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| S9.B7 | NOT USED |
| | |
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| S9.C2 | NOT USED |
| S9.C3 | NOT USED |
| S9.C4 | NOT USED |
| S9.C5 | NOT USED |

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| | |

## LEGEND FOR AS-BUILT POSTINGS

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

| DATE | REVISION |
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| 3/19/19 | /1 Added Sheet |

STATE OF HAWAII
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**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. S0.1 OF 4 SHEETS

ORIGINAL PLAN AS BUILT NOTE BOOK No.
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DRAWING NAME: Z:\OO ONGOING\OO CB PROJECTS\18-0082-3W BRIDGES ASBA\01 CAD\03-26-21 WAIKOKO AS-BUILTS REVIEW CTR\17 3WB-S0001 DETAI INDEX.DWG PLOT TIME: 03-25-21, 3:14 PM)

"AS-BUILT"

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# STRUCTURAL GENERAL NOTES:

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%
      $S_1$ = 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) | Abutment Micropile Cap | 6,000 psi | 0.40 | B |
| (2) | Transverse Grade Beam | 6,000 psi | 0.40 | B, C |
| (3) | Precast Girder | 6,000 psi | 0.40 | B, C |
| (4) | Girder Closure Pour | 6,000 psi | 0.40 | B, C |
| (5) | Girder Cap | 6,000 psi | 0.40 | B, C, D |
| (6) | Precast Plank | 6,000 psi | 0.40 | B, C |
| (7) | Curb | 6,000 psi | 0.40 | B, C, D |
| (8) | Creep Block | 6,000 psi | 0.40 | B |
| (9) | CIP Deck w/ Downturn | 6,000 psi | 0.40 | B, C, D |
| (10) | 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.

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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. S0.2 OF 4 SHEETS

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# STRUCTURAL GENERAL NOTES:

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.

5. Reinforcement (Cont.):

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.

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".

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRUCTURAL GENERAL NOTES

KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
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# SYMBOLS AND ABBREVIATIONS

| | |
|---|---|
| & | And |
| @ | At |
| Ø | Diameter |
| # | Number, Pound |
| Abut. | Abutment |
| Abbr. | Abbreviation |
| Add. | Additional, Added |
| Alt. | Alternate |
| AB | Anchor Bolt |
| AC | Asphaltic Concrete |
| Approx. | Approximate |
| Az. | Azimuth |
| Bk. | Back |
| Bal. | Balance |
| ℄ | Baseline |
| Bm. | Beam |
| Brg., Brgs. | Bearing, Bearings |
| BVC | Beginning of Vertical Curve |
| BMP | Best Management Practices |
| Bet. | Between |
| BF | Both Faces, Back Face |
| BW | Both Ways |
| BFE | Bottom of Footing Elevation |
| Bot., Bott., B | Bottom |
| Br. | Bridge |
| Blt. | Bolt |
| Cant. | Cantilever |
| CIP | Cast-in-Place |
| ℄ | Centerline |
| CG | Center of Gravity |
| cgs | Center to Gravity of Strands |
| cc | Center to Center |
| Cl. | Class |
| Clr. | Clearance |
| Col. | Column |
| Conc. | Concrete |
| Conn. | Connection |
| Const. | Construction |
| CFCW | Continuous Flashing Compound Waterproofing |
| CJ | Control Joint |
| Const. Jt. | Construction Joint |
| CLSM | Controlled Low Strength Material |
| Cont. | Continuous |
| CF | Cubic Feet |
| CY, Cu. Yd. | Cubic Yard |
| Demo | Demolish, Demolition |
| Det. | Detail |
| Dia. | Diameter |
| Dim. | Dimension |
| Dist. | Distance |
| DO | Ditto |
| Dwls. | Dowels |
| Dn. | Down |
| Dbl. | Double |
| DI | Drain Inlet, Ductile Iron |
| Dwg., Dwgs. | Drawing, Drawings |
| DS | Drilled Shaft |
| EA, Ea., ea. | Each |
| EF | Each Face |
| EFH | Each Face Horizontal |
| EFV | Each Face Vertical |
| EW | Each Way |
| EP | Edge of Pavement |
| EPS | Expanded Polystyrene |
| E | East |
| Elec. | Electrical |
| EMH | Electrical Manhole |
| El., Elev. | Elevation |
| Emb. | Embankment |
| Embed. | Embedded, Embedment |
| EVC | End of Vertical Curve |
| Eq. | Equal |
| Est. | Estimated |
| Exc. | Excavation |
| Excl. | Excluding |
| Exist., Ex. | Existing |
| Exp., (E) | Expansion |
| EJ | Expansion Joint |
| Ext. | Exterior |
| FF | Far Face. Front Face |
| F'c | Specified Strength of Concrete |
| F'ci | Strength of Concrete at Time of Initial Prestress |
| Ft. | Feet, Foot |
| Fig. | Figure |
| Fin. Gr. | Finish Grade |
| (F) | Fixed |
| FB | Flat Bar |
| Ftg. | Footing |
| FA | Force Account |
| Ga. | Gage, Gauge |
| Galv. | Galvanized |
| GFRP | Glass Fiber Reinforced Polymer |
| Gr. | Grade |
| Grd. | Ground |
| GRP | Grouted Rubble Pavement |
| Ht. | Height |
| (H) | Hinge |
| Horiz., H | Horizontal |
| HS | High strength |
| HSS | Hollow Structural Section |
| HECO | Hawaiian Electric Company |
| IB | Inbound |
| In. | Inch |
| ID | Inside Diameter |
| IF | Inside Face |
| Int. | Interior |
| Inv. | Invert |
| Jt. | Joint |
| K | Kips |
| KF | Kip Foot |
| KSF | Kips Per Square Foot |
| KSI | Kips Per Square Inch |
| KLF | Kips Per Linear Foot |
| L | Length |
| lb., lbs., LBS. | Pound, Pounds |
| Ltg. Std. | Lighting Standard |
| LF | Linear Feet/Foot |
| Lin. Ft. | Linear Feet/Foot |
| LS | Lump Sum |
| Longit. | Longitudinal |
| M | Modified |
| MH | Manhole |
| Max. | Maximum |
| Mech. | Mechanical |
| Min. | Minimum |
| Misc. | Miscellaneous |
| MPH | Miles Per Hour |
| NF | Near Face |
| N | North |
| NIC | Not in Contract |
| No. | Number |
| NTS | Not to Scale |
| O/S | Offset |
| oc | On Center |
| Opn'g | Opening |
| OB | Outbound |
| OD | Outside Diameter |
| P(e) | Effective or Working Prestressing Force |
| PP | Precast Plank |
| Perf. | Perforated |
| PL | Plate |
| PCC | Portland Cement Concrete |
| PC | Point of Curvature |
| PCF | Pounds per Cubic Foot |
| PSF | Pounds per Square Foot |
| PSI | Pounds per Square Inch |
| PLF | Pounds per Linear Foot |
| PI | Point of Intersection of Tangents |
| PIVC | Point of Intersection of Vertical Curve |
| PT | Point of Tangency, Post Tensioned |
| Pt., Pts. | Point, Points |
| PRC | Point of Reverse Curvature |
| PVC | Polyvinyl Chloride |
| Prestr. | Prestressed |
| P/S | Prestressed Strands |
| PB | Pull Box |
| Q | Flow Rate |
| Rad., R | Radius |
| RF | Rear Face |
| Rebar | Reinforcing Bar |
| Ref. | Reference |
| Reinf. | Reinforced, Reinforcing, Reinforcement |
| Req'd. | Required |
| Ret. | Retaining |
| ROW | Right of Way |
| Rdwy. | Roadway |
| Sch. | Schedule |
| Sect. | Section |
| SDMH | Sewer Drain Manhole |
| Sht. | Sheet |
| SRA | Shrinkage Reducing Admixture |
| Sl. | Slope |
| S | South |
| Sp., Spcg. | Spacing |
| Sprd. | Spread |
| Spec. | Specification |
| SF | Square Feet |
| SY | Square Yard |
| SS. SSTL | Stainless Steel |
| Std. | Standard |
| Sta. | Station |
| Stagg. | Staggered |
| Stiff. | Stiffener |
| Stirr. | Stirrup |
| Str. | Straight |
| Struct. | Structure |
| SE | Super Elevation |
| Symm. | Symmetrical |
| Tan. | Tangent |
| Temp. | Temporary |
| Thk. | Thick |
| T | Top |
| T&B | Top and Bottom |
| TOD | Top of Deck |
| TFE | Top of Footing Elevation |
| TOW | Top of Wall |
| Tot. | Total |
| Transv. | Transverse |
| TS | Structural Tubing |
| Typ. | Typical |
| Undergrd. | Underground |
| UNO | Unless Noted Otherwise |
| Var. | Varies |
| Vert., V | Vertical |
| VC | Vertical Curve |
| W/C | Water/Cement Ratio |
| w/ | With |
| W | West |
| WWR | Welded Wire Reinforcing |
| WW | Wing Wall |
| WP | Work Point, Working Point |
| WS | Water Surface |
| Yr. | Year |

ORIGINAL PLAN
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## SYMBOLS AND ABBREVIATIONS

KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
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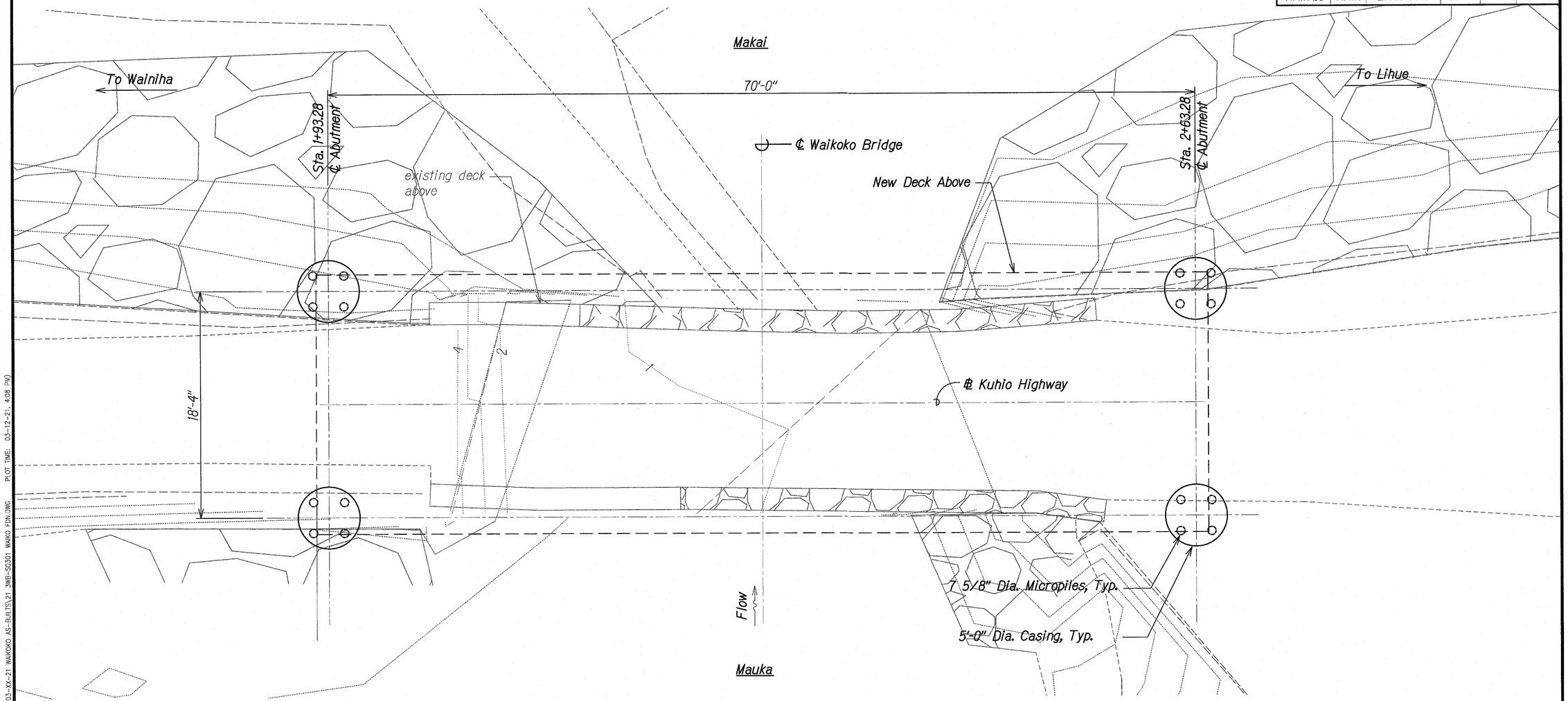


# WAIKOKO STREAM BRIDGE FOUNDATION PLAN

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

| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**WAIKOKO STREAM BRIDGE**
**FOUNDATION PLAN**

KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
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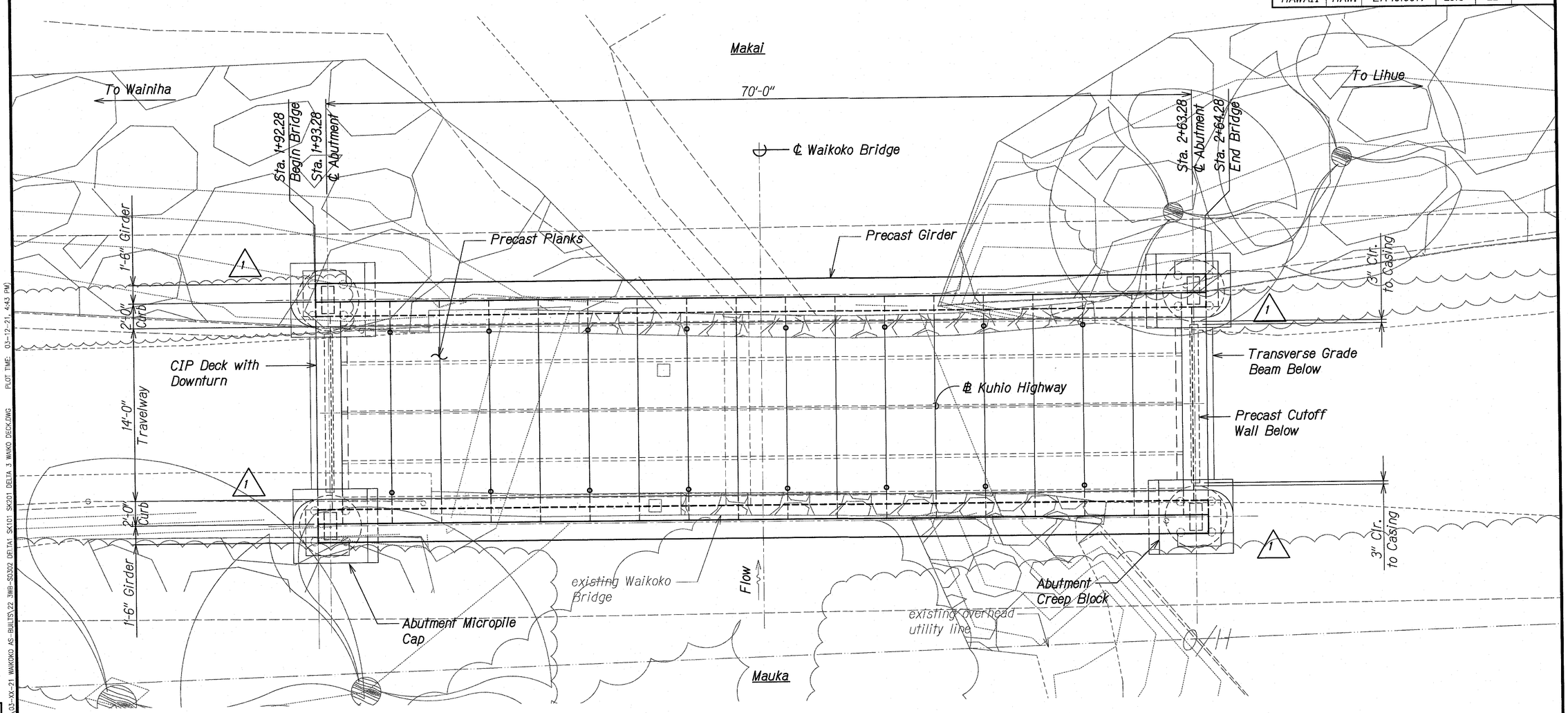


## WAIKOKO STREAM BRIDGE DECK PLAN

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

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| | QUANTITIES BY | |
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DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-008.2-3W BRIDGES ASBY\01 CAD\03-XX-21 WAIKOKO AS-BUILTS\22 3WB-S5302 DELTA1 SK101 SK201 DELTA 3 WAIKO DECK.DWG PLOT TIME: 03-12-21, 4:43 PM

| DATE | REVISION |
|---|---|
| 3/19/19 | 1 Added Corbel |

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

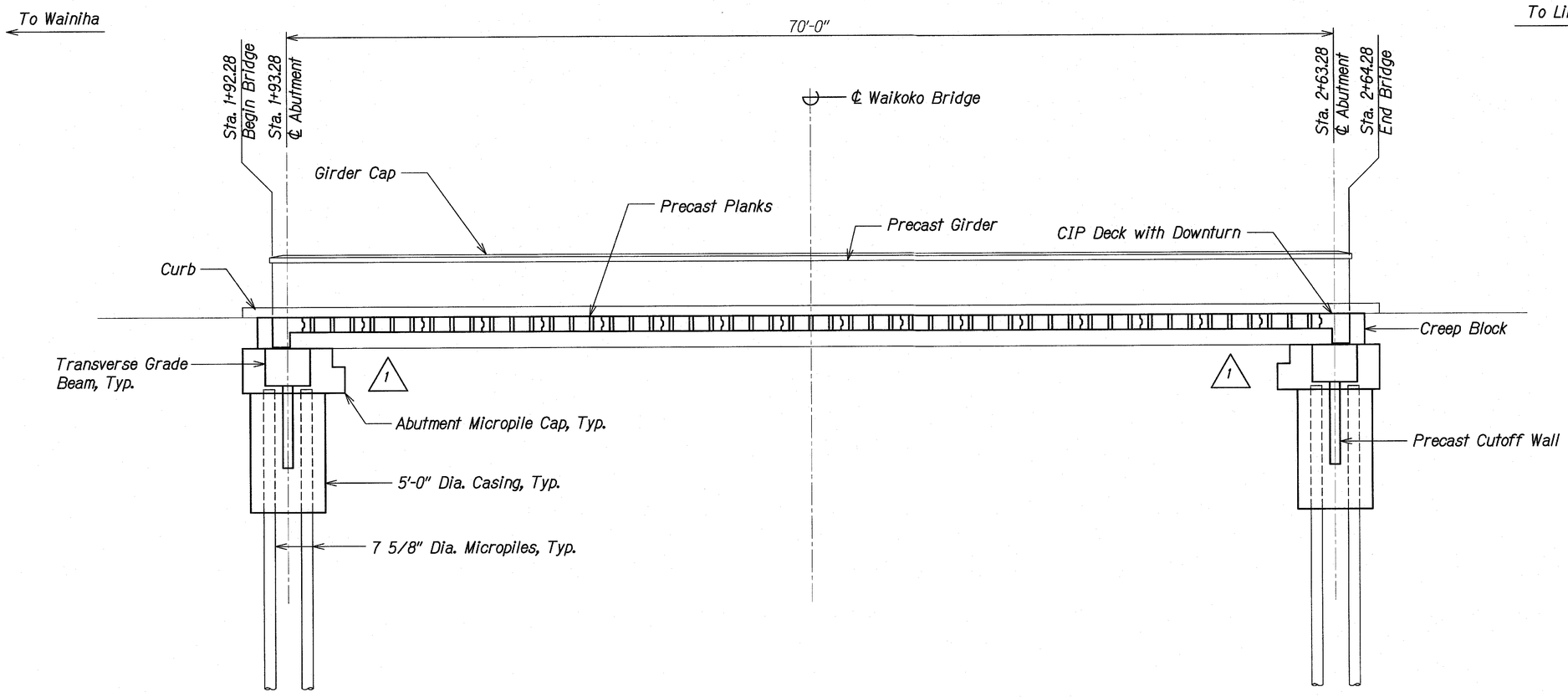
**WAIKOKO STREAM BRIDGE**
**DECK PLAN**

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. S3.2 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 | 56 |




## WAIKOKO STREAM BRIDGE
## LONGITUDINAL SECTION
Scale: 1/4" = 1'-0"

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

DRAWING NAME: Z:\00 ONGOING\00 C3 PROJECTS\18-008.2-3W BRIDGES ASR\01 CAD\03-XX-21 WAIKOKO AS-BUILTS\22 3WB-SK302 DELTA1 SK101 SK201 DELTA 3 WAIKO DECK.DWG PLOT TIME: 03-12-21 4:44 PM)

| DATE | REVISION |
|---|---|
| | |
| 3/19/19 | 1 Added Corbel |

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**WAIKOKO 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. S3.3 OF 6 SHEETS

| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
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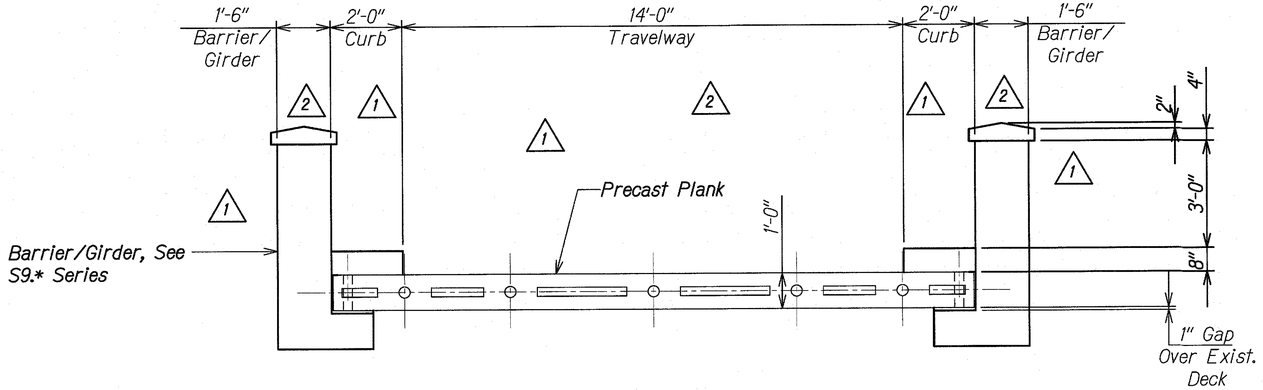


## TYPICAL SECTION (A S3.4 | S3.4)

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

| DATE | REVISION |
|---|---|
| 7/17/19 | 2 Revised Cap |
| 3/19/19 | 1 Revised Finish |

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

# WAIKOKO 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. S3.4 OF 6 SHEETS

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

DRAWING NAME: Z:\OD ONGOING\OD CB PROJECTS\18-008.2-3W BRIDGES ASB\01 CAD\03-XX-21 WAIKOKO AS-BUILTS\24-3WB-S3304 DELTA1 DELTA2 WAIKO SECT.DWG PLOT TIME: 03-12-21; 4:45 PM)

| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
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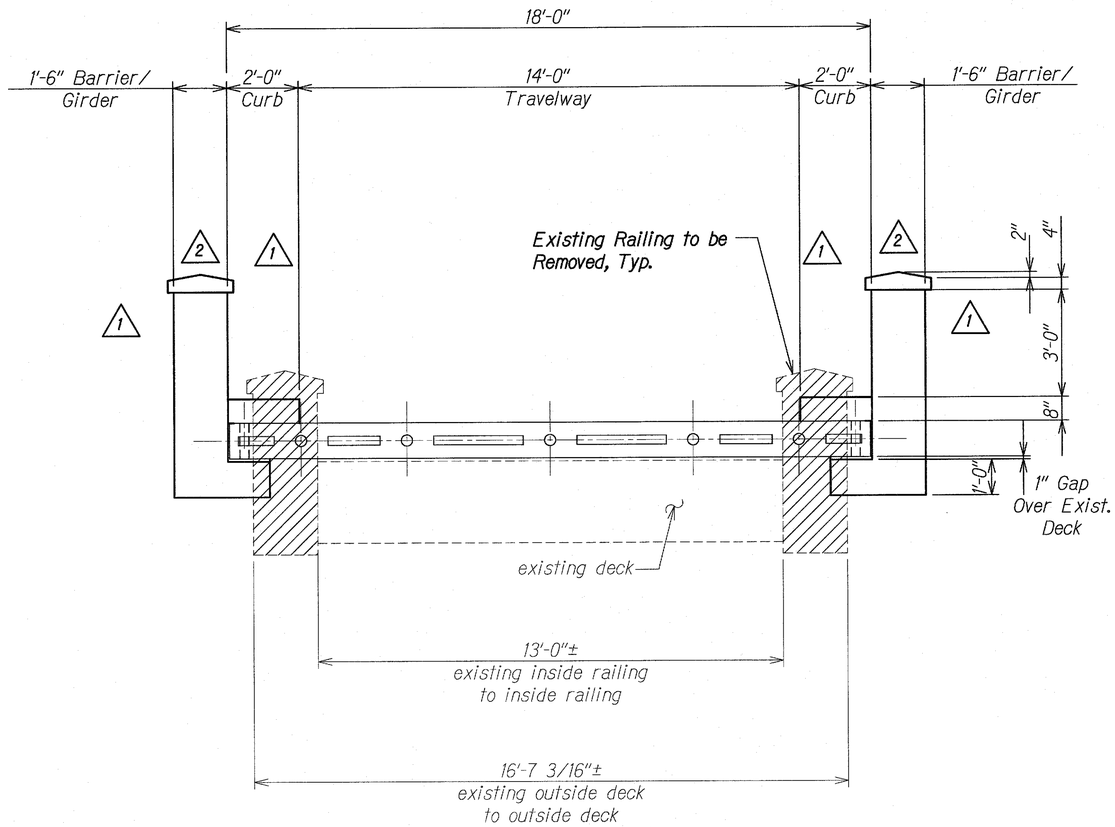


## WAIKOKO STREAM BRIDGE
## TYPICAL SECTION

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

A S3.5 | S3.5

DRAWING NAME: Z:\00 ONGOING\00 C3 PROJECTS\18-008.2-3W BRIDGES ASBY\01 CAD\03-XX-21 WAIKOKO AS-BUILTS\24 3W9-S1304 DELTA1 DELTA2 WAIKO SECT.DWG PLOT TIME: 03-12-21; 4:46 PM)

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

| DATE | REVISION |
|---|---|
| 7/17/19 | 2 Revised Cap |
| 3/19/19 | 1 Revised Finish |

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**WAIKOKO 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. S3.5 OF 6 SHEETS

| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
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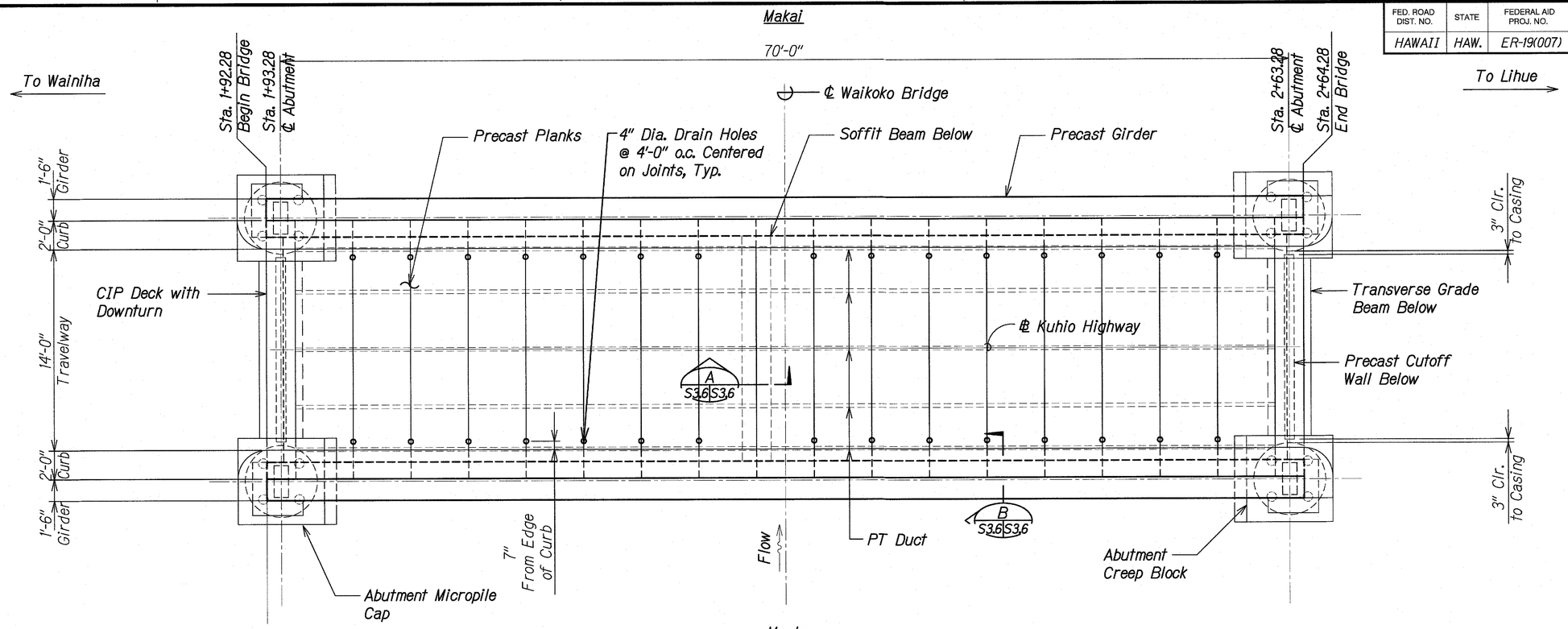
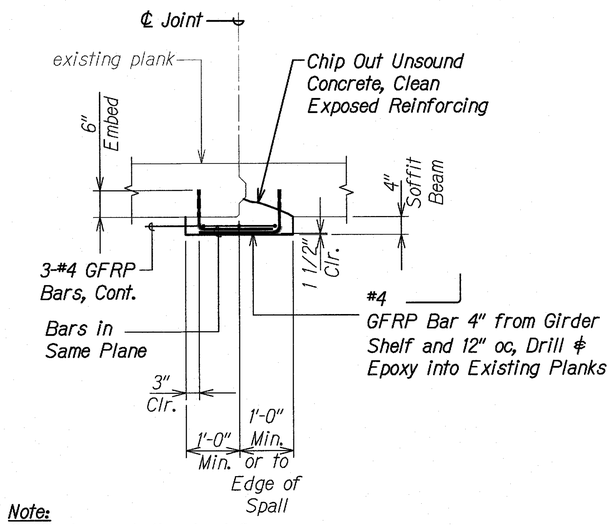



## WAIKOKO STREAM BRIDGE DRAIN HOLE PLAN

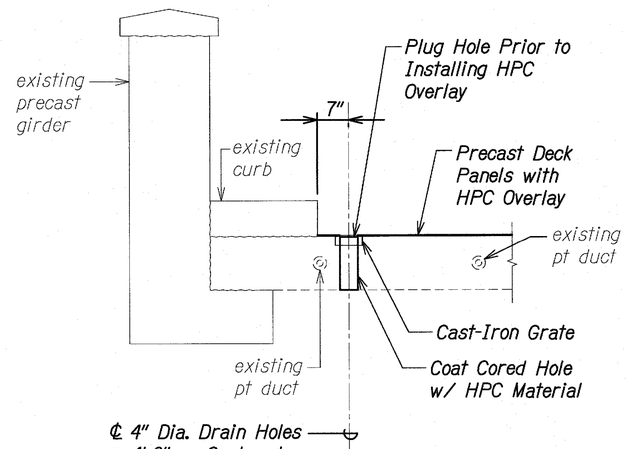
Scale: 1/4" = 1'-0"




**Note:**
Soffit beam shall extend from grider shelf to girder shelf.

### DECK REPAIR SECTION A S3.6 S3.6

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




### DECK DRAIN SECTION B S3.6 S3.6

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

| DATE | REVISION |
|---|---|
| 9/20/19 | 4 New Sheet |

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**WAIKOKO 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. S3.6 OF 6 SHEETS

25S-1

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

DRAWING NAME: Z:\DOCUMENTS\CONGONG\00 CB PROJECTS\18-008.2-3W BRIDGES ASBUILT\01 CADD\03-XX-21 WAIKOKO AS-BUILTS\25S-1 3W8-SD306 DELTA 4 WAIKO DECK.DWG PLOT TIME: 03-12-21, 4:57 PM

| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
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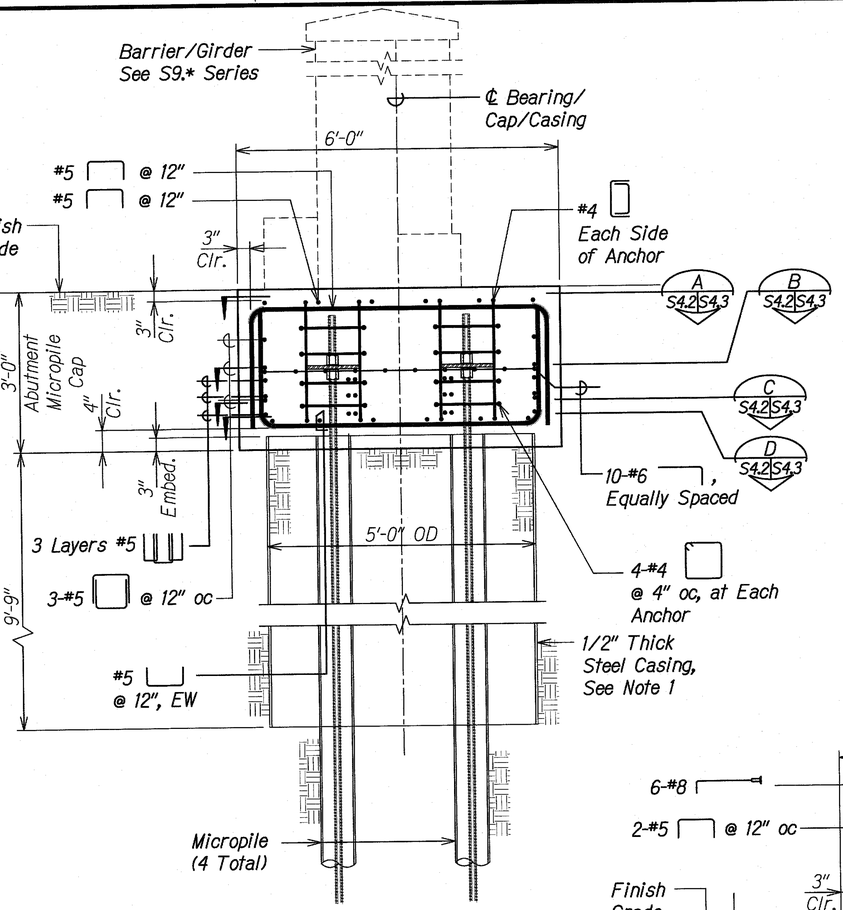
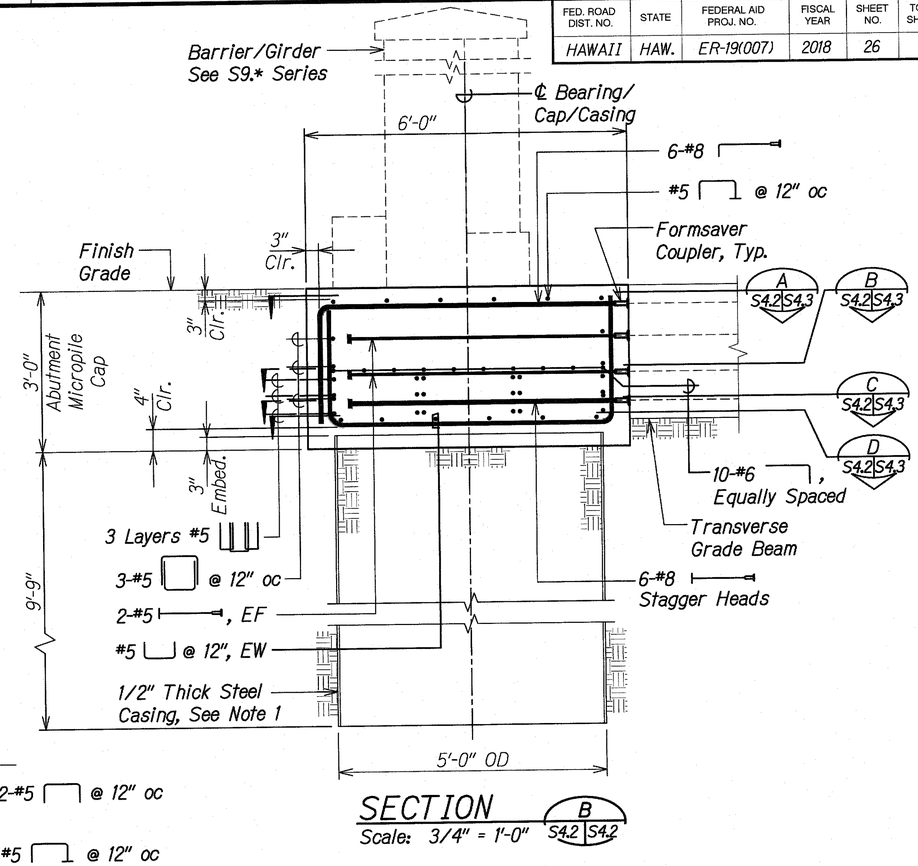
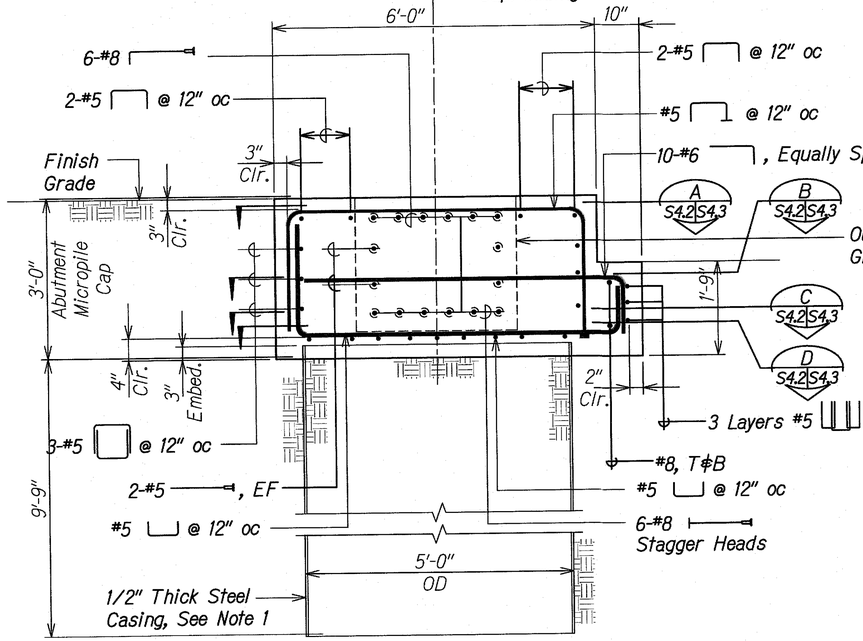
| HAWAII | HAW. | ER-19(007) | 2018 | 26 | 56 |




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




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




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

NOTE:

1. Steel Casing shall be incidental to Abutment Micropile Cap.

1

| DATE | REVISION |
|---|---|
| 3/19/19 | 1 Added Sections |

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

# MICROPILE, CASING, AND ABUTMENT CAP 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. S4.2 OF 4 SHEETS

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

DRAWING NAME: Z:\DO ONGOING\DO CB PROJECTS\18-0082-3W BRIDGES ASBA\01 CAD\03-XX-21 WAIKOKO AS-BUILTS\26 3WB-S9402 DELTA1 MICRO.DWG PLOT TIME: 03-12-21, 4:48 PM)

| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
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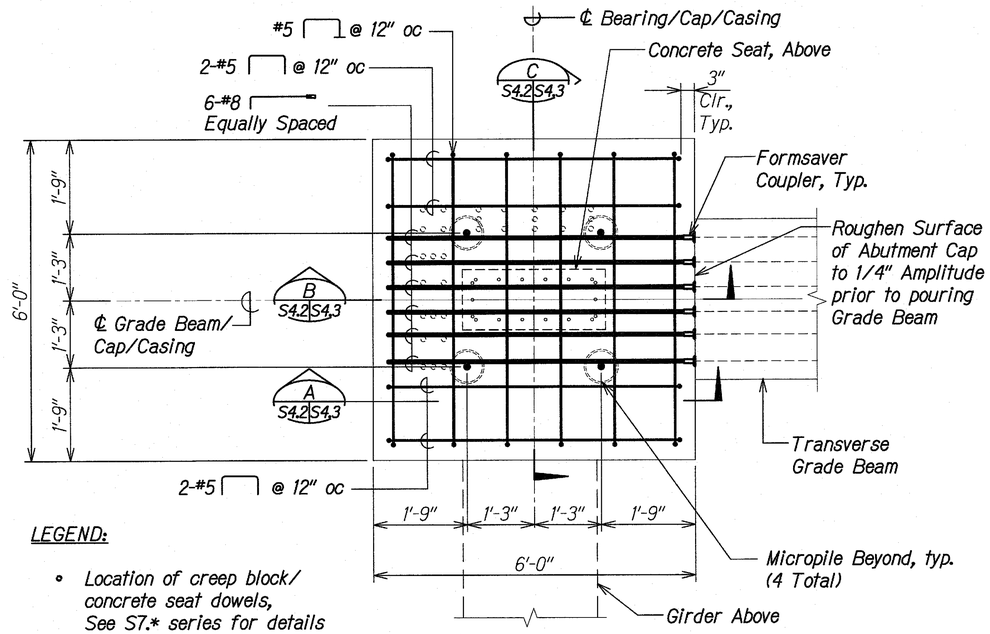
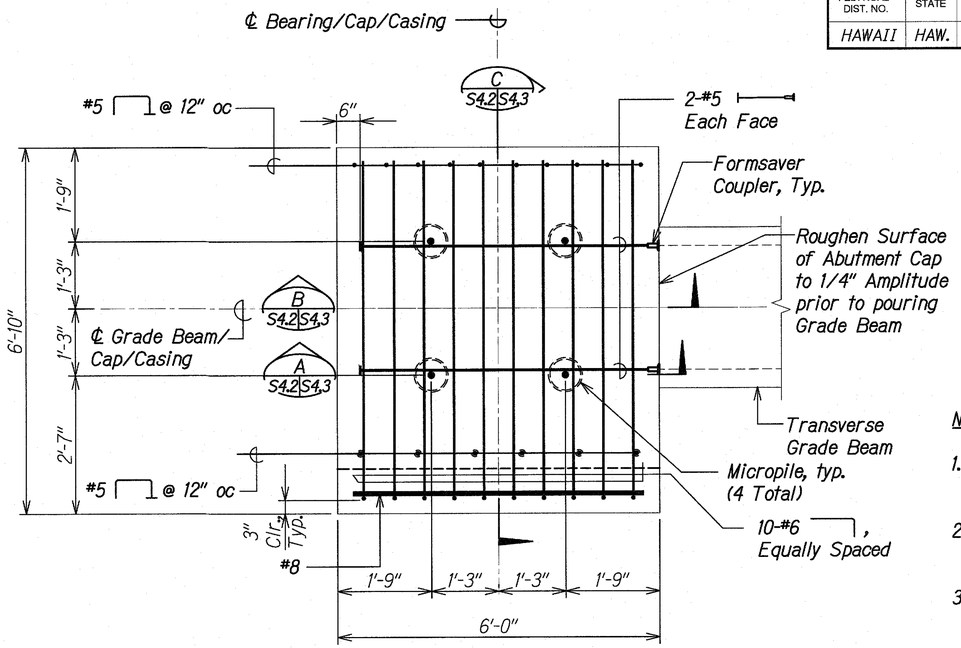



LEGEND:

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

## SECTION - TOP LAYER REINFORCING (A S4.2|S4.3)

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



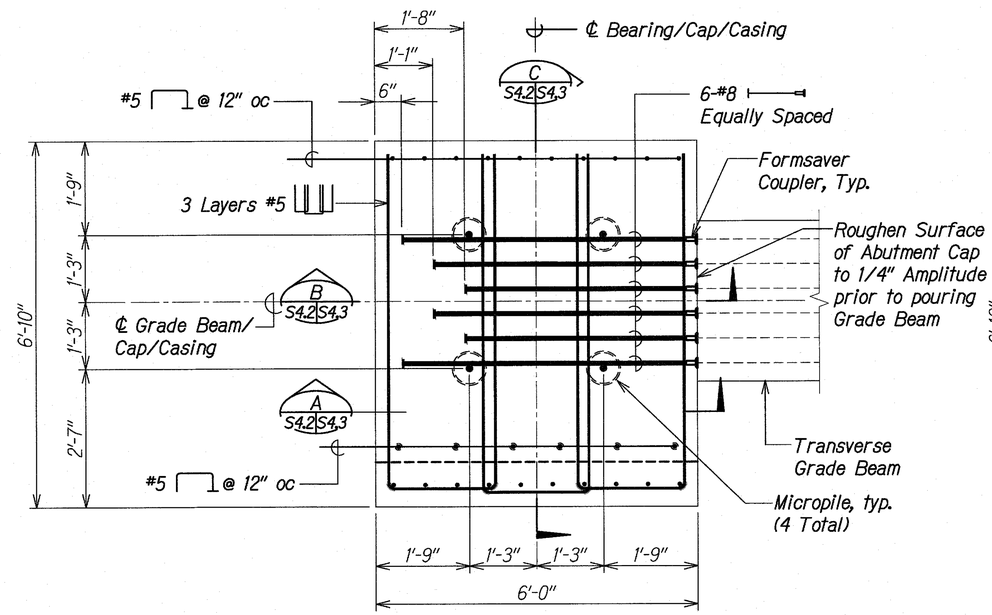

## SECTION - UPPER MIDDLE LAYER REINFORCING (B S4.2|S4.3)

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

Notes:

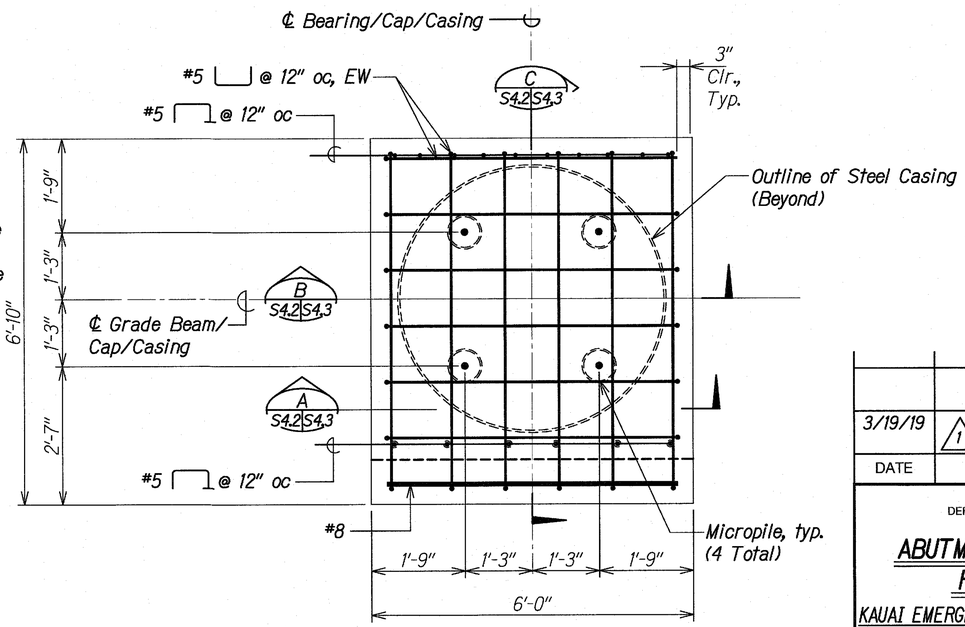
1. #4 ○ around anchor not shown for clarity.
2. 3-#3 □ @ 12" oc not shown for clarity.
3. Contractor shall coordinate location of Formsaver couplers in abutment micropile caps to account for lap splicing of longitudinal reinforcing in transverse grade beam.

△1




## SECTION - LOWER MIDDLE LAYER REINFORCING (C S4.2|S4.3)

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




## SECTION - BOTTOM LAYER REINFORCING (D S4.2|S4.3)

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

| DATE | REVISION |
|---|---|
| 3/19/19 | △1 Added Sections |

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)

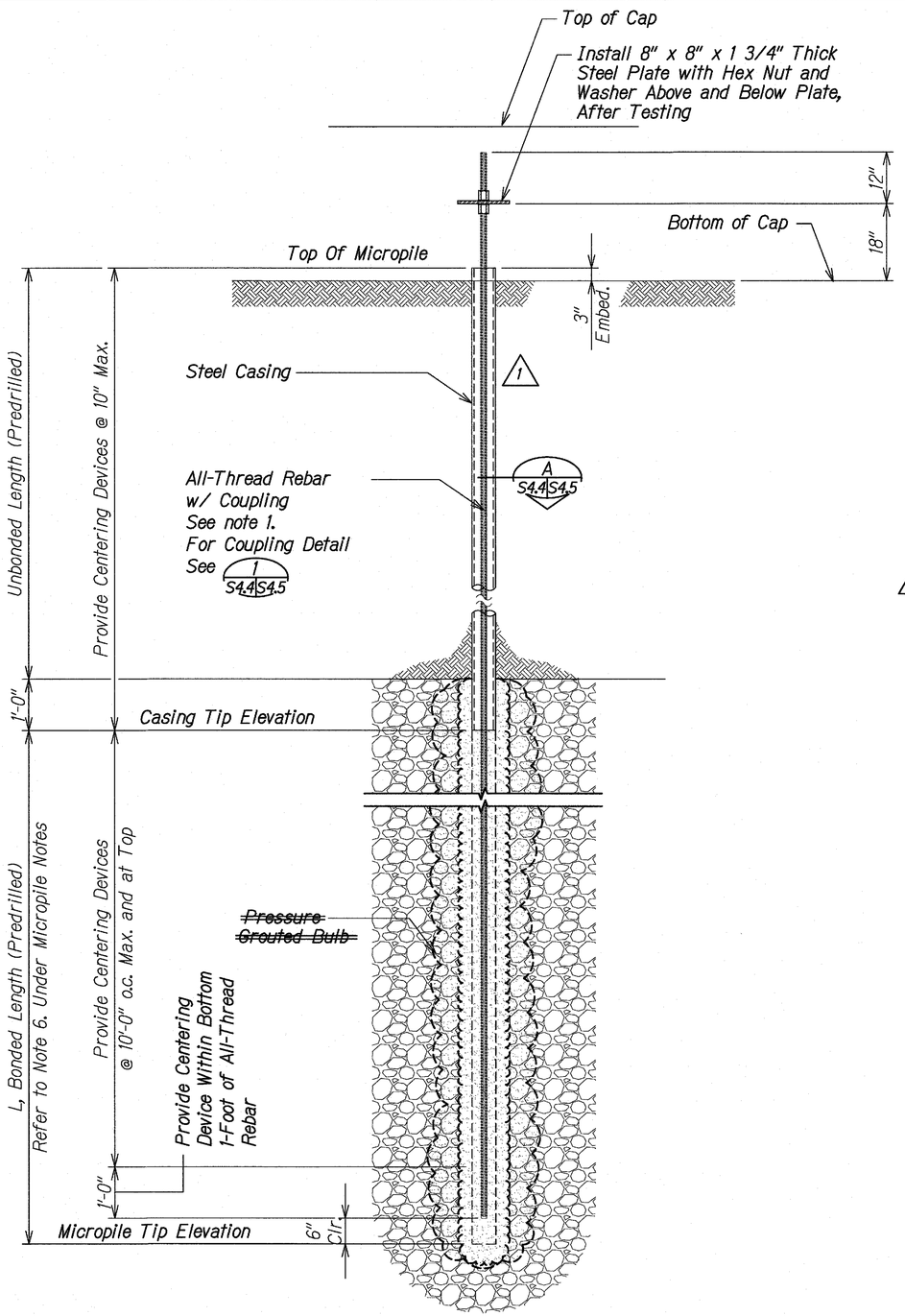
Scale: As Noted Date: Oct. 2018

SHEET No. S4.3 OF 4 SHEETS

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

DRAWING NAME: Z:\OD ONGOING\OD C9 PROJECTS\18-038.2-3W BRIDGES ASB\01 CAD\03-XX-21 WAIKOKO AS-BUILTS\26 3WB-S0402 DELTA1 MICRO.DWG PLOT TIME: 03-12-21, 4:48 PM

| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | ER-19(007) | 2018 | 28 | 56 |




TYPICAL PRODUCTION MICROPILE DETAIL 1 S4.4 S4.4

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

MICROPILE NOTES:

1. 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. 1

2. Material Properties of Accessories:

   (a) Steel Plates - ASTM A36

   (b) Hex Nuts - ASTM A108 or A563

   (c) Couplings - ASTM A108 or A576

   (d) Washers - ASTM F436

3. All nuts and bar couplings shall develop 100% of the bar's ultimate tensile strength. 1

4. All accessories such as nuts, couplings, washers, and steel plates shall be Epoxy Coated. 1

5. The bonded length is estimated. The actual bond length will be determined by the Engineer after the preproduction micropile load test.

6.

| Micropile Schedule | | | | |
|---|---|---|---|---|
| Bridge | Location | Micropile Tip Elevation (feet MSL) | Micropile Permanent Casing Tip Elevation (feet MSL) | Bond Length (L) |
| Waikoko | Abutment | -106 | -43 | 63 |

| LEGEND FOR AS-BUILT POSTINGS | |
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| Roadway | Text for as-built posting |

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

DRAWING NAME: Z:\OD ONGOING\OD CB PROJECTS\18-008.2-3W BRIDGES ASB\01 CAD\03-26-21 WAIKOKO AS-BUILTS REVIEW CTB\28 SWB-S9402 DELTA1 MICRO.DWG PLOT TIME: 03-25-21; 2:04 PM

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

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. S4.4 OF 4 SHEETS

"AS-BUILT"

| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
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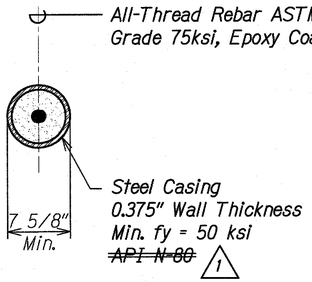



ASTM A-252 Grade 3

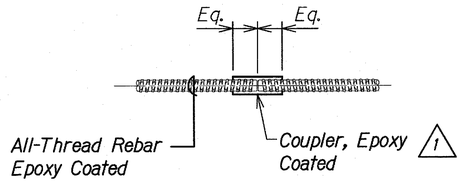
## TYPICAL MICROPILE SECTION

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

A
S4.4 | S4.5

*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.




## COUPLER DETAIL OF ALL-THREAD REBAR

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

1
S4.4 | S4.5

*NOTE:*

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

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

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

| DATE | REVISION |
|---|---|
| 3/19/19 | 1 Revised Notes |

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)

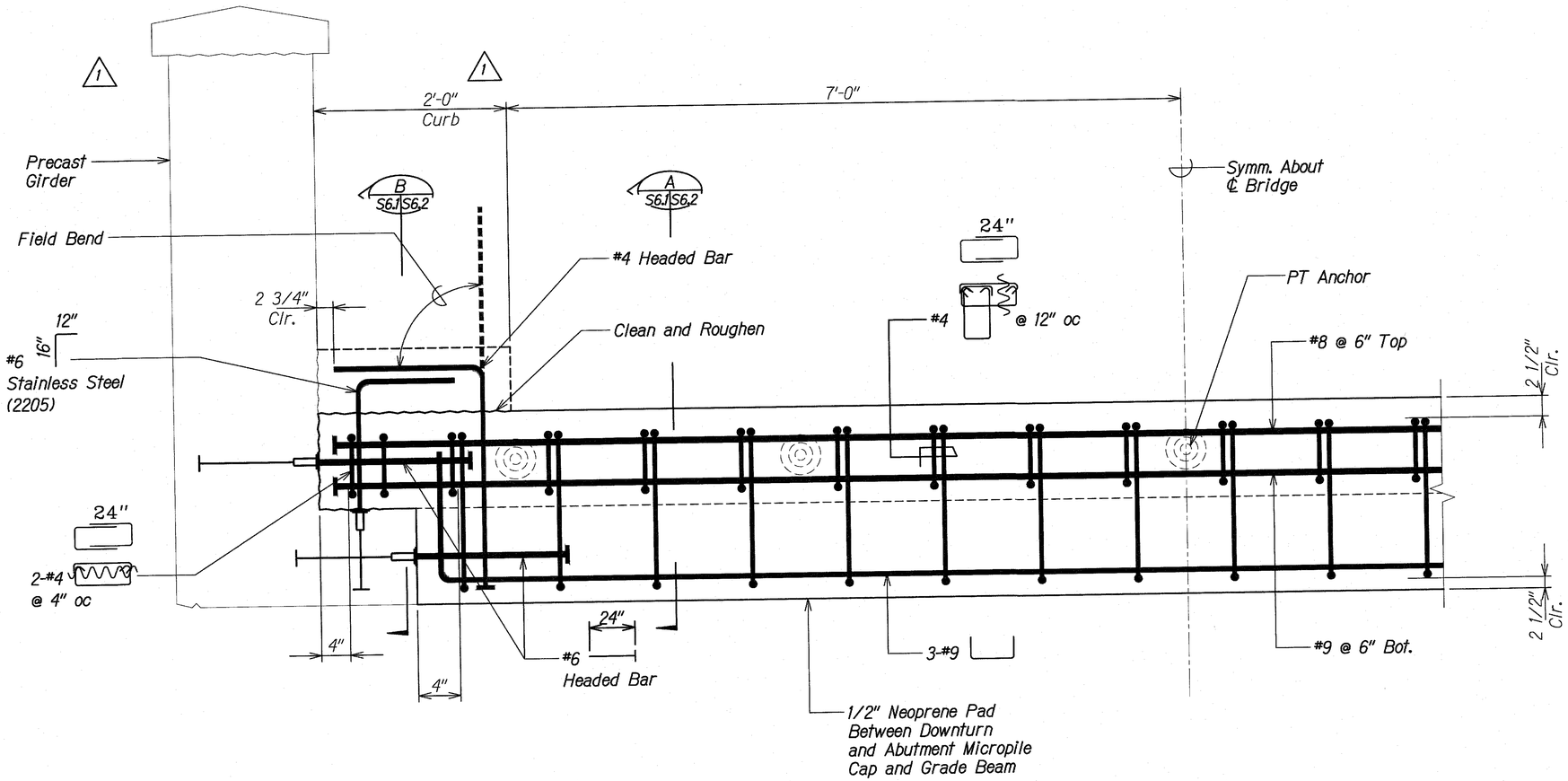
Scale: As Noted Date: Oct. 2018

SHEET No. S4.5 OF 4 SHEETS

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-008.2-3W BRIDGES ASB\01 CAD\03-26-21 WAIKOKO AS-BUILTS REVIEW CTR\26 3W8-S0402 DELTA1 MICRO.DWG PLOT TIME: 03-25-21, 2:04 PM)

"AS-BUILT"

| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | ER-19(007) | 2018 | 30 | 56 |




## CIP DECK SECTION WITH DOWNTURN

A S6.1 | S6.1

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

### LEGEND FOR AS-BUILT POSTINGS

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| Roadway | Text for as-built posting |

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

| DATE | REVISION |
|---|---|
| 7/17/19 | 2 Revised Cap |
| 3/19/19 | 1 Revised Finish |

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. S6.1 OF 3 SHEETS

DRAWING NAME: Z:\OD ONGOING\OD CB PROJECTS\18-0018.2-3W BRIDGES ASBUILT CAD\03-26-21 WAIKOKO AS-BUILTS REVIEW CTR\30 3W18-S0601 DELTA1 DELTA2 BEAMS.DWG PLOT TIME: 03-25-21, 2:06 PM)

"AS-BUILT"

| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
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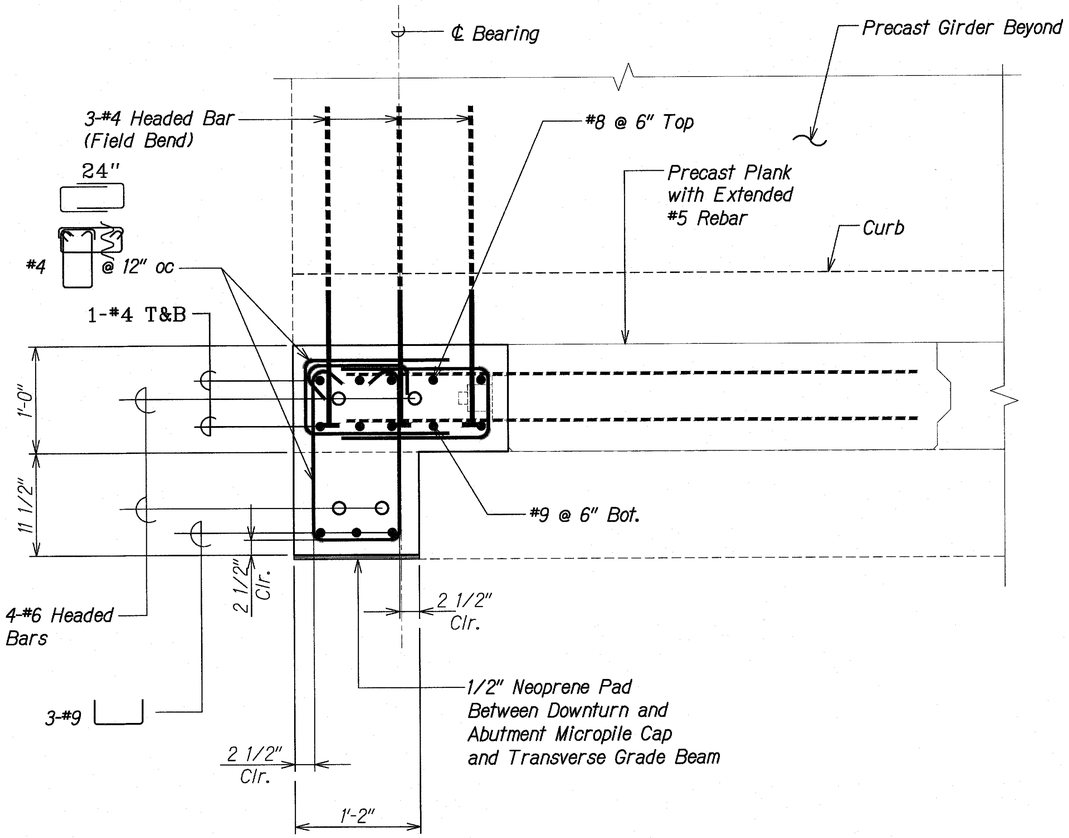
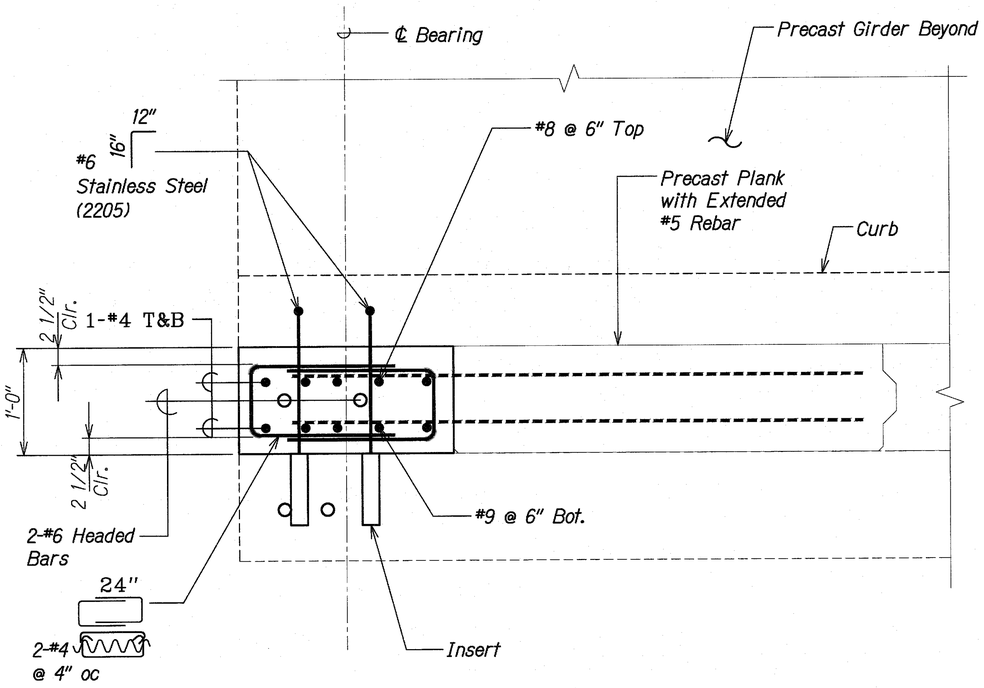



SECTION CIP DECK WITH DOWNTURN AT WAIKOKO

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

A S6.1 | S6.3




SECTION CIP DECK AT WAIKOKO

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

B S6.1 | S6.3

| LEGEND FOR AS-BUILT POSTINGS | |
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| ~~100.00~~ | Double line for as-built deletion |
| Roadway | Text for as-built posting |

ORIGINAL PLAN | NOTE BOOK | No.

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

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-008.2-3W BRIDGES ASBUILT CAD\03-26-21 WAIKOKO AS-BUILTS REVIEW CTB\30 3WB-S0601 DELTA1 DELTA2 BEAMS.DWG PLOT TIME: 03-25-21, 2:06 PM)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

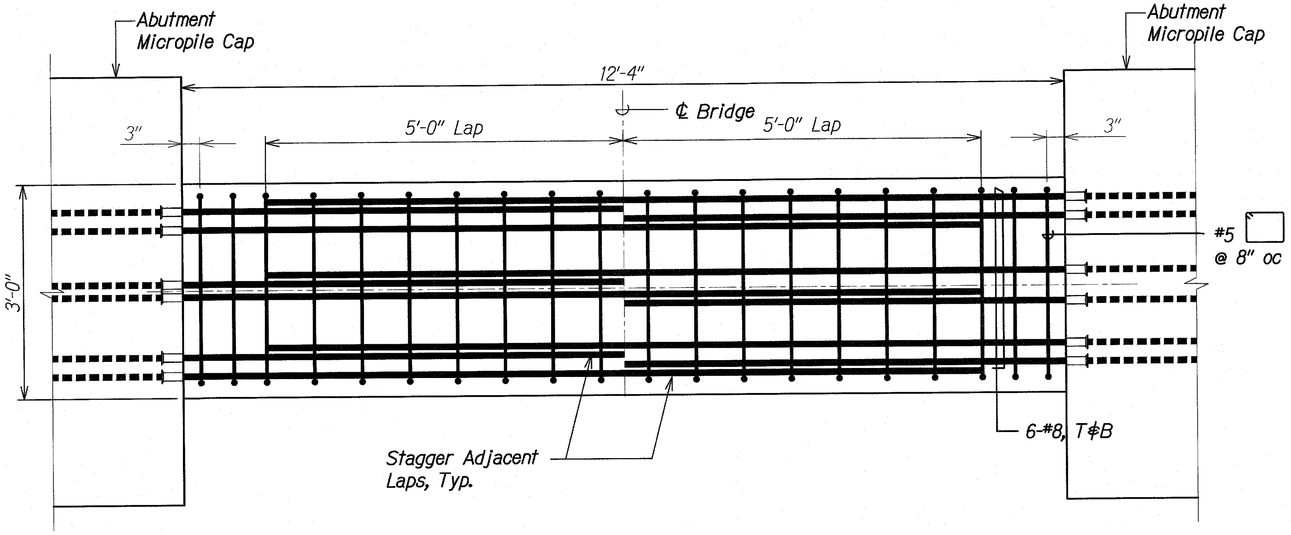
CIP DECK WITH DOWNTURN BEAM AT WAIKOKO

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. S6.2 OF 3 SHEETS

| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | ER-19(007) | 2018 | 32 | 56 |



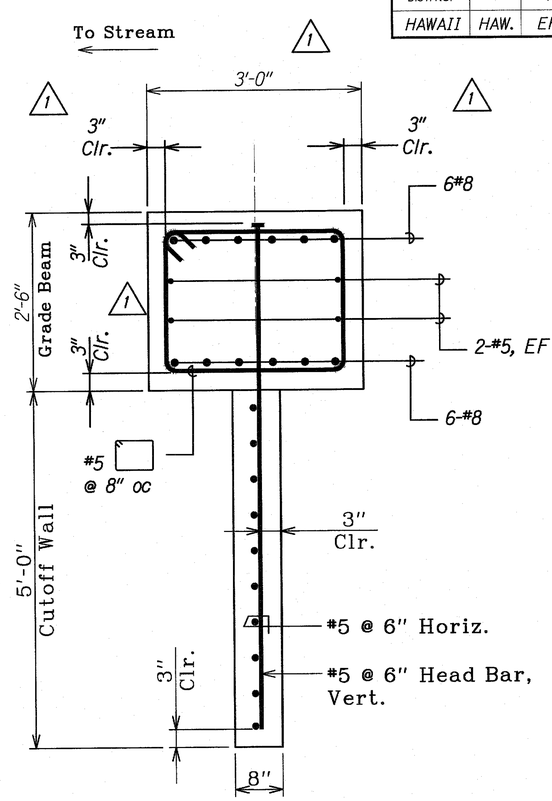

1

## TRANSVERSE GRADE BEAM T&B REINFORCING PLAN

Scale: 1" = 1'-0"

A S6.5 | S6.5

1




## CUTOFF WALL AT TRANSVERSE GRADE BEAM SECTION

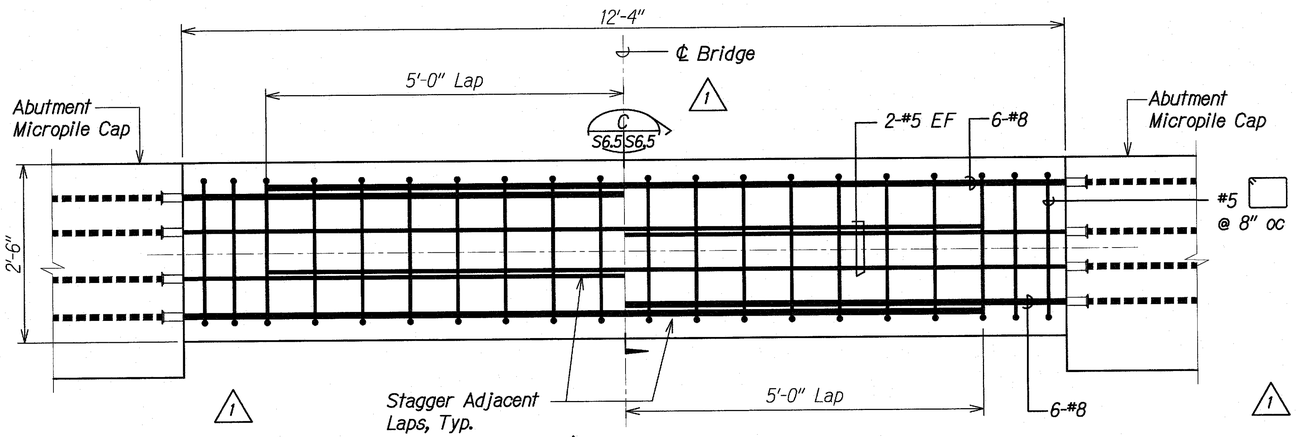
Scale: 1" = 1'-0"

C S6.5 | S6.5

**Note:**

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

1




1 1 1

## TRANSVERSE GRADE BEAM ELEVATION

Scale: 1" = 1'-0"

B S6.5 | S6.5

### 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 |

| DATE | REVISION |
|---|---|
| 3/19/19 | 1 Revised Sections |

ORIGINAL PLAN | NOTE BOOK | No.

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

DRAWING NAME: Z:\OD ONGOING\OD CB PROJECTS\18-008.2-SW BRIDGES ASB\01 CAD\03-26-21 WAIOKO AS-BUILTS REVIEW CTB\30 SWB-S0601 DELTA1 DELTA2 BEAMS.DWG PLOT TIME: 03-25-21, 2:06 PM)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

## TRANSVERSE GRADE BEAM

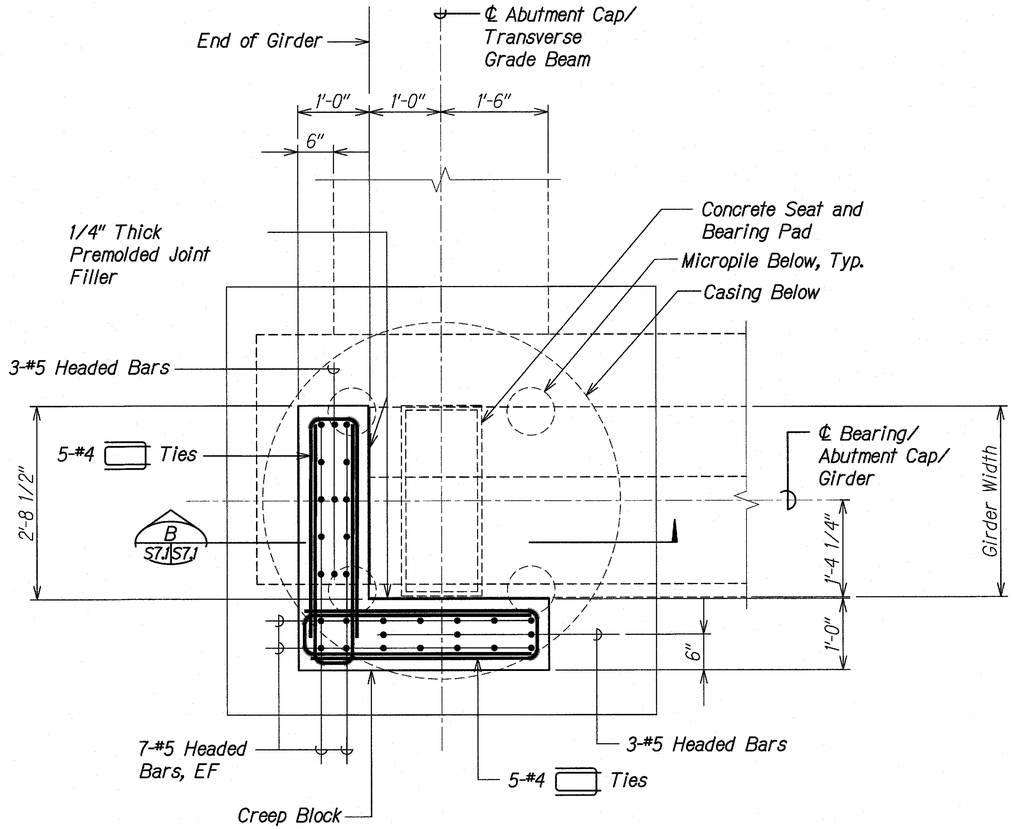
KAUAI EMERGENCY FLOOD REPAIRS & CLEANUP
At Various Locations April 2018, Rte. 560
Fed. Aid Proj. No. ER-19(007)

Scale: As Noted | Date: Oct. 2018

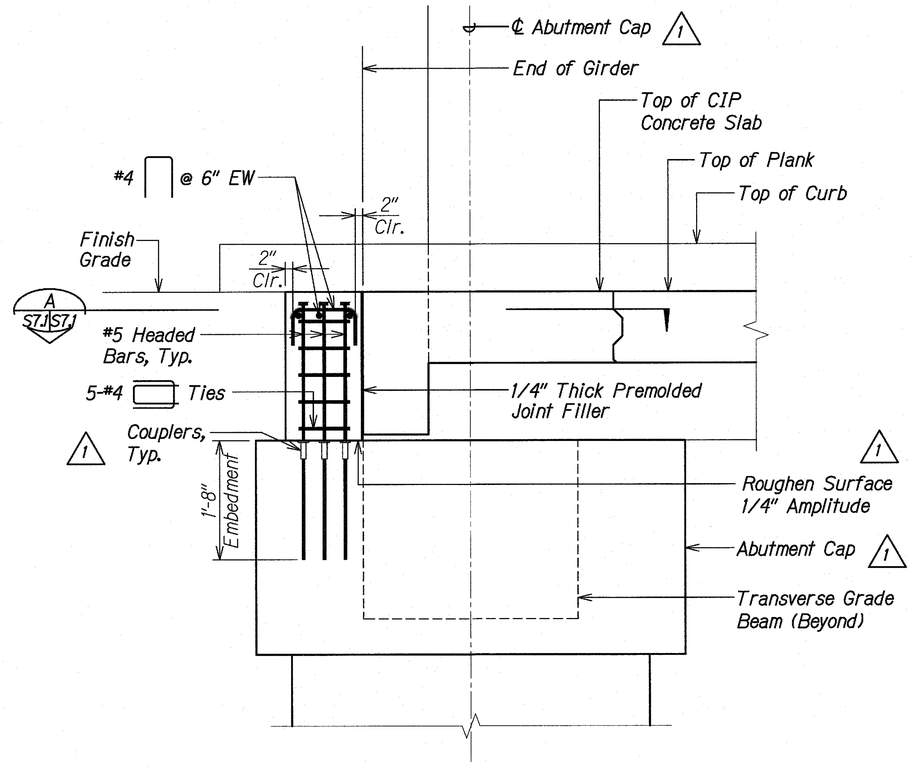
SHEET No. S6.5 OF 3 SHEETS

"AS-BUILT"

| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | ER-19(007) | 2018 | 33 | 56 |




SECTION A S7.1 S7.1 1
Scale: 1" = 1'-0"




SECTION B S7.1 S7.1
Scale: 1" = 1'-0"

| DATE | REVISION |
|---|---|
| 3/19/19 | 1 Added Sections |

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)

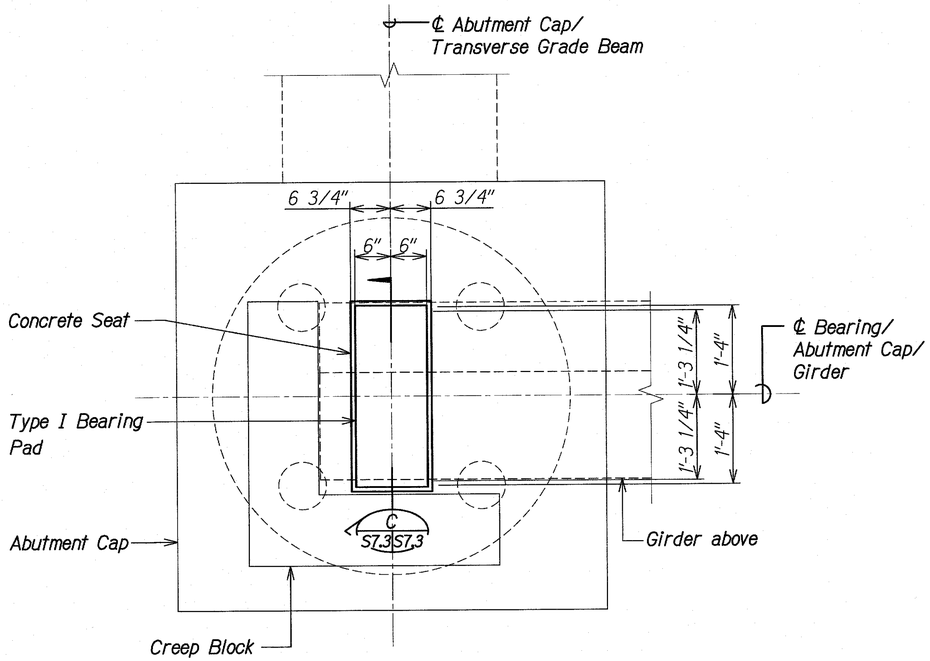
Scale: As Noted Date: Oct. 2018

SHEET No. S7.1 OF 2 SHEETS

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

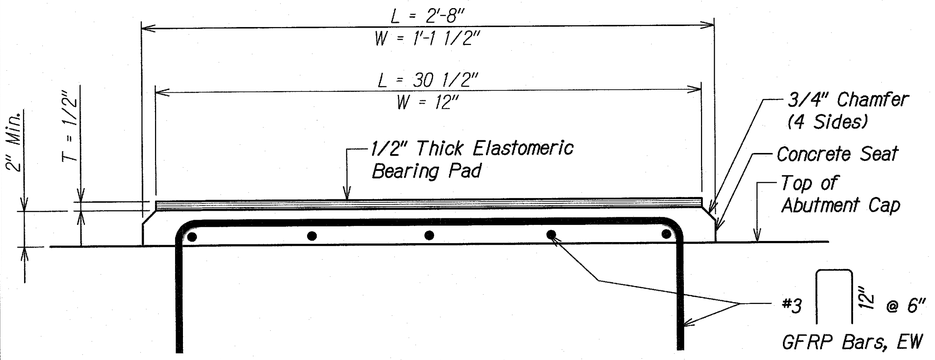
DRAWING NAME: Z:\OD CNGCNKO\OD CB PROJECTS\18-008.2-3W BRIDGES ASBI\01 CAD\03-XX-21 WAIKOKO AS-BUILTS\33 3WB-S1701 DELTA1 CREEP BLK.DWG PLOT TIME: 03-12-21, 4:54 PM)

| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | ER-19(007) | 2018 | 34 | 56 |




## PLAN AT ABUTMENT CAP (A / S7.1 | S7.3)

Scale: 1" = 1'-0"




## TYPE I - ELASTOMERIC BEARING PAD (C / S7.3 | S7.3)

Scale: 3" = 1'-0"

Note: Elastomeric Bearing Pads shall be incidental to precast girders

1

| DATE | REVISION |
|---|---|
| | |
| 3/19/19 | 1 Deleted Sections |

STATE OF HAWAI'I
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)

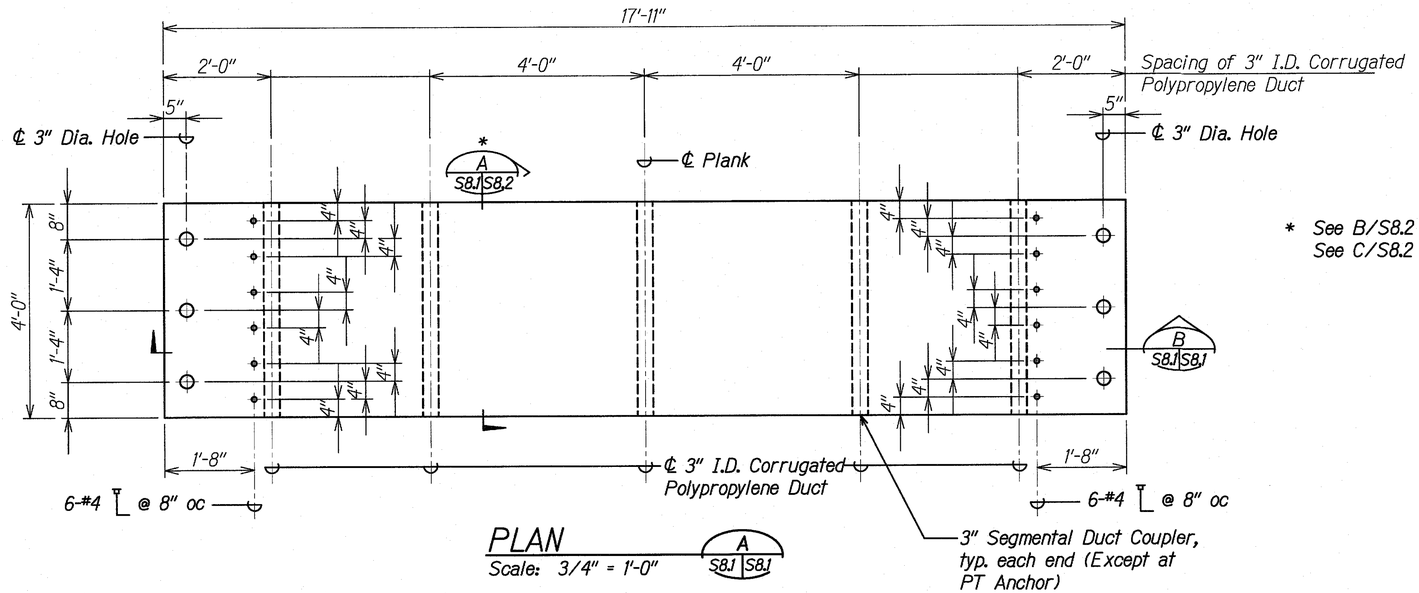
Scale: As Noted Date: Oct. 2018

SHEET No. S7.3 OF 2 SHEETS

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

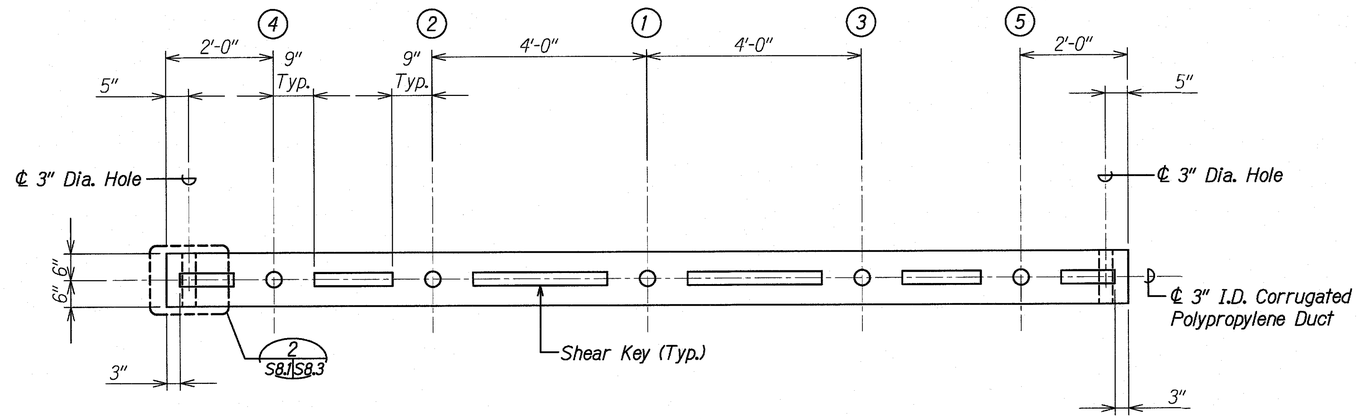
DRAWING NAME: Z:\OD ONGOING\OD CB PROJECTS\18-0082-3W BRIDGES ASB\01 CAD\03-XX-21 WAIKOKO AS-BUILTS\33 3WB-S0701 DETAI CREEP BLK.DWG PLOT TIME: 03-12-21, 4:54 PM)

| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | ER-19(007) | 2018 | 35 | 56 |




* See B/S8.2 for Section at First Plank (Plank E1)
See C/S8.2 for Section at Last Plank (Plank E2)

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




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

Note: (1) Indicates Sequence of PT Stressing.

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-008.2-3W BRIDGES ASB\01 CAD\03-XX-21 WAIKOKO AS-BUILTS\35 3WB-S08@1 PLANK.DWG PLOT TIME: 03-12-21; 5:01 PM)

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

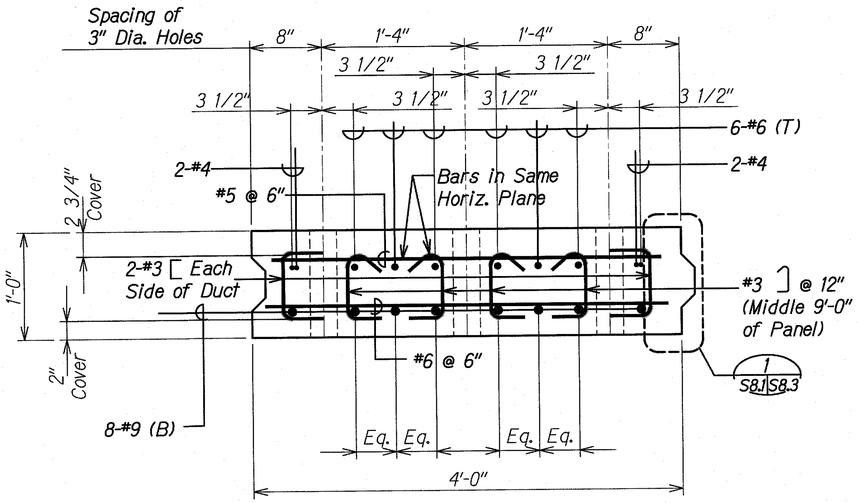
# PRECAST PLANK DETAILS

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

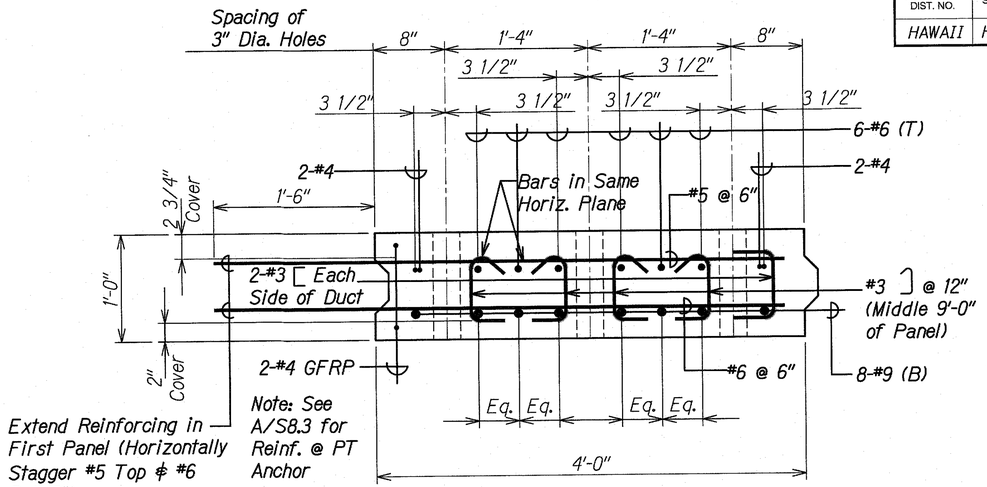
| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | ER-19(007) | 2018 | 36 | 56 |




## SECTION AT TYPICAL PLANK (PLANK I)
## 47 EACH

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

A
S8.1 S8.2



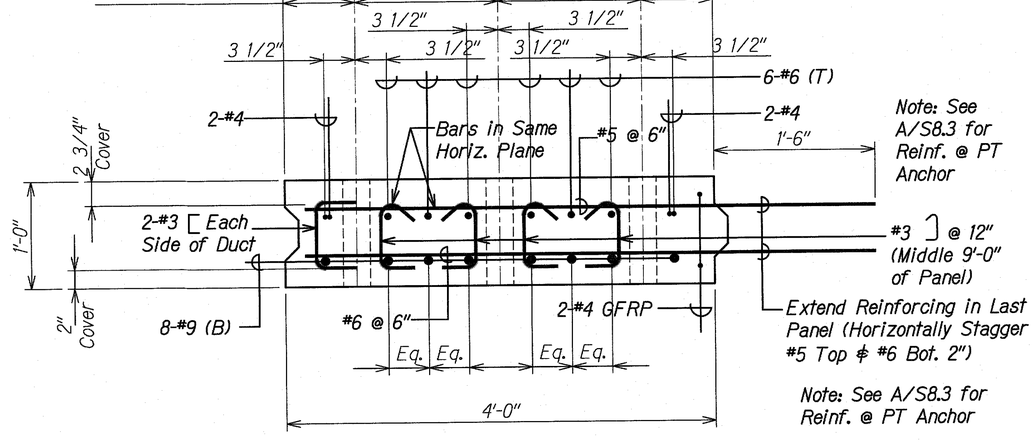

Extend Reinforcing in First Panel (Horizontally Stagger #5 Top ¢ #6 Bot. 2")

Note: See A/S8.3 for Reinf. @ PT Anchor

## 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 | SURVEY PLOTTED BY | DATE |
|---|---|---|
| | DRAWN BY | " |
| NOTE BOOK | TRACED BY | " |
| | DESIGNED BY | " |
| No. | QUANTITIES BY | " |
| | CHECKED BY | " |

DRAWING NAME: Z:\DO ENGING\DO CB PROJECTS\18-008.2-3W BRIDGES ASBID1 CAD\03-XX-21 WAIKOKO AS-BUILTS\35 3WB-S2801 PLANK.DWG PLOT TIME: 03-12-21, 5:02 PM

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

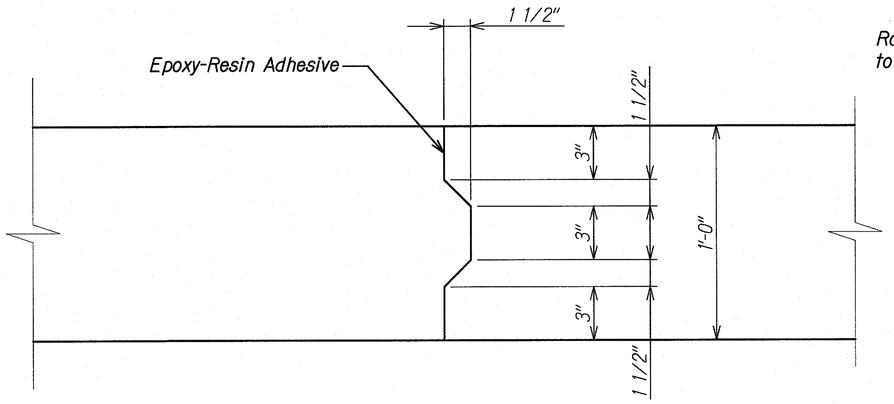
# PRECAST PLANK DETAILS

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

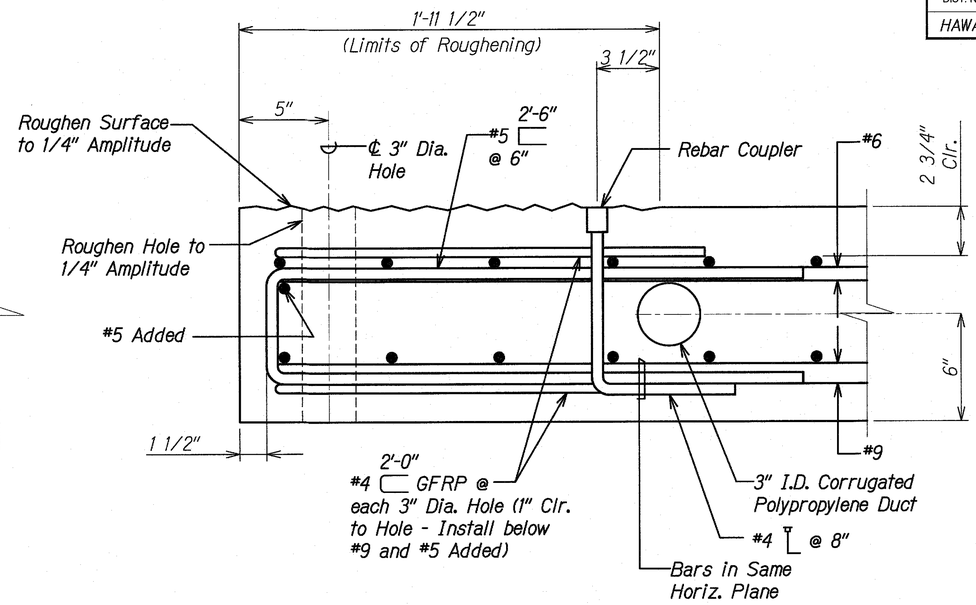
Scale: As Noted Date: Oct. 2018

SHEET No. S8.2 OF 4 SHEETS

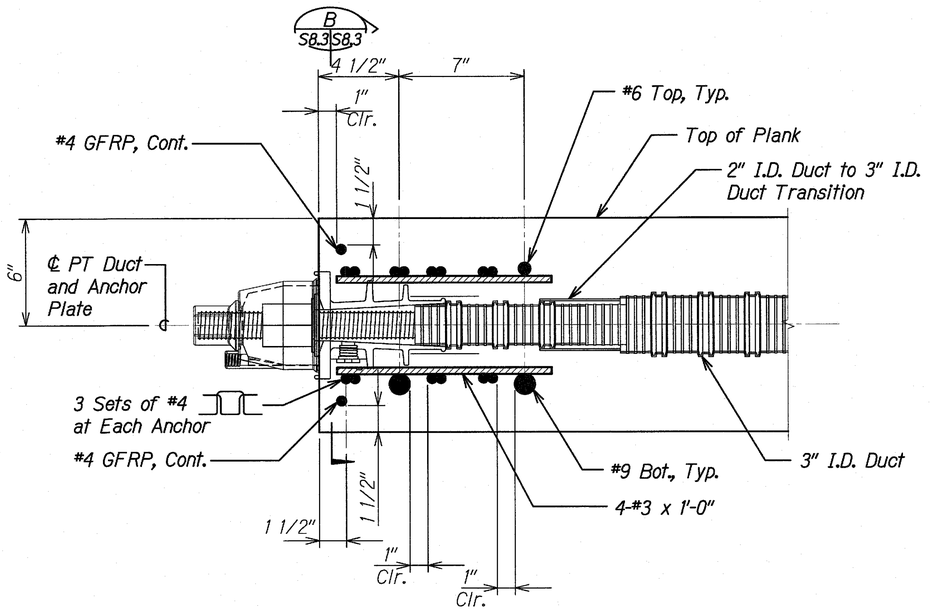
| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | ER-19(007) | 2018 | 37 | 56 |



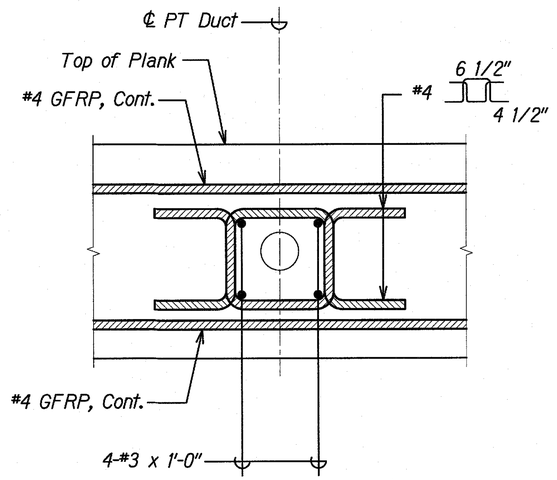

SHEAR KEY (1 / S8.1 | S8.3)
Scale: 3" = 1'-0"




EDGE OF PANEL (2 / S8.1 | S8.3)
Scale: 3" = 1'-0"




SECTION AT PT ANCHOR (A / S8.3 | S8.3)
Scale: 3" = 1'-0"




SECTION (B / S8.3 | S8.3)
Scale: 3" = 1'-0"

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. S8.3 OF 4 SHEETS

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

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-008.2-3W BRIDGES ASB\01 CAD\03-XX-21 WAIKOKO AS-BUILTS\35 3WB-S0801 PLANK.DWG PLOT TIME:

| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | ER-19(007) | 2018 | 38 | 56 |

## 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
NOTE BOOK No.
SURVEY PLOTTED BY DATE
DRAWN BY
TRACED BY
DESIGN BY
QUANTITIES BY
CHECKED BY

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

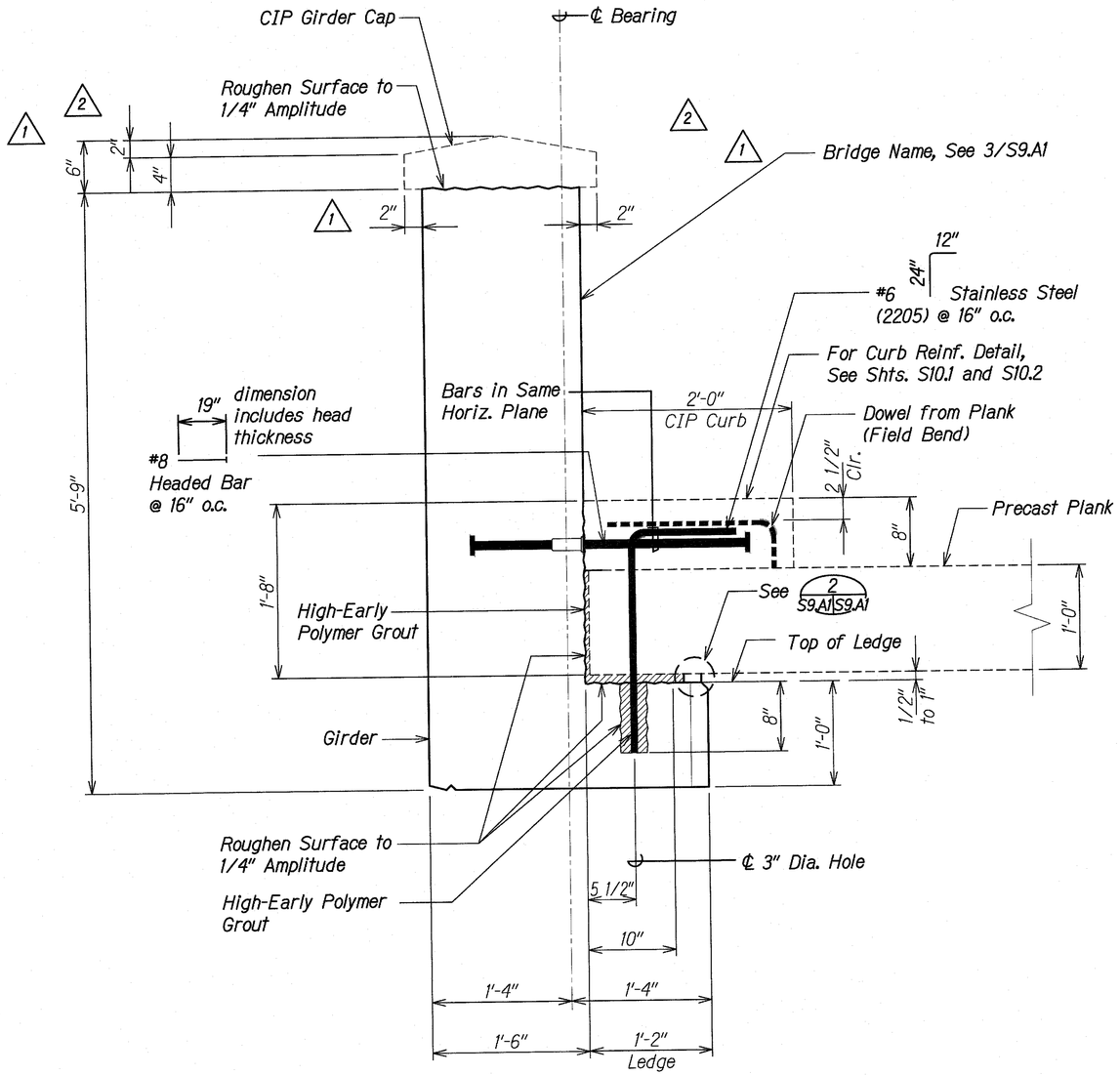
PRECAST AND POST-TENSIONIING NOTES

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

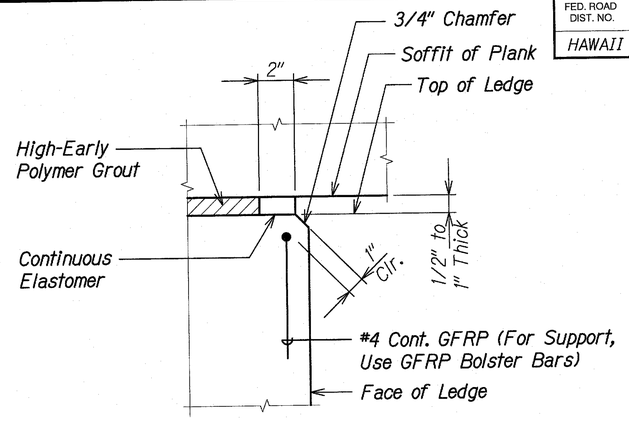
| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | ER-19(007) | 2018 | 39 | 56 |




## TYPICAL GIRDER TO PLANK AND CURB CONNECTION DETAIL

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

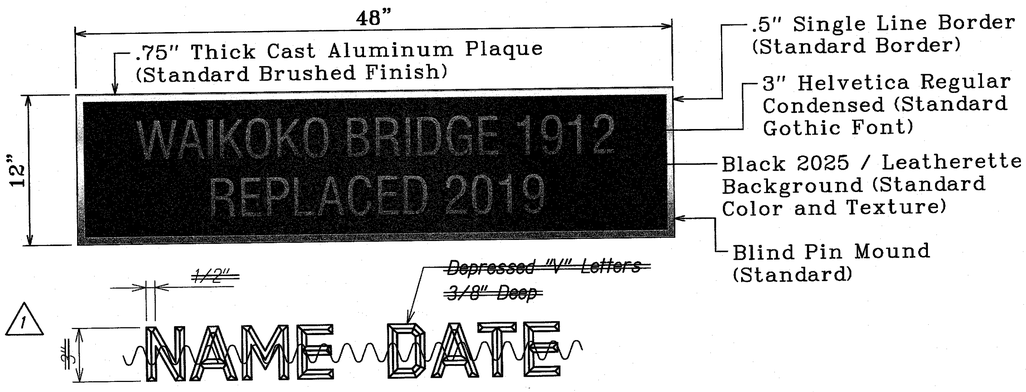
1 | S9.A2 | S9.A1




## DETAIL - TOP CORNER OF LEDGE

Scale: 3" = 1'-0"

2 | S9.A1 | S9.A1




NOTES:

1. 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.~~
2. Name & date shall be place on the trailing end post on each side of each bridge.
3. Unless otherwise directed by the Engineer, the name shall be:

WAIKOKO BRIDGE 1912
REPLACED ~~2018~~ 2019

## TYPICAL DETAILS OF LETTERS & FIGURES AT CONCRETE RAILING

Not to Scale

3 | S9.A1 | S9.A1

### LEGEND FOR AS-BUILT POSTINGS

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

| DATE | | REVISION |
|---|---|---|
| 7/17/19 | 2 | Revised Cap, Dimensions |
| 3/19/19 | 1 | Revised Finish, Dimensions, and Lettering Height |

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

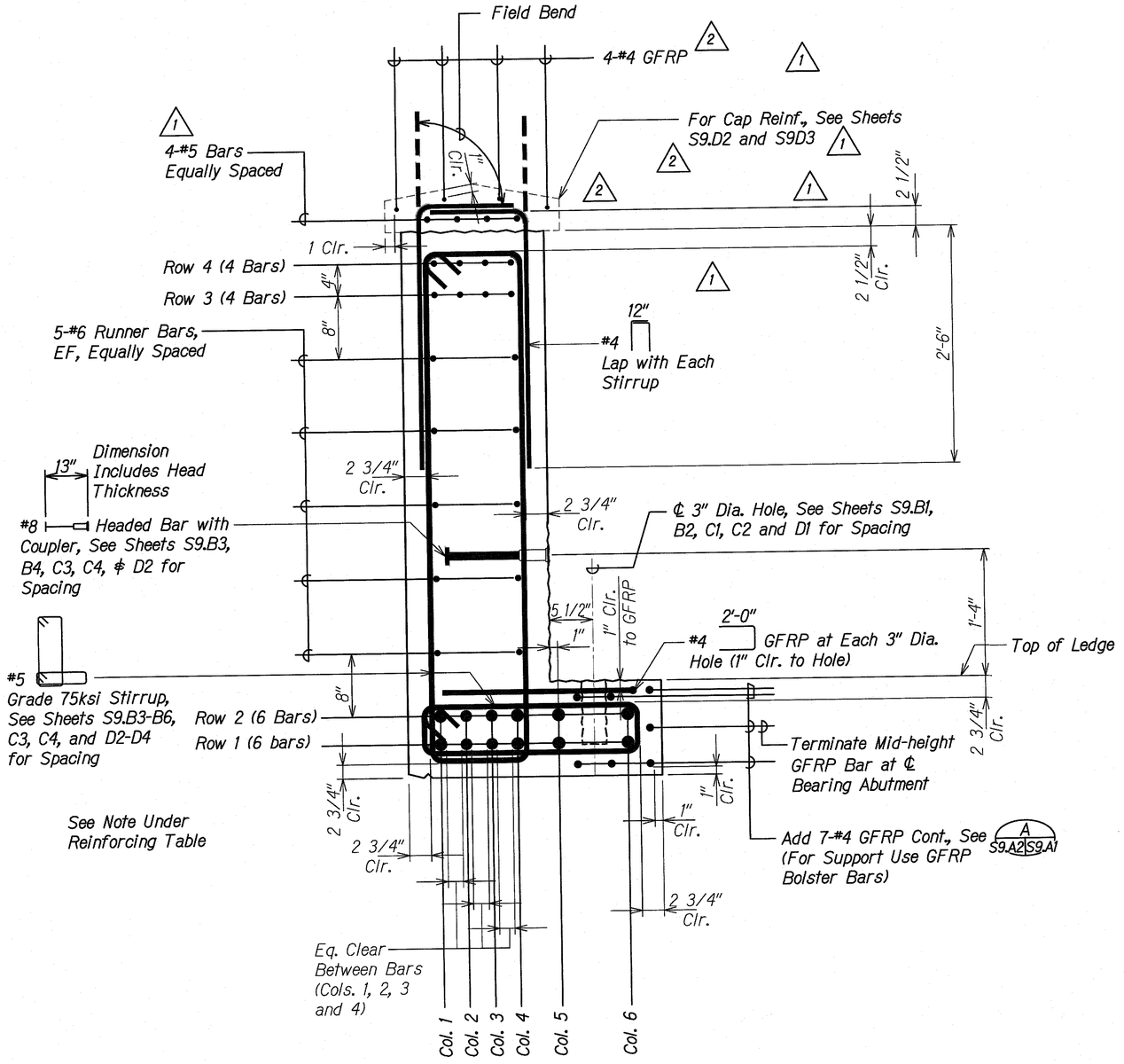
SHEET No. S9.A1 OF 5 SHEETS

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

DRAWING NAME: Z:\DO ONGOING\DO CB PROJECTS\18-009.2-3W BRIDGES ASBUILT CADD\03-25-21 WAIKOKO AS-BUILTS REVIEW CTD\39 3WB-S0900A DETA1 DETA2 ORDER DTLS.DWG PLOT TIME: 03-25-21, 2:08 PM)

"AS-BUILT"

| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | ER-19(007) | 2018 | 40 | 56 |




## SECTION - GIRDER (TYPICAL)

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

A S9.B3|S9.A2

S9.B4, S9.C3, S9.C4, S9.D2

## LONGITUDINAL REINFORCING TABLE

| WAIKOKO STREAM BRIDGE | | | | | | |
|---|---|---|---|---|---|---|
| | Col. 1 | Col. 2 | Col. 3 | Col. 4 | Col. 5 | Col. 6 |
| Row 4 | #6 | #6 | #6 | #6 | - | - |
| Row 3 | #6 | #6 | #6 | #6 | - | - |
| Row 2 | #11 | #10 | #10 | #11 | #11 | #11 |
| Row 1 | #11 | #10 | #10 | #11 | #11 | #11 |

Notes:
1. ℄ Bars in Rows 1 and 2 shall be vertically aligned.
2. ℄ Bars in Rows 3 and 4 shall be vertically aligned.

| DATE | REVISION |
|---|---|
| 7/17/19 | 2 Revised Cap, Reinforcing |
| 3/19/19 | 1 Revised Section |

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL GIRDER SECTION

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

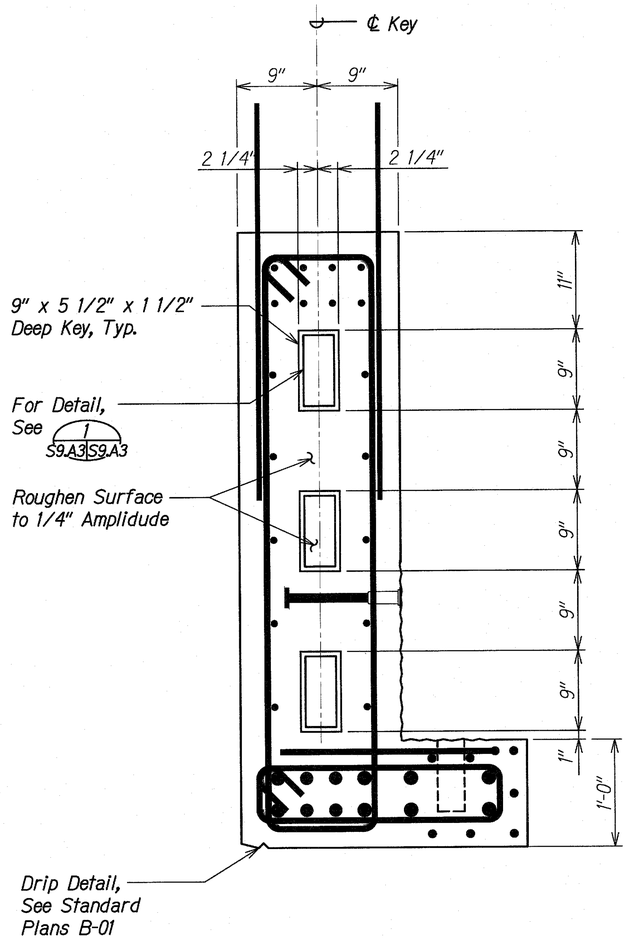
Scale: As Noted Date: Oct. 2018

SHEET No. S9.A2 OF 5 SHEETS

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

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-008.2-3W BRIDGES ASB\01 CAD\03-XX-21 WAIKOKO AS-BUILTS\39 3WB-S9B00A DELTA1 DELTA2 GIRDER DTLS.DWG PLOT TIME: 03-12-21, 5:05 PM)

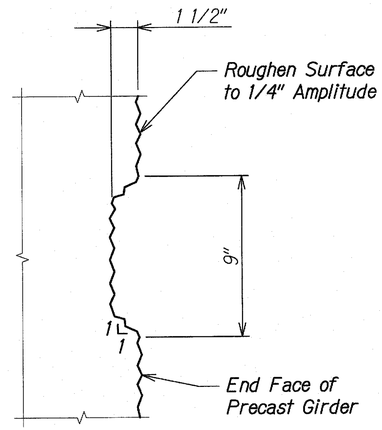
| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | ER-19(007) | 2018 | 41 | 56 |




## DETAIL - END OF PRECAST GIRDER SEGMENT AT CIP CLOSURE POUR

A S9.A3|S9.A3

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




## DETAIL - KEY

1 S9.A3|S9.A3

Scale: 3" = 1'-0"

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

DRAWING NAME: Z:\DO ONGOING\DO CB PROJECTS\18-008.2-3W BRIDGES ASBUILTS\3W-S0900A DELTA1 DELTA2 GIRDER DTLS.DWG PLOT TIME: 03-12-21, 5:05 PM)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

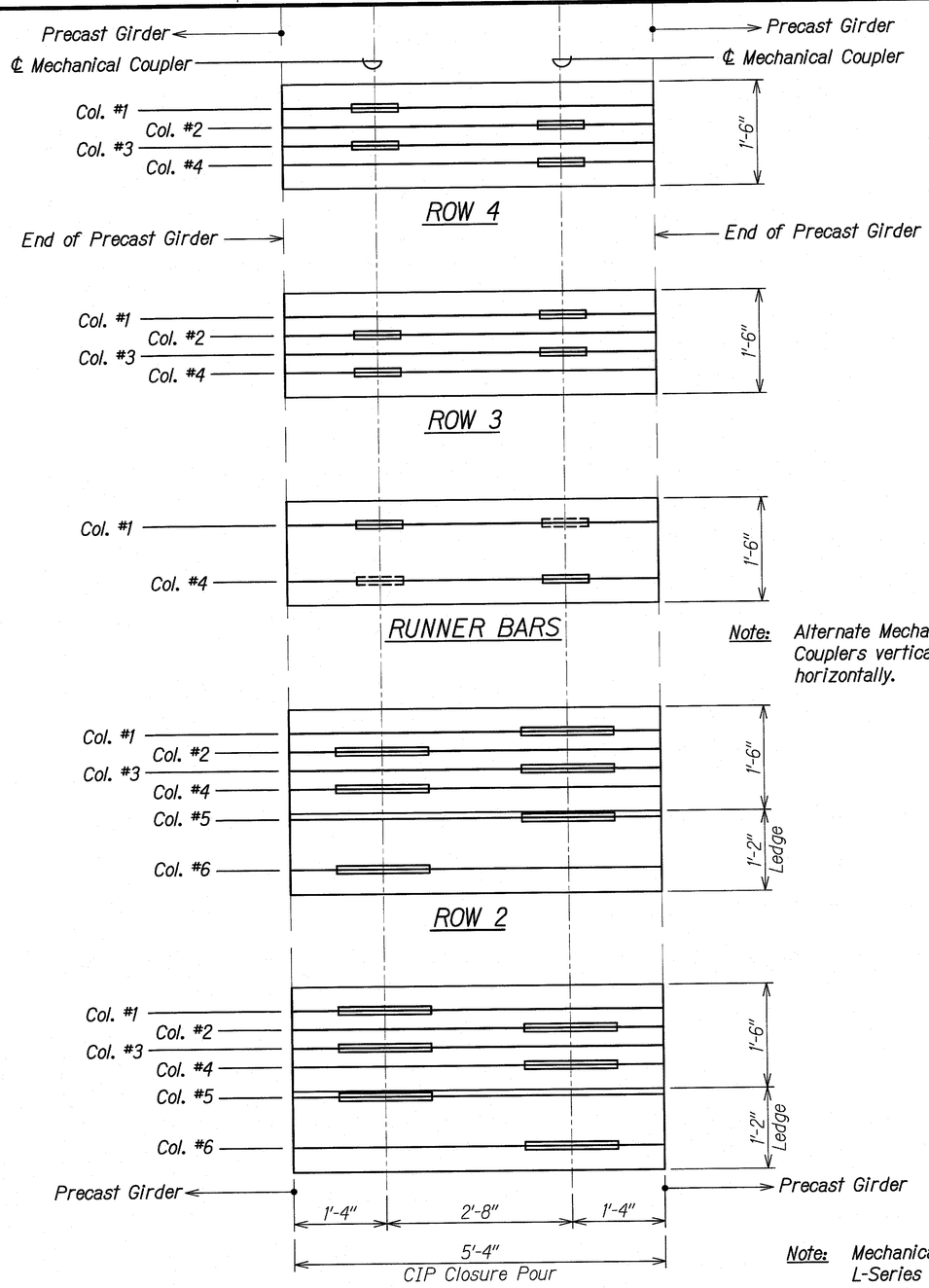
# TYPICAL GIRDER SECTION AND DETAIL

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 5 SHEETS

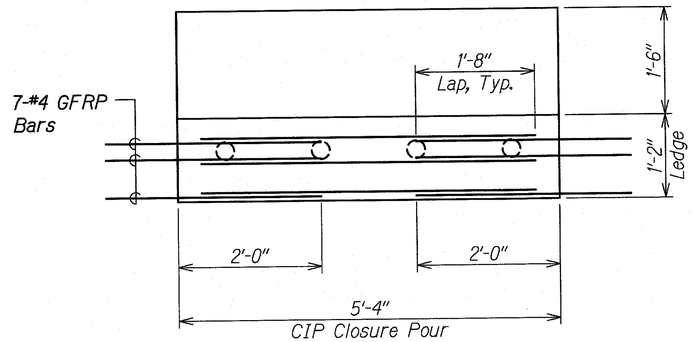
| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | ER-19(007) | 2018 | 42 | 56 |




Note: Alternate Mechanical Couplers vertically and horizontally.

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

STEEL REINFORCING COUPLING PLAN AT GIRDER CIP CLOSURE POUR (TYPICAL)
Scale: 1" = 1'-0"
A S9.A4 | S9.A4




GFRP BAR SPLICE AT CLOSURE POUR WITHIN GIRDER LEDGE
Scale: 1" = 1'-0"
B S9.A4 | S9.A4

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

DRAWING NAME: Z:\OD ONGOING\OD CD PROJECTS\18-028.2-SW BRIDGES ASB\01 CAD\03-XX-21 WAIKOKO AS-BUILTS\39 3WB-S3902A DELTA1 DELTA2 GIRDER DTLS.DWG PLOT TIME: 03-12-21 5:06 PM)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

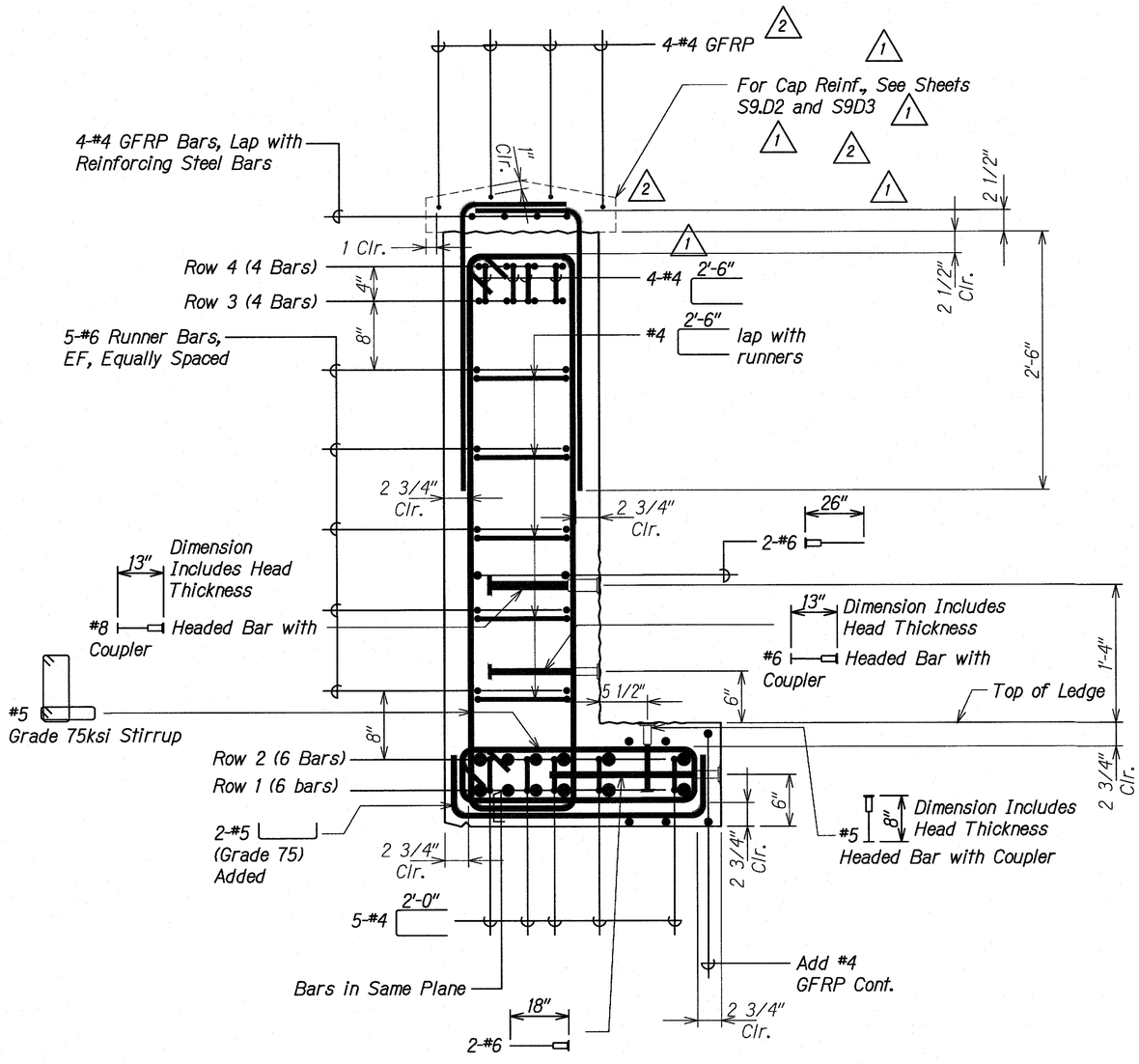
REINF. COUPLING PLAN AT CIP CLOSURE POUR

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 5 SHEETS

| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | ER-19(007) | 2018 | 43 | 56 |




## SECTION - GIRDER AT ABUTMENT

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

A S9.D3 | S9.A6

| DATE | REVISION |
|---|---|
| 7/17/19 | 2 Revised Cap, Reinforcing |
| 3/19/19 | 1 Revised 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)

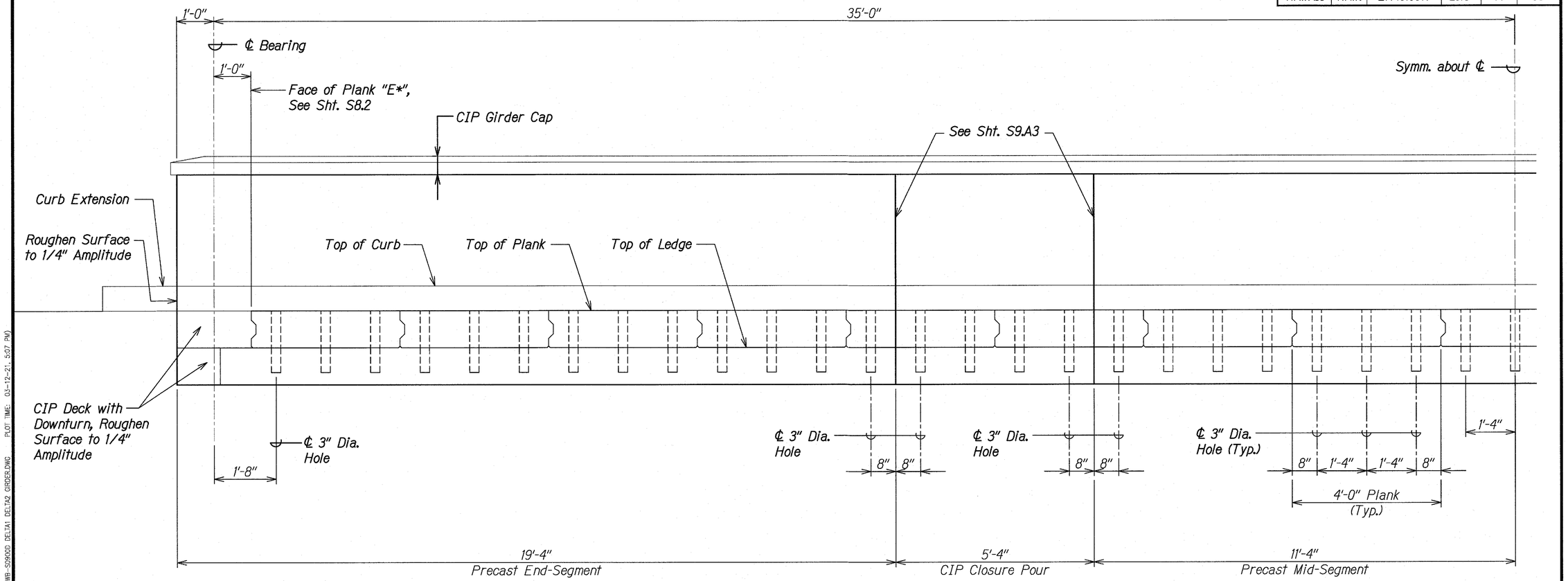
Scale: As Noted Date: Oct. 2018

SHEET No. S9.A6 OF 5 SHEETS

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

DRAWING NAME: Z:\OD ONGOING\OD CB PROJECTS\18-008.2-SW BRIDGES ASB\01 CAD\03-XX-21 WAIKOKO AS-BUILTS\39 SWB-S09a0a DELTA1 DELTA2 GIRDER DTLS.DWG PLOT TIME: 03-12-21, 5:06 PM)

| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | ER-19(007) | 2018 | 44 | 56 |




Note: See Sheet S9.A1.

GIRDER ELEVATION (FORM LAYOUT)
WAIKOKO STREAM BRIDGE
Scale: 3/4" = 1'-0"

A
S9.D1 | S9.D1

DRAWING NAME: Z:\OD ONGOING\OD CB PROJECTS\18-068.2-3W BRIDGES ASB\01 CAD\03-XX-21 WAIKOKO AS-BUILTS\44 SWB-S0960D DELTA1 DELTA2 GIRDER.DWG PLOT TIME: 03-12-21; 5:07 PM)

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

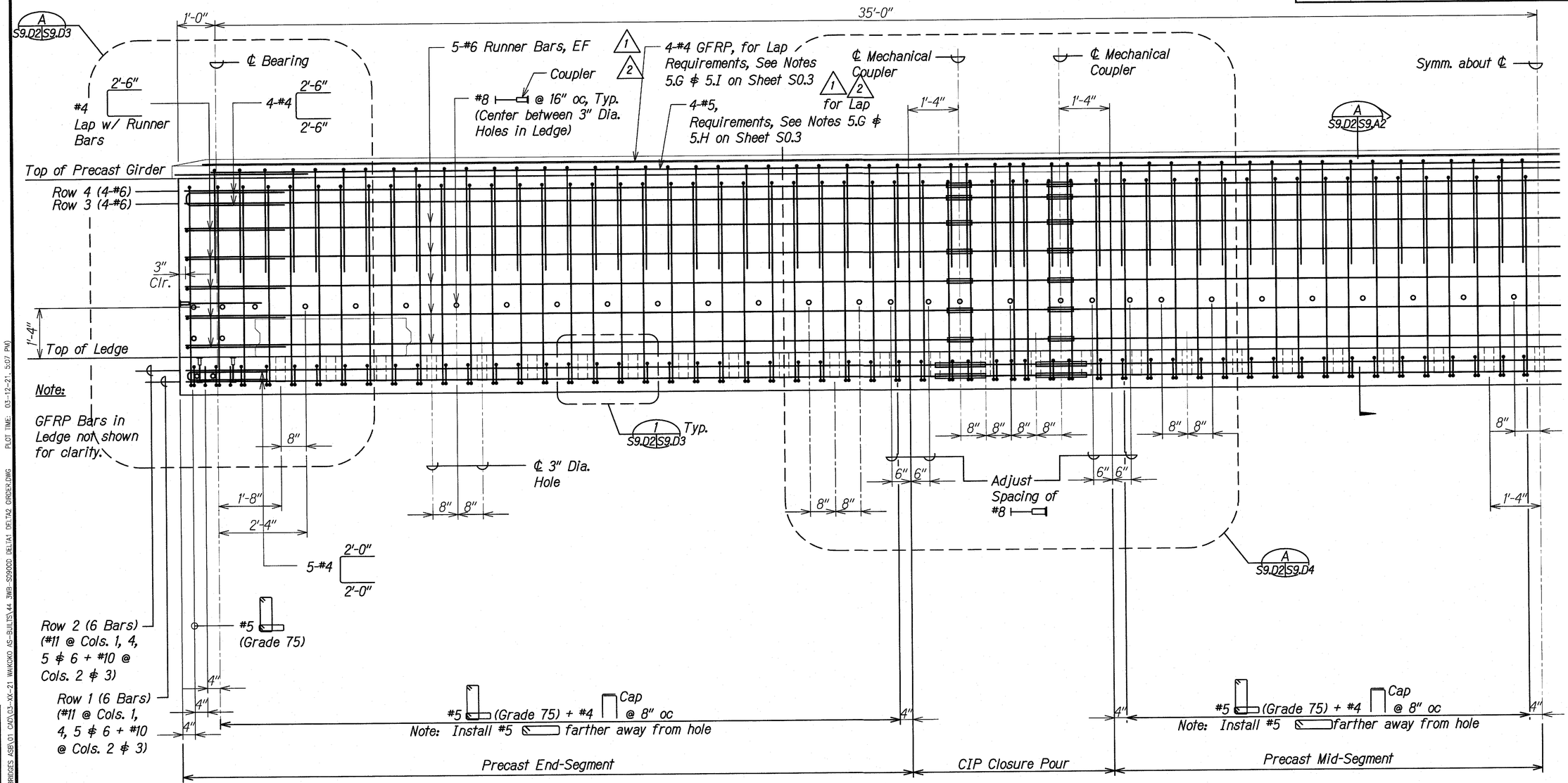
**WAIKOKO STREAM BRIDGE**
**GIRDER ELEVATION (FORM LAYOUT)**

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.D1 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 | 56 |




DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-008.2-3W BRIDGES ASB\01 CAD\03-XX-21 WAIKOKO AS-BUILTS\4# 3WB S0900D DELTA1 DELTA2 GIRDER.DWG PLOT TIME: 03-12-21, 5:07 PM)

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

## GIRDER ELEVATION (REINFORCING)
## WAIKOKO STREAM BRIDGE

A S9.D2|S9.D2

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

Note:

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

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

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

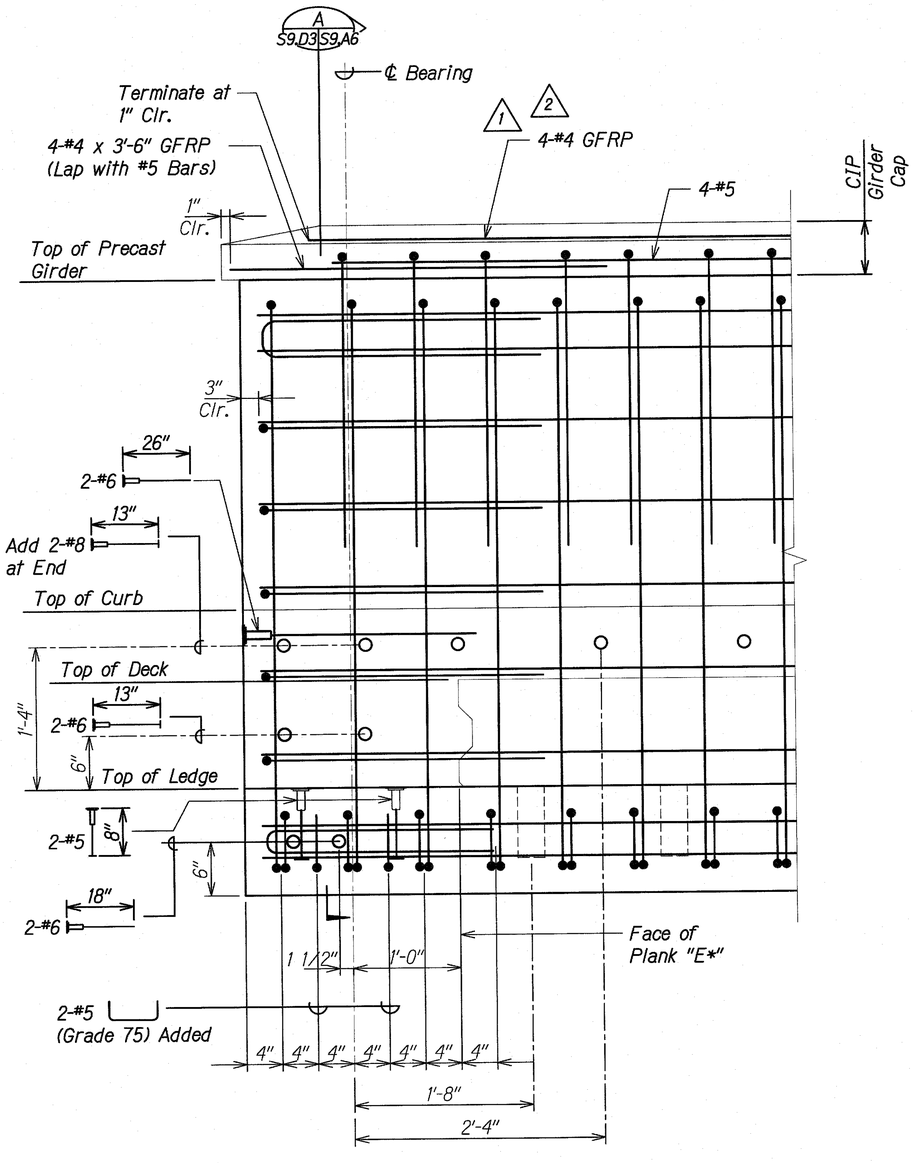
**WAIKOKO STREAM BRIDGE**
**GIRDER ELEVATION (REINF. LAYOUT)**

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

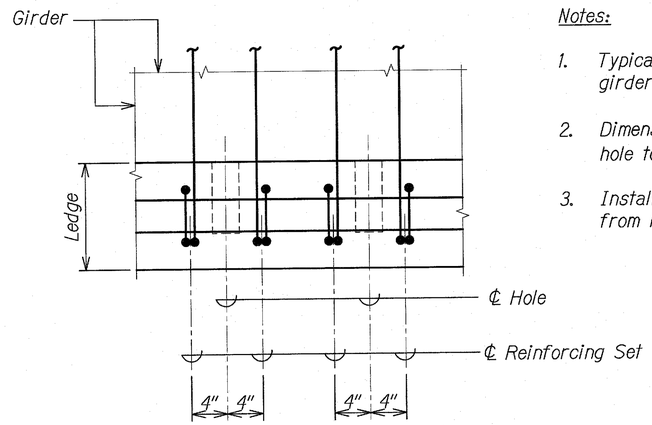
SHEET No. S9.D2 OF 4 SHEETS

| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | ER-19(007) | 2018 | 46 | 56 |




## GIRDER ELEVATION AT ABUTMENT (A S9.D3 | S9.D3)

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




## TYPICAL REINFORCING DETAIL (1 | S9.D2 | S9.D3)

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

Notes:

1. Typical except at ends of girder and at closure pour.
2. Dimensions taken from ℄ of hole to ℄ of reinforcing set.
3. Install ▭ farther away from hole.

| DATE | REVISION |
|---|---|
| 7/17/19 | 2 Revised Reinforcing |
| 3/19/19 | 1 Revised Note |

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**WAIKOKO 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)

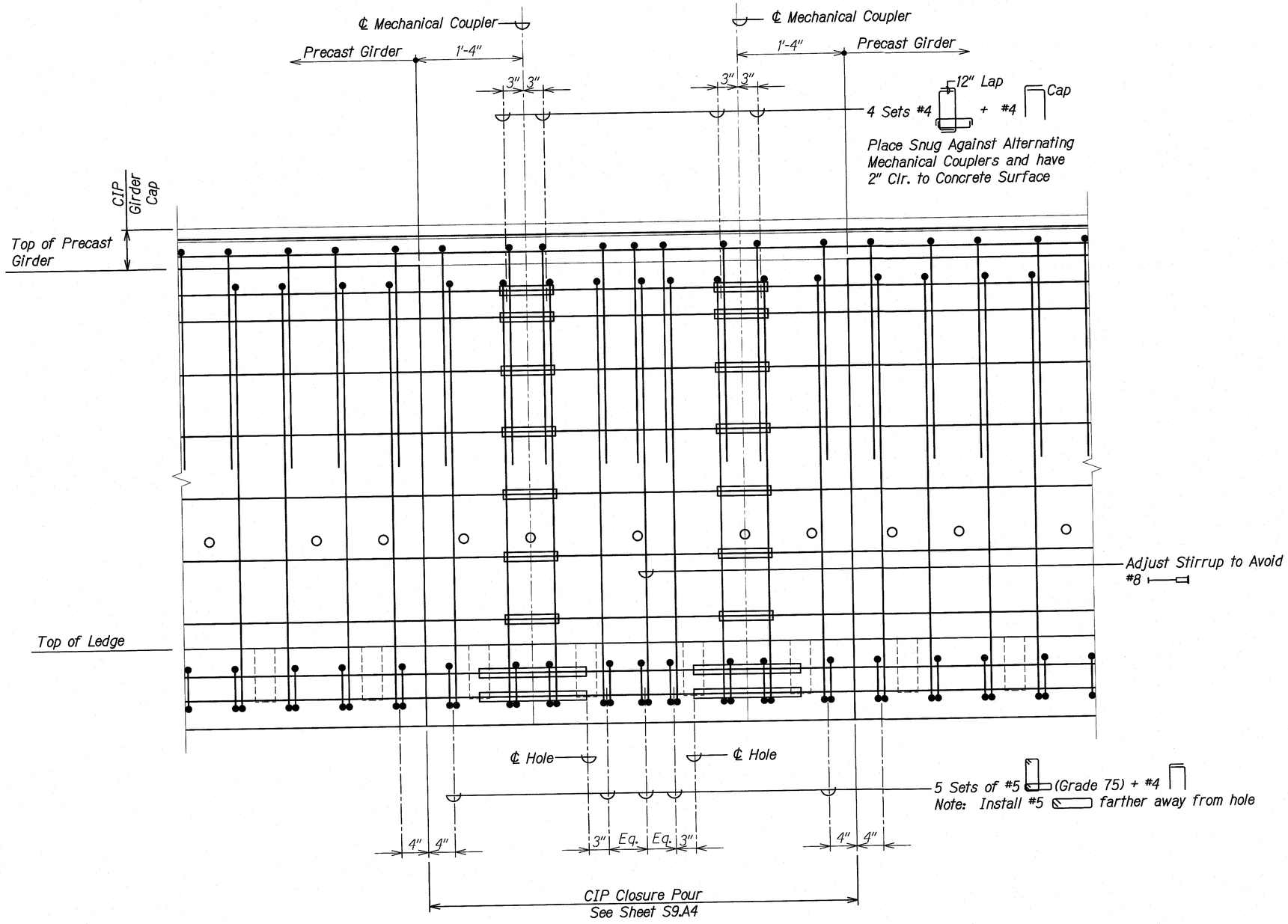
Scale: As Noted Date: Oct. 2018

SHEET No. S9.D3 OF 4 SHEETS

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

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-008.2-3W BRIDGES ASB\01 CAD\03-XX-21 WAIKOKO AS-BUILTS\44 3WB-S9GOD DELTA1 DELTA2 GIRDER.DWG PLOT TIME: 03-12-21, 5:08 PM)

| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | ER-19(007) | 2018 | 47 | 56 |




GIRDER ELEVATION AT CIP CLOSURE POUR (A S9.D4 | S9.D4)

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

| ORIGINAL PLANS | SURVEY PLOTTED BY | DATE |
|---|---|---|
| | DRAWN BY | |
| | TRACED BY | |
| NOTE BOOK | DESIGNED BY | |
| | QUANTITIES BY | |
| No. | CHECKED BY | |

DRAWING NAME: Z:\OD ONGOING\OD CB PROJECTS\18-008.2-3W BRIDGES ASB\01 CAD\03-XX-21 WAIKOKO AS-BUILTS\44 3W8-S9900D DETAI DETAI2 GIRDER.DWG PLOT TIME: 03-12-21, 5:08 PM)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

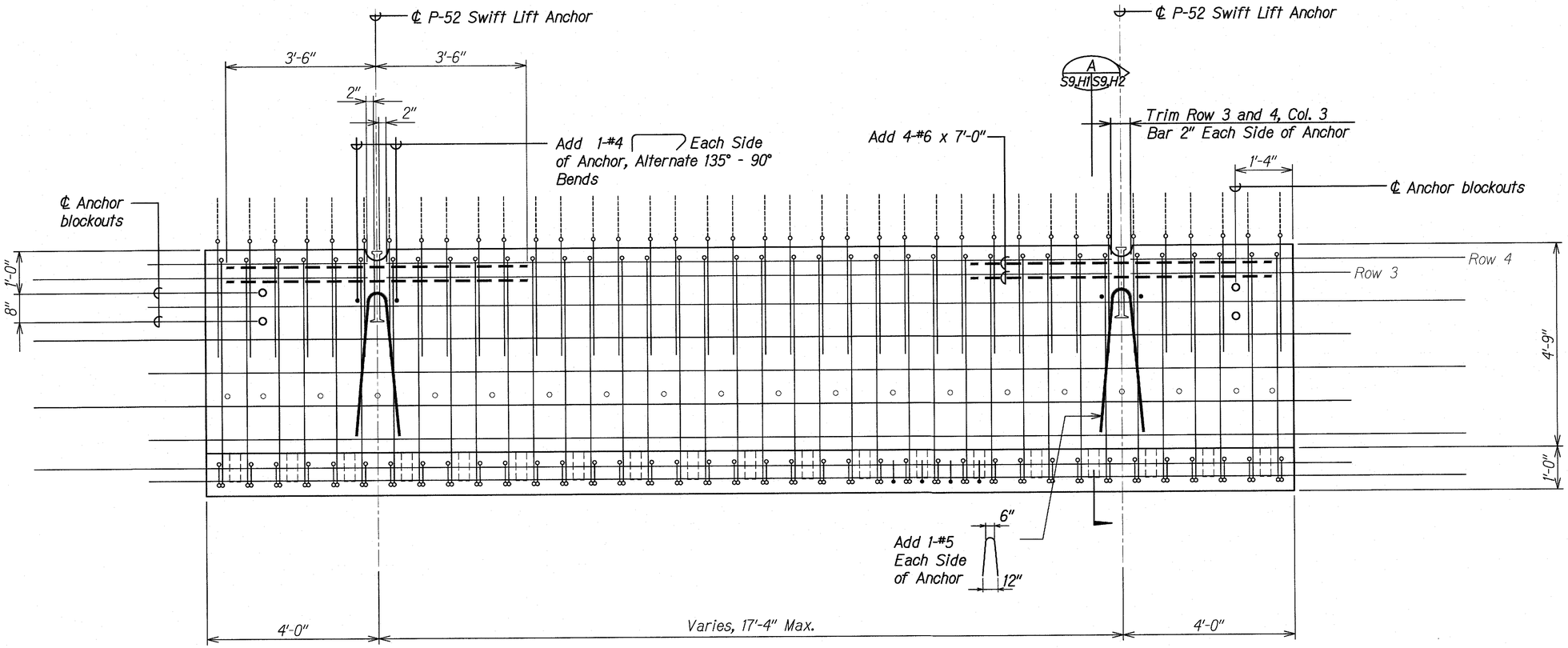
**WAIKOKO STREAM BRIDGE**
**GIRDER ELEVATION (REINF. LAYOUT)**

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.D4 OF 4 SHEETS

| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | ER-19(007) | 2018 | 47S-1 | 56 |




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

DRAWING NAME: Z:\20 CNGOING\00 CB PROJECTS\18-008.2-3W BRIDGES ASB\01 CAD\03-XX-21 WAIKOKO AS-BUILTS\47S-1 3WB-SG920H1 GIRDER LIFTING SEE WAIPA SKG401.DWG PLOT TIME: 03-12-21, 5:15 PM)

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

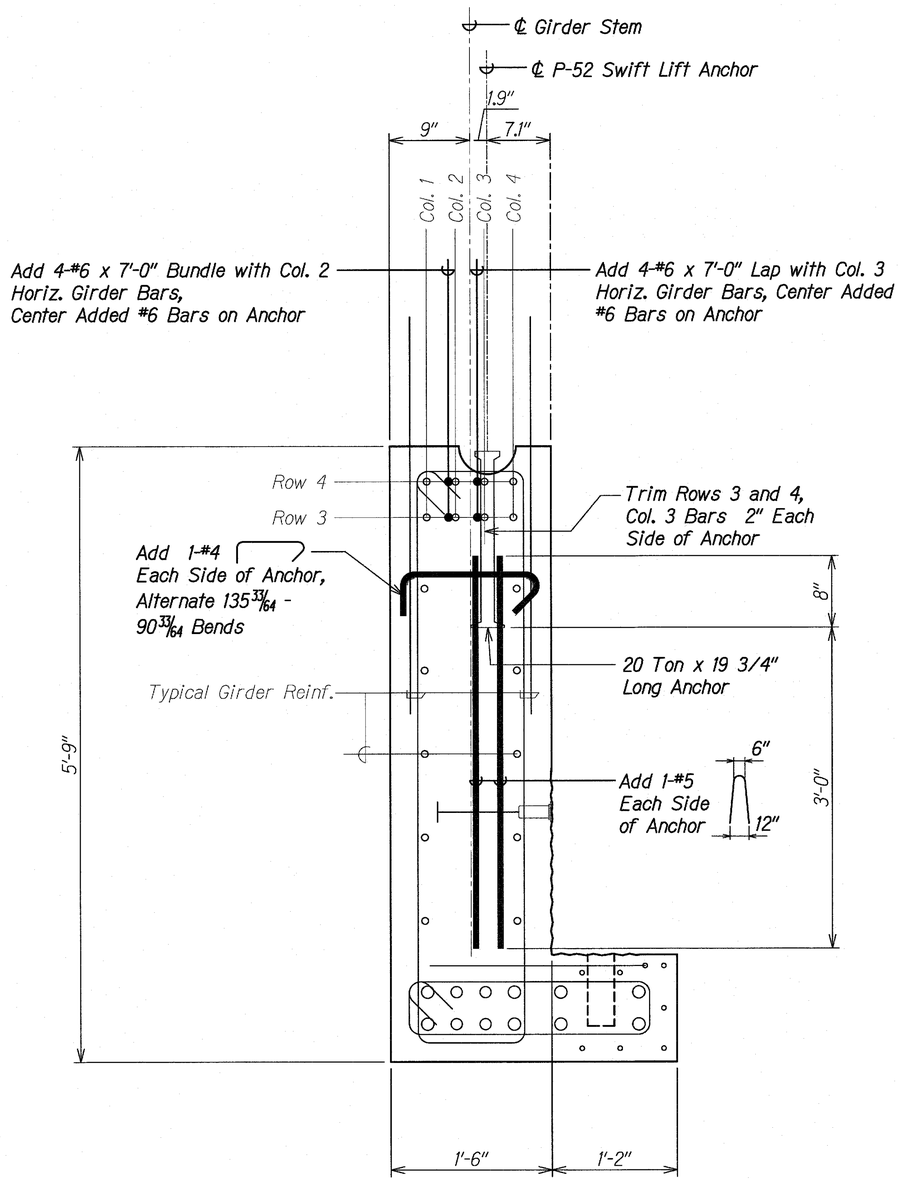
# GIRDER LIFTING ELEVATION

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 3 SHEETS

| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | ER-19(007) | 2018 | 47S-2 | 56 |




## GIRDER LIFTING SECTION

A S9.H2 | S9.H2

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

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

DRAWING NAME: Z:\OD ONGOING\OD CB PROJECTS\18-008.2-3W BRIDGES ASP\01 CAD\03-XX-21 WAIOKO AS-BUILTS\47S-1 3W8-S0960H1 GIRDER LIFTING SEE WMPA SKO401.DWG PLOT TIME: 03-12-21, 5:16 PM)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

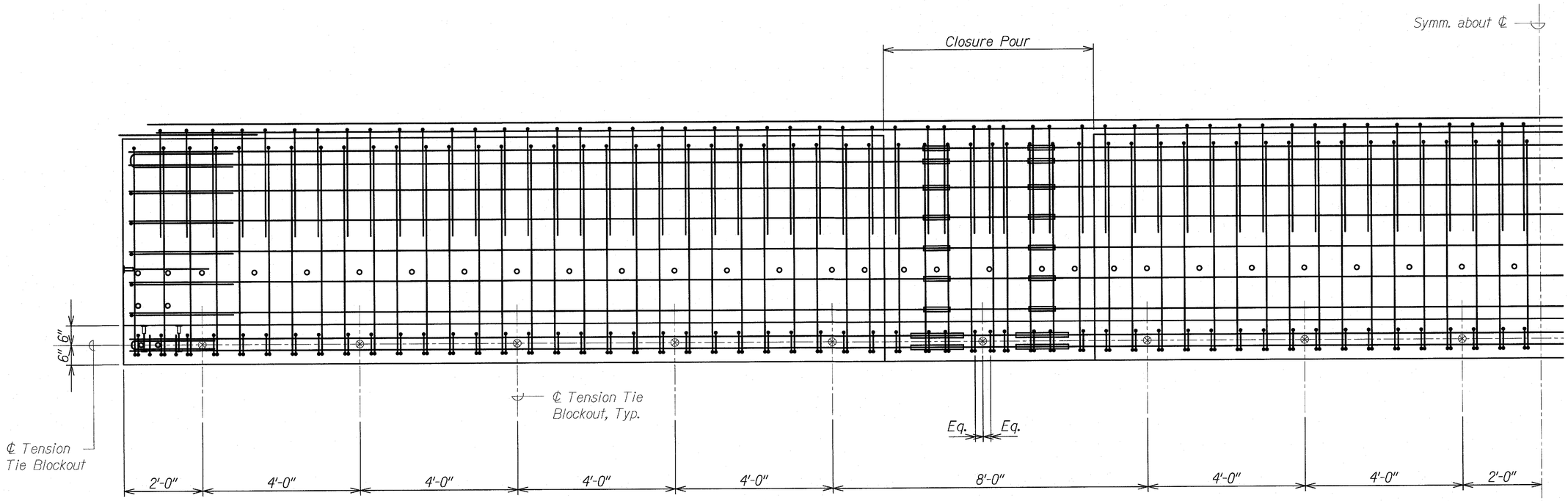
**GIRDER LIFTING SECTION**

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 3 SHEETS

| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | ER-19(007) | 2018 | 47S-3 | 56 |




GIRDER ELEVATION (TENSION TIE)
WAIKOKO STREAM BRIDGE
Scale: 3/4" = 1'-0"

A
S9.H5 | S9.H5

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**WAIKOKO 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

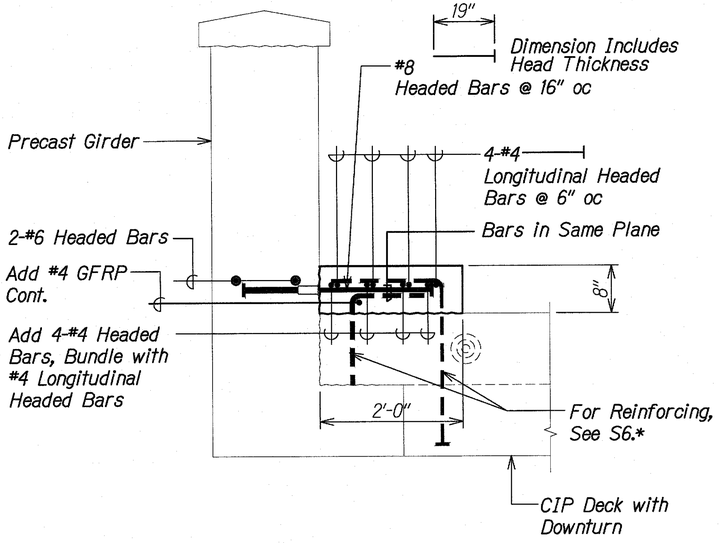
SHEET No. S9.H5 OF 3 SHEETS

47S-3

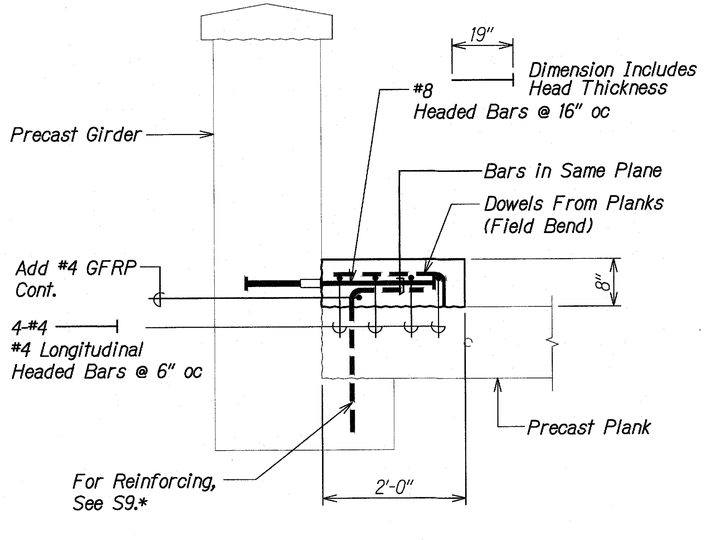
ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE
NOTE BOOK | No.

DRAWING NAME: Z:\OD CNGCINC\00 CB PROJECTS\18-068.2-3W BRIDGES ASBY\01 CAD\03-XX-21 WAIKOKO AS-BUILTS\47S-3 3WB-S09005-TENSION TIES SEE WAIPA SK0403.DWG PLOT TIME: 03-12-21, 5:22 PM)

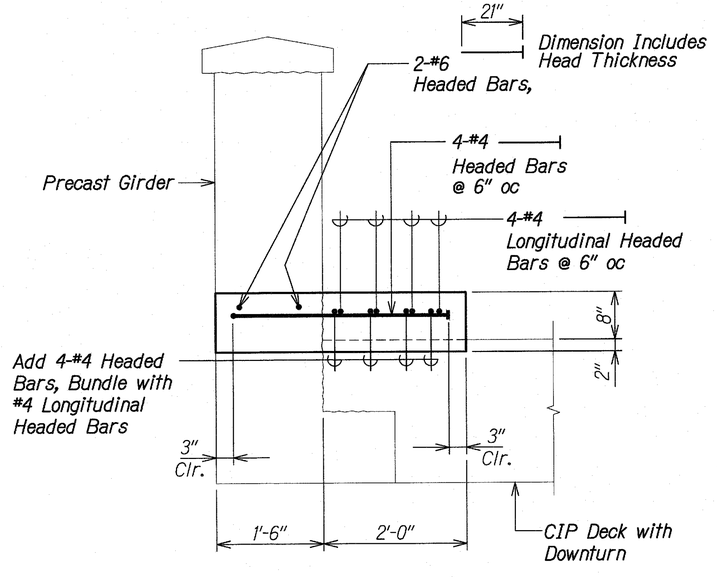
| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | ER-19(007) | 2018 | 48 | 56 |




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

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)

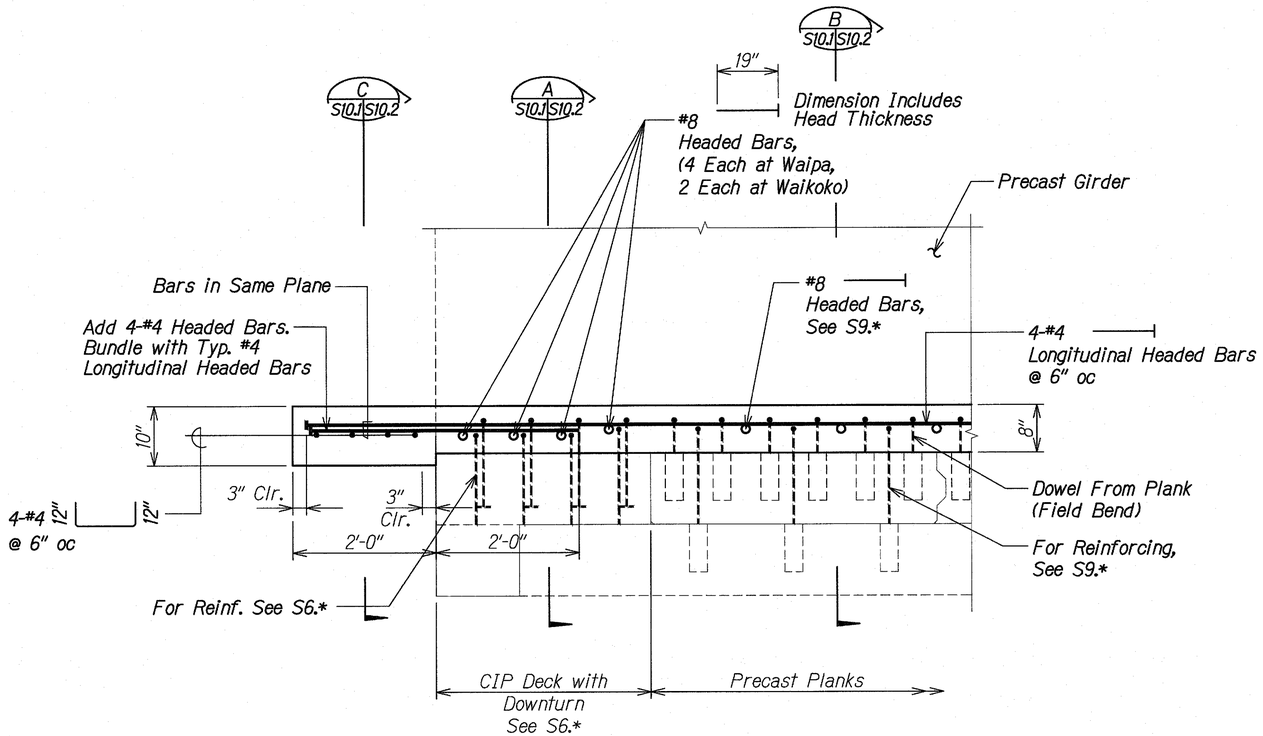
Scale: As Noted Date: Oct. 2018

SHEET No. S10.1 OF 2 SHEETS

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

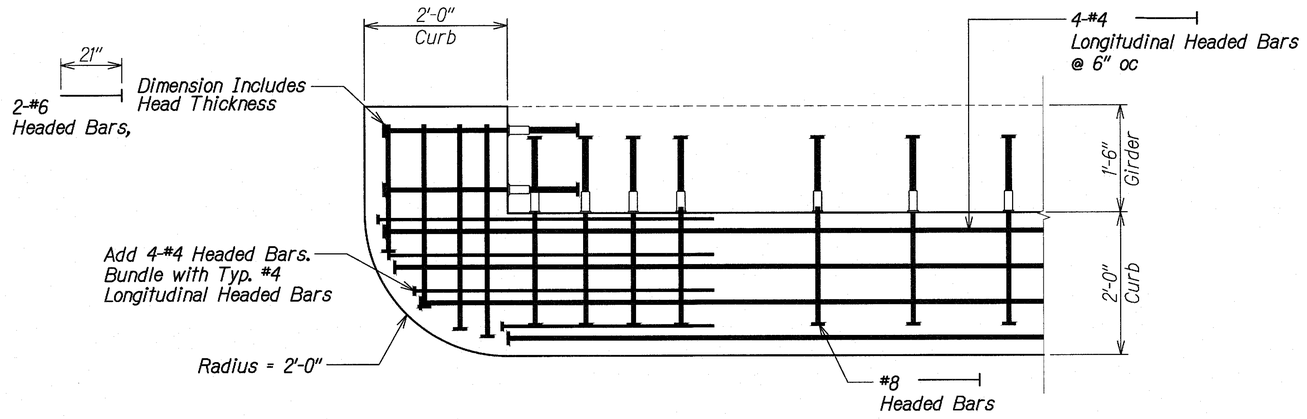
DRAWING NAME: Z:\DO ONGOING\DO_CB PROJECTS\18-008.2-3W BRIDGES ASP\01 CAD\03-XX-21 WAIOKO AS-BUILTS\48 3WB-S1001 CURB.DWG PLOT TIME: 03-12-21; 5:26 PM)

| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | ER-19(007) | 2018 | 49 | 56 |




## SECTION CURB (A S10.2 | S10.1)

Scale: 1" = 1'-0"




## PARTIAL CURB PLAN (B S10.2 | S10.2)

Scale: 1" = 1'-0"

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

DRAWING NAME: Z:\00 ONGOING\00 CB PROJECTS\18-008 2-3W BRIDGES ASP\01 CAD\03-XX-21 WAIKOKO AS-BUILTS\48 3WB-S1001 CURB.DWG PLOT TIME: 03-12-21; 5:27 PM)

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)

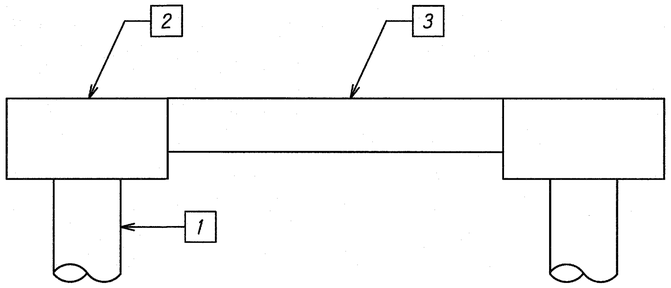
Scale: As Noted Date: Oct. 2018

SHEET No. S10.2 OF 2 SHEETS

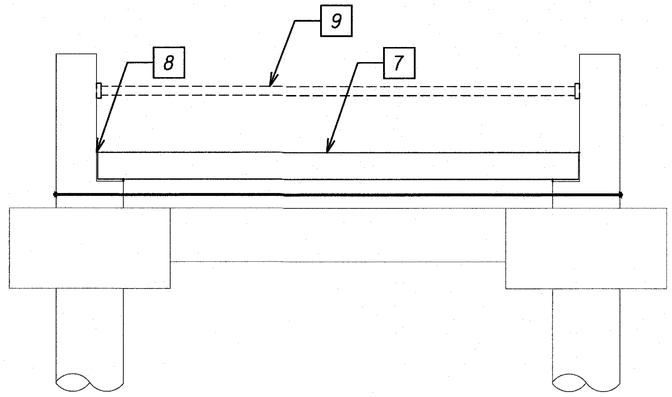
| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | ER-19(007) | 2018 | 50 | 56 |

# CONSTRUCTION SEQUENCE

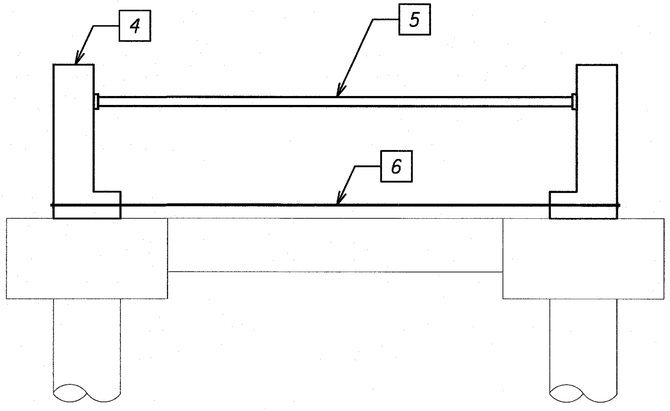
1. Install Micropiles, Casing and Columns
2. Pour Abutment and Column Caps
3. Set Transverse Grade Beams



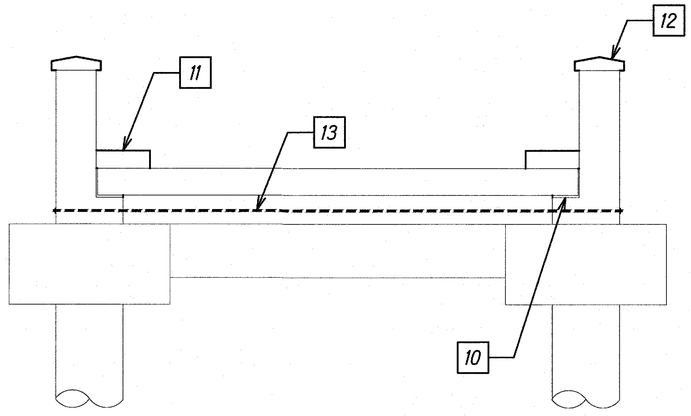

7. Set Precast Planks
8. Install wedge between edge of Plank and face of Girder, each side
9. Remove Compression Brace after adjacent wedge has been installed




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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

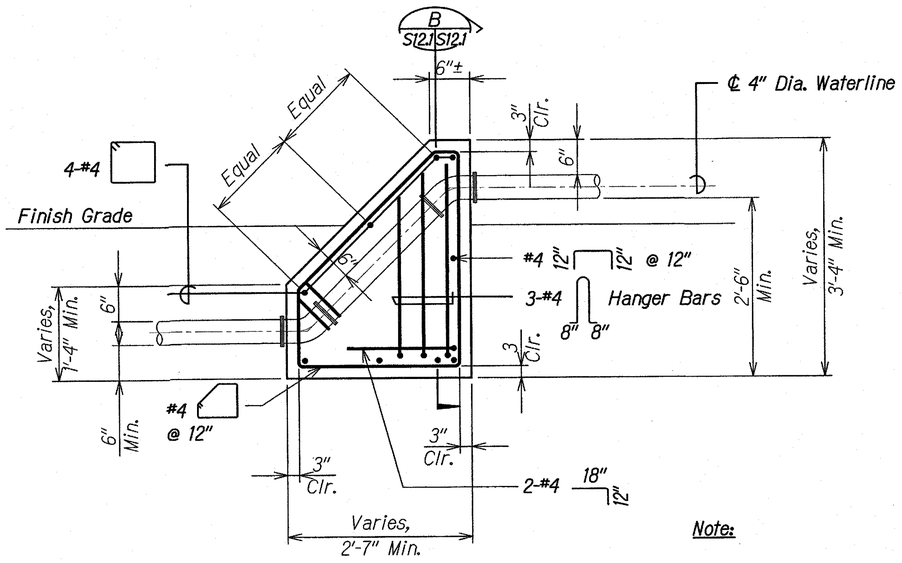
**CONSTRUCTION SEQUENCE**

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. S11.1 OF 1 SHEETS

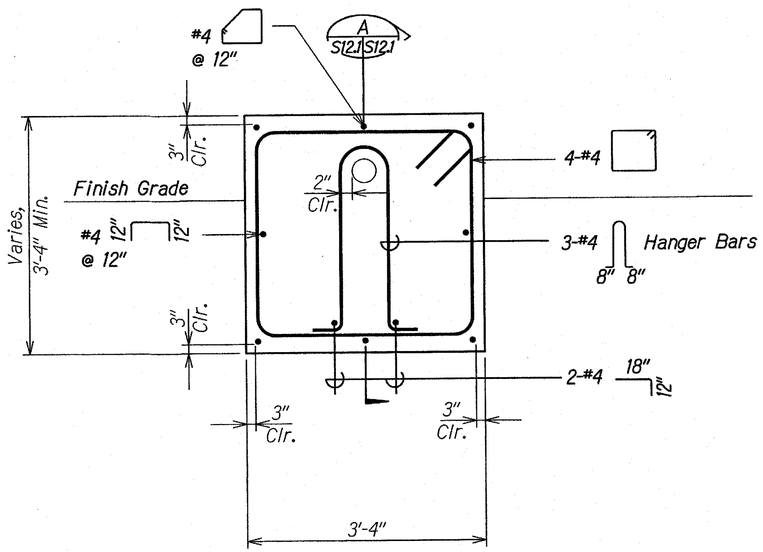
| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | ER-19(007) | 2018 | 50S-1 | 56 |




Note:

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

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




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

APPROVED:

5/14/19
DATE

for MANAGER AND CHIEF ENGINEER
DEPARTMENT OF WATER
COUNTY OF KAUAI

RUSS S. MIYAHARA
LICENSED PROFESSIONAL ENGINEER
NO. 9444-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

4-30-20
SIGNATURE EXPIRATION DATE OF THE LICENSE

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

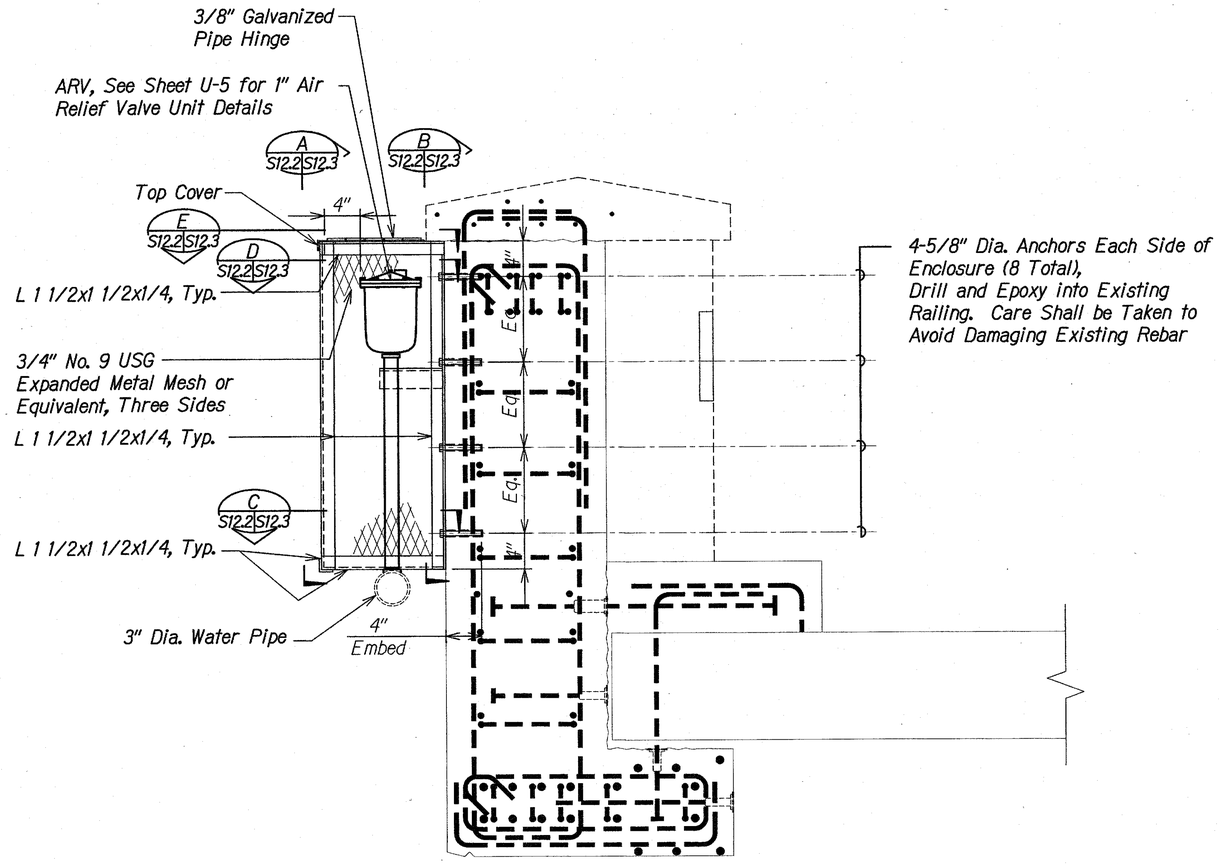
SHEET No. S12.1 OF 5 SHEETS

50S-1

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

DRAWING NAME: Z:\OD ONGOING\18-208.2-KUHIO HWY SW BR\01 CAD\05-09-19 WAIKOMO PERM H20\SWB-S1201 VERT RX BLK TEMP.DWG PLOT TIME: 05-09-19, 10:53 AM)

| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | ER-19(007) | 2018 | 50S-2 | 56 |




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

A S12.2 S12.2

*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.*

APPROVED:

5/14/19

for MANAGER AND CHIEF ENGINEER — DATE
DEPARTMENT OF WATER
COUNTY OF KAUAI

RUSS S. MIYAHARA
LICENSED PROFESSIONAL ENGINEER
NO. 9444-S
HAWAII, U.S.A.

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SIGNATURE — 4-30-20 EXPIRATION DATE OF THE LICENSE

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

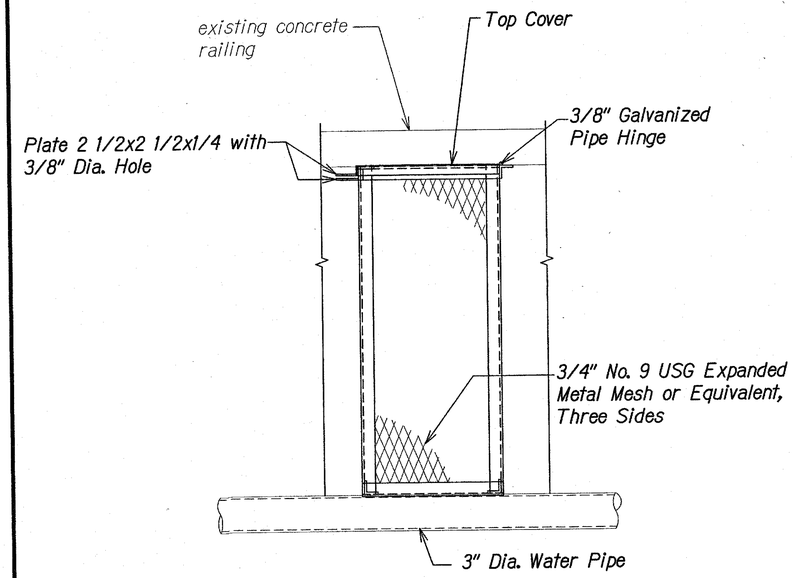
SHEET No. S12.2 OF 5 SHEETS

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

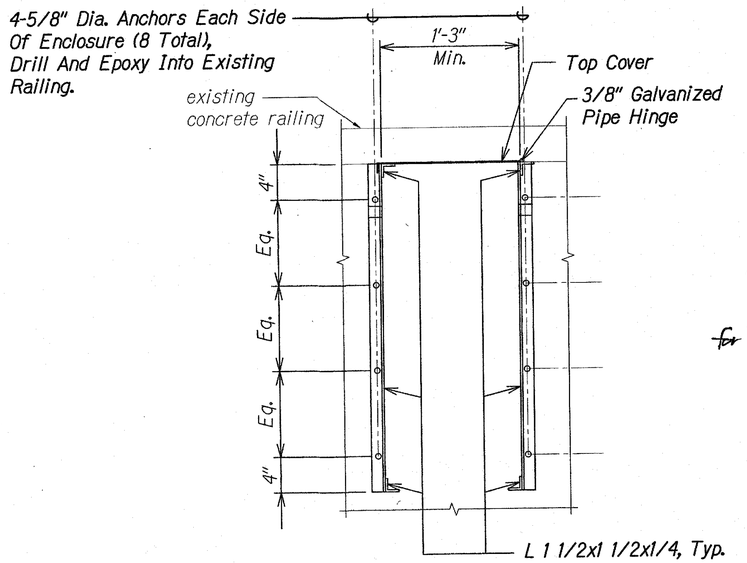
DRAWING NAME: Z:\00 CNCONCV\18-008.2-KUHIO HWY SW BR\01 CAD\05-09-19 WAIKOKO PERM H2O\SWB-S1202 ARV CAGE.DWG PLOT TIME: 05-09-19, 10:54 AM)

50S-2

| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | ER-19(007) | 2018 | 50S-3 | 56 |



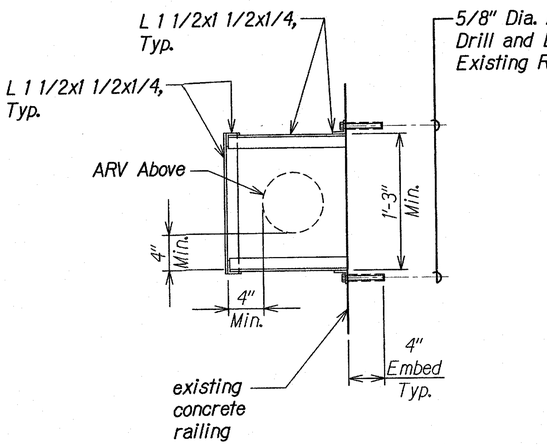

SECTION A
Scale: 1 1/2" = 1'-0" S12.2 S12.3



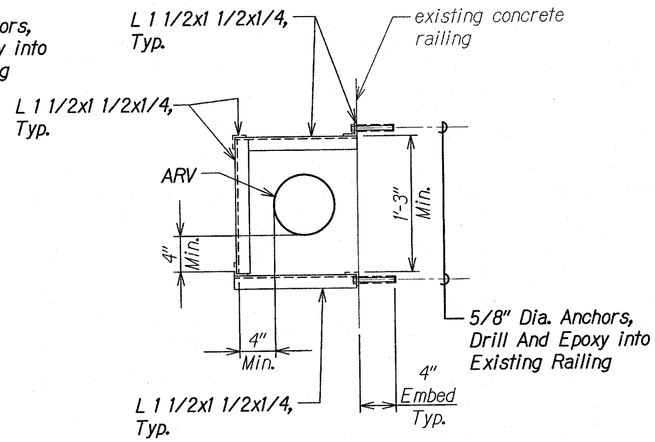

SECTION B
Scale: 1 1/2" = 1'-0" S12.2 S12.3

APPROVED:

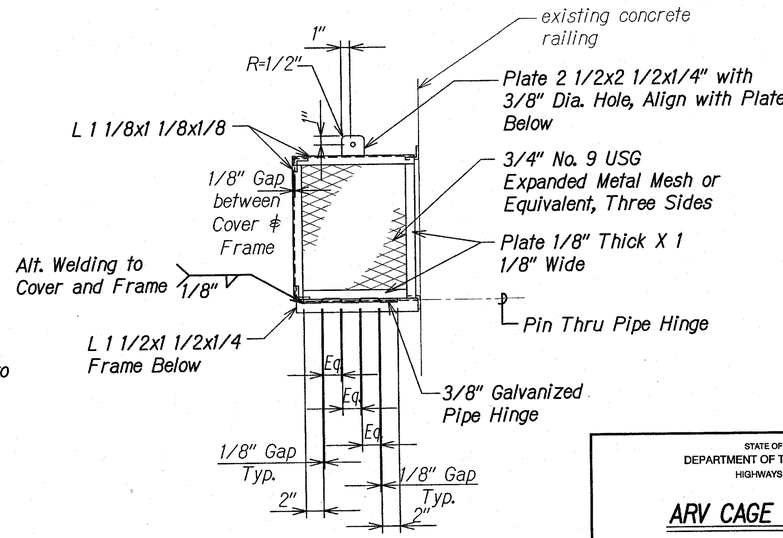
5/14/19
for MANAGER AND CHIEF ENGINEER — DATE
DEPARTMENT OF WATER
COUNTY OF KAUAI




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

RUSS S. MIYAHARA
LICENSED PROFESSIONAL ENGINEER
NO. 9444-S
HAWAII, U.S.A.

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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

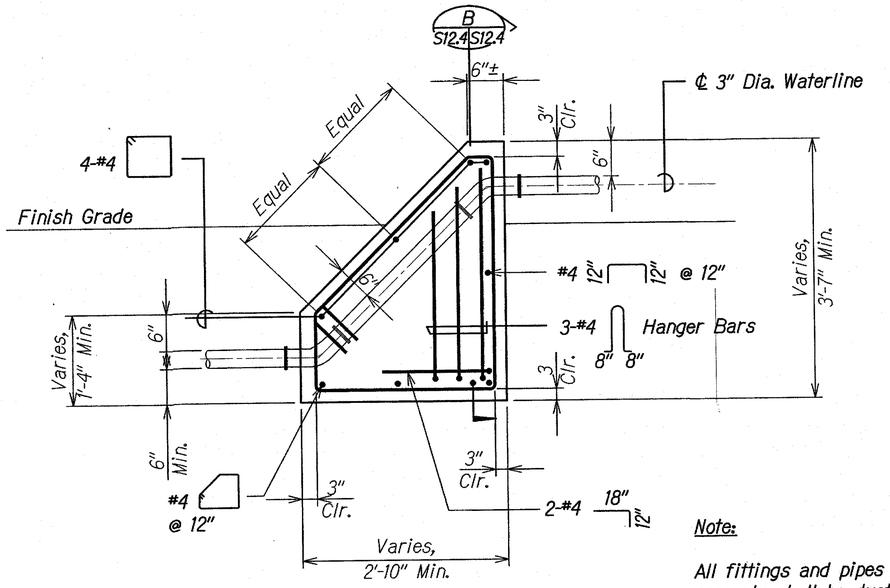
SHEET No. S12.3 OF 5 SHEETS

50S-3

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

DRAWING NAME: Z:\DOT ENGSVN\18-009.2-KUHIO HWY SW BRVG\1 CAD\05-09-19 WAIKOKO PERM H2O\SWB-S1202 ARV CAGE.DWG PLOT TIME: 05-09-19, 10:54 AM

| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | ER-19(007) | 2018 | 50S-4 | 56 |

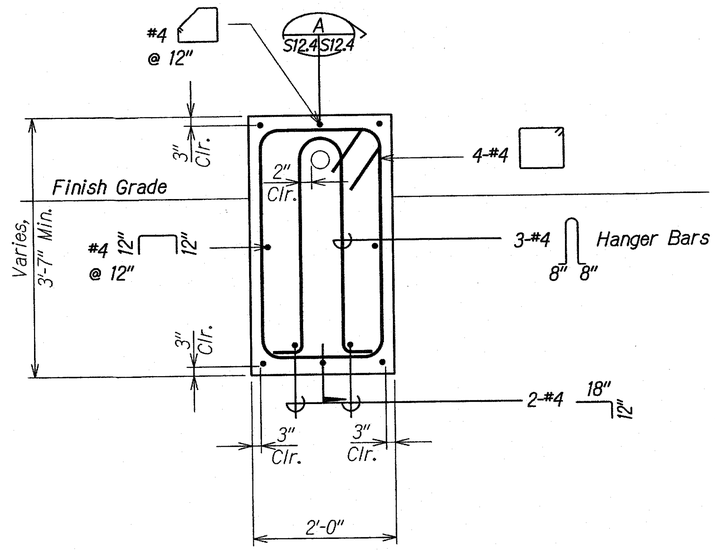



Note:

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

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

A S12.4 S12.4




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

B S12.4 S12.4

APPROVED:

for 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.

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SIGNATURE 4-30-20 EXPIRATION DATE OF THE LICENSE

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

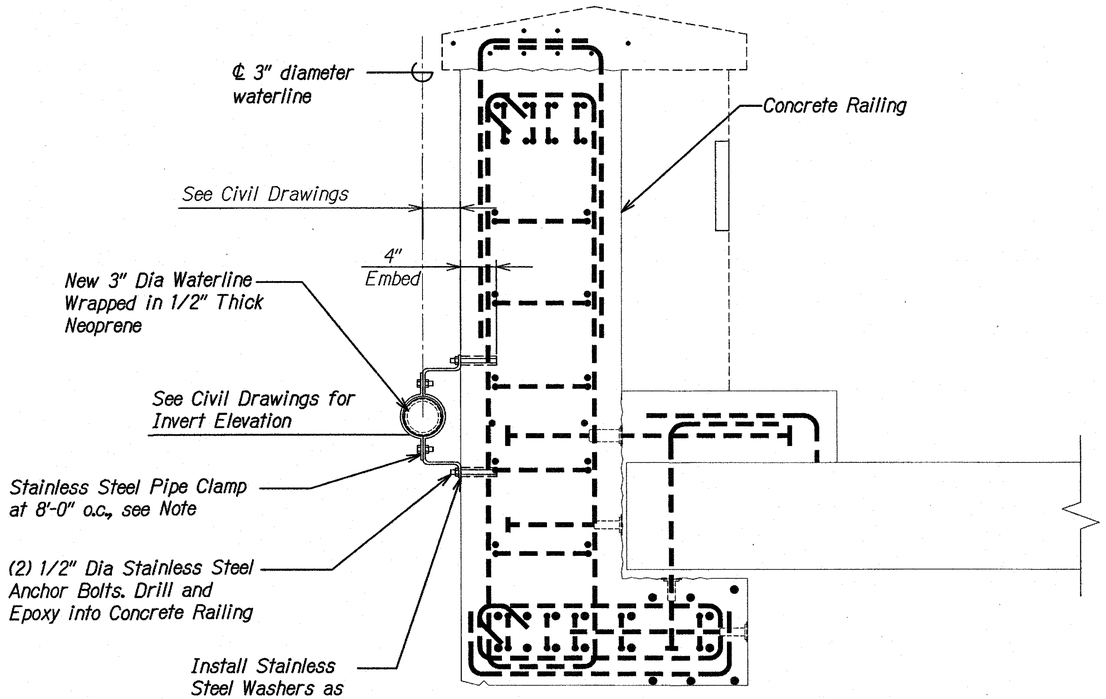
SHEET No. S12.4 OF 5 SHEETS

50S-4

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

DRAWING NAME: Z:\OO ONGOING\18-008.2-KUHIO HWY 3W BRG\01 CAD\03-09-19 WAIKOKO PERM H2O\3W8-S1204 VERT RX BLK PERM.DWG PLOT TIME: 05-09-19, 10:55 AM

| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | ER-19(007) | 2018 | 50S-5 | 56 |




Note:
All Stainless Steel Bars, Plates, Washers, and Bolts shall conform to ASTM F593, A240, A276, or equal

## WATERLINE SUPPORT DETAIL

1
S12.5 | S12.5

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

APPROVED:

5/14/19

for MANAGER AND CHIEF ENGINEER — DATE
DEPARTMENT OF WATER
COUNTY OF KAUAI

RUSS S. MIYAHARA
LICENSED PROFESSIONAL ENGINEER
NO. 9444-S
HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

# WAIKOKO 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

50S-5

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

DRAWING NAME: Z:\09 ONOONO\18-008.2-KUHIO HWY 3W BR\01 CAD\05-09-19 WAIKONO PERM H2O\3WB-S1205 PIPE SUPPORT.DWG PLOT TIME: 05-09-19, 10:55 AM)