

INDEX OF BRIDGE DRAWINGS

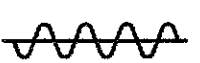
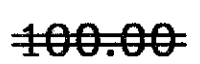
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	17	67

SHEET NO.	DESCRIPTION
S0.1	INDEX OF BRIDGE DRAWINGS
S0.2	STRUCTURAL GENERAL NOTES
S0.3	STRUCTURAL GENERAL NOTES
S0.4	SYMBOLS AND ABBREVIATIONS
S1.1	NOT USED
S1.2	NOT USED
S1.3	NOT USED
S1.4	NOT USED
S1.5	NOT USED
S2.1	WAIPA STREAM BRIDGE FOUNDATION PLAN
S2.2	WAIPA STREAM BRIDGE DECK PLAN
S2.3	WAIPA STREAM BRIDGE LONGITUDINAL SECTION
S2.4	WAIPA STREAM BRIDGE TYPICAL DECK SECTION
S2.5	WAIPA STREAM BRIDGE TYPICAL DECK SECTION
S2.6	WAIPA STREAM BRIDGE DRAIN HOLE PLAN
S3.1	NOT USED
S3.2	NOT USED
S3.3	NOT USED
S3.4	NOT USED
S3.5	NOT USED
S4.1	6'-6" DIAMETER CASING
S4.2	MICROPILE, CASING, AND ABUTMENT CAP SECTIONS
S4.3	ABUTMENT MICROPILE CAP PLAN SECTIONS
S4.4	MICROPILE DETAIL AND NOTES
S4.5	MICROPILE DETAIL, SECTION AND NOTES
S5.1	COLUMN
S5.2	COLUMN CAP
S5.3	COLUMN CAP

SHEET NO.	DESCRIPTION
S6.1	CIP DECK WITH DOWNTURN BEAM
S6.2	NOT USED
S6.3	CIP DECK WITH DOWNTURN BEAM AT WAIPA
S6.4	PIER BEAM
S6.5	TRANSVERSE GRADE BEAM
S7.1	TYPICAL CREEP BLOCK AT ABUTMENT
S7.2	TYPICAL CREEP BLOCK AT COLUMN CAP
S7.3	TYPICAL BEARING PAD PLANS AND SECTIONS
S8.1	PRECAST PLANK DETAILS
S8.2	PRECAST PLANK DETAILS
S8.3	PRECAST PLANK DETAILS
S8.4	PRECAST AND POST-TENSIONING NOTES
S9.A1	TYPICAL GIRDER DETAILS
S9.A2	TYPICAL GIRDER SECTION
S9.A3	TYPICAL GIRDER SECTION AND DETAIL
S9.A4	REINF. COUPLING PLAN AT CIP CLOSURE POUR
S9.A5	TYPICAL GIRDER SECTION AT BENT
S9.A6	TYPICAL GIRDER SECTION AT ABUTMENT
S9.B1	NOT USED
S9.B2	NOT USED
S9.B3	NOT USED
S9.B4	NOT USED
S9.B5	NOT USED
S9.B6	NOT USED
S9.B7	NOT USED

SHEET NO.	DESCRIPTION
S9.C1	WAIPA STREAM BRIDGE GIRDER ELEVATION (FORM LAYOUT)
S9.C2	WAIPA STREAM BRIDGE GIRDER ELEVATION (FORM LAYOUT)
S9.C3	WAIPA STREAM BRIDGE GIRDER ELEVATION (REINF. LAYOUT)
S9.C4	WAIPA STREAM BRIDGE GIRDER ELEVATION (REINF. LAYOUT)
S9.C5	WAIPA STREAM BRIDGE GIRDER ELEVATION (REINF. LAYOUT)
S9.C6	WAIPA STREAM BRIDGE GIRDER ELEVATION (REINF. LAYOUT)
S9.C7	WAIPA STREAM BRIDGE GIRDER CAP REINFORCING PLAN
S9.D1	NOT USED
S9.D2	NOT USED
S9.D3	NOT USED
S9.D4	NOT USED
S9.H1	GIRDER LIFTING ELEVATION
S9.H2	GIRDER LIFTING SECTION
S9.H3	WAIPA STREAM BRIDGE GIRDER ELEVATION (REINF. LAYOUT)
S9.H4	WAIPA STREAM BRIDGE GIRDER ELEVATION (REINF. LAYOUT)
S10.1	CURB SECTIONS
S10.2	CURB SECTION
S11.1	CONSTRUCTION SEQUENCE
S12.1	TEMPORARY TOP VERTICAL REACTION BLOCK 
S12.2	ARV CAGE
S12.3	ARV CAGE SECTIONS
S12.4	PERMANENT TOP VERTICAL REACTION BLOCK
S12.5	WAIPA STREAM BRIDGE WATERLINE SUPPORT

LEGEND FOR AS-BUILT POSTINGS

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

3/19/19



Added Sheets

DATE

REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

INDEX OF BRIDGE DRAWINGS

KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)

Scale: As Noted

Date: Oct. 2018

SHEET No. S01 OF 4 SHEETS

"AS-BUILT"

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

DRAWING NAME: Z:\100 ONGOING\00 CB PROJECTS\18-0082-3W BRIDGES AS-BUILT REVIEW CDR\3WB-S0001 DELTA1 INDEX.DWG PLOT TIME: 03-25-21 2:57 PM

STRUCTURAL GENERAL NOTES:

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	18	67

1. General Specifications:

- A. Hawaii Department of Transportation (HDOT), Standard Specifications for Road and Bridge, Construction, 2005, together with Special Provisions prepared for this project.

2. Design Specifications:

- A. AASHTO 2014 LRFD Bridge Design Specifications, Seventh Edition, including subsequent interim specifications with interim supplements and modifications by the HDOT Highways Division.
- B. HDOT document dated August 8, 2014 with subject title "Design Criteria for Bridges and Structures".

3. Loads:

- A. Dead Load: An allowance of 25 PSF for future wearing surface of asphalt concrete has been provided for in the design.
- B. Live Load: AASHTO HL-93 Truck Loading
- C. Seismic Loads: Horizontal Peak Ground Acceleration = 5.7%
- Horizontal Spectral Accerleration Coefficients
S_s = 12.4%
S₁ = 3.6%
- Seismic Zone: 1
- Soil Test Class = D
- Operational Classification = Essential Bridge
- D. Utility Load: An allowance of 150 PLF on each side of bridge for Utility Loads has been provided for in the design.
- E. Railing Test Level = TL-1
- F. Wind: Base Design Wind Velocity = 105 MPH
- G. Stream: Design Velocity = 7.5 Ft/s

4. Materials:

- A. All concrete strengths shall be as noted below:

Item No.	Structural Parts	Minimum Compressive Strength, f'c (28 Days)	Maximum Water/Cement (W/C)	Included Admixtures
(1)	Pier Micropile Cap	6,000 psi	0.40	B
(2)	Abutment Micropile Cap	6,000 psi	0.40	B
(3)	Column	6,000 psi	0.40	B
(4)	Column Cap	6,000 psi	0.40	B
(5)	Transverse Grade Beam	6,000 psi	0.40	B, C
(6)	Pier Beam	6,000 psi	0.40	B, C
(7)	Precast Girder	6,000 psi	0.40	B, C
(8)	Girder Closure Pour	6,000 psi	0.40	B, C
(9)	Girder Cap	6,000 psi	0.40	B, C, D
(10)	Precast Plank	6,000 psi	0.40	B, C
(11)	Curb	6,000 psi	0.40	B, C, D
(12)	Creep Block	6,000 psi	0.40	B
(13)	CIP Deck w/ Downturn	6,000 psi	0.40	B, C, D
(14)	Except as Noted Otherwise, All Others	3,000 psi	0.49	-

- B. Amine carboxylate corrosion inhibiting water-based admixture such as Cortec MCI 2005 NS or approved equal shall be added at a dosage of 24 ounces per cubic yard.
- C. Shrinkage reducing admixture such as Eclipse 4500 or Masterlife SRA 20 or approved equal shall be added at a dosage of 128 ounces per cubic yard or as recommended by the manufacturer.
- D. Synthetic macro fiber such as Strux 90/40 by Grace or Forta-Ferro by Forta shall be added at a dosage of 7.5 pounds per cubic yard.
- E. The use of calcium chloride in any concrete is prohibited.
- F. All concrete exposed within 7 days of placement shall be cured using Sinak Lithium Cure or approved equal at a coverage rate of no less than 400 sq. ft. per gallon.

4. Materials (Cont.):

- G. All micropile grout shall have a minimum 28-day compressive strength f'c of 4,000 psi and have a maximum 0.36 water-to-cement ratio. In addition, the grout shall contain the following:
- (1) 94 lbs. of Type I/II cement, 4 gallons of water, 3-6 lbs. of MasterRoc FLC 100 Admixture or approved equal, and 1 oz. of an amine carboxylate corrosion inhibiting water-based admixture such as Cortec MCI 2005 NS or approved equal.
- (2) Glenium 3030 or approved equal may be used as a high range water reducer for workability.
- (3) Grout shall be stable (bleed less than 2%) per ASTM C940.
- H. High early strength Polymer Grout placed between the precast planks and girders shall be a factory blended, pre-bagged, polymer modified non-gaseous, non-shrink, non-metallic grout capable of achieving 3-hour and 28-day compressive strength requirements of 2,500 psi and 6,000 psi, respectively.
- I. Reinforcing steel shall conform to ASTM A615, Grade 60 deformed bars unless otherwise noted.
- J. Stainless steel deformed reinforcing bars (as noted) shall conform to ASTM A955 Type 2205, with a minimum yield and ultimate strength of 65 ksi and 95 ksi respectively.
- K. Glass Fiber Reinforced Polymer (GFRP) rebar shall have a minimum modulus of elasticity of 6,700,000 psi and shall have a guaranteed minimum tensile strength of 110 ksi for #4 rebar and 105 ksi for #5 rebar.
- L. Mechanical coupling sleeves for reinforcing steel bars shall meet the requirements of a Type 2 coupler and develop 160% of the reinforcing bar yield strength. Dayton Superior D250L Bar Lock L-Series couplers.
- M. Form-saver couplers used to join reinforcing steel bars at construction joints shall meet the requirements of a Type 2 coupler and develop 100% of the reinforcing bar ultimate strength.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRUCTURAL GENERAL NOTES

KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)

Scale: NoneDate: Oct. 2018

SHEET No. S02 OF 4 SHEETS

STRUCTURAL GENERAL NOTES:

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	19	67

4. Materials (Cont.):

- N. Headed reinforcing bars shall meet the requirements of ASTM A970 Class B. Head width, height, and thickness shall allow for minimum clear cover and clear spacing between bars. HRC 555 headed bar or approved equal shall be used.
- O. Epoxy for anchoring threaded rod or deformed bar shall be HILTI-RE-500-SD or approved equal. Manufacturer's recommendations shall be followed.

5. Reinforcement:

- A. Unless otherwise noted, the clear covering measured from the surface of the concrete to the face of any reinforcing steel bars shall be as follows:
- (1) 2" to stirrups and ties
 - (2) 2.4" to main reinforcing bars
 - (3) 3/4" to GFRP bars
 - (4) 3" to reinforcing in concrete cast against and permanently exposed to earth
- B. Minimum clear spacing between parallel bars shall be 1 1/2 times the maximum size of the coarse aggregate or 1 1/2 inches, whichever is greater.
- C. Reinforcing bars shall be placed and installed in accordance with the CRSI Manual of Standard Practice and CRSI Placing Reinforcing Bars, unless otherwise noted.
- D. Reinforcing bars shall be securely tied at all intersections and lap splices except where the spacing of the intersections is less than 12 inches in each direction, in which case alternate intersections shall be tied.
- E. Tie wire for stainless steel or GFRP reinforcing shall be either Alloy 302 or 304 stainless steel or non-metallic.
- F. The GFRP rebar may be cut in the field with a masonry or diamond blade.
- G. Unless otherwise noted, reinforcing splices shall be staggered. Minimum distance between staggered lap splice shall be equal to the length required for the lap splice. Number of bars spliced at sections normal to axis of member shall not exceed 50 percent of the total main reinforcing in the member.

5. Reinforcement (Cont.):

- H. Minimum lap splice length for steel reinforcing shall be 40 bar diameters or 2'-0", whichever is greater, unless otherwise noted. Increase lap length by multiplying the minimum lap splice length by 1.3 for bars having more than 12" of fresh concrete below bars.
- I. Minimum lap splice length for GFRP reinforcing shall be 42 bar diameters or 2'-6", whichever is greater, unless otherwise noted.
- J. Minimum clear spacing between parallel bars shall be 1 1/2 times the maximum size of the coarse aggregate or 1 1/2", whichever is greater, except when bundled.
- K. All dimensions relating to reinforcing bars are to centers of bars unless otherwise noted.
- L. Stainless steel shall not come into contact with dissimilar metals. Separate contact points using teflon isolation material.

6. General Construction Notes:

- A. Unless otherwise noted, all vertical dimensions are measured plumb.
- B. The Contractor shall verify all site conditions before commencing the work of excavation.
- C. Unless otherwise noted, all exposed concrete surfaces shall be chamfered 3/4" x 3/4".
- D. Existing reinforcing shall not be damaged during demolition work, unless otherwise permitted.
- E. Location of drilled holes shown in plans are approximate. Prior to placing holes in concrete, the Contractor shall locate all reinforcing steel and adjust the location of the holes to clear all reinforcing bars. Final hole locations are subject to the approval of the Engineer.

6. General Construction Notes (Cont.):

- F. Drilled holes in existing concrete for reinforcing steel dowels shall not be left unfilled for more than 8 hours. Epoxy in drilled holes shall be able to develop the full strength of the dowels prior to pouring concrete around reinforcing steel dowels.
- G. All holes drilled into concrete that go unused shall be completely filled with a polymer-modified cementitious repair mortar.
- H. All cracks wider than 0.010" shall be prepared and pressure injected with epoxy and all defective concrete shall be repaired.
- I. All surfaces to which FRP will be bonded to shall be considered "Bond Critical".

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-0082-3W BRIDGES ASB\01 C&G\03-XX-XX-21 WAIPA AS-BUILT\3WB-S002 GENNOTES.DWG PLOT TIME: 03-15-21 4:15 PM

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

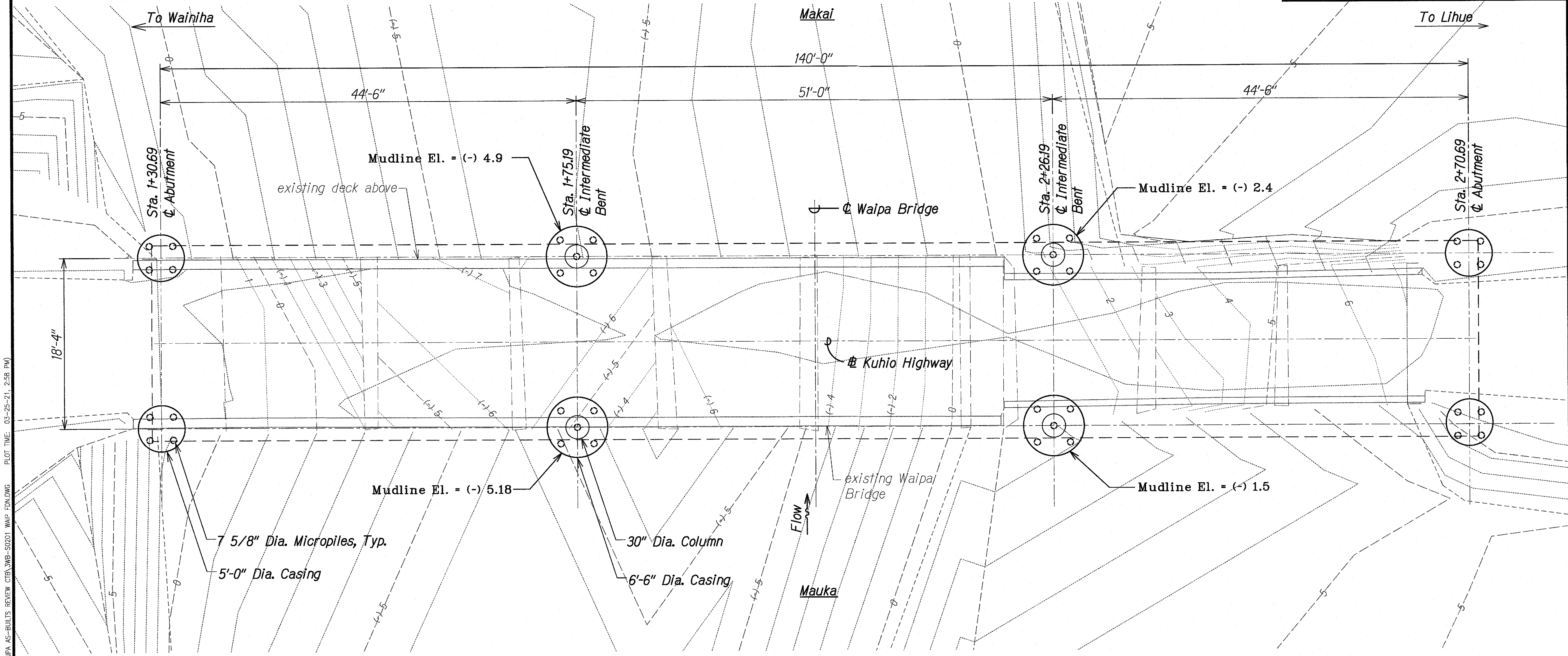
STRUCTURAL GENERAL NOTES

KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)

Scale: None Date: Oct. 2018

SHEET No. S03 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	21	67



WAIPA STREAM BRIDGE FOUNDATION PLAN
Scale: 3/16" = 1'-0"

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**WAIPA STREAM BRIDGE
FOUNDATION PLAN**

KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)

Scale: As Noted Date: Oct. 2018

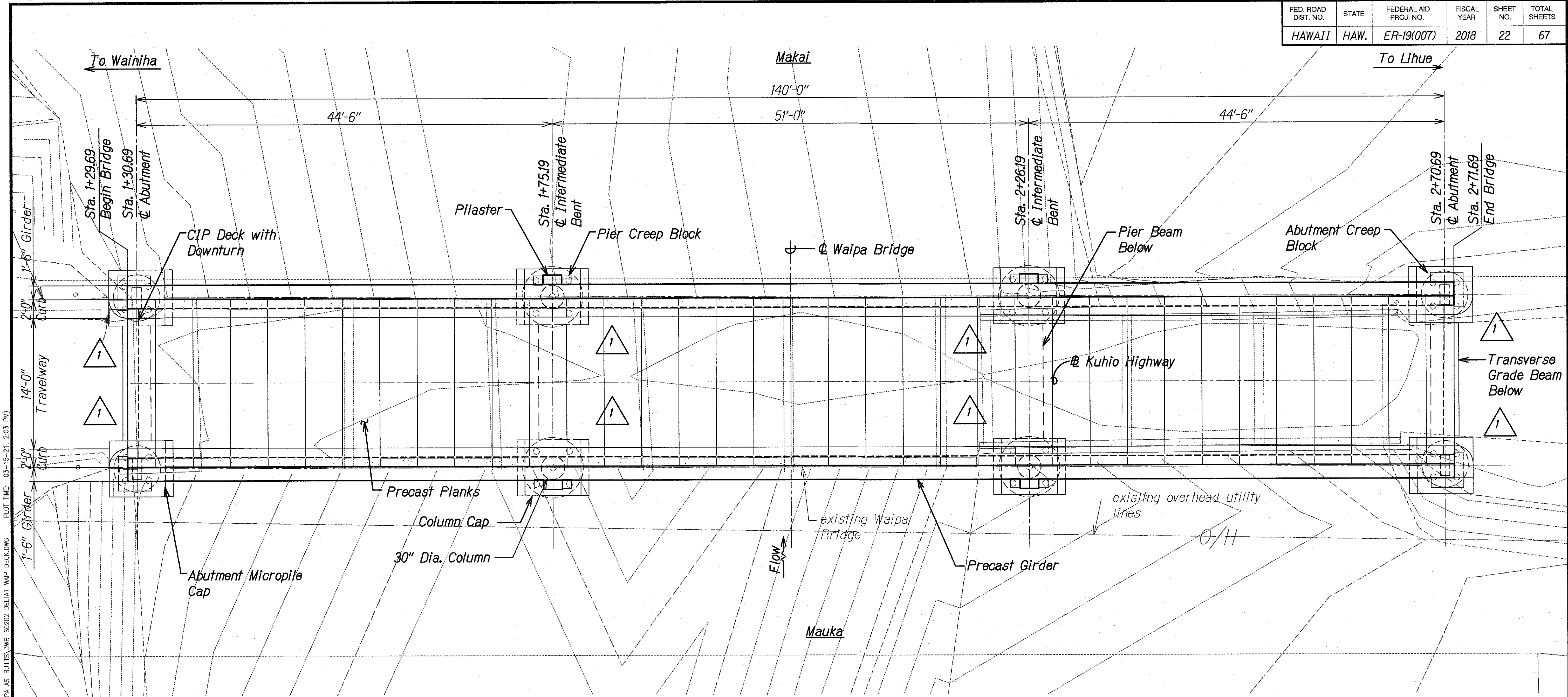
SHEET No. S21 OF 6 SHEETS

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

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-008.2-3W BRIDGES ASB\01 CND\03-26-21 WAIPA AS-BUILTS REVIEW CTR\3WB-S0201 WAIP FND.DWG PLOT TIME: 03-25-21 2:58 PM

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	22	67



WAIPA STREAM BRIDGE DECK PLAN
Scale: 3/16" = 1'-0"

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

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-0062-3W BRIDGES ASB\01 CAD\03-XX-21 WAIPA AS-BUILT\3WB-S0202 DEL\141 WAP DECK.DWG PLOT TIME: 03-15-21, 2:03 PM

3/19/19	Added Corbel
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

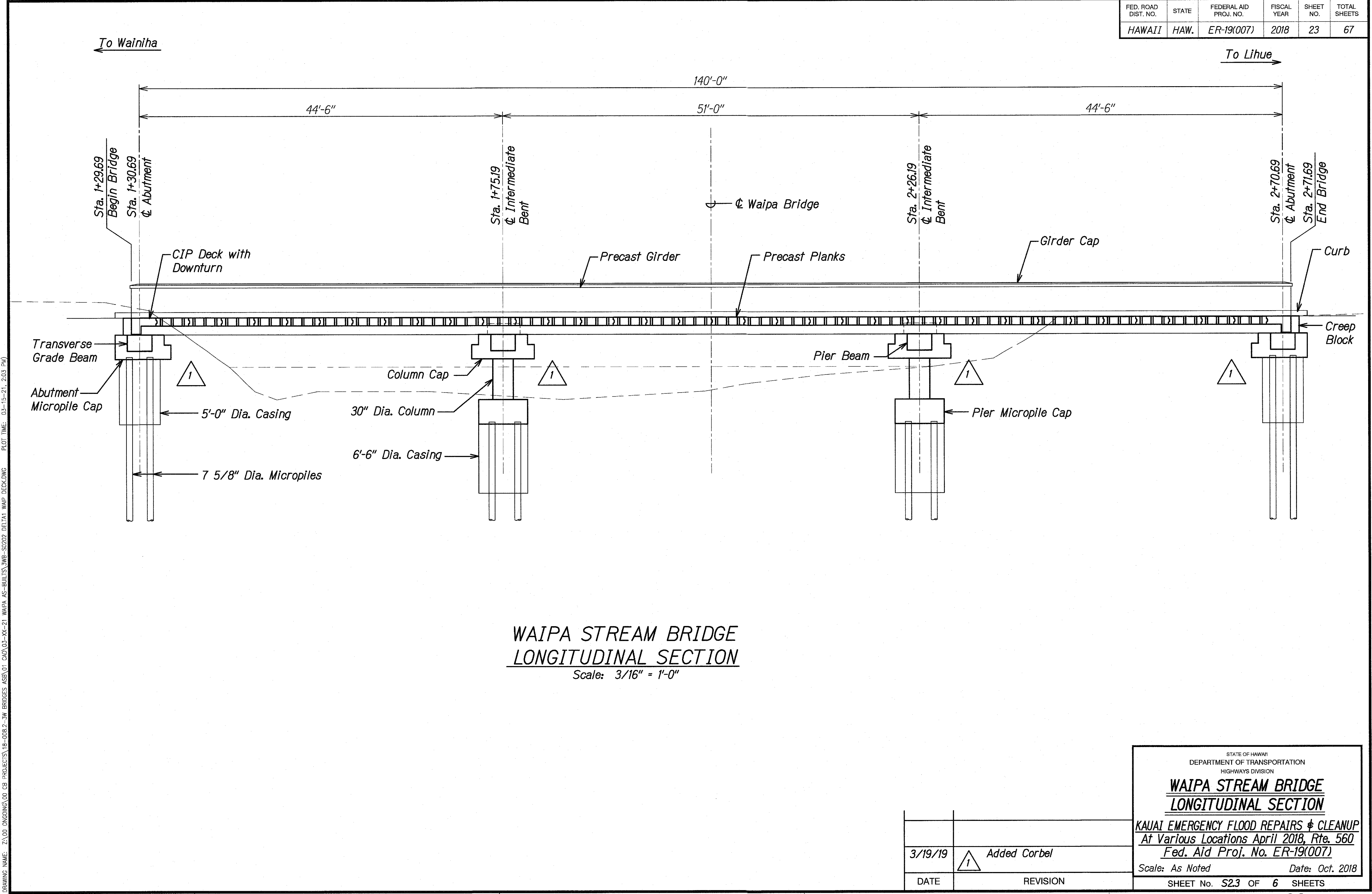
**WAIPA STREAM BRIDGE
DECK PLAN**

KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)

Scale: As Noted
Date: Oct. 2018

SHEET No. S22 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	23	67



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

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-008.2-3W BRIDGES ASB\01 CAD\03-XX-21 WAIPA AS-BUILTS\3WB-S0202 DELTA1 WAP DECK.DWG PLOT TIME: 03-15-21, 2:03 PM

3/19/19	Added Corbel
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

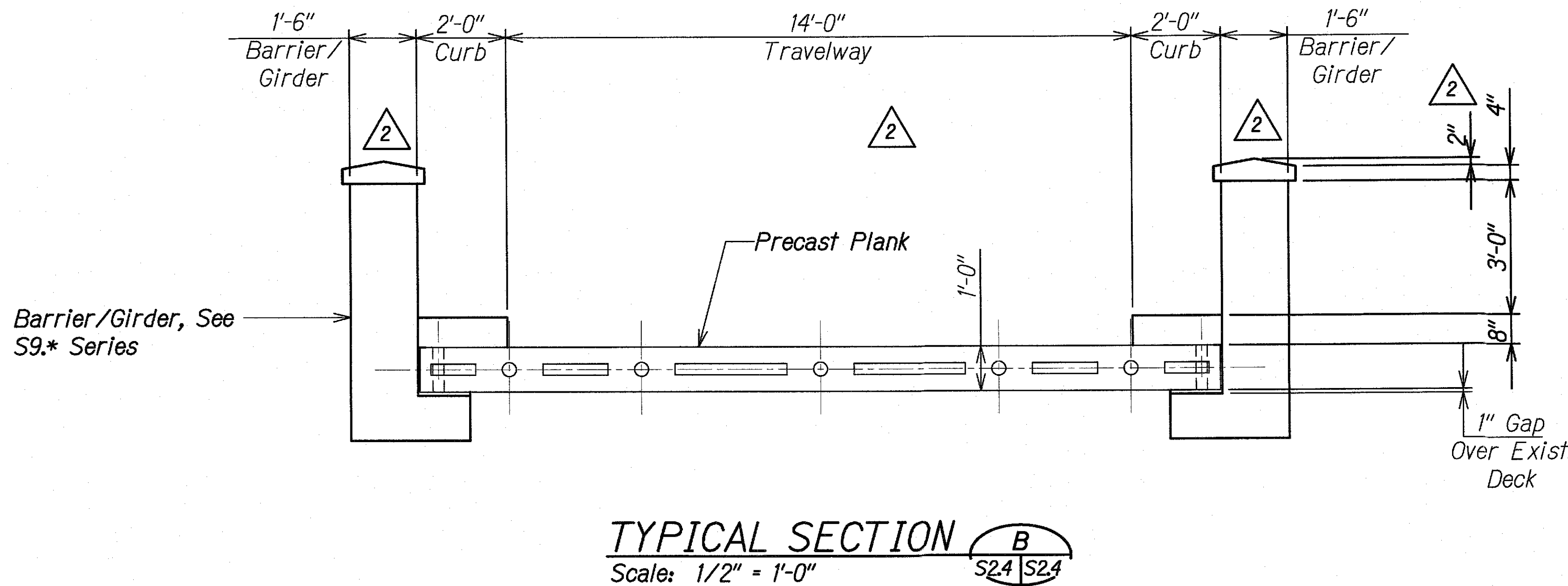
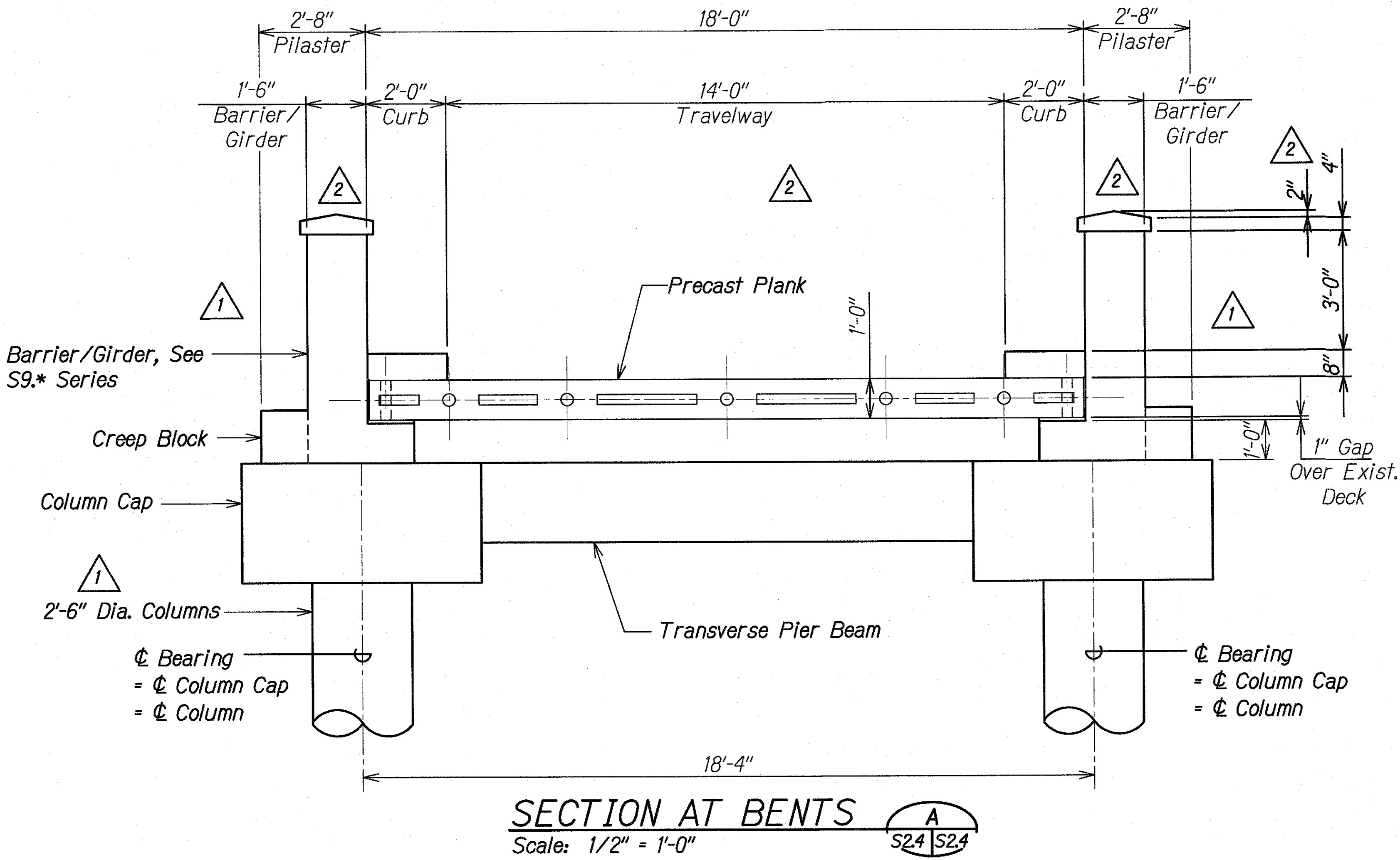
WAIPA STREAM BRIDGE
LONGITUDINAL SECTION

KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)

Scale: As Noted
Date: Oct. 2018

SHEET No. S23 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	24	67



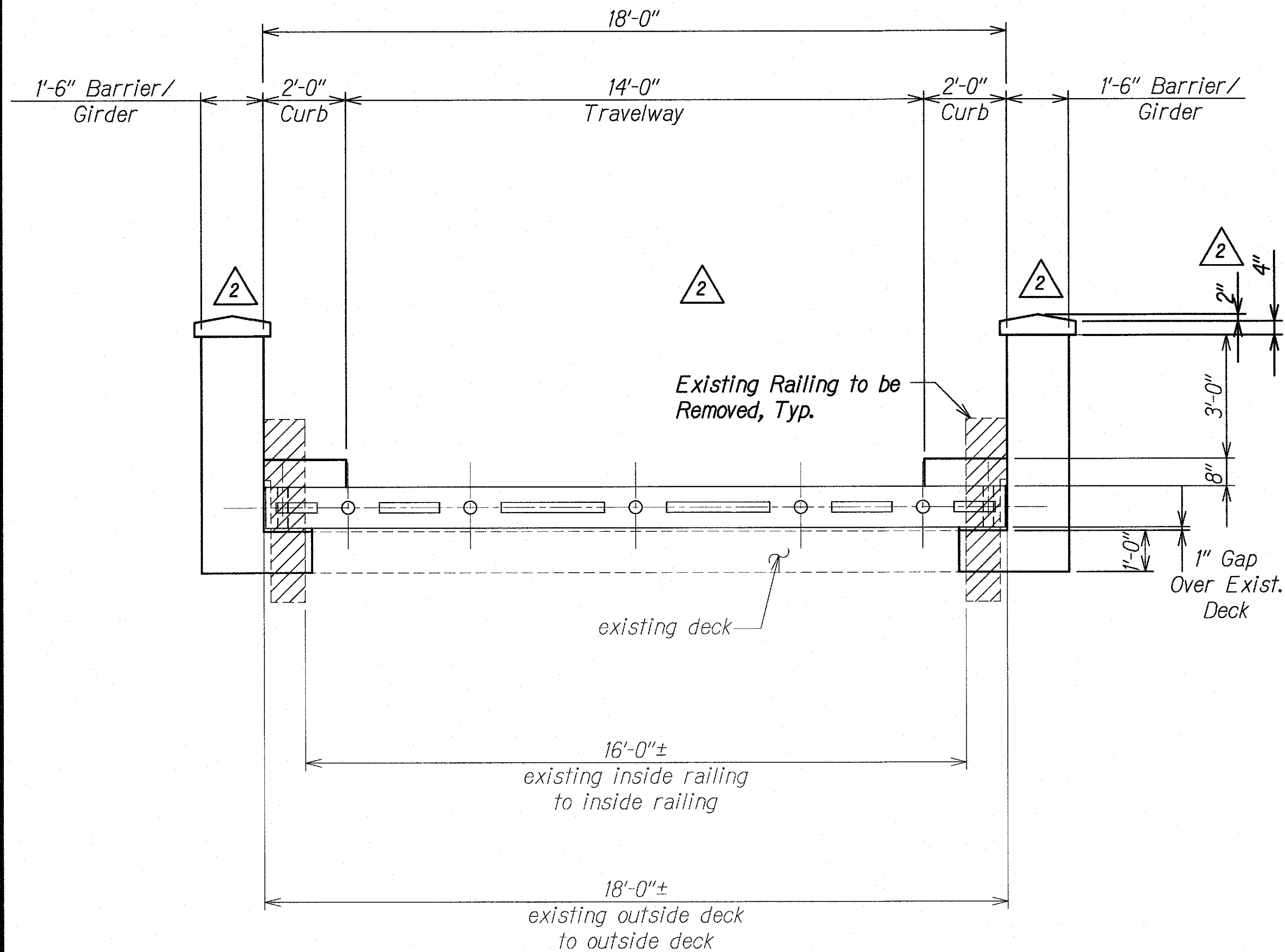
DATE	____
SURVEY PLOTTED BY	____
DRAWN BY	____
TRACED BY	____
DESIGNED BY	____
CHECKED BY	____
ORIGINAL PLAN	____
NOTE BOOK	____
No.	____

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-008.2-3W BRIDGES ASB\01 CAD\03-XX-21 WAIPA AS-BUILT\3WB-S0204 DELTA1 WAP SECT.DWG PLOT TIME: 03-15-21, 2:10 PM

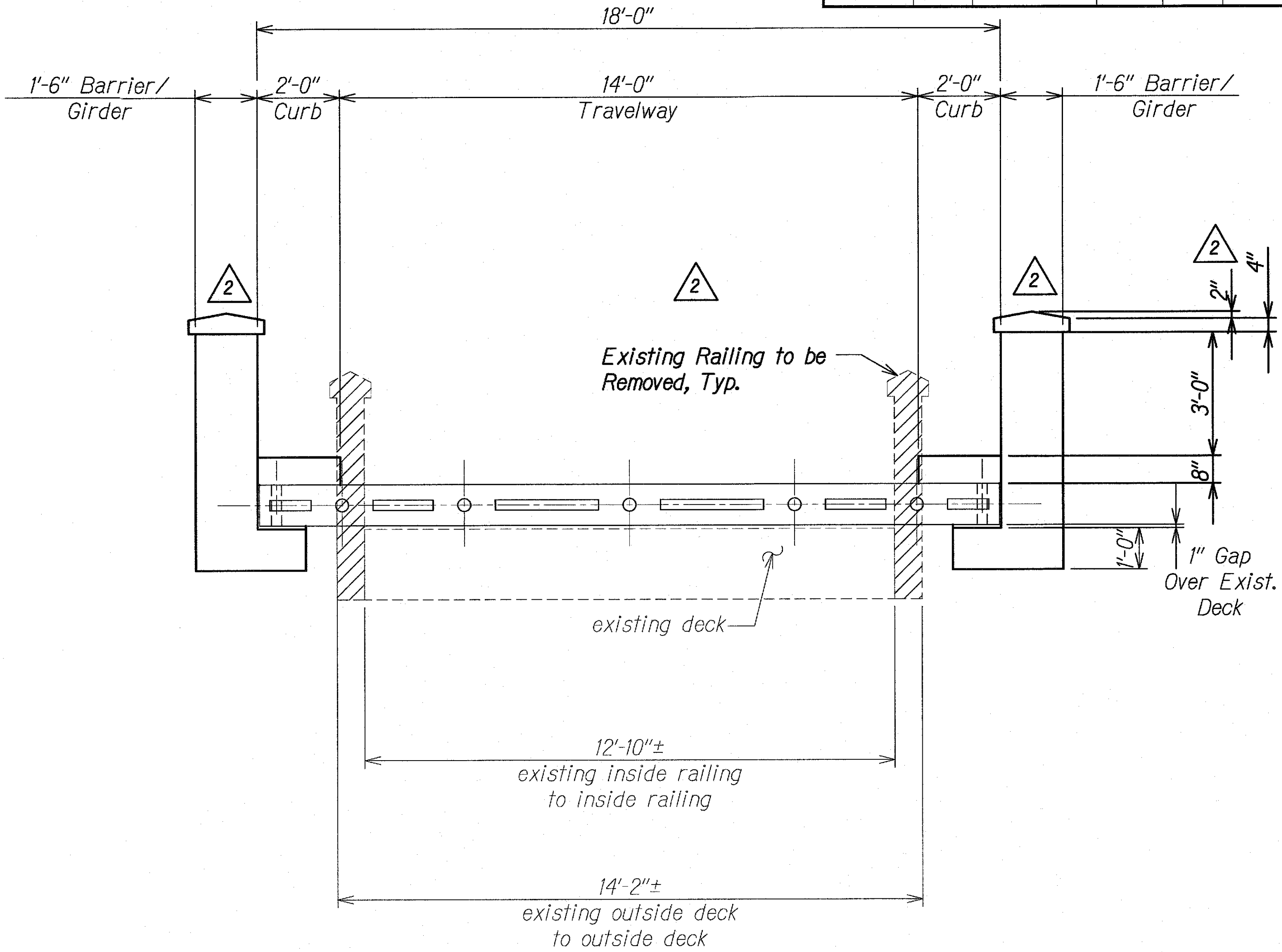
7/17/19	Revised Cap
DATE	REVISION

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
WAIPA STREAM BRIDGE TYPICAL DECK SECTIONS
KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP At Various Locations April 2018, Rte. 560 Fed. Aid Proj. No. ER-19(007)
Scale: As Noted Date: Oct. 2018
SHEET No. S24 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	25	67



WAIPA STREAM BRIDGE
TYPICAL SECTION A
Scale: 1/2" = 1'-0"



WAIPA STREAM BRIDGE
TYPICAL SECTION AT BOX CULVERT B
Scale: 1/2" = 1'-0"

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

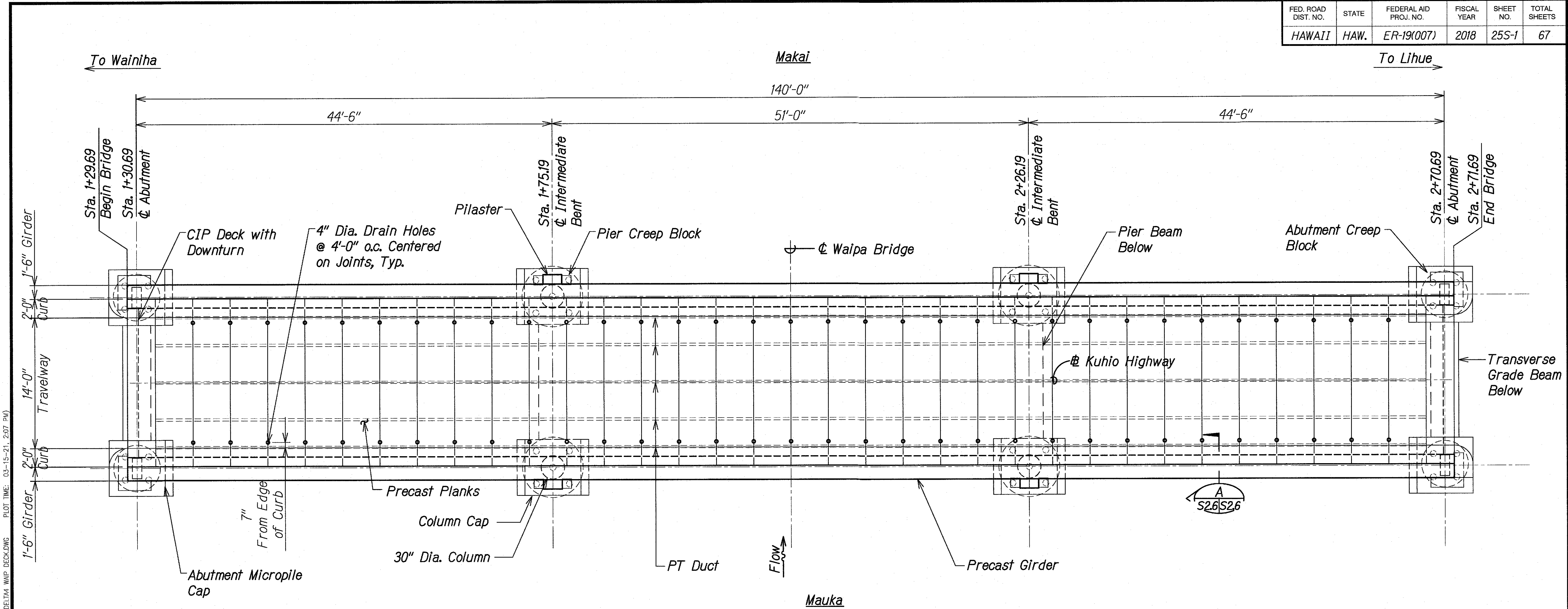
DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-0082-3W BRIDGES ASB\01 C&G\03-XX-21 WAIPA AS-BUILT\3WB-S0204 DEL\01 WAP SECTION.DWG PLOT TIME: 03-15-21 2:10 PM

7/17/19	2 Revised Cap
DATE	REVISION

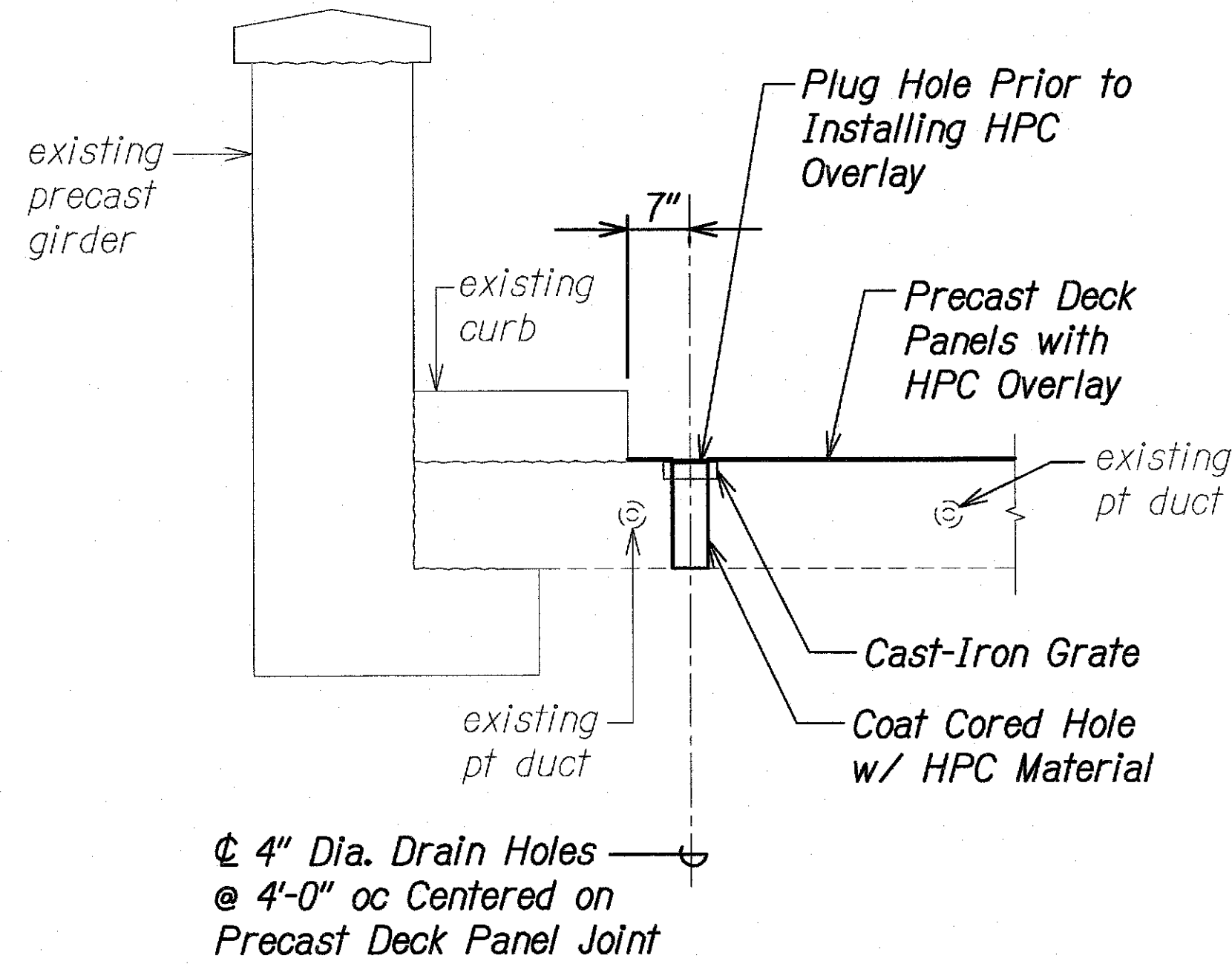
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WAIPA STREAM BRIDGE
TYPICAL DECK SECTION
KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)
Scale: As Noted Date: Oct. 2018
SHEET No. S25 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	25S-1	67



WAIPA STREAM BRIDGE DRAIN HOLE PLAN
 Scale: 3/16" = 1'-0"



DECK DRAIN SECTION
 Scale: 3/4" = 1'-0"

ORIGINAL PLAN	DATE
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-0082-3W BRIDGES ASB\01 CAD\03-XX-21 WAIPA AS-BUILT\3WB-S0208 DELTA WMP DECK.DWG PLOT TIME: 03-15-21 2:07 PM

9/20/19	4 New Sheet
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

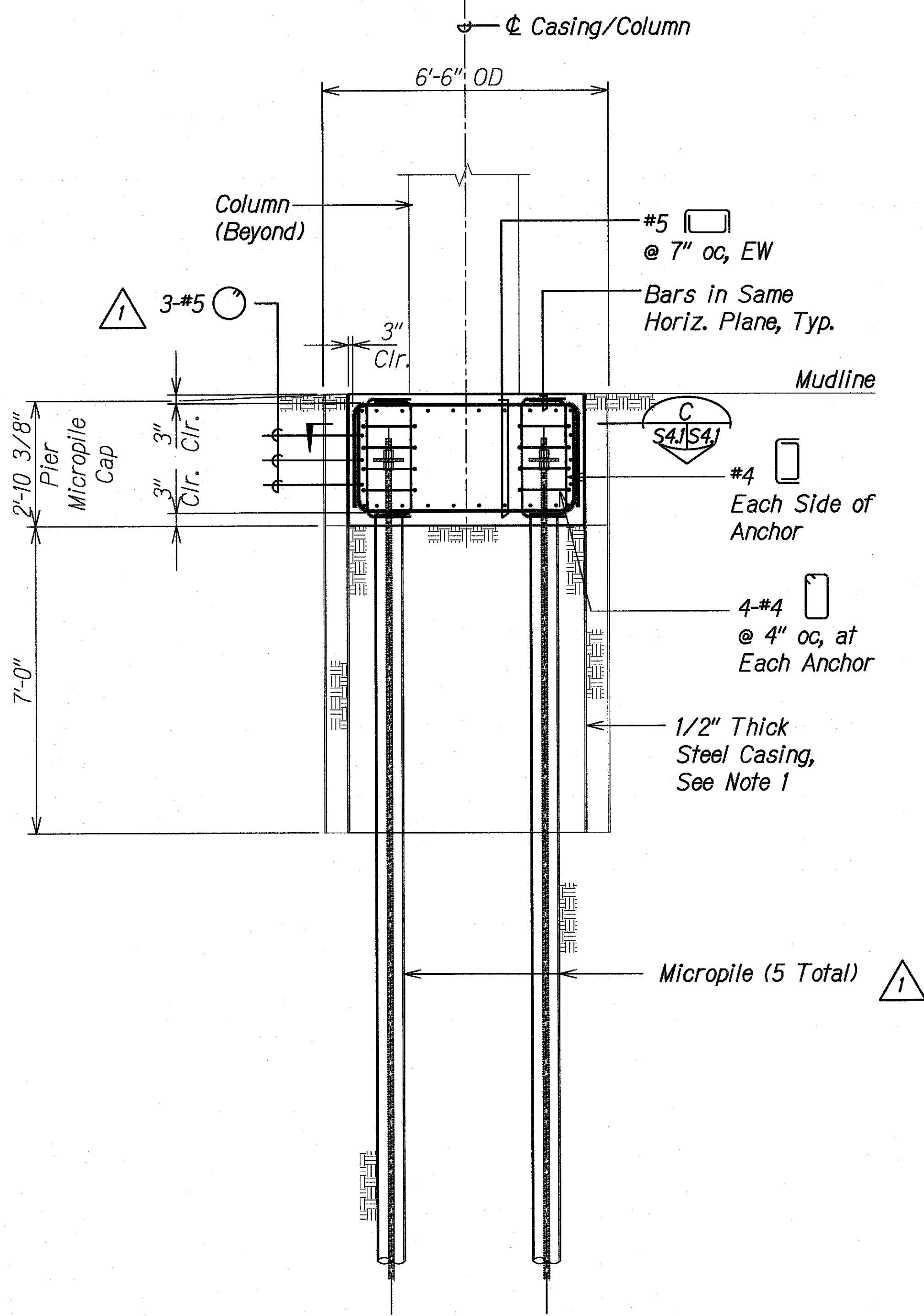
WAIPA STREAM BRIDGE
DRAIN HOLE PLAN

KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)

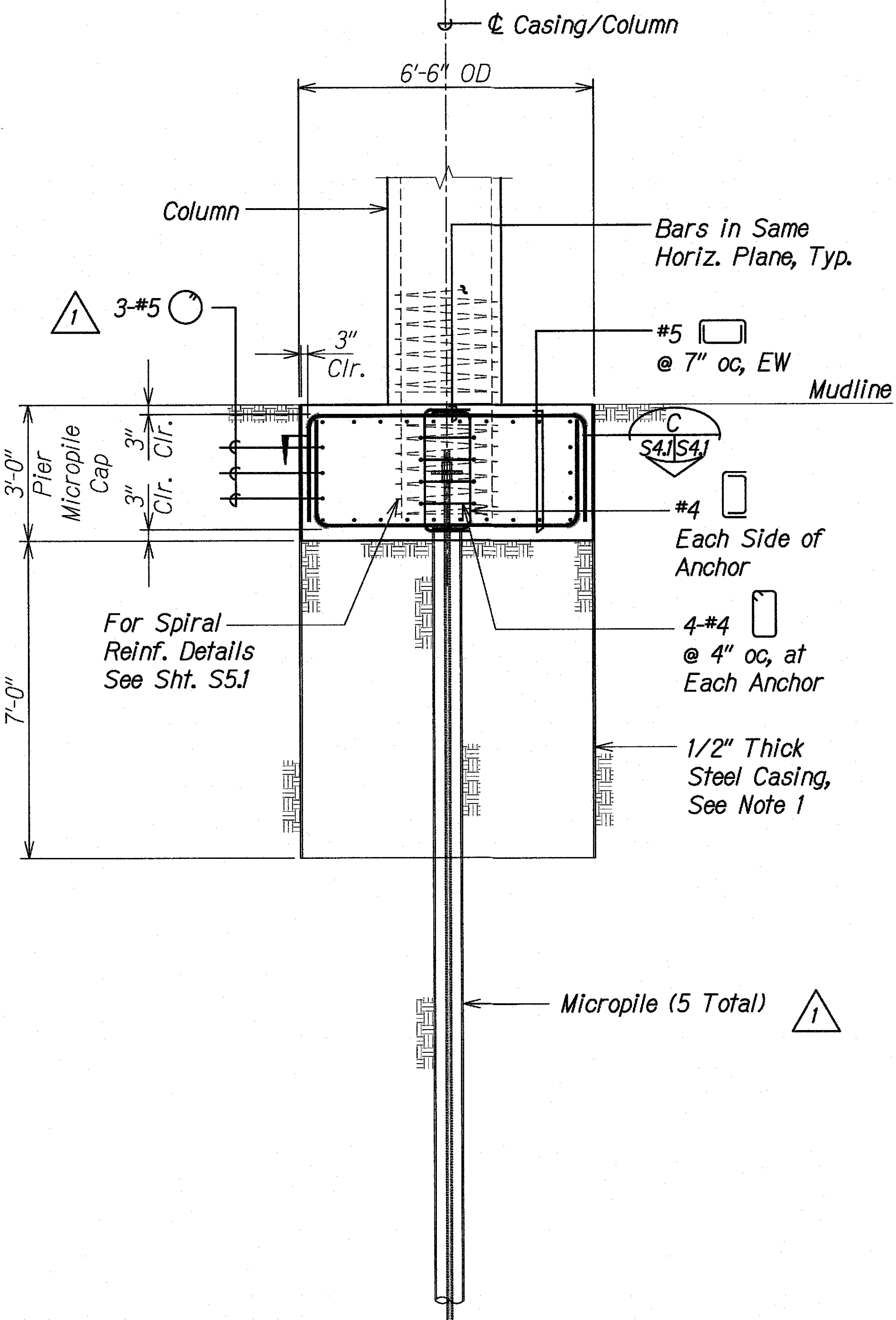
Scale: As Noted
Date: Oct. 2018

SHEET No. S26 OF 6 SHEETS

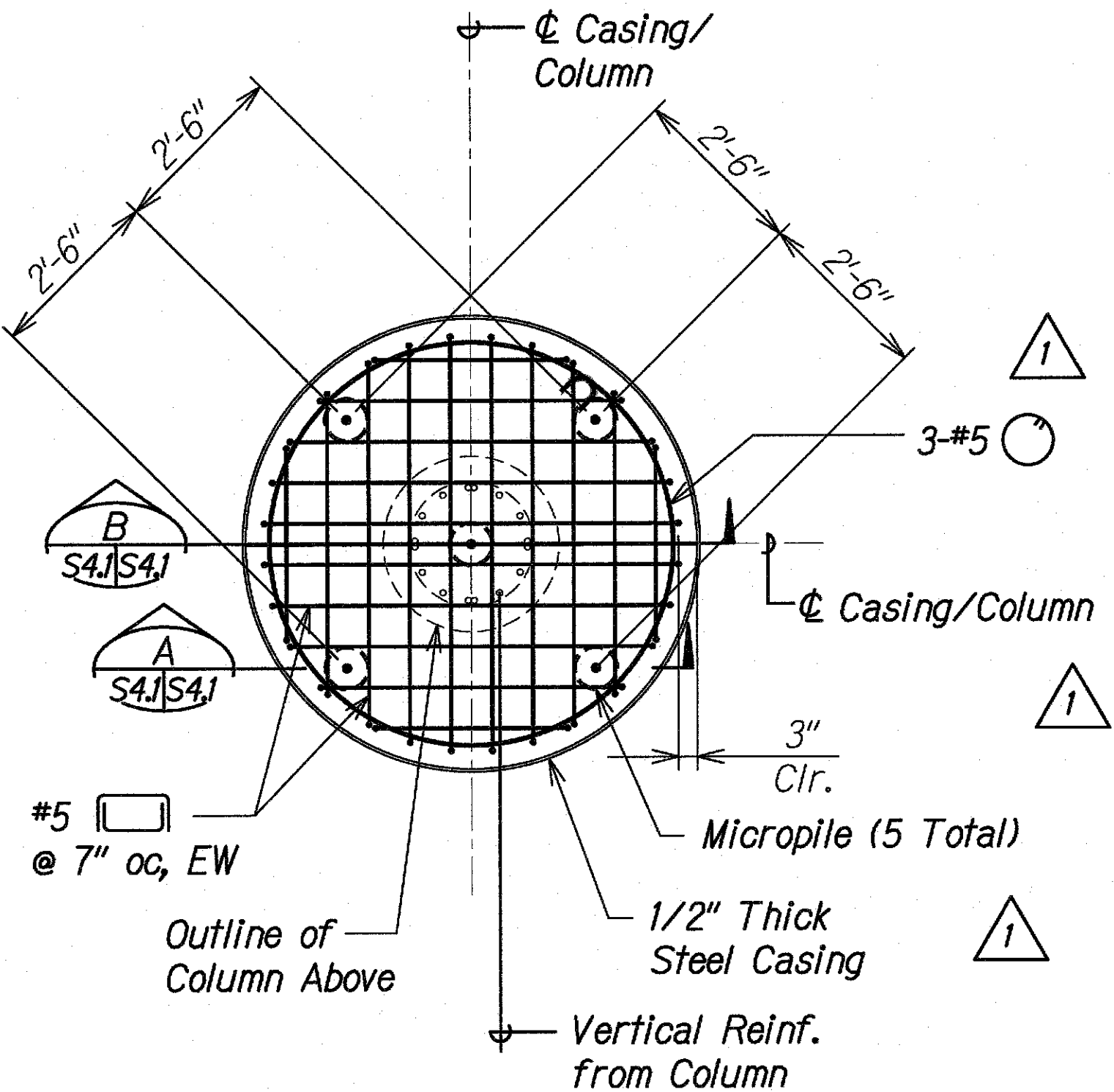
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	26	67



6'-6" DIAMETER CASING SECTION A
 Scale: 1/2" = 1'-0"



6'-6" DIAMETER CASING SECTION B
 Scale: 1/2" = 1'-0"



Note:
 #4 around micropile heads not shown for clarity.

6'-6" DIAMETER CASING SECTION C
 Scale: 1/2" = 1'-0"

- NOTES:
- Steel Casing shall be incidental to Pier Micropile Cap.
 - Adjust top layer of reinforcing to avoid conflict with column bars.

3/19/19	1 Added Sections
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

6'-6" DIAMETER CASING

KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)

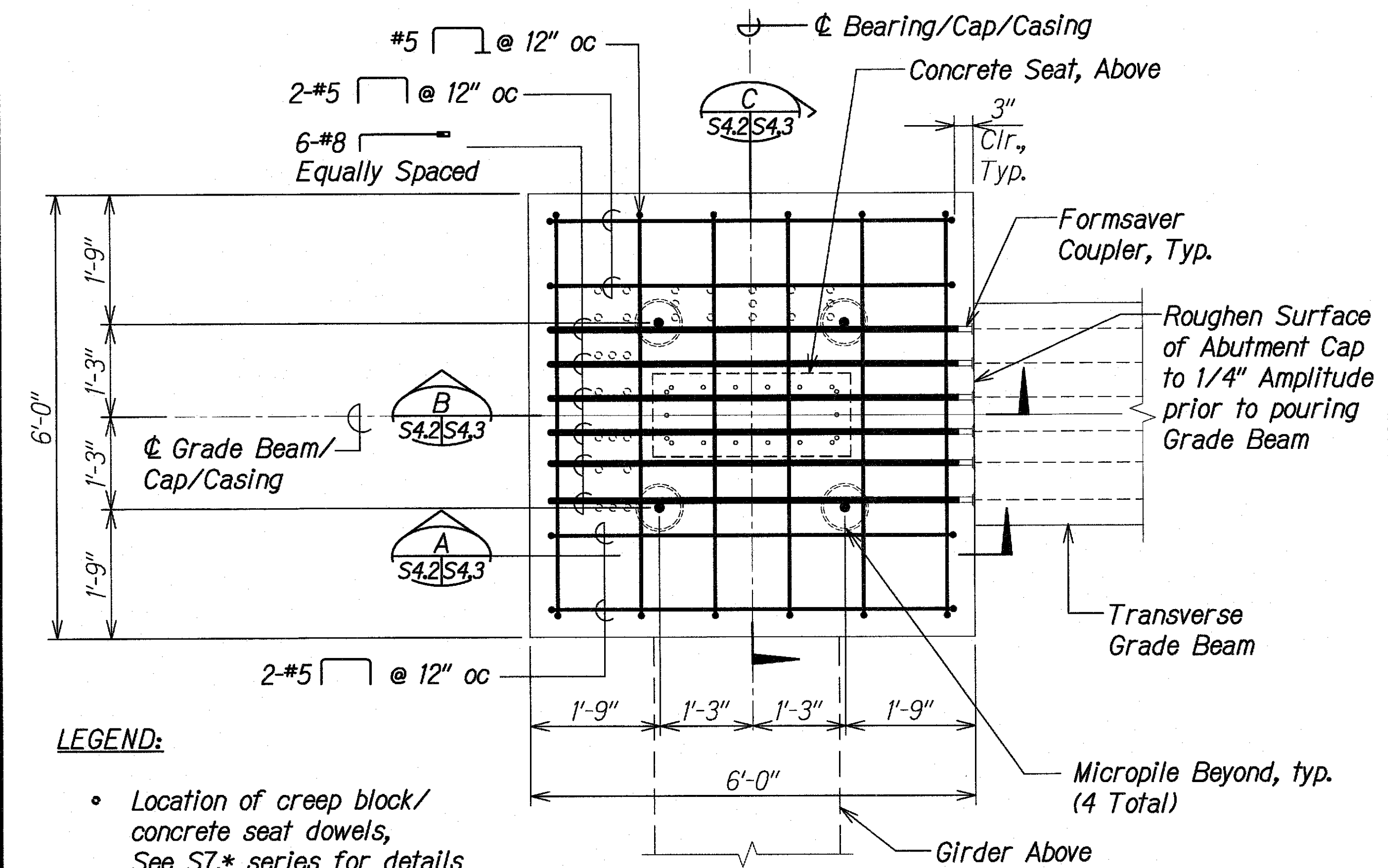
Scale: As Noted Date: Oct. 2018

SHEET No. **S4J** OF 5 SHEETS

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

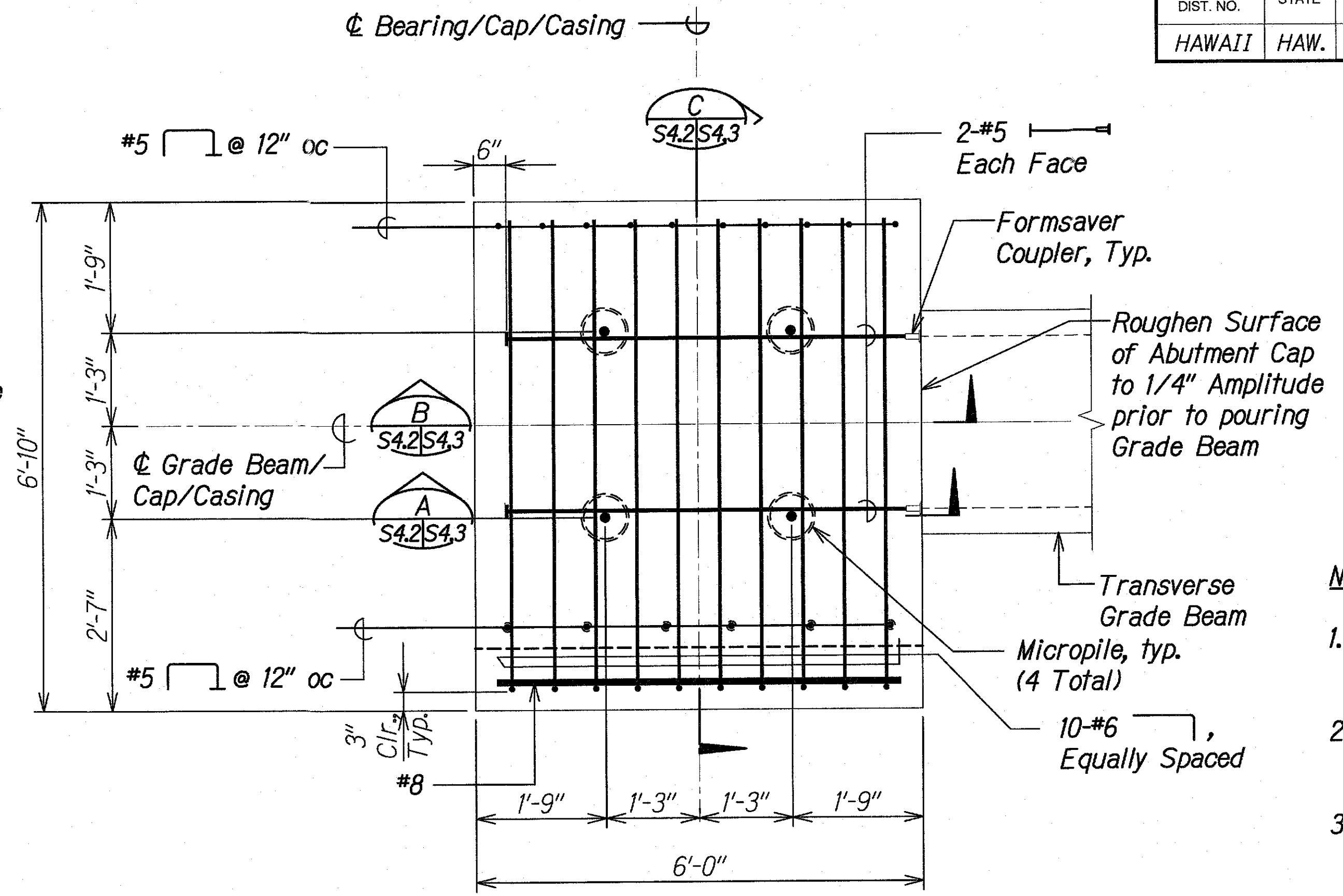
DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-008.2-3W BRIDGES ASB\01 CAD\03-XX-21 WAIPA AS-BUILT\3WB-S0401 DELTA1 MOROING PLOT TIME: 03-15-21, 2:11 PM

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	28	67

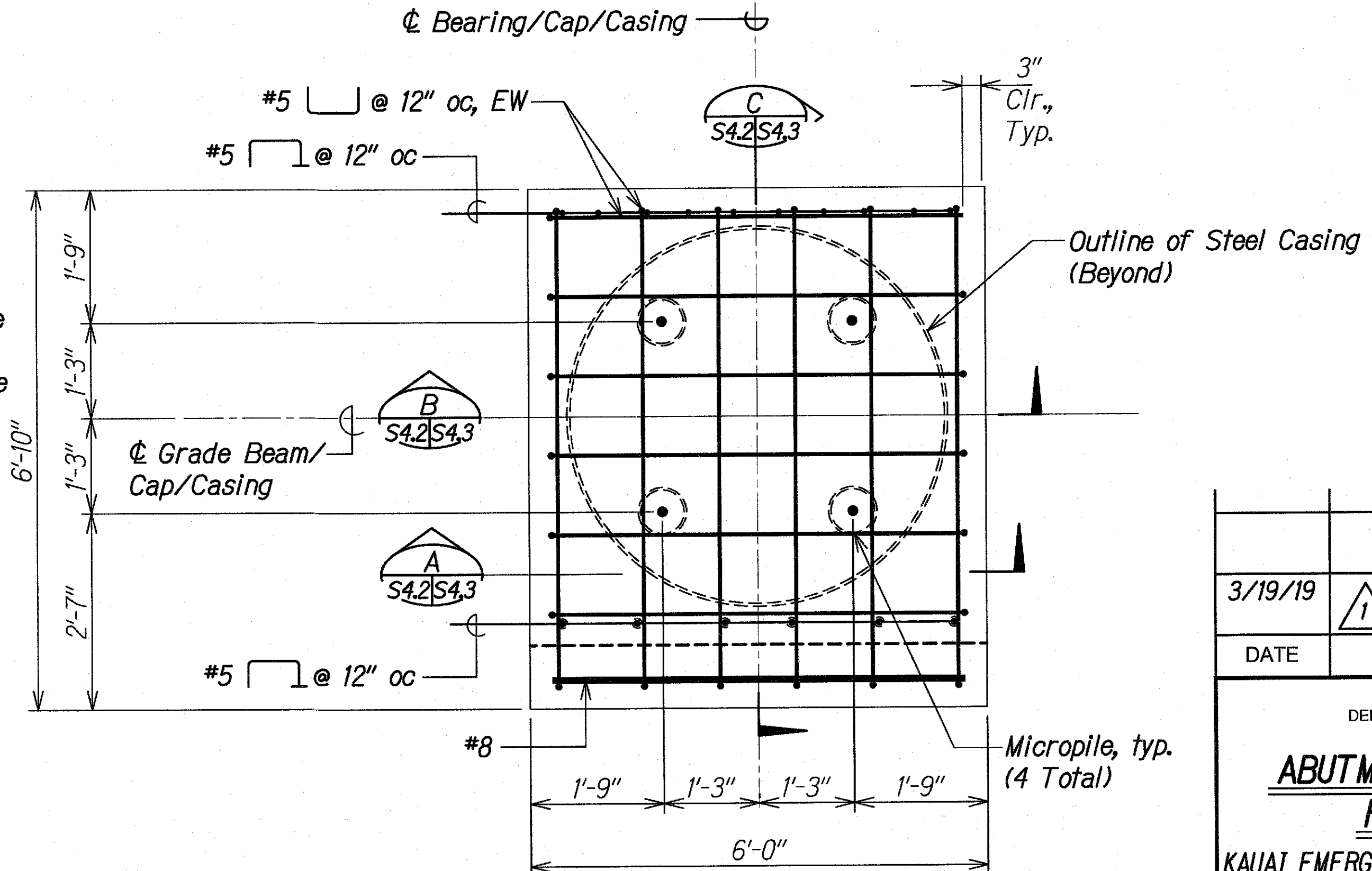
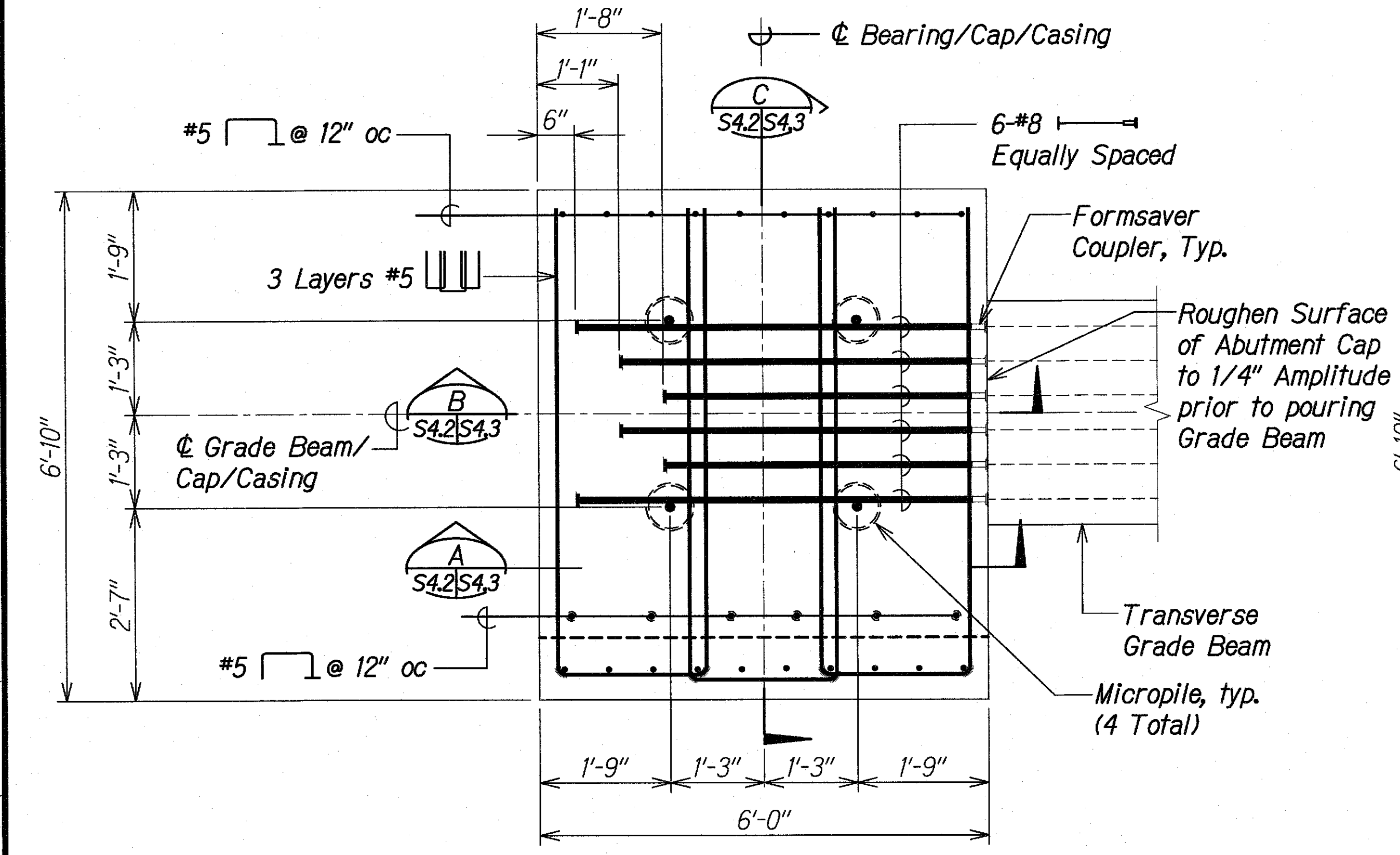


LEGEND:

- Location of creep block/concrete seat dowels, See S7.* series for details



- Notes:**
- #4 around anchor not shown for clarity.
 - 3-#3 @ 12" oc not shown for clarity.
 - Contractor shall coordinate location of Formsaver couplers in abutment micropile caps to account for lap splicing of longitudinal reinforcing in transverse grade beam.



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

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-0082-3W BRIDGES ASB\01 CAD\03-XX-21 WAPA AS-BUILT\3WB-S0401 DELTA1 MICRO.DWG PLOT TIME: 03-15-21, 2:12 PM

3/19/19	Added Sections
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
ABUTMENT MICROPILE CAP PLAN SECTIONS	
KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP At Various Locations April 2018, Rte. 560 Fed. Aid Proj. No. ER-19(007)	
Scale: As Noted	Date: Oct. 2018
SHEET No. S4.3 OF 5 SHEETS	

MICROPILE NOTES:

- Micropile all-thread rebar shall be manufactured in accordance with ASTM A615 Grade 75 and epoxy coated in accordance with ASTM A775. Handle all epoxy coated bars with care and avoid damaging in accordance with ASTM D3963. All damages shall be patched using a two-part epoxy repair material, approved by the coating manufacturer. #14 Grade 75 rebars to be used for production micropiles. #18 Grade 75 rebars to be used for proof testing of center micropiles at Piers (4 total).
- Material Properties of Accessories:
 - Steel Plates - ASTM A36
 - Hex Nuts - ASTM A108 or A563
 - Couplings - ASTM A108 or A576
 - Washers - ASTM F436
- All nuts and bar couplings shall develop 100% of the bar's ultimate tensile strength.
- All accessories such as nuts, couplings, washers, and steel plates shall be Epoxy Coated.
- The bonded length is estimated. The actual bond length will be determined by the Engineer after the preproduction micropile load test.

Micropile Schedule				
Bridge	Location	Micropile Tip Elevation (feet MSL)	Micropile Permanent Casing Tip Elevation (feet MSL)	Bond Length (L)
Waipa	Abutment	-120	-60	60
	Pier	-134	-60	74

LEGEND FOR AS-BUILT POSTINGS

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

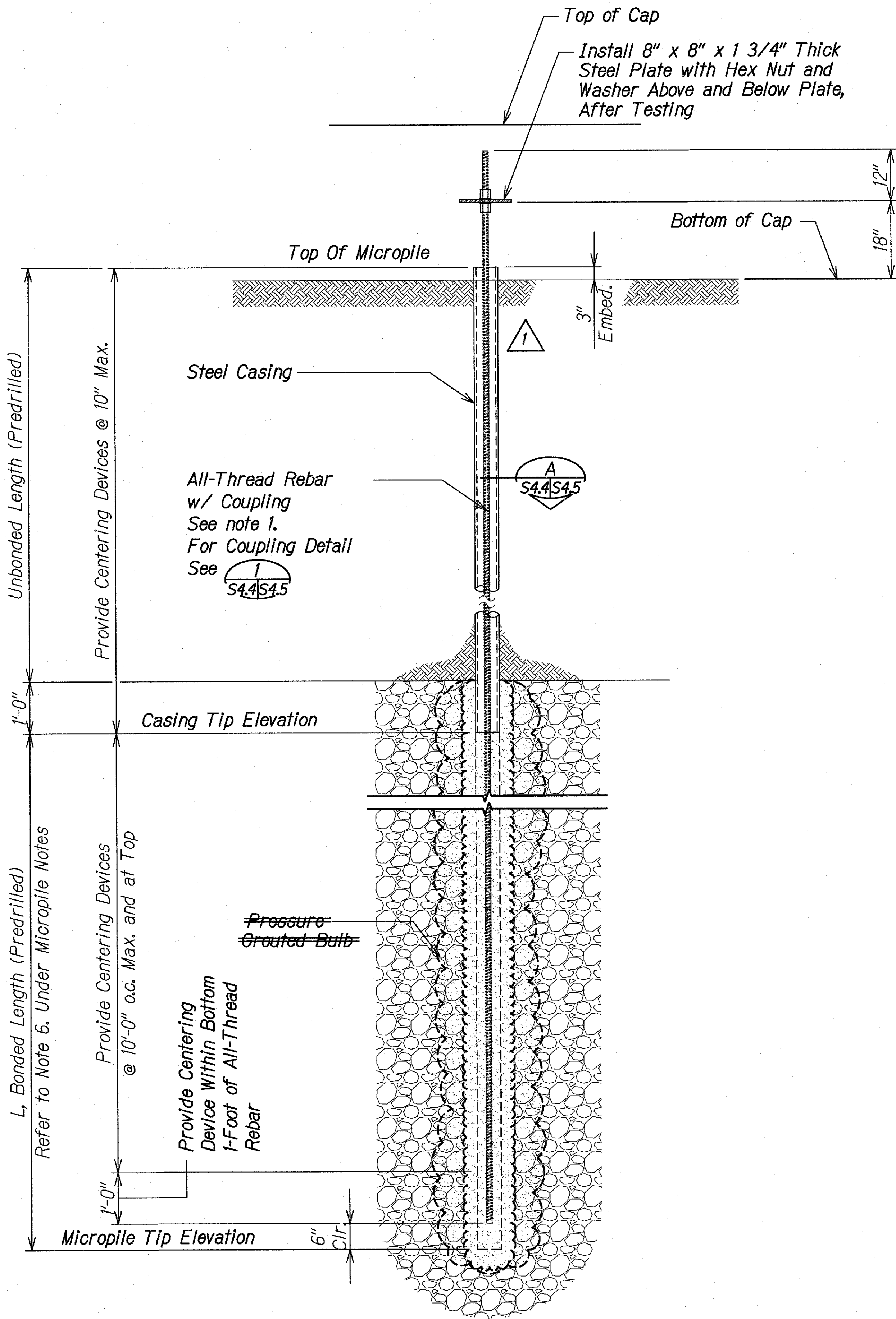
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MICROPILE DETAIL AND NOTES

KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)

Scale: As Noted Date: Oct. 2018

SHEET No. S44 OF 5 SHEETS



TYPICAL PRODUCTION MICROPILE DETAIL

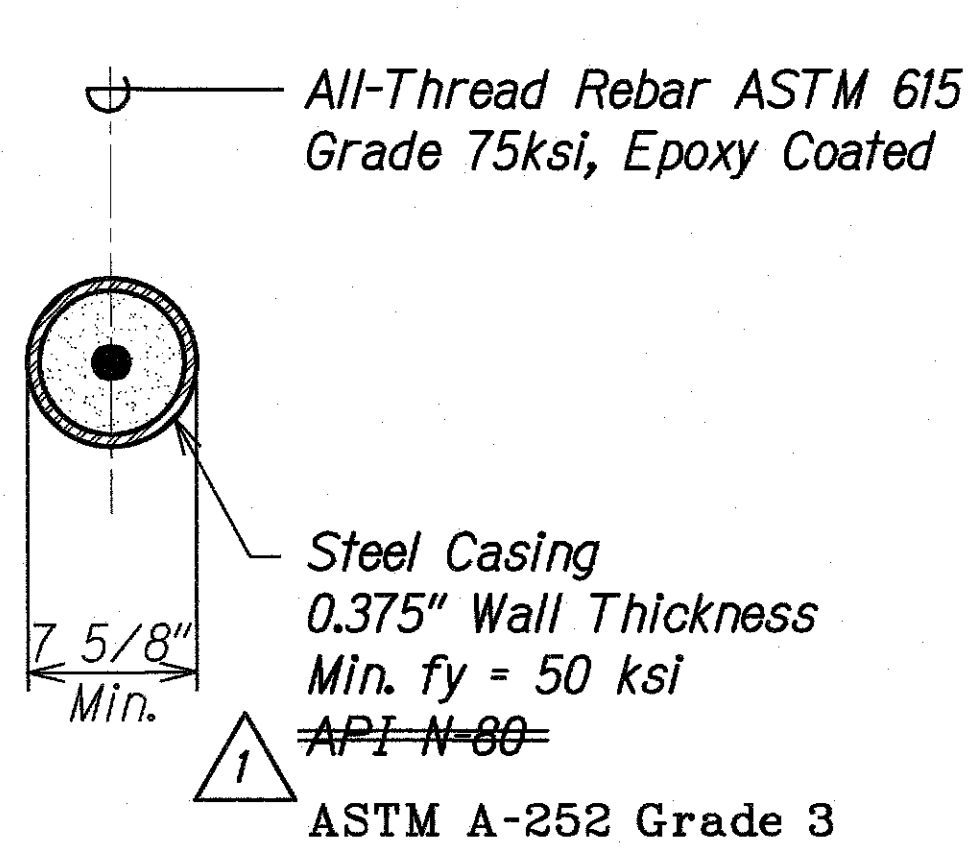
Scale: 3/4" = 1'-0"

1
S4.4 S4.4

3/19/19	1 Revised Detail and Notes
DATE	REVISION

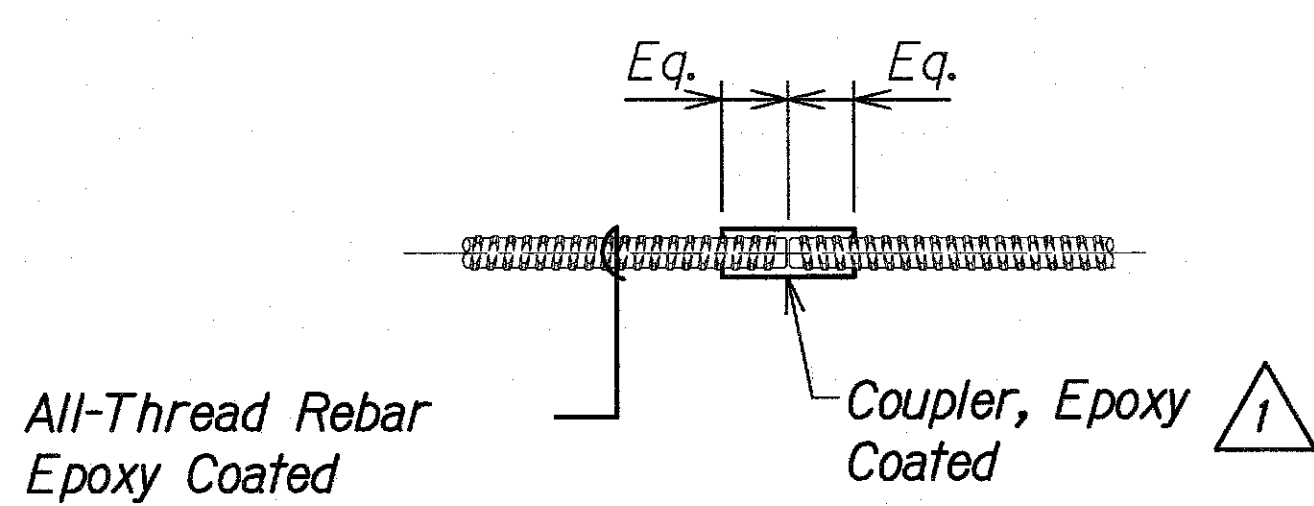
"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	30	67



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

TYPICAL MICROPILE SECTION
Scale: 1 1/2" = 1'-0"



- NOTE:**
- Coupler to develop full ultimate tensile strength of All-Thread Rebar and shall be manufactured by all-thread rebar supplier.

COUPLER DETAIL OF ALL-THREAD REBAR
Scale: 1 1/2" = 1'-0"

COUPLER INSTALLATION PROCEDURE

1. Connect the two bar ends with the coupler. Each end shall be screwed into the coupler half the length of the coupler.

PREPARATION FOR FIELD CUT BARS

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

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

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

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-008.2-SW BRIDGES ASB\01 CAD\03-28-21 WAIPA AS-BUILTS REVIEW CIB\3WB-S0401 DETAIL MICRO.DWG PLOT TIME: 03-25-21 2:59 PM

3/19/19	Revised Notes
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

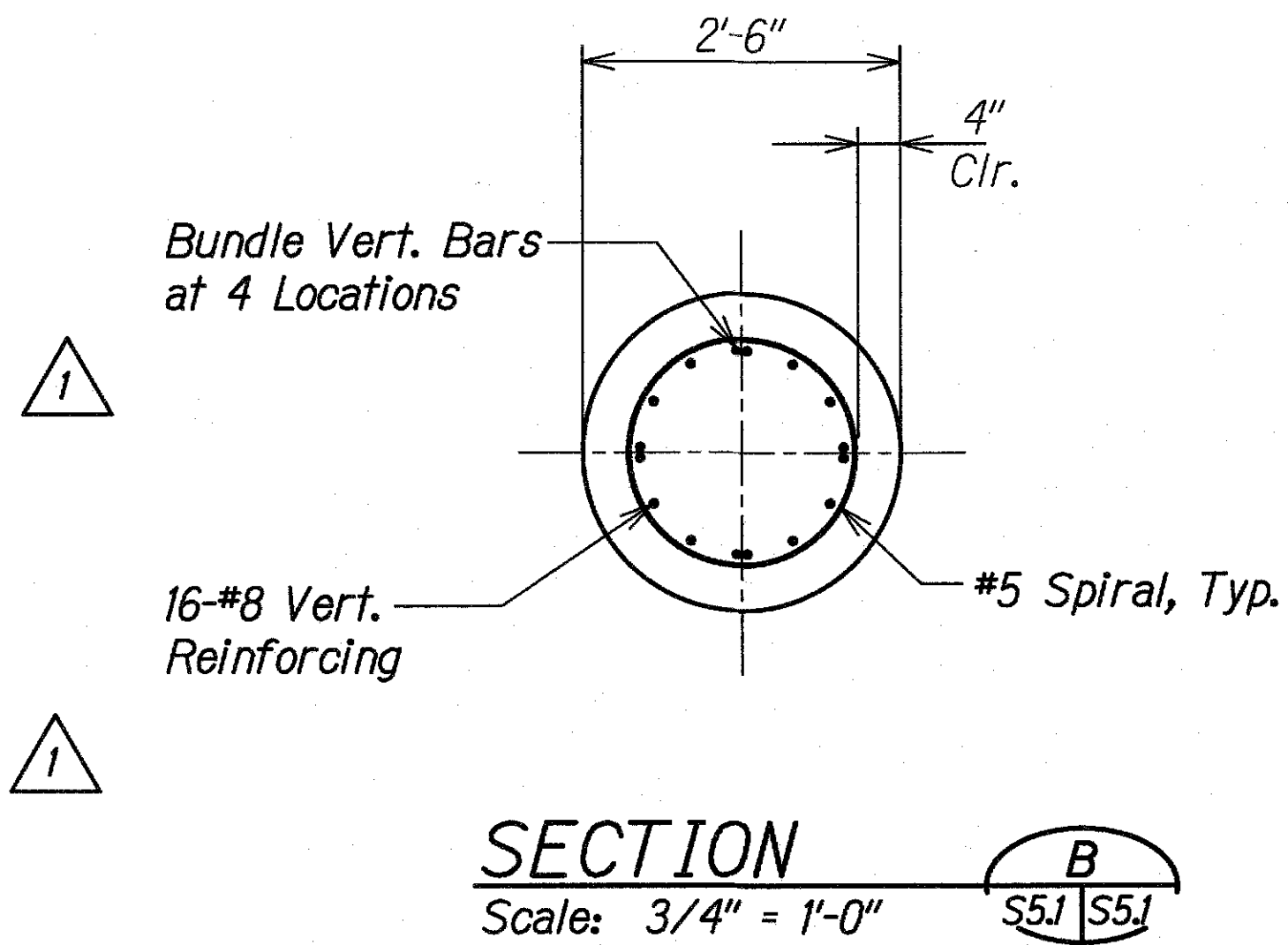
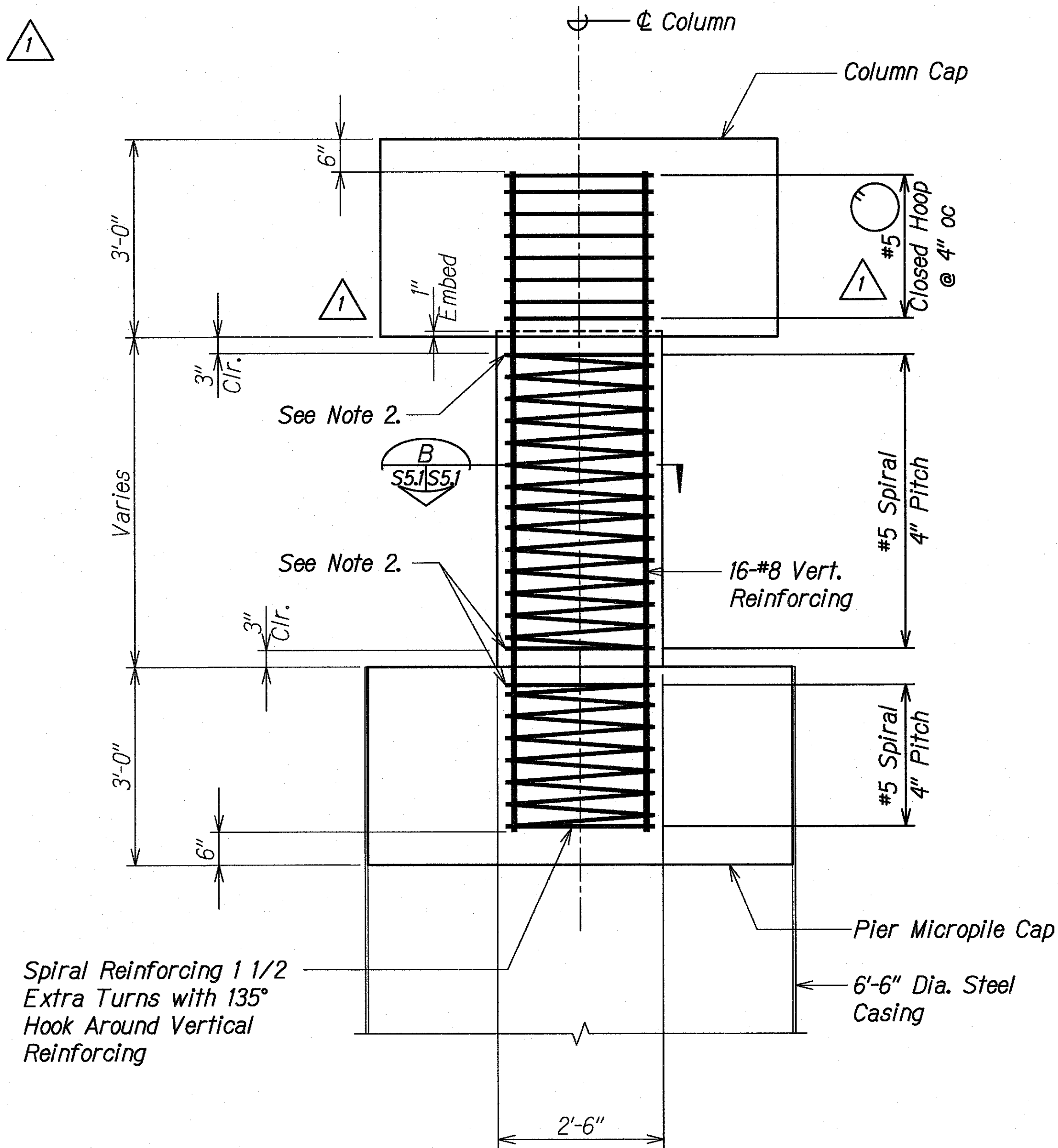
MICROPILE DETAIL, SECTION, AND NOTES

KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)

Scale: As Noted Date: Oct. 2018

SHEET No. S4.5 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	31	67



NOTES:

- Concrete or other non-corrosive spacing devices shall be used to maintain the reinforcement cage in position within the column.
- Spirals may be discontinuous at the top and bottom of the column. Each end of the spiral shall have 1 1/2 extra turns with a 135° hook around a vertical reinforcement.

Spiral Reinforcing 1 1/2 Extra Turns with 135° Hook Around Vertical Reinforcing

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

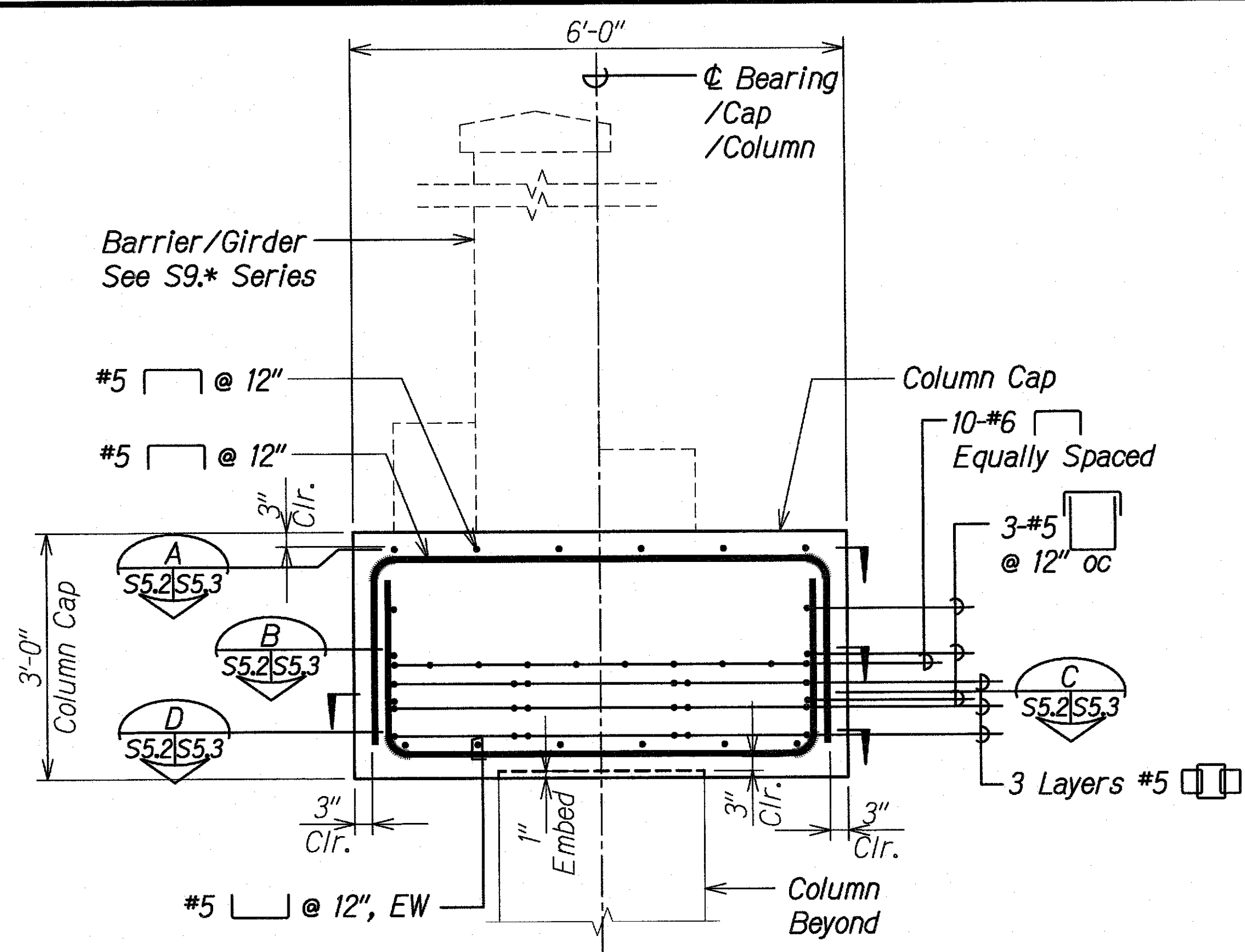
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	DESIGNED BY	
	CHECKED BY	

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-0082-3W BRIDGES ASB\01 CAD\03-XX-21 WAPA AS-BUILD\3WB-S0501 DELTAT COL SWG PLOT TIME: 03-15-21, 2:15 PM)

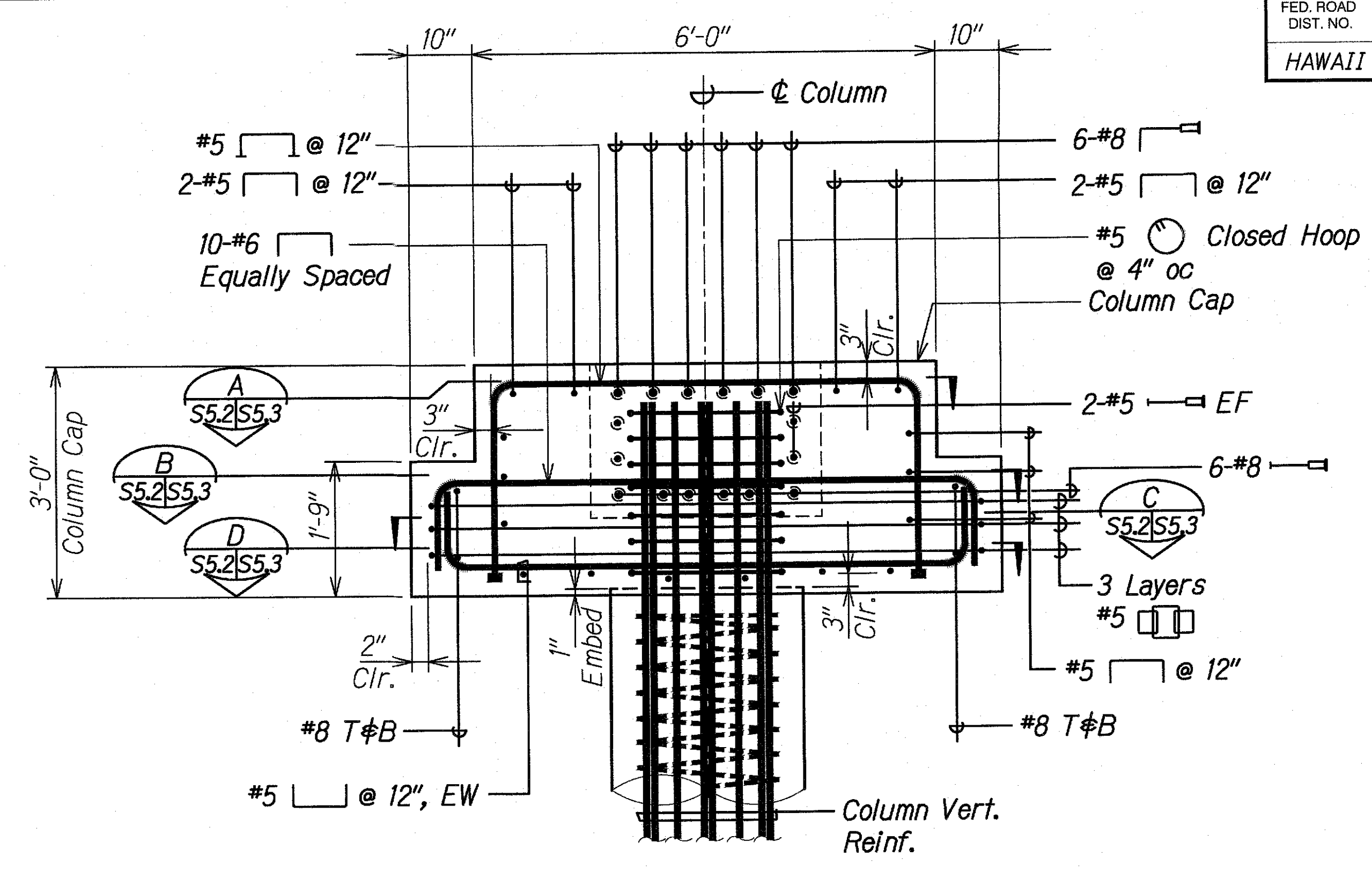
3/19/19	Added Sections
DATE	REVISION

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
COLUMN
KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP At Various Locations April 2018, Rte. 560 Fed. Aid Proj. No. ER-19(007)
Scale: As Noted Date: Oct. 2018
SHEET No. S5.1 OF 3 SHEETS

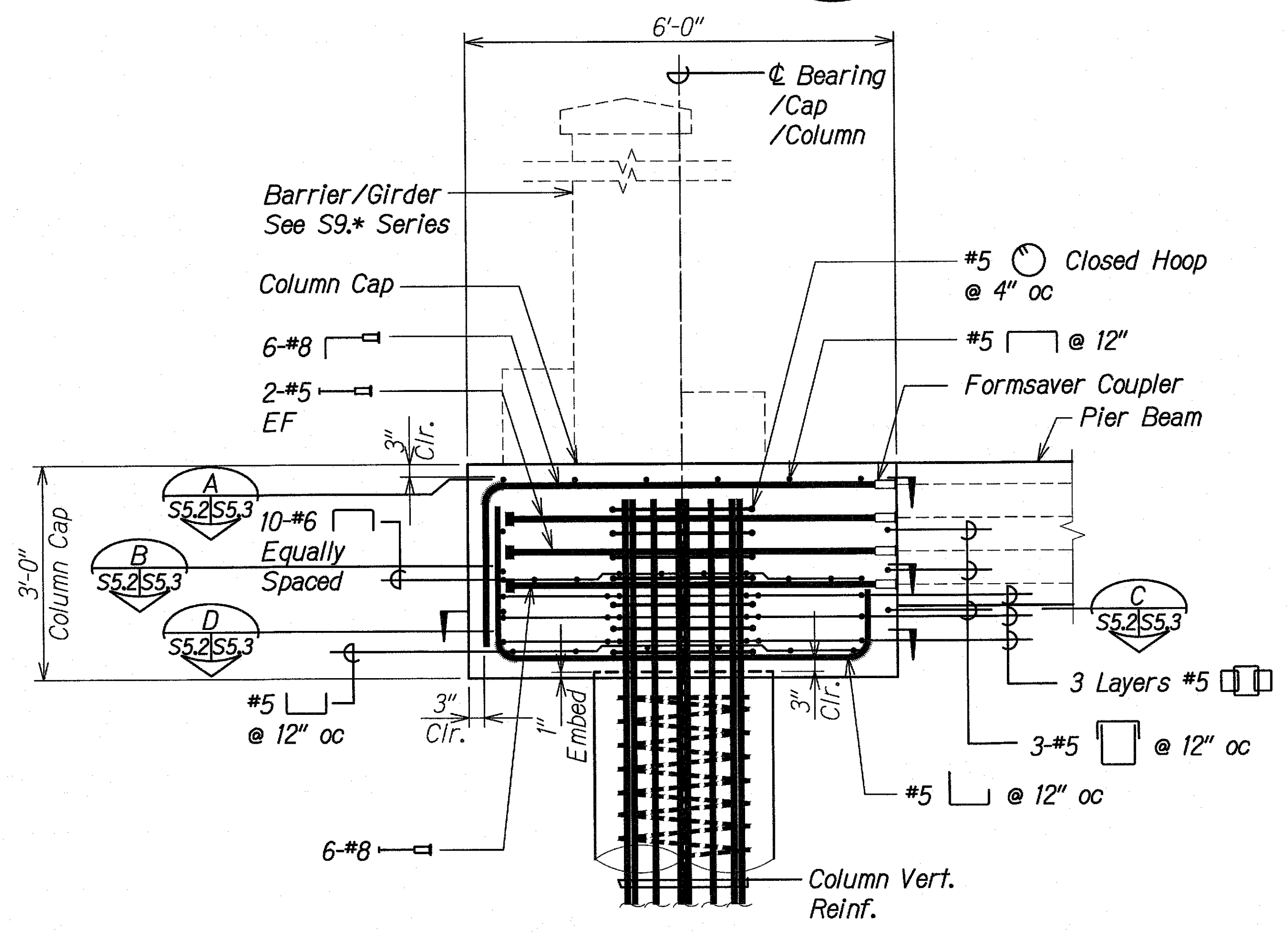
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	32	67



SECTION A
Scale: 3/4" = 1'-0"
S5.3/S5.2



SECTION C
Scale: 3/4" = 1'-0"
S5.3/S5.2



SECTION B
Scale: 3/4" = 1'-0"
S5.3/S5.2

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

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-0062-3W BRIDGES ASB\01 CAD\03-XX-21 WAPA AS-BUILT\3WB-S0501 DELTA1 COLONG PLOT TIME: 03-15-21, 2:16 PM

3/19/19	Added Sections
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
COLUMN CAP	
KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP At Various Locations April 2018, Rte. 560 Fed. Aid Proj. No. ER-19(007)	
Scale: As Noted	Date: Oct. 2018
SHEET No. S5.2 OF 3 SHEETS	

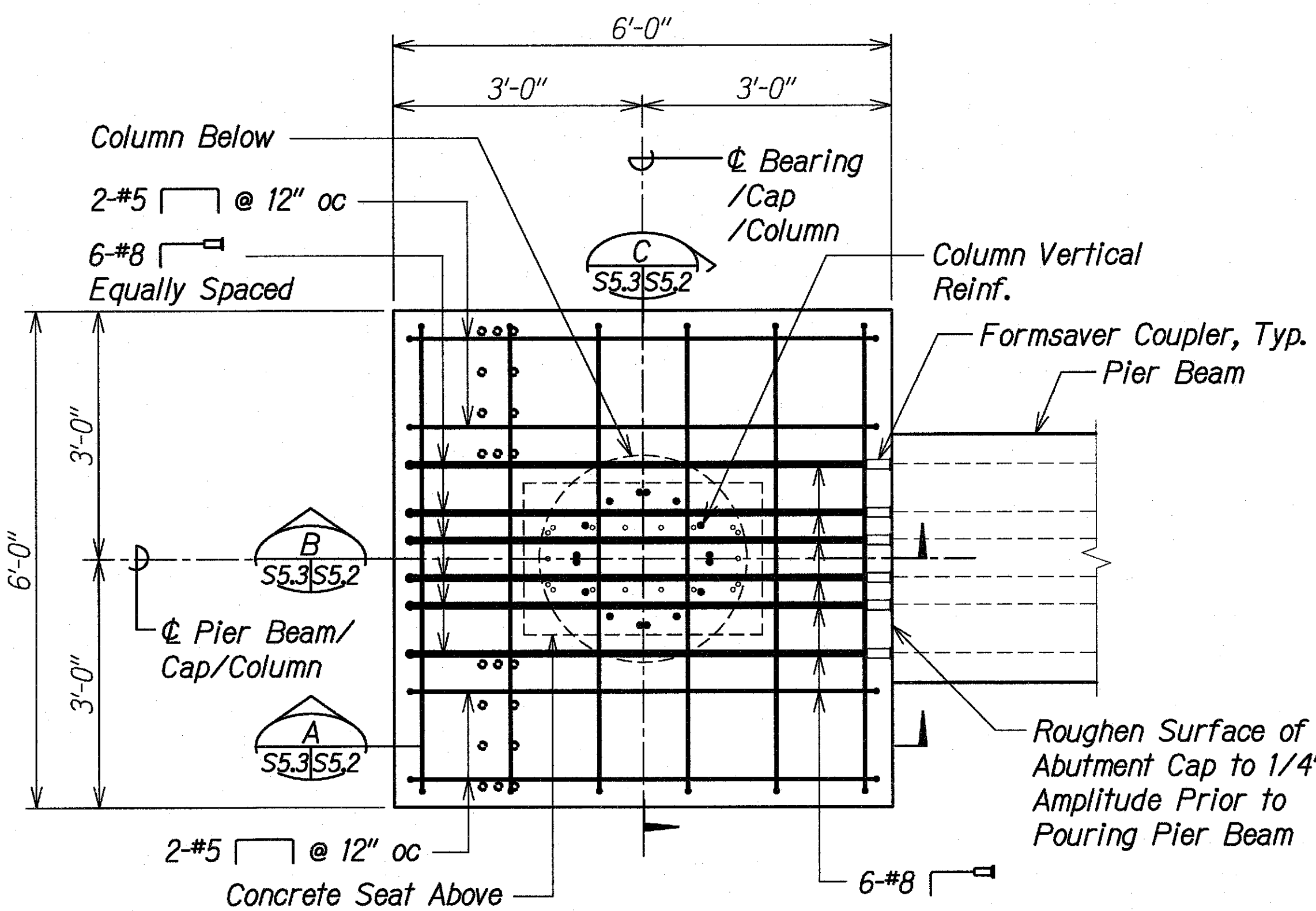
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	33	67

LEGEND:

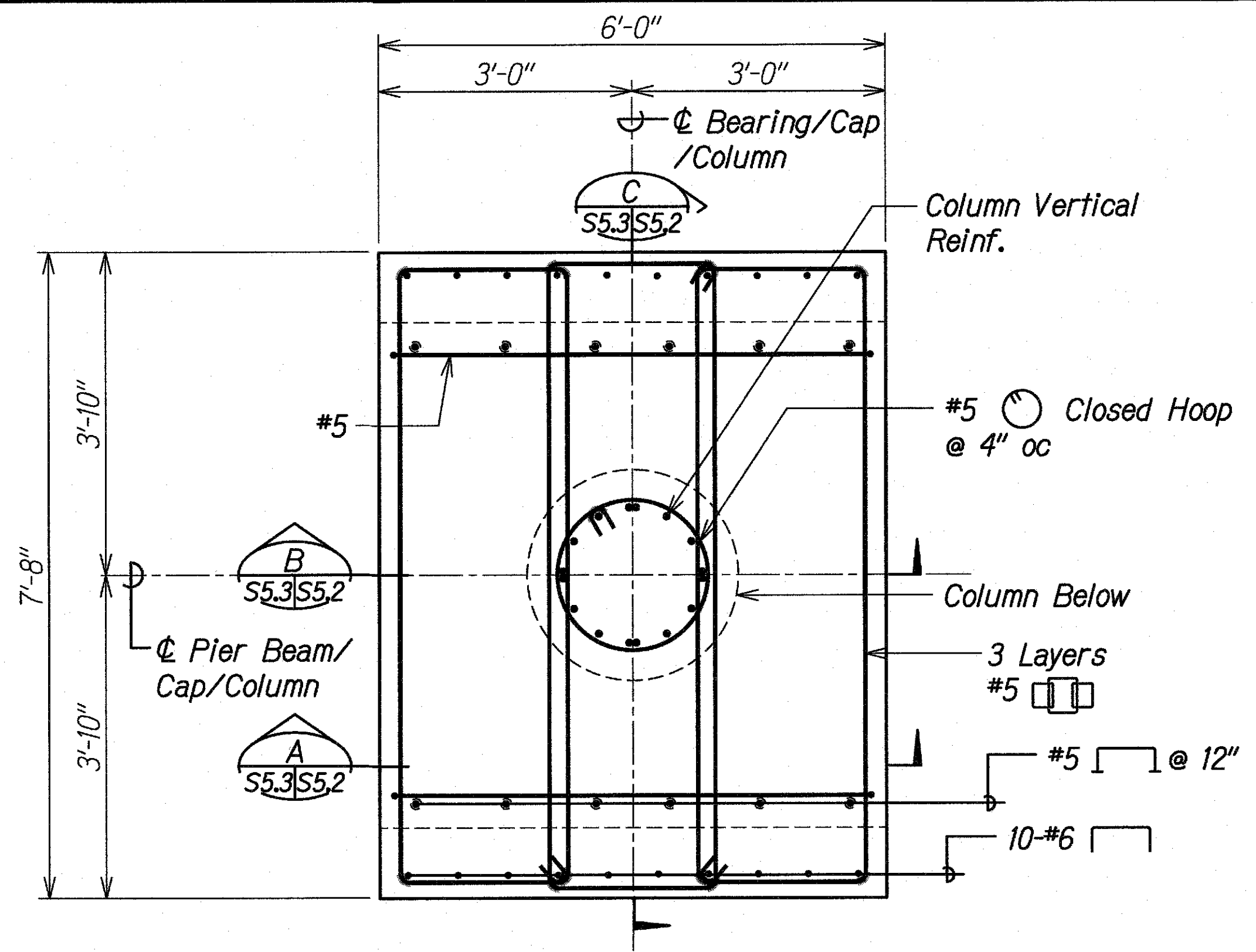
- Location of Creep Block /Concrete Seat/Dowels See S7.* Series for Details

Notes:

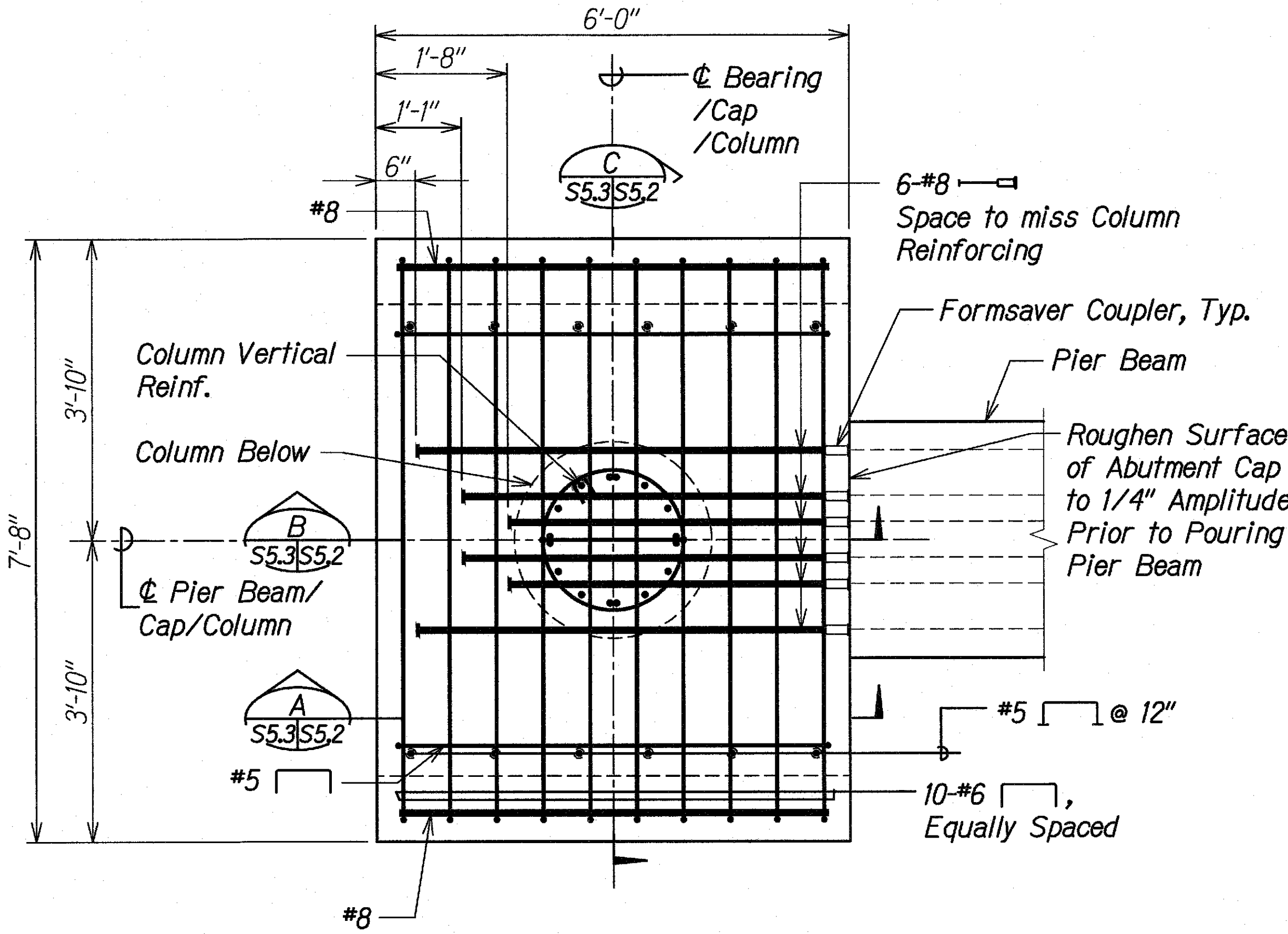
- 3-#3  @ 12" oc not shown for clarity.
- Contractor shall coordinate location of Formsaver couplers in column caps to account for lap splicing of longitudinal reinforcing in pier beam.



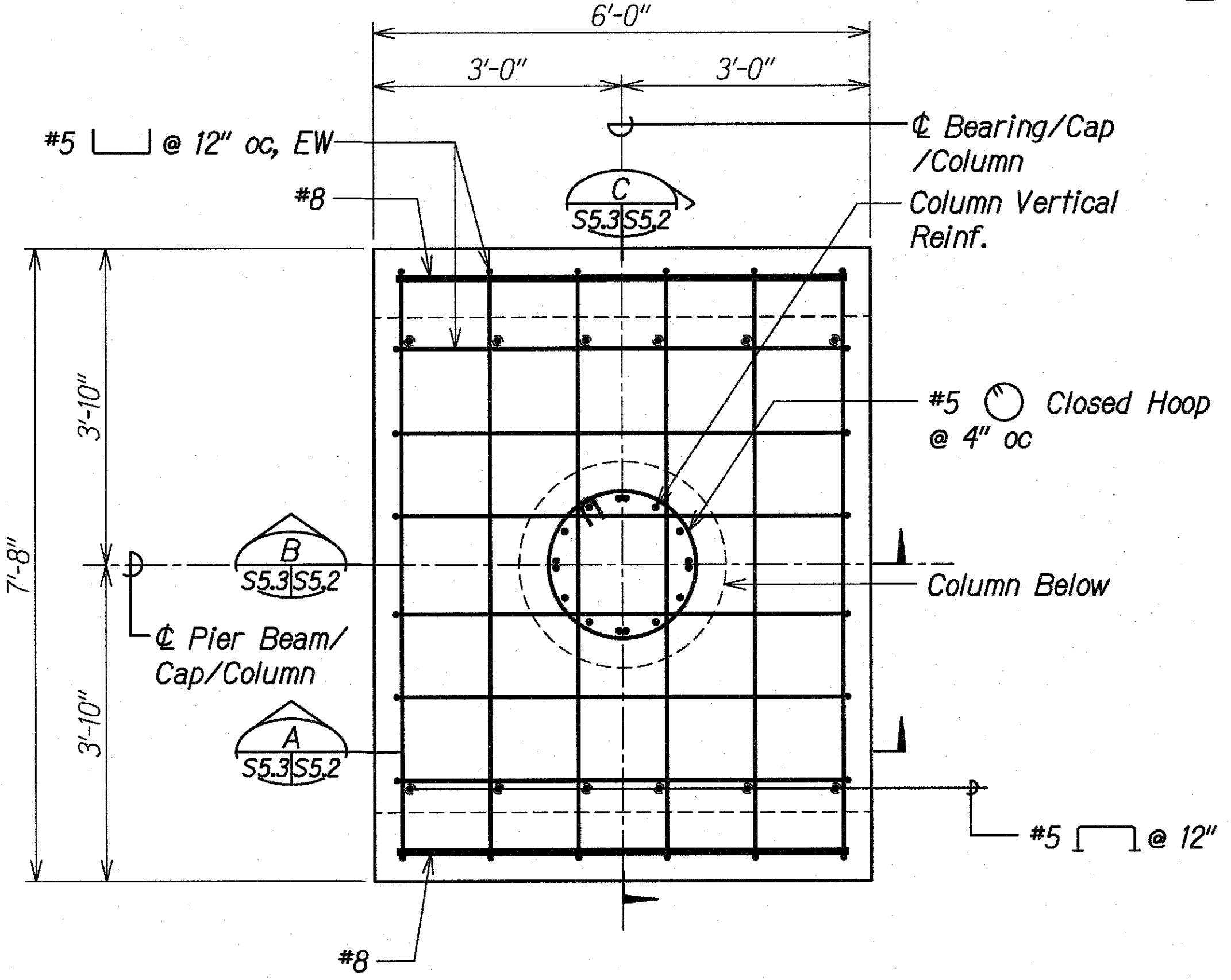
SECTION - TOP LAYER REINFORCING A
Scale: 3/4" = 1'-0"



SECTION - LOWER MIDDLE LAYER REINFORCING C
Scale: 3/4" = 1'-0"



SECTION - UPPER MIDDLE LAYER REINFORCING B
Scale: 3/4" = 1'-0"

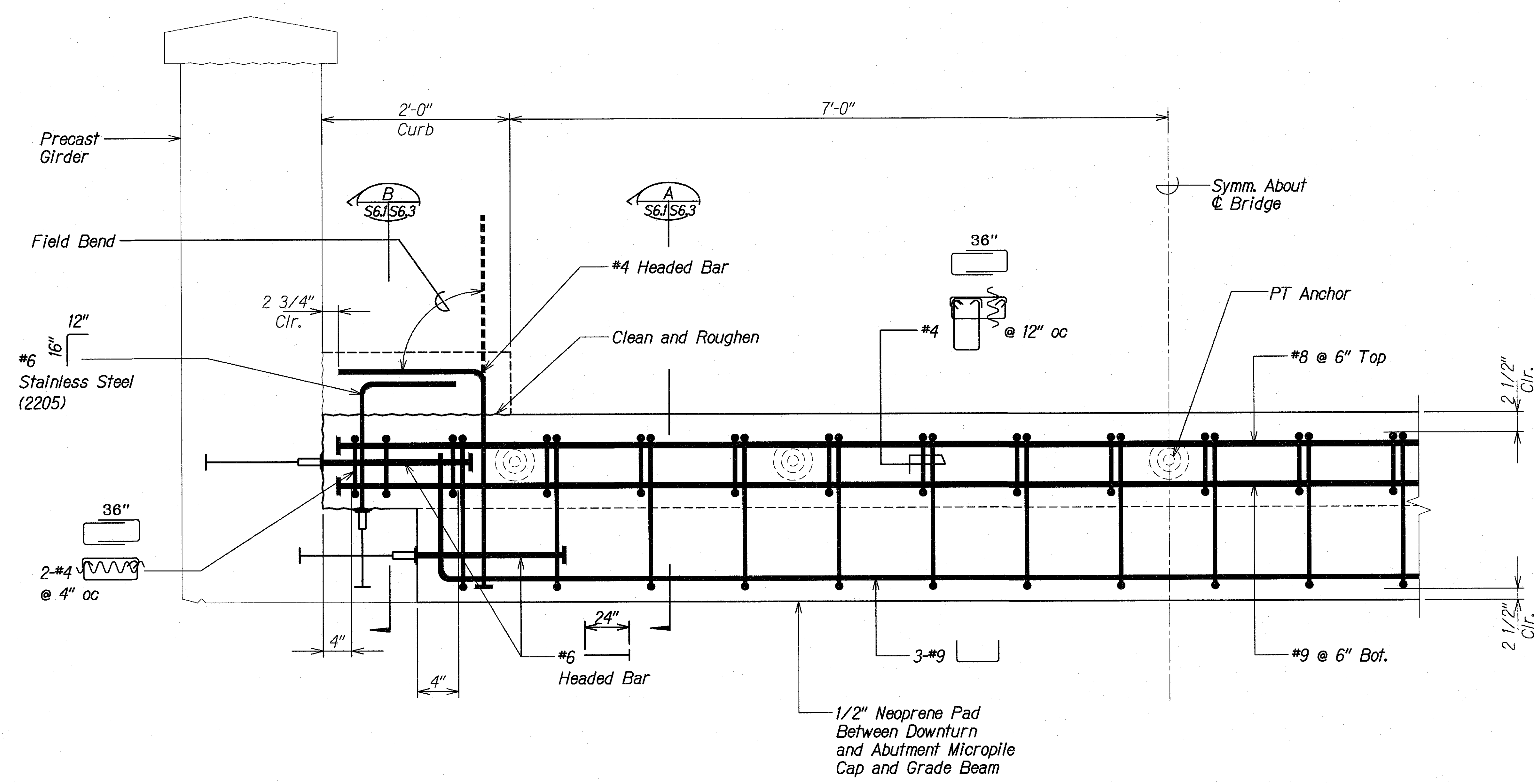


SECTION - BOTTOM LAYER REINFORCING D
Scale: 3/4" = 1'-0"

SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
CHECKED BY	
NOTE BOOK	
NO.	

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-006.2-3W BRIDGES ASB\01 CAD\03-XX-21 WAPA AS-BUILT\3WB-S0601.DWG PLOT TIME: 03-15-21, 2:16 PM

3/19/19	Added Sections
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
COLUMN CAP	
KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP At Various Locations April 2018, Rte. 560 Fed. Aid Proj. No. ER-19(007)	
Scale: As Noted	Date: Oct. 2018
SHEET No. S5.3 OF 3 SHEETS	



CIP DECK SECTION WITH DOWNTURN BEAM
 Scale: 1 1/2" = 1'-0"

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

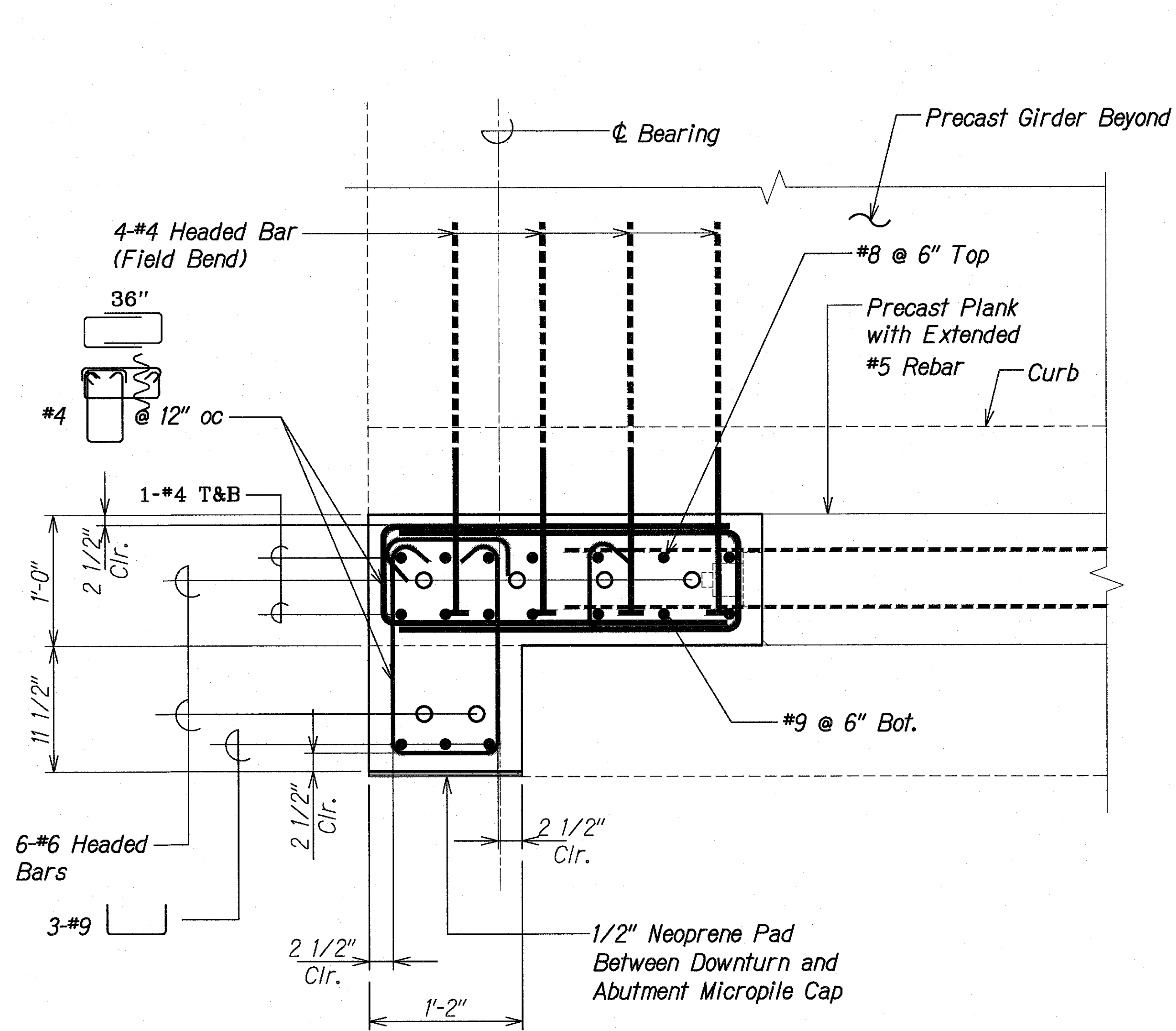
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-0062-3W BRIDGES ASB\01 CAD\03-26-21 WAPA AS-BUILTS REVIEW CIB\3WB-50601 DETAIL BEAMS.DWG PLOT TIME: 03-25-21 3:00 PM

"AS-BUILT"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

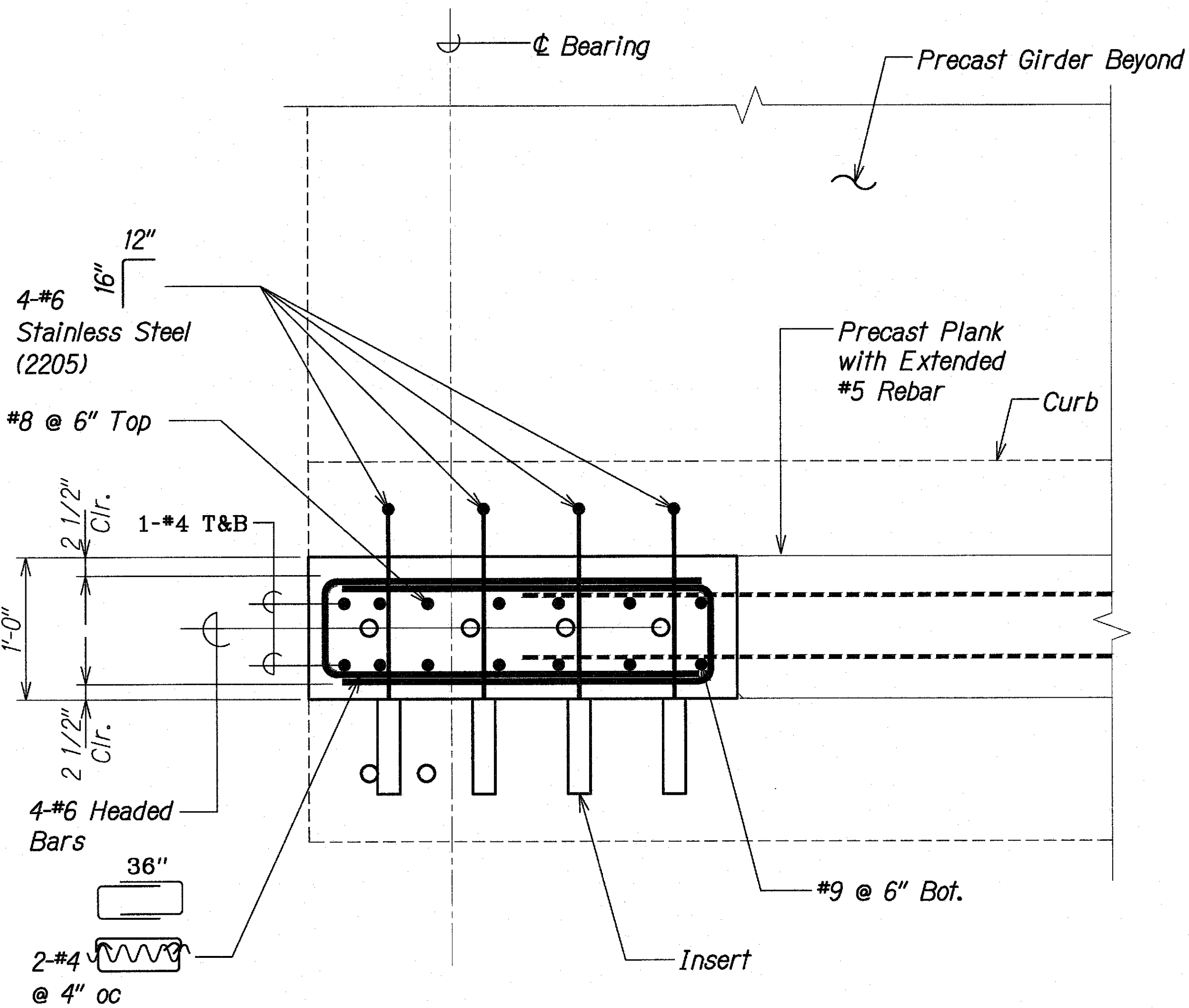
CIP DECK WITH DOWNTURN BEAM
 KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
 At Various Locations April 2018, Rte. 560
 Fed. Aid Proj. No. ER-19(007)
 Scale: As Noted Date: Oct. 2018
 SHEET No. S6J OF 4 SHEETS



SECTION CIP DECK WITH DOWNTURN
AT WAIPA

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

A
S6.1 | S6.3



SECTION CIP DECK
AT WAIPA

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

B
S6.1 | S6.3

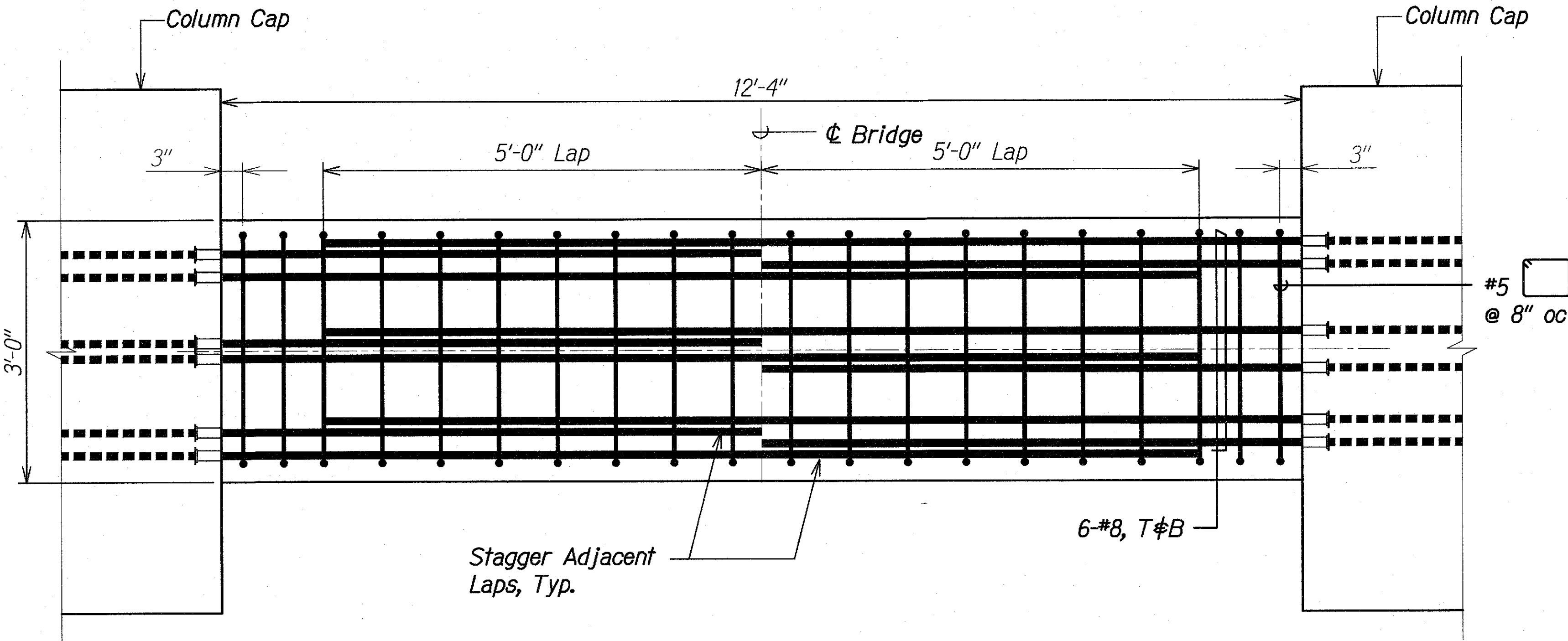
LEGEND FOR AS-BUILT POSTINGS

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

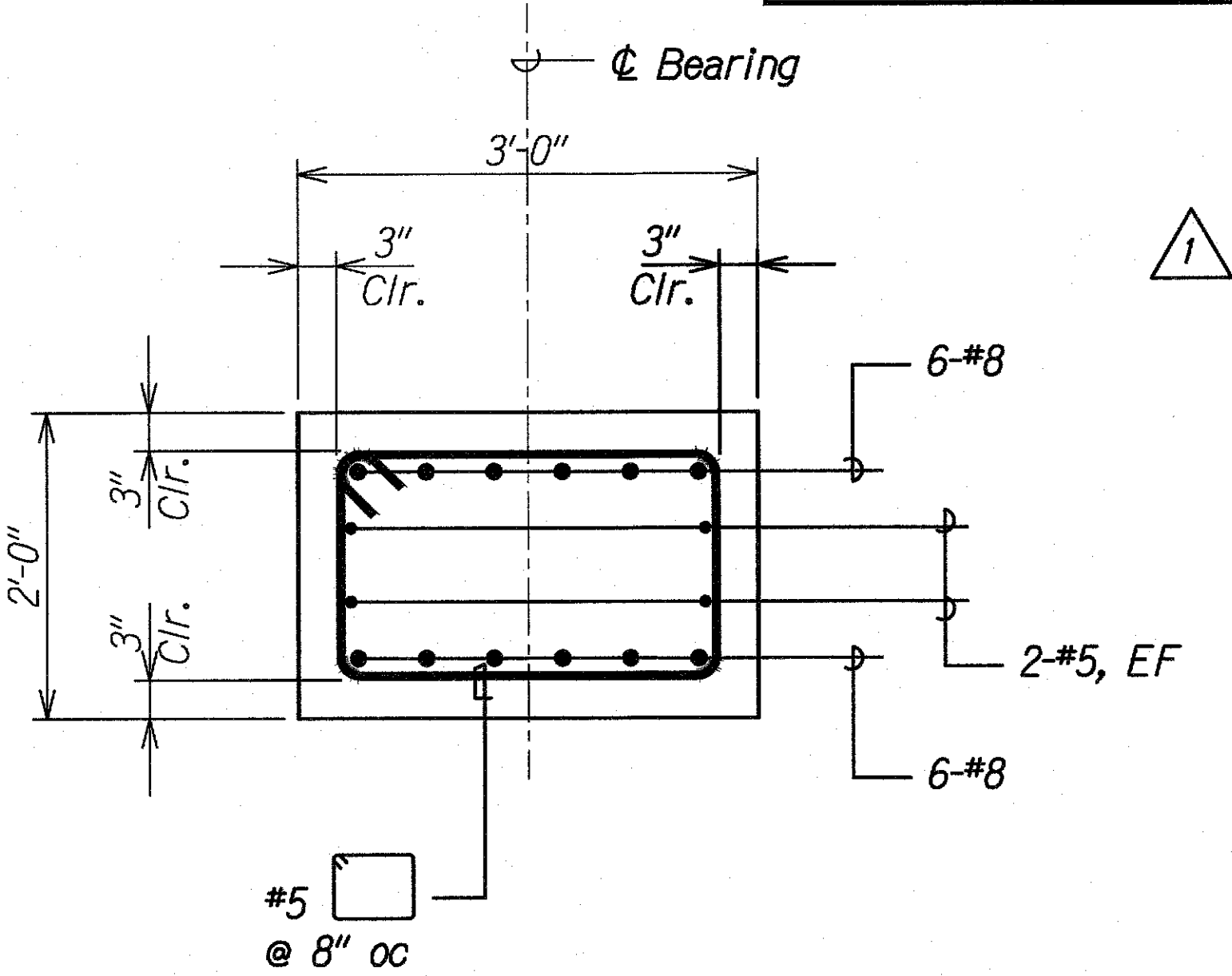
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CIP DECK WITH DOWNTURN BEAM
AT WAIPA
KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)
Scale: As Noted Date: Oct. 2018
SHEET No. S6.3 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	36	67

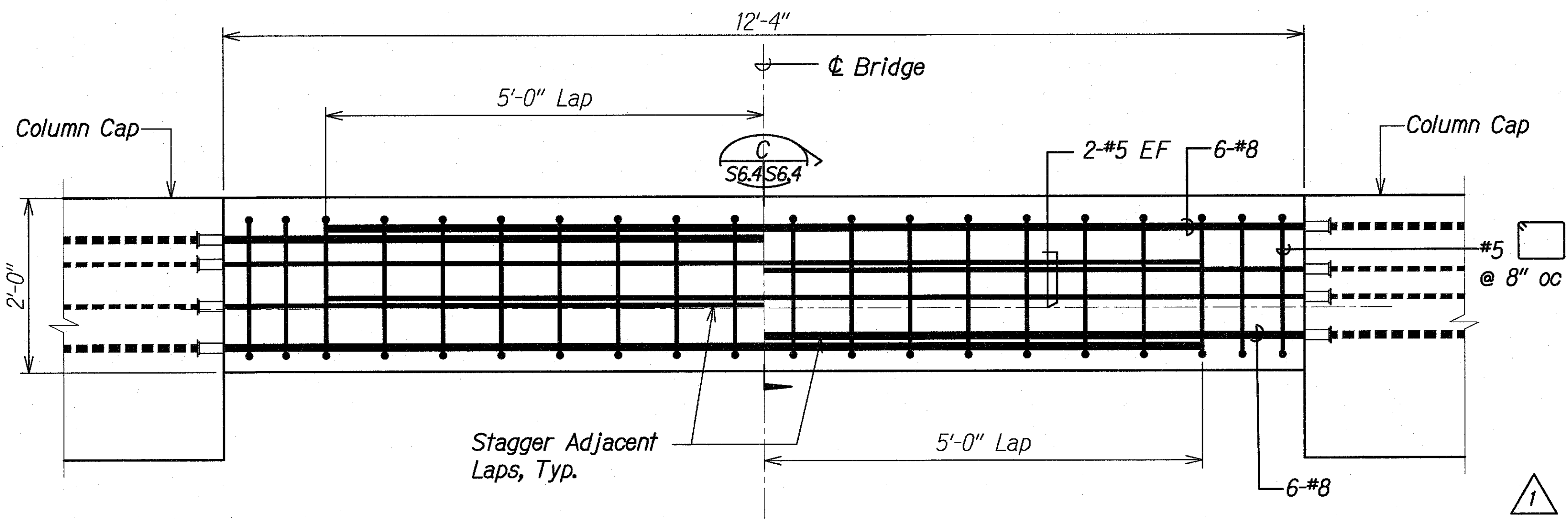


PIER BEAM T&B REINFORCING PLAN
Scale: 1" = 1'-0"



PIER BEAM SECTION C
Scale: 1" = 1'-0"

Note:
Contractor shall Coordinate Location of Formsaver Couplers in Column Caps to Account for Lap Splicing of Longitudinal Reinforcing in Pier Beam.



PIER BEAM ELEVATION
Scale: 1" = 1'-0"

ORIGINAL PLAN	DATE
NOTE BOOK	DESIGNED BY
	QUANTITIES BY
	CHECKED BY

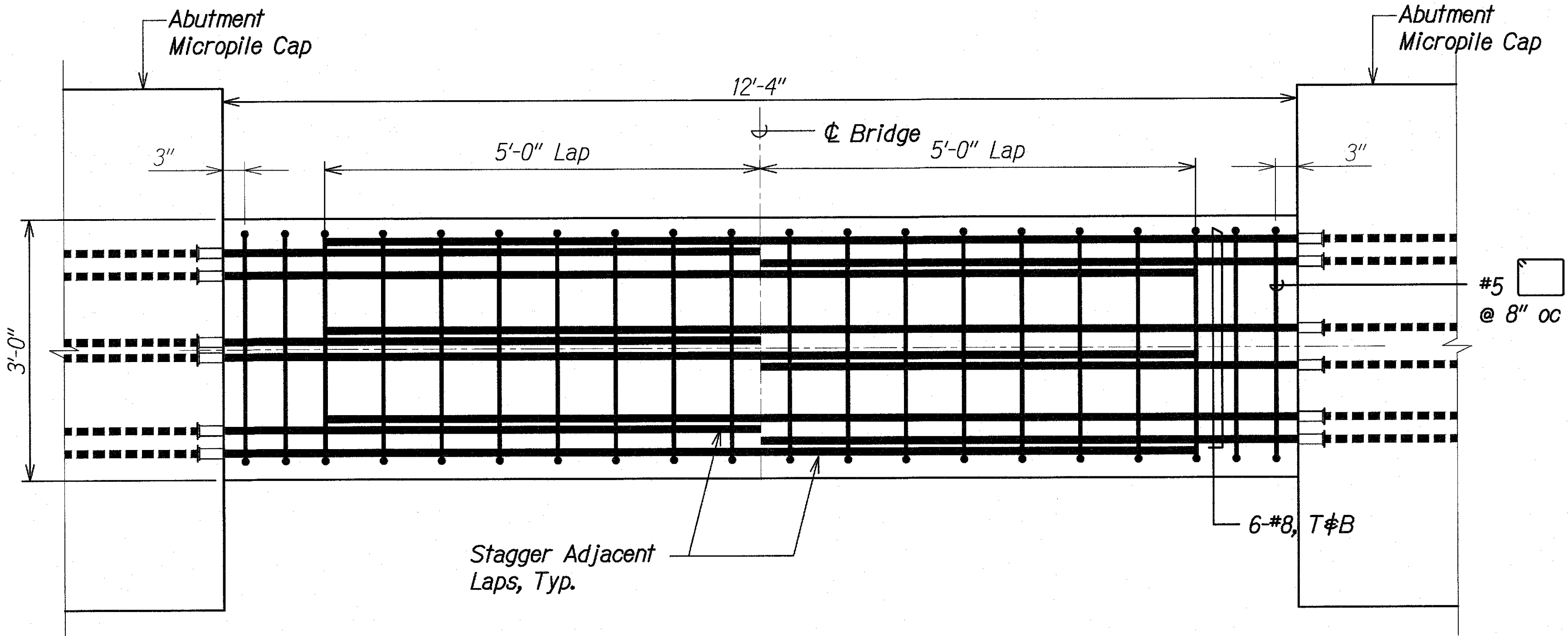
DRAWING NAME: 7A100 ONOING/COB PROJECTS/18-0062-3W BRIDGES/ASB/01 C&V/03-XX-21 WAPA AS-BUILT/3WB-S0601 DELTA1 BEAMS.DWG PLOT TIME: 03-15-21, 2:40 PM

3/19/19	Revised Sections
DATE	REVISION

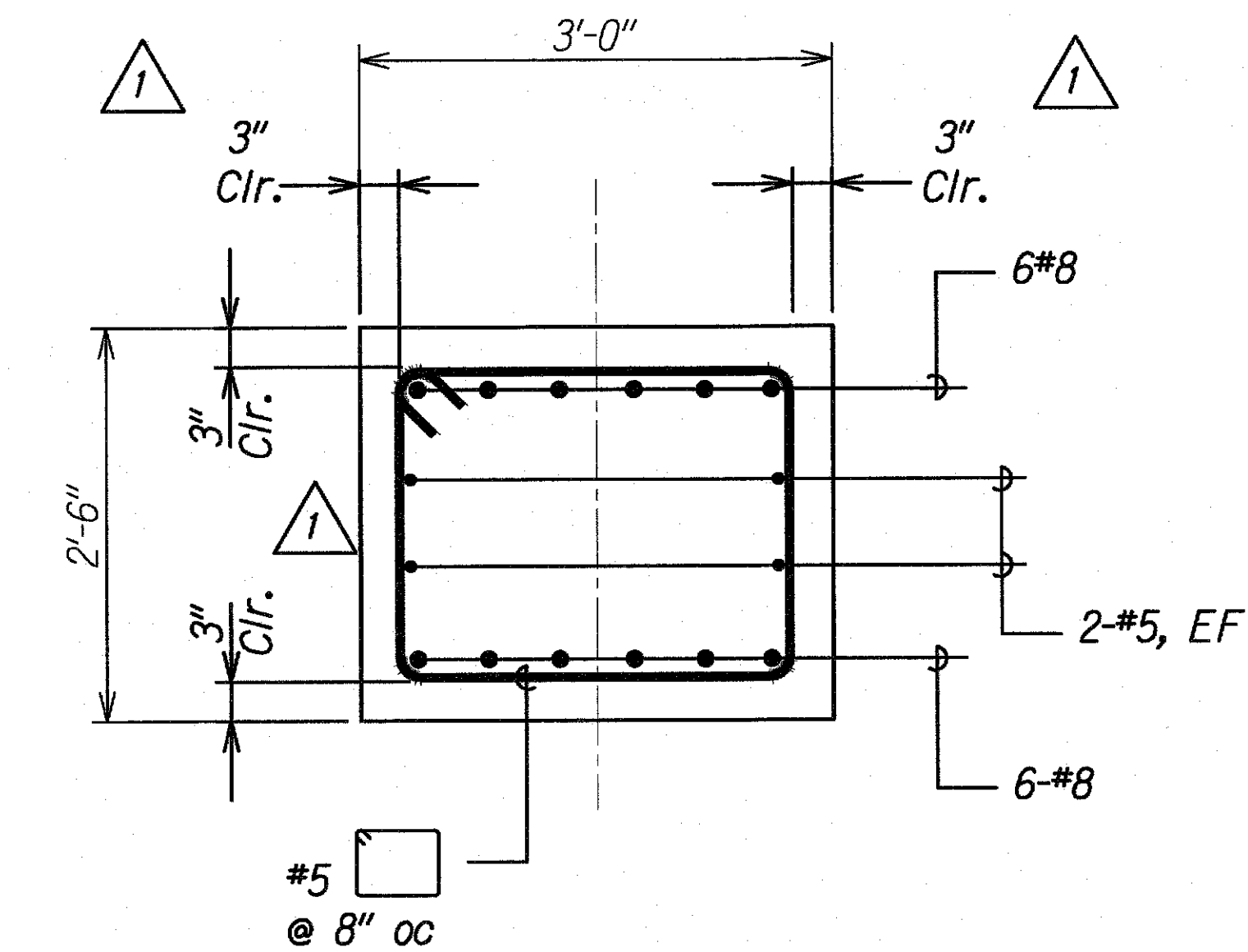
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PIER BEAM
KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)
Scale: As Noted Date: Oct. 2018
SHEET No. 56.4 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	37	67

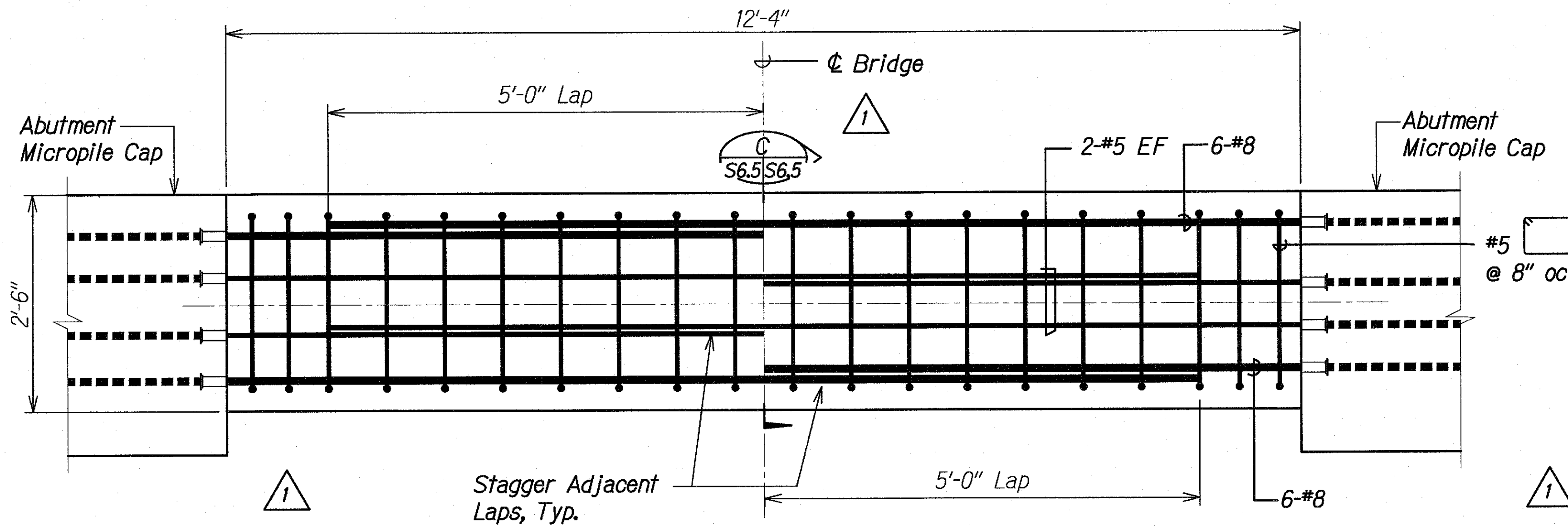


TRANSVERSE GRADE BEAM
T&B REINFORCING PLAN
Scale: 1" = 1'-0"



TRANSVERSE GRADE BEAM SECTION
Scale: 1" = 1'-0"

Note:
Contractor shall Coordinate Location of
Formsaver Couplers in Abutment Micropile Caps
to Account for Lap Splicing of Longitudinal
Reinforcing in Transverse Grade Beam.



TRANSVERSE GRADE BEAM
ELEVATION
Scale: 1" = 1'-0"

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

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-0082-3W BRIDGES ASB\01 CAD\03-XX-21 WAIPA AS-BUILT\3WB-S0801 DELTA1 BEAMS.DWG PLOT TIME: 03-15-21, 2:41 PM

3/19/19	Revised Sections
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

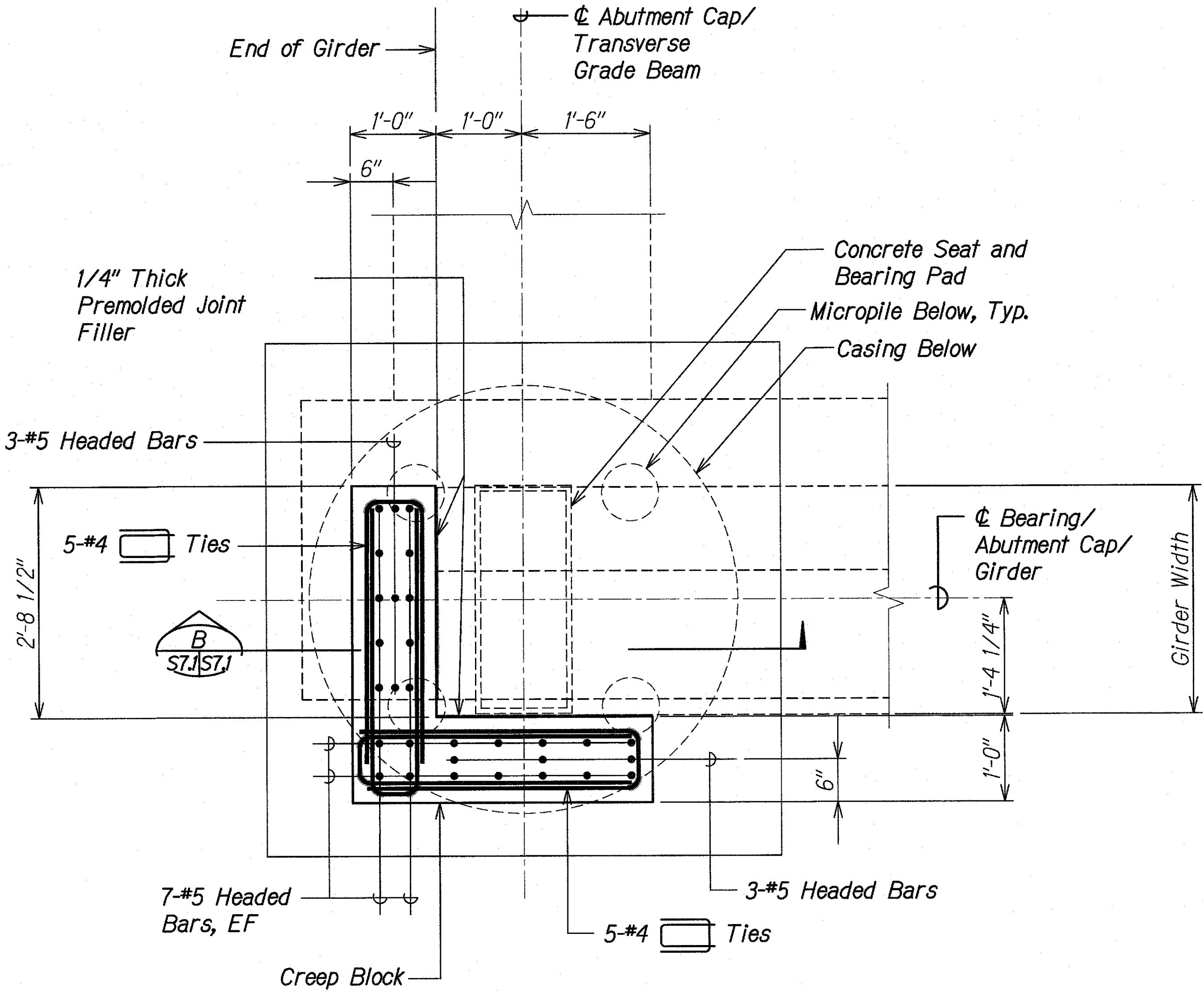
TRANSVERSE GRADE BEAM

KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)

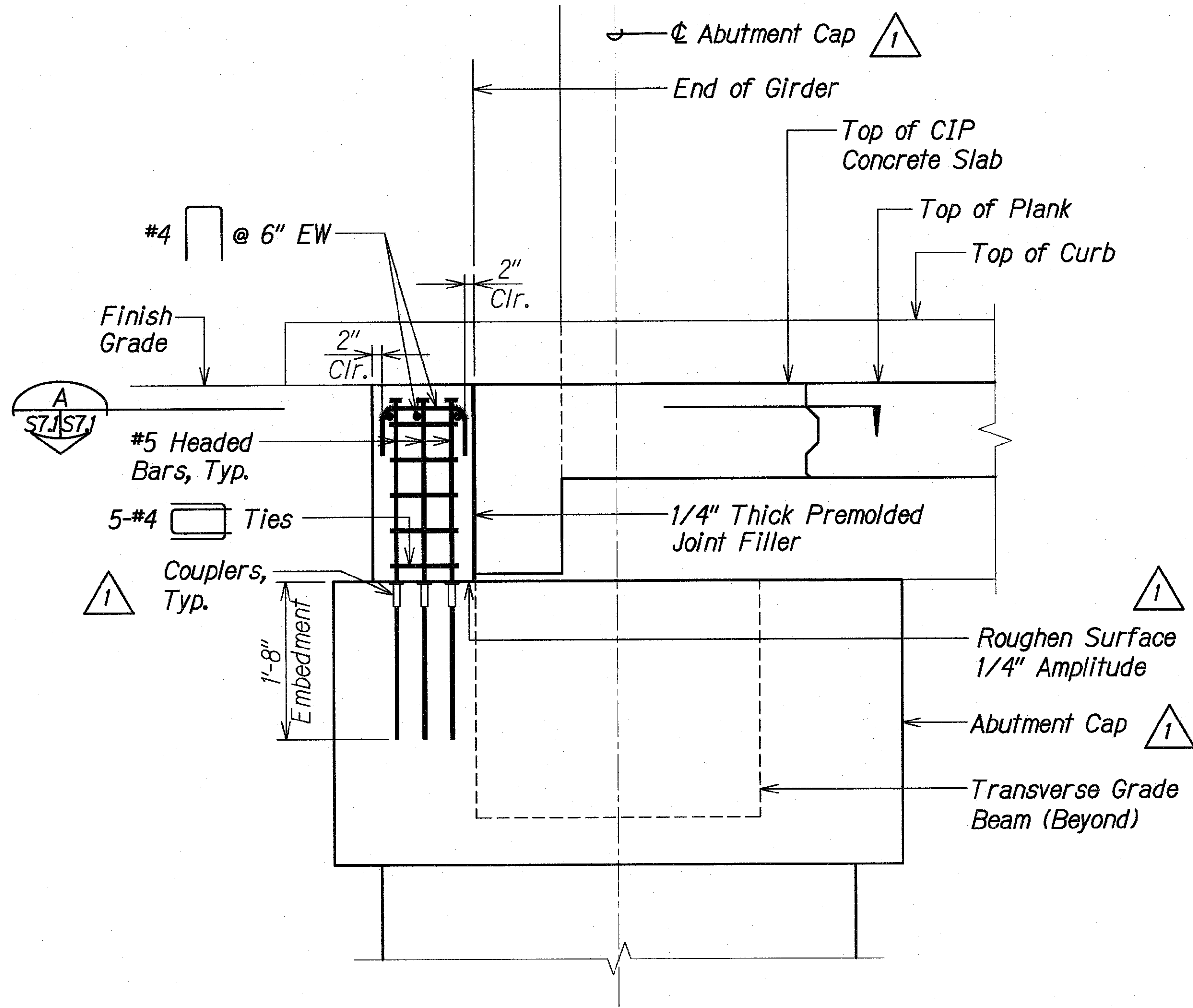
Scale: As Noted Date: Oct. 2018

SHEET No. S6.5 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	38	67



SECTION A
Scale: 1" = 1'-0"



SECTION B
Scale: 1" = 1'-0"

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

DRAWING NAME: 7A\00 ONGOING\00 CB PROJECTS\18-008.2-3W BRIDGES ASR\01 CAD\03-XX-21 WAIPA AS-BUILD\3WB-S0701 DELTA1 CREEP BLOCK.DWG PLOT TIME: 03-15-21, 2:42 PM

3/19/19	Added Section
DATE	REVISION

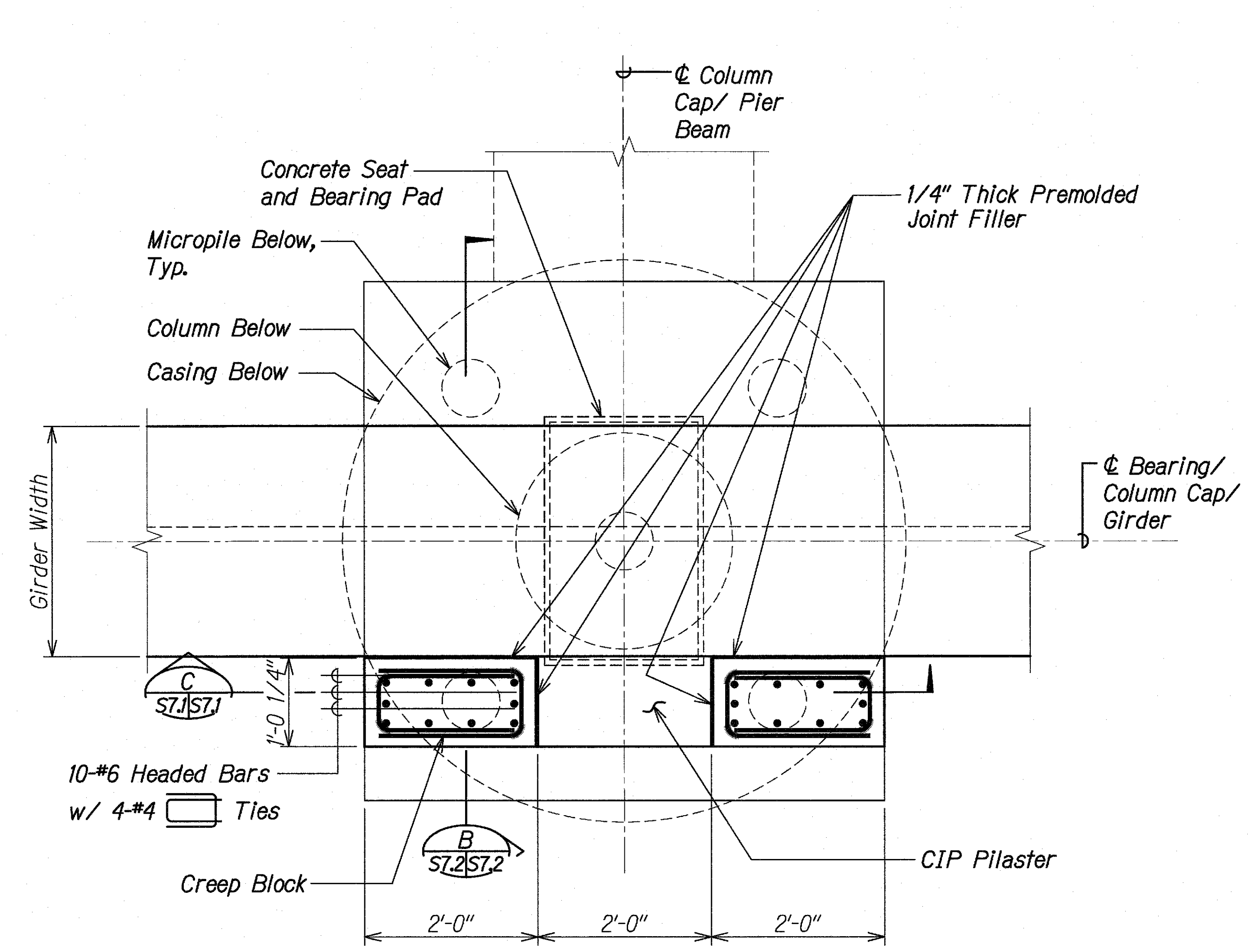
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**TYPICAL CREEP BLOCK
AT ABUTMENT**

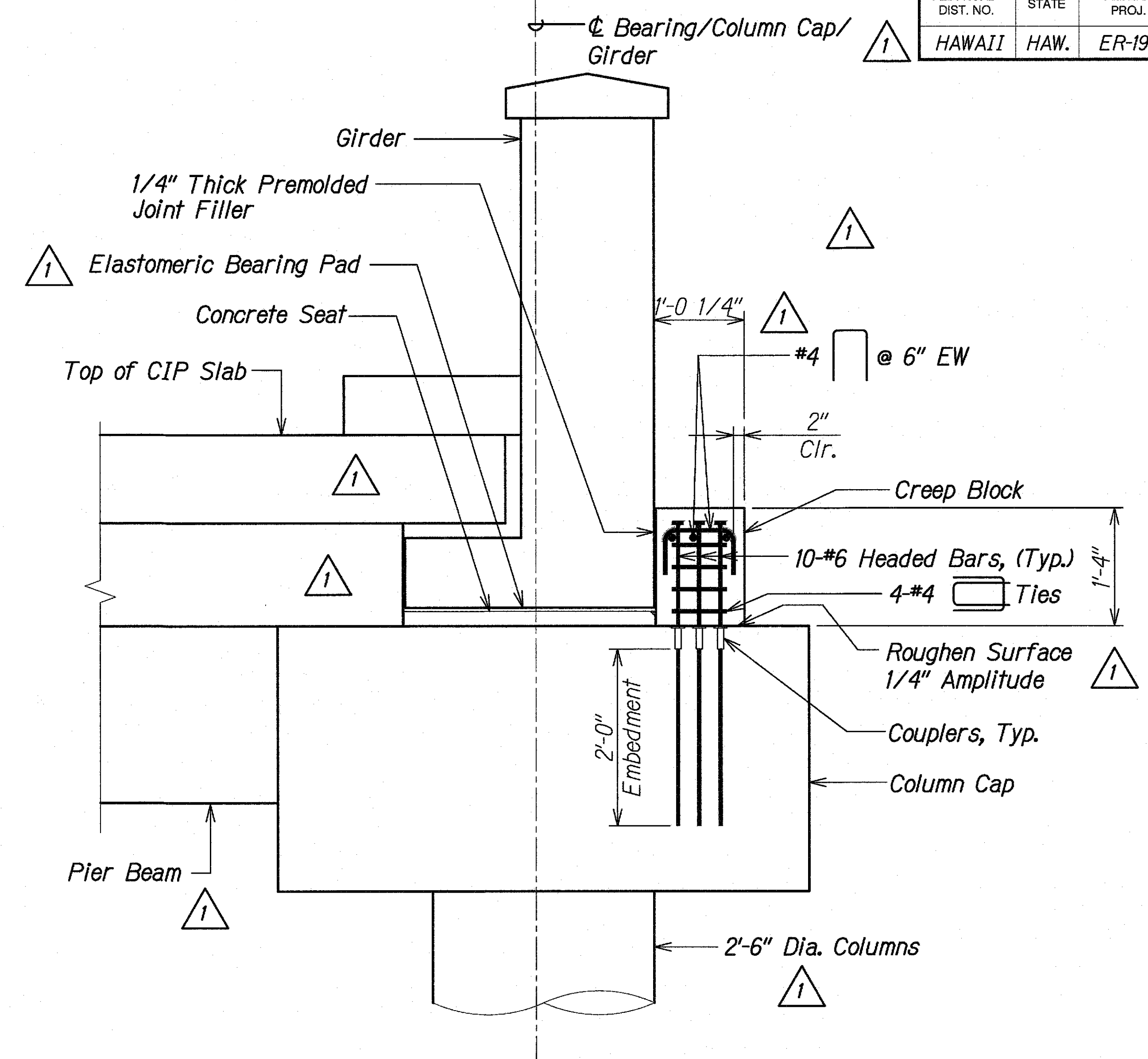
KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)

Scale: As Noted
Date: Oct. 2018

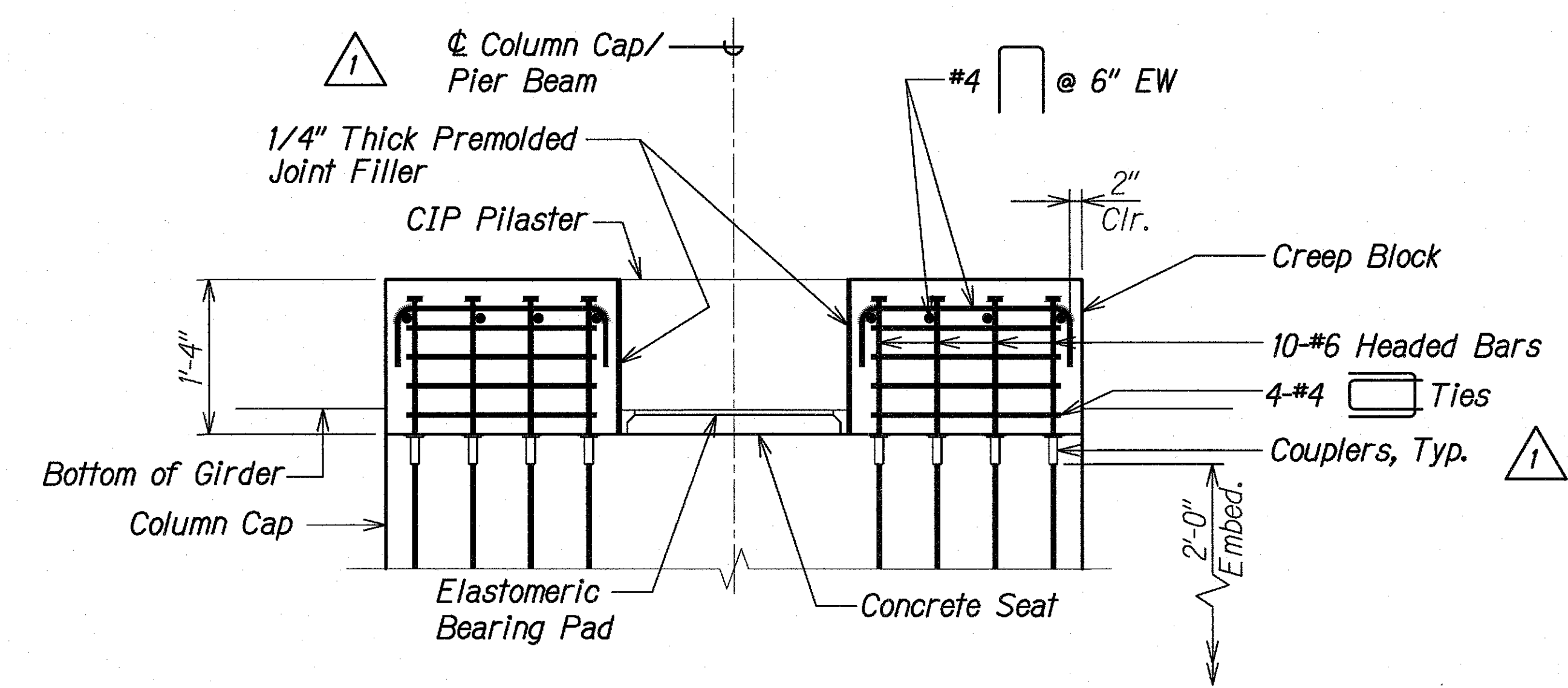
SHEET No. **S7J** OF 3 SHEETS



SECTION A
Scale: 1" = 1'-0" ST.2 ST.2



SECTION B
Scale: 1" = 1'-0" ST.2 ST.2



SECTION C
Scale: 1" = 1'-0" ST.2 ST.2

ORIGINAL PLAN	DATE
NOTED BY	DESIGNED BY
CHECKED BY	QUANTITIES BY

DRAWING NAME: 21-00 ONGOING/00 CB PROJECTS/18-0082-SW BRIDGES/ASB/01 CAD/03-XX-21 WAPA AS-BUILT/3WB-S0701 DELTA1 CREEP BLOCKING PLOT TIME: 03-15-21, 2:43 PM

DATE	REVISION
6/5/18	1 Revised Sections

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

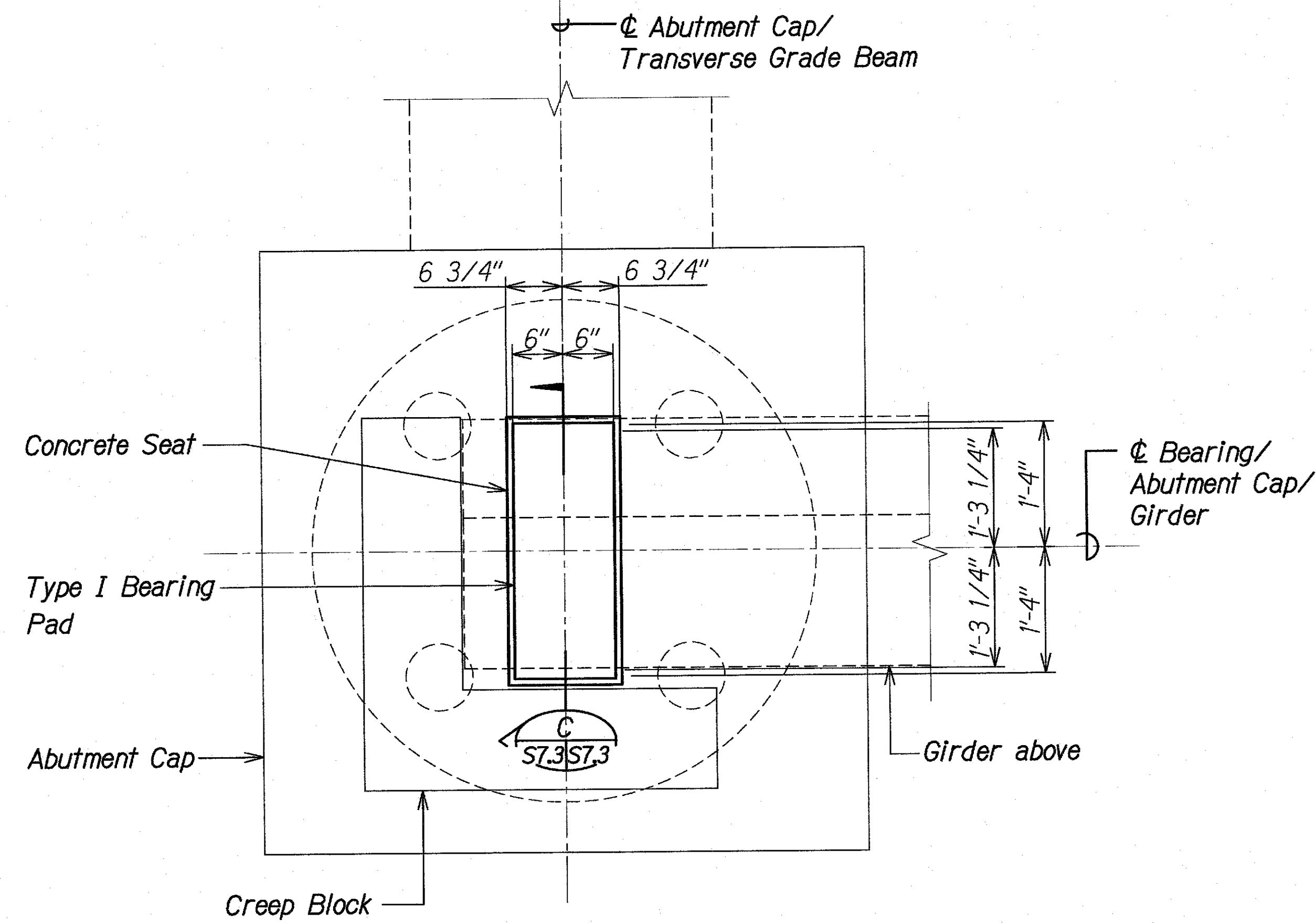
**TYPICAL CREEP BLOCK
AT COLUMN CAP**

KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)

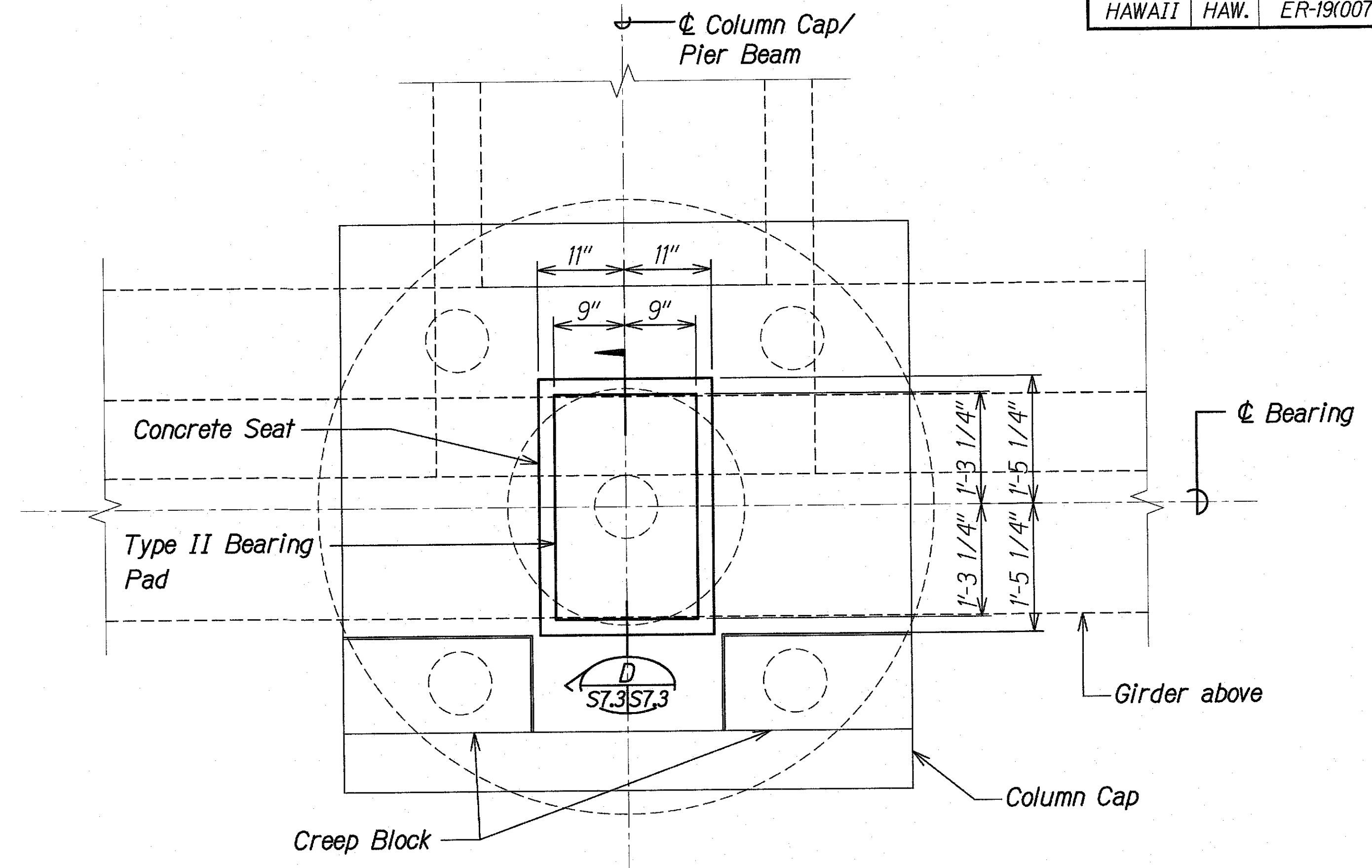
Scale: As Noted Date: Oct. 2018

SHEET No. 57.2 OF 3 SHEETS

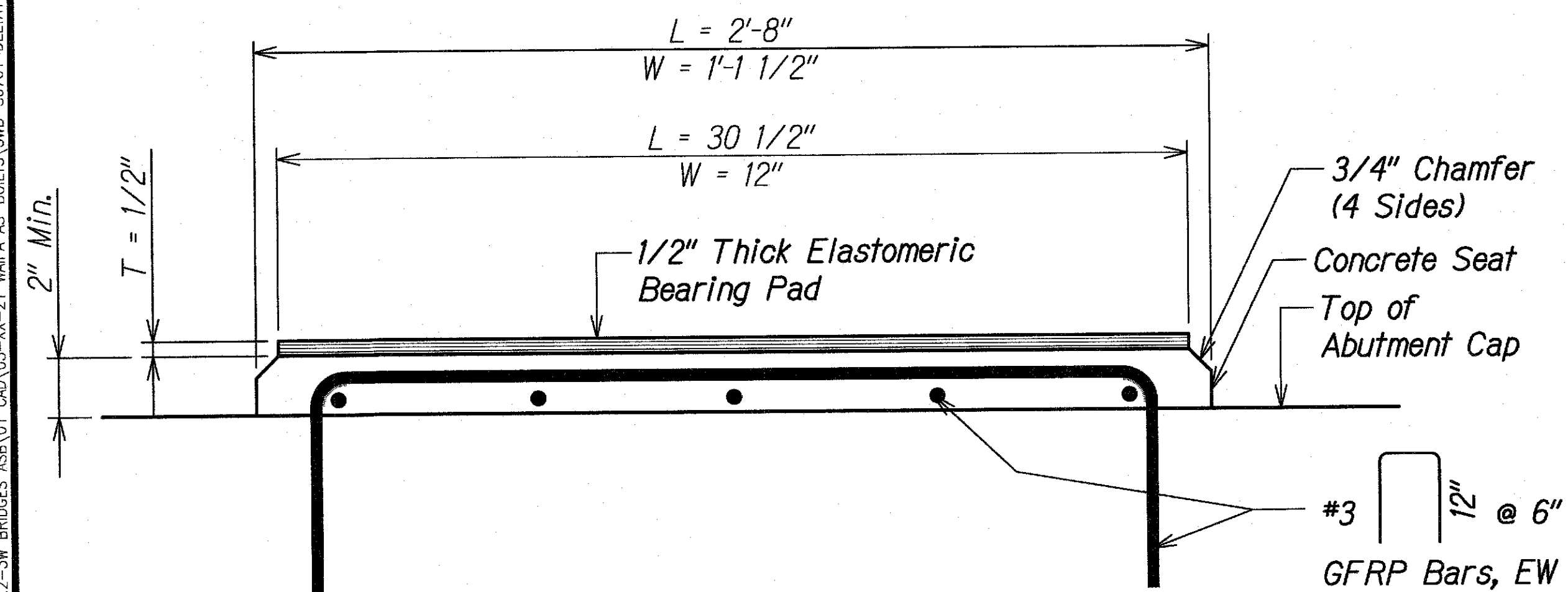
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	40	67



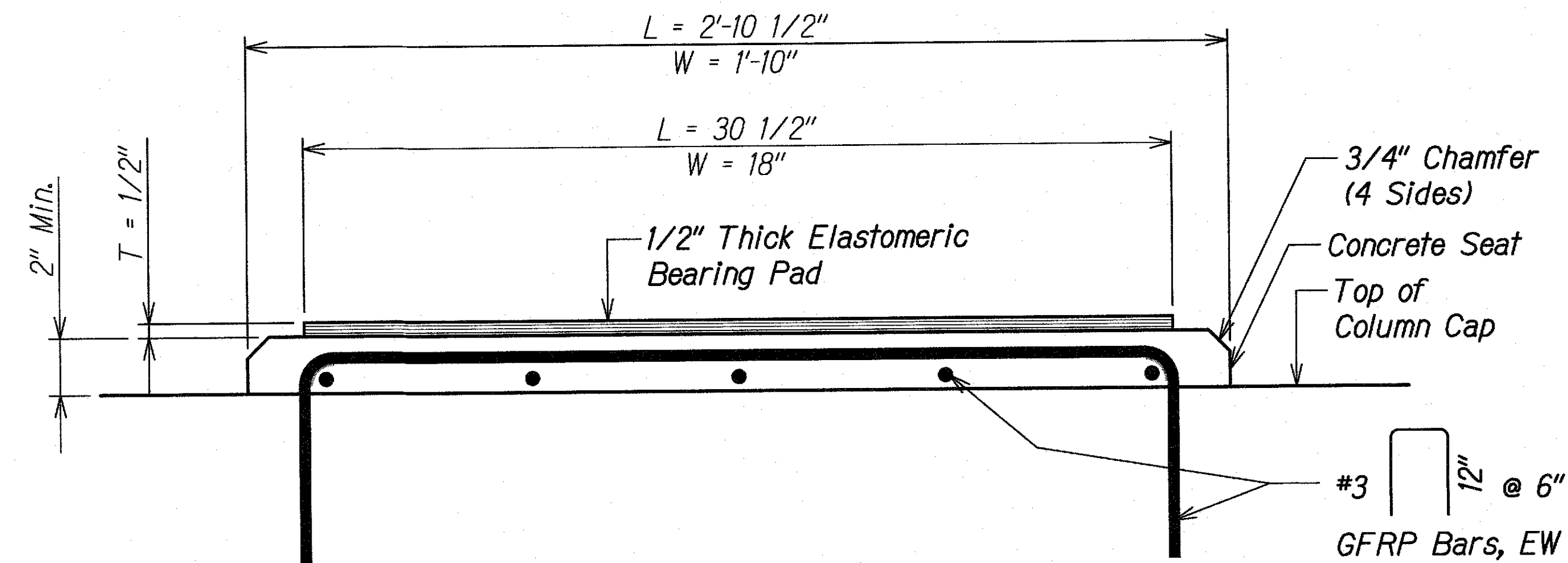
PLAN AT ABUTMENT CAP A
Scale: 1" = 1'-0"



PLAN AT COLUMN CAP B
Scale: 1" = 1'-0"



TYPE I - ELASTOMERIC BEARING PAD C
Scale: 3" = 1'-0"



TYPE II - ELASTOMERIC BEARING PAD D
Scale: 3" = 1'-0"

Note: Elastomeric Bearing Pads shall be incidental to precast girders

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

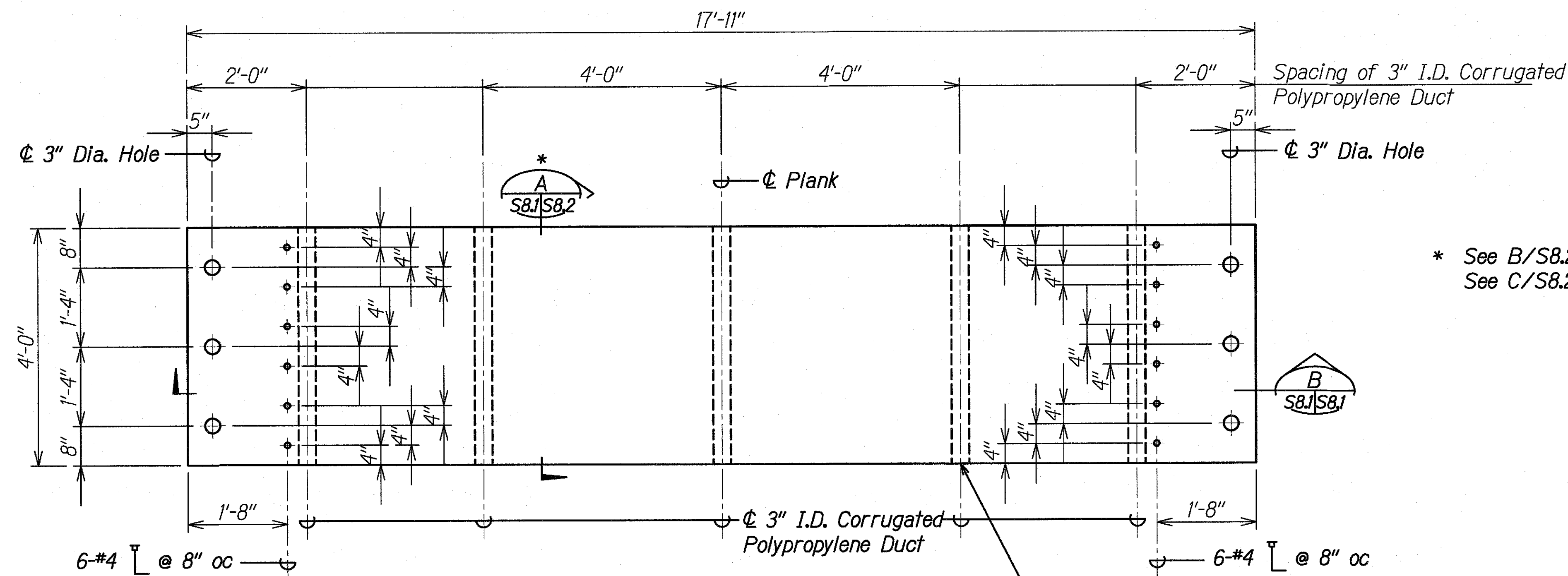
**TYPICAL BEARING PAD
PLANS AND SECTIONS**

KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)

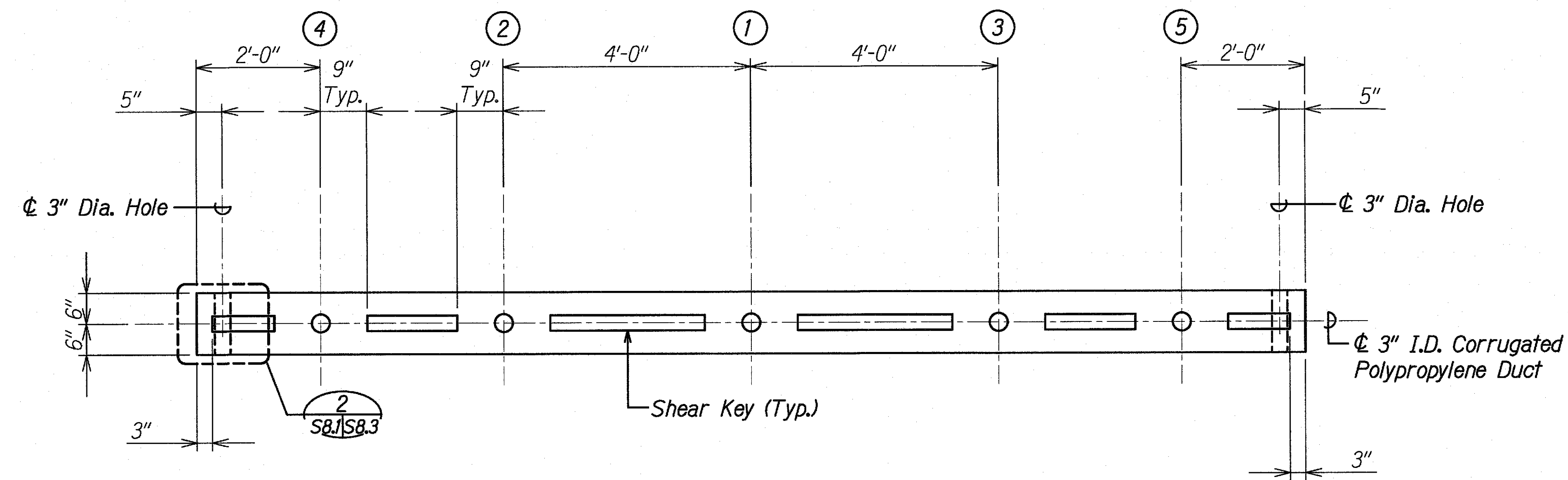
Scale: As Noted Date: Oct. 2018

SHEET No. **S7.3** OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	41	67



PLAN
Scale: 3/4" = 1'-0"
A
S8.1/S8.2



SECTION
Scale: 3/4" = 1'-0"
B
S8.1/S8.1

Note: ① Indicates Sequence of PT Stressing.

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

DRAWING NAME: 7A100 ONGOING/00 CB PROJECTS/18-008.2-3W BRIDGES KSB/01 CAD/03-XX-21 WAIPA AS-BUILT/3WB-SB001 PLANK.DWG PLOT TIME: 03-15-21, 2:44 PM

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

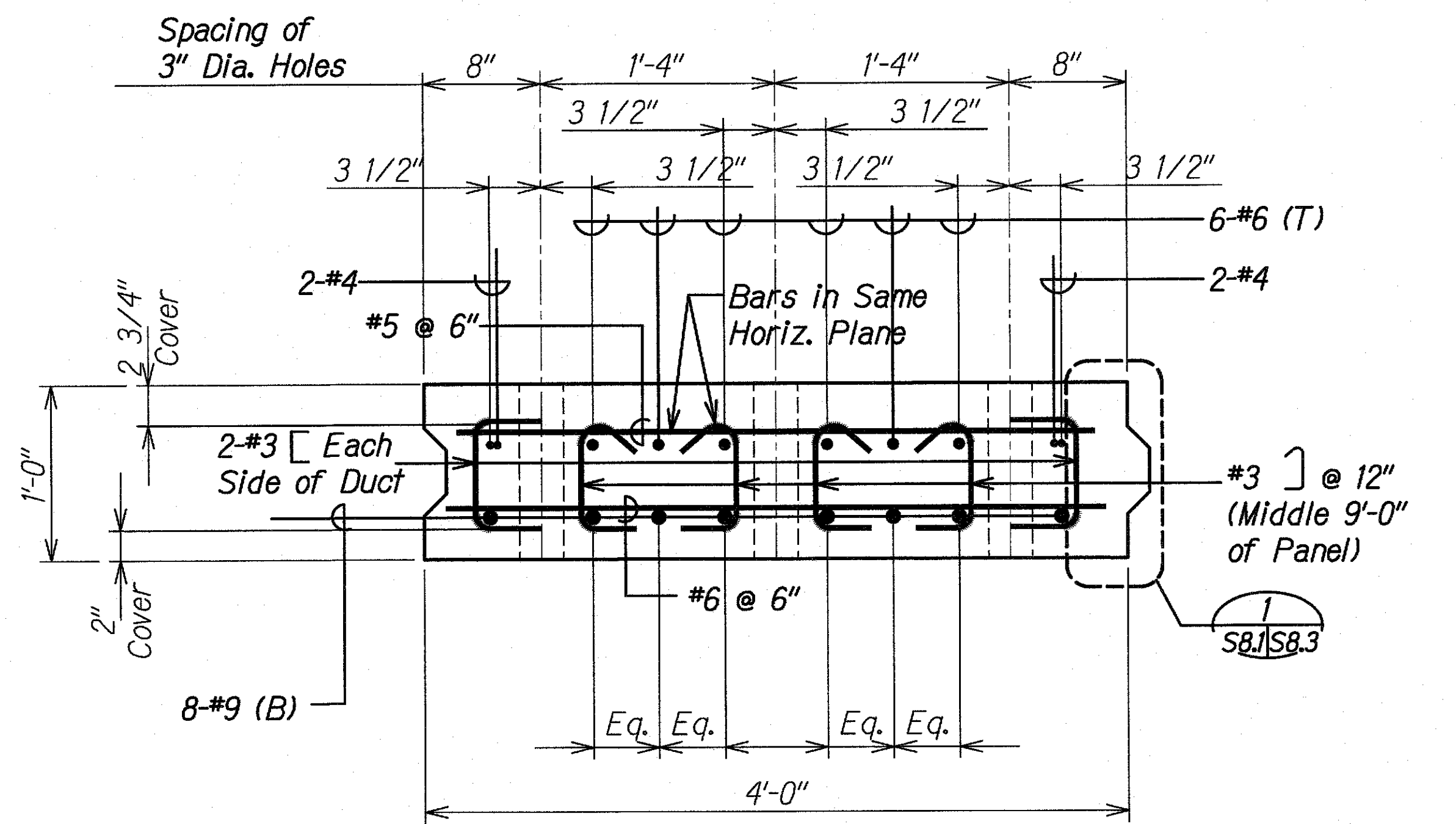
PRECAST PLANK DETAILS

KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)

Scale: As Noted
Date: Oct. 2018

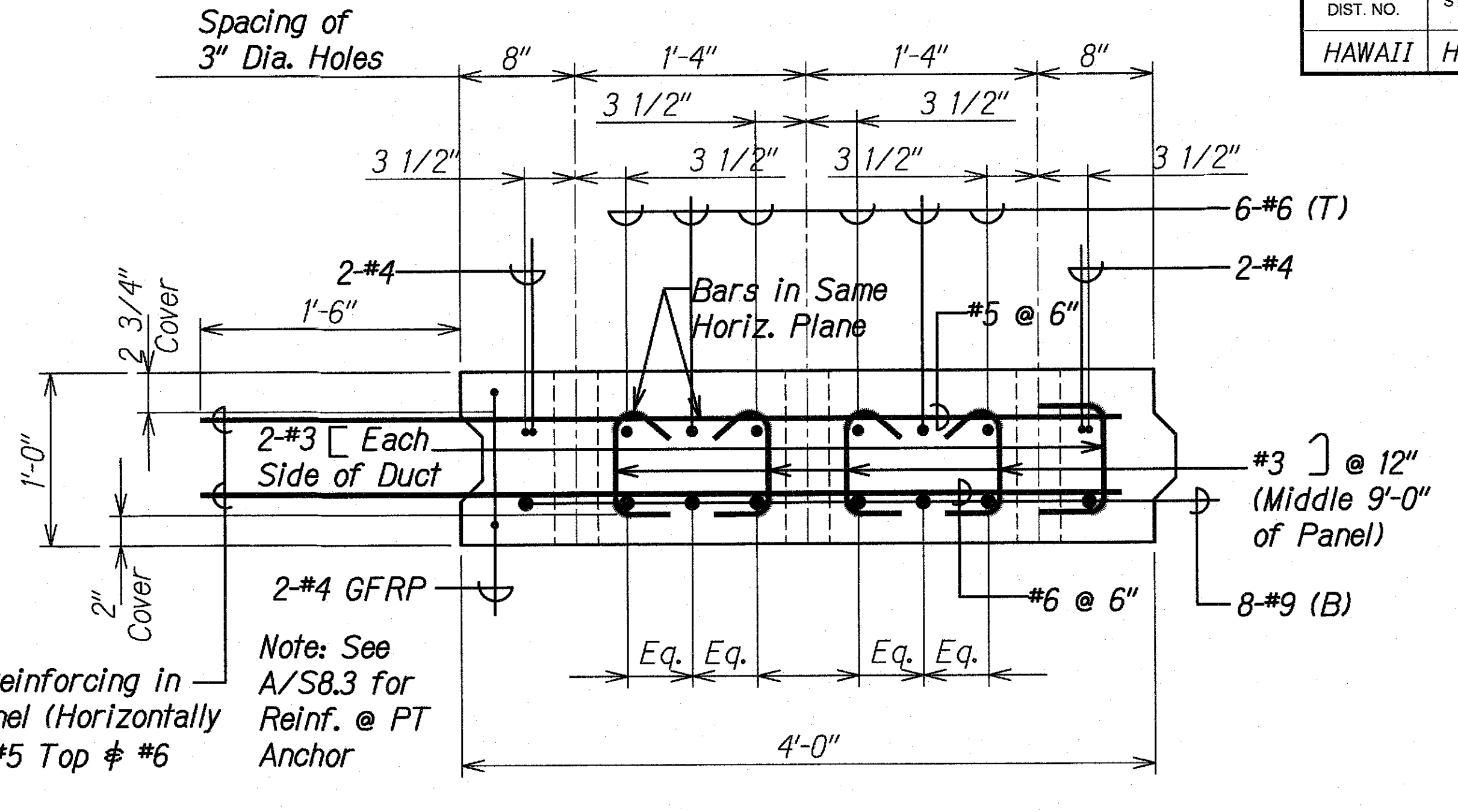
SHEET No. **S8.1** OF **4** SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	42	67



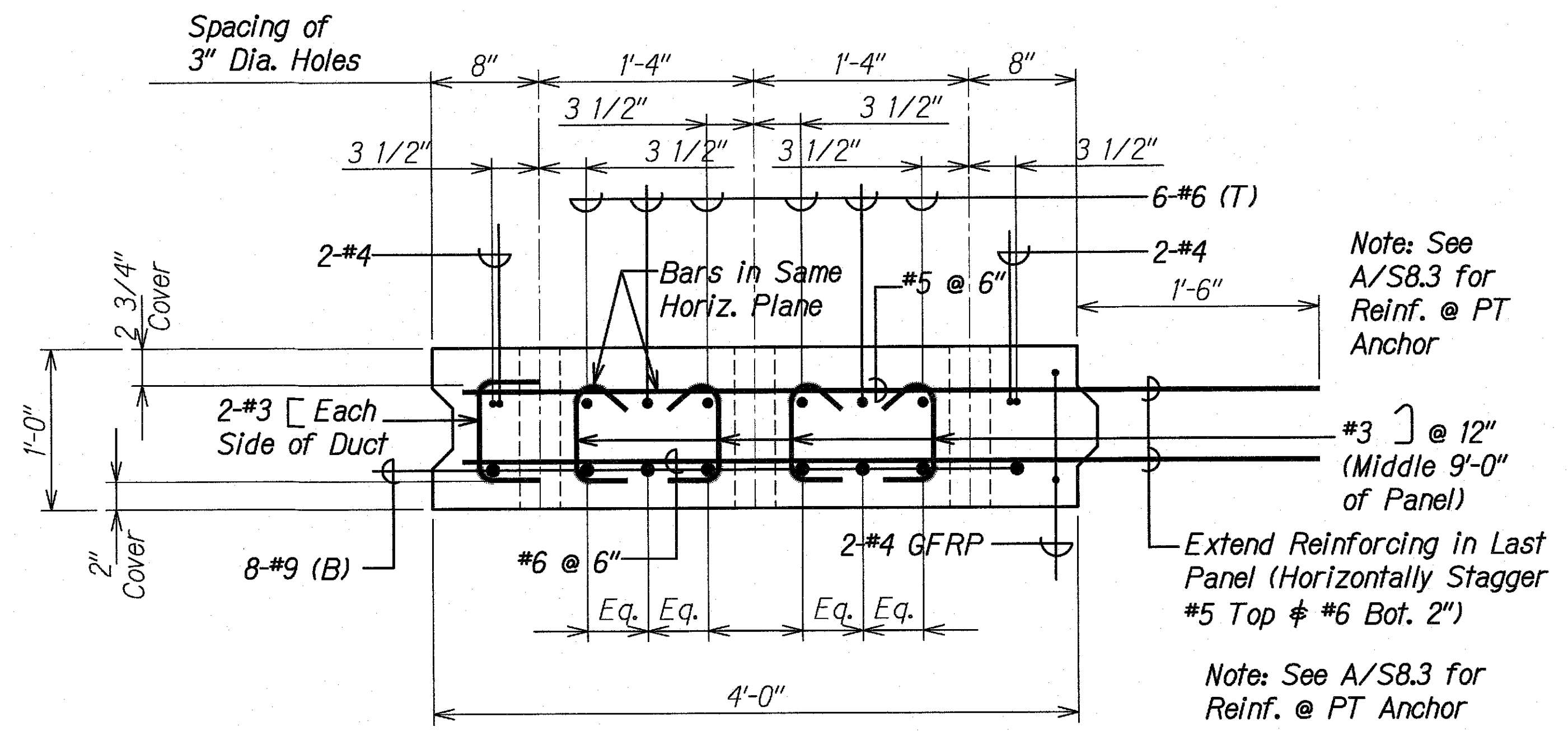
SECTION AT TYPICAL PLANK (PLANK I)
47 EACH
Scale: 1 1/2" = 1'-0"

A
S8.1 | S8.2



SECTION AT FIRST PLANK (PLANK E1)
2 EACH
Scale: 1 1/2" = 1'-0"

B
S8.1 | S8.2



SECTION AT LAST PLANK (PLANK E2)
2 EACH
Scale: 1 1/2" = 1'-0"

C
S8.1 | S8.2

ORIGINAL PLAN	DATE
DRAWN BY	
TRACED BY	
DESIGNED BY	
CHECKED BY	
NO.	

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-0062-3W BRIDGES ASE\01 CAD\03-XX-21 WAIPA AS-BUILT\3W9-S0801 PLANK.DWG PLOT TIME: 03-15-21, 2:45 PM

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PRECAST PLANK DETAILS

KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)
Scale: As Noted Date: Oct. 2018
SHEET No. S8.2 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	44	67

PRECAST NOTES

1. Precast planks shall be match-cast.
2. See sheets S1.2 and S2.2 for first planks to be installed.
3. Place SDI 3.0" Segment Coupler Welded Housing on each end of the ducts in the first installed.
4. Provide broom finish to the top surface of precast plank.
5. Use Sinak Lithium Cure or approved equal at a coverage rate of no less than 400 sq. ft. per gallon and cover with polyethylene film (ASTM C171). Encapsulate the curing concrete with the film to maintain a high humidity environment.
6. Concrete shall attain a minimum compressive strength of 4,000 psi and aged 2 days prior to lifting.
7. Ducts shall be covered to prevent debris and water from entering.

POST-TENSIONING NOTES

1. Post-tensioning threaded bars shall be 1 3/8" diameter ASTM A722 Grade 150. Post-tensioning ducts shall be Schwager Davis, Inc.'s Corrugated Polypropylene ducts.
2. After final Post-tensioning, ducts shall be pressure grouted with Masterflow 1205 cable grout, Sika Grout 300 PT, or approved equal. Ducts shall have grouting vents at anchorages.
3. Ducts shall be secured to prevent misalignment or leakage during concrete pour.
4. A minimum Compressive Strength of 6000 psi shall be attained in the precast planks before the application 100% of post-tensioning.
5. Prevent ducts, at all times, from getting plugged or damaged.
6. The post-tensioning design assumptions are as follows:

Curve Friction Coefficient 0.30
Wobble Friction Coefficient 0.0002/ft.
Anchor Set 1/16"
7. For temporary post-tensioning, required force per threaded bar after initial stressing losses shall be 21^K.
8. For final post-tensioning, required force per threaded bar after initial stressing losses shall be 166^K.
9. Post-tensioning shall comply with PTI Specification for grouting of Post-Tensioned Structures and AASHTO LRFD Bridge Construction Specifications including the latest interim revisions, unless otherwise noted.
10. Prior to grouting and within two days after complete installation of bars, a corrosion inhibitor amine carboxylate powder (Cortec MCI-309) shall be blown into the ducts.
11. The minimum force in Prestressing Steel shall not be less than shown in Notes 7 and 8 above.

The force in the Prestressing Steel shall be considered as the smaller of the two values as determined by the measured elongation and the gage pressure. If the difference in stress as obtained by the measured elongation and the measured gage pressure exceeds 5 percent of the required prestressing force, the stressing process shall be terminated and shall not resume until the Contractor submits data indicating the cause of such difference and makes corrections, approved by the Engineer, to rectify such difference.
12. See sheet S8.1 for Stressing Sequence.
13. See sheet S11.1 for Construction Sequence.

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

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-008.2-3W BRIDGES ASB\01 CAD\03-XX-21\WAPA AS-BUILT\3WB-S0801-PLAN.DWG PLOT TIME: 03-15-21, 2:45 PM

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

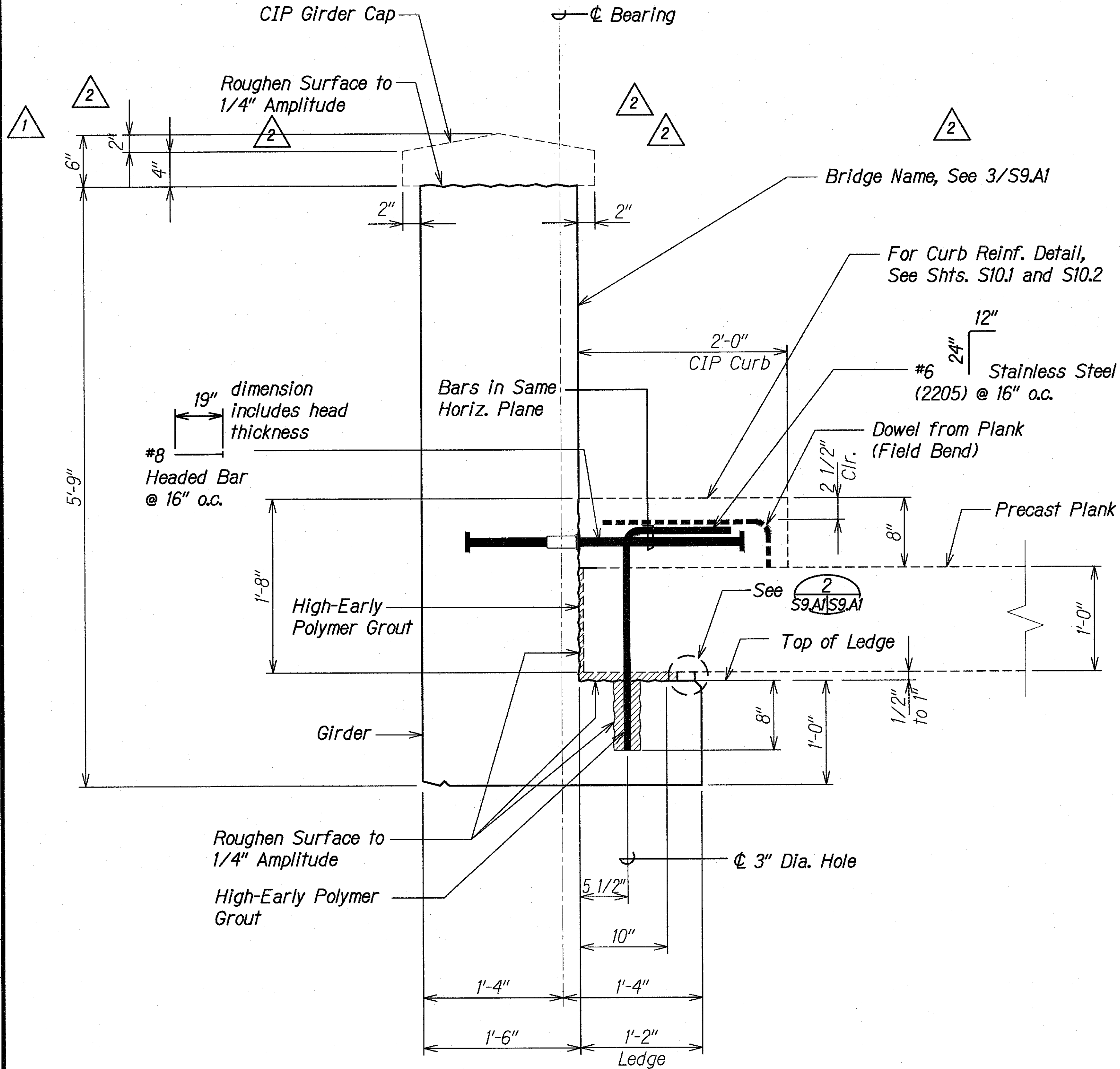
PRECAST AND POST-TENSIONING
NOTES

KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)

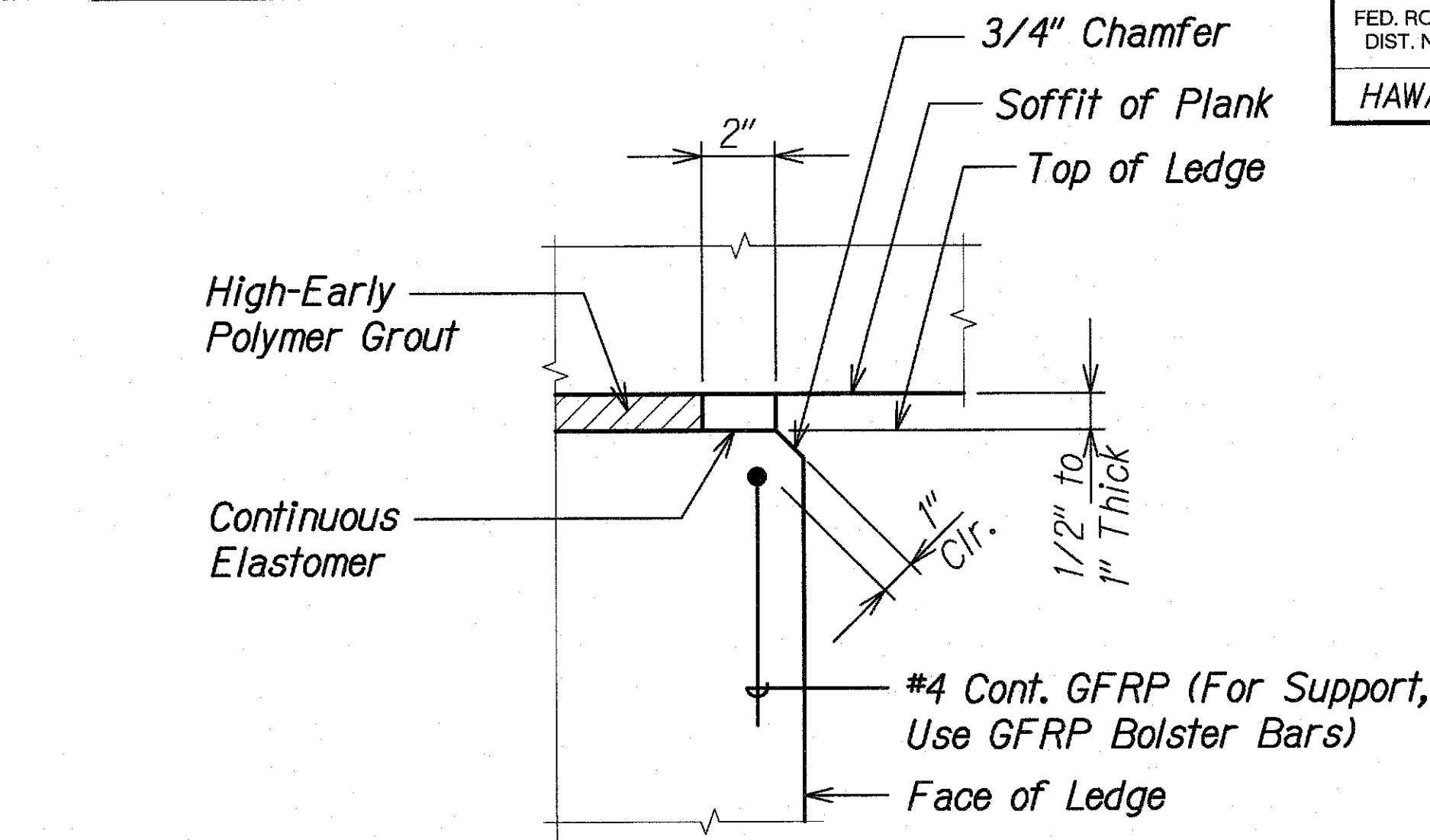
Scale: As Noted Date: Oct. 2018

SHEET No. S8.4 OF 4 SHEETS

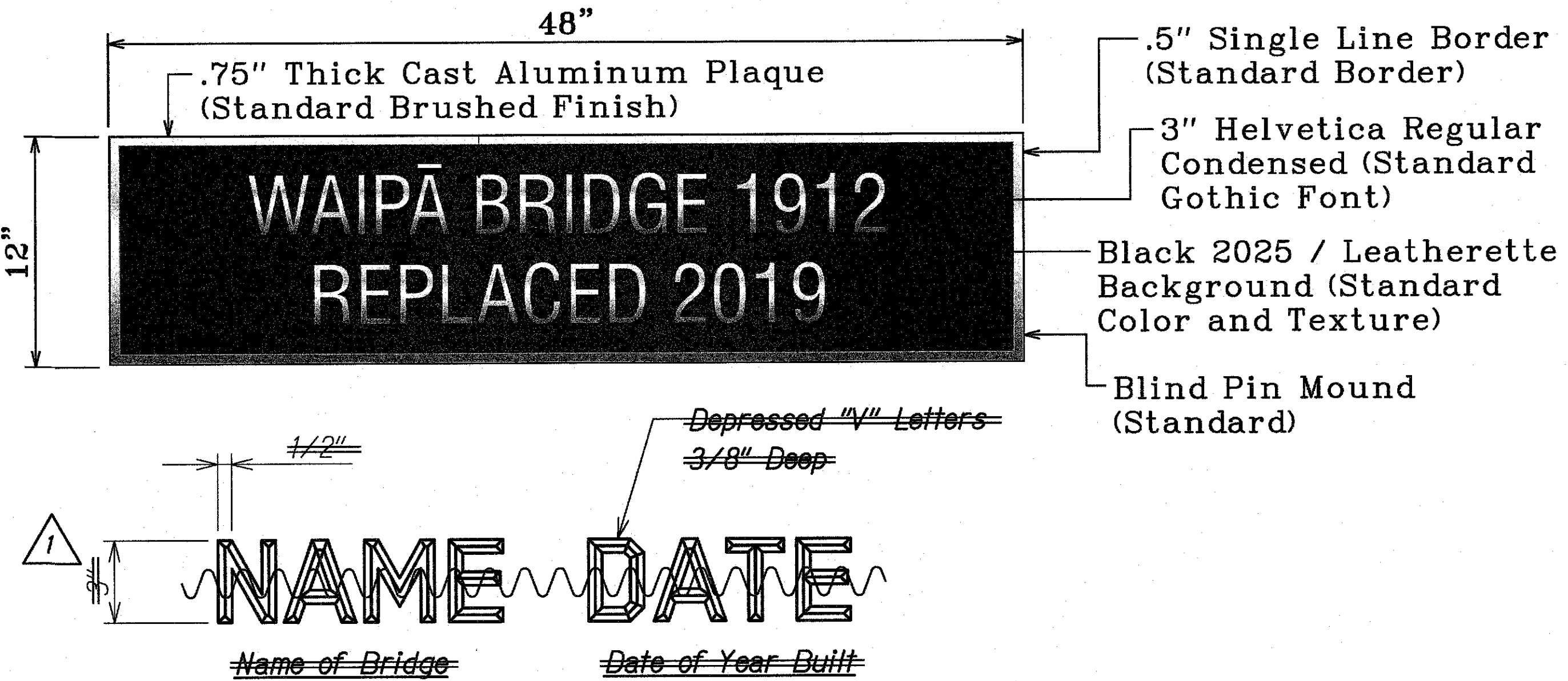
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	45	67



TYPICAL GIRDER TO PLANK
AND CURB CONNECTION DETAIL 1
Scale: 1 1/2" = 1'-0" S9.A2 | S9.A1



DETAIL - TOP CORNER OF LEDGE 2
Scale: 3" = 1'-0" S9.A1 | S9.A1



- NOTES:**
- Exact details and spacing of letter and figures and location shall be as directed by the Engineer. ~~Gothic letters and figures approximating the dimensions shown will be acceptable if approved by the Engineer.~~
 - Name & date shall be place on the trailing end post on each side of each bridge.
 - Unless otherwise directed by the Engineer, the name shall be:
WAIPĀ BRIDGE 1912
REPLACED ~~2018~~ 2019

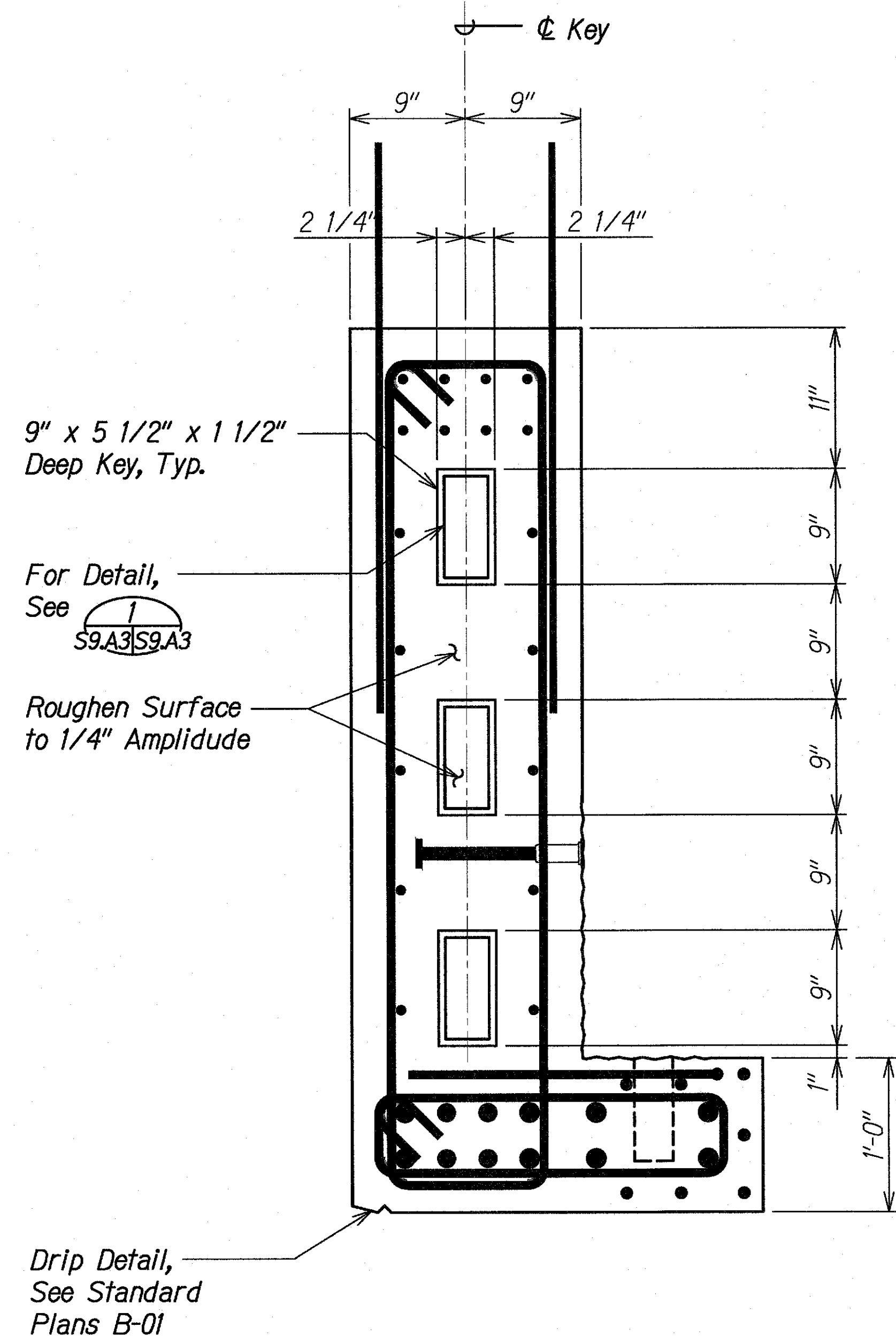
LEGEND FOR AS-BUILT POSTINGS	
	Squiggly line for as-built deletion
	Double line for as-built deletion
Roadway	Text for as-built posting

TYPICAL DETAILS OF LETTERS &
FIGURES AT CONCRETE RAILING 3
Not to Scale S9.A1 | S9.A1

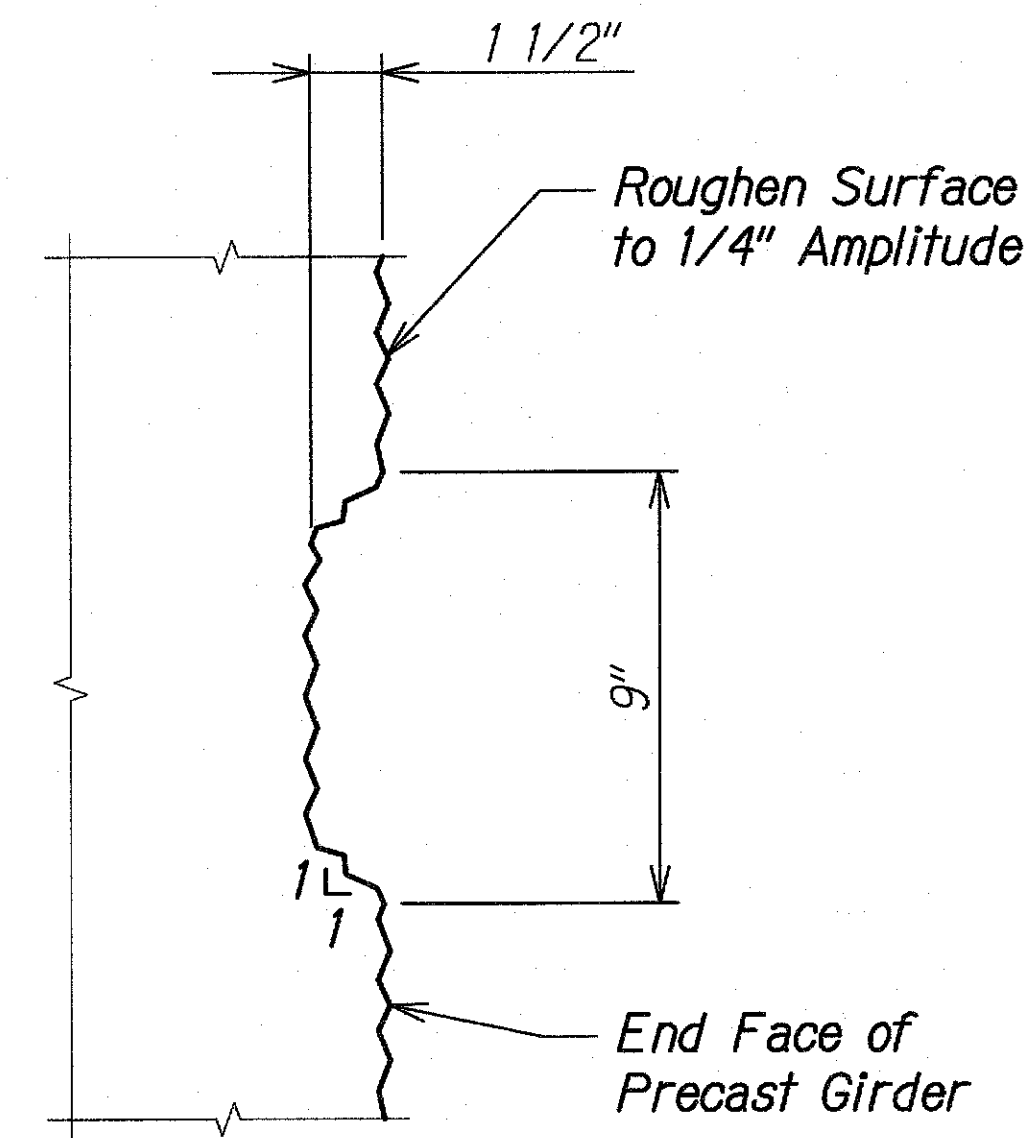
7/17/19	2	Revised Cap
3/19/19	1	Revised Dimension and Lettering Height
DATE		REVISION

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
TYPICAL GIRDER DETAILS	
KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP At Various Locations April 2018, Rte. 560 Fed. Aid Proj. No. ER-19(007)	
Scale: As Noted	Date: Oct. 2018
SHEET No. S9.A1 OF 6 SHEETS	

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	47	67



DETAIL - END OF PRECAST GIRDER
SEGMENT AT CIP CLOSURE POUR
Scale: 1 1/2" = 1'-0" A
S9.A3 | S9.A3



DETAIL - KEY 1
S9.A3 | S9.A3
Scale: 3" = 1'-0"

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

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-0082-3W BRIDGES\ASB\01 CAD\13-XX-21 WAIPA AS-BUILT\3WB-S0900A DELTA4 DELTA2 ORDER DTLS.DWG PLOT TIME: 03-15-21 3:00 PM

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

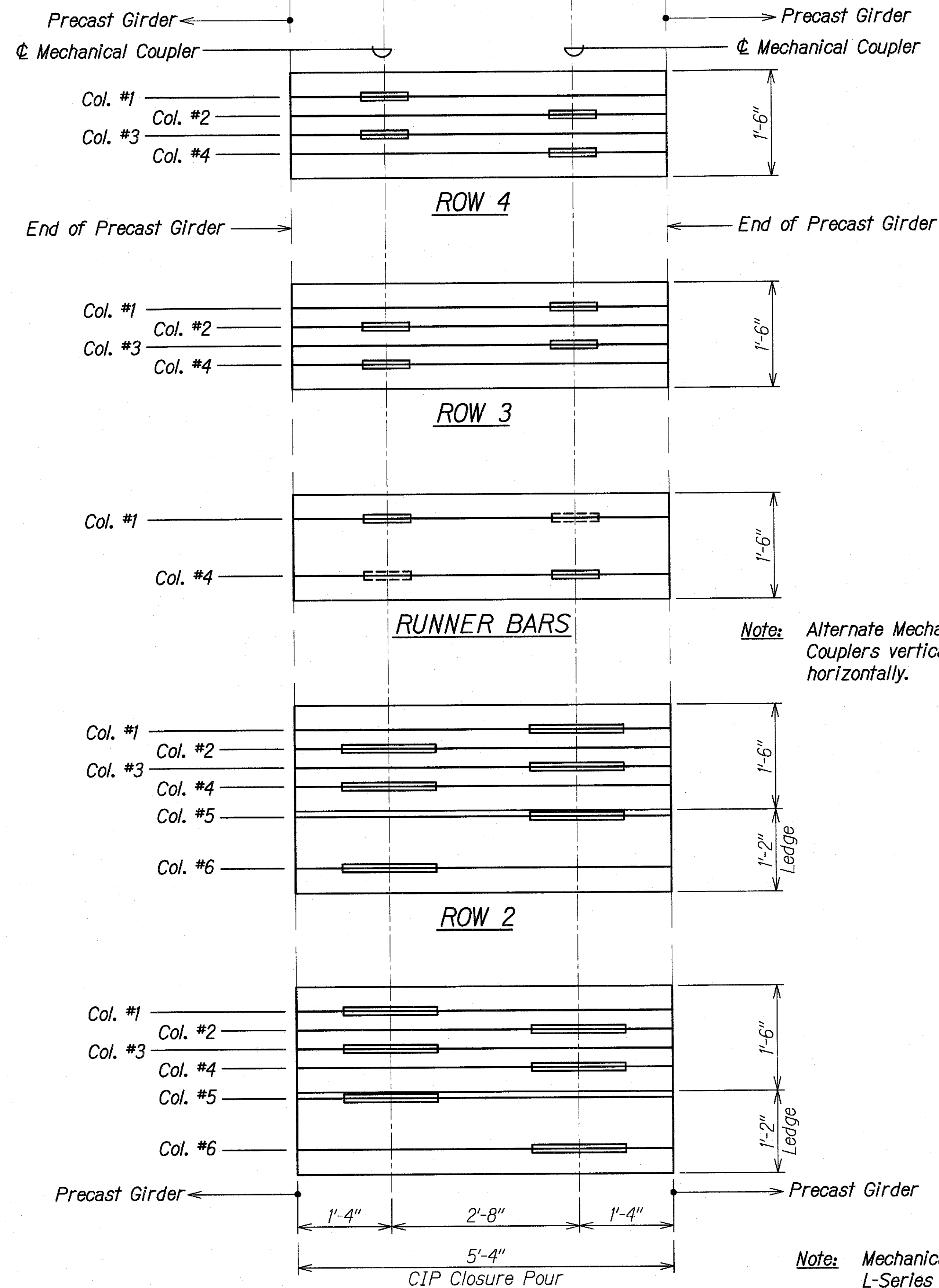
**TYPICAL GIRDER SECTION
AND DETAIL**

KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)

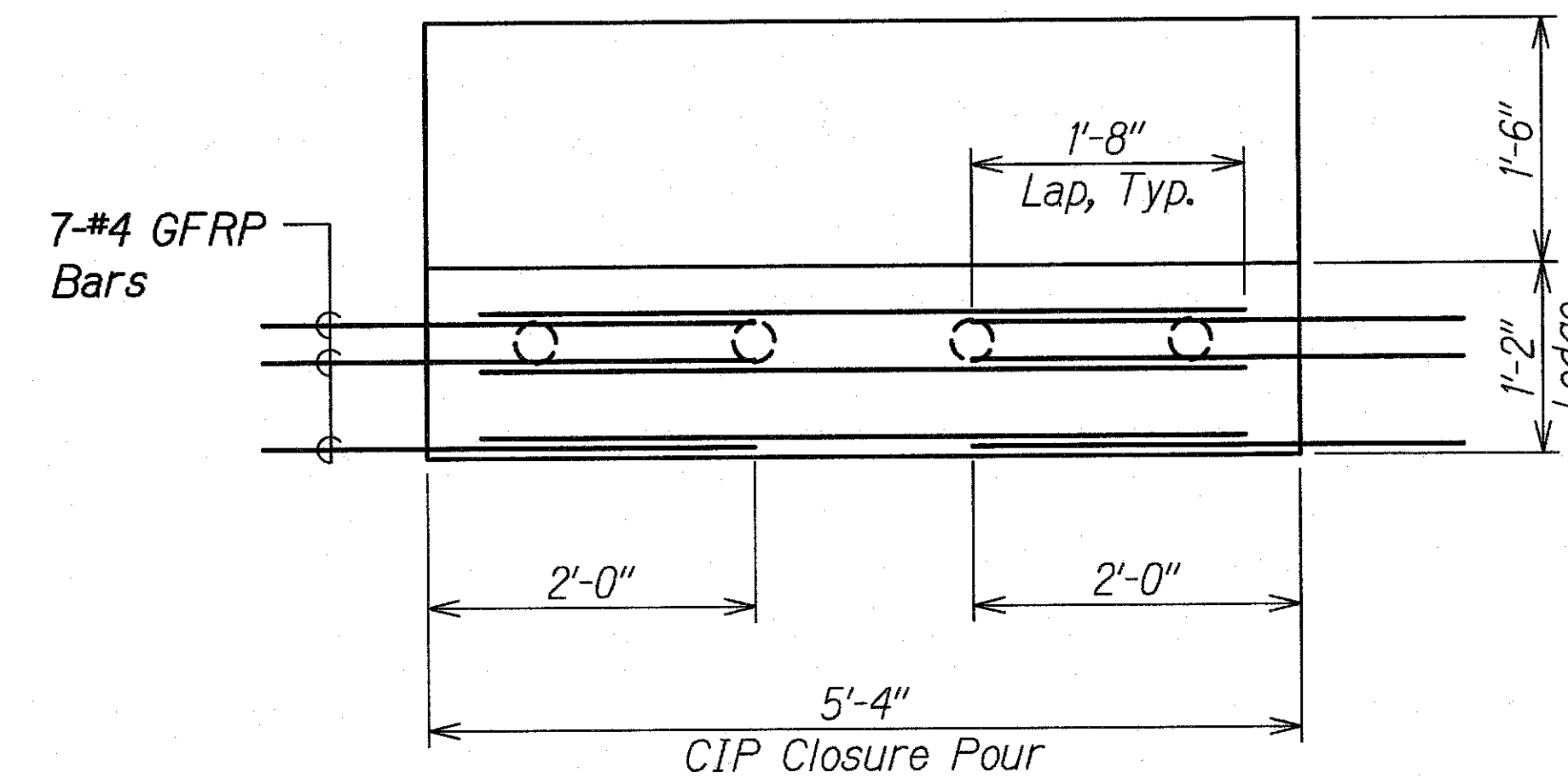
Scale: As Noted Date: Oct. 2018

SHEET No. S9.A3 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	48	67



Note: Alternate Mechanical Couplers vertically and horizontally.



GFRP BAR SPLICE AT CLOSURE POUR WITHIN GIRDER LEDGE

Scale: 1" = 1'-0"

B
S9.A4 | S9.A4

STEEL REINFORCING COUPLING PLAN AT GIRDER CIP CLOSURE POUR (TYPICAL)

Scale: 1" = 1'-0"

A
S9.A4 | S9.A4

Note: Mechanical Coupler shall be Bar Lock L-Series (D250L) by Dayton Superior.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

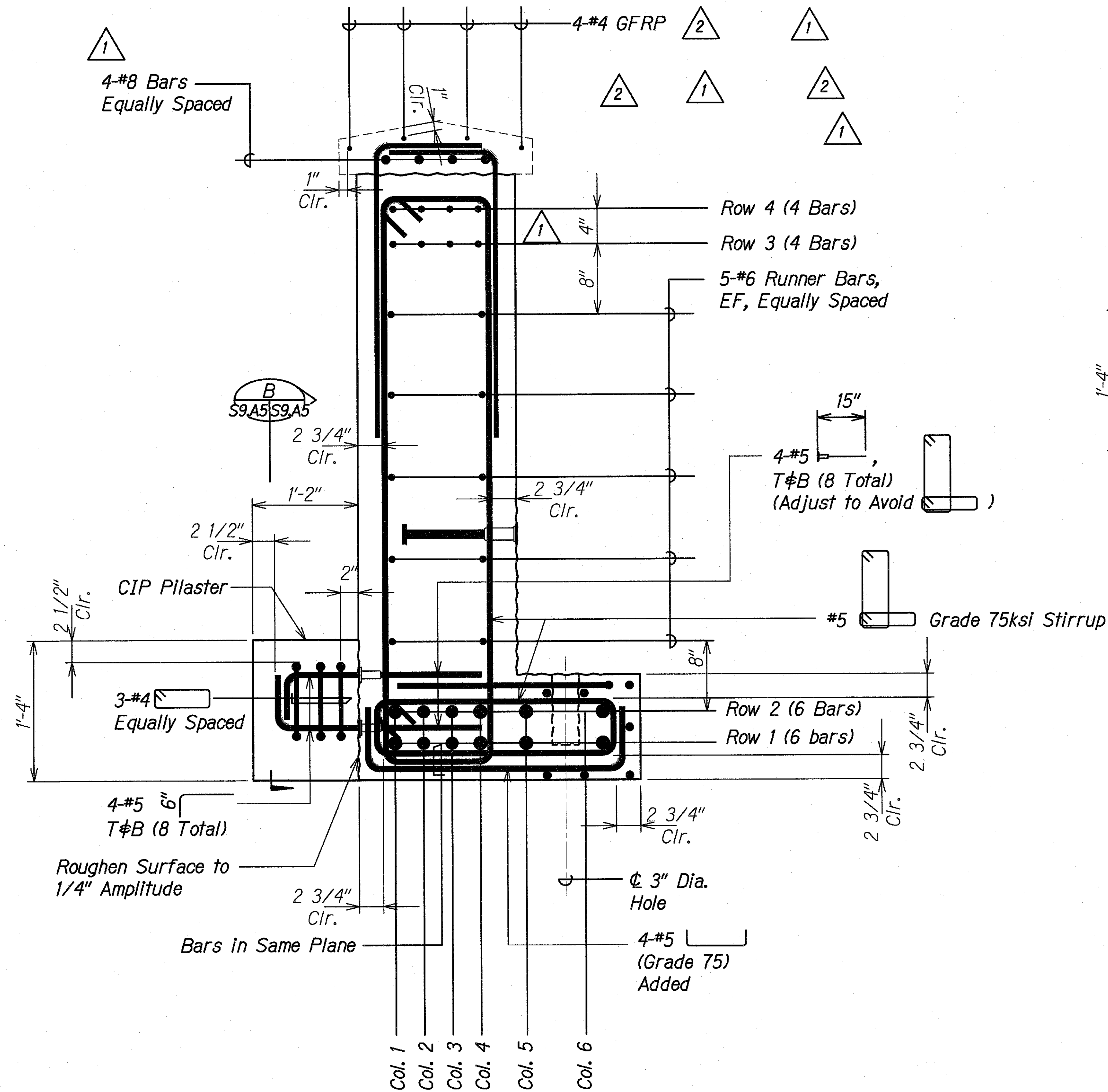
REINF. COUPLING PLAN AT CIP CLOSURE POUR

KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)

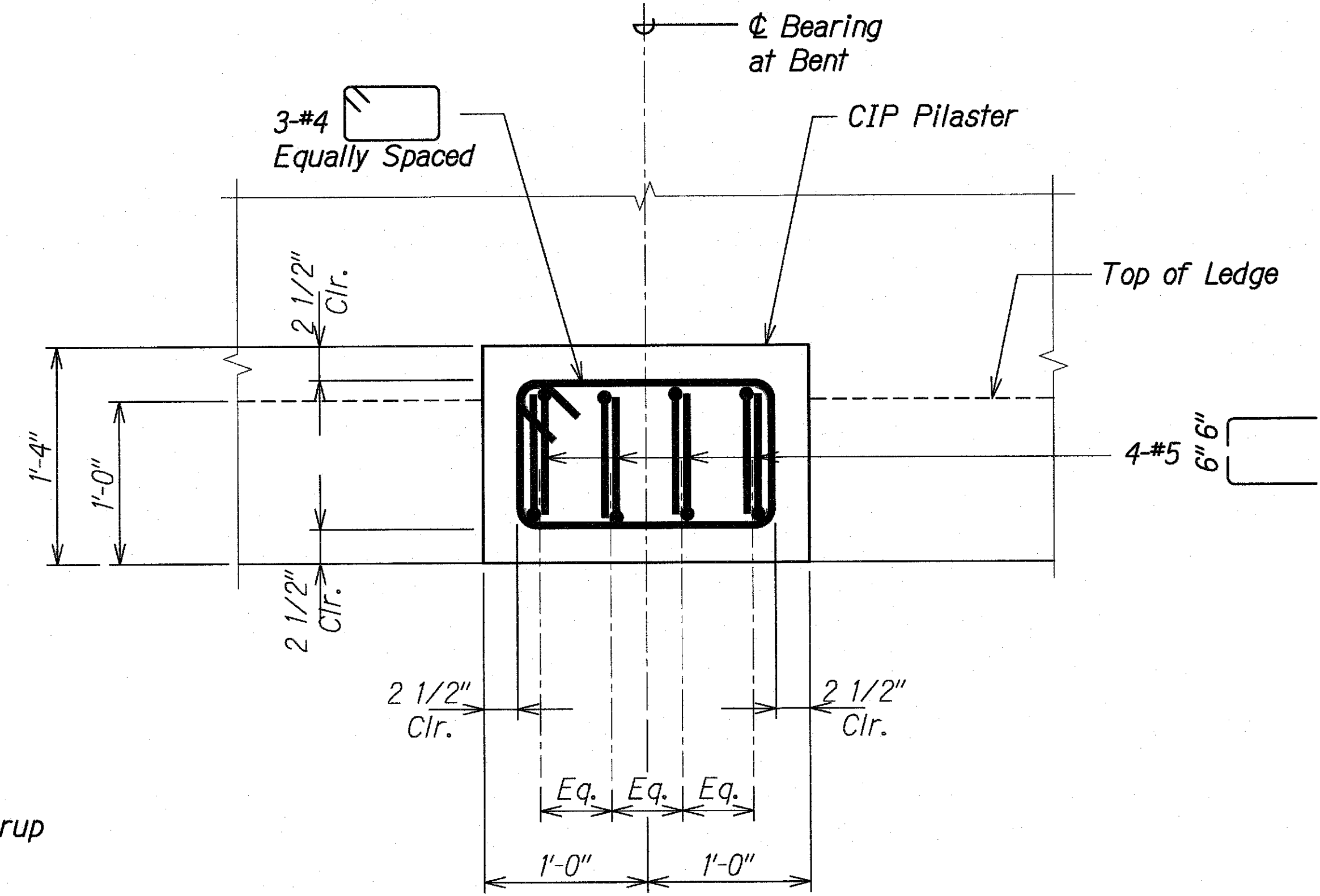
Scale: As Noted Date: Oct. 2018

SHEET No. S9.A4 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	49	67



SECTION - PILASTER AT CL BEARING AT BENT
Scale: 1 1/2" = 1'-0"



ELEVATION (PARTIAL GIRDER AT CL BEARING AT BENT)
Scale: 1 1/2" = 1'-0"

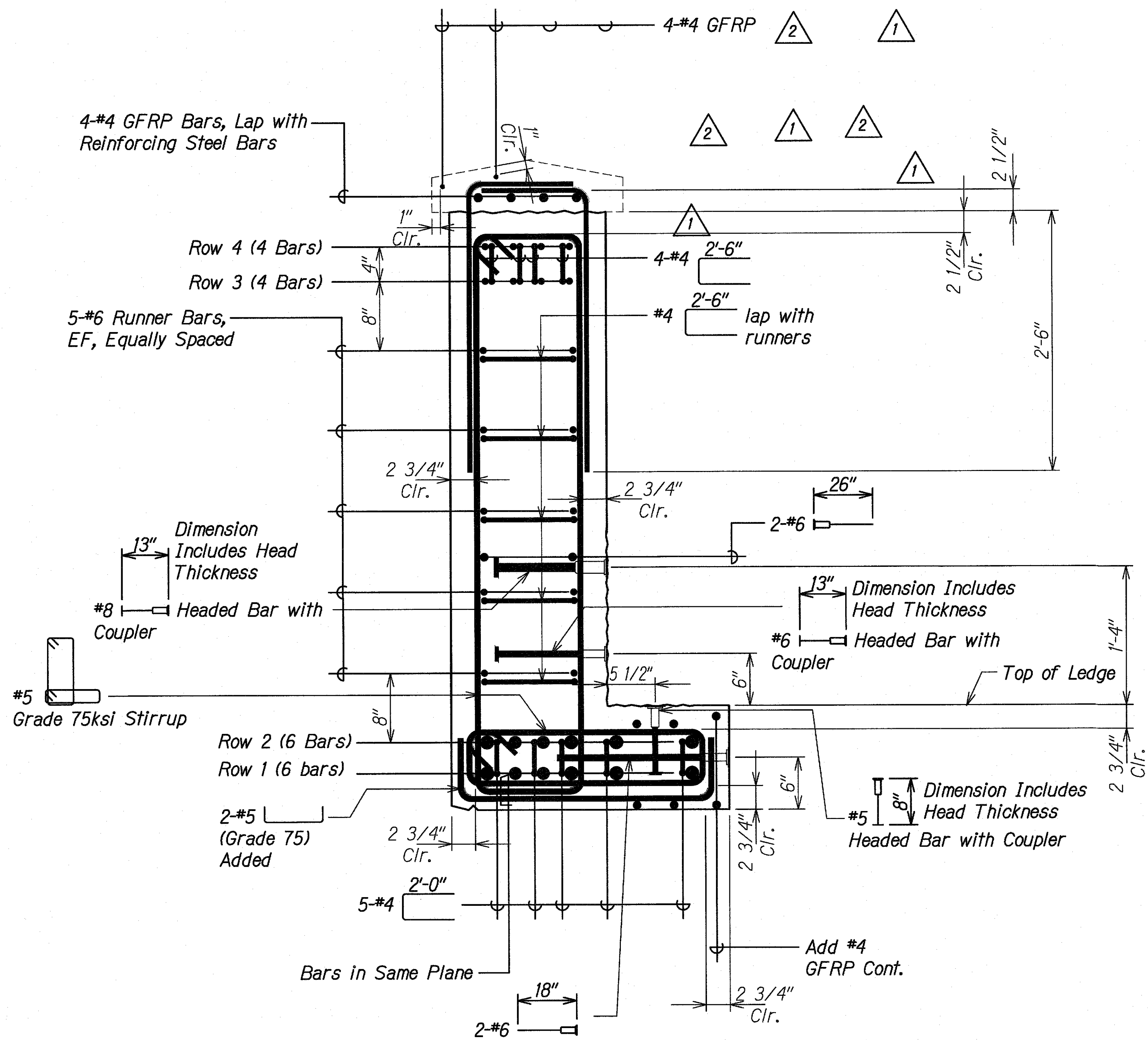
ORIGINAL PLAN	DATE
NOTED BY	
QUANTITIES BY	
CHECKED BY	

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-0062-3W BRIDGES ASB\01 CAD\03-XX-21 WAPA AS-BUILT\3WB-SB0900A DELTA DELTA GIRDER DTLS.DWG PLOT TIME: 03-15-21 3:01 PM

7/17/19	2	Revised Cap
3/19/19	1	Added Sections
DATE		REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**TYPICAL GIRDER SECTION
AT BENT**
KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)
Scale: As Noted Date: Oct. 2018
SHEET No. S9A5 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	50	67



SECTION - GIRDER AT ABUTMENT A
 Scale: 1 1/2" = 1'-0"
 S9.C3 S9.A6

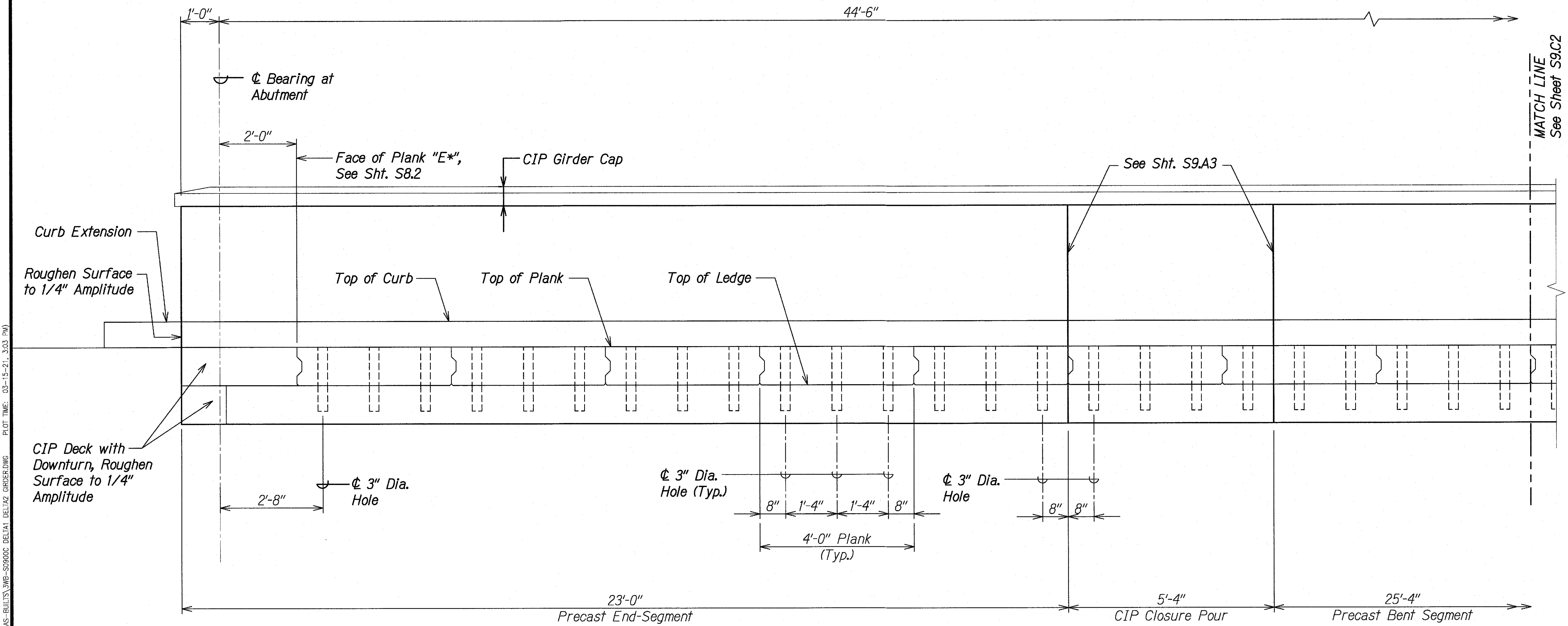
DATE	REVISION
7/17/19	2 Revised Cap
3/19/19	1 Added Section

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**TYPICAL GIRDER SECTION
AT ABUTMENT**
 KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
 At Various Locations April 2018, Rte. 560
 Fed. Aid Proj. No. ER-19(007)
 Scale: As Noted Date: Oct. 2018
 SHEET No. S9.A6 OF 6 SHEETS

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

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-0082-3W BRIDGES\458\01 CAD\03-XX-21\WAPA AS-BUILT\SWB-S0900A DETAIL DELTA GIRDER DTLS.DWG PLOT TIME: 03-15-21 3:01 PM

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	51	67



ORIGINAL PLAN	DATE
NOTE BOOK	
DESIGNED BY	
CHECKED BY	

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-0082-3W BRIDGES ASB\01 CAD\03-XX-21 WAIPA AS-BUILT\3WB-S0900C DELTA DELTA2 ORDERING PLOT TIME: 03-15-21 3:03 PM)

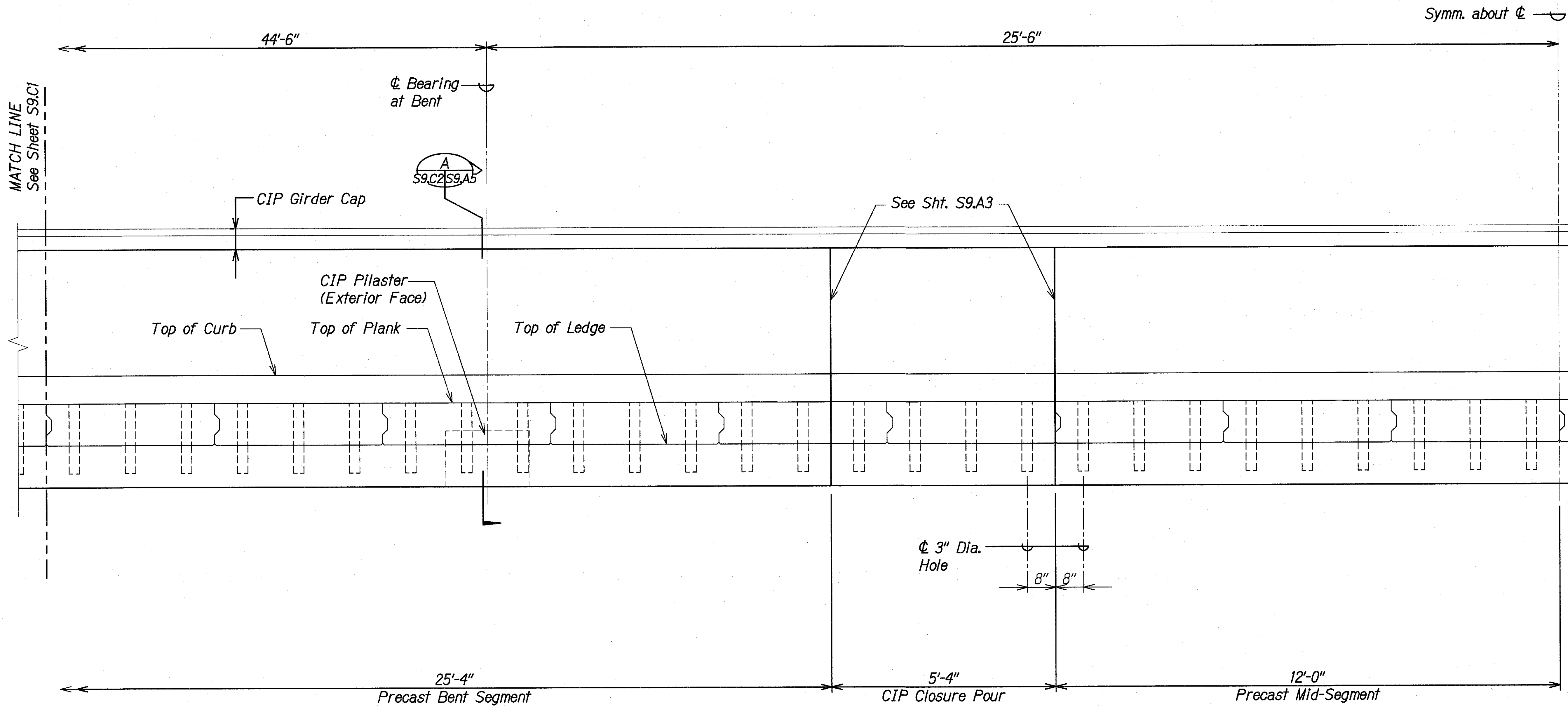
Note: See Sheet S9.A1.

WAIPA STREAM BRIDGE
GIRDER ELEVATION (FORM LAYOUT) A
Scale: 3/4" = 1'-0" S9.C1 S9.C1

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WAIPA STREAM BRIDGE
GIRDER ELEVATION (FORM LAYOUT)
KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)
Scale: As Noted Date: Oct. 2018
SHEET No. S9.C1 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	52	67



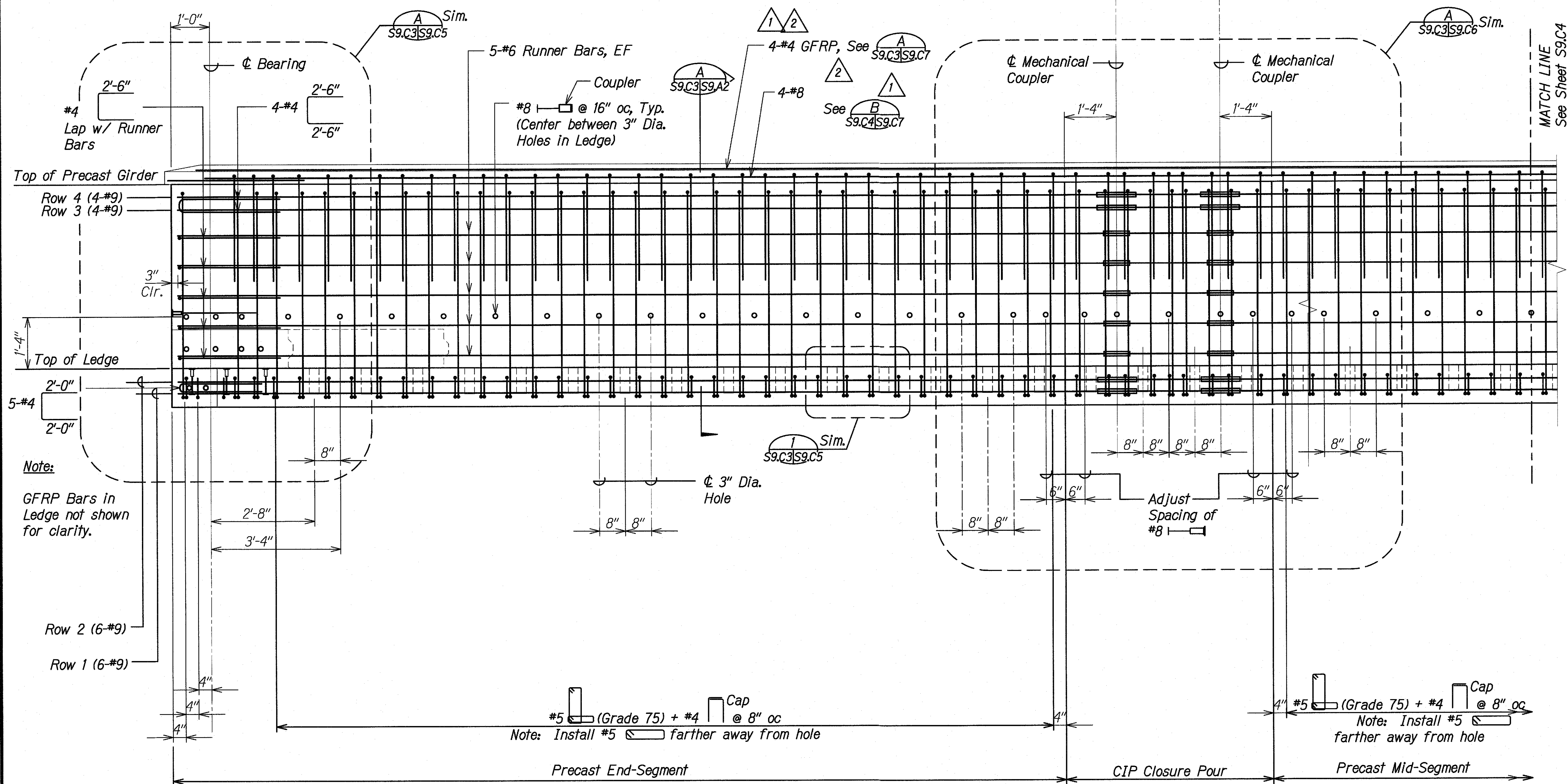
DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-0082-3W BRIDGES\ASB\01 CAD\03-XX-21 WAIPA AS-BUILT\3WB-S0900C DELTA DELTAZ GRD ELEV.DWG PLOT TIME: 03-15-21 3:04 PM)

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

Note: See Sheet S9.A1.

WAIPA STREAM BRIDGE
GIRDER ELEVATION (FORM LAYOUT) A
Scale: 3/4" = 1'-0" S9.C2 | S9.C2

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
WAIPA STREAM BRIDGE
GIRDER ELEVATION (FORM LAYOUT)
 KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
 At Various Locations April 2018, Rte. 560
 Fed. Aid Proj. No. ER-19(007)
 Scale: As Noted Date: Oct. 2018
 SHEET No. S9.C2 OF 7 SHEETS



Note:
GFRP Bars in Ledge not shown for clarity.

Note:
Mechanical Coupler shall be Bar Lock L-Series (D250L) by Dayton Superior)

GIRDER ELEVATION (REINFORCING)
WAIPA STREAM BRIDGE
Scale: 3/4" = 1'-0"

DATE	REVISION
7/17/19	2 Revised Cap Reinforcing
3/19/19	1 Revised Notes

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WAIPA STREAM BRIDGE
GIRDER ELEVATION (REINF. LAYOUT)

KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)

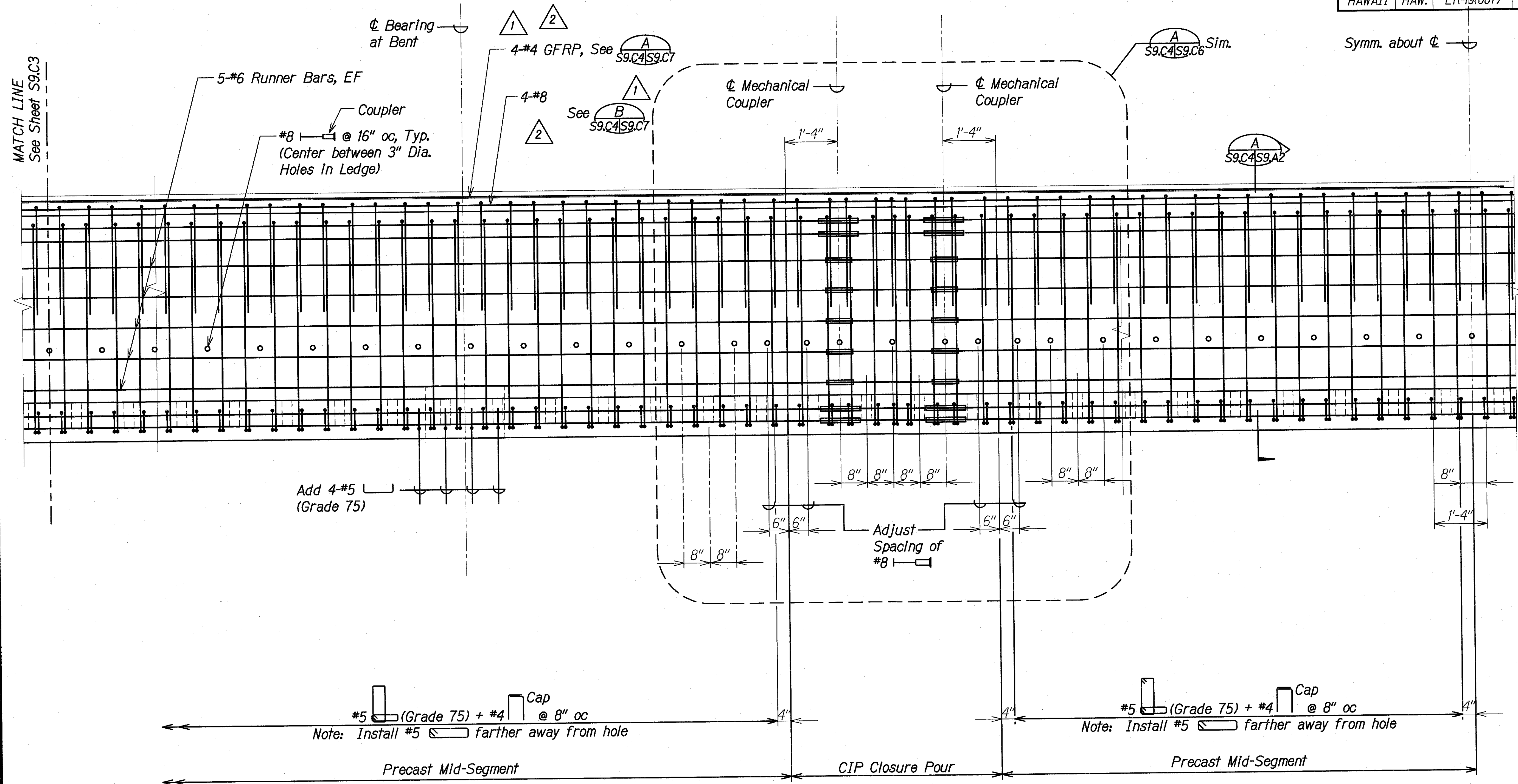
Scale: As Noted Date: Oct. 2018

SHEET No. S9.C3 OF 7 SHEETS

DATE	____
SURVEY PLOTTED BY	____
DRAWN BY	____
DESIGNED BY	____
CHECKED BY	____

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-0082-3W BRIDGES ASB\01 CAD\03-XX-21 WAIPA AS-BUILT\3WB-SB000C DELTA1 DELTA2 ORDER.DWG PLOT TIME: 03-15-21 3:04 PM

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	54	67



Note:

Mechanical Coupler shall be Bar Lock L-Series (D250L) by Dayton Superior

GIRDER ELEVATION (REINFORCING) WAIPA STREAM BRIDGE

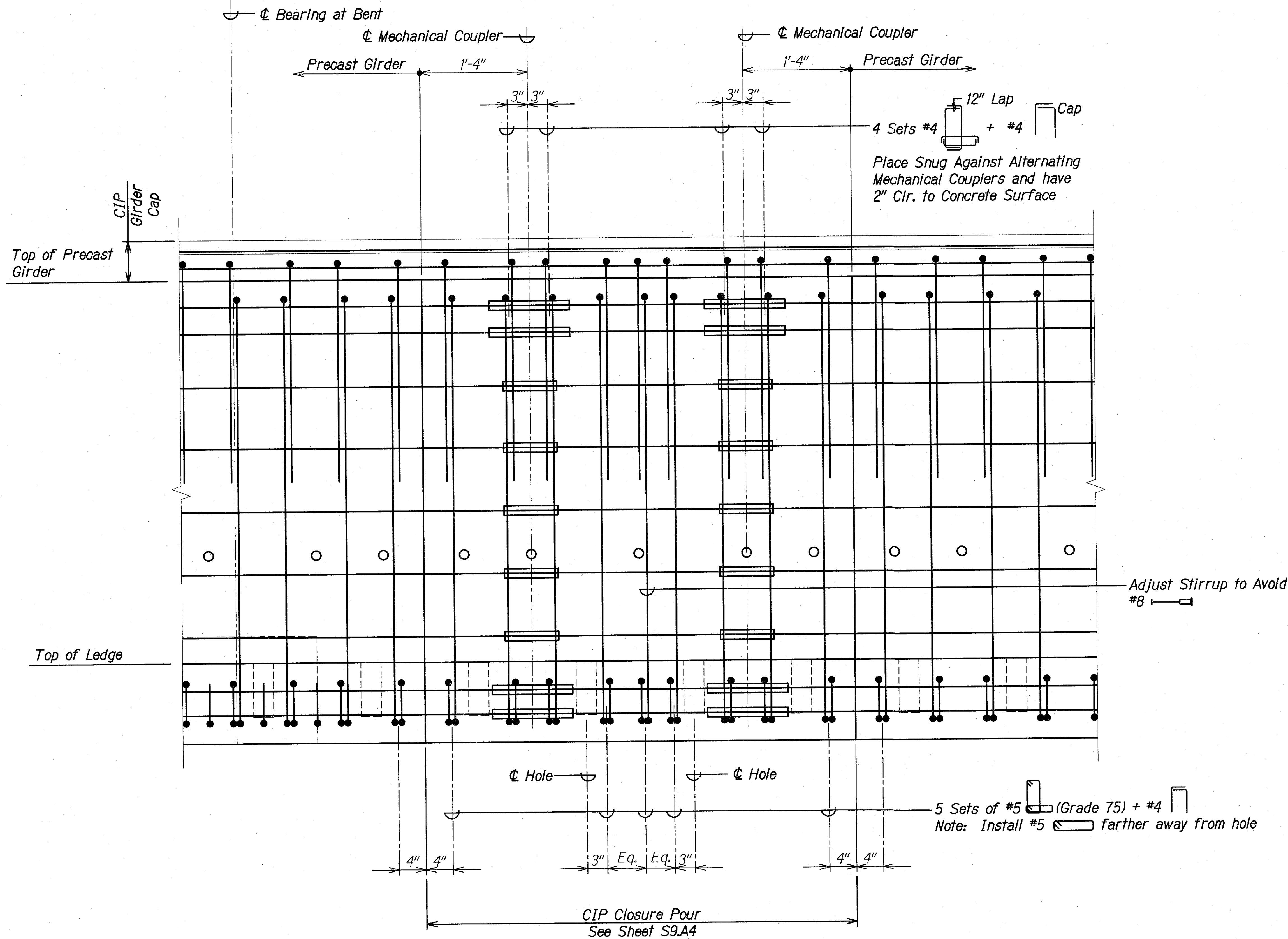
Scale: 3/4" = 1'-0"

A
S9.C4 S9.C4

7/17/19	2	Revised Cap Reinforcing
3/19/19	1	Revised Notes
DATE	REVISION	

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
WAIPA STREAM BRIDGE	
GIRDER ELEVATION (REINF. LAYOUT)	
KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP At Various Locations April 2018, Rte. 560 Fed. Aid Proj. No. ER-19(007)	
Scale: As Noted	Date: Oct. 2018
SHEET No. S9.C4 OF 7 SHEETS	

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	56	67



SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
CHECKED BY	
QUANTITIES BY	
NO.	

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-0082-3W BRIDGES ASB\01 CAD\03-XX-21 WAIPA AS-BUILD\SW-S0900C DEL\A1 DEL\A2 GIRDER.DWG PLOT TIME: 03-15-21, 3:06 PM

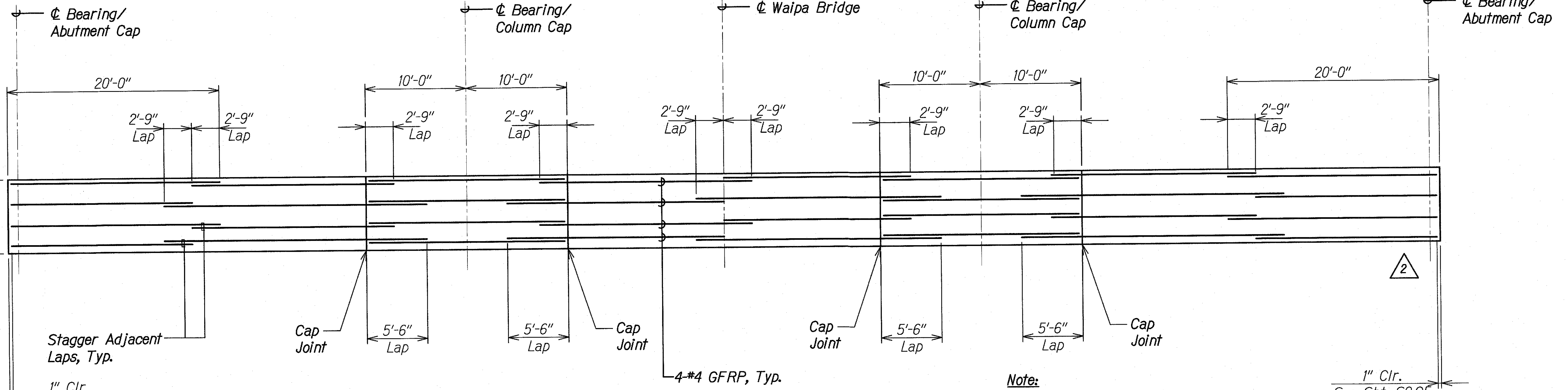
GIRDER ELEVATION AT CIP CLOSURE POUR
 Scale: 1 1/2" = 1'-0"
 S9.C4 S9.C3 S9.C6

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
WAIPA STREAM BRIDGE
GIRDER ELEVATION (REINF. LAYOUT)
 KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
 At Various Locations April 2018, Rte. 560
 Fed. Aid Proj. No. ER-19(007)
 Scale: As Noted Date: Oct. 2018
 SHEET No. S9.C6 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	57	67

2

1'-10"



Stagger Adjacent Laps, Typ.

1" Clr.
See Sht. S9.C5
for Detail

GIRDER CAP TOP REINFORCING PLAN

Not to Scale

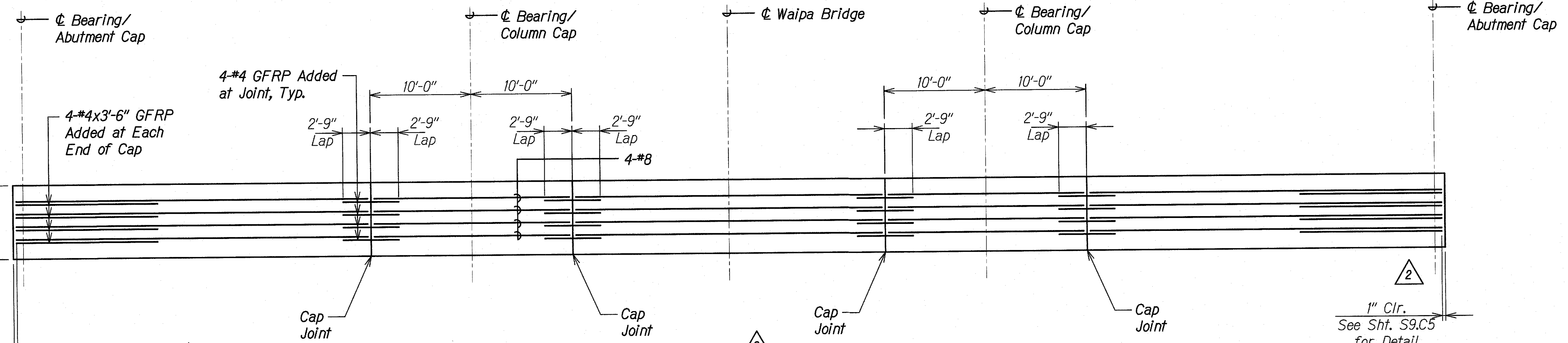
Note:

Layout is based on 20'-0" available rebar lengths.

1" Clr.
See Sht. S9.C5
for Detail

2

1'-10"



4-#4x3'-6" GFRP
Added at Each
End of Cap

4-#4 GFRP Added
at Joint, Typ.

1" Clr.
See Sht. S9.C5
for Detail

GIRDER CAP BOTTOM REINFORCING PLAN

Not to Scale

B

S9.C3 S9.C7

S9.C4

1" Clr.
See Sht. S9.C5
for Detail

DATE	DATE
DRAWN BY	DESIGNED BY
CHECKED BY	APPROVED BY
NOTED BY	REVISIONS
NO.	

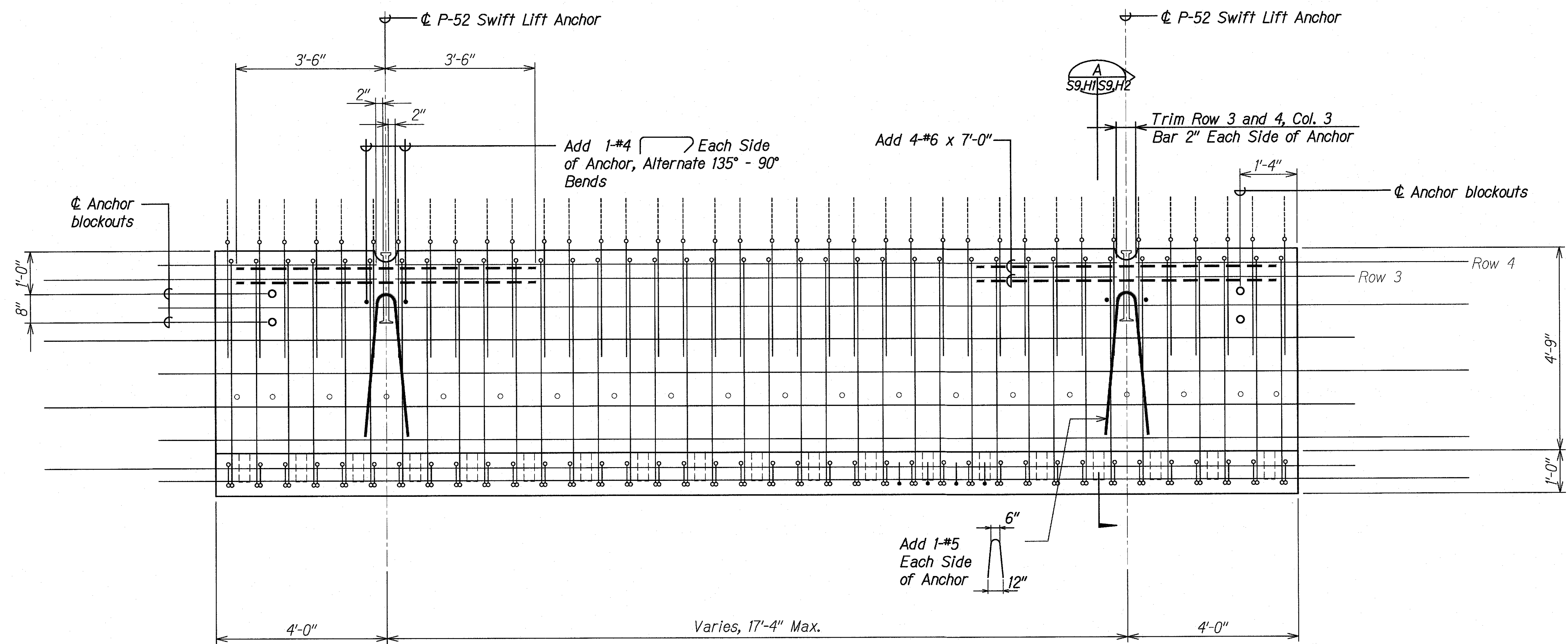
DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-0082-3W BRIDGES ASR\01 CAD\03-XX-21 WAIPA AS-BUILT\3W-S900C7 DELTA1 DELTA2 WAIPA GIRDER CAP.DWG PLOT TIME: 03-15-21, 3:08 PM

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WAIPA STREAM BRIDGE
GIRDER CAP REINFORCING PLAN
KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)
Scale: As Noted Date: Oct. 2018
SHEET No. S9.C7 OF 7 SHEETS

DATE	REVISION
7/17/19	2 Narrowed Girder Cap
3/19/19	1 Revised Reinforcing

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	57S-1	67



GIRDER LIFTING ELEVATION A
Scale: 3/4" = 1'-0" S9.H1 | S9.H1

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

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-0082-3W BRIDGES\ASB\01 CAD\03-XX-21 WAIPA AS-BUILTS\3WB-S0900H1 GIRDER LIFTING SEE WAIPA SK0401.DWG PLOT TIME: 03-15-21, 3:10 PM

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

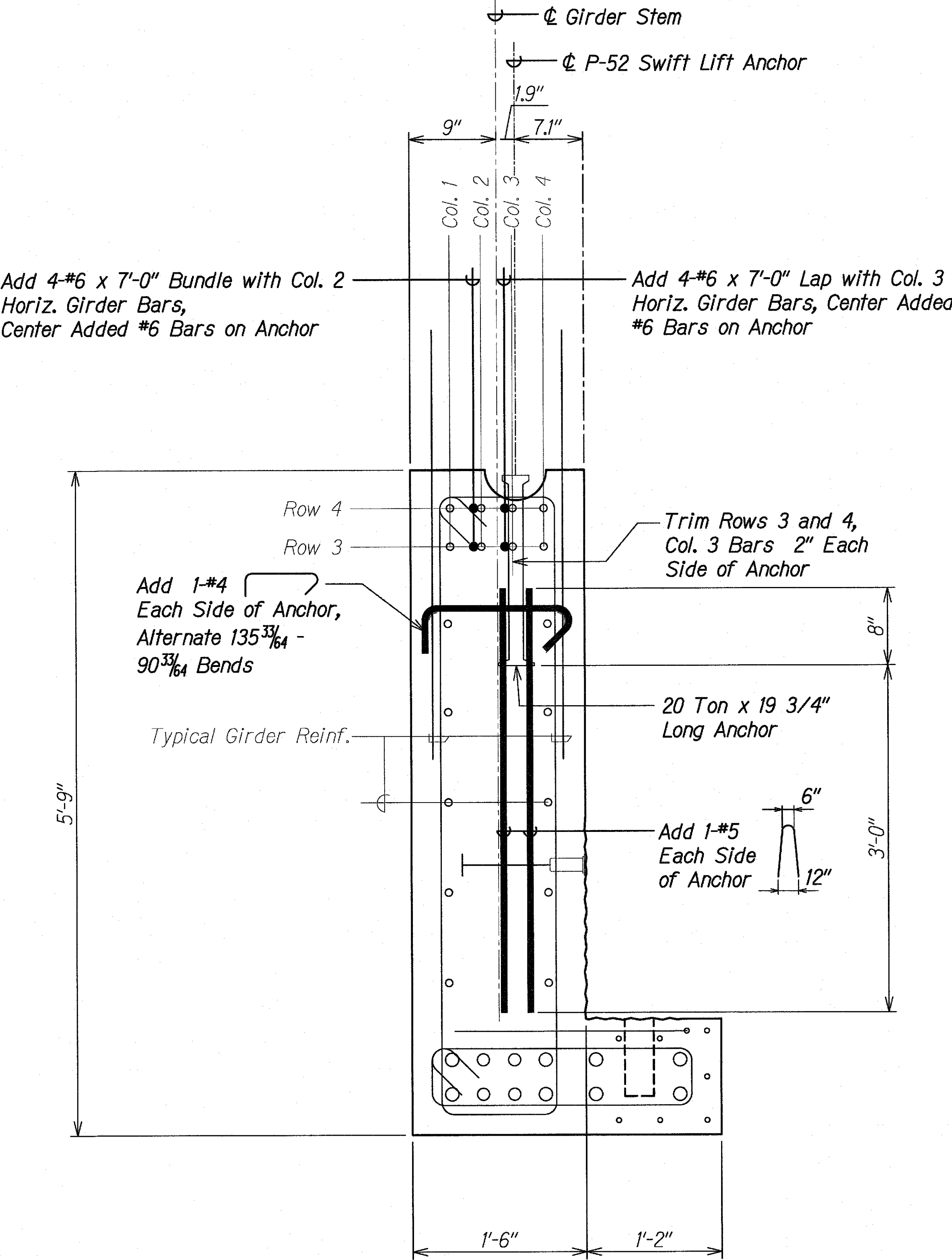
GIRDER LIFTING ELEVATION

KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)

Scale: As Noted Date: Sept. 27, 2018

SHEET No. **S9.H1** OF **4** SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	57S-2	67



GIRDER LIFTING SECTION
 Scale: 1 1/2" = 1'-0" A
 S9.H2 | S9.H2

ORIGINAL PLAN	DATE
NOTE BOOK	
No.	

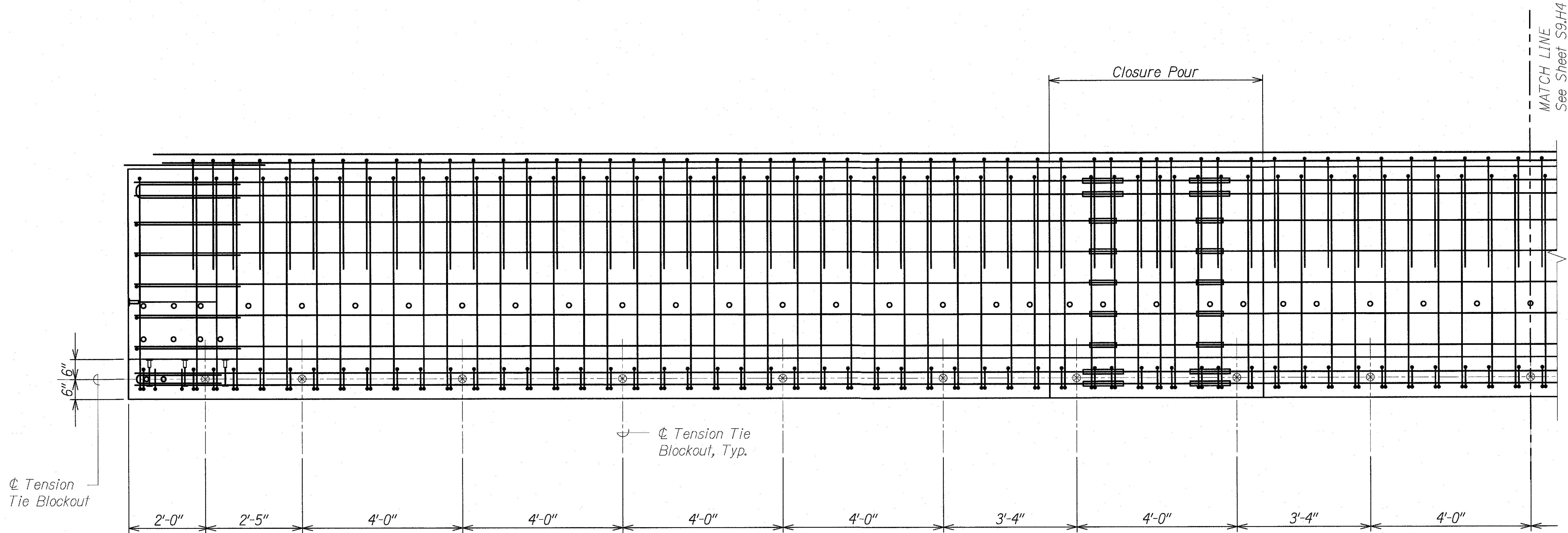
DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-DOB2-3W BRIDGES\ASB\01 CAD\03-XX-21 WAIPA AS-BUILT\3WB-S0800H1 GIRDER LIFTING SEE WAIPA SK0401.DWG PLOT TIME: 03-15-21, 3:11 PM

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GIRDER LIFTING SECTION
KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)
Scale: As Noted Date: Sept. 27, 2018

SHEET No. S9.H2 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	57S-3	67



GIRDER ELEVATION (TENSION TIE)
WAIPA STREAM BRIDGE

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

A
S9.H3 | S9.H3

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WAIPA STREAM BRIDGE
GIRDER ELEVATION (REINF. LAYOUT)

KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)

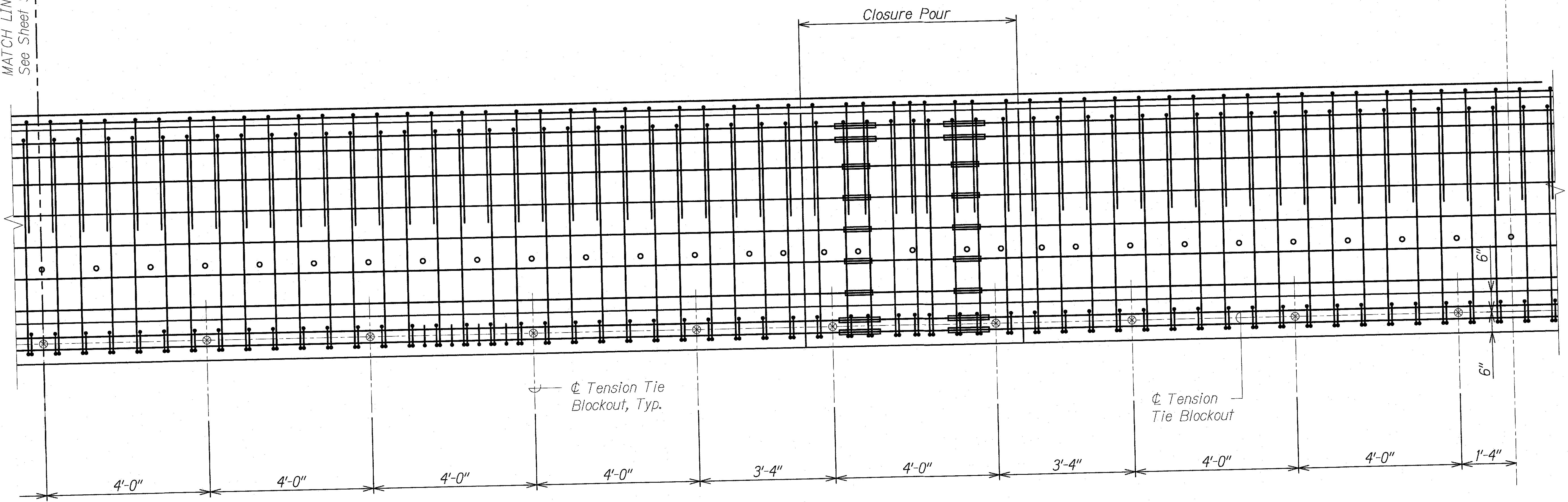
Scale: As Noted Date: Oct. 2018

SHEET No. S9.H3 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	57S-4	67

Symm. about ϕ —

MATCH LINE
See Sheet S9.H3



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

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-0082-3W BRIDGES ASB\01 CAD\03-XY-21 WAIPA AS-BUILT\3-WB-S0900H3-TENSION TIES SEE WAIPA SK0403.DWG PLOT TIME: 03-15-21, 3:14 PM

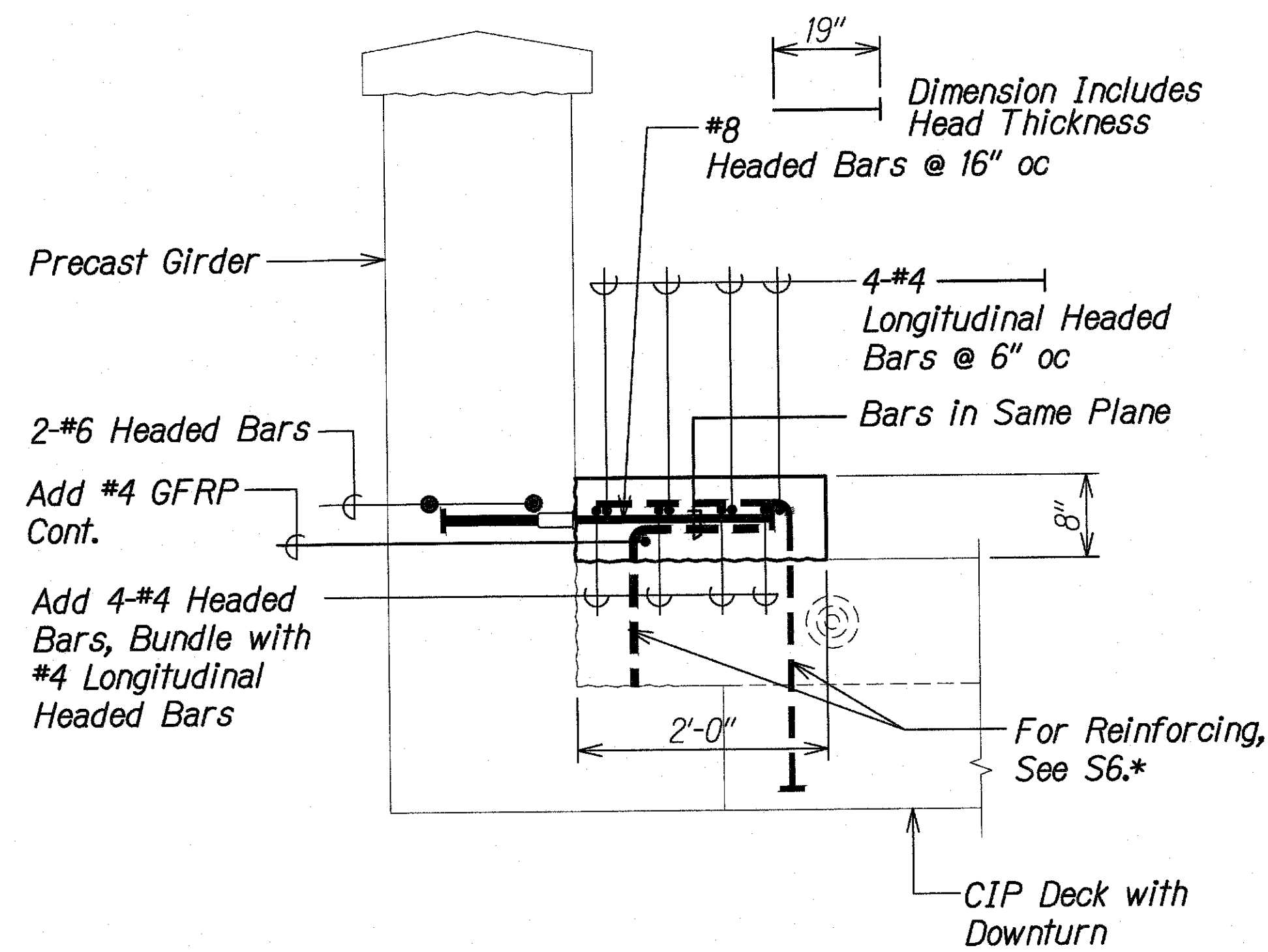
GIRDER ELEVATION (TENSION TIE)
WAIPA STREAM BRIDGE

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

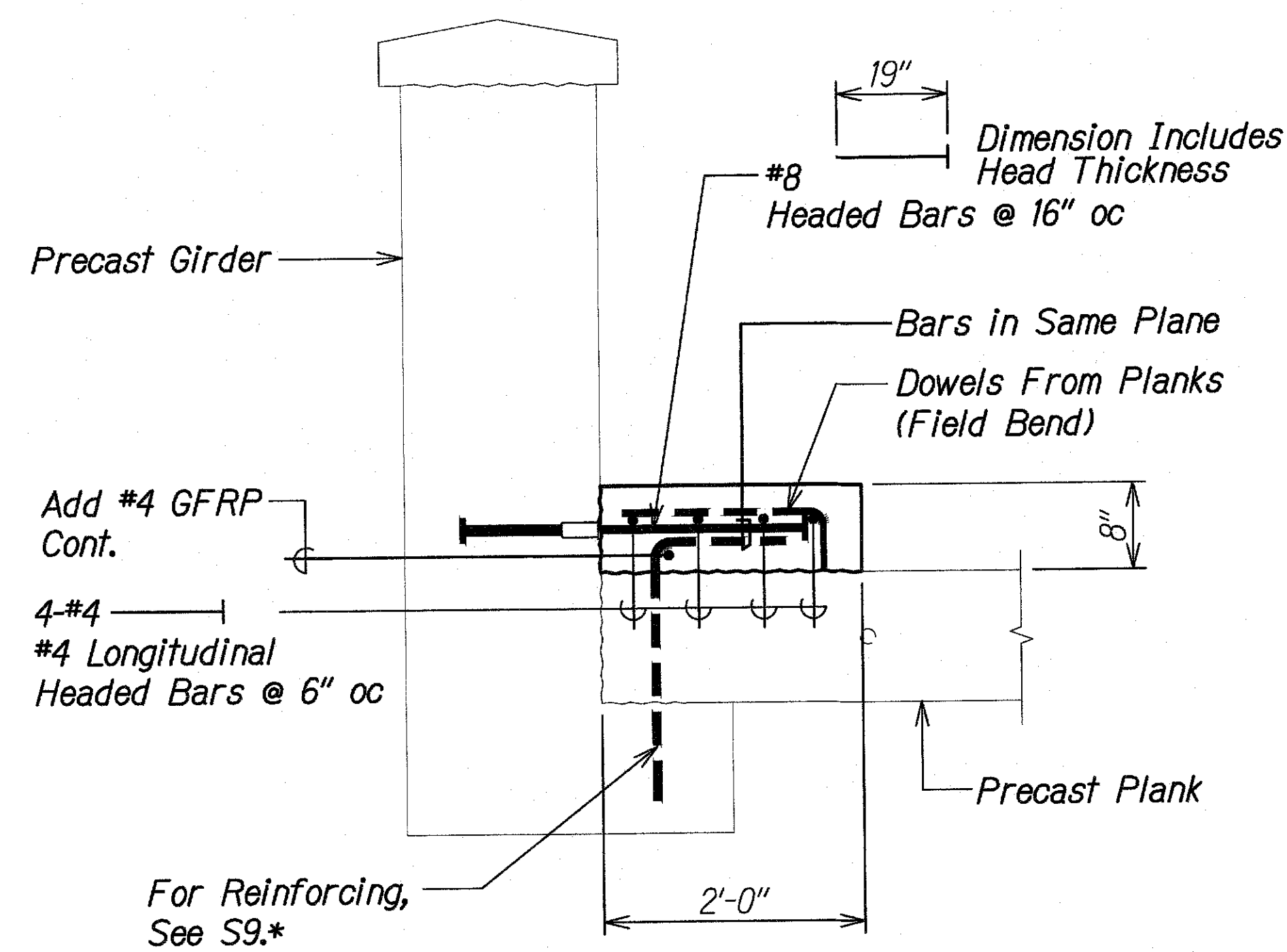
A
S9.H4 S9.H4

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
WAIPA STREAM BRIDGE
GIRDER ELEVATION (REINF. LAYOUT)
KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)
Scale: As Noted Date: Oct. 2018
SHEET No. S9.H4 OF 4 SHEETS

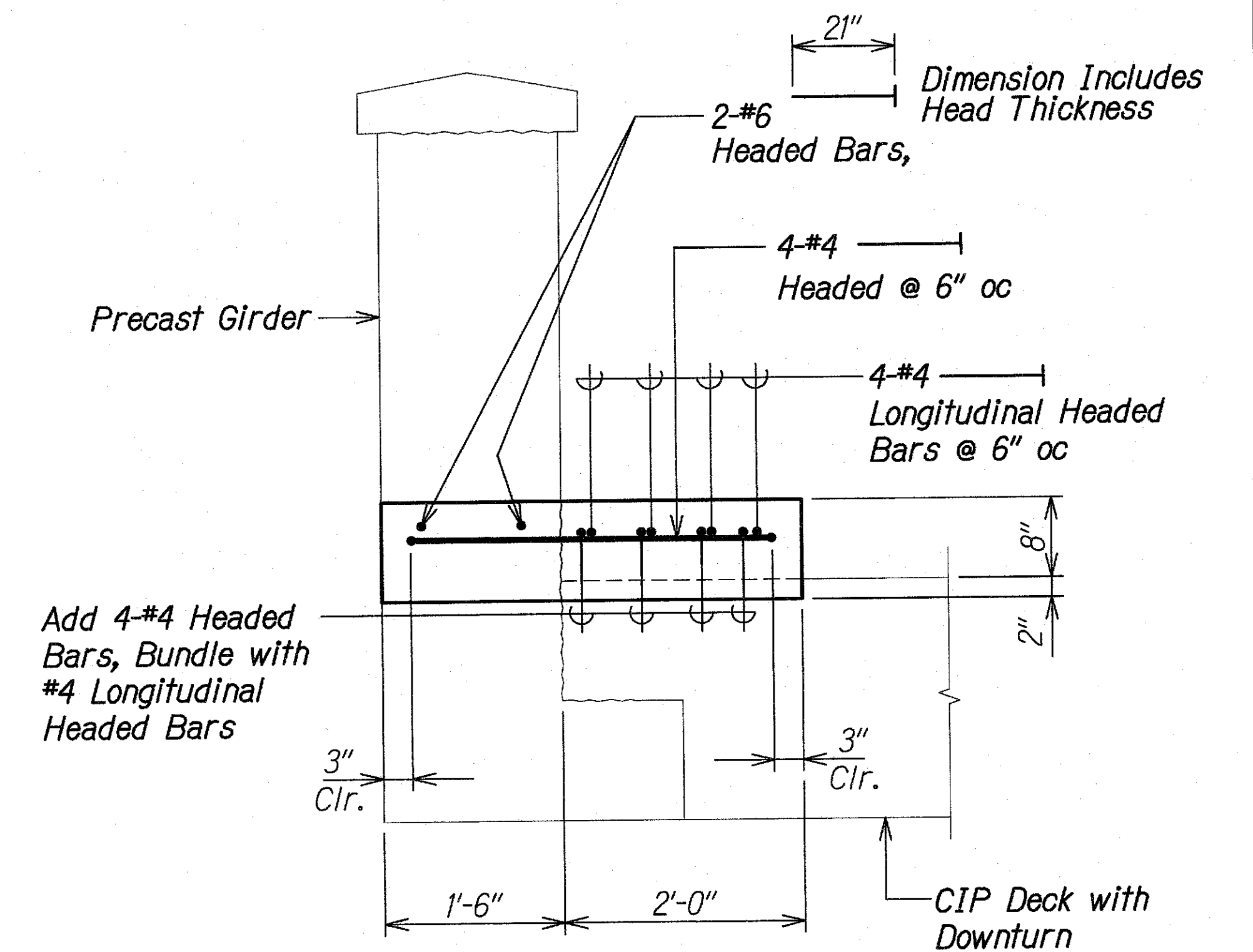
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	58	67



SECTION A
Scale: 1" = 1'-0" S10.1 S10.2



SECTION B
Scale: 1" = 1'-0" S10.1 S10.2



SECTION C
Scale: 1" = 1'-0" S10.1 S10.2

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

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-008.2-3W BRIDGES ASB\01 CAD\03-XX-21 WAPA AS-BUILD\TWP-S1001 DELTA1 CURB.DWG PLOT TIME: 03-15-21, 3:16 PM

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

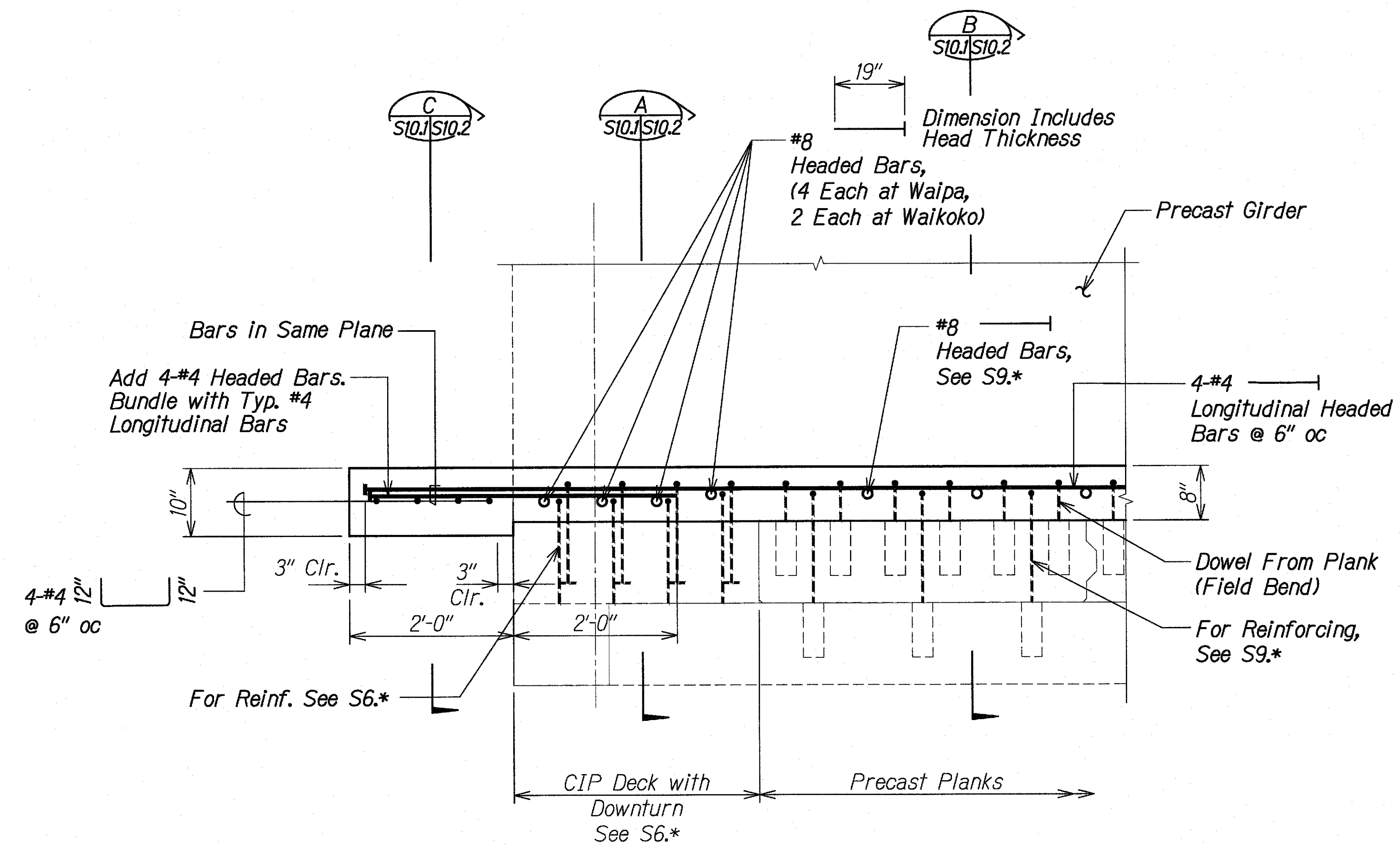
CURB SECTIONS

KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)

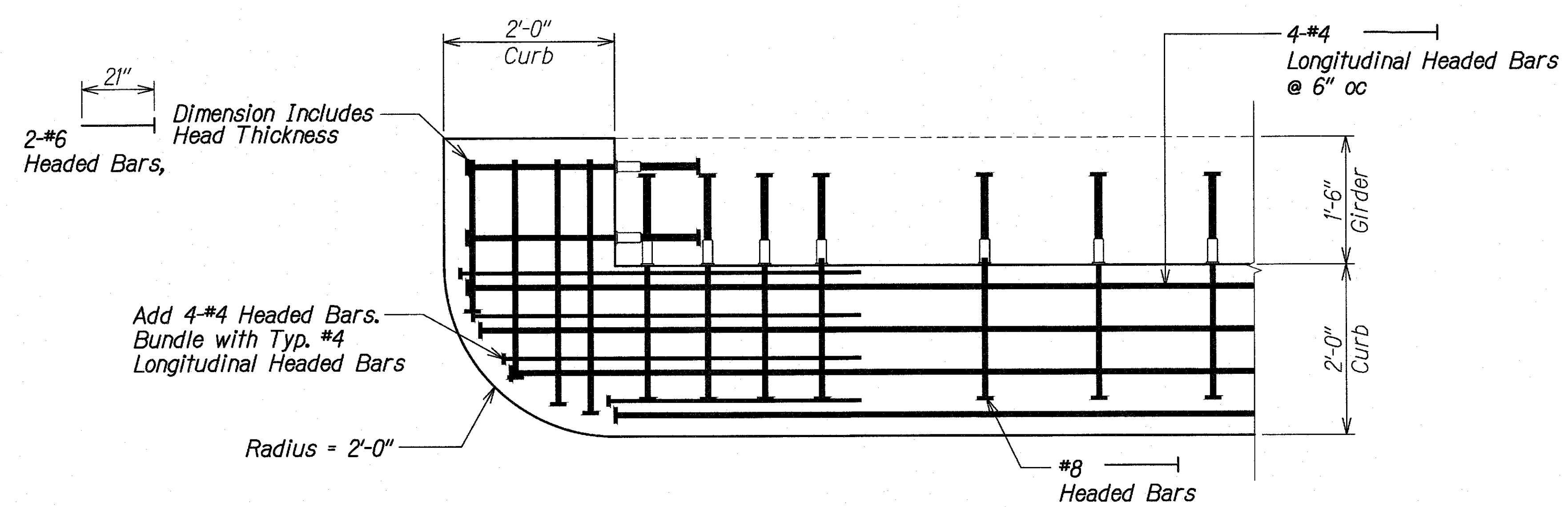
Scale: As Noted Date: Oct. 2018

SHEET No. S10.1 OF 2 SHEETS

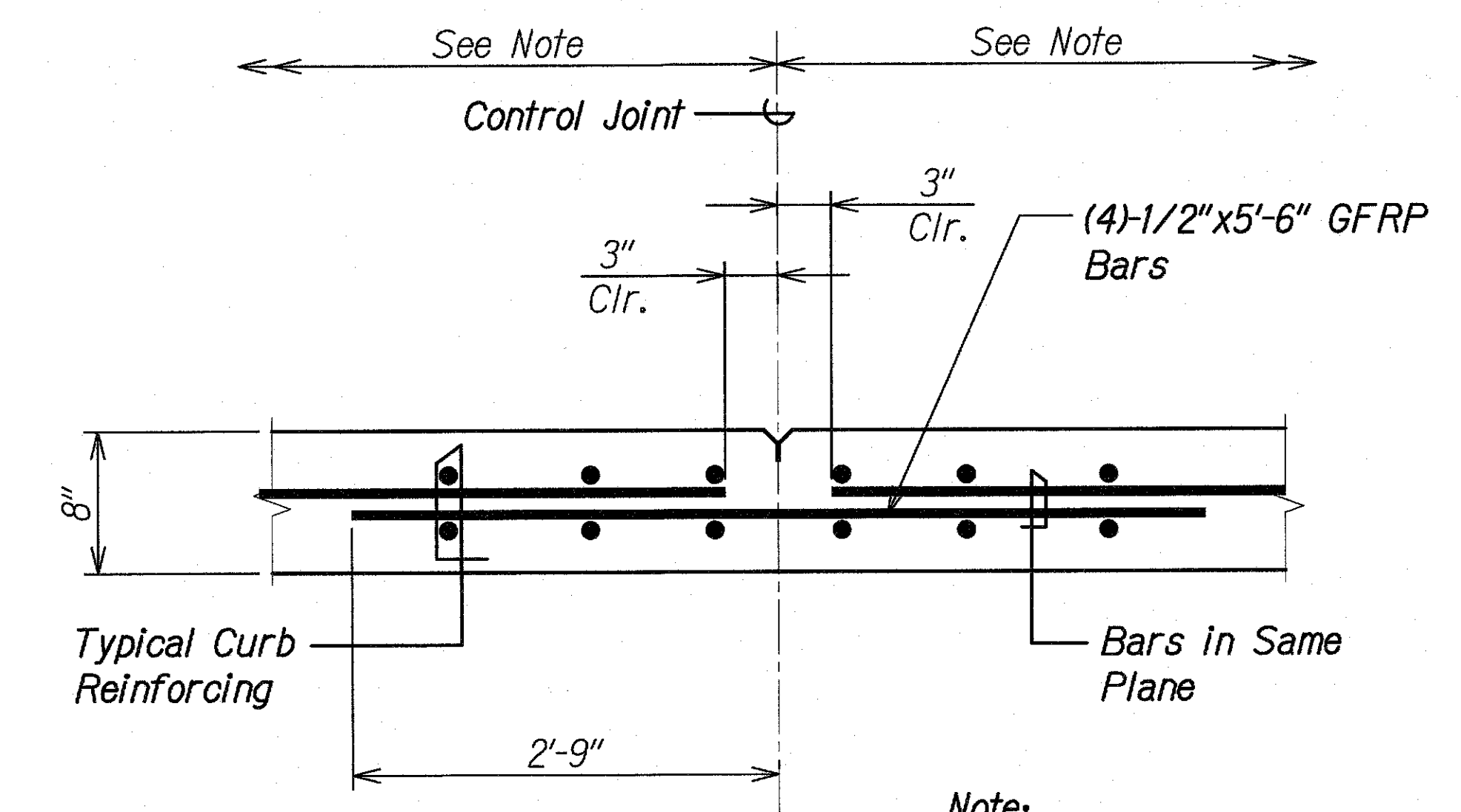
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	59	67



SECTION CURB
Scale: 1" = 1'-0"
S10.2 S10.1



PARTIAL CURB PLAN
Scale: 1" = 1'-0"
S10.2 S10.2



TYPICAL CONTROL JOINT IN CURB
Scale: 1 1/2" = 1'-0"
S10.2 S10.2

ORIGINAL PLAN	DATE
NOTE BOOK	DESIGNED BY
No.	QUANTITIES BY
	CHECKED BY

DRAWING NAME: 7A100 ONGOING/COB PROJECTS/18-008.2-3W BRIDGES ASB/01 CAD/03-XX-21 WAIPA AS-BUILD/SWB-S1001 DELT1 CURE.DWG PLOT TIME: 03-15-21 3:17 PM

3/19/19	Added Detail
DATE	REVISION

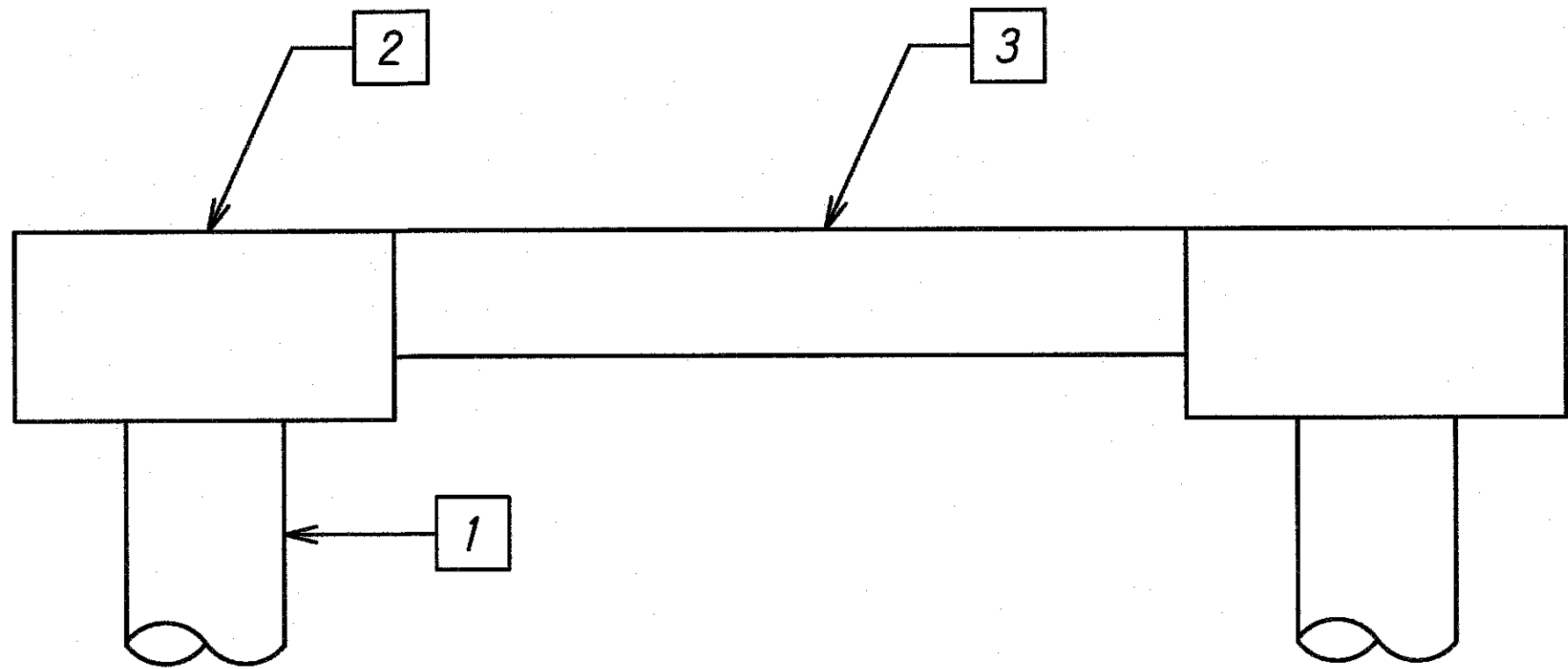
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CURB SECTION
KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)
Scale: As Noted Date: Oct. 2018
SHEET No. S10.2 OF 2 SHEETS

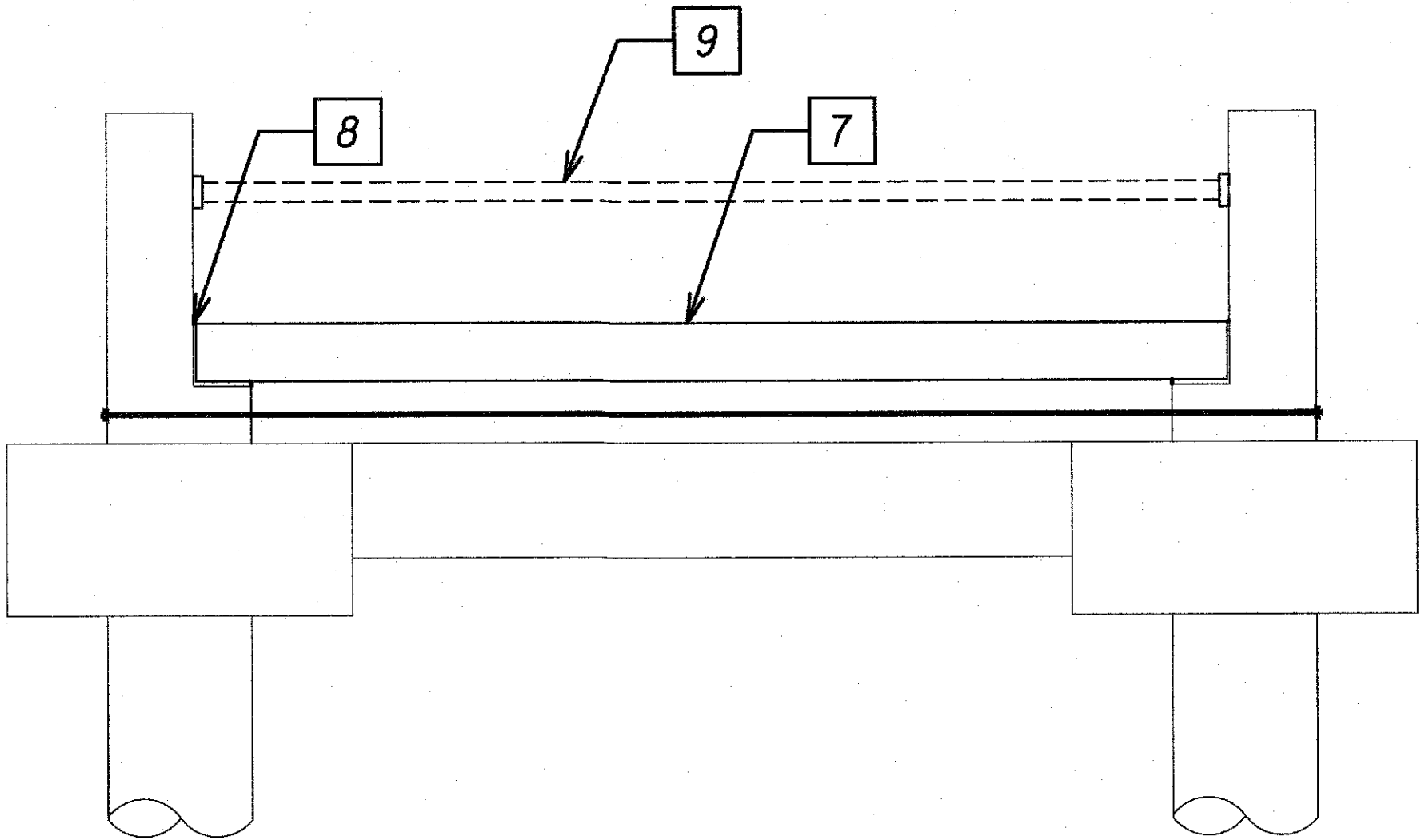
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	60	67

CONSTRUCTION SEQUENCE

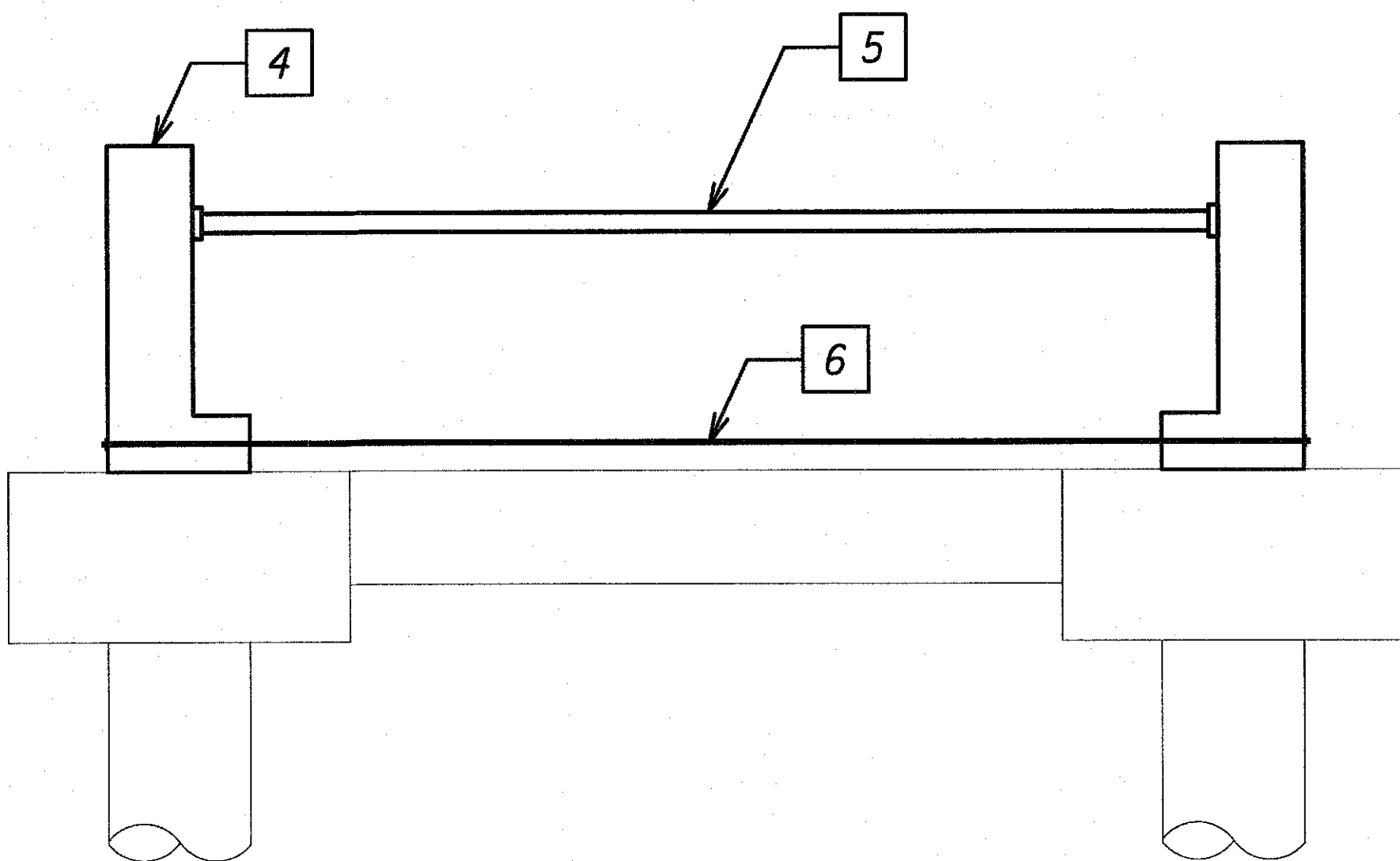
- 1 Install Micropiles, Casing and Columns
- 2 Pour Abutment and Column Caps
- 3 Set Transverse Grade Beams and Pier Beams



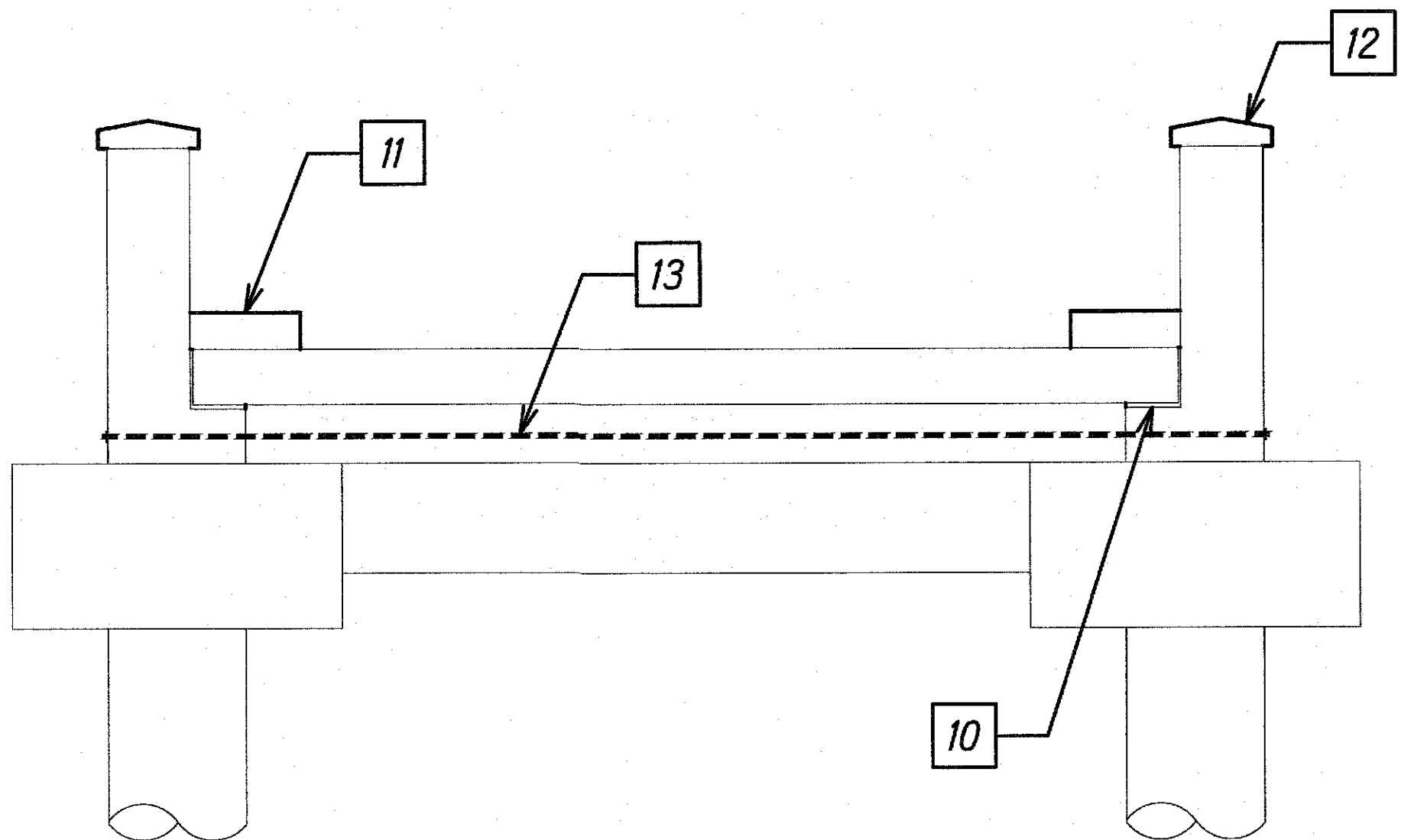
- 7 Set Precast Planks
- 8 Install wedge between edge of Plank and face of Girder, each side
- 9 Remove Compression Brace after adjacent wedge has been installed



- 4 Set Girders. Place Closure Pours between Girders
- 5 Install Compression Brace
- 6 Install Tension Tie



- 10 Grout beneath Precast Planks and within Shear Keys
- 11 Pour Curb and Deck with down turn at end of bridge
- 12 Pour Girder Cap
- 13 Remove Tension Tie



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

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-008.2-3W BRIDGES ASB\01 CAD\03-XX-21 WAIPA AS-BUILT\3WB-S101 CONST SEQUING PLOT TIME: 03-15-21, 3:17 PM

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

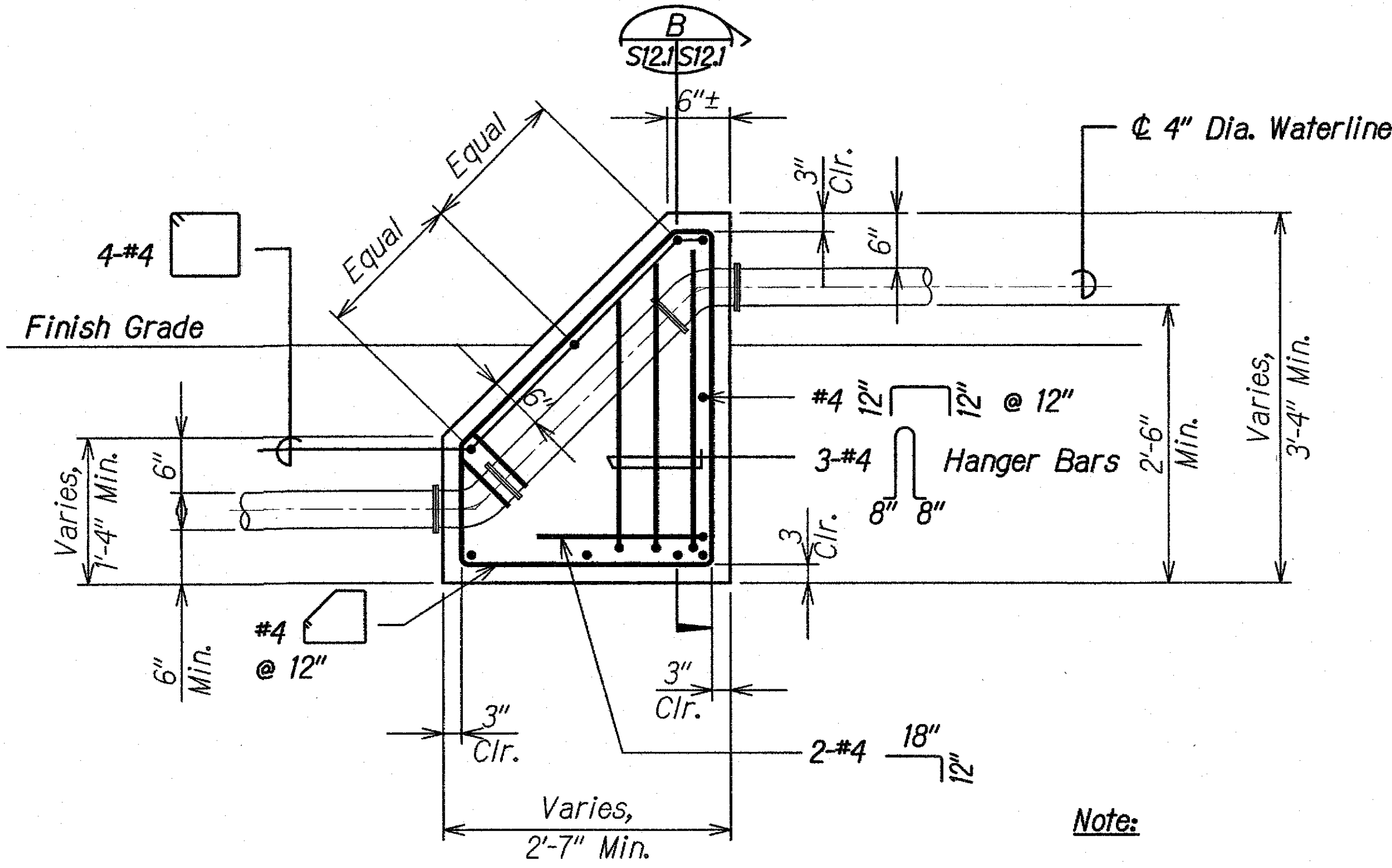
CONSTRUCTION SEQUENCE

KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)

Scale: As Noted Date: Oct. 2018

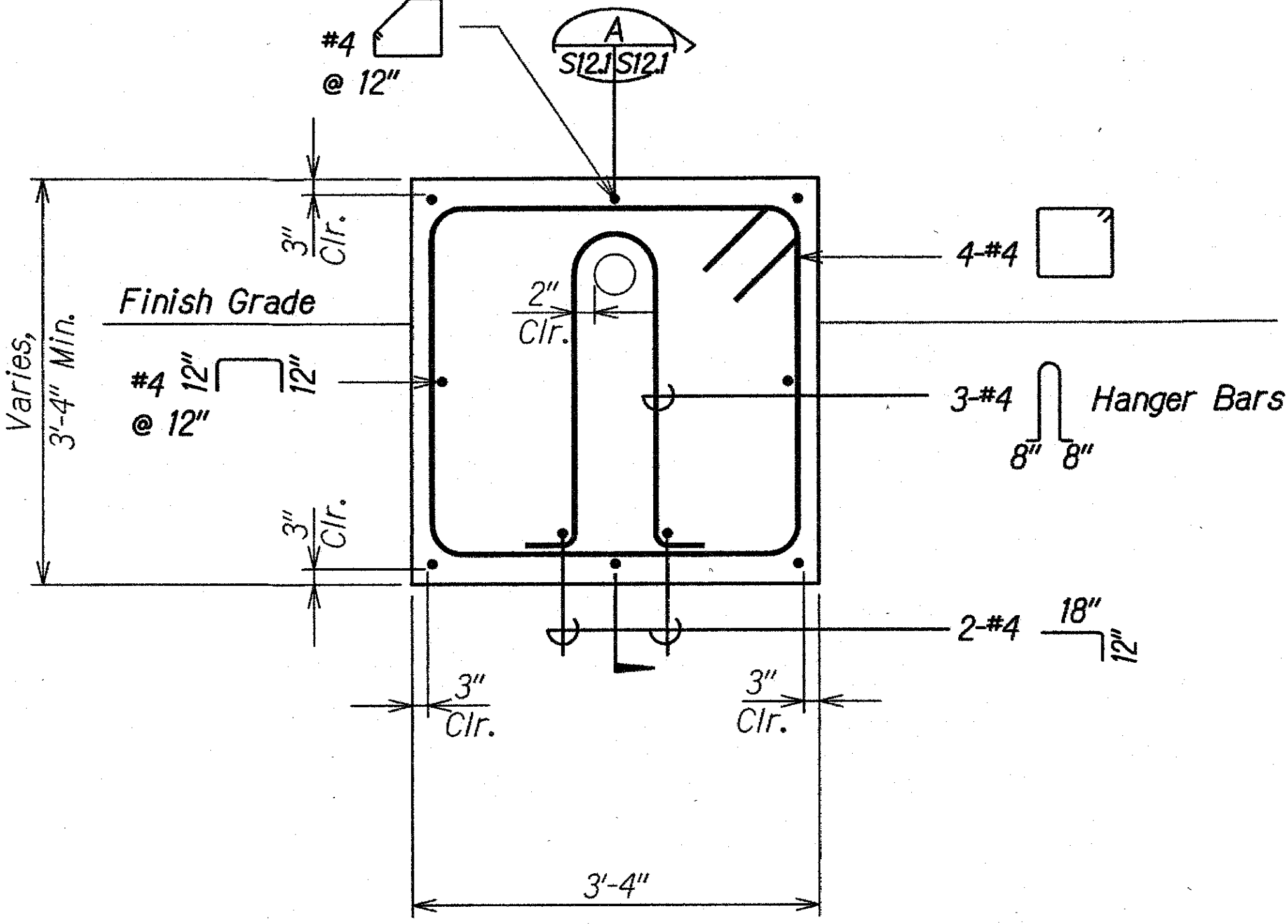
SHEET No. *511J* OF 1 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	60S-1	67



SECTION A
Scale: 1" = 1'-0"

Note:
All fittings and pipes encased in concrete shall be ductile iron.



SECTION B
Scale: 1" = 1'-0"

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

DRAWING NAME: Z:\00 ONCONING\18-008.2-KUHO HMY 3W BRV 01 CAD\05-09-19 WAPA PERM H20.3WB-S1201 VERT RX BLK TEMP.DWG PLOT TIME: 05-09-19 10:56 AM

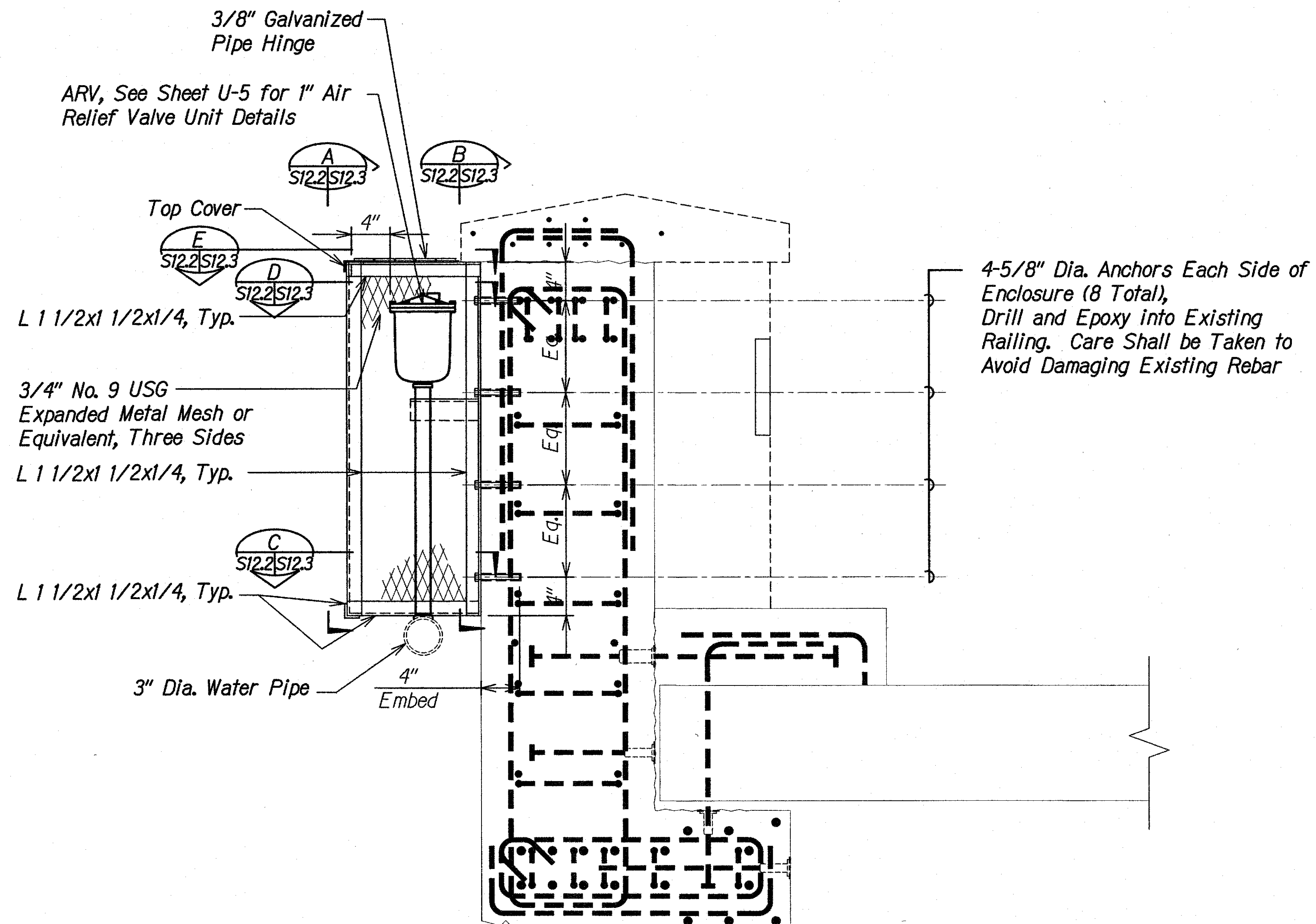
APPROVED:

MANAGER AND CHIEF ENGINEER
DEPARTMENT OF WATER
COUNTY OF KAUAI
5/14/19
DATE

RUSS S. MIYAHARA
LICENSED PROFESSIONAL ENGINEER
NO. 9444-S
HAWAII, U.S.A.
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
SIGNATURE
EXPIRATION DATE OF THE LICENSE 4-30-20

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TEMPORARY TOP VERTICAL REACTION BLOCK
KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)
Scale: As Noted
Date: Oct. 2018
SHEET No. S121 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	60S-2	67



NOTES:

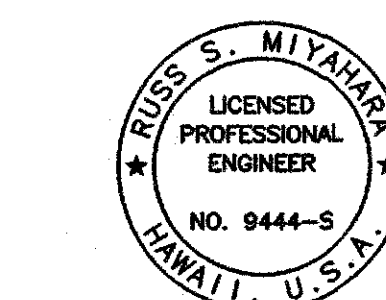
1. All angle connections shall be 3/16" fillet welds unless noted otherwise.
2. Expanded metal mesh shall be welded to inside edges of angles, then hot-dip galvanize entire enclosure.
3. Pin thru pipe hinge shall be inserted and welded to exterior 2" pipes after hot-dip galvanizing ARAV enclosure and cover. Apply zinc-rich paint to welded area.

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

APPROVED:

[Signature]
MANAGER AND CHIEF ENGINEER
DEPARTMENT OF WATER
COUNTY OF KAUAI

5/14/19
DATE



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION.
[Signature]
SIGNATURE EXPIRATION DATE OF THE LICENSE 4-30-20

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ARV CAGE

KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)

Scale: As Noted Date: Oct. 2018

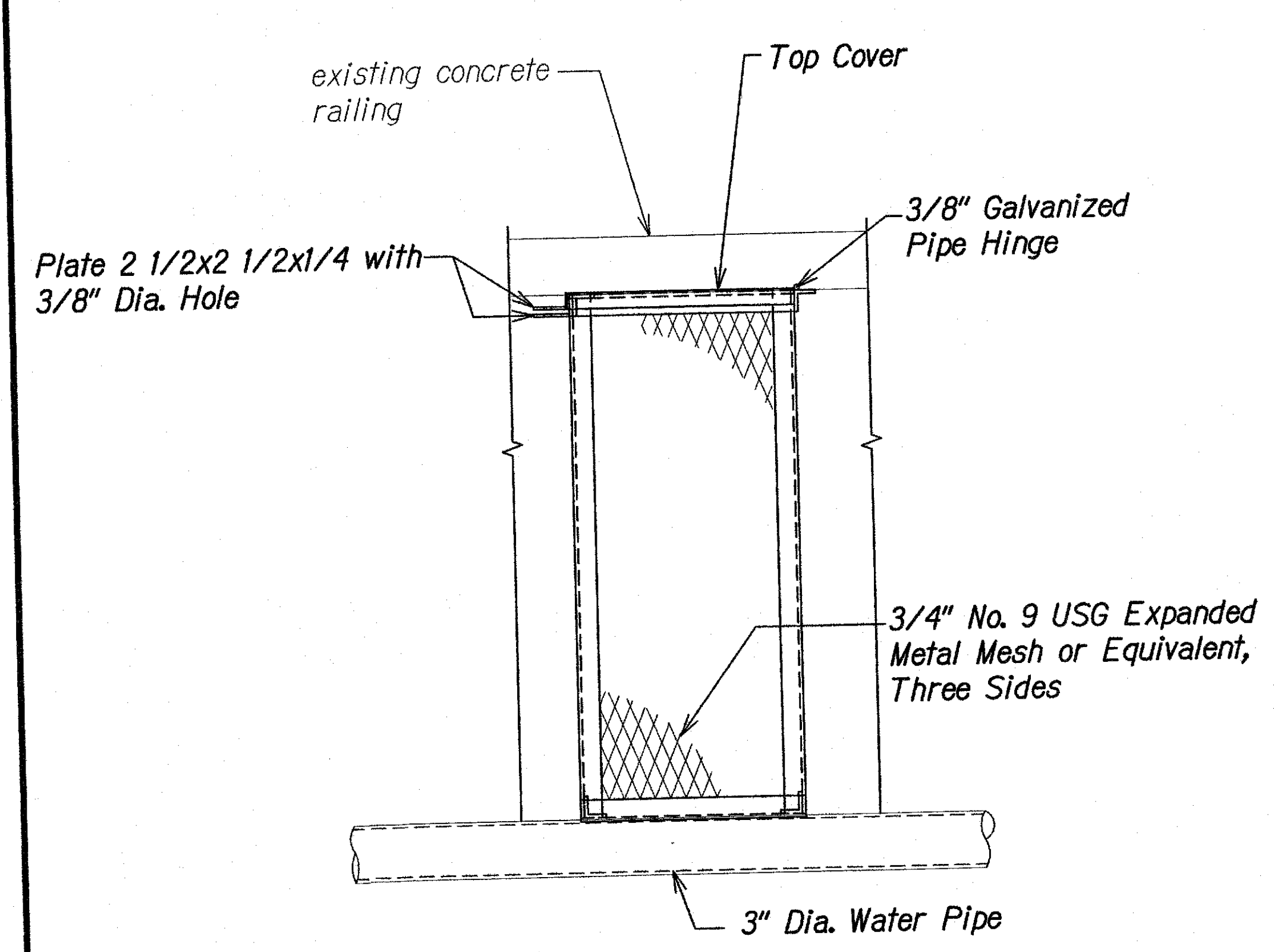
SHEET No. S122 OF 5 SHEETS

60S-2

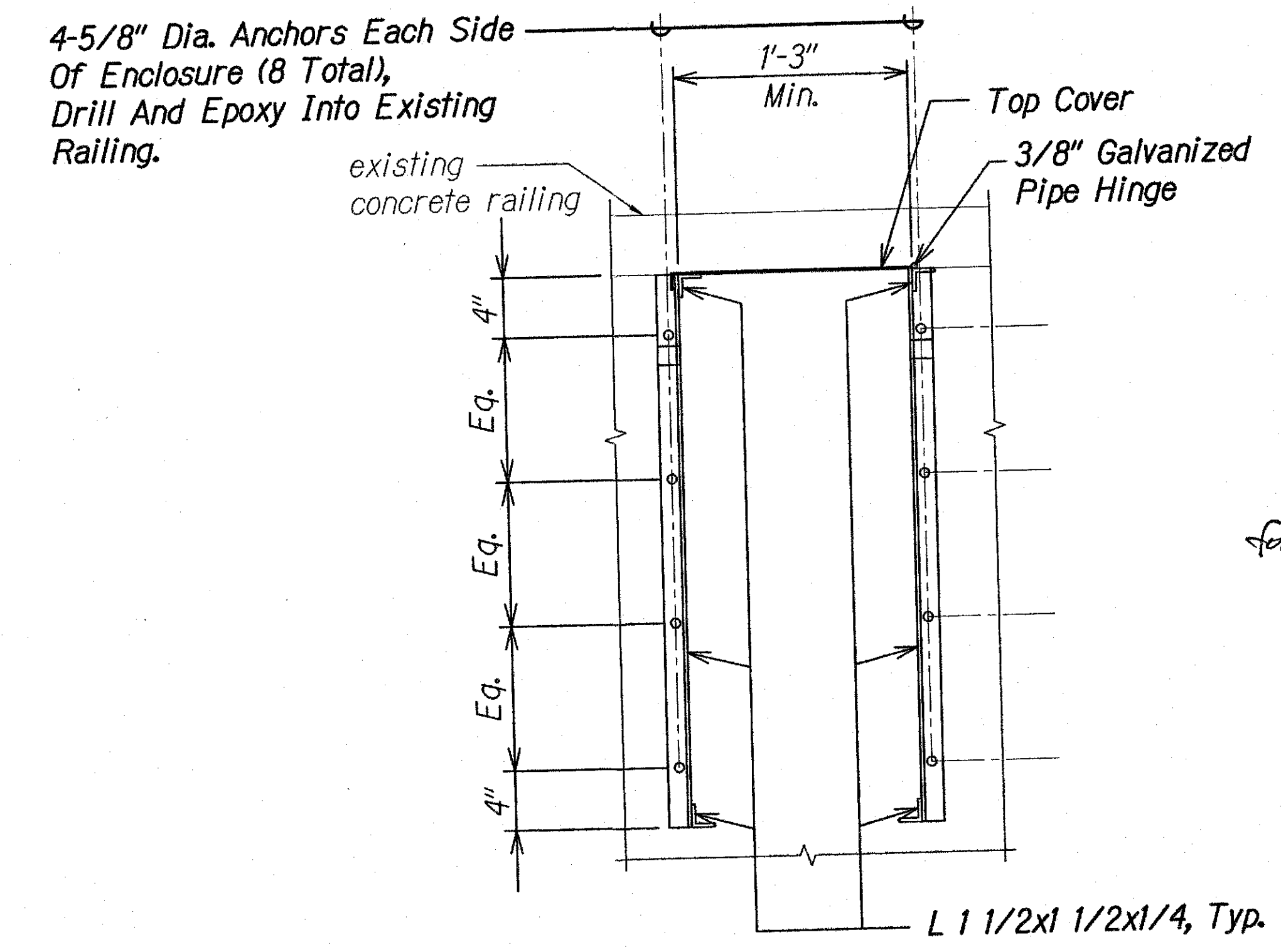
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	DESIGNED BY	
	CHECKED BY	

DRAWING NAME: Z:\00 ONGOING\16-008-2-KUHO HWY 3W BRV.01 CAD\05-09-19_WAIPA PERM H2O\3WB-S1202 ARV CAGE.DWG PLOT TIME: 05-09-19, 10:56 AM

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	60S-3	67



SECTION A
Scale: 1 1/2" = 1'-0" S12.2 S12.3

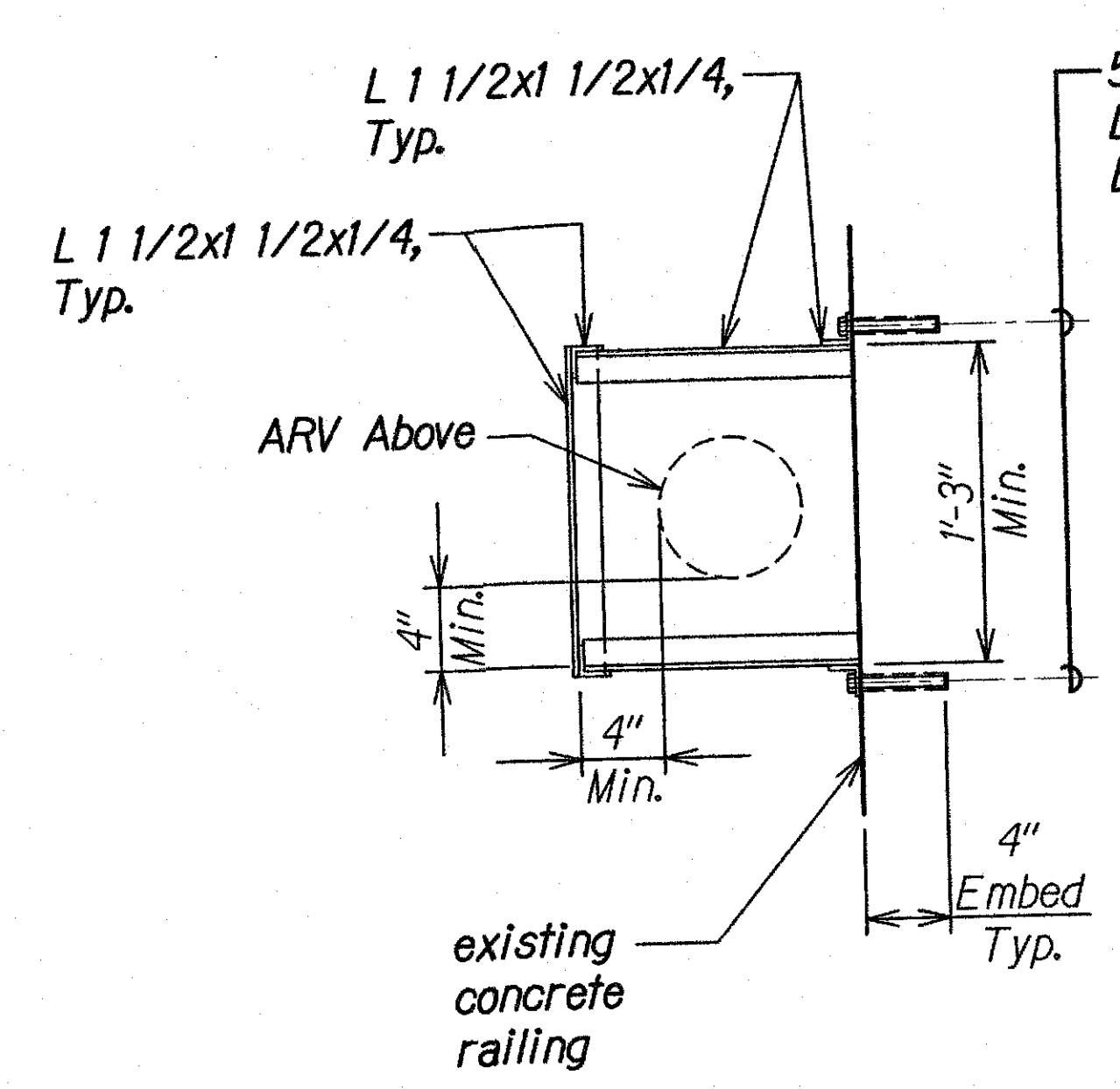


SECTION B
Scale: 1 1/2" = 1'-0" S12.2 S12.3

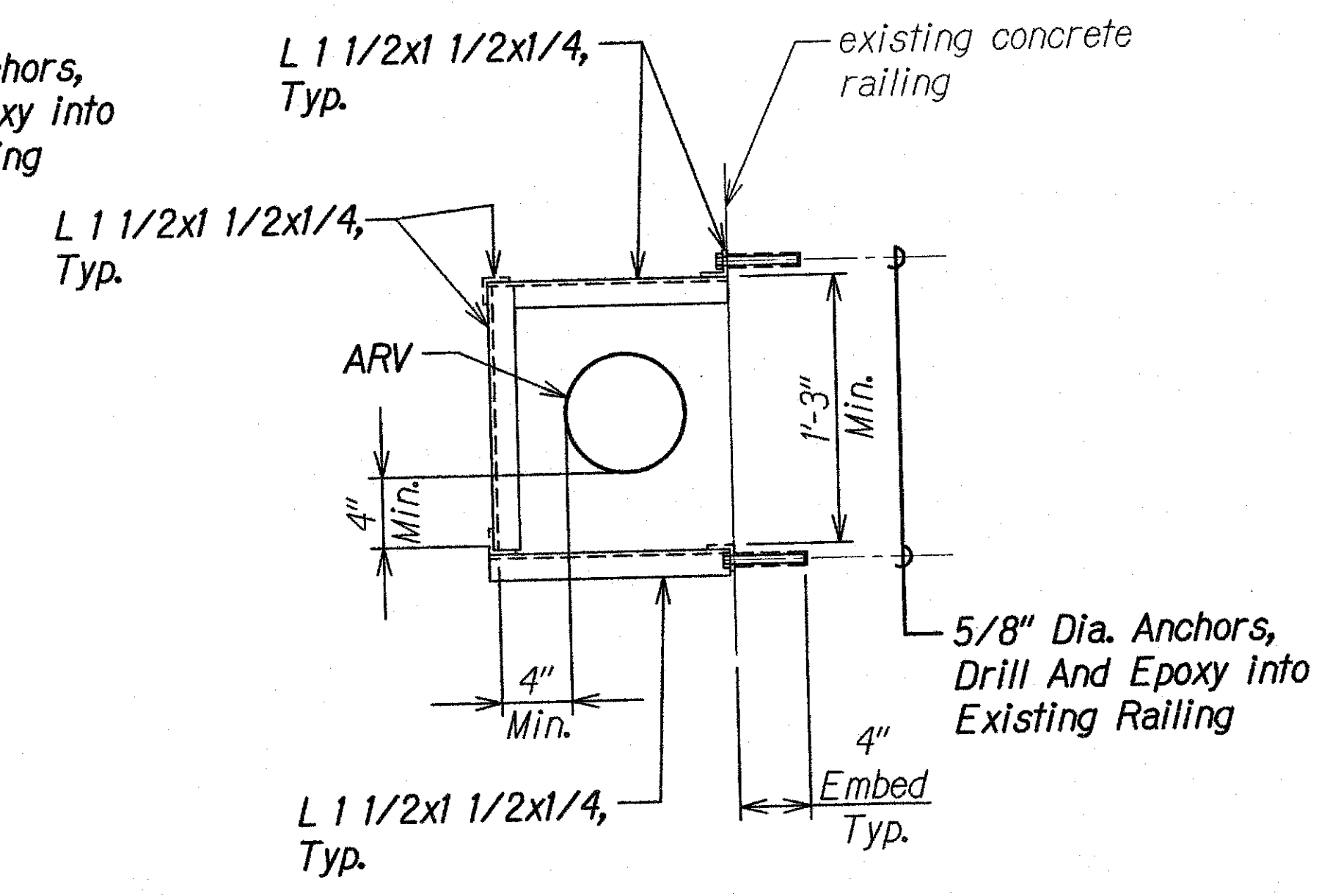
APPROVED:

[Signature] 5/14/19
DATE

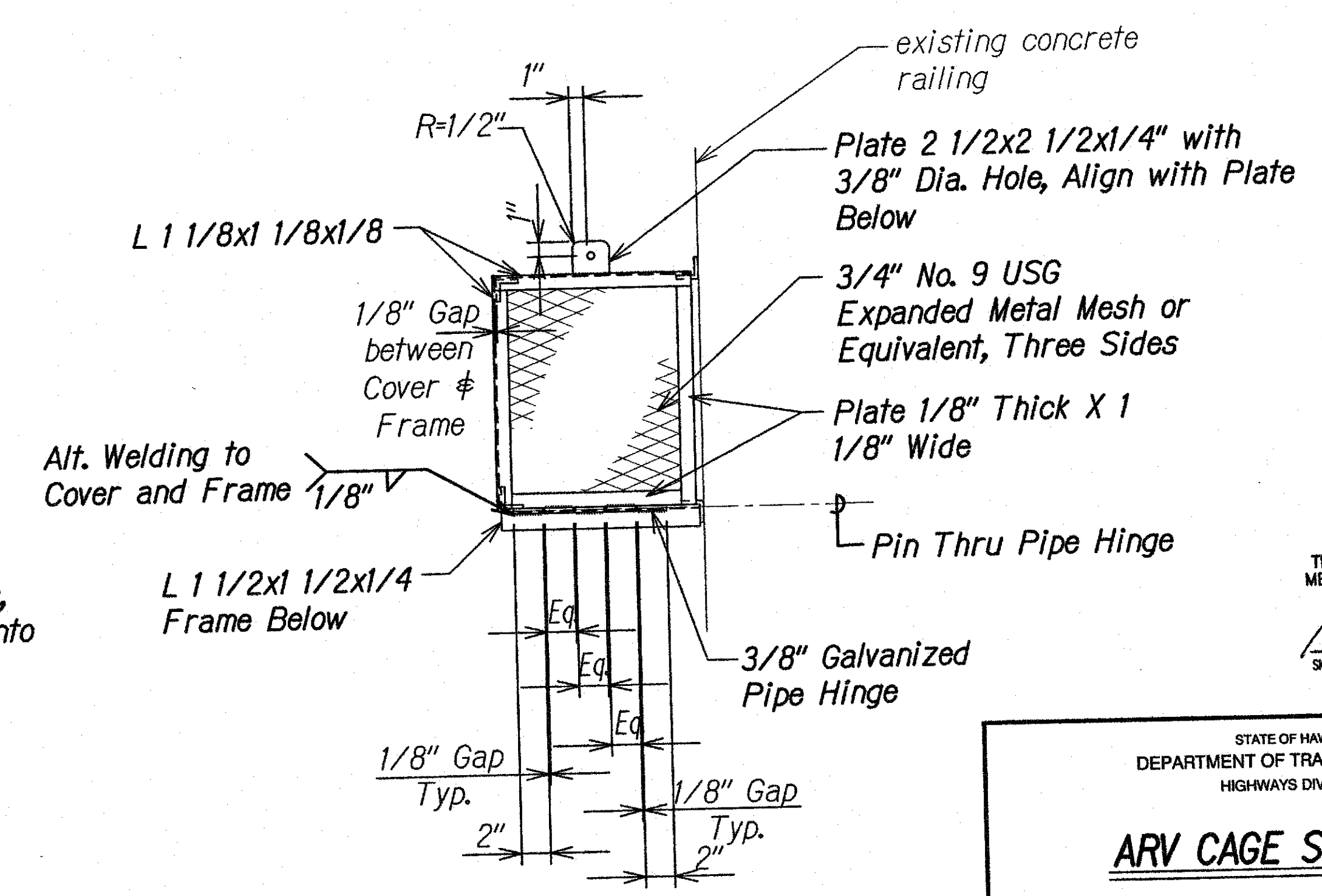
MANAGER AND CHIEF ENGINEER
DEPARTMENT OF WATER
COUNTY OF KAUAI



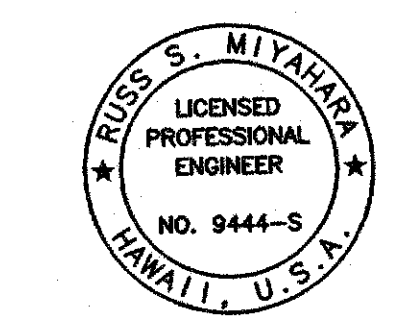
BOTTOM FRAME PLAN C
Scale: 1 1/2" = 1'-0" S12.2 S12.3



TOP FRAME PLAN D
Scale: 1 1/2" = 1'-0" S12.2 S12.3



TOP COVER E
Scale: 1 1/2" = 1'-0" S12.2 S12.3



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

[Signature] 4-30-20
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ARV CAGE SECTIONS

KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)

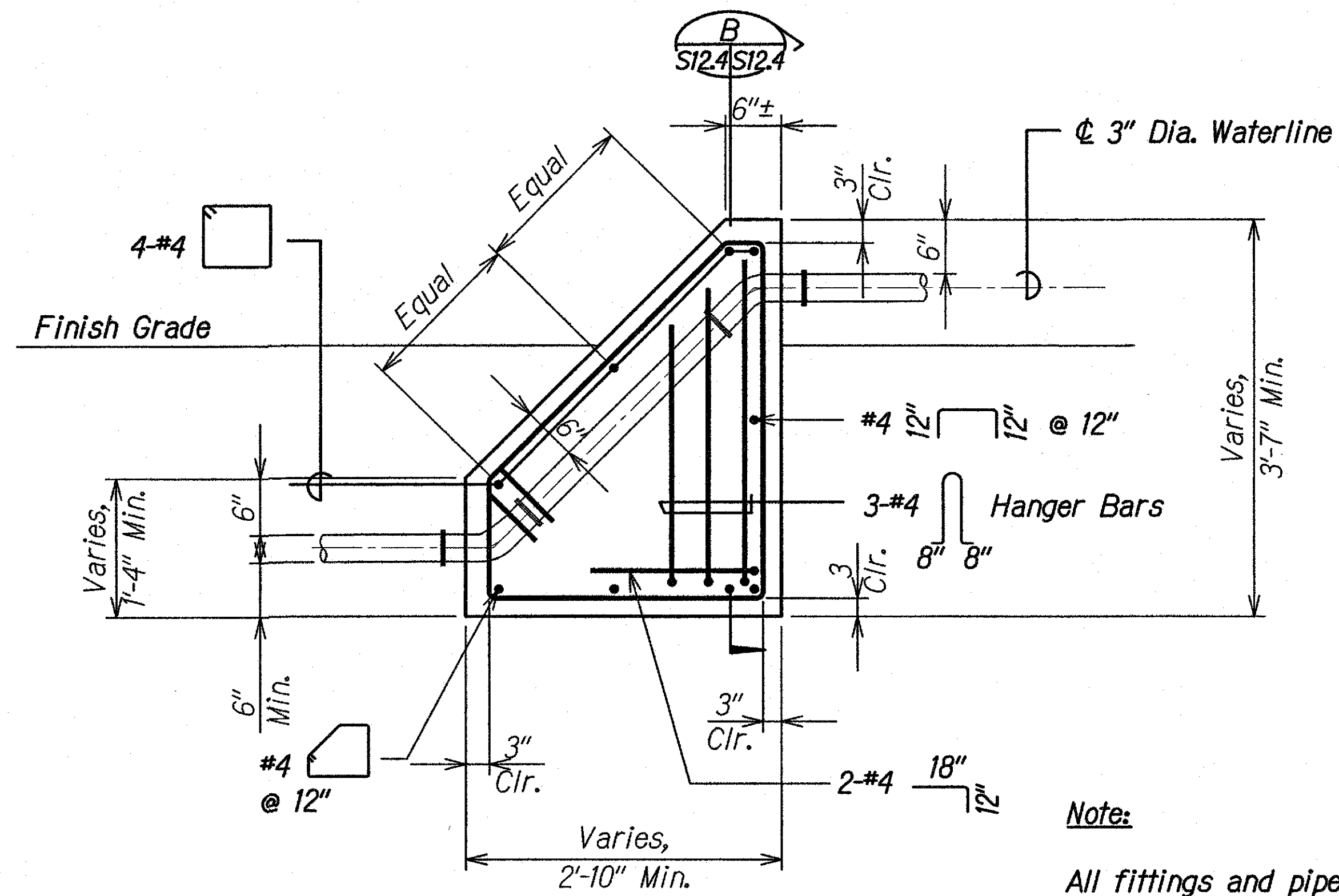
Scale: As Noted Date: Oct. 2018

SHEET No. S12.3 OF 5 SHEETS

DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
NOTED BY	_____
QUANTITIES BY	_____
TRACED BY	_____
DRAWN BY	_____
ORIGINAL PLAN	_____

DRAWING NAME: 2100 ONCONC18-0092-KUHO HWY. 3W BR01 CAD/CS-09-19 WAPA PERM H201 SWP-S1202 ARV CAGE DWG PLOT TIME: 05-09-19, 10:56 AM

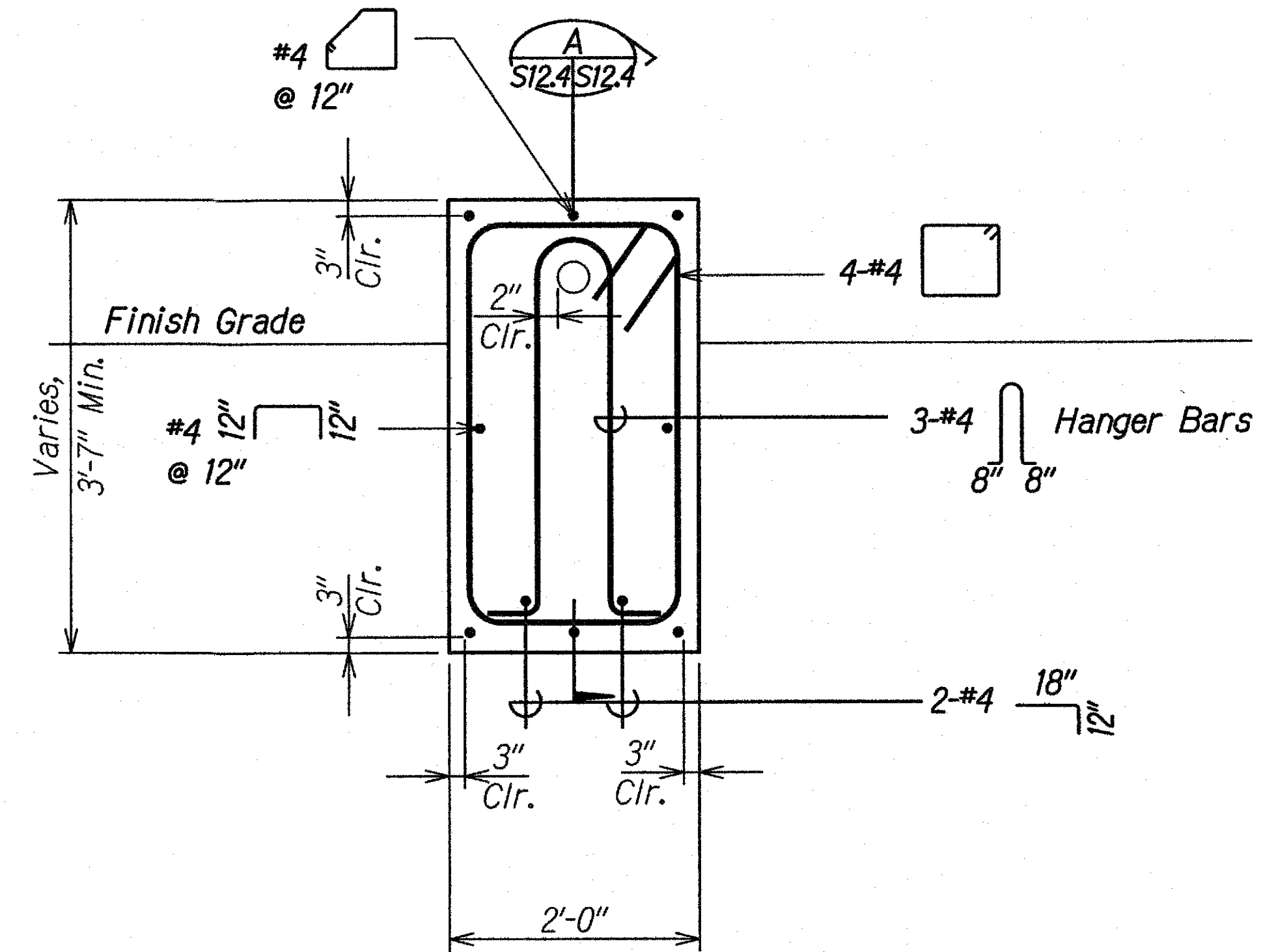
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	60S-4	67



SECTION A
Scale: 1" = 1'-0"
S12.4 S12.4

Note:

All fittings and pipes encased in concrete shall be ductile iron.



SECTION B
Scale: 1" = 1'-0"
S12.4 S12.4

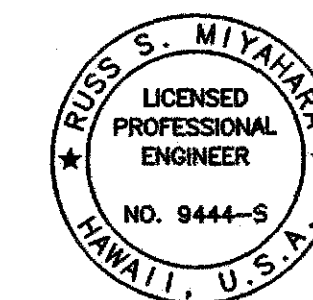
ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	
NO.	

DRAWING NAME: Z:\00 ONGOING\18-008.2-KUHO HWY 3W BR 01 CAD\05-09-19 WAPA PERM H20\3WB-S1204 VERT RX BLK PERM.DWG PLOT TIME: 05-09-19, 10:56 AM

APPROVED:

[Signature]
MANAGER AND CHIEF ENGINEER
DEPARTMENT OF WATER
COUNTY OF KAUAI

5/14/19
DATE



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION.

[Signature]
SIGNATURE EXPIRATION DATE OF THE LICENSE 4-30-20

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

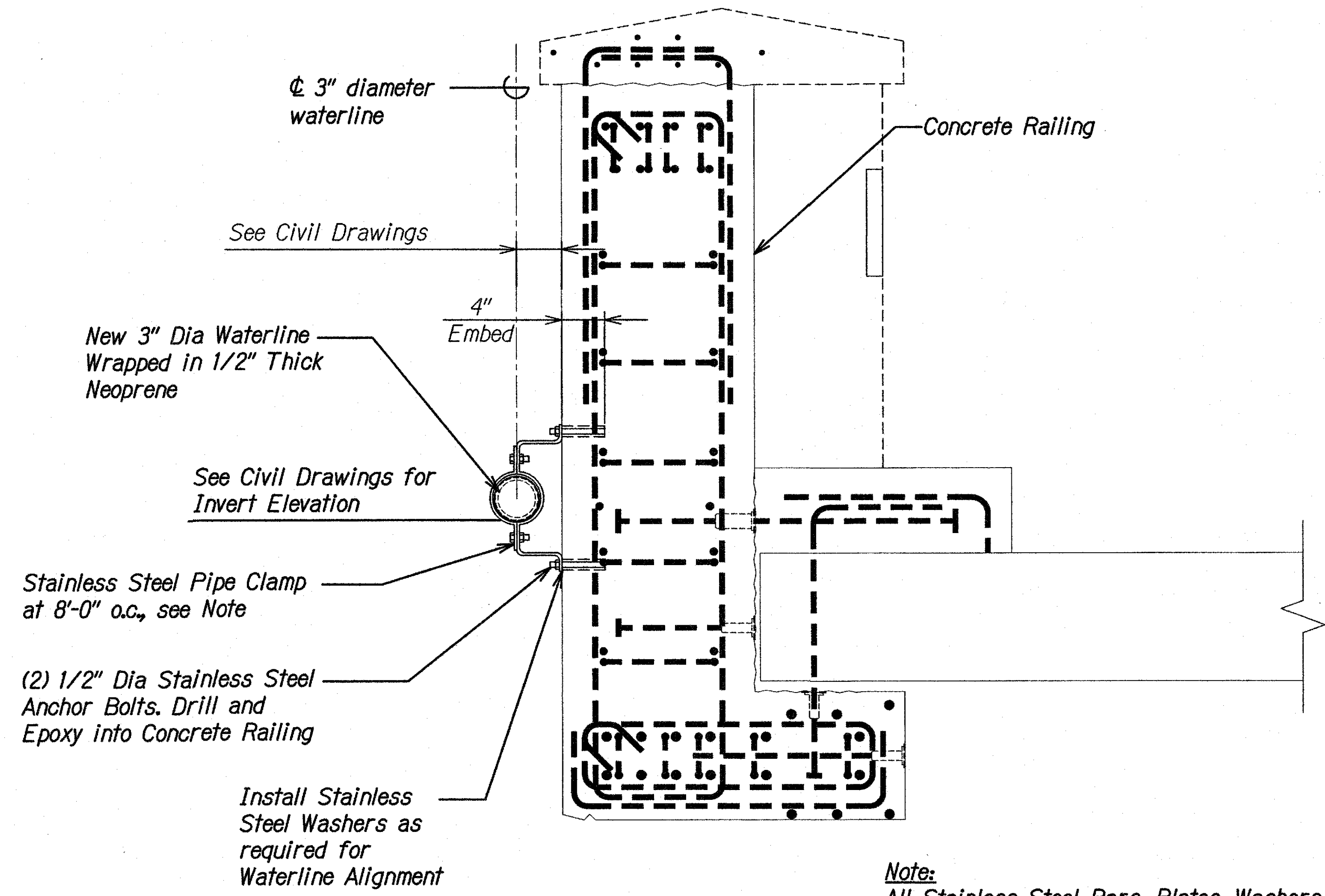
**PERMANENT TOP VERTICAL
REACTION BLOCK**

KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)

Scale: As Noted Date: Oct. 2018

SHEET No. S12.4 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-19(007)	2018	60S-5	67



WATERLINE
SUPPORT DETAIL
Scale: 1 1/2" = 1'-0" 1
S12.5 S12.5

APPROVED:

MANAGER AND CHIEF ENGINEER
DEPARTMENT OF WATER
COUNTY OF KAUAI

5/14/19
DATE

THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION.

SIGNATURE: *Russ S. Miyahara*
EXPIRATION DATE OF THE LICENSE: 4-30-20

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
WAIPA STREAM BRIDGE
WATERLINE SUPPORT
KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)
Scale: As Noted
Date: Oct. 2018
SHEET No. S12.5 OF 5 SHEETS

ORIGINAL PLAN	DATE
NOTED BY	
DESIGNED BY	
CHECKED BY	
QUANTITIES BY	
NO.	

DRAWING NAME: 23\00 DONGING\18-0082-KUHO HWY 3W BR\01 CAD\05-09-19 WAIPA PERM H20\JWB-S1205 PIPE SUPPORT.DWG PLOT TIME: 05-09-19, 10:57 AM