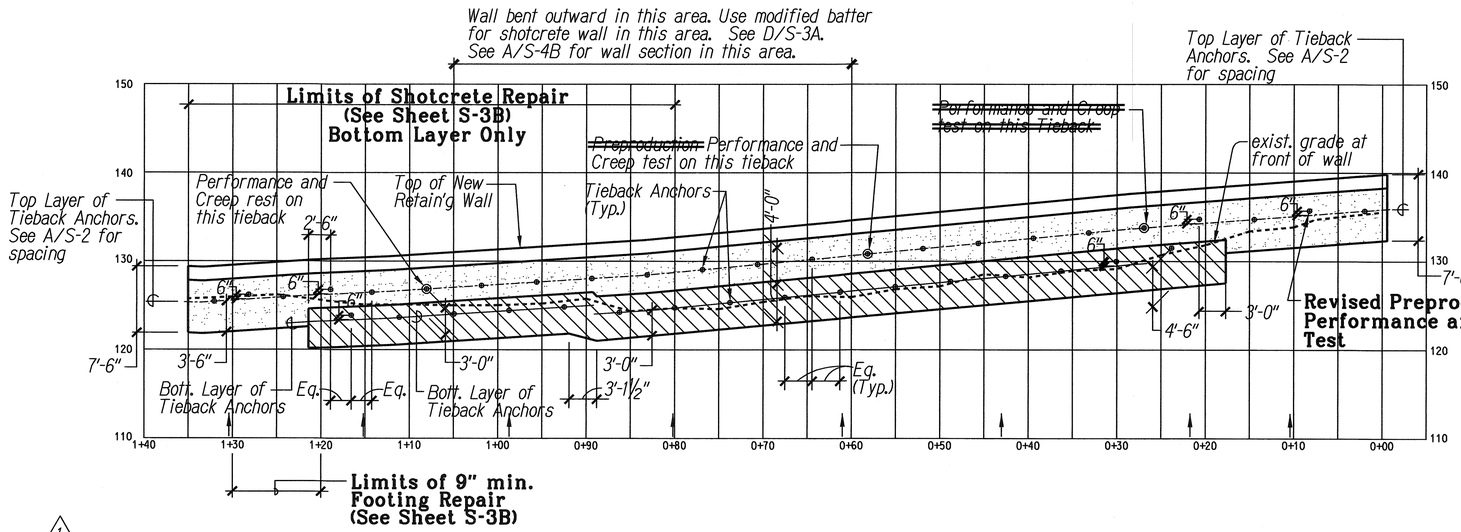
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	580A-01-02	2005	C.O.20	25

LEGEND:

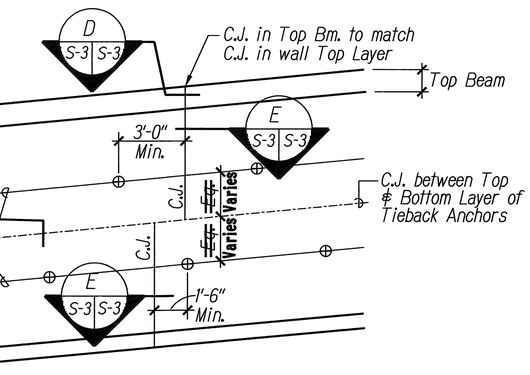
1. ⊕ Indicates Tieback Anchor Location
2. ◎ Indicates Tieback Anchor Requiring Performance and Creep Load Test.
3. Approx. Location of Exploratory Probing to determine existing CRM footing elevation.
4. Top Layer Shotcrete
5. Bottom Layer Shotcrete

NOTES:

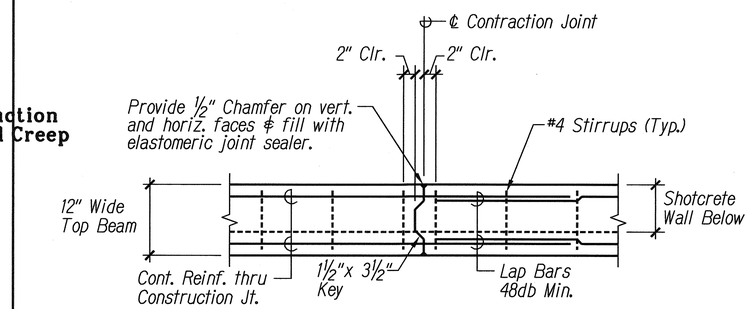
1. For Location of Tiebacks in the Top Row, See Sht. S-2.
2. For Contraction Joint Details, See Det. C/S-3.
3. Where Exist'g CRM Wall has straight single batter, use Detail E/S-3A for the Shotcrete Batter. Where the CRM Wall is bent outward, use Detail D/S-3A.



A WALL 1 ELEVATION
S-3 | S-3 Scale: 1/8" = 1'-0"

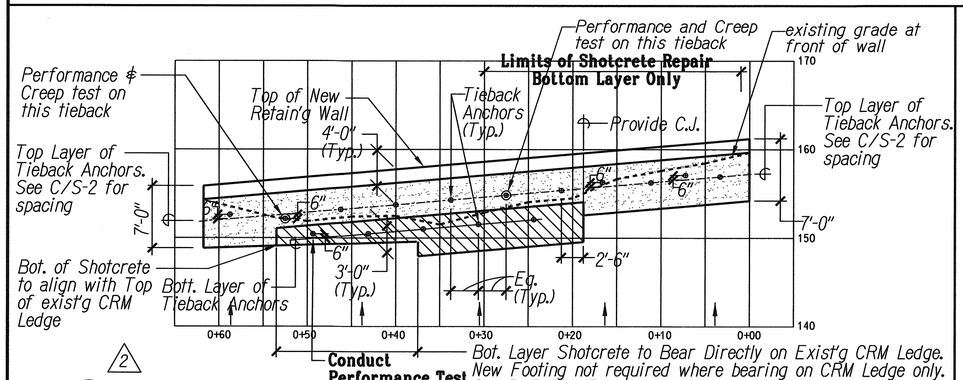


C CONTRACTION JT. LOCATION
S-3 | S-3 Not to Scale



PLAN

D CONTRACTION JT. THRU TOP BM.
S-3 | S-3 Not to Scale

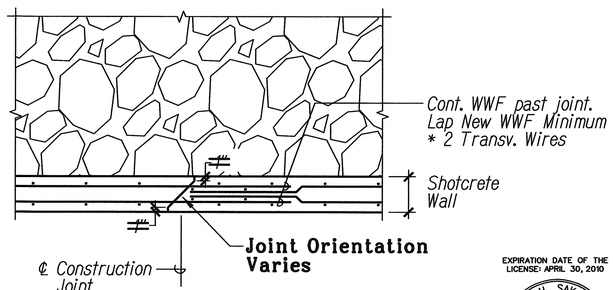


B WALL 2 ELEVATION
S-3 | S-3 Scale: 1/8" = 1'-0"

Bot. Layer Shotcrete to Bear Directly on Exist'g CRM Ledge. New Footing not required where bearing on CRM Ledge only. See B/S-4B. Extent of CRM Ledge to be verified during construction. At Contractor's option/volition, Top and Bottom Shotcrete Layer may be applied in a single operation when over existing CRM Ledge.

NOTE:

1. Vertical Contraction Joints in Shotcrete shall not be spaced more than 30'-0" o.c.
2. Vertical Joints shall not be located less than 1'-6" from Bottom Row Tiebacks or 3'-0" from Top Row Tiebacks.
3. Contractor may submit alternative joint detail for approval.



* Transverse Wire is defined as the wire running parallel to the joint.

E TYP. SHOTCRETE JT. DETAIL
S-3 | S-3 Not to Scale

LEGEND FOR AS-BUILT POSTINGS

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~~100.00~~	Double line for as-built deletion
Roadway	Text for as-built posting

DATE		REVISION
3/21/07	2	Revised Detail B/S-3
	1	Revised Detail A/S-3, Legend & Notes

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TIEBACK WALL ELEVATIONS AND BOTTOM LAYER TIEBACK ANCHOR LOCATIONS

KUAMOO ROAD RETAINING WALL IN THE VICINITY OF M.P. 1.1
PROJECT NO. 580A-01-02

Scale: As Noted Date: September 2005

EXPIRATION DATE OF THE LICENSE: APRIL 30, 2010
CRAIG H. SAKANASHI LICENSED PROFESSIONAL ENGINEER No. 5509-S HAWAII, U.S.A.
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SHEET No. S-3 OF 8 SHEETS

ORIGINAL PLAN | NOTE BOOK | No. C.O.20.dgn | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE 9/05 3/07

"AS-BUILT"

C.O.20

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	580A-01-02	2005	C.O.20S-1	25

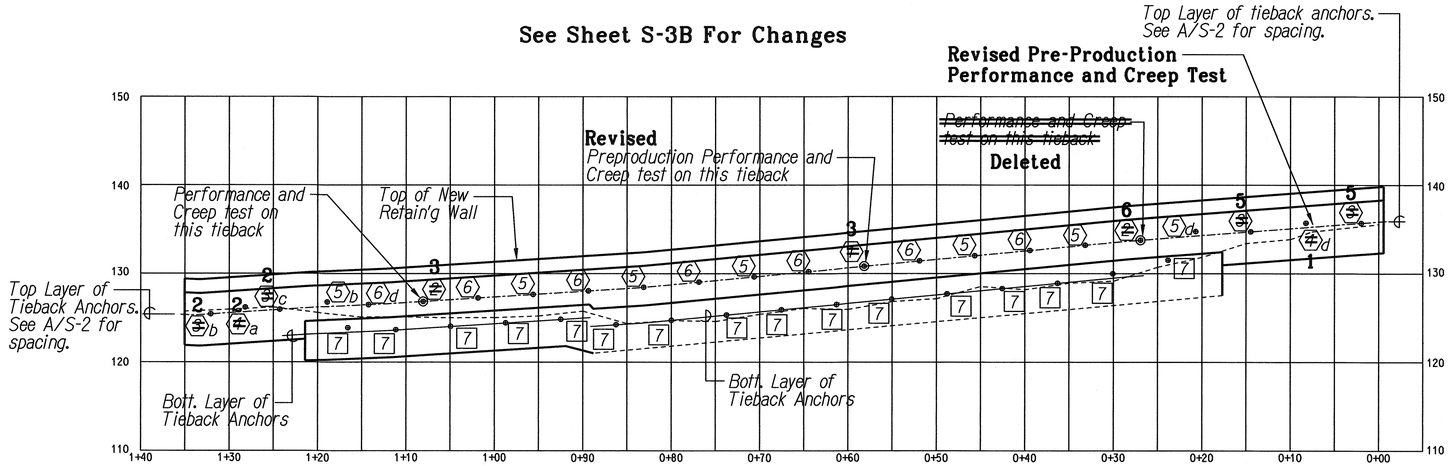
LEGEND:

1. ⊕ Indicates Tieback Anchor Location
2. ⊛ Indicates Tieback Anchor Requiring Performance and Creep Load Test.
3. ⬡ Indicates construction sequence for Top Row of Tiebacks.
4. □ Indicates construction sequence for Bottom Row of Tiebacks.
5. "a" Indicates Tieback Stressing - See Tieback Stressing Schedule

NOTES:

1. For Location of Tiebacks in the Top Row, See Sht. S-2.
2. Tiebacks with higher construction sequence number shall not be constructed until final grouting up to anchor plate for lower construction sequance number has set and cured 24 hours minimum.
3. Construction of Tiebacks for the bottom layer shall not commence until the Tiebacks in the top layer has been fully grouted and stressed.
4. Contractor may modify construction sequence upon approval from the engineer.
5. For Construction Joint Details, See Det. C/S-3.

See Sheet S-3B For Changes



A WALL 1 TIEBACK INSTALLATION SEQUENCE AND STRESSING

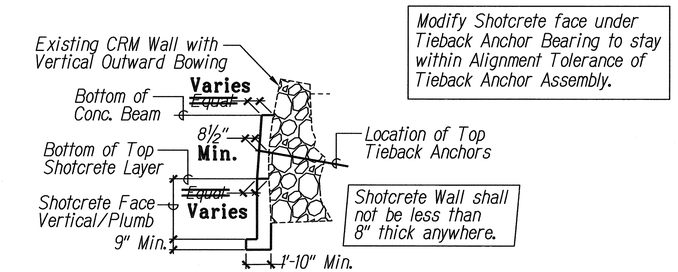
S-3A | S-3A Scale: 1/8" = 1'-0"

TIEBACK STRESSING SCHEDULE				
Anchor Location	Design Load (KIPS) 0.53 f's Max.	Maximum Test Load (KIPS) 0.75 f's Max.	Transfer (LockOff) Load (KIPS) 0.70 f's Max.	Comment
Typ. Top Row	49.7	74.5	43.6	Typ. Unless Otherwise Noted
Typ. Bottom Row	24.0	36.0	30.0	Typ. Unless Otherwise Noted
"a"	25.5	38.2	25.4	
"b"	32.9	49.3	31.0	
"c"	37.0	55.5	34.1	
"d"	43.3	65.0	38.8	

f's = Ultimate Tensile Strength of the Tendon
Transfer (LockOff) Load shown is after Seating Loss.

C TIEBACK STRESSING SCHEDULE

S-3A | S-3A Not to Scale



D WALL #1 - MODIFIED SHOTCRETE BATTER WHERE WALL BOWS OUTWARD

S-3 | S-3A Not to Scale

LEGEND FOR AS-BUILT POSTINGS

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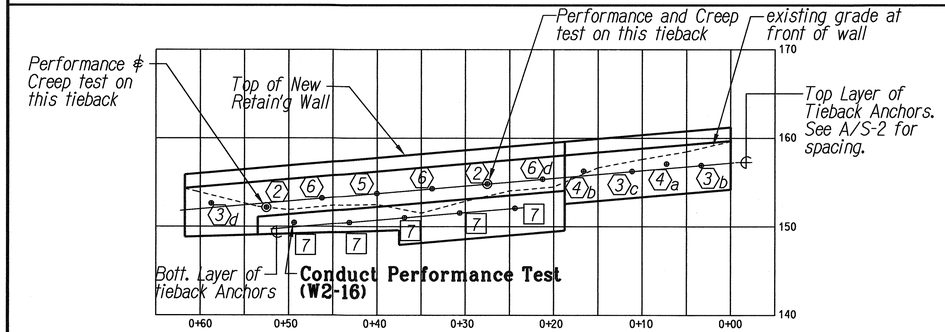
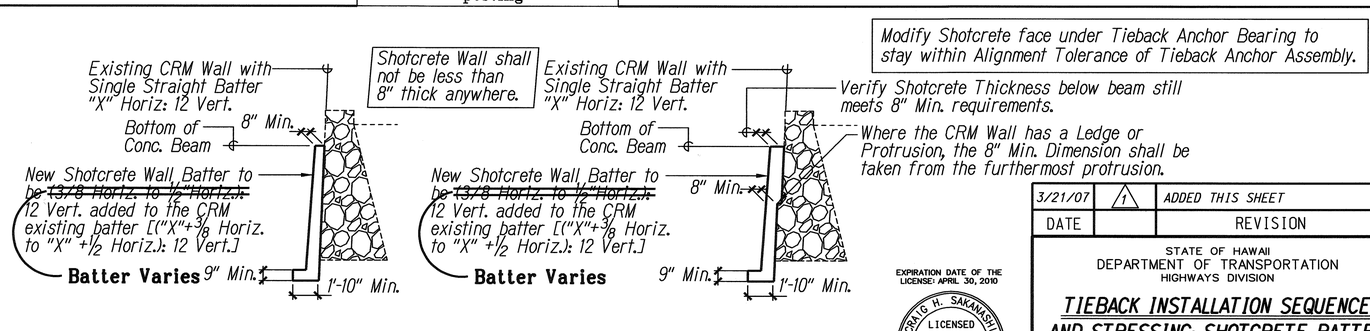
~~100.00~~	Double line for as-built deletion
Roadway	Text for as-built posting



B WALL 2 TIEBACK INSTALLATION SEQUENCE AND STRESSING

S-3A | S-3A Scale: 1/8" = 1'-0"

Stress Sequence 3, 4, 5 & 6 & All Done on the Same Day



E WALL #1 OR #2 - SHOTCRETE BATTER WHERE EXIST'G CRM WALL HAS STRAIGHT SINGLE BATTER

S-3 | S-3A Not to Scale

DATE		REVISION
3/21/07	1	ADDED THIS SHEET

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TIEBACK INSTALLATION SEQUENCE AND STRESSING; SHOTCRETE BATTER

KUAMOO ROAD RETAINING WALL IN THE VICINITY OF M.P. 1.1
PROJECT NO. 580A-01-02

Scale: As Noted Date: September 2005

SHEET No. S-3A OF 8 SHEETS

EXPIRATION DATE OF THE LICENSE: APRIL 30, 2010

CRAIG H. SAKANASHI LICENSED PROFESSIONAL ENGINEER No. 5509-S HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE
ORIGINAL PLAN
NOTE BOOK
No. C.O.20S-1.dgn

"AS-BUILT"

C.O.20S-1

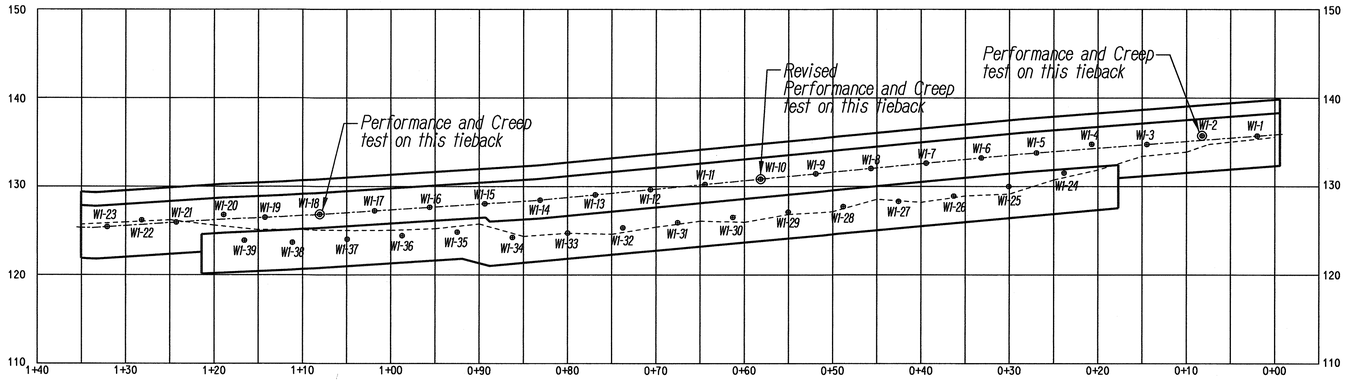
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	580A-01-02	2005	C.O.20S-2	25

LEGEND:

1. ⊕ Indicates Tieback Anchor Location
2. ◎ Indicates Tieback Anchor Requiring Performance and Creep Load Test.
3. ⬡ Indicates construction sequence for Top Row of Tiebacks.
4. □ Indicates construction sequence for Bottom Row of Tiebacks.
5. "a" Indicates Tieback Stressing - See Tieback Stressing Schedule

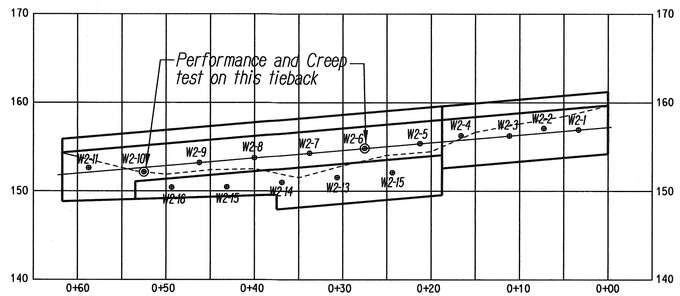
NOTES:

1. For Location of Tiebacks in the Top Row, See Sht. S-2.
2. Tiebacks with higher construction sequence number shall not be constructed until final grouting up to anchor plate for lower construction sequance number has set and cured 24 hours minimum.
3. Construction of Tiebacks for the bottom layer shall not commence until the Tiebacks in the top layer has been fully grouted and stressed.
4. Contractor may modify construction sequence upon approval from the engineer.
5. For Construction Joint Details, See Det. C/S-3.



A S-3B S-3B WALL 1 TIEBACK NUMBERS AND STATIONS

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



B S-3B S-3B WALL 2 TIEBACK NUMBERS AND STATIONS

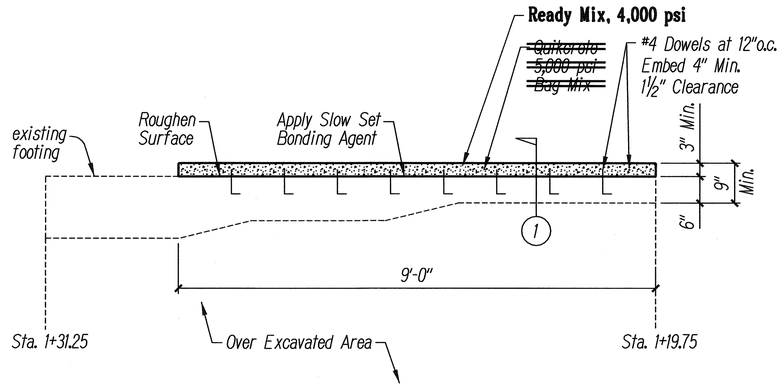
Scale: 1/8" = 1'-0"

TIEBACK STATION LOCATIONS WALL #1

Tieback#	Station #	Tieback#	Station #
W1-1	0+1.5	W1-21	1+24.25
W1-2	0+7.5	W1-22	1+28.25
W1-3	0+13.75	W1-23	1+32.25
W1-4	0+20	W1-24	0+23.25
W1-5	0+26.25	W1-25	0+29.25
W1-6	0+32.5	W1-26	0+35.75
W1-7	0+38.75	W1-27	0+41.5
W1-8	0+45	W1-28	0+47.75
W1-9	0+51	W1-29	0+54.25
W1-10	0+57.5	W1-30	0+60.25
W1-11	0+63.75	W1-31	0+66.75
W1-12	0+70	W1-32	0+73.25
W1-13	0+76.25	W1-33	0+79.75
W1-14	0+82.75	W1-34	0+85.75
W1-15	0+89.25	W1-35	0+92.25
W1-16	0+95.5	W1-36	0+98.5
W1-17	1+1.75	W1-37	1+5
W1-18	1+8.25	W1-38	1+11
W1-19	1+14.25	W1-39	1+16.75
W1-20	1+18.75		

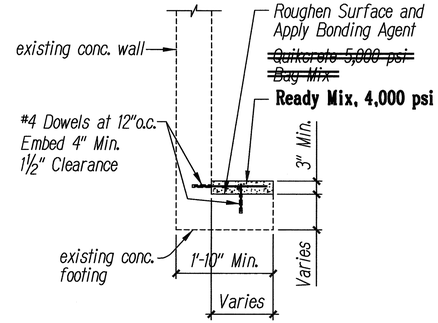
TIEBACK STATION LOCATIONS WALL #2

Tieback#	Station #
W2-1	0+3.5
W2-2	0+7.25
W2-3	0+11.25
W2-4	0+16.5
W2-5	0+21.5
W2-6	0+27.75
W2-7	0+33.75
W2-8	0+40.25
W2-9	0+46.5
W2-10	0+52.75
W2-11	0+59.25
W2-12	0+24.75
W2-13	0+30.75
W2-14	0+37
W2-15	0+43.25
W2-16	0+49.75



C S-3B S-3B FOOTING REPAIR DETAIL

Not to Scale



1 SECTION

LEGEND FOR AS-BUILT POSTINGS

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Roadway	Text for as-built posting

DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TIEBACK NUMBERS & STATIONS

KUAMOO ROAD RETAINING WALL
IN THE VICINITY OF M.P. 1J
PROJECT NO. 580A-01-02

Scale: As Noted Date: September 2005

EXPIRATION DATE OF THE LICENSE: APRIL 30, 2010

CRAIG H. SAKANASHI LICENSED PROFESSIONAL ENGINEER No. 5509-S HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SHEET No. S-3B OF 8 SHEETS

C.O.20S-2

"AS-BUILT"

ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE | NOTE BOOK | No. C.O.20S-2