

SHT. NO.	TITLE
S1	INDEX, GENERAL NOTES AND ESTIMATED QUANTITIES
S2	LAYOUT PLAN AND LONGITUDINAL SECTION
S3	STRUCTURE REMOVAL DETAILS AND BUILD-UP DETAILS
S4	NORMAL DECK SECTION AND DECK PLAN
S5	FOUNDATION PLAN
S6	BORING LOG
S7	BORING LOG
S8	STRUCTURE EXCAVATION AND PAY LIMITS
S9	ABUTMENT NO. 1 PLAN AND ELEVATION
S10	ABUTMENT NO. 2 PLAN AND ELEVATION
S11	PARTIAL PLAN AND SECTIONS OF GRP AT END POST NO. 1
S12	PARTIAL PLAN AND SECTIONS OF GRP AT END POST NO. 2
S13	PARTIAL PLAN AND SECTIONS OF GRP AT END POST NO. 3
S14	PARTIAL PLAN AND SECTIONS OF GRP AT END POST NO. 4
S15	TYPICAL ABUTMENT SECTION AND TYPICAL END POST SECTION
S16	TYPICAL ABUTMENT PILE CAP SECTIONS AT WINGWALL NO. 1, NO. 2, NO. 3 & NO. 4
S17	TYPICAL PIER DETAILS AND TYPICAL EXPANSION AND HINGE DOWEL
S18	TYPICAL BEAM A, BEAM B, AND DECK JOINT DETAIL
S19	PRESTRESSED CONCRETE PLANK - PLAN AND ELEVATION
S20	CONCRETE RAILING, METAL GUARDRAIL AND BIKEWAY METAL RAILING
S21	SIDEWALK, CONCRETE RAILING AND METAL BIKEWAY RAILING
S22	TYPICAL - CONCRETE WATERMAIN BRACKET AND DECK DRAIN DETAILS
S23	PRESTRESSED CONCRETE PILE
S24	PILE BUILD-UP DETAILS
S25	METAL GUARDRAIL DETAILS
S26	GUARDRAIL TYPE 3 THRIE BEAM AND APPURTENANCES
ES1	WAIKAEA BRIDGE - ORIGINAL CONTRACT PLAN
ES2	WAIKAEA BRIDGE - ORIGINAL CONTRACT PLAN
ES3	WAIKAEA BRIDGE - ORIGINAL CONTRACT PLAN
ES4	WAIKAEA BRIDGE - ORIGINAL CONTRACT PLAN
ES5	WAIKAEA BRIDGE - ORIGINAL CONTRACT PLAN
ES6	WAIKAEA BRIDGE - ORIGINAL CONTRACT PLAN

Detail or section designation

Sheet number section is cut or detail location

Sheet number detail is drawn on

<i>B</i> = <i>Bal.</i>	-Balance	<i>Exc.</i>	-Excavation
<i>Bm.</i>	-Beam	<i>F</i> = <i>Fin.</i>	-Finish
<i>Brg.</i>	-Bearing	<i>Ftg.</i>	-Footing
<i>Beg.</i>	-Begin	<i>FF</i>	-Front face
<i>Bot., B</i>	-Bottom	<i>G</i> = <i>Galv.</i>	-Galvanize

D = Det. *-Detail*
Dim. *-Dimension* *J = Jt.* *-Joint*

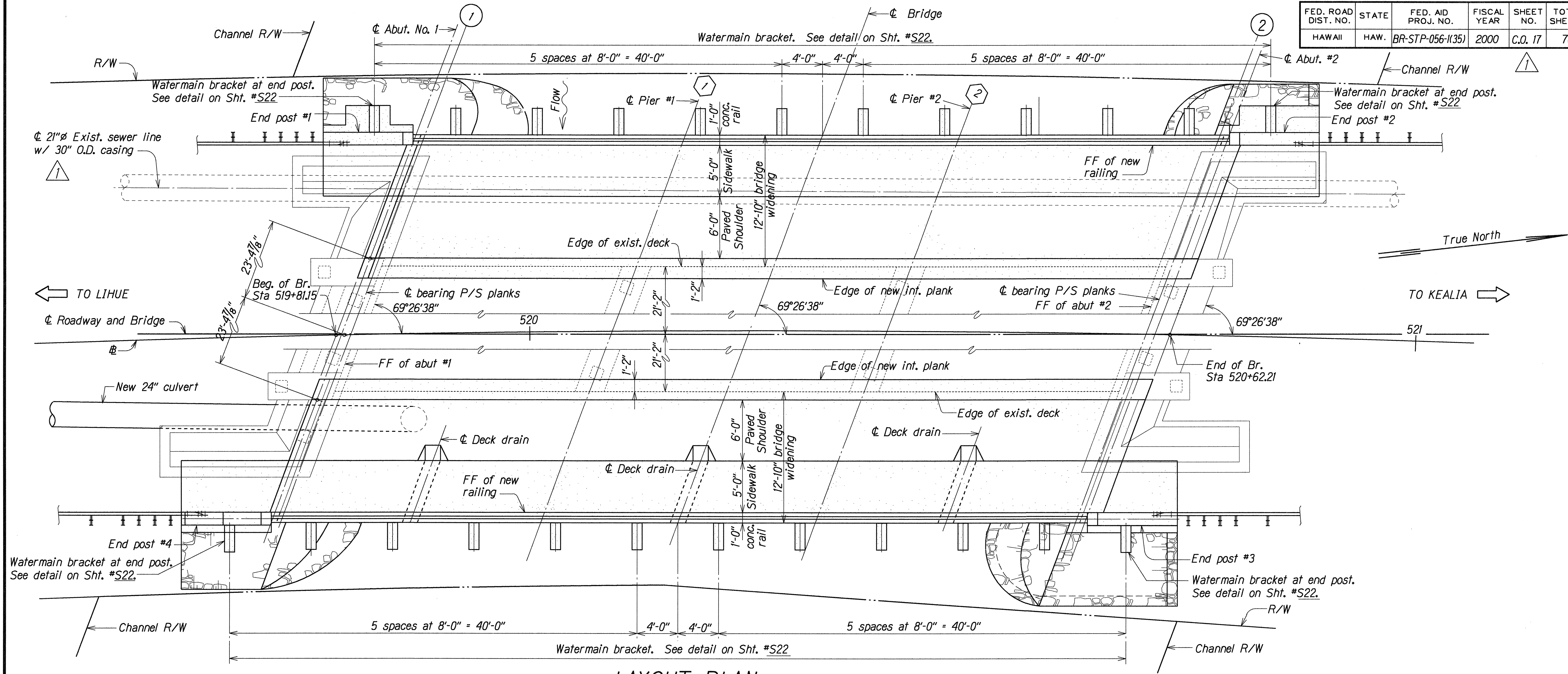
W = WW -Wingwall
WP -Working point

1. Refer to Standard Plans for additional details and notes not covered by details and typical drawings.
2. All items noted incidental will not be paid for separately.
3. The Contractor shall verify all grades and dimensions before commencing with any work.
4. The Contractor shall verify the locations of all existing utility lines near bridges and notify their respective owners before commencing with work.

ITEM NO.	ITEM	UNIT	QUANTITIES
			TOTAL
202.0440	Removal of Structures	Lump Sum	Lump Sum
206.6100	Structure Excavation for Bridge and Wingwalls	Cu. Yd.	57
206.7201	Structure Backfill for Bridge Abutments and Wingwalls	Cu. Yd.	32
503.1090	Concrete in Bridge and Wingwalls	Lump Sum	(137 c.y.)
504.7411	Prestressed Concrete Plank (7'-0" wide, 16" depth)	Sq. Ft.	2240
505.0410	Type I Prestressed Concrete Piles Furnished	Lin. Ft.	2155
505.4100	Type I Prestressed Concrete Piles Driven	Lin. Ft.	1995
505.6000	Predrilled Holes for Type I Prestressed Concrete Piles	Lin. Ft.	50
507.3600	Metal Bridge Railing	Lin. Ft.	160
602.0091	Reinforcing Steel for Bridge	Lump Sum	(22,110 lb)
606.3221	Guardrail Type 3 Thrie Beam on Steel Post	Lin. Ft.	115
612.0200	Grouted Rubble Paving	Cu. Yd.	80

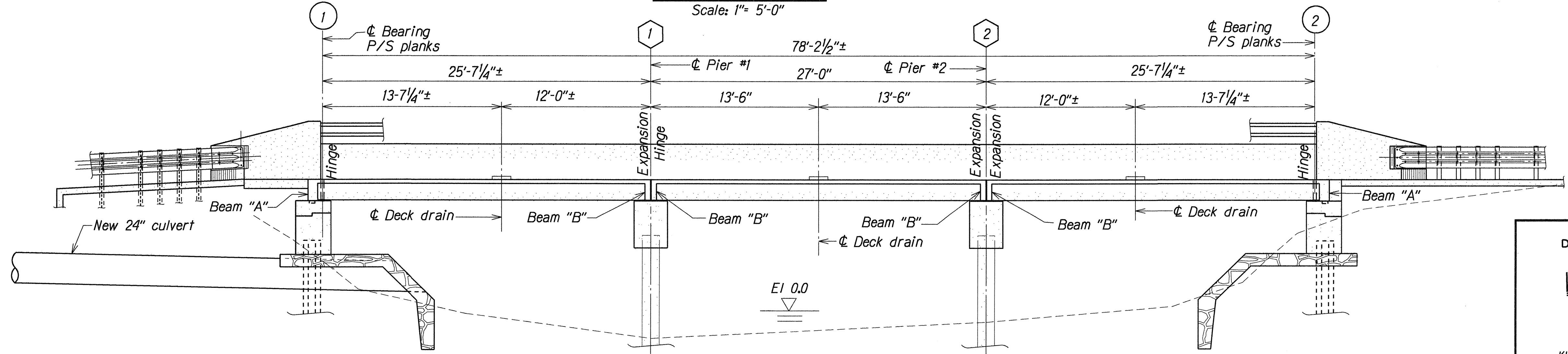
16

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-STP-056-1(35)	2000	C.O. 17	70



LAYOUT PLAN

Scale: 1" = 5'-0"



LONGITUDINAL SECTION OF BRIDGE WIDENING

Scale: 1" = 5'-0"

ORIGINAL PLAN	DATE: AUG 1999
DESIGNED BY: JFU	DESIGNED BY: JFU
QUANTITIES BY: JFU	QUANTITIES BY: JFU
CHECKED BY: JFU	CHECKED BY: JFU

DATE	REVISION
3/15/01	Corrected sewer line location on Layout Plan.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WAIKAEA BRIDGE WIDENING

LAYOUT PLAN

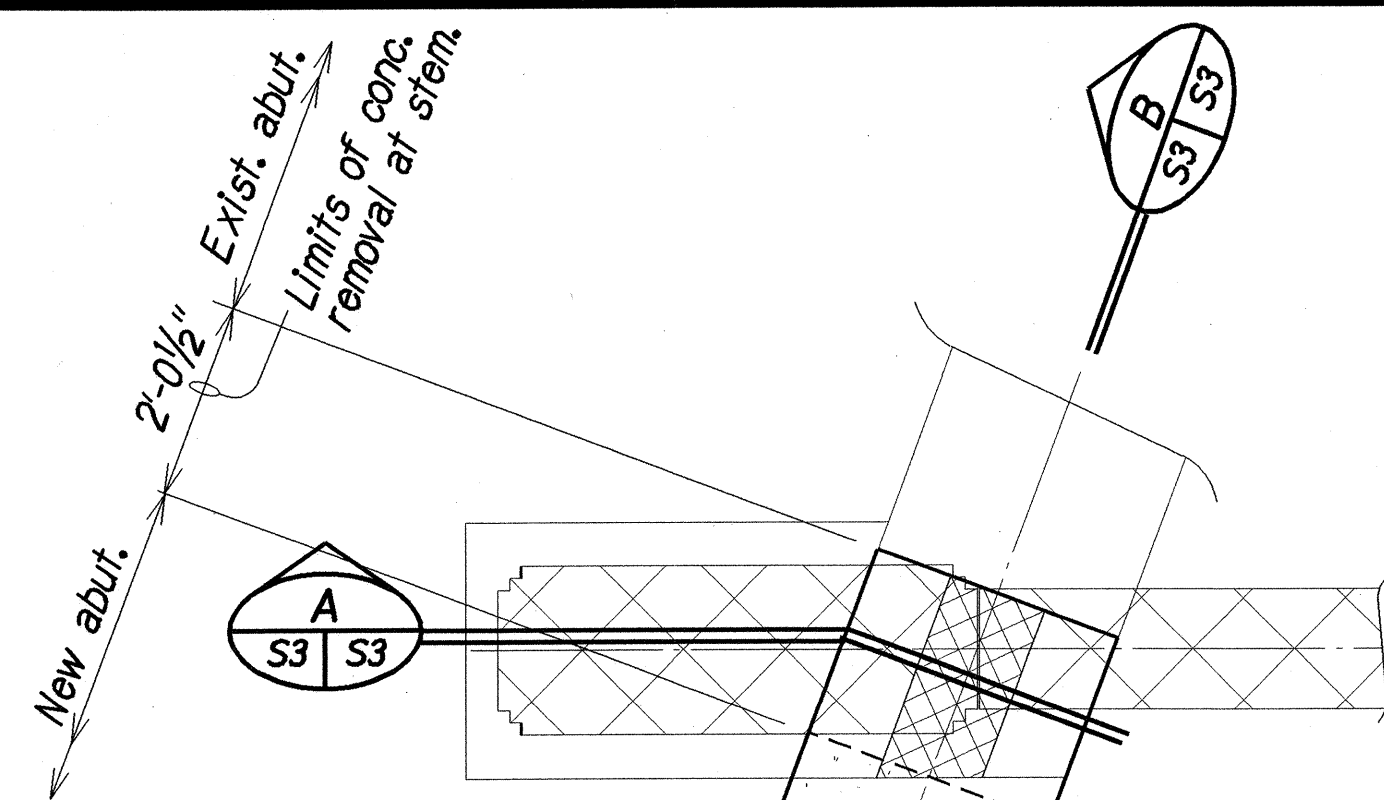
LONGITUDINAL SECTION

KUHIO HIGHWAY-WAIKAEA BRIDGE WIDENING
Fed. Aid Proj. No. BR-STP-056-1(35)

Scale: As Noted Date: Aug. 1999

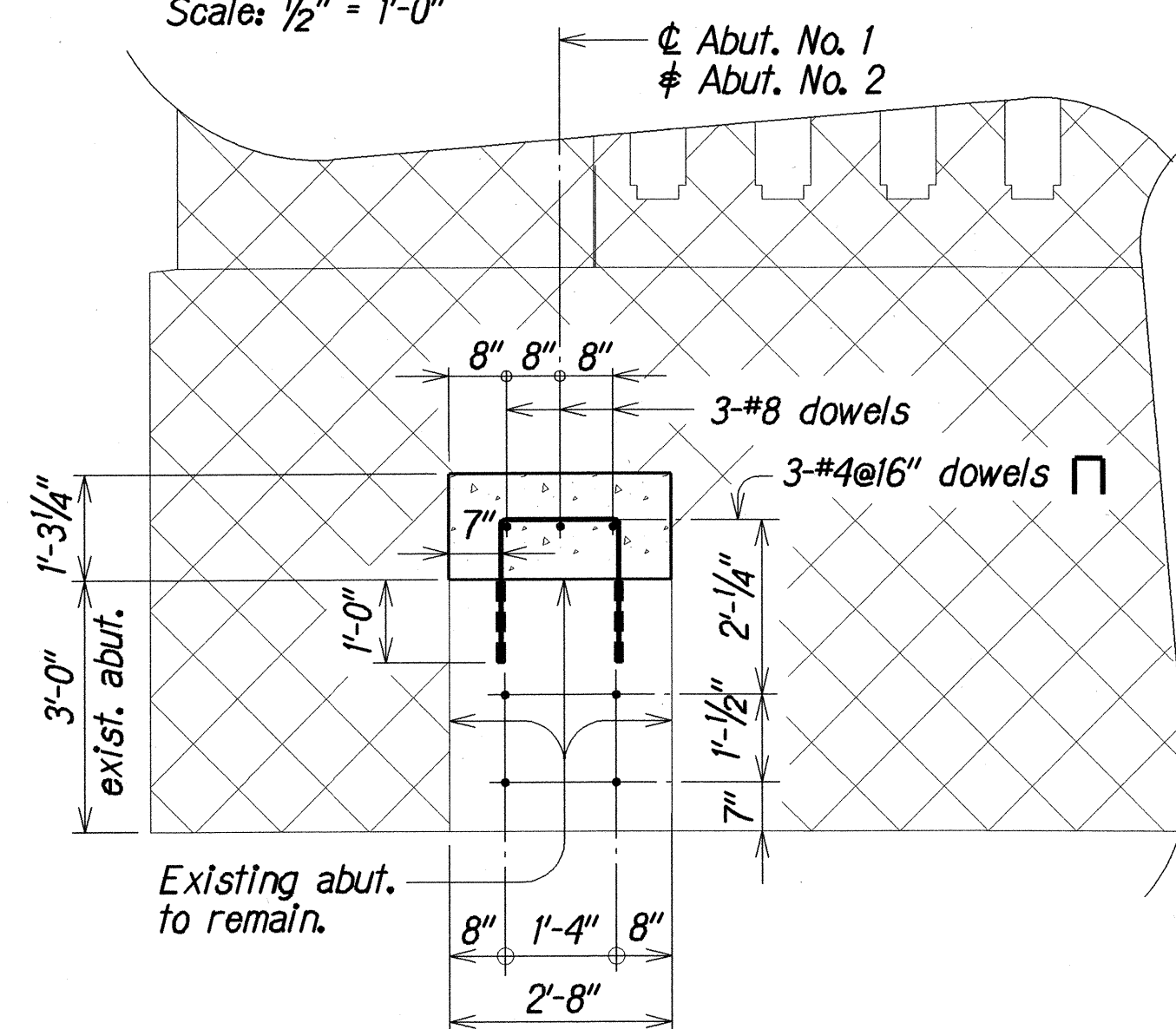
SHEET No. S2 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-STP-056-1(35)	2000	C.O. 18	70



PLAN

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



TYPICAL SECTION A

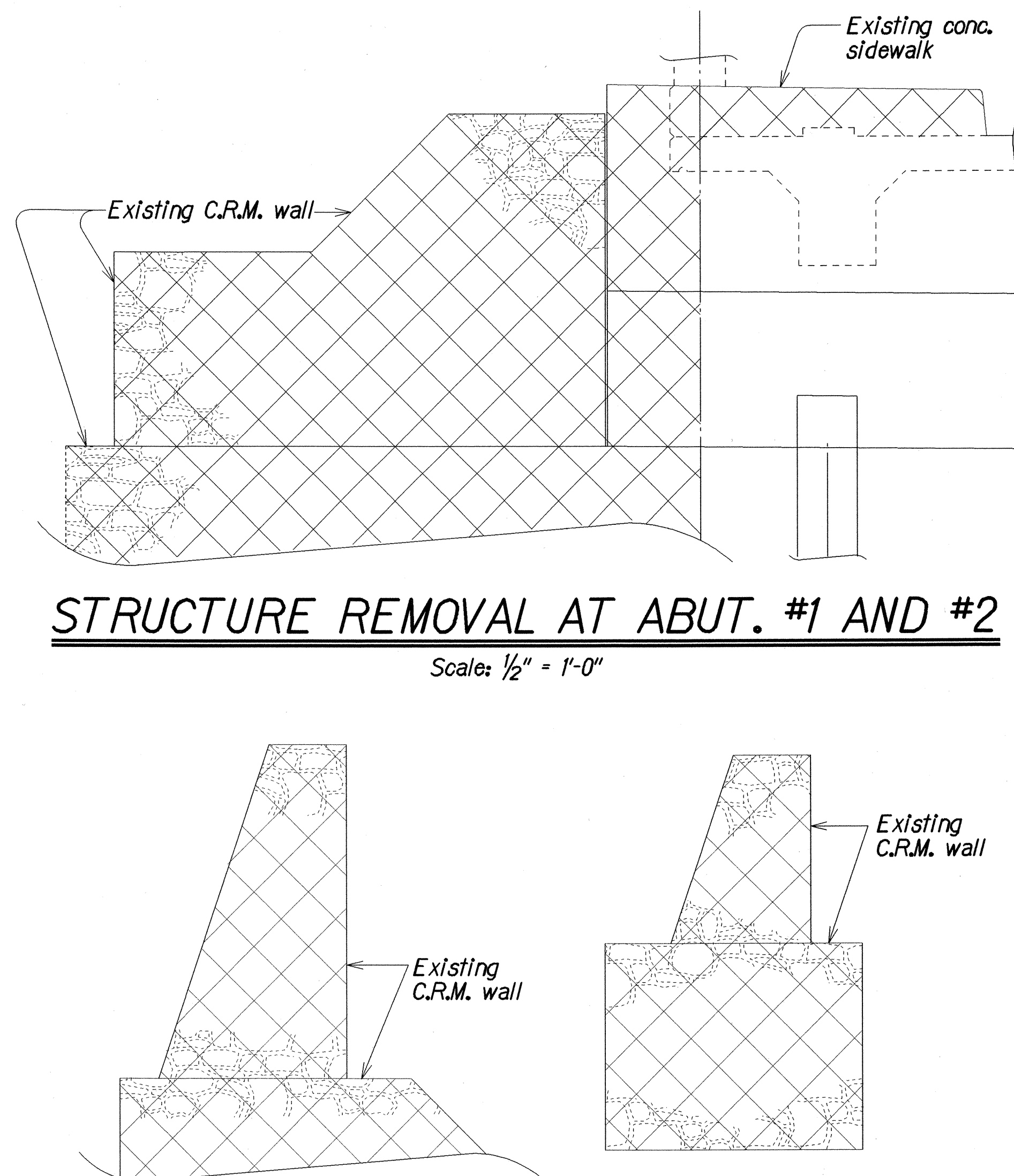
Scale: 1/2" = 1'-0"

NOTE:

Detail is shown for Abut. No. 1 at end post #4. Details are similar for Abut. No. 1 at end post #1 and Abut. No. 2 at end posts #2 and #3.

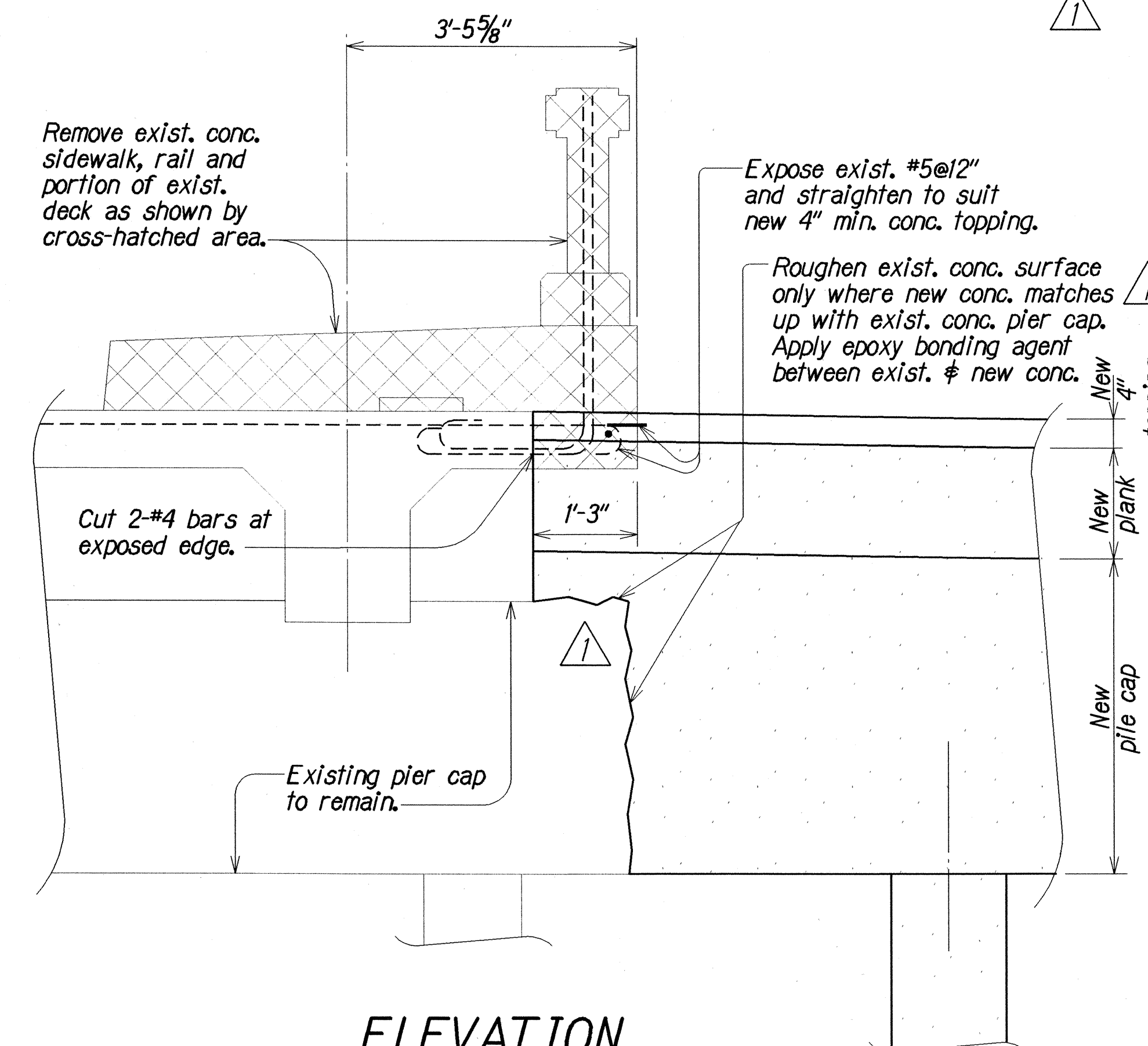
STRUCTURE REMOVAL AT ABUT. #1 AND #2

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



ELEVATION

Scale: 3/4" = 1'-0"

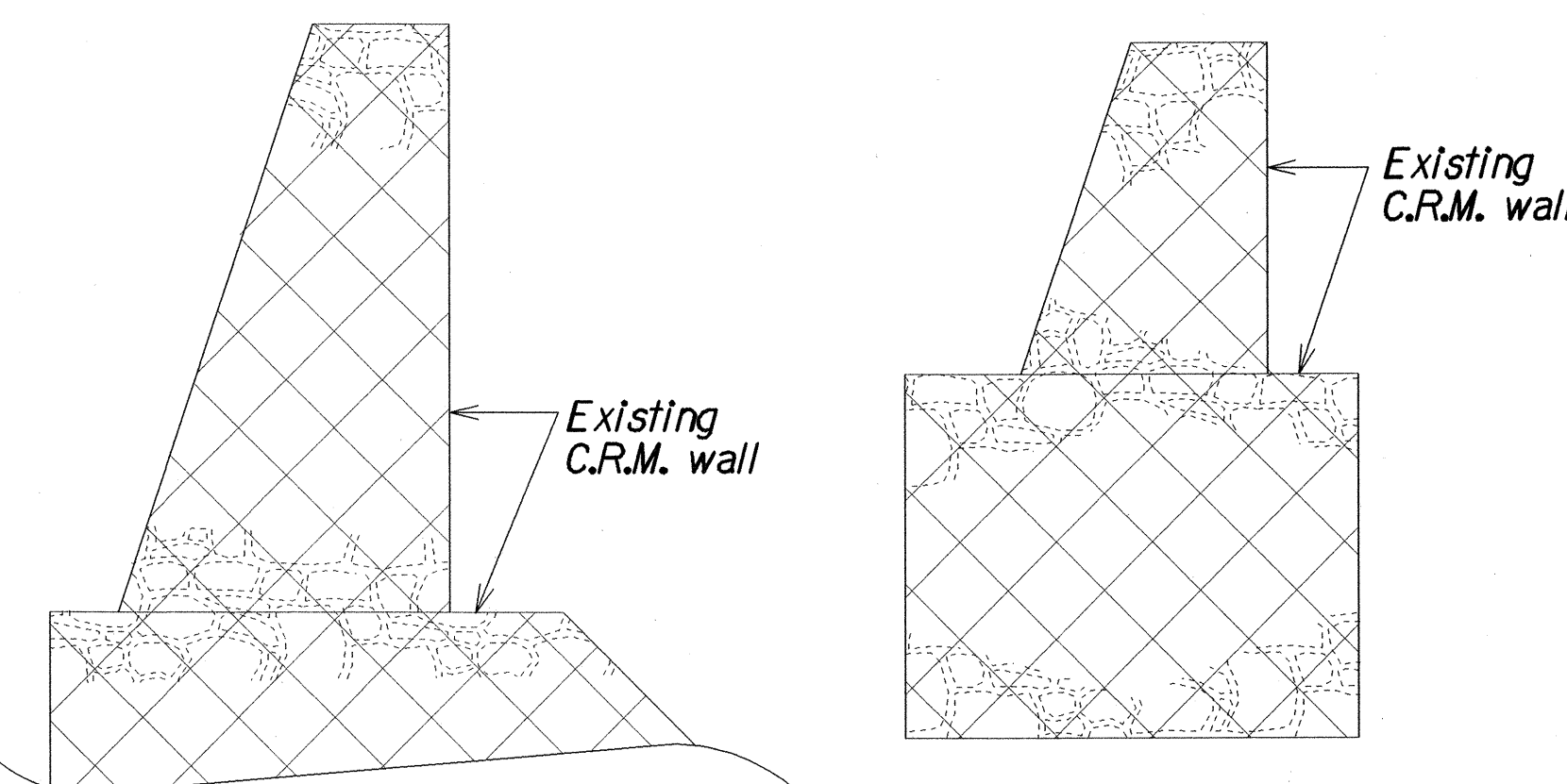


NOTE:

1. For additional structure removal details, refer to original Contract Drawings shts. Nos. ES-1 thru ES-6.

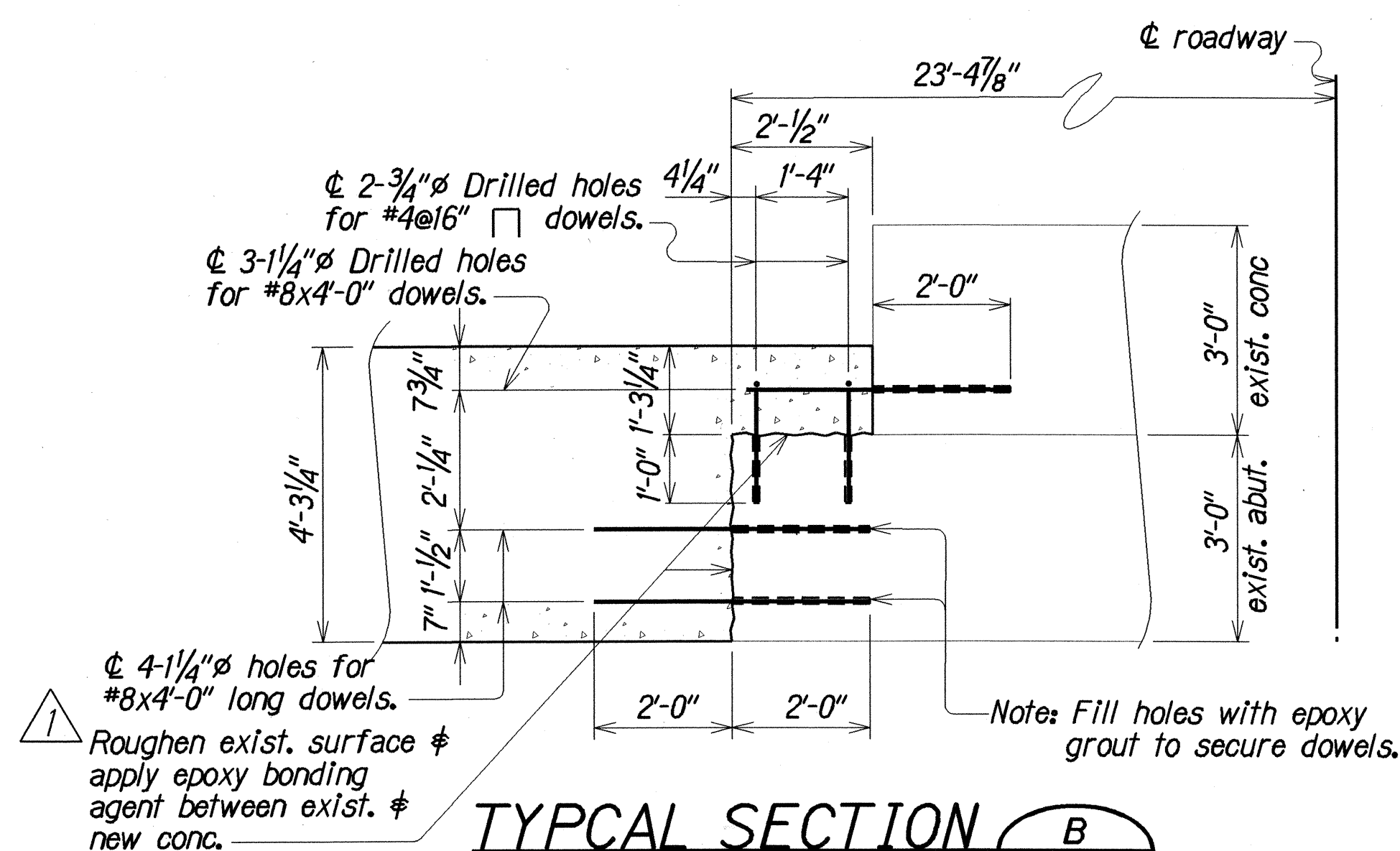
AT C.R.M. WALLS

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



TYPICAL SECTION B

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



1. Roughen exist. surface & apply epoxy bonding agent between exist. & new conc.

Note: Fill holes with epoxy grout to secure dowels.

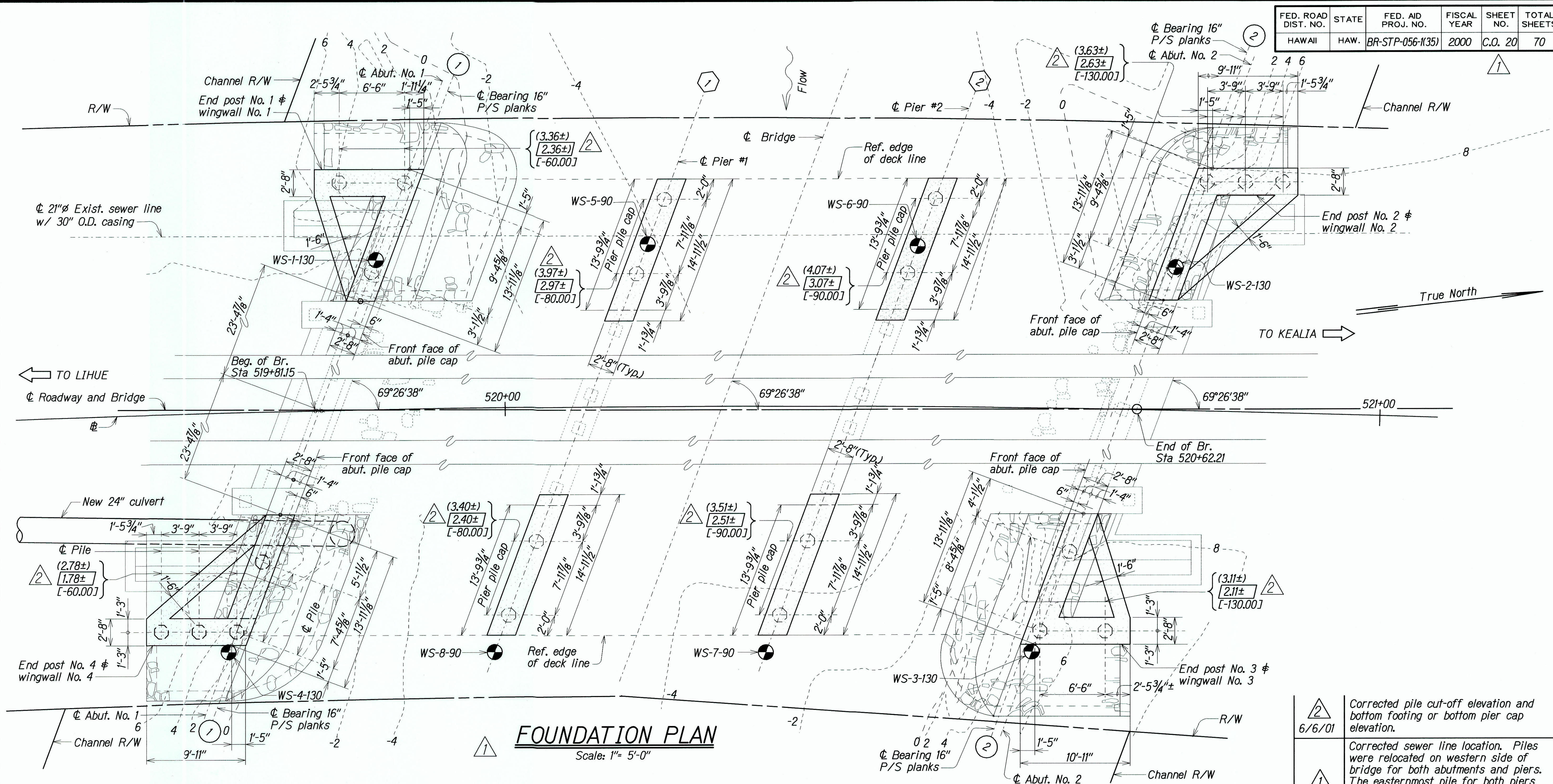
SURVEY PLOTTED BY	CO	DATE	AUG 1999
DRAWN BY	JFL	DESIGNED BY	JFL
NOTE BOOK	JFL	QUANTITIES BY	JFL
CHECKED BY	JFL		

6/6/01	Added note to roughen exist. surface and to apply epoxy bonding agent between exist. and new conc. Label moved for clarity.
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION WAIKAEA BRIDGE WIDENING STRUCTURE REMOVAL DETAILS AND BUILD-UP DETAILS KUHIO HIGHWAY-WAIKAEA BRIDGE WIDENING Fed. Aid Proj. No. BR-STP-056-1(35) Scale: As Noted Date: Aug, 1999	

SHEET No. S3 OF 26 SHEETS

C. O. 18

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-STP-056-1(35)	2000	C.O. 20	70



FOUNDATION PLAN
Scale: 1"= 5'-0"

LEGEND FOR AS-BUILT POSTINGS	
	Squiggly line for as-built deletion
	Double line for as-built deletion
Roadway	Text for as-built posting

LEGEND	
(00.00)	= Pile cut-off elevation
[00.00]	= Bottom footing or bottom pier cap elevation
[00.00]	= Pile tip elevation
	= Boring

- NOTES:**
- (4) piles at Abutment No. 2 at End Post 2 shall be pre-drilled to elevation -5.0 ft.
 - Structural Foundation Report for Waikaea Bridge Widening, Project No. BR-056-1(35) is Report No. K-45
 - See General Note 3 on sht. #S1.

NOTE:
SEE SHT. NO. C.O. 20S-1
FOR "AS-BUILT" PILE
LOCATION

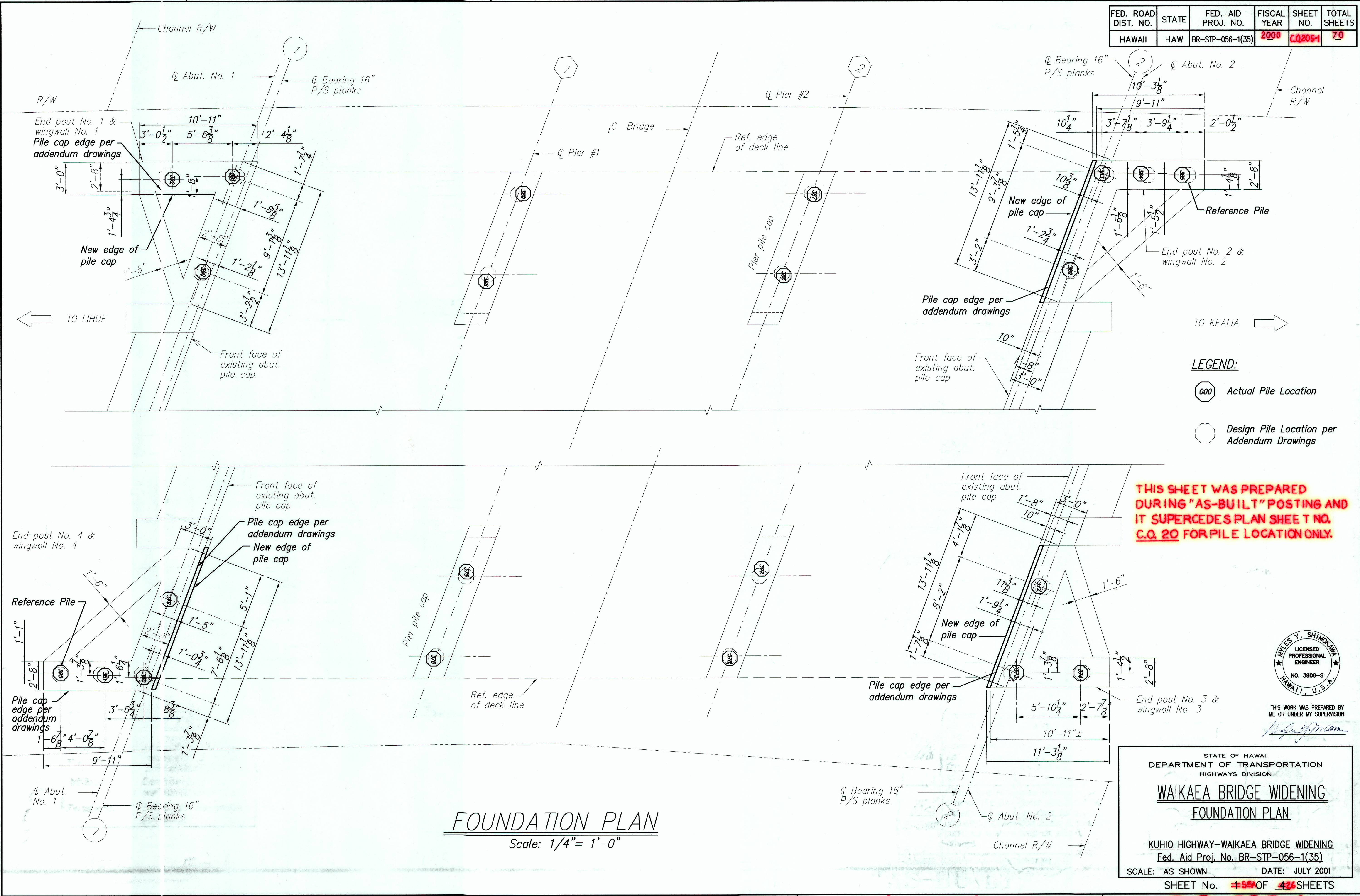
	Corrected pile cut-off elevation and bottom footing or bottom pier cap elevation.
	Corrected sewer line location. Piles were relocated on western side of bridge for both abutments and piers. The easternmost pile for both piers on the eastern side of the bridge were relocated. Dimensions were revised to accommodate changes. Dimension lines, labels and patterns were moved or eliminated for clarity.

DATE	REVISIONS
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
WAIKAEA BRIDGE WIDENING
FOUNDATION PLAN
KUHO HIGHWAY-WAIKAEA BRIDGE WIDENING
Fed. Aid Proj. No. BR-STP-056-1(35)

Scale: As Noted Date: Aug, 1999

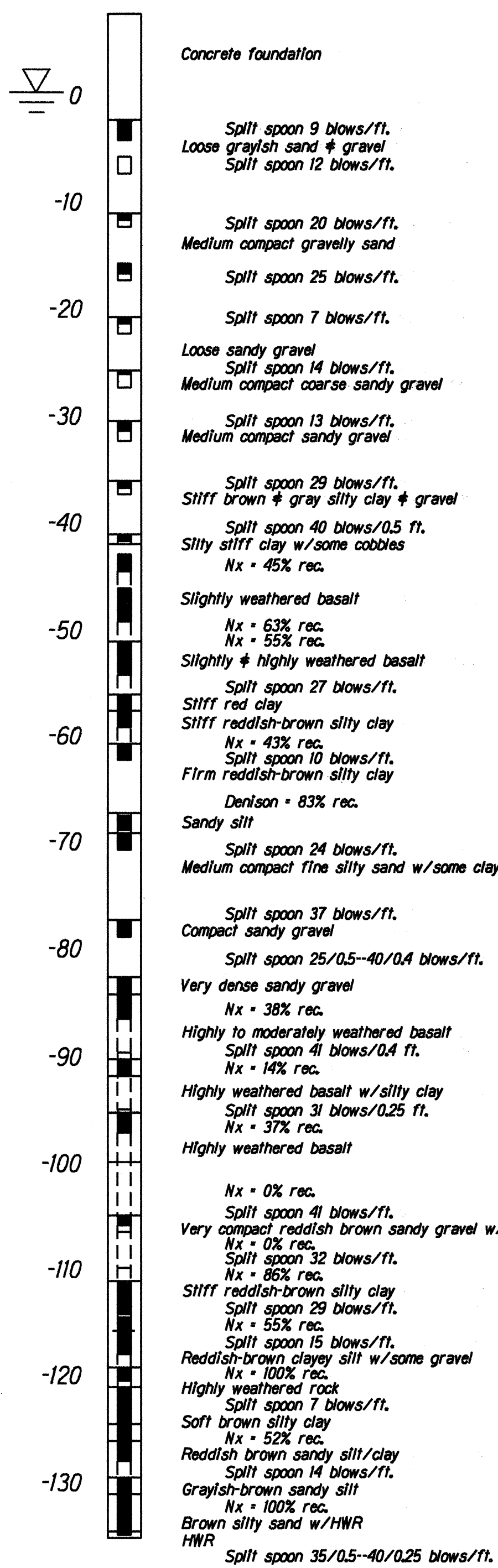
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	BR-STP-056-1(35)	2000	C.O. 20S-1	70



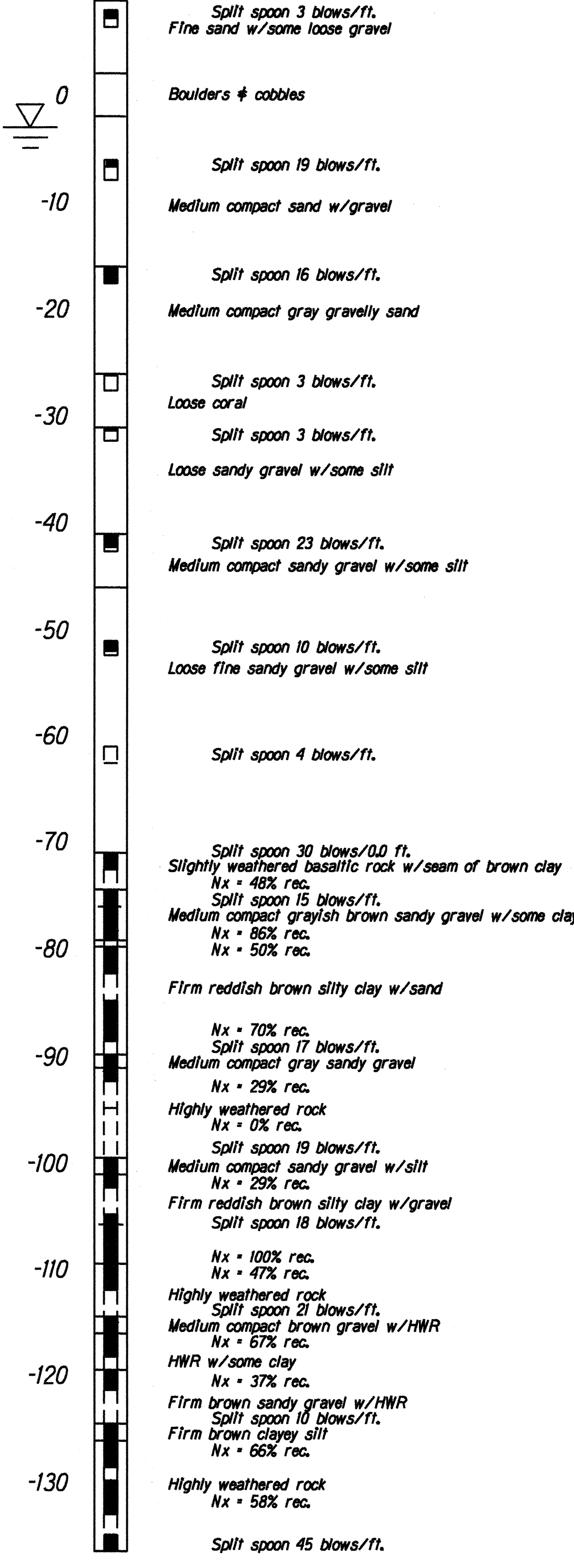
Z:\2001\1004\WAIKAEA BRIDGE WIDENING\07-30-00\WBS1.dwg, 7/30/2000 5:43:21 PM, C:\WIN95\SYSTEM\HELP\HELP.DOC

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-STP-056-1(35)	2000	21	70

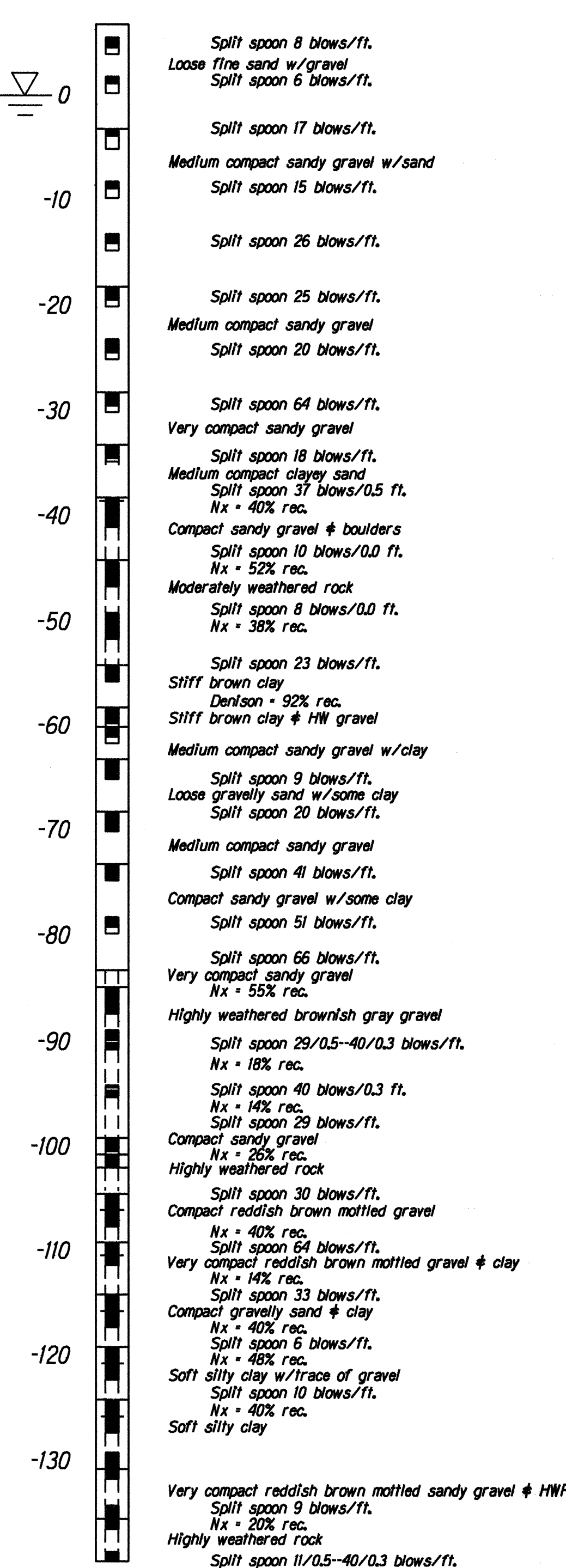
WS-1
Elev. 6.94



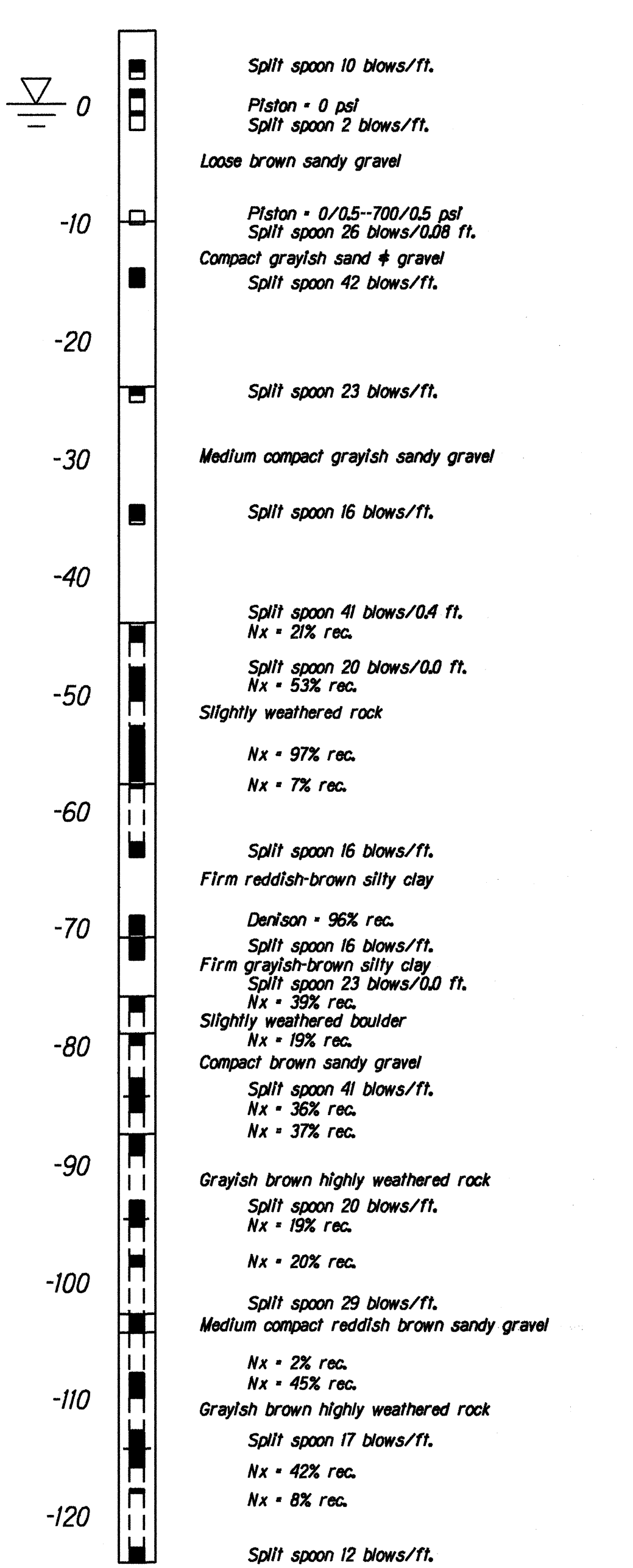
WS-2
Elev. 8.93



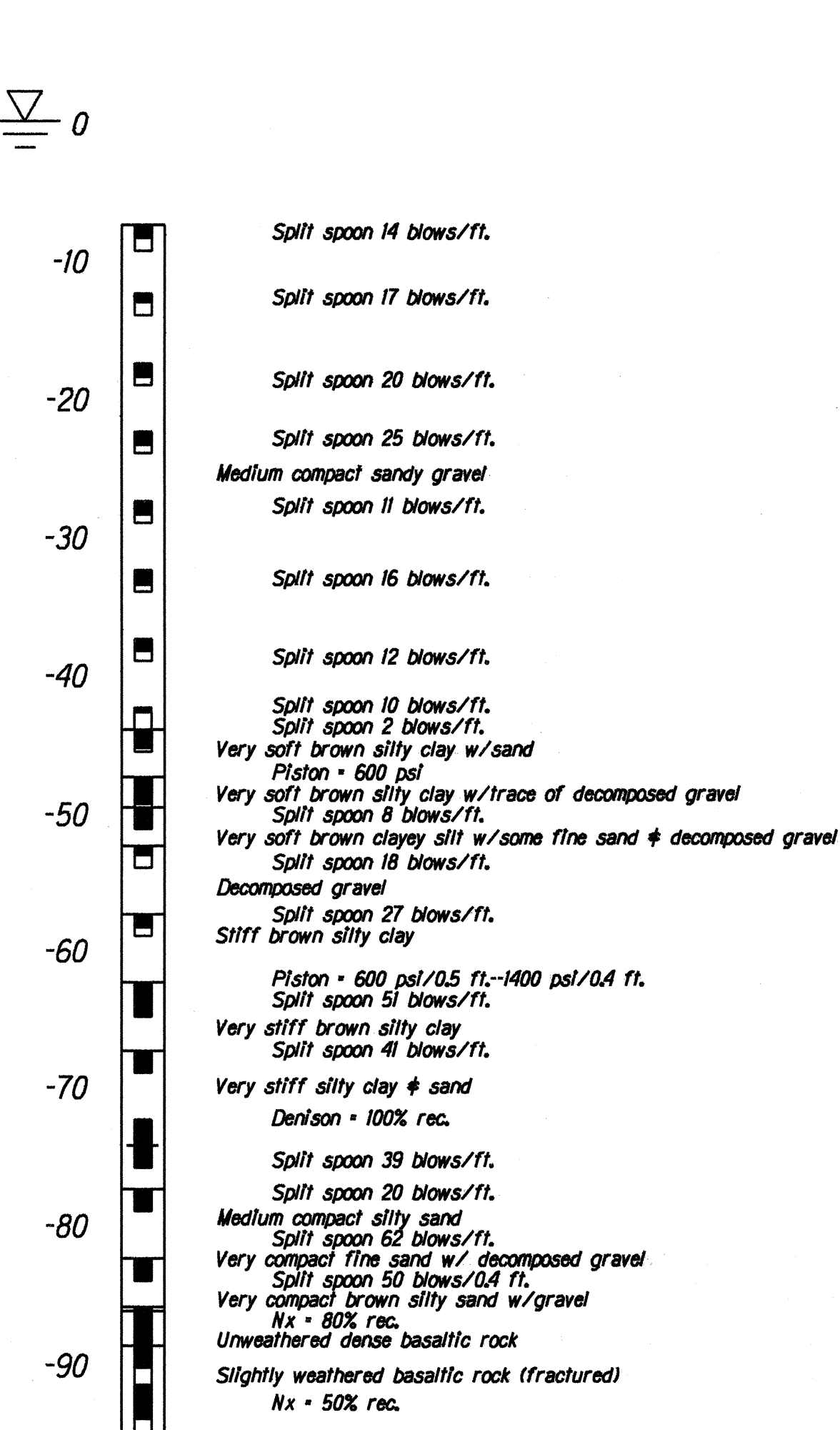
WS-3
Elev. 6.33



WS-4
Elev. 6.08



WS-5
Elev. -7.5

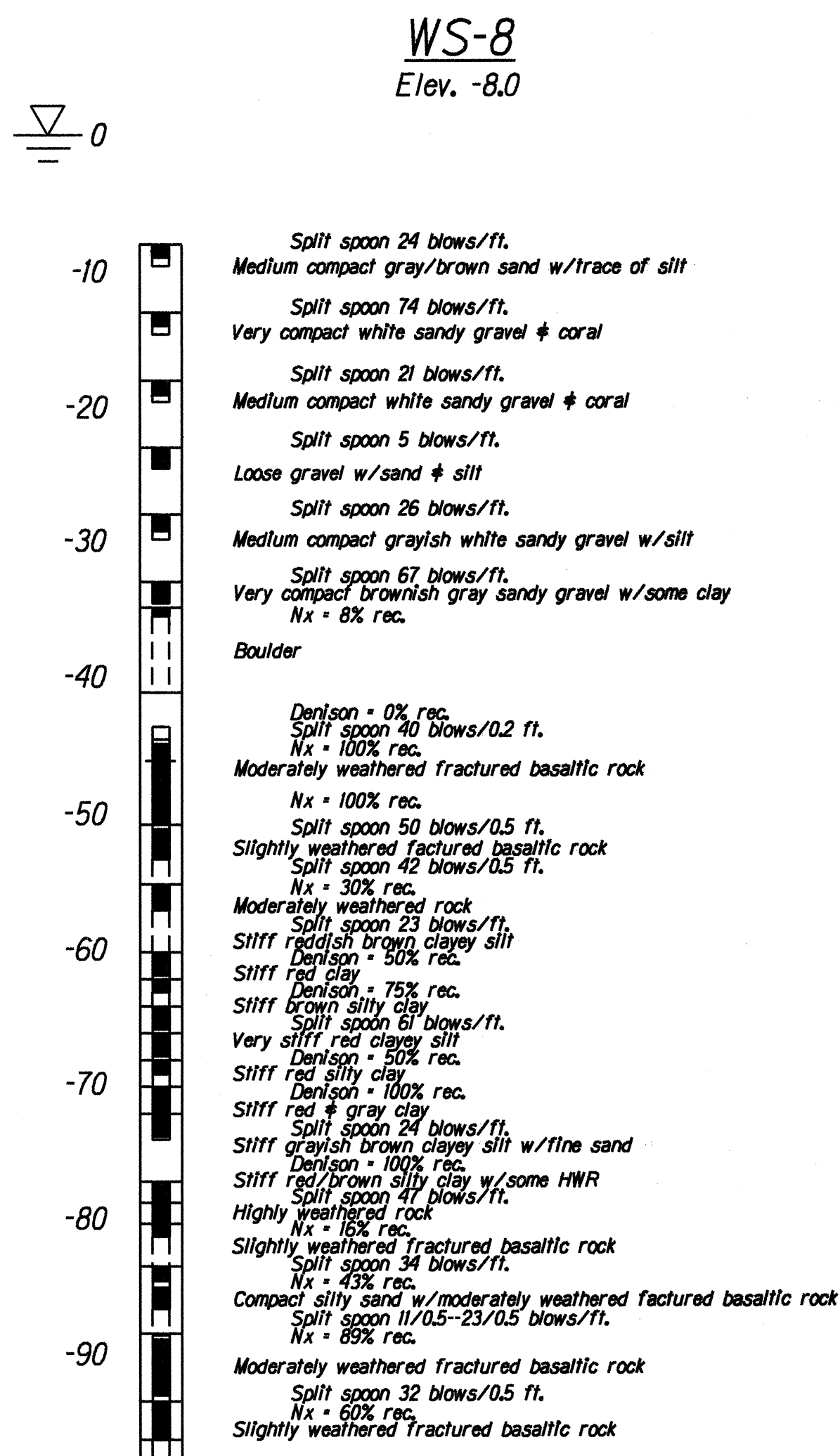
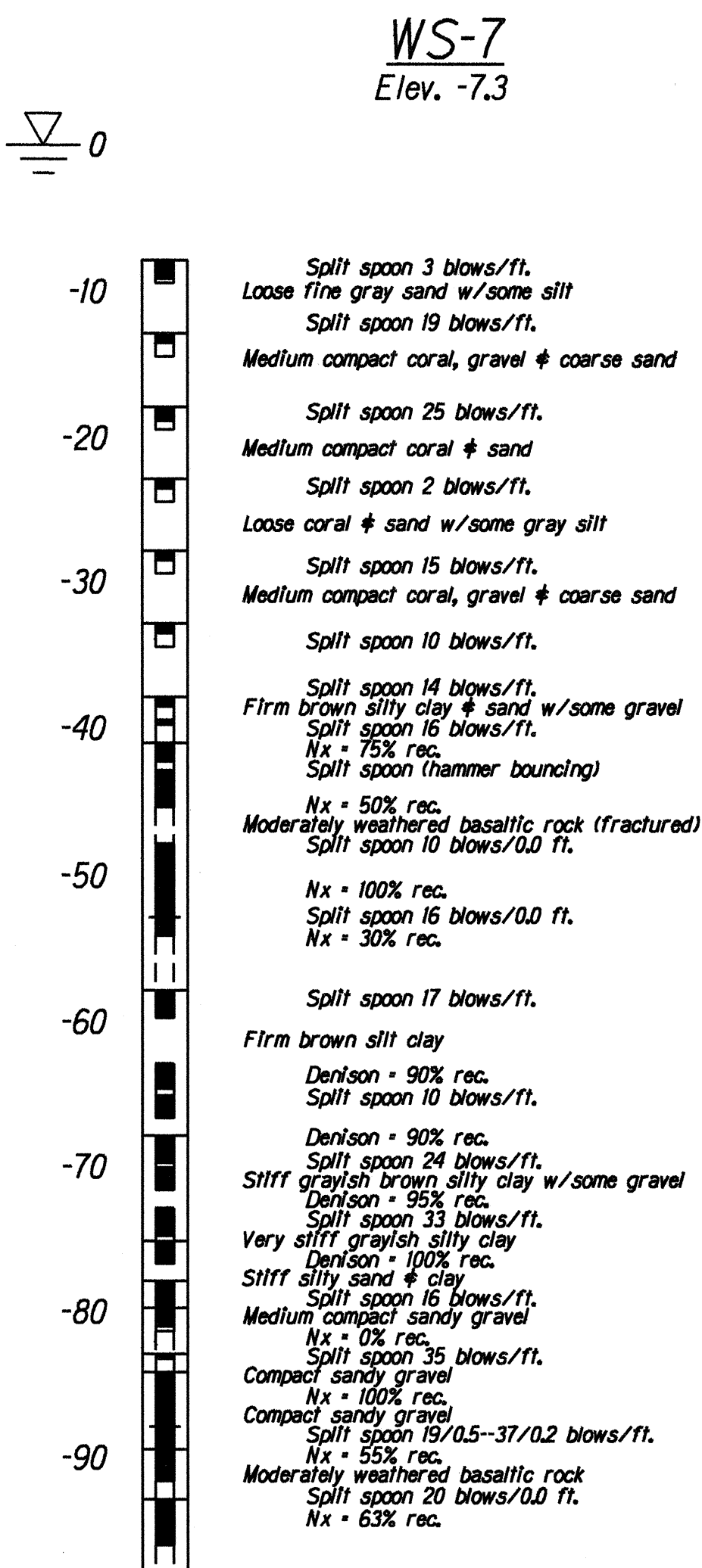
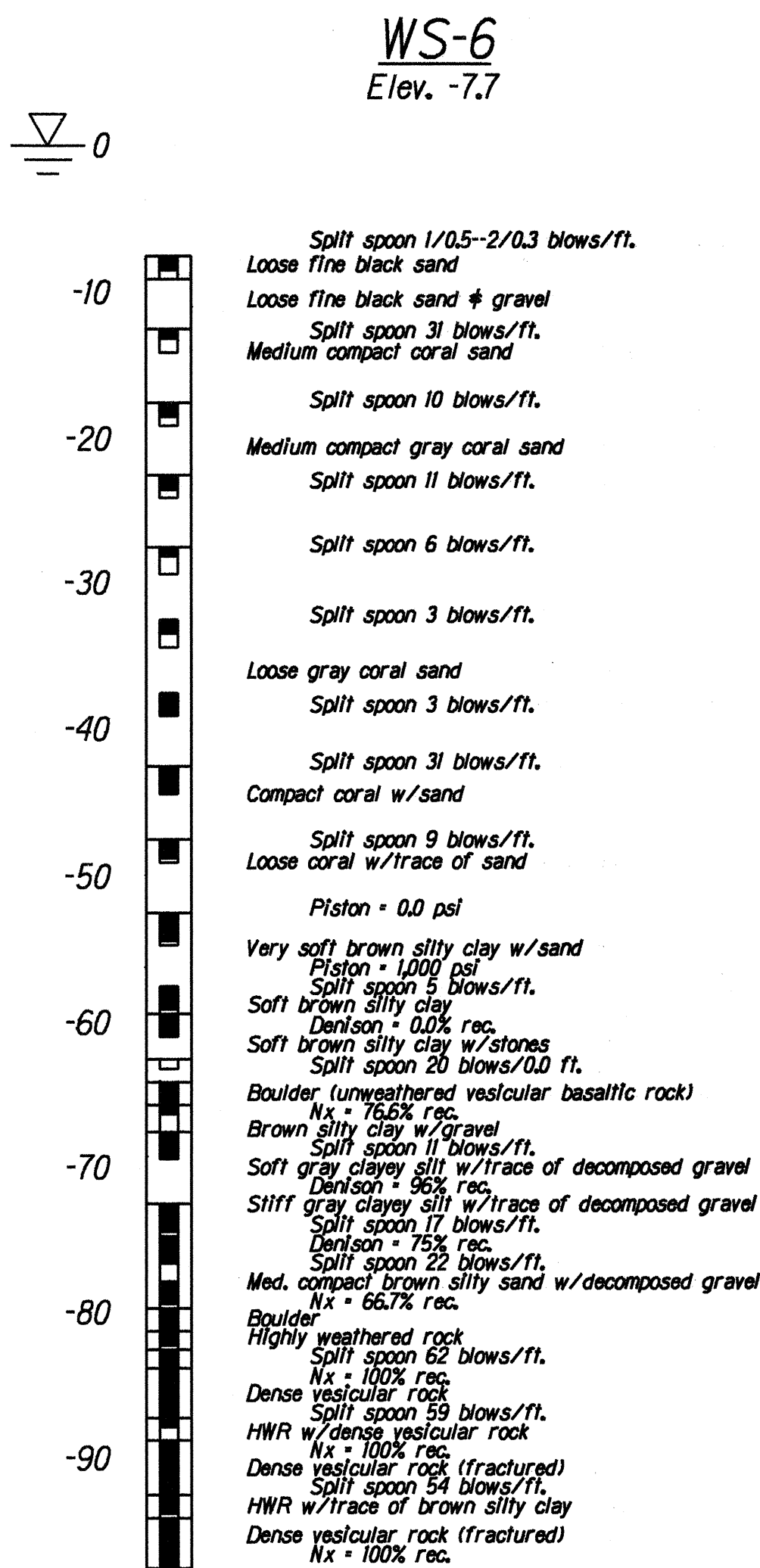


SURVEY PLOTTED BY	DATE	DATE	DATE	DATE	DATE
DRAWN BY	LMA	JUL	JUL	JUL	JUL
DESIGNED BY	JUL	JUL	JUL	JUL	JUL
QUANTITIES BY	JUL	JUL	JUL	JUL	JUL
CHECKED BY	JUL	JUL	JUL	JUL	JUL

BORING LOG

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
WAIKAEA BRIDGE WIDENING
BORING LOG
KUHO HIGHWAY-WAIKAEA BRIDGE WIDENING
Fed. Aid Proj. No. BR-STP-056-1(35)
Scale: As Noted Date: Aug. 1999
SHEET No. 56 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-STP-056-1(35)	2000	22	70



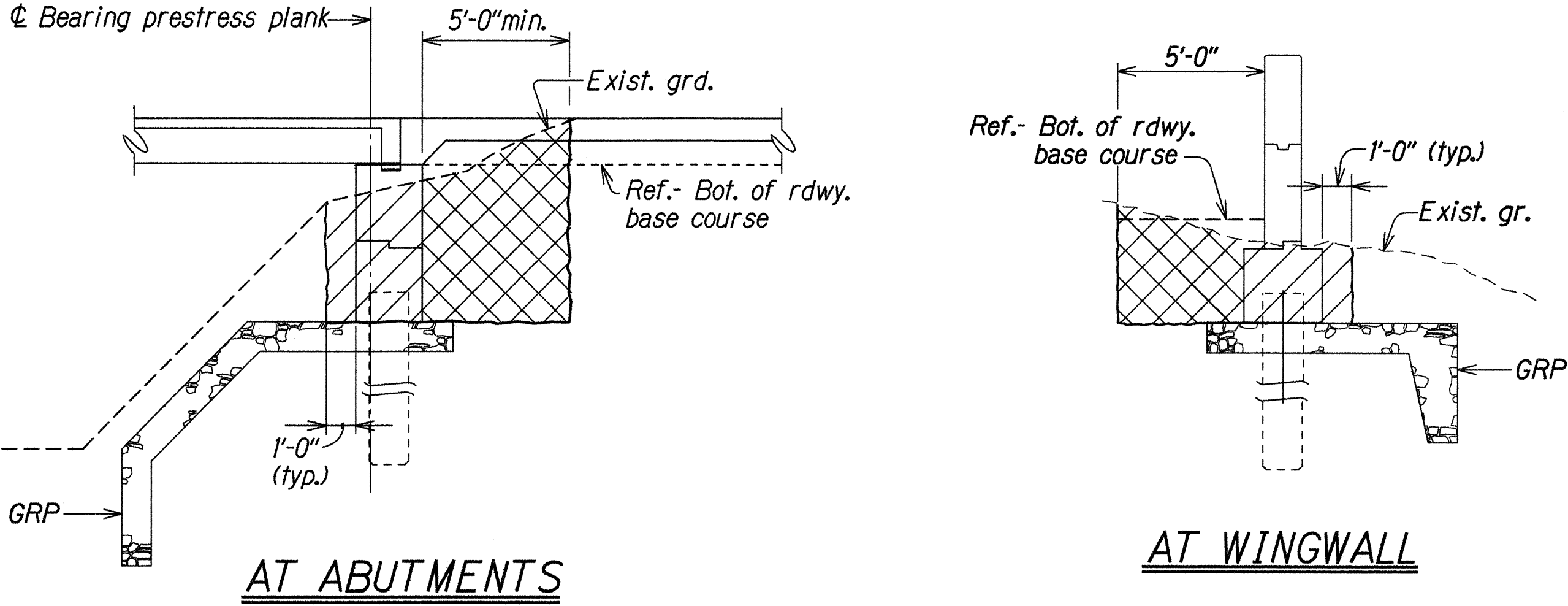
BORING LOG

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DESIGNED BY	AUG 1999
QUANTITIES BY	CHECKED BY	AUG 1999
4/11/99	JFU	AUG 1999

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
WAIKAEA BRIDGE WIDENING
BORING LOG
KUHIO HIGHWAY-WAIKAEA BRIDGE WIDENING
Fed. Aid Proj. No. BR-STP-056-1(35)

Scale: As Noted Date: Aug. 1999

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-STP-056-1(35)	2000	23	70



NOTES:
 1. Excavation and backfilling for GRP shall be incidental to item No. 612.0200, Grouted Rubble Paving.

- ① Areas shown thus:
- Structure Excavation
 - Structure Backfill

EXCAVATION AND BACKFILL PAY LIMITS
 Scale: 1/4" = 1'-0"

DESIGNED BY	COL LMA	DATE	AUG 1999
TRACED BY	JFU		
NOTE BOOK			
QUANTITIES BY	JFU		
CHECKED BY	JFU		

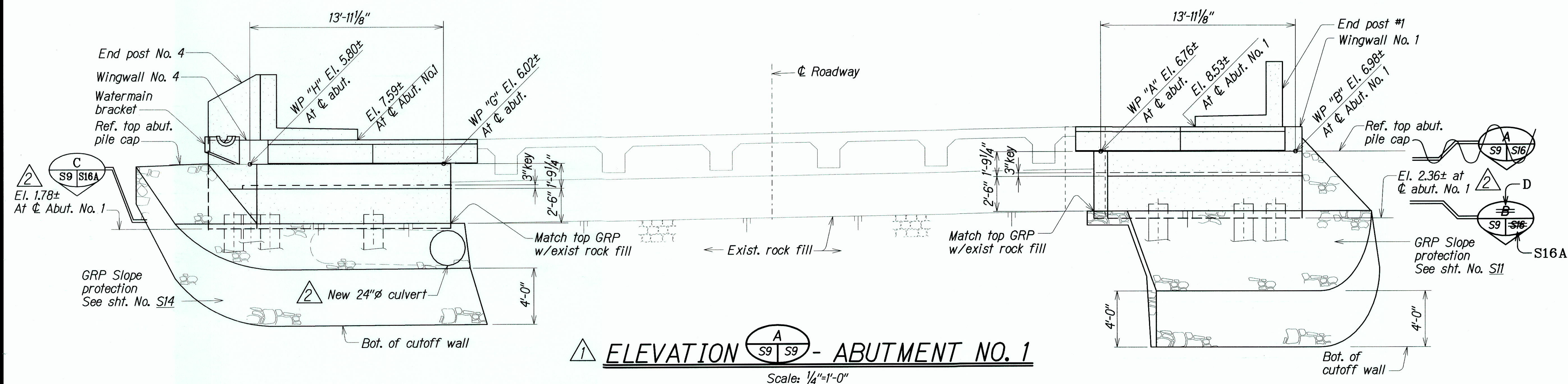
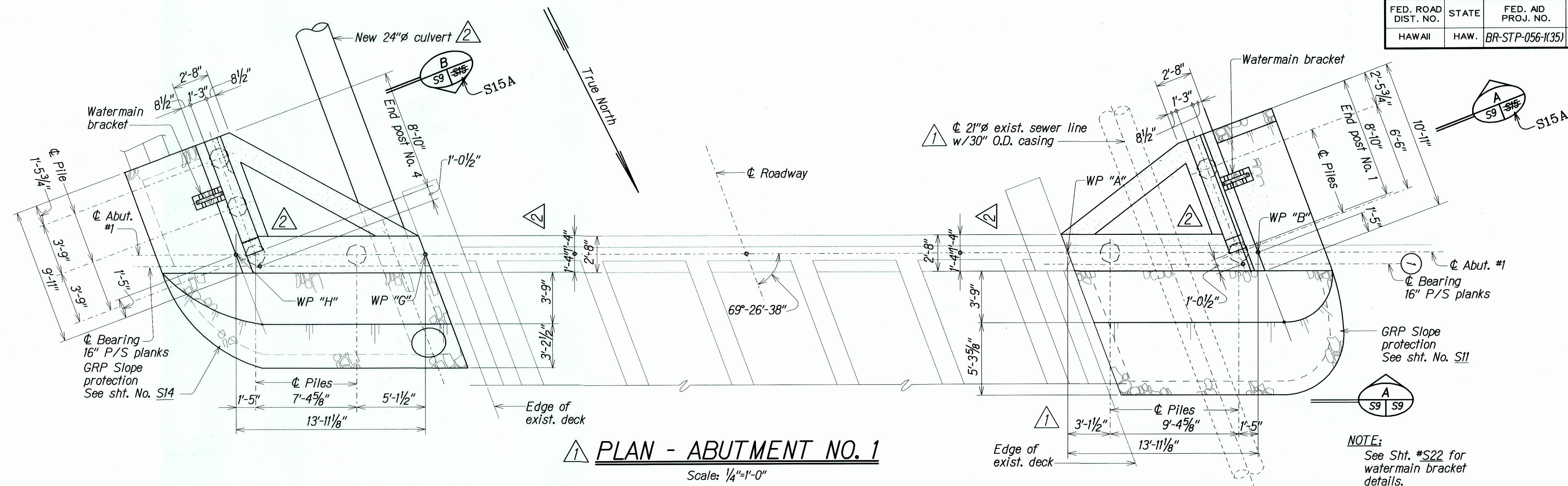
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WAIKAEA BRIDGE WIDENING
STRUCTURE EXCAVATION AND PAY LIMITS
 KUHIO HIGHWAY-WAIKAEA BRIDGE WIDENING
 Fed. Aid Proj. No. BR-STP-056-1(35)

Scale: As Noted
Date: Aug, 1999

SHEET No. 58 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-STP-056-1(35)	2000	C.O. 24	70



LEGEND FOR AS-BUILT POSTINGS	
	Squiggly line for as-built deletion
	Double line for as-built deletion
	Text for as-built posting

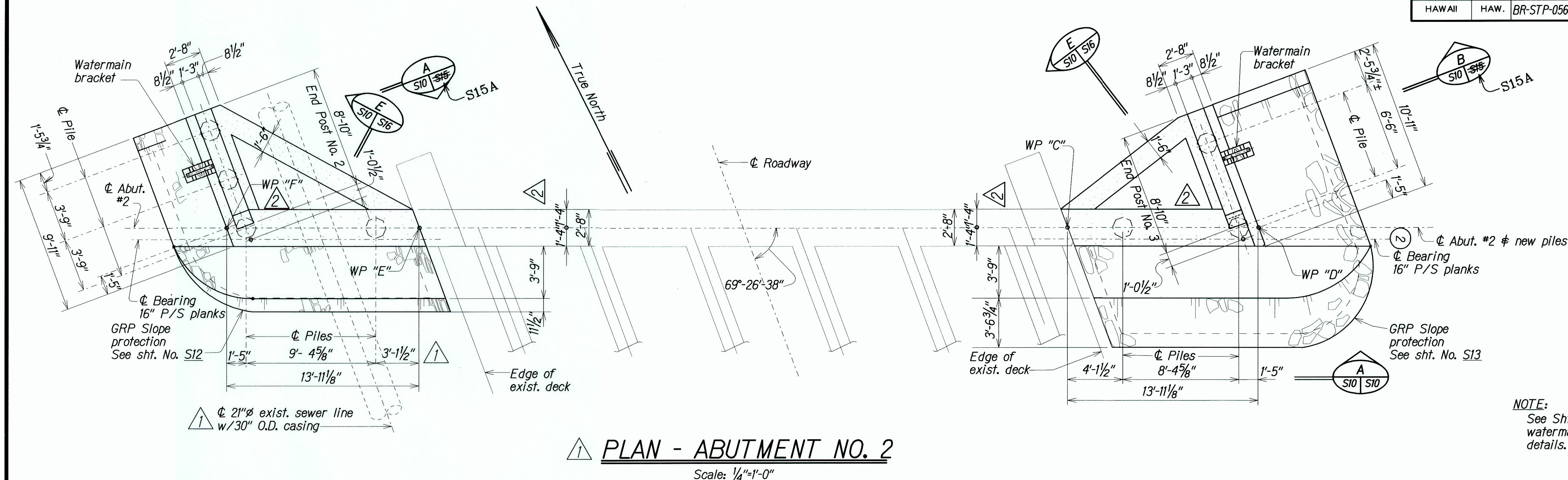
NOTE: 1. The Contractor shall verify all grades and dimensions before commencing with any work.

6/6/01	Bottom of abut. pile cap elev. changed for both End Post Nos. 1 & 4. 24"Ø culvert lowered to accommodate elev. change and Ø symbol added to label for 24"Ø culvert. GRP removed behind front face of abut. pile cap. Note #1 added.
3/15/01	Piles were relocated on the western side of the bridge at Abutment No. 1. Dimensions were revised to accommodate changes. Dimension lines, labels and patterns were moved or eliminated for clarity.
DATE	REVISION

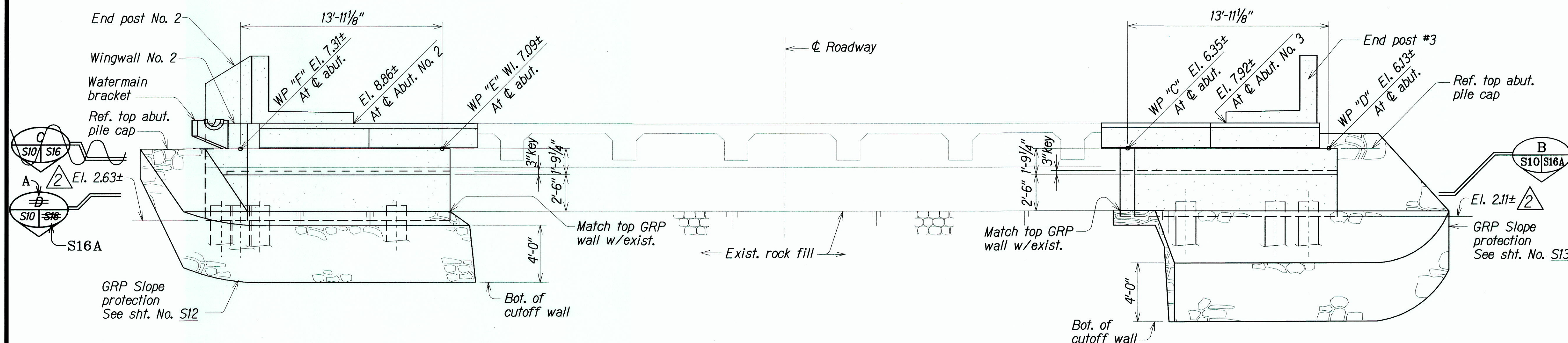
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
WAIKAE A BRIDGE WIDENING ABUTMENT NO. 1 PLAN AND ELEVATION KUHIO HIGHWAY - WAIKAE A BRIDGE WIDENING Fed. Aid Proj. No. BR-STP-056-1(350)
Scale: As Noted Date: Aug. 1999
SHEET No. S9 OF 26 SHEETS

"AS-BUILT" C. O. 24

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-STP-056-1(35)	2000	C.O. 25	70



NOTE:
See Sht. #S22 for
watermain bracket
details.



LEGEND FOR AS-BUILT POSTINGS	
	Squiggly line for as-built deletion
	Double line for as-built deletion
	Text for as-built posting

NOTE:
1. The Contractor shall verify all grades and dimensions before commencing with any work.

2 6/6/01	Bottom of abut. pile cap elev. changed for both End Post Nos. 2 & 3. Note #1 added. GRP removed behind front face of abut. pile cap.
1 3/15/01	Piles were relocated on the western side of the bridge at Abutment No. 2. Dimensions were revised to accommodate changes. Dimension lines, labels and patterns were moved or eliminated for clarity.
DATE	REVISIONS

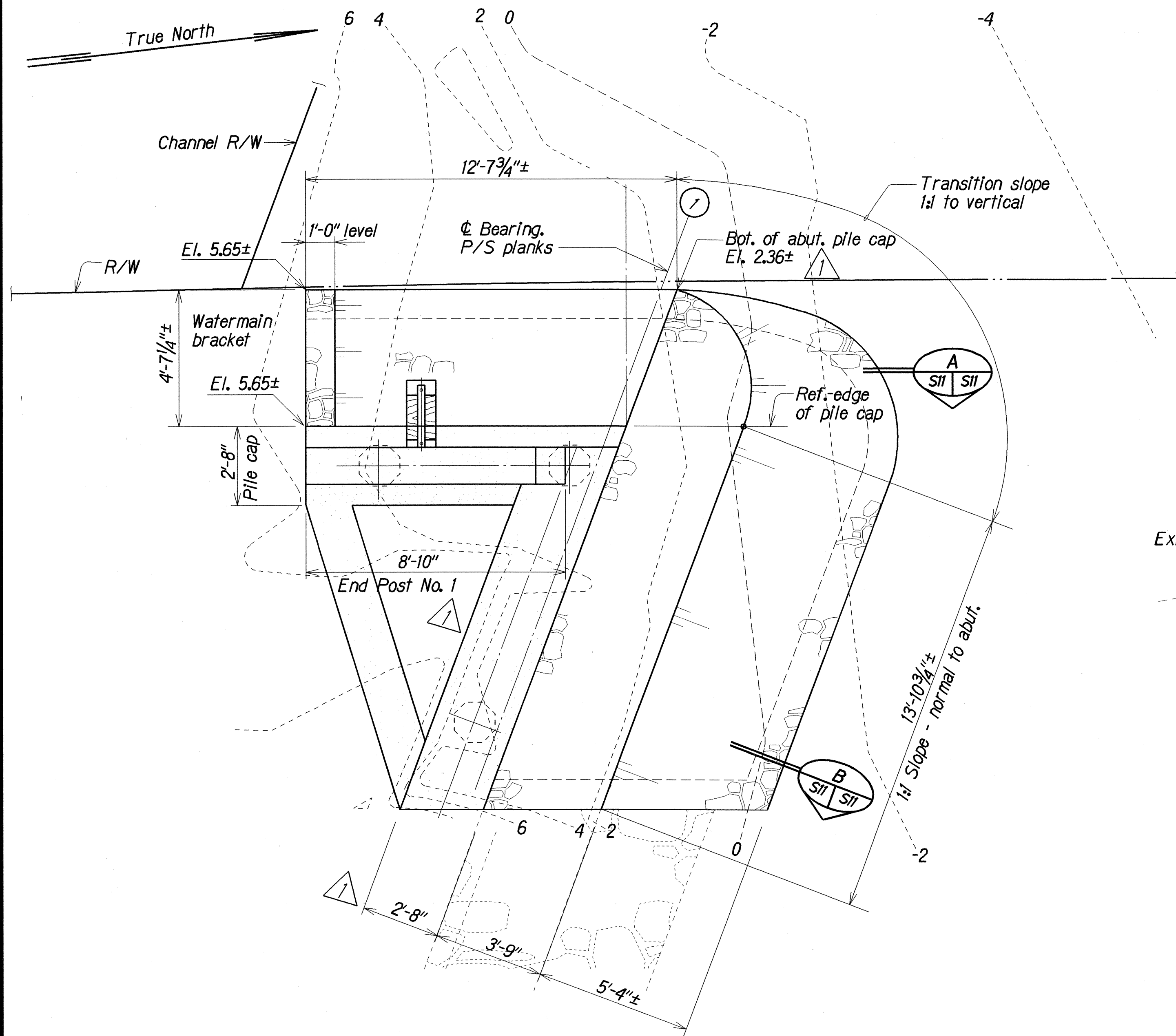
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
WAIKAE A BRIDGE WIDENING	
ABUTMENT NO. 2 PLAN AND ELEVATION	
KUHIO HIGHWAY-WAIKAE A BRIDGE WIDENING Fed. Aid Proj. No. BR-STP-056-1(35)	
Scale: As Noted	Date: Aug, 1999
SHEET No. S10 OF 26 SHEETS	

"AS-BUILT"

C. O. 25

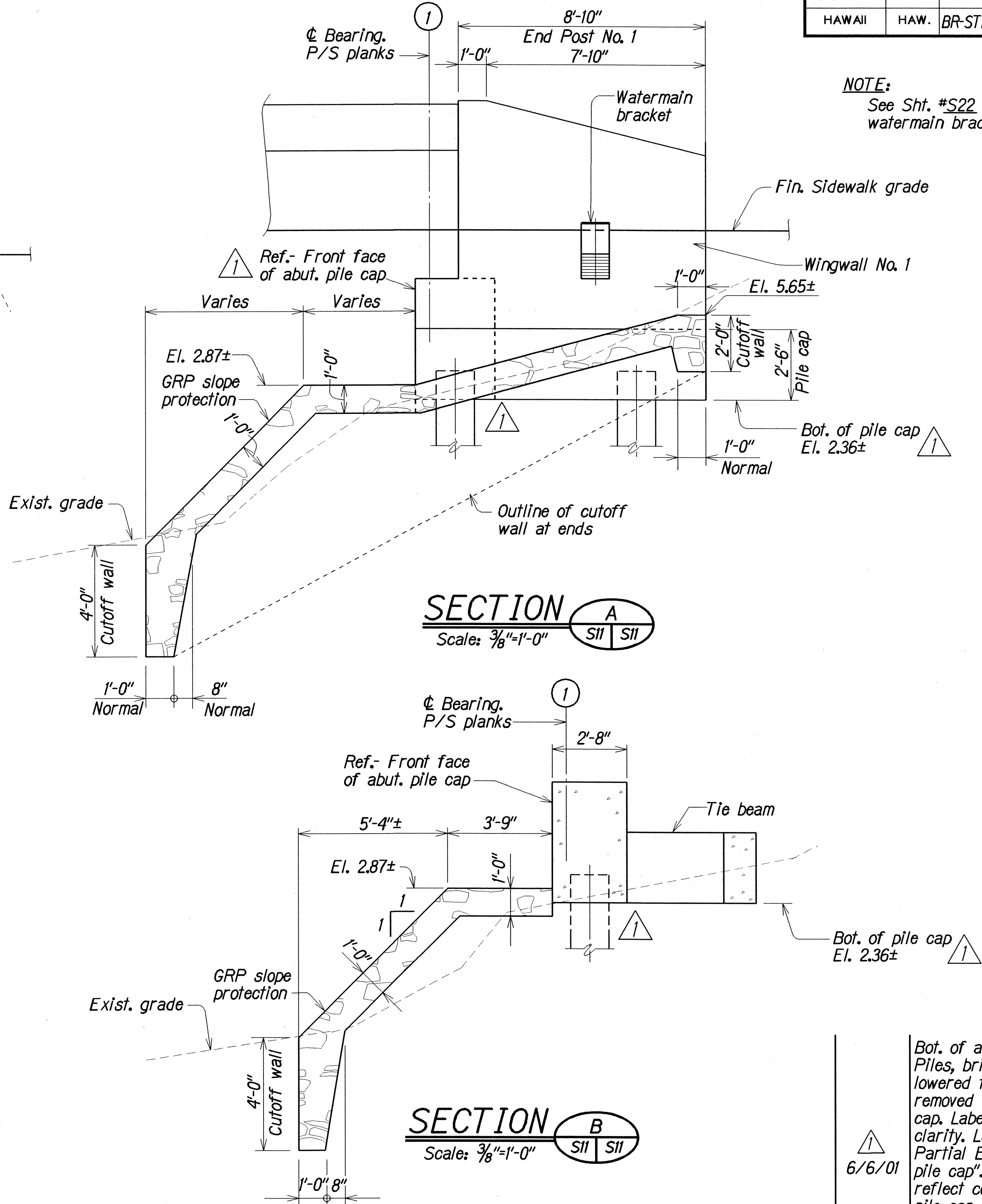
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-STP-056-1(35)	2000	C.O. 26	70

NOTE:
See Sht. #S22 for
watermain bracket.



PARTIAL PLAN
(SHOWING LIMITS OF GRP AT END POST NO. 1)
Scale: 3/8"=1'-0"

NOTE:
1. The Contractor shall verify all grades and dimensions
before commencing with any work.



Bot. of abut. pile cap elevation changed.
Piles, bridge, wingwall, & abut. pile cap,
lowered to accommodate changes. GRP
removed behind front face of abut. pile
cap. Labels moved and changed for
clarity. Label reading "Bot. of fig." at
Partial Elev. changed to "Bot. of abut.
pile cap". Pile outline relocated to
reflect correct location and extended
pile cap removed. Note #1 added.

DATE REVISION

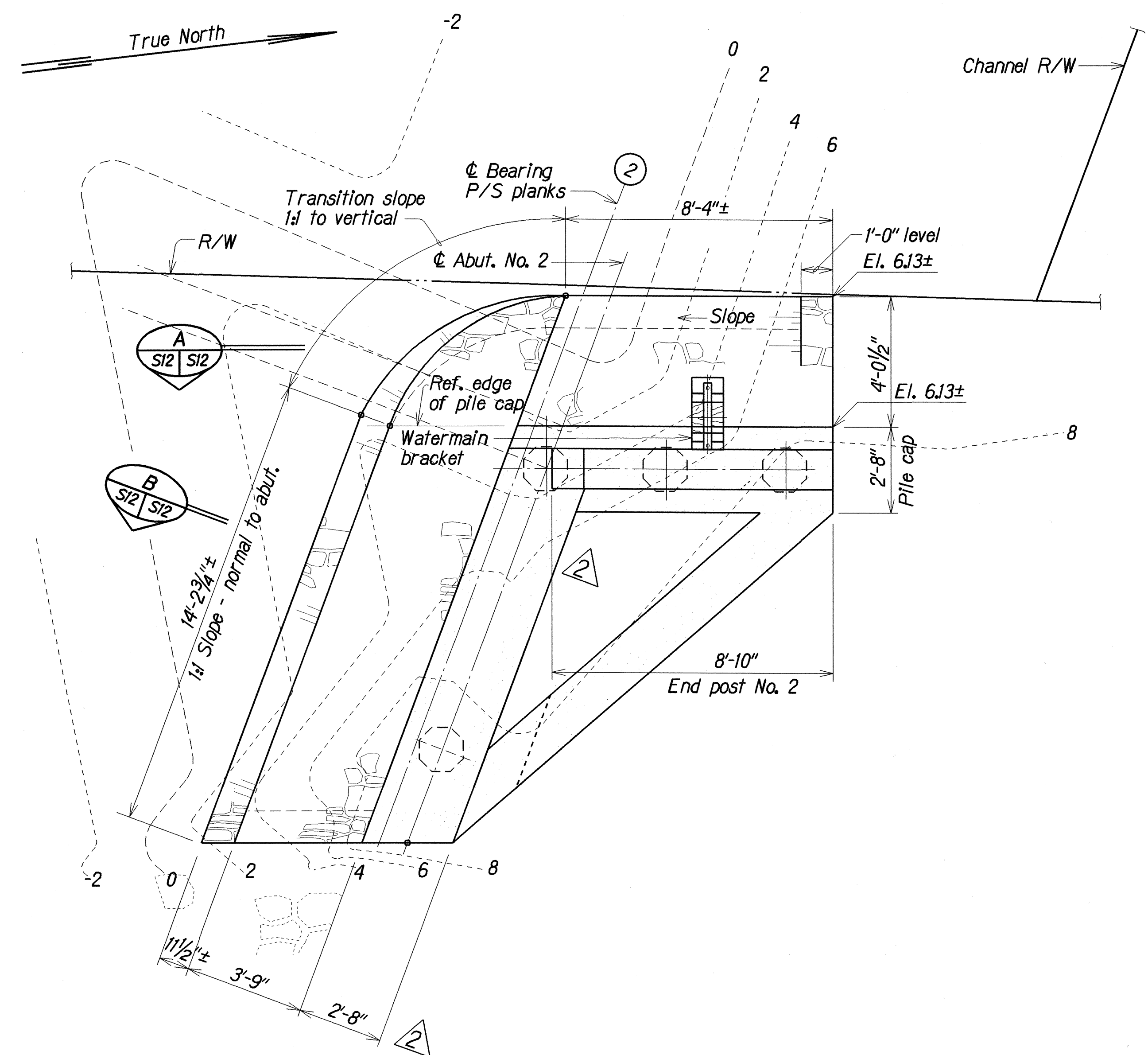
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
WAIKAEA BRIDGE WIDENING
PARTIAL PLAN AND SECTIONS OF GRP
AT END POST NO. 1
KUHOI HIGHWAY- WAIKAEA BRIDGE WIDENING
Fed. Aid Proj. No. BR-STP-056-1(35)
Scale: As Noted Date: Aug, 1999

SHEET No. SII OF 26 SHEETS

C. O. 26

ORIGINAL PLAN	DATE	DESIGNED BY	CHECKED BY
PLAN	AUG 1999	TKM	IFU
NOTE BOOK	AUG 1999	IFU	IFU
NO. 4400111	AUG 1999	IFU	IFU

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-STP-056-1135	2000	C.O. 27	70

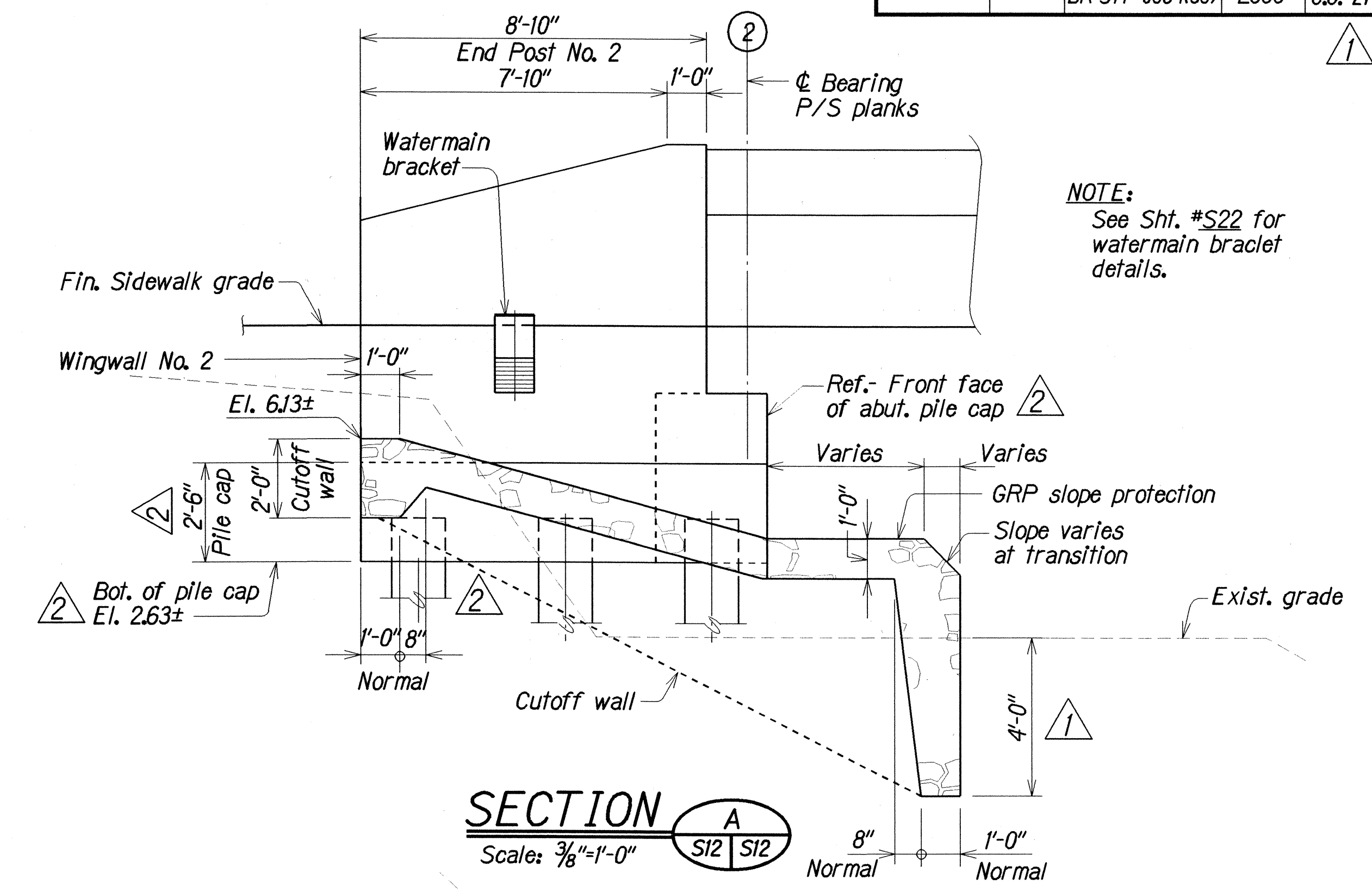


PARTIAL PLAN

(SHOWING LIMITS OF GRP AT END POST NO. 2)

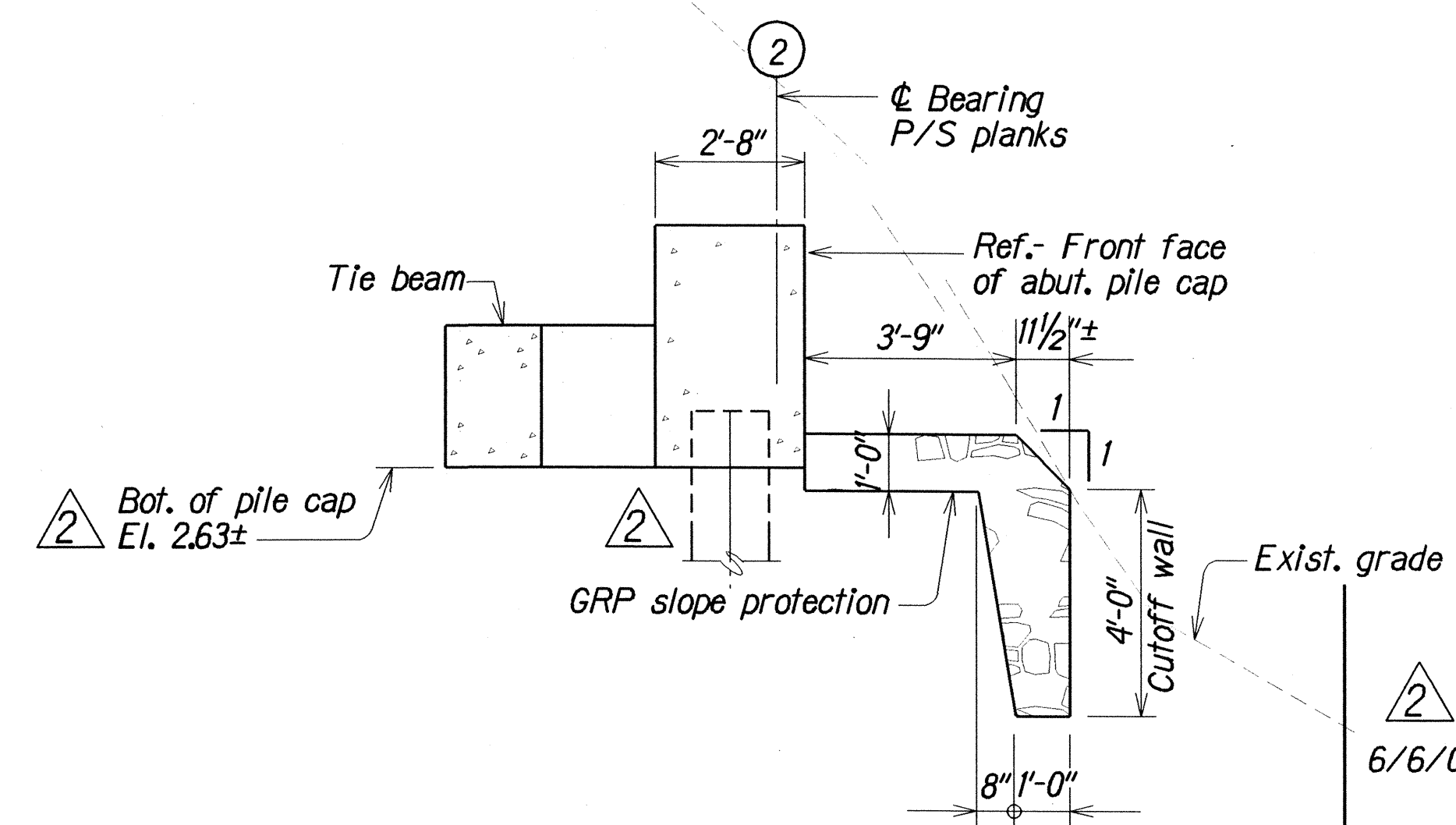
Scale: 3/8"=1'-0"

- NOTES:**
- The Contractor shall verify all grades and dimensions before commencing with any work.



SECTION A

Scale: 3/8"=1'-0"



SECTION B

Scale: 3/8"=1'-0"

NOTE:
See Sht. #S22 for watermain bracket details.

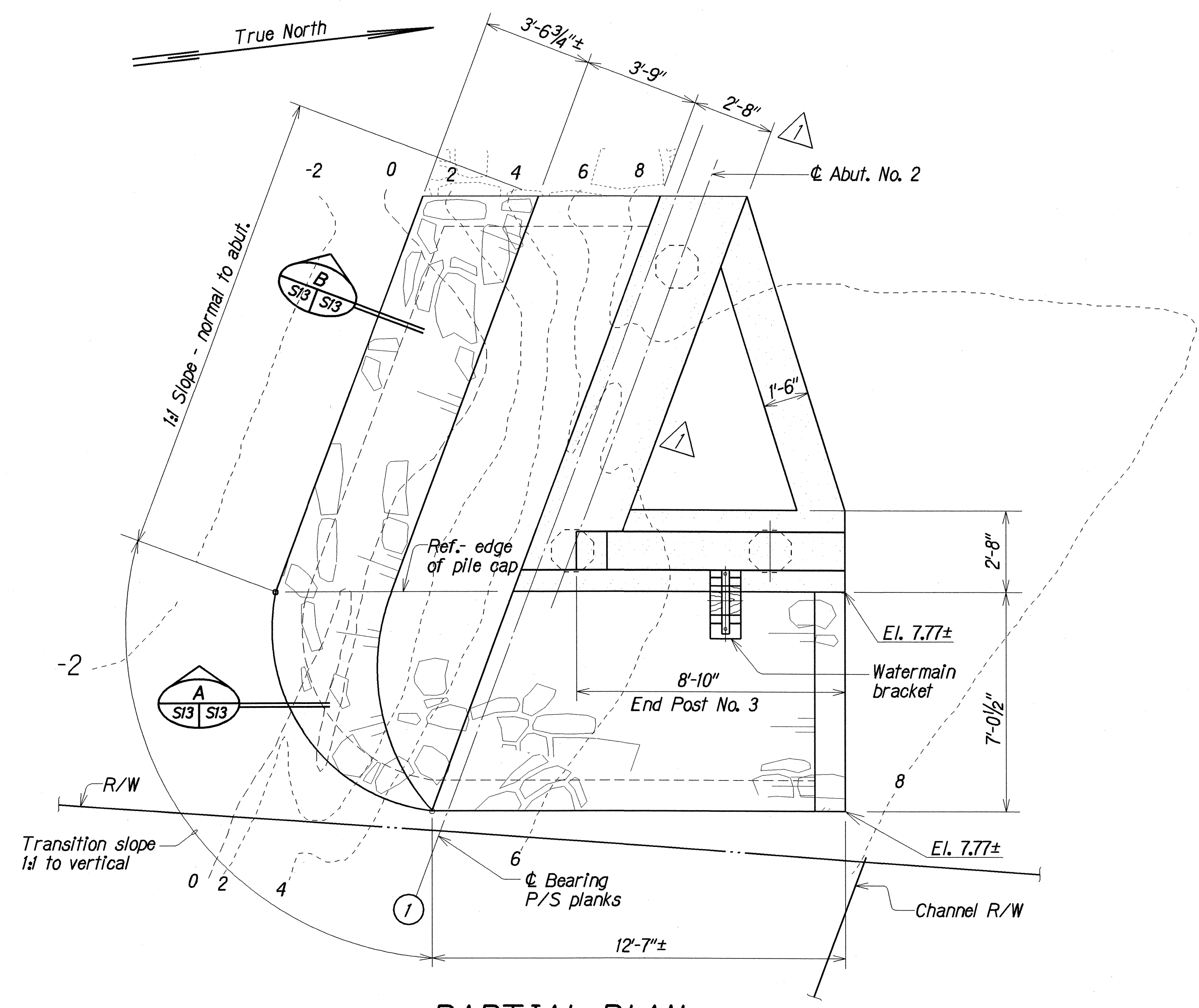
Bot. of abut. pile cap elevation changed. Piles, bridge, wingwall, & abut. pile cap, lowered to accommodate changes. GRP removed behind front face of abut. pile cap. Labels moved and changed for clarity. Label reading "Bot. of fig." at Partial Elev. changed to "Bot. of abut. pile cap". Pile outline relocated to reflect correct location and extended pile cap removed. Note #1 added.

Changed dimension so that 4'-0" is measured from exist. grade to bottom of cutoff wall. Drawing altered and dimension moved to accommodate changes. Sht. no. changed to indicate change order.

DATE	REVISION
6/6/01	
4/30/01	
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION WAIKAEA BRIDGE WIDENING PARTIAL PLAN AND SECTIONS OF GRP AT END POST NO.2 KUHIO HIGHWAY- WAIKAEA BRIDGE WIDENING Fed. Aid Proj. No. BR-STP-056-1135	
Scale: As Noted	Date: Aug, 1999
SHEET No. S12 OF 26 SHEETS	

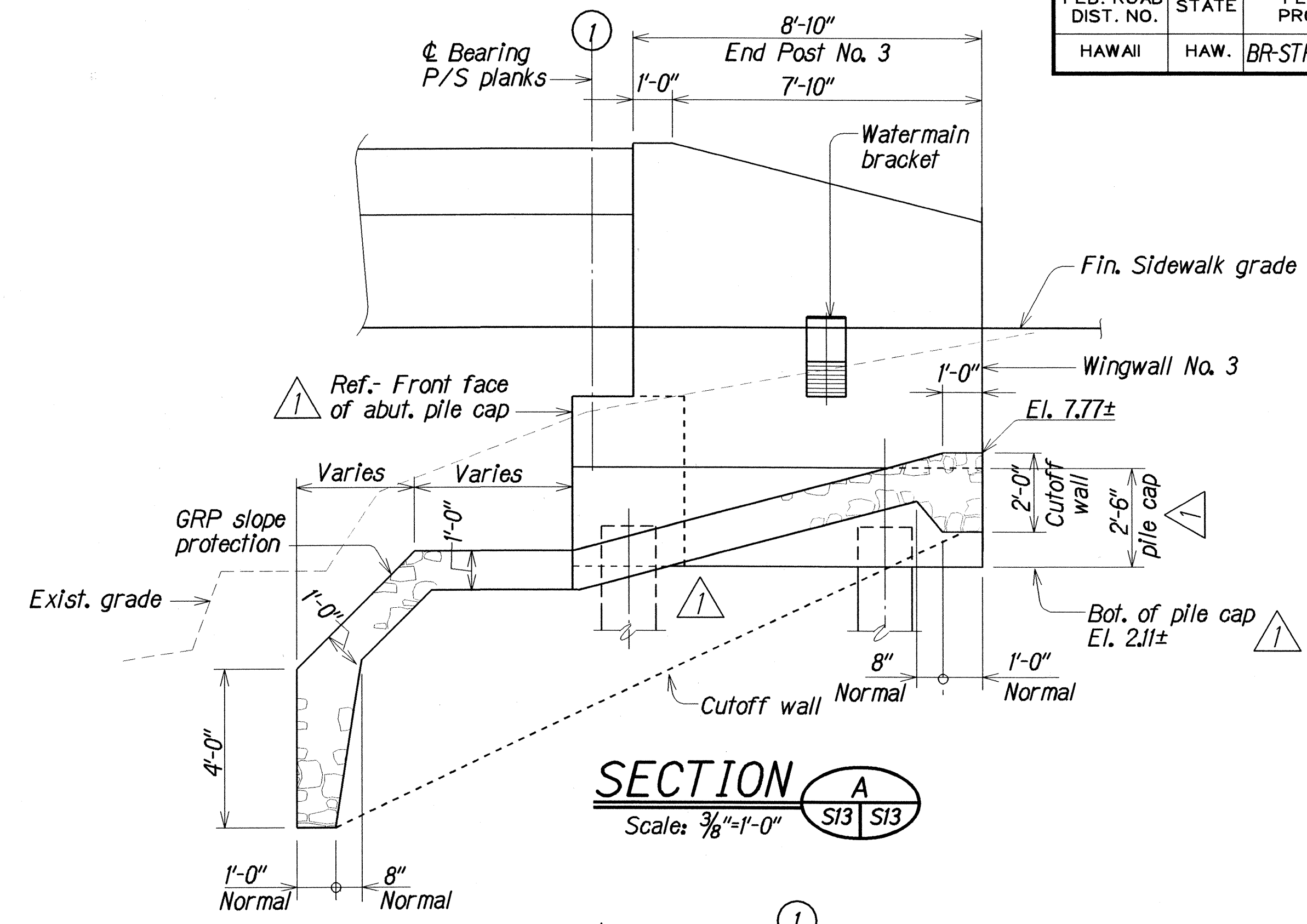
C. O. 27

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-STP-056-1(35)	2000	C.O. 28	70

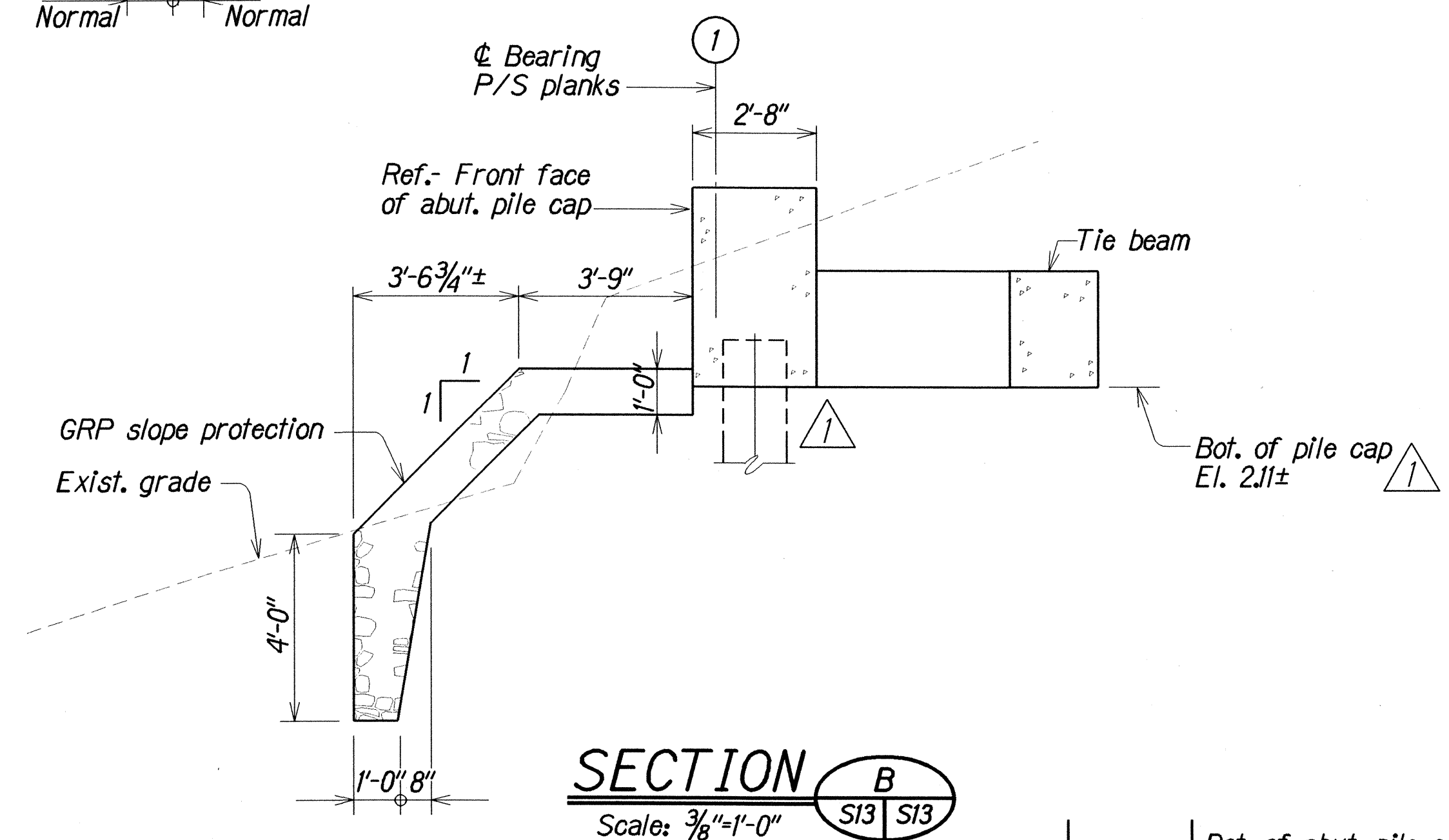


PARTIAL PLAN
(SHOWING LIMITS OF GRP AT END POST NO. 3)
Scale: 3/8"=1'-0"

NOTE:
1. The Contractor shall verify all grades and dimensions before commencing with any work.



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



SECTION B
Scale: 3/8"=1'-0"

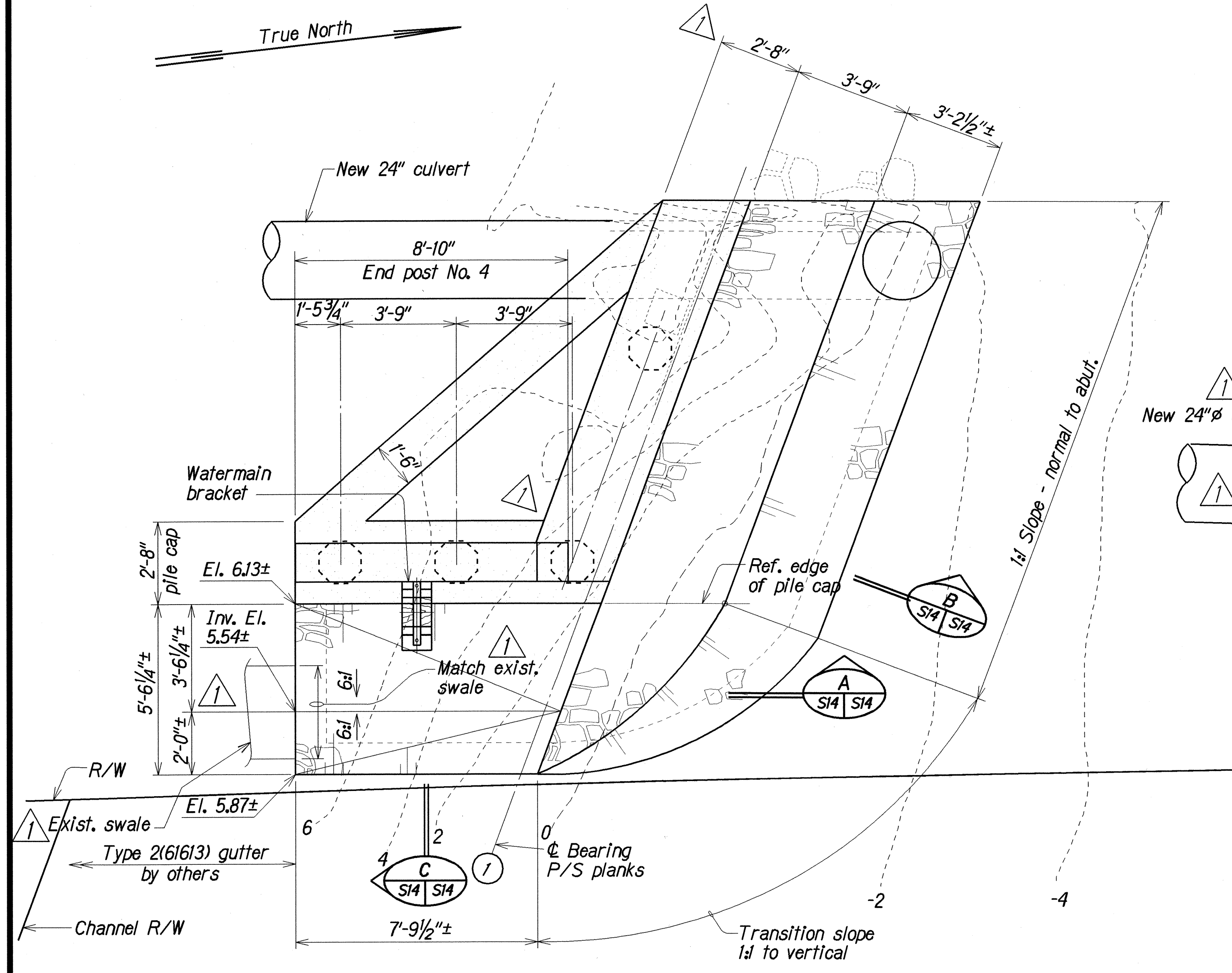
NOTE:
See Sht. #S22 for watermain bracket details.

1
6/6/01
Bot. of abut. pile cap elevation changed. Piles, bridge, wingwall & abut. pile cap, lowered to accomodate changes. GRP removed behind front face of abut. pile cap. Labels moved and changed for clarity. Note #1 added.

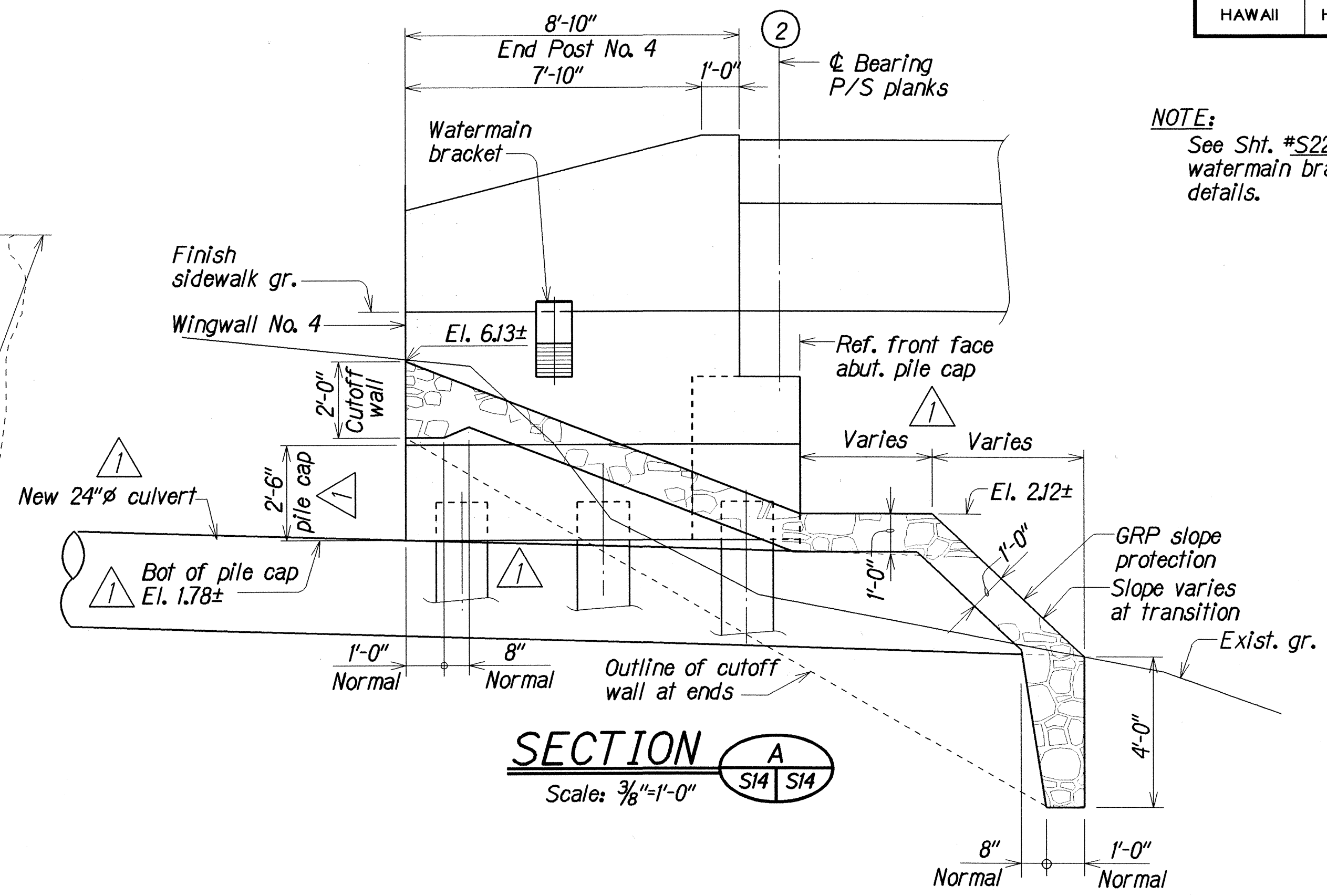
DATE	REVISION
	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION WAIKAEA BRIDGE WIDENING PARTIAL PLAN AND SECTIONS OF GRP AT END POST NO. 3 KUHIO HIGHWAY- WAIKAEA BRIDGE WIDENING Fed. Aid Proj. No. BR-STP-056-1(35) Scale: As Noted Date: Aug, 1999 SHEET No. S13 OF 26 SHEETS

ORIGINAL PLAN	DATE	BY
NOTE BOOK	DATE	BY
QUANTITIES BY	DATE	BY
CHECKED BY	DATE	BY

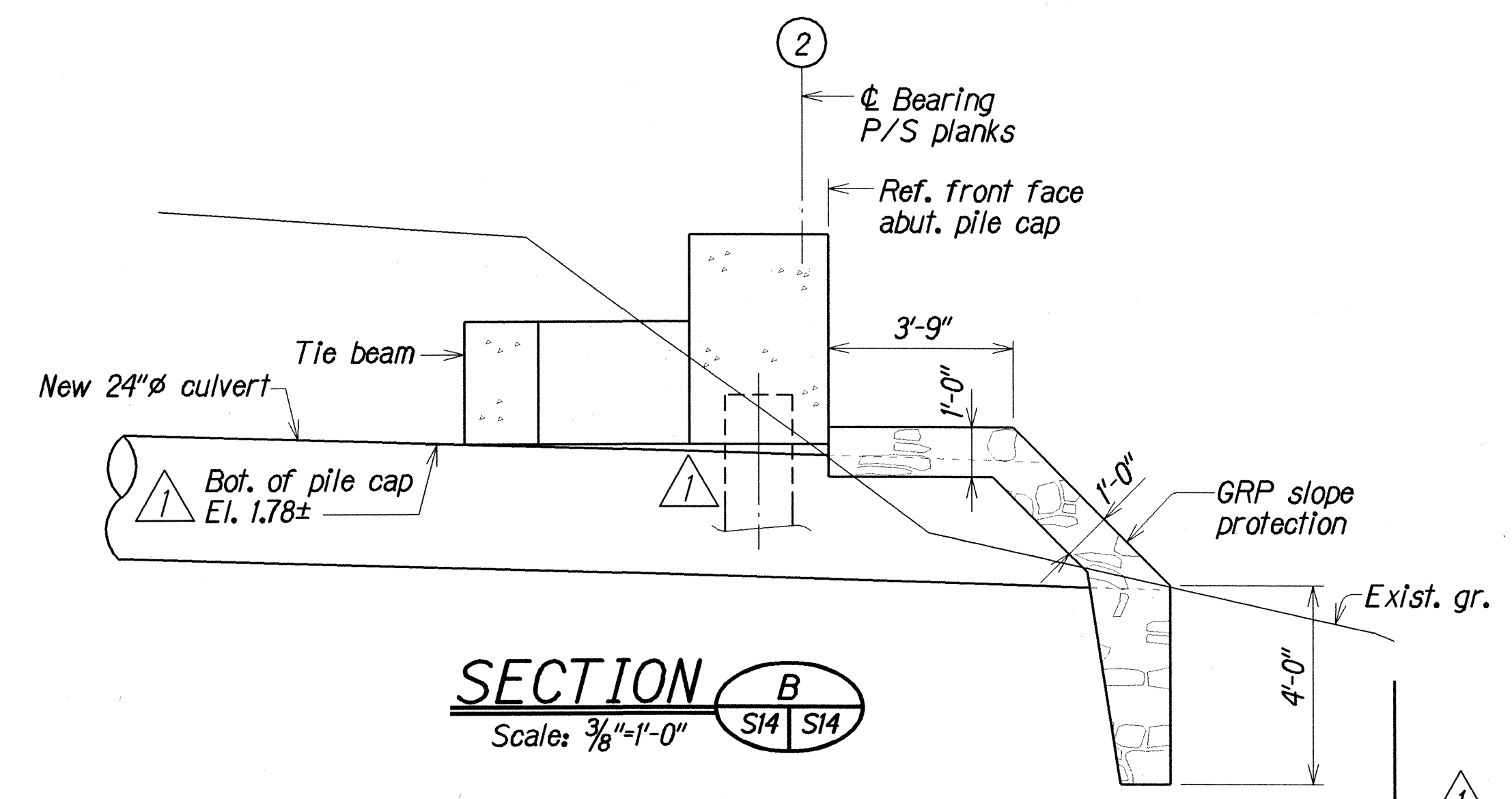
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-STP-056-1(35)	2000	C.O. 29	70



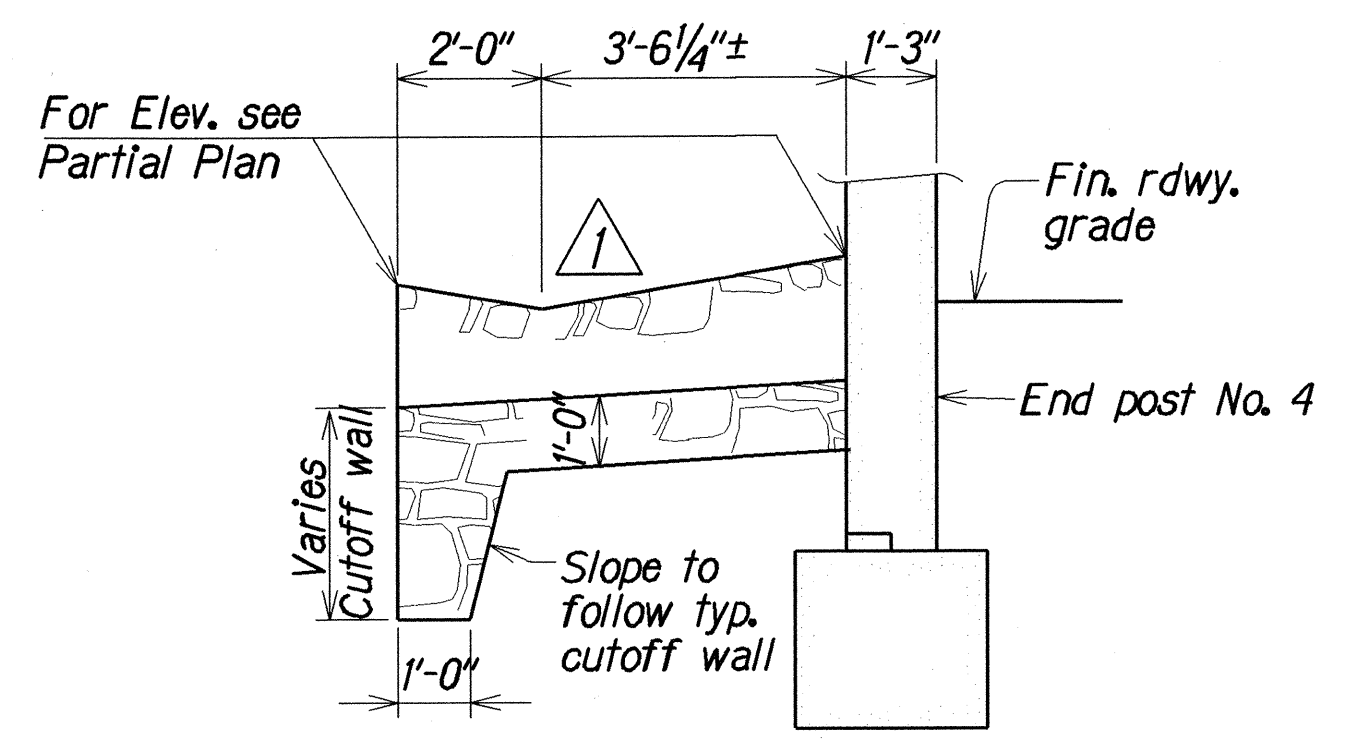
PARTIAL PLAN
(SHOWING LIMITS OF GRP AT END POST NO. 4)
Scale: 3/8"=1'-0"



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



SECTION B
Scale: 3/8"=1'-0"



SECTION C
Scale: 3/8"=1'-0"

NOTE:
1. The Contractor shall verify all grade and dimensions before commencing with any work.

NOTE:
See Sht. #S22 for watermain bracket details.

1
6/6/01
Bot. of abut. pile cap elevation changed. Piles, bridge, wingwall, abut. pile cap & 24"Ø culvert lowered to accommodate changes. GRP removed behind front face of abut. pile cap. Labels moved and changed for clarity. Note #1 and dimension added. Slope matched with exist. swale.

DATE	REVISION
	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION WAIKAEA BRIDGE WIDENING PARTIAL PLAN AND SECTIONS OF GRP AT END POST NO. 4 KUHO HIGHWAY- WAIKAEA BRIDGE WIDENING Fed. Aid Proj. No. BR-STP-056-1(35) Scale: As Noted Date: Aug. 1999

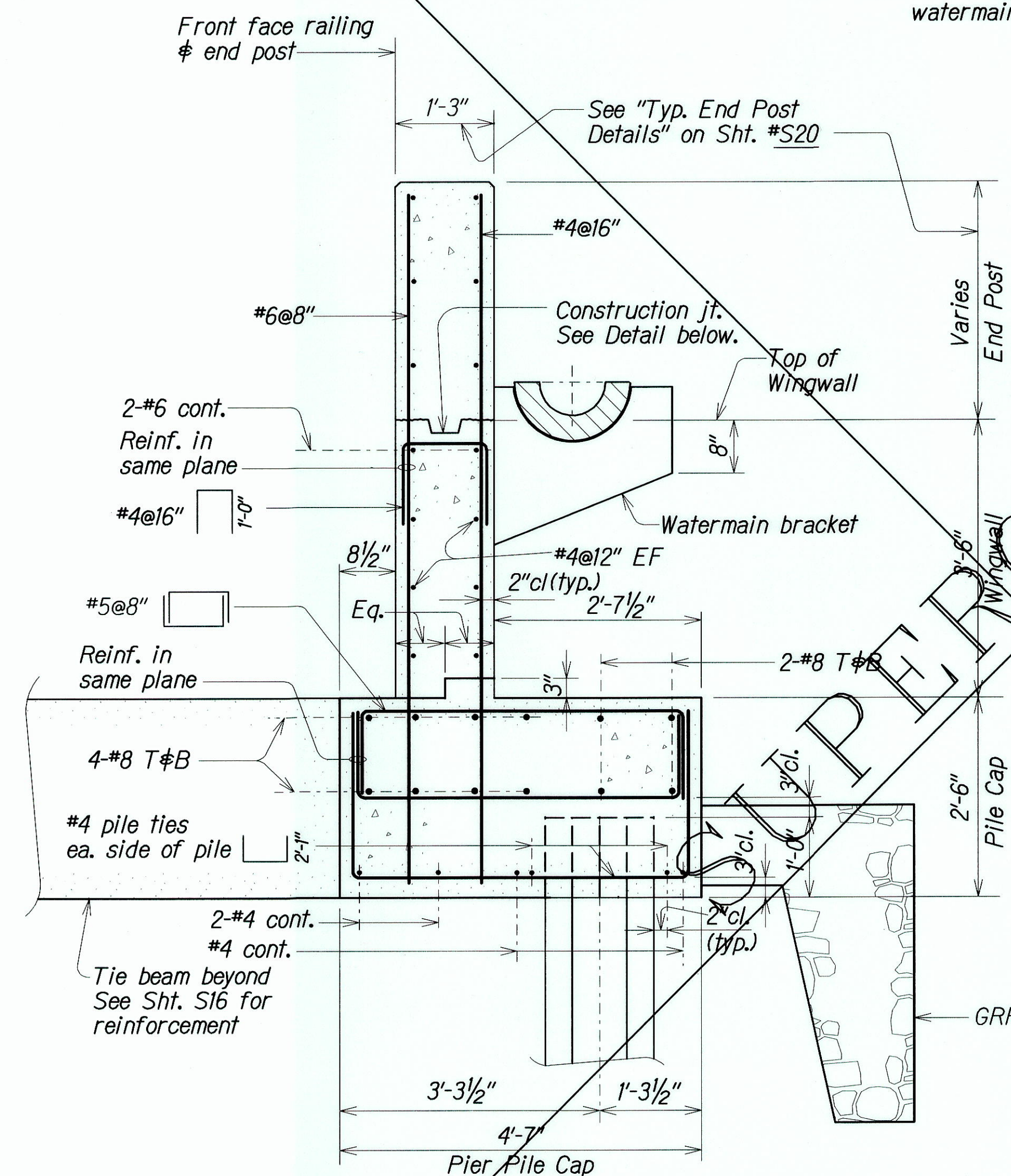
ORIGINAL PLAN	DATE	BY
PLAN	11/1/99	TKM
NOTE BOOK	11/1/99	TKM
QUANTITIES BY	11/1/99	TKM
CHECKED BY	11/1/99	TKM

LEGEND FOR AS-BUILT POSTINGS

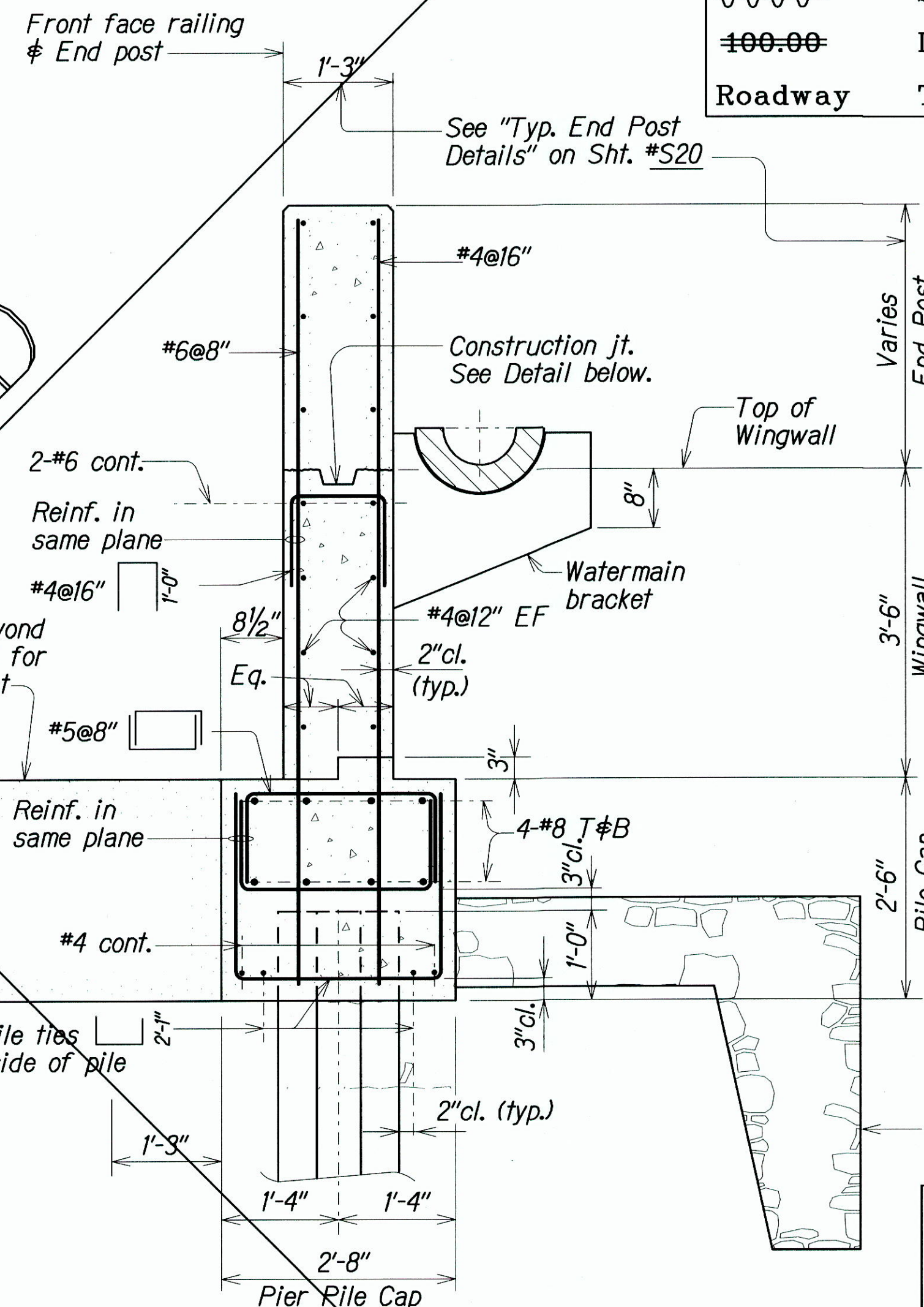
	Squiggly line for as-built deletion
	Double line for as-built deletion
Roadway	Text for as-built posting

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-STP-056-1(35)	2000	C.O. 30	70

NOTE:
1. See sht. #S22 for watermain bracket details.

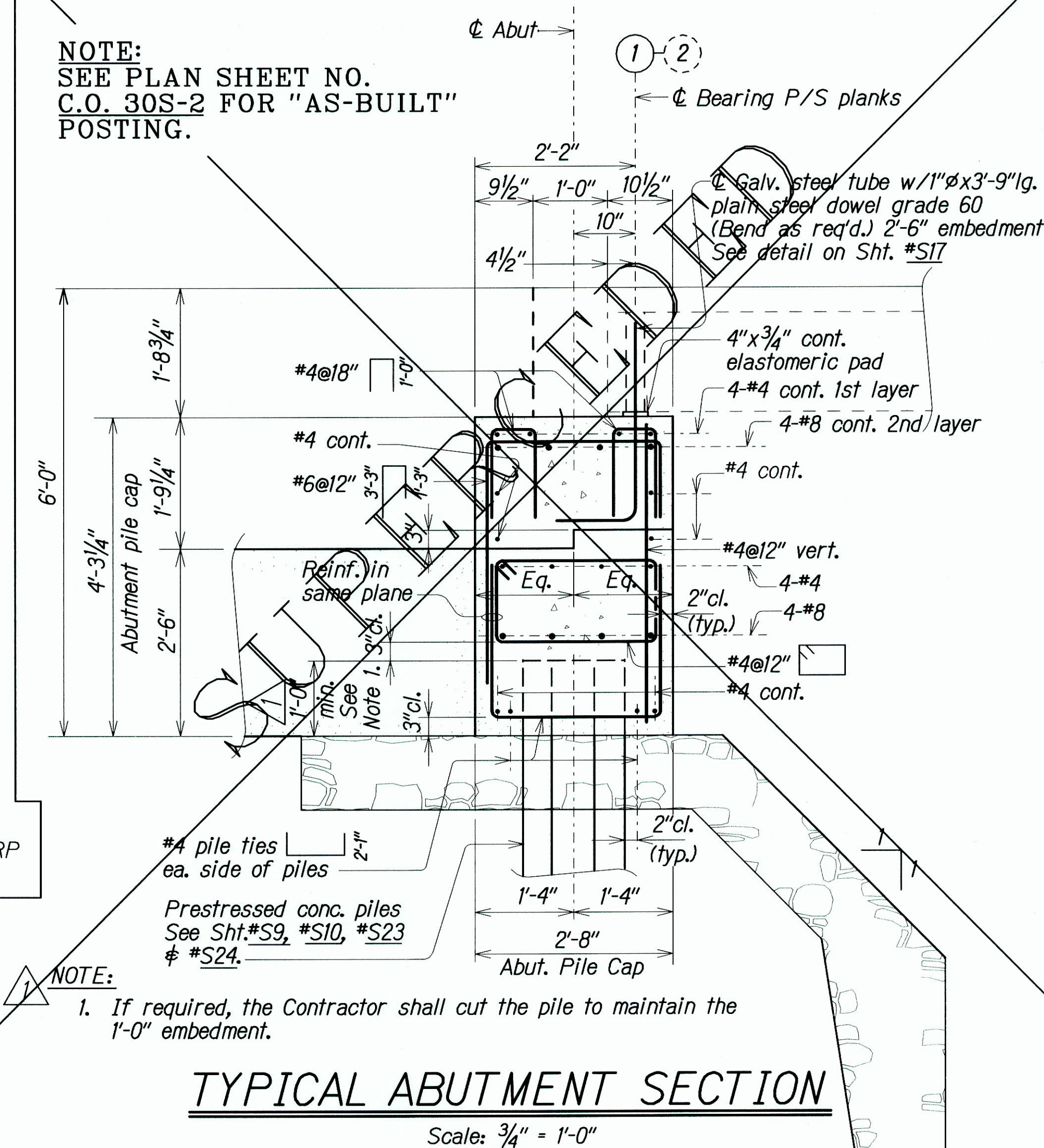


SECTION A
Scale: 3/4" = 1'-0"
S9, S15, S10, S20

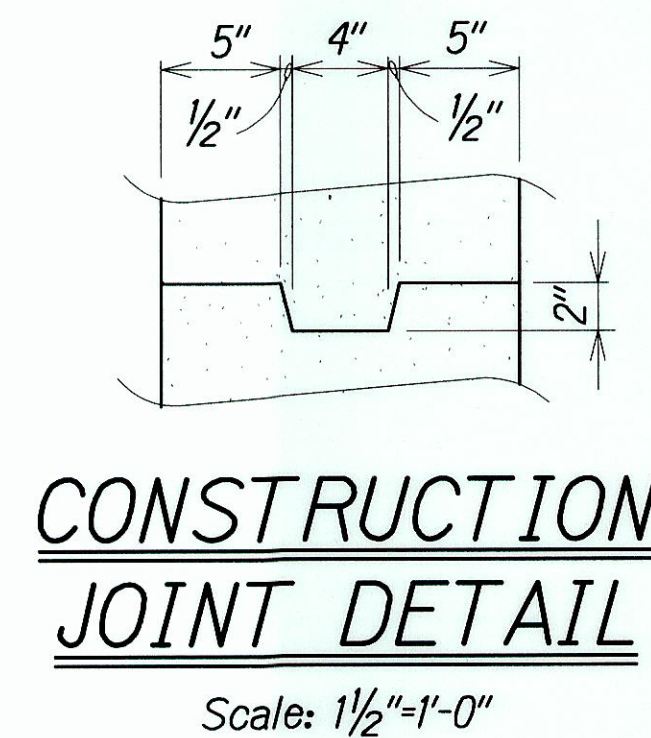


SECTION B
Scale: 3/4" = 1'-0"
S9, S15, S10, S20

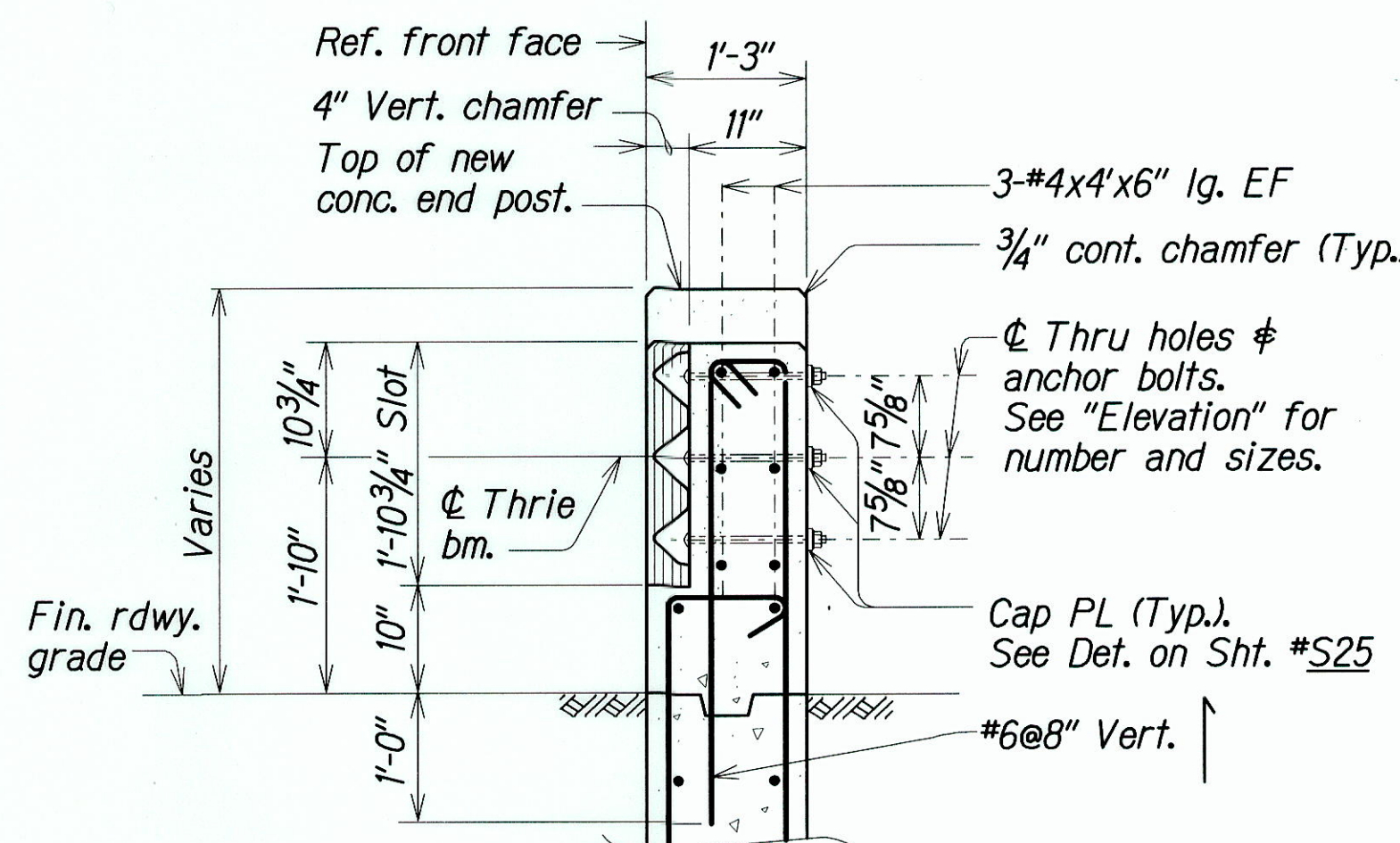
NOTE:
SEE PLAN SHEET NO. C.O. 30S-2 FOR "AS-BUILT" POSTING.



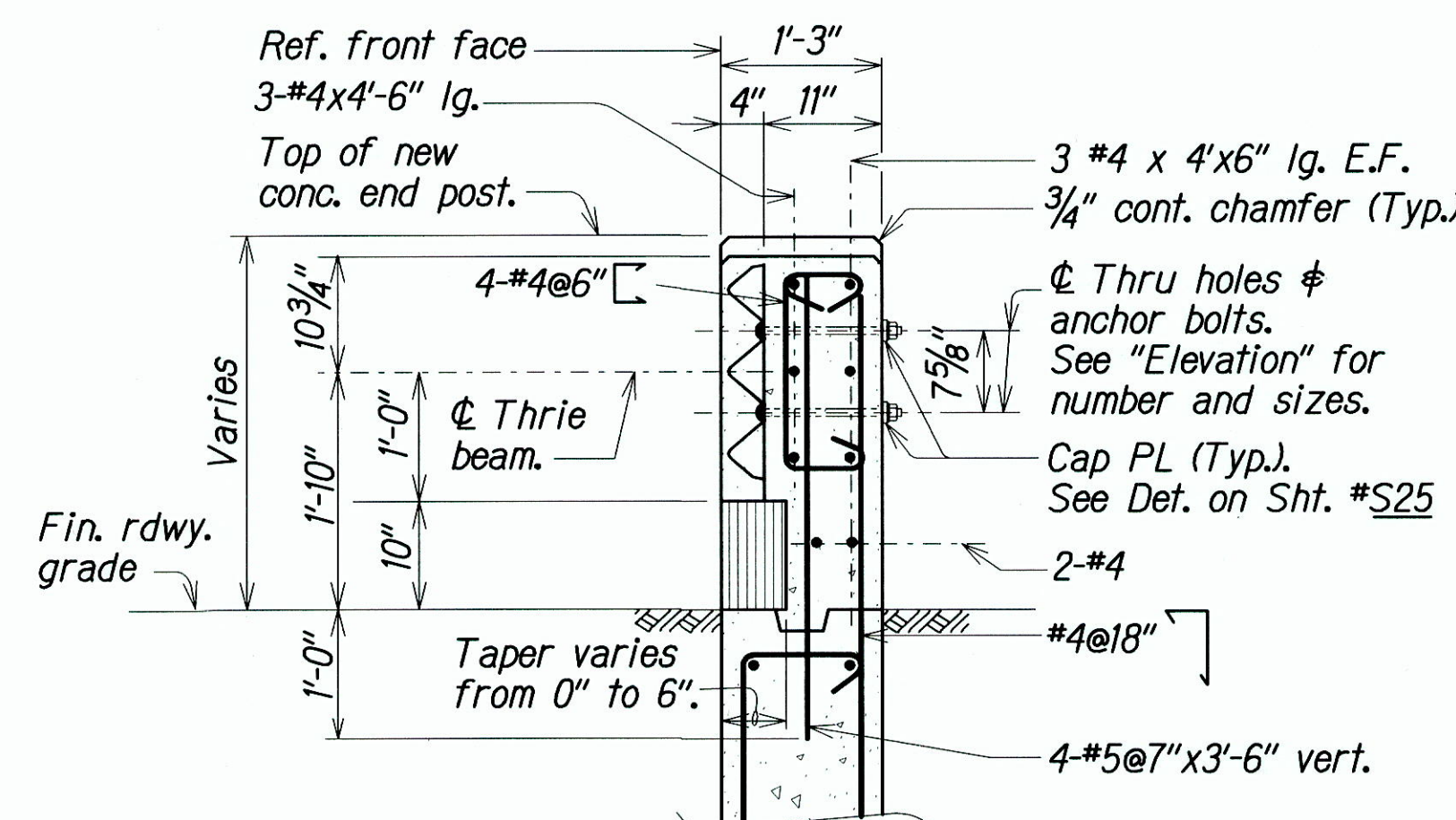
TYPICAL ABUTMENT SECTION
Scale: 3/4" = 1'-0"



CONSTRUCTION JOINT DETAIL
Scale: 1 1/2" = 1'-0"



SECTION C
Scale: 3/4" = 1'-0"
S20, S15



SECTION D
Scale: 3/4" = 1'-0"
S20, S15

Added note to Typical Abutment Sect.
Moved dimension, dimension line & added to label for clarity.

DATE REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WAIKAEA BRIDGE WIDENING

TYPICAL ABUTMENT SECTION

TYPICAL END POST SECTION

KUHIO HIGHWAY-WAIKAEA BRIDGE WIDENING

Fed. Aid Proj. No. BR-STP-056-1(35)

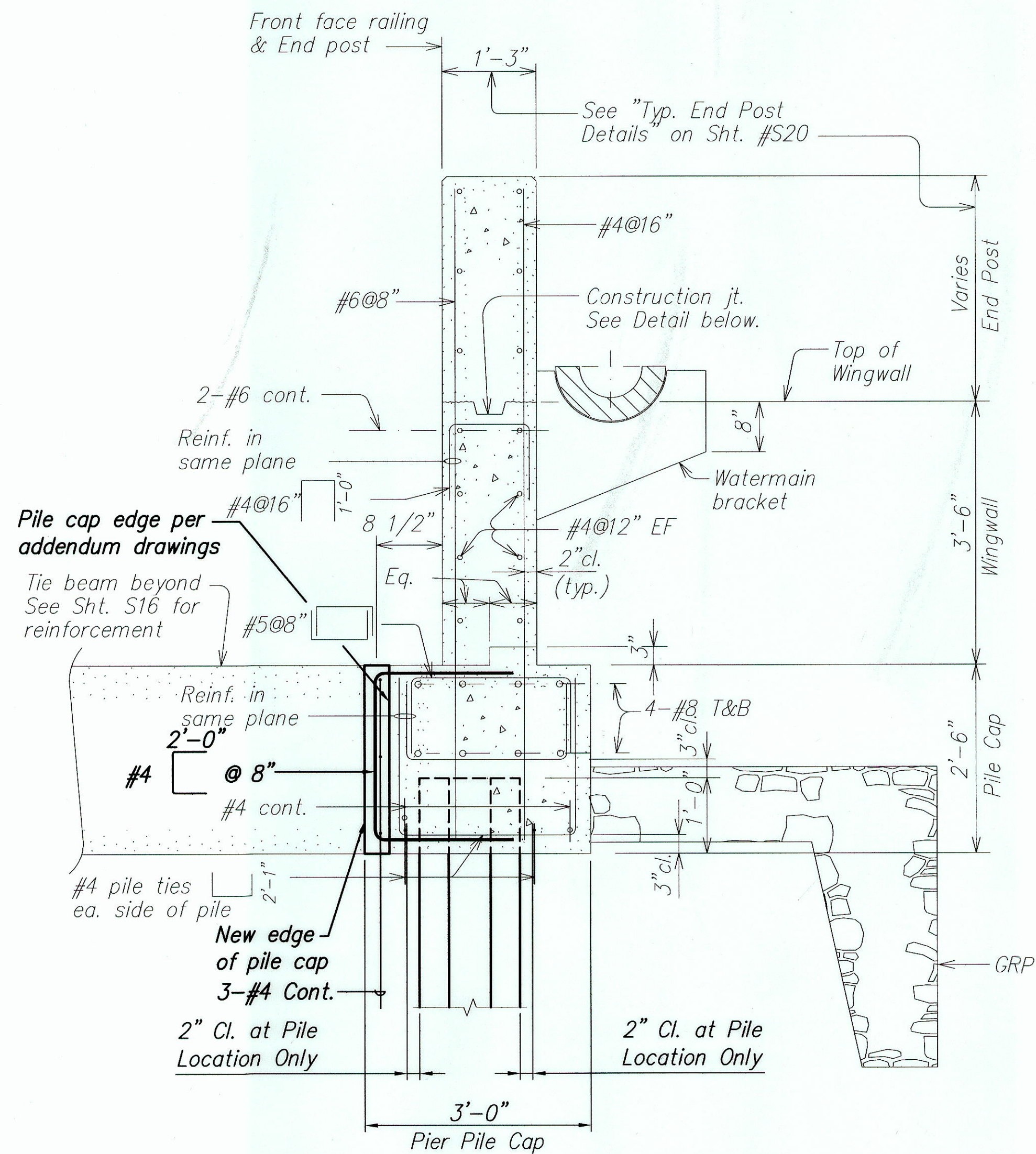
Scale: As Noted Date: Aug. 1999

SHEET No. S15 OF 26 SHEETS

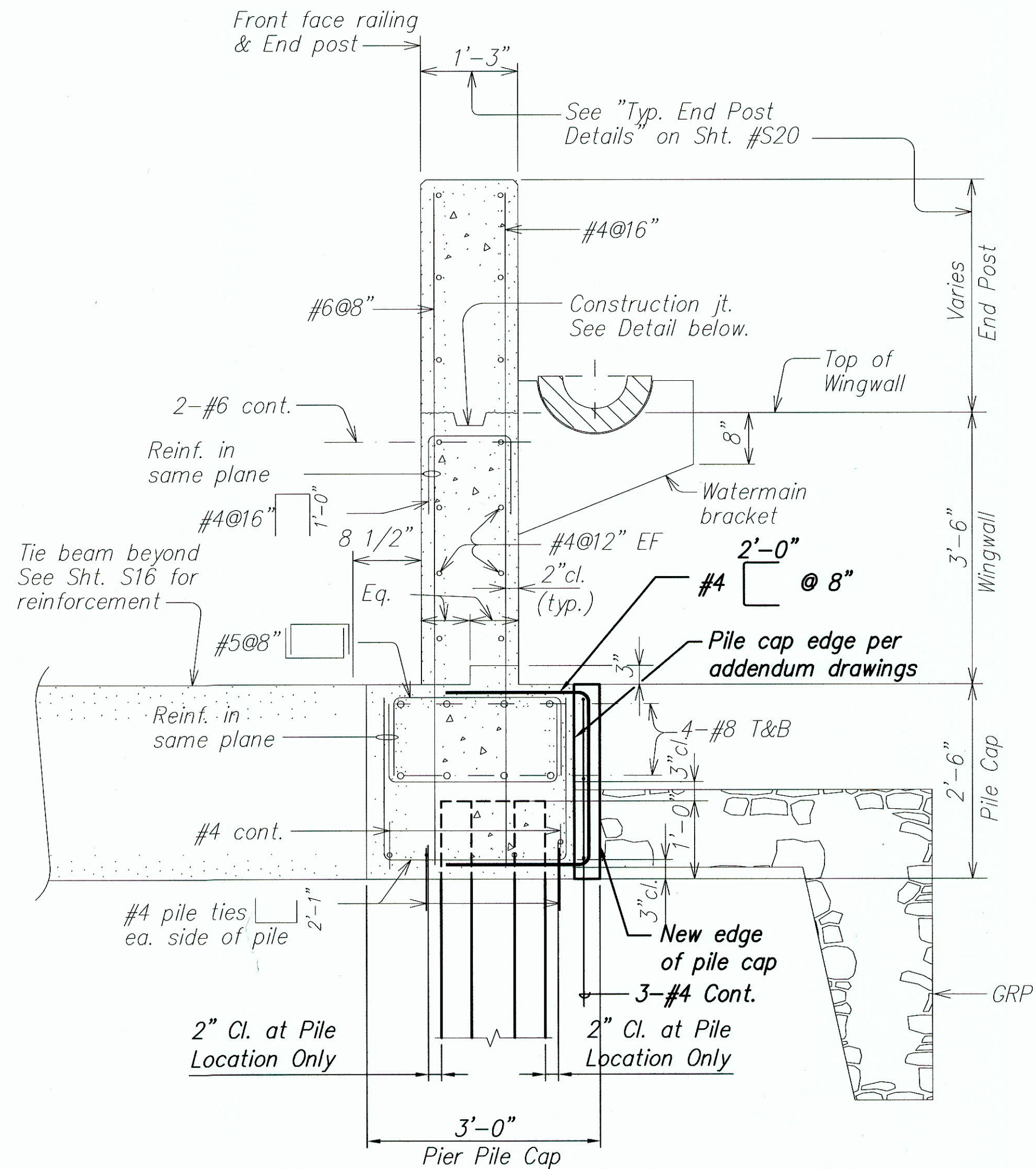
"AS-BUILT"

C. O. 30

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	BR-STP-056-1(35)	2000	C.O. 30S-1	70



SECTION A
Scale: 3/4" = 1'-0"
S9, S10 & S20



SECTION B
Scale: 3/4" = 1'-0"
S9, S10 & S20

THIS SHEET WAS PREPARED DURING
"AS-BUILT" POSTING AND IT SUPERCEDES
PLAN SHEET NO. C.O. 30, SECT. "A" & "B"



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION.
Myles Y. Shimokawa

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WAIKAEA BRIDGE WIDENING
TYPICAL ABUTMENT SECTIONS

KUHIU HIGHWAY-WAIKAEA BRIDGE WIDENING
Fed. Aid Proj. No. BR-STP-056-1(35)

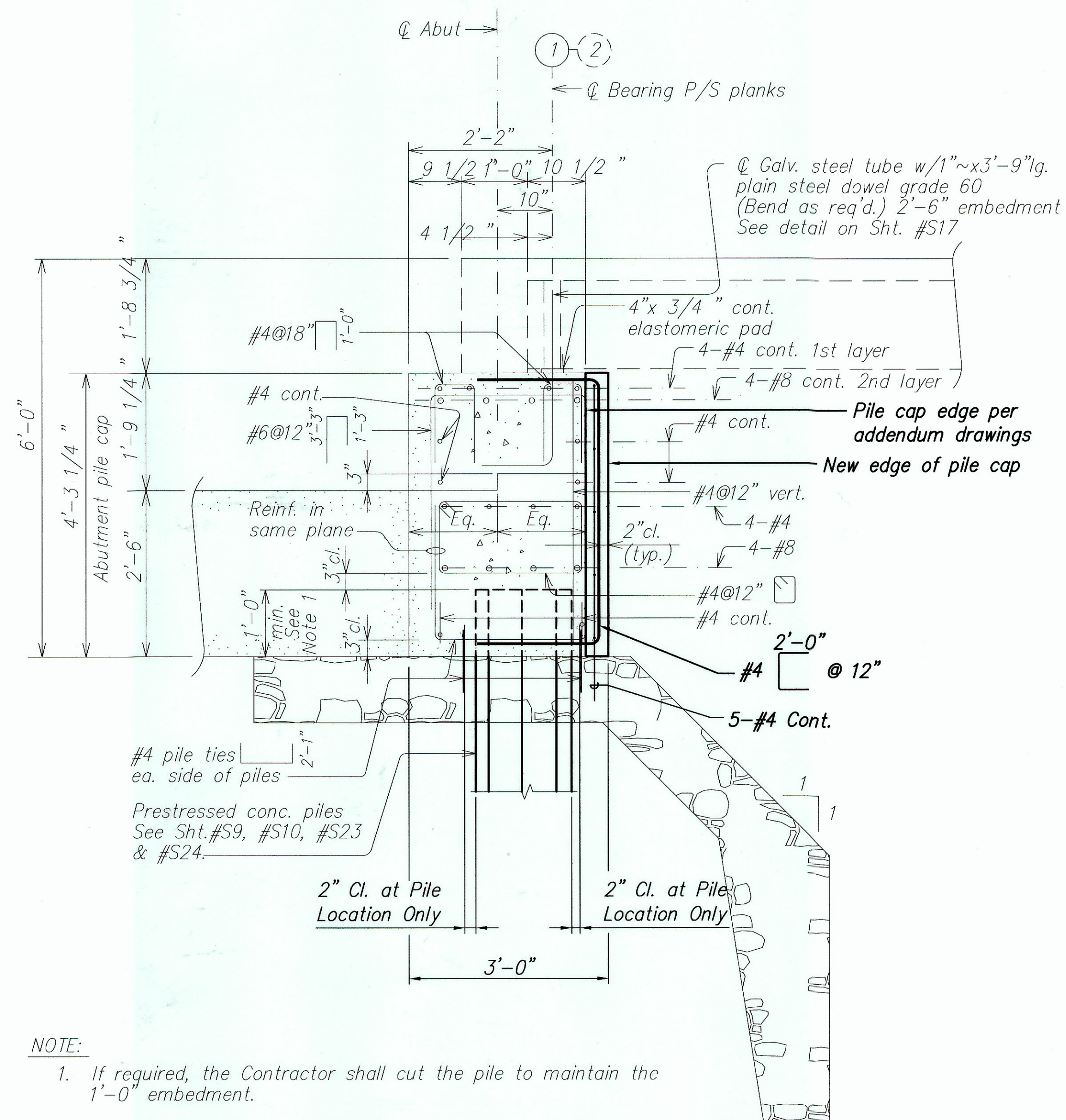
SCALE: AS SHOWN DATE: JULY 2001

SHEET NO. 3-517 OF 4-28 SHEETS

"AS-BUILT"

C.O. 30S-1

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	BR-STP-056-1(35)	2000	C.O. 30S-2	70



TYPICAL ABUTMENT SECTION

Scale: 3/4" = 1'-0"

THIS SHEET WAS PREPARED DURING
"AS-BUILT" POSTING AND IT SUPERSEDES
PLAN SHEET NO. C.O. 30, TYP. ABUTMENT
SECTION



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION.

[Signature]

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WAIKAE A BRIDGE WIDENING TYPICAL ABUTMENT SECTIONS

KUHIO HIGHWAY-WAIKAE A BRIDGE WIDENING
Fed. Aid Proj. No. BR-STP-056-1(35)

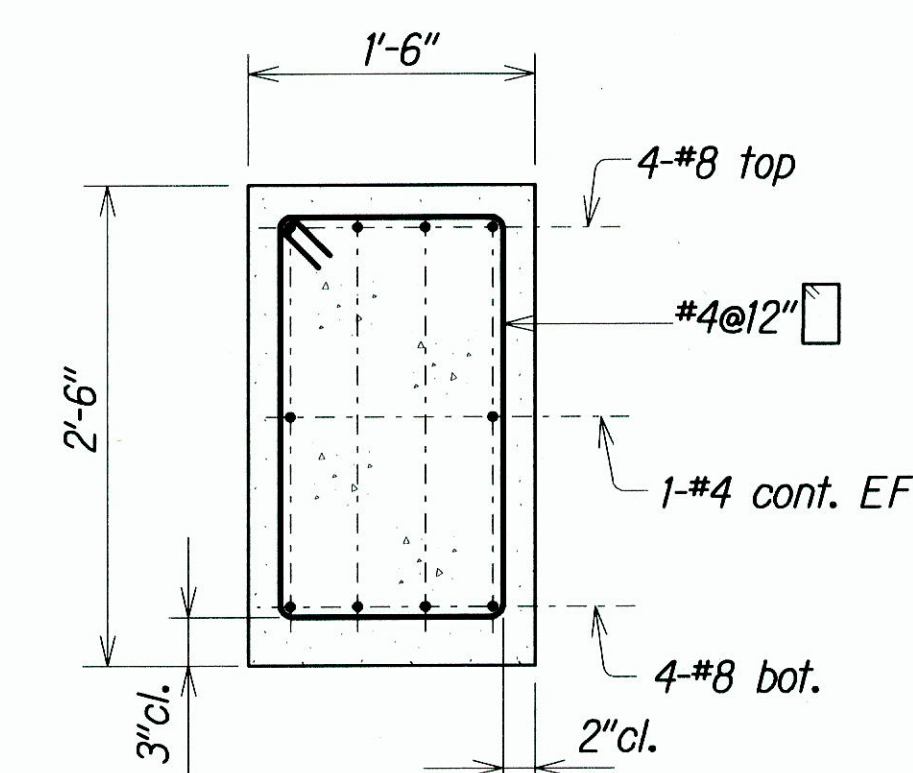
SCALE: AS SHOWN DATE: JULY 2001

SHEET No. 45 OF 46 SHEETS

"AS-BUILT"

C.O. 30S-2

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-STP-056-1(35)	2000	31	70



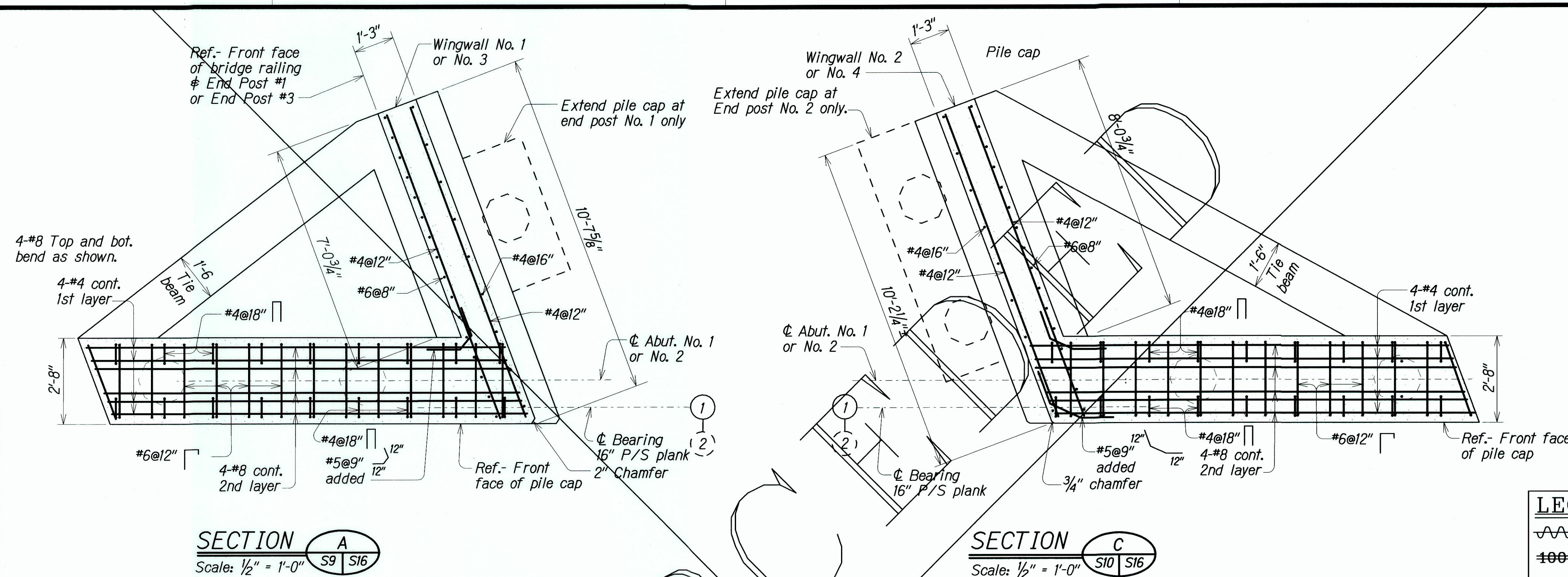
SECTION **E**
Scale: 1" = 1'-0" S16 S16

LEGEND FOR AS-BUILT POSTINGS	
	Squiggly line for as-built deletion
	Double line for as-built deletion
Roadway	Text for as-built posting

NOTE:
SEE SHEET NO. 31S-1
FOR "AS-BUILT" POSTING
WHICH SUPERCEDES THIS
SHEET.

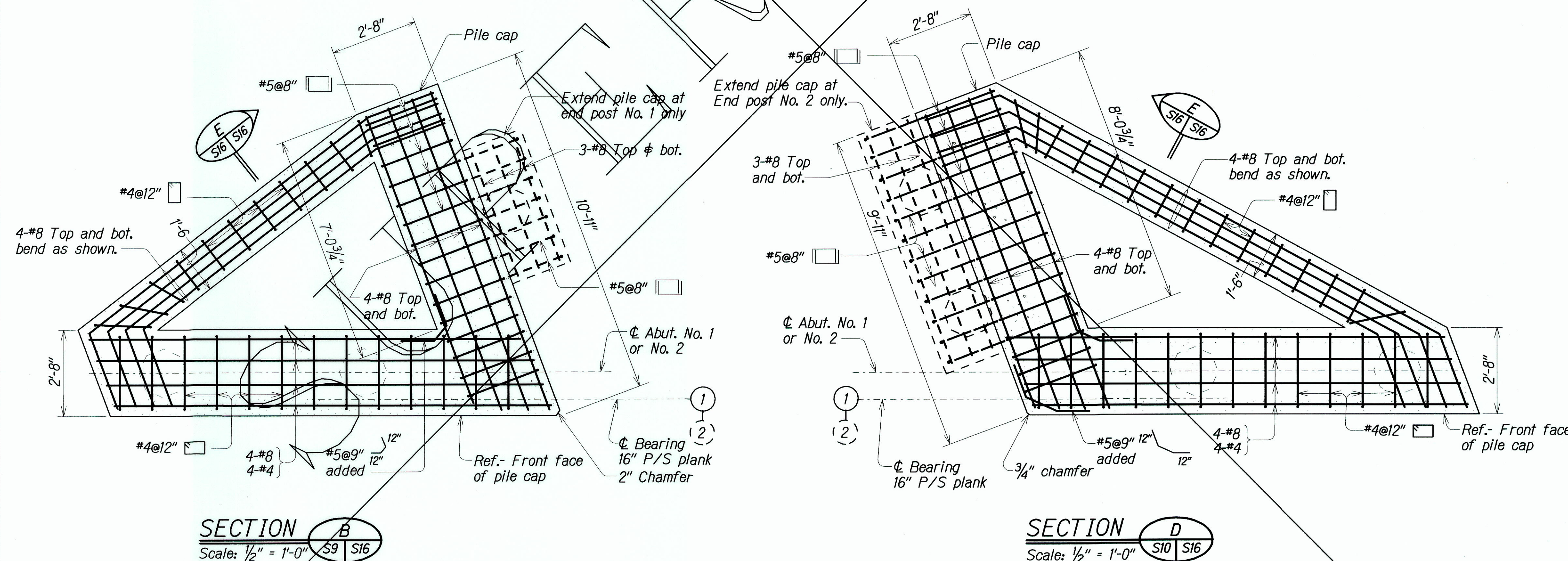
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WAIKAEA BRIDGE WIDENING
TYPICAL PILE CAP SECTIONS
AT WINGWALL NO. 1, NO. 2, NO. 3 & NO. 4
KUHIO HIGHWAY-WAIKAEA BRIDGE WIDENING
Fed. Aid Proj. No. BR-STP-056-1(35)
Scale: As Noted Date: Aug. 1999
SHEET No. S16 OF 26 SHEETS



SECTION **A**
Scale: 1/2" = 1'-0" S9 S16

SECTION **C**
Scale: 1/2" = 1'-0" S10 S16



SECTION **B**
Scale: 1/2" = 1'-0" S9 S16

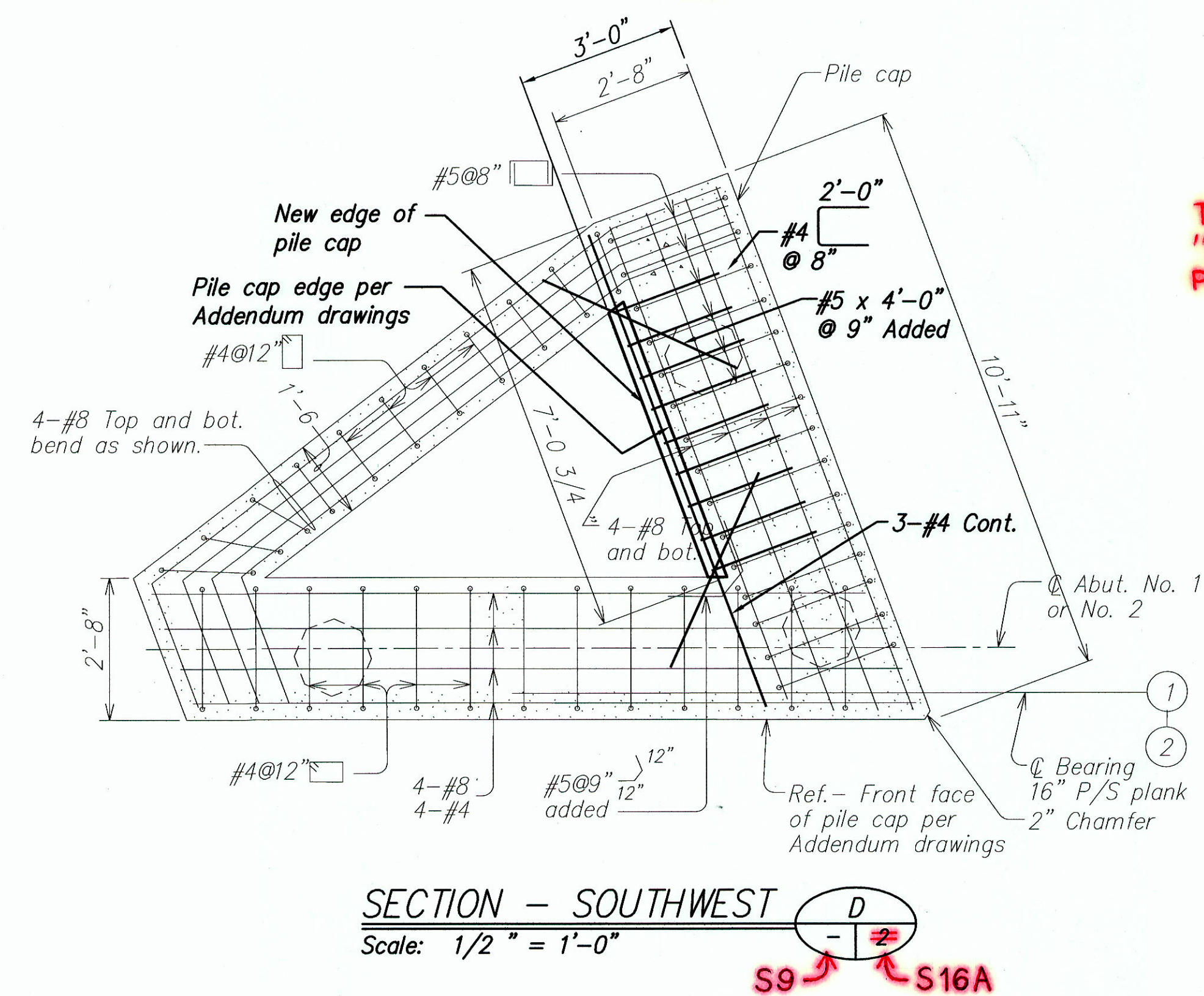
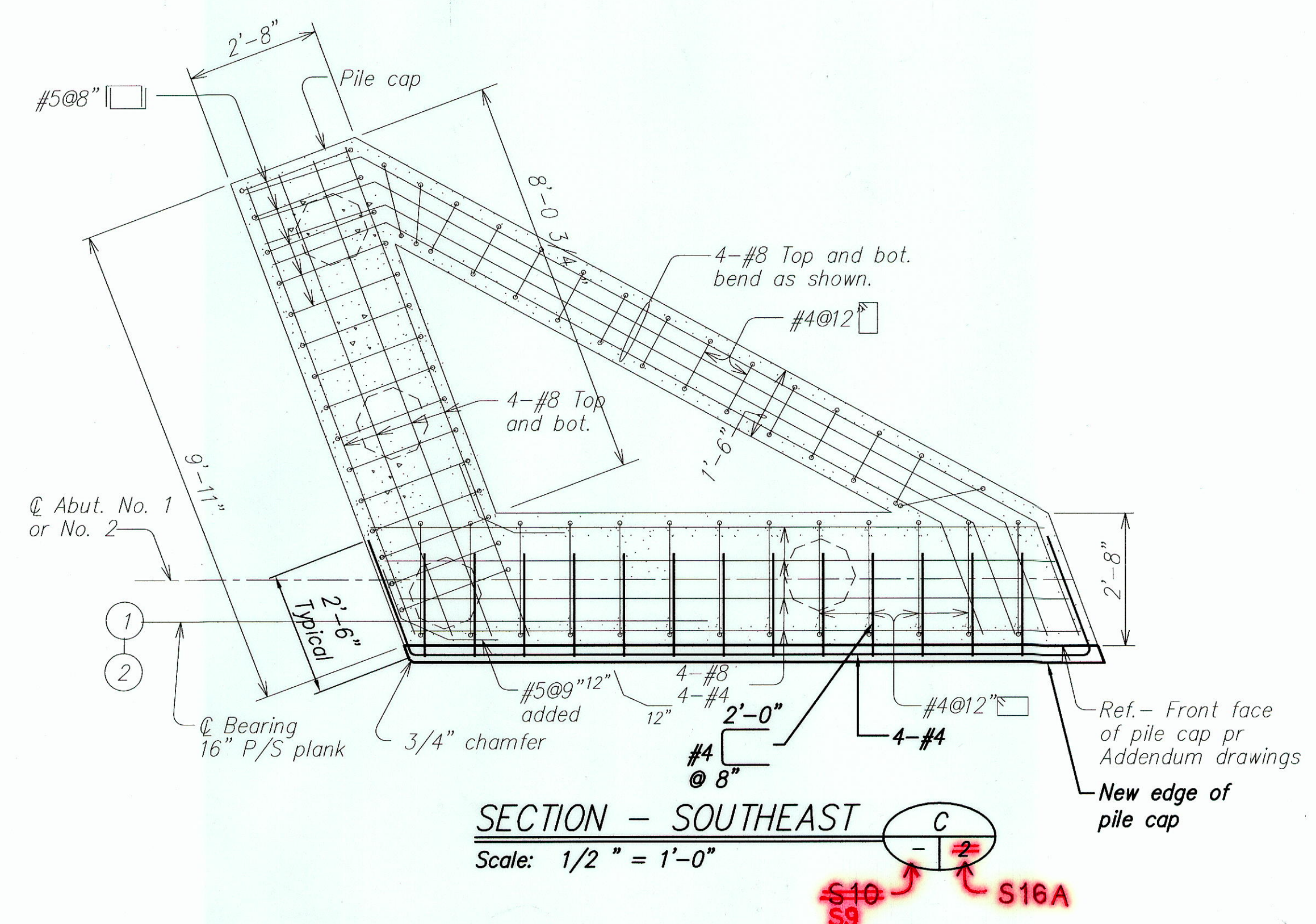
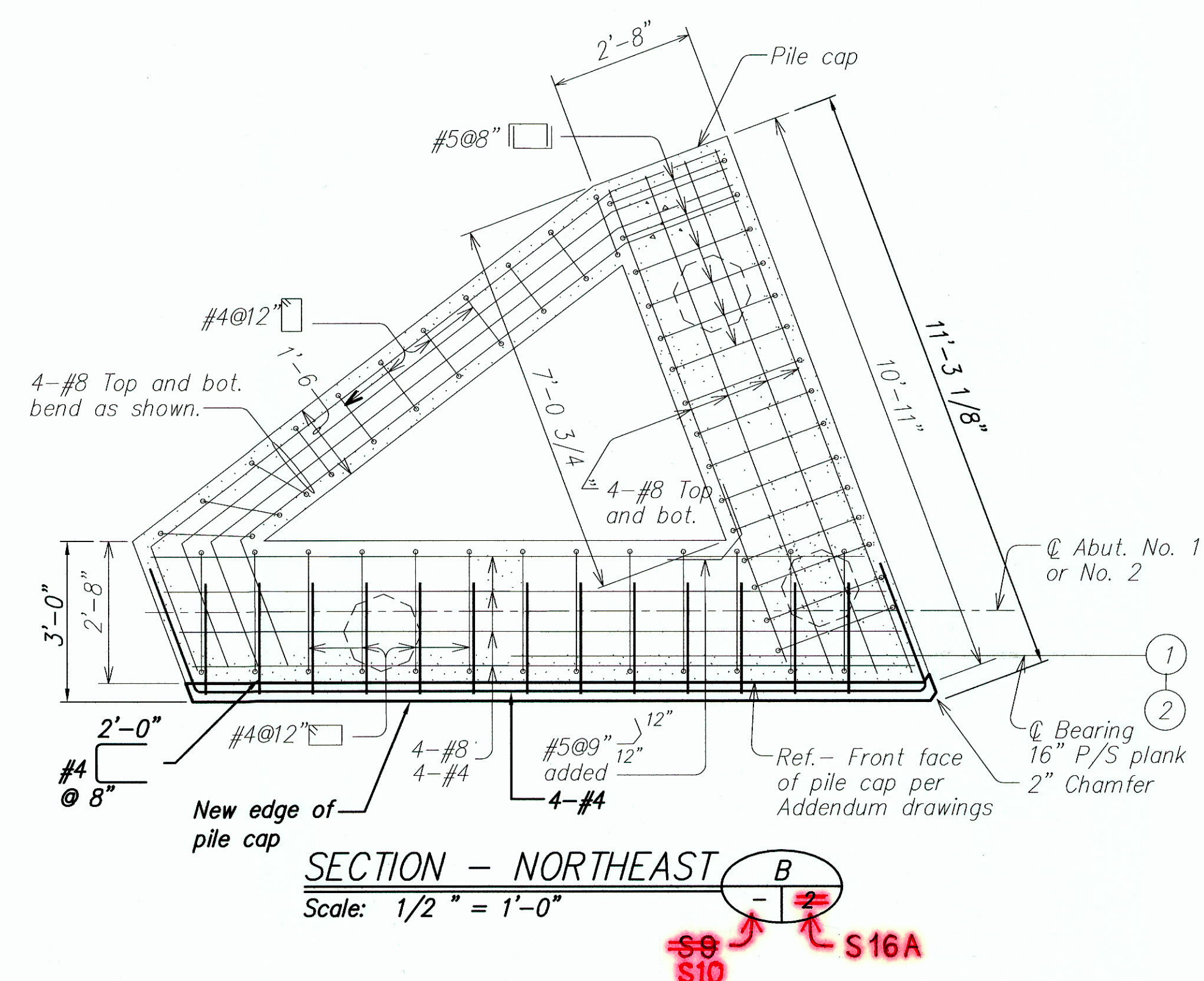
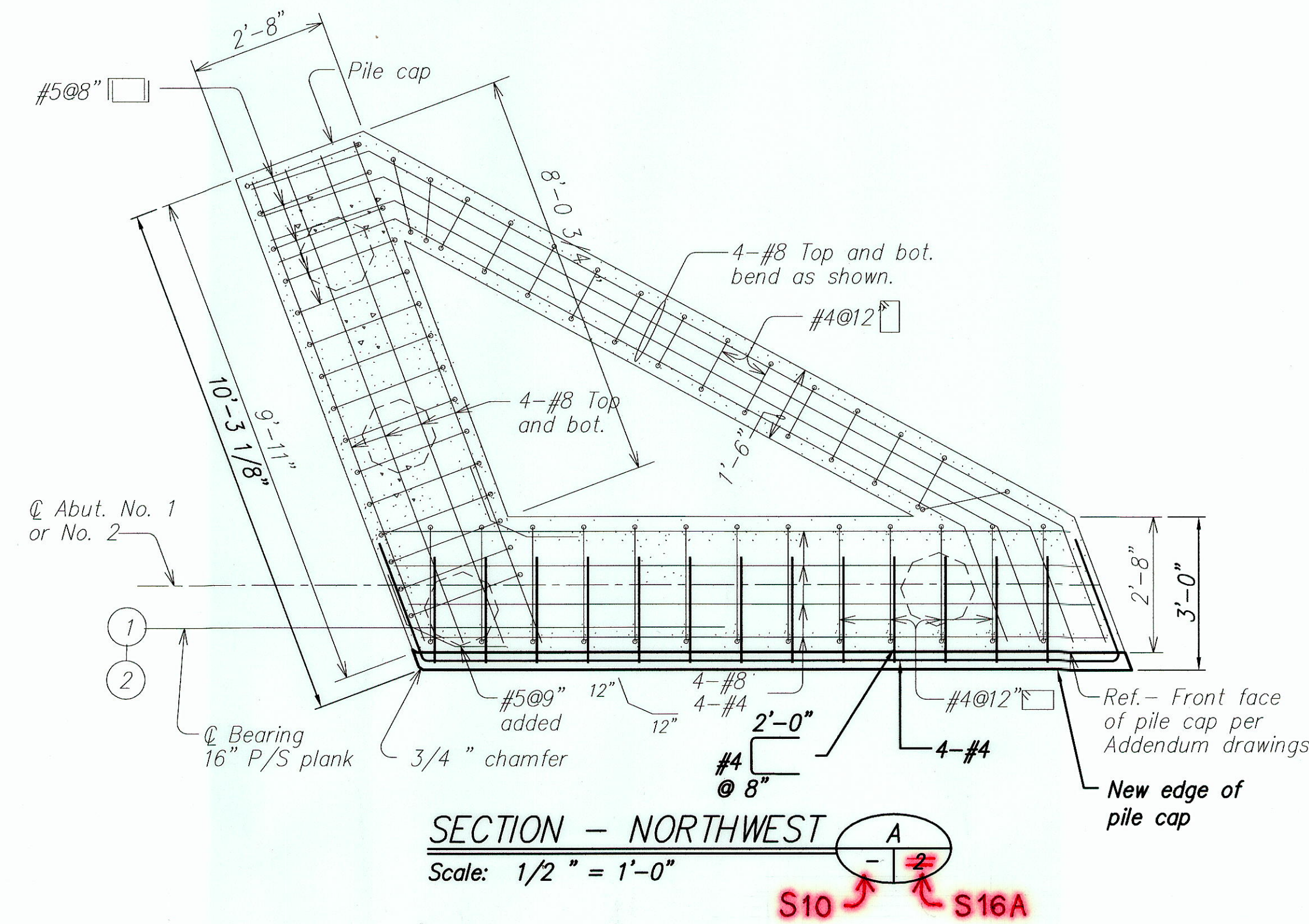
SECTION **D**
Scale: 1/2" = 1'-0" S10 S16

TYPICAL PILE CAP SECTION AT WINGWALL NO. 1
(WINGWALL NO. 3 SIMILAR EXCEPT OPPOSITE HAND)

TYPICAL PILE CAP SECTION AT WINGWALL NO. 2
(WINGWALL NO. 4 SIMILAR EXCEPT OPPOSITE HAND)

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	BR-STP-056-1(35)	2000	315-1	70



THIS SHEET WAS PREPARED DURING
"AS-BUILT" POSTING AND IT SUPERSEDES
PLAN SHEET NO. 31



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION.
Ref. [Signature]

TYPICAL PILE CAP SECTION AT WINGWALL NO. 2
(WINGWALL NO. 4 SIMILAR EXCEPT OPPOSITE HAND)

TYPICAL PILE CAP SECTION AT WINGWALL NO. 1
(WINGWALL NO. 3 SIMILAR EXCEPT OPPOSITE HAND)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

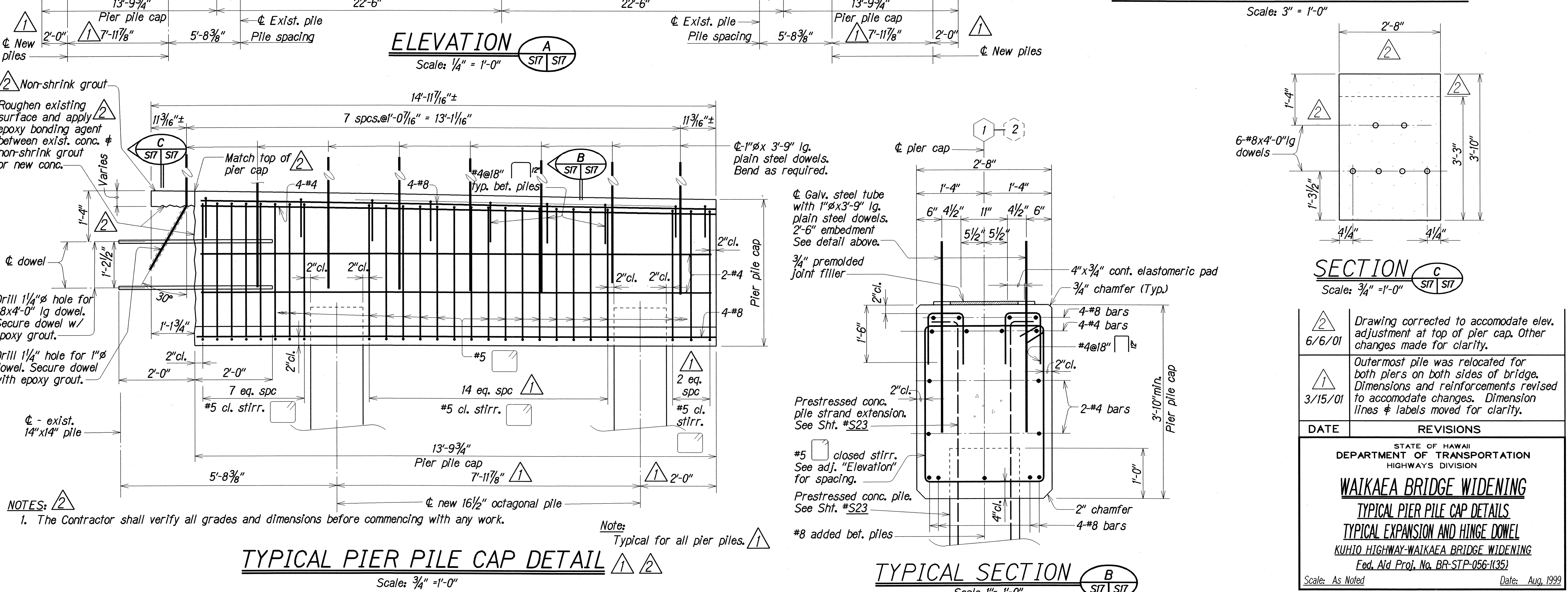
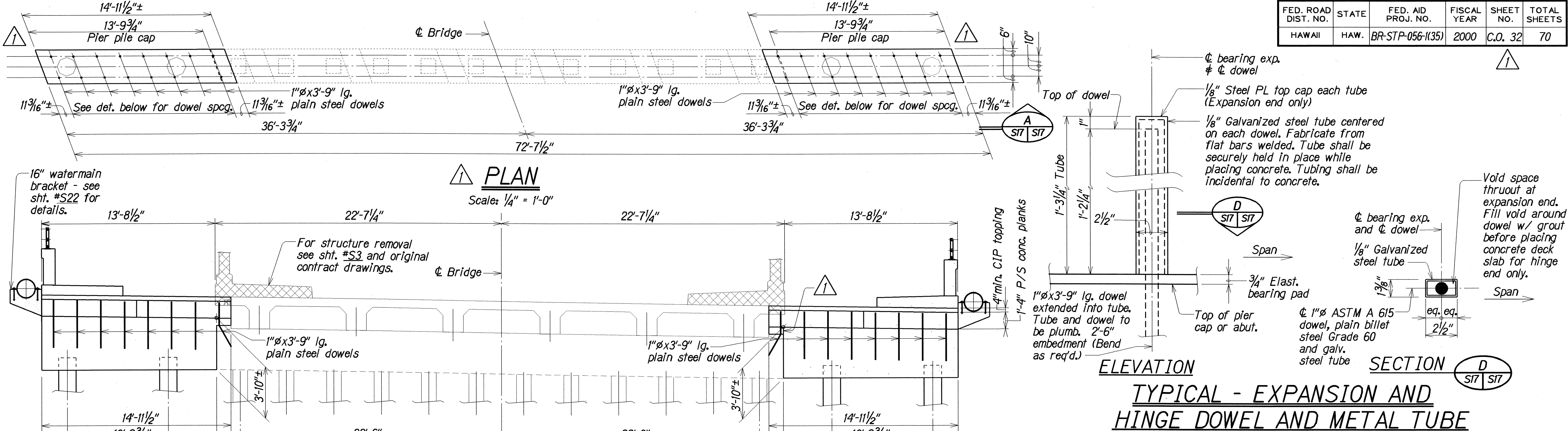
WAIKAEA BRIDGE WIDENING
TYPICAL PILE CAP SECTIONS
AT WINGWALL NO. 1, NO.2, NO. 3 & NO. 4
KUHIO HIGHWAY-WAIKAEA BRIDGE WIDENING
Fed. Aid Proj. No. BR-STP-056-1(35)

SCALE: AS SHOWN DATE: JULY 2001
SHEET No. 315 OF 426 SHEETS

"AS-BUILT"

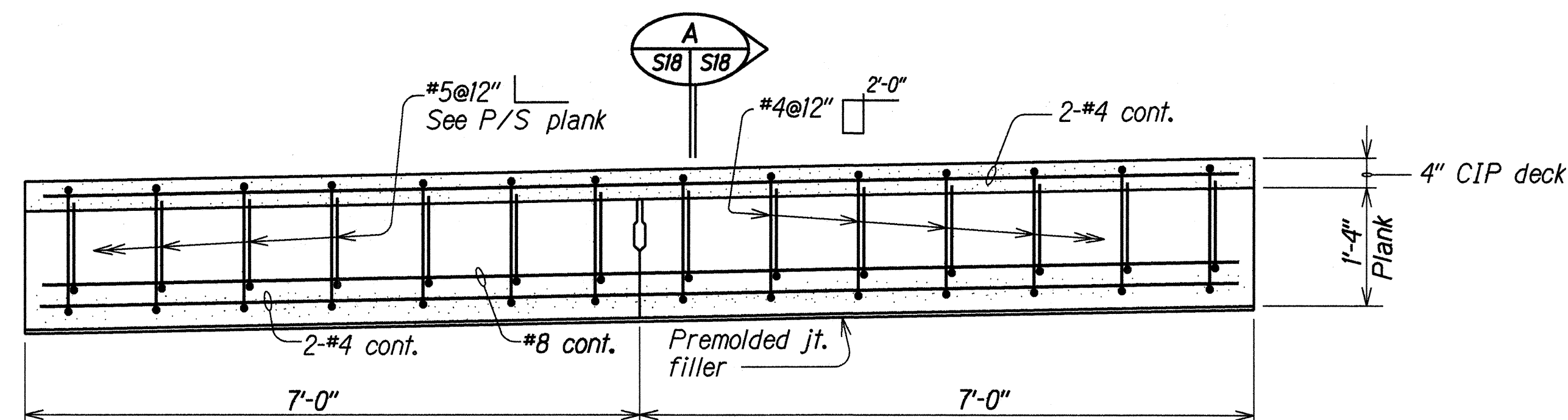
315-1

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-STP-056-1(35)	2000	C.O. 32	70



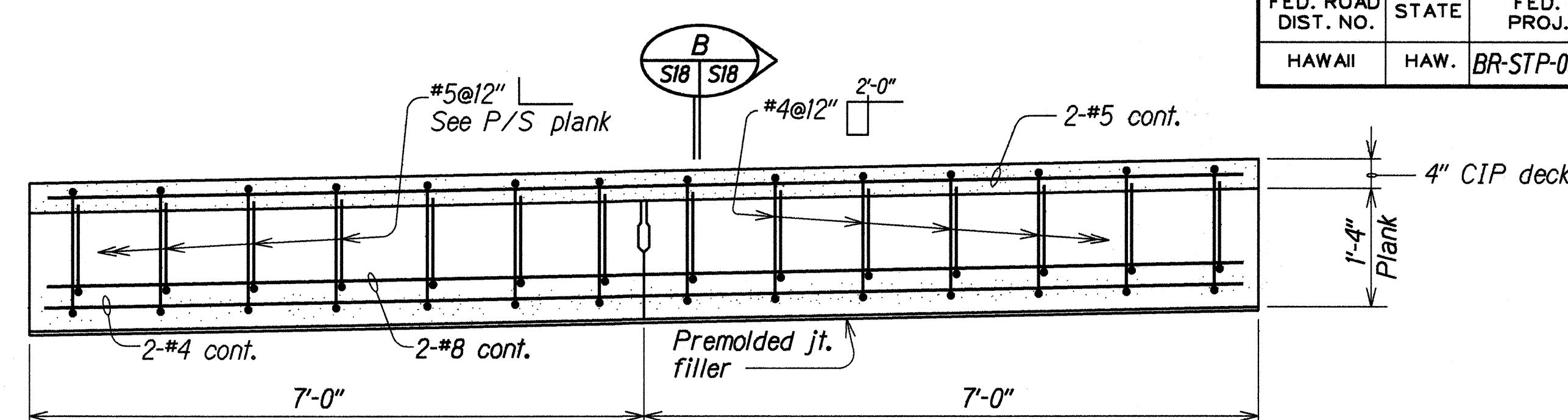
SURVEY PLOTTED BY	DATE
DRAWN BY	AUG 1992
NOTE BOOK	AUG 1992
QUANTITIES BY	AUG 1992
CHECKED BY	AUG 1992

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-STP-056-1(35)	2000	33	70



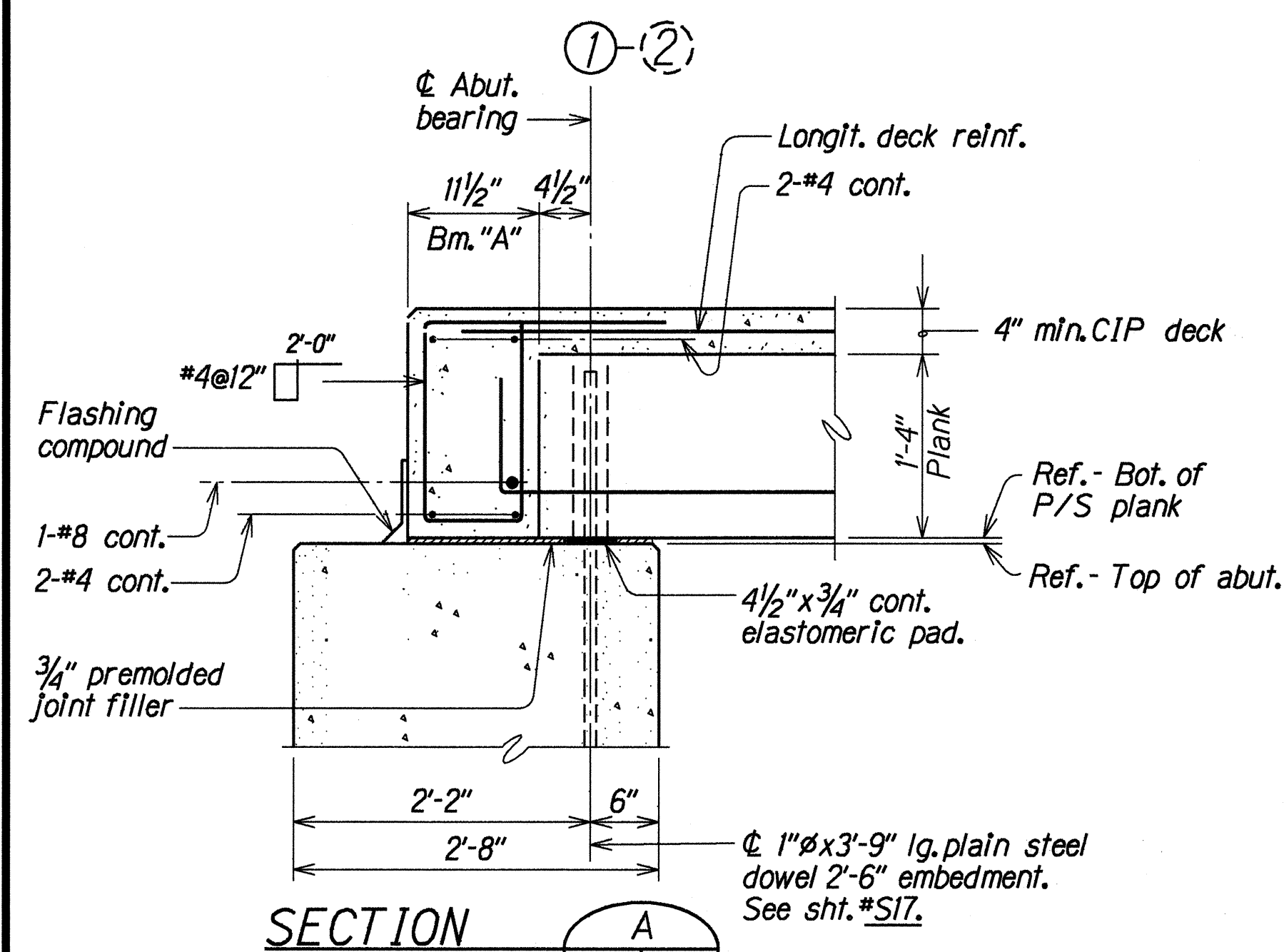
ELEVATION--BEAM "A"

Scale: $\frac{3}{4}" = 1'-0"$



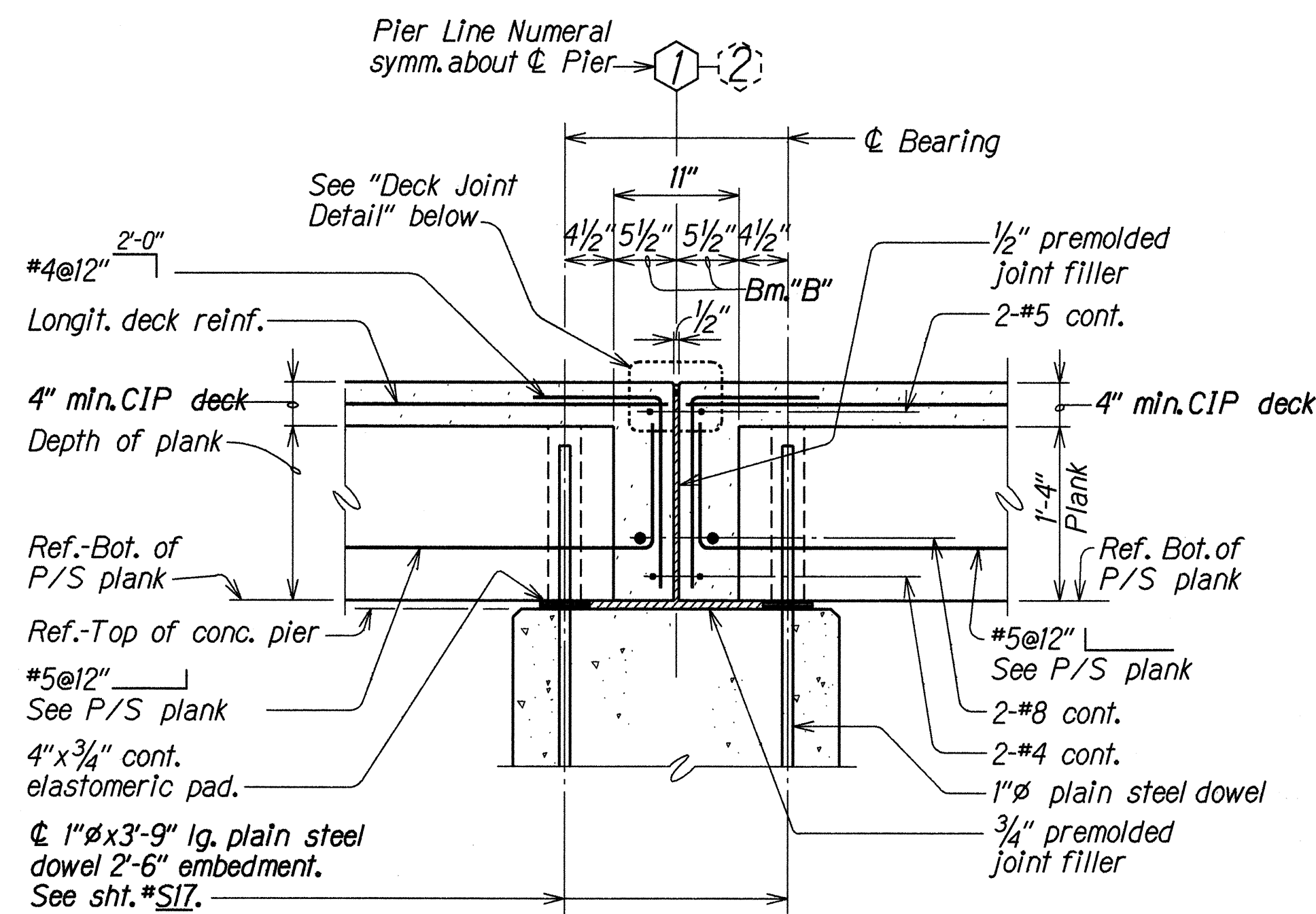
ELEVATION--BEAM "B"

Scale: $\frac{3}{4}" = 1'-0"$



SECTION A

S18 S18

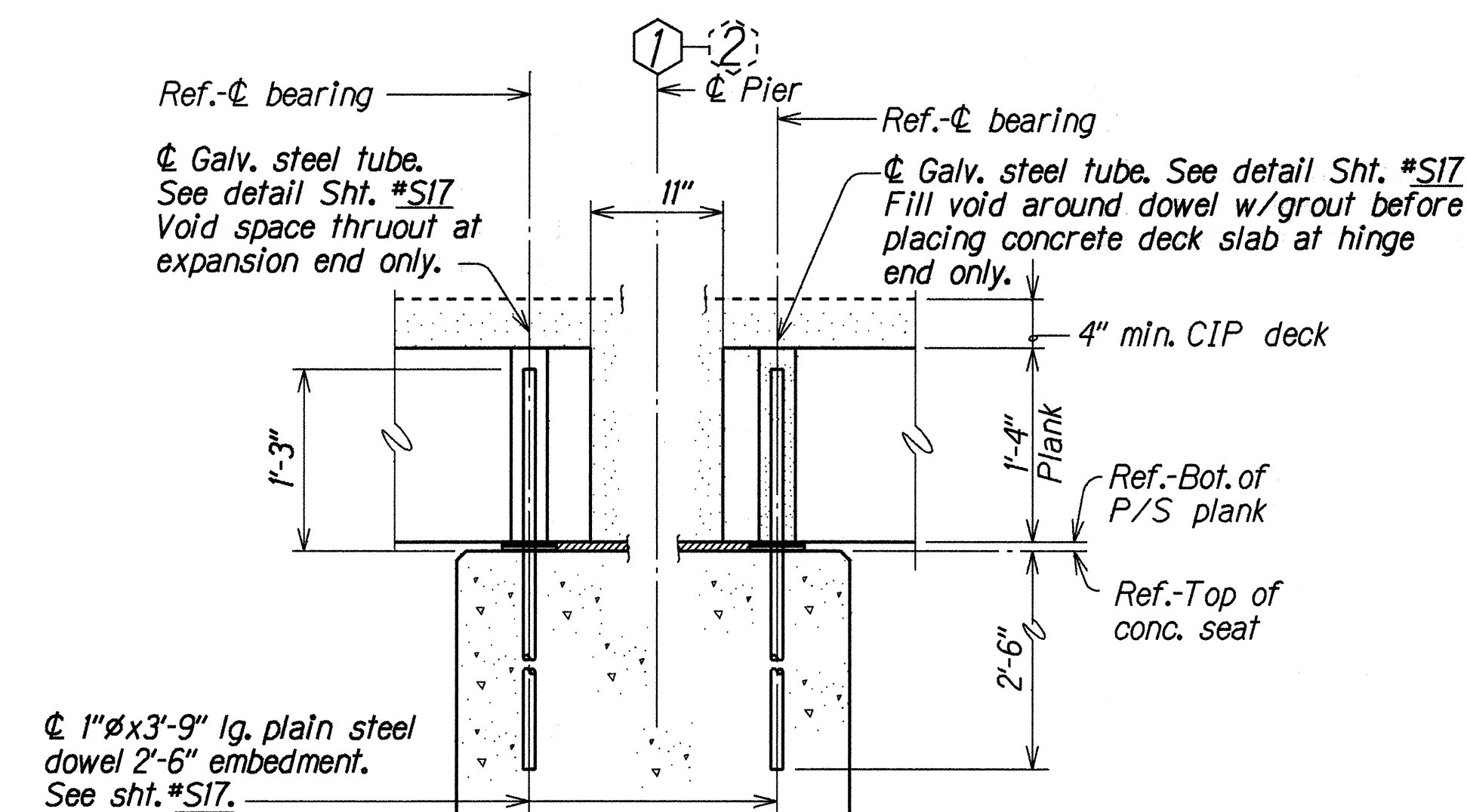


SECTION B

S18 S18

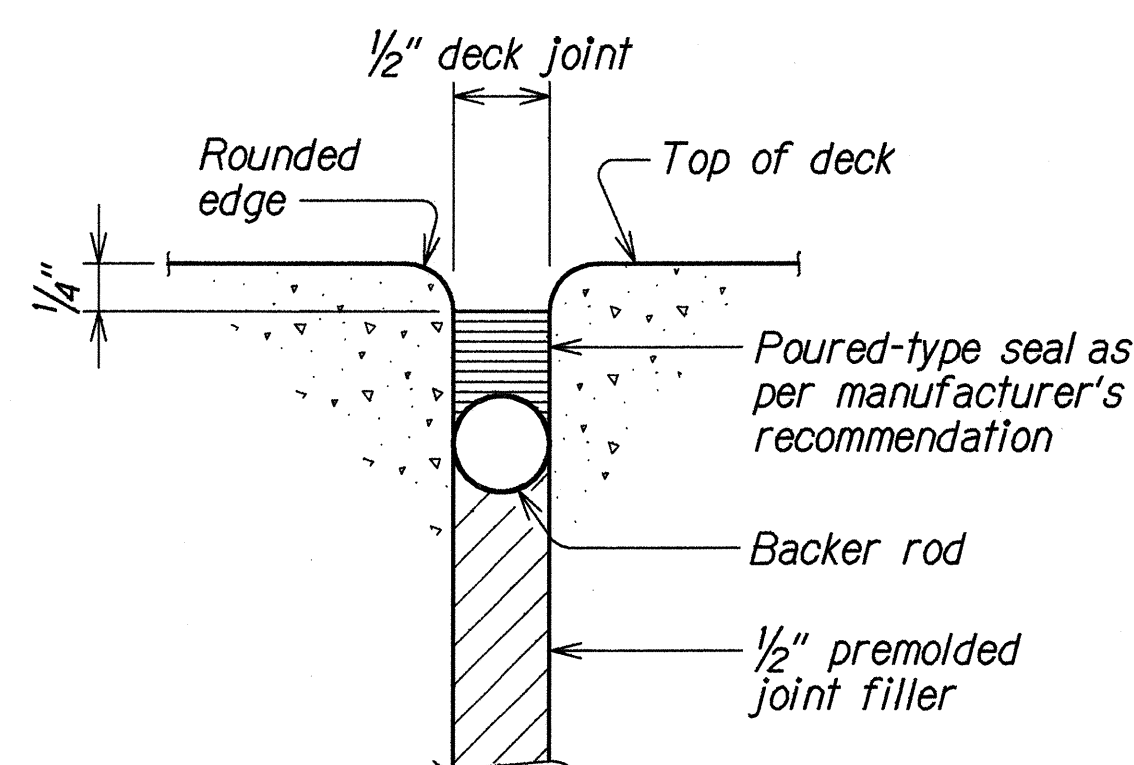
TYPICAL DETAILS--BEAM "B"

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



TYPICAL DETAIL--PRESTRESSED PLANK CONNECTION TO PIER CAP

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



DECK JOINT DETAIL

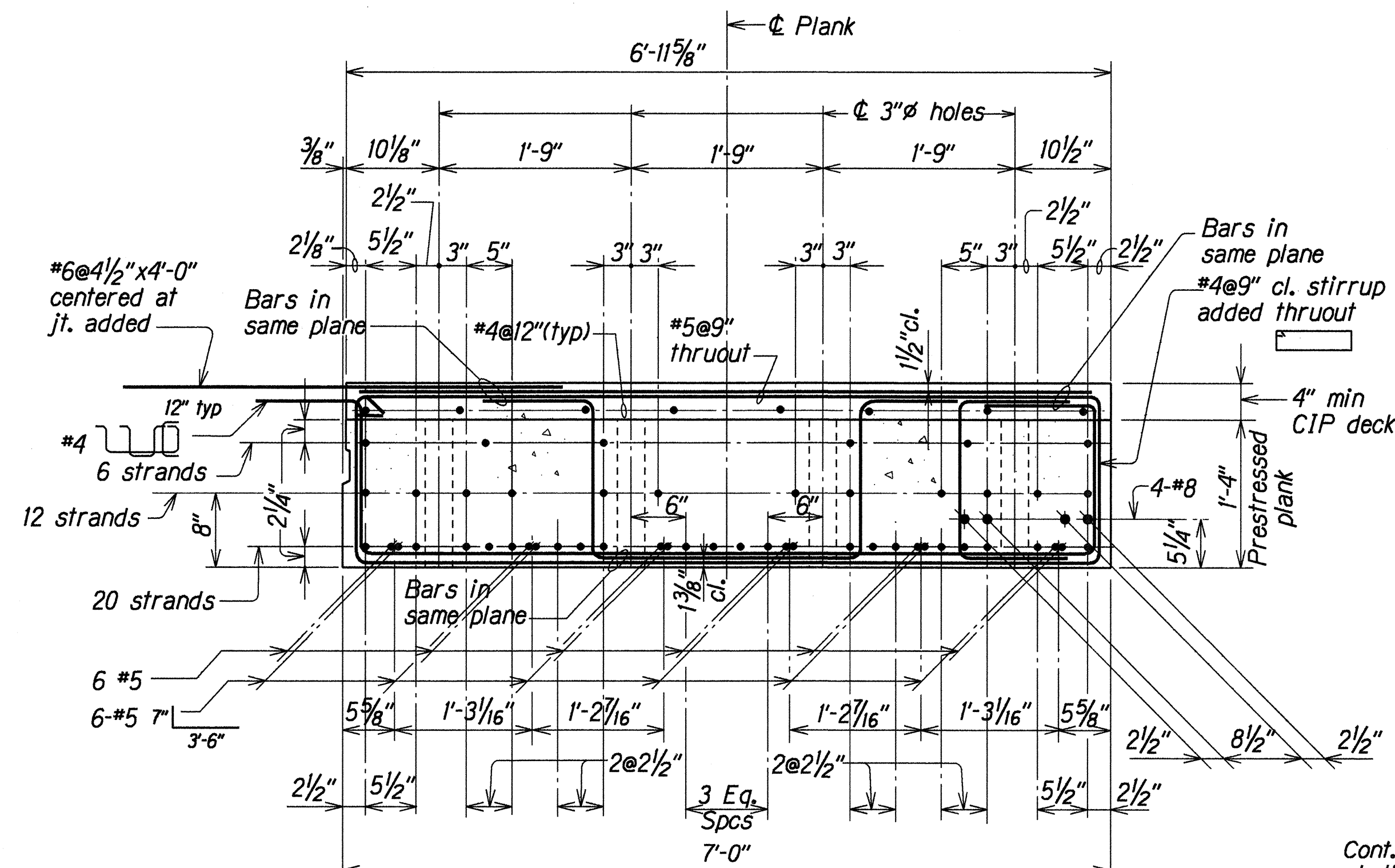
Full Scale

ORIGINAL PLAN	DATE
NOTED	1/1/99
DESIGNED BY	1/1/99
QUANTITIES BY	1/1/99
CHECKED BY	1/1/99

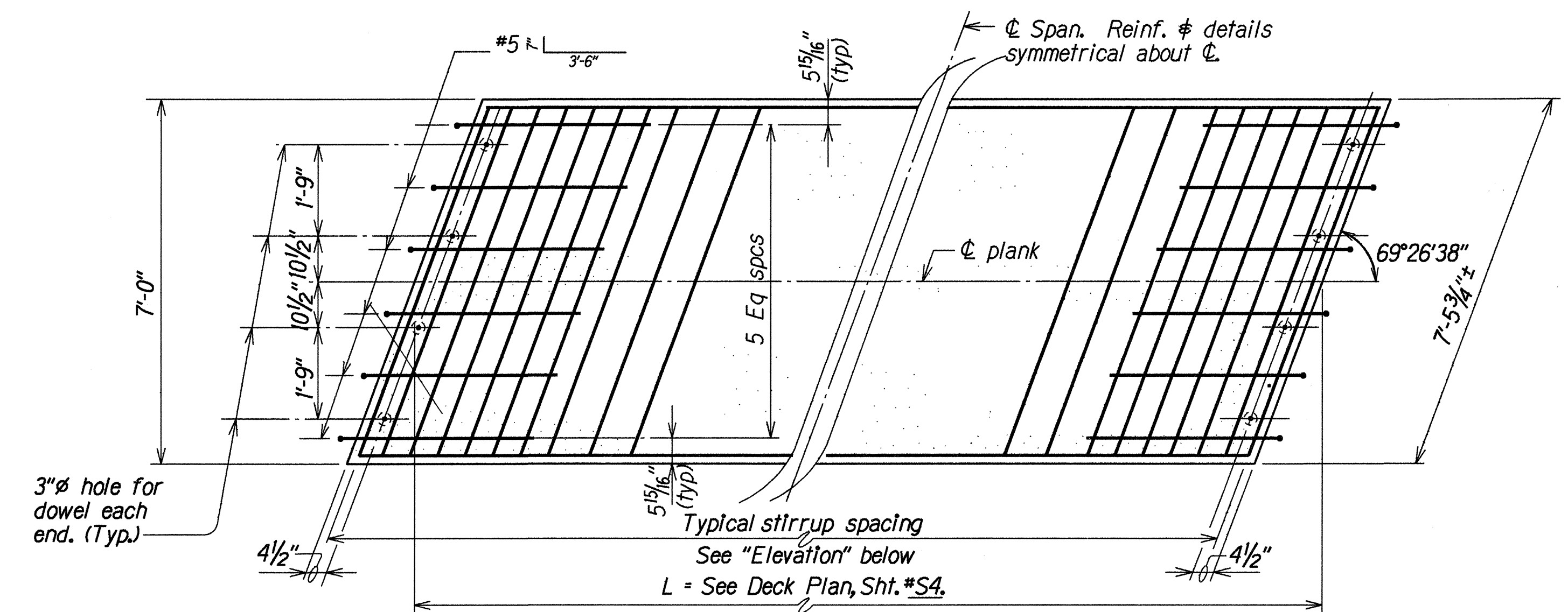
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WAIKAEA BRIDGE WIDENING
TYPICAL BEAM "A", BEAM "B"
AND DECK JOINT DETAIL
KUHIO HIGHWAY-WAIKAEA BRIDGE WIDENING
Fed. Aid Proj. No. BR-STP-056-1(35)
Scale: As Noted Date: Aug. 1999

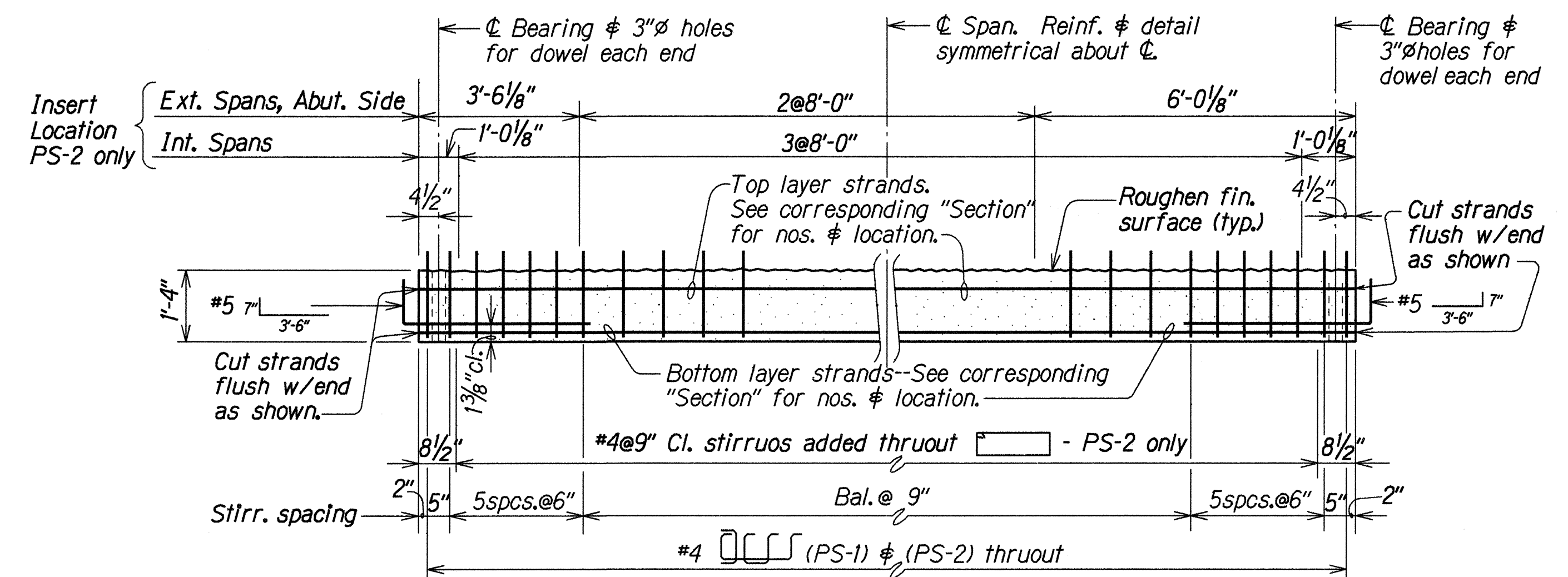
Scale: 1" = 1'-0"



Scale: 1" = 1'-0"

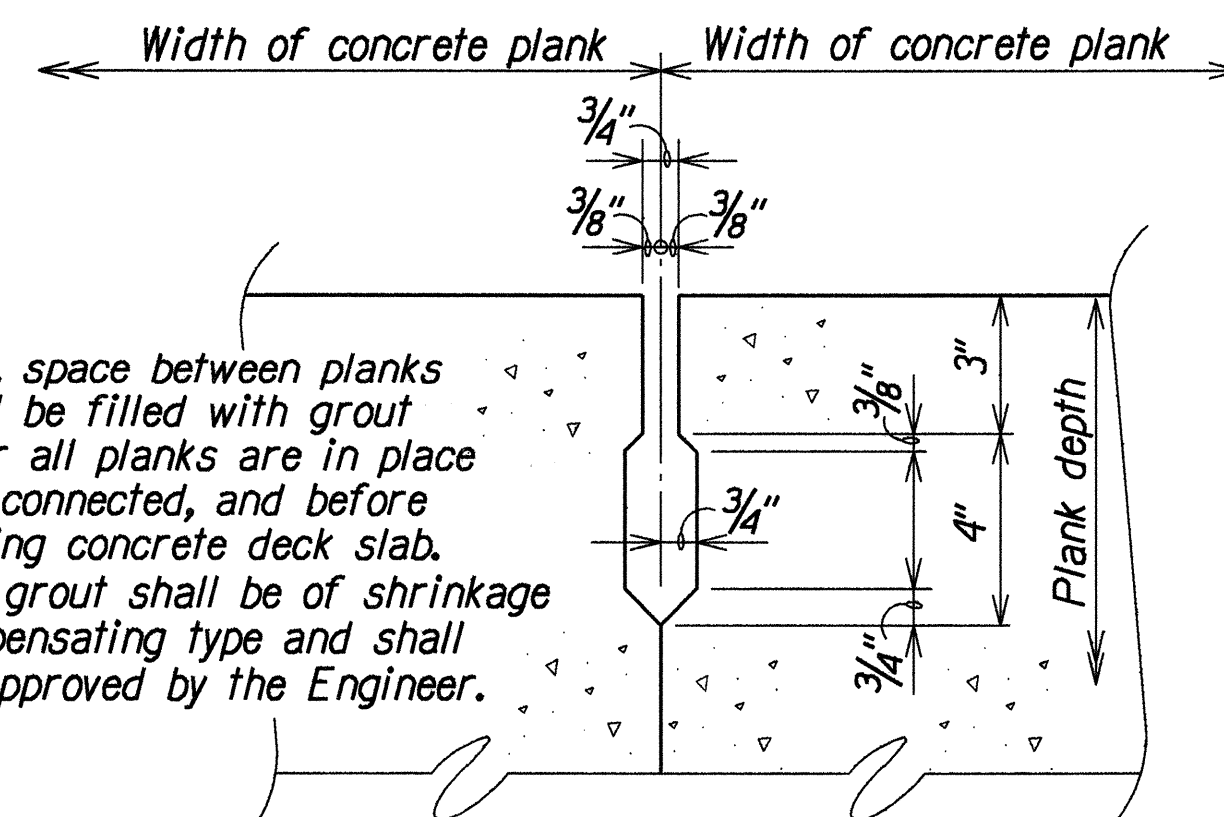


PLAN



TYPICAL PRESTRESSED CONCRETE PLANK - PS-1, PS-2

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



Scale: 3" = 1'-0"

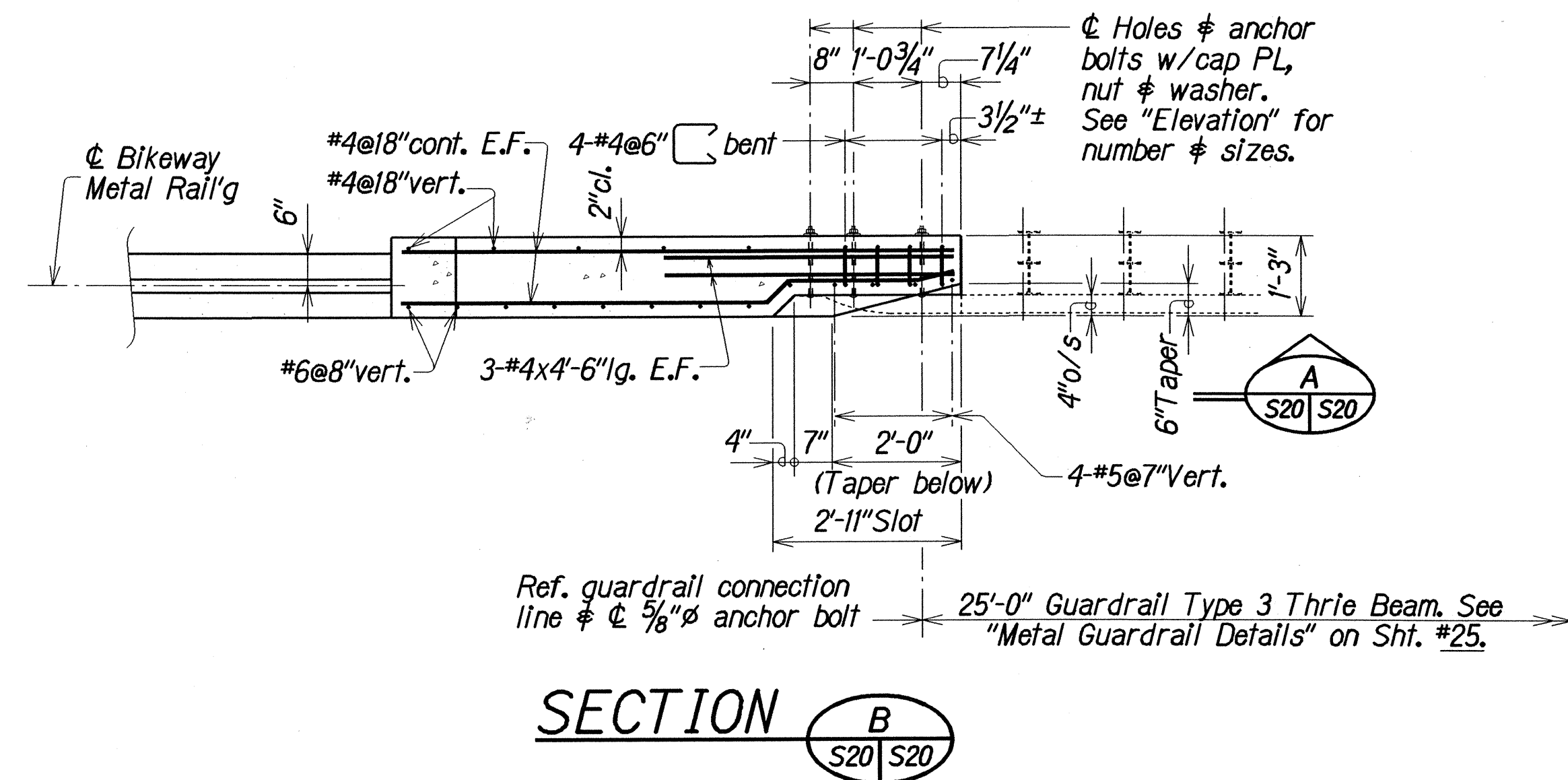
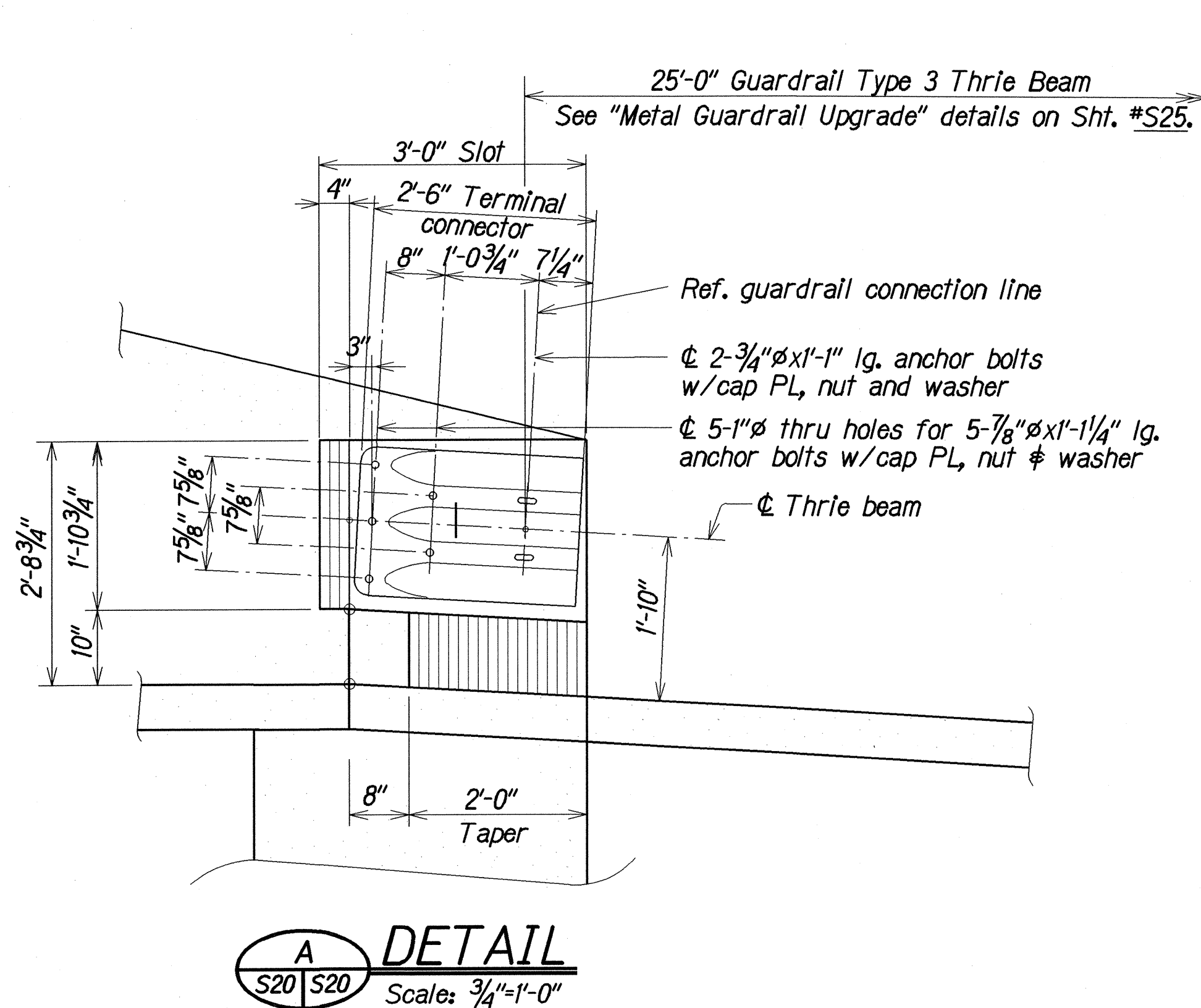
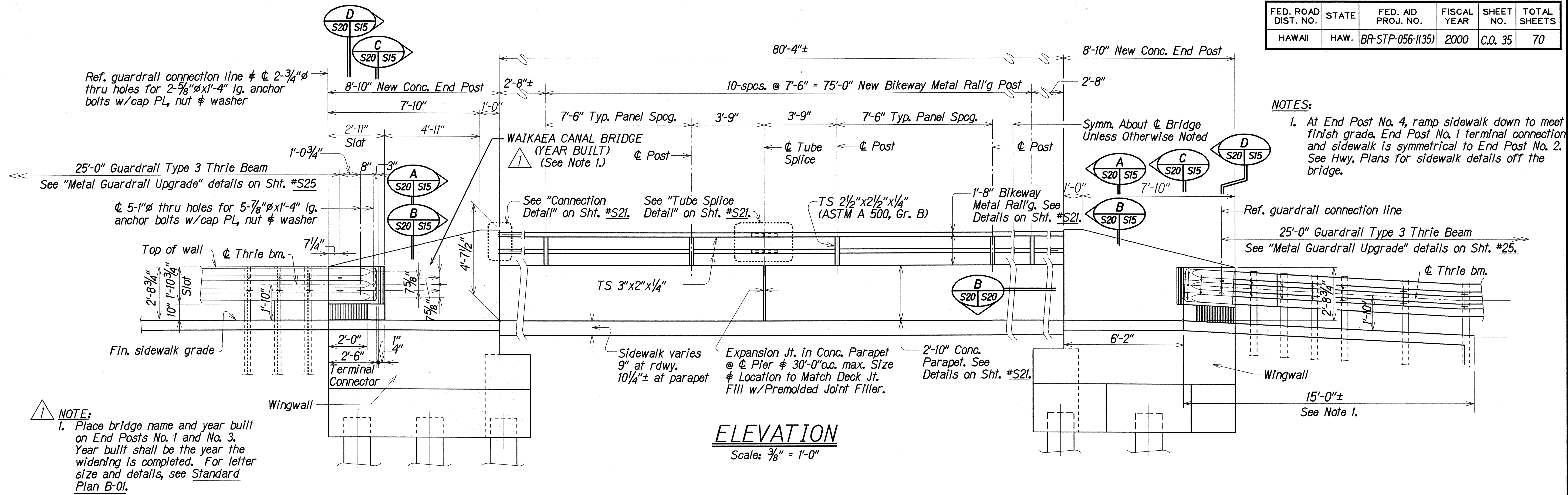
1. All reinforcing steel in concrete planks shall be incidental to prestressed concrete planks and will not be paid for separately.
2. Prestressed Concrete Planks:
 $f'c = 6,000 \text{ psi @ 28 days}$
 $fci = 4,000 \text{ psi @ transfer}$
3. Prestressed Strands: $\frac{1}{2}" \phi 270$, 7 wire strand
4. Final design stress is based on loss of 45,000 psi.

Date: Aug, 1999

SHEET No. 519 OF 26 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	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-STP-056-1(35)	2000	C.O. 35	70



1/29/02	Added bridge name and year built on End Posts No. 1 and No. 3.
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
WAIKAEA BRIDGE WIDENING	
CONCRETE RAILING, METAL GUARDRAIL AND BIKEWAY METAL RAILING	
KUHIO HIGHWAY-WAIKAEA BRIDGE WIDENING	
Fed. Aid Proj. No. BR-STP-056-1(35)	
Scale: As Noted	Date: Aug. 1999

SHEET No. S20 OF 26 SHEETS

C.O. 35

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
PLAN	LHM	AUG 1999
NOTE BOOK	DRAWN BY	
4/10/02	DESIGNED BY	
	CHECKED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-STP-056-1(35)	2000	37	70

NOTE: Anchor bolts and inserts incidental to concrete and will not be paid for separately.

TYPICAL INSERT DETAIL

SECTION A S22 S22

SECTION B S22 S22

TYPICAL 16"Ø CONCRETE WATERMAIN BRACKET DETAILS

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

PLAN

SECTION D S22 S22

TYPICAL DECK DRAIN DETAILS

Scale: 3/4"=1'-0"

ELEVATION C S22 S22

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WAIKAEA BRIDGE WIDENING
TYPICAL-CONCRETE WATERMAIN BRACKET
AND DECK DRAIN DETAILS

KUHO HIGHWAY-WAIKAEA BRIDGE WIDENING
Fed. Aid Proj. No. BR-STP-056-1(35)

Scale: As Noted Date: Aug. 1999

SHEET No. S22 OF 26 SHEETS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WAIKAEA BRIDGE WIDENING
TYPICAL-CONCRETE WATERMAIN BRACKET
AND DECK DRAIN DETAILS
KUHOA HIGHWAY-WAIKAEA BRIDGE WIDENING
Fed. Aid Proj. No. BR-STP-056-1(35)

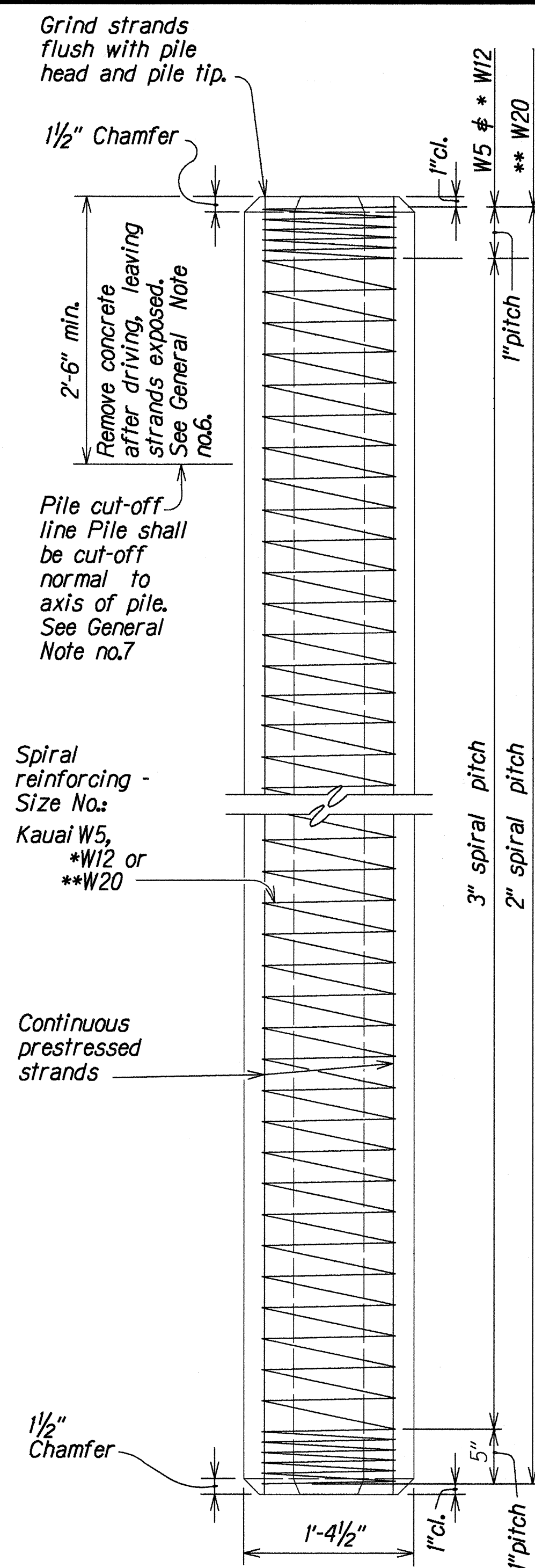
Scale: As Noted Date: Aug, 1999

SHEET No. 522 OF 26 SHEETS

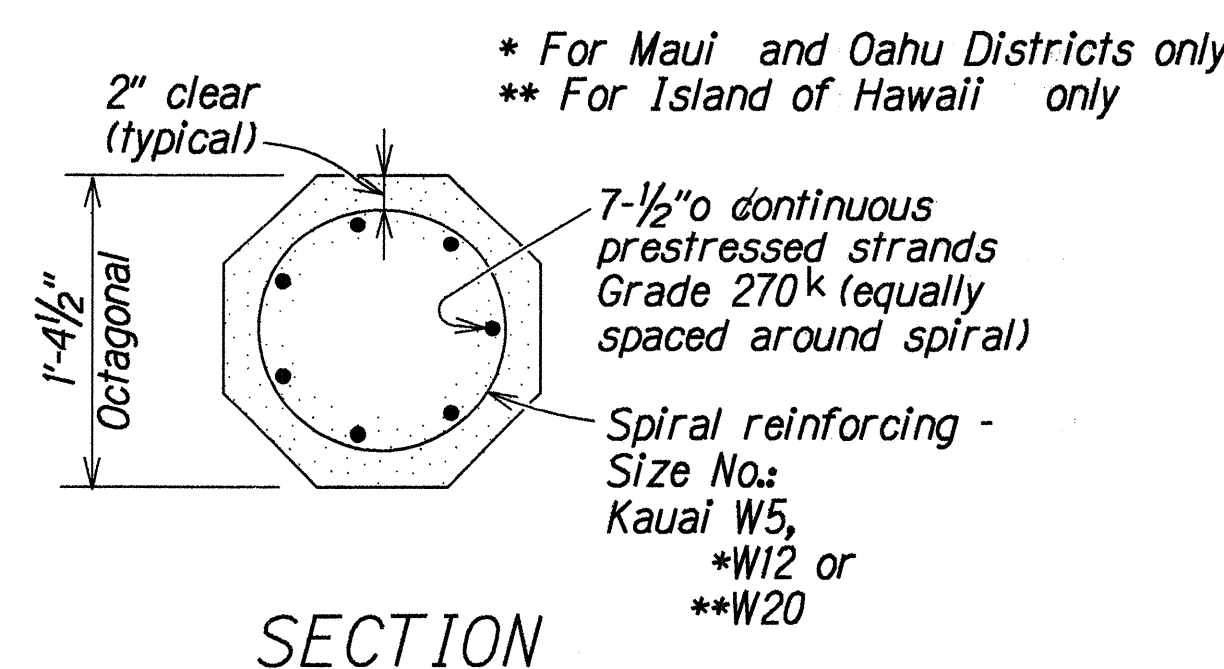
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-STP-056-1(35)	2000	38	70

GENERAL NOTES

- Concrete strengths (28-day compressive strength):
 - Standard pile: $f'_c = 5000$ psi (Kauai District only)
 $f'_c = 6000$ psi (typical)
 - Pile build-up with driving: $f'_c = 5000$ psi (Kauai District only)
 $f'_c = 6000$ psi (typical)
 - Pile build-up without driving: f'_c identical with footing or pile cap concrete.
- Reinforcing steel shall conform to the following ASTM specification:
 - Bar reinforcement: ASTM A 615M, Grade 40 (Kauai District only)
ASTM A 615M, Grade 60 (typical)
 - Spiral reinforcement: ASTM A 82.
 - Prestressing strand: ASTM A 416 Grade 270.
- Splice Can:
 - Structural steel shall conform to ASTM A 36M.
 - All welding shall meet the requirements of Section 501 of the Standard Specification.
 - No measurement for payment will be made for the splice can as it shall be considered incidental to the driving of the pile.
 - CJP = Complete Joint Penetration groove weld. Shop drawings shall show actual weld to be used.
- The minimum working force in the prestressing steel shall be 165 kips.
- Piles accepted by the Engineer shall be of sound concrete. Damaged piles shall be replaced or repaired as directed by the Engineer, at the Contractor's expense.
- Work of cutting off prestress concrete piles or concrete pile build-ups shall be performed in such a manner as to avoid spalling or damaging of the pile below cut-off. Damaged portions shall be removed and pile cut-off elevation lowered as directed by the Engineer.
- Top of pile at cut-off line shall be prepared as required for construction joints in Section 503 of the Standard Specifications.
- Pile splice will not be permitted, except for pile length in excess of 100 feet, unless otherwise approved by the Engineer.
- The in-place length of pile above the splice shall be approximately 50 percent of the total length of pile driven, unless location of splice is indicated in the plans or specification.
- Build-ups may be driven after the concrete attains a compressive strength of 4000psi, but not earlier than 7 days after the concrete is poured.

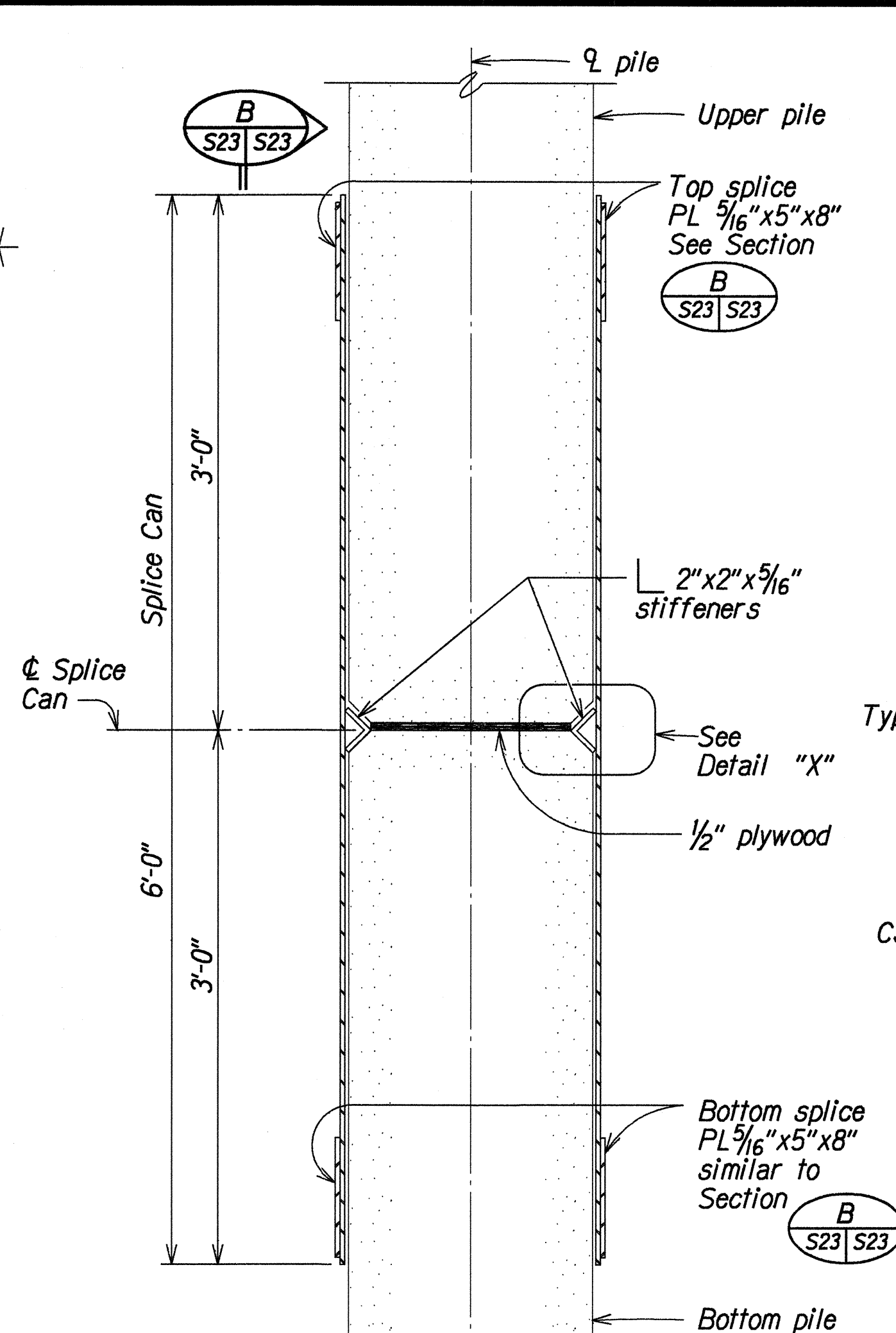


ELEVATION

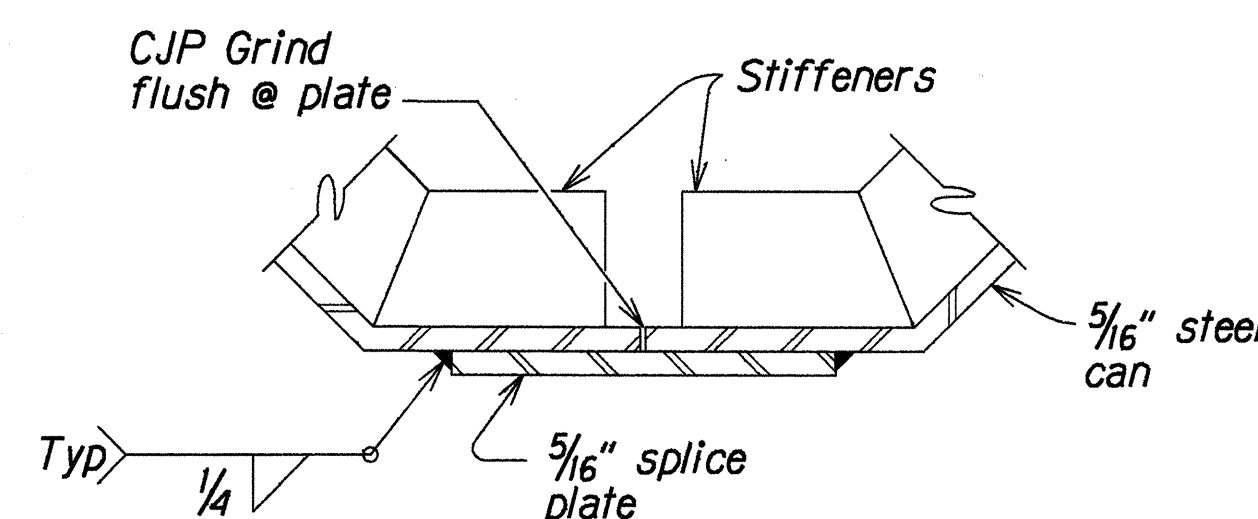


SECTION

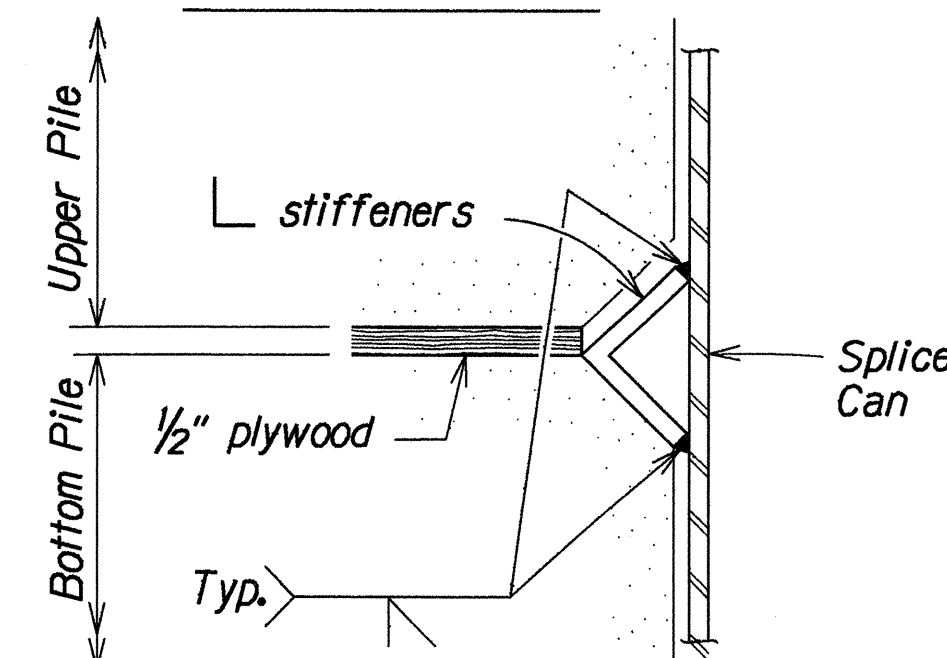
TYPICAL PILE DETAILS



SECTION A S23 S23

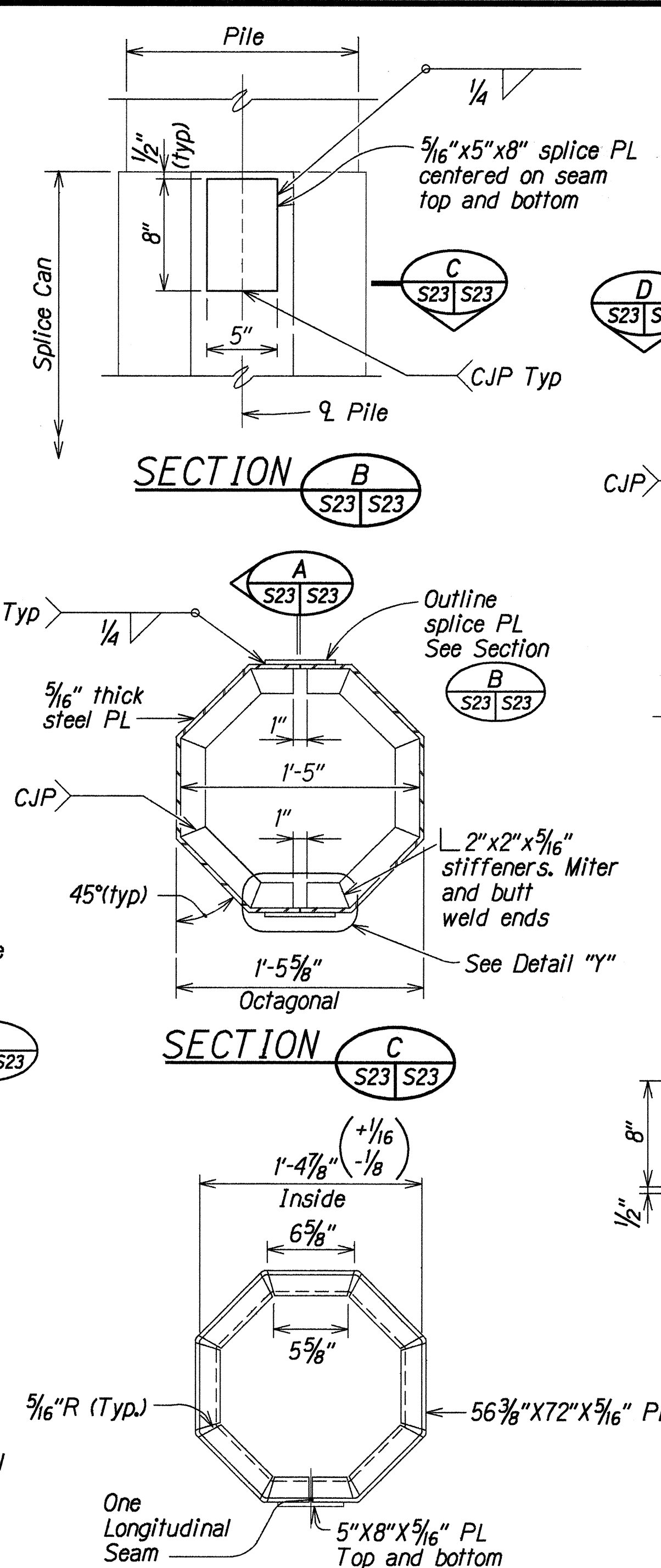


DETAIL "Y"

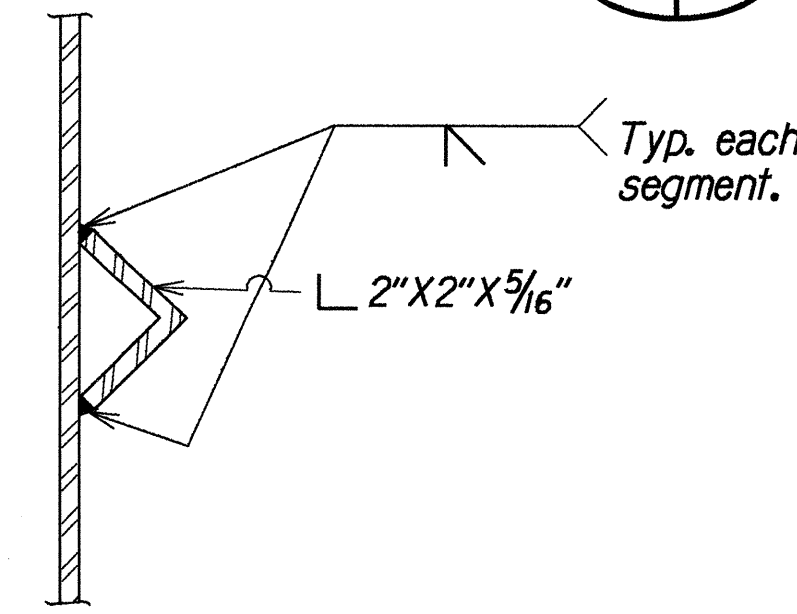


DETAIL "X"

TYPICAL PILE SPLICE DETAILS

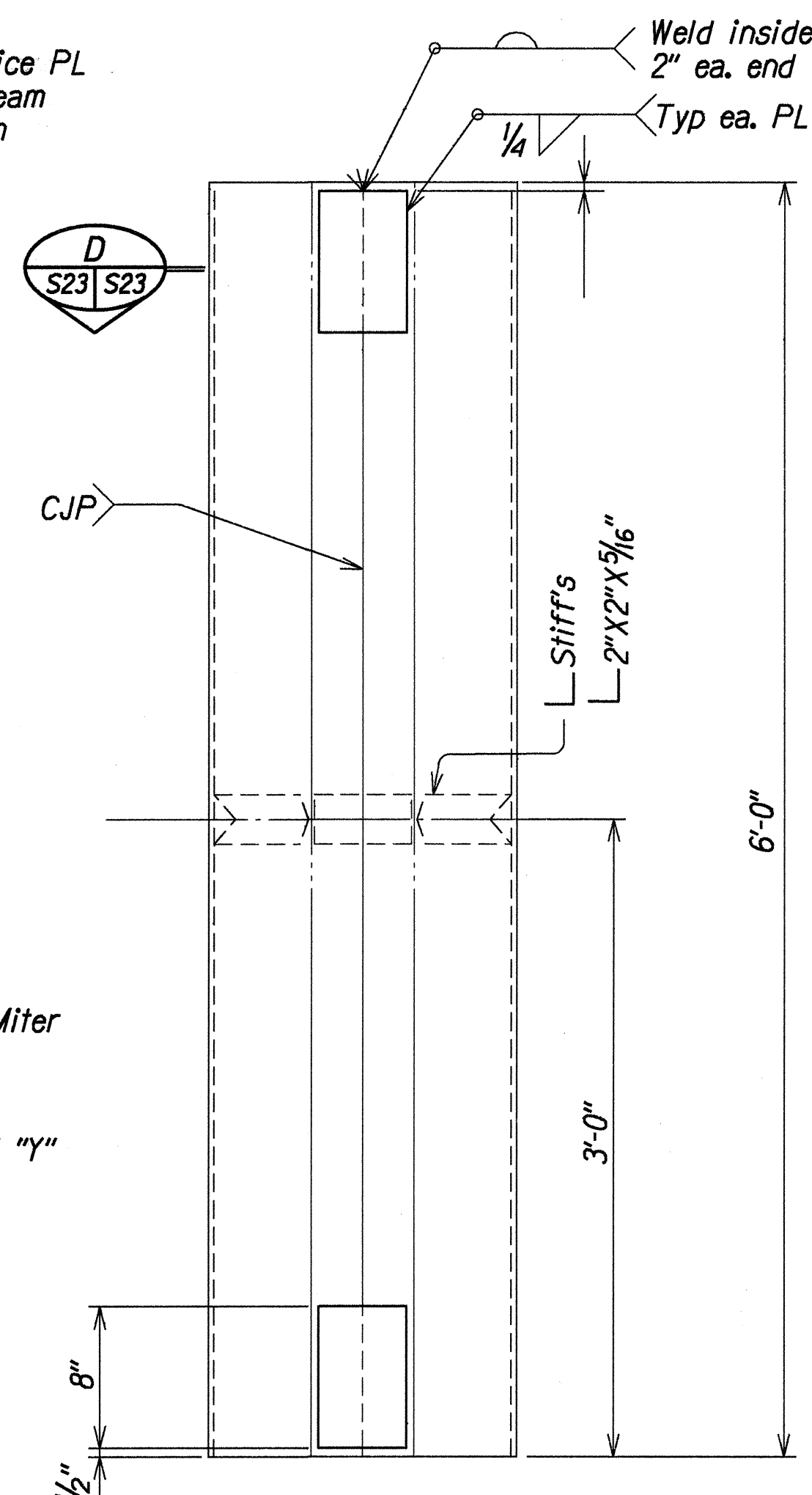


SECTION D S23 S23

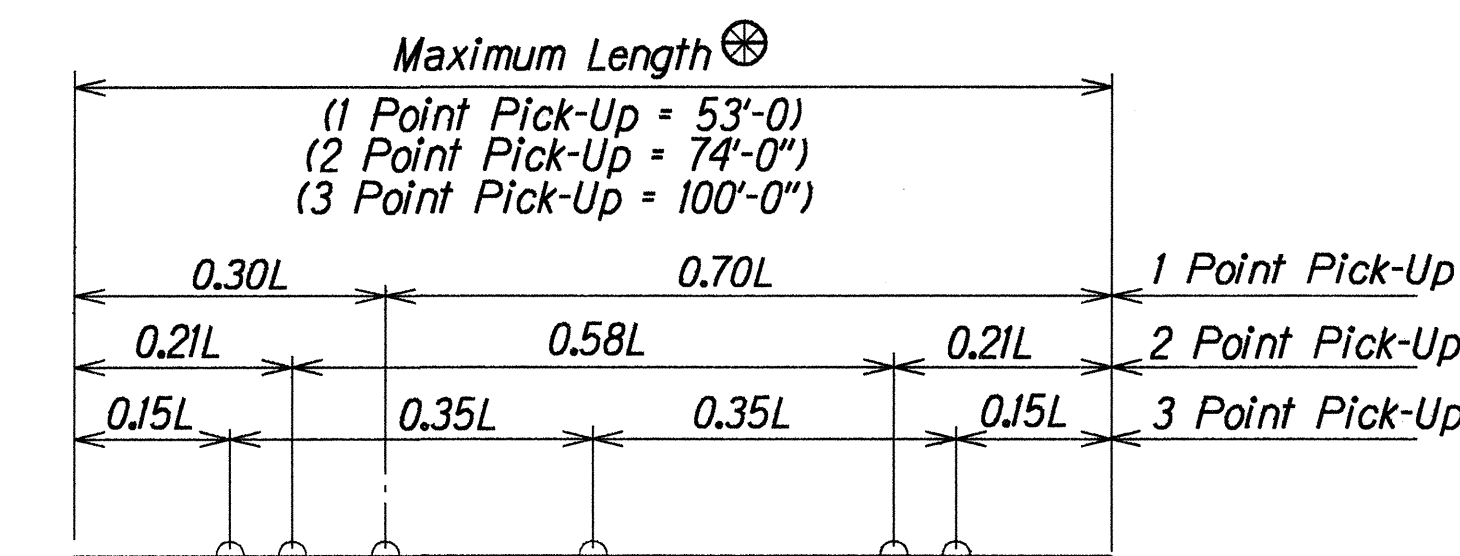


SECTION @ SPLICE

Note: Weld seam shall be continuous along entire length of longitudinal seam.



ELEVATION



⊕ The length "L" is the distance end to end of pile.

PILE PICK-UP POINTS

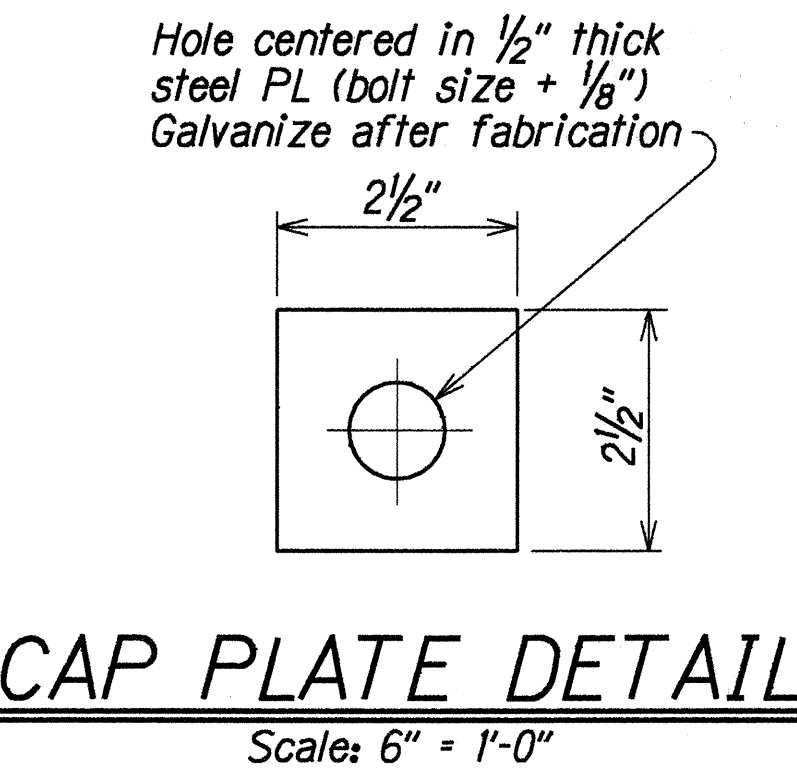
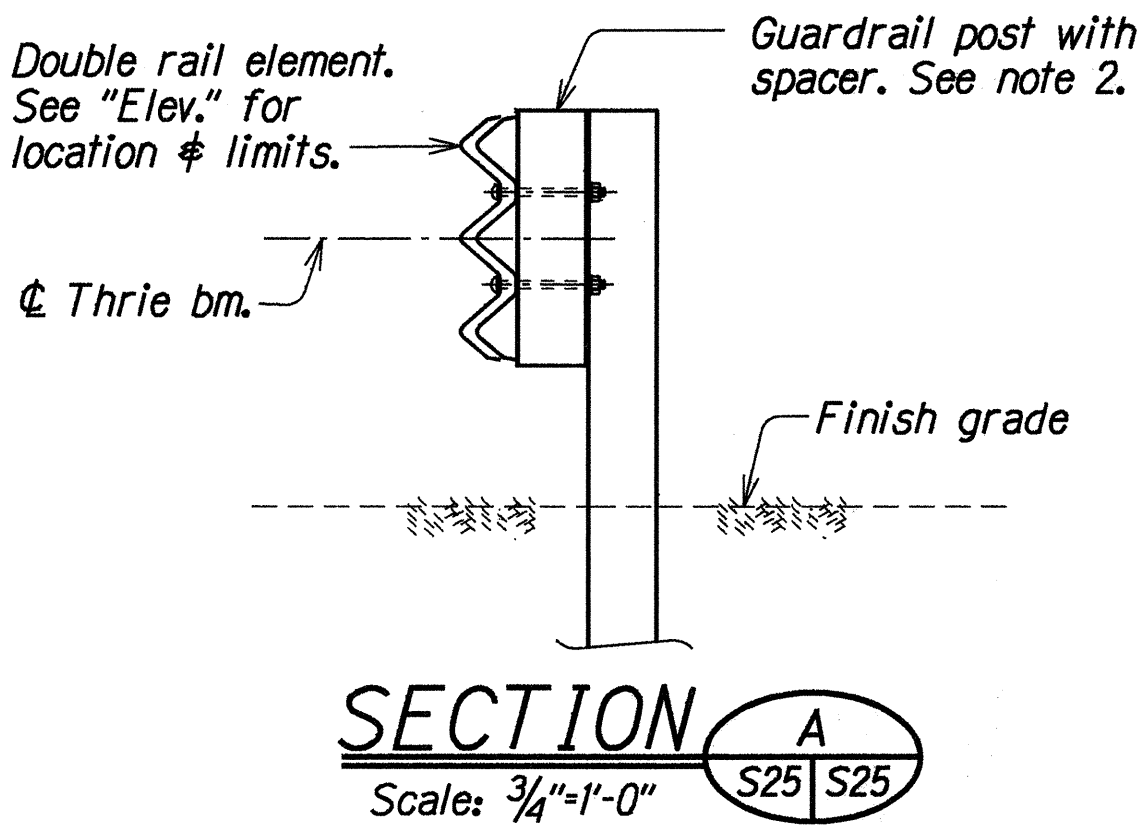
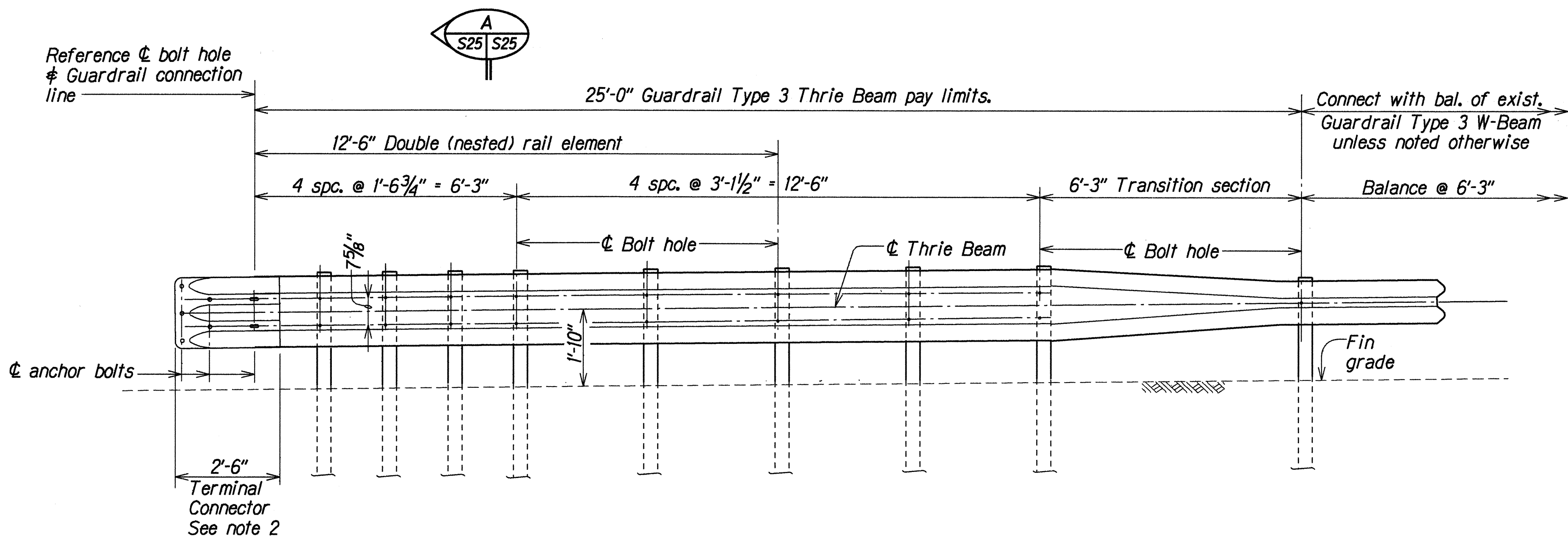
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
WAIKAEA BRIDGE WIDENING
PRESTRESSED CONCRETE PILE
KUHO HIGHWAY-WAIKAEA BRIDGE WIDENING
Fed. Aid Proj. No. BR-STP-056-1(35)

Scale: As Noted

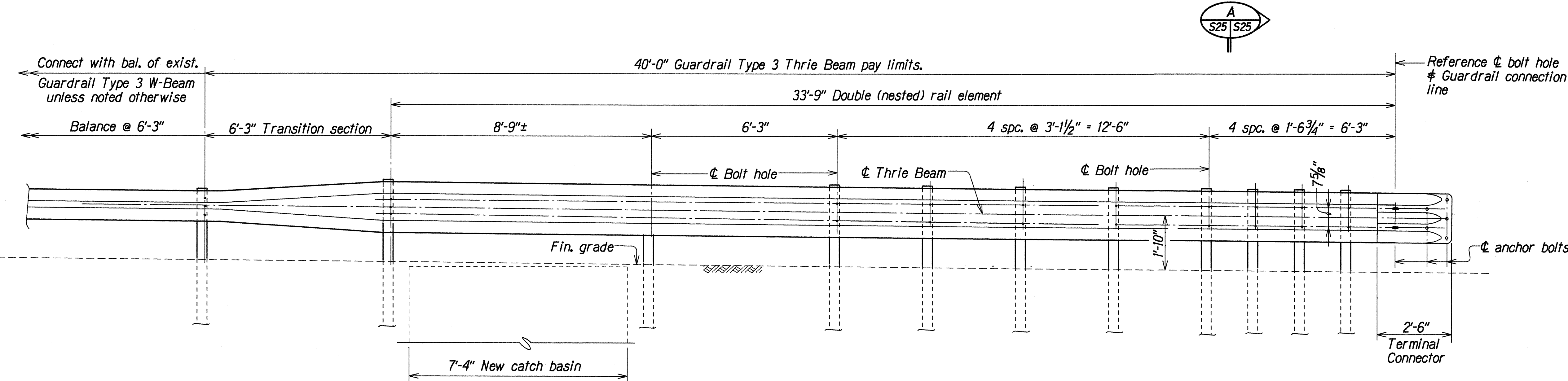
Date: Aug, 1999

SHEET No. S23 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-STP-056-1(35)	2000	40	70



TYPICAL TYPE 3 THRIE BEAM METAL GUARDRAIL AT END POSTS NO. 1, 2, AND 4
Scale: 1/2"=1'-0"



TYPE 3 THRIE BEAM METAL GUARDRAIL AT END POST NO. 3
Scale: 1/2"=1'-0"

NOTES:

- The work necessary to connect guardrail to concrete end post or metal spacer block shall include all labor, materials, tools, equipment and incidentals necessary to complete the work and shall be incidental to Item No. 606.3112 - Guardrail Type 3 Thrie Beam Transition to End Post or Jersey Barrier, and will not be paid for separately.
- Terminal connector, guardrail post, spacer block, transition section and all other associated hardware shall be considered incidental to Item No. 606.3112 - Guardrail Type 3 Thrie Beam to End Post or Median Barrier, and will not be paid for separately.
- See "General Notes" on Sht.#S1 for additional jersey barrier, guardrail and drilling information.
- All anchor bolts shall be high strength bolts conforming to the requirements of AASHTO M 164. See Special Provisions.
- Anchor bolt length shall be such that a snug fit of the elements and full thread engagement plus 1/4" (max.) is attained.
- Terminal connector, Thrie Beam Metal Guardrail and Transition Section shall be fabricated from 10 gauge steel conforming to the requirements of AASHTO M 180 and shall be hot-dip galvanized after fabrication. See Special Provisions.
- Guardrail posts, spacer blocks, "terminal connectors" and all anchor bolts, cap PL, bolts, nuts and washers shall be hot-dip galvanized after fabrication.
- Cap PL shall be fabricated from ASTM A 36.
- First 25'-0" of guardrail adjoining "Terminal Connector" shall be galvanized steel and supports spaced as shown on the detail drawings. This section of rail shall be placed on tangent to end post or parallel to roadway, unless conditions at site renders it impossible to do so. Flare point to be determined in field.
- Double (nest 1st panel) thrie beam elements at all end post connections.
- Where double (nested) beam occur, 12" "Back-up Plate" not required.
- Heads of through anchor bolts shall be placed on the traffic side of the rail.
- Drilling of through holes shall be done in such a manner as to prevent core puncturing of the daylighting end.

SURVEY PLOTTED BY	DATE
PLAN	AUG 1999
DESIGNED BY	AUG 1999
QUANTITIES BY	AUG 1999
CHECKED BY	AUG 1999
ORIGINAL	
NOTE BOOK	
4/10/05/25	
10	

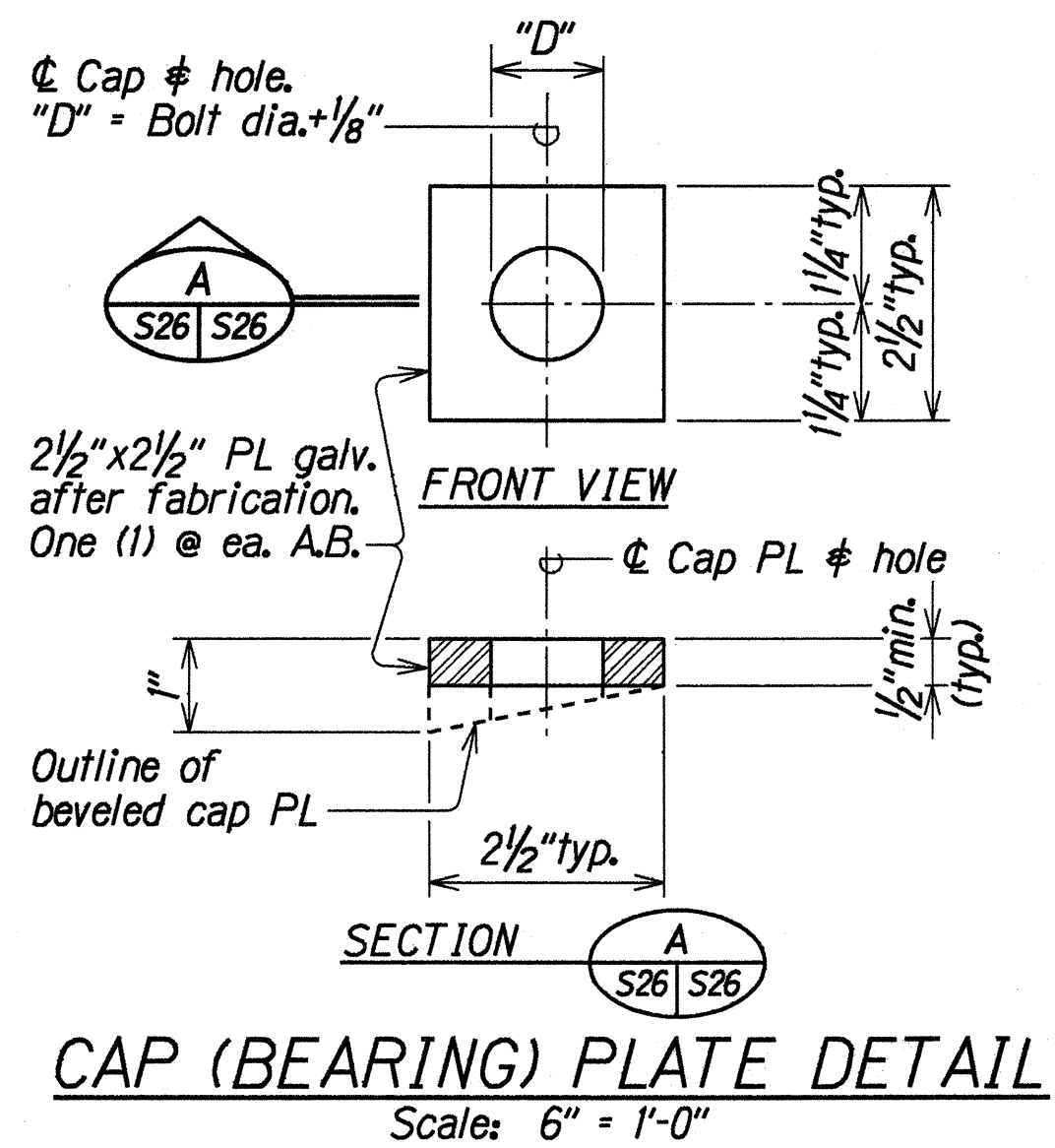
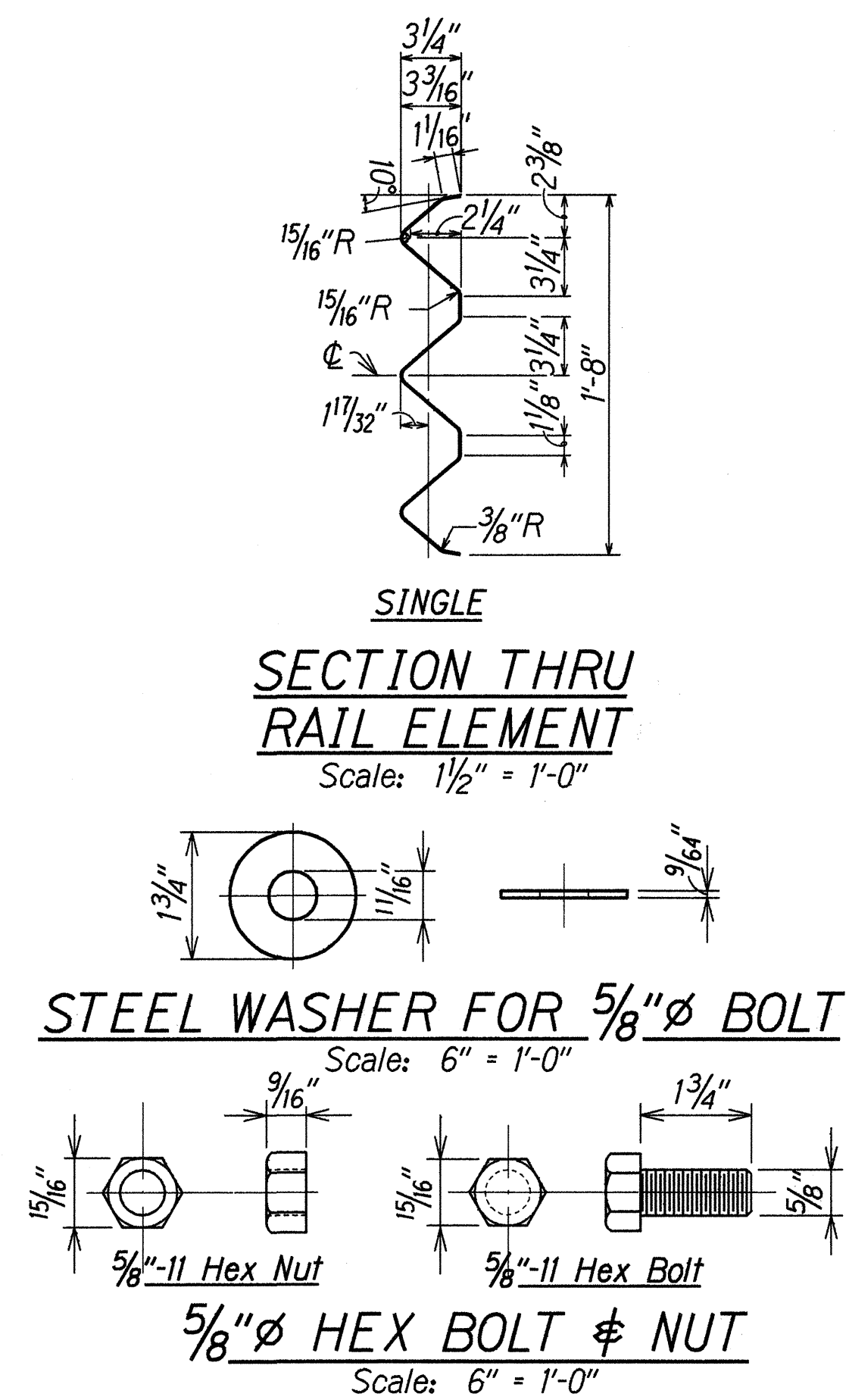
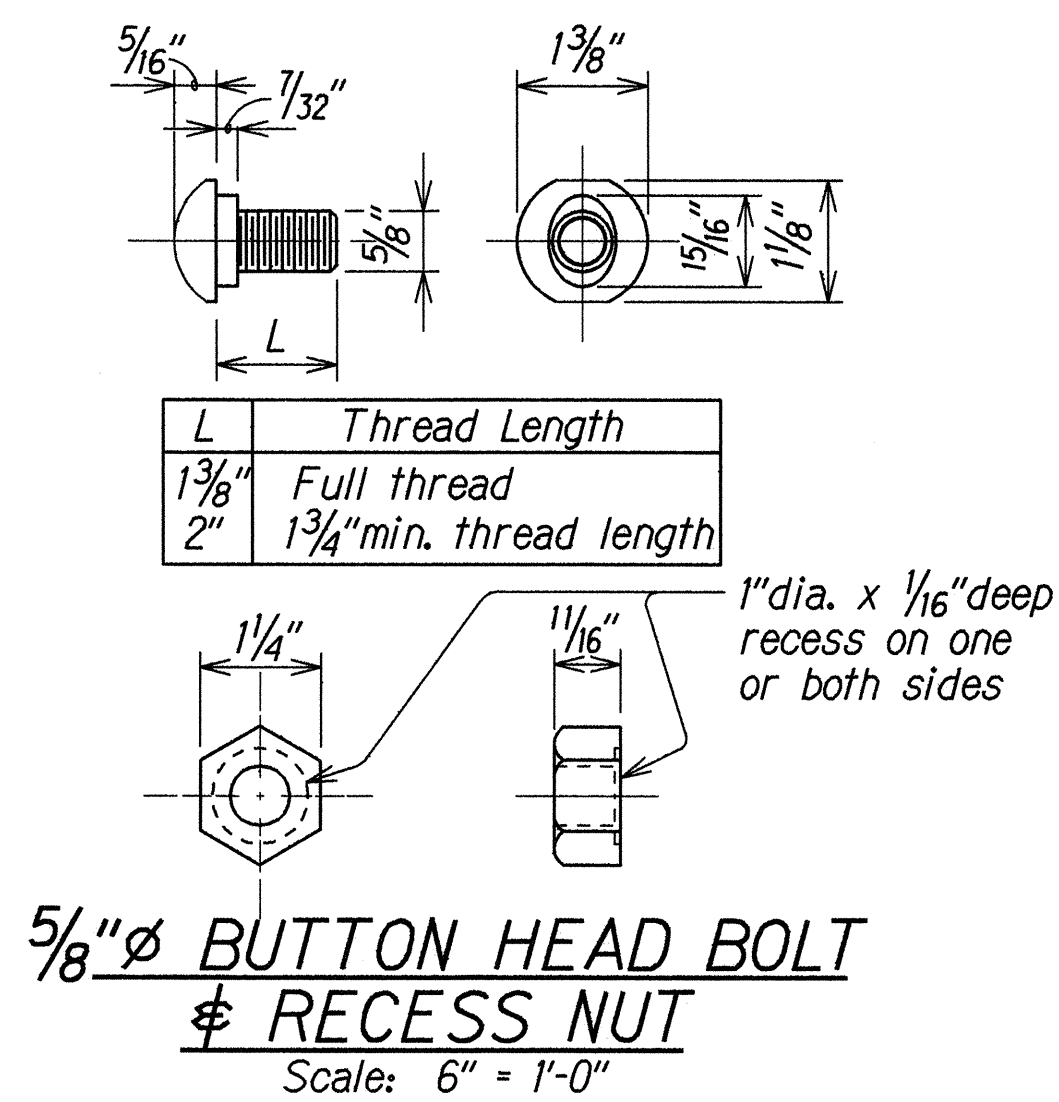
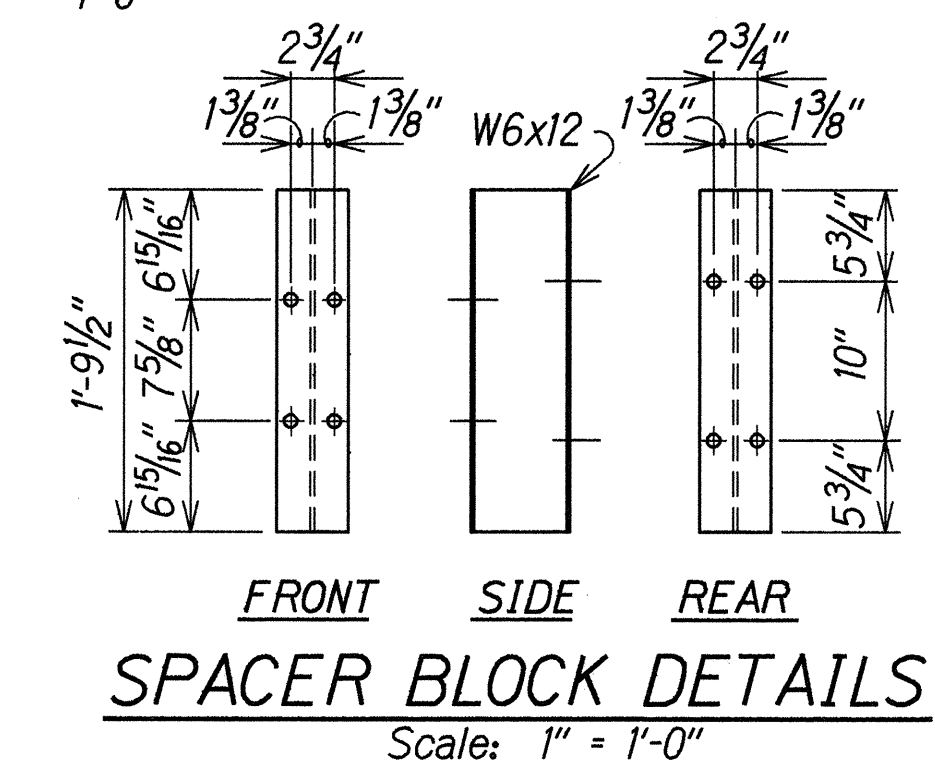
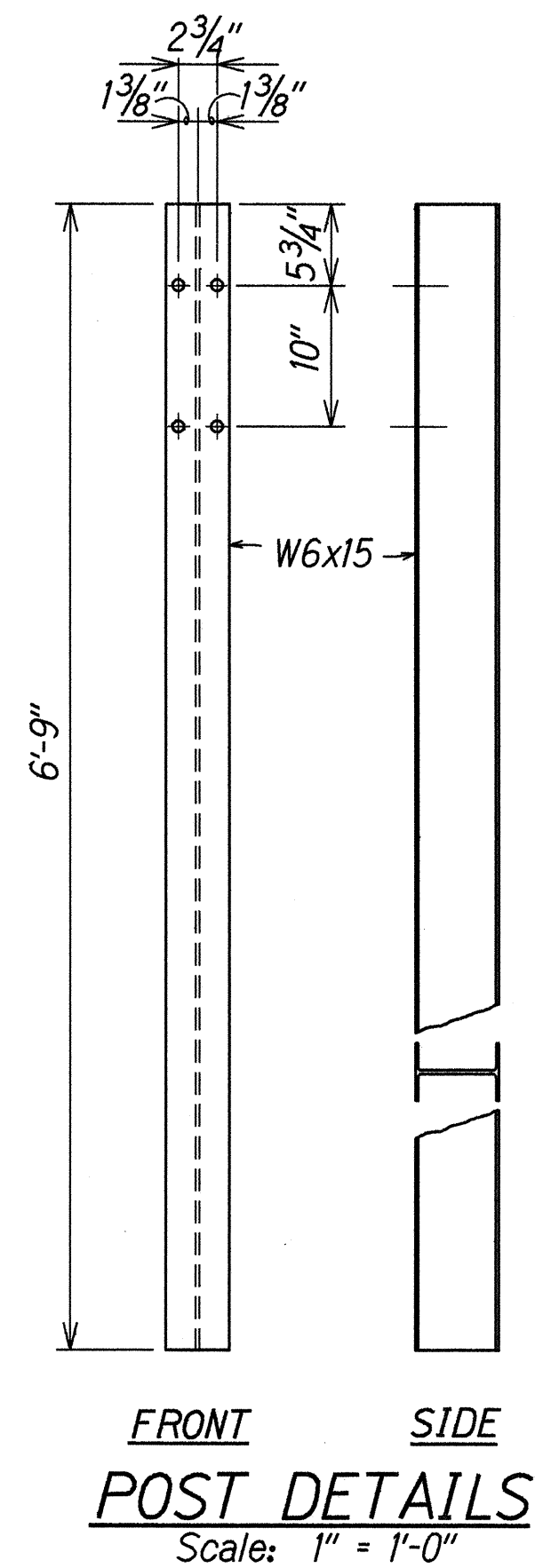
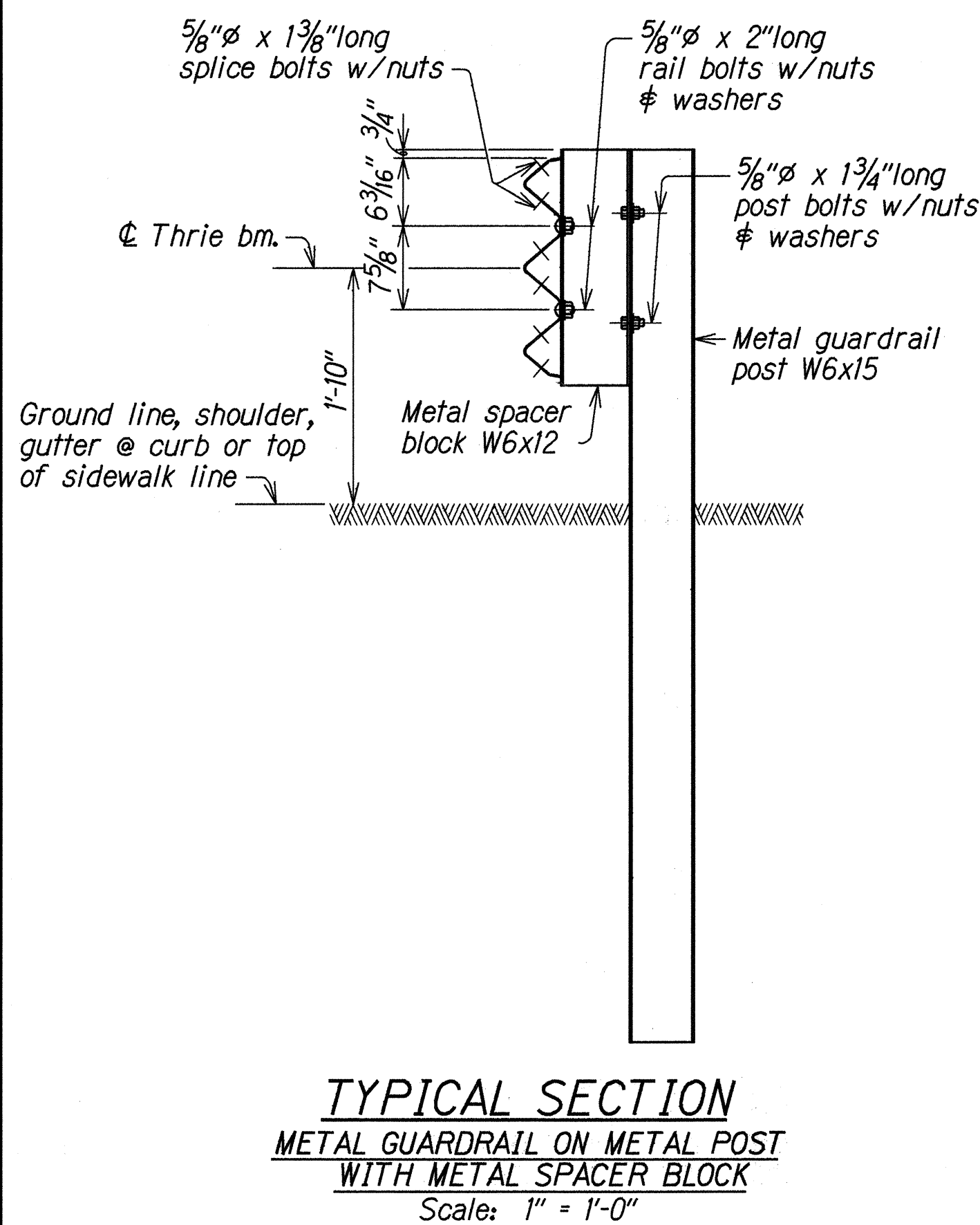
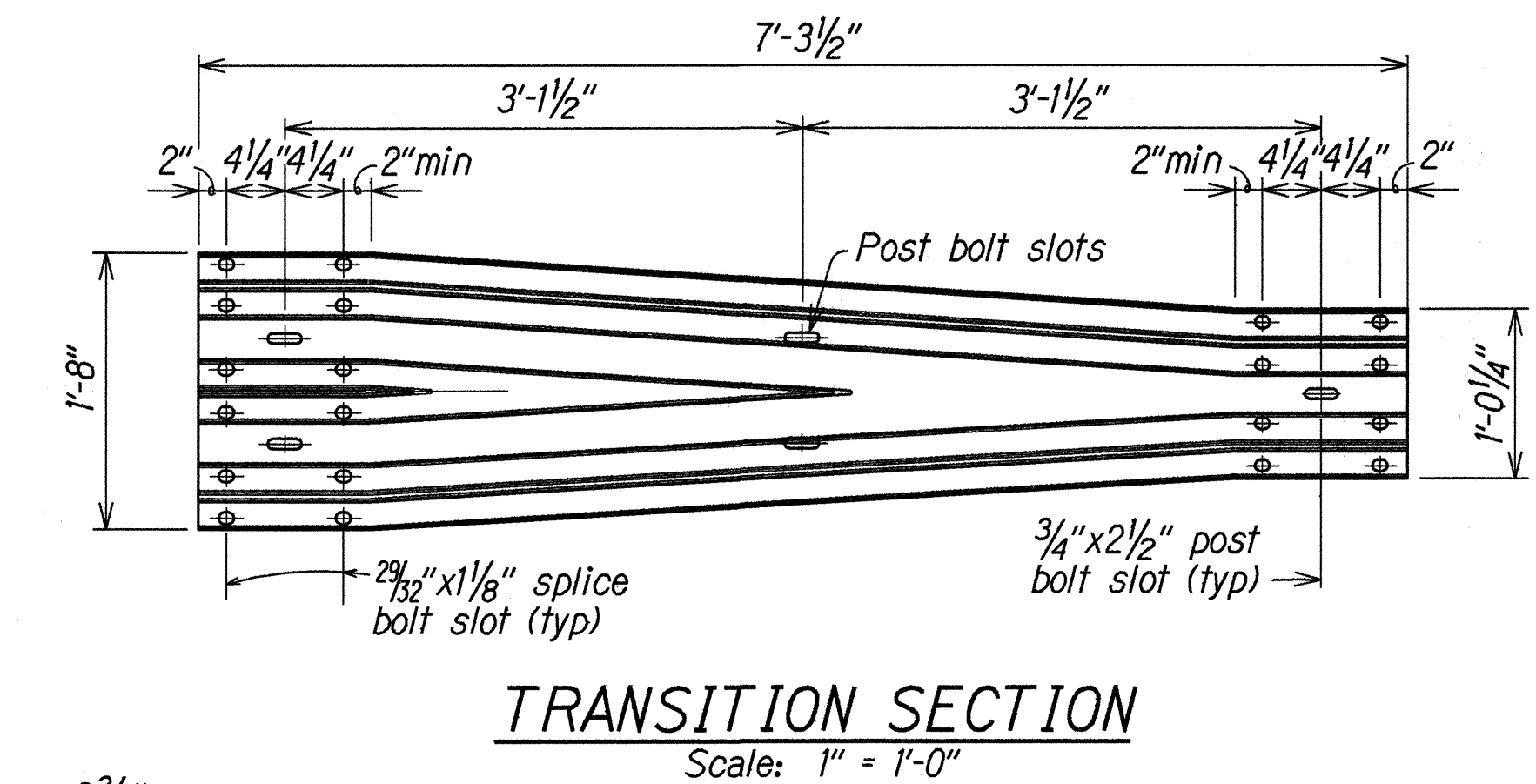
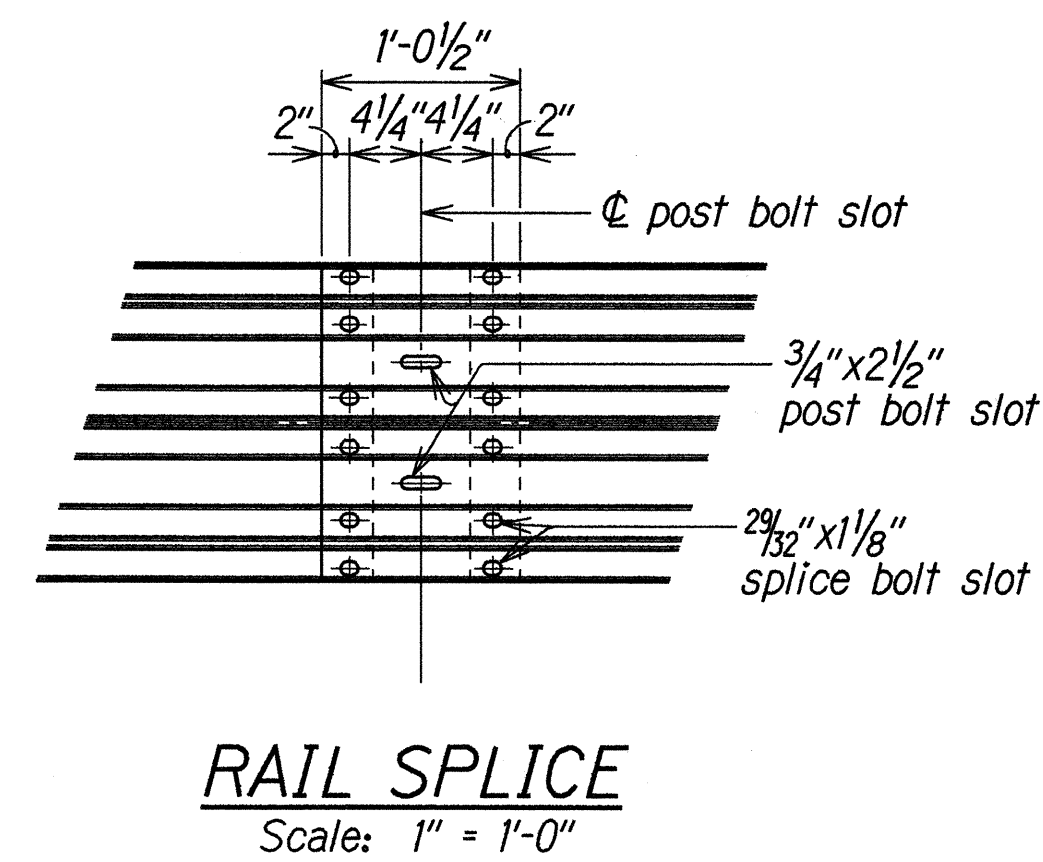
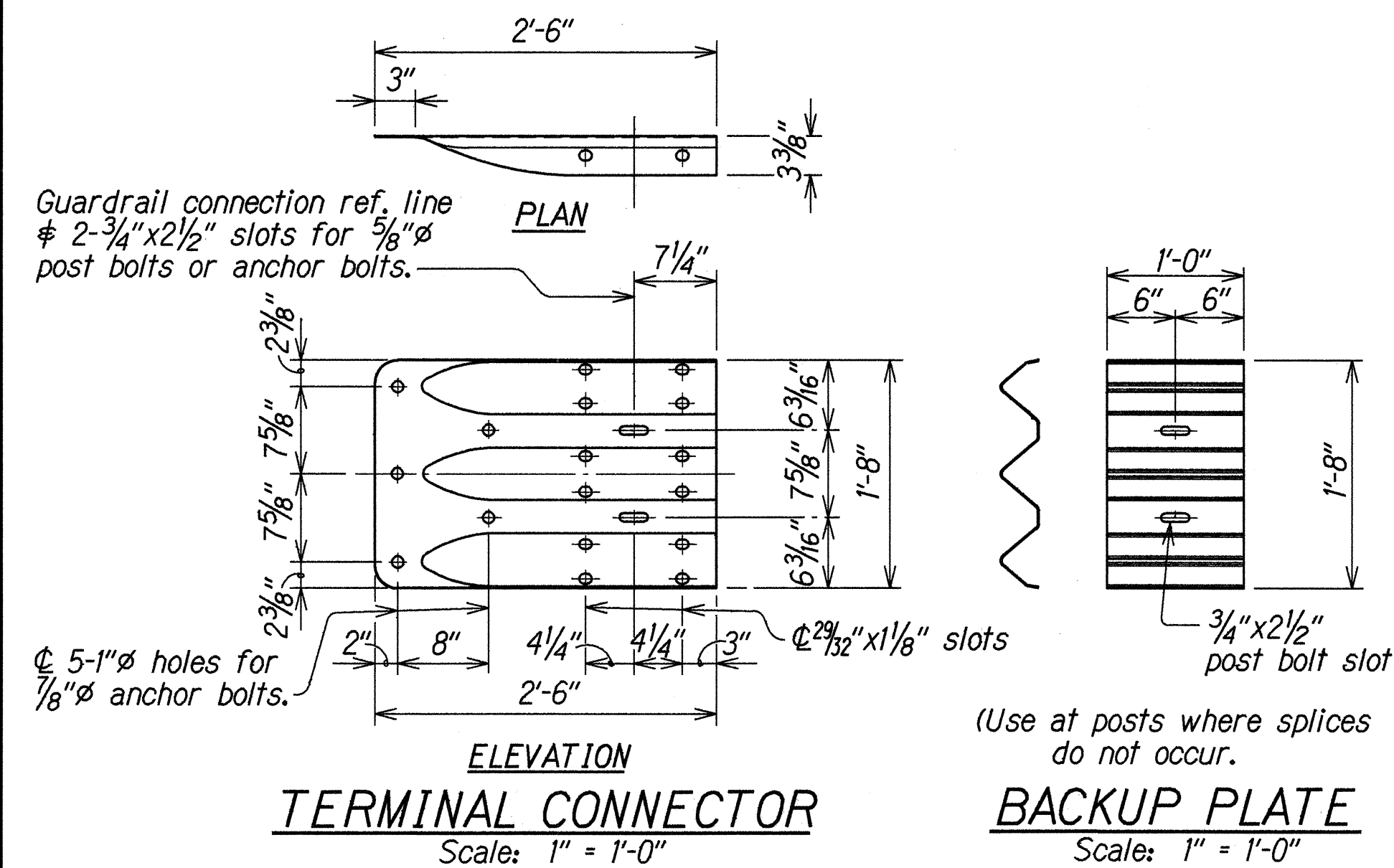
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WAIKAEA BRIDGE WIDENING
METAL GUARDRAIL DETAILS
KUHIO HIGHWAY-WAIKAEA BRIDGE WIDENING
Fed. Aid Proj. No. BR-STP-056-1(35)

Scale: As Noted
Date: Aug. 1999

SHEET No. S25 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-STP-056-1(35)	2000	41	70



METAL GUARDRAIL TYPE 3 THRIE BEAM GUARDRAIL AND APPURTENANCES DETAILS

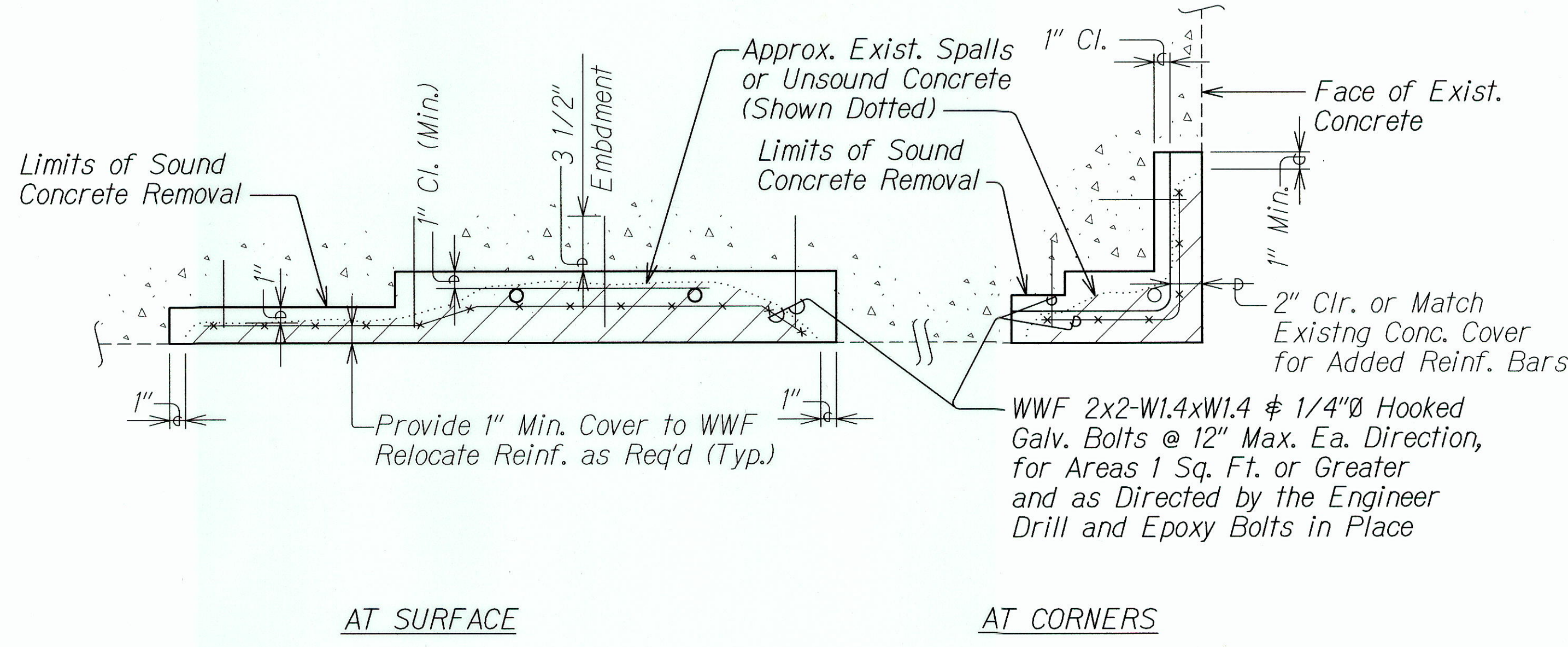
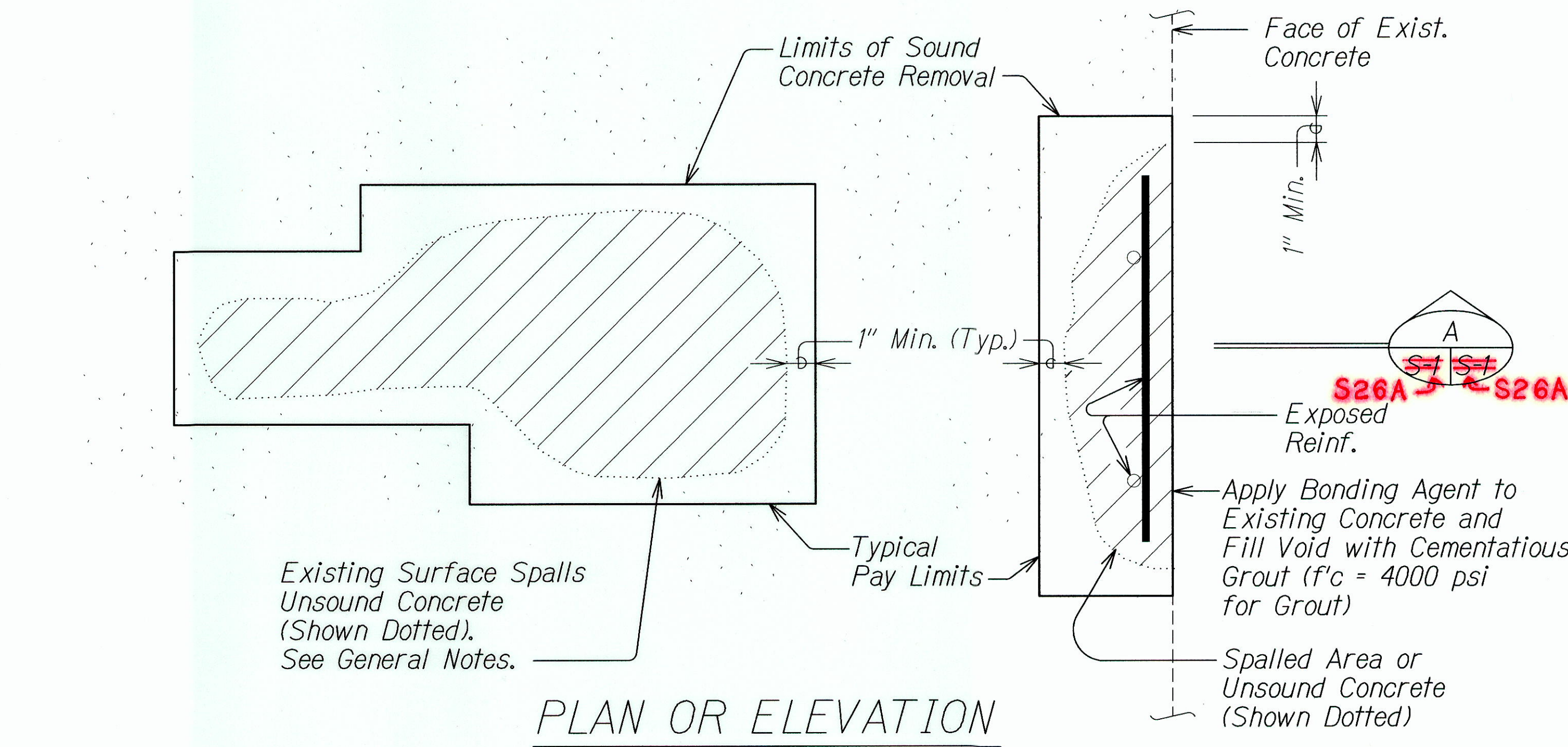
SURVEY PLOTTED BY	DATE
DRAWN BY	AUG 1999
DESIGNED BY	AUG 1999
QUANTITIES BY	AUG 1999
CHECKED BY	AUG 1999

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WAIKAEA BRIDGE WIDENING
GUARDRAIL TYPE 3 THRIE BEAM
AND APPURTENANCES
 KUHIO HIGHWAY-WAIKAEA BRIDGE WIDENING
 Fed. Aid Proj. No. BR-STP-056-1(35)
 Scale: As Noted Date: Aug, 1999

SHEET No. S26 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	BR-STP-056-1(35)	2000	41S-1	70



TYPICAL CONCRETE REPAIRS
Not to Scale

GENERAL NOTES

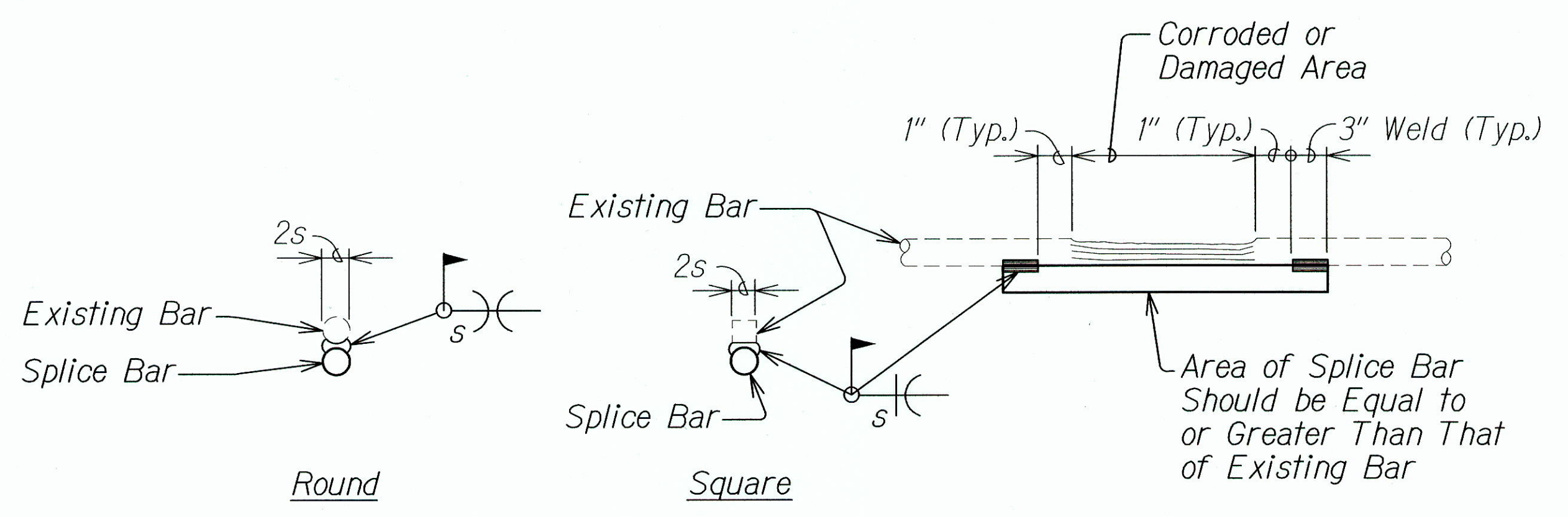
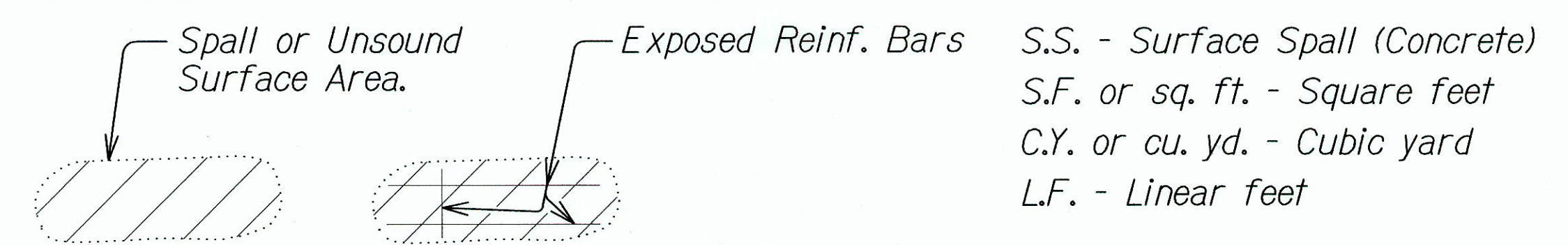
REPAIR NOTES:

1. All deteriorated, damaged, cracked, spalled, honeycombed concrete or concrete over rusted reinforcing bars shall be removed as shown.
2. Reinforcing bars that have rusted more than 25% of their original cross sectional area shall be cleaned and strengthened as shown on "Reinforcing Bar Repair Splice Detail", this sheet.
3. The Engineer shall determine all areas to be repaired and the limits of repair at each area.
4. Apply silane waterproofing to spall repairs as approved by the Engineer. Application shall be according to the Manufacturer's recommendations.
5. Bonding agent and cementitious grout shall be approved by the Engineer and shall follow all Manufacturer's recommendations.

GENERAL:

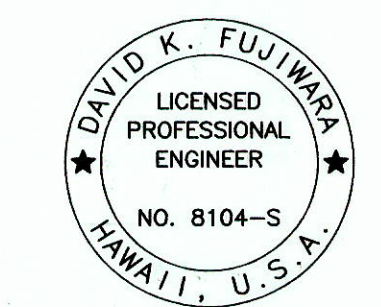
1. All reinforcing steel to be ASTM A 706 Grade 60.
2. All welding shall be done in accordance with the current edition of the Reinforcing Steel Welding Code AWS D1.4.

SYMBOLS AND ABBREVIATIONS:



REINFORCING BAR REPAIR SPLICE DETAIL
Not to Scale

THIS SHEET WAS PREPARED
DURING "AS-BUILT" POSTING



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION.
David K. Fujimura

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WAIKAEA BRIDGE WIDENING
TYPICAL CONCRETE REPAIRS
AND GENERAL NOTES

KUHIO HIGHWAY-WAIKAEA BRIDGE WIDENING
Fed. Aid Proj. No. BR-STP-056-1(35)

SCALE: AS SHOWN S26A OF 41S-1 SHEETS

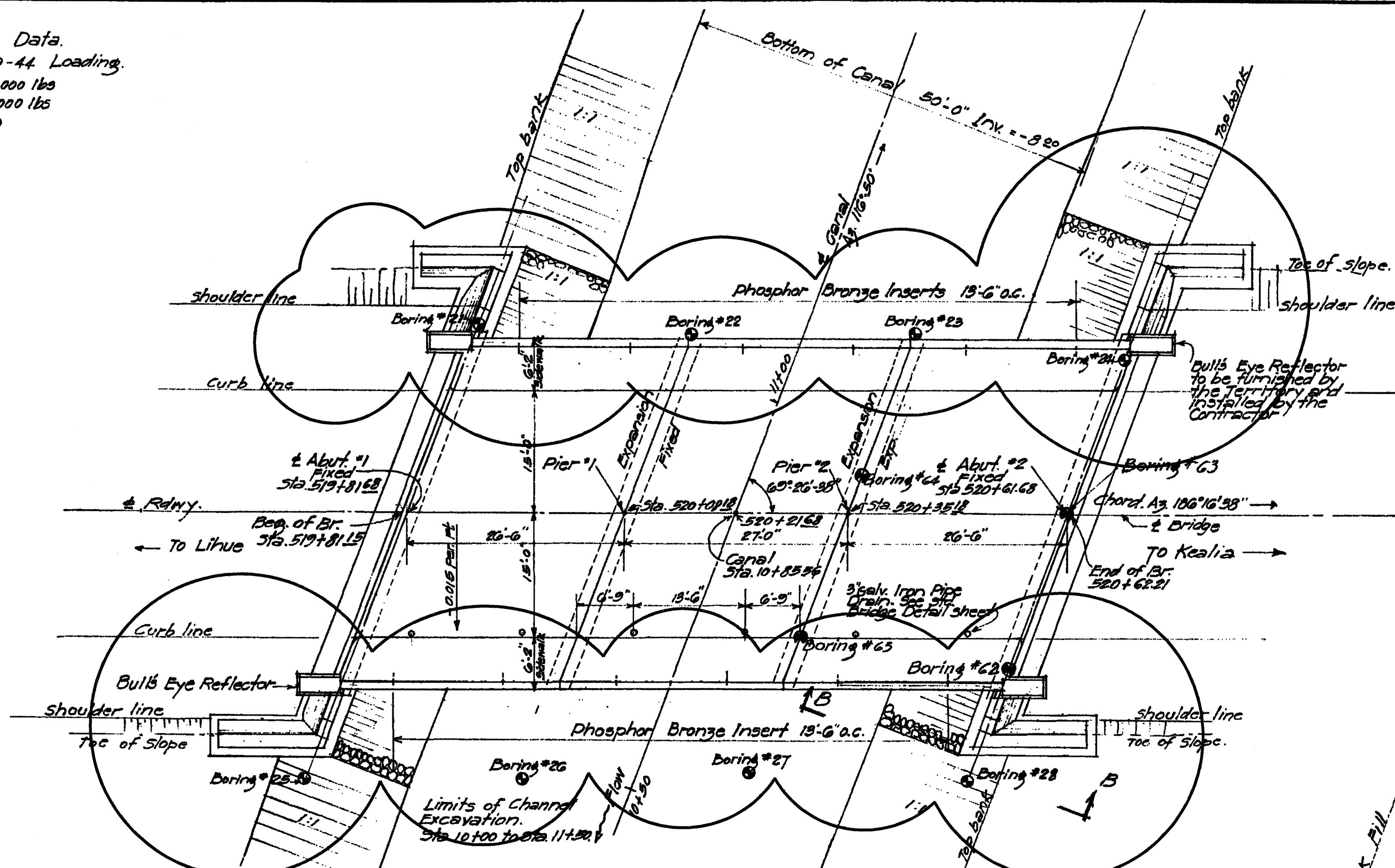
"AS-BUILT"

41S-1

Design Data.
H-20-44 Loading.
 $f_c = 18,000$ lbs
 $f_s = 1000$ lbs
 $n = 10$

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	056-1(35)	2000	42	70

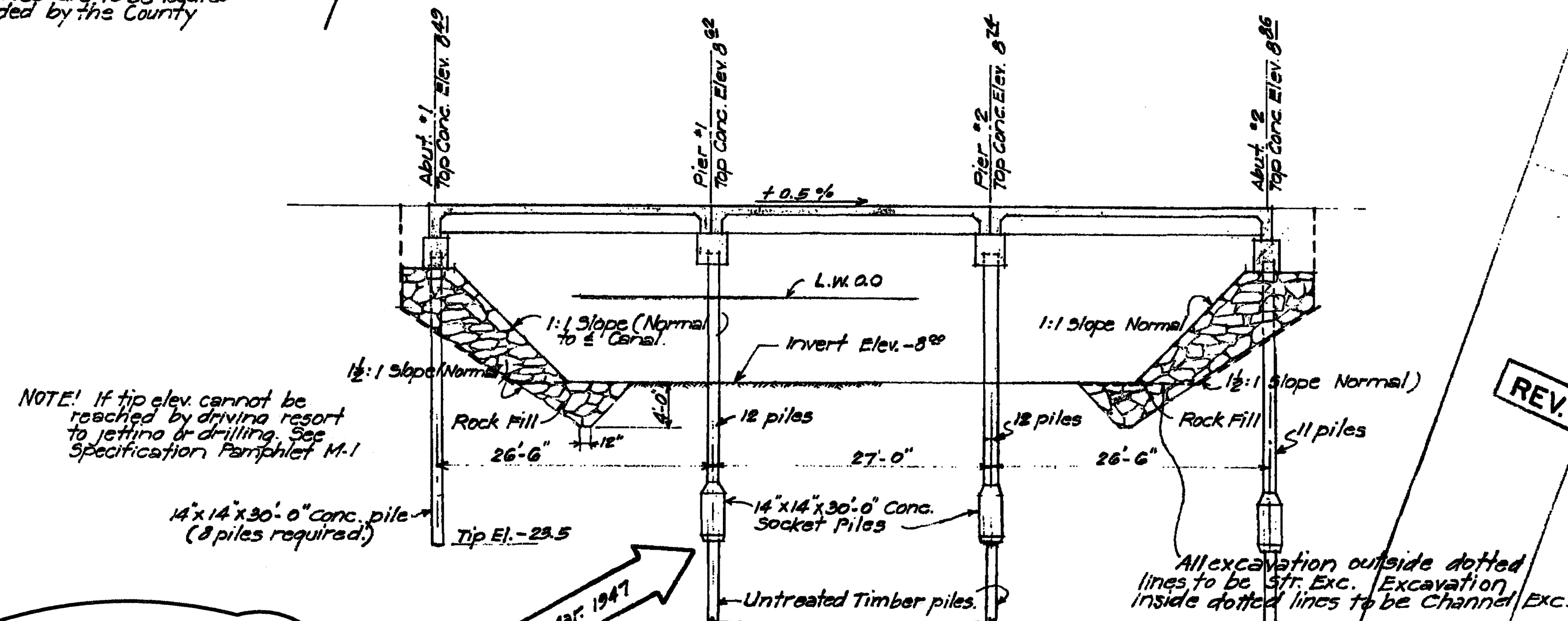
Revised: Mar. 1999
Revision: original boring data eliminated.
New borings located on Layout Plan.
Concrete piles at Pier #1, Pier #2 and Abut. #2 replaced with composite piles.
Estimated quantities changed.



NOTE! There are 2 water Lines, 2'-6" in the bridge site area. Exact locations of the lines are not known. These lines to be relocated under the sidewalk. The selection of the side on which these lines are to be located shall be decided by the County Water Works.

LAYOUT PLAN
Scale 1"=10'-0"

NOTE! All concrete except in Piles Class A-1 Concrete in Piles Class E-1 Piles to have admixture of Trioxal or equal See Special Provisions. Sidewalk and Railing to be poured after release of falsework.



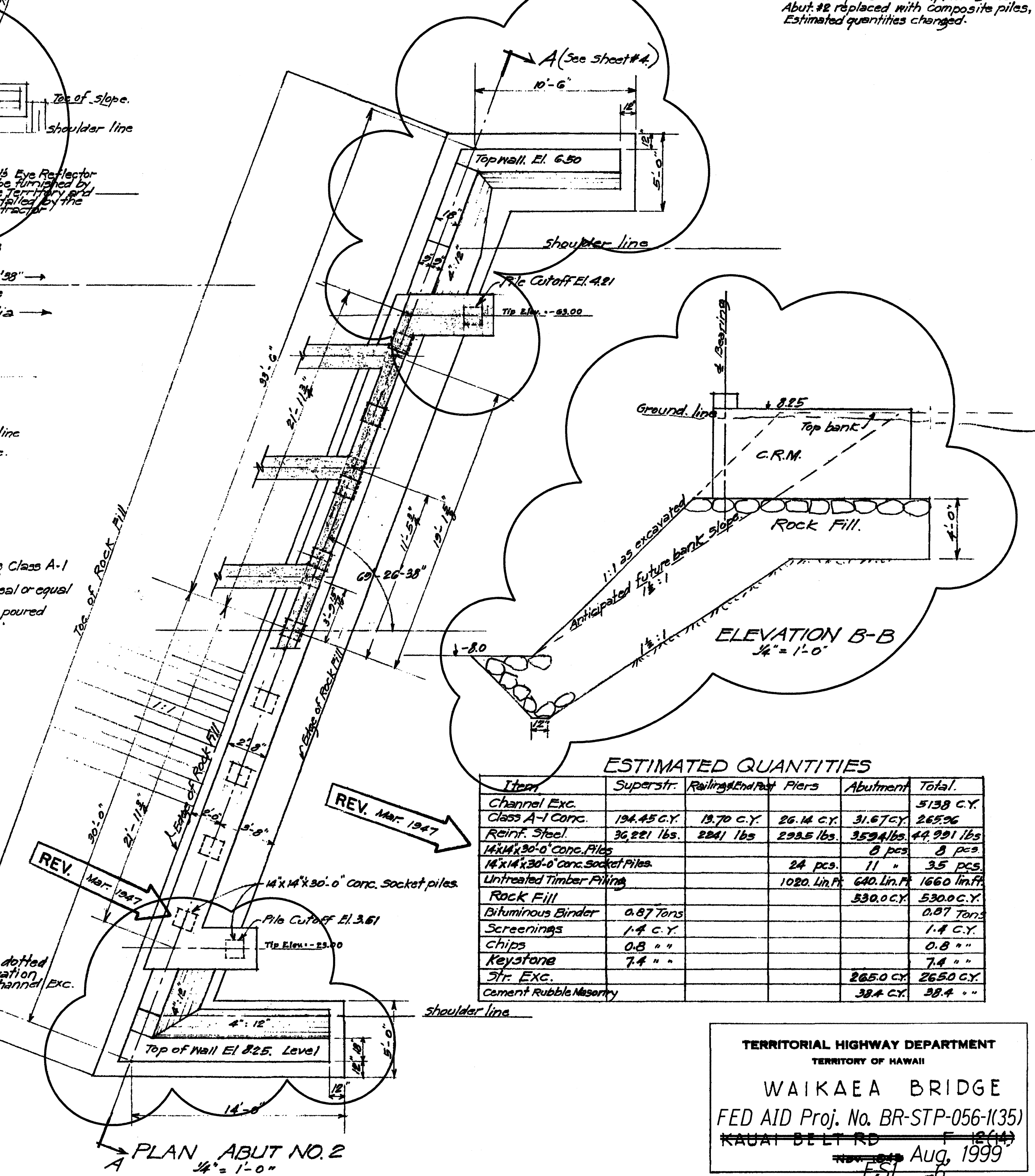
NOTE! If tip elev. cannot be reached by driving resort to jetting or drilling, per Specification Pamphlet M-1

14'x14'x30'-0" conc. pile (2 piles required)

SECTION ALONG & BRIDGE
Scale 1"=10'-0"

☁ = Areas designated for removal of existing structures.

This drawing is in part original contract plans of existing bridge. For information & guidance only. Drawings are not to scale.



ESTIMATED QUANTITIES

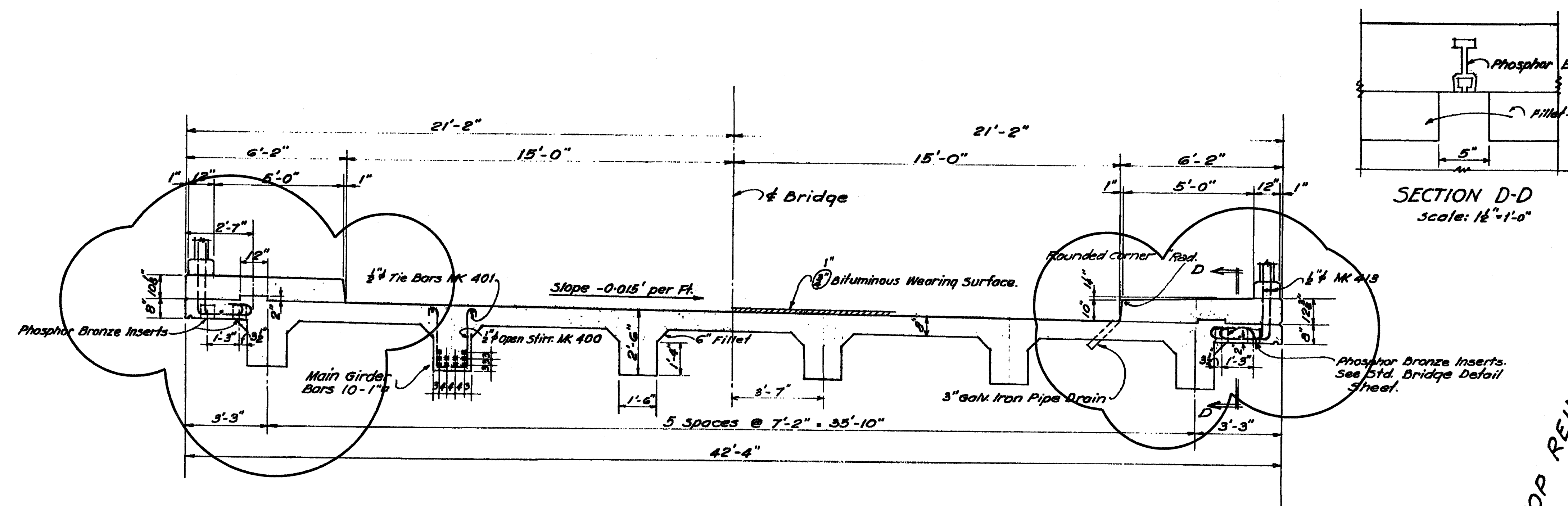
Item	Superstr.	Railing	End Piers	Abutment	Total
Channel Exc.					5138 C.Y.
Class A-1 Conc.	194.45 C.Y.	19.70 C.Y.	26.14 C.Y.	31.67 C.Y.	265.96
Reinf. Steel	36,221 lbs.	2241 lbs.	2935 lbs.	3534 lbs.	44,991 lbs.
14'x14'x30'-0" Conc. Piles			24 pcs.	11 "	35 pcs.
Untreated Timber Piling			1020 Lin.Ft.	640 Lin.Ft.	1660 Lin.Ft.
Rock Fill				530.0 C.Y.	530.0 C.Y.
Bituminous Binder	0.87 Tons				0.87 Tons
Screenings	1.4 C.Y.				1.4 C.Y.
Chips	0.8 "				0.8 "
Keystone	7.4 "				7.4 "
Str. Exc.				265.0 C.Y.	265.0 C.Y.
Cement Rubble Masonry				38.4 C.Y.	38.4 "

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

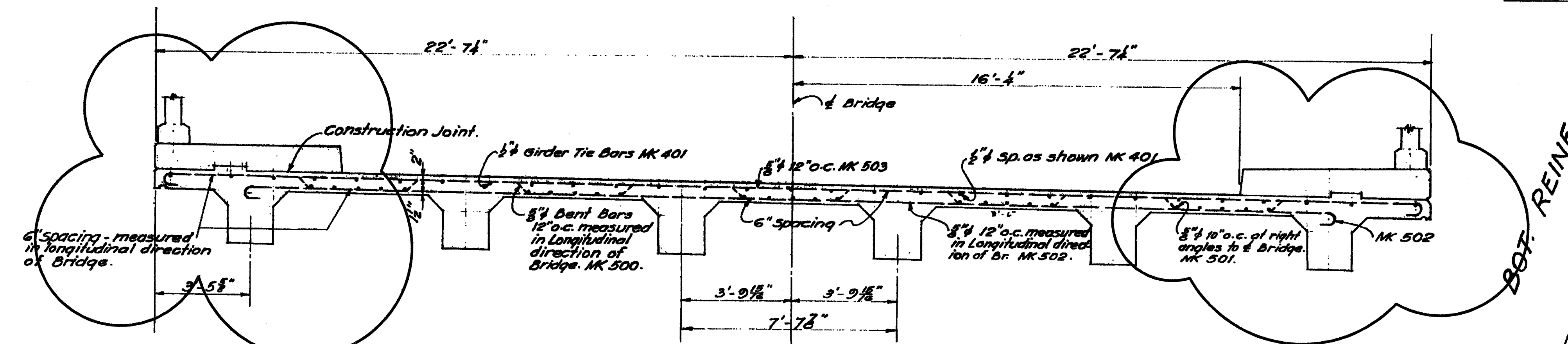
WAIKAEA BRIDGE
FED AID Proj. No. BR-STP-056-1(35)
KAUAI BELT RD F-12(14)

Aug. 1999

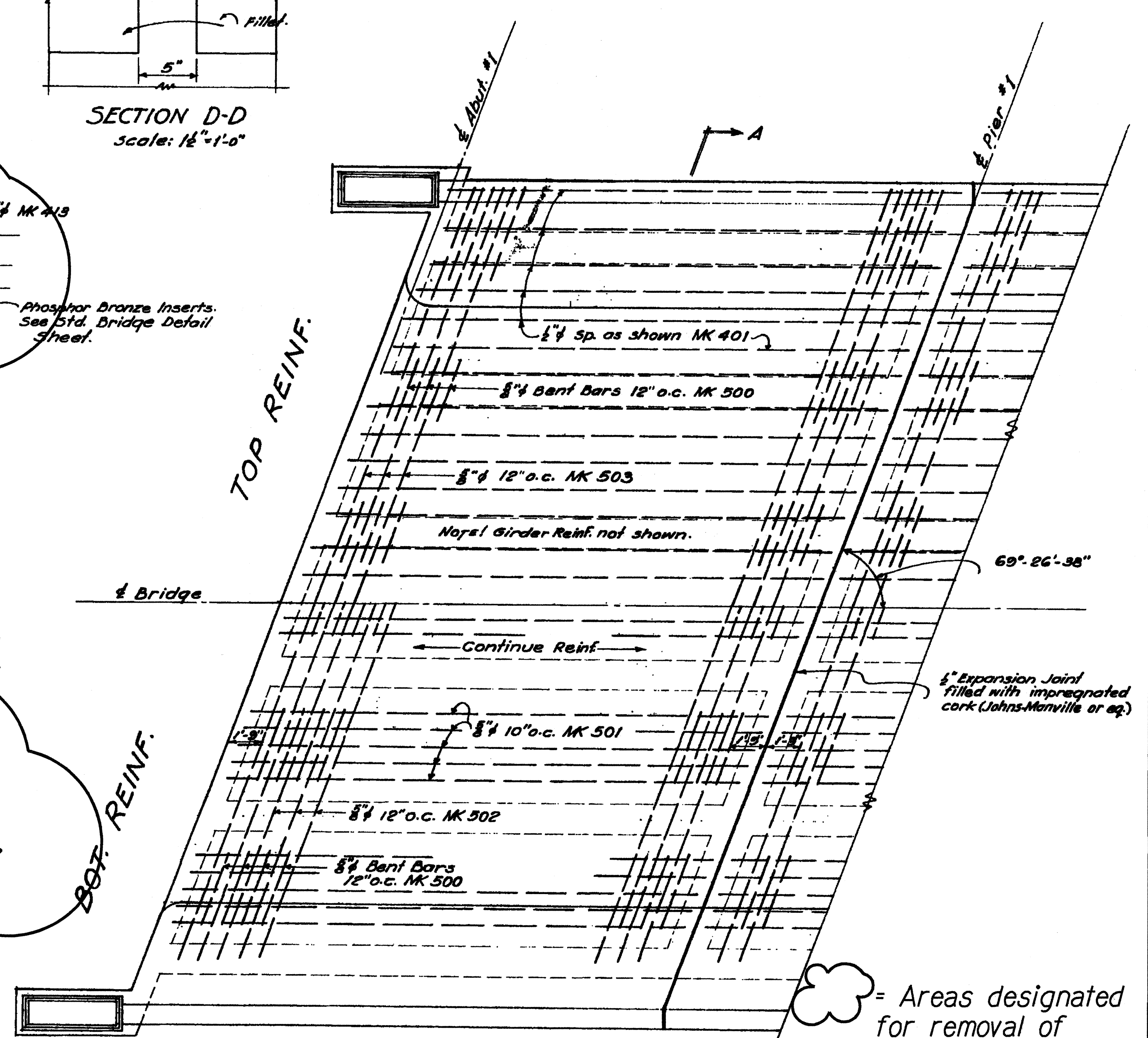
SHEET No. 42 OF 70 SHEETS



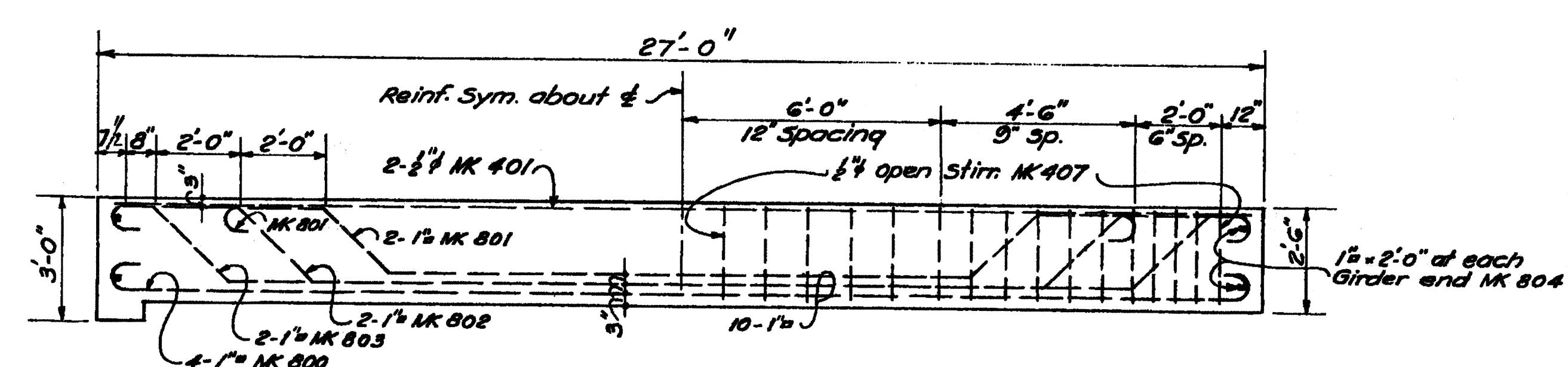
NORMAL SECTION AT CENTER OF SPAN
Scale: 3/8" = 1'-0"



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



DECK SLAB REINF.
Scale: 1/4" = 1'-0"



END SPAN GIRDER REINF.
Scale: 3/8" = 1'-0"
INTERMEDIATE SPAN GIRDER REINF. SIMILAR

On account of unavailability of materials, contractor has substituted for 10-1" bars, 5-1" bars and 5-1 1/2" bars.
9/20/46

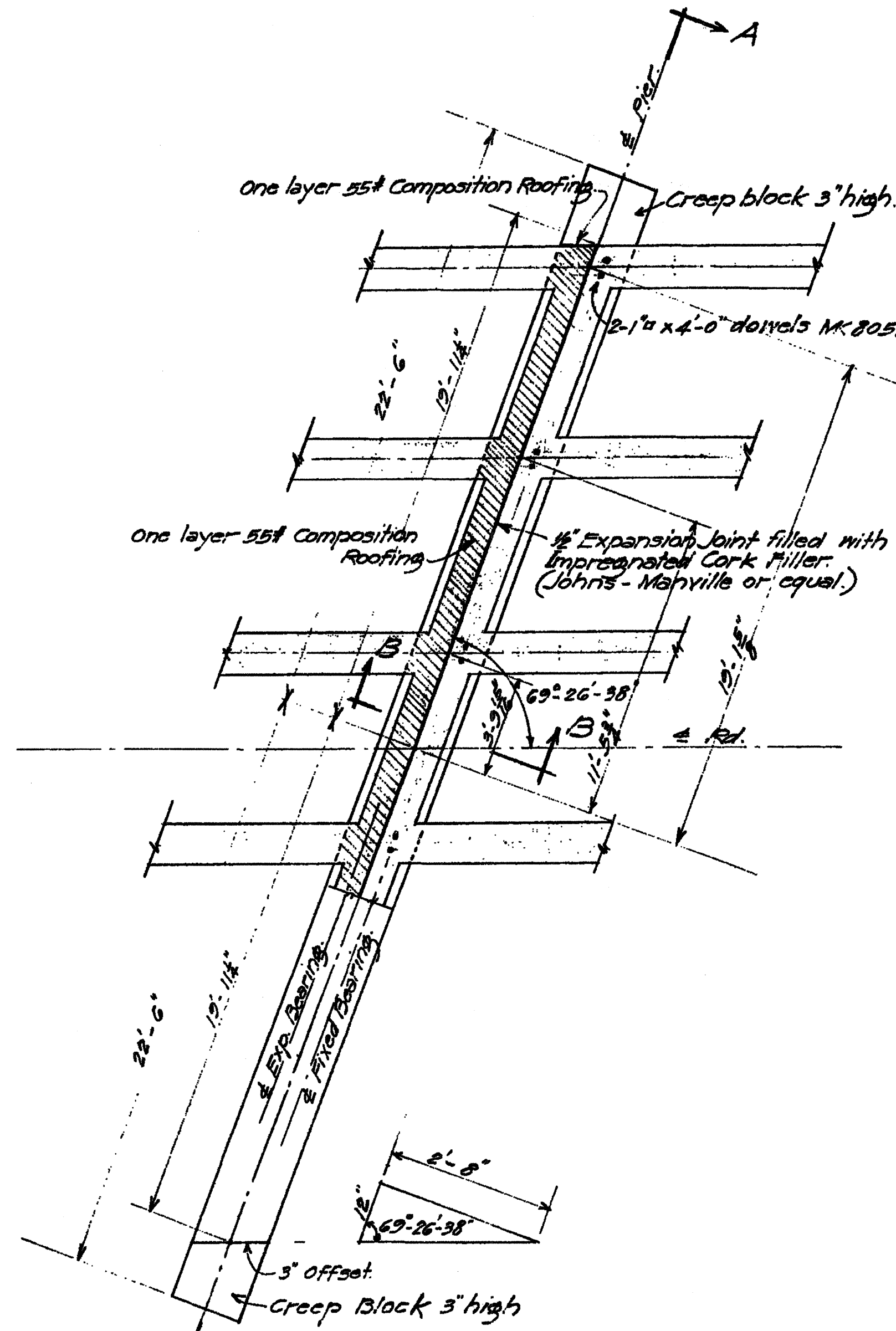
This drawing is in part original contract plans of existing bridge. For information & guidance only. Drawings are not to scale.

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
WAIKAEA BRIDGE
FED AID Proj. No. BR-STP-056-1(35)
KAUAI BELT RD. F-12(14)
Aug, 1999
SHEET No. 43 OF 5 SHEETS

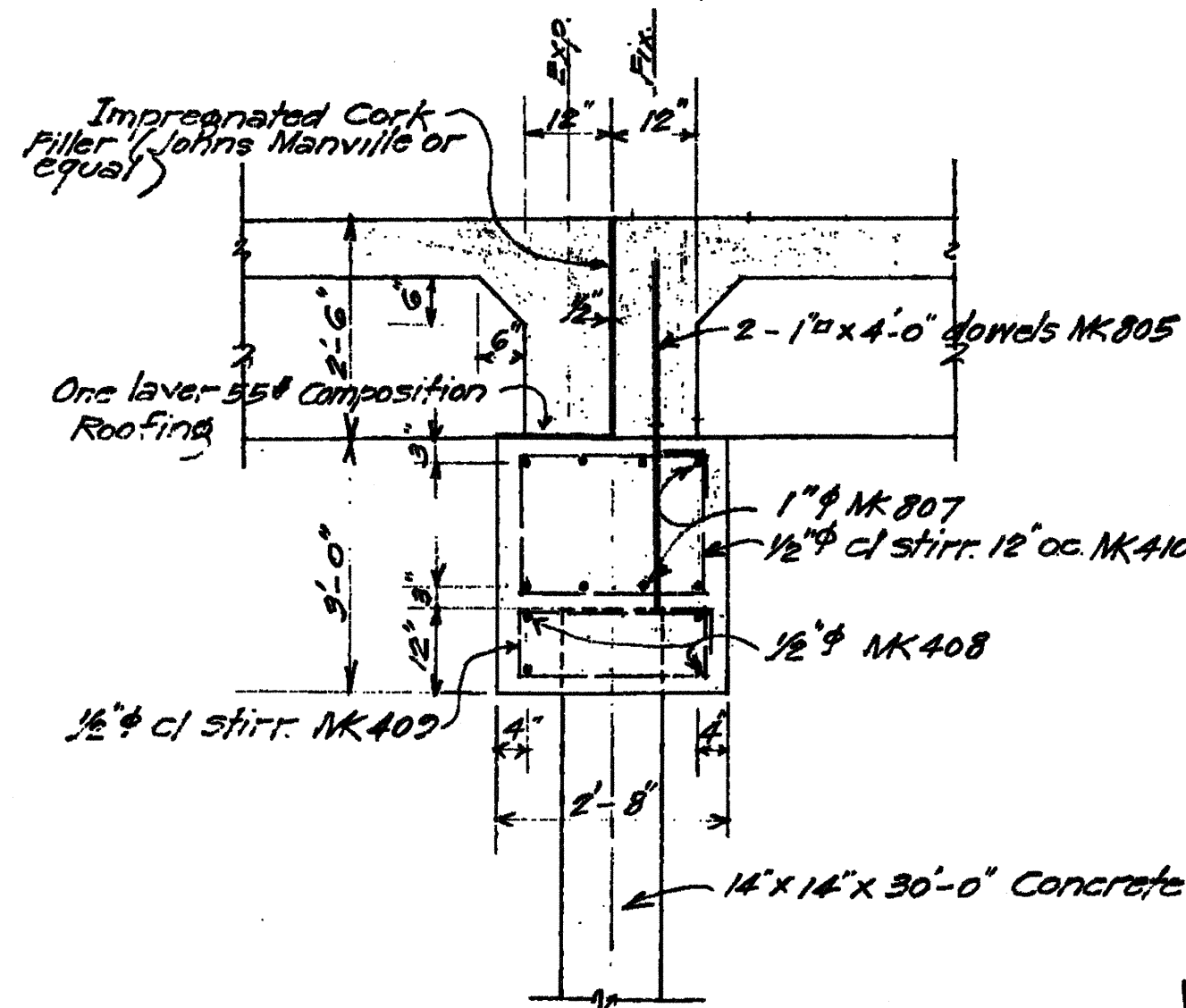
OBSOLETE
SEE REVISED PLANS

DATE: 10/2/46
DRAWN BY: J. H. HARRIS
CHECKED BY: J. H. HARRIS
ORIGINAL PLAN
NOTE BOOK
No.

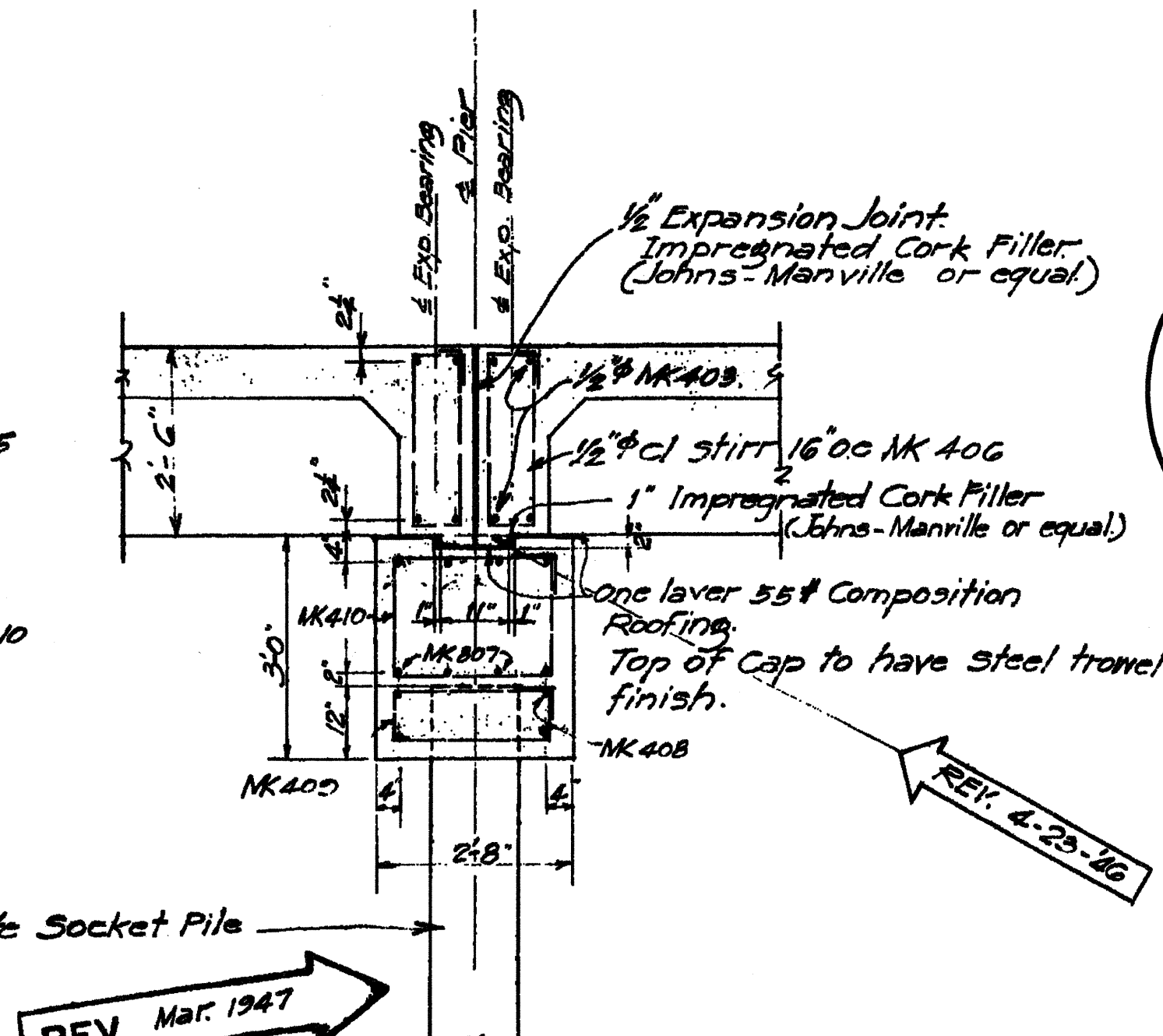
Revised: April 23, 1946
 Revision: Recess added to Pier #2
 Revised: Mar. 1947
 Revision: concrete piles in piers eliminated and composite piles substituted.



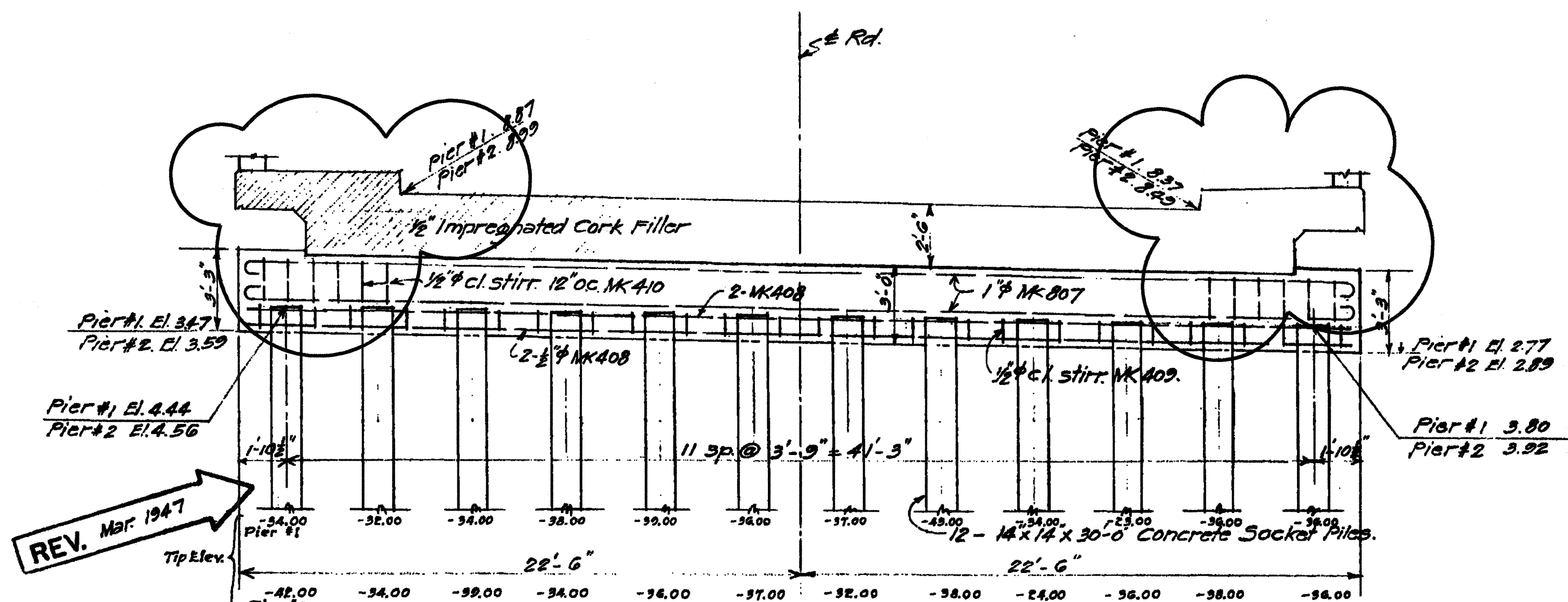
PLAN, PIER NO. 1
 $\frac{1}{4}'' = 1'-0''$



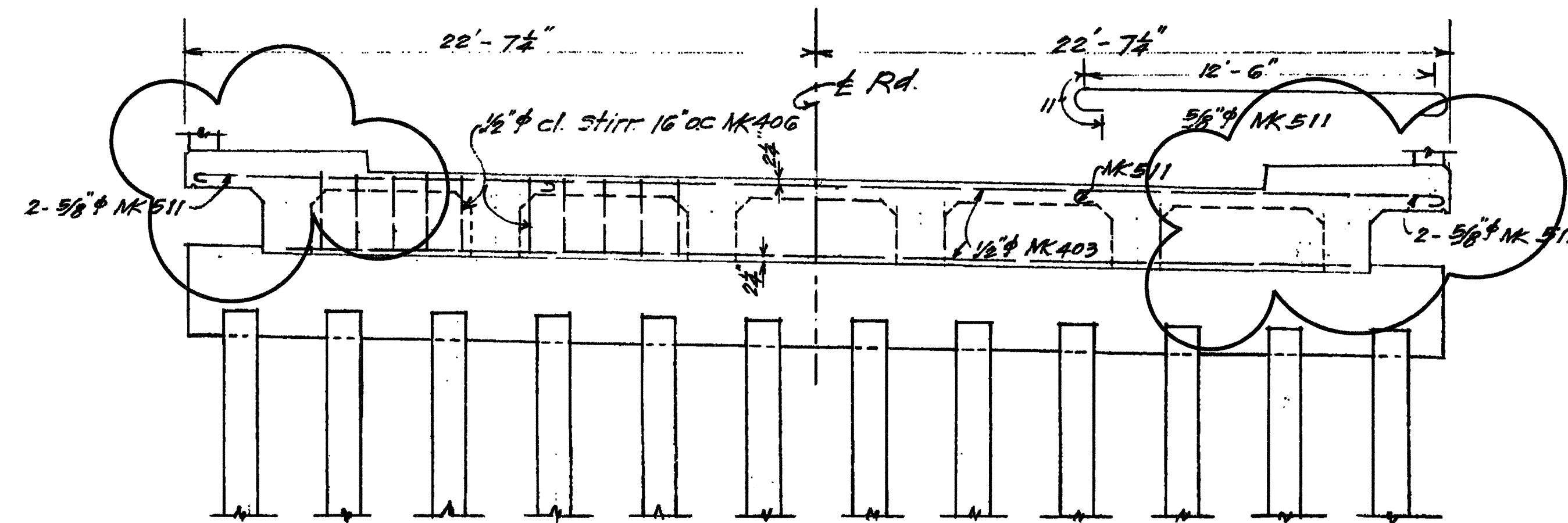
SECTION B-B
 $\frac{1}{2}'' = 1'-0''$



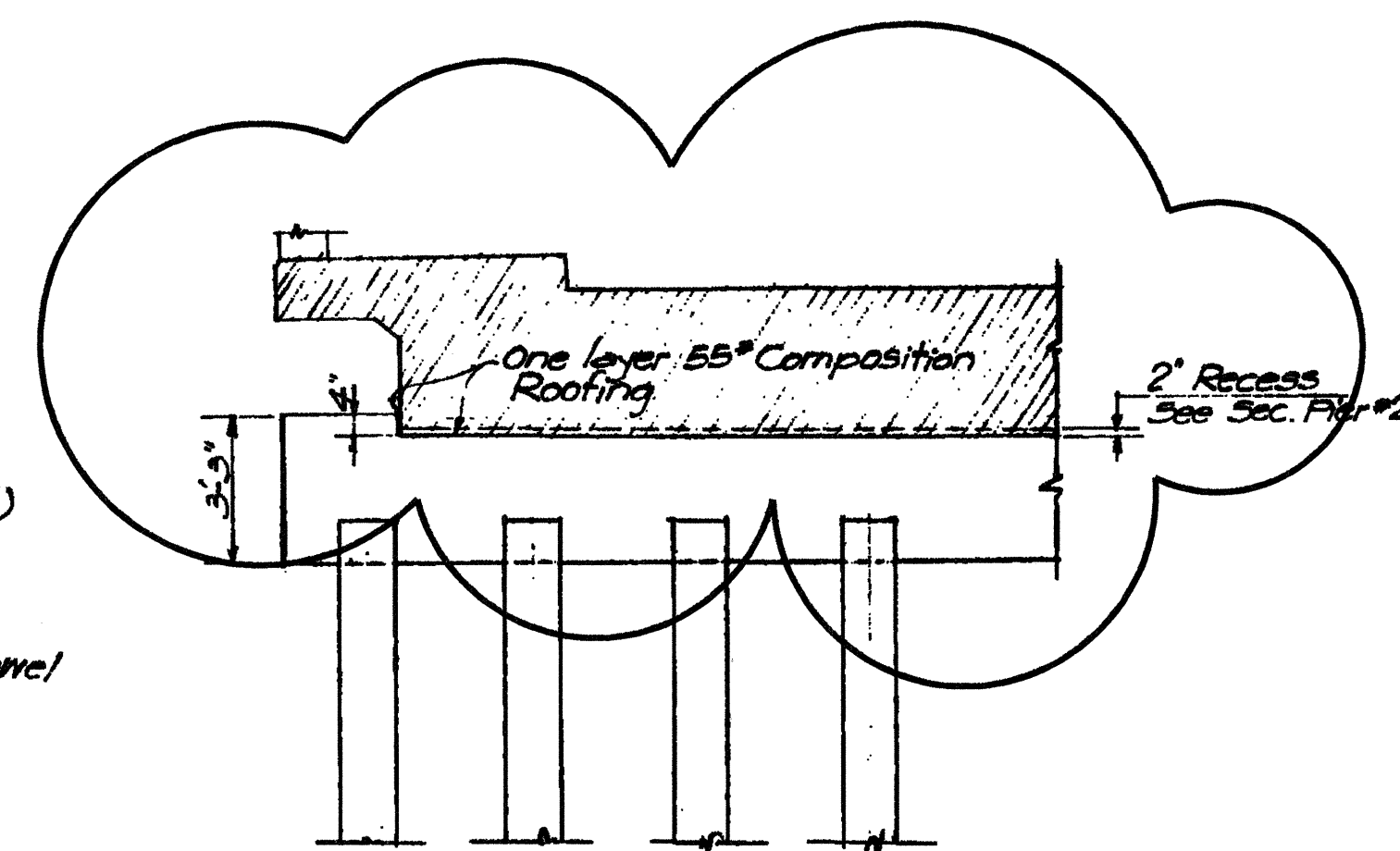
SECTION, PIER NO. 2
 $\frac{1}{2}'' = 1'-0''$



SECTION A-A
 $\frac{1}{4}'' = 1'-0''$



SECTION A-A SHOWING BEAM REINF.
 $\frac{1}{4}'' = 1'-0''$



LONG. SECTION PIER #2
 $\frac{1}{4}'' = 1'-0''$

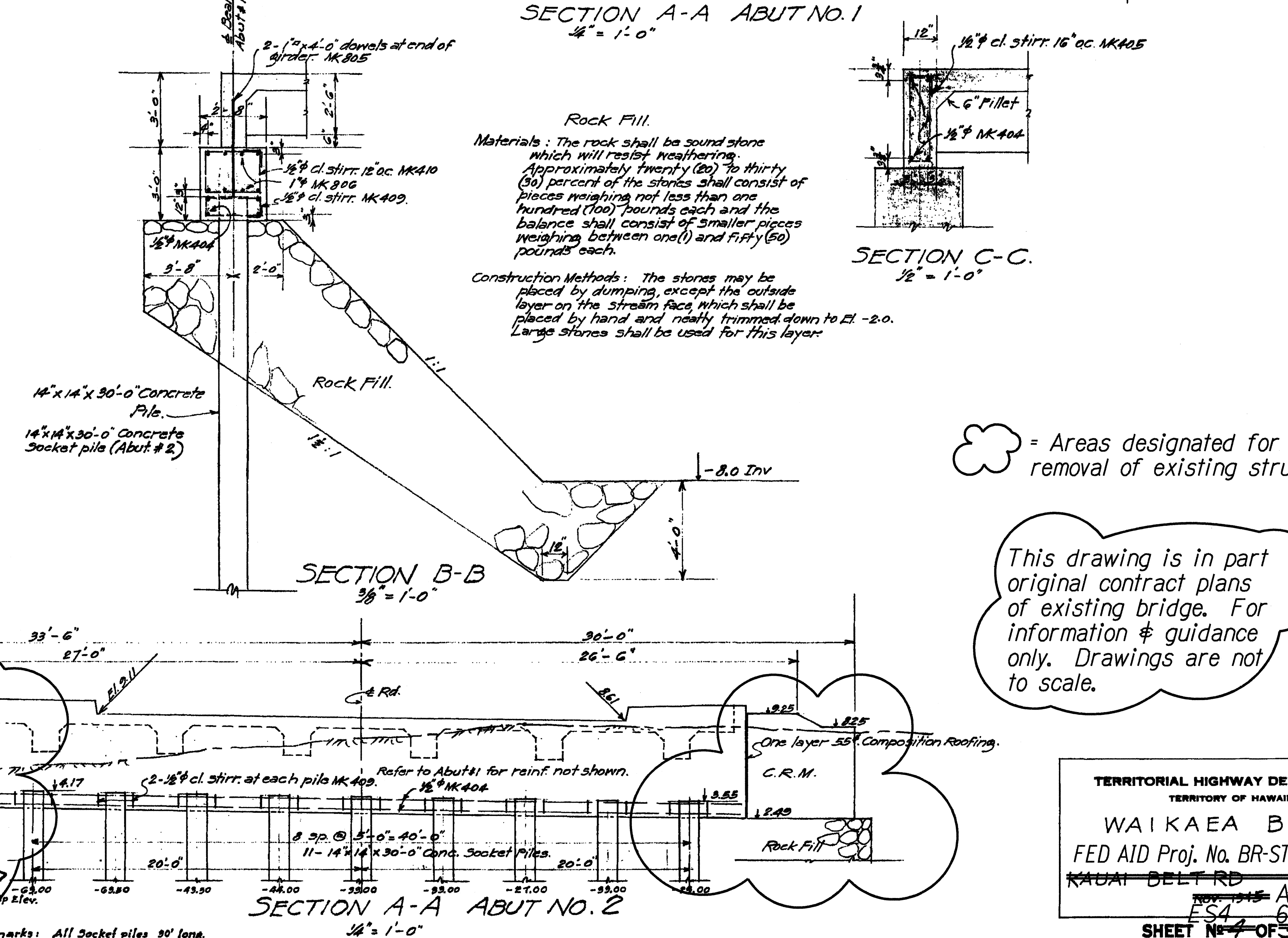
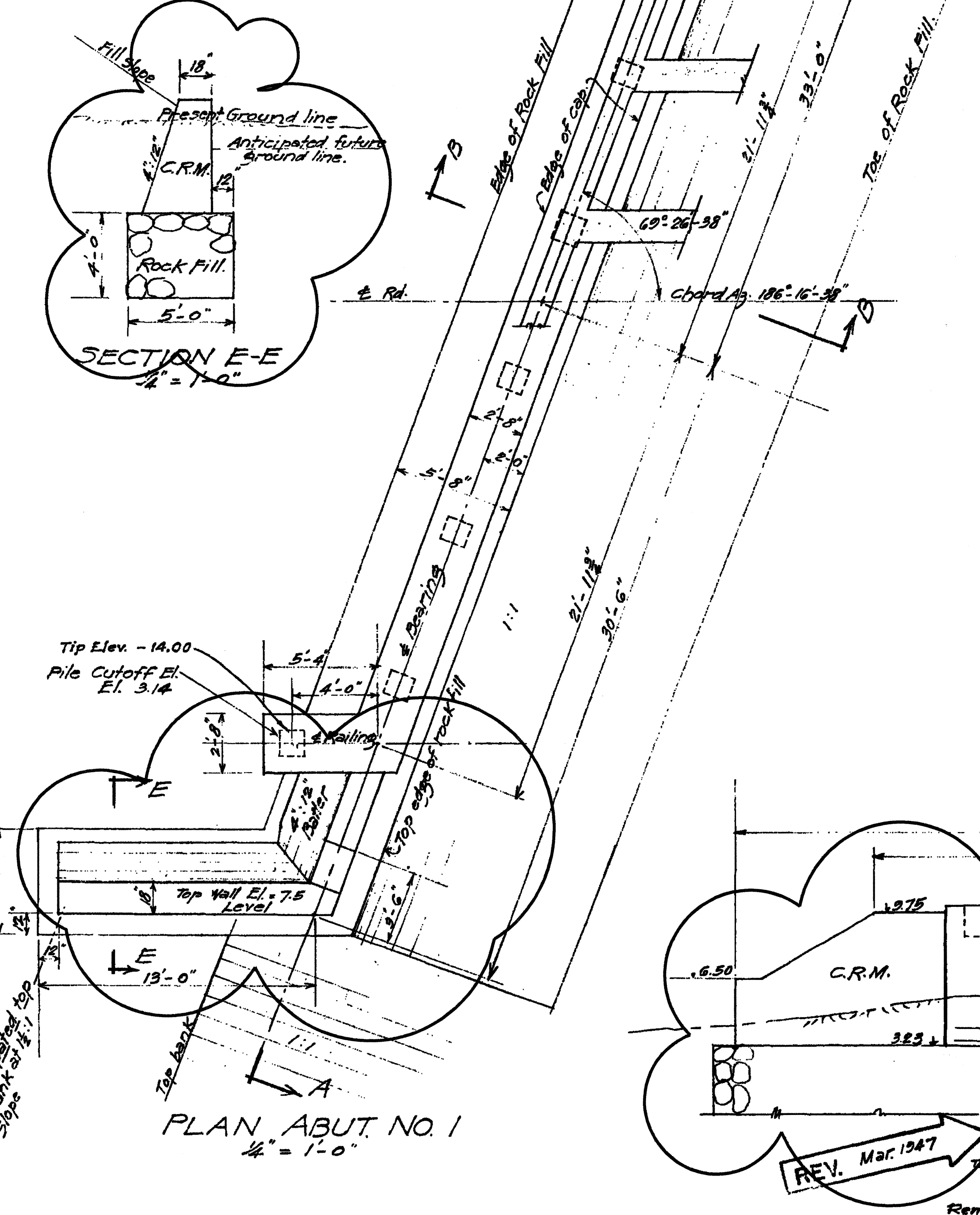
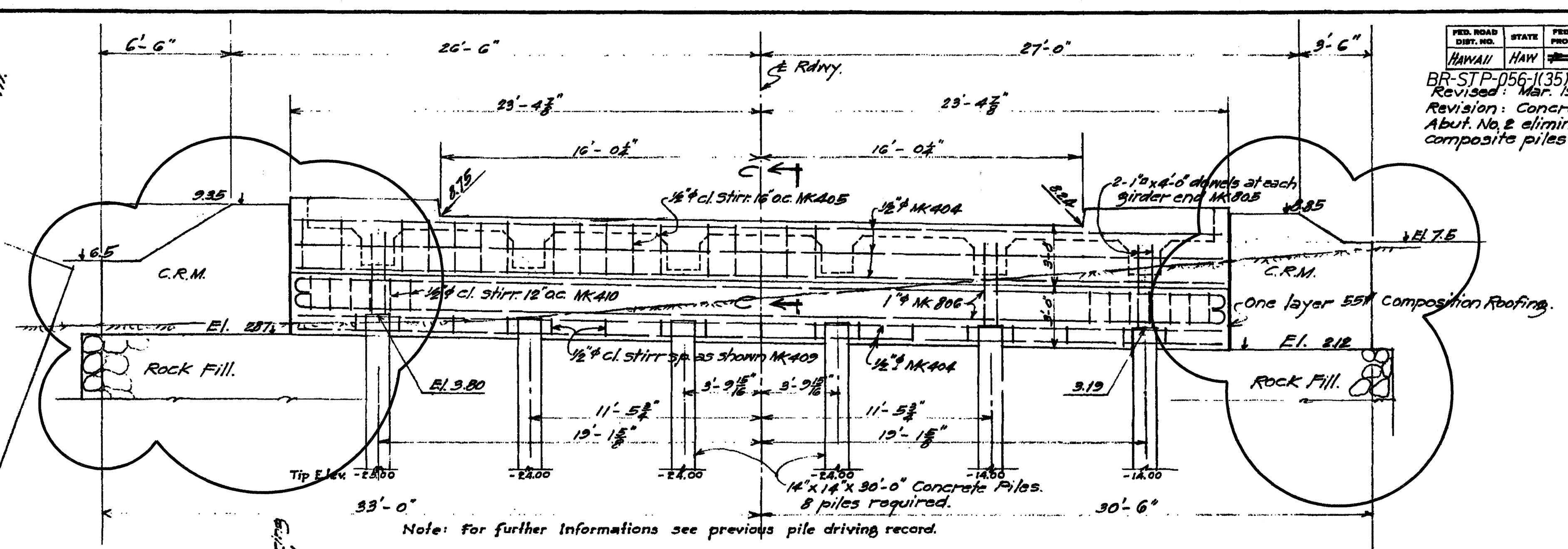
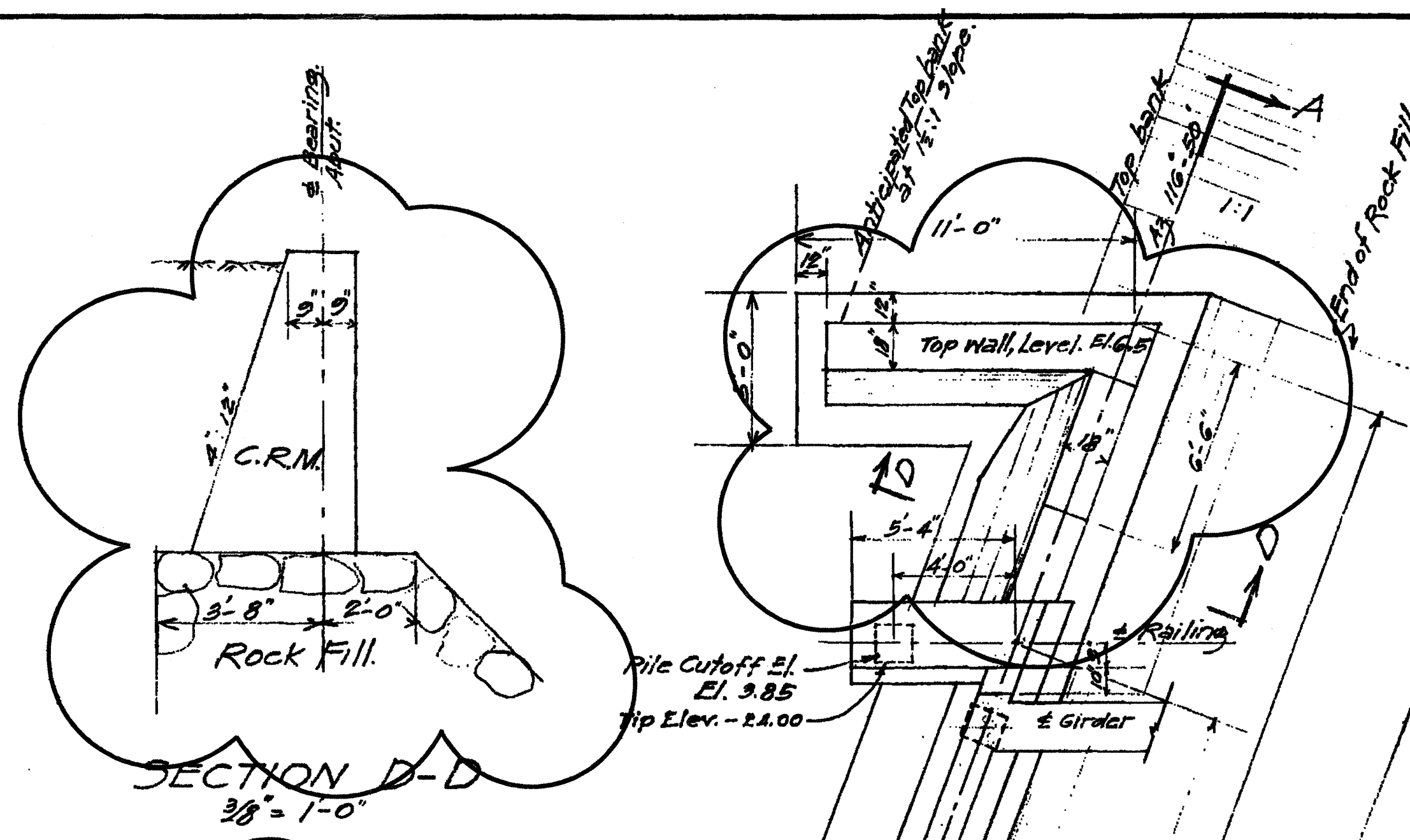
☁ = Areas designated for removal of existing structures.

This drawing is in part original contract plans of existing bridge. For information & guidance only. Drawings are not to scale.

TERRITORIAL HIGHWAY DEPARTMENT
 TERRITORY OF HAWAII
 WAIKAE A BRIDGE
 FED AID Proj. No. BR-STP-056-1(35)
 KAUAI BELT RD. F-12(14)
 Aug. 1999
 SHEET No. 9 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	BR-STP-056-1(35)	2000	45	70

BR-STP-056-1(35) 2000 45 70
Revised: Mar. 1947
Revision: Concrete piles in Abut. No. 2 eliminated and composite piles substituted.



Rock Fill.
Materials: The rock shall be sound stone which will resist weathering. Approximately twenty (20) to thirty (30) percent of the stones shall consist of pieces weighing not less than one hundred (100) pounds each and the balance shall consist of smaller pieces weighing between one (1) and fifty (50) pounds each.

Construction Methods: The stones may be placed by dumping, except the outside layer on the stream face which shall be placed by hand and neatly trimmed down to El. -2.0. Large stones shall be used for this layer.

☁ = Areas designated for removal of existing structures.

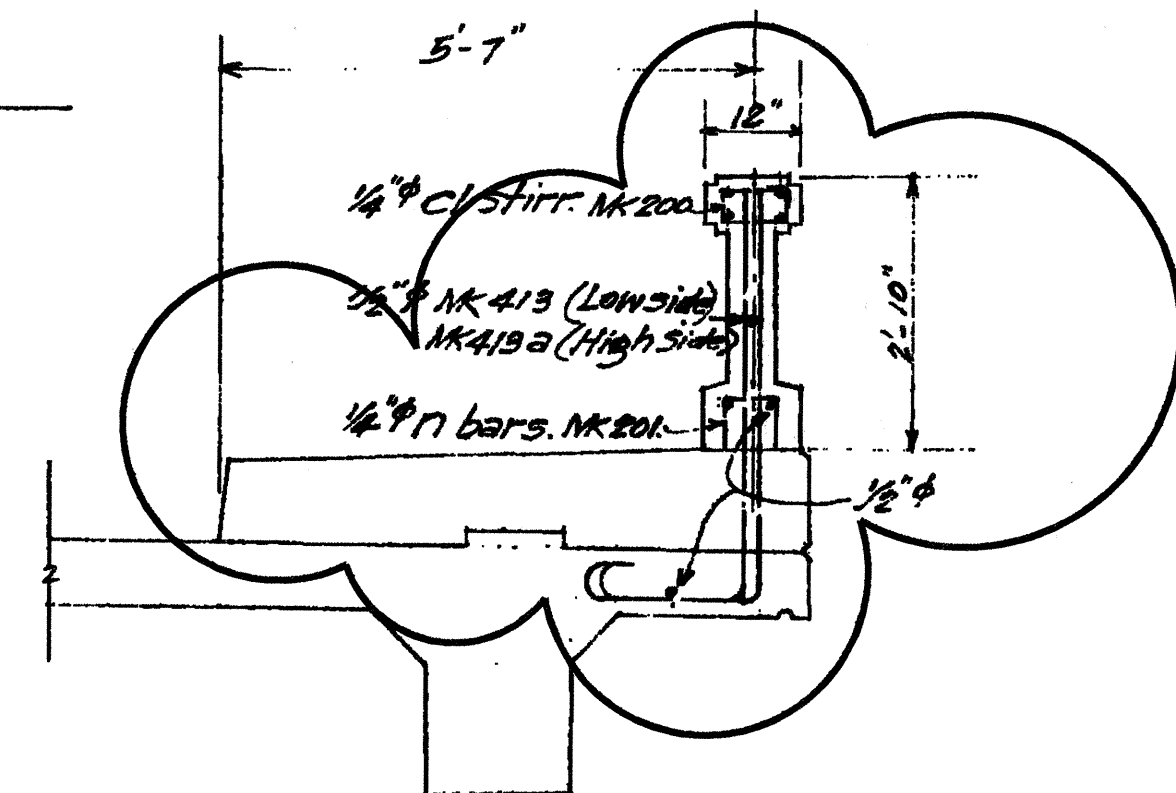
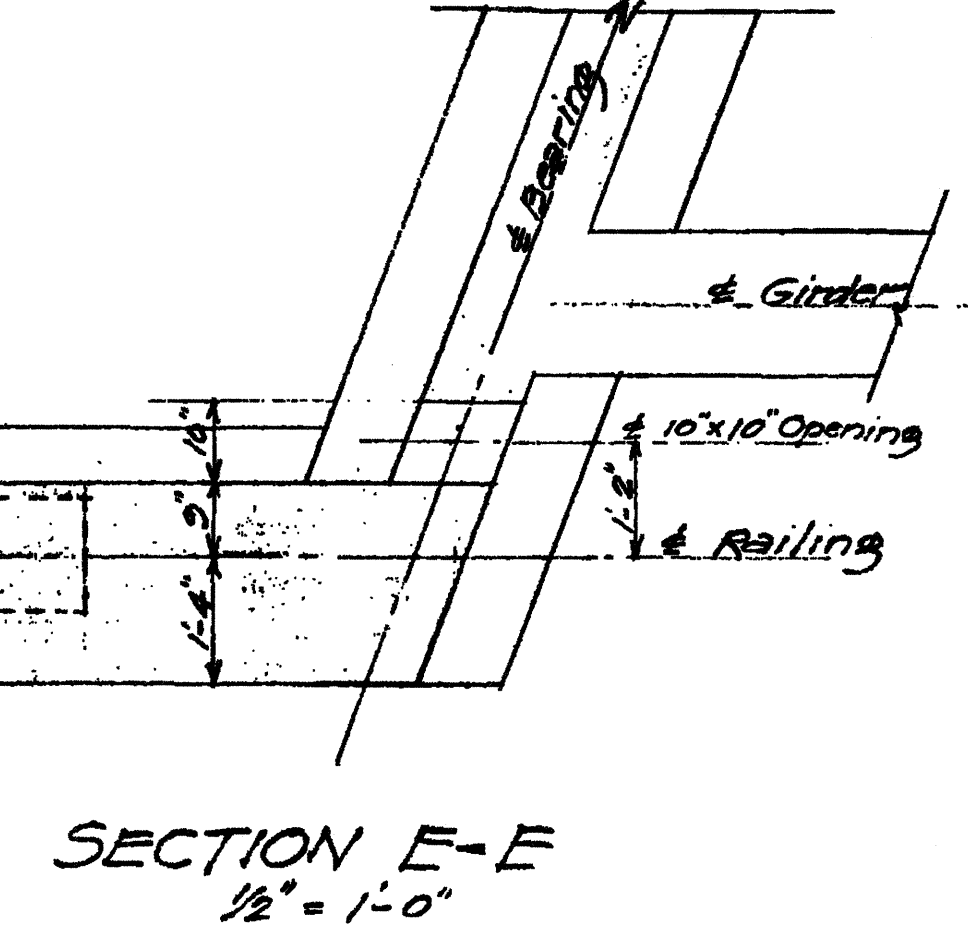
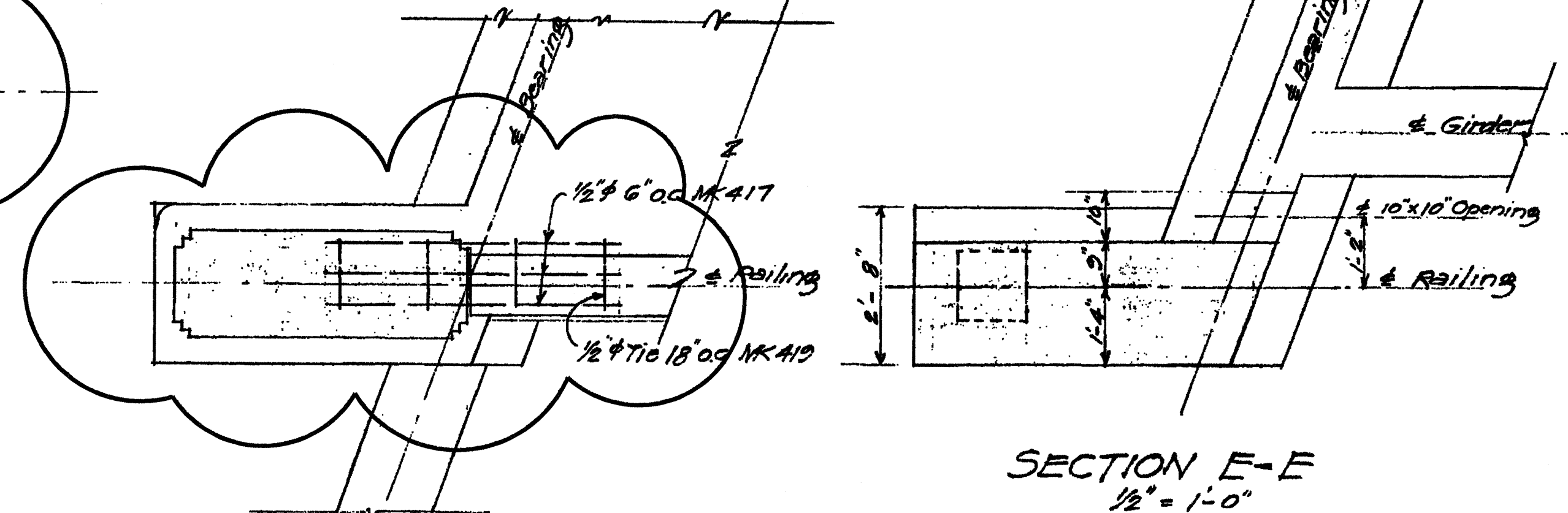
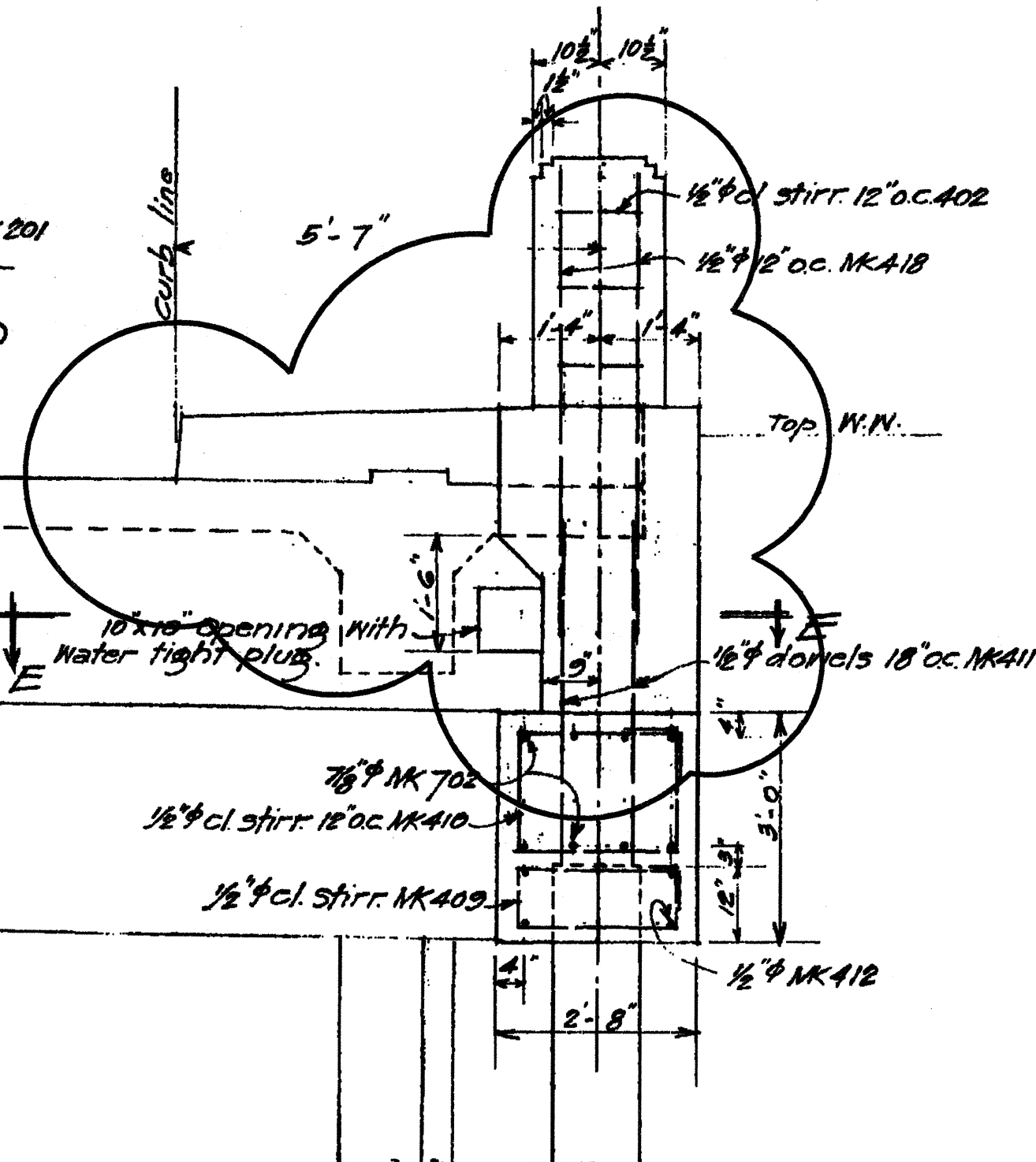
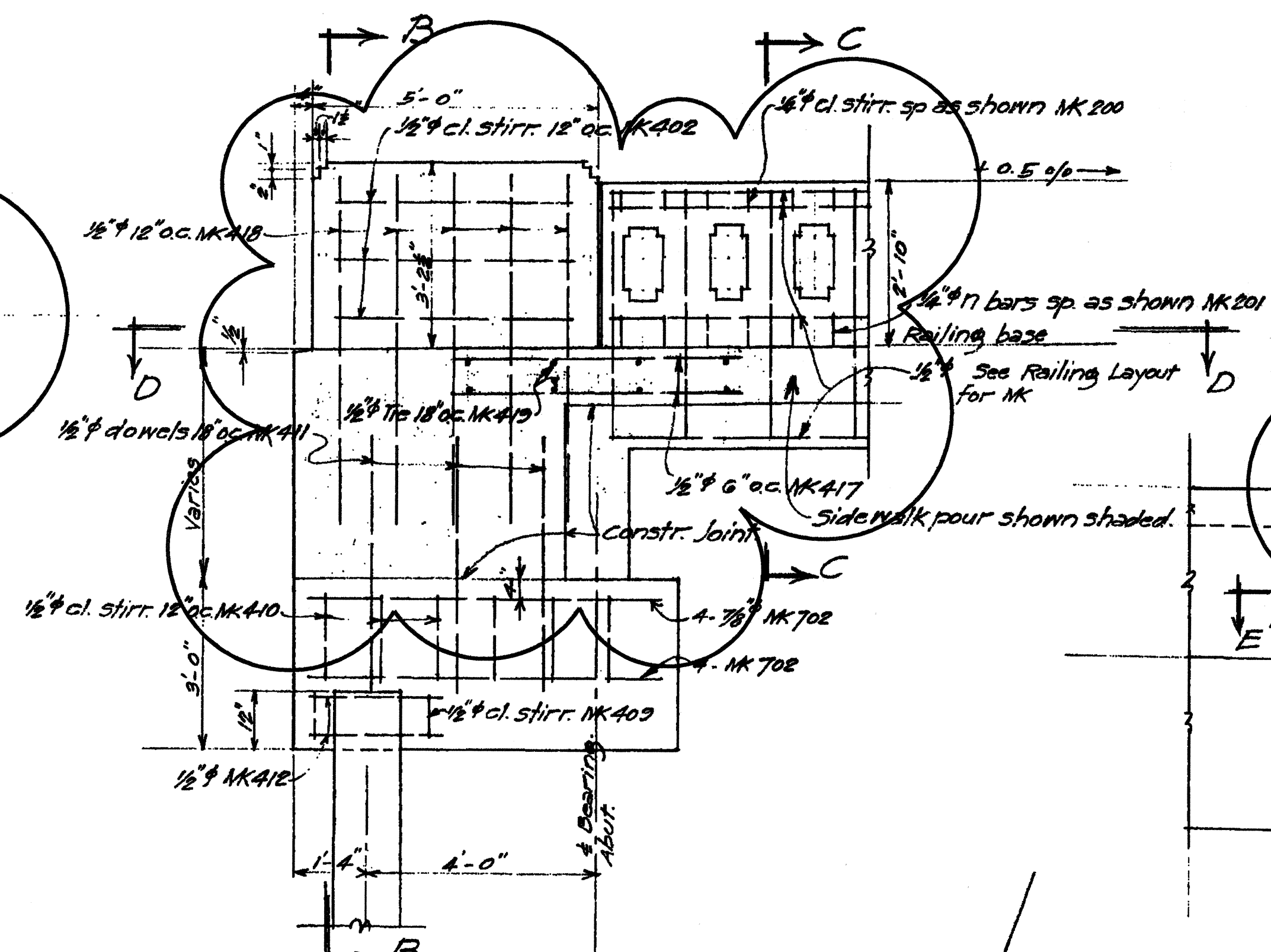
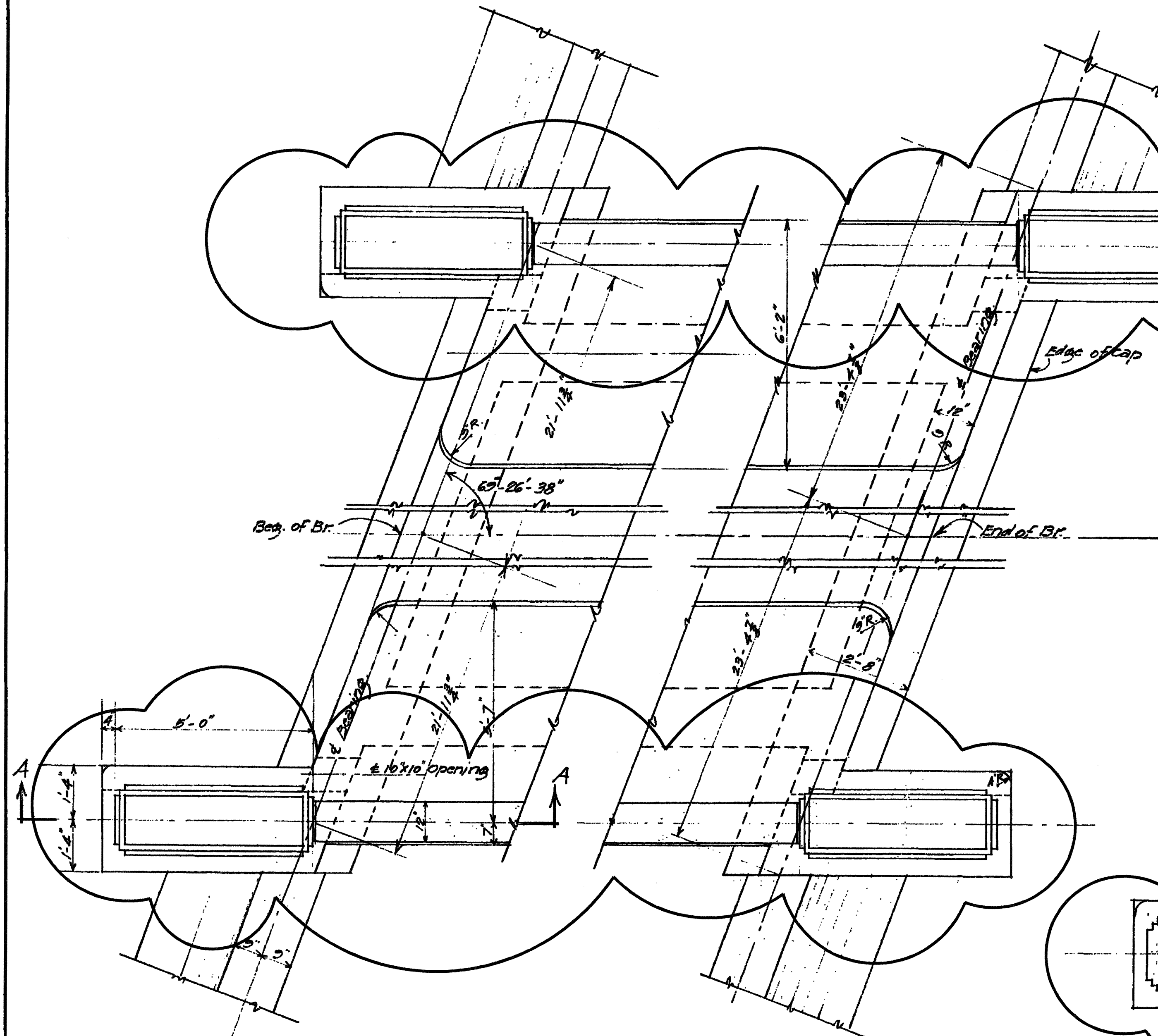
This drawing is in part original contract plans of existing bridge. For information & guidance only. Drawings are not to scale.

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

WAIKAEA BRIDGE
FED AID Proj. No. BR-STP-056-1(35)
KAUAI BELT RD
Aug, 1999
ES4 6
SHEET No. 4 OF 5 SHEETS

DESIGNED BY	DATE
TRACED BY	
QUANTITIES BY	
NOTES CHECKED BY	
REVISIONS	

Remarks: All socket piles 90' long.

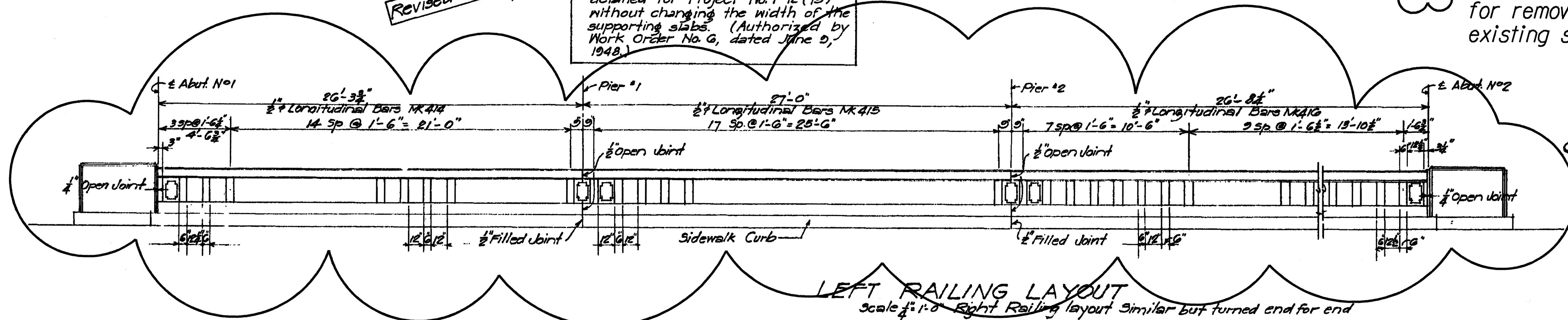


NOTE: Change of Railing Details
The railing details shown are hereby deleted. In lieu thereof the railings shall be built as detailed for Project No. F 12 (15) without changing the width of the supporting slabs. (Authorized by Work Order No. G, dated June 9, 1948.)

Revised: 6-9-48

☁ = Areas designated for removal of existing structures.

This drawing is in part original contract plans of existing bridge. For information & guidance only. Drawings are not to scale.



OBSELETE

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
WAIKAE A BRIDGE
FED AID Proj. No. BR-STP-056-K(35)
KAUAI BELT RD F 12(14)
Aug, 1999
ESG
SHEET NO. 46 OF 5 SHEETS

SEE REVISED PLANS

Depressed "V" letters $\frac{1}{8}$ " deep

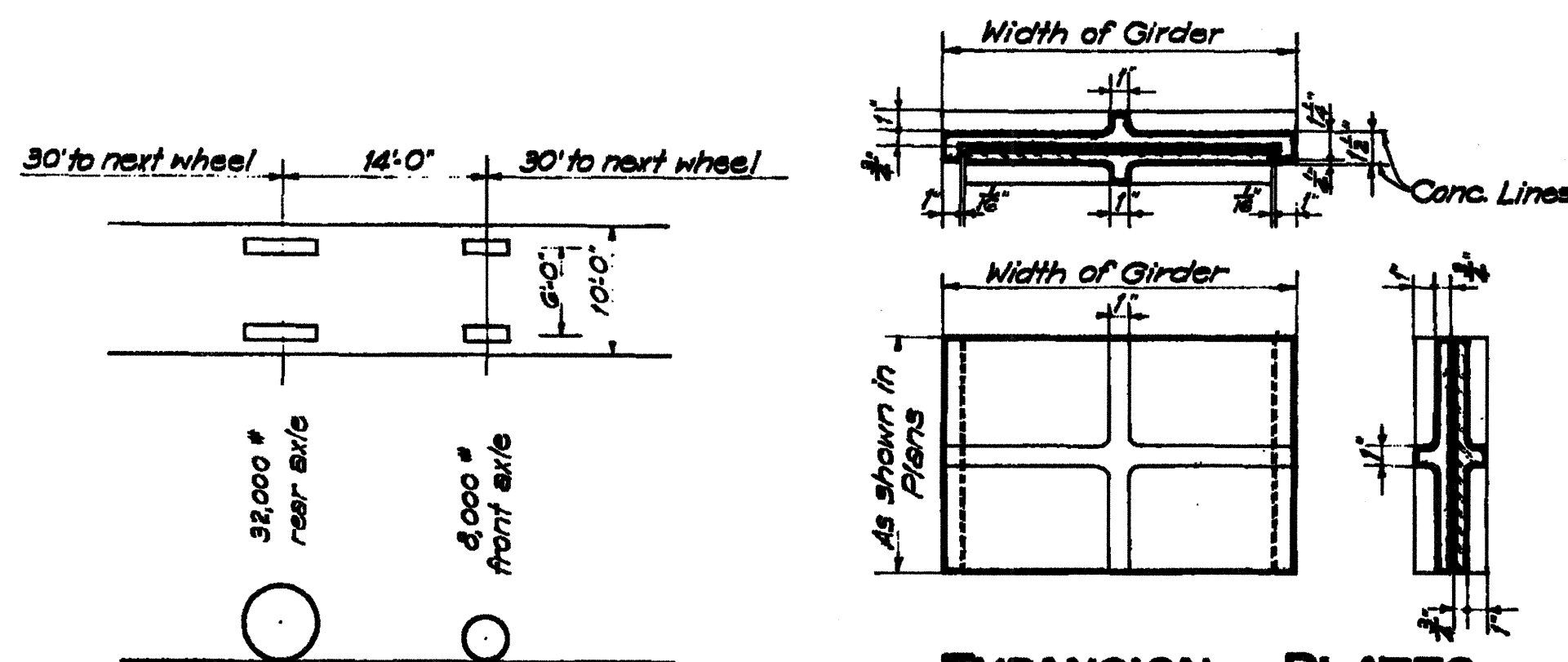
NAME **DATE**

Use correct name of stream
LEFT HAND SIDE

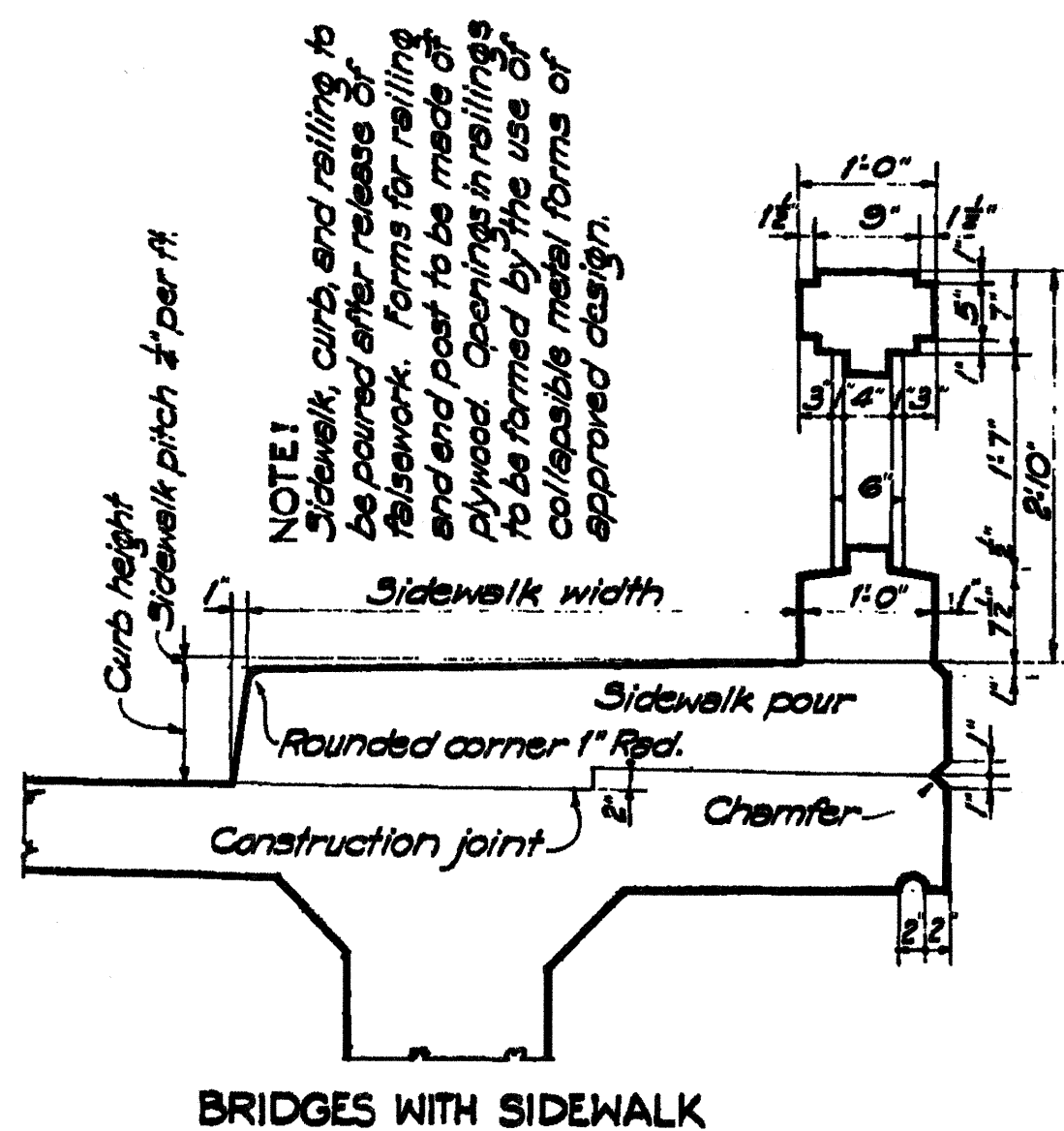
Date of year built
RIGHT HAND SIDE

DETAIL OF LETTERS AND FIGURES AT BOTH APPROACHES

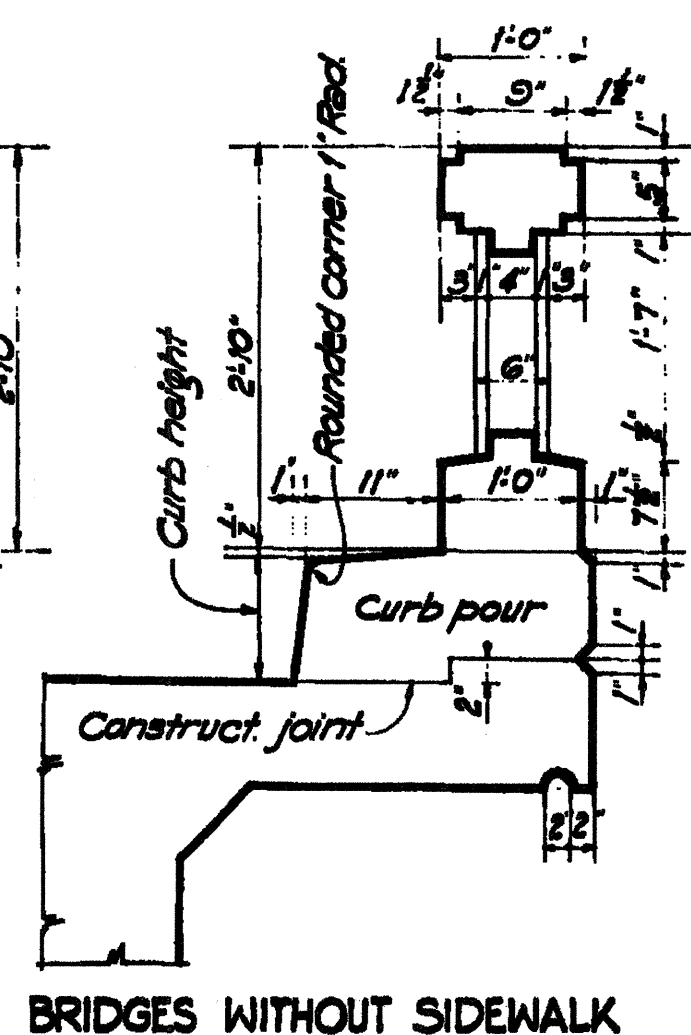
NOTE: Name of stream to be placed in left and post panels and date in right and post panels on entering bridge using modified block letters 3" in height.



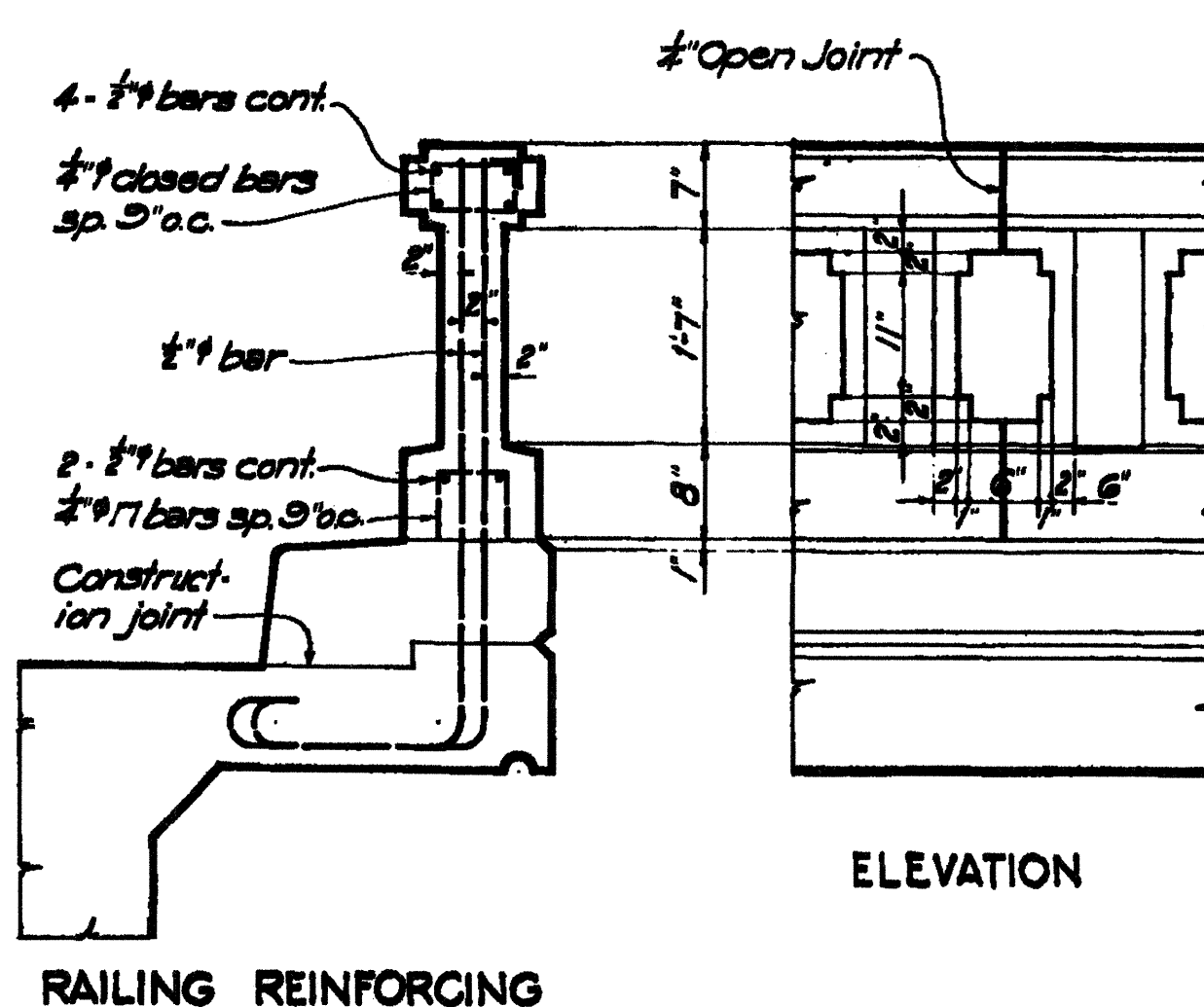
**DIAGRAM OF
TYPICAL 20-TON TRUCK**
(TRUCK & LOADING)



BRIDGES WITH SIDEWALK



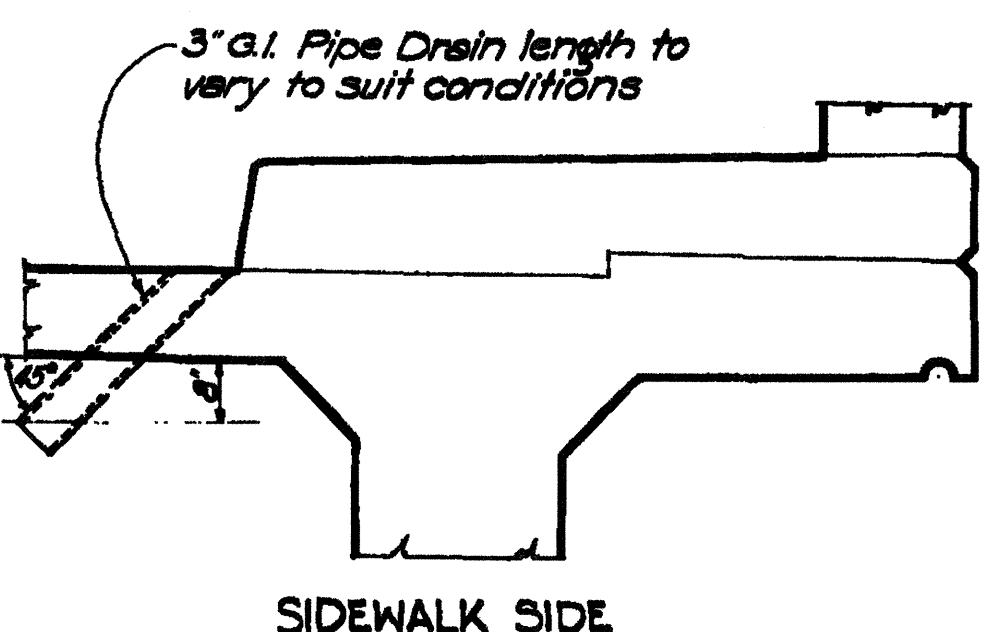
BRIDGES WITHOUT SIDEWALK



RAILING REINFORCING

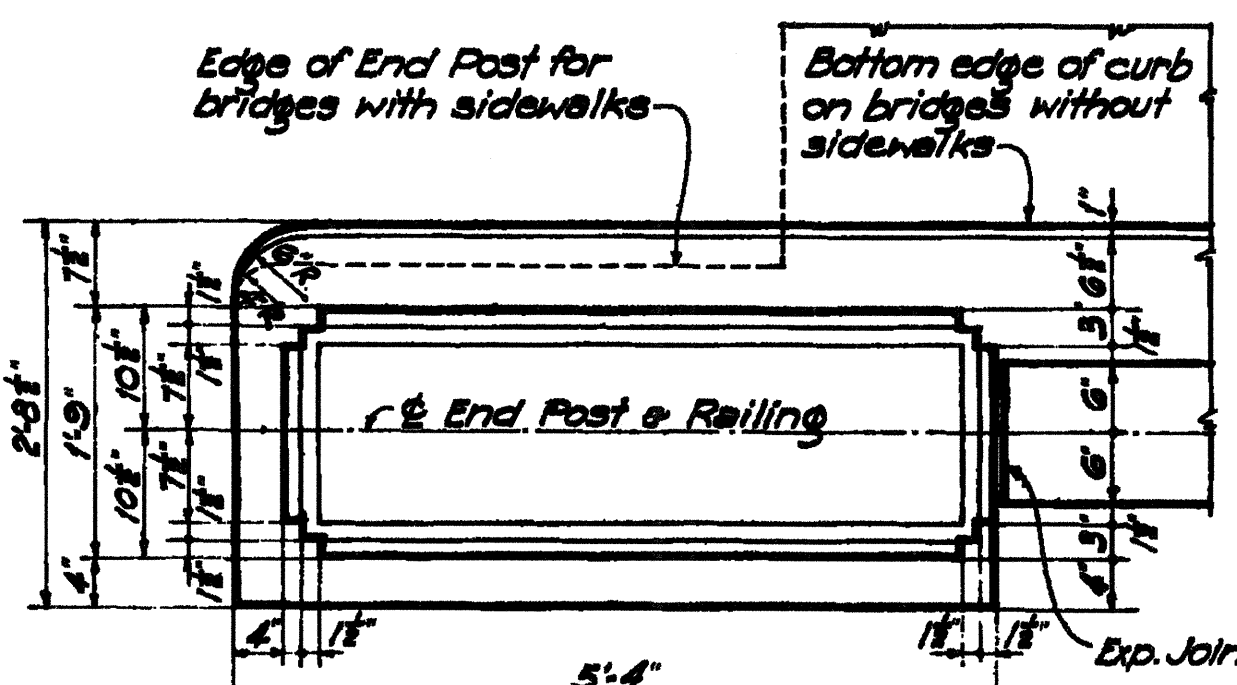
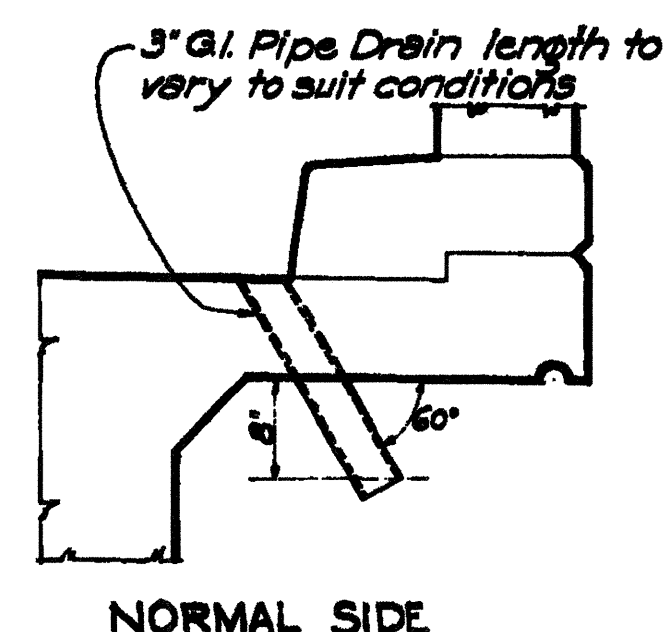
RAILING DETAILS

Scale: $\frac{3}{4}$ " = 1'-0"



DRAINAGE DETAIL

Scale: $\frac{3}{4}$ " = 1'-0"



END POST DETAIL

Scale: $\frac{3}{4}$ " = 1'-0"

GENERAL NOTES

DEAD LOAD: Concrete Paving = 150 # per cu. ft.
LIVE LOAD: H-20 loading; Impact, $\frac{25}{100}$ Max. 30 %

DESIGN STRESSES: $f_c = 1000$ # per sq. in.; $f_s = 18000$ # per sq. in.

CONCRETE: Class of concrete to be used in different parts of the structure are as noted on the plans. All exposed edges chamfered $\frac{3}{4}$ " unless otherwise noted.

REINFORCING STEEL: Intermediate grade. All steel to be round or square deformed bars of approved design. All dimensions relating to reinforcing are to centers of bars unless otherwise noted. Splicing of reinforcing other than main deck slab, girder and frame bars shall be done by lapping 40 diameters. Splices are to be staggered. Splices in main girder and frame bars are permitted only in bars exceeding 30' 0" in length at points to be indicated by the Engineer. These splices to be electrically arc welded according to detail and specifications. No allowance will be made in the quantities for extra weight of steel required for splices not shown on the plans.

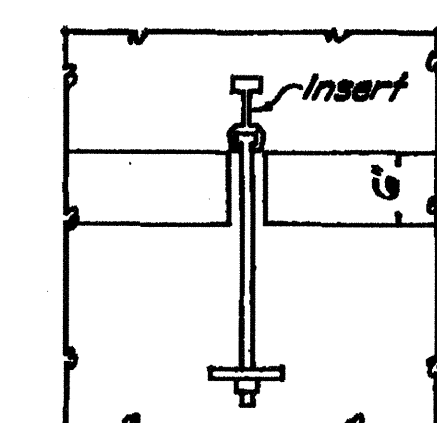
Minimum spacing between parallel bars shall be 2 1/2 times the diameter of round or 3 times the side dimension of square bars, but in no case shall the clear distance between the bars be less than 1 1/2 times the maximum size of the coarse aggregate.

Minimum covering, measured from the surface of the concrete to the face of any reinforcing bar, shall be not less than 2 inches except in slabs where the minimum covering shall be 1 inch. In the footings of abutments and retaining walls and in piers the minimum covering shall be 3 inches. In work exposed to the action of sea water the minimum covering shall be 4 inches except in precast concrete piles, where a minimum of 3 inches may be used.

WATERPROOFING: Apply waterproofing as specified in Section 34 Pamphlet N of the Specification, and as shown in the plans. Waterproofing is incidental to the concrete and will not be paid for separately.

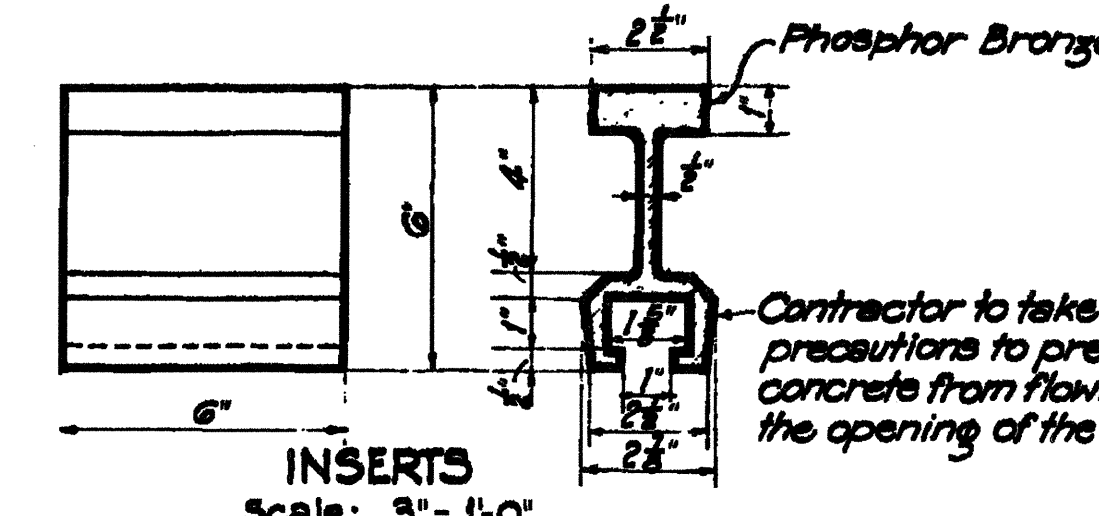
CONSTRUCTION JOINTS: All construction joints to have surface roughened and 1:2 cement grout applied immediately before the second pour. Construction joints to be located at places indicated in the plans.

This drawing is in part original contract plans of existing bridge. For information & guidance only. Drawings are not to scale.



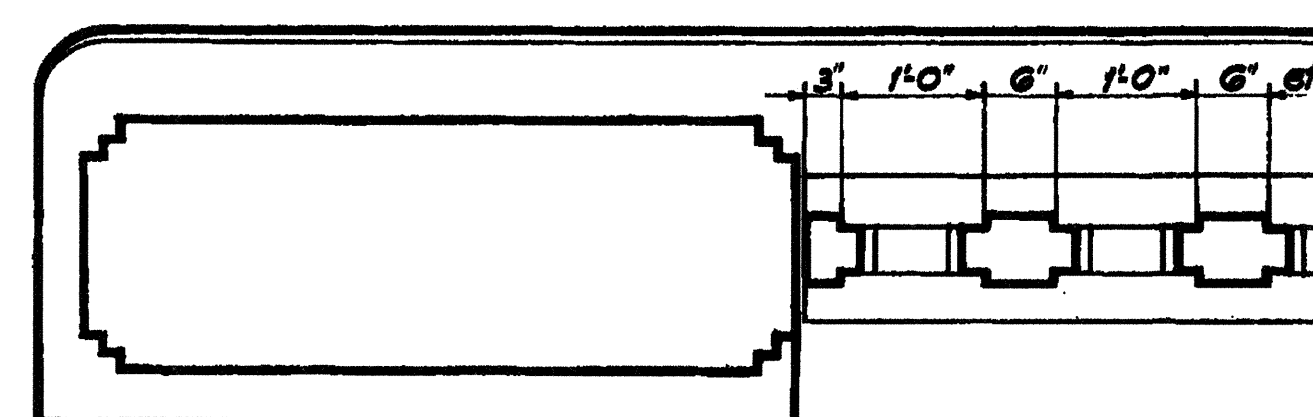
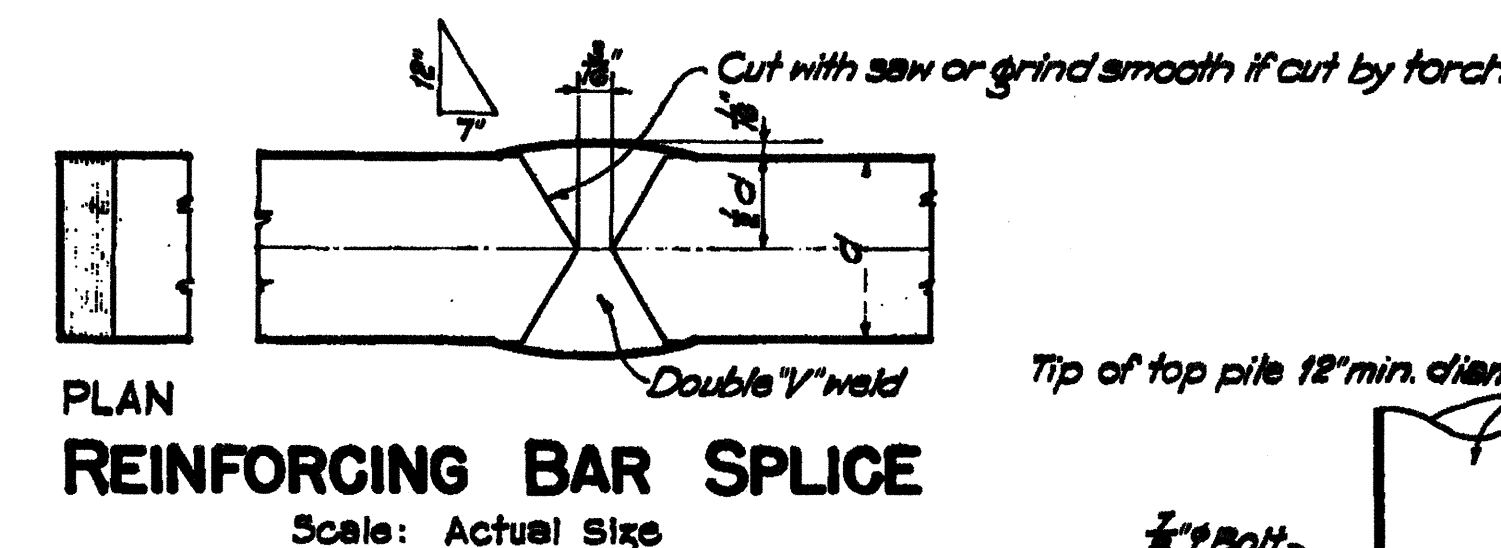
SECTION "A-A"

Scale: $\frac{3}{4}$ " = 1'-0"



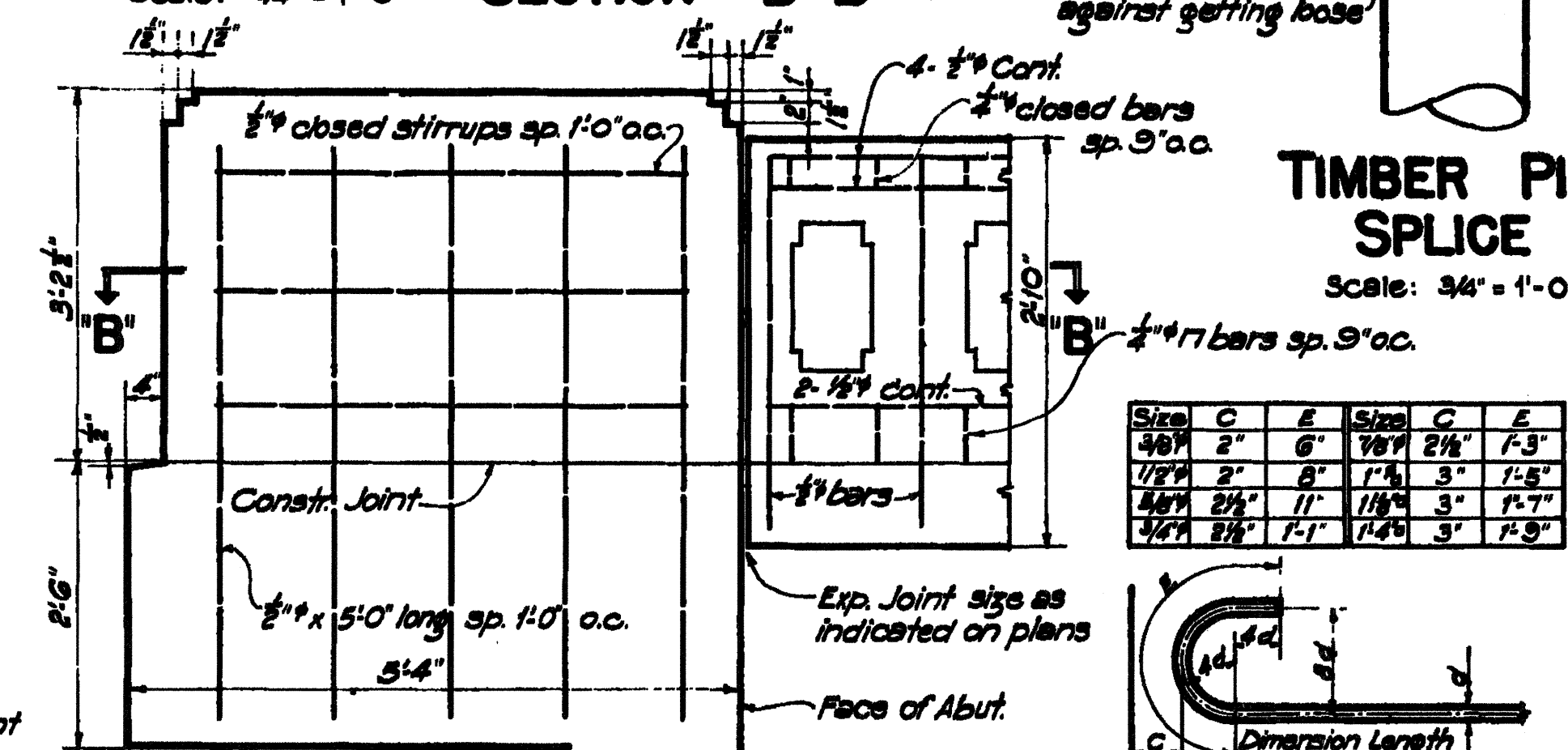
DETAIL OF PIPE HANGERS AND INSERTS

NOTE: Inserts, bolts, plates, nuts & washers to be Phosphor Bronze conforming to the ASTM standards, Serial Designation B22 or the latest revision thereof, and shall be Class "D" grade.



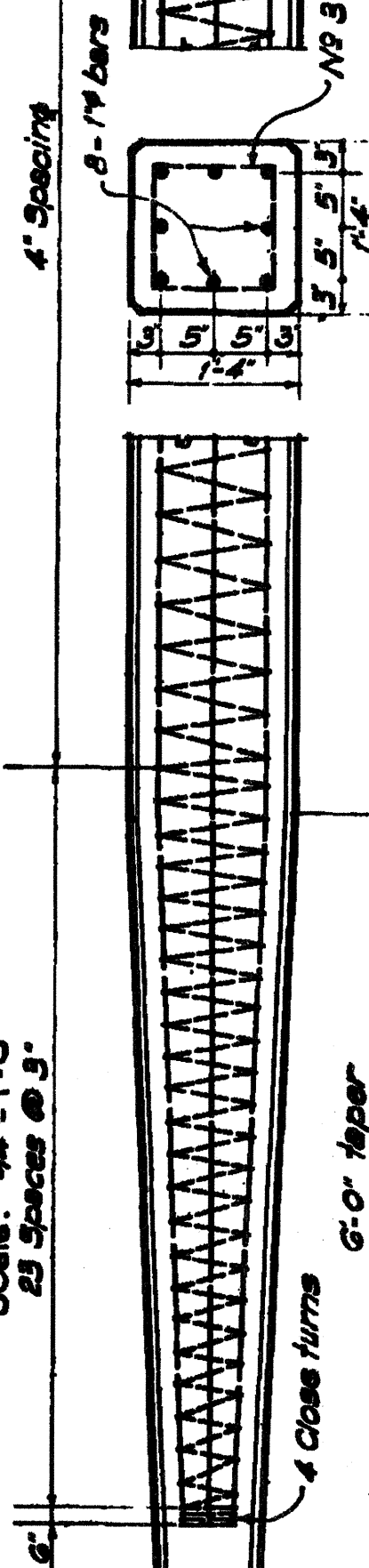
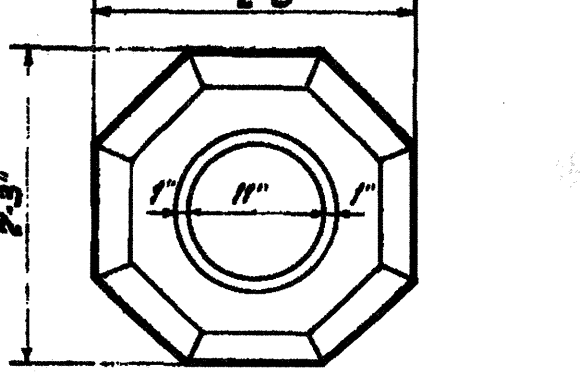
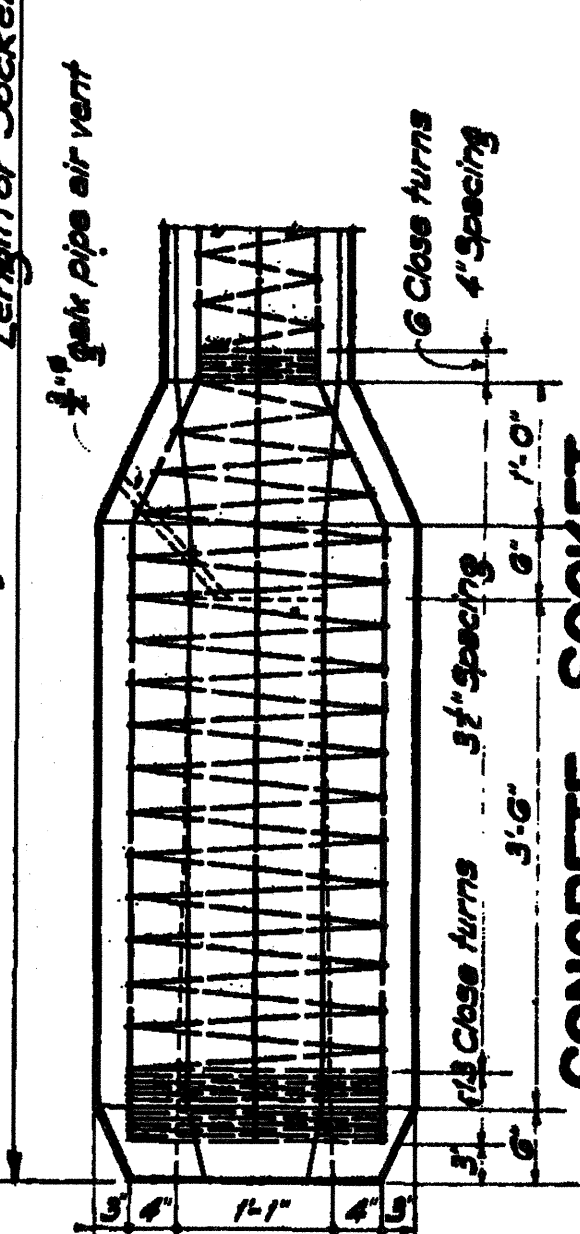
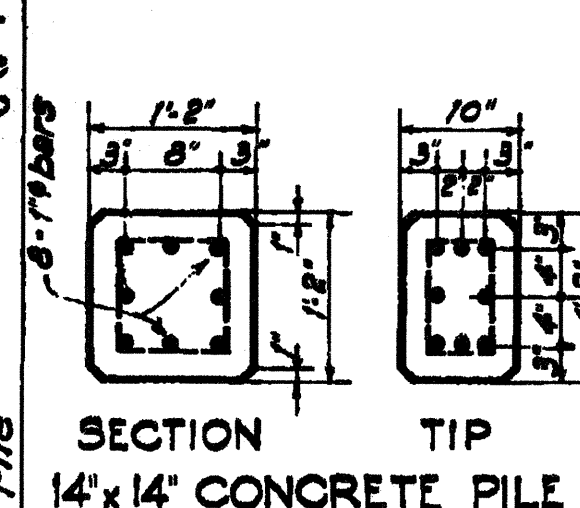
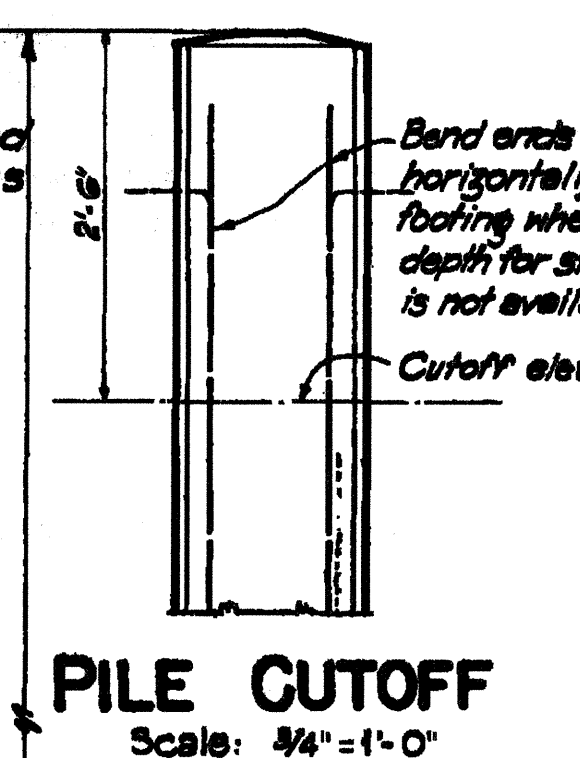
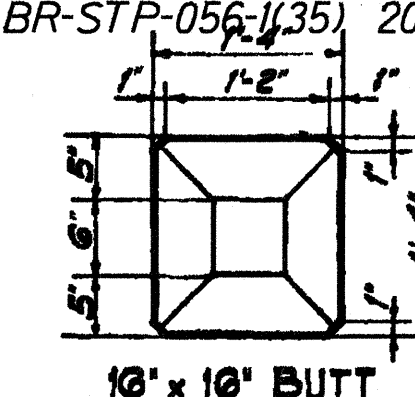
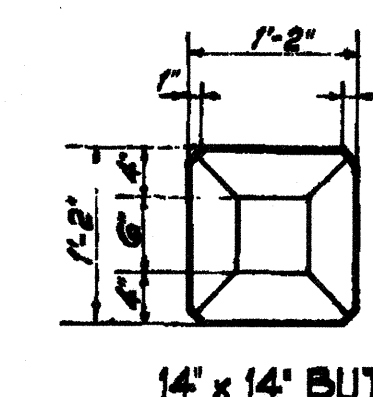
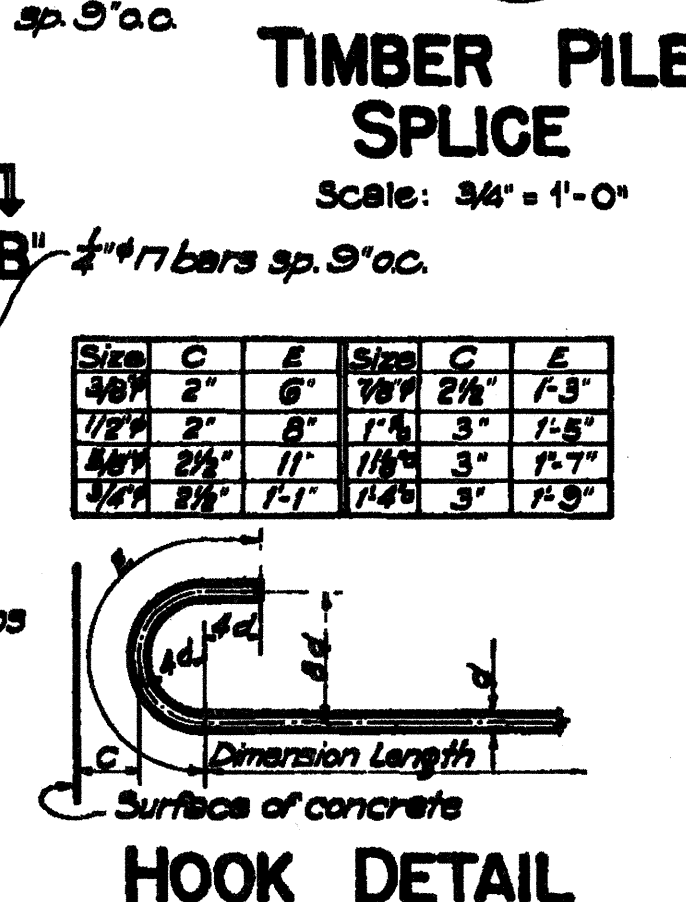
Scale: $\frac{3}{4}$ " = 1'-0"

SECTION "B-B"



SECTION THRU OF END POST AND RAILING

Scale: $\frac{3}{4}$ " = 1'-0"



TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

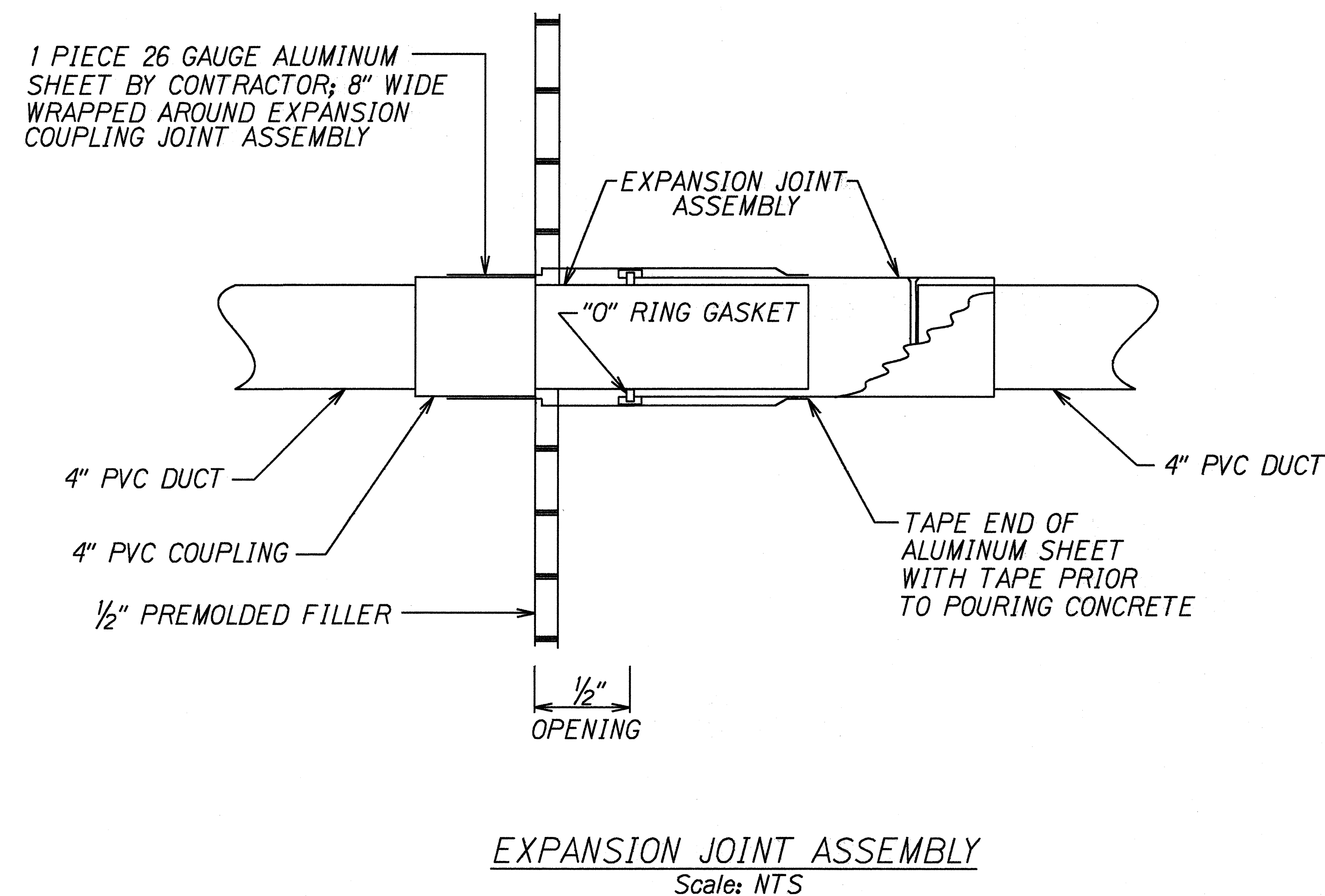
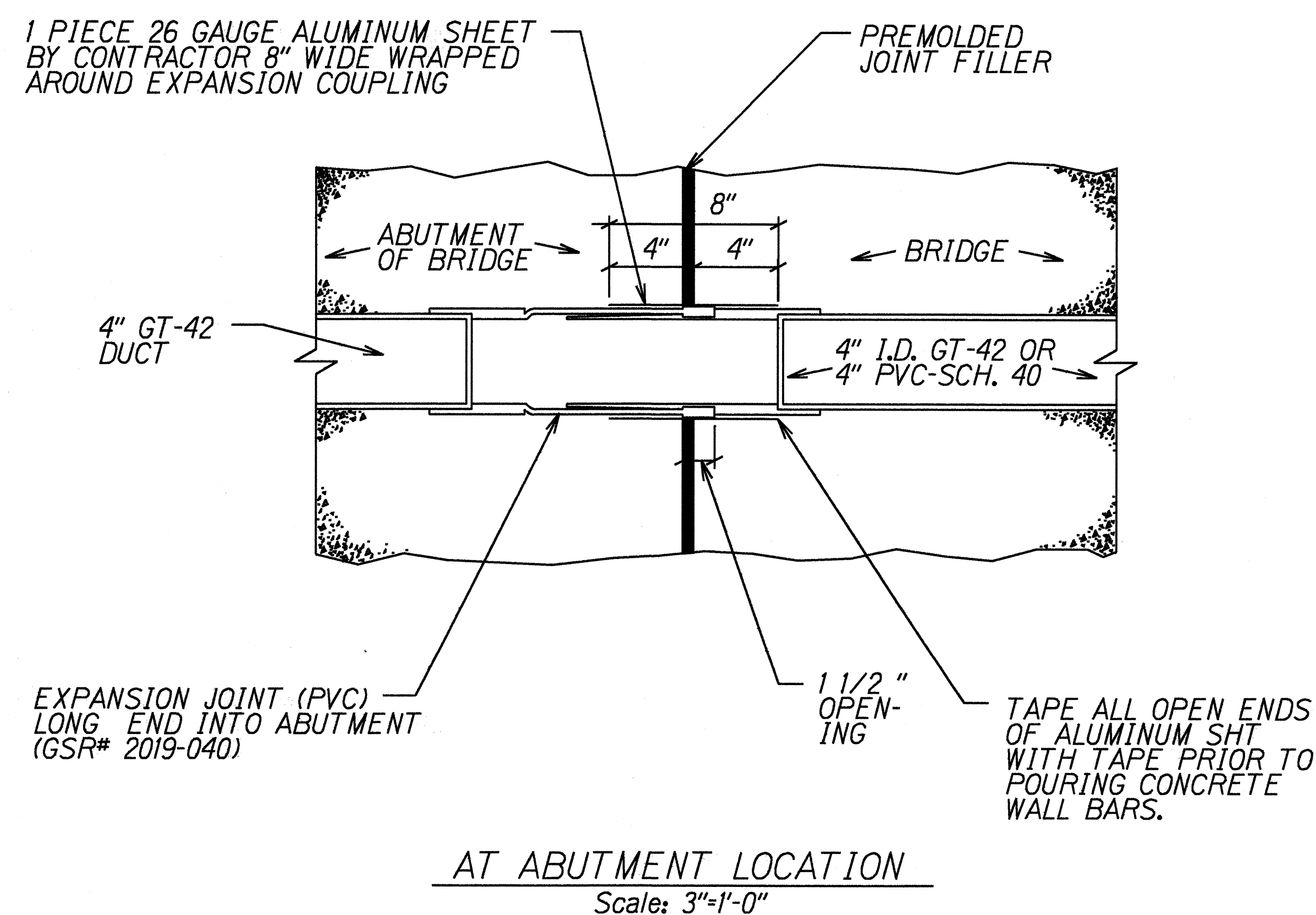
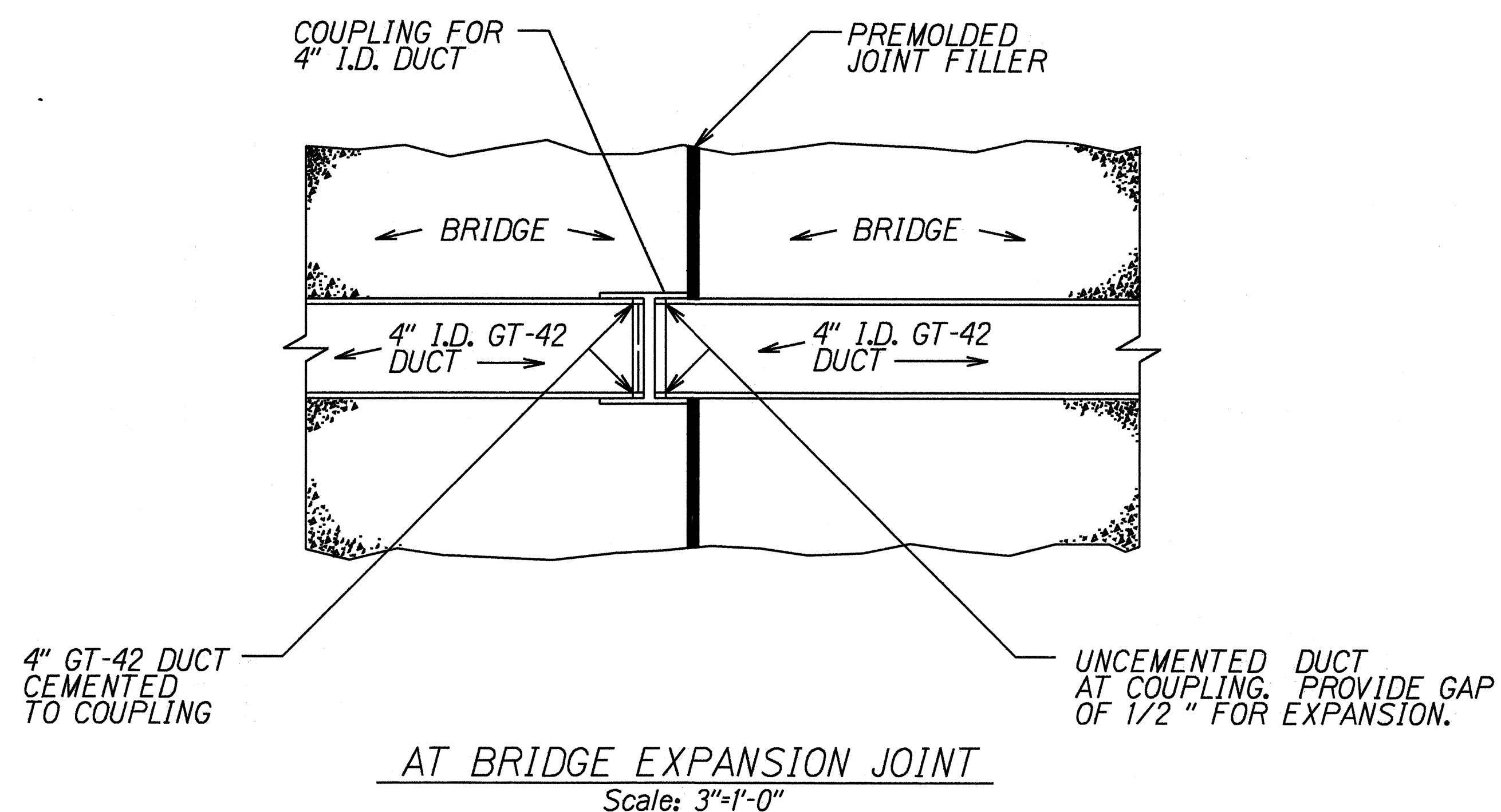
STANDARD BRIDGE DETAILS

Scales as Noted

SHEET NO. 56 OF 6 SHEETS

5178.6

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-STP-056-1(35)	2000	49	70



DESIGNED BY	DATE
TRACED BY	6-22-99
NOTES BOOK	
QUANTITIES BY	
CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BRIDGE CONDUIT DETAILS

KUHIO HIGHWAY
Waikaea Bridge Widening
Fed. Aid Proj. No. BR-STP-056-1(35)

Scale: NOTED Date: JUNE, 1999

SHEET No. 1 OF 1 SHEETS