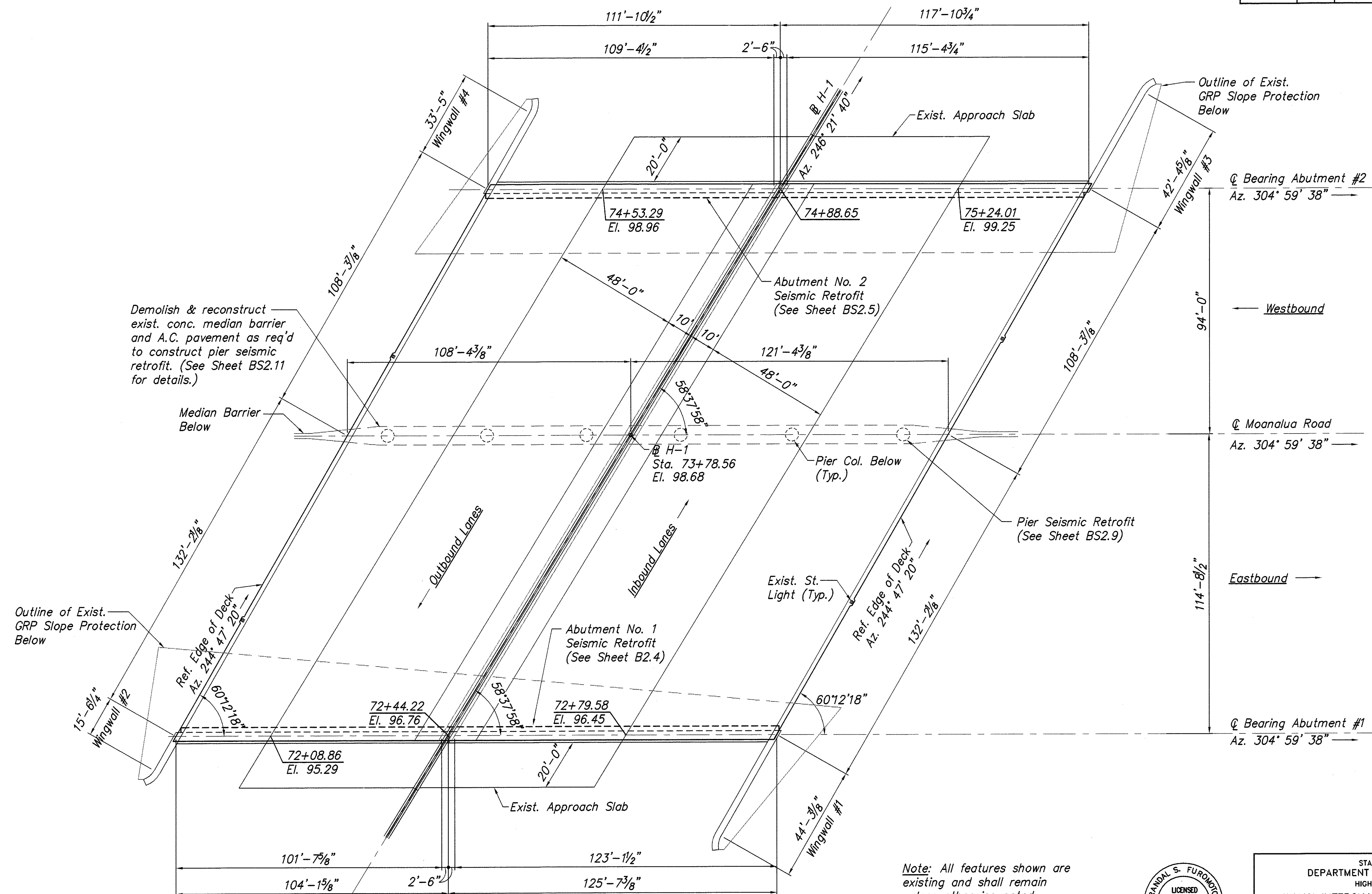
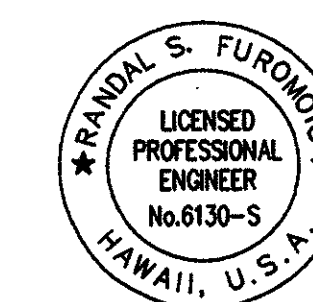


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-H1-1(241)	2003	806	816



Note: All features shown are existing and shall remain unless otherwise noted.



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OR UNDER MY SUPERVISION.

*[Signature]*

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

WAI'AU INTERCHANGE GRADE SEPARATION  
BRIDGE LAYOUT PLAN  
AUSTIN-BISHOP SEPARATION AND  
WAI'AU INTERCHANGE  
F.A.I. Proj. No. BR-HI-1(241)

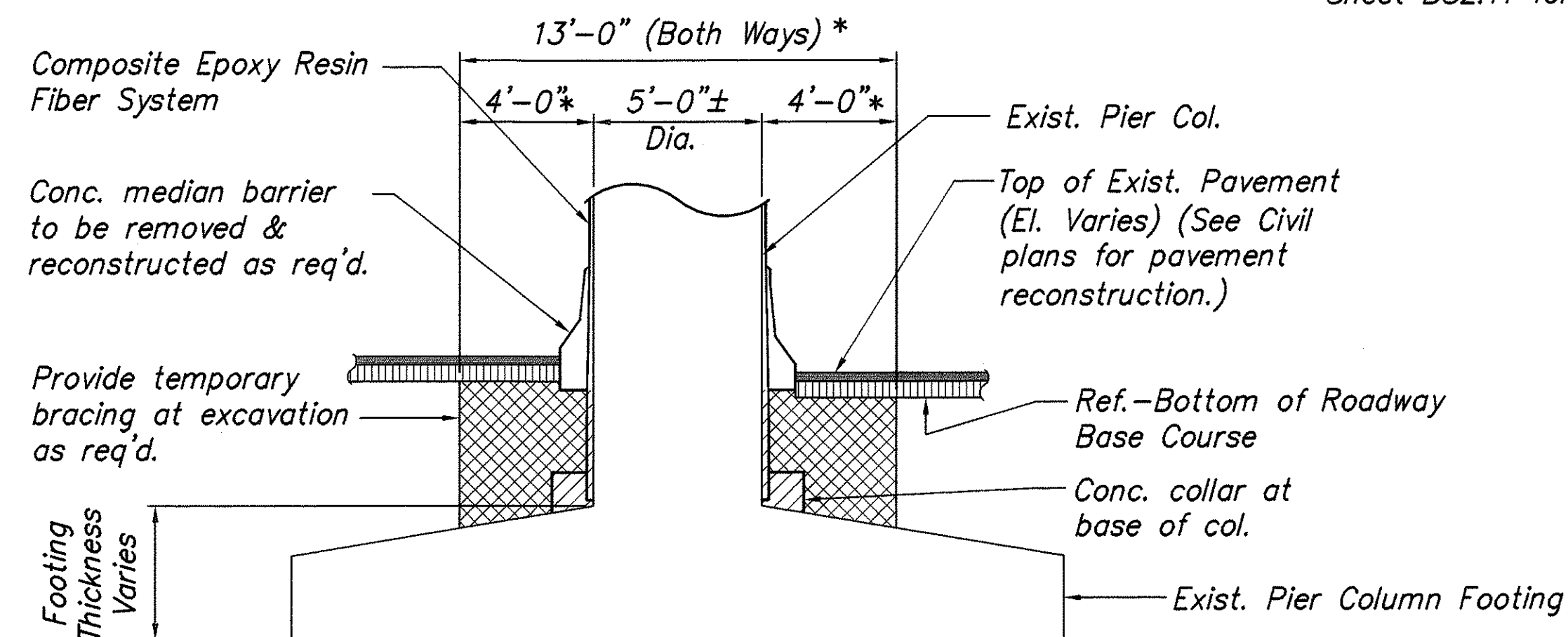
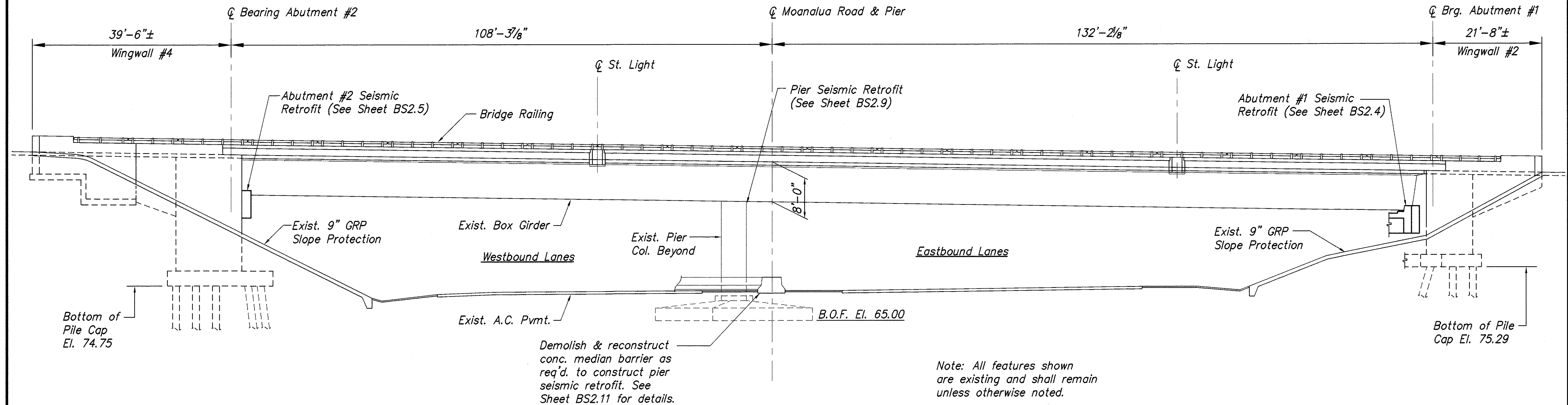
Scale: *As Noted* Date: *Mar. 31, 2003*

SHEET No. BS2.1 OF 14 SHEETS

806

ORIGINAL PLAN	SURVEY PLOTTED BY _____ DATE _____
NOTE BOOK	DRAWN BY _____
	TRACED 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-H1-1(241)	2003	807	816



ELEVATION (LOOKING EAST)  
Scale: 1" = 10'

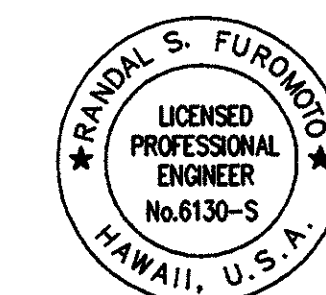
\* Note: Structure excavation limits shown are for payment purposes only. (Structure backfill shall be incidental to structure excavation.) Contractor shall perform structure excavation & backfill as needed to properly install the pier column retrofit. Any additional structure excavation & backfill shall be provided at no additional cost to the State.

LEGEND

- Structure Excavation
- Structure Backfill

STRUCTURE EXCAVATION & BACKFILL  
PAY LIMITS AT PIER COLUMN RETROFIT  
Scale: 1/4" = 1'-0"

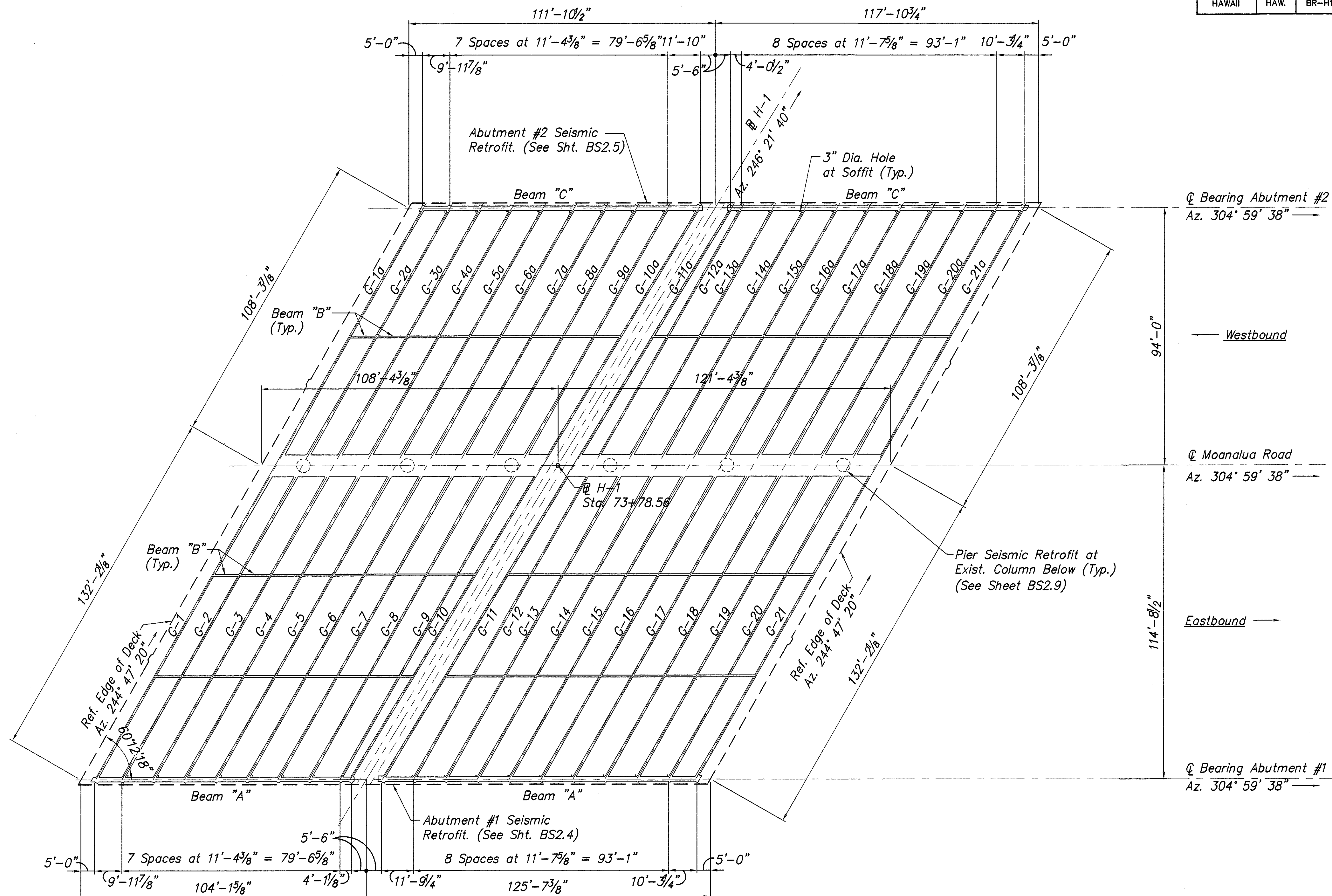
SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	



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*R. S. Furomoto*  
SIGNATURE  
April 30, 2004  
EXPIRATION DATE  
OF THE LICENSE

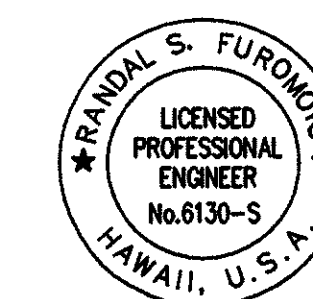
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
WAI'AU INTERCHANGE GRADE SEPARATION  
BRIDGE ELEVATION  
AUSTIN-BISHOP SEPARATION AND  
WAI'AU INTERCHANGE  
F.A.I. Proj. No. BR-H1-1(241)  
Scale: As Noted Date: Mar. 31, 2003  
SHEET No. BS2.2 OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-H1-1(241)	2003	808	816



**FRAMING PLAN**  
Scale: 1" = 20'

Note: All features shown are existing and shall remain unless otherwise noted.



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EXPIRATION DATE OF THE LICENSE: April 30, 2004

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**WAI'AU INTERCHANGE GRADE SEPARATION**  
**FRAMING PLAN**  
AUSTIN-BISHOP SEPARATION AND  
WAI'AU INTERCHANGE  
F.A.I. Proj. No. BR-H1-1(241)

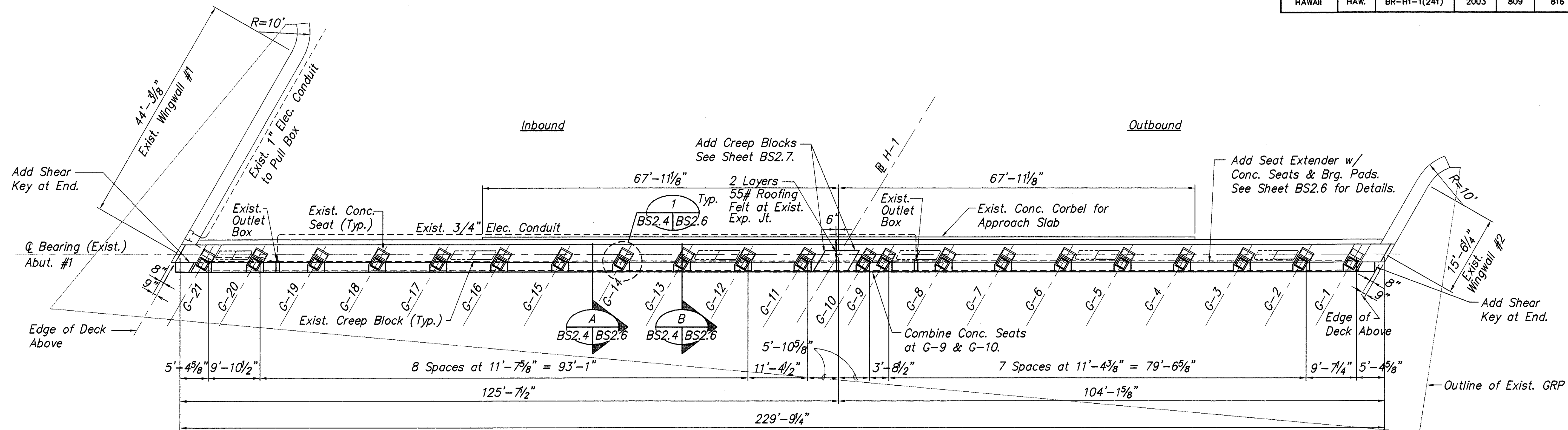
Scale: As Noted Date: Mar. 31, 2003

SHEET No. BS2.3 OF 14 SHEETS

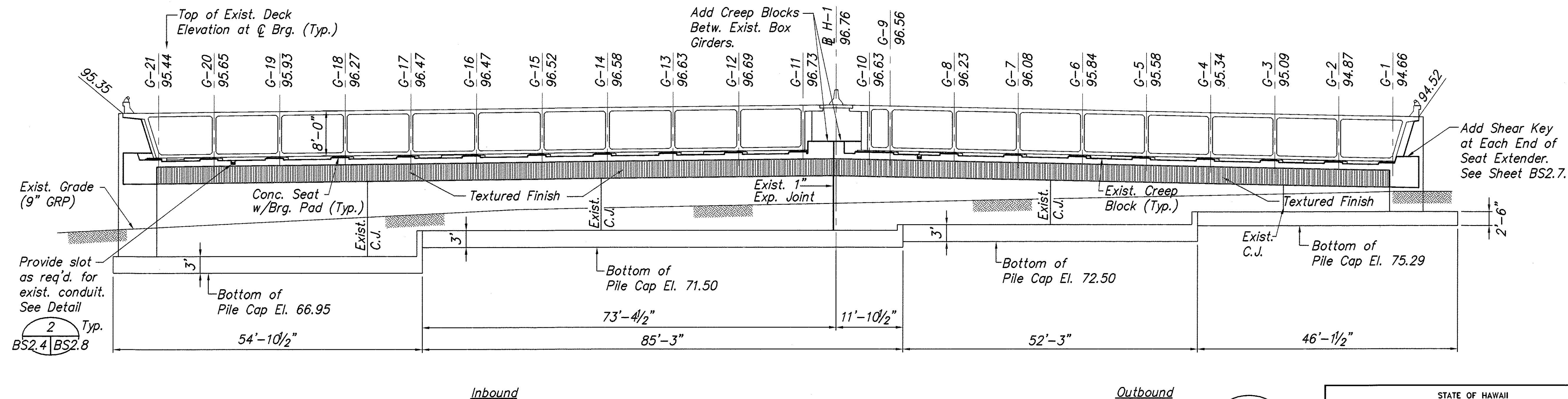
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-H1-1(241)	2003	809	816

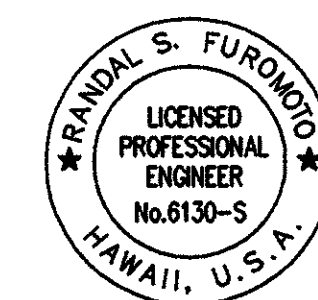


**ABUTMENT #1 PLAN**  
Scale: 1" = 10'



**ABUTMENT #1 ELEVATION**  
Scale: 1" = 10'

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



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APRIL 30, 2004  
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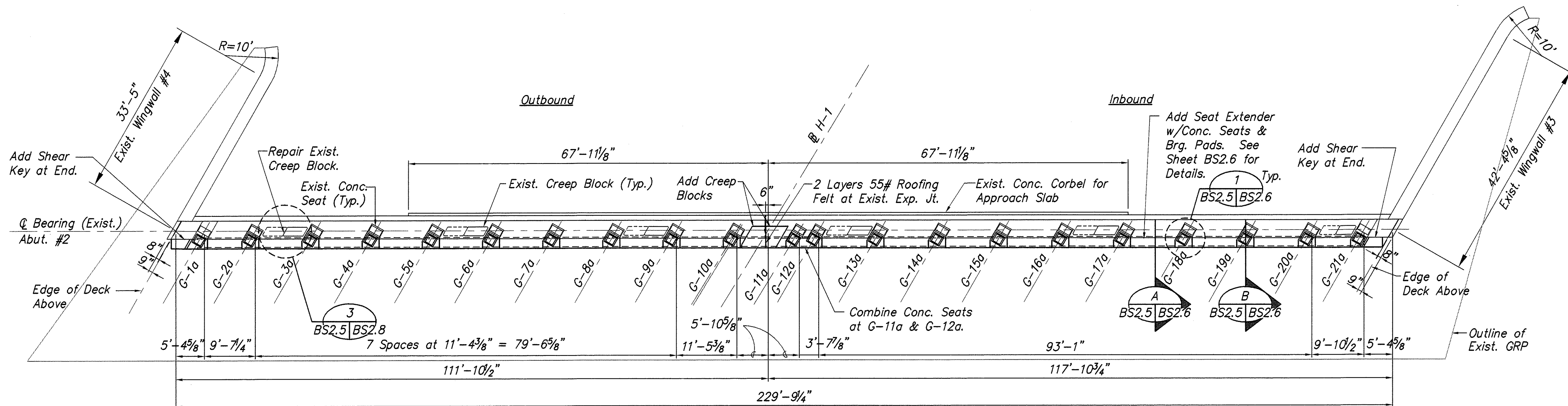
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**WAI'AU INTERCHANGE GRADE SEPARATION**  
**ABUT. #1 PLAN & ELEVATION**  
**AUSTIN-BISHOP SEPARATION AND**  
**WAI'AU INTERCHANGE**  
F.A.I. Proj. No. BR-H1-1(241)

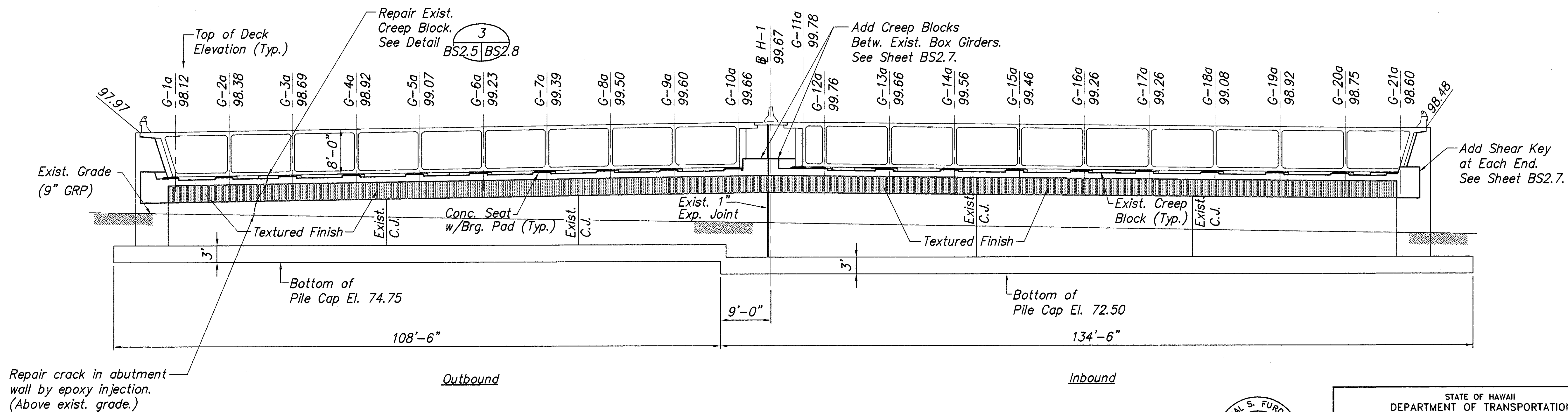
Scale: As Noted Date: Mar. 31, 2003

SHEET No. BS2.4 OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-H1-1(241)	2003	810	816

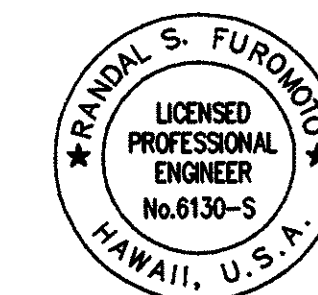


**ABUTMENT #2 PLAN**  
Scale: 1" = 10'



**ABUTMENT #2 ELEVATION**  
Scale: 1" = 10'

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



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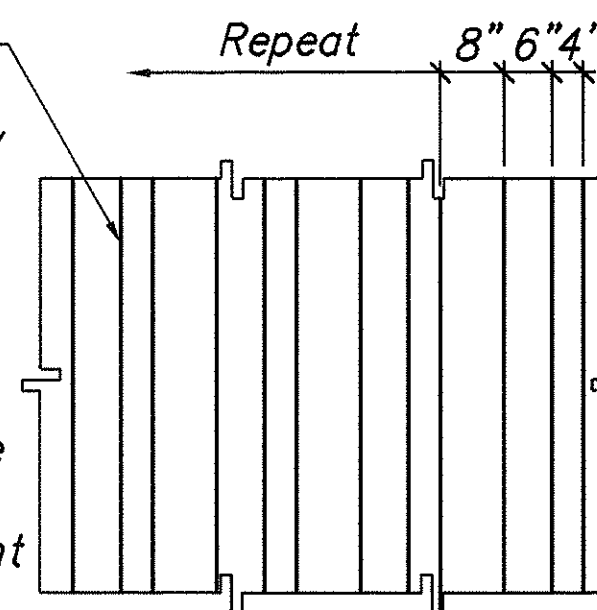
Signature: *R. Furohono*  
April 30, 2004  
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**WAI'AU INTERCHANGE GRADE SEPARATION**  
**ABUT. #2 PLAN & ELEVATION**  
AUSTIN-BISHOP SEPARATION AND  
WAI'AU INTERCHANGE  
F.A.I. Proj. No. BR-H1-1(241)  
Scale: As Noted Date: Mar. 31, 2003  
SHEET No. BS2.5 OF 14 SHEETS

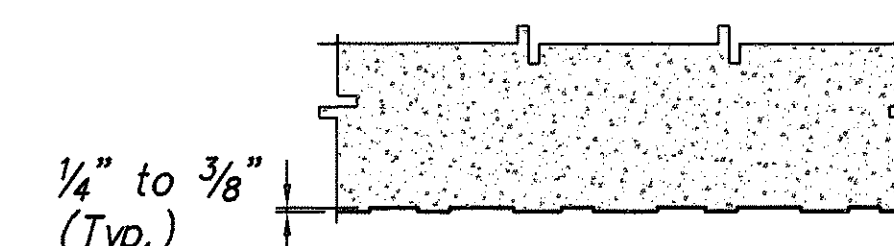


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-H1-1(241)	2003	811	816

Rough Douglas fir form shall be free of loose knots and knotholes. Vary thickness of adjacent boards by  $\frac{1}{4}$ " to  $\frac{3}{8}$ " to obtain textured appearance. Patch any holes or defects larger than  $\frac{1}{2}$ " diameter. Surface and fins shall remain unfinished. (Do not cement wash or sack rub.)



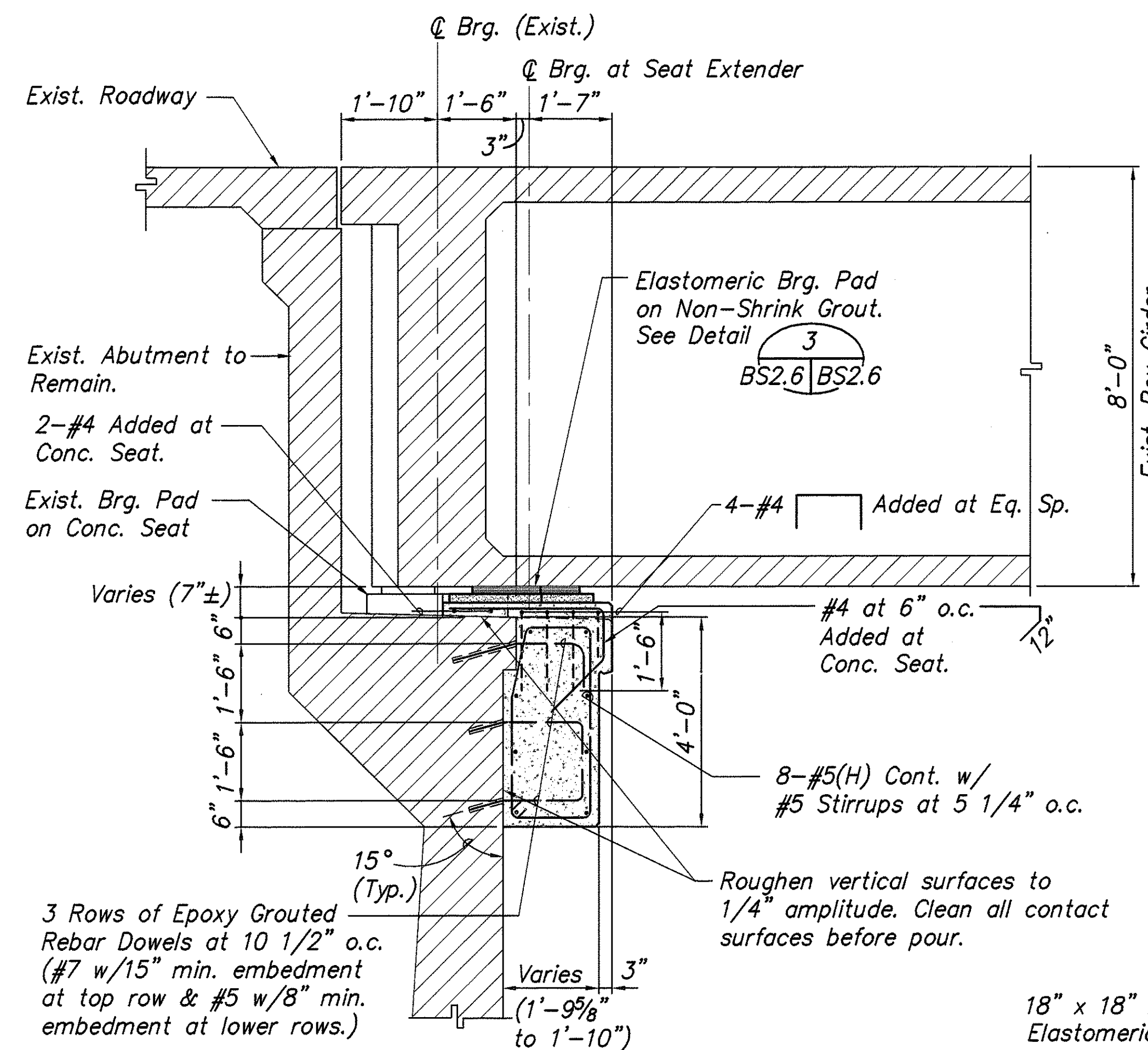
ELEVATION



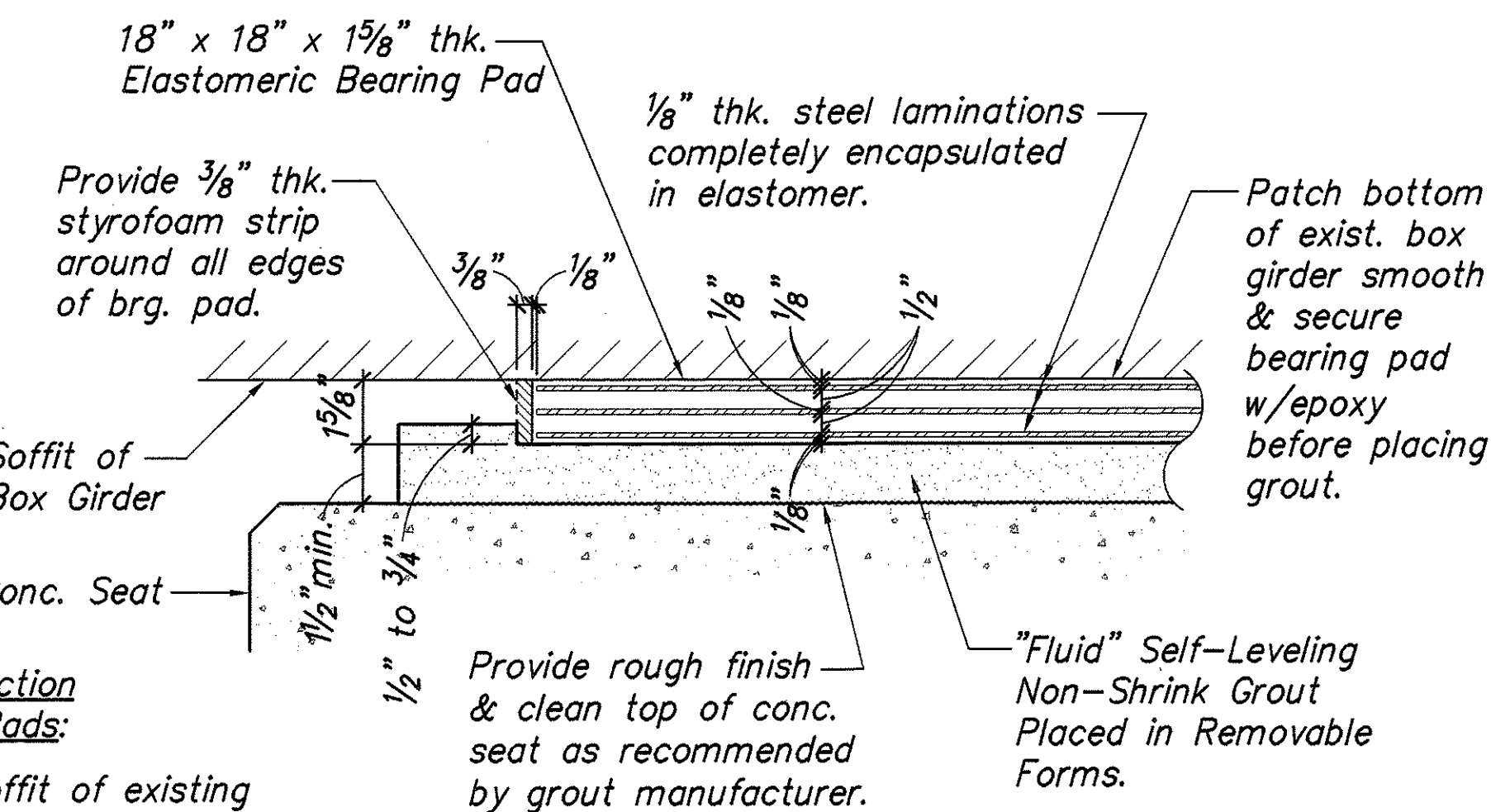
PLAN/SECTION

Note: Textured finish consisting of random vertical form marks shall be applied to vertical faces of seat extenders at abutments where indicated. (See Abutment Elevations.)

CONCRETE FINISH DETAIL 2  
Scale:  $\frac{1}{2}$ " = 1'-0"



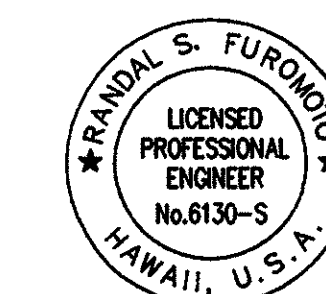
SECTION THRU GIRDER BEARING B  
Scale:  $\frac{1}{2}$ " = 1'-0"



BEARING PAD DETAIL 3  
Scale: 3" = 1'-0"

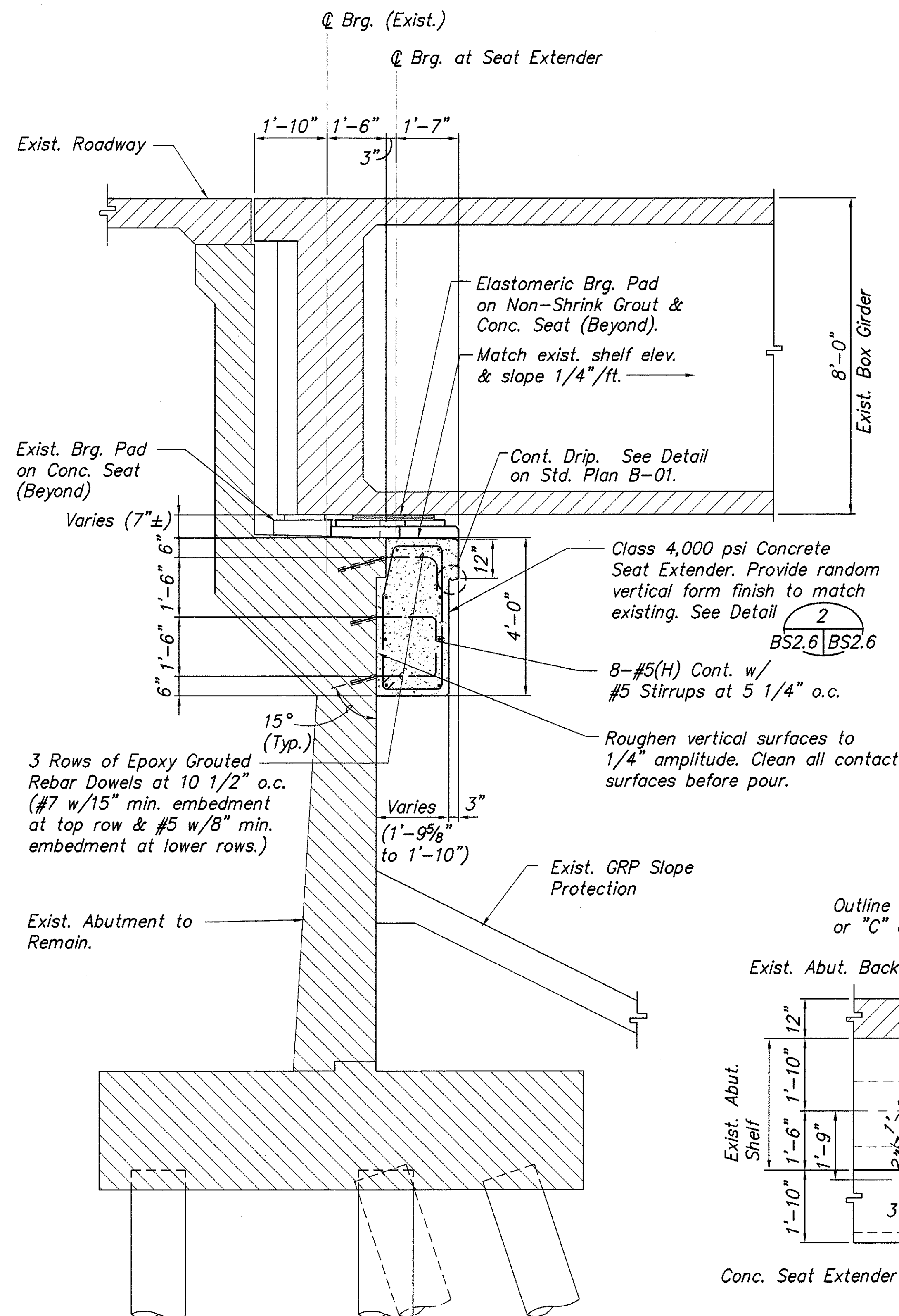
Recommended Construction Sequence at Bearing Pads:

1. Prepare surfaces of soffit of existing box girder to receive bearing pads.
2. Construct concrete seat extender with monolithic concrete seats. Prepare top surface of concrete seat for grouting.
3. Attach bearing pad assemblies to soffit of box girder w/epoxy adhesive.
4. Install forms for grout.
5. Pump "fluid" self-leveling non-shrink grout from one side to fill all voids between bearing pad and concrete seat. Screed edges level around bearing pad where accessible.
6. Remove forms and clean up.

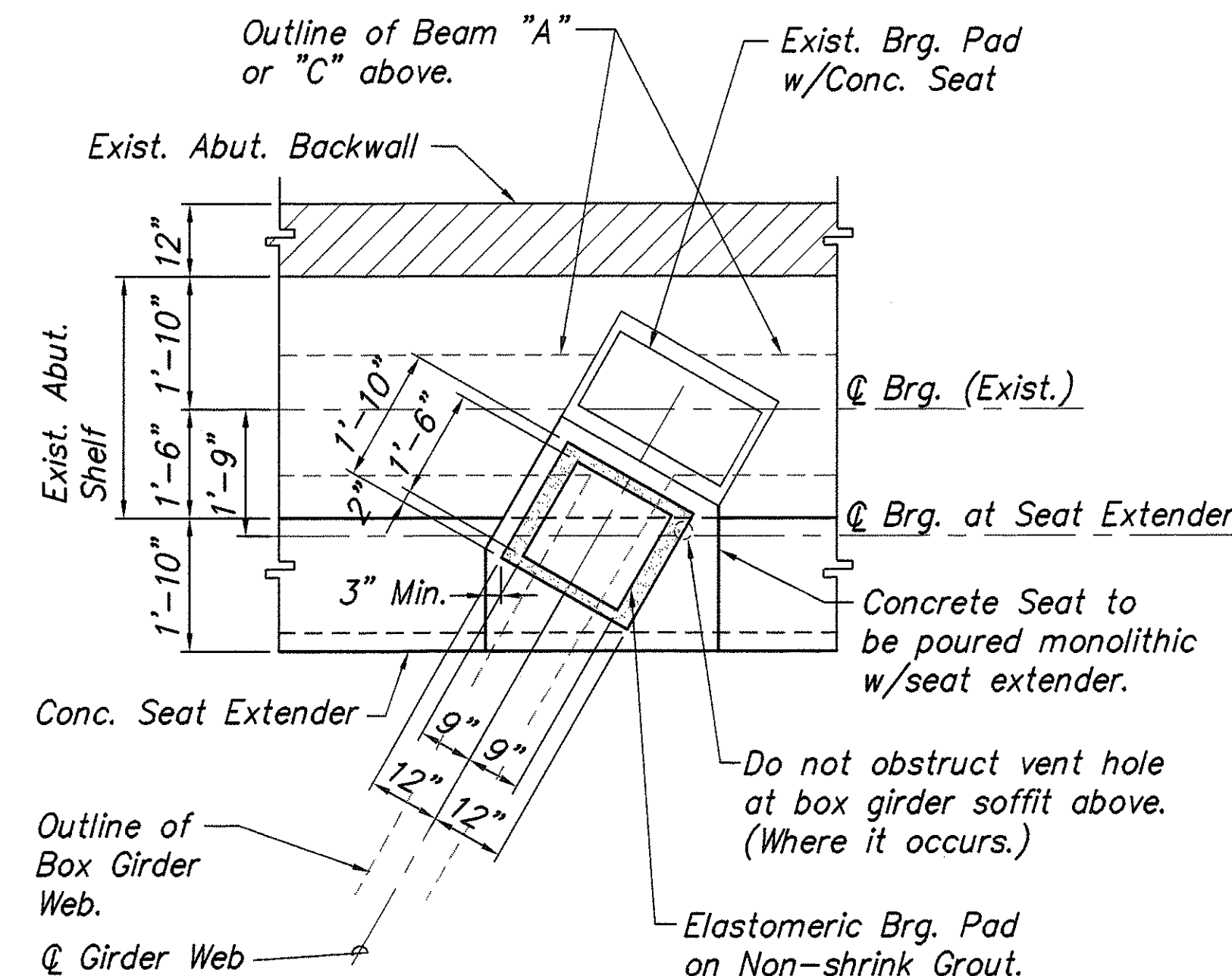


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April 30, 2004  
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STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
WAI'AU INTERCHANGE GRADE SEPARATION  
ABUTMENT RETROFIT DETAILS  
AUSTIN-BISHOP SEPARATION AND  
WAI'AU INTERCHANGE  
F.A.I. Proj. No. BR-H1-1(241)  
Scale: As Noted Date: Mar. 31, 2003  
SHEET No. BS2.6 OF 14 SHEETS



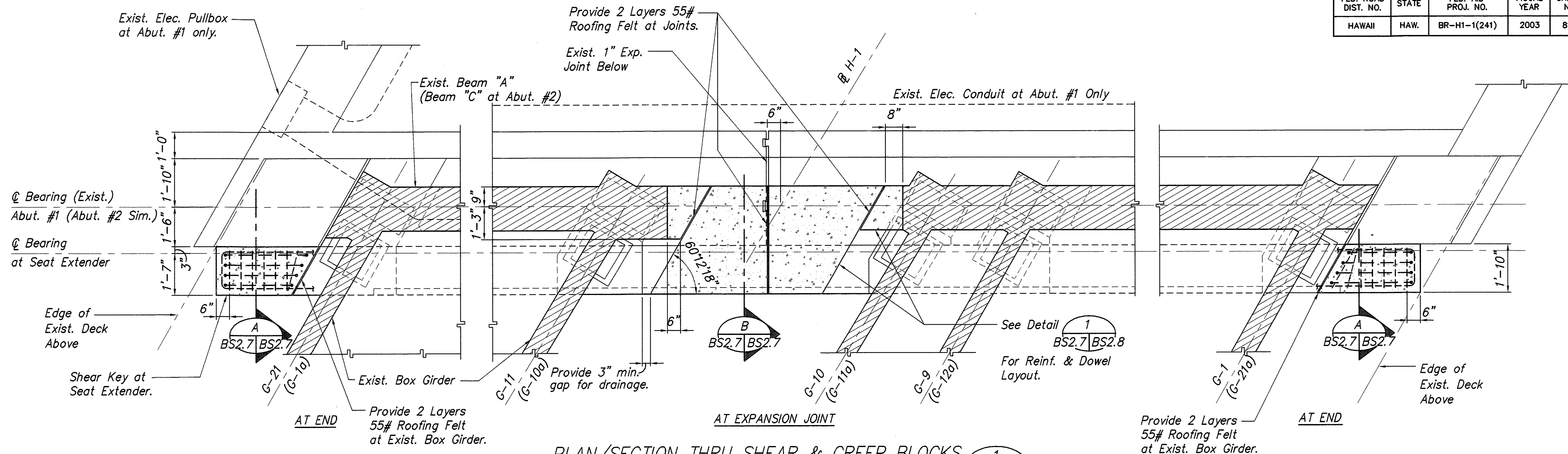
SECTION THRU ABUTMENT A  
Scale:  $\frac{1}{2}$ " = 1'-0"



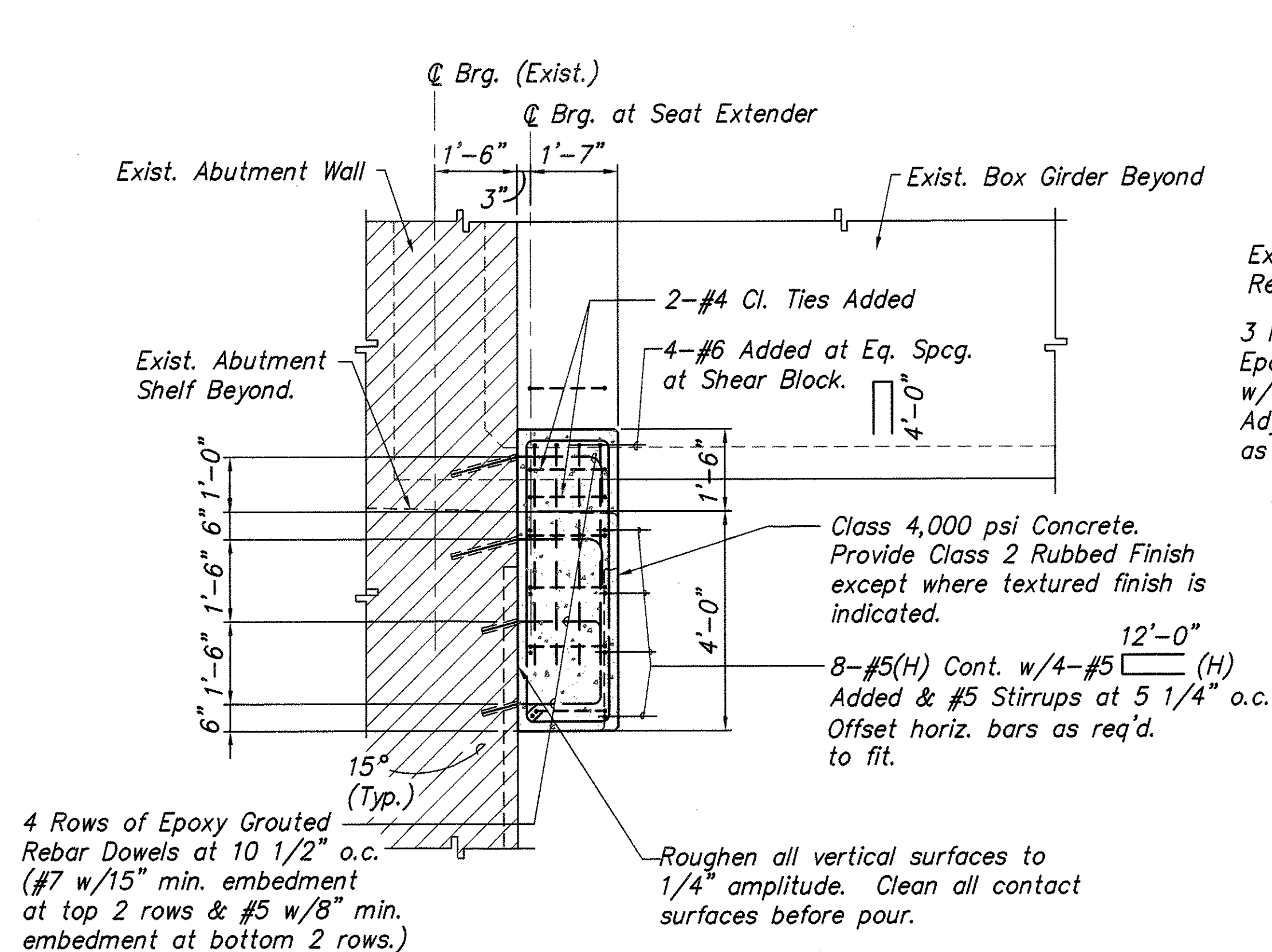
DETAIL-PLAN AT TYP. GIRDER BEARING 1  
Scale:  $\frac{1}{2}$ " = 1'-0"

ORIGINAL PLAN	DATE
DESIGNED BY	
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

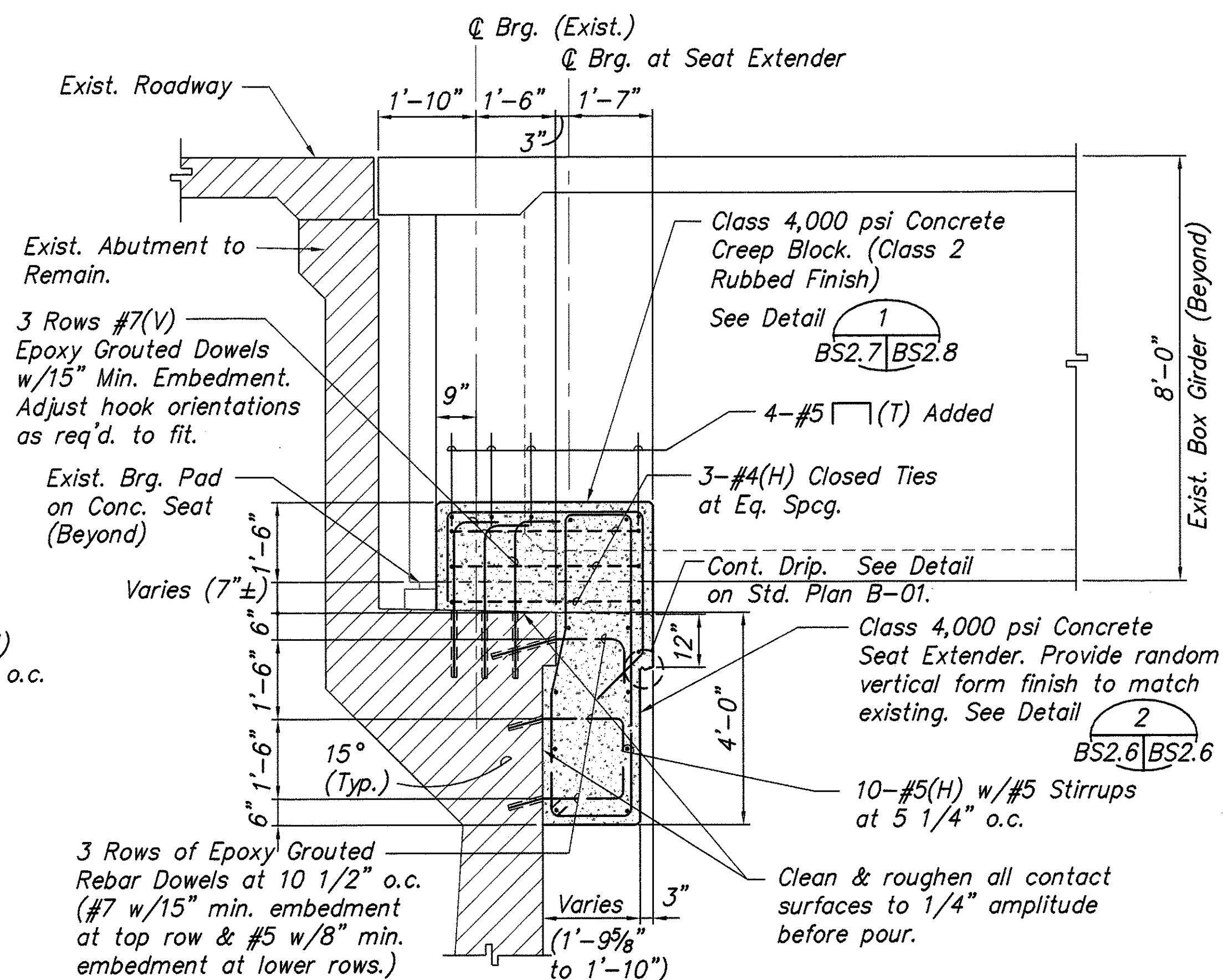
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-H1-1(241)	2003	812	816



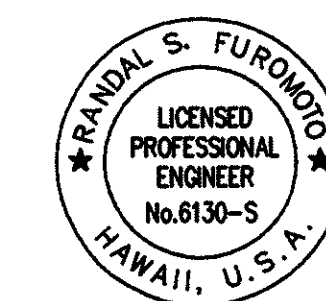
**PLAN/SECTION THRU SHEAR & CREEP BLOCKS**  
 Scale: 1/2" = 1'-0" (Condition at Abut. #1 shown. Condition at Abut. #2 similar as noted.)



**SECTION THRU SHEAR BLOCK**  
 Scale: 1/2" = 1'-0"



**SECTION THRU CREEP BLOCK**  
 Scale: 1/2" = 1'-0"

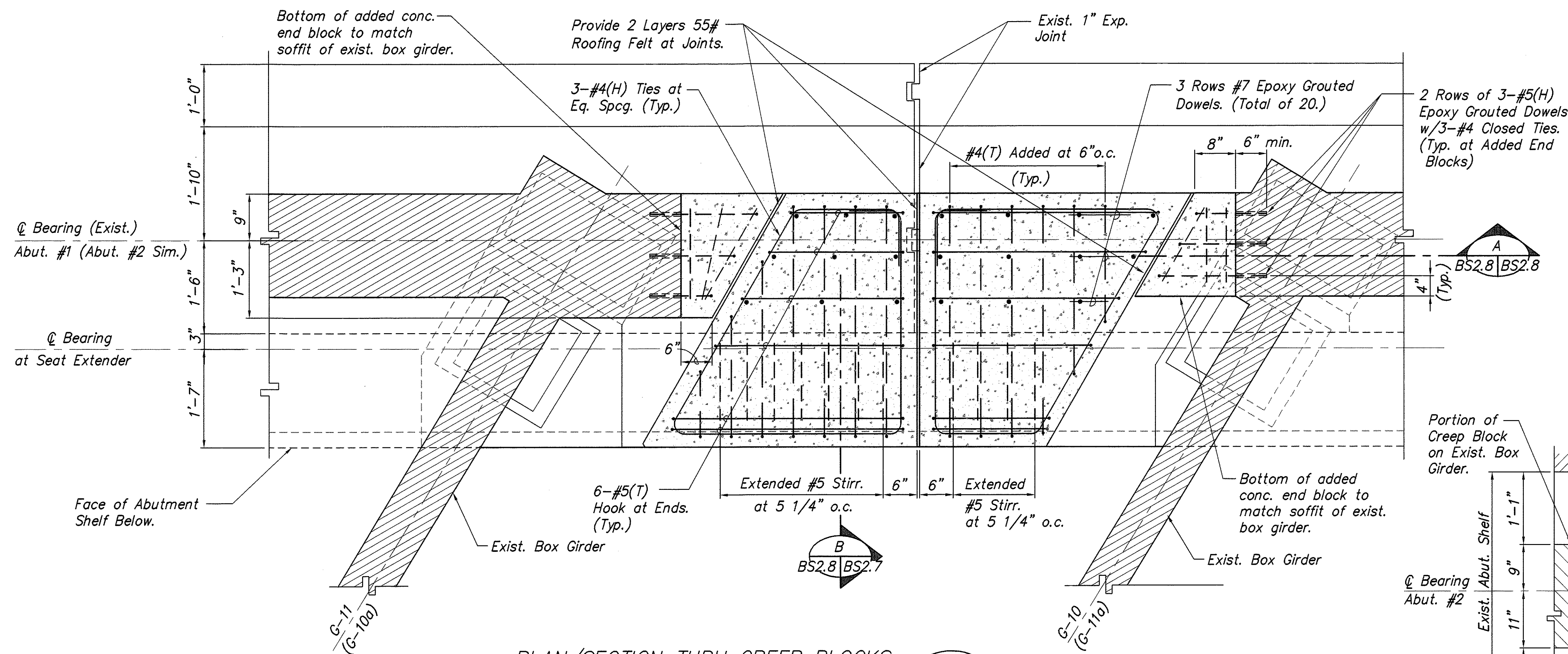


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 SIGNATURE  
 April 30, 2004  
 EXPIRATION DATE  
 OF THE LICENSE

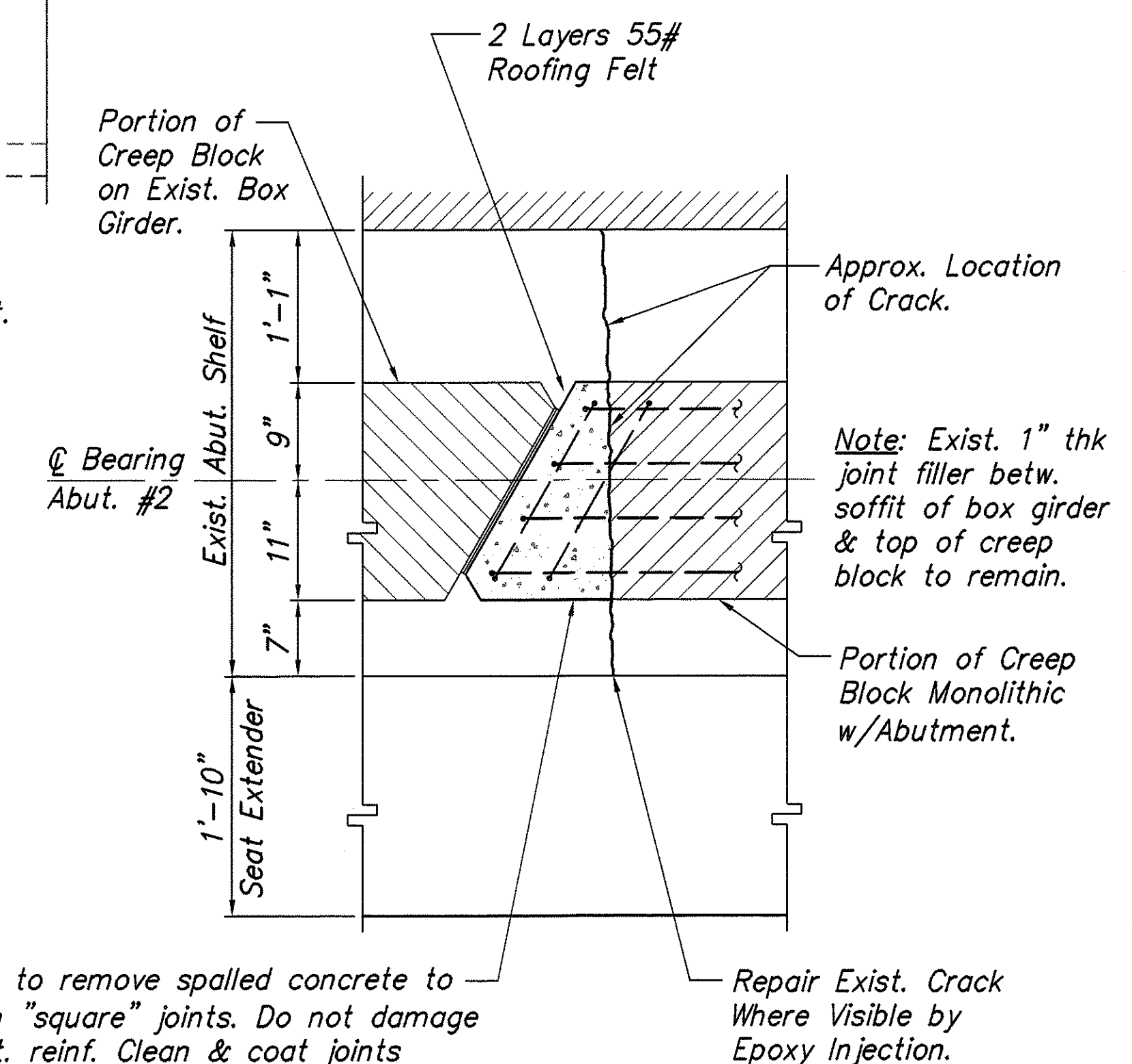
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**WAI'AU INTERCHANGE GRADE SEPARATION**  
**ABUTMENT RETROFIT DETAILS**  
 AUSTIN-BISHOP SEPARATION AND  
 WAI'AU INTERCHANGE  
 F.A.I. Proj. No. BR-H1-1(241)  
 Scale: As Noted Date: Mar. 31, 2003  
 SHEET No. BS2.7 OF 14 SHEETS



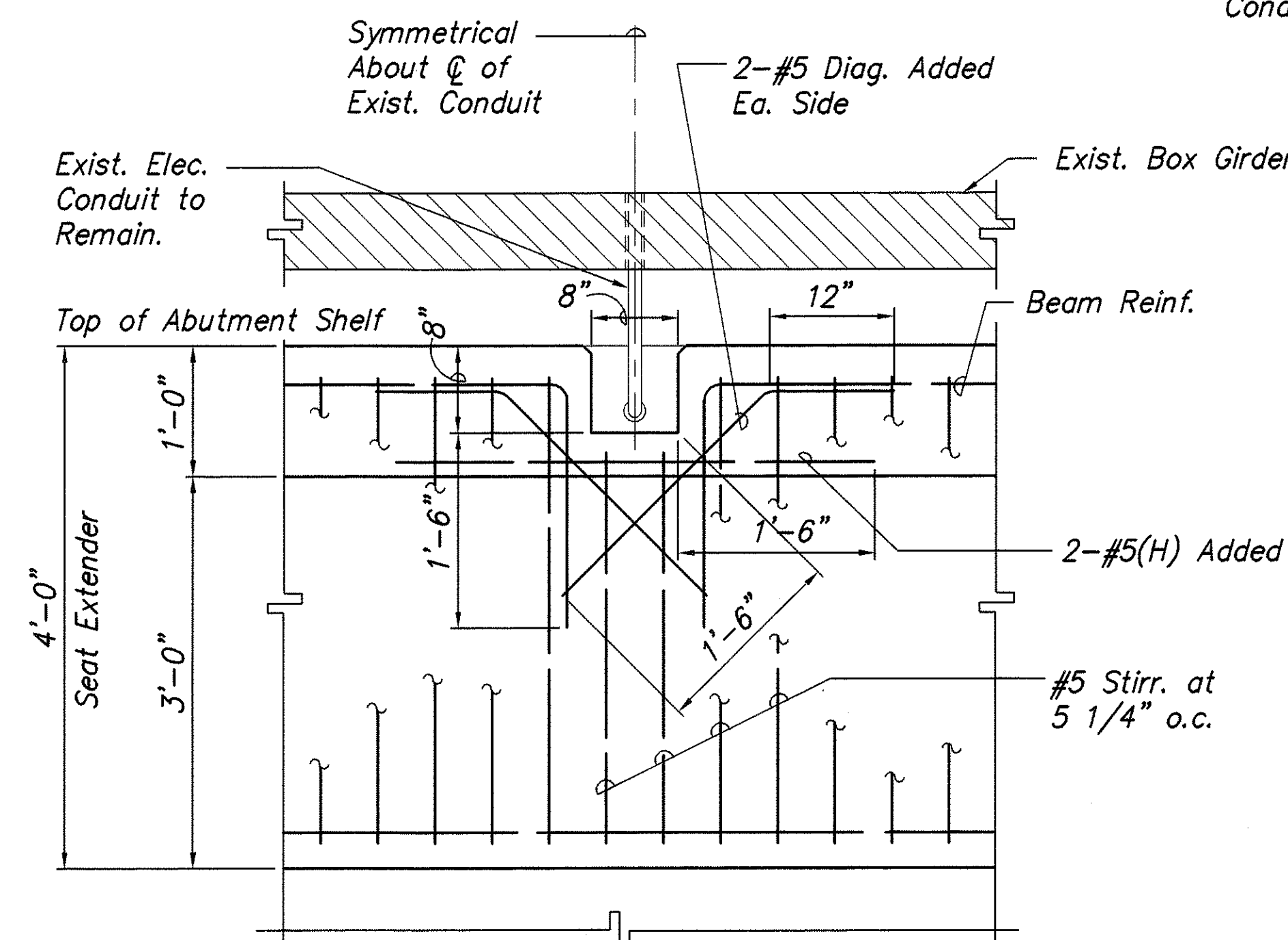
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-H1-1(241)	2003	813	816



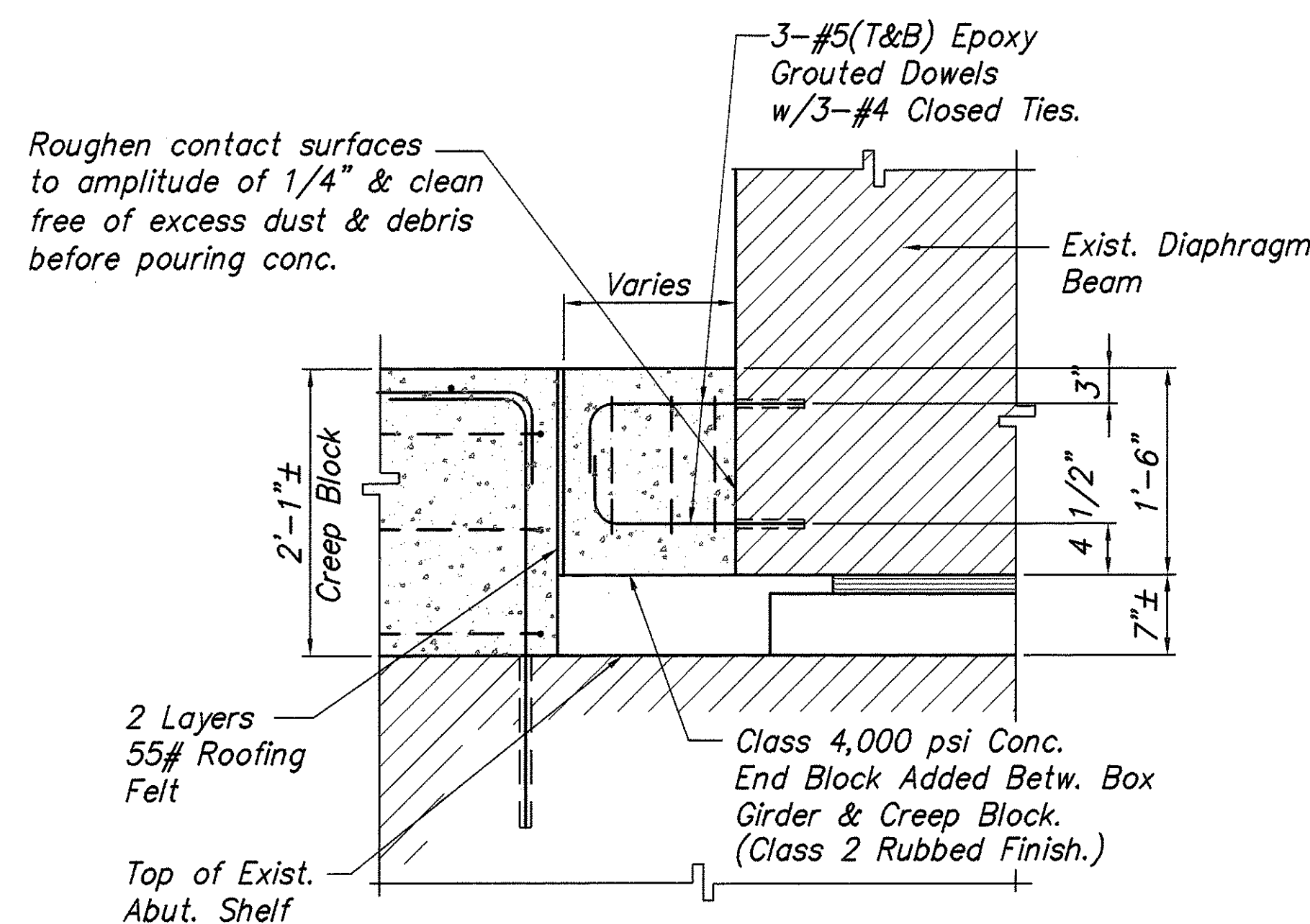
PLAN/SECTION THRU CREEP BLOCKS  
Scale: 1" = 1'-0" (Condition at Abut. #1 shown. Condition at Abut. #2 similar.) BS2.7 BS2.8



DETAIL-CREEP BLOCK REPAIR  
Scale: 1" = 1'-0" BS2.5 BS2.8

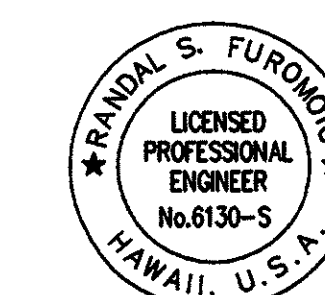


DETAIL-SLOT AT ELEC. CONDUIT  
Scale: 1" = 1'-0" BS2.4 BS2.8



SECTION THRU END BLOCK  
Scale: 1" = 1'-0" BS2.7 BS2.8

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

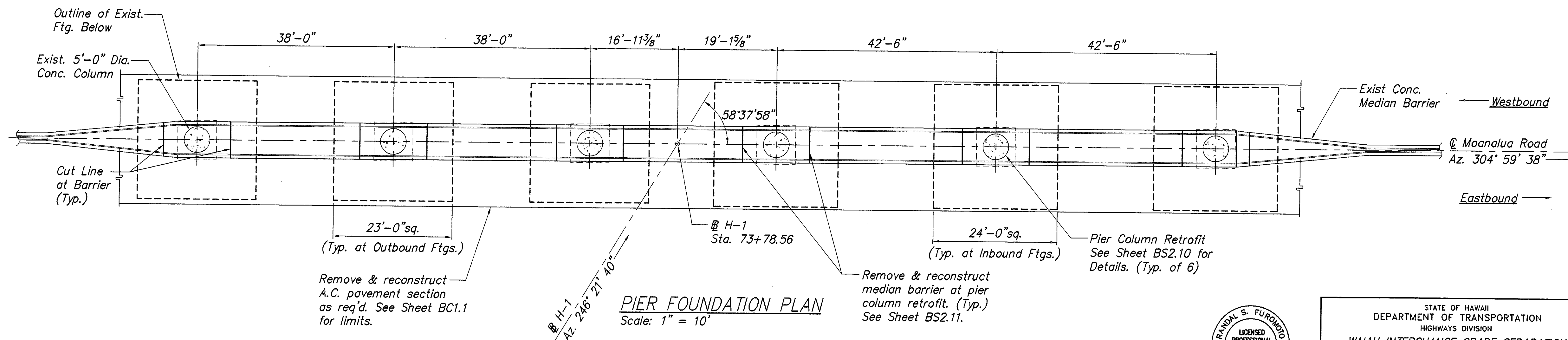
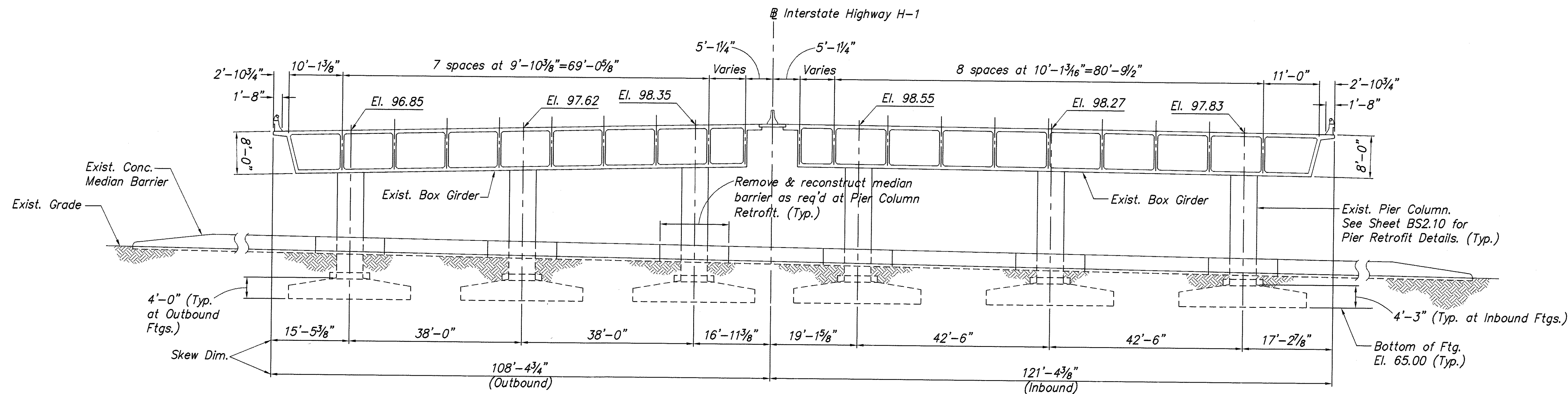


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April 30, 2004  
EXPIRATION DATE OF THE LICENSE

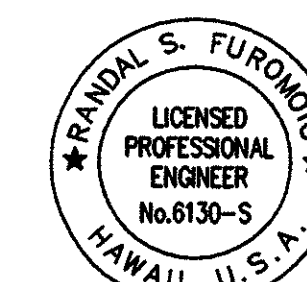
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
WAI'AU INTERCHANGE GRADE SEPARATION  
ABUTMENT RETROFIT DETAILS  
AUSTIN-BISHOP SEPARATION AND  
WAI'AU INTERCHANGE  
F.A.I. Proj. No. BR-H1-1(241)  
Scale: As Noted Date: Mar. 31, 2003  
SHEET No. BS2.8 OF 14 SHEETS



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-H1-1(241)	2003	814	816



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



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April 30, 2004  
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**WAI'AU INTERCHANGE GRADE SEPARATION  
PIER FOUNDATION PLAN  
& NORMAL SECTION AT PIER  
AUSTIN-BISHOP SEPARATION AND  
WAI'AU INTERCHANGE**

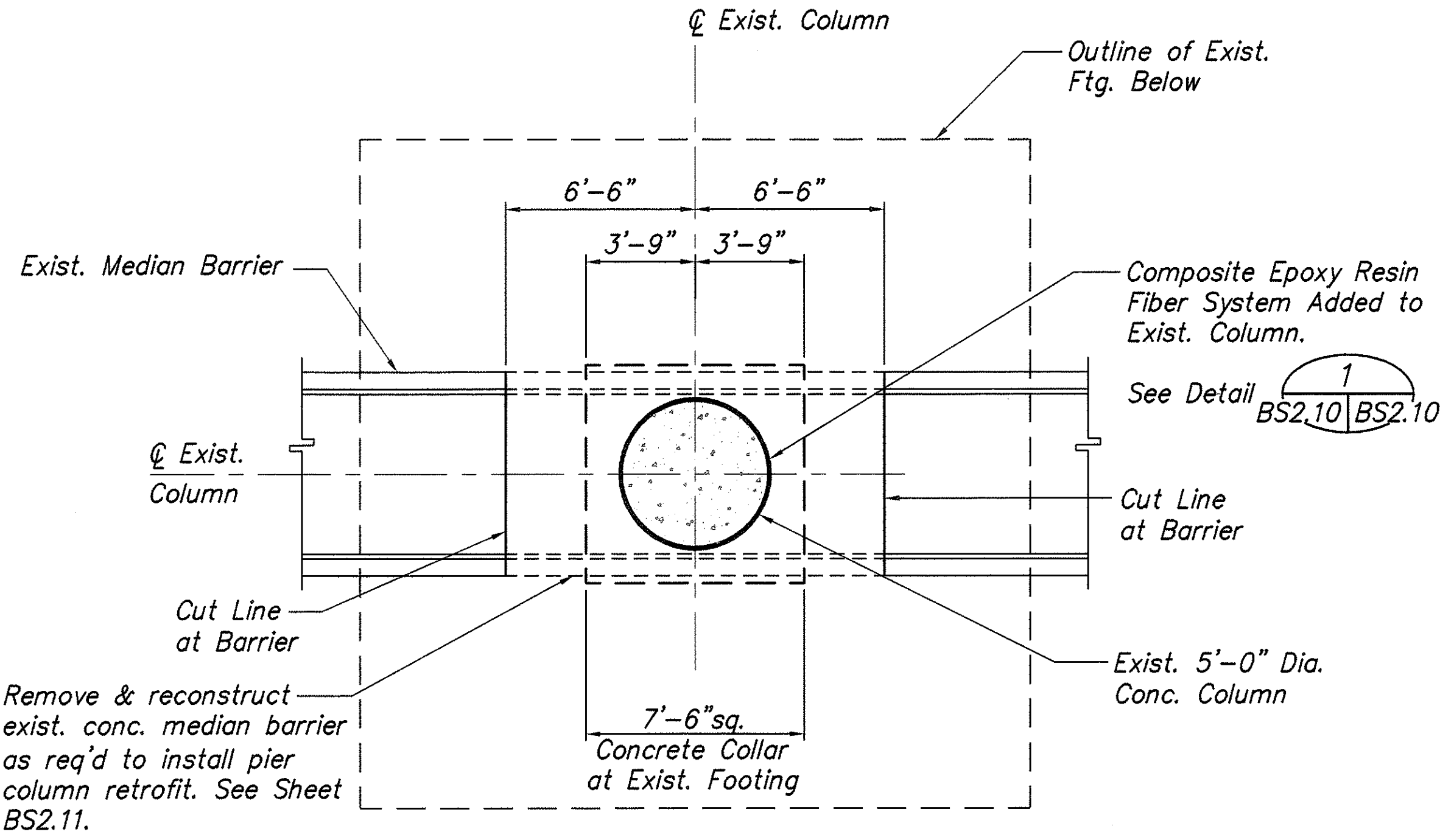
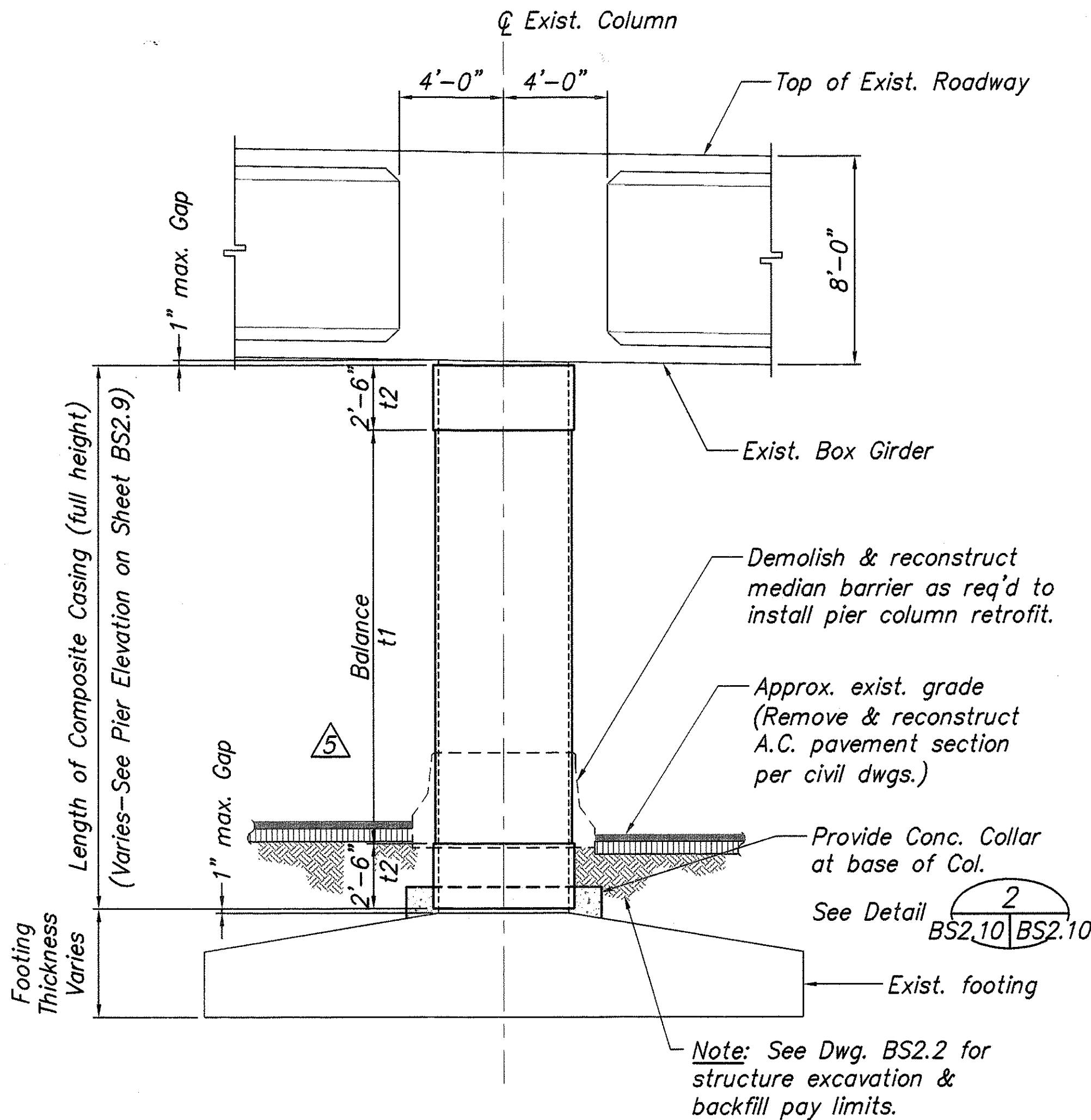
F.A.I. Proj. No. BR-H1-1(241)

Scale: As Noted Date: Mar. 31, 2003

SHEET No. BS2.9 OF 14 SHEETS

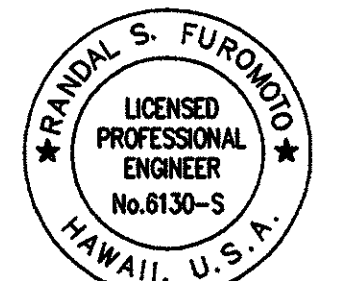
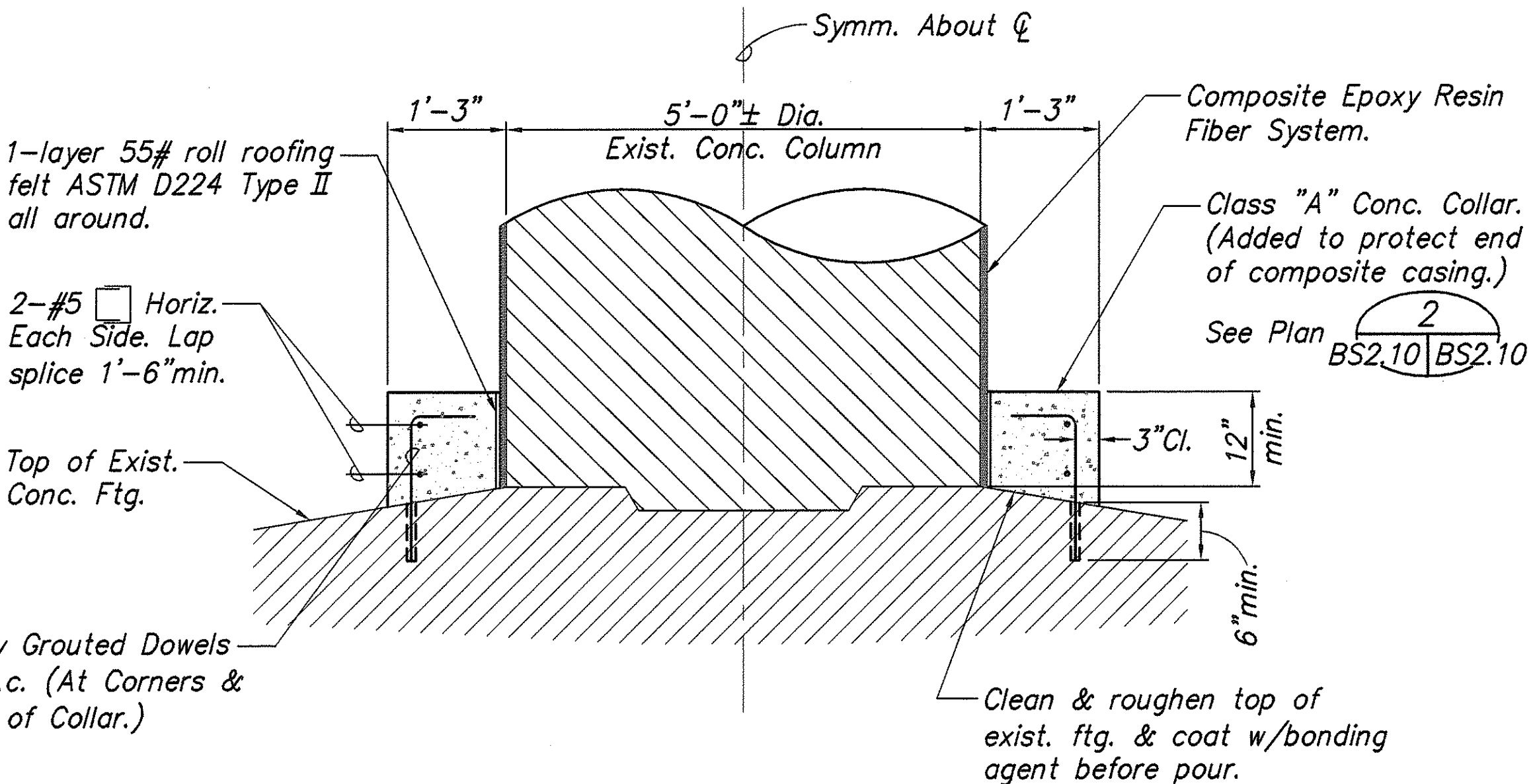
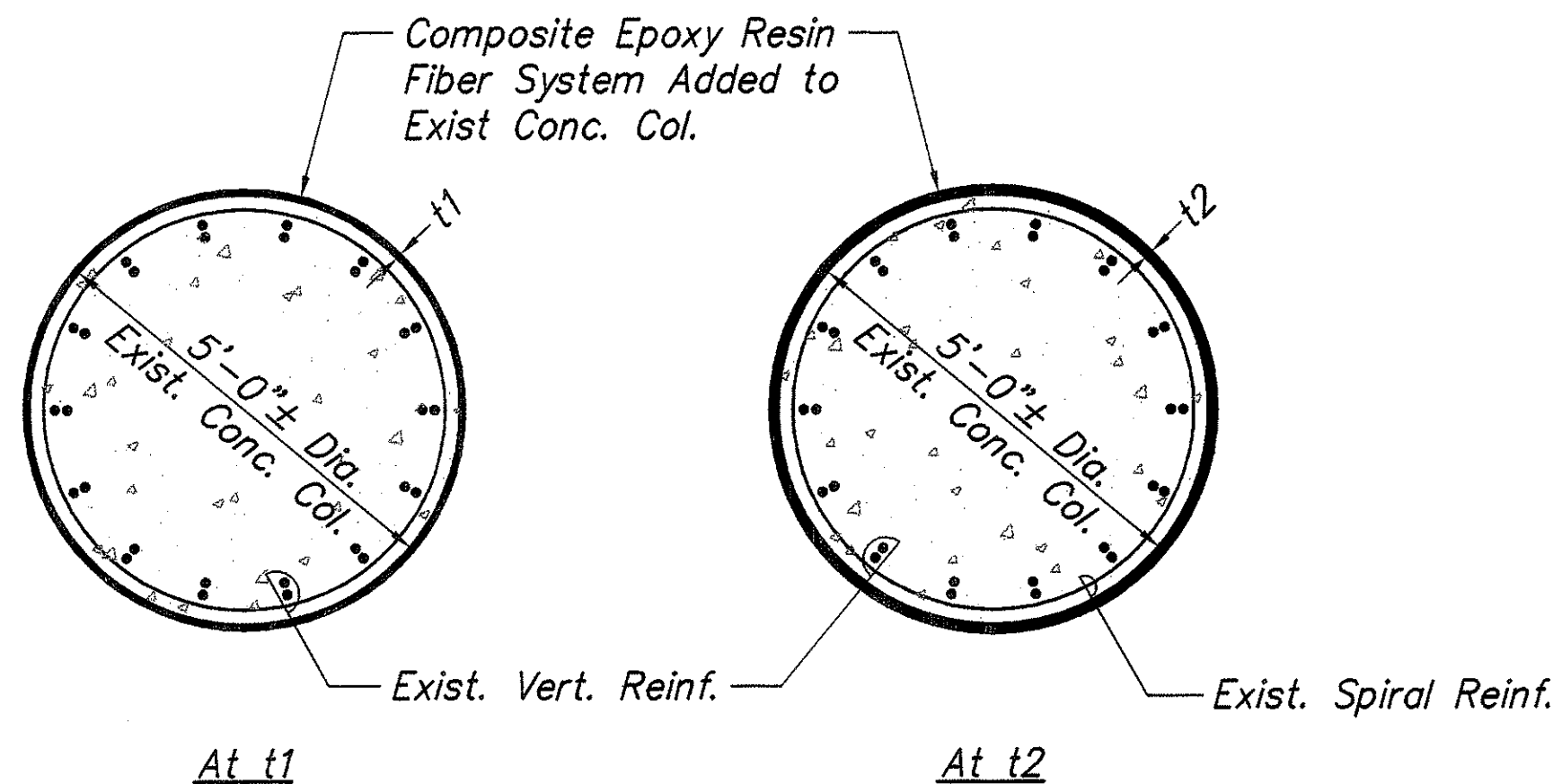
PIER RETROFIT NOTES:

1. All composite epoxy resin fiber system components shall conform to Section 660 of the Special Provisions and shall be either manufactured by the same manufacturer or as recommended by the system manufacturer.
2. The composite casing shall adhere firmly to all surfaces of the existing column. All contact surfaces shall be thoroughly cleaned and prepared as specified.
3. All cut edges of the composite casing shall be sealed with epoxy.
4. ~~The completed casing thickness shall be tapered evenly for the full length of the transition zone using epoxy.~~
5. Remove existing concrete median barrier and A.C. pavement section adjacent to the columns as required to install the Pier Column Retrofit. Contractor shall reconstruct the median barrier, furnish and install structure backfill, and reconstruct the A.C. pavement section to match original condition and as detailed on Sheet BS2.11.
6. Each composite section shall be wrapped using continuous E-glass fabric not less than 6" nor more than 54" in height. All wraps of continuous E-glass weave shall be terminated at a minimum of 12 inches past the starting point of the initial wrap. Subsequent wraps shall be started (butted) at the ending point of the last wrap.



E-GLASS (Min. Fiber Volume = 35%) Casing for 5'-0" Dia. Column		
Location Per Pier Col. Elevation	Min. Accumulated Composite Epoxy Resin-Fiber Thickness	* Design Strength of Composite in Primary Direction (kips/in.)
t1	0.5"	30.0
t2	0.7"	42.0

\* Design Strengths and Properties shall be the product of the Ultimate Strengths and Properties multiplied by a capacity reduction factor. The capacity reduction factor shall match the values provided in Table 1 of Section 660 of the Special Provisions.



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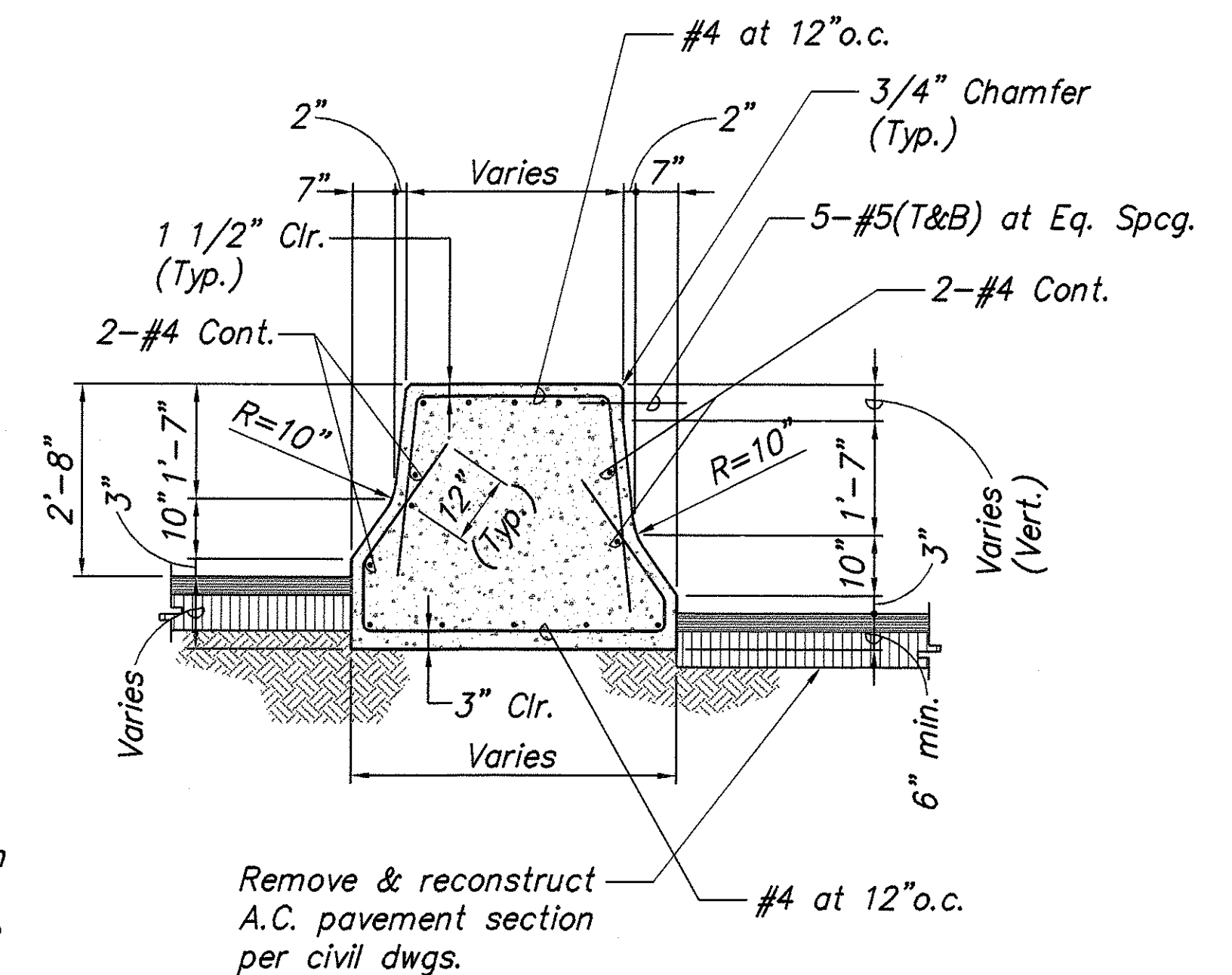
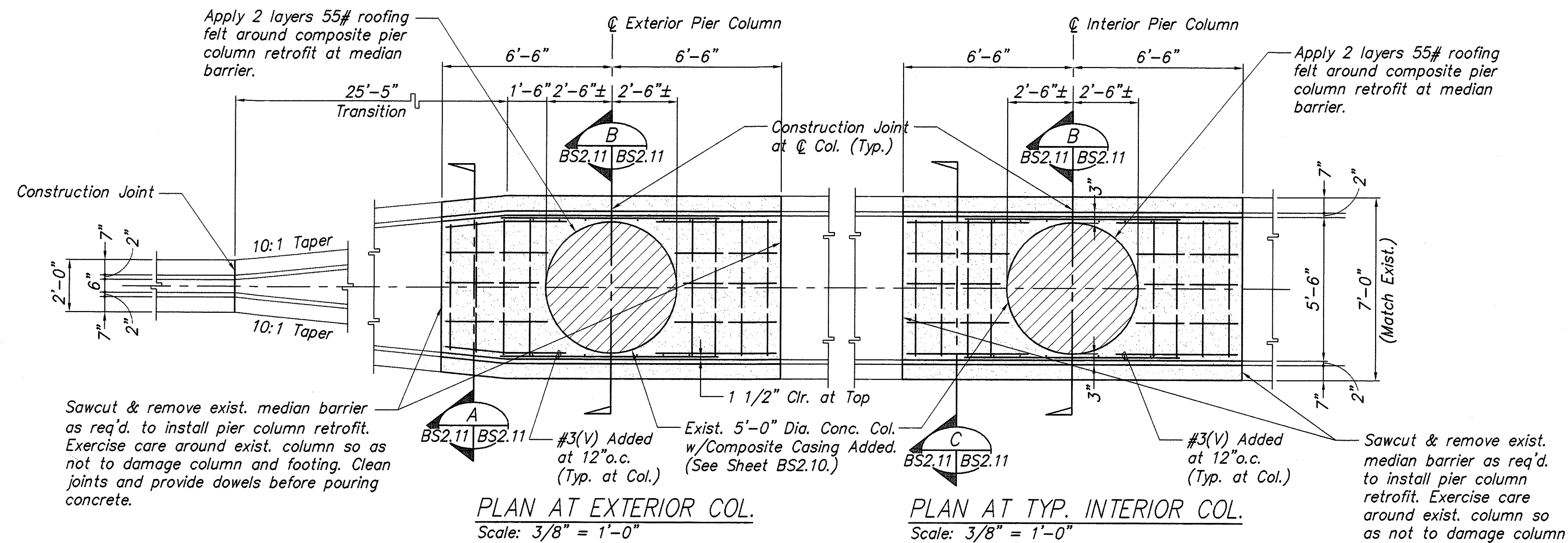
Signature: [Signature]  
Date: April 30, 2004  
Expiration Date: OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
WAI'AU INTERCHANGE GRADE SEPARATION  
PIER RETROFIT DETAILS  
AUSTIN-BISHOP SEPARATION AND  
WAI'AU INTERCHANGE  
F.A.I. Proj. No. BR-H1-1(241)  
Scale: As Noted Date: Mar. 31, 2003  
SHEET No. BS2.10 OF 14 SHEETS

DATE	REVISION
10/16/03	5 Omit transition of composite wrap. Revised width of fabric allowed & E-Glass Casing table.



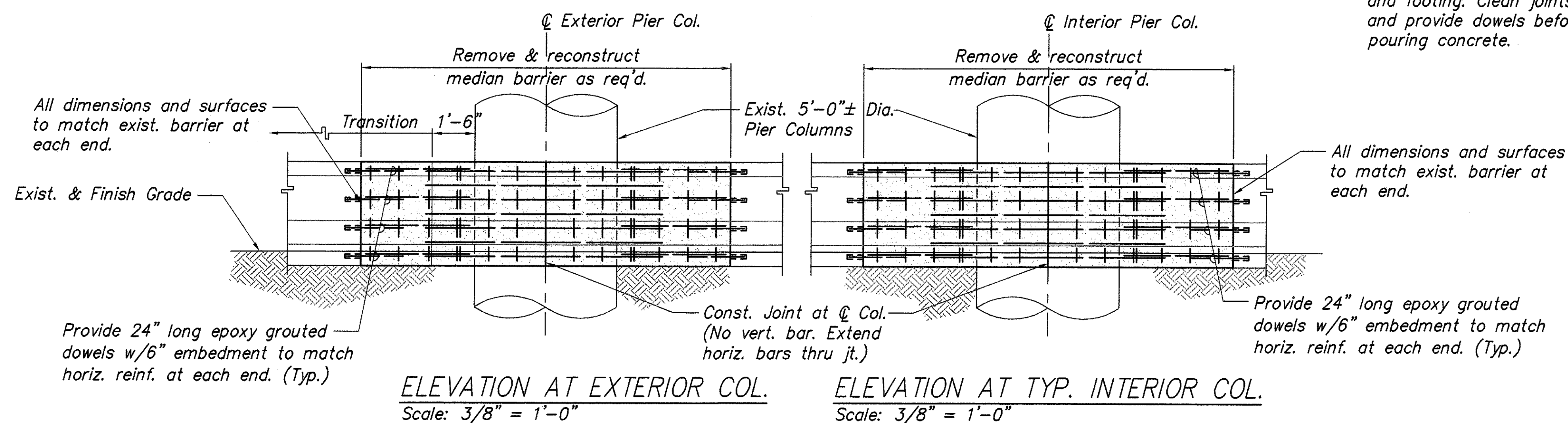
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-H1-1(241)	2003	816	816



SECTION AT TRANSITION

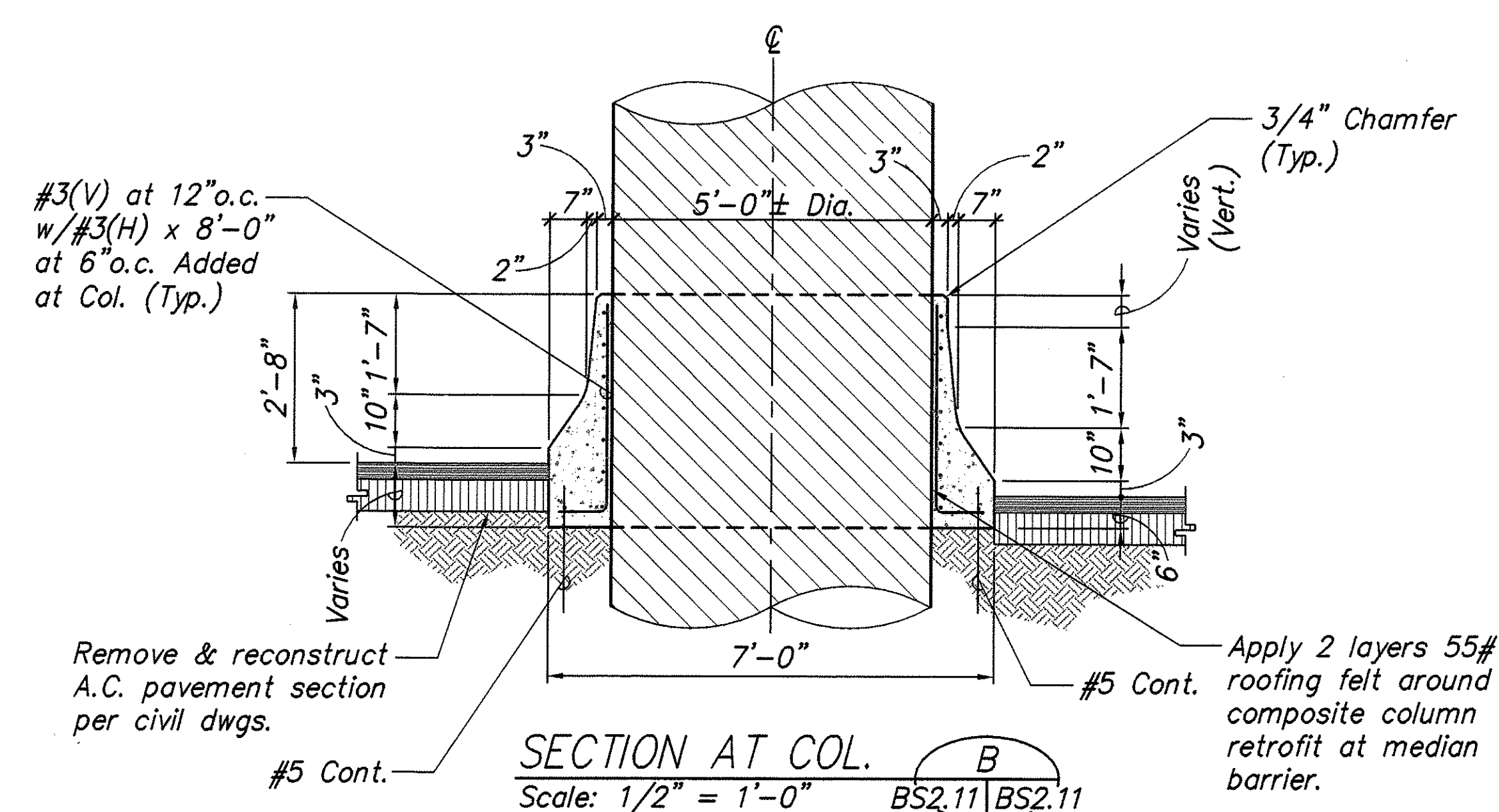
Scale:  $1/2" = 1'-0"$


BS2.11 | BS2.11

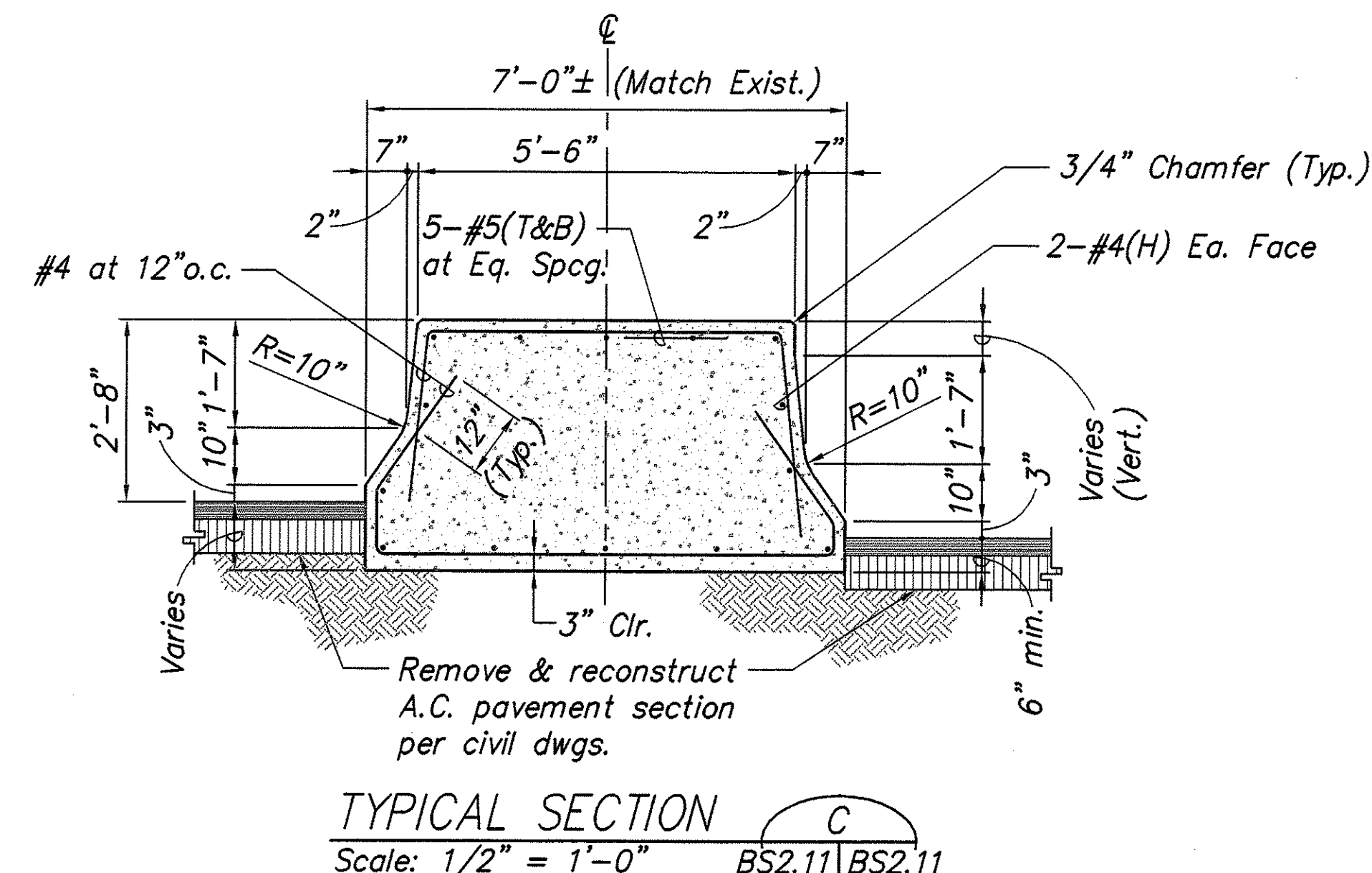


ELEVATION AT EXTERIOR COL.  
Scale:  $3/8" = 1'-0"$

ELEVATION AT TYP. INTERIOR COL.  
Scale:  $3/8" = 1'-0"$



SECTION AT COL.    
 Scale:  $1/2" = 1'-0"$

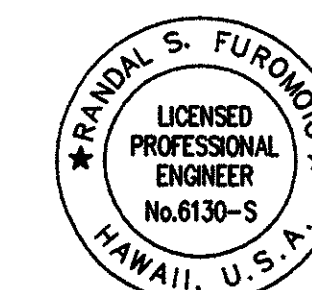


TYPICAL SECTION

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

BS2.11 | BS2.11

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



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April 30, 2004

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OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
WAI'AU INTERCHANGE GRADE SEPARATION  
MEDIAN BARRIER RECONSTRUCTION DETAILS  
AUSTIN-BISHOP SEPARATION AND  
WAI'AU INTERCHANGE  
F.A.I. Proj. No. BR-H1-1(241)

Scale: As Noted Date: Mar. 31, 2003  
SHEET No. BS2.11 OF 14 SHEETS