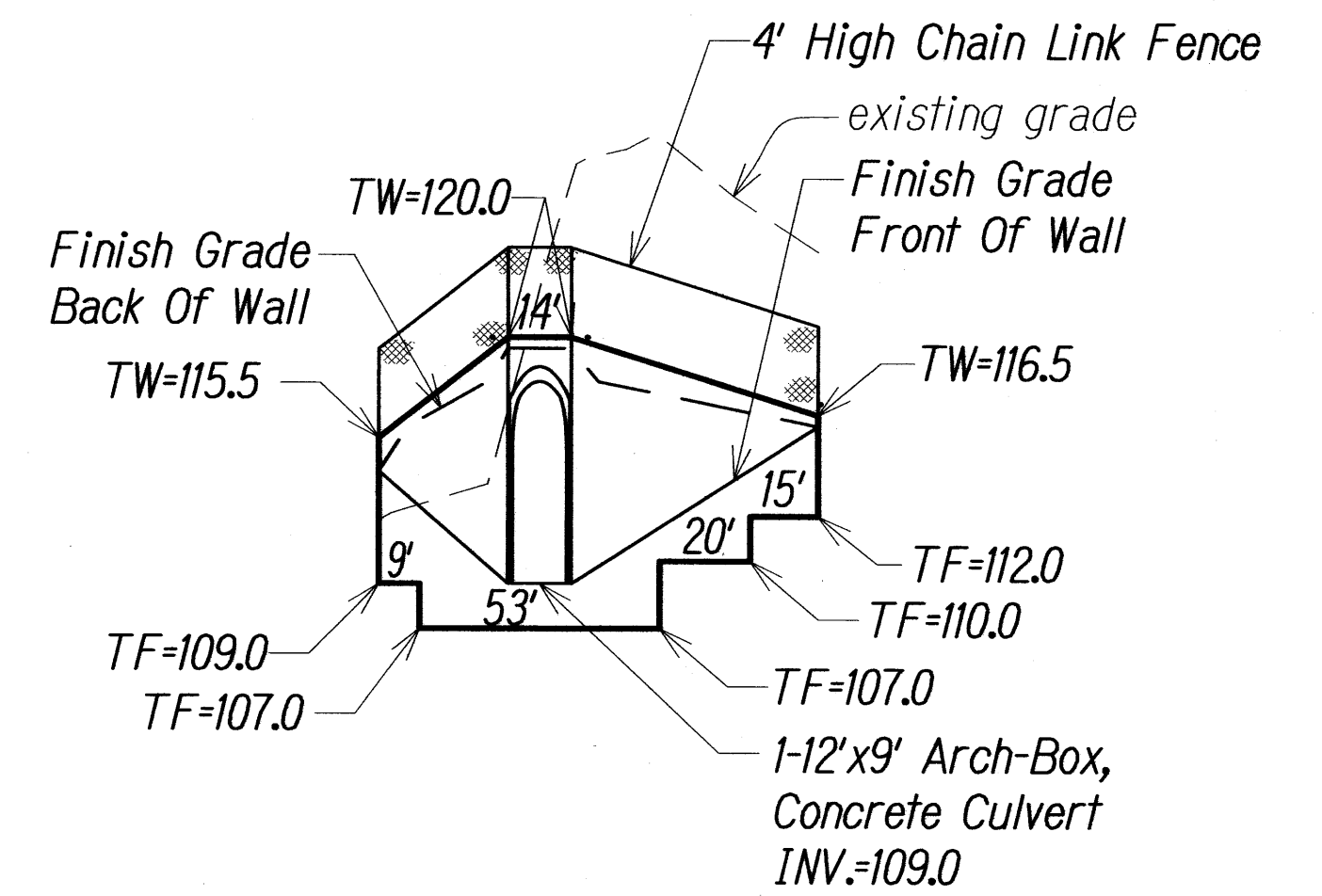
PLAN - OUTLET HEADWALL
Scale: Horiz. 1"=20'

Note:
For Culvert Inlet and Outlet Headwalls, See Structural Plans

PLAN - INLET HEADWALL
Scale: Horiz. 1"=20'

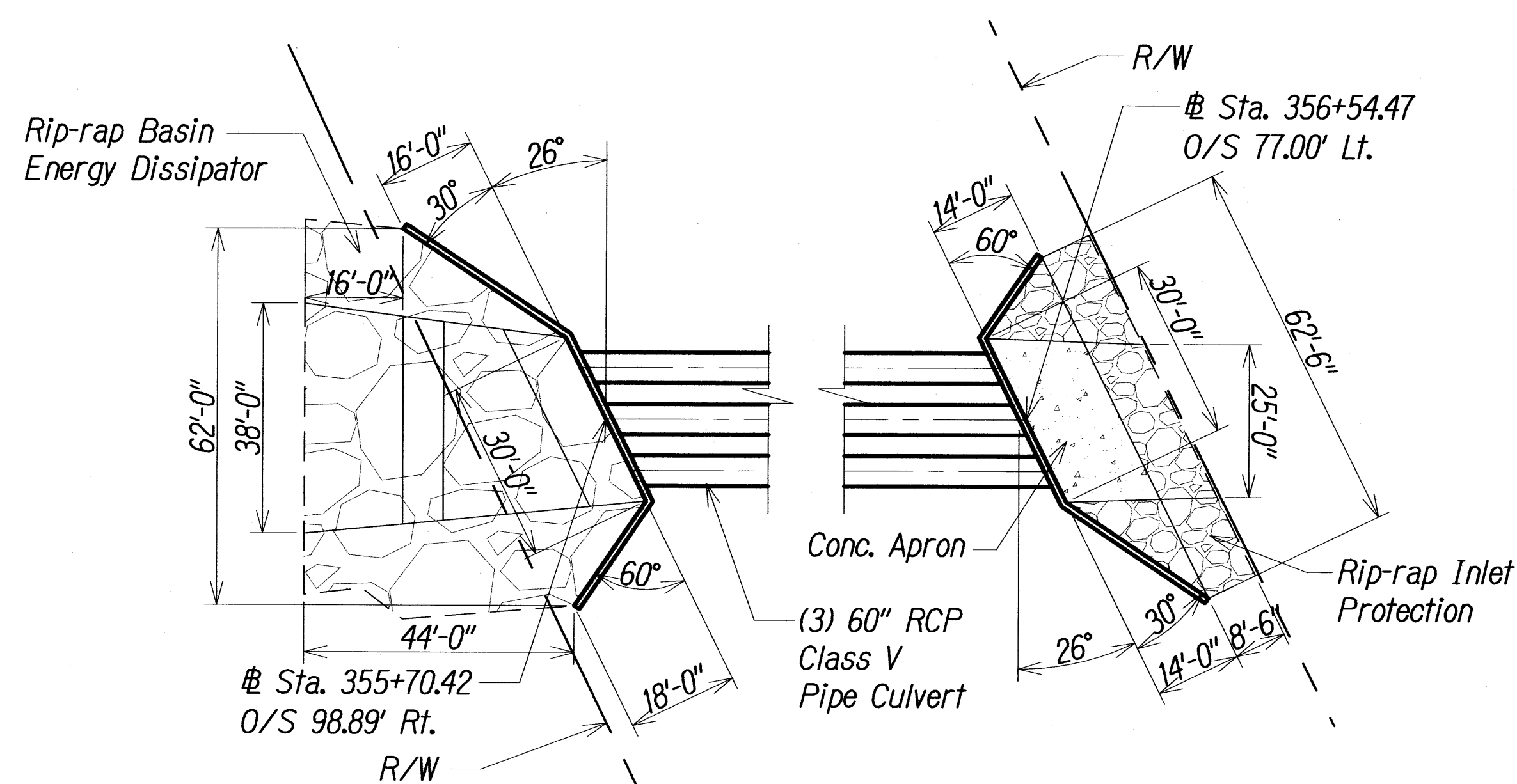


PROFILE - OUTLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'



PROFILE - INLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'

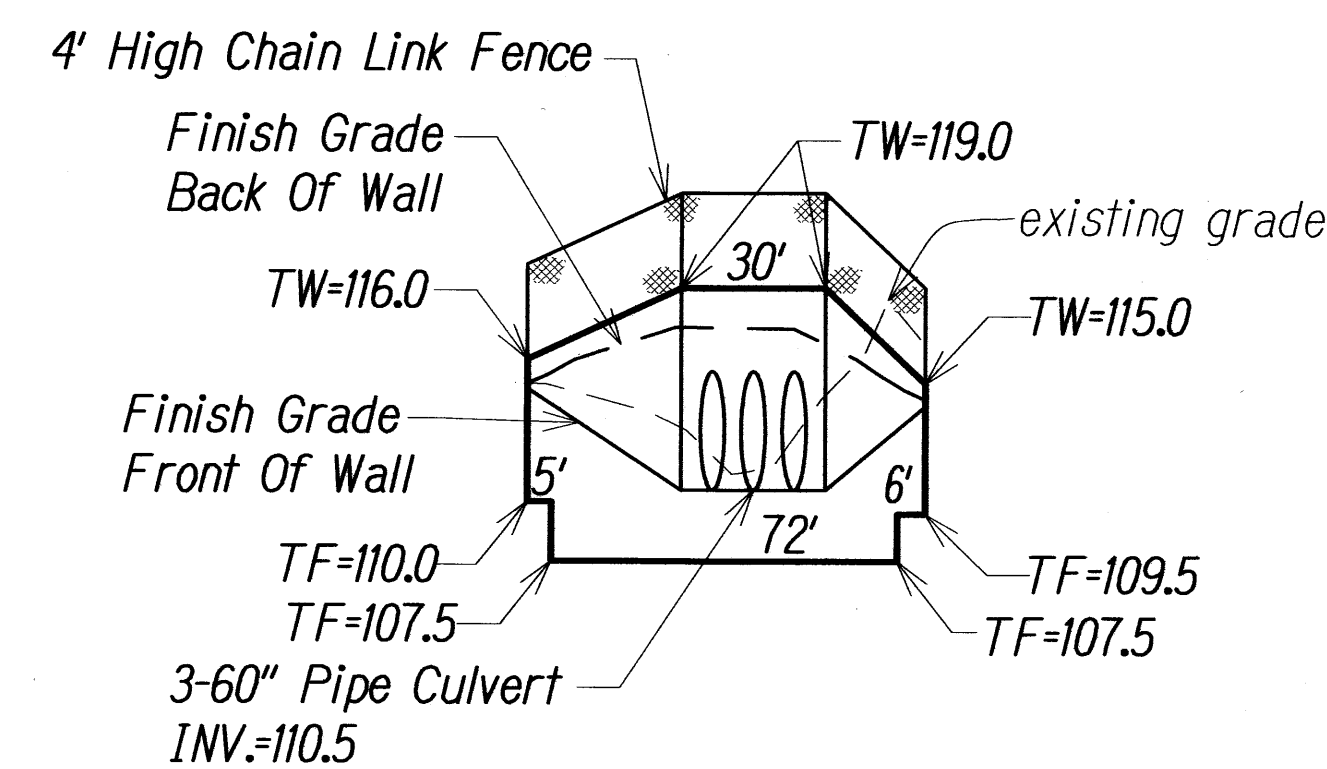
STA. 342+89
CULVERT 3 - DETAIL



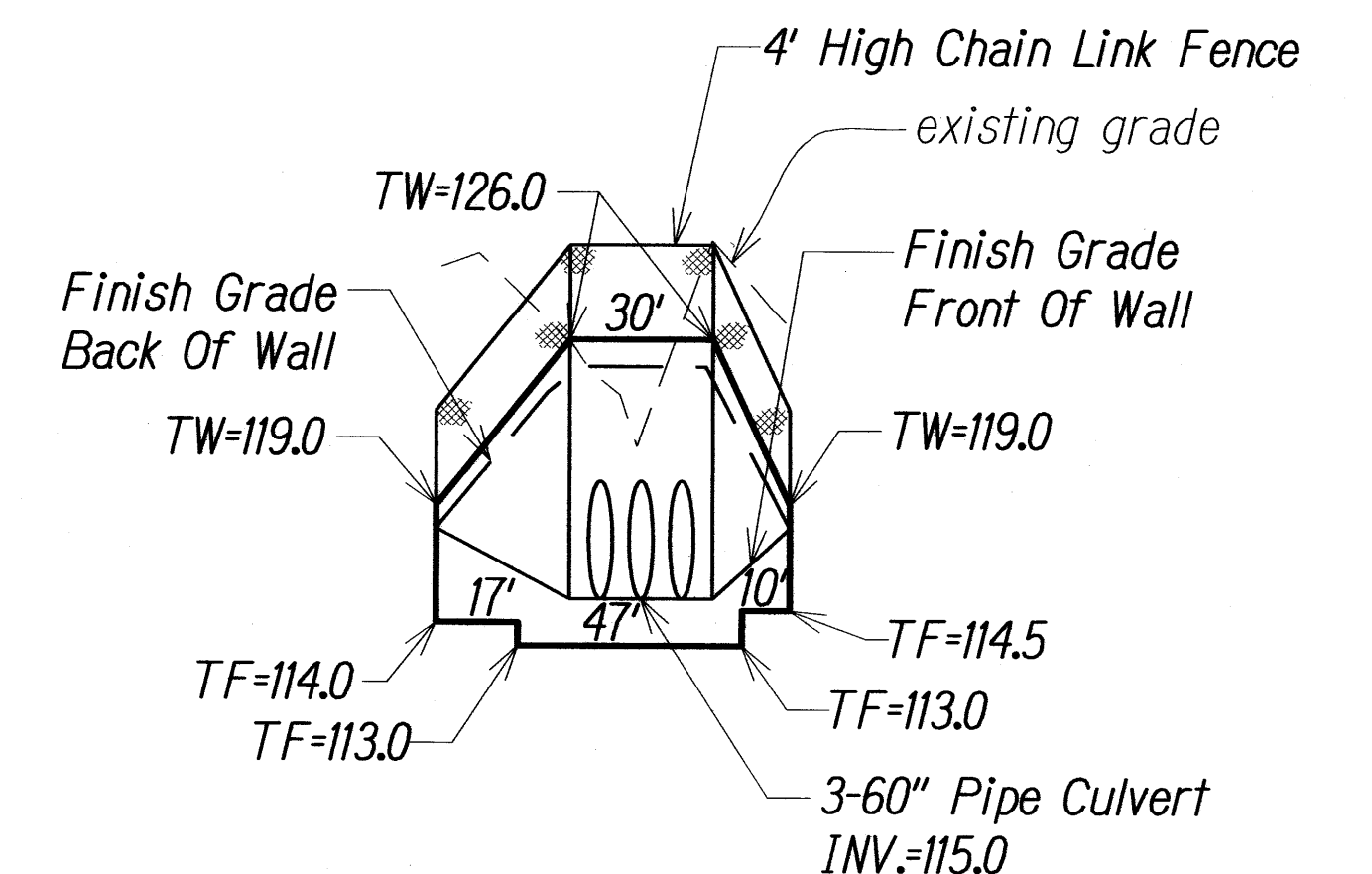
PLAN - OUTLET HEADWALL
Scale: Horiz. 1"=20'

Note:
For Culvert Inlet and Outlet Headwalls, See Structural Plans

PLAN - INLET HEADWALL
Scale: Horiz. 1"=20'

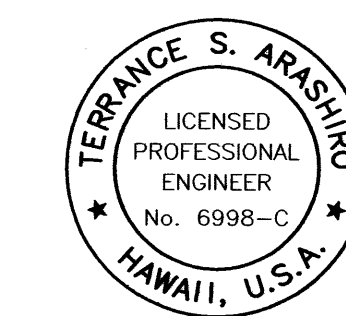


PROFILE - OUTLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'



PROFILE - INLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'

STA. 356+17
CULVERT 6 - DETAIL



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EXP. 4/30/10

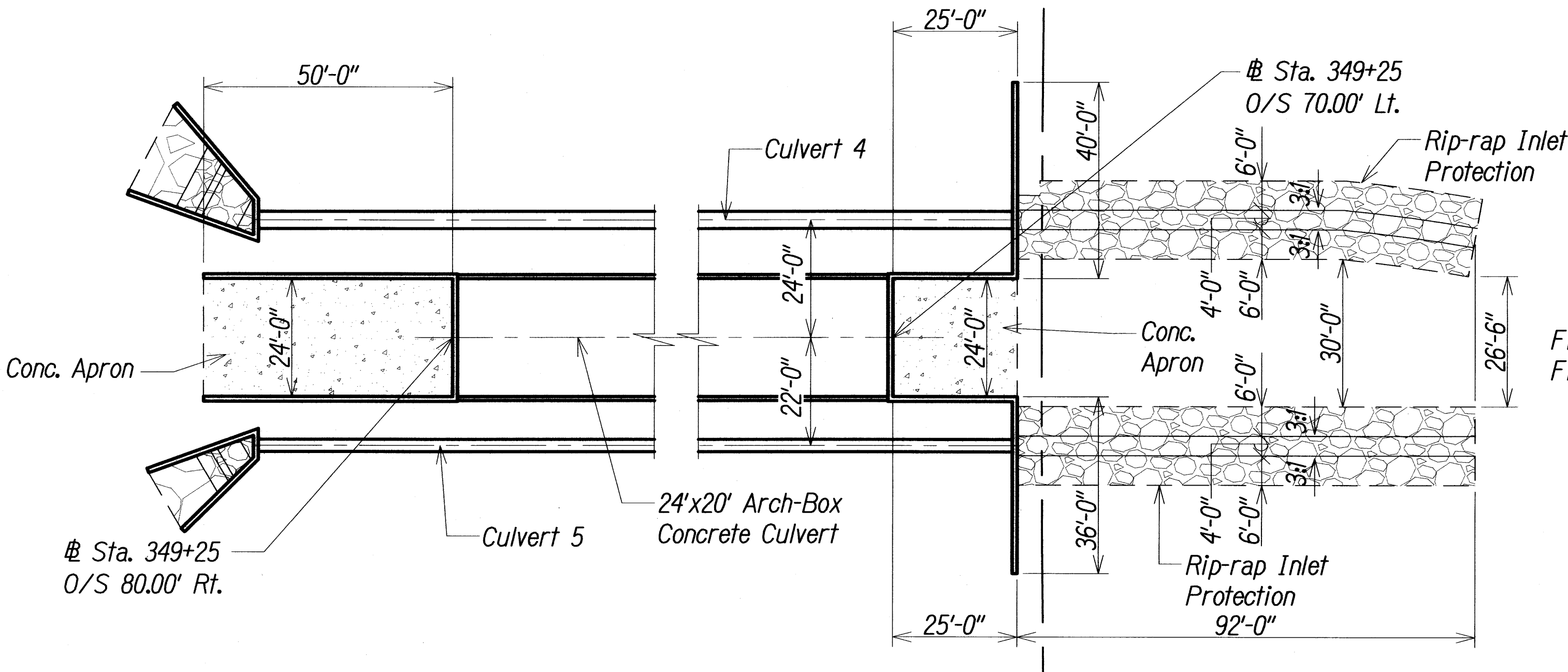
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE CULVERT DETAILS

HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: As Shown Date: November 23, 2009

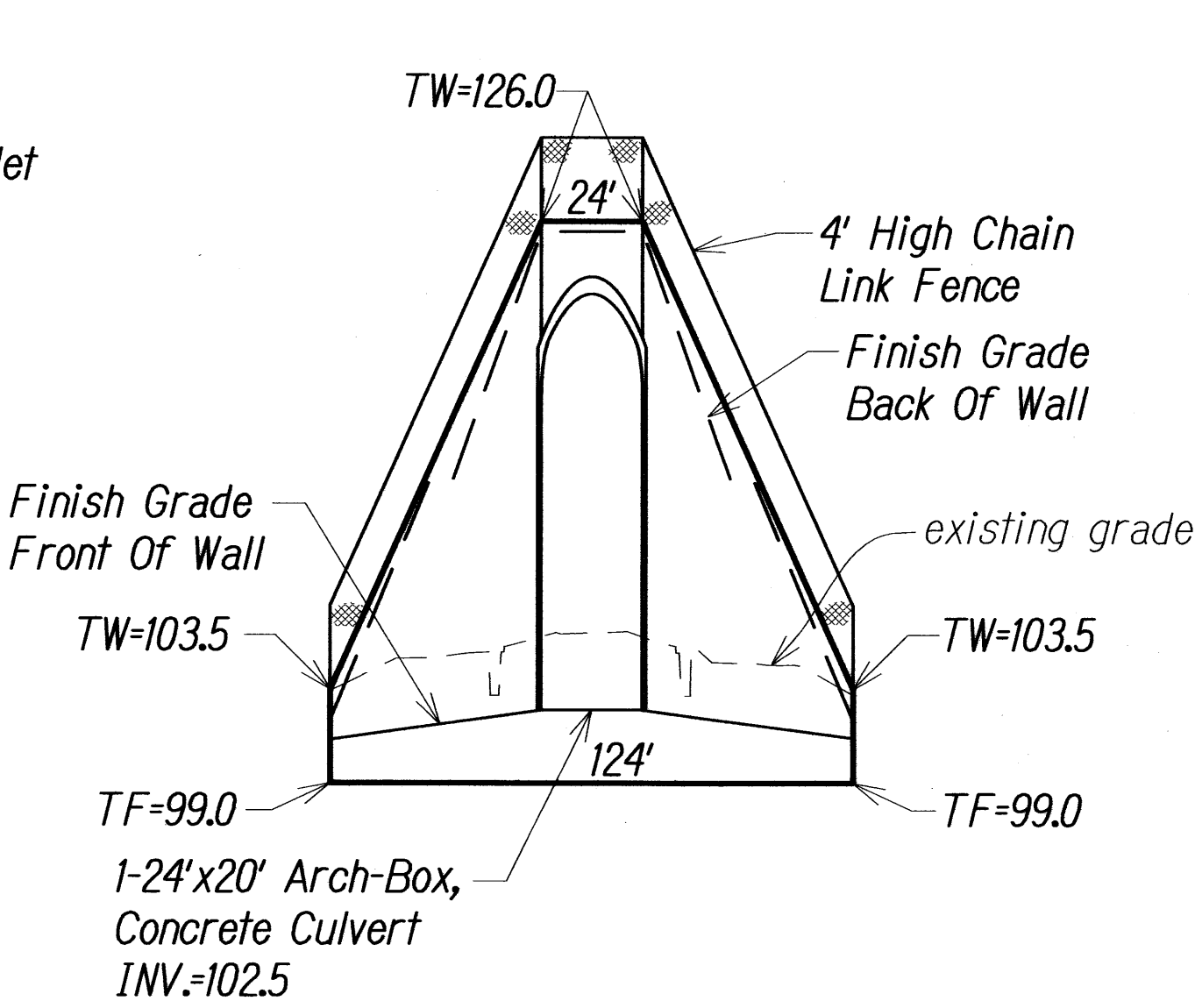
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-K(38)	2010	80	213



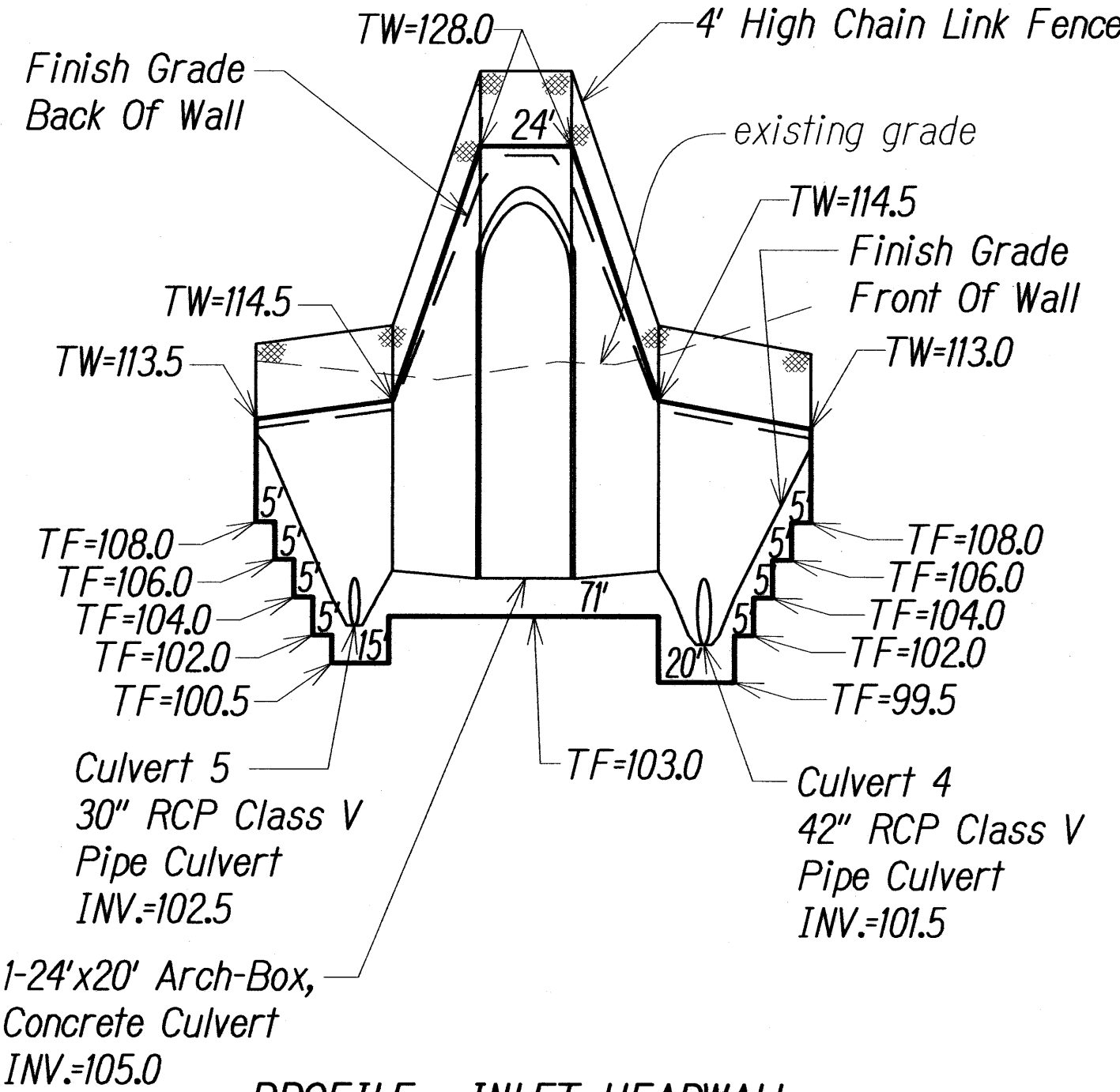
PLAN - OUTLET HEADWALL
Scale: Horiz. 1"=20'

Note:
For Culvert Inlet and Outlet
Headwalls, See Structural Plans

PLAN - INLET HEADWALL
Scale: Horiz. 1"=20'

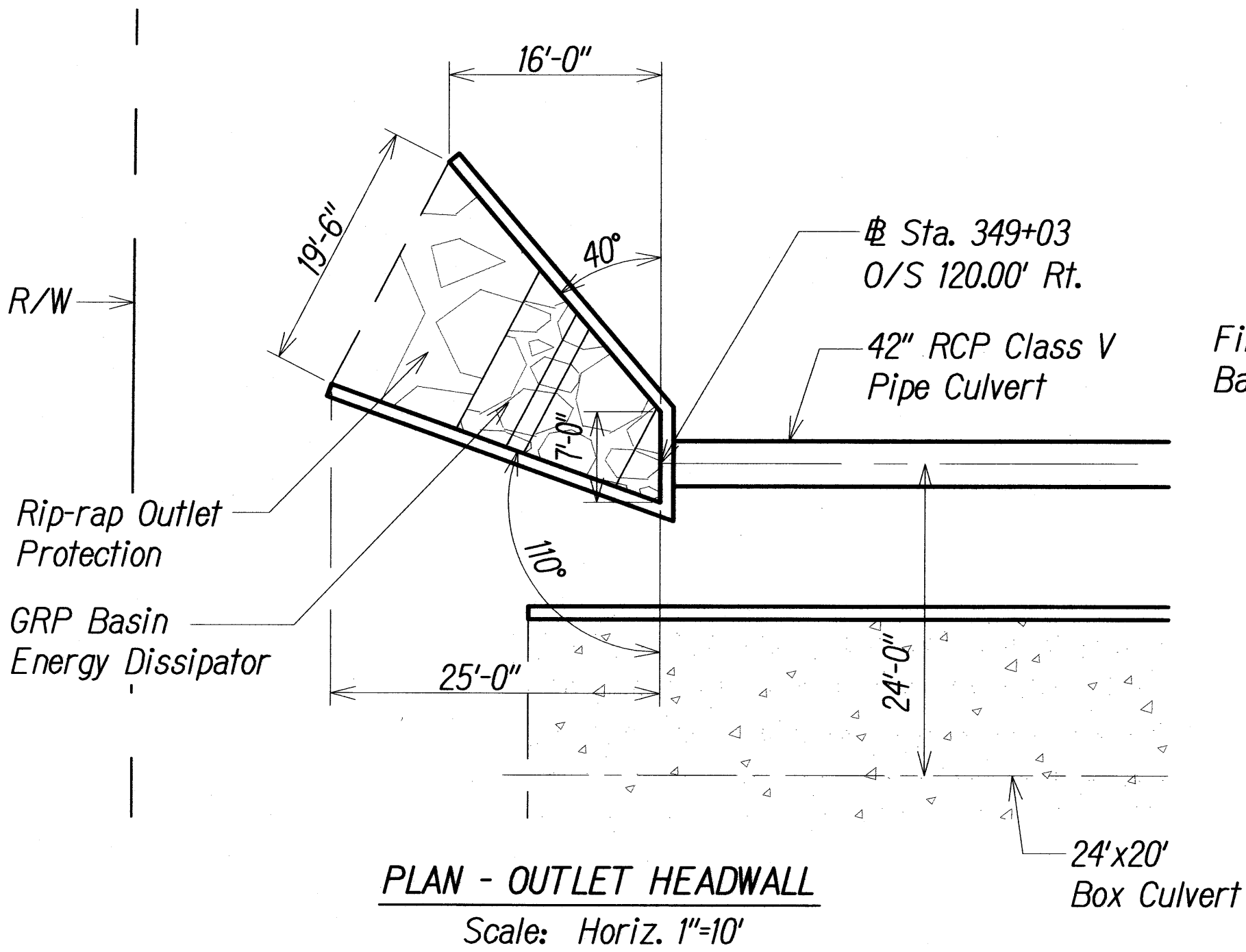


PROFILE - OUTLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'



PROFILE - INLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'

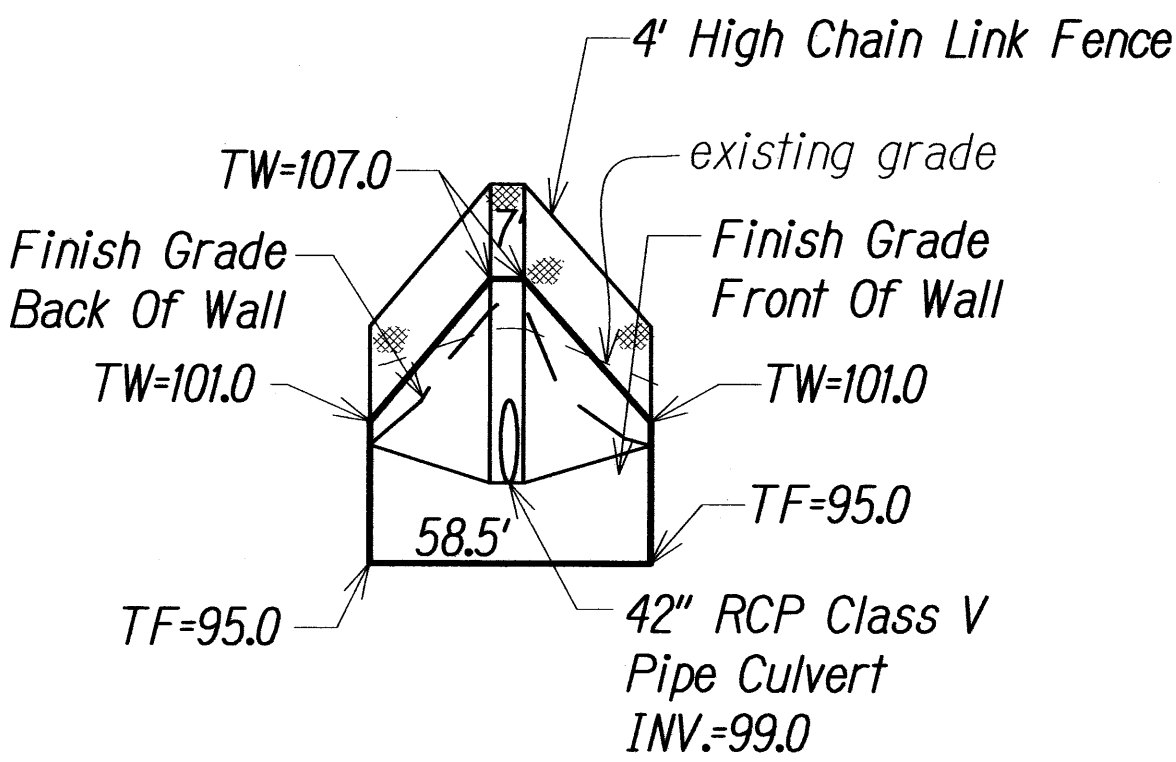
STA. 349+25
AG. CROSSING - DETAIL



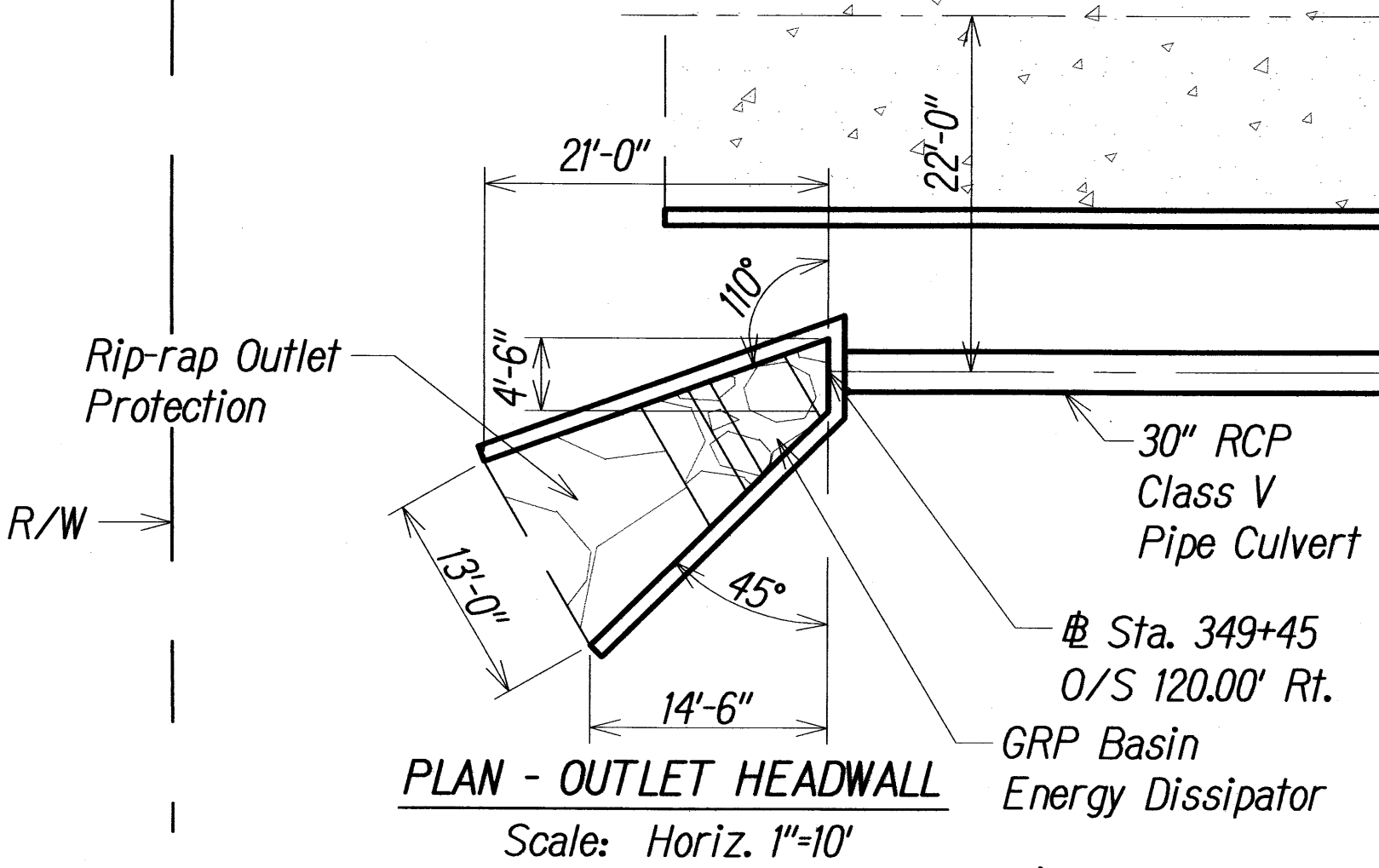
PLAN - OUTLET HEADWALL
Scale: Horiz. 1"=10'

Note:
For Culvert Outlet Headwall,
See Structural Plans

STA. 349+04.5
CULVERT 4 - DETAIL



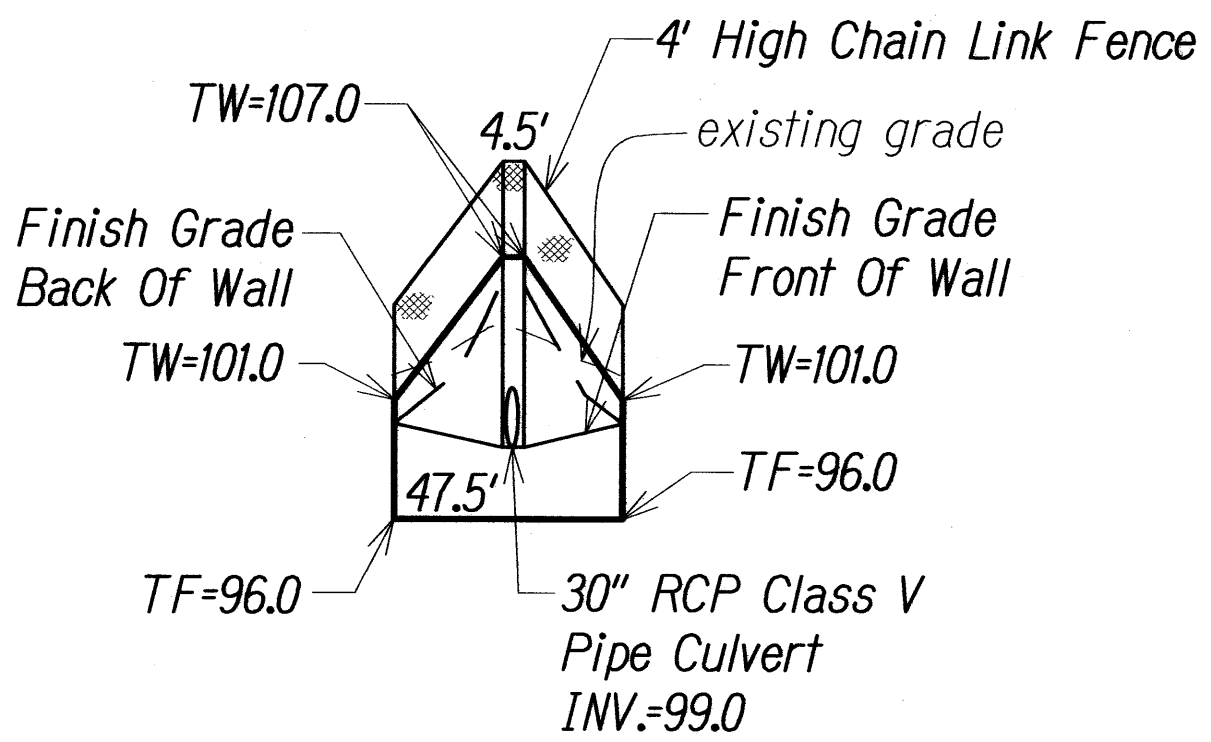
PROFILE - OUTLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'



PLAN - OUTLET HEADWALL
Scale: Horiz. 1"=10'

Note:
For Culvert Outlet Headwall,
See Structural Plans

STA. 349+43.5
CULVERT 5 - DETAIL



PROFILE - OUTLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

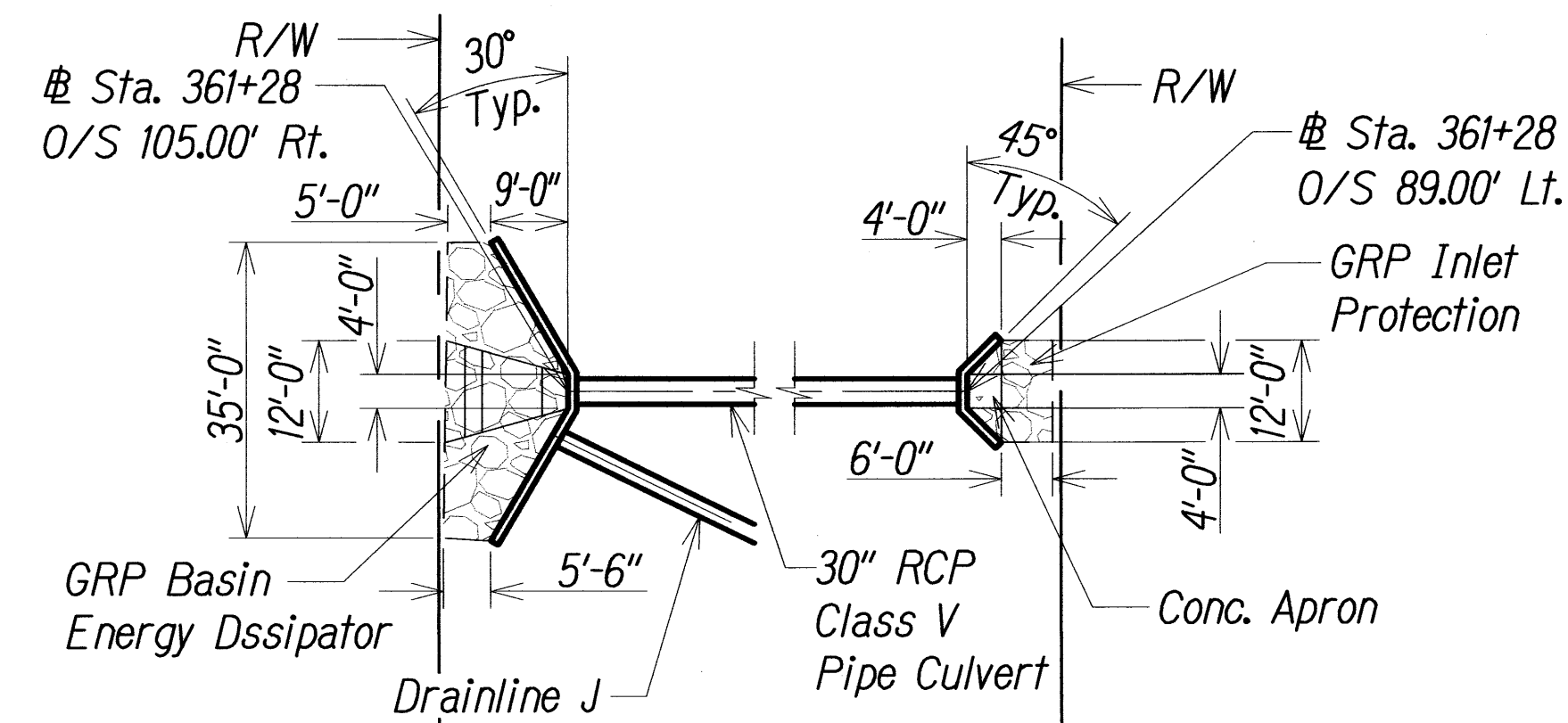
DRAINAGE CULVERT DETAILS

HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-K(38)

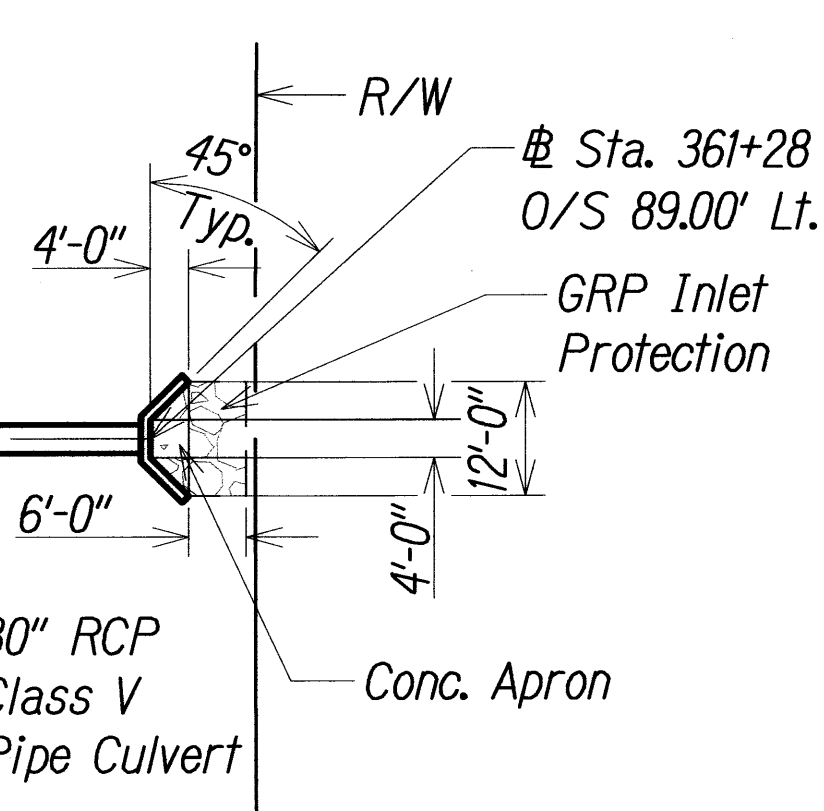
Scale: As Shown Date: November 23, 2009

SHEET No. 3 OF 5 SHEETS

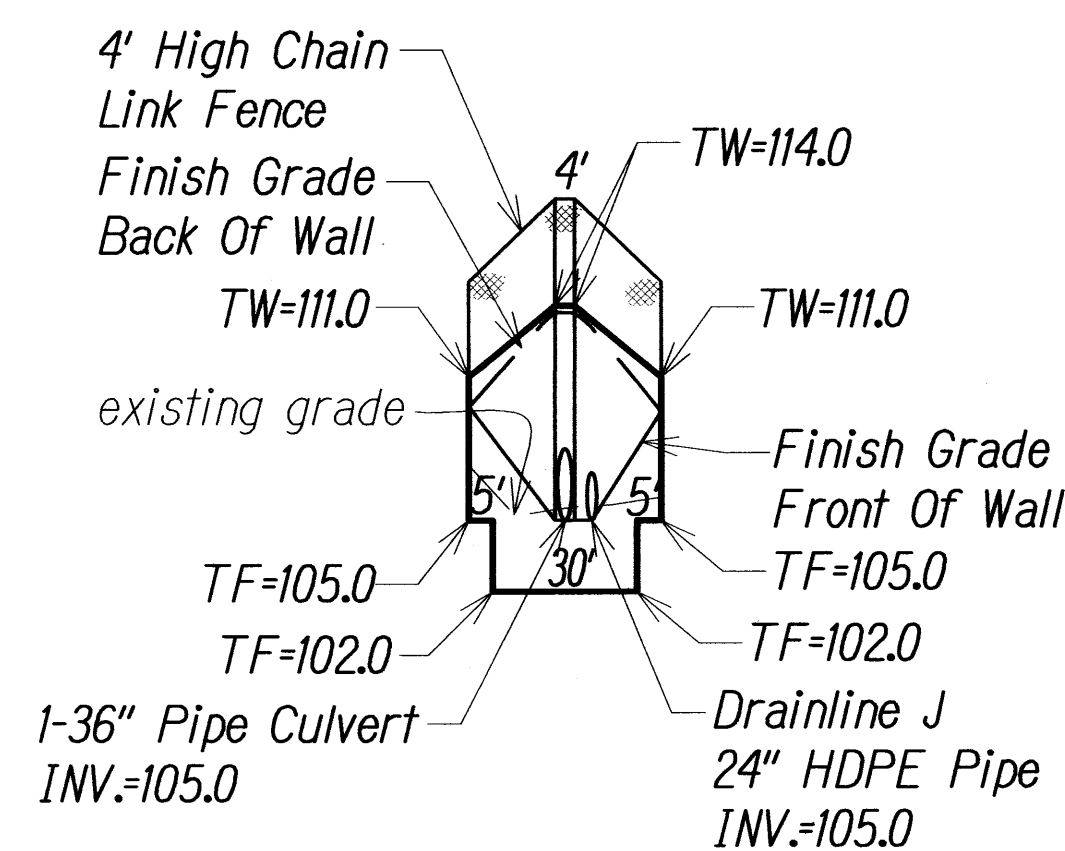
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	81	213



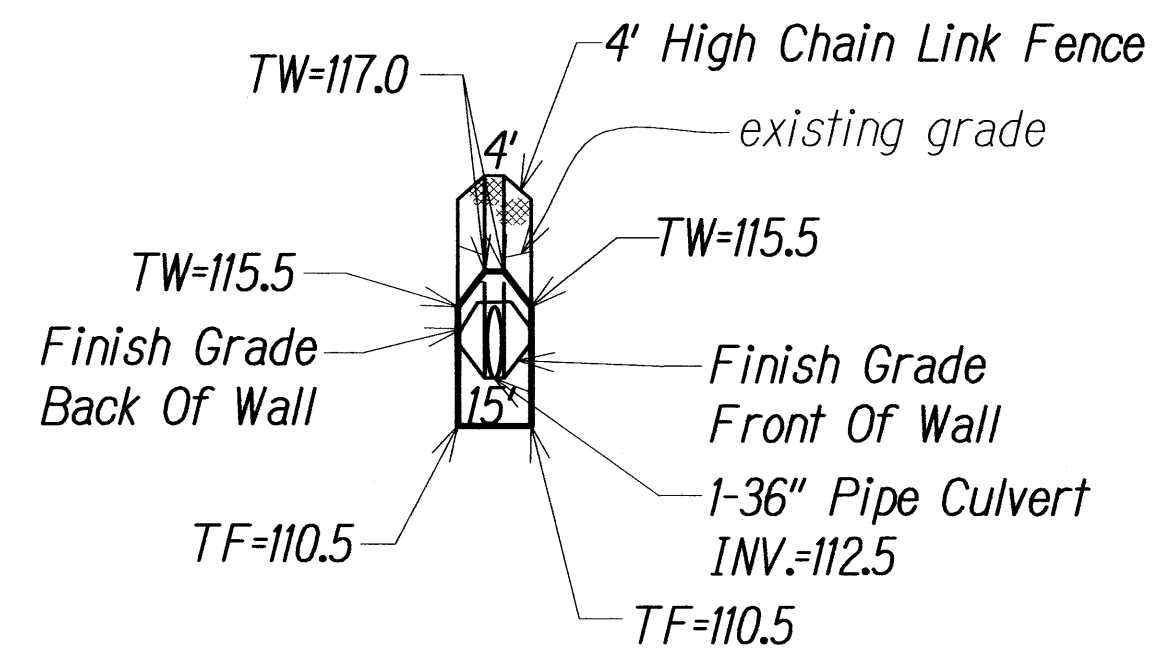
PLAN - OUTLET HEADWALL
Scale: Horiz. 1"=20'



PLAN - INLET HEADWALL
Scale: Horiz. 1"=20'



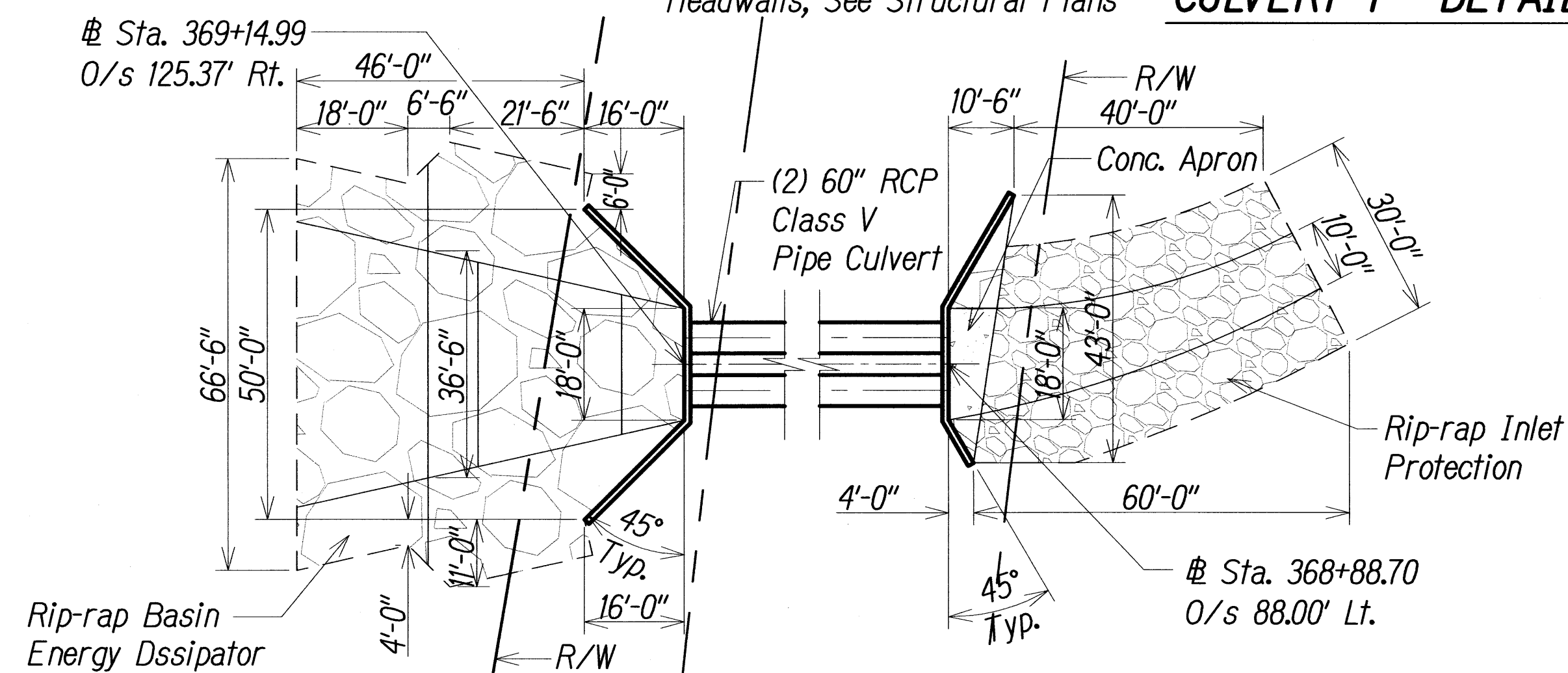
PROFILE - OUTLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'



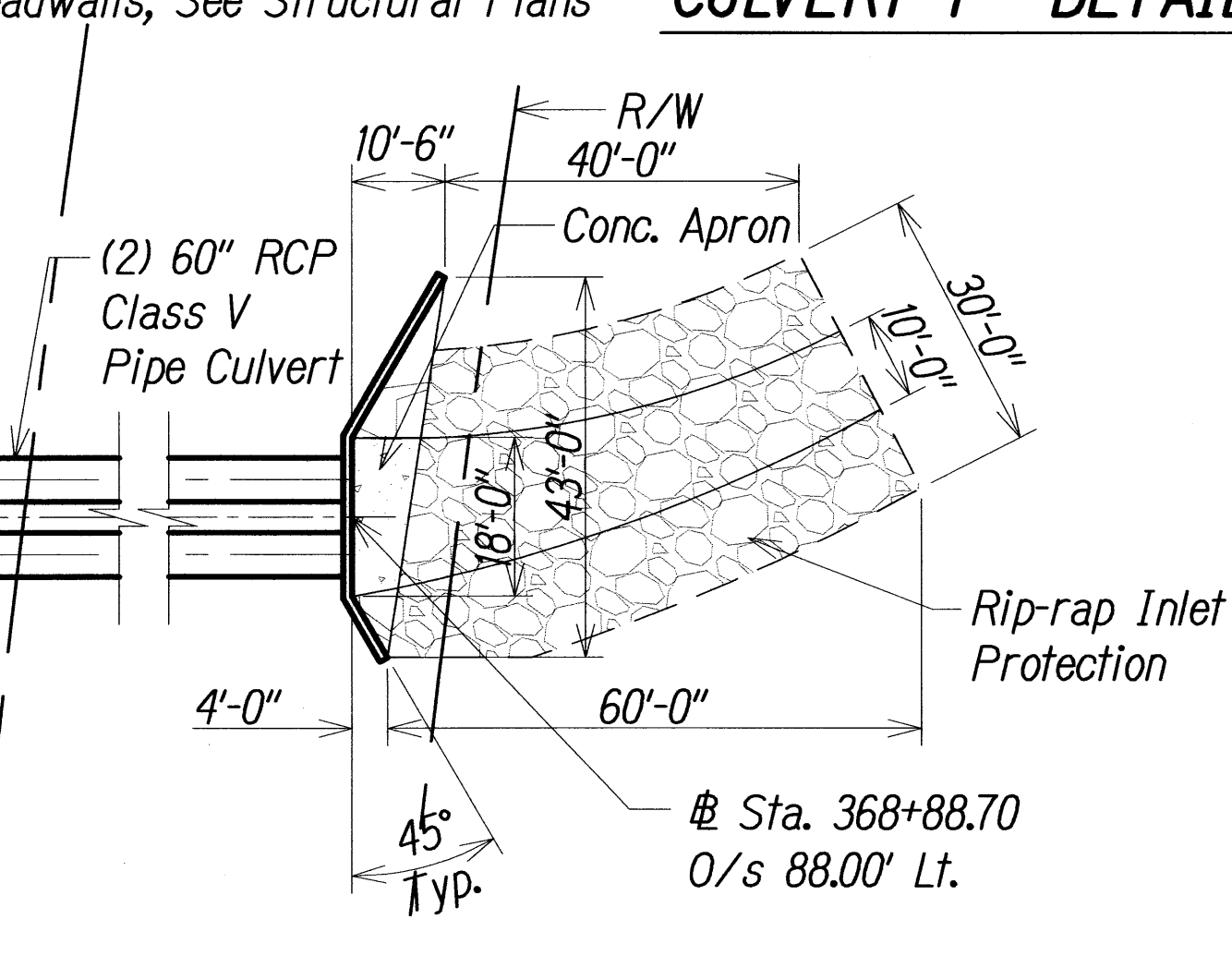
PROFILE - INLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'

Note:
For Culvert Inlet and Outlet
Headwalls, See Structural Plans

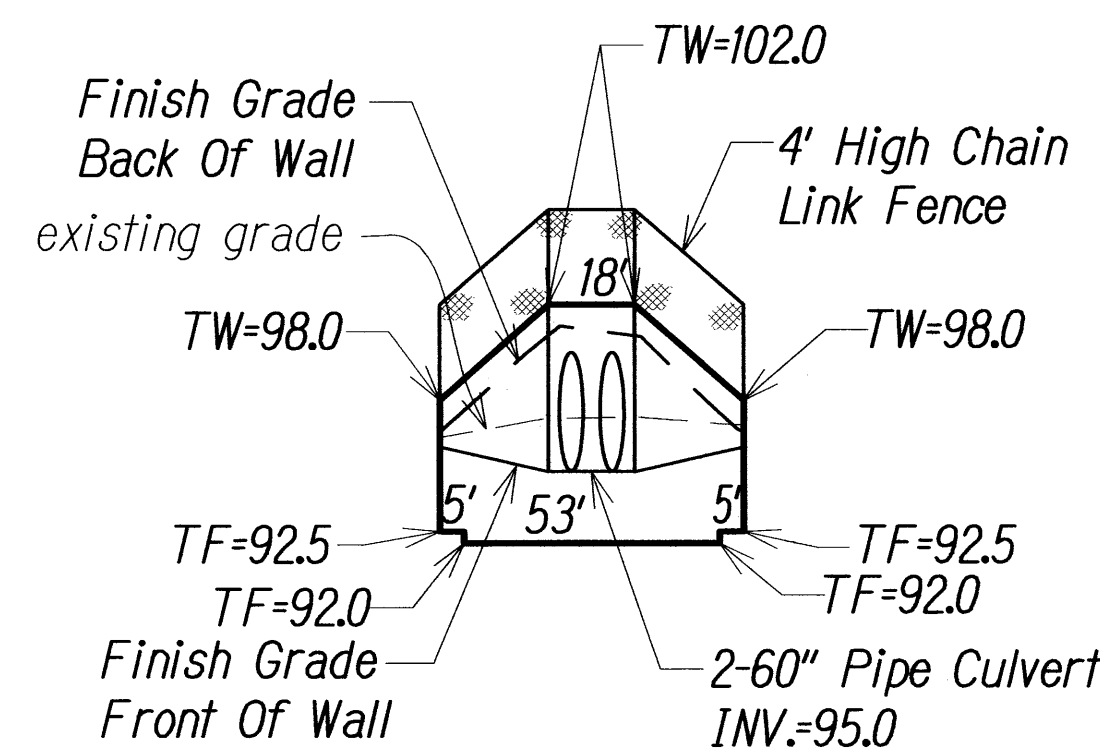
**STA. 361+28
CULVERT 7 - DETAIL**



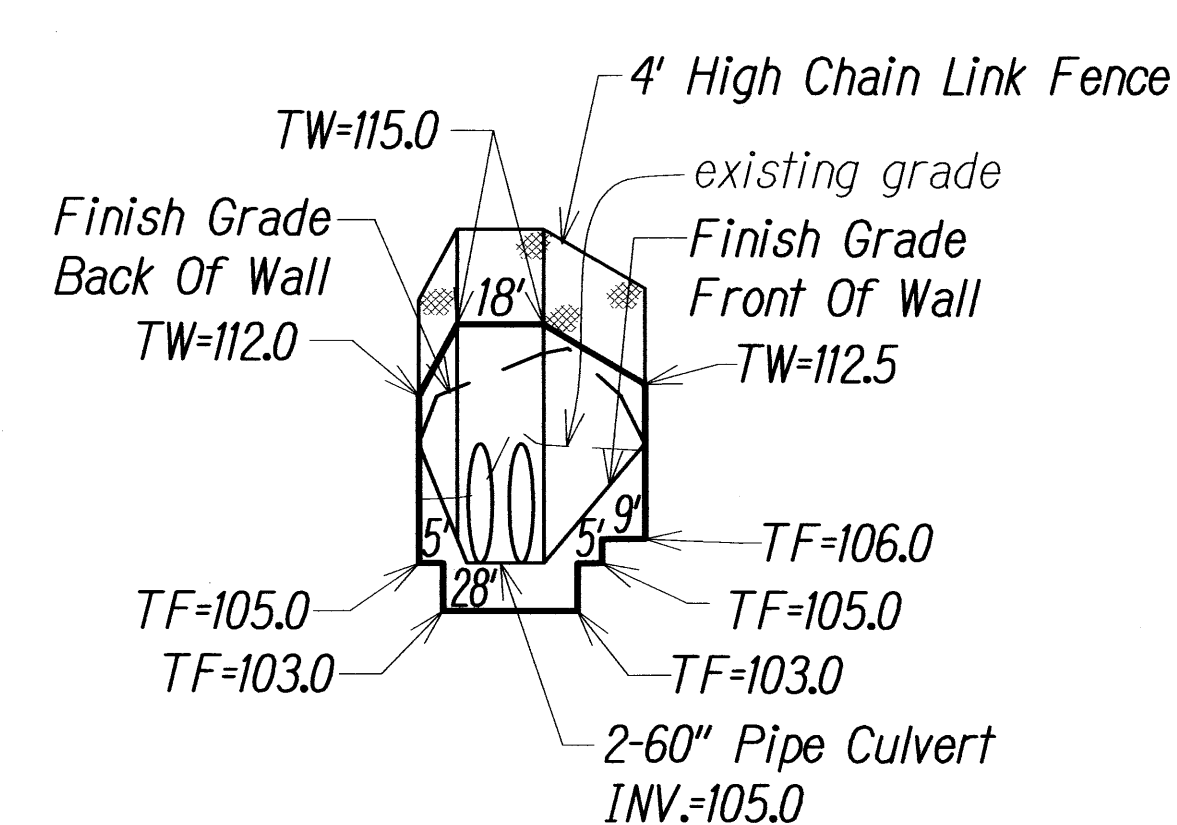
PLAN - OUTLET HEADWALL
Scale: Horiz. 1"=20'



PLAN - INLET HEADWALL
Scale: Horiz. 1"=20'



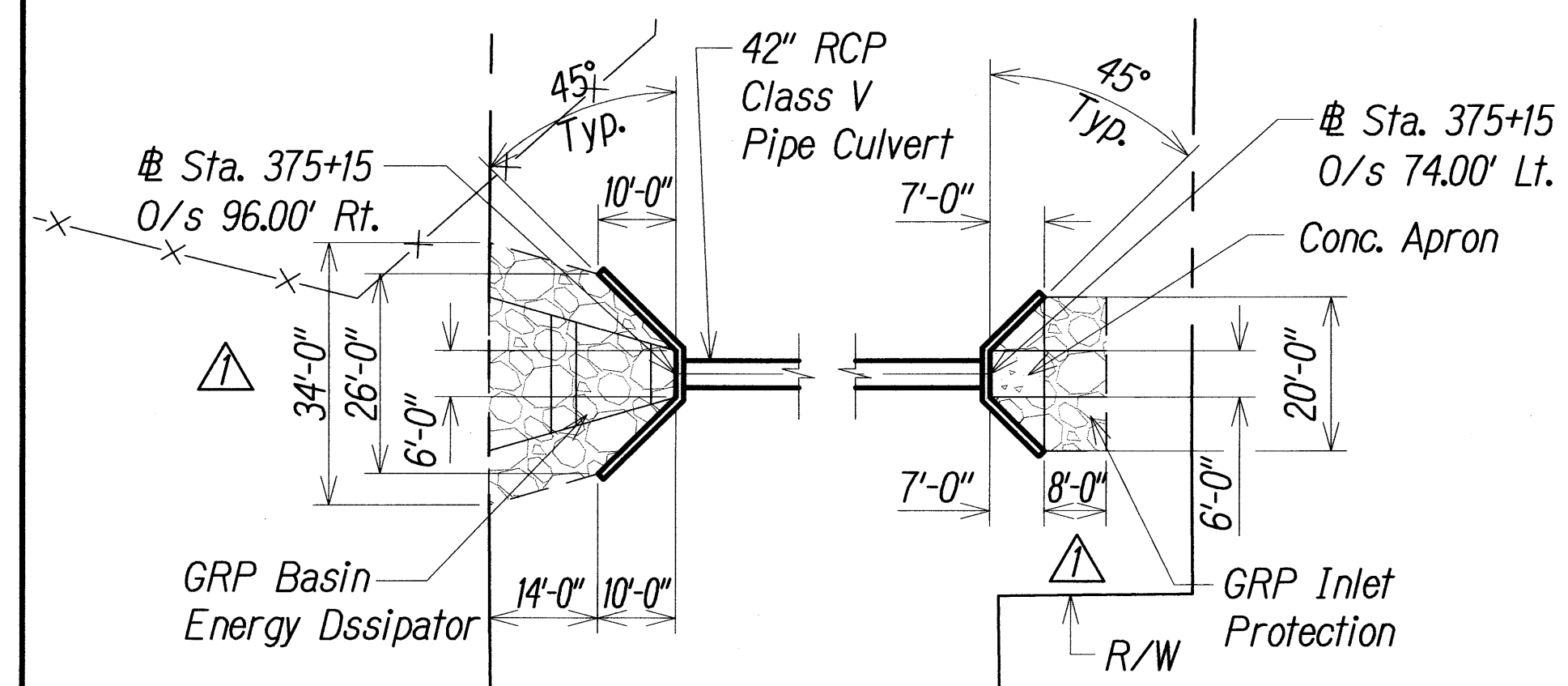
PROFILE - OUTLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'



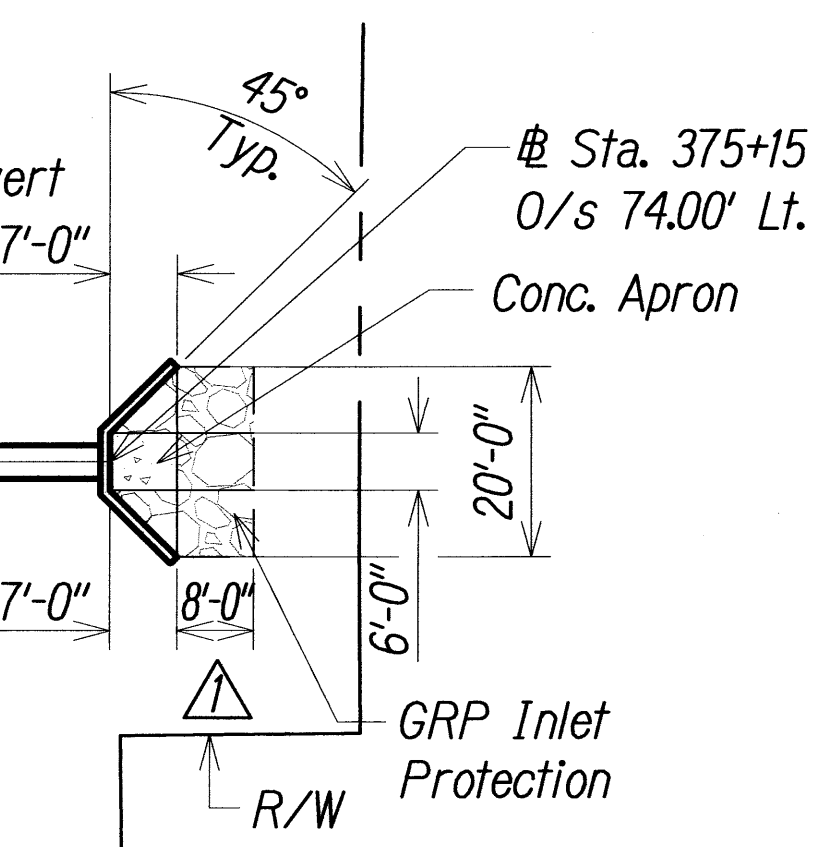
PROFILE - INLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'

Note:
For Culvert Inlet and Outlet
Headwalls, See Structural Plans

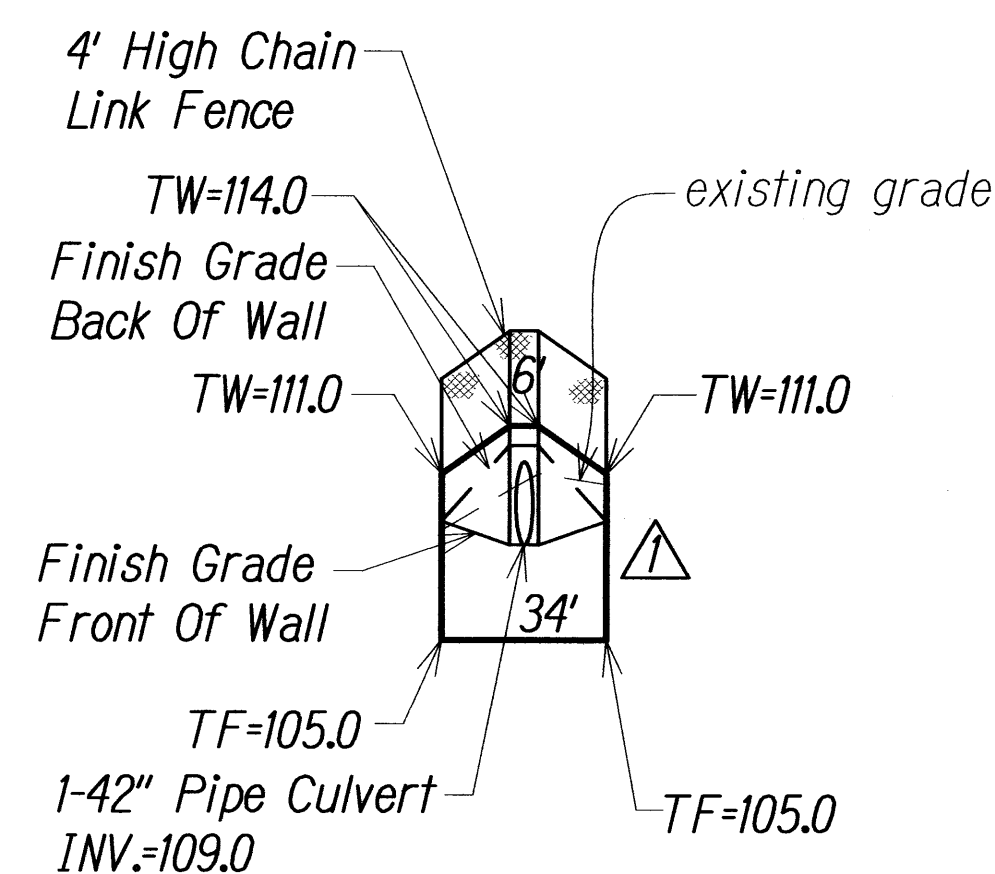
**STA. 369+00
CULVERT 8 - DETAIL**



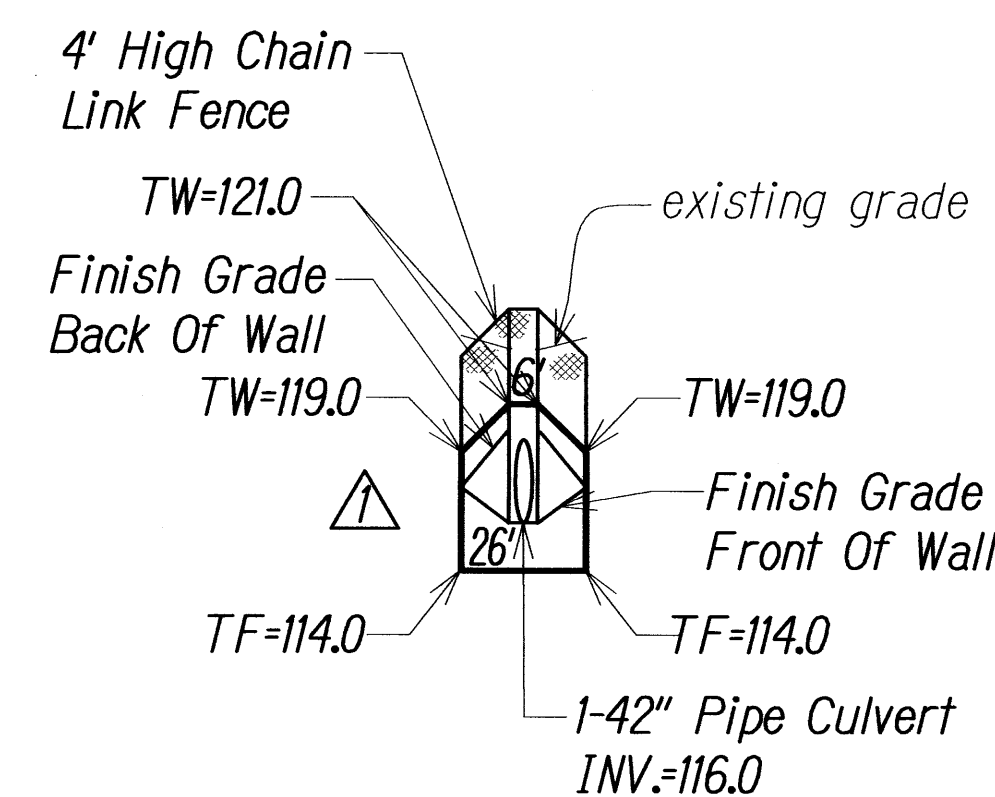
PLAN - OUTLET HEADWALL
Scale: Horiz. 1"=20'



PLAN - INLET HEADWALL
Scale: Horiz. 1"=20'



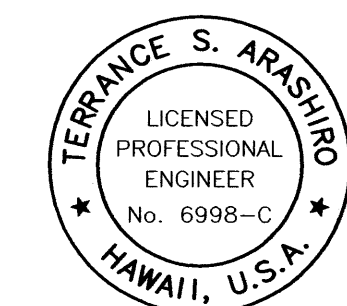
PROFILE - OUTLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'



PROFILE - INLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'

Note:
For Culvert Inlet and Outlet
Headwalls, See Structural Plans

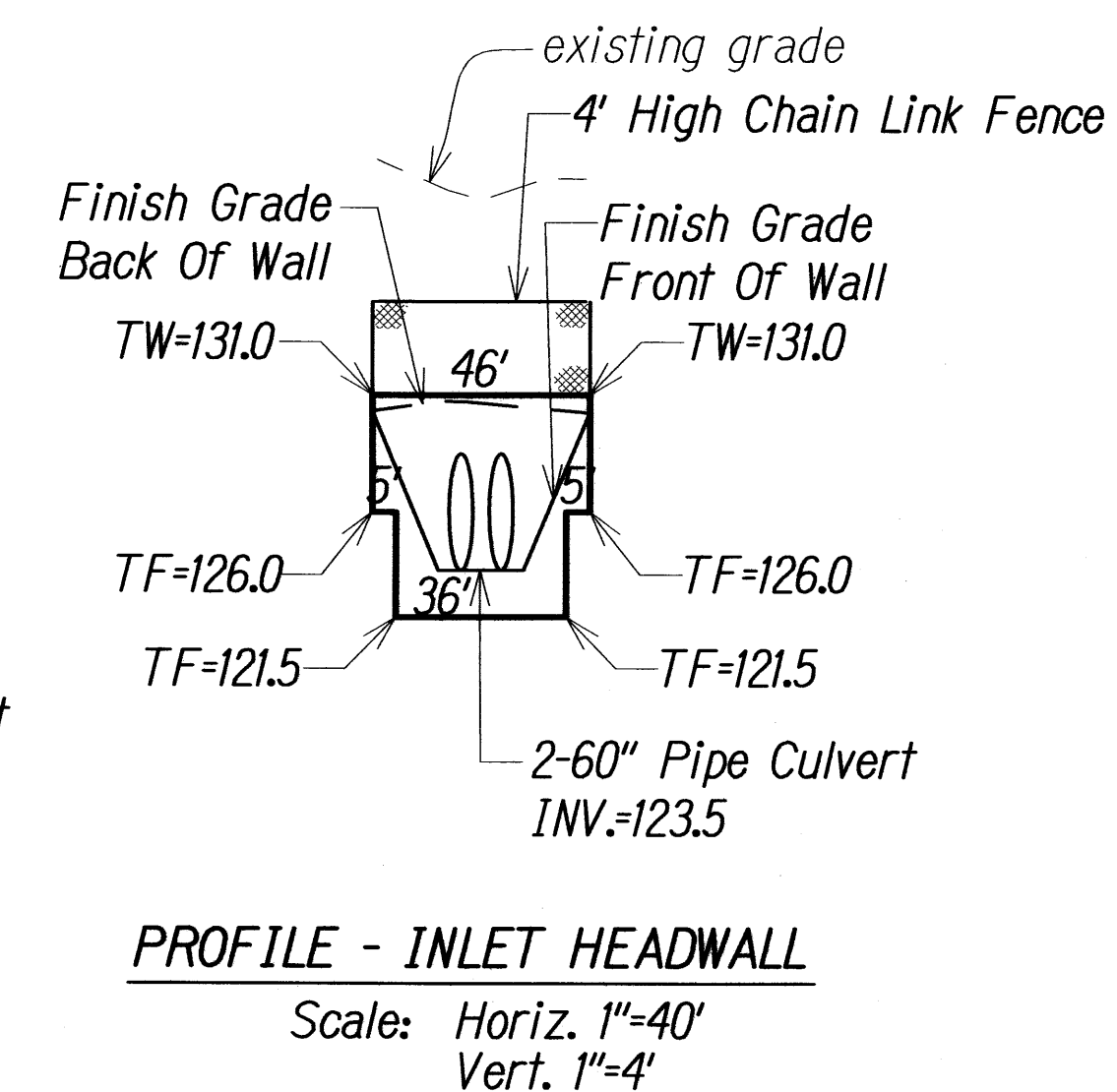
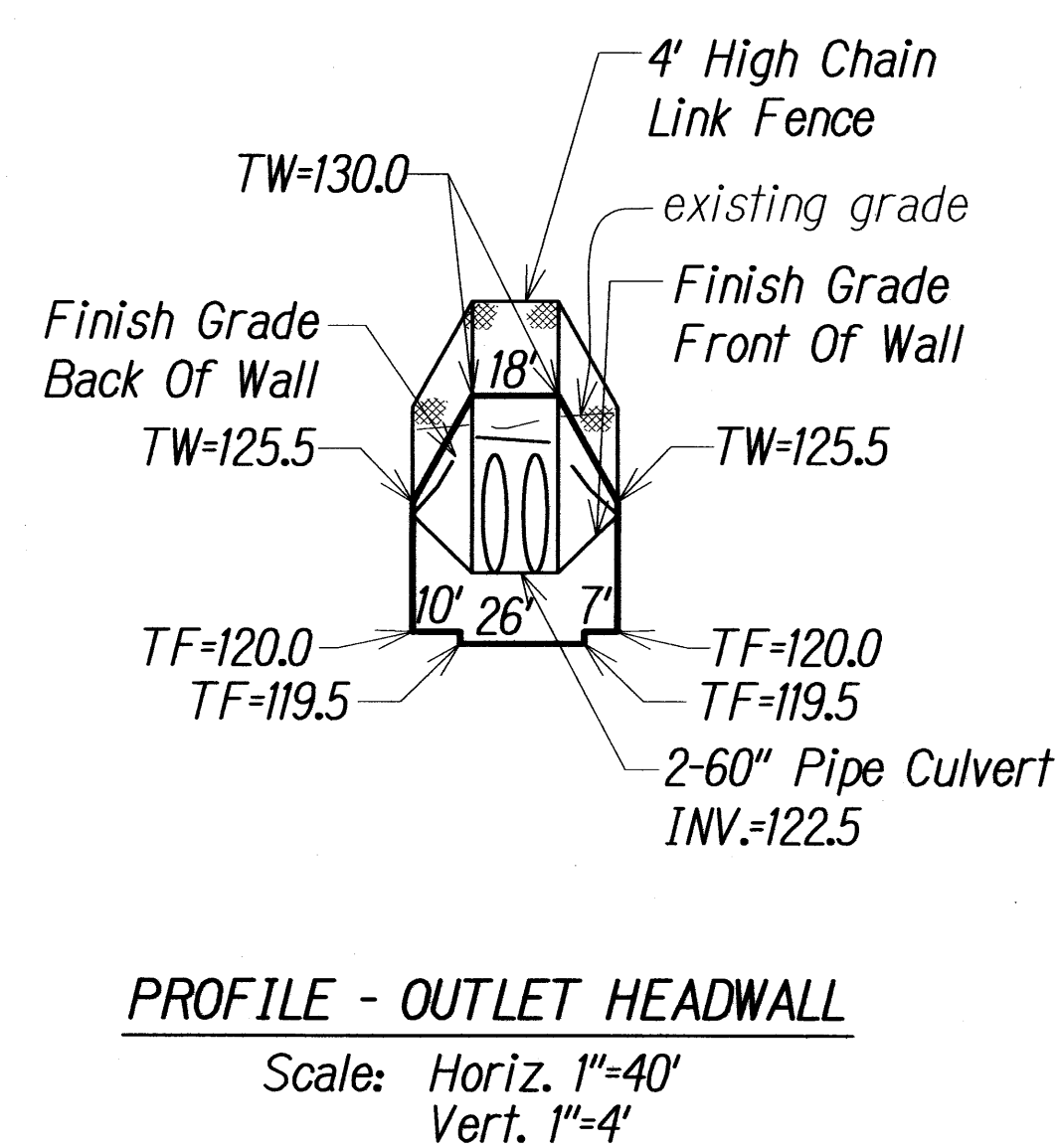
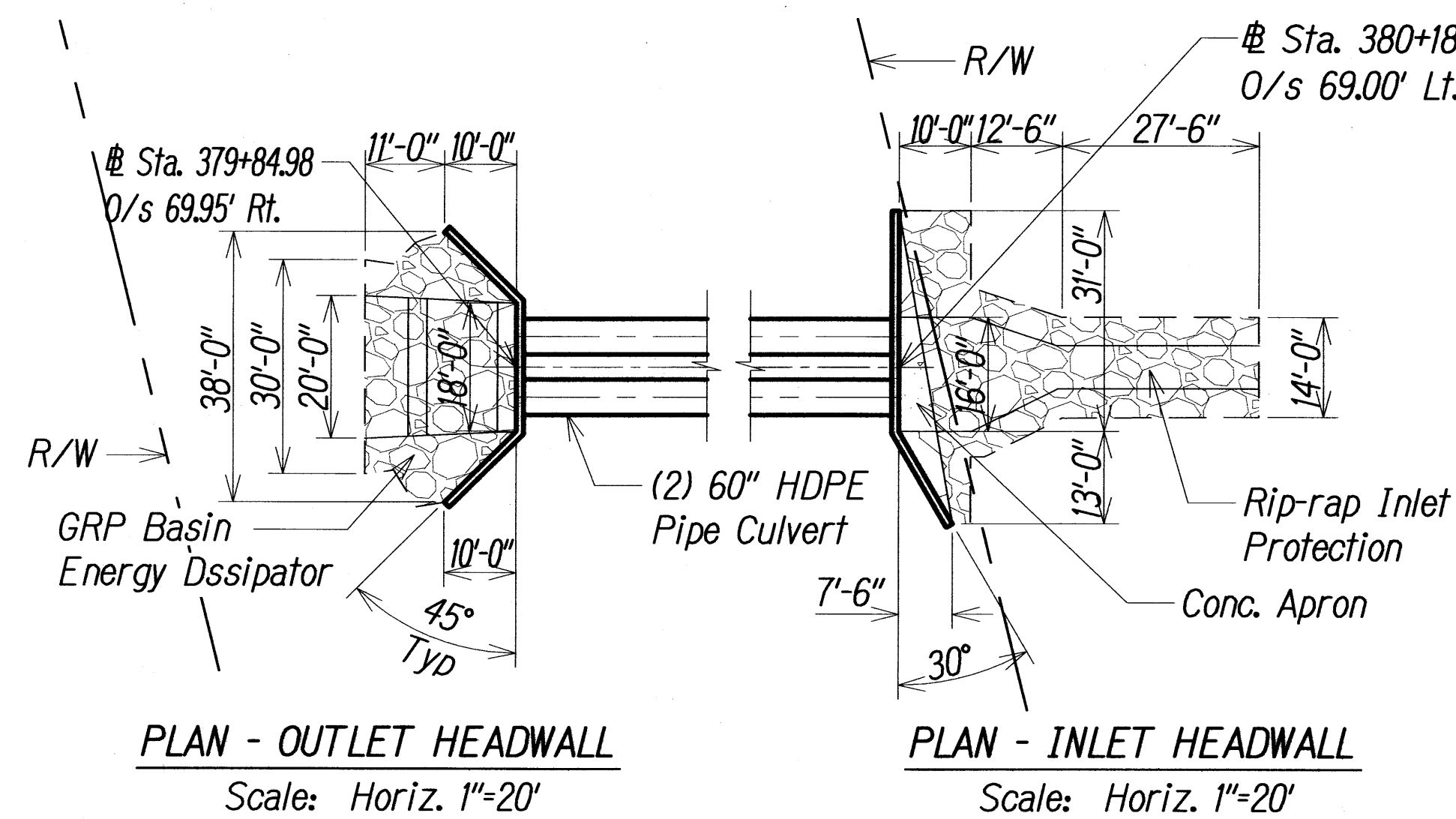
**STA. 375+15
CULVERT 9 - DETAIL**



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION AND
CONSTRUCTION OF THIS PROJECT
WILL BE UNDER MY OBSERVATION
EXP. 4/30/10

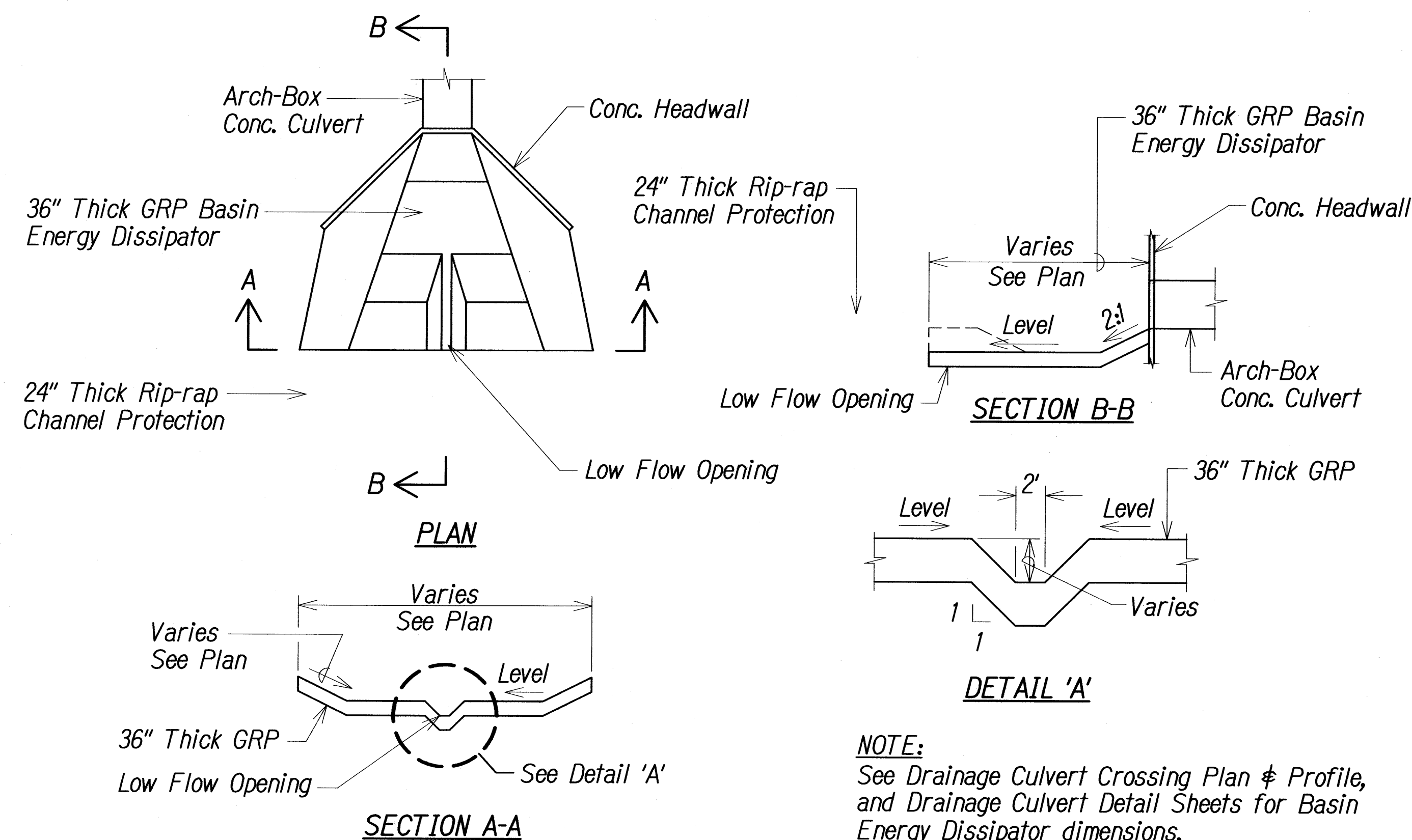
1/18/10	Revised Culvert 9
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
DRAINAGE CULVERT DETAILS	
HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1 Lahainaluna Rd. to Hokiokio Pl. Federal Aid Project NO. NH-030-1(38)	
Scale: As Shown	Date: November 23, 2009
SHEET No. 4 OF 5 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	82	213



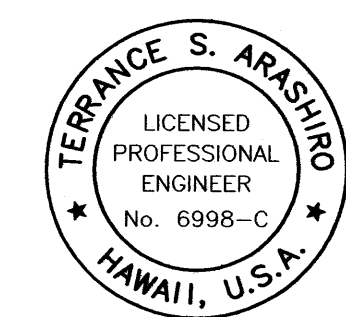
Note:
For Culvert Inlet and Outlet Headwalls, See Structural Plans

STA. 380+02 CULVERT 10 - DETAIL



NOTE:
See Drainage Culvert Crossing Plan & Profile, and Drainage Culvert Detail Sheets for Basin Energy Dissipator dimensions.

LOW FLOW OPENING FOR CULVERTS 2 & 3 Not to Scale



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WILL BE UNDER MY OBSERVATION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE CULVERT DETAILS

HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: As Shown Date: November 23, 2009