| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | NH-0380(10) | 2013 | 117 | 166 |

## STRUCTURAL INDEX TO DRAWINGS



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRUCTURAL INDEX TO DRAWINGS

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)

Scale: None Date: February 2013

SHEET No. S0.1 OF 24 SHEETS

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

DRAWING NAME: C:\PROJECTS\KAHULUI-2011\AS-BUILT OCTOBER 2017\STRUCTURAL\KH-S001.DWG PLOT TIME: 10-18-18, 11:47 AM

AS-BUILT DRAWINGS

"AS-BUILT"

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | NH-0380(10) | 2013 | 118 | 166 |

# STRUCTURAL GENERAL NOTES

1. General Specifications: Hawaii Department of Transportation, Standard Specifications for Road and Bridge Construction, 2005, together with Special Provisions prepared for this contract.

2. Design Specifications:
   (A) AASHTO 2010 LRFD Bridge Design Specifications (Fifth Edition) and its subsequent interim specifications with interim supplements and modifications by the Highways Division, Department of Transportation, State of Hawaii.

   (B) HDOT Memorandum dated October 20, 2010 with subject title "Design Criteria for Bridges and Structures".

   (C) Temporary shoring and falsework shall follow the AASHTO Guide Design Specification for Bridge Temporary Works.

3. Loads:
   (A) Live Load: AASHTO HL-93 Truck Loading

   (B) Railing Load: AASHTO TL-3 Loading

   (C) Seismic Loads: Acceleration coefficient - 0.28
   Seismic Performance Zone - 3
   Site Coefficient - Soil Profile Type II

4. Materials:
   (A) All concrete strengths shall be as noted below:

| Item No. | Structural Parts | Classes of Concrete | Specified Compressive Strength, f'c (28 Days) |
|---|---|---|---|
| (1) | Retaining Walls | - | 4000 PSI |
| (2) | Retaining Wall Foundations | - | 4000 PSI |
| (3) | Railing | - | 4000 PSI |
| (4) | Except as noted otherwise all others | A | 3000 PSI |

   All concrete with the exception of Class A concrete shall have a maximum W/C Ratio of 0.45. The W/C Ratio for Class A Concrete shall follow the standard specifications.

   (B) All reinforcing steel shall be ASTM A 615 Grade 60 unless otherwise noted.

   (C) Reinforcing steel shall be ASTM A 706 where welded connections are required.

   (D) All structural steel shall be ASTM A 36 hot dip galvanized after fabrication, unless otherwise noted.

   (E) All bolts, anchor bolts, washers and nuts shall be ASTM A307 hot dip galvanized, unless otherwise specified.

   (F) A migrating corrosion inhibitor amine carboxylate water-based admixture shall be added to the concrete mix for concrete material 4 (A)(3). The minimum dosage shall be 1.5 pints per cubic yard of concrete. The admixture shall not affect the set time of the concrete.

   (G) All concrete in Items 4.(A)(1) and 4.(A)(3) shall a 128 ounces of BASF Master Life AS20 or Grace Eclipse Shrinkage Reducing Admixture per cubic yard of concrete.

4. Materials (Cont.):
   (H) All welding shall conform to AWS D1.5 Bridge Welding Code. Unless noted otherwise, all welding shall be shielded arc welding with E70 electrodes.

5. Reinforcement:
   (A) The minimum covering measured from the surface of the concrete to the face of any reinforcing bars shall be as follows, except as otherwise shown:

   (1) Retaining walls = 2"

   (2) Retaining Wall Footings
   A. Top bars = 2"
   B. Bottom bars = 3"

   (3) Concrete cast against and permanently exposed to earth = 3"

   (4) All others unless otherwise noted = 2".

   (B) Reinforcing bars shall be detailed in accordance with the latest edition of the A.C.I. Detailing Manual unless otherwise noted.

   (C) Minimum clear spacing between parallel bars shall be 1 1/2 times the diameter of bars (for non bundled bars). In no case shall the clear distance between the bars be less than 1 1/2 times the maximum size of the coarse aggregate.

   (D) All dimensions relating to reinforcing bars are to centers of bars unless otherwise noted.

   (E) Reinforcing bars shall be securely tied at all intersections and lap splices except where the spacing of intersections is less than one foot in each direction, in which case alternate intersections shall be tied.

6. Construction Notes:
   (A) See Standard Specifications and Special Provisions.

   (B) In general, railings shall be constructed to follow the roadway vertical and horizontal curves and superelevations.

   (C) Except as otherwise noted, all vertical dimensions are measured plumb.

   (D) The Contractor shall verify all site conditions. Conditions may differ from those shown.

   (E) The Contractor shall verify the location of all utility lines and notify the respective owners before commencing with excavation, and any temporary piling or sheeting.

   (F) The Contractor shall submit working drawings and calculations for the proposed bracing/falsework details needed to protect the existing structures from increases in the existing load due to equipment, cranes, vehicles and fresh concrete, etc.
   The drawings and calculations shall be stamped by a licensed Structural Engineer and a licensed Civil Engineer specializing in geotechnical engineering in the State of Hawai'i. The above work, including working drawings and calculations, shall be incidental to various Contract items. The drawings and calculations shall be found acceptable by the Engineer before any construction work is to proceed.

   (G) For concrete finish see Standard Specifications and Special Provisions.

   (H) Where specified that the concrete surface is to be roughened and cleaned the concrete shall be roughened to a full amplitude of 1/4 of an inch.

6. Construction Notes (Cont.):
   (J) Construction joints may be relocated or additional ones added subject to the approval of the Engineer.

   (K) Unless otherwise noted, all exposed concrete edges shall be Chamfered 3/4" x 3/4".

   (L) All footings shall bear on firm undisturbed soil.

7. General:
   (A) Items not specifically called out as a pay item shall not be paid for separately and shall be considered incidental to the various pay items.

   (B) Standard Plans refer to all structures in general, except for modifications as may be required for special conditions. For such modifications refer to the corresponding detailed drawings.

8. Foundation:
   (A) For Boring logs anf other geotechnical information See foundation report by Hirata & Associates, Inc.

   (B) Design Soil / Rock Parameters:
   (1) Bearing pressure
   A. Extreme event limit state = 9000 psf

   B. Strength limit state = 5400 psf

   C. Service limit state = 3000 psf

   (2) Passive resistance
   A. Extreme event limit state = 450 pcf

   B. Strength limit state = 225 pcf

   (3) Coefficient of friction
   A. Extreme event limit state = 0.5

   B. Strength limit state = 0.4

   (4) Lateral earth pressure
   A. Active condition, level backfill = 40 pcf

   B. Active sloping backfill = 50 pcf

   C. At rest condition, level backfill = 55 pcf

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STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**STRUCTURAL GENERAL NOTES**

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)

Scale: None Date: February 2013

SHEET No. S0.2 OF 24 SHEETS

118

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

DRAWING NAME: Z:\00 ONGOING\11-006-KAAR-KAHULUI AIRPORT ACCESS RD-PH1 FAI\CAD\02-22-13 BID\KAH-S002.DWG PLOT TIME: 02-22-13, 2:50 PM)

# SYMBOLS AND ABBREVIATIONS

| | |
|---|---|
| & | And |
| @ | At |
| ø | Diameter |
| ≥ | Greater Than or Equal to |
| ≤ | Less Than or Equal to |
| # | Number |
| Abut. | Abutment |
| Abbr. | Abbreviation |
| Add. | Additional |
| 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 |
| Bet. | Between |
| BF | Both Faces |
| BW | Both Ways |
| BFE | Bottom of Footing Elevation |
| Bot., Bott., B | Bottom |
| BOF | Bottom of Footing |
| Br. | Bridge |
| Blt. | Bolt |
| Cant. | Cantilever |
| CIP | Cast Iron Pipe |
| ℄ | Center line |
| CG | Center of Gravity |
| cc | Center to Center |
| Cl. | Class |
| Clr. | Clearance |
| CO | Clean Out |
| Col. | Column |
| Conc. | Concrete |
| CBW | Concrete Barrier Wall |
| CMU | Concrete Masonry Unit |
| Conn. | Connection |
| Const. | Construction |
| CJ | Construction Joint |
| Cntl. Jt. | Control Joint |
| CLSM | Controlled Low Strength Material |
| Cont. | Continuous |
| CSL | Cross Hole Sonic Loggin |
| CF | Cubic Feet |
| CY, Cu. Yd. | Cubic Yard |
| Det. | Detail |
| Dia. | Diameter |
| Diaph. | Diaphragm |
| Dim. | Dimension |
| Dist. | Distance |
| DO | Ditto |
| Dwls. | Dowels |
| Dn. | Down |
| Dbl. | Double |
| DI | Drain Inlet, Ductile Iron |
| Dwg., Dwgs. | Drawing, Drawings |
| DS | Drilled Shaft |
| E | East |
| EA, Ea., ea. | Each |
| EF | Each Face |
| EFH | Each Face Horizontal |
| EFV | Each Face Vertical |
| EW | Each Way |
| EPE | Existing Edge of Pavement |
| EPS | Expanded Polystyrene |
| ES | Edge of Shoulder |
| Elec. | Electrical |
| EMH | Electrical Manhole |
| El., Elev. | Elevation |
| Emb. | Embankment |
| EVC | End of Vertical Curve |
| Eq. | Equal |
| Est. | Estimated |
| Exc. | Excavation |
| Excl. | Excluding |
| Exist., Ex. | Existing |
| Exp., (E) | Expansion |
| EJ | Expansion Joint |
| Ext. | Exterior |
| (F) | FIxed |
| FA | Force account |
| FB | Flat Bar |
| FC | Compression Stresses |
| f'c | Specified Compressive Strength of Concrete at 28 days |
| f'ci | Specified Compressive Strength of Concrete at Time of Initial |
| FF | Prestress Far Face. Front Face |
| Fig. | Figure |
| Fin. Gr. | Finish Grade |
| FRP | Fiberglass Reinforced Plastic |
| FT | Tensile Stresses |
| Ftg. | Footing |
| Ft. | Feet, Foot |
| Ga. | Gage, Gauge |
| Galv. | Galvanized |
| G, Gir. | Girder |
| GDI | Grated Drain Inlet |
| GFRP | Glass Fiber Reinforced Polymer Rebar |
| Gr. | Grade |
| Grd. | Ground |
| GRP | Grouted Rubble Pavement |
| Ht. | Height |
| (H) | Hinge |
| Horiz., H | Horizontal |
| HDOT | State of Hawaii Department of Transportation |
| HDPE | High Density Polyethylene |
| HS | High strength |
| 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, 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 |
| OG | Outside Girder, Outbound Girder |
| Perf. | Perforated |
| PL | Plate |
| PCC | Portland Cement Concrete |
| PC | Point of Curvature |
| PCF | Pounds per Cubic Foot |
| P(e) | Effective Prestress Force After All Losses |
| PPM | Parts Per Million |
| PSF | Pounds per Square Foot |
| PSI, 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 |
| Pt., Pts. | Point, Points |
| PRC | Point of Reverse Curvature |
| PVC | Polyvinyl Chloride |
| Prestr. | Prestressed |
| P/S | Prestressed Strands |
| PB | Pull Box |
| 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 |
| Sect. | Section |
| SRW | Segmental Retaining Wall |
| Sht. | Sheet |
| Sim. | Similar |
| Sl. | Slope |
| S | South |
| Spc., Spg. | Spaces, Spacing |
| Sprd. | Spread |
| Spec. | Specification |
| SF | Square Feet |
| SY | Square Yard |
| SS | Stainless Steel |
| Std. | Standard |
| Sta. | Station |
| Stiff. | Stiffener |
| Stirr. | Stirrup |
| Stl. | Steel |
| Str. | Straight |
| Struct. | Structure |
| SE | Super Elevation |
| Symm. | Symmetrical |
| Tan. | Tangent |
| TC | Continuity Tendons |
| Temp. | Temporary |
| TD | Deck Tendon |
| Thk. | Thick |
| T | Top |
| T&B | Top and Bottom |
| TCE | Top of Column (and Bent Cap Soffit) Elevation |
| TOD | Top of Deck |
| TOP | Top of Pier |
| TFE | Top of Footing Elevation |
| Tot. | Total |
| Transv. | Transverse |
| TS | Structural Tubing |
| TSS | Tendon For Girder in Simply Supported Condition |
| Typ. | Typical |
| Undergrd. | Underground |
| Var. | Varies |
| Vert., V | Vertical |
| VC | Vertical Curve |
| W/C | Water/Cement |
| w/ | With |
| W | West |
| WWF | Welded Wire Fabric |
| WW | Wingwall |
| WP | Work Point, Working Point |
| WS | Water Surface |
| Yr. | Year |

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**SYMBOLS AND ABBREVIATIONS**

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)

Scale: None — Date: February 2013

SHEET No. S0.3 OF 24 SHEETS

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

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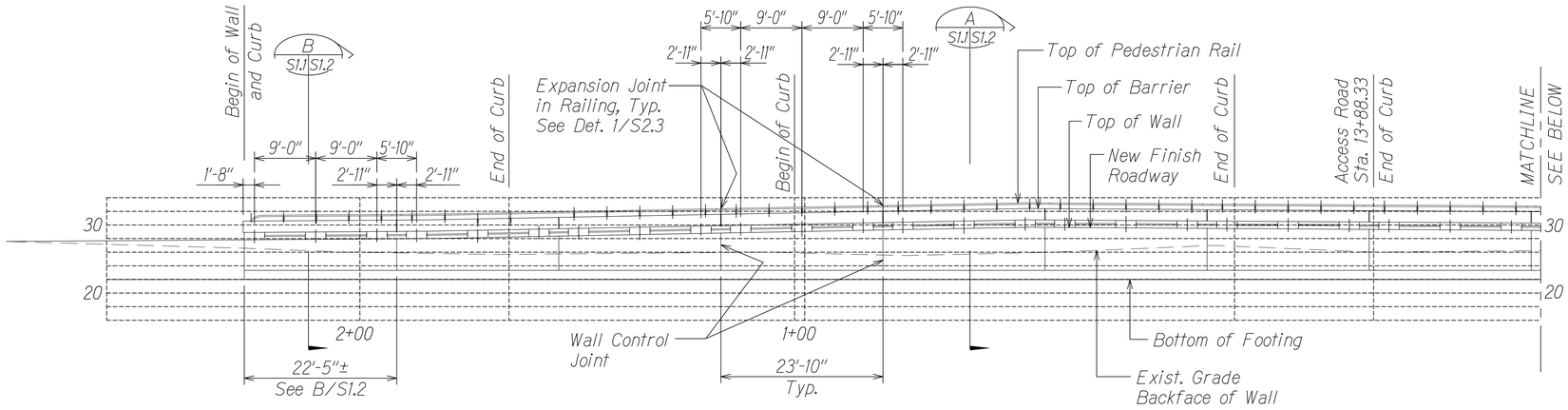


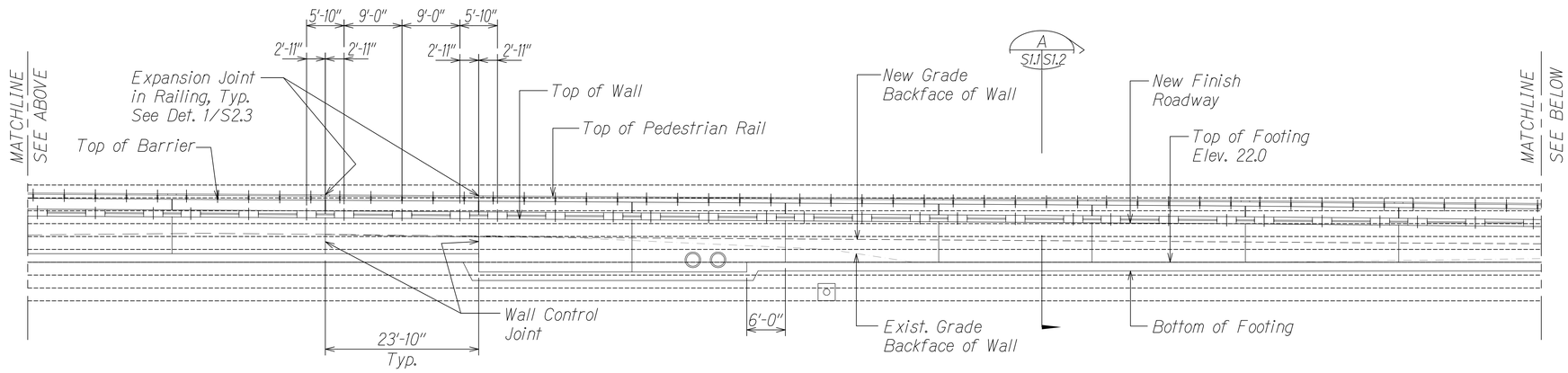


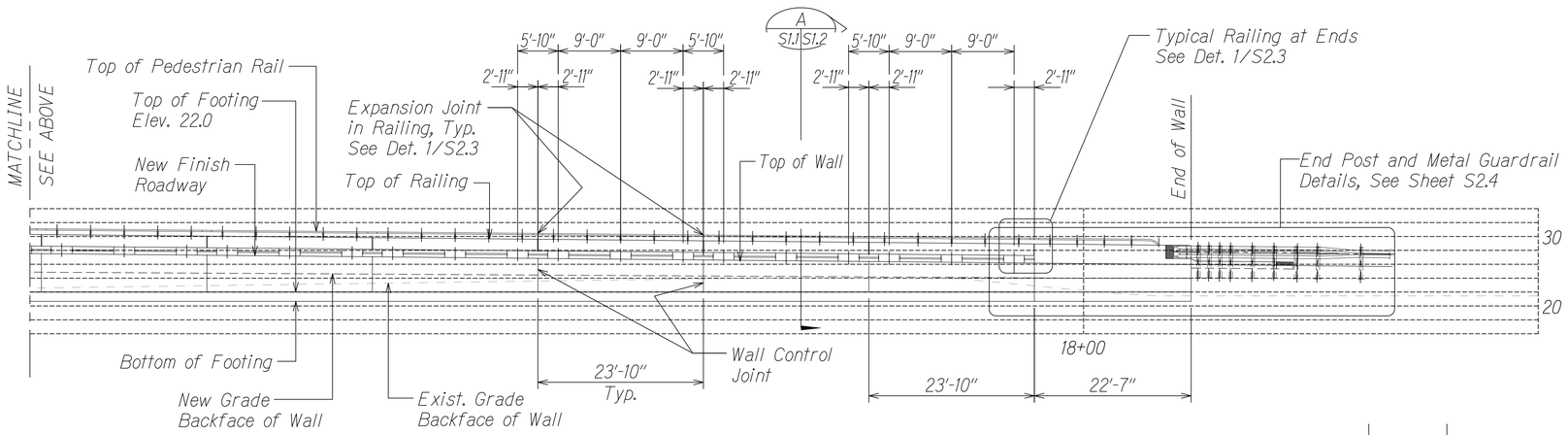


## NOTES:

1. See sheet S1.2 for retaining wall details.
2. Wall and railing control joints shall be located a maximum at 25'-0" oc unless otherwise noted.
3. Retaining wall joints and railing expansion joints shall be located between the same two adjacent railing posts. Submit joint layout to Engineer for approval.
4. Steps in footing shall be located at a wall control joint.

## RETAINING WALL "A" ELEVATION

Scale: 1" = 10'-0"

A S1.1 S1.1

| DATE | REVISION |
|---|---|
| 8/11/14 | Revised Elevation |
| 6/26/14 | Revised Elevation |

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RETAINING WALL "A" ELEVATION

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)

Scale: As Shown Date: February 2013

SHEET No. S1.1 OF 24 SHEETS

C.O. 120

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NOTE BOOK No.
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AS-BUILT DRAWINGS

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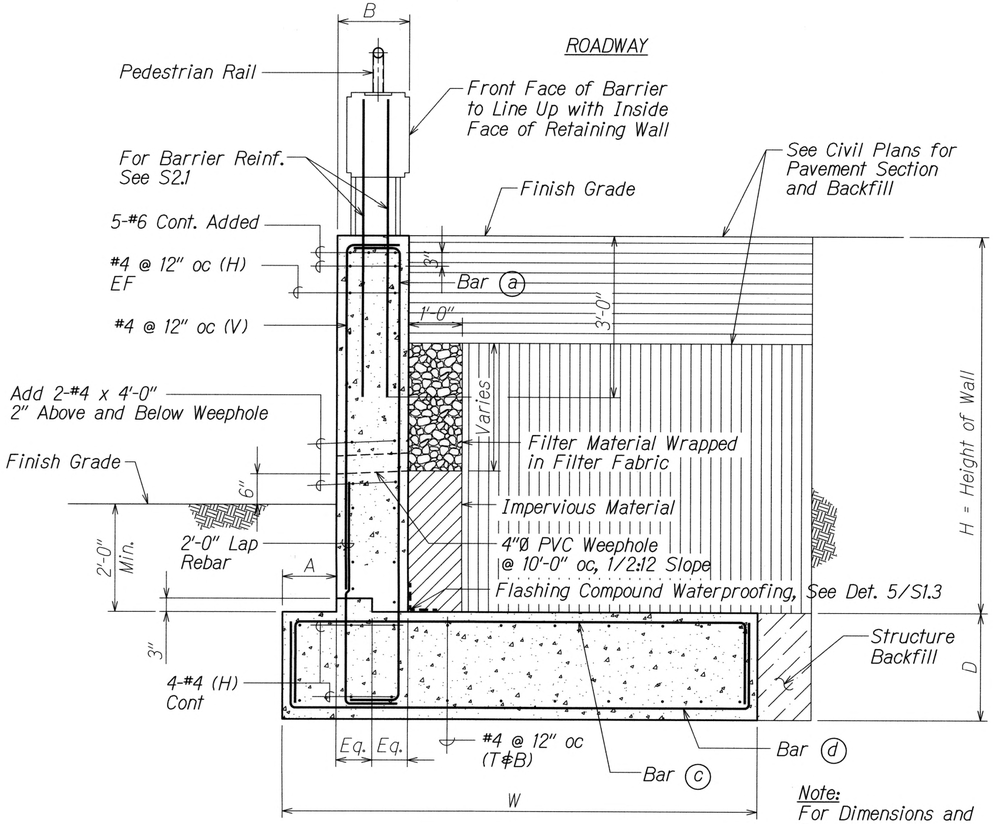
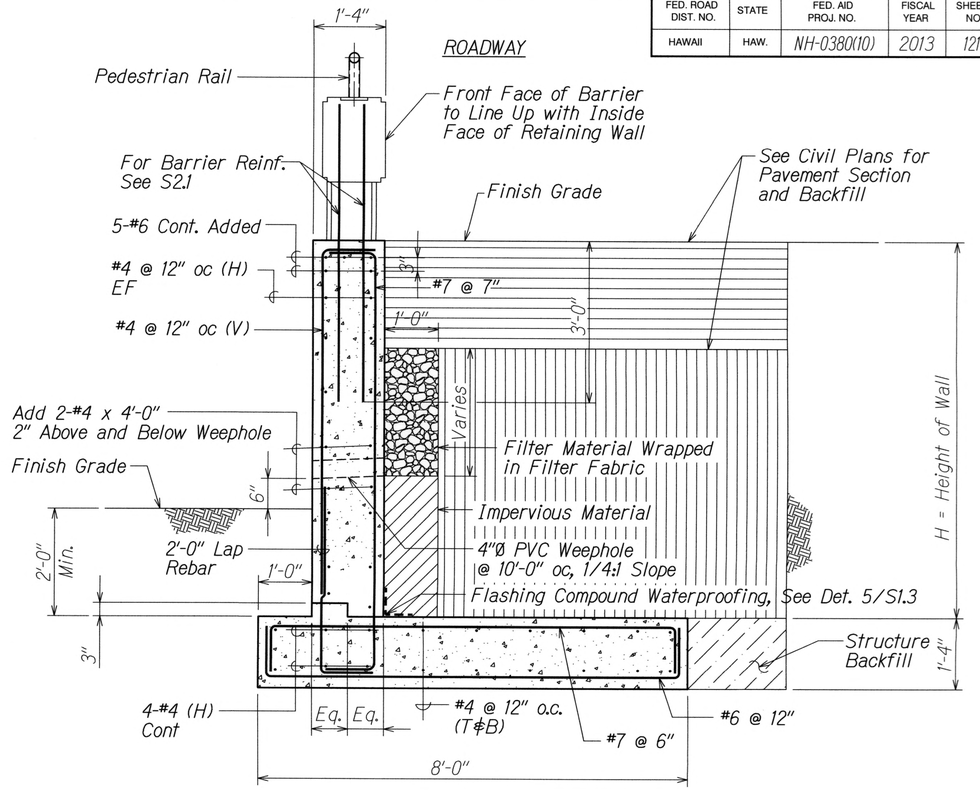



Note:
For Dimensions and Reinforcing See Retaining Wall Schedules

## TYPICAL RETAINING WALL DETAIL (A)

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

S1.1 | S1.2




## RETAINING WALL DETAIL AT END (B)

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

S1.1 | S1.2

### RETAINING WALL SCHEDULE

| DIMENSIONS | | | | | | | REINFORCING | | |
|---|---|---|---|---|---|---|---|---|---|
| STEM | | BASE | | | KEY | | STEM | BASE | |
| H | B | W | D | A | E | F | (a) | (c) | (d) |
| < 8'-0" | 16" | 7'-0" | 1'-4" | 1'-0" | - | - | #6 @ 8" | #6 @ 8" | #5 @ 12" |
| < 6'-0" | 16" | 6'-6" | 1'-4" | 1'-0" | - | - | #6 @ 12" | #6 @ 12" | #5 @ 12" |
| < 4'-0" | 16" | 6'-3" | 1'-4" | 1'-0" | - | - | #6 @ 12" | #6 @ 12" | #5 @ 12" |
| < 2'-0" | 16" | 6'-0" | 1'-4" | 1'-0" | - | - | #5 @ 12" | #5 @ 12" | #5 @ 12" |

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

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STATE OF HAWAII
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**RETAINING WALL SECTION AND SCHEDULE**

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)

Scale: As Shown Date: February 2013

SHEET No. S1.2 OF 24 SHEETS

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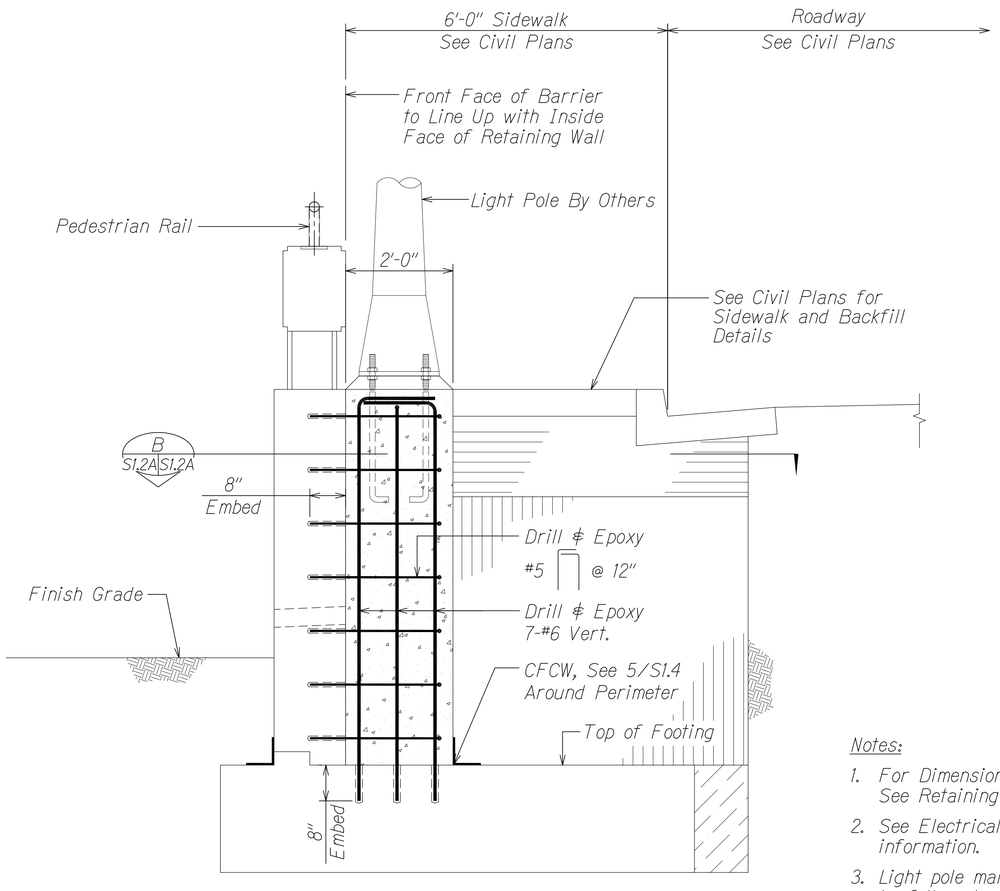
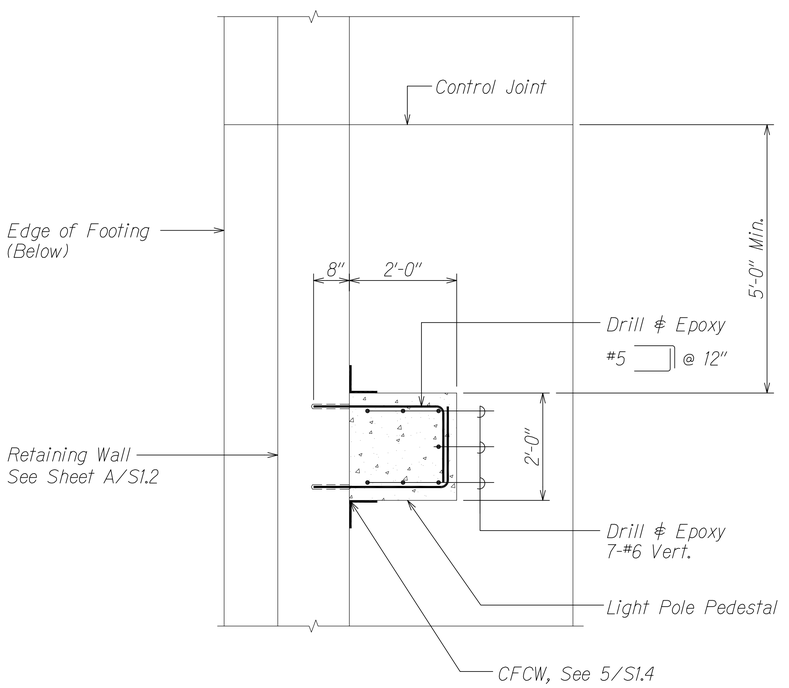
| HAWAII | HAW. | NH-0380(10) | 2013 | C.O. 121S-1 | 166 |




Notes:

1. For Dimensions and Reinforcing See Retaining Wall Schedules.
2. See Electrical Drawings for more information.
3. Light pole manufacturers shall be followed.

SECTION B
Scale: 3/4" = 1'-0"
S1.2A | S1.2A

TYPICAL LIGHT POLE AT RETAINING WALL SECTION A
Scale: 3/4" = 1'-0"
S1.2A | S1.2A

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| DATE | REVISION |
|---|---|
| 11/25/14 | 1 New Sheet |

STATE OF HAWAII
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HIGHWAYS DIVISION

TYPICAL LIGHT POLE AT RETAINING WALL SECTIONS

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)
Scale: As Shown Date: February 2013

SHEET No. S1.2A OF 24 SHEETS

"AS-BUILT"

C.O. 121S-1

AS-BUILT DRAWINGS

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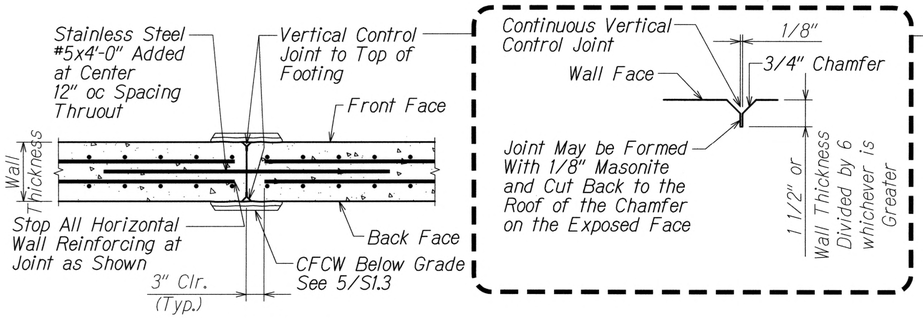
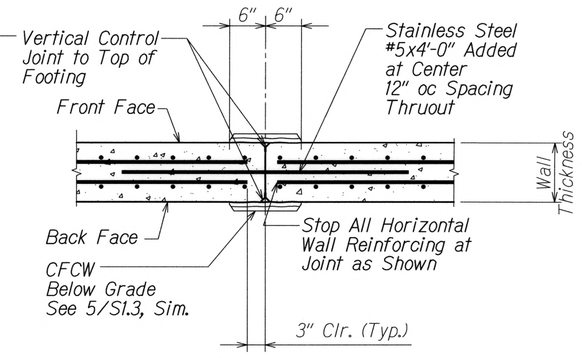



DOUBLE CURTAIN

## CONSTRUCTION JOINT AT CONTROL JOINT LOCATION (1 S1.3 | S1.3)

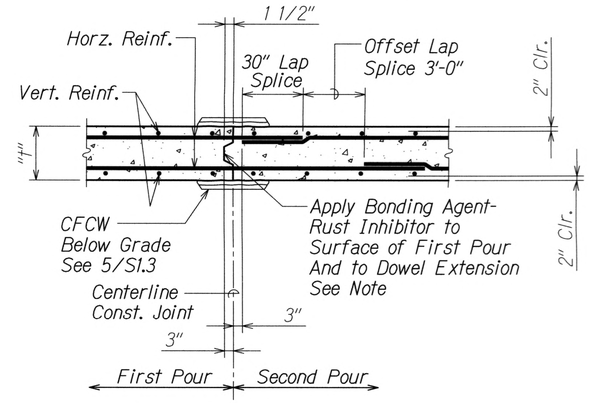
Scale: 1" = 1'-0"




DOUBLE CURTAIN

## TYPICAL WALL VERTICAL CONTROL JOINT DETAIL (2 S1.3 | S1.3)

Scale: 1" = 1'-0"

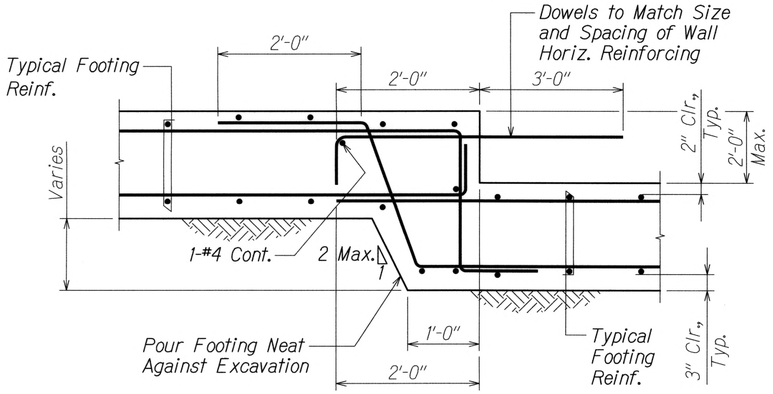



DOUBLE CURTAIN

Note: Use 1 1/2" Deep X "t"/3 Keys.

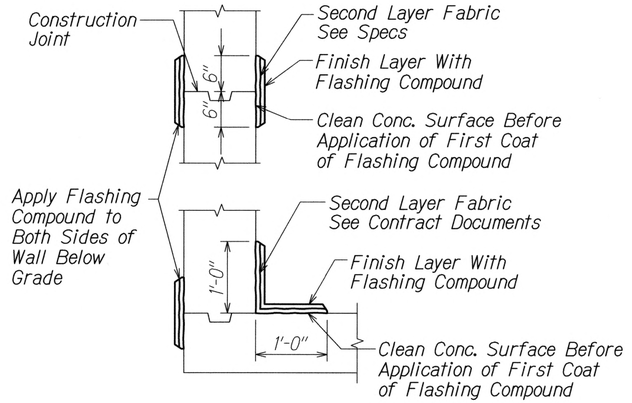
## TYPICAL WALL VERTICAL CONSTRUCTION JOINT DETAIL (3 S1.3 | S1.3)

Scale: 1" = 1'-0"



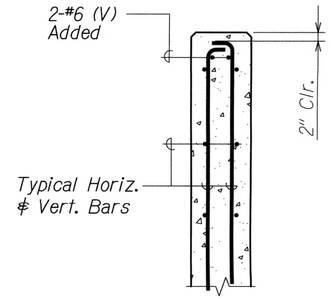

## TYPICAL WALL STEP FOOTING DETAIL (4 S1.3 | S1.3)

Scale: 1" = 1'-0"




## TYP. CONTINUOUS FLASHING COMPOUND WATERPROOFING (CFCW DETAILS) (5 S1.3 | S1.3)

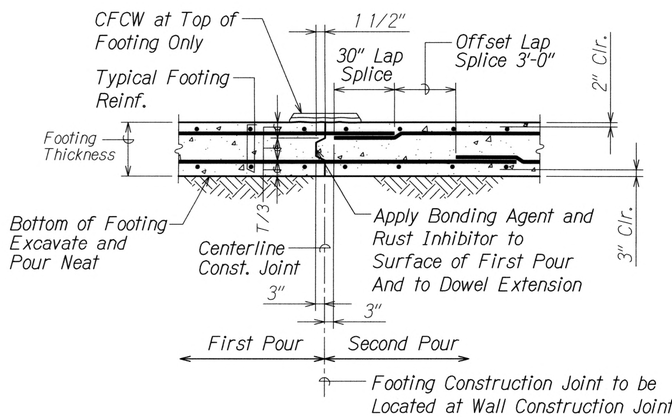
Scale: 1" = 1'-0"




DOUBLE CURTAIN

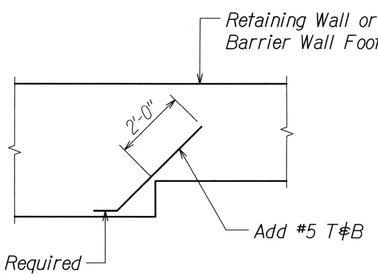
## CONCRETE WALL ENDS (6 S1.3 | S1.3)

Scale: 1" = 1'-0"




## TYPICAL FOOTING CONSTRUCTION JOINT DETAIL (7 S1.3 | S1.3)

Scale: 1" = 1'-0"




## TYPICAL FOOTING CORNER PLAN DETAIL (8 S1.3 | S1.3)

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

CALVIN T. MIYAHARA LICENSED PROFESSIONAL ENGINEER NO. 8133-S HAWAII, U.S.A.

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STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**TYPICAL DETAILS**

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)

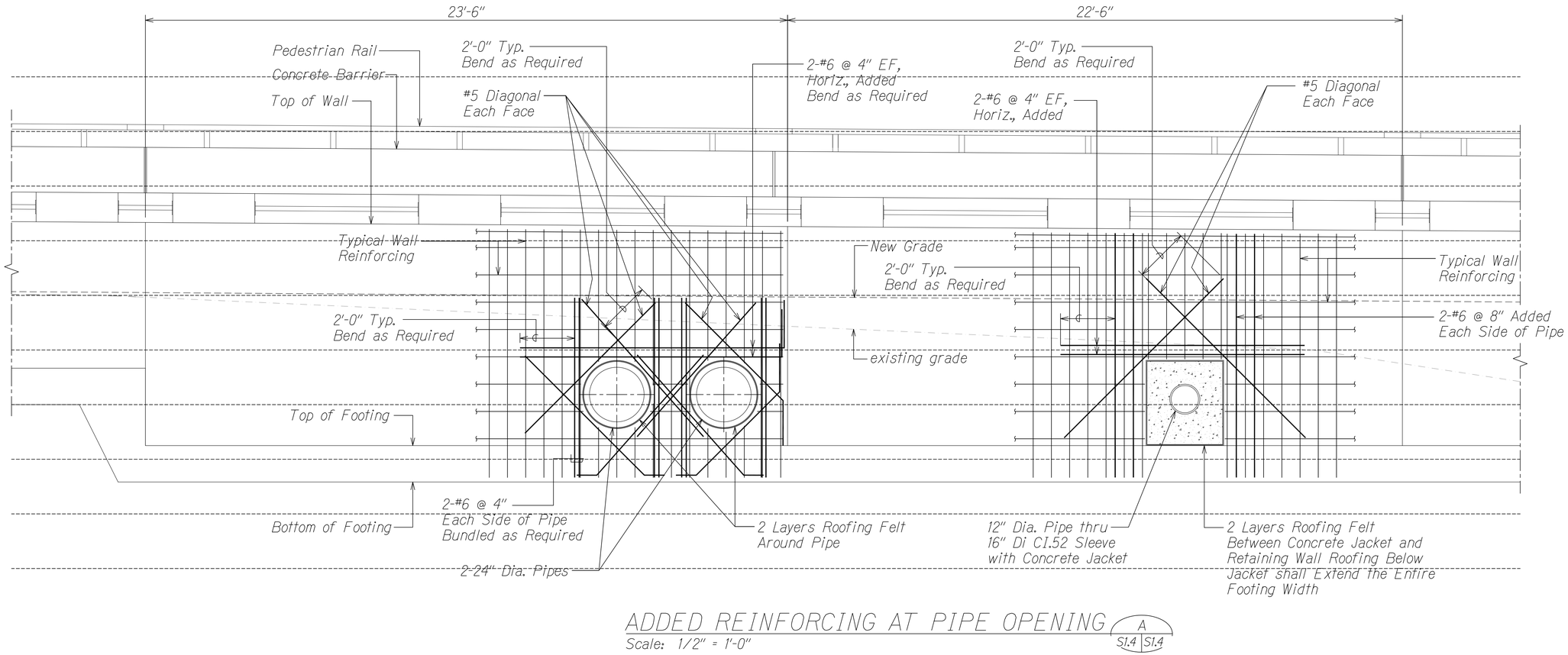
Scale: As Shown Date: February 2013

SHEET No. S1.3 OF 24 SHEETS

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

DRAWING NAME: Z:\00 ONGOING\11-006-KAAR-KAHULUI AIRPORT ACCESS RD-PH1 FAV\CAD\02-22-13 BID\KAH-S103.DWG PLOT TIME: 02-22-13, 2:52 PM)

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | NH-0380(10) | 2013 | C.O. 122S-1 | 166 |




## ADDED REINFORCING AT PIPE OPENING

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

A
S1.4 | S1.4

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ADDED REINFORCING AT PIPE OPENING

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)

Scale: As Shown Date: February 2013

SHEET No. S1.4 OF 24 SHEETS

| DATE | REVISION |
|---|---|
| 4/10/14 | - New Sheet |

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

ORIGINAL PLAN
NOTE BOOK
No.

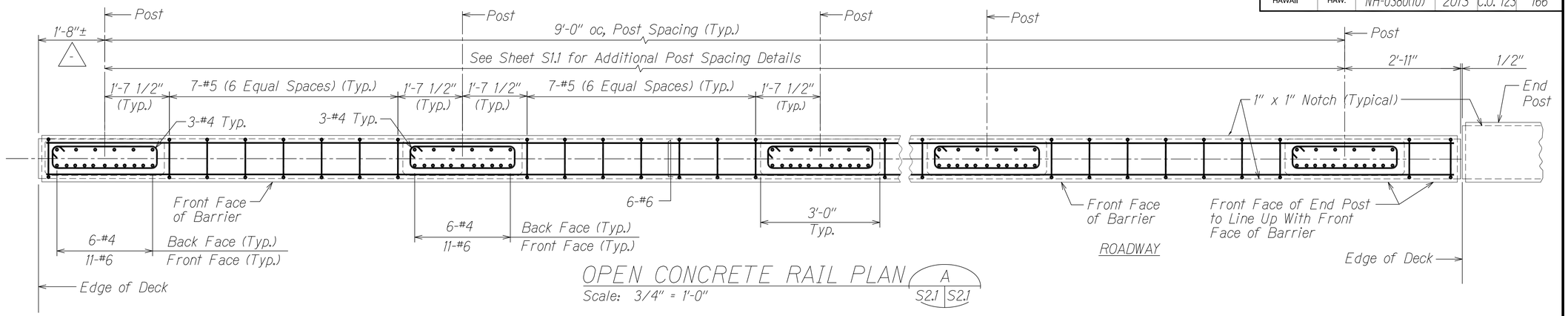
DRAWING NAME: C:\PROJECTS\KAHULUI-2011\AS-BUILT OCTOBER 2017\STRUCTURAL\KAH-S104.CO1.DWG PLOT TIME: 10-18-18, 2:18 PM)

AS-BUILT DRAWINGS

"AS-BUILT"

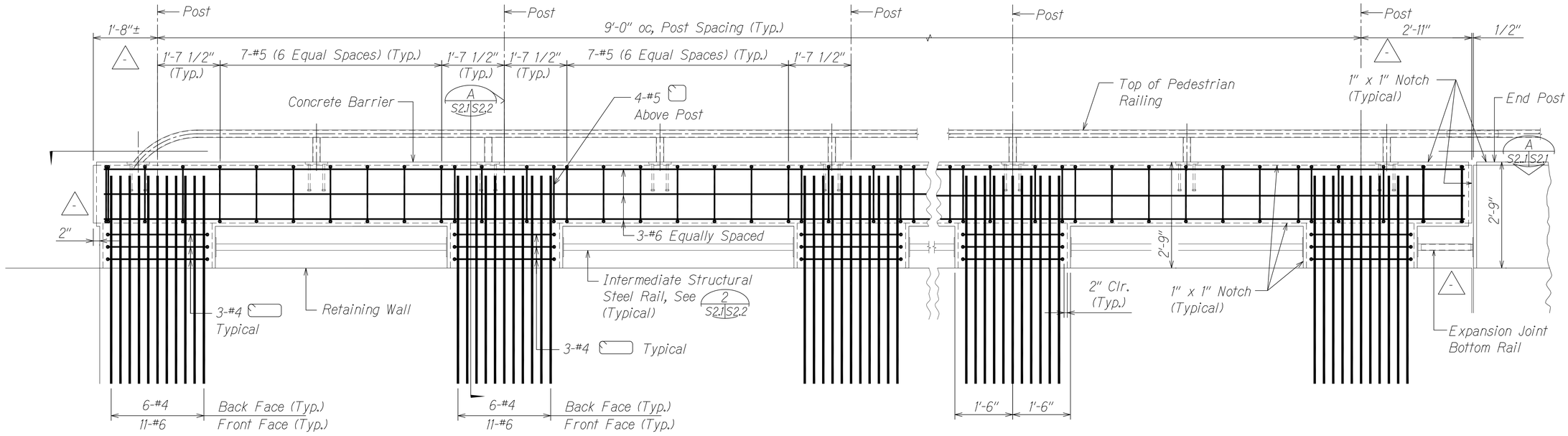
C.O. 122S-1

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | NH-0380(10) | 2013 | C.O. 123 | 166 |




OPEN CONCRETE RAIL PLAN (A S2.1 | S2.1)

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




OPEN CONCRETE RAIL SECTION (B S2.1 | S2.1)

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

Notes:

1. All Structural Steel Plates and Shapes Shall be Hot Dipped Galvanized After Fabrication.
2. Grind all outer corners of notches to a uniform 1/8" radius.

| DATE | REVISION |
|---|---|
| 8/8/14 | Revised Details |
| 6/26/14 | Revised Details |

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

# RAILING PLAN AND SECTION

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)

Scale: As Shown Date: February 2013

SHEET No. S2.1 OF 24 SHEETS

C.O. 123

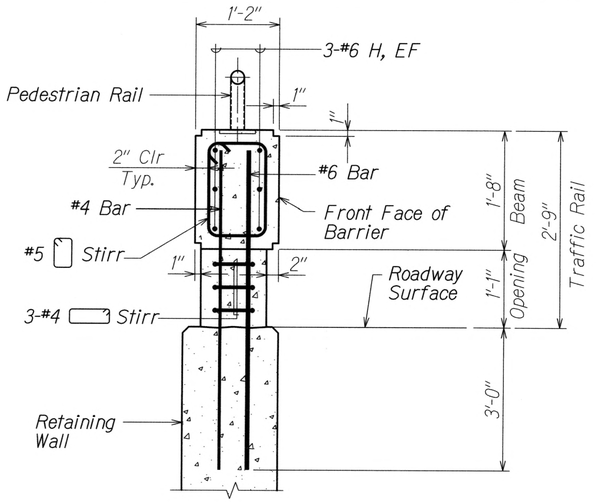
ORIGINAL PLAN | NOTE BOOK No. ____

SURVEY PLOTTED BY ____ DATE
DRAWN BY ____ "
TRACED BY ____ "
DESIGNED BY ____ "
QUANTITIES BY ____ "
CHECKED BY ____ "

DRAWING NAME: C:\PROJECTS\KAHULUI-2011\AS-BUILT OCTOBER 2017\STRUCTURAL\KAH-S201 C02 C03.DWG PLOT TIME: 10-30-18, 9:59 AM)

AS-BUILT DRAWINGS

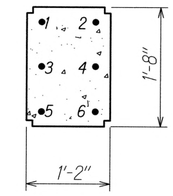
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | NH-0380(10) | 2013 | 124 | 166 |




## RAILING SECTION A

Scale: 1" = 1'-0"

S2.1 | S2.2

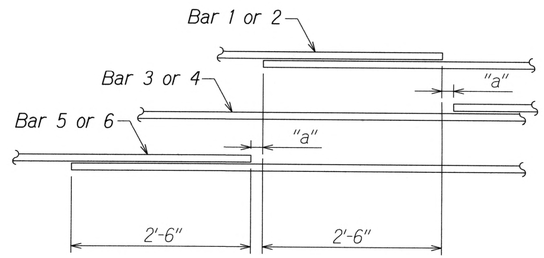



See Lap Detail

## RAIL SECTION B

Scale: Not to Scale

S2.2 | S2.2

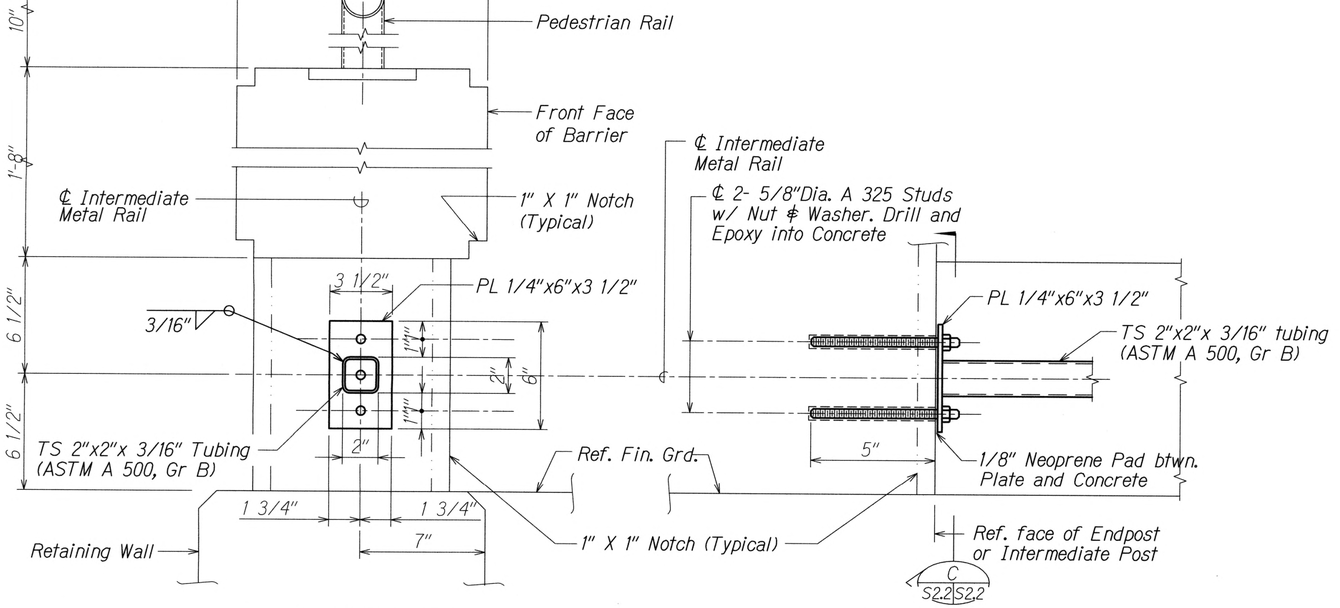



Laps for Bars 1 and 5 shall be staggered.
Laps for Bars 2 and 6 shall be staggered.
Bar 3 to be continuous through laps for Bars 1 and 5
Bar 4 to be continuous through laps for Bars 2 and 6
"a" ≥ Zero

## LAP DETAIL 1

Scale: Not to Scale

S2.2 | S2.2




SECTION C (S2.2 | S2.2)

ELEVATION

## INTERMEDIATE METAL RAIL DETAIL 2

Scale: 3" = 1'-0"

S2.1 | S2.2

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

DRAWING NAME: Z:\00 ONGOING\11-006-KAAR-KAHULUI AIRPORT ACCESS RD-PH1 FAI\CAD\02-22-13 BID\KAH-S202.DWG PLOT TIME: 02-22-13, 2:52 PM)

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

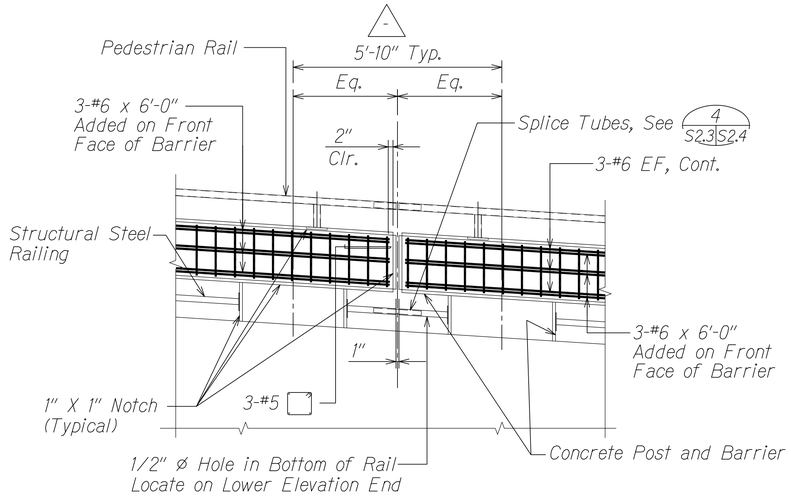
# RAILING SECTION AND DETAILS

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)

Scale: As Shown Date: February 2013

SHEET No. S2.2 OF 24 SHEETS

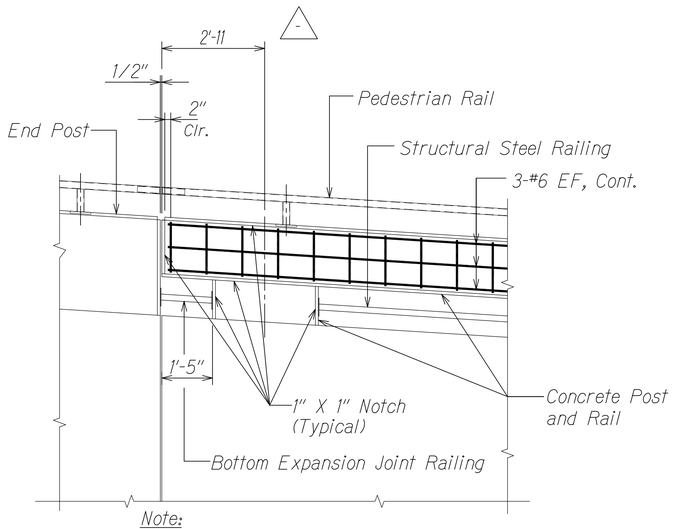
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | NH-0380(10) | 2013 | C.O. 125 | 166 |




Note:
See Sheets S2.1 and S2.2 for Additional Details

## TYPICAL RAILING EXPANSION JOINT 1 S2.3|S2.3

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




Note:
See Sheet S2.1 and S2.2 for Additional Details

## TYPICAL RAILING DETAIL AT END POST 2 S2.3|S2.3

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

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

DRAWING NAME: C:\PROJECTS\KAHULUI-2011\AS-BUILT OCTOBER 2017\STRUCTURAL\KAH-S203 C02 C03.DWG PLOT TIME: 10-30-18, 10:00 AM

| DATE | REVISION |
|---|---|
| 8/8/14 | 1 Revised Details |
| 6/26/14 | - Revised Details |

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

# RAILING SECTION AND DETAILS

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)

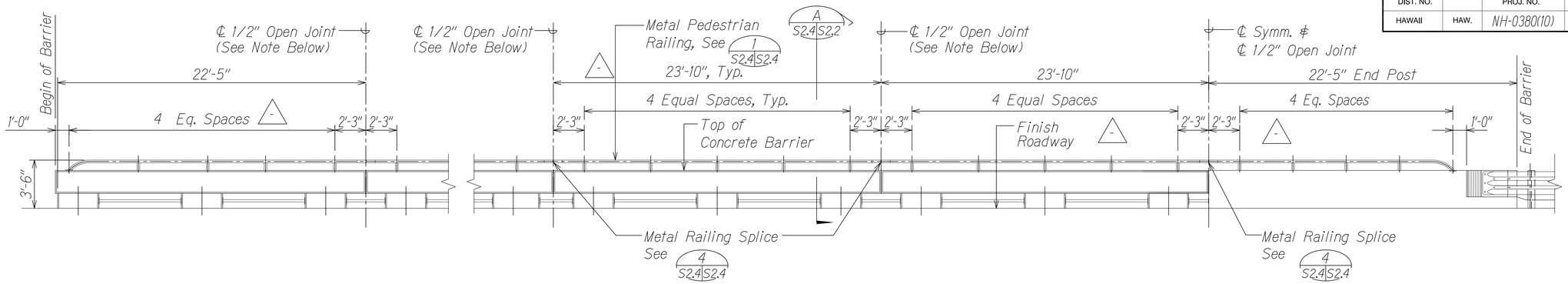
Scale: As Shown Date: February 2013

SHEET No. S2.3 OF 24 SHEETS

C.O. 125

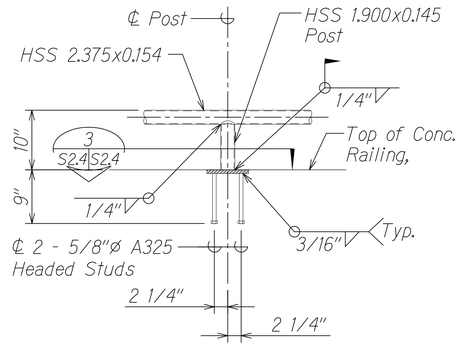
AS-BUILT DRAWINGS

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | NH-0380(10) | 2013 | C.O. 126 | 166 |



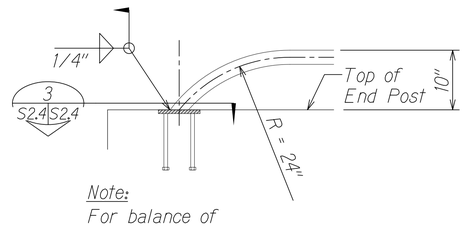

## TYPICAL RAILING ELEVATION A S2.4 S2.4

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




## TYPICAL RAILING POST CONNECTION 1 S2.4 S2.4

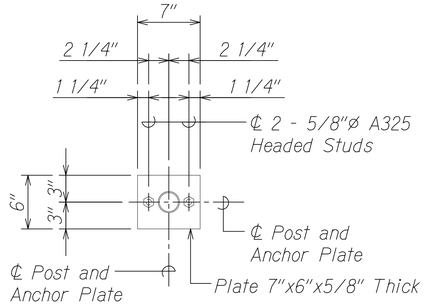
Scale: 1" = 1'-0"




Note:
For balance of information, See 1/S2.4

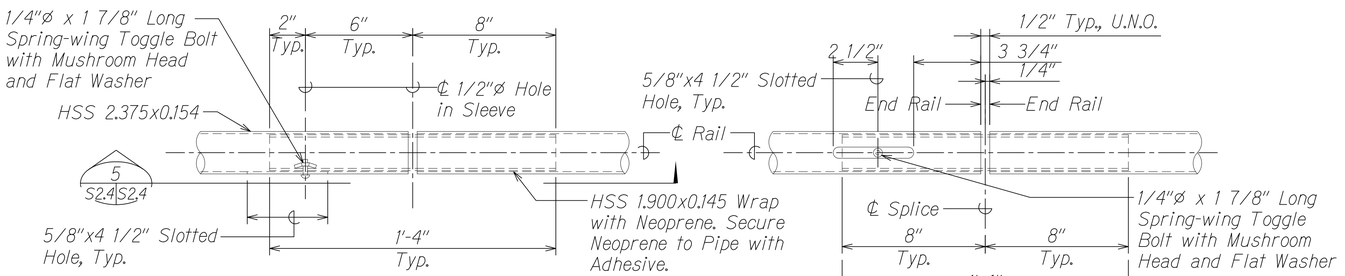
## TYPICAL RAILING POST CONNECTION AT ENDS 2 S2.4 S2.4

Scale: 1" = 1'-0"




## TYPICAL RAILING ANCHOR PLATE DETAIL 3 S2.4 S2.4

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




Notes:

1. Concrete railing expansion joint and metal railing expansion joint shall be located between the same two adjacent railing posts.
2. Slotted hole and toggle bolt shall be located on under side of pipe.
3. After field welding, clean and coat damaged galvanized coating according to Specs. Sect. 501.03 (G)(2).

## SECTION 5 S2.4 S2.4

Scale: 3" = 1'-0"

## TYPICAL RAILING EXPANSION JOINT DETAIL 4 S2.4 S2.4

Scale: 3" = 1'-0"

| DATE | REVISION |
|---|---|
| 8/8/14 | Revised Details |
| 6/26/14 | Revised Details |

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APRIL 30, 2016
KSF, INC. LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

# PEDESTRAIN RAIL ELEVATIONS, SECTIONS AND DETAILS

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)

Scale: As Shown Date: February 2013

SHEET No. S2.4 OF 24 SHEETS

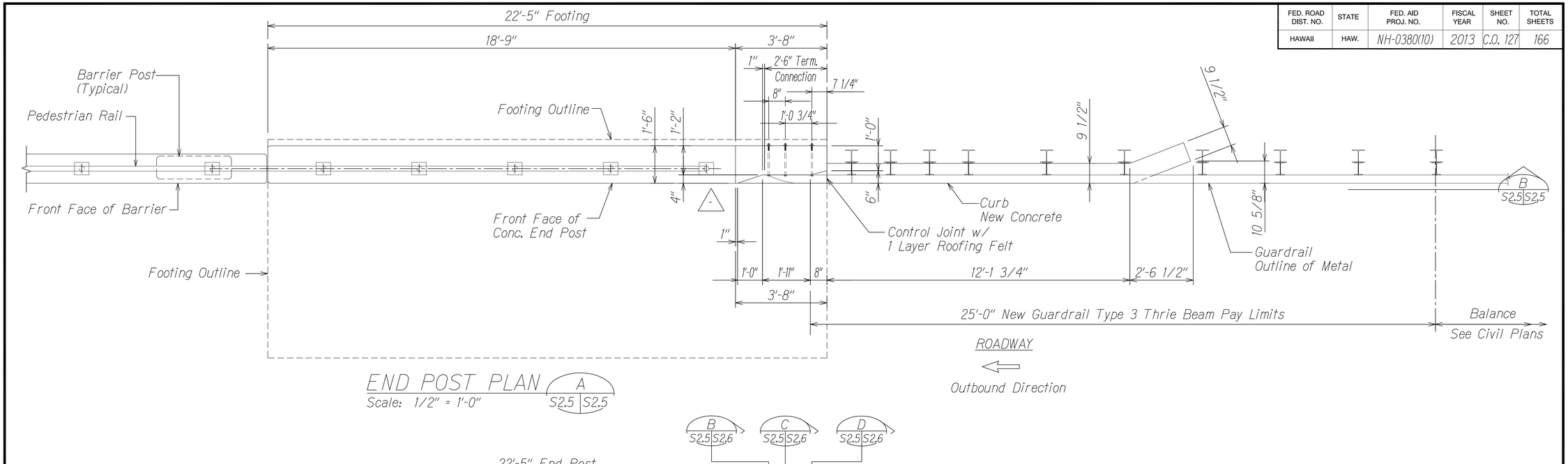
AS-BUILT DRAWINGS

C.O. 126

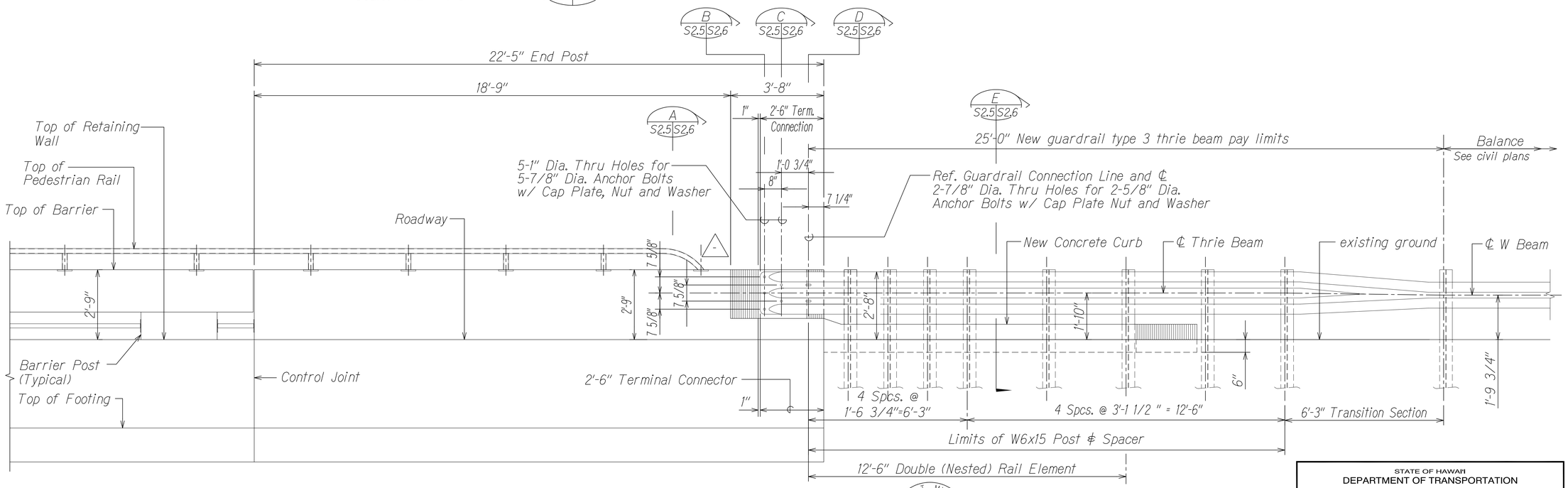
ORIGINAL PLAN | NOTE BOOK | No.
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGN BY
QUANTITIES BY
CHECKED BY
DATE

DRAWING NAME: C:\PROJECTS\KAHULUI-2011\AS-BUILT OCTOBER 2017\STRUCTURAL\KAH-S204 C02 C03.DWG PLOT TIME: 10-30-18, 10:02 AM

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | NH-0380(10) | 2013 | C.O. 127 | 166 |




END POST PLAN (A S2.5 | S2.5)
Scale: 1/2" = 1'-0"




END POST ELEVATION (B S2.5 | S2.5)
Scale: 1/2" = 1'-0"

# TYPE "A" AND TYPE "B" END POST UPGRADES

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

DRAWING NAME: C:\PROJECTS\KAHULUI-2011\AS-BUILT OCTOBER 20\STRUCTURAL\KAH-S205 C02 033.DWG PLOT TIME: 10-30-18, 10:05 AM

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| DATE | REVISION |
|---|---|
| 8/8/14 | - Revised Details |
| 6/26/14 | - Revised Details |

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPE "A" END POST AND TYPE "B" END POST

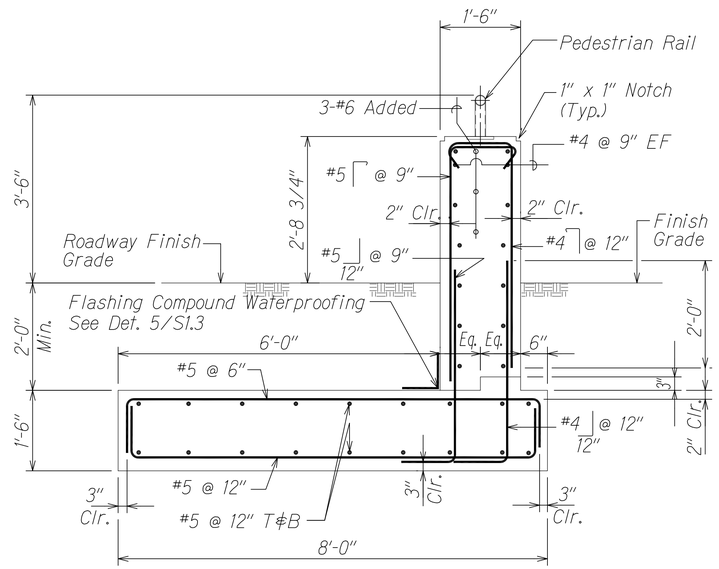
KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)
Scale: As Shown Date: February 2013

SHEET No. S2.5 OF 24 SHEETS

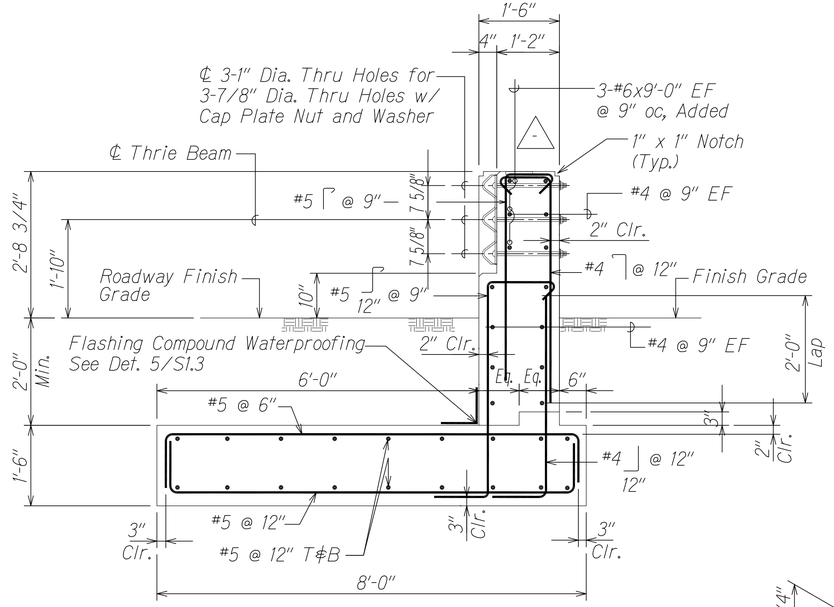
AS-BUILT DRAWINGS

C.O. 127

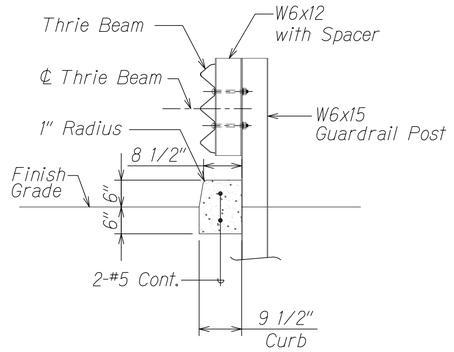
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | NH-0380(10) | 2013 | C.O. 128 | 166 |



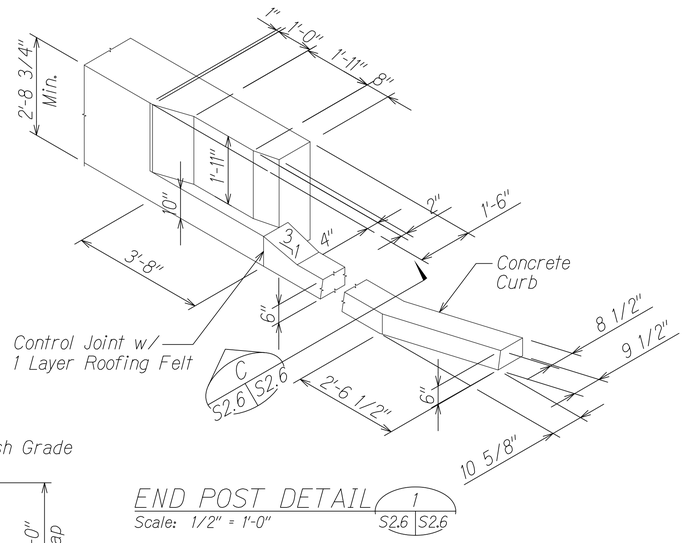

SECTION A
Scale: 3/4" = 1'-0" S2.5 | S2.6



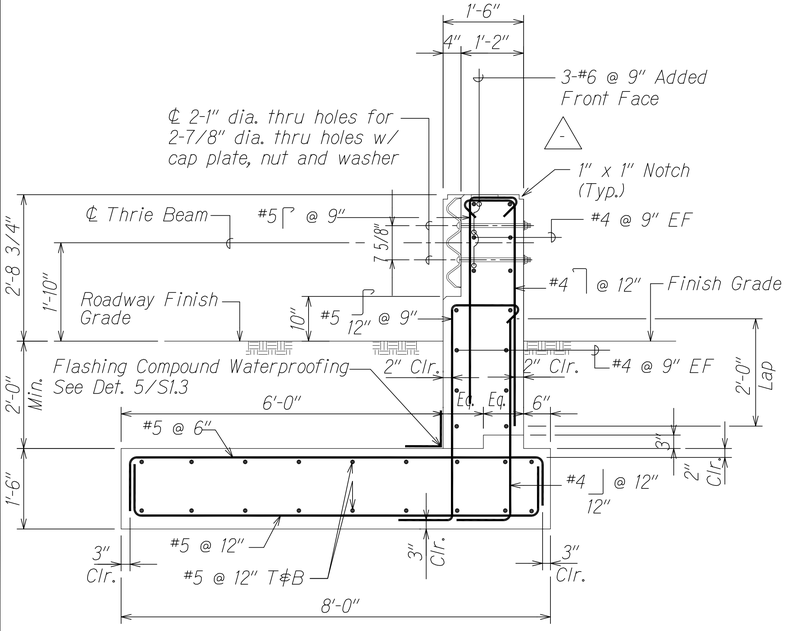

SECTION B
Scale: 3/4" = 1'-0" S2.5 | S2.6



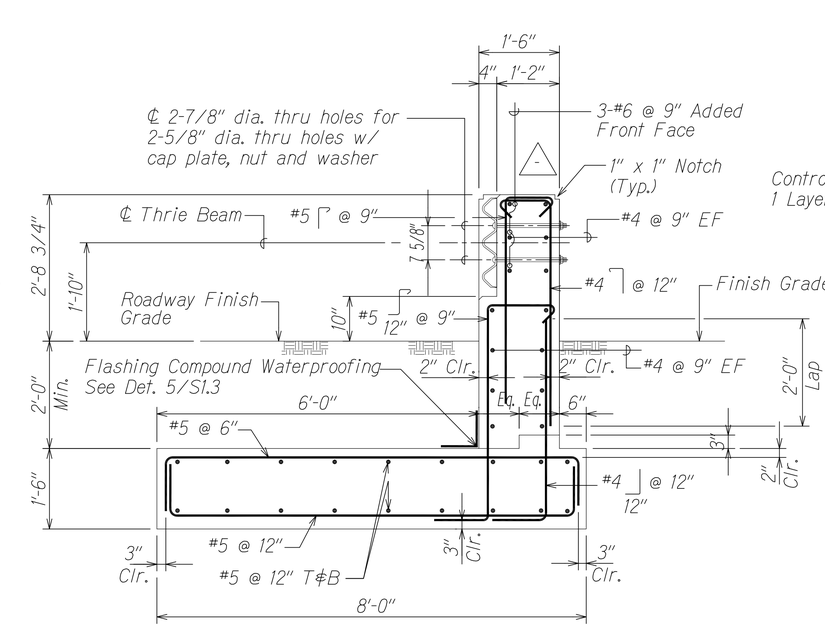

SECTION E
Scale: 3/4" = 1'-0" S2.5 | S2.6




END POST DETAIL 1
Scale: 1/2" = 1'-0" S2.6 | S2.6




SECTION C
Scale: 3/4" = 1'-0" S2.5 | S2.6




SECTION D
Scale: 3/4" = 1'-0" S2.5 | S2.6

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

DRAWING NAME: C:\PROJECTS\KAHULUI-2011\AS-BUILT OCTOBER 2017\STRUCTURAL\KAH-S206 C02.DWG PLOT TIME: 10-30-18, 10:06 AM)

| DATE | REVISION |
|---|---|
| 6/26/14 | - Revised Details |

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

# END POST SECTIONS AND DETAIL

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)

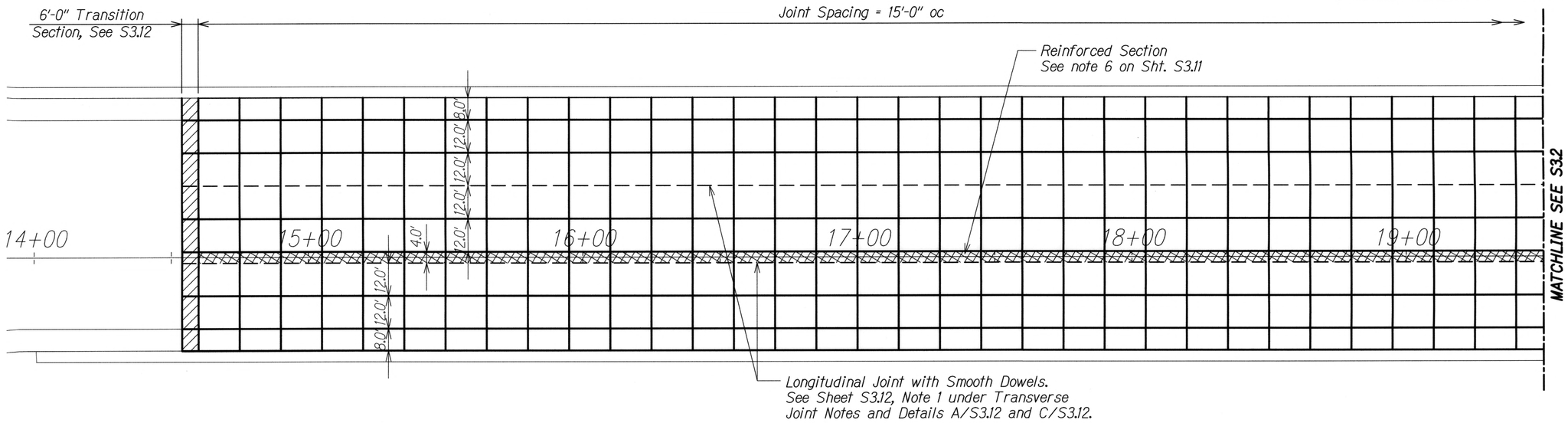
Scale: As Shown Date: February 2013

SHEET No. S2.6 OF 24 SHEETS

AS-BUILT DRAWINGS

C.O. 128

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | NH-0380(10) | 2013 | 129 | 166 |




## PLAN - STA. 14+00 TO 19+50

Scale: 1" = 20'-0"

A S3.1 | S3.1

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

DRAWING NAME: Z:\DO ONGOING\11-006-KAAR-KAHULUI AIRPORT ACCESS RD-PH1 FA\CAD\02-22-13 BID\KAH-S301.DWG PLOT TIME: 02-22-13, 2:53 PM)

CALVIN T. MIYAHARA
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NO. 8133-S
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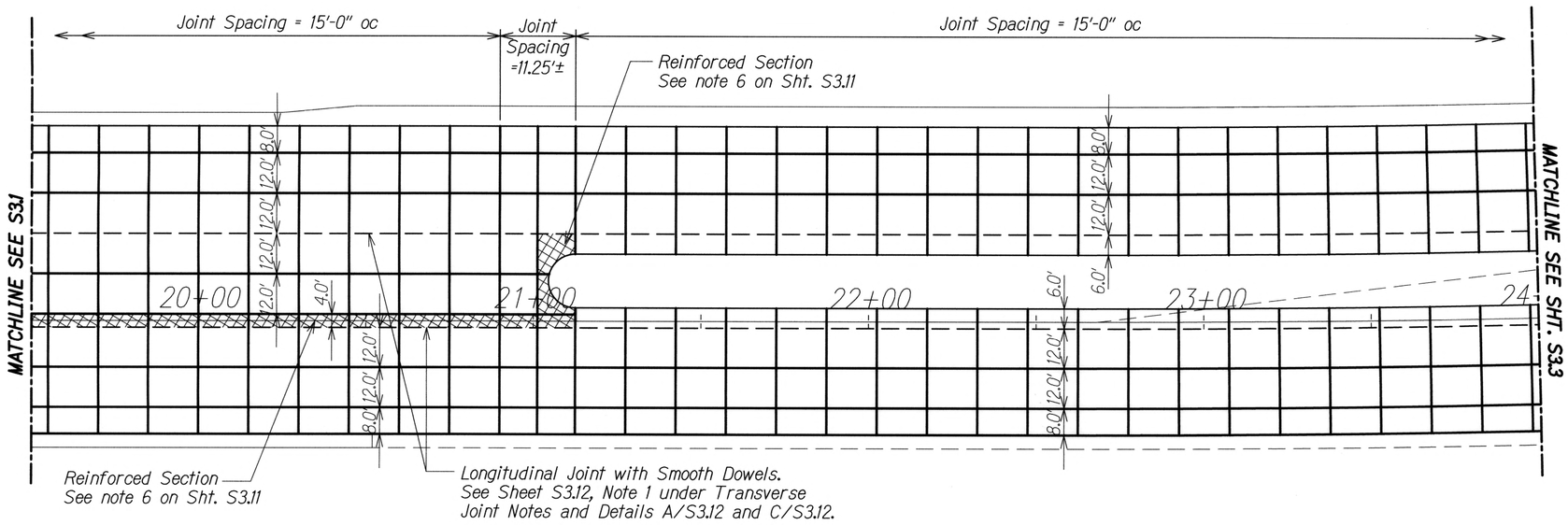
**PLAN - STA. 14+00 TO 19+50**

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)

Scale: As Shown Date: February 2013

SHEET No. S3.1 OF 24 SHEETS

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | NH-0380(10) | 2013 | 130 | 166 |




## PLAN - STA. 19+50 TO 24+00

Scale: 1" = 20'-0"

A S32 S32

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

DRAWING NAME: Z:\00 ONGOING\11-006-KAAR-KAHULUI AIRPORT ACCESS RD-PH1 FA\CAD\02-22-13 BID\KAH-S301.DWG PLOT TIME: 02-22-13, 2:54 PM)

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**PLAN - STA. 19+50 TO 24+00**

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)

Scale: As Shown Date: February 2013

SHEET No. S3.2 OF 24 SHEETS

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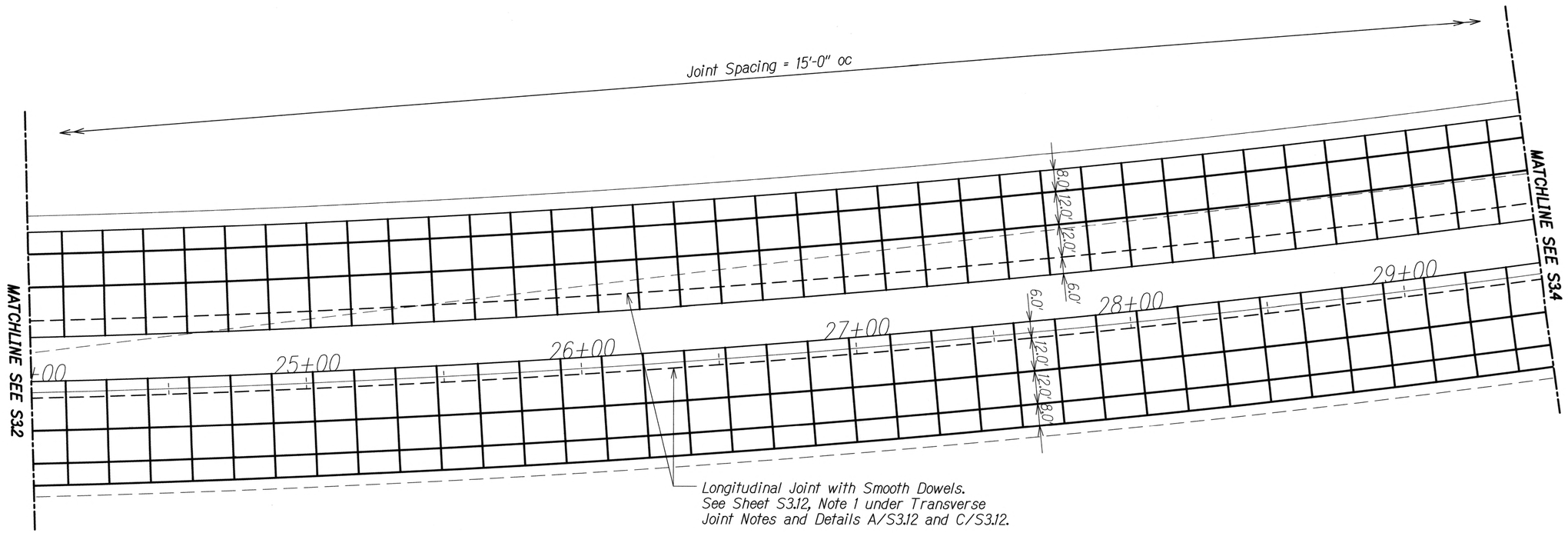


## PLAN - STA. 24+00 TO 29+50 (A S3.3 | S3.3)

Scale: 1" = 20'-0"

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

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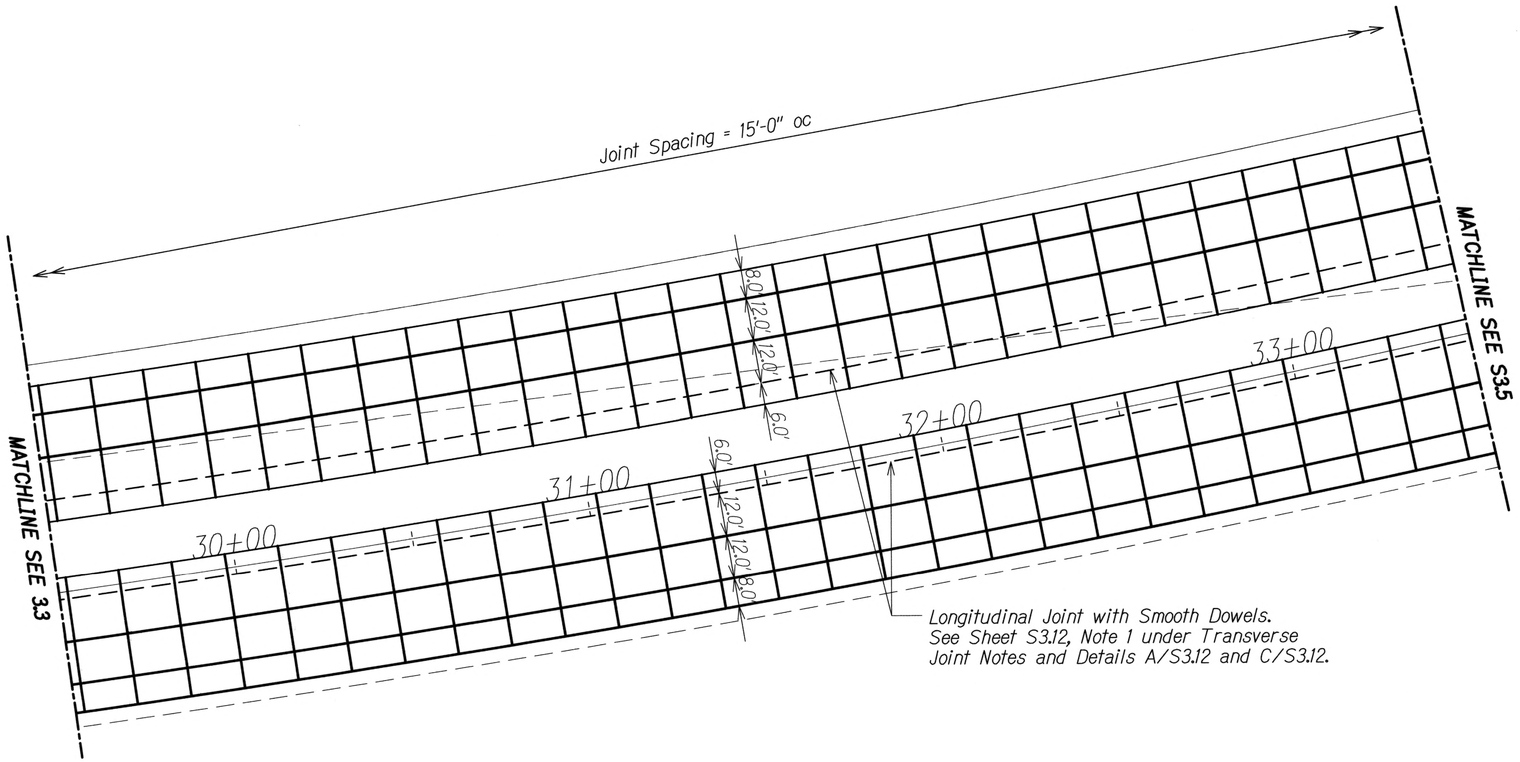
**PLAN - STA. 24+00 TO 29+50**

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)

Scale: As Shown Date: February 2013

SHEET No. S3.3 OF 24 SHEETS

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | NH-0380(10) | 2013 | 132 | 166 |




## PLAN - STA. 29+50 TO 33+50

A S3.4 S3.4

Scale: 1" = 20'-0"

DRAWING NAME: Z:\00 ONGOING\11-006-KAAR-KAHULUI AIRPORT ACCESS RD-PH1 FA\CAD\02-22-13 BID\KAH-S301.DWG PLOT TIME: 02-22-13, 2:54 PM

| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
|---|---|---|
| | DRAWN BY | |
| NOTE BOOK | TRACED BY | |
| | DESIGNED BY | |
| | QUANTITIES BY | |
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**PLAN - STA. 29+50 TO 33+50**

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)

Scale: As Shown Date: February 2013

SHEET No. S3.4 OF 24 SHEETS

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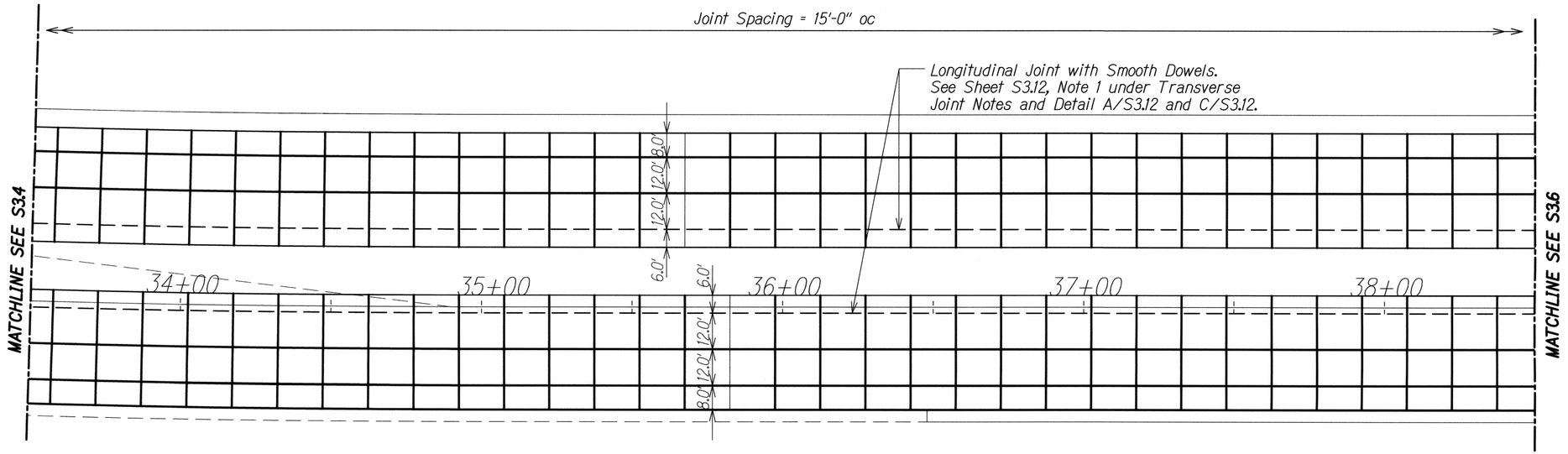


## PLAN - STA. 33+50 TO 38+50

Scale: 1" = 20'-0"

A S3.5 | S3.5

ORIGINAL PLAN
NOTE BOOK
No.

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

DRAWING NAME: Z:\00 ONGOING\11-006-KAAR-KAHULUI AIRPORT ACCESS RD-PHI FA\CAD\02-22-13 BID\KAH-S301.DWG PLOT TIME: 02-22-13, 2:54 PM)

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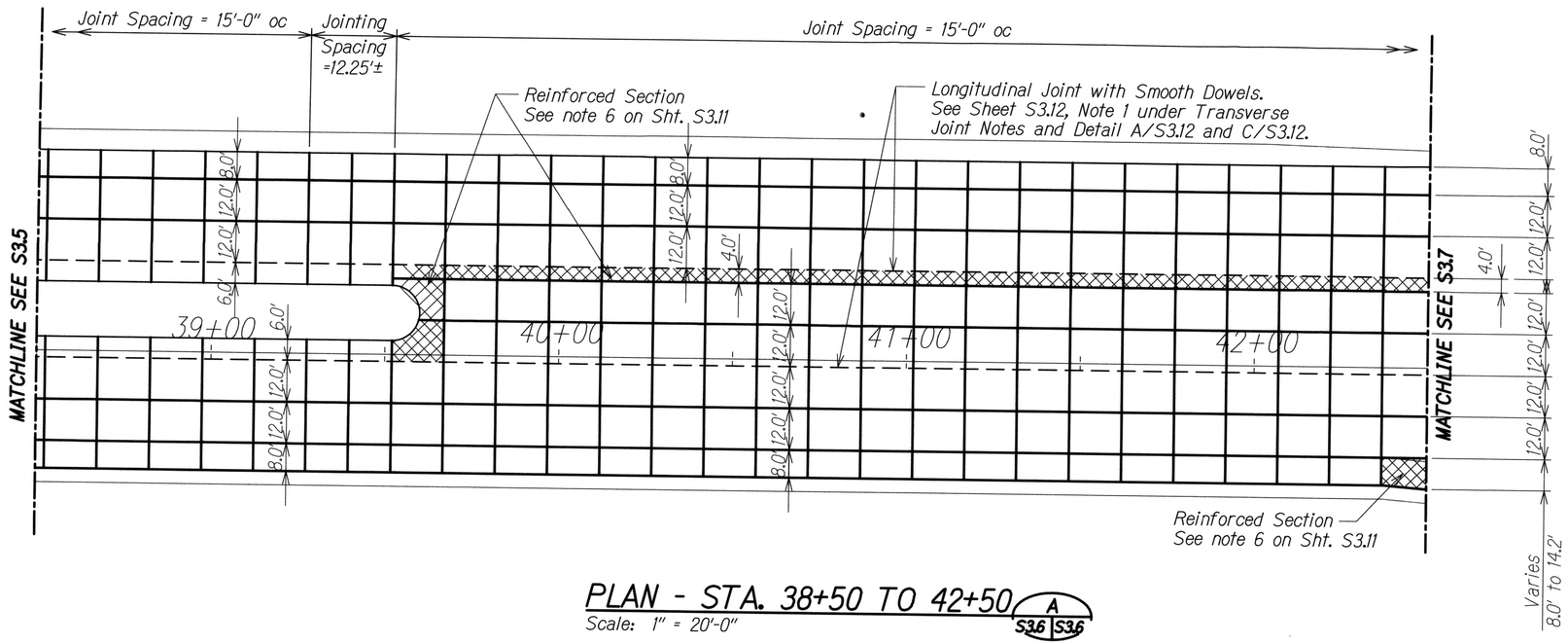
**PLAN - STA. 33+50 TO 38+50**

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)

Scale: As Shown Date: February 2013

SHEET No. S3.5 OF 24 SHEETS

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | NH-0380(10) | 2013 | 134 | 166 |




## PLAN - STA. 38+50 TO 42+50

Scale: 1" = 20'-0"

A S3.6 | S3.6

DRAWING NAME: Z:\00 ONGOING\11-006-KAAR-KAHULUI AIRPORT ACCESS RD-PH1 FA\CAD\02-22-13 BID\KAH-S301.DWG PLOT TIME: 02-22-13, 2:54 PM)

| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
|---|---|---|
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| NOTE BOOK | TRACED BY | |
| | DESIGNED BY | |
| No. | QUANTITIES BY | |
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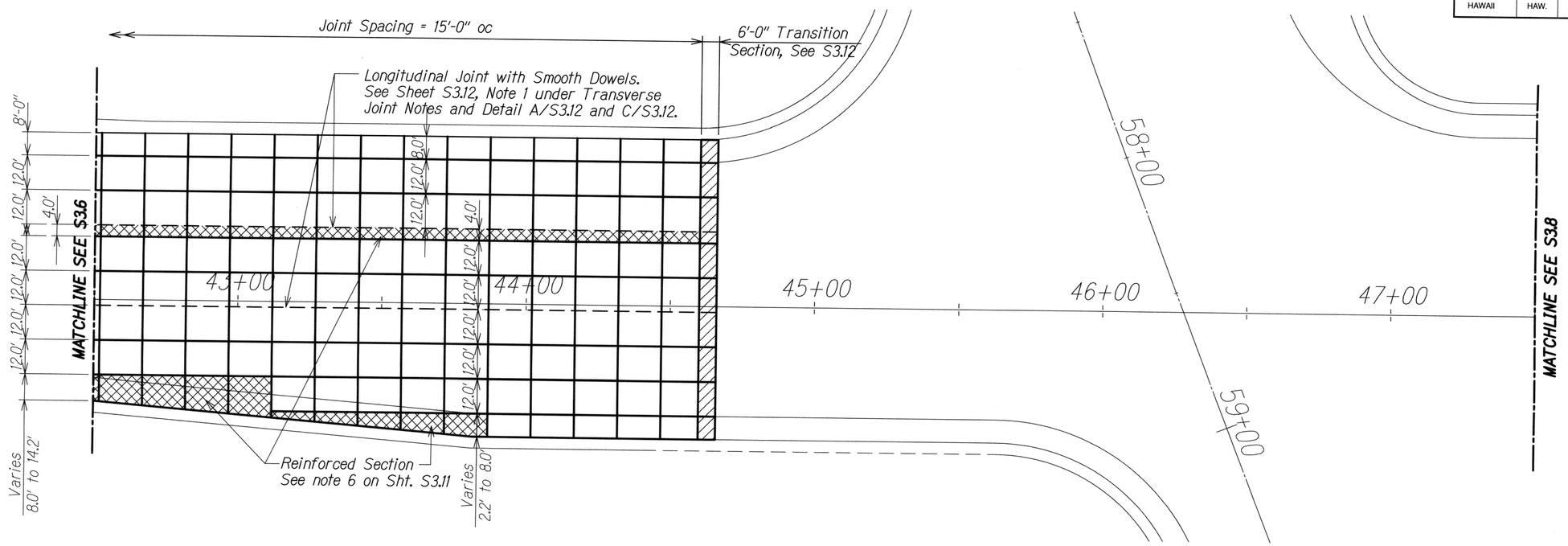
**PLAN - STA. 38+50 TO 42+50**

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)

Scale: As Shown Date: February 2013

SHEET No. S3.6 OF 24 SHEETS

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | NH-0380(10) | 2013 | 135 | 166 |




## PLAN - STA. 42+50 TO 47+50

Scale: 1" = 20'-0"

A S3.7 S3.7

| | | DATE |
|---|---|---|
| ORIGINAL PLAN | SURVEY PLOTTED BY | |
| | DRAWN BY | |
| NOTE BOOK | TRACED BY | |
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| No. | QUANTITIES BY | |
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DRAWING NAME: Z:\00 ONGOING\11-005-KAAR-KAHULUI AIRPORT ACCESS RD-PH1 FA\CAD\02-22-13 BID\KAH-S301.DWG PLOT TIME: 02-22-13, 2:54 PM)

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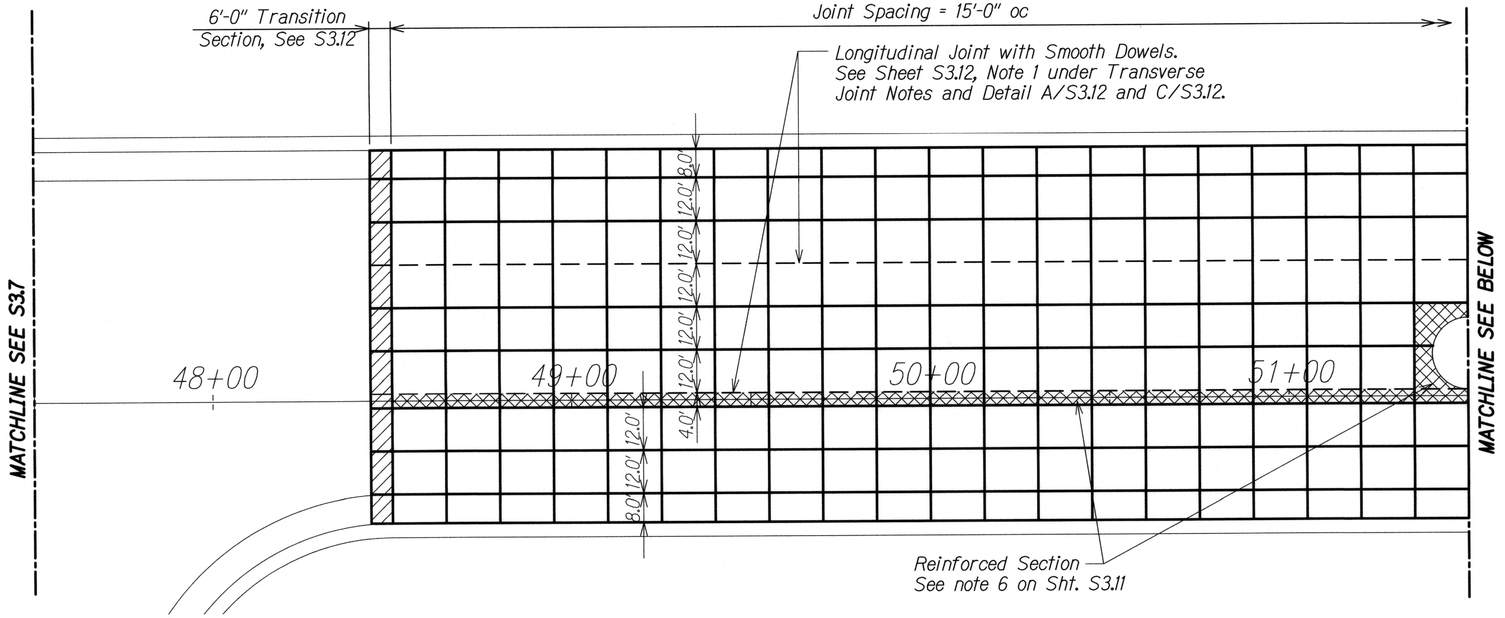
**PLAN - STA. 42+50 TO 47+50**

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)

Scale: As Shown Date: February 2013

SHEET No. S3.7 OF 24 SHEETS

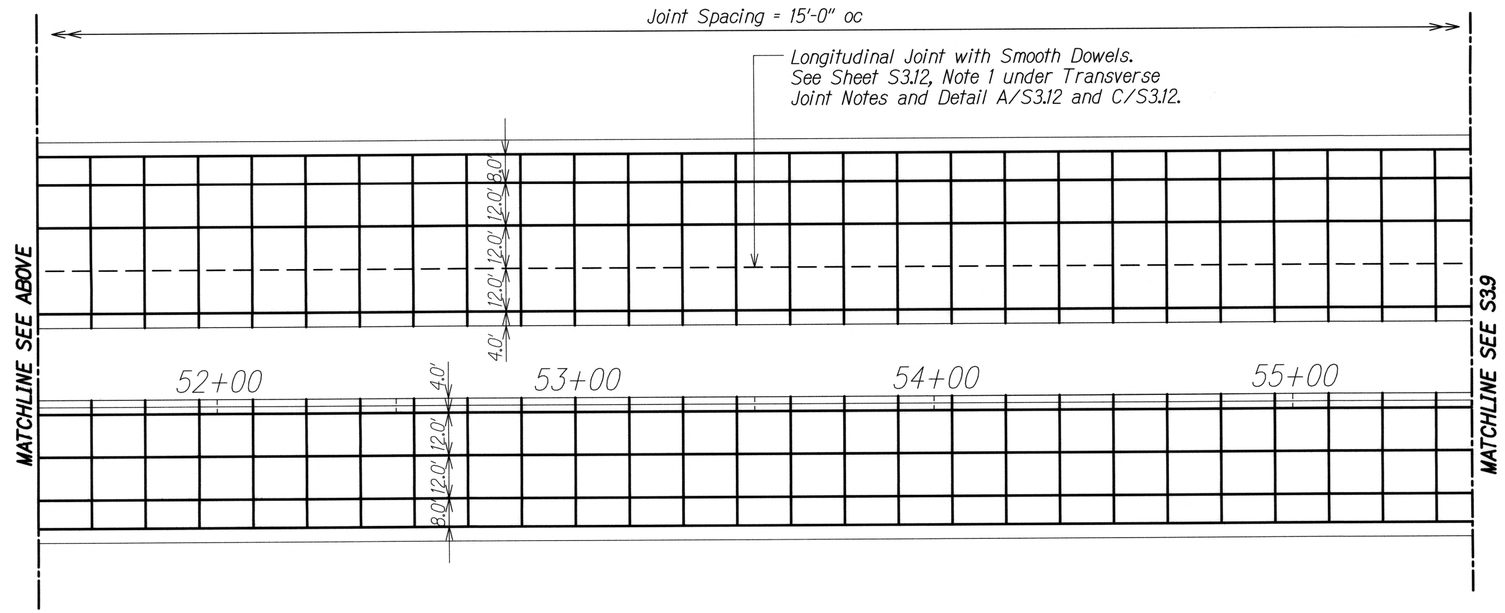
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | NH-0380(10) | 2013 | 136 | 166 |




## PLAN - STA. 47+50 TO 51+50

Scale: 1" = 20'-0"

A S3.8 | S3.8




## PLAN - STA. 51+50 TO 55+50

Scale: 1" = 20'-0"

B S3.8 | S3.8

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

DRAWING NAME: Z:\00_ONGOING\11-006-KAAR-KAHULUI AIRPORT ACCESS RD-PH1 FAV\CAD\02-22-13 BID\KAH-S301.DWG PLOT TIME: 02-22-13, 2:54 PM)

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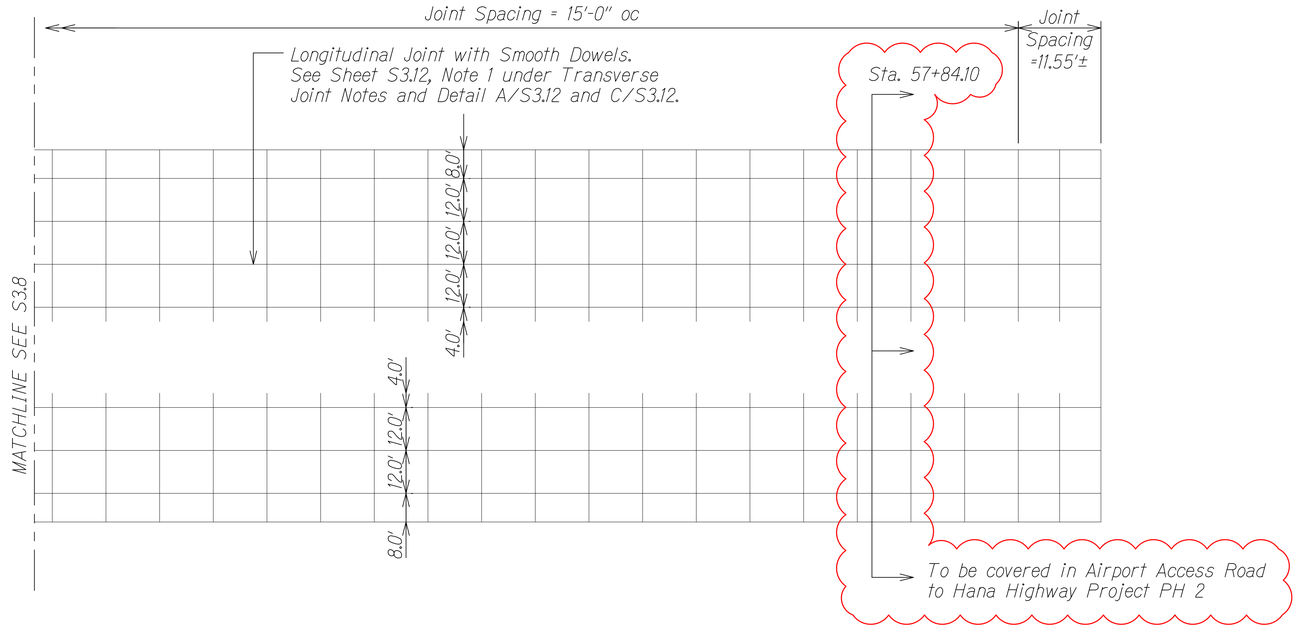
**PLAN - STA. 47+50 TO 55+50**

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)

Scale: As Shown Date: February 2013

SHEET No. S3.8 OF 24 SHEETS

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | NH-0380(10) | 2013 | 137 | 166 |




PLAN - STA. 55+50 TO 58+50 (A S3.9 | S3.9)

Scale: 1" = 20'-0"

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

DRAWING NAME: C:\PROJECTS\KAHULUI-2011\AS-BUILT OCTOBER 2017\STRUCTURAL\KAH-S301-S309.DWG PLOT TIME: 10-18-18, 2:35 PM)

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN - STA. 55+50 TO 58+50

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)

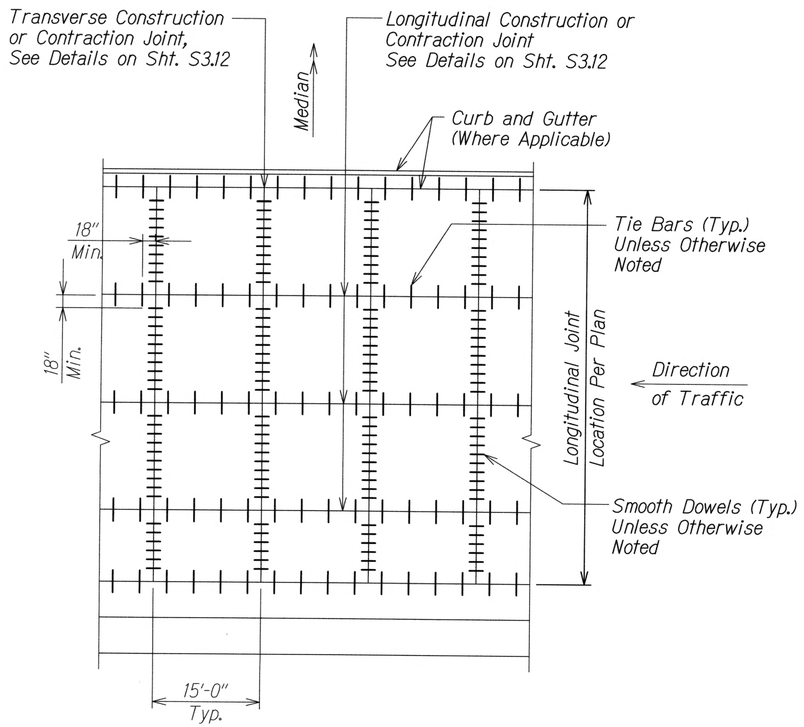
Scale: As Shown Date: February 2013

SHEET No. S3.9 OF 24 SHEETS

AS-BUILT DRAWINGS

"AS-BUILT"

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | NH-0380(10) | 2013 | 138 | 166 |




## TYPICAL JOINT LOCATION AND LAYOUT PLAN FOR CONTANT PCC PAVEMENT

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

A S3.10 | S3.10

### JOINTING NOTES:

1. All new PCC pavements shall be provided with permeable base course with longitudinal underdrains.
2. Space transverse joint at successive intervals as shown on the plan.
3. Locate transverse construction joints at the planned transverse contraction joint.
4. Provide shop drawings for joint layout a minimum of 2-weeks prior to work where obstructions such as manholes are encountered, gore areas, termination of concrete with triangular or add-shaped slabs, and at intersections with other streets.
   a. Longitudinal & transverse joints spacing shall have a ratio of no more than 1.25:1.
   b. Reinforcement along longitudinal joints shall have be provided as shown in the details on sht S3.12 for longitudinal construction or longitudinal contraction joints and as specified in longitudinal joint notes on sheet S3.12.
   c. Reinforcement along transverse joints shall be provided as shown in the details on sheet S3.12 for transverse construction or transverse contraction joints and as specified in transverse joint notes on sheet S3.12.
   d. See sheet S3.11 for additional reinforcement details for odd-shaped PCC pours.
5. For other joints requirements, See section 411 - Portland Cement Concrete Pavement.
6. For locations of longitudinal joints, See Pavement Jointing Plans.

ORIGINAL PLAN | NOTE BOOK | No.

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

DRAWING NAME: Z:\DD ONGOING\11-006-KAAR-KAHULUI AIRPORT ACCESS RD-PH1 FA\CAD\02-22-13 BID\KAH-S310.DWG PLOT TIME: 02-22-13, 2:55 PM

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HIGHWAYS DIVISION

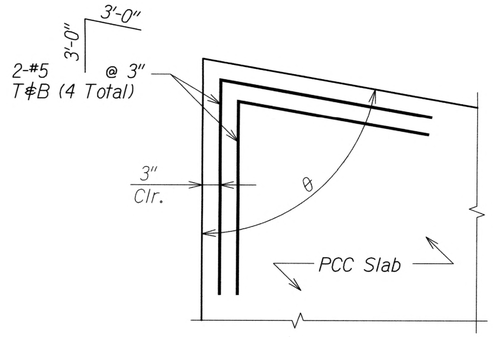
**PAVEMENT JOINTING DETAILS**

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)

Scale: As Shown Date: February 2013

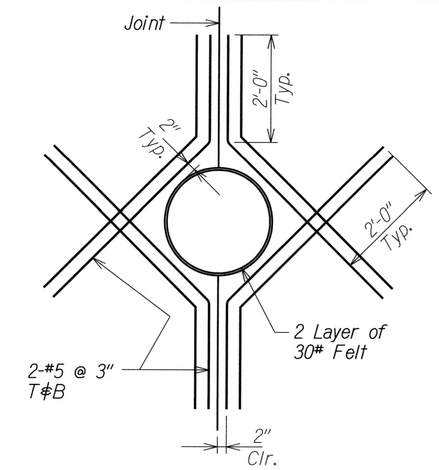
SHEET No. S3.10 OF 24 SHEETS

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | NH-0380(10) | 2013 | 139 | 166 |



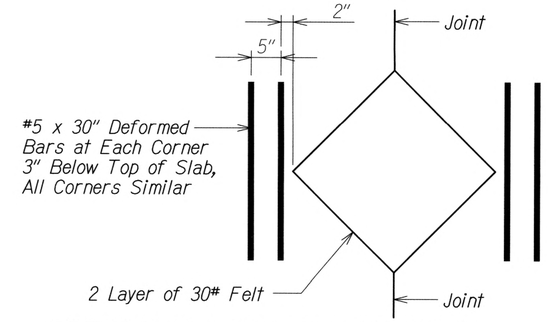

## ADDED REINFORCEMENT AT ODD-SHAPED PCC POURS FOR 0° - 80° PCC EDGE

Not to Scale — A — S3.11 | S3.11



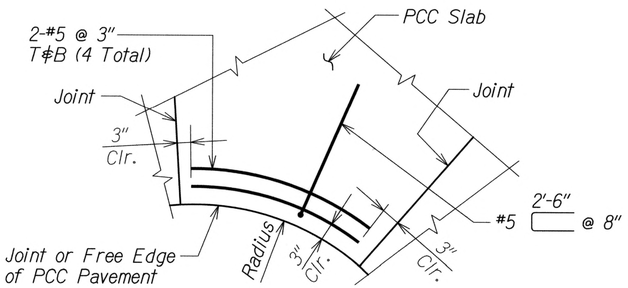

## CIRCULAR OPENING DETAIL

Not to Scale — B — S3.11 | S3.11



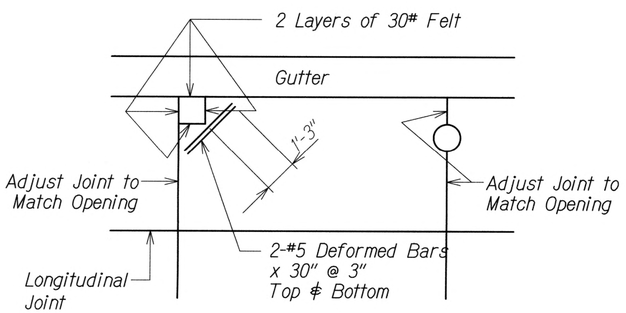

## OPENING W/ CORNERS-CORNERS AT A JOINT DETAIL

Not to Scale — C — S3.11 | S3.11



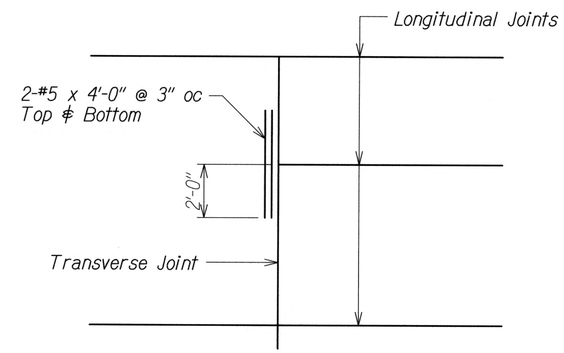

## ADDED REINFORCEMENT AT ODD-SHAPED PCC POURS FOR CURVED PCC EDGE

Not to Scale — D — S3.11 | S3.11



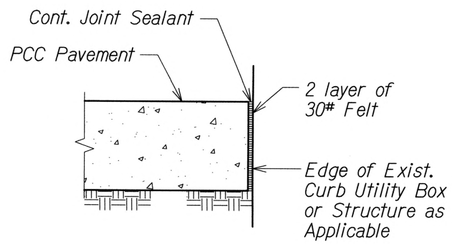

## OPENING NEAR JOINTS DETAIL

Not to Scale — E — S3.11 | S3.11




## ADDED REINFORCEMENT AT MISMATCHED JOINT DETAIL

Not to Scale — F — S3.11 | S3.11




## EXPANSION JOINT DETAIL

Not to Scale — 1 — S3.11 | S3.11

## NOTES:

1. Install isolation joints to allow the slab to move independently of objects that will not move evenly with the slab to minimize stress in the slab.
2. Minimize the amount of openings within the slab to minimize the areas from which cracking occur. Listed below are considerations that can minimize cracking from openings in the slab.
   a. Install reinforcing bars at the corners as shown below.
   b. Use circular opening.
   c. Install the openings along a joint.
3. Locate openings in the slab that require access in a manner that minimized the number of travelway lanes need to be shut down when accessing the openings.
4. Locate openings along joints and configured to minimized the amount of corners within the slab.
5. Avoid locating access openings along or near the longitudinal joints that separate two travelway lanes.
6. Concrete for odd-shapes PCC pours shall contain a minimum of 6 lbs./cy of synthetic structural fiber and 9 lbs/cy of 3mm length alkalai-resistant glass fiber.
7. Top bar clear = 2"
8. Bottom of bar clear = 3"
9. Payment for reinforcement will be considered incidental to various contract items.

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

DRAWING NAME: Z:\00_ONGOING\11-006-KAAR-KAHULUI AIRPORT ACCESS RD-PH1 FA\CAD\02-22-13 BID\KAH-S310.DWG PLOT TIME: 02-22-13, 2:55 PM)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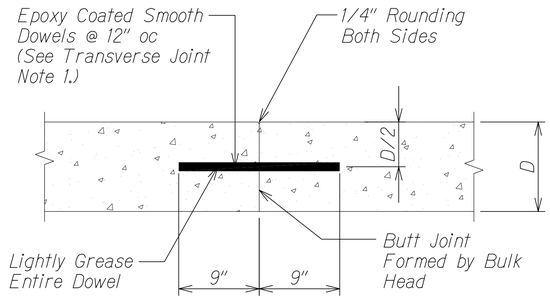
# PAVEMENT JOINTING DETAILS

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)

Scale: As Shown — Date: February 2013

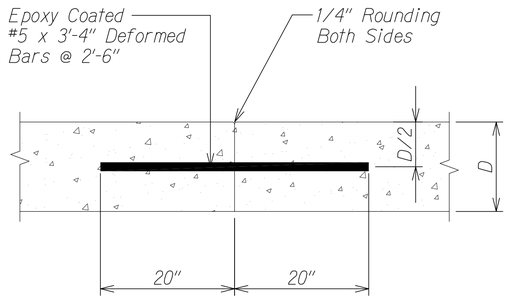
SHEET No. S3.11 OF 24 SHEETS

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | NH-0380(10) | 2013 | 140 | 166 |



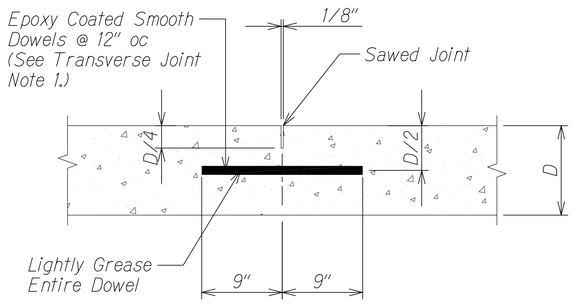

TRANSVERSE CONSTRUCTION JOINT — A — S3.12 | S3.12

Not to Scale



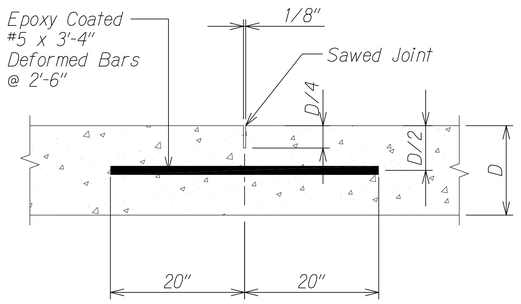

LONGITUDINAL CONSTRUCTION JOINT — B — S3.12 | S3.12

Not to Scale



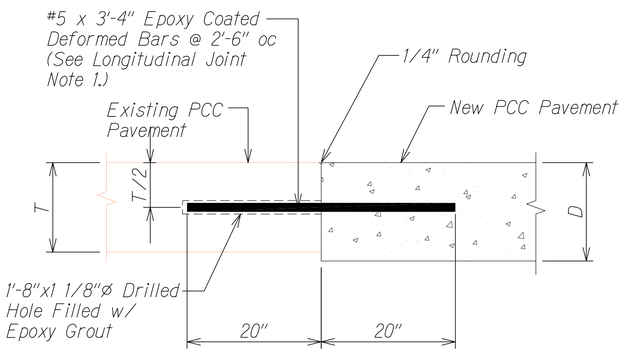

TRANSVERSE CONTRACTION JOINT — C — S3.12 | S3.12

Not to Scale



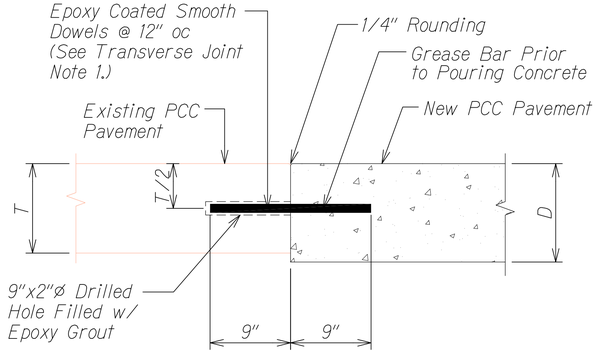

LONGITUDINAL CONTRACTION JOINT — D — S3.12 | S3.12

Not to Scale



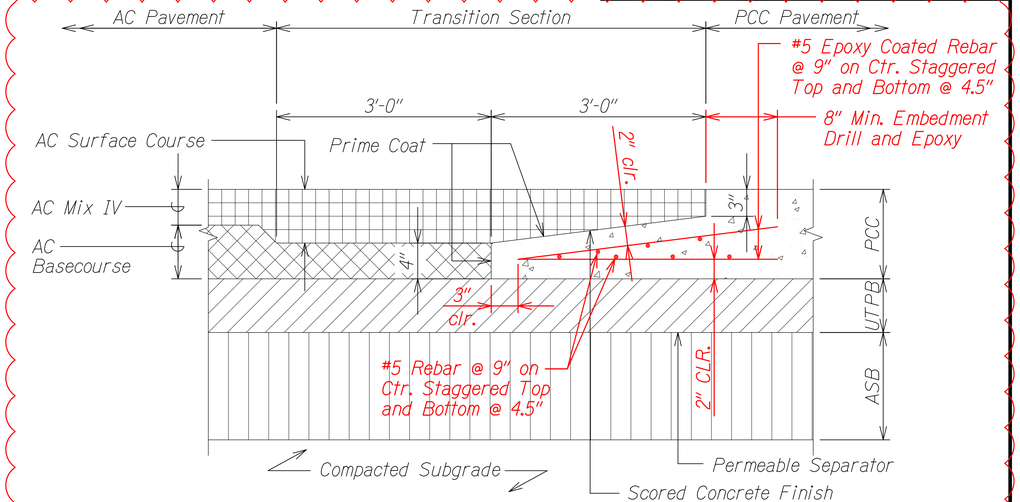

LONGITUDINAL CONSTRUCTION JOINT AT EXISTING PCC PAVEMENT — E — S3.12 | S3.12

Not to Scale




TRANSVERSE CONSTRUCTION JOINT AT EXISTING PCC PAVEMENT — F — S3.12 | S3.12

Not to Scale




PCC-AC PAVEMENT TRANSITION DETAIL — F — S3.12 | S3.12

Not to Scale

## LONGITUDINAL JOINT NOTES:

1. Epoxy-Coated deformed bars shall conform to ASTHTO M 284M/M284-03 and ASTM A 775/A775M-01 (Tie Bars).
2. Tiebars are to be located a minimum distance of 18 inches from a transverse joint.
3. The Contractor shall not damage the epoxy coating on the deformed bars in any way during shipment, handling, or placement. Damaged epoxy-coated deformed bars shall be replaced at no cost to the State.

## TRANSVERSE JOINT NOTES:

1. Epoxy-Coated dowels shall conform to AASHTO M 284 (ASTM A 775). For pavement with D < 10", use 1-1/4 ø x 1'-6" long dowels. For pavements with D ≥ 10", use 1-1/2" ø x 1'-6" long dowels (Smooth dowels).
2. Locate transverse construction joints at the nearest planned transverse contraction joint as shown on the jointing plans. Joint shall be perpendicular to paving lane.
3. It is critical the dowels be positioned in place parallel to the pavement surface and paving lane direction to avoid future cracks in the PCC pavement. The ends of the dowels shall not deviate more than 0.012' from the parallel in 9" length.
4. See sheets S3.1 to S3.9 for typical transverse joint spacing.
5. The contractor shall not damage the epoxy coating on the dowels in any way during shipment, handling or placement. Damaged epoxy-coated dowels or rebar shall be replaced at no cost to the State.

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KSF, INC. — APRIL 30, 2016 LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PAVEMENT JOINTING DETAILS

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)

Scale: As Shown — Date: February 2013

SHEET No. S3.12 OF 24 SHEETS

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

DRAWING NAME: C:\PROJECTS\KAHULUI-2011\AS-BUILT OCTOBER 2017\STRUCTURAL\KAH-S312.DWG PLOT TIME: 10-18-18, 2:55 PM

AS-BUILT DRAWINGS

"AS-BUILT"

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
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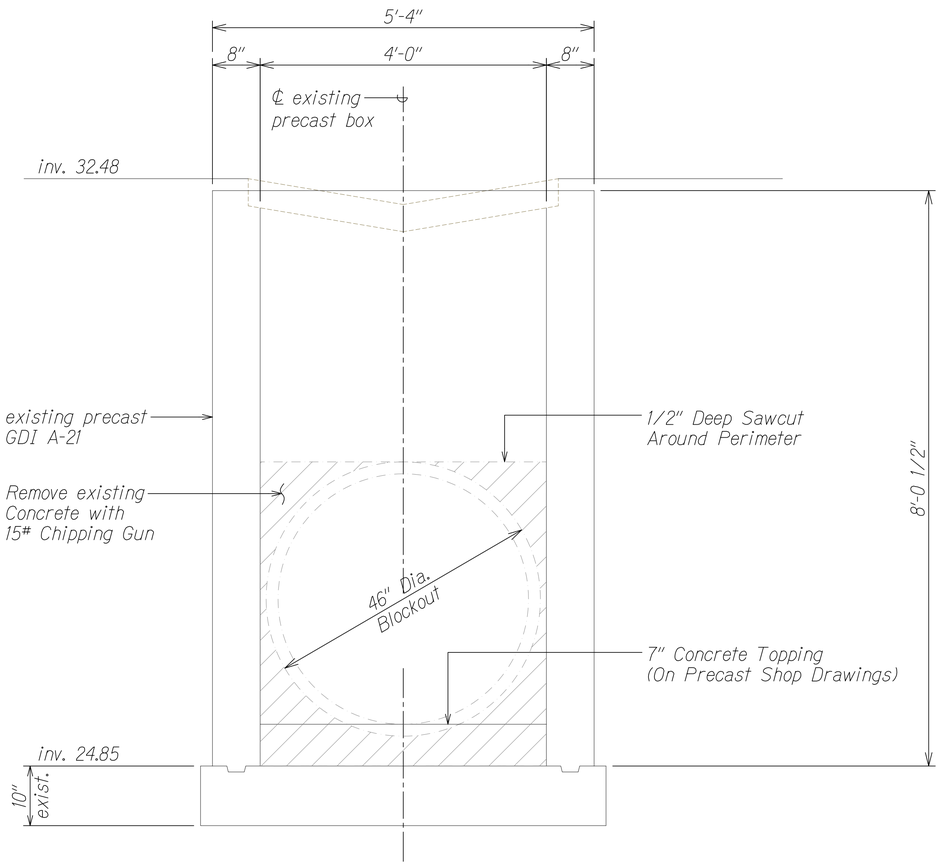
| HAWAII | HAW. | NH-0380(10) | 2013 | C.O. 140S-1 | 166 |




## DEMO ELEVATION A

Scale: 1" = 1'-0"

S4.1 | S4.1

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

DRAWING NAME: C:\PROJECTS\KAHULUI-2011\AS-BUILT OCTOBER 2017\STRUCTURAL\KAH-5401.DWG PLOT TIME: 10-18-18, 2:57 PM)

| DATE | REVISION |
|---|---|
| 11/24/14 | 1 New Sheet |

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EXISTING PRECAST GDI A-21
DEMO ELEVATION

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)

Scale: As Shown Date: February 2013

SHEET No. S4.1 OF 24 SHEETS

AS-BUILT DRAWINGS

"AS-BUILT"

C.O. 140S-1

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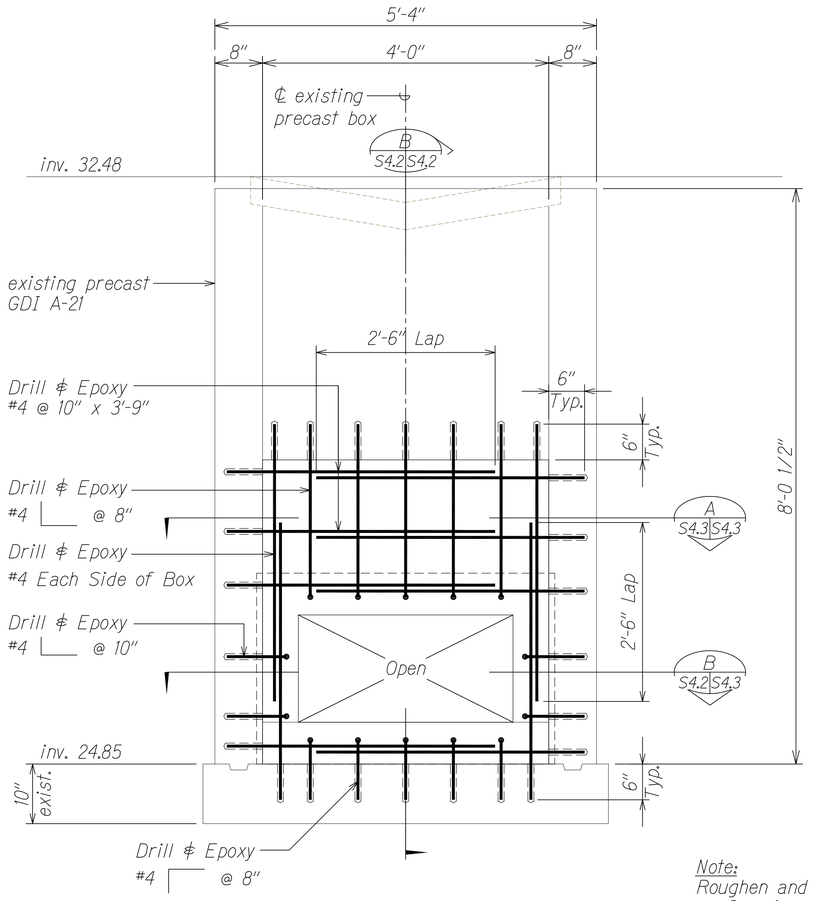
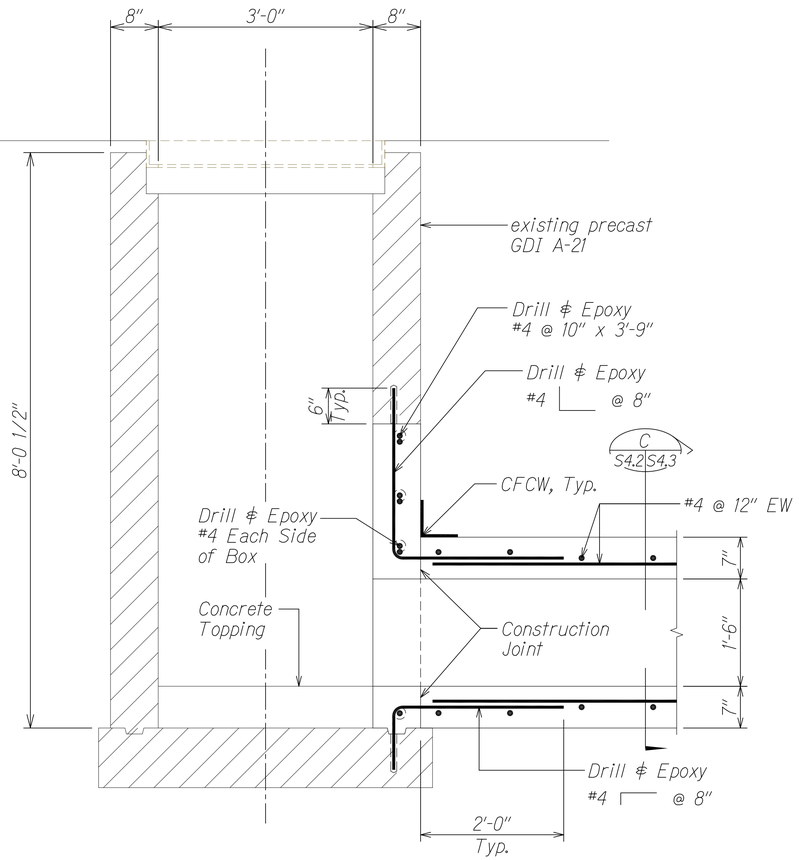



ELEVATION A S4.2 S4.2

Scale: 1" = 1'-0"

Note:
Roughen and clean all existing surface in which new concrete is poured against.




SECTION B S4.2 S4.2

Scale: 1" = 1'-0"

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

DRAWING NAME: C:\PROJECTS\KAHULUI-2011\AS-BUILT OCTOBER 2017\STRUCTURAL\KAH-S402.DWG PLOT TIME: 10-18-18, 3:01 PM)

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PRECAST GDI A-21
ELEVATION AND SECTION

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)

Scale: As Shown Date: February 2013

SHEET No. S4.2 OF 24 SHEETS

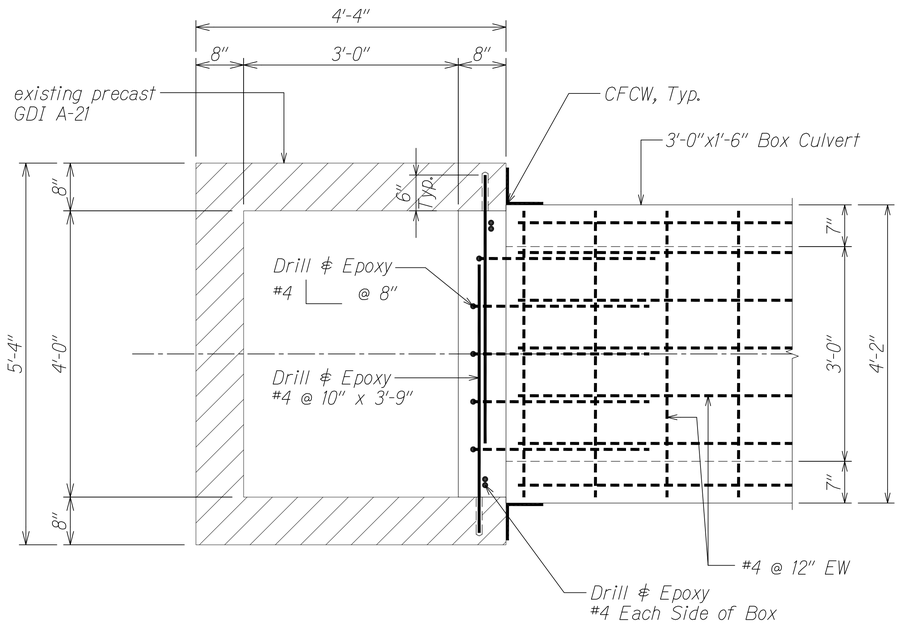
| DATE | REVISION |
|---|---|
| 11/24/14 | New Sheet |

"AS-BUILT"

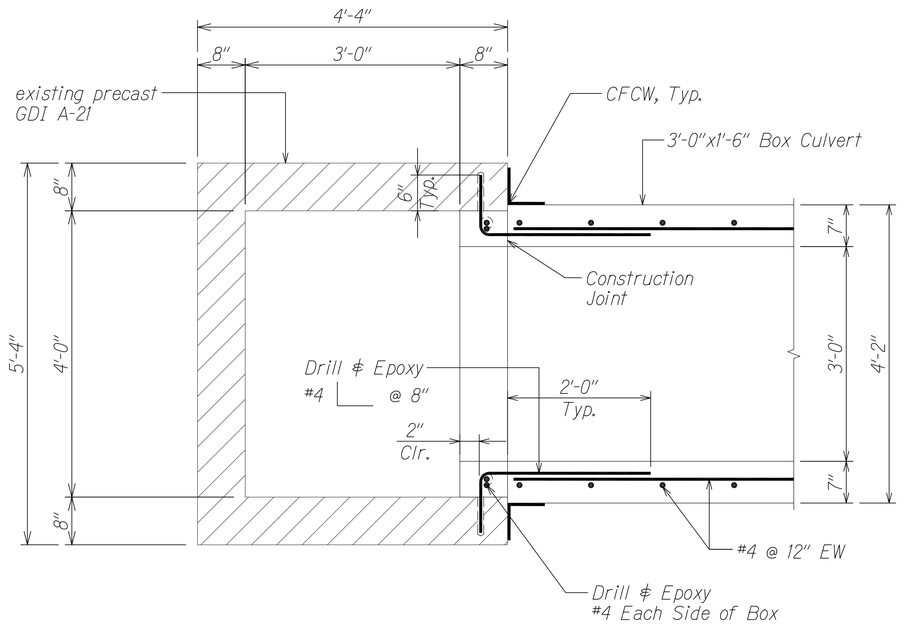
C.O. 140S-2

AS-BUILT DRAWINGS

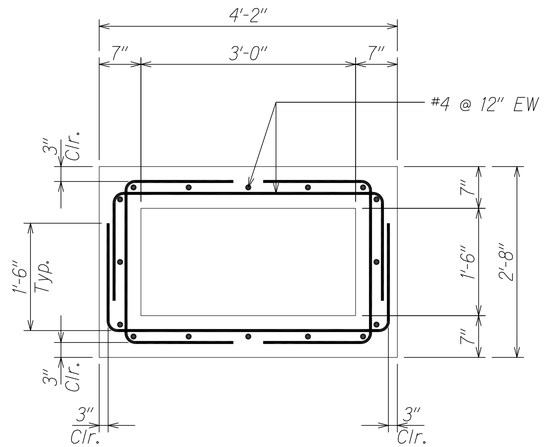
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|
| HAWAII | HAW. | NH-0380(10) | 2013 | C.O. 140S-3 | 166 |




SECTION A
Scale: 1" = 1'-0"
S4.2 | S4.3




SECTION B
Scale: 1" = 1'-0"
S4.2 | S4.3




TYPICAL 3'-0"x1'-6" BOX CULVERT SECTION C
Scale: 1" = 1'-0"
S4.2 | S4.3

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

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| DATE | REVISION |
|---|---|
| 11/24/14 | - New Sheet |

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

# PRECAST GDI A-21
# SECTIONS

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)
Scale: As Shown Date: February 2013

SHEET No. S4.3 OF 24 SHEETS

AS-BUILT DRAWINGS

"AS-BUILT"

C.O. 140S-3

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
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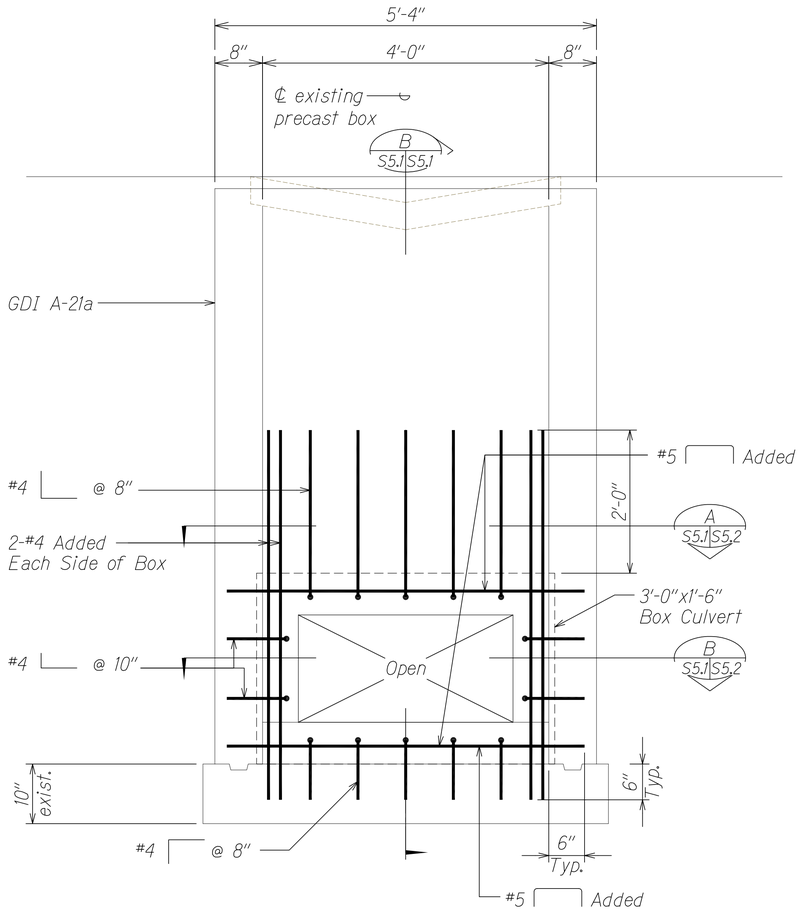
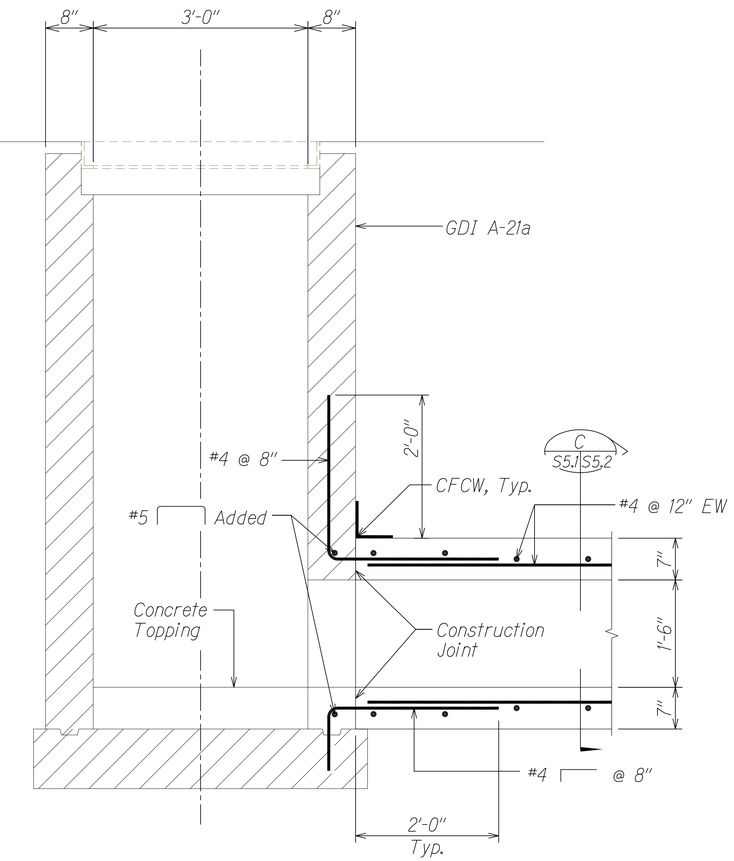
| HAWAII | HAW. | NH-0380(10) | 2013 | C.O. 140S-4 | 166 |




ELEVATION A S5.1 S5.1
Scale: 1" = 1'-0"




SECTION B S5.1 S5.1
Scale: 1" = 1'-0"

Note:
All details and reinforcing for GDI shall follow the 2008 State of Hawaii Highways Division Standard Plans unless otherwise noted.

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

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| DATE | REVISION |
|---|---|
| 11/24/14 | - New Sheet |

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

# PRECAST GDI A-21a ELEVATION AND SECTION

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)
Scale: As Shown Date: February 2013

SHEET No. S5.1 OF 24 SHEETS

AS-BUILT DRAWINGS

"AS-BUILT"

C.O. 140S-4

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
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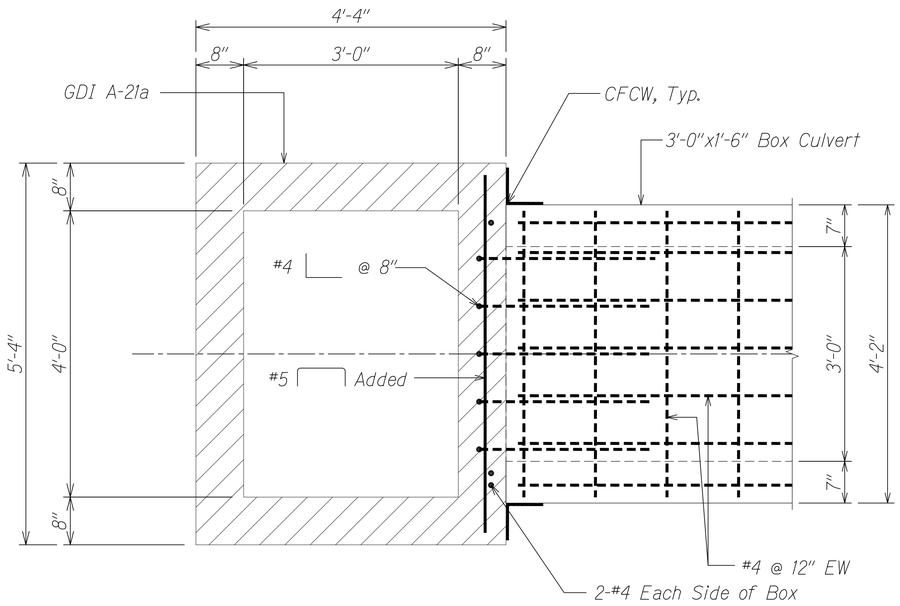
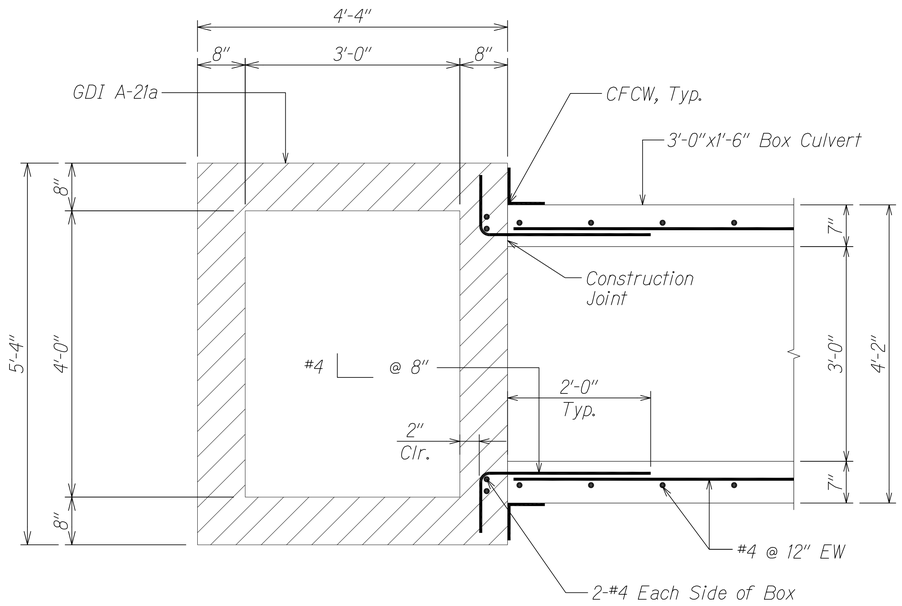
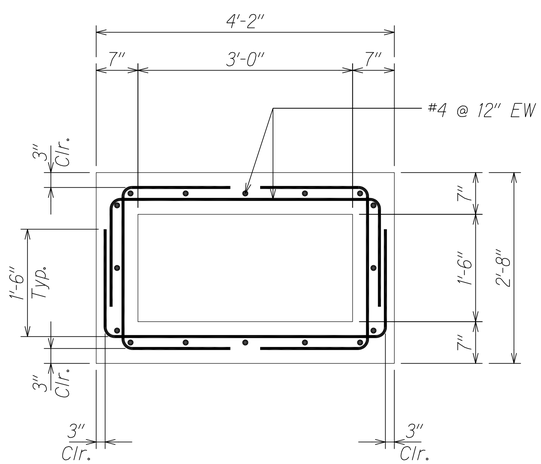
| HAWAII | HAW. | NH-0380(10) | 2013 | C.O. 140S-5 | 166 |




SECTION A
Scale: 1" = 1'-0"
S5.1 | S5.2




SECTION B
Scale: 1" = 1'-0"
S5.1 | S5.2




TYPICAL 3'-0"x1'-6" BOX CULVERT SECTION C
Scale: 1" = 1'-0"
S5.1 | S5.2

ORIGINAL PLAN
NOTE BOOK
No.

SURVEY PLOTTED BY
DRAWN BY
TRACED BY
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QUANTITIES BY
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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PRECAST GDI A-21a
SECTIONS

KAHULUI AIRPORT
ACCESS ROAD, PHASE I
Federal Aid Project No. NH-0380(10)

Scale: As Shown Date: February 2013

SHEET No. S5.2 OF 24 SHEETS

| DATE | REVISION |
|---|---|
| 11/24/14 | - New Sheet |

"AS-BUILT"

C.O. 140S-5

AS-BUILT DRAWINGS