

INDEX TO DRAWINGS

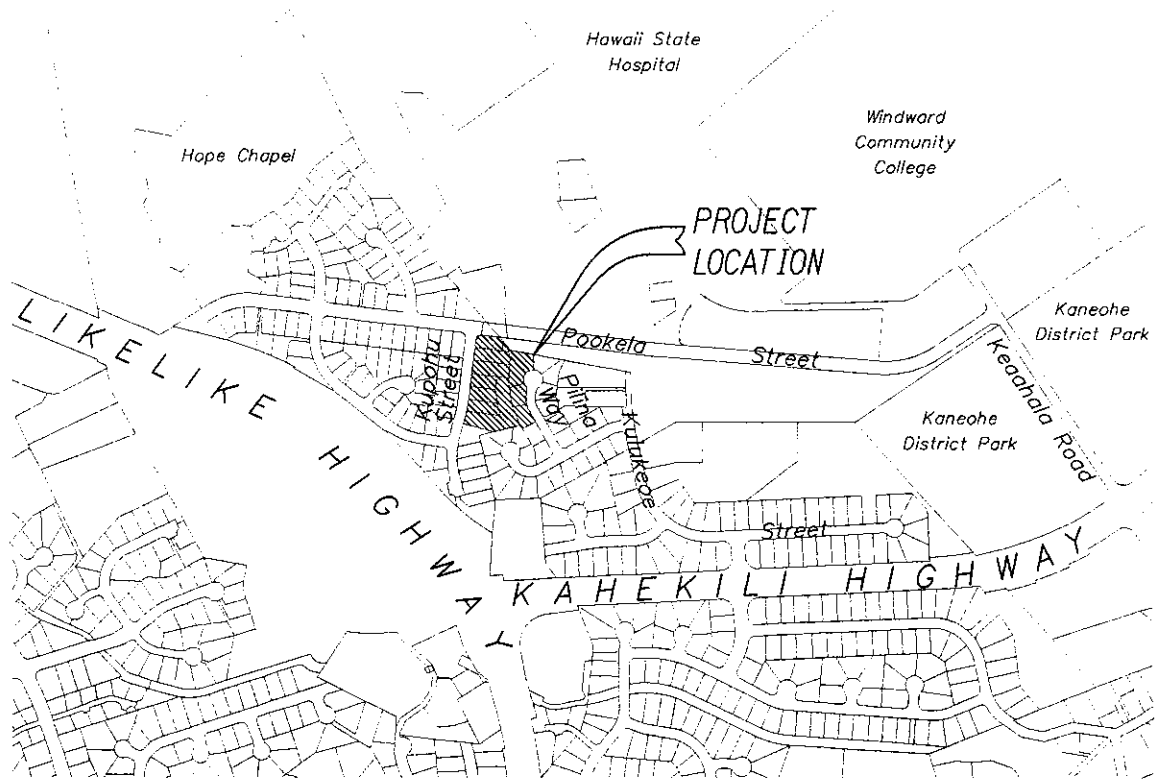
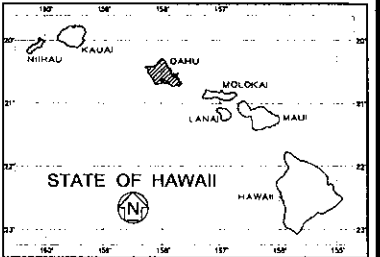
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STANDARD PLANS SUMMARY
3-4	CONSTRUCTION NOTES
5-7	WATER POLLUTION, EROSION CONTROL NOTES & DETAILS
8	LEGEND & ABBREVIATIONS
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20-30	STRUCTURAL PLANS
31-33	CROSS SECTIONS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HONOLULU, HAWAII

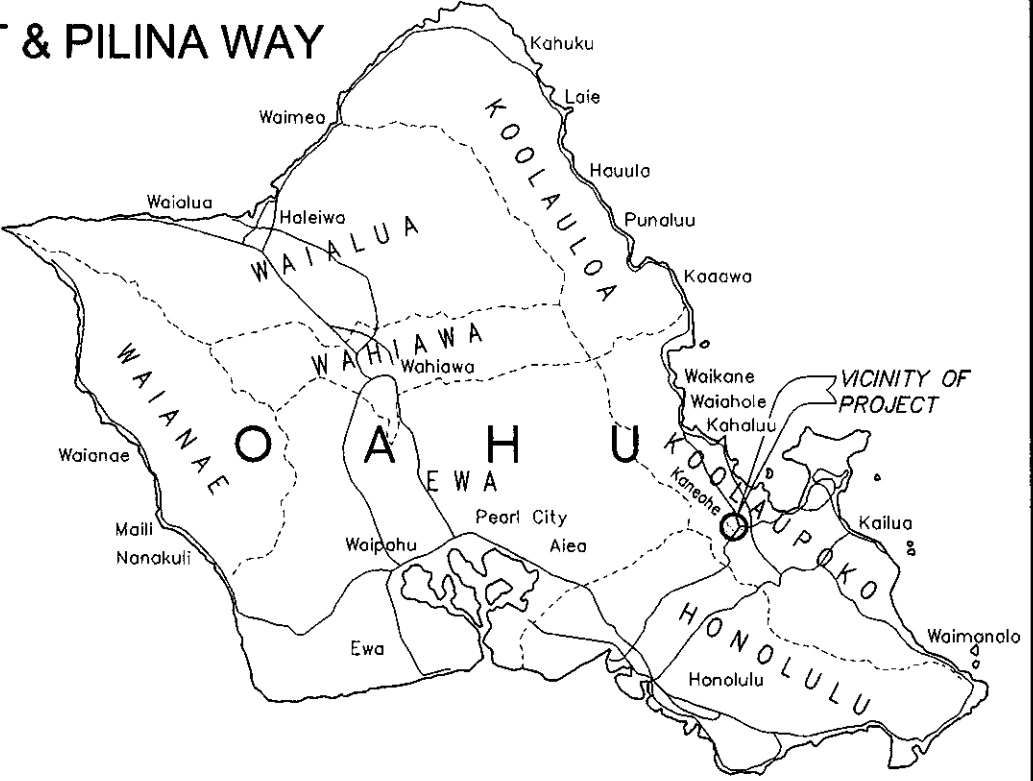
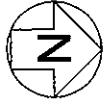
PLANS FOR
CASTLE HILLS ACCESS ROAD
DRAINAGE IMPROVEMENTS
VICINITY OF POOKELA STREET, KUPOHU STREET & PILINA WAY
PROJECT NO. HWY-O-04-98

DISTRICT OF KOOLAUPOKO
ISLAND OF OAHU

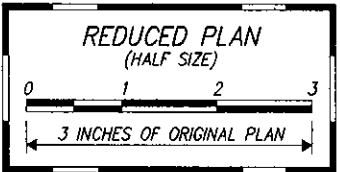
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-04-98	2009	1	33



400 0 200 400
SCALE IN FEET
LAYOUT PLAN



VICINITY MAP
NOT TO SCALE
SCALE IN MILES



DEPARTMENT OF TRANSPORTATION
STATE OF HAWAII
APPROVED:
DIR. OF TRANSPORTATION DATE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-04-98	2009	9	33

True North
Scale: 1"=20'

BENCH MARK
C&C STREET MONUMENT
ELEVATION=168.00
(TOP OF BRASS PIN) pili na
FB 2676/30,45

Po'okela Street

(PRIVATE) (STATE)

To Kealahala Street

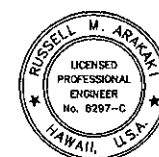
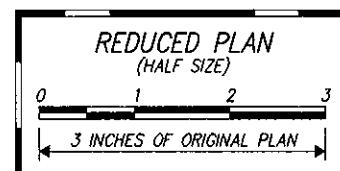
To Puupei Street

BENCH MARK
C&C STREET MONUMENT
(TOP OF BRASS PIN)
ELEVATION=197.48
FB 2676/10

Kupohu Street (Private)

Stream

EXISTING CONDITIONS
SCALE: 1"=20'



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OR UNDER MY SUPERVISION.

APR 30, 2010
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EXISTING CONDITIONS

CASTLE HILLS ACCESS ROAD

Drainage Improvements

Project No. HWY-0-04-98

Scale: As Shown

Date: March 2009

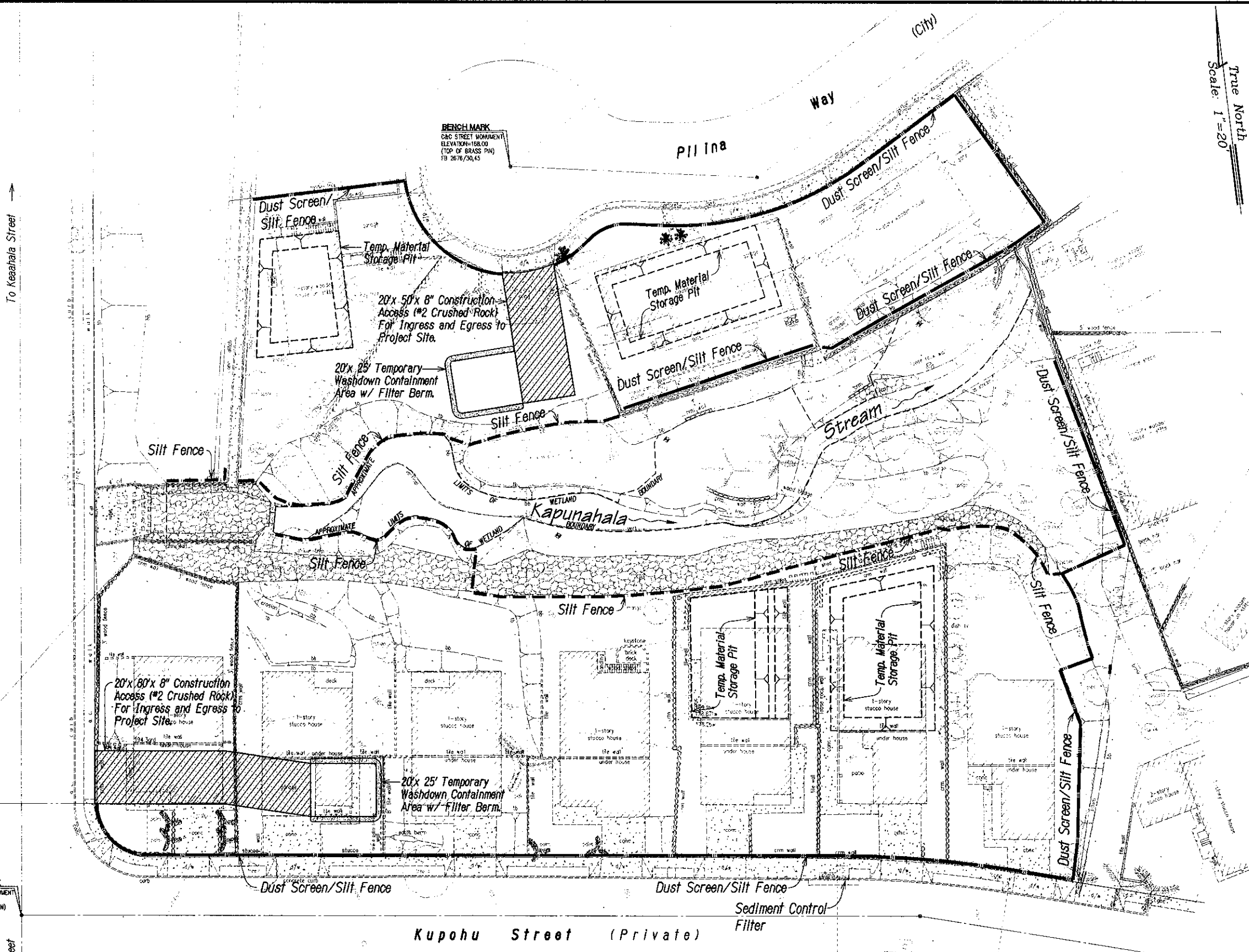
SHEET No. 1 OF 1 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-04-98	2009	10	X

True North
Scale: 1"=20'

Legend:

- Silt Fence
- Dust Screen/Silt Fence



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Part 1, Inc.
dba PARK ENGINEERING
APRIL 30, 2010
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EROSION CONTROL PLAN

CASTLE HILLS ACCESS ROAD

Drainage Improvements

Project No. HWY-0-04-98

Scale: As Shown Date: March 2009

SHEET No. ECI OF ECI SHEETS

EROSION CONTROL PLAN

SCALE: 1"=20'

DATE REVISION

DATE	_____
SURVEY PLOTTED BY	_____
DESIGNED BY	_____
NOTED BY	_____
CHECKED BY	_____

BENCHMARK
C&C STREET MONUMENT
ELEVATION=197.48
(TOP OF BRASS PIN)
FB 2676/10

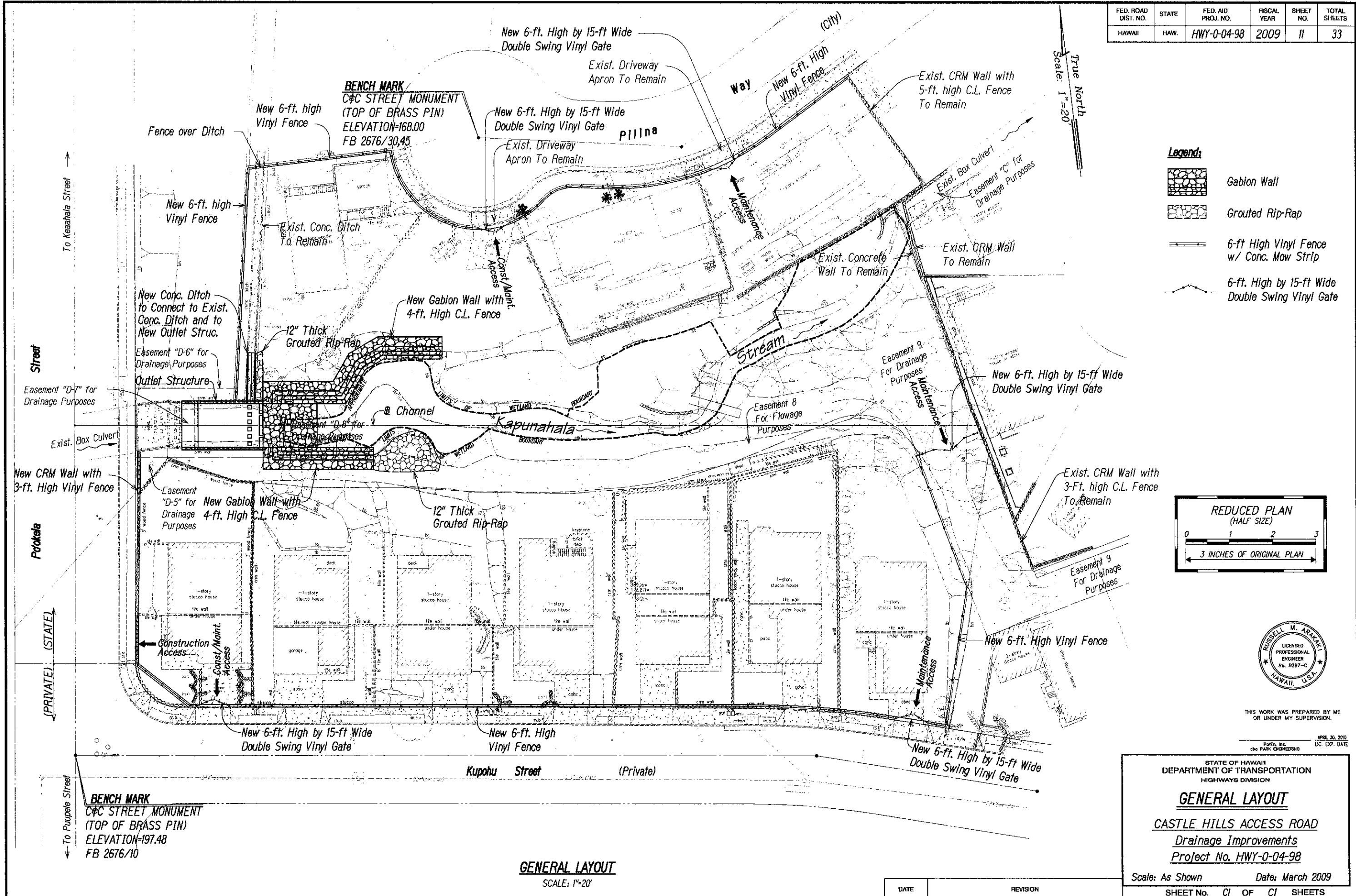
Kupohu Street (Private)

(PRIVATE) (STATE)

Po'okela Street

To Kealahala Street

To Puupei Street



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-04-98	2009	12	33

Legend:

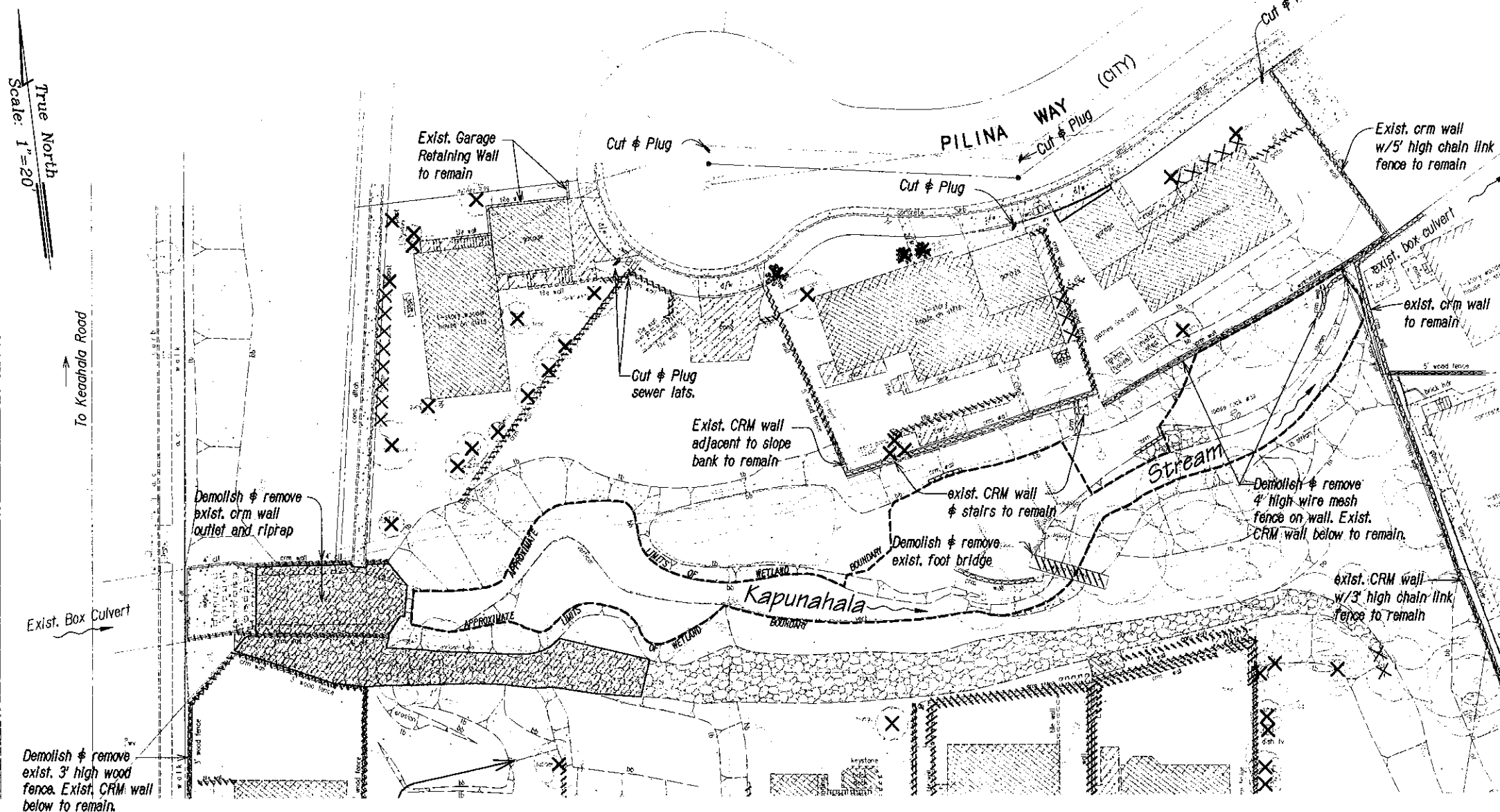
- Existing structure to be demolished and removed.
- Existing pavement to be demolished and removed.
- Existing cmu wall to be demolished and removed, including fencing where applicable.
- Existing cmu wall to be demolished and removed, including fencing where applicable.
- Existing foot bridge to be demolished and removed.
- Existing hedge to be demolished and removed.
- Existing tree to be demolished and removed.
- Existing tree to be demolished and removed.
- Existing tree to be demolished and removed.

General Demolition Notes:

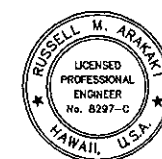
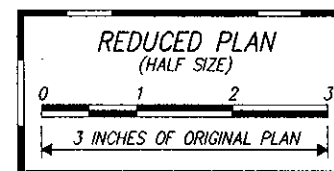
- The Contractor shall verify existing conditions prior to bidding. Any discrepancies shall be brought to the attention of Engineer for clarification.
- The Contractor shall bring any conflicts and/or questions to the attention of the Engineer prior to the start of demolition. Any remedial work resulting from the Contractor's failure to do so shall be paid by the Contractor at no cost to the State. All restoration work shall be paid for by the Contractor.
- All existing improvements and utilities that are to remain within the demolition and construction areas shall be protected and maintained by the Contractor during his operations, unless otherwise noted. Any remedial work resulting from the Contractor's failure to do so shall be paid for by the Contractor at no cost to the State.
- Backfill and compact all voids and depressions caused by demolition operations.
- The Contractor shall properly remove and dispose offsite of all demolition materials at no additional cost to the State.
- After completion of the demolition work, the Contractor shall clean the project limits of all demolished materials, rubbish and all other debris which shall then be transported to a legal offsite disposal site.
- All temporary erosion control measures shall be installed prior to demolition work as shown on the erosion control plan, dwg.
- Existing utility lines shown are based on best available as-built drawings on file with the City and County of Honolulu.
- Prior to excavation near or around the existing utilities, the Contractor shall restrain all existing pipes, water valves, concrete block, concrete jackets, etc., as required to ensure the existing utilities are not disturbed.

Notes:

- Contractor to cut and plug existing unused water laterals at the main. Meter and valve boxes shall be demolished and removed. The damaged areas shall be repaired to an equal or better condition than the surrounding area.
- Contractor to cut and plug existing unused sewer laterals at the property line. Existing sewer cleanouts, whether or not shown on the plans shall be demolished and removed. The existing holes shall be backfilled and compacted with aggregate based course.
- Contractor to locate, cap, cut and plug, and abandon all existing unused electric telephone and cable conduits at the property line after removal of conductors.
- Salvage clean and reuse rock for the new CRM Walls and grouted riprap paving (grp) slope protection.

**DEMOLITION PLAN - NORTH OF STREAM**

SCALE: 1"=20'



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 APR 30, 2010
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
DEMOLITION PLAN
NORTH OF STREAM
 CASTLE HILLS ACCESS ROAD
 Drainage Improvements
 Project No. HWY-0-04-98

Scale: As Shown Date: March 2009

SHEET No. DP1 OF DP2 SHEETS

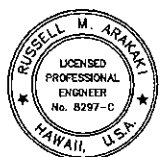
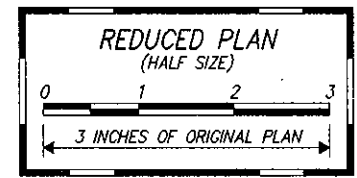
DATE	10/17/09
SURVEY PLOTTED BY	DP1
DESIGNED BY	DP1
NOTED BY	DP1
NO.	1

DATE	REVISION
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-04-98	2009	13	33

Legend:

- Existing structure to be demolished and removed.
- Existing pavement to be demolished and removed.
- Existing crm wall to be demolished and removed, including fencing where applicable.
- Existing cmu wall to be demolished and removed, including fencing where applicable.
- Existing foot bridge to be demolished and removed.
- Existing hedge to be demolished and removed.
- Existing tree to be demolished and removed.
- Existing tree to be demolished and removed.
- Existing tree to be demolished and removed.

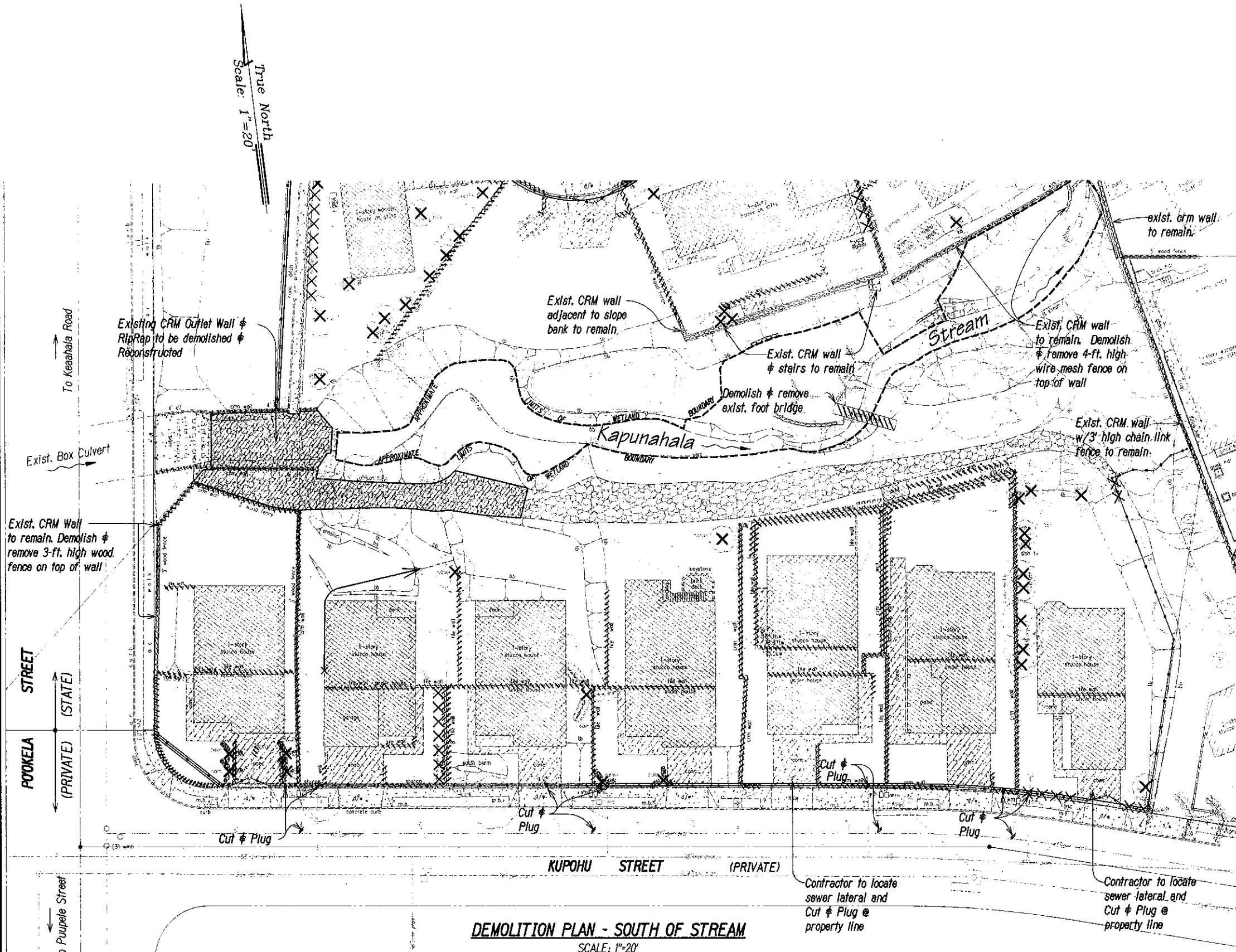


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For Engr. Inc. d/b/a PARK ENGINEERING APR 30, 2010 LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DEMOLITION PLAN
SOUTH OF STREAM
CASTLE HILLS ACCESS ROAD
Drainage Improvements
Project No. HWY-0-04-98

Scale: As Shown Date: March 2009
SHEET No. DP2 OF DP2 SHEETS



DEMOLITION PLAN - SOUTH OF STREAM
SCALE: 1"=20'

DATE	REVISION
------	----------

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

Wed, 18 Mar 2009 - 10:28am
C:\PROJECTS\CASTLE HILLS ACCESS ROAD\13-Cashills-DemoPlan2.dwg

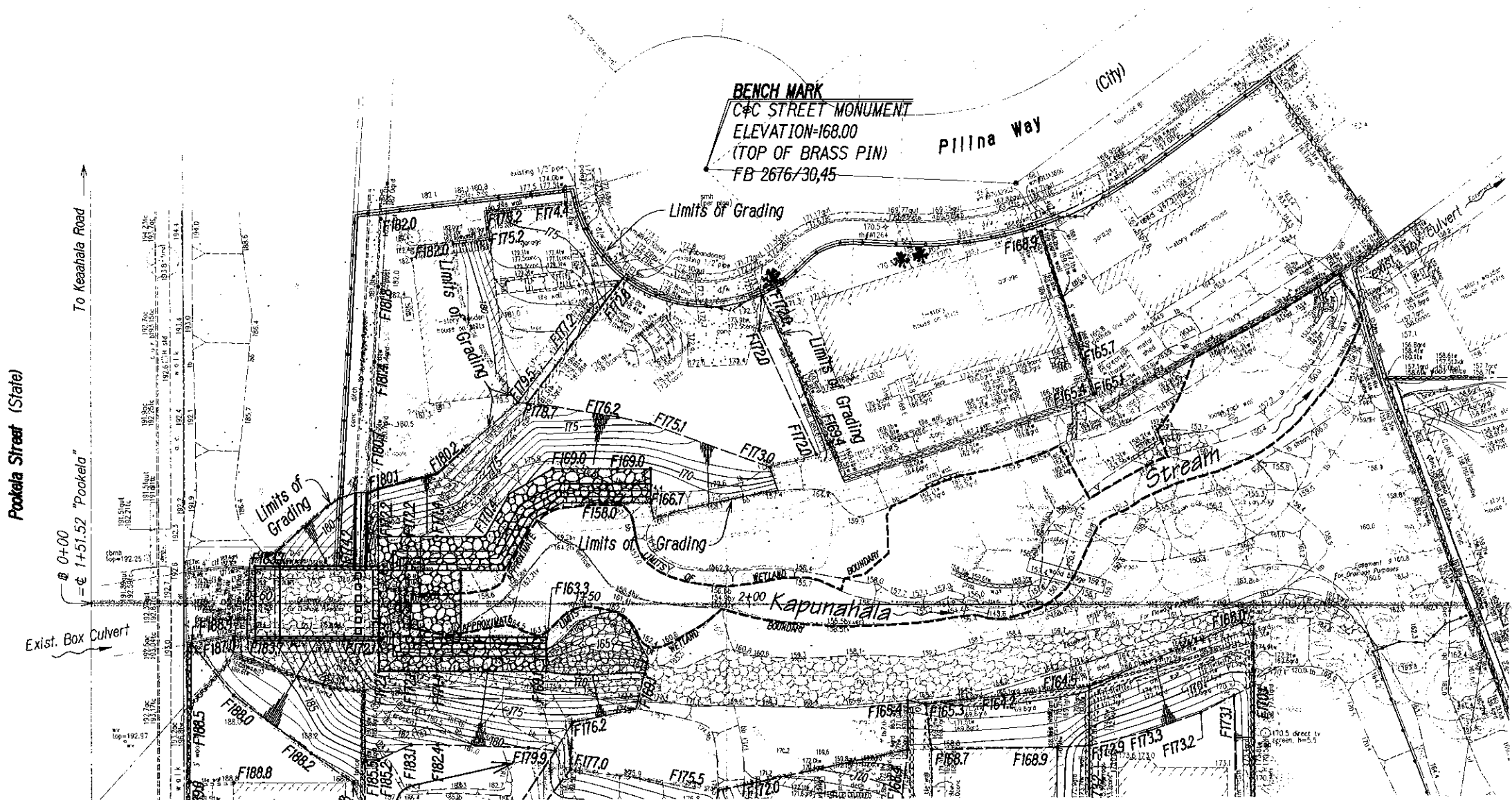
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-04-98	2009	14	33

Legend:

- 180 Finish 5-ft Contour
- 180 Finish 1-ft Contour
- 180 Existing 5-ft Contour
- 180 Existing 1-ft Contour
- 180 Limits of Grading
- F179.9 Finish Grade Elevation
- 151.0 Existing Ground Elevation
- Grade Bank



True North
Scale: 1"=20'



Match Line
(See Sheet *)



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DATE: APRIL 30, 2010
UC. EXP. DATE

GRADING PLAN - NORTH OF STREAM
SCALE: 1"=20'

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
GRADING PLAN
NORTH OF STREAM
CASTLE HILLS ACCESS ROAD
Drainage Improvements
Project No. HWY-0-04-98
Scale: As Shown Date: March 2009
SHEET No. GPI OF GP2 SHEETS

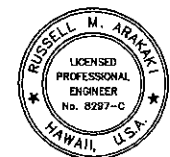
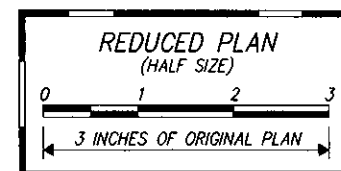
DATE	REVISION
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-04-98	2009	15	33

Legend:

- 180 — Finish 5-ft Contour
 — — — — — Finish 1-ft Contour
 - - - - - Existing 5-ft Contour
 - - - - - Existing 1-ft Contour
 --- Limits of Grading
 F179.9 Finish Grade Elevation
 181.0 Existing Ground Elevation
 --- Grade Bank

Match Line
(See Sheet *)



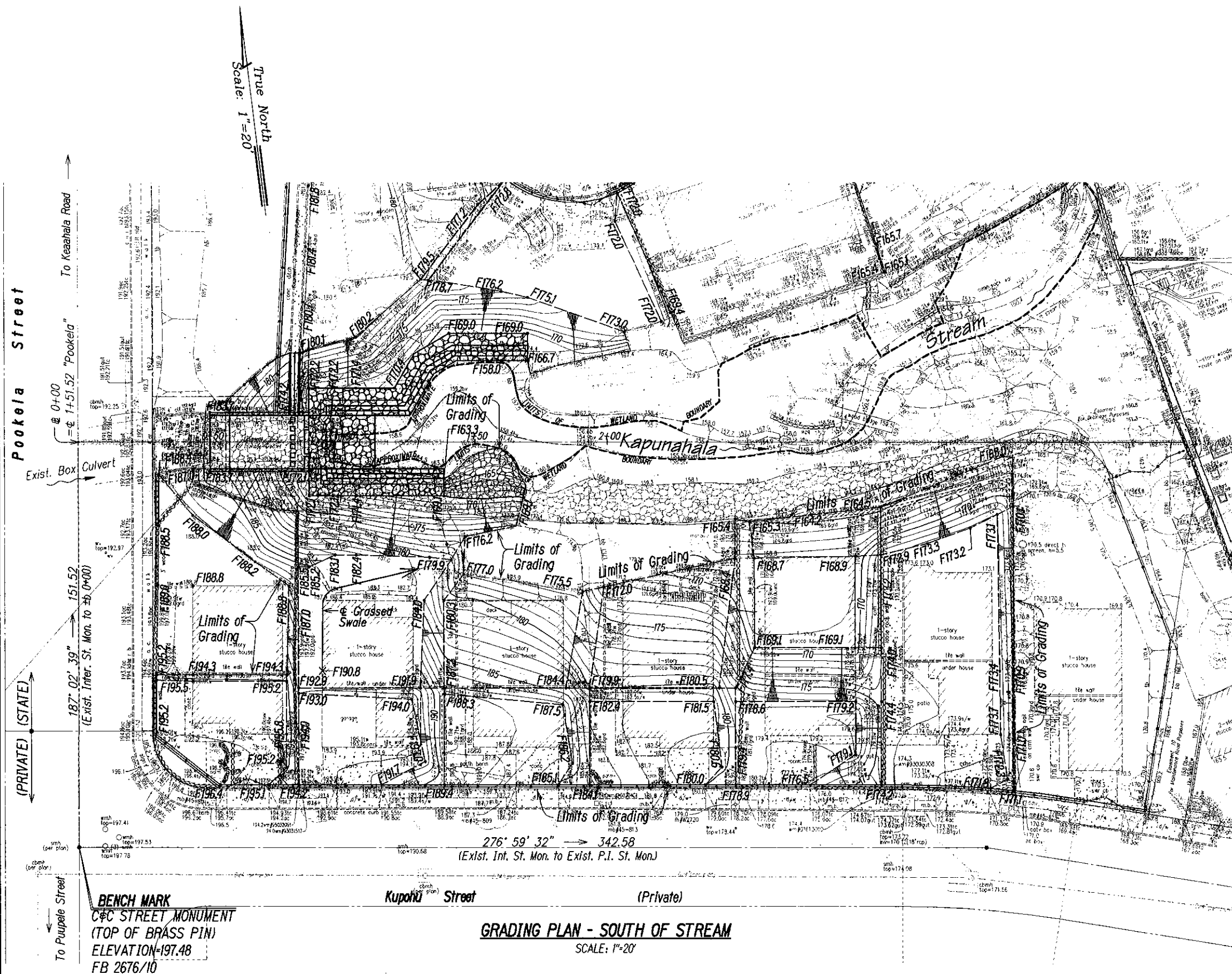
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APR 30, 2010
LIC. EXP. DATE

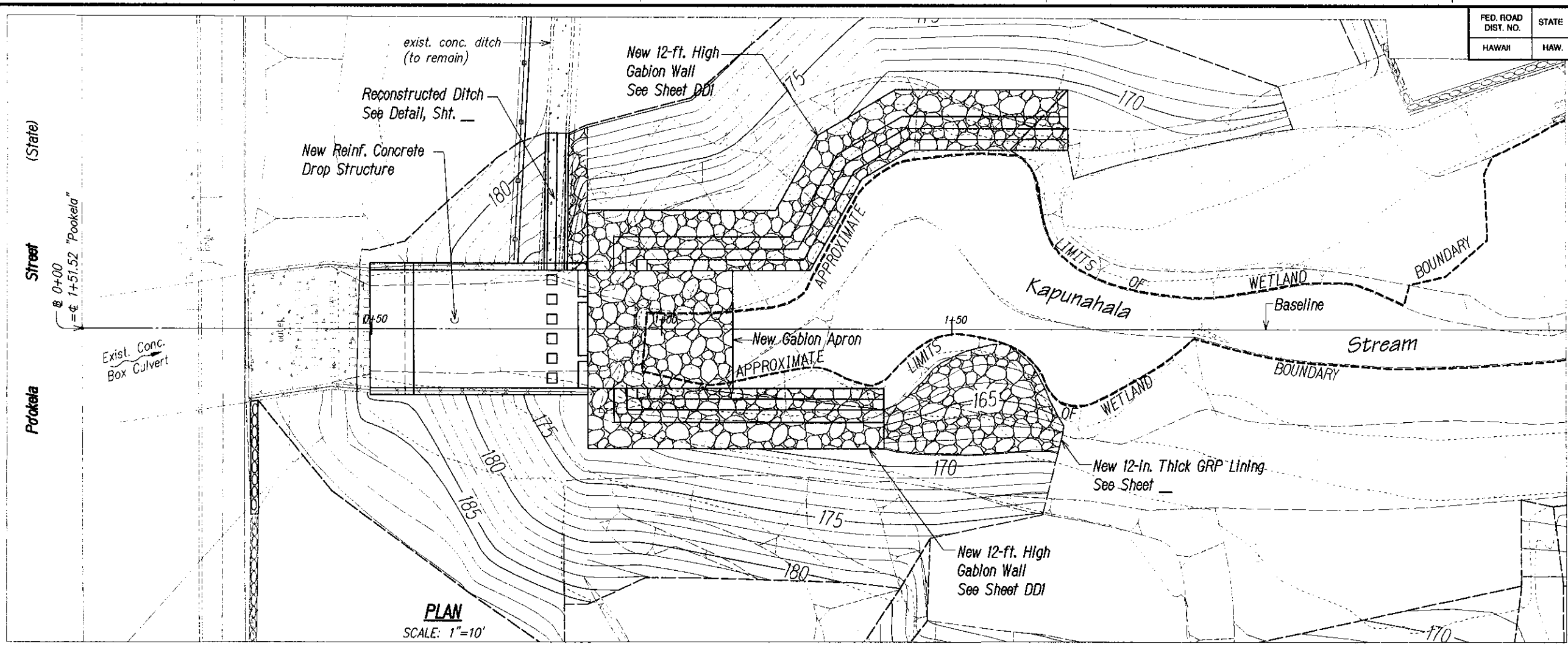
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
GRADING PLAN
SOUTH OF STREAM
CASTLE HILLS ACCESS ROAD
Drainage Improvements
Project No. HWY-0-04-98

Scale: As Shown Date: March 2009
SHEET No. GP2 OF GP2 SHEETS

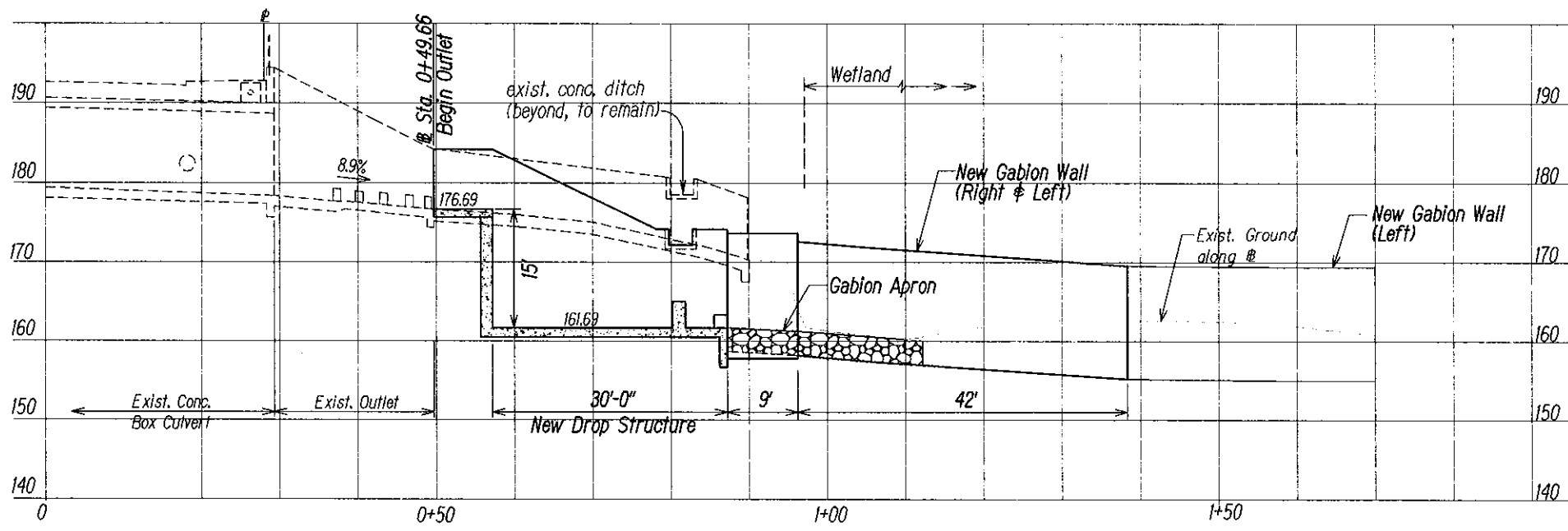
DATE REVISION



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-04-98	2009	16	33



True North
Scale: 1"=10'



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DATE: APRIL 30, 2010
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
PLAN AND PROFILE
NEW DRAINAGE OUTLET
CASTLE HILLS ACCESS ROAD
Drainage Improvements
Project No. HWY-0-04-98
Scale: As Shown Date: March 2009
SHEET No. D1 OF D2 SHEETS

DATE	REVISION

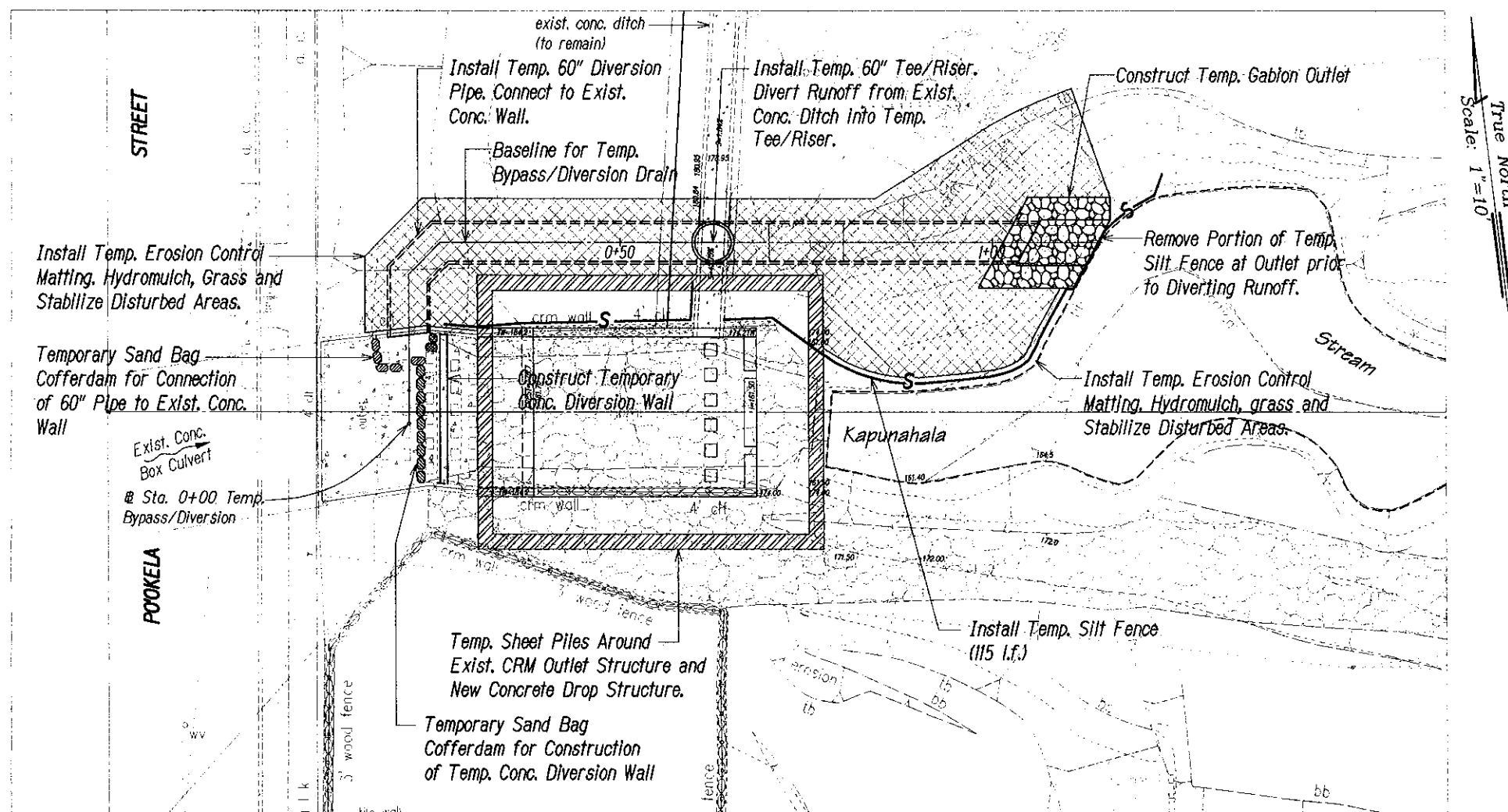
ORIGINAL PLAN	DATE
NOTED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

14-Cashills-Outlet Structure.dwg 12/23/08
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-04-98	2009	17	X

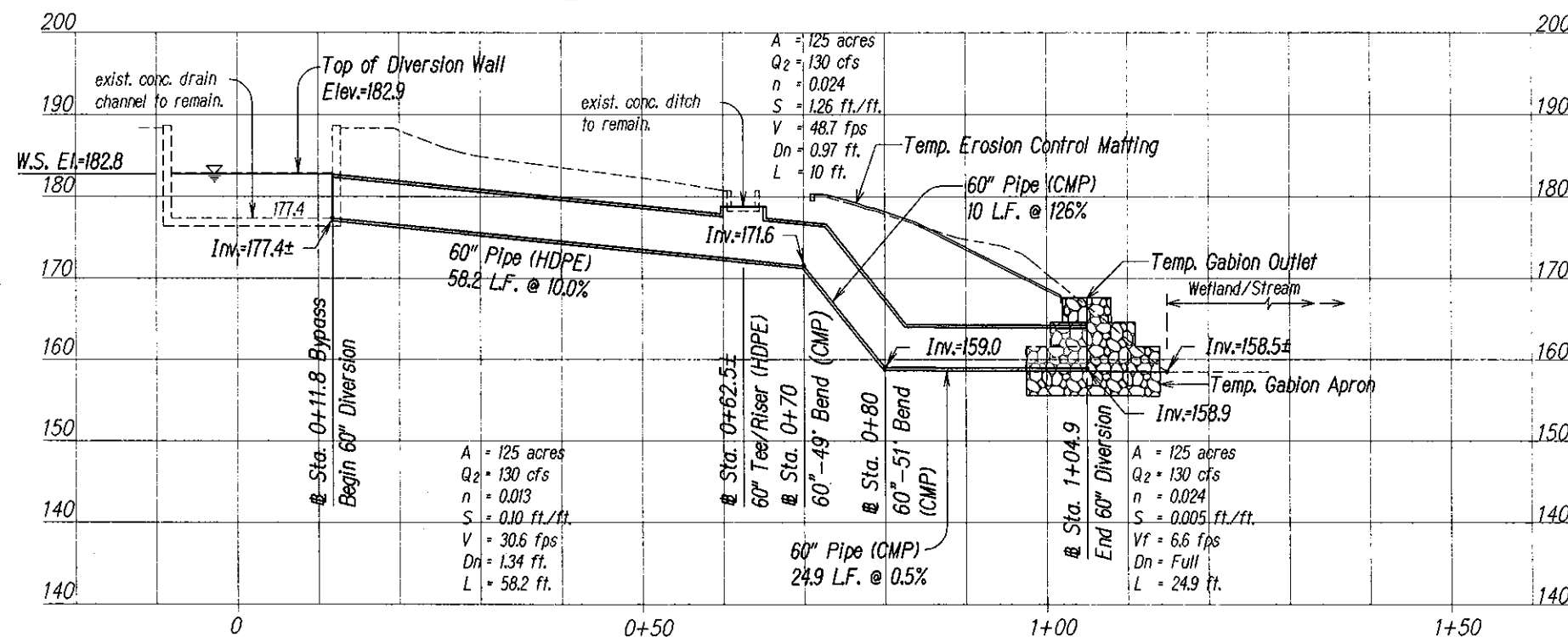
CONSTRUCTION SEQUENCE FOR TEMP. BYPASS/DIVERSION DRAIN

1. Install temporary silt fence at gabion outlet, along stream, stream bank, exist. crm and concrete walls, and concrete ditch.
2. Construct temporary gabion outlet.
3. Install 60" bypass/diversion drain from temporary gabion outlet to exist. concrete wall.
4. Remove temporary silt fence at gabion outlet and divert runoff from concrete lined ditch into the 60" bypass/diversion pipe.
5. Install sand bag cofferdam at existing concrete wall for connection of the 60" bypass/diversion pipe.
6. Demolish exist. concrete headwall as required for connection of the 60" bypass/diversion pipe.
7. Connect the 60" bypass/diversion pipe to exist. concrete headwall.
8. Remove temporary sand bag cofferdam at exist. conc. headwall.
9. Install temporary sand bag cofferdam for construction of the temporary concrete diversion wall and divert stream to 60" pipe.
10. Construct temporary concrete diversion wall.
11. Remove sand bag cofferdam at temporary concrete diversion wall and divert the flow into the 60" bypass/diversion pipe.
12. Install temporary erosion control matting over trench backfill and other disturbed areas, then hydromulch, grass and stabilize disturbed areas.



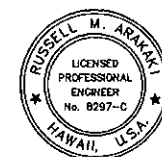
PLAN - TEMPORARY BYPASS/DIVERSION DRAIN

SCALE: 1"=10'



PROFILE - TEMPORARY BYPASS/DIVERSION DRAIN

Scale: 1"=10' (Bothways)



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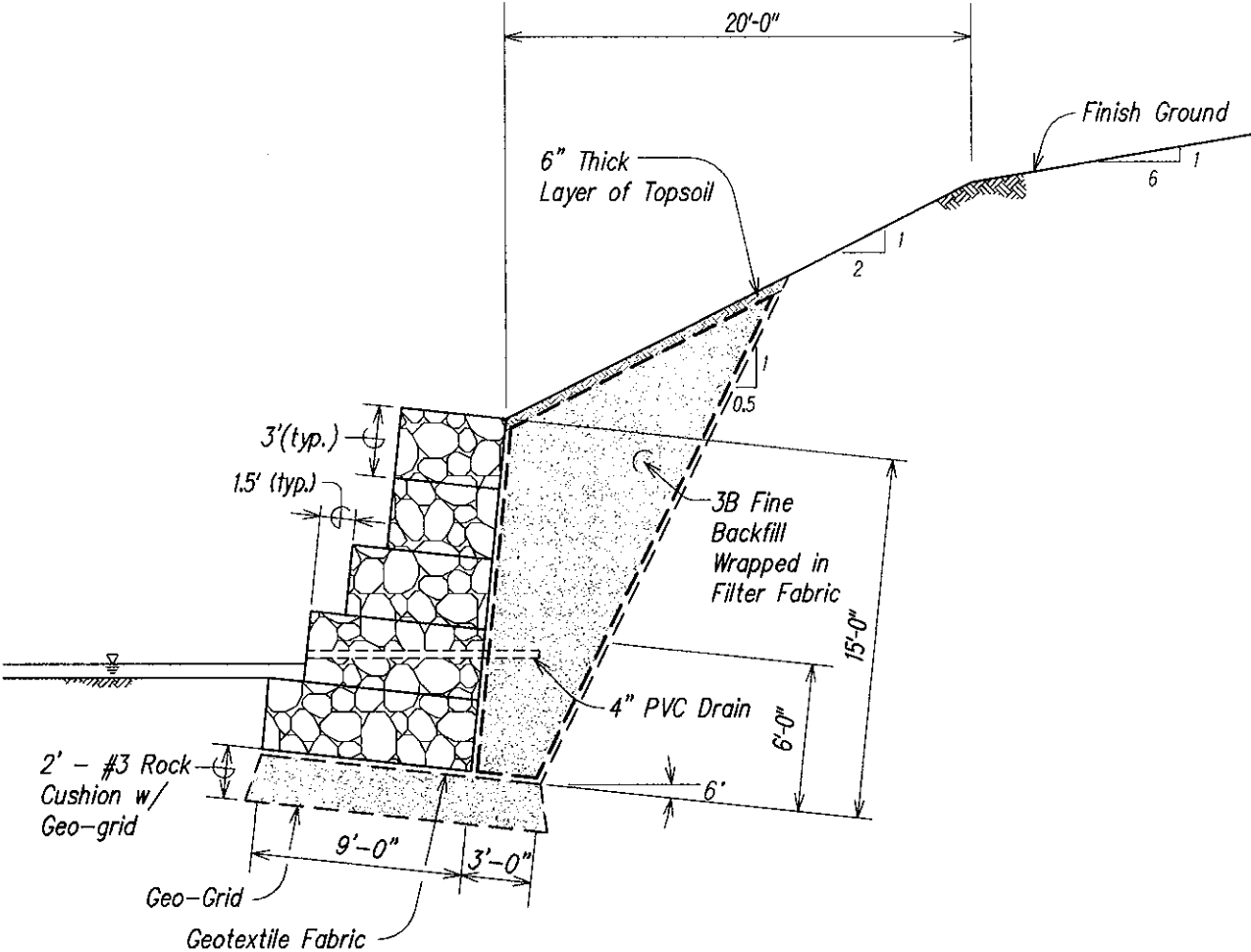
DATE: APRIL 30, 2010
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**TEMPORARY STREAM
DIVERSION PLAN**
CASTLE HILLS ACCESS ROAD
Drainage Improvements
Project No. HWY-0-04-98

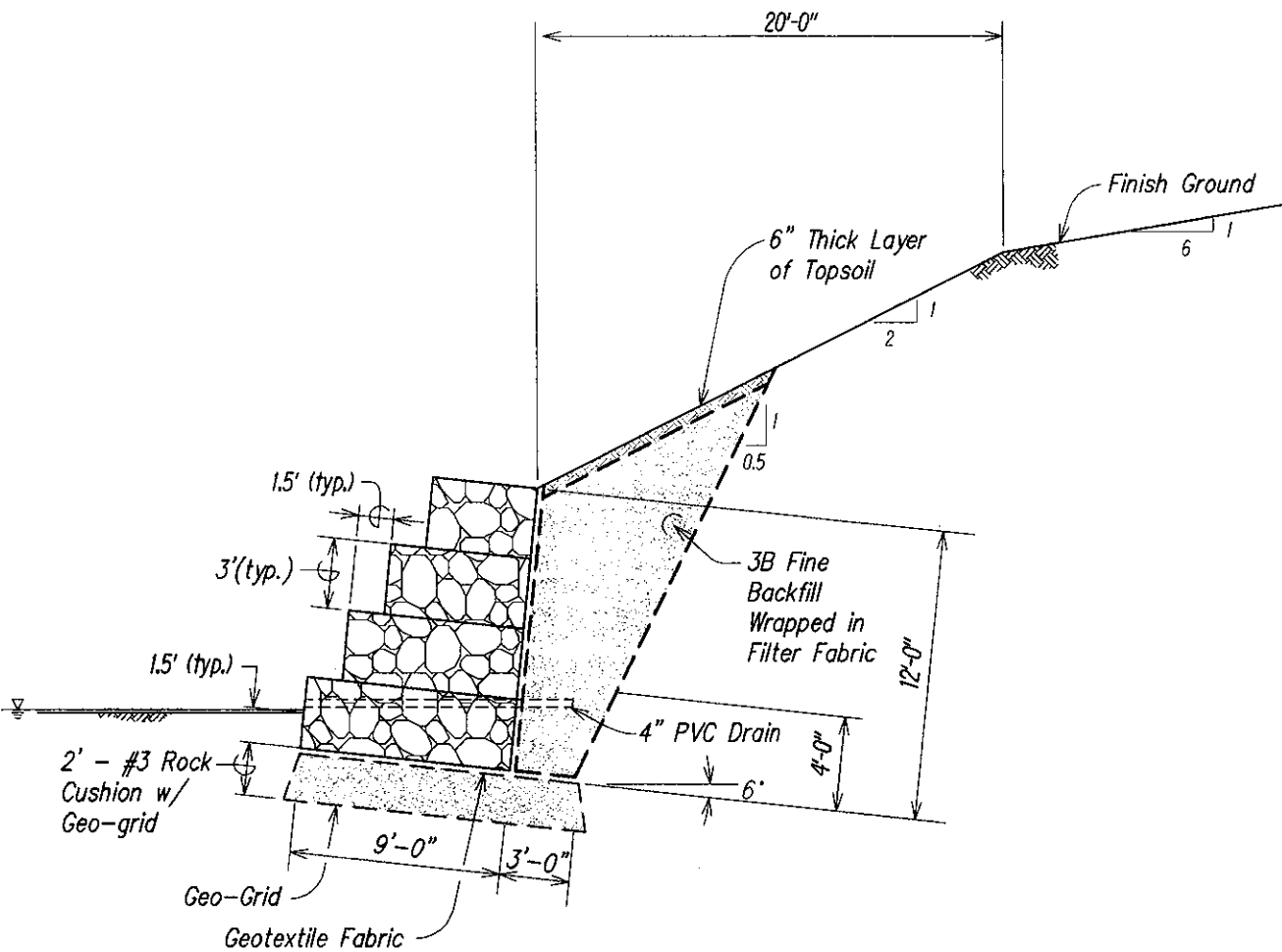
Scale: As Shown Date: March 2009
SHEET No. D2 OF D2 SHEETS

DATE REVISION

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-04-98	2009	18	33



15-FT HIGH GABION WALL SECTION (TYPICAL)
SCALE: 1/4" = 1'-0"



12-FT HIGH GABION WALL SECTION (TYPICAL)
SCALE: 1/4" = 1'-0"



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APR 30, 2010
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAILS

CASTLE HILLS ACCESS ROAD
Drainage Improvements
Project No. HWY-0-04-98

Scale: As Shown Date: March 2009

SHEET No. 001 OF 002 SHEETS

DATE	REVISION
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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-04-98	2009	00	X

Po'okela Street

0+00

exist. conc. box culvert

A
S11/S1.4

existing concrete channel
CRM to be Removed
See Civil Dwgs.

exist. conc. ditch

Exist. Conc. Ditch
(To be Removed and Replaced)

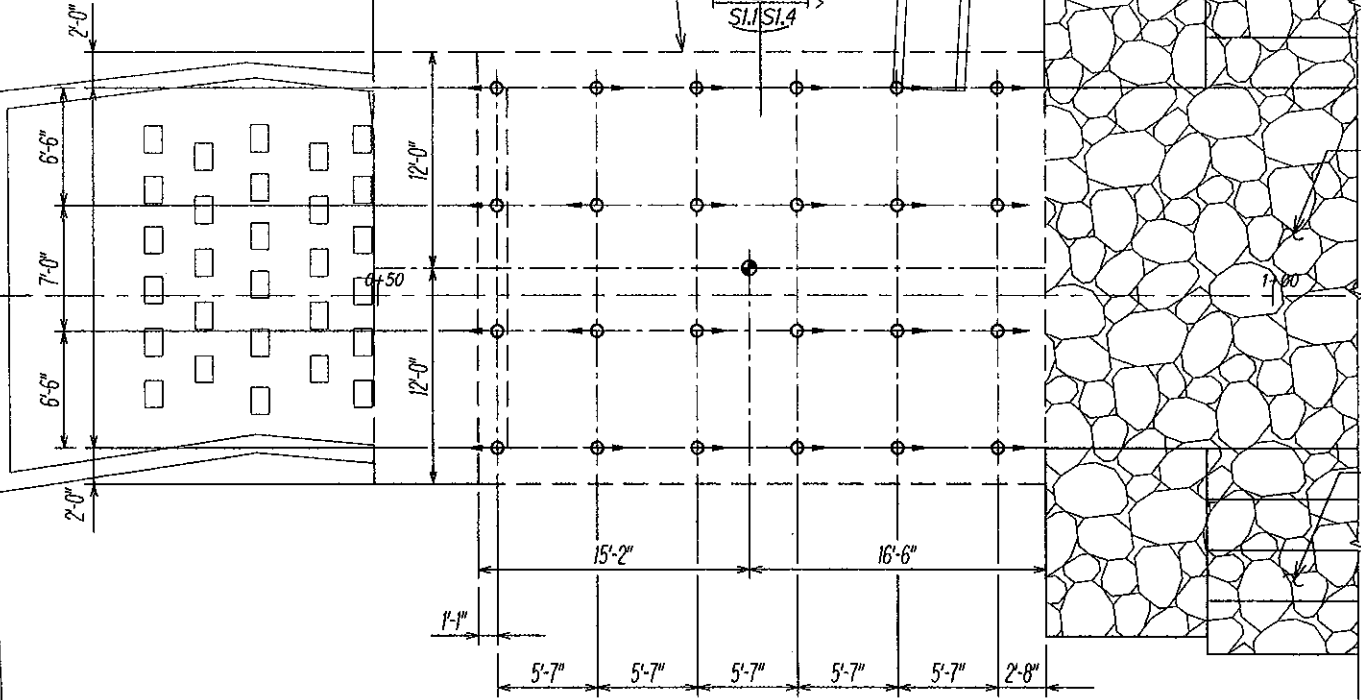
New Reinf. Concrete Drop Structure

B
S11/S1.4

New Gabion Wall

New Gabion Apron

New Gabion Wall



LEGEND:

- Direction of Battered Micropile (1H:8V)
- Preproduction Micropile

MICROPILE LAYOUT PLAN

Scale: 3/16" = 1'-0"

ORIGINAL PLAN	SHEET PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	TRACED BY	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

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KSF, INC. APRIL 30, 2010
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

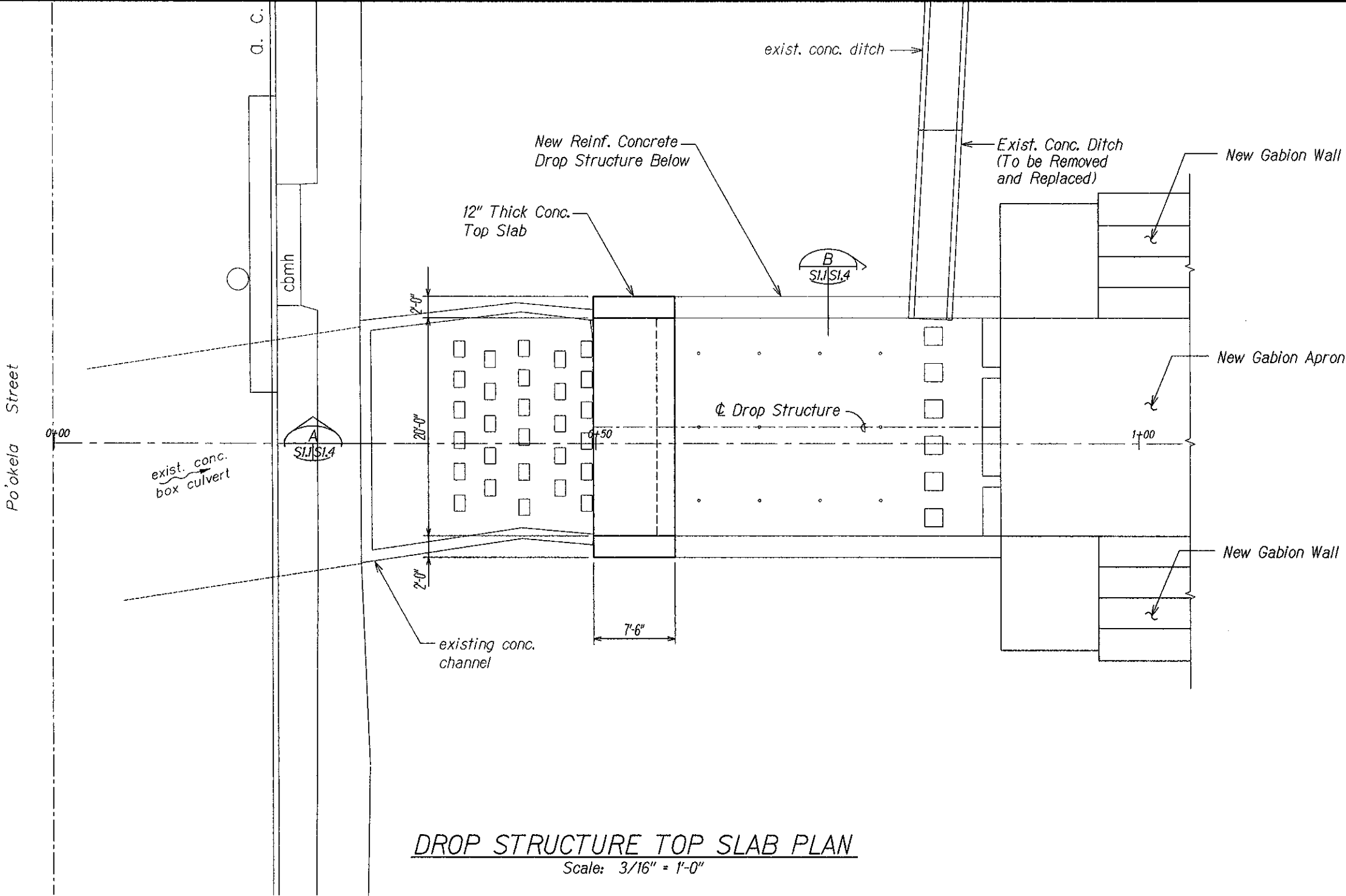
MICROPILE LAYOUT PLAN
CASTLE HILLS ACCESS ROAD
Drainage Improvements
Project No. HWY-0-04-98

Scale: As Shown
SHEET No. S11 OF 11 SHEETS

Date: March 2009

DATE	REVISION

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-04-98	2009	00	X



DROP STRUCTURE TOP SLAB PLAN
 Scale: 3/16" = 1'-0"

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
APPROVED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	
DATE	

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 OR UNDER MY SUPERVISION.

APR 30, 2010
 U.S. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

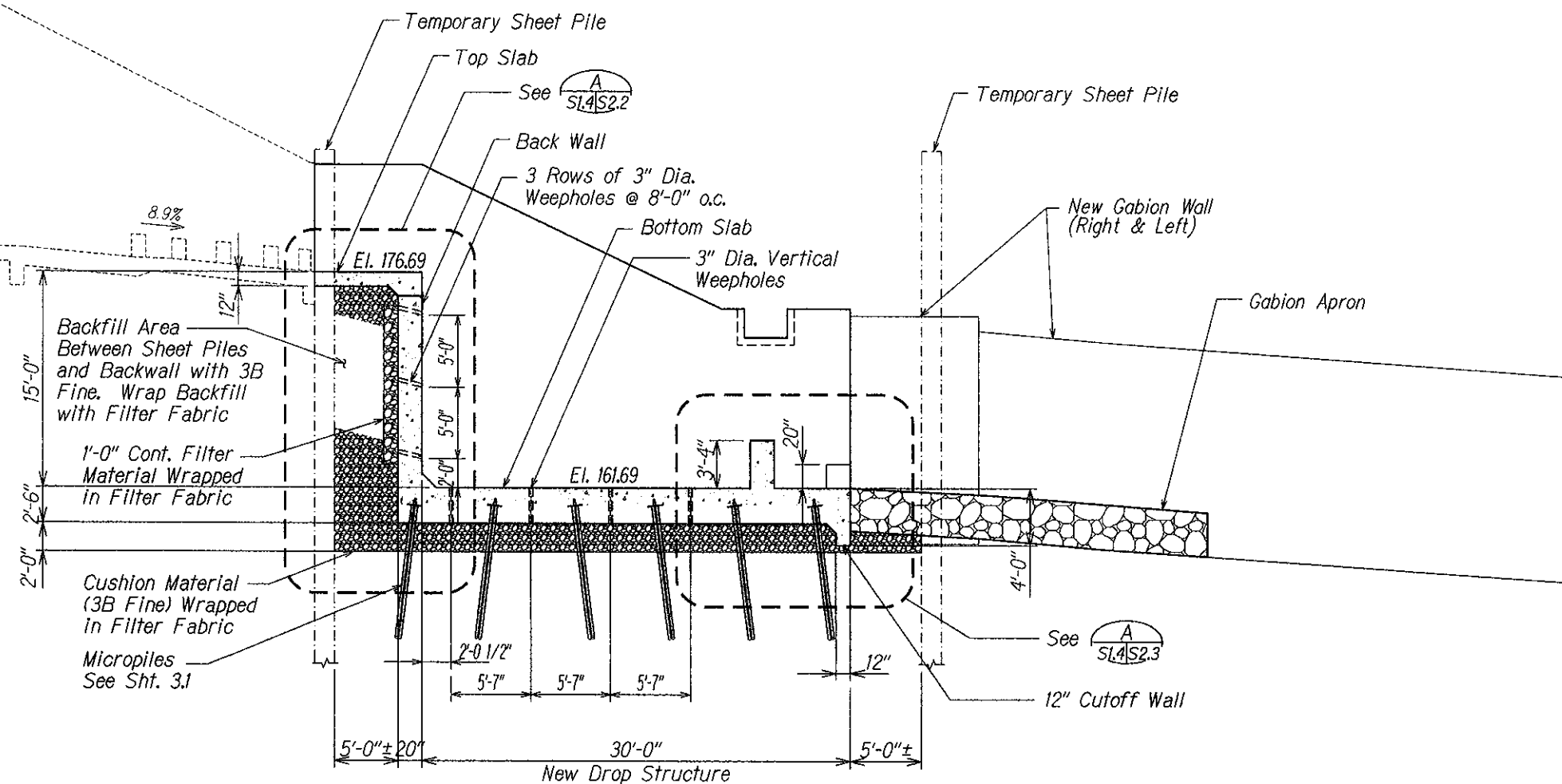
DROP STRUCTURE TOP SLAB PLAN

CASTLE HILLS ACCESS ROAD
Drainage Improvements
Project No. HWY-0-04-98

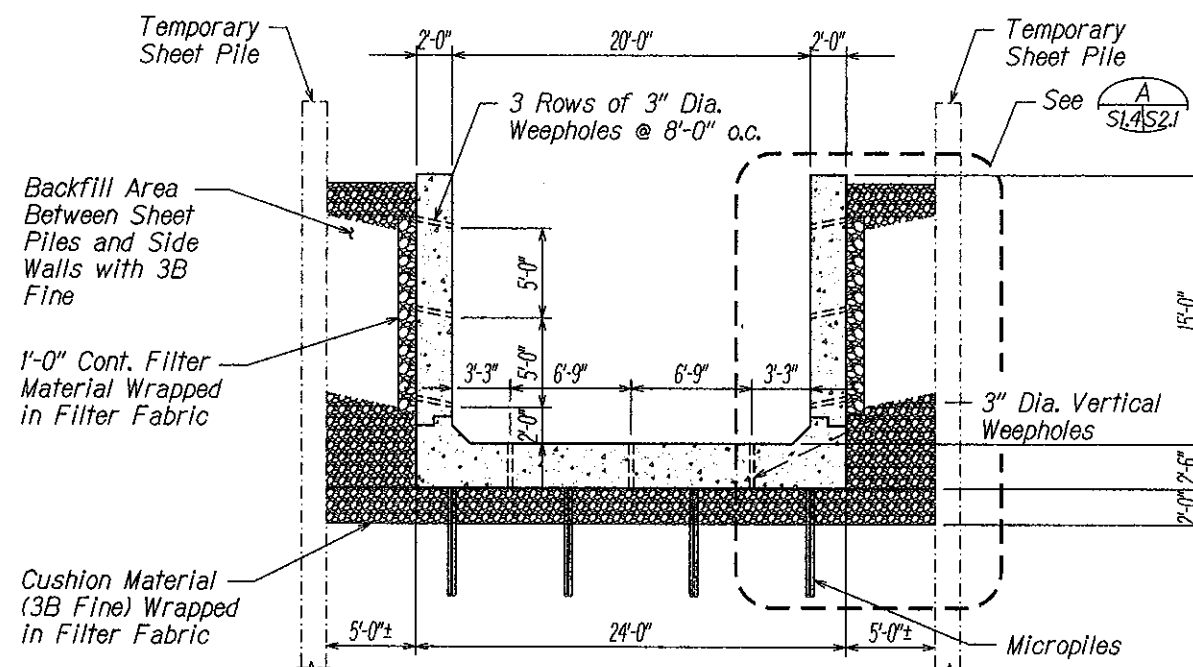
Scale: As Shown Date: March 2009
SHEET No. **SI.3** OF **11** SHEETS

DATE	REVISION

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-04-98	2009	00	X



LONGITUDINAL SECTION $\frac{A}{SL4S2.4}$
Scale: 3/16" = 1'-0"



TRANSVERSE SECTION $\frac{B}{SL4S2.4}$
Scale: 3/16" = 1'-0"

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OR UNDER MY SUPERVISION.

KSF, INC. APRIL 30, 2010
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DROP STRUCTURE SECTIONS

CASTLE HILLS ACCESS ROAD

Drainage Improvements

Project No. HWY-0-04-98

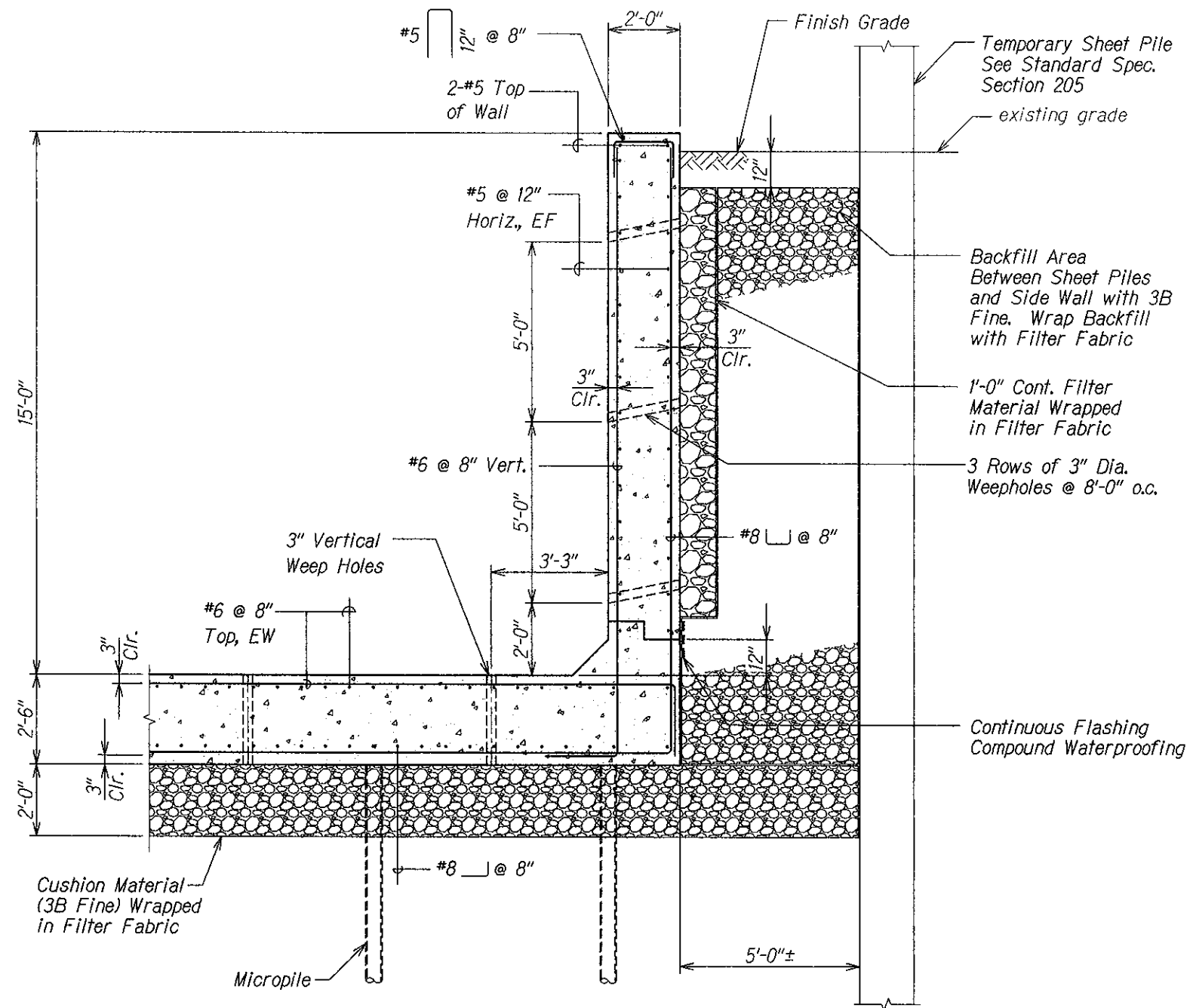
Scale: As Shown Date: March 2009

SHEET No. SL4 OF 11 SHEETS

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
NO.	

DATE REVISION

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-04-98	2009	00	X



DROP STRUCTURE SECTION A
Scale: 1/2" = 1'-0"

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OR UNDER MY SUPERVISION.

APR 30, 2010
KSF, INC. UG. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HEAD WALL SECTION
CASTLE HILLS ACCESS ROAD
Drainage Improvements
Project No. HWY-0-04-98

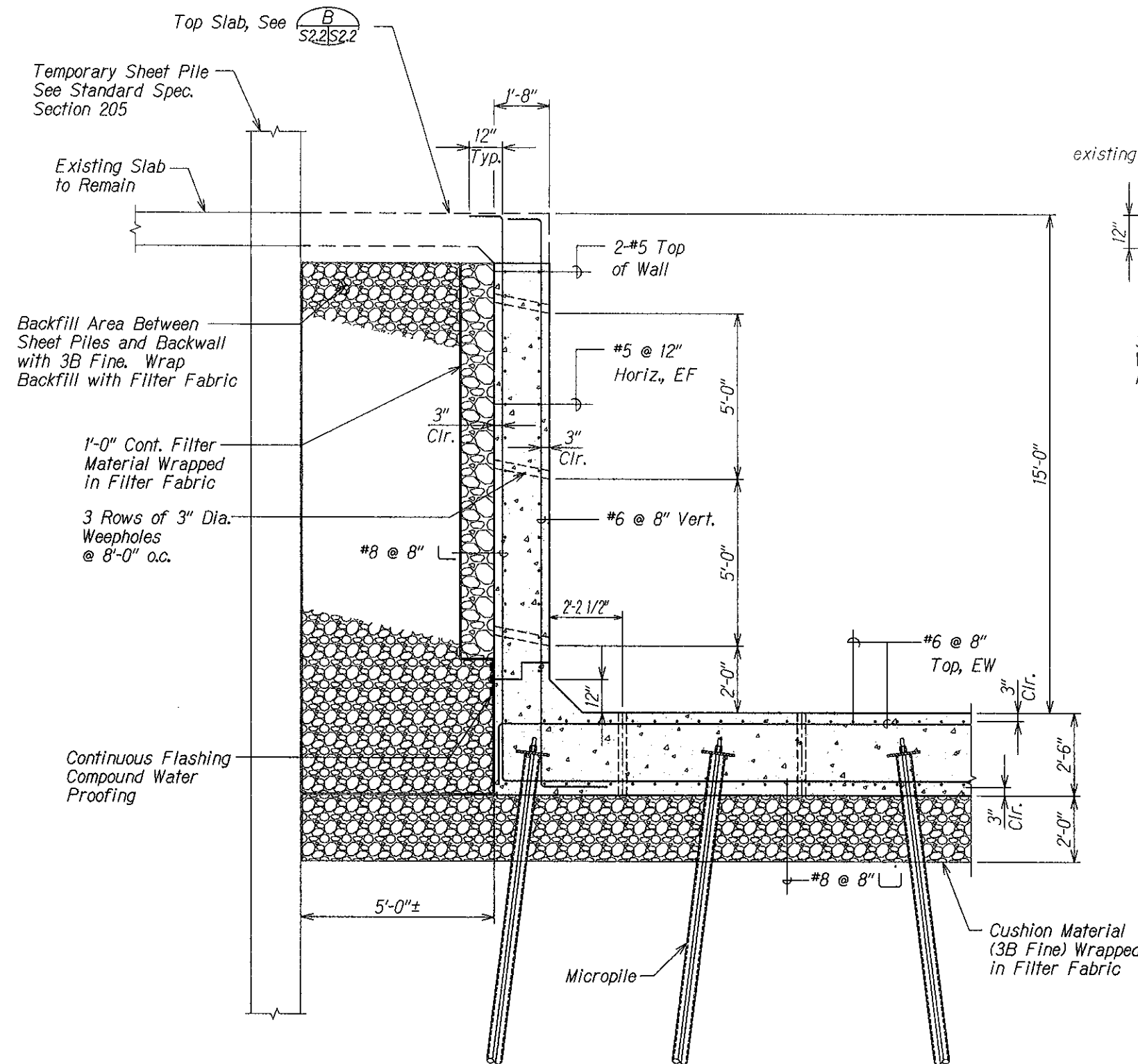
Scale: As Shown Date: March 2009

SHEET No. S2J OF 11 SHEETS

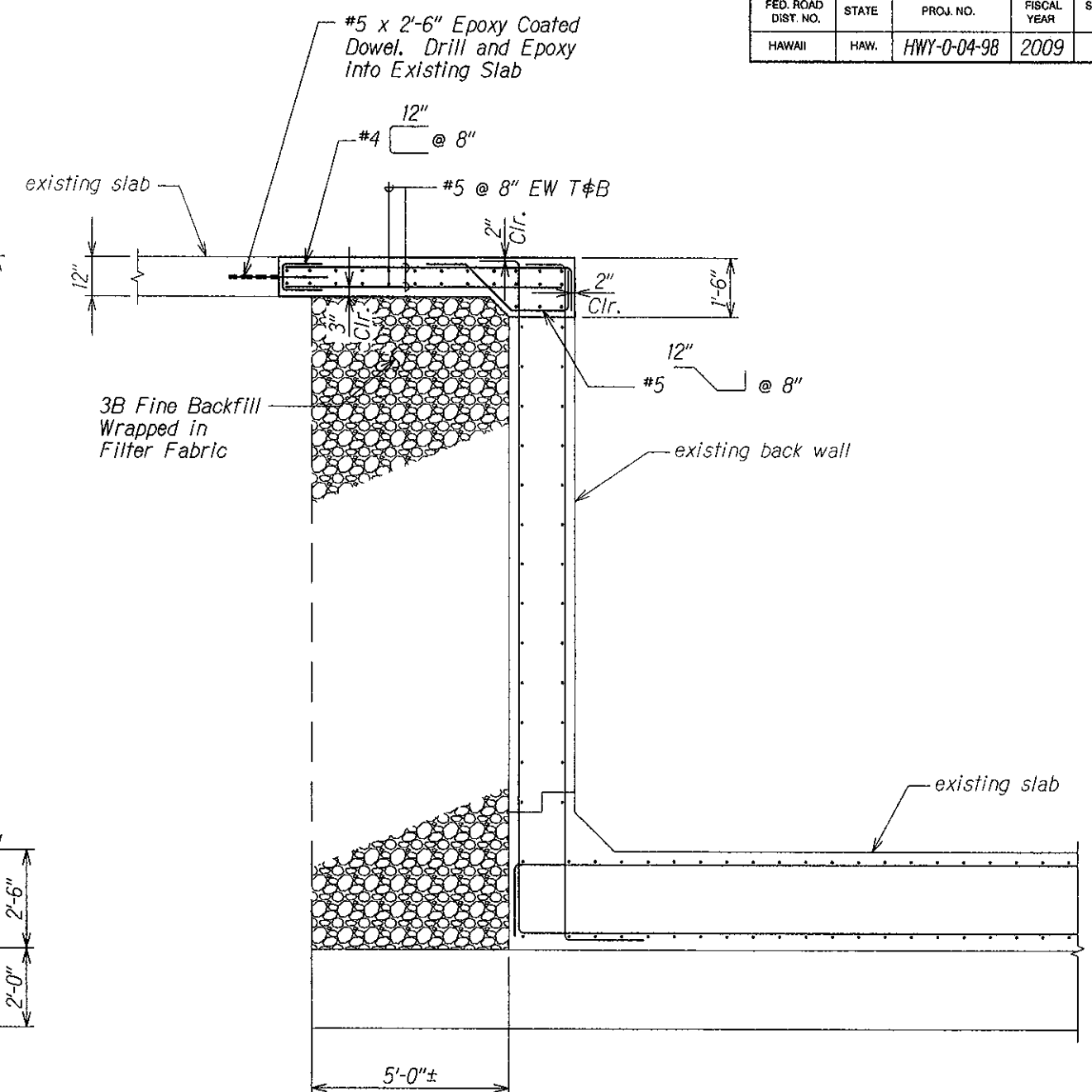
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DATE	REVISION

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-04-98	2009	00	X



**DROP STRUCTURE
BACK WALL SECTION**
Scale: 1/2" = 1'-0"
S1.4 S2.2



**DROP STRUCTURE
TOP SLAB SECTION**
Scale: 1/2" = 1'-0"
S2.2 S2.2

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KSF, INC. APRIL 30, 2010
LIC. EXP. DATE

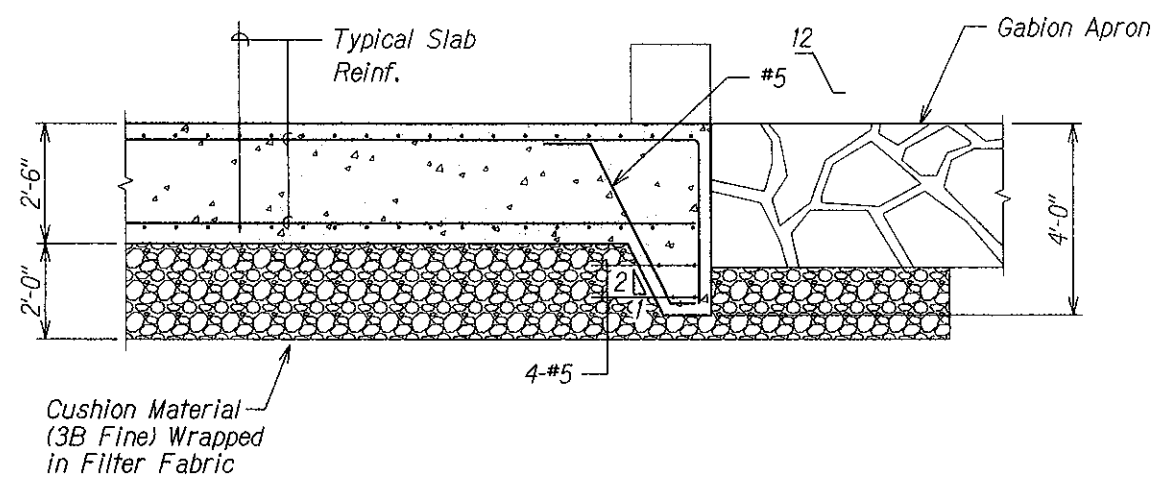
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DROP STRUCTURE SECTIONS
CASTLE HILLS ACCESS ROAD
Drainage Improvements
Project No. HWY-0-04-98

Scale: As Shown Date: March 2009
SHEET No. S2.2 OF 11 SHEETS

DATE	REVISION

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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-04-98	2009	00	X



DROP STRUCTURE
CUTOFF WALL SECTION

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

A
S1.4 S2.3

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DROP STRUCTURE SECTION

CASTLE HILLS ACCESS ROAD
Drainage Improvements
Project No. HWY-0-04-98
Scale: As Shown Date: March 2009
SHEET No. S2.3 OF 11 SHEETS

DATE	REVISION

MICROPILE NOTES:

- All nuts and bar couplings shall develop 100% of the bar's ultimate tensile strength.
- Splices within steel casing shall develop 100% of the steel casing's ultimate tensile strength.
- All accessories such as nuts, couplings, washers, and steel plates shall be hot-dip galvanized according to ASTM A-153.
- Material Properties of Accessories:
 - Steel Plates - ASTM A36
 - Hex Nuts - ASTM A108
 - Couplings - ASTM A108
 - Washers - ASTM F436
- The bonded length is estimated. The actual bonded length will be determined by the Engineer after the preproduction micropile load test.

Micropile Load Combination (Demand)		
	Axial Load (kips)	Moment (k-ft)
Strength Limit State	80 Compression	50
Strength Limit State	50 Tension	50

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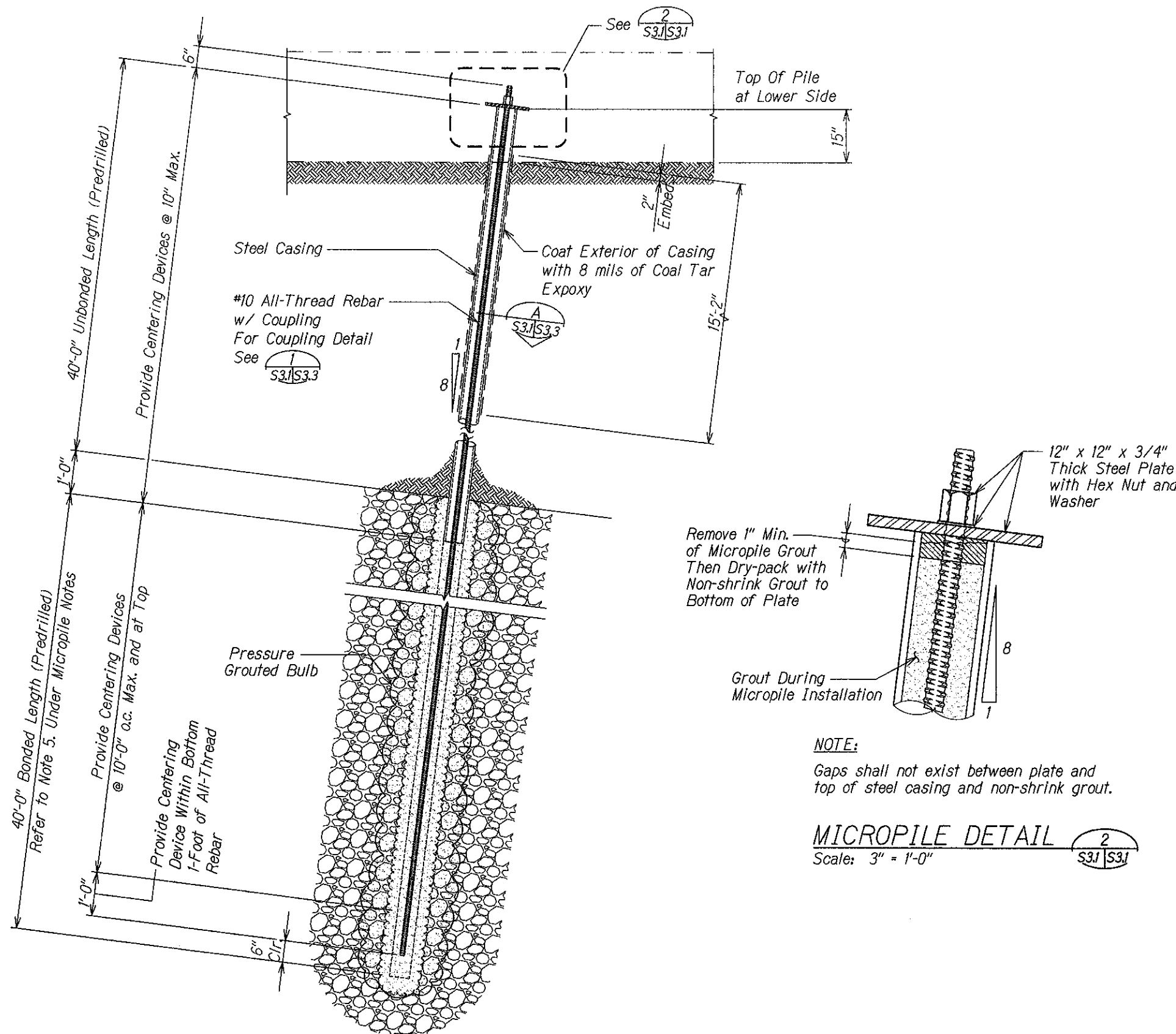
APR 30, 2010
KSF, INC. LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MICROPILE DETAIL AND SECTION

CASTLE HILLS ACCESS ROAD
Drainage Improvements
Project No. HWY-0-04-98

Scale: As Shown Date: March 2009
SHEET No. S31 OF 11 SHEETS



NOTE:
Gaps shall not exist between plate and top of steel casing and non-shrink grout.

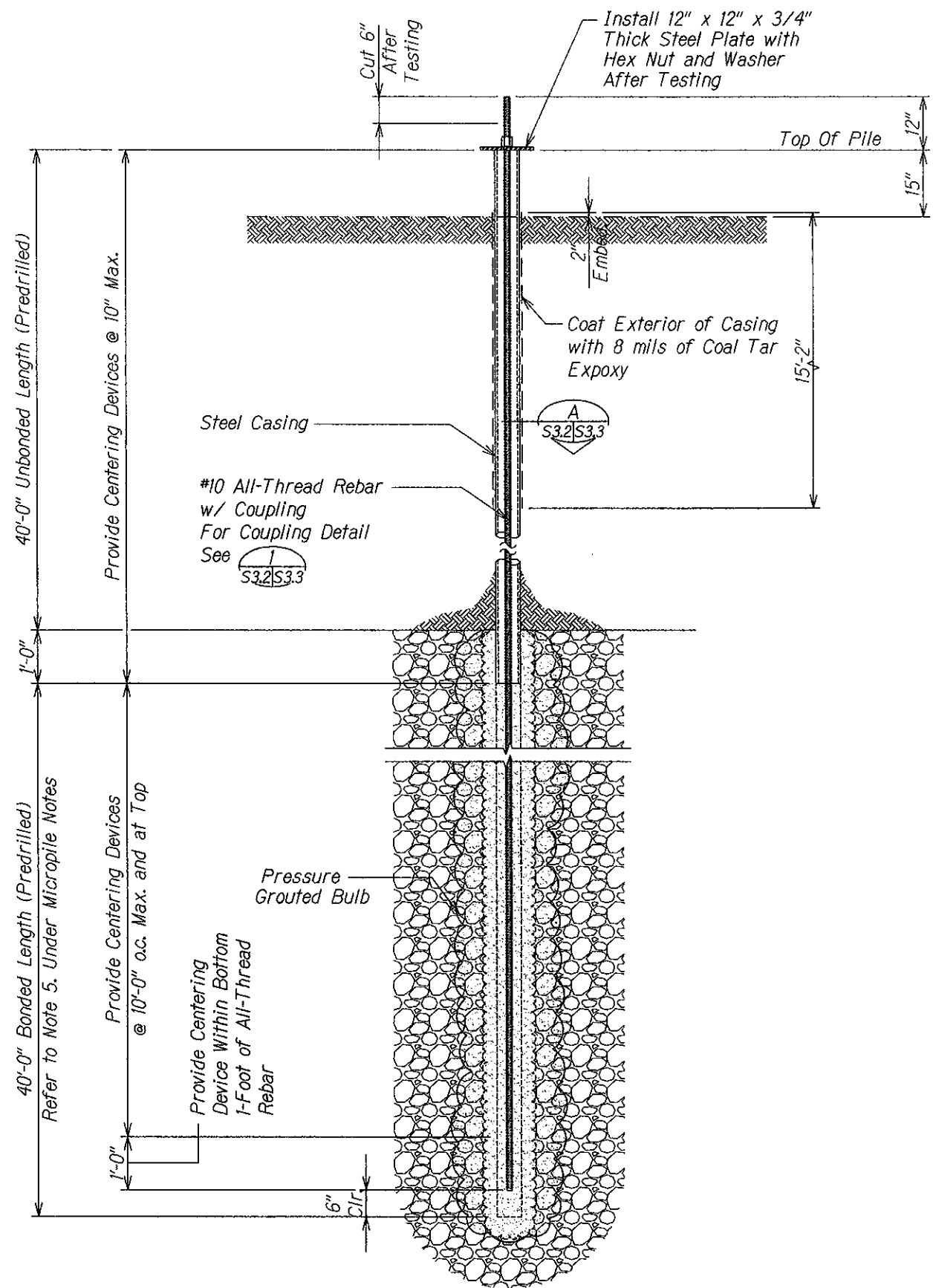
MICROPILE DETAIL 2
Scale: 3" = 1'-0" S31/S31

TYPICAL MICROPILE DETAIL 1
Scale: 3/4" = 1'-0" S31/S31

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REVISIONS	

DATE	REVISION

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-04-98	2009	00	X



TYPICAL PREPRODUCTION MICROPILE DETAIL
Scale: 3/4" = 1'-0"

S3.2/S3.2

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PREPRODUCTION MICROPILE DETAIL

CASTLE HILLS ACCESS ROAD
Drainage Improvements
Project No. HWY-0-04-98

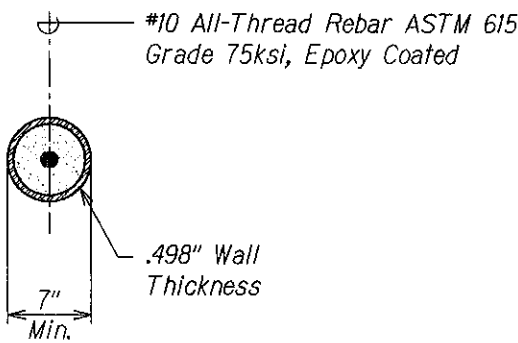
Scale: As Shown Date: March 2009

SHEET No. S3.2 OF 11 SHEETS

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DATE	REVISION
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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-04-98	2009	00	X

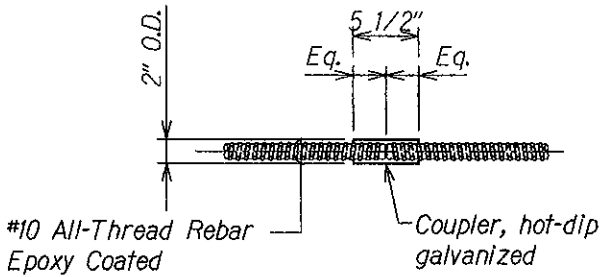


- NOTES:**
1. Centering devices (centralizers) shall be fabricated from plastic or material non-detrimental to the reinforcing steel.
 2. The centralizer shall support the reinforcing such that a minimum of 2" of grout cover is provided and shall permit grout to flow freely up the drill hole.

TYPICAL MICROPILE SECTION

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

A
S3.1 S3.3



- NOTE:**
- Coupler to develop full ultimate tensile strength of All-Thread Rebar.

COUPLER DETAIL OF ALL-THREAD REBAR

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

1
S3.1 S3.3

COUPLER INSTALLATION PROCEDURE

1. Apply corrosion inhibiting grease to the bare ends of the bars and the inside of the coupler.
2. Connect the two bar ends with the coupler. Each end shall be screwed into the coupler half the length of the coupler.
3. Add another coat of grease to bare bar and coupler and wrap with two layers of denso tape.

PREPARATION FOR FIELD CUT BARS

1. Cut corrosion protection and all-thread rebar with an abrasive saw (DO NOT USE A TORCH).

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KSF, INC. U.S. EXP. DATE

STATE OF HAWAII
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HIGHWAYS DIVISION

MICROPILE DETAIL AND SECTION

CASTLE HILLS ACCESS ROAD
Drainage Improvements
Project No. HWY-0-04-98

Scale: As Shown
Date: March 2009

SHEET No. S3.3 OF 11 SHEETS

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NO. 1	

DATE	REVISION

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-04-98	2009	31	33

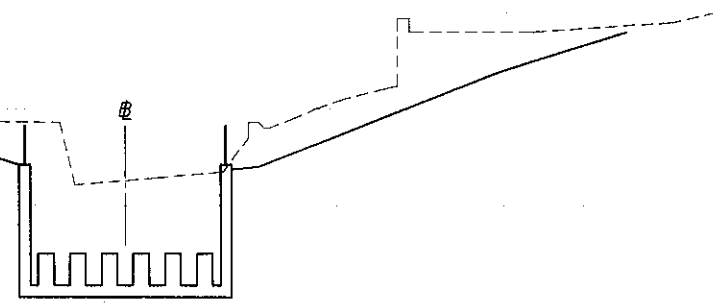
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180
170
160

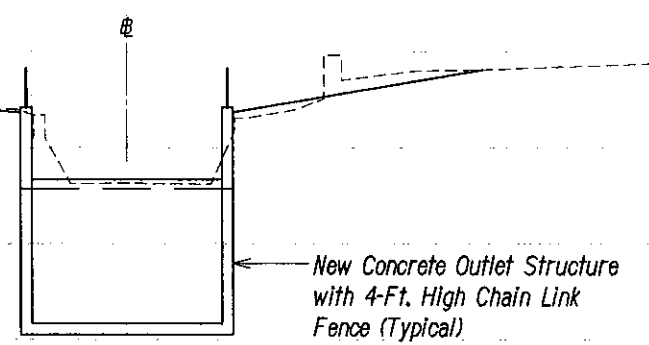
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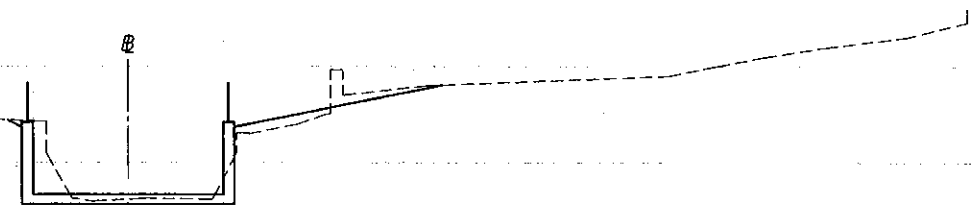
Sta. 0+80.16
(At Blocks)



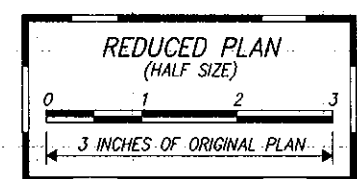
Sta. 0+57.16
(At Drop)



Sta. 0+49.66
(At Connection)



Cross Sections
Scale: 1"= 10'



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ParEn, Inc.
d/b/a PARK ENGINEERING
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CROSS SECTIONS

CASTLE HILLS ACCESS ROAD
Drainage Improvements
Project No. HWY-0-04-98

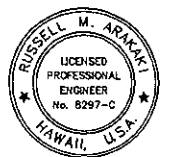
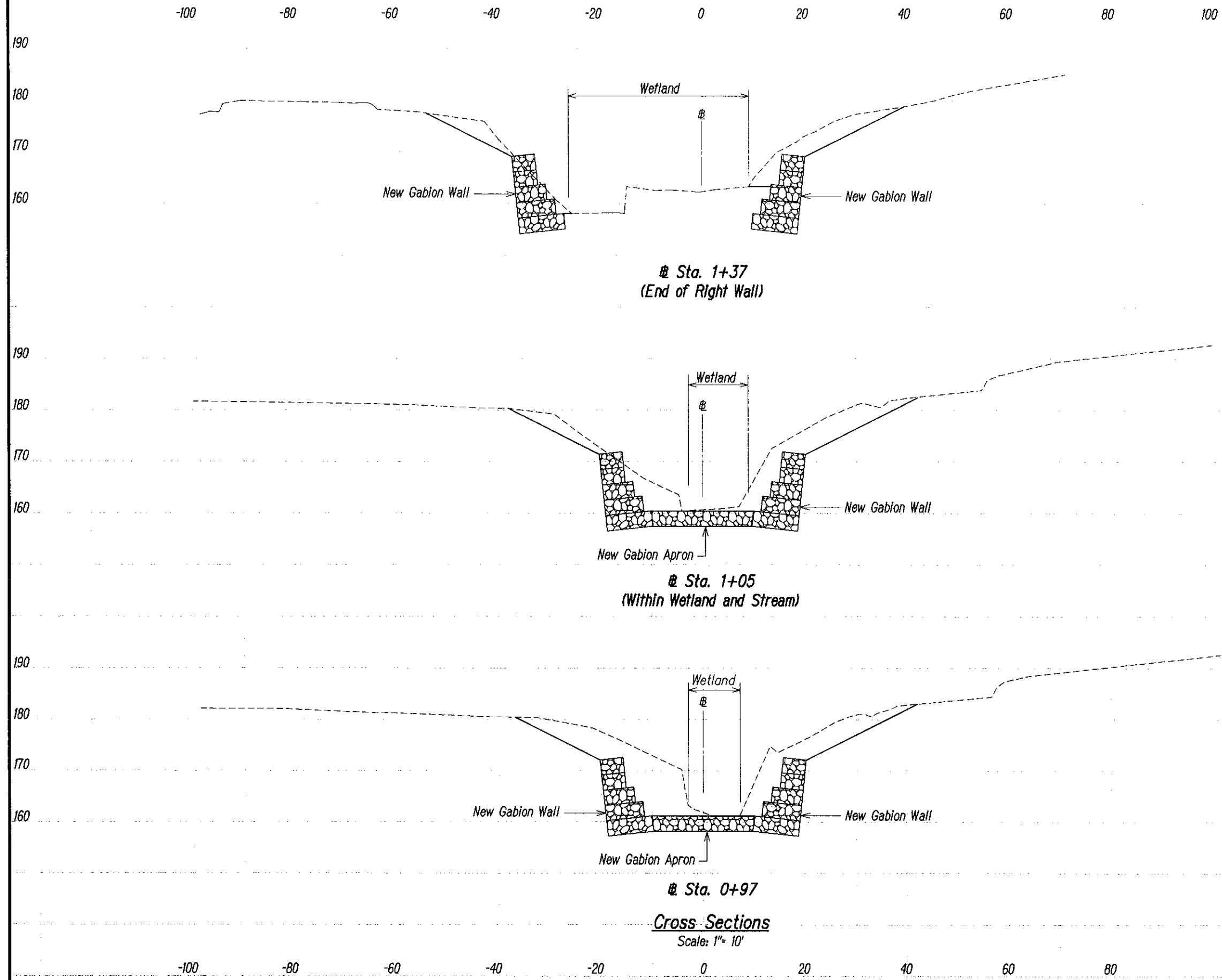
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SHEET No. XS1 OF XS3 SHEETS

DATE	REVISION
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NOTE BOOK	
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Wed, 18 Mar 2009 11:05am
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-04-98	2009	32	33



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APR 30, 2010
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CROSS SECTIONS

CASTLE HILLS ACCESS ROAD

Drainage Improvements

Project No. HWY-0-04-98

Scale: As Shown Date: March 2009

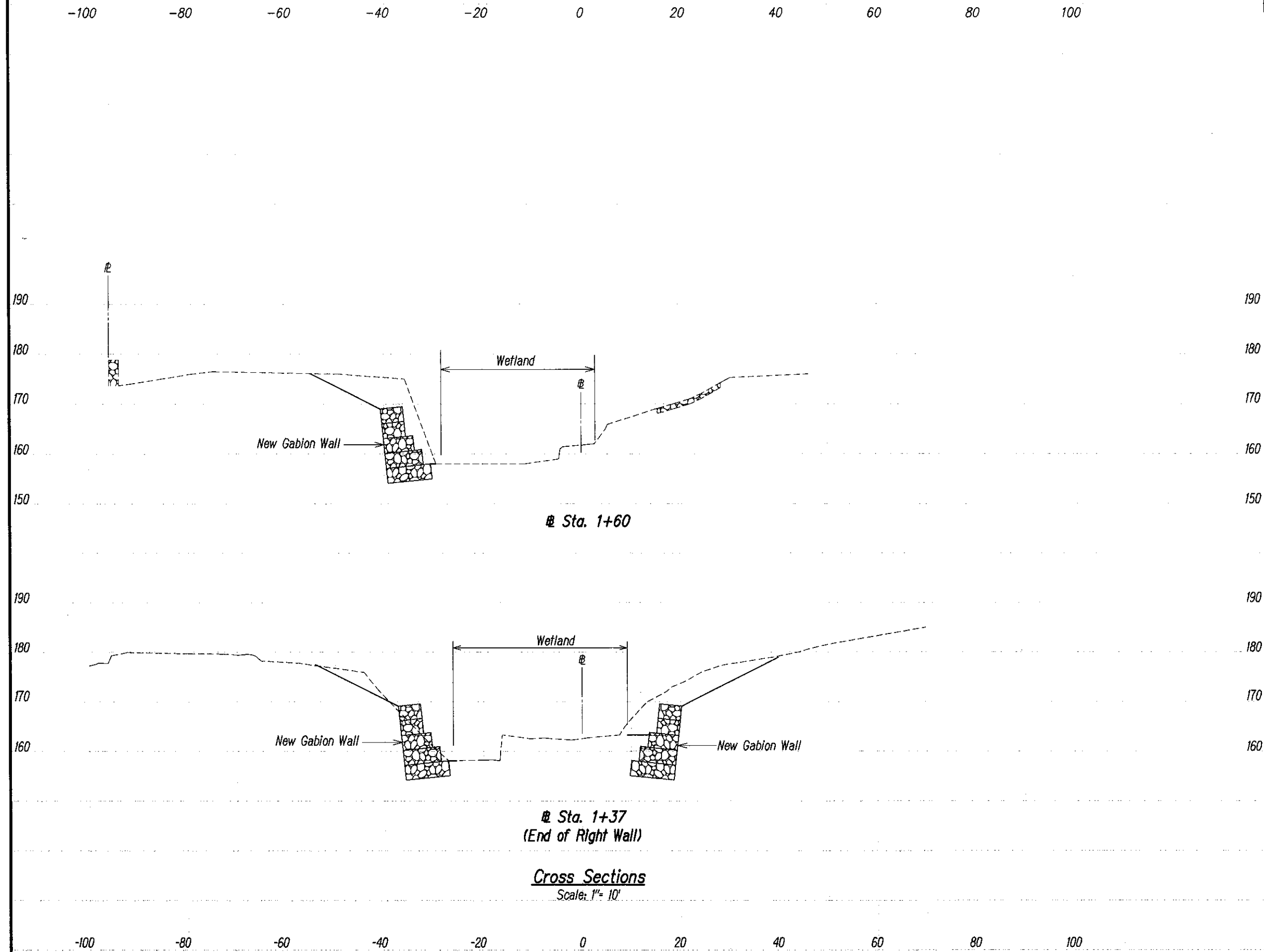
SHEET No. XS2 OF XS3 SHEETS

DATE	REVISION
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Wed, 18 Mar 2009 - 10:42am
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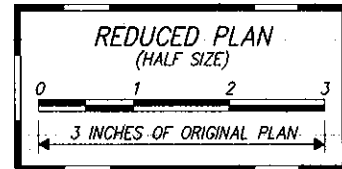
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-04-98	2009	33	33



Sta. 1+60

Sta. 1+37
(End of Right Wall)

Cross Sections
Scale: 1" = 10'



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
CROSS SECTIONS
CASTLE HILLS ACCESS ROAD
Drainage Improvements
Project No. HWY-0-04-98
Scale: As Shown Date: March 2009
SHEET No. X33 OF X33 SHEETS

DATE	REVISION
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